DFS PORTION of FCC 47 CFR PART 15 SUBPART E
DFS PORTION of ISED CANADA RSS-247 ISSUE 3

TEST REPORT

FOR

Access Point Subscriber Module Backhall

MODEL NUMBER: Force 4525
PMN: ePMP 5GHz Force 4525 SM
HVIN: C058940P142A
FVIN: 5.7

FCC ID: Z8H89FT0074
IC: 109W-0074

REPORT NUMBER: 15155127-E1V1

ISSUE DATE: 2024-01-29

Prepared for
CAMBIUM NETWORKS, INC.
3800 GOLF RD., SUITE 360
ROLLING MEADOWS
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ACCREDITED
CERT #0751.05

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	2024-01-29	Initial Issue	--

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1. ATTESTATION OF TEST RESULTS

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

EUT DESCRIPTION: Access Point Subscriber Module Backhall

MODEL: Force 4525

SERIAL NUMBER: BC:E6:7C:90:02:DE

DATE TESTED: 01-24-2024, 01-25-2024

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
DFS Portion of 47 CFR Part 15 Subpart E	Complies
DFS Portion of ISED CANADA RSS-247 Issue 3	Complies

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

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

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

Approved & Released For
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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with the DFS portion of FCC 47 CFR Part 2, FCC 47 CFR Part 15, FCC KDB 789033, KDB 905462 D02 and D03 and RSS-247 Issue 3.

3. SUMMARY OF TEST RESULTS

Requirement Description	Result	Remarks
DFS Portion of FCC 47 CFR PART 15 SUBPART E	Complies	None
DFS Portion of ISED CANADA RSS-247 ISSUE 2	Complies	None

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 report numbers FR231713-02 for FCC RF report and CR231713-02 for the IC RF report.

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

5. FACILITIES AND ACCREDITATION

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

	Address	ISED CABID	ISED Company Number	FCC Registration
☒	Building 1: 47173 Benicia Street, Fremont, California, USA	US0104	2324A	550739
	Building 2: 47266 Benicia Street, Fremont, California, USA	US0104	2324A	550739
	Building 4: 47658 Kato Rd, Fremont, California, USA	US0104	2324A	550739

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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).

6.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	U_{Lab}
Radio Frequency (Spectrum Analyzer)	141.16 Hz
Occupied Bandwidth	1.22%
Power Spectral Density	2.47 dB
RF Power Measurement Direct Method Using Power Meter	1.3 dB (PK) / 0.45 dB (AV)
Unwanted Emissions, Conducted	1.94 dB
Worst Case Conducted Disturbance, 9kHz to 0.15 MHz	3.78 dB
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 dB
Worst Case Radiated Disturbance, 9kHz to 30 MHz	2.87 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.29 dB
Time Domain Measurements	0.02 %
Temperature	0.57˚C
Humidity	3.39%
DC Supply Voltages	0.57%

Uncertainty figures are valid to a confidence level of 95%.

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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 3

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”.

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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.		

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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.

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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

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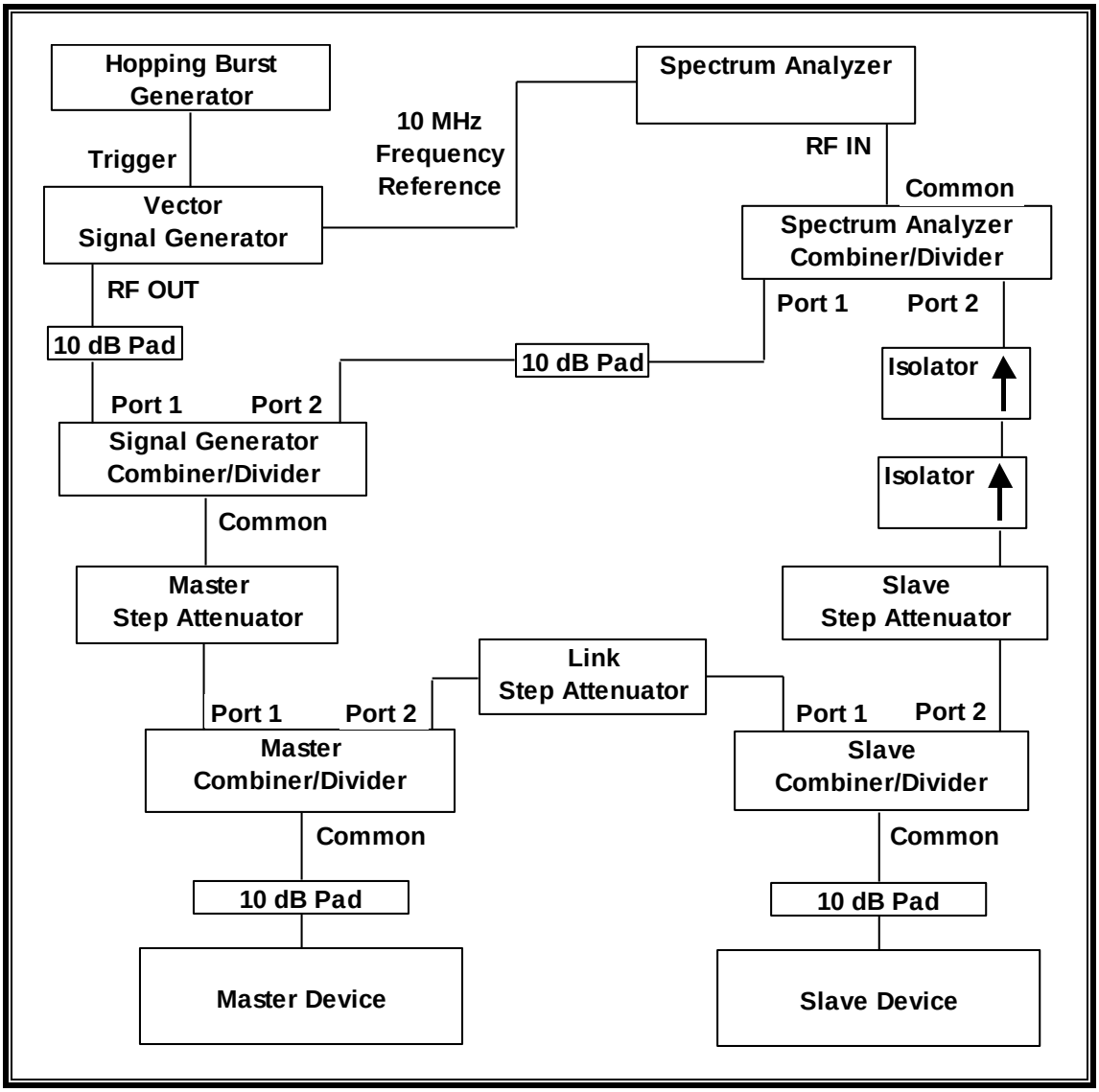
7.1.2. TEST AND MEASUREMENT SYSTEM

CONDUCTED METHOD SYSTEM BLOCK DIAGRAM



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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.

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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:

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**ID No.**	**Cal Due**
Spectrum Analyzer, PXA, 3Hz to 8.4GHz	Keysight	N9030A	150667	2024-01-31
Signal Generator, MXG X-Series RF Vector	Keysight	N5182B	215999	2024-02-07
Frequency Extender	Keysight	N5182BX	213906	2024-02-06
Arbitrary Waveform Generator	Agilent / HP	33220A	80815	2024-01-31

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 Testing

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

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TEST ROOM ENVIRONMENT

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

ENVIRONMENT CONDITION

Parameter	Value
Temperature	23.5 °C, 23.2 °C
Humidity	51%, 46 %

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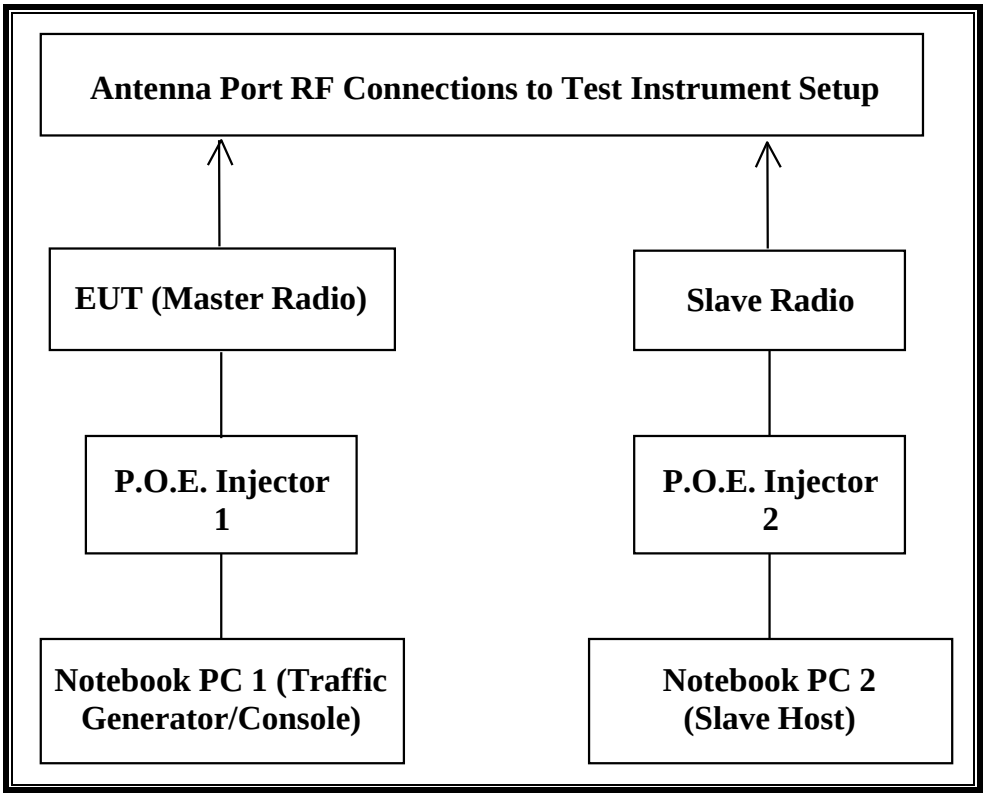
7.1.4. SETUP OF EUT

CONDUCTED METHOD EUT TEST SETUP



SUPPORT EQUIPMENT

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

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Force 4525 Subscriber Module (Slave Device)	Cambium Networks	Force 4525	BC:E6:7C:90:03:36	Z8H89FT0074
P.O.E. Injector 1 (EUT)	Cambium Networks	P060U04	C000000L141A2153000008	N/A
Notebook PC 1 (EUT Console)	Lenovo	Type 20B7-S0A200	PF-02JN9J 14/06	DoC
AC Adapter 1 (Notebook PC 1)	Lenovo	ADLX65NLC2A	11S45N0259Z1ZS974594A9	DoC
P.O.E. Injector 2 (Slave)	Cambium Networks	P060U04	C000000L141A2153000008	N/A
Notebook PC 2 (Slave Host)	Lenovo	2349CW5	PBB4M3H	DoC
AC Adapter 2 (Notebook PC 2)	Lenovo	92P1156	11S92P1156Z1ZDXN14J5DR	DoC

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7.1.5. 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.

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

The EUT is a Master Device.

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

The manufacturer has declared that the only antenna assembly utilized with the EUT has a gain of 25 dBi.

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

The rated output power of the Master unit is > 23dBm (EIRP). Therefore the required interference threshold level is –64 dBm. After correction for antenna gain and procedural adjustments, the required conducted threshold at the antenna port is –64 + 25 + 1 = -38 dBm.

The EUT uses two transmitter/receiver chains, each connected to a 50-ohm coaxial antenna port. All antenna ports are connected to the test system via a power divider to perform conducted tests.

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

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

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

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

Channel puncturing is not supported by the EUT.

TDLS (Tunneled Direct Link Setup) mode is not supported by the EUT.

The software installed in the EUT is version 5.7.0.30.

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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 Access Point Subscriber Module Backhall, FCC ID: Z8H89FT0074. The minimum antenna gain for the Master Device is 25 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 + 25 + 1 = -38 dBm.

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

The software installed in the access point is Version 5.7.0.30.

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7.2. RESULTS FOR 20 MHz BANDWIDTH

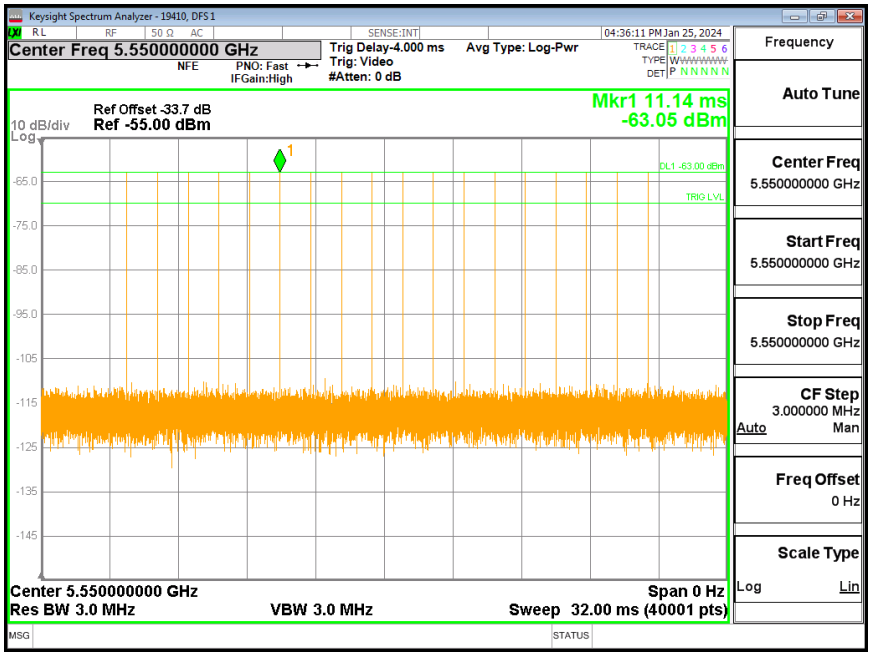
7.2.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5550 MHz.

7.2.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

SHORT PULSE RADAR TYPE 0



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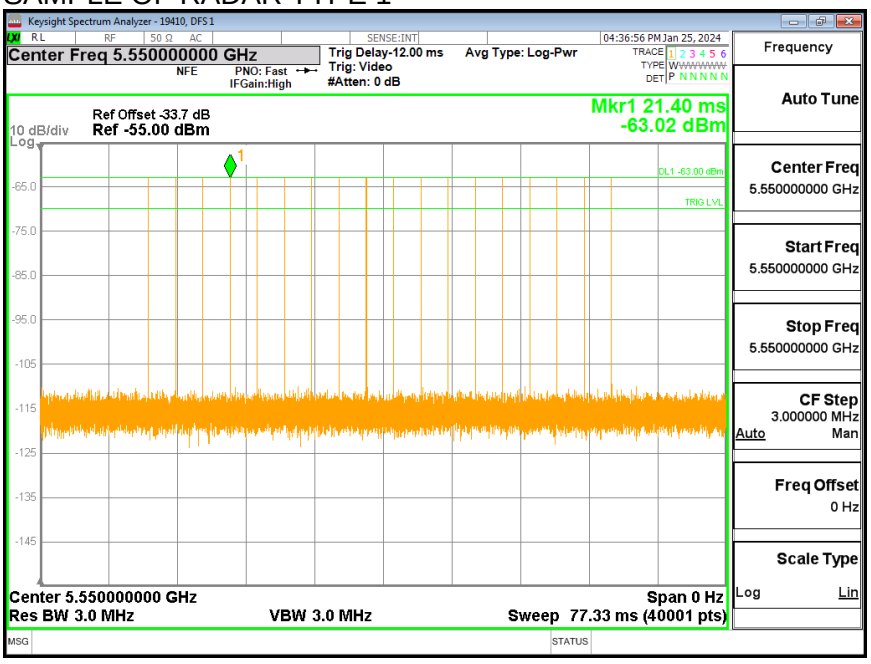
SAMPLE OF RADAR TYPE 1



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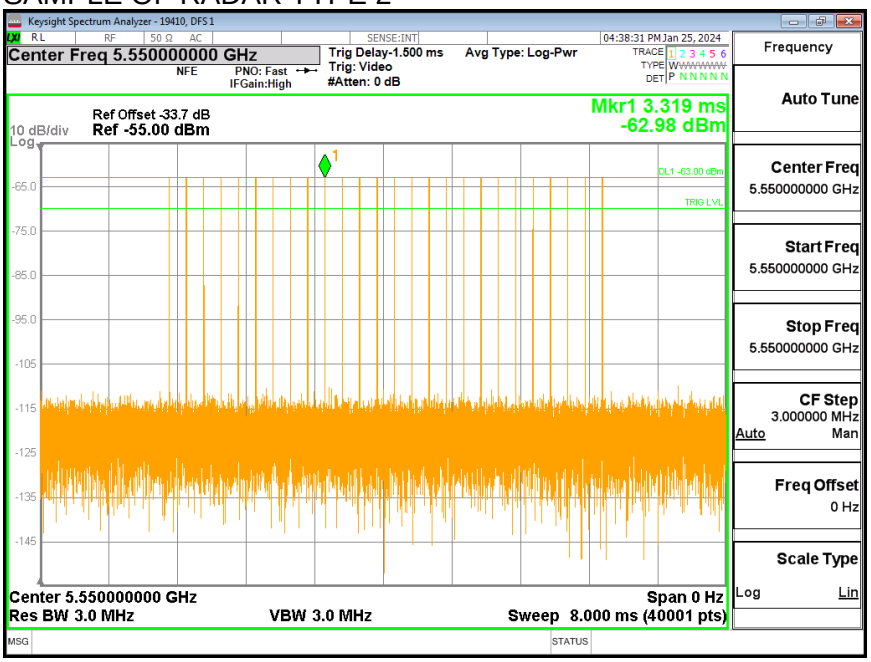
SAMPLE OF RADAR TYPE 2



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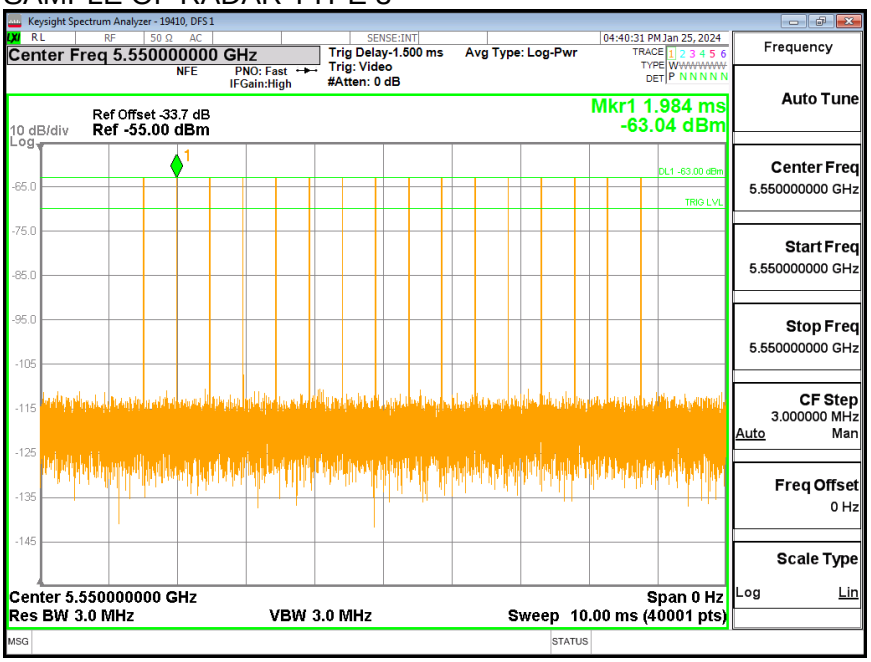
SAMPLE OF RADAR TYPE 3



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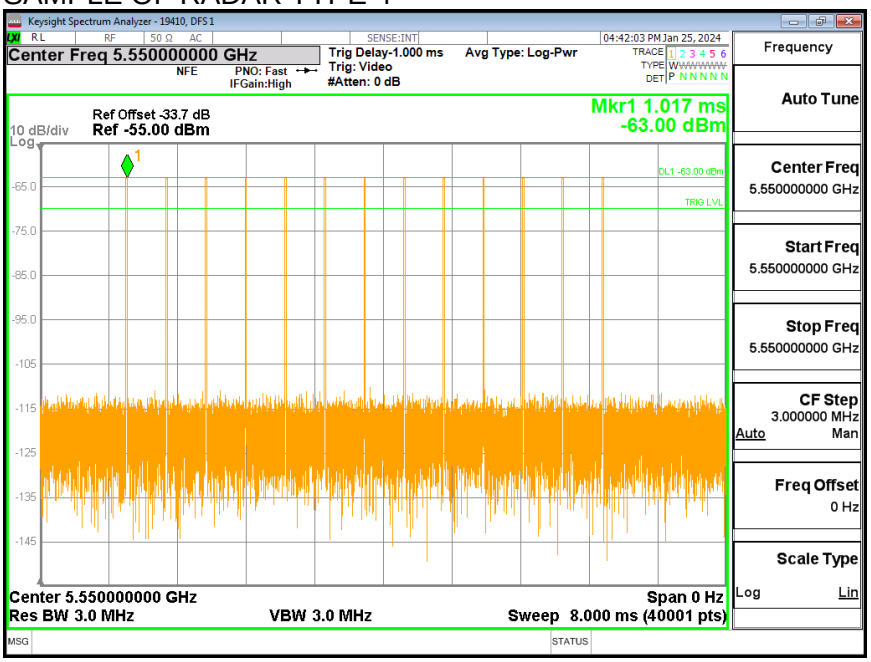
SAMPLE OF RADAR TYPE 4



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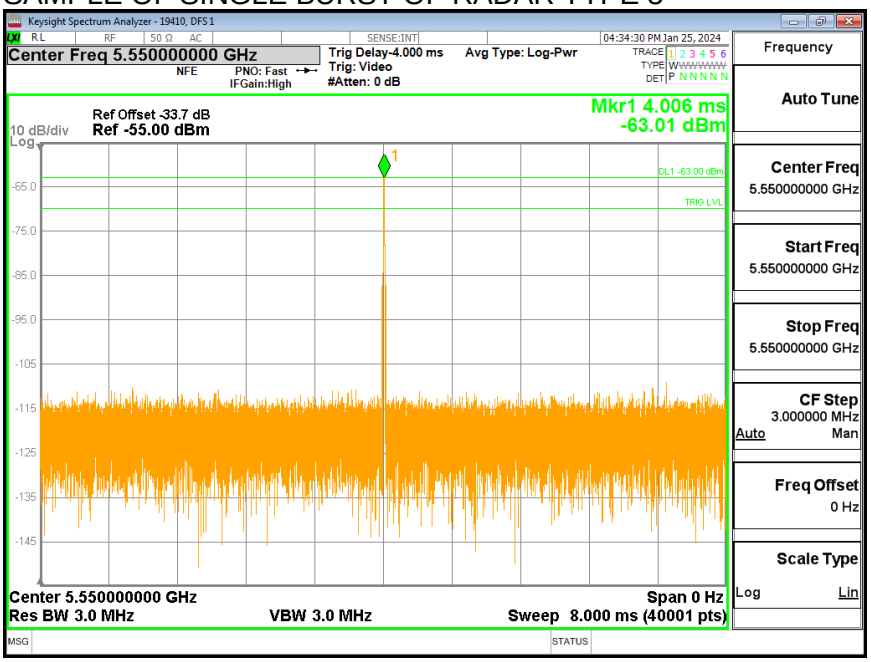
SAMPLE OF SINGLE BURST OF RADAR TYPE 5



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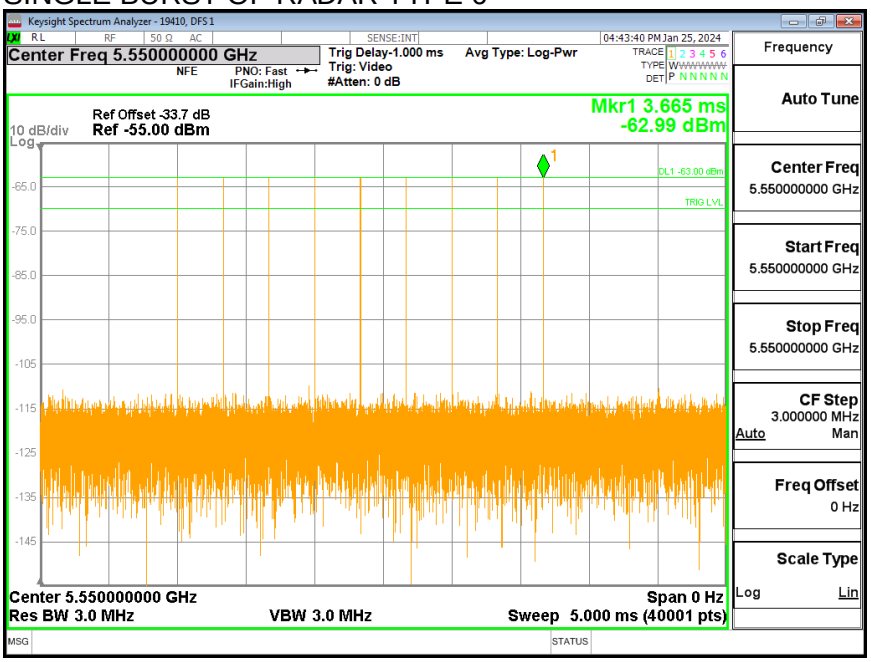
SINGLE BURST OF RADAR TYPE 6



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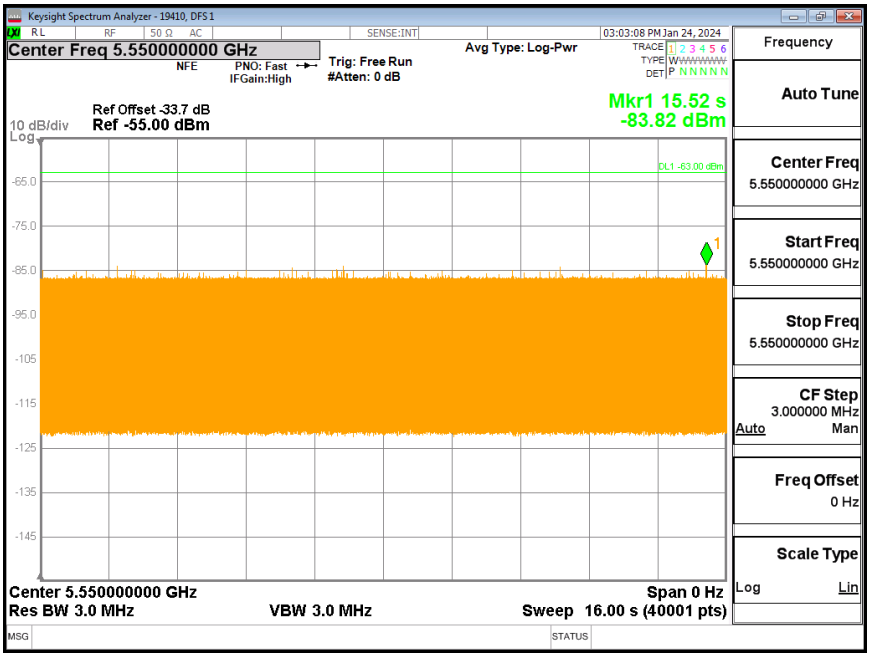
TRAFFIC

TRAFFIC



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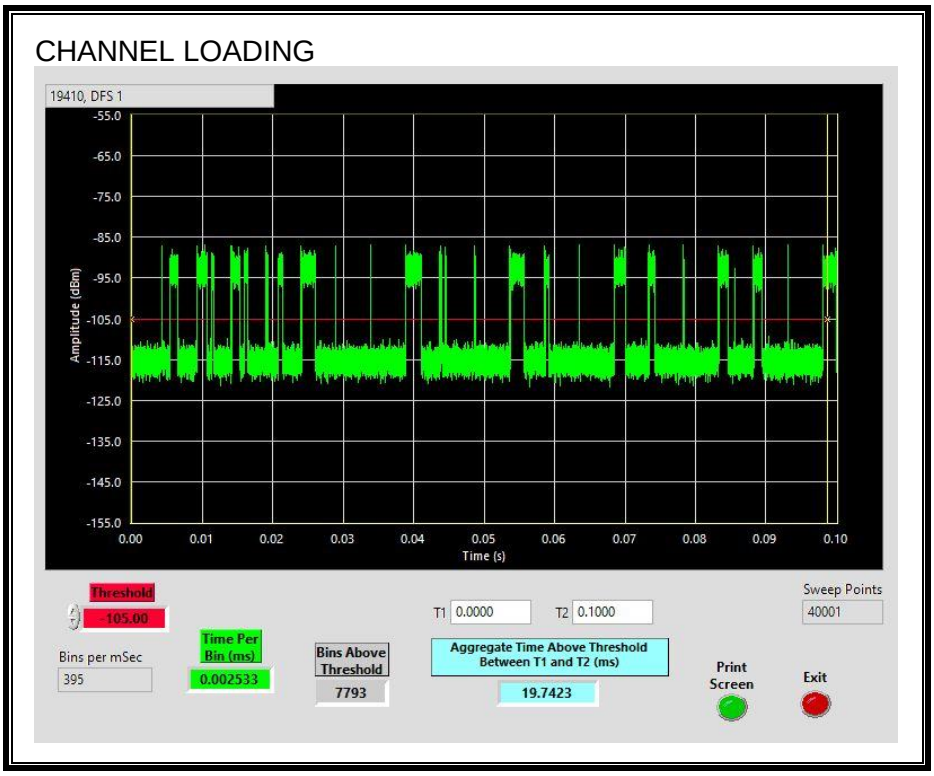
CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 19.74%

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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.

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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)
30.53	186.4	155.9	95.9

Radar Near Beginning of CAC

Timing of Reboot (sec)	Timing of Radar Burst (sec)	Radar Relative to Reboot (sec)	Radar Relative to Start of CAC (sec)
30.47	128.5	98.0	2.2

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)
30.79	184.9	154.1	58.2

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

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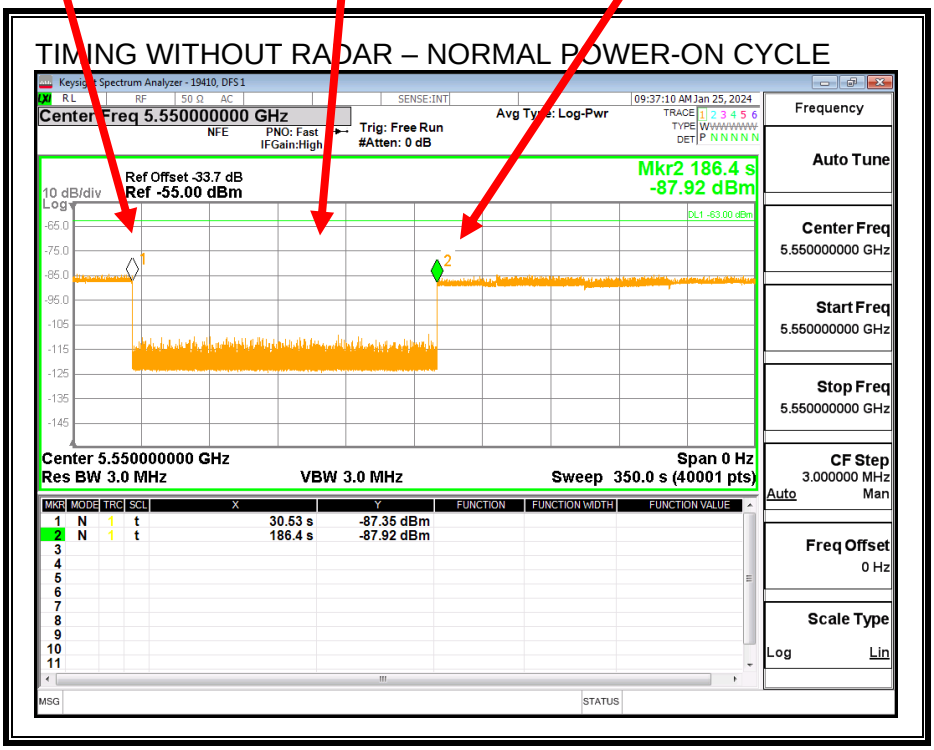
TIMING WITHOUT RADAR DURING CAC

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.

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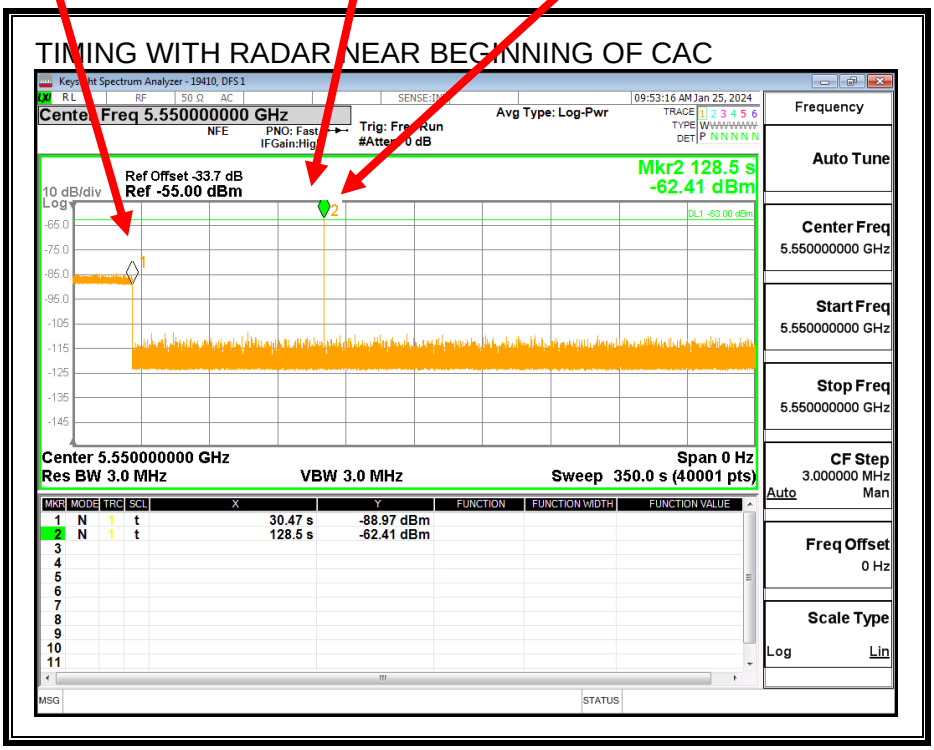
TIMING WITH RADAR NEAR BEGINNING OF CAC

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.

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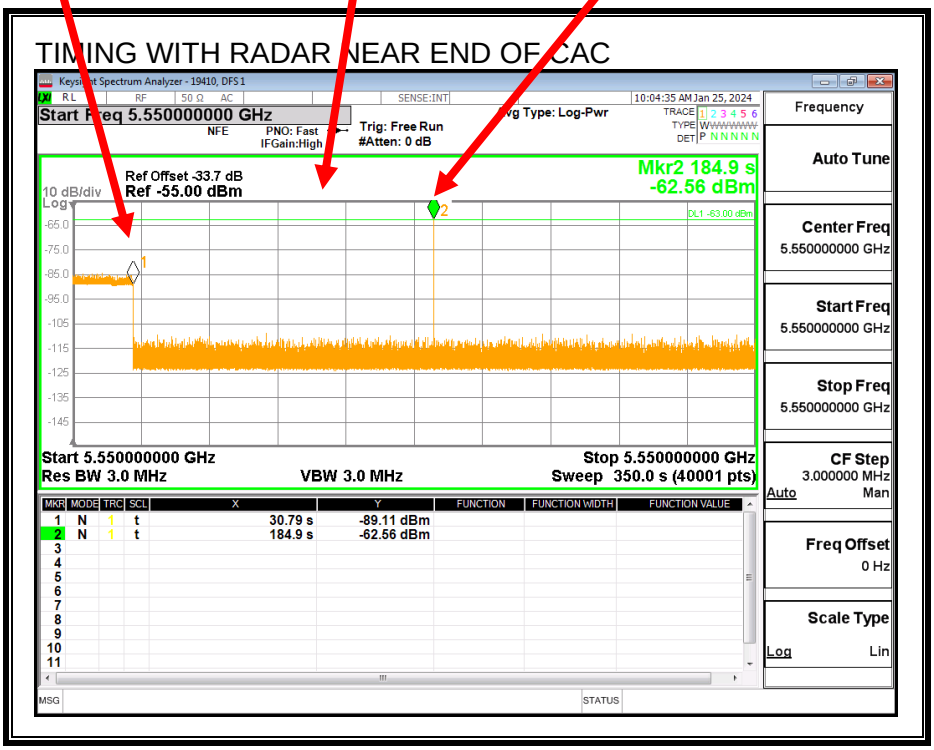
TIMING WITH RADAR NEAR END OF CAC

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.

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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.

These tests are not applicable.

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)
0.0304	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
0	60

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MOVE TIME

MOVE TIME

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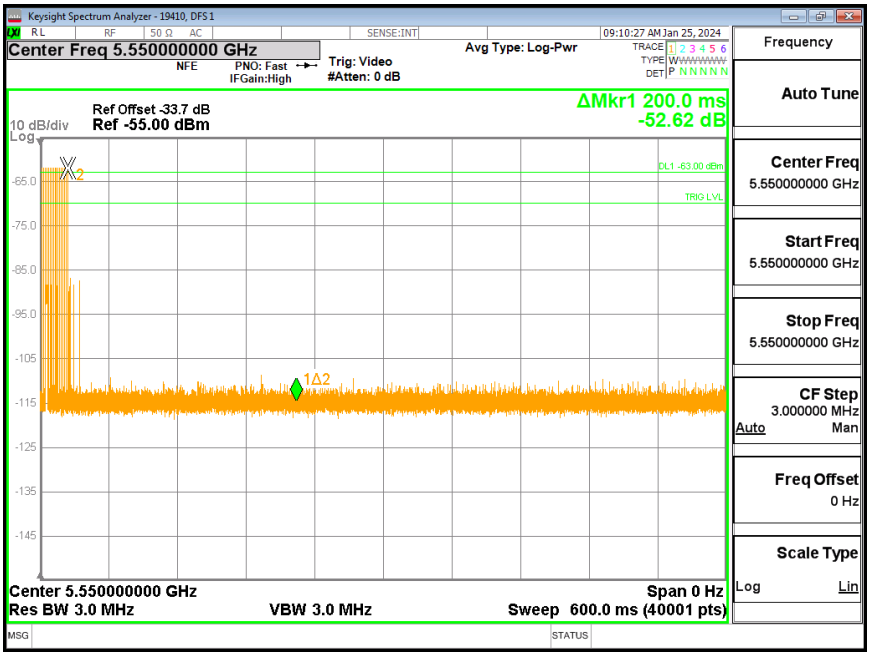
CHANNEL CLOSING TIME

CLOSING TIME



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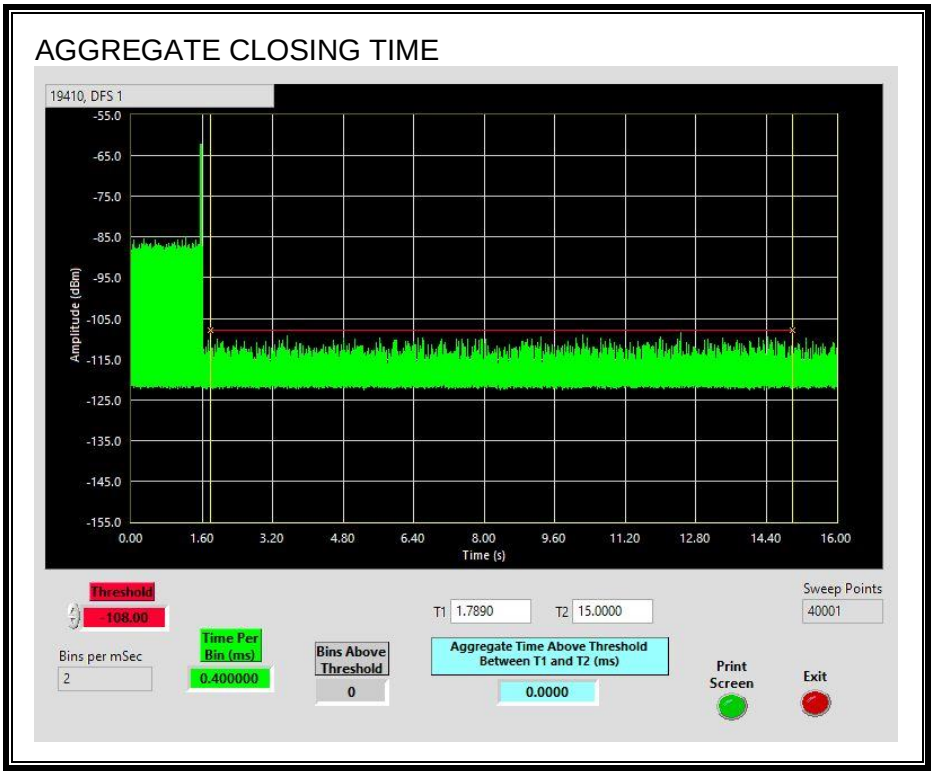
AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.



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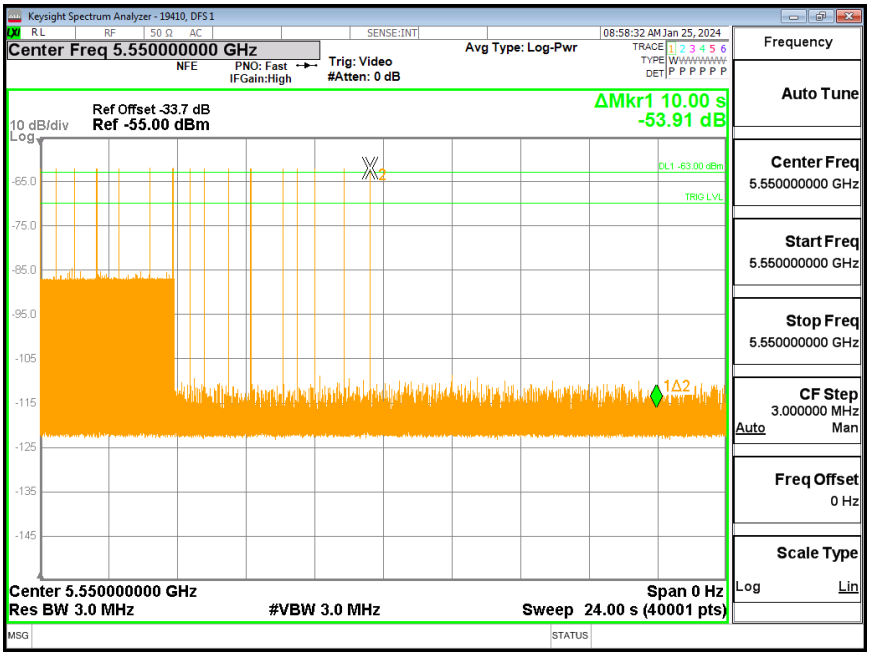
LONG PULSE CHANNEL MOVE TIME

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

MOVE TIME FOR LONG PULSE RADAR



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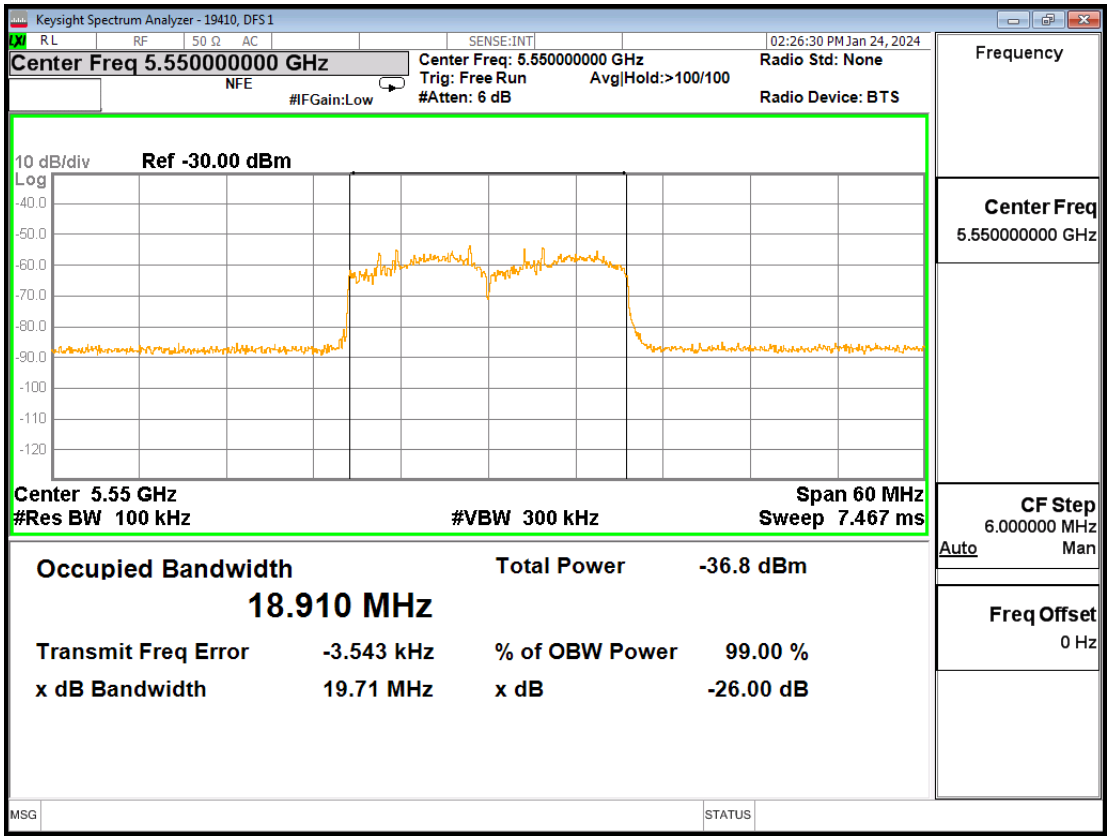
7.2.6. DETECTION BANDWIDTH

REFERENCE PLOT OF 99% POWER BANDWIDTH

99% 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 (%)
5540	5560	20	18.91	105.8	100

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DETECTION BANDWIDTH PROBABILITY

DETECTION BANDWIDTH PROBABILITY RESULTS

Detection Bandwidth Test Results				
FCC Type 0 Waveform: 1 us Pulse Width, 1428 us PRI, 18 Pulses per Burst				
Frequency (MHz)	Number of Trials	Number Detected	Detection (%)	Mark
5539	1	0	0.00	
5540	10	10	100	FL
5545	10	10	100	
5550	10	10	100	
5555	10	10	100	
5560	10	10	100	FH
5561	1	0	0	

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7.2.7. IN-SERVICE MONITORING

RESULTS

FCC Radar Test Summary

Signal Type	Number of Trials	Detection (%)	Limit (%)	Pass/Fail	Detection Bandwidth FL	Detection Bandwidth FH	OBW	Test Location	Employee Number	In-Service Monitoring Version
FCC Short Pulse Type 1	30	93.33	60	Pass	5540	5560	18.91	DFS 1	19410	v2023.10.17
FCC Short Pulse Type 2	30	100.00	60	Pass	5540	5560	18.91	DFS 1	19410	v2023.10.17
FCC Short Pulse Type 3	30	100.00	60	Pass	5540	5560	18.91	DFS 1	19410	v2023.10.17
FCC Short Pulse Type 4	30	100.00	60	Pass	5540	5560	18.91	DFS 1	19410	v2023.10.17
Aggregate		98.33	80	Pass	5540	5560	18.91	DFS 1	19410	v2023.10.17
FCC Long Pulse Type 5	30	96.67	80	Pass	5540	5560	18.91	DFS 1	19410	v2023.10.17
FCC Hopping Type 6	42	90.48	70	Pass	5540	5560	18.91	DFS 1	19410	v2023.10.17

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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	5548	Yes
1002	1	938	57	A	5553	Yes
1003	1	598	89	A	5548	Yes
1004	1	738	72	A	5551	Yes
1005	1	858	62	A	5550	Yes
1006	1	838	63	A	5554	Yes
1007	1	538	99	A	5557	Yes
1008	1	758	70	A	5557	Yes
1009	1	718	74	A	5556	Yes
1010	1	558	95	A	5557	Yes
1011	1	658	81	A	5547	Yes
1012	1	778	68	A	5559	Yes
1013	1	618	86	A	5555	Yes
1014	1	678	78	A	5559	Yes
1015	1	798	67	A	5544	Yes
1016	1	2133	25	B	5547	Yes
1017	1	1894	28	B	5542	Yes
1018	1	1980	27	B	5540	No
1019	1	1871	29	B	5551	No
1020	1	891	60	B	5560	Yes
1021	1	912	58	B	5554	Yes
1022	1	1415	38	B	5558	Yes
1023	1	1565	34	B	5553	Yes
1024	1	2197	25	B	5544	Yes
1025	1	1282	42	B	5545	Yes
1026	1	2044	26	B	5551	Yes
1027	1	2612	21	B	5559	Yes
1028	1	956	56	B	5555	Yes
1029	1	1653	32	B	5557	Yes
1030	1	1479	36	B	5559	Yes

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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	3.7	202	26	5558	Yes
2002	3.4	194	24	5556	Yes
2003	3.8	179	29	5552	Yes
2004	3.7	218	24	5558	Yes
2005	4.4	208	26	5556	Yes
2006	2.6	208	24	5553	Yes
2007	3.4	163	23	5549	Yes
2008	4	211	25	5546	Yes
2009	1	170	29	5560	Yes
2010	1.8	222	28	5546	Yes
2011	1.1	229	25	5558	Yes
2012	2.1	165	24	5552	Yes
2013	1.7	214	28	5558	Yes
2014	1	197	25	5558	Yes
2015	4.8	170	26	5554	Yes
2016	4.3	157	23	5549	Yes
2017	2.4	177	24	5541	Yes
2018	4.3	211	28	5553	Yes
2019	2.5	154	27	5553	Yes
2020	4.6	193	28	5548	Yes
2021	3.1	182	27	5553	Yes
2022	1.3	225	29	5553	Yes
2023	2.1	219	28	5559	Yes
2024	2.7	185	27	5550	Yes
2025	3.8	226	27	5551	Yes
2026	4.6	158	26	5541	Yes
2027	3.9	203	29	5543	Yes
2028	4.9	220	29	5542	Yes
2029	4.5	188	23	5542	Yes
2030	3.8	172	29	5555	Yes

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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	8.5	483	16	5542	Yes
3002	8	445	18	5551	Yes
3003	6.1	387	18	5560	Yes
3004	8	361	16	5559	Yes
3005	6.2	434	16	5557	Yes
3006	8.3	303	17	5553	Yes
3007	6.8	271	17	5551	Yes
3008	9.1	404	17	5542	Yes
3009	8	385	17	5550	Yes
3010	6.4	280	16	5556	Yes
3011	7.5	406	16	5557	Yes
3012	8.3	447	16	5552	Yes
3013	7.6	336	18	5548	Yes
3014	8.6	389	17	5550	Yes
3015	8.2	290	18	5553	Yes
3016	7.5	490	18	5551	Yes
3017	9.4	286	18	5559	Yes
3018	8.9	365	17	5549	Yes
3019	8.9	308	17	5555	Yes
3020	6.7	282	18	5556	Yes
3021	9	355	16	5556	Yes
3022	7	475	16	5541	Yes
3023	9.6	443	16	5555	Yes
3024	10	325	16	5545	Yes
3025	6.7	305	16	5542	Yes
3026	9.2	451	16	5558	Yes
3027	8.4	327	18	5542	Yes
3028	7	368	18	5546	Yes
3029	6.3	256	17	5546	Yes
3030	7.3	310	18	5553	Yes

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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	17.9	462	13	5551	Yes
4002	11.4	411	16	5547	Yes
4003	15.8	458	14	5555	Yes
4004	14.6	419	12	5543	Yes
4005	19.4	479	13	5543	Yes
4006	18.7	454	14	5549	Yes
4007	14.9	409	15	5553	Yes
4008	19.5	396	16	5550	Yes
4009	11.9	363	15	5558	Yes
4010	17	497	16	5560	Yes
4011	18.9	477	16	5560	Yes
4012	15.3	254	15	5545	Yes
4013	13.5	499	15	5549	Yes
4014	19.4	288	14	5546	Yes
4015	18	428	12	5542	Yes
4016	15.9	481	14	5559	Yes
4017	15	265	12	5551	Yes
4018	17.6	331	14	5559	Yes
4019	12.9	379	13	5552	Yes
4020	11.7	340	15	5543	Yes
4021	16.6	400	14	5552	Yes
4022	15.9	374	12	5558	Yes
4023	12	329	13	5545	Yes
4024	16.6	316	14	5545	Yes
4025	18.1	284	14	5550	Yes
4026	14.1	417	15	5547	Yes
4027	16	398	14	5549	Yes
4028	12.4	426	13	5555	Yes
4029	19.7	419	16	5542	Yes
4030	12.3	460	15	5560	Yes

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TYPE 5 DETECTION PROBABILITY

Data Sheet for FCC Long Pulse Radar Type 5		
Trial	**Frequency (MHz)**	**Successful Detection (Yes/No)**
1	5550	Yes
2	5550	No
3	5550	Yes
4	5550	Yes
5	5550	Yes
6	5550	Yes
7	5550	Yes
8	5550	Yes
9	5550	Yes
10	5550	Yes
11	5547	Yes
12	5548	Yes
13	5548	Yes
14	5546	Yes
15	5544	Yes
16	5546	Yes
17	5544	Yes
18	5546	Yes
19	5544	Yes
20	5546	Yes
21	5556	Yes
22	5555	Yes
23	5553	Yes
24	5554	Yes
25	5551	Yes
26	5555	Yes
27	5555	Yes
28	5557	Yes
29	5556	Yes
30	5557	Yes

Note: The Type 5 randomized parameters tested are located in Appendix A.

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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	839	5540	5	Yes
2	1314	5541	3	Yes
3	1789	5542	6	No
4	2264	5543	5	Yes
5	2739	5544	6	Yes
6	3214	5545	3	Yes
7	3689	5546	4	Yes
8	4164	5547	2	Yes
9	4639	5548	6	Yes
10	5114	5549	4	Yes
11	5589	5550	7	Yes
12	6064	5551	5	Yes
13	6539	5552	2	Yes
14	7014	5553	4	Yes
15	7489	5554	2	Yes
16	7964	5555	7	Yes
17	8439	5556	5	Yes
18	8914	5557	7	Yes
19	9389	5558	6	Yes
20	9864	5559	1	Yes
21	10339	5560	3	No
22	10814	5540	8	No
23	11289	5541	6	Yes
24	12239	5542	4	No
25	12714	5543	8	Yes
26	13189	5544	5	Yes
27	13664	5545	4	Yes
28	14139	5546	2	Yes
29	14614	5547	6	Yes
30	15089	5548	4	Yes
31	15564	5549	3	Yes
32	16039	5550	3	Yes
33	16514	5551	5	Yes
34	16989	5552	5	Yes
35	17464	5553	2	Yes
36	17939	5554	5	Yes
37	18414	5555	8	Yes
38	18889	5556	5	Yes
39	19364	5557	2	Yes
40	19839	5558	7	Yes
41	20314	5559	4	Yes
42	20789	5560	2	Yes

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RESULTS FOR 40 MHz BANDWIDTH

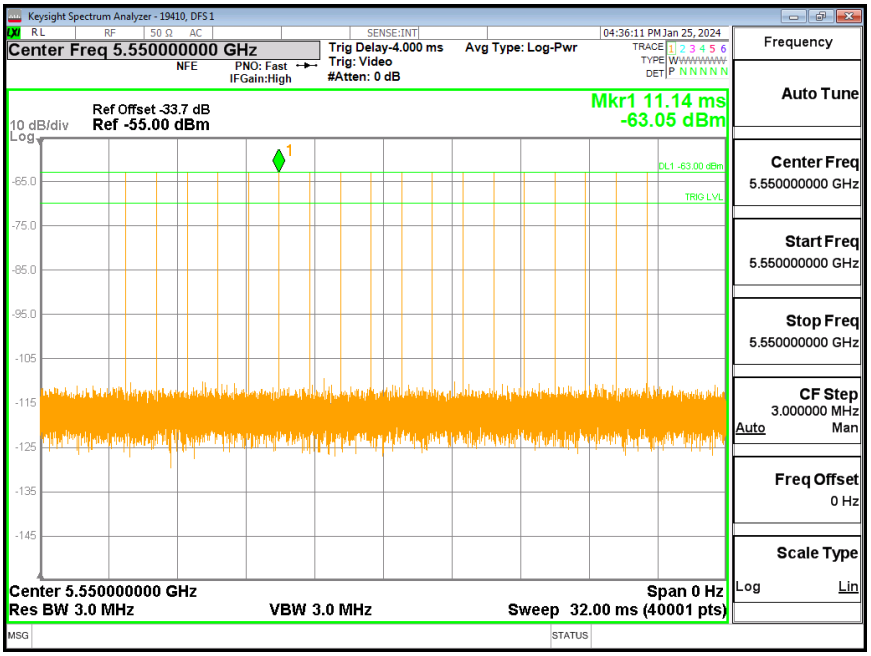
7.2.8. TEST CHANNEL

All tests were performed at a channel center frequency of 5550 MHz.

7.2.9. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

SHORT PULSE RADAR TYPE 0



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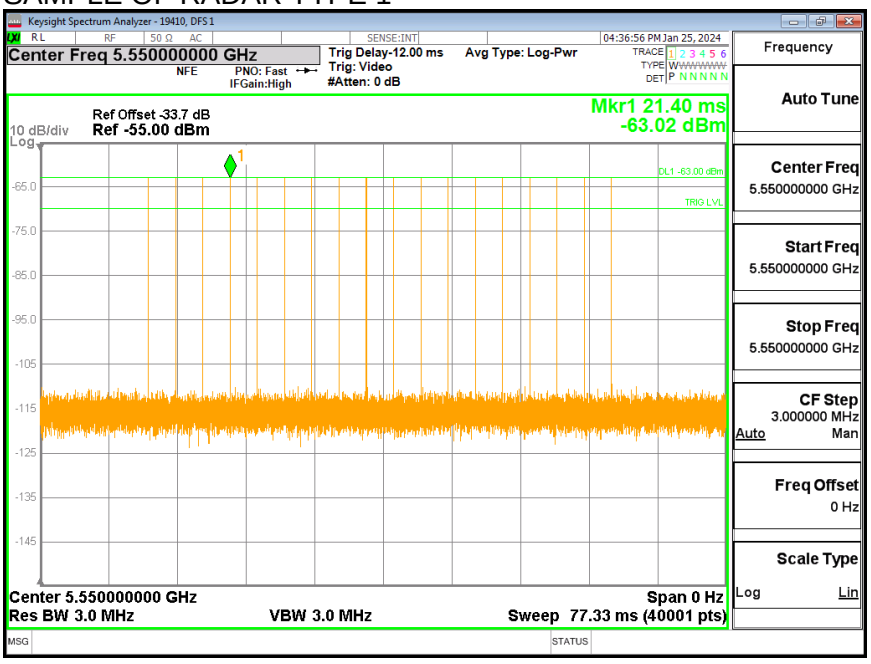
SAMPLE OF RADAR TYPE 1



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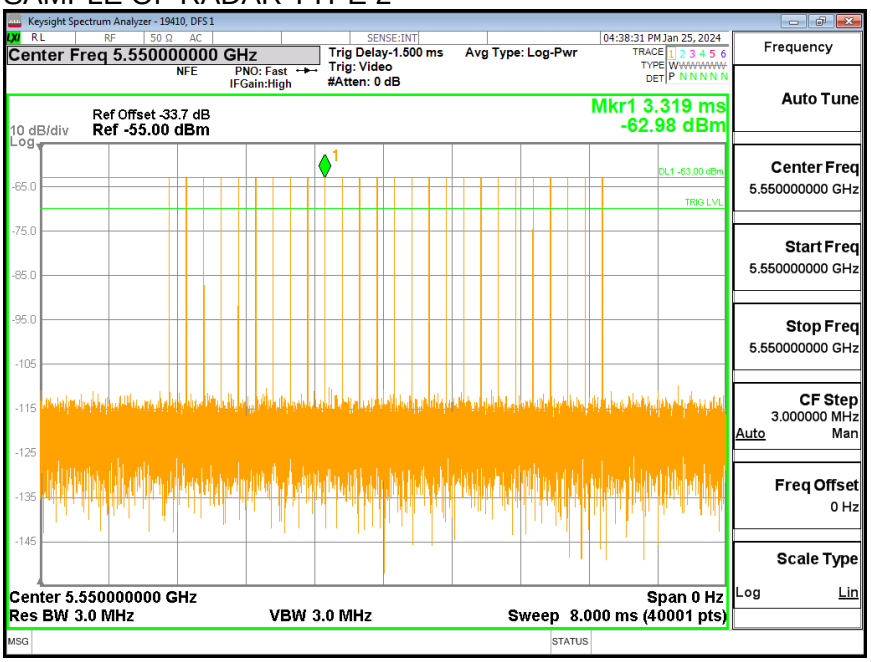
SAMPLE OF RADAR TYPE 2



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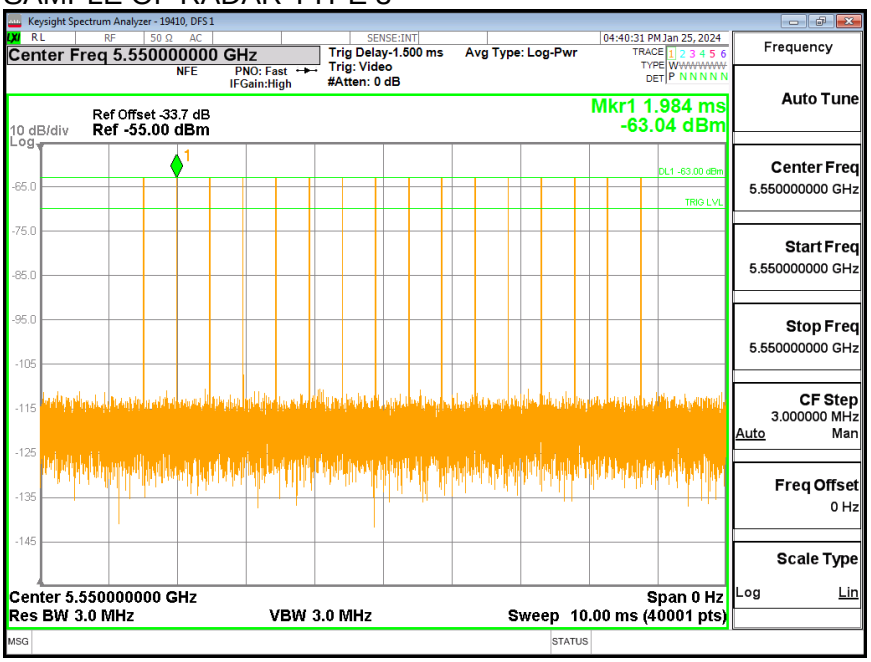
SAMPLE OF RADAR TYPE 3



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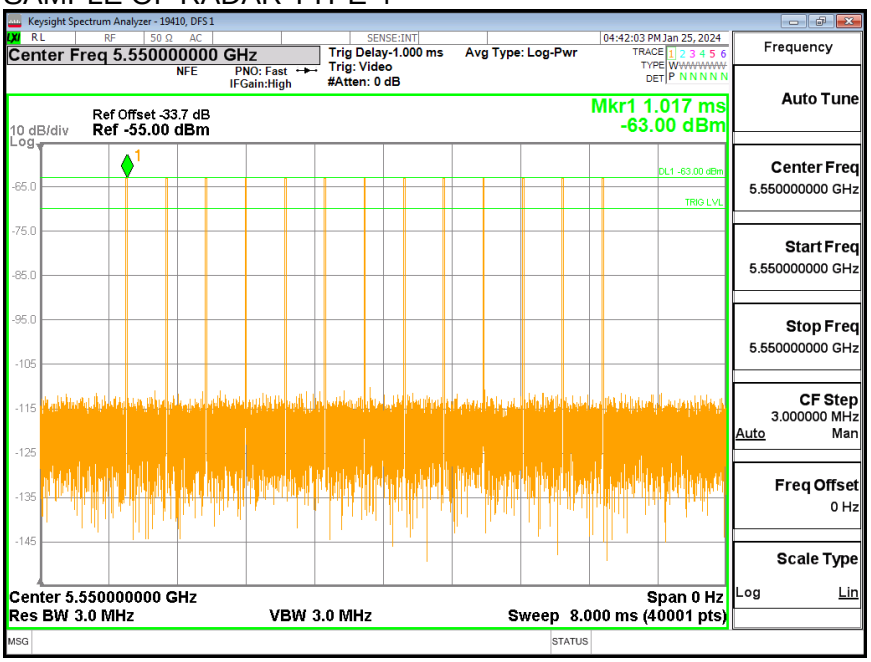
SAMPLE OF RADAR TYPE 4



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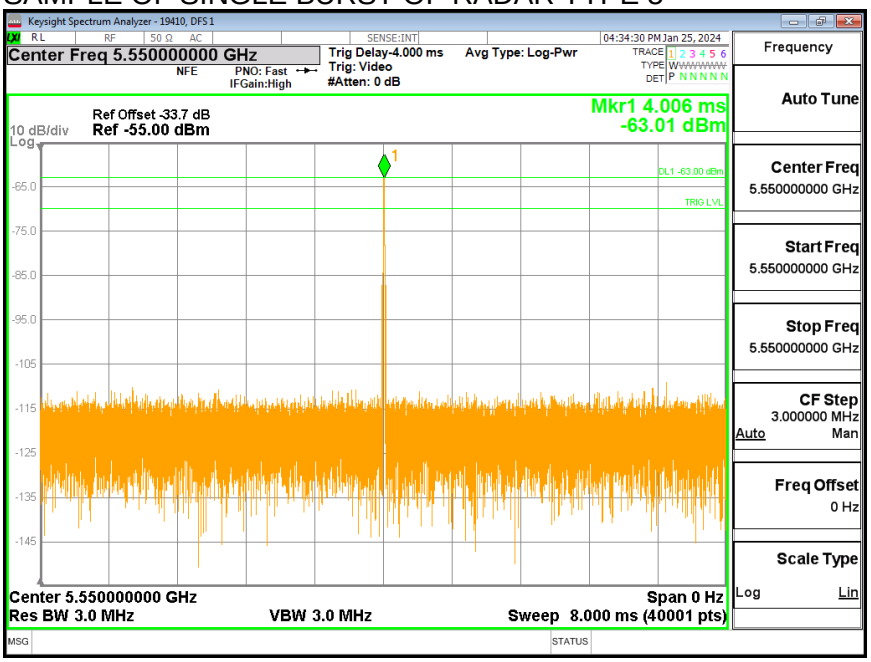
SAMPLE OF SINGLE BURST OF RADAR TYPE 5



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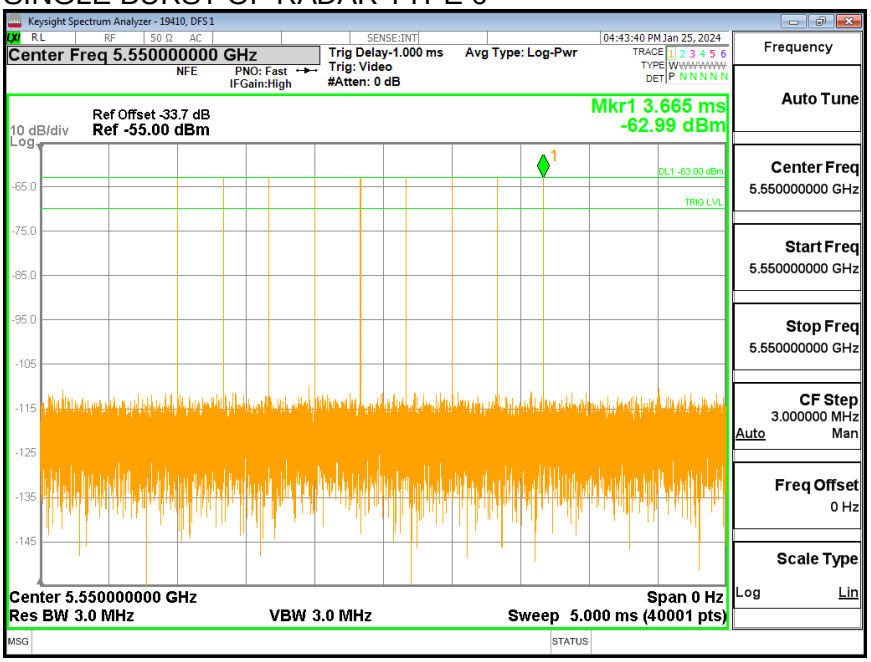
SINGLE BURST OF RADAR TYPE 6



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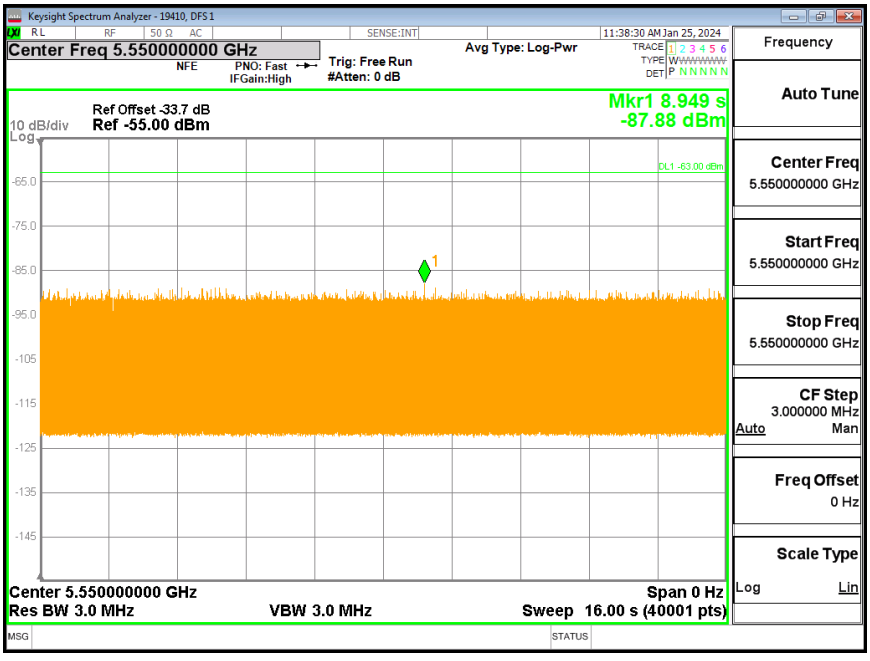
TRAFFIC

TRAFFIC



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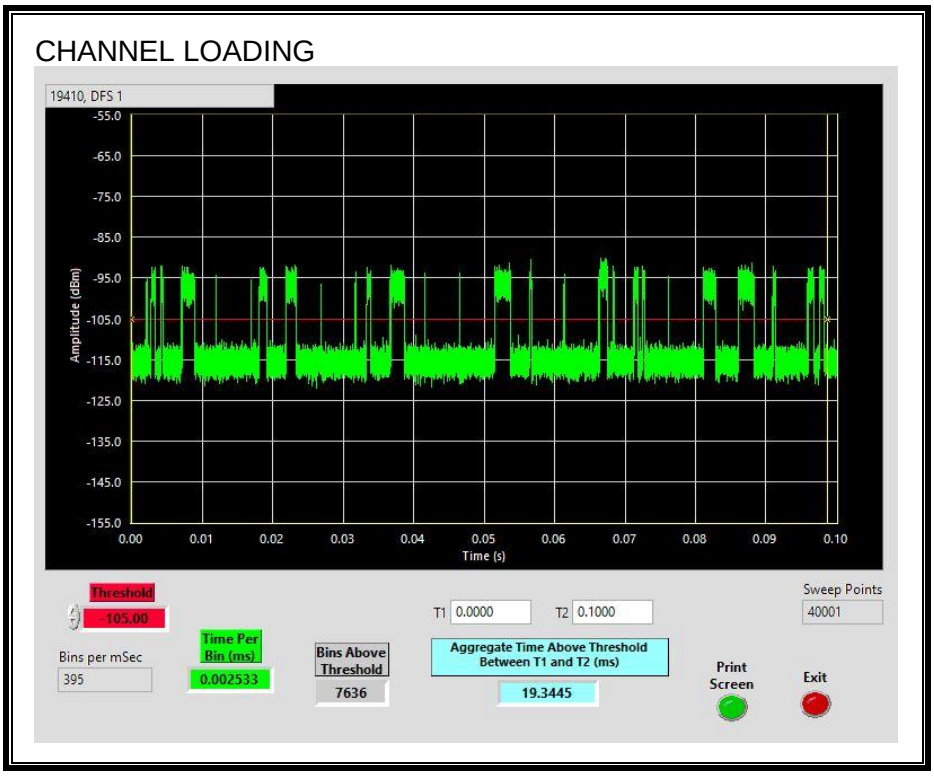
CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 19.34%

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7.2.10. 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.

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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)
30.45	188.6	158.2	98.2

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)
30.45	130.5	100.1	1.9

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)
30.51	186.9	156.4	58.2

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

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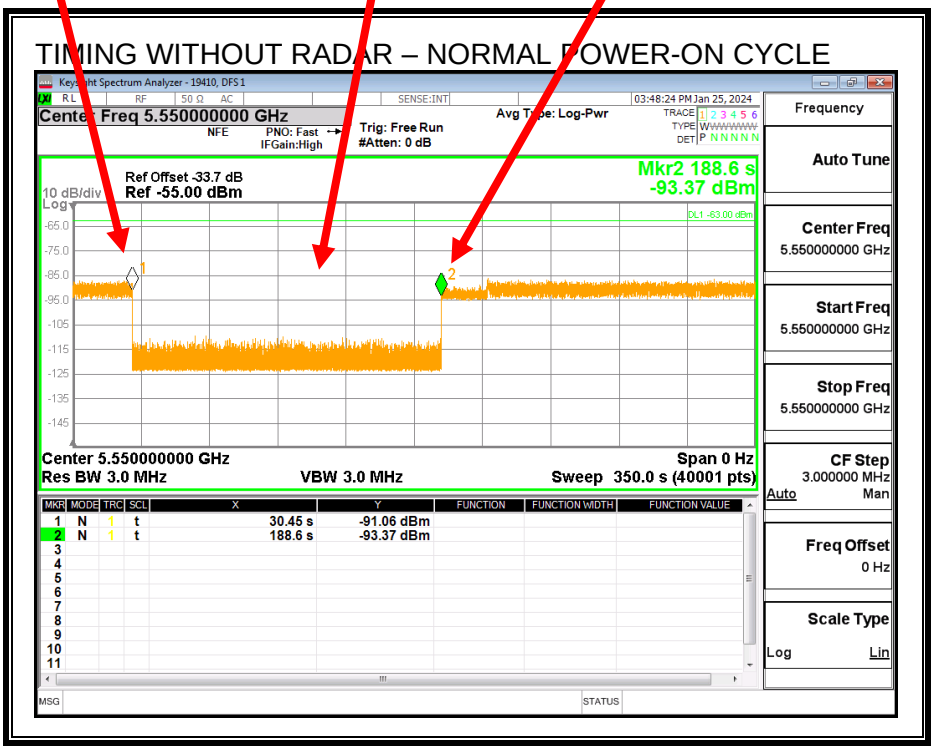
TIMING WITHOUT RADAR DURING CAC

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.

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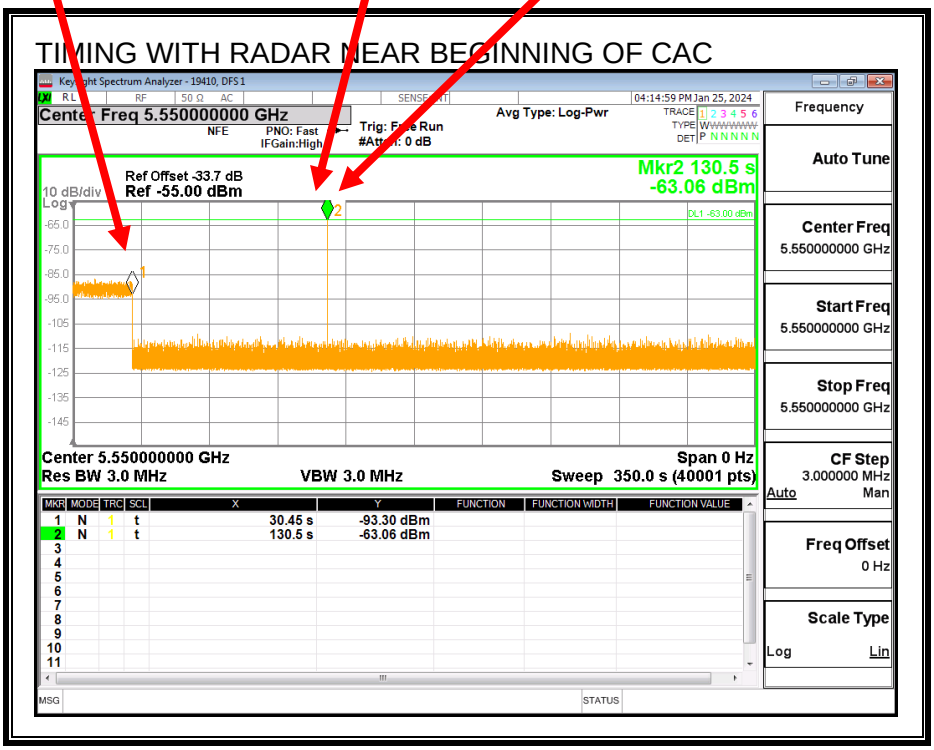
TIMING WITH RADAR NEAR BEGINNING OF CAC

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.

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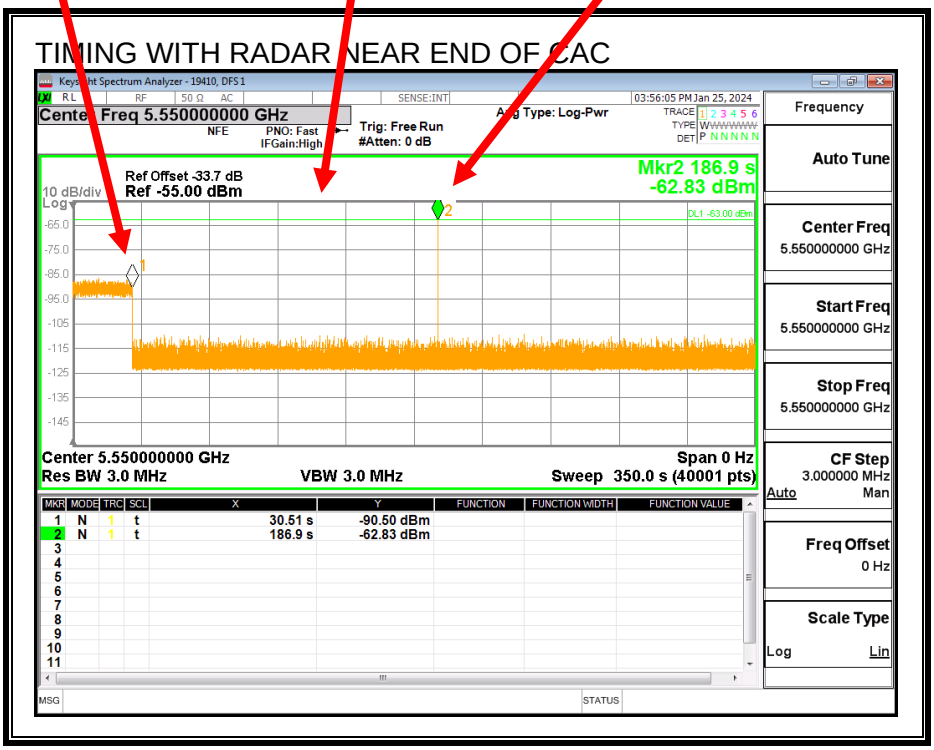
TIMING WITH RADAR NEAR END OF CAC

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.

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7.2.11. OVERLAPPING CHANNEL TESTS

RESULTS

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

These tests are not applicable.

7.2.12. 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)
0.0116	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
0	60

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MOVE TIME

MOVE TIME

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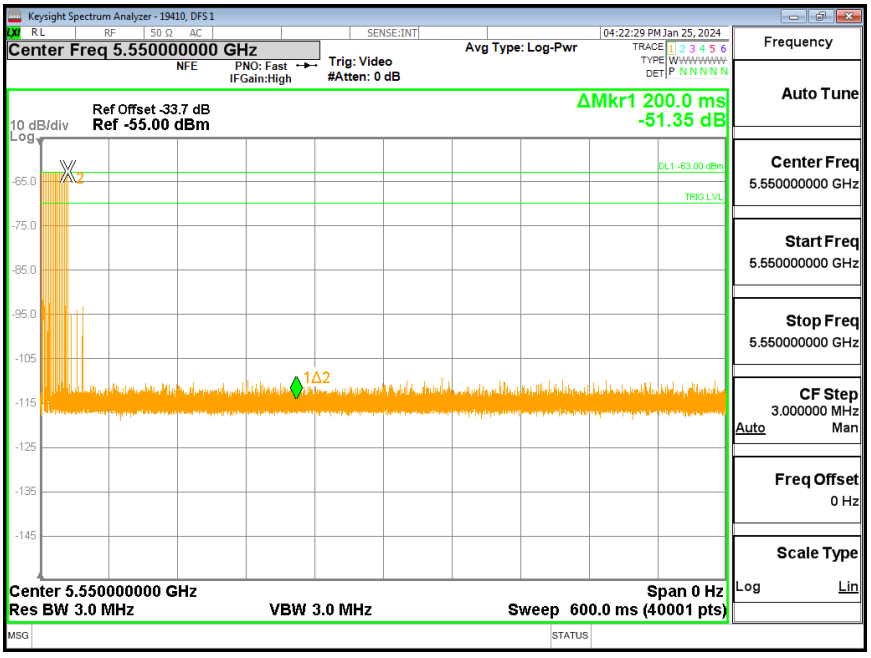
CHANNEL CLOSING TIME

CLOSING TIME



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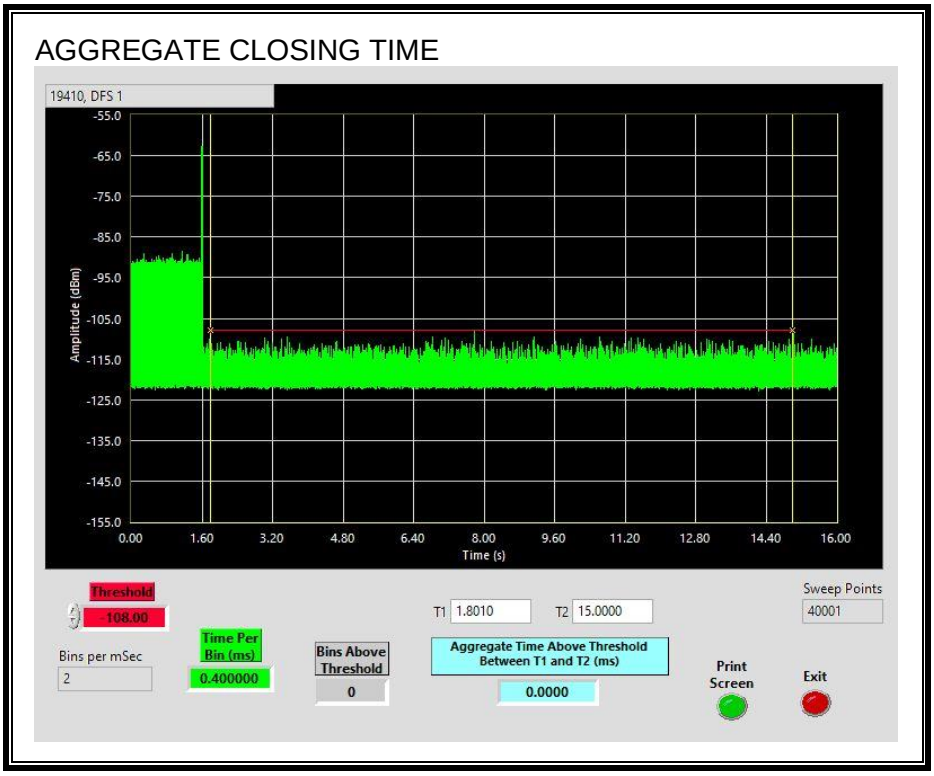
AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.



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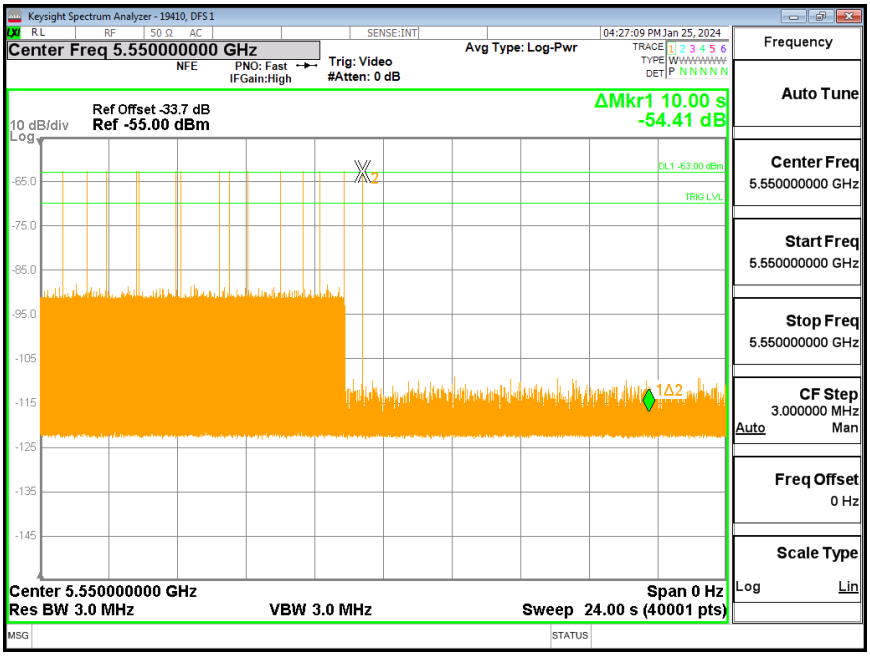
LONG PULSE CHANNEL MOVE TIME

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

MOVE TIME FOR LONG PULSE RADAR



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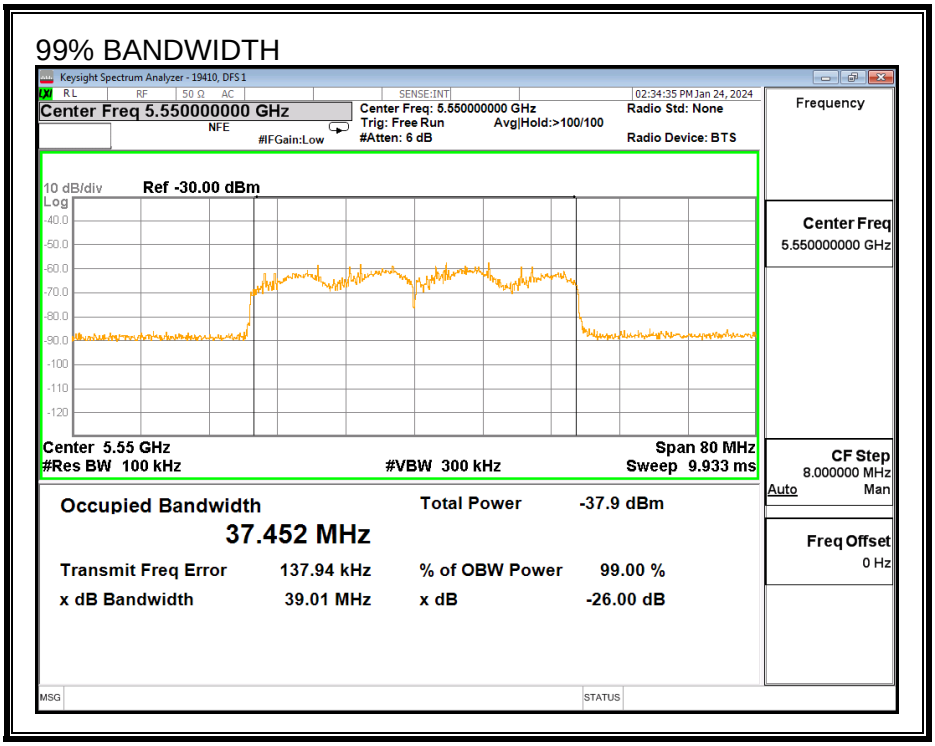
7.2.13. DETECTION BANDWIDTH

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 (%)
5530	5570	40	37.452	106.8	100

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DETECTION BANDWIDTH PROBABILITY

DETECTION BANDWIDTH PROBABILITY RESULTS

Detection Bandwidth Test Results 19410 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
5529	1	0	0	
5530	10	10	100	FL
5535	10	10	100	
5540	10	10	100	
5545	10	10	100	
5550	10	10	100	
5555	10	10	100	
5560	10	10	100	
5565	10	10	100	
5570	10	10	100	FH
5571	1	0	0	

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7.2.14. 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	5530	5570	37.45	DFS 1	19410	v2023.10.17
FCC Short Pulse Type 2	30	100.00	60	Pass	5530	5570	37.45	DFS 1	19410	v2023.10.17
FCC Short Pulse Type 3	30	100.00	60	Pass	5530	5570	37.45	DFS 1	19410	v2023.10.17
FCC Short Pulse Type 4	30	96.67	60	Pass	5530	5570	37.45	DFS 1	19410	v2023.10.17
Aggregate		99.17	80	Pass	5530	5570	37.45	DFS 1	19410	v2023.10.17
FCC Long Pulse Type 5	30	96.67	80	Pass	5530	5570	37.45	DFS 1	19410	v2023.10.17
FCC Hopping Type 6	41	100.00	70	Pass	5530	5570	37.45	DFS 1	19410	v2023.10.17

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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	5540	Yes
1002	1	938	57	A	5536	Yes
1003	1	598	89	A	5568	Yes
1004	1	738	72	A	5563	Yes
1005	1	858	62	A	5539	Yes
1006	1	838	63	A	5542	Yes
1007	1	538	99	A	5542	Yes
1008	1	758	70	A	5558	Yes
1009	1	718	74	A	5543	Yes
1010	1	558	95	A	5543	Yes
1011	1	658	81	A	5551	Yes
1012	1	778	68	A	5560	Yes
1013	1	618	86	A	5547	Yes
1014	1	678	78	A	5570	Yes
1015	1	798	67	A	5555	Yes
1016	1	2133	25	B	5543	Yes
1017	1	1894	28	B	5537	Yes
1018	1	1980	27	B	5559	Yes
1019	1	1871	29	B	5548	Yes
1020	1	891	60	B	5547	Yes
1021	1	912	58	B	5554	Yes
1022	1	1415	38	B	5541	Yes
1023	1	1565	34	B	5569	Yes
1024	1	2197	25	B	5566	Yes
1025	1	1282	42	B	5548	Yes
1026	1	2044	26	B	5567	Yes
1027	1	2612	21	B	5534	Yes
1028	1	956	56	B	5539	Yes
1029	1	1653	32	B	5556	Yes
1030	1	1479	36	B	5569	Yes

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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	3.7	202	26	5555	Yes
2002	3.4	194	24	5546	Yes
2003	3.8	179	29	5562	Yes
2004	3.7	218	24	5535	Yes
2005	4.4	208	26	5559	Yes
2006	2.6	208	24	5555	Yes
2007	3.4	163	23	5537	Yes
2008	4	211	25	5536	Yes
2009	1	170	29	5549	Yes
2010	1.8	222	28	5555	Yes
2011	1.1	229	25	5539	Yes
2012	2.1	165	24	5560	Yes
2013	1.7	214	28	5550	Yes
2014	1	197	25	5560	Yes
2015	4.8	170	26	5551	Yes
2016	4.3	157	23	5532	Yes
2017	2.4	177	24	5568	Yes
2018	4.3	211	28	5540	Yes
2019	2.5	154	27	5535	Yes
2020	4.6	193	28	5551	Yes
2021	3.1	182	27	5547	Yes
2022	1.3	225	29	5544	Yes
2023	2.1	219	28	5558	Yes
2024	2.7	185	27	5536	Yes
2025	3.8	226	27	5547	Yes
2026	4.6	158	26	5544	Yes
2027	3.9	203	29	5534	Yes
2028	4.9	220	29	5536	Yes
2029	4.5	188	23	5536	Yes
2030	3.8	172	29	5543	Yes

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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	8.5	483	16	5542	Yes
3002	8	445	18	5538	Yes
3003	6.1	387	18	5549	Yes
3004	8	361	16	5546	Yes
3005	6.2	434	16	5555	Yes
3006	8.3	303	17	5548	Yes
3007	6.8	271	17	5535	Yes
3008	9.1	404	17	5541	Yes
3009	8	385	17	5565	Yes
3010	6.4	280	16	5537	Yes
3011	7.5	406	16	5557	Yes
3012	8.3	447	16	5557	Yes
3013	7.6	336	18	5530	Yes
3014	8.6	389	17	5538	Yes
3015	8.2	290	18	5569	Yes
3016	7.5	490	18	5562	Yes
3017	9.4	286	18	5554	Yes
3018	8.9	365	17	5559	Yes
3019	8.9	308	17	5563	Yes
3020	6.7	282	18	5560	Yes
3021	9	355	16	5545	Yes
3022	7	475	16	5550	Yes
3023	9.6	443	16	5553	Yes
3024	10	325	16	5548	Yes
3025	6.7	305	16	5566	Yes
3026	9.2	451	16	5544	Yes
3027	8.4	327	18	5561	Yes
3028	7	368	18	5556	Yes
3029	6.3	256	17	5561	Yes
3030	7.3	310	18	5567	Yes

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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	17.9	462	13	5539	Yes
4002	11.4	411	16	5561	Yes
4003	15.8	458	14	5546	Yes
4004	14.6	419	12	5568	Yes
4005	19.4	479	13	5561	Yes
4006	18.7	454	14	5542	Yes
4007	14.9	409	15	5570	Yes
4008	19.5	396	16	5549	Yes
4009	11.9	363	15	5552	Yes
4010	17	497	16	5557	Yes
4011	18.9	477	16	5539	Yes
4012	15.3	254	15	5550	Yes
4013	13.5	499	15	5543	Yes
4014	19.4	288	14	5554	Yes
4015	18	428	12	5557	Yes
4016	15.9	481	14	5533	Yes
4017	15	265	12	5570	Yes
4018	17.6	331	14	5548	No
4019	12.9	379	13	5542	Yes
4020	11.7	340	15	5561	Yes
4021	16.6	400	14	5568	Yes
4022	15.9	374	12	5553	Yes
4023	12	329	13	5547	Yes
4024	16.6	316	14	5547	Yes
4025	18.1	284	14	5561	Yes
4026	14.1	417	15	5551	Yes
4027	16	398	14	5568	Yes
4028	12.4	426	13	5556	Yes
4029	19.7	419	16	5552	Yes
4030	12.3	460	15	5564	Yes

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TYPE 5 DETECTION PROBABILITY

Data Sheet for FCC Long Pulse Radar Type 5		
Trial	**Frequency (MHz)**	**Successful Detection (Yes/No)**
1	5550	Yes
2	5550	Yes
3	5550	Yes
4	5550	No
5	5550	Yes
6	5550	Yes
7	5550	Yes
8	5550	Yes
9	5550	Yes
10	5550	Yes
11	5538	Yes
12	5539	Yes
13	5539	Yes
14	5537	Yes
15	5535	Yes
16	5537	Yes
17	5535	Yes
18	5537	Yes
19	5535	Yes
20	5537	Yes
21	5565	Yes
22	5564	Yes
23	5562	Yes
24	5563	Yes
25	5560	Yes
26	5564	Yes
27	5564	Yes
28	5566	Yes
29	5565	Yes
30	5566	Yes

Note: The Type 5 randomized parameters tested are located in Appenix A.

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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	844	5530	8	Yes
2	1319	5531	13	Yes
3	1794	5532	9	Yes
4	2269	5533	9	Yes
5	2744	5534	12	Yes
6	3219	5535	7	Yes
7	3694	5536	5	Yes
8	4169	5537	4	Yes
9	4644	5538	10	Yes
10	5119	5539	9	Yes
11	5594	5540	8	Yes
12	6069	5541	7	Yes
13	6544	5542	5	Yes
14	7019	5543	8	Yes
15	7494	5544	8	Yes
16	7969	5545	10	Yes
17	8444	5546	9	Yes
18	8919	5547	11	Yes
19	9394	5548	13	Yes
20	9869	5549	6	Yes
21	10344	5550	5	Yes
22	10819	5551	15	Yes
23	11294	5552	12	Yes
24	11769	5553	3	Yes
25	12244	5554	10	Yes
26	12719	5555	8	Yes
27	13194	5556	10	Yes
28	13669	5557	8	Yes
29	14144	5558	5	Yes
30	14619	5559	12	Yes
31	15094	5560	6	Yes
32	15569	5561	7	Yes
33	16044	5562	10	Yes
34	16519	5563	9	Yes
35	16994	5564	7	Yes
36	17469	5565	5	Yes
37	17944	5566	7	Yes
38	18419	5567	14	Yes
39	18894	5568	8	Yes
40	19369	5569	9	Yes
41	19844	5570	10	Yes

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7.3. RESULTS FOR 80 MHz BANDWIDTH

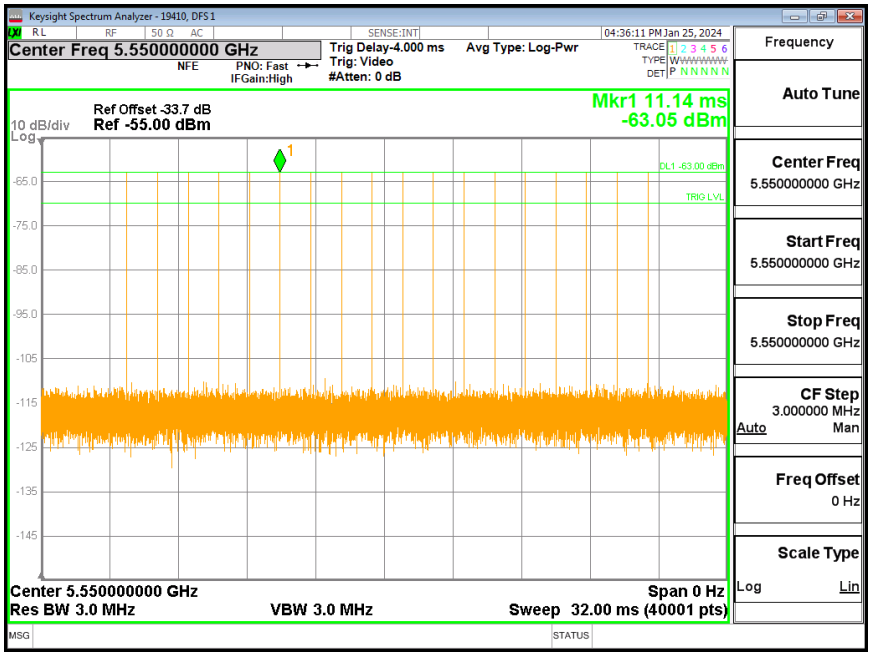
7.3.1. TEST CHANNEL

All tests were performed at a channel center frequency of 5550 MHz.

7.3.2. RADAR WAVEFORMS AND TRAFFIC

RADAR WAVEFORMS

SHORT PULSE RADAR TYPE 0



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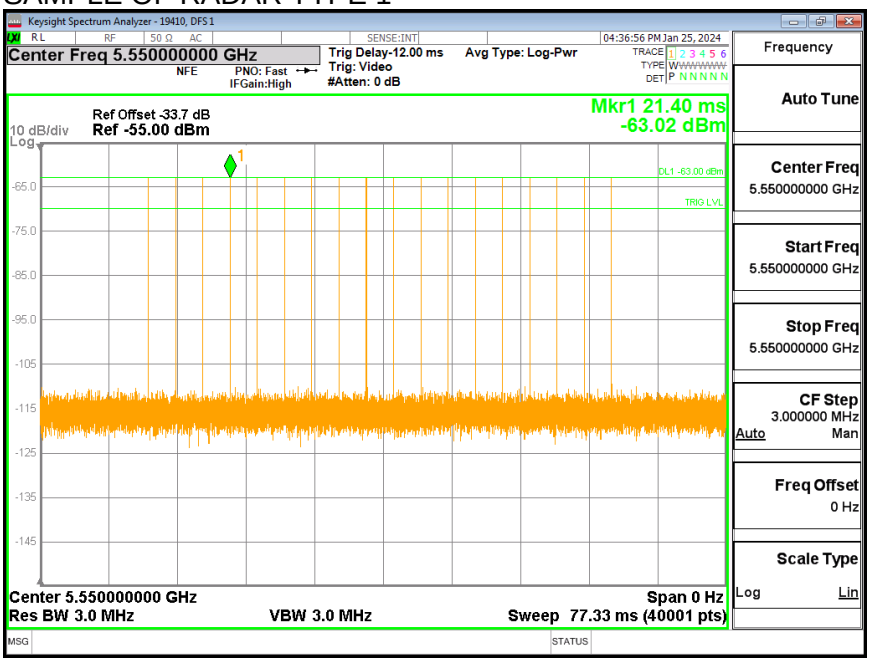
SAMPLE OF RADAR TYPE 1



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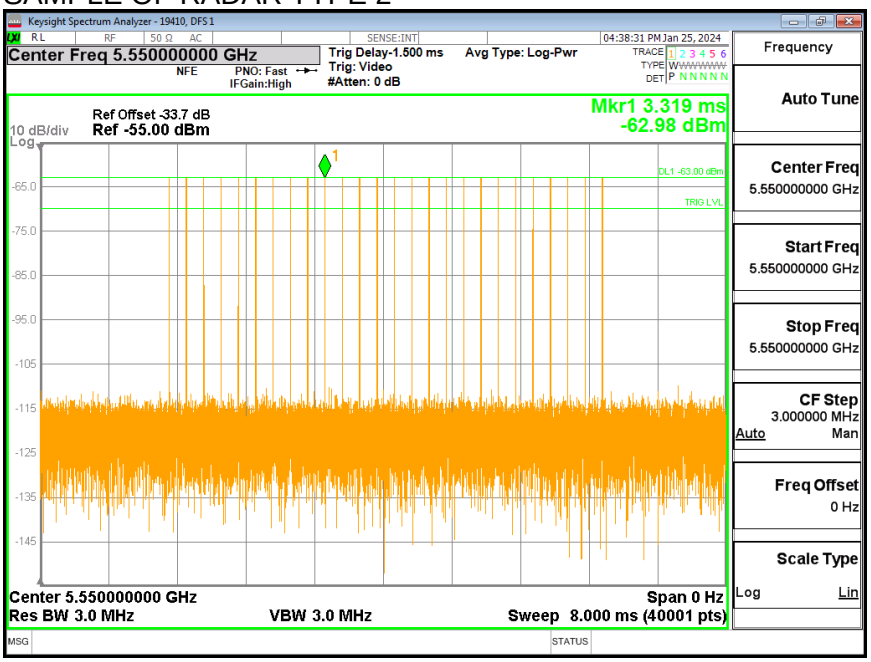
SAMPLE OF RADAR TYPE 2



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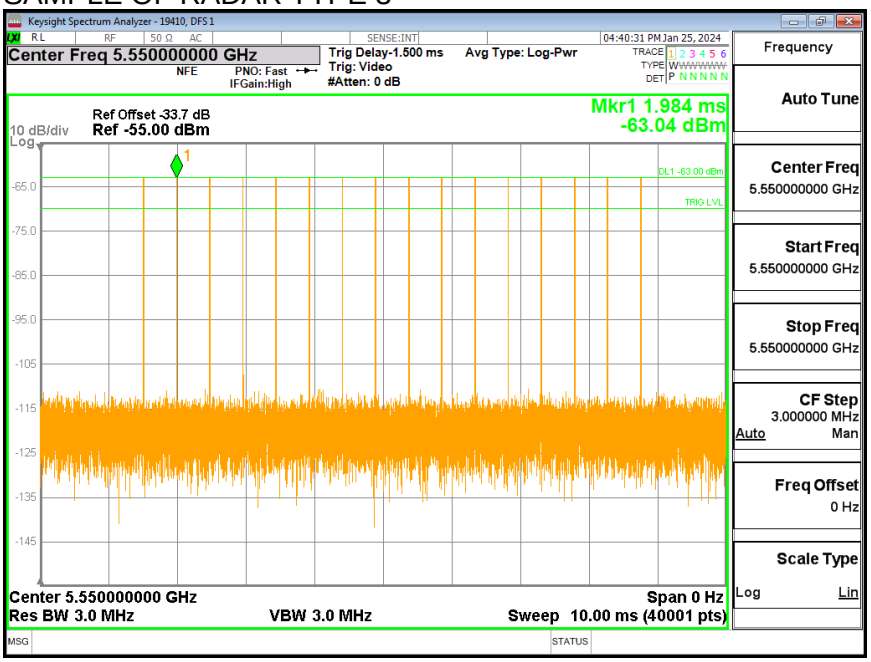
SAMPLE OF RADAR TYPE 3



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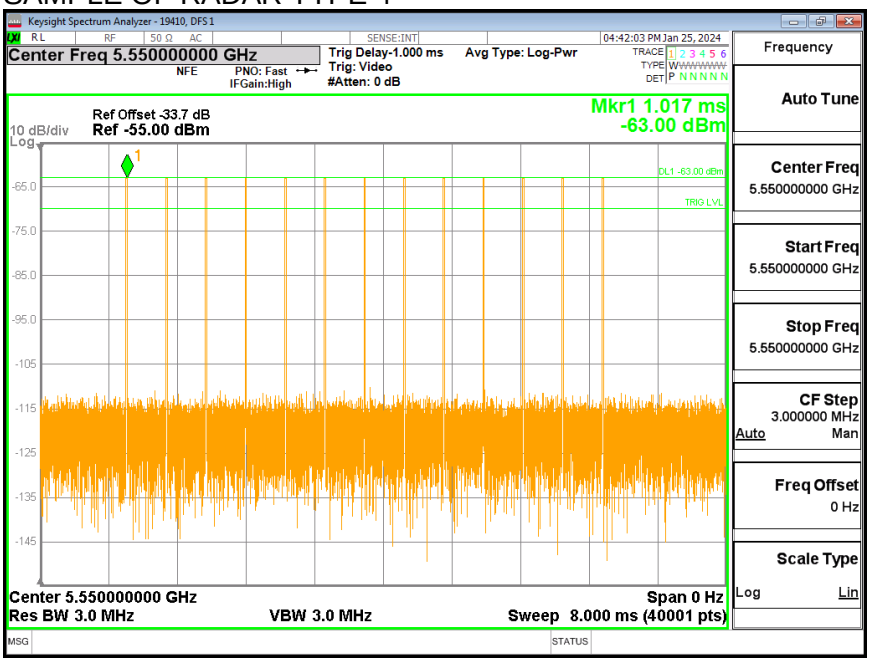
SAMPLE OF RADAR TYPE 4



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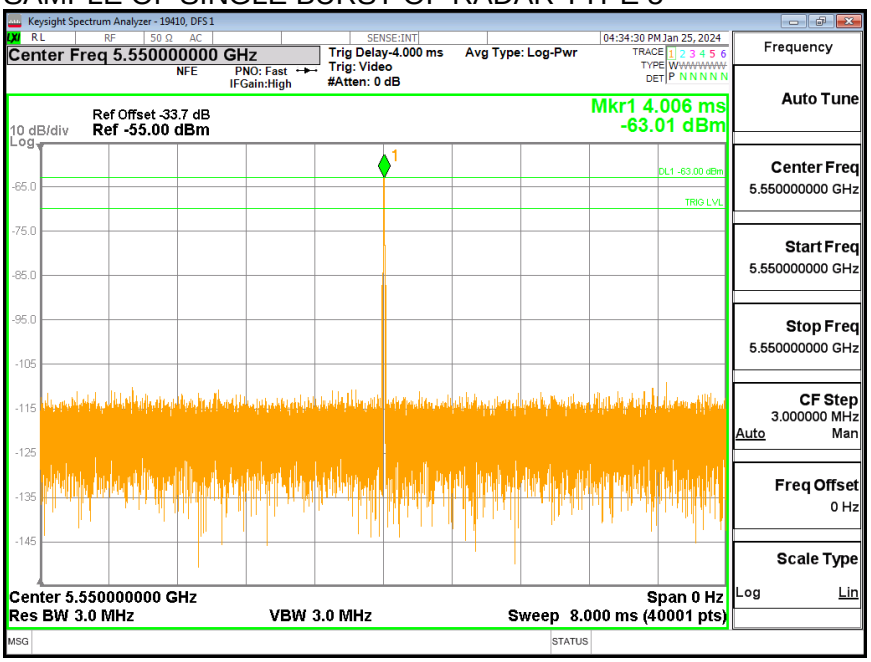
SAMPLE OF SINGLE BURST OF RADAR TYPE 5



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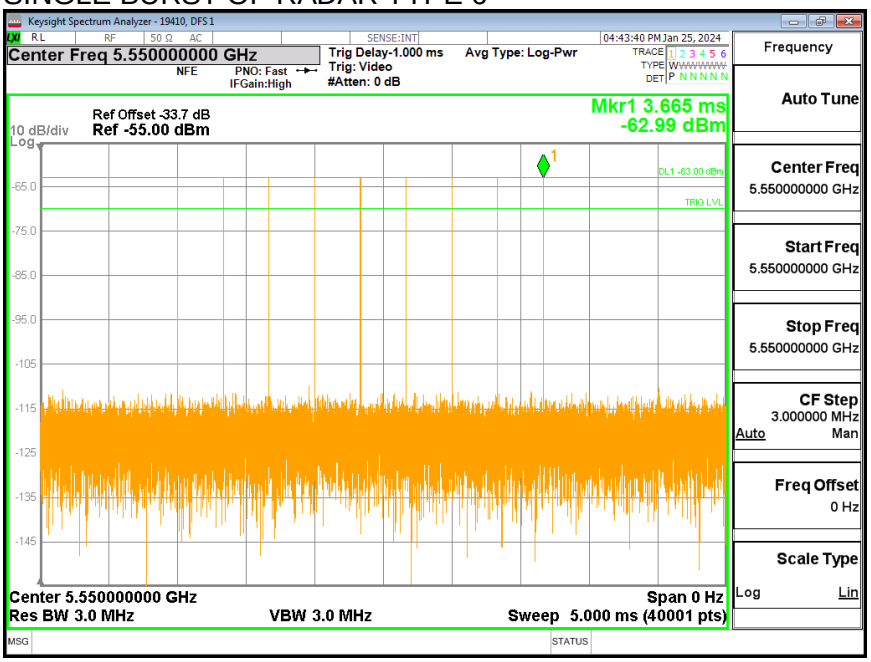
SINGLE BURST OF RADAR TYPE 6



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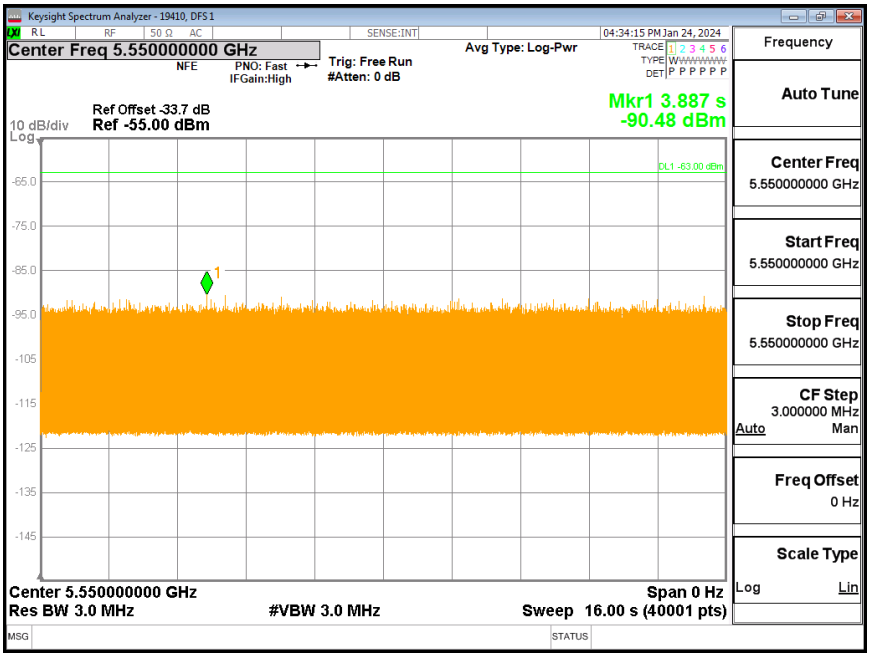
TRAFFIC

TRAFFIC



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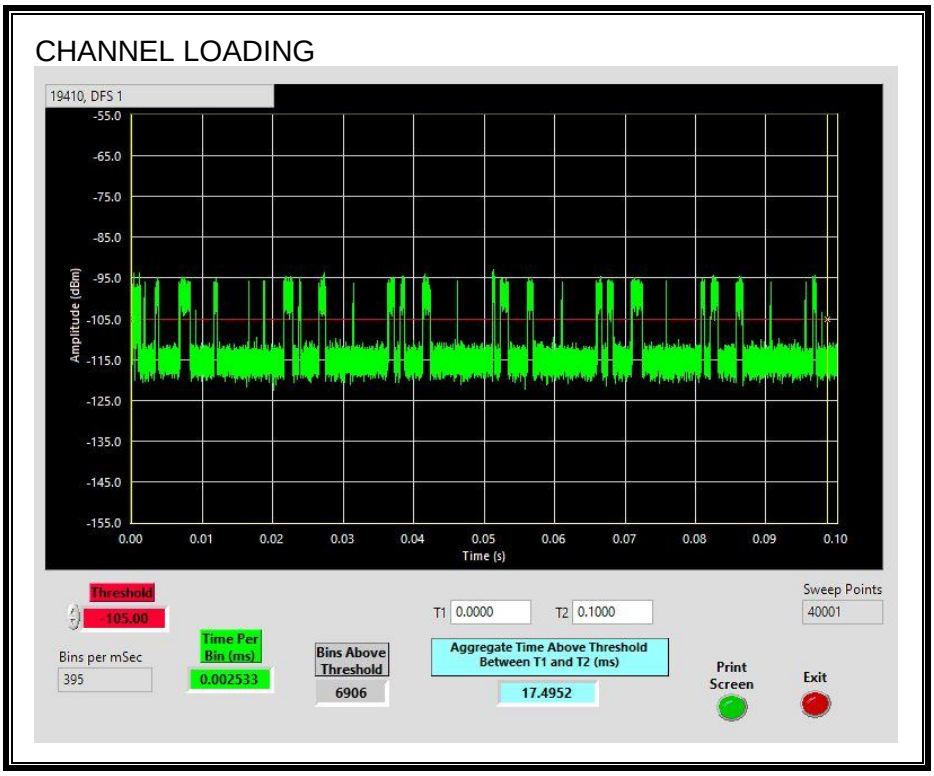
CHANNEL LOADING



The level of traffic loading on the channel by the EUT is 17.49%

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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.

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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)
30.73	188.6	157.9	97.9

Radar Near Beginning of CAC

Timing of Reboot (sec)	Timing of Radar Burst (sec)	Radar Relative to Reboot (sec)	Radar Relative to Start of CAC (sec)
30.57	130.1	99.5	1.7

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)
31.09	187	155.9	58.0

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

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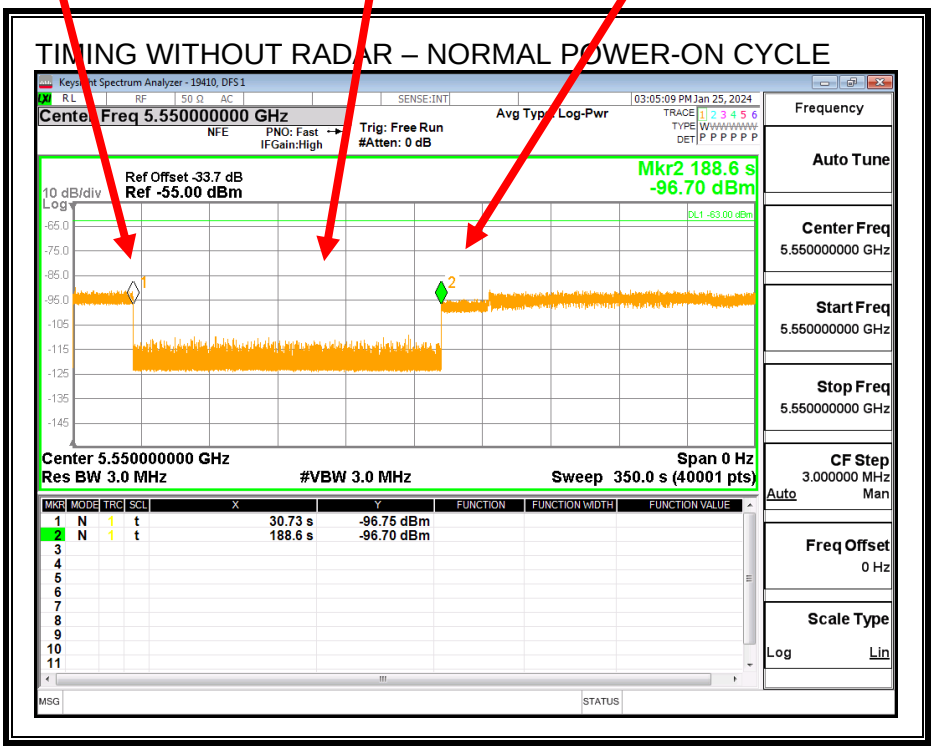
TIMING WITHOUT RADAR DURING CAC

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.

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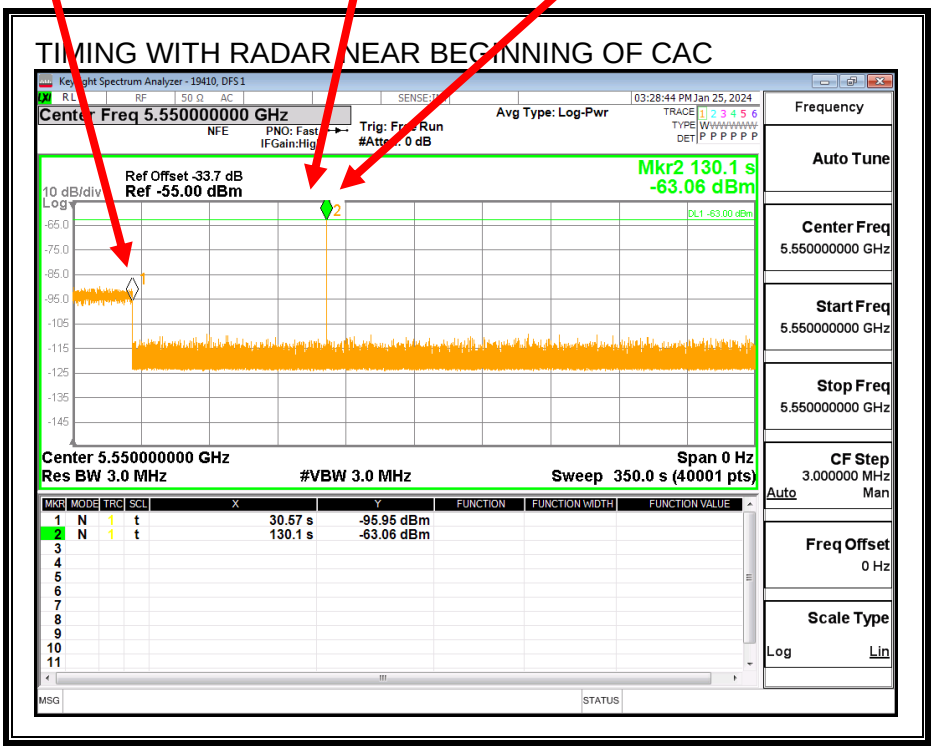
TIMING WITH RADAR NEAR BEGINNING OF CAC

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.

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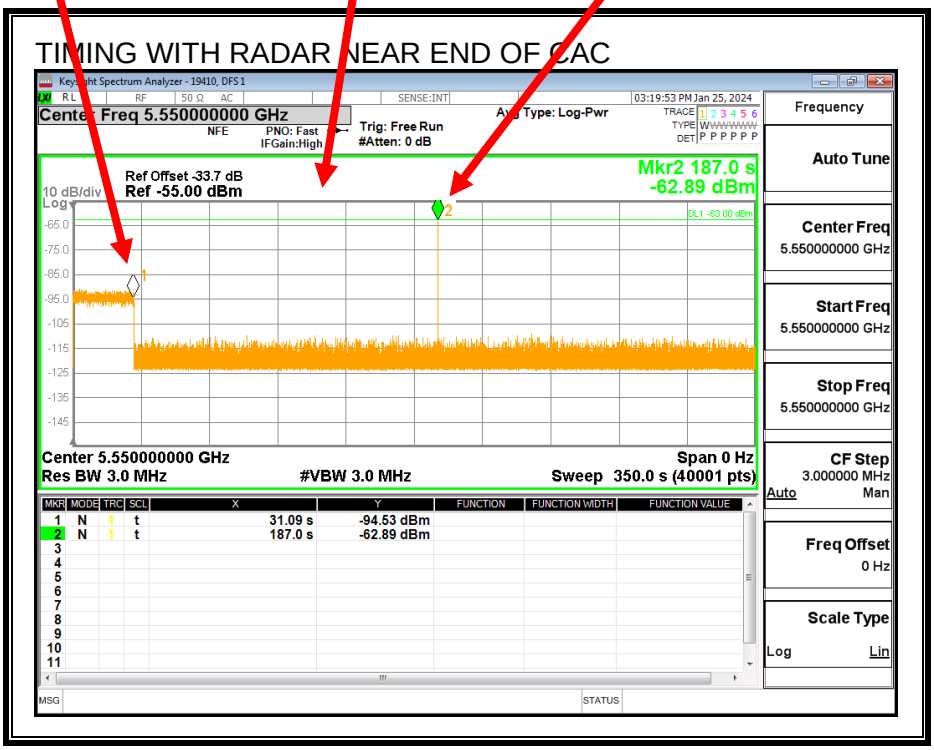
TIMING WITH RADAR NEAR END OF CAC

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.

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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.

These tests are not applicable.

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)
0.0028	10

Aggregate Channel Closing Transmission Time (msec)	Limit (msec)
0	60

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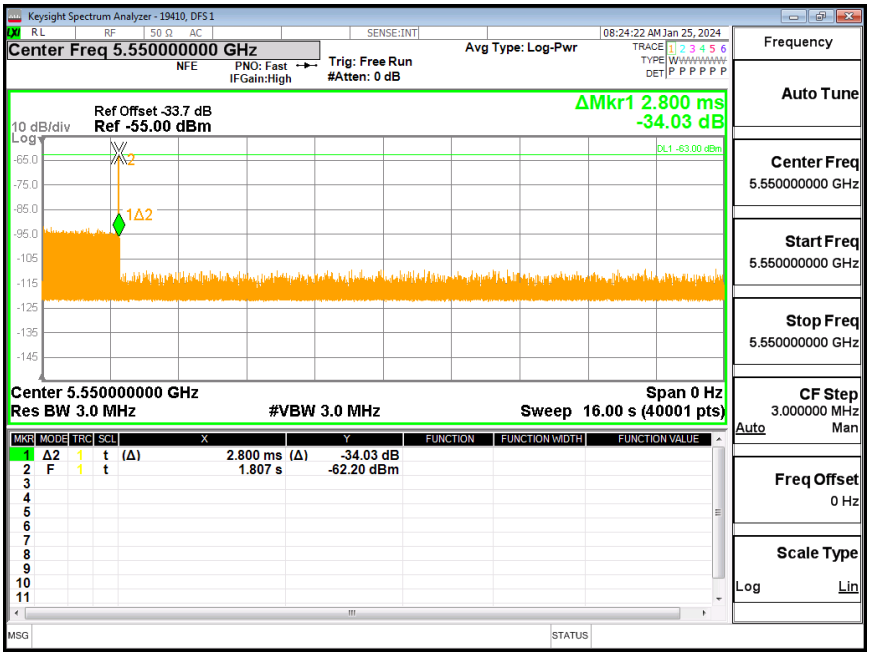
MOVE TIME

MOVE TIME



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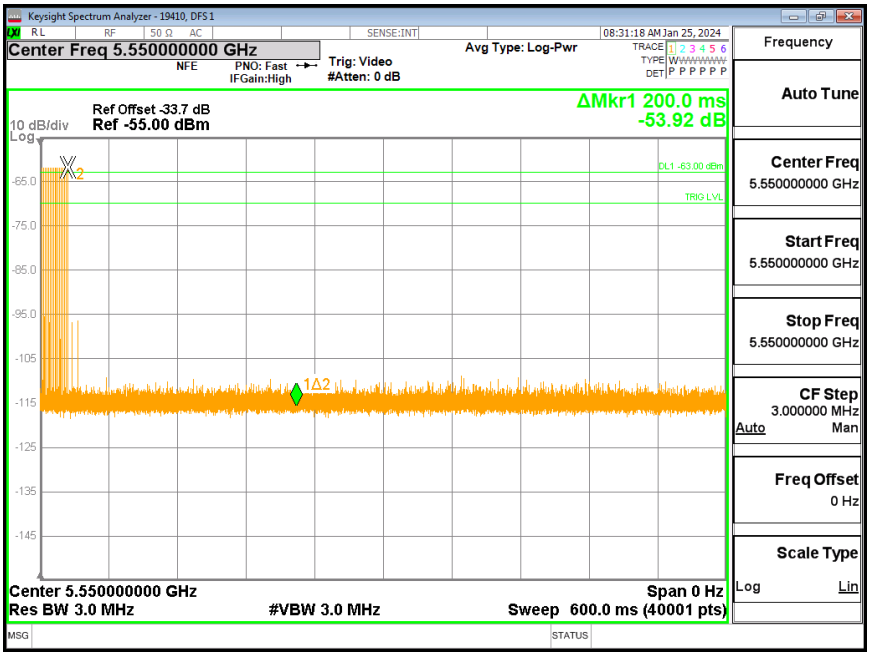
CHANNEL CLOSING TIME

CLOSING TIME



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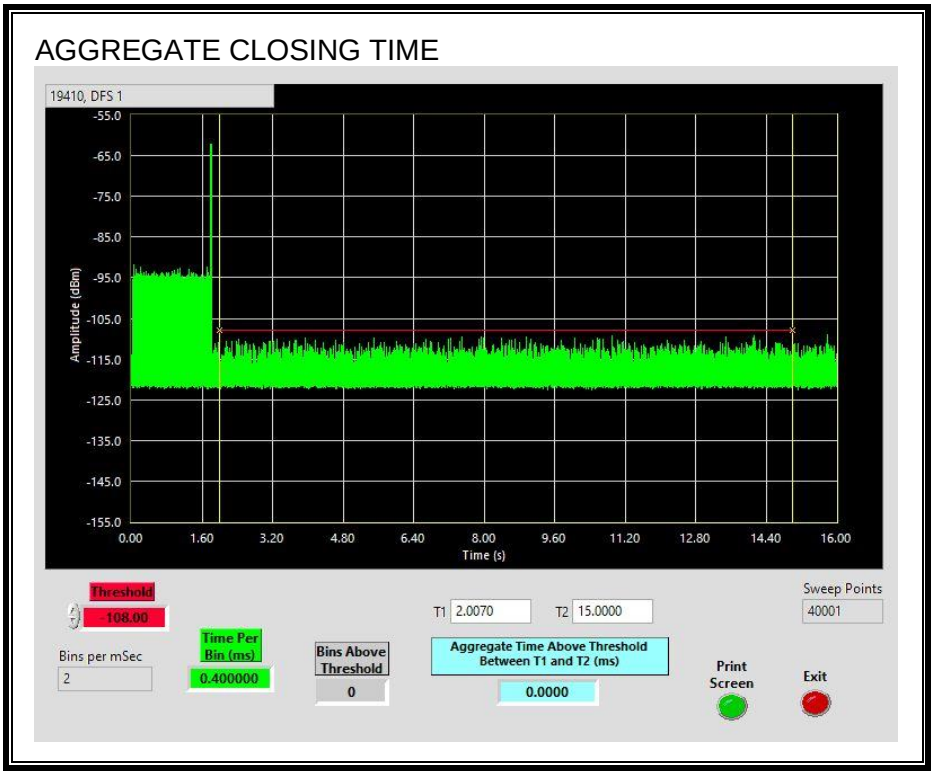
AGGREGATE CHANNEL CLOSING TRANSMISSION TIME

No transmissions are observed during the aggregate monitoring period.



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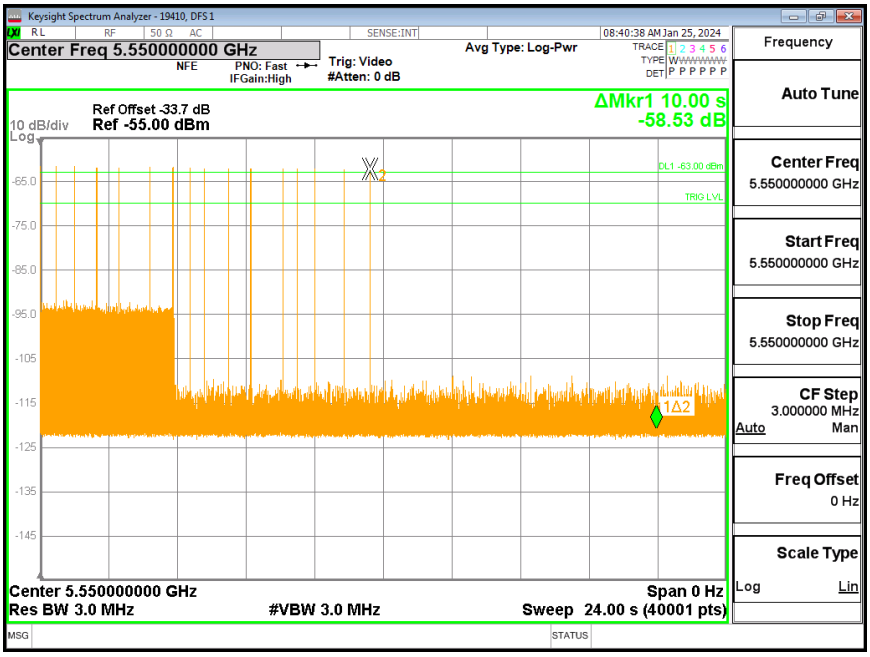
LONG PULSE CHANNEL MOVE TIME

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

MOVE TIME FOR LONG PULSE RADAR



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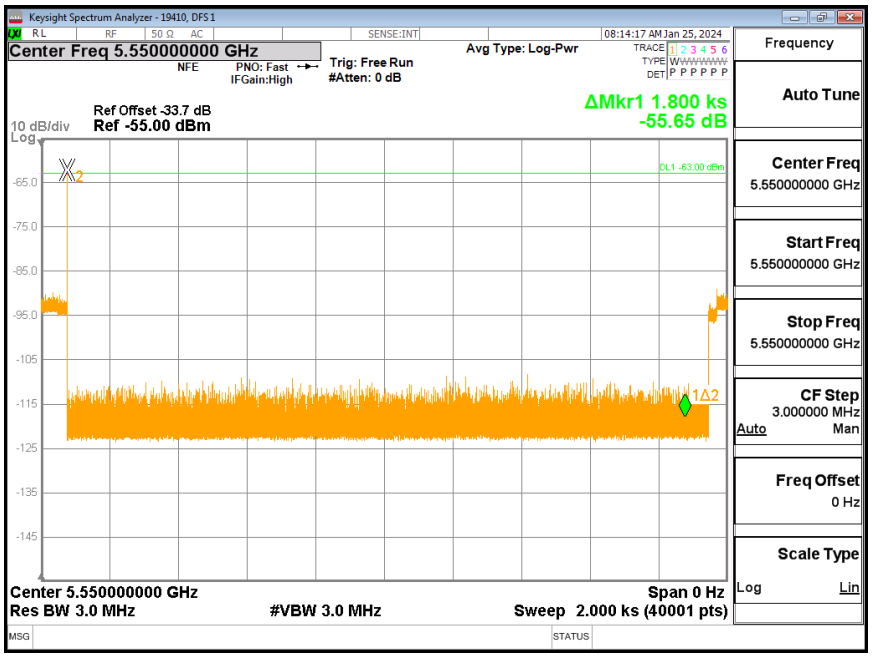
7.3.6. NON-OCCUPANCY PERIOD

RESULTS

No EUT transmissions were observed on the test channel during the 30-minute observation time. After the 30-minute non-occupancy period the EUT performed a new CAC, then resumed transmissions upon detecting no radar during this CAC period.

NON-OCCUPANCY PERIOD



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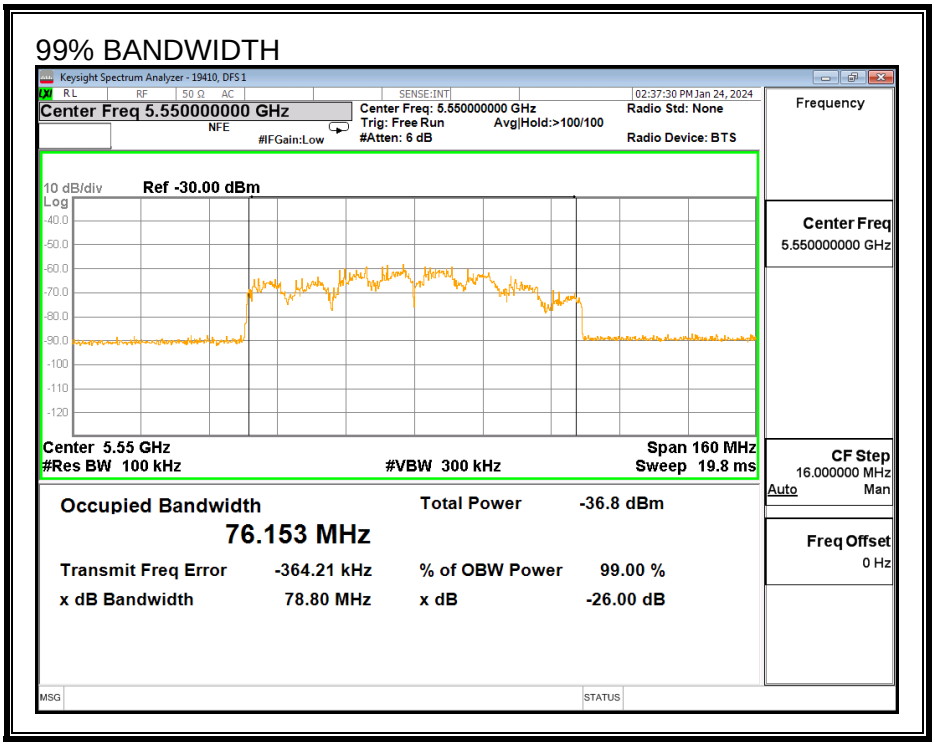
7.3.7. DETECTION BANDWIDTH

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 (%)
5510	5590	80	76.153	105.1	100

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DETECTION BANDWIDTH PROBABILITY

DETECTION BANDWIDTH PROBABILITY RESULTS

Detection Bandwidth Test Results 19410 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
5509	1	0	0	
5510	10	10	100	FL
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	FH
5591	1	0	0	

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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	96.67	60	Pass	5510	5590	76.15	DFS 1	19410	v2023.10.17
FCC Short Pulse Type 2	30	100.00	60	Pass	5510	5590	76.15	DFS 1	19410	v2023.10.17
FCC Short Pulse Type 3	30	100.00	60	Pass	5510	5590	76.15	DFS 1	19410	v2023.10.17
FCC Short Pulse Type 4	30	100.00	60	Pass	5510	5590	76.15	DFS 1	19410	v2023.10.17
Aggregate		99.17	80	Pass	5510	5590	76.15	DFS 1	19410	v2023.10.17
FCC Long Pulse Type 5	30	100.00	80	Pass	5510	5590	76.15	DFS 1	19410	v2023.10.17
FCC Hopping Type 6	81	93.83	70	Pass	5510	5590	76.15	DFS 1	19410	v2023.10.17

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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	5512	Yes
1002	1	938	57	A	5571	Yes
1003	1	598	89	A	5576	Yes
1004	1	738	72	A	5557	Yes
1005	1	858	62	A	5522	Yes
1006	1	838	63	A	5539	Yes
1007	1	538	99	A	5569	Yes
1008	1	758	70	A	5515	Yes
1009	1	718	74	A	5564	Yes
1010	1	558	95	A	5569	Yes
1011	1	658	81	A	5544	Yes
1012	1	778	68	A	5523	Yes
1013	1	618	86	A	5534	Yes
1014	1	678	78	A	5539	Yes
1015	1	798	67	A	5566	Yes
1016	1	2133	25	B	5549	Yes
1017	1	1894	28	B	5568	Yes
1018	1	1980	27	B	5577	Yes
1019	1	1871	29	B	5525	Yes
1020	1	891	60	B	5546	Yes
1021	1	912	58	B	5525	Yes
1022	1	1415	38	B	5551	Yes
1023	1	1565	34	B	5512	Yes
1024	1	2197	25	B	5557	Yes
1025	1	1282	42	B	5540	Yes
1026	1	2044	26	B	5582	Yes
1027	1	2612	21	B	5539	Yes
1028	1	956	56	B	5529	Yes
1029	1	1653	32	B	5528	Yes
1030	1	1479	36	B	5590	No

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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	3.7	202	26	5552	Yes
2002	3.4	194	24	5545	Yes
2003	3.8	179	29	5525	Yes
2004	3.7	218	24	5557	Yes
2005	4.4	208	26	5585	Yes
2006	2.6	208	24	5533	Yes
2007	3.4	163	23	5518	Yes
2008	4	211	25	5574	Yes
2009	1	170	29	5530	Yes
2010	1.8	222	28	5571	Yes
2011	1.1	229	25	5587	Yes
2012	2.1	165	24	5542	Yes
2013	1.7	214	28	5513	Yes
2014	1	197	25	5574	Yes
2015	4.8	170	26	5522	Yes
2016	4.3	157	23	5577	Yes
2017	2.4	177	24	5558	Yes
2018	4.3	211	28	5544	Yes
2019	2.5	154	27	5585	Yes
2020	4.6	193	28	5533	Yes
2021	3.1	182	27	5541	Yes
2022	1.3	225	29	5569	Yes
2023	2.1	219	28	5526	Yes
2024	2.7	185	27	5545	Yes
2025	3.8	226	27	5567	Yes
2026	4.6	158	26	5552	Yes
2027	3.9	203	29	5559	Yes
2028	4.9	220	29	5524	Yes
2029	4.5	188	23	5529	Yes
2030	3.8	172	29	5568	Yes

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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	8.5	483	16	5590	Yes
3002	8	445	18	5554	Yes
3003	6.1	387	18	5580	Yes
3004	8	361	16	5587	Yes
3005	6.2	434	16	5518	Yes
3006	8.3	303	17	5530	Yes
3007	6.8	271	17	5582	Yes
3008	9.1	404	17	5553	Yes
3009	8	385	17	5552	Yes
3010	6.4	280	16	5543	Yes
3011	7.5	406	16	5526	Yes
3012	8.3	447	16	5583	Yes
3013	7.6	336	18	5527	Yes
3014	8.6	389	17	5546	Yes
3015	8.2	290	18	5519	Yes
3016	7.5	490	18	5543	Yes
3017	9.4	286	18	5542	Yes
3018	8.9	365	17	5531	Yes
3019	8.9	308	17	5550	Yes
3020	6.7	282	18	5551	Yes
3021	9	355	16	5573	Yes
3022	7	475	16	5584	Yes
3023	9.6	443	16	5552	Yes
3024	10	325	16	5550	Yes
3025	6.7	305	16	5555	Yes
3026	9.2	451	16	5531	Yes
3027	8.4	327	18	5581	Yes
3028	7	368	18	5510	Yes
3029	6.3	256	17	5583	Yes
3030	7.3	310	18	5534	Yes

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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	17.9	462	13	5541	Yes
4002	11.4	411	16	5554	Yes
4003	15.8	458	14	5517	Yes
4004	14.6	419	12	5545	Yes
4005	19.4	479	13	5584	Yes
4006	18.7	454	14	5564	Yes
4007	14.9	409	15	5522	Yes
4008	19.5	396	16	5589	Yes
4009	11.9	363	15	5571	Yes
4010	17	497	16	5511	Yes
4011	18.9	477	16	5545	Yes
4012	15.3	254	15	5527	Yes
4013	13.5	499	15	5548	Yes
4014	19.4	288	14	5533	Yes
4015	18	428	12	5549	Yes
4016	15.9	481	14	5513	Yes
4017	15	265	12	5526	Yes
4018	17.6	331	14	5568	Yes
4019	12.9	379	13	5528	Yes
4020	11.7	340	15	5543	Yes
4021	16.6	400	14	5562	Yes
4022	15.9	374	12	5530	Yes
4023	12	329	13	5567	Yes
4024	16.6	316	14	5533	Yes
4025	18.1	284	14	5582	Yes
4026	14.1	417	15	5570	Yes
4027	16	398	14	5523	Yes
4028	12.4	426	13	5521	Yes
4029	19.7	419	16	5568	Yes
4030	12.3	460	15	5557	Yes

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TYPE 5 DETECTION PROBABILITY

Data Sheet for FCC Long Pulse Radar Type 5		
Trial	**Frequency (MHz)**	**Successful Detection (Yes/No)**
1	5550	Yes
2	5550	Yes
3	5550	Yes
4	5550	Yes
5	5550	Yes
6	5550	Yes
7	5550	Yes
8	5550	Yes
9	5550	Yes
10	5550	Yes
11	5519	Yes
12	5520	Yes
13	5520	Yes
14	5517	Yes
15	5516	Yes
16	5517	Yes
17	5516	Yes
18	5517	Yes
19	5516	Yes
20	5517	Yes
21	5584	Yes
22	5583	Yes
23	5581	Yes
24	5582	Yes
25	5580	Yes
26	5584	Yes
27	5583	Yes
28	5585	Yes
29	5584	Yes
30	5585	Yes

Note: The Type 5 randomized parameters tested are located in Appenix A.

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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	523	5510	15	Yes
2	998	5511	19	Yes
3	1473	5512	17	Yes
4	1948	5513	18	Yes
5	2423	5514	24	Yes
6	2898	5515	17	Yes
7	3373	5516	15	Yes
8	3848	5517	21	Yes
9	4323	5518	23	Yes
10	4798	5519	17	Yes
11	5273	5520	17	Yes
12	5748	5521	14	Yes
13	6223	5522	21	Yes
14	6698	5523	18	Yes
15	7173	5524	14	Yes
16	7648	5525	14	Yes
17	8123	5526	16	Yes
18	8598	5527	21	Yes
19	9073	5528	12	Yes
20	9548	5529	17	Yes
21	10023	5530	17	Yes
22	10498	5531	15	Yes
23	10973	5532	14	Yes
24	11448	5533	13	Yes
25	11923	5534	15	Yes
26	12398	5535	16	Yes
27	12873	5536	13	Yes
28	13348	5537	19	Yes
29	13823	5538	26	Yes
30	14298	5539	20	Yes
31	14773	5540	9	Yes
32	15248	5541	13	Yes
33	15723	5542	17	Yes
34	16198	5543	18	Yes
35	16673	5544	15	Yes
36	17148	5545	18	Yes
37	17623	5546	21	Yes
38	18098	5547	15	Yes
39	18573	5548	16	Yes

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TYPE 6 DETECTION PROBABILITY (CONTINUED)

40	19048	5549	18	Yes
41	19523	5550	16	Yes
42	19998	5551	17	Yes
43	20473	5552	12	Yes
44	20948	5553	22	Yes
45	21423	5554	19	Yes
46	21898	5555	17	Yes
47	22373	5556	18	Yes
48	22848	5557	14	Yes
49	23323	5558	18	Yes
50	23798	5559	20	Yes
51	24273	5560	20	Yes
52	24748	5561	21	Yes
53	25223	5562	16	Yes
54	25698	5563	18	Yes
55	26173	5564	7	Yes
56	26648	5565	15	Yes
57	27123	5566	17	Yes
58	27598	5567	16	Yes
59	28073	5568	17	Yes
60	28548	5569	15	Yes
61	29023	5570	13	Yes
62	29498	5571	12	Yes
63	29973	5572	21	Yes
64	30448	5573	18	Yes
65	30923	5574	17	Yes
66	31398	5575	16	Yes
67	31873	5576	22	Yes
68	32348	5577	19	Yes
69	32823	5578	14	Yes
70	33298	5579	11	Yes
71	33773	5580	18	Yes
72	34248	5581	18	Yes
73	34723	5582	17	No
74	35198	5583	14	No
75	35673	5584	15	No
76	36148	5585	12	Yes
77	36623	5586	14	Yes
78	37098	5587	12	Yes
79	37573	5588	23	No
80	38048	5589	17	No
81	38523	5590	19	Yes

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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.

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9. APPENDIX A: FCC TYPE 5 RADAR PARAMETERS

FCC Long Pulse 01-24-2024 12:52:33

Waveform Num = 1
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)
	361226									
1		1	20	55	1500	0	0	361226	0	749999
	786419									
2		2	20	70	1380	1996	0	1149145	750000	1499999
	856529									
3		1	20	90	1508	0	0	2009050	1500000	2249999
	650299									
4		3	20	85	1552	1294	1226	2660857	2250000	2999999
	1055456									
5		1	20	70	1004	0	0	3720385	3000000	3749999
	95832									
6		2	20	80	1251	1842	0	3817221	3750000	4499999
	1281707									
7		3	20	50	1722	1603	1877	5102021	4500000	5249999
	184270									
8		1	20	55	1021	0	0	5291493	5250000	5999999
	1331397									
9		1	20	80	1636	0	0	6623911	6000000	6749999
	351284									
10		2	20	55	1782	1080	0	6976831	6750000	7499999
	644451									
11		2	20	100	1859	1183	0	7624144	7500000	8249999
	1130906									
12		1	20	85	1595	0	0	8758092	8250000	8999999
	781348									
13		1	20	95	1474	0	0	9541035	9000000	9749999
	588073									
14		2	20	85	1354	1235	0	10130582	9750000	10499999
	847937									
15		3	20	90	1748	1123	1688	10981108	10500000	11249999
	657613									
16		1	20	60	1466	0	0	11643280	11250000	11999999

Total number of pulses in waveform = 27

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Waveform Num = 2
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)
	540659									
1		3	11	100	1286	1560	1492	540659	0	666666
	684964									
2		3	11	85	1739	1696	1312	1229961	666667	1333333
	605712									
3		2	11	55	1825	1465	0	1840420	1333334	2000000
	408378									
4		3	11	65	1611	1543	1868	2252088	2000001	2666667
	785409									
5		3	11	65	1278	1894	1902	3042519	2666668	3333334
	516313									
6		1	11	70	1047	0	0	3563906	3333335	4000001
	830009									
7		1	11	100	1192	0	0	4394962	4000002	4666668
	489023									
8		2	11	70	1338	1372	0	4885177	4666669	5333335
	510474									
9		3	11	100	1150	1209	1457	5398361	5333336	6000002
	714262									
10		2	11	80	1970	1243	0	6116439	6000003	6666669
	799216									
11		2	11	75	1389	1423	0	6918868	6666670	7333336
	861997									
12		3	11	75	1201	1791	1508	7783677	7333337	8000003
	576784									
13		3	11	85	1552	1294	1226	8364961	8000004	8666670
	937873									
14		1	11	70	1004	0	0	9306906	8666671	9333337
	85149									
15		2	11	80	1251	1842	0	9393059	9333338	10000004
	1138515									
16		3	11	50	1722	1603	1877	10534667	10000005	10666671
	163679									
17		1	11	55	1021	0	0	10703548	10666672	11333338
	1183207									
18		1	11	80	1636	0	0	11887776	11333339	12000005

Total number of pulses in waveform = 39

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

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)
	788819									
1		3	7	50	1303	1654	1928	788819	0	923076
	717059									
2		1	7	55	1072	0	0	1510763	923077	1846153
	770847									
3		2	7	85	1218	1885	0	2282682	1846154	2769230
	951312									
4		3	7	70	1663	1354	1235	3237097	2769231	3692307
	1043771									
5		3	7	90	1748	1123	1688	4285120	3692308	4615384
	809920									
6		1	7	60	1466	0	0	5099599	4615385	5538461
	951555									
7		3	7	70	1714	1937	1286	6052620	5538462	6461538
	1083546									
8		2	7	90	1799	1706	0	7141103	6461539	7384615
	997304									
9		3	7	65	1851	1517	1107	8141912	7384616	8307692
	723091									
10		2	7	90	1988	1337	0	8869478	8307693	9230769
	653267									
11		2	7	95	1381	1757	0	9526070	9230770	10153846
	1147959									
12		1	7	95	1902	0	0	10677167	10153847	11076923
	717246									
13		1	7	70	1047	0	0	11396315	11076924	12000000

Total number of pulses in waveform = 27

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Waveform Num = 4
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)
	647074									
1		1	19	80	1449	0	0	647074	0	1499999
	2277259									
2		2	19	70	1329	1945	0	2925782	1500000	2999999
	217951									
3		1	19	60	1457	0	0	3147007	3000000	4499999
	1614222									
4		2	19	80	1970	1243	0	4762686	4500000	5999999
	1802883									
5		2	19	75	1389	1423	0	6568782	6000000	7499999
	1945496									
6		3	19	75	1201	1791	1508	8517090	7500000	8999999
	1302367									
7		3	19	85	1552	1294	1226	9823957	9000000	10499999
	2113706									
8		1	19	70	1004	0	0	11941735	10500000	11999999

Total number of pulses in waveform = 15

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Waveform Num = 5
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)
	583924									
1		1	14	95	1090	0	0	583924	0	799999
	914702									
2		1	14	85	1603	0	0	1499716	800000	1599999
	108800									
3		3	14	55	1115	1021	1055	1610119	1600000	2399999
	898871									
4		2	14	80	1834	1424	0	2512181	2400000	3199999
	1367645									
5		3	14	50	1303	1654	1928	3883084	3200000	3999999
	621268									
6		1	14	55	1072	0	0	4509237	4000000	4799999
	667819									
7		2	14	85	1218	1885	0	5178128	4800000	5599999
	823964									
8		3	14	70	1663	1354	1235	6005195	5600000	6399999
	903931									
9		3	14	90	1748	1123	1688	6913378	6400000	7199999
	701613									
10		1	14	60	1466	0	0	7619550	7200000	7999999
	824219									
11		3	14	70	1714	1937	1286	8445235	8000000	8799999
	938438									
12		2	14	90	1799	1706	0	9388610	8800000	9599999
	863716									
13		3	14	65	1851	1517	1107	10255831	9600000	10399999
	626303									
14		2	14	90	1988	1337	0	10886609	10400000	11199999
	565859									
15		2	14	95	1381	1757	0	11455793	11200000	11999999

Total number of pulses in waveform = 32

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Waveform Num = 6
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
	376640									
1		3	19	80	1158	1406	1047	376640	0	1090908
	1357405									
2		1	19	100	1192	0	0	1737656	1090909	2181817
	801096									
3		2	19	70	1338	1372	0	2539944	2181818	3272726
	836716									
4		3	19	100	1150	1209	1457	3379370	3272727	4363635
	1171340									
5		2	19	80	1970	1243	0	4554526	4363636	5454544
	1310174									
6		2	19	75	1389	1423	0	5867913	5454545	6545453
	1413596									
7		3	19	75	1201	1791	1508	7284321	6545454	7636362
	946172									
8		3	19	85	1552	1294	1226	8234993	7636363	8727271
	1536478									
9		1	19	70	1004	0	0	9775543	8727272	9818180
	139537									
10		2	19	80	1251	1842	0	9916084	9818181	10909089
	1867490									
11		3	19	50	1722	1603	1877	11786667	10909090	11999998

Total number of pulses in waveform = 25

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Waveform Num = 7
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)
	836831									
1		1	6	50	1012	0	0	836831	0	1333332
	1535752									
2		2	6	95	1424	1140	0	2373595	1333333	2666665
	1525240									
3		1	6	65	1654	0	0	3901399	2666666	3999998
	887441									
4		3	6	60	1166	1072	1638	4790494	3999999	5333331
	1022047									
5		3	6	60	1885	1474	1723	5816417	5333332	6666664
	2055869									
6		2	6	65	1235	1509	0	7877368	6666665	7999997
	466590									
7		3	6	90	1123	1688	1646	8346702	7999998	9333330
	2012459									
8		1	6	75	1525	0	0	10363618	9333331	10666663
	1046383									
9		2	6	85	1937	1286	0	11411526	10666664	11999996

Total number of pulses in waveform = 18

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

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)
	725389									
1		3	18	85	1739	1696	1312	725389	0	857142
	779692									
2		2	18	55	1825	1465	0	1509828	857143	1714285
	525826									
3		3	18	65	1611	1543	1868	2038944	1714286	2571428
	1011523									
4		3	18	65	1278	1894	1902	3055489	2571429	3428571
	664561									
5		1	18	70	1047	0	0	3725124	3428572	4285714
	1067551									
6		1	18	100	1192	0	0	4793722	4285715	5142857
	629138									
7		2	18	70	1338	1372	0	5424052	5142858	6000000
	656950									
8		3	18	100	1150	1209	1457	6083712	6000001	6857143
	919480									
9		2	18	80	1970	1243	0	7007008	6857144	7714286
	1028626									
10		2	18	75	1389	1423	0	8038847	7714287	8571429
	1109654									
11		3	18	75	1201	1791	1508	9151313	8571430	9428572
	742632									
12		3	18	85	1552	1294	1226	9898445	9428573	10285715
	1206634									
13		1	18	70	1004	0	0	11109151	10285716	11142858
	109568									
14		2	18	80	1251	1842	0	11219723	11142859	12000001

Total number of pulses in waveform = 31

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

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)
	80902									
1		3	5	80	1877	1809	1132	80902	0	705881
	1062891									
2		1	5	50	1012	0	0	1148611	705882	1411763
	811925									
3		2	5	95	1424	1140	0	1961548	1411764	2117645
	806495									
4		1	5	65	1654	0	0	2770607	2117646	2823527
	468680									
5		3	5	60	1166	1072	1638	3240941	2823528	3529409
	539474									
6		3	5	60	1885	1474	1723	3784291	3529410	4235291
	1085705									
7		2	5	65	1235	1509	0	4875078	4235292	4941173
	246354									
8		3	5	90	1123	1688	1646	5124176	4941174	5647055
	1063314									
9		1	5	75	1525	0	0	6191947	5647056	6352937
	552955									
10		2	5	85	1937	1286	0	6746427	6352938	7058819
	828227									
11		2	5	90	1799	1706	0	7577877	7058820	7764701
	761560									
12		3	5	65	1851	1517	1107	8342942	7764702	8470583
	552289									
13		2	5	90	1988	1337	0	8899706	8470584	9176465
	499016									
14		2	5	95	1381	1757	0	9402047	9176466	9882347
	877094									
15		1	5	95	1902	0	0	10282279	9882348	10588229
	548204									
16		1	5	70	1047	0	0	10832385	10588230	11294111
	878914									
17		1	5	100	1192	0	0	11712346	11294112	11999993

Total number of pulses in waveform = 33

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Waveform Num = 10
Num of Bursts = 13
Burst Interval (us) = 923077

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst
	876205									
1		2	11	70	1329	1945	0	876205	0	923076
	134009									
2		1	11	60	1457	0	0	1013488	923077	1846153
	992645									
3		2	11	80	1970	1243	0	2007590	1846154	2769230
	1108037									
4		2	11	75	1389	1423	0	3118840	2769231	3692307
	1195380									
5		3	11	75	1201	1791	1508	4317032	3692308	4615384
	800041									
6		3	11	85	1552	1294	1226	5121573	4615385	5538461
	1299667									
7		1	11	70	1004	0	0	6425312	5538462	6461538
	118021									
8		2	11	80	1251	1842	0	6544337	6461539	7384615
	1579105									
9		3	11	50	1722	1603	1877	8126535	7384616	8307692
	227037									
10		1	11	55	1021	0	0	8358774	8307693	9230769
	1639181									
11		1	11	80	1636	0	0	9998976	9230770	10153846
	432612									
12		2	11	55	1782	1080	0	10433224	10153847	11076923
	793747									
13		2	11	100	1859	1183	0	11229833	11076924	12000000

Total number of pulses in waveform = 25

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Waveform Num = 11
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)
	710278									
1		2	15	85	1218	1885	0	710278	0	1499999
	1548254									
2		3	15	70	1663	1354	1235	2261635	1500000	2999999
	1699271									
3		3	15	90	1748	1123	1688	3965158	3000000	4499999
	1317613									
4		1	15	60	1466	0	0	5287330	4500000	5999999
	1548439									
5		3	15	70	1714	1937	1286	6837235	6000000	7499999
	1763738									
6		2	15	90	1799	1706	0	8605910	7500000	8999999
	1623496									
7		3	15	65	1851	1517	1107	10232911	9000000	10499999
	1176783									
8		2	15	90	1988	1337	0	11414169	10500000	11999999

Total number of pulses in waveform = 19

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Waveform Num = 12
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)
	712638									
1		2	18	90	1321	1278	0	712638	0	799999
	360632									
2		3	18	80	1158	1406	1047	1075869	800000	1599999
	994613									
3		1	18	100	1192	0	0	2074093	1600000	2399999
	587103									
4		2	18	70	1338	1372	0	2662388	2400000	3199999
	613007									
5		3	18	100	1150	1209	1457	3278105	3200000	3999999
	857915									
6		2	18	80	1970	1243	0	4139836	4000000	4799999
	959803									
7		2	18	75	1389	1423	0	5102852	4800000	5599999
	1035356									
8		3	18	75	1201	1791	1508	6141020	5600000	6399999
	692877									
9		3	18	85	1552	1294	1226	6838397	6400000	7199999
	1126006									
10		1	18	70	1004	0	0	7968475	7200000	7999999
	102242									
11		2	18	80	1251	1842	0	8071721	8000000	8799999
	1367622									
12		3	18	50	1722	1603	1877	9442436	8800000	9599999
	196625									
13		1	18	55	1021	0	0	9644263	9600000	10399999
	1420312									
14		1	18	80	1636	0	0	11065596	10400000	11199999
	374779									
15		2	18	55	1782	1080	0	11442011	11200000	11999999

Total number of pulses in waveform = 31

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Waveform Num = 13
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)
	443645									
1		3	19	60	1166	1072	1638	443645	0	749999
	573406									
2		3	19	60	1885	1474	1723	1020927	750000	1499999
	1153920									
3		2	19	65	1235	1509	0	2179929	1500000	2249999
	261839									
4		3	19	90	1123	1688	1646	2444512	2250000	2999999
	1130052									
5		1	19	75	1525	0	0	3579021	3000000	3749999
	587649									
6		2	19	85	1937	1286	0	4168195	3750000	4499999
	880242									
7		2	19	90	1799	1706	0	5051660	4500000	5249999
	809446									
8		3	19	65	1851	1517	1107	5864611	5250000	5999999
	586983									
9		2	19	90	1988	1337	0	6456069	6000000	6749999
	530349									
10		2	19	95	1381	1757	0	6989743	6750000	7499999
	932114									
11		1	19	95	1902	0	0	7924995	7500000	8249999
	582540									
12		1	19	70	1047	0	0	8509437	8250000	8999999
	933934									
13		1	19	100	1192	0	0	9444418	9000000	9749999
	550323									
14		2	19	70	1338	1372	0	9995933	9750000	10499999
	574557									
15		3	19	100	1150	1209	1457	10573200	10500000	11249999
	804045									
16		2	19	80	1970	1243	0	11381061	11250000	11999999

Total number of pulses in waveform = 33

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

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)
	456424									
1		2	12	70	1380	1996	0	456424	0	857142
	979261									
2		1	12	90	1508	0	0	1439061	857143	1714285
	743589									
3		3	12	85	1552	1294	1226	2184158	1714286	2571428
	1206634									
4		1	12	70	1004	0	0	3394864	2571429	3428571
	109568									
5		2	12	80	1251	1842	0	3505436	3428572	4285714
	1465810									
6		3	12	50	1722	1603	1877	4974339	4285715	5142857
	210746									
7		1	12	55	1021	0	0	5190287	5142858	6000000
	1521930									
8		1	12	80	1636	0	0	6713238	6000001	6857143
	401630									
9		2	12	55	1782	1080	0	7116504	6857144	7714286
	736872									
10		2	12	100	1859	1183	0	7856238	7714287	8571429
	1292982									
11		1	12	85	1595	0	0	9152262	8571430	9428572
	893194									
12		1	12	95	1474	0	0	10047051	9428573	10285715
	672330									
13		2	12	85	1354	1235	0	10720855	10285716	11142858
	969673									
14		3	12	90	1748	1123	1688	11693117	11142859	12000001

Total number of pulses in waveform = 25

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Waveform Num = 15
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
	776198									
1		2	9	75	1774	1414	0	776198	0	1090908
	1179269									
2		3	9	65	1560	1492	1817	1958655	1090909	2181817
	780108									
3		3	9	90	1696	1312	1851	2743632	2181818	3272726
	1357007									
4		1	9	95	1465	0	0	4105498	3272727	4363635
	670396									
5		3	9	65	1611	1543	1868	4777359	4363636	5454544
	1289027									
6		3	9	65	1278	1894	1902	6071408	5454545	6545453
	846500									
7		1	9	70	1047	0	0	6922982	6545454	7636362
	1359081									
8		1	9	100	1192	0	0	8283110	7636363	8727271
	801096									
9		2	9	70	1338	1372	0	9085398	8727272	9818180
	836716									
10		3	9	100	1150	1209	1457	9924824	9818181	10909089
	1171340									
11		2	9	80	1970	1243	0	11099980	10909090	11999998

Total number of pulses in waveform = 24

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

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)
	456424									
1		2	12	70	1380	1996	0	456424	0	857142
	979261									
2		1	12	90	1508	0	0	1439061	857143	1714285
	743589									
3		3	12	85	1552	1294	1226	2184158	1714286	2571428
	1206634									
4		1	12	70	1004	0	0	3394864	2571429	3428571
	109568									
5		2	12	80	1251	1842	0	3505436	3428572	4285714
	1465810									
6		3	12	50	1722	1603	1877	4974339	4285715	5142857
	210746									
7		1	12	55	1021	0	0	5190287	5142858	6000000
	1521930									
8		1	12	80	1636	0	0	6713238	6000001	6857143
	401630									
9		2	12	55	1782	1080	0	7116504	6857144	7714286
	736872									
10		2	12	100	1859	1183	0	7856238	7714287	8571429
	1292982									
11		1	12	85	1595	0	0	9152262	8571430	9428572
	893194									
12		1	12	95	1474	0	0	10047051	9428573	10285715
	672330									
13		2	12	85	1354	1235	0	10720855	10285716	11142858
	969673									
14		3	12	90	1748	1123	1688	11693117	11142859	12000001

Total number of pulses in waveform = 25

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Waveform Num = 17
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
	776198									
1		2	9	75	1774	1414	0	776198	0	1090908
	1179269									
2		3	9	65	1560	1492	1817	1958655	1090909	2181817
	780108									
3		3	9	90	1696	1312	1851	2743632	2181818	3272726
	1357007									
4		1	9	95	1465	0	0	4105498	3272727	4363635
	670396									
5		3	9	65	1611	1543	1868	4777359	4363636	5454544
	1289027									
6		3	9	65	1278	1894	1902	6071408	5454545	6545453
	846500									
7		1	9	70	1047	0	0	6922982	6545454	7636362
	1359081									
8		1	9	100	1192	0	0	8283110	7636363	8727271
	801096									
9		2	9	70	1338	1372	0	9085398	8727272	9818180
	836716									
10		3	9	100	1150	1209	1457	9924824	9818181	10909089
	1171340									
11		2	9	80	1970	1243	0	11099980	10909090	11999998

Total number of pulses in waveform = 24

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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)
	456424									
1		2	12	70	1380	1996	0	456424	0	857142
	979261									
2		1	12	90	1508	0	0	1439061	857143	1714285
	743589									
3		3	12	85	1552	1294	1226	2184158	1714286	2571428
	1206634									
4		1	12	70	1004	0	0	3394864	2571429	3428571
	109568									
5		2	12	80	1251	1842	0	3505436	3428572	4285714
	1465810									
6		3	12	50	1722	1603	1877	4974339	4285715	5142857
	210746									
7		1	12	55	1021	0	0	5190287	5142858	6000000
	1521930									
8		1	12	80	1636	0	0	6713238	6000001	6857143
	401630									
9		2	12	55	1782	1080	0	7116504	6857144	7714286
	736872									
10		2	12	100	1859	1183	0	7856238	7714287	8571429
	1292982									
11		1	12	85	1595	0	0	9152262	8571430	9428572
	893194									
12		1	12	95	1474	0	0	10047051	9428573	10285715
	672330									
13		2	12	85	1354	1235	0	10720855	10285716	11142858
	969673									
14		3	12	90	1748	1123	1688	11693117	11142859	12000001

Total number of pulses in waveform = 25

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Waveform Num = 19
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
	776198									
1		2	9	75	1774	1414	0	776198	0	1090908
	1179269									
2		3	9	65	1560	1492	1817	1958655	1090909	2181817
	780108									
3		3	9	90	1696	1312	1851	2743632	2181818	3272726
	1357007									
4		1	9	95	1465	0	0	4105498	3272727	4363635
	670396									
5		3	9	65	1611	1543	1868	4777359	4363636	5454544
	1289027									
6		3	9	65	1278	1894	1902	6071408	5454545	6545453
	846500									
7		1	9	70	1047	0	0	6922982	6545454	7636362
	1359081									
8		1	9	100	1192	0	0	8283110	7636363	8727271
	801096									
9		2	9	70	1338	1372	0	9085398	8727272	9818180
	836716									
10		3	9	100	1150	1209	1457	9924824	9818181	10909089
	1171340									
11		2	9	80	1970	1243	0	11099980	10909090	11999998

Total number of pulses in waveform = 24

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Waveform Num = 20
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)
	456424									
1		2	12	70	1380	1996	0	456424	0	857142
	979261									
2		1	12	90	1508	0	0	1439061	857143	1714285
	743589									
3		3	12	85	1552	1294	1226	2184158	1714286	2571428
	1206634									
4		1	12	70	1004	0	0	3394864	2571429	3428571
	109568									
5		2	12	80	1251	1842	0	3505436	3428572	4285714
	1465810									
6		3	12	50	1722	1603	1877	4974339	4285715	5142857
	210746									
7		1	12	55	1021	0	0	5190287	5142858	6000000
	1521930									
8		1	12	80	1636	0	0	6713238	6000001	6857143
	401630									
9		2	12	55	1782	1080	0	7116504	6857144	7714286
	736872									
10		2	12	100	1859	1183	0	7856238	7714287	8571429
	1292982									
11		1	12	85	1595	0	0	9152262	8571430	9428572
	893194									
12		1	12	95	1474	0	0	10047051	9428573	10285715
	672330									
13		2	12	85	1354	1235	0	10720855	10285716	11142858
	969673									
14		3	12	90	1748	1123	1688	11693117	11142859	12000001

Total number of pulses in waveform = 25

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Waveform Num = 21
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
	776198									
1		2	9	75	1774	1414	0	776198	0	1090908
	1179269									
2		3	9	65	1560	1492	1817	1958655	1090909	2181817
	780108									
3		3	9	90	1696	1312	1851	2743632	2181818	3272726
	1357007									
4		1	9	95	1465	0	0	4105498	3272727	4363635
	670396									
5		3	9	65	1611	1543	1868	4777359	4363636	5454544
	1289027									
6		3	9	65	1278	1894	1902	6071408	5454545	6545453
	846500									
7		1	9	70	1047	0	0	6922982	6545454	7636362
	1359081									
8		1	9	100	1192	0	0	8283110	7636363	8727271
	801096									
9		2	9	70	1338	1372	0	9085398	8727272	9818180
	836716									
10		3	9	100	1150	1209	1457	9924824	9818181	10909089
	1171340									
11		2	9	80	1970	1243	0	11099980	10909090	11999998

Total number of pulses in waveform = 24

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

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)
	456424									
1		2	12	70	1380	1996	0	456424	0	857142
	979261									
2		1	12	90	1508	0	0	1439061	857143	1714285
	743589									
3		3	12	85	1552	1294	1226	2184158	1714286	2571428
	1206634									
4		1	12	70	1004	0	0	3394864	2571429	3428571
	109568									
5		2	12	80	1251	1842	0	3505436	3428572	4285714
	1465810									
6		3	12	50	1722	1603	1877	4974339	4285715	5142857
	210746									
7		1	12	55	1021	0	0	5190287	5142858	6000000
	1521930									
8		1	12	80	1636	0	0	6713238	6000001	6857143
	401630									
9		2	12	55	1782	1080	0	7116504	6857144	7714286
	736872									
10		2	12	100	1859	1183	0	7856238	7714287	8571429
	1292982									
11		1	12	85	1595	0	0	9152262	8571430	9428572
	893194									
12		1	12	95	1474	0	0	10047051	9428573	10285715
	672330									
13		2	12	85	1354	1235	0	10720855	10285716	11142858
	969673									
14		3	12	90	1748	1123	1688	11693117	11142859	12000001

Total number of pulses in waveform = 25

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Waveform Num = 23
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)
	309632									
1		3	17	50	1305	1946	1244	309632	0	666666
	509398									
2		3	17	55	1023	1347	1330	823525	666667	1333333
	760138									
3		1	17	60	1843	0	0	1587363	1333334	2000000
	1073779									
4		1	17	85	1355	0	0	2662985	2000001	2666667
	96729									
5		1	17	75	1869	0	0	2761069	2666668	3333334
	761514									
6		1	17	70	1913	0	0	3524452	3333335	4000001
	930443									
7		3	17	90	1425	1433	1099	4456808	4000002	4666668
	684960									
8		3	17	80	1878	1569	1450	5145725	4666669	5333335
	760608									
9		1	17	100	1963	0	0	5911230	5333336	6000002
	576776									
10		3	17	95	1476	1484	1681	6489969	6000003	6666669
	685045									
11		3	17	80	1929	1151	1501	7179655	6666670	7333336
	751982									
12		3	17	50	1013	1921	1954	7936218	7333337	8000003
	84911									
13		2	17	50	1732	1322	0	8026017	8000004	8666670
	692900									
14		1	17	75	1202	0	0	8721971	8666671	9333337
	964808									
15		3	17	90	1081	1596	1972	9687981	9333338	10000004
	554894									
16		2	17	55	1116	1783	0	10247524	10000005	10666671
	505139									
17		2	17	60	1561	1253	0	10755562	10666672	11333338
	941799									
18		2	17	65	1664	1647	0	11700175	11333339	12000005

Total number of pulses in waveform = 38

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

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)
	762617									
1		1	13	55	1365	0	0	762617	0	799999
	400615									
2		3	13	65	1612	1835	1184	1164597	800000	1599999
	565015									
3		2	13	85	1698	1604	0	1734243	1600000	2399999
	994208									
4		1	13	60	1750	0	0	2731753	2400000	3199999
	621249									
5		1	13	60	1895	0	0	3354752	3200000	3999999
	865817									
6		3	13	90	1040	1441	1296	4222464	4000000	4799999
	1211544									
7		2	13	60	1176	1792	0	5437785	4800000	5599999
	531225									
8		3	13	50	1305	1946	1244	5971978	5600000	6399999
	611931									
9		3	13	55	1023	1347	1330	6588404	6400000	7199999
	912872									
10		1	13	60	1843	0	0	7504976	7200000	7999999
	1289031									
11		1	13	85	1355	0	0	8795850	8000000	8799999
	116129									
12		1	13	75	1869	0	0	8913334	8800000	9599999
	914247									
13		1	13	70	1913	0	0	9829450	9600000	10399999
	1117350									
14		3	13	90	1425	1433	1099	10948713	10400000	11199999
	822905									
15		3	13	80	1878	1569	1450	11775575	11200000	11999999

Total number of pulses in waveform = 29

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Waveform Num = 25
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
	642531									
1		3	20	95	1903	1861	1476	642531	0	1333332
	886323									
2		3	20	90	1989	1629	1929	1534094	1333333	2666665
	1145387									
3		2	20	90	1707	1031	0	2685028	2666666	3999998
	2284937									
4		3	20	100	1911	1527	1065	4972703	3999999	5333331
	1035908									
5		1	20	50	1211	0	0	6013114	5333332	6666664
	1660824									
6		1	20	50	1826	0	0	7675149	6666665	7999997
	1036233									
7		1	20	80	1972	0	0	8713208	7999998	9333330
	1114270									
8		2	20	55	1116	1783	0	9829450	9333331	10666663
	1012471									
9		2	20	60	1561	1253	0	10844820	10666664	11999996

Total number of pulses in waveform = 18

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Waveform Num = 26
Num of Bursts = 13
Burst Interval (us) = 923077

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)
	500262									
1		2	10	85	1553	1587	0	500262	0	923076
	1299818									
2		1	10	55	1365	0	0	1803220	923077	1846153
	462585									
3		3	10	65	1612	1835	1184	2267170	1846154	2769230
	652412									
4		2	10	85	1698	1604	0	2924213	2769231	3692307
	1147696									
5		1	10	60	1750	0	0	4075211	3692308	4615384
	717041									
6		1	10	60	1895	0	0	4794002	4615385	5538461
	999417									
7		3	10	90	1040	1441	1296	5795314	5538462	6461538
	1398720									
8		2	10	60	1176	1792	0	7197811	6461539	7384615
	613366									
9		3	10	50	1305	1946	1244	7814145	7384616	8307692
	706577									
10		3	10	55	1023	1347	1330	8525217	8307693	9230769
	1053856									
11		1	10	60	1843	0	0	9582773	9230770	10153846
	1487727									
12		1	10	85	1355	0	0	11072343	10153847	11076923
	134037									
13		1	10	75	1869	0	0	11207735	11076924	12000000

Total number of pulses in waveform = 24

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Waveform Num = 27
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)
	647297									
1		3	11	65	1852	1810	1425	647297	0	1499999
	1714245									
2		1	11	85	1938	0	0	2366629	1500000	2999999
	2097670									
3		3	11	80	1450	1724	1124	4466237	3000000	4499999
	752630									
4		3	11	95	1903	1861	1476	5223165	4500000	5999999
	997556									
5		3	11	90	1989	1629	1929	6225961	6000000	7499999
	1289154									
6		2	11	90	1707	1031	0	7520662	7500000	8999999
	2571304									
7		3	11	100	1911	1527	1065	10094704	9000000	10499999
	1165625									
8		1	11	50	1211	0	0	11264832	10500000	11999999

Total number of pulses in waveform = 19

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Waveform Num = 28
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)
	640350									
1		3	6	90	1081	1596	1972	640350	0	1199999
	1001400									
2		2	6	55	1116	1783	0	1646399	1200000	2399999
	911005									
3		2	6	60	1561	1253	0	2560303	2400000	3599999
	1698652									
4		2	6	65	1664	1647	0	4261769	3600000	4799999
	971831									
5		2	6	75	1159	1167	0	5236911	4800000	5999999
	981524									
6		3	6	85	1313	1612	1835	6220761	6000000	7199999
	1697098									
7		2	6	70	1715	1698	0	7922619	7200000	8399999
	1372341									
8		1	6	55	1210	0	0	9298373	8400000	9599999
	532486									
9		2	6	50	1254	1895	0	9832069	9600000	10799999
	1299006									
10		3	6	90	1040	1441	1296	11134224	10800000	11999999

Total number of pulses in waveform = 22

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Waveform Num = 29
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)
	746404									
1		1	8	90	1801	0	0	746404	0	749999
	184844									
2		1	8	65	1946	0	0	933049	750000	1499999
	824895									
3		2	8	90	1091	1023	0	1759890	1500000	2249999
	658257									
4		1	8	60	1270	0	0	2420261	2250000	2999999
	1321817									
5		3	8	70	1048	1639	1355	3743348	3000000	3749999
	108844									
6		1	8	75	1869	0	0	3856234	3750000	4499999
	856972									
7		1	8	70	1913	0	0	4715075	4500000	5249999
	1047260									
8		3	8	90	1425	1433	1099	5764248	5250000	5999999
	771175									
9		3	8	80	1878	1569	1450	6539380	6000000	6749999
	856067									
10		1	8	100	1963	0	0	7400344	6750000	7499999
	649333									
11		3	8	95	1476	1484	1681	8051640	7500000	8249999
	771270									
12		3	8	80	1929	1151	1501	8827551	8250000	8999999
	846665									
13		3	8	50	1013	1921	1954	9678797	9000000	9749999
	95595									
14		2	8	50	1732	1322	0	9779280	9750000	10499999
	779891									
15		1	8	75	1202	0	0	10562225	10500000	11249999
	1085858									
16		3	8	90	1081	1596	1972	11649285	11250000	11999999

Total number of pulses in waveform = 32

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Waveform Num = 30
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)
	531604									
1		1	6	90	1373	0	0	531604	0	857142
	438769									
2		1	6	80	1253	0	0	971746	857143	1714285
	1213456									
3		2	6	65	1664	1647	0	2186455	1714286	2571428
	693500									
4		2	6	75	1159	1167	0	2883266	2571429	3428571
	700415									
5		3	6	85	1313	1612	1835	3586007	3428572	4285714
	1210516									
6		2	6	70	1715	1698	0	4801283	4285715	5142857
	979598									
7		1	6	55	1210	0	0	5784294	5142858	6000000
	380086									
8		2	6	50	1254	1895	0	6165590	6000001	6857143
	926835									
9		3	6	90	1040	1441	1296	7095574	6857144	7714286
	1298447									
10		2	6	60	1176	1792	0	8397798	7714287	8571429
	569362									
11		3	6	50	1305	1946	1244	8970128	8571430	9428572
	655874									
12		3	6	55	1023	1347	1330	9630497	9428573	10285715
	978329									
13		1	6	60	1843	0	0	10612526	10285716	11142858
	1381283									
14		1	6	85	1355	0	0	11995652	11142859	12000001

Total number of pulses in waveform = 27

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END OF TEST REPORT

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