



## Test Report

Prepared for: FLYHT Aerospace Solutions Ltd.

Model: AFIRS 228S Automated Flight Information Reporting System

**Description:** Dual Channel Satcom System that incorporates simultaneous operation of embedded radios.

**Serial Number:** 5012

**FCC ID:** 2ABRJ-228S

**To**

**FCC Part 25**

**Date of Issue:** October 2, 2015

**On the behalf of the applicant:** FLYHT Aerospace Solutions Ltd.  
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**Alex Macon**  
Project Test Engineer

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### Test Report Revision History

Revision	Date	Revised By	Reason for Revision
1.0	9/3/15	Alex Macon	Original Document
2.0	9/23/15	Amanda Reed	Removed references to notch and high-pass filters on page 6. Updated contact information & address on cover page
3.0	9/29/15	Diana Williams	Added second FCC ID.
4.0	10/2/15	Diana Williams	Corrected FCC ID and Description.



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ILAC / A2LA

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The tests results contained within this test report all fall within our scope of accreditation, unless noted in the table below.

Please refer to <http://www.compliancetesting.com/labscope.html> for current scope of accreditation.

Testing Certificate Number: **2152.01**



**FCC Site Reg. #349717**

**IC Site Reg. #2044A-2**

**Non-accredited tests contained in this report:**

**N/A**



## Standard Test Conditions and Engineering Practices

Unless otherwise indicated, the procedures contained in ANSI C63.4-2009 were observed during testing.

Prior to testing, the EUT was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst case measurement.

Unless otherwise indicated in the specific measurement results, the ambient temperature was maintained within the range of 10° to 40°C (50° to 104°F) and the relative humidity levels were in the range of 10% to 90%.

Environmental Conditions		
Temperature (°C)	Humidity (%)	Pressure (mbar)
23.2 – 25.1	32.4 – 41.2	967.5 – 971.2

## Test and Measurement Data

All tests and measurement data shown were performed in accordance with FCC Rules and Regulations, Volume II; Part 2 and the following individual Parts: FCC Part 25 Satellite Communications.

Prior to testing the EUT was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst case measurements.

## EUT Description

**Model:** AFIRS 228S Automated Flight Information Reporting System

**Description:** Dual Channel Satcom System that incorporates simultaneous operation of embedded radios.

**SN:** 5012

**Firmware:** N/A

### Additional Information:

Dual channel satcom system used in aircrafts. This report is intended to be a C2PC in order to remove the colocation restriction on this device and allow simultaneous operation of embedded radios.

## EUT Operation during Tests

EUT is placed into a modulated transmit mode which the manufacturer supplied.

Both Modems were synced and transmitting at full power during testing.

**Accessories:** None

**Cables:** None

**Modifications:** None



## Emissions Limitations for Mobile Earth Stations

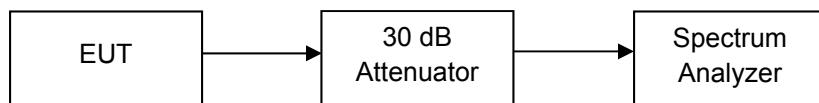
Engineer: Alex Macon

Test Date: 8/31/15

### Test Procedure

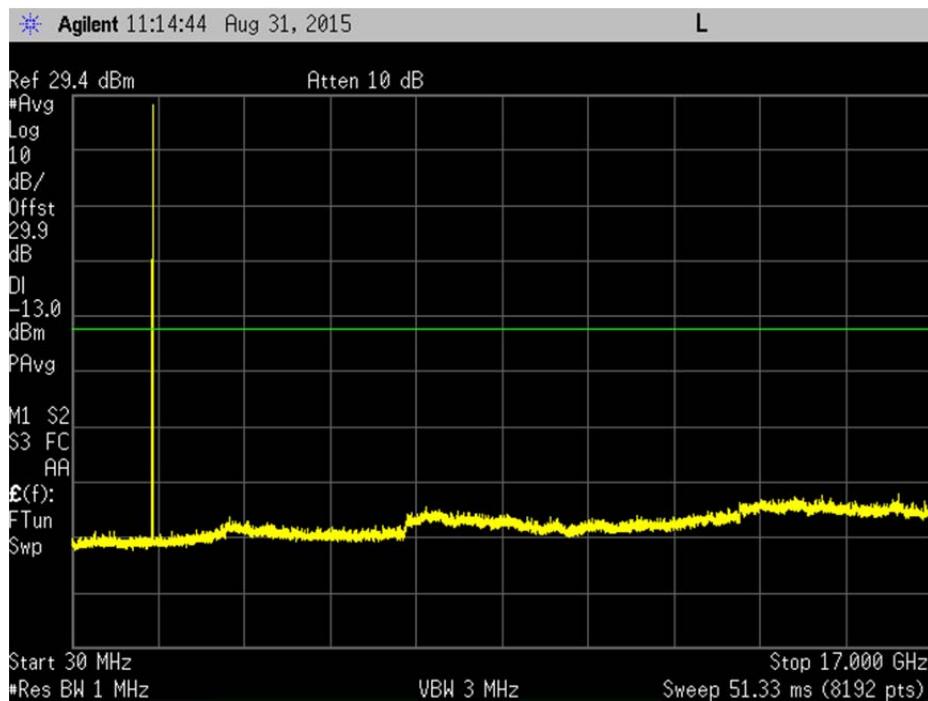
The EUT was connected directly to a spectrum analyzer and the conducted spurious emissions were measured to ensure that the EUT met the requirements specified. Only the worst case emission at each frequency was reported. These losses in addition to cable losses were input into the analyzer as a reference level offset to ensure accurate measurements were obtained. Section 25.202(f)(3)

### Test Setup



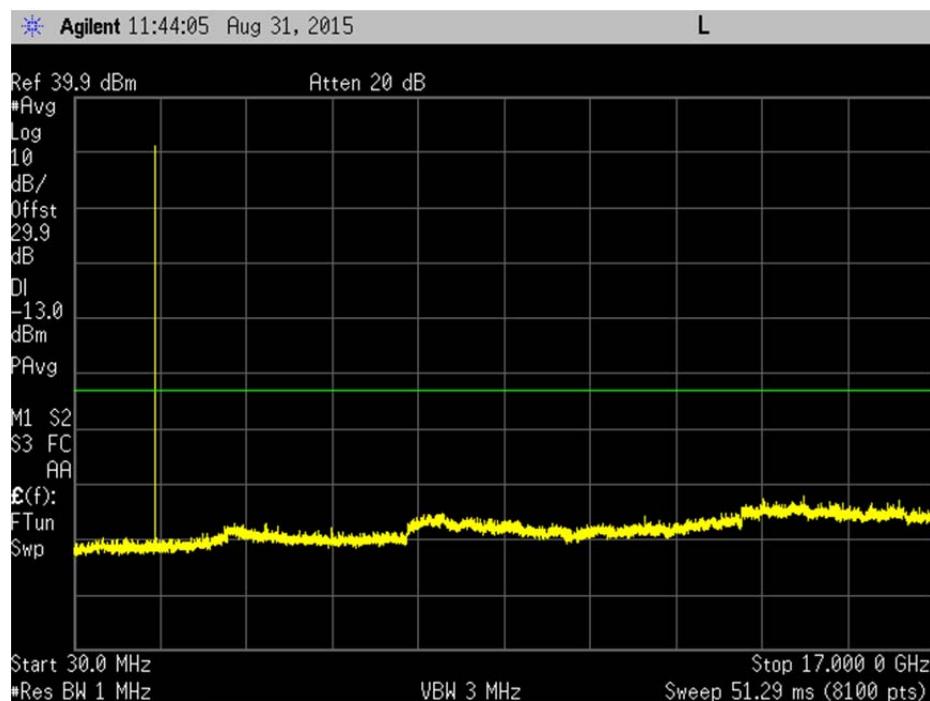
Tuned Frequency (MHz)	Result	Comments
1616.02	Pass	See Plots
1620.98	Pass	See Plots
1625.98	Pass	See Plots

### Emissions Limitations Plot 1616.02 and 1616.31 MHz

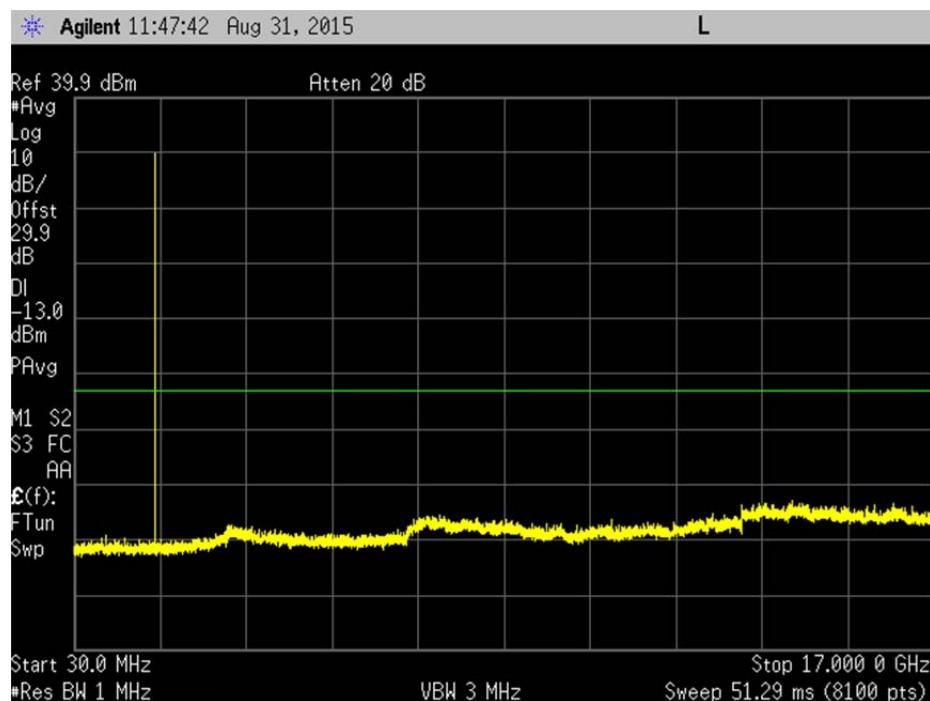




### Emissions Limitations Plot 1620.68 and 1620.98 MHz



### Emissions Limitations Plot 1625.68 and 1625.98 MHz





**Emissions Limits for Mobile Earth Stations**

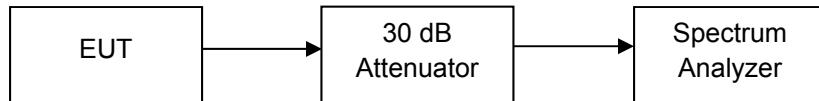
**Engineer:** Alex Macon

**Test Date:** 8/31/15

**Test Procedure**

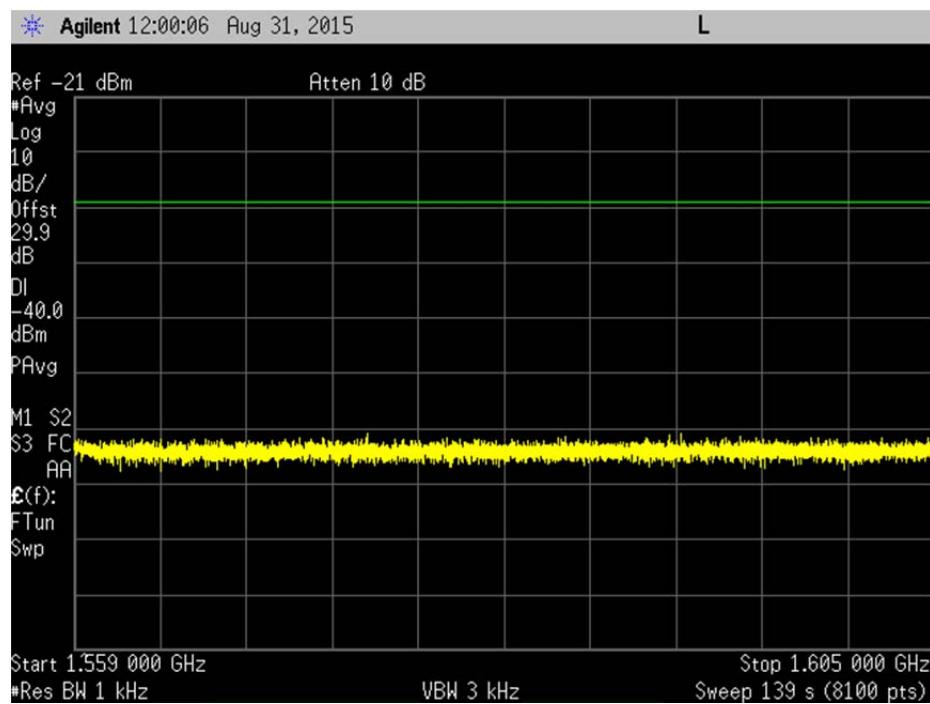
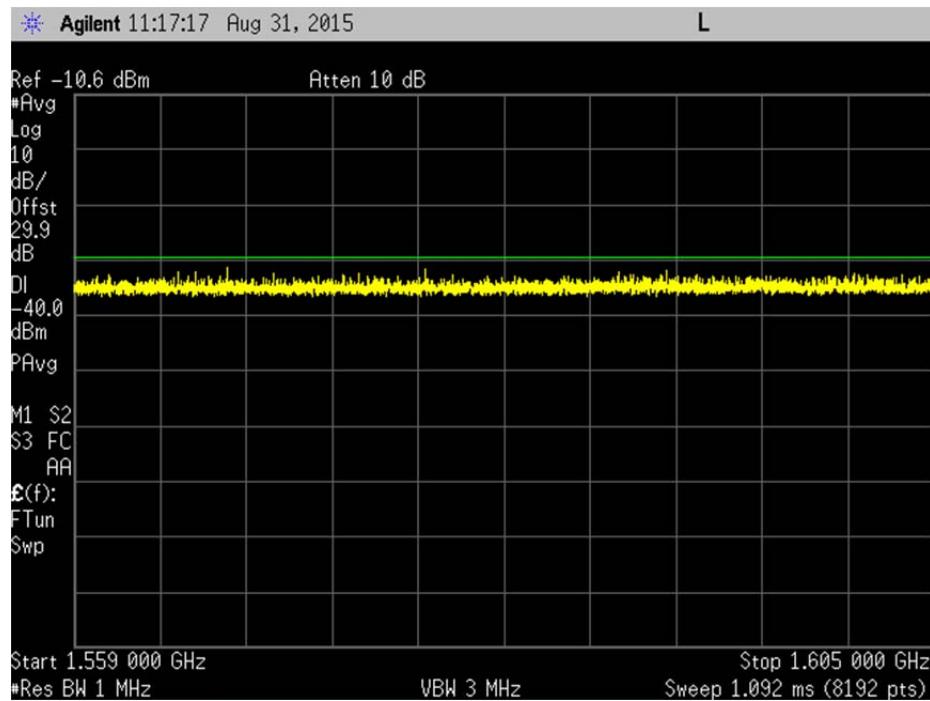
The EUT was connected directly to a spectrum analyzer to verify that the EUT met the requirements for emission limits. Attenuator, cable losses and antenna gain were input into the analyzer as a reference level offset and a correction factor to ensure accurate measurements were obtained.

**Test Setup**



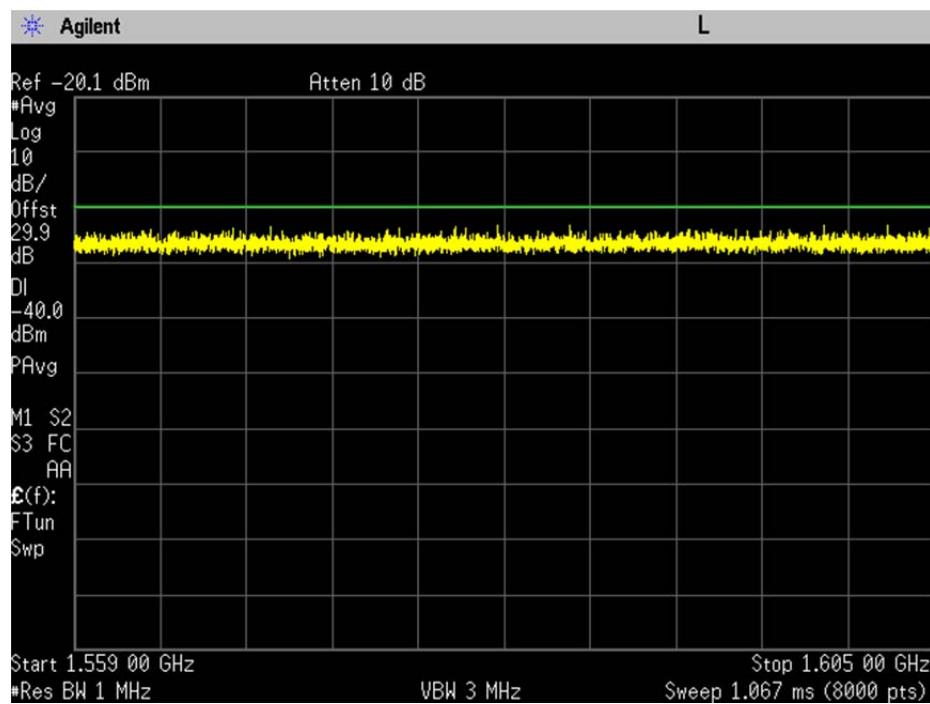
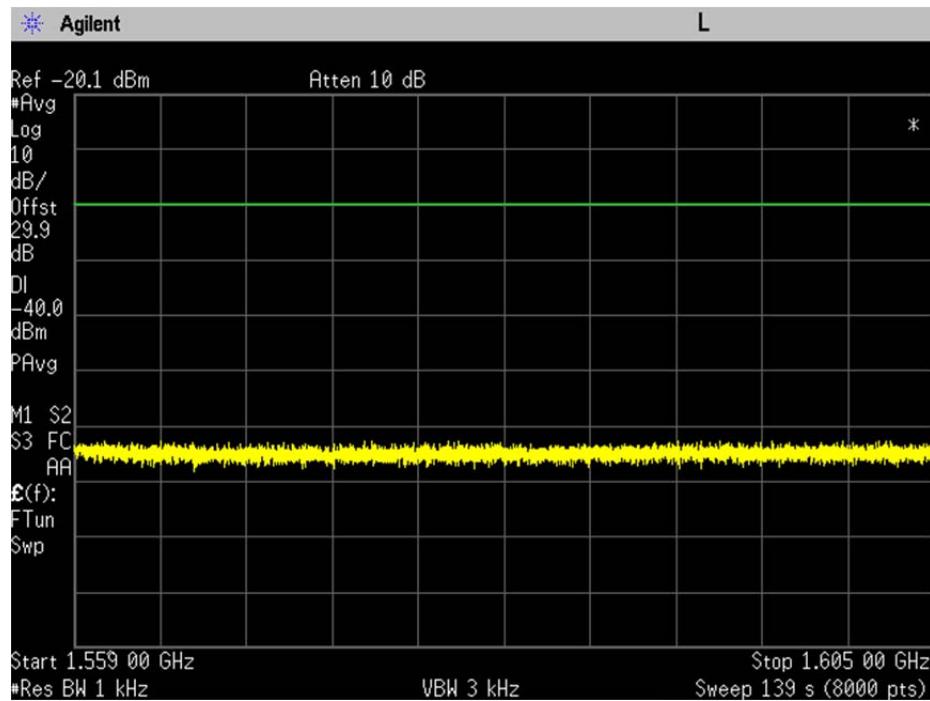


25.216(c) low channels



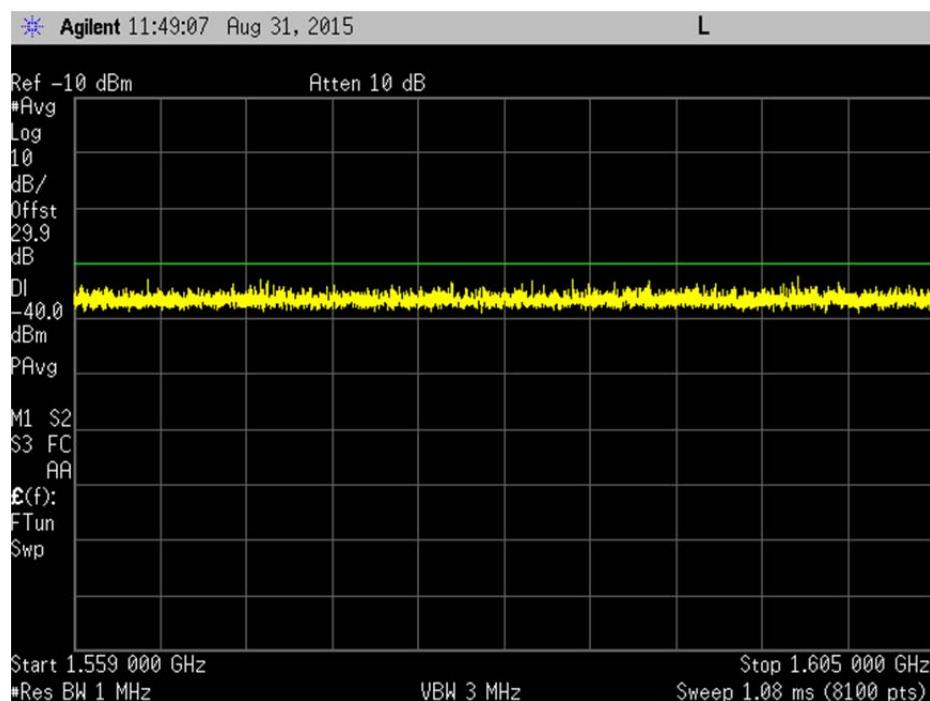
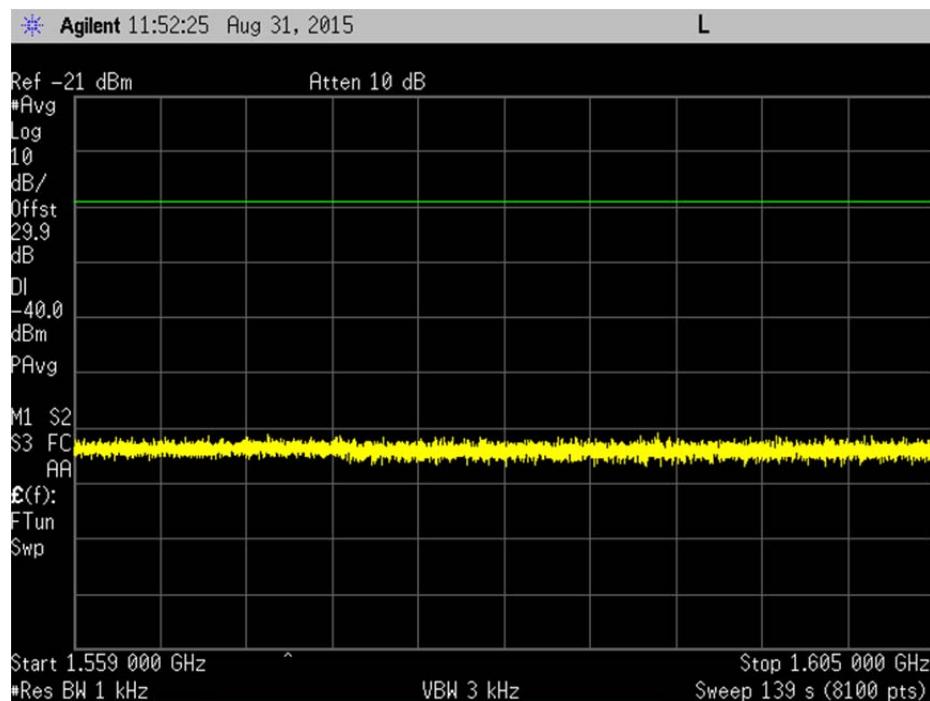


25.216(c) mid channels



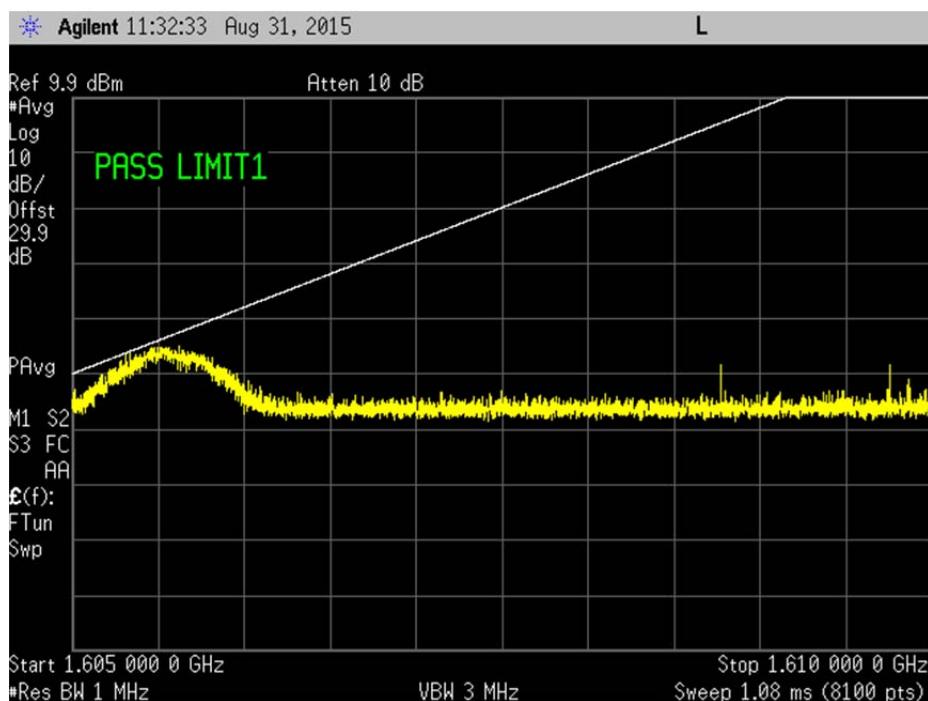
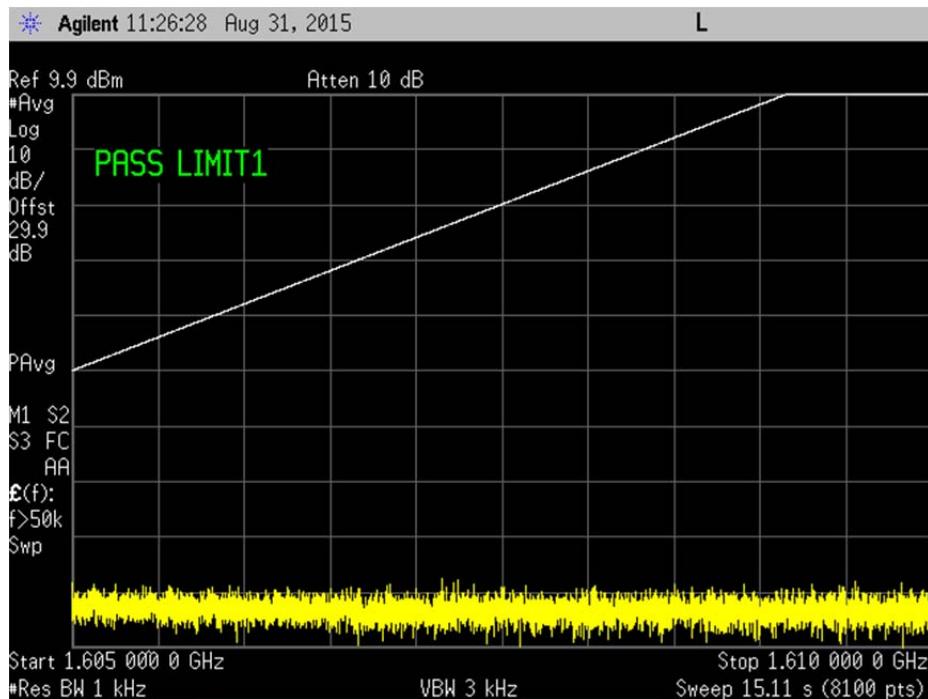


25.216(c) mid channels



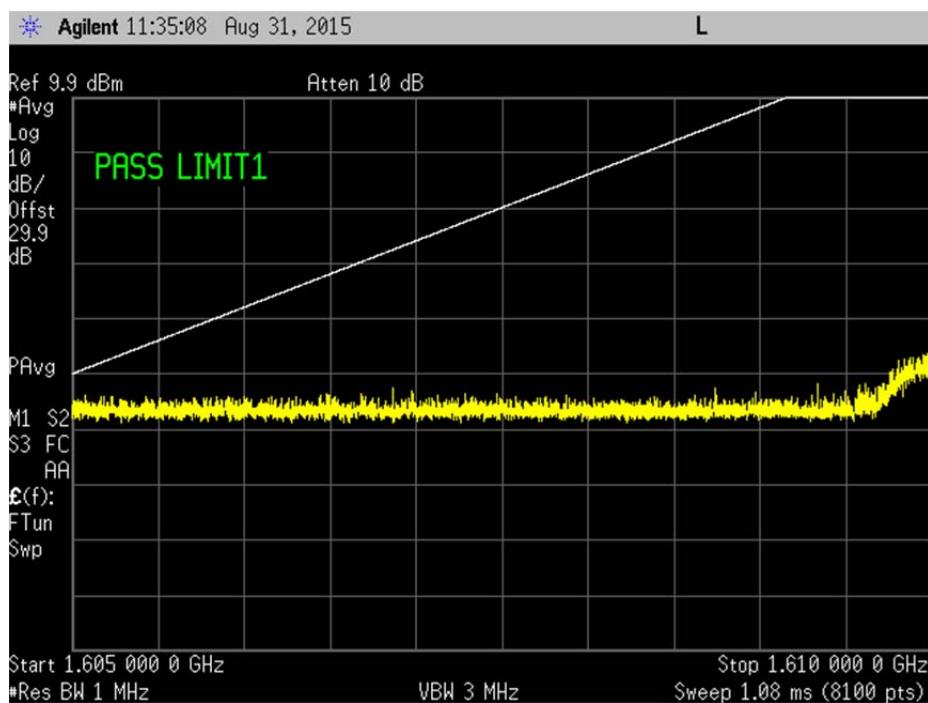


25.216(g) Low channels



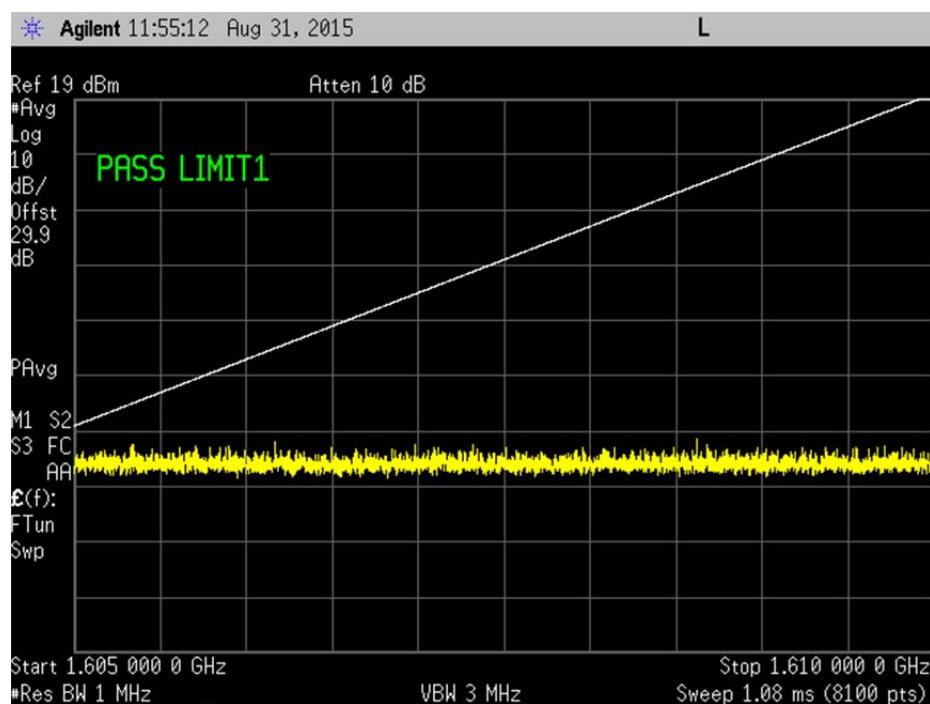
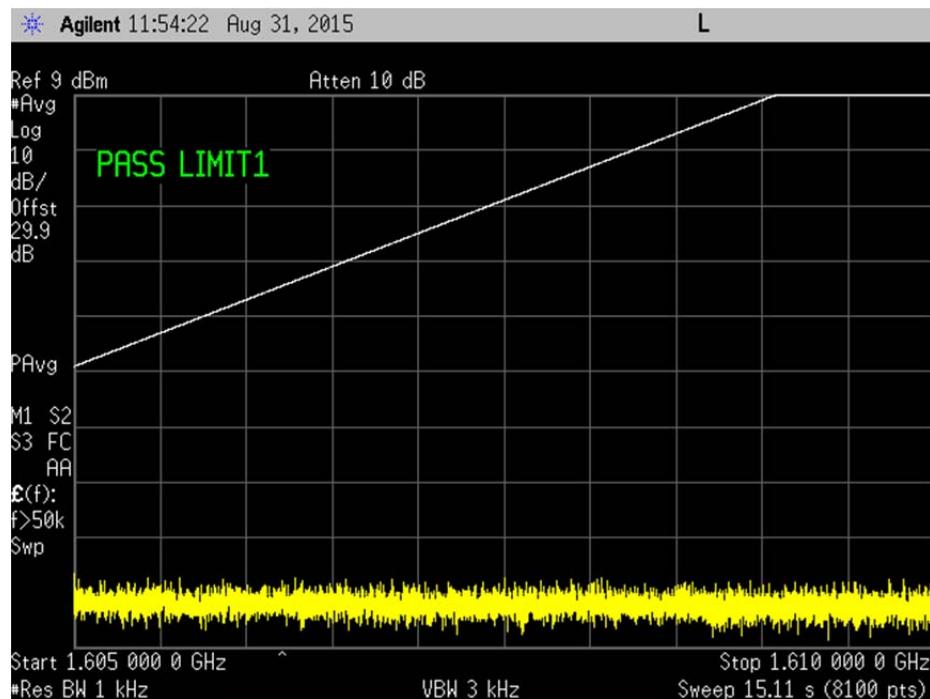


25.216(g) Mid channels





25.216(g) High channels





**Test Equipment Utilized**

<b>Description</b>	<b>Manufacturer</b>	<b>Model #</b>	<b>CT Asset #</b>	<b>Last Cal Date</b>	<b>Cal Due Date</b>
Function Generator	HP	33120A	i00118	Verified on: 8/31/15	
Humidity / Temp Meter	Newport	IBTHX-W-5	i00282	4/1/15	4/1/16
Voltmeter	Fluke	87III	i00319	2/20/15	2/20/16
Power Supply	Yihua	PS 3010D	i00409	Verified on: 8/31/15	
Spectrum Analyzer	Agilent	E4448A	S/N:MY46180566	12/1/2014	12/1/2016

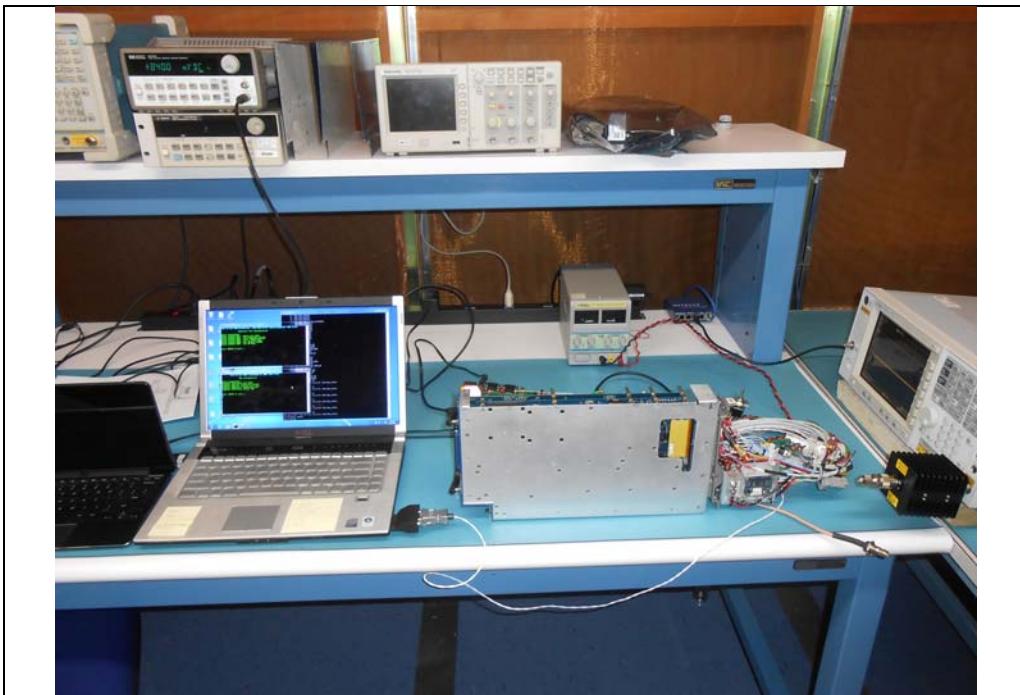
In addition to the above listed equipment standard RF connectors and cables were utilized in the testing of the described equipment. Prior to testing these components were tested to verify proper operation.

END OF TEST REPORT



**Test Setup Photos**  
FCC ID: Q639523

**RF Conducted #1**



**RF Conducted #2**

