Aviation Communication and Surveillance Systems	**T^3CAS** **TEST REQUIREMENTS DOCUMENT (TRD)**

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1 INTRODUCTION

This document is the Test Requirements Document (TRD) for the T^{3}CAS Computer Unit.

1.1 Purpose

The purpose of this document is to define the specifications and test methods required for testing a T^{3}CAS LRU.

1.2 Scope

This Test Requirements Document establishes the requirements for performing an End Item Acceptance Test on a T^{3}CAS Line Replaceable Unit (LRU).

1.3 References

Table 1-1: Referenced ACSS Documents

Document No.	Description
8007372-001	T^{3}CAS Integrated Platform Systems Requirements Specification (SRS) for Release 1
8007502-001	T^{3}CAS Processor Companion FPGA Hardware Requirements Document (HRD)
8007507-001	T^{3}CAS I/O Controller FPGA Hardware Requirements Document (HRD)
8007512-001	T^{3}CAS TCAS Receiver FPGA Hardware Requirements Document (HRD)
8007517-001	T^{3}CAS XPDR Receiver FPGA Hardware Requirements Document (HRD)
8007522-001	T^{3}CAS TX FPGA Hardware Requirements Document (HRD)
8007528-001	T^{3}CAS Integrated Platform Hardware Requirements Document (HRD)
8007548-001	T^{3}CAS Acceptance Test Procedure (ATP)
8007550-001	Wind River Emulator Setup Procedures for T^{3}CAS Common Processor Assembly
9003090-001	T^{3}CAS CPA CCA Test Fixture
9005000-10000	T^{3}CAS End Item Assembly – 6-MCU (AC/DC)
9005039-001	T^{3}CAS End Item Test Station

1.4 Definitions

1.4.1 Acronyms and Abbreviations

Table 1-2: Acronyms and Abbreviations

Acronym	Definition
ACSS	Aviation Communication and Surveillance Systems
AIU	Aircraft Interface Unit
ARINC	Aeronautical Radio, Inc.
ATP	Acceptance Test Procedure
BITE	Built-In Test Equipment
CCP	Common Computing Platform
CPA	Common Processor Assembly
CPLD	Complex Programmable Logic Device
CRC	Cyclic Redundancy Check
ECC	Error Checking and Correction
EIT	End Item Test

Table 1-2: Acronyms and Abbreviations

Acronym	Definition
EPROM	Erasable Programmable Read-Only Memory
EEPROM	Electrically Erasable Programmable Read-Only Memory
ESS	Environment Stress Screening
FPGA	Field Programmable Gate Array
GPS	Global Positioning System
HBM	Heartbeat Monitor
HRD	Hardware Requirements Document
HTS	Hardware Test Software
I^2C	Inter-Integrated Circuit
IC	Integrated Circuit
I/O	Input/Output
JTAG	Joint Test Action Group
LBP	Left Bottom Plug
LRU	Line Replaceable Unit
MMU	Memory Management Unit
P1	Processor 1
P2	Processor 2
P3	Processor 3
PC	Personal Computer
PCI	Peripheral Components Interconnect
PDL	Portable Data Loader
QA	Quality Assurance
RF	Radio Frequency
RFIU	Radio Frequency (RF) Interface Unit
SDRAM	Synchronous Dynamic Random Access Memory
STIV	Switching Threshold Input Voltage
TCAS	Traffic Collision Avoidance System ≈ Airborne Collision Avoidance System
TRD	Test Requirements Document
UART	Universal Asynchronous Receiver/Transmitter
UUT	Unit Under Test
VALFAC	Validation Facility
VSWR	Voltage Standing Wave Ratio
WVT	Working Voltage Threshold
XPDR	Transponder

2 GENERAL INFORMATION

2.1 General Requirements

The following conditions are recommended for performing tests on a T^3CAS LRU:

Power to the UUT should be removed before attaching or removing any interconnecting systems.

2.2 General RF Test Requirements

Step 1. All antenna ports must be terminated in 50 ohms while power is applied to the UUT.

- Test equipment connected to the antenna ports must have a voltage standing wave ratio (VSWR) of less than 1.5:1.
- Test equipment connected to the antenna ports shall withstand peak power levels of at least 1000 W and average power levels of at least 2 W.
- RF power values are specified as measured at the rear connector of the UUT. If cabling or test equipment introduces losses into the measurement, these losses shall be allowed for in the values reported by the test equipment.
- Figure 2-1 shows the basic characteristics which define a pulse.

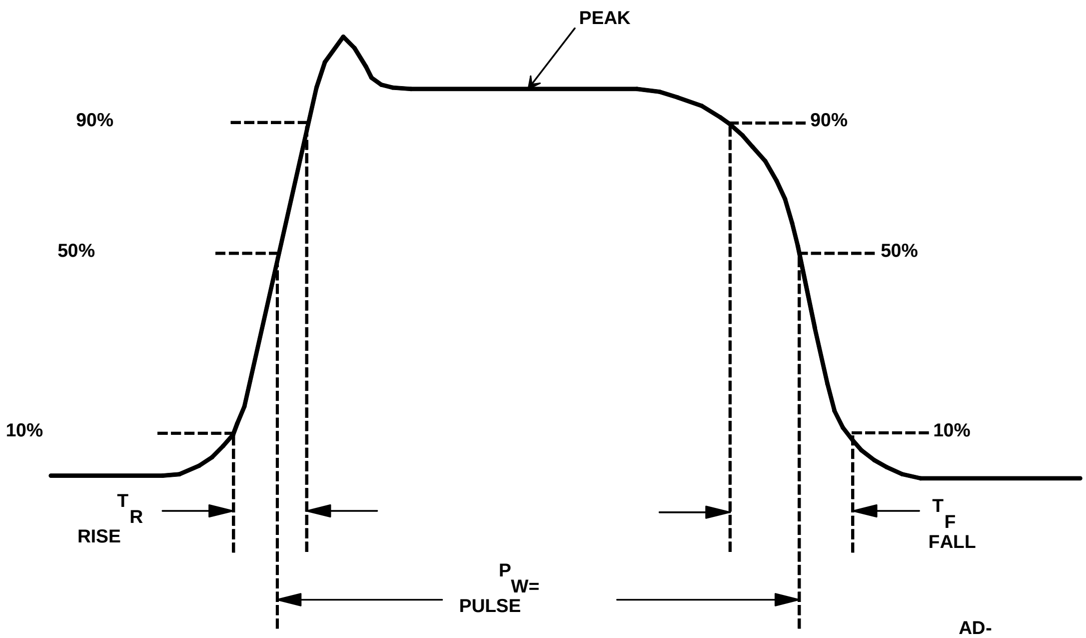

Figure 2-1: Basic Pulse Measurements

2.3 Power Requirements

The following are power requirements for operating the test equipment:

- 115 Vac, 60 Hz, 20 A, standard service power for test equipment operation.

3 TEST EQUIPMENT REQUIREMENTS

3.1 Test Equipment Hardware

The T^3CAS End Item Test Station, part number 9005039-001, is the test equipment hardware required to perform the tests.

3.2 Test Equipment Software

If a T^3CAS End Item Test Station is to be used for performing the tests described in this document, the testing process may be automated using a version of the 'C' language, such as a National Instruments LabWindows CVI version.

Hardware Test Software (HTS) must be loaded into the UUT prior to executing the tests described in this document.

The test software protocol operates on command/response architecture. Commands are sent to the HTS from a test PC via RS232. Responses or results are returned to the test PC where they may be post-processed by automation software.

3.3 Test Equipment / UUT Setup

Figure 3-1 shows the T^3CAS Architectural Block Diagram. Figure 3-2 shows a typical interconnection between the End Item Test Station test equipment and the UUT for performing the tests described in this document.

Step 1. Power up ACSS and commercial test equipment and allow it to warm up for at least 30 minutes. Verify that the test equipment used is calibrated and functioning properly.

Step 2. For the equipment that is being used for communications (bench PC or End Item Test Station) Connect an RS232 Com port to the UUT as follows:

Connect RS232 port Tx pin To UUT PDL connector pin 40 (Rx)

Connect RS232 port Rx pin To UUT PDL connector pin 41 (Tx)

Connect RS232 port Gnd pin To UUT PDL connector pin 48 (Gnd)

Step 3. From the PC, launch HyperTerminal (or an application with similar capabilities, i.e. Labwindows, etc.) and setup the RS232 port for the following:

Baud rate = 115200

Number of bits = 8

Parity = None

Stop Bits = 1

Flow Control = None

Note: The test equipment / UUT setup assumes HTS has been loaded into the UUT.

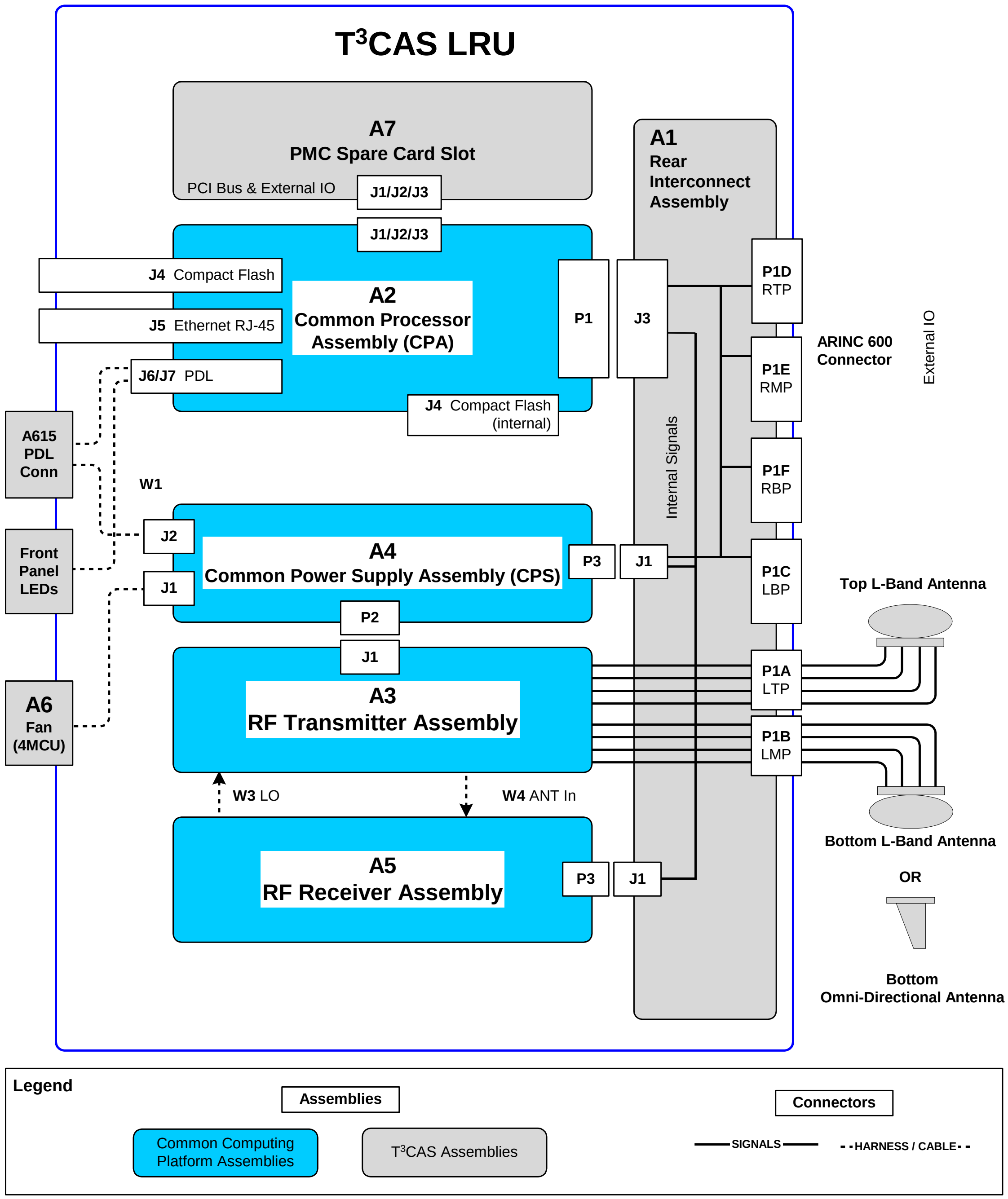

Figure 3-1: T3CAS Architectural Block Diagram

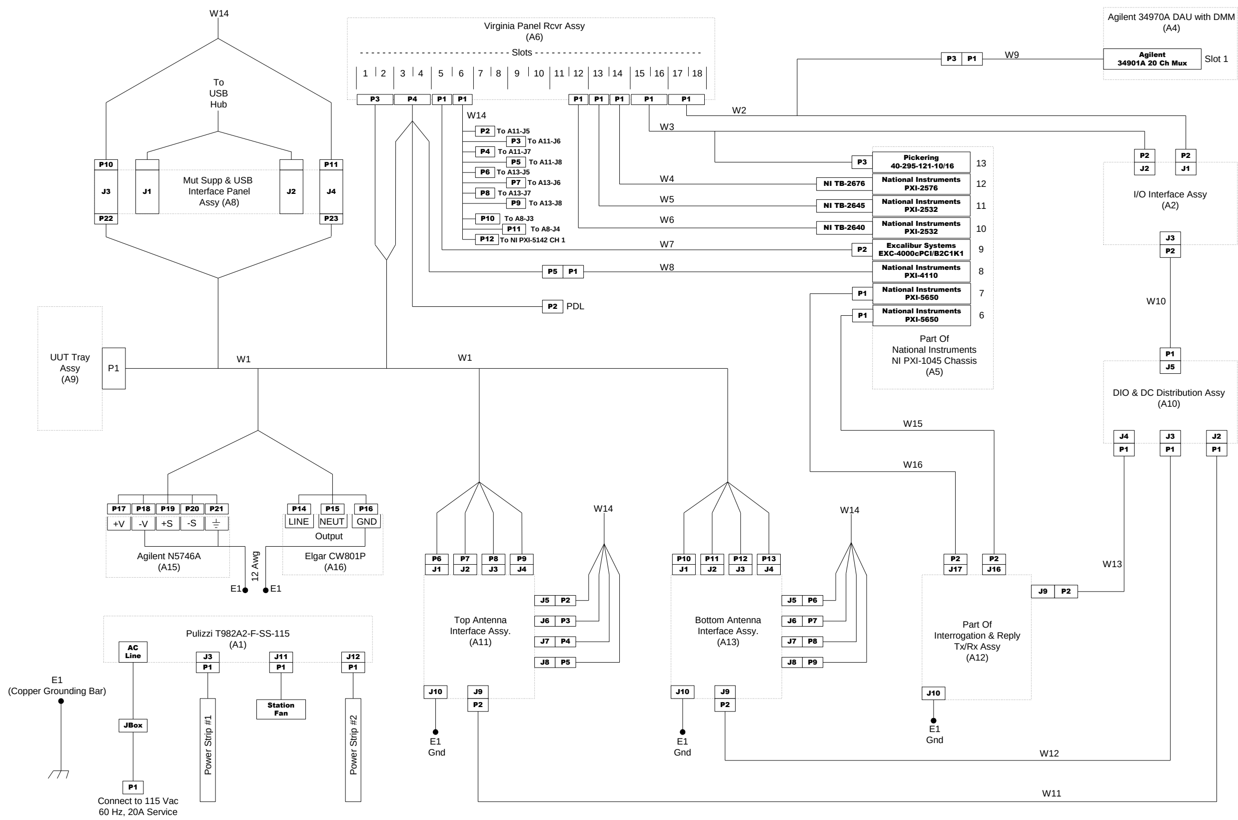

Figure 3-2: T^{3}CAS End Item Test Station Interconnect Wiring Diagram

4 TEST REQUIREMENTS

4.1 Standby Input Power Tests [Group 1 to 2]

4.1.1 Standby DC Input Power Tests [Group 1]

The following tests will verify that the DC Input Power circuitry is functioning correctly.

Note: The following tests are only to be performed on a UUT that is able to accept DC input power.

4.1.1.1 Standby Input Power at Low Vdc (+20.5 Vdc) Test

The following steps will verify that the DC input power is within specifications when +20.5 Vdc is applied to the UUT DC input power pins. The internal +70Vdc will also be verified to be within specification.

Step 1. If the UUT has input power applied, remove the input power before continuing.

Step 2. Connect the DC power supply positive output (+) to UUT pin LBP-10. Connect the DC power supply negative output (-) to UUT pin LBP-3.

Step 3. Set the DC power supply to +20.5 Vdc (±0.25 Vdc).

Step 4. Read the current sourced from the power supply and verify the UUT input power is as follows: 40 W ≤ reading ≤ 88 W.

Step 5. Execute the following HTS commands to read the internal +70.0 Vdc monitor: “A2WDC P1 11 1”, “ANRDC P1 11 4 V N F”.

Step 6. Verify that the returned value is +70.0 Vdc (-4.8 Vdc, +4.94 Vdc).

Step 7. Turn the DC power supply off.

4.1.1.2 Standby Input Power at High Vdc (+35.0 Vdc) Test

The following steps will verify that the DC input power is within specifications when +35.0 Vdc is applied to the UUT DC input power pins. The internal +70Vdc will also be verified to be within specification.

Step 1. Set the DC power supply to +35.0 Vdc (±0.25 Vdc).

Step 2. Read the current sourced from the power supply and verify the UUT input power is as follows: 40 W ≤ reading ≤ 88 W.

Step 3. Execute the following HTS commands to read the internal +70.0 Vdc monitor: “A2WDC P1 11 1”, “ANRDC P1 11 4 V N F”.

Step 4. Verify that the returned value is +70.0 Vdc (-4.8 Vdc, +4.94 Vdc).

Step 5. Turn the DC power supply off.

4.1.1.3 PDL DC Power (+27.5 Vdc) Test

The following steps will verify that the PDL DC power is within specifications.

Step 1. Set the DC power supply to +27.5 Vdc (±0.25 Vdc).

Step 2. Setup the DMM for a DCV measurement. Connect the DMM positive input (+) to PDL pin 37 and connect the DMM negative input (-) to PDL pin 38.

Step 3. Verify the DMM reads +27.5Vdc (±1.5 Vdc).

Step 4. Disconnect the DMM from the UUT PDL connector.

Step 5. Turn the DC power supply off.

4.1.2 Standby AC Input Power Tests [Group 2]

The following tests will verify that the AC Input Power circuitry is functioning correctly

Note: The following tests are only to be performed on a UUT that is able to accept AC input power.

4.1.2.1 Standby Input Power at Low Vac/Low Frequency (97 Vrms/320 Hz) Test

The following steps will verify that the AC Input power is within specifications when 97 Vrms/320 Hz is applied to the UUT AC input power pins. The internal +70Vdc will also be verified to be within specification.

Step 1. If the UUT has input power applied, remove the input power before continuing.

Step 2. Connect the AC power supply output (H) to UUT pin LBP-1 and AC power supply output (C) to UUT pin LBP-7.

Step 3. Set the AC power supply for 97 Vrms (±2 Vrms) and 320 Hz.

Step 4. Read the current sourced from the power supply and verify the UUT input power is as follows: 40 W ≤ reading ≤ 88 W.

Step 5. Execute the following HTS commands to read the internal +70.0 Vdc monitor: “A2WDC P1 11 1”, “ANRDC P1 11 4 V N F”.

Step 6. Verify that the returned value is +70.0 Vdc (-4.8 Vdc, +4.94 Vdc).

Step 7. Turn the AC power supply off.

4.1.2.2 Standby Input Power at Low Vac/High Frequency (97 Vrms/480 Hz) Test

The following steps will verify that the AC Input power is within specifications when 97 Vrms/480 Hz is applied to the UUT AC input power pins. The internal +70Vdc will also be verified to be within specification.

Step 1. Set the AC power supply to 97 Vrms (±2 Vrms) and 480 Hz.

Step 2. Read the current sourced from the power supply and verify the UUT input power is as follows: 40 W ≤ reading ≤ 88 W.

Step 3. Execute the following HTS commands to read the internal +70.0 Vdc monitor: “A2WDC P1 11 1”, “ANRDC P1 11 4 V N F”.

Step 4. Verify that the returned value is +70.0 Vdc (-4.8 Vdc, +4.94 Vdc).

Step 5. Turn the AC power supply off.

4.1.2.3 Standby Input Power at High Vac/Low Frequency (134 Vrms/320 Hz) Test

The following steps will verify that the AC Input power is within specifications when 134 Vrms/320 Hz is applied to the UUT AC input power pins. The internal +70Vdc will also be verified to be within specification.

Step 1. Set the AC power supply to 134 Vrms (±2 Vrms) and 320 Hz.

Step 2. Read the current sourced from the power supply and verify the UUT input power is as follows: 40 W ≤ reading ≤ 88 W.

Step 3. Execute the following HTS commands to read the internal +70.0 Vdc monitor: “A2WDC P1 11 1”, “ANRDC P1 11 4 V N F”.

Step 4. Verify that the returned value is +70.0 Vdc (-4.8 Vdc, +4.94 Vdc).

Step 5. Turn the AC power supply off.

4.1.2.4 Standby Input Power at High Vac/High Frequency (134 Vrms/480 Hz) Test

The following steps will verify that the AC Input power is within specifications when 134 Vrms/480 Hz is applied to the UUT AC input power pins. The internal +70Vdc will also be verified to be within specification.

Step 1. Set the AC power supply to 134 Vrns (±2 Vrms) and 480 Hz.

Step 2. Read the current sourced from the power supply and verify the UUT input power is as follows: 40 W ≤ reading ≤ 88 W.

Step 3. Execute the following HTS commands to read the internal +70.0 Vdc monitor: “A2WDC P1 11 1”, “ANRDC P1 11 4 V N F”.

Step 4. Verify that the returned value is +70.0 Vdc (-4.8 Vdc, +4.94 Vdc).

Step 5. Turn the AC power supply off.

4.1.2.5 PDL AC Power (115 Vrms/400 Hz) Test

The following steps will verify that the PDL AC power is within specifications.

Step 1. Set the AC power supply to 115 Vrms (±2 Vrms) and 400 Hz.

Step 2. Setup the DMM for an ACVrms measurement. Connect the DMM positive input (+) to UUT PDL pin 20 and connect the DMM negative input (-) to UUT PDL pin 22.

Step 3. Verify that the DMM reads 115 Vac (±1.5 Vac).

Step 4. Disconnect the DMM from the UUT PDL connector.

Step 5. Turn the AC power supply off.

4.1.2.6 Fan AC Power (115 Vrms/400 Hz) Test

The following steps will verify that the Fan AC power is within specifications.

Step 1. Set the AC power supply to 115 Vrms (±2 Vrms) and 400 Hz.

Step 2. Setup the DMM for an ACVrms measurement.

Step 3. Connect the AC power supply output (H) to UUT pin LBP-5 and AC power supply output (C) to UUT pin LBP-9.

Step 4. Verify that the DMM reads 115 Vac (±1.5 Vac).

Step 5. Disconnect the DMM from the UUT.

Step 6. Turn the AC power supply off.

4.2 Voltage Monitor Tests [Group 3]

The following tests will verify that the internal voltage monitor circuitry is functioning correctly and that the internal fixed voltages are within specifications.

4.2.1 Internal Voltage Monitor (+1.2 Vdc) Test

The following steps will verify that the internal +1.2 Vdc is within specifications.

Step 1. Execute the following HTS commands to read the internal +1.2 Vdc: “A2WDC P1 0 1”, “ANRDC P1 0 4 V N F”.

Step 2. Verify that the returned value is +1.2 Vdc (± 0.100 Vdc).

4.2.2 Internal Voltage Monitor (+2.0 Vdc) Test

The following steps will verify that the internal +2.0 Vdc is within specifications.

Step 1. Execute the following HTS commands to read the internal +2.0 Vdc: “A2WDC P1 2 1”, “ANRDC P1 2 4 V N F”.

Step 2. Verify that the returned value is +2.0 Vdc (± 0.100 Vdc).

4.2.3 Internal Voltage Monitor (+2.5 Vdc) Test

The following steps will verify that the internal +2.5 Vdc is within specifications.

Step 1. Execute the following HTS commands to read the internal +2.5 Vdc: “A2WDC P1 4 1”, “ANRDC P1 4 4 V N F”.

Step 2. Verify that the returned value is +2.5 Vdc (± 0.150 Vdc)

4.2.4 Internal Voltage Monitor (-2.5 Vdc) Test

The following steps will verify that the internal -2.5 Vdc is within specifications.

Step 1. Execute the following HTS commands to read the internal -2.5 Vdc: “A2WDC P1 5 1”, “ANRDC P1 5 4 V N F”.

Step 2. Verify that the returned value is -2.5 Vdc (± 0.150 Vdc).

4.2.5 Internal Voltage Monitor (+3.3 Vdc) Test

The following steps will verify that the internal +3.3 Vdc is within specifications.

Step 1. Execute the following HTS commands to read the internal +3.3 Vdc: “A2WDC P1 18 1”, “ANRDC P1 18 4 V N F”.

Step 2. Verify that the returned value is 3.3 Vdc (± 0.150 Vdc).

4.2.6 Internal Voltage Monitor (+5V Filter) Test

The following steps will verify that the internal +5.0 V Filter is within specifications.

Step 1. Execute the following HTS commands to read the internal +5V Filter: “A2WDC P1 3 1”, “ANRDC P1 3 4 V N F”.

Step 2. Verify that the returned value is +5.0 Vdc (± 0.250 Vdc).

4.2.7 Internal Voltage Monitor (-5V Filter) Test

The following steps will verify that the internal -5 V Filter is within specifications.

Step 1. Execute the following HTS commands to read the internal -5V Filter: “A2WDC P1 20 1”, “ANRDC P1 20 4 V N F”.

Step 2. Verify that the returned value is -5 Vdc (± 0.500 Vdc).

4.2.8 Internal Voltage Monitor (+8 Vdc) Test

The following steps will verify that the internal +8 Vdc is within specifications.

Step 1. Execute the following HTS commands to read the internal +8 Vdc: “A2WDC P1 12 1”, “ANRDC P1 12 4 V N F”.

Step 2. Verify that the returned value is +8 Vdc (-0.510, +0.420 Vdc)

4.2.9 Internal Voltage Monitor (+12 Vdc for APM) Test

The following steps will verify that the internal +12 Vdc for APM is within specifications.

Step 1. Execute the following HTS commands to read the internal +12 Vdc: “A2WDC P1 9 1”, “ANRDC P1 9 4 V N F”.

Step 2. Verify that the returned value is +12 Vdc (-2.560, +2.600 Vdc).

4.2.10 Internal Voltage Monitor (+15V Filter) Test

The following steps will verify that the internal +15V Filtered is within specifications.

Step 1. Execute the following HTS commands to read the internal +15V Filtered: “A2WDC P1 16 1”, “ANRDC P1 16 4 V N F”.

Step 2. Verify that the returned value is +15.0 Vdc (± 0.850 Vdc).

4.2.11 Internal Voltage Monitor (-15V Filter) Test

The following steps will verify that the internal -15V Filtered is within specifications.

Step 1. Execute the following HTS commands to read the internal -15V Filtered: “A2WDC P1 17 1”, “ANRDC P1 17 4 V N F”.

Step 2. Verify that the returned value is -15.0 Vdc (± 0.850 Vdc).

4.2.12 Internal Voltage Monitor (+28 Vdc) Test

The following steps will verify that the internal +28 Vdc is within specifications.

Step 1. Execute the following HTS commands to read the internal +28 Vdc: “A2WDC P1 8 1”, “ANRDC P1 8 4 V N F”.

Step 2. Verify that the returned value is +28 Vdc (± 0.800 Vdc).

4.2.13 Intenal Voltage Monitor (+32 Vdc) Test

The following steps will verify that the internal +32 Vdc is within specifications.

Step 1. Execute the following HTS commands to read the internal +32 Vdc: “A2WDC P1 7 1”, “ANRDC P1 7 4 V N F”.

Step 2. Verify that the returned value is +32 Vdc (-0.900, +0.920 Vdc).

4.2.14 Internal Voltage Monitor (-60 Vdc) Test

The following steps will verify that the internal –60 Vdc is within specifications.

Step 1. Execute the following HTS commands to read the internal -60 Vdc: “A2WDC P1 6 1”, “ANRDC P1 6 4 V N F”.

Step 2. Verify that the returned value is -60 Vdc (-22.200, +6.000Vdc).

4.2.15 Internal Voltage Monitor (+70 Vdc) Test

The following steps will verify that the internal +70 Vdc is within specifications.

Step 1. Execute the following HTS commands to read the internal +70 Vdc: “A2WDC P1 11 1”, “ANRDC P1 11 4 V N F”.

Step 2. Verify that the returned value is +70 Vdc (-4.800, +4.940 Vdc)

4.2.16 Internal Voltage Monitor (Gnd 1) Test

The following steps will verify that the internal Gnd 1 is within specifications.

Step 1. Execute the following HTS commands to read the internal Gnd: “A2WDC P1 1 1”, “ANRDC P1 1 4 V N F”.

Step 2. Verify that the returned value is 0.0 Vdc (± 0.100 Vdc).

4.2.17 Internal Voltage Monitor (Gnd 2) Test

The following steps will verify that the internal Gnd 2 is within specifications.

Step 1. Execute the following HTS commands to read the internal Gnd: “A2WDC P1 21 1”, “ANRDC P1 21 4 V N F”.

Step 2. Verify that the returned value is 0.0 Vdc (± 0.100 Vdc).

4.2.18 Internal Voltage Monitor (Gnd 3) Test

The following steps will verify that the internal Gnd 3 is within specifications.

Step 1. Execute the following HTS commands to read the internal Gnd: “A2WDC P1 22 1”, “ANRDC P1 22 4 V N F”.

Step 2. Verify that the returned value is 0.0 Vdc (± 0.100 Vdc).

4.2.19 Internal Voltage Monitor (Power Supply Mux Gnd) Test

The following steps will verify that the internal Power Supply Mux Gnd is within specifications.

Step 1. Execute the following HTS commands to read the internal Gnd1: “A2WDC P1 13 1”, “ANRDC P1 13 4 V N F”.

Step 2. Verify that the returned value is 0.0 Vdc (± 0.100 Vdc).

4.2.20 Internal Voltage Monitor (Proc Temp Sensor) Test

The following steps will verify that the internal Proc Temp Sensor is within specifications.

Step 1. Execute the following HTS commands to read the internal Proc Temp Sensor: “A2WDC P1 19 1”, “ANRDC P1 19 4 V N F”.

Step 2. Verify that the returned value is between +20 and +45 degrees C.

4.2.21 Internal Voltage Monitor (Power Supply Temp Sensor) Test

The following steps will verify that the internal Power Supply Temp Sensor is within specifications.

Step 1. Execute the following HTS commands to read the internal Power Supply Temp Sensor: “A2WDC P1 10 1”, “ANRDC P1 10 4 V N F”.

Step 2. Verify that the returned value is between +20 and +45 degrees C.

4.2.22 Analog 2W DC (Radio Alt Input #1) Test

The following steps will verify that internal voltage monitor circuitry is functioning correctly and is able to read a voltage applied to the Radio Alt Input #1.

Step 1. Apply +7 Vdc (± 1.0 Vdc) between UUT pin RMP-2H (+) and UUT RMP-2J (-).

Step 2. Execute the following HTS commands to read the external +7 Vdc: "A2WDC P1 14 1", "ANRDC P1 14 4 V N F”.

Step 3. Verify that the returned value is +7 Vdc (± 0.25 Vdc).

Step 4. Remove the +7 Vdc from the UUT.

4.2.23 Analog 2W DC (Radio Alt Input #2) Test

The following steps will verify that internal voltage monitor circuitry is functioning correctly and is able to read a voltage applied to the Radio Alt Input #2.

Step 1. Apply +14 Vdc (± 1.0 Vdc) between UUT pin RBP-3A (+) and UUT RBP-3B (-).

Step 2. Execute the following HTS commands to read the external +14 Vdc: "A2WDC P1 15 1", "ANRDC P1 15 4 V N F”.

Step 3. Verify that the returned value is +14 Vdc (± 0.250 Vdc).

Step 4. Remove the +14 Vdc from the UUT.

4.3 Operator Interactive Tests [Group 4 to 8]

4.3.1 Test Switch and Audio Quality Tests [Group 4]

4.3.1.1 Test Switch Test

The following steps will verify that the Test Switch circuitry is functioning correctly.

Step 1. Press and hold the front panel Test Switch.

Step 2. Execute the following HTS command to read the Test Switch discrete: “RL P1 F0070000“.

Step 3. Release the front panel Test Switch.

Step 4. Verify that the returned result is “FFFFFEFF”.

4.3.1.2 8 Ohm Audio Voice Quality Test

The following steps will verify that the 8 Ohm Audio Output circuitry is functioning correctly and produces clear, distortionless speech.

Step 1. Connect an 8 ohm speaker between UUT pins RMP-2F and RMP-2G.

Step 2. Execute the “SAY P1 2 40 0 F 1“ HTS command.

Step 3. Verify that the speech is clear and recognizable.

Step 4. Disconnect the speaker from the UUT.

4.3.2 Front Panel LED Tests [Group 5]

The following tests will verify that the front panel LEDs are functioning correctly.

4.3.2.1 All LEDs on After Reset

The following steps will verify that all front panel LEDs are illuminated green after a reset.

Step 1. Perform a hardware reset.

Step 2. Verify all front panel LEDs are illuminated green.

4.3.2.2 P/F Status LED (Green)

The following steps will verify that the P/F Status LED (Green) circuitry is functioning correctly.

Step 1. Execute the “WL P1 F00A5000 1” HTS command to drive the P/F Status LED green.

Step 2. Verify the P/F Status LED is illuminated green.

4.3.2.3 P/F Status LED (Red)

The following steps will verify that the P/F Status LED (Red) circuitry is functioning correctly.

Step 1. Execute the “WL P1 F00A6000 1“ HTS command to drive the P/F Status LED red.

Step 2. Verify the P/F Status LED is illuminated red.

4.3.2.4 Data Status LED (Green)

The following steps will verify that the Data Status LED (Green) circuitry is functioning correctly.

Step 1. Execute the “WL P1 F00A7000 1“ HTS command to drive the Data Status LED green.

Step 2. Verify the Data Status LED is illuminated green.

4.3.2.5 Data Status LED (Amber)

The following steps will verify that the Data Status LED (Amber) circuitry is functioning correctly.

Step 1. Execute the “WL P1 F00A8000 1“ HTS command to drive the Data Status LED amber.

Step 2. Verify the Data Status LED is illuminated amber.

4.3.2.6 APM Status LED (Green)

The following steps will verify that the APM Status LED (Green) circuitry is functioning correctly.

Step 1. Execute the “WL P1 F00A9000 1“ HTS command to drive the APM Status LED green.

Step 2. Verify the APM Status LED is illuminated green.

4.3.2.7 APM Status LED (Amber)

The following steps will verify that the APM Status LED (Amber) circuitry is functioning correctly.

Step 1. Execute the “WL P1 F00AA000 1“ HTS command to drive the APM Status LED amber.

Step 2. Verify the APM Status LED is illuminated amber.

4.3.2.8 Top Ant LED (Green) [G5T8]

The following steps will verify that the Top Ant LED (Green) circuitry is functioning correctly.

Step 1. Execute the “WL P1 F00AB000 1“ HTS command to drive the Top Ant LED green.

Step 2. Verify the Top Ant LED is illuminated green.

4.3.2.9 Top Ant LED (Amber)

The following steps will verify that the Top Ant LED (Amber) circuitry is functioning correctly.

Step 1. Execute the “WL P1 F00AC000 1“ HTS command to drive the Top Ant LED amber.

Step 2. Verify the Top Ant LED is illuminated amber.

4.3.2.10 Bot Ant LED (Green)

The following steps will verify that the Bot Ant LED (Green) circuitry is functioning correctly.

Step 1. Execute the “WL P1 F00AD000 1“ HTS command to drive the Bot Ant LED green.

Step 2. Verify the Bot Ant LED is illuminated green.

4.3.2.11 Bot Ant LED (Amber)

The following steps will verify that the Bot Ant LED (Amber) circuitry is functioning correctly.

Step 1. Execute the “WL P1 F00AE000 1“ HTS command to drive the Bot Ant LED amber.

Step 2. Verify the Bot Ant LED is illuminated amber.

4.3.2.12 Ext IO Status LED (Green)

The following steps will verify that the Ext IO Status LED (Green) circuitry is functioning correctly.

Step 1. Execute the “WL P1 F00AF000 1“ HTS command to drive the Ext IO Status LED green.

Step 2. Verify the Ext IO Status LED is illuminated green.

4.3.2.13 Ext IO Status LED (Amber)

The following steps will verify that the Ext IO Status LED (Amber) circuitry is functioning correctly.

Step 1. Execute the “WL P1 F00B0000 1“ HTS command to drive the Ext IO Status LED amber.

Step 2. Verify the Ext IO Status LED is illuminated amber.

4.3.3 Ethernet Interface Tests [Group 6]

The following tests will verify that the Ethernet interface is functioning correctly by transmitting and receiving several packets of alternating ones and zeros via a wrap around.

4.3.3.1 Ethernet (Rear Port – 5s) Test

The following steps will verify that the Ethernet circuitry through the ARINC 600 (rear) port is functioning correctly.

Step 1. Connect a jumper between UUT ARINC 600 connector pins RMP-12G and RMP-12J. This connects Ethernet Tx+ to Rx+.

Step 2. Connect a jumper between UUT ARINC 600 connector pins RMP-12H and RMP-12K. This connects Ethernet Tx- to Rx-.

Step 3. Execute the “ETH P1 5 1” HTS command.

Step 4. Verify that the returned response is “PASS.”

Step 5. Disconnect the DMM from the UUT.

4.3.3.2 Ethernet (PDL Port – As) Test

The following steps will verify that the Ethernet circuitry through the PDL port is functioning correctly.

Step 1. Connect a jumper between UUT PDL connector pins 6 and 23. This connects Ethernet Tx+ to Rx+.

Step 2. Connect a jumper between UUT PDL connector pins 7 and 39. This connects Ethernet Tx- to Rx-.

Step 3. Execute the “ETH P1 A 0” HTS command.

Step 4. Verify that the returned response is “PASS.”

4.3.3.3 Ethernet (Debug Port – 5s) Test

The following steps will verify that the Ethernet circuitry through the Debug port is functioning correctly.

Step 1. Connect a Tx to RX wrap adapter to the Ethernet debug port.

Step 2. Execute the “ETH P1 5 0” HTS command.

Step 3. Verify that the returned response is “PASS.”

Step 4. Remove the TX to RX wrap adapter to the Ethernet debug port.

4.3.4 Compact Flash Interface Tests [Group 7]

The following tests will verify the external and internal Compact Flash circuitry.

4.3.4.1 Internal Compact Flash – Detect Test

The following steps will verify the Internal Compact Flash Detect discrete is set to a logic zero when an internal CF card is installed.

Step 1. Execute the “RW P1 FF830000” HTS command.

Step 2. Verify that bit 5 of the Px Register #3 is 0.

4.3.4.2 External Compact Flash – No Detect Test

The following steps will verify the External Compact Flash Detect discrete is set to a logic one when an external CF card is not installed.

Step 1. Verify that a Compact Flash card is not currently inserted into the UUT front panel.

Step 2. Execute the “RW P1 FF830000” HTS command.

Step 3. Verify that bit 4 of the Px Register #3 is 0.

4.3.4.3 External Compact Flash – Detect Test

The following steps will verify the External Compact Flash Detect discrete is set to a logic zero when an external CF card is installed.

Step 1. Insert a Compact Flash card in the UUT front panel.

Step 2. Execute the "RW P1 FF830000" HTS command.

Step 3. Verify that bit 4 of the Px Register #3 is 1.

4.3.4.4 Internal Compact Flash – Write/Read Test

The following steps will verify that data may be written to and read from an Internal Compact Flash card.

Note: Only perform this test if the Internal Compact Flash card is installed.

Step 1. Execute the "TCF P1 100 2" HTS command.

Step 2. Verify that the returned result is "PASS."

4.3.4.5 External Compact Flash –Write/Read Test

The following steps will verify that data may be written to and read from an External Compact Flash card.

Step 1. Insert a Compact Flash card in the UUT front panel.

Note: This card will be written to.

Step 2. Execute the "TCF P1 100 1" HTS command.

Step 3. Verify that the returned result is "PASS."

4.3.4.6 Internal/External Compact Flash – Priority Test

The following steps will verify the Compact Flash write/read functionality between the External Compact Flash and Internal Compact Flash. When this test is executed, the processor will simultaneously write 32K bytes of data to the user device and the internal device. It will verify that the first device is written to before the second device. Finally, the test will verify the read priority of the devices and the data read back was equal to the data written.

Note: Only perform this test if the Internal Compact Flash card is installed.

Step 1. Insert a Compact Flash card in the UUT front panel.

Note: This card will be written to.

Step 2. Execute the "SCF P1" HTS command.

Step 3. Verify that the returned result is "PASS".

Step 4. Remove the Compact Flash card from the UUT front panel.

4.3.5 APM Interface Test [Group 8]

4.3.5.1 APM Interface – Erase/Write/Read Test [G8T1]

The following steps will verify the APM erase/write/read functionality. When this test is executed, HTS shall first erase the APM device and then write 55 hex and AA hex to each location within the APM device.

Step 1. Connect an APM

Note: This test will erase data on the APM, overwrite data on the APM and overwrite ALL data on the APM.

Step 2. Execute the "TAPM P1 ALL" HTS command.

Step 3. Verify that the returned result is “PASS”.

4.4 Discrete Inputs Tests [Group 9 to 10]

4.4.1 Program Pin Discrete Input Tests [Group 9]

The following steps will verify that the program pin input discretes circuitry is functioning correctly.

Step 1. Refer to Table 4-1 and repeat the following steps for each ARINC 600 Pin listed in the table.

Step 2. Apply a ground to the ARINC 600 pin.

Step 3. Execute the corresponding HTS command and verify the corresponding result.

Step 4. Remove the ground from the tested pin.

Table 4-1: Program Pin Input Discrete Tests

ARINC 600 Pin	Hardware Signal Name	HTS Command	Results
RMP-5E	GND Program Input #1	RL P1 F0070000	FFFFFFFE
RMP-5F	GND Program Input #2	RL P1 F0070000	FFFFFFFD
RMP-5G	GND Program Input #3	RL P1 F0070000	FFFFFFFB
RMP-6E	GND Program Input #4	RL P1 F0070000	FFFFFFF7
RMP-6F	GND Program Input #5	RL P1 F0070000	FFFFFFEF
RMP-6G	GND Program Input #6	RL P1 F0070000	FFFFFFDF
RMP-6H	GND Program Input #7	RL P1 F0070000	FFFFFFBF
RMP-6J	GND Program Input #8	RL P1 F0070000	FFFFFF7F
RMP-10A	GND Program Input #9	RL P1 F0070000	FFFEFFFF
RMP-10B	GND Program Input #10	RL P1 F0070000	FFFDFFFF
RMP-10C	GND Program Input #11	RL P2 F0070000	FFFBFFFF
RMP-10D	GND Program Input #12	RL P2 F0070000	FFF7FFFF
RMP-10G	GND Program Input #13	RL P2 F0070000	FFEFFFFF
RMP-10E	GND Program Input #14	RL P2 F0070000	FFDFFFFF
RBP-8G	GND Program Input #15	RL P2 F0070000	FFBFFFFF
RMP-10F	GND Program Input #16	RL P2 F0070000	FF7FFFFF
RMP-11A	GND Program Input #17	RL P2 F0070000	FEFFFFFF
RMP-11B	GND Program Input #18	RL P2 F0070000	FDFFFFFF
RMP-11C	GND Program Input #19	RL P2 F0070000	FBFFFFFF
RMP-11D	GND Program Input #20	RL P2 F0070000	F7FFFFFF
RMP-12A	GND Program Input #21	RL P3 F0070000	EFFFFFFF
RMP-12B	GND Program Input #22	RL P3 F0070000	DFFFFFFF
RMP-12C	GND Program Input #23	RL P3 F0070000	BFFFFFFF
RMP-12D	GND Program Input #24	RL P3 F0070000	7FFFFFFF
RMP-12E	GND Program Input #25	RL P3 F0071000	7FFFFFFE
RBP-8H	GND Program Input #26	RL P3 F0071000	7FFFFFFD
RMP-12F	GND Program Input #27	RL P3 F0071000	7FFFFFFB
RBP-8J	GND Program Input #28	RL P3 F0071000	7FFFFFF7
RBP-8K	GND Program Input #29	RL P3 F0071000	7FFFFFEF
RBP-6J	GND Program Input #30	RL P3 F0071000	7FFFFFDF
RBP-6K	GND Program Input #31	RL P1 F0071000	7FFFFFBF
RBP-7A	GND Program Input #32	RL P1 F0071000	7FFFFF7F
RBP-7B	GND Program Input #33	RL P1 F0071000	7FFFFEFF
RBP-7C	GND Program Input #34	RL P1 F0071000	7FFFFDFF
RBP-7D	GND Program Input #35	RL P1 F0071000	7FFFFBFF
RBP-7E	GND Program Input #36	RL P1 F0071000	7FFFF7FF

Table 4-1: Program Pin Input Discrete Tests

ARINC 600 Pin	Hardware Signal Name	HTS Command	Results
RBP-7F	GND Program Input #37	RL P1 F0071000	7FFFEFFF
RBP-7G	GND Program Input #38	RL P1 F0071000	7FFFDFFF
RBP-7H	GND Program Input #39	RL P1 F0071000	7FFFBFFF
RBP-7J	GND Program Input #40	RL P1 F0071000	7FFF7FFF
RBP-8A	GND Program Input #41	RL P2 F0071000	7FFEFFFF
RBP-8B	GND Program Input #42	RL P2 F0071000	7FFDFFFF
RBP-8C	GND Program Input #43	RL P2 F0071000	7FFBFFFF
RBP-8D	GND Program Input #44	RL P2 F0071000	7FF7FFFF
RBP-8E	GND Program Input #45	RL P2 F0071000	7FEFFFFF
RBP-8F	GND Program Input #46	RL P2 F0071000	7FDFFFFF
RBP-9D	GND Program Input #47	RL P2 F0071000	7FBFFFFF
RBP-9E	GND Program Input #48	RL P2 F0071000	7F7FFFFF
RBP-9F	GND Program Input #49	RL P2 F0071000	7EFFFFFF
RBP-9G	GND Program Input #50	RL P2 F0071000	7DFFFFFF
RBP-9K	GND Program Input #51	RL P3 F0071000	7BFFFFFF
RBP-10K	GND Program Input #52	RL P3 F0071000	77FFFFFF
RTP-12B	GND Program Input #56	RL P3 F0072000	0000000F
RTP-12C	GND Program Input #57	RL P3 F0072000	0000001E
RTP-12D	GND Program Input #58	RL P3 F0072000	0000001D
RTP-12E	GND Program Input #59	RL P3 F0072000	0000001B
RTP-12F	GND Program Input #60	RL P3 F0072000	00000017

4.4.2 Ground/Open and +28Vdc Discrete Input Tests [Group 10]

4.4.2.1 Ground/Open Discrete Input Threshold Tests

The following steps will verify that the ground/open input discretes circuitry is functioning correctly.

Step 1. Refer to Table 4-2 and repeat the following steps for each ARINC 600 Pin listed in the table.

Step 2. Apply +3.6 Vdc to the ARINC 600 Pin.

Step 3. Execute the corresponding HTS command and verify the corresponding result.

Step 4. Remove the +3.6 Vdc from the tested pin.

Note: 'x' = don't care

Table 4-2: GND/Open Input Discrete Tests

ARINC 600 Pin	Hardware Signal Name	HTS Command	Results
RMP-1J	GND Discrete Input #1	RL P1 F0075000	FFFFFFDF
RMP-3D	GND Discrete Input #2	RL P1 F0075000	FFFFFFEF
RMP-5K	GND Discrete Input #3	RL P1 FF830000	x1xxx01x
RMP-6D	GND Discrete Input #4	RL P1 F0075000	FFFFFFF7
RMP-7E	GND Discrete Input #5	RL P1 F0075000	FFFFFEFF
RMP-7J	GND Discrete Input #6	RL P1 F0075000	FFFFFFFB
RMP-13E	GND Discrete Input #7	RL P1 F0076000	FDFFFFFF
RMP-13F	GND Discrete Input #8	RL P1 F0075000	FFFFFFFD
RMP-13G	GND Discrete Input #9	RL P1 F0075000	FFFFFFFE
RMP-14C	GND Discrete Input #10	RL P1 F0076000	FFDFFFFF
RBP-4A	GND Discrete Input #11	RL P2 F0076000	FFEFFFFF
RBP-4B	GND Discrete Input #12	RL P2 F0076000	FFF7FFFF

Table 4-2: GND/Open Input Discrete Tests

ARINC 600 Pin	Hardware Signal Name	HTS Command	Results
RBP-4C	GND Discrete Input #13	RL P2 F0076000	FFFBFFFF
RBP-4D	GND Discrete Input #14	RL P2 F0076000	FFFDFFFF
RBP-4E	GND Discrete Input #15	RL P2 F0076000	FFFEFFFF
RBP-4F	GND Discrete Input #16	RL P2 F0076000	FFFFFEFF
RBP-4G	GND Discrete Input #17	RL P2 F0076000	FFFFFDFF
RBP-5A	GND Discrete Input #18	RL P2 F0076000	FFFFFBFF
RBP-5B	GND Discrete Input #19	RL P2 F0076000	FFFFF7FF
RBP-5C	GND Discrete Input #20	RL P2 F0076000	FFFFEFFF
RBP-5D	GND Discrete Input #21	RL P3 F0076000	FFFFDFFF
RBP-5E	GND Discrete Input #22	RL P3 F0076000	FFFFBFFF
RBP-5F	GND Discrete Input #23	RL P3 F0076000	FFFF7FFF
RBP-5G	GND Discrete Input #24	RL P3 F0076000	FFFFFFFE
RBP-5H	GND Discrete Input #25	RL P3 F0076000	FFFFFFFD
RBP-5J	GND Discrete Input #26	RL P3 F0076000	FFFFFFFB
RBP-5K	GND Discrete Input #27	RL P3 F0076000	FFFFFFF7
RBP-6A	GND Discrete Input #28	RL P3 FF830000	x0xxx11x
RBP-6B	GND Discrete Input #29	RL P3 F0070000	FFFFFBFF
RBP-6C	GND Discrete Input #30	RL P3 F0070000	FFFFF7FF
RBP-6D	GND Discrete Input #31	RL P1 F0070000	FFFFFEFF
RMP-14K	GND Discrete Input #32	RL P1 F0076000	EFFFFFFF
RTP-9J	GND Discrete Input #33	RL P1 F0075000	BFFFFFFF
RTP-9K	GND Discrete Input #34	RL P1 F0075000	DFFFFFFF
RTP-10A	GND Discrete Input #35	RL P1 F0075000	EFFFFFFF
RTP-10B	GND Discrete Input #36	RL P1 F0075000	F7FFFFFF
RTP-10C	GND Discrete Input #37	RL P1 F0075000	FBFFFFFF
RTP-10D	GND Discrete Input #38	RL P1 F0075000	FDFFFFFF
RTP-10E	GND Discrete Input #39	RL P1 F0075000	FEFFFFFF
RTP-10F	GND Discrete Input #40	RL P1 F0075000	FF7FFFFF
RTP-10G	GND Discrete Input #41	RL P2 F0075000	FFBFFFFF
RTP-10H	GND Discrete Input #42	RL P2 F0075000	FFDFFFFF
RTP-10J	GND Discrete Input #43	RL P2 F0075000	FFEFFFFF
RTP-10K	GND Discrete Input #44	RL P2 F0075000	FF7FFFFF
RTP-11A	GND Discrete Input #45	RL P2 F0075000	FFFBFFFF
RTP-11B	GND Discrete Input #46	RL P2 F0075000	FFFDFFFF
RTP-11C	GND Discrete Input #47	RL P2 F0075000	FFFEFFFF
RMP-3K	GND Discrete Input #48	RL P2 F0075000	FFFF7FFF
RMP-5D	GND Discrete Input #49	RL P2 F0075000	FFFFBFFF
RMP-10H	GND Discrete Input #50	RL P2 F0075000	FFFFDFFF
RMP-10J	GND Discrete Input #51	RL P3 F0075000	FFFFEFFF
RTP-11H	GND Discrete Input #52	RL P3 F0075000	FFFFF7FF
RMP-7K	GND Discrete Input #53	RL P3 F0075000	FFFFFBFF
RMP-7F	GND Discrete Input #54	RL P3 F0075000	FFFFFDFF
RBP-3G	GND Discrete Input #55	RL P3 F0076000	BFFFFFFF
RMP-3H	GND Discrete Input #56	RL P3 F0075000	FFFFFF7F
RMP-3J	GND Discrete Input #57	RL P3 F0075000	FFFFFFBF
RBP-2A	GND Discrete Input #58	RL P3 F0076000	DFFFFFFF
RBP-2B	GND Discrete Input #59	RL P3 F0076000	F7FFFFFF
RBP-2C	GND Discrete Input #60	RL P3 F0076000	FBFFFFFF
RBP-2D	GND Discrete Input #61	RL P1 F0076000	FEFFFFFF
RBP-2E	GND Discrete Input #62	RL P1 F0076000	FF7FFFFF
RBP-2F	GND Discrete Input #63	RL P1 F0076000	FFBFFFFF

Table 4-2: GND/Open Input Discrete Tests

ARINC 600 Pin	Hardware Signal Name	HTS Command	Results
RBP-2G	GND Discrete Input #64	RL P1 F0076000	FFFFFF7F
RBP-3F	GND Discrete Input #65	RL P1 F0076000	FFFFFFBF
RTP-7K	GND Discrete Input #66	RL P1 F0078000	807FFFEF
RMP-10K	GND Discrete Input #67	RL P1 F0076000	FFFFFFEF
RTP-2G	GND Discrete Input #68	RL P1 F0077000	BFFFFFFF
RTP-2H	GND Discrete Input #69	RL P1 F0077000	DFFFFFFF
RTP-2J	GND Discrete Input #70	RL P1 F0077000	EFFFFFFF
RTP-2K	GND Discrete Input #71	RL P2 F0077000	F7FFFFFF
RTP-4C	GND Discrete Input #72	RL P2 F0077000	FBFFFFFF
RTP-4F	GND Discrete Input #73	RL P2 F0077000	FDFFFFFF
RTP-4J	GND Discrete Input #74	RL P2 F0077000	FEFFFFFF
RTP-4K	GND Discrete Input #75	RL P2 F0077000	FF7FFFFF
RTP-5C	GND Discrete Input #76	RL P2 F0077000	FFBFFFFF
RTP-5F	GND Discrete Input #77	RL P2 F0077000	FFDFFFFF
RTP-5J	GND Discrete Input #78	RL P2 F0077000	FFEFFFFF
RTP-5K	GND Discrete Input #79	RL P2 F0077000	FFF7FFFF
RTP-6C	GND Discrete Input #80	RL P2 F0077000	FFFBFFFF
RTP-6D	GND Discrete Input #81	RL P3 F0077000	FFFDFFFF
RTP-6E	GND Discrete Input #82	RL P3 F0077000	FFFEFFFF
RTP-6F	GND Discrete Input #83	RL P3 F0077000	FFFF7FFF
RTP-6G	GND Discrete Input #84	RL P3 F0077000	FFFFBFFF
RTP-6H	GND Discrete Input #85	RL P3 F0077000	FFFFDFFF
RTP-6J	GND Discrete Input #86	RL P3 F0077000	FFFFEFFF
RTP-6K	GND Discrete Input #87	RL P3 F0077000	FFFFF7FF
RTP-7A	GND Discrete Input #88	RL P3 F0077000	FFFFFBFF
RTP-7B	GND Discrete Input #89	RL P3 F0077000	FFFFFDFF
RTP-7C	GND Discrete Input #90	RL P3 F0077000	FFFFFEFF
RTP-7D	GND Discrete Input #91	RL P1 F0077000	FFFFFF7F
RTP-7E	GND Discrete Input #92	RL P1 F0077000	FFFFFFBF
RTP-7F	GND Discrete Input #93	RL P1 F0077000	FFFFFFDF
RTP-7G	GND Discrete Input #94	RL P1 F0077000	FFFFFFEF
PDL-18	GND Discrete Input #95	RW P1 FF830000	x1xxx10x
RTP-7H	GND Discrete Input #96	RL P1 F0077000	FFFFFFF7
RTP-7J	GND Discrete Input #97	RL P1 F0077000	FFFFFFFB
RTP-8C	GND Discrete Input #98	RL P1 F0077000	FFFFFFFD
RTP-8D	GND Discrete Input #99	RL P1 F0077000	FFFFFFFE
RTP-9C	GND Discrete Input #100	RL P1 F0078000	803FFFFF
RTP-9D	GND Discrete Input #101	RL P2 F0078000	805FFFFF
RTP-9E	GND Discrete Input #102	RL P2 F0078000	806FFFFF
RTP-9F	GND Discrete Input #103	RL P2 F0078000	8077FFFF
RTP-11D	GND Discrete Input #104	RL P2 F0078000	807BFFFF
RTP-11E	GND Discrete Input #105	RL P2 F0078000	807DFFFF
RTP-11F	GND Discrete Input #106	RL P2 F0078000	807EFFFF
RTP-11G	GND Discrete Input #107	RL P2 F0078000	807F7FFF
RTP-11J	GND Discrete Input #108	RL P2 F0078000	807FBFFF
RTP-11K	GND Discrete Input #109	RL P2 F0078000	807FDFFF
RTP-12A	GND Discrete Input #110	RL P2 F0078000	807FEFFF
RTP-12J	GND Discrete Input #111	RL P3 F0078000	807FF7FF
RTP-12K	GND Discrete Input #112	RL P3 F0078000	807FFBFF
RTP-13A	GND Discrete Input #113	RL P3 F0078000	807FFDFF
RTP-14E	GND Discrete Input #114	RL P3 F0078000	807FFEFF

Table 4-2: GND/Open Input Discrete Tests

ARINC 600 Pin	Hardware Signal Name	HTS Command	Results
RTP-14F	GND Discrete Input #115	RL P3 F0078000	807FFF7F
RTP-14G	GND Discrete Input #116	RL P3 F0078000	807FFFBF
RTP-14H	GND Discrete Input #117	RL P3 F0078000	807FFFDF
RBP-10J	GND Discrete Input #118	RL P3 F0076000	FFFFFFDF
PDL-51	Shared with GND Discrete Input #29	RL P3 F0070000	FFFFFBFF
PDL-52	Shared with GND Discrete Input #30	RL P3 F0070000	FFFFF7FF
PDL-53	Shared with GND Discrete Input #31	RL P1 F0070000	FFFFEFFF

4.4.2.2 +28 Vdc Discrete Input Tests

The following steps will verify that the +28 Vdc input discretes circuitry is functioning correctly.

Step 1. Refer to Table 4-3 and repeat the following steps for each ARINC 600 Pin listed in the table.

Step 2. Apply +14 Vdc to the ARINC 600 pin.

Step 3. Execute the corresponding HTS command and verify the corresponding result.

Step 4. Remove the +14 Vdc from the tested pin.

Table 4-3: +28 Vdc Input Discrete Tests

ARINC 600 Pin	Hardware Signal Name	HTS Command	Results
RMP-2K	28V Discrete Input #1	RL P1 F0071000	FFFFFFFF
RBP-3C	28V Discrete Input #2	RL P1 F0072000	0000003F
RTP-12G	28V Discrete Input #3	RL P1 F0072000	0000005F
RTP-2H	28V Discrete Input #4	RL P1 F0072000	0000009F

4.5 Discrete Outputs Tests [Group 11 to 13]

4.5.1 Discrete Outputs System Wrap Tests [Group 11]

These tests will verify that the output discretes circuitry and corresponding discrete input wrap is functioning correctly.

4.5.1.1 Discrete Outputs Deasserted Test – All Douts Off

The following steps will verify that all output discretes are in the deasserted (default off) state.

Step 1. Refer to the following table and repeat the following steps for each group of discrete outputs listed in the table.

Step 2. Execute the corresponding HTS command and verify the corresponding result.

Table 4-4: Discrete Outputs Deasserted Test

Discrete Outputs	HTS Command	Results
20 ma Dout1 – 20 ma Dout20 500 ma Dout1 – 500 ma Dout4	RL P1 F0073000	00FFFFFF
500 ma Dout5 – 500 ma Dout19	RL P1 F0074000	0000FFFF
500 ma Dout20 250 ma Dout1 – 250 ma Dout3	RL P1 F0071000	FFFFFFFF

4.5.1.2 Discrete Outputs 20 mA Wrap Tests

The following steps will verify that the 20 mA output discretes circuitry is functioning correctly by asserting each discrete output and then reading back the state via the discrete output wrap.

Step 1. Refer to Table 4-5 and repeat the following steps for each ARINC 600 pin listed in the table.

Step 2. Execute the HTS command to set (write a 1) to the discrete output. Writing a 1 to the discrete output address will cause the output to assert to a low.

Step 3. Execute the corresponding HTS command to read the discrete output wrap and verify the corresponding result.

Step 4. Execute the HTS command to clear (write a 0) to the discrete output to return it to it's deasserted state.

Table 4-5: Discrete Outputs 20 mA Wrap Tests

ARINC 600 Pin	Hardware Signal Name	Set/Clear Dout HTS Command	Read Dout HTS Command	Results
RMP-1A	GND Discrete Output 20 mA #1	WL P1 F0080000 1 WL P1 F0080000 0	RL P1 00073000 RL P1 00073000	007FFFFF 00FFFFFF
RMP-1B	GND Discrete Output 20 mA #2	WL P1 F0081000 1 WL P1 F0081000 0	RL P1 00073000 RL P1 00073000	00BFFFFF 00FFFFFF
RMP-1C	GND Discrete Output 20 mA #3	WL P1 F0082000 1 WL P1 F0082000 0	RL P1 00073000 RL P1 00073000	00DFFFFF 00FFFFFF
RMP-1D	GND Discrete Output 20 mA #4	WL P1 F0083000 1 WL P1 F0083000 0	RL P1 00073000 RL P1 00073000	00EFFFFF 00FFFFFF
RMP-1E	GND Discrete Output 20 mA #5	WL P1 F0084000 1 WL P1 F0084000 0	RL P1 00073000 RL P1 00073000	00F7FFFF 00FFFFFF
RMP-1F	GND Discrete Output 20 mA #6	WL P1 F0085000 1 WL P1 F0085000 0	RL P1 00073000 RL P1 00073000	00FBFFFF 00FFFFFF
RMP-1K	GND Discrete Output 20 mA #7	WL P1 F0086000 1 WL P1 F0086000 0	RL P1 00073000 RL P1 00073000	00FDFFFF 00FFFFFF
RMP-2A	GND Discrete Output 20 mA #8	WL P1 F0087000 1 WL P1 F0087000 0	RL P1 00073000 RL P1 00073000	00FEFFFF 00FFFFFF
RBP-1H	GND Discrete Output 20 mA #9	WL P1 F0088000 1 WL P1 F0088000 0	RL P1 00073000 RL P1 00073000	00FF7FFF 00FFFFFF
RBP-1J	GND Discrete Output 20 mA #10	WL P2 F0089000 1 WL P2 F0089000 0	RL P2 00073000 RL P2 00073000	00FFBFFF 00FFFFFF
RBP-1K	GND Discrete Output 20 mA #11	WL P2 F008A000 1 WL P2 F008A000 0	RL P2 00073000 RL P2 00073000	00FFDFFF 00FFFFFF
RBP-2H	GND Discrete Output 20 mA #12	WL P2 F008B000 1 WL P2 F008B000 0	RL P2 00073000 RL P2 00073000	00FFEFFF 00FFFFFF
RBP-2J	GND Discrete Output 20 mA #13	WL P2 F008C000 1 WL P2 F008C000 0	RL P2 00073000 RL P2 00073000	00FFF7FF 00FFFFFF
RBP-2K	GND Discrete Output 20 mA #14	WL P2 F008D000 1 WL P2 F008D000 0	RL P2 00073000 RL P2 00073000	00FFFBFF 00FFFFFF
RBP-3H	GND Discrete Output 20 mA #15	WL P2 F008E000 1 WL P2 F008E000 0	RL P2 00073000 RL P2 00073000	00FFFDFF 00FFFFFF
RBP-3J	GND Discrete Output 20 mA #16	WL P2 F008F000 1 WL P2 F008F000 0	RL P2 00073000 RL P2 00073000	00FFFEFF 00FFFFFF
RBP-3K	GND Discrete Output 20 mA #17	WL P2 F0090000 1 WL P2 F0090000 0	RL P2 00073000 RL P2 00073000	00FFFF7F 00FFFFFF
RBP-4H	GND Discrete Output 20 mA #18	WL P2 F0091000 1 WL P2 F0091000 0	RL P2 00073000 RL P2 00073000	00FFFFBF 00FFFFFF
RBP-4J	GND Discrete Output 20 mA #19	WL P2 F0092000 1 WL P2 F0092000 0	RL P2 00073000 RL P2 00073000	00FFFFDF 00FFFFFF
RBP-4K	GND Discrete Output 20 mA #20	WL P3 F0093000 1 WL P3 F0093000 0	RL P3 00073000 RL P3 00073000	00FFFFEF 00FFFFFF

4.5.1.3 Discrete Outputs 500 mA Wrap Tests

The following steps will verify that the 500 mA output discretes circuitry is functioning correctly by asserting each discrete output and then reading back the state via the discrete output wrap.

Step 1. Refer to Table 4-5 and repeat the following steps for each ARINC 600 pin listed in the table.

Step 2. Execute the HTS command to set (write a 1) to the discrete output. Writing a 1 to the discrete output address will cause the output to assert to a low.

Step 3. Execute the corresponding HTS command to read the discrete output wrap and verify the corresponding result.

Step 4. Execute the HTS command to clear (write a 0) to the discrete output to return it to it's deasserted state.

Table 4-6: Discrete Outputs 500 mA Tests

ARINC 600 Pin	Hardware Signal Name	Set/Clear Dout HTS Command	Read Dout HTS Command	Results
RTP-13G	GND Discrete Output 500 mA #1	WL P3 F0094000 1 WL P3 F0094000 0	RL P3 00073000 RL P3 00073000	00FFFFF7
RTP-13H	GND Discrete Output 500 mA #2	WL P3 F0095000 1 WL P3 F0095000 0	RL P3 00073000 RL P3 00073000	00FFFFFB
RTP-13J	GND Discrete Output 500 mA #3	WL P3 F0096000 1 WL P3 F0096000 0	RL P3 00073000 RL P3 00073000	00FFFFFD
RTP-13K	GND Discrete Output 500 mA #4	WL P3 F0097000 1 WL P3 F0097000 0	RL P3 00073000 RL P3 00073000	00FFFFFE
RTP-14A	GND Discrete Output 500 mA #5	WL P3 F0098000 1 WL P3 F0098000 0	RL P3 00074000 RL P3 00074000	00007FFF
RMP-1G	GND Discrete Output 500 mA #6	WL P3 F0099000 1 WL P3 F0099000 0	RL P3 00074000 RL P3 00074000	0000BFFF
RMP-1H	GND Discrete Output 500 mA #7	WL P3 F009A000 1 WL P3 F009A000 0	RL P3 00074000 RL P3 00074000	0000DFFF
RMP-2E	GND Discrete Output 500 mA #8	WL P3 F009B000 1 WL P3 F009B000 0	RL P3 00074000 RL P3 00074000	0000EFFF
RMP-3E	GND Discrete Output 500 mA #9	WL P3 F009C000 1 WL P3 F009C000 0	RL P3 00074000 RL P3 00074000	0000F7FF
RMP-13K	GND Discrete Output 500 mA #10	WL P1 F009D000 1 WL P1 F009D000 0	RL P1 00074000 RL P1 00074000	0000FBFF
RTP-13B	GND Discrete Output 500 mA #11	WL P1 F009E000 1 WL P1 F009E000 0	RL P1 00074000 RL P1 00074000	0000FDFF
RTP-13C	GND Discrete Output 500 mA #12	WL P1 F009F000 1 WL P1 F009F000 0	RL P1 00074000 RL P1 00074000	0000FEFF
RTP-13D	GND Discrete Output 500 mA #13	WL P1 F00A0000 1 WL P1 F00A0000 0	RL P1 00074000 RL P1 00074000	0000FF7F
RTP-13E	GND Discrete Output 500 mA #14	WL P1 F00A1000 1 WL P1 F00A1000 0	RL P1 00074000 RL P1 00074000	0000FFBF
RTP-13F	GND Discrete Output 500 mA #15	WL P1 F00B1000 1 WL P1 F00B1000 0	RL P1 00074000 RL P1 00074000	0000FFDF
RTP-14J	GND Discrete Output 500 mA #16	WL P1 F00B2000 1 WL P1 F00B2000 0	RL P1 00074000 RL P1 00074000	0000FFEF
RMP-3A	GND Discrete Output 500 mA #17	WL P1 F00B3000 1 WL P1 F00B3000 0	RL P1 00074000 RL P1 00074000	0000FFF7
RMP-3B	GND Discrete Output 500 mA #18	WL P1 F00B4000 1 WL P1 F00B4000 0	RL P1 00074000 RL P1 00074000	0000FFFB
RMP-3C	GND Discrete Output 500 mA #19	WL P1 F00B9000 1 WL P1 F00B9000 0	RL P1 00074000 RL P1 00074000	0000FFFD
RTP-14K	GND Discrete Output 500 mA #20	WL P2 F00BA000 1 WL P2 F00BA000 0	RL P2 00070000 RL P2 00070000	FFFFFDFF

4.5.1.4 Discrete Outputs 250 mA Wrap Tests

The following steps will verify that the 250 mA output discretes circuitry is functioning correctly by asserting each discrete output and then reading back the state via the discrete output wrap.

Step 1. Refer to Table 4-7 and repeat the following steps for each ARINC 600 pin listed in the table.

Step 2. Execute the HTS command to set (write a 1) to the discrete output. Writing a 1 to the discrete output address will cause the output to assert to a low.

Step 3. Execute the corresponding HTS command to read the discrete output wrap and verify the corresponding result.

Step 4. Execute the HTS command to clear (write a 0) to the discrete output to return it to it's deasserted state.

Table 4-7: Output Discretes 250 mA Tests

ARINC 600 Pin	Hardware Signal Name	Set/Clear Dout HTS Command	Read Dout HTS Command	Results
RTP-14B	GND Discrete Output 250 mA #1	WL P2 000A2000 1 WL P2 000A2000 0	RL P2 00070000 RL P2 00070000	FFFFDFFF
RTP-14C	GND Discrete Output 250 mA #2	WL P2 000A3000 1 WL P2 000A3000 0	RL P2 00070000 RL P2 00070000	FFFFBFFF
RTP-14D	GND Discrete Output 250 mA #3	WL P2 000A4000 1 WL P2 000A4000 0	RL P2 00070000 RL P2 00070000	FFFF7FFF

4.5.1.5 Discrete Outputs Serial Discrete Input Test

The following steps will verify that the Serial Output Discrete circuitry is functioning correctly.

Step 1. To set the Serial Discrete Input to a logic 0, execute the "WL P2 F00B5000 1" HTS command.

Step 2. To read back the results, execute the HTS commands listed in Table 4-7.

Table 4-8: Output Discretes Serial Discrete Input Test

Serial Input Test Discrete Word No.	HTS Command	Results
Word #6	RL P2 F0075000	7FFFFFFF
Word #7	RL P2 F0076000	7FFFFFFF
Word #8	RL P2 F0077000	7FFFFFFF
Word #9	RL P2 F0078000	007FFFFF

Step 3. Per Table 4-7, verify that the corresponding results are returned.

Step 4. To set the Serial Discrete Input to a logic 1, execute the "WL P2 F00B5000 0" HTS command.

4.5.2 Discrete Outputs Loaded Tests [Group 12]

These tests will verify the Output Discrete load driving capability.

4.5.2.1 Discrete Outputs 20 mA Load Test

The following steps will verify the 20 mA Output Discrete load driving capability.

Step 1. Refer to Table 4-9 and repeat the following steps for each ARINC 600 pin listed in the table.

Step 2. Connect the 20 mA discrete output to +28 Vdc with a series 1.4 kΩ ± 1% (1W) resistor.

Step 3. Execute the HTS command to set (write a 1) the discrete output. Writing a 1 to the discrete output address will cause the output to assert to a low.

Step 4. Setup the DMM for a DCV measurement and measure the logic level at the ARINC 600 pin.

Step 5. Verify the voltage is a logic low. A logic low is defined as ≤ 3.5 Vdc.

Step 6. Execute the HTS command to clear (write a 0) the discrete output and return it to it's deasserted state.

Table 4-9: Discrete Outputs 20 mA Load Test

ARINC 600 Pin	Hardware Signal Name	Set Dout HTS Command	Clear Dout HTS Command
RMP-1A	GND Discrete Output 20 mA #1	WL P1 F0080000 1	WL P1 F0080000 0
RMP-1B	GND Discrete Output 20 mA #2	WL P1 F0081000 1	WL P1 F0081000 0
RMP-1C	GND Discrete Output 20 mA #3	WL P1 F0082000 1	WL P1 F0082000 0
RMP-1D	GND Discrete Output 20 mA #4	WL P1 F0083000 1	WL P1 F0083000 0
RMP-1E	GND Discrete Output 20 mA #5	WL P1 F0084000 1	WL P1 F0084000 0
RMP-1F	GND Discrete Output 20 mA #6	WL P1 F0085000 1	WL P1 F0085000 0
RMP-1K	GND Discrete Output 20 mA #7	WL P1 F0086000 1	WL P1 F0086000 0
RMP-2A	GND Discrete Output 20 mA #8	WL P1 F0087000 1	WL P1 F0087000 0
RBP-1H	GND Discrete Output 20 mA #9	WL P1 F0088000 1	WL P1 F0088000 0
RBP-1J	GND Discrete Output 20 mA #10	WL P1 F0089000 1	WL P1 F0089000 0
RBP-1K	GND Discrete Output 20 mA #11	WL P1 F008A000 1	WL P1 F008A000 0
RBP-2H	GND Discrete Output 20 mA #12	WL P1 F008B000 1	WL P1 F008B000 0
RBP-2J	GND Discrete Output 20 mA #13	WL P1 F008C000 1	WL P1 F008C000 0
RBP-2K	GND Discrete Output 20 mA #14	WL P1 F008D000 1	WL P1 F008D000 0
RBP-3H	GND Discrete Output 20 mA #15	WL P1 F008E000 1	WL P1 F008E000 0
RBP-3J	GND Discrete Output 20 mA #16	WL P1 F008F000 1	WL P1 F008F000 0
RBP-3K	GND Discrete Output 20 mA #17	WL P1 F0090000 1	WL P1 F0090000 0
RBP-4H	GND Discrete Output 20 mA #18	WL P1 F0091000 1	WL P1 F0091000 0
RBP-4J	GND Discrete Output 20 mA #19	WL P1 F0092000 1	WL P1 F0092000 0
RBP-4K	GND Discrete Output 20 mA #20	WL P1 F0093000 1	WL P1 F0093000 0

4.5.2.2 Discrete Outputs 50 mA Load Test

The following steps will verify that the 50 mA Output Discrete load driving capability.

Step 1. Connect the 50 mA Output Discrete (ARINC 600 pin RTP-15A) to Ground with a series 50 Ω ± 1% (5W) resistor.

Step 2. Execute the HTS command "WB P1 F00B8000 1" to set (write a 1) the discrete output. Writing a 1 to the discrete output address will cause the output to assert to a high.

Step 3. To measure the logic level, setup the DMM for a DCV measurement and measure the logic level at the ARINC 600 pin.

Step 4. Verify the voltage is a logic high. A logic high is defined as ≥ 3.5 Vdc.

Step 5. Execute the HTS command "WB P1 F00B8000 0" to clear (write a 0) the discrete output and return it to it's deasserted state.

Step 6. Measure the logic level at the ARINC 600 pin with the DMM.

Step 7. Verify the voltage is a logic low. A logic low is defined as ≤ 1.0 Vdc.

4.5.2.3 Discrete Outputs 250 mA Load Test

The following steps will verify the 250 mA Output Discrete load driving capability.

Step 1. Refer to Table 4-10 and repeat the following steps for each ARINC 600 pin listed in the table.

Step 2. Connect the 250 mA discrete output to +28 Vdc with a series 112 Ω ± 1% (25W) resistor.

Step 3. Execute the HTS command to set (write a 1) the discrete output. Writing a 1 to the discrete output address will cause the output to assert to a low.

Step 4. Setup the DMM for a DCV measurement and measure the logic levels at the ARINC 600 pin.

Step 5. Verify the voltage is a logic low. A logic low is defined as ≤ 3.5 Vdc.

Step 6. Execute the HTS command to clear (write a 0) the discrete output to return it to it's deasserted state.

Table 4-10: Discrete Outputs 250 mA Test

ARINC 600 Pin	Hardware Signal Name	Set Dout HTS Command	Clear Dout HTS Command
RTP-14B	GND Discrete Output 250 mA #1	WL P1 000A2000 1	WL P1 000A2000 0
RTP-14C	GND Discrete Output 250 mA #2	WL P1 000A3000 1	WL P1 000A3000 0
RTP-14D	GND Discrete Output 250 mA #3	WL P1 000A4000 1	WL P1 000A4000 0

4.5.2.4 Discrete Outputs 500 mA Load Test

The following steps will verify the 500 mA Output Discrete load driving capability.

Step 1. Refer to Table 4-11 and repeat the following steps for each ARINC 600 pin listed in the table.

Step 2. Connect the 500 mA discrete output to +28 Vdc with a series 56 Ω ± 1% (25W) resistor.

Step 3. Execute the HTS command to set (write a 1) the discrete output. Writing a 1 to the discrete output address will cause the output to assert to a low.

Step 4. Setup the DMM for a DCV measurement and measure the logic levels at the ARINC 600 pin.

Step 5. Verify the voltage is a logic low. A logic low is defined as ≤ 3.5 Vdc.

Step 6. Execute the HTS command to clear (write a 0) to the discrete output and return it to it's deasserted state.

Table 4-11: Discrete Outputs 500 mA Load Test

ARINC 600 Pin	Hardware Signal Name	Set Dout HTS Command	Clear Cout HTS Command
RTP-13G	GND Discrete Output 500 mA #1	WL P1 F0094000 1	WL P1 F0094000 0
RTP-13H	GND Discrete Output 500 mA #2	WL P1 F0095000 1	WL P1 F0095000 0
RTP-13J	GND Discrete Output 500 mA #3	WL P1 F0096000 1	WL P1 F0096000 0
RTP-13K	GND Discrete Output 500 mA #4	WL P1 F0097000 1	WL P1 F0097000 0
RTP-14A	GND Discrete Output 500 mA #5	WL P1 F0098000 1	WL P1 F0098000 0
RMP-1G	GND Discrete Output 500 mA #6	WL P1 F0099000 1	WL P1 F0099000 0
RMP-1H	GND Discrete Output 500 mA #7	WL P1 F009A000 1	WL P1 F009A000 0
RMP-2E	GND Discrete Output 500 mA #8	WL P1 F009B000 1	WL P1 F009B000 0
RMP-3E	GND Discrete Output 500 mA #9	WL P1 F009C000 1	WL P1 F009C000 0
RMP-13K	GND Discrete Output 500 mA #10	WL P1 F009D000 1	WL P1 F009D000 0
RTP-13B	GND Discrete Output 500 mA #11	WL P1 F009E000 1	WL P1 F009E000 0
RTP-13C	GND Discrete Output 500 mA #12	WL P1 F009F000 1	WL P1 F009F000 0
RTP-13D	GND Discrete Output 500 mA #13	WL P1 F00A0000 1	WL P1 F00A0000 0
RTP-13E	GND Discrete Output 500 mA #14	WL P1 F00A1000 1	WL P1 F00A1000 0
RTP-13F	GND Discrete Output 500 mA #15	WL P1 F00B1000 1	WL P1 F00B1000 0
RTP-14J	GND Discrete Output 500 mA #16	WL P1 F00B2000 1	WL P1 F00B2000 0
RMP-3A	GND Discrete Output 500 mA #17	WL P1 F00B3000 1	WL P1 F00B3000 0
RMP-3B	GND Discrete Output 500 mA #18	WL P1 F00B4000 1	WL P1 F00B4000 0
RMP-3C	GND Discrete Output 500 mA #19	WL P1 F00B9000 1	WL P1 F00B9000 0

Table 4-11: Discrete Outputs 500 mA Load Test

ARINC 600 Pin	Hardware Signal Name	Set Dout HTS Command	Clear Cout HTS Command
RTP-14K	GND Discrete Output 500 mA #20	WL P1 F00BA000 1	WL P1 F00BA000 0

4.5.2.5 Discrete Outputs 250 mA Depletion Mode Test

The following steps will verify the depletion mode FETs in the 250 mA Output Discrete circuitry.

Note: These steps are performed with the UUT unpowered.

Step 1. Refer to Table 4-12 and repeat the following steps for each ARINC 600 pin listed in the table.

Step 2. Connect the 250 mA discrete output to +28 Vdc with a series 112 Ω ± 1% (25W) resistor.

Step 3. Setup the DMM for a DCV measurement and measure the logic levels at the ARINC 600 pin with the UUT unpowered.

Step 4. Verify the voltage is a logic low. A logic low is defined as ≤ 3.5 Vdc.

Table 4-12: Discrete Outputs 250 mA Depletion Mode Test

ARINC 600 Pin	Hardware Signal Name
RTP-14B	GND Discrete Output 250 mA #1
RTP-14C	GND Discrete Output 250 mA #2
RTP-14D	GND Discrete Output 250 mA #3

4.5.3 Test and Debug Discrete Output Tests [Group 13]

These tests will verify that the Test and Debug Discrete Output circuitry is functioning correctly.

4.5.3.1 All Test and Debug Discrete Output Tests at Default

Step 1. Execute the following HTS commands to set (write a 0) the discrete output: “WL P1 F020A000 F0000000, WL P1 F020A004 0000000, WL P1 F020A008 00000000”.

Step 2. Read via TTL inputs of test discrete inputs of test station. Verify the test discrete outputs are set to 0.

Step 3. Execute the following HTS commands to turn off (write a 0) the discrete output: “WL P1 F020A000 F0000000, WL P1 F020A004 00000000, WL P1 F020A008 00000000”.

4.5.3.2 Mode-S/ATCRBS Discrete Output Test

Step 1. Execute the following HTS commands to set (write a 1) the discrete output: “WL P2 F020A000 F0008000, WL P2 F020A004 00000000, WL P2 F020A008 00000000”.

Step 2. Verify the test discrete output is set to a 1.

Step 3. Execute the following HTS commands to turn off (write a 0) the discrete output: “WL P2 F020A000 F0000000, WL P2 F020A004 00000000, WL P2 F020A008 00000000”.

4.5.3.3 Pretrigger Interrogation Discrete Output Test

Step 1. Execute the following HTS commands to set (write a 1) the discrete output: “WL P3 F020A000 F0004000, WL P3 F020A004 0000000, WL P3 F020A008 00000000”.

Step 2. Verify the test discrete output is set to a 1.

Step 3. Execute the following HTS commands to turn off (write a 0) the discrete output: “WL P3 F020A000 F0000000, WL P3 F020A004 00000000, WL P3 F020A008 00000000”.

4.5.3.4 Top/Bottom Discrete Output Test

Step 1. Execute the following HTS commands to set (write a 1) the discrete output: “WL P1 F020A000 F0001000, WL P1 F020A004 0000000, WL P1 F020A008 00000000”.

Step 2. Verify the test discrete output is set to a 1.

Step 3. Execute the following HTS commands to turn off (write a 0) the discrete output: “WL P1 F020A000 F0000000, WL P1 F020A004 00000000, WL P1 F020A008 00000000”.

4.5.3.5 Antenna Directional LSB Discrete Output Test

Step 1. Execute the following HTS commands to set (write a 1) the discrete output: “WL P2 F020A000 F0000400, WL P2 F020A004 0000000, WL P2 F020A008 00000000”.

Step 2. Verify the test discrete output is set to a 1.

Step 3. Execute the following HTS commands to turn off (write a 0) the discrete output: “WL P2 F020A000 F0000000, WL P2 F020A004 00000000, WL P2 F020A008 00000000”.

4.5.3.6 Antenna Directional MSB Discrete Output Test

Step 1. Execute the following HTS commands to set (write a 1) the discrete output: “WL P3 F020A000 F0000800, WL P3 F020A004 0000000, WL P3 F020A008 00000000”.

Step 2. Verify the test discrete output is set to a 1.

Step 3. Execute the following HTS commands to turn off (write a 0) the discrete output: “WL P3 F020A000 F0000000, WL P3 F020A004 00000000, WL P3 F020A008 00000000”.

4.5.3.7 Pretrigger Replies Discrete Output Test

Step 1. Execute the following HTS commands to set (write a 1) the discrete output: “WL P1 F020A000 F0002000, WL P1 F020A004 0000000, WL P1 F020A008 00000000”.

Step 2. Verify the test discrete output is set to a 1.

Step 3. Execute the following HTS commands to turn off (write a 0) the discrete output: “WL P1 F020A000 F0000000, WL P1 F020A004 00000000, WL P1 F020A008 00000000”.

4.6 ARINC 429 Tx/Rx Tests [Group 14]

These tests will verify that the A429 TX/RX circuitry is functioning correctly.

4.6.1 ARINC 429: Receiver Self Test

This test exercises the receiver and transmitter self-test function. The command transmits data on the IO FPGA ARINC test transmitter port and verifies that the ARINC receivers correctly receive the data. This test is an internal test only. No data is transmitted externally.

Step 1. Execute the “ARST P1” HTS command.

Step 2. Verify that the returned result is “PASS”.

4.6.2 ARINC 429: Transmitter Self Test

This test excercises each of the ARINC transmitters by routing each of the transmitters to the test receiver and verifying that the data is received correctly.   This test is an internal test only. No data is transmitted externally.

Step 1. Execute the “ATST P1” HTS command.

Step 2. Verify that the returned result is “PASS”.

4.6.3 ARINC 429: Tx1 / Rx22 Low Speed Test

This test exercises the ‘TCAS: TA/RA Display #1 A429 Output’ transmitter and the ‘ADIRU #3/ADR A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-13.

Table 4-13: ARINC 429 Tx1 / Rx22

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-7C	ARINC 429 Output #1 (A)	RTP-1J	ARINC 429 Input #22 (A)
RMP-7D	ARINC 429 Output #1 (B)	RTP-1K	ARINC 429 Input #22 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P1 22 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P1 1 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P1 1 AAAAAAAA“
“ATT P1 1 1234ABCD“
“ATT P1 1 ABCD1234“
“ATT P1 1 55555555“

Step 5. Read the data received by Rx22 by executing the “ARR P1 22 4” HTS command.

Step 6. Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.4 ARINC 429: Tx1 / Rx22 High Speed Test

This test exercises the ‘TCAS: TA/RA Display #1 A429 Output’ transmitter and the ‘ADIRU #3/ADR A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P1 22 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P1 1 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P1 1 55555555“
“ATT P1 1 ABCD1234”
“ATT P1 1 1234ABCD“
“ATT P1 1 AAAAAAAA“

Step 4. Read the data received by Rx22 by executing the “ARR P1 22 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.5 ARINC 429: Tx1 / Rx31 Low Speed Test

This test exercises the ‘TCAS: TA/RA Display #1 A429 Output’ transmitter and the ‘CFDIU (TAWS) A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-14.

Table 4-14: ARINC 429: Tx1 / Rx31

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-7C	ARINC 429 Output #1 (A)	RTP-4G	ARINC 429 Input #31 (A)
RMP-7D	ARINC 429 Output #1 (B)	RTP-4H	ARINC 429 Input #31 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P1 31 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P1 1 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P1 1 AAAAAAAA“”
“ATT P1 1 1234ABCD“
“ATT P1 1 ABCD1234“
“ATT P1 1 55555555“

Step 5. Read the data received by Rx31 by executing the “ARR P1 31 4” HTS command.

Step 6. Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.6 ARINC 429: Tx1 / Rx31 High Speed Test

This test exercises the ‘TCAS: TA/RA Display #1 A429 Output’ transmitter and the ‘CFDIU (TAWS) A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P1 31 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P1 1 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P1 1 55555555“
“ATT P1 1 ABCD1234“
“ATT P1 1 1234ABCD“
“ATT P1 1 AAAAAAAA“

Step 4. Read the data received by Rx31 by executing the “ARR P1 31 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.7 ARINC 429: Tx2 / Rx28 Low Speed Test

This test exercises the ‘TCAS: TA/RA Display #2 A429 Output’ transmitter and the ‘Spare A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-15.

Table 4-15: ARINC 429: Tx2 / Rx28

ARINC 429 Transmitter		**ARINC 429 Receiver**	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-7G	ARINC 429 Output #2 (A)	RTP-3J	ARINC 429 Input #28 (A)
RMP-7H	ARINC 429 Output #2 (B)	RTP-3K	ARINC 429 Input #28 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P1 28 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P1 2 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P1 2 AAAAAAAA“
“ATT P1 2 1234ABCD“
“ATT P1 2 ABCD1234“
“ATT P1 2 55555555“

Step 5: Read the data received by Rx28 by executing the “ARR P1 28 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.8 ARINC 429: Tx2/ Rx28 High Speed Test

This test exercises the ‘TCAS: TA/RA Display #2 A429 Output’ transmitter and the ‘Spare A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P1 28 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P1 2 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P1 2 55555555“
“ATT P1 2 ABCD1234“
“ATT P1 2 1234ABCD“
“ATT P1 2 AAAAAAAA“

Step 4. Read the data received by Rx28 by executing the “ARR P1 28 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.9 ARINC 429: Tx2 / Rx34 Low Speed Test

This test exercises the ‘TCAS: TA/RA Display #2 A429 Output’ transmitter and the ‘CFDIU (XPDR) A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-16.

Table 4-16: ARINC 429: Tx2 / Rx34

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-7G	ARINC 429 Output #2 (A)	RTP-5G	ARINC 429 Input #34 (A)
RMP-7H	ARINC 429 Output #2 (B)	RTP-5H	ARINC 429 Input #34 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P1 34 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P1 2 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P1 2 AAAAAAAA“
“ATT P1 2 1234ABCD“
“ATT P1 2 ABCD1234“
“ATT P1 2 55555555“

Step 5: Read the data received by Rx34 by executing the “ARR P1 34 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.10 ARINC 429: Tx2 / Rx34 High Speed Test

This test exercises the ‘TCAS: TA/RA Display #2 A429 Output’ transmitter and the ‘CFDIU (XPDR) A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P1 34 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P1 2 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P1 2 55555555“
“ATT P1 2 ABCD1234“
“ATT P1 2 1234ABCD“
“ATT P1 2 AAAAAAAA“

Step 4. Read the data received by Rx34 by executing the “ARR P1 34 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.11 ARINC 429: Tx3 / Rx36 Low Speed Test

This test exercises the ‘A615 Data Loader A429 Output’ transmitter and the ‘Air Data #3 A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-17.

Table 4-17: ARINC 429: Tx3 / Rx36

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-9A	ARINC 429 Output #3 (A)	RTP-2A	ARINC 429 Input #36 (A)
RMP-9B	ARINC 429 Output #3 (B)	RTP-2B	ARINC 429 Input #36 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P2 36 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P2 3 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P2 3 AAAAAAAA“
“ATT P2 3 1234ABCD“
“ATT P2 3 ABCD1234“
“ATT P2 3 55555555“

Step 5: Read the data received by Rx36 by executing the “ARR P2 36 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.12 ARINC 429: Tx3 / Rx36 High Speed Test

This test exercises the ‘A615 Data Loader A429 Output’ transmitter and the ‘Air Data #3 A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P2 36 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P2 3 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P2 3 55555555“
“ATT P2 3 ABCD1234“
“ATT P2 3 1234ABCD“
“ATT P2 3 AAAAAAAA“

Step 4. Read the data received by Rx36 by executing the “ARR P2 36 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.13 ARINC 429: Tx3 / Rx38 Low Speed Test

This test exercises the ‘A615 Data Loader A429 Output’ transmitter and the ‘Spare A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-18.

Table 4-18: ARINC 429: Tx3 / Rx38

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-9A	ARINC 429 Output #3 (A)	RTP-9A	ARINC 429 Input #38 (A)
RMP-9B	ARINC 429 Output #3 (B)	RTP-9B	ARINC 429 Input #38 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P2 38 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P2 3 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P2 3 AAAAAAAA“
“ATT P2 3 1234ABCD“
“ATT P2 3 ABCD1234“
“ATT P2 3 55555555“

Step 5: Read the data received by Rx38 by executing the “ARR P2 38 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.14 ARINC 429: Tx3 / Rx38 High Speed Test

This test exercises the ‘A615 Data Loader A429 Output’ transmitter and the ‘Spare A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P2 38 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P2 3 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P2 3 55555555“
“ATT P2 3 ABCD1234“
“ATT P2 3 1234ABCD“
“ATT P2 3 AAAAAAAA“

Step 4. Read the data received by Rx38 by executing the “ARR P2 38 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.15 ARINC 429: Tx4 / Rx2 Low Speed Test

This test exercises the ‘TAWS Test A429 Output’ transmitter and the ‘ADIRU #1/ADC A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-19.

Table 4-19: ARINC 429: Tx4 / Rx2

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RTP-8G	ARINC 429 Output #4 (A)	RMP-11J	ARINC 429 Input #2 (A)
RTP-8H	ARINC 429 Output #4 (B)	RMP-11K	ARINC 429 Input #2 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P2 2 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P2 4 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P2 4 AAAAAAAA“
“ATT P2 4 1234ABCD“
“ATT P2 4 ABCD1234“
“ATT P2 4 55555555“

Step 5: Read the data received by Rx2 by executing the “ARR P2 2 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.16 ARINC 429: Tx4 / Rx2 High Speed Test

This test exercises the ‘TAWS Test A429 Output’ transmitter and the ‘ADIRU #1/ADC A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P2 2 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P2 4 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P2 4 55555555“
“ATT P2 4 ABCD1234“
“ATT P2 4 1234ABCD“
“ATT P2 4 AAAAAAAA“

Step 4. Read the data received by Rx2 by executing the “ARR P2 2 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.17 ARINC 429: Tx4 / Rx18 Low Speed Test

This test exercises the ‘TAWS Test A429 Output’ transmitter and the ‘Spare A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-20.

Table 4-20: ARINC 429: Tx4 / Rx18

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RTP-8G	ARINC 429 Output #4 (A)	RTP-3J	ARINC 429 Input #28 (A)
RTP-8H	ARINC 429 Output #4 (B)	RTP-3K	ARINC 429 Input #28 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P2 18 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P2 4 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P2 4 AAAAAAAA“
“ATT P2 4 1234ABCD“
“ATT P2 4 ABCD1234“
“ATT P2 4 55555555“

Step 5: Read the data received by Rx18 by executing the “ARR P2 18 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.18 ARINC 429: Tx4 / Rx18 High Speed Test

This test exercises the ‘TAWS Test A429 Output’ transmitter and the ‘Spare A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P2 18 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P2 4 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P2 4 55555555“
“ATT P2 4 ABCD1234“
“ATT P2 4 1234ABCD“
“ATT P2 4 AAAAAAAA“

Step 4. Read the data received by Rx18 by executing the “ARR P2 18 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.19 ARINC 429: Tx5 / Rx25 Low Speed Test

This test exercises the ‘Spare A429 Output’ transmitter and the ‘FCU #1 A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-21.

Table 4-21: ARINC 429: Tx5 / Rx25

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RTP-9G	ARINC 429 Output #5 (A)	RTP-3C	ARINC 429 Input #25 (A)
RTP-9H	ARINC 429 Output #5 (B)	RTP-3D	ARINC 429 Input #25 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P2 25 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P2 5 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P2 5 AAAAAAAA“
“ATT P2 5 1234ABCD“
“ATT P2 5 ABCD1234“
“ATT P2 5 55555555“

Step 5: Read the data received by Rx25 by executing the “ARR P2 25 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.20 ARINC 429: Tx5 / Rx25 High Speed Test

This test exercises the ‘Spare A429 Output’ transmitter and the ‘FCU #1 A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P2 25 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P2 5 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P2 5 55555555“
“ATT P2 5 ABCD1234“
“ATT P2 5 1234ABCD“
“ATT P2 5 AAAAAAAA“

Step 4. Read the data received by Rx25 by executing the “ARR P2 25 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.21 ARINC 429: Tx5 / Rx29 Low Speed Test

This test exercises the ‘Spare A429 Output’ transmitter and the ‘Slat/Flap Control Computer A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-22.

Table 4-22: ARINC 429: Tx5 / Rx29

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RTP-9G	ARINC 429 Output #5 (A)	RTP-4A	ARINC 429 Input #29 (A)
RTP-9H	ARINC 429 Output #5 (B)	RTP-4B	ARINC 429 Input #29 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the "ARS P3 29 L G P" HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the "ATS P3 5 L E G R 0" HTS command.

Step 4. Transmit data by executing the HTS commands:

"ATT P3 5 AAAAAAAA"
"ATT P3 5 1234ABCD"
"ATT P3 5 ABCD1234"
"ATT P3 5 55555555"

Step 5: Read the data received by Rx29 by executing the "ARR P3 29 4" HTS command.

Step 6: Verify that the result is equal to "2AAAAAAA 1234ABCD ABCD1234 D5555555".

4.6.22 ARINC 429: Tx5 / Rx29 High Speed Test

This test exercises the 'Spare A429 Output' transmitter and the 'Slat/Flap Control Computer A429 Input' receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the "ARS P3 29 H G P " HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P3 5 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

"ATT P3 5 55555555"
"ATT P3 5 ABCD1234"
"ATT P3 5 1234ABCD"
"ATT P3 5 AAAAAAAA"

Step 4. Read the data received by Rx29 by executing the "ARR P3 29 4" HTS command.

Step 5. Verify that the result is equal to "D5555555 ABCD1234 1234ABCD 2AAAAAAA".

4.6.23 ARINC 429: Tx6 / Rx27 Low Speed Test

This test exercises the 'MCDU A429 Output' transmitter and the 'FCU #2 A429 Input' receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-23.

Table 4-23: ARINC 429: Tx6 / Rx27

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-9G	ARINC 429 Output #6 (A)	RTP-3G	ARINC 429 Input #27 (A)
RMP-9H	ARINC 429 Output #6 (B)	RTP-3H	ARINC 429 Input #27 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P3 27 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P3 6 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P3 6 AAAAAAAA“
“ATT P3 6 1234ABCD“
“ATT P3 6 ABCD1234“
“ATT P3 6 55555555“

Step 5: Read the data received by Rx27 by executing the “ARR P3 27 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.24 ARINC 429: Tx6 / Rx27 High Speed Test

This test exercises the ‘MCDU A429 Output’ transmitter and the ‘FCU #2 A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P3 27 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P3 6 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P3 6 55555555“
“ATT P3 6 ABCD1234“
“ATT P3 6 1234ABCD“
“ATT P3 6 AAAAAAAA“

Step 4. Read the data received by Rx27 by executing the “ARR P3 27 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.25 ARINC 429: Tx6 / Rx4 Low Speed Test

This test exercises the ‘MCDU A429 Output’ transmitter and the ‘A615 Data Loader A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-24.

Table 4-24: ARINC 429: Tx6 / Rx4

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-9G	ARINC 429 Output #6 (A)	RMP-8A	ARINC 429 Input #4 (A)
RMP-9H	ARINC 429 Output #6 (B)	RMP-8B	ARINC 429 Input #4 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P3 4 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P3 6 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P3 6 AAAAAAAA“
“ATT P3 6 1234ABCD“
“ATT P3 6 ABCD1234“
“ATT P3 6 55555555“

Step 5: Read the data received by Rx4 by executing the “ARR P3 4 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.26 ARINC 429: Tx6 / Rx4 High Speed Test

This test exercises the ‘MCDU A429 Output’ transmitter and the ‘A615 Data Loader A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P3 4 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P3 6 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P3 6 55555555“
“ATT P3 6 ABCD1234“
“ATT P3 6 1234ABCD“
“ATT P3 6 AAAAAAAA“

Step 4. Read the data received by Rx4 by executing the “ARR P3 4 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.27 ARINC 429: Tx7 / Rx35 Low Speed Test

This test exercises the ‘TAWS: ASAS Application A429 Output’ transmitter and the ‘FMC #1, Own C, NAV Modes A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-25.

Table 4-25: ARINC 429: Tx7 / Rx35

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-9J	ARINC 429 Output #7 (A)	RTP-6A	ARINC 429 Input #35 (A)
RMP-9K	ARINC 429 Output #7 (B)	RTP-6B	ARINC 429 Input #35 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P3 35 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P3 7 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P3 7 AAAAAAAA“
“ATT P3 7 1234ABCD“
“ATT P3 7 ABCD1234“
“ATT P3 7 55555555“

Step 5: Read the data received by Rx35 by executing the “ARR P3 35 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.28 ARINC 429: Tx7 / Rx35 High Speed Test

This test exercises the ‘TAWS: ASAS Application A429 Output’ transmitter and the ‘FMC #1, Own C, NAV Modes A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P3 35 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P3 7 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P3 7 55555555“
“ATT P3 7 ABCD1234“
“ATT P3 7 1234ABCD“
“ATT P3 7 AAAAAAAA“

Step 4. Read the data received by Rx35 by executing the “ARR P3 35 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.29 ARINC 429: Tx7 / Rx11 Low Speed Test

This test exercises the ‘TAWS: ASAS Application A429 Output’ transmitter and the ‘Radio Altitude A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-26.

Table 4-26: ARINC 429: Tx7 / Rx11

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-9J	ARINC 429 Output #7 (A)	RMP-13H	ARINC 429 Input #11 (A)
RMP-9K	ARINC 429 Output #7 (B)	RMP-13J	ARINC 429 Input #11 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P3 11 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P3 7 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P3 7 AAAAAAAA“
“ATT P3 7 1234ABCD“
“ATT P3 7 ABCD1234“
“ATT P3 7 55555555“

Step 5: Read the data received by Rx11 by executing the “ARR P3 11 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.30 ARINC 429: Tx7 / Rx11 High Speed Test

This test exercises the ‘TAWS: ASAS Application A429 Output’ transmitter and the ‘Radio Altitude A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P3 11 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P3 7 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P3 7 55555555“
“ATT P3 7 ABCD1234“
“ATT P3 7 1234ABCD“
“ATT P3 7 AAAAAAAA“

Step 4. Read the data received by Rx11 by executing the “ARR P3 11 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.31 ARINC 429: Tx8 / Rx12 Low Speed Test

This test exercises the ‘Reserved A429 Output’ transmitter and the ‘FCU #2 A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-27.

Table 4-27: ARINC 429: Tx8 / Rx12

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-15E	ARINC 429 Output #8 (A)	RMP-14D	ARINC 429 Input #12 (A)
RMP-15F	ARINC 429 Output #8 (B)	RMP-14E	ARINC 429 Input #12 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P1 12 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P1 8 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P1 8 AAAAAAAA“
“ATT P1 8 1234ABCD“
“ATT P1 8 ABCD1234“
“ATT P1 8 55555555“

Step 5: Read the data received by Rx12 by executing the “ARR P1 12 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.32 ARINC 429: Tx8 / Rx12 High Speed Test

This test exercises the ‘Reserved A429 Output’ transmitter and the ‘FCU #2 A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P1 12 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P1 8 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P1 8 55555555“
“ATT P1 8 ABCD1234“
“ATT P1 8 1234ABCD“
“ATT P1 8 AAAAAAAA“

Step 4. Read the data received by Rx12 by executing the “ARR P1 12 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.33 ARINC 429: Tx8 / Rx17 Low Speed Test

This test exercises the ‘Reserved A429 Output’ transmitter and the ‘Radio Altitude A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-28.

Table 4-28: ARINC 429: Tx8 / Rx17

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-15E	ARINC 429 Output #8 (A)	RBP-3D	ARINC 429 Input #17 (A)
RMP-15F	ARINC 429 Output #8 (B)	RBP-3E	ARINC 429 Input #17 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the "ARS P1 17 L G P" HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the "ATS P1 8 L E G R 0" HTS command.

Step 4. Transmit data by executing the HTS commands:

"ATT P1 8 AAAAAAAA"
"ATT P1 8 1234ABCD"
"ATT P1 8 ABCD1234"
"ATT P1 8 55555555"

Step 5: Read the data received by Rx17 by executing the "ARR P1 17 4" HTS command.

Step 6: Verify that the result is equal to "2AAAAAAA 1234ABCD ABCD1234 D5555555".

4.6.34 ARINC 429: Tx8 / Rx17 High Speed Test

This test exercises the 'Reserved A429 Output' transmitter and the 'Radio Altitude A429 Input' receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the "ARS P1 17 H G P " HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P1 8 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

"ATT P1 8 55555555"
"ATT P1 8 ABCD1234"
"ATT P1 8 1234ABCD"
"ATT P1 8 AAAAAAAA"

Step 4. Read the data received by Rx17 by executing the "ARR P1 17 4" HTS command.

Step 5. Verify that the result is equal to "D5555555 ABCD1234 1234ABCD 2AAAAAAA".

4.6.35 ARINC 429: Tx9 / Rx24 Low Speed Test

This test exercises the 'RA Display #1 A429 Output' transmitter and the 'ILS #1 A429 Input' receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-29.

Table 4-29: ARINC 429: Tx9 / Rx24

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-13A	ARINC 429 Output #9 (A)	RTP-3A	ARINC 429 Input #24 (A)
RMP-13B	ARINC 429 Output #9 (B)	RTP-3B	ARINC 429 Input #24 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the "ARS P1 24 L G P" HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the "ATS P1 9 L E G R 0" HTS command.

Step 4. Transmit data by executing the HTS commands:

"ATT P1 9 AAAAAAAA"
"ATT P1 9 1234ABCD"
"ATT P1 9 ABCD1234"
"ATT P1 9 55555555"

Step 5: Read the data received by Rx24 by executing the "ARR P1 24 4" HTS command.

Step 6: Verify that the result is equal to "2AAAAAAA 1234ABCD ABCD1234 D5555555".

4.6.36 ARINC 429: Tx9 / Rx24 High Speed Test

This test exercises the 'RA Display #1 A429 Output' transmitter and the 'ILS #1 A429 Input' receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the "ARS P1 24 H G P " HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P1 9 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

"ATT P1 9 55555555"
"ATT P1 9 ABCD1234"
"ATT P1 9 1234ABCD"
"ATT P1 9 AAAAAAAA"

Step 4. Read the data received by Rx24 by executing the "ARR P1 24 4" HTS command.

Step 5. Verify that the result is equal to "D5555555 ABCD1234 1234ABCD 2AAAAAAA".

4.6.37 ARINC 429: Tx9 / Rx21 Low Speed Test

This test exercises the 'RA Display #1 A429 Output' transmitter and the 'FMC #1, EIS A429 Input' receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-30.

Table 4-30: ARINC 429: Tx9 / Rx21

ARINC 429 Transmitter		**ARINC 429 Receiver**	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-13A	ARINC 429 Output #9 (A)	RTP-1G	ARINC 429 Input #21 (A)
RMP-13B	ARINC 429 Output #9 (B)	RTP-1H	ARINC 429 Input #21 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the "ARS P1 21 L G P" HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the "ATS P1 9 L E G R 0" HTS command.

Step 4. Transmit data by executing the HTS commands:

"ATT P1 9 AAAAAAAA"
"ATT P1 9 1234ABCD"
"ATT P1 9 ABCD1234"
"ATT P1 9 55555555"

Step 5: Read the data received by Rx21 by executing the "ARR P1 21 4" HTS command.

Step 6: Verify that the result is equal to "2AAAAAAA 1234ABCD ABCD1234 D5555555".

4.6.38 ARINC 429: Tx9 / Rx21 High Speed Test

This test exercises the 'RA Display #1 A429 Output' transmitter and the 'FMC #1, EIS A429 Input' receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the "ARS P1 21 H G P " HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P1 9 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

"ATT P1 9 55555555"
"ATT P1 9 ABCD1234"
"ATT P1 9 1234ABCD"
"ATT P1 9 AAAAAAAA"

Step 4. Read the data received by Rx21 by executing the "ARR P1 21 4" HTS command.

Step 5. Verify that the result is equal to "D5555555 ABCD1234 1234ABCD 2AAAAAAA".

4.6.39 ARINC 429: Tx10 / Rx6 Low Speed Test

This test exercises the 'RA Display #2 A429 Output' transmitter and the 'MCDU #1 A429 Input' receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-31.

Table 4-31: ARINC 429: Tx10 / Rx6

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-13C	ARINC 429 Output #10 (A)	RMP-8E	ARINC 429 Input #6 (A)
RMP-13D	ARINC 429 Output #10 (B)	RMP-8F	ARINC 429 Input #6 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P1 6 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P1 10 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P1 10 AAAAAAAA“
“ATT P1 10 1234ABCD“
“ATT P1 10 ABCD1234“
“ATT P1 10 55555555“

Step 5: Read the data received by Rx6 by executing the “ARR P1 6 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.40 ARINC 429: Tx10 / Rx6 High Speed Test

This test exercises the ‘RA Display #2 A429 Output’ transmitter and the ‘MCDU #1 A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P1 6 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P1 10 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P1 10 55555555“
“ATT P1 10 ABCD1234“
“ATT P1 10 1234ABCD“
“ATT P1 10 AAAAAAAA“

Step 4. Read the data received by Rx6 by executing the “ARR P1 6 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.41 ARINC 429: Tx10 / Rx37 Low Speed Test

This test exercises the ‘RA Display #2 A429 Output’ transmitter and the ‘ADIRU/IRS #2 A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-32.

Table 4-32: ARINC 429: Tx10 / Rx37

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-13C	ARINC 429 Output #10 (A)	RTP-2C	ARINC 429 Input #37 (A)
RMP-13D	ARINC 429 Output #10 (B)	RTP-2D	ARINC 429 Input #37 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P2 37 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P2 10 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P2 10 AAAAAAAA“
“ATT P2 10 1234ABCD“
“ATT P2 10 ABCD1234“
“ATT P2 10 55555555“

Step 5: Read the data received by Rx37 by executing the “ARR P2 37 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.42 ARINC 429: Tx10 / Rx37 High Speed Test

This test exercises the ‘RA Display #2 A429 Output’ transmitter and the ‘ADIRU/IRS #2 A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P2 37 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P2 10 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P2 10 55555555“
“ATT P2 10 ABCD1234“
“ATT P2 10 1234ABCD“
“ATT P2 10 AAAAAAAA“

Step 4. Read the data received by Rx37 by executing the “ARR P2 37 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.43 ARINC 429: Tx11 / Rx8 Low Speed Test

This test exercises the ‘TX Coordination #2 A429 Output’ transmitter and the ‘MCDU #2 A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-33.

Table 4-33: ARINC 429: Tx11 / Rx8

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-14A	ARINC 429 Output #11 (A)	RMP-8J	ARINC 429 Input #8 (A)
RMP-14B	ARINC 429 Output #11 (B)	RMP-8K	ARINC 429 Input #8 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P2 8 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P2 11 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P2 11 AAAAAAAA“
“ATT P2 11 1234ABCD“
“ATT P2 11 ABCD1234“
“ATT P2 11 55555555“

Step 5: Read the data received by Rx8 by executing the “ARR P2 8 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.44 ARINC 429: Tx11 / Rx8 High Speed Test

This test exercises the ‘TX Coordination #2 A429 Output’ transmitter and the ‘MCDU #2 A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P2 8 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P2 11 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P2 11 55555555“
“ATT P2 11 ABCD1234“
“ATT P2 11 1234ABCD“
“ATT P2 11 AAAAAAAA“

Step 4. Read the data received by Rx8 by executing the “ARR P2 8 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.45 ARINC 429: Tx11 / Rx33 Low Speed Test

This test exercises the ‘TX Coordination #2 A429 Output’ transmitter and the ‘Spare A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-34.

Table 4-34: ARINC 429: Tx11 / Rx33

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-14A	ARINC 429 Output #11 (A)	RTP-5D	ARINC 429 Input #33 (A)
RMP-14B	ARINC 429 Output #11 (B)	RTP-5E	ARINC 429 Input #33 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the "ARS P2 33 L G P" HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the "ATS P2 11 L E G R 0" HTS command.

Step 4. Transmit data by executing the HTS commands:

"ATT P2 11 AAAAAAAA"
"ATT P2 11 1234ABCD"
"ATT P2 11 ABCD1234"
"ATT P2 11 55555555"

Step 5: Read the data received by Rx33 by executing the "ARR P2 33 4" HTS command.

Step 6: Verify that the result is equal to "2AAAAAAA 1234ABCD ABCD1234 D5555555".

4.6.46 ARINC 429: Tx11 / Rx33 High Speed Test

This test exercises the 'TX Coordination #2 A429 Output' transmitter and the 'Spare A429 Input' receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the "ARS P2 33 H G P " HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P2 11 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

"ATT P2 11 55555555"
"ATT P2 11 ABCD1234"
"ATT P2 11 1234ABCD"
"ATT P2 11 AAAAAAAA"

Step 4. Read the data received by Rx33 by executing the "ARR P2 33 4" HTS command.

Step 5. Verify that the result is equal to "D5555555 ABCD1234 1234ABCD 2AAAAAAA".

4.6.47 ARINC 429: Tx12 / Rx15 Low Speed Test

This test exercises the 'Reserved A429 Output' transmitter and the 'Reserved A429 Input' receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-35.

Table 4-35: ARINC 429: Tx12 / Rx15

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-15G	ARINC 429 Output #12 (A)	RMP-15A	ARINC 429 Input #15 (A)
RMP-15H	ARINC 429 Output #12 (B)	RMP-15B	ARINC 429 Input #15 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P2 15 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P2 12 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P2 12 AAAAAAAA“
“ATT P2 12 1234ABCD“
“ATT P2 12 ABCD1234“
“ATT P2 12 55555555“

Step 5: Read the data received by Rx15 by executing the “ARR P2 15 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.48 ARINC 429: Tx12 / Rx15 High Speed Test

This test exercises the ‘Reserved A429 Output’ transmitter and the ‘Reserved A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P2 15 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P2 12 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P2 12 55555555“
“ATT P2 12 ABCD1234“
“ATT P2 12 1234ABCD“
“ATT P2 12 AAAAAAAA“

Step 4. Read the data received by Rx15 by executing the “ARR P2 15 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.49 ARINC 429: Tx12 / Rx3 Low Speed Test

This test exercises the ‘Reserved A429 Output’ transmitter and the ‘ADIRU/IRS #1 A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-36.

Table 4-36: ARINC 429: Tx12 / Rx3

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-15G	ARINC 429 Output #12 (A)	RMP-7A	ARINC 429 Input #3 (A)
RMP-15H	ARINC 429 Output #12 (B)	RMP-7B	ARINC 429 Input #3 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P2 3 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P2 12 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P2 12 AAAAAAAA“
“ATT P2 12 1234ABCD“
“ATT P2 12 ABCD1234“
“ATT P2 12 55555555“

Step 5: Read the data received by Rx3 by executing the “ARR P2 3 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.50 ARINC 429: Tx12 / Rx3 High Speed Test

This test exercises the ‘Reserved A429 Output’ transmitter and the ‘ADIRU/IRS #1 A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P2 3 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P2 12 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P2 12 55555555“
“ATT P2 12 ABCD1234“
“ATT P2 12 1234ABCD“
“ATT P2 12 AAAAAAAA“

Step 4. Read the data received by Rx3 by executing the “ARR P2 3 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.51 ARINC 429: Tx13 / Rx16 Low Speed Test

This test exercises the ‘TX Coordination #1 A429 Output’ transmitter and the ‘FMC #1: EIS Data A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-37.

Table 4-37: ARINC 429: Tx13 / Rx16

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-15J	ARINC 429 Output #13 (A)	RMP-11G	ARINC 429 Input #16 (A)
RMP-15K	ARINC 429 Output #13 (B)	RMP-11H	ARINC 429 Input #16 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P3 16 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P3 13 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P3 13 AAAAAAAA“
“ATT P3 13 1234ABCD“
“ATT P3 13 ABCD1234“
“ATT P3 13 55555555“

Step 5: Read the data received by Rx16 by executing the “ARR P3 16 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.52 ARINC 429: Tx13 / Rx16 High Speed Test

This test exercises the ‘TX Coordination #1 A429 Output’ transmitter and the ‘FMC #1: EIS Data A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P3 16 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P3 13 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P3 13 55555555“
“ATT P3 13 ABCD1234“
“ATT P3 13 1234ABCD“
“ATT P3 13 AAAAAAAA“

Step 4. Read the data received by Rx16 by executing the “ARR P3 16 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.53 ARINC 429: Tx13 / Rx23 Low Speed Test

This test exercises the ‘TX Coordination #1 A429 Output’ transmitter and the ‘WXR/PWS Bus #1 A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-38.

Table 4-38: ARINC 429: Tx13 / Rx23

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RMP-15J	ARINC 429 Output #13 (A)	RTP-2E	ARINC 429 Input #23 (A)
RMP-15K	ARINC 429 Output #13 (B)	RTP-2F	ARINC 429 Input #23 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P3 23 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P3 13 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P3 13 AAAAAAAA“
“ATT P3 13 1234ABCD“
“ATT P3 13 ABCD1234“
“ATT P3 13 55555555“

Step 5: Read the data received by Rx23 by executing the “ARR P3 23 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.54 ARINC 429: Tx13 / Rx23 High Speed Test

This test exercises the ‘TX Coordination #1 A429 Output’ transmitter and the ‘WXR/PWS Bus #1 A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P3 23 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P3 13 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P3 13 55555555“
“ATT P3 13 ABCD1234“
“ATT P3 13 1234ABCD“
“ATT P3 13 AAAAAAAA“

Step 4. Read the data received by Rx23 by executing the “ARR P3 23 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.55 ARINC 429: Tx14 / Rx26 Low Speed Test

This test exercises the ‘CFDIU (TCAS) A429 Output’ transmitter and the ‘FMC #1, Own A, Engine Out (TAWS) A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-39.

Table 4-39: ARINC 429: Tx14 / Rx26

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RBP-6E	ARINC 429 Output #14 (A)	RTP-3E	ARINC 429 Input #26 (A)
RBP-6F	ARINC 429 Output #14 (B)	RTP-3F	ARINC 429 Input #26 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P3 26 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P3 14 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P3 14 AAAAAAAA“
“ATT P3 14 1234ABCD“
“ATT P3 14 ABCD1234“
“ATT P3 14 55555555“

Step 5: Read the data received by Rx26 by executing the “ARR P3 26 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.56 ARINC 429: Tx14 / Rx26 High Speed Test

This test exercises the ‘CFDIU (TCAS) A429 Output’ transmitter and the ‘FMC #1, Own A, Engine Out (TAWS) A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P3 26 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P3 14 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P3 14 55555555“
“ATT P3 14 ABCD1234“
“ATT P3 14 1234ABCD“
“ATT P3 14 AAAAAAAA“

Step 4. Read the data received by Rx26 by executing the “ARR P3 26 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.57 ARINC 429: Tx14 / Rx20 Low Speed Test

This test exercises the ‘CFDIU (TCAS) A429 Output’ transmitter and the ‘GPSSU/MMR GPS (TAWS) Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-40.

Table 4-40: ARINC 429: Tx14 / Rx20

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RBP-6E	ARINC 429 Output #14 (A)	RTP-1C	ARINC 429 Input #20 (A)
RBP-6F	ARINC 429 Output #14 (B)	RTP-1D	ARINC 429 Input #20 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the "ARS P3 20 L G P" HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the "ATS P3 14 L E G R 0" HTS command.

Step 4. Transmit data by executing the HTS commands:

"ATT P3 14 AAAAAAAA"
"ATT P3 14 1234ABCD"
"ATT P3 14 ABCD1234"
"ATT P3 14 55555555"

Step 5: Read the data received by Rx20 by executing the "ARR P3 20 4" HTS command.

Step 6: Verify that the result is equal to "2AAAAAAA 1234ABCD ABCD1234 D5555555".

4.6.58 ARINC 429: Tx14 / Rx20 High Speed Test

This test exercises the 'CFDIU (TCAS) A429 Output' transmitter and the 'GPSSU/MMR GPS (TAWS) Input' receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the "ARS P3 20 H G P " HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P3 14 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

"ATT P3 14 55555555"
"ATT P3 14 ABCD1234"
"ATT P3 14 1234ABCD"
"ATT P3 14 AAAAAAAA"

Step 4. Read the data received by Rx20 by executing the "ARR P3 20 4" HTS command.

Step 5. Verify that the result is equal to "D5555555 ABCD1234 1234ABCD 2AAAAAAA".

4.6.59 ARINC 429: Tx15 / Rx32 Low Speed Test

This test exercises the 'CFDIU (TAWS and GCAM) A429 Output' transmitter and the 'WXPR/PWS Bus #2 A429 Input' receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-41.

Table 4-41: ARINC 429: Tx15 / Rx32

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RTP-8A	ARINC 429 Output #15 (A)	RTP-5A	ARINC 429 Input #32 (A)
RTP-8B	ARINC 429 Output #15 (B)	RTP-5B	ARINC 429 Input #32 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P3 32 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P3 15 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P3 15 AAAAAAAA“
“ATT P3 15 1234ABCD“
“ATT P3 15 ABCD1234“
“ATT P3 15 55555555“

Step 5: Read the data received by Rx32 by executing the “ARR P3 32 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.60 ARINC 429: Tx15 / Rx32 High Speed Test

This test exercises the ‘CFDIU (TAWS and GCAM) A429 Output’ transmitter and the ‘WXPR/PWS Bus #2 A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P3 32 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P3 15 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P3 15 55555555“
“ATT P3 15 ABCD1234“
“ATT P3 15 1234ABCD“
“ATT P3 15 AAAAAAAA“

Step 4. Read the data received by Rx32 by executing the “ARR P3 32 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.61 ARINC 429: Tx15 / Rx5 Low Speed Test

This test exercises the ‘CFDIU (TAWS and GCAM) A429 Output’ transmitter and the ‘TA/RA Display Control #1 A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-42.

Table 4-42: ARINC 429: Tx15 / Rx5

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RTP-8A	ARINC 429 Output #15 (A)	RMP-8C	ARINC 429 Input #5 (A)
RTP-8B	ARINC 429 Output #15 (B)	RMP-8D	ARINC 429 Input #5 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the "ARS P1 5 L G P" HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the "ATS P1 15 L E G R 0" HTS command.

Step 4. Transmit data by executing the HTS commands:

"ATT P1 15 AAAAAAAA"
"ATT P1 15 1234ABCD"
"ATT P1 15 ABCD1234"
"ATT P1 15 55555555"

Step 5: Read the data received by Rx5 by executing the "ARR P1 5 4" HTS command.

Step 6: Verify that the result is equal to "2AAAAAAA 1234ABCD ABCD1234 D5555555".

4.6.62 ARINC 429: Tx15 / Rx5 High Speed Test

This test exercises the 'CFDIU (TAWS and GCAM) A429 Output' transmitter and the 'TA/RA Display Control #1 A429 Input' receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the "ARS P1 5 H G P " HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P1 15 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

"ATT P1 15 55555555"
"ATT P1 15 ABCD1234"
"ATT P1 15 1234ABCD"
"ATT P1 15 AAAAAAAA"

Step 4. Read the data received by Rx5 by executing the "ARR P1 5 4" HTS command.

Step 5. Verify that the result is equal to "D5555555 ABCD1234 1234ABCD 2AAAAAAA".

4.6.63 ARINC 429: Tx16 / Rx10 Low Speed Test

This test exercises the 'MCDU #1 A429 Output' transmitter and the 'FMC #1, Own A, Engine Out (TCAS) A429 Input' receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-43.

Table 4-43: ARINC 429: Tx16 / Rx10

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RTP-8E	ARINC 429 Output #16 (A)	RMP-6A	ARINC 429 Input #10 (A)
RTP-8F	ARINC 429 Output #16 (B)	RMP-6B	ARINC 429 Input #10 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the "ARS P1 10 L G P" HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the "ATS P1 16 L E G R 0" HTS command.

Step 4. Transmit data by executing the HTS commands:

"ATT P1 16 AAAAAAAA"
"ATT P1 16 1234ABCD"
"ATT P1 16 ABCD1234"
"ATT P1 16 55555555"

Step 5: Read the data received by Rx10 by executing the "ARR P1 10 4" HTS command.

Step 6: Verify that the result is equal to "2AAAAAAA 1234ABCD ABCD1234 D5555555".

4.6.64 ARINC 429: Tx16 / Rx10 High Speed Test

This test exercises the 'MCDU #1 A429 Output' transmitter and the 'FMC #1, Own A, Engine Out (TCAS) A429 Input' receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the "ARS P1 10 H G P " HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P1 16 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

"ATT P1 16 55555555"
"ATT P1 16 ABCD1234"
"ATT P1 16 1234ABCD"
"ATT P1 16 AAAAAAAA"

Step 4. Read the data received by Rx10 by executing the "ARR P1 10 4" HTS command.

Step 5. Verify that the result is equal to "D5555555 ABCD1234 1234ABCD 2AAAAAAA".

4.6.65 ARINC 429: Tx16 / Rx7 Low Speed Test

This test exercises the 'MCDU #1 A429 Output' transmitter and the 'TA/RA Display Control #2 A429 Input' receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-44.

Table 4-44: ARINC 429: Tx16 / Rx7

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RTP-8E	ARINC 429 Output #16 (A)	RMP-8G	ARINC 429 Input #7 (A)
RTP-8F	ARINC 429 Output #16 (B)	RMP-8H	ARINC 429 Input #7 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P1 7 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P1 16 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P1 16 AAAAAAAA“
“ATT P1 16 1234ABCD“
“ATT P1 16 ABCD1234“
“ATT P1 16 55555555“

Step 5: Read the data received by Rx7 by executing the “ARR P1 7 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.66 ARINC 429: Tx16 / Rx7 High Speed Test

This test exercises the ‘MCDU #1 A429 Output’ transmitter and the ‘TA/RA Display Control #2 A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P1 7 H G P” HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P1 16 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P1 16 55555555“
“ATT P1 16 ABCD1234“
“ATT P1 16 1234ABCD“
“ATT P1 16 AAAAAAAA“

Step 4. Read the data received by Rx7 by executing the “ARR P1 7 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.67 ARINC 429: Tx17 / Rx9 Low Speed Test

This test exercises the ‘DFDR A429 Output’ transmitter and the ‘MMR/GPS #1 A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-45.

Table 4-45: ARINC 429: Tx17 / Rx9

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RTP-8J	ARINC 429 Output #17 (A)	RMP-11E	ARINC 429 Input #9 (A)
RTP-8K	ARINC 429 Output #17 (B)	RMP-11F	ARINC 429 Input #9 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P1 9 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P1 17 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P1 17 AAAAAAAA“
“ATT P1 17 1234ABCD“
“ATT P1 17 ABCD1234“
“ATT P1 17 55555555“

Step 5: Read the data received by Rx9 by executing the “ARR P1 9 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.68 ARINC 429: Tx17 / Rx9 High Speed Test

This test exercises the ‘DFDR A429 Output’ transmitter and the ‘MMR/GPS #1 A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P1 9 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P1 17 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P1 17 55555555“
“ATT P1 17 ABCD1234“
“ATT P1 17 1234ABCD“
“ATT P1 17 AAAAAAAA“

Step 4. Read the data received by Rx9 by executing the “ARR P1 9 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.69 ARINC 429: Tx17 / Rx30 Low Speed Test

This test exercises the ‘DFDR A429 Output’ transmitter and the ‘ATC/TCAS Control Data Input Port B A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-46.

Table 4-46: ARINC 429: Tx17 / Rx30

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RTP-8J	ARINC 429 Output #17 (A)	RTP-4D	ARINC 429 Input #30 (A)
RTP-8K	ARINC 429 Output #17 (B)	RTP-4E	ARINC 429 Input #30 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P1 30 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P1 17 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P1 17 AAAAAAAA“
“ATT P1 17 1234ABCD“
“ATT P1 17 ABCD1234“
“ATT P1 17 55555555“

Step 5: Read the data received by Rx30 by executing the “ARR P1 30 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.70 ARINC 429: Tx17 / Rx30 High Speed Test

This test exercises the ‘DFDR A429 Output’ transmitter and the ‘ATC/TCAS Control Data Input Port B A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P1 30 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P1 17 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P1 17 55555555“
“ATT P1 17 ABCD1234“
“ATT P1 17 1234ABCD“
“ATT P1 17 AAAAAAAA“

Step 4. Read the data received by Rx30 by executing the “ARR P1 30 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.71 ARINC 429: Tx18 / Rx1 Low Speed Test

This test exercises the ‘Spare A429 Output’ transmitter and the ‘MMR/GPS #2 A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-47.

Table 4-47: ARINC 429: Tx18 / Rx1

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RTP-15B	ARINC 429 Output #18 (A)	RMP-15C	ARINC 429 Input #1 (A)
RTP-15C	ARINC 429 Output #18 (B)	RMP-15D	ARINC 429 Input #1 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P2 1 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P2 18 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P2 18 AAAAAAAA“
“ATT P2 18 1234ABCD“
“ATT P2 18 ABCD1234“
“ATT P2 18 55555555“

Step 5: Read the data received by Rx1 by executing the “ARR P2 1 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.72 ARINC 429: Tx18 / Rx1 High Speed Test

This test exercises the ‘Spare A429 Output’ transmitter and the ‘MMR/GPS #2 A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P2 1 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P2 18 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P2 18 55555555“
“ATT P2 18 ABCD1234“
“ATT P2 18 1234ABCD“
“ATT P2 18 AAAAAAAA“

Step 4. Read the data received by Rx1 by executing the “ARR P2 1 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.73 ARINC 429: Tx18 / Rx13 Low Speed Test

This test exercises the ‘Spare A429 Output’ transmitter and the ‘XT Coordination #1 A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-48.

Table 4-48: ARINC 429: Tx18 / Rx13

ARINC 429 Transmitter		ARINC 429 Receiver	
ARINC 600 Pin	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
RTP-15B	ARINC 429 Output #18 (A)	RMP-14F	ARINC 429 Input #13 (A)
RTP-15C	ARINC 429 Output #18 (B)	RMP-14G	ARINC 429 Input #13 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P2 13 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the “ATS P2 18 L E G R 0” HTS command.

Step 4. Transmit data by executing the HTS commands:

“ATT P2 18 AAAAAAAA“
“ATT P2 18 1234ABCD“
“ATT P2 18 ABCD1234“
“ATT P2 18 55555555“

Step 5: Read the data received by Rx13 by executing the “ARR P2 13 4” HTS command.

Step 6: Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.74 ARINC 429: Tx18 / Rx13 High Speed Test

This test exercises the ‘Spare A429 Output’ transmitter and the ‘XT Coordination #1 A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P2 13 H G P “ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P2 18 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P2 18 55555555“
“ATT P2 18 ABCD1234“
“ATT P2 18 1234ABCD“
“ATT P2 18 AAAAAAAA“

Step 4. Read the data received by Rx13 by executing the “ARR P2 13 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.75 ARINC 429: Tx19 (PDL 33/34) / Rx14 Low Speed Test

This test exercises the ‘PDL 33/34’ transmitter and the ‘XT Coordination #2 A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-49.

Table 4-49: ARINC 429: Tx19 (PDL 33/34) / Rx14

ARINC 429 Transmitter		ARINC 429 Receiver	
Pin No.	**Hardware Signal Name**	**ARINC 600 Pin**	**Hardware Signal Name**
PDL-33	ARINC 429 Output #1 (A)	RMP-14H	ARINC 429 Input #14 (A)
PDL-34	ARINC 429 Output #1 (B)	RMP-14J	ARINC 429 Input #14 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P2 14 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the "ATS P2 1 L E G R 0" HTS command.

Step 4. Transmit data by executing the following HTS commands:

“ATT P2 1 AAAAAAAA“
“ATT P2 1 1234ABCD“
“ATT P2 1 ABCD1234“
“ATT P2 1 55555555“

Step 5. Read the data received by Rx14 by executing the “ARR P2 14 4” HTS command.

Step 6. Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.76 ARINC 429: Tx19 (PDL 33/34) / Rx14 High Speed Test

This test exercises the ‘PDL 33/34’ transmitter and the ‘XT Coordination #2 A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P2 14 H G P“ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P2 1 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P2 1 55555555“
“ATT P2 1 ABCD1234“
“ATT P2 1 1234ABCD“
“ATT P2 1 AAAAAAAA“

Step 4. Read the data received by Rx14 by executing the “ARR P2 14 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.6.77 ARINC 429: Tx20 (PDL 8/9) / Rx19 (PDL 1/2) Low Speed Test

This test exercises the ‘PDL 8/9’ transmitter and the ‘PDL 1/2 A429 Input’ receiver. Data will be transmitted at low (12.5 KHz) speed and verified that it was received correctly.

Step 1. Connect the ARINC 429 Transmitter to the ARINC 429 Receiver as shown in Table 4-50.

Table 4-50: ARINC 429 Tx20(PDL 8/9)/Rx (PDL 1/2)

ARINC 429 Transmitter		ARINC 429 Receiver	
Pin No.	**Hardware Signal Name**	**Pin No.**	**Hardware Signal Name**
PDL-8	ARINC 429 Output #3 (A)	PDL-1	ARINC 429 Input #19 (A)
PDL-9	ARINC 429 Output #3 (B)	PDL-2	ARINC 429 Input #19 (B)

Step 2. Configure and enable the receiver for low speed and parity checking by executing the “ARS P2 19 L G P” HTS command.

Step 3. Configure and enable the transmitter for low speed, parity generation and 4 bit time delay between words by executing the "ATS P2 3 L E G R 0" HTS command.

Step 4. Transmit data by executing the following HTS commands:

“ATT P2 3 AAAAAAAA“
“ATT P2 3 1234ABCD“
“ATT P2 3 ABCD1234“
“ATT P2 3 55555555“

Step 5. Read the data received by Rx19 by executing the “ARR P2 19 4” HTS command.

Step 6. Verify that the result is equal to “2AAAAAAA 1234ABCD ABCD1234 D5555555”.

4.6.78 ARINC 429: Tx20 (PDL 8/9) / Rx19 (PDL 1/2) High Speed Test

This test exercises the ‘PDL 8/9’ transmitter and the ‘PDL 1/2 A429 Input’ receiver. Data will be transmitted at high (100 KHz) speed and verified that it was received correctly.

Step 1. Configure and enable the receiver for high speed and parity checking by executing the “ARS P2 19 H G P“ HTS command.

Step 2. Configure and enable the transmitter for high speed, parity generation and 4 bit time delay between words by executing the "ATS P2 3 H E G R 0" HTS command.

Step 3. Transmit data by executing the following HTS commands:

“ATT P2 3 55555555“
“ATT P2 3 ABCD1234“
“ATT P2 3 1234ABCD“
“ATT P2 3 AAAAAAAA“

Step 4. Read the data received by Rx19 by executing the “ARR P2 19 4” HTS command.

Step 5. Verify that the result is equal to “D5555555 ABCD1234 1234ABCD 2AAAAAAA”.

4.7 ARINC 453 Tx Tests [Group 15]

The following tests will verify that the ARINC 453 circuitry is functioning correctly.

4.7.1 ARINC 453: Tx1 Ch1 GapTimes Test

The following test will test the ARINC 453 Tx1 Ch1 interface by transmitting 4 scan lines (800 bytes) for each of 32 word gaps (0ms to 17ms). Upon each completion of transmission, the transmission time will be verified using the busy bit.

Step 1. Transmit data by executing the “A453TST P1 C1 0” HTS command.

Step 2. Verify that the result is “Pass.”

4.7.2 ARINC 453: Tx1 Ch2 GapTimes Test

The following test will test the ARINC 453 Tx1 Ch1 interface by transmitting 4 scan lines (800 bytes) for each of 32 word gaps (0ms to 17ms). Upon each completion of transmission, the tranmission time will be verified using the busy bit.

Step 1. Transmit data by executing the “A453TST P1 C2 0” HTS command.

Step 2. Verify that the result is “Pass.”

4.7.3 ARINC 453: Tx1 Ch1 0ms Gap Data CRC Test

The following test will verify the ARINC 453 Tx1 Ch1 circuitry is capable of transmitting 512 scan lines of data with a 0 ms word gap between scan lines. The data will be verified by computing the CRC.

Step 1. Transmit data by executing the “A453TX P1 C1 0 512 0 0” HTS command.

Step 2. Verify that the CRC result is “62741FB8”.

4.7.4 ARINC 453: Tx1 Ch2 0ms Gap Data CRC Test

The following test will verify the ARINC 453 Tx1 Ch2 circuitry is capable of transmitting 512 scan lines of data with a 0 ms word gap between scan lines. The data will be verified by computing the CRC.

Step 1. Transmit data by executing the “A453TX P1 C2 0 512 0 0” HTS command.

Step 2. Verify that the CRC result is “62741FB8”.

4.7.5 ARINC 453: Tx1 Ch1 5ms Gap Data CRC Test

The following test will verify the ARINC 453 Tx1 Ch1 circuitry is capable of transmitting 512 scan lines of data with a 5 ms word gap between scan lines. The data will be verified by computing the CRC.

Step 1. Transmit data by executing the “A453TX P1 C1 7 512 0 0” HTS command.

Step 2. Verify that the CRC result is “62741FB8”.

4.7.6 ARINC 453: Tx1 Ch2 5ms Gap Data CRC Test

The following test will verify the ARINC 453 Tx1 Ch2 circuitry is capable of transmitting 512 scan lines of data with a 5 ms word gap between scan lines. The data will be verified by computing the CRC.

Step 1. Transmit data by executing the “A453TX P1 C2 7 512 0 0” HTS command.

Step 2. Verify that the CRC result is “62741FB8”.

4.8 Traffic Select Decoder Tests [Group 16]

The Traffic Selector Tests verify the operation of the IOC FPGA Traffic Select Decoder functionality for Traffic Select Rotary Switches 1 and 2.

The operation that will be tested is as follows:

1. The ability to count clockwise from 0 to 0xFF (256)
2. The ability to roll over on clockwise count at 0xFF.
3. The ability to roll over on a counter-clockwise count at 0xFF.
4. The ability to count down counterclockwise from 0xFF to 0.

5. The ability to detect Momentary Push Discrete.
6. The ability to detect Momentary Pull Discrete.

4.8.1 Traffic Selector #1 Decoder Tests

Step 1. Set the following variables

a. OutA=c47

b. OutB=c48

c. OutPush=c66

d. OutPull=c31

e. Exp00 = 0x00000000

f. Exp01 = 0x01000000

g. ExpFF = 0xFF000000

h. CountMask = 0xFF000000

i. ExpPush = 0x00800000

j. ExpPull = 0x00400000

Step 2. Verify initial conditions (counter reads 0) by sending HTS command RL P1 f007b000.

Step 3. Do the following items 64 times with a 0.5 second between items to test for correct clockwise rotation of Traffic Selector 1/2 Rotary Switch(s)

a. Apply a ground to "Traffic Selector Out A" Din (RMP-3K)

b. Apply a ground to "Traffic Selector Out B" Din (RMP-)

c. Remove ground from "Traffic Selector Out A" Din (RMP-3K)

d. Remove ground from "Traffic Selector Out B" (RMP-5D) Do not do this on the 64th step

Step 4. Verify clockwise operation passed by reading a count of 255 (0xFF) by sending the HTS command RL P1 f007b000

Step 5. Remove the ground from "Traffic Selector Out B" Din (RMP-5D) waiting 0.5secods and then applying ground to the "Traffic Selector Out A" Din (RMP-3K) and waiting 0.5 seconds.

Step 6. Verify that we are able to Rollover Clockwise from 0xFF by sending HTS command RL P1 f007b000

Step 7. Starting at 0x01 count backwards to 0xFF to verify the ability to roll over counter-clockwise by removing ground from the "Traffic Selector Out A" Din (RMP-3K) then waiting 0.5 seconds and then applying ground to the "Traffic Selector Out B" Din (RMP-5D)

Step 8. Verify the unit has transitioned as follows: 0x01, 0x00, 0xFF by sending the HTS command RL P1 f007b000

Step 9. Now start counter-clockwise rotation count from 0xFF to 0x00 to test for correct counter-clockwise rotation of Traffic Selector 1/2 Rotary Switch(s)by doing the following steps 64 times with a 0.5 second between items

a. Apply a ground to "Traffic Selector Out A" Din (RMP-3K)

b. Remove ground from "Traffic Selector Out B" Din (RMP-5D)

c. Apply a ground to "Traffic Selector Out A" Din (RMP-3K)

d. Apply ground to "Traffic Selector Out B" Din (RMP-5D) Do not do this items on the 64th step.

Step 10. Verify that we counted down from 0xFF to 0x00 by sending the HTS command RL P1 f007b000

Step 11. Verify the momentary switch 'Push' by connecting OutPush waiting 0.5 seconds and then disconnecting OutPush

Step 12. Verify that we registered the switch push by sending the HTS command RL P1 f007b000

Step 13. Verify that the momentary switch 'Pull' by connecting 'Pull' waiting 0.5 seconds and then disconnecting 'Pull'

Step 14. Verify that we registered the switch pull by sending the HTS command RL P1 f007b000

4.8.2 Traffic Selector #2 Decoder Tests

Step 1. Set the following variables

a. OutA=c49

b. OutB=c50

c. OutPush=c14

d. OutPull=c15

e. Exp00 = 0x00000000

f. Exp01 = 0x00000100

g. ExpFF = 0x00000000

h. CountMask = 0x0000FF00

i. ExpPush = 0x00000080

j. ExpPull = 0x00000040

Step 2. Verify initial conditions (counter reads 0) by sending HTS command RL P1 f007b000.

Step 3. Do the following items 64 steps with a 0.5 second between items to test for correct clockwise rotation of Traffic Selector 1/2 Rotary Switch(s)

a. Apply a ground to "Traffic Selector Out A" Din (RMP-10H)

b. Apply a ground to "Traffic Selector Out B" Din (RMP-10J)

c. Remove ground from "Traffic Selector Out A" Din (RMP-10H)

d. Remove ground from "Traffic Selector Out B" (RMP-10J) only for the first 63 steps

Step 4. Verify clockwise operation passed by reading a count of 255 (0xFF) by sending the HTS command RL P1 f007b000

Step 5. Remove the ground from "Traffic Selector Out B" Din (RMP-10J) waiting 0.5secods and then applying ground to the "Traffic Selector Out A" Din (RMP-10H) and waiting 0.5 seconds.

Step 6. Verify that we are able to Rollover Clockwise from 0xFF by sending HTS command RL P1 f007b000

Step 7. Starting at 0x01 count backwards to 0xFF to verify the ability to roll over counter-clockwise by removing ground from the "Traffic Selector Out A" Din (RMP-10H) then waiting 0.5 seconds and then applying ground to the "Traffic Selector Out B" Din (RMP-10J)

Step 8. Verify the unit has transitioned as follows: 0x01, 0x00, 0xFF by sending the HTS command RL P1 f007b000

Step 9. Now start counter-clockwise rotation count from 0xFF to 0x00 to test for correct counter-clockwise rotation of Traffic Selector 1/2 Rotary Switch(s)by doing the following steps 64 times with a 0.5 second between items

a. Apply a ground to "Traffic Selector Out A" Din (RMP-10H)

b. Remove ground from "Traffic Selector Out B" Din (RMP-10J)

c. Apply a ground to "Traffic Selector Out A" Din (RMP-10H)

d. Apply ground to "Traffic Selector Out B" Din (RMP-10J)only for the first 63 steps

Step 10. Verify that we counted down from 0xFF to 0x00 by sending the HTS command RL P1 f007b000

Step 11. Verify the momentary switch 'Push' by connecting OutPush waiting 0.5 seconds and then disconnecting OutPush

Step 12. Verify that we registered the switch push by sending the HTS command RL P1 f007b000

Step 13. Verify that the momentary switch 'Pull' by connecting 'Pull' waiting 0.5 seconds and then disconnecting 'Pull'

Step 14. Verify that we registered the switch pull by sending the HTS command RL P1 f007b000

4.9 GPS Time Mark Tests [Group 17]

The following tests will verify the GPS Time Mark Epoch counter.

Note: Upon power-up, the Time Mark Resgister's EPOCH field may contain either a 0 or 1. The Time Mark Register EPOCH field will increment to 0xFE before rolling over instead of 0xFF.

4.9.1 GPS Time Mark #1 55 (Rollover) Test

Step 1. Set-up an RS-422 transmission with a baud rate of 9500.

Step 2. Read the initial value of the Epoch counter by executing the "RL P1 F0058000" HTS command and save to x = initial value of the EPOCH counter.

Step 3. Send an RS-422 transmission and compute the rollover, where

rollover = maxcount – x + 1.

Step 4. Read the results by executing the "RL P1 F0058000" HTS command.

Step 5. Verify the results are 0x55.

4.9.2 GPS Time Mark #2 AA (Rollover) Test

Step 1. Set-up an RS-422 transmission with a baud rate of 9500.

Step 2. Read the initial value of the Epoch counter by executing the "RL P1 F0059000" HTS command and save to x = initial value of the EPOCH counter.

Step 3. Send an RS-422 transmission and compute the rollover, where

rollover = maxcount – x + 1.

Step 4. Read the results by executing the "RL P1 F0059000" HTS command.

Step 5. Verify the results are 0xAA.

4.10 PCI Bus Tests [Group 18]

The following tests will verify the PCI Bus and is performed by writing to a PCI test register within the Companion FPGA. When this test is executed, a walking one's (1's) test shall be performed with the processor selected writing to the FPGA PCI Test register verifying the patterns. If a test fials, the actual failed pattern (32 bits) and expected pattern (32 bits) will be output indicating the PCI bus bit(s) that failed.

4.10.1 PCI Bus (P1) Test

Step 1. Execute the HTS command "TPCI P1".

Step 2. Verify that the returned value is "PASS".

4.10.2 PCI Bus (P2) Test

Step 1. Execute the HTS command "TPCI P2".

Step 2. Verify that the returned value is "PASS".

4.10.3 PCI Bus (P3) Test

Step 1. Execute the HTS command "TPCI P3".

Step 2. Verify that the returned value is "PASS".

4.11 Processor Companion FPGA Register Tests [Group 19]

The following tests will verify the general purpose bits within the Processor Companion FPGA register.

4.11.1 Processor Companion FPGA Register (P1) Test

Step 1. Execute the HTS command "CPLD P1".

Step 2. Verify that the returned value is "PASS".

4.11.2 Processor Companion FPGA Register (P2) Test

Step 1. Execute the HTS command "CPLD P2".

Step 2. Verify that the returned value is "PASS".

4.11.3 Processor Companion FPGA Register (P3) Test

Step 1. Execute the HTS command "CPLD P3".

Step 2. Verify that the returned value is "PASS".

4.12 Heartbeat Monitor Tests [Group 20]

The following tests will verify the heartbeat test circuitry.

Note: These tests are performed by the P1 processor only.

4.12.1 Heartbeat Monitor: HBM BITE Test

The following steps will

Step 1. Execute the HTS command "HBT".

Step 2. Verify that the returned value is "PASS".

4.12.2 Heartbeat Monitor: Update Window Test

The following steps will

Step 1. Execute the HTS command “HBF 1”.

Step 2. Verify that the UUT resets.

4.13 Power-Off Timer Tests [Group 21]

The following tests will verify the power-off timer circuitry. When this function is executed, the power off timer circuitry will be charged, discharged and recharged.

4.13.1 Power-Off Timer Normal Test

Step 1. Execute the HTS command “POTT P1 0”.

Step 2. Verify that the returned value is “OK”.

4.13.2 Power-Off Timer Short Test

Step 1. Execute the HTS command “POTT P1 1”.

Step 2. Verify that the returned value is “OK”.

4.14 SEU Tests [Group 22]

4.14.1 SEU: Detection Test

The SEU Detection Test is used to test the circuitry that latches the SEU reset and is performed by the P1 processor only. The software shall perform the SEU test as defined in the T^{3}CAS Processor Companion FPGA HRD, document number 8007502-001.

Step 1. Execute the HTS command “SEUT P1”.

Step 2. Verify that the returned value is “PASS”.

4.14.2 SEU: Reset Simulation Test

The SEU Reset Simulation Test is used to simulate a SEU reset by starting a SEU circuit test, but doesn’t wait for the test to complete. The software sets the BITE enable low to start the test, then waits 200 µs and then sets the enable high. If the enable is set high while the circuit is charging, a reset will occur. The test will pass if a system reset is generated.

Step 1. Execute the HTS command “SEUR P1”.

Step 2. Verify that the returned value is “PASS”

4.15 Audio Output Tests [Group 23]

The following tests will verify that the 8 Ohm and 600 Ohm Audio Output circuitry is functioning correctly at maximum power.

4.15.1 8 Ohm Audio Output: Maximum Power Test

The following steps will verify that the 8 Ohm Audio Output circuitry is functioning correctly. The maximum power test will verify that the output amplitude is within specifications, when the amplitude control DAC is set to maximum. The DAC is set to maximum when a pattern of all 1’s is applied.

Step 1. Connect an 8 ohm (± 1%) 25 watt resistor between UUT pins RMP-2F and RMP-2G.

Step 2. Setup the DMM for an ACVrms measurement and connect the DMM across the 8 Ohm resistor.

Step 3. Generate a 1 kHz tone at the UUT 8 Ohm output with the amplitude control DAC set to a maximum amplitude. This is accomplished by applying all ones to the amplitude control DAC via execution of the HTS command: “SAY P1 1 255 0 M 1”.

Step 4. Read the DMM while the HTS command is executing. Calculate the output power and verify the output power is as follows: 4 W ≤ reading ≤ 8 W.

4.15.2 600 Ohm Audio Output: Maximum Power Test

The following steps will verify that the 600 Ohm Audio Output circuitry is functioning correctly. The maximum power test will verify that the output amplitude is within specifications, when the amplitude control DAC is set to maximum. The DAC is set to maximum when a pattern of all 1’s is applied.

Step 1. Connect a 600 ohm (± 1%) 25 watt resistor between UUT pins RMP-3F and RMP-3G.

Step 2. Setup the DMM for an AC Vrms measurement and connect the DMM across the 600 Ohm resistor.

Step 3. Generate a 1 kHz tone at the UUT 600 Ohm output for 2 seconds with the amplitude control DAC set to a maximum amplitude. This is accomplished by applying all ones to the amplitude control DAC via execution of the HTS command: “SAY P1 1 0 255 M”.

Step 4. Read the DMM while the HTS command is executing. Calculate the output power and verify the output power is as follows: 80 mW ≤ reading ≤ 200 mW.

4.16 LVDS Interface Tests [Group 24]

4.16.1 LVDS Interface Test

The following steps verify the LVDS Interface. This interface is responsible for all communications between the IOC FPGA on the Processor CCA and the RF FPGA’s on the Receiver CCA. This function will test the LVDS interface while also monitoring for any failures that have occured or been reported by the IRF FPGA's (TX FPGA / TCAS FPGA / XPDR FPGA) located on the receiver CCA. When this function is executed, the LVDS Heartbeat will be enabled via packet 700. Heartbeat packets will be sent every 100ms. The IOC FPGA will capture any status flags sent by the IRF FPGA's and hold the values within internal status registers until software reads the registers. The following is a description of the status registers and possible failure modes.

Note: Unless otherwise designated, a bit value of '1' indicates a failure.

Step 1. Enable the LVDS Heartbeat via packet 700 by executing the “WL P1 F020A000 00000008” HTS command.

Step 2. Read both status registers by executing the “RL P1 F020C000” and “RL P1 F020C004” HTS commands.

Step 3. Disable the LVDS Heartbeat packets by executing the "WL P1 F020A000 00000000" HTS commands.

Table 4-51: FPGA Register 1 Desciption

FPGA Status Register 1 (Address F020C000)		
Bit	**Value**	**Description**
31	0	Spare
30	0/1	TCAS_HB_FAIL: TCAS FPGA Heartbeat response failure. Indicates an LVDS or TCAS FPGA failure.
29	0/1	XPDR_HB_FAIL: XPDR FPGA Heartbeat response failure. Indicates an LVDS or XPDR FPGA failure.
28	0/1	TX_HB_FAIL: TX FPGA Heartbeat response failure. Indicates an LVDS or TX FPGA failure.
27-24	0-15	IOC_COMM_FAIL_NUM: IOC FPGA number of communication failures. Indicates an LVDS failure.
23-20	0-15	TCAS_CHKSUM_FAIL_NUM: TCAS FPGA number of checksum failures since last heart beat request. Indicates LVDS failure.
19-16	0-15	TX_CHKSUM_FAIL_NUM: TX FPGA number of checksum failures since last heart beat request. Indicates LVDS failure.
15-12	0-15	XPDR_CHKSUM_FAIL_NUM: XPDR FPGA number of checksum failures since last heart beat request. Indicates LVDS failure.
11-6	0	Spare
5	0/1	TCAS_TEST_MODE_ACTIVE: 1 = TCAS FPGA in test mode. 0 = Normal operation mode.
4	0/1	TX_TEST_MODE_ACTIVE: 1 = TX FPGA in test mode. 0 = Normal operation mode.
3	0/1	XPDR_TEST_MODE_ACTIVE: 1 = XPDR FPGA in test mode. 0 = Normal operation mode.
2-0	0	Spare

Table 4-52 : FPGA Register 2 Description

FPGA Status Register 2 (Address F020C004)		
Bit	**Value**	**Description**
31-26	0	Spare
25-24	0-3	IOC_SIC_REC_FIFO_FULL: 00 = Rcvr store FIFO's not full 01 = Reserved 10 = Reserved 11 = At least one receiver store FIFO is full. Note: all packet word fifo full flags are locgically Ored together to produce this status bit. This field contains a redundant bit for SEU mitigation. This would be a very rare failure and would indicate either an LVDS for XPDR FGPA failure.
23-18	0	Spare
17	0/1	FPGA_DCM_LOCK_IOC_XMIT: the internal FPGA DCM lock is lost for the LVDS clock from the IOC, this bit will be set. 0 = DCM Lock operational, 1 = DCM Lock de-asserted. A set bit would indicate an IOC FPGA or oscillator failure on the processor CCA.
16	0/1	FPGA_DCM_LOCK_IOC_RCV: the internal FPGA DCM lock is lost for the LVDS clock from the XPDR, this bit will be set. 0 = DCM Lock operational, 1 = DCM Lock de-asserted. A set bit would indicate an IOC FPGA or LVDS failure on the processor CCA.
15	0	Spare
14	0/1	MUTUAL_SUPPRESSION_FAIL: The TX FPGA monitors the return discrete from the power supply for valid assertion of the Mutual Suppression discrete during RF transmissions. 0 = Mutual Suppression operation correct 1 = Mutual Suppression failure A failure would indicate a TX FPGA, RCVR CCA, or Power Supply failure.
13	0/1	XPDR_TX_PARITY_ERR: The TX FPGA checks parity of the discrete inputs from the XPDR FPGA to the TX FPGA. This bit is set if there is a parity miscompare. 0 = Parity valid, 1 = Parity error A set bit would indicate a TX FPGA, XPDR FPGA or RCVR CCA failure.
12	0/1	TCAS_LAC_STATUS: LAC watchdog monitor of time spent transmitting from FIFO and check on FIFO overflow. 0 = Watchdog timer not exceeded and no FIFO ovrflo 1 = Watchdog timer exceeded or FIFO overflow This would be a very rare failure. A set bit would indicate an LVDS or TCAS FPGA failure.

Table 4-52 : FPGA Register 2 Description

FPGA Status Register 2 (Address F020C004)		
Bit	**Value**	**Description**
11	0/1	XPDR_LAC_STATUS: LAC watchdog monitor of time spent transmitting from FIFO and check on FIFO overflow. 0 = Watchdog timer not exceeded and no FIFO ovrflo 1 = Watchdog timer exceeded or FIFO overflow This would be a very rare failure. A set bit would indicate an LVDS or XPDR FPGA failure.
10	0/1	TX_LAC_STATUS: LAC watchdog monitor of time spent transmitting from FIFO and check on FIFO overflow. 0 = Watchdog timer not exceeded and no FIFO ovrflo 1 = Watchdog timer exceeded or FIFO overflow This would be a very rare failure. A set bit would indicate an LVDS or TX FPGA failure.
9	0/1	FPGA_DCM_LOCK_TX_XPDR: If the internal FPGA DCM lock is lost for the LVDS clock from the TX, this bit will be set. 0 = DCM Lock operational 1 = DCM Lock de-asserted set bit would indicate a TX FPGA or XPDR FPGA failure
8	0/1	FPGA_DCM_LOCK_TCAS_XPDR: If the internal FPGA DCM lock is lost for the LVDS clock from the TCAS, this bit will be set. 0 = DCM Lock operational 1 = DCM Lock de-asserted set bit would indicate a TCAS FPGA or XPDR FPGA failure
7-6	0	Spare
5	0/1	DAC_PLL_LOCK: TX FPGA monitor of the 0, 90, 180, and 270 DAC PLL locks signals. 0 = All PLL Lock signals operational 1 = PLL (1 or more) Lock signal deasserted This is a composite summation of the PLL Lock signals of each transmit DAC on the RCVR CCA. If any fail, the flag is set.
4	0/1	PLL_1202_MHZ_LOCK: If the internal 1202Mhz PLL utilized for TCAS receptions lost, the bit will be set. 0 = 1202Mhz PLL Lock operational 1 = 1202Mhz PLL de-asserted A set bit indicates a failure of the PLL lock signal for the RCV PLL.
3	0/1	PLL_1170_MHZ_LOCK: If the internal 1170Mhz PLL utilized for RF Transmissions is lost, the bit will be set. 0 = 1170Mhz PLL Lock operational 1 = 1170Mhz PLL de-asserted A set bit indicates a failure of the PLL lock signal for the XMT PLL.

Table 4-52 : FPGA Register 2 Description

FPGA Status Register 2 (Address F020C004)		
Bit	**Value**	**Description**
2	0/1	FPGA_DCM_LOCK_IOC_TCAS: If the internal FPGA DCM lock is lost for the LVDS clock from the IOC to the TCAS FPGA, the bit will be set. 0 = DCM Lock operational 1 = DCM Lock de-asserted A set bit indicates an LVDS, TCAS FPGA or IOC FPGA failure
1	0/1	FPGA_DCM_LOCK_IOC_XPDR: If the internal FPGA DCM lock is lost for the LVDS clock from the IOC to the XPDR FPGA, the bit will be set. 0 = DCM Lock operational 1 = DCM Lock de-asserted A set bit indicates an LVDS, XPDR FPGA or IOC FPGA failure
0	0/1	FPGA_DCM_LOCK_IOC_TX: If the internal FPGA DCM lock is lost for the LVDS clock from the IOC to the TX FPGA, the bit will be set. 0 = DCM Lock operational 1 = DCM Lock de-asserted A set bit indicates an LVDS, TX FPGA or IOC FPGA failure

4.17 Mutual Suppression Pulse Tests [Group 25]

4.17.1 Channel A Mutual Suppression Pulse Amplitude and Pulse Width Test

The following steps will verify the pulse amplitude and width of the Mutual Suppression Pulse at Channel A.

Step 1. Connect the oscilloscope to LBP-12.

Step 2. Setup the oscilloscope for DC coupling, 1MegaOhm, and for viewing a pulse that will have an amplitude between 20VDC – 30VDC and a pulse width between 120us-135us.

Step 3. Send HTS command “EITST P1 3 0 20 0 0 0 0 1 1 0 0”.

Step 4. Verify that the suppression pulse amplitude is 28 ±4.5 Vdc and the pulse width is 130us ±3us.

4.17.2 Channel B Mutual Suppression Pulse Amplitude and Pulse Width Test

The following steps will verify the pulse amplitude of the Mutual Suppression Pulse at Channel B.

Step 1. Connect the oscilloscope to LBP-13.

Step 2. Setup the oscilloscope for DC coupling, 1MegaOhm, and for viewing a pulse that will have an amplitude between 20VDC – 30VDC and a pulse width between 120us-135us.

Step 3. Send HTS command “EITST P1 3 0 20 0 0 0 0 1 1 0 0”.

Step 4. Verify that the suppression pulse amplitude is 28 ±4.5 Vdc and Pulse width is 130us ±3us.

4.18 Antenna BITE Tests [Group 26]

4.18.1 Top Antenna BITE Tests

The following steps will verify the Top Antenna BITE circuitry.

Step 1. Apply Resistance as shown in the table “**Resistances for Top Antenna Bite Test”** to the Antenna Ports for each test.

Step 2. Execute the “TRFD P1 6” HTS command.

Step 3. Verify that the results per the table “**Expected Results for Top Antenna Bite Test**.” For each test.

	Resistances for Top Antenna Bite Test							
Ports / **Ant Bite Tests**	**Top 0**	**Top 90**	**Top 180**	**Top 270**	**Bot 0**	***Bot 90***	***Bot 180***	**Bot 270**
Antenna BITE: Top Nom Test	1K	2K	4.02K	8.06K	50	50	50	50
Antenna BITE: Top 0 Open Test	1.5k	2K	4.02K	8.06K	50	50	50	50
Antenna BITE: Top 90 Short Test	1K	1k	4.02K	8.06K	50	50	50	50
Antenna BITE: Top 180 Open Test	1K	2K	6.03k	8.06K	50	50	50	50
Antenna BITE: Top 270 Short Test	1K	2K	4.02K	4.03	50	50	50	50
Antenna BITE: Top 0 Short Test	0.5k	2K	4.02K	8.06K	50	50	50	50
Antenna BITE: Top 90 Open Test	1k	3K	4.02K	8.06K	50	50	50	50
Antenna BITE: Top 180 Short Test	1K	2K	2.01k	8.06K	50	50	50	50
Antenna BITE: Top 270 Open Test	1K	2K	4.02K	4.03K	50	50	50	50

Table Resistances for Top Antenna Bite Test

	Expected Results for Top Antenna Bite Test							
Ports / **Ant Bite Tests**	**Top 0**	**Top 90**	**Top 180**	**Top 270**	**Bot 0**	**Bot 90**	**Bot 180**	**Bot 270**
Antenna BITE: Top Nom Test	P	P	P	P	S	S	S	S
Antenna BITE: Top 0 Open Test	O	P	P	P	S	S	S	S
Antenna BITE: Top 90 Short Test	P	S	P	P	S	S	S	S
Antenna BITE: Top 180 Open Test	P	P	O	P	S	S	S	S
Antenna BITE: Top 270 Short Test	P	P	P	S	S	S	S	S
Antenna BITE: Top 0 Short Test	S	P	P	P	S	S	S	S
Antenna BITE: Top 90 Open Test	P	O	P	P	S	S	S	S
Antenna BITE: Top 180 Short Test	P	P	S	P	S	S	S	S
Antenna BITE: Top 270 Open Test	P	P	P	O	S	S	S	S

Table Expected Results for Bottom Antenna Bite Test

4.18.2 Bottom Antenna BITE Tests

The following steps will verify the Bottom Antenna BITE circuitry.

Step 1. Apply Resistance as shown in the table “**Resistances for Bottom Antenna Bite Test”** to the Antenna Ports for each test.

Step 2. Execute the “TRFD P1 6” HTS command.

Step 3. Verify that the results per the table “**Expected Results for Bottom Antenna Bite Test**.” For each test.

	Resistances for Bottom Antenna Bite Test							
Ports / Ant Bite Tests	**Top 0**	**Top 90**	**Top 180**	**Top 270**	**Bot 0**	***Bot 90***	***Bot 180***	**Bot 270**
Antenna BITE: Bottom Nom Test	50	50	50	50	1K	2K	4.02K	8.06K
Antenna BITE: Bottom 0 Open Test	50	50	50	50	1.5k	2K	4.02K	8.06K
Antenna BITE: Bottom 90 Short Test	50	50	50	50	1K	1k	4.02K	8.06K
Antenna BITE: Bottom 180 Open Test	50	50	50	50	1K	2K	6.03k	8.06K
Antenna BITE: Bottom 270 Short Test	50	50	50	50	1K	2K	4.02K	4.03
Antenna BITE: Bottom 0 Short Test	50	50	50	50	0.5k	2K	4.02K	8.06K
Antenna BITE: Bottom 90 Open Test	50	50	50	50	1k	3K	4.02K	8.06K
Antenna BITE: Bottom 180 Short Test	50	50	50	50	1K	2K	2.01k	8.06K
Antenna BITE: Bottom 270 Open Test	50	50	50	50	1K	2K	4.02K	4.03K

Table Resistances for Bottom Antenna Bite Test

	Expected Results for Bottom Antenna Bite Test							
Ports / Ant Bite Tests	**Top 0**	**Top 90**	**Top 180**	**Top 270**	**Bot 0**	**Bot 90**	**Bot 180**	**Bot 270**
Antenna BITE: Bottom Nom Test	S	S	S	S	P	P	P	P
Antenna BITE: Bottom 0 Open Test	S	S	S	S	O	P	P	P
Antenna BITE: Bottom 90 Short Test	S	S	S	S	P	S	P	P
Antenna BITE: Bottom 180 Open Test	S	S	S	S	P	P	O	P
Antenna BITE: Bottom 270 Short Test	S	S	S	S	P	P	P	S
Antenna BITE: Bottom 0 Short Test	S	S	S	S	S	P	P	P
Antenna BITE: Bottom 90 Open Test	S	S	S	S	P	O	P	P
Antenna BITE: Bottom 180 Short Test	S	S	S	S	P	P	S	P
Antenna BITE: Bottom 270 Open Test	S	S	S	S	P	P	P	O

Table Expected Results for Bottom Antenna Bite Test

4.19 Reverse Power Sensor Tests [Group 27]

This tests the Reverse Power Sensors by wrapping a port transmitter to a port receiver and placing the UUT into a mode that is similar to what occurs during an antenna phase cal. During each test, the DAC controlling the transmit power level will be set to a high value and a low value. The reverse power will be read for the high setting and the low setting and the difference will be computed.

4.19.1 Top 0 Reverse Power Sensor (Top 90 TX at Mid-Min Power) Test

Step 1. Configure the UUT RX paths for the Top 90 port.

Step 2. Execute the “EITST P1 4 0 2047 0 ” HTS command.

Step 3. Execute the “EITST P1 4 0 1400 0 ” HTS command.

Step 4. Calculate the Mid-Min power difference.

Step 5. Verify the Mid-Min power difference is as follows: 50 < reading < 800

4.19.2 Top 0 Reverse Power Sensor (Top 90 TX at Max-Mid Power) Test

Step 1. Configure the UUT RX paths for the Top 90 port.

Step 2. Execute the “EITST P1 4 0 1400 0 ” HTS command.

Step 3. Execute the “EITST P1 4 0 800 0 ” HTS command.

Step 4. Calculate the Max-Min power difference.

Step 5. Verify the Max-Min power difference is as follows: 50 < reading < 800

Step 6. Reset the RX paths.

4.19.3 Top 90 Reverse Power Sensor (Top 180 TX at Mid-Min Power) Test

Step 1. Configure the UUT RX paths for the Top 180 port.

Step 2. Execute the “EITST P1 4 1 2047 0 ” HTS command.

Step 3. Execute the “EITST P1 4 1 1400 0 ” HTS command.

Step 4. Calculate the Mid-Min power difference.

Step 5. Verify the Mid-Min power difference is as follows: 50 < reading < 800

4.19.4 Top 90 Reverse Power Sensor (Top 180 TX at Max-Mid Power) Test

Step 1. Configure the UUT RX paths for the Top 180 port.

Step 2. Execute the “EITST P1 4 1 1400 0 ” HTS command.

Step 3. Execute the “EITST P1 4 1 800 0 ” HTS command.

Step 4. Calculate the Max-Min power difference.

Step 5. Verify the Max-Min power difference is as follows: 50 < reading < 800

Step 6. Reset the RX paths.

4.19.5 Top 180 Reverse Power Sensor (Top 270 TX at Mid-Min Power) Test

Step 1. Configure the UUT RX paths for the Top 270 port.

Step 2. Execute the “EITST P1 4 2 2047 0 ” HTS command.

Step 3. Execute the “EITST P1 4 2 1400 0 ” HTS command.

Step 4. Calculate the Mid-Min power difference.

Step 5. Verify the Mid-Min power difference is as follows: 50 < reading < 800

4.19.6 Top 180 Reverse Power Sensor (Top 270 TX at Max-Mid Power) Test

Step 1. Configure the UUT RX paths for the Top 270 port.

Step 2. Execute the “EITST P1 4 2 1400 0 ” HTS command.

Step 3. Execute the “EITST P1 4 2 800 0 ” HTS command.

Step 4. Calculate the Max-Min power difference.

Step 5. Verify the Max-Min power difference is as follows: 50 < reading < 800

Step 6. Reset the RX paths.

4.19.7 Top 270 Reverse Power Sensor (Top 0 TX at Mid-Min Power) Test

Step 1. Configure the UUT RX paths for the Top 0 port.

Step 2. Execute the “EITST P1 4 3 2047 0 ” HTS command.

Step 3. Execute the “EITST P1 4 3 1400 0 ” HTS command.

Step 4. Calculate the Mid-Min power difference.

Step 5. Verify the Mid-Min power difference is as follows: 50 < reading < 800

4.19.8 Top 270 Reverse Power Sensor (Top 0 TX at Max-Mid Power) Test

Step 1. Configure the UUT RX paths for the Top 0 port.

Step 2. Execute the “EITST P1 4 3 1400 0 ” HTS command.

Step 3. Execute the “EITST P1 4 3 800 0 ” HTS command.

Step 4. Calculate the Max-Min power difference.

Step 5. Verify the Max-Min power difference is as follows: 50 < reading < 800

Step 6. Reset the RX paths.

4.19.9 Bottom 0 Reverse Power Sensor (Bottom 90 TX at Mid-Min Power) Test

Step 1. Configure the UUT RX paths for the Bottom 90 port.

Step 2. Execute the “EITST P1 4 4 2047 0 ” HTS command.

Step 3. Execute the “EITST P1 4 4 1400 0 ” HTS command.

Step 4. Calculate the Mid-Min power difference.

Step 5. Verify the Mid-Min power difference is as follows: 50 < reading < 800

4.19.10 Bottom 0 Reverse Power Sensor (Bottom 90 TX at Max-Mid Power) Test

Step 1. Configure the UUT RX paths for the Bottom 90 port.

Step 2. Execute the “EITST P1 4 4 1400 0 ” HTS command.

Step 3. Execute the “EITST P1 4 4 800 0 ” HTS command.

Step 4. Calculate the Max-Min power difference.

Step 5. Verify the Max-Min power difference is as follows: 50 < reading < 800

Step 6. Reset the RX paths.

4.19.11 Bottom 90 Reverse Power Sensor (Bottom 180 TX at Mid-Min Power) Test

Step 1. Configure the UUT RX paths for the Bottom 180 port.

Step 2. Execute the “EITST P1 4 5 2047 0 ” HTS command.

Step 3. Execute the “EITST P1 4 5 1400 0 ” HTS command.

Step 4. Calculate the Mid-Min power difference.

Step 5. Verify the Mid-Min power difference is as follows: 50 < reading < 800

4.19.12 Bottom 90 Reverse Power Sensor (Bottom 180 TX at Max-Mid Power) Test

Step 1. Configure the UUT RX paths for the Bottom 180 port.

Step 2. Execute the “EITST P1 4 5 1400 0 ” HTS command.

Step 3. Execute the “EITST P1 4 5 800 0 ” HTS command.

Step 4. Calculate the Max-Min power difference.

Step 5. Verify the Max-Min power difference is as follows: 50 < reading < 800

Step 6. Reset the RX paths.

4.19.13 Bottom 180 Reverse Power Sensor (Bottom 270 TX at Mid-Min Power) Test

Step 1. Configure the UUT RX paths for the Bottom 270 port.

Step 2. Execute the “EITST P1 4 6 2047 0 ” HTS command.

Step 3. Execute the “EITST P1 4 6 1400 0 ” HTS command.

Step 4. Calculate the Mid-Min power difference.

Step 5. Verify the Mid-Min power difference is as follows: 50 < reading < 800

4.19.14 Bottom 180 Reverse Power Sensor (Bottom 270 TX at Max-Mid Power) Test

Step 1. Configure the UUT RX paths for the Bottom 270 port.

Step 2. Execute the “EITST P1 4 6 1400 0 ” HTS command.

Step 3. Execute the “EITST P1 4 6 800 0 ” HTS command.

Step 4. Calculate the Max-Min power difference.

Step 5. Verify the Max-Min power difference is as follows: 50 < reading < 800

Step 6. Reset the RX paths.

4.19.15 Bottom 270 Reverse Power Sensor (Bottom 0 TX at Mid-Min Power) Test

Step 1. Configure the UUT RX paths for the Bottom 0 port.

Step 2. Execute the “EITST P1 4 7 2047 0 ” HTS command.

Step 3. Execute the “EITST P1 4 7 1400 0 ” HTS command.

Step 4. Calculate the Mid-Min power difference.

Step 5. Verify the Mid-Min power difference is as follows: 50 < reading < 800

4.19.16 Bottom 270 Reverse Power Sensor (Bottom 0 TX at Max-Mid Power) Test

Step 1. Configure the UUT RX paths for the Bottom 0 port.

Step 2. Execute the “EITST P1 4 7 1400 0 ” HTS command.

Step 3. Execute the “EITST P1 4 7 800 0 ” HTS command.

Step 4. Calculate the Max-Min power difference.

Step 5. Verify the Max-Min power difference is as follows: 50 < reading < 800

Step 6. Reset the RX paths.

4.20 RF Wrap Self Tests [Group 28]

The RF Wrap Tests will verify the TCAS and XPDR transmitters and receivers via internal wrap testing.

4.20.1 TCAS 1090 MHz Receiver Wrap Test

Step 1. Execute the HTS command "RFWRAP P1 3 1".

Step 2. Verify that the returned value is "PASS".

4.20.2 XPDR 1030 MHz Receiver Wrap Test

Step 1. Execute the HTS command "RFWRAP P1 4 1".

Step 2. Verify that the returned value is "PASS".

4.20.3 TCAS 1030 MHz Transmitter Wrap Test

Step 1. Execute the HTS command "RFWRAP P1 6 40 1 1".

Step 2. Verify that the returned value is "PASS".

4.21 TCAS Transmitter Test [Group 29 to 55]

4.21.1 TCAS Transmitter Frequency Test [Group 29] (DO-185B 2.2.3.5)

4.21.1.1 TCAS Transmitter Frequency Test

The TCAS Transmitter Frequency test will verify that the transmitter frequency is within the specified limits.

Step 1. Connect the spectrum analyzer to the Top 0 antenna port and setup for making the appropriate frequency measurement.

Step 2. Transmit out the Top 0 antenna port a long Mode-S interrogation at maximum power (54 dBm) with all bits = 0, by executing the "EITST P1 3 0 0 0 0 0 0 1 1 0 0" HTS command

Step 3. Verify the frequency is 1030 ± 0.010000 MHz.

4.21.2 TCAS Transmitter: Whisper/Shout Steps & Rise/Fall Time Tests [Group 30 to 37] (DO-185B 2.2.3.8.1)

4.21.2.1 TCAS Xmtr: Top 0 P1 Whisper/Shout Steps & Rise/Fall Time Tests [Group 30]

These tests cause the UUT to generate six-pulse MODE C ATCRBS interrogations out the Top 0 antenna port. Whisper Shout step size measurements shall be made by comparing the P1 pulse amplitudes of the appropriate interrogations.

Note: When making measurements, the losses from the antenna port to the peak power meter must be calibrated into the reading.

4.21.2.1.1 0 dB Whisper/Shout P1 Pulse Peak Power Test

This test verifies that the peak power of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	+53.50 dBm ≤ measurement ≤ +57.50 dBm
OPR LIM	+53.50 dBm ≤ measurement ≤ +58.50 dBm

4.21.2.1.2 0 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.1.3 0 dB Whisper/Shout P1 Pulse Fall Time Test

This test verifies that the fall time of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 fall time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the fall time of the P1 pulse. The measurement should be made between the 90% to 10% voltage pulse waveform points (81% to 1% of power pulse waveform points) of the falling edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	40 ns ≤ P1 fall time ≤ 175 ns
OPR LIM	40 ns ≤ P1 fall time ≤ 200 ns

4.21.2.1.4 1 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 0 dB and 1 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 0 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**0 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.5 1 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 1 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.1.6 1 dB Whisper/Shout P1 Pulse Fall Time Test

This test verifies that the fall time of the P1 pulse when invoking the 1 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 fall time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the fall time of the P1 pulse. The measurement should be made between the 90% to 10% voltage pulse waveform points (81% to 1% of power pulse waveform points) of the falling edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	40 ns ≤ P1 fall time ≤ 175 ns
OPR LIM	40 ns ≤ P1 fall time ≤ 200 ns

4.21.2.1.7 2 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 1 dB and 2 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 1 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 4" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**1 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.8 2 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 2 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 4" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.1.9 3 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 2 dB and 3 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 2 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 5" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**2 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.10 3 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 3 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 5" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.1.11 4 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 3 dB and 4 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 3 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 6" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**3 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.12 4 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 4 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 6" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.1.13 5 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 4 dB and 5 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 4 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 7" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**4 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.14 5 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 5 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 7" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.1.15 6 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 5 dB and 6 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 5 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 8" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**5 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.16 6 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 6 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 8" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.1.17 7 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 6 dB and 7 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 6 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 9" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**6 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.18 7 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 7 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 9" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.1.19 8 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 7 dB and 8 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 7 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 10" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**7 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.20 8 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 8 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 10" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.1.21 9 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 8 dB and 9 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 8 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 11" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**8 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.22 9 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 9 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 11" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.1.23 10 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 9 dB and 10 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 9 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 12" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**9 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.24 10 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 10 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 12" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns

OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.1.25 11 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 10 dB and 11 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 10 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 13" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**10 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.26 11 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 11 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 13" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.1.27 12 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 11 dB and 12 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 11 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 14" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**11 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.28 12 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 12 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 14" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.1.29 13 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 12 dB and 13 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 12 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 15" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**12 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.30 13 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 13 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 15" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.1.31 14 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 13 dB and 14 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 13 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 16" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**13 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.32 14 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 14 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 16" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.1.33 15 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 14 dB and 15 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 14 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 17" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**14 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.34 15 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 15 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 17" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.1.35 16 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 15 dB and 16 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 15 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 18" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**15 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.36 16 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 16 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 18" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.1.37 17 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 16 dB and 17 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 16 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 19" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**16 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.38 17 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 17 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 19" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.1.39 18 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 17 dB and 18 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 17 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 20" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**17 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.40 18 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 18 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 20" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.1.41 19 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 18 dB and 19 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 18 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 21" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**18 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.42 19 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 19 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 21" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.1.43 20 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 19 dB and 20 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 19 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 22" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**19 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.44 20 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 20 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 0 0 22" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.1.45 20 dB (Absolute) Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the absolute step size between the 0 dB and 20 dB Whisper/Shout attenuation level is within specified limits.

Step 1. Subtract the P1 peak power measurement made in the "**20 dB Whisper/Shout P1 Pulse Peak Power Test**" from the P1 peak power measurement made in the "**0 dB Whisper/Shout P1 Pulse Peak Power Test**"

Step 2. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	18.5 dB ≤ result ≤ 21.5 dB
OPR LIM	18.0 dB ≤ result ≤ 22.0 dB

4.21.2.1.46 21 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 20 dB and 21 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 20 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 23" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**20 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.47 22 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 21 dB and 22 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 21 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 24" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**21 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.48 23 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 22 dB and 23 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 22 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 25" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**22 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.49 24 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 23 dB and 24 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 23 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 26" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**23 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.50 25 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 24 dB and 25 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 24 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 27" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**24 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.51 26 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 25 dB and 26 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 25 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 28" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**25 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.1.52 27 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 26 dB and 27 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 26 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 0 0 29" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**26 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2 TCAS Xmtr: Top90 P1 Whisper/Shout Steps & Rise/Fall Time Tests [Group 31]

These tests cause the UUT to generate six-pulse MODE C ATCRBS interrogations out the TOP 90 antenna port. Whisper Shout step size measurements shall be made by comparing the P1 pulse amplitudes of the appropriate interrogations.

Note: When making measurements, the losses from the antenna port to the peak power meter must be calibrated into the reading.

4.21.2.2.1 0 dB Whisper/Shout P1 Pulse Peak Power Test

This test verifies that the peak power of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	+53.50 dBm ≤ measurement ≤ +57.50 dBm
OPR LIM	+53.50 dBm ≤ measurement ≤ +58.50 dBm

4.21.2.2.2 0 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.2.3 0 dB Whisper/Shout P1 Pulse Fall Time Test

This test verifies that the fall time of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 fall time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the fall time of the P1 pulse. The measurement should be made between the 90% to 10% voltage pulse waveform points (81% to 1% of power pulse waveform points) of the falling edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	40 ns ≤ P1 fall time ≤ 175 ns
OPR LIM	40 ns ≤ P1 fall time ≤ 200 ns

4.21.2.2.4 1 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 0 dB and 1 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 0 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**0 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.5 1 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 1 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.2.6 1 dB Whisper/Shout P1 Pulse Fall Time Test

This test verifies that the fall time of the P1 pulse when invoking the 1 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 fall time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the fall time of the P1 pulse. The measurement should be made between the 90% to 10% voltage pulse waveform points (81% to 1% of power pulse waveform points) of the falling edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	40 ns ≤ P1 fall time ≤ 175 ns
OPR LIM	40 ns ≤ P1 fall time ≤ 200 ns

4.21.2.2.7 2 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 1 dB and 2 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 1 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 4" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**1 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.8 2 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 2 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 4" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.2.9 3 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 2 dB and 3 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 2 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 5" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**2 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.10 3 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 3 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 5" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns

OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.2.11 4 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 3 dB and 4 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 3 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 6" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**3 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.12 4 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 4 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 6" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.2.13 5 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 4 dB and 5 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 4 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 7" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**4 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.14 5 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 5 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 7" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.2.15 6 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 5 dB and 6 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 5 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 8" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**5 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.16 6 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 6 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 8" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.2.17 7 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 6 dB and 7 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 6 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 9" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**6 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.18 7 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 7 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 9" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.2.19 8 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 7 dB and 8 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 7 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 10" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**7 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.20 8 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 8 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 10" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.2.21 9 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 8 dB and 9 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 8 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 11" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**8 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.22 9 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 9 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 11" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.2.23 10 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 9 dB and 10 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 9 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 12" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**9 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.24 10 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 10 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 12" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns

OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.2.25 11 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 10 dB and 11 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 10 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 13" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**10 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.26 11 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 11 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 13" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.2.27 12 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 11 dB and 12 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 11 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 14" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**11 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.28 12 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 12 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 14" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.2.29 13 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 12 dB and 13 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 12 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 15" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**12 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.30 13 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 13 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 15" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.2.31 14 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 13 dB and 14 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 13 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 16" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**13 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.32 14 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 14 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 16" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.2.33 15 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 14 dB and 15 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 14 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 17" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**14 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.34 15 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 15 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 17" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.2.35 16 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 15 dB and 16 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 15 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 18" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**15 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.36 16 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 16 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 18" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.2.37 17 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 16 dB and 17 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 16 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 19" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**16 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.38 17 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 17 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 19" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.2.39 18 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 17 dB and 18 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 17 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 20" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**17 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.40 18 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 18 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 20" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.2.41 19 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 18 dB and 19 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 18 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 21" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**18 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.42 19 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 19 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 21" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.2.43 20 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 19 dB and 20 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 19 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 22" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**19 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.44 20 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 20 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 1 0 22" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.2.45 20 dB (Absolute) Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the absolute step size between the 0 dB and 20 dB Whisper/Shout attenuation level is within specified limits.

Step 1. Subtract the P1 peak power measurement made in the "**20 dB Whisper/Shout P1 Pulse Peak Power Test**" from the P1 peak power measurement made in the "**0 dB Whisper/Shout P1 Pulse Peak Power Test**"

Step 2. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	18.5 dB ≤ result ≤ 21.5 dB
OPR LIM	18.0 dB ≤ result ≤ 22.0 dB

4.21.2.2.46 21 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 20 dB and 21 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 20 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 23" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**20 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.47 22 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 21 dB and 22 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 21 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 24" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**21 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.48 23 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 22 dB and 23 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 22 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 25" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**22 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.49 24 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 23 dB and 24 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 23 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 26" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**23 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.50 25 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 24 dB and 25 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 24 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 27" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**24 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.51 26 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 25 dB and 26 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 25 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 28" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**25 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.2.52 27 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 26 dB and 27 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 26 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 1 0 29" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**26 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3 TCAS Xmtr: Top180 P1 Whisper/Shout Steps & Rise/Fall Time Tests [Group 32]

These tests cause the UUT to generate six-pulse MODE C ATCRBS interrogations out the TOP 180 antenna port. Whisper Shout step size measurements shall be made by comparing the P1 pulse amplitudes of the appropriate interrogations.

Note: When making measurements, the losses from the antenna port to the peak power meter must be calibrated into the reading.

4.21.2.3.1 0 dB Whisper/Shout P1 Pulse Peak Power Test

This test verifies that the peak power of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	+53.50 dBm ≤ measurement ≤ +57.50 dBm
OPR LIM	+53.50 dBm ≤ measurement ≤ +58.50 dBm

4.21.2.3.2 0 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.3.3 0 dB Whisper/Shout P1 Pulse Fall Time Test

This test verifies that the fall time of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 fall time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the fall time of the P1 pulse. The measurement should be made between the 90% to 10% voltage pulse waveform points (81% to 1% of power pulse waveform points) of the falling edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	40 ns ≤ P1 fall time ≤ 175 ns
OPR LIM	40 ns ≤ P1 fall time ≤ 200 ns

4.21.2.3.4 1 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 0 dB and 1 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 0 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**0 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.5 1 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 1 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.3.6 1 dB Whisper/Shout P1 Pulse Fall Time Test

This test verifies that the fall time of the P1 pulse when invoking the 1 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 fall time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the fall time of the P1 pulse. The measurement should be made between the 90% to 10% voltage pulse waveform points (81% to 1% of power pulse waveform points) of the falling edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	40 ns ≤ P1 fall time ≤ 175 ns
OPR LIM	40 ns ≤ P1 fall time ≤ 200 ns

4.21.2.3.7 2 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 1 dB and 2 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 1 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 4" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**1 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.8 2 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 2 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 4" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.3.9 3 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 2 dB and 3 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 2 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 5" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**2 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.10 3 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 3 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 5" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.3.11 4 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 3 dB and 4 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 3 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 6" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**3 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.12 4 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 4 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 6" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.3.13 5 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 4 dB and 5 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 4 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 7" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**4 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.14 5 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 5 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 7" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.3.15 6 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 5 dB and 6 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 5 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 8" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**5 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.16 6 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 6 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 8" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.3.17 7 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 6 dB and 7 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 6 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 9" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**6 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.18 7 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 7 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 9" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.3.19 8 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 7 dB and 8 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 7 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 6. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 7. Send the HTS Command "RFCAL 24 2 0 10" to start transmissions.

Step 8. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**7 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 9. Send a space character to HTS to terminate transmissions.

Step 10. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.20 8 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 8 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 10" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.3.21 9 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 8 dB and 9 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 8 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 11" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**8 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.22 9 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 9 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 11" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.3.23 10 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 9 dB and 10 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 9 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 12" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**9 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.24 10 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 10 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 12" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns

OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.3.25 11 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 10 dB and 11 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 10 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 13" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**10 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.26 11 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 11 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 13" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.3.27 12 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 11 dB and 12 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 11 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 14" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**11 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.28 12 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 12 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 14" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.3.29 13 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 12 dB and 13 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 12 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 15" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**12 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.30 13 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 13 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 15" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.3.31 14 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 13 dB and 14 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 13 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 16" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**13 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.32 14 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 14 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 16" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.3.33 15 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 14 dB and 15 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 14 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 17" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**14 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.34 15 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 15 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 17" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.3.35 16 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 15 dB and 16 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 15 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 18" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**15 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.36 16 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 16 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 18" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.3.37 17 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 16 dB and 17 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 16 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 19" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**16 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.38 17 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 17 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 19" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.3.39 18 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 17 dB and 18 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 17 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 20" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**17 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.40 18 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 18 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 20" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.3.41 19 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 18 dB and 19 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 18 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 21" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**18 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.42 19 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 19 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 21" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.3.43 20 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 19 dB and 20 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 19 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 22" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**19 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.44 20 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 20 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 2 0 22" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.3.45 20 dB (Absolute) Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the absolute step size between the 0 dB and 20 dB Whisper/Shout attenuation level is within specified limits.

Step 1. Subtract the P1 peak power measurement made in the “**20 dB Whisper/Shout P1 Pulse Peak Power Test**” from the P1 peak power measurement made in the “**0 dB Whisper/Shout P1 Pulse Peak Power Test**”

Step 2. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	18.5 dB ≤ result ≤ 21.5 dB
OPR LIM	18.0 dB ≤ result ≤ 22.0 dB

4.21.2.3.46 21 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 20 dB and 21 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 20 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 23" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**20 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.47 22 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 21 dB and 22 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 21 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 24" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**21 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.48 23 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 22 dB and 23 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 22 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 25" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**22 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.49 24 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 23 dB and 24 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 23 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 26" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**23 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.50 25 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 24 dB and 25 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 24 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 27" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**24 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.51 26 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 25 dB and 26 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 25 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 28" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**25 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.3.52 27 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 26 dB and 27 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 26 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 2 0 29" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**26 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4 TCAS Xmtr: Top270 P1 Whisper/Shout Steps & Rise/Fall Time Tests [Group 33]

These tests cause the UUT to generate six-pulse MODE C ATCRBS interrogations out the TOP 270 antenna port. Whisper Shout step size measurements shall be made by comparing the P1 pulse amplitudes of the appropriate interrogations.

Note: When making measurements, the losses from the antenna port to the peak power meter must be calibrated into the reading.

4.21.2.4.1 0 dB Whisper/Shout P1 Pulse Peak Power Test

This test verifies that the peak power of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	+53.50 dBm ≤ measurement ≤ +57.50 dBm
OPR LIM	+53.50 dBm ≤ measurement ≤ +58.50 dBm

4.21.2.4.2 0 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.4.3 0 dB Whisper/Shout P1 Pulse Fall Time Test

This test verifies that the fall time of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 fall time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the fall time of the P1 pulse. The measurement should be made between the 90% to 10% voltage pulse waveform points (81% to 1% of power pulse waveform points) of the falling edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	40 ns ≤ P1 fall time ≤ 175 ns
OPR LIM	40 ns ≤ P1 fall time ≤ 200 ns

4.21.2.4.4 1 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 0 dB and 1 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 0 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**0 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.5 1 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 1 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.4.6 1 dB Whisper/Shout P1 Pulse Fall Time Test

This test verifies that the fall time of the P1 pulse when invoking the 1 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 fall time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the fall time of the P1 pulse. The measurement should be made between the 90% to 10% voltage pulse waveform points (81% to 1% of power pulse waveform points) of the falling edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	40 ns ≤ P1 fall time ≤ 175 ns
OPR LIM	40 ns ≤ P1 fall time ≤ 200 ns

4.21.2.4.7 2 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 1 dB and 2 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 1 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 4" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**1 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.8 2 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 2 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 4" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.4.8.1 3 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 2 dB and 3 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 2 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 5" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**2 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.9 3 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 3 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 5" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns

OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.4.10 4 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 3 dB and 4 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 3 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 6" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**3 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.11 4 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 4 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 6" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.4.12 5 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 4 dB and 5 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 4 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 7" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**4 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.13 5 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 5 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 7" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.4.14 6 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 5 dB and 6 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 5 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 8" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**5 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.15 6 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 6 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 8" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.4.16 7 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 6 dB and 7 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 6 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 9" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**6 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.17 7 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 7 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 9" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.4.18 8 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 7 dB and 8 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 7 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 10" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**7 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.19 8 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 8 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 10" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.4.20 9 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 8 dB and 9 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 8 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 11" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**8 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.21 9 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 9 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 11" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.4.22 10 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 9 dB and 10 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 9 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 12" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**9 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.23 10 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 10 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 12" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns

OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.4.24 11 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 10 dB and 11 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 10 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 13" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**10 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.25 11 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 11 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 13" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.4.26 12 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 11 dB and 12 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 11 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 14" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**11 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.27 12 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 12 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 14" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.4.28 13 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 12 dB and 13 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 12 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 15" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**12 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.29 13 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 13 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 15" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.4.30 14 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 13 dB and 14 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 13 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 16" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**13 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.31 14 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 14 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 16" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.4.32 15 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 14 dB and 15 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 14 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 17" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**14 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.33 15 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 15 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 17" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.4.34 16 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 15 dB and 16 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 15 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 18" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**15 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.35 16 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 16 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 18" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.4.36 17 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 16 dB and 17 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 16 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 19" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**16 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.37 17 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 17 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 19" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.4.38 18 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 17 dB and 18 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 17 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 20" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**17 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.39 18 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 18 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 20" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.4.40 19 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 18 dB and 19 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 18 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 21" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**18 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.41 19 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 19 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 21" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.4.42 20 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 19 dB and 20 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 19 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 22" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**19 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.43 20 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 20 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 3 0 22" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.4.44 20 dB (Absolute) Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the absolute step size between the 0 dB and 20 dB Whisper/Shout attenuation level is within specified limits.

Step 1. Subtract the P1 peak power measurement made in the "**20 dB Whisper/Shout P1 Pulse Peak Power Test**" from the P1 peak power measurement made in the "**0 dB Whisper/Shout P1 Pulse Peak Power Test**"

Step 2. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	18.5 dB ≤ result ≤ 21.5 dB
OPR LIM	18.0 dB ≤ result ≤ 22.0 dB

4.21.2.4.45 21 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 20 dB and 21 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 20 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 23" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**20 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.46 22 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 21 dB and 22 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 21 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 24" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**21 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.47 23 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 22 dB and 23 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 22 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 25" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**22 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.48 24 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 23 dB and 24 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 23 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 26" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**23 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.49 25 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 24 dB and 25 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 24 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 27" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**24 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.50 26 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 25 dB and 26 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 25 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 28" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**25 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.4.51 27 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 26 dB and 27 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 26 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Top antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to TOP 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 3 0 29" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**26 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5 TCAS Xmtr: Bot0 P1 Whisper/Shout Steps & Rise/Fall Time Tests [Group 34]

These tests cause the UUT to generate six-pulse MODE C ATCRBS interrogations out the BOT 0 antenna port. Whisper Shout step size measurements shall be made by comparing the P1 pulse amplitudes of the appropriate interrogations.

Note: When making measurements, the losses from the antenna port to the peak power meter must be calibrated into the reading.

4.21.2.5.1 0 dB Whisper/Shout P1 Pulse Peak Power Test

This test verifies that the peak power of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	+53.50 dBm ≤ measurement ≤ +57.50 dBm
OPR LIM	+53.50 dBm ≤ measurement ≤ +58.50 dBm

4.21.2.5.2 0 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.5.3 0 dB Whisper/Shout P1 Pulse Fall Time Test

This test verifies that the fall time of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 fall time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the fall time of the P1 pulse. The measurement should be made between the 90% to 10% voltage pulse waveform points (81% to 1% of power pulse waveform points) of the falling edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	40 ns ≤ P1 fall time ≤ 175 ns
OPR LIM	40 ns ≤ P1 fall time ≤ 200 ns

4.21.2.5.4 1 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 0 dB and 1 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 0 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**0 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.5 1 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 1 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.5.6 1 dB Whisper/Shout P1 Pulse Fall Time Test

This test verifies that the fall time of the P1 pulse when invoking the 1 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 fall time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the fall time of the P1 pulse. The measurement should be made between the 90% to 10% voltage pulse waveform points (81% to 1% of power pulse waveform points) of the falling edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	40 ns ≤ P1 fall time ≤ 175 ns
OPR LIM	40 ns ≤ P1 fall time ≤ 200 ns

4.21.2.5.7 2 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 1 dB and 2 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 1 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 4" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**1 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.8 2 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 2 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 4" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.5.9 3 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 2 dB and 3 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 2 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 5" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**2 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.10 3 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 3 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 5" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.5.11 4 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 3 dB and 4 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 3 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 6" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**3 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.12 4 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 4 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 6" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.5.13 5 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 4 dB and 5 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 4 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 7" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the “**4 dB Whisper/Shout P1 Pulse Peak Power Test**”.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.14 5 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 5 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 7" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.5.15 6 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 5 dB and 6 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 5 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 8" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the “**5 dB Whisper/Shout P1 Pulse Peak Power Test**”.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.16 6 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 6 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 8" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.5.17 7 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 6 dB and 7 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 6 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 9" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**6 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.18 7 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 7 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 9" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.5.19 8 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 7 dB and 8 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 7 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 10" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**7 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.20 8 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 8 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 10" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.5.21 9 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 8 dB and 9 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 8 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 11" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**8 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.22 9 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 9 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 11" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.5.23 10 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 9 dB and 10 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 9 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 12" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**9 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.24 10 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 10 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 12" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.5.25 11 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 10 dB and 11 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 10 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 13" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**10 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.26 11 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 11 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 13" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.5.27 12 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 11 dB and 12 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 11 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 14" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**11 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.28 12 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 12 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 14" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.5.29 13 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 12 dB and 13 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 12 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 15" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**12 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.30 13 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 13 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 15" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.5.31 14 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 13 dB and 14 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 13 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 16" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**13 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.32 14 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 14 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 16" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.5.33 15 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 14 dB and 15 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 14 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 17" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**14 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.34 15 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 15 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 17" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.5.35 16 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 15 dB and 16 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 15 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 18" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**15 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.36 16 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 16 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 18" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.5.37 17 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 16 dB and 17 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 16 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 19" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**16 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.38 17 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 17 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 19" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.5.39 18 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 17 dB and 18 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 17 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 20" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**17 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.40 18 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 18 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 20" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.5.41 19 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 18 dB and 19 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 18 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 21" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**18 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.42 19 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 19 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 21" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.5.43 20 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 19 dB and 20 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 19 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 22" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**19 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.44 20 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 20 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 4 0 22" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.5.45 20 dB (Absolute) Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the absolute step size between the 0 dB and 20 dB Whisper/Shout attenuation level is within specified limits.

Step 1. Subtract the P1 peak power measurement made in the "**20 dB Whisper/Shout P1 Pulse Peak Power Test**" from the P1 peak power measurement made in the "**0 dB Whisper/Shout P1 Pulse Peak Power Test**"

Step 2. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	18.5 dB ≤ result ≤ 21.5 dB
OPR LIM	18.0 dB ≤ result ≤ 22.0 dB

4.21.2.5.46 21 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 20 dB and 21 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 20 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 23" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**20 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.47 22 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 21 dB and 22 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 21 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 24" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**21 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.48 23 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 22 dB and 23 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 22 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 25" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**22 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.49 24 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 23 dB and 24 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 23 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 26" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**23 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.50 25 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 24 dB and 25 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 24 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 27" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**24 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.51 26 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 25 dB and 26 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 25 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 28" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**25 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.5.52 27 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 26 dB and 27 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 26 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 0 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 0 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 4 0 29" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**26 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6 TCAS Xmtr: Bot90 P1 Whisper/Shout Steps & Rise/Fall Time Tests [Group 35]

These tests cause the UUT to generate six-pulse MODE C ATCRBS interrogations out the BOT 90 antenna port. Whisper Shout step size measurements shall be made by comparing the P1 pulse amplitudes of the appropriate interrogations.

Note: When making measurements, the losses from the antenna port to the peak power meter must be calibrated into the reading.

4.21.2.6.1 0 dB Whisper/Shout P1 Pulse Peak Power Test

This test verifies that the peak power of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	+53.50 dBm ≤ measurement ≤ +57.50 dBm
OPR LIM	+53.50 dBm ≤ measurement ≤ +58.50 dBm

4.21.2.6.2 0 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.6.3 0 dB Whisper/Shout P1 Pulse Fall Time Test

This test verifies that the fall time of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 fall time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the fall time of the P1 pulse. The measurement should be made between the 90% to 10% voltage pulse waveform points (81% to 1% of power pulse waveform points) of the falling edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	40 ns ≤ P1 fall time ≤ 175 ns
OPR LIM	40 ns ≤ P1 fall time ≤ 200 ns

4.21.2.6.4 1 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 0 dB and 1 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 0 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the “**0 dB Whisper/Shout P1 Pulse Peak Power Test**”.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.5 1 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 1 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.6.6 1 dB Whisper/Shout P1 Pulse Fall Time Test

This test verifies that the fall time of the P1 pulse when invoking the 1 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 fall time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the fall time of the P1 pulse. The measurement should be made between the 90% to 10% voltage pulse waveform points (81% to 1% of power pulse waveform points) of the falling edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	40 ns ≤ P1 fall time ≤ 175 ns
OPR LIM	40 ns ≤ P1 fall time ≤ 200 ns

4.21.2.6.7 2 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 1 dB and 2 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 1 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 4" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**1 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.8 2 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 2 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 4" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.6.9 3 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 2 dB and 3 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 2 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 5" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**2 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.10 3 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 3 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 5" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.6.11 4 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 3 dB and 4 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 3 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 6” to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the “**3 dB Whisper/Shout P1 Pulse Peak Power Test**”.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.12 4 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 4 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 6" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.6.13 5 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 4 dB and 5 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 4 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 7" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the “**4 dB Whisper/Shout P1 Pulse Peak Power Test**”.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.14 5 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 5 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 7" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.6.15 6 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 5 dB and 6 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 5 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 8" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**5 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.16 6 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 6 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 8" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.6.17 7 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 6 dB and 7 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 6 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 9" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**6 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.18 7 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 7 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 9" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.6.19 8 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 7 dB and 8 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 7 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 10" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**7 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.20 8 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 8 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 10" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.6.21 9 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 8 dB and 9 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 8 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 11" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**8 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.22 9 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 9 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 11" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.6.23 10 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 9 dB and 10 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 9 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 12" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**9 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.24 10 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 10 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 12" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.6.25 11 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 10 dB and 11 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 10 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 13" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**10 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.26 11 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 11 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 13" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.6.27 12 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 11 dB and 12 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 11 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 14" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**11 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.28 12 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 12 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 14" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.6.29 13 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 12 dB and 13 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 12 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 15" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**12 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.30 13 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 13 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 15" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.6.31 14 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 13 dB and 14 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 13 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 16" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**13 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.32 14 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 14 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 16" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.6.33 15 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 14 dB and 15 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 14 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 17" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**14 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.34 15 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 15 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 17" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.6.35 16 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 15 dB and 16 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 15 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 18" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**15 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.36 16 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 16 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 18" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.6.37 17 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 16 dB and 17 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 16 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 19" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**16 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.38 17 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 17 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 19" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.6.39 18 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 17 dB and 18 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 17 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 20" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**17 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.40 18 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 18 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 20" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.6.41 19 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 18 dB and 19 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 18 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 21" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**18 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.42 19 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 19 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 21" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.6.43 20 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 19 dB and 20 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 19 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 22" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**19 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.44 20 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 20 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 5 0 22" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.6.45 20 dB (Absolute) Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the absolute step size between the 0 dB and 20 dB Whisper/Shout attenuation level is within specified limits.

Step 1. Subtract the P1 peak power measurement made in the "**20 dB Whisper/Shout P1 Pulse Peak Power Test**" from the P1 peak power measurement made in the "**0 dB Whisper/Shout P1 Pulse Peak Power Test**"

Step 2. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	18.5 dB ≤ result ≤ 21.5 dB
OPR LIM	18.0 dB ≤ result ≤ 22.0 dB

4.21.2.6.46 21 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 20 dB and 21 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 20 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 23" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**20 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.47 22 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 21 dB and 22 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 21 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 24" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**21 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.48 23 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 22 dB and 23 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 22 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 25" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**22 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.49 24 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 23 dB and 24 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 23 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 26" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**23 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.50 25 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 24 dB and 25 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 24 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 27" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**24 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.51 26 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 25 dB and 26 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 25 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 28" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**25 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.6.52 27 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 26 dB and 27 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 26 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 90 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 90 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 5 0 29" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**26 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7 TCAS Xmtr: Bot180 P1 Whisper/Shout Steps & Rise/Fall Time Tests [Group 36]

These tests cause the UUT to generate six-pulse MODE C ATCRBS interrogations out the BOT 180 antenna port. Whisper Shout step size measurements shall be made by comparing the P1 pulse amplitudes of the appropriate interrogations.

Note: When making measurements, the losses from the antenna port to the peak power meter must be calibrated into the reading.

4.21.2.7.1 0 dB Whisper/Shout P1 Pulse Peak Power Test

This test verifies that the peak power of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	+53.50 dBm ≤ measurement ≤ +57.50 dBm

OPR LIM	+53.50 dBm ≤ measurement ≤ +58.50 dBm

4.21.2.7.2 0 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.7.3 0 dB Whisper/Shout P1 Pulse Fall Time Test

This test verifies that the fall time of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 fall time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the fall time of the P1 pulse. The measurement should be made between the 90% to 10% voltage pulse waveform points (81% to 1% of power pulse waveform points) of the falling edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	40 ns ≤ P1 fall time ≤ 175 ns
OPR LIM	40 ns ≤ P1 fall time ≤ 200 ns

4.21.2.7.4 1 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 0 dB and 1 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 0 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**0 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.5 1 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 1 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.7.6 1 dB Whisper/Shout P1 Pulse Fall Time Test

This test verifies that the fall time of the P1 pulse when invoking the 1 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 fall time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the fall time of the P1 pulse. The measurement should be made between the 90% to 10% voltage pulse waveform points (81% to 1% of power pulse waveform points) of the falling edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	40 ns ≤ P1 fall time ≤ 175 ns
OPR LIM	40 ns ≤ P1 fall time ≤ 200 ns

4.21.2.7.7 2 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 1 dB and 2 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 1 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 4" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**1 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.8 2 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 2 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 4" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.7.9 3 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 2 dB and 3 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 2 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 5" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**2 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.10 3 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 3 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 5" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.7.11 4 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 3 dB and 4 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 3 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 6" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**3 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.12 4 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 4 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 6" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.7.13 5 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 4 dB and 5 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 4 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 7" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**4 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.14 5 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 5 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 7" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.7.15 6 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 5 dB and 6 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 5 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 8" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**5 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.16 6 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 6 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 8" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.7.17 7 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 6 dB and 7 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 6 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 9" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**6 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.18 7 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 7 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 9" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.7.19 8 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 7 dB and 8 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 7 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 10" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**7 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.20 8 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 8 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 10" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.7.21 9 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 8 dB and 9 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 8 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 11" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**8 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.22 9 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 9 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 11" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.7.23 10 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 9 dB and 10 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 9 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 12" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**9 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.24 10 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 10 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 12" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.7.25 11 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 10 dB and 11 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 10 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 13" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**10 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.26 11 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 11 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 13" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.7.27 12 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 11 dB and 12 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 11 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 14" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**11 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.28 12 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 12 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 14" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.7.29 13 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 12 dB and 13 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 12 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 15" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**12 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.30 13 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 13 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 15" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.7.31 14 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 13 dB and 14 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 13 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 16" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**13 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.32 14 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 14 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 16" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.7.33 15 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 14 dB and 15 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 14 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 17" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**14 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.34 15 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 15 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 17" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.7.35 16 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 15 dB and 16 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 15 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 18" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**15 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.36 16 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 16 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 18" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.7.37 17 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 16 dB and 17 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 16 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 19" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**16 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.38 17 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 17 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 19" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.7.39 18 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 17 dB and 18 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 17 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 20" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**17 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.40 18 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 18 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 20" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.7.41 19 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 18 dB and 19 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 18 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 21" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**18 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.42 19 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 19 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 21" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.7.43 20 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 19 dB and 20 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 19 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 22" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**19 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.44 20 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 20 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 6 0 22" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.7.45 20 dB (Absolute) Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the absolute step size between the 0 dB and 20 dB Whisper/Shout attenuation level is within specified limits.

Step 1. Subtract the P1 peak power measurement made in the "**20 dB Whisper/Shout P1 Pulse Peak Power Test**" from the P1 peak power measurement made in the "**0 dB Whisper/Shout P1 Pulse Peak Power Test**"

Step 2. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	18.5 dB ≤ result ≤ 21.5 dB
OPR LIM	18.0 dB ≤ result ≤ 22.0 dB

4.21.2.7.46 21 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 20 dB and 21 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 20 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 23" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**20 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.47 22 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 21 dB and 22 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 21 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 24" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**21 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.48 23 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 22 dB and 23 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 22 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 25" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**22 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.49 24 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 23 dB and 24 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 23 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 26" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**23 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.50 25 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 24 dB and 25 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 24 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 27" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**24 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.51 26 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 25 dB and 26 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 25 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 28" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**25 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.7.52 27 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 26 dB and 27 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 26 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 180 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 180 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 6 0 29" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**26 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8 TCAS Xmtr: Bot270 P1 Whisper/Shout Steps & Rise/Fall Time Tests [Group 37]

These tests cause the UUT to generate six-pulse MODE C ATCRBS interrogations out the BOT 270 antenna port. Whisper Shout step size measurements shall be made by comparing the P1 pulse amplitudes of the appropriate interrogations.

Note: When making measurements, the losses from the antenna port to the peak power meter must be calibrated into the reading.

4.21.2.8.1 0 dB Whisper/Shout P1 Pulse Peak Power Test

This test verifies that the peak power of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	+53.50 dBm ≤ measurement ≤ +57.50 dBm
OPR LIM	+53.50 dBm ≤ measurement ≤ +58.50 dBm

4.21.2.8.2 0 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.8.3 0 dB Whisper/Shout P1 Pulse Fall Time Test

This test verifies that the fall time of the P1 pulse when invoking the 0 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 fall time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 2" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the fall time of the P1 pulse. The measurement should be made between the 90% to 10% voltage pulse waveform points (81% to 1% of power pulse waveform points) of the falling edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	40 ns ≤ P1 fall time ≤ 175 ns

OPR LIM	40 ns ≤ P1 fall time ≤ 200 ns

4.21.2.8.4 1 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 0 dB and 1 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 0 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**0 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.5 1 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 1 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.8.6 1 dB Whisper/Shout P1 Pulse Fall Time Test

This test verifies that the fall time of the P1 pulse when invoking the 1 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 fall time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 3" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the fall time of the P1 pulse. The measurement should be made between the 90% to 10% voltage pulse waveform points (81% to 1% of power pulse waveform points) of the falling edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	40 ns ≤ P1 fall time ≤ 175 ns
OPR LIM	40 ns ≤ P1 fall time ≤ 200 ns

4.21.2.8.7 2 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 1 dB and 2 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 1 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 4" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**1 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.8 2 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 2 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 4" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.8.9 3 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 2 dB and 3 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 2 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 5" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**2 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.10 3 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 3 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 5" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.8.11 4 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 3 dB and 4 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 3 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 6" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**3 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.12 4 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 4 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 6" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.8.13 5 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 4 dB and 5 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 4 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 7" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**4 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.14 5 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 5 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 7" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.8.15 6 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 5 dB and 6 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 5 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 8" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**5 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.16 6 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 6 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 8" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.8.17 7 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 6 dB and 7 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 6 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 9" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**6 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.18 7 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 7 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 9" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.8.19 8 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 7 dB and 8 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 7 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 10" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**7 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.20 8 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 8 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 10" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.8.21 9 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 8 dB and 9 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 8 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 11" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**8 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.22 9 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 9 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 11" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.8.23 10 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 9 dB and 10 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 9 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 12" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**9 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.24 10 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 10 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 12" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% of power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns

OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.8.25 11 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 10 dB and 11 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 10 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 13" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**10 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.26 11 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 11 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 13" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.8.27 12 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 11 dB and 12 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 11 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 14" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**11 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.28 12 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 12 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 14" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.8.29 13 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 12 dB and 13 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 12 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 15" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the “**12 dB Whisper/Shout P1 Pulse Peak Power Test**”.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.30 13 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 13 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 15" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.8.31 14 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 13 dB and 14 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 13 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 16" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the “**13 dB Whisper/Shout P1 Pulse Peak Power Test**”.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.32 14 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 14 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 16" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.8.33 15 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 14 dB and 15 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 14 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 17" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**14 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.34 15 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 15 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 17" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.8.35 16 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 15 dB and 16 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 15 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 18" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**15 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.36 16 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 16 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 18" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.8.37 17 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 16 dB and 17 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 16 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 19" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**16 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.38 17 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 17 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 19" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.8.39 18 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 17 dB and 18 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 17 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 20" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**17 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.40 18 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 18 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 20" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.8.41 19 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 18 dB and 19 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 18 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 21" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**18 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.42 19 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 19 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 21" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.8.43 20 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 19 dB and 20 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 19 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 22" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**19 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.44 20 dB Whisper/Shout P1 Pulse Rise Time Test

This test verifies that the rise time of the P1 pulse when invoking the 20 dB Whisper/Shout attenuation level is within specified limits.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making appropriate P1 rise time measurements.

Step 2. Send the HTS Command "RFCAL 24 7 0 22" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the rise time of the P1 pulse. The measurement should be made between the 10% to 90% voltage pulse waveform points (1% to 81% power pulse waveform points) of the leading edge of the pulse.

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the resulting measurement is as follows:

MFG LIM	50 ns ≤ P1 rise time ≤ 100 ns
OPR LIM	50 ns ≤ P1 rise time ≤ 100 ns

4.21.2.8.45 20 dB (Absolute) Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the absolute step size between the 0 dB and 20 dB Whisper/Shout attenuation level is within specified limits.

Step 1. Subtract the P1 peak power measurement made in the "**20 dB Whisper/Shout P1 Pulse Peak Power Test**" from the P1 peak power measurement made in the "**0 dB Whisper/Shout P1 Pulse Peak Power Test**"

Step 2. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	18.5 dB ≤ result ≤ 21.5 dB
OPR LIM	18.0 dB ≤ result ≤ 22.0 dB

4.21.2.8.46 21 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 20 dB and 21 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 20 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 23" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**20 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.47 22 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 21 dB and 22 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 21 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 24" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**21 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.48 23 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 22 dB and 23 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 22 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 25" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**22 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.49 24 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 23 dB and 24 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 23 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 26" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**23 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.50 25 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 24 dB and 25 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 24 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 27" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**24 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.51 26 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 25 dB and 26 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 25 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 28" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**25 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.2.8.52 27 dB Whisper/Shout P1 Pulse Peak Power Test

This test will verify that the step size between the 26 dB and 27 dB Whisper/Shout attenuation levels is within specified limits. The peak power measurement made in this test will be subtracted from the measurement made for the 26 dB Whisper/Shout attenuation level and the result will be verified.

The UUT will be commanded to generate a single whisper/shout interrogation (multiple times for averaging) using the Bottom antenna 270 degree port with each pulse set to the same power level.

Step 1. Connect the Peak Power meter to BOT 270 antenna port and setup for making the appropriate peak power measurements of the P1 pulse.

Step 2. Send the HTS Command "RFCAL 24 7 0 29" to start transmissions.

Step 3. Using the Peak Power Meter, measure and record the peak power of the P1 pulse. Subtract this measurement from the peak power measurement recorded in the "**26 dB Whisper/Shout P1 Pulse Peak Power Test**".

Step 4. Send a space character to HTS to terminate transmissions.

Step 5. Verify that the result from the subtraction between the measurements is as follows:

MFG LIM	0.500 dB ≤ result ≤ 1.500 dB
OPR LIM	0.500 dB ≤ result ≤ 1.500 dB

4.21.3 TCAS Transmitter: Pulse Deviation and Timing Tests [Group 38 to 45] (DO-185B 2.2.3.8.1)

The pulse deviation tests will measure Mode P1, P2, P2A, P2B, P3 and P4 power. The test will calculate the deviation between the pulse powers and verify the timing between each pulse.

4.21.3.1 TCAS Xmtr: Top 0 Pulse Deviation and Timing Tests [Group 38]

Step 1. Connect the peak power meter to the Top 0 antenna port and setup for making the appropriate peak power measurements for the 6 pulses.

Step 2. Transmit Mode C interrogations by executing the "RFCAL 24 0 0 2" HTS command.

Step 3. Using the Peak Power Meter, measure the amplitude of each pulse within the ATCRBS 6 pulse sequence.

Step 4. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 5. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 6. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 7. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 8. Verify that the time between S1 and P1 is 2.0 ± 0.1 µs.

Step 9. Using the Peak Power Meter, measure the spacing between the P1 and P2A pulse.

Step 10. Verify that the time between P1 and P2A is 2.0 ± 0.1 µs.

Step 11. Using the Peak Power Meter, measure the spacing between the P2A and P2B pulse.

Step 12. Verify that the time between P2A and P2B is 17.0 ± 0.1 µs.

Step 13. Using the Peak Power Meter, measure the spacing between the P2B and P3 pulse.

Step 14. Verify that the time between P2B and P3 is 2.0 ± 0.1 µs.

Step 15. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 16. Verify that the time between P3 and P4 is 2.0 ± 0.1 µs.

Step 17. Transmit Mode A interrogations by executing the “RFCAL 24 0 2 2“ HTS command.

Step 18. Using the Peak Power Meter, measure the amplitude of each pulse within the Mode A 6 pulse sequence.

Step 19. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 20. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 21. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 22. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 23. Verify that the time between the S1 and P1 is 2.0 ± 0.1 µs.

Step 24. Using the Peak Power Meter, measure the spacing between the P1 and P2A pulse.

Step 25. Verify that the time between the P1 and P2A is 2.0 ± 0.1 µs.

Step 26. Using the Peak Power Meter, measure the spacing between the P2A and P2B pulse.

Step 27. Verify that the time between the P2A and P2B is 4.0 ± 0.1 µs.

Step 28. Using the Peak Power Meter, measure the spacing between the P2B and P3 pulse.

Step 29. Verify that the time between the P2B and P3 is 2.0 ± 0.1 µs.

Step 30. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 31. Verify that the time between the P3 and P4 is 2.0 ± 0.1 µs.

Step 32. Transmit Mode 2 interrogations by executing the “RFCAL 24 0 3 2“ HTS command.

Step 33. Using the Peak Power Meter, measure the amplitude of each pulse within the Mode 2 4 pulse sequence.

Step 34. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 35. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 36. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 37. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 38. Verify that the time between the S1 and P1 pulse is 2.0 ± 0.1 µs.

Step 39. Using the Peak Power Meter, measure the spacing between the P1 and P3 pulse.

Step 40. Verify that the time between the P1 and P3 pulse is 4.0 ± 0.1 µs.

Step 41. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 42. Verify that the time between the P3 and P4 pulse is 2.0 ± 0.1 µs.

4.21.3.2 TCAS Xmtr: Top 90 Pulse Deviation and Timing Tests [Group 39]

Step 1. Connect the peak power meter to the Top 90 antenna port and setup for making the appropriate peak power measurements for the 6 pulses.

Step 2. Transmit Mode C interrogations by executing the “RFCAL 24 1 0 2“ HTS command.

Step 3. Using the Peak Power Meter, measure the amplitude of each pulse within the ATCRBS 6 pulse sequence.

Step 4. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 5. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 6. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 7. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 8. Verify that the time between S1 and P1 is 2.0 ± 0.1 µs.

Step 9. Using the Peak Power Meter, measure the spacing between the P1 and P2A pulse.

Step 10. Verify that the time between P1 and P2A is 2.0 ± 0.1 µs.

Step 11. Using the Peak Power Meter, measure the spacing between the P2A and P2B pulse.

Step 12. Verify that the time between P2A and P2B is 17.0 ± 0.1 µs.

Step 13. Using the Peak Power Meter, measure the spacing between the P2B and P3 pulse.

Step 14. Verify that the time between P2B and P3 is 2.0 ± 0.1 µs.

Step 15. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 16. Verify that the time between P3 and P4 is 2.0 ± 0.1 µs.

Step 17. Transmit Mode A interrogations by executing the “RFCAL 24 1 2 2“ HTS command.

Step 18. Using the Peak Power Meter, measure the amplitude of each pulse within the Mode A 6 pulse sequence.

Step 19. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 20. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 21. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 22. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 23. Verify that the time between the S1 and P1 is 2.0 ± 0.1 µs.

Step 24. Using the Peak Power Meter, measure the spacing between the P1 and P2A pulse.

Step 25. Verify that the time between the P1 and P2A is 2.0 ± 0.1 µs.

Step 26. Using the Peak Power Meter, measure the spacing between the P2A and P2B pulse.

Step 27. Verify that the time between the P2A and P2B is 4.0 ± 0.1 µs.

Step 28. Using the Peak Power Meter, measure the spacing between the P2B and P3 pulse.

Step 29. Verify that the time between the P2B and P3 is 2.0 ± 0.1 µs.

Step 30. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 31. Verify that the time between the P3 and P4 is 2.0 ± 0.1 µs.

Step 32. Transmit Mode 2 interrogations by executing the "RFCAL 24 1 3 2" HTS command.

Step 33. Using the Peak Power Meter, measure the amplitude of each pulse within the Mode 2 4 pulse sequence.

Step 34. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 35. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 36. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 37. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 38. Verify that the time between the S1 and P1 pulse is 2.0 ± 0.1 µs.

Step 39. Using the Peak Power Meter, measure the spacing between the P1 and P3 pulse.

Step 40. Verify that the time between the P1 and P3 pulse is 4.0 ± 0.1 µs.

Step 41. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 42. Verify that the time between the P3 and P4 pulse is 2.0 ± 0.1 µs.

4.21.3.3 TCAS Xmtr: Top 180 Pulse Deviation and Timing Tests [Group 40]

Step 1. Connect the peak power meter to the Top 180 antenna port and setup for making the appropriate peak power measurements for the 6 pulses.

Step 2. Transmit Mode C interrogations by executing the "RFCAL 24 2 0 2" HTS command.

Step 3. Using the Peak Power Meter, measure the amplitude of each pulse within the ATCRBS 6 pulse sequence.

Step 4. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 5. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 6. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 7. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 8. Verify that the time between S1 and P1 is 2.0 ± 0.1 µs.

Step 9. Using the Peak Power Meter, measure the spacing between the P1 and P2A pulse.

Step 10. Verify that the time between P1 and P2A is 2.0 ± 0.1 µs.

Step 11. Using the Peak Power Meter, measure the spacing between the P2A and P2B pulse.

Step 12. Verify that the time between P2A and P2B is 17.0 ± 0.1 µs.

Step 13. Using the Peak Power Meter, measure the spacing between the P2B and P3 pulse.

Step 14. Verify that the time between P2B and P3 is 2.0 ± 0.1 µs.

Step 15. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 16. Verify that the time between P3 and P4 is 2.0 ± 0.1 µs.

Step 17. Transmit Mode A interrogations by executing the "RFCAL 24 2 2 2" HTS command.

Step 18. Using the Peak Power Meter, measure the amplitude of each pulse within the Mode A 6 pulse sequence.

Step 19. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 20. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 21. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 22. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 23. Verify that the time between the S1 and P1 is 2.0 ± 0.1 µs.

Step 24. Using the Peak Power Meter, measure the spacing between the P1 and P2A pulse.

Step 25. Verify that the time between the P1 and P2A is 2.0 ± 0.1 µs.

Step 26. Using the Peak Power Meter, measure the spacing between the P2A and P2B pulse.

Step 27. Verify that the time between the P2A and P2B is 4.0 ± 0.1 µs.

Step 28. Using the Peak Power Meter, measure the spacing between the P2B and P3 pulse.

Step 29. Verify that the time between the P2B and P3 is 2.0 ± 0.1 µs.

Step 30. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 31. Verify that the time between the P3 and P4 is 2.0 ± 0.1 µs.

Step 32. Transmit Mode 2 interrogations by executing the "RFCAL 24 2 3 2" HTS command.

Step 33. Using the Peak Power Meter, measure the amplitude of each pulse within the Mode 2 4 pulse sequence.

Step 34. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 35. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 36. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 37. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 38. Verify that the time between the S1 and P1 pulse is 2.0 ± 0.1 µs.

Step 39. Using the Peak Power Meter, measure the spacing between the P1 and P3 pulse.

Step 40. Verify that the time between the P1 and P3 pulse is 4.0 ± 0.1 µs.

Step 41. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 42. Verify that the time between the P3 and P4 pulse is 2.0 ± 0.1 µs.

4.21.3.4 TCAS Xmtr: Top 270 Pulse Deviation and Timing Tests [Group 41]

Step 1. Connect the peak power meter to the Top 270 antenna port and setup for making the appropriate peak power measurements for the 6 pulses.

Step 2. Transmit Mode C interrogations by executing the “RFCAL 24 3 0 2“ HTS command.

Step 3. Using the Peak Power Meter, measure the amplitude of each pulse within the ATCRBS 6 pulse sequence.

Step 4. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 5. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 6. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 7. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 8. Verify that the time between S1 and P1 is 2.0 ± 0.1 µs.

Step 9. Using the Peak Power Meter, measure the spacing between the P1 and P2A pulse.

Step 10. Verify that the time between P1 and P2A is 2.0 ± 0.1 µs.

Step 11. Using the Peak Power Meter, measure the spacing between the P2A and P2B pulse.

Step 12. Verify that the time between P2A and P2B is 17.0 ± 0.1 µs.

Step 13. Using the Peak Power Meter, measure the spacing between the P2B and P3 pulse.

Step 14. Verify that the time between P2B and P3 is 2.0 ± 0.1 µs.

Step 15. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 16. Verify that the time between P3 and P4 is 2.0 ± 0.1 µs.

Step 17. Transmit Mode A interrogations by executing the “RFCAL 24 3 2 2“ HTS command.

Step 18. Using the Peak Power Meter, measure the amplitude of each pulse within the Mode A 6 pulse sequence.

Step 19. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 20. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 21. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 22. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 23. Verify that the time between the S1 and P1 is 2.0 ± 0.1 µs.

Step 24. Using the Peak Power Meter, measure the spacing between the P1 and P2A pulse.

Step 25. Verify that the time between the P1 and P2A is 2.0 ± 0.1 µs.

Step 26. Using the Peak Power Meter, measure the spacing between the P2A and P2B pulse.

Step 27. Verify that the time between the P2A and P2B is 4.0 ± 0.1 µs.

Step 28. Using the Peak Power Meter, measure the spacing between the P2B and P3 pulse.

Step 29. Verify that the time between the P2B and P3 is 2.0 ± 0.1 µs.

Step 30. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 31. Verify that the time between the P3 and P4 is 2.0 ± 0.1 µs.

Step 32. Transmit Mode 2 interrogations by executing the “RFCAL 24 3 3 2“ HTS command.

Step 33. Using the Peak Power Meter, measure the amplitude of each pulse within the Mode 2 4 pulse sequence.

Step 34. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 35. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 36. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 37. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 38. Verify that the time between the S1 and P1 pulse is 2.0 ± 0.1 µs.

Step 39. Using the Peak Power Meter, measure the spacing between the P1 and P3 pulse.

Step 40. Verify that the time between the P1 and P3 pulse is 4.0 ± 0.1 µs.

Step 41. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 42. Verify that the time between the P3 and P4 pulse is 2.0 ± 0.1 µs.

4.21.3.5 TCAS Xmtr: Bottom 0 Pulse Deviation and Timing Tests [Group 42]

Step 1. Connect the peak power meter to the Bottom 0 antenna port and setup for making the appropriate peak power measurements for the 6 pulses.

Step 2. Transmit Mode C interrogations by executing the “RFCAL 24 4 0 2“ HTS command.

Step 3. Using the Peak Power Meter, measure the amplitude of each pulse within the ATCRBS 6 pulse sequence.

Step 4. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 5. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 6. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 7. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 8. Verify that the time between S1 and P1 is 2.0 ± 0.1 µs.

Step 9. Using the Peak Power Meter, measure the spacing between the P1 and P2A pulse.

Step 10. Verify that the time between P1 and P2A is 2.0 ± 0.1 µs.

Step 11. Using the Peak Power Meter, measure the spacing between the P2A and P2B pulse.

Step 12. Verify that the time between P2A and P2B is 17.0 ± 0.1 µs.

Step 13. Using the Peak Power Meter, measure the spacing between the P2B and P3 pulse.

Step 14. Verify that the time between P2B and P3 is 2.0 ± 0.1 µs.

Step 15. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 16. Verify that the time between P3 and P4 is 2.0 ± 0.1 µs.

Step 17. Transmit Mode A interrogations by executing the “RFCAL 24 4 2 2“ HTS command.

Step 18. Using the Peak Power Meter, measure the amplitude of each pulse within the Mode A 6 pulse sequence.

Step 19. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 20. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 21. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 22. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 23. Verify that the time between the S1 and P1 is 2.0 ± 0.1 µs.

Step 24. Using the Peak Power Meter, measure the spacing between the P1 and P2A pulse.

Step 25. Verify that the time between the P1 and P2A is 2.0 ± 0.1 µs.

Step 26. Using the Peak Power Meter, measure the spacing between the P2A and P2B pulse.

Step 27. Verify that the time between the P2A and P2B is 4.0 ± 0.1 µs.

Step 28. Using the Peak Power Meter, measure the spacing between the P2B and P3 pulse.

Step 29. Verify that the time between the P2B and P3 is 2.0 ± 0.1 µs.

Step 30. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 31. Verify that the time between the P3 and P4 is 2.0 ± 0.1 µs.

Step 32. Transmit Mode 2 interrogations by executing the “RFCAL 24 4 3 2“ HTS command.

Step 33. Using the Peak Power Meter, measure the amplitude of each pulse within the Mode 2 4 pulse sequence.

Step 34. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 35. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 36. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 37. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 38. Verify that the time between the S1 and P1 pulse is 2.0 ± 0.1 µs.

Step 39. Using the Peak Power Meter, measure the spacing between the P1 and P3 pulse.

Step 40. Verify that the time between the P1 and P3 pulse is 4.0 ± 0.1 µs.

Step 41. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 42. Verify that the time between the P3 and P4 pulse is 2.0 ± 0.1 µs.

4.21.3.6 TCAS Xmtr: Bottom 90 Pulse Deviation and Timing Tests [Group 43]

Step 1. Connect the peak power meter to the Bottom 90 antenna port and setup for making the appropriate peak power measurements for the 6 pulses.

Step 2. Transmit Mode C interrogations by executing the “RFCAL 24 5 0 2“ HTS command.

Step 3. Using the Peak Power Meter, measure the amplitude of each pulse within the ATCRBS 6 pulse sequence.

Step 4. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 5. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 6. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 7. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 8. Verify that the time between S1 and P1 is 2.0 ± 0.1 µs.

Step 9. Using the Peak Power Meter, measure the spacing between the P1 and P2A pulse.

Step 10. Verify that the time between P1 and P2A is 2.0 ± 0.1 µs.

Step 11. Using the Peak Power Meter, measure the spacing between the P2A and P2B pulse.

Step 12. Verify that the time between P2A and P2B is 17.0 ± 0.1 µs.

Step 13. Using the Peak Power Meter, measure the spacing between the P2B and P3 pulse.

Step 14. Verify that the time between P2B and P3 is 2.0 ± 0.1 µs.

Step 15. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 16. Verify that the time between P3 and P4 is 2.0 ± 0.1 µs.

Step 17. Transmit Mode A interrogations by executing the “RFCAL 24 5 2 2“ HTS command.

Step 18. Using the Peak Power Meter, measure the amplitude of each pulse within the Mode A 6 pulse sequence.

Step 19. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 20. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 21. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 22. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 23. Verify that the time between the S1 and P1 is 2.0 ± 0.1 µs.

Step 24. Using the Peak Power Meter, measure the spacing between the P1 and P2A pulse.

Step 25. Verify that the time between the P1 and P2A is 2.0 ± 0.1 µs.

Step 26. Using the Peak Power Meter, measure the spacing between the P2A and P2B pulse.

Step 27. Verify that the time between the P2A and P2B is 4.0 ± 0.1 µs.

Step 28. Using the Peak Power Meter, measure the spacing between the P2B and P3 pulse.

Step 29. Verify that the time between the P2B and P3 is 2.0 ± 0.1 µs.

Step 30. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 31. Verify that the time between the P3 and P4 is 2.0 ± 0.1 µs.

Step 32. Transmit Mode 2 interrogations by executing the “RFCAL 24 5 3 2“ HTS command.

Step 33. Using the Peak Power Meter, measure the amplitude of each pulse within the Mode 2 4 pulse sequence.

Step 34. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 35. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 36. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 37. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 38. Verify that the time between the S1 and P1 pulse is 2.0 ± 0.1 µs.

Step 39. Using the Peak Power Meter, measure the spacing between the P1 and P3 pulse.

Step 40. Verify that the time between the P1 and P3 pulse is 4.0 ± 0.1 µs.

Step 41. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 42. Verify that the time between the P3 and P4 pulse is 2.0 ± 0.1 µs.

4.21.3.7 TCAS Xmtr: Bottom 180 Pulse Deviation and Timing Tests [Group 44]

Step 1. Connect the peak power meter to the Bottom 180 antenna port and setup for making the appropriate peak power measurements for the 6 pulses.

Step 2. Transmit Mode C interrogations by executing the "RFCAL 24 6 0 2" HTS command.

Step 3. Using the Peak Power Meter, measure the amplitude of each pulse within the ATCRBS 6 pulse sequence.

Step 4. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 5. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 6. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 7. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 8. Verify that the time between S1 and P1 is 2.0 ± 0.1 µs.

Step 9. Using the Peak Power Meter, measure the spacing between the P1 and P2A pulse.

Step 10. Verify that the time between P1 and P2A is 2.0 ± 0.1 µs.

Step 11. Using the Peak Power Meter, measure the spacing between the P2A and P2B pulse.

Step 12. Verify that the time between P2A and P2B is 17.0 ± 0.1 µs.

Step 13. Using the Peak Power Meter, measure the spacing between the P2B and P3 pulse.

Step 14. Verify that the time between P2B and P3 is 2.0 ± 0.1 µs.

Step 15. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 16. Verify that the time between P3 and P4 is 2.0 ± 0.1 µs.

Step 17. Transmit Mode A interrogations by executing the "RFCAL 24 6 2 2" HTS command.

Step 18. Using the Peak Power Meter, measure the amplitude of each pulse within the Mode A 6 pulse sequence.

Step 19. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 20. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 21. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 22. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 23. Verify that the time between the S1 and P1 is 2.0 ± 0.1 µs.

Step 24. Using the Peak Power Meter, measure the spacing between the P1 and P2A pulse.

Step 25. Verify that the time between the P1 and P2A is 2.0 ± 0.1 µs.

Step 26. Using the Peak Power Meter, measure the spacing between the P2A and P2B pulse.

Step 27. Verify that the time between the P2A and P2B is 4.0 ± 0.1 µs.

Step 28. Using the Peak Power Meter, measure the spacing between the P2B and P3 pulse.

Step 29. Verify that the time between the P2B and P3 is 2.0 ± 0.1 µs.

Step 30. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 31. Verify that the time between the P3 and P4 is 2.0 ± 0.1 µs.

Step 32. Transmit Mode 2 interrogations by executing the “RFCAL 24 6 3 2“ HTS command.

Step 33. Using the Peak Power Meter, measure the amplitude of each pulse within the Mode 2 4 pulse sequence.

Step 34. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 35. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 36. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 37. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 38. Verify that the time between the S1 and P1 pulse is 2.0 ± 0.1 µs.

Step 39. Using the Peak Power Meter, measure the spacing between the P1 and P3 pulse.

Step 40. Verify that the time between the P1 and P3 pulse is 4.0 ± 0.1 µs.

Step 41. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 42. Verify that the time between the P3 and P4 pulse is 2.0 ± 0.1 µs.

4.21.3.8 TCAS Xmtr: Bottom 270 Pulse Deviation and Timing Tests [Group 45]

Step 1. Connect the peak power meter to the Bottom 270 antenna port and setup for making the appropriate peak power measurements for the 6 pulses.

Step 2. Transmit Mode C interrogations by executing the “RFCAL 24 7 0 2“ HTS command.

Step 3. Using the Peak Power Meter, measure the amplitude of each pulse within the ATCRBS 6 pulse sequence.

Step 4. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 5. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 6. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 7. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 8. Verify that the time between S1 and P1 is 2.0 ± 0.1 µs.

Step 9. Using the Peak Power Meter, measure the spacing between the P1 and P2A pulse.

Step 10. Verify that the time between P1 and P2A is 2.0 ± 0.1 µs.

Step 11. Using the Peak Power Meter, measure the spacing between the P2A and P2B pulse.

Step 12. Verify that the time between P2A and P2B is 17.0 ± 0.1 µs.

Step 13. Using the Peak Power Meter, measure the spacing between the P2B and P3 pulse.

Step 14. Verify that the time between P2B and P3 is 2.0 ± 0.1 µs.

Step 15. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 16. Verify that the time between P3 and P4 is 2.0 ± 0.1 µs.

Step 17. Transmit Mode A interrogations by executing the “RFCAL 24 7 2 2“ HTS command.

Step 18. Using the Peak Power Meter, measure the amplitude of each pulse within the Mode A 6 pulse sequence.

Step 19. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 20. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 21. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 22. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 23. Verify that the time between the S1 and P1 is 2.0 ± 0.1 µs.

Step 24. Using the Peak Power Meter, measure the spacing between the P1 and P2A pulse.

Step 25. Verify that the time between the P1 and P2A is 2.0 ± 0.1 µs.

Step 26. Using the Peak Power Meter, measure the spacing between the P2A and P2B pulse.

Step 27. Verify that the time between the P2A and P2B is 4.0 ± 0.1 µs.

Step 28. Using the Peak Power Meter, measure the spacing between the P2B and P3 pulse.

Step 29. Verify that the time between the P2B and P3 is 2.0 ± 0.1 µs.

Step 30. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 31. Verify that the time between the P3 and P4 is 2.0 ± 0.1 µs.

Step 32. Transmit Mode 2 interrogations by executing the “RFCAL 24 7 3 2“ HTS command.

Step 33. Using the Peak Power Meter, measure the amplitude of each pulse within the Mode 2 4 pulse sequence.

Step 34. Verify that the pulse amplitudes are as follows: 53.500 dBm ≤ reading ≤ 57.500 dBm.

Step 35. Subtract the peak power amplitude of the lowest amplitude pulse from the peak power amplitude of the highest amplitude pulse.

Step 36. Verify that the result from the subtraction between the measurements is as follows: 0.00 ≤ reading ≤ +0.500 dB.

Step 37. Using the Peak Power Meter, measure the spacing between the S1 and P1 pulse.

Step 38. Verify that the time between the S1 and P1 pulse is 2.0 ± 0.1 µs.

Step 39. Using the Peak Power Meter, measure the spacing between the P1 and P3 pulse.

Step 40. Verify that the time between the P1 and P3 pulse is 4.0 ± 0.1 µs.

Step 41. Using the Peak Power Meter, measure the spacing between the P3 and P4 pulse.

Step 42. Verify that the time between the P3 and P4 pulse is 2.0 ± 0.1 µs.

4.21.4 TCAS Transmitter: Missing Pulses Tests [Group 46 to 53] (DO-185B 2.2.3.8.1)

The missing pulses tests will measure the ability to turn pulses on and off in different sequence patterns between the pulse powers.

4.21.4.1 TCAS Xmtr: Top 0 Missing Pulses Tests [Group 46]

Step 1. Connect the Peak Power Meter to the Top 0 antenna port and setup for making the appropriate pulse measurements.

Step 2. Execute the “EITST 1 0 0 0 0 0 0 0 28 0 0 28 0 1 1” HTS command, which generates an ATCRBS transmission with each pulse set to the following levels: S1 full power, P1 missing, P2A full power, P2B full power, P3 missing, P4 full power.

Step 3. Using the Peak Power Meter, measure the peak power of each pulse.

Step 4. Verify the following pulse measurements:

Pulse	Reading (dBm)
S1	+53.500 ≤ reading ≤ +57.500
P1	0.000 ≤ reading ≤ +35.000
P2A	+53.500 ≤ reading ≤ +57.500
P2B	+53.500 ≤ reading ≤ +57.500
P3	0.000 ≤ reading ≤ +35.000
P4	+53.500 ≤ reading ≤ +57.500

Step 5. Execute the “EITST 1 0 0 0 0 0 0 0 0 28 28 0 28 1 1” HTS command, which generates an ATCRBS transmission with each pulse set to the following levels: S1 missing, P1 full power, P2A missing, P2B missing, P3 full power, P4 missing.

Step 6. Using the Peak Power Meter, measure the peak power of each pulse.

Step 7. Verify the following pulse measurements:

Pulse	Reading (dBm)
S1	0.000 ≤ reading ≤ +35.000
P1	+53.500 ≤ reading ≤ +57.500
P2A	0.000 ≤ reading ≤ +35.000
P2B	0.000 ≤ reading ≤ +35.000
P3	+53.500 ≤ reading ≤ +57.500
P4	0.000 ≤ reading ≤ +35.000

4.21.4.2 TCAS Xmtr: Top 90 Missing Pulses Tests [Group 47]

Step 1. Connect the Peak Power Meter to the Top 90 antenna port and setup for making the appropriate pulse measurements.

Step 2. Execute the “EITST 1 1 1 1 1 1 1 0 28 0 0 28 0 1 1” HTS command, which generates an ATCRBS transmission with each pulse set to the following levels: S1 full power, P1 missing, P2A full power, P2B full power, P3 missing, P4 full power.

Step 3. Using the Peak Power Meter, measure the peak power of each pulse.

Step 4. Verify the following pulse measurements:

Pulse	Reading (dBm)
S1	+53.500 ≤ reading ≤ +57.500
P1	0.000 ≤ reading ≤ +35.000
P2A	+53.500 ≤ reading ≤ +57.500
P2B	+53.500 ≤ reading ≤ +57.500
P3	0.000 ≤ reading ≤ +35.000
P4	+53.500 ≤ reading ≤ +57.500

Step 5. Execute the “EITST 1 1 1 1 1 1 1 0 0 28 28 0 28 1 1” HTS command, which generates an ATCRBS transmission with each pulse set to the following levels: S1 missing, P1 full power, P2A missing, P2B missing, P3 full power, P4 missing.

Step 6. Using the Peak Power Meter, measure the peak power of each pulse.

Step 7. Verify the following pulse measurements:

Pulse	Reading (dBm)
S1	0.000 ≤ reading ≤ +35.000
P1	+53.500 ≤ reading ≤ +57.500
P2A	0.000 ≤ reading ≤ +35.000
P2B	0.000 ≤ reading ≤ +35.000
P3	+53.500 ≤ reading ≤ +57.500
P4	0.000 ≤ reading ≤ +35.000

4.21.4.3 TCAS Xmtr: Top 180 Missing Pulses Tests [Group 48]

Step 1. Connect the Peak Power Meter to the Top 180 antenna port and setup for making the appropriate pulse measurements.

Step 2. Execute the “EITST 1 2 2 2 2 2 2 0 28 0 0 28 0 1 1” HTS command, which generates an ATCRBS transmission with each pulse set to the following levels: S1 full power, P1 missing, P2A full power, P2B full power, P3 missing, P4 full power.

Step 3. Using the Peak Power Meter, measure the peak power of each pulse.

Step 4. Verify the following pulse measurements:

Pulse	Reading (dBm)
S1	+53.500 ≤ reading ≤ +57.500
P1	0.000 ≤ reading ≤ +35.000
P2A	+53.500 ≤ reading ≤ +57.500
P2B	+53.500 ≤ reading ≤ +57.500
P3	0.000 ≤ reading ≤ +35.000
P4	+53.500 ≤ reading ≤ +57.500

Step 5. Execute the “EITST 1 2 2 2 2 2 2 0 0 28 28 0 28 1 1” HTS command, which generates an ATCRBS transmission with each pulse set to the following levels: S1 missing, P1 full power, P2A missing, P2B missing, P3 full power, P4 missing.

Step 6. Using the Peak Power Meter, measure the peak power of each pulse.

Step 7. Verify the following pulse measurements:

Pulse	Reading (dBm)
S1	0.000 ≤ reading ≤ +35.000
P1	+53.500 ≤ reading ≤ +57.500
P2A	0.000 ≤ reading ≤ +35.000

P2B	0.000 ≤ reading ≤ +35.000
P3	+53.500 ≤ reading ≤ +57.500
P4	0.000 ≤ reading ≤ +35.000

4.21.4.4 TCAS Xmtr: Top 270 Missing Pulses Tests [Group 49]

Step 1. Connect the Peak Power Meter to the Top 270 antenna port and setup for making the appropriate pulse measurements.

Step 2. Execute the “EITST 1 3 3 3 3 3 3 0 28 0 0 28 0 1 1” HTS command, which generates an ATCRBS transmission with each pulse set to the following levels: S1 full power, P1 missing, P2A full power, P2B full power, P3 missing, P4 full power.

Step 3. Using the Peak Power Meter, measure the peak power of each pulse.

Step 4. Verify the following pulse measurements:

Pulse	Reading (dBm)
S1	+53.500 ≤ reading ≤ +57.500
P1	0.000 ≤ reading ≤ +35.000
P2A	+53.500 ≤ reading ≤ +57.500
P2B	+53.500 ≤ reading ≤ +57.500
P3	0.000 ≤ reading ≤ +35.000
P4	+53.500 ≤ reading ≤ +57.500

Step 5. Execute the “EITST 1 3 3 3 3 3 3 0 0 28 28 0 28 1 1” HTS command, which generates an ATCRBS transmission with each pulse set to the following levels: S1 missing, P1 full power, P2A missing, P2B missing, P3 full power, P4 missing.

Step 6. Using the Peak Power Meter, measure the peak power of each pulse.

Step 7. Verify the following pulse measurements:

Pulse	Reading (dBm)
S1	0.000 ≤ reading ≤ +35.000
P1	+53.500 ≤ reading ≤ +57.500
P2A	0.000 ≤ reading ≤ +35.000
P2B	0.000 ≤ reading ≤ +35.000
P3	+53.500 ≤ reading ≤ +57.500
P4	0.000 ≤ reading ≤ +35.000

4.21.4.5 TCAS Xmtr: Bottom 0 Missing Pulses Tests [Group 50]

Step 1. Connect the Peak Power Meter to the Bottom 0 antenna port and setup for making the appropriate pulse measurements.

Step 2. Execute the “EITST 1 4 4 4 4 4 4 0 28 0 0 28 0 1 1” HTS command, which generates an ATCRBS transmission with each pulse set to the following levels: S1 full power, P1 missing, P2A full power, P2B full power, P3 missing, P4 full power.

Step 3. Using the Peak Power Meter, measure the peak power of each pulse.

Step 4. Verify the following pulse measurements:

Pulse	Reading (dBm)
S1	+53.500 ≤ reading ≤ +57.500
P1	0.000 ≤ reading ≤ +35.000
P2A	+53.500 ≤ reading ≤ +57.500
P2B	+53.500 ≤ reading ≤ +57.500
P3	0.000 ≤ reading ≤ +35.000
P4	+53.500 ≤ reading ≤ +57.500

Step 5. Execute the “EITST 1 4 4 4 4 4 4 0 0 28 28 0 28 1 1” HTS command, which generates an ATCRBS transmission with each pulse set to the following levels: S1 missing, P1 full power, P2A missing, P2B missing, P3 full power, P4 missing.

Step 6. Using the Peak Power Meter, measure the peak power of each pulse.

Step 7. Verify the following pulse measurements:

Pulse	Reading (dBm)
S1	0.000 ≤ reading ≤ +35.000
P1	+53.500 ≤ reading ≤ +57.500
P2A	0.000 ≤ reading ≤ +35.000
P2B	0.000 ≤ reading ≤ +35.000
P3	+53.500 ≤ reading ≤ +57.500
P4	0.000 ≤ reading ≤ +35.000

4.21.4.6 TCAS Xmtr: Bottom 90 Missing Pulses Tests [Group 51]

Step 1. Connect the Peak Power Meter to the Bottom 90 antenna port and setup for making the appropriate pulse measurements.

Step 2. Execute the “EITST 1 5 5 5 5 5 5 0 28 0 0 28 0 1 1” HTS command, which generates an ATCRBS transmission with each pulse set to the following levels: S1 full power, P1 missing, P2A full power, P2B full power, P3 missing, P4 full power.

Step 3. Using the Peak Power Meter, measure the peak power of each pulse.

Step 4. Verify the following pulse measurements:

Pulse	Reading (dBm)
S1	+53.500 ≤ reading ≤ +57.500
P1	0.000 ≤ reading ≤ +35.000
P2A	+53.500 ≤ reading ≤ +57.500

P2B	+53.500 ≤ reading ≤ +57.500
P3	0.000 ≤ reading ≤ +35.000
P4	+53.500 ≤ reading ≤ +57.500

Step 5. Execute the "EITST 1 5 5 5 5 5 5 0 0 28 28 0 28 1 1" HTS command, which generates an ATCRBS transmission with each pulse set to the following levels: S1 missing, P1 full power, P2A missing, P2B missing, P3 full power, P4 missing.

Step 6. Using the Peak Power Meter, measure the peak power of each pulse.

Step 7. Verify the following pulse measurements:

Pulse	Reading (dBm)
S1	0.000 ≤ reading ≤ +35.000
P1	+53.500 ≤ reading ≤ +57.500
P2A	0.000 ≤ reading ≤ +35.000
P2B	0.000 ≤ reading ≤ +35.000
P3	+53.500 ≤ reading ≤ +57.500
P4	0.000 ≤ reading ≤ +35.000

4.21.4.7 TCAS Xmtr: Bottom 180 Missing Pulses Tests [Group 52]

Step 1. Connect the Peak Power Meter to the Bottom 180 antenna port and setup for making the appropriate pulse measurements.

Step 2. Execute the "EITST 1 6 6 6 6 6 6 0 28 0 0 28 0 1 1" HTS command, which generates an ATCRBS transmission with each pulse set to the following levels: S1 full power, P1 missing, P2A full power, P2B full power, P3 missing, P4 full power.

Step 3. Using the Peak Power Meter, measure the peak power of each pulse.

Step 4. Verify the following pulse measurements:

Pulse	Reading (dBm)
S1	+53.500 ≤ reading ≤ +57.500
P1	0.000 ≤ reading ≤ +35.000
P2A	+53.500 ≤ reading ≤ +57.500
P2B	+53.500 ≤ reading ≤ +57.500
P3	0.000 ≤ reading ≤ +35.000
P4	+53.500 ≤ reading ≤ +57.500

Step 5. Execute the "EITST 1 6 6 6 6 6 6 0 0 28 28 0 28 1 1" HTS command, which generates an ATCRBS transmission with each pulse set to the following levels: S1 missing, P1 full power, P2A missing, P2B missing, P3 full power, P4 missing.

Step 6. Using the Peak Power Meter, measure the peak power of each pulse.

Step 7. Verify the following pulse measurements:

Pulse	Reading (dBm)
S1	0.000 ≤ reading ≤ +35.000
P1	+53.500 ≤ reading ≤ +57.500
P2A	0.000 ≤ reading ≤ +35.000
P2B	0.000 ≤ reading ≤ +35.000
P3	+53.500 ≤ reading ≤ +57.500
P4	0.000 ≤ reading ≤ +35.000

4.21.4.8 TCAS Xmtr: Bottom 270 Missing Pulses Tests [Group 53]

Step 1. Connect the Peak Power Meter to the Bottom 270 antenna port and setup for making the appropriate pulse measurements.

Step 2. Execute the "EITST 1 7 7 7 7 7 7 0 28 0 0 28 0 1 1" HTS command, which generates an ATCRBS transmission with each pulse set to the following levels: S1 full power, P1 missing, P2A full power, P2B full power, P3 missing, P4 full power.

Step 3. Using the Peak Power Meter, measure the peak power of each pulse.

Step 4. Verify the following pulse measurements:

Pulse	Reading (dBm)
S1	+53.500 ≤ reading ≤ +57.500
P1	0.000 ≤ reading ≤ +35.000
P2A	+53.500 ≤ reading ≤ +57.500
P2B	+53.500 ≤ reading ≤ +57.500
P3	0.000 ≤ reading ≤ +35.000
P4	+53.500 ≤ reading ≤ +57.500

Step 5. Execute the "EITST 1 7 7 7 7 7 7 0 0 28 28 0 28 1 1" HTS command, which generates an ATCRBS transmission with each pulse set to the following levels: S1 missing, P1 full power, P2A missing, P2B missing, P3 full power, P4 missing.

Step 6. Using the Peak Power Meter, measure the peak power of each pulse.

Step 7. Verify the following pulse measurements:

Pulse	Reading (dBm)
S1	0.000 ≤ reading ≤ +35.000
P1	+53.500 ≤ reading ≤ +57.500
P2A	0.000 ≤ reading ≤ +35.000
P2B	0.000 ≤ reading ≤ +35.000
P3	+53.500 ≤ reading ≤ +57.500
P4	0.000 ≤ reading ≤ +35.000

4.21.5 TCAS Xmtr: RF I/O Directional Antenna Switching Tests [Group 54]

The TCAS RF I/O Directional Switching test will measure the ability to switch power through different I/O ports.

Step 1. Connect the Peak Power Meter to the Top 0 antenna port and setup for making the appropriate pulse measurements.

Step 2. Setup the UUT to generate an ATCRBS interrogation pulse with the S1 and P4 pulses at maximum attenuation out the Top 0 antenna port and the P1, P2A, P2B and P3 pulses with no attenuation out the Top 90 port by executing the “EITST 1 0 1 1 1 1 0 0 28 28 28 28 0 1 1” HTS command.

Step 3. Using the Peak Power Meter, measure the S1 and P4 peak power, pulse width and rise time pulse parameters.

Step 4. Verify the following pulse measurements:

Pulse Parameter	Reading
S1 Power	+55.500 ± 2 dBm
S1 Pulse Width	+800.000 ± 50 ns
S1 Rise Time	+75.000 ± 25 ns
P4 Power	+55.500 ± 2 dBm
P4 Pulse Width	+800.000 ± 50 ns
P4 Rise Time	+75.000 ± 25 ns

Step 5. Connect the Peak Power Meter to the Top 180 antenna port and setup for making the appropriate pulse measurements.

Step 6. Setup the UUT to generate an ATCRBS interrogation pulse with the S1, P2A and P2B pulses at maximum attenuation out the Top 180 antenna port and the P1, P3 and P4 pulses with no attenuation out the Top 90 antenna port by executing the “EITST 1 2 1 2 2 1 1 0 28 0 0 28 28 1 1” HTS command.

Step 7. Using the Peak Power Meter, measure the P2A and P2B peak power, pulse width and rise time pulse parameters.

Step 8. Verify the following pulse measurements:

Pulse Parameter	Reading
P2A Power	+55.500 ± 2 dBm
P2A Pulse Width	+800.000 ± 50 ns
P2A Rise Time	+75.000 ± 25 ns
P2B Power	+55.500 ± 2 dBm
P2B Pulse Width	+800.000 ± 50 ns
P2B Rise Time	+75.000 ± 25 ns

Step 9. Connect the Peak Power Meter to the Top 90 antenna port and setup for making the appropriate pulse measurements.

Step 10. Setup the UUT to generate an ATCRBS interrogation pulse with the S1 and P1 pulses at maximum attenuation out the Top 90 antenna port and the P2A, P2B, P3 and P4 pulses with no attenuation out the Top 0 antenna port by executing the "EITST 1 1 1 0 0 0 0 0 0 28 28 28 28 1 1" HTS command.

Step 11. Using the Peak Power Meter, measure the P1 peak power, pulse width and rise time pulse parameters.

Step 12. Verify the following pulse measurements:

Pulse Parameter	Reading
P1 Power	+55.500 ± 2 dBm
P1 Pulse Width	+800.000 ± 50 ns
P1 Rise Time	+75.000 ± 25 ns

Step 13. Connect the Peak Power Meter to the Top 270 antenna port and setup for making the appropriate pulse measurements.

Step 14. Setup the UUT to generate an ATCRBS interrogation pulse with the S1 and P3 pulses at maximum attenuation out the Top 270 antenna port and the P1, P2A, P2B, P4 pulses with no attenuation out the Top 90 antenna port by executing the "EITST 1 3 1 1 1 3 1 0 28 28 28 0 28 1 1" HTS command.

Step 15. Using the Peak Power Meter, measure the P3 peak power, pulse width and rise time pulse parameters.

Step 16. Verify the following pulse measurements:

Pulse Parameter	Reading
P3 Power	+55.500 ± 2 dBm
P3 Pulse Width	+800.000 ± 50 ns
P3 Rise Time	+75.000 ± 25 ns

Step 17. Connect the Peak Power Meter to the Bottom 0 antenna port and setup for making the appropriate pulse measurements.

Step 18. Setup the UUT to generate an ATCRBS interrogation pulse with the S1 and P4 pulses at maximum attenuation out the Bottom 0 antenna port and the P1, P2A, P2B and P3 pulses with no attenuation out the Top 90 port by executing the "EITST 1 4 1 1 1 1 4 0 28 28 28 28 0 1 1" HTS command.

Step 19. Using the Peak Power Meter, measure the S1 and P4 peak power, pulse width and rise time pulse parameters.

Step 20. Verify the following pulse measurements:

Pulse Parameter	Reading
S1 Power	+55.500 ± 2 dBm
S1 Pulse Width	+800.000 ± 50 ns
S1 Rise Time	+75.000 ± 25 ns
P4 Power	+55.500 ± 2 dBm
P4 Pulse Width	+800.000 ± 50 ns
P4 Rise Time	+75.000 ± 25 ns

Step 21. Connect the Peak Power Meter to the Bottom 180 antenna port and setup for making the appropriate pulse measurements.

Step 22. Setup the UUT to generate an ATCRBS interrogation pulse with the S1, P2A and P2B pulses at maximum attenuation out the Bottom 180 antenna port and the P1, P3 and P4 pulses with no attenuation out the Top 90 antenna port by executing the “EITST 1 6 1 6 6 1 1 0 28 0 0 28 28 1 1” HTS command.

Step 23. Using the Peak Power Meter, measure the P2A and P2B peak power, pulse width and rise time pulse parameters.

Step 24. Verify the following pulse measurements:

Pulse Parameter	Reading
P2A Power	+55.500 ± 2 dBm
P2A Pulse Width	+800.000 ± 50 ns
P2A Rise Time	+75.000 ± 25 ns
P2B Power	+55.500 ± 2 dBm
P2B Pulse Width	+800.000 ± 50 ns
P2B Rise Time	+75.000 ± 25 ns

Step 25. Connect the Peak Power Meter to the Bottom 90 antenna port and setup for making the appropriate pulse measurements.

Step 26. Setup the UUT to generate an ATCRBS interrogation pulse with the S1 and P1 pulses at maximum attenuation out the Bottom 90 antenna port and the P2A, P2B, P3 and P4 pulses with no attenuation out the Top 0 antenna port by executing the “EITST 1 5 5 0 0 0 0 0 0 28 28 28 28 1 1” HTS command.

Step 27. Using the Peak Power Meter, measure the P1 peak power, pulse width and rise time pulse parameters.

Step 28. Verify the following pulse measurements:

Pulse Parameter	Reading
P1 Power	+55.500 ± 2 dBm
P1 Pulse Width	+800.000 ± 50 ns
P1 Rise Time	+75.000 ± 25 ns

Step 29. Connect the Peak Power Meter to the Bottom 270 antenna port and setup for making the appropriate pulse measurements.

Step 30. Setup the UUT to generate an ATCRBS interrogation pulse with the S1 and P3 pulses at maximum attenuation out the Bottom 270 antenna port and the P1, P2A, P2B, P4 pulses with no attenuation out the Top 90 antenna port by executing the “EITST 1 7 1 1 1 7 1 0 28 28 28 0 28 1 1” HTS command.

Step 31. Using the Peak Power Meter, measure the P3 peak power, pulse width and rise time pulse parameters.

Step 32. Verify the following pulse measurements:

Pulse Parameter	Reading
P3 Power	+55.500 ± 2 dBm
P3 Pulse Width	+800.000 ± 50 ns
P3 Rise Time	+75.000 ± 25 ns

4.21.6 TCAS Transmitter Mode S Tests [Group 55] (DO-185B 2.2.3.8.2)

The TCAS transmitter Mode S tests will verify Mode S interrogation pulse parameters.

4.21.6.1 Top 0 Long Mode S Pulse Parametric Tests

Step 1. Connect the peak power meter to the Top 0 antenna port and setup for making the appropriate pulse measurements.

Step 2. Setup the UUT to generate a long Mode S interrogation with all bits = 0 at maximum power (54 dBm), by executing the “EITST P1 3 0 0 0 0 0 0 1 1 0 0” HTS command.

Step 3. Using the Peak Power Meter, measure and verify the following Mode S interrogation pulse parameters.

Pulse Parameters	Reading
P1 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P1 Pulse Width	750 ≤ reading ≤ 850 ns
P1 to P2 Timing	2.000 µs ± 0.04
P2 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P2 Pulse Width	750 ≤ reading ≤ 850 ns
P2 to P6 Timing	1.500 µs ± 0.04
P2 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P6 Pulse Droop	≤1.000 µs
P6 Pulse Width	30.25 ± 0.125
P6 to SPR Null Timing	1.25 ± 0.04
SPR Pulse Width	60.000 ± 20 ns

4.21.6.2 Top 90 Long Mode S Pulse Parametric Tests

Step 1. Connect the peak power meter to the Top 90 antenna port and setup for making the appropriate pulse measurements.

Step 2. Setup the UUT to generate a long Mode S interrogation with all bits = 0 at maximum power (54 dBm), by executing the “EITST P1 3 1 0 0 0 0 1 1 0” HTS command.

Step 3. Using the Peak Power Meter, measure and verify the following Mode S interrogation pulse parameters.

Pulse Parameters	Reading
P1 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P1 Pulse Width	750 ≤ reading ≤ 850 ns
P1 to P2 Timing	2.000 µs ± 0.04
P2 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P2 Pulse Width	750 ≤ reading ≤ 850 ns
P2 to P6 Timing	1.500 µs ± 0.04
P2 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P6 Pulse Droop	≤1.000 µs
P6 Pulse Width	30.25 ± 0.125
P6 to SPR Null Timing	1.25 ± 0.04
SPR Pulse Width	60.000 ± 20 ns

4.21.6.3 Top 180 Long Mode S Pulse Parametric Tests

Step 1. Connect the peak power meter to the Top 180 antenna port and setup for making the appropriate pulse measurements.

Step 2. Setup the UUT to generate a long Mode S interrogation with all bits = 0 at maximum power (54 dBm), by executing the “EITST P1 3 2 0 0 0 0 0 1 1 0 0” HTS command.

Step 3. Using the Peak Power Meter, measure and verify the following Mode S interrogation pulse parameters.

Pulse Parameters	Reading
P1 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P1 Pulse Width	750 ≤ reading ≤ 850 ns
P1 to P2 Timing	2.000 µs ± 0.04
P2 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P2 Pulse Width	750 ≤ reading ≤ 850 ns
P2 to P6 Timing	1.500 µs ± 0.04
P2 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P6 Pulse Droop	≤1.000 µs
P6 Pulse Width	30.25 ± 0.125
P6 to SPR Null Timing	1.25 ± 0.04
SPR Pulse Width	60.000 ± 20 ns

4.21.6.4 Top 270 Long Mode S Pulse Parametric Tests

Step 1. Connect the peak power meter to the Top 270 antenna port and setup for making the appropriate pulse measurements.

Step 2. Setup the UUT to generate a long Mode S interrogation with all bits = 0 at maximum power (54 dBm), by executing the “EITST P1 3 3 0 0 0 0 0 1 1 0 0” HTS command.

Step 3. Using the Peak Power Meter, measure and verify the following Mode S interrogation pulse parameters.

Pulse Parameters	Reading
P1 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P1 Pulse Width	750 ≤ reading ≤ 850 ns
P1 to P2 Timing	2.000 µs ± 0.04
P2 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P2 Pulse Width	750 ≤ reading ≤ 850 ns
P2 to P6 Timing	1.500 µs ± 0.04
P2 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P6 Pulse Droop	≤1.000 µs
P6 Pulse Width	30.25 ± 0.125
P6 to SPR Null Timing	1.25 ± 0.04
SPR Pulse Width	60.000 ± 20 ns

4.21.6.5 Bottom 0 Long Mode S Pulse Parametric Tests

Step 1. Connect the peak power meter to the Bottom 0 antenna port and setup for making the appropriate pulse measurements.

Step 2. Setup the UUT to generate a long Mode S interrogation with all bits = 0 at maximum power (54 dBm), by executing the “EITST P1 3 4 0 0 0 0 0 1 1 0 0” HTS command.

Step 3. Using the Peak Power Meter, measure and verify the following Mode S interrogation pulse parameters.

Pulse Parameters	Reading
P1 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P1 Pulse Width	750 ≤ reading ≤ 850 ns
P1 to P2 Timing	2.000 µs ± 0.04
P2 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P2 Pulse Width	750 ≤ reading ≤ 850 ns
P2 to P6 Timing	1.500 µs ± 0.04
P2 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P6 Pulse Droop	≤1.000 µs
P6 Pulse Width	30.25 ± 0.125
P6 to SPR Null Timing	1.25 ± 0.04
SPR Pulse Width	60.000 ± 20 ns

4.21.6.6 Bottom 90 Long Mode S Pulse Parametric Tests

Step 1. Connect the peak power meter to the Bottom 90 antenna port and setup for making the appropriate pulse measurements.

Step 2. Setup the UUT to generate a long Mode S interrogation with all bits = 0 at maximum power (54 dBm), by executing the “EITST P1 3 5 0 0 0 0 0 1 1 0 0” HTS command.

Step 3. Using the Peak Power Meter, measure and verify the following Mode S interrogation pulse parameters.

Pulse Parameters	Reading
P1 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P1 Pulse Width	750 ≤ reading ≤ 850 ns
P1 to P2 Timing	2.000 µs ± 0.04
P2 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P2 Pulse Width	750 ≤ reading ≤ 850 ns
P2 to P6 Timing	1.500 µs ± 0.04
P2 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P6 Pulse Droop	≤1.000 µs
P6 Pulse Width	30.25 ± 0.125
P6 to SPR Null Timing	1.25 ± 0.04
SPR Pulse Width	60.000 ± 20 ns

4.21.6.7 Bottom 180 Long Mode S Pulse Parametric Tests

Step 1. Connect the peak power meter to the Bottom 180 antenna port and setup for making the appropriate pulse measurements.

Step 2. Setup the UUT to generate a long Mode S interrogation with all bits = 0 at maximum power (54 dBm), by executing the “EITST P1 3 6 0 0 0 0 0 1 1 0 0” HTS command.

Step 3. Using the Peak Power Meter, measure and verify the following Mode S interrogation pulse parameters.

Pulse Parameters	Reading
P1 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P1 Pulse Width	750 ≤ reading ≤ 850 ns
P1 to P2 Timing	2.000 µs ± 0.04
P2 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P2 Pulse Width	750 ≤ reading ≤ 850 ns
P2 to P6 Timing	1.500 µs ± 0.04
P2 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P6 Pulse Droop	≤1.000 µs
P6 Pulse Width	30.25 ± 0.125
P6 to SPR Null Timing	1.25 ± 0.04
SPR Pulse Width	60.000 ± 20 ns

4.21.6.8 Bottom 270 Long Mode S Pulse Parametric Tests

Step 1. Connect the peak power meter to the Bottom 270 antenna port and setup for making the appropriate pulse measurements.

Step 2. Setup the UUT to generate a long Mode S interrogation with all bits = 0 at maximum power (54 dBm), by executing the “EITST P1 3 7 0 0 0 0 0 1 1 0 0” HTS command.

Step 3. Using the Peak Power Meter, measure and verify the following Mode S interrogation pulse parameters.

Pulse Parameters	Reading
P1 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P1 Pulse Width	750 ≤ reading ≤ 850 ns
P1 to P2 Timing	2.000 µs ± 0.04
P2 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P2 Pulse Width	750 ≤ reading ≤ 850 ns
P2 to P6 Timing	1.500 µs ± 0.04
P2 Pulse Power	53.500 ≤ reading ≤ 57.500 dBm
P6 Pulse Droop	≤1.000 µs
P6 Pulse Width	30.25 ± 0.125
P6 to SPR Null Timing	1.25 ± 0.04
SPR Pulse Width	60.000 ± 20 ns

4.21.6.9 Top 0 Short Mode S Pulse Width Test

Step 1. Connect the peak power meter to the Top 0 antenna port and setup for making the appropriate pulse measurements.

Step 2. Setup the UUT to generate a short Mode S interrogation with all bits = 0 at maximum power (54 dBm), by executing the “EITST P1 3 0 0 0 0 0 0 1 0 0 0” HTS command.

Step 3. Using the Peak Power Meter, measure the short Mode S interrogation pulse width.

Step 4. Verify the short Mode S interrogation pulse width is 16.25 ± 0.125 µs.

4.21.6.10 Top 90 Short Mode S Pulse Width Test

Step 1. Connect the peak power meter to the Top 90 antenna port and setup for making the appropriate pulse measurements.

Step 2. Setup the UUT to generate a short Mode S interrogation with all bits = 0 at maximum power (54 dBm), by executing the “EITST P1 3 1 0 0 0 0 0 1 0 0 0” HTS command.

Step 3. Using the Peak Power Meter, measure the short Mode S interrogation pulse width.

Step 4. Verify the short Mode S interrogation pulse width is 16.25 ± 0.125 µs.

4.21.6.11 Top 180 Short Mode S Pulse Width Test

Step 1. Connect the peak power meter to the Top 180 antenna port and setup for making the appropriate pulse measurements.

Step 2. Setup the UUT to generate a short Mode S interrogation with all bits = 0 at maximum power (54 dBm), by executing the “EITST P1 3 2 0 0 0 0 0 1 0 0 0” HTS command.

Step 3. Using the Peak Power Meter, measure the short Mode S interrogation pulse width.

Step 4. Verify the short Mode S interrogation pulse width is 16.25 ± 0.125 µs.

4.21.6.12 Top 270 Short Mode S Pulse Width Test

Step 1. Connect the peak power meter to the Top 270 antenna port and setup for making the appropriate pulse measurements.

Step 2. Setup the UUT to generate a short Mode S interrogation with all bits = 0 at maximum power (54 dBm), by executing the “EITST P1 3 3 0 0 0 0 0 1 0 0 0” HTS command.

Step 3. Using the Peak Power Meter, measure the short Mode S interrogation pulse width.

Step 4. Verify the short Mode S interrogation pulse width is 16.25 ± 0.125 µs.

4.21.6.13 Bottom 0 Short Mode S Pulse Width Test

Step 1. Connect the peak power meter to the Bottom 0 antenna port and setup for making the appropriate pulse measurements.

Step 2. Setup the UUT to generate a short Mode S interrogation with all bits = 0 at maximum power (54 dBm), by executing the “EITST P1 3 4 0 0 0 0 0 1 0 0 0” HTS command.

Step 3. Using the Peak Power Meter, measure the short Mode S interrogation pulse width.

Step 4. Verify the short Mode S interrogation pulse width is 16.25 ± 0.125 µs.

4.21.6.14 Bottom 90 Short Mode S Pulse Width Test

Step 1. Connect the peak power meter to the Bottom 90 antenna port and setup for making the appropriate pulse measurements.

Step 2. Setup the UUT to generate a short Mode S interrogation with all bits = 0 at maximum power (54 dBm), by executing the “EITST P1 3 5 0 0 0 0 0 1 0 0 0” HTS command.

Step 3. Using the Peak Power Meter, measure the short Mode S interrogation pulse width.

Step 4. Verify the short Mode S interrogation pulse width is 16.25 ± 0.125 µs.

4.21.6.15 Bottom 180 Short Mode S Pulse Width Test

Step 1. Connect the peak power meter to the Bottom 180 antenna port and setup for making the appropriate pulse measurements.

Step 2. Setup the UUT to generate a short Mode S interrogation with all bits = 0 at maximum power (54 dBm), by executing the “EITST P1 3 6 0 0 0 0 0 1 0 0 0” HTS command.

Step 3. Using the Peak Power Meter, measure the short Mode S interrogation pulse width.

Step 4. Verify the short Mode S interrogation pulse width is 16.25 ± 0.125 µs.

4.21.6.16 Bottom 270 Short Mode S Pulse Width Test

Step 1. Connect the peak power meter to the Bottom 270 antenna port and setup for making the appropriate pulse measurements.

Step 2. Setup the UUT to generate a short Mode S interrogation with all bits = 0 at maximum power (54 dBm), by executing the “EITST P1 3 7 0 0 0 0 0 1 0 0 0” HTS command.

Step 3. Using the Peak Power Meter, measure the short Mode S interrogation pulse width.

Step 4. Verify the short Mode S interrogation pulse width is 16.25 ± 0.125 µs.

4.21.6.17 Top 0 Long Mode S Dpsk Decode Test

Step 1. Connect the peak power meter and the Virtex Card to the Top 0 antenna port and setup the Virtex Card for receiving and decoding Mode S interrogations.

Note: The peak power meter is only being used to observe that the UUT is transmitting.

Step 2. Setup the UUT to generate a long Mode S interrogation at maximum power (54 dBm), by executing the “EITST P1 3 0 0 FFFFFFFF 12345678 5A5A5A00 0 1 1 0 0” HTS command.

Step 3. Verify the Mode S interrogation data received by the Virtex Card matches the data commanded from the LRU by the HTS command in step 2.

4.21.6.18 Top 90 Long Mode S Dpsk Decode Test

Step 1. Connect the peak power meter and the Virtex Card to the Top 90 antenna port and setup the Virtex Card for receiving and decoding Mode S interrogations.

Note: The peak power meter is only being used to observe that the UUT is transmitting.

Step 2. Setup the UUT to generate a long Mode S interrogation at maximum power (54 dBm), by executing the “EITST P1 3 1 0 F8223344 87654321 FFFFFF00 F 1 1 0 0” HTS command.

Step 3. Verify the Mode S interrogation data received by the Virtex Card matches the data commanded from the LRU by the HTS command in step 2.

4.21.6.19 Top 180 Long Mode S Dpsk Decode Test

Step 1. Connect the peak power meter and the Virtex Card to the Top 180 antenna port and setup the Virtex Card for receiving and decoding Mode S interrogations.

Note: The peak power meter is only being used to observe that the UUT is transmitting.

Step 2. Setup the UUT to generate a long Mode S interrogation at maximum power (54 dBm), by executing the “EITST P1 3 2 0 FAAAAAAA 55555555 77777700 B4 1 1 0 0” HTS command.

Step 3. Verify the Mode S interrogation data received by the Virtex Card matches the data commanded from the LRU by the HTS command in step 2.

4.21.6.20 Top 270 Long Mode S Dpsk Decode Test

Step 1. Connect the peak power meter and the Virtex Card to the Top 270 antenna port and setup the Virtex Card for receiving and decoding Mode S interrogations.

Note: The peak power meter is only being used to observe that the UUT is transmitting.

Step 2. Setup the UUT to generate a long Mode S interrogation at maximum power (54 dBm), by executing the “EITST P1 3 3 0 FABCDEF0 AA55AA55 A9876500 770 1 1 0 0” HTS command.

Step 3. Verify the Mode S interrogation data received by the Virtex Card matches the data commanded from the LRU by the HTS command in step 2.

4.21.6.21 Bottom 0 Long Mode S Dpsk Decode Test

Step 1. Connect the peak power meter and the Virtex Card to the Bottom 0 antenna port and setup the Virtex Card for receiving and decoding Mode S interrogations.

Note: The peak power meter is only being used to observe that the UUT is transmitting.

Step 2. Setup the UUT to generate a long Mode S interrogation at maximum power (54 dBm), by executing the “EITST P1 3 4 0 FABCDEF0 AA55AA55 A9876500 770 1 1 0 0” HTS command.

Step 3. Verify the Mode S interrogation data received by the Virtex Card matches the data commanded from the LRU by the HTS command in step 2.

4.21.6.22 Bottom 90 Long Mode S Dpsk Decode Test

Step 1. Connect the peak power meter and the Virtex Card to the Bottom 90 antenna port and setup the Virtex Card for receiving and decoding Mode S interrogations.

Note: The peak power meter is only being used to observe that the UUT is transmitting.

Step 2. Setup the UUT to generate a long Mode S interrogation at maximum power (54 dBm), by executing the “EITST P1 3 5 0 FAAAAAAA 55555555 77777700 B4 1 1 0 0” HTS command.

Step 3. Verify the Mode S interrogation data received by the Virtex Card matches the data commanded from the LRU by the HTS command in step 2.

4.21.6.23 Bottom 180 Long Mode S Dpsk Decode Test

Step 1. Connect the peak power meter and the Virtex Card to the Bottom 180 antenna port and setup the Virtex Card for receiving and decoding Mode S interrogations.

Note: The peak power meter is only being used to observe that the UUT is transmitting.

Step 2. Setup the UUT to generate a long Mode S interrogation at maximum power (54 dBm), by executing the “EITST P1 3 6 0 F8223344 87654321 FFFFFF00 F 1 1 0 0” HTS command.

Step 3. Verify the Mode S interrogation data received by the Virtex Card matches the data commanded from the LRU by the HTS command in step 2.

4.21.6.24 Bottom 270 Long Mode S Dpsk Decode Test

Step 1. Connect the peak power meter and the Virtex Card to the Bottom 270 antenna port and setup the Virtex Card for receiving and decoding Mode S interrogations.

Note: The peak power meter is only being used to observe that the UUT is transmitting.

Step 2. Setup the UUT to generate a long Mode S interrogation at maximum power (54 dBm), by executing the “EITST P1 3 7 0 FFFFFFFF 12345678 5A5A5A00 0 1 1 0 0” HTS command.

Step 3. Verify the Mode S interrogation data received by the Virtex Card matches the data commanded from the LRU by the HTS command in step 2.

4.22 TCAS Receiver Tests [Group 56 to 63] (DO-185B 2.2.4.4.1, DO-260A 2.2.4.3.1.1)

4.22.1 TCAS Top 0 Receiver Tests [Group 56]

4.22.1.1 Top 0 (-17 dBm, 1065 MHz, ATCRBS) Out Of Band Rejection Test

This test will verify the ability of the receiver to reject an out of band reply at 1065 MHz, which is 60 dB larger in amplitude than MTL.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	1065.0 ± 0.1 MHz	-17.0 ± 0.5 dBm
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: “***EITST P1 2 0 0 0 12 0 86 0 0*** ”

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	12 ms	Off	86	0	Off

Step 4. After transmission/receiption has occurred, read the UUT squitter reply queue by executing the following HTS command: “***RBL P1 3E0000 3E0C7C”***

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 5. After transmission/receiption has occurred, read the UUT squitter reply queue by executing the following HTS command: “***RBL P1 3E0000 3E0C7C”***

Step 6. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 5	-	-	-	-	-
OPR LIM	≥ 1	-	-	-	-	-

4.22.1.2 Top 0 (-17 dBm, 1115 MHz, ATCRBS) Out Of Band Rejection Test

This test will verify the ability of the receiver to reject an out of band reply at 1115 MHz, which is 60 dB larger in amplitude than MTL.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	1115.0 ± 0.1 MHz	-17.0 ± 0.5 dBm
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 5	-	-	-	-	-
OPR LIM	≥ 1	-	-	-	-	-

4.22.1.3 Top 0 (-81 dBm, 1090 MHz, ATCRBS) Sub MTL Test

This test verifies that no more than 10% replies shall be decoded for an input signal level of -81 dBm injected into the Top 0 Ant port. The RF level would be equivalent to -78 dBm at the antenna assuming 3 dB of cable loss.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	1090.0 ± 0.1 MHz	-81.0 ± 0.5 dBm
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 90	-	-	-	-	-
OPR LIM	≥ 90	-	-	-	-	-

4.22.1.4 Top 0 (-81 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Sub MTL Test

This test verifies that no more than 10% replies shall be decoded for an input signal level of -81 dBm injected into the Top 0 Ant port. The RF level would be equivalent to -78 dBm at the antenna assuming 3 dB of cable loss.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	1090.0 ± 0.1 MHz	-81.0 ± 0.5 dBm
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: “***EITST P1 2 0 1 1 12 0 86 0 0***”

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: “***RBL P1 3E0000 3E0C7C***”

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 90	-	-	-	-	-
OPR LIM	≥ 90	-	-	-	-	-

4.22.1.5 Top 0 (-81 dBm, 1090 MHz, MODE-S, DF11, Atten On) Sub MTL Test

This test verifies that no more than 10% replies shall be decoded for an input signal level of -81 dBm injected into the Top 0 Ant port. The RF level would be equivalent to -78 dBm at the antenna assuming 3 dB of cable loss.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	1090.0 ± 0.1 MHz	-81.0 ± 0.5 dBm
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

3. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
4. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: “***EITST P1 2 0 1 1 12 0 86 0 1***”

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	**Top**	**Narrow**	**12 ms**	**Off**	**86**	**0**	**On**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≥ 90**	**-**	**-**	**-**	**-**	**-**
OPR LIM	**≥ 90**	**-**	**-**	**-**	**-**	**-**

4.22.1.6 Top 0 (-75 dBm, 1087 MHz, ATCRBS) MTL Test

This test will verify the following for a signal injected into the Top 0 port at 1087 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Top 0 Antenna port

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**1087.0 ± 0.1 MHz**	**-75.0 ± 0.5 dBm**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	-	-
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	**Top**	**Wide**	**21 ms**	**Off**	**86**	**0**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 10**	**-75.0 ± 2.25**	**-**	**1**	**-**	**-**

		dBm				
OPR LIM	**≤ 10**	**-75.0 ± 2.5 dBm**	**-**	**1**	**-**	**-**

4.22.1.7 Top 0 (-75 dBm, 1090 MHz, ATCRBS) MTL Test

This test will verify the following for a signal injected into the Top 0 port at 1090 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Top 0 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	**1090.0 ± 0.1 MHz**	**-75.0 ± 0.5 dBm**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 10**	**-75.0 ± 2.25 dBm**	**-**	**1**	**-**	**-**
OPR LIM	**≤ 10**	**-75.0 ± 2.5 dBm**	**-**	**1**	**-**	**-**

4.22.1.8 Top 0 (-75 dBm, 1090 MHz, MODE-S DF11, Atten Off) MTL Test

This test will verify the following for a signal injected into the Top 0 port at 1090 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Top 0 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	**1090.0 ± 0.1 MHz**	**-75.0 ± 0.5 dBm**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	**0x6944A900**

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	**Top**	**Narrow**	**21 ms**	**Off**	**86**	**0**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: ***"RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 10**	**-75 ± 2.25 dBm**	**-**	**1**	**-**	**-**
OPR LIM	**≤ 10**	**-75 ± 2.5 dBm**	**-**	**1**	**-**	**-**

4.22.1.9 Top 0 (-75 dBm, 1090 MHz, MODE-S DF11, Atten On) MTL Test

This test will verify the following for a signal injected into the Top 0 port at 1090 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Top 0 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	**1090.0 ± 0.1 MHz**	**-75.0 ± 0.5 dBm**
Top 90	**-**	**-**
Top 180	**-**	**-**

Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	**0x6944A900**

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	**Top**	**Narrow**	**21 ms**	**Off**	**86**	**0**	**On**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: ***"RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 10**	**-75 ± 2.25 dBm**	**-**	**1**	**-**	**-**
OPR LIM	**≤ 10**	**-75 ± 2.5 dBm**	**-**	**1**	**-**	**-**

4.22.1.10 Top 0 (-75 dBm, 1093 MHz, ATCRBS) MTL Test

This test will verify the following for a signal injected into the Top 0 port at 1093 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Top 0 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**1093.0 ± 0.1 MHz**	**-75.0 ± 0.5 dBm**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-75.0 ± 2.25 dBm	-	1	-	-
OPR LIM	≤ 10	-75.0 ± 2.5 dBm	-	1	-	-

4.22.1.11 Top 0/90 (-72/-75 dBm, 1090 MHz, ATCRBS) Test

This test will verify the following for a signal injected into the Top0/Top90 ports:

- Decoding ratio of at least 99% for a signal that is 3 dB higher than the largest acceptable MTL

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	1090.0 ± 0.1 MHz	-72.0 ± 0.5 dBm
Top 90	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-72.0 ± 2.25 dBm	3.0 ± 2.75 dBm	1	1	-
OPR LIM	≤ 1	-72.0 ± 2.5 dBm	3.0 ± 275 dBm	1	1	-

4.22.1.12 Top 0/90 (-72/-75 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

This test will verify the following for a signal injected into the Top0/Top90 ports:

- Decoding ratio of at least 99% for a signal that is 3 dB higher than the largest acceptable MTL

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	1090.0 ± 0.1 MHz	-72.0 ± 0.5 dBm
Top 90	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Mode-S DF-11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 21 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: ***"RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-72.0 ± 2.25 dBm	3.0 ± 2.75 dBm	1	1	-
OPR LIM	≤ 1	-72.0 ± 2.5 dBm	3.0 ± 2.75 dBm	1	1	-

4.22.1.13 Top 0/90 (-72/-75 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

This test will verify the following for a signal injected into the Top0/Top90 ports:

- Decoding ratio of at least 99% for a signal that is 3 dB higher than the largest acceptable MTL

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	1090.0 ± 0.1 MHz	-72.0 ± 0.5 dBm
Top 90	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Mode-S DF-11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 21 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	21 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: ***"RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 1**	**-72.0 ± 2.25 dBm**	**3.0 ± 2.75 dBm**	**1**	**1**	**-**
OPR LIM	**≤ 1**	**-72.0 ± 2.5 dBm**	**3.0 ± 2.75 dBm**	**1**	**1**	**-**

4.22.1.14 Top 0/90 (-60/-66 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**1090.0 ± 0.1 MHz**	**-60.0 ± 0.5 dBm**
Top 90	**1090.0 ± 0.1 MHz**	**-66.0 ± 0.5 dBm**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 1**	**-60.0 ± 2.25 dBm**	**6.0 ± 2.75 dBm**	**1**	**1**	**0**
OPR LIM	**≤ 1**	**-60.0 ± 2.5 dBm**	**6.0 ± 2.75 dBm**	**1**	**1**	**0**

4.22.1.15 Top 0/90 (-60/-66 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	1090.0 ± 0.1 MHz	-60.0 ± 0.5 dBm
Top 90	1090.0 ± 0.1 MHz	-66.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 21 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-60.0 ± 2.25 dBm	6.0 ± 2.75 dBm	1	1	0
OPR LIM	≤ 1	-60.0 ± 2.5 dBm	6.0 ± 2.75 dBm	1	1	0

4.22.1.16 Top 0/90 (-60/-66 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	1090.0 ± 0.1 MHz	-60.0 ± 0.5 dBm

Top 90	**1090.0 ± 0.1 MHz**	**-66.0 ± 0.5 dBm**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	**0x6944A900**

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 21 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	**Top**	**Narrow**	**21 ms**	**Off**	**86**	**0**	**On**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 1**	**-60.0 ± 2.25 dBm**	**6.0 ± 2.75 dBm**	**1**	**1**	**0**
OPR LIM	**≤ 1**	**-60.0 ± 2.5 dBm**	**6.0 ± 2.75 dBm**	**1**	**1**	**0**

4.22.1.17 Top 0/90 (-48/-57 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**1090.0 ± 0.1 MHz**	**-48.0 ± 0.5 dBm**
Top 90	**1090.0 ± 0.1 MHz**	**-57.0 ± 0.5 dBm**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**

Bot 180	-	-
Bot 270	-	-

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-48.0 ± 2.25 dBm	9.0 ± 2.75 dBm	1	1	0
OPR LIM	0	-48.0 ± 2.5 dBm	9.0 ± 2.75 dBm	1	1	0

4.22.1.18 Top 0/90 (-48/-57 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Top 90	1090.0 ± 0.1 MHz	-57.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**0**	**-48.0 ± 2.25 dBm**	**9.0 ± 2.75 dBm**	**1**	**1**	**0**
OPR LIM	**0**	**-48.0 ± 2.5 dBm**	**9.0 ± 2.75 dBm**	**1**	**1**	**0**

4.22.1.19 Top 0/90 (-48/-57 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Top 90	1090.0 ± 0.1 MHz	-57.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-48.0 ± 2.25 dBm	9.0 ± 2.75 dBm	1	1	0
OPR LIM	0	-48.0 ± 2.5 dBm	9.0 ± 2.75 dBm	1	1	0

4.22.1.20 Top 0/90 (-36/-48 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	1090.0 ± 0.1 MHz	-36.0 ± 0.5 dBm
Top 90	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90		
Bot 180	-	-
Bot 270	-	-

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.1.21 Top 0/90 (-36/-48 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	1090.0 ± 0.1 MHz	-36.0 ± 0.5 dBm
Top 90	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90		
Bot 180	-	-
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.1.22 Top 0/90 (-36/-48 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	1090.0 ± 0.1 MHz	-36.0 ± 0.5 dBm
Top 90	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90		
Bot 180	-	-
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.1.23 Top 0/90 (-24/-25 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	1090.0 ± 0.1 MHz	-24.0 ± 0.5 dBm
Top 90	1090.0 ± 0.1 MHz	-25.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.1.24 Top 0/90 (-24/-25 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	1090.0 ± 0.1 MHz	-24.0 ± 0.5 dBm
Top 90	1090.0 ± 0.1 MHz	-25.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.1.25 Top 0/90 (-24/-25 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	1090.0 ± 0.1 MHz	-24.0 ± 0.5 dBm
Top 90	1090.0 ± 0.1 MHz	-25.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.1.26 Top 0 (-90 dBm, 1090 MHz, MODE-S, DF17) ADS-B Sub MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	1090.0 ± 0.1 MHz	-90.0 ± 0.5 dBm
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Top 0 Ant port at MTL - 3dB.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Top	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	< 85	-	-	-	-	-
OPR LIM	< 85	-	-	-	-	-

4.22.1.27 Top 0 (-87 dBm, 1089 MHz, MODE-S, DF17) ADS-B MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	1089.0 ± 0.1 MHz	-87.0 ± 0.5 dBm
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Top 0 Ant port at MTL.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Top	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: “***RBL P1 3E0000 3E0C7C”***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-	-	-	-	-
OPR LIM	≤ 10	-	-	-	-	-

4.22.1.28 Top 0 (-87 dBm, 1090 MHz, MODE-S, DF17) ADS-B MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	1090.0 ± 0.1 MHz	-87.0 ± 0.5 dBm
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Top 0 Ant port at MTL.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: “***EITST P1 2 0 2 1 31 1 47 38 0***”

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Top	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 10**	**-**	**-**	**-**	**-**	**-**
OPR LIM	**≤ 10**	**-**	**-**	**-**	**-**	**-**

4.22.1.29 Top 0 (-87 dBm, 1091 MHz, MODE-S, DF17) ADS-B MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**1091.0 ± 0.1 MHz**	**-87.0 ± 0.5 dBm**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

DF17 squitters will be injected into the UUT Top 0 Ant port at MTL.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	**0xAAAAAAAA**	**0x555555**	**0x8E5A06**

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	**Top**	**Narrow**	**31 ms**	**On**	**47**	**38**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 10**	**-**	**-**	**-**	**-**	**-**
OPR LIM	**≤ 10**	**-**	**-**	**-**	**-**	**-**

4.22.1.30 Top 0 (-84 dBm, 1090 MHz, MODE-S, DF17) ADS-B Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**1090.0 ± 0.1 MHz**	**-84.0 ± 0.5 dBm**
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Top 0 Ant port at MTL + 3dB.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	**0xAAAAAAAA**	**0x555555**	**0x8E5A06**

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 2 1 31 1 47 38 0*** "

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	**Top**	**Narrow**	**31 ms**	**On**	**47**	**38**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 1**	-	-	-	-	-
OPR LIM	**≤ 1**	-	-	-	-	-

4.22.1.31 Top 0 (-75 dBm, 1090 MHz, MODE-S, DF17) ADS-B Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Top 0 Ant port at an intermediate power level.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Top	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-	-	-	-	-
OPR LIM	≤ 1	-	-	-	-	-

4.22.1.32 Top 0 (-24 dBm, 1090 MHz, MODE-S, DF17) ADS-B Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**1090.0 ± 0.1 MHz**	**-24.0 ± 0.5 dBm**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

DF17 squitters will be injected into the UUT Top 0 Ant port at a high power level.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	**0xAAAAAAAA**	**0x555555**	**0x8E5A06**

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	**Top**	**Narrow**	**31 ms**	**On**	**47**	**38**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 1**	**-**	**-**	**-**	**-**	**-**
OPR LIM	**≤ 1**	**-**	**-**	**-**	**-**	**-**

4.22.2 TCAS Bottom 0 Receiver Tests [Group 57]

4.22.2.1 Bottom 0 (-81 dBm, 1090 MHz, ATCRBS) Sub MTL Test

This test verifies that no more than 10% replies shall be decoded for an input signal level of -81 dBm injected into the Bottom 0 Ant port. The RF level would be equivalent to -78 dBm at the antenna assuming 3 dB of cable loss.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	1090.0 ± 0.1 MHz	-81.0 ± 0.5 dBm
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Bottom	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 90	-	-	-	-	-
OPR LIM	≥ 90	-	-	-	-	-

4.22.2.2 Bottom 0 (-81 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Sub MTL Test

This test verifies that no more than 10% replies shall be decoded for an input signal level of -81 dBm injected into the Bottom 0 Ant port. The RF level would be equivalent to -78 dBm at the antenna assuming 3 dB of cable loss.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	1090.0 ± 0.1 MHz	-81.0 ± 0.5 dBm
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 1 1 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 90	-	-	-	-	-
OPR LIM	≥ 90	-	-	-	-	-

4.22.2.3 Bottom 0 (-81 dBm, 1090 MHz, MODE-S, DF11, Atten On) Sub MTL Test

This test verifies that no more than 10% replies shall be decoded for an input signal level of -81 dBm injected into the Bottom 0 Ant port. The RF level would be equivalent to -78 dBm at the antenna assuming 3 dB of cable loss.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	1090.0 ± 0.1 MHz	-81.0 ± 0.5 dBm
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 1 1 12 0 86 0 1***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 90	-	-	-	-	-
OPR LIM	≥ 90	-	-	-	-	-

4.22.2.4 Bottom 0 (-75 dBm, 1090 MHz, ATCRBS) MTL Test

This test will verify the following for a signal injected into the Bottom 0 port at 1090 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Bottom 0 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Bottom	Wide	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 10**	**-75.0 ± 2.25 dBm**	**-**	**1**	**-**	**-**
OPR LIM	**≤ 10**	**-75.0 ± 2.0 dBm**	**-**	**1**	**-**	**-**

4.22.2.5 Bottom 0 (-75 dBm, 1090 MHz, MODE-S DF11, Atten Off) MTL Test

This test will verify the following for a signal injected into the Bottom 0 port at 1090 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Bottom 0 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**1090.0 ± 0.1 MHz**	**-75.0 ± 0.5 dBm**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	**0x6944A900**

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	**Bottom**	**Narrow**	**21 ms**	**Off**	**86**	**0**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: ***"RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 10**	**-75.0 ± 2.25 dBm**	**-**	**1**	**-**	**-**
OPR LIM	**≤ 10**	**-75.0 ± 2.0 dBm**	**-**	**1**	**-**	**-**

4.22.2.6 Bottom 0 (-75 dBm, 1090 MHz, MODE-S DF11, Atten On) MTL Test

This test will verify the following for a signal injected into the Bottom 0 port at 1090 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Bottom 0 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**1090.0 ± 0.1 MHz**	**-75.0 ± 0.5 dBm**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	**0x6944A900**

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	**Bottom**	**Narrow**	**21 ms**	**Off**	**86**	**0**	**On**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: ***"RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 10**	**-75.0 ± 2.25 dBm**	**-**	**1**	**-**	**-**
OPR LIM	**≤ 10**	**-75.0 ± 2.0 dBm**	**-**	**1**	**-**	**-**

4.22.2.7 Bottom 0/90 (-72/-75 dBm, 1090 MHz, ATCRBS) Test

This test will verify the following for a signal injected into the Bottom 0/Bottom 90 ports:

- Decoding ratio of at least 99% for a signal that is 3 dB higher than the largest acceptable MTL

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**1090.0 ± 0.1 MHz**	**-72.0 ± 0.5 dBm**
Bot 90	**1090.0 ± 0.1 MHz**	**-75.0 ± 0.5 dBm**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**0**

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	**Bottom**	**Wide**	**21 ms**	**Off**	**86**	**0**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 1**	**-72.0 ± 2.25 dBm**	**3.0 ± 2.75 dBm**	**1**	**1**	**-**
OPR LIM	**≤ 1**	**-72.0 ± 2.5 dBm**	**3.0 ± 2.75 dBm**	**1**	**1**	**-**

4.22.2.8 Bottom 0/90 (-72/-75 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

This test will verify the following for a signal injected into the Bottom 0/Bottom 90 ports:

- Decoding ratio of at least 99% for a signal that is 3 dB higher than the largest acceptable MTL

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	1090.0 ± 0.1 MHz	-72.0 ± 0.5 dBm
Bot 90	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 21 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: ***"RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-72.0 ± 2.25 dBm	3.0 ± 2.75 dBm	1	1	-
OPR LIM	≤ 1	-72.0 ± 2.5 dBm	3.0 ± 2.75 dBm	1	1	-

4.22.2.9 Bottom 0/90 (-72/-75 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

This test will verify the following for a signal injected into the Bottom 0/Bottom 90 ports:

- Decoding ratio of at least 99% for a signal that is 3 dB higher than the largest acceptable MTL

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	1090.0 ± 0.1 MHz	-72.0 ± 0.5 dBm
Bot 90	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 21 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	21 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: ***"RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-72.0 ± 2.25 dBm	3.0 ± 2.75 dBm	1	1	-
OPR LIM	≤ 1	-72.0 ± 2.5 dBm	3.0 ± 2.75 dBm	1	1	-

4.22.2.10 Bottom 0/90 (-60/-66 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	1090.0 ± 0.1 MHz	-60.0 ± 0.5 dBm
Bot 90	1090.0 ± 0.1 MHz	-66.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: “***EITST P1 2 0 0 0 21 0 86 0 0***”

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Bottom	Wide	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: “***RBL P1 3E0000 3E0C7C”***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-60.0 ± 2.25 dBm	6.0 ± 2.75 dBm	1	1	0
OPR LIM	≤ 1	-60.0 ± 2.5 dBm	6.0 ± 2.75 dBm	1	1	0

4.22.2.11 Bottom 0/90 (-60/-66 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	1090.0 ± 0.1 MHz	-60.0 ± 0.5 dBm
Bot 90	1090.0 ± 0.1 MHz	-66.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 21 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-60 ± 2.25 dBm	6.0 ± 2.75 dBm	1	1	0
OPR LIM	≤ 1	-60 ± 2.5 dBm	6.0 ± 2.75 dBm	1	1	0

4.22.2.12 Bottom 0/90 (-60/-66 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	1090.0 ± 0.1 MHz	-60.0 ± 0.5 dBm
Bot 90	1090.0 ± 0.1 MHz	-66.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	**0x6944A900**

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 21 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	**Bottom**	**Narrow**	**21 ms**	**Off**	**86**	**0**	**On**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 1**	**-60 ± 2.25 dBm**	**6.0 ± 2.75 dBm**	**1**	**1**	**0**
OPR LIM	**≤ 1**	**-60 ± 2.5 dBm**	**6.0 ± 2.75 dBm**	**1**	**1**	**0**

4.22.2.13 Bottom 0/90 (-48/-57 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**1090.0 ± 0.1 MHz**	**-48.0 ± 0.5 dBm**
Bot 90	**1090.0 ± 0.1 MHz**	**-57.0 ± 0.5 dBm**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**0**

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Bottom	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-48.0 ± 2.25 dBm	9.0 ± 2.75 dBm	1	1	0
OPR LIM	0	-48.0 ± 2.5 dBm	9.0 ± 2.75 dBm	1	1	0

4.22.2.14 Bottom 0/90 (-48/-57 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Bot 90	1090.0 ± 0.1 MHz	-57.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

Mode-S DF-11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**0**	**-48.0 ± 2.25 dBm**	**9.0 ± 2.75 dBm**	**1**	**1**	**0**
OPR LIM	**0**	**-48.0 ± 2.5 dBm**	**9.0 ± 2.75 dBm**	**1**	**1**	**0**

4.22.2.15 Bottom 0/90 (-48/-57 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**1090.0 ± 0.1 MHz**	**-48.0 ± 0.5 dBm**
Bot 90	**1090.0 ± 0.1 MHz**	**-57.0 ± 0.5 dBm**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

Mode-S DF-11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	**0x6944A900**

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	**Bottom**	**Narrow**	**12 ms**	**Off**	**86**	**0**	**On**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**0**	**-48.0 ± 2.25 dBm**	**9.0 ± 2.75 dBm**	**1**	**1**	**0**
OPR LIM	**0**	**-48.0 ± 2.5 dBm**	**9.0 ± 2.75 dBm**	**1**	**1**	**0**

4.22.2.16 Bottom 0/90 (-36/-48 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**1090.0 ± 0.1 MHz**	**-36.0 ± 0.5 dBm**
Bot 90	**1090.0 ± 0.1 MHz**	**-48.0 ± 0.5 dBm**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	**Bottom**	**Wide**	**12 ms**	**Off**	**86**	**0**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**0**	**-**	**-**	**-**	**-**	**-**
OPR LIM	**0**	**-**	**-**	**-**	**-**	**-**

4.22.2.17 Bottom 0/90 (-36/-48 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	1090.0 ± 0.1 MHz	-36.0 ± 0.5 dBm
Bot 90	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

Mode-S DF-11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.2.18 Bottom 0/90 (-36/-48 dBm, 1090 Mhz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	1090.0 ± 0.1 MHz	-36.0 ± 0.5 dBm
Bot 90	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

Mode-S DF-11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.2.19 Bottom 0/90 (-24/-25 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	1090.0 ± 0.1 MHz	-24.0 ± 0.5 dBm
Bot 90	1090.0 ± 0.1 MHz	-25.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Bottom	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.2.20 Bottom 0/90 (-24/-25 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	1090.0 ± 0.1 MHz	-24.0 ± 0.5 dBm
Bot 90	1090.0 ± 0.1 MHz	-25.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.2.21 Bottom 0/90 (-24/-25 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	1090.0 ± 0.1 MHz	-24.0 ± 0.5 dBm
Bot 90	1090.0 ± 0.1 MHz	-25.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.2.22 Bot 0 (-90 dBm, 1090 MHz, MODE-S, DF17) ADS-B Sub MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	1090.0 ± 0.1 MHz	-90.0 ± 0.5 dBm
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Bot 0 Ant port at MTL – 3dB.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 1 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	**Bot**	**Narrow**	**31 ms**	**On**	**47**	**38**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**< 85**	**-**	**-**	**-**	**-**	**-**
OPR LIM	**< 85**	**-**	**-**	**-**	**-**	**-**

4.22.2.23 Bot 0 (-87 dBm, 1089 Mhz, MODE-S, DF17) ADS-B MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**1089.0 ± 0.1 MHz**	**-87.0 ± 0.5 dBm**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

DF17 squitters will be injected into the UUT Bot 0 Ant port at MTL.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	**0xAAAAAAAA**	**0x555555**	**0x8E5A06**

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 1 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	**Bot**	**Narrow**	**31 ms**	**On**	**47**	**38**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-	-	-	-	-
OPR LIM	≤ 10	-	-	-	-	-

4.22.2.24 Bot 0 (-87 dBm, 1090 Mhz, MODE-S, DF17) ADS-B MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	1090.0 ± 0.1 MHz	-87.0 ± 0.5 dBm
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Bot 0 Ant port at MTL.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 1 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Bot	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-	-	-	-	-
OPR LIM	≤ 10	-	-	-	-	-

4.22.2.25 Bot 0 (-87 dBm, 1091 MHz, MODE-S, DF17) ADS-B MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	1091.0 ± 0.1 MHz	-87.0 ± 0.5 dBm
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Bot 0 Ant port at MTL.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 1 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Bot	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-	-	-	-	-
OPR LIM	≤ 10	-	-	-	-	-

4.22.2.26 Bot 0 (-84 dBm, 1090 Mhz, MODE-S, DF17) ADS-B Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	**1090.0 ± 0.1 MHz**	**-84.0 ± 0.5 dBm**
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Bot 0 Ant port at MTL + 3dB

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	**0xAAAAAAAA**	**0x555555**	**0x8E5A06**

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 1 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	**Bot**	**Narrow**	**31 ms**	**On**	**47**	**38**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 1**	-	-	-	-	-
OPR LIM	**≤ 1**	-	-	-	-	-

4.22.2.27 Bot 0 (-75 dBm, 1090 MHz, MODE-S, DF17) ADS-B Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	**1090.0 ± 0.1 MHz**	**-75.0 ± 0.5 dBm**
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Bot 0 Ant port at an intermediate power level.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	**0xAAAAAAAA**	**0x555555**	**0x8E5A06**

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 1 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	**Bot**	**Narrow**	**31 ms**	**On**	**47**	**38**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 1**	-	-	-	-	-
OPR LIM	**≤ 1**	-	-	-	-	-

4.22.2.28 Bot 0 (-24 dBm, 1090 MHz, MODE-S, DF17) ADS-B Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	1090.0 ± 0.1 MHz	-24.0 ± 0.5 dBm
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Bot 0 Ant port at a high power level.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 1 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Bot	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-	-	-	-	-
OPR LIM	≤ 1	-	-	-	-	-

4.22.3 TCAS Top 90 Receiver Tests [Group 58]

4.22.3.1 Top 90 (-17 dBm, 1065 MHz, ATCRBS) Out Of Band Rejection Test

This test will verify the ability of the receiver to reject an out of band reply at 1065 MHz, which is 60 dB larger in amplitude than MTL.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	1065.0 ± 0.1 MHz	-17.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 5	-	-	-	-	-
OPR LIM	≥ 1	-	-	-	-	-

4.22.3.2 Top 90 (-17 dBm, 1115 MHz, ATCRBS) Out Of Band Rejection Test

This test will verify the ability of the receiver to reject an out of band reply at 1115 MHz, which is 60 dB larger in amplitude than MTL.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	1115.0 ± 0.1 MHz	-17.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 5	-	-	-	-	-
OPR LIM	≥ 1	-	-	-	-	-

4.22.3.3 Top 90 (-81 dBm, 1090 MHz, ATCRBS) Sub MTL Test

This test verifies that no more than 10% replies shall be decoded for an input signal level of -81 dBm injected into the Top 90 Ant port. The RF level would be equivalent to -78 dBm at the antenna assuming 3 dB of cable loss.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	1090.0 ± 0.1 MHz	-81.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≥ 90**	**-**	**-**	**-**	**-**	**-**
OPR LIM	**≥ 90**	**-**	**-**	**-**	**-**	**-**

4.22.3.4 Top 90 (-81 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Sub MTL Test

This test verifies that no more than 10% replies shall be decoded for an input signal level of -81 dBm injected into the Top 90 Ant port. The RF level would be equivalent to -78 dBm at the antenna assuming 3 dB of cable loss.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**1090.0 ± 0.1 MHz**	**-81.0 ± 0.5 dBm**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	**0x6944A900**

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 1 1 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	**Top**	**Narrow**	**12 ms**	**Off**	**86**	**0**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 90	-	-	-	-	-
OPR LIM	≥ 90	-	-	-	-	-

4.22.3.5 Top 90 (-81 dBm, 1090 MHz, MODE-S, DF11, Atten On) Sub MTL Test

This test verifies that no more than 10% replies shall be decoded for an input signal level of -81 dBm injected into the Top 90 Ant port. The RF level would be equivalent to -78 dBm at the antenna assuming 3 dB of cable loss.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	1090.0 ± 0.1 MHz	-81.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 1 1 12 0 86 0 1***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 90	-	-	-	-	-
OPR LIM	≥ 90	-	-	-	-	-

4.22.3.6 Top 90 (-75 dBm, 1087 MHz, ATCRBS) MTL Test

This test will verify the following for a signal injected into the Top 90 port at 1087 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Top 90 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	1087.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-75.0 ± 2.25 dBm	-	-	1	-
OPR LIM	≤ 10	-75.0 ± 2.5 dBm	-	-	1	-

4.22.3.7 Top 90 (-75 dBm, 1090 MHz, ATCRBS) MTL Test

This test will verify the following for a signal injected into the Top90 port at 1090 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Top 90 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: ***"RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-75.0 ± 2.25 dBm	-	-	1	-
OPR LIM	≤ 10	-75.0 ± 2.5 dBm	-	-	1	-

4.22.3.8 Top 90 (-75 dBm, 1090 MHz, MODE-S, DF11, Atten Off) MTL Test

This test will verify the following for a signal injected into the Top 90 port at 1090 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Top 90 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 1 1 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-75.0 ± 2.25 dBm	-	-	1	-
OPR LIM	≤ 10	-75.0 ± 2.5 dBm	-	-	1	-

4.22.3.9 Top 90 (-75 dBm, 1090 MHz, MODE-S, DF11, Atten On) MTL Test

This test will verify the following for a signal injected into the Top90 port at 1090 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Top 90 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 1 1 12 0 86 0 1***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	21 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-75.0 ± 2.25 dBm	-	-	1	-
OPR LIM	≤ 10	-75.0 ± 2.5 dBm	-	-	1	-

4.22.3.10 Top 90 (-75 dBm, 1093 MHz, ATCRBS) MTL Test

This test will verify the following for a signal injected into the Top 90 port at 1093 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Top 90 Ant port

Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	1093.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 1. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 2. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 3. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 4. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 10**	**-75.0 ± 2.25 dBm**	**-**	**-**	**1**	**-**
OPR LIM	**≤ 10**	**-75.0 ± 2.5 dBm**	**-**	**-**	**1**	**-**

4.22.3.11 Top 90/180 (-72/-75 dBm, 1090 MHz, ATCRBS) Test

This test will verify the following for a signal injected into the Top 90/Top180 ports:

- Decoding ratio of at least 99% for a signal that is 3 dB higher than the largest acceptable MTL

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**1090.0 ± 0.1 MHz**	**-72.0 ± 0.5 dBm**
Top 180	**1090.0 ± 0.1 MHz**	**-75.0 ± 0.5 dBm**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**0**

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	**Top**	**Wide**	**21 ms**	**Off**	**86**	**0**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 1**	**-72.0 ± 2.25 dBm**	**3.0 ± 2.75 dBm**	**0**	**1**	**-**
OPR LIM	**≤ 1**	**-72.0 ± 2.5 dBm**	**3.0 ± 2.75 dBm**	**0**	**1**	**-**

4.22.3.12 Top 90/180 (-72/-75 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

This test will verify the following for a signal injected into the Top90/Top180 ports:

- Decoding ratio of at least 99% for a signal that is 3 dB higher than the largest acceptable MTL

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**1090.0 ± 0.1 MHz**	**-72.0 ± 0.5 dBm**
Top 180	**1090.0 ± 0.1 MHz**	**-75.0 ± 0.5 dBm**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	**0x6944A900**

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: “***EITST P1 2 0 1 1 21 0 86 0 0***”

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	**Top**	**Narrow**	**21 ms**	**Off**	**86**	**0**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: “***RBL P1 3E0000 3E0C7C”***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 1**	**-72.0 ± 2.25 dBm**	**3.0 ± 2.75**	**0**	**1**	**-**
OPR LIM	**≤ 1**	**-72.0 ± 2.5 dBm**	**3.0 ± 2.75**	**0**	**1**	**-**

4.22.3.13 Top 90/180 (-72/-75 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

This test will verify the following for a signal injected into the Top90/Top180 ports:

- Decoding ratio of at least 99% for a signal that is 3 dB higher than the largest acceptable MTL

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**1090.0 ± 0.1 MHz**	**-72.0 ± 0.5 dBm**
Top 180	**1090.0 ± 0.1 MHz**	**-75.0 ± 0.5 dBm**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	**0x6944A900**

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 1 1 21 0 86 0 1***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	**Top**	**Narrow**	**21 ms**	**Off**	**86**	**0**	**On**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 1**	**-72.0 ± 2.25 dBm**	**3.0 ± 2.75**	**0**	**1**	**-**
OPR LIM	**≤ 1**	**-72.0 ± 2.5 dBm**	**3.0 ± 2.75**	**0**	**1**	**-**

4.22.3.14 Top 90/180 (-60/-66 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	1090.0 ± 0.1 MHz	-60.0 ± 0.5 dBm
Top 180	1090.0 ± 0.1 MHz	-66.0 ± 0.5 dBm
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-60.0 ± 2.25 dBm	6.0 ± 2.75 dBm	0	1	1
OPR LIM	≤ 1	-60.0 ± 2.5 dBm	6.0 ± 2.75 dBm	0	1	1

4.22.3.15 Top 90/180 (-60/-66 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	1090.0 ± 0.1 MHz	-60.0 ± 0.5 dBm
Top 180	1090.0 ± 0.1 MHz	-66.0 ± 0.5 dBm
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 1 1 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-60.0 ± 2.25 dBm	6.0 ± 2.75 dBm	0	1	1
OPR LIM	≤ 1	-60.0 ± 2.5 dBm	6.0 ± 2.75 dBm	0	1	1

4.22.3.16 Top 90/180 (-60/-66 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	1090.0 ± 0.1 MHz	-60.0 ± 0.5 dBm
Top 180	1090.0 ± 0.1 MHz	-66.0 ± 0.5 dBm
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 1 1 21 0 86 0 1***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	21 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-60.0 ± 2.25 dBm	6.0 ± 2.75 dBm	0	1	1
OPR LIM	≤ 1	-60.0 ± 2.5 dBm	6.0 ± 2.75 dBm	0	1	1

4.22.3.17 Top 90/180 (-48/-57 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Top 180	1090.0 ± 0.1 MHz	-57.0 ± 0.5 dBm
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**0**	**-48.0 ± 2.25 dBm**	**9.0 ± 2.75 dBm**	**0**	**1**	**1**
OPR LIM	**0**	**-48.0 ± 2.5 dBm**	**9.0 ± 2.75 dBm**	**0**	**1**	**1**

4.22.3.18 Top 90/180 (-48/-57 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**1090.0 ± 0.1 MHz**	**-48.0 ± 0.5 dBm**
Top 180	**1090.0 ± 0.1 MHz**	**-57.0 ± 0.5 dBm**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	**0x6944A900**

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 1 1 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	**Top**	**Narrow**	**12 ms**	**Off**	**86**	**0**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**0**	**-48.0 ± 2.25 dBm**	**9.0 ± 2.75 dBm**	**0**	**1**	**1**
OPR LIM	**0**	**-48.0 ± 2.5 dBm**	**9.0 ± 2.75 dBm**	**0**	**1**	**1**

4.22.3.19 Top 90/180 (-48/-57 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Top 180	1090.0 ± 0.1 MHz	-57.0 ± 0.5 dBm
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 1 1 12 0 86 0 1***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-48.0 ± 2.25 dBm	9.0 ± 2.75 dBm	0	1	1
OPR LIM	0	-48.0 ± 2.5 dBm	9.0 ± 2.75 dBm	0	1	1

4.22.3.20 Top 90/180 (-36/-48 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**1090.0 ± 0.1 MHz**	**-36.0 ± 0.5 dBm**
Top 180	**1090.0 ± 0.1 MHz**	**-48.0 ± 0.5 dBm**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**0**	**-**	**-**	**-**	**-**	**-**
OPR LIM	**0**	**-**	**-**	**-**	**-**	**-**

4.22.3.21 Top 90/180 (-36/-48 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**1090.0 ± 0.1 MHz**	**-36.0 ± 0.5 dBm**
Top 180	**1090.0 ± 0.1 MHz**	**-48.0 ± 0.5 dBm**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.3.22 Top 90/180 (-36/-48 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	1090.0 ± 0.1 MHz	-36.0 ± 0.5 dBm
Top 180	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.3.23 Top 90/180 (-24/-25 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	1090.0 ± 0.1 MHz	-24.0 ± 0.5 dBm
Top 180	1090.0 ± 0.1 MHz	-25.0 ± 0.5 dBm
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180		
Bot 270	-	-

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.3.24 Top 90/180 (-24/-25 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	1090.0 ± 0.1 MHz	-24.0 ± 0.5 dBm
Top 180	1090.0 ± 0.1 MHz	-25.0 ± 0.5 dBm
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180		
Bot 270	-	-

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.3.25 Top 90/180 (-24/-25 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	1090.0 ± 0.1 MHz	-24.0 ± 0.5 dBm
Top 180	1090.0 ± 0.1 MHz	-25.0 ± 0.5 dBm
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180		
Bot 270	-	-

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.3.26 Top 90 (-90 dBm, 1090 MHz, MODE-S, DF17) ADS-B Sub MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	1090.0 ± 0.1 MHz	-90.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Top 90 Ant port at MTL – 3dB.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 2 1 31 1 47 38***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Top	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	< 85	-	-	-	-	-
OPR LIM	< 85	-	-	-	-	-

4.22.3.27 Top 90 (-87 dBm, 1089 MHz, MODE-S, DF17) ADS-B MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	1089.0 ± 0.1 MHz	-87.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Top 90 Ant port at MTL.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 2 1 31 1 47 38 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Top	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-	-	-	-	-
OPR LIM	≤ 10	-	-	-	-	-

4.22.3.28 Top 90 (-87 dBm, 1090 MHz, MODE-S, DF17) ADS-B MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	1090.0 ± 0.1 MHz	-87.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Top 90 Ant port at MTL.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Top	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-	-	-	-	-
OPR LIM	≤ 10	-	-	-	-	-

4.22.3.29 Top 90 (-87 dBm, 1091 MHz, MODE-S, DF17) ADS-B MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	1091.0 ± 0.1 MHz	-87.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Top 90 Ant port at MTL.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Top	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-	-	-	-	-
OPR LIM	≤ 10	-	-	-	-	-

4.22.3.30 Top 90 (-84 dBm, 1090 MHz, MODE-S, DF17) ADS-B Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	1090.0 ± 0.1 MHz	-84.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Top 90 Ant port at MTL + 3dB.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Top	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-	-	-	-	-
OPR LIM	≤ 1	-	-	-	-	-

4.22.3.31 Top 90 (-75 dBm, 1090 MHz, MODE-S, DF17) ADS-B Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Top 90 Ant port at an intermediate power level.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Top	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-	-	-	-	-
OPR LIM	≤ 1	-	-	-	-	-

4.22.3.32 Top 90 (-24 dBm, 1090 MHz, MODE-S, DF17) ADS-B Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	1090.0 ± 0.1 MHz	-24.0 ± 0.5 dBm
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Top 90 Ant port at a high power level.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Top	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-	-	-	-	-
OPR LIM	≤ 1	-	-	-	-	-

4.22.4 TCAS Bottom 90 Receiver Tests [Group 59]

4.22.4.1 Bottom 90 (-81 dBm, 1090 MHz, ATCRBS) Sub MTL Test

This test verifies that no more than 10% replies shall be decoded for an input signal level of -81 dBm injected into the Bottom 90 Ant port. The RF level would be equivalent to -78 dBm at the antenna assuming 3 dB of cable loss.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-81.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: “***EITST P1 2 0 0 0 12 0 86 0 0***”

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Bottom	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: “***RBL P1 3E0000 3E0C7C”***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 90	-	-	-	-	-
OPR LIM	≥ 90	-	-	-	-	-

4.22.4.2 Bottom 90 (-81 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Sub MTL Test

This test verifies that no more than 10% replies shall be decoded for an input signal level of -81 dBm injected into the Bottom 90 Ant port. The RF level would be equivalent to -78 dBm at the antenna assuming 3 dB of cable loss.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-81.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 1 1 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 90	-	-	-	-	-
OPR LIM	≥ 90	-	-	-	-	-

4.22.4.3 Bottom 90 (-81 dBm, 1090 MHz, MODE-S, DF11, Atten On) Sub MTL Test

This test verifies that no more than 10% replies shall be decoded for an input signal level of -81 dBm injected into the Bottom 90 Ant port. The RF level would be equivalent to -78 dBm at the antenna assuming 3 dB of cable loss.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-81.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: “***EITST P1 2 0 1 1 12 0 86 0 1***”

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: “***RBL P1 3E0000 3E0C7C”***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 90	-	-	-	-	-
OPR LIM	≥ 90	-	-	-	-	-

4.22.4.4 Bottom 90 (-75 dBm, 1090 MHz, ATCRBS) MTL Test

This test will verify the following for a signal injected into the Bottom 90 port at 1090 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Bottom 90 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Bottom	Wide	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-75.0 ± 2.25 dBm	-	-	1	-
OPR LIM	≤ 10	-75.0 ± 2.5 dBm	-	-	1	-

4.22.4.5 Bottom 90 (-75 dBm, 1090 MHz, MODE-S DF11, Atten Off) MTL Test

This test will verify the following for a signal injected into the Bottom 90 port at 1090 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Bottom 90 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: ***"RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-75.0 ± 2.25 dBm	-	-	1	-
OPR LIM	≤ 10	-75.0 ± 2.5 dBm	-	-	1	-

4.22.4.6 Bottom 90 (-75 dBm, 1090 MHz, MODE-S DF11, Atten On) MTL Test

This test will verify the following for a signal injected into the Bottom 90 port at 1090 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Bottom 90 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1

0x58123456	**0x6944A900**

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	21 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: ***"RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-75.0 ± 2.25 dBm	-	-	1	-
OPR LIM	≤ 10	-75.0 ± 2.5 dBm	-	-	1	-

4.22.4.7 Bottom 90/180 (-72/-75 dBm, 1090 MHz, ATCRBS) Test

This test will verify the following for a signal injected into the Bottom 90/Bottom 180 ports:

- Decoding ratio of at least 99% for a signal that is 3 dB higher than the largest acceptable MTL

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-72.0 ± 0.5 dBm
Bot 180	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Bot 270	-	-

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Bottom	Wide	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-72.0 ± 2.25 dBm	3.0 ± 2.75 dBm	0	1	-
OPR LIM	≤ 1	-72.0 ± 2.5 dBm	3.0 ± 2.75 dBm	0	1	-

4.22.4.8 Bottom 90/180 (-72/-75 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

This test will verify the following for a signal injected into the Bottom 90/Bottom 180 ports:

- Decoding ratio of at least 99% for a signal that is 3 dB higher than the largest acceptable MTL

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-72.0 ± 0.5 dBm
Bot 180	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 21 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: ***"RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-72.0 ± 2.25 dBm	3.0 ± 2.75 dBm	0	1	-
OPR LIM	≤ 1	-72.0 ± 2.0 dBm	3.0 ± 2.75 dBm	0	1	-

4.22.4.9 Bottom 90/180 (-72/-75 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

This test will verify the following for a signal injected into the Bottom 90/Bottom 180 ports:

- Decoding ratio of at least 99% for a signal that is 3 dB higher than the largest acceptable MTL

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-72.0 ± 0.5 dBm
Bot 180	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 21 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	21 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: ***"RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-72.0 ± 2.25 dBm	3.0 ± 2.75 dBm	0	1	-
OPR LIM	≤ 1	-72.0 ± 2.5 dBm	3.0 ± 2.75 dBm	0	1	-

4.22.4.10 Bottom 90/180 (-60/-66 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-60.0 ± 0.5 dBm
Bot 180	1090.0 ± 0.1 MHz	-66.0 ± 0.5 dBm
Bot 270	-	-

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Bottom	Wide	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-60.0 ± 2.25	6.0 ± 2.75 dBm	0	1	1

		dBm				
OPR LIM	**≤ 1**	**-60.0 ± 2.5 dBm**	**6.0 ± 2.75 dBm**	**0**	**1**	**1**

4.22.4.11 Bottom 90/180 (-60/-66 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-60.0 ± 0.5 dBm
Bot 180	1090.0 ± 0.1 MHz	-66.0 ± 0.5 dBm
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 21 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-60.0 ± 2.25 dBm	6.0 ± 2.75 dBm	0	1	1
OPR LIM	≤ 1	-60.0 ± 2.5 dBm	6.0 ± 2.75 dBm	0	1	1

4.22.4.12 Bottom 90/180 (-60/-66 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-60.0 ± 0.5 dBm
Bot 180	1090.0 ± 0.1 MHz	-66.0 ± 0.5 dBm
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. *DF = Format, CA = Transponder Capability, AA = Addressed Announced*
2. *The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA*

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 21 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	21 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-60.0 ± 2.25 dBm	6.0 ± 2.75 dBm	0	1	1
OPR LIM	≤ 1	-60.0 ± 2.5 dBm	6.0 ± 2.75 dBm	0	1	1

4.22.4.13 Bottom 90/180 (-48/-57 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Bot 180	1090.0 ± 0.1 MHz	-57.0 ± 0.5 dBm
Bot 270	-	-

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Bottom	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-48.0 ± 2.25 dBm	9.0 ± 2.75 dBm	0	1	1
OPR LIM	0	-48.0 ± 2.5 dBm	9.0 ± 2.75 dBm	0	1	1

4.22.4.14 Bottom 90/180 (-48/-57 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Bot 180	1090.0 ± 0.1 MHz	-57.0 ± 0.5 dBm
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-48.0 ± 2.25 dBm	9.0 ± 2.75 dBm	0	1	1
OPR LIM	0	-48.0 ± 2.5 dBm	9.0 ± 2.75 dBm	0	1	1

4.22.4.15 Bottom 90/180 (-48/-57 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Bot 180	1090.0 ± 0.1 MHz	-57.0 ± 0.5 dBm
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-48.0 ± 2.25 dBm	9.0 ± 2.75 dBm	0	1	1
OPR LIM	0	-48.0 ± 2.5 dBm	9.0 ± 2.75 dBm	0	1	1

4.22.4.16 Bottom 90/180 (-36/-48 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-36.0 ± 0.5 dBm
Bot 180	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Bot 270	-	-

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Bottom	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.4.17 Bottom 90/180 (-36/-48 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-36.0 ± 0.5 dBm
Bot 180	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.4.18 Bottom 90/180 (-36/-48 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-36.0 ± 0.5 dBm
Bot 180	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.4.19 Bottom 90/180 (-24/-25 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-

Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**1090.0 ± 0.1 MHz**	**-24.0 ± 0.5 dBm**
Bot 180	**1090.0 ± 0.1 MHz**	**-25.0 ± 0.5 dBm**
Bot 270	**-**	**-**

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Bottom	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.4.20 Bottom 90/180 (-24/-25 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**1090.0 ± 0.1 MHz**	**-24.0 ± 0.5 dBm**
Bot 180	**1090.0 ± 0.1 MHz**	**-25.0 ± 0.5 dBm**
Bot 270	**-**	**-**

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.4.21 Bottom 90/180 (-24/-25 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-24.0 ± 0.5 dBm
Bot 180	1090.0 ± 0.1 MHz	-25.0 ± 0.5 dBm
Bot 270	-	-

Mode-S DF11 squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.4.22 Bot 90 (-90 dBm, 1090 MHz, MODE-S, DF17) ADS-B Sub MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-90.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Bot 90 Ant port at MTL – 3dB.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 1 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Bot	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	< 85	-	-	-	-	-
OPR LIM	< 85	-	-	-	-	-

4.22.4.23 Bot 90 (-87 dBm, 1089 MHz, MODE-S, DF17) ADS-B MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1089.0 ± 0.1 MHz	-87.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Bot 90 Ant port at MTL.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 1 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Bot	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: “***RBL P1 3E0000 3E0C7C”***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-	-	-	-	-
OPR LIM	≤ 10	-	-	-	-	-

4.22.4.24 Bot 90 (-87 dBm, 1090 MHz, MODE-S, DF17) ADS-B MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-87.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Bot 90 Ant port at MTL.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: “***EITST P1 2 1 2 1 31 1 47 38 0***”

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Bot	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: “***RBL P1 3E0000 3E0C7C”***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 10**	**-**	**-**	**-**	**-**	**-**
OPR LIM	**≤ 10**	**-**	**-**	**-**	**-**	**-**

4.22.4.25 Bot 90 (-87 dBm, 1091 MHz, MODE-S, DF17) ADS-B MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**1091.0 ± 0.1 MHz**	**-87.0 ± 0.5 dBm**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

DF17 squitters will be injected into the UUT Bot 90 Ant port at MTL.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	**0xAAAAAAAA**	**0x555555**	**0x8E5A06**

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 1 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	**Bot**	**Narrow**	**31 ms**	**On**	**47**	**38**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 10**	**-**	**-**	**-**	**-**	**-**
OPR LIM	**≤ 10**	**-**	**-**	**-**	**-**	**-**

4.22.4.26 Bot 90 (-84 dBm, 1090 MHz, MODE-S, DF17) ADS-B Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-84.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Bot 90 Ant port at MTL + 3dB.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 1 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Bot	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-	-	-	-	-
OPR LIM	≤ 1	-	-	-	-	-

4.22.4.27 Bot 90 (-75 dBm, 1090 MHz, MODE-S, DF17) ADS-B Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Bot 90 Ant port at an intermediate power level.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	**0xAAAAAAAA**	**0x555555**	**0x8E5A06**

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 1 2 1 31 1 47 38 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	**Bot**	**Narrow**	**31 ms**	**On**	**47**	**38**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 1**	**-**	**-**	**-**	**-**	**-**
OPR LIM	**≤ 1**	**-**	**-**	**-**	**-**	**-**

4.22.4.28 Bot 90 (-24 dBm, 1090 MHz, MODE-S, DF17) ADS-B Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**1090.0 ± 0.1 MHz**	**-24.0 ± 0.5 dBm**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

DF17 squitters will be injected into the UUT Bot 90 Ant port at a high power level.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 1 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Bot	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-	-	-	-	-
OPR LIM	≤ 1	-	-	-	-	-

4.22.5 TCAS Top 180 Receiver Tests [Group 60]

4.22.5.1 Top 180 (-17 dBm, 1065 MHz, ATCRBS) Out Of Band Rejection Test

This test will verify the ability of the receiver to reject an out of band reply at 1065 MHz, which is 60 dB larger in amplitude than MTL.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1065.0 ± 0.1 MHz	-17.0 ± 0.5 dBm
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 5	-	-	-	-	-
OPR LIM	≥ 1	-	-	-	-	-

4.22.5.2 Top 180 (-17 dBm, 1115 MHz, ATCRBS) Out Of Band Rejection Test

This test will verify the ability of the receiver to reject an out of band reply at 1115 MHz, which is 60 dB larger in amplitude than MTL.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1115.0 ± 0.1 MHz	-17.0 ± 0.5 dBm
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 5	-	-	-	-	-
OPR LIM	≥ 1	-	-	-	-	-

4.22.5.3 Top 180 (-81 dBm, 1090 MHz, ATCRBS) Sub MTL Test

This test verifies that no more than 10% replies shall be decoded for an input signal level of -81 dBm injected into the Top 180 Ant port. The RF level would be equivalent to -78 dBm at the antenna assuming 3 dB of cable loss.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1090.0 ± 0.1 MHz	-81.0 ± 0.5 dBm
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 90	-	-	-	-	-
OPR LIM	≥ 90	-	-	-	-	-

4.22.5.4 Top 180 (-81 dBm, 1090 MHz, MODES-S, DF11, Atten Off) Sub MTL Test

This test verifies that no more than 10% replies shall be decoded for an input signal level of -81 dBm injected into the Top 180 Ant port. The RF level would be equivalent to -78 dBm at the antenna assuming 3 dB of cable loss.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1090.0 ± 0.1 MHz	-81.0 ± 0.5 dBm
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 1 1 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 90	-	-	-	-	-
OPR LIM	≥ 90	-	-	-	-	-

4.22.5.5 Top 180 (-81 dBm, 1090 MHz, MODES-S, DF11, Atten On) Sub MTL Test

This test verifies that no more than 10% replies shall be decoded for an input signal level of -81 dBm injected into the Top 180 Ant port. The RF level would be equivalent to -78 dBm at the antenna assuming 3 dB of cable loss.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1090.0 ± 0.1 MHz	-81.0 ± 0.5 dBm
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 1 1 12 0 86 0 1***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 90	-	-	-	-	-
OPR LIM	≥ 90	-	-	-	-	-

4.22.5.6 Top 180 (-75 dBm, 1087 MHz, ATCRBS) MTL Test

This test will verify the following for a signal injected into the Top180 port at 1087 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Top 180 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1087.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-75.0 ± 2.25 dBm	-	0	-	-
OPR LIM	≤ 10	-75.0 ± 2.5 dBm	-	0	-	-

4.22.5.7 Top 180 (-75 dBm, 1090 MHz, ATCRBS) MTL Test

This test will verify the following for a signal injected into the Top180 port at 1090 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Top 180 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-75.0 ± 2.25 dBm	-	0	-	-
OPR LIM	≤ 10	-75.0 ± 2.5 dBm	-	0	-	-

4.22.5.8 Top 180 (-75 dBm, 1090 MHz, MODE-S, DF11, Atten Off) MTL Test

This test will verify the following for a signal injected into the Top180 port at 1090 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Top 180 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 21 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	**Top**	**Narrow**	**21 ms**	**Off**	**86**	**0**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 10**	**-75.0 ± 2.25 dBm**	**-**	**0**	**-**	**-**
OPR LIM	**≤ 10**	**-75.0 ± 2.5 dBm**	**-**	**0**	**-**	**-**

4.22.5.9 Top 180 (-75 dBm, 1090 MHz, MODE-S, DF11, Atten On) MTL Test

This test will verify the following for a signal injected into the Top180 port at 1090 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Top 180 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**1090.0 ± 0.1 MHz**	**-75.0 ± 0.5 dBm**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	**0x6944A900**

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 21 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	21 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: “***RBL P1 3E0000 3E0C7C”***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-75.0 ± 2.25 dBm	-	0	-	-
OPR LIM	≤ 10	-75.0 ± 2.5 dBm	-	0	-	-

4.22.5.10 Top 180 (-75 dBm, 1093 MHz, ATCRBS) MTL Test

This test will verify the following for a signal injected into the Top180 port at 1093 Mhz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Top 180 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1093.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: “***EITST P1 2 0 0 0 21 0 86 0 0***”

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: “***RBL P1 3E0000 3E0C7C”***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-75.0 ± 2.25 dBm	-	0	-	-
OPR LIM	≤ 10	-75.0 ± 2.5 dBm	-	0	-	-

4.22.5.11 Top 180/270 (-72/-75 dBm, 1090 MHz, ATCRBS) Test

This test will verify the following for a signal injected into the Top180/Top270 ports:

- Decoding ratio of at least 99% for a signal that is 3 dB higher than the largest acceptable MTL

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1090.0 ± 0.1 MHz	-72.0 ± 0.5 dBm
Top 270	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-72.0 ± 2.25 dBm	3.0 ± 2.75 dBm	0	0	-
OPR LIM	≤ 1	-72.0 ± 2.5 dBm	3.0 ± 2.75 dBm	0	0	-

4.22.5.12 Top 180/270 (-72/-75 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

This test will verify the following for a signal injected into the Top180/Top270 ports:

- Decoding ratio of at least 99% for a signal that is 3 dB higher than the largest acceptable MTL

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1090.0 ± 0.1 MHz	-72.0 ± 0.5 dBm
Top 270	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 21 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-72.0 ± 2.25 dBm	3.0 ± 2.75 dBm	0	0	-
OPR LIM	≤ 1	-72.0 ± 2.5 dBm	3.0 ± 2.75 dBm	0	0	-

4.22.5.13 Top 180/270 (-72/-75 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

This test will verify the following for a signal injected into the Top180/Top270 ports:

- Decoding ratio of at least 99% for a signal that is 3 dB higher than the largest acceptable MTL

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1090.0 ± 0.1 MHz	-72.0 ± 0.5 dBm
Top 270	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 21 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	21 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-72.0 ± 2.25 dBm	3.0 ± 2.75 dBm	0	0	-
OPR LIM	≤ 1	-72.0 ± 2.5 dBm	3.0 ± 2.75 dBm	0	0	-

4.22.5.14 Top 180/270 (-60/-66 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1090.0 ± 0.1 MHz	-60.0 ± 0.5 dBm
Top 270	1090.0 ± 0.1 MHz	-66.0 ± 0.5 dBm
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-60.0 ± 2.25 dBm	6.0 ± 2.75 dBm	0	0	0
OPR LIM	≤ 1	-60.0 ± 2.5 dBm	6.0 ± 2.75 dBm	0	0	0

4.22.5.15 Top 180/270 (-60/-66 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1090.0 ± 0.1 MHz	-60.0 ± 0.5 dBm
Top 270	1090.0 ± 0.1 MHz	-66.0 ± 0.5 dBm
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 21 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-60.0 ± 2.25 dBm	6.0 ± 2.75 dBm	0	0	0
OPR LIM	≤ 1	-60.0 ± 2.5 dBm	6.0 ± 2.75 dBm	0	0	0

4.22.5.16 Top 180/270 (-60/-66 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1090.0 ± 0.1 MHz	-60.0 ± 0.5 dBm
Top 270	1090.0 ± 0.1 MHz	-66.0 ± 0.5 dBm
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 21 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	21 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-60.0 ± 2.25 dBm	6.0 ± 2.75 dBm	0	0	0
OPR LIM	≤ 1	-60.0 ± 2.5 dBm	6.0 ± 2.75 dBm	0	0	0

4.22.5.17 Top 180/270 (-48/-57 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Top 270	1090.0 ± 0.1 MHz	-57.0 ± 0.5 dBm
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-48.0 ± 2.25 dBm	9.0 ± 2.75 dBm	0	0	0
OPR LIM	0	-48.0 ± 2.5 dBm	9.0 ± 2.75 dBm	0	0	0

4.22.5.18 Top 180/270 (-48/-57 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Top 270	1090.0 ± 0.1 MHz	-57.0 ± 0.5 dBm
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**0**	**-48.0 ± 2.25 dBm**	**9.0 ± 2.75 dBm**	**0**	**0**	**0**
OPR LIM	**0**	**-48.0 ± 2.5 dBm**	**9.0 ± 2.75 dBm**	**0**	**0**	**0**

4.22.5.19 Top 180/270 (-48/-57 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**1090.0 ± 0.1 MHz**	**-48.0 ± 0.5 dBm**
Top 270	**1090.0 ± 0.1 MHz**	**-57.0 ± 0.5 dBm**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	**0x6944A900**

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	**Top**	**Narrow**	**12 ms**	**Off**	**86**	**0**	**On**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**0**	**-48.0 ± 2.25 dBm**	**9.0 ± 2.75 dBm**	**0**	**0**	**0**
OPR LIM	**0**	**-48.0 ± 2.5 dBm**	**9.0 ± 2.75 dBm**	**0**	**0**	**0**

4.22.5.20 Top 180/270 (-36/-48 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1090.0 ± 0.1 MHz	-36.0 ± 0.5 dBm
Top 270	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: “***EITST P1 2 0 0 0 12 0 86 0 0***”

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: “***RBL P1 3E0000 3E0C7C”***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.5.21 Top 180/270 (-36/-48 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1090.0 ± 0.1 MHz	-36.0 ± 0.5 dBm
Top 270	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.5.22 Top 180/270 (-36/-48 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1090.0 ± 0.1 MHz	-36.0 ± 0.5 dBm
Top 270	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.5.23 Top 180/270 (-24/-25 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1090.0 ± 0.1 MHz	-24.0 ± 0.5 dBm
Top 270	1090.0 ± 0.1 MHz	-25.0 ± 0.5 dBm
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.5.24 Top 180/270 (-24/-25 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1090.0 ± 0.1 MHz	-24.0 ± 0.5 dBm
Top 270	1090.0 ± 0.1 MHz	-25.0 ± 0.5 dBm
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.5.25 Top 180/270 (-24/-25 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1090.0 ± 0.1 MHz	-24.0 ± 0.5 dBm
Top 270	1090.0 ± 0.1 MHz	-25.0 ± 0.5 dBm
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.5.26 Top 180 (-90 dBm, 1090 MHz, MODE-S, DF17) ADS-B Sub MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1090.0 ± 0.1 MHz	-90.0 ± 0.5 dBm
Top 270	-	-

Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

DF17 squitters will be injected into the UUT Top 180 Ant port at MTL - 3dB.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	**0xAAAAAAAA**	**0x555555**	**0x8E5A06**

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	**Top**	**Narrow**	**31 ms**	**On**	**47**	**38**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**< 85**	**-**	**-**	**-**	**-**	**-**
OPR LIM	**< 85**	**-**	**-**	**-**	**-**	**-**

4.22.5.27 Top 180 (-87 dBm, 1089 MHz, MODE-S, DF17) ADS-B MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**1089.0 ± 0.1 MHz**	**-87.0 ± 0.5 dBm**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

DF17 squitters will be injected into the UUT Top 180 Ant port at MTL.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Top	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-	-	-	-	-
OPR LIM	≤ 10	-	-	-	-	-

4.22.5.28 Top 180 (-87 dBm, 1090 MHz, MODE-S, DF17) ADS-B MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1089.0 ± 0.1 MHz	-87.0 ± 0.5 dBm
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Top 180 Ant port at MTL.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Top	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-	-	-	-	-
OPR LIM	≤ 10	-	-	-	-	-

4.22.5.29 Top 180 (-87 dBm, 1091 MHz, MODE-S, DF17) ADS-B MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	1091.0 ± 0.1 MHz	-87.0 ± 0.5 dBm
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Top 180 Ant port at MTL.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Top	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 10**	-	-	-	-	-
OPR LIM	**≤ 10**	-	-	-	-	-

4.22.5.30 Top 180 (-84 dBm, 1090 MHz, MODE-S, DF17) ADS-B Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	**1090.0 ± 0.1 MHz**	**-84.0 ± 0.5 dBm**
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Replies will be injected into the UUT Top 180 Ant port at MTL + 3dB

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	**0xAAAAAAAA**	**0x555555**	**0x8E5A06**

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	**Top**	**Narrow**	**31 ms**	**On**	**47**	**38**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 1**	-	-	-	-	-
OPR LIM	**≤ 1**	-	-	-	-	-

4.22.5.31 Top 180 (-75 dBm, 1090 MHz, MODE-S, DF17) ADS-B Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**1090.0 ± 0.1 MHz**	**-75.0 ± 0.5 dBm**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

DF17 squitters will be injected into the UUT Top 180 Ant port at an intermediate power level.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	**0xAAAAAAAA**	**0x555555**	**0x8E5A06**

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	**Top**	**Narrow**	**31 ms**	**On**	**47**	**38**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 1**	**-**	**-**	**-**	**-**	**-**
OPR LIM	**≤ 1**	**-**	**-**	**-**	**-**	**-**

4.22.5.32 Top 180 (-24 dBm, 1090 MHz, MODE-S, DF17) ADS-B Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	**1090.0 ± 0.1 MHz**	**-24.0 ± 0.5 dBm**
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

DF17 squitters will be injected into the UUT Top 180 Ant port at a high power level.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	**0xAAAAAAAA**	**0x555555**	**0x8E5A06**

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	**Top**	**Narrow**	**31 ms**	**On**	**47**	**38**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 1**	-	-	-	-	-
OPR LIM	**≤ 1**	-	-	-	-	-

4.22.6 TCAS Bottom 180 Receiver Tests [Group 61]

4.22.6.1 Bottom 180 (-81 dBm, 1090 MHz, ATCRBS) Sub MTL Test

This test verifies that no more than 10% replies shall be decoded for an input signal level of -81 dBm injected into the Bottom 180 Ant port. The RF level would be equivalent to -78 dBm at the antenna assuming 3 dB of cable loss.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**1090.0 ± 0.1 MHz**	**-81.0 ± 0.5 dBm**
Bot 270	**-**	**-**

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	**Bottom**	**Wide**	**12 ms**	**Off**	**86**	**0**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≥ 90**	**-**	**-**	**-**	**-**	**-**
OPR LIM	**≥ 90**	**-**	**-**	**-**	**-**	**-**

4.22.6.2 Bottom 180 (-81 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Sub MTL Test

This test verifies that no more than 10% replies shall be decoded for an input signal level of -81 dBm injected into the Bottom 180 Ant port. The RF level would be equivalent to -78 dBm at the antenna assuming 3 dB of cable loss.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	1090.0 ± 0.1 MHz	-81.0 ± 0.5 dBm
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 1 1 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 90	-	-	-	-	-
OPR LIM	≥ 90	-	-	-	-	-

4.22.6.3 Bottom 180 (-81 dBm, 1090 MHz, MODE-S, DF11, Atten On) Sub MTL Test

This test verifies that no more than 10% replies shall be decoded for an input signal level of -81 dBm injected into the Bottom 180 Ant port. The RF level would be equivalent to -78 dBm at the antenna assuming 3 dB of cable loss.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	1090.0 ± 0.1 MHz	-81.0 ± 0.5 dBm
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 1 1 12 0 86 0 1***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 90	-	-	-	-	-
OPR LIM	≥ 90	-	-	-	-	-

4.22.6.4 Bottom 180 (-75 dBm, 1090 MHz, ATCRBS) MTL Test

This test will verify the following for a signal injected into the Bottom 180 port at 1090 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Bottom 180 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Bot 270	-	-

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Bottom	Wide	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-75.0 ± 2.25 dBm	-	0	-	-
OPR LIM	≤ 10	-75.0 ± 2.5 dBm	-	0	-	-

4.22.6.5 Bottom 180 (-75 dBm, 1090 MHz, MODE-S DF11, Atten Off) MTL Test

This test will verify the following for a signal injected into the Bottom 180 port at 1090 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Bottom 180 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Bot 270	-	-

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: ***"RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-75.0 ± 2.25 dBm	-	0	-	-
OPR LIM	≤ 10	-75.0 ± 2.5 dBm	-	0	-	-

4.22.6.6 Bottom 180 (-75 dBm, 1090 MHz, MODE-S DF11, Atten On) MTL Test

This test will verify the following for a signal injected into the Bottom 180 port at 1090 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Bottom 180 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Bot 270	-	-

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	21 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: ***"RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 10	-75.0 ± 2.25 dBm	-	0	-	-
OPR LIM	≤ 10	-75.0 ± 2.5 dBm	-	0	-	-

4.22.6.7 Bottom 180/270 (-72/-75 dBm, 1090 MHz, ATCRBS) Test

This test will verify the following for a signal injected into the Bottom 180/Bottom 270 ports:

- Decoding ratio of at least 99% for a signal that is 3 dB higher than the largest acceptable MTL

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	1090.0 ± 0.1 MHz	-72.0 ± 0.5 dBm
Bot 270	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	**Bottom**	**Wide**	**21 ms**	**Off**	**86**	**0**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 1**	**-72.0 ± 2.25 dBm**	**3.0 ± 2.75 dBm**	**0**	**0**	**-**
OPR LIM	**≤ 1**	**-72.0 ± 2.5 dBm**	**3.0 ± 2.75 dBm**	**0**	**0**	**-**

4.22.6.8 Bottom 180/270 (-72/-75 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

This test will verify the following for a signal injected into the Bottom 180/Bottom 270 ports:

- Decoding ratio of at least 99% for a signal that is 3 dB higher than the largest acceptable MTL

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**1090.0 ± 0.1 MHz**	**-72.0 ± 0.5 dBm**
Bot 270	**1090.0 ± 0.1 MHz**	**-75.0 ± 0.5 dBm**

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	**0x6944A900**

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 1 1 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	**Bottom**	**Narrow**	**21 ms**	**Off**	**86**	**0**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: ***"RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 1**	**-72.0 ± 2.25 dBm**	**3.0 ± 2.55 dBm**	**0**	**0**	**-**
OPR LIM	**≤ 1**	**-72.0 ± 2.5 dBm**	**3.0 ± 2.55 dBm**	**0**	**0**	**-**

4.22.6.9 Bottom 180/270 (-72/-75 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

This test will verify the following for a signal injected into the Bottom 180/Bottom 270 ports:

- Decoding ratio of at least 99% for a signal that is 3 dB higher than the largest acceptable MTL

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**1090.0 ± 0.1 MHz**	**-72.0 ± 0.5 dBm**
Bot 270	**1090.0 ± 0.1 MHz**	**-75.0 ± 0.5 dBm**

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	**0x6944A900**

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 21 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	**Bottom**	**Narrow**	**21 ms**	**Off**	**86**	**0**	**On**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: ***"RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 1**	**-72.0 ± 2.25 dBm**	**3.0 ± 2.75 dBm**	**0**	**0**	**-**
OPR LIM	**≤ 1**	**-72.0 ± 2.5 dBm**	**3.0 ± 2.75 dBm**	**0**	**0**	**-**

4.22.6.10 Bottom 180/270 (-60/-66 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**1090.0 ± 0.1 MHz**	**-60.0 ± 0.5 dBm**
Bot 270	**1090.0 ± 0.1 MHz**	**-66.0 ± 0.5 dBm**

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**0**

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	**Bottom**	**Wide**	**21 ms**	**Off**	**86**	**0**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 1**	**-60.0 ± 2.25 dBm**	**6.0 ± 2.75 dBm**	**0**	**0**	**0**
OPR LIM	**≤ 1**	**-60.0 ± 2.5 dBm**	**6.0 ± 2.75 dBm**	**0**	**0**	**0**

4.22.6.11 Bottom 180/270 (-60/-66 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	1090.0 ± 0.1 MHz	-60.0 ± 0.5 dBm
Bot 270	1090.0 ± 0.1 MHz	-66.0 ± 0.5 dBm

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 21 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-60.0 ± 2.25 dBm	6.0 ± 2.75 dBm	0	0	0
OPR LIM	≤ 1	-60.0 ± 2.5 dBm	6.0 ± 2.75 dBm	0	0	0

4.22.6.12 Bottom 180/270 (-60/-66 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	1090.0 ± 0.1 MHz	-60.0 ± 0.5 dBm
Bot 270	1090.0 ± 0.1 MHz	-66.0 ± 0.5 dBm

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 21 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	21 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-60.0 ± 2.25 dBm	6.0 ± 2.75 dBm	0	0	0
OPR LIM	≤ 1	-60.0 ± 2.5 dBm	6.0 ± 2.75 dBm	0	0	0

4.22.6.13 Bottom 180/270 (-48/-57 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Bot 270	1090.0 ± 0.1 MHz	-57.0 ± 0.5 dBm

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Bottom	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-48.0 ± 2.25 dBm	9.0 ± 2.75 dBm	0	0	0
OPR LIM	0	-48.0 ± 2.0 dBm	9.0 ± 2.75 dBm	0	0	0

4.22.6.14 Bottom 180/270 (-48/-57 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Bot 270	1090.0 ± 0.1 MHz	-57.0 ± 0.5 dBm

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-48.0 ± 2.25 dBm	9.0 ± 2.75 dBm	0	0	0
OPR LIM	0	-48.0 ± 2.5 dBm	9.0 ± 2.75 dBm	0	0	0

4.22.6.15 Bottom 180/270 (-48/-57 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm
Bot 270	1090.0 ± 0.1 MHz	-57.0 ± 0.5 dBm

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-48.0 ± 2.25 dBm	9.0 ± 2.75 dBm	0	0	0
OPR LIM	0	-48.0 ± 2.5 dBm	9.0 ± 2.75 dBm	0	0	0

4.22.6.16 Bottom 180/270 (-36/-48 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	1090.0 ± 0.1 MHz	-36.0 ± 0.5 dBm
Bot 270	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Bottom	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.6.17 Bottom 180/270 (-36/-48 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	1090.0 ± 0.1 MHz	-36.0 ± 0.5 dBm
Bot 270	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 1 1 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.6.18 Bottom 180/270 (-36/-48 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	1090.0 ± 0.1 MHz	-36.0 ± 0.5 dBm
Bot 270	1090.0 ± 0.1 MHz	-48.0 ± 0.5 dBm

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.6.19 Bottom 180/270 (-24/-25 dBm, 1090 MHz, ATCRBS) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	1090.0 ± 0.1 MHz	-24.0 ± 0.5 dBm
Bot 270	1090.0 ± 0.1 MHz	-25.0 ± 0.5 dBm

ATCRBS replies will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: “***EITST P1 2 0 0 0 12 0 86 0 0***”

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Bottom	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: “***RBL P1 3E0000 3E0C7C”***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.6.20 Bottom 180/270 (-24/-25 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	1090.0 ± 0.1 MHz	-24.0 ± 0.5 dBm
Bot 270	1090.0 ± 0.1 MHz	-25.0 ± 0.5 dBm

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 0"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.6.21 Bottom 180/270 (-24/-25 dBm, 1090 MHz, MODE-S, DF11, Atten On) Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	1090.0 ± 0.1 MHz	-24.0 ± 0.5 dBm
Bot 270	1090.0 ± 0.1 MHz	-25.0 ± 0.5 dBm

MODE-S DF11 Squitters will be injected into the UUT from these ports simultaneously.

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: ***"EITST P1 2 0 1 1 12 0 86 0 1"***

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Bottom	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	0	-	-	-	-	-
OPR LIM	0	-	-	-	-	-

4.22.6.22 Bot 180 (-90 dBm, 1090 MHz, MODE-S, DF17) ADS-B Sub MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	1090.0 ± 0.1 MHz	-90.0 ± 0.5 dBm
Bot 270	-	-

DF17 squitters will be injected into the UUT Bot 180 Ant port at MTL – 3dB.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 1 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Bot	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	< 85	-	-	-	-	-
OPR LIM	< 85	-	-	-	-	-

4.22.6.23 Bot 180 (-87 dBm, 1089 MHz, MODE-S, DF17) ADS-B MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	1089.0 ± 0.1 MHz	-87.0 ± 0.5 dBm
Bot 270	-	-

DF17 squitters will be injected into the UUT Bot 180 Ant port at MTL.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 1 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Bot	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 10**	**-**	**-**	**-**	**-**	**-**
OPR LIM	**≤ 10**	**-**	**-**	**-**	**-**	**-**

4.22.6.24 Bot 180 (-87 dBm, 1090 Mhz, MODE-S, DF17) ADS-B MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**1090.0 ± 0.1 MHz**	**-87.0 ± 0.5 dBm**
Bot 270	**-**	**-**

DF17 squitters will be injected into the UUT Bot 180 Ant port at MTL.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	**0xAAAAAAAA**	**0x555555**	**0x8E5A06**

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 1 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	**Bot**	**Narrow**	**31 ms**	**On**	**47**	**38**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 10**	**-**	**-**	**-**	**-**	**-**
OPR LIM	**≤ 10**	**-**	**-**	**-**	**-**	**-**

4.22.6.25 Bot 180 (-87 dBm, 1091 MHz, MODE-S, DF17) ADS-B MTL Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**1091.0 ± 0.1 MHz**	**-87.0 ± 0.5 dBm**
Bot 270	**-**	**-**

DF17 squitters will be injected into the UUT Bot 180 Ant port at MTL.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	**0xAAAAAAAA**	**0x555555**	**0x8E5A06**

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 1 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	**Bot**	**Narrow**	**31 ms**	**On**	**47**	**38**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 10**	**-**	**-**	**-**	**-**	**-**
OPR LIM	**≤ 10**	**-**	**-**	**-**	**-**	**-**

4.22.6.26 Bot 180 (-84 dBm, 1090 MHz, MODE-S, DF17) ADS-B Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	1090.0 ± 0.1 MHz	-84.0 ± 0.5 dBm
Bot 270	-	-

DF17 squitters will be injected into the UUT Bot 180 Ant port at MTL + 3dB

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 1 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Bot	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-	-	-	-	-
OPR LIM	≤ 1	-	-	-	-	-

4.22.6.27 Bot 180 (-75 dBm, 1090 MHz, MODE-S, DF17) ADS-B Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	-	-
Bot 0	-	-
Bot 90	-	-
Bot 180	1090.0 ± 0.1 MHz	-75.0 ± 0.5 dBm
Bot 270	-	-

DF17 squitters will be injected into the UUT Bot 180 Ant port at an intermediate power level.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	0xAAAAAAAA	0x555555	0x8E5A06

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: “***EITST P1 2 1 2 1 31 1 47 38 0***”

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	Bot	Narrow	31 ms	On	47	38	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: “***RBL P1 3E0000 3E0C7C”***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≤ 1	-	-	-	-	-
OPR LIM	≤ 1	-	-	-	-	-

4.22.6.28 Bot 180 (-24 dBm, 1090 MHz, MODE-S, DF17) ADS-B Test

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**-**	**-**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**1090.0 ± 0.1 MHz**	**-24.0 ± 0.5 dBm**
Bot 270	**-**	**-**

DF17 squitters will be injected into the UUT Bot 180 Ant port at a high power level.

Step 2. Configure the EIT station to transmit 100 MODE-S, DF17 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	ME (Bytes 5-8) Word1	ME (Bytes 9-11) Word2	CRC Word3
0x88555555	**0xAAAAAAAA**	**0x555555**	**0x8E5A06**

Notes:

1. DF = Format, CA = Xpdr Capability, AA = Addressed Announced, ME = Ext Sqtr Msg

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0x000000

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 1 2 1 31 1 47 38 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ADS-B	**Bot**	**Narrow**	**31 ms**	**On**	**47**	**38**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 1**	**-**	**-**	**-**	**-**	**-**
OPR LIM	**≤ 1**	**-**	**-**	**-**	**-**	**-**

4.22.7 TCAS Top 270 Receiver Tests [Group 62]

4.22.7.1 Top 270 (-17 dBm, 1065 MHz, ATCRBS) Out Of Band Rejection Test

This test verifies the ability of the receiver to reject an out of band reply at 1065 MHz, which is 60 dB larger in amplitude than MTL.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	1065.0 ± 0.1 MHz	-17.0 ± 0.5 dBm
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 5	-	-	-	-	-
OPR LIM	≥ 1	-	-	-	-	-

4.22.7.2 Top 270 (-17 dBm, 1115 MHz, ATCRBS) Out Of Band Rejection Test

This test verifies the ability of the receiver to reject an out of band reply at 1115 MHz, which is 60 dB larger in amplitude than MTL.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	1115.0 ± 0.1 MHz	-17.0 ± 0.5 dBm
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 10 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 5	-	-	-	-	-
OPR LIM	≥ 1	-	-	-	-	-

4.22.7.3 Top 270 (-81 dBm, 1090 MHz, ATCRBS) Sub MTL Test

This test verifies that no more than 10% replies shall be decoded for an input signal level of -81 dBm injected into the Top 270 Ant port. The RF level would be equivalent to -78 dBm at the antenna assuming 3 dB of cable loss.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	1090.0 ± 0.1 MHz	-81.0 ± 0.5 dBm
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 90	-	-	-	-	-
OPR LIM	≥ 90	-	-	-	-	-

4.22.7.4 Top 270 (-81 dBm, 1090 MHz, MODE-S, DF11, Atten Off) Sub MTL Test

This test verifies that no more than 10% replies shall be decoded for an input signal level of -81 dBm injected into the Top 270 Ant port. The RF level would be equivalent to -78 dBm at the antenna assuming 3 dB of cable loss.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	1090.0 ± 0.1 MHz	-81.0 ± 0.5 dBm
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 1 1 12 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: "***RBL P1 3E0000 3E0C7C***"

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	≥ 90	-	-	-	-	-
OPR LIM	≥ 90	-	-	-	-	-

4.22.7.5 Top 270 (-81 dBm, 1090 MHz, MODE-S, DF11, Atten On) Sub MTL Test

This test verifies that no more than 10% replies shall be decoded for an input signal level of -81 dBm injected into the Top 270 Ant port. The RF level would be equivalent to -78 dBm at the antenna assuming 3 dB of cable loss.

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	-	-
Top 90	-	-
Top 180	-	-
Top 270	1090.0 ± 0.1 MHz	-81.0 ± 0.5 dBm
Bot 0	-	-
Bot 90	-	-
Bot 180	-	-
Bot 270	-	-

Step 2. Configure the EIT station to transmit 10 MODE-S, DF11 squitters upon receipt of the Pretrigger signal with a data pattern as follows:

DF/CA/AA (Bytes 1- 4) Word0	CRC Word1
0x58123456	0x6944A900

Notes:

1. DF = Format, CA = Transponder Capability, AA = Addressed Announced

2. The CRC is computed so that the PI (Parity Interrogator Identity) value = 0xAAAAAA

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 1 1 12 0 86 0 1***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
MODE-S	Top	Narrow	12 ms	Off	86	0	On

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 MODE-S, DF-11 squitters from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: “***RBL P1 3E0000 3E0C7C”***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≥ 90**	**-**	**-**	**-**	**-**	**-**
OPR LIM	**≥ 90**	**-**	**-**	**-**	**-**	**-**

4.22.7.6 Top 270 (-75 dBm, 1087 MHz, ATCRBS) MTL Test

This test will verify the following for a signal injected into the Top 270 port at 1087 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Top 270 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Ant Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**1087.0 ± 0.1 MHz**	**-75.0 ± 0.5 dBm**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: “***EITST P1 2 0 0 0 21 0 86 0 0***”

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	**Top**	**Wide**	**21 ms**	**Off**	**86**	**0**	**Off**

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: “***RBL P1 3E0000 3E0C7C”***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 10**	**-75.0 ± 2.25 dBm**	**-**	**-**	**0**	**-**
OPR LIM	**≤ 10**	**-75.0 ± 2.5 dBm**	**-**	**-**	**0**	**-**

4.22.7.7 Top 270 (-75 dBm, 1090 MHz, ATCRBS) MTL Test

This test will verify the following for a signal injected into the Top 270 port at 1090 MHz:

- Decoding ratio is at least 90% for largest acceptable MTL at the Top 270 Ant port

Step 1. Configure the EIT station UUT Rx paths as follows:

Antenna Port	Frequency	RF Level
Top 0	**-**	**-**
Top 90	**-**	**-**
Top 180	**-**	**-**
Top 270	**1090.0 ± 0.1 MHz**	**-75.0 ± 0.5 dBm**
Bot 0	**-**	**-**
Bot 90	**-**	**-**
Bot 180	**-**	**-**
Bot 270	**-**	**-**

Step 2. Configure the EIT station to transmit 100 ATCRBS replies upon receipt of the Pretrigger signal with data pulse widths of 500 ± 50 ns and consisting of the following ATCRBS reply data pattern:

F1	C1	A1	C2	A2	C4	A4	X	B1	D1	B2	D2	B4	D4	F2	SPI
1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0

Step 3. Setup the UUT for squitter listening by sending the HTS command: "***EITST P1 2 0 0 0 21 0 86 0 0***"

This will configure squitter listening with the following attributes:

Type	Antenna	Band	Listening Window	Filter Enable	MOPS MTL	ADSB MTL	Attenuator
ATCRBS	Top	Wide	21 ms	Off	86	0	Off

Upon receipt of this command, HTS will the toggle the Pretrigger discrete which initiates transmission of 100 ATCRBS replies from the EIT station.

Step 4. After transmission/reception has occurred, read the UUT squitter reply queue by executing the following HTS command: ***"RBL P1 3E0000 3E0C7C"***

Step 5. Verify the following:

	Missed Replies	Total Avg CV	Total Avg PD	Z	N	S
MFG LIM	**≤ 10**	**-75.0 ± 2.25 dBm**	**-**	**-**	**0**	**-**
OPR LIM	**≤ 10**	**-75.0 ± 2.0 dBm**	**-**	**-**	**0**	**-**