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

CERTIFICATION TEST REPORT

FOR

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

MODEL NUMBER: XV2-21X

FCC ID: Z8H89FT0078
ISED ID: 109W-0078

REPORT NUMBER: 14526301-E2V2

ISSUE DATE: 2023-02-24

Prepared for
CAMBIUM NETWORKS, INC.
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CERT #0751.05

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	23-01-27	Initial Issue	
V2	23-02-24	Model # updated XV2-21X	Henry Lau

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

MODEL: XV2-21X

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

DATE TESTED: OCTOBER 11 to 13, 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:

Edgard Rincand
Operations Leader
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Prepared By:

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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 #FR261015AB.

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 14472983-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

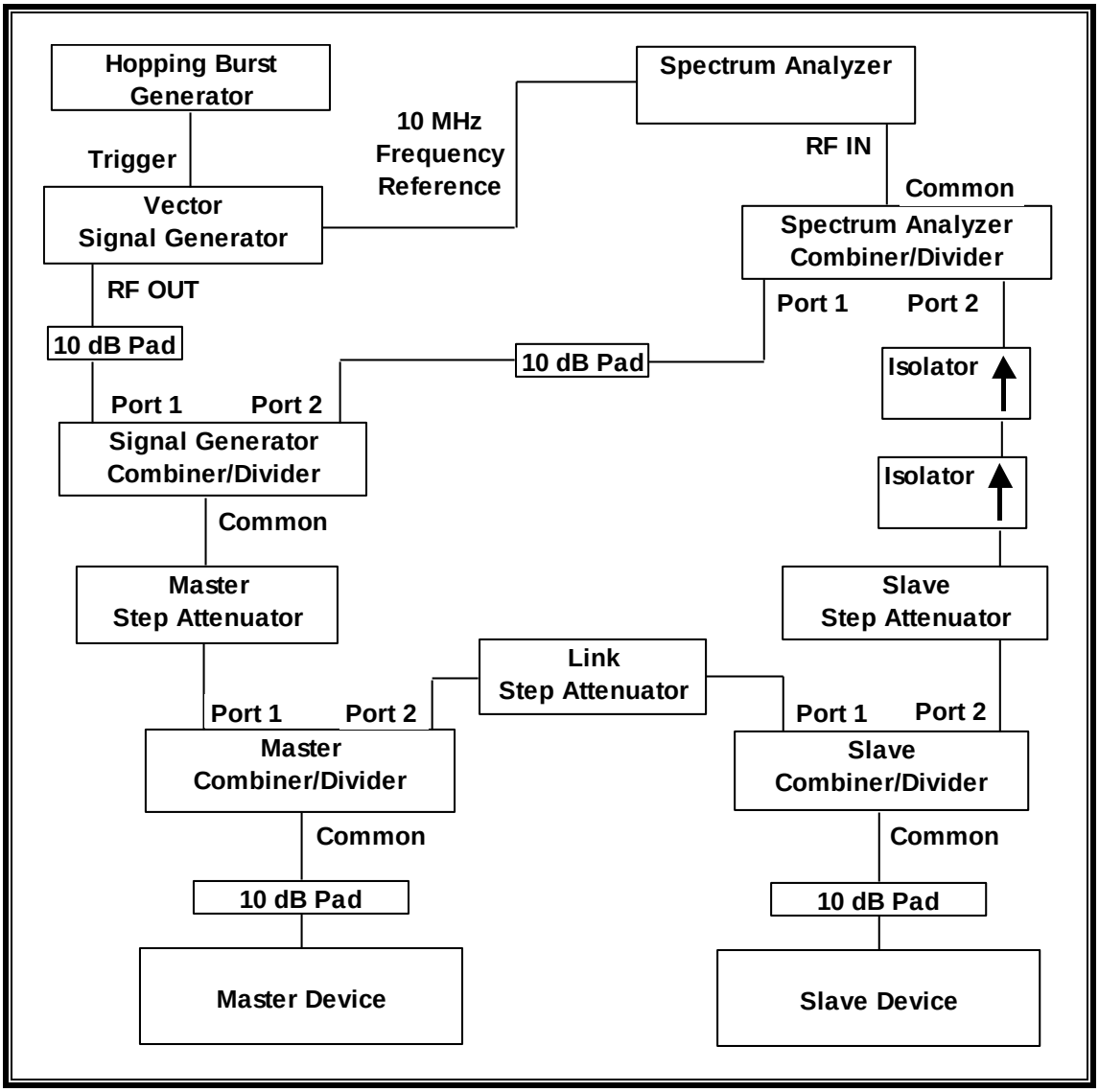
Radar Waveform Type	Pulse Width (µsec)	Chirp Width (MHz)	PRI (µsec)	Pulses per Burst	Number of Bursts	Minimum Percentage of Successful Detection	Minimum Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

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. 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

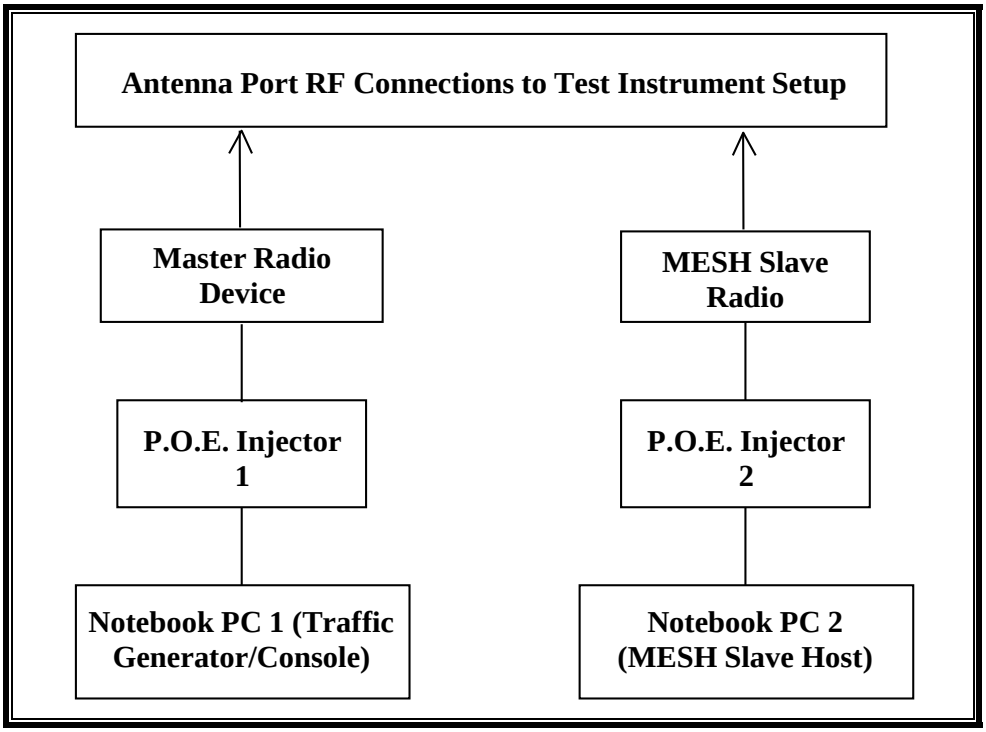
The test room temperature and humidity shall be maintained within normal temperature of 15~35 °C and normal humidity 20~75% (relative humidity).

ENVIRONMENT CONDITION

Parameter	Value
Temperature	21.9, 22.2 and 24.5 °C
Humidity	59, 57 and 49 %

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
XV2-21X WiFi 6 Indoor Dual Band 802.11ax GbE 2x2 Access Point (MESH Slave Radio)	Cambium Networks	XV2-21X	W6YF003LV9G6	Z8H89FT0078
P.O.E. Injector 2 (MESH Slave)	Cambium Networks	NET-P60-56IN	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
XV2-21X WiFi 6 Indoor Dual Band 802.11ax GbE 2x2 Access Point (Master Radio Device)	Cambium Networks	XV2-21X	W6YE0011RQL0	Z8H89FT0078
P.O.E. Injector 2 (MESH Slave)	Cambium Networks	NET-P60-56IN	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 highest gain antenna assembly utilized with the EUT has a gain of 5 dBi in the 5250-5350 MHz band and 5 dBi in the 5470-5725 MHz band. The manufacturer has declared that the lowest gain antenna assembly utilized with the EUT has a gain of 5 dBi in the 5250-5350 MHz band and 5 dBi in the 5470-5725 MHz band.

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

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

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

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

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

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

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

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

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

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

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

7.2. LOWER BAND MASTER RESULTS FOR 160 MHz BANDWIDTH

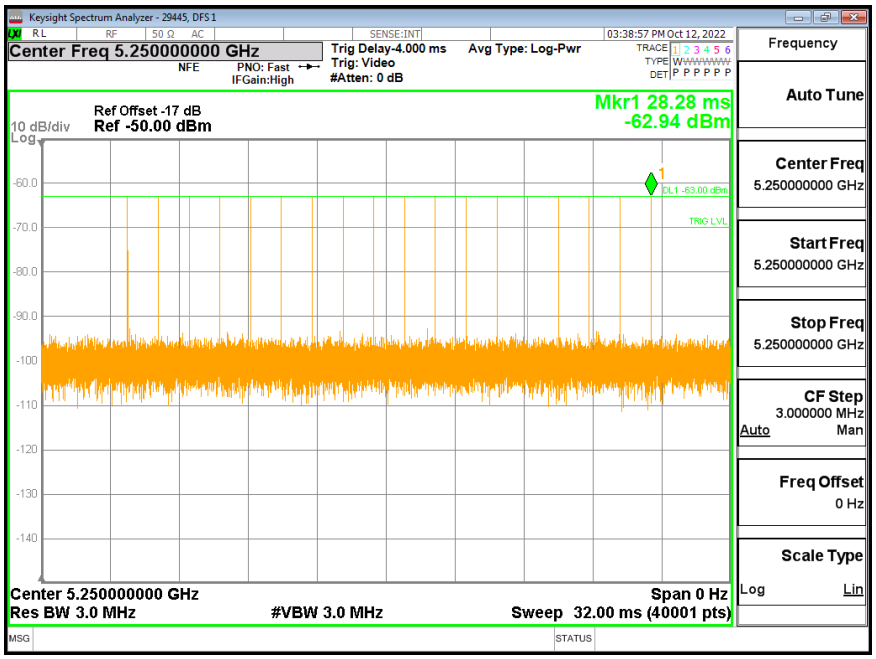
7.2.1. TEST CHANNEL

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

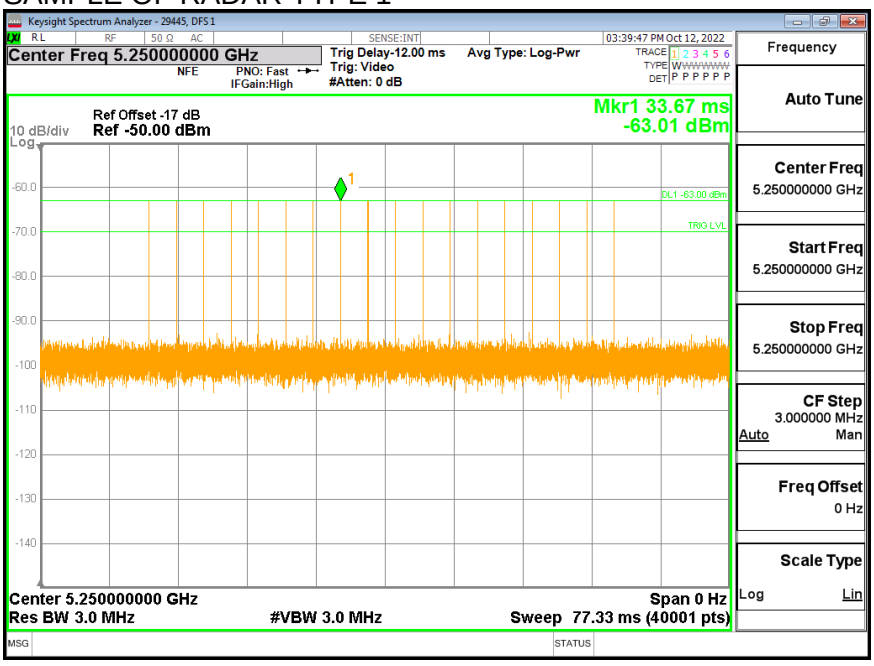
7.2.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

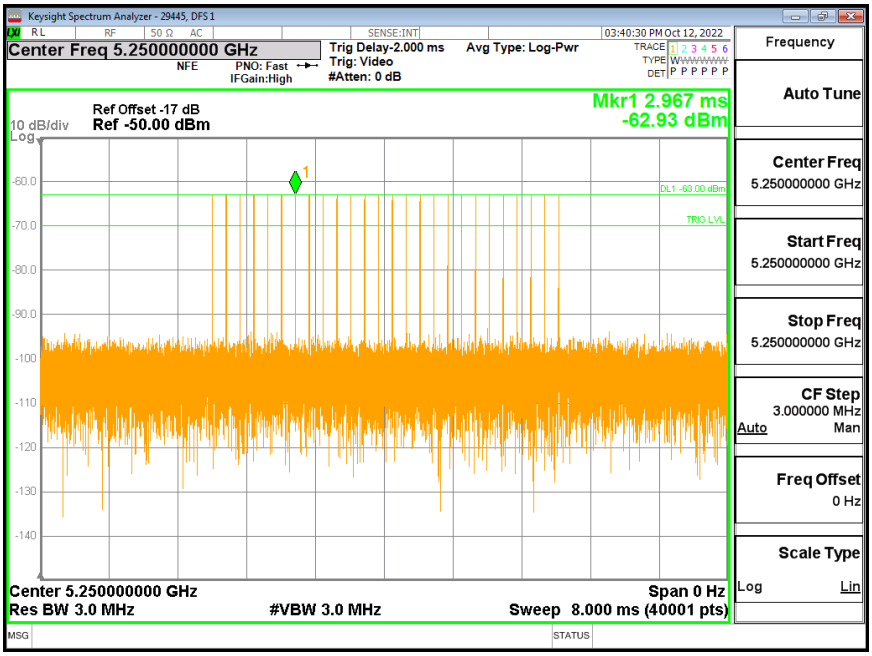
SHORT PULSE RADAR TYPE 0



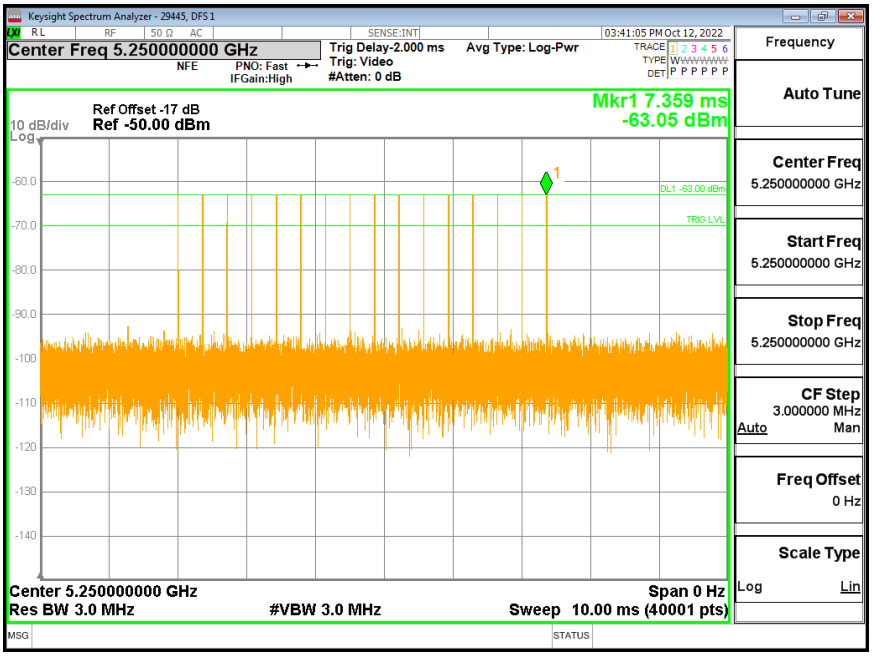
SAMPLE OF RADAR TYPE 1



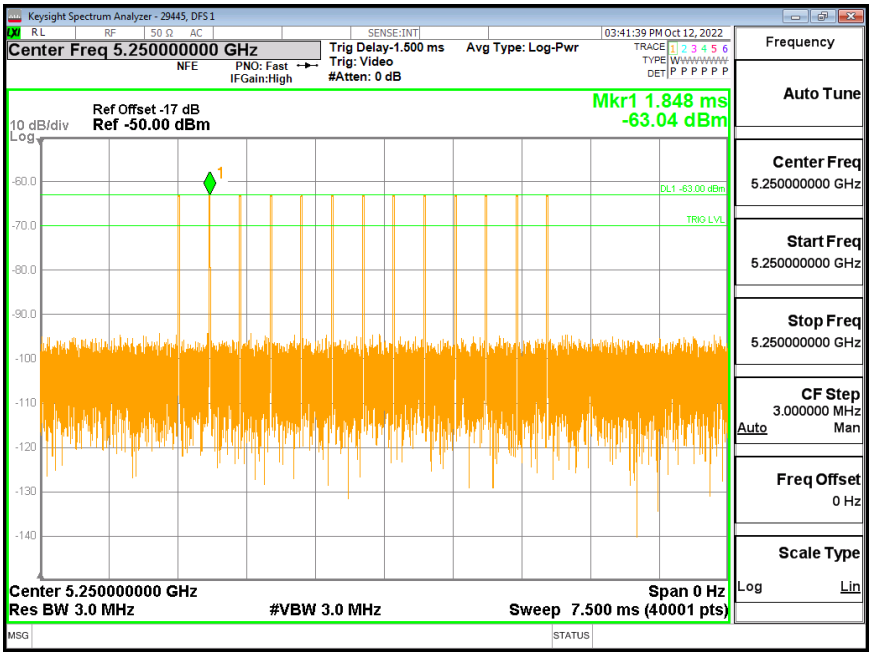
SAMPLE OF RADAR TYPE 2



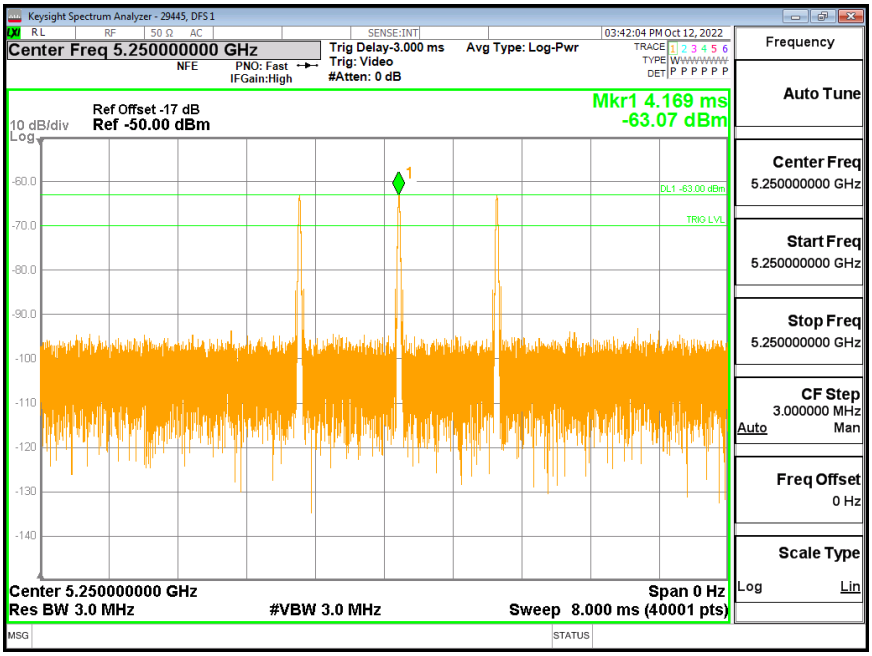
SAMPLE OF RADAR TYPE 3



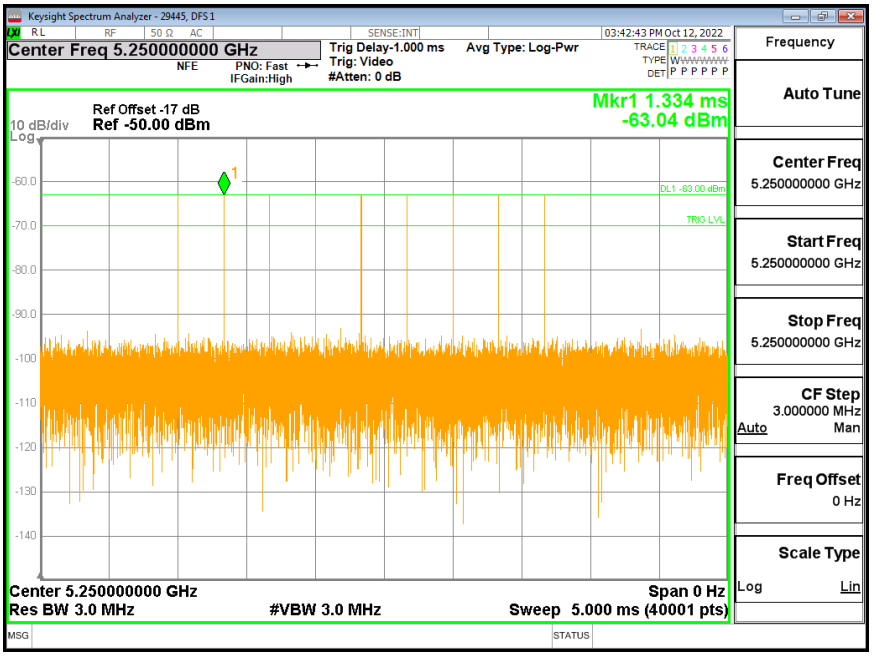
SAMPLE OF RADAR TYPE 4



SAMPLE OF SINGLE BURST OF RADAR TYPE 5

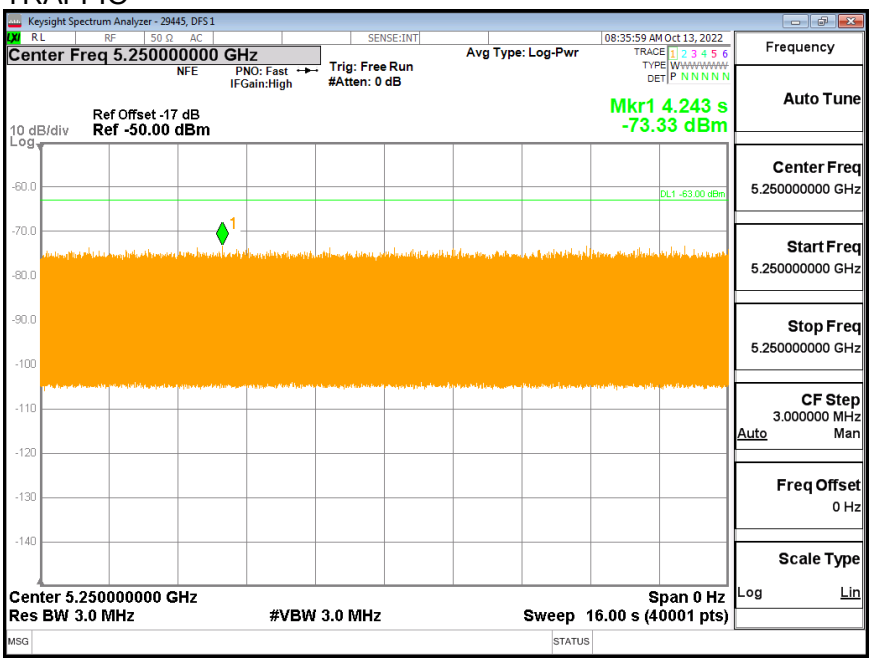


SINGLE BURST OF RADAR TYPE 6

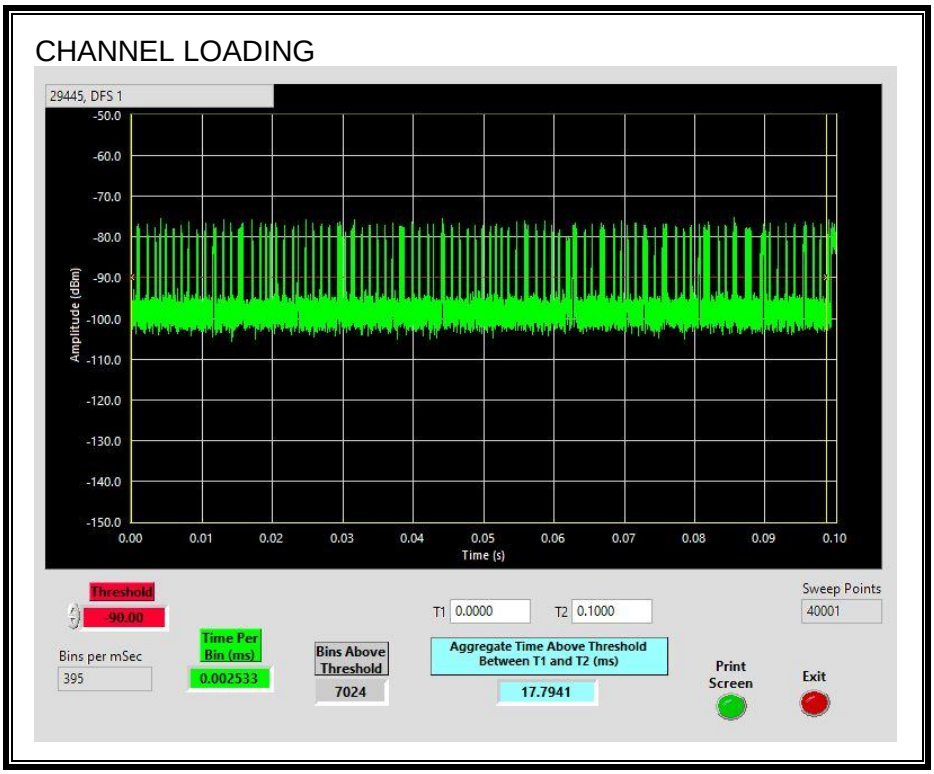


TRAFFIC

TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 17.79%

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)
30.09	226.3	196.2	136.2

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)
30.26	169.6	139.3	3.1

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)
30.55	223.4	192.9	56.6

QUALITATIVE RESULTS

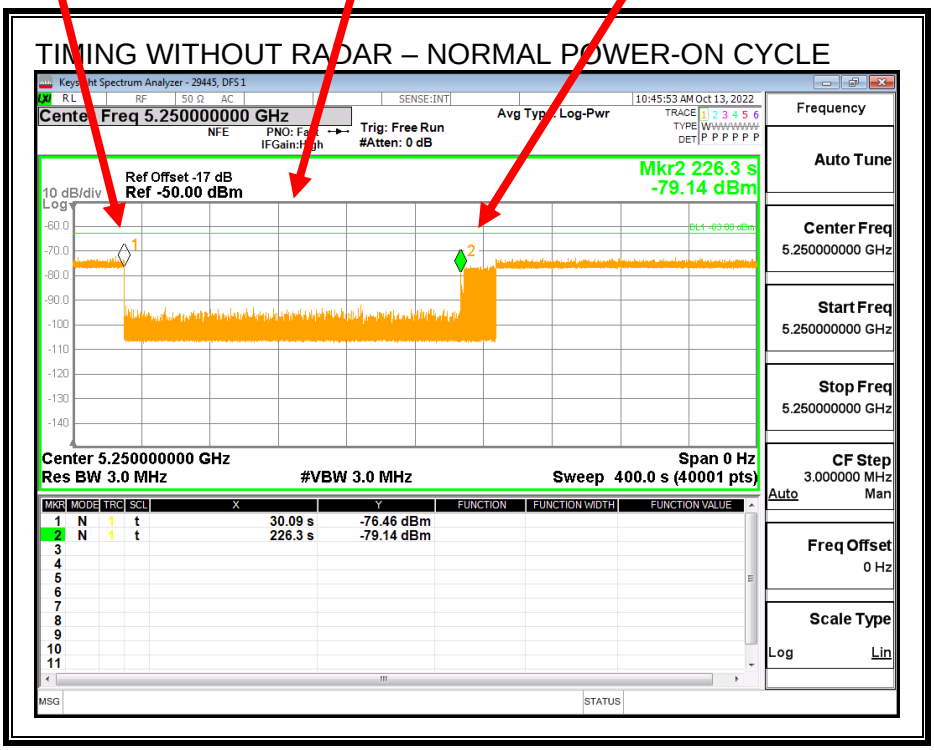
Timing of Radar Burst	Display on Control Computer	Spectrum Analyzer Display
No Radar Triggered	EUT marks Channel as active	Transmissions begin on channel after completion of the initial power-up cycle and the CAC
Within 0 to 6 second window	EUT indicates radar detected	No transmissions on channel
Within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



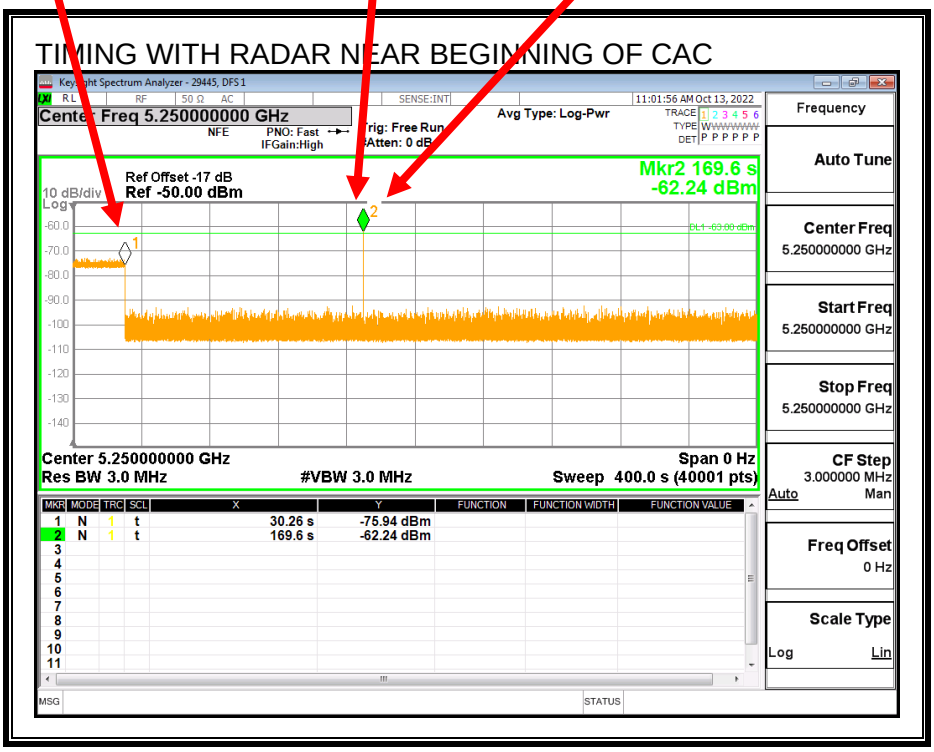
Transmissions begin on channel after completion of the initial power-up cycle and the CAC.

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



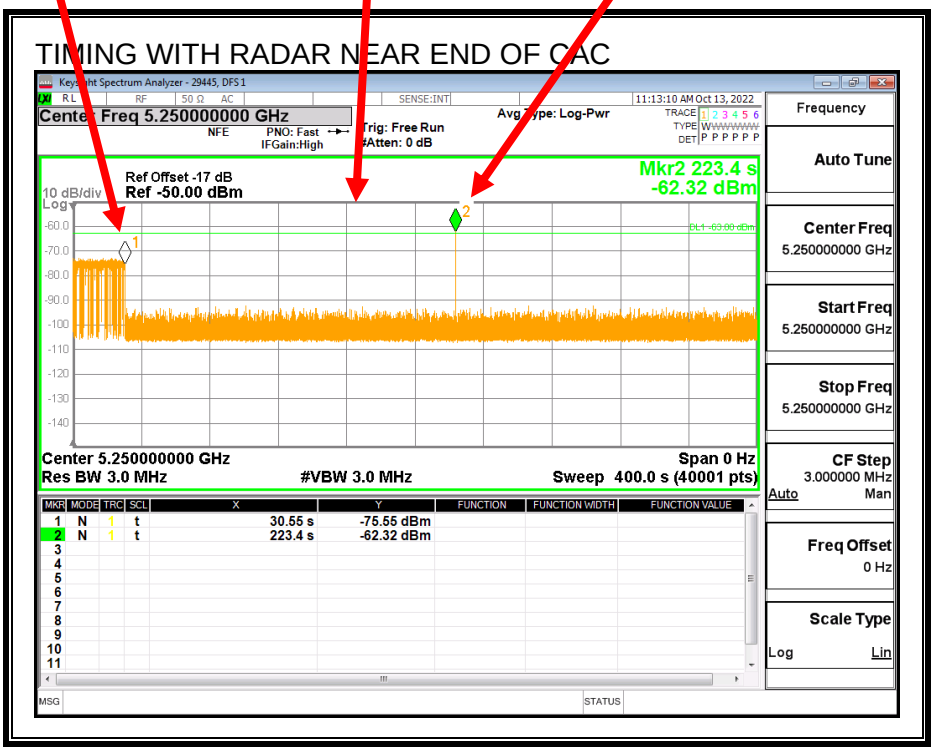
No EUT transmissions were observed after the radar signal.

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)

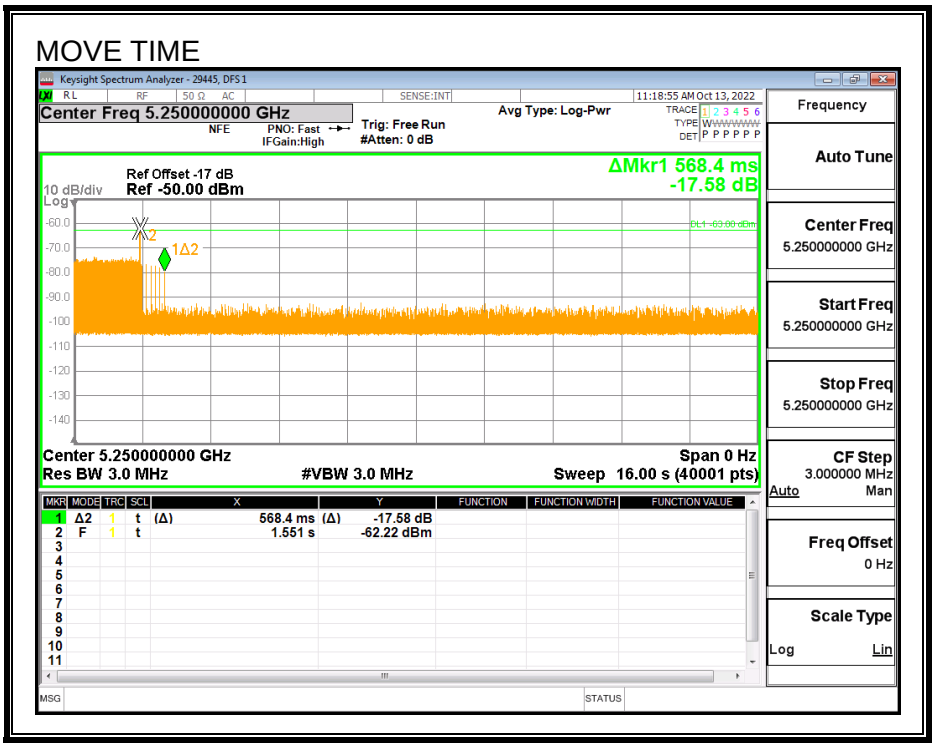
The observation period over which the aggregate time is calculated begins at (Reference Marker + 200 msec) and ends no earlier than (Reference Marker + 10 sec).

RESULTS

Channel Move Time (sec)	Limit (sec)
0.5684	10

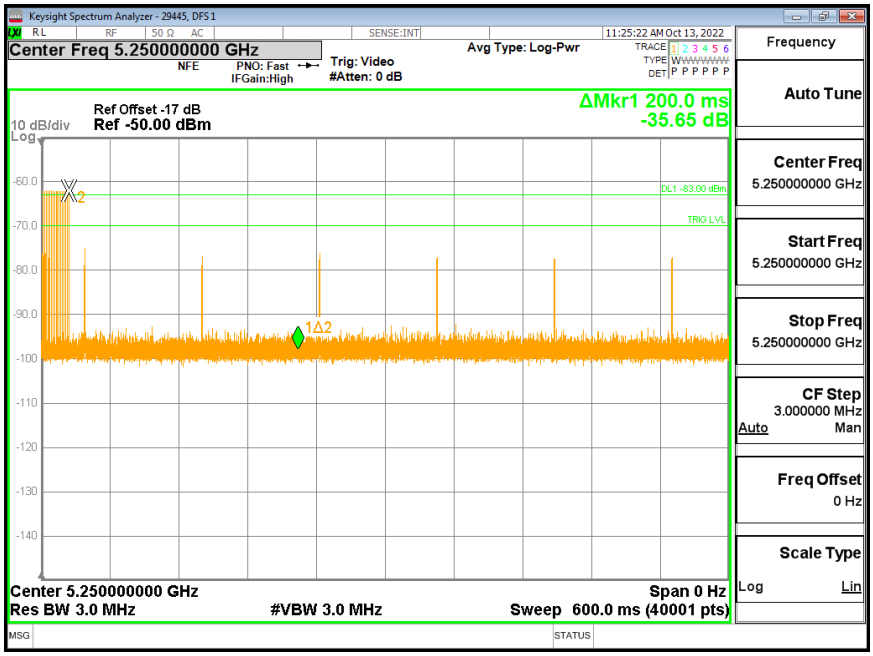
Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
2.8	60

MOVE TIME



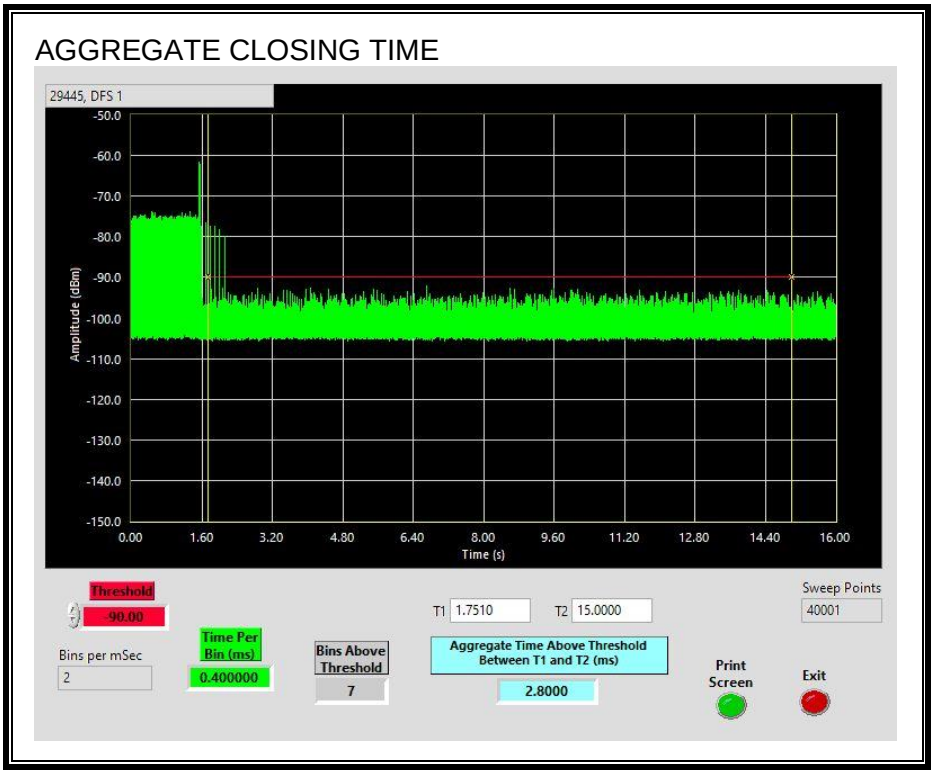
CHANNEL CLOSING TIME

CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

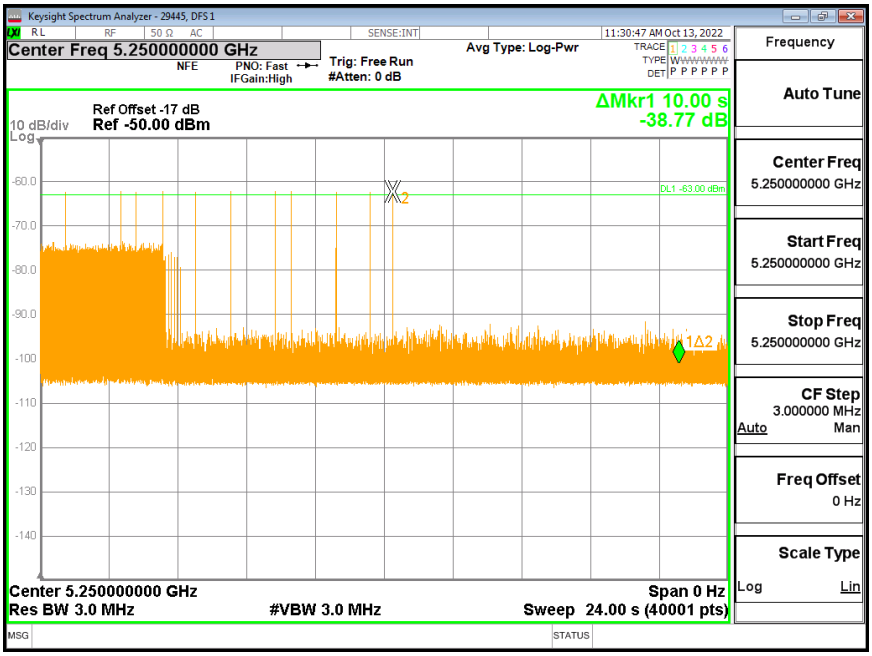
Only intermittent transmissions are observed during the aggregate monitoring period.



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

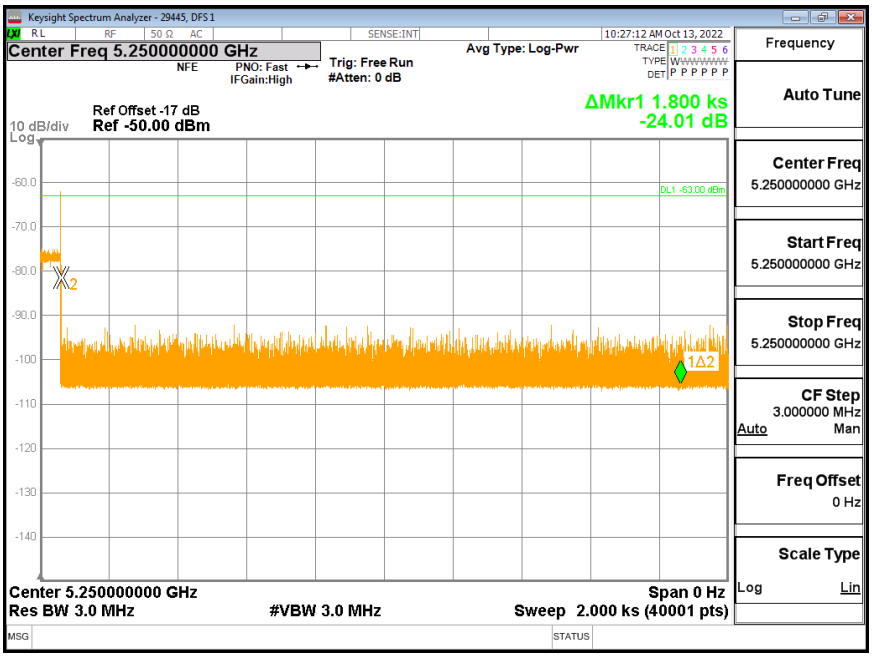


7.2.6. NON-OCCUPANCY PERIOD

RESULTS

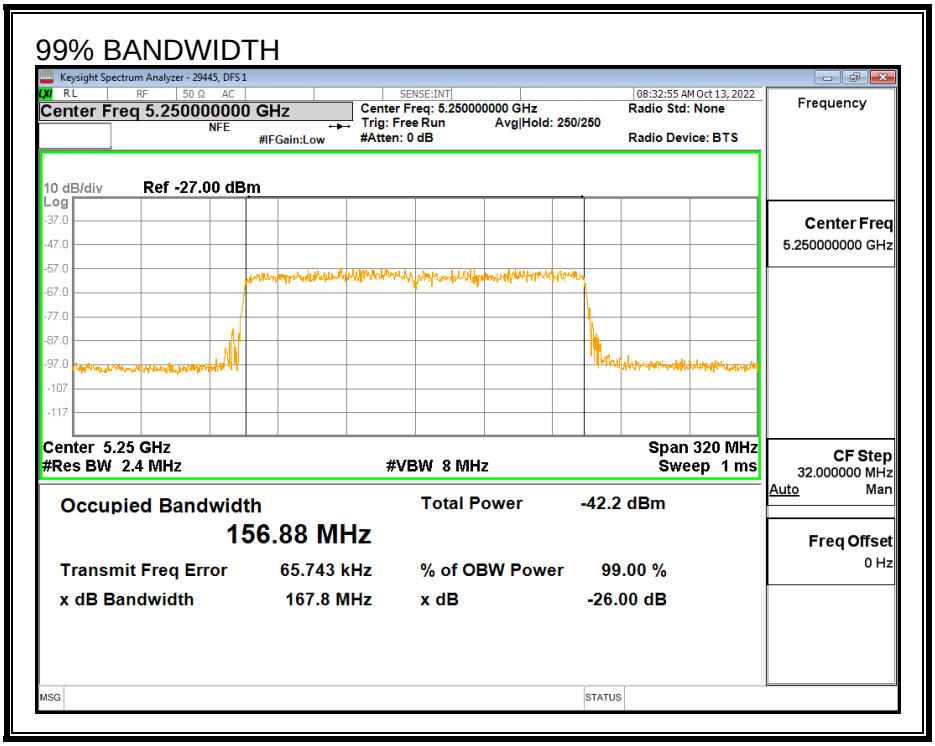
No EUT transmissions were observed on the test channel during the 30-minute observation time.

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	156.88	78.44	102.0	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	78.44	DFS 1	29445	v4.1
FCC Short Pulse Type 2	30	100.00	60	Pass	5250	5330	78.44	DFS 1	29445	v4.1
FCC Short Pulse Type 3	30	100.00	60	Pass	5250	5330	78.44	DFS 1	29445	v4.1
FCC Short Pulse Type 4	30	96.67	60	Pass	5250	5330	78.44	DFS 1	29445	v4.1
Aggregate		98.33	80	Pass						
FCC Long Pulse Type 5	30	100.00	80	Pass	5250	5330	78.44	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	5306	No
1002	1	558	95	A	5284	Yes
1003	1	838	63	A	5260	Yes
1004	1	538	99	A	5278	Yes
1005	1	778	68	A	5305	Yes
1006	1	898	59	A	5326	Yes
1007	1	878	61	A	5323	Yes
1008	1	578	92	A	5319	Yes
1009	1	518	102	A	5294	Yes
1010	1	798	67	A	5315	Yes
1011	1	698	76	A	5324	Yes
1012	1	858	62	A	5313	Yes
1013	1	658	81	A	5320	Yes
1014	1	918	58	A	5288	Yes
1015	1	598	89	A	5292	Yes
1016	1	987	54	B	5289	Yes
1017	1	748	71	B	5311	Yes
1018	1	2187	25	B	5274	Yes
1019	1	2078	26	B	5283	Yes
1020	1	2293	24	B	5275	Yes
1021	1	1119	48	B	5283	Yes
1022	1	2817	19	B	5277	Yes
1023	1	1772	30	B	5259	Yes
1024	1	2405	22	B	5289	Yes
1025	1	1490	36	B	5286	Yes
1026	1	2252	24	B	5316	Yes
1027	1	1466	37	B	5277	Yes
1028	1	1163	46	B	5257	Yes
1029	1	1861	29	B	5302	Yes
1030	1	2882	19	B	5321	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	5253	Yes
2002	1.3	153	27	5319	Yes
2003	3.7	219	29	5300	Yes
2004	1.7	215	23	5258	Yes
2005	2.3	205	29	5302	Yes
2006	4.6	167	24	5259	Yes
2007	1.4	161	23	5293	Yes
2008	3.9	170	29	5293	Yes
2009	3	167	29	5327	Yes
2010	1.6	181	28	5315	Yes
2011	1	226	24	5284	Yes
2012	4.1	162	28	5269	Yes
2013	3.7	173	25	5295	Yes
2014	4.9	195	28	5312	Yes
2015	2.8	210	26	5258	Yes
2016	2.2	197	29	5274	Yes
2017	4.4	217	28	5265	Yes
2018	4.1	208	25	5269	Yes
2019	2.4	194	27	5253	Yes
2020	4.5	190	28	5320	Yes
2021	1	179	27	5307	Yes
2022	3.3	222	29	5315	Yes
2023	4.2	216	28	5310	Yes
2024	2.6	225	27	5317	Yes
2025	1.7	223	23	5303	Yes
2026	2.5	155	29	5321	Yes
2027	3.8	200	29	5295	Yes
2028	2.8	217	25	5302	Yes
2029	2.4	228	29	5271	Yes
2030	3.6	169	26	5255	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	5279	Yes
3002	6	318	16	5284	Yes
3003	8.1	378	17	5309	Yes
3004	7.8	352	16	5269	Yes
3005	6.1	308	18	5320	Yes
3006	8.2	295	17	5296	Yes
3007	8.8	262	16	5314	Yes
3008	7	395	17	5275	Yes
3009	7.9	258	18	5260	Yes
3010	6.3	404	16	5309	Yes
3011	9.5	280	18	5309	Yes
3012	6.2	438	17	5264	Yes
3013	9.7	327	16	5274	Yes
3014	6.5	380	16	5278	Yes
3015	6.1	415	18	5330	Yes
3016	9.5	481	16	5255	Yes
3017	9.3	277	17	5302	Yes
3018	8.8	490	18	5272	Yes
3019	6.8	299	16	5304	Yes
3020	6.5	273	18	5326	Yes
3021	7	479	17	5309	Yes
3022	6.9	466	16	5308	Yes
3023	7.5	434	16	5303	Yes
3024	9.8	316	18	5264	Yes
3025	6.6	430	18	5253	Yes
3026	7.1	325	18	5304	Yes
3027	8.2	451	17	5271	Yes
3028	9	359	16	5257	Yes
3029	8.4	498	18	5325	Yes
3030	9.4	434	18	5324	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	5269	Yes
4002	15.9	402	16	5311	Yes
4003	15.5	449	12	5329	Yes
4004	14.3	410	14	5270	Yes
4005	19.1	470	15	5297	Yes
4006	18.4	445	13	5309	Yes
4007	19.4	400	12	5322	Yes
4008	19.2	269	13	5310	Yes
4009	11.6	488	15	5264	Yes
4010	16.6	488	14	5327	Yes
4011	18.6	350	13	5260	Yes
4012	19.8	496	15	5316	Yes
4013	13.1	372	12	5312	Yes
4014	14.8	279	12	5277	Yes
4015	13.4	301	14	5251	Yes
4016	15.6	355	14	5301	Yes
4017	14.7	256	12	5279	No
4018	13.1	456	14	5295	Yes
4019	12.6	370	15	5290	Yes
4020	11.4	331	13	5298	Yes
4021	16.2	391	14	5317	Yes
4022	11.3	499	12	5274	Yes
4023	16.6	320	16	5268	Yes
4024	12	441	12	5267	Yes
4025	17.8	408	16	5308	Yes
4026	13.7	290	12	5255	Yes
4027	15.7	271	12	5262	Yes
4028	16.9	417	16	5276	Yes
4029	19.3	292	16	5280	Yes
4030	12	333	15	5323	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	610	5250	14	Yes
2	1085	5251	13	Yes
3	1560	5252	16	Yes
4	2035	5253	21	Yes
5	2510	5254	13	Yes
6	2985	5255	20	Yes
7	3460	5256	18	Yes
8	3935	5257	11	Yes
9	4410	5258	20	Yes
10	4885	5259	16	Yes
11	5360	5260	14	Yes
12	5835	5261	10	Yes
13	6310	5262	14	Yes
14	6785	5263	20	Yes
15	7260	5264	24	Yes
16	7735	5265	15	Yes
17	8210	5266	16	Yes
18	8685	5267	17	Yes
19	9160	5268	16	Yes
20	9635	5269	14	Yes
21	10110	5270	18	Yes
22	10585	5271	17	Yes
23	11060	5272	20	Yes
24	11535	5273	21	Yes
25	12010	5274	19	Yes
26	12485	5275	25	Yes
27	12960	5276	11	Yes
28	13435	5277	18	Yes
29	13910	5278	16	Yes
30	14385	5279	21	Yes
31	14860	5280	16	Yes
32	15335	5281	17	Yes
33	15810	5282	22	Yes
34	16285	5283	17	Yes
35	16760	5284	15	Yes
36	17235	5285	19	Yes
37	17710	5286	17	Yes
38	18185	5287	16	Yes
39	18660	5288	16	Yes

TYPE 6 DETECTION PROBABILITY (CONTINUED)

40	19135	5289	24	Yes
41	19610	5290	16	Yes
42	20085	5291	21	Yes
43	20560	5292	16	Yes
44	21035	5293	16	Yes
45	21510	5294	18	Yes
46	21985	5295	16	Yes
47	22460	5296	16	Yes
48	22935	5297	13	Yes
49	23410	5298	18	Yes
50	23885	5299	20	Yes
51	24360	5300	25	Yes
52	24835	5301	18	Yes
53	25310	5302	21	Yes
54	25785	5303	20	Yes
55	26260	5304	15	Yes
56	26735	5305	19	Yes
57	27210	5306	11	Yes
58	27685	5307	15	Yes
59	28160	5308	10	Yes
60	28635	5309	17	Yes
61	29110	5310	21	Yes
62	29585	5311	22	Yes
63	30060	5312	17	Yes
64	30535	5313	17	Yes
65	31010	5314	17	Yes
66	31485	5315	19	Yes
67	31960	5316	17	Yes
68	32435	5317	16	Yes
69	32910	5318	16	Yes
70	33385	5319	14	Yes
71	33860	5320	23	Yes
72	34335	5321	17	Yes
73	34810	5322	21	Yes
74	35285	5323	13	Yes
75	35760	5324	20	Yes
76	36235	5325	17	Yes
77	36710	5326	15	Yes
78	37185	5327	12	Yes
79	37660	5328	20	Yes
80	38135	5329	22	Yes
81	38610	5330	14	Yes

7.3. UPPER BAND MASTER RESULTS FOR 160 MHz BANDWIDTH

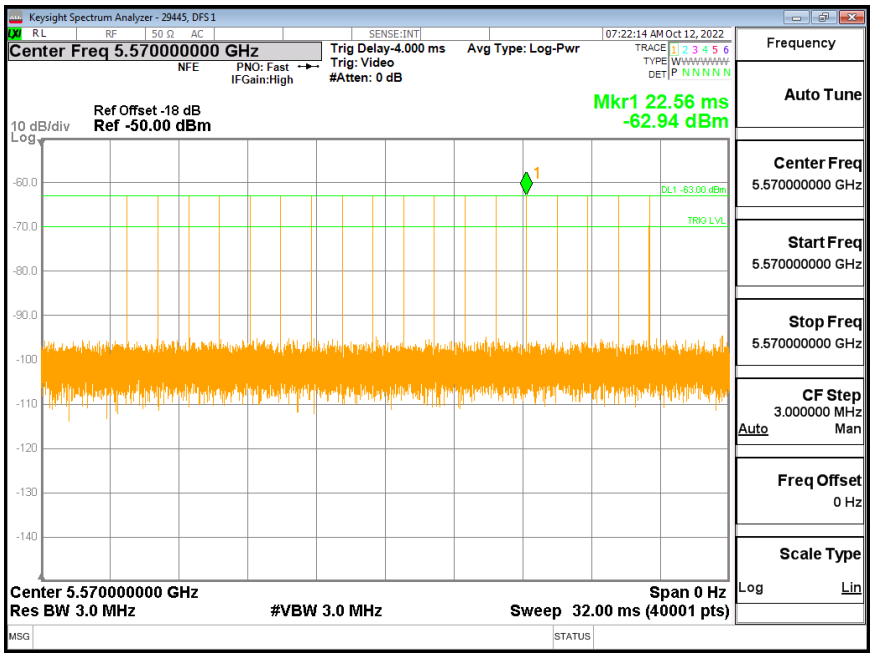
7.3.1. TEST CHANNEL

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

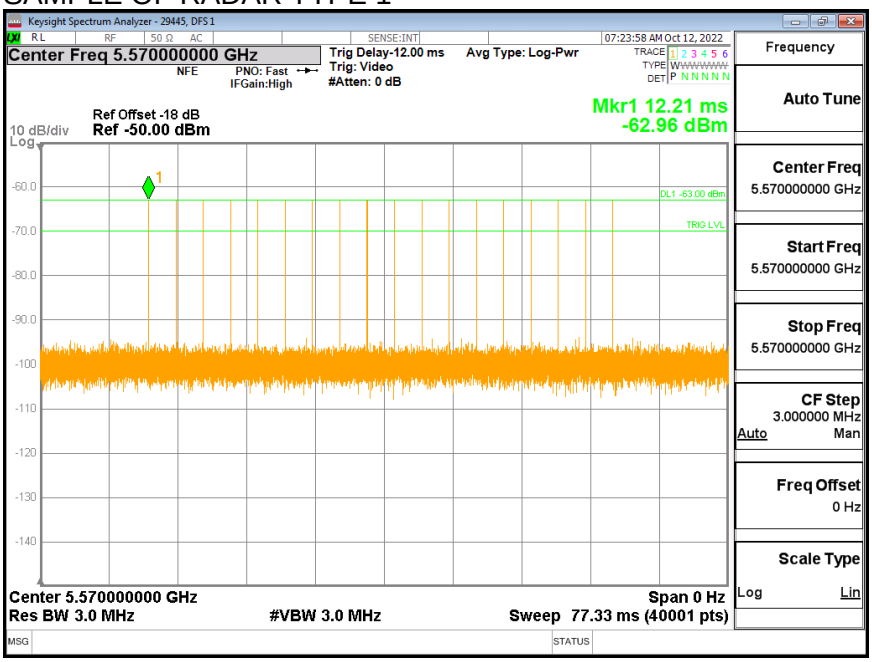
7.3.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

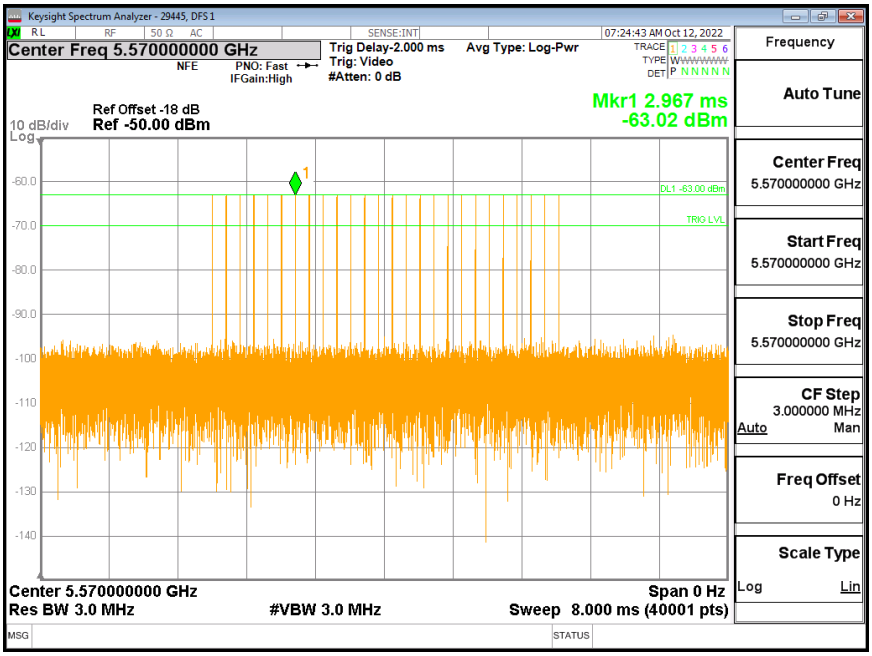
SHORT PULSE RADAR TYPE 0



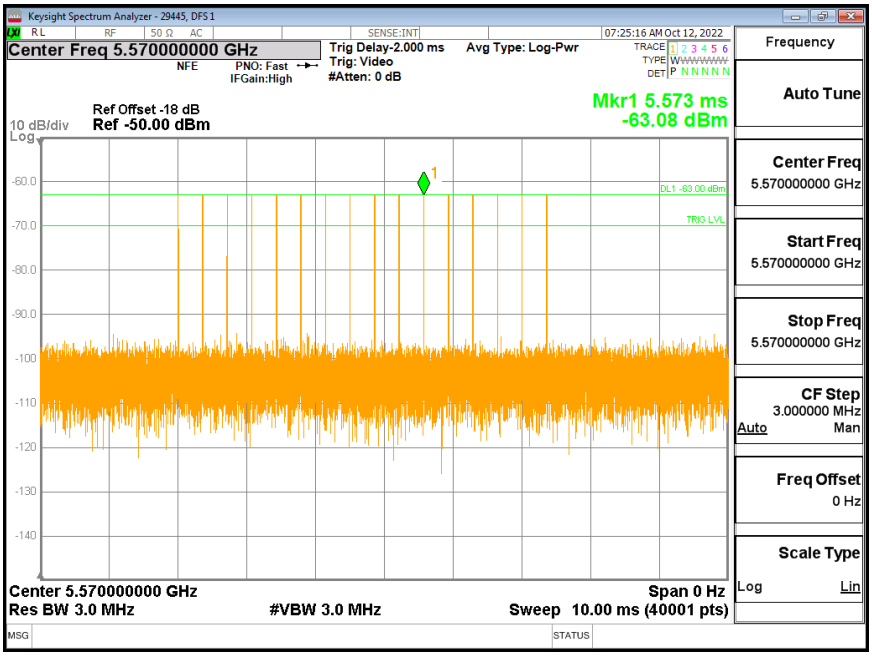
SAMPLE OF RADAR TYPE 1



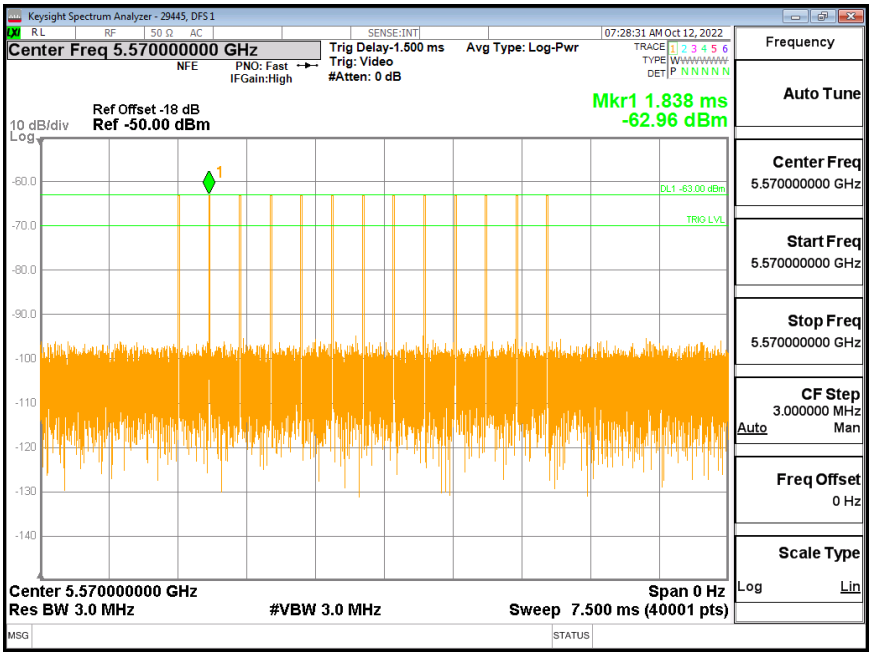
SAMPLE OF RADAR TYPE 2



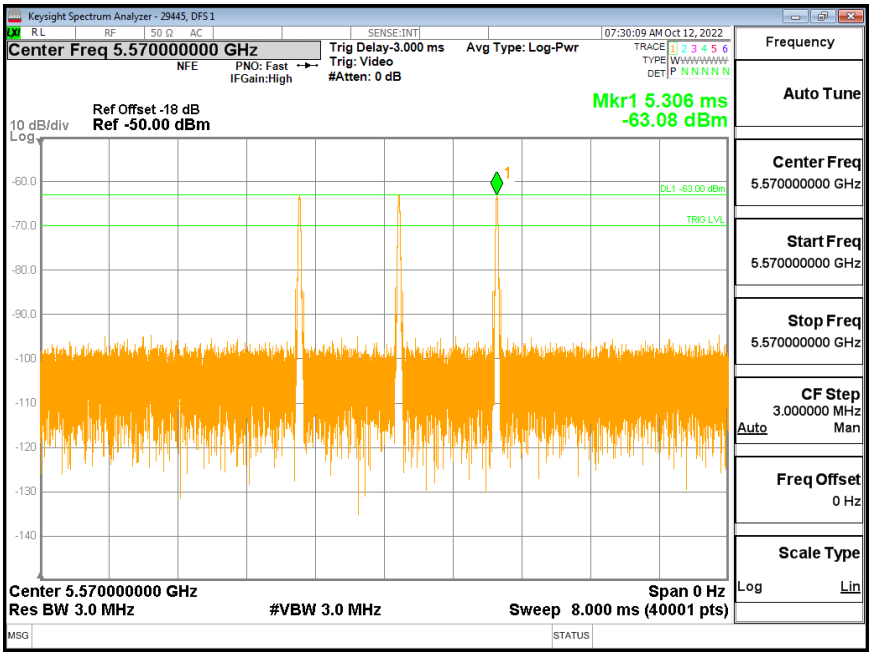
SAMPLE OF RADAR TYPE 3



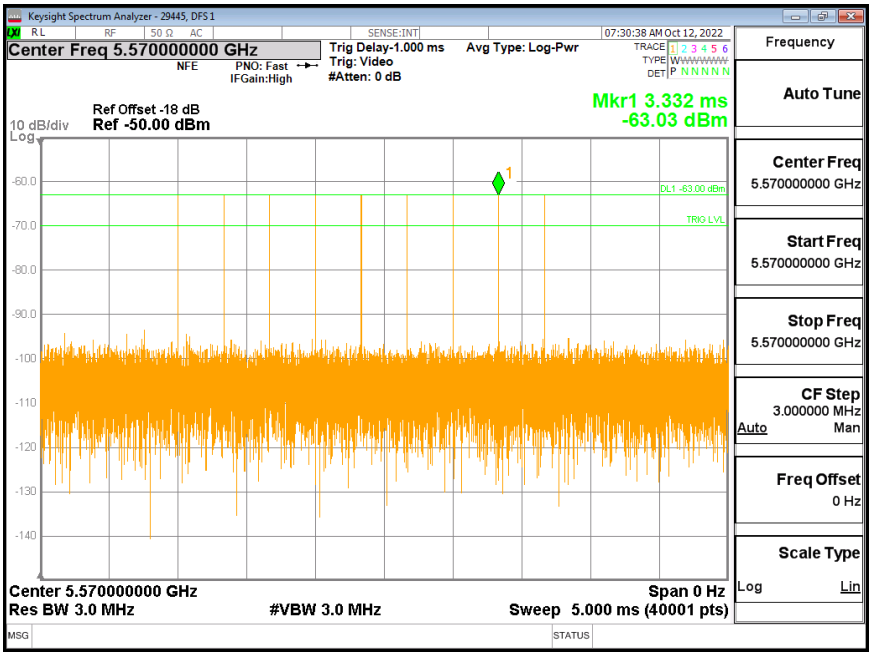
SAMPLE OF RADAR TYPE 4



SAMPLE OF SINGLE BURST OF RADAR TYPE 5

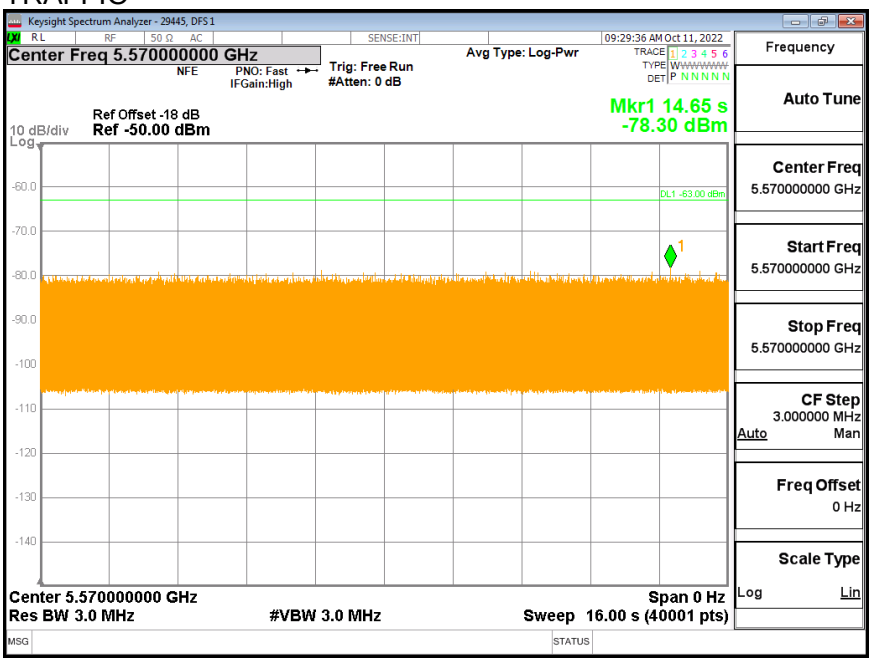


SINGLE BURST OF RADAR TYPE 6

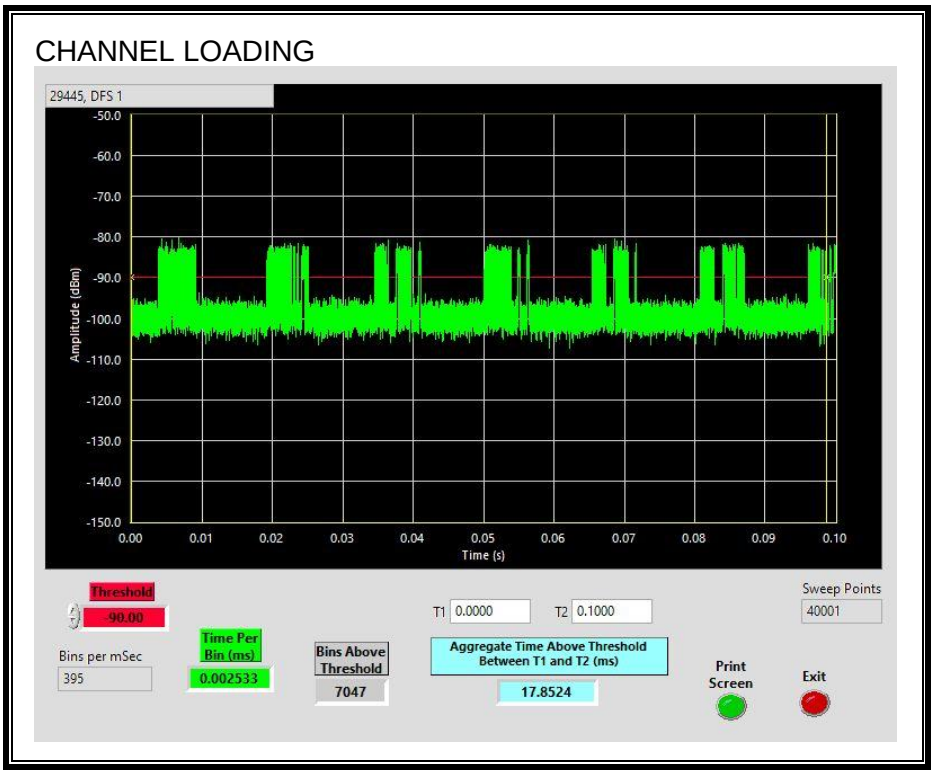


TRAFFIC

TRAFFIC



CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 17.85%

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)
30.41	226.1	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)
30.49	169.8	139.3	3.6

Radar Near End of CAC

Timing of Reboot (sec)	Timing of Radar Burst (sec)	Radar Relative to Reboot (sec)	Radar Relative to Start of CAC (sec)
30.71	223.9	193.2	57.5

QUALITATIVE RESULTS

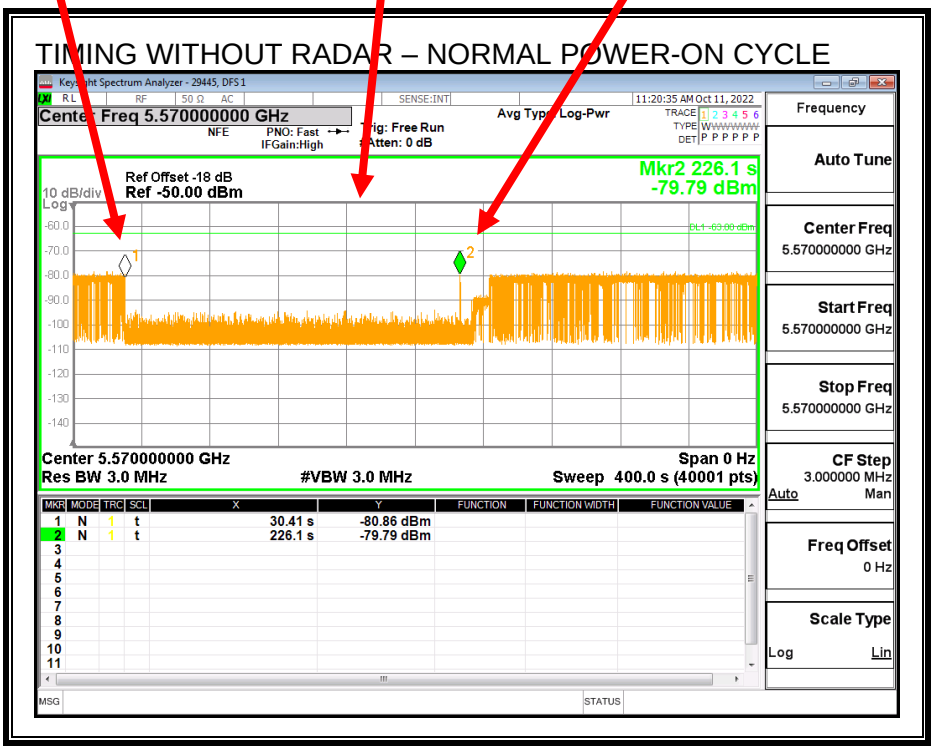
Timing of Radar Burst	Display on Control Computer	Spectrum Analyzer Display
No Radar Triggered	EUT marks Channel as active	Transmissions begin on channel after completion of the initial power-up cycle and the CAC
Within 0 to 6 second window	EUT indicates radar detected	No transmissions on channel
Within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



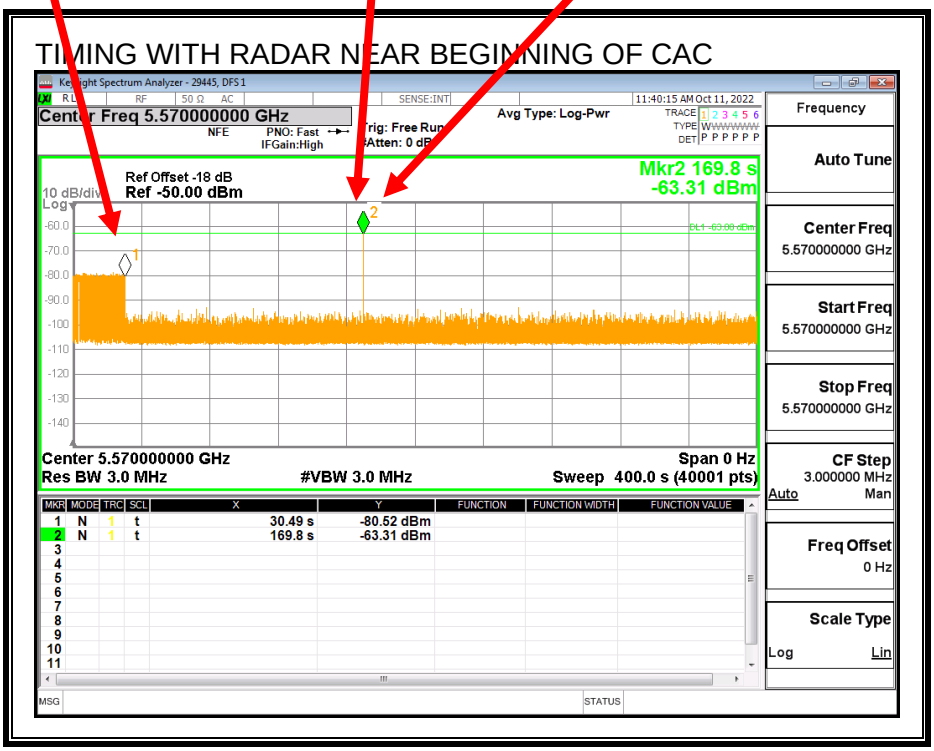
Transmissions begin on channel after completion of the initial power-up cycle and the CAC.

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



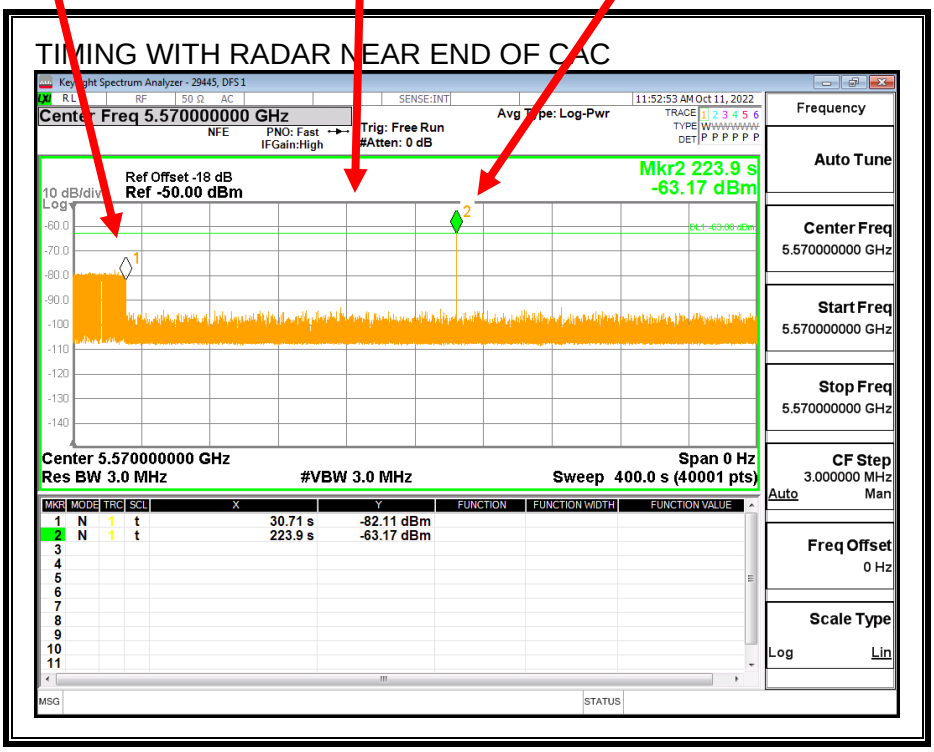
No EUT transmissions were observed after the radar signal.

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).

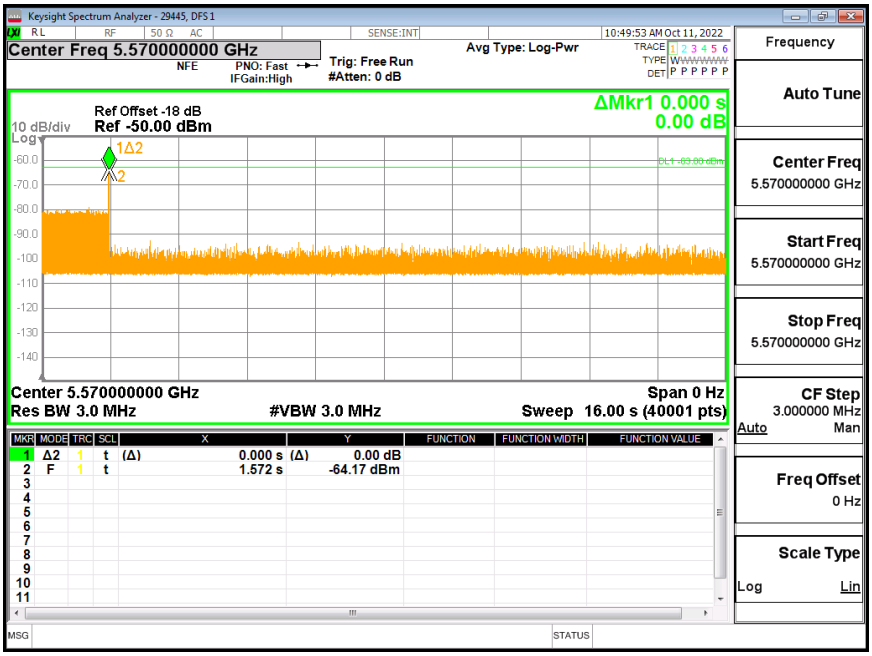
RESULTS

Channel Move Time (sec)	Limit (sec)
0.0	10

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

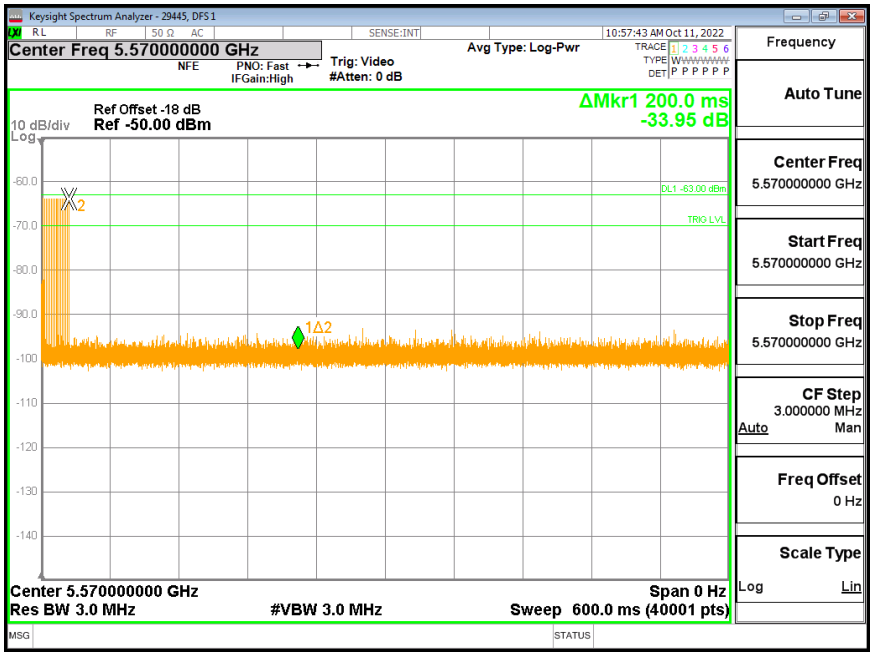
MOVE TIME

MOVE TIME



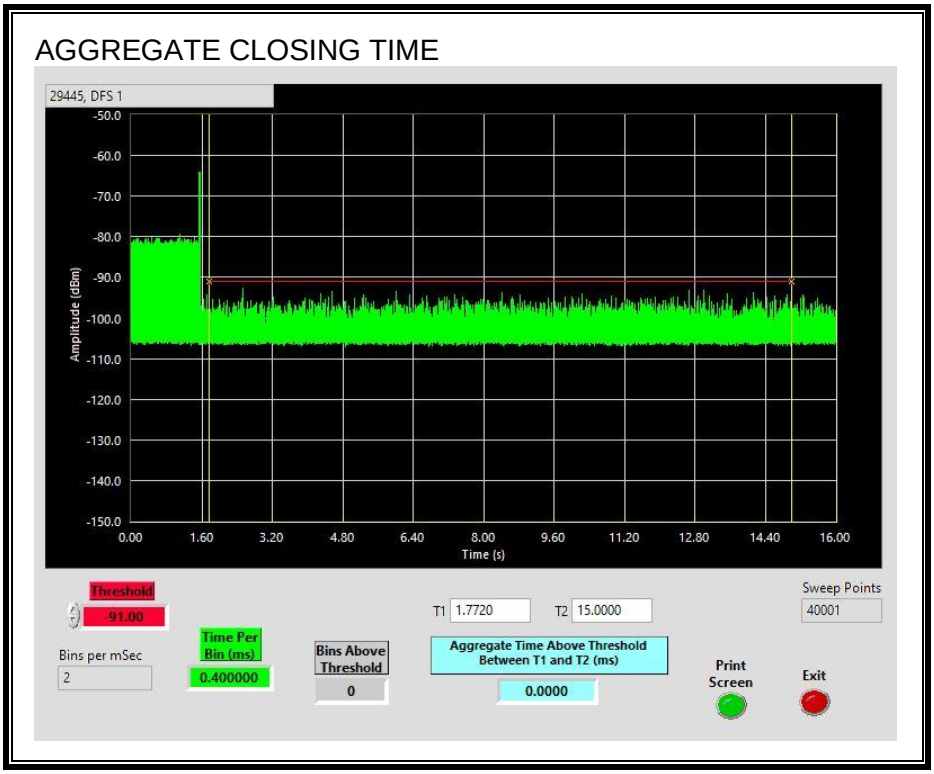
CHANNEL CLOSING TIME

CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

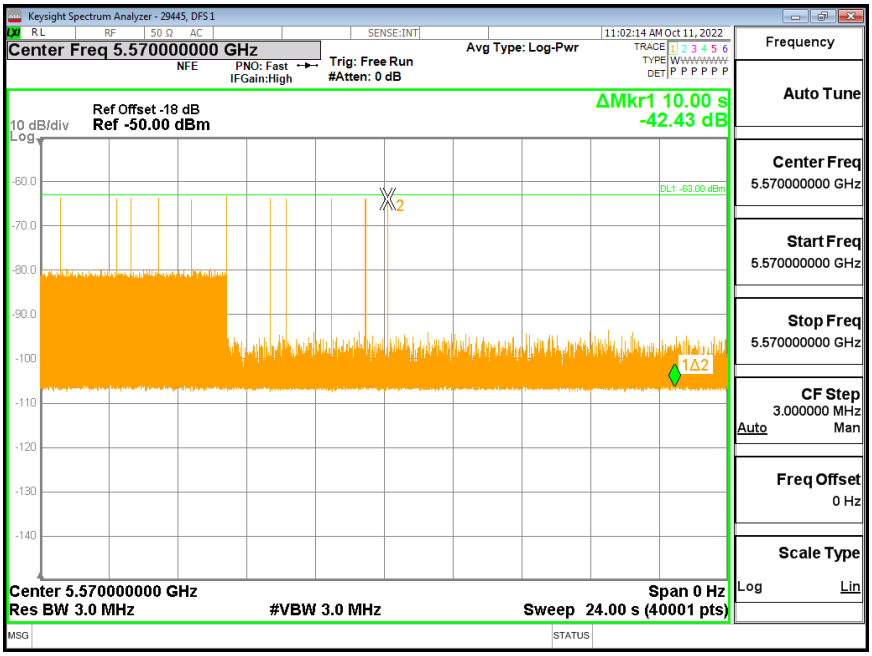
No transmissions are observed during the aggregate monitoring period.



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

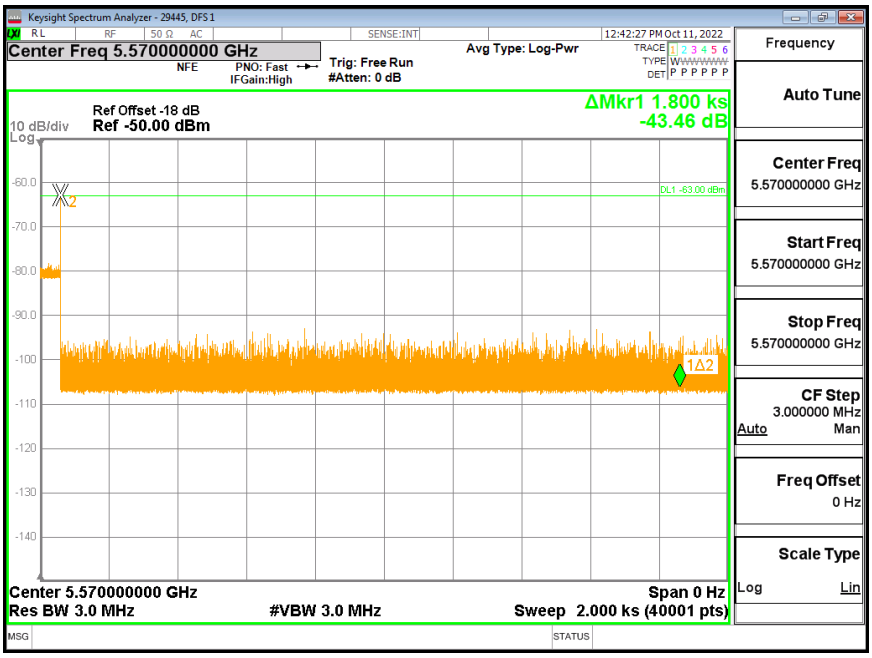


7.3.6. NON-OCCUPANCY PERIOD

RESULTS

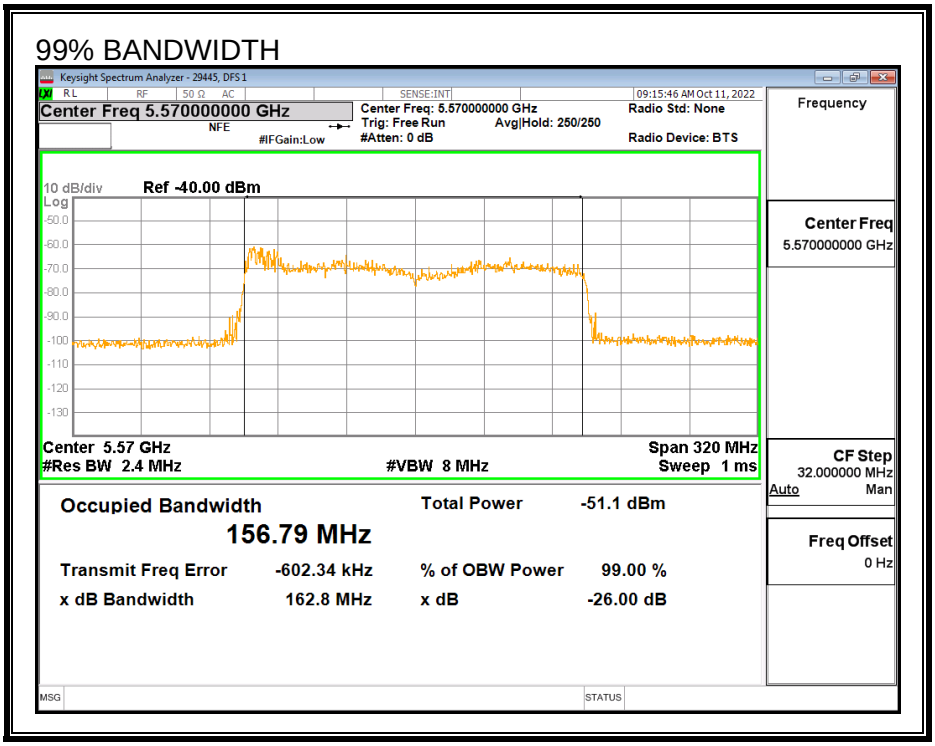
No EUT transmissions were observed on the test channel during the 30-minute observation time.

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	156.79	102.0	100

DETECTION BANDWIDTH PROBABILITY

DETECTION BANDWIDTH PROBABILITY RESULTS

Detection Bandwidth Test Results		29445	DFS 1	
FCC Type 0 Waveform: 1 us Pulse Width, 1428 us PRI, 18 Pulses per Burst				
Frequency (MHz)	Number of Trials	Number Detected	Detection (%)	Mark
5490	10	10	100	FL
5495	10	10	100	
5500	10	10	100	
5505	10	10	100	
5510	10	9	90	
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	9	90	
5630	10	10	100	
5635	10	10	100	
5640	10	10	100	
5645	10	10	100	
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	100.00	60	Pass	5490	5650	156.79	DFS 1	29445	v4.1
FCC Short Pulse Type 2	30	93.33	60	Pass	5490	5650	156.79	DFS 1	29445	v4.1
FCC Short Pulse Type 3	30	80.00	60	Pass	5490	5650	156.79	DFS 1	29445	v4.1
FCC Short Pulse Type 4	30	86.67	60	Pass	5490	5650	156.79	DFS 1	29445	v4.1
Aggregate		90.00	80	Pass						
FCC Long Pulse Type 5	30	100.00	80	Pass	5490	5650	156.79	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	5615	Yes
1002	1	558	95	A	5543	Yes
1003	1	838	63	A	5493	Yes
1004	1	538	99	A	5602	Yes
1005	1	778	68	A	5633	Yes
1006	1	898	59	A	5648	Yes
1007	1	878	61	A	5647	Yes
1008	1	578	92	A	5634	Yes
1009	1	518	102	A	5528	Yes
1010	1	798	67	A	5607	Yes
1011	1	698	76	A	5529	Yes
1012	1	858	62	A	5632	Yes
1013	1	658	81	A	5515	Yes
1014	1	918	58	A	5534	Yes
1015	1	598	89	A	5613	Yes
1016	1	987	54	B	5515	Yes
1017	1	748	71	B	5606	Yes
1018	1	2187	25	B	5536	Yes
1019	1	2078	26	B	5634	Yes
1020	1	2293	24	B	5642	Yes
1021	1	1119	48	B	5605	Yes
1022	1	2817	19	B	5547	Yes
1023	1	1772	30	B	5565	Yes
1024	1	2405	22	B	5631	Yes
1025	1	1490	36	B	5605	Yes
1026	1	2252	24	B	5548	Yes
1027	1	1466	37	B	5609	Yes
1028	1	1163	46	B	5582	Yes
1029	1	1861	29	B	5626	Yes
1030	1	2882	19	B	5582	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	5564	Yes
2002	1.3	153	27	5611	Yes
2003	3.7	219	29	5633	No
2004	1.7	215	23	5571	Yes
2005	2.3	205	29	5542	Yes
2006	4.6	167	24	5645	Yes
2007	1.4	161	23	5517	Yes
2008	3.9	170	29	5535	Yes
2009	3	167	29	5496	Yes
2010	1.6	181	28	5573	Yes
2011	1	226	24	5495	Yes
2012	4.1	162	28	5502	Yes
2013	3.7	173	25	5534	Yes
2014	4.9	195	28	5642	Yes
2015	2.8	210	26	5533	Yes
2016	2.2	197	29	5592	Yes
2017	4.4	217	28	5517	Yes
2018	4.1	208	25	5531	Yes
2019	2.4	194	27	5594	Yes
2020	4.5	190	28	5634	Yes
2021	1	179	27	5622	Yes
2022	3.3	222	29	5498	Yes
2023	4.2	216	28	5514	Yes
2024	2.6	225	27	5551	Yes
2025	1.7	223	23	5593	Yes
2026	2.5	155	29	5609	Yes
2027	3.8	200	29	5645	Yes
2028	2.8	217	25	5526	No
2029	2.4	228	29	5604	Yes
2030	3.6	169	26	5644	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	5604	Yes
3002	6	318	16	5538	Yes
3003	8.1	378	17	5648	Yes
3004	7.8	352	16	5603	No
3005	6.1	308	18	5569	Yes
3006	8.2	295	17	5510	Yes
3007	8.8	262	16	5514	Yes
3008	7	395	17	5521	Yes
3009	7.9	258	18	5506	Yes
3010	6.3	404	16	5499	No
3011	9.5	280	18	5645	Yes
3012	6.2	438	17	5606	No
3013	9.7	327	16	5569	Yes
3014	6.5	380	16	5544	Yes
3015	6.1	415	18	5550	Yes
3016	9.5	481	16	5616	Yes
3017	9.3	277	17	5603	Yes
3018	8.8	490	18	5642	No
3019	6.8	299	16	5617	Yes
3020	6.5	273	18	5563	Yes
3021	7	479	17	5496	Yes
3022	6.9	466	16	5549	Yes
3023	7.5	434	16	5626	Yes
3024	9.8	316	18	5600	No
3025	6.6	430	18	5532	Yes
3026	7.1	325	18	5582	Yes
3027	8.2	451	17	5513	Yes
3028	9	359	16	5511	No
3029	8.4	498	18	5601	Yes
3030	9.4	434	18	5544	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	5506	Yes
4002	15.9	402	16	5641	Yes
4003	15.5	449	12	5523	Yes
4004	14.3	410	14	5636	Yes
4005	19.1	470	15	5606	Yes
4006	18.4	445	13	5614	Yes
4007	19.4	400	12	5520	No
4008	19.2	269	13	5545	Yes
4009	11.6	488	15	5611	Yes
4010	16.6	488	14	5508	Yes
4011	18.6	350	13	5545	Yes
4012	19.8	496	15	5643	Yes
4013	13.1	372	12	5600	Yes
4014	14.8	279	12	5544	No
4015	13.4	301	14	5504	Yes
4016	15.6	355	14	5559	No
4017	14.7	256	12	5584	Yes
4018	13.1	456	14	5590	No
4019	12.6	370	15	5531	Yes
4020	11.4	331	13	5604	Yes
4021	16.2	391	14	5583	Yes
4022	11.3	499	12	5494	Yes
4023	16.6	320	16	5603	Yes
4024	12	441	12	5642	Yes
4025	17.8	408	16	5500	Yes
4026	13.7	290	12	5524	Yes
4027	15.7	271	12	5492	Yes
4028	16.9	417	16	5627	Yes
4029	19.3	292	16	5618	Yes
4030	12	333	15	5516	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	5494	Yes
12	5497	Yes
13	5497	Yes
14	5494	Yes
15	5497	Yes
16	5497	Yes
17	5494	Yes
18	5497	Yes
19	5497	Yes
20	5498	Yes
21	5644	Yes
22	5643	Yes
23	5642	Yes
24	5644	Yes
25	5643	Yes
26	5645	Yes
27	5641	Yes
28	5645	Yes
29	5646	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	635	5490	39	Yes
2	1110	5491	36	Yes
3	1585	5492	36	Yes
4	2060	5493	30	Yes
5	2535	5494	33	Yes
6	3010	5495	34	Yes
7	3485	5496	35	Yes
8	3960	5497	26	Yes
9	4435	5498	26	Yes
10	4910	5499	35	Yes
11	5385	5500	33	Yes
12	5860	5501	44	Yes
13	6335	5502	30	Yes
14	6810	5503	33	Yes
15	7285	5504	30	Yes
16	7760	5505	38	Yes
17	8235	5506	38	Yes
18	8710	5507	36	Yes
19	9185	5508	34	Yes
20	9660	5509	39	Yes
21	10135	5510	41	Yes
22	10610	5511	34	Yes
23	11085	5512	30	Yes
24	11560	5513	35	Yes
25	12035	5514	35	Yes
26	12510	5515	32	Yes
27	12985	5516	31	Yes
28	13460	5517	40	Yes
29	13935	5518	29	Yes
30	14410	5519	18	Yes
31	14885	5520	36	Yes
32	15360	5521	34	Yes
33	15835	5522	39	Yes
34	16310	5523	29	Yes
35	16785	5524	39	Yes
36	17260	5525	27	Yes
37	17735	5526	36	Yes
38	18210	5527	35	Yes
39	18685	5528	35	Yes

TYPE 6 DETECTION PROBABILITY (CONTINUED)

40	19160	5529	34	Yes
41	19635	5530	44	Yes
42	20110	5531	38	Yes
43	20585	5532	35	Yes
44	21060	5533	28	Yes
45	21535	5534	29	Yes
46	22010	5535	30	Yes
47	22485	5536	32	Yes
48	22960	5537	33	Yes
49	23435	5538	32	Yes
50	23910	5539	33	Yes
51	24385	5540	34	Yes
52	24860	5541	28	Yes
53	25335	5542	35	Yes
54	25810	5543	30	Yes
55	26285	5544	42	Yes
56	26760	5545	36	Yes
57	27235	5546	40	Yes
58	27710	5547	31	Yes
59	28185	5548	31	Yes
60	28660	5549	28	Yes
61	29135	5550	37	Yes
62	29610	5551	36	Yes
63	30085	5552	28	Yes
64	30560	5553	28	Yes
65	31035	5554	36	Yes
66	31510	5555	35	Yes
67	31985	5556	37	Yes
68	32460	5557	24	Yes
69	32935	5558	34	Yes
70	33410	5559	34	Yes
71	33885	5560	26	Yes
72	34360	5561	34	Yes
73	34835	5562	36	Yes
74	35310	5563	37	Yes
75	35785	5564	28	Yes
76	36260	5565	26	Yes
77	36735	5566	33	Yes
78	37210	5567	41	Yes
79	37685	5568	31	Yes

TYPE 6 DETECTION PROBABILITY (CONTINUED)

80	38160	5569	26	Yes
81	38635	5570	27	Yes
82	39110	5571	39	Yes
83	39585	5572	33	Yes
84	40060	5573	33	Yes
85	40535	5574	25	Yes
86	41010	5575	36	Yes
87	41485	5576	38	Yes
88	41960	5577	37	Yes
89	42435	5578	32	Yes
90	42910	5579	39	Yes
91	43385	5580	32	Yes
92	43860	5581	34	Yes
93	44335	5582	38	Yes
94	44810	5583	37	Yes
95	45285	5584	35	Yes
96	45760	5585	29	Yes
97	46235	5586	29	Yes
98	46710	5587	35	Yes
99	47185	5588	41	Yes
100	47660	5589	35	Yes
101	48135	5590	35	Yes
102	48610	5591	30	Yes
103	49085	5592	34	Yes
104	49560	5593	37	Yes
105	50035	5594	36	Yes
106	50510	5595	40	Yes
107	50985	5596	41	Yes
108	51460	5597	36	Yes
109	51935	5598	31	Yes
110	52410	5599	29	Yes
111	52885	5600	39	Yes
112	53360	5601	30	Yes
113	53835	5602	31	Yes
114	54310	5603	28	Yes
115	54785	5604	33	Yes
116	55260	5605	32	Yes
117	55735	5606	32	Yes
118	56210	5607	33	Yes
119	56685	5608	31	Yes

TYPE 6 DETECTION PROBABILITY (CONTINUED)

120	57160	5609	32	Yes
121	57635	5610	30	Yes
122	58110	5611	34	Yes
123	58585	5612	40	Yes
124	59060	5613	31	Yes
125	59535	5614	29	Yes
126	60010	5615	33	Yes
127	60485	5616	32	Yes
128	60960	5617	37	Yes
129	61435	5618	34	Yes
130	61910	5619	28	Yes
131	62385	5620	38	Yes
132	62860	5621	36	Yes
133	63335	5622	33	Yes
134	63810	5623	31	Yes
135	64285	5624	28	Yes
136	64760	5625	35	Yes
137	65235	5626	30	Yes
138	174	5627	36	Yes
139	649	5628	40	Yes
140	1124	5629	36	Yes
141	1599	5630	38	Yes
142	2074	5631	27	Yes
143	2549	5632	32	Yes
144	3024	5633	37	Yes
145	3499	5634	39	Yes
146	3974	5635	31	Yes
147	4449	5636	30	Yes
148	4924	5637	33	Yes
149	5399	5638	34	Yes
150	5874	5639	39	Yes
151	6349	5640	31	Yes
152	6824	5641	36	Yes
153	7299	5642	32	Yes
154	7774	5643	37	Yes
155	8249	5644	43	Yes
156	8724	5645	34	Yes
157	9199	5646	37	Yes
158	9674	5647	43	Yes
159	10149	5648	39	Yes
160	10624	5649	36	Yes
161	11099	5650	31	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

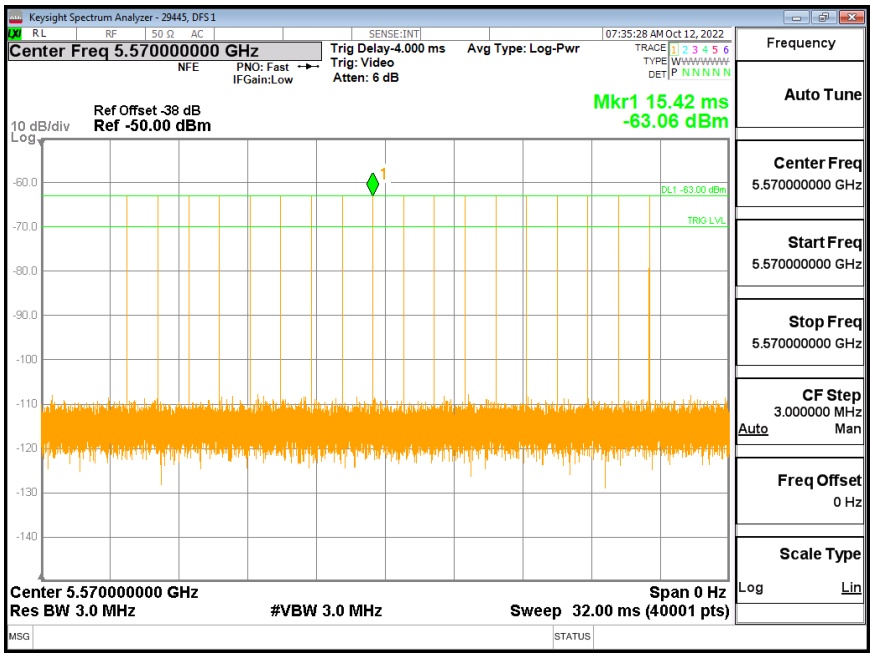
7.5.1. TEST CHANNEL

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

7.5.2. RADAR WAVEFORM AND TRAFFIC

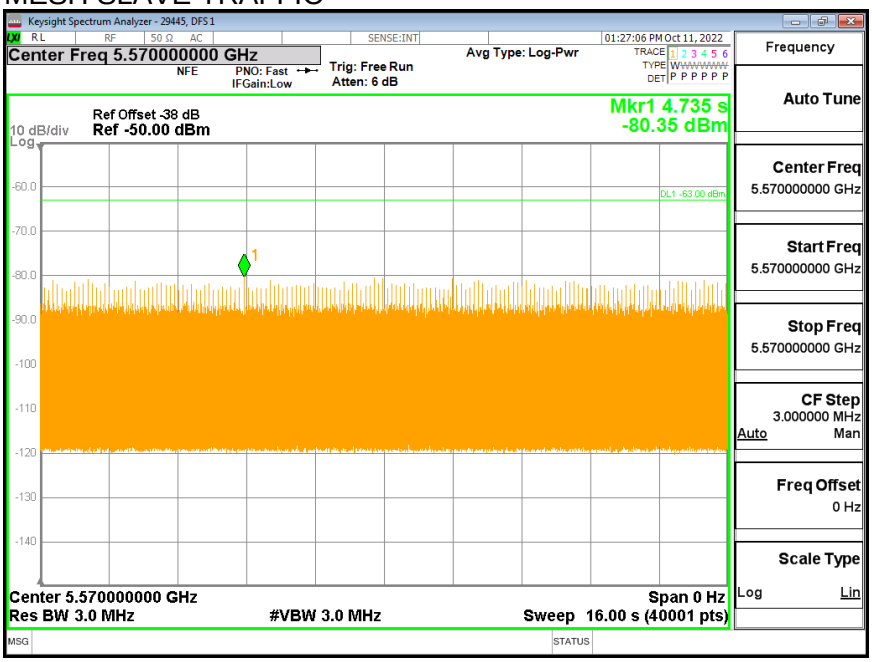
RADAR WAVEFORM

SHORT PULSE RADAR TYPE 0 AT MASTER

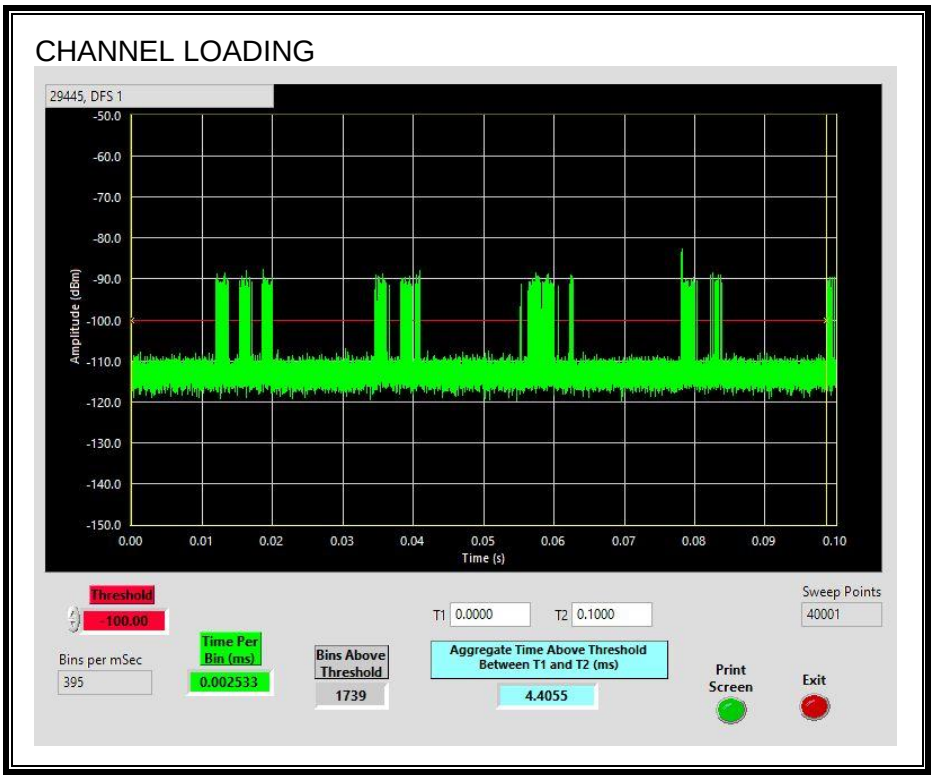


MESH SLAVE TRAFFIC

MESH SLAVE TRAFFIC



MESH SLAVE DEVICE CHANNEL LOADING

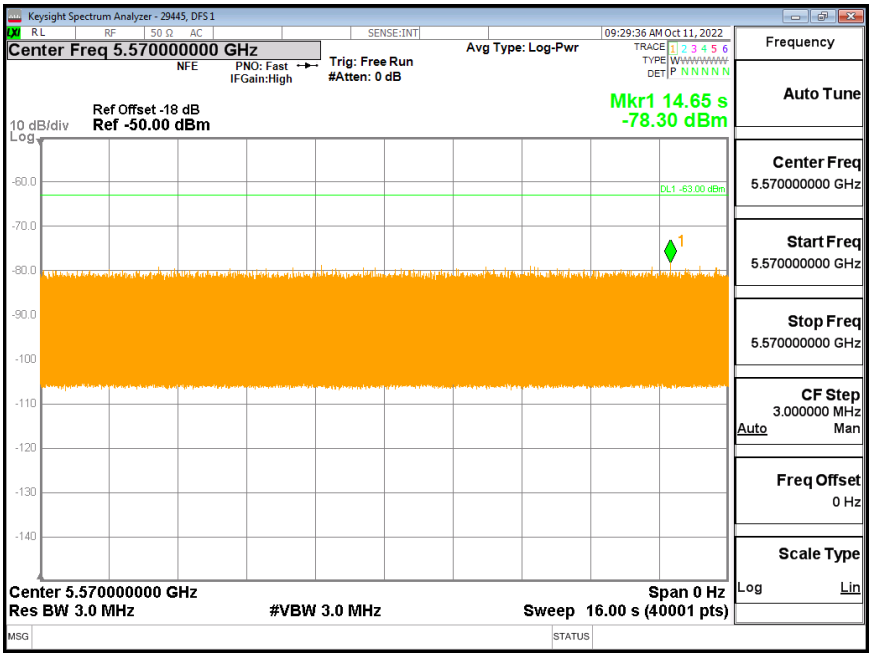


The level of traffic loading on the channel by the EUT is 4.40%

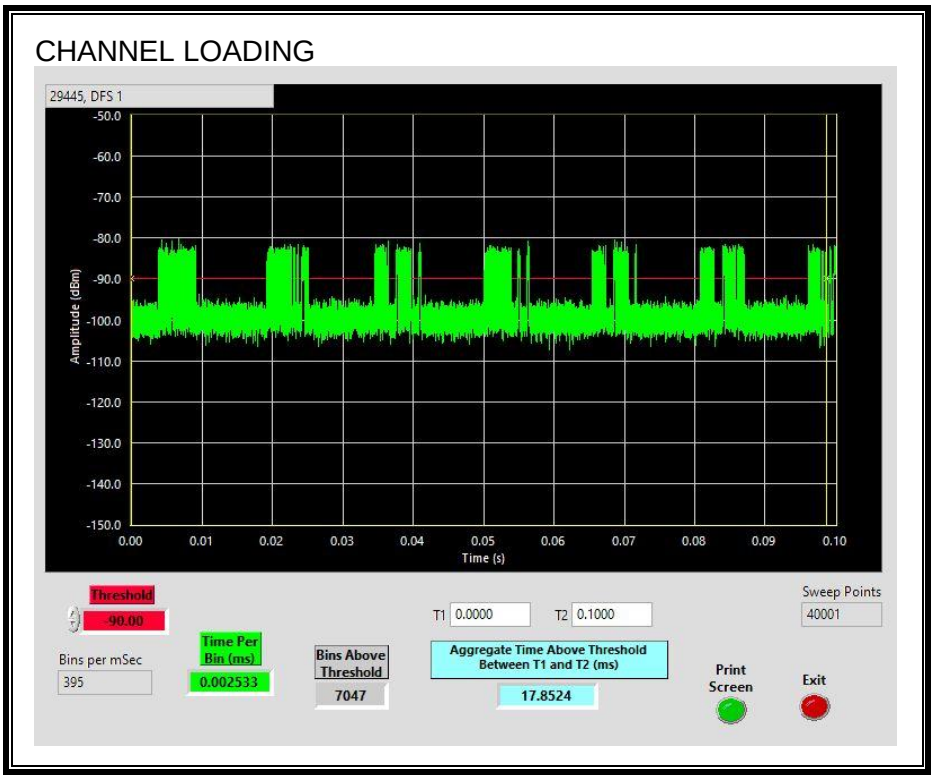
Per KDB 905462 D02 page 2, channel Loading is defined as the data transfer from the Master device to a client device. Therefore, the channel loading upon the Master Device meets the requirement as shown in the following plots taken from the Master Device test results.

MASTER DEVICE TRAFFIC

TRAFFIC



MASTER DEVICE CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 17.85%

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)
6.933	10

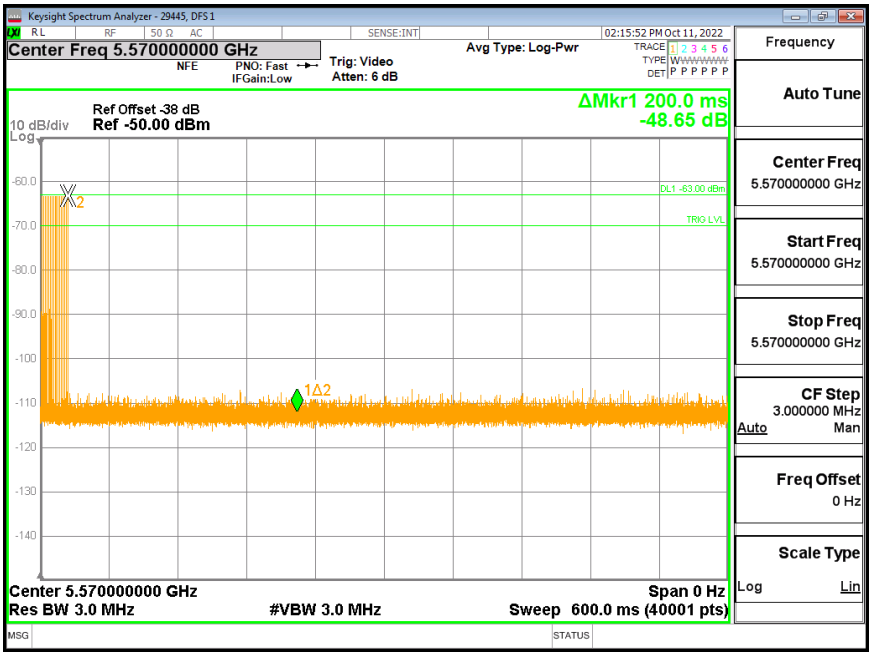
Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
2.4	60

MOVE TIME

MOVE TIME

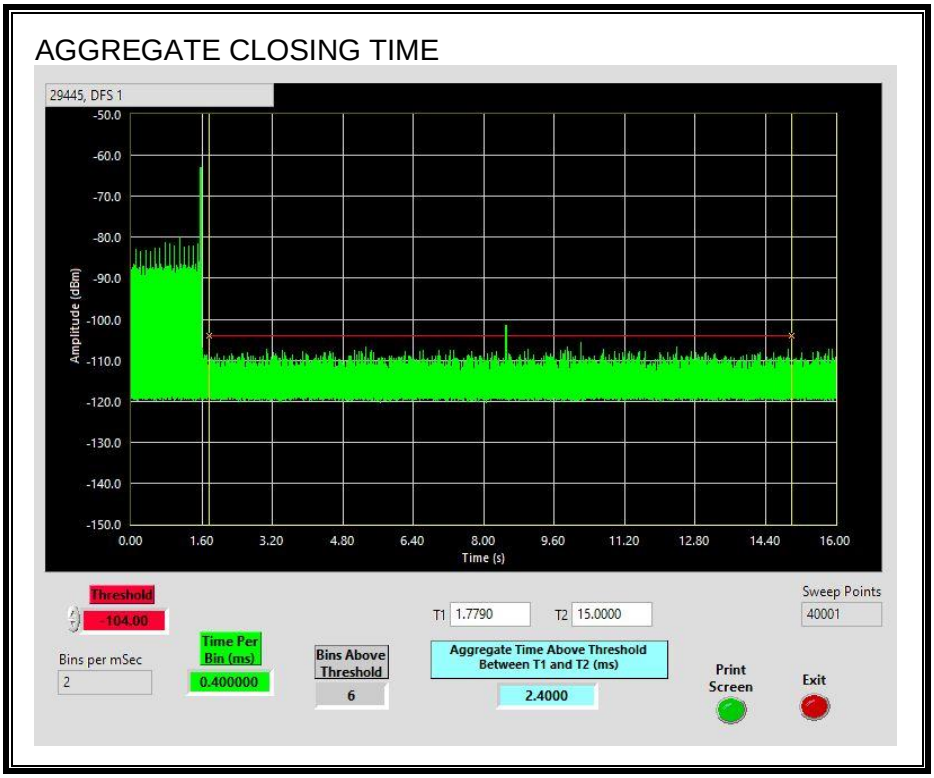
CHANNEL CLOSING TIME

CLOSING TIME



AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

Only intermittent transmissions are observed during the aggregate monitoring period.

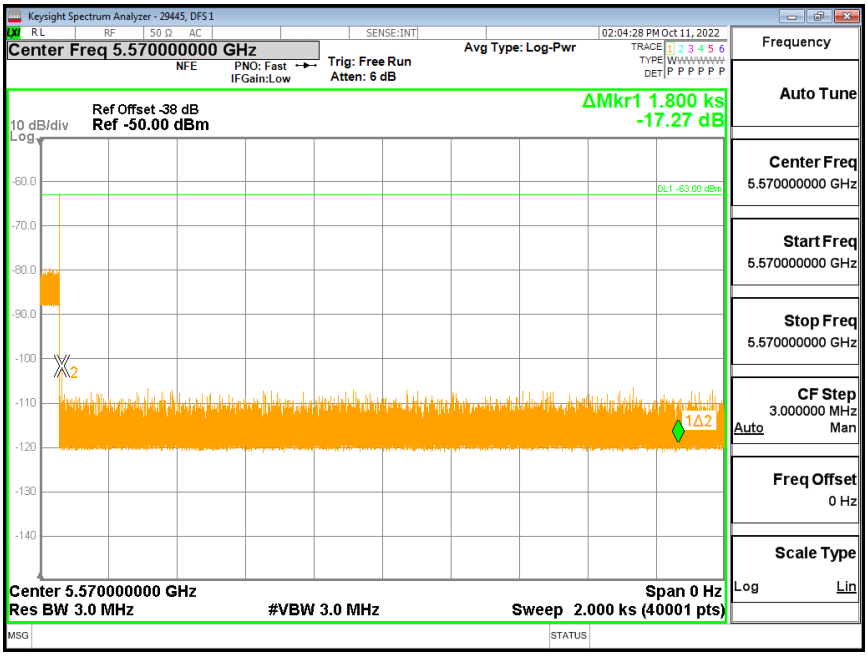


7.5.5. 30-MINUTE NON-OCCUPANCY PERIOD

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