



**DFS PORTION of FCC 47 CFR PART 15 SUBPART E
DFS PORTION of ISED CANADA RSS-247 ISSUE 2**

CERTIFICATION TEST REPORT

FOR

XV2-21X Wi-Fi 6 INDOOR DUAL BAND 802.11ax GbE 2x2 ACCESS POINT

MODEL NUMBER: XV2-21X

FCC ID: Z8H89FT0078

ISED ID: 109W-0078

REPORT NUMBER: 14472983-E1V1

ISSUE DATE: SEPTEMBER 14, 2022

Prepared for
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Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	09/14/22	Initial Issue	--

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS	5
2. TEST METHODOLOGY	6
3. SUMMARY OF TEST RESULTS.....	6
4. REFERENCE DOCUMENTS.....	6
5. FACILITIES AND ACCREDITATION	6
6. DECISION RULES AND MEASUREMENT UNCERTAINTY	7
6.1. METROLOGICAL TRACEABILITY	7
6.2. DECISION RULES.....	7
7. DYNAMIC FREQUENCY SELECTION.....	8
7.1. OVERVIEW	8
7.1.1. LIMITS.....	8
7.1.2. TEST AND MEASUREMENT SYSTEM.....	12
7.1.3. TEST AND MEASUREMENT SOFTWARE	15
7.1.4. TEST ROOM ENVIRONMENT	15
7.1.5. SETUP OF EUT.....	16
7.1.6. DESCRIPTION OF EUT	18
7.2. MASTER DEVICE RESULTS FOR 20 MHz BANDWIDTH	20
7.2.1. TEST CHANNEL	20
7.2.2. RADAR WAVEFORMS AND TRAFFIC.....	20
7.2.3. CHANNEL AVAILABILITY CHECK TIME.....	29
7.2.4. OVERLAPPING CHANNEL TESTS.....	29
7.2.5. MOVE AND CLOSING TIME	29
7.2.6. DETECTION BANDWIDTH.....	30
7.2.7. IN-SERVICE MONITORING	32
7.3. MASTER DEVICE RESULTS FOR 40 MHz BANDWIDTH	39
7.3.1. TEST CHANNEL	39
7.3.2. RADAR WAVEFORMS AND TRAFFIC.....	39
7.3.3. CHANNEL AVAILABILITY CHECK TIME.....	48
7.3.4. OVERLAPPING CHANNEL TESTS.....	48
7.3.5. MOVE AND CLOSING TIME	48
7.3.6. DETECTION BANDWIDTH.....	49
7.3.7. IN-SERVICE MONITORING	51
7.4. MASTER DEVICE RESULTS FOR 80 MHz BANDWIDTH	58
7.4.1. TEST CHANNEL	58
7.4.2. RADAR WAVEFORMS AND TRAFFIC.....	58
7.4.3. CHANNEL AVAILABILITY CHECK TIME.....	67
7.4.4. OVERLAPPING CHANNEL TESTS.....	72
7.4.5. MOVE AND CLOSING TIME	72
7.4.6. NON-OCCUPANCY PERIOD	77
7.4.7. DETECTION BANDWIDTH.....	78
7.4.8. IN-SERVICE MONITORING	80

7.5. BRIDGE MODE RESULTS88

7.6. MESH SLAVE RESULTS FOR 20 MHz BANDWIDTH.....89

7.6.1. TEST CHANNEL89

7.6.2. RADAR WAVEFORM AND TRAFFIC89

7.6.3. OVERLAPPING CHANNEL TESTS93

7.6.4. MOVE AND CLOSING TIME93

7.7. MESH SLAVE RESULTS FOR 40 MHz BANDWIDTH.....94

7.7.1. TEST CHANNEL94

7.7.2. RADAR WAVEFORM AND TRAFFIC94

7.7.3. OVERLAPPING CHANNEL TESTS98

7.7.4. MOVE AND CLOSING TIME98

7.8. MESH SLAVE RESULTS FOR 80 MHz BANDWIDTH.....99

7.8.1. TEST CHANNEL99

7.8.2. RADAR WAVEFORM AND TRAFFIC99

7.8.3. OVERLAPPING CHANNEL TESTS104

7.8.4. MOVE AND CLOSING TIME104

7.8.5. 30-MINUTE NON-OCCUPANCY PERIOD.....108

8. SETUP PHOTOS.....109

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: CAMBIUM NETWORKS, INC.
3800 GOLF RD., SUITE 360
ROLLING MEADOWS, IL., 60008, U.S.A.

EUT DESCRIPTION: XV2-21X Wi-Fi 6 INDOOR DUAL BAND 802.11ax GbE 2x2
ACCESS POINT

MODEL: XV2-21X

SERIAL NUMBER: W6YE0011RQL0 (MASTER DEVICE) and
W6YF003LV9G6 (MESH SLAVE DEVICE)

DATE TESTED: AUGUST 29 to 30, 2022

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
DFS Portion of CFR 47 Part 15 Subpart E	Complies
DFS Portion of ISED CANADA RSS-247 Issue 2	Complies

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document.

Approved & Released For
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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with the DFS portion of FCC CFR 47 Part 2, FCC CFR 47 Part 15, FCC KDB 789033, KDB 905462 D02 and D03 and RSS-247 Issue 2.

3. SUMMARY OF TEST RESULTS

Requirement Description	Result	Remarks
DFS Portion of FCC 47 CFR PART 15 SUBPART E	Complies	
DFS Portion of ISED CANADA RSS-247 ISSUE 2	Complies	

4. REFERENCE DOCUMENTS

Measurements of transmitter parameters as referenced in this report and all other manufacturer's declarations relevant to the RF test requirements are documented in Sporton Labs FCC report and IC report number #FR261023-01.

This report contains data provided by the customer which can impact the validity of results. UL Verification Services Inc. is only responsible for the validity of results after the integration of the data provided by the customer.

5. FACILITIES AND ACCREDITATION

UL Verification Services Inc. is accredited by A2LA, Certificate Number 0751.05, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
<input checked="" type="checkbox"/>	Building 1: 47173 Benicia Street, Fremont, California, USA	US0104	2324A	550739
	Building 2: 47266 Benicia Street, Fremont, California, USA	US0104	2324A	550739
	Building 4: 47658 Kato Rd, Fremont, California, USA	US0104	2324A	550739

6. DECISION RULES AND MEASUREMENT UNCERTAINTY

6.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

6.2. DECISION RULES

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4:2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement).

7. DYNAMIC FREQUENCY SELECTION

7.1. OVERVIEW

7.1.1. LIMITS

INNOVATION, SCIENCE and ECONOMIC DEVELOPMENT CANADA (ISED)

ISED RSS-247 is closely harmonized with FCC Part 15 DFS rules. The deviations are as follows:

RSS-247 Issue 2

Note: For the band 5600–5650 MHz, no operation is permitted.

Until further notice, devices subject to this annex shall not be capable of transmitting in the band 5600–5650 MHz. This restriction is for the protection of Environment Canada weather radars operating in this band.

FCC

§15.407 (h), FCC KDB 905462 D02 “COMPLIANCE MEASUREMENT PROCEDURES FOR UNLICENSED-NATIONAL INFORMATION INFRASTRUCTURE DEVICES OPERATING IN THE 5250-5350 MHz AND 5470-5725 MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION” and KDB 905462 D03 “U-NII CLIENT DEVICES WITHOUT RADAR DETECTION CAPABILITY”.

Table 1: Applicability of DFS requirements prior to use of a channel

Requirement	Operational Mode		
	Master	Client (without radar detection)	Client (with radar detection)
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode		
	Master	Client (without DFS)	Client (with DFS)
DFS Detection Threshold	Yes	Not required	Yes
Channel Closing Transmission Time	Yes	Yes	Yes
Channel Move Time	Yes	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required	Yes

Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar DFS	Client (without DFS)
<i>U-NII Detection Bandwidth and Statistical Performance Check</i>	All BW modes must be tested	Not required
<i>Channel Move Time and Channel Closing Transmission Time</i>	Test using widest BW mode available	Test using the widest BW mode available for the link
<i>All other tests</i>	Any single BW mode	Not required
<p>Note: Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in all 20 MHz channel blocks and a null frequency between the bonded 20 MHz channel blocks.</p>		

Table 3: Interference Threshold values, Master or Client incorporating In-Service Monitoring

Maximum Transmit Power	Value (see notes)
E.I.R.P. \geq 200 mill watt	-64 dBm
E.I.R.P. < 200 mill watt and power spectral density < 10 dBm/MHz	-62 dBm
E.I.R.P. < 200 mill watt that do not meet power spectral density requirement	-64 dBm
<p>Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response. Note 3: E.I.R.P. is based on the highest antenna gain. For MIMO devices refer to KDB publication 662911 D01.</p>	

Table 4: DFS Response requirement values

Parameter	Value
<i>Non-occupancy period</i>	30 minutes
<i>Channel Availability Check Time</i>	60 seconds
<i>Channel Move Time</i>	10 seconds (See Note 1)
<i>Channel Closing Transmission Time</i>	200 milliseconds + approx. 60 milliseconds over remaining 10 second period. (See Notes 1 and 2)
<i>U-NII Detection Bandwidth</i>	Minimum 100% of the U- NII 99% transmission power bandwidth. (See Note 3)
<p>Note 1: <i>Channel Move Time</i> and the <i>Channel Closing Transmission Time</i> should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. Note 2: The <i>Channel Closing Transmission Time</i> is comprised of 200 milliseconds starting at the beginning of the <i>Channel Move Time</i> plus any additional intermittent control signals required to facilitate a <i>Channel</i> move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions. Note 3: During the <i>U-NII Detection Bandwidth</i> detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.</p>	

Table 5 – Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (usec)	PRI (usec)	Pulses	Minimum Percentage of Successful Detection	Minimum Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in table 5a	Roundup: $\{(1/360) \times (19 \times 10^6 / \text{PRI}_{\text{usec}})\}$	60%	30
		Test B: 15 unique PRI values randomly selected within the range of 518-3066 usec. With a minimum increment of 1 usec, excluding PRI values selected in Test A			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120
Note 1: Short Pulse Radar Type 0 should be used for the <i>Detection Bandwidth</i> test, <i>Channel Move Time</i> , and <i>Channel Closing Time</i> tests.					

Table 6 – Long Pulse Radar Test Signal

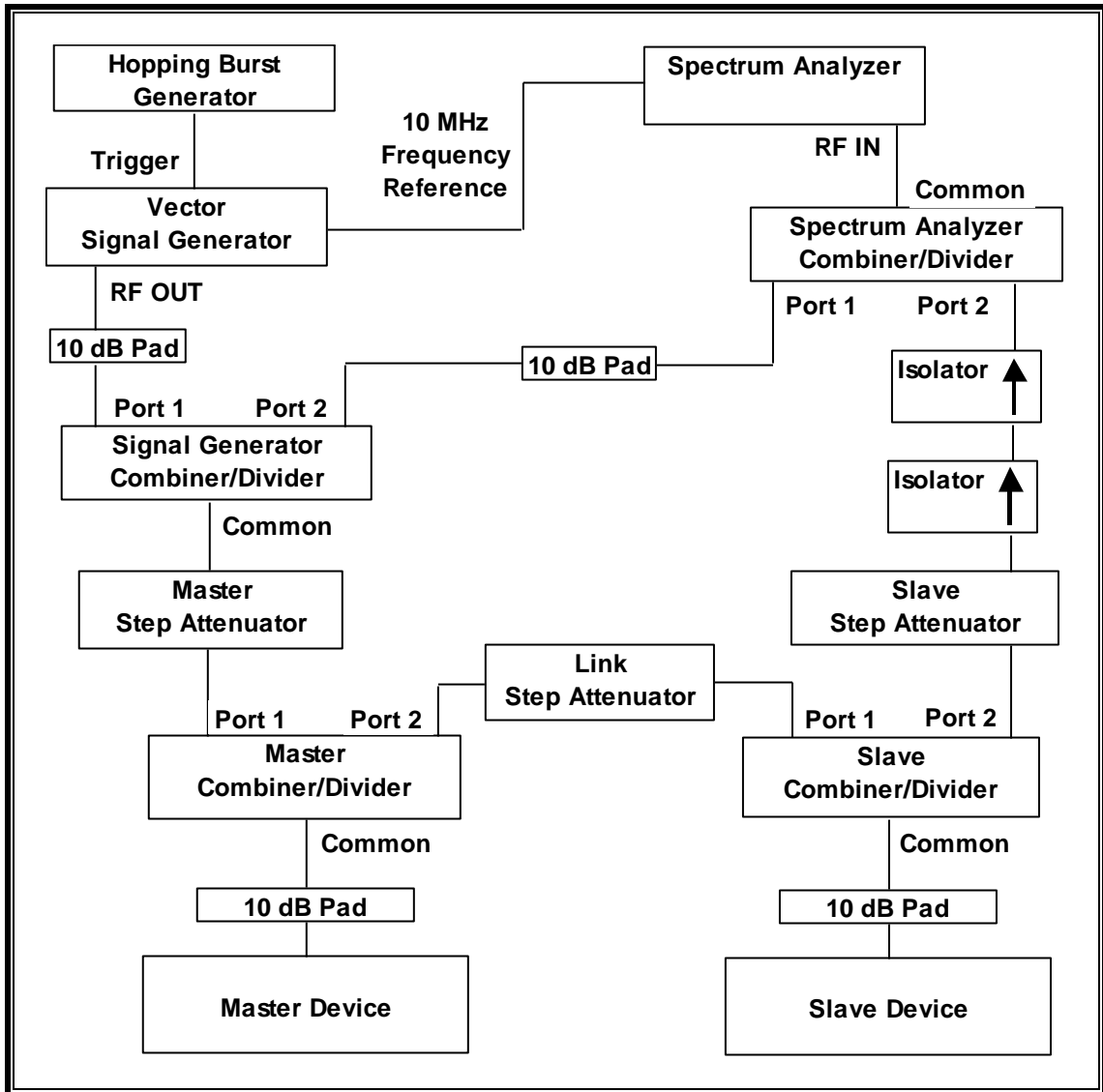
Radar Waveform Type	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

Table 7 – Frequency Hopping Radar Test Signal

Radar Waveform Type	Pulse Width (µsec)	PRI (µsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Trials
6	1	333	9	0.333	300	70%	30

7.1.2. TEST AND MEASUREMENT SYSTEM

CONDUCTED METHOD SYSTEM BLOCK DIAGRAM



SYSTEM OVERVIEW

The short pulse and long pulse signal generating system utilizes the NTIA software. The Vector Signal Generator has been validated by the NTIA. The hopping signal generating system utilizes the CCS simulated hopping method and system, which has been validated by the DoD, FCC and NTIA. The software selects waveform parameters from within the bounds of the signal type on a random basis using uniform distribution.

The short pulse types 1, 2, 3 and 4, and the long pulse type 5 parameters are randomized at run-time.

The hopping type 6 pulse parameters are fixed while the hopping sequence is based on the August 2005 NTIA Hopping Frequency List. The initial starting point randomized at run-time and each subsequent starting point is incremented by 475. Each frequency in the 100-length segment is compared to the boundaries of the EUT Detection Bandwidth and the software creates a hopping burst pattern in accordance with Section 7.4.1.3 Method #2 Simulated Frequency Hopping Radar Waveform Generating Subsystem of KDB 905462 D02. The frequency of the signal generator is incremented in 1 MHz steps from F_L to F_H for each successive trial. This incremental sequence is repeated as required to generate a minimum of 30 total trials and to maintain a uniform frequency distribution over the entire Detection Bandwidth.

The signal monitoring equipment consists of a spectrum analyzer. The aggregate ON time is calculated by multiplying the number of bins above a threshold during a particular observation period by the dwell time per bin, with the analyzer set to peak detection and max hold.

Should multiple RF ports be utilized for the Master and/or Slave devices (for example, for diversity or MIMO implementations), additional combiner/dividers are inserted between the Master Combiner/Divider and the pad connected to the Master Device (and/or between the Slave Combiner/Divider and the pad connected to the Slave Device). Additional pads may be utilized such that there is one pad at each RF port on each EUT.

SYSTEM CALIBRATION

A 50-ohm load is connected in place of the spectrum analyzer, and the spectrum analyzer is connected in place of the master device. The signal generator is set to CW mode. The amplitude of the signal generator is adjusted to yield a level of -64 dBm as measured on the spectrum analyzer.

Without changing any of the instrument settings, the spectrum analyzer is reconnected to the Common port of the Spectrum Analyzer Combiner/Divider. The Reference Level Offset of the spectrum analyzer is adjusted so that the displayed amplitude of the signal is -64 dBm.

The spectrum analyzer displays the level of the signal generator as received at the antenna ports of the Master Device. The interference detection threshold may be varied from the calibrated value of -64 dBm and the spectrum analyzer will still indicate the level as received by the Master Device.

ADJUSTMENT OF DISPLAYED TRAFFIC LEVEL

A link is established between the Master and Slave and the Link Step Attenuator between the units is adjusted as needed to provide a suitable received level at the Master and Slave devices. Traffic that meets or exceed the minimum loading requirement is streamed from the Master device to the Slave Device. The WLAN traffic level, as displayed on the spectrum analyzer, is confirmed to be at lower amplitude than the radar detection threshold and is confirmed to be the Radar Detection Device rather than the associated device. If a different setting of the Master Step Attenuator is required to meet the above conditions, a new System Calibration is performed for the new Master Step Attenuator setting.

TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

MASTER DEVICE

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	ID No.	Cal Due
Spectrum Analyzer, PXA, 3Hz to 8.4GHz	Keysight	N9030A	150667	01/27/23
Signal Generator, MXG X-Series RF Vector	Keysight	N5182B	215999	02/08/23
Frequency Extender	Keysight	N5182BX	213906	12/29/22
Arbitrary Waveform Generator	Agilent / HP	33220A	80815	01/24/23

MESH SLAVE DEVICE

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	ID No.	Cal Due
Spectrum Analyzer, PXA, 3Hz to 8.4GHz	Keysight	N9030A	150667	01/27/23
Signal Generator, MXG X-Series RF Vector	Keysight	N5182B	215999	02/08/23
Frequency Extender	Keysight	N5182BX	213906	12/29/22

Note: An MXG series Signal Generator and separate external Frequency Extender module are shown in the preceding test system block diagram as a stand-alone Vector Signal Generator.

7.1.3. TEST AND MEASUREMENT SOFTWARE

The following test and measurement software was utilized for the tests documented in this report:

MASTER DEVICE

TEST SOFTWARE LIST		
Name	Version	Test / Function
Aggregate Time-PXA	3.1	Channel Loading and Aggregate Closing Time
FCC 2014 Detection Bandwidth-PXA	3.1.1	Detection Bandwidth in 5 MHz Steps
In Service Monitoring-PXA	4.1	In-Service Monitoring (Probability of Detection)
PXA Read	3.1	Signal Generator Screen Capture
SGXProject.exe	1.7	Radar Waveform Generation and Download

MESH SLAVE DEVICE

TEST SOFTWARE LIST		
Name	Version	Test / Function
Aggregate Time-PXA	3.1	Channel Loading and Aggregate Closing Time
PXA Read	3.1	Signal Generator Screen Capture
SGXProject.exe	1.7	Radar Waveform Generation and Download

7.1.4. TEST ROOM ENVIRONMENT

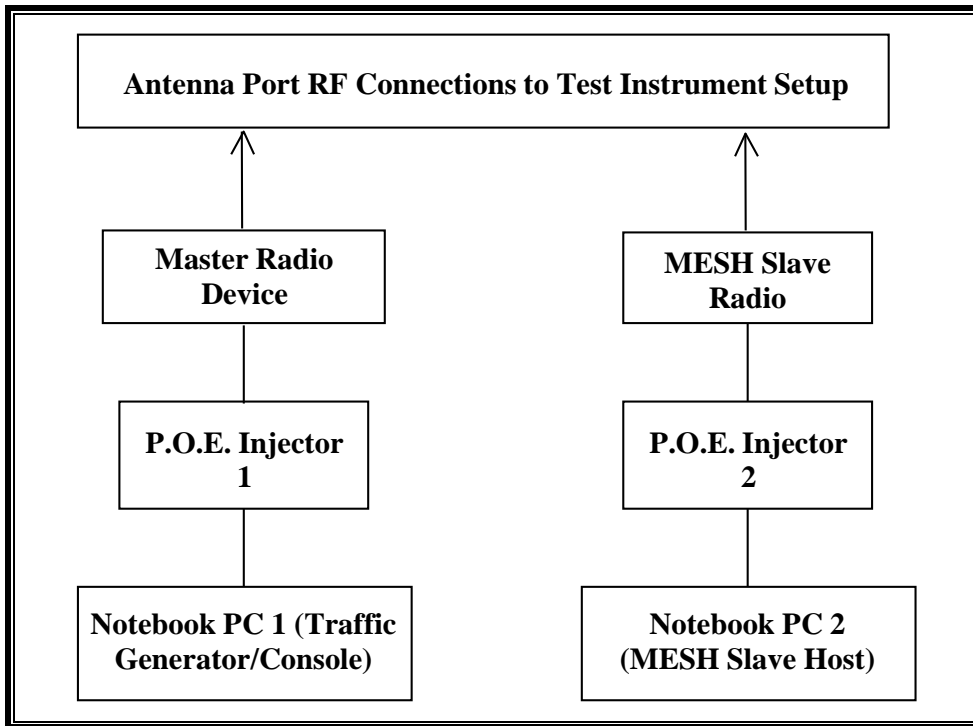
The test room temperature and humidity shall be maintained within normal temperature of 15~35 °C and normal humidity 20~75% (relative humidity).

ENVIRONMENT CONDITION

Parameter	Value
Temperature	23.3 and 23.2 °C
Humidity	56 and 57 %

7.1.5. SETUP OF EUT

CONDUCTED METHOD EUT TEST SETUP



SUPPORT EQUIPMENT

The following support equipment was utilized for the tests documented in this report:

MASTER DEVICE

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
P.O.E. Injector 1 (Master)	Cambium Networks	NET-P60-56IN	N000000L142A2153000 001	DoC
Notebook PC 1 (Master Console)	Lenovo	Type 4236-B92	PB-HEX04 12/05	DoC
AC Adapter 1 (Notebook PC 1)	Lenovo	42T4418	11S42T4418Z1ZGWWG0 8R90M	DoC
XV2-21X WiFi 6 Indoor Dual Band 802.11ax GbE 2x2 Access Point (MESH Slave Radio)	Cambium Networks	XV2-21X	W6YF003LV9G6	Z8H89FT0078
P.O.E. Injector 2 (MESH Slave)	Cambium Networks	NET-P60-56IN	N000000L142A2028000 0149	DoC
Notebook PC 2 (MESH Slave Host)	Lenovo	Type 20B7-S0A200	PF-02JN9J 14/06	DoC
AC Adapter 2 (Notebook PC 2)	Lenovo	ADLX65NLC2A	11S45N0259Z1ZS9745 94A9	DoC

MESH SLAVE DEVICE

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
P.O.E. Injector 1 (Master)	Cambium Networks	NET-P60-56IN	N000000L142A2153000 001	DoC
Notebook PC 1 (Master Console)	Lenovo	Type 4236-B92	PB-HEX04 12/05	DoC
AC Adapter 1 (Notebook PC 1)	Lenovo	42T4418	11S42T4418Z1ZGWWG0 8R90M	DoC
XV2-21X WiFi 6 Indoor Dual Band 802.11ax GbE 2x2 Access Point (Master Radio Device)	Cambium Networks	XV2-21X	W6YE0011RQL0	Z8H89FT0078
P.O.E. Injector 2 (MESH Slave)	Cambium Networks	NET-P60-56IN	N000000L142A2028000 0149	DoC
Notebook PC 2 (MESH Slave Host)	Lenovo	Type 20B7-S0A200	PF-02JN9J 14/06	DoC
AC Adapter 2 (Notebook PC 2)	Lenovo	ADLX65NLC2A	11S45N0259Z1ZS9745 94A9	DoC

7.1.6. DESCRIPTION OF EUT

For FCC the EUT operates over the 5250-5350 MHz and 5470-5725 MHz ranges.

For ISED the EUT operates over the 5250-5350 MHz and 5470-5725 MHz ranges, excluding the 5600-5650 MHz range.

The EUT can be configured as a Master Device or a Mesh Slave Device without Radar Detection.

The manufacturer has declared that the highest power level within these bands is 30 dBm EIRP in the 5250-5350 MHz band and 30 dBm EIRP in the 5470-5725 MHz band.

The manufacturer has declared that the highest gain antenna assembly utilized with the EUT has a gain of 5 dBi in the 5250-5350 MHz band and 5 dBi in the 5470-5725 MHz band. The manufacturer has declared that the lowest gain antenna assembly utilized with the EUT has a gain of 5 dBi in the 5250-5350 MHz band and 5 dBi in the 5470-5725 MHz band.

Two identical antennas are utilized to meet the diversity and MIMO operational requirements.

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is -64 dBm. After correction for antenna gain and procedural adjustments, the required conducted threshold at the antenna port is $-64 + 5 + 1 = -58$ dBm.

The calibrated conducted DFS Detection Threshold level is set to -63 dBm.

The EUT uses two transmitter/receiver chains, each connected to a 50-ohm coaxial antenna port. However, only one of the two antenna ports is equipped with radar detection capability therefore only one port was tested.

The Slave device associated with the EUT during these tests does not have radar detection capability.

WLAN traffic that meets or exceeds the minimum required loading was generated by transferring a data stream from the Master Device to the Slave Device using iPerf version 2.0.5 software package.

TPC is required since the maximum EIRP is greater than 500 mW (27 dBm).

The EUT utilizes the 802.11ax architecture. Three nominal channel bandwidths are implemented: 20 MHz, 40 MHz and 80 MHz.

Channel puncturing is not supported by the EUT.

The software installed in the EUT is revision 6.5-a0.

The software installed in the access point during Mesh Slave testing is revision 6.5-a0.

UNIFORM CHANNEL SPREADING

This function is not required per KDB 905462.

OVERVIEW OF MASTER DEVICE WITH RESPECT TO §15.407 (h) REQUIREMENTS

The Master Device is a Cambium XV2-21X WiFi 6 Indoor Dual Band 802.11ax GbE 2x2 Access Point, FCC ID: Z8H89FT0078. The minimum antenna gain for the Master Device is 5 dBi.

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is -64 dBm. After correction for antenna gain and procedural adjustments, the required conducted threshold at the antenna port is $-64 + 5 + 1 = -58$ dBm.

The calibrated conducted DFS Detection Threshold level is set to -63 dBm.

The software installed in the access point is revision 6.5-a0.

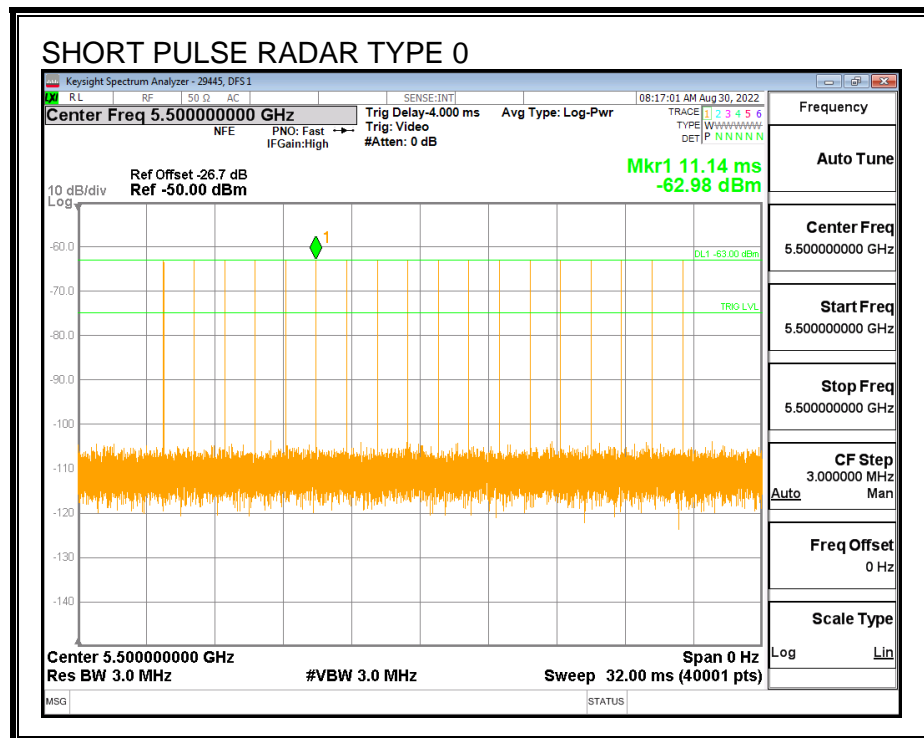
7.2. MASTER DEVICE RESULTS FOR 20 MHz BANDWIDTH

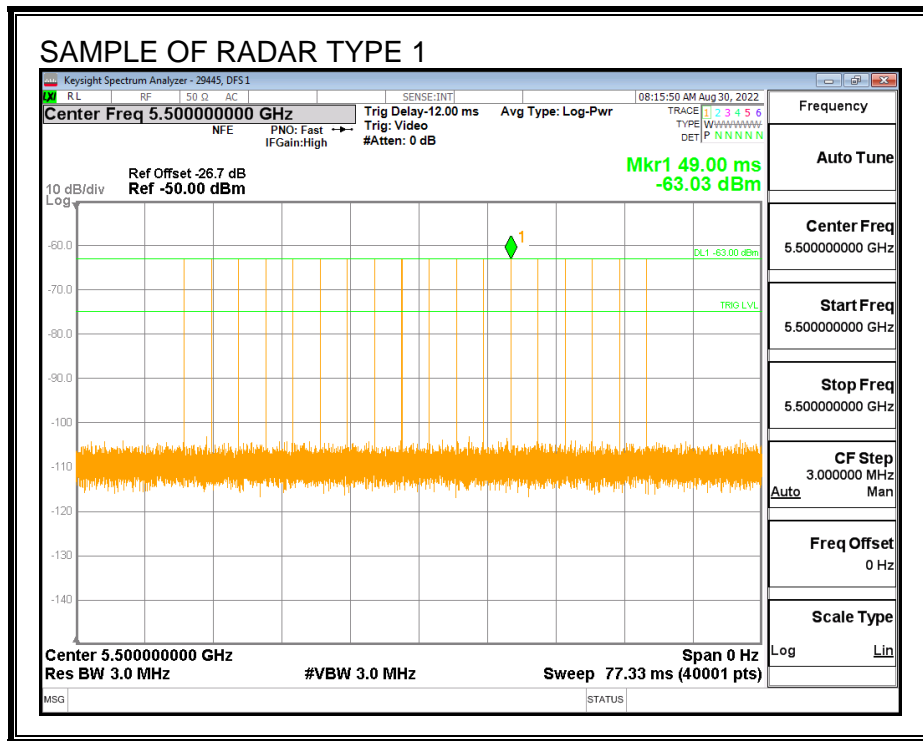
7.2.1. TEST CHANNEL

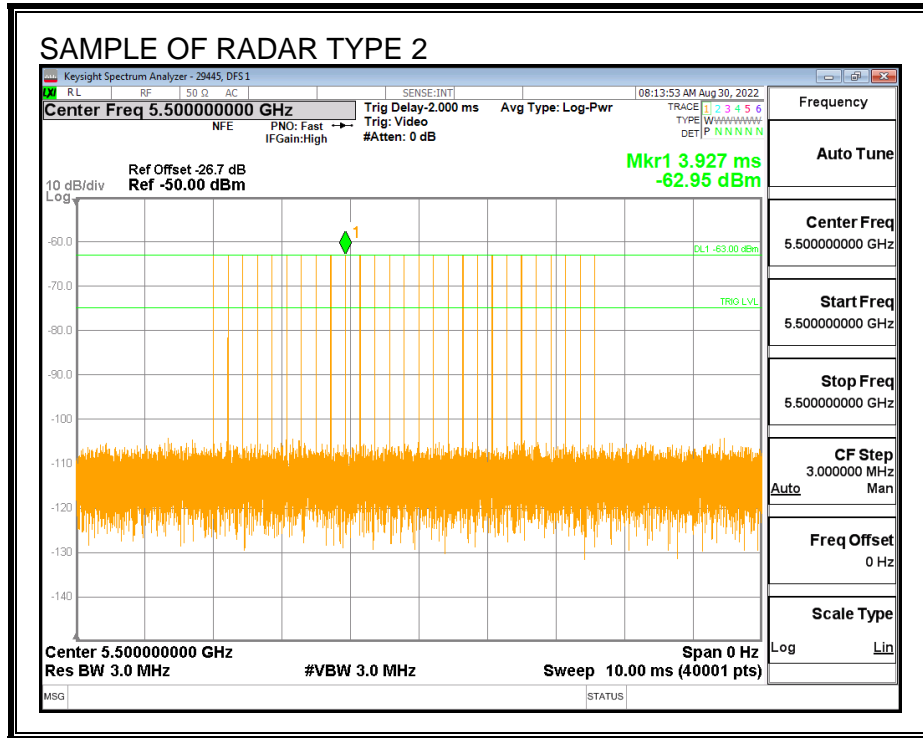
All tests were performed at a channel center frequency of 5500 MHz.

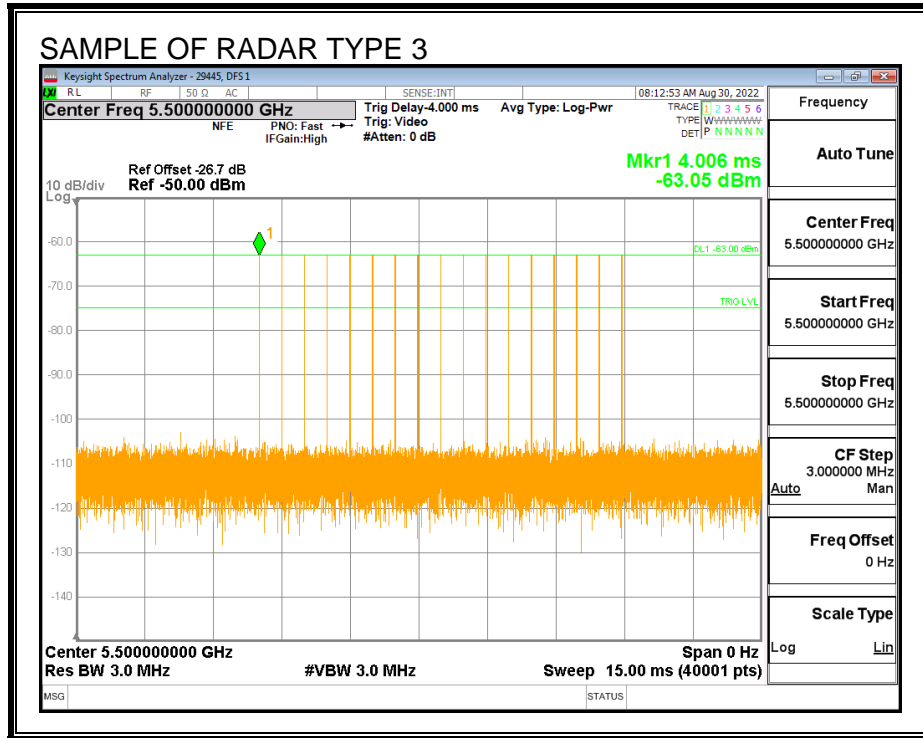
7.2.2. RADAR WAVEFORMS AND TRAFFIC

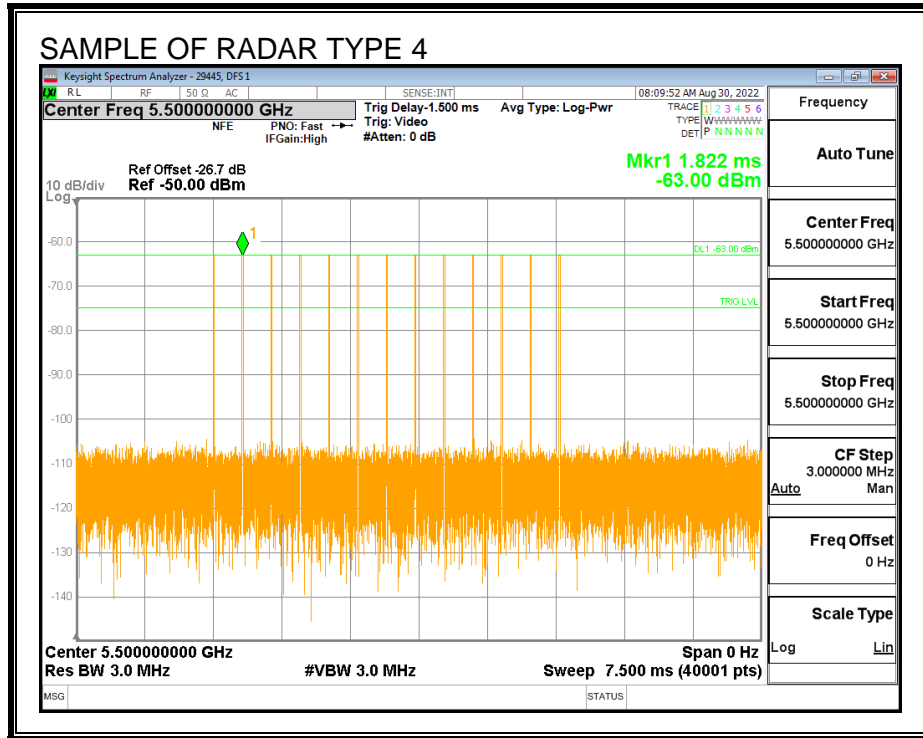
RADAR WAVEFORMS

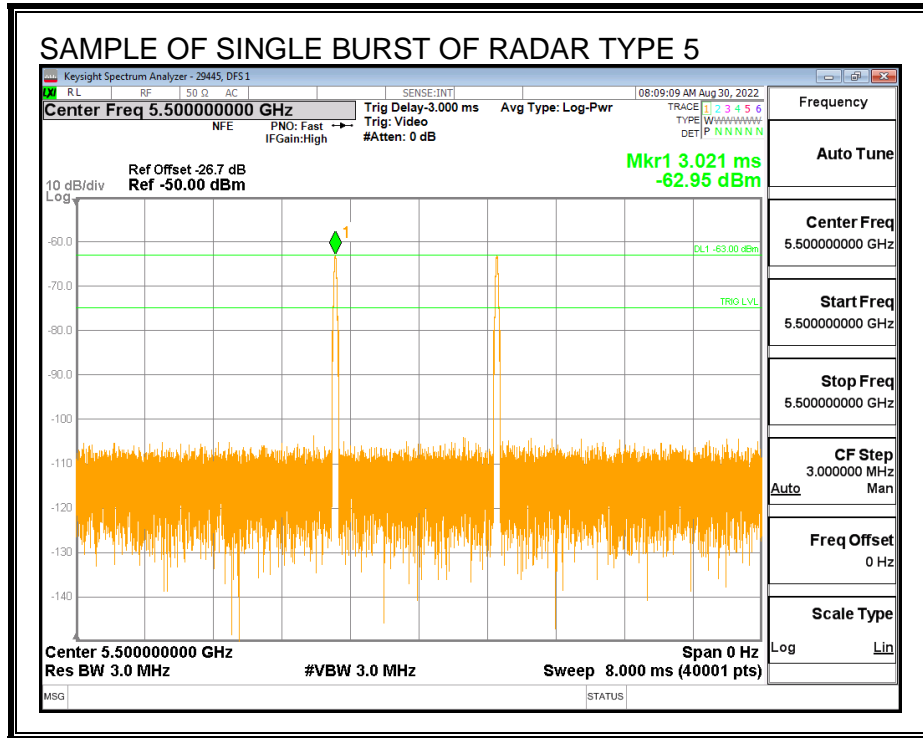


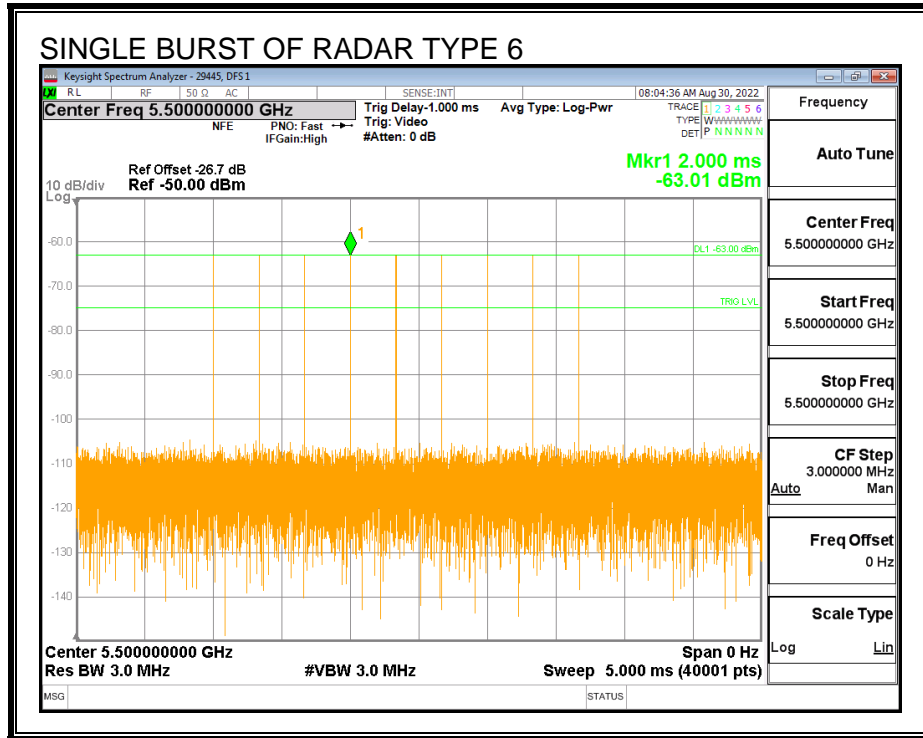




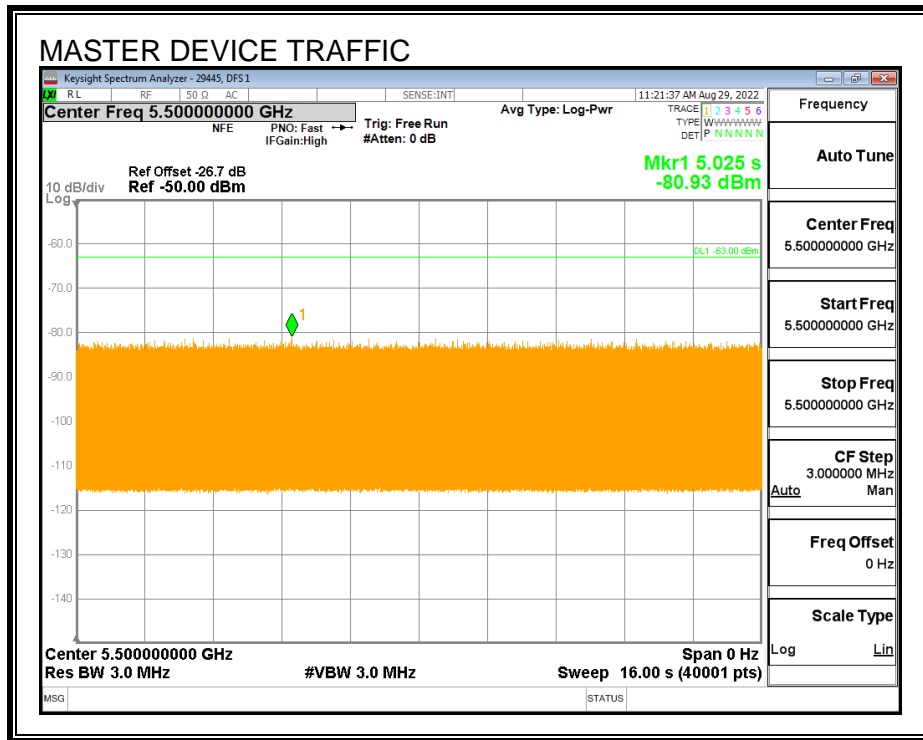




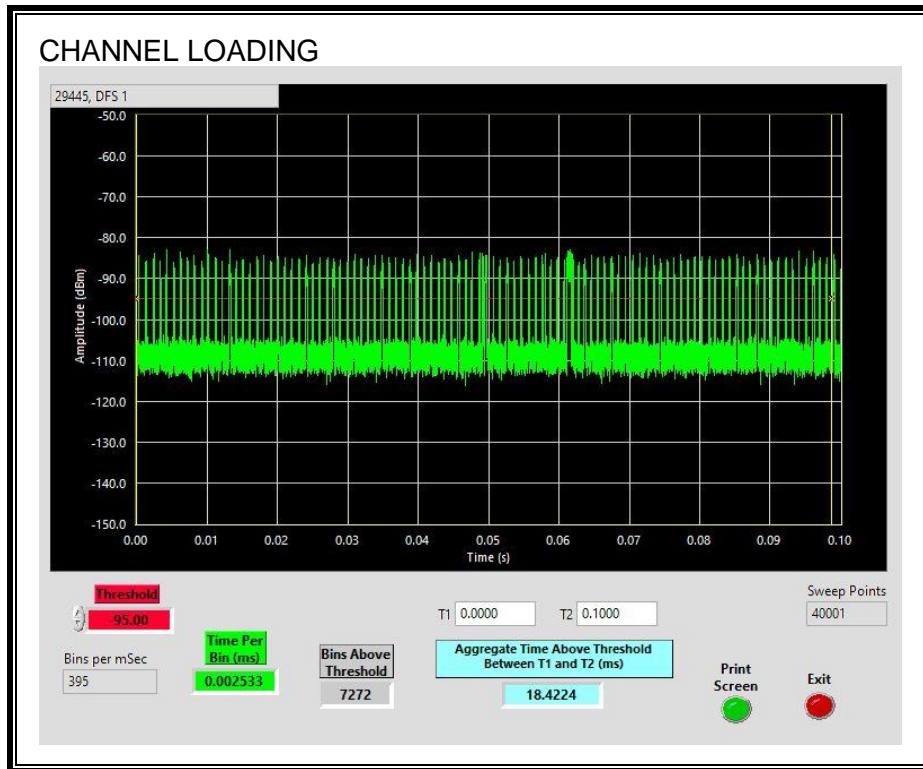




MASTER DEVICE TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 18.42%

7.2.3. CHANNEL AVAILABILITY CHECK TIME

Per Table 2 on page 6 of KDB 905462 D02, Channel Move Time and Channel Closing Transmission Time are only required to be tested using the widest supported channel bandwidth mode and all other timing tests may be tested using any single channel bandwidth mode. Therefore this test has not been performed for this channel bandwidth.

7.2.4. OVERLAPPING CHANNEL TESTS

RESULTS

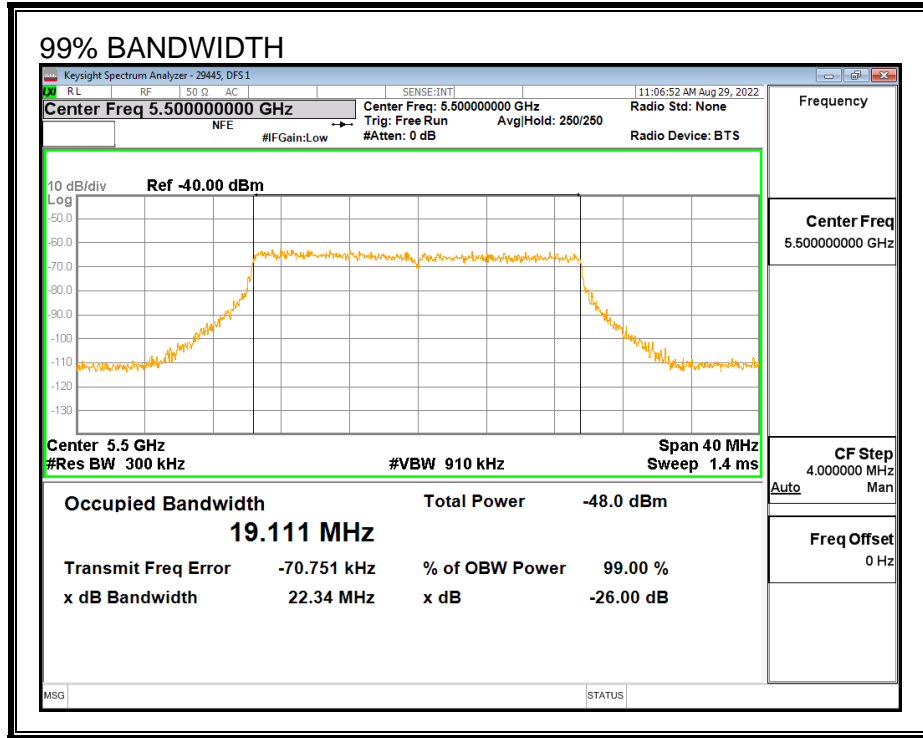
The channel spacing is not less than the channel bandwidth therefore the EUT does not have an overlapping channel plan.

7.2.5. MOVE AND CLOSING TIME

Per Table 2 on page 6 of KDB 905462 D02, Channel Move Time and Channel Closing Transmission Time are only required to be tested using the widest supported channel bandwidth mode and all other timing tests may be tested using any single channel bandwidth mode. Therefore this test has not been performed for this channel bandwidth.

7.2.6. DETECTION BANDWIDTH

REFERENCE PLOT OF 99% POWER BANDWIDTH



RESULTS

F_L (MHz)	F_H (MHz)	Detection Bandwidth (MHz)	99% Power Bandwidth (MHz)	Ratio of Detection BW to 99% Power BW (%)	Minimum Limit (%)
5490	5510	20	19.111	104.7	100

DETECTION BANDWIDTH PROBABILITY

DETECTION BANDWIDTH PROBABILITY RESULTS				
Detection Bandwidth Test Results		29445	DFS 1	
FCC Type 0 Waveform: 1 us Pulse Width, 1428 us PRI, 18 Pulses per Burst				
Frequency (MHz)	Number of Trials	Number Detected	Detection (%)	Mark
5490	10	10	100	FL
5495	10	10	100	
5500	10	10	100	
5505	10	10	100	
5510	10	10	100	FH

7.2.7. IN-SERVICE MONITORING

RESULTS

FCC Radar Test Summary										
Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth			Test Location	Employee Number	In-Service Monitoring Version
					FL	FH	OBW			
FCC Short Pulse Type 1	30	100.00	60	Pass	5490	5510	19.11	DFS 1	29445	v4.1
FCC Short Pulse Type 2	30	100.00	60	Pass	5490	5510	19.11	DFS 1	29445	v4.1
FCC Short Pulse Type 3	30	100.00	60	Pass	5490	5510	19.11	DFS 1	29445	v4.1
FCC Short Pulse Type 4	30	100.00	60	Pass	5490	5510	19.11	DFS 1	29445	v4.1
Aggregate		100.00	80	Pass						
FCC Long Pulse Type 5	30	96.67	80	Pass	5490	5510	19.11	DFS 1	29445	v4.1
FCC Hopping Type 6	42	100.00	70	Pass	5490	5510		DFS 1	29445	v4.1

TYPE 1 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 1						
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Test (A/B)	Frequency (MHz)	Successful Detection (Yes/No)
1001	1	3066	18	A	5503	Yes
1002	1	858	62	A	5509	Yes
1003	1	698	76	A	5505	Yes
1004	1	818	65	A	5494	Yes
1005	1	678	78	A	5507	Yes
1006	1	638	83	A	5508	Yes
1007	1	758	70	A	5492	Yes
1008	1	718	74	A	5491	Yes
1009	1	878	61	A	5491	Yes
1010	1	838	63	A	5506	Yes
1011	1	658	81	A	5505	Yes
1012	1	738	72	A	5507	Yes
1013	1	558	95	A	5497	Yes
1014	1	938	57	A	5505	Yes
1015	1	778	68	A	5492	Yes
1016	1	1907	28	B	5502	Yes
1017	1	2734	20	B	5491	Yes
1018	1	2690	20	B	5499	Yes
1019	1	2452	22	B	5506	Yes
1020	1	1342	40	B	5495	Yes
1021	1	1233	43	B	5497	Yes
1022	1	1448	37	B	5494	Yes
1023	1	2822	19	B	5493	Yes
1024	1	1972	27	B	5509	Yes
1025	1	927	57	B	5499	Yes
1026	1	1560	34	B	5497	Yes
1027	1	645	82	B	5506	Yes
1028	1	1407	38	B	5497	Yes
1029	1	621	85	B	5507	Yes
1030	1	2867	19	B	5496	Yes

TYPE 2 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 2					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
2001	2.6	214	27	5495	Yes
2002	3.6	151	27	5500	Yes
2003	3.1	162	24	5508	Yes
2004	2.4	183	27	5496	Yes
2005	2.2	198	28	5495	Yes
2006	1.7	186	25	5492	Yes
2007	3.8	205	27	5508	Yes
2008	3.5	197	24	5506	Yes
2009	4	183	29	5503	Yes
2010	3.9	178	27	5492	Yes
2011	4.5	168	26	5506	Yes
2012	2.7	211	24	5496	Yes
2013	3.6	167	24	5507	Yes
2014	4.2	214	26	5507	Yes
2015	1.2	174	29	5490	Yes
2016	1.9	225	28	5507	Yes
2017	1.3	189	25	5502	Yes
2018	2.3	168	24	5508	Yes
2019	1.9	217	28	5492	Yes
2020	1.1	158	25	5497	Yes
2021	5	173	26	5503	Yes
2022	4.5	160	23	5506	Yes
2023	2.6	180	24	5496	Yes
2024	2.2	171	29	5493	Yes
2025	2.7	157	27	5491	Yes
2026	2.6	196	29	5494	Yes
2027	3.3	185	24	5502	Yes
2028	1.4	185	29	5495	Yes
2029	2.3	222	28	5509	Yes
2030	2.9	188	23	5495	Yes

TYPE 3 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 3					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
3001	9	496	17	5499	Yes
3002	9.7	403	17	5497	Yes
3003	9.1	425	16	5508	Yes
3004	6	479	18	5495	Yes
3005	9.7	380	17	5501	Yes
3006	8.9	328	16	5510	Yes
3007	8.7	493	16	5502	Yes
3008	8.2	455	18	5492	Yes
3009	6.3	264	18	5490	Yes
3010	8.1	371	17	5502	Yes
3011	6.4	444	17	5507	Yes
3012	8.5	313	17	5493	Yes
3013	7	281	17	5499	Yes
3014	9.2	414	17	5497	Yes
3015	6	395	17	5509	Yes
3016	6.6	290	17	5499	Yes
3017	7.7	416	16	5502	Yes
3018	8.4	457	16	5494	Yes
3019	7.8	346	18	5506	Yes
3020	8.8	399	17	5492	Yes
3021	8.4	300	18	5495	Yes
3022	7.6	500	18	5492	Yes
3023	7.4	414	18	5495	Yes
3024	6.9	375	17	5496	Yes
3025	9.1	318	17	5499	Yes
3026	6.8	292	18	5497	Yes
3027	9.2	365	16	5506	Yes
3028	7.2	485	16	5497	Yes
3029	9.8	453	16	5498	Yes
3030	7.9	335	16	5501	Yes

TYPE 4 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 4					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
4001	13	315	13	5499	Yes
4002	18.6	461	12	5509	Yes
4003	11.9	337	16	5496	Yes
4004	13.6	378	16	5490	Yes
4005	12.2	266	13	5502	Yes
4006	14.3	320	13	5509	Yes
4007	13.4	472	14	5503	Yes
4008	11.8	421	13	5507	Yes
4009	16.1	468	14	5494	Yes
4010	15	296	12	5495	Yes
4011	15	489	13	5498	Yes
4012	19.1	464	14	5505	Yes
4013	15.3	285	15	5491	Yes
4014	19.9	406	16	5499	Yes
4015	16.5	373	15	5493	Yes
4016	17.3	255	12	5505	Yes
4017	19.3	487	16	5495	Yes
4018	15.7	382	15	5499	Yes
4019	13.8	257	15	5504	Yes
4020	19.8	298	14	5491	Yes
4021	18.4	438	12	5509	Yes
4022	11.5	491	14	5499	Yes
4023	15.4	392	12	5491	Yes
4024	18	341	15	5510	Yes
4025	13.3	388	13	5508	Yes
4026	12.1	350	16	5493	Yes
4027	16.9	410	12	5505	Yes
4028	16.2	384	12	5495	Yes
4029	12.4	339	14	5506	Yes
4030	17	326	15	5499	Yes

TYPE 5 DETECTION PROBABILITY

Data Sheet for FCC Long Pulse Radar Type 5		
Trial	Frequency (MHz)	Successful Detection (Yes/No)
1	5500	Yes
2	5500	Yes
3	5500	Yes
4	5500	No
5	5500	Yes
6	5500	Yes
7	5500	Yes
8	5500	Yes
9	5500	Yes
10	5500	Yes
11	5496	Yes
12	5493	Yes
13	5496	Yes
14	5496	Yes
15	5493	Yes
16	5496	Yes
17	5496	Yes
18	5493	Yes
19	5496	Yes
20	5496	Yes
21	5507	Yes
22	5504	Yes
23	5504	Yes
24	5502	Yes
25	5507	Yes
26	5507	Yes
27	5502	Yes
28	5506	Yes
29	5503	Yes
30	5502	Yes

Note: The Type 5 randomized parameters tested are shown in a separate document.

TYPE 6 DETECTION PROBABILITY

Data Sheet for FCC Hopping Radar Type 6				
1 us Pulse Width, 333 us PRI, 9 Pulses per Burst, 1 Burst per Hop				
NTIA August 2005 Hopping Sequence				
Trial	Starting Index Within Sequence	Signal Generator Frequency (MHz)	Hops within Detection BW	Successful Detection (Yes/No)
1	501	5490	6	Yes
2	976	5491	5	Yes
3	1451	5492	4	Yes
4	1926	5493	6	Yes
5	2401	5494	7	Yes
6	2876	5495	5	Yes
7	3351	5496	4	Yes
8	3826	5497	4	Yes
9	4301	5498	5	Yes
10	4776	5499	4	Yes
11	5251	5500	6	Yes
12	5726	5501	3	Yes
13	6201	5502	3	Yes
14	6676	5503	5	Yes
15	7151	5504	5	Yes
16	7626	5505	5	Yes
17	8101	5506	7	Yes
18	8576	5507	3	Yes
19	9051	5508	4	Yes
20	9526	5509	3	Yes
21	10001	5510	4	Yes
22	10476	5490	3	Yes
23	10951	5491	2	Yes
24	11426	5492	7	Yes
25	11901	5493	4	Yes
26	12376	5494	6	Yes
27	12851	5495	4	Yes
28	13326	5496	4	Yes
29	13801	5497	5	Yes
30	14751	5498	5	Yes
31	15226	5499	4	Yes
32	15701	5500	5	Yes
33	16176	5501	5	Yes
34	16651	5502	3	Yes
35	17126	5503	3	Yes
36	17601	5504	5	Yes
37	18076	5505	7	Yes
38	18551	5506	5	Yes
39	19026	5507	6	Yes
40	19501	5508	1	Yes
41	19976	5509	4	Yes
42	20451	5510	7	Yes

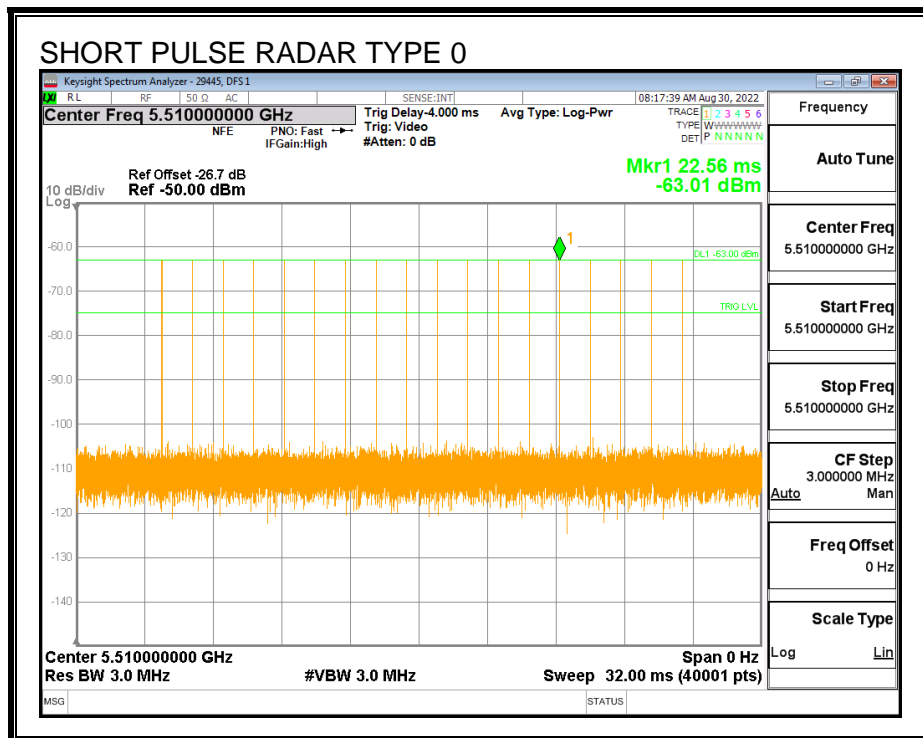
7.3. MASTER DEVICE RESULTS FOR 40 MHz BANDWIDTH

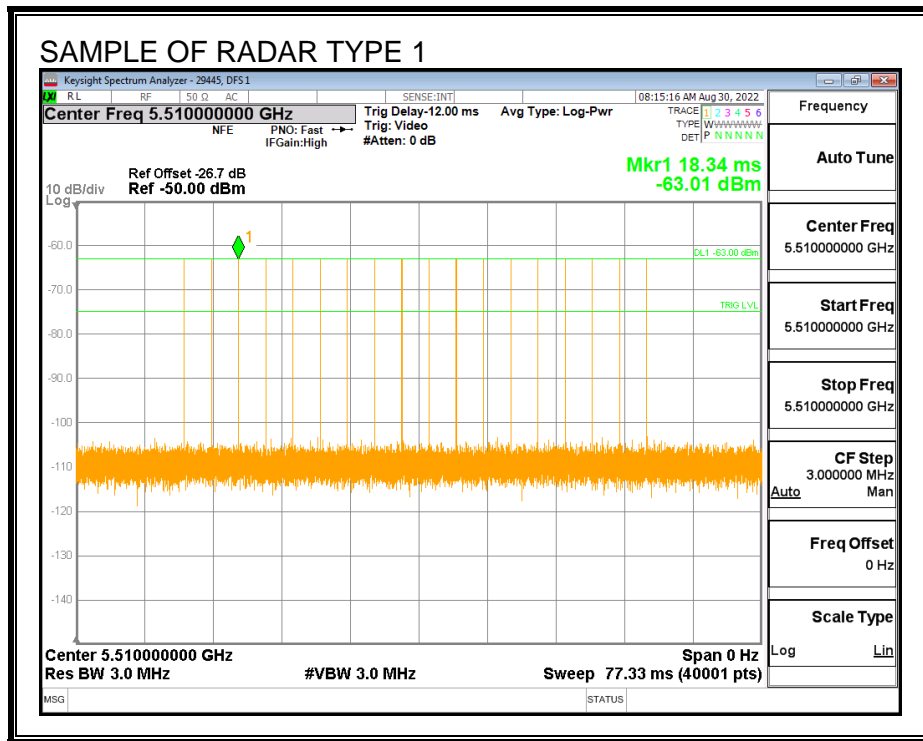
7.3.1. TEST CHANNEL

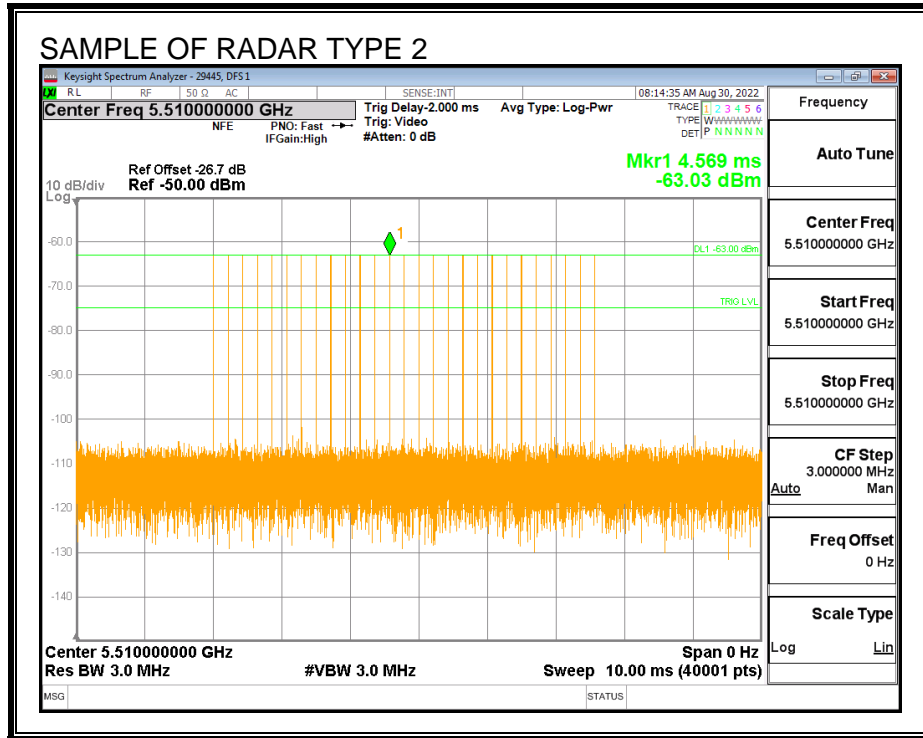
All tests were performed at a channel center frequency of 5510 MHz.

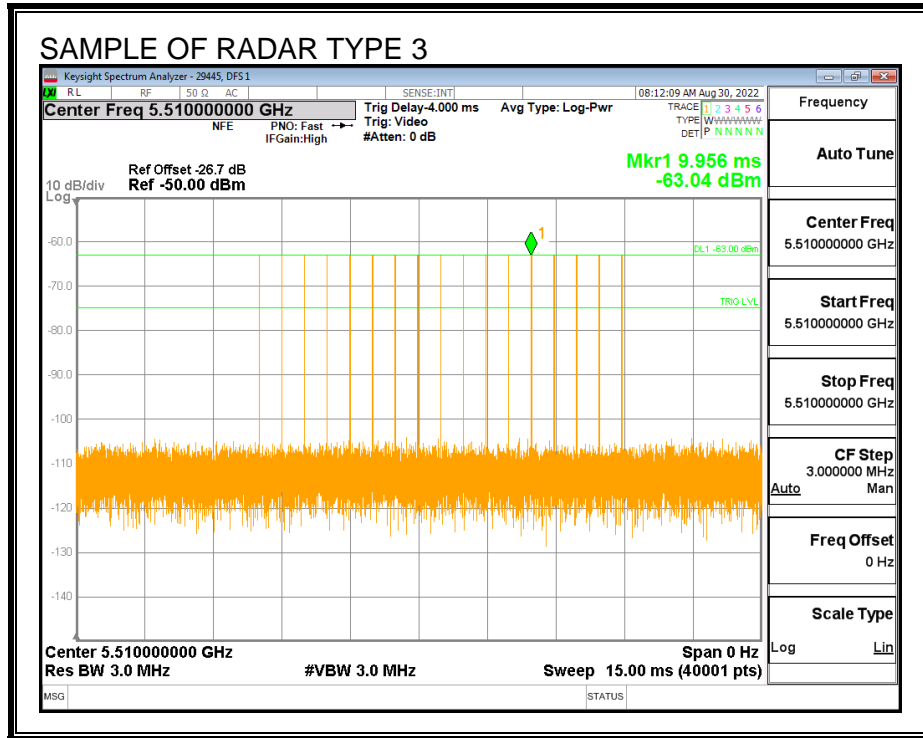
7.3.2. RADAR WAVEFORMS AND TRAFFIC

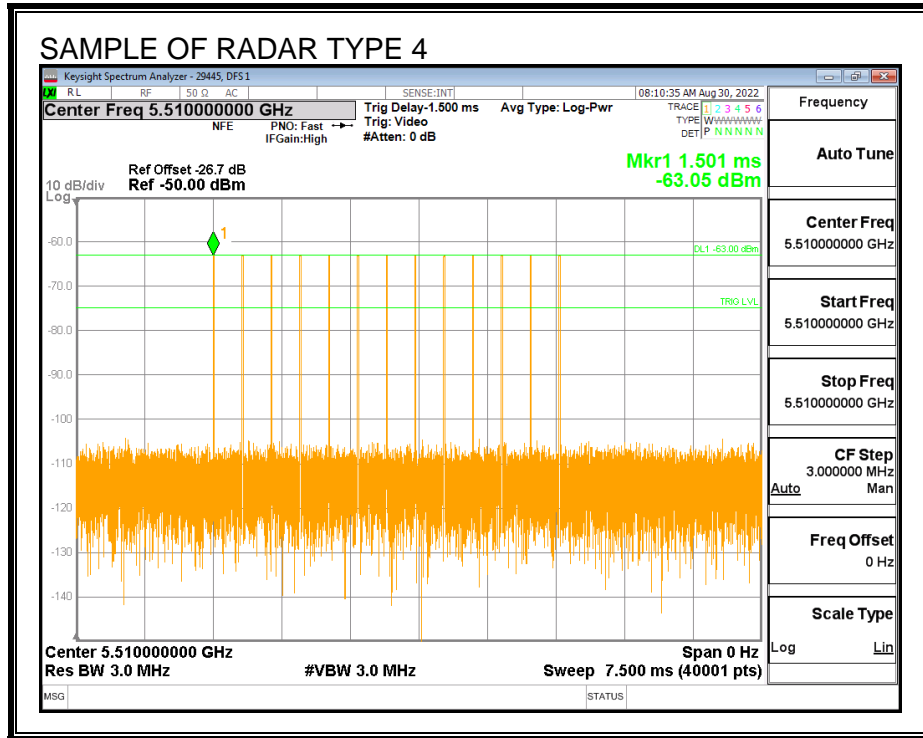
RADAR WAVEFORMS

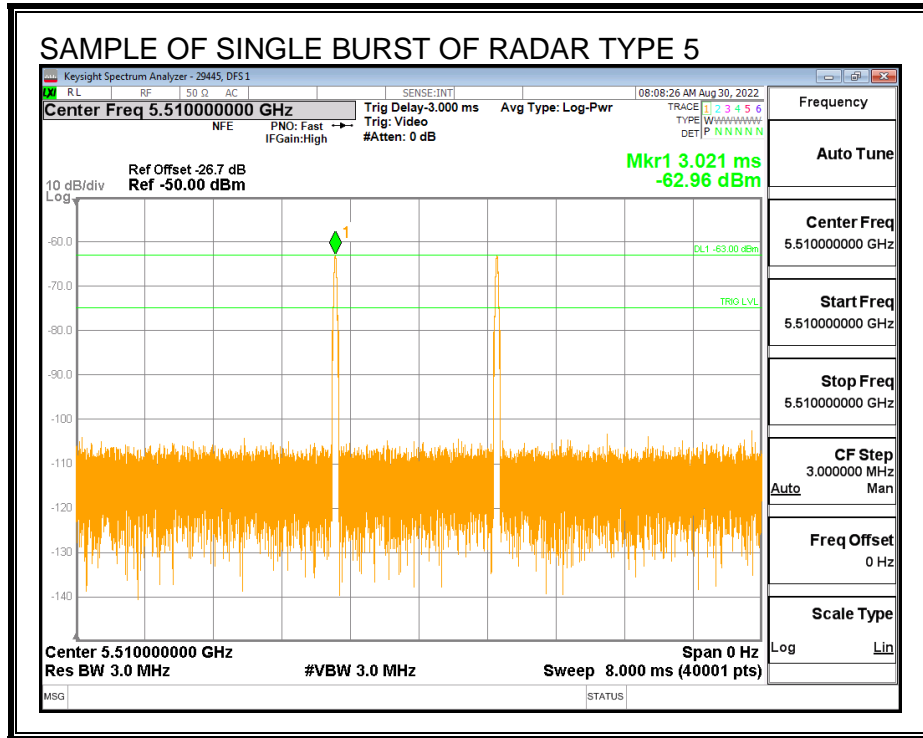


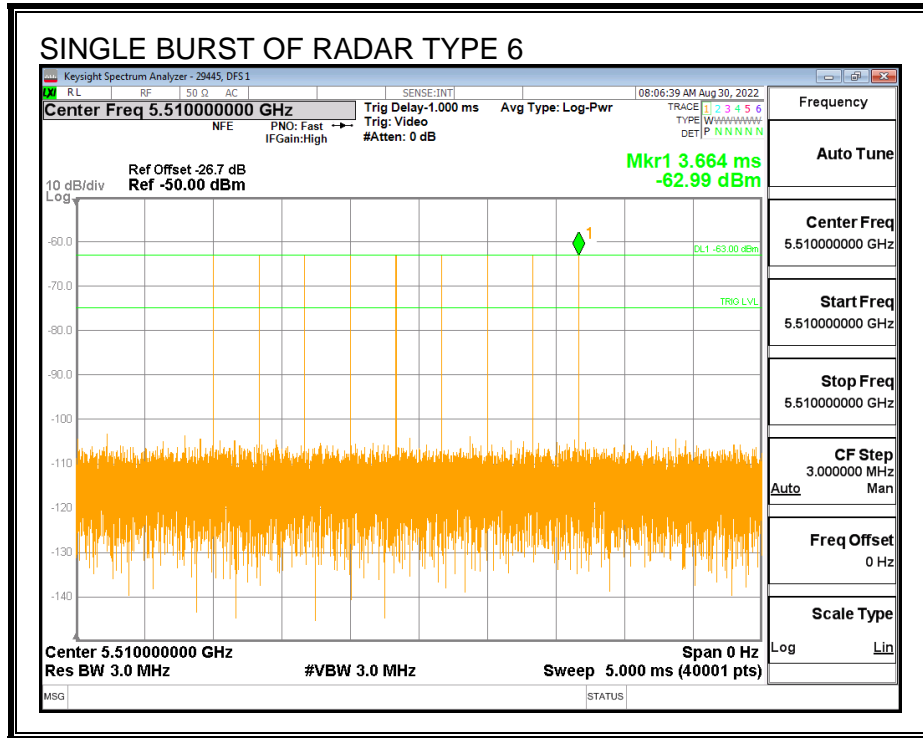




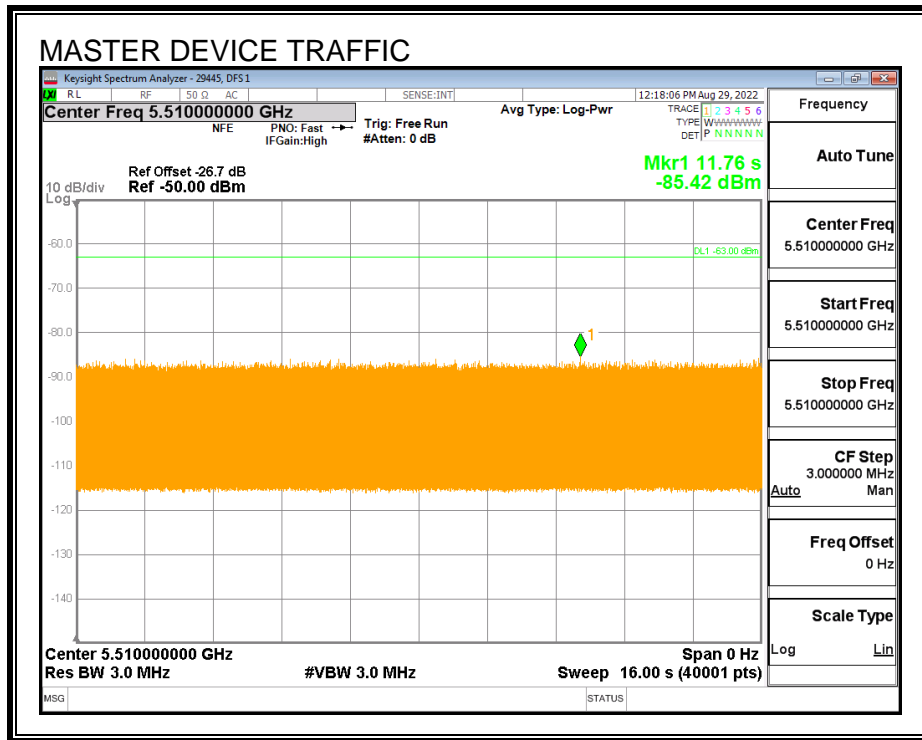




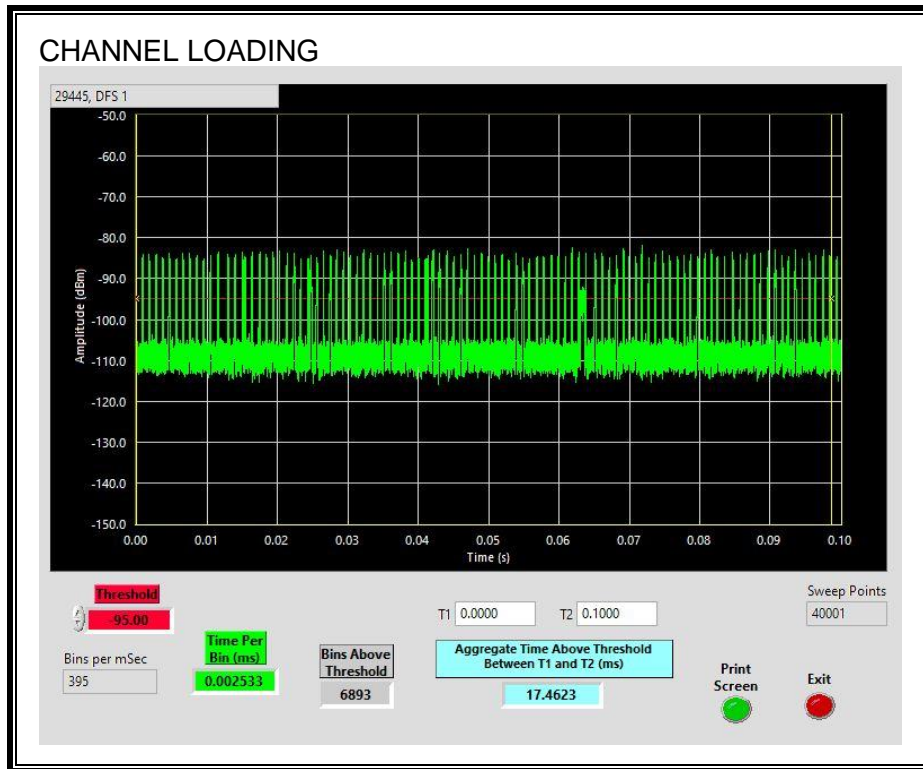




MASTER DEVICE TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 17.46%

7.3.3. CHANNEL AVAILABILITY CHECK TIME

Per Table 2 on page 6 of KDB 905462 D02, Channel Move Time and Channel Closing Transmission Time are only required to be tested using the widest supported channel bandwidth mode and all other timing tests may be tested using any single channel bandwidth mode. Therefore this test has not been performed for this channel bandwidth.

7.3.4. OVERLAPPING CHANNEL TESTS

RESULTS

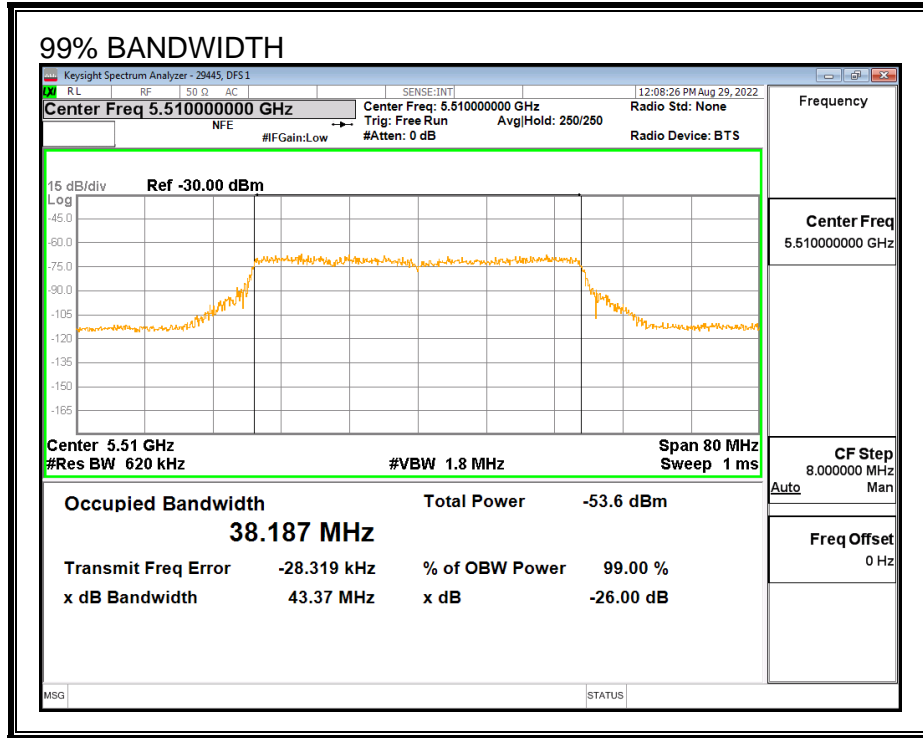
The channel spacing is not less than the channel bandwidth therefore the EUT does not have an overlapping channel plan.

7.3.5. MOVE AND CLOSING TIME

Per Table 2 on page 6 of KDB 905462 D02, Channel Move Time and Channel Closing Transmission Time are only required to be tested using the widest supported channel bandwidth mode and all other timing tests may be tested using any single channel bandwidth mode. Therefore this test has not been performed for this channel bandwidth.

7.3.6. DETECTION BANDWIDTH

REFERENCE PLOT OF 99% POWER BANDWIDTH



RESULTS

F_L (MHz)	F_H (MHz)	Detection Bandwidth (MHz)	99% Power Bandwidth (MHz)	Ratio of Detection BW to 99% Power BW (%)	Minimum Limit (%)
5490	5530	40	38.187	104.7	100

DETECTION BANDWIDTH PROBABILITY

DETECTION BANDWIDTH PROBABILITY RESULTS				
Detection Bandwidth Test Results		29445	DFS 1	
FCC Type 0 Waveform: 1 us Pulse Width, 1428 us PRI, 18 Pulses per Burst				
Frequency (MHz)	Number of Trials	Number Detected	Detection (%)	Mark
5490	10	10	100	FL
5495	10	10	100	
5500	10	10	100	
5505	10	10	100	
5510	10	10	100	
5515	10	10	100	
5520	10	10	100	
5525	10	10	100	
5530	10	10	100	FH

7.3.7. IN-SERVICE MONITORING

RESULTS

FCC Radar Test Summary										
Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth		OBW	Test Location	Employee Number	In-Service Monitoring Version
					FL	FH				
FCC Short Pulse Type 1	30	100.00	60	Pass	5490	5530	38.19	DFS 1	29445	v4.1
FCC Short Pulse Type 2	30	100.00	60	Pass	5490	5530	38.19	DFS 1	29445	v4.1
FCC Short Pulse Type 3	30	96.67	60	Pass	5490	5530	38.19	DFS 1	29445	v4.1
FCC Short Pulse Type 4	30	93.33	60	Pass	5490	5530	38.19	DFS 1	29445	v4.1
Aggregate		97.50	80	Pass						
FCC Long Pulse Type 5	30	100.00	80	Pass	5490	5530	38.19	DFS 1	29445	v4.1
FCC Hopping Type 6	41	100.00	70	Pass	5490	5530		DFS 1	29445	v4.1

TYPE 1 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 1						
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Test (A/B)	Frequency (MHz)	Successful Detection (Yes/No)
1001	1	3066	18	A	5499	Yes
1002	1	858	62	A	5527	Yes
1003	1	698	76	A	5517	Yes
1004	1	818	65	A	5492	Yes
1005	1	678	78	A	5493	Yes
1006	1	638	83	A	5525	Yes
1007	1	758	70	A	5515	Yes
1008	1	718	74	A	5522	Yes
1009	1	878	61	A	5510	Yes
1010	1	838	63	A	5509	Yes
1011	1	658	81	A	5501	Yes
1012	1	738	72	A	5492	Yes
1013	1	558	95	A	5499	Yes
1014	1	938	57	A	5521	Yes
1015	1	778	68	A	5504	Yes
1016	1	1907	28	B	5526	Yes
1017	1	2734	20	B	5507	Yes
1018	1	2690	20	B	5506	Yes
1019	1	2452	22	B	5495	Yes
1020	1	1342	40	B	5500	Yes
1021	1	1233	43	B	5524	Yes
1022	1	1448	37	B	5526	Yes
1023	1	2822	19	B	5526	Yes
1024	1	1972	27	B	5516	Yes
1025	1	927	57	B	5517	Yes
1026	1	1560	34	B	5507	Yes
1027	1	645	82	B	5496	Yes
1028	1	1407	38	B	5515	Yes
1029	1	621	85	B	5507	Yes
1030	1	2867	19	B	5501	Yes

TYPE 2 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 2					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
2001	2.6	214	27	5523	Yes
2002	3.6	151	27	5523	Yes
2003	3.1	162	24	5524	Yes
2004	2.4	183	27	5510	Yes
2005	2.2	198	28	5520	Yes
2006	1.7	186	25	5504	Yes
2007	3.8	205	27	5494	Yes
2008	3.5	197	24	5525	Yes
2009	4	183	29	5500	Yes
2010	3.9	178	27	5529	Yes
2011	4.5	168	26	5512	Yes
2012	2.7	211	24	5529	Yes
2013	3.6	167	24	5504	Yes
2014	4.2	214	26	5503	Yes
2015	1.2	174	29	5510	Yes
2016	1.9	225	28	5505	Yes
2017	1.3	189	25	5490	Yes
2018	2.3	168	24	5525	Yes
2019	1.9	217	28	5515	Yes
2020	1.1	158	25	5505	Yes
2021	5	173	26	5514	Yes
2022	4.5	160	23	5519	Yes
2023	2.6	180	24	5497	Yes
2024	2.2	171	29	5512	Yes
2025	2.7	157	27	5499	Yes
2026	2.6	196	29	5493	Yes
2027	3.3	185	24	5495	Yes
2028	1.4	185	29	5502	Yes
2029	2.3	222	28	5518	Yes
2030	2.9	188	23	5504	Yes

TYPE 3 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 3					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
3001	9	496	17	5510	Yes
3002	9.7	403	17	5498	Yes
3003	9.1	425	16	5506	Yes
3004	6	479	18	5508	Yes
3005	9.7	380	17	5500	Yes
3006	8.9	328	16	5500	Yes
3007	8.7	493	16	5495	Yes
3008	8.2	455	18	5500	Yes
3009	6.3	264	18	5528	Yes
3010	8.1	371	17	5527	Yes
3011	6.4	444	17	5503	Yes
3012	8.5	313	17	5502	Yes
3013	7	281	17	5526	Yes
3014	9.2	414	17	5497	No
3015	6	395	17	5492	Yes
3016	6.6	290	17	5520	Yes
3017	7.7	416	16	5516	Yes
3018	8.4	457	16	5494	Yes
3019	7.8	346	18	5502	Yes
3020	8.8	399	17	5519	Yes
3021	8.4	300	18	5509	Yes
3022	7.6	500	18	5525	Yes
3023	7.4	414	18	5497	Yes
3024	6.9	375	17	5492	Yes
3025	9.1	318	17	5524	Yes
3026	6.8	292	18	5512	Yes
3027	9.2	365	16	5492	Yes
3028	7.2	485	16	5500	Yes
3029	9.8	453	16	5499	Yes
3030	7.9	335	16	5494	Yes

TYPE 4 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 4					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
4001	13	315	13	5528	Yes
4002	18.6	461	12	5526	Yes
4003	11.9	337	16	5528	Yes
4004	13.6	378	16	5506	Yes
4005	12.2	266	13	5490	Yes
4006	14.3	320	13	5510	Yes
4007	13.4	472	14	5525	Yes
4008	11.8	421	13	5526	Yes
4009	16.1	468	14	5514	Yes
4010	15	296	12	5526	Yes
4011	15	489	13	5508	Yes
4012	19.1	464	14	5530	Yes
4013	15.3	285	15	5507	Yes
4014	19.9	406	16	5523	Yes
4015	16.5	373	15	5500	Yes
4016	17.3	255	12	5513	Yes
4017	19.3	487	16	5512	Yes
4018	15.7	382	15	5517	Yes
4019	13.8	257	15	5497	Yes
4020	19.8	298	14	5517	Yes
4021	18.4	438	12	5507	Yes
4022	11.5	491	14	5503	Yes
4023	15.4	392	12	5521	Yes
4024	18	341	15	5499	No
4025	13.3	388	13	5510	Yes
4026	12.1	350	16	5492	Yes
4027	16.9	410	12	5500	No
4028	16.2	384	12	5527	Yes
4029	12.4	339	14	5514	Yes
4030	17	326	15	5492	Yes

TYPE 5 DETECTION PROBABILITY

Data Sheet for FCC Long Pulse Radar Type 5		
Trial	Frequency (MHz)	Successful Detection (Yes/No)
1	5510	Yes
2	5510	Yes
3	5510	Yes
4	5510	Yes
5	5510	Yes
6	5510	Yes
7	5510	Yes
8	5510	Yes
9	5510	Yes
10	5510	Yes
11	5497	Yes
12	5494	Yes
13	5496	Yes
14	5497	Yes
15	5494	Yes
16	5496	Yes
17	5497	Yes
18	5494	Yes
19	5496	Yes
20	5497	Yes
21	5526	Yes
22	5524	Yes
23	5523	Yes
24	5521	Yes
25	5527	Yes
26	5526	Yes
27	5522	Yes
28	5526	Yes
29	5522	Yes
30	5521	Yes

Note: The Type 5 randomized parameters tested are shown in a separate document.

TYPE 6 DETECTION PROBABILITY

Data Sheet for FCC Hopping Radar Type 6				
1 us Pulse Width, 333 us PRI, 9 Pulses per Burst, 1 Burst per Hop				
NTIA August 2005 Hopping Sequence				
Trial	Starting Index Within Sequence	Signal Generator Frequency (MHz)	Hops within Detection BW	Successful Detection (Yes/No)
1	753	5490	9	Yes
2	1228	5491	10	Yes
3	1703	5492	12	Yes
4	2178	5493	8	Yes
5	2653	5494	4	Yes
6	3128	5495	12	Yes
7	3603	5496	10	Yes
8	4078	5497	9	Yes
9	4553	5498	8	Yes
10	5028	5499	8	Yes
11	5503	5500	5	Yes
12	5978	5501	9	Yes
13	6453	5502	8	Yes
14	6928	5503	9	Yes
15	7403	5504	8	Yes
16	7878	5505	8	Yes
17	8353	5506	9	Yes
18	8828	5507	9	Yes
19	9303	5508	10	Yes
20	9778	5509	9	Yes
21	10253	5510	10	Yes
22	10728	5511	12	Yes
23	11203	5512	9	Yes
24	11678	5513	12	Yes
25	12153	5514	9	Yes
26	12628	5515	11	Yes
27	13103	5516	6	Yes
28	13578	5517	8	Yes
29	14053	5518	6	Yes
30	14528	5519	12	Yes
31	15003	5520	7	Yes
32	15478	5521	6	Yes
33	15953	5522	7	Yes
34	16428	5523	11	Yes
35	16903	5524	8	Yes
36	17378	5525	7	Yes
37	17853	5526	8	Yes
38	18328	5527	12	Yes
39	18803	5528	8	Yes
40	19278	5529	6	Yes
41	19753	5530	8	Yes

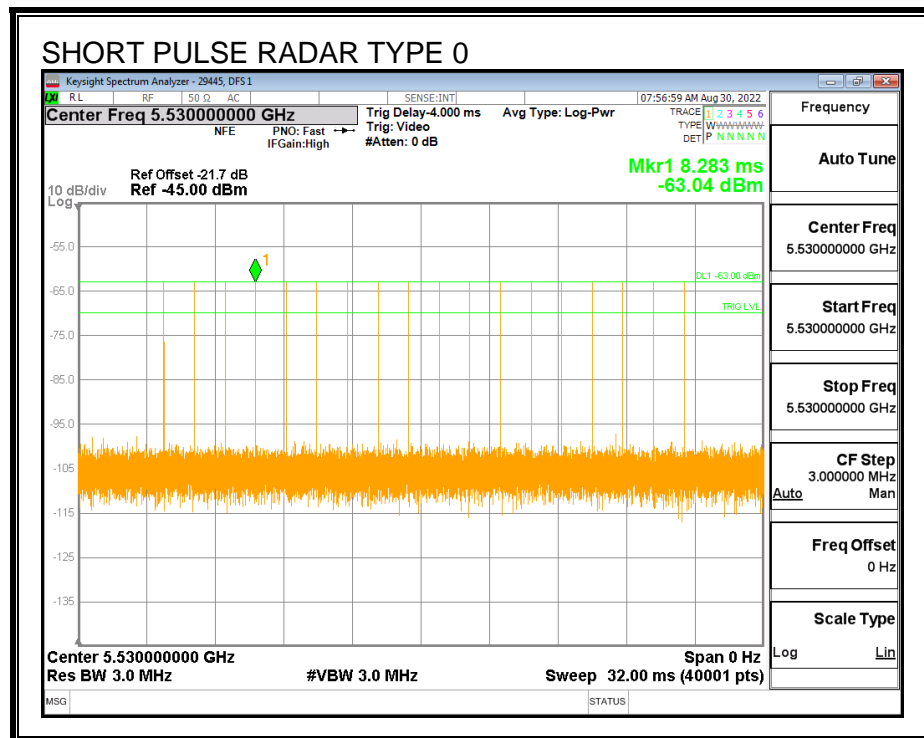
7.4. MASTER DEVICE RESULTS FOR 80 MHz BANDWIDTH

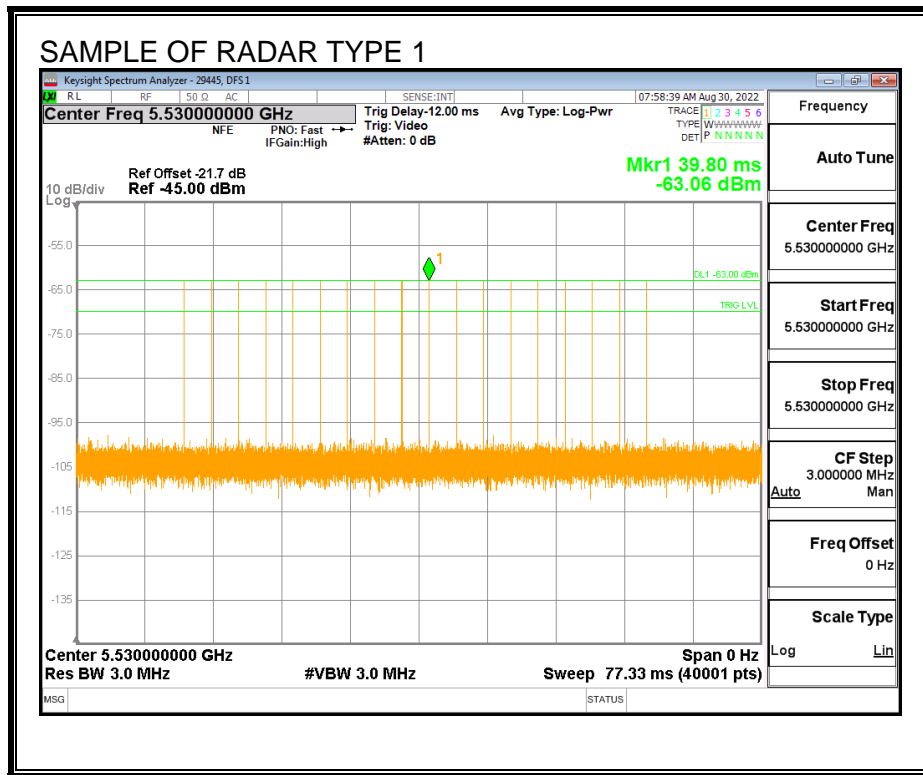
7.4.1. TEST CHANNEL

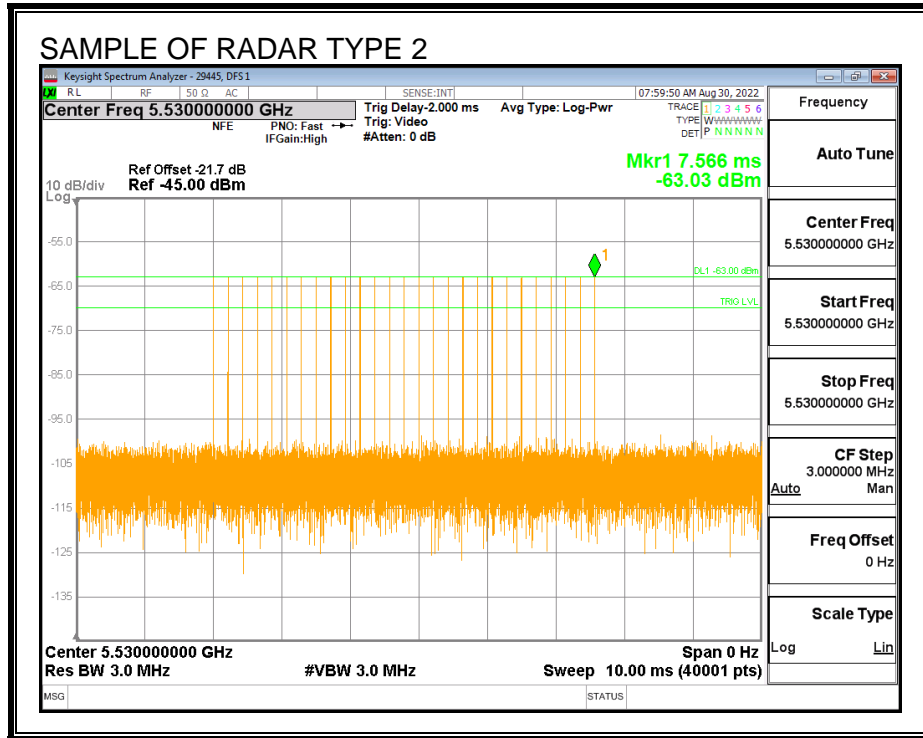
All tests were performed at a channel center frequency of 5530 MHz.

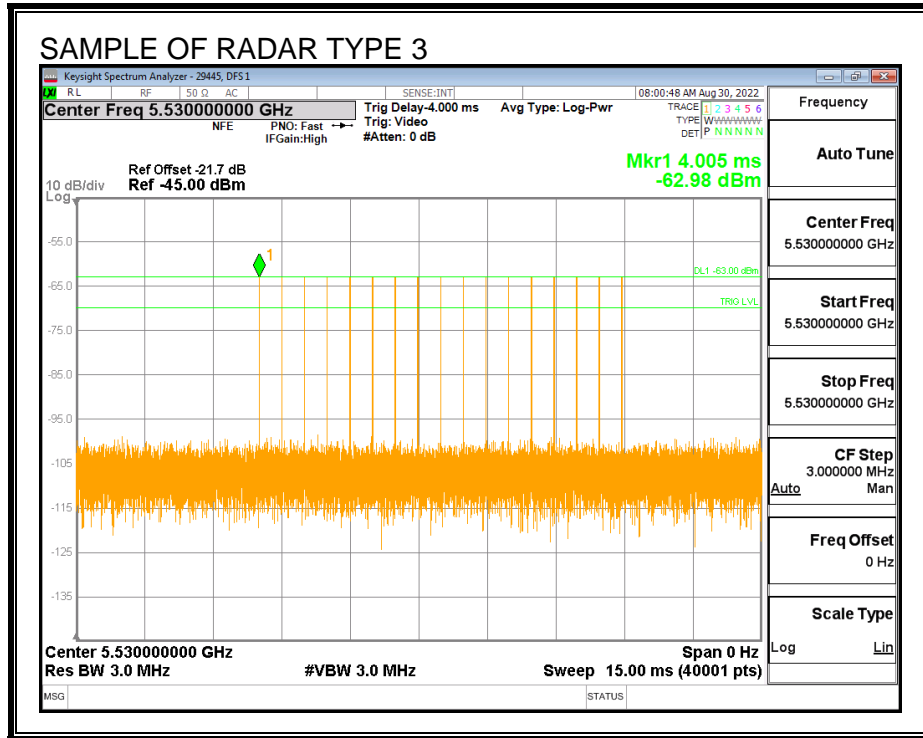
7.4.2. RADAR WAVEFORMS AND TRAFFIC

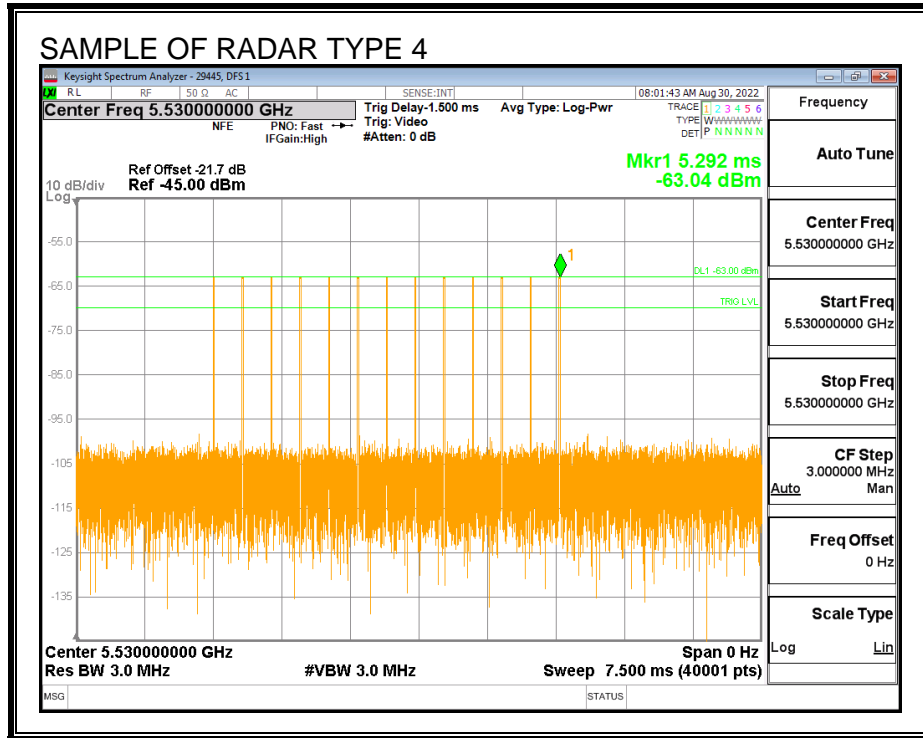
RADAR WAVEFORMS

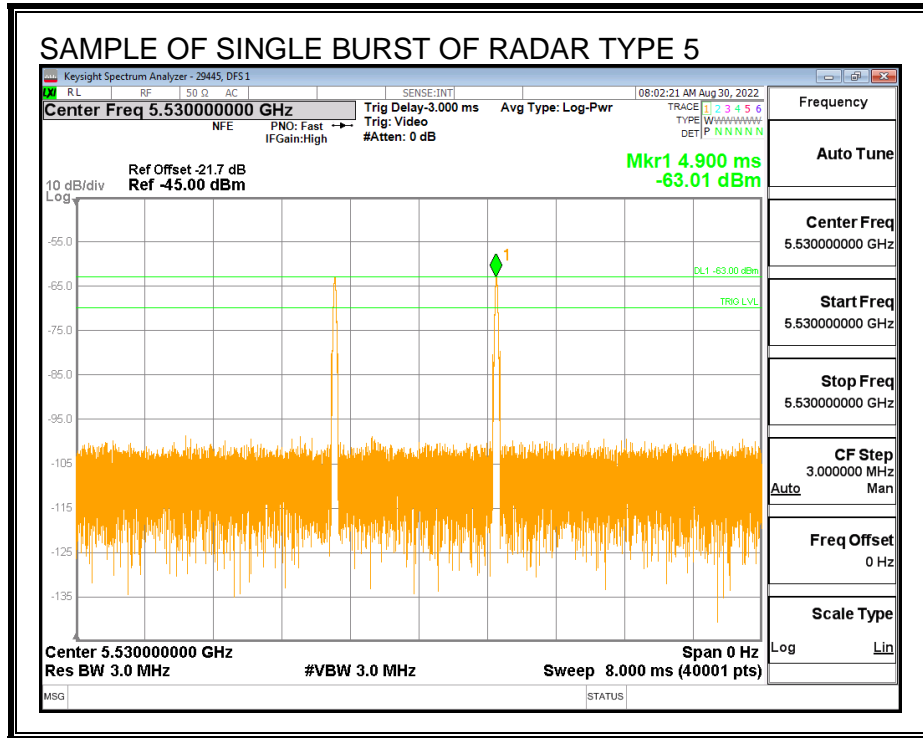


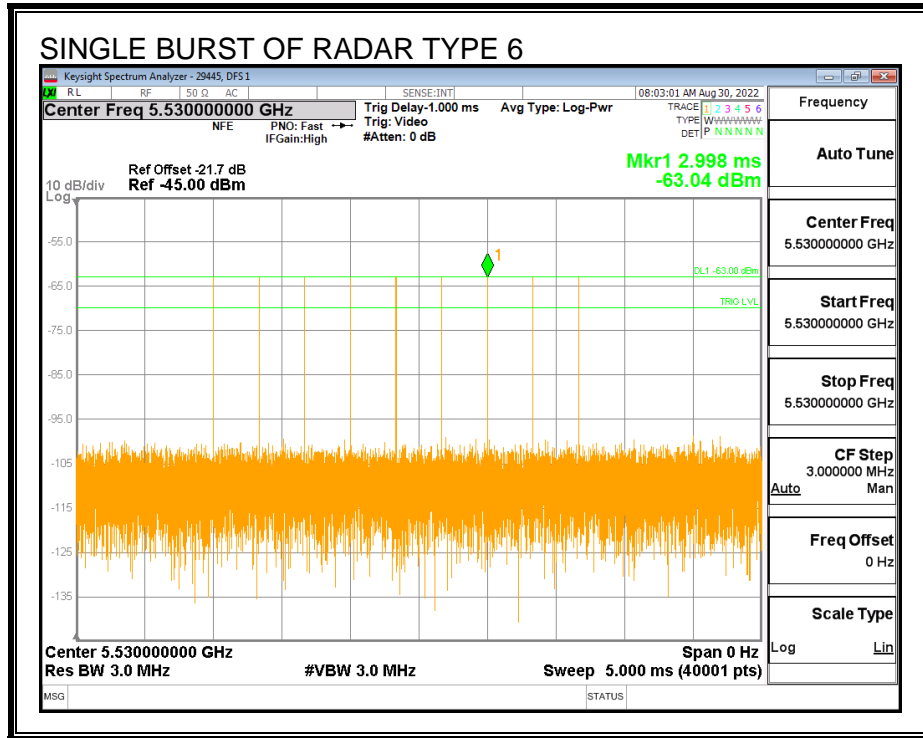




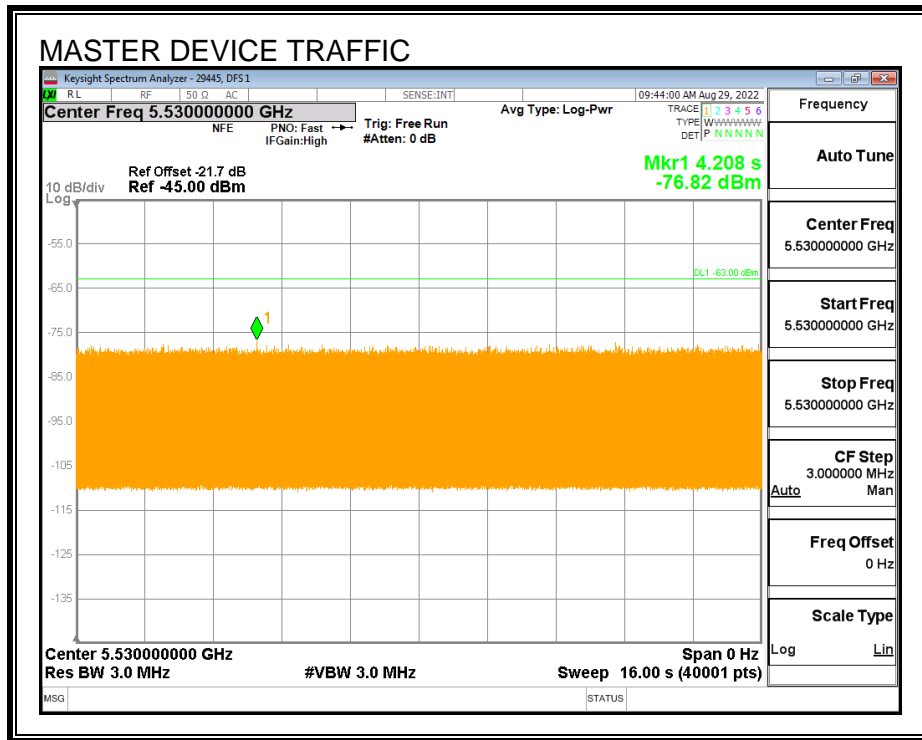




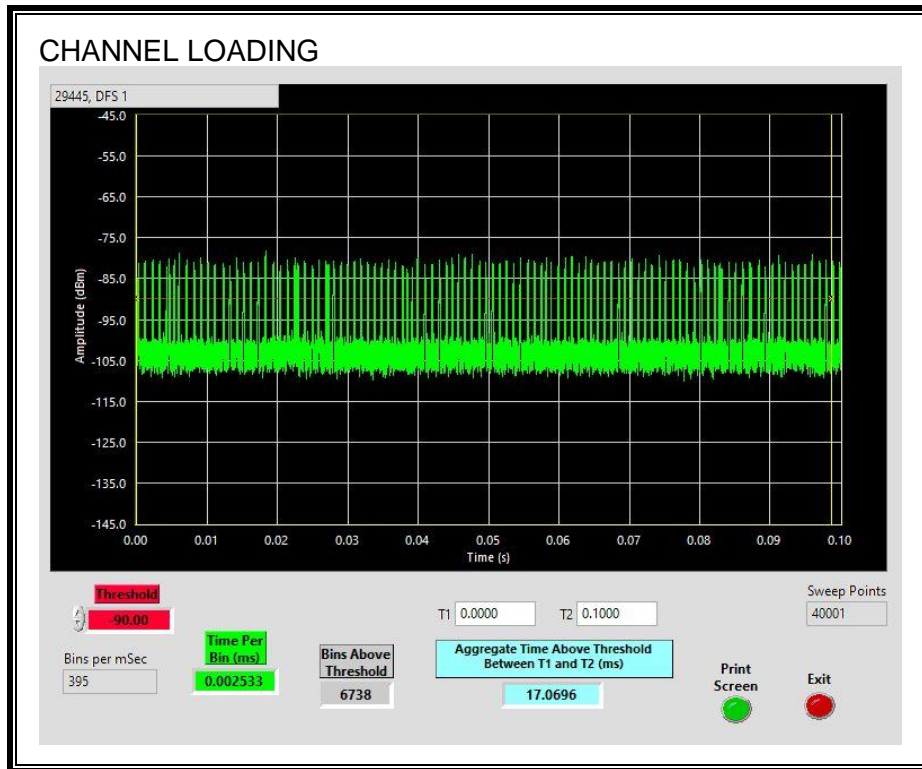




MASTER DEVICE TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 17.069%

7.4.3. CHANNEL AVAILABILITY CHECK TIME

PROCEDURE TO DETERMINE INITIAL POWER-UP CYCLE TIME

A link was established on channel then the EUT was rebooted. The time from the cessation of traffic to the re-initialization of traffic was measured as the time required for the EUT to complete the total power-up cycle. The time to complete the initial power-up period is 60 seconds less than this total power-up time.

PROCEDURE FOR TIMING OF RADAR BURST

With a link established on channel, the EUT was rebooted. A radar signal was triggered within 0 to 6 seconds after the initial power-up period, and transmissions on the channel were monitored on the spectrum analyzer.

The Non-Occupancy list was cleared. With a link established on channel, the EUT was rebooted. A radar signal was triggered within 54 to 60 seconds after the initial power-up period, and transmissions on the channel were monitored on the spectrum analyzer.

QUANTITATIVE RESULTS

No Radar Triggered

Timing of Reboot (sec)	Timing of Start of Traffic (sec)	Total Power-up Cycle Time (sec)	Initial Power-up Cycle Time (sec)
30.47	226.0	195.5	135.5

Radar Near Beginning of CAC

Timing of Reboot (sec)	Timing of Radar Burst (sec)	Radar Relative to Reboot (sec)	Radar Relative to Start of CAC (sec)
30.27	169.4	139.1	3.6

Radar Near End of CAC

Timing of Reboot (sec)	Timing of Radar Burst (sec)	Radar Relative to Reboot (sec)	Radar Relative to Start of CAC (sec)
30.54	223.8	193.3	57.7

QUALITATIVE RESULTS

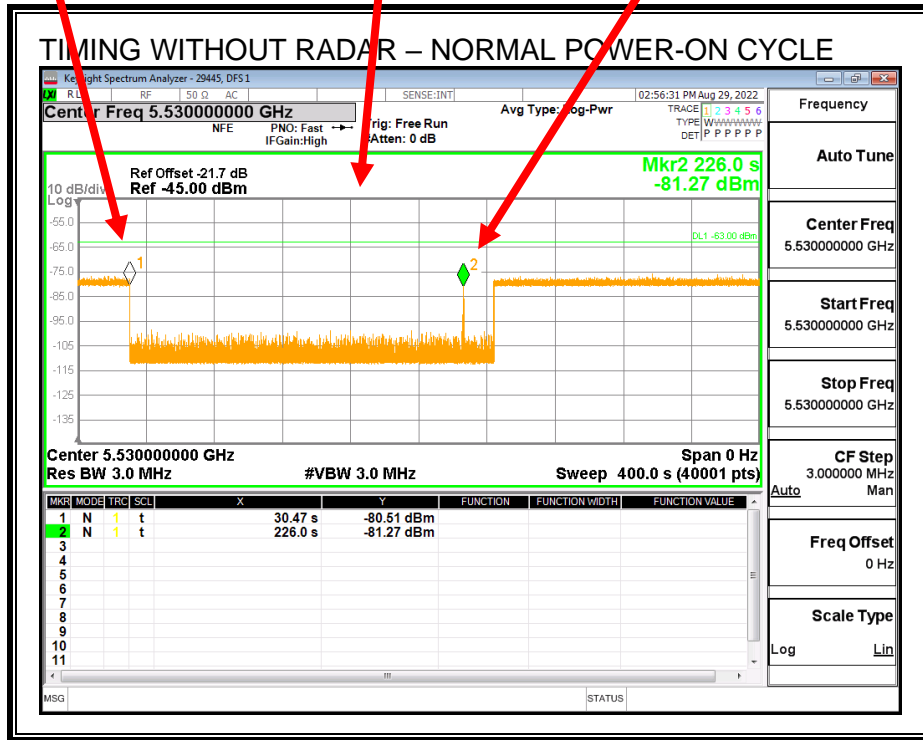
Timing of Radar Burst	Display on Control Computer	Spectrum Analyzer Display
No Radar Triggered	EUT marks Channel as active	Transmissions begin on channel after completion of the initial power-up cycle and the CAC
Within 0 to 6 second window	EUT indicates radar detected	No transmissions on channel
Within 54 to 60 second window	EUT indicates radar detected	No transmissions on channel

TIMING WITHOUT RADAR DURING CAC

AP is rebooted
Traffic ceases
Start of Initial Power-up cycle

End of Initial Power-up cycle
Start of CAC

End of CAC
Traffic is Initiated



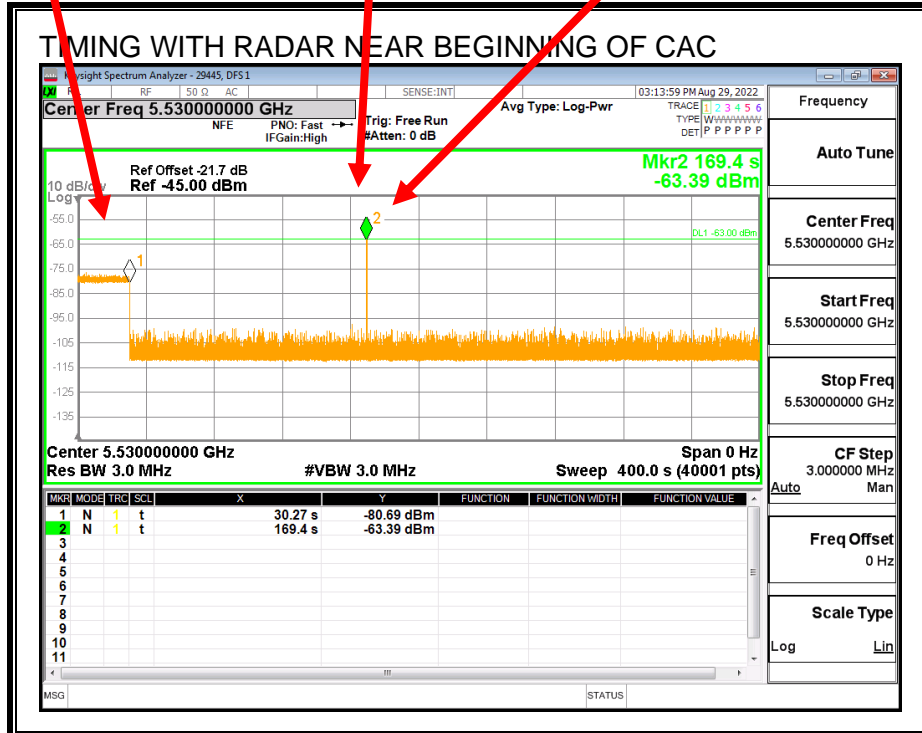
Transmissions begin on channel after completion of the initial power-up cycle and the CAC.

TIMING WITH RADAR NEAR BEGINNING OF CAC

AP is rebooted
Traffic ceases
Start of Initial Power-up cycle

End of Initial Power-up cycle
Start of CAC

Radar Signal Applied



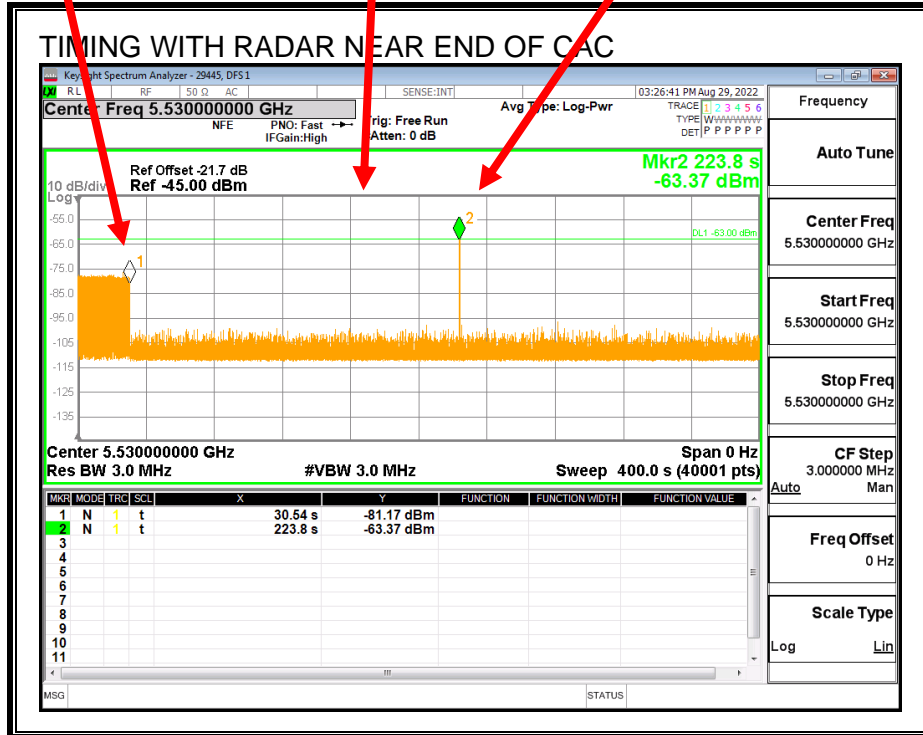
No EUT transmissions were observed after the radar signal.

TIMING WITH RADAR NEAR END OF CAC

AP is rebooted
Traffic ceases
Start of Initial Power-up cycle

End of Initial Power-up cycle
Start of CAC

Radar Signal Applied



No EUT transmissions were observed after the radar signal.

7.4.4. OVERLAPPING CHANNEL TESTS

RESULTS

The channel spacing is not less than the channel bandwidth therefore the EUT does not have an overlapping channel plan.

7.4.5. MOVE AND CLOSING TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =
(Number of analyzer bins showing transmission) * (dwell time per bin)

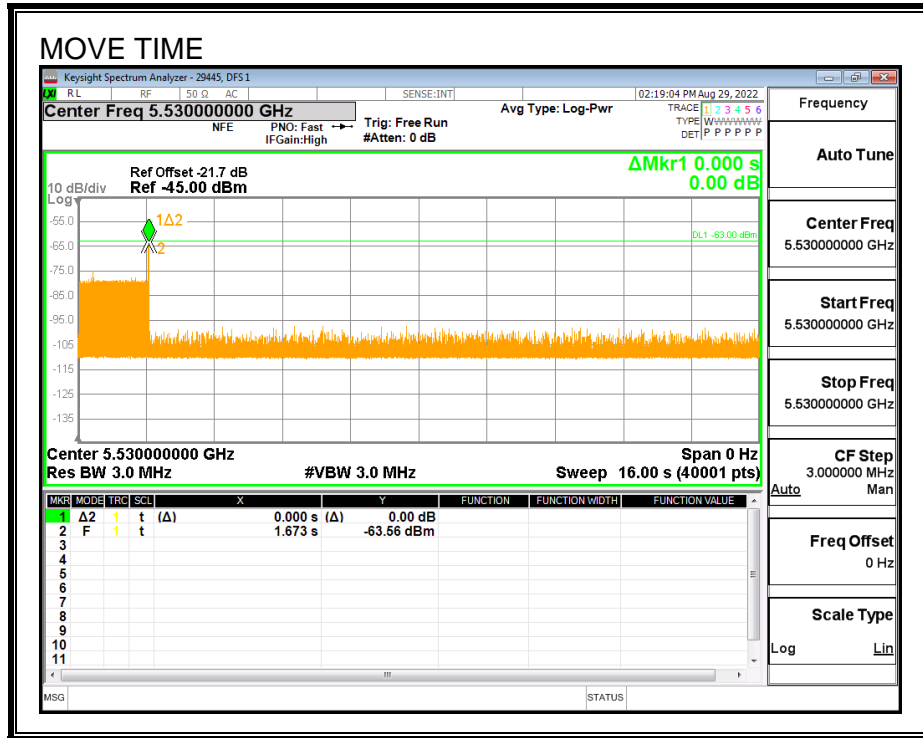
The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

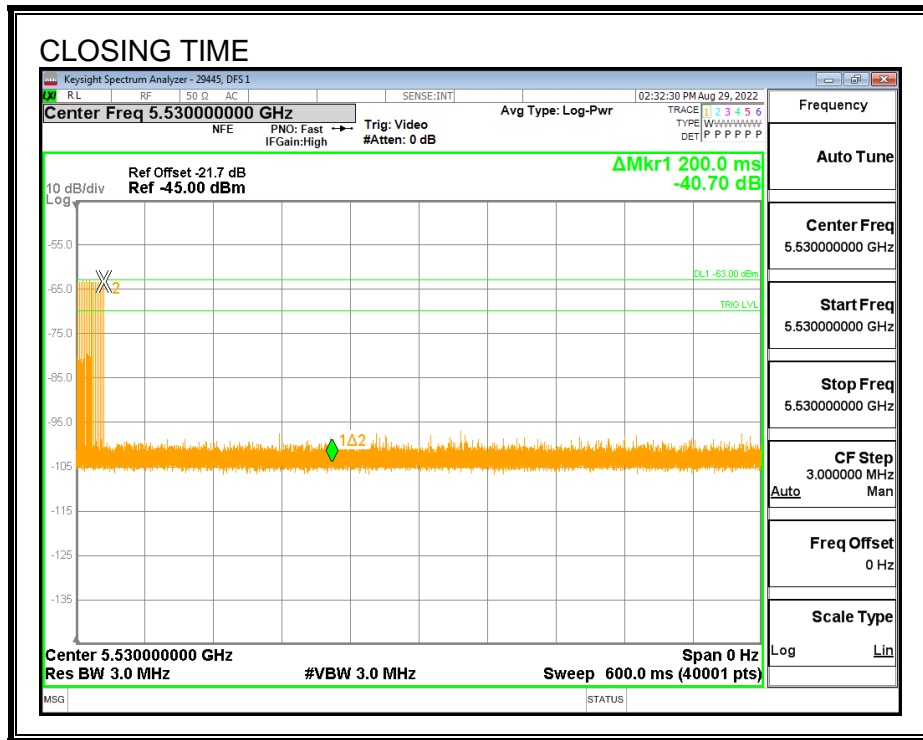
Channel Move Time (sec)	Limit (sec)
0.000	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
0.0	60

MOVE TIME

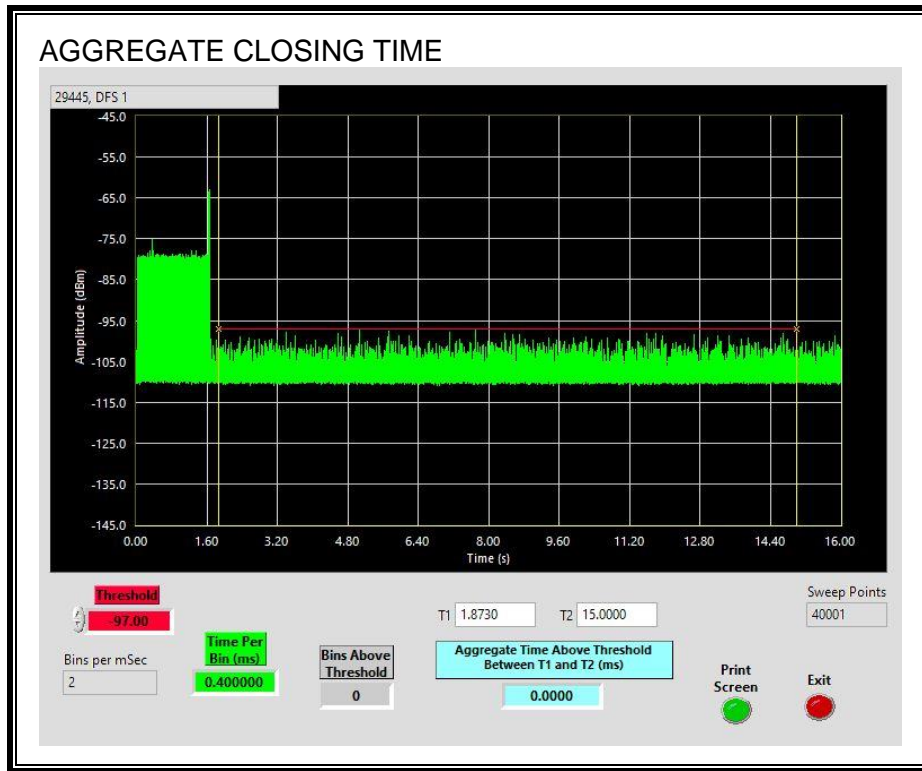


CHANNEL CLOSING TIME



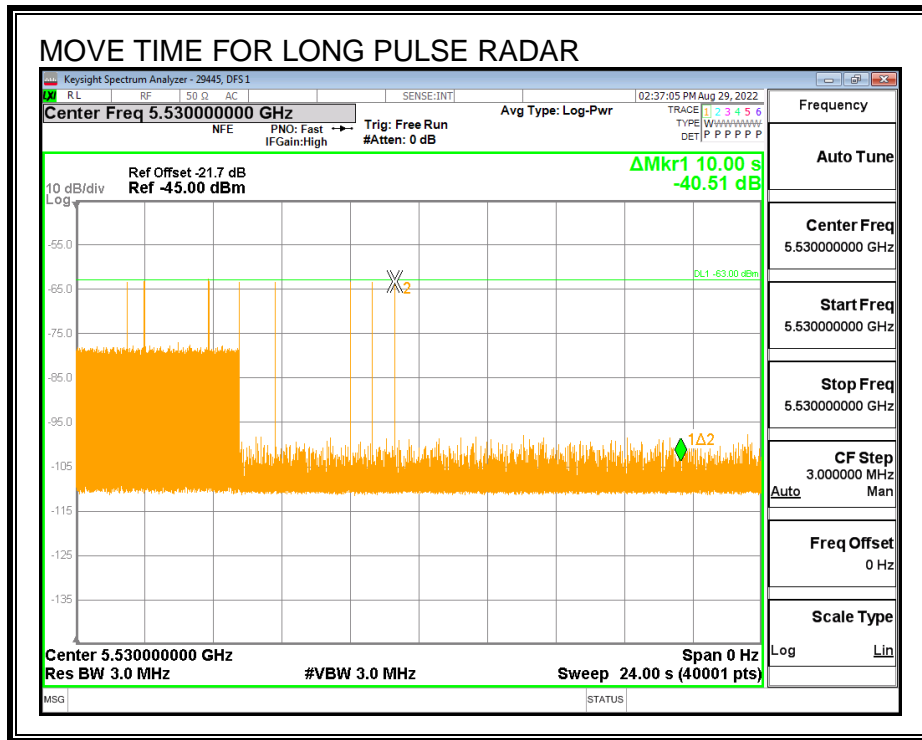
AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

Only intermittent transmissions are observed during the aggregate monitoring period.



LONG PULSE CHANNEL MOVE TIME

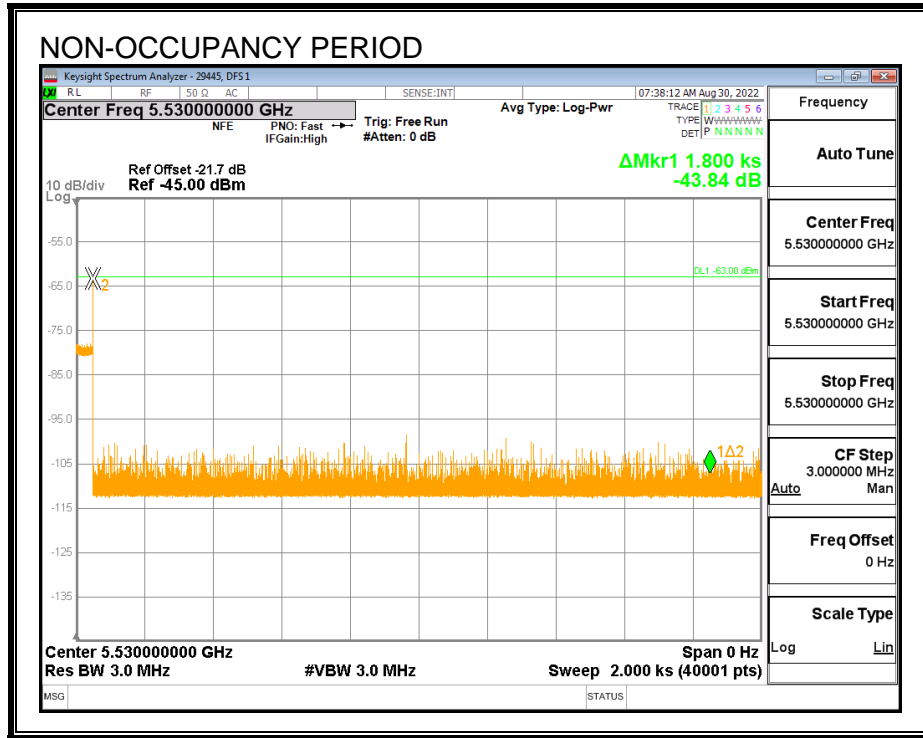
The traffic ceases prior to 10 seconds after the end of the radar waveform.



7.4.6. NON-OCCUPANCY PERIOD

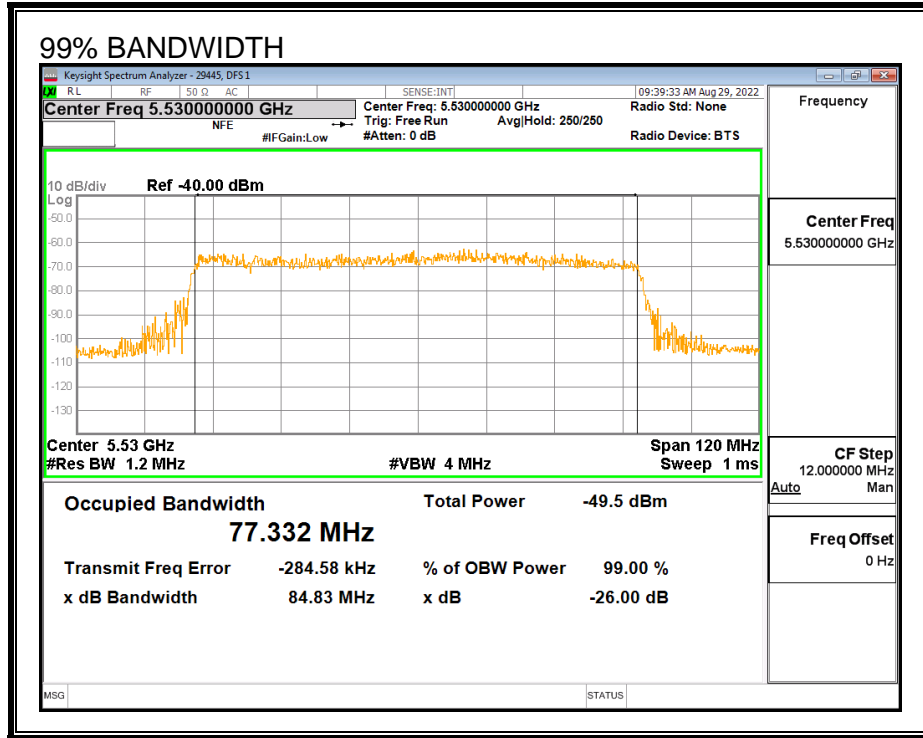
RESULTS

No EUT transmissions were observed on the test channel during the 30-minute observation time.



7.4.7. DETECTION BANDWIDTH

REFERENCE PLOT OF 99% POWER BANDWIDTH



RESULTS

F_L (MHz)	F_H (MHz)	Detection Bandwidth (MHz)	99% Power Bandwidth (MHz)	Ratio of Detection BW to 99% Power BW (%)	Minimum Limit (%)
5490	5570	80	77.332	103.5	100

DETECTION BANDWIDTH PROBABILITY

DETECTION BANDWIDTH PROBABILITY RESULTS				
Detection Bandwidth Test Results		29445	DFS 1	
FCC Type 0 Waveform: 1 us Pulse Width, 1428 us PRI, 18 Pulses per Burst				
Frequency (MHz)	Number of Trials	Number Detected	Detection (%)	Mark
5490	10	10	100	FL
5495	10	10	100	
5500	10	10	100	
5505	10	10	100	
5510	10	10	100	
5515	10	10	100	
5520	10	10	100	
5525	10	10	100	
5530	10	10	100	
5535	10	10	100	
5540	10	10	100	
5545	10	10	100	
5550	10	10	100	
5555	10	10	100	
5560	10	10	100	
5565	10	10	100	
5570	10	10	100	FH

7.4.8. IN-SERVICE MONITORING

RESULTS

FCC Radar Test Summary										
Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth			Test Location	Employee Number	In-Service Monitoring Version
					FL	FH	OBW			
FCC Short Pulse Type 1	30	96.67	60	Pass	5490	5570	77.33	DFS 1	29445	v4.1
FCC Short Pulse Type 2	30	100.00	60	Pass	5490	5570	77.33	DFS 1	29445	v4.1
FCC Short Pulse Type 3	30	90.00	60	Pass	5490	5570	77.33	DFS 1	29445	v4.1
FCC Short Pulse Type 4	30	76.67	60	Pass	5490	5570	77.33	DFS 1	29445	v4.1
Aggregate		90.83	80	Pass						
FCC Long Pulse Type 5	30	100.00	80	Pass	5490	5570	77.33	DFS 1	29445	v4.1
FCC Hopping Type 6	81	100.00	70	Pass	5490	5570		DFS 1	29445	v4.1

TYPE 1 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 1						
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Test (A/B)	Frequency (MHz)	Successful Detection (Yes/No)
1001	1	3066	18	A	5500	Yes
1002	1	858	62	A	5534	Yes
1003	1	698	76	A	5549	Yes
1004	1	818	65	A	5540	Yes
1005	1	678	78	A	5508	Yes
1006	1	638	83	A	5565	Yes
1007	1	758	70	A	5568	Yes
1008	1	718	74	A	5518	Yes
1009	1	878	61	A	5507	Yes
1010	1	838	63	A	5555	Yes
1011	1	658	81	A	5548	Yes
1012	1	738	72	A	5533	Yes
1013	1	558	95	A	5553	Yes
1014	1	938	57	A	5505	Yes
1015	1	778	68	A	5523	Yes
1016	1	1907	28	B	5494	Yes
1017	1	2734	20	B	5498	Yes
1018	1	2690	20	B	5536	Yes
1019	1	2452	22	B	5502	Yes
1020	1	1342	40	B	5560	Yes
1021	1	1233	43	B	5517	Yes
1022	1	1448	37	B	5500	Yes
1023	1	2822	19	B	5558	Yes
1024	1	1972	27	B	5519	Yes
1025	1	927	57	B	5517	Yes
1026	1	1560	34	B	5559	Yes
1027	1	645	82	B	5560	Yes
1028	1	1407	38	B	5511	Yes
1029	1	621	85	B	5513	Yes
1030	1	2867	19	B	5542	No

TYPE 2 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 2					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
2001	2.6	214	27	5511	Yes
2002	3.6	151	27	5528	Yes
2003	3.1	162	24	5559	Yes
2004	2.4	183	27	5510	Yes
2005	2.2	198	28	5541	Yes
2006	1.7	186	25	5543	Yes
2007	3.8	205	27	5558	Yes
2008	3.5	197	24	5562	Yes
2009	4	183	29	5563	Yes
2010	3.9	178	27	5527	Yes
2011	4.5	168	26	5514	Yes
2012	2.7	211	24	5525	Yes
2013	3.6	167	24	5549	Yes
2014	4.2	214	26	5568	Yes
2015	1.2	174	29	5533	Yes
2016	1.9	225	28	5495	Yes
2017	1.3	189	25	5503	Yes
2018	2.3	168	24	5521	Yes
2019	1.9	217	28	5534	Yes
2020	1.1	158	25	5547	Yes
2021	5	173	26	5504	Yes
2022	4.5	160	23	5520	Yes
2023	2.6	180	24	5495	Yes
2024	2.2	171	29	5497	Yes
2025	2.7	157	27	5502	Yes
2026	2.6	196	29	5492	Yes
2027	3.3	185	24	5518	Yes
2028	1.4	185	29	5515	Yes
2029	2.3	222	28	5504	Yes
2030	2.9	188	23	5494	Yes

TYPE 3 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 3					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
3001	9	496	17	5513	Yes
3002	9.7	403	17	5553	Yes
3003	9.1	425	16	5491	Yes
3004	6	479	18	5561	Yes
3005	9.7	380	17	5524	Yes
3006	8.9	328	16	5521	Yes
3007	8.7	493	16	5492	Yes
3008	8.2	455	18	5555	No
3009	6.3	264	18	5521	Yes
3010	8.1	371	17	5512	Yes
3011	6.4	444	17	5492	No
3012	8.5	313	17	5513	Yes
3013	7	281	17	5521	Yes
3014	9.2	414	17	5496	Yes
3015	6	395	17	5534	Yes
3016	6.6	290	17	5491	Yes
3017	7.7	416	16	5567	Yes
3018	8.4	457	16	5527	Yes
3019	7.8	346	18	5539	Yes
3020	8.8	399	17	5546	Yes
3021	8.4	300	18	5538	Yes
3022	7.6	500	18	5495	Yes
3023	7.4	414	18	5537	Yes
3024	6.9	375	17	5560	Yes
3025	9.1	318	17	5520	Yes
3026	6.8	292	18	5492	Yes
3027	9.2	365	16	5498	No
3028	7.2	485	16	5558	Yes
3029	9.8	453	16	5539	Yes
3030	7.9	335	16	5492	Yes

TYPE 4 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 4					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
4001	13	315	13	5512	Yes
4002	18.6	461	12	5556	No
4003	11.9	337	16	5491	Yes
4004	13.6	378	16	5530	Yes
4005	12.2	266	13	5548	Yes
4006	14.3	320	13	5532	No
4007	13.4	472	14	5566	Yes
4008	11.8	421	13	5553	Yes
4009	16.1	468	14	5555	Yes
4010	15	296	12	5563	Yes
4011	15	489	13	5507	Yes
4012	19.1	464	14	5555	Yes
4013	15.3	285	15	5559	Yes
4014	19.9	406	16	5546	No
4015	16.5	373	15	5539	Yes
4016	17.3	255	12	5557	Yes
4017	19.3	487	16	5519	Yes
4018	15.7	382	15	5525	No
4019	13.8	257	15	5511	Yes
4020	19.8	298	14	5525	Yes
4021	18.4	438	12	5507	No
4022	11.5	491	14	5511	Yes
4023	15.4	392	12	5525	No
4024	18	341	15	5570	Yes
4025	13.3	388	13	5516	Yes
4026	12.1	350	16	5496	Yes
4027	16.9	410	12	5506	Yes
4028	16.2	384	12	5559	No
4029	12.4	339	14	5525	Yes
4030	17	326	15	5530	Yes

TYPE 5 DETECTION PROBABILITY

Data Sheet for FCC Long Pulse Radar Type 5		
Trial	Frequency (MHz)	Successful Detection (Yes/No)
1	5530	Yes
2	5530	Yes
3	5530	Yes
4	5530	Yes
5	5530	Yes
6	5530	Yes
7	5530	Yes
8	5530	Yes
9	5530	Yes
10	5530	Yes
11	5497	Yes
12	5494	Yes
13	5497	Yes
14	5497	Yes
15	5494	Yes
16	5497	Yes
17	5497	Yes
18	5494	Yes
19	5497	Yes
20	5497	Yes
21	5566	Yes
22	5563	Yes
23	5563	Yes
24	5561	Yes
25	5566	Yes
26	5566	Yes
27	5561	Yes
28	5565	Yes
29	5562	Yes
30	5561	Yes

Note: The Type 5 randomized parameters tested are shown in a separate document.

TYPE 6 DETECTION PROBABILITY

Data Sheet for FCC Hopping Radar Type 6				
1 us Pulse Width, 333 us PRI, 9 Pulses per Burst, 1 Burst per Hop				
NTIA August 2005 Hopping Sequence				
Trial	Starting Index Within Sequence	Signal Generator Frequency (MHz)	Hops within Detection BW	Successful Detection (Yes/No)
1	823	5490	10	Yes
2	1298	5491	15	Yes
3	1773	5492	21	Yes
4	2248	5493	21	Yes
5	2723	5494	19	Yes
6	3198	5495	15	Yes
7	3673	5496	13	Yes
8	4148	5497	12	Yes
9	4623	5498	19	Yes
10	5098	5499	16	Yes
11	5573	5500	13	Yes
12	6048	5501	15	Yes
13	6523	5502	13	Yes
14	6998	5503	18	Yes
15	7473	5504	15	Yes
16	7948	5505	14	Yes
17	8423	5506	13	Yes
18	8898	5507	18	Yes
19	9373	5508	26	Yes
20	9848	5509	14	Yes
21	10323	5510	12	Yes
22	10798	5511	20	Yes
23	11273	5512	20	Yes
24	11748	5513	17	Yes
25	12223	5514	13	Yes
26	12698	5515	15	Yes
27	13173	5516	26	Yes
28	13648	5517	17	Yes
29	14123	5518	12	Yes
30	14598	5519	18	Yes
31	15073	5520	12	Yes
32	15548	5521	14	Yes
33	16023	5522	15	Yes
34	16498	5523	19	Yes
35	16973	5524	20	Yes
36	17448	5525	17	Yes
37	17923	5526	15	Yes
38	18398	5527	16	Yes
39	18873	5528	14	Yes

TYPE 6 DETECTION PROBABILITY (CONTINUED)

40	19348	5529	17	Yes
41	19823	5530	21	Yes
42	20298	5531	17	Yes
43	20773	5532	14	Yes
44	21248	5533	9	Yes
45	21723	5534	20	Yes
46	22198	5535	18	Yes
47	22673	5536	11	Yes
48	23148	5537	14	Yes
49	23623	5538	14	Yes
50	24098	5539	15	Yes
51	24573	5540	16	Yes
52	25048	5541	18	Yes
53	25523	5542	16	Yes
54	25998	5543	19	Yes
55	26473	5544	17	Yes
56	26948	5545	17	Yes
57	27423	5546	14	Yes
58	27898	5547	19	Yes
59	28373	5548	22	Yes
60	28848	5549	15	Yes
61	29323	5550	17	Yes
62	29798	5551	20	Yes
63	30273	5552	13	Yes
64	30748	5553	17	Yes
65	31223	5554	15	Yes
66	31698	5555	20	Yes
67	32173	5556	16	Yes
68	32648	5557	20	Yes
69	33123	5558	22	Yes
70	33598	5559	18	Yes
71	34073	5560	20	Yes
72	34548	5561	21	Yes
73	35023	5562	15	Yes
74	35498	5563	23	Yes
75	35973	5564	20	Yes
76	36448	5565	25	Yes
77	36923	5566	14	Yes
78	37398	5567	16	Yes
79	37873	5568	17	Yes
80	38348	5569	17	Yes
81	38823	5570	15	Yes

7.5. BRIDGE MODE RESULTS

Per KDB 905462 D02, Section 5.1 (footnote 2):

Networks Access Points with Bridge and/or MESH modes of operation are permitted to operate in the DFS bands but must employ a DFS function. The functionality of the Bridge mode as specified in §15.403(a) must be validated in the DFS test report. Devices operating as relays where they act as master and client must also employ DFS function for the master. The method used to validate the functionality must be documented and validation data must be documented. Bridge mode can be validated by performing a test statistical performance check (Section 7.8.4) on any one of the radar types. This is an abbreviated test to verify DFS functionality. MESH mode operational methodology must be submitted in the application for certification for evaluation by the FCC.

This device does not support Bridge Mode therefore this test was not performed.

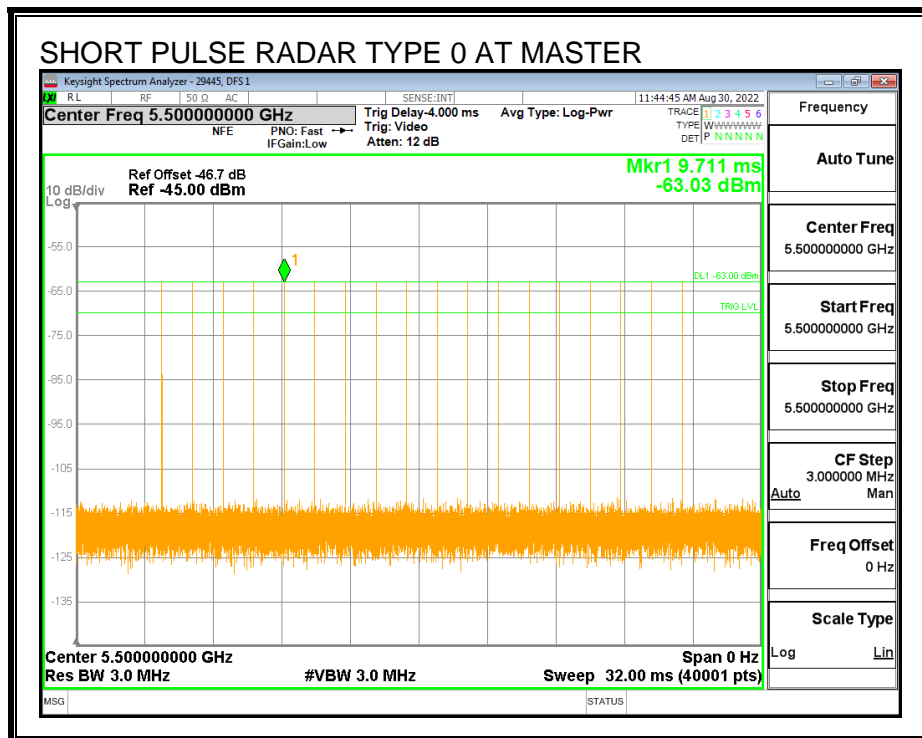
7.6. MESH SLAVE RESULTS FOR 20 MHz BANDWIDTH

7.6.1. TEST CHANNEL

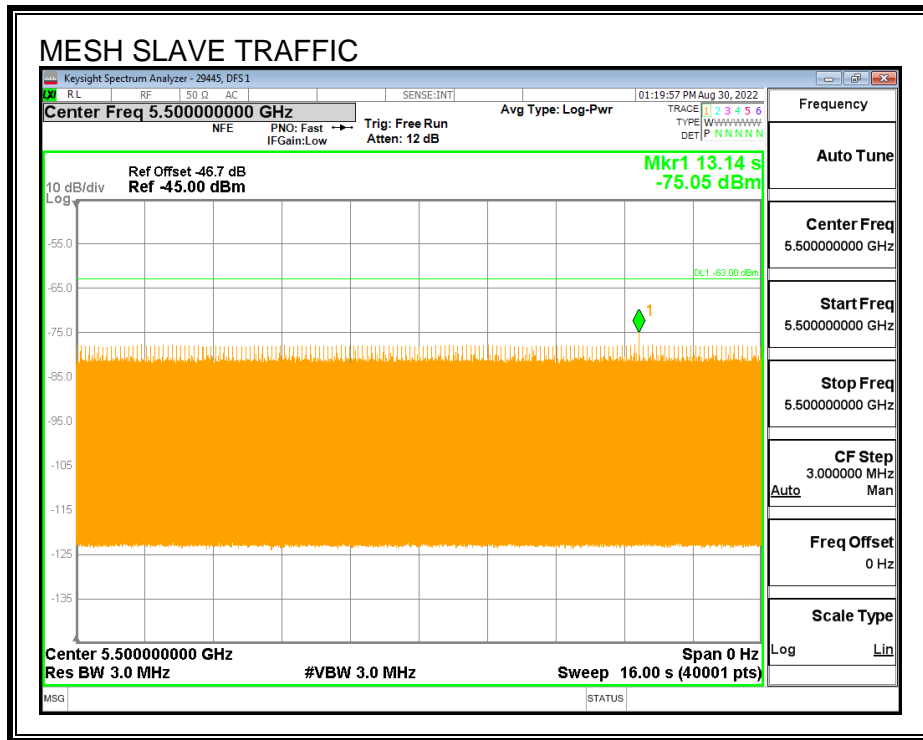
All tests were performed at a channel center frequency of 5500 MHz.

7.6.2. RADAR WAVEFORM AND TRAFFIC

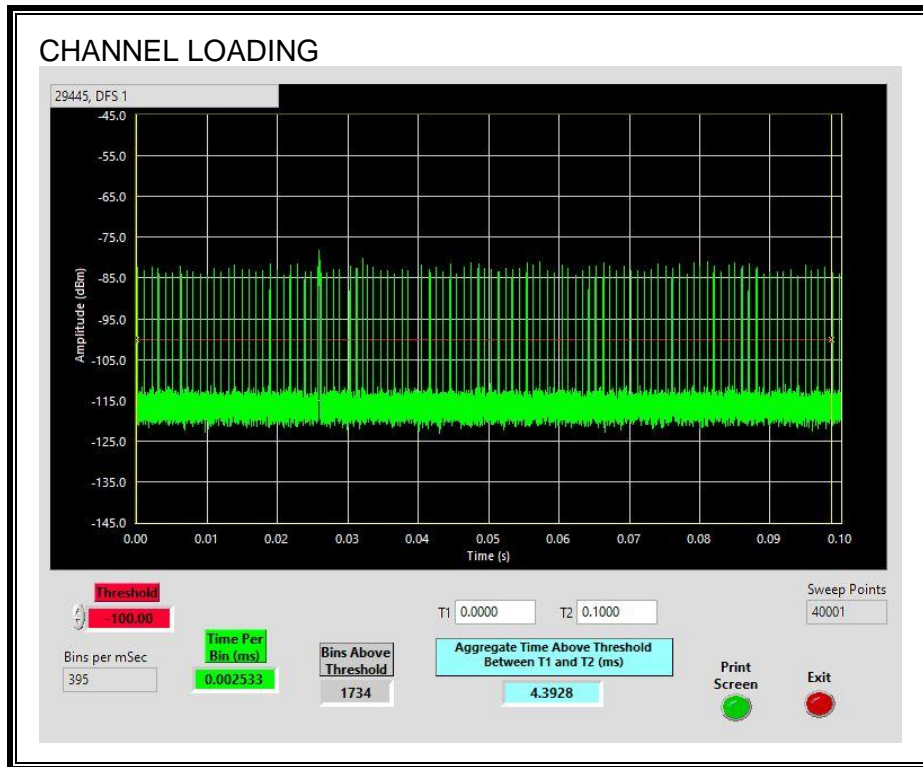
RADAR WAVEFORM



MESH SLAVE TRAFFIC



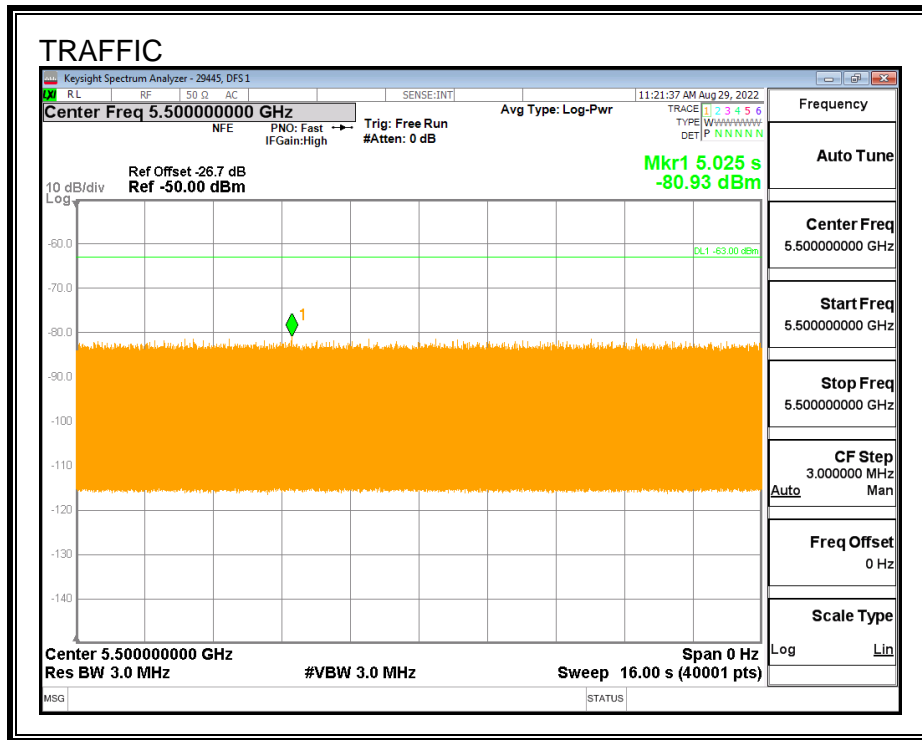
MESH SLAVE DEVICE CHANNEL LOADING



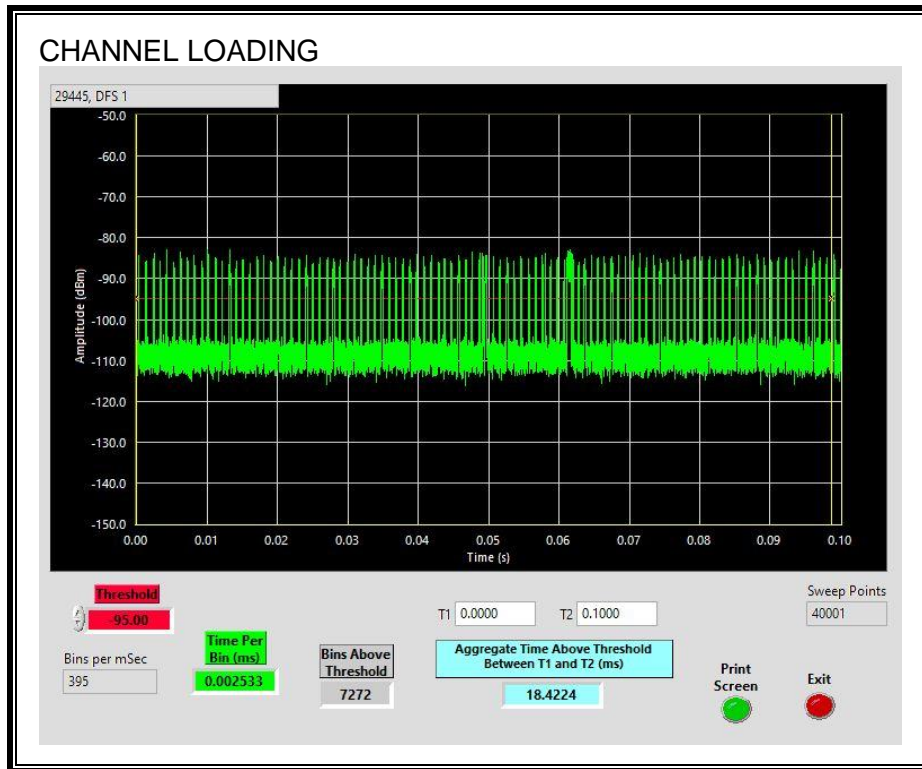
The level of traffic loading on the channel by the EUT is 4.39%

Per KDB 905462 D02 page 2, channel Loading is defined as the data transfer from the aster device to a client device. Therefore the channel loading upon the Master Device meets the requirement as shown in the following plots taken from the Master Device test results.

MASTER DEVICE TRAFFIC



MASTER DEVICE CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 18.42%

7.6.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

7.6.4. MOVE AND CLOSING TIME

Per Table 2 on page 6 of KDB 905462 D02, Channel Move Time and Channel Closing Transmission Time are only required to be tested using the widest supported channel bandwidth mode. Therefore this test has not been performed for this channel bandwidth.

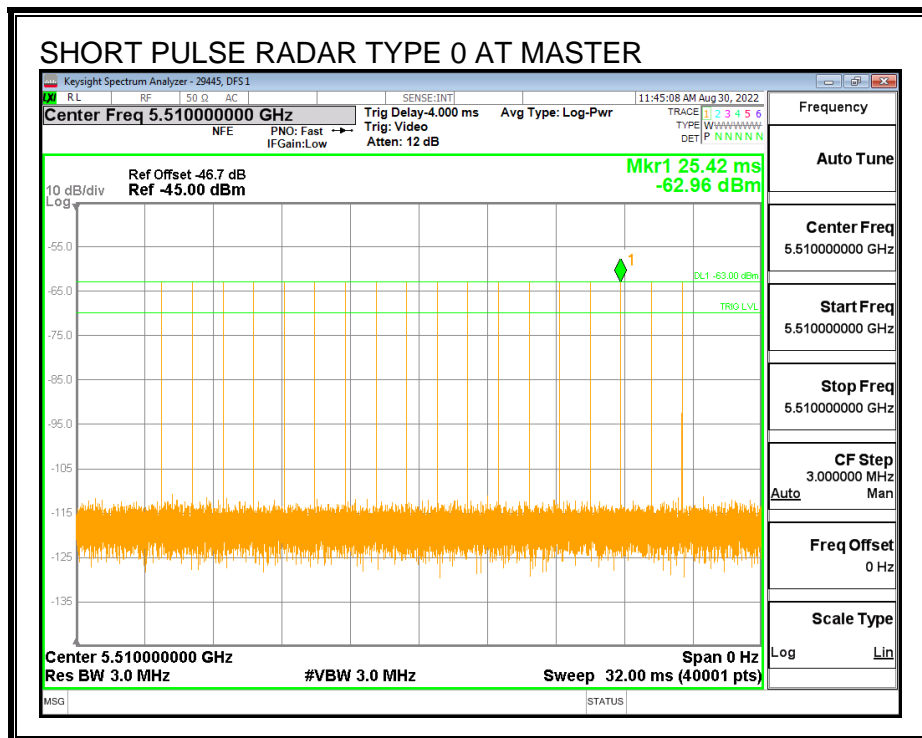
7.7. MESH SLAVE RESULTS FOR 40 MHz BANDWIDTH

7.7.1. TEST CHANNEL

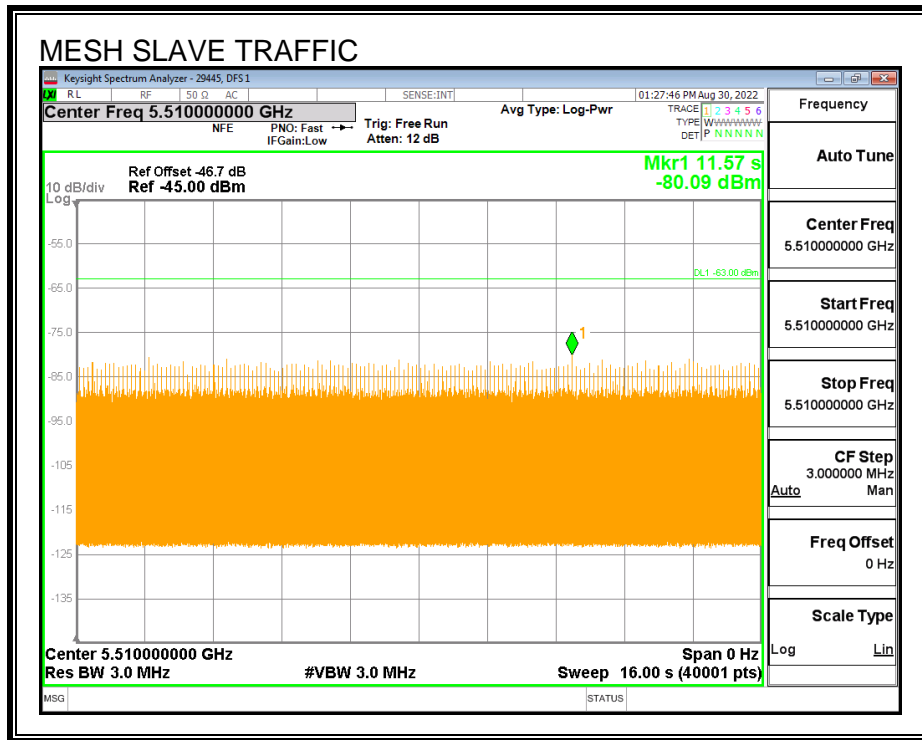
All tests were performed at a channel center frequency of 5510 MHz.

7.7.2. RADAR WAVEFORM AND TRAFFIC

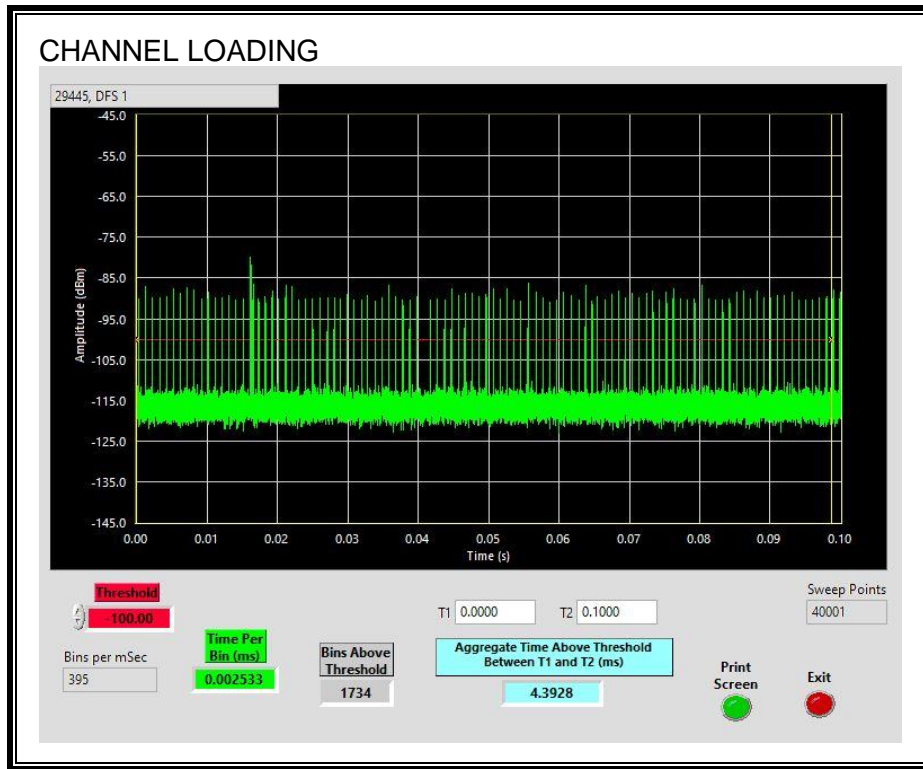
RADAR WAVEFORM



MESH SLAVE TRAFFIC



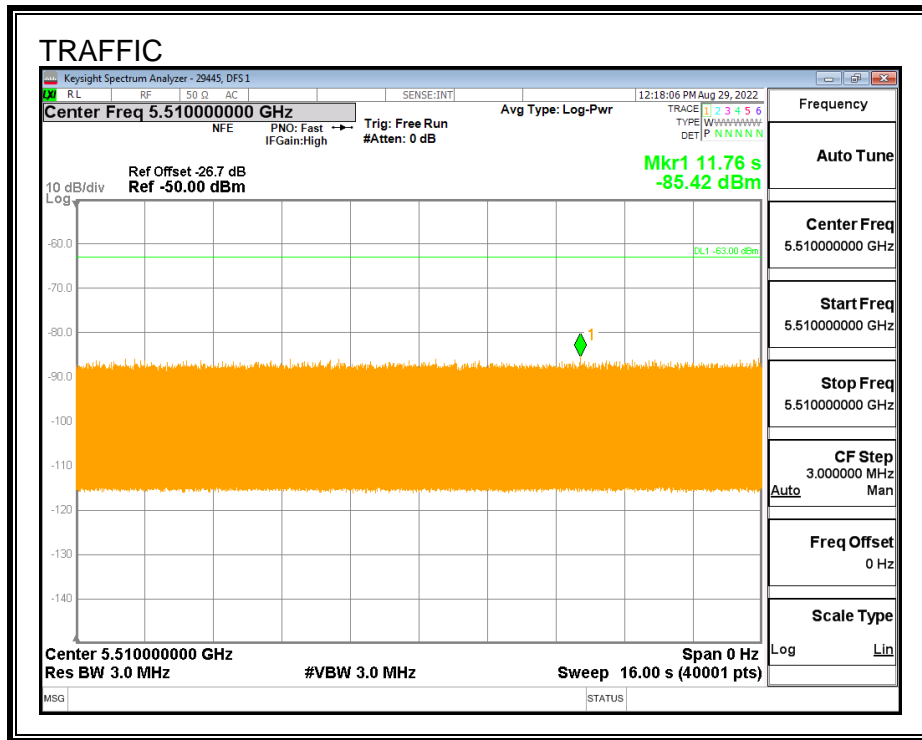
MESH SLAVE DEVICE CHANNEL LOADING



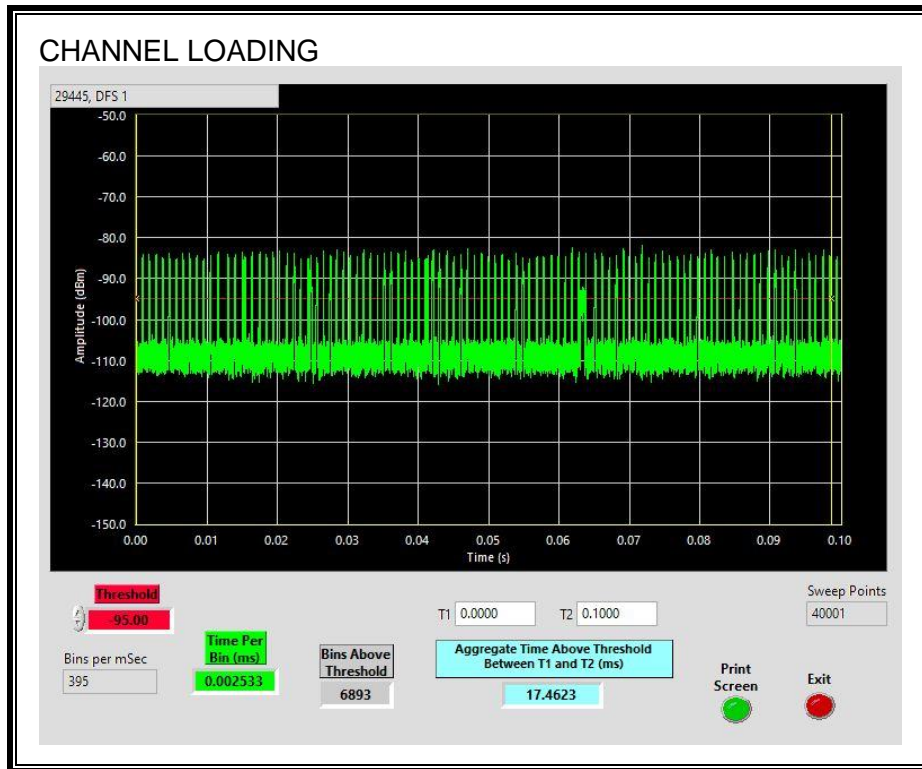
The level of traffic loading on the channel by the EUT is 4.39%

Per KDB 905462 D02 page 2, channel Loading is defined as the data transfer from the master device to a client device. Therefore the channel loading upon the Master Device meets the requirement as shown in the following plots taken from the Master Device test results.

MASTER DEVICE TRAFFIC



MASTER DEVICE CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 17.46%

7.7.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

7.7.4. MOVE AND CLOSING TIME

Per Table 2 on page 6 of KDB 905462 D02, Channel Move Time and Channel Closing Transmission Time are only required to be tested using the widest supported channel bandwidth mode. Therefore this test has not been performed for this channel bandwidth.

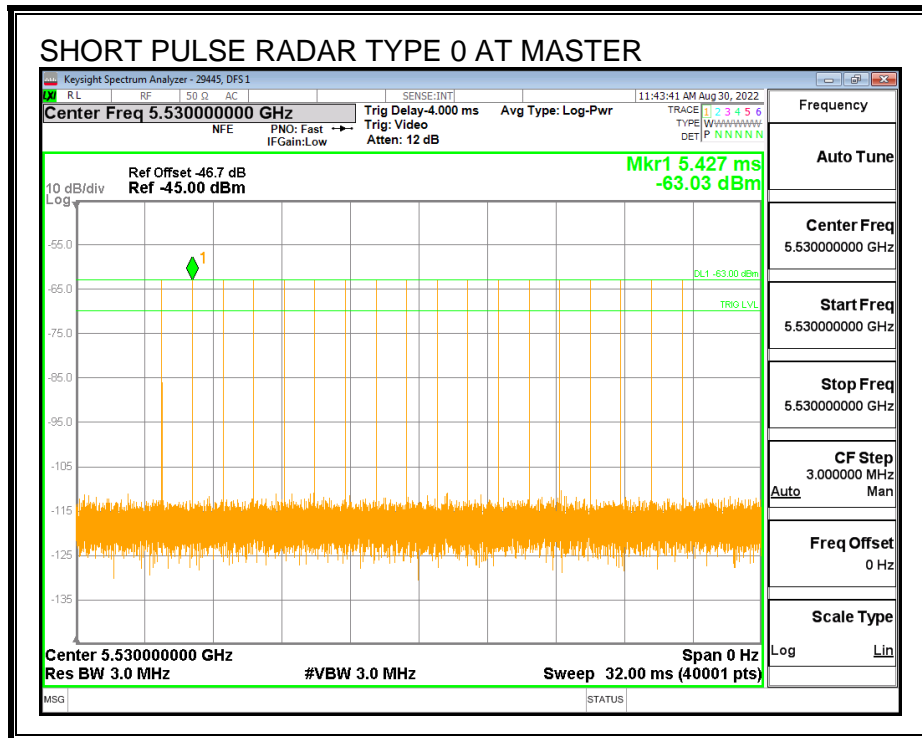
7.8. MESH SLAVE RESULTS FOR 80 MHz BANDWIDTH

7.8.1. TEST CHANNEL

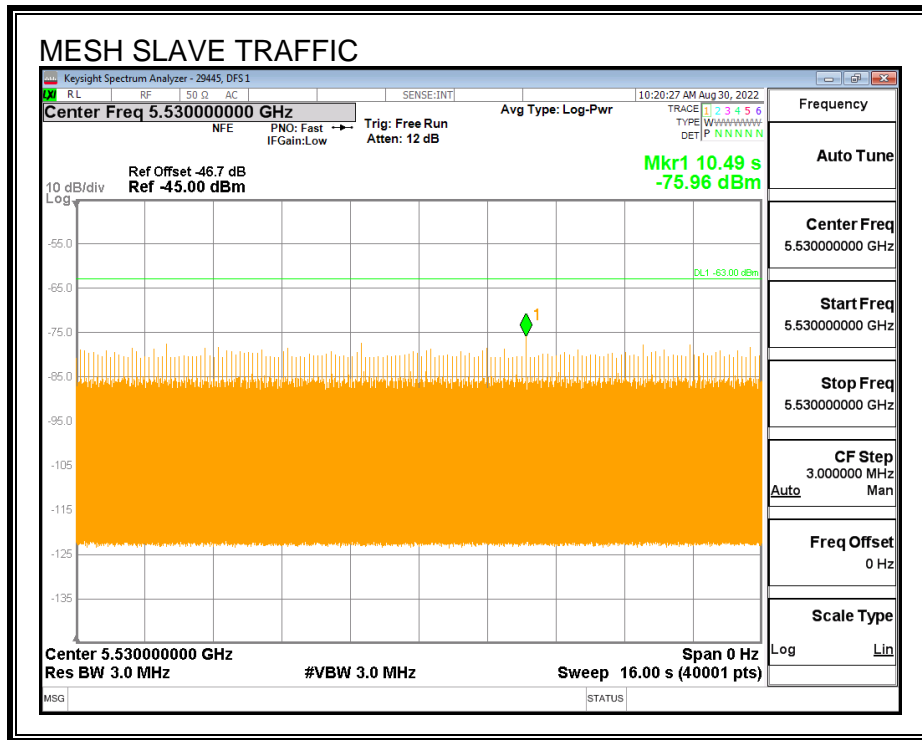
All tests were performed at a channel center frequency of 5530 MHz.

7.8.2. RADAR WAVEFORM AND TRAFFIC

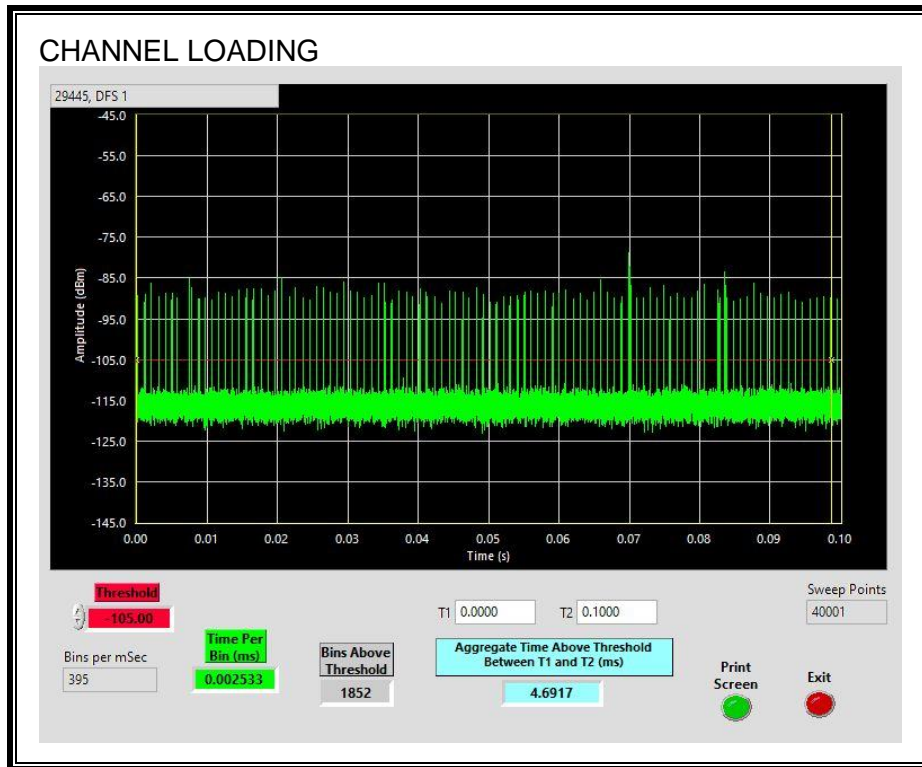
RADAR WAVEFORM



MESH SLAVE TRAFFIC



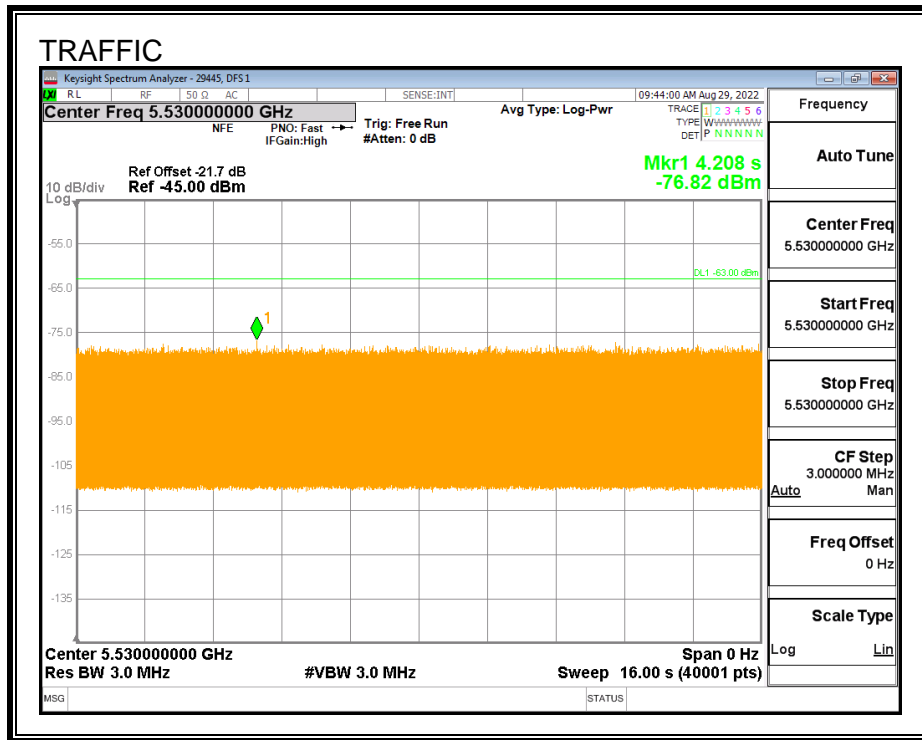
MESH SLAVE DEVICE CHANNEL LOADING



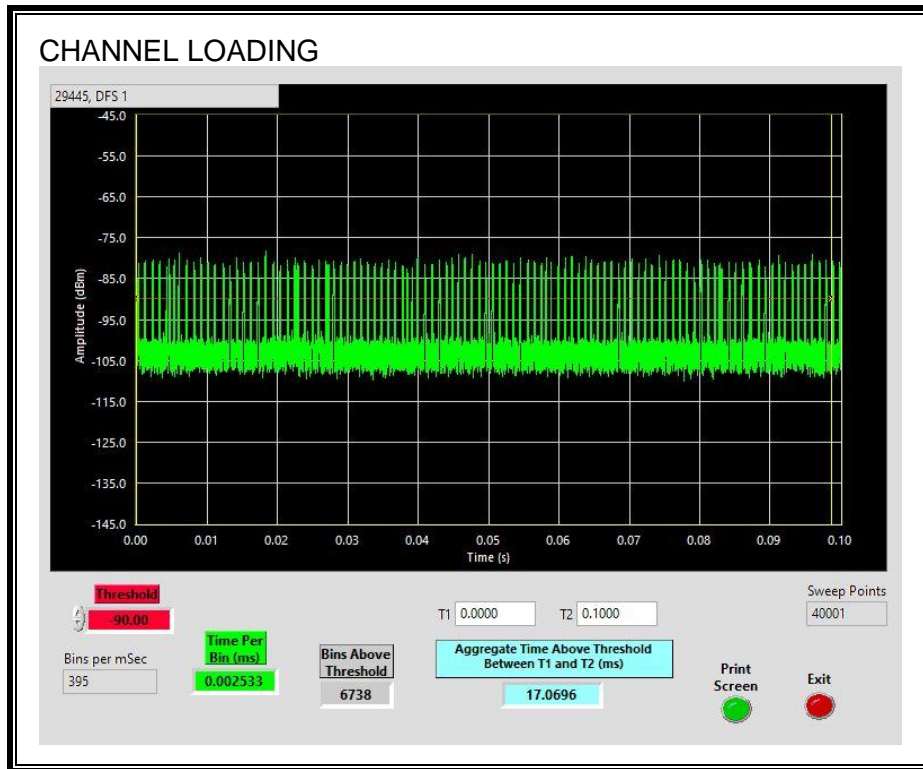
The level of traffic loading on the channel by the EUT is 4.69%

Per KDB 905462 D02 page 2, channel Loading is defined as the data transfer from the master device to a client device. Therefore the channel loading upon the Master Device meets the requirement as shown in the following plots taken from the Master Device test results.

MASTER DEVICE TRAFFIC



MASTER DEVICE CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 17.069%

7.8.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

7.8.4. MOVE AND CLOSING TIME

REPORTING NOTES

The reference marker is set at the end of last radar pulse.

The delta marker is set at the end of the last WLAN transmission following the radar pulse. This delta is the channel move time.

The aggregate channel closing transmission time is calculated as follows:

Aggregate Transmission Time =
(Number of analyzer bins showing transmission) * (dwell time per bin)

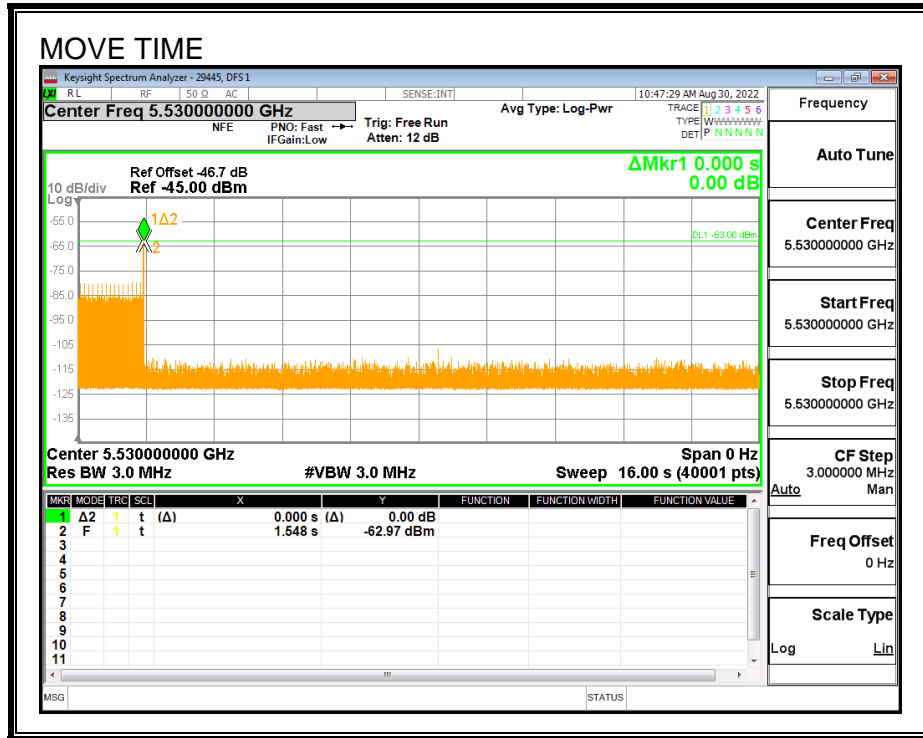
The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

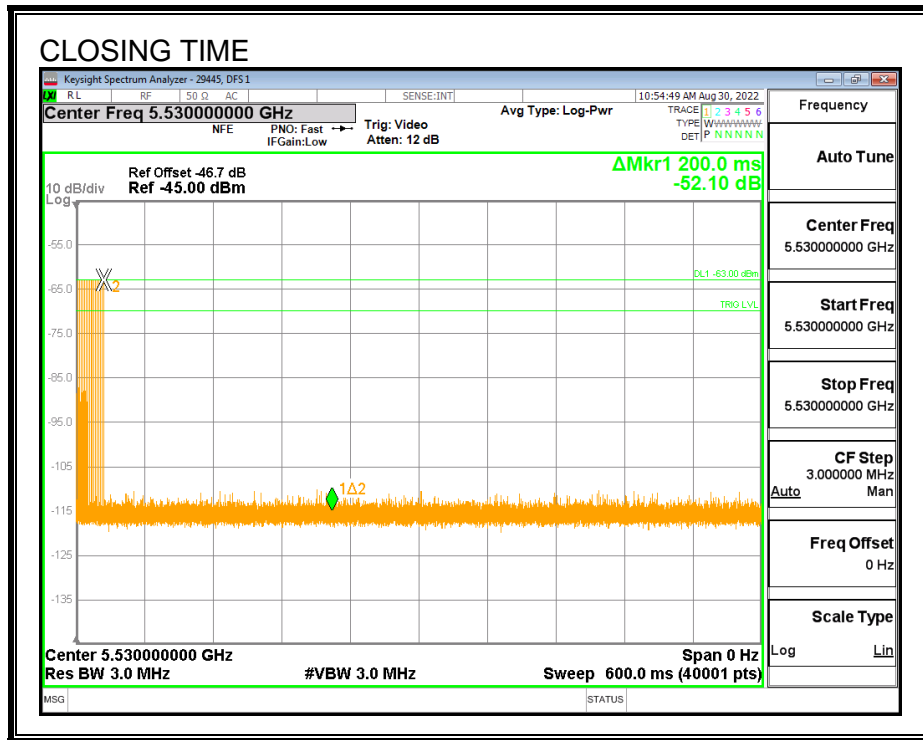
Channel Move Time (sec)	Limit (sec)
0.000	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
0.0	60

MOVE TIME

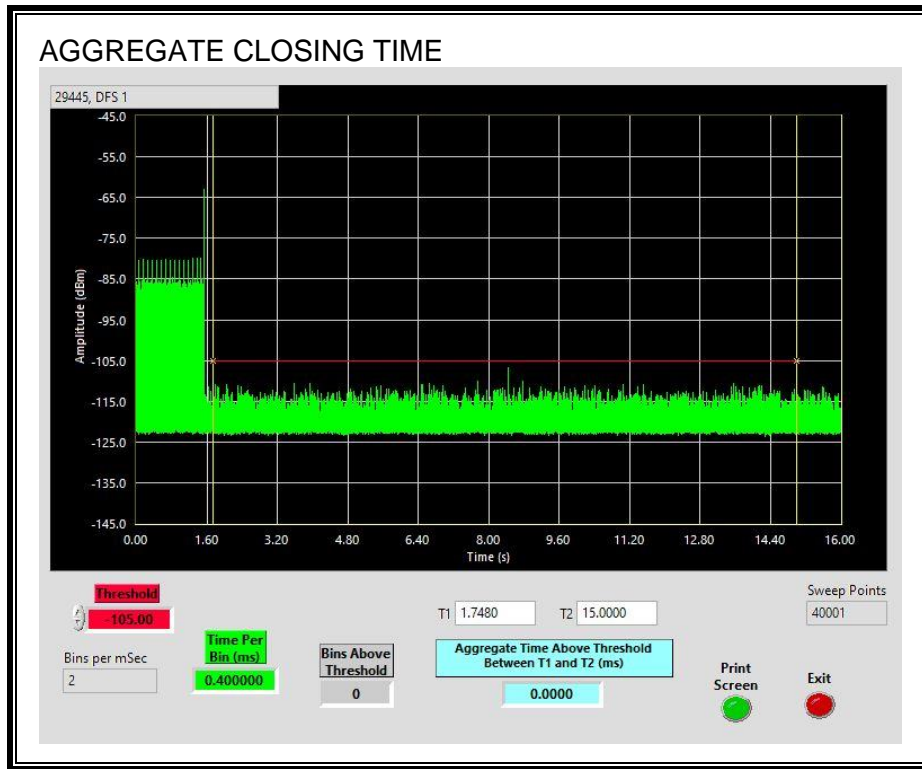


CHANNEL CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

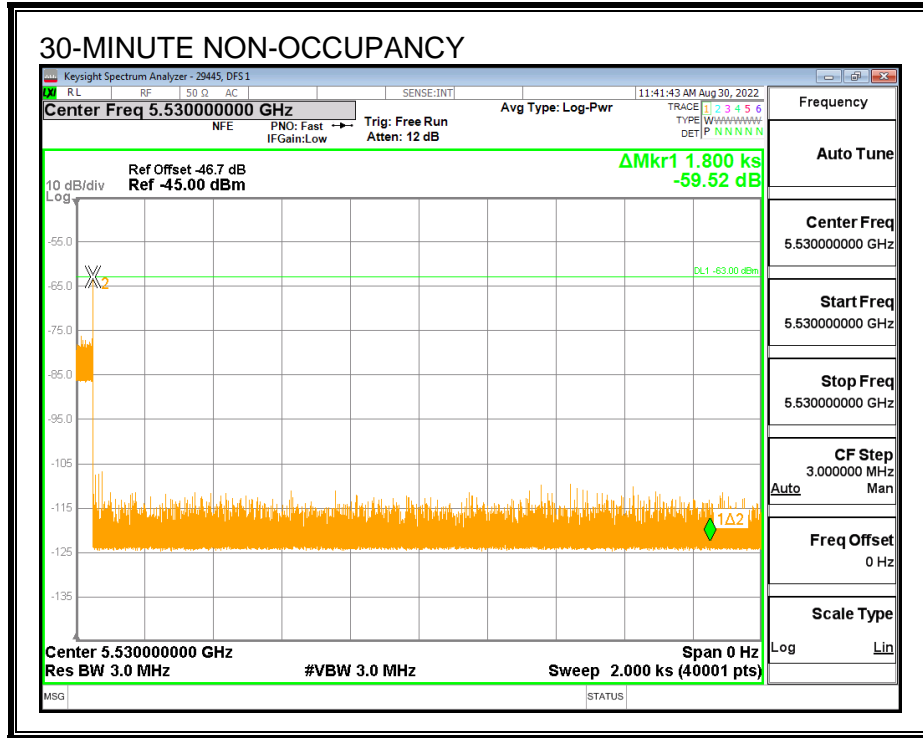
No transmissions are observed during the aggregate monitoring period.



7.8.5. 30-MINUTE NON-OCCUPANCY PERIOD

RESULTS

No EUT transmissions were observed on the test channel during the 30-minute observation time.



Waveform Num = 1

Num of Bursts = 8

Burst Interval (us) = 1500000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	1157796	2	10	80	1885	1868	0	1157796	0	1499999
2	600993	3	10	90	1380	1920	1586	1762542	1500000	2999999
3	2248264	3	10	50	1364	1055	1937	4015692	3000000	4499999
4	1062627	2	10	100	1449	1825	0	5082675	4500000	5999999
5	1252984	2	10	100	1971	1637	0	6338933	6000000	7499999
6	2636070	2	10	55	1415	1106	0	8978611	7500000	8999999
7	768259	1	10	60	1517	0	0	9749391	9000000	10499999
8	780391	2	10	70	1397	1012	0	10531299	10500000	11999999

Total number of pulses in waveform = 17

Waveform Num = 2
Num of Bursts = 10
Burst Interval (us) = 1200000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	45719	2	17	55	1465	1688	0	45719	0	1199999
2	1811344	1	17	60	1568	0	0	1860216	1200000	2399999
3	1259861	2	17	50	1980	1063	0	3121645	2400000	3599999
4	869795	2	17	55	1389	1030	0	3994483	3600000	4799999
5	1494221	1	17	95	1175	0	0	5491123	4800000	5999999
6	881121	2	17	70	1790	1355	0	6373419	6000000	7199999
7	920450	3	17	100	1133	1192	1440	7297014	7200000	8399999
8	1288917	2	17	80	1953	1226	0	8589696	8400000	9599999
9	1441597	2	17	75	1372	1406	0	10034472	9600000	10799999
10	920443	3	17	75	1184	1774	1491	10957693	10800000	11999999

Total number of pulses in waveform = 20

Waveform Num = 3
 Num of Bursts = 13
 Burst Interval (us) = 923077

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	492093	1	15	65	1209	0	0	492093	0	923076
2	1300020	1	15	70	1988	0	0	1793322	923077	1846153
3	118005	2	15	80	1234	1825	0	1913315	1846154	2769230
4	1091609	3	15	50	1705	1586	1860	3007983	2769231	3692307
5	714581	1	15	55	1004	0	0	3727715	3692308	4615384
6	1000285	3	15	80	1619	1817	1876	4729004	4615385	5538461
7	1577399	3	15	50	1286	1637	1911	6311715	5538462	6461538
8	227234	1	15	55	1055	0	0	6543783	6461539	7384615
9	1639506	1	15	85	1201	0	0	8184344	7384616	8307692
10	432676	2	15	55	1347	1646	0	8618221	8307693	9230769
11	809821	1	15	100	1893	0	0	9431035	9230770	10153846
12	952389	3	15	55	1671	1629	1244	10385317	10153847	11076923
13	1043610	3	15	75	1757	1397	1697	11433471	11076924	12000000

Total number of pulses in waveform = 25

Waveform Num = 4
Num of Bursts = 11
Burst Interval (us) = 1090909

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	785130	2	13	90	1782	1689	0	785130	0	1090908
2	1179965	3	13	65	1303	1500	1090	1968566	1090909	2181817
3	855187	2	13	90	1971	1320	0	2827646	2181818	3272726
4	772340	2	13	95	1833	1740	0	3603277	3272727	4363635
5	1356947	1	13	65	1885	0	0	4963797	4363636	5454544
6	847869	1	13	70	1030	0	0	5813551	5454545	6545453
7	1359105	1	13	95	1175	0	0	7173686	6545454	7636362
8	800884	2	13	70	1790	1355	0	7975745	7636363	8727271
9	836549	3	13	100	1133	1192	1440	8815439	8727272	9818180
10	1171382	2	13	80	1953	1226	0	9990586	9818181	10909089
11	1310208	2	13	75	1372	1406	0	11303973	10909090	11999998

Total number of pulses in waveform = 21

Waveform Num = 5
 Num of Bursts = 20
 Burst Interval (us) = 600000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	78943	1	13	90	1491	0	0	78943	0	599999
2	644669	2	13	85	1003	1277	0	725103	600000	1199999
3	1036275	2	13	50	1423	1988	0	1763658	1200000	1799999
4	76507	2	13	80	1234	1825	0	1843576	1800000	2399999
5	708085	3	13	50	1705	1586	1860	2554720	2400000	2999999
6	463130	1	13	55	1004	0	0	3023001	3000000	3599999
7	649617	3	13	80	1619	1817	1876	3673622	3600000	4199999
8	1022256	3	13	50	1286	1637	1911	4701190	4200000	4799999
9	147401	1	13	55	1055	0	0	4853425	4800000	5399999
10	1064979	1	13	85	1201	0	0	5919459	5400000	5999999
11	280830	2	13	55	1347	1646	0	6201490	6000000	6599999
12	525545	1	13	100	1893	0	0	6730028	6600000	7199999
13	618134	3	13	55	1671	1629	1244	7350055	7200000	7799999
14	676497	3	13	75	1757	1397	1697	8031096	7800000	8399999
15	842454	1	13	75	1475	0	0	8878401	8400000	8999999
16	300382	3	13	85	1722	1679	1294	9180258	9000000	9599999
17	861054	2	13	50	1808	1448	0	10046007	9600000	10199999
18	646277	3	13	65	1594	1526	1851	10695540	10200000	10799999
19	427674	3	13	65	1261	1345	1885	11128185	10800000	11399999
20	464625	1	13	70	1030	0	0	11597301	11400000	11999999

Total number of pulses in waveform = 41

Waveform Num = 6
Num of Bursts = 8
Burst Interval (us) = 1500000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	621606	1	19	80	1432	0	0	621606	0	1499999
2	1075923	3	19	65	1312	1928	1936	1698961	1500000	2999999
3	1865752	1	19	70	1081	0	0	3569889	3000000	4499999
4	1652229	2	19	100	1226	1158	0	5223199	4500000	5999999
5	2239159	2	19	70	1406	1363	0	7464742	6000000	7499999
6	229908	2	19	60	1774	1491	0	7697419	7500000	8999999
7	1612789	2	19	85	1003	1277	0	9313473	9000000	10499999
8	2598225	2	19	50	1423	1988	0	11913978	10500000	11999999

Total number of pulses in waveform = 15

Waveform Num = 7
Num of Bursts = 15
Burst Interval (us) = 800000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	570354	1	14	95	1073	0	0	570354	0	799999
2	914730	1	14	85	1586	0	0	1486157	800000	1599999
3	116171	1	14	55	1098	0	0	1603914	1600000	2399999
4	1289351	1	14	100	1611	0	0	2894363	2400000	3199999
5	532173	3	14	95	1123	1765	1063	3428147	3200000	3999999
6	686813	2	14	100	1842	1166	0	4118911	4000000	4799999
7	1206909	1	14	50	1046	0	0	5328828	4800000	5599999
8	409551	1	14	95	1457	0	0	5739425	5600000	6399999
9	1425463	2	14	85	1337	1218	0	7166345	6400000	7199999
10	530987	3	14	60	1731	1106	1671	7699887	7200000	7999999
11	701349	1	14	60	1919	0	0	8405744	8000000	8799999
12	824373	3	14	70	1697	1388	1269	9232036	8800000	9599999
13	938704	2	14	90	1782	1689	0	10175094	9600000	10399999
14	864212	3	14	65	1303	1500	1090	11042777	10400000	11199999
15	626416	2	14	90	1971	1320	0	11673086	11200000	11999999

Total number of pulses in waveform = 27

Waveform Num = 8
Num of Bursts = 14
Burst Interval (us) = 857143

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	754941	3	18	90	1304	1261	1345	754941	0	857142
2	379838	2	18	55	1389	1030	0	1138689	857143	1714285
3	1066644	1	18	95	1175	0	0	2207752	1714286	2571428
4	628949	2	18	70	1790	1355	0	2837876	2571429	3428571
5	656760	3	18	100	1133	1192	1440	3497781	3428572	4285714
6	919522	2	18	80	1953	1226	0	4421068	4285715	5142857
7	1028660	2	18	75	1372	1406	0	5452907	5142858	6000000
8	656786	3	18	75	1184	1774	1491	6112471	6000001	6857143
9	919147	2	18	85	1003	1277	0	7036067	6857144	7714286
10	1482546	2	18	50	1423	1988	0	8520893	7714287	8571429
11	109474	2	18	80	1234	1825	0	8633778	8571430	9428572
12	1013339	3	18	50	1705	1586	1860	9650176	9428573	10285715
13	663264	1	18	55	1004	0	0	10318591	10285716	11142858
14	928720	3	18	80	1619	1817	1876	11248315	11142859	12000001

Total number of pulses in waveform = 31

Waveform Num = 9
 Num of Bursts = 17
 Burst Interval (us) = 705882

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	592814	1	6	85	1911	0	0	592814	0	705881
2	174027	1	6	55	1055	0	0	768752	705882	1411763
3	1253268	1	6	85	1201	0	0	2023075	1411764	2117645
4	330595	2	6	55	1347	1646	0	2354871	2117646	2823527
5	618711	1	6	100	1893	0	0	2976575	2823528	3529409
6	727679	3	6	55	1671	1629	1244	3706147	3529410	4235291
7	796811	3	6	75	1757	1397	1697	4507502	4235292	4941173
8	991854	1	6	75	1475	0	0	5504207	4941174	5647055
9	353693	3	6	85	1722	1679	1294	5859375	5647056	6352937
10	1014011	2	6	50	1808	1448	0	6878081	6352938	7058819
11	761202	3	6	65	1594	1526	1851	7642539	7058820	7764701
12	503729	3	6	65	1261	1345	1885	8151239	7764702	8470583
13	547032	1	6	70	1030	0	0	8702762	8470584	9176465
14	878938	1	6	95	1175	0	0	9582730	9176466	9882347
15	517697	2	6	70	1790	1355	0	10101602	9882348	10588229
16	540424	3	6	100	1133	1192	1440	10645171	10588230	11294111
17	756554	2	6	80	1953	1226	0	11405490	11294112	11999993

Total number of pulses in waveform = 33

Waveform Num = 10
 Num of Bursts = 14
 Burst Interval (us) = 857143

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	441927	2	12	70	1363	1979	0	441927	0	857142
2	524734	1	12	90	1491	0	0	970003	857143	1714285
3	921715	2	12	85	1003	1277	0	1893209	1714286	2571428
4	1482546	2	12	50	1423	1988	0	3378035	2571429	3428571
5	109474	2	12	80	1234	1825	0	3490920	3428572	4285714
6	1013339	3	12	50	1705	1586	1860	4507318	4285715	5142857
7	663264	1	12	55	1004	0	0	5175733	5142858	6000000
8	928720	3	12	80	1619	1817	1876	6105457	6000001	6857143
9	1464105	3	12	50	1286	1637	1911	7574874	6857144	7714286
10	210942	1	12	55	1055	0	0	7790650	7714287	8571429
11	1522255	1	12	85	1201	0	0	9313960	8571430	9428572
12	401687	2	12	55	1347	1646	0	9716848	9428573	10285715
13	751806	1	12	100	1893	0	0	10471647	10285716	11142858
14	884174	3	12	55	1671	1629	1244	11357714	11142859	12000001

Total number of pulses in waveform = 27

Waveform Num = 11
Num of Bursts = 19
Burst Interval (us) = 631579

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	340583	3	13	70	1697	1388	1269	340583	0	631578
2	740136	2	13	90	1782	1689	0	1085073	631579	1263157
3	681408	3	13	65	1303	1500	1090	1769952	1263158	1894736
4	493970	2	13	90	1971	1320	0	2267815	1894737	2526315
5	446124	2	13	95	1833	1740	0	2717230	2526316	3157894
6	784116	1	13	65	1885	0	0	3504919	3157895	3789473
7	490373	1	13	70	1030	0	0	3997177	3789474	4421052
8	786274	1	13	95	1175	0	0	4784481	4421053	5052631
9	463047	2	13	70	1790	1355	0	5248703	5052632	5684210
10	483278	3	13	100	1133	1192	1440	5735126	5684211	6315789
11	676500	2	13	80	1953	1226	0	6415391	6315790	6947368
12	756991	2	13	75	1372	1406	0	7175561	6947369	7578947
13	483327	3	13	75	1184	1774	1491	7661666	7578948	8210526
14	676124	2	13	85	1003	1277	0	8342239	8210527	8842105
15	1091081	2	13	50	1423	1988	0	9435600	8842106	9473684
16	80556	2	13	80	1234	1825	0	9519567	9473685	10105263
17	745572	3	13	50	1705	1586	1860	10268198	10105264	10736842
18	487708	1	13	55	1004	0	0	10761057	10736843	11368421
19	683892	3	13	80	1619	1817	1876	11445953	11368422	12000000

Total number of pulses in waveform = 40

Waveform Num = 12
 Num of Bursts = 17
 Burst Interval (us) = 705882

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	592814	1	6	85	1911	0	0	592814	0	705881
2	174027	1	6	55	1055	0	0	768752	705882	1411763
3	1253268	1	6	85	1201	0	0	2023075	1411764	2117645
4	330595	2	6	55	1347	1646	0	2354871	2117646	2823527
5	618711	1	6	100	1893	0	0	2976575	2823528	3529409
6	727679	3	6	55	1671	1629	1244	3706147	3529410	4235291
7	796811	3	6	75	1757	1397	1697	4507502	4235292	4941173
8	991854	1	6	75	1475	0	0	5504207	4941174	5647055
9	353693	3	6	85	1722	1679	1294	5859375	5647056	6352937
10	1014011	2	6	50	1808	1448	0	6878081	6352938	7058819
11	761202	3	6	65	1594	1526	1851	7642539	7058820	7764701
12	503729	3	6	65	1261	1345	1885	8151239	7764702	8470583
13	547032	1	6	70	1030	0	0	8702762	8470584	9176465
14	878938	1	6	95	1175	0	0	9582730	9176466	9882347
15	517697	2	6	70	1790	1355	0	10101602	9882348	10588229
16	540424	3	6	100	1133	1192	1440	10645171	10588230	11294111
17	756554	2	6	80	1953	1226	0	11405490	11294112	11999993

Total number of pulses in waveform = 33

Waveform Num = 13
Num of Bursts = 14
Burst Interval (us) = 857143

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	441927	2	12	70	1363	1979	0	441927	0	857142
2	524734	1	12	90	1491	0	0	970003	857143	1714285
3	921715	2	12	85	1003	1277	0	1893209	1714286	2571428
4	1482546	2	12	50	1423	1988	0	3378035	2571429	3428571
5	109474	2	12	80	1234	1825	0	3490920	3428572	4285714
6	1013339	3	12	50	1705	1586	1860	4507318	4285715	5142857
7	663264	1	12	55	1004	0	0	5175733	5142858	6000000
8	928720	3	12	80	1619	1817	1876	6105457	6000001	6857143
9	1464105	3	12	50	1286	1637	1911	7574874	6857144	7714286
10	210942	1	12	55	1055	0	0	7790650	7714287	8571429
11	1522255	1	12	85	1201	0	0	9313960	8571430	9428572
12	401687	2	12	55	1347	1646	0	9716848	9428573	10285715
13	751806	1	12	100	1893	0	0	10471647	10285716	11142858
14	884174	3	12	55	1671	1629	1244	11357714	11142859	12000001

Total number of pulses in waveform = 27

Waveform Num = 14
 Num of Bursts = 19
 Burst Interval (us) = 631579

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	340583	3	13	70	1697	1388	1269	340583	0	631578
2	740136	2	13	90	1782	1689	0	1085073	631579	1263157
3	681408	3	13	65	1303	1500	1090	1769952	1263158	1894736
4	493970	2	13	90	1971	1320	0	2267815	1894737	2526315
5	446124	2	13	95	1833	1740	0	2717230	2526316	3157894
6	784116	1	13	65	1885	0	0	3504919	3157895	3789473
7	490373	1	13	70	1030	0	0	3997177	3789474	4421052
8	786274	1	13	95	1175	0	0	4784481	4421053	5052631
9	463047	2	13	70	1790	1355	0	5248703	5052632	5684210
10	483278	3	13	100	1133	1192	1440	5735126	5684211	6315789
11	676500	2	13	80	1953	1226	0	6415391	6315790	6947368
12	756991	2	13	75	1372	1406	0	7175561	6947369	7578947
13	483327	3	13	75	1184	1774	1491	7661666	7578948	8210526
14	676124	2	13	85	1003	1277	0	8342239	8210527	8842105
15	1091081	2	13	50	1423	1988	0	9435600	8842106	9473684
16	80556	2	13	80	1234	1825	0	9519567	9473685	10105263
17	745572	3	13	50	1705	1586	1860	10268198	10105264	10736842
18	487708	1	13	55	1004	0	0	10761057	10736843	11368421
19	683892	3	13	80	1619	1817	1876	11445953	11368422	12000000

Total number of pulses in waveform = 40

Waveform Num = 15
 Num of Bursts = 17
 Burst Interval (us) = 705882

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	592814	1	6	85	1911	0	0	592814	0	705881
2	174027	1	6	55	1055	0	0	768752	705882	1411763
3	1253268	1	6	85	1201	0	0	2023075	1411764	2117645
4	330595	2	6	55	1347	1646	0	2354871	2117646	2823527
5	618711	1	6	100	1893	0	0	2976575	2823528	3529409
6	727679	3	6	55	1671	1629	1244	3706147	3529410	4235291
7	796811	3	6	75	1757	1397	1697	4507502	4235292	4941173
8	991854	1	6	75	1475	0	0	5504207	4941174	5647055
9	353693	3	6	85	1722	1679	1294	5859375	5647056	6352937
10	1014011	2	6	50	1808	1448	0	6878081	6352938	7058819
11	761202	3	6	65	1594	1526	1851	7642539	7058820	7764701
12	503729	3	6	65	1261	1345	1885	8151239	7764702	8470583
13	547032	1	6	70	1030	0	0	8702762	8470584	9176465
14	878938	1	6	95	1175	0	0	9582730	9176466	9882347
15	517697	2	6	70	1790	1355	0	10101602	9882348	10588229
16	540424	3	6	100	1133	1192	1440	10645171	10588230	11294111
17	756554	2	6	80	1953	1226	0	11405490	11294112	11999993

Total number of pulses in waveform = 33

Waveform Num = 16
Num of Bursts = 14
Burst Interval (us) = 857143

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	441927	2	12	70	1363	1979	0	441927	0	857142
2	524734	1	12	90	1491	0	0	970003	857143	1714285
3	921715	2	12	85	1003	1277	0	1893209	1714286	2571428
4	1482546	2	12	50	1423	1988	0	3378035	2571429	3428571
5	109474	2	12	80	1234	1825	0	3490920	3428572	4285714
6	1013339	3	12	50	1705	1586	1860	4507318	4285715	5142857
7	663264	1	12	55	1004	0	0	5175733	5142858	6000000
8	928720	3	12	80	1619	1817	1876	6105457	6000001	6857143
9	1464105	3	12	50	1286	1637	1911	7574874	6857144	7714286
10	210942	1	12	55	1055	0	0	7790650	7714287	8571429
11	1522255	1	12	85	1201	0	0	9313960	8571430	9428572
12	401687	2	12	55	1347	1646	0	9716848	9428573	10285715
13	751806	1	12	100	1893	0	0	10471647	10285716	11142858
14	884174	3	12	55	1671	1629	1244	11357714	11142859	12000001

Total number of pulses in waveform = 27

Waveform Num = 17
Num of Bursts = 19
Burst Interval (us) = 631579

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	340583	3	13	70	1697	1388	1269	340583	0	631578
2	740136	2	13	90	1782	1689	0	1085073	631579	1263157
3	681408	3	13	65	1303	1500	1090	1769952	1263158	1894736
4	493970	2	13	90	1971	1320	0	2267815	1894737	2526315
5	446124	2	13	95	1833	1740	0	2717230	2526316	3157894
6	784116	1	13	65	1885	0	0	3504919	3157895	3789473
7	490373	1	13	70	1030	0	0	3997177	3789474	4421052
8	786274	1	13	95	1175	0	0	4784481	4421053	5052631
9	463047	2	13	70	1790	1355	0	5248703	5052632	5684210
10	483278	3	13	100	1133	1192	1440	5735126	5684211	6315789
11	676500	2	13	80	1953	1226	0	6415391	6315790	6947368
12	756991	2	13	75	1372	1406	0	7175561	6947369	7578947
13	483327	3	13	75	1184	1774	1491	7661666	7578948	8210526
14	676124	2	13	85	1003	1277	0	8342239	8210527	8842105
15	1091081	2	13	50	1423	1988	0	9435600	8842106	9473684
16	80556	2	13	80	1234	1825	0	9519567	9473685	10105263
17	745572	3	13	50	1705	1586	1860	10268198	10105264	10736842
18	487708	1	13	55	1004	0	0	10761057	10736843	11368421
19	683892	3	13	80	1619	1817	1876	11445953	11368422	12000000

Total number of pulses in waveform = 40

Waveform Num = 18
 Num of Bursts = 17
 Burst Interval (us) = 705882

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	592814	1	6	85	1911	0	0	592814	0	705881
2	174027	1	6	55	1055	0	0	768752	705882	1411763
3	1253268	1	6	85	1201	0	0	2023075	1411764	2117645
4	330595	2	6	55	1347	1646	0	2354871	2117646	2823527
5	618711	1	6	100	1893	0	0	2976575	2823528	3529409
6	727679	3	6	55	1671	1629	1244	3706147	3529410	4235291
7	796811	3	6	75	1757	1397	1697	4507502	4235292	4941173
8	991854	1	6	75	1475	0	0	5504207	4941174	5647055
9	353693	3	6	85	1722	1679	1294	5859375	5647056	6352937
10	1014011	2	6	50	1808	1448	0	6878081	6352938	7058819
11	761202	3	6	65	1594	1526	1851	7642539	7058820	7764701
12	503729	3	6	65	1261	1345	1885	8151239	7764702	8470583
13	547032	1	6	70	1030	0	0	8702762	8470584	9176465
14	878938	1	6	95	1175	0	0	9582730	9176466	9882347
15	517697	2	6	70	1790	1355	0	10101602	9882348	10588229
16	540424	3	6	100	1133	1192	1440	10645171	10588230	11294111
17	756554	2	6	80	1953	1226	0	11405490	11294112	11999993

Total number of pulses in waveform = 33

Waveform Num = 19
Num of Bursts = 14
Burst Interval (us) = 857143

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	441927	2	12	70	1363	1979	0	441927	0	857142
2	524734	1	12	90	1491	0	0	970003	857143	1714285
3	921715	2	12	85	1003	1277	0	1893209	1714286	2571428
4	1482546	2	12	50	1423	1988	0	3378035	2571429	3428571
5	109474	2	12	80	1234	1825	0	3490920	3428572	4285714
6	1013339	3	12	50	1705	1586	1860	4507318	4285715	5142857
7	663264	1	12	55	1004	0	0	5175733	5142858	6000000
8	928720	3	12	80	1619	1817	1876	6105457	6000001	6857143
9	1464105	3	12	50	1286	1637	1911	7574874	6857144	7714286
10	210942	1	12	55	1055	0	0	7790650	7714287	8571429
11	1522255	1	12	85	1201	0	0	9313960	8571430	9428572
12	401687	2	12	55	1347	1646	0	9716848	9428573	10285715
13	751806	1	12	100	1893	0	0	10471647	10285716	11142858
14	884174	3	12	55	1671	1629	1244	11357714	11142859	12000001

Total number of pulses in waveform = 27

Waveform Num = 20
Num of Bursts = 19
Burst Interval (us) = 631579

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	340583	3	13	70	1697	1388	1269	340583	0	631578
2	740136	2	13	90	1782	1689	0	1085073	631579	1263157
3	681408	3	13	65	1303	1500	1090	1769952	1263158	1894736
4	493970	2	13	90	1971	1320	0	2267815	1894737	2526315
5	446124	2	13	95	1833	1740	0	2717230	2526316	3157894
6	784116	1	13	65	1885	0	0	3504919	3157895	3789473
7	490373	1	13	70	1030	0	0	3997177	3789474	4421052
8	786274	1	13	95	1175	0	0	4784481	4421053	5052631
9	463047	2	13	70	1790	1355	0	5248703	5052632	5684210
10	483278	3	13	100	1133	1192	1440	5735126	5684211	6315789
11	676500	2	13	80	1953	1226	0	6415391	6315790	6947368
12	756991	2	13	75	1372	1406	0	7175561	6947369	7578947
13	483327	3	13	75	1184	1774	1491	7661666	7578948	8210526
14	676124	2	13	85	1003	1277	0	8342239	8210527	8842105
15	1091081	2	13	50	1423	1988	0	9435600	8842106	9473684
16	80556	2	13	80	1234	1825	0	9519567	9473685	10105263
17	745572	3	13	50	1705	1586	1860	10268198	10105264	10736842
18	487708	1	13	55	1004	0	0	10761057	10736843	11368421
19	683892	3	13	80	1619	1817	1876	11445953	11368422	12000000

Total number of pulses in waveform = 40

Waveform Num = 21
 Num of Bursts = 17
 Burst Interval (us) = 705882

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	592814	1	6	85	1911	0	0	592814	0	705881
2	174027	1	6	55	1055	0	0	768752	705882	1411763
3	1253268	1	6	85	1201	0	0	2023075	1411764	2117645
4	330595	2	6	55	1347	1646	0	2354871	2117646	2823527
5	618711	1	6	100	1893	0	0	2976575	2823528	3529409
6	727679	3	6	55	1671	1629	1244	3706147	3529410	4235291
7	796811	3	6	75	1757	1397	1697	4507502	4235292	4941173
8	991854	1	6	75	1475	0	0	5504207	4941174	5647055
9	353693	3	6	85	1722	1679	1294	5859375	5647056	6352937
10	1014011	2	6	50	1808	1448	0	6878081	6352938	7058819
11	761202	3	6	65	1594	1526	1851	7642539	7058820	7764701
12	503729	3	6	65	1261	1345	1885	8151239	7764702	8470583
13	547032	1	6	70	1030	0	0	8702762	8470584	9176465
14	878938	1	6	95	1175	0	0	9582730	9176466	9882347
15	517697	2	6	70	1790	1355	0	10101602	9882348	10588229
16	540424	3	6	100	1133	1192	1440	10645171	10588230	11294111
17	756554	2	6	80	1953	1226	0	11405490	11294112	11999993

Total number of pulses in waveform = 33

Waveform Num = 22
 Num of Bursts = 14
 Burst Interval (us) = 857143

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	441927	2	12	70	1363	1979	0	441927	0	857142
2	524734	1	12	90	1491	0	0	970003	857143	1714285
3	921715	2	12	85	1003	1277	0	1893209	1714286	2571428
4	1482546	2	12	50	1423	1988	0	3378035	2571429	3428571
5	109474	2	12	80	1234	1825	0	3490920	3428572	4285714
6	1013339	3	12	50	1705	1586	1860	4507318	4285715	5142857
7	663264	1	12	55	1004	0	0	5175733	5142858	6000000
8	928720	3	12	80	1619	1817	1876	6105457	6000001	6857143
9	1464105	3	12	50	1286	1637	1911	7574874	6857144	7714286
10	210942	1	12	55	1055	0	0	7790650	7714287	8571429
11	1522255	1	12	85	1201	0	0	9313960	8571430	9428572
12	401687	2	12	55	1347	1646	0	9716848	9428573	10285715
13	751806	1	12	100	1893	0	0	10471647	10285716	11142858
14	884174	3	12	55	1671	1629	1244	11357714	11142859	12000001

Total number of pulses in waveform = 27

Waveform Num = 23
Num of Bursts = 19
Burst Interval (us) = 631579

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	340583	3	13	70	1697	1388	1269	340583	0	631578
2	740136	2	13	90	1782	1689	0	1085073	631579	1263157
3	681408	3	13	65	1303	1500	1090	1769952	1263158	1894736
4	493970	2	13	90	1971	1320	0	2267815	1894737	2526315
5	446124	2	13	95	1833	1740	0	2717230	2526316	3157894
6	784116	1	13	65	1885	0	0	3504919	3157895	3789473
7	490373	1	13	70	1030	0	0	3997177	3789474	4421052
8	786274	1	13	95	1175	0	0	4784481	4421053	5052631
9	463047	2	13	70	1790	1355	0	5248703	5052632	5684210
10	483278	3	13	100	1133	1192	1440	5735126	5684211	6315789
11	676500	2	13	80	1953	1226	0	6415391	6315790	6947368
12	756991	2	13	75	1372	1406	0	7175561	6947369	7578947
13	483327	3	13	75	1184	1774	1491	7661666	7578948	8210526
14	676124	2	13	85	1003	1277	0	8342239	8210527	8842105
15	1091081	2	13	50	1423	1988	0	9435600	8842106	9473684
16	80556	2	13	80	1234	1825	0	9519567	9473685	10105263
17	745572	3	13	50	1705	1586	1860	10268198	10105264	10736842
18	487708	1	13	55	1004	0	0	10761057	10736843	11368421
19	683892	3	13	80	1619	1817	1876	11445953	11368422	12000000

Total number of pulses in waveform = 40

Waveform Num = 24
Num of Bursts = 15
Burst Interval (us) = 800000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	522951	1	19	70	1723	0	0	522951	0	799999
2	652651	3	19	100	1869	1903	1860	1177325	800000	1599999
3	1205949	1	19	85	1270	0	0	2388906	1600000	2399999
4	35067	1	19	75	1150	0	0	2425243	2400000	3199999
5	1158791	3	19	85	1030	1544	1920	3585184	3200000	3999999
6	666543	2	19	50	1065	1732	0	4256221	4000000	4799999
7	606678	2	19	60	1510	1201	0	4865696	4800000	5599999
8	1131184	2	19	65	1613	1595	0	5999591	5600000	6399999
9	647144	2	19	75	1107	1116	0	6649943	6400000	7199999
10	653780	3	19	80	1261	1560	1784	7305946	7200000	7999999
11	1129461	2	19	65	1663	1646	0	8440012	8000000	8799999
12	914111	1	19	50	1158	0	0	9357432	8800000	9599999
13	354896	2	19	100	1202	1844	0	9713486	9600000	10399999
14	864734	3	19	85	1989	1389	1245	10581266	10400000	11199999
15	1210925	2	19	55	1125	1741	0	11796814	11200000	11999999

Total number of pulses in waveform = 30

Waveform Num = 25
 Num of Bursts = 20
 Burst Interval (us) = 600000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	249164	1	5	95	1193	0	0	249164	0	599999
2	459861	3	5	50	1972	1296	1278	710218	600000	1199999
3	683003	1	5	55	1792	0	0	1397767	1200000	1799999
4	678483	3	5	80	1304	1945	1244	2078042	1800000	2399999
5	458066	3	5	50	1022	1347	1861	2540601	2400000	2999999
6	835425	3	5	90	1373	1381	1047	3380256	3000000	3599999
7	616194	3	5	75	1826	1518	1399	4000251	3600000	4199999
8	684182	1	5	100	1912	0	0	4689176	4200000	4799999
9	518983	3	5	90	1424	1432	1630	5210071	4800000	5399999
10	616162	3	5	80	1877	1099	1450	5830719	5400000	5999999
11	702718	2	5	100	1963	1869	0	6537863	6000000	6599999
12	647009	3	5	75	1014	1681	1270	7188704	6600000	7199999
13	26254	1	5	75	1150	0	0	7218923	7200000	7799999
14	868271	3	5	85	1030	1544	1920	8088344	7800000	8399999
15	499103	2	5	50	1065	1732	0	8591941	8400000	8999999
16	454478	2	5	60	1510	1201	0	9049216	9000000	9599999
17	847364	2	5	65	1613	1595	0	9899291	9600000	10199999
18	484784	2	5	75	1107	1116	0	10387283	10200000	10799999
19	489800	3	5	80	1261	1560	1784	10879306	10800000	11399999
20	845641	2	5	65	1663	1646	0	11729552	11400000	11999999

Total number of pulses in waveform = 46

Waveform Num = 26
Num of Bursts = 9
Burst Interval (us) = 1333333

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	1270965	1	6	85	1364	0	0	1270965	0	1333332
2	1172185	1	6	95	1142	0	0	2444514	1333333	2666665
3	1022947	3	6	100	1389	1245	1228	3468603	2666666	3999998
4	1524497	1	6	55	1741	0	0	4996962	3999999	5333331
5	887623	3	6	50	1253	1894	1193	5886326	5333332	6666664
6	1021957	3	6	50	1972	1296	1278	6912623	6666665	7999997
7	1523036	1	6	55	1792	0	0	8440205	7999998	9333330
8	1511769	3	6	80	1304	1945	1244	9953766	9333331	10666663
9	1022073	3	6	50	1022	1347	1861	10980332	10666664	11999996

Total number of pulses in waveform = 19

Waveform Num = 27
 Num of Bursts = 18
 Burst Interval (us) = 666667

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	588355	2	17	70	1047	1638	0	588355	0	666666
2	521933	2	17	95	1518	1399	0	1112973	666667	1333333
3	761147	1	17	100	1912	0	0	1877037	1333334	2000000
4	577030	3	17	90	1424	1432	1630	2455979	2000001	2666667
5	685136	3	17	80	1877	1099	1450	3145601	2666668	3333334
6	781318	2	17	100	1963	1869	0	3931345	3333335	4000001
7	719376	3	17	75	1014	1681	1270	4654553	4000002	4666668
8	29181	1	17	75	1150	0	0	4687699	4666669	5333335
9	965111	3	17	85	1030	1544	1920	5653960	5333336	6000002
10	554917	2	17	50	1065	1732	0	6213371	6000003	6666669
11	505212	2	17	60	1510	1201	0	6721380	6666670	7333336
12	941971	2	17	65	1613	1595	0	7666062	7333337	8000003
13	538904	2	17	75	1107	1116	0	8208174	8000004	8666670
14	544460	3	17	80	1261	1560	1784	8754857	8666671	9333337
15	940249	2	17	65	1663	1646	0	9699711	9333338	10000004
16	761377	1	17	50	1158	0	0	10464397	10000005	10666671
17	295616	2	17	100	1202	1844	0	10761171	10666672	11333338
18	720002	3	17	85	1989	1389	1245	11484219	11333339	12000005

Total number of pulses in waveform = 39

Waveform Num = 28
Num of Bursts = 15
Burst Interval (us) = 800000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	755226	1	7	90	1749	0	0	755226	0	799999
2	197219	1	7	60	1894	0	0	954194	800000	1599999
3	879821	2	7	90	1039	1972	0	1835909	1600000	2399999
4	701585	1	7	60	1218	0	0	2540505	2400000	3199999
5	1409658	3	7	65	1997	1587	1304	3951381	3200000	3999999
6	115966	1	7	75	1817	0	0	4072235	4000000	4799999
7	914309	1	7	65	1861	0	0	4988361	4800000	5599999
8	1117594	3	7	90	1373	1381	1047	6107816	5600000	6399999
9	823114	3	7	75	1826	1518	1399	6934731	6400000	7199999
10	913282	1	7	100	1912	0	0	7852756	7200000	7999999
11	693123	3	7	90	1424	1432	1630	8547791	8000000	8799999
12	823082	3	7	80	1877	1099	1450	9375359	8800000	9599999
13	938518	2	7	100	1963	1869	0	10318303	9600000	10399999
14	864109	3	7	75	1014	1681	1270	11186244	10400000	11199999
15	35034	1	7	75	1150	0	0	11225243	11200000	11999999

Total number of pulses in waveform = 29

Waveform Num = 29
Num of Bursts = 18
Burst Interval (us) = 666667

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	321870	1	16	75	1920	0	0	321870	0	666666
2	556245	2	16	50	1065	1732	0	880035	666667	1333333
3	505212	2	16	60	1510	1201	0	1388044	1333334	2000000
4	941971	2	16	65	1613	1595	0	2332726	2000001	2666667
5	538904	2	16	75	1107	1116	0	2874838	2666668	3333334
6	544460	3	16	80	1261	1560	1784	3421521	3333335	4000001
7	940249	2	16	65	1663	1646	0	4366375	4000002	4666668
8	761377	1	16	50	1158	0	0	5131061	4666669	5333335
9	295616	2	16	100	1202	1844	0	5427835	5333336	6000002
10	720002	3	16	85	1989	1389	1245	6150883	6000003	6666669
11	1008152	2	16	55	1125	1741	0	7163658	6666670	7333336
12	442407	3	16	50	1253	1894	1193	7608931	7333337	8000003
13	509291	3	16	50	1972	1296	1278	8122562	8000004	8666670
14	759371	1	16	55	1792	0	0	8886479	8666671	9333337
15	754236	3	16	80	1304	1945	1244	9642507	9333338	10000004
16	509340	3	16	50	1022	1347	1861	10156340	10000005	10666671
17	928878	3	16	90	1373	1381	1047	11089448	10666672	11333338
18	685168	3	16	75	1826	1518	1399	11778417	11333339	12000005

Total number of pulses in waveform = 41

Waveform Num = 30
Num of Bursts = 8
Burst Interval (us) = 1500000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri (us)	Pulse 2 Pri (us)	Pulse 3 Pri (us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	646252	3	19	90	1852	1809	1424	646252	0	1499999
2	2160781	2	19	85	1937	1578	0	2812118	1500000	2999999
3	1165888	1	19	70	1723	0	0	3981521	3000000	4499999
4	1226581	3	19	100	1869	1903	1860	5209825	4500000	5999999
5	2264839	1	19	85	1270	0	0	7480296	6000000	7499999
6	65797	1	19	75	1150	0	0	7547363	7500000	8999999
7	2175611	3	19	85	1030	1544	1920	9724124	9000000	10499999
8	1252583	2	19	50	1065	1732	0	10981201	10500000	11999999

Total number of pulses in waveform = 16