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

CERTIFICATION TEST REPORT

FOR

XV2-23T OUTDOOR WiFi 6 ACCESS POINT, 2x2 OMNI

MODEL NUMBER: XV2-23T

FCC ID: Z8H89FT0079
ISED ID: 109W-0079

REPORT NUMBER: 14509387-E1V1

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CERT #0751.05

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	01/27/23	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. 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. 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. 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 RESULTS 88

7.6. MESH SLAVE TEST RESULTS FOR 20 MHz BANDWIDTH 89
7.6.1. TEST CHANNEL 89
7.6.2. RADAR WAVEFORM AND TRAFFIC 89
7.6.3. OVERLAPPING CHANNEL TESTS 93
7.6.4. MOVE AND CLOSING TIME 93

7.7. MESH SLAVE TEST RESULTS FOR 40 MHz BANDWIDTH 94
7.7.1. TEST CHANNEL 94
7.7.2. RADAR WAVEFORM AND TRAFFIC 94
7.7.3. OVERLAPPING CHANNEL TESTS 98
7.7.4. MOVE AND CLOSING TIME 98

7.8. MESH SLAVE TEST RESULTS FOR 80 MHz BANDWIDTH 99
7.8.1. TEST CHANNEL 99
7.8.2. RADAR WAVEFORM AND TRAFFIC 99
7.8.3. OVERLAPPING CHANNEL TESTS 104
7.8.4. MOVE AND CLOSING TIME 104
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: XV2-23T OUTDOOR WiFi 6 ACCESS POINT, 2x2 OMNI

MODEL: XV2-23T

SERIAL NUMBER: W6YE002QVNLG (MASTER DEVICE) and
W6YH00LK999B (MESH SLAVE DEVICE)

DATE TESTED: SEPTEMBER 27 to 28, 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 FR 261023-01.

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
☒	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)
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required
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.		

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

Maximum Transmit Power	Value (see notes)
E.I.R.P. ≥ 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

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.

Table 4: DFS Response requirement values

Parameter	Value
Non-occupancy period	30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds (See Note 1)
Channel Closing Transmission Time	200 milliseconds + approx. 60 milliseconds over remaining 10 second period. (See Notes 1 and 2)
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. (See Note 3)

Note 1: *Channel Move Time* and the *Channel Closing Transmission Time* should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.
Note 2: The *Channel Closing Transmission Time* is comprised of 200 milliseconds starting at the beginning of the *Channel Move Time* plus any additional intermittent control signals required to facilitate a *Channel* 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 *U-NII Detection Bandwidth* 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.

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) x (19 x 10^6 /PRI_{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 *Detection Bandwidth* test, *Channel Move Time*, and *Channel Closing Time* tests.

Table 6 – Long Pulse Radar Test Signal

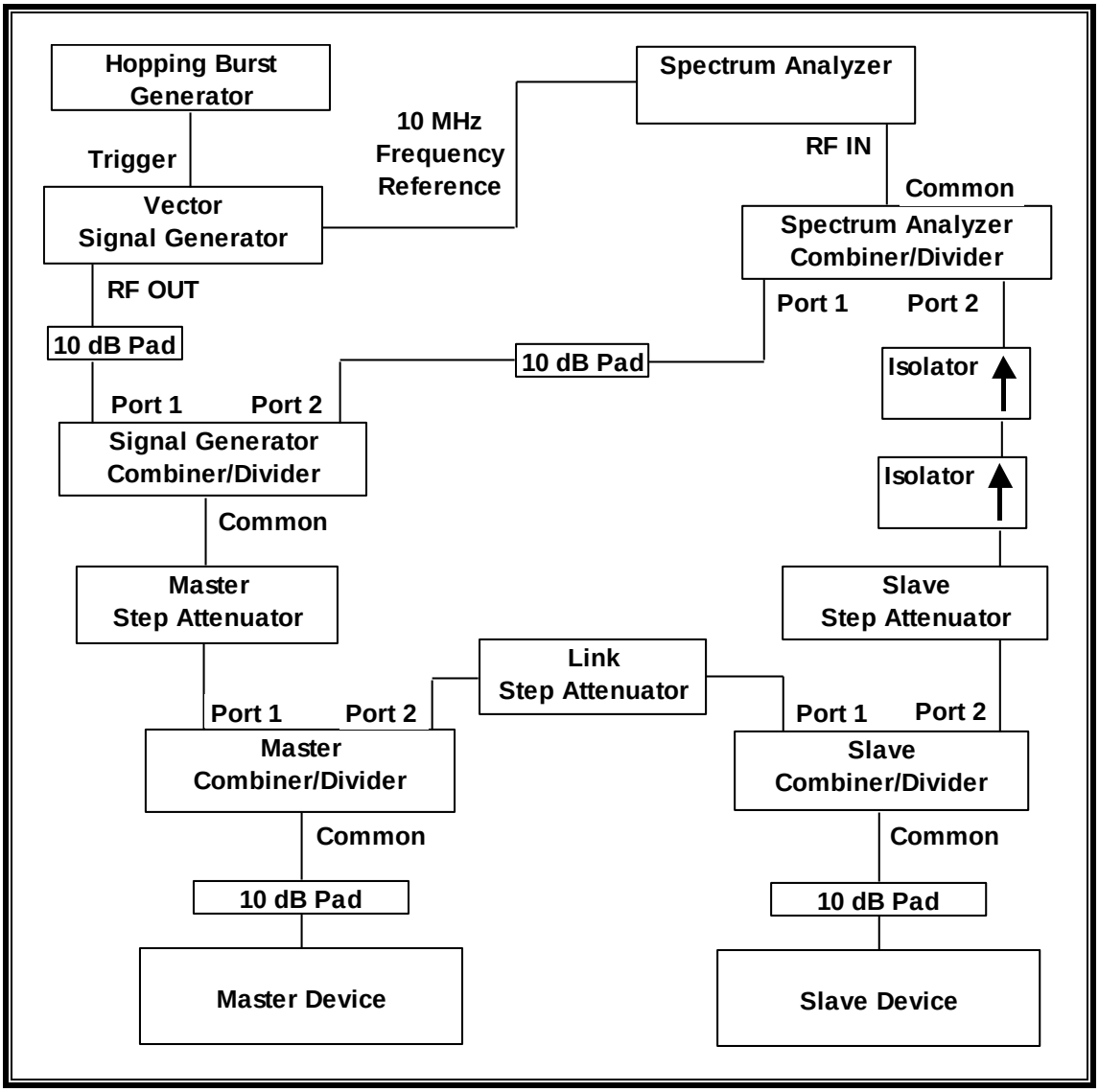
Radar Waveform Type	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

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

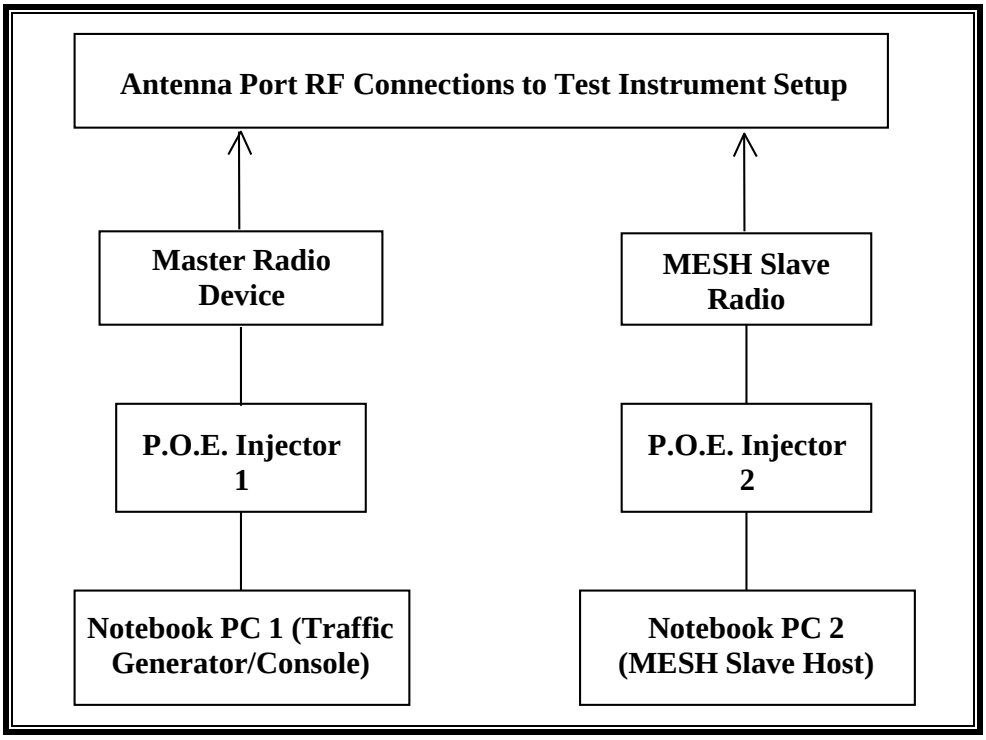
The test room temperature and humidity shall be maintained within normal temperature of 15~35 °C and normal humidity 20~75% (relative humidity).

ENVIRONMENT CONDITION

Parameter	Value
Temperature	23.4 and 23.8 °C
Humidity	51 and 51 %

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	N000000L142A2153000001	DoC
Notebook PC 1 (Master Console)	Lenovo	Type 4236-B92	PB-HEX04 12/05	DoC
AC Adapter 1 (Notebook PC 1)	Lenovo	42T4418	11S42T4418Z1ZGWG08R90M	DoC
XV2-23T Outdoor WiFi 6 Access Point, 2x2 Omni (MESH Slave Radio)	Cambium Networks	XV2-23T	W6YH00LK999B	Z8H89FT0079
P.O.E. Injector 2 (MESH Slave)	Cambium Networks	NET-P60-56IN	N000000L142A20280000149	DoC
Notebook PC 2 (MESH Slave Host)	Lenovo	Type 20B7-S0A200	PF-02JN9J 14/06	DoC
AC Adapter 2 (Notebook PC 2)	Lenovo	ADLX65NLC2A	11S45N0259Z1ZS974594A9	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	N000000L142A2153000001	DoC
Notebook PC 1 (Master Console)	Lenovo	Type 4236-B92	PB-HEX04 12/05	DoC
AC Adapter 1 (Notebook PC 1)	Lenovo	42T4418	11S42T4418Z1ZGWG08R90M	DoC
XV2-23T Outdoor WiFi 6 Access Point, 2x2 Omni (Master Radio)	Cambium Networks	XV2-23T	W6YE002QVNLG	Z8H89FT0079
P.O.E. Injector 2 (MESH Slave)	Cambium Networks	NET-P60-56IN	N000000L142A20280000149	DoC
Notebook PC 2 (MESH Slave Host)	Lenovo	Type 20B7-S0A200	PF-02JN9J 14/06	DoC
AC Adapter 2 (Notebook PC 2)	Lenovo	ADLX65NLC2A	11S45N0259Z1ZS974594A9	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 only antenna assembly utilized with the EUT has a gain of 8 dBi.

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 + 8 + 1 = -55 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. All antenna ports are connected to the test system via a power divider to perform conducted tests.

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).

TPC is not required since the maximum EIRP is less 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 XV2-23T Outdoor WiFi 6 Access Point, 2x2 Omni; FCC ID: Z8H89FT0079. The minimum antenna gain for the Master Device is 8 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 + 8 + 1 = -55 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. RESULTS FOR 20 MHz BANDWIDTH

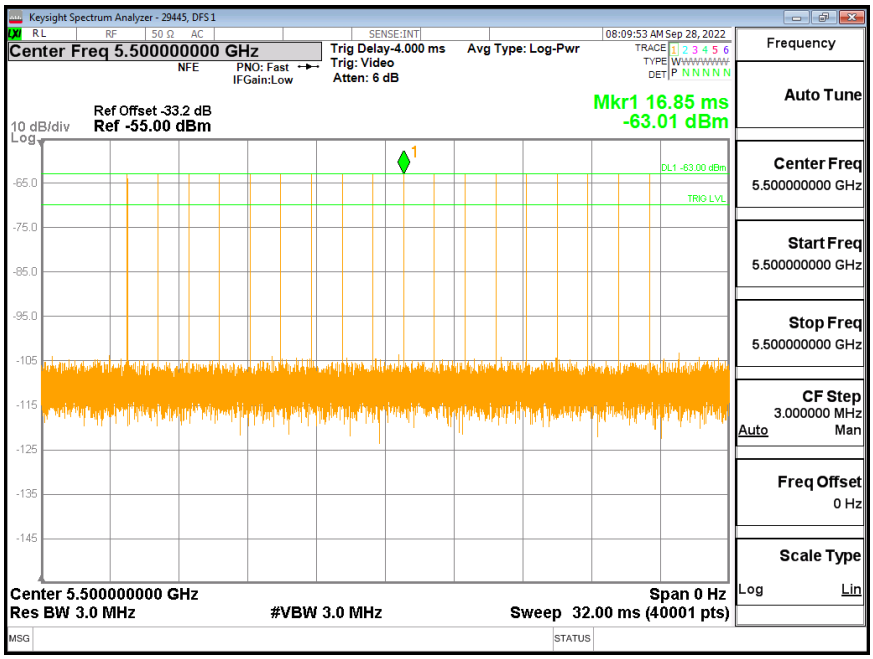
7.2.1. TEST CHANNEL

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

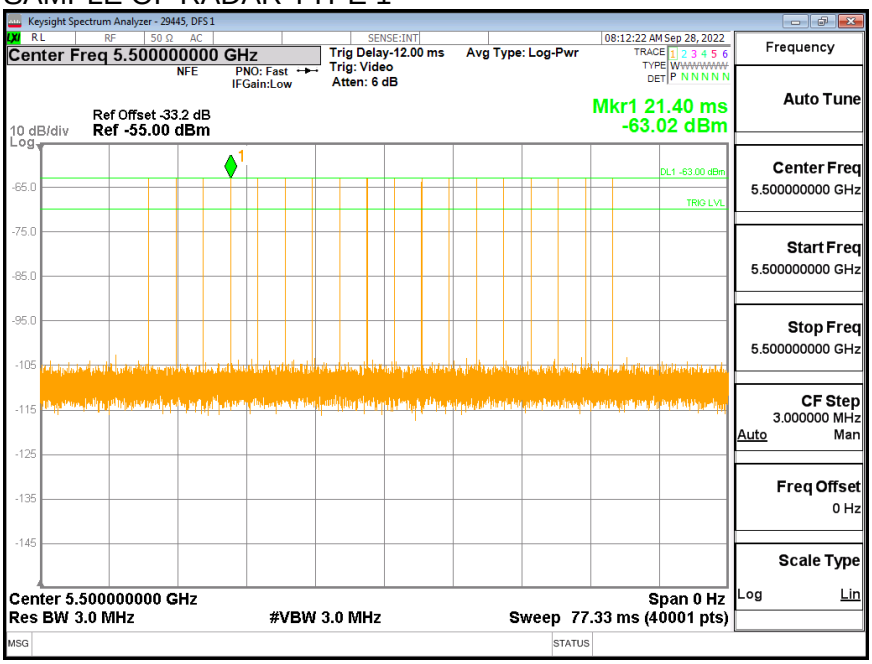
7.2.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

SHORT PULSE RADAR TYPE 0



SAMPLE OF RADAR TYPE 1



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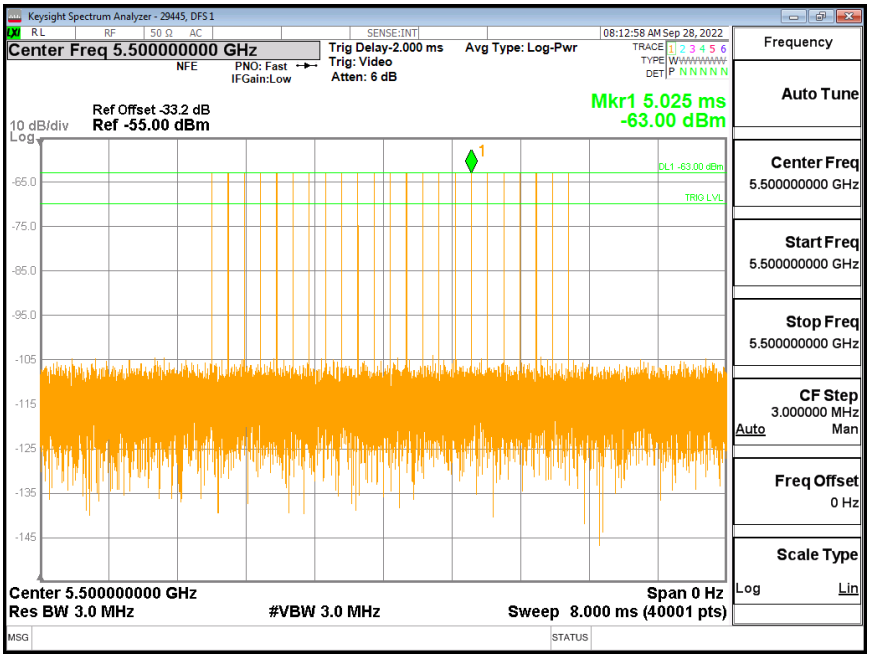
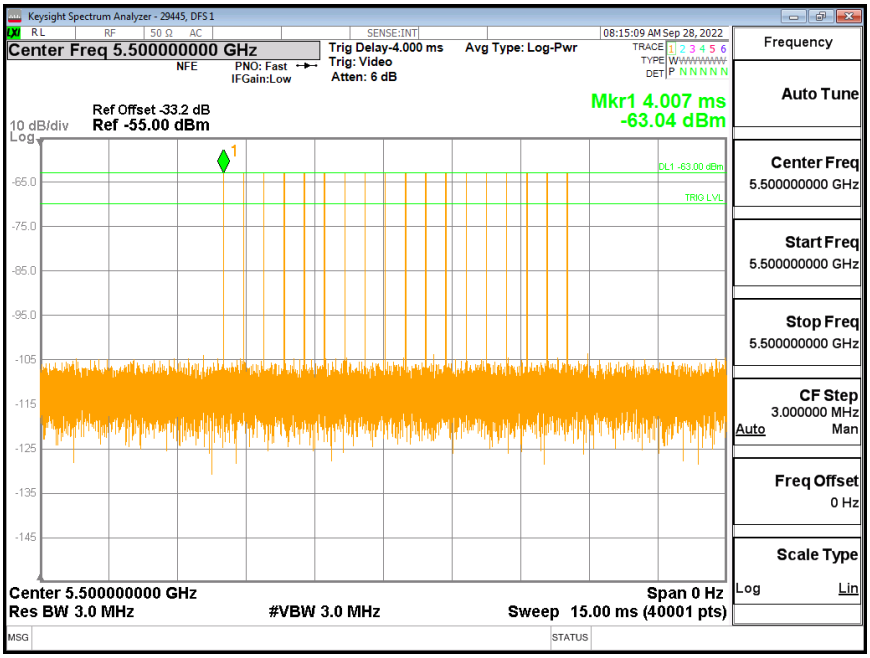
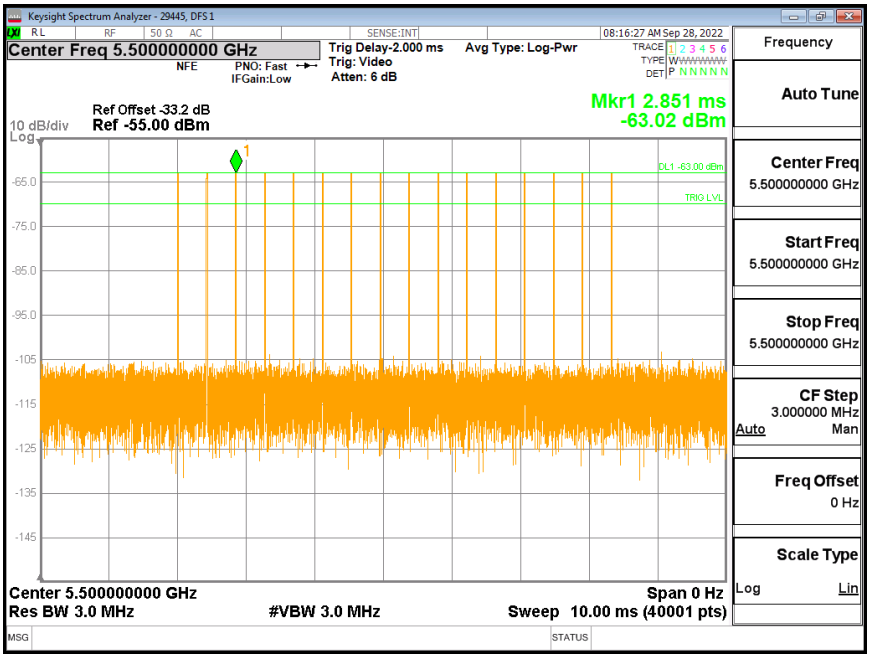


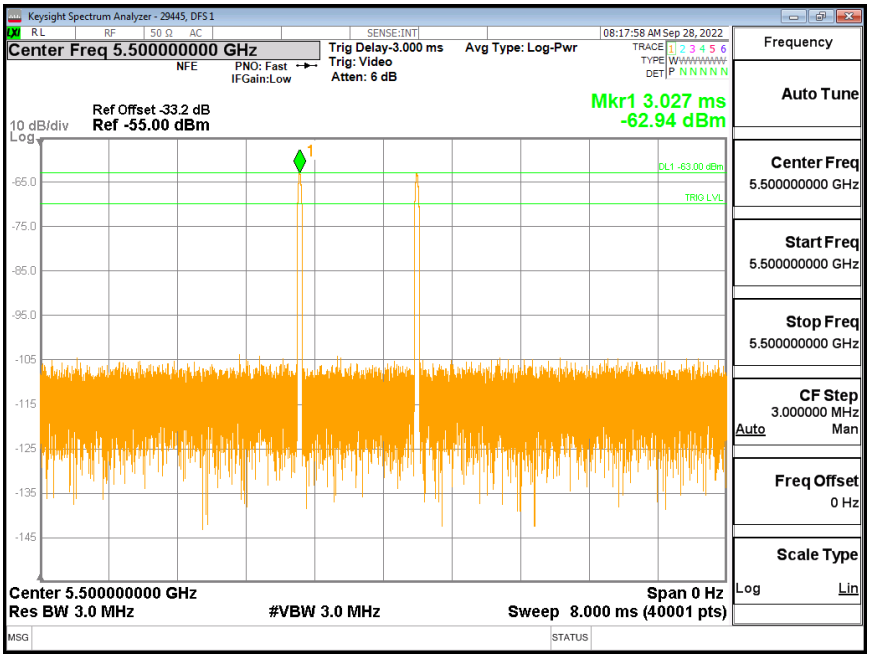
SAMPLE OF RADAR TYPE 3



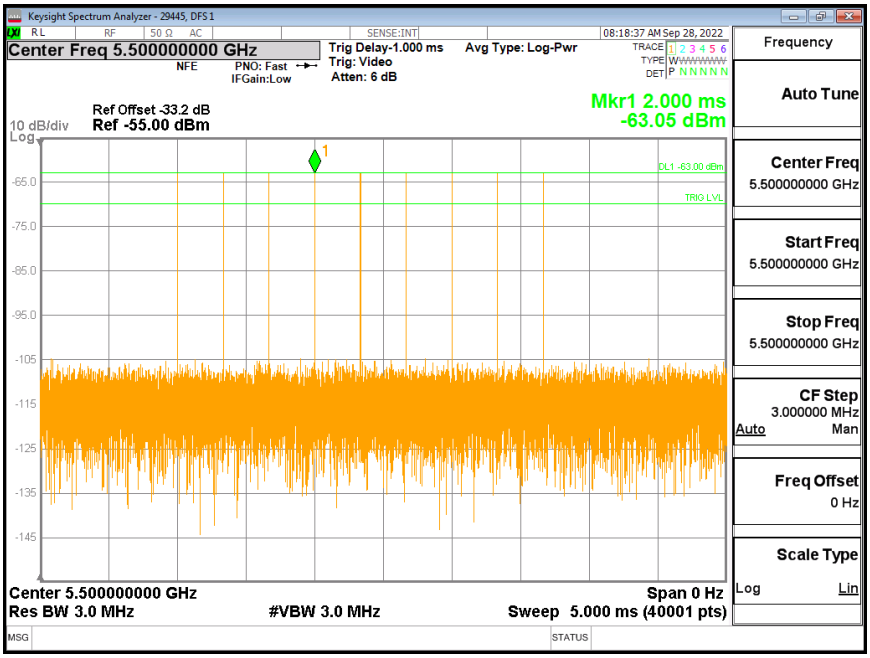
SAMPLE OF RADAR TYPE 4



SAMPLE OF SINGLE BURST OF RADAR TYPE 5

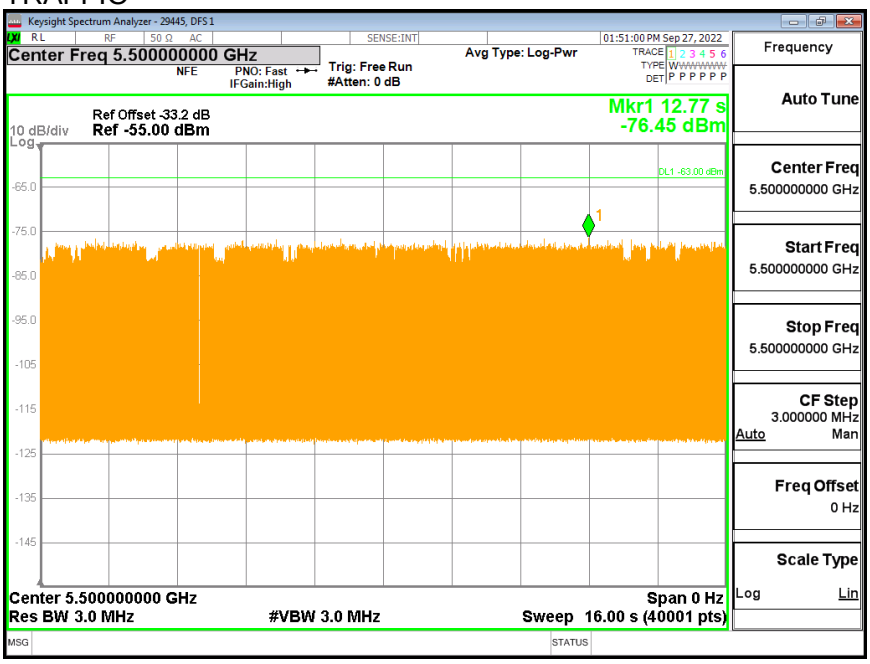


SINGLE BURST OF RADAR TYPE 6

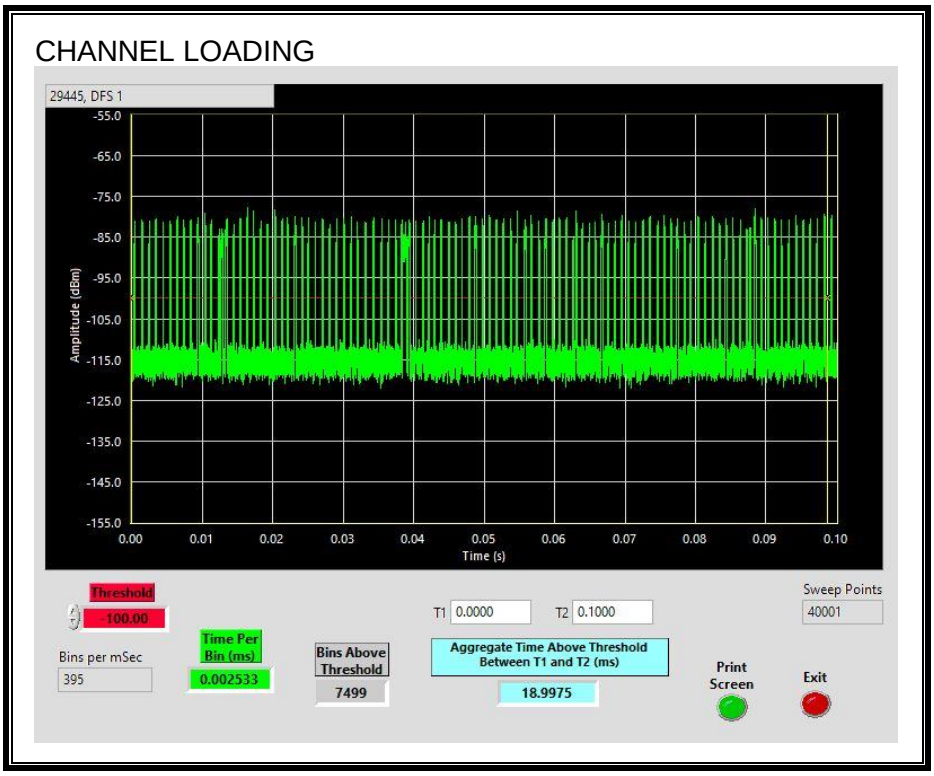


TRAFFIC

TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 18.99%

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

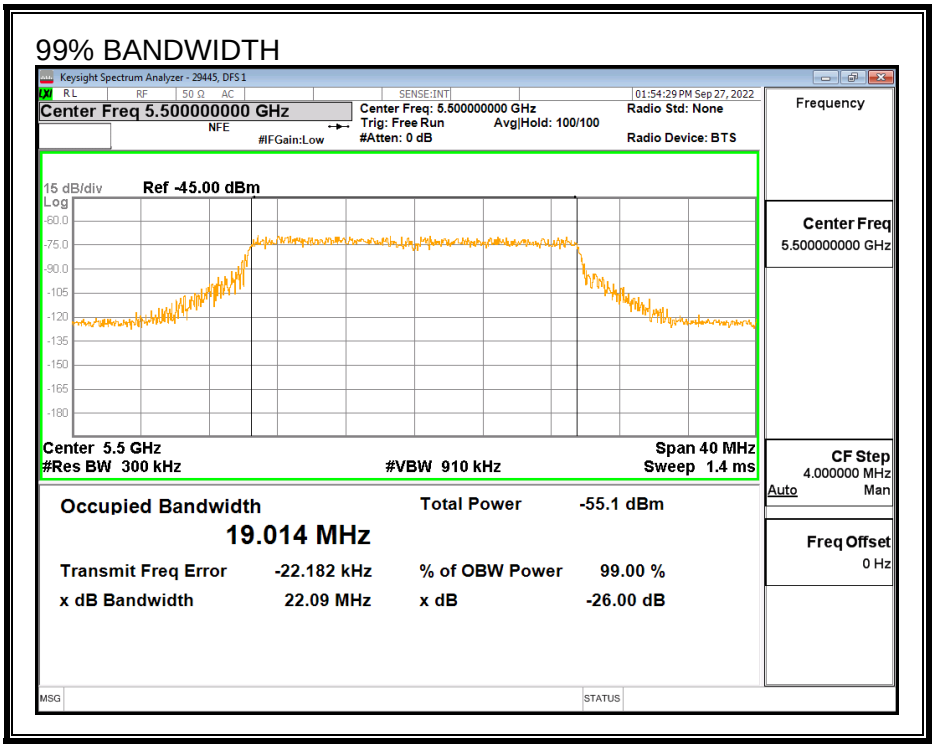
The channel spacing is not less than the channel bandwidth therefore the EUT does not have an overlapping channel plan.

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	19.014	105.2	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 FL	Detection Bandwidth FH	OBW	Test Location	Employee Number	In-Service Monitoring Version
FCC Short Pulse Type 1	30	96.67	60	Pass	5490	5510	19.01	DFS 1	29445	v4.1
FCC Short Pulse Type 2	30	100.00	60	Pass	5490	5510	19.01	DFS 1	29445	v4.1
FCC Short Pulse Type 3	30	100.00	60	Pass	5490	5510	19.01	DFS 1	29445	v4.1
FCC Short Pulse Type 4	30	96.67	60	Pass	5490	5510	19.01	DFS 1	29445	v4.1
Aggregate		98.33	80	Pass						
FCC Long Pulse Type 5	30	100.00	80	Pass	5490	5510	19.01	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	5492	Yes
1002	1	878	61	A	5505	Yes
1003	1	858	62	A	5494	Yes
1004	1	818	65	A	5496	Yes
1005	1	838	63	A	5502	Yes
1006	1	658	81	A	5502	Yes
1007	1	738	72	A	5491	Yes
1008	1	758	70	A	5493	Yes
1009	1	718	74	A	5506	Yes
1010	1	938	57	A	5504	Yes
1011	1	778	68	A	5498	Yes
1012	1	898	59	A	5498	Yes
1013	1	678	78	A	5499	Yes
1014	1	918	58	A	5493	Yes
1015	1	578	92	A	5501	Yes
1016	1	2773	20	B	5504	Yes
1017	1	664	80	B	5507	Yes
1018	1	1426	38	B	5496	Yes
1019	1	640	83	B	5507	Yes
1020	1	2885	19	B	5507	Yes
1021	1	2229	24	B	5509	Yes
1022	1	2055	26	B	5497	Yes
1023	1	2882	19	B	5506	Yes
1024	1	1643	33	B	5493	Yes
1025	1	2600	21	B	5510	Yes
1026	1	1491	36	B	5495	Yes
1027	1	1382	39	B	5493	Yes
1028	1	2950	18	B	5506	Yes
1029	1	2970	18	B	5493	No
1030	1	2120	25	B	5499	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	1.9	189	23	5504	Yes
2002	2.7	159	29	5493	Yes
2003	2.1	166	26	5492	Yes
2004	3	183	26	5493	Yes
2005	2.6	151	23	5499	Yes
2006	1.9	216	26	5509	Yes
2007	1.7	188	27	5502	Yes
2008	1.2	176	24	5497	Yes
2009	3.3	195	26	5494	Yes
2010	1.1	230	23	5499	Yes
2011	3.5	172	29	5492	Yes
2012	1.4	211	23	5497	Yes
2013	4	201	29	5493	Yes
2014	2.2	163	24	5493	Yes
2015	3.1	156	23	5506	Yes
2016	3.6	203	29	5505	Yes
2017	4.7	163	28	5510	Yes
2018	1.4	176	27	5491	Yes
2019	4.9	221	24	5494	Yes
2020	1.7	158	23	5509	Yes
2021	1.3	207	24	5507	Yes
2022	4.7	190	24	5499	Yes
2023	4.5	162	25	5493	Yes
2024	4	150	29	5492	Yes
2025	2	212	24	5503	Yes
2026	3.9	204	25	5495	Yes
2027	2.2	228	26	5499	Yes
2028	4.2	185	28	5506	Yes
2029	2.7	175	27	5493	Yes
2030	5	218	28	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	442	18	5502	Yes
3002	7.3	337	17	5500	Yes
3003	8.4	464	17	5503	Yes
3004	9.2	253	17	5491	Yes
3005	8.6	393	18	5502	Yes
3006	9.6	446	18	5502	Yes
3007	9.1	348	18	5496	Yes
3008	8.4	296	18	5504	Yes
3009	6.3	344	16	5496	Yes
3010	9.8	423	17	5504	Yes
3011	9.8	365	18	5499	Yes
3012	7.6	339	18	5501	Yes
3013	10	412	16	5499	Yes
3014	7.9	281	17	5496	Yes
3015	6.4	500	16	5504	Yes
3016	6.8	382	17	5493	Yes
3017	7.7	363	17	5501	Yes
3018	6	257	16	5507	Yes
3019	9.3	384	16	5500	Yes
3020	7.9	425	16	5507	Yes
3021	7.3	313	17	5505	Yes
3022	8.3	367	16	5509	Yes
3023	10	268	17	5501	Yes
3024	7.1	468	16	5501	Yes
3025	9.1	264	18	5495	Yes
3026	8.5	477	16	5508	Yes
3027	6.6	286	17	5504	Yes
3028	6.3	260	17	5502	Yes
3029	8.7	466	18	5506	Yes
3030	6.6	453	16	5505	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	14	421	16	5494	Yes
4002	19	303	12	5508	Yes
4003	11.9	283	12	5495	Yes
4004	17.4	311	16	5504	Yes
4005	15.5	305	16	5495	Yes
4006	12.4	346	15	5490	Yes
4007	11	485	13	5492	No
4008	18	288	15	5493	Yes
4009	17.1	322	13	5495	Yes
4010	19.7	388	16	5506	Yes
4011	15	436	14	5504	Yes
4012	13.8	397	16	5494	Yes
4013	18.6	457	15	5501	Yes
4014	17.9	431	13	5503	Yes
4015	14.1	386	15	5510	Yes
4016	18.7	373	15	5501	Yes
4017	11.1	341	15	5505	Yes
4018	16.1	474	16	5493	Yes
4019	18.1	455	15	5500	Yes
4020	14.5	483	14	5495	Yes
4021	12.6	476	12	5507	Yes
4022	14.4	266	16	5507	Yes
4023	17.2	406	16	5510	Yes
4024	15.1	459	14	5495	Yes
4025	14.2	494	16	5509	Yes
4026	16.8	309	14	5494	Yes
4027	12.1	356	12	5491	Yes
4028	20	318	13	5499	Yes
4029	15.8	378	14	5496	Yes
4030	15.1	352	12	5509	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	Yes
5	5500	Yes
6	5500	Yes
7	5500	Yes
8	5500	Yes
9	5500	Yes
10	5500	Yes
11	5493	Yes
12	5495	Yes
13	5499	Yes
14	5493	Yes
15	5493	Yes
16	5497	Yes
17	5494	Yes
18	5495	Yes
19	5493	Yes
20	5497	Yes
21	5506	Yes
22	5505	Yes
23	5507	Yes
24	5503	Yes
25	5506	Yes
26	5505	Yes
27	5507	Yes
28	5503	Yes
29	5506	Yes
30	5505	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	818	5490	2	Yes
2	1293	5491	2	Yes
3	1768	5492	7	Yes
4	2243	5493	7	Yes
5	2718	5494	6	Yes
6	3193	5495	1	Yes
7	3668	5496	2	Yes
8	4143	5497	4	Yes
9	4618	5498	4	Yes
10	5093	5499	2	Yes
11	5568	5500	2	Yes
12	6043	5501	1	Yes
13	6518	5502	3	Yes
14	6993	5503	6	Yes
15	7468	5504	2	Yes
16	7943	5505	3	Yes
17	8418	5506	2	Yes
18	8893	5507	3	Yes
19	9368	5508	7	Yes
20	9843	5509	4	Yes
21	10318	5510	4	Yes
22	10793	5490	3	Yes
23	11268	5491	6	Yes
24	11743	5492	4	Yes
25	12218	5493	3	Yes
26	12693	5494	4	Yes
27	13168	5495	5	Yes
28	13643	5496	3	Yes
29	14118	5497	3	Yes
30	14593	5498	6	Yes
31	15068	5499	3	Yes
32	15543	5500	5	Yes
33	16018	5501	2	Yes
34	16493	5502	5	Yes
35	16968	5503	8	Yes
36	17443	5504	4	Yes
37	17918	5505	3	Yes
38	18393	5506	2	Yes
39	18868	5507	1	Yes
40	19343	5508	6	Yes
41	19818	5509	3	Yes
42	20293	5510	5	Yes

7.3. RESULTS FOR 40 MHz BANDWIDTH

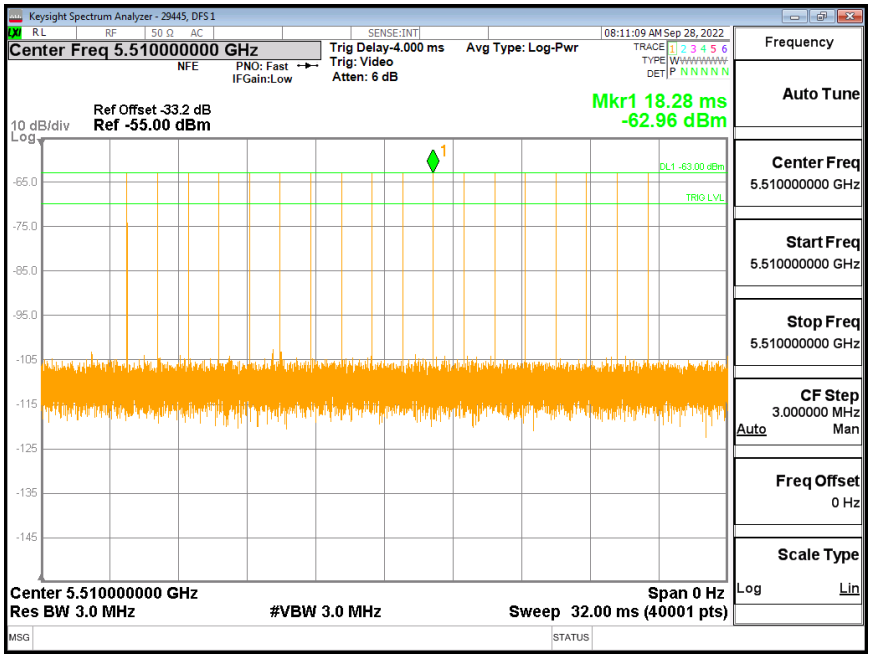
7.3.1. TEST CHANNEL

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

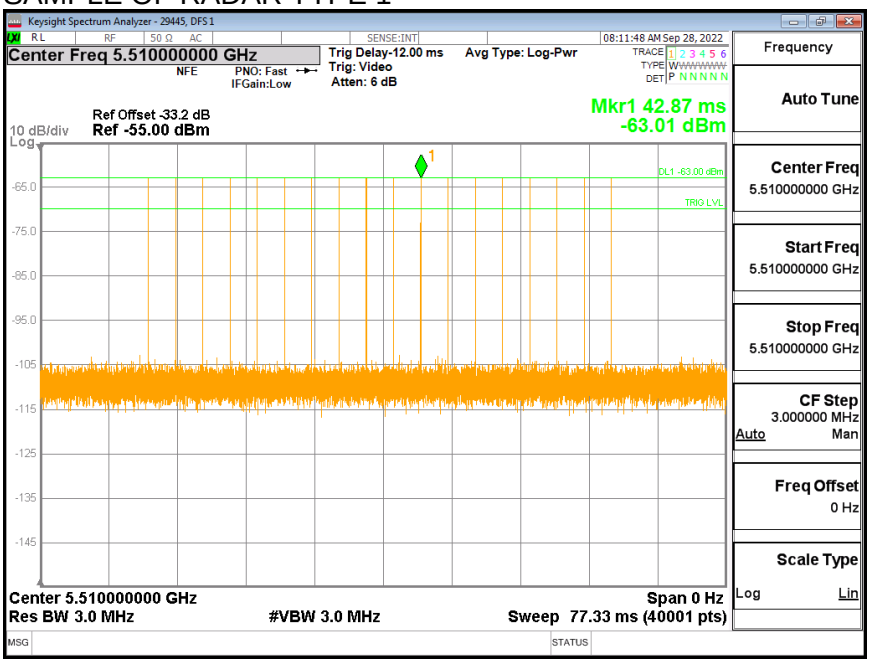
7.3.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

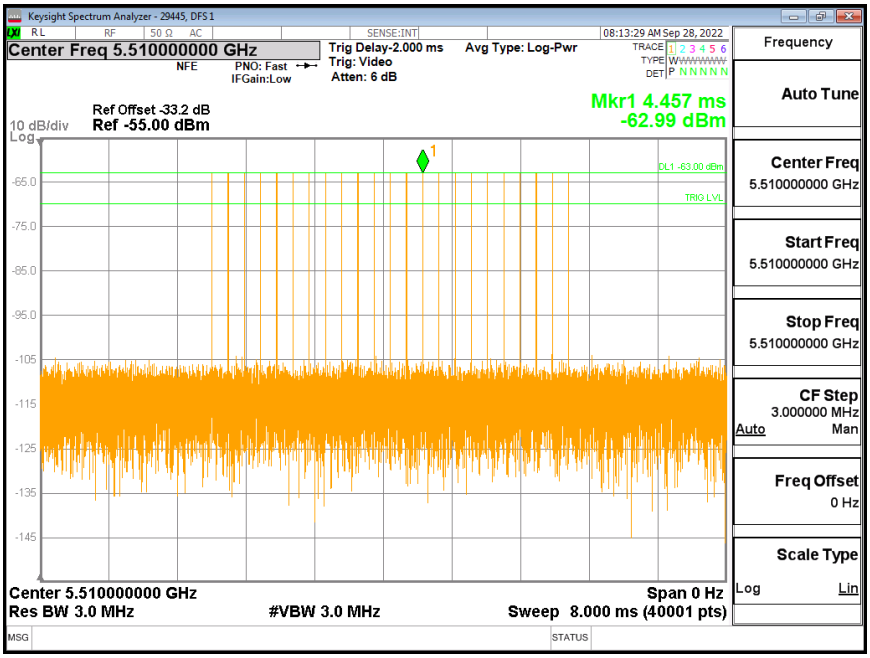
SHORT PULSE RADAR TYPE 0



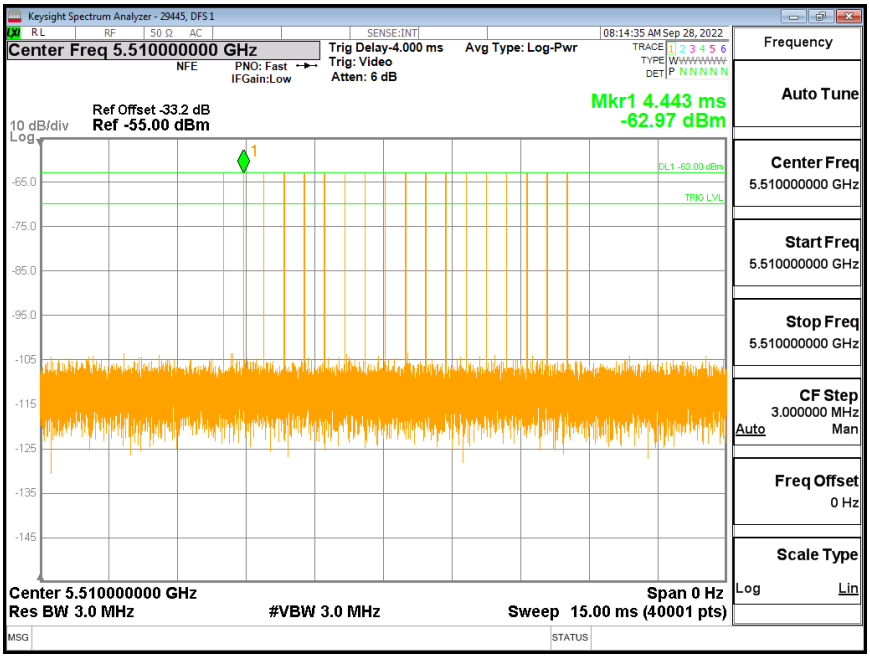
SAMPLE OF RADAR TYPE 1



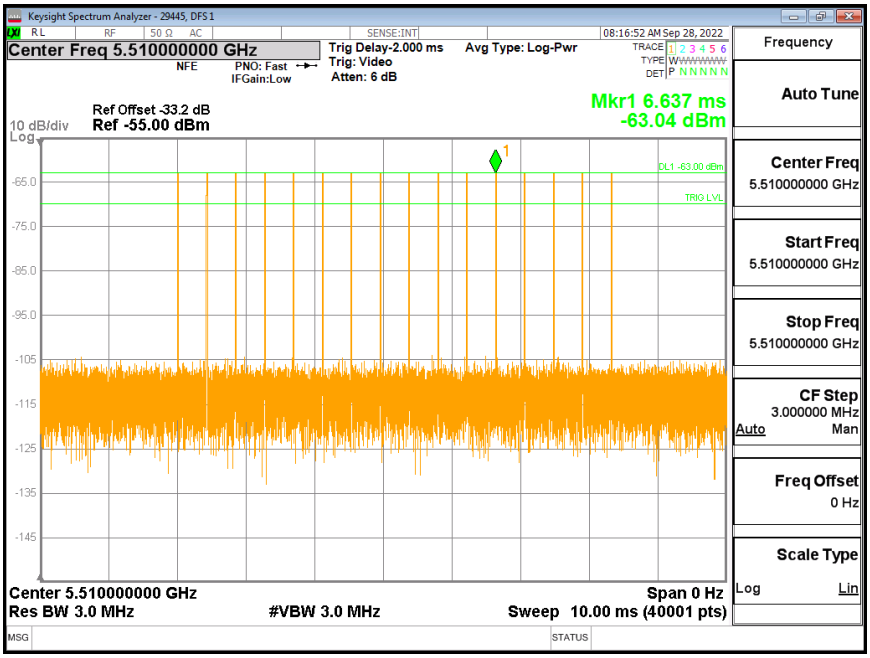
SAMPLE OF RADAR TYPE 2



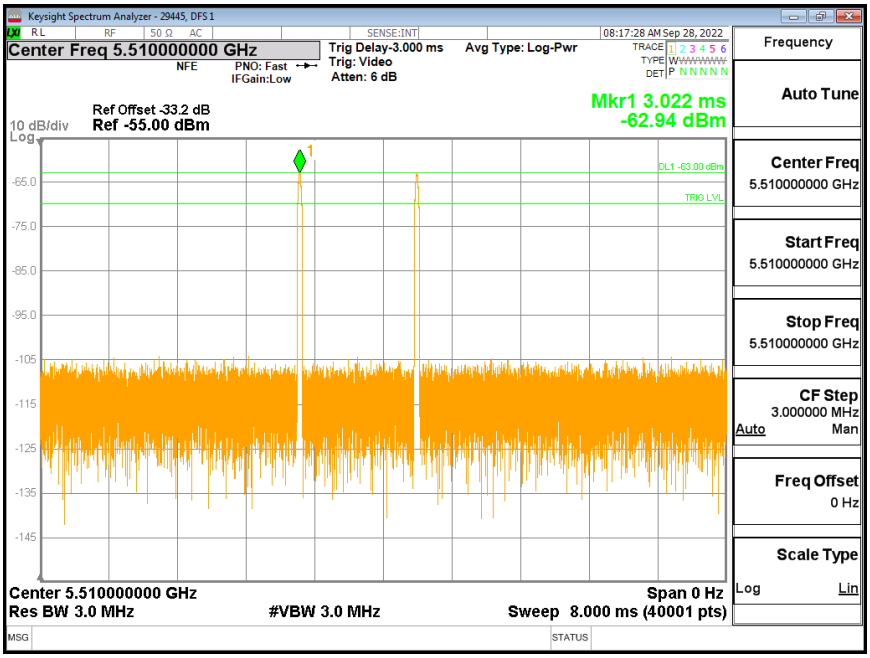
SAMPLE OF RADAR TYPE 3



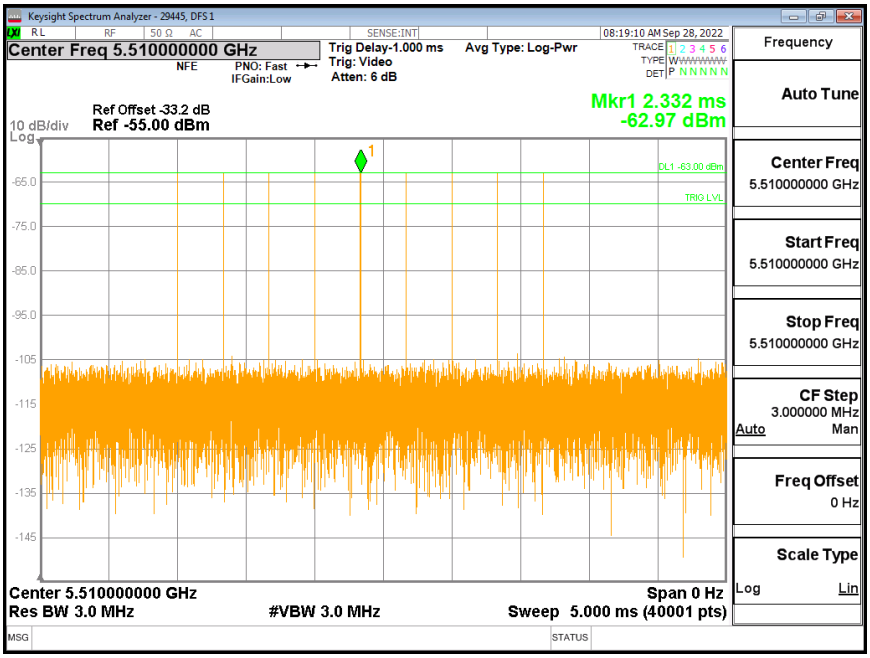
SAMPLE OF RADAR TYPE 4



SAMPLE OF SINGLE BURST OF RADAR TYPE 5

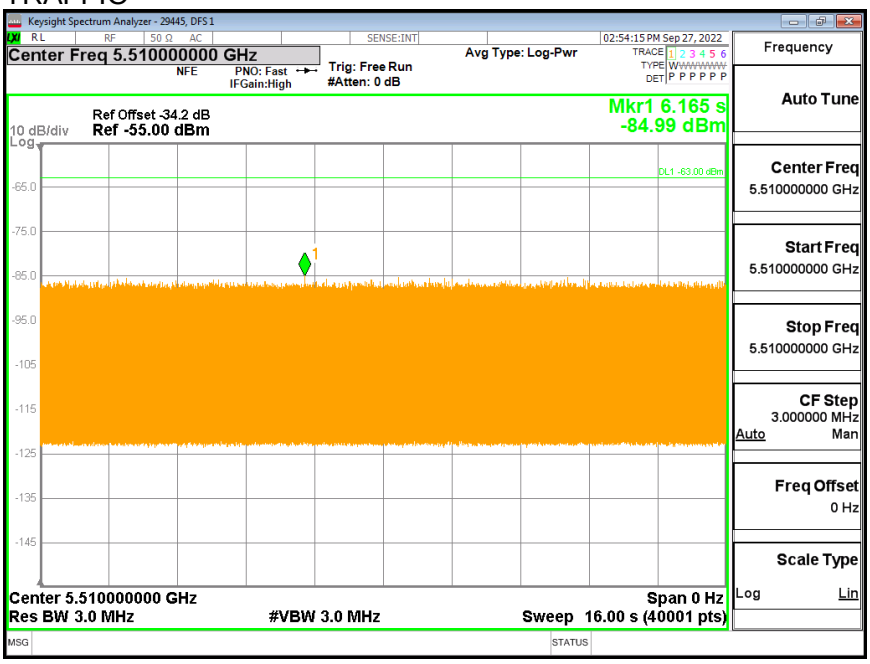


SINGLE BURST OF RADAR TYPE 6

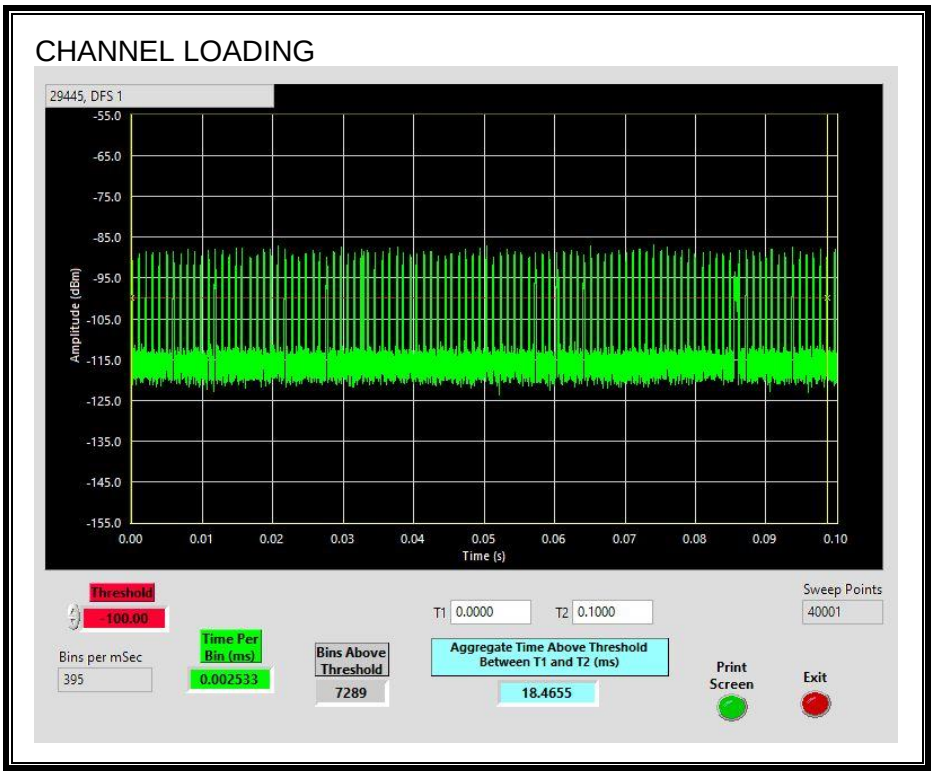


TRAFFIC

TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 18.465%

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

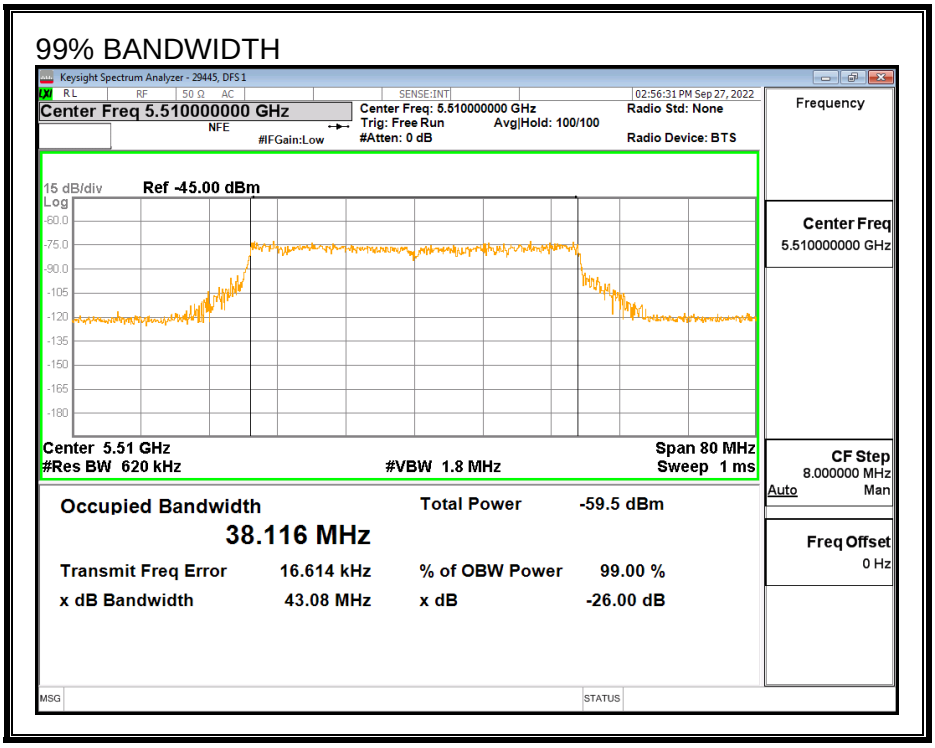
The channel spacing is not less than the channel bandwidth therefore the EUT does not have an overlapping channel plan.

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	38.116	104.9	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 FL	Detection Bandwidth FH	OBW	Test Location	Employee Number	In-Service Monitoring Version
FCC Short Pulse Type 1	30	93.33	60	Pass	5490	5530	38.12	DFS 1	29445	v4.1
FCC Short Pulse Type 2	30	100.00	60	Pass	5490	5530	38.12	DFS 1	29445	v4.1
FCC Short Pulse Type 3	30	100.00	60	Pass	5490	5530	38.12	DFS 1	29445	v4.1
FCC Short Pulse Type 4	30	93.33	60	Pass	5490	5530	38.12	DFS 1	29445	v4.1
Aggregate		96.67	80	Pass						
FCC Long Pulse Type 5	30	100.00	80	Pass	5490	5530	38.12	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	5506	Yes
1002	1	878	61	A	5522	Yes
1003	1	858	62	A	5519	Yes
1004	1	818	65	A	5515	Yes
1005	1	838	63	A	5530	Yes
1006	1	658	81	A	5502	Yes
1007	1	738	72	A	5507	Yes
1008	1	758	70	A	5503	Yes
1009	1	718	74	A	5518	Yes
1010	1	938	57	A	5519	Yes
1011	1	778	68	A	5500	Yes
1012	1	898	59	A	5507	Yes
1013	1	678	78	A	5493	Yes
1014	1	918	58	A	5492	Yes
1015	1	578	92	A	5530	No
1016	1	2773	20	B	5523	Yes
1017	1	664	80	B	5517	Yes
1018	1	1426	38	B	5526	Yes
1019	1	640	83	B	5529	Yes
1020	1	2885	19	B	5504	Yes
1021	1	2229	24	B	5497	Yes
1022	1	2055	26	B	5511	Yes
1023	1	2882	19	B	5491	Yes
1024	1	1643	33	B	5528	Yes
1025	1	2600	21	B	5530	Yes
1026	1	1491	36	B	5527	Yes
1027	1	1382	39	B	5505	Yes
1028	1	2950	18	B	5512	Yes
1029	1	2970	18	B	5526	No
1030	1	2120	25	B	5504	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	1.9	189	23	5520	Yes
2002	2.7	159	29	5504	Yes
2003	2.1	166	26	5513	Yes
2004	3	183	26	5521	Yes
2005	2.6	151	23	5525	Yes
2006	1.9	216	26	5513	Yes
2007	1.7	188	27	5523	Yes
2008	1.2	176	24	5526	Yes
2009	3.3	195	26	5494	Yes
2010	1.1	230	23	5529	Yes
2011	3.5	172	29	5493	Yes
2012	1.4	211	23	5515	Yes
2013	4	201	29	5493	Yes
2014	2.2	163	24	5509	Yes
2015	3.1	156	23	5502	Yes
2016	3.6	203	29	5493	Yes
2017	4.7	163	28	5515	Yes
2018	1.4	176	27	5504	Yes
2019	4.9	221	24	5518	Yes
2020	1.7	158	23	5527	Yes
2021	1.3	207	24	5492	Yes
2022	4.7	190	24	5518	Yes
2023	4.5	162	25	5523	Yes
2024	4	150	29	5511	Yes
2025	2	212	24	5514	Yes
2026	3.9	204	25	5518	Yes
2027	2.2	228	26	5526	Yes
2028	4.2	185	28	5527	Yes
2029	2.7	175	27	5509	Yes
2030	5	218	28	5524	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	442	18	5525	Yes
3002	7.3	337	17	5496	Yes
3003	8.4	464	17	5492	Yes
3004	9.2	253	17	5516	Yes
3005	8.6	393	18	5514	Yes
3006	9.6	446	18	5498	Yes
3007	9.1	348	18	5526	Yes
3008	8.4	296	18	5492	Yes
3009	6.3	344	16	5496	Yes
3010	9.8	423	17	5496	Yes
3011	9.8	365	18	5494	Yes
3012	7.6	339	18	5521	Yes
3013	10	412	16	5527	Yes
3014	7.9	281	17	5517	Yes
3015	6.4	500	16	5527	Yes
3016	6.8	382	17	5512	Yes
3017	7.7	363	17	5514	Yes
3018	6	257	16	5524	Yes
3019	9.3	384	16	5507	Yes
3020	7.9	425	16	5529	Yes
3021	7.3	313	17	5498	Yes
3022	8.3	367	16	5500	Yes
3023	10	268	17	5523	Yes
3024	7.1	468	16	5524	Yes
3025	9.1	264	18	5497	Yes
3026	8.5	477	16	5511	Yes
3027	6.6	286	17	5505	Yes
3028	6.3	260	17	5508	Yes
3029	8.7	466	18	5522	Yes
3030	6.6	453	16	5506	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	14	421	16	5515	Yes
4002	19	303	12	5503	Yes
4003	11.9	283	12	5528	No
4004	17.4	311	16	5528	Yes
4005	15.5	305	16	5523	Yes
4006	12.4	346	15	5519	Yes
4007	11	485	13	5502	Yes
4008	18	288	15	5524	Yes
4009	17.1	322	13	5495	Yes
4010	19.7	388	16	5510	Yes
4011	15	436	14	5491	Yes
4012	13.8	397	16	5527	Yes
4013	18.6	457	15	5525	Yes
4014	17.9	431	13	5505	Yes
4015	14.1	386	15	5508	Yes
4016	18.7	373	15	5525	Yes
4017	11.1	341	15	5498	Yes
4018	16.1	474	16	5498	No
4019	18.1	455	15	5515	Yes
4020	14.5	483	14	5492	Yes
4021	12.6	476	12	5520	Yes
4022	14.4	266	16	5524	Yes
4023	17.2	406	16	5520	Yes
4024	15.1	459	14	5495	Yes
4025	14.2	494	16	5504	Yes
4026	16.8	309	14	5520	Yes
4027	12.1	356	12	5529	Yes
4028	20	318	13	5496	Yes
4029	15.8	378	14	5522	Yes
4030	15.1	352	12	5506	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	5494	Yes
12	5496	Yes
13	5499	Yes
14	5494	Yes
15	5494	Yes
16	5498	Yes
17	5494	Yes
18	5496	Yes
19	5494	Yes
20	5498	Yes
21	5526	Yes
22	5525	Yes
23	5526	Yes
24	5523	Yes
25	5526	Yes
26	5525	Yes
27	5526	Yes
28	5523	Yes
29	5526	Yes
30	5525	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	560	5490	6	Yes
2	1035	5491	11	Yes
3	1510	5492	6	Yes
4	1985	5493	9	Yes
5	2460	5494	11	Yes
6	2935	5495	12	Yes
7	3410	5496	9	Yes
8	3885	5497	6	Yes
9	4360	5498	10	Yes
10	4835	5499	7	Yes
11	5310	5500	10	Yes
12	5785	5501	9	Yes
13	6260	5502	11	Yes
14	6735	5503	9	Yes
15	7210	5504	7	Yes
16	7685	5505	7	Yes
17	8160	5506	7	Yes
18	8635	5507	10	Yes
19	9110	5508	6	Yes
20	9585	5509	13	Yes
21	10060	5510	7	Yes
22	10535	5511	7	Yes
23	11010	5512	5	Yes
24	11485	5513	5	Yes
25	11960	5514	8	Yes
26	12435	5515	14	Yes
27	12910	5516	7	Yes
28	13385	5517	13	Yes
29	13860	5518	17	Yes
30	14335	5519	4	Yes
31	14810	5520	10	Yes
32	15285	5521	6	Yes
33	15760	5522	11	Yes
34	16235	5523	8	Yes
35	16710	5524	6	Yes
36	17185	5525	8	Yes
37	17660	5526	8	Yes
38	18135	5527	8	Yes
39	18610	5528	11	Yes
40	19085	5529	8	Yes
41	19560	5530	6	Yes

7.4. RESULTS FOR 80 MHz BANDWIDTH

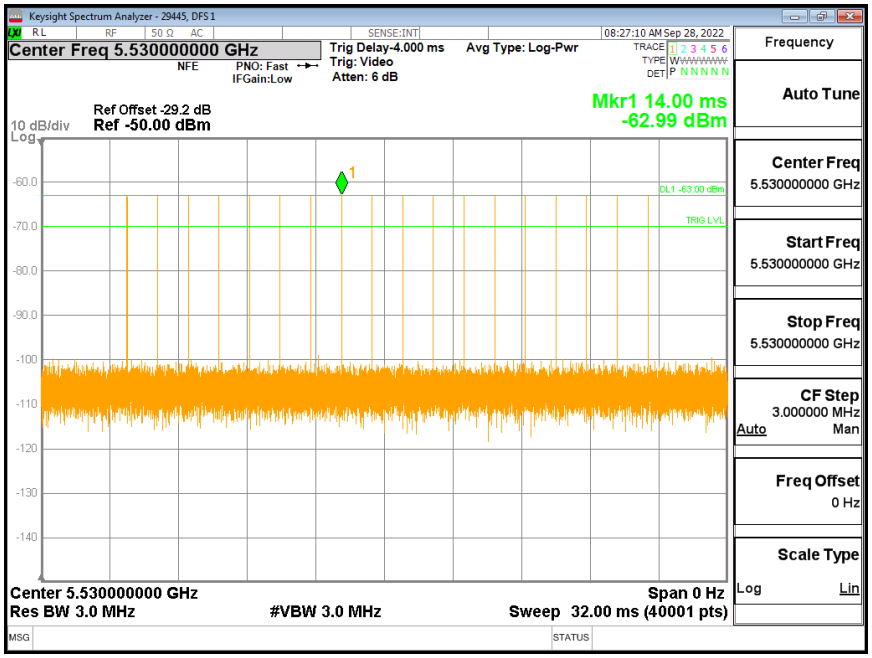
7.4.1. TEST CHANNEL

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

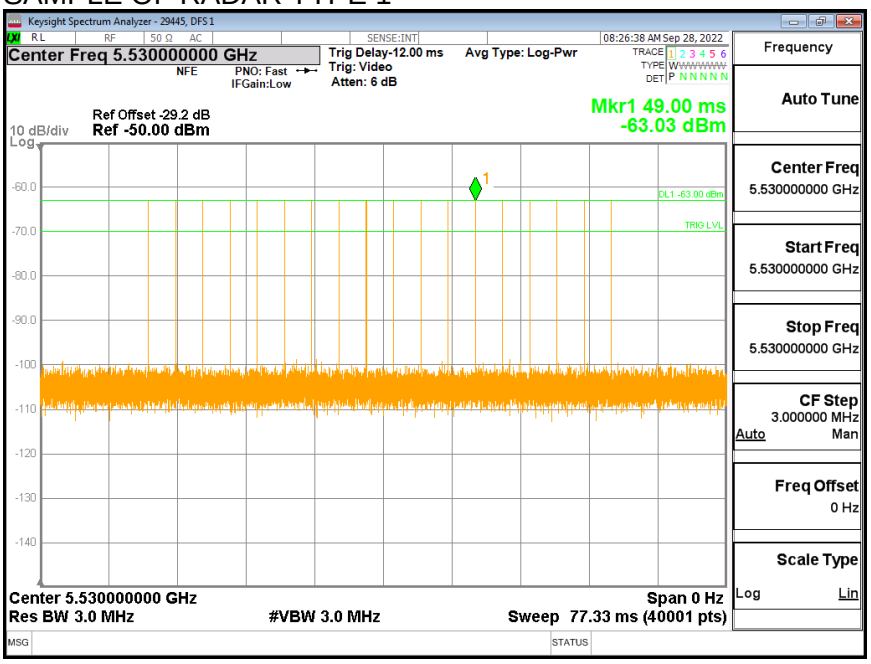
7.4.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

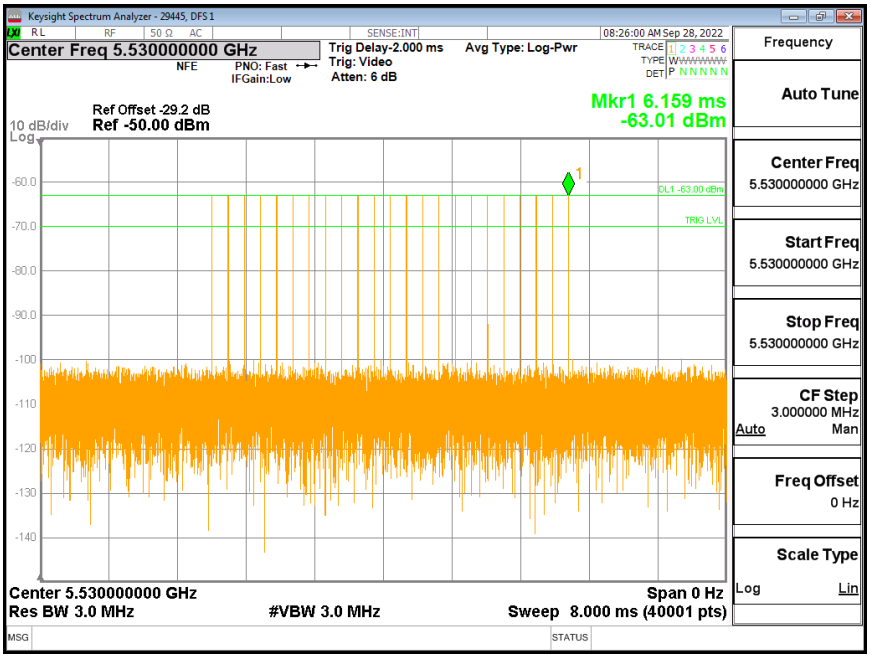
SHORT PULSE RADAR TYPE 0



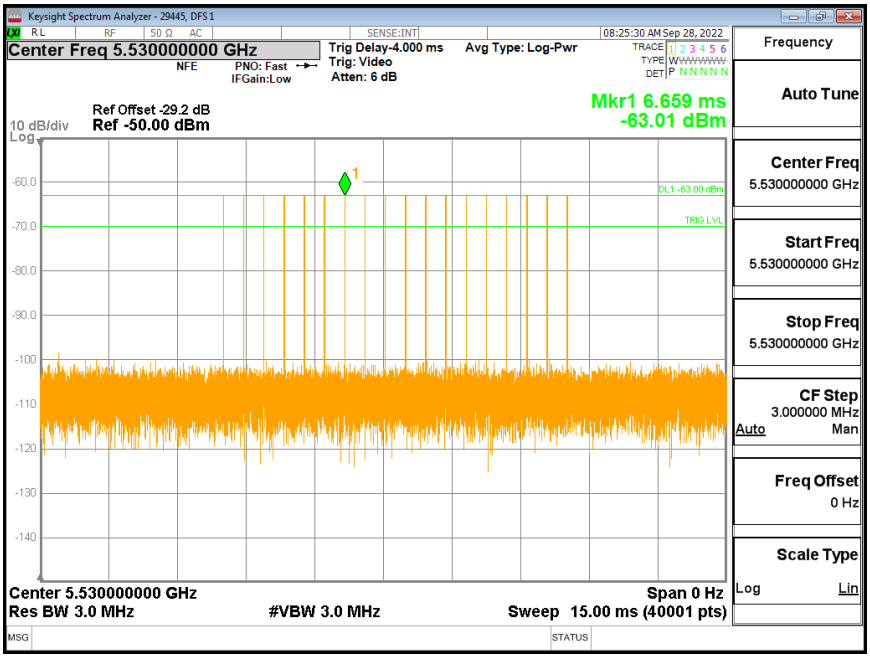
SAMPLE OF RADAR TYPE 1



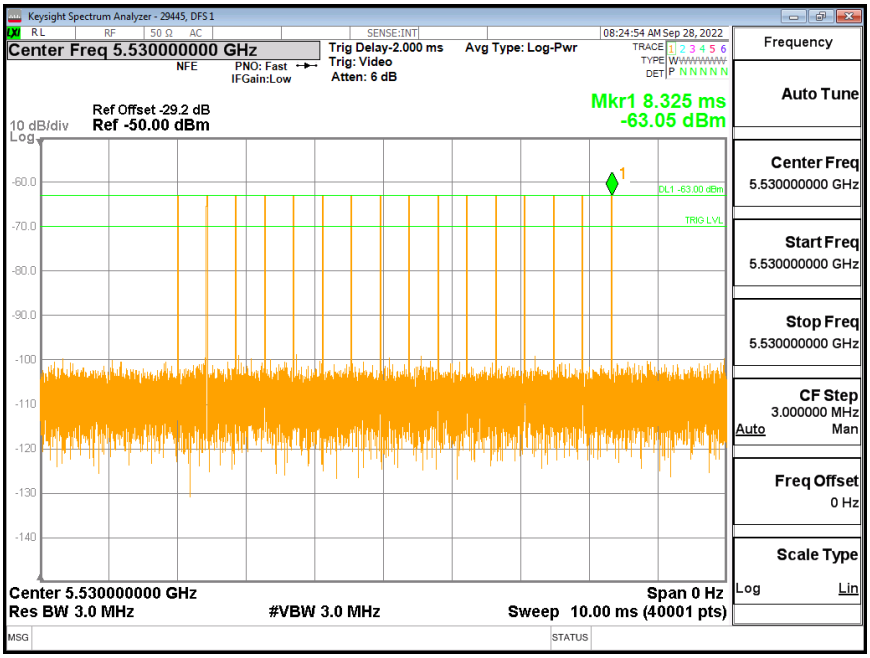
SAMPLE OF RADAR TYPE 2



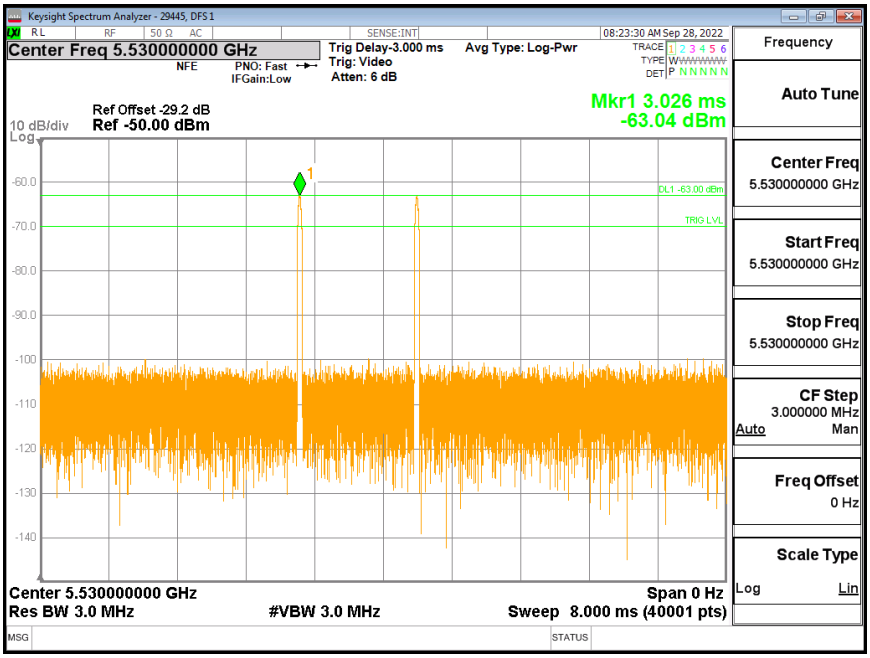
SAMPLE OF RADAR TYPE 3



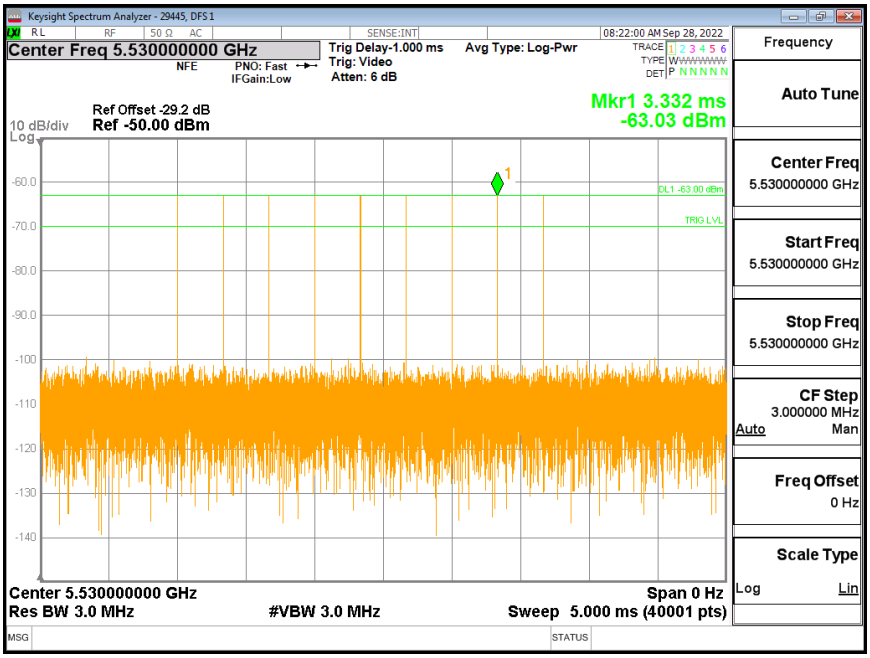
SAMPLE OF RADAR TYPE 4



SAMPLE OF SINGLE BURST OF RADAR TYPE 5

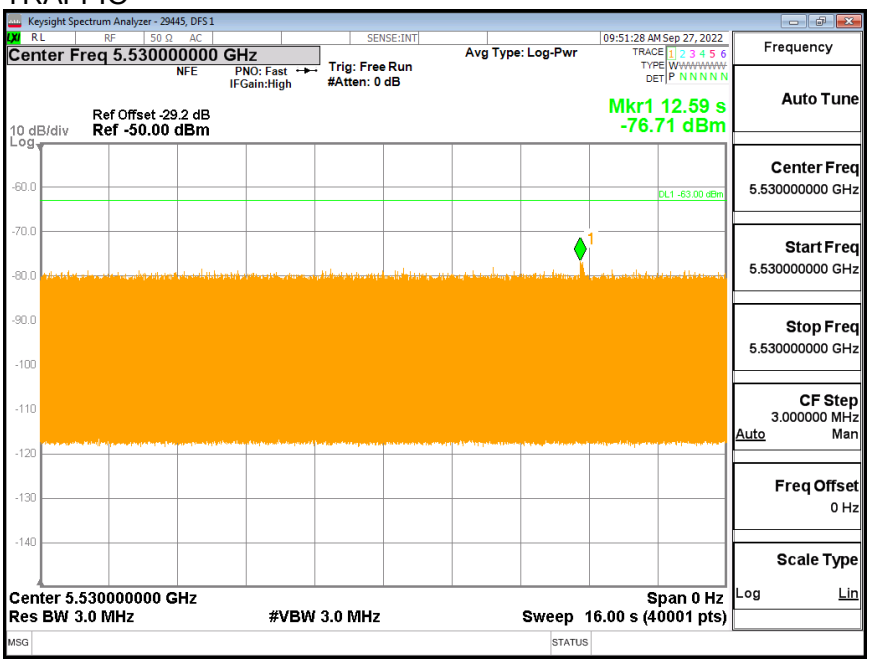


SINGLE BURST OF RADAR TYPE 6

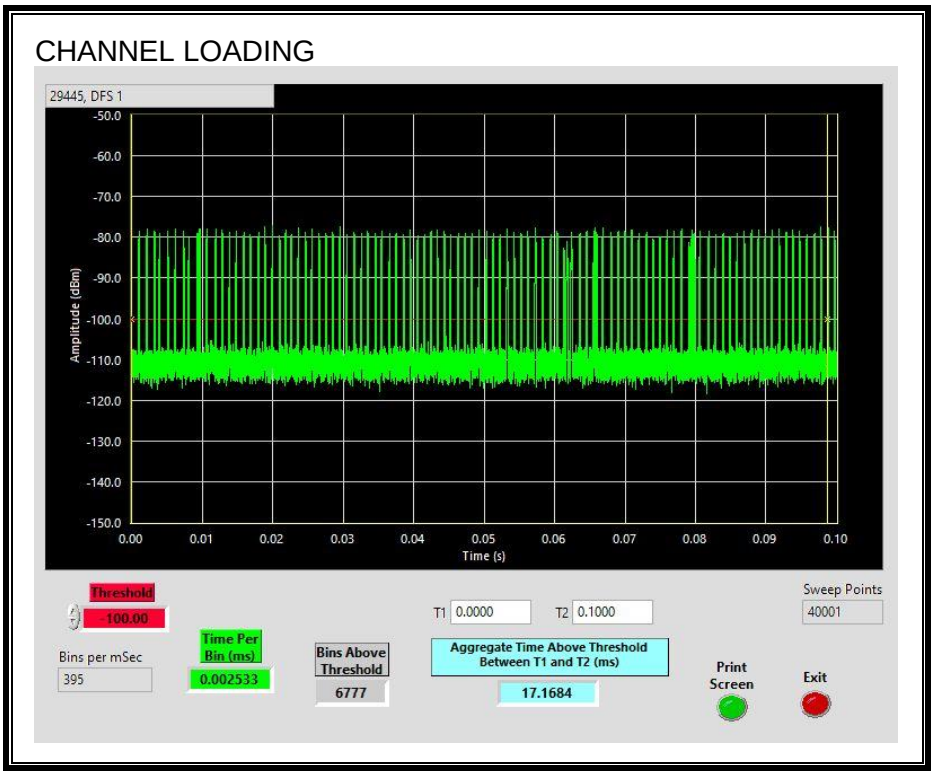


TRAFFIC

TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 17.168%.

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)
30.65	225.5	194.9	134.9

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)
30.33	168.5	138.2	3.3

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)
30.22	222.5	192.3	57.4

QUALITATIVE RESULTS

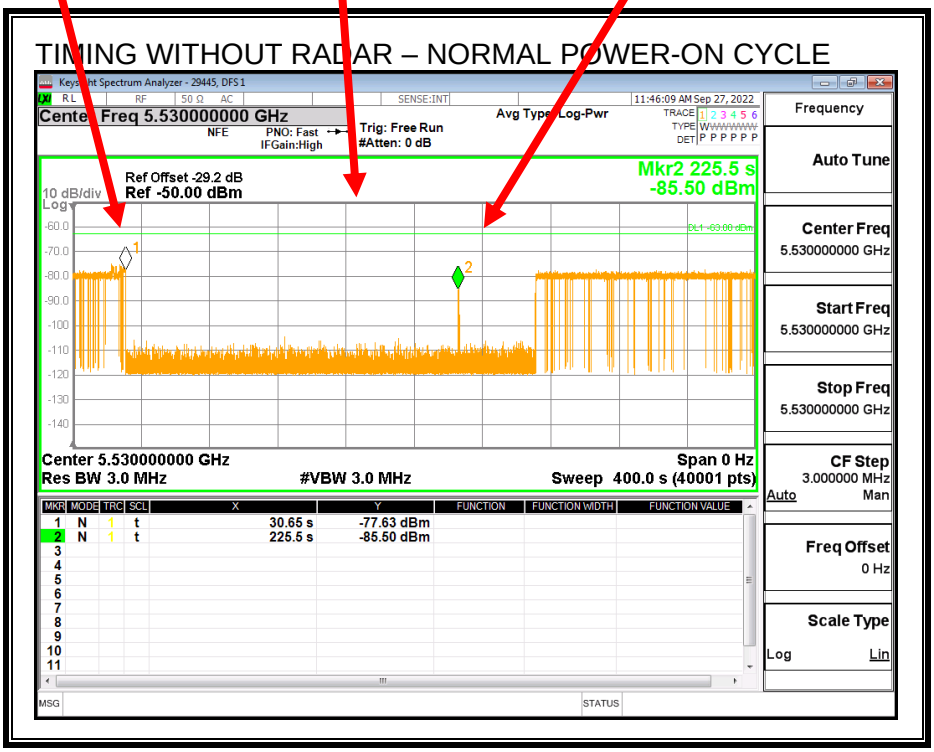
Timing of Radar Burst	Display on Control Computer	Spectrum Analyzer Display
No Radar Triggered	EUT marks Channel as active	Transmissions begin on channel after completion of the initial power-up cycle and the CAC
Within 0 to 6 second window	EUT indicates radar detected	No transmissions on channel
Within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



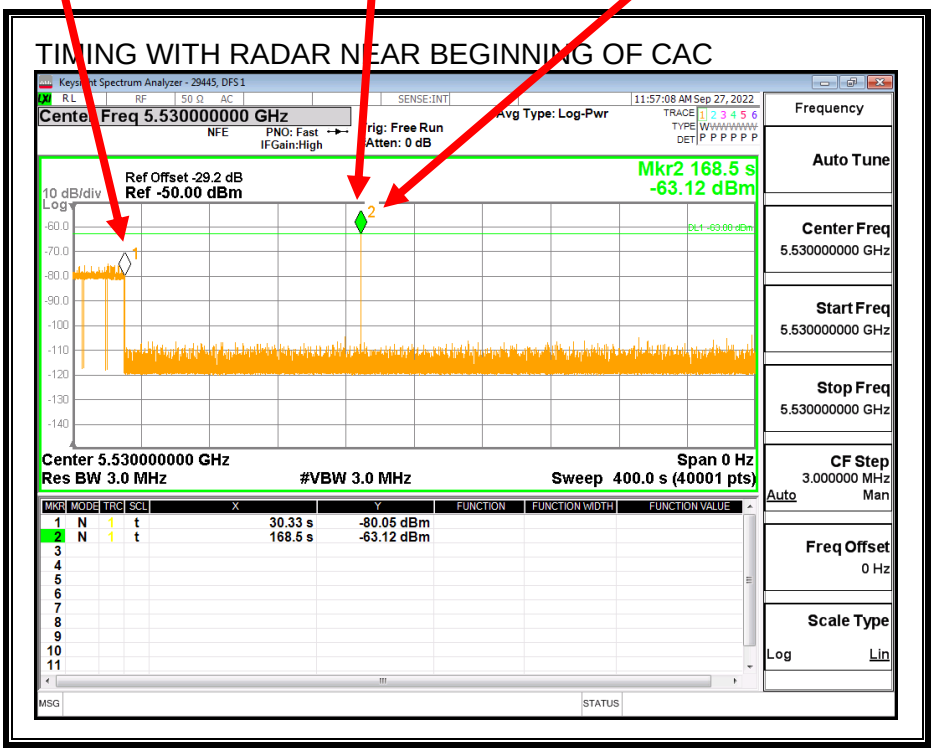
Transmissions begin on channel after completion of the initial power-up cycle and the CAC.

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



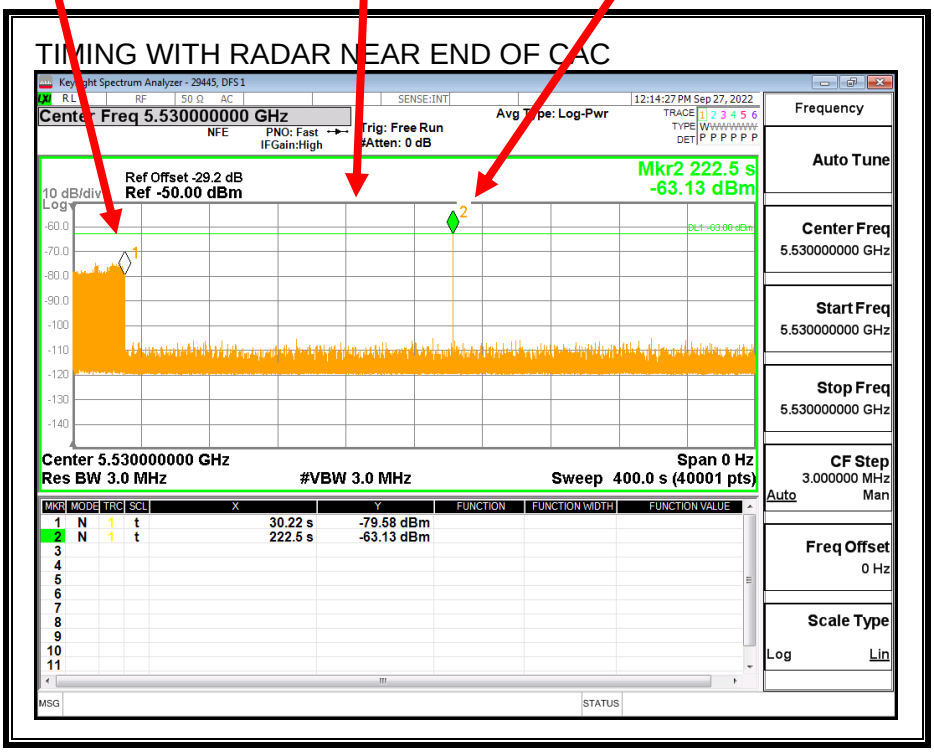
No EUT transmissions were observed after the radar signal.

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

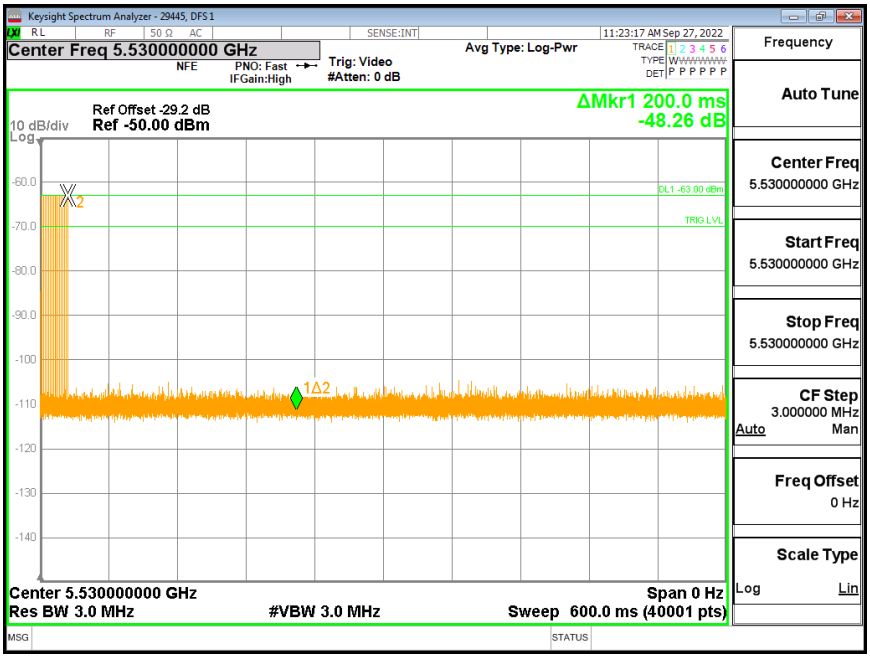
Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
0.0	60

MOVE TIME

MOVE TIME

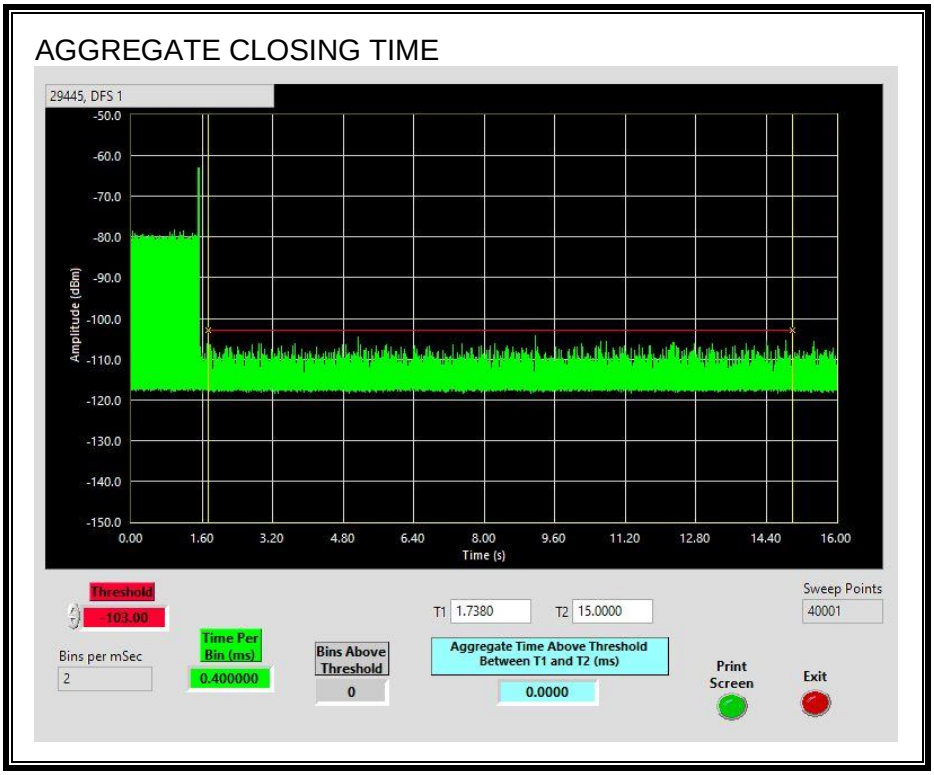
CHANNEL CLOSING TIME

CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

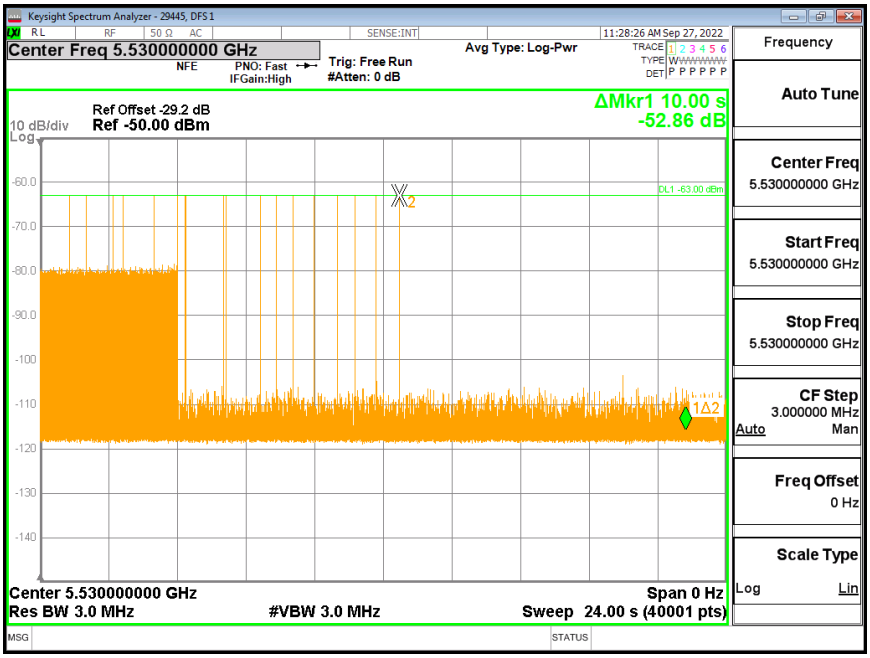
No transmissions are observed during the aggregate monitoring period.



LONG PULSE CHANNEL MOVE TIME

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

MOVE TIME FOR LONG PULSE RADAR

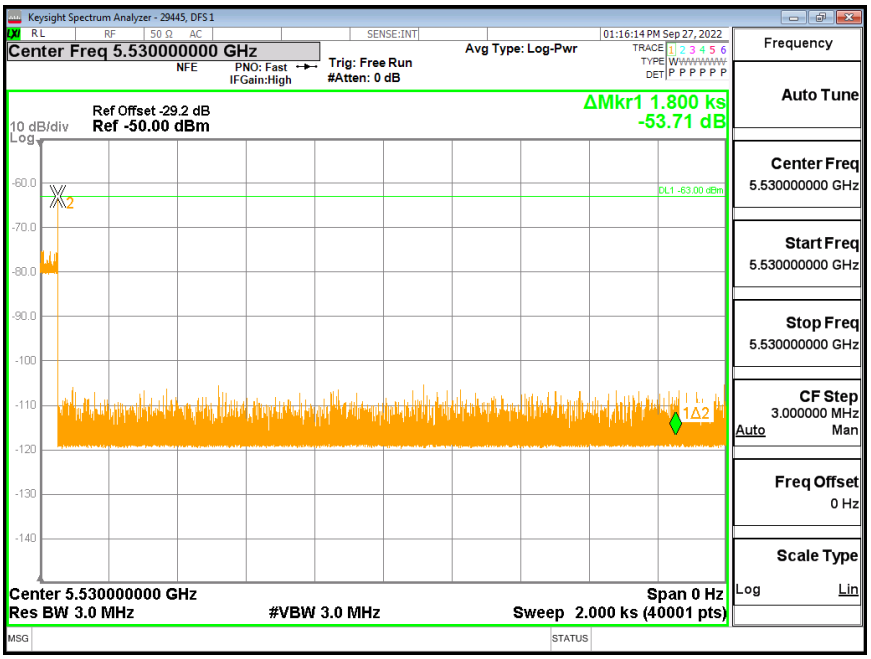


7.4.6. NON-OCCUPANCY PERIOD

RESULTS

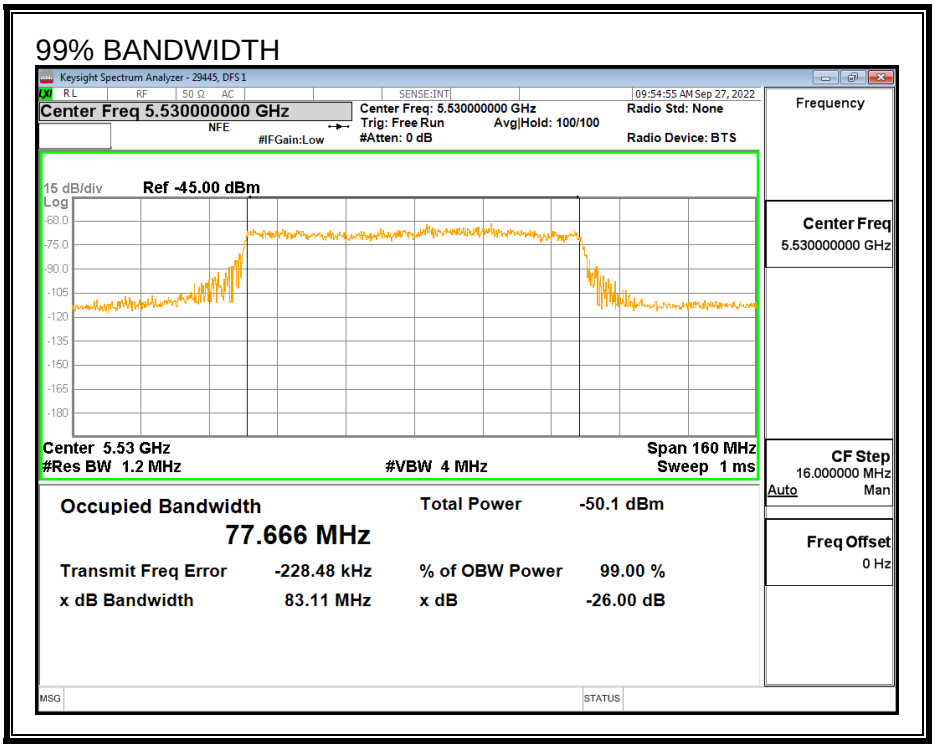
No EUT transmissions were observed on the test channel during the 30-minute observation time.

NON-OCCUPANCY PERIOD



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	77.666	103.0	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 FL	Detection Bandwidth FH	OBW	Test Location	Employee Number	In-Service Monitoring Version
FCC Short Pulse Type 1	30	100.00	60	Pass	5490	5570	77.67	DFS 1	29445	v4.1
FCC Short Pulse Type 2	30	100.00	60	Pass	5490	5570	77.67	DFS 1	29445	v4.1
FCC Short Pulse Type 3	30	100.00	60	Pass	5490	5570	77.67	DFS 1	29445	v4.1
FCC Short Pulse Type 4	30	96.67	60	Pass	5490	5570	77.67	DFS 1	29445	v4.1
Aggregate		99.17	80	Pass						
FCC Long Pulse Type 5	30	100.00	80	Pass	5490	5570	77.67	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	5511	Yes
1002	1	878	61	A	5570	Yes
1003	1	858	62	A	5492	Yes
1004	1	818	65	A	5532	Yes
1005	1	838	63	A	5548	Yes
1006	1	658	81	A	5511	Yes
1007	1	738	72	A	5561	Yes
1008	1	758	70	A	5515	Yes
1009	1	718	74	A	5495	Yes
1010	1	938	57	A	5535	Yes
1011	1	778	68	A	5505	Yes
1012	1	898	59	A	5543	Yes
1013	1	678	78	A	5558	Yes
1014	1	918	58	A	5498	Yes
1015	1	578	92	A	5539	Yes
1016	1	2773	20	B	5533	Yes
1017	1	664	80	B	5508	Yes
1018	1	1426	38	B	5502	Yes
1019	1	640	83	B	5562	Yes
1020	1	2885	19	B	5523	Yes
1021	1	2229	24	B	5515	Yes
1022	1	2055	26	B	5525	Yes
1023	1	2882	19	B	5560	Yes
1024	1	1643	33	B	5531	Yes
1025	1	2600	21	B	5541	Yes
1026	1	1491	36	B	5492	Yes
1027	1	1382	39	B	5496	Yes
1028	1	2950	18	B	5512	Yes
1029	1	2970	18	B	5514	Yes
1030	1	2120	25	B	5509	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	1.9	189	23	5511	Yes
2002	2.7	159	29	5513	Yes
2003	2.1	166	26	5539	Yes
2004	3	183	26	5517	Yes
2005	2.6	151	23	5551	Yes
2006	1.9	216	26	5535	Yes
2007	1.7	188	27	5520	Yes
2008	1.2	176	24	5507	Yes
2009	3.3	195	26	5515	Yes
2010	1.1	230	23	5555	Yes
2011	3.5	172	29	5564	Yes
2012	1.4	211	23	5504	Yes
2013	4	201	29	5565	Yes
2014	2.2	163	24	5498	Yes
2015	3.1	156	23	5560	Yes
2016	3.6	203	29	5497	Yes
2017	4.7	163	28	5533	Yes
2018	1.4	176	27	5507	Yes
2019	4.9	221	24	5518	Yes
2020	1.7	158	23	5534	Yes
2021	1.3	207	24	5505	Yes
2022	4.7	190	24	5535	Yes
2023	4.5	162	25	5552	Yes
2024	4	150	29	5560	Yes
2025	2	212	24	5534	Yes
2026	3.9	204	25	5515	Yes
2027	2.2	228	26	5530	Yes
2028	4.2	185	28	5499	Yes
2029	2.7	175	27	5497	Yes
2030	5	218	28	5502	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	442	18	5503	Yes
3002	7.3	337	17	5529	Yes
3003	8.4	464	17	5541	Yes
3004	9.2	253	17	5533	Yes
3005	8.6	393	18	5535	Yes
3006	9.6	446	18	5531	Yes
3007	9.1	348	18	5507	Yes
3008	8.4	296	18	5490	Yes
3009	6.3	344	16	5504	Yes
3010	9.8	423	17	5546	Yes
3011	9.8	365	18	5492	Yes
3012	7.6	339	18	5563	Yes
3013	10	412	16	5505	Yes
3014	7.9	281	17	5565	Yes
3015	6.4	500	16	5547	Yes
3016	6.8	382	17	5558	Yes
3017	7.7	363	17	5535	Yes
3018	6	257	16	5511	Yes
3019	9.3	384	16	5527	Yes
3020	7.9	425	16	5492	Yes
3021	7.3	313	17	5522	Yes
3022	8.3	367	16	5504	Yes
3023	10	268	17	5507	Yes
3024	7.1	468	16	5519	Yes
3025	9.1	264	18	5508	Yes
3026	8.5	477	16	5541	Yes
3027	6.6	286	17	5524	Yes
3028	6.3	260	17	5543	Yes
3029	8.7	466	18	5510	Yes
3030	6.6	453	16	5507	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	14	421	16	5541	Yes
4002	19	303	12	5564	Yes
4003	11.9	283	12	5552	Yes
4004	17.4	311	16	5524	Yes
4005	15.5	305	16	5567	Yes
4006	12.4	346	15	5569	Yes
4007	11	485	13	5497	Yes
4008	18	288	15	5560	Yes
4009	17.1	322	13	5550	Yes
4010	19.7	388	16	5558	Yes
4011	15	436	14	5561	Yes
4012	13.8	397	16	5527	Yes
4013	18.6	457	15	5510	Yes
4014	17.9	431	13	5511	Yes
4015	14.1	386	15	5556	No
4016	18.7	373	15	5504	Yes
4017	11.1	341	15	5509	Yes
4018	16.1	474	16	5514	Yes
4019	18.1	455	15	5500	Yes
4020	14.5	483	14	5509	Yes
4021	12.6	476	12	5533	Yes
4022	14.4	266	16	5556	Yes
4023	17.2	406	16	5513	Yes
4024	15.1	459	14	5510	Yes
4025	14.2	494	16	5515	Yes
4026	16.8	309	14	5541	Yes
4027	12.1	356	12	5562	Yes
4028	20	318	13	5541	Yes
4029	15.8	378	14	5540	Yes
4030	15.1	352	12	5493	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	5494	Yes
12	5496	Yes
13	5499	Yes
14	5494	Yes
15	5494	Yes
16	5498	Yes
17	5495	Yes
18	5496	Yes
19	5494	Yes
20	5498	Yes
21	5566	Yes
22	5564	Yes
23	5566	Yes
24	5562	Yes
25	5566	Yes
26	5564	Yes
27	5566	Yes
28	5562	Yes
29	5566	Yes
30	5564	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	725	5490	17	Yes
2	1200	5491	17	Yes
3	1675	5492	17	Yes
4	2150	5493	13	Yes
5	2625	5494	11	Yes
6	3100	5495	15	Yes
7	3575	5496	19	Yes
8	4050	5497	13	Yes
9	4525	5498	14	Yes
10	5000	5499	12	Yes
11	5475	5500	16	Yes
12	5950	5501	22	Yes
13	6425	5502	19	Yes
14	6900	5503	13	Yes
15	7375	5504	22	Yes
16	7850	5505	17	Yes
17	8325	5506	26	Yes
18	8800	5507	13	Yes
19	9275	5508	15	Yes
20	9750	5509	14	Yes
21	10225	5510	23	Yes
22	10700	5511	15	Yes
23	11175	5512	14	Yes
24	11650	5513	21	Yes
25	12125	5514	17	Yes
26	12600	5515	17	Yes
27	13075	5516	15	Yes
28	13550	5517	14	Yes
29	14025	5518	14	Yes
30	14500	5519	21	Yes
31	14975	5520	18	Yes
32	15450	5521	15	Yes
33	15925	5522	15	Yes
34	16400	5523	17	Yes
35	16875	5524	21	Yes
36	17350	5525	19	Yes
37	17825	5526	15	Yes
38	18300	5527	18	Yes
39	18775	5528	13	Yes

TYPE 6 DETECTION PROBABILITY (CONTINUED)

40	19250	5529	13	Yes
41	19725	5530	16	Yes
42	20200	5531	23	Yes
43	20675	5532	18	Yes
44	21150	5533	24	Yes
45	21625	5534	16	Yes
46	22100	5535	19	Yes
47	22575	5536	18	Yes
48	23050	5537	23	Yes
49	23525	5538	21	Yes
50	24000	5539	24	Yes
51	24475	5540	14	Yes
52	24950	5541	8	Yes
53	25425	5542	14	Yes
54	25900	5543	15	Yes
55	26375	5544	13	Yes
56	26850	5545	12	Yes
57	27325	5546	18	Yes
58	27800	5547	21	Yes
59	28275	5548	15	Yes
60	28750	5549	21	Yes
61	29225	5550	17	Yes
62	29700	5551	15	Yes
63	30175	5552	20	Yes
64	30650	5553	20	Yes
65	31125	5554	15	Yes
66	31600	5555	17	Yes
67	32075	5556	13	Yes
68	32550	5557	19	Yes
69	33025	5558	15	Yes
70	33500	5559	16	Yes
71	33975	5560	20	Yes
72	34450	5561	17	Yes
73	34925	5562	15	Yes
74	35400	5563	15	Yes
75	35875	5564	14	Yes
76	36350	5565	20	Yes
77	36825	5566	14	Yes
78	37300	5567	18	Yes
79	37775	5568	14	Yes
80	38250	5569	18	Yes
81	38725	5570	21	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 TEST RESULTS FOR 20 MHz BANDWIDTH

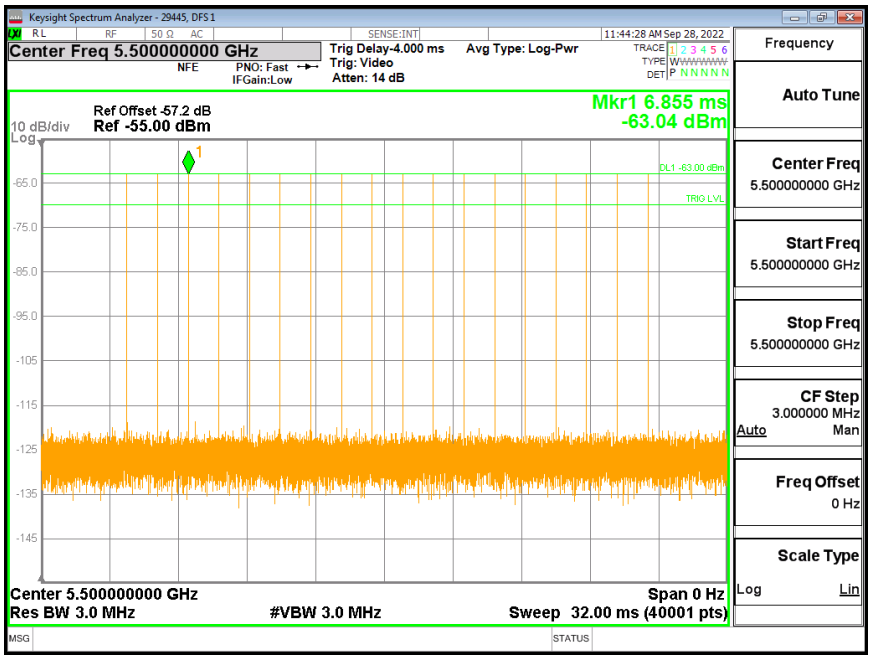
7.6.1. TEST CHANNEL

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

7.6.2. RADAR WAVEFORM AND TRAFFIC

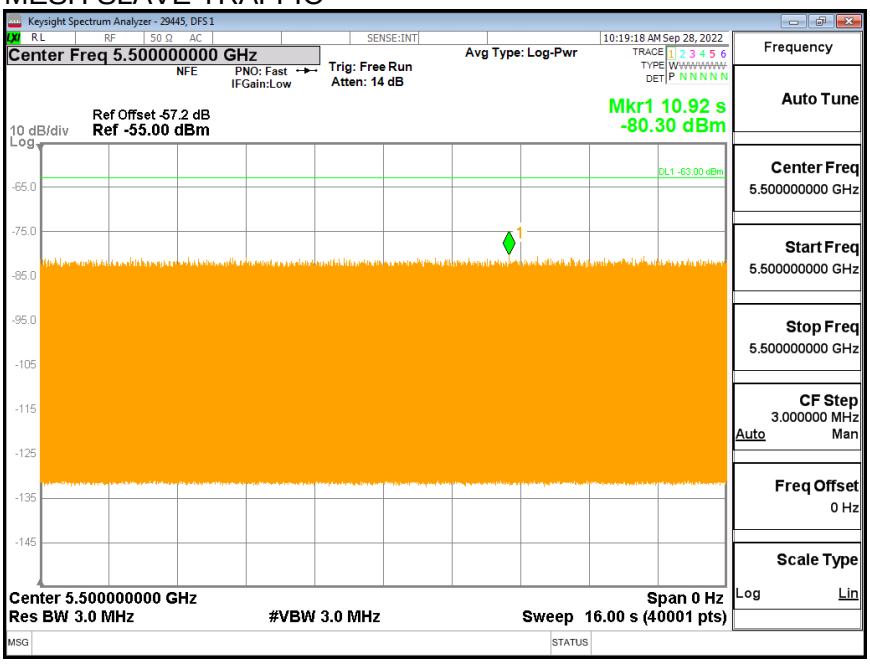
RADAR WAVEFORM

SHORT PULSE RADAR TYPE 0 AT MASTER

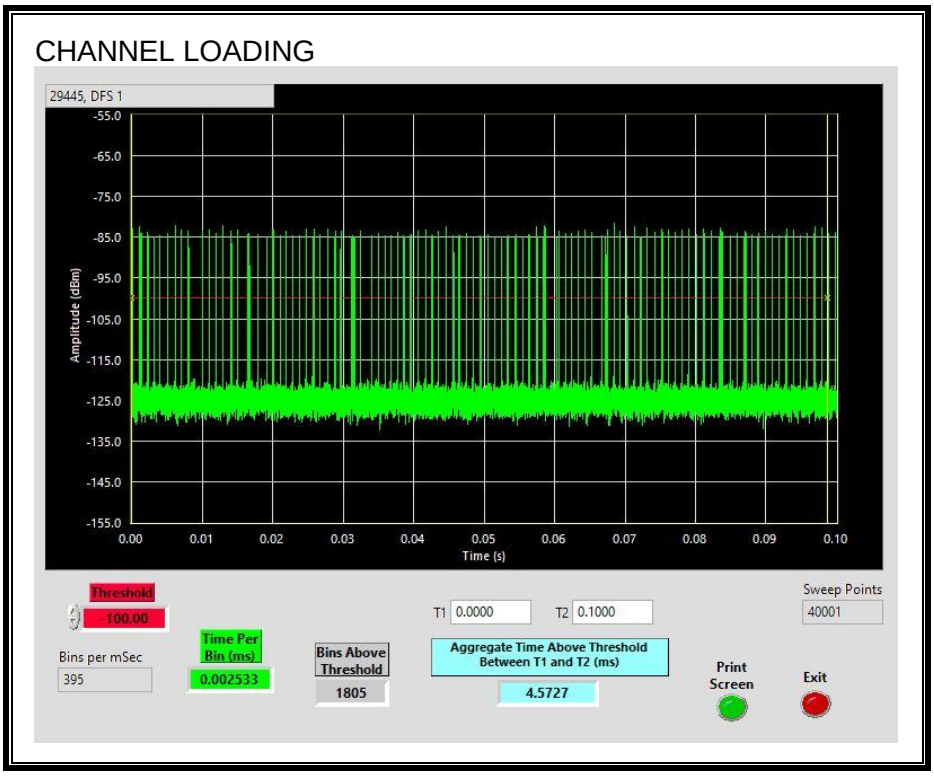


MESH SLAVE TRAFFIC

MESH SLAVE TRAFFIC



MESH SLAVE DEVICE CHANNEL LOADING

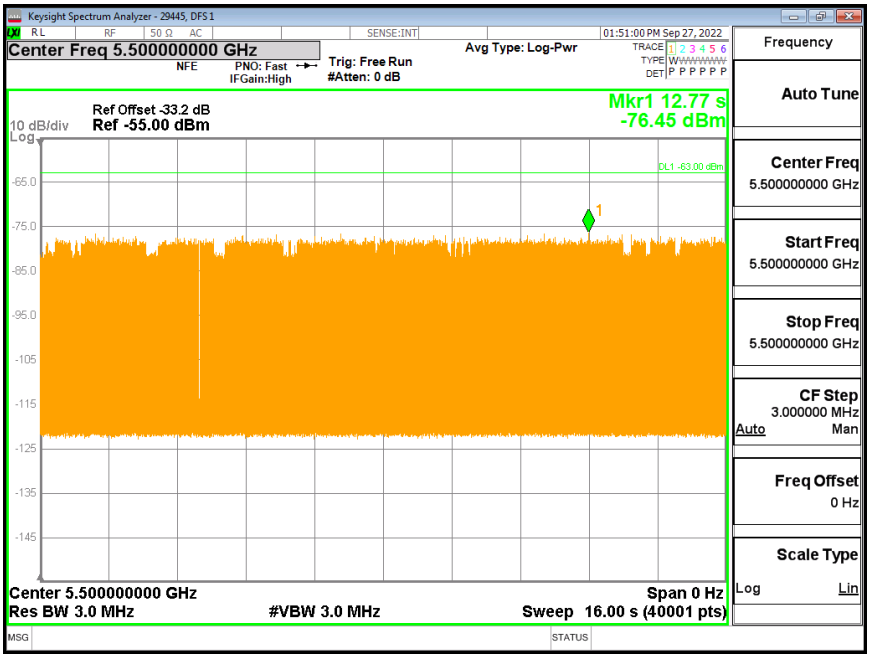


The level of traffic loading on the channel by the EUT is 4.572%

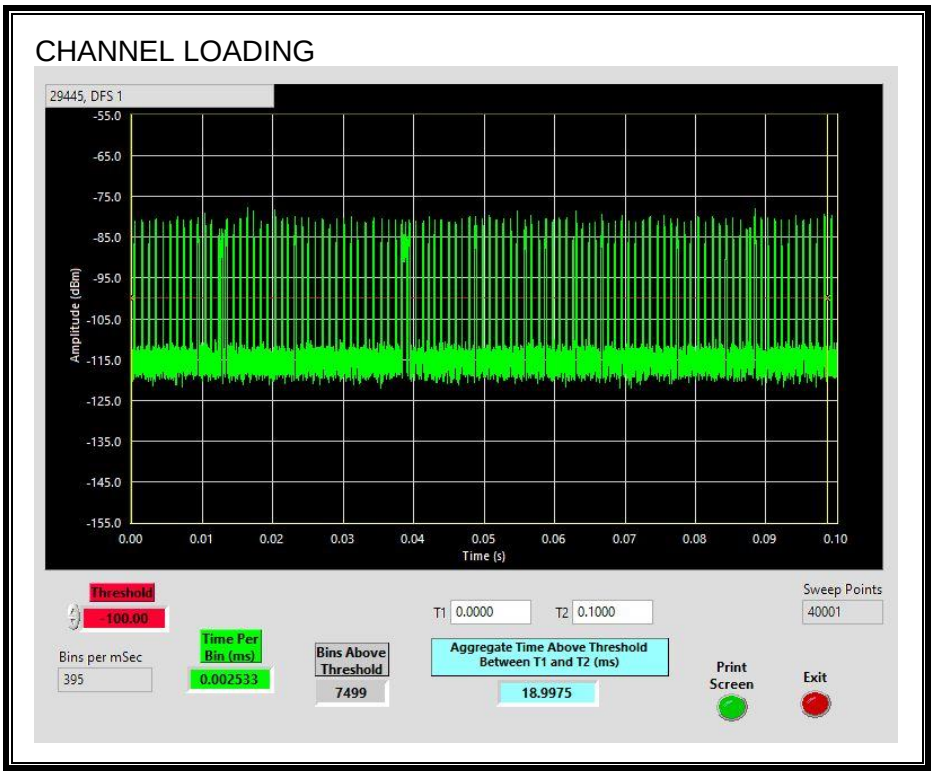
Per KDB 905462 D02 page 2, channel Loading is defined as the data transfer from the aster device to a client device. Therefore, the channel loading upon the Master Device meets the requirement as shown in the following plots taken from the Master Device test results.

MASTER DEVICE TRAFFIC

TRAFFIC



MASTER DEVICE CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 18.99%

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 TEST RESULTS FOR 40 MHz BANDWIDTH

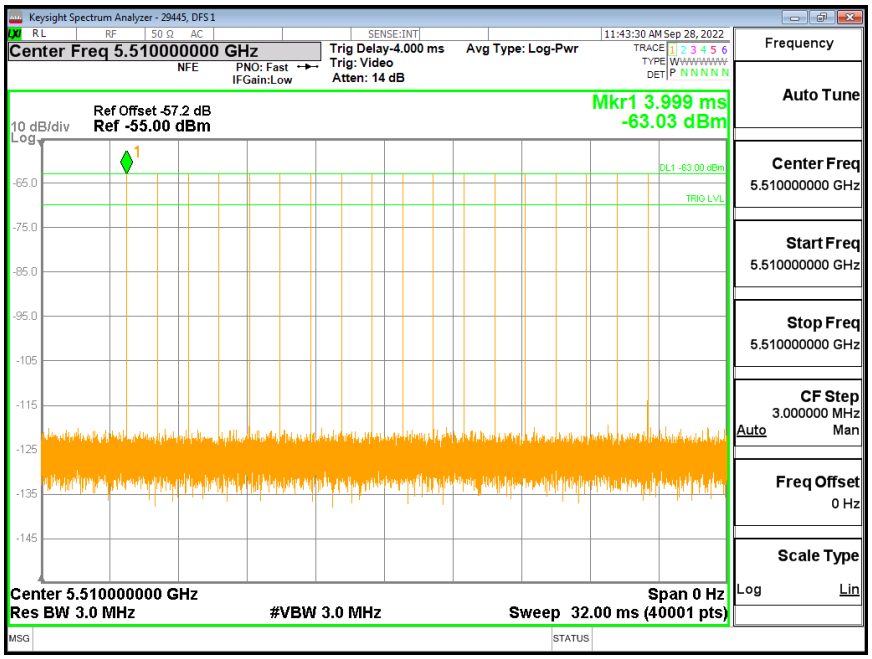
7.7.1. TEST CHANNEL

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

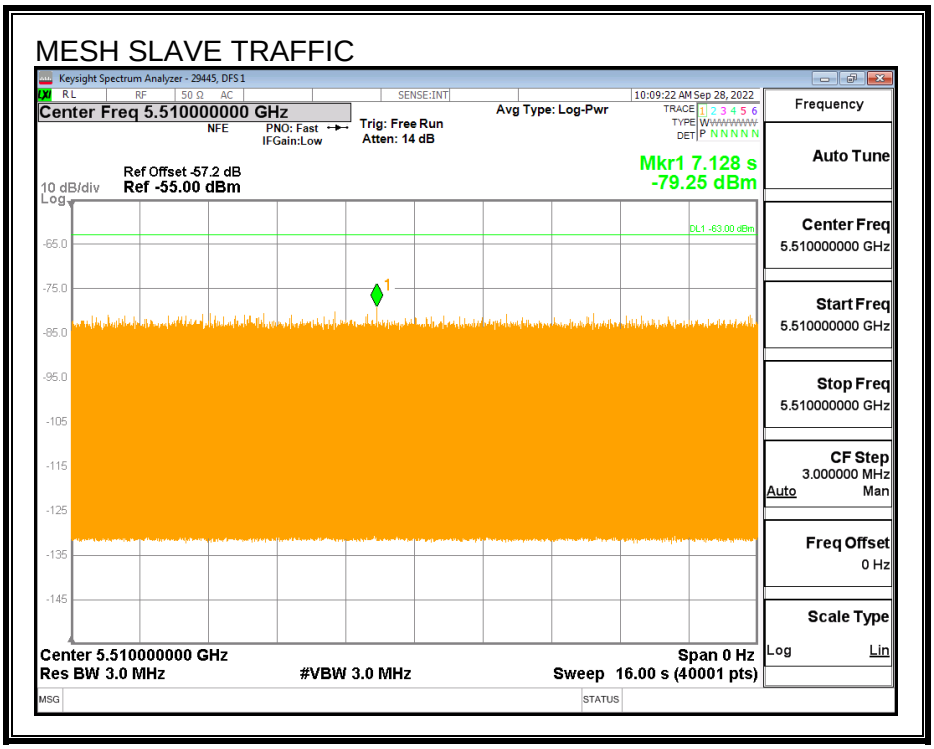
7.7.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM

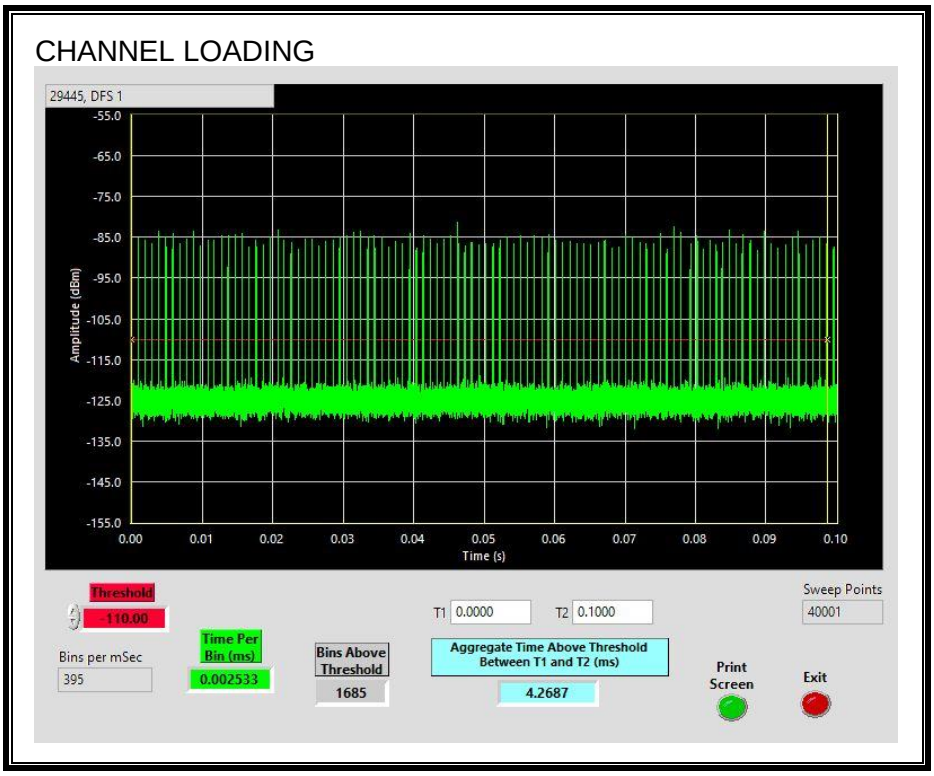
SHORT PULSE RADAR TYPE 0 AT MASTER



MESH SLAVE TRAFFIC



MESH SLAVE DEVICE CHANNEL LOADING

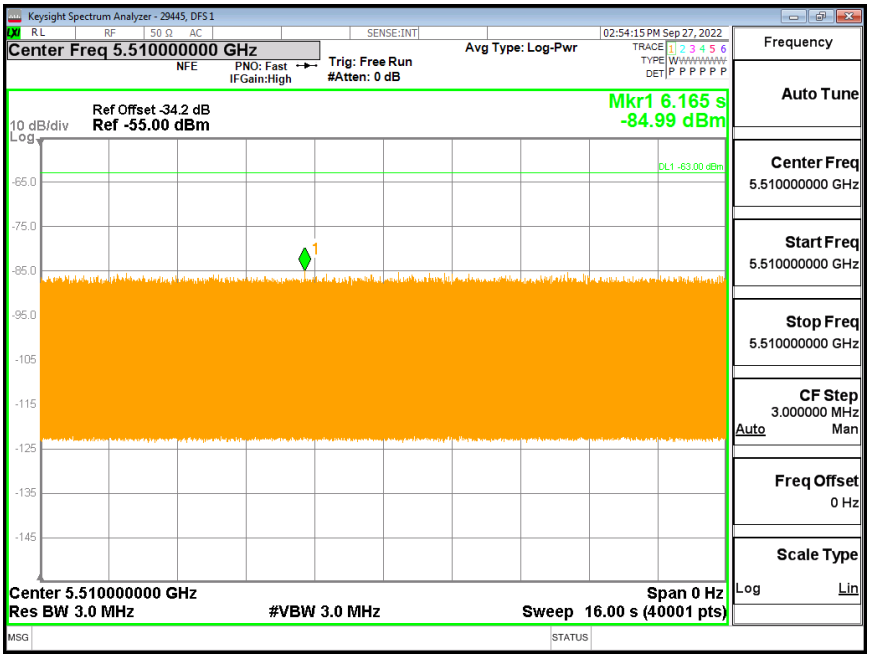


The level of traffic loading on the channel by the EUT is 4.268%

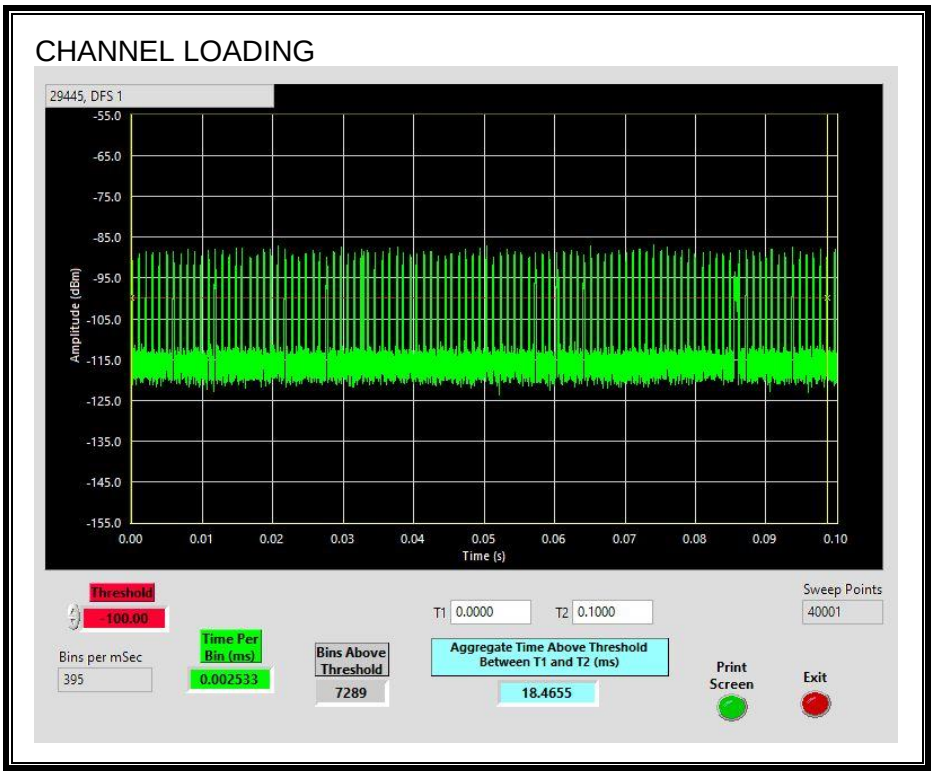
Per KDB 905462 D02 page 2, channel Loading is defined as the data transfer from the master device to a client device. Therefore, the channel loading upon the Master Device meets the requirement as shown in the following plots taken from the Master Device test results.

MASTER DEVICE TRAFFIC

TRAFFIC



MASTER DEVICE CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 18.465%

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 TEST RESULTS FOR 80 MHz BANDWIDTH

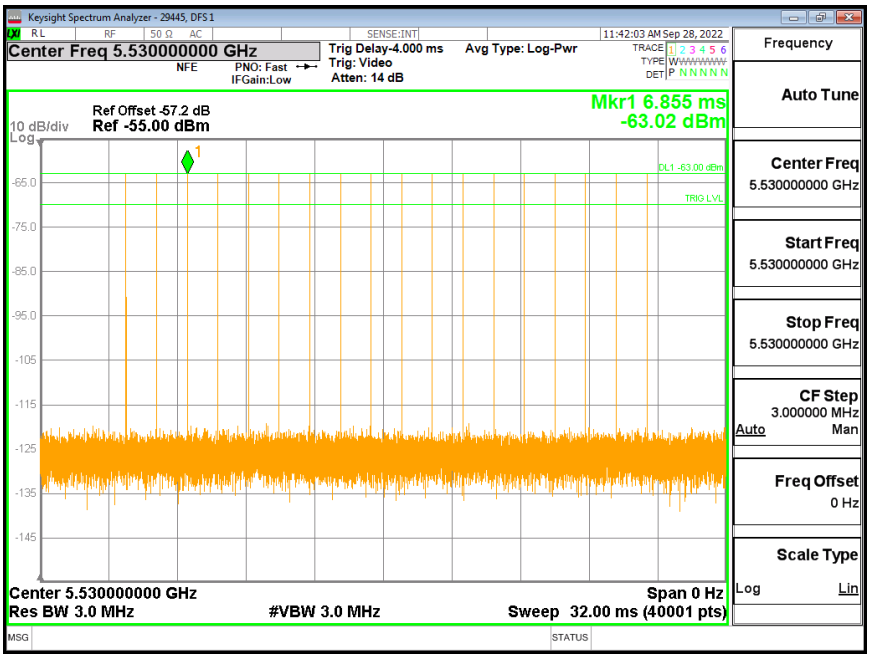
7.8.1. TEST CHANNEL

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

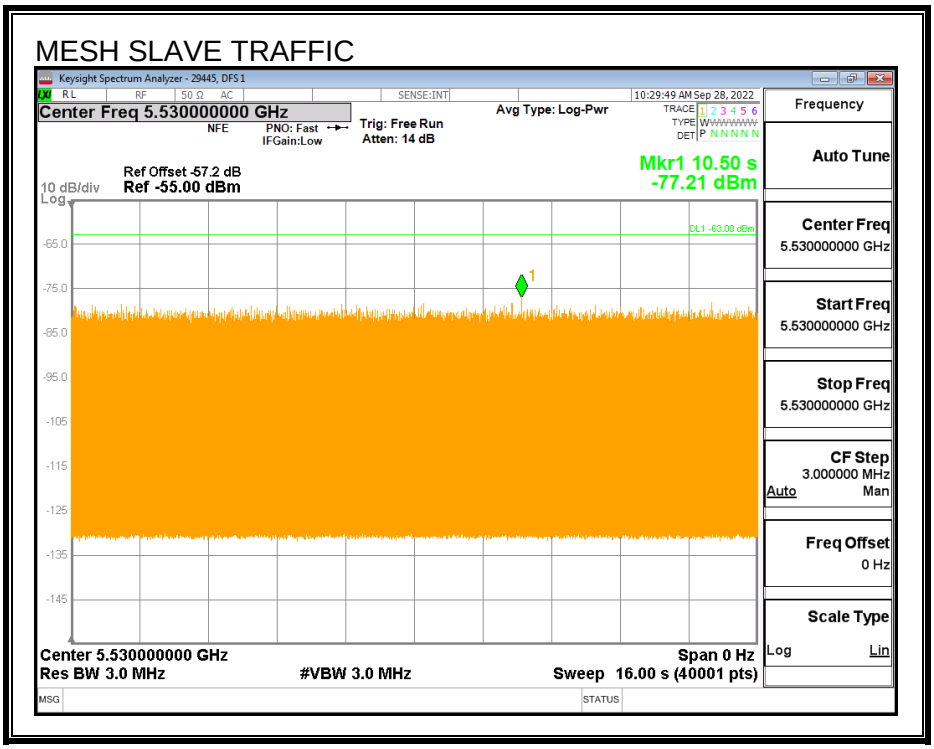
7.8.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM

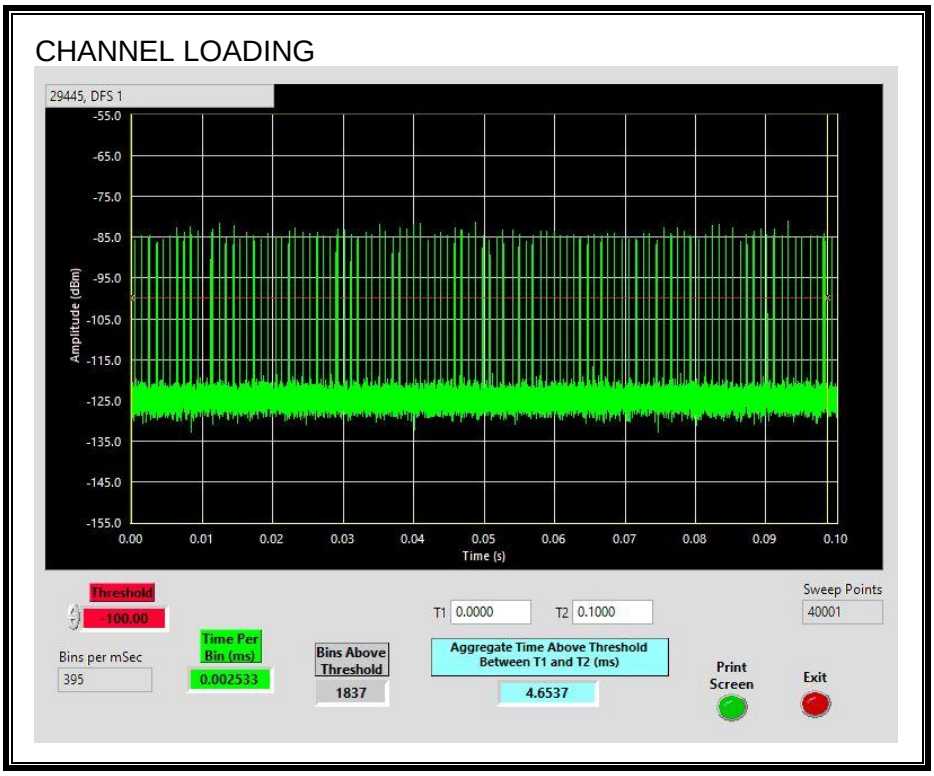
SHORT PULSE RADAR TYPE 0 AT MASTER



MESH SLAVE TRAFFIC



MESH SLAVE DEVICE CHANNEL LOADING

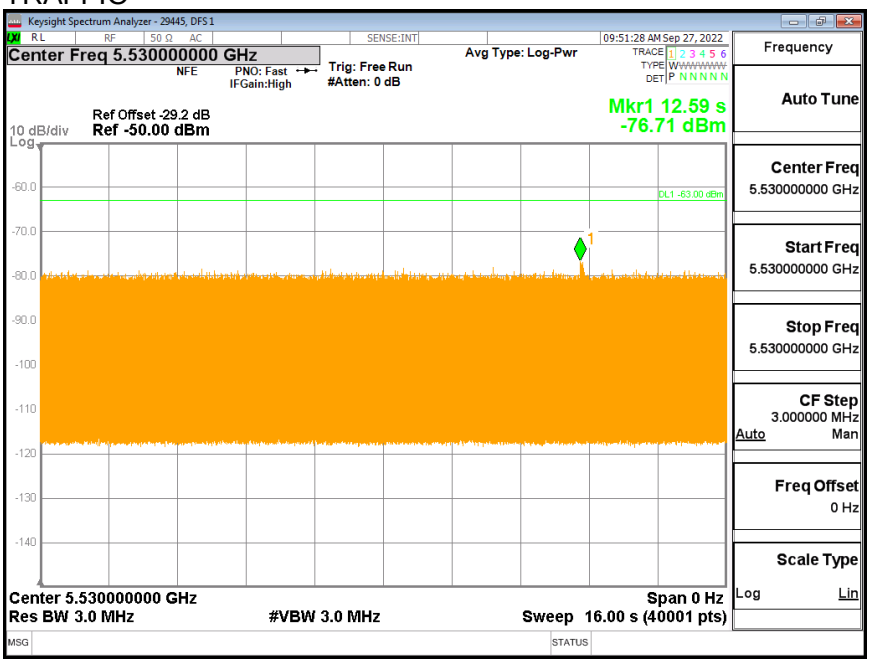


The level of traffic loading on the channel by the EUT is 4.653%

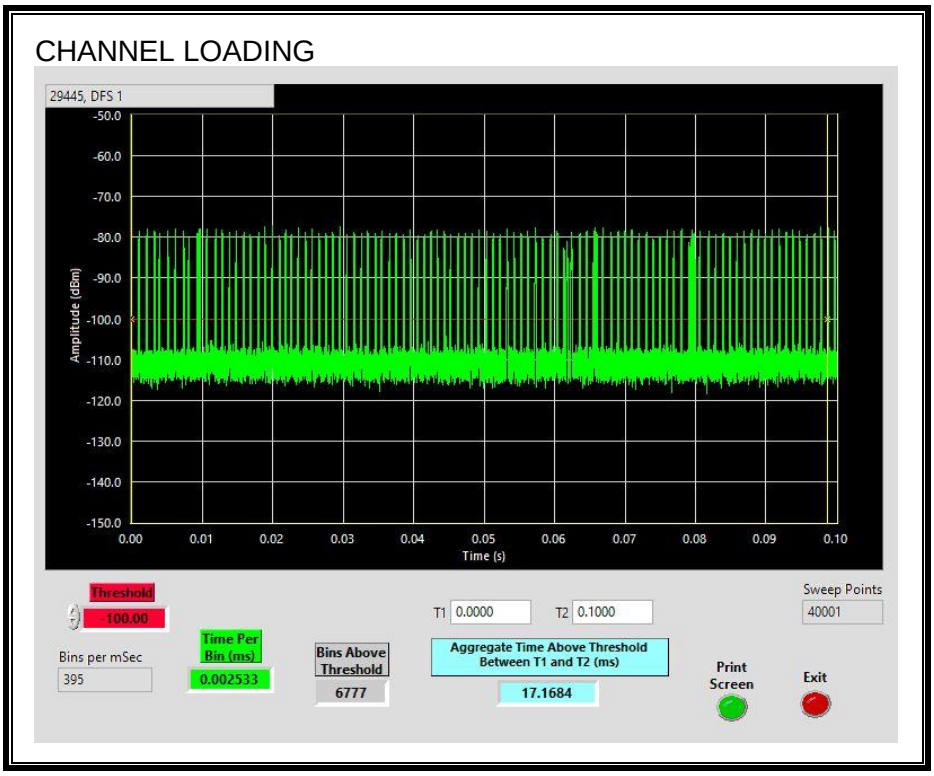
Per KDB 905462 D02 page 2, channel Loading is defined as the data transfer from the master device to a client device. Therefore, the channel loading upon the Master Device meets the requirement as shown in the following plots taken from the Master Device test results.

MASTER DEVICE TRAFFIC

TRAFFIC



MASTER DEVICE CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 17.168%

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)

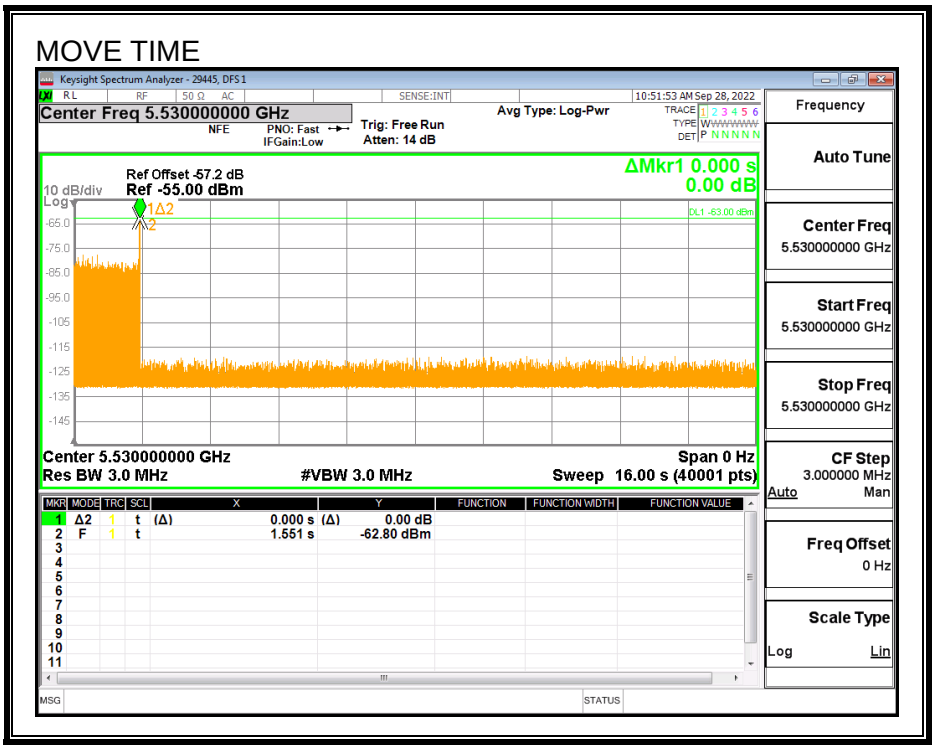
The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

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

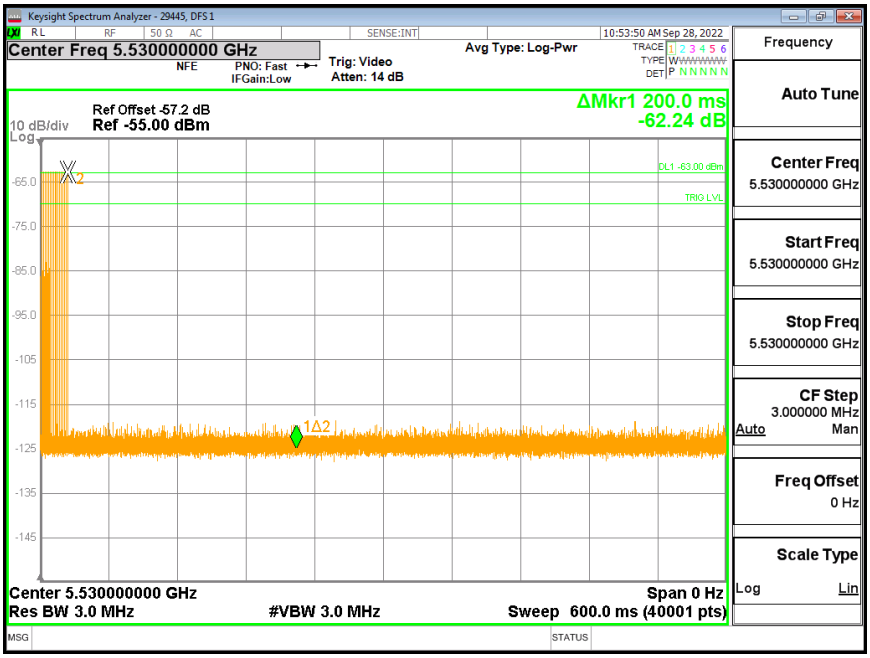
Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
0.0	60

MOVE TIME



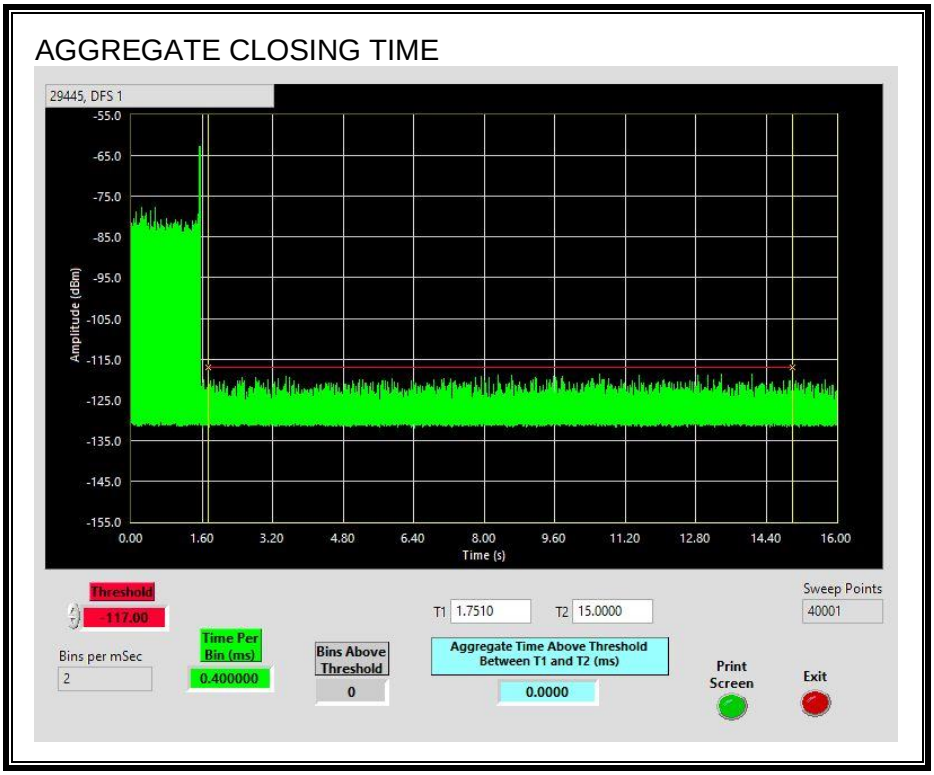
CHANNEL CLOSING TIME

CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.

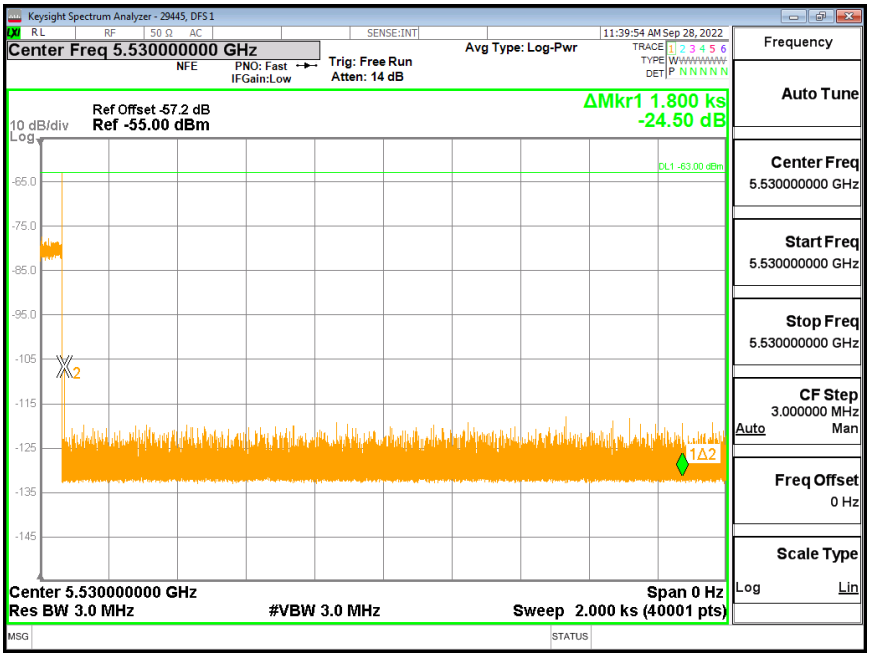


7.8.5. 30-MINUTE NON-OCCUPANCY PERIOD

RESULTS

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

30-MINUTE NON-OCCUPANCY



FCC Long Pulse 09-27-2022 07:09:24

Waveform Num = 1
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)
	245865									
1		2	6	65	1365	1443	0	245865	0	705881
	570651									
2		2	6	65	1956	1495	0	819324	705882	1411763
	948082									
3		3	6	75	1641	1940	1632	1770857	1411764	2117645
	359326									
4		1	6	60	1511	0	0	2135396	2117646	2823527
	1070143									
5		2	6	100	1923	1538	0	3207050	2823528	3529409
	806291									
6		1	6	90	1050	0	0	4016802	3529410	4235291
	282816									
7		3	6	85	1563	1837	1769	4300668	4235292	4941173
	1321384									
8		1	6	100	1016	0	0	5627221	4941174	5647055
	90073									
9		2	6	80	1795	1384	0	5718310	5647056	6352937
	1206154									
10		3	6	50	1264	1614	1888	6927643	6352938	7058819
	547911									
11		1	6	55	1033	0	0	7480320	7058820	7764701
	589163									
12		2	6	85	1178	1845	0	8070516	7764702	8470583
	726726									
13		3	6	65	1624	1315	1196	8800265	8470584	9176465
	797139									
14		3	6	85	1709	1084	1649	9601539	9176466	9882347
	618732									
15		1	6	60	1427	0	0	10224713	9882348	10588229
	727064									
16		3	6	70	1674	1897	1247	10953204	10588230	11294111
	827528									
17		2	6	90	1760	1666	0	11785550	11294112	11999993

Total number of pulses in waveform = 35

Waveform Num = 2
Num of Bursts = 16
Burst Interval (us) = 750000

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	540649	3	9	75	1067	1785	1426	540649	0	749999
2	459598	3	9	65	1571	1503	1828	1004525	750000	1499999
3	884477	3	9	65	1239	1855	1863	1893904	1500000	2249999
4	581080	1	9	70	1007	0	0	2479941	2250000	2999999
5	811736	3	9	95	1153	1554	1410	3292684	3000000	3749999
6	1130858	1	9	65	1289	0	0	4427659	3750000	4499999
7	338098	3	9	55	1169	1418	1058	4767046	4500000	5249999
8	823681	2	9	100	1204	1136	0	5594372	5250000	5999999
9	1117611	2	9	65	1383	1340	0	6714323	6000000	6749999
10	511415	2	9	55	1752	1469	0	7228461	6750000	7499999
11	649845	3	9	80	1513	1255	1187	7881527	7500000	8249999
12	1054505	1	9	70	1966	0	0	8939987	8250000	8999999
13	95844	2	9	80	1212	1803	0	9037797	9000000	9749999
14	1281956	3	9	100	1682	1563	1837	10322768	9750000	10499999
15	184118	1	9	50	1983	0	0	10511968	10500000	11249999
16	811614	3	9	80	1597	1795	1384	11325565	11250000	11999999

Total number of pulses in waveform = 36

Waveform Num = 3
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)
	577064									
1		1	5	80	1888	0	0	577064	0	705881
	548430									
2		1	5	55	1033	0	0	1127382	705882	1411763
	589163									
3		2	5	85	1178	1845	0	1717578	1411764	2117645
	726726									
4		3	5	65	1624	1315	1196	2447327	2117646	2823527
	797139									
5		3	5	85	1709	1084	1649	3248601	2823528	3529409
	618732									
6		1	5	60	1427	0	0	3871775	3529410	4235291
	727064									
7		3	5	70	1674	1897	1247	4600266	4235292	4941173
	827528									
8		2	5	90	1760	1666	0	5432612	4941174	5647055
	258724									
9		2	5	60	1812	1478	0	5694762	5647056	6352937
	1055387									
10		3	5	70	1725	1948	1297	6753439	6352938	7058819
	498326									
11		2	5	95	1341	1717	0	7256735	7058820	7764701
	877124									
12		1	5	95	1863	0	0	8136917	7764702	8470583
	548200									
13		1	5	70	1007	0	0	8686980	8470584	9176465
	763851									
14		3	5	95	1153	1554	1410	9451838	9176466	9882347
	1064121									
15		1	5	65	1289	0	0	10520076	9882348	10588229
	318125									
16		3	5	55	1169	1418	1058	10839490	10588230	11294111
	775028									
17		2	5	100	1204	1136	0	11618163	11294112	11999993

Total number of pulses in waveform = 34

Waveform Num = 4
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)
	148519									
1		2	10	65	1956	1495	0	148519	0	923076
	1241512									
2		3	10	75	1641	1940	1632	1393482	923077	1846153
	470682									
3		1	10	60	1511	0	0	1869377	1846154	2769230
	1400453									
4		2	10	100	1923	1538	0	3271341	2769231	3692307
	1055088									
5		1	10	90	1050	0	0	4329890	3692308	4615384
	370085									
6		3	10	85	1563	1837	1769	4701025	4615385	5538461
	1729710									
7		1	10	100	1016	0	0	6435904	5538462	6461538
	117896									
8		2	10	80	1795	1384	0	6554816	6461539	7384615
	1579361									
9		3	10	50	1264	1614	1888	8137356	7384616	8307692
	716953									
10		1	10	55	1033	0	0	8859075	8307693	9230769
	770977									
11		2	10	85	1178	1845	0	9631085	9230770	10153846
	951458									
12		3	10	65	1624	1315	1196	10585566	10153847	11076923
	1043916									
13		3	10	85	1709	1084	1649	11633617	11076924	12000000

Total number of pulses in waveform = 27

Waveform Num = 5
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)
	806944									
1		2	8	75	1734	1375	0	806944	0	1199999
	1297859									
2		3	8	60	1521	1452	1777	2107912	1200000	2399999
	1258881									
3		2	8	85	1657	1272	0	3371543	2400000	3599999
	1093200									
4		2	8	50	1785	1426	0	4467672	3600000	4799999
	737362									
5		3	8	65	1571	1503	1828	5208245	4800000	5999999
	1418672									
6		3	8	65	1239	1855	1863	6631819	6000000	7199999
	931315									
7		1	8	70	1007	0	0	7568091	7200000	8399999
	1300166									
8		3	8	95	1153	1554	1410	8869264	8400000	9599999
	1811573									
9		1	8	65	1289	0	0	10684954	9600000	10799999
	541813									
10		3	8	55	1169	1418	1058	11228056	10800000	11999999

Total number of pulses in waveform = 23

Waveform Num = 6
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)
	353912									
1		1	19	55	1461	0	0	353912	0	799999
	839155									
2		2	19	70	1340	1956	0	1194528	800000	1599999
	913795									
3		1	19	90	1469	0	0	2111619	1600000	2399999
	694009									
4		3	19	80	1513	1255	1187	2807097	2400000	3199999
	1125055									
5		1	19	70	1966	0	0	3936107	3200000	3999999
	102254									
6		2	19	80	1212	1803	0	4040327	4000000	4799999
	1367871									
7		3	19	100	1682	1563	1837	5411213	4800000	5599999
	196473									
8		1	19	50	1983	0	0	5612768	5600000	6399999
	865884									
9		3	19	80	1597	1795	1384	6480635	6400000	7199999
	1366443									
10		3	19	50	1264	1614	1888	7851854	7200000	7999999
	621162									
11		1	19	55	1033	0	0	8477782	8000000	8799999
	667950									
12		2	19	85	1178	1845	0	9146765	8800000	9599999
	824109									
13		3	19	65	1624	1315	1196	9973897	9600000	10399999
	904076									
14		3	19	85	1709	1084	1649	10882108	10400000	11199999
	701556									
15		1	19	60	1427	0	0	11588106	11200000	11999999

Total number of pulses in waveform = 30

Waveform Num = 7
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	545192	3	11	95	1247	1521	1452	545192	0	705881
2	725607	3	11	85	1700	1657	1272	1275019	705882	1411763
3	641553	2	11	50	1785	1426	0	1921201	1411764	2117645
4	432689	3	11	65	1571	1503	1828	2357101	2117646	2823527
5	832104	3	11	65	1239	1855	1863	3194107	2823528	3529409
6	546742	1	11	70	1007	0	0	3745806	3529410	4235291
7	763851	3	11	95	1153	1554	1410	4510664	4235292	4941173
8	1064121	1	11	65	1289	0	0	5578902	4941174	5647055
9	318125	3	11	55	1169	1418	1058	5898316	5647056	6352937
10	775028	2	11	100	1204	1136	0	6676989	6352938	7058819
11	1051641	2	11	65	1383	1340	0	7730970	7058820	7764701
12	481204	2	11	55	1752	1469	0	8214897	7764702	8470583
13	611431	3	11	80	1513	1255	1187	8829549	8470584	9176465
14	992255	1	11	70	1966	0	0	9825759	9176466	9882347
15	90188	2	11	80	1212	1803	0	9917913	9882348	10588229
16	1206147	3	11	100	1682	1563	1837	11127075	10588230	11294111
17	173217	1	11	50	1983	0	0	11305374	11294112	11999993

Total number of pulses in waveform = 38

Waveform Num = 8
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)
	443536									
1		2	14	90	1384	1101	0	443536	0	599999
	685226									
2		1	14	60	1614	0	0	1131247	600000	1199999
	398173									
3		3	14	55	1126	1033	1598	1531034	1200000	1799999
	673008									
4		2	14	55	1845	1435	0	2207799	1800000	2399999
	306323									
5		1	14	80	1315	0	0	2517402	2400000	2999999
	531454									
6		2	14	95	1726	1709	0	3050171	3000000	3599999
	801608									
7		2	14	80	1221	1229	0	3855214	3600000	4199999
	877801									
8		2	14	90	1375	1674	0	4735465	4200000	4799999
	526558									
9		1	14	75	1452	0	0	5265072	4800000	5399999
	616679									
10		3	14	85	1700	1657	1272	5883203	5400000	5999999
	544840									
11		2	14	50	1785	1426	0	6432672	6000000	6599999
	367402									
12		3	14	65	1571	1503	1828	6803285	6600000	7199999
	706412									
13		3	14	65	1239	1855	1863	7514599	7200000	7799999
	464335									
14		1	14	70	1007	0	0	7983891	7800000	8399999
	648926									
15		3	14	95	1153	1554	1410	8633824	8400000	8999999
	903953									
16		1	14	65	1289	0	0	9541894	9000000	9599999
	270193									
17		3	14	55	1169	1418	1058	9813376	9600000	10199999
	658261									
18		2	14	100	1204	1136	0	10475282	10200000	10799999
	893316									
19		2	14	65	1383	1340	0	11370938	10800000	11399999
	408695									
20		2	14	55	1752	1469	0	11782356	11400000	11999999

Total number of pulses in waveform = 41

Waveform Num = 9
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	15052	2	15	60	1187	1511	0	15052	0	599999
2	907960	2	15	100	1923	1538	0	925710	600000	1199999
3	685003	1	15	90	1050	0	0	1614174	1200000	1799999
4	240273	3	15	85	1563	1837	1769	1855497	1800000	2399999
5	1122326	1	15	100	1016	0	0	2982992	2400000	2999999
6	76509	2	15	80	1795	1384	0	3060517	3000000	3599999
7	1024218	3	15	50	1264	1614	1888	4087914	3600000	4199999
8	465502	1	15	55	1033	0	0	4558182	4200000	4799999
9	500530	2	15	85	1178	1845	0	5059745	4800000	5399999
10	617169	3	15	65	1624	1315	1196	5679937	5400000	5999999
11	676836	3	15	85	1709	1084	1649	6360908	6000000	6599999
12	525556	1	15	60	1427	0	0	6890906	6600000	7199999
13	617519	3	15	70	1674	1897	1247	7509852	7200000	7799999
14	702693	2	15	90	1760	1666	0	8217363	7800000	8399999
15	219727	2	15	60	1812	1478	0	8440516	8400000	8999999
16	896194	3	15	70	1725	1948	1297	9340000	9000000	9599999
17	423129	2	15	95	1341	1717	0	9768099	9600000	10199999
18	745078	1	15	95	1863	0	0	10516235	10200000	10799999
19	465793	1	15	70	1007	0	0	10983891	10800000	11399999
20	648926	3	15	95	1153	1554	1410	11633824	11400000	11999999

Total number of pulses in waveform = 41

Waveform Num = 10
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	120551	1	10	95	1914	0	0	120551	0	1090908
2	1358393	1	10	70	1058	0	0	1480858	1090909	2181817
3	1201297	2	10	100	1204	1136	0	2683213	2181818	3272726
4	1627371	2	10	65	1383	1340	0	4312924	3272727	4363635
5	744871	2	10	55	1752	1469	0	5060518	4363636	5454544
6	946674	3	10	80	1513	1255	1187	6010413	5454545	6545453
7	1535527	1	10	70	1966	0	0	7549895	6545454	7636362
8	139549	2	10	80	1212	1803	0	7691410	7636363	8727271
9	1867740	3	10	100	1682	1563	1837	9562165	8727272	9818180
10	268356	1	10	50	1983	0	0	9835603	9818181	10909089
11	1181637	3	10	80	1597	1795	1384	11019223	10909090	11999998

Total number of pulses in waveform = 21

Waveform Num = 11
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	577064	1	5	80	1888	0	0	577064	0	705881
2	548430	1	5	55	1033	0	0	1127382	705882	1411763
3	589163	2	5	85	1178	1845	0	1717578	1411764	2117645
4	726726	3	5	65	1624	1315	1196	2447327	2117646	2823527
5	797139	3	5	85	1709	1084	1649	3248601	2823528	3529409
6	618732	1	5	60	1427	0	0	3871775	3529410	4235291
7	727064	3	5	70	1674	1897	1247	4600266	4235292	4941173
8	827528	2	5	90	1760	1666	0	5432612	4941174	5647055
9	258724	2	5	60	1812	1478	0	5694762	5647056	6352937
10	1055387	3	5	70	1725	1948	1297	6753439	6352938	7058819
11	498326	2	5	95	1341	1717	0	7256735	7058820	7764701
12	877124	1	5	95	1863	0	0	8136917	7764702	8470583
13	548200	1	5	70	1007	0	0	8686980	8470584	9176465
14	763851	3	5	95	1153	1554	1410	9451838	9176466	9882347
15	1064121	1	5	65	1289	0	0	10520076	9882348	10588229
16	318125	3	5	55	1169	1418	1058	10839490	10588230	11294111
17	775028	2	5	100	1204	1136	0	11618163	11294112	11999993

Total number of pulses in waveform = 34

Waveform Num = 12
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	148519	2	10	65	1956	1495	0	148519	0	923076
2	1241512	3	10	75	1641	1940	1632	1393482	923077	1846153
3	470682	1	10	60	1511	0	0	1869377	1846154	2769230
4	1400453	2	10	100	1923	1538	0	3271341	2769231	3692307
5	1055088	1	10	90	1050	0	0	4329890	3692308	4615384
6	1010862	3	10	85	1260	1534	1466	5341802	4615385	5538461
7	462411	3	10	85	1713	1671	1286	5808473	5538462	6461538
8	1327789	2	10	50	1799	1439	0	7140932	6461539	7384615
9	996988	3	10	65	1585	1517	1842	8141158	7384616	8307692
10	659754	3	10	65	1252	1337	1876	8805856	8307693	9230769
11	716060	1	10	70	1021	0	0	9526381	9230770	10153846
12	1149813	1	10	95	1167	0	0	10677215	10153847	11076923
13	677562	2	10	70	1782	1346	0	11355944	11076924	12000000

Total number of pulses in waveform = 27

Waveform Num = 13
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	45559	1	19	60	1431	0	0	45559	0	631578
2	678663	2	19	80	1945	1218	0	725653	631579	1263157
3	757007	2	19	75	1363	1397	0	1485823	1263158	1894736
4	483357	3	19	75	1175	1765	1482	1971940	1894737	2526315
5	675931	2	19	85	1995	1268	0	2652293	2526316	3157894
6	1090322	2	19	50	1414	1979	0	3745878	3157895	3789473
7	80555	2	19	80	1226	1816	0	3829826	3789474	4421052
8	745613	3	19	50	1696	1577	1851	4578481	4421053	5052631
9	487662	1	19	50	1997	0	0	5071267	5052632	5684210
10	682970	3	19	80	1611	1808	1867	5756234	5684211	6315789
11	1076559	3	19	50	1278	1628	1902	6838079	6315790	6947368
12	155176	1	19	55	1046	0	0	6998063	6947369	7578947
13	1121153	1	19	85	1192	0	0	8120262	7578948	8210526
14	295695	2	19	55	1338	1637	0	8417149	8210527	8842105
15	553336	1	19	100	1884	0	0	8973460	8842106	9473684
16	650842	3	19	55	1663	1620	1235	9626186	9473685	10105263
17	712413	3	19	75	1748	1389	1688	10343117	10105264	10736842
18	887069	1	19	75	1466	0	0	11235011	10736843	11368421
19	316256	3	19	85	1713	1671	1286	11552733	11368422	12000000

Total number of pulses in waveform = 39

Waveform Num = 14
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)
	498497									
1		3	6	70	1739	1962	1311	498497	0	857142
	605613									
2		2	6	95	1824	1731	0	1109122	857143	1714285
	1065420									
3		1	6	65	1876	0	0	2178097	1714286	2571428
	665929									
4		1	6	70	1021	0	0	2845902	2571429	3428571
	1067587									
5		1	6	95	1167	0	0	3914510	3428572	4285714
	629061									
6		2	6	70	1782	1346	0	4544738	4285715	5142857
	656693									
7		3	6	100	1124	1183	1431	5204559	5142858	6000000
	919544									
8		2	6	80	1945	1218	0	6127841	6000001	6857143
	1028677									
9		2	6	75	1363	1397	0	7159681	6857144	7714286
	656816									
10		3	6	75	1175	1765	1482	7819257	7714287	8571429
	918954									
11		2	6	85	1995	1268	0	8742633	8571430	9428572
	1481787									
12		2	6	50	1414	1979	0	10227683	9428573	10285715
	109473									
13		2	6	80	1226	1816	0	10340549	10285716	11142858
	1013380									
14		3	6	50	1696	1577	1851	11356971	11142859	12000001

Total number of pulses in waveform = 29

Waveform Num = 15
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)
	1072999									
1		3	6	50	1987	1602	1611	1072999	0	1333332
	1089501									
2		3	6	55	1756	1055	1278	2167700	1333333	2666665
	601808									
3		3	6	95	1157	1140	1046	2773597	2666666	3999998
	2366969									
4		1	6	85	1192	0	0	5143909	3999999	5333331
	625520									
5		2	6	55	1338	1637	0	5770621	5333332	6666664
	1170809									
6		1	6	100	1884	0	0	6944405	6666665	7999997
	1376877									
7		3	6	55	1663	1620	1235	8323166	7999998	9333330
	1509816									
8		3	6	75	1748	1389	1688	9837500	9333331	10666663
	1877313									
9		1	6	75	1466	0	0	11719638	10666664	11999996

Total number of pulses in waveform = 20

Waveform Num = 16
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	54001	3	15	85	1286	1294	1491	54001	0	666666
2	995663	3	15	70	1739	1962	1311	1053735	666667	1333333
3	470337	2	15	95	1824	1731	0	1529084	1333334	2000000
4	827878	1	15	65	1876	0	0	2360517	2000001	2666667
5	517681	1	15	70	1021	0	0	2880074	2666668	3333334
6	830044	1	15	95	1167	0	0	3711139	3333335	4000001
7	488947	2	15	70	1782	1346	0	4201253	4000002	4666668
8	510217	3	15	100	1124	1183	1431	4714598	4666669	5333335
9	714326	2	15	80	1945	1218	0	5432662	5333336	6000002
10	799267	2	15	75	1363	1397	0	6235092	6000003	6666669
11	510340	3	15	75	1175	1765	1482	6748192	6666670	7333336
12	713735	2	15	85	1995	1268	0	7466349	7333337	8000003
13	1151217	2	15	50	1414	1979	0	8620829	8000004	8666670
14	85053	2	15	80	1226	1816	0	8709275	8666671	9333337
15	787267	3	15	50	1696	1577	1851	9499584	9333338	10000004
16	514971	1	15	50	1997	0	0	10019679	10000005	10666671
17	721054	3	15	80	1611	1808	1867	10742730	10666672	11333338
18	1136850	3	15	50	1278	1628	1902	11884866	11333339	12000005

Total number of pulses in waveform = 39

Waveform Num = 17
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)
	783043									
1		1	7	50	1037	0	0	783043	0	1199999
	614759									
2		1	7	95	1449	0	0	1398839	1200000	2399999
	2139936									
3		2	7	85	1329	1209	0	3540224	2400000	3599999
	797980									
4		3	7	60	1723	1097	1663	4340742	3600000	4799999
	1053341									
5		1	7	60	1910	0	0	5398566	4800000	5999999
	1238253									
6		3	7	70	1688	1379	1260	6638729	6000000	7199999
	1410322									
7		2	7	90	1773	1680	0	8053378	7200000	8399999
	1298402									
8		3	7	65	1294	1491	1081	9355233	8400000	9599999
	940986									
9		2	7	90	1962	1311	0	10300085	9600000	10799999
	849832									
10		2	7	95	1824	1731	0	11153190	10800000	11999999

Total number of pulses in waveform = 20

Waveform Num = 18
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	348613	3	10	75	1132	1380	1021	348613	0	1090908
2	1357410	1	10	95	1167	0	0	1709556	1090909	2181817
3	801019	2	10	70	1782	1346	0	2511742	2181818	3272726
4	836459	3	10	100	1124	1183	1431	3351329	3272727	4363635
5	1171404	2	10	80	1945	1218	0	4526471	4363636	5454544
6	1310224	2	10	75	1363	1397	0	5839858	5454545	6545453
7	836582	3	10	75	1175	1765	1482	6679200	6545454	7636362
8	1170814	2	10	85	1995	1268	0	7854436	7636363	8727271
9	1887488	2	10	50	1414	1979	0	9745187	8727272	9818180
10	139442	2	10	80	1226	1816	0	9888022	9818181	10909089
11	1290884	3	10	50	1696	1577	1851	11181948	10909090	11999998

Total number of pulses in waveform = 25

Waveform Num = 19
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)
	1072999									
1		3	6	50	1987	1602	1611	1072999	0	1333332
	1089501									
2		3	6	55	1756	1055	1278	2167700	1333333	2666665
	601808									
3		3	6	95	1157	1140	1046	2773597	2666666	3999998
	2366969									
4		1	6	85	1192	0	0	5143909	3999999	5333331
	625520									
5		2	6	55	1338	1637	0	5770621	5333332	6666664
	1170809									
6		1	6	100	1884	0	0	6944405	6666665	7999997
	1376877									
7		3	6	55	1663	1620	1235	8323166	7999998	9333330
	1509816									
8		3	6	75	1748	1389	1688	9837500	9333331	10666663
	1877313									
9		1	6	75	1466	0	0	11719638	10666664	11999996

Total number of pulses in waveform = 20

Waveform Num = 20
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	54001	3	15	85	1286	1294	1491	54001	0	666666
2	995663	3	15	70	1739	1962	1311	1053735	666667	1333333
3	470337	2	15	95	1824	1731	0	1529084	1333334	2000000
4	827878	1	15	65	1876	0	0	2360517	2000001	2666667
5	517681	1	15	70	1021	0	0	2880074	2666668	3333334
6	830044	1	15	95	1167	0	0	3711139	3333335	4000001
7	488947	2	15	70	1782	1346	0	4201253	4000002	4666668
8	510217	3	15	100	1124	1183	1431	4714598	4666669	5333335
9	714326	2	15	80	1945	1218	0	5432662	5333336	6000002
10	799267	2	15	75	1363	1397	0	6235092	6000003	6666669
11	510340	3	15	75	1175	1765	1482	6748192	6666670	7333336
12	713735	2	15	85	1995	1268	0	7466349	7333337	8000003
13	1151217	2	15	50	1414	1979	0	8620829	8000004	8666670
14	85053	2	15	80	1226	1816	0	8709275	8666671	9333337
15	787267	3	15	50	1696	1577	1851	9499584	9333338	10000004
16	514971	1	15	50	1997	0	0	10019679	10000005	10666671
17	721054	3	15	80	1611	1808	1867	10742730	10666672	11333338
18	1136850	3	15	50	1278	1628	1902	11884866	11333339	12000005

Total number of pulses in waveform = 39

Waveform Num = 21
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)
	783043									
1		1	7	50	1037	0	0	783043	0	1199999
	614759									
2		1	7	95	1449	0	0	1398839	1200000	2399999
	2139936									
3		2	7	85	1329	1209	0	3540224	2400000	3599999
	797980									
4		3	7	60	1723	1097	1663	4340742	3600000	4799999
	1053341									
5		1	7	60	1910	0	0	5398566	4800000	5999999
	1238253									
6		3	7	70	1688	1379	1260	6638729	6000000	7199999
	1410322									
7		2	7	90	1773	1680	0	8053378	7200000	8399999
	1298402									
8		3	7	65	1294	1491	1081	9355233	8400000	9599999
	940986									
9		2	7	90	1962	1311	0	10300085	9600000	10799999
	849832									
10		2	7	95	1824	1731	0	11153190	10800000	11999999

Total number of pulses in waveform = 20

Waveform Num = 22
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)
	348613									
1		3	10	75	1132	1380	1021	348613	0	1090908
	1357410									
2		1	10	95	1167	0	0	1709556	1090909	2181817
	801019									
3		2	10	70	1782	1346	0	2511742	2181818	3272726
	836459									
4		3	10	100	1124	1183	1431	3351329	3272727	4363635
	1171404									
5		2	10	80	1945	1218	0	4526471	4363636	5454544
	1310224									
6		2	10	75	1363	1397	0	5839858	5454545	6545453
	836582									
7		3	10	75	1175	1765	1482	6679200	6545454	7636362
	1170814									
8		2	10	85	1995	1268	0	7854436	7636363	8727271
	1887488									
9		2	10	50	1414	1979	0	9745187	8727272	9818180
	139442									
10		2	10	80	1226	1816	0	9888022	9818181	10909089
	1290884									
11		3	10	50	1696	1577	1851	11181948	10909090	11999998

Total number of pulses in waveform = 25

Waveform Num = 23
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	1072999	3	6	50	1987	1602	1611	1072999	0	1333332
2	1089501	3	6	55	1756	1055	1278	2167700	1333333	2666665
3	601808	3	6	95	1157	1140	1046	2773597	2666666	3999998
4	2366969	1	6	85	1192	0	0	5143909	3999999	5333331
5	625520	2	6	55	1338	1637	0	5770621	5333332	6666664
6	1170809	1	6	100	1884	0	0	6944405	6666665	7999997
7	1376877	3	6	55	1663	1620	1235	8323166	7999998	9333330
8	1509816	3	6	75	1748	1389	1688	9837500	9333331	10666663
9	1877313	1	6	75	1466	0	0	11719638	10666664	11999996

Total number of pulses in waveform = 20

Waveform Num = 24
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	54001	3	15	85	1286	1294	1491	54001	0	666666
2	995663	3	15	70	1739	1962	1311	1053735	666667	1333333
3	470337	2	15	95	1824	1731	0	1529084	1333334	2000000
4	827878	1	15	65	1876	0	0	2360517	2000001	2666667
5	517681	1	15	70	1021	0	0	2880074	2666668	3333334
6	830044	1	15	95	1167	0	0	3711139	3333335	4000001
7	488947	2	15	70	1782	1346	0	4201253	4000002	4666668
8	510217	3	15	100	1124	1183	1431	4714598	4666669	5333335
9	714326	2	15	80	1945	1218	0	5432662	5333336	6000002
10	799267	2	15	75	1363	1397	0	6235092	6000003	6666669
11	510340	3	15	75	1175	1765	1482	6748192	6666670	7333336
12	713735	2	15	85	1995	1268	0	7466349	7333337	8000003
13	1151217	2	15	50	1414	1979	0	8620829	8000004	8666670
14	85053	2	15	80	1226	1816	0	8709275	8666671	9333337
15	787267	3	15	50	1696	1577	1851	9499584	9333338	10000004
16	514971	1	15	50	1997	0	0	10019679	10000005	10666671
17	721054	3	15	80	1611	1808	1867	10742730	10666672	11333338
18	1136850	3	15	50	1278	1628	1902	11884866	11333339	12000005

Total number of pulses in waveform = 39

Waveform Num = 25
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)
	783043									
1		1	7	50	1037	0	0	783043	0	1199999
	614759									
2		1	7	95	1449	0	0	1398839	1200000	2399999
	2139936									
3		2	7	85	1329	1209	0	3540224	2400000	3599999
	797980									
4		3	7	60	1723	1097	1663	4340742	3600000	4799999
	1053341									
5		1	7	60	1910	0	0	5398566	4800000	5999999
	1238253									
6		3	7	70	1688	1379	1260	6638729	6000000	7199999
	1410322									
7		2	7	90	1773	1680	0	8053378	7200000	8399999
	1298402									
8		3	7	65	1294	1491	1081	9355233	8400000	9599999
	940986									
9		2	7	90	1962	1311	0	10300085	9600000	10799999
	849832									
10		2	7	95	1824	1731	0	11153190	10800000	11999999

Total number of pulses in waveform = 20

Waveform Num = 26
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	348613	3	10	75	1132	1380	1021	348613	0	1090908
2	1357410	1	10	95	1167	0	0	1709556	1090909	2181817
3	801019	2	10	70	1782	1346	0	2511742	2181818	3272726
4	836459	3	10	100	1124	1183	1431	3351329	3272727	4363635
5	1171404	2	10	80	1945	1218	0	4526471	4363636	5454544
6	1310224	2	10	75	1363	1397	0	5839858	5454545	6545453
7	836582	3	10	75	1175	1765	1482	6679200	6545454	7636362
8	1170814	2	10	85	1995	1268	0	7854436	7636363	8727271
9	1887488	2	10	50	1414	1979	0	9745187	8727272	9818180
10	139442	2	10	80	1226	1816	0	9888022	9818181	10909089
11	1290884	3	10	50	1696	1577	1851	11181948	10909090	11999998

Total number of pulses in waveform = 25

Waveform Num = 27
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)
	1072999									
1		3	6	50	1987	1602	1611	1072999	0	1333332
	1089501									
2		3	6	55	1756	1055	1278	2167700	1333333	2666665
	601808									
3		3	6	95	1157	1140	1046	2773597	2666666	3999998
	2366969									
4		1	6	85	1192	0	0	5143909	3999999	5333331
	625520									
5		2	6	55	1338	1637	0	5770621	5333332	6666664
	1170809									
6		1	6	100	1884	0	0	6944405	6666665	7999997
	1376877									
7		3	6	55	1663	1620	1235	8323166	7999998	9333330
	1509816									
8		3	6	75	1748	1389	1688	9837500	9333331	10666663
	1877313									
9		1	6	75	1466	0	0	11719638	10666664	11999996

Total number of pulses in waveform = 20

Waveform Num = 28
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	54001	3	15	85	1286	1294	1491	54001	0	666666
2	995663	3	15	70	1739	1962	1311	1053735	666667	1333333
3	470337	2	15	95	1824	1731	0	1529084	1333334	2000000
4	827878	1	15	65	1876	0	0	2360517	2000001	2666667
5	517681	1	15	70	1021	0	0	2880074	2666668	3333334
6	830044	1	15	95	1167	0	0	3711139	3333335	4000001
7	488947	2	15	70	1782	1346	0	4201253	4000002	4666668
8	510217	3	15	100	1124	1183	1431	4714598	4666669	5333335
9	714326	2	15	80	1945	1218	0	5432662	5333336	6000002
10	799267	2	15	75	1363	1397	0	6235092	6000003	6666669
11	510340	3	15	75	1175	1765	1482	6748192	6666670	7333336
12	713735	2	15	85	1995	1268	0	7466349	7333337	8000003
13	1151217	2	15	50	1414	1979	0	8620829	8000004	8666670
14	85053	2	15	80	1226	1816	0	8709275	8666671	9333337
15	787267	3	15	50	1696	1577	1851	9499584	9333338	10000004
16	514971	1	15	50	1997	0	0	10019679	10000005	10666671
17	721054	3	15	80	1611	1808	1867	10742730	10666672	11333338
18	1136850	3	15	50	1278	1628	1902	11884866	11333339	12000005

Total number of pulses in waveform = 39

Waveform Num = 29
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)
	783043									
1		1	7	50	1037	0	0	783043	0	1199999
	614759									
2		1	7	95	1449	0	0	1398839	1200000	2399999
	2139936									
3		2	7	85	1329	1209	0	3540224	2400000	3599999
	797980									
4		3	7	60	1723	1097	1663	4340742	3600000	4799999
	1053341									
5		1	7	60	1910	0	0	5398566	4800000	5999999
	1238253									
6		3	7	70	1688	1379	1260	6638729	6000000	7199999
	1410322									
7		2	7	90	1773	1680	0	8053378	7200000	8399999
	1298402									
8		3	7	65	1294	1491	1081	9355233	8400000	9599999
	940986									
9		2	7	90	1962	1311	0	10300085	9600000	10799999
	849832									
10		2	7	95	1824	1731	0	11153190	10800000	11999999

Total number of pulses in waveform = 20

Waveform Num = 30
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)
	348613									
1		3	10	75	1132	1380	1021	348613	0	1090908
	1357410									
2		1	10	95	1167	0	0	1709556	1090909	2181817
	801019									
3		2	10	70	1782	1346	0	2511742	2181818	3272726
	836459									
4		3	10	100	1124	1183	1431	3351329	3272727	4363635
	1171404									
5		2	10	80	1945	1218	0	4526471	4363636	5454544
	1310224									
6		2	10	75	1363	1397	0	5839858	5454545	6545453
	836582									
7		3	10	75	1175	1765	1482	6679200	6545454	7636362
	1170814									
8		2	10	85	1995	1268	0	7854436	7636363	8727271
	1887488									
9		2	10	50	1414	1979	0	9745187	8727272	9818180
	139442									
10		2	10	80	1226	1816	0	9888022	9818181	10909089
	1290884									
11		3	10	50	1696	1577	1851	11181948	10909090	11999998

Total number of pulses in waveform = 25