Dynamic Frequency Selection (DFS)

Test Report

Product Name	:	Mesh Wi-Fi Router
Trade Name	:	CastleNet
Model No.	:	EBM522U, EBM522
FCC ID	:	RK9-EBM522

Applicant	:	CastleNet Technology Inc.
Address	:	No. 14, Ln. 141, Sec. 3, Beishen Rd. Shenkeng Dist., New Taipei City, 22244 Taiwan

Date of Receipt	:	Apr. 19, 2021
Issued Date	:	Sep. 27, 2021
Report No.	:	2140542R-E3032610115
Report Version	:	V1.0

Test Report Certification

Product Name	:	Mesh Wi-Fi Router
Applicant	:	CastleNet Technology Inc.
Address	:	No. 14, Ln. 141, Sec. 3, Beishen Rd. Shenkeng Dist., New Taipei City, 22244 Taiwan
Manufacturer	:	CastleNet Technology Inc.
Model No.	:	No. 14, Ln. 141, Sec. 3, Beishen Rd. Shenkeng Dist., New Taipei City, 22244 Taiwan
FCC ID	:	RK9-EBM522
EUT Voltage	:	AC 100-240V, 50/60Hz
Testing Voltage	:	AC 120V/60Hz
Trade Name	:	CastleNet
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart E Section 15.407 ANSI C63.10: 2013
Laboratory Name	:	Hsin Chu Laboratory
Address	:	No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C. TEL: +886-3-582-8001 / FAX: +886-3-582-8958
Test Result	:	Complied

Documented By :

(Demi Chang / Senior Engineering Adm. Specialist)

Approved By :

(Louis Hsu / Deputy Manager)

The test results relate only to the samples tested.
The test report shall not be reproduced except in full without the written approval of DEKRA Testing and Certification Co., Ltd.

Revision History

Version	Description	Issued Date
V1.0	Initial issue of report	Sep. 27, 2021

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Description **Page**

1. General Information

1.1. EUT Description

Product Name	Mesh Wi-Fi Router		
Trade Name	CastleNet		
Model No.	EBM522U, EBM522		
DFS Frequency Range / Number of DFS Channels	IEEE 802.11a/n/ax (20MHz)	5260~5320MHz / 4 Channels 5500~5700MHz / 11 Channels	
	IEEE 802.11n/ax (40MHz)	5270~5310MHz / 2 Channels 5510~5670MHz / 5 Channels	
	IEEE 802.11ax (80MHz)	5290MHz / 1 Channel 5530~5610MHz / 2 Channel	
	IEEE 802.11ac/ax 160MHz	5570MHz / 1 Channel	
Type of Modulation	IEEE 802.11a/n/ac	Orthogonal Frequency Division Multiplexing	
	IEEE 802.11ax	Orthogonal Frequency Division Multiple Access	
Data Rate	IEEE 802.11a	6, 9, 18, 24, 36, 48, 54Mbps	
	IEEE 802.11n	Support a subset of the combination of GI, MCS 0~MCS 31 and bandwidth defined in 802.11n	
	IEEE 802.11ac	Support a subset of the combination of GI, MCS 0~MCS 9 and bandwidth defined in 802.11ac	
	IEEE 802.11ax	Support a subset of the combination of GI, MCS 0~MCS 11 and bandwidth defined in 802.11ax	
Channel Control	Auto		
Channel Bandwidth	20/40/80/160MHz		
DFS Function	☒	Master	
	☐	Client with radar detection	
	☐	Client without radar detection	
TPC Function	☒	With TPC Function	
	☐	Without TPC Function	
Weather Band (5600~5650MHz)	☒	With 5600~5650MHz	
	☐	Without 5600~5650MHz	
Communication Mode	☒	IP Based Systems	
	☐	Frame Based System	
	☐	Other System	

*Note: The TPC test by U-NII report.

Accessories Information					
No.	Equipment Name	Trade Name	Model No.	Rating	Remark
1	Adapter 1	MOSO	MSA-C1500CS12.0-18G-US	INPUT: 100-240V~50/60Hz 0.6A max. OUTPUT: 12.0V⎓1.5A	With power cable : Non-Shieled, 1.5m
2	Adapter 2	MOSO	AE180AAE00	INPUT: 100-240V~50/60Hz 0.6A max. OUTPUT: 12.0V⎓1.5A 18W	With power cable : Non-Shieled, 1.5m
No.	Equipment Name	Trade Name	Model No.	Description	
3	LAN Cable	EKSON	PF01-C102	Non-Shielded, 1m	

The difference for each model is shown as below:

Model No.	USB Port
EBM522U	With
EBM522	Without

From the above models, model: EBM522U was selected as representative model for the test and its data was recorded in this report.

Antenna Information				
Ant.	Trade Name	Model No.	Type	Antenna Gain (dBi)
0	Taiwan Anjie	AJDP1J-B0092	Dipole Antenna	2.5
1	Taiwan Anjie	AJDP1J-W0060	Dipole Antenna	2.5
2	Taiwan Anjie	AJWP1J-C002	Dipole Antenna	4.5
3	Taiwan Anjie	AJWP1J-R002	Dipole Antenna	4.5

For IEEE 802.11a/n/ac/ax Mode: (4TX, 4RX)

Both Ant. 0 and Ant. 3 can be used as transmitting/receiving antennas, and them can transmit/receive signal simultaneously.

Channel List

IEEE 802.11a & IEEE 802.11n (20MHz) & IEEE 802.11ac (20MHz) & IEEE 802.11ax (20MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
52	5260 MHz	56	5280 MHz	60	5300 MHz	64	5320 MHz
100	5500 MHz	104	5520 MHz	108	5540 MHz	112	5560 MHz
116	5580 MHz	120	5600 MHz	124	5620 MHz	128	5640 MHz
132	5660 MHz	136	5680 MHz	140	5700 MHz	-	-

IEEE 802.11n (40MHz) & IEEE 802.11ac (40MHz) & IEEE 802.11ax (40MHz)

Working Frequency of Each Channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
54	5270MHz	62	5310 MHz	102	5510 MHz	110	5550 MHz
118	5590MHz	126	5630 MHz	134	5670 MHz	-	-

IEEE 802.11ac (80MHz) & IEEE 802.11ax (80MHz)

Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
58	5290 MHz	106	5530 MHz	122	5610 MHz	-	-

IEEE 802.11ax (160MHz)

Working Frequency of Each Channel:							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
114	5570 MHz	-	-	-	-	-	-

Test Mode	Mode 1: Normal Link

Note: The above EUT information is declared by the manufacturer.

1.2. Standard Requirement

FCC Part 15.407:

U-NII devices operating in the 5.25-5.35 GHz band and the 5.47-5.725 GHz band shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30dBm. A TPC mechanism is not required for systems with an E.I.R.P. of less than 500mW.
U-NII devices operating in the 5.25-5.35 GHz and 5.47-5.725 GHz bands shall employ a DFS radar detection mechanism to detect the presence of radar systems and to avoid co-channel operation with radar systems.

1.3. UNII Device Description

(1) The EUT operates in the following DFS band:

1. 5250-5350 MHz
2. 5470-5725 MHz

(2) The U-NII device maximum power is 30.864dBm (E.I.R.P).
Below are the available 50 ohm antenna assemblies and their corresponding gains. 0dBi gain was used to set the -63 dBm threshold level (-64dBm +1 dB) during calibration of the test setup.

(3) WLAN traffic is generated by the test software “Iperf.exe” from the Master device to the Slave device in the transfer data rate >17%.

(4) For the 5250-5350 MHz and 5470-5725 MHz bands, the Master device provides, on aggregate, uniform loading of the spectrum across all devices by selecting an operating channel among the available channels using a random algorithm.

1.4. Test Facility

USA	**:**	**FCC Registration Number: TW3024**
Canada		**CAB identifier : TW3024**

The address and introduction of DEKRA Testing and Certification Co., Ltd. laboratories can be founded in our Web site: http://www.dekra.com.tw

If you have any comments, please don't hesitate to contact us. Our test sites as below:

Test Laboratory	DEKRA Testing and Certification Co., Ltd.
Address	1. No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C. 2. No.372, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C.
Phone number	1. +886-3-582-8001 2. +886-3-582-8001
Fax number	1. +886-3-582-8958 2. +886-3-582-8958
E mail address	info.tw@dekra.com
Website	http://www.dekra.com.tw
Note: Test site number for address 1 includes SR2-H. Test site number for address 2 includes CB2-H, CB3-H, CB4-H, SR10-H and SR12-H.	

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
DFS	SR10-H	Neil Yeh	24.1 / 58 28 / 62	2021/08/27 2021/09/22

1.5. Test Equipment

SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	US47140172	2021/05/28	2022/05/27
ESG Vector Signal Generator	Agilent	E4438C	MY45095759	2021/04/23	2022/04/22
MXG Vector Signal Generator	Keysight	N5182B	MY53052548	2021/02/22	2022/02/21
Horn Antenna	Schwarzbeck	BBHA 9120D	639	2021/05/17	2022/05/16
Horn Antenna	Schwarzbeck	BBHA 9120D	01656	2020/10/14	2021/10/13
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2021/01/25	2022/01/24
Spectrum Analyzer	Keysight	N9030B	MY57140404	2021/05/14	2022/05/13
Signal & Spectrum Analyzer	R&S	FSV40	101049	2021/03/31	2022/03/30

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

Instrument	Manufacturer	Type No.	Serial No	FCC ID
Laptop PC	DELL	Vostro A860	CD8BMH1	--
Laptop PC	ASUS	K45VD	0343G3110M	--
Wireless Router	ASUS	ASUS RT-AX88U	JCITHP000040	MSQ-RTAXHP00
ATT (Qty: 3)	Mini-Circuits	BW-S3W2 DC-18GHz	0025	--
RF Cable (Qty: 6)	Schaffner	--	25494/6	--

Software	Manufacturer	Function
Agilent Signal Studio for DFS_V1.0.0	Agilent	Radar Signal Generation Software
Magic iPerf_V1.0	NextDoorDeveloper	iPerf Tool
Device Firmware Version	CastleNet	5.02L.07p1_003_522

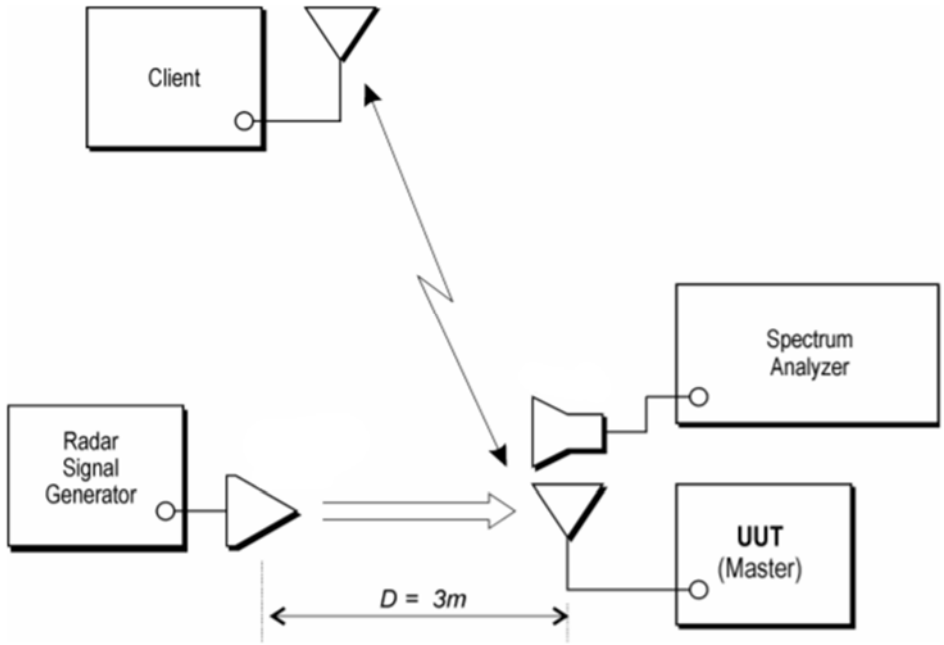
1.6. Uncertainty

Uncertainties have been calculated according to the DEKRA internal document with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2).

Test item	Uncertainty
DFS	± 1ms

Note: Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

1.7. Test Setup



1.8. DFS Detection Thresholds

(1) Interference Threshold value, Master or Client incorporating In-Service Monitoring

Maximum Transmit Power	Value (see note)
≥200 milliwatt	-64dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64dBm

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: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.

(2) DFS Response requirement values

Parameter	Value
Non-Occupancy Period	Minimum 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 seconds period (See Notes 1 and 2)
U-NII Detection Bandwidth	Minimum 100% of the 99% 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.

1.9. Radar Test Waveforms

This section provides the parameters for required test waveforms, minimum percentage of successful detections, and the minimum number of trials that must be used for determining DFS conformance. Step intervals of 0.1 microsecond for Pulse Width, 1 microsecond for PRI, 1 MHz for chirp width and 1 for the number of pulses will be utilized for the random determination of specific test waveforms.

(1) Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of 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 $\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot 10^6}{PRI_{\mu sec}}\right)\right\}$	60%	30
		Test B: 15 unique PRI values randomly selected within the range of 518-3066 μsec, with a minimum increment of 1 μsec, 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.					

A minimum of 30 unique waveforms are required for each of the Short Pulse Radar Types 2 through 4. If more than 30 waveforms are used for Short Pulse Radar Types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms. If more than 30 waveforms are used for Short Pulse Radar Type 1, then each additional waveform is generated with Test B and must also be unique and not repeated from the previous waveforms in Tests A or B.

(2) Long Pulse Radar Test Signal

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

The parameters for this waveform are randomly chosen. Thirty unique waveforms are required for the long pulse radar test signal. If more than 30 waveforms are used for the long pulse radar test signal, then each additional waveform must also be unique and not repeated from the previous waveforms.

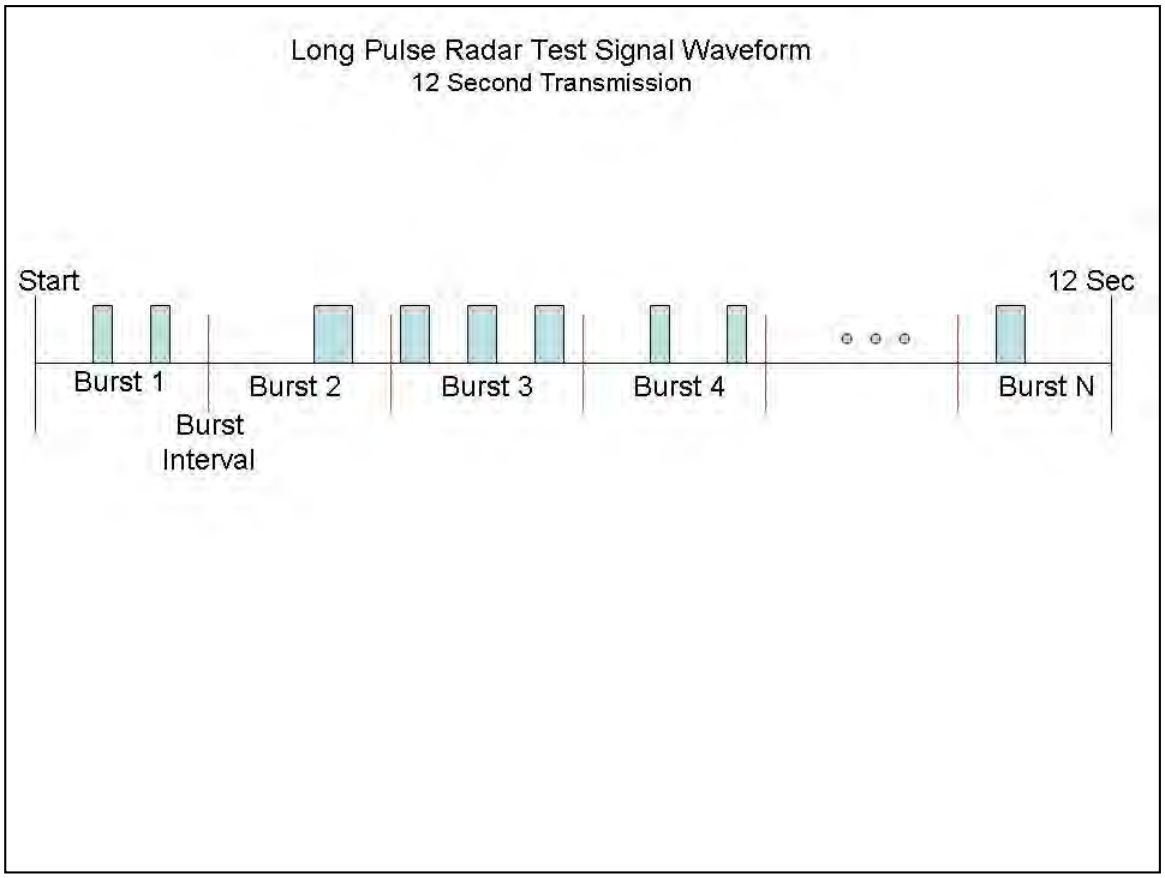
Each waveform is defined as follows:

1) The transmission period for the Long Pulse Radar test signal is 12 seconds.
2) There are a total of 8 to 20 Bursts in the 12 second period, with the number of Bursts being randomly chosen. This number is Burst_Count.
3) Each Burst consists of 1 to 3 pulses, with the number of pulses being randomly chosen. Each Burst within the 12 second sequence may have a different number of pulses.
4) The pulse width is between 50 and 100 microseconds, with the pulse width being randomly chosen. Each pulse within a Burst will have the same pulse width. Pulses in different Bursts may have different pulse widths.
5) Each pulse has a linear frequency modulated chirp between 5 and 20 MHz, with the chirp width being randomly chosen. Each pulse within a transmission period will have the same chirp width. The chirp is centered on the pulse. For example, with a radar frequency of 5300 MHz and a 20 MHz chirped signal, the chirp starts at 5290 MHz and ends at 5310 MHz.
6) If more than one pulse is present in a Burst, the time between the pulses will be between 1000 and 2000 microseconds, with the time being randomly chosen. If three pulses are present in a Burst, the time between the first and second pulses is chosen independently of the time between the second and third pulses.
7) The 12 second transmission period is divided into even intervals. The number of intervals is equal to Burst_Count. Each interval is of length (12,000,000 / Burst_Count) microseconds. Each interval contains one Burst. The start time for the Burst, relative to the beginning of the interval, is between 1 and [(12,000,000 / Burst_Count) – (Total Burst Length) + (One Random PRI Interval)] microseconds, with the start time being randomly chosen. The step interval for the start time is 1 microsecond. The start time for each Burst is chosen independently.

A representative example of a Long Pulse radar test waveform:

1) The total test signal length is 12 seconds.
2) 8 Bursts are randomly generated for the Burst_Count.
3) Burst 1 has 2 randomly generated pulses.
4) The pulse width (for both pulses) is randomly selected to be 75 microseconds.
5) The PRI is randomly selected to be at 1213 microseconds.
6) Bursts 2 through 8 are generated using steps 3 – 5.
7) Each Burst is contained in even intervals of 1,500,000 microseconds. The starting location for Pulse 1, Burst 1 is randomly generated (1 to 1,500,000 minus the total Burst 1 length + 1 random PRI interval) at the 325,001 microsecond step. Bursts 2 through 8 randomly fall in successive 1,500,000 microsecond intervals (i.e. Burst 2 falls in the 1,500,001 – 3,000,000 microsecond range).

Graphical Representation of a Long Pulse radar Test Waveform



(3) Frequency Hopping Radar Test Signal

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

For the Frequency Hopping Radar Type, the same *Burst* parameters are used for each waveform. The hopping sequence is different for each waveform and a 100-length segment is selected[1] from the hopping sequence defined by the following algorithm:

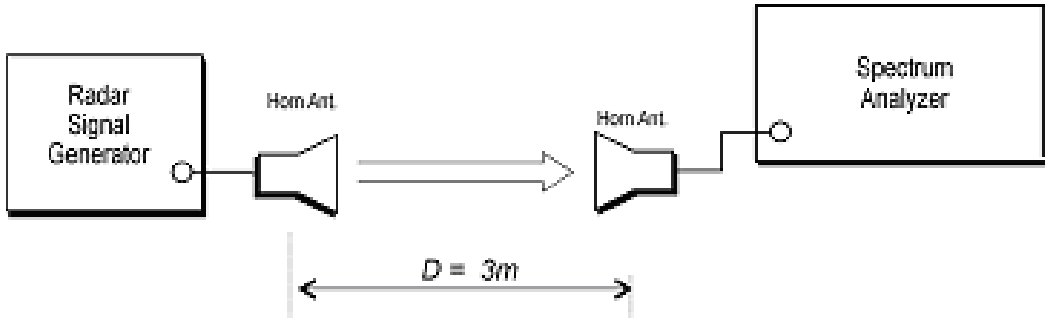
The first frequency in a hopping sequence is selected randomly from the group of 475 integer frequencies from 5250 – 5724 MHz. Next, the frequency that was just chosen is removed from the group and a frequency is randomly selected from the remaining 474 frequencies in the group. This process continues until all 475 frequencies are chosen for the set. For selection of a random frequency, the frequencies remaining within the group are always treated as equally likely.

1.10. Radar Waveform Calibration

The following equipment setup was used to calibrate the conducted radar waveform. A spectrum analyzer was used to establish the test signal level for each radar type. During this process there were replace 50ohm terminal from master and client device and no transmissions by either the master or client device. The spectrum analyzer was switched to the zero span (time domain) at the frequency of the radar waveform generator. Peak detection was utilized. The spectrum analyzer resolution bandwidth (RBW) and video bandwidth (VBW) were set to 1MHz and 1MHz.

The signal generator amplitude was set so that the power level measured at the spectrum analyzer was -63dBm due to the interference threshold level is not required.

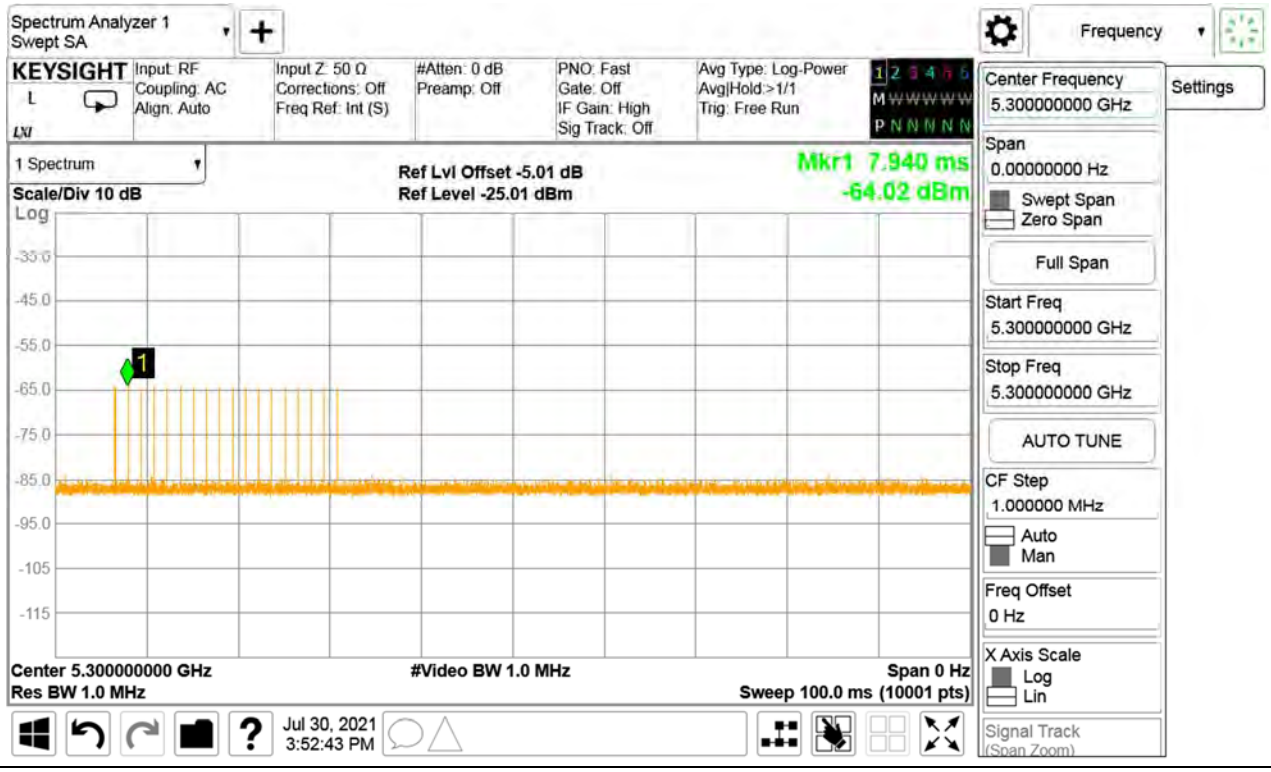
Radiated Calibration Setup



1.11. Radar Waveform Calibration Result

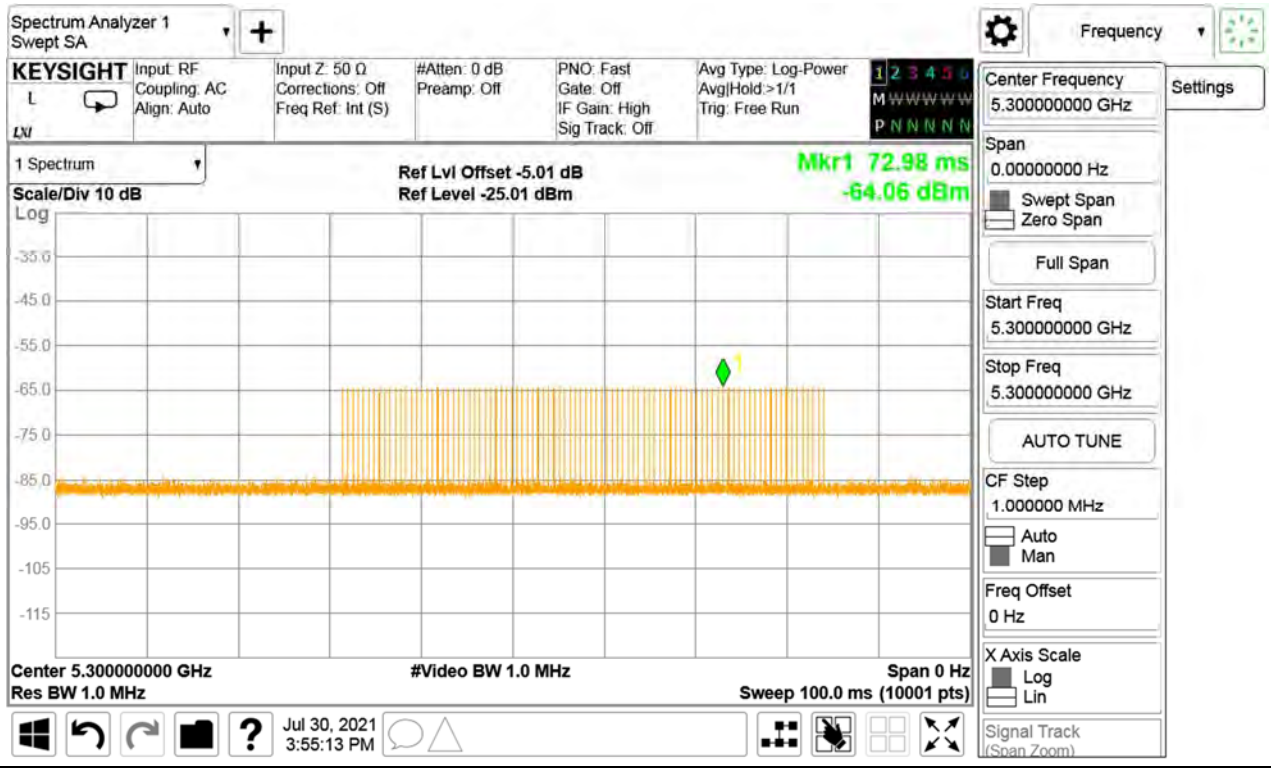
Radar Type 0

Calibration Plot - 802.11ax (20MHz), 5300 MHz



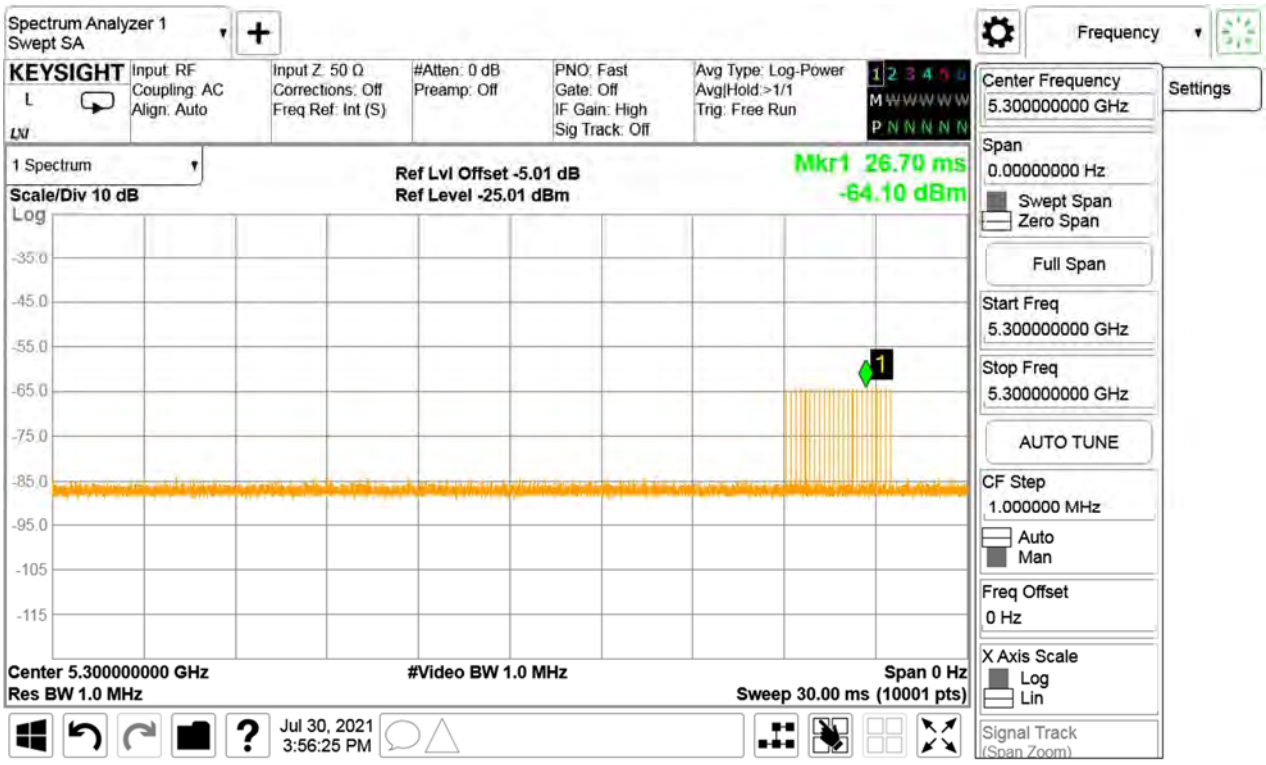
Radar Type 1

Calibration Plot - 802.11ax (20MHz), 5300 MHz



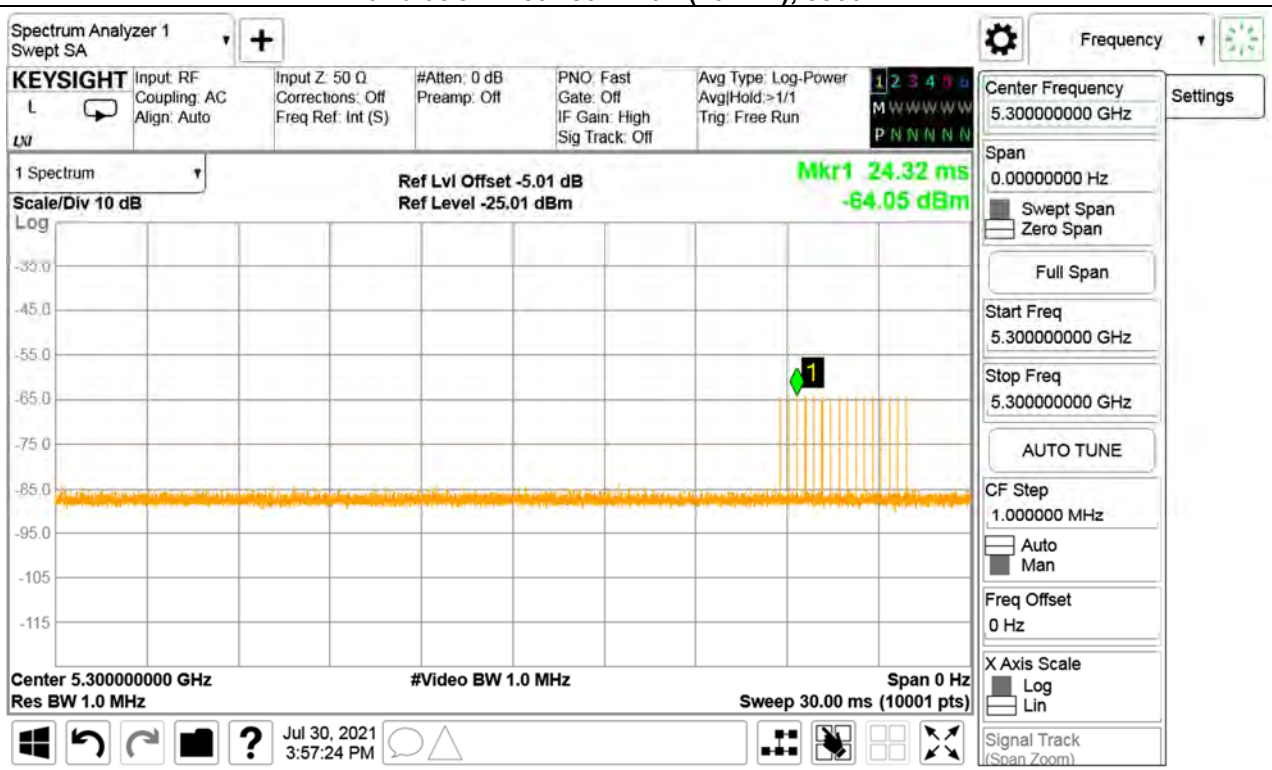
Radar Type 2

Calibration Plot - 802.11ax (20MHz), 5300 MHz



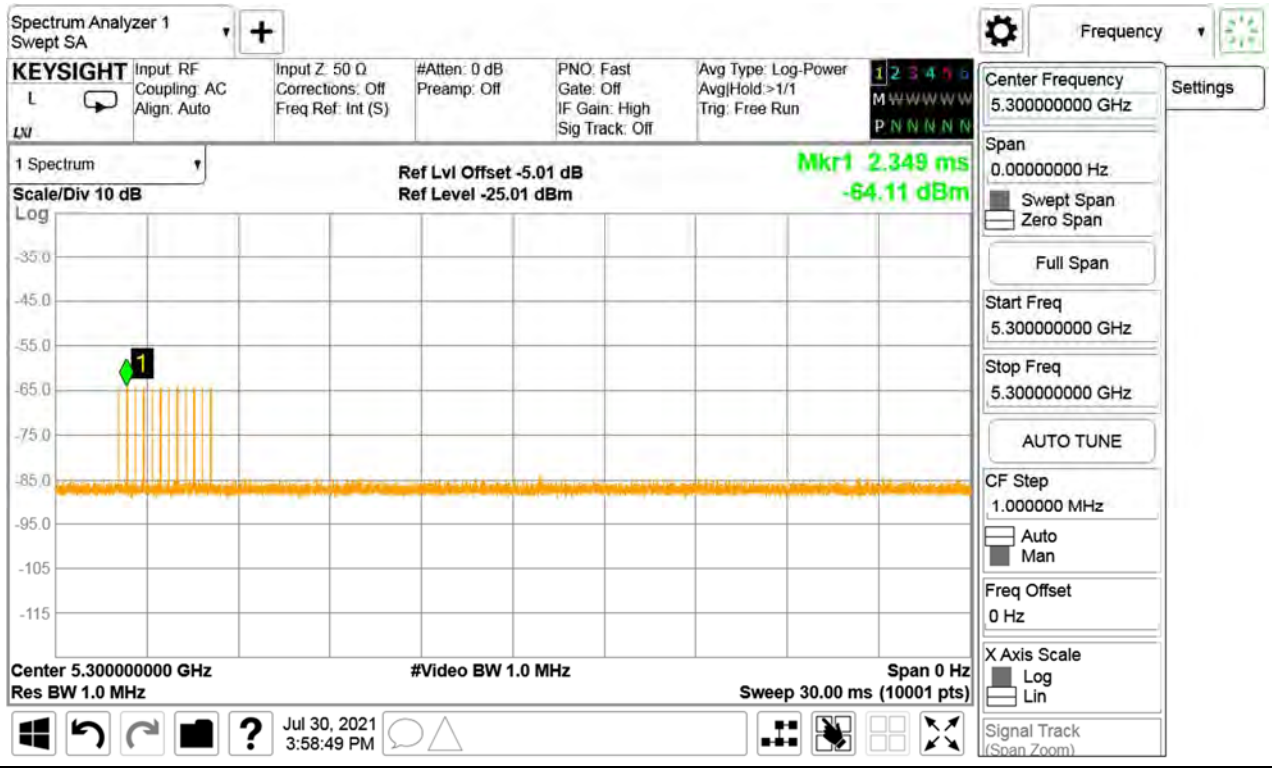
Radar Type 3

Calibration Plot - 802.11ax (20MHz), 5300 MHz



Radar Type 4

Calibration Plot - 802.11ax (20MHz), 5300 MHz

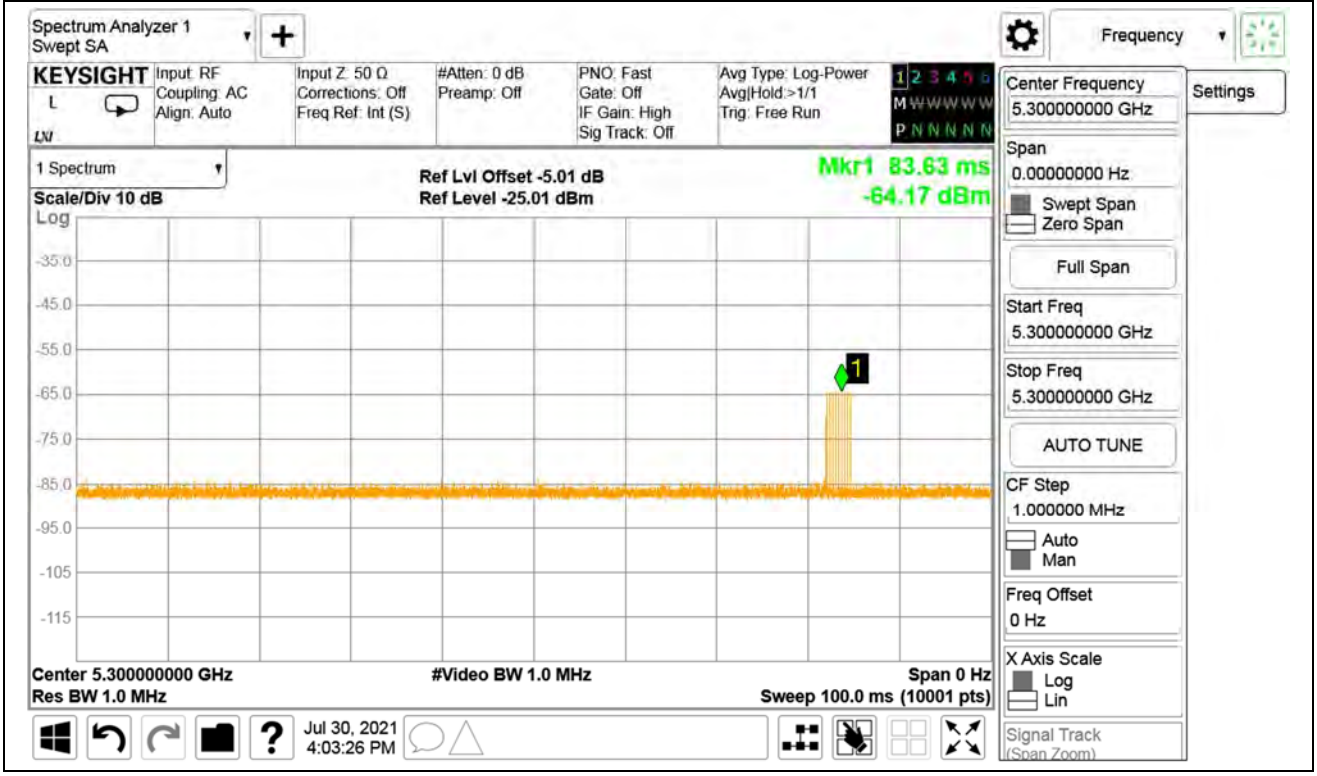


Radar Type 5

Calibration Plot - 802.11ax (20MHz), 5300 MHz

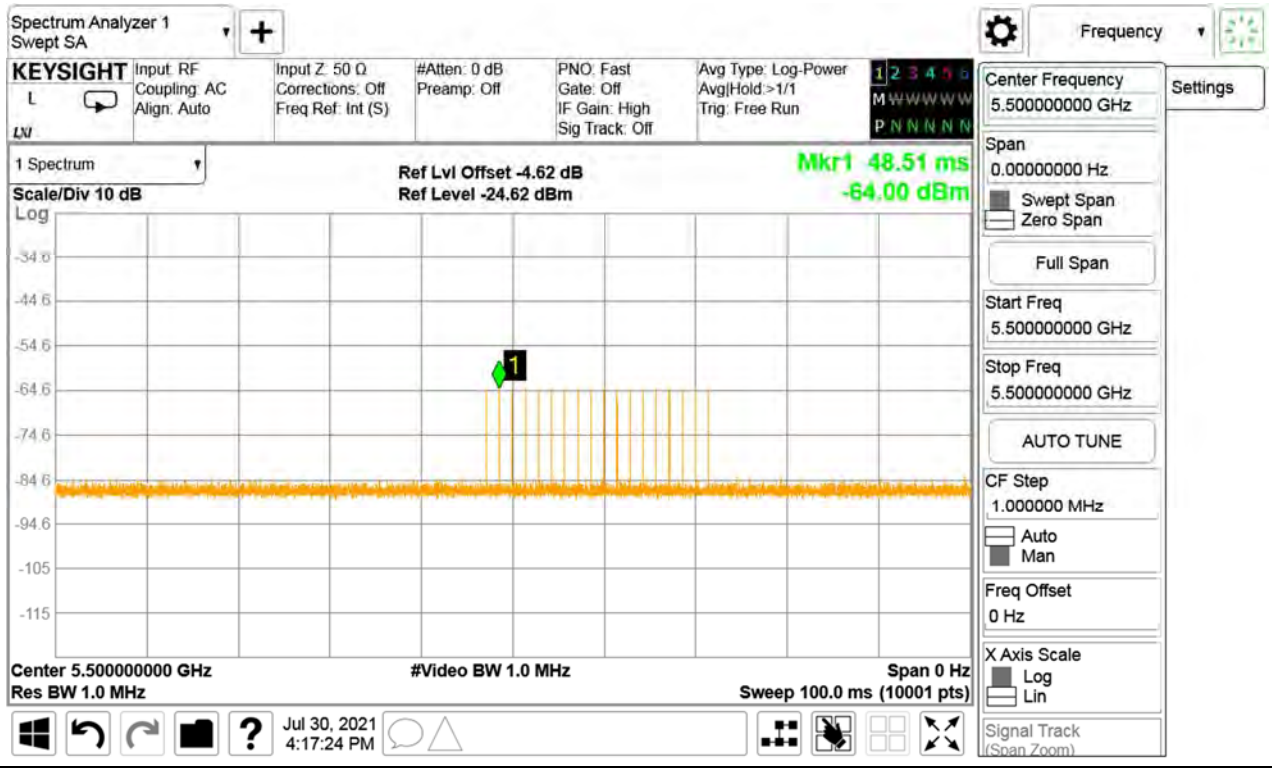
Radar Type 6

Calibration Plot - 802.11ax (20MHz), 5300 MHz



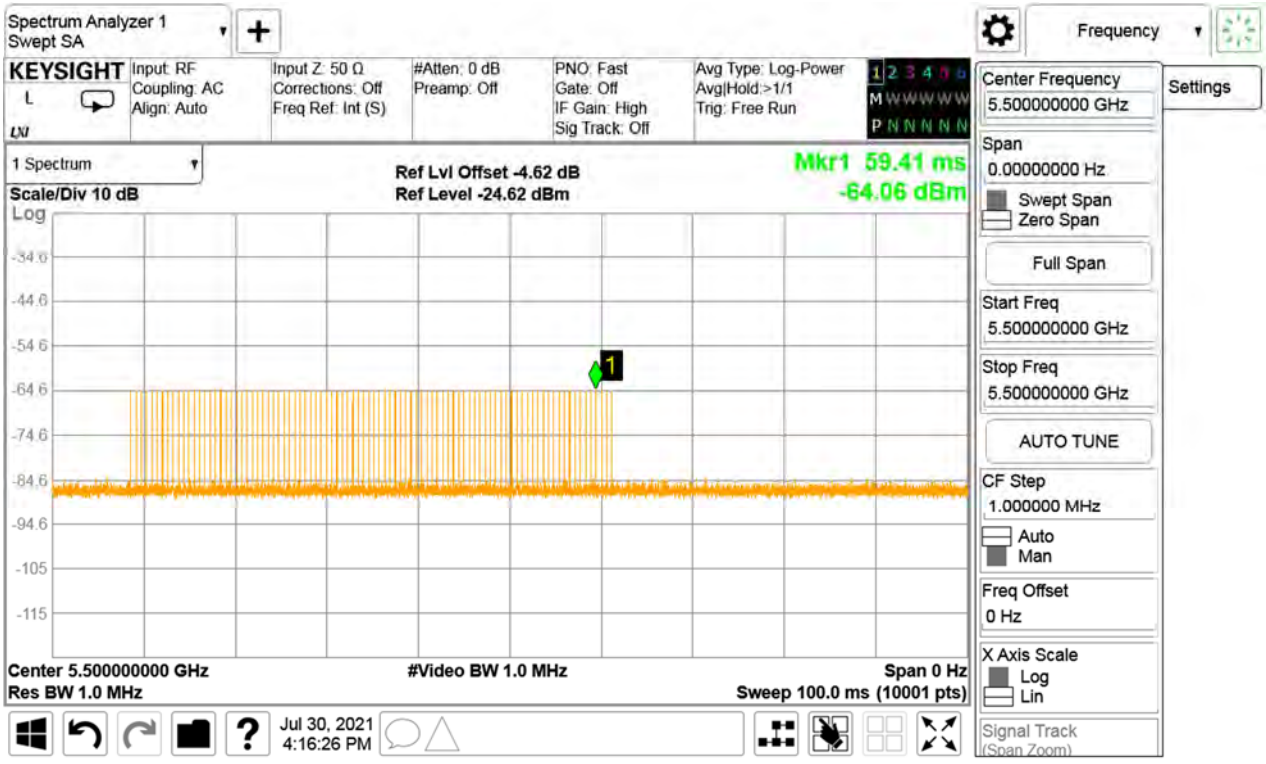
Radar Type 0

Calibration Plot - 802.11ax (20MHz), 5500 MHz



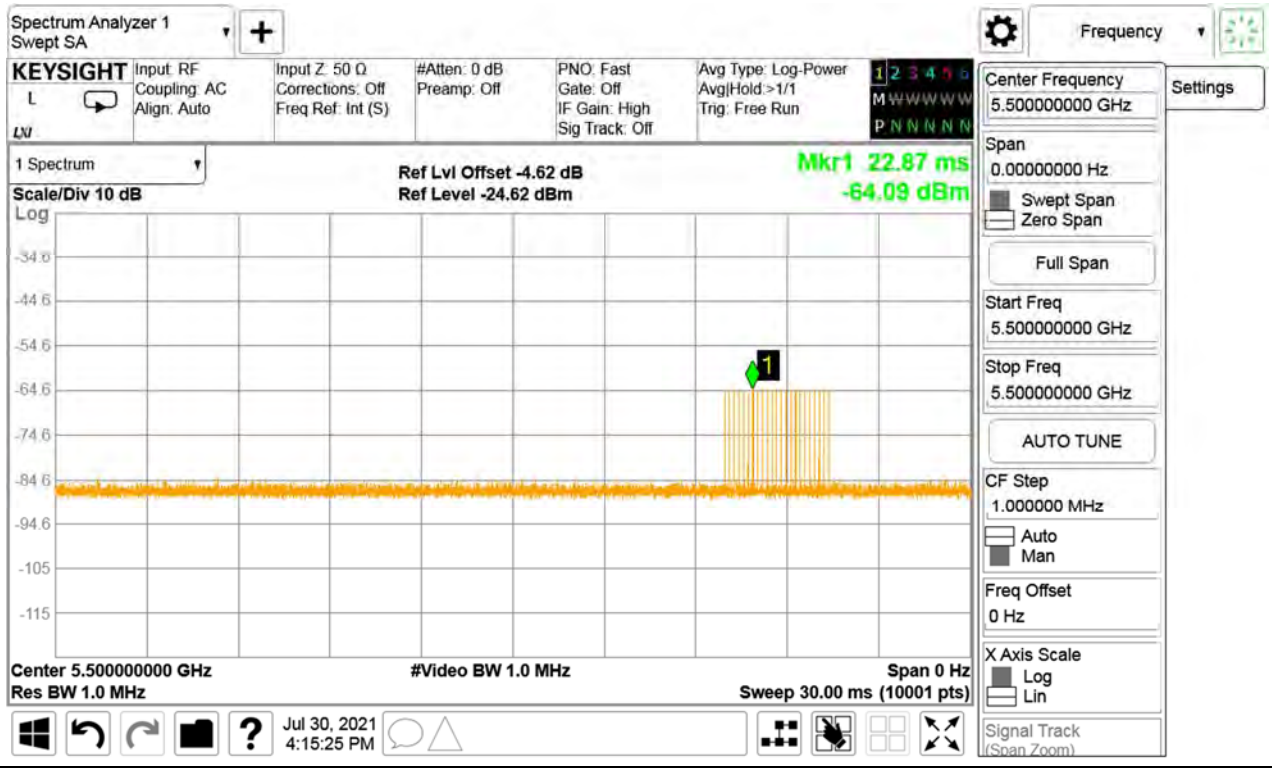
Radar Type 1

Calibration Plot - 802.11ax (20MHz), 5500 MHz



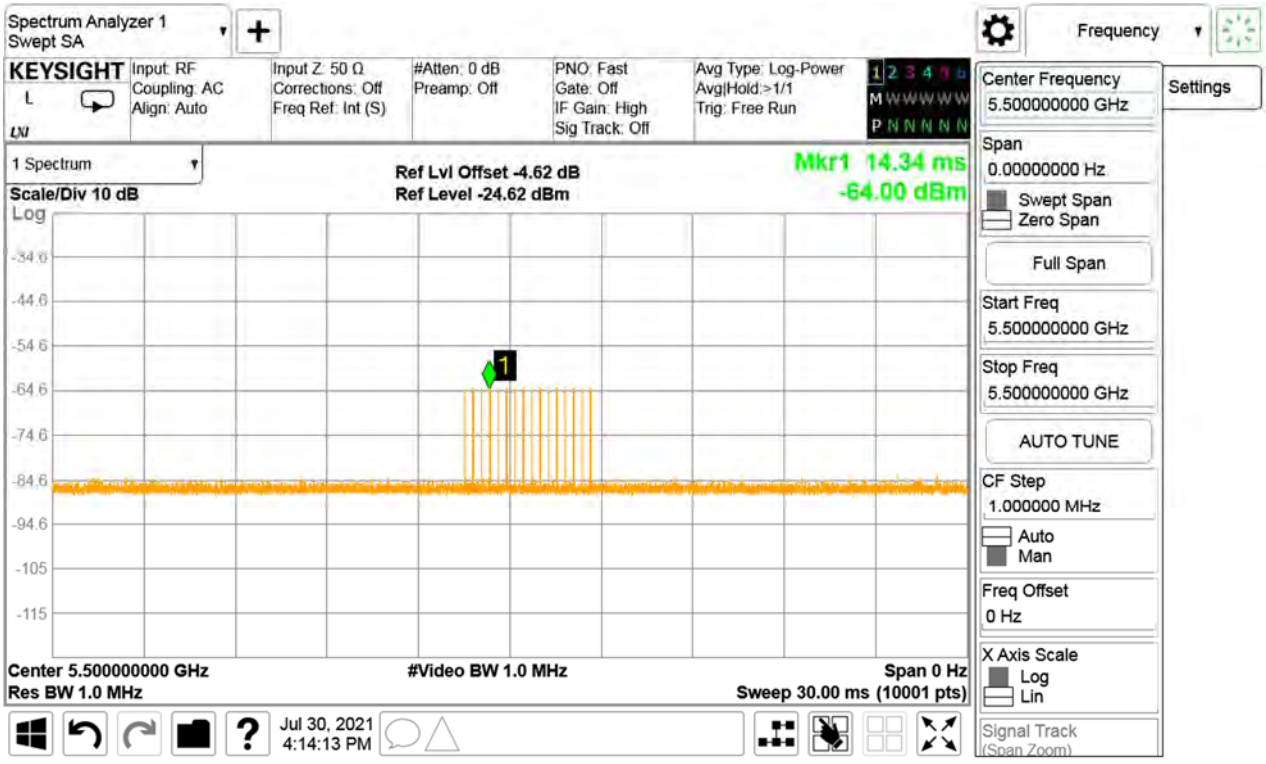
Radar Type 2

Calibration Plot - 802.11ax (20MHz), 5500 MHz



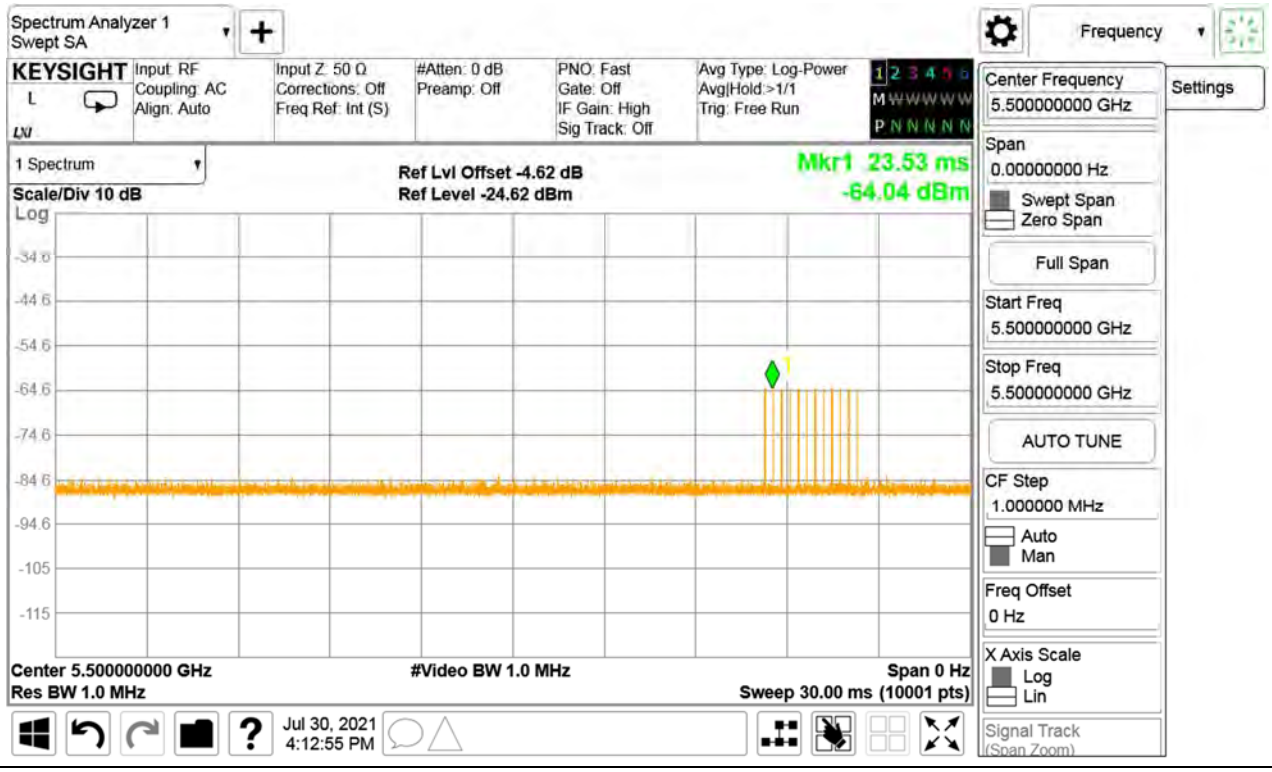
Radar Type 3

Calibration Plot - 802.11ax (20MHz), 5500 MHz



Radar Type 4

Calibration Plot - 802.11ax (20MHz), 5500 MHz

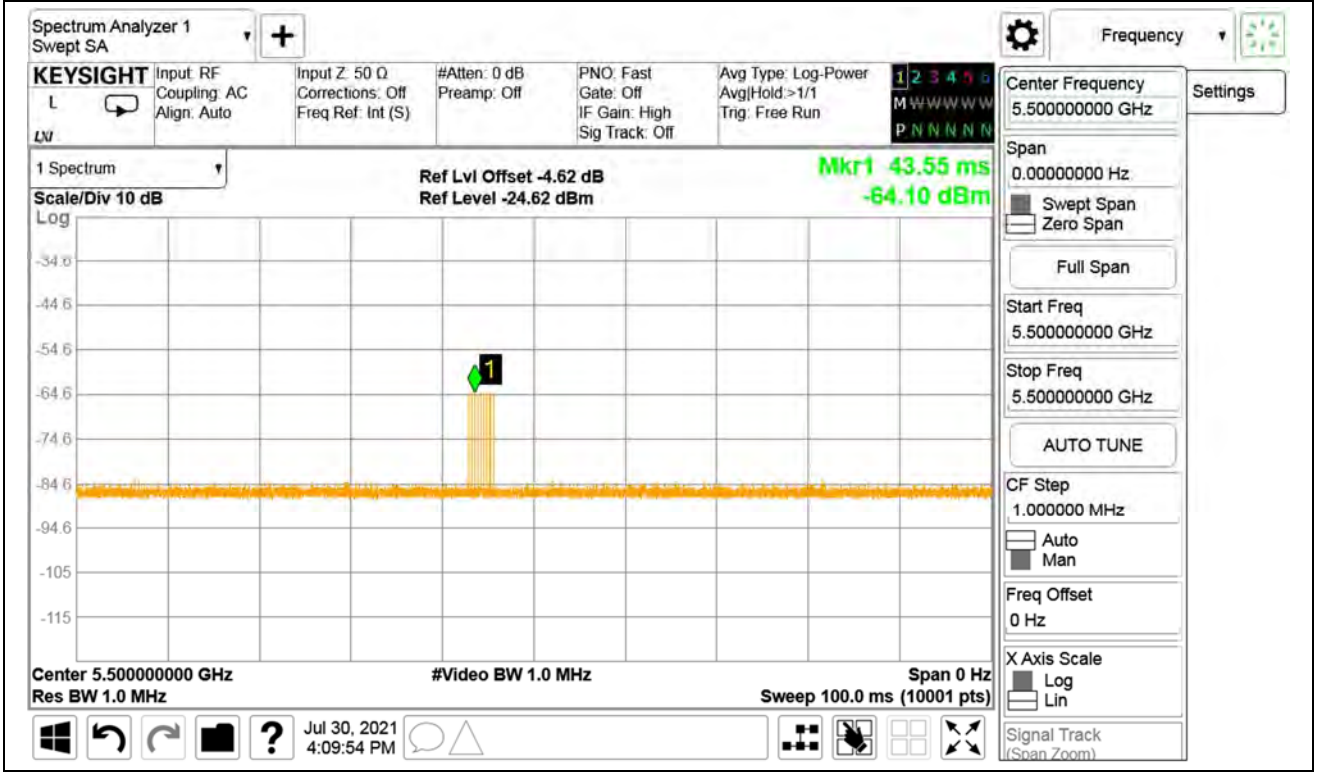


Radar Type 5

Calibration Plot - 802.11ax (20MHz), 5500 MHz

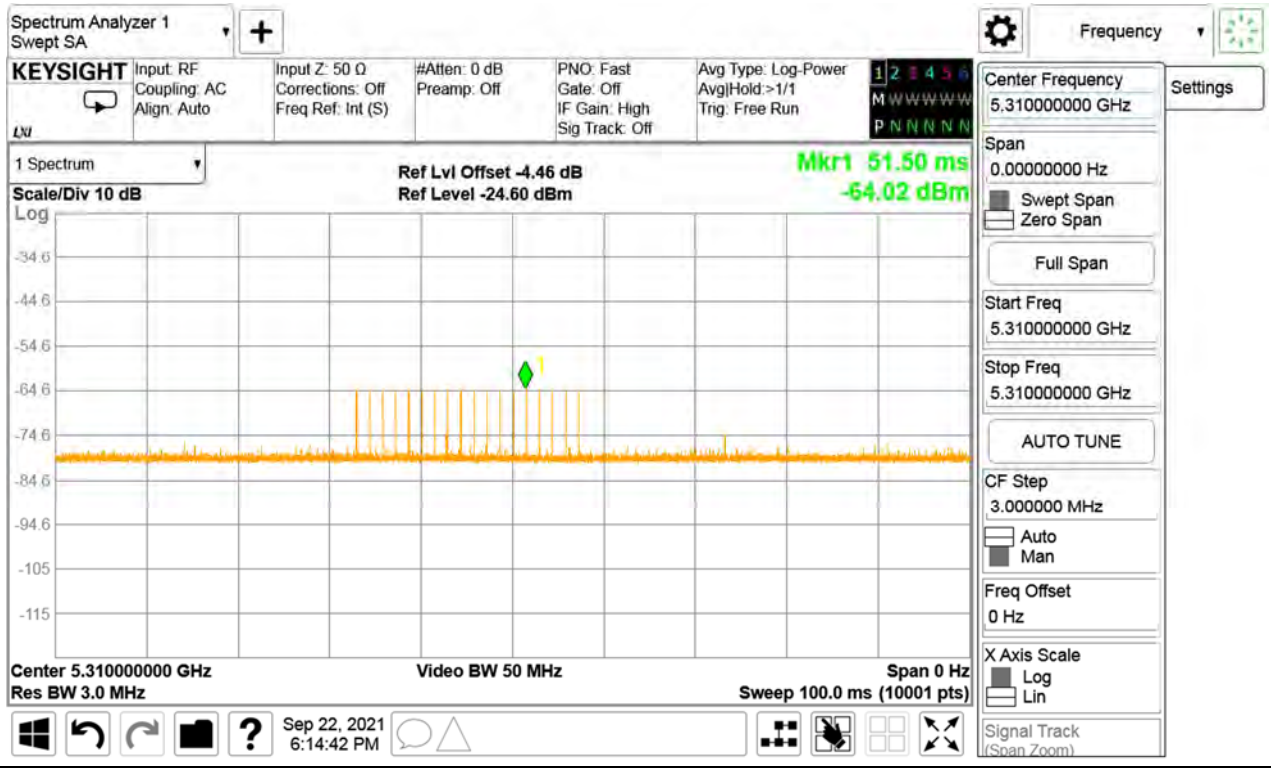
Radar Type 6

Calibration Plot - 802.11ax (20MHz), 5500 MHz



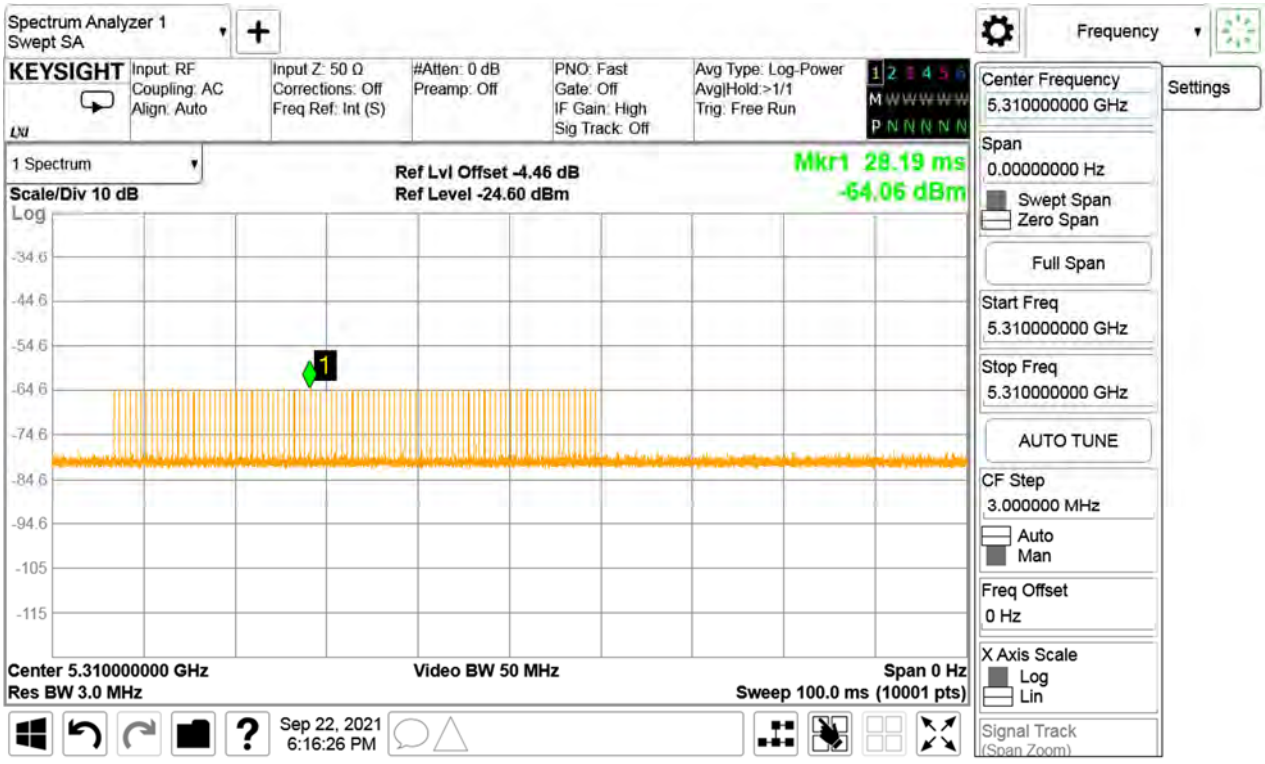
Radar Type 0

Calibration Plot - 802.11ax (40MHz), 5310 MHz



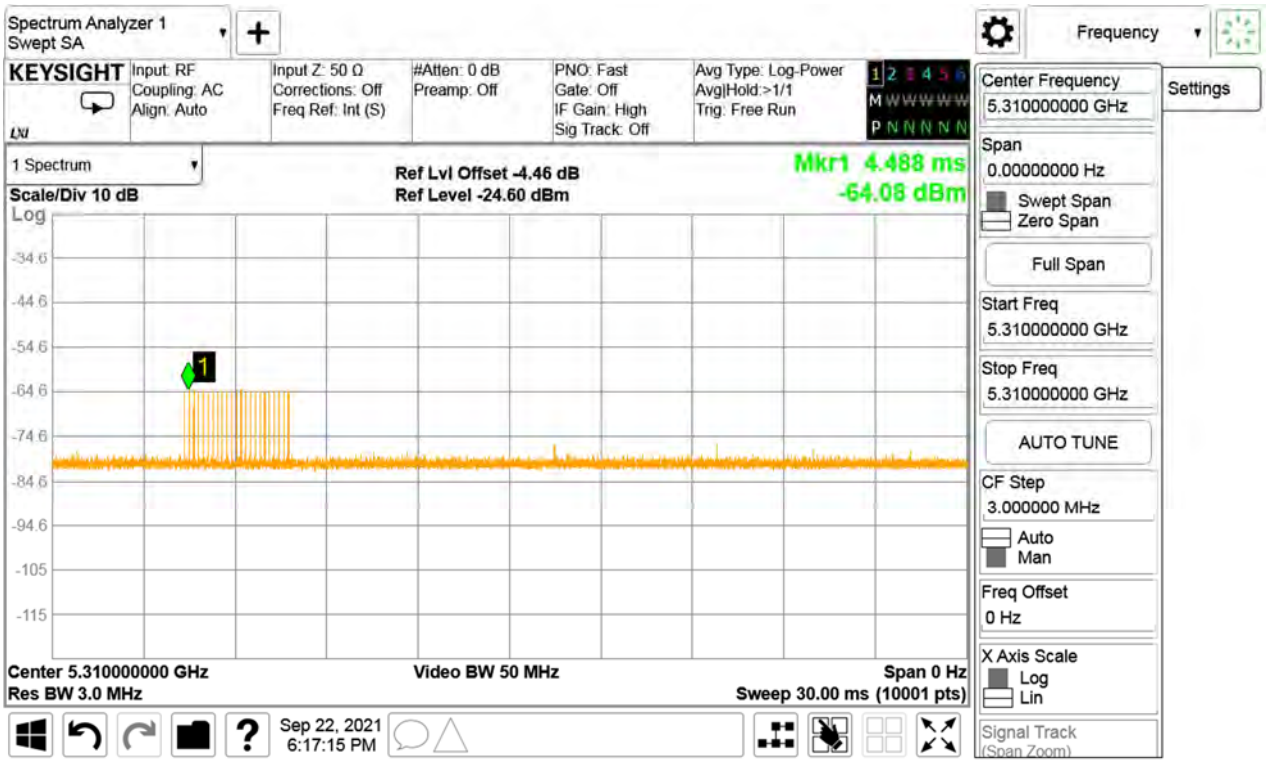
Radar Type 1

Calibration Plot - 802.11ax (40MHz), 5310 MHz



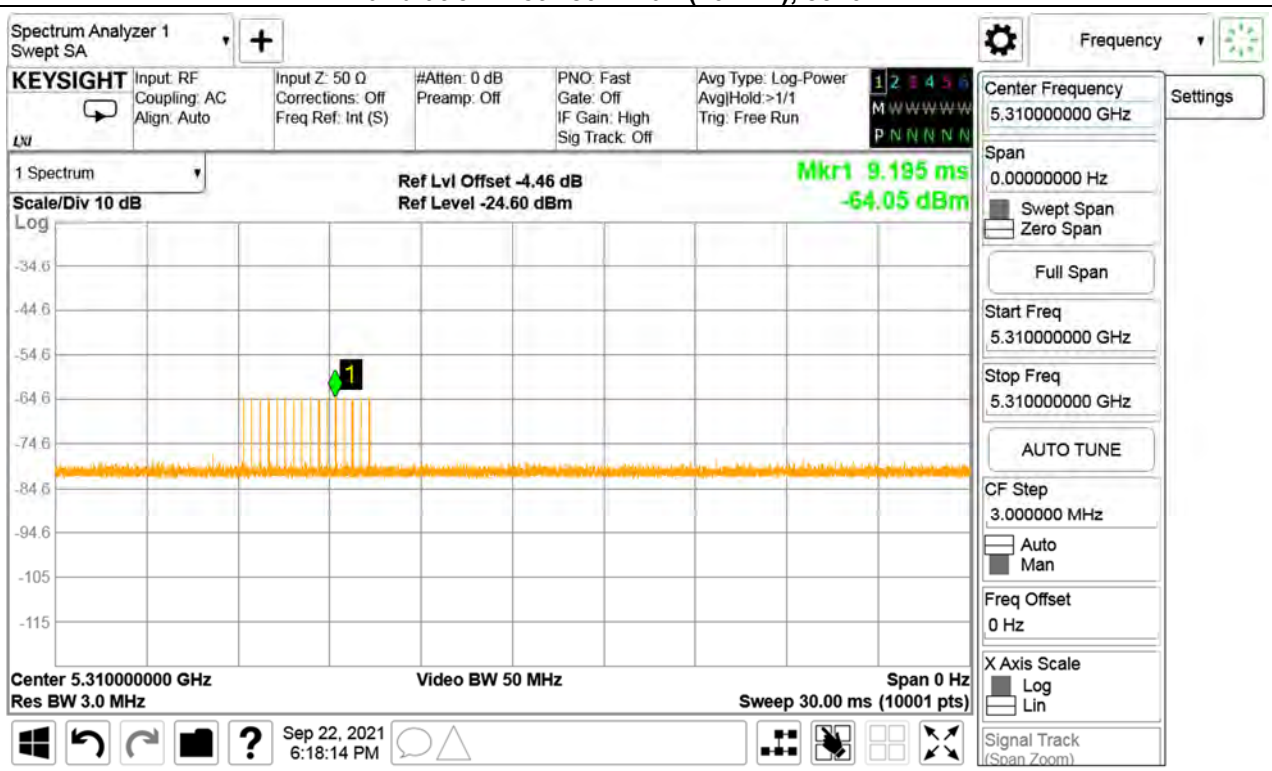
Radar Type 2

Calibration Plot - 802.11ax (40MHz), 5310 MHz



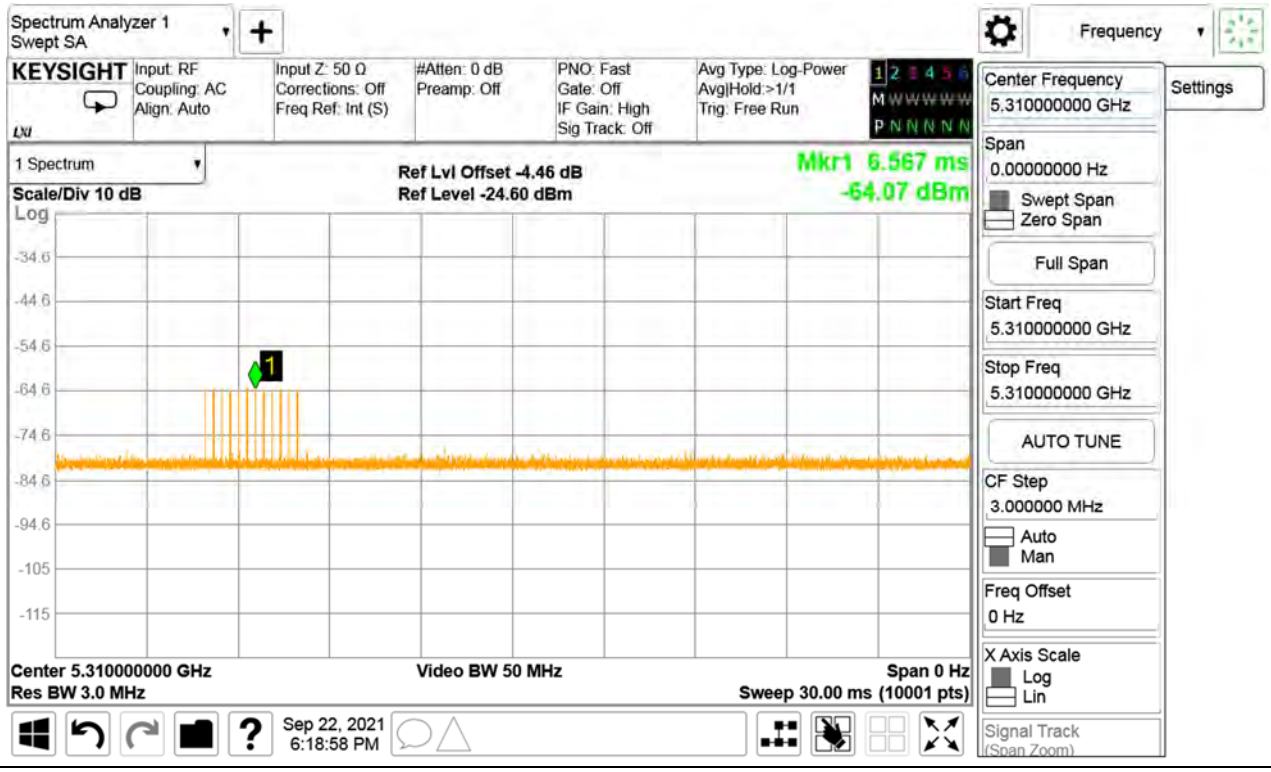
Radar Type 3

Calibration Plot - 802.11ax (40MHz), 5310 MHz



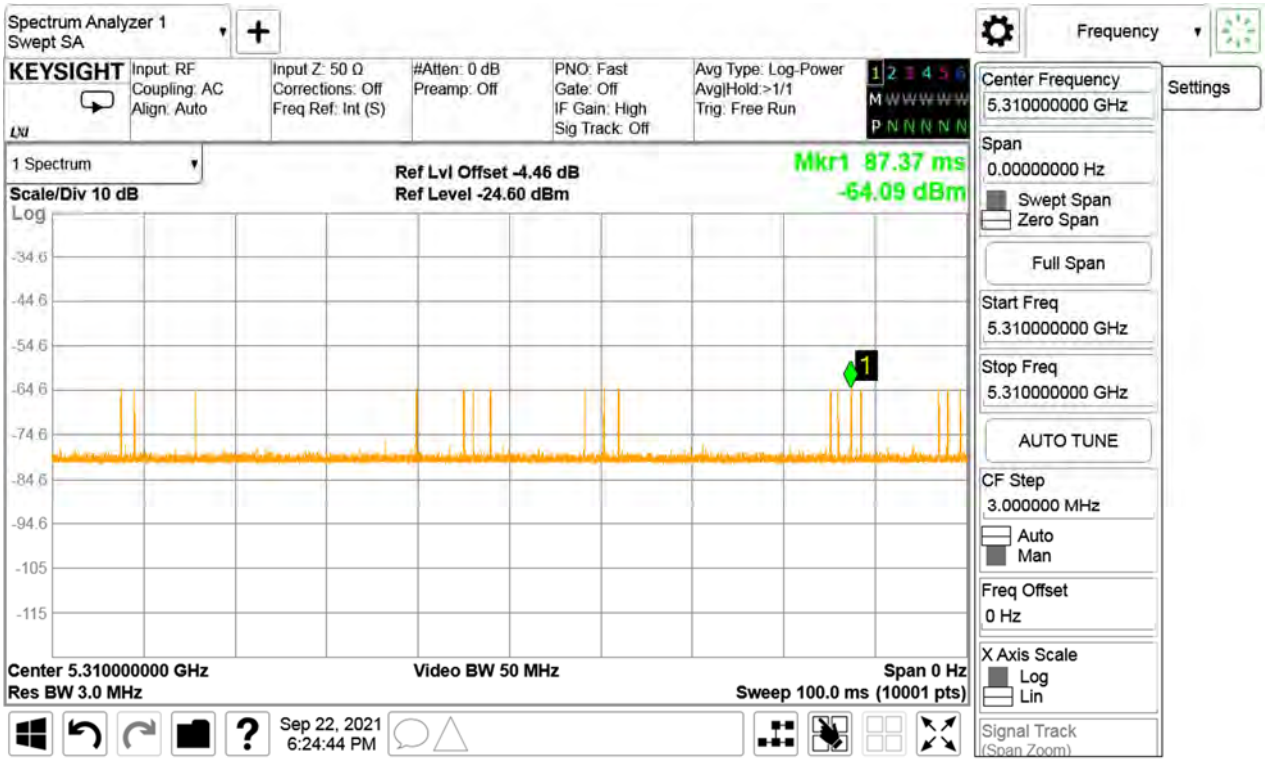
Radar Type 4

Calibration Plot - 802.11ax (40MHz), 5310 MHz



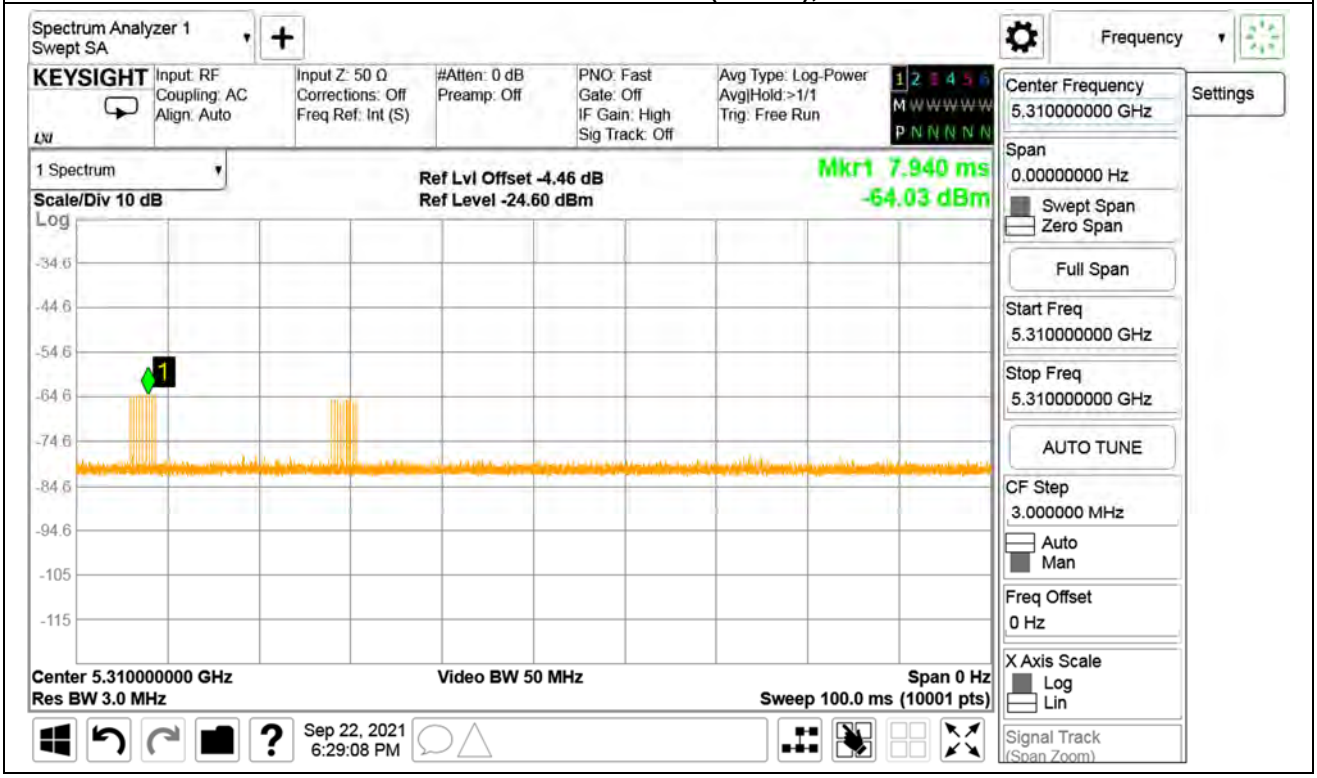
Radar Type 5

Calibration Plot - 802.11ax (40MHz), 5310 MHz



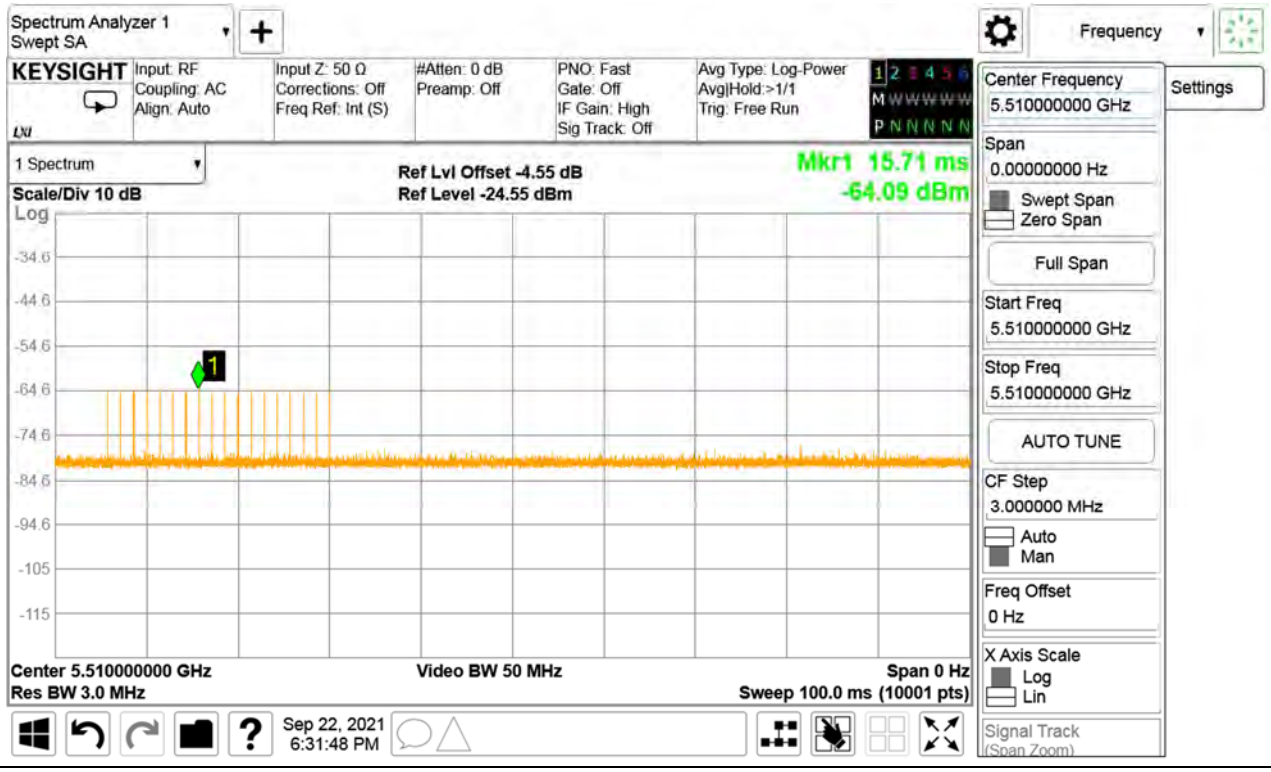
Radar Type 6

Calibration Plot - 802.11ax (40MHz), 5310 MHz



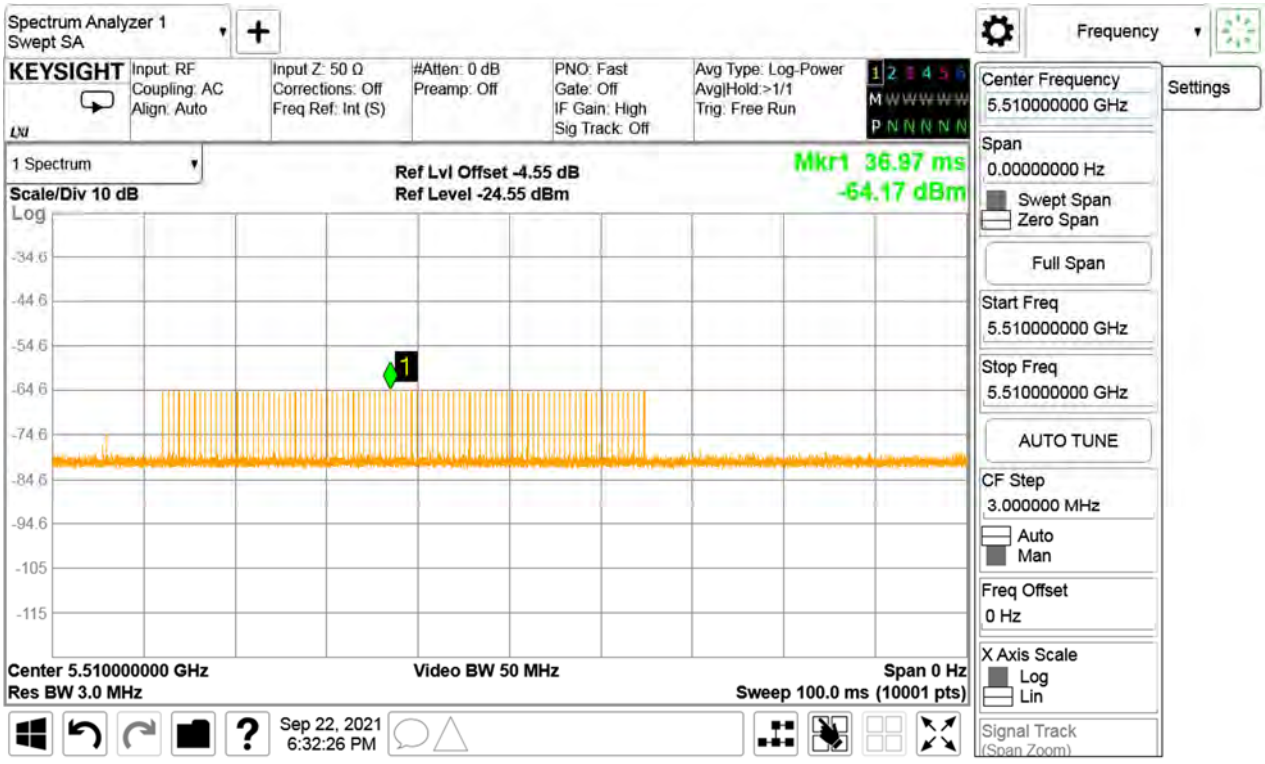
Radar Type 0

Calibration Plot - 802.11ax (40MHz), 5510 MHz



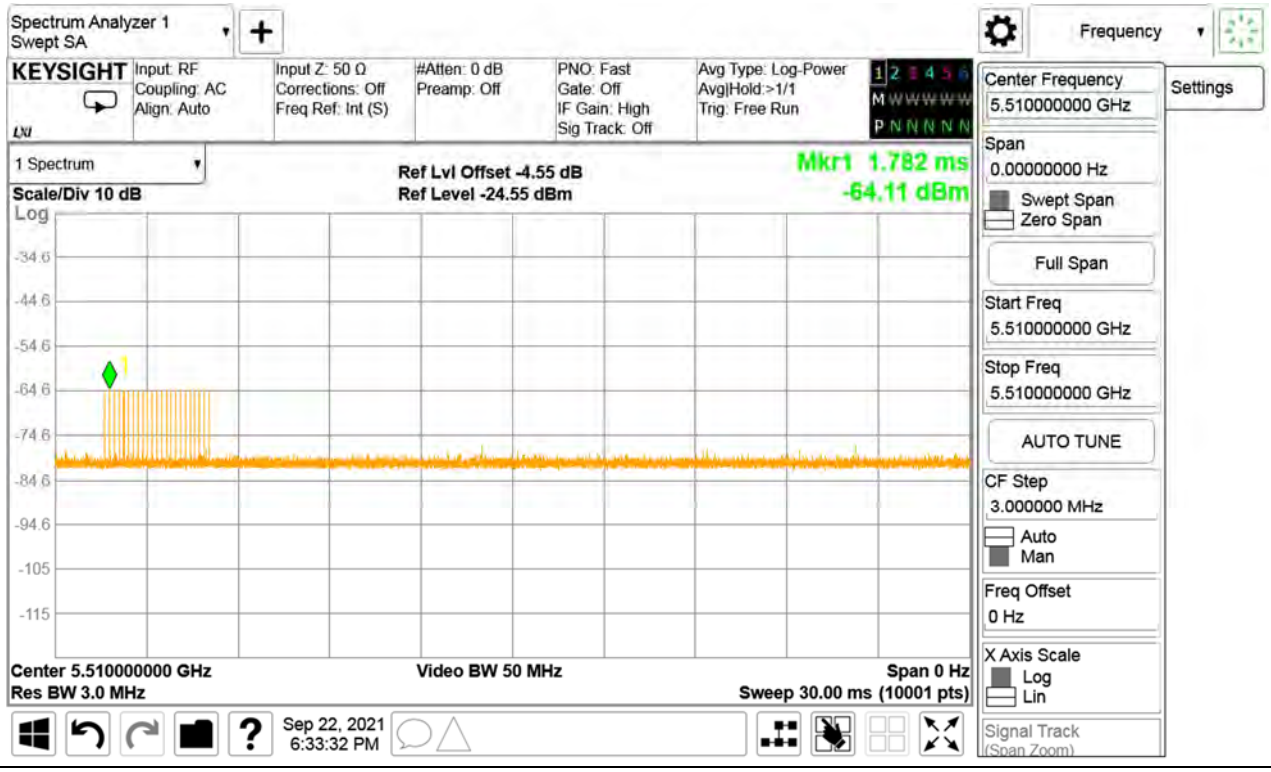
Radar Type 1

Calibration Plot - 802.11ax (40MHz), 5510 MHz



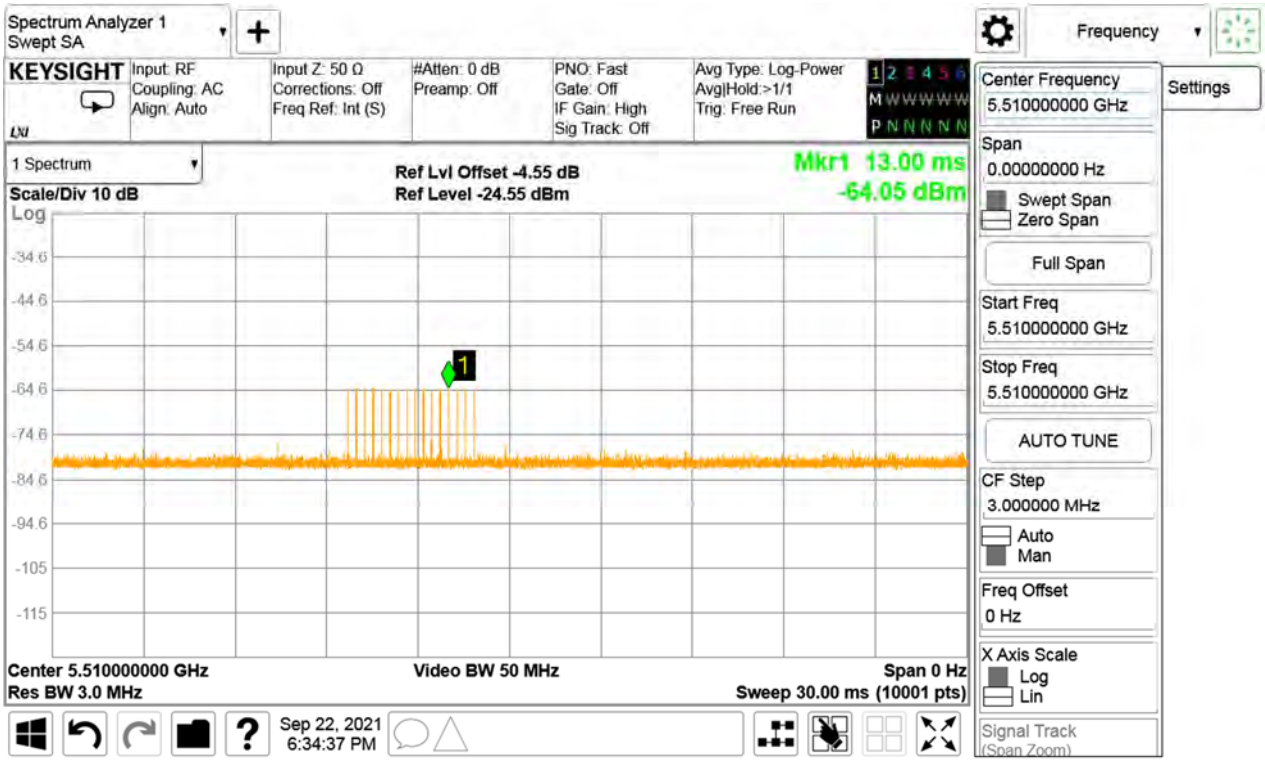
Radar Type 2

Calibration Plot - 802.11ax (40MHz), 5510 MHz



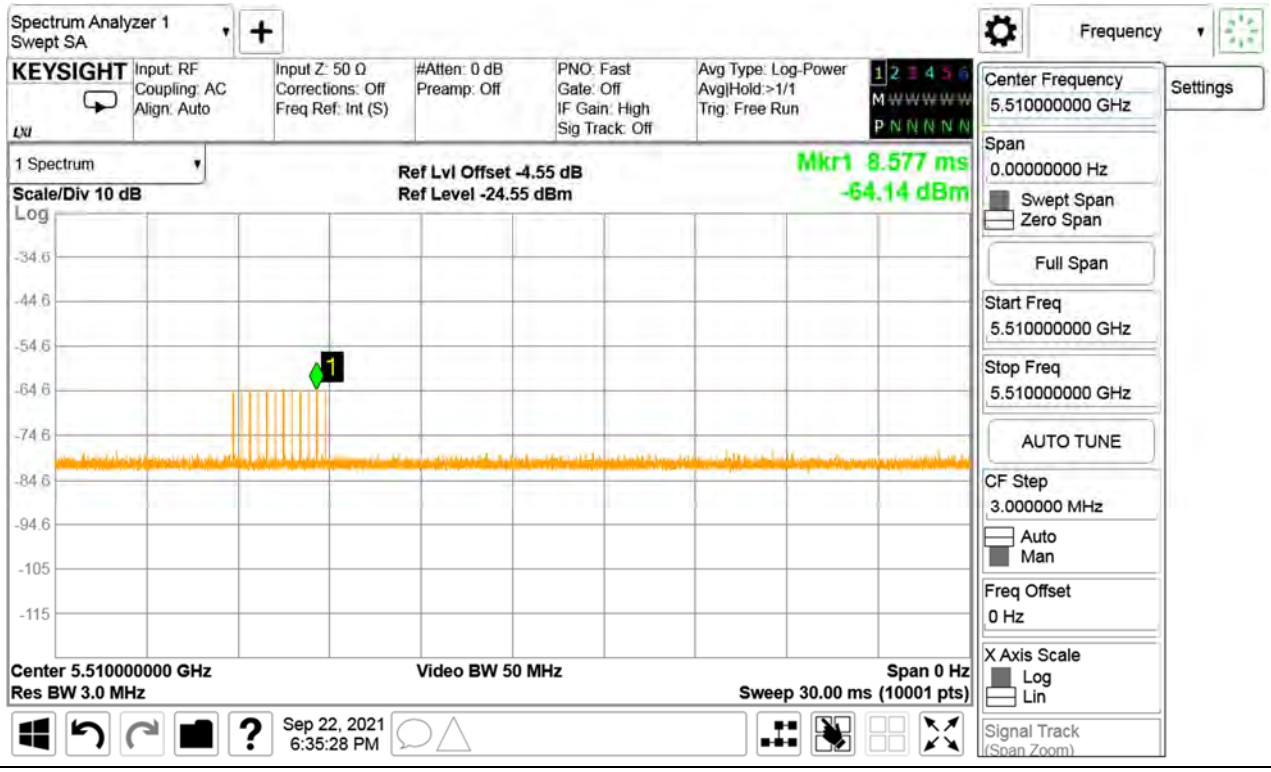
Radar Type 3

Calibration Plot - 802.11ax (40MHz), 5510 MHz



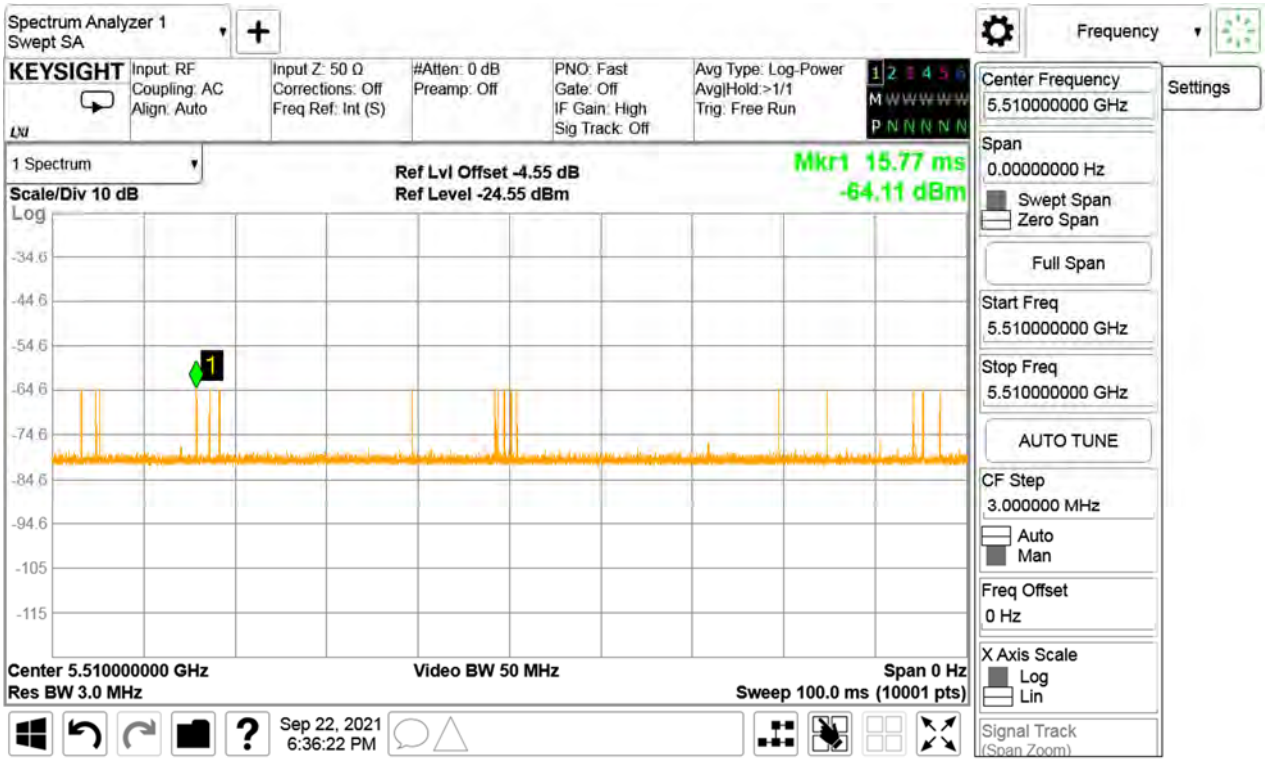
Radar Type 4

Calibration Plot - 802.11ax (40MHz), 5510 MHz



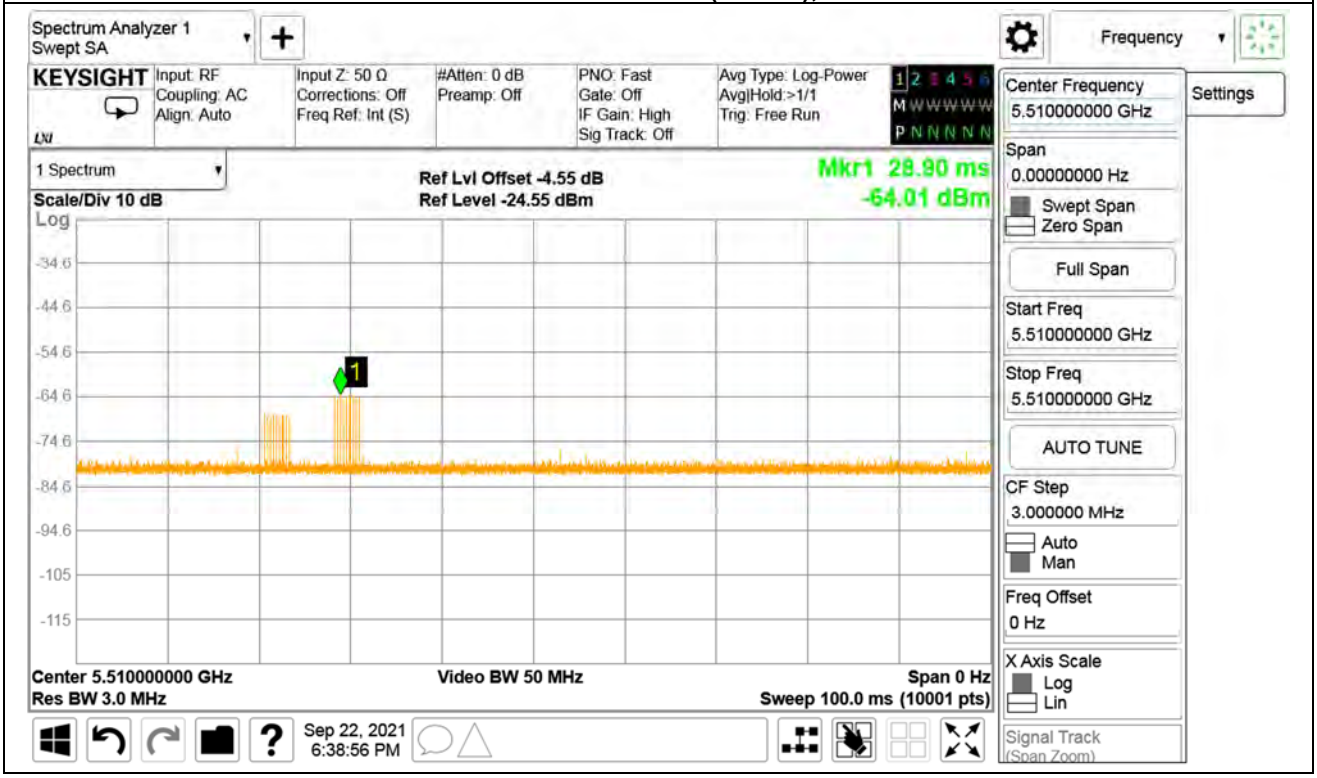
Radar Type 5

Calibration Plot - 802.11ax (40MHz), 5510 MHz



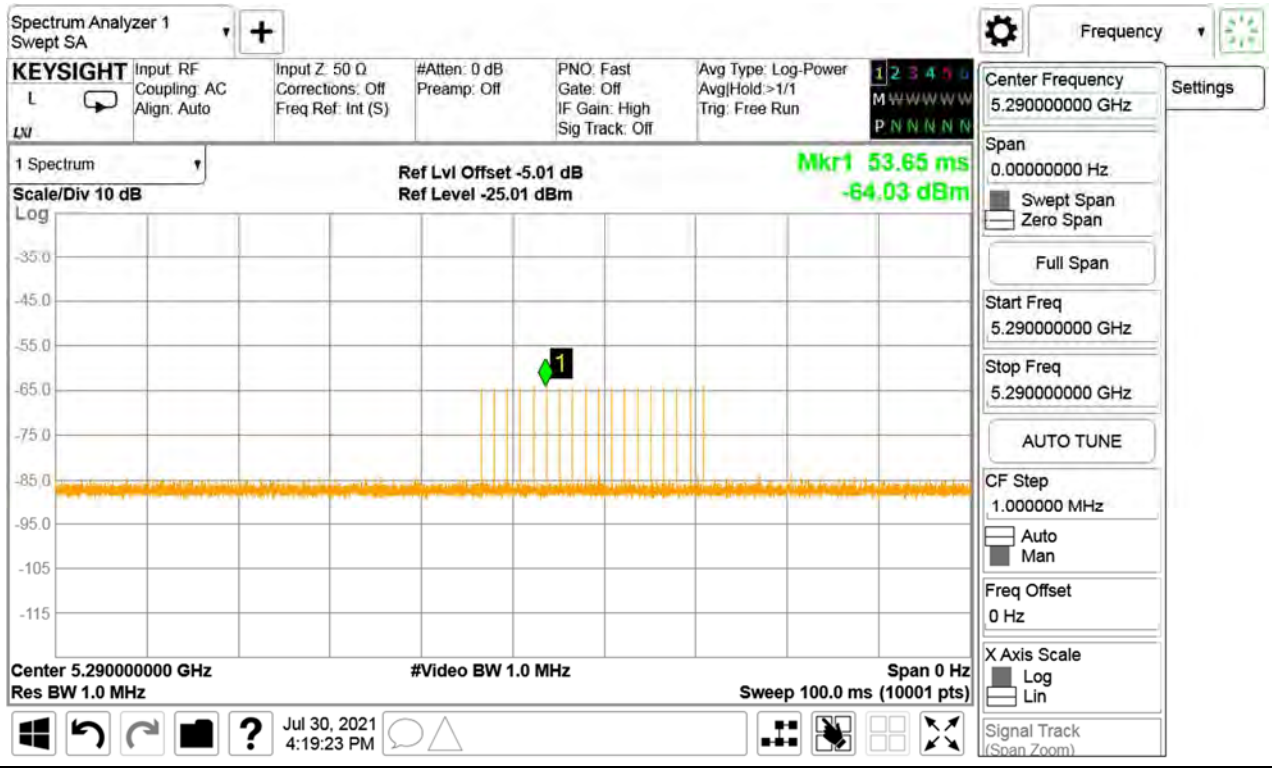
Radar Type 6

Calibration Plot - 802.11ax (40MHz), 5510 MHz



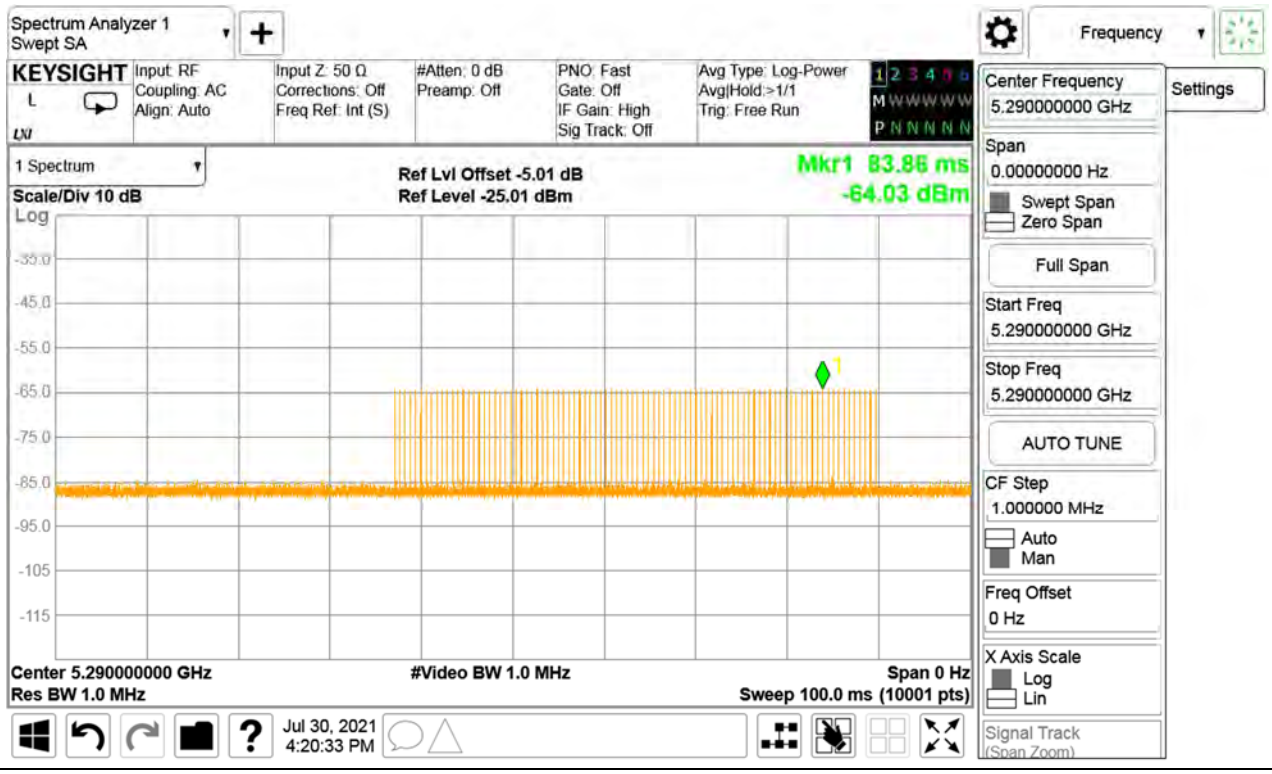
Radar Type 0

Calibration Plot - 802.11ax (80MHz), 5290 MHz



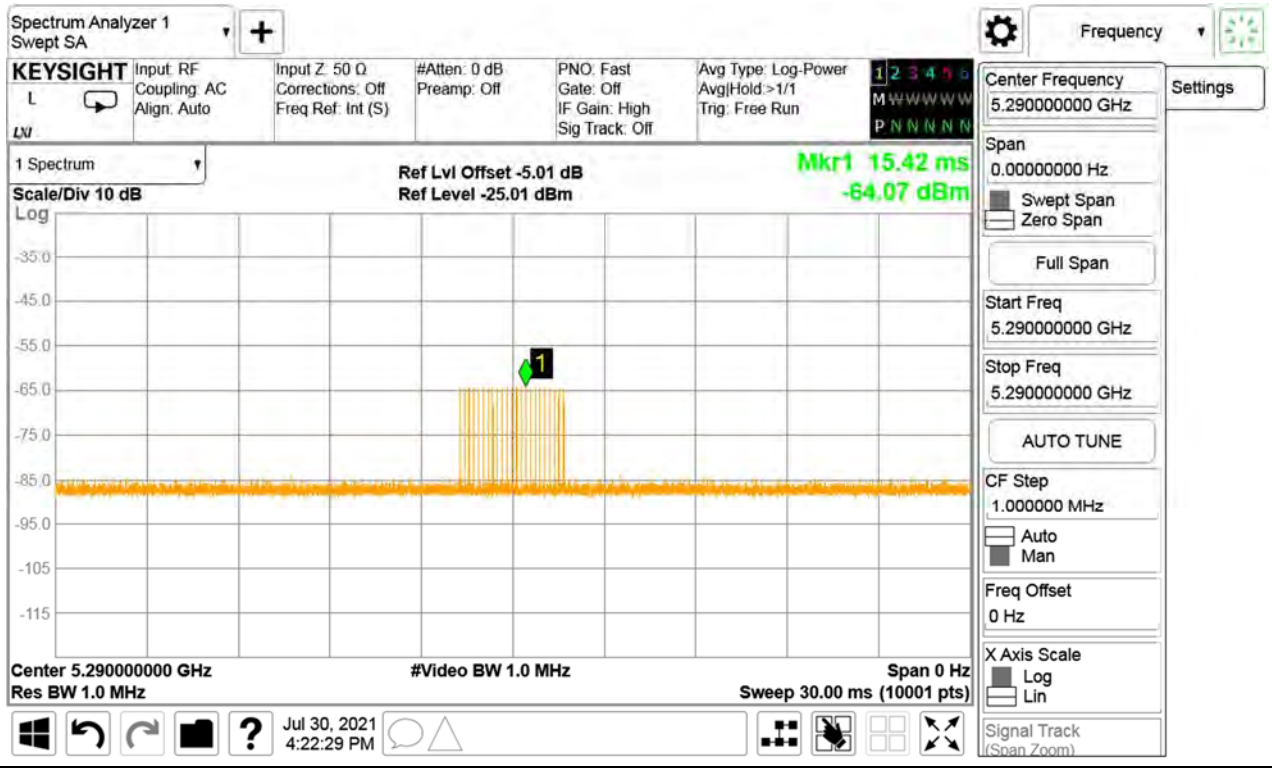
Radar Type 1

Calibration Plot - 802.11ax (80MHz), 5290 MHz



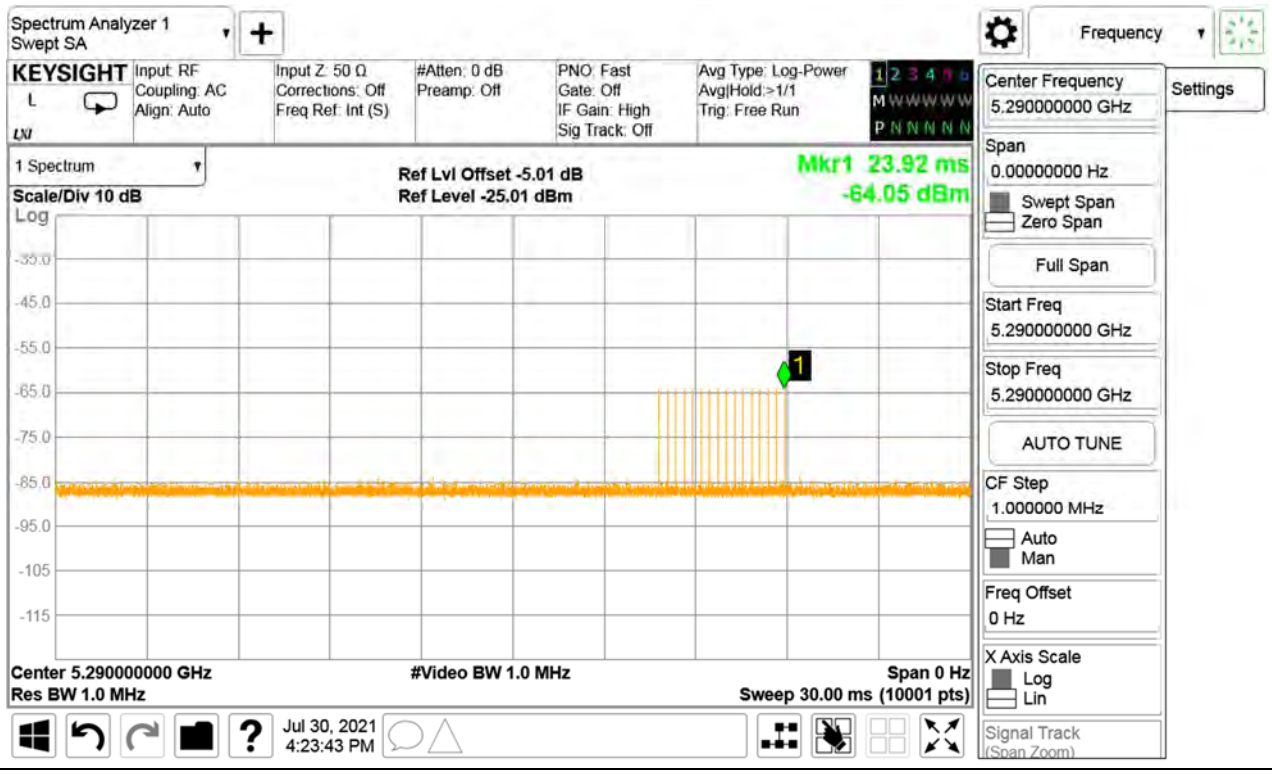
Radar Type 2

Calibration Plot - 802.11ax (80MHz), 5290 MHz



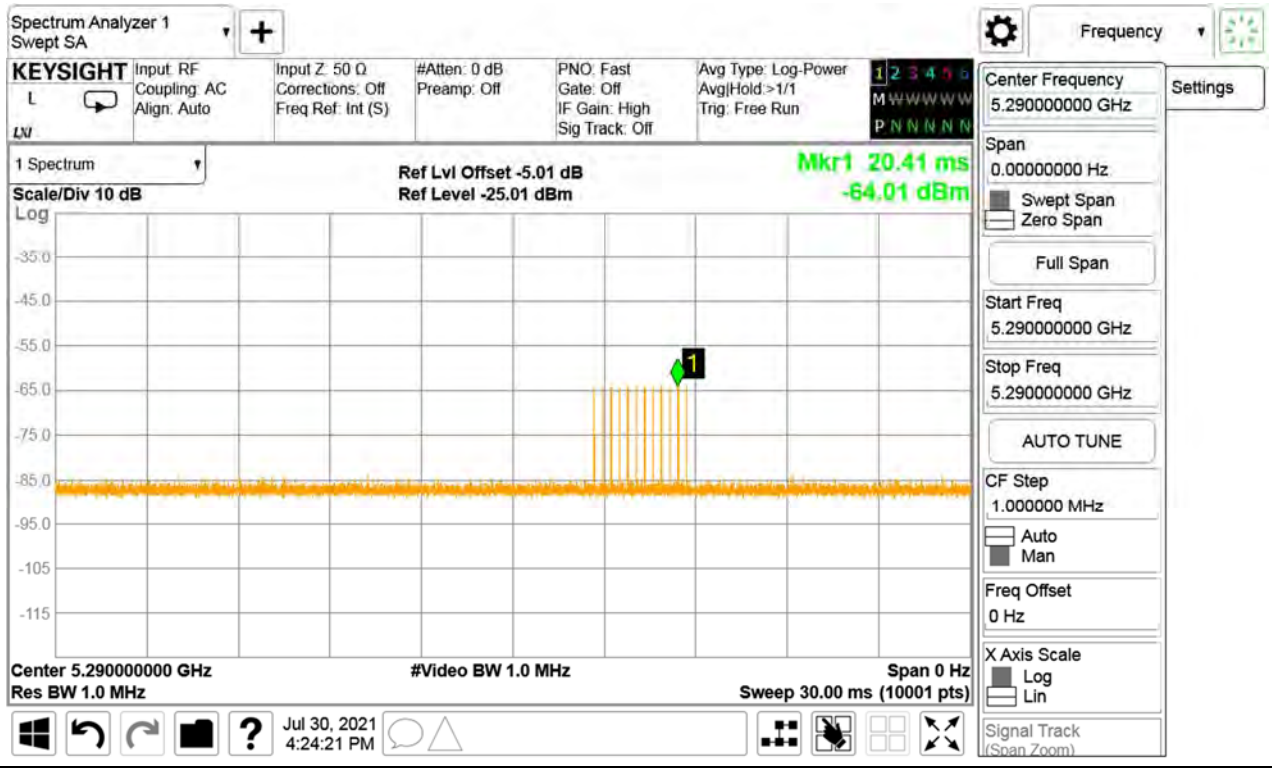
Radar Type 3

Calibration Plot - 802.11ax (80MHz), 5290 MHz



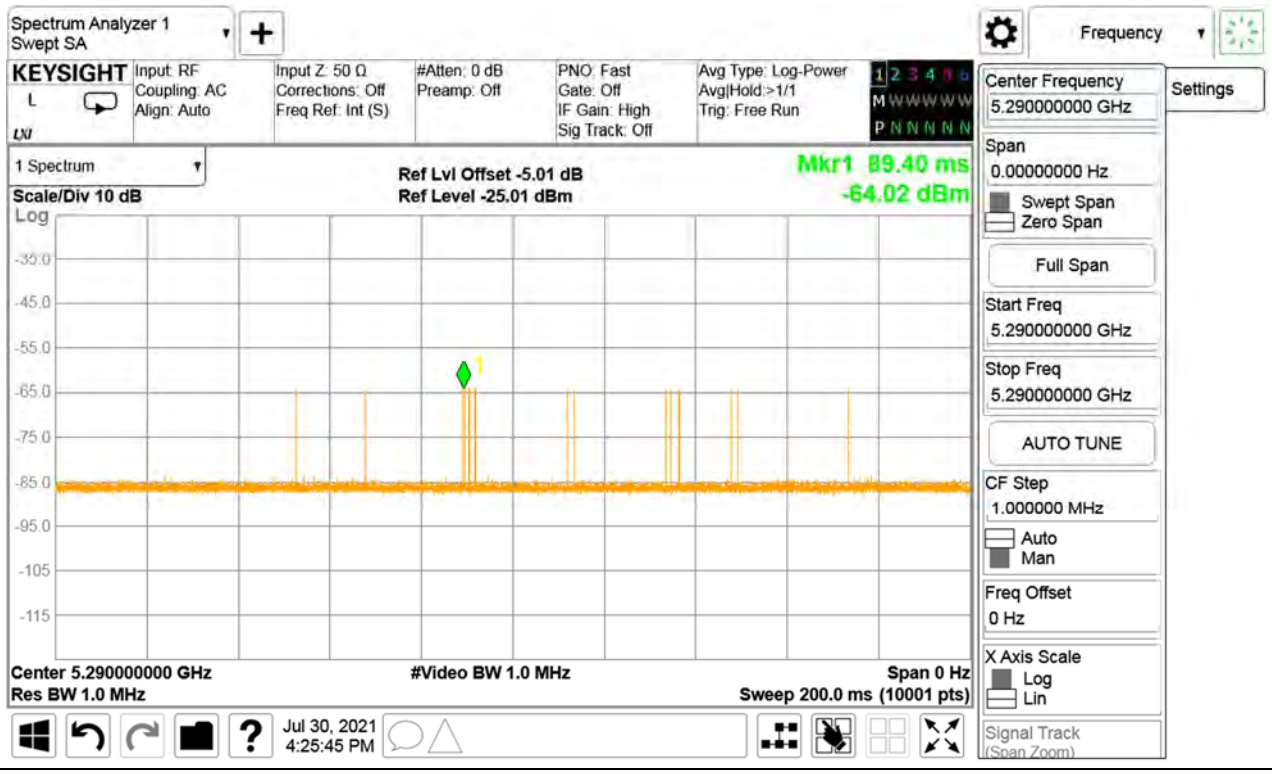
Radar Type 4

Calibration Plot - 802.11ax (80MHz), 5290 MHz



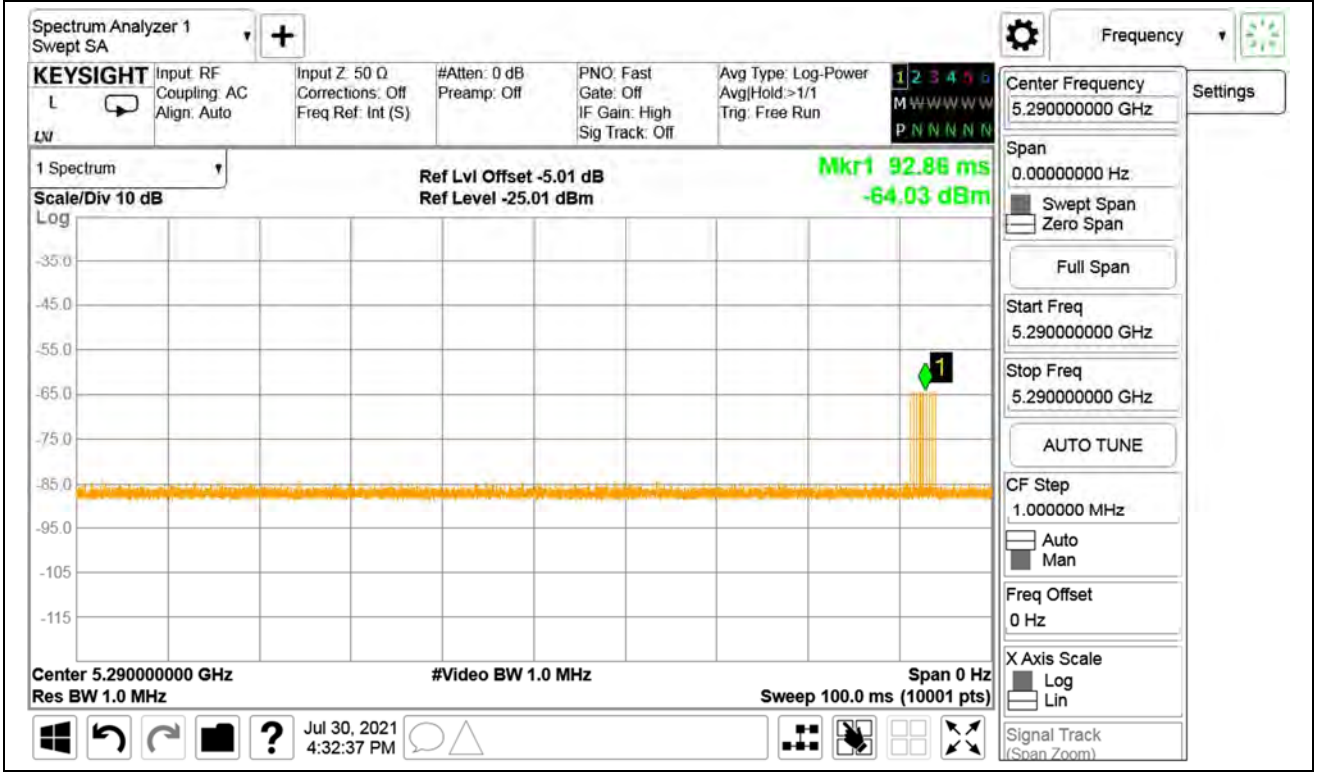
Radar Type 5

Calibration Plot - 802.11ax (80MHz), 5290 MHz



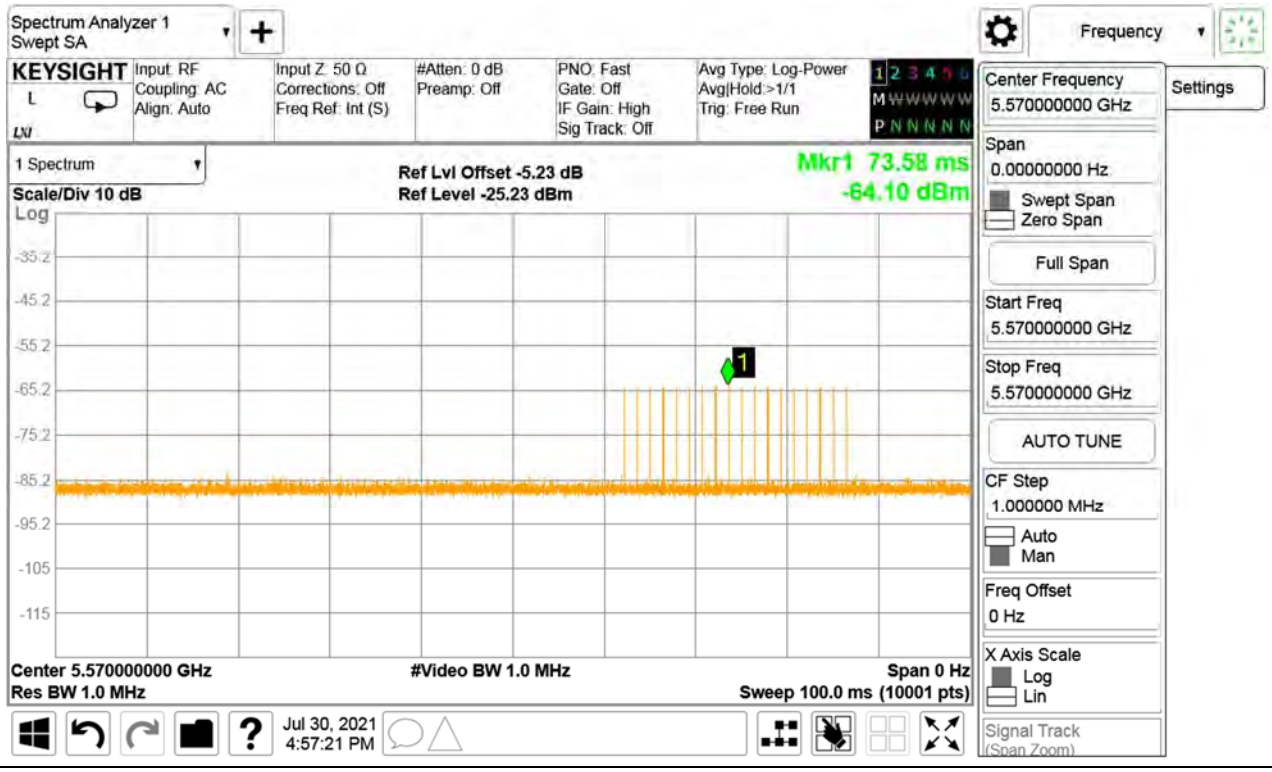
Radar Type 6

Calibration Plot - 802.11ax (80MHz), 5290 MHz



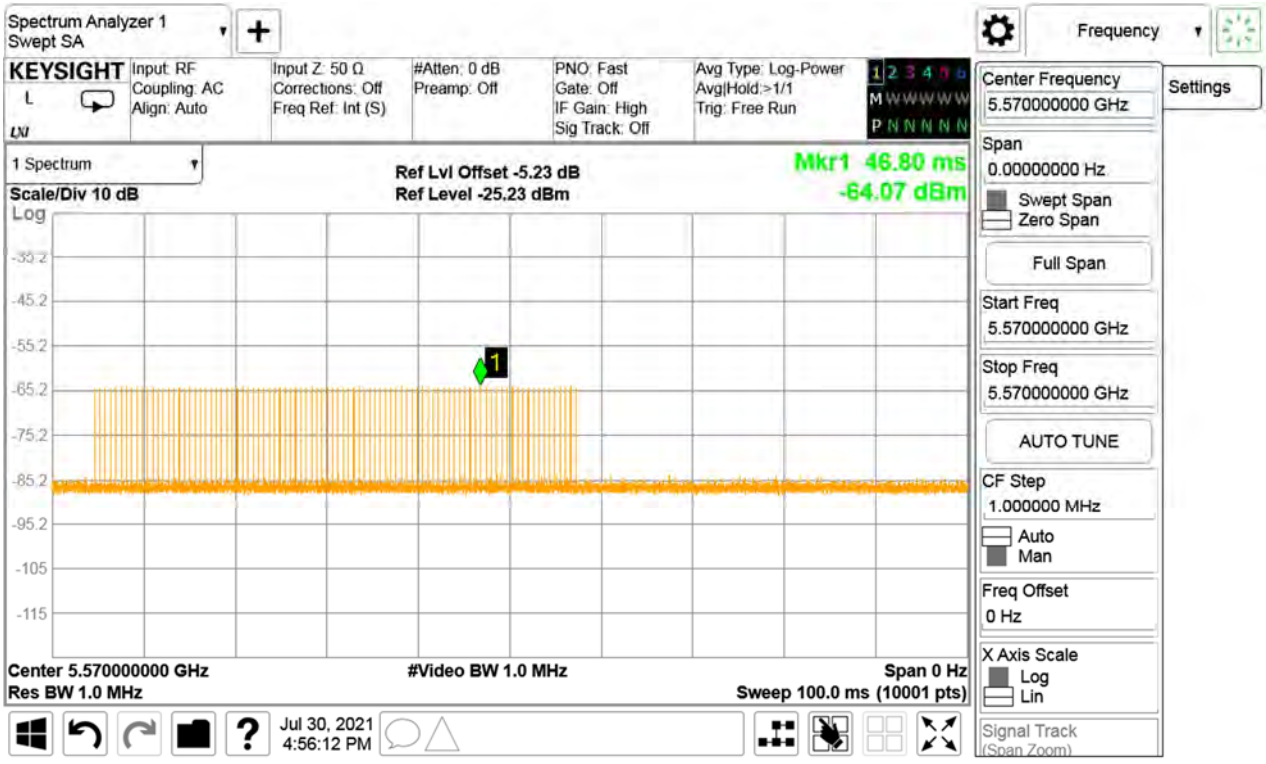
Radar Type 0

Calibration Plot - 802.11ax (160MHz), 5570 MHz



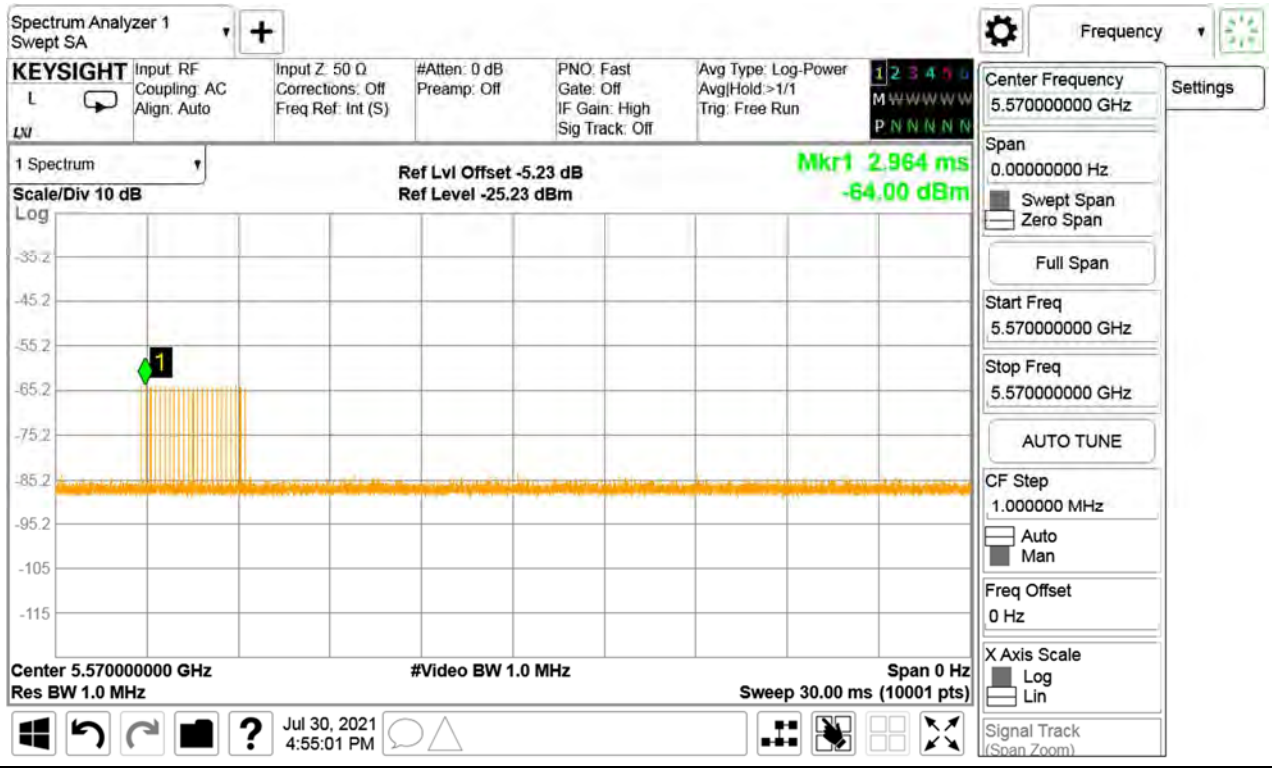
Radar Type 1

Calibration Plot - 802.11ax (160MHz), 5570 MHz



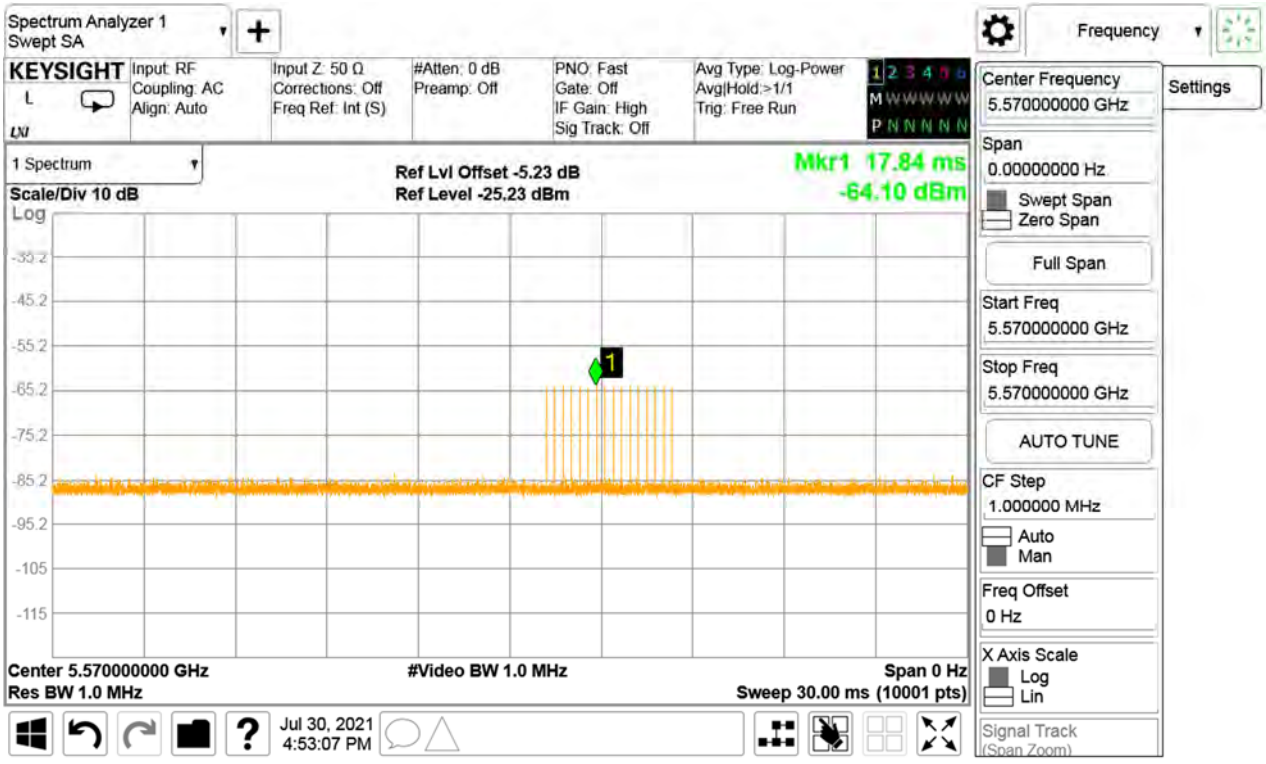
Radar Type 2

Calibration Plot - 802.11ax (160MHz), 5570 MHz



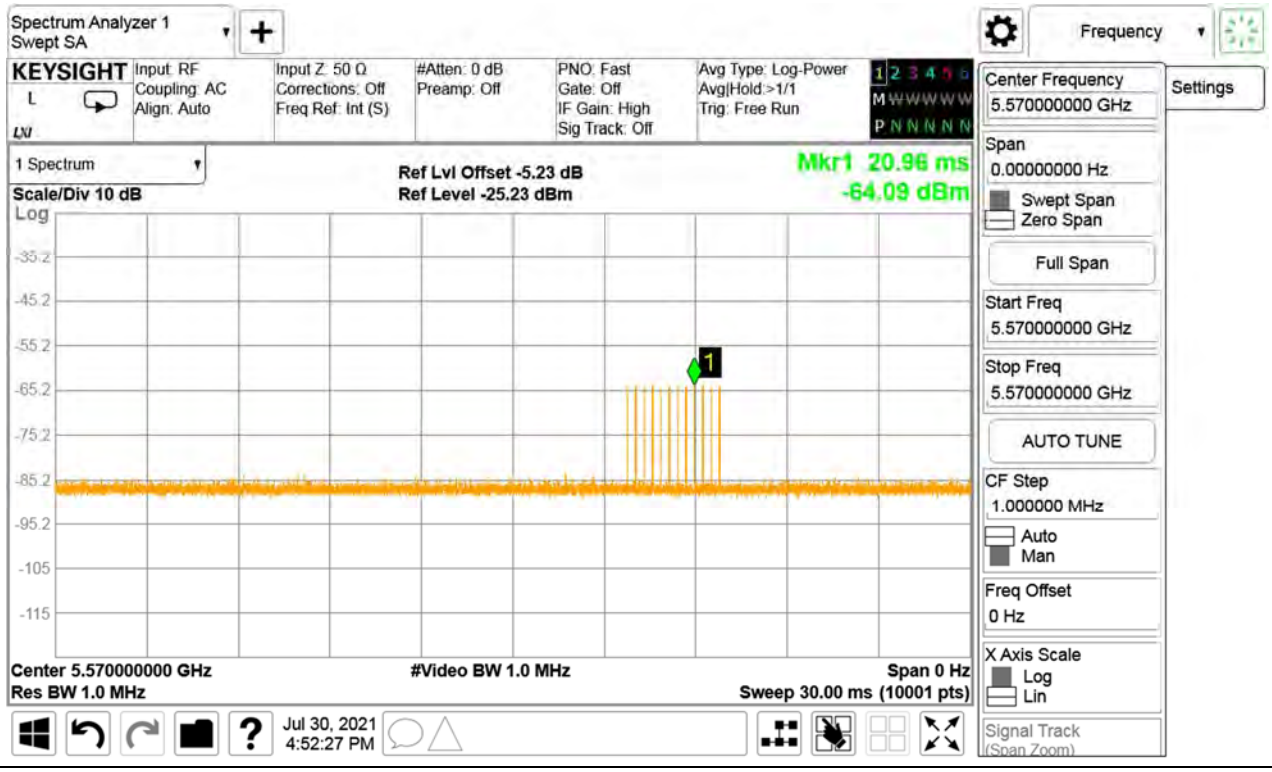
Radar Type 3

Calibration Plot - 802.11ax (160MHz), 5570 MHz



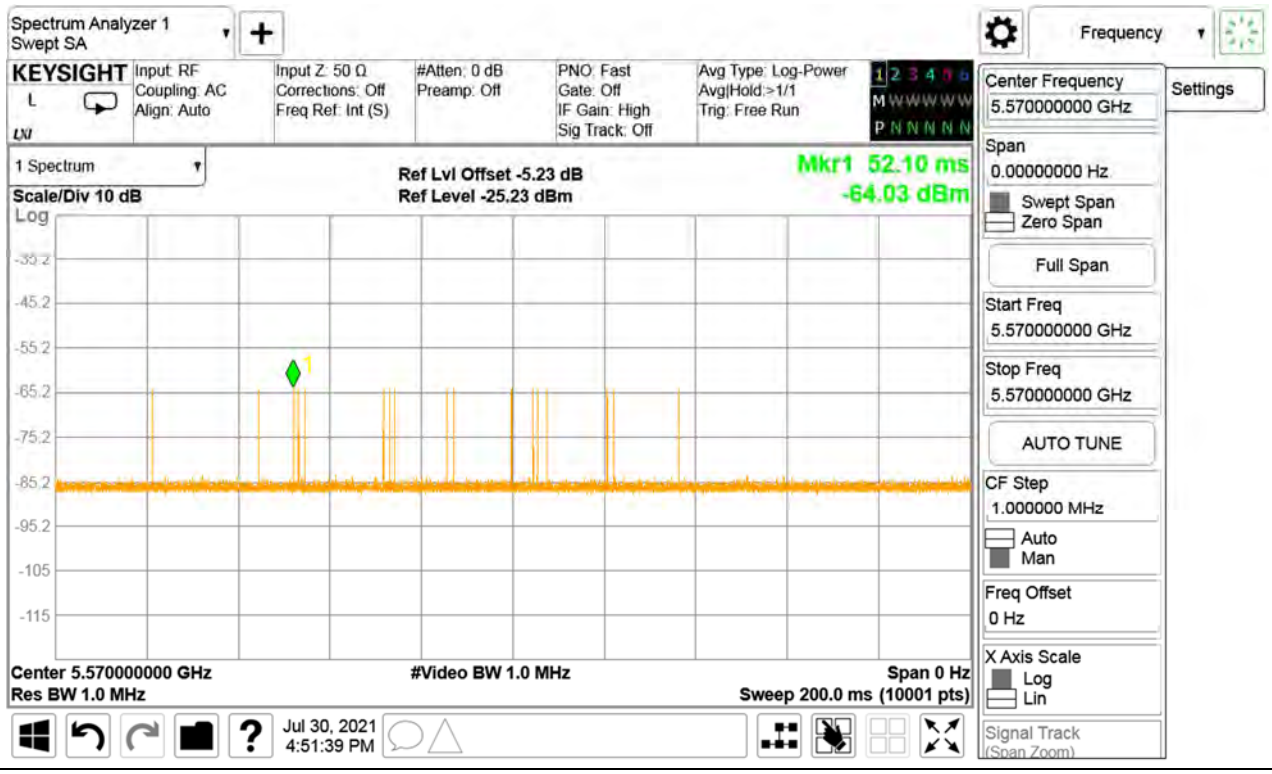
Radar Type 4

Calibration Plot - 802.11ax (160MHz), 5570 MHz



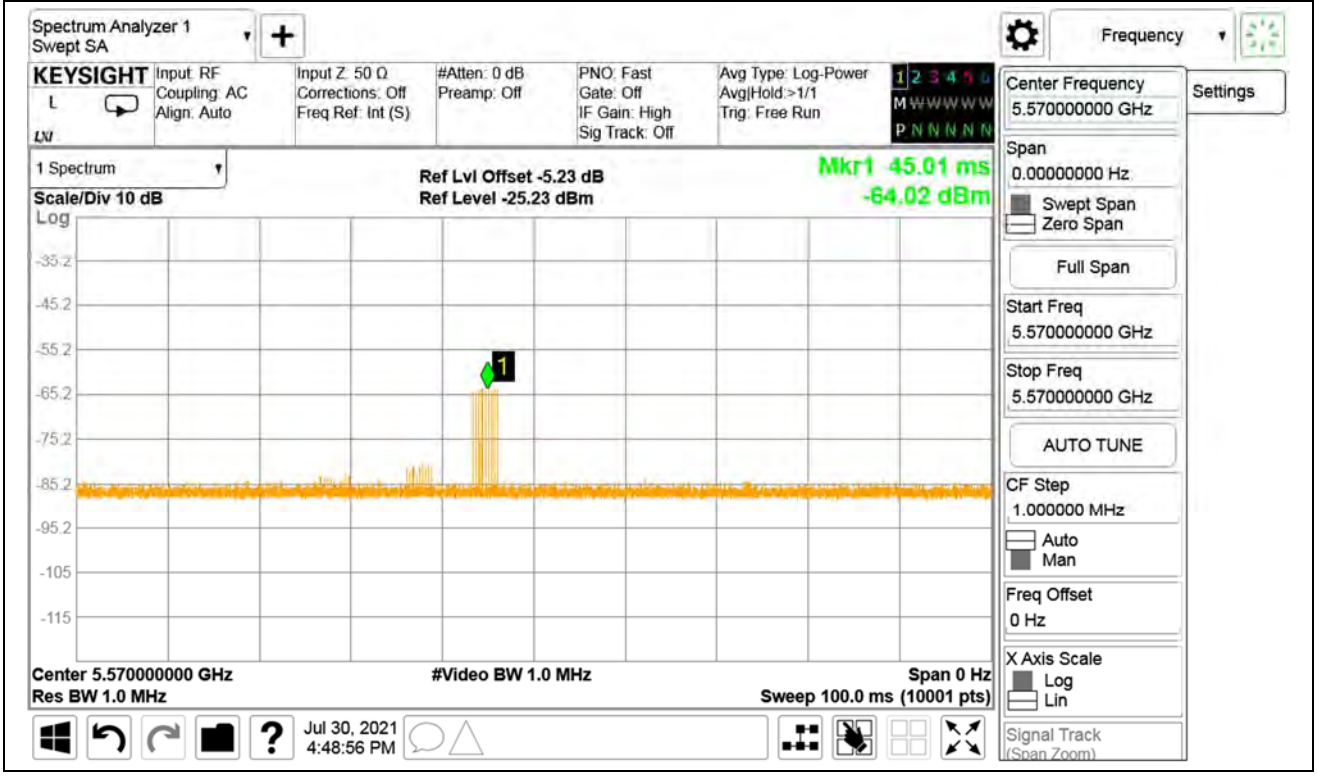
Radar Type 5

Calibration Plot - 802.11ax (160MHz), 5570 MHz



Radar Type 6

Calibration Plot - 802.11ax (160MHz), 5570 MHz



1.12. Master Data Traffic Plot Result

Plot of WLAN Traffic - 802.11ax (20MHz), 5300 MHz

Channel loading	Requirement loading
18.45652%	>17%

Plot of WLAN Traffic - 802.11ax (20MHz), 5500 MHz

Channel loading	Requirement loading
18.22609%	>17%

Plot of WLAN Traffic - 802.11ax (40MHz), 5310 MHz

Channel loading	Requirement loading
17.78667%	>17%

Plot of WLAN Traffic - 802.11ax (40MHz), 5510 MHz

Channel loading	Requirement loading
17.12636%	>17%

Plot of WLAN Traffic - 802.11ax (80MHz), 5290 MHz

Channel loading	Requirement loading
17.00000%	>17%

Plot of WLAN Traffic - 802.11ax (160MHz), 5570 MHz

Channel loading	Requirement loading
17.04136%	>17%

2. UNII Detection Bandwidth

2.1. Test Procedure

The EUT was tested according to U-NII test procedure of KDB905462 D02 for compliance to FCC 47CFR 15.407 requirements.

The generating equipment is configured as shown in the radiated Test Setup above.

During the U-NII Detection Bandwidth detection test, radar type 0 is used and for each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic. The EUT is set up as a standalone device (no associated Client and no traffic). The radar frequency is increased in 1 MHz steps, repeating the above test sequence, until the detection rate falls below 90%. The highest frequency at which detection is greater than or equal to 90% is denoted as F_H. The radar frequency is decreased in 1 MHz steps, repeating the above test sequence, until the detection rate falls below 90%. The lowest frequency at which detection is greater than or equal to 90% is denoted as F_L. UNII Detection Bandwidth = F_H - F_L.

2.2. Test Requirement

All UNII 20/40/80MHz and 160MHz channels for this device have identical Channel bandwidths. Therefore, all DFS testing was done at 5300MHz、5500MHz、5250MHz and 5570MHz. The 99% channel bandwidth for 20MHz signals is 19.713 MHz, and the 99% channel bandwidth for 160MHz signals is 155.51MHz.

2.3. Test Result of UNII Detection Bandwidth

802.11ax (20MHz), 5300 MHz											
		1	2	3	4	5	6	7	8	9	10
FL	5290	v	v	v	v	v	v	v	v	v	v
	5291	v	v	v	v	v	v	v	v	v	v
	5292	v	v	v	v	v	v	v	v	v	v
	5293	v	v	v	v	v	v	v	v	v	v
	5294	v	v	v	v	v	v	v	v	v	v
	5295	v	v	v	v	v	v	v	v	v	v
	5296	v	v	v	v	v	v	v	v	v	v
	5297	v	v	v	v	v	v	v	v	v	v
	5298	v	v	v	v	v	v	v	v	v	v
	5299	v	v	v	v	v	v	v	v	v	v
	5300	v	v	v	v	v	v	v	v	v	v
	5301	v	v	v	v	v	v	v	v	v	v
	5302	v	v	v	v	v	v	v	v	v	v
	5303	v	v	v	v	v	v	v	v	v	v
	5304	x	x	x	x	x	x	x	x	x	x
	5305	v	v	v	x	v	v	v	v	v	v
	5306	v	v	v	v	v	v	v	v	v	v
	5307	v	v	v	v	v	v	v	v	v	v
	5308	v	v	v	v	v	v	v	v	v	v
	5309	v	v	v	v	v	v	v	v	v	v
FH	5310	v	v	v	v	v	v	v	v	v	v

Detection Bandwidth = FH - FL = 20MHz

EUT 99% Bandwidth = 20MHz

UNII Detection Bandwidth Min. Limit = MHz * 100% = 18MHz

802.11ax (20MHz), 5500 MHz											
		1	2	3	4	5	6	7	8	9	10
FL	5490	v	v	v	v	v	v	v	v	v	v
	5491	v	v	v	v	v	v	v	v	v	v
	5492	v	v	v	v	v	v	v	v	v	v
	5493	v	v	v	v	v	v	v	v	v	v
	5494	v	v	v	v	v	v	v	v	v	v
	5495	v	v	v	v	v	v	v	v	v	v
	5496	x	v	v	v	v	v	v	v	v	v
	5497	v	v	v	v	v	v	v	v	v	v
	5498	x	x	x	x	x	x	x	x	x	x
	5499	v	v	v	v	v	v	v	v	v	v
	5500	v	v	v	v	v	v	v	v	v	v
	5501	v	v	v	v	v	v	v	v	v	v
	5502	v	v	v	v	v	v	v	v	v	v
	5503	v	v	v	v	v	v	v	v	v	v
	5504	v	v	v	v	v	v	v	v	v	v
	5505	v	v	v	v	v	v	v	v	v	v
	5506	v	v	v	v	v	v	v	v	v	v
	5507	v	v	v	v	v	v	v	v	v	v
	5508	v	v	v	v	v	v	v	v	v	v
	5509	v	v	v	v	v	v	v	v	v	v
FH	5510	v	v	v	v	v	v	v	v	v	v

Detection Bandwidth = FH - FL = 20MHz

EUT 99% Bandwidth = 20Hz

UNII Detection Bandwidth Min. Limit = MHz * 100% = 18MHz

802.11ax (80MHz), 5290 MHz											
		1	2	3	4	5	6	7	8	9	10
FL	5250	v	v	v	v	v	v	v	v	v	v
	5251	v	v	v	v	v	v	v	v	v	v
	5252	v	v	v	v	v	v	v	v	v	v
	5253	v	v	v	v	v	v	v	v	v	v
	5254	v	v	v	v	v	v	v	v	v	v
	5255	v	v	v	v	v	v	v	v	v	v
	5256	v	v	v	v	v	v	v	v	v	v
	5257	v	v	v	v	v	v	v	v	v	v
	5258	v	v	v	v	v	v	v	v	v	v
	5259	v	v	v	v	v	v	v	v	v	v
	5260	v	v	v	v	v	v	v	v	v	v
	5261	v	v	v	v	v	v	v	v	v	v
	5262	v	v	v	v	v	v	v	v	v	v
	5263	v	v	v	v	v	v	v	v	v	v
	5264	v	v	v	v	v	v	v	v	v	v
	5265	v	v	v	v	v	v	v	x	v	v
	5266	v	v	v	v	v	x	v	v	v	v
	5267	v	v	v	v	v	v	v	v	v	v
	5268	v	v	v	v	v	v	v	v	v	v
	5269	v	v	v	v	v	v	v	v	v	v
	5270	v	v	v	v	v	v	v	v	v	v
	5271	v	v	v	v	v	v	v	v	v	v
	5272	v	v	v	v	v	v	v	v	v	v
	5273	v	v	v	v	v	v	x	v	v	v
	5274	v	v	v	v	v	x	v	v	v	v
	5275	v	v	v	v	v	v	v	v	v	v
	5276	v	v	v	v	v	v	x	v	v	v
	5277	v	v	v	v	v	v	v	v	v	v
	5278	v	v	v	v	v	v	v	v	v	v
	5279	v	v	v	v	v	v	v	v	v	v
	5280	v	v	v	v	v	v	v	v	v	v

802.11ax (80MHz), 5290 MHz											
		1	2	3	4	5	6	7	8	9	10
	5281	v	v	v	v	v	v	v	v	v	v
	5282	v	v	v	v	v	v	v	v	v	v
	5283	x	v	v	v	v	v	v	v	v	v
	5284	v	v	v	v	v	v	v	v	v	v
	5285	v	v	v	v	v	v	v	v	v	v
	5286	v	v	v	v	v	v	v	v	v	v
	5287	v	v	x	v	v	v	v	v	v	v
	5288	v	v	v	v	v	v	v	v	v	v
	5289	v	v	v	v	v	v	v	v	v	v
	5290	v	v	v	v	v	v	v	v	v	v
	5291	v	v	v	v	v	v	v	v	v	v
	5292	v	v	v	v	v	v	v	v	v	v
	5293	v	v	v	v	v	v	v	v	v	v
	5294	v	x	v	v	v	v	v	v	v	v
	5295	v	v	v	v	v	v	v	v	v	v
	5296	v	v	v	v	v	v	v	v	v	v
	5297	v	v	v	v	v	v	v	v	v	v
	5298	v	v	v	v	v	v	v	v	v	v
	5299	v	v	v	v	v	v	v	v	v	v
	5300	v	v	v	v	v	v	v	v	v	v
	5301	v	v	v	v	v	v	v	v	v	v
	5302	v	v	v	v	v	v	v	v	v	v
	5303	v	v	v	v	v	v	v	v	v	v
	5304	v	v	v	x	v	v	v	v	v	x
	5305	v	v	v	v	v	v	v	v	v	v
	5306	v	v	v	v	v	v	v	v	v	v
	5307	v	v	v	v	v	v	v	v	v	v
	5308	v	v	v	v	v	v	v	v	v	v
	5309	v	v	v	v	v	v	v	v	v	v
	5310	v	v	v	v	v	v	v	v	v	v

802.11ax (80MHz), 5290 MHz											
		1	2	3	4	5	6	7	8	9	10
	5311	v	v	v	v	v	v	v	v	v	v
	5312	v	v	v	v	v	v	v	v	v	v
	5313	v	v	v	v	v	v	v	v	v	v
	5314	v	v	v	v	v	v	v	v	v	v
	5315	v	v	v	v	x	v	v	v	v	v
	5316	v	v	v	v	v	v	v	v	v	v
	5317	v	v	v	v	v	v	v	v	v	v
	5318	v	v	v	v	v	v	v	v	v	v
	5319	v	v	v	v	v	v	v	v	v	v
	5320	v	v	v	v	v	v	v	v	v	v
	5321	v	v	v	v	v	v	v	v	v	v
	5322	v	v	v	v	v	v	v	v	v	v
	5323	v	x	v	v	v	v	v	v	v	v
	5324	x	x	x	x	x	x	x	x	x	x
	5325	x	x	x	x	x	x	x	x	x	x
	5326	v	v	v	v	v	v	v	v	v	v
	5327	v	v	v	v	v	v	v	v	v	v
	5328	v	v	v	v	v	v	v	v	v	v
	5329	v	v	v	v	v	v	v	v	v	v
FH	5330	v	v	v	v	v	v	v	v	v	v

Detection Bandwidth = FH - FL = 77MHz

EUT 99% Bandwidth = 80MHz

UNII Detection Bandwidth Min. Limit = MHz * 100% = 69.3MHz

802.11ax (160MHz), 5570 MHz											
		1	2	3	4	5	6	7	8	9	10
FL	5490	x	v	v	v	v	v	v	v	v	v
	5491	v	v	v	v	v	v	v	v	v	v
	5492	v	v	v	v	v	v	v	v	v	v
	5493	v	v	v	v	v	v	v	v	v	v
	5494	v	v	v	v	v	v	v	v	v	v
	5495	v	v	v	v	v	v	v	v	v	v
	5496	v	v	v	v	v	v	v	v	v	v
	5497	v	v	v	v	v	v	v	v	v	v
	5498	x	x	x	x	x	x	x	x	x	x
	5499	x	x	x	x	x	x	x	x	x	x
	5500	v	v	v	v	v	v	v	v	v	v
	5501	v	v	v	v	v	v	v	v	v	v
	5502	x	x	x	x	x	x	x	x	x	x
	5503	v	v	v	v	v	v	v	v	v	v
	5504	v	v	v	v	v	v	v	v	v	v
	5505	v	v	v	v	v	v	v	v	v	v
	5506	x	x	x	x	x	x	x	x	x	x
	5507	v	v	v	v	v	v	v	v	v	v
	5508	v	v	v	v	v	v	v	v	v	v
	5509	v	v	v	v	v	v	v	v	v	v
	5510	v	v	v	v	v	v	v	v	v	v
	5511	v	v	v	v	v	v	v	v	v	v
	5512	v	v	v	v	v	v	v	v	v	v
	5513	v	v	v	v	v	v	v	v	v	v
	5514	v	v	v	v	v	v	v	v	v	v
	5515	v	v	v	v	v	v	v	v	v	v
	5516	v	v	v	v	v	v	v	v	v	v
	5517	v	v	v	v	v	v	v	v	v	v
	5518	v	v	v	v	v	v	v	v	v	v
	5519	v	v	v	v	v	v	v	v	v	v
	5520	v	v	v	v	v	v	v	v	v	v

802.11ax (160MHz), 5570 MHz											
		1	2	3	4	5	6	7	8	9	10
	5521	v	v	v	v	v	v	v	v	v	v
	5522	v	v	v	v	v	v	v	v	v	v
	5523	v	v	v	v	v	v	v	v	v	v
	5524	v	v	v	v	v	v	v	v	v	v
	5525	v	v	v	v	v	v	v	v	v	v
	5526	v	v	v	v	v	v	v	v	v	v
	5527	v	v	v	v	v	v	v	v	v	v
	5528	v	v	v	v	v	v	v	v	v	v
	5529	v	v	v	v	v	v	v	v	v	v
	5530	v	v	v	v	v	v	v	v	v	v
	5531	v	v	v	v	v	v	v	v	v	v
	5532	v	v	v	v	v	v	v	v	v	v
	5533	v	v	v	v	v	v	v	v	v	v
	5534	v	v	v	v	v	v	v	v	v	v
	5535	v	v	v	v	v	v	v	v	v	v
	5536	v	v	v	v	v	v	v	v	v	v
	5537	v	v	v	v	v	v	v	v	v	v
	5538	v	v	v	v	v	v	v	v	v	v
	5539	v	v	v	v	v	v	v	v	v	v
	5540	v	v	v	v	v	v	v	v	v	v
	5541	v	v	v	v	v	v	v	v	v	v
	5542	v	v	v	v	v	v	v	v	v	v
	5543	v	v	v	v	v	v	v	v	v	v
	5544	v	x	v	v	v	v	v	v	v	v
	5545	v	v	v	v	x	v	x	v	v	v
	5546	v	v	x	v	v	v	v	v	v	v
	5547	v	v	v	v	v	v	v	v	v	v
	5548	v	v	v	v	v	v	v	v	v	v
	5549	v	v	v	v	v	v	v	v	v	v
	5550	v	v	v	v	v	v	v	v	v	v

802.11ax (160MHz), 5570 MHz											
		1	2	3	4	5	6	7	8	9	10
	5551	v	v	v	v	v	v	v	v	v	v
	5552	v	v	v	v	v	v	v	v	v	v
	5553	v	v	v	v	v	v	v	v	v	v
	5554	v	v	v	v	v	v	v	v	v	v
	5555	v	v	v	v	v	v	v	v	v	v
	5556	v	v	v	v	v	v	v	v	v	v
	5557	x	x	x	x	x	x	x	x	x	x
	5558	v	v	v	v	v	v	v	v	v	v
	5559	v	v	v	v	v	v	v	v	v	v
	5560	v	v	v	v	v	v	v	v	v	v
	5561	x	x	x	x	x	x	x	x	v	x
	5562	v	v	v	v	v	v	v	v	v	v
	5563	v	v	v	v	v	v	v	v	v	v
	5564	v	v	v	v	v	v	v	v	v	v
	5565	v	v	v	v	v	v	v	v	v	v
	5566	v	v	v	v	v	v	v	v	v	v
	5567	v	v	v	v	v	v	v	v	v	v
	5568	v	x	v	v	v	v	v	v	v	v
	5569	v	v	x	v	x	x	v	v	v	v
	5570	v	v	v	v	v	v	v	v	v	v
	5571	v	v	v	v	v	v	v	v	v	v
	5572	v	v	v	v	v	v	v	v	v	v
	5573	v	v	v	v	v	v	v	v	v	v
	5574	x	x	x	x	x	x	v	x	x	x
	5575	x	x	x	x	x	x	x	x	x	x
	5576	v	v	v	v	v	v	v	v	v	v
	5577	v	v	v	v	v	v	v	v	v	v
	5578	v	v	v	v	v	v	v	v	v	v
	5579	v	v	v	v	v	v	v	v	v	v
	5580	v	v	v	v	v	v	v	v	v	v

802.11ax (160MHz), 5570 MHz											
		1	2	3	4	5	6	7	8	9	10
	5581	v	v	v	v	v	v	v	v	v	v
	5582	v	v	v	v	v	v	v	v	v	v
	5583	v	v	v	v	v	v	v	v	v	v
	5584	v	v	v	v	v	v	v	v	v	v
	5585	v	v	v	v	v	v	v	v	v	v
	5586	v	v	v	v	v	v	v	v	v	v
	5587	v	v	v	v	v	v	v	v	v	v
	5588	v	v	v	v	v	v	v	v	v	v
	5589	v	v	v	v	v	v	v	v	v	v
	5590	v	v	v	v	v	v	v	v	v	v
	5591	v	v	v	v	v	v	v	v	v	v
	5592	v	v	v	v	v	v	v	v	v	v
	5593	v	v	v	v	v	v	v	v	v	v
	5594	v	v	v	v	v	v	v	v	v	v
	5595	x	v	v	v	v	v	v	v	v	v
	5596	x	v	v	v	v	v	v	v	v	v
	5597	x	v	v	v	v	v	v	v	v	v
	5598	v	v	v	v	v	v	v	v	v	v
	5599	v	v	v	v	v	v	v	v	v	v
	5600	v	v	v	v	v	v	v	v	v	v
	5601	v	v	v	v	v	v	v	v	v	v
	5602	v	v	v	v	v	v	v	v	v	v
	5603	v	v	v	v	v	v	v	v	v	v
	5604	v	v	v	v	v	v	v	v	v	v
	5605	v	v	v	v	v	v	v	x	v	v
	5606	v	x	v	x	v	x	x	v	x	x
	5607	x	x	x	x	x	x	x	x	x	x
	5608	v	v	v	v	v	v	v	v	v	v
	5609	v	v	v	v	v	v	v	v	v	v
	5610	v	v	v	v	x	v	v	v	v	v

802.11ax (160MHz), 5570 MHz											
		1	2	3	4	5	6	7	8	9	10
	5611	v	v	v	v	v	x	v	v	v	v
	5612	v	v	v	v	v	v	v	v	v	v
	5613	v	v	v	v	v	v	v	v	v	v
	5614	v	v	v	v	v	v	v	v	v	v
	5615	v	v	v	v	v	v	v	v	v	v
	5616	v	v	v	v	v	v	v	v	v	v
	5617	v	v	v	v	v	v	v	v	v	v
	5618	v	v	v	v	v	v	v	v	v	v
	5619	v	v	v	v	v	v	v	v	v	v
	5620	v	v	v	v	v	v	v	v	v	v
	5621	v	v	v	v	v	v	v	v	v	v
	5622	v	v	v	v	v	v	v	v	v	v
	5623	v	v	v	v	v	v	v	v	v	v
	5624	v	v	v	v	v	v	v	v	v	v
	5625	v	v	v	v	v	v	v	v	v	v
	5626	v	v	v	v	v	v	v	v	v	v
	5627	v	v	v	v	v	v	v	v	v	v
	5628	v	v	v	v	v	v	v	v	v	v
	5629	v	v	v	v	v	v	v	v	v	v
	5630	v	v	v	v	v	v	v	v	v	v
	5631	v	v	v	v	v	v	v	v	v	v
	5632	v	v	v	v	v	v	v	v	v	v
	5633	v	v	v	v	v	v	v	v	v	v
	5634	v	v	v	v	v	v	v	v	v	v
	5635	v	v	v	v	v	v	v	v	v	v
	5636	v	v	v	v	v	v	v	v	v	v
	5637	v	v	v	v	v	v	v	v	v	v
	5638	v	v	v	v	v	v	v	v	v	v
	5639	v	v	v	v	v	v	v	v	v	v
	5640	v	v	v	v	v	v	v	v	v	v

802.11ax (160MHz), 5570 MHz											
		1	2	3	4	5	6	7	8	9	10
	5641	v	v	v	v	v	v	v	v	v	v
	5642	v	v	v	v	v	v	v	v	v	v
	5643	v	v	v	v	v	v	v	v	v	v
	5644	v	v	v	v	v	v	v	v	v	v
	5645	v	v	v	v	v	v	v	v	v	v
	5646	v	v	v	v	v	v	v	v	v	v
	5647	v	v	v	v	v	v	v	v	v	v
	5648	v	v	v	v	v	v	v	v	v	v
	5649	v	v	v	v	v	v	v	v	v	v
FH	5650	v	v	v	v	v	v	v	v	v	v

Detection Bandwidth = FH - FL = 155MHz
EUT 99% Bandwidth = 160MHz
UNII Detection Bandwidth Min. Limit = MHz * 100% = 139.5MHz

3. Initial Channel Availability Check Time

3.1. Test Procedure

The EUT was tested according to U-NII test procedure of KDB905462 D02 for compliance to FCC 47CFR 15.407 requirements.

The U-NII device is powered on and instructed to operate at 5300/5510 MHz and 5530MHz. At the same time the UUT is powered on, the spectrum analyzer is set to zero span mode with a 3 MHz resolution bandwidth at 5300/5510 MHz and 5530MHz with a 2.5minute sweep time. The analyzer's sweep will be started the same time power is applied to the U-NII device.

The EUT should not transmit any beacon or data transmissions until at least 1 minute after the completion of the power-on cycle.

The initial power up time of the EUT is indicated by marker1 in the plot, Initial beacons/data transmissions are indicated by marker 1R.

3.2. Test Requirement

The EUT shall perform a channel availability check to ensure that there is no radar operation on the channel, after power-up sequence, receiver at least 1 minute on the intended operation frequency.

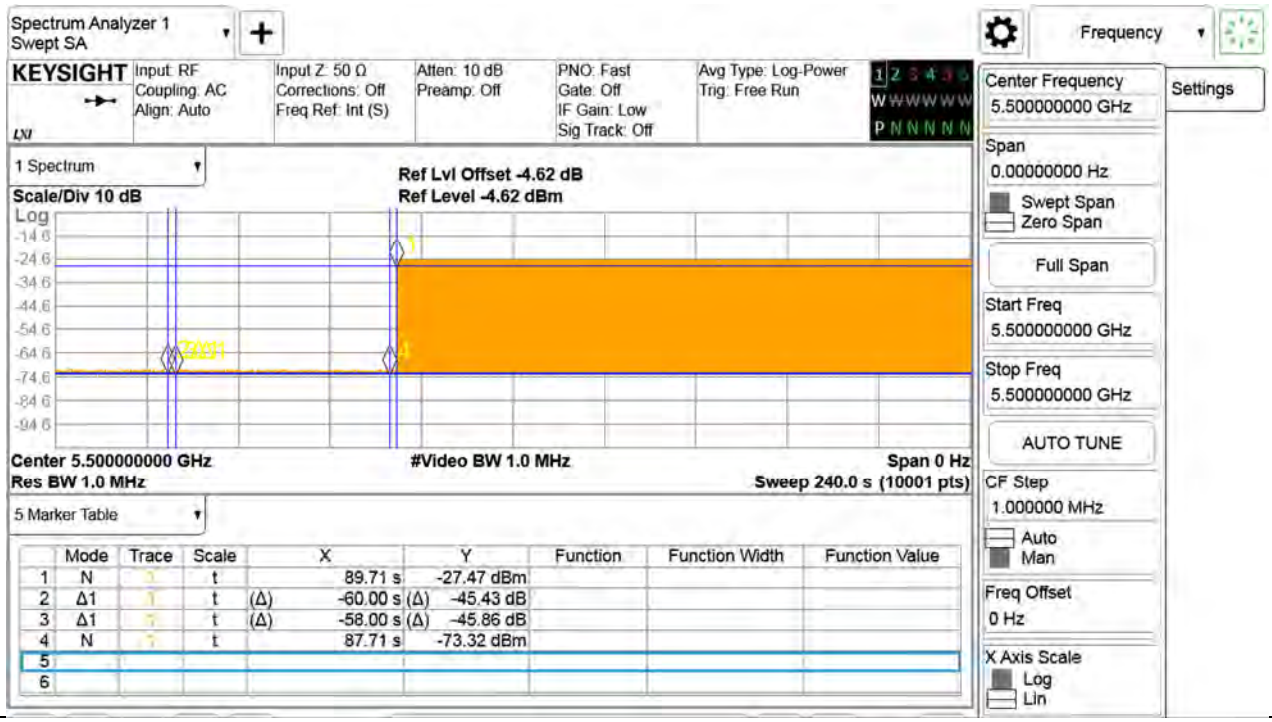
3.3. Test Result of Initial Channel Availability Check Time

802.11ax (20MHz), 5300 MHz

The EUT does not transmit any beacon or data transmission until at least 1 minute after the completion of the power-on cycle (29.21 sec). The initial power up time of the EUT is indicated by Marker 1 (89.21 sec) – CAC (60 sec). Initial beacons/data transmission is indicated by Marker 1 (89.21 sec)

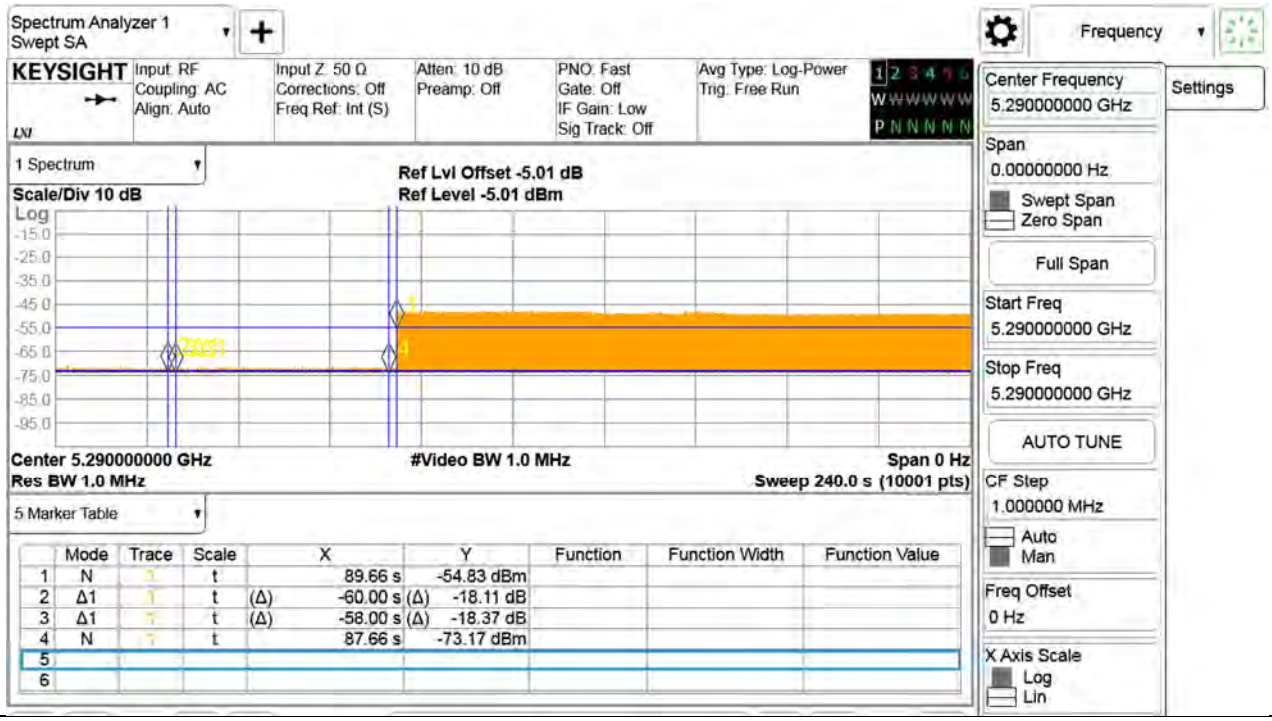
802.11ax (20MHz), 5500 MHz

The EUT does not transmit any beacon or data transmission until at least 1 minute after the completion of the power-on cycle (29.71 sec). The initial power up time of the EUT is indicated by Marker 1 (89.71 sec) – CAC (60 sec). Initial beacons/data transmission is indicated by Marker 1 (89.71 sec)



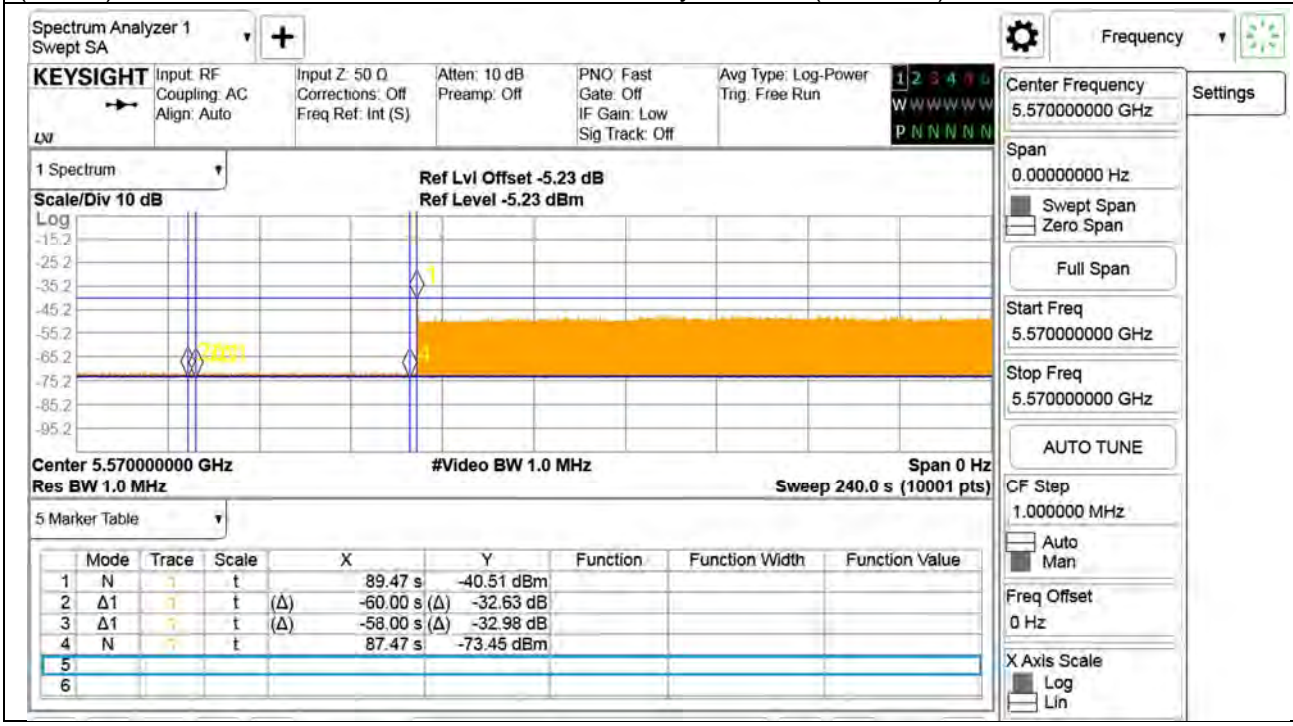
802.11ax (80MHz), 5290 MHz

The EUT does not transmit any beacon or data transmission until at least 1 minute after the completion of the power-on cycle (29.66 sec). The initial power up time of the EUT is indicated by Marker 1 (89.66 sec) – CAC (60 sec). Initial beacons/data transmission is indicated by Marker 1 (89.66 sec)



802.11ax (160MHz), 5570 MHz

The EUT does not transmit any beacon or data transmission until at least 1 minute after the completion of the power-on cycle (29.47 sec). The initial power up time of the EUT is indicated by Marker 1 (89.47 sec) – CAC (60 sec). Initial beacons/data transmission is indicated by Marker 1 (89.47 sec)



4. Radar Burst at the Beginning of the Channel Availability Check Time

4.1. Test Procedure

The EUT was tested according to U-NII test procedure of KDB905462 D02 for compliance to FCC 47CFR 15.407 requirements.

The steps below define the procedure to verify successful radar detection on the selected Channel during a period equal to the Channel Availability Check Time and avoidance of operation on that Channel when a radar Burst with a level equal to the DFS Detection Threshold + 1 dB (-63dBm) occurs at the beginning of the Channel Availability Check Time.

The EUT is powered on at T0. T1 denotes the instant when the EUT has completed its power-up sequence. The Channel Availability Check Time commences at instant T1 and will end no sooner than T1 + 60 seconds.

A single Burst of short pulse of radar type 1 at -63dBm will commence within a 6 second window starting at T1.

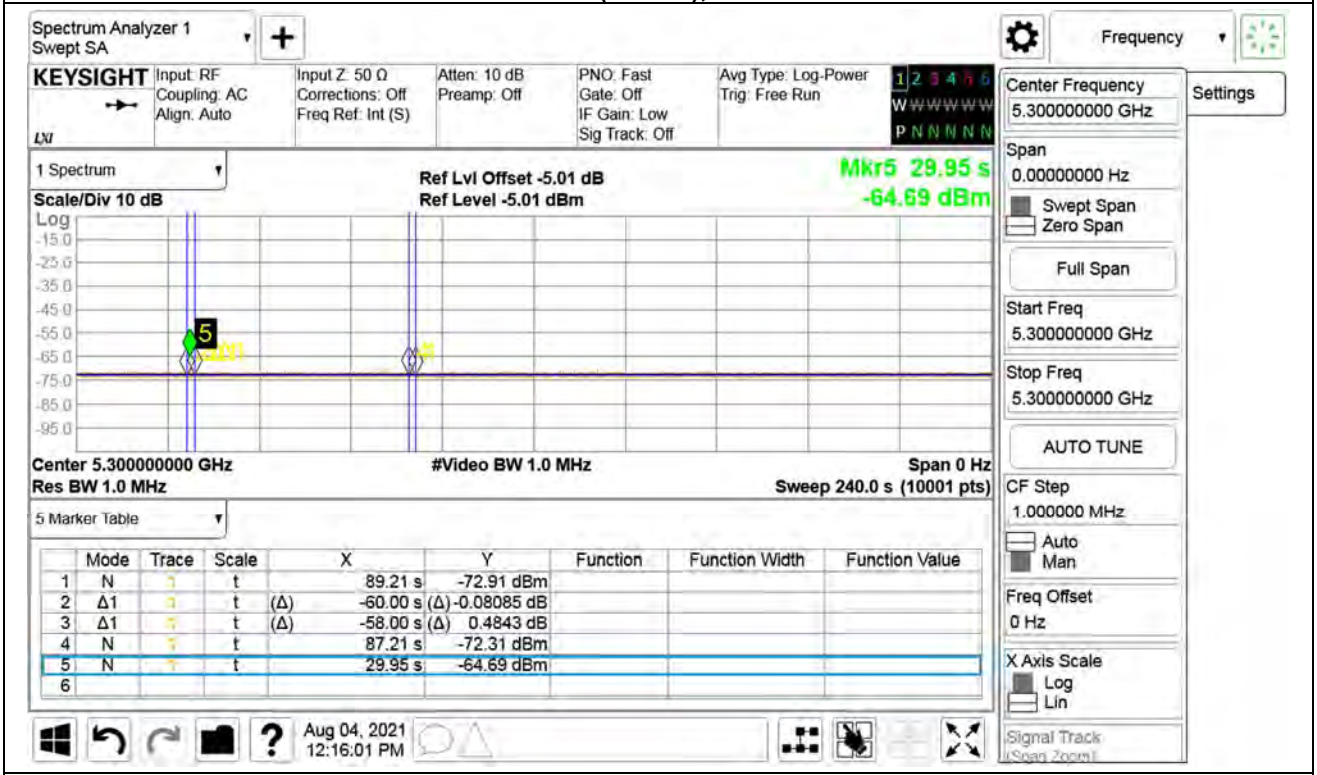
Visual indication on the EUT of successful detection of the radar Burst will be recorded and reported. Observation of emissions at 5300MHz/5510MHz and 5630MHz will continue for 2.5 minutes after the radar Burst, Verify that during the 2.5 minute measurement window no EUT transmissions occurred at 5300MHz/5510MHz and 5630MHz.

4.2. Test Requirement

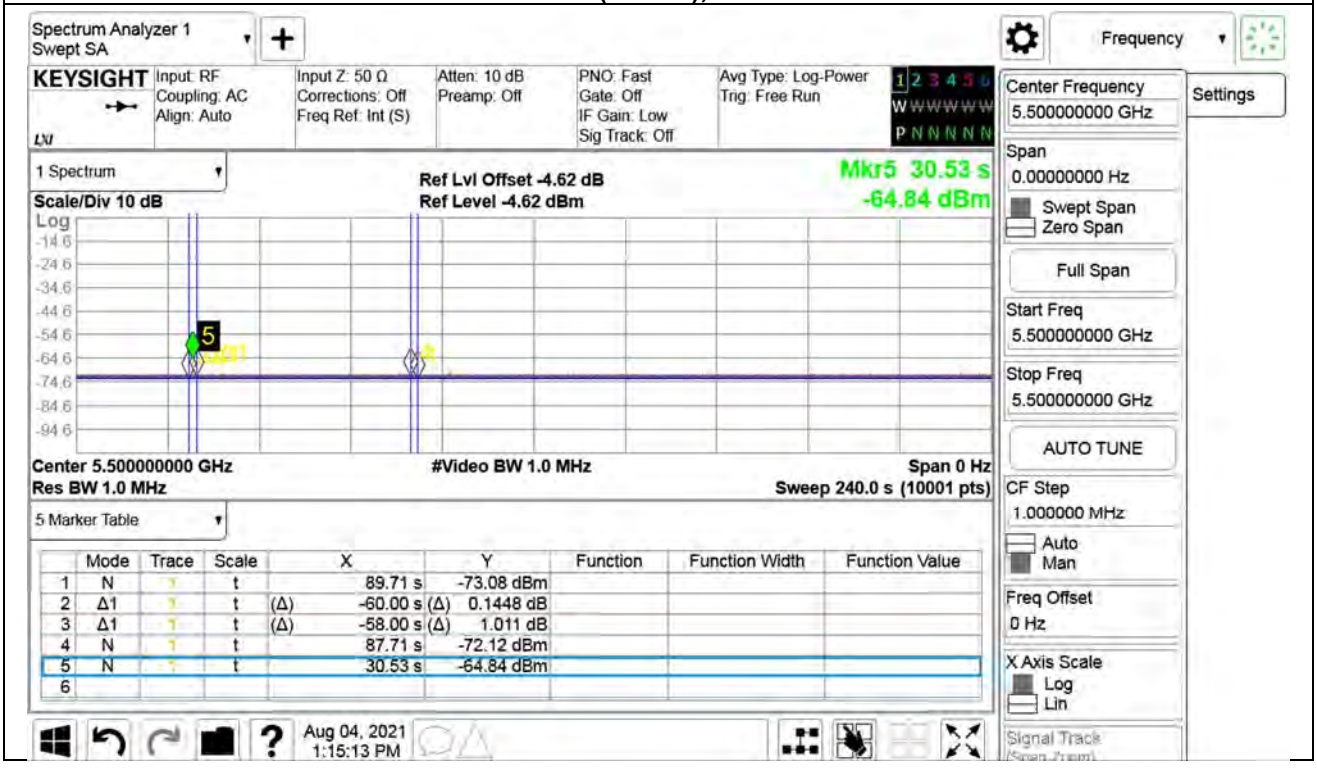
In beginning of the Channel Availability Check (CAC) Time, radar is detected on this channel, select another intended channel and perform a CAC that channel.

4.3. Test Result of Radar Burst at the Beginning of the Channel Availability Check Time

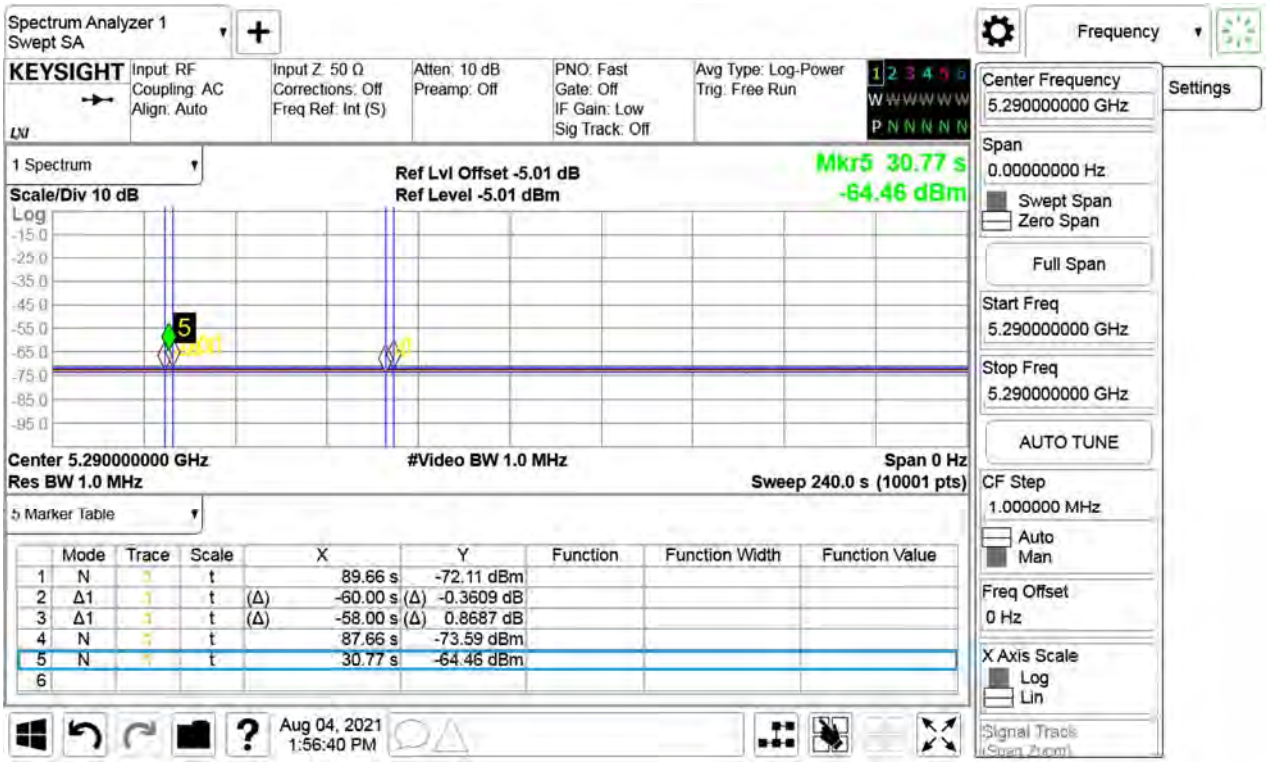
802.11ax (20MHz), 5300 MHz



802.11ax (20MHz), 5500 MHz



802.11ax (80MHz), 5290 MHz



802.11ax (160MHz), 5570 MHz

5. Radar Burst at the End of the Channel Availability Check Time

5.1. Test Procedure

The EUT was tested according to U-NII test procedure of KDB905462 D02 for compliance to FCC 47CFR 15.407 requirements.

The steps below define the procedure to verify successful radar detection on the selected Channel during a period equal to the Channel Availability Check Time and avoidance of operation on that Channel when a radar Burst with a level equal to the DFS Detection Threshold + 1 dB (-63dBm) occurs at the end of the Channel Availability Check Time.

The UUT is powered on at T0. T1 denotes the instant when the UUT has completed its power-up sequence. The Channel Availability Check Time commences at instant T1 and will end no sooner than T1 + 60 seconds. A single Burst of short pulse of radar type 1 at -63 dBm will commence within a 6 second window starting at T1+ 54 seconds.

Visual indication on the UUT of successful detection of the radar Burst will be recorded and reported. Observation of emissions at 5300MHz/5510MHz and 5630MHz will continue for 2.5 minutes after the radar Burst has been generated.

Verify that during the 2.5 minute measurement window no UUT transmissions occurred at 5300MHz /5510MHz and 5630MHz.

5.2. Test Requirement

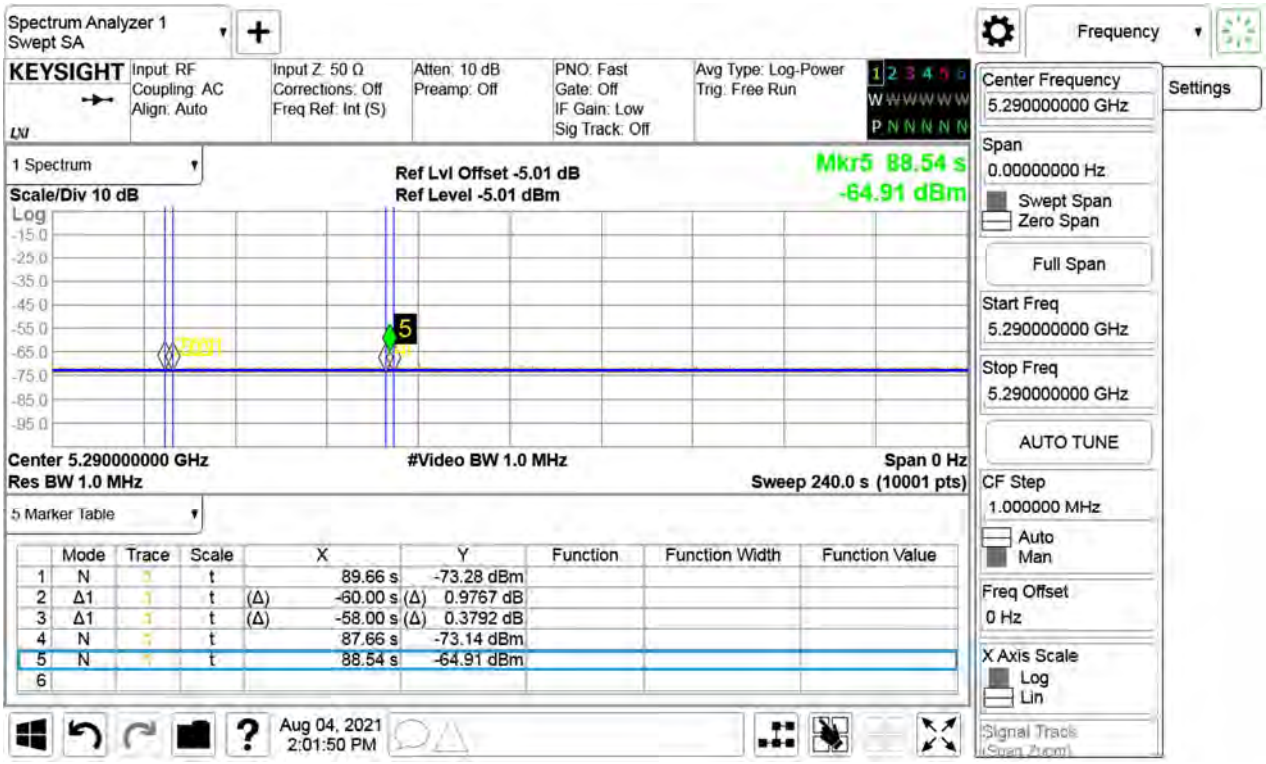
In the end of Channel Availability Check (CAC) Time, radar is detected on this channel, select another intended channel and perform a CAC that channel.

5.3. Test Result of Radar Burst at the End of the Channel Availability Check Time

802.11ax (20MHz), 5300 MHz

802.11ax (20MHz), 5500 MHz

802.11ax (80MHz), 5290 MHz



802.11ax (80MHz), 5530 MHz

6. In-Service Monitoring for Channel Move Time and Channel Closing Transmission Time and Non-Occupancy Period

6.1. Test Procedure

The EUT was tested according to U-NII test procedure of KDB905462 D02 for compliance to FCC 47CFR 15.407 requirements.

These tests define how the following DFS parameters are verified during In-Service Monitoring; Channel Closing Transmission Time, Channel Move Time, and Non-Occupancy Period. The steps below define the procedure to determine the above mentioned parameters when a radar Burst with a level equal to the DFS Detection Threshold + 1dB (-63dBm) is generated on the Operating Channel of the U-NII device.

A U-NII device operating as a Client Device will associate with the UUT (Master) at 5300MHz/ 5510MHz and 5630MHz.

Stream the MPEG test file from the Master Device to the Client Device on the selected Channel for the entire period of the test.

At time T0 the Radar Waveform generator sends a Burst of pulses for each of the radar types at -63dBm. Observe the transmissions of the UUT at the end of the radar Burst on the Operating Channel for duration greater than 10 seconds. Measure and record the transmissions from the UUT during the observation time (Channel Move Time). Compare the Channel Move Time and Channel Closing Transmission Time results to the limit defined in the DFS Response requirement values table.

Measure the UUT for more than 30 minutes following the channel close/move time to verify that the UUT does not resume any transmissions on this Channel.

6.2. Test Requirement

Parameter	Value
Channel Move Time	10 Seconds
Channel Closing Transmission Time	200 milliseconds + approx. 60 milliseconds over remaining 10 seconds period
Non-Occupancy Period	Minimum 30 minutes

6.3. Uncertainty

± 1ms.

6.4. Test Result of Channel Move Time and Channel Closing Transmission Time and Non-Occupancy Period

In-Service Monitoring Results - 802.11ax (20MHz), 5300 MHz				
Radar Test Summary:				
Signal Type	Trial No.	Detection (%)	Limit (%)	Result
Type D.4.1	20	100.00	60	Pass
Type D.4.2	20	83.33	60	Pass
Type D.4.3	20	80.00	60	Pass
Type D.4.4	20	76.67	60	Pass
Type D.4.5	20	80.00	60	Pass
Type D.4.6	20	96.67	60	Pass

802.11ax (20MHz), 5300 MHz						
	Type_1	Type_2	Type_3	Type_4	Type_5	Type_6
1	v	v	v	v	v	v
2	v	v	v	v	v	v
3	v	v	x	v	v	v
4	v	v	x	x	v	v
5	v	v	x	v	v	v
6	v	v	v	x	x	v
7	v	x	v	v	v	v
8	v	v	v	v	v	v
9	v	x	v	v	x	v
10	v	x	x	x	v	v
11	v	v	v	x	v	v
12	v	v	v	v	v	v
13	v	v	v	v	v	v
14	v	v	v	v	v	v
15	v	v	v	v	v	v
16	v	x	v	v	v	v
17	v	v	v	x	v	x
18	v	v	v	x	v	v
19	v	v	v	v	v	v
20	v	x	v	v	v	v
21	v	v	v	v	v	v
22	v	v	x	v	v	v
23	v	v	v	v	x	v
24	v	v	v	v	v	v
25	v	v	v	x	v	v
26	v	v	v	v	v	v
27	v	v	x	v	v	v
28	v	v	v	v	x	v
29	v	v	v	v	x	v
30	v	v	v	v	x	v
Number of Successful	30	25	24	23	24	29
% of Successful	100.00%	83.33%	80.00%	76.67%	80.00%	96.67%
	85.00%					

In-Service Monitoring Results - 802.11ax (20MHz), 5500 MHz				
Radar Test Summary:				
Signal Type	Trial No.	Detection (%)	Limit (%)	Result
Type D.4.1	20	100.00	60	Pass
Type D.4.2	20	80.00	60	Pass
Type D.4.3	20	83.33	60	Pass
Type D.4.4	20	80.00	60	Pass
Type D.4.5	20	83.33	60	Pass
Type D.4.6	20	100.00	60	Pass

802.11ax (20MHz), 5500 MHz						
	Type_1	Type_2	Type_3	Type_4	Type_5	Type_6
1	v	v	v	v	v	v
2	v	v	v	v	v	v
3	v	x	v	v	v	v
4	v	v	v	v	v	v
5	v	x	v	v	v	v
6	v	x	v	v	x	v
7	v	v	v	v	v	v
8	v	x	v	x	v	v
9	v	v	v	v	x	v
10	v	v	x	v	v	v
11	v	v	v	v	x	v
12	v	v	v	x	v	v
13	v	v	v	v	v	v
14	v	v	v	v	v	v
15	v	v	x	v	v	v
16	v	v	x	v	x	v
17	v	v	v	v	v	v
18	v	v	v	v	v	v
19	v	v	x	x	v	v
20	v	x	v	x	v	v
21	v	v	v	v	v	v
22	v	v	v	x	v	v
23	v	v	v	v	x	v
24	v	v	v	v	v	v
25	v	v	v	v	v	v
26	v	v	v	x	v	v
27	v	x	x	v	v	v
28	v	v	v	v	v	v
29	v	v	v	v	v	v
30	v	v	v	v	v	v
Number of Successful	30	24	25	24	25	30
% of Successful	100.00%	80.00%	83.33%	80.00%	83.33%	100.00%
	85.83%					

In-Service Monitoring Results - 802.11ax (40MHz), 5310 MHz				
Radar Test Summary:				
Signal Type	Trial No.	Detection (%)	Limit (%)	Result
Type D.4.1	20	100.00	60	Pass
Type D.4.2	20	93.33	60	Pass
Type D.4.3	20	86.67	60	Pass
Type D.4.4	20	86.67	60	Pass
Type D.4.5	20	86.67	60	Pass
Type D.4.6	20	96.67	60	Pass

802.11ax (40MHz), 5310 MHz						
	Type_1	Type_2	Type_3	Type_4	Type_5	Type_6
1	v	v	v	v	x	v
2	v	v	v	x	v	v
3	v	v	v	v	v	v
4	v	v	x	x	v	v
5	v	v	v	v	v	v
6	v	v	v	v	v	v
7	v	v	v	v	v	v
8	v	v	v	v	v	v
9	v	v	v	x	x	v
10	v	v	v	v	v	v
11	v	x	v	v	v	v
12	v	v	v	x	v	v
13	v	v	v	v	v	v
14	v	v	v	v	v	v
15	v	v	v	v	v	v
16	v	v	x	v	v	v
17	v	v	v	v	v	v
18	v	x	x	v	v	v
19	v	v	v	v	v	v
20	v	v	x	v	v	v
21	v	v	v	v	v	v
22	v	v	v	v	v	v
23	v	v	v	v	v	v
24	v	v	v	v	v	v
25	v	v	v	v	v	v
26	v	v	v	v	x	v
27	v	v	v	v	x	x
28	v	v	v	v	v	v
29	v	v	v	v	v	v
30	v	v	v	v	v	v
Number of Successful	30	28	26	26	26	29
% of Successful	100.00%	93.33%	86.67%	86.67%	86.67%	96.67%
	91.67%					

In-Service Monitoring Results - 802.11ax (40MHz), 5510 MHz				
Radar Test Summary:				
Signal Type	Trial No.	Detection (%)	Limit (%)	Result
Type D.4.1	20	100.00	60	Pass
Type D.4.2	20	93.33	60	Pass
Type D.4.3	20	83.33	60	Pass
Type D.4.4	20	90.00	60	Pass
Type D.4.5	20	80.00	60	Pass
Type D.4.6	20	100.00	60	Pass

802.11ax (40MHz), 5510 MHz						
	Type_1	Type_2	Type_3	Type_4	Type_5	Type_6
1	v	v	v	v	v	v
2	v	v	v	v	v	v
3	v	v	v	x	v	v
4	v	v	v	v	v	v
5	v	v	v	v	v	v
6	v	v	v	v	v	v
7	v	x	x	x	v	v
8	v	v	v	v	v	v
9	v	v	v	v	x	v
10	v	v	v	v	v	v
11	v	v	v	v	v	v
12	v	v	v	v	v	v
13	v	v	v	v	v	v
14	v	v	x	v	v	v
15	v	v	v	v	v	v
16	v	x	v	v	v	v
17	v	v	v	v	v	v
18	v	v	v	v	x	v
19	v	v	v	x	v	v
20	v	v	v	v	x	v
21	v	v	v	v	v	v
22	v	v	v	v	v	v
23	v	v	x	v	x	v
24	v	v	v	v	v	v
25	v	v	x	v	x	v
26	v	v	v	v	x	v
27	v	v	v	v	v	v
28	v	v	v	v	v	v
29	v	v	x	v	v	v
30	v	v	v	v	v	v
Number of Successful	30	28	25	27	24	30
% of Successful	100.00%	93.33%	83.33%	80.00%	90.00%	100.00%
	91.67%					

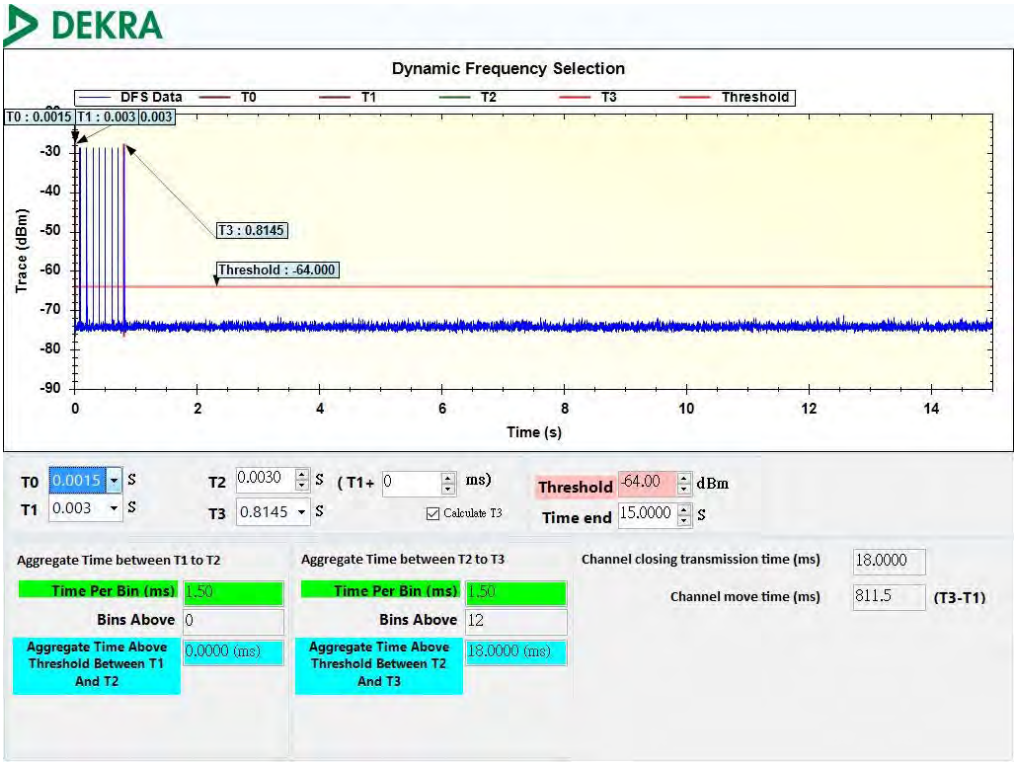
In-Service Monitoring Results - 802.11ax (80MHz), 5290 MHz				
Radar Test Summary:				
Signal Type	Trial No.	Detection (%)	Limit (%)	Result
Type D.4.1	20	93.33	60	Pass
Type D.4.2	20	96.67	60	Pass
Type D.4.3	20	93.33	60	Pass
Type D.4.4	20	83.33	60	Pass
Type D.4.5	20	93.33	60	Pass
Type D.4.6	20	100.00	60	Pass

802.11ax (80MHz), 5290 MHz						
	Type_1	Type_2	Type_3	Type_4	Type_5	Type_6
1	v	v	v	v	v	v
2	v	v	v	x	v	v
3	v	v	v	v	v	v
4	v	v	v	v	v	v
5	v	v	v	v	v	v
6	v	v	v	v	v	v
7	v	v	v	v	v	v
8	v	v	v	v	v	v
9	v	v	v	v	x	v
10	v	v	v	v	v	v
11	v	v	v	v	v	v
12	v	v	v	v	v	v
13	v	v	v	v	v	v
14	v	v	v	v	v	v
15	v	v	v	v	v	v
16	v	v	v	v	v	v
17	v	v	x	x	v	v
18	v	v	v	v	v	v
19	v	v	v	v	v	v
20	v	v	v	v	v	v
21	v	v	v	x	v	v
22	v	v	v	v	v	v
23	v	v	v	x	x	v
24	x	v	v	v	v	v
25	v	x	v	v	v	v
26	v	v	v	v	v	v
27	v	v	v	v	v	v
28	v	v	v	v	v	v
29	v	v	v	v	v	v
30	x	v	x	x	v	v
Number of Successful	28	29	28	25	28	30
% of Successful	93.33%	96.67%	93.33%	83.33%	93.33%	100.00%
	91.67%					

In-Service Monitoring Results - 802.11ax (80MHz), 5530 MHz				
Radar Test Summary:				
Signal Type	Trial No.	Detection (%)	Limit (%)	Result
Type D.4.1	20	100.00	60	Pass
Type D.4.2	20	86.67	60	Pass
Type D.4.3	20	90.00	60	Pass
Type D.4.4	20	90.00	60	Pass
Type D.4.5	20	93.33	60	Pass
Type D.4.6	20	100.00	60	Pass

802.11ax (160MHz), 5570 MHz						
	Type_1	Type_2	Type_3	Type_4	Type_5	Type_6
1	v	v	v	v	v	v
2	v	x	v	v	v	v
3	v	v	v	v	v	v
4	v	v	v	v	v	v
5	v	v	v	v	v	v
6	v	v	v	v	v	v
7	v	v	v	v	v	v
8	v	v	x	v	v	v
9	v	v	v	v	x	v
10	v	v	v	v	v	v
11	v	v	x	v	v	v
12	v	v	v	v	v	v
13	v	v	v	v	v	v
14	v	v	v	v	v	v
15	v	v	v	v	v	v
16	v	v	v	x	v	v
17	v	v	v	v	v	v
18	v	x	v	v	v	v
19	v	v	v	v	v	v
20	v	v	v	v	v	v
21	v	v	v	v	v	v
22	v	v	v	x	v	v
23	v	x	x	v	x	v
24	v	v	v	v	v	v
25	v	v	v	v	v	v
26	v	v	v	v	v	v
27	v	v	v	v	v	v
28	v	v	v	v	v	v
29	v	x	v	v	v	v
30	v	v	v	x	v	v
Number of Successful	30	26	27	27	28	30
% of Successful	100.00%	86.67%	90.00%	90.00%	93.33%	100.00%
	91.67%					

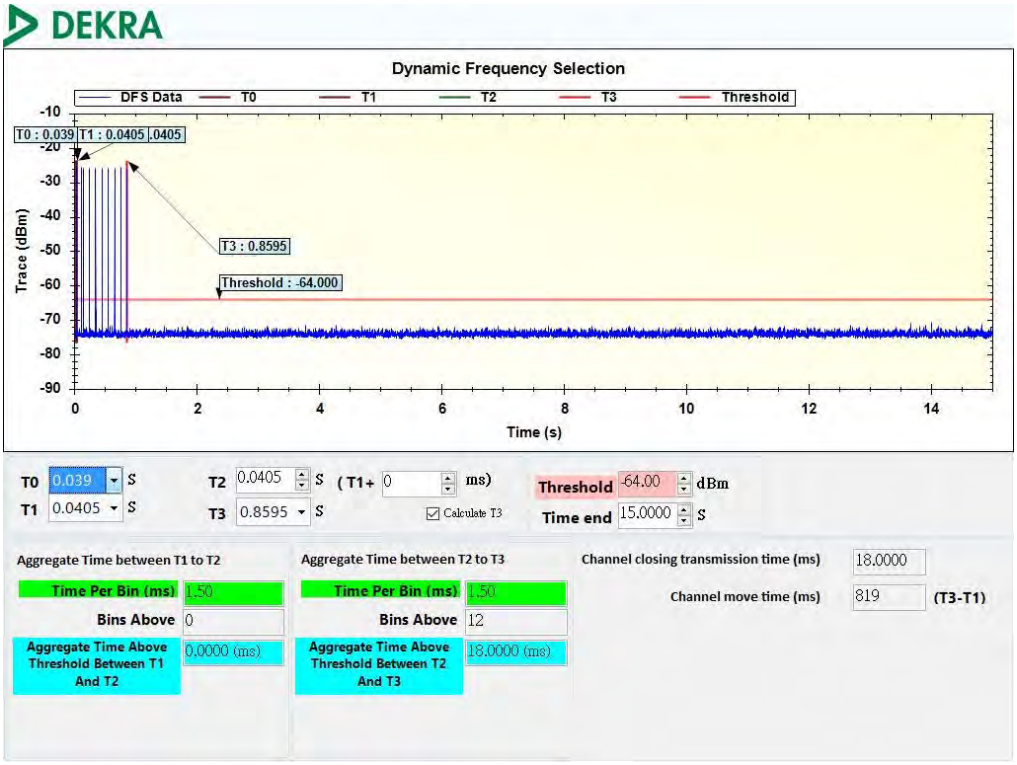
Channel Move Time and Channel Closing Transmission Time - 802.11ax (20MHz), 5300 MHz



Test Item	Test Result (Sec)	Limit (Sec)
Channel Closing Transmission	0.018	200 milliseconds + approx. 60 milliseconds over remaining 10 seconds period
Channel Move Time	0.8115	10

The results showed that after radar signal injected the channel move time was less than 10 seconds and channel transmission closing time less than 200 milliseconds and an aggregate of no more than 60 milliseconds.

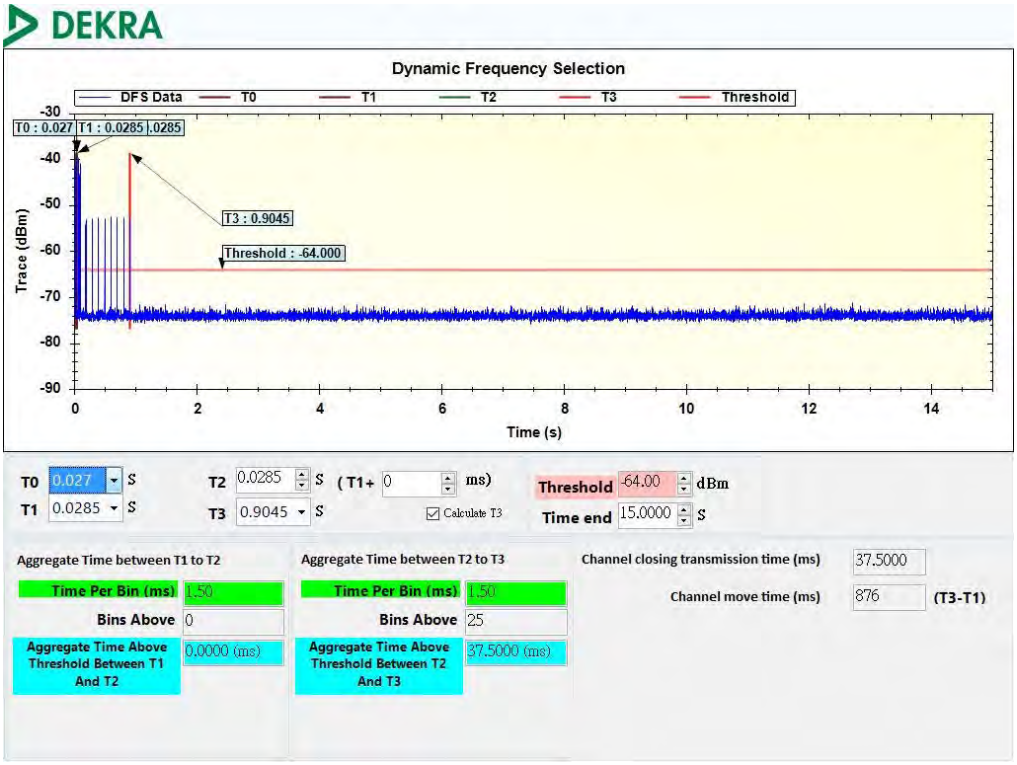
Channel Move Time and Channel Closing Transmission Time - 802.11ax (20MHz), 5500 MHz



Test Item	Test Result (Sec)	Limit (Sec)
Channel Closing Transmission	0.018	200 milliseconds + approx. 60 milliseconds over remaining 10 seconds period
Channel Move Time	0.819	10

The results showed that after radar signal injected the channel move time was less than 10 seconds and channel transmission closing time less than 200 milliseconds and an aggregate of no more than 60 milliseconds.

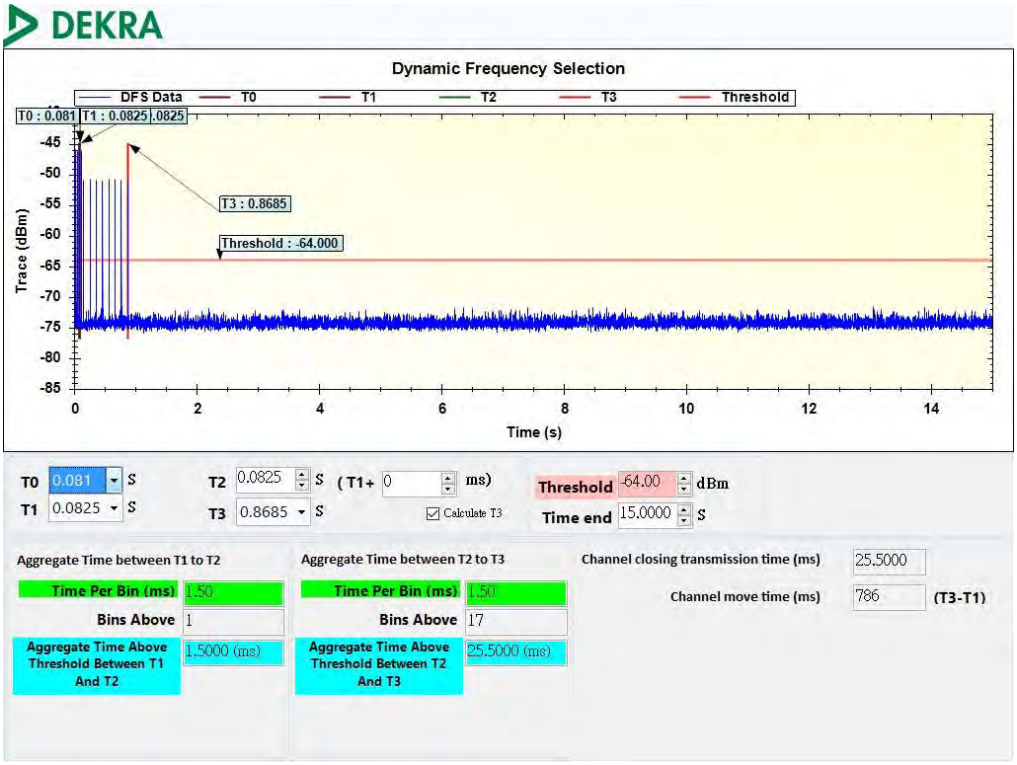
Channel Move Time and Channel Closing Transmission Time - 802.11ax (80MHz), 5290 MHz



Test Item	Test Result (Sec)	Limit (Sec)
Channel Closing Transmission	0.0375	200 milliseconds + approx. 60 milliseconds over remaining 10 seconds period
Channel Move Time	0.876	10

The results showed that after radar signal injected the channel move time was less than 10 seconds and channel transmission closing time less than 200 milliseconds and an aggregate of no more than 60 milliseconds.

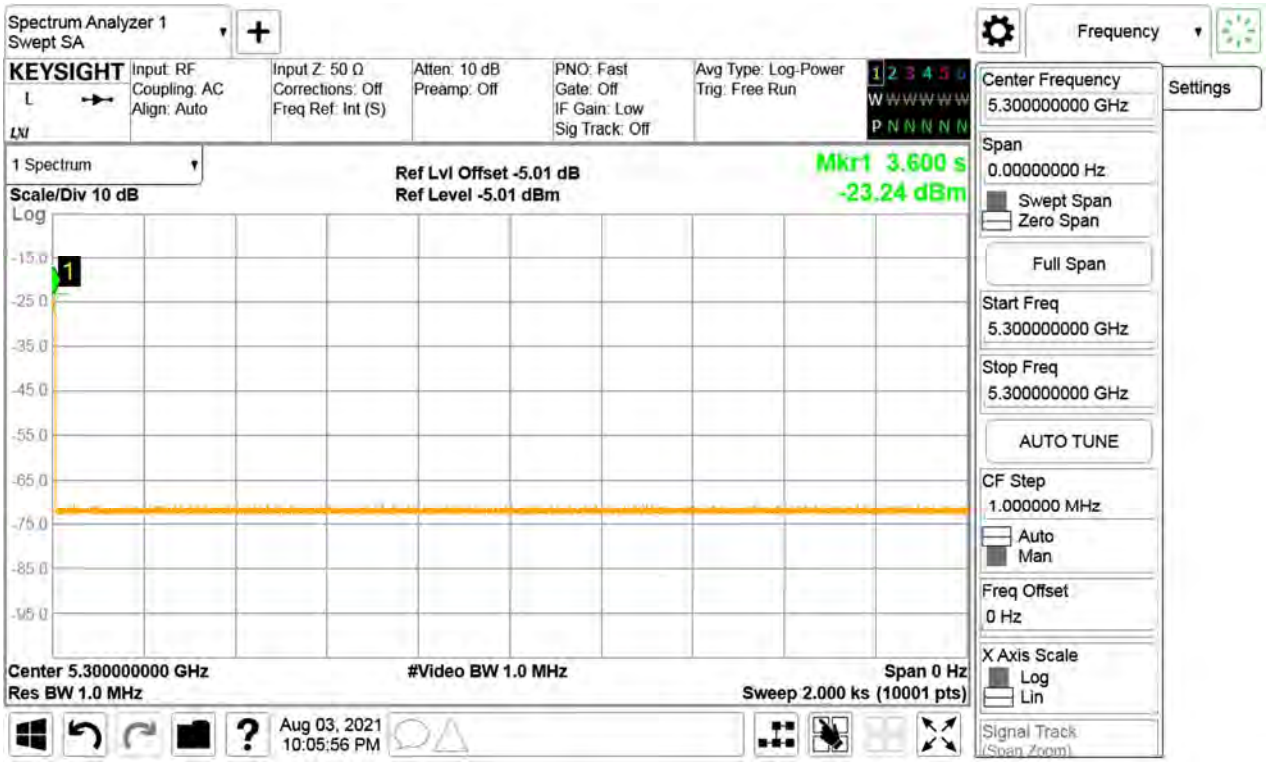
Channel Move Time and Channel Closing Transmission Time - 802.11ax (160MHz), 5570 MHz



Test Item	Test Result (Sec)	Limit (Sec)
Channel Closing Transmission	0.0255	200 milliseconds + approx. 60 milliseconds over remaining 10 seconds period
Channel Move Time	0.786	10

The results showed that after radar signal injected the channel move time was less than 10 seconds and channel transmission closing time less than 200 milliseconds and an aggregate of no more than 60 milliseconds.

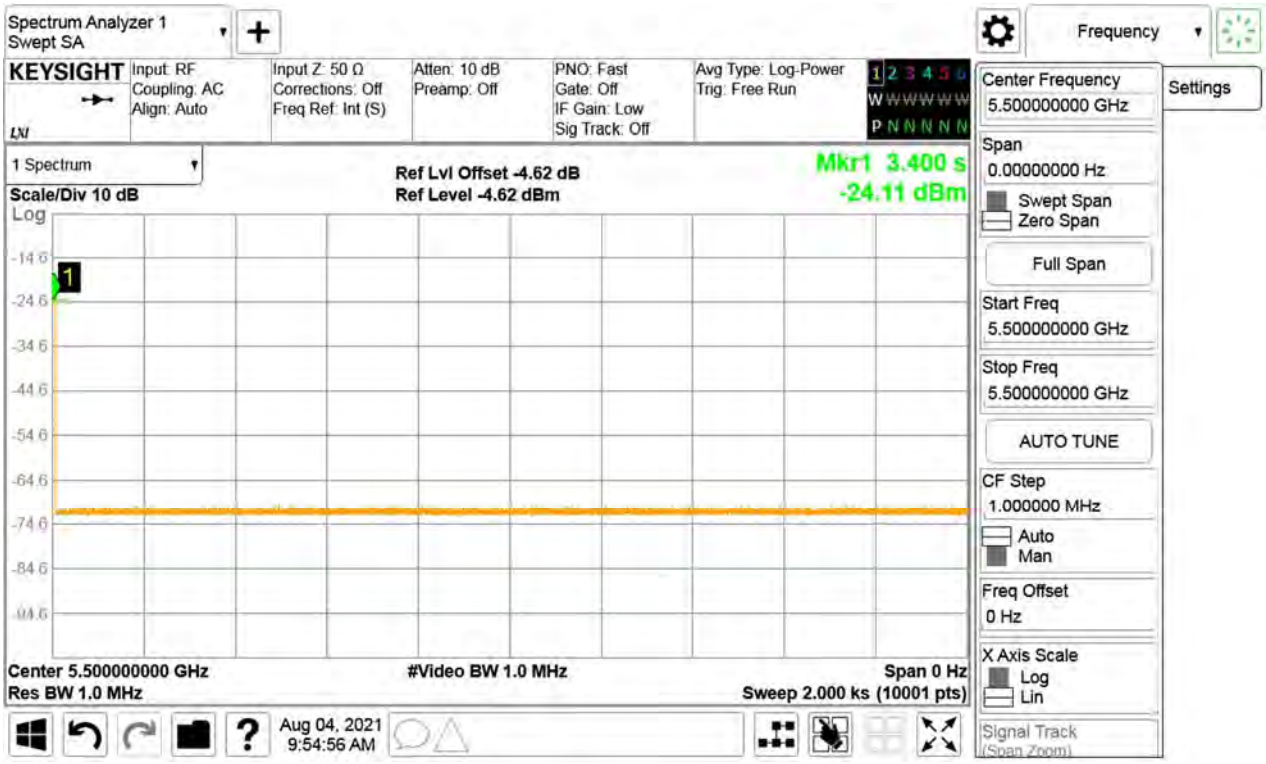
Non-Occupancy Period - 802.11ax (20MHz), 5300 MHz



Test Item	Test Result (Minutes)	Limit (Minutes)
Non-Occupancy Period	>30	>30

*No EUT transmissions were observed on the test channel during 30 minutes observation time.

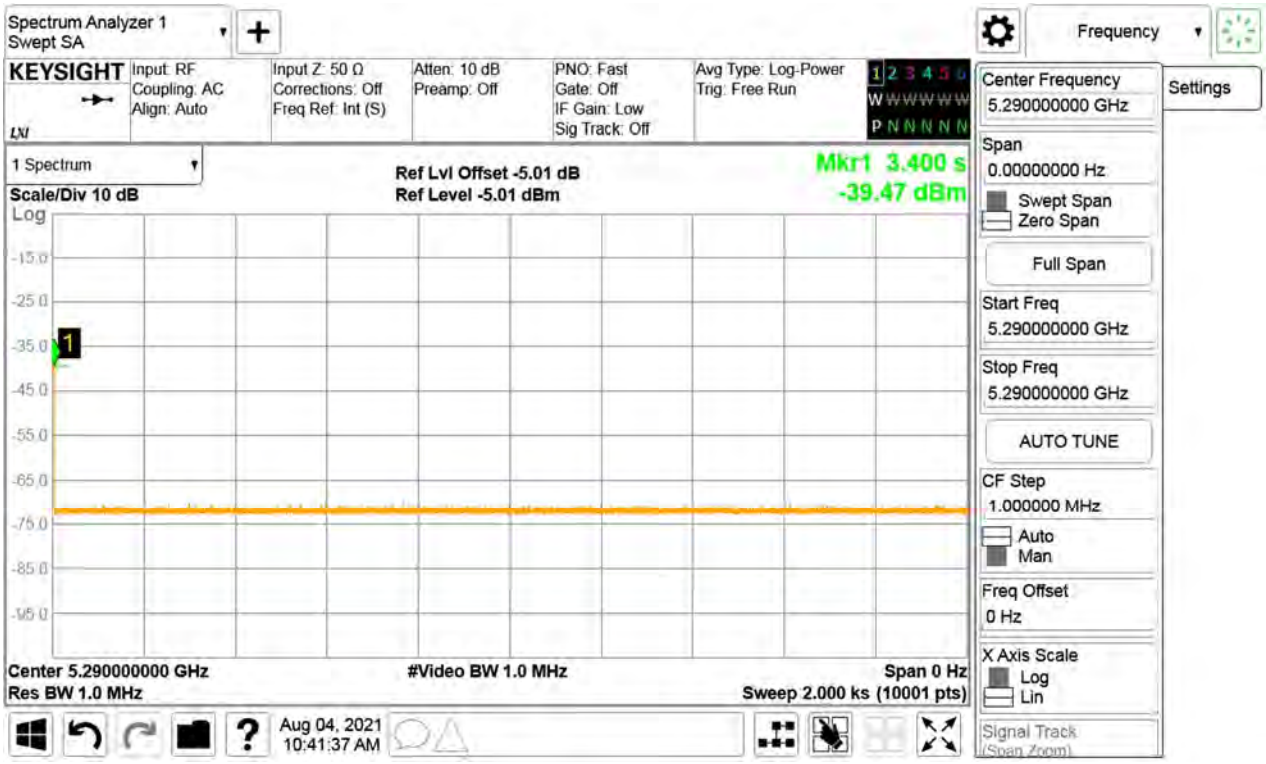
Non-Occupancy Period - 802.11ax (20MHz), 5500 MHz



Test Item	Test Result (Minutes)	Limit (Minutes)
Non-Occupancy Period	>30	>30

*No EUT transmissions were observed on the test channel during 30 minutes observation time.

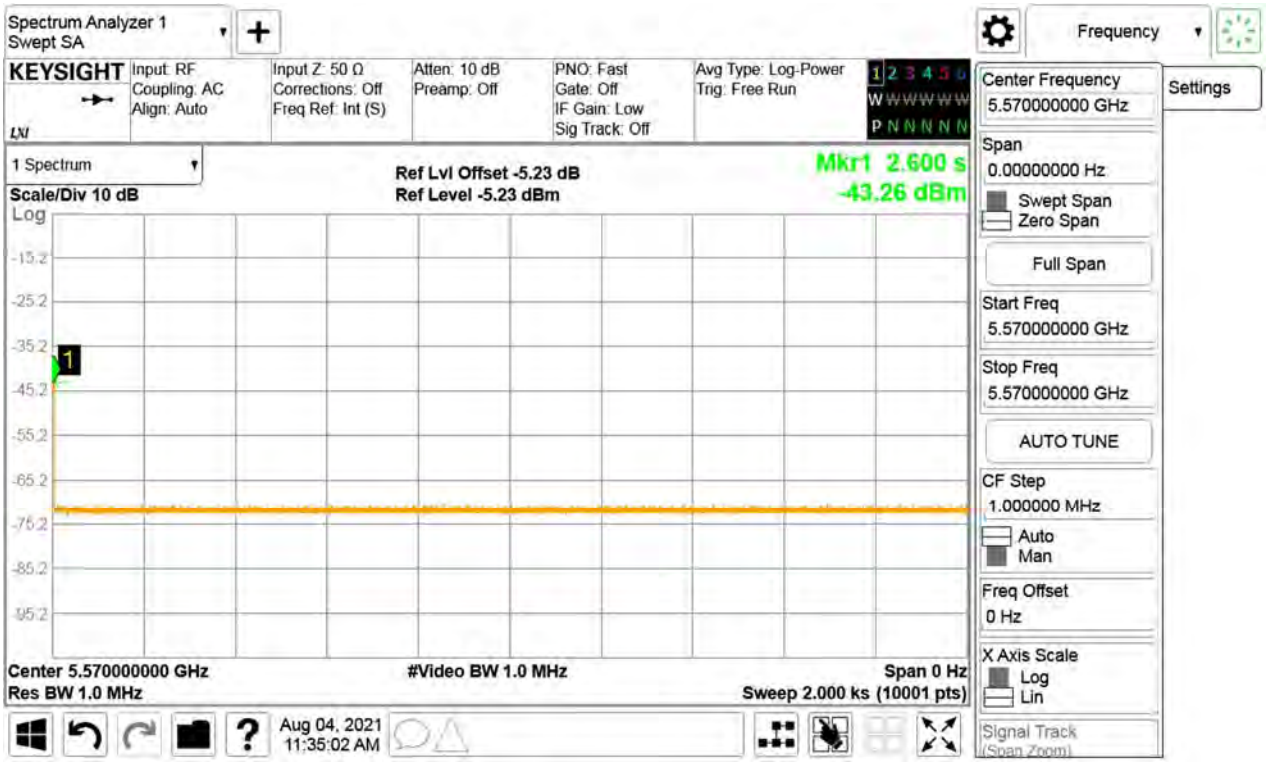
Non-Occupancy Period - 802.11ax (80MHz), 5290 MHz



Test Item	Test Result (Minutes)	Limit (Minutes)
Non-Occupancy Period	>30	>30

*No EUT transmissions were observed on the test channel during 30 minutes observation time.

Non-Occupancy Period - 802.11ax (160MHz), 5570 MHz



Test Item	Test Result (Minutes)	Limit (Minutes)
Non-Occupancy Period	>30	>30

*No EUT transmissions were observed on the test channel during 30 minutes observation time.

7. Statistical Performance Check

7.1. Test Procedure

The EUT was tested according to U-NII test procedure of KDB905462 D02 for compliance to FCC 47CFR 15.407 requirements.

The steps below define the procedure to determine the minimum percentage of detection when a radar burst with a level equal to the DFS Detection Threshold + 1dB (-63dBm) is generated on the Operating Channel of the U-NII device.

A U-NII device operating as a Client Device will associate with the UUT (Master) at 5300MHz 、5510MHz and 5630MHz..

Stream the MPEG test file from the Master Device to the Client Device on the selected Channel for the entire period of the test.

The Radar Waveform generator sends the individual waveform for each of the radar types 1-6 at -63dbm.

Statistical data will be gathered to determine the ability of the device to detect the radar test waveforms. The device can utilize a test mode to demonstrate when detection occurs to prevent the need to reset the device between trial runs.

7.2. Test Requirement

The minimum percentage of successful detections, and the minimum number of trials that must be used for determining DFS conformance. Step intervals of 0.1 microsecond for Pulse Width, 1 microsecond for PRI, 1 MHz for chirp width and 1 for the number of pulses will be utilized for the random determination of specific test waveforms.

Minimum percentage of successful detections

Radar Type	Minimum Percentage of Successful Detection	Minimum Number of Trials
1	60%	30
2	60%	30
3	60%	30
4	60%	30
Aggregate (Radar Types 1-4)	80%	120
5	80%	30
6	70%	30

The percentage of successful detection is calculated by:

$$\frac{TotalWaveformDetections}{TotalWaveformTrials} \times 100$$ =Probability of Detection Radar Waveform

In addition an aggregate minimum percentage of successful detection across all Short Pulse Radar Types 1-4 is required and is calculated as follows:

$$\frac{P_d 1 + P_d 2 + P_d 3 + P_d 4}{4}$$

7.3. Test Result of Statistical Performance Check

802.11ax (20MHz), 5300 MHz

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 1	1	938	57	53466
1	Type 1	1	698	76	53048
2	Type 1	1	618	86	53148
3	Type 1	1	538	99	53262
4	Type 1	1	878	61	53558
5	Type 1	1	3066	18	55188
6	Type 1	1	638	83	52954
7	Type 1	1	918	58	53244
8	Type 1	1	838	63	52794
9	Type 1	1	858	62	53196
10	Type 1	1	798	67	53466
11	Type 1	1	718	74	53132
12	Type 1	1	578	92	53176
13	Type 1	1	598	89	53222
14	Type 1	1	558	95	53010
15	Type 1	1	2536	21	53256
16	Type 1	1	966	55	53130
17	Type 1	1	827	64	52928
18	Type 1	1	2501	22	55022
19	Type 1	1	2595	21	54495
20	Type 1	1	1114	48	53472
21	Type 1	1	1302	41	53382
22	Type 1	1	3045	18	54810
23	Type 1	1	1624	33	53592
24	Type 1	1	2878	19	54682
25	Type 1	1	1027	52	53404
26	Type 1	1	2485	22	54670
27	Type 1	1	1600	33	52800
28	Type 1	1	1172	46	53912
29	Type 1	1	1177	45	52965

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 2	3.2	179	26	4654
1	Type 2	1.1	207	23	4761
2	Type 2	2.1	230	24	5520
3	Type 2	4.8	200	29	5800
4	Type 2	3.9	214	28	5992
5	Type 2	2.9	222	26	5772
6	Type 2	3.2	204	26	5304
7	Type 2	2.5	192	25	4800
8	Type 2	3.1	164	26	4264
9	Type 2	1.2	156	23	3588
10	Type 2	3.9	210	27	5670
11	Type 2	4.6	201	29	5829
12	Type 2	3.2	162	26	4212
13	Type 2	2.2	197	25	4925
14	Type 2	4.5	163	29	4727
15	Type 2	3	203	26	5278
16	Type 2	5	168	29	4872
17	Type 2	2.4	217	25	5425
18	Type 2	2.9	191	26	4966
19	Type 2	2.3	166	25	4150
20	Type 2	3.7	150	27	4050
21	Type 2	2.2	176	25	4400
22	Type 2	4.9	195	29	5655
23	Type 2	2.9	202	26	5252
24	Type 2	2.5	178	25	4450
25	Type 2	1.1	206	23	4738
26	Type 2	3.8	155	27	4185
27	Type 2	4.7	157	29	4553
28	Type 2	2.4	224	25	5600
29	Type 2	4.2	159	28	4452

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 3	8.2	355	17	6035
1	Type 3	6.1	487	16	7792
2	Type 3	7.1	344	16	5504
3	Type 3	9.8	288	18	5184
4	Type 3	8.9	230	18	4140
5	Type 3	7.9	432	17	7344
6	Type 3	8.2	207	17	3519
7	Type 3	7.5	443	17	7531
8	Type 3	8.1	439	17	7463
9	Type 3	6.2	223	16	3568
10	Type 3	8.9	208	18	3744
11	Type 3	9.6	463	18	8334
12	Type 3	8.2	441	17	7497
13	Type 3	7.2	323	16	5168
14	Type 3	9.5	297	18	5346
15	Type 3	8	412	17	7004
16	Type 3	10	324	18	5832
17	Type 3	7.4	271	17	4607
18	Type 3	7.9	349	17	5933
19	Type 3	7.3	409	16	6544
20	Type 3	8.7	373	18	6714
21	Type 3	7.2	254	16	4064
22	Type 3	9.9	274	18	4932
23	Type 3	7.9	278	17	4726
24	Type 3	7.5	317	17	5389
25	Type 3	6.1	260	16	4160
26	Type 3	8.8	211	18	3798
27	Type 3	9.7	272	18	4896
28	Type 3	7.4	264	17	4488
29	Type 3	9.2	284	18	5112

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 4	16	355	14	4970
1	Type 4	11.3	487	12	5844
2	Type 4	13.5	344	13	4472
3	Type 4	19.4	288	16	4608
4	Type 4	17.5	230	15	3450
5	Type 4	15.3	432	14	6048
6	Type 4	15.9	207	14	2898
7	Type 4	14.3	443	13	5759
8	Type 4	15.8	439	14	6146
9	Type 4	11.5	223	12	2676
10	Type 4	17.4	208	15	3120
11	Type 4	19	463	16	7408
12	Type 4	16	441	14	6174
13	Type 4	13.8	323	13	4199
14	Type 4	18.9	297	16	4752
15	Type 4	15.5	412	14	5768
16	Type 4	19.9	324	16	5184
17	Type 4	14.1	271	13	3523
18	Type 4	15.2	349	14	4886
19	Type 4	13.8	409	13	5317
20	Type 4	17.1	373	15	5595
21	Type 4	13.8	254	13	3302
22	Type 4	19.8	274	16	4384
23	Type 4	15.3	278	14	3892
24	Type 4	14.5	317	13	4121
25	Type 4	11.3	260	12	3120
26	Type 4	17.3	211	15	3165
27	Type 4	19.2	272	16	4352
28	Type 4	14.2	264	13	3432
29	Type 4	18.2	284	15	4260

Trinl Id	Radar Type	Number of Bursts	Burst Period(s)	Waveform Length(s)	Center Frequency (GHz)
0	Type 5	15	0.8	12	5.3
1	Type 5	8	1.5	12	5.3
2	Type 5	11	1.090909	12	5.3
3	Type 5	20	0.6	12	5.3
4	Type 5	17	0.705882	12	5.3
5	Type 5	14	0.857143	12	5.3
6	Type 5	15	0.8	12	5.3
7	Type 5	12	1	12	5.3
8	Type 5	14	0.857143	12	5.3
9	Type 5	8	1.5	12	5.3
10	Type 5	17	0.705882	12	5.296
11	Type 5	19	0.631579	12	5.298
12	Type 5	15	0.8	12	5.295
13	Type 5	12	1	12	5.294
14	Type 5	19	0.631579	12	5.297
15	Type 5	14	0.857143	12	5.295
16	Type 5	20	0.6	12	5.298
17	Type 5	12	1	12	5.294
18	Type 5	14	0.857143	12	5.295
19	Type 5	12	1	12	5.294
20	Type 5	16	0.75	12	5.304
21	Type 5	12	1	12	5.306
22	Type 5	20	0.6	12	5.302
23	Type 5	14	0.857143	12	5.305
24	Type 5	13	0.923077	12	5.306
25	Type 5	8	1.5	12	5.308
26	Type 5	17	0.705882	12	5.304
27	Type 5	19	0.631579	12	5.302
28	Type 5	12	1	12	5.306
29	Type 5	18	0.666667	12	5.303

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Pulses per Hop	Hopping Rate (KHz)	Hopping Sequence Length (ms)	Visible Frequency Number
0	Type 6	1	333.3	9	0.3333	300	5
1	Type 6	1	333.3	9	0.3333	300	2
2	Type 6	1	333.3	9	0.3333	300	3
3	Type 6	1	333.3	9	0.3333	300	3
4	Type 6	1	333.3	9	0.3333	300	5
5	Type 6	1	333.3	9	0.3333	300	3
6	Type 6	1	333.3	9	0.3333	300	4
7	Type 6	1	333.3	9	0.3333	300	3
8	Type 6	1	333.3	9	0.3333	300	3
9	Type 6	1	333.3	9	0.3333	300	3
10	Type 6	1	333.3	9	0.3333	300	5
11	Type 6	1	333.3	9	0.3333	300	2
12	Type 6	1	333.3	9	0.3333	300	1
13	Type 6	1	333.3	9	0.3333	300	3
14	Type 6	1	333.3	9	0.3333	300	4
15	Type 6	1	333.3	9	0.3333	300	3
16	Type 6	1	333.3	9	0.3333	300	1
17	Type 6	1	333.3	9	0.3333	300	3
18	Type 6	1	333.3	9	0.3333	300	7
19	Type 6	1	333.3	9	0.3333	300	7
20	Type 6	1	333.3	9	0.3333	300	3
21	Type 6	1	333.3	9	0.3333	300	2
22	Type 6	1	333.3	9	0.3333	300	4
23	Type 6	1	333.3	9	0.3333	300	4
24	Type 6	1	333.3	9	0.3333	300	3
25	Type 6	1	333.3	9	0.3333	300	3
26	Type 6	1	333.3	9	0.3333	300	3
27	Type 6	1	333.3	9	0.3333	300	4
28	Type 6	1	333.3	9	0.3333	300	6
29	Type 6	1	333.3	9	0.3333	300	5

802.11ax (20MHz), 5500 MHz

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 1	1	938	57	53466
1	Type 1	1	698	76	53048
2	Type 1	1	618	86	53148
3	Type 1	1	538	99	53262
4	Type 1	1	878	61	53558
5	Type 1	1	3066	18	55188
6	Type 1	1	638	83	52954
7	Type 1	1	918	58	53244
8	Type 1	1	838	63	52794
9	Type 1	1	858	62	53196
10	Type 1	1	798	67	53466
11	Type 1	1	718	74	53132
12	Type 1	1	578	92	53176
13	Type 1	1	598	89	53222
14	Type 1	1	558	95	53010
15	Type 1	1	2536	21	53256
16	Type 1	1	966	55	53130
17	Type 1	1	827	64	52928
18	Type 1	1	2501	22	55022
19	Type 1	1	2595	21	54495
20	Type 1	1	1114	48	53472
21	Type 1	1	1302	41	53382
22	Type 1	1	3045	18	54810
23	Type 1	1	1624	33	53592
24	Type 1	1	2878	19	54682
25	Type 1	1	1027	52	53404
26	Type 1	1	2485	22	54670
27	Type 1	1	1600	33	52800
28	Type 1	1	1172	46	53912
29	Type 1	1	1177	45	52965

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 2	3.2	179	26	4654
1	Type 2	1.1	207	23	4761
2	Type 2	2.1	230	24	5520
3	Type 2	4.8	200	29	5800
4	Type 2	3.9	214	28	5992
5	Type 2	2.9	222	26	5772
6	Type 2	3.2	204	26	5304
7	Type 2	2.5	192	25	4800
8	Type 2	3.1	164	26	4264
9	Type 2	1.2	156	23	3588
10	Type 2	3.9	210	27	5670
11	Type 2	4.6	201	29	5829
12	Type 2	3.2	162	26	4212
13	Type 2	2.2	197	25	4925
14	Type 2	4.5	163	29	4727
15	Type 2	3	203	26	5278
16	Type 2	5	168	29	4872
17	Type 2	2.4	217	25	5425
18	Type 2	2.9	191	26	4966
19	Type 2	2.3	166	25	4150
20	Type 2	3.7	150	27	4050
21	Type 2	2.2	176	25	4400
22	Type 2	4.9	195	29	5655
23	Type 2	2.9	202	26	5252
24	Type 2	2.5	178	25	4450
25	Type 2	1.1	206	23	4738
26	Type 2	3.8	155	27	4185
27	Type 2	4.7	157	29	4553
28	Type 2	2.4	224	25	5600
29	Type 2	4.2	159	28	4452

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 3	8.2	355	17	6035
1	Type 3	6.1	487	16	7792
2	Type 3	7.1	344	16	5504
3	Type 3	9.8	288	18	5184
4	Type 3	8.9	230	18	4140
5	Type 3	7.9	432	17	7344
6	Type 3	8.2	207	17	3519
7	Type 3	7.5	443	17	7531
8	Type 3	8.1	439	17	7463
9	Type 3	6.2	223	16	3568
10	Type 3	8.9	208	18	3744
11	Type 3	9.6	463	18	8334
12	Type 3	8.2	441	17	7497
13	Type 3	7.2	323	16	5168
14	Type 3	9.5	297	18	5346
15	Type 3	8	412	17	7004
16	Type 3	10	324	18	5832
17	Type 3	7.4	271	17	4607
18	Type 3	7.9	349	17	5933
19	Type 3	7.3	409	16	6544
20	Type 3	8.7	373	18	6714
21	Type 3	7.2	254	16	4064
22	Type 3	9.9	274	18	4932
23	Type 3	7.9	278	17	4726
24	Type 3	7.5	317	17	5389
25	Type 3	6.1	260	16	4160
26	Type 3	8.8	211	18	3798
27	Type 3	9.7	272	18	4896
28	Type 3	7.4	264	17	4488
29	Type 3	9.2	284	18	5112

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 4	16	355	14	4970
1	Type 4	11.3	487	12	5844
2	Type 4	13.5	344	13	4472
3	Type 4	19.4	288	16	4608
4	Type 4	17.5	230	15	3450
5	Type 4	15.3	432	14	6048
6	Type 4	15.9	207	14	2898
7	Type 4	14.3	443	13	5759
8	Type 4	15.8	439	14	6146
9	Type 4	11.5	223	12	2676
10	Type 4	17.4	208	15	3120
11	Type 4	19	463	16	7408
12	Type 4	16	441	14	6174
13	Type 4	13.8	323	13	4199
14	Type 4	18.9	297	16	4752
15	Type 4	15.5	412	14	5768
16	Type 4	19.9	324	16	5184
17	Type 4	14.1	271	13	3523
18	Type 4	15.2	349	14	4886
19	Type 4	13.8	409	13	5317
20	Type 4	17.1	373	15	5595
21	Type 4	13.8	254	13	3302
22	Type 4	19.8	274	16	4384
23	Type 4	15.3	278	14	3892
24	Type 4	14.5	317	13	4121
25	Type 4	11.3	260	12	3120
26	Type 4	17.3	211	15	3165
27	Type 4	19.2	272	16	4352
28	Type 4	14.2	264	13	3432
29	Type 4	18.2	284	15	4260

Trinl Id	Radar Type	Number of Bursts	Burst Period(s)	Waveform Length(s)	Center Frequency (GHz)
0	Type 5	15	0.8	12	5.5
1	Type 5	8	1.5	12	5.5
2	Type 5	11	1.090909	12	5.5
3	Type 5	20	0.6	12	5.5
4	Type 5	17	0.705882	12	5.5
5	Type 5	14	0.857143	12	5.5
6	Type 5	15	0.8	12	5.5
7	Type 5	12	1	12	5.5
8	Type 5	14	0.857143	12	5.5
9	Type 5	8	1.5	12	5.5
10	Type 5	17	0.705882	12	5.496
11	Type 5	19	0.631579	12	5.498
12	Type 5	15	0.8	12	5.495
13	Type 5	12	1	12	5.494
14	Type 5	19	0.631579	12	5.497
15	Type 5	14	0.857143	12	5.495
16	Type 5	20	0.6	12	5.498
17	Type 5	12	1	12	5.494
18	Type 5	14	0.857143	12	5.495
19	Type 5	12	1	12	5.494
20	Type 5	16	0.75	12	5.504
21	Type 5	12	1	12	5.506
22	Type 5	20	0.6	12	5.502
23	Type 5	14	0.857143	12	5.505
24	Type 5	13	0.923077	12	5.506
25	Type 5	8	1.5	12	5.508
26	Type 5	17	0.705882	12	5.504
27	Type 5	19	0.631579	12	5.502
28	Type 5	12	1	12	5.506
29	Type 5	18	0.666667	12	5.503

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Pulses per Hop	Hopping Rate (KHz)	Hopping Sequence Length (ms)	Visible Frequency Number
0	Type 6	1	333.3	9	0.3333	300	5
1	Type 6	1	333.3	9	0.3333	300	1
2	Type 6	1	333.3	9	0.3333	300	4
3	Type 6	1	333.3	9	0.3333	300	6
4	Type 6	1	333.3	9	0.3333	300	2
5	Type 6	1	333.3	9	0.3333	300	1
6	Type 6	1	333.3	9	0.3333	300	4
7	Type 6	1	333.3	9	0.3333	300	6
8	Type 6	1	333.3	9	0.3333	300	5
9	Type 6	1	333.3	9	0.3333	300	1
10	Type 6	1	333.3	9	0.3333	300	4
11	Type 6	1	333.3	9	0.3333	300	8
12	Type 6	1	333.3	9	0.3333	300	5
13	Type 6	1	333.3	9	0.3333	300	5
14	Type 6	1	333.3	9	0.3333	300	4
15	Type 6	1	333.3	9	0.3333	300	6
16	Type 6	1	333.3	9	0.3333	300	2
17	Type 6	1	333.3	9	0.3333	300	5
18	Type 6	1	333.3	9	0.3333	300	4
19	Type 6	1	333.3	9	0.3333	300	5
20	Type 6	1	333.3	9	0.3333	300	5
21	Type 6	1	333.3	9	0.3333	300	8
22	Type 6	1	333.3	9	0.3333	300	5
23	Type 6	1	333.3	9	0.3333	300	2
24	Type 6	1	333.3	9	0.3333	300	3
25	Type 6	1	333.3	9	0.3333	300	3
26	Type 6	1	333.3	9	0.3333	300	4
27	Type 6	1	333.3	9	0.3333	300	5
28	Type 6	1	333.3	9	0.3333	300	7
29	Type 6	1	333.3	9	0.3333	300	3

802.11ax (40MHz), 5310 MHz

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 1	1	578	92	53176
1	Type 1	1	558	95	53010
2	Type 1	1	718	74	53132
3	Type 1	1	3066	18	55188
4	Type 1	1	598	89	53222
5	Type 1	1	678	78	52884
6	Type 1	1	638	83	52954
7	Type 1	1	658	81	53298
8	Type 1	1	918	58	53244
9	Type 1	1	758	70	53060
10	Type 1	1	778	68	52904
11	Type 1	1	798	67	53466
12	Type 1	1	618	86	53148
13	Type 1	1	838	63	52794
14	Type 1	1	738	72	53136
15	Type 1	1	1593	34	54162
16	Type 1	1	2102	26	54652
17	Type 1	1	3029	18	54522
18	Type 1	1	1572	34	53448
19	Type 1	1	1959	27	52893
20	Type 1	1	1805	30	54150
21	Type 1	1	717	74	53058
22	Type 1	1	1390	38	52820
23	Type 1	1	2285	24	54840
24	Type 1	1	2369	23	54487
25	Type 1	1	1678	32	53696
26	Type 1	1	811	66	53526
27	Type 1	1	802	66	52932
28	Type 1	1	1819	30	54570
29	Type 1	1	2363	23	54349

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 2	1.4	155	23	3565
1	Type 2	2.6	189	25	4725
2	Type 2	1	163	23	3749
3	Type 2	4.5	195	29	5655
4	Type 2	3.8	178	27	4806
5	Type 2	2.8	213	26	5538
6	Type 2	4.3	171	28	4788
7	Type 2	1.9	167	24	4008
8	Type 2	1.2	204	23	4692
9	Type 2	3.4	221	27	5967
10	Type 2	2.9	188	26	4888
11	Type 2	3.7	162	27	4374
12	Type 2	4.3	214	28	5992
13	Type 2	1.8	187	24	4488
14	Type 2	4.3	192	28	5376
15	Type 2	1.8	226	24	5424
16	Type 2	2.7	182	25	4550
17	Type 2	4.1	210	28	5880
18	Type 2	1.8	191	24	4584
19	Type 2	4.1	229	28	6412
20	Type 2	1.4	183	23	4209
21	Type 2	1.9	227	24	5448
22	Type 2	1.1	223	23	5129
23	Type 2	4.1	194	28	5432
24	Type 2	4.5	209	29	6061
25	Type 2	4	203	28	5684
26	Type 2	3.9	179	28	5012
27	Type 2	2.5	169	25	4225
28	Type 2	1.7	150	24	3600
29	Type 2	1.6	186	24	4464

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 3	6.4	275	16	4400
1	Type 3	7.6	327	17	5559
2	Type 3	6	259	16	4144
3	Type 3	9.5	452	18	8136
4	Type 3	8.8	356	18	6408
5	Type 3	7.8	467	17	7939
6	Type 3	9.3	273	18	4914
7	Type 3	6.9	440	16	7040
8	Type 3	6.2	348	16	5568
9	Type 3	8.4	202	17	3434
10	Type 3	7.9	481	17	8177
11	Type 3	8.7	250	18	4500
12	Type 3	9.3	310	18	5580
13	Type 3	6.8	331	16	5296
14	Type 3	9.3	453	18	8154
15	Type 3	6.8	401	16	6416
16	Type 3	7.7	444	17	7548
17	Type 3	9.1	264	18	4752
18	Type 3	6.8	423	16	6768
19	Type 3	9.1	343	18	6174
20	Type 3	6.4	407	16	6512
21	Type 3	6.9	299	16	4784
22	Type 3	6.1	406	16	6496
23	Type 3	9.1	436	18	7848
24	Type 3	9.5	252	18	4536
25	Type 3	9	382	18	6876
26	Type 3	8.9	261	18	4698
27	Type 3	7.5	249	17	4233
28	Type 3	6.7	408	16	6528
29	Type 3	6.6	288	16	4608

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 4	12	275	12	3300
1	Type 4	14.6	327	13	4251
2	Type 4	11	259	12	3108
3	Type 4	18.9	452	16	7232
4	Type 4	17.3	356	15	5340
5	Type 4	15.1	467	14	6538
6	Type 4	18.4	273	16	4368
7	Type 4	13	440	13	5720
8	Type 4	11.5	348	12	4176
9	Type 4	16.3	202	14	2828
10	Type 4	15.4	481	14	6734
11	Type 4	17.1	250	15	3750
12	Type 4	18.3	310	16	4960
13	Type 4	12.8	331	13	4303
14	Type 4	18.3	453	16	7248
15	Type 4	12.9	401	13	5213
16	Type 4	14.8	444	14	6216
17	Type 4	18	264	15	3960
18	Type 4	12.9	423	13	5499
19	Type 4	18	343	15	5145
20	Type 4	11.9	407	12	4884
21	Type 4	13.1	299	13	3887
22	Type 4	11.3	406	12	4872
23	Type 4	18	436	15	6540
24	Type 4	18.8	252	16	4032
25	Type 4	17.8	382	15	5730
26	Type 4	17.6	261	15	3915
27	Type 4	14.4	249	13	3237
28	Type 4	12.6	408	12	4896
29	Type 4	12.4	288	12	3456

Trinl Id	Radar Type	Number of Bursts	Burst Period(s)	Waveform Length(s)	Center Frequency (GHz)
0	Type 5	9	1.3333333	12	5.31
1	Type 5	13	0.9230769	12	5.31
2	Type 5	8	1.5	12	5.31
3	Type 5	19	0.6315789	12	5.31
4	Type 5	17	0.7058824	12	5.31
5	Type 5	13	0.9230769	12	5.31
6	Type 5	18	0.6666667	12	5.31
7	Type 5	10	1.2	12	5.31
8	Type 5	8	1.5	12	5.31
9	Type 5	15	0.8	12	5.31
10	Type 5	14	0.8571429	12	5.296
11	Type 5	16	0.75	12	5.297
12	Type 5	18	0.6666667	12	5.298
13	Type 5	10	1.2	12	5.294
14	Type 5	18	0.6666667	12	5.298
15	Type 5	10	1.2	12	5.294
16	Type 5	13	0.9230769	12	5.295
17	Type 5	18	0.6666667	12	5.298
18	Type 5	10	1.2	12	5.294
19	Type 5	18	0.6666667	12	5.298
20	Type 5	9	1.3333333	12	5.327
21	Type 5	11	1.0909091	12	5.326
22	Type 5	8	1.5	12	5.327
23	Type 5	18	0.6666667	12	5.322
24	Type 5	19	0.6315789	12	5.322
25	Type 5	17	0.7058824	12	5.323
26	Type 5	17	0.7058824	12	5.323
27	Type 5	12	1	12	5.325
28	Type 5	10	1.2	12	5.326
29	Type 5	10	1.2	12	5.326

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Pulses per Hop	Hopping Rate (KHz)	Hopping Sequence Length (ms)	Visible Frequency Number
0	Type 6	1	333.3	9	0.3333	300	7
1	Type 6	1	333.3	9	0.3333	300	10
2	Type 6	1	333.3	9	0.3333	300	9
3	Type 6	1	333.3	9	0.3333	300	11
4	Type 6	1	333.3	9	0.3333	300	10
5	Type 6	1	333.3	9	0.3333	300	4
6	Type 6	1	333.3	9	0.3333	300	5
7	Type 6	1	333.3	9	0.3333	300	8
8	Type 6	1	333.3	9	0.3333	300	8
9	Type 6	1	333.3	9	0.3333	300	9
10	Type 6	1	333.3	9	0.3333	300	8
11	Type 6	1	333.3	9	0.3333	300	4
12	Type 6	1	333.3	9	0.3333	300	4
13	Type 6	1	333.3	9	0.3333	300	6
14	Type 6	1	333.3	9	0.3333	300	5
15	Type 6	1	333.3	9	0.3333	300	11
16	Type 6	1	333.3	9	0.3333	300	4
17	Type 6	1	333.3	9	0.3333	300	6
18	Type 6	1	333.3	9	0.3333	300	10
19	Type 6	1	333.3	9	0.3333	300	9
20	Type 6	1	333.3	9	0.3333	300	6
21	Type 6	1	333.3	9	0.3333	300	13
22	Type 6	1	333.3	9	0.3333	300	7
23	Type 6	1	333.3	9	0.3333	300	6
24	Type 6	1	333.3	9	0.3333	300	7
25	Type 6	1	333.3	9	0.3333	300	6
26	Type 6	1	333.3	9	0.3333	300	8
27	Type 6	1	333.3	9	0.3333	300	7
28	Type 6	1	333.3	9	0.3333	300	6
29	Type 6	1	333.3	9	0.3333	300	8

802.11ax (40MHz), 5510 MHz

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 1	1	578	92	53176
1	Type 1	1	558	95	53010
2	Type 1	1	718	74	53132
3	Type 1	1	3066	18	55188
4	Type 1	1	598	89	53222
5	Type 1	1	678	78	52884
6	Type 1	1	638	83	52954
7	Type 1	1	658	81	53298
8	Type 1	1	918	58	53244
9	Type 1	1	758	70	53060
10	Type 1	1	778	68	52904
11	Type 1	1	798	67	53466
12	Type 1	1	618	86	53148
13	Type 1	1	838	63	52794
14	Type 1	1	738	72	53136
15	Type 1	1	1593	34	54162
16	Type 1	1	2102	26	54652
17	Type 1	1	3029	18	54522
18	Type 1	1	1572	34	53448
19	Type 1	1	1959	27	52893
20	Type 1	1	1805	30	54150
21	Type 1	1	717	74	53058
22	Type 1	1	1390	38	52820
23	Type 1	1	2285	24	54840
24	Type 1	1	2369	23	54487
25	Type 1	1	1678	32	53696
26	Type 1	1	811	66	53526
27	Type 1	1	802	66	52932
28	Type 1	1	1819	30	54570
29	Type 1	1	2363	23	54349

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 2	1.4	155	23	3565
1	Type 2	2.6	189	25	4725
2	Type 2	1	163	23	3749
3	Type 2	4.5	195	29	5655
4	Type 2	3.8	178	27	4806
5	Type 2	2.8	213	26	5538
6	Type 2	4.3	171	28	4788
7	Type 2	1.9	167	24	4008
8	Type 2	1.2	204	23	4692
9	Type 2	3.4	221	27	5967
10	Type 2	2.9	188	26	4888
11	Type 2	3.7	162	27	4374
12	Type 2	4.3	214	28	5992
13	Type 2	1.8	187	24	4488
14	Type 2	4.3	192	28	5376
15	Type 2	1.8	226	24	5424
16	Type 2	2.7	182	25	4550
17	Type 2	4.1	210	28	5880
18	Type 2	1.8	191	24	4584
19	Type 2	4.1	229	28	6412
20	Type 2	1.4	183	23	4209
21	Type 2	1.9	227	24	5448
22	Type 2	1.1	223	23	5129
23	Type 2	4.1	194	28	5432
24	Type 2	4.5	209	29	6061
25	Type 2	4	203	28	5684
26	Type 2	3.9	179	28	5012
27	Type 2	2.5	169	25	4225
28	Type 2	1.7	150	24	3600
29	Type 2	1.6	186	24	4464

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 3	6.4	275	16	4400
1	Type 3	7.6	327	17	5559
2	Type 3	6	259	16	4144
3	Type 3	9.5	452	18	8136
4	Type 3	8.8	356	18	6408
5	Type 3	7.8	467	17	7939
6	Type 3	9.3	273	18	4914
7	Type 3	6.9	440	16	7040
8	Type 3	6.2	348	16	5568
9	Type 3	8.4	202	17	3434
10	Type 3	7.9	481	17	8177
11	Type 3	8.7	250	18	4500
12	Type 3	9.3	310	18	5580
13	Type 3	6.8	331	16	5296
14	Type 3	9.3	453	18	8154
15	Type 3	6.8	401	16	6416
16	Type 3	7.7	444	17	7548
17	Type 3	9.1	264	18	4752
18	Type 3	6.8	423	16	6768
19	Type 3	9.1	343	18	6174
20	Type 3	6.4	407	16	6512
21	Type 3	6.9	299	16	4784
22	Type 3	6.1	406	16	6496
23	Type 3	9.1	436	18	7848
24	Type 3	9.5	252	18	4536
25	Type 3	9	382	18	6876
26	Type 3	8.9	261	18	4698
27	Type 3	7.5	249	17	4233
28	Type 3	6.7	408	16	6528
29	Type 3	6.6	288	16	4608

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 4	12	275	12	3300
1	Type 4	14.6	327	13	4251
2	Type 4	11	259	12	3108
3	Type 4	18.9	452	16	7232
4	Type 4	17.3	356	15	5340
5	Type 4	15.1	467	14	6538
6	Type 4	18.4	273	16	4368
7	Type 4	13	440	13	5720
8	Type 4	11.5	348	12	4176
9	Type 4	16.3	202	14	2828
10	Type 4	15.4	481	14	6734
11	Type 4	17.1	250	15	3750
12	Type 4	18.3	310	16	4960
13	Type 4	12.8	331	13	4303
14	Type 4	18.3	453	16	7248
15	Type 4	12.9	401	13	5213
16	Type 4	14.8	444	14	6216
17	Type 4	18	264	15	3960
18	Type 4	12.9	423	13	5499
19	Type 4	18	343	15	5145
20	Type 4	11.9	407	12	4884
21	Type 4	13.1	299	13	3887
22	Type 4	11.3	406	12	4872
23	Type 4	18	436	15	6540
24	Type 4	18.8	252	16	4032
25	Type 4	17.8	382	15	5730
26	Type 4	17.6	261	15	3915
27	Type 4	14.4	249	13	3237
28	Type 4	12.6	408	12	4896
29	Type 4	12.4	288	12	3456

Trinl Id	Radar Type	Number of Bursts	Burst Period(s)	Waveform Length(s)	Center Frequency (GHz)
0	Type 5	9	1.3333333	12	5.51
1	Type 5	13	0.9230769	12	5.51
2	Type 5	8	1.5	12	5.51
3	Type 5	19	0.6315789	12	5.51
4	Type 5	17	0.7058824	12	5.51
5	Type 5	13	0.9230769	12	5.51
6	Type 5	18	0.6666667	12	5.51
7	Type 5	10	1.2	12	5.51
8	Type 5	8	1.5	12	5.51
9	Type 5	15	0.8	12	5.51
10	Type 5	14	0.8571429	12	5.496
11	Type 5	16	0.75	12	5.497
12	Type 5	18	0.6666667	12	5.498
13	Type 5	10	1.2	12	5.494
14	Type 5	18	0.6666667	12	5.498
15	Type 5	10	1.2	12	5.494
16	Type 5	13	0.9230769	12	5.495
17	Type 5	18	0.6666667	12	5.498
18	Type 5	10	1.2	12	5.494
19	Type 5	18	0.6666667	12	5.498
20	Type 5	9	1.3333333	12	5.527
21	Type 5	11	1.0909091	12	5.526
22	Type 5	8	1.5	12	5.527
23	Type 5	18	0.6666667	12	5.522
24	Type 5	19	0.6315789	12	5.522
25	Type 5	17	0.7058824	12	5.523
26	Type 5	17	0.7058824	12	5.523
27	Type 5	12	1	12	5.525
28	Type 5	10	1.2	12	5.526
29	Type 5	10	1.2	12	5.526

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Pulses per Hop	Hopping Rate (KHz)	Hopping Sequence Length (ms)	Visible Frequency Number
0	Type 6	1	333.3	9	0.3333	300	4
1	Type 6	1	333.3	9	0.3333	300	6
2	Type 6	1	333.3	9	0.3333	300	13
3	Type 6	1	333.3	9	0.3333	300	9
4	Type 6	1	333.3	9	0.3333	300	7
5	Type 6	1	333.3	9	0.3333	300	4
6	Type 6	1	333.3	9	0.3333	300	12
7	Type 6	1	333.3	9	0.3333	300	7
8	Type 6	1	333.3	9	0.3333	300	8
9	Type 6	1	333.3	9	0.3333	300	11
10	Type 6	1	333.3	9	0.3333	300	9
11	Type 6	1	333.3	9	0.3333	300	6
12	Type 6	1	333.3	9	0.3333	300	9
13	Type 6	1	333.3	9	0.3333	300	9
14	Type 6	1	333.3	9	0.3333	300	13
15	Type 6	1	333.3	9	0.3333	300	10
16	Type 6	1	333.3	9	0.3333	300	12
17	Type 6	1	333.3	9	0.3333	300	5
18	Type 6	1	333.3	9	0.3333	300	4
19	Type 6	1	333.3	9	0.3333	300	8
20	Type 6	1	333.3	9	0.3333	300	8
21	Type 6	1	333.3	9	0.3333	300	6
22	Type 6	1	333.3	9	0.3333	300	5
23	Type 6	1	333.3	9	0.3333	300	8
24	Type 6	1	333.3	9	0.3333	300	10
25	Type 6	1	333.3	9	0.3333	300	10
26	Type 6	1	333.3	9	0.3333	300	9
27	Type 6	1	333.3	9	0.3333	300	3
28	Type 6	1	333.3	9	0.3333	300	7
29	Type 6	1	333.3	9	0.3333	300	7

802.11ax (80MHz), 5290 MHz

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 1	1	938	57	53466
1	Type 1	1	698	76	53048
2	Type 1	1	618	86	53148
3	Type 1	1	538	99	53262
4	Type 1	1	878	61	53558
5	Type 1	1	3066	18	55188
6	Type 1	1	638	83	52954
7	Type 1	1	918	58	53244
8	Type 1	1	838	63	52794
9	Type 1	1	858	62	53196
10	Type 1	1	798	67	53466
11	Type 1	1	718	74	53132
12	Type 1	1	578	92	53176
13	Type 1	1	598	89	53222
14	Type 1	1	558	95	53010
15	Type 1	1	2536	21	53256
16	Type 1	1	966	55	53130
17	Type 1	1	827	64	52928
18	Type 1	1	2501	22	55022
19	Type 1	1	2595	21	54495
20	Type 1	1	1114	48	53472
21	Type 1	1	1302	41	53382
22	Type 1	1	3045	18	54810
23	Type 1	1	1624	33	53592
24	Type 1	1	2878	19	54682
25	Type 1	1	1027	52	53404
26	Type 1	1	2485	22	54670
27	Type 1	1	1600	33	52800
28	Type 1	1	1172	46	53912
29	Type 1	1	1177	45	52965

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 2	3.2	179	26	4654
1	Type 2	1.1	207	23	4761
2	Type 2	2.1	230	24	5520
3	Type 2	4.8	200	29	5800
4	Type 2	3.9	214	28	5992
5	Type 2	2.9	222	26	5772
6	Type 2	3.2	204	26	5304
7	Type 2	2.5	192	25	4800
8	Type 2	3.1	164	26	4264
9	Type 2	1.2	156	23	3588
10	Type 2	3.9	210	27	5670
11	Type 2	4.6	201	29	5829
12	Type 2	3.2	162	26	4212
13	Type 2	2.2	197	25	4925
14	Type 2	4.5	163	29	4727
15	Type 2	3	203	26	5278
16	Type 2	5	168	29	4872
17	Type 2	2.4	217	25	5425
18	Type 2	2.9	191	26	4966
19	Type 2	2.3	166	25	4150
20	Type 2	3.7	150	27	4050
21	Type 2	2.2	176	25	4400
22	Type 2	4.9	195	29	5655
23	Type 2	2.9	202	26	5252
24	Type 2	2.5	178	25	4450
25	Type 2	1.1	206	23	4738
26	Type 2	3.8	155	27	4185
27	Type 2	4.7	157	29	4553
28	Type 2	2.4	224	25	5600
29	Type 2	4.2	159	28	4452

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 3	8.2	355	17	6035
1	Type 3	6.1	487	16	7792
2	Type 3	7.1	344	16	5504
3	Type 3	9.8	288	18	5184
4	Type 3	8.9	230	18	4140
5	Type 3	7.9	432	17	7344
6	Type 3	8.2	207	17	3519
7	Type 3	7.5	443	17	7531
8	Type 3	8.1	439	17	7463
9	Type 3	6.2	223	16	3568
10	Type 3	8.9	208	18	3744
11	Type 3	9.6	463	18	8334
12	Type 3	8.2	441	17	7497
13	Type 3	7.2	323	16	5168
14	Type 3	9.5	297	18	5346
15	Type 3	8	412	17	7004
16	Type 3	10	324	18	5832
17	Type 3	7.4	271	17	4607
18	Type 3	7.9	349	17	5933
19	Type 3	7.3	409	16	6544
20	Type 3	8.7	373	18	6714
21	Type 3	7.2	254	16	4064
22	Type 3	9.9	274	18	4932
23	Type 3	7.9	278	17	4726
24	Type 3	7.5	317	17	5389
25	Type 3	6.1	260	16	4160
26	Type 3	8.8	211	18	3798
27	Type 3	9.7	272	18	4896
28	Type 3	7.4	264	17	4488
29	Type 3	9.2	284	18	5112

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 4	16	355	14	4970
1	Type 4	11.3	487	12	5844
2	Type 4	13.5	344	13	4472
3	Type 4	19.4	288	16	4608
4	Type 4	17.5	230	15	3450
5	Type 4	15.3	432	14	6048
6	Type 4	15.9	207	14	2898
7	Type 4	14.3	443	13	5759
8	Type 4	15.8	439	14	6146
9	Type 4	11.5	223	12	2676
10	Type 4	17.4	208	15	3120
11	Type 4	19	463	16	7408
12	Type 4	16	441	14	6174
13	Type 4	13.8	323	13	4199
14	Type 4	18.9	297	16	4752
15	Type 4	15.5	412	14	5768
16	Type 4	19.9	324	16	5184
17	Type 4	14.1	271	13	3523
18	Type 4	15.2	349	14	4886
19	Type 4	13.8	409	13	5317
20	Type 4	17.1	373	15	5595
21	Type 4	13.8	254	13	3302
22	Type 4	19.8	274	16	4384
23	Type 4	15.3	278	14	3892
24	Type 4	14.5	317	13	4121
25	Type 4	11.3	260	12	3120
26	Type 4	17.3	211	15	3165
27	Type 4	19.2	272	16	4352
28	Type 4	14.2	264	13	3432
29	Type 4	18.2	284	15	4260

Trinl Id	Radar Type	Number of Bursts	Burst Period(s)	Waveform Length(s)	Center Frequency (GHz)
0	Type 5	15	0.8	12	5.29
1	Type 5	8	1.5	12	5.29
2	Type 5	11	1.090909	12	5.29
3	Type 5	20	0.6	12	5.29
4	Type 5	17	0.705882	12	5.29
5	Type 5	14	0.857143	12	5.29
6	Type 5	15	0.8	12	5.29
7	Type 5	12	1	12	5.29
8	Type 5	14	0.857143	12	5.29
9	Type 5	8	1.5	12	5.29
10	Type 5	17	0.705882	12	5.258
11	Type 5	19	0.631579	12	5.259
12	Type 5	15	0.8	12	5.257
13	Type 5	12	1	12	5.256
14	Type 5	19	0.631579	12	5.259
15	Type 5	14	0.857143	12	5.256
16	Type 5	20	0.6	12	5.26
17	Type 5	12	1	12	5.256
18	Type 5	14	0.857143	12	5.256
19	Type 5	12	1	12	5.256
20	Type 5	16	0.75	12	5.322
21	Type 5	12	1	12	5.325
22	Type 5	20	0.6	12	5.32
23	Type 5	14	0.857143	12	5.324
24	Type 5	13	0.923077	12	5.324
25	Type 5	8	1.5	12	5.326
26	Type 5	17	0.705882	12	5.322
27	Type 5	19	0.631579	12	5.321
28	Type 5	12	1	12	5.324
29	Type 5	18	0.666667	12	5.322

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Pulses per Hop	Hopping Rate (KHz)	Hopping Sequence Length (ms)	Visible Frequency Number
0	Type 6	1	333.3	9	0.3333	300	19
1	Type 6	1	333.3	9	0.3333	300	12
2	Type 6	1	333.3	9	0.3333	300	17
3	Type 6	1	333.3	9	0.3333	300	14
4	Type 6	1	333.3	9	0.3333	300	16
5	Type 6	1	333.3	9	0.3333	300	18
6	Type 6	1	333.3	9	0.3333	300	17
7	Type 6	1	333.3	9	0.3333	300	22
8	Type 6	1	333.3	9	0.3333	300	19
9	Type 6	1	333.3	9	0.3333	300	16
10	Type 6	1	333.3	9	0.3333	300	15
11	Type 6	1	333.3	9	0.3333	300	13
12	Type 6	1	333.3	9	0.3333	300	13
13	Type 6	1	333.3	9	0.3333	300	17
14	Type 6	1	333.3	9	0.3333	300	16
15	Type 6	1	333.3	9	0.3333	300	19
16	Type 6	1	333.3	9	0.3333	300	15
17	Type 6	1	333.3	9	0.3333	300	18
18	Type 6	1	333.3	9	0.3333	300	21
19	Type 6	1	333.3	9	0.3333	300	21
20	Type 6	1	333.3	9	0.3333	300	14
21	Type 6	1	333.3	9	0.3333	300	15
22	Type 6	1	333.3	9	0.3333	300	10
23	Type 6	1	333.3	9	0.3333	300	14
24	Type 6	1	333.3	9	0.3333	300	14
25	Type 6	1	333.3	9	0.3333	300	14
26	Type 6	1	333.3	9	0.3333	300	15
27	Type 6	1	333.3	9	0.3333	300	16
28	Type 6	1	333.3	9	0.3333	300	19
29	Type 6	1	333.3	9	0.3333	300	15

802.11ax (160MHz), 5570 MHz

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 1	1	938	57	53466
1	Type 1	1	698	76	53048
2	Type 1	1	618	86	53148
3	Type 1	1	538	99	53262
4	Type 1	1	878	61	53558
5	Type 1	1	3066	18	55188
6	Type 1	1	638	83	52954
7	Type 1	1	918	58	53244
8	Type 1	1	838	63	52794
9	Type 1	1	858	62	53196
10	Type 1	1	798	67	53466
11	Type 1	1	718	74	53132
12	Type 1	1	578	92	53176
13	Type 1	1	598	89	53222
14	Type 1	1	558	95	53010
15	Type 1	1	2536	21	53256
16	Type 1	1	966	55	53130
17	Type 1	1	827	64	52928
18	Type 1	1	2501	22	55022
19	Type 1	1	2595	21	54495
20	Type 1	1	1114	48	53472
21	Type 1	1	1302	41	53382
22	Type 1	1	3045	18	54810
23	Type 1	1	1624	33	53592
24	Type 1	1	2878	19	54682
25	Type 1	1	1027	52	53404
26	Type 1	1	2485	22	54670
27	Type 1	1	1600	33	52800
28	Type 1	1	1172	46	53912
29	Type 1	1	1177	45	52965

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 2	3.2	179	26	4654
1	Type 2	1.1	207	23	4761
2	Type 2	2.1	230	24	5520
3	Type 2	4.8	200	29	5800
4	Type 2	3.9	214	28	5992
5	Type 2	2.9	222	26	5772
6	Type 2	3.2	204	26	5304
7	Type 2	2.5	192	25	4800
8	Type 2	3.1	164	26	4264
9	Type 2	1.2	156	23	3588
10	Type 2	3.9	210	27	5670
11	Type 2	4.6	201	29	5829
12	Type 2	3.2	162	26	4212
13	Type 2	2.2	197	25	4925
14	Type 2	4.5	163	29	4727
15	Type 2	3	203	26	5278
16	Type 2	5	168	29	4872
17	Type 2	2.4	217	25	5425
18	Type 2	2.9	191	26	4966
19	Type 2	2.3	166	25	4150
20	Type 2	3.7	150	27	4050
21	Type 2	2.2	176	25	4400
22	Type 2	4.9	195	29	5655
23	Type 2	2.9	202	26	5252
24	Type 2	2.5	178	25	4450
25	Type 2	1.1	206	23	4738
26	Type 2	3.8	155	27	4185
27	Type 2	4.7	157	29	4553
28	Type 2	2.4	224	25	5600
29	Type 2	4.2	159	28	4452

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 3	8.2	355	17	6035
1	Type 3	6.1	487	16	7792
2	Type 3	7.1	344	16	5504
3	Type 3	9.8	288	18	5184
4	Type 3	8.9	230	18	4140
5	Type 3	7.9	432	17	7344
6	Type 3	8.2	207	17	3519
7	Type 3	7.5	443	17	7531
8	Type 3	8.1	439	17	7463
9	Type 3	6.2	223	16	3568
10	Type 3	8.9	208	18	3744
11	Type 3	9.6	463	18	8334
12	Type 3	8.2	441	17	7497
13	Type 3	7.2	323	16	5168
14	Type 3	9.5	297	18	5346
15	Type 3	8	412	17	7004
16	Type 3	10	324	18	5832
17	Type 3	7.4	271	17	4607
18	Type 3	7.9	349	17	5933
19	Type 3	7.3	409	16	6544
20	Type 3	8.7	373	18	6714
21	Type 3	7.2	254	16	4064
22	Type 3	9.9	274	18	4932
23	Type 3	7.9	278	17	4726
24	Type 3	7.5	317	17	5389
25	Type 3	6.1	260	16	4160
26	Type 3	8.8	211	18	3798
27	Type 3	9.7	272	18	4896
28	Type 3	7.4	264	17	4488
29	Type 3	9.2	284	18	5112

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 4	16	355	14	4970
1	Type 4	11.3	487	12	5844
2	Type 4	13.5	344	13	4472
3	Type 4	19.4	288	16	4608
4	Type 4	17.5	230	15	3450
5	Type 4	15.3	432	14	6048
6	Type 4	15.9	207	14	2898
7	Type 4	14.3	443	13	5759
8	Type 4	15.8	439	14	6146
9	Type 4	11.5	223	12	2676
10	Type 4	17.4	208	15	3120
11	Type 4	19	463	16	7408
12	Type 4	16	441	14	6174
13	Type 4	13.8	323	13	4199
14	Type 4	18.9	297	16	4752
15	Type 4	15.5	412	14	5768
16	Type 4	19.9	324	16	5184
17	Type 4	14.1	271	13	3523
18	Type 4	15.2	349	14	4886
19	Type 4	13.8	409	13	5317
20	Type 4	17.1	373	15	5595
21	Type 4	13.8	254	13	3302
22	Type 4	19.8	274	16	4384
23	Type 4	15.3	278	14	3892
24	Type 4	14.5	317	13	4121
25	Type 4	11.3	260	12	3120
26	Type 4	17.3	211	15	3165
27	Type 4	19.2	272	16	4352
28	Type 4	14.2	264	13	3432
29	Type 4	18.2	284	15	4260

Trinl Id	Radar Type	Number of Bursts	Burst Period(s)	Waveform Length(s)	Center Frequency (GHz)
0	Type 5	15	0.8	12	5.57
1	Type 5	8	1.5	12	5.57
2	Type 5	11	1.090909	12	5.57
3	Type 5	20	0.6	12	5.57
4	Type 5	17	0.705882	12	5.57
5	Type 5	14	0.857143	12	5.57
6	Type 5	15	0.8	12	5.57
7	Type 5	12	1	12	5.57
8	Type 5	14	0.857143	12	5.57
9	Type 5	8	1.5	12	5.57
10	Type 5	17	0.705882	12	5.499
11	Type 5	19	0.631579	12	5.5
12	Type 5	15	0.8	12	5.498
13	Type 5	12	1	12	5.496
14	Type 5	19	0.631579	12	5.5
15	Type 5	14	0.857143	12	5.497
16	Type 5	20	0.6	12	5.5
17	Type 5	12	1	12	5.496
18	Type 5	14	0.857143	12	5.497
19	Type 5	12	1	12	5.496
20	Type 5	16	0.75	12	5.642
21	Type 5	12	1	12	5.644
22	Type 5	20	0.6	12	5.64
23	Type 5	14	0.857143	12	5.643
24	Type 5	13	0.923077	12	5.643
25	Type 5	8	1.5	12	5.646
26	Type 5	17	0.705882	12	5.641
27	Type 5	19	0.631579	12	5.64
28	Type 5	12	1	12	5.644
29	Type 5	18	0.666667	12	5.641

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Pulses per Hop	Hopping Rate (KHz)	Hopping Sequence Length (ms)	Visible Frequency Number
0	Type 6	1	333.3	9	0.3333	300	30
1	Type 6	1	333.3	9	0.3333	300	35
2	Type 6	1	333.3	9	0.3333	300	31
3	Type 6	1	333.3	9	0.3333	300	32
4	Type 6	1	333.3	9	0.3333	300	26
5	Type 6	1	333.3	9	0.3333	300	37
6	Type 6	1	333.3	9	0.3333	300	32
7	Type 6	1	333.3	9	0.3333	300	36
8	Type 6	1	333.3	9	0.3333	300	27
9	Type 6	1	333.3	9	0.3333	300	37
10	Type 6	1	333.3	9	0.3333	300	33
11	Type 6	1	333.3	9	0.3333	300	43
12	Type 6	1	333.3	9	0.3333	300	33
13	Type 6	1	333.3	9	0.3333	300	27
14	Type 6	1	333.3	9	0.3333	300	35
15	Type 6	1	333.3	9	0.3333	300	41
16	Type 6	1	333.3	9	0.3333	300	32
17	Type 6	1	333.3	9	0.3333	300	29
18	Type 6	1	333.3	9	0.3333	300	36
19	Type 6	1	333.3	9	0.3333	300	34
20	Type 6	1	333.3	9	0.3333	300	37
21	Type 6	1	333.3	9	0.3333	300	32
22	Type 6	1	333.3	9	0.3333	300	45
23	Type 6	1	333.3	9	0.3333	300	26
24	Type 6	1	333.3	9	0.3333	300	32
25	Type 6	1	333.3	9	0.3333	300	35
26	Type 6	1	333.3	9	0.3333	300	34
27	Type 6	1	333.3	9	0.3333	300	41
28	Type 6	1	333.3	9	0.3333	300	30
29	Type 6	1	333.3	9	0.3333	300	30