160 MHz CHANNEL BANDWIDTH DFS PORTION of FCC 47 CFR PART 15 SUBPART E 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: 14526301-E1V1

ISSUE DATE: 2023-01-27

Prepared for
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CERT #0751.05

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	23-01-27	Initial Issue	--

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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: OCTOBER 10 to 14, 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
UL Verification Services Inc. By:

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Operations Leader
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Prepared By:

DOUG ANDERSON
Test Engineer
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UL Verification Services Inc.

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 FR270109AB.

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.

DFS test results for all other channel bandwidths supported by the EUT are documented in UL Verification Services report number 14509387-E1V1.

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

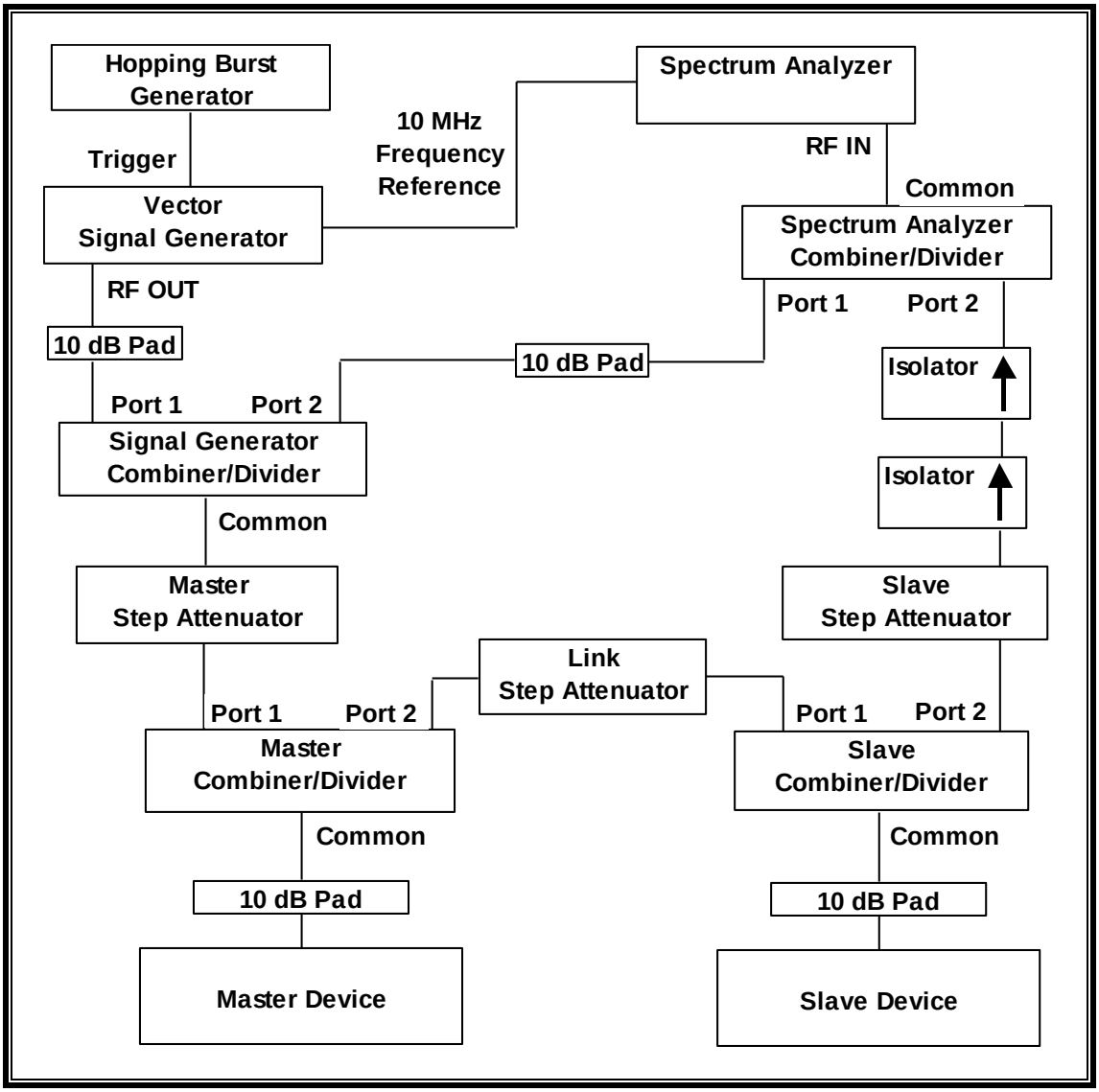
Radar Waveform Type	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

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. Fsporot

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

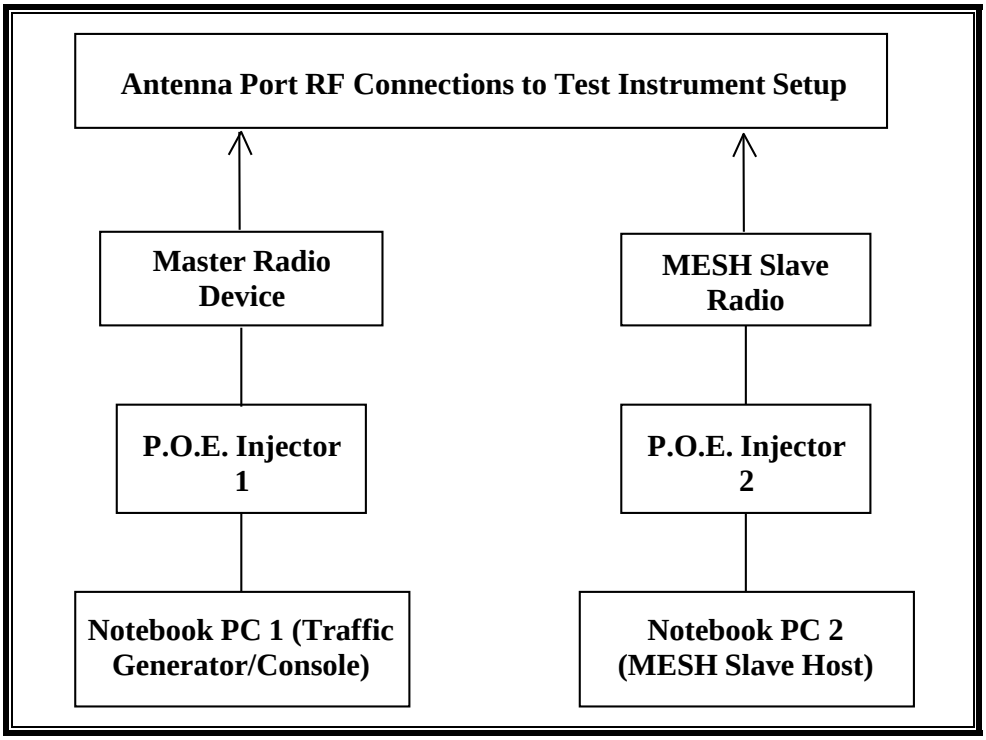
The test room temperature and humidity shall be maintained within normal temperature of 15~35 °C and normal humidity 20~75% (relative humidity).

ENVIRONMENT CONDITION

Parameter	Value
Temperature	22.6, 22.2, 24.5 and 24.2 °C
Humidity	58, 57, 49 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. Four nominal channel bandwidths are implemented: 20 MHz, 40 MHz, 80 MHz and 160 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. LOWER BAND MASTER RESULTS FOR 160 MHz BANDWIDTH

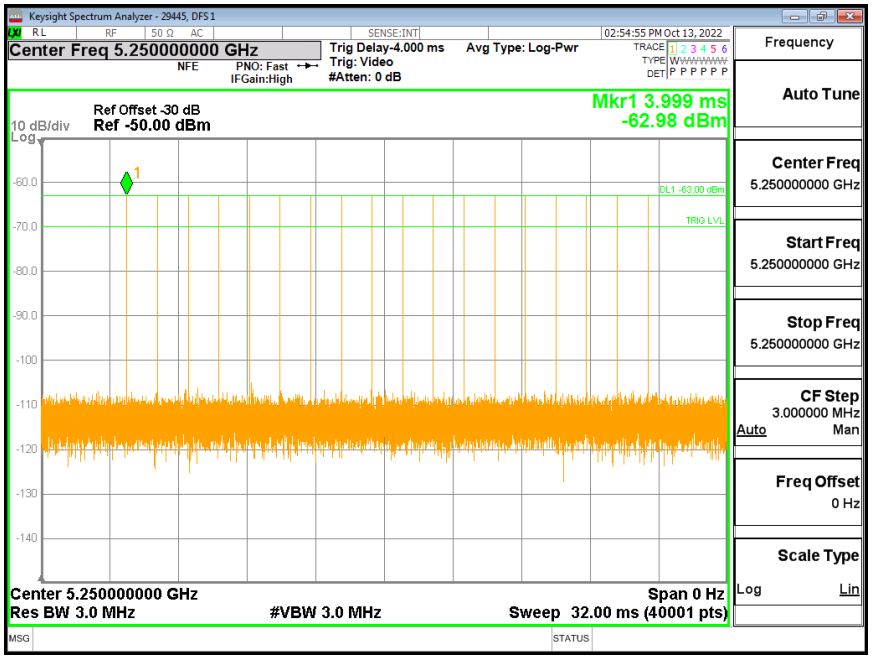
7.2.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5250 MHz.

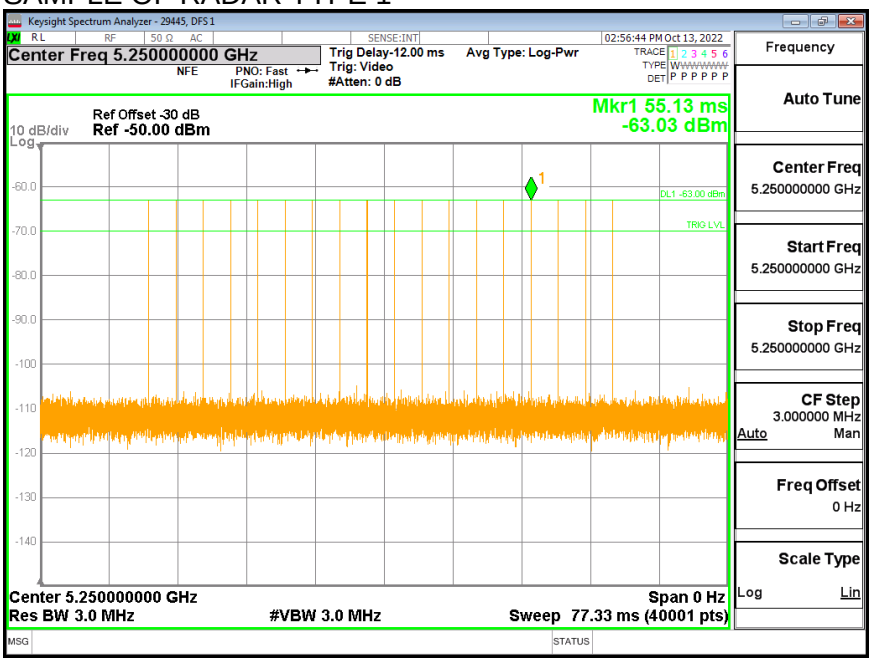
7.2.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

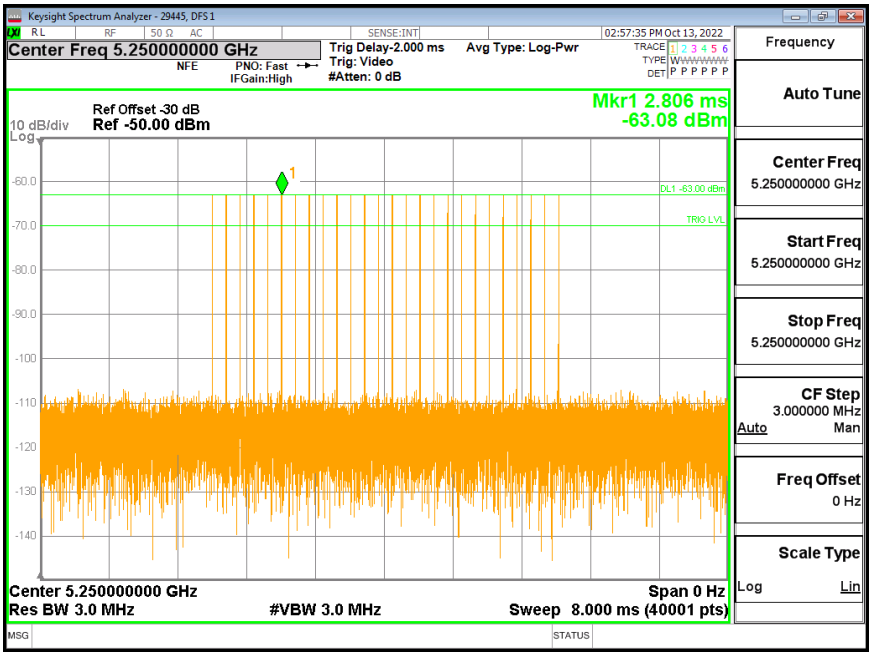
SHORT PULSE RADAR TYPE 0



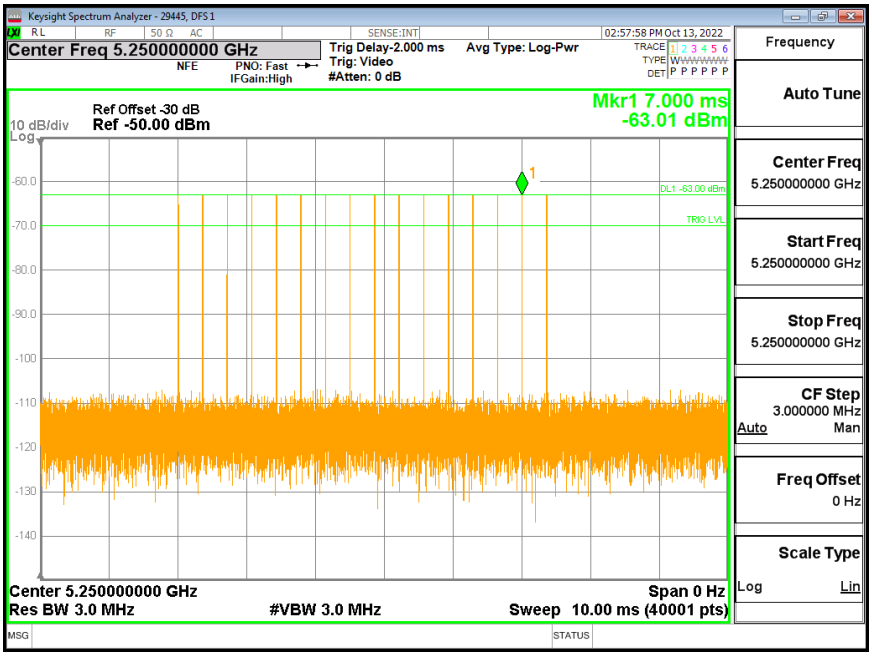
SAMPLE OF RADAR TYPE 1



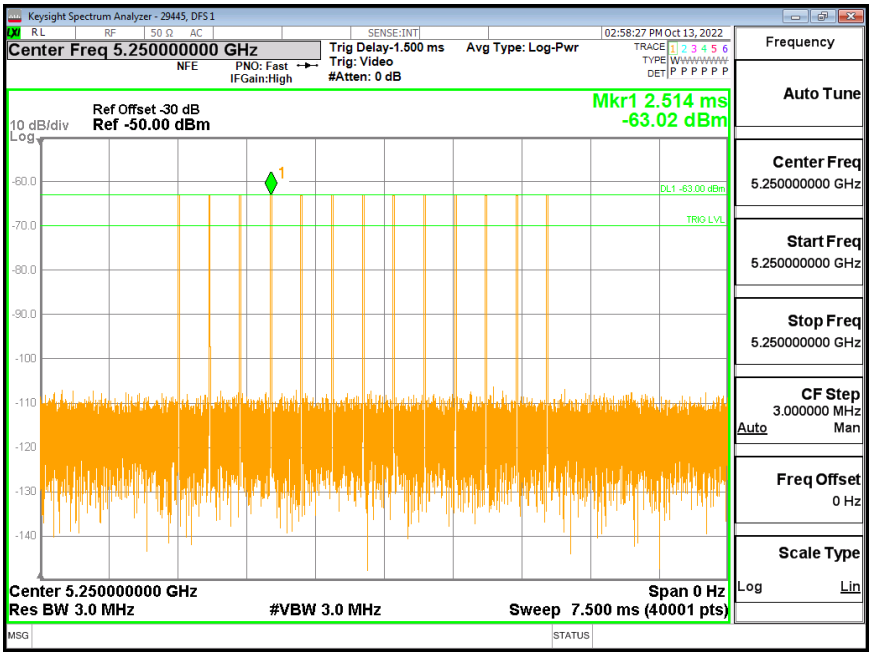
SAMPLE OF RADAR TYPE 2



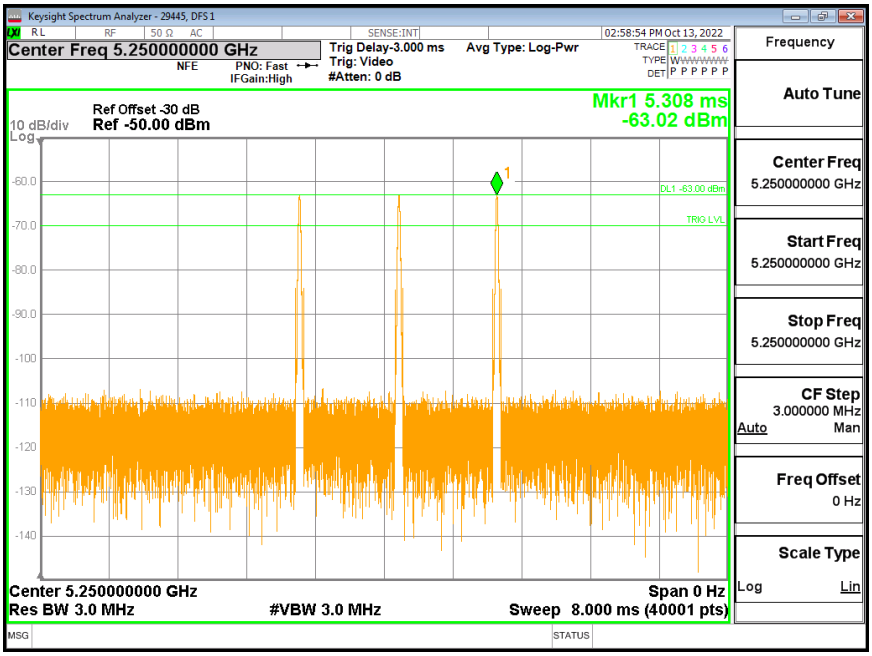
SAMPLE OF RADAR TYPE 3



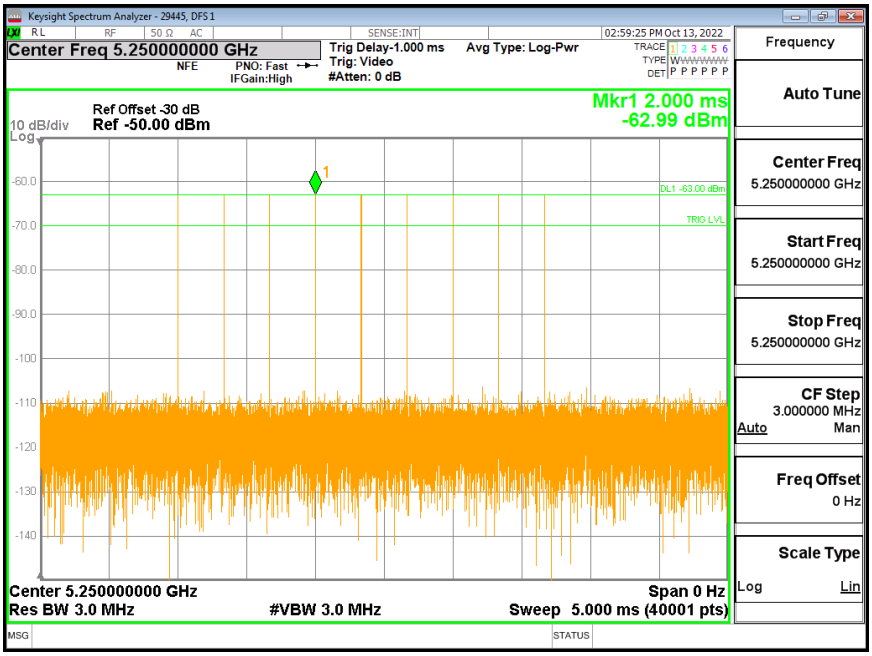
SAMPLE OF RADAR TYPE 4



SAMPLE OF SINGLE BURST OF RADAR TYPE 5

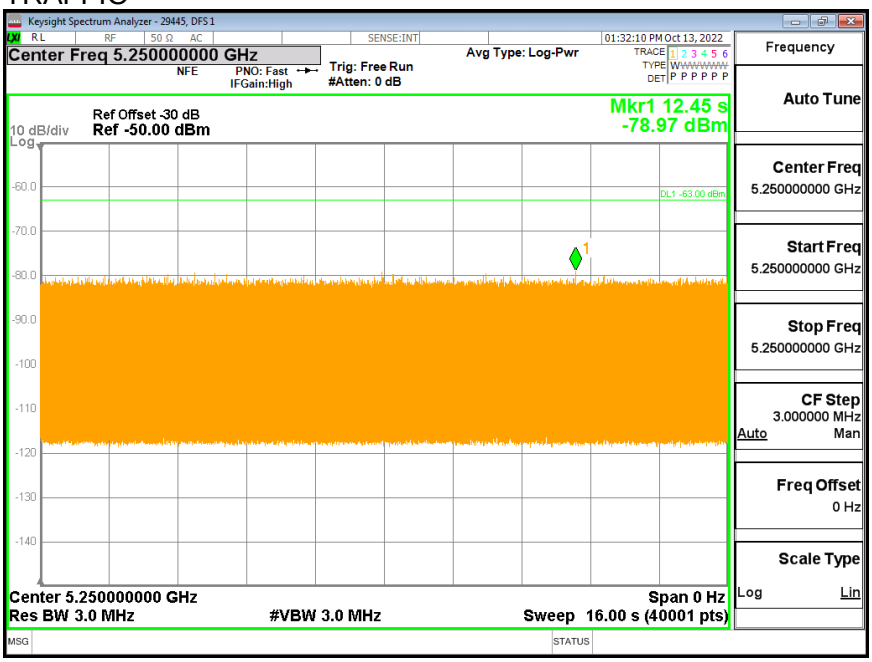


SINGLE BURST OF RADAR TYPE 6

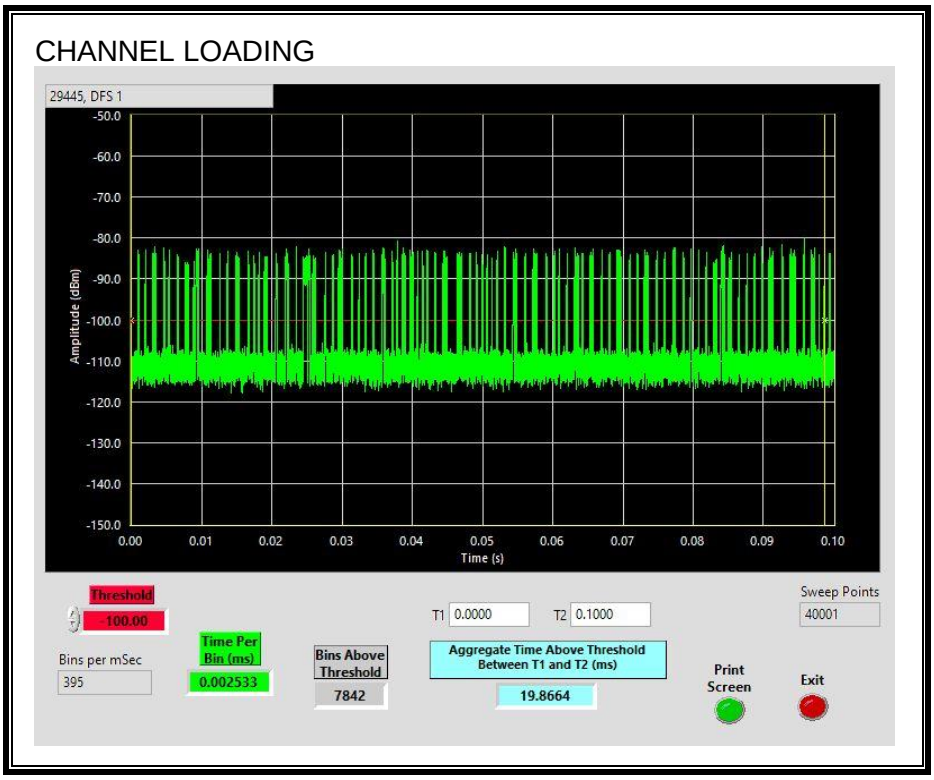


TRAFFIC

TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 19.866%

7.2.3. 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)
30.62	226.9	196.3	136.3

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)
30.49	169.8	139.3	3.0

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)
30.21	223.6	193.4	57.1

QUALITATIVE RESULTS

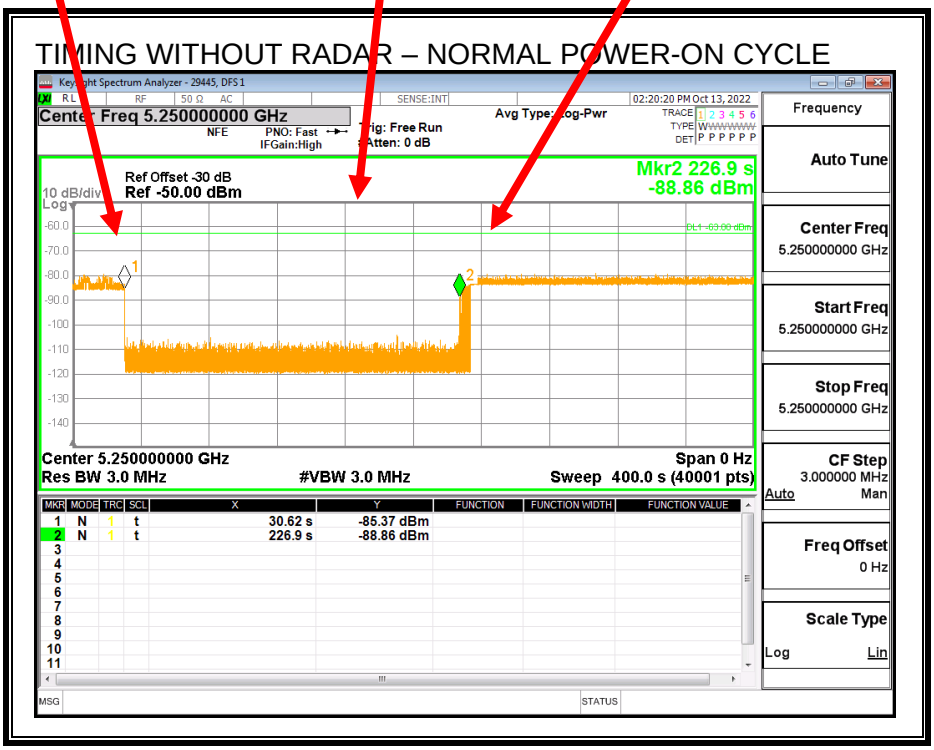
Timing of Radar Burst	Display on Control Computer	Spectrum Analyzer Display
No Radar Triggered	EUT marks Channel as active	Transmissions begin on channel after completion of the initial power-up cycle and the CAC
Within 0 to 6 second window	EUT indicates radar detected	No transmissions on channel
Within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



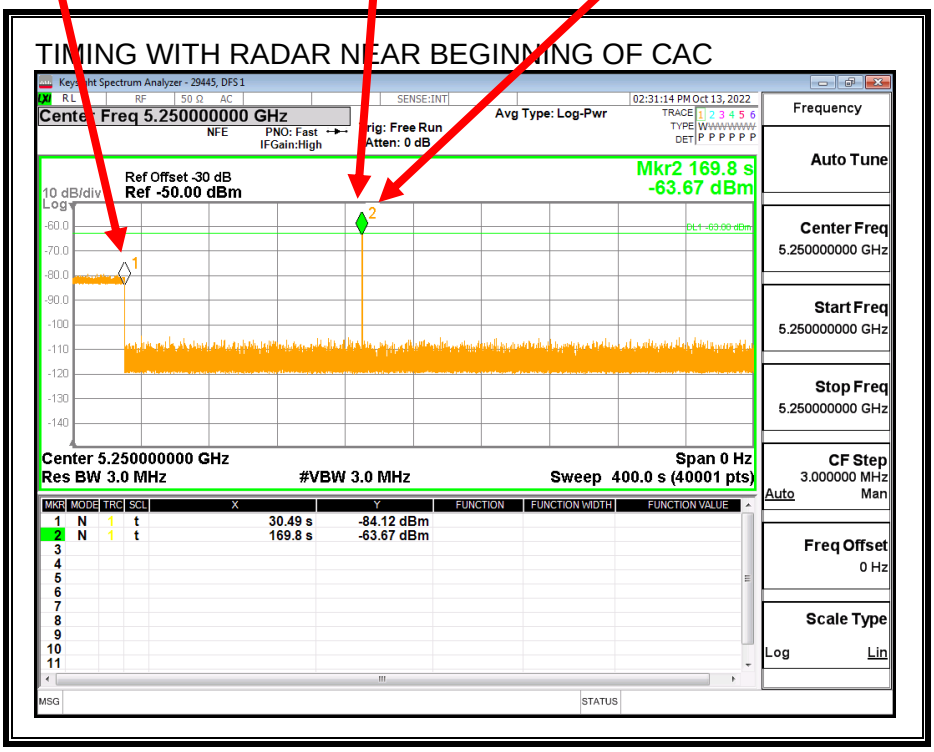
Transmissions begin on channel after completion of the initial power-up cycle and the CAC.

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



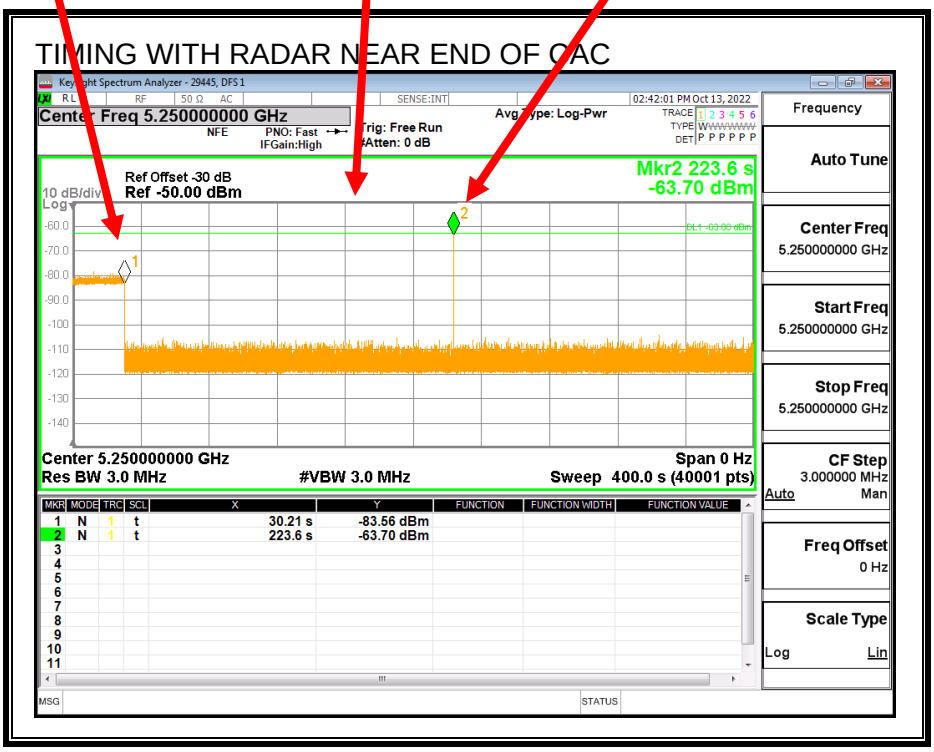
No EUT transmissions were observed after the radar signal.

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.

7.2.4. 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

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).

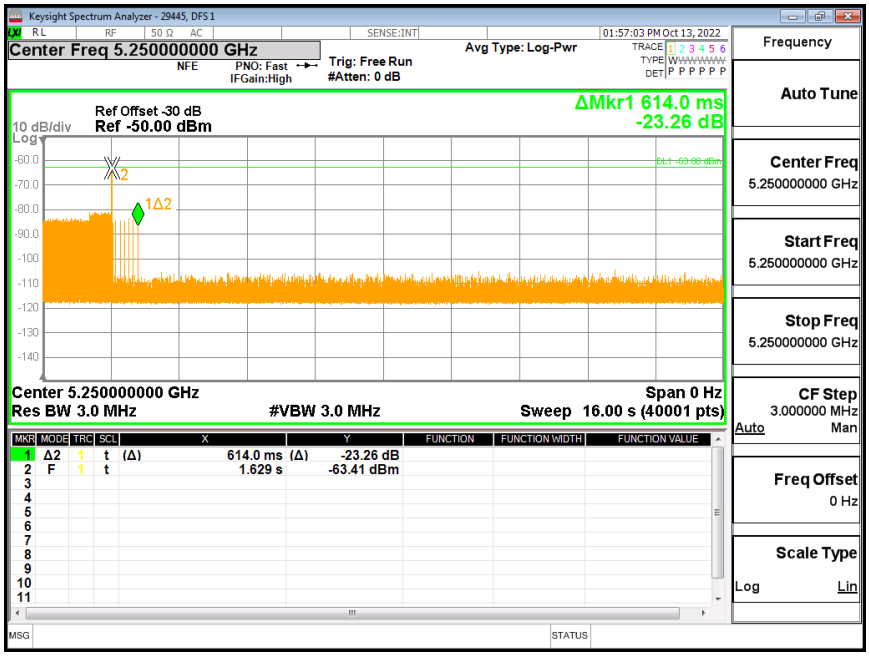
RESULTS

Channel Move Time (sec)	Limit (sec)
0.614	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
4.0	60

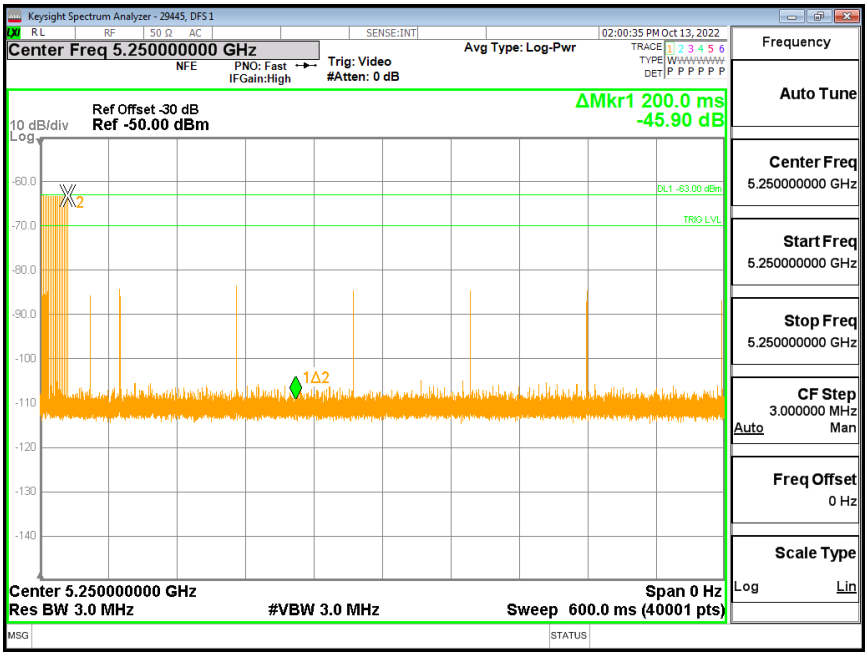
MOVE TIME

MOVE TIME



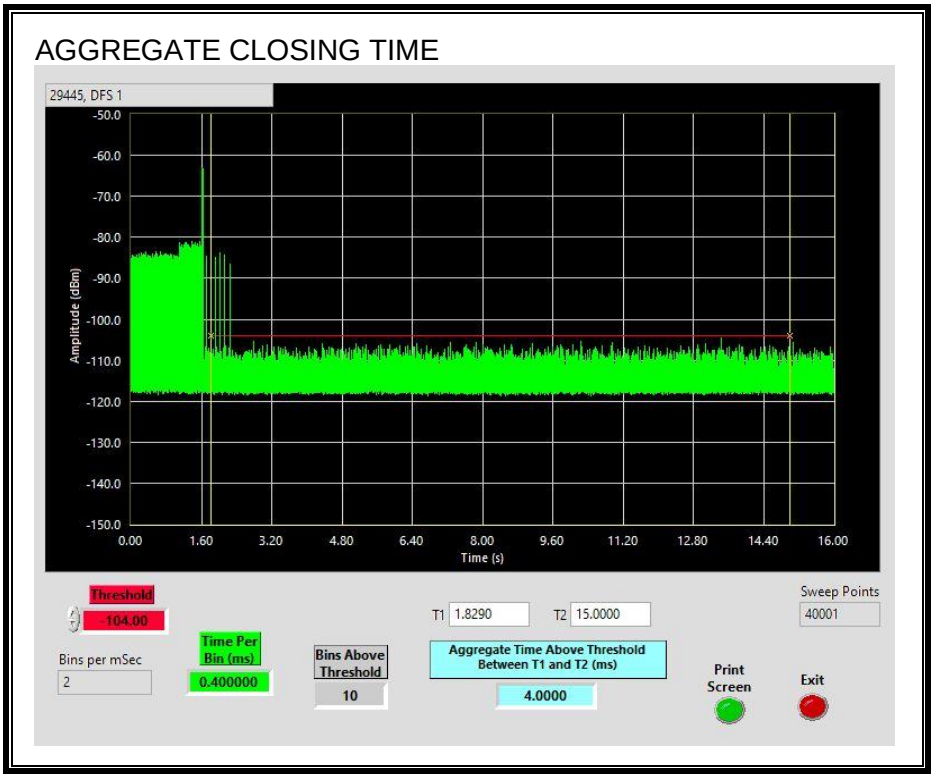
CHANNEL CLOSING TIME

CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

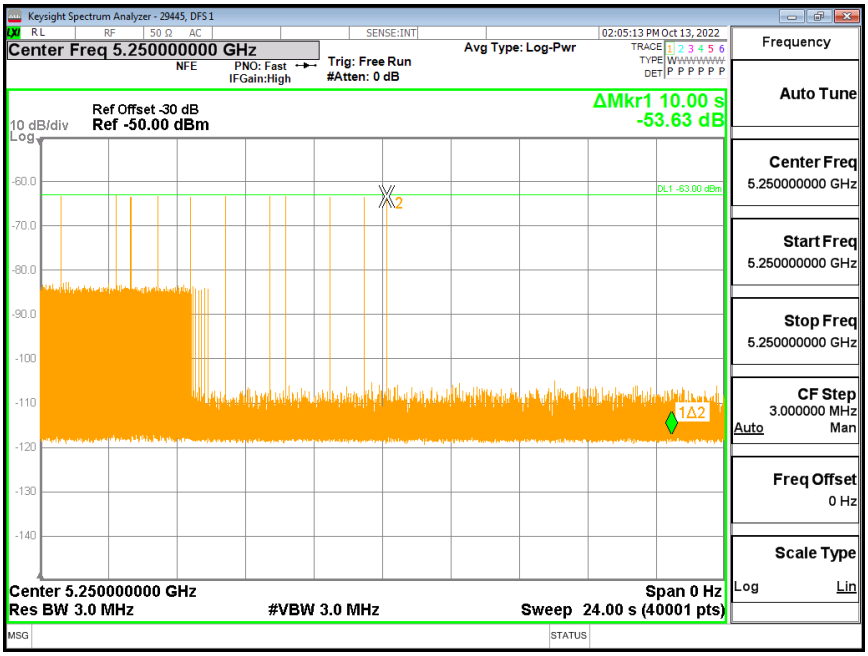
Only intermittent transmissions are observed during the aggregate monitoring period.



LONG PULSE CHANNEL MOVE TIME

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

MOVE TIME FOR LONG PULSE RADAR

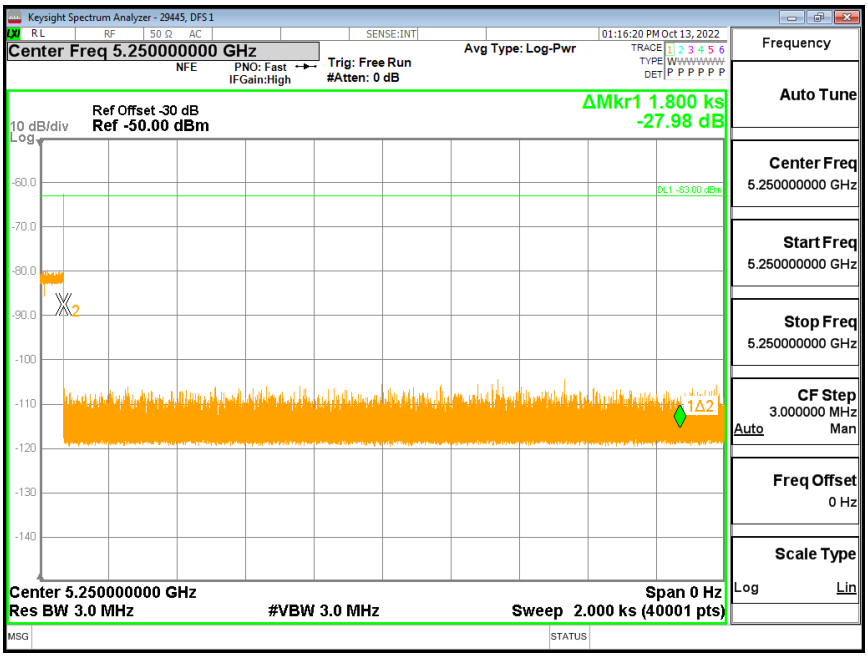


7.2.6. NON-OCCUPANCY PERIOD

RESULTS

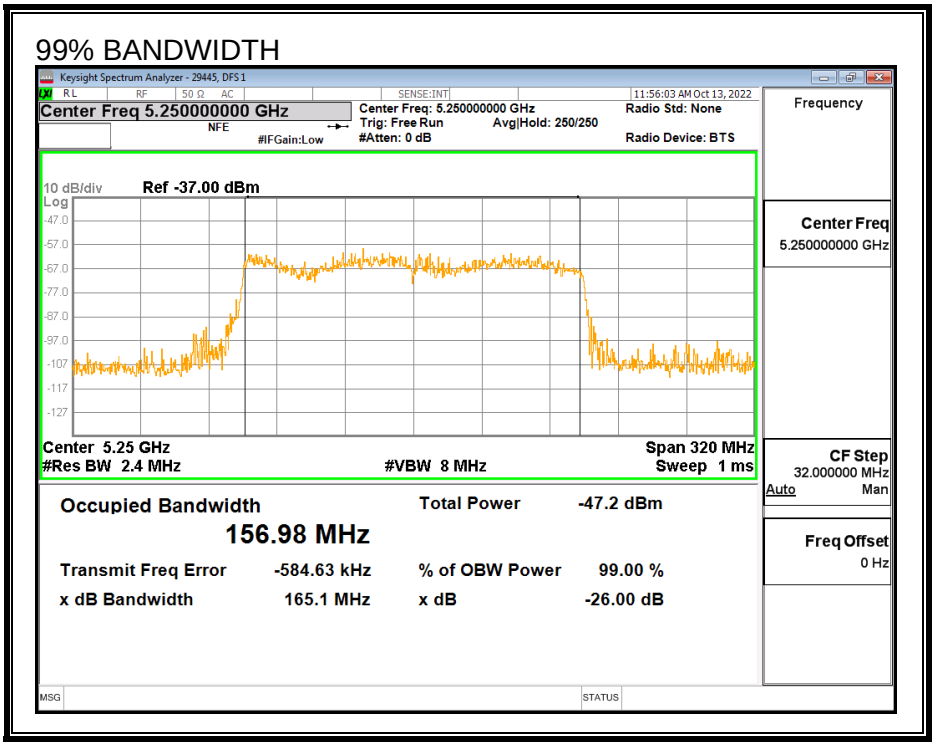
No EUT transmissions were observed on the test channel during the 30-minute observation time.

NON-OCCUPANCY PERIOD



7.2.7. DETECTION BANDWIDTH

REFERENCE PLOT OF 99% POWER BANDWIDTH



RESULTS

F_L (MHz)	F_H (MHz)	Detection Bandwidth (MHz)	Full Span of 99% Power Bandwidth (MHz)	DFS Portion of the 99% Power Bandwidth (MHz)	Ratio of Detection BW to 99% Power BW (%)	Minimum Limit (%)
5250	5330	80	156.98	78.49	101.9	100

Note: Radar detection capability is not required below 5250 MHz and by design the EUT does not detect radar at frequencies below the 5250 MHz to 5350 MHz DFS band. Therefore, to demonstrate compliance to the requirements for Detection Bandwidth and In-Service Monitoring the occupied bandwidth used within the 5250 MHz to 5350 MHz DFS band while the EUT is operating at a channel bandwidth of 160 MHz is one half of the full span of the 99% power bandwidth.

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
5249	10	0	0	
5250	10	10	100	FL
5255	10	10	100	
5260	10	10	100	
5265	10	10	100	
5270	10	10	100	
5275	10	10	100	
5280	10	10	100	
5285	10	10	100	
5290	10	10	100	
5295	10	10	100	
5300	10	10	100	
5305	10	10	100	
5310	10	10	100	
5315	10	10	100	
5320	10	10	100	
5325	10	10	100	
5330	10	10	100	FH

7.2.8. 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	96.67	60	Pass	5250	5330	78.49	DFS 1	29445	v4.1
FCC Short Pulse Type 2	30	96.67	60	Pass	5250	5330	78.49	DFS 1	29445	v4.1
FCC Short Pulse Type 3	30	83.33	60	Pass	5250	5330	78.49	DFS 1	29445	v4.1
FCC Short Pulse Type 4	30	83.33	60	Pass	5250	5330	78.49	DFS 1	29445	v4.1
Aggregate		90.00	80	Pass						
FCC Long Pulse Type 5	30	100.00	80	Pass	5250	5330	78.49	DFS 1	29445	v4.1
FCC Hopping Type 6	81	100.00	70	Pass	5250	5330		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	5318	Yes
1002	1	558	95	A	5281	Yes
1003	1	838	63	A	5284	Yes
1004	1	538	99	A	5269	Yes
1005	1	778	68	A	5306	Yes
1006	1	898	59	A	5266	Yes
1007	1	878	61	A	5290	Yes
1008	1	578	92	A	5285	Yes
1009	1	518	102	A	5328	Yes
1010	1	798	67	A	5302	Yes
1011	1	698	76	A	5258	Yes
1012	1	858	62	A	5320	Yes
1013	1	658	81	A	5262	Yes
1014	1	918	58	A	5267	Yes
1015	1	598	89	A	5307	Yes
1016	1	987	54	B	5263	Yes
1017	1	748	71	B	5312	Yes
1018	1	2187	25	B	5312	Yes
1019	1	2078	26	B	5253	Yes
1020	1	2293	24	B	5300	Yes
1021	1	1119	48	B	5250	Yes
1022	1	2817	19	B	5297	Yes
1023	1	1772	30	B	5257	Yes
1024	1	2405	22	B	5250	Yes
1025	1	1490	36	B	5263	Yes
1026	1	2252	24	B	5299	Yes
1027	1	1466	37	B	5269	Yes
1028	1	1163	46	B	5251	Yes
1029	1	1861	29	B	5324	Yes
1030	1	2882	19	B	5283	No

TYPE 2 DETECTION PROBABILITY

Data Sheet for FCC Short Pulse Radar Type 2					
Waveform	Pulse Width (us)	PRI (us)	Pulses Per Burst	Frequency (MHz)	Successful Detection (Yes/No)
2001	1.6	161	26	5320	No
2002	1.3	153	27	5268	Yes
2003	3.7	219	29	5287	Yes
2004	1.7	215	23	5273	Yes
2005	2.3	205	29	5252	Yes
2006	4.6	167	24	5307	Yes
2007	1.4	161	23	5316	Yes
2008	3.9	170	29	5316	Yes
2009	3	167	29	5256	Yes
2010	1.6	181	28	5295	Yes
2011	1	226	24	5261	Yes
2012	4.1	162	28	5258	Yes
2013	3.7	173	25	5285	Yes
2014	4.9	195	28	5294	Yes
2015	2.8	210	26	5284	Yes
2016	2.2	197	29	5314	Yes
2017	4.4	217	28	5311	Yes
2018	4.1	208	25	5271	Yes
2019	2.4	194	27	5308	Yes
2020	4.5	190	28	5316	Yes
2021	1	179	27	5327	Yes
2022	3.3	222	29	5270	Yes
2023	4.2	216	28	5310	Yes
2024	2.6	225	27	5316	Yes
2025	1.7	223	23	5283	Yes
2026	2.5	155	29	5316	Yes
2027	3.8	200	29	5268	Yes
2028	2.8	217	25	5285	Yes
2029	2.4	228	29	5297	Yes
2030	3.6	169	26	5293	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	6.5	357	16	5328	Yes
3002	6	318	16	5309	Yes
3003	8.1	378	17	5315	Yes
3004	7.8	352	16	5282	Yes
3005	6.1	308	18	5320	Yes
3006	8.2	295	17	5311	Yes
3007	8.8	262	16	5329	No
3008	7	395	17	5305	Yes
3009	7.9	258	18	5317	Yes
3010	6.3	404	16	5325	No
3011	9.5	280	18	5319	Yes
3012	6.2	438	17	5266	Yes
3013	9.7	327	16	5260	No
3014	6.5	380	16	5278	Yes
3015	6.1	415	18	5321	Yes
3016	9.5	481	16	5292	Yes
3017	9.3	277	17	5254	No
3018	8.8	490	18	5285	Yes
3019	6.8	299	16	5302	Yes
3020	6.5	273	18	5292	Yes
3021	7	479	17	5290	Yes
3022	6.9	466	16	5259	Yes
3023	7.5	434	16	5252	Yes
3024	9.8	316	18	5286	Yes
3025	6.6	430	18	5314	Yes
3026	7.1	325	18	5293	Yes
3027	8.2	451	17	5252	No
3028	9	359	16	5325	Yes
3029	8.4	498	18	5312	Yes
3030	9.4	434	18	5325	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	17.6	335	13	5265	Yes
4002	15.9	402	16	5277	Yes
4003	15.5	449	12	5280	Yes
4004	14.3	410	14	5251	No
4005	19.1	470	15	5299	No
4006	18.4	445	13	5319	Yes
4007	19.4	400	12	5271	Yes
4008	19.2	269	13	5256	Yes
4009	11.6	488	15	5288	Yes
4010	16.6	488	14	5319	Yes
4011	18.6	350	13	5323	Yes
4012	19.8	496	15	5291	Yes
4013	13.1	372	12	5267	No
4014	14.8	279	12	5305	Yes
4015	13.4	301	14	5314	Yes
4016	15.6	355	14	5328	Yes
4017	14.7	256	12	5323	Yes
4018	13.1	456	14	5272	Yes
4019	12.6	370	15	5304	Yes
4020	11.4	331	13	5300	Yes
4021	16.2	391	14	5276	Yes
4022	11.3	499	12	5298	Yes
4023	16.6	320	16	5259	Yes
4024	12	441	12	5257	No
4025	17.8	408	16	5323	Yes
4026	13.7	290	12	5285	Yes
4027	15.7	271	12	5265	No
4028	16.9	417	16	5299	Yes
4029	19.3	292	16	5267	Yes
4030	12	333	15	5302	Yes

TYPE 5 DETECTION PROBABILITY

Data Sheet for FCC Long Pulse Radar Type 5		
Trial	Frequency (MHz)	Successful Detection (Yes/No)
1	5289	Yes
2	5289	Yes
3	5289	Yes
4	5289	Yes
5	5289	Yes
6	5289	Yes
7	5289	Yes
8	5289	Yes
9	5289	Yes
10	5289	Yes
11	5252	Yes
12	5255	Yes
13	5255	Yes
14	5252	Yes
15	5255	Yes
16	5255	Yes
17	5252	Yes
18	5255	Yes
19	5255	Yes
20	5256	Yes
21	5324	Yes
22	5323	Yes
23	5321	Yes
24	5324	Yes
25	5323	Yes
26	5325	Yes
27	5321	Yes
28	5325	Yes
29	5325	Yes
30	5323	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	494	5250	13	Yes
2	969	5251	16	Yes
3	1444	5252	25	Yes
4	1919	5253	15	Yes
5	2394	5254	20	Yes
6	2869	5255	17	Yes
7	3344	5256	20	Yes
8	3819	5257	23	Yes
9	4294	5258	11	Yes
10	4769	5259	20	Yes
11	5244	5260	18	Yes
12	5719	5261	21	Yes
13	6194	5262	17	Yes
14	6669	5263	13	Yes
15	7144	5264	17	Yes
16	7619	5265	14	Yes
17	8094	5266	16	Yes
18	8569	5267	19	Yes
19	9044	5268	19	Yes
20	9519	5269	13	Yes
21	9994	5270	14	Yes
22	10469	5271	19	Yes
23	10944	5272	16	Yes
24	11419	5273	15	Yes
25	11894	5274	12	Yes
26	12369	5275	19	Yes
27	12844	5276	19	Yes
28	13319	5277	20	Yes
29	13794	5278	16	Yes
30	14269	5279	19	Yes
31	14744	5280	13	Yes
32	15219	5281	17	Yes
33	15694	5282	25	Yes
34	16169	5283	12	Yes
35	16644	5284	16	Yes
36	17119	5285	20	Yes
37	17594	5286	10	Yes
38	18069	5287	21	Yes
39	18544	5288	15	Yes

TYPE 6 DETECTION PROBABILITY (CONTINUED)

40	19019	5289	11	Yes
41	19494	5290	17	Yes
42	19969	5291	18	Yes
43	20444	5292	17	Yes
44	20919	5293	17	Yes
45	21394	5294	20	Yes
46	21869	5295	18	Yes
47	22344	5296	20	Yes
48	22819	5297	14	Yes
49	23294	5298	20	Yes
50	23769	5299	22	Yes
51	24244	5300	13	Yes
52	24719	5301	9	Yes
53	25194	5302	12	Yes
54	25669	5303	18	Yes
55	26144	5304	14	Yes
56	26619	5305	20	Yes
57	27094	5306	22	Yes
58	27569	5307	15	Yes
59	28044	5308	15	Yes
60	28519	5309	16	Yes
61	28994	5310	15	Yes
62	29469	5311	22	Yes
63	29944	5312	12	Yes
64	30419	5313	13	Yes
65	30894	5314	22	Yes
66	31369	5315	13	Yes
67	31844	5316	12	Yes
68	32319	5317	19	Yes
69	32794	5318	15	Yes
70	33269	5319	18	Yes
71	33744	5320	13	Yes
72	34219	5321	18	Yes
73	34694	5322	16	Yes
74	35169	5323	21	Yes
75	35644	5324	16	Yes
76	36119	5325	14	Yes
77	36594	5326	12	Yes
78	37069	5327	24	Yes
79	37544	5328	9	Yes
80	38019	5329	19	Yes
81	38494	5330	21	Yes

7.3. UPPER BAND MASTER RESULTS FOR 160 MHz BANDWIDTH

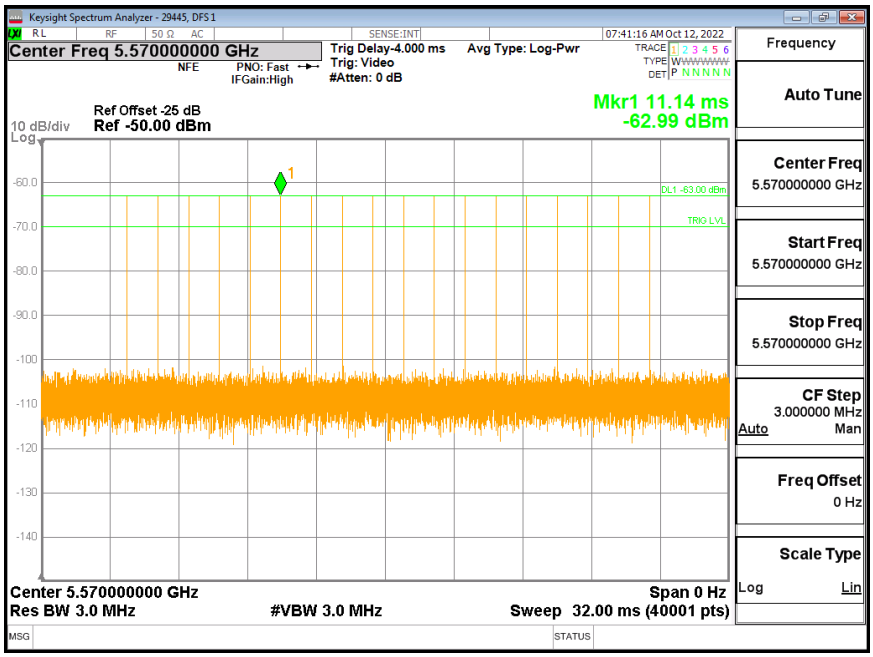
7.3.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5570 MHz.

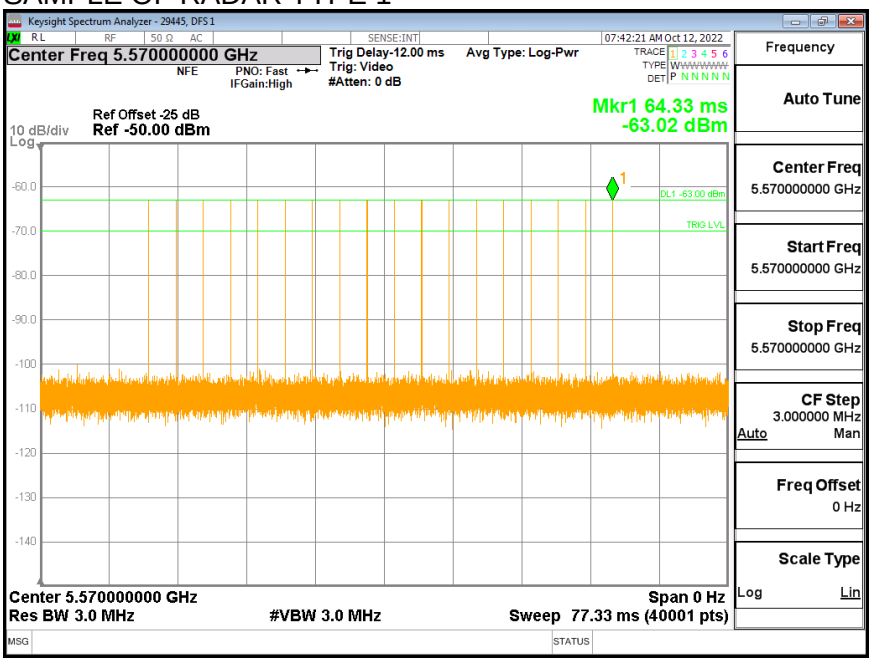
7.3.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

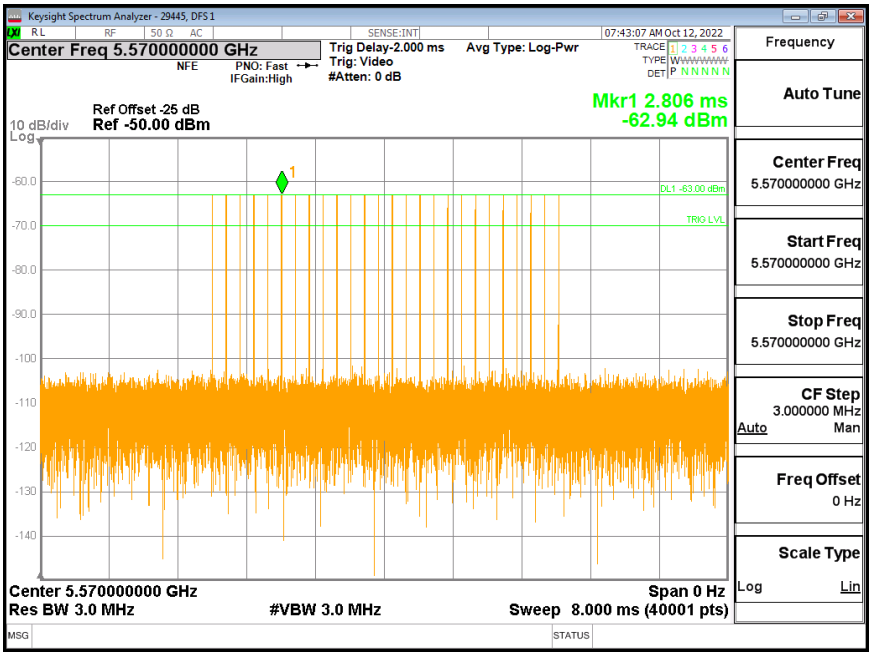
SHORT PULSE RADAR TYPE 0



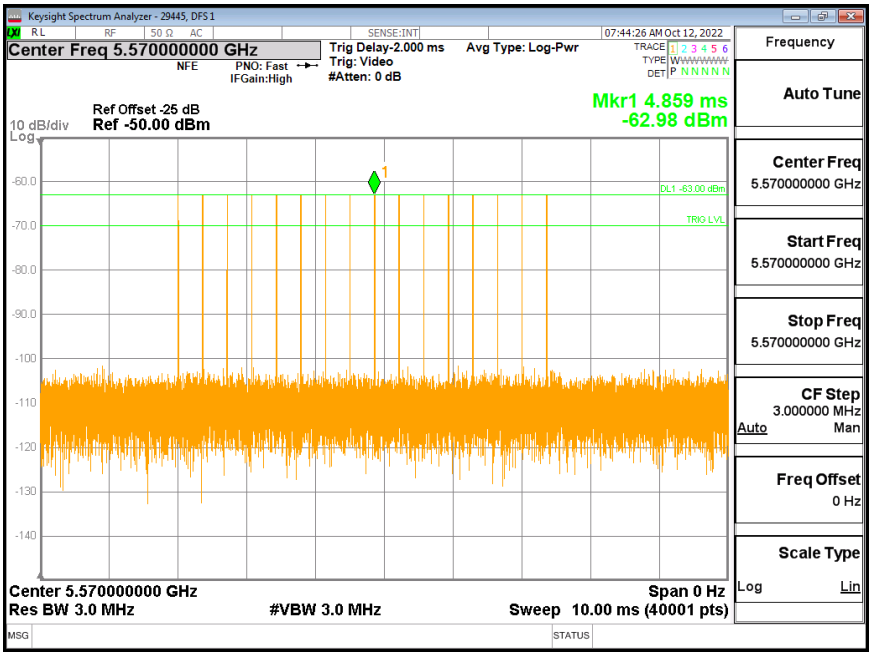
SAMPLE OF RADAR TYPE 1



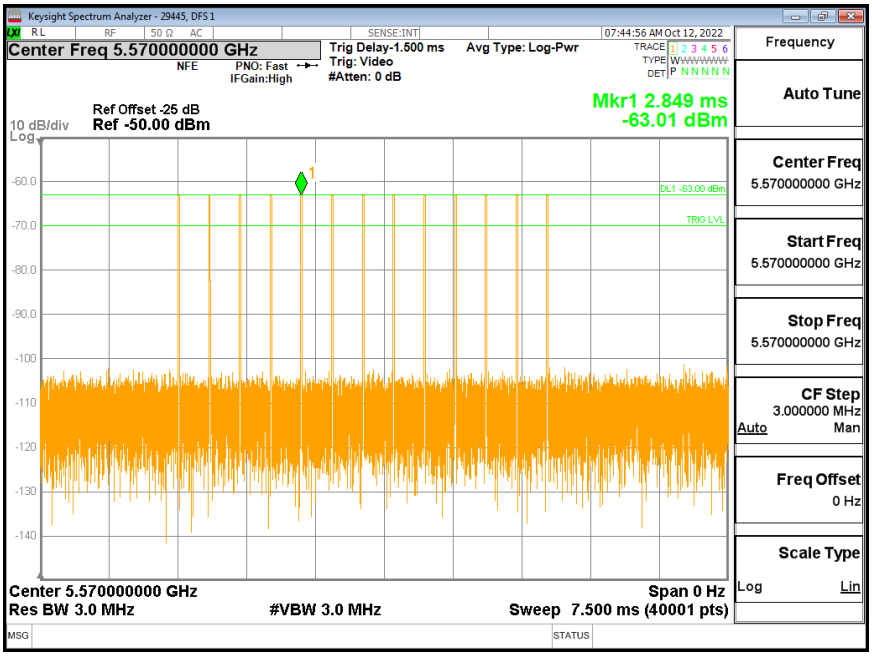
SAMPLE OF RADAR TYPE 2



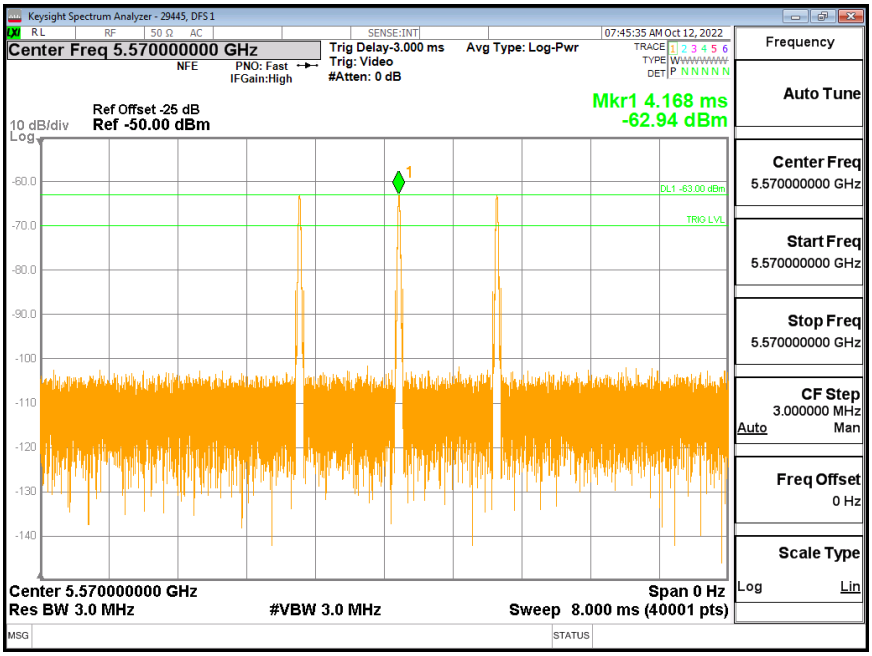
SAMPLE OF RADAR TYPE 3



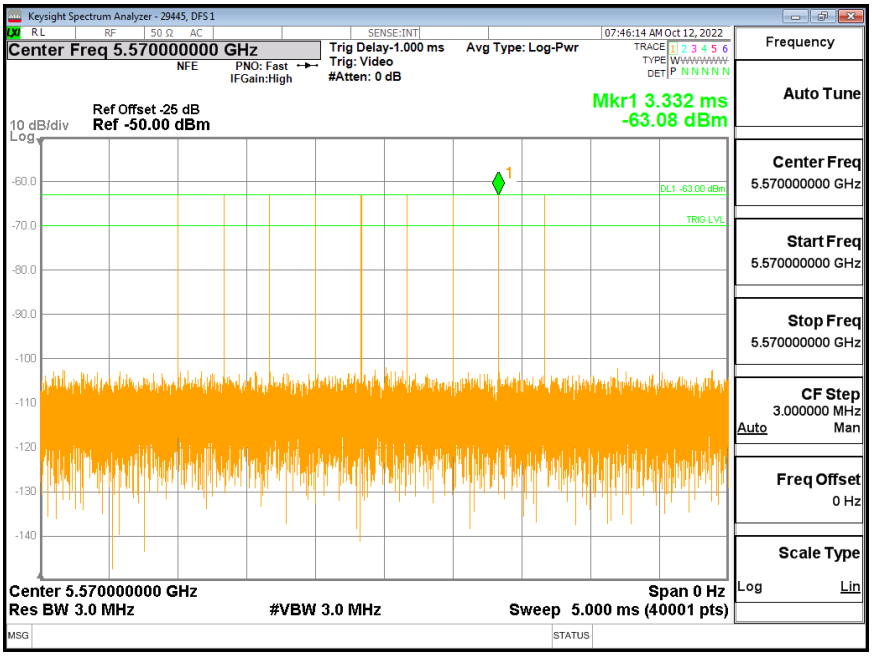
SAMPLE OF RADAR TYPE 4



SAMPLE OF SINGLE BURST OF RADAR TYPE 5

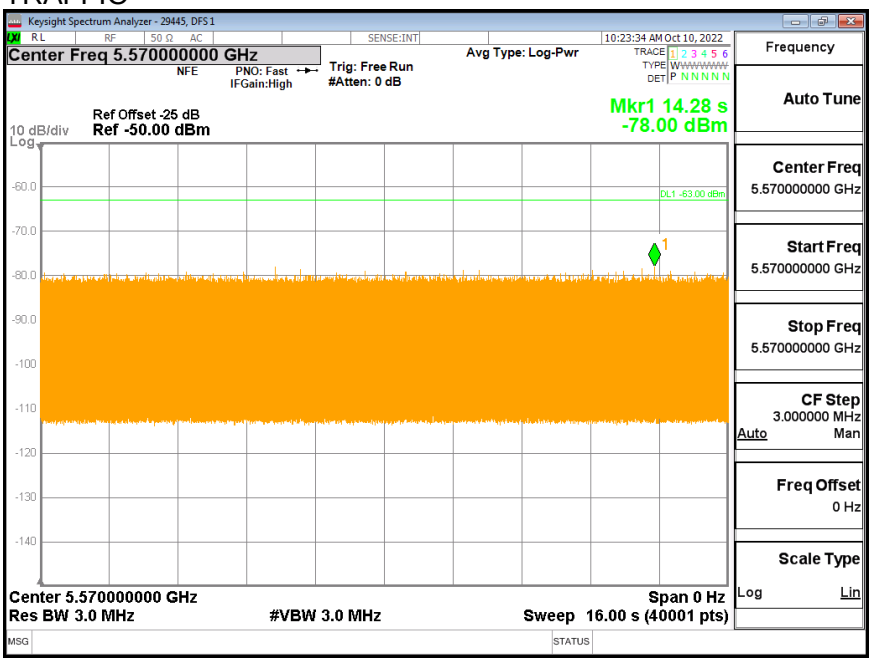


SINGLE BURST OF RADAR TYPE 6

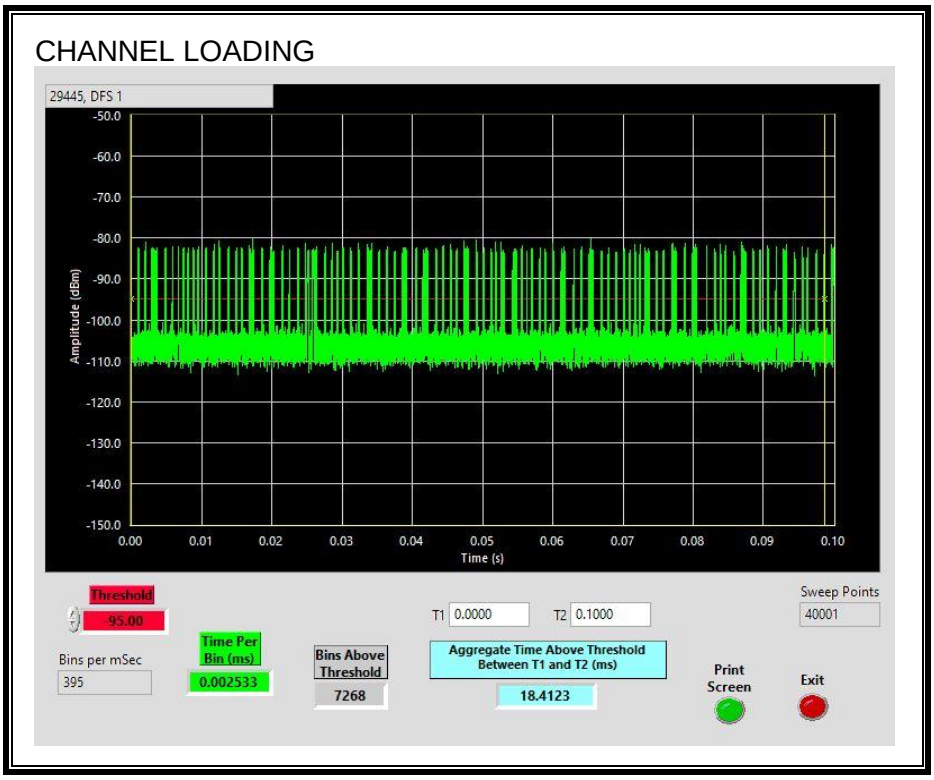


TRAFFIC

TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 18.41%

7.3.3. 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)
30.29	226.0	195.7	135.7

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)
30.16	168.3	138.1	2.4

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)
30.4	223.6	193.2	57.5

QUALITATIVE RESULTS

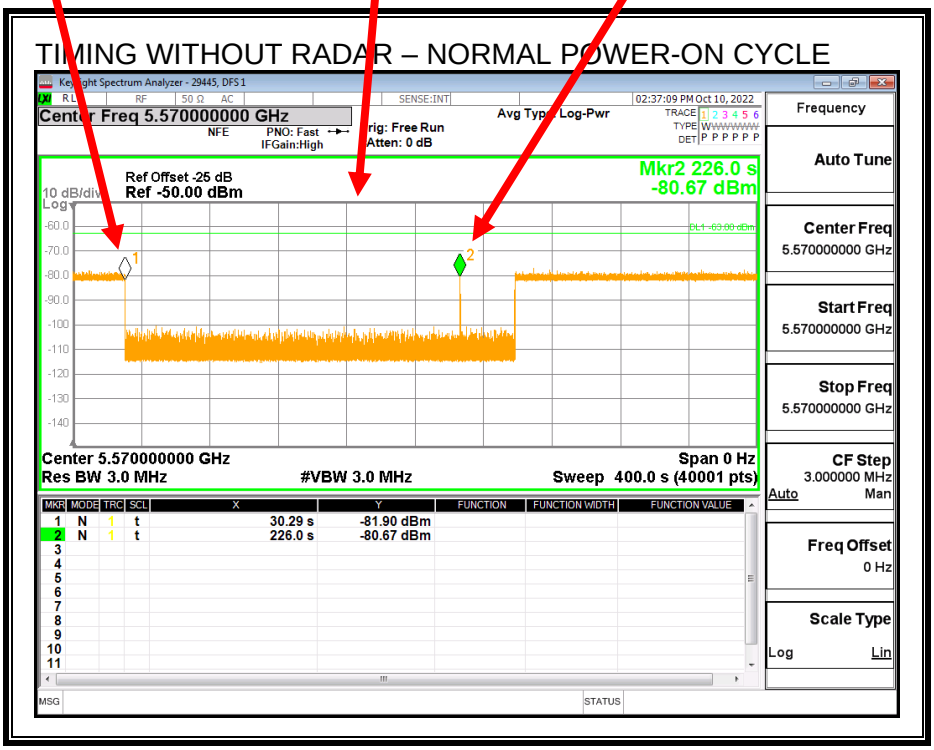
Timing of Radar Burst	Display on Control Computer	Spectrum Analyzer Display
No Radar Triggered	EUT marks Channel as active	Transmissions begin on channel after completion of the initial power-up cycle and the CAC
Within 0 to 6 second window	EUT indicates radar detected	No transmissions on channel
Within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



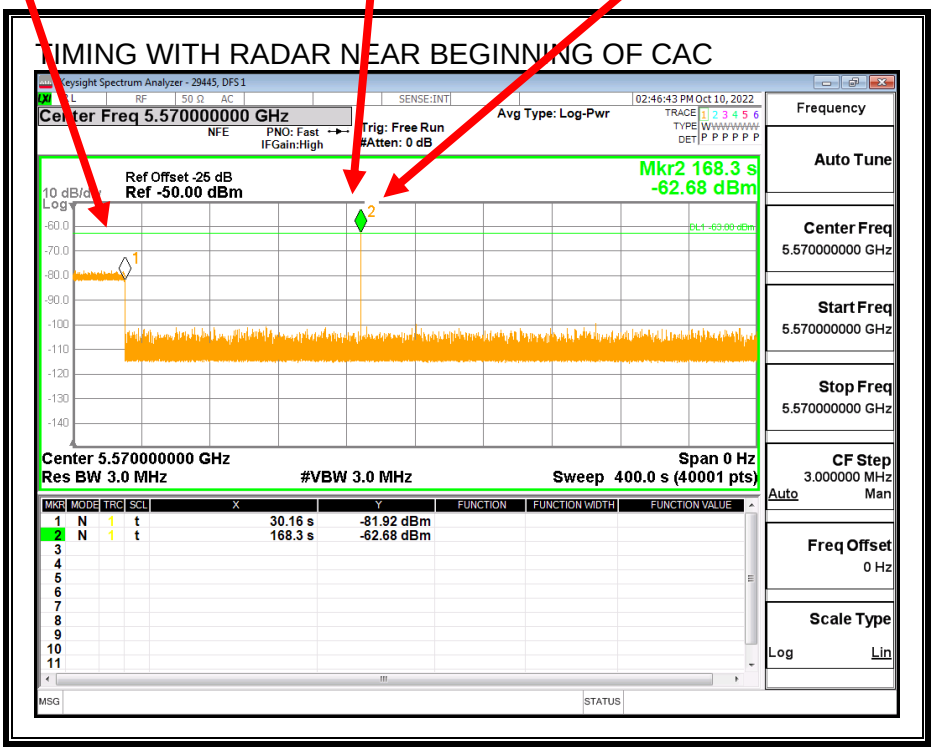
Transmissions begin on channel after completion of the initial power-up cycle and the CAC.

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



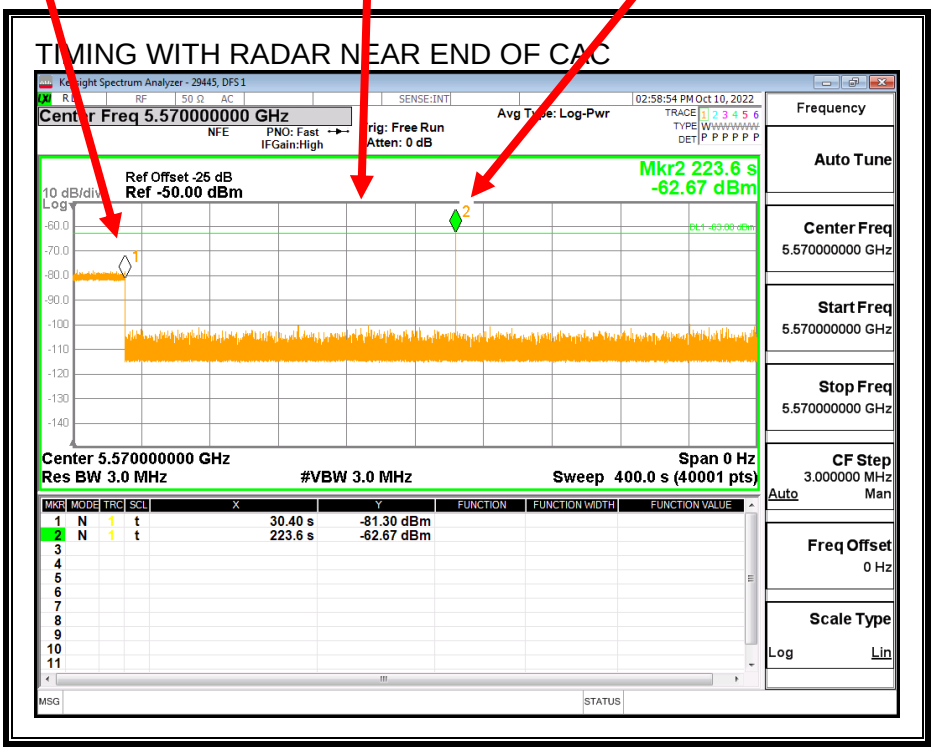
No EUT transmissions were observed after the radar signal.

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.

7.3.4. 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

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)
0.0	10

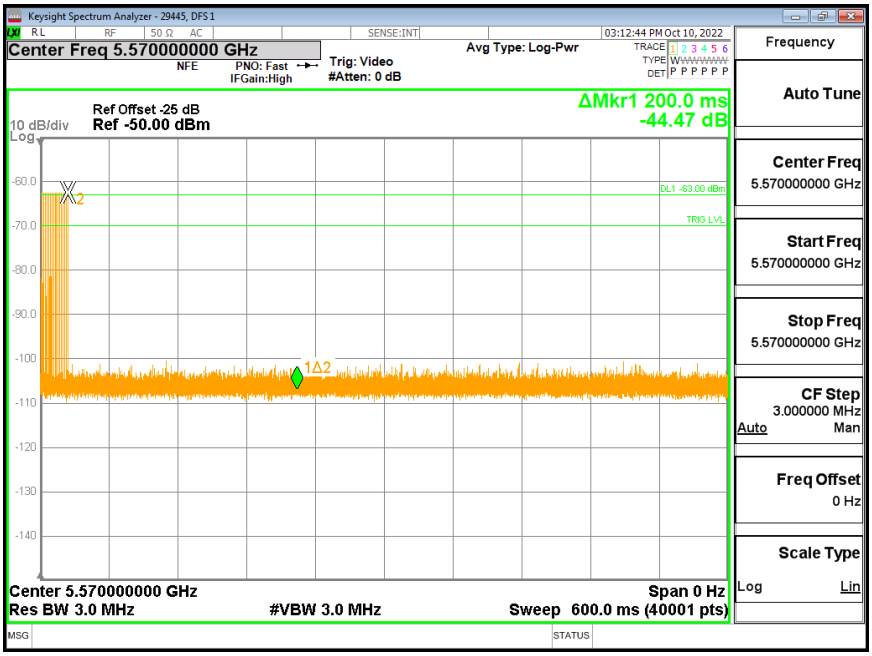
Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
0.0	60

MOVE TIME

MOVE TIME

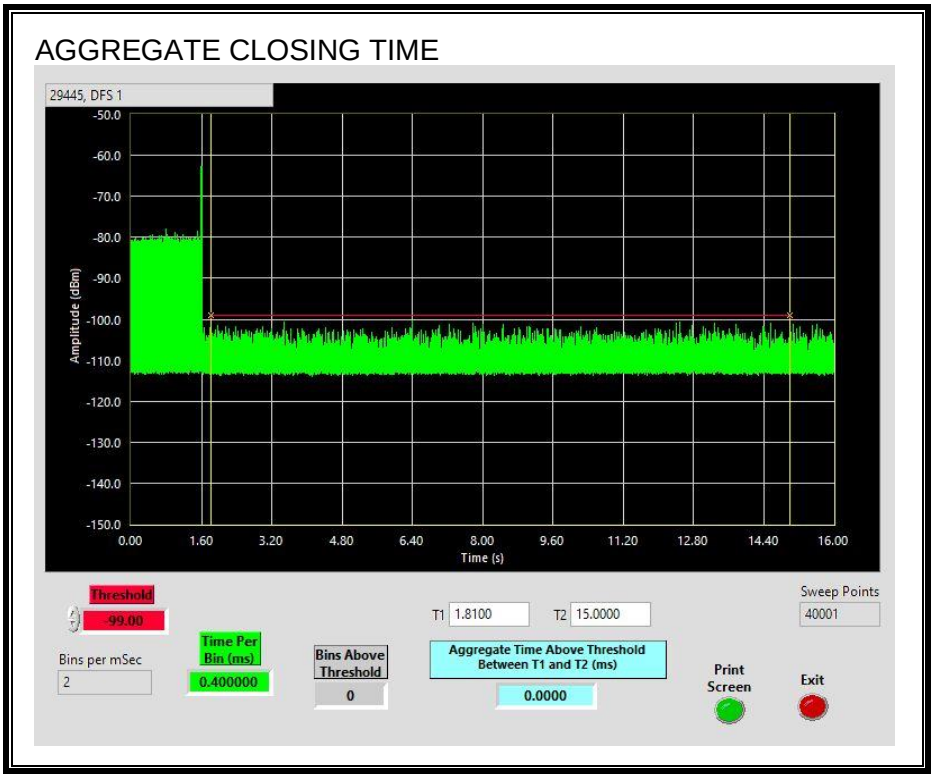
CHANNEL CLOSING TIME

CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

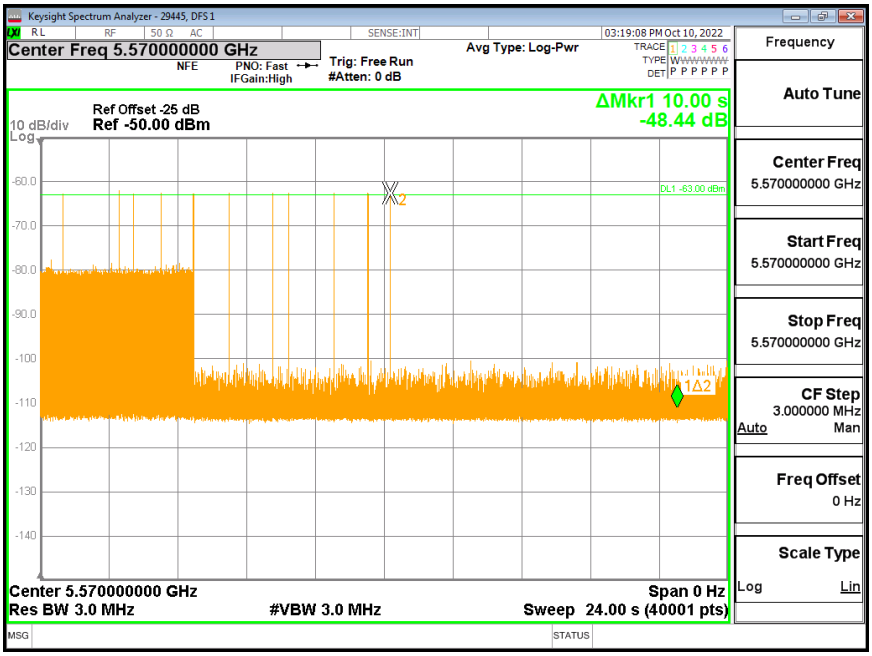
No transmissions are observed during the aggregate monitoring period.



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

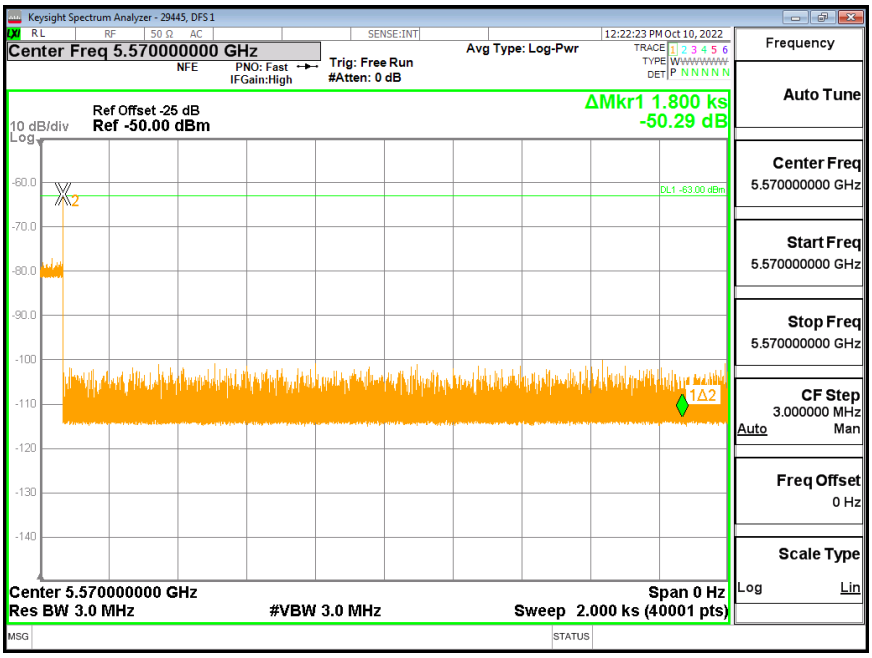


7.3.6. NON-OCCUPANCY PERIOD

RESULTS

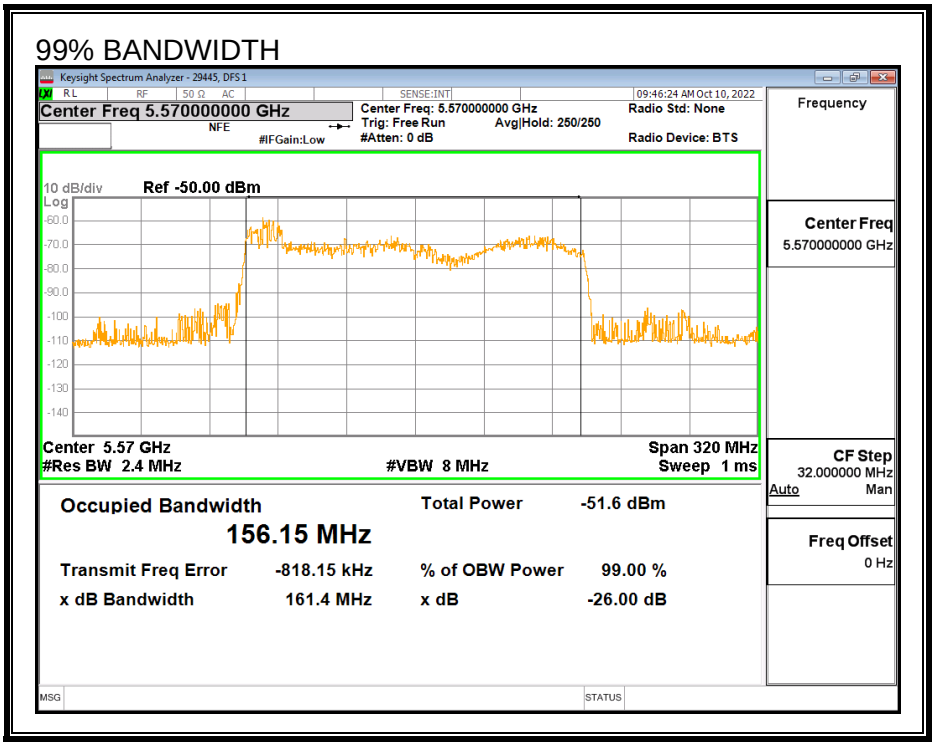
No EUT transmissions were observed on the test channel during the 30-minute observation time.

NON-OCCUPANCY PERIOD



7.3.7. 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	5650	160	156.15	102.5	100

DETECTION BANDWIDTH PROBABILITY

DETECTION BANDWIDTH PROBABILITY RESULTS

Detection Bandwidth Test Results		29445	DFS 1	
FCC Type 0 Waveform: 1 us Pulse Width, 1428 us PRI, 18 Pulses per Burst				
Frequency (MHz)	Number of Trials	Number Detected	Detection (%)	Mark
5490	10	10	100	FL
5495	10	10	100	
5500	10	10	100	
5505	10	10	100	
5510	10	10	100	
5515	10	10	100	
5520	10	10	100	
5525	10	10	100	
5530	10	10	100	
5535	10	10	100	
5540	10	10	100	
5545	10	10	100	
5550	10	10	100	
5555	10	10	100	
5560	10	10	100	
5565	10	10	100	
5570	10	10	100	
5575	10	10	100	
5580	10	10	100	
5585	10	10	100	
5590	10	10	100	
5595	10	10	100	
5600	10	10	100	
5605	10	10	100	
5610	10	10	100	
5615	10	10	100	
5620	10	10	100	
5625	10	10	100	
5630	10	10	100	
5635	10	10	100	
5640	10	10	100	
5645	10	9	90	
5650	10	10	100	FH

7.3.8. 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	93.33	60	Pass	5490	5650	156.15	DFS 1	29445	v4.1
FCC Short Pulse Type 2	30	100.00	60	Pass	5490	5650	156.15	DFS 1	29445	v4.1
FCC Short Pulse Type 3	30	96.67	60	Pass	5490	5650	156.15	DFS 1	29445	v4.1
FCC Short Pulse Type 4	30	80.00	60	Pass	5490	5650	156.15	DFS 1	29445	v4.1
Aggregate		92.50	80	Pass						
FCC Long Pulse Type 5	30	100.00	80	Pass	5490	5650	156.15	DFS 1	29445	v4.1
FCC Hopping Type 6	161	100.00	70	Pass	5490	5650		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	5523	Yes
1002	1	558	95	A	5602	Yes
1003	1	838	63	A	5644	Yes
1004	1	538	99	A	5581	Yes
1005	1	778	68	A	5588	Yes
1006	1	898	59	A	5644	Yes
1007	1	878	61	A	5503	Yes
1008	1	578	92	A	5548	Yes
1009	1	518	102	A	5535	Yes
1010	1	798	67	A	5615	Yes
1011	1	698	76	A	5591	Yes
1012	1	858	62	A	5608	Yes
1013	1	658	81	A	5524	Yes
1014	1	918	58	A	5518	Yes
1015	1	598	89	A	5590	Yes
1016	1	987	54	B	5512	Yes
1017	1	748	71	B	5500	Yes
1018	1	2187	25	B	5507	Yes
1019	1	2078	26	B	5531	Yes
1020	1	2293	24	B	5523	Yes
1021	1	1119	48	B	5523	Yes
1022	1	2817	19	B	5581	Yes
1023	1	1772	30	B	5645	Yes
1024	1	2405	22	B	5515	Yes
1025	1	1490	36	B	5534	Yes
1026	1	2252	24	B	5648	No
1027	1	1466	37	B	5570	No
1028	1	1163	46	B	5558	Yes
1029	1	1861	29	B	5569	Yes
1030	1	2882	19	B	5519	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	1.6	161	26	5605	Yes
2002	1.3	153	27	5544	Yes
2003	3.7	219	29	5574	Yes
2004	1.7	215	23	5549	Yes
2005	2.3	205	29	5517	Yes
2006	4.6	167	24	5590	Yes
2007	1.4	161	23	5650	Yes
2008	3.9	170	29	5617	Yes
2009	3	167	29	5635	Yes
2010	1.6	181	28	5577	Yes
2011	1	226	24	5617	Yes
2012	4.1	162	28	5502	Yes
2013	3.7	173	25	5559	Yes
2014	4.9	195	28	5525	Yes
2015	2.8	210	26	5538	Yes
2016	2.2	197	29	5646	Yes
2017	4.4	217	28	5626	Yes
2018	4.1	208	25	5513	Yes
2019	2.4	194	27	5493	Yes
2020	4.5	190	28	5621	Yes
2021	1	179	27	5577	Yes
2022	3.3	222	29	5553	Yes
2023	4.2	216	28	5598	Yes
2024	2.6	225	27	5644	Yes
2025	1.7	223	23	5549	Yes
2026	2.5	155	29	5583	Yes
2027	3.8	200	29	5509	Yes
2028	2.8	217	25	5552	Yes
2029	2.4	228	29	5582	Yes
2030	3.6	169	26	5649	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	6.5	357	16	5626	Yes
3002	6	318	16	5600	Yes
3003	8.1	378	17	5498	Yes
3004	7.8	352	16	5551	Yes
3005	6.1	308	18	5642	Yes
3006	8.2	295	17	5635	Yes
3007	8.8	262	16	5552	Yes
3008	7	395	17	5520	Yes
3009	7.9	258	18	5561	Yes
3010	6.3	404	16	5518	Yes
3011	9.5	280	18	5581	Yes
3012	6.2	438	17	5590	Yes
3013	9.7	327	16	5516	Yes
3014	6.5	380	16	5619	Yes
3015	6.1	415	18	5540	Yes
3016	9.5	481	16	5512	No
3017	9.3	277	17	5550	Yes
3018	8.8	490	18	5584	Yes
3019	6.8	299	16	5650	Yes
3020	6.5	273	18	5543	Yes
3021	7	479	17	5527	Yes
3022	6.9	466	16	5528	Yes
3023	7.5	434	16	5559	Yes
3024	9.8	316	18	5541	Yes
3025	6.6	430	18	5504	Yes
3026	7.1	325	18	5608	Yes
3027	8.2	451	17	5515	Yes
3028	9	359	16	5512	Yes
3029	8.4	498	18	5644	Yes
3030	9.4	434	18	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	17.6	335	13	5540	Yes
4002	15.9	402	16	5574	Yes
4003	15.5	449	12	5541	Yes
4004	14.3	410	14	5582	Yes
4005	19.1	470	15	5500	No
4006	18.4	445	13	5494	Yes
4007	19.4	400	12	5549	Yes
4008	19.2	269	13	5519	No
4009	11.6	488	15	5530	Yes
4010	16.6	488	14	5536	No
4011	18.6	350	13	5628	Yes
4012	19.8	496	15	5597	Yes
4013	13.1	372	12	5547	Yes
4014	14.8	279	12	5491	Yes
4015	13.4	301	14	5647	Yes
4016	15.6	355	14	5627	Yes
4017	14.7	256	12	5560	Yes
4018	13.1	456	14	5622	Yes
4019	12.6	370	15	5535	Yes
4020	11.4	331	13	5644	Yes
4021	16.2	391	14	5594	Yes
4022	11.3	499	12	5650	Yes
4023	16.6	320	16	5624	Yes
4024	12	441	12	5640	No
4025	17.8	408	16	5533	Yes
4026	13.7	290	12	5513	No
4027	15.7	271	12	5534	Yes
4028	16.9	417	16	5640	No
4029	19.3	292	16	5607	Yes
4030	12	333	15	5504	Yes

TYPE 5 DETECTION PROBABILITY

Data Sheet for FCC Long Pulse Radar Type 5		
Trial	Frequency (MHz)	Successful Detection (Yes/No)
1	5570	Yes
2	5570	Yes
3	5570	Yes
4	5570	Yes
5	5570	Yes
6	5570	Yes
7	5570	Yes
8	5570	Yes
9	5570	Yes
10	5570	Yes
11	5495	Yes
12	5497	Yes
13	5497	Yes
14	5495	Yes
15	5497	Yes
16	5497	Yes
17	5495	Yes
18	5497	Yes
19	5497	Yes
20	5498	Yes
21	5644	Yes
22	5643	Yes
23	5641	Yes
24	5644	Yes
25	5643	Yes
26	5644	Yes
27	5641	Yes
28	5644	Yes
29	5645	Yes
30	5643	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	642	5490	39	Yes
2	1117	5491	35	Yes
3	1592	5492	37	Yes
4	2067	5493	30	Yes
5	2542	5494	32	Yes
6	3017	5495	35	Yes
7	3492	5496	38	Yes
8	3967	5497	29	Yes
9	4442	5498	25	Yes
10	4917	5499	33	Yes
11	5392	5500	34	Yes
12	5867	5501	42	Yes
13	6342	5502	29	Yes
14	6817	5503	34	Yes
15	7292	5504	32	Yes
16	7767	5505	38	Yes
17	8242	5506	43	Yes
18	8717	5507	32	Yes
19	9192	5508	36	Yes
20	9667	5509	38	Yes
21	10142	5510	39	Yes
22	10617	5511	35	Yes
23	11092	5512	30	Yes
24	11567	5513	36	Yes
25	12042	5514	32	Yes
26	12517	5515	32	Yes
27	12992	5516	32	Yes
28	13467	5517	40	Yes
29	13942	5518	29	Yes
30	14417	5519	19	Yes
31	14892	5520	35	Yes
32	15367	5521	34	Yes
33	15842	5522	39	Yes
34	16317	5523	33	Yes
35	16792	5524	39	Yes
36	17267	5525	27	Yes
37	17742	5526	32	Yes
38	18217	5527	36	Yes
39	18692	5528	35	Yes

TYPE 6 DETECTION PROBABILITY (CONTINUED)

40	19167	5529	36	Yes
41	19642	5530	41	Yes
42	20117	5531	38	Yes
43	20592	5532	35	Yes
44	21067	5533	28	Yes
45	21542	5534	31	Yes
46	22017	5535	29	Yes
47	22492	5536	30	Yes
48	22967	5537	35	Yes
49	23442	5538	35	Yes
50	23917	5539	36	Yes
51	24392	5540	38	Yes
52	24867	5541	32	Yes
53	25342	5542	35	Yes
54	25817	5543	31	Yes
55	26292	5544	42	Yes
56	26767	5545	37	Yes
57	27242	5546	41	Yes
58	27717	5547	31	Yes
59	28192	5548	32	Yes
60	28667	5549	28	Yes
61	29142	5550	40	Yes
62	29617	5551	34	Yes
63	30092	5552	31	Yes
64	30567	5553	29	Yes
65	31042	5554	36	Yes
66	31517	5555	35	Yes
67	31992	5556	37	Yes
68	32467	5557	24	Yes
69	32942	5558	36	Yes
70	33417	5559	33	Yes
71	33892	5560	25	Yes
72	34367	5561	35	Yes
73	34842	5562	38	Yes
74	35317	5563	35	Yes
75	35792	5564	29	Yes
76	36267	5565	25	Yes
77	36742	5566	33	Yes
78	37217	5567	41	Yes
79	37692	5568	32	Yes

TYPE 6 DETECTION PROBABILITY (CONTINUED)

80	38167	5569	27	Yes
81	38642	5570	29	Yes
82	39117	5571	39	Yes
83	39592	5572	33	Yes
84	40067	5573	34	Yes
85	40542	5574	25	Yes
86	41017	5575	32	Yes
87	41492	5576	42	Yes
88	41967	5577	36	Yes
89	42442	5578	30	Yes
90	42917	5579	38	Yes
91	43392	5580	35	Yes
92	43867	5581	32	Yes
93	44342	5582	36	Yes
94	44817	5583	34	Yes
95	45292	5584	35	Yes
96	45767	5585	29	Yes
97	46242	5586	31	Yes
98	46717	5587	36	Yes
99	47192	5588	40	Yes
100	47667	5589	32	Yes
101	48142	5590	35	Yes
102	48617	5591	33	Yes
103	49092	5592	36	Yes
104	49567	5593	35	Yes
105	50042	5594	36	Yes
106	50517	5595	41	Yes
107	50992	5596	41	Yes
108	51467	5597	39	Yes
109	51942	5598	32	Yes
110	52417	5599	28	Yes
111	52892	5600	39	Yes
112	53367	5601	27	Yes
113	53842	5602	33	Yes
114	54317	5603	28	Yes
115	54792	5604	36	Yes
116	55267	5605	32	Yes
117	55742	5606	33	Yes
118	56217	5607	35	Yes
119	56692	5608	31	Yes

TYPE 6 DETECTION PROBABILITY (CONTINUED)

120	57167	5609	31	Yes
121	57642	5610	30	Yes
122	58117	5611	34	Yes
123	58592	5612	37	Yes
124	59067	5613	32	Yes
125	59542	5614	29	Yes
126	60017	5615	35	Yes
127	60492	5616	31	Yes
128	60967	5617	38	Yes
129	61442	5618	34	Yes
130	61917	5619	28	Yes
131	62392	5620	39	Yes
132	62867	5621	39	Yes
133	63342	5622	33	Yes
134	63817	5623	32	Yes
135	64292	5624	32	Yes
136	64767	5625	34	Yes
137	65242	5626	31	Yes
138	181	5627	39	Yes
139	656	5628	41	Yes
140	1131	5629	32	Yes
141	1606	5630	39	Yes
142	2081	5631	26	Yes
143	2556	5632	34	Yes
144	3031	5633	37	Yes
145	3506	5634	41	Yes
146	3981	5635	31	Yes
147	4456	5636	30	Yes
148	4931	5637	31	Yes
149	5406	5638	33	Yes
150	5881	5639	41	Yes
151	6356	5640	34	Yes
152	6831	5641	36	Yes
153	7306	5642	35	Yes
154	7781	5643	38	Yes
155	8256	5644	41	Yes
156	8731	5645	31	Yes
157	9206	5646	32	Yes
158	9681	5647	40	Yes
159	10156	5648	39	Yes
160	10631	5649	34	Yes
161	11106	5650	30	Yes

7.4. 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.

7.5. SLAVE RESULTS FOR 160 MHz BANDWIDTH

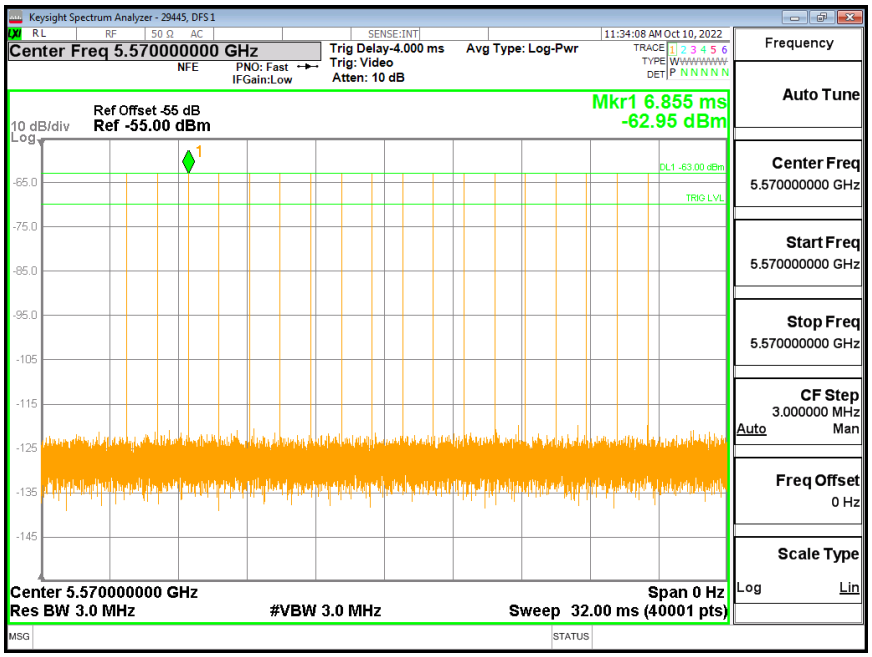
7.5.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5570 MHz.

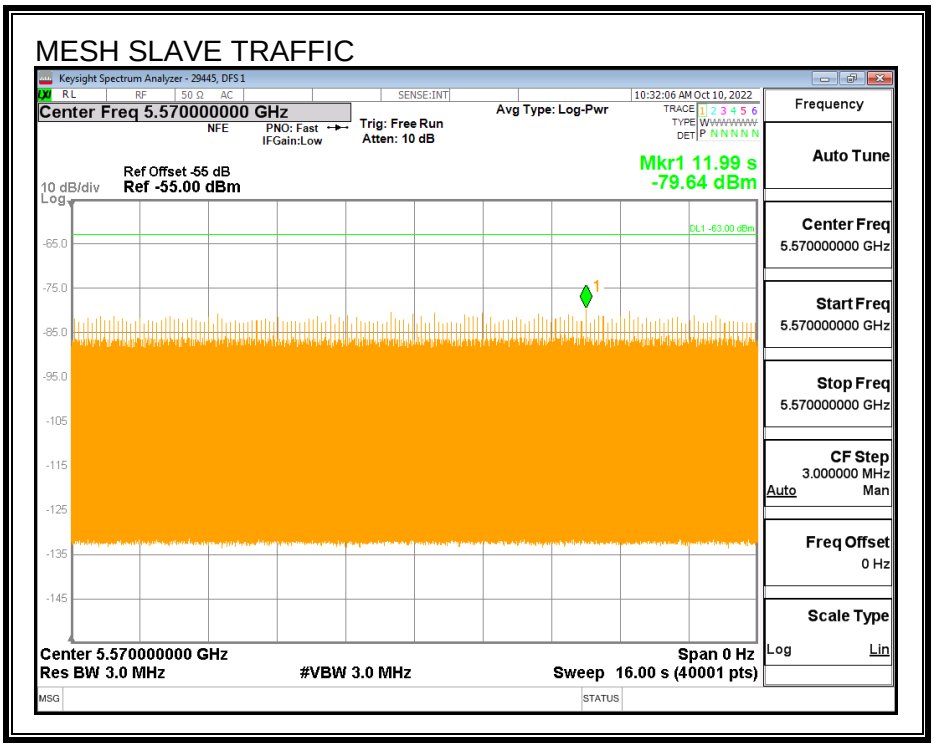
7.5.2. RADAR WAVEFORM AND TRAFFIC

RADAR WAVEFORM

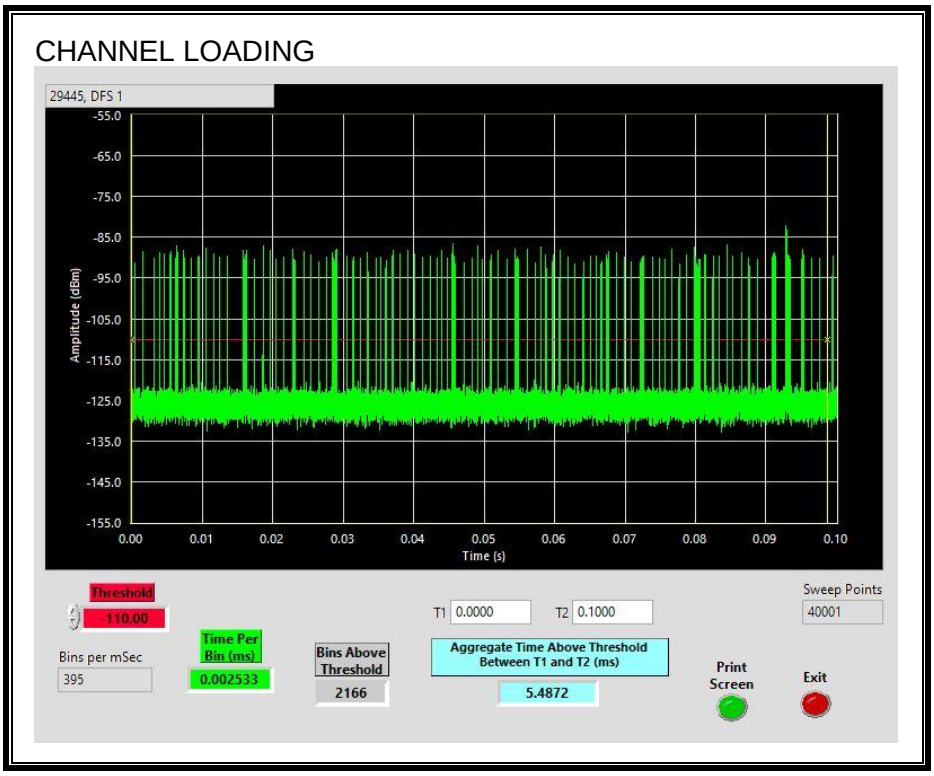
SHORT PULSE RADAR TYPE 0 AT MASTER



MESH SLAVE TRAFFIC



MESH SLAVE DEVICE CHANNEL LOADING

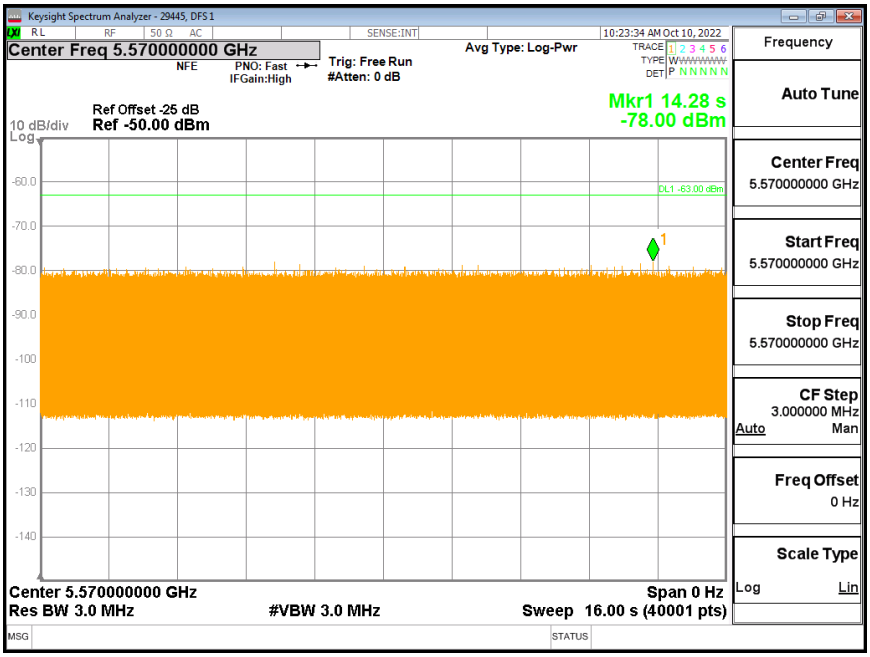


The level of traffic loading on the channel by the EUT is 5.48%

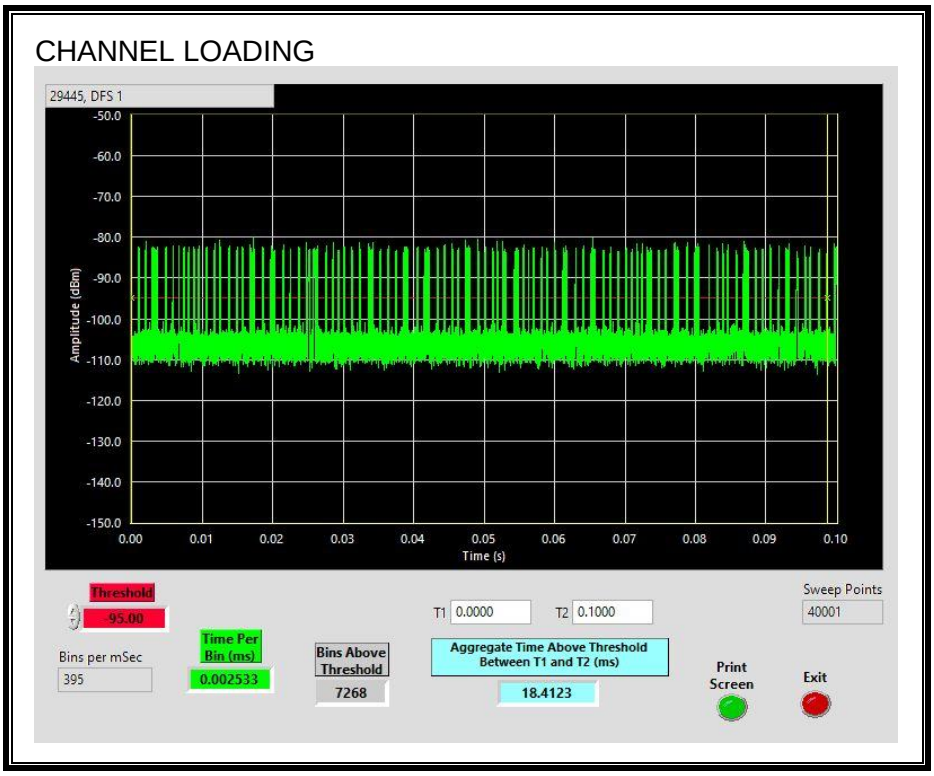
Per KDB 905462 D02 page 2, channel Loading is defined as the data transfer from the Master device to a client device. Therefore, the channel loading upon the Master Device meets the requirement as shown in the following plots taken from the Master Device test results.

MASTER DEVICE TRAFFIC

TRAFFIC



MASTER DEVICE CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 18.41%

7.5.3. OVERLAPPING CHANNEL TESTS

RESULTS

These tests are not applicable.

7.5.4. 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)

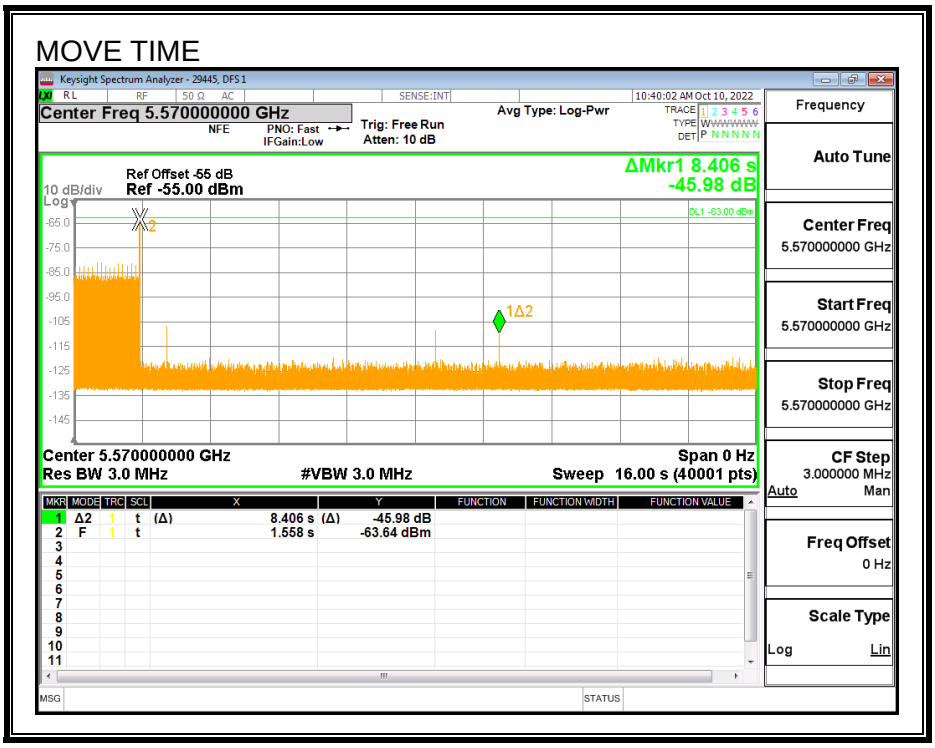
The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

Channel Move Time (sec)	Limit (sec)
8.406	10

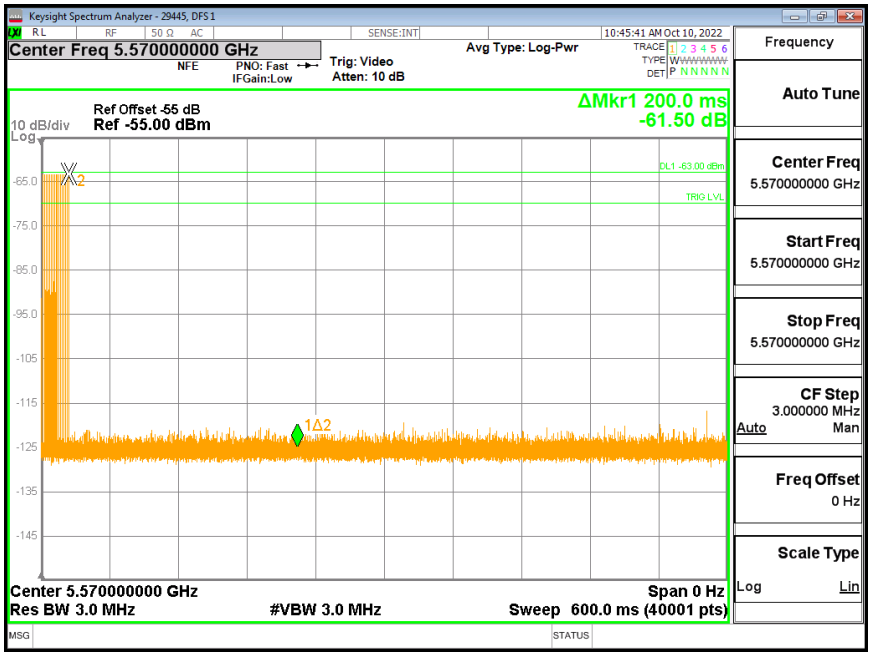
Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
5.2	60

MOVE TIME



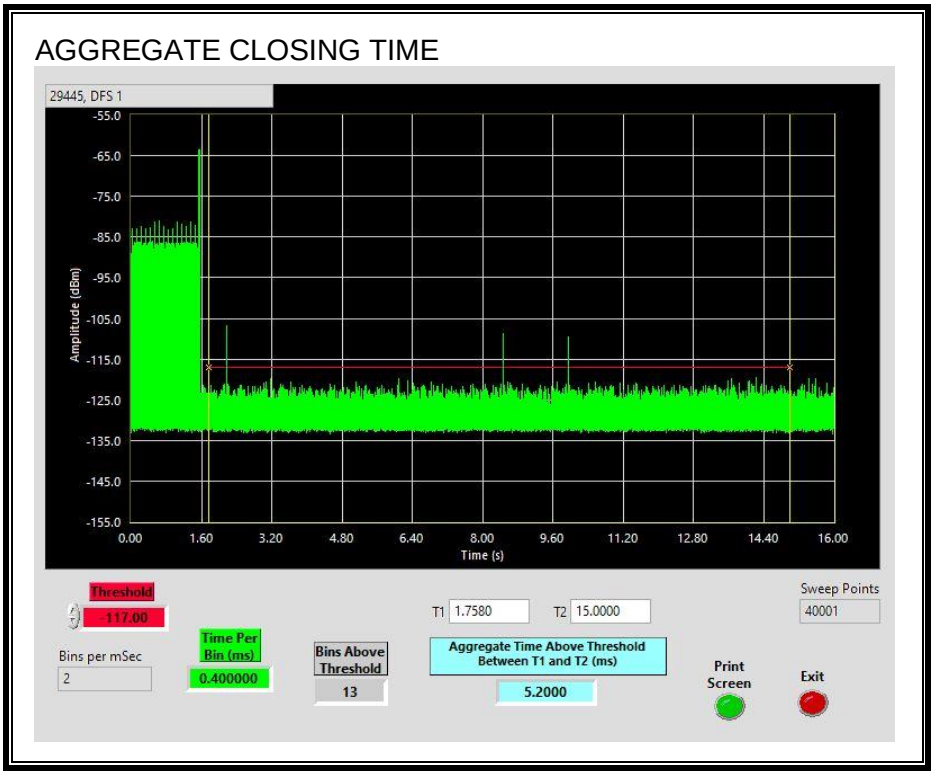
CHANNEL CLOSING TIME

CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

Only intermittent transmissions are observed during the aggregate monitoring period.

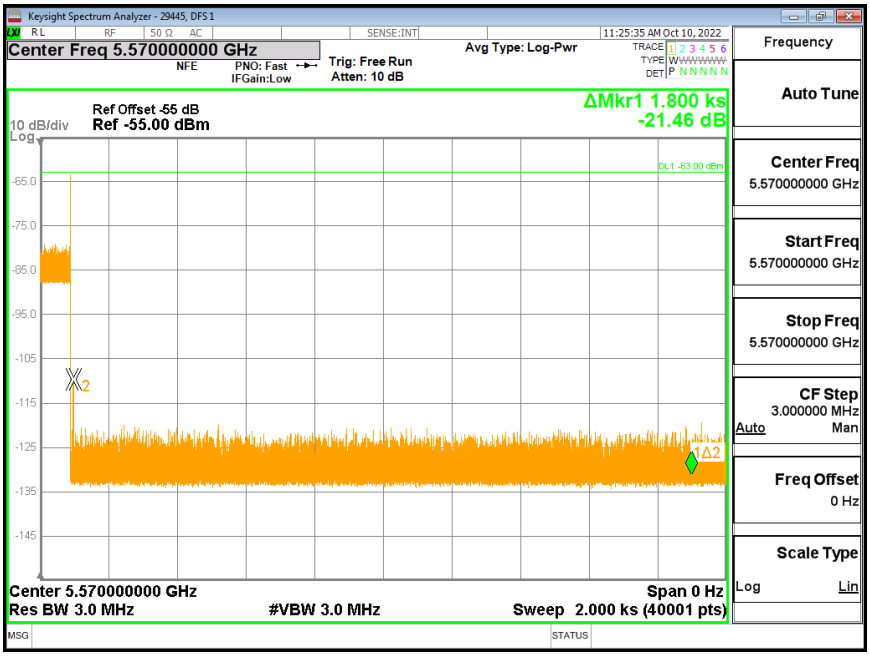


7.5.5. 30-MINUTE NON-OCCUPANCY PERIOD

RESULTS

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

30-MINUTE NON-OCCUPANCY



FCC Long Pulse 10-10-2022 07:35:06

Waveform Num = 1
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	85591	3	15	95	1156	1138	1045	85591	0	1090908
2	1935760	1	15	85	1190	0	0	2024690	1090909	2181817
3	511585	2	15	55	1336	1635	0	2537465	2181818	3272726
4	957501	1	15	100	1883	0	0	3497937	3272727	4363635
5	1126181	3	15	55	1661	1618	1233	4626001	4363636	5454544
6	1234248	3	15	75	1746	1387	1686	5864761	5454545	6545453
7	1535229	1	15	75	1464	0	0	7404809	6545454	7636362
8	547599	3	15	85	1712	1669	1284	7953872	7636363	8727271
9	1570242	2	15	50	1797	1438	0	9528779	8727272	9818180
10	1179161	3	15	65	1583	1515	1840	10711175	9818181	10909089
11	780203	3	15	65	1250	1335	1875	11496316	10909090	11999998

Total number of pulses in waveform = 25

Waveform Num = 2
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)
	1187900									
1		1	11	65	1010	0	0	1187900	0	1333332
	682915									
2		1	11	80	1422	0	0	1871825	1333333	2666665
	956122									
3		3	11	65	1301	1917	1926	2829369	2666666	3999998
	1657890									
4		1	11	70	1070	0	0	4492403	3999999	5333331
	1468609									
5		2	11	100	1216	1148	0	5962082	5333332	6666664
	1989961									
6		2	11	65	1395	1352	0	7954407	6666665	7999997
	204316									
7		2	11	55	1764	1480	0	8161470	7999998	9333330
	1432902									
8		2	11	85	1994	1267	0	9597616	9333331	10666663
	2308354									
9		2	11	50	1412	1977	0	11909231	10666664	11999996

Total number of pulses in waveform = 16

Waveform Num = 3
Num of Bursts = 15
Burst Interval (us) = 800000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)
1	561973	1	13	90	1062	0	0	561973	0	799999
2	914748	1	13	85	1575	0	0	1477783	800000	1599999
3	915002	1	13	55	1087	0	0	2394360	1600000	2399999
4	490539	1	13	100	1601	0	0	2885986	2400000	3199999
5	532210	3	13	95	1113	1754	1053	3419797	3200000	3999999
6	686828	2	13	95	1832	1156	0	4110545	4000000	4799999
7	1206913	1	13	50	1035	0	0	5320446	4800000	5599999
8	409561	1	13	95	1447	0	0	5731042	5600000	6399999
9	1425502	2	13	80	1327	1208	0	7157991	6400000	7199999
10	531027	3	13	60	1721	1096	1661	7691553	7200000	7999999
11	701259	1	13	60	1908	0	0	8397290	8000000	8799999
12	824500	3	13	70	1686	1378	1259	9223698	8800000	9599999
13	938725	2	13	90	1772	1678	0	10166746	9600000	10399999
14	864247	3	13	65	1292	1490	1079	11034443	10400000	11199999
15	626429	2	13	90	1960	1309	0	11664733	11200000	11999999

Total number of pulses in waveform = 27

Waveform Num = 4
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)
	746010									
1		3	18	90	1293	1250	1335	746010	0	857142
	379748									
2		2	18	55	1379	1019	0	1129636	857143	1714285
	1066736									
3		1	18	95	1165	0	0	2198770	1714286	2571428
	628981									
4		2	18	70	1780	1344	0	2828916	2571429	3428571
	656782									
5		3	18	100	1122	1181	1430	3488822	3428572	4285714
	919464									
6		2	18	80	1943	1216	0	4412019	4285715	5142857
	1028680									
7		2	18	75	1361	1395	0	5443858	5142858	6000000
	656908									
8		3	18	75	1173	1764	1480	6103522	6000001	6857143
	918871									
9		2	18	85	1994	1267	0	7026810	6857144	7714286
	1481879									
10		2	18	50	1412	1977	0	8511950	7714287	8571429
	109472									
11		2	18	80	1224	1815	0	8624811	8571430	9428572
	1013388									
12		3	18	50	1694	1575	1849	9641238	9428573	10285715
	663133									
13		1	18	50	1995	0	0	10309489	10285716	11142858
	927891									
14		3	18	80	1609	1806	1865	11239375	11142859	12000001

Total number of pulses in waveform = 31

Waveform Num = 5
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	585361	1	5	80	1900	0	0	585361	0	705881
2	174091	1	5	55	1045	0	0	761352	705882	1411763
3	1253218	1	5	85	1190	0	0	2015615	1411764	2117645
4	330622	2	5	55	1336	1635	0	2347427	2117646	2823527
5	618717	1	5	100	1883	0	0	2969115	2823528	3529409
6	727793	3	5	55	1661	1618	1233	3698791	3529410	4235291
7	796780	3	5	75	1746	1387	1686	4500083	4235292	4941173
8	991917	1	5	75	1464	0	0	5496819	4941174	5647055
9	353739	3	5	85	1712	1669	1284	5852022	5647056	6352937
10	1014032	2	5	50	1797	1438	0	6870719	6352938	7058819
11	761253	3	5	65	1583	1515	1840	7635207	7058820	7764701
12	503676	3	5	65	1250	1335	1875	8143821	7764702	8470583
13	547013	1	5	70	1019	0	0	8695294	8470584	9176465
14	879023	1	5	95	1165	0	0	9575336	9176466	9882347
15	517728	2	5	70	1780	1344	0	10094229	9882348	10588229
16	540448	3	5	100	1122	1181	1430	10637801	10588230	11294111
17	756510	2	5	80	1943	1216	0	11398044	11294112	11999993

Total number of pulses in waveform = 33

Waveform Num = 6
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)
	432974									
1		2	12	70	1352	1968	0	432974	0	857142
	524726									
2		1	12	90	1480	0	0	961020	857143	1714285
	921452									
3		2	12	85	1994	1267	0	1883952	1714286	2571428
	1481879									
4		2	12	50	1412	1977	0	3369092	2571429	3428571
	109472									
5		2	12	80	1224	1815	0	3481953	3428572	4285714
	1013388									
6		3	12	50	1694	1575	1849	4498380	4285715	5142857
	663133									
7		1	12	50	1995	0	0	5166631	5142858	6000000
	927891									
8		3	12	80	1609	1806	1865	6096517	6000001	6857143
	1464069									
9		3	12	50	1276	1626	1900	7565866	6857144	7714286
	210993									
10		1	12	55	1045	0	0	7781661	7714287	8571429
	1522190									
11		1	12	85	1190	0	0	9304896	8571430	9428572
	401716									
12		2	12	55	1336	1635	0	9707802	9428573	10285715
	751810									
13		1	12	100	1883	0	0	10462583	10285716	11142858
	884303									
14		3	12	55	1661	1618	1233	11348769	11142859	12000001

Total number of pulses in waveform = 27

Waveform Num = 7
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)
	334014									
1		3	12	70	1686	1378	1259	334014	0	631578
	740156									
2		2	12	90	1772	1678	0	1078493	631579	1263157
	681444									
3		3	12	65	1292	1490	1079	1763387	1263158	1894736
	493982									
4		2	12	90	1960	1309	0	2261230	1894737	2526315
	446080									
5		2	12	95	1823	1729	0	2710579	2526316	3157894
	784119									
6		1	12	65	1875	0	0	3498250	3157895	3789473
	490371									
7		1	12	70	1019	0	0	3990496	3789474	4421052
	786352									
8		1	12	95	1165	0	0	4777867	4421053	5052631
	463079									
9		2	12	70	1780	1344	0	5242111	5052632	5684210
	483301									
10		3	12	100	1122	1181	1430	5728536	5684211	6315789
	676464									
11		2	12	80	1943	1216	0	6408733	6315790	6947368
	757011									
12		2	12	75	1361	1395	0	7168903	6947369	7578947
	483426									
13		3	12	75	1173	1764	1480	7655085	7578948	8210526
	675871									
14		2	12	85	1994	1267	0	8335373	8210527	8842105
	1090390									
15		2	12	50	1412	1977	0	9429024	8842106	9473684
	80555									
16		2	12	80	1224	1815	0	9512968	9473685	10105263
	745621									
17		3	12	50	1694	1575	1849	10261628	10105264	10736842
	487599									
18		1	12	50	1995	0	0	10754345	10736843	11368421
	683041									
19		3	12	80	1609	1806	1865	11439381	11368422	12000000

Total number of pulses in waveform = 40

Waveform Num = 8
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	585361	1	5	80	1900	0	0	585361	0	705881
2	174091	1	5	55	1045	0	0	761352	705882	1411763
3	1253218	1	5	85	1190	0	0	2015615	1411764	2117645
4	330622	2	5	55	1336	1635	0	2347427	2117646	2823527
5	618717	1	5	100	1883	0	0	2969115	2823528	3529409
6	727793	3	5	55	1661	1618	1233	3698791	3529410	4235291
7	796780	3	5	75	1746	1387	1686	4500083	4235292	4941173
8	991917	1	5	75	1464	0	0	5496819	4941174	5647055
9	353739	3	5	85	1712	1669	1284	5852022	5647056	6352937
10	1014032	2	5	50	1797	1438	0	6870719	6352938	7058819
11	761253	3	5	65	1583	1515	1840	7635207	7058820	7764701
12	503676	3	5	65	1250	1335	1875	8143821	7764702	8470583
13	547013	1	5	70	1019	0	0	8695294	8470584	9176465
14	879023	1	5	95	1165	0	0	9575336	9176466	9882347
15	517728	2	5	70	1780	1344	0	10094229	9882348	10588229
16	540448	3	5	100	1122	1181	1430	10637801	10588230	11294111
17	756510	2	5	80	1943	1216	0	11398044	11294112	11999993

Total number of pulses in waveform = 33

Waveform Num = 9
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)
	432974									
1		2	12	70	1352	1968	0	432974	0	857142
	524726									
2		1	12	90	1480	0	0	961020	857143	1714285
	921452									
3		2	12	85	1994	1267	0	1883952	1714286	2571428
	1481879									
4		2	12	50	1412	1977	0	3369092	2571429	3428571
	109472									
5		2	12	80	1224	1815	0	3481953	3428572	4285714
	1013388									
6		3	12	50	1694	1575	1849	4498380	4285715	5142857
	663133									
7		1	12	50	1995	0	0	5166631	5142858	6000000
	927891									
8		3	12	80	1609	1806	1865	6096517	6000001	6857143
	1464069									
9		3	12	50	1276	1626	1900	7565866	6857144	7714286
	210993									
10		1	12	55	1045	0	0	7781661	7714287	8571429
	1522190									
11		1	12	85	1190	0	0	9304896	8571430	9428572
	401716									
12		2	12	55	1336	1635	0	9707802	9428573	10285715
	751810									
13		1	12	100	1883	0	0	10462583	10285716	11142858
	884303									
14		3	12	55	1661	1618	1233	11348769	11142859	12000001

Total number of pulses in waveform = 27

Waveform Num = 10
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)
	334014									
1		3	12	70	1686	1378	1259	334014	0	631578
	740156									
2		2	12	90	1772	1678	0	1078493	631579	1263157
	681444									
3		3	12	65	1292	1490	1079	1763387	1263158	1894736
	493982									
4		2	12	90	1960	1309	0	2261230	1894737	2526315
	446080									
5		2	12	95	1823	1729	0	2710579	2526316	3157894
	784119									
6		1	12	65	1875	0	0	3498250	3157895	3789473
	490371									
7		1	12	70	1019	0	0	3990496	3789474	4421052
	786352									
8		1	12	95	1165	0	0	4777867	4421053	5052631
	463079									
9		2	12	70	1780	1344	0	5242111	5052632	5684210
	483301									
10		3	12	100	1122	1181	1430	5728536	5684211	6315789
	676464									
11		2	12	80	1943	1216	0	6408733	6315790	6947368
	757011									
12		2	12	75	1361	1395	0	7168903	6947369	7578947
	483426									
13		3	12	75	1173	1764	1480	7655085	7578948	8210526
	675871									
14		2	12	85	1994	1267	0	8335373	8210527	8842105
	1090390									
15		2	12	50	1412	1977	0	9429024	8842106	9473684
	80555									
16		2	12	80	1224	1815	0	9512968	9473685	10105263
	745621									
17		3	12	50	1694	1575	1849	10261628	10105264	10736842
	487599									
18		1	12	50	1995	0	0	10754345	10736843	11368421
	683041									
19		3	12	80	1609	1806	1865	11439381	11368422	12000000

Total number of pulses in waveform = 40

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	585361	1	5	80	1900	0	0	585361	0	705881
2	174091	1	5	55	1045	0	0	761352	705882	1411763
3	1253218	1	5	85	1190	0	0	2015615	1411764	2117645
4	330622	2	5	55	1336	1635	0	2347427	2117646	2823527
5	618717	1	5	100	1883	0	0	2969115	2823528	3529409
6	727793	3	5	55	1661	1618	1233	3698791	3529410	4235291
7	796780	3	5	75	1746	1387	1686	4500083	4235292	4941173
8	991917	1	5	75	1464	0	0	5496819	4941174	5647055
9	353739	3	5	85	1712	1669	1284	5852022	5647056	6352937
10	1014032	2	5	50	1797	1438	0	6870719	6352938	7058819
11	761253	3	5	65	1583	1515	1840	7635207	7058820	7764701
12	503676	3	5	65	1250	1335	1875	8143821	7764702	8470583
13	547013	1	5	70	1019	0	0	8695294	8470584	9176465
14	879023	1	5	95	1165	0	0	9575336	9176466	9882347
15	517728	2	5	70	1780	1344	0	10094229	9882348	10588229
16	540448	3	5	100	1122	1181	1430	10637801	10588230	11294111
17	756510	2	5	80	1943	1216	0	11398044	11294112	11999993

Total number of pulses in waveform = 33

Waveform Num = 12
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)
	432974									
1		2	12	70	1352	1968	0	432974	0	857142
	524726									
2		1	12	90	1480	0	0	961020	857143	1714285
	921452									
3		2	12	85	1994	1267	0	1883952	1714286	2571428
	1481879									
4		2	12	50	1412	1977	0	3369092	2571429	3428571
	109472									
5		2	12	80	1224	1815	0	3481953	3428572	4285714
	1013388									
6		3	12	50	1694	1575	1849	4498380	4285715	5142857
	663133									
7		1	12	50	1995	0	0	5166631	5142858	6000000
	927891									
8		3	12	80	1609	1806	1865	6096517	6000001	6857143
	1464069									
9		3	12	50	1276	1626	1900	7565866	6857144	7714286
	210993									
10		1	12	55	1045	0	0	7781661	7714287	8571429
	1522190									
11		1	12	85	1190	0	0	9304896	8571430	9428572
	401716									
12		2	12	55	1336	1635	0	9707802	9428573	10285715
	751810									
13		1	12	100	1883	0	0	10462583	10285716	11142858
	884303									
14		3	12	55	1661	1618	1233	11348769	11142859	12000001

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)
	334014									
1		3	12	70	1686	1378	1259	334014	0	631578
	740156									
2		2	12	90	1772	1678	0	1078493	631579	1263157
	681444									
3		3	12	65	1292	1490	1079	1763387	1263158	1894736
	493982									
4		2	12	90	1960	1309	0	2261230	1894737	2526315
	446080									
5		2	12	95	1823	1729	0	2710579	2526316	3157894
	784119									
6		1	12	65	1875	0	0	3498250	3157895	3789473
	490371									
7		1	12	70	1019	0	0	3990496	3789474	4421052
	786352									
8		1	12	95	1165	0	0	4777867	4421053	5052631
	463079									
9		2	12	70	1780	1344	0	5242111	5052632	5684210
	483301									
10		3	12	100	1122	1181	1430	5728536	5684211	6315789
	676464									
11		2	12	80	1943	1216	0	6408733	6315790	6947368
	757011									
12		2	12	75	1361	1395	0	7168903	6947369	7578947
	483426									
13		3	12	75	1173	1764	1480	7655085	7578948	8210526
	675871									
14		2	12	85	1994	1267	0	8335373	8210527	8842105
	1090390									
15		2	12	50	1412	1977	0	9429024	8842106	9473684
	80555									
16		2	12	80	1224	1815	0	9512968	9473685	10105263
	745621									
17		3	12	50	1694	1575	1849	10261628	10105264	10736842
	487599									
18		1	12	50	1995	0	0	10754345	10736843	11368421
	683041									
19		3	12	80	1609	1806	1865	11439381	11368422	12000000

Total number of pulses in waveform = 40

Waveform Num = 14
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	585361	1	5	80	1900	0	0	585361	0	705881
2	174091	1	5	55	1045	0	0	761352	705882	1411763
3	1253218	1	5	85	1190	0	0	2015615	1411764	2117645
4	330622	2	5	55	1336	1635	0	2347427	2117646	2823527
5	618717	1	5	100	1883	0	0	2969115	2823528	3529409
6	727793	3	5	55	1661	1618	1233	3698791	3529410	4235291
7	796780	3	5	75	1746	1387	1686	4500083	4235292	4941173
8	991917	1	5	75	1464	0	0	5496819	4941174	5647055
9	353739	3	5	85	1712	1669	1284	5852022	5647056	6352937
10	1014032	2	5	50	1797	1438	0	6870719	6352938	7058819
11	761253	3	5	65	1583	1515	1840	7635207	7058820	7764701
12	503676	3	5	65	1250	1335	1875	8143821	7764702	8470583
13	547013	1	5	70	1019	0	0	8695294	8470584	9176465
14	879023	1	5	95	1165	0	0	9575336	9176466	9882347
15	517728	2	5	70	1780	1344	0	10094229	9882348	10588229
16	540448	3	5	100	1122	1181	1430	10637801	10588230	11294111
17	756510	2	5	80	1943	1216	0	11398044	11294112	11999993

Total number of pulses in waveform = 33

Waveform Num = 15
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)
	432974									
1		2	12	70	1352	1968	0	432974	0	857142
	524726									
2		1	12	90	1480	0	0	961020	857143	1714285
	921452									
3		2	12	85	1994	1267	0	1883952	1714286	2571428
	1481879									
4		2	12	50	1412	1977	0	3369092	2571429	3428571
	109472									
5		2	12	80	1224	1815	0	3481953	3428572	4285714
	1013388									
6		3	12	50	1694	1575	1849	4498380	4285715	5142857
	663133									
7		1	12	50	1995	0	0	5166631	5142858	6000000
	927891									
8		3	12	80	1609	1806	1865	6096517	6000001	6857143
	1464069									
9		3	12	50	1276	1626	1900	7565866	6857144	7714286
	210993									
10		1	12	55	1045	0	0	7781661	7714287	8571429
	1522190									
11		1	12	85	1190	0	0	9304896	8571430	9428572
	401716									
12		2	12	55	1336	1635	0	9707802	9428573	10285715
	751810									
13		1	12	100	1883	0	0	10462583	10285716	11142858
	884303									
14		3	12	55	1661	1618	1233	11348769	11142859	12000001

Total number of pulses in waveform = 27

Waveform Num = 16
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)
	334014									
1		3	12	70	1686	1378	1259	334014	0	631578
	740156									
2		2	12	90	1772	1678	0	1078493	631579	1263157
	681444									
3		3	12	65	1292	1490	1079	1763387	1263158	1894736
	493982									
4		2	12	90	1960	1309	0	2261230	1894737	2526315
	446080									
5		2	12	95	1823	1729	0	2710579	2526316	3157894
	784119									
6		1	12	65	1875	0	0	3498250	3157895	3789473
	490371									
7		1	12	70	1019	0	0	3990496	3789474	4421052
	786352									
8		1	12	95	1165	0	0	4777867	4421053	5052631
	463079									
9		2	12	70	1780	1344	0	5242111	5052632	5684210
	483301									
10		3	12	100	1122	1181	1430	5728536	5684211	6315789
	676464									
11		2	12	80	1943	1216	0	6408733	6315790	6947368
	757011									
12		2	12	75	1361	1395	0	7168903	6947369	7578947
	483426									
13		3	12	75	1173	1764	1480	7655085	7578948	8210526
	675871									
14		2	12	85	1994	1267	0	8335373	8210527	8842105
	1090390									
15		2	12	50	1412	1977	0	9429024	8842106	9473684
	80555									
16		2	12	80	1224	1815	0	9512968	9473685	10105263
	745621									
17		3	12	50	1694	1575	1849	10261628	10105264	10736842
	487599									
18		1	12	50	1995	0	0	10754345	10736843	11368421
	683041									
19		3	12	80	1609	1806	1865	11439381	11368422	12000000

Total number of pulses in waveform = 40

Waveform Num = 17
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	585361	1	5	80	1900	0	0	585361	0	705881
2	174091	1	5	55	1045	0	0	761352	705882	1411763
3	1253218	1	5	85	1190	0	0	2015615	1411764	2117645
4	330622	2	5	55	1336	1635	0	2347427	2117646	2823527
5	618717	1	5	100	1883	0	0	2969115	2823528	3529409
6	727793	3	5	55	1661	1618	1233	3698791	3529410	4235291
7	796780	3	5	75	1746	1387	1686	4500083	4235292	4941173
8	991917	1	5	75	1464	0	0	5496819	4941174	5647055
9	353739	3	5	85	1712	1669	1284	5852022	5647056	6352937
10	1014032	2	5	50	1797	1438	0	6870719	6352938	7058819
11	761253	3	5	65	1583	1515	1840	7635207	7058820	7764701
12	503676	3	5	65	1250	1335	1875	8143821	7764702	8470583
13	547013	1	5	70	1019	0	0	8695294	8470584	9176465
14	879023	1	5	95	1165	0	0	9575336	9176466	9882347
15	517728	2	5	70	1780	1344	0	10094229	9882348	10588229
16	540448	3	5	100	1122	1181	1430	10637801	10588230	11294111
17	756510	2	5	80	1943	1216	0	11398044	11294112	11999993

Total number of pulses in waveform = 33

Waveform Num = 18
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)
	432974									
1		2	12	70	1352	1968	0	432974	0	857142
	524726									
2		1	12	90	1480	0	0	961020	857143	1714285
	921452									
3		2	12	85	1994	1267	0	1883952	1714286	2571428
	1481879									
4		2	12	50	1412	1977	0	3369092	2571429	3428571
	109472									
5		2	12	80	1224	1815	0	3481953	3428572	4285714
	1013388									
6		3	12	50	1694	1575	1849	4498380	4285715	5142857
	663133									
7		1	12	50	1995	0	0	5166631	5142858	6000000
	927891									
8		3	12	80	1609	1806	1865	6096517	6000001	6857143
	1464069									
9		3	12	50	1276	1626	1900	7565866	6857144	7714286
	210993									
10		1	12	55	1045	0	0	7781661	7714287	8571429
	1522190									
11		1	12	85	1190	0	0	9304896	8571430	9428572
	401716									
12		2	12	55	1336	1635	0	9707802	9428573	10285715
	751810									
13		1	12	100	1883	0	0	10462583	10285716	11142858
	884303									
14		3	12	55	1661	1618	1233	11348769	11142859	12000001

Total number of pulses in waveform = 27

Waveform Num = 19
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	334014	3	12	70	1686	1378	1259	334014	0	631578
2	740156	2	12	90	1772	1678	0	1078493	631579	1263157
3	681444	3	12	65	1292	1490	1079	1763387	1263158	1894736
4	493982	2	12	90	1960	1309	0	2261230	1894737	2526315
5	446080	2	12	95	1823	1729	0	2710579	2526316	3157894
6	784119	1	12	65	1875	0	0	3498250	3157895	3789473
7	490371	1	12	70	1019	0	0	3990496	3789474	4421052
8	786352	1	12	95	1165	0	0	4777867	4421053	5052631
9	463079	2	12	70	1780	1344	0	5242111	5052632	5684210
10	483301	3	12	100	1122	1181	1430	5728536	5684211	6315789
11	676464	2	12	80	1943	1216	0	6408733	6315790	6947368
12	757011	2	12	75	1361	1395	0	7168903	6947369	7578947
13	483426	3	12	75	1173	1764	1480	7655085	7578948	8210526
14	675871	2	12	85	1994	1267	0	8335373	8210527	8842105
15	993701	2	12	95	1258	1823	0	9332335	8842106	9473684
16	709391	2	12	70	1069	1660	0	10044807	9473685	10105263
17	494303	2	12	95	1540	1421	0	10541839	10105264	10736842
18	720945	1	12	100	1934	0	0	11265745	10736843	11368421
19	546371	3	12	95	1446	1454	1652	11814050	11368422	12000000

Total number of pulses in waveform = 39

Waveform Num = 20
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	1011	3	14	55	1472	1746	1677	1011	0	599999
2	615681	3	14	95	1925	1882	1497	621587	600000	1199999
3	676035	3	14	65	1009	1181	1481	1302926	1200000	1799999
4	524812	1	14	90	1728	0	0	1831409	1800000	2399999
5	614088	2	14	100	1506	1464	0	2447225	2400000	2999999
6	904090	1	14	90	1343	0	0	3354285	3000000	3599999
7	306944	1	14	75	1223	0	0	3662572	3600000	4199999
8	848662	2	14	65	1635	1617	0	4512457	4200000	4799999
9	484770	2	14	75	1130	1138	0	5000479	4800000	5399999
10	489707	3	14	85	1283	1583	1806	5492454	5400000	5999999
11	845588	2	14	65	1685	1668	0	6342714	6000000	6599999
12	685024	1	14	55	1180	0	0	7031091	6600000	7199999
13	265920	2	14	100	1224	1866	0	7298191	7200000	7799999
14	647797	3	14	90	1010	1412	1267	7949078	7800000	8399999
15	907411	2	14	60	1147	1763	0	8860178	8400000	8999999
16	397901	3	14	50	1275	1917	1215	9260989	9000000	9599999
17	457968	3	14	50	1994	1318	1301	9723364	9600000	10199999
18	683003	1	14	60	1814	0	0	10410980	10200000	10799999
19	966184	1	14	80	1326	0	0	11378978	10800000	11399999
20	87049	1	14	75	1839	0	0	11467353	11400000	11999999

Total number of pulses in waveform = 40

Waveform Num = 21
Num of Bursts = 8
Burst Interval (us) = 1500000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)
	603233									
1		3	10	60	1823	1780	1395	603233	0	1499999
	1714221									
2		1	10	85	1909	0	0	2322452	1500000	2999999
	2097985									
3		3	10	75	1421	1695	1095	4422346	3000000	4499999
	752702									
4		3	10	95	1874	1831	1446	5179259	4500000	5999999
	2160741									
5		2	10	85	1959	1600	0	7345151	6000000	7499999
	1165908									
6		1	10	75	1746	0	0	8514618	7500000	8999999
	1868339									
7		1	10	100	1891	0	0	10384703	9000000	10499999
	128066									
8		3	10	75	1036	1703	1292	10514660	10500000	11999999

Total number of pulses in waveform = 17

Waveform Num = 22
Num of Bursts = 10
Burst Interval (us) = 1200000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)
1	872293	1	12	50	1796	0	0	872293	0	1199999
2	932488	1	12	80	1942	0	0	1806577	1200000	2399999
3	1002705	2	12	50	1087	1754	0	2811224	2400000	3599999
4	911047	2	12	60	1532	1223	0	3725112	3600000	4799999
5	1698750	2	12	65	1635	1617	0	5426617	4800000	5999999
6	971850	2	12	75	1130	1138	0	6401719	6000000	7199999
7	981647	3	12	85	1283	1583	1806	7385634	7200000	8399999
8	1697048	2	12	65	1685	1668	0	9087354	8400000	9599999
9	1372324	1	12	55	1180	0	0	10463031	9600000	10799999
10	532680	2	12	100	1224	1866	0	10996891	10800000	11999999

Total number of pulses in waveform = 18

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

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)
1	157578	1	16	70	1267	0	0	157578	0	631578
2	957249	2	16	60	1147	1763	0	1116094	631579	1263157
3	418981	3	16	50	1275	1917	1215	1537985	1263158	1894736
4	482252	3	16	50	1994	1318	1301	2024644	1894737	2526315
5	719177	1	16	60	1814	0	0	2748434	2526316	3157894
6	1017165	1	16	80	1326	0	0	3767413	3157895	3789473
7	91643	1	16	75	1839	0	0	3860382	3789474	4421052
8	721293	1	16	70	1883	0	0	4583514	4421053	5052631
9	881462	3	16	90	1395	1403	1069	5466859	5052632	5684210
10	648777	3	16	80	1848	1540	1421	6119503	5684211	6315789
11	720380	1	16	100	1934	0	0	6844692	6315790	6947368
12	546371	3	16	95	1446	1454	1652	7392997	6947369	7578947
13	648767	3	16	80	1899	1121	1472	8046316	7578948	8210526
14	711405	3	16	50	1985	1891	1925	8762213	8210527	8842105
15	80252	2	16	50	1703	1292	0	8848266	8842106	9473684
16	656213	1	16	75	1172	0	0	9507474	9473685	10105263
17	914078	3	16	90	1052	1566	1942	10422724	10105264	10736842
18	525530	2	16	50	1087	1754	0	10952814	10736843	11368421
19	478479	2	16	60	1532	1223	0	11434134	11368422	12000000

Total number of pulses in waveform = 39

Waveform Num = 24
Num of Bursts = 12
Burst Interval (us) = 1000000

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	512815	2	9	80	1524	1557	0	512815	0	999999
2	1408369	1	9	55	1335	0	0	1924265	1000000	1999999
3	229173	2	9	65	1583	1806	0	2154773	2000000	2999999
4	1414312	2	9	65	1685	1668	0	3572474	3000000	3999999
5	1143224	1	9	55	1180	0	0	4719051	4000000	4999999
6	443760	2	9	100	1224	1866	0	5163991	5000000	5999999
7	1081997	3	9	90	1010	1412	1267	6249078	6000000	6999999
8	1515691	2	9	60	1147	1763	0	7768458	7000000	7999999
9	664901	3	9	50	1275	1917	1215	8436269	8000000	8999999
10	765568	3	9	50	1994	1318	1301	9206244	9000000	9999999
11	1141203	1	9	60	1814	0	0	10352060	10000000	10999999
12	1611944	1	9	80	1326	0	0	11965818	11000000	11999999

Total number of pulses in waveform = 23

Waveform Num = 25
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	280346	3	12	55	1044	1369	1883	280346	0	1090908
2	1523606	3	12	90	1395	1403	1069	1808248	1090909	2181817
3	1124000	3	12	80	1848	1540	1421	2936115	2181818	3272726
4	1246542	1	12	100	1934	0	0	4187466	3272727	4363635
5	946310	3	12	95	1446	1454	1652	5135710	4363636	5454544
6	1123990	3	12	80	1899	1121	1472	6264252	5454545	6545453
7	1233342	3	12	50	1985	1891	1925	7502086	6545454	7636362
8	139137	2	12	50	1703	1292	0	7647024	7636363	8727271
9	1135662	1	12	75	1172	0	0	8785681	8727272	9818180
10	1581347	3	12	90	1052	1566	1942	10368200	9818181	10909089
11	910081	2	12	50	1087	1754	0	11282841	10909090	11999998

Total number of pulses in waveform = 27

Waveform Num = 26
Num of Bursts = 15
Burst Interval (us) = 800000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)
1	247230	2	8	60	1104	1378	0	247230	0	799999
2	960223	2	8	80	1524	1557	0	1209935	800000	1599999
3	1126149	1	8	55	1335	0	0	2339165	1600000	2399999
4	183213	2	8	65	1583	1806	0	2523713	2400000	3199999
5	1130492	2	8	65	1685	1668	0	3657594	3200000	3999999
6	914124	1	8	55	1180	0	0	4575071	4000000	4799999
7	354840	2	8	100	1224	1866	0	4931091	4800000	5599999
8	864897	3	8	90	1010	1412	1267	5799078	5600000	6399999
9	1211551	2	8	60	1147	1763	0	7014318	6400000	7199999
10	531401	3	8	50	1275	1917	1215	7548629	7200000	7999999
11	611768	3	8	50	1994	1318	1301	8164804	8000000	8799999
12	912103	1	8	60	1814	0	0	9081520	8800000	9599999
13	1289064	1	8	80	1326	0	0	10372398	9600000	10399999
14	116149	1	8	75	1839	0	0	10489873	10400000	11199999
15	914202	1	8	70	1883	0	0	11405914	11200000	11999999

Total number of pulses in waveform = 27

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

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)
1	602989	2	17	70	1069	1660	0	602989	0	666666
2	521893	2	17	95	1540	1421	0	1127611	666667	1333333
3	761138	1	17	100	1934	0	0	1891710	1333334	2000000
4	576922	3	17	95	1446	1454	1652	2470566	2000001	2666667
5	685069	3	17	80	1899	1121	1472	3160187	2666668	3333334
6	751276	3	17	50	1985	1891	1925	3915955	3333335	4000001
7	84749	2	17	50	1703	1292	0	4006505	4000002	4666668
8	692839	1	17	75	1172	0	0	4702339	4666669	5333335
9	965050	3	17	90	1052	1566	1942	5668561	5333336	6000002
10	554906	2	17	50	1087	1754	0	6228027	6000003	6666669
11	505180	2	17	60	1532	1223	0	6736048	6666670	7333336
12	941898	2	17	65	1635	1617	0	7680701	7333337	8000003
13	538890	2	17	75	1130	1138	0	8222843	8000004	8666670
14	544367	3	17	85	1283	1583	1806	8769478	8666671	9333337
15	940196	2	17	65	1685	1668	0	9714346	9333338	10000004
16	761390	1	17	55	1180	0	0	10479089	10000005	10666671
17	295561	2	17	100	1224	1866	0	10775830	10666672	11333338
18	720163	3	17	90	1010	1412	1267	11499083	11333339	12000005

Total number of pulses in waveform = 39

Waveform Num = 28
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)
	724436									
1		1	8	90	1771	0	0	724436	0	749999
	184855									
2		1	8	65	1917	0	0	911062	750000	1499999
	824624									
3		2	8	90	1061	1994	0	1737603	1500000	2249999
	657596									
4		1	8	60	1240	0	0	2398254	2250000	2999999
	1322008									
5		3	8	65	1019	1609	1326	3721502	3000000	3749999
	108787									
6		1	8	75	1839	0	0	3834243	3750000	4499999
	856932									
7		1	8	70	1883	0	0	4693014	4500000	5249999
	1047476									
8		3	8	90	1395	1403	1069	5742373	5250000	5999999
	771295									
9		3	8	80	1848	1540	1421	6517535	6000000	6749999
	856032									
10		1	8	100	1934	0	0	7378376	6750000	7499999
	649480									
11		3	8	95	1446	1454	1652	8029790	7500000	8249999
	771285									
12		3	8	80	1899	1121	1472	8805627	8250000	8999999
	845967									
13		3	8	50	1985	1891	1925	9656086	9000000	9749999
	95433									
14		2	8	50	1703	1292	0	9757320	9750000	10499999
	779822									
15		1	8	75	1172	0	0	10540137	10500000	11249999
	1086107									
16		3	8	90	1052	1566	1942	11627416	11250000	11999999

Total number of pulses in waveform = 32

Waveform Num = 29
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)
	506463									
1		1	6	90	1343	0	0	506463	0	857142
	438780									
2		1	6	75	1223	0	0	946586	857143	1714285
	1213574									
3		2	6	65	1635	1617	0	2161383	1714286	2571428
	693519									
4		2	6	75	1130	1138	0	2858154	2571429	3428571
	700538									
5		3	6	85	1283	1583	1806	3560960	3428572	4285714
	1210500									
6		2	6	65	1685	1668	0	4776132	4285715	5142857
	979581									
7		1	6	55	1180	0	0	5759066	5142858	6000000
	380246									
8		2	6	100	1224	1866	0	6140492	6000001	6857143
	926925									
9		3	6	90	1010	1412	1267	7070507	6857144	7714286
	1298449									
10		2	6	60	1147	1763	0	8372645	7714287	8571429
	569544									
11		3	6	50	1275	1917	1215	8945099	8571430	9428572
	655711									
12		3	6	50	1994	1318	1301	9605217	9428573	10285715
	977560									
13		1	6	60	1814	0	0	10587390	10285716	11142858
	1381316									
14		1	6	80	1326	0	0	11970520	11142859	12000001

Total number of pulses in waveform = 27

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)
	280346									
1		3	12	55	1044	1369	1883	280346	0	1090908
	1523606									
2		3	12	90	1395	1403	1069	1808248	1090909	2181817
	1124000									
3		3	12	80	1848	1540	1421	2936115	2181818	3272726
	1246542									
4		1	12	100	1934	0	0	4187466	3272727	4363635
	946310									
5		3	12	95	1446	1454	1652	5135710	4363636	5454544
	1123990									
6		3	12	80	1899	1121	1472	6264252	5454545	6545453
	1233342									
7		3	12	50	1985	1891	1925	7502086	6545454	7636362
	139137									
8		2	12	50	1703	1292	0	7647024	7636363	8727271
	1135662									
9		1	12	75	1172	0	0	8785681	8727272	9818180
	1581347									
10		3	12	90	1052	1566	1942	10368200	9818181	10909089
	910081									
11		2	12	50	1087	1754	0	11282841	10909090	11999998

Total number of pulses in waveform = 27