Dynamic Frequency Selection (DFS)

Test Report

Product Name	:	Mesh Wi-Fi Router
Trade Name	:	CastleNet
Model No.	:	EBM552U, EBM552
FCC ID.	:	RK9-EBM552

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

Date of Receipt	:	Dec. 29, 2020
Issued Date	:	Mar. 10, 2021
Report No.	:	20C1060R-E3032610103
Report Version	:	V1.0

DFS Test Report

Issued Date: Mar. 10, 2021
Report No.: 20C1060R-E3032610103

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.
Address	:	No. 14, Ln. 141, Sec. 3, Beishen Rd. Shenkeng Dist., New Taipei City, 22244 Taiwan
Model No.	:	EBM552U, EBM552
Trade Name	:	CastleNet
FCC ID.	:	RK9-EBM552
EUT Voltage	:	AC 100-240V, 50/60Hz
Testing Voltage	:	AC 120V/60Hz
Applicable Standard	:	FCC CFR Title 47 Part 15 Subpart E Section 15.407: 2019 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 : Carol Tsai

(Carol Tsai / Senior Engineering Adm. Specialist)

Tested By : Clemens Fang

(Clemens Fang / Senior Engineer)

Approved By : Louis Hsu

(Louis Hsu / Deputy Manager)

Revision History

Version	Description	Issued Date
V1.0t	Initial issue of report	Mar. 10, 2021

TABLE OF CONTENTS

1. General Information

1.1. EUT Description

Product Name	Mesh Wi-Fi Router	
Trade Name	CastleNet	
Model No.	EBM552U, EBM552	
DFS Frequency Range / Number of DFS Channels	IEEE 802.11a/n/ac/ax (20MHz)	5260~5320MHz / 4 Channels 5500~5700MHz / 11 Channels
	IEEE 802.11n/ac/ax (40MHz)	5270~5310MHz / 2 Channels 5510~5670MHz / 5 Channels
	IEEE 802.11ac/ax (80MHz)	5290~5290MHz / 1 Channel 5530~5610MHz / 2 Channel
Data Speed	IEEE 802.11a	6, 9, 18, 24, 36, 48, 54Mbps
	IEEE 802.11n	Support a subset of the combination of GI, MCS 0~MCS 15 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	
Type of Modulation	IEEE 802.11a/n/ac/ax	Orthogonal Frequency Division Multiplexing
Channel Bandwidth	20/40/80 MHz	
DFS Function	■ Master □ Slave	
TPC Function	□ <500mW not required ■ ≧ 500mW employ a TPC*	
Communication Mode	■ IP Based Systems □ Frame Based System □ Other System	
Antenna Gain	Refer to the table “Antenna List”	

Antenna List

Ant. No.	Brand	Model No.	Antenna Type	Ant. Gain
0	Taiwan Anjie	AJDP1J-B0086	Dipole Antenna	2.4GHz: 4.52 dBi 5GHz: 4.62 dBi
1	Taiwan Anjie	AJDP1J-W0056	Dipole Antenna	2.4GHz: 2.87 dBi 5GHz: 5.43 dBi

Accessories Information	
LAN Cable	Non-Shielded, 1m
Power Adapter (For M/N: EBM552U)	MOSO, MSA-C1500CS12.0-18G-US I/P: 100-240V~50/60Hz 0.6A max. O/P: 12.0V ⎓ 1.5A Cable Out: Non-Shielded, 1.5m
Power Adapter (For M/N: EBM552)	MOSO, MS-V1000R120-012H0-US I/P: 100-240V~50/60Hz 0.3A max. O/P: 12.0V ⎓ 1.0A Cable Out: Non-Shielded, 1.5m

Channel List

IEEE 802.11a & IEEE 802.11n/ac/ax (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/ac/ax (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/ax (80MHz)

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

Test Mode	Mode 1: Transmit

Note:

1. This device including 2.4GHz b/g/n/ac/ax and 5GHz a/n/ac/ax transmitting and receiving functions.
2. The different of the each model is shown as below:

Model Number	USB Port	Power Adapter
EBM552U	With	MOSO, MSA-C1500CS12.0-18G-US
EBM552	Without	MOSO, MS-V1000R120-012H0-US

3. Regards to the frequency band operation; the lowest, middle and highest frequency of channel were selected to perform the test, and then shown on this report.
4. The EUT description is from the customer declaration.

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 30.94dBm (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 Equipment

DFS / SR10-H

Instrument	Manufacturer	Model No.	Serial No.	Cal. Date	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	US47140172	2020/06/18	2021/06/17
ESG Vector Signal Generator	Agilent	E4438C	MY45095759	2020/05/11	2021/05/10
MXG Vector Signal Generator	Keysight	N5182B	MY53052548	2020/02/24	2021/02/23
Horn Antenna	Schwarzbeck	BBHA 9120D	639	2020/06/04	2021/06/03
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	2020/06/03	2021/06/02
Signal & Spectrum Analyzer	R&S	FSV40	101049	2020/03/30	2021/03/29

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	--

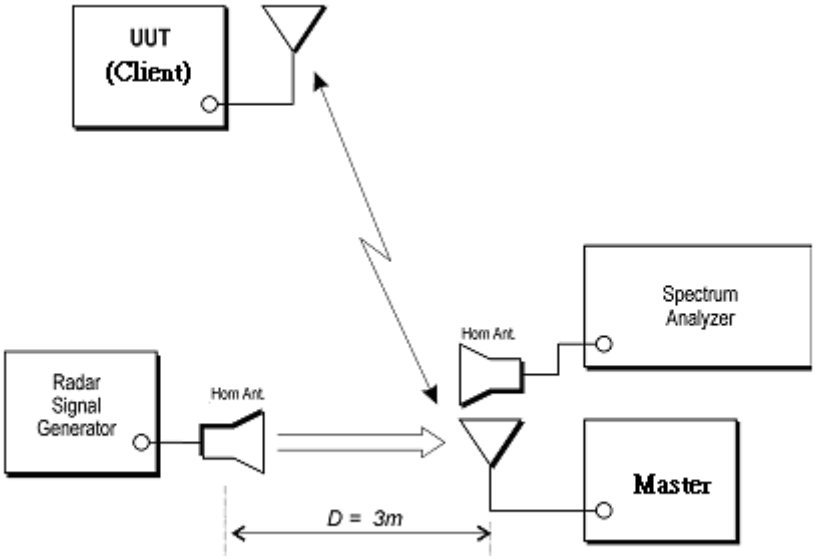
Software	Manufacturer	Function
Agilent Signal Studio for DFS_V1.0.0	Agilent	Radar Signal Generation Software
5.02L.07p1_001	CastleNet	DFS test firmware

1.5. Uncertainty

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.

1.6. Test Setup



1.7. 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. **Note3:** 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.

1.8. 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.

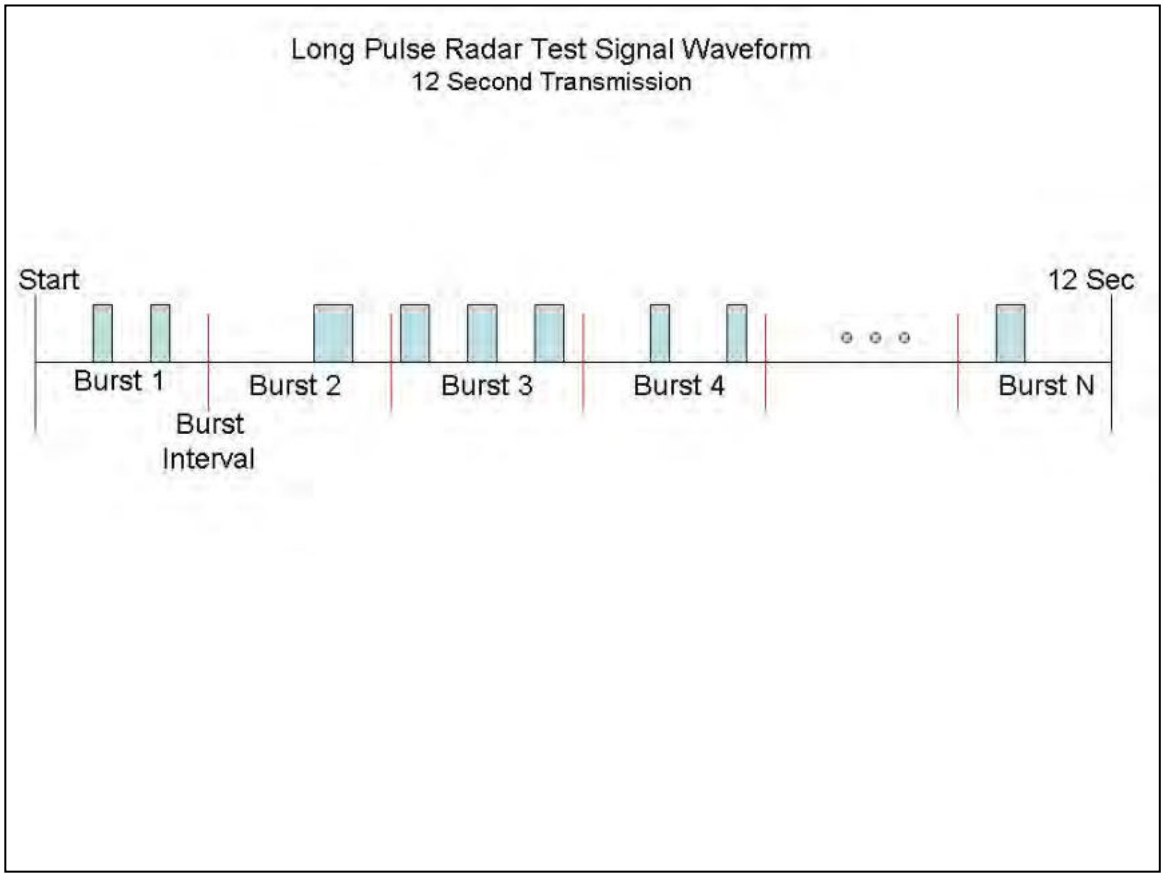
Each waveform is defined as follows:

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 (μsec)	PRI (μsec)	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:

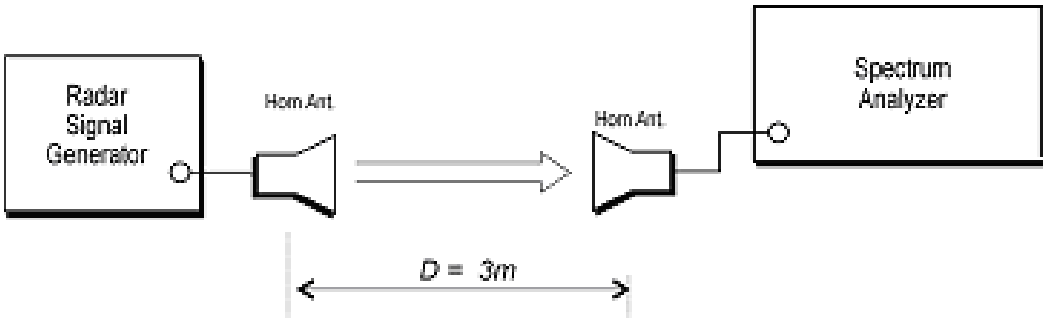
The first frequency in a hopping sequence is selected randomly from the group of 475 integer frequencies from 5250 – 5724 MHz. Next, the frequency that was just chosen is removed from the group and a frequency is randomly selected from the remaining 474 frequencies in the group. This process continues 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.

1.9. 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

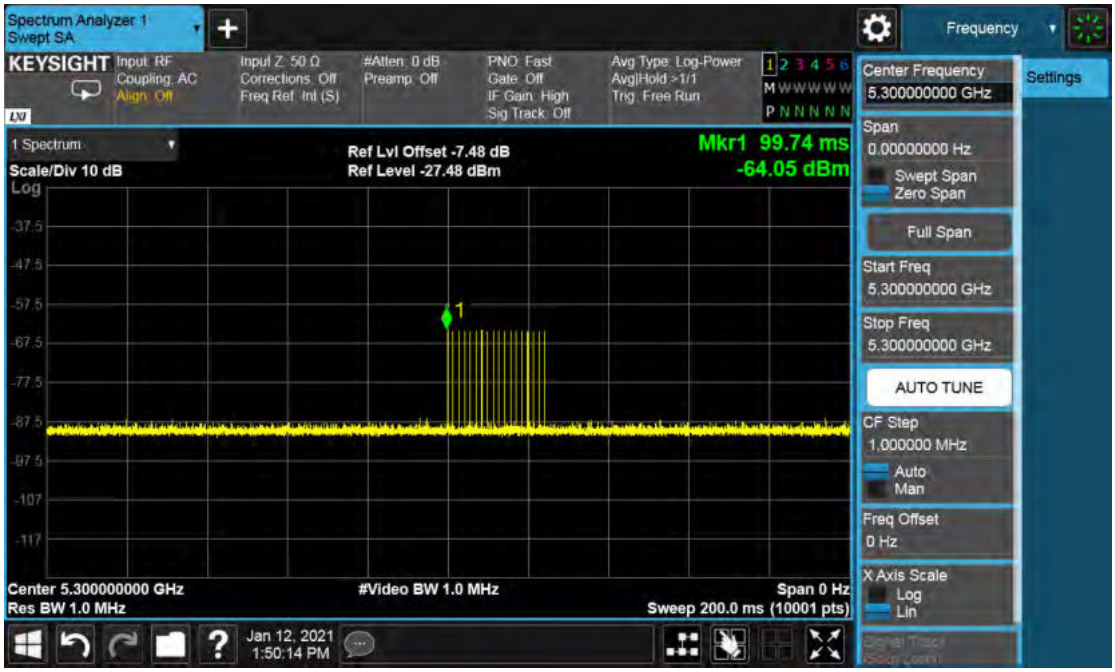


1.10. Radar Waveform Calibration Result

Product	Mesh Wi-Fi Router		
Test Item	Radar Waveform Calibration		
Test Mode	Mode 1: Transmit		
Date of Test	2021/01/12	Test Site	SR10-H
Temperature (°C)	17.5	Humidity (%RH)	47

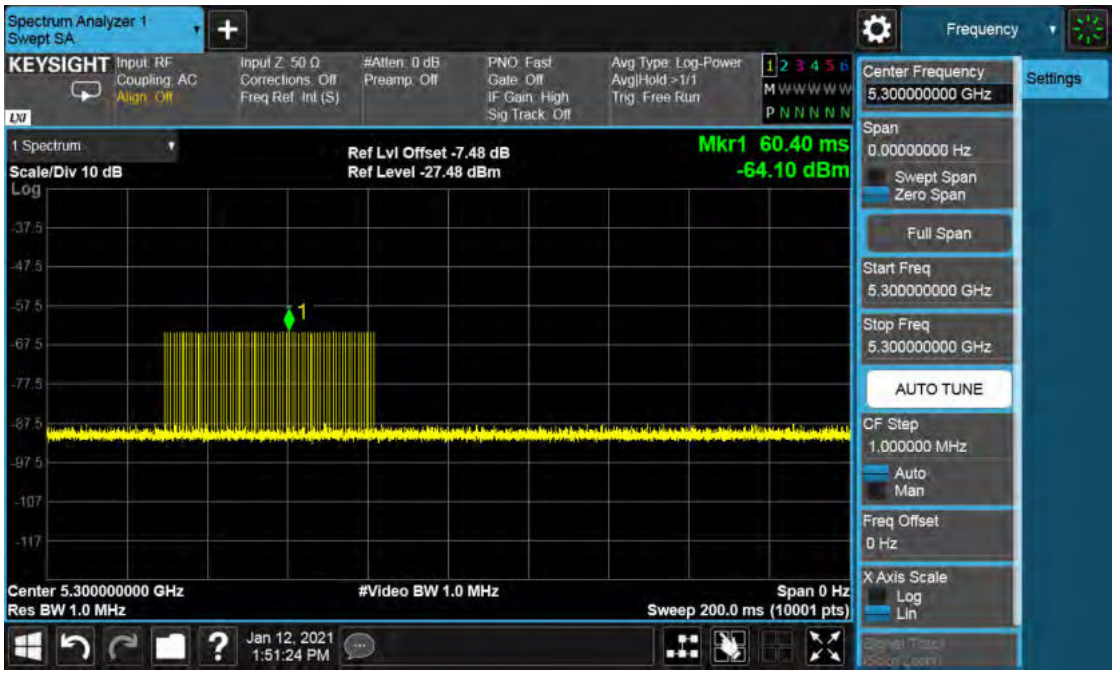
Radar Type 0

Calibration Plot (IEEE 802.11ax_20M_5300MHz)



Radar Type 1

Calibration Plot (IEEE 802.11ax_20M_5300MHz)

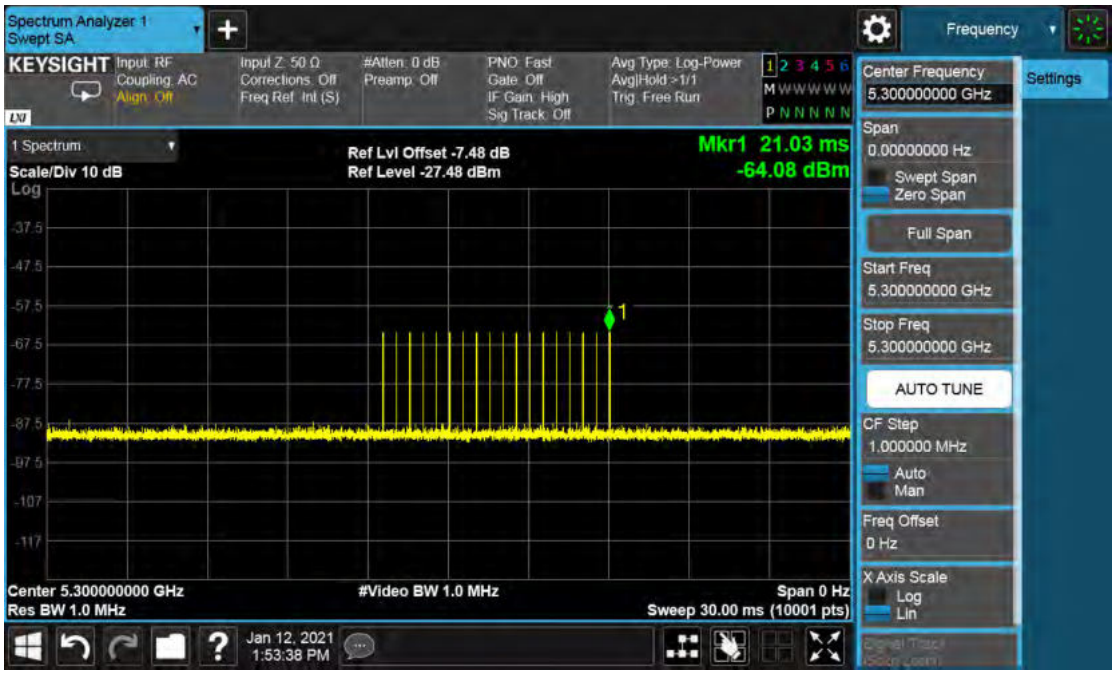


Radar Type 2

Calibration Plot (IEEE 802.11ax_20M_5300MHz)

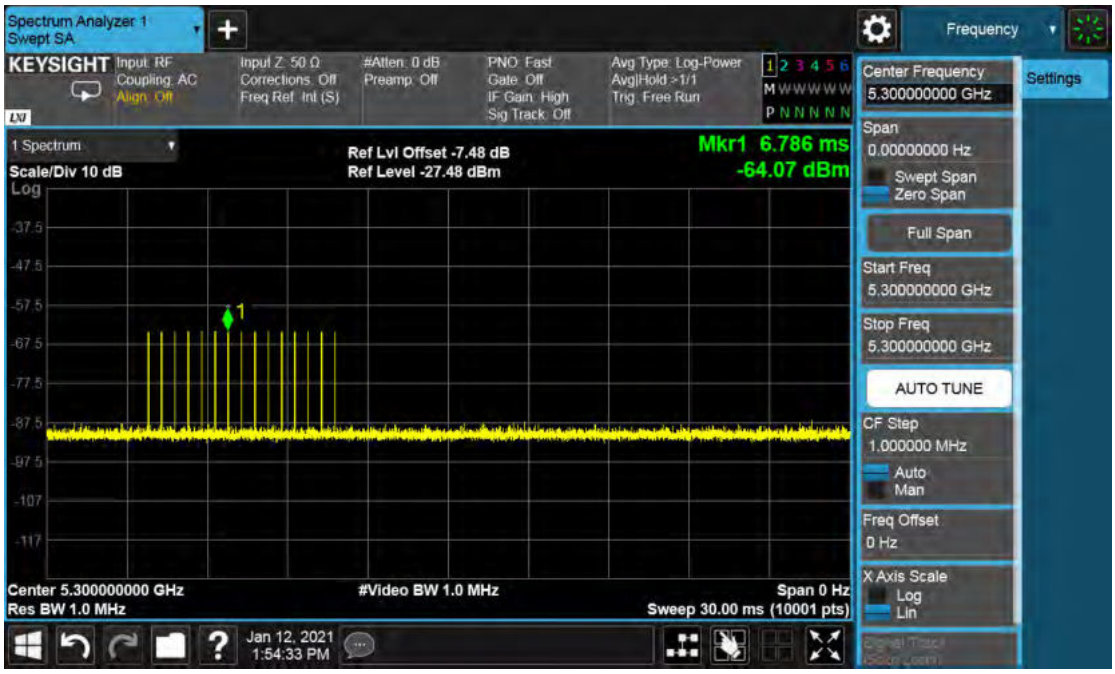
Radar Type 3

Calibration Plot (IEEE 802.11ax_20M_5300MHz)



Radar Type 4

Calibration Plot (IEEE 802.11ax_20M_5300MHz)

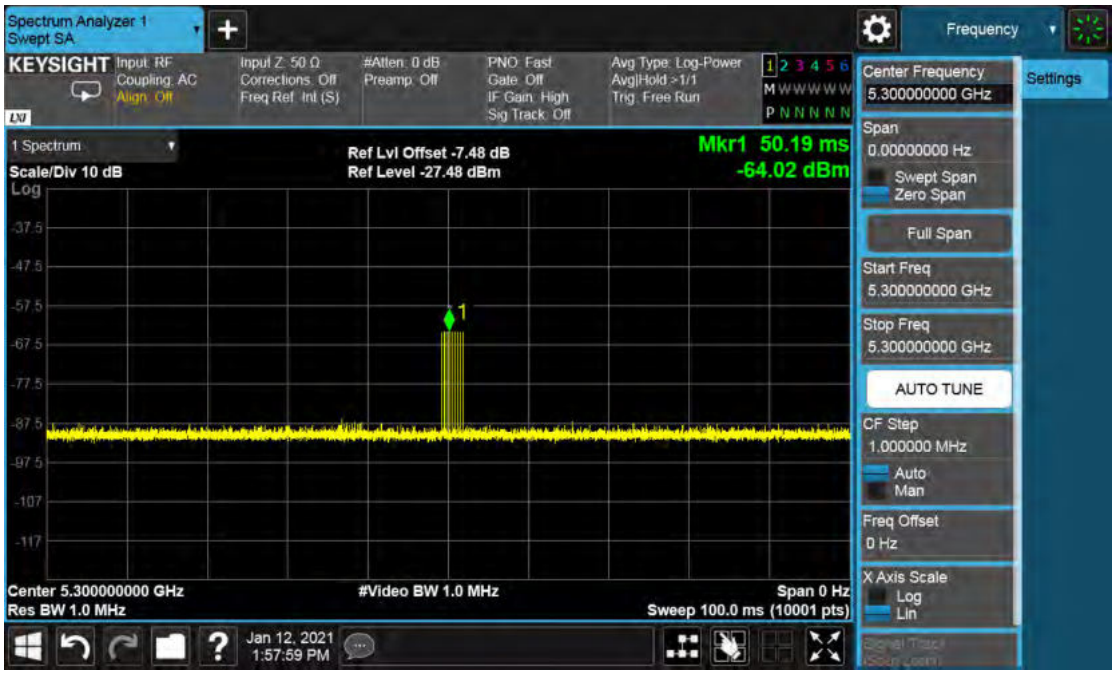


Radar Type 5

Calibration Plot (IEEE 802.11ax_20M_5300MHz)

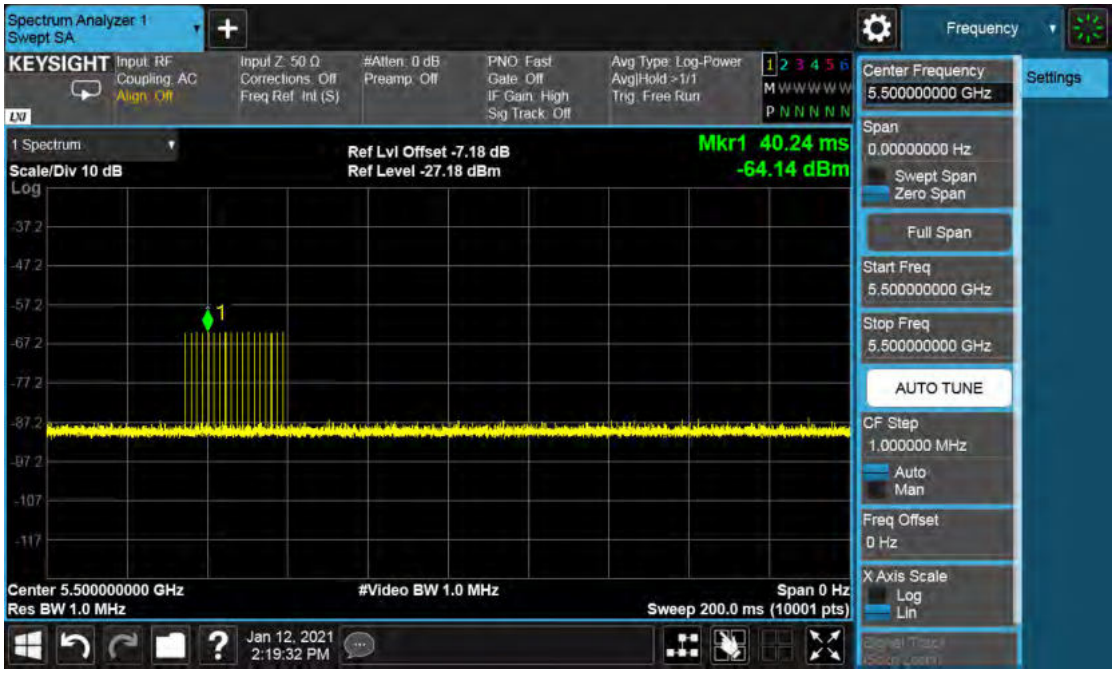
Radar Type 6

Calibration Plot (IEEE 802.11ax_20M_5300MHz)



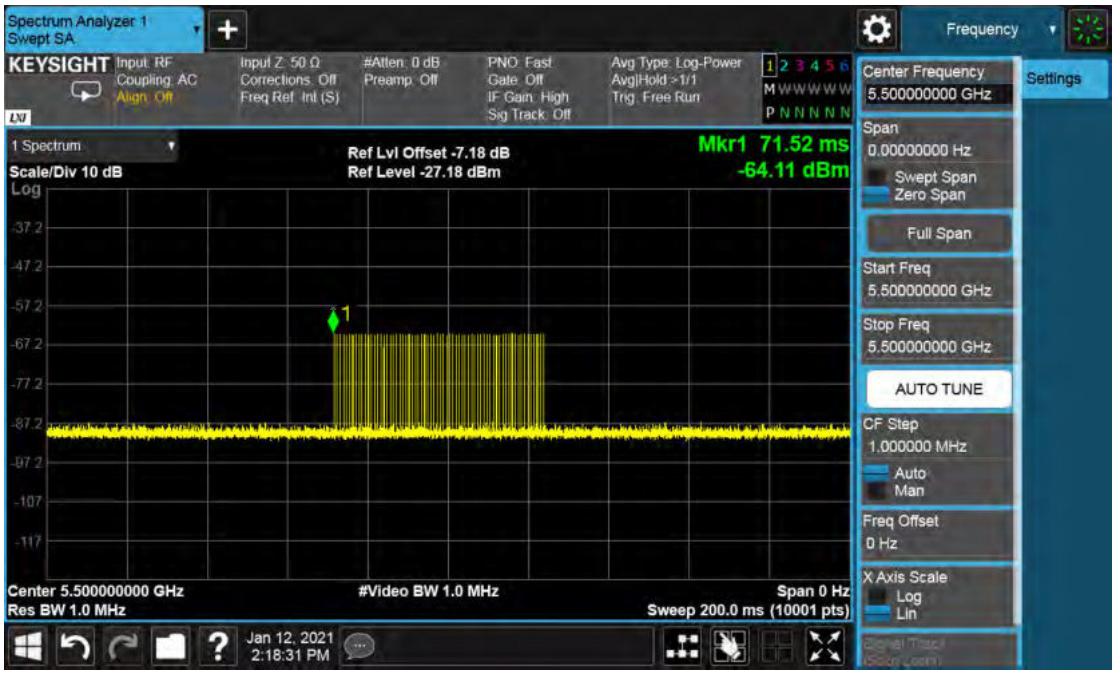
Radar Type 0

Calibration Plot (IEEE 802.11ax_20M_5500MHz)



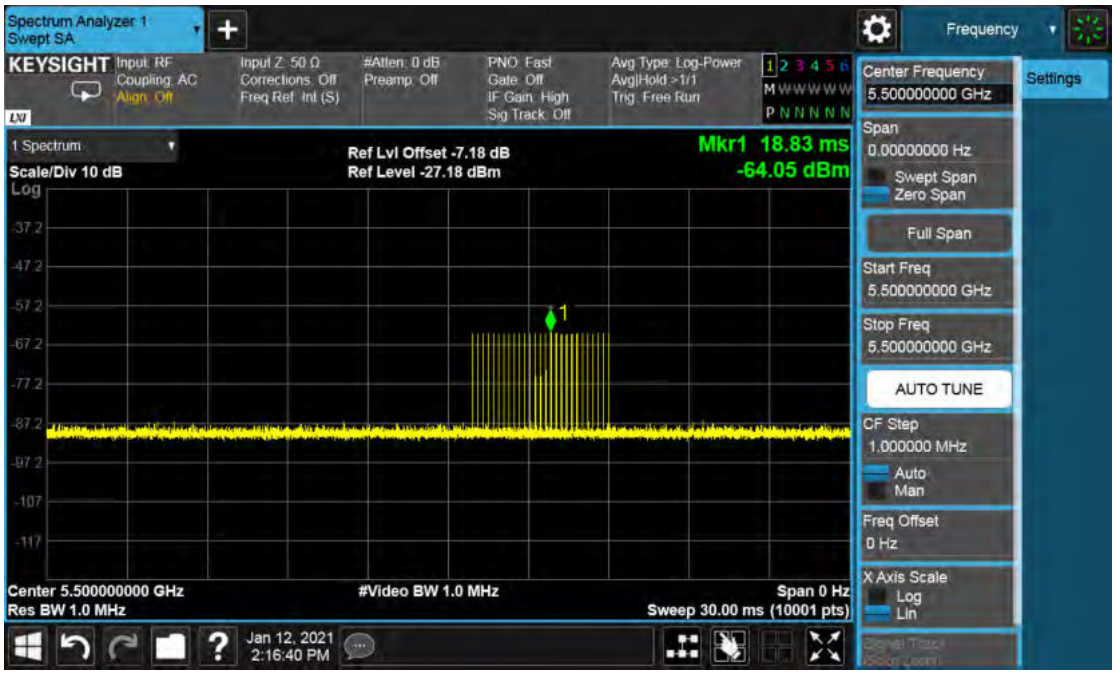
Radar Type 1

Calibration Plot (IEEE 802.11ax_20M_5500MHz)



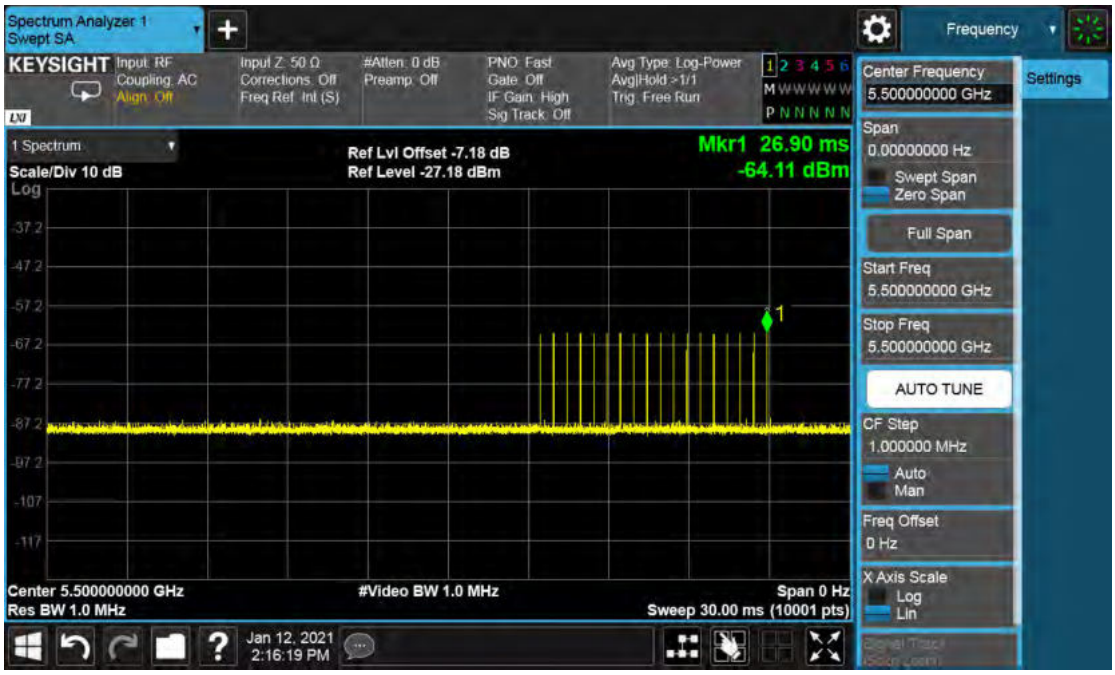
Radar Type 2

Calibration Plot (IEEE 802.11ax_20M_5500MHz)



Radar Type 3

Calibration Plot (IEEE 802.11ax_20M_5500MHz)



Radar Type 4

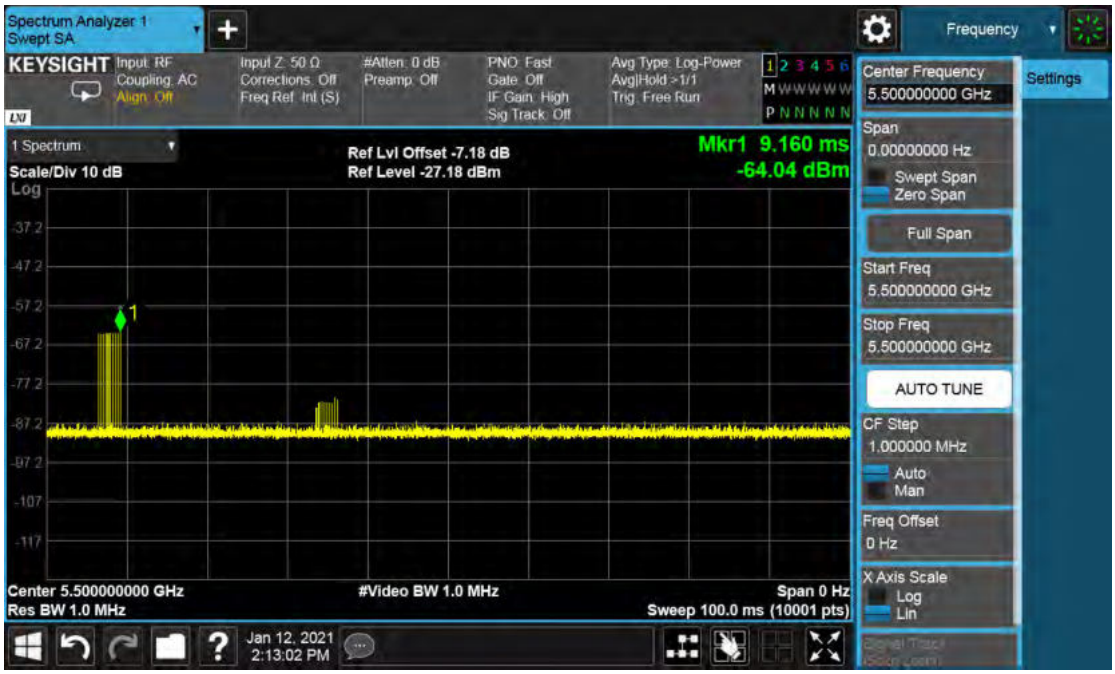
Calibration Plot (IEEE 802.11ax_20M_5500MHz)

Radar Type 5

Calibration Plot (IEEE 802.11ax_20M_5500MHz)

Radar Type 6

Calibration Plot (IEEE 802.11ax_20M_5500MHz)

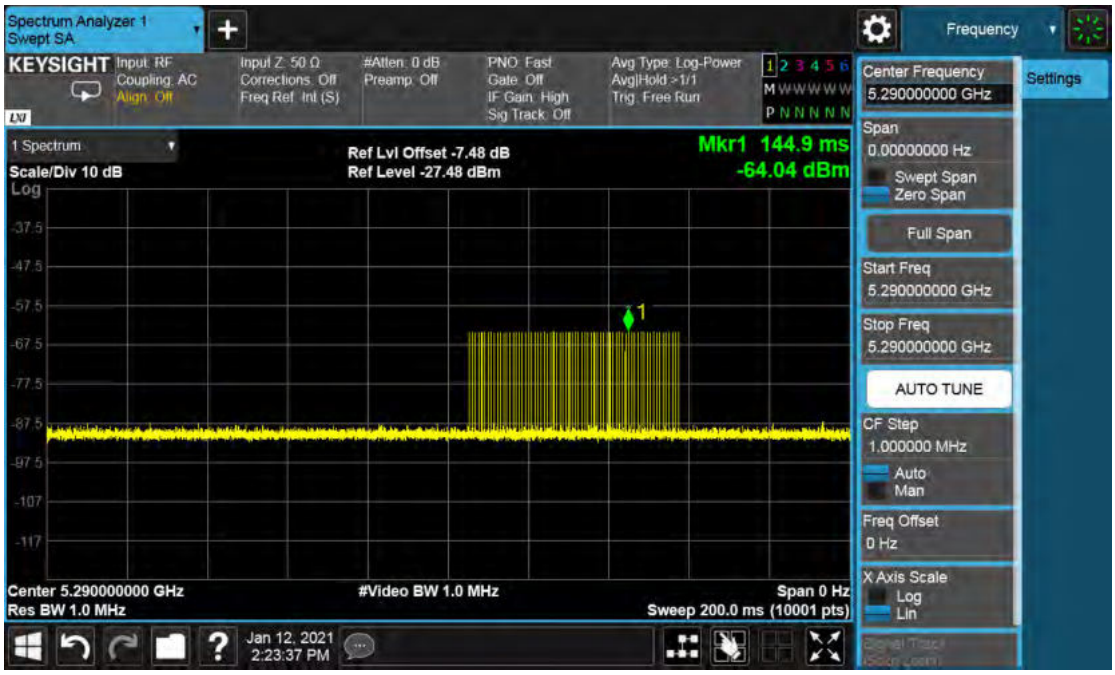


Radar Type 0

Calibration Plot (IEEE 802.11ax_80M_5290MHz)

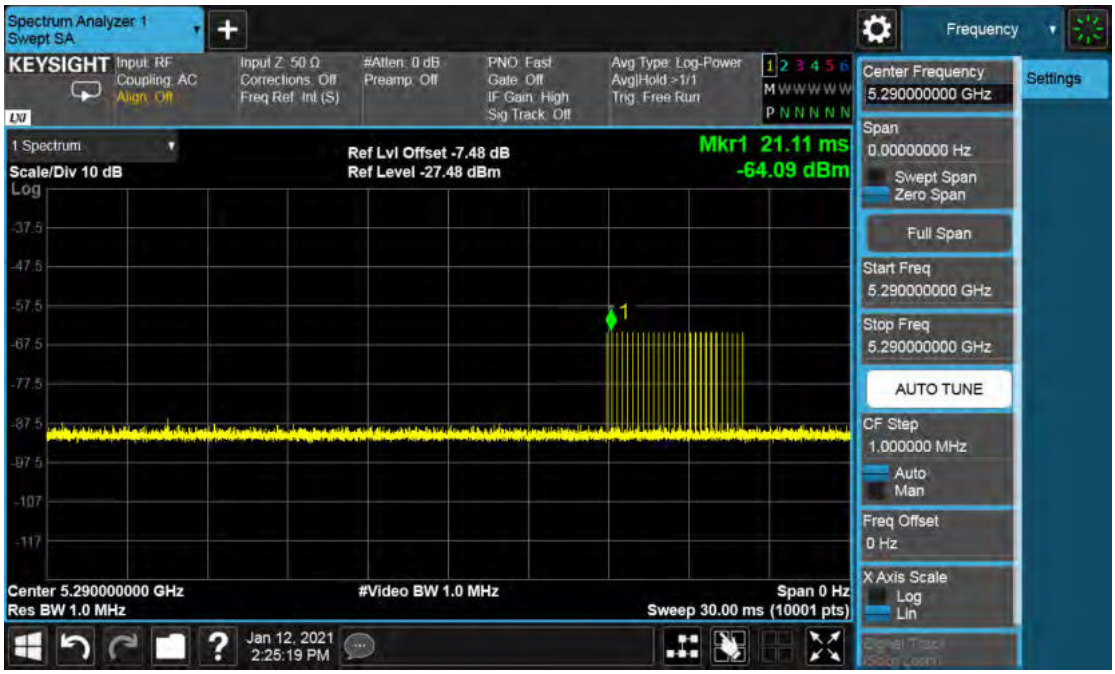
Radar Type 1

Calibration Plot (IEEE 802.11ax_80M_5290MHz)



Radar Type 2

Calibration Plot (IEEE 802.11ax_80M_5290MHz)



Radar Type 3

Calibration Plot (IEEE 802.11ax_80M_5290MHz)

Radar Type 4

Calibration Plot (IEEE 802.11ax_80M_5290MHz)

Radar Type 5

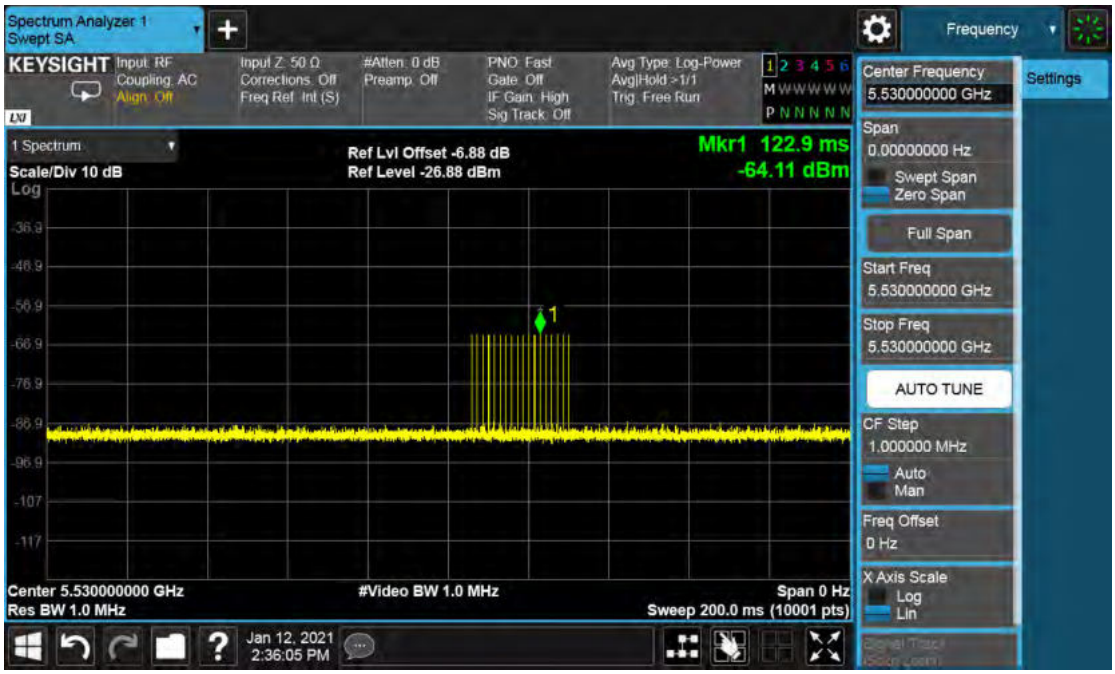
Calibration Plot (IEEE 802.11ax_80M_5290MHz)

Radar Type 6

Calibration Plot (IEEE 802.11ax_80M_5290MHz)

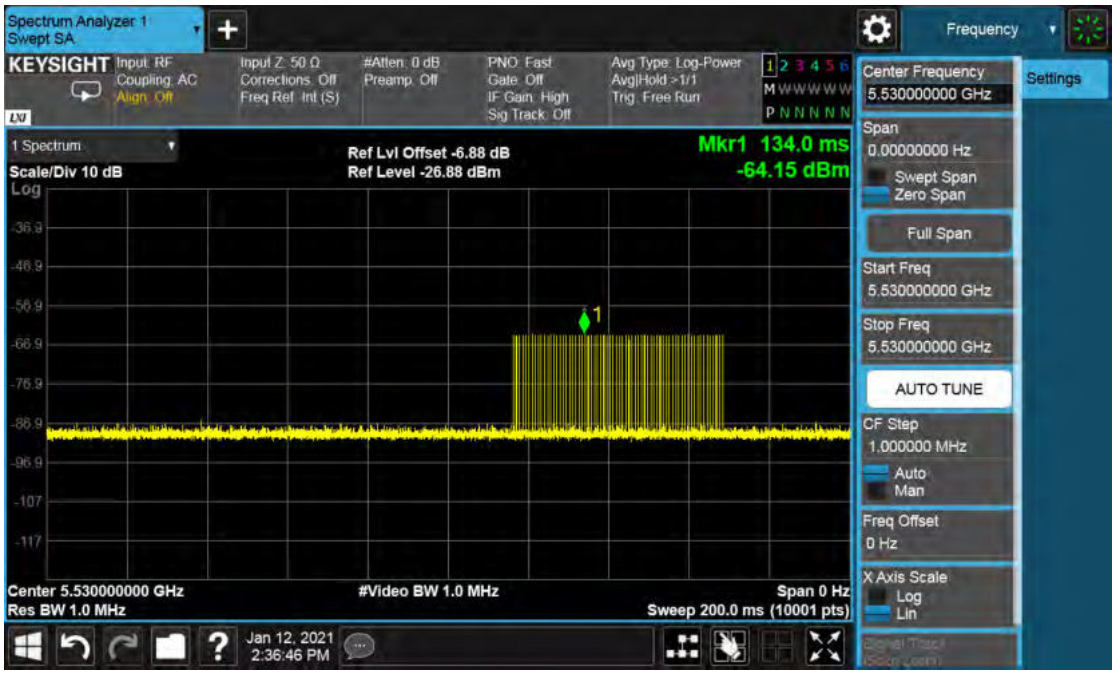
Radar Type 0

Calibration Plot (IEEE 802.11ax_80M_5530MHz)



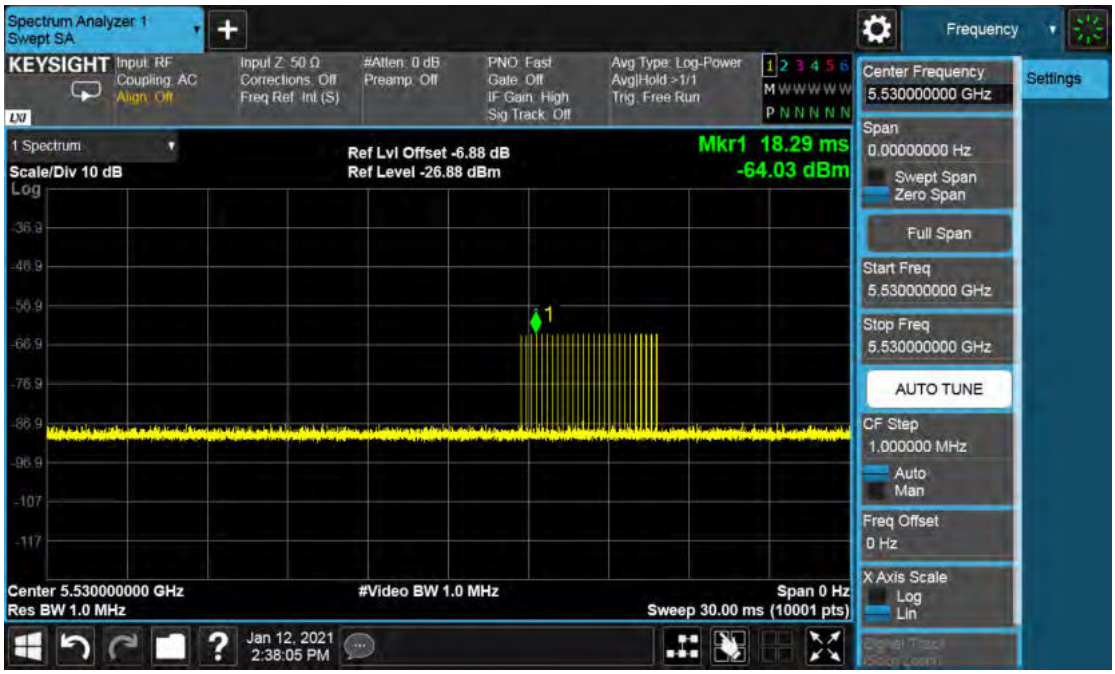
Radar Type 1

Calibration Plot (IEEE 802.11ax_80M_5530MHz)



Radar Type 2

Calibration Plot (IEEE 802.11ax_80M_5530MHz)



Radar Type 3

Calibration Plot (IEEE 802.11ax_80M_5530MHz)

Radar Type 4

Calibration Plot (IEEE 802.11ax_80M_5530MHz)

Radar Type 5

Calibration Plot (IEEE 802.11ax_80M_5530MHz)

Radar Type 6

Calibration Plot (IEEE 802.11ax_80M_5530MHz)

1.11. Master Data Traffic Plot Result

Product	Mesh Wi-Fi Router		
Test Item	Master Data Traffic Plot		
Test Mode	Mode 1: Transmit		
Date of Test	2021/01/12	Test Site	SR10-H
Temperature (°C)	17.5	Humidity (%RH)	47

Plot of WLAN Traffic at IEEE 802.11ax_20M_5300MHz

Channel loading	Requirement loading
18.1875%	>17%

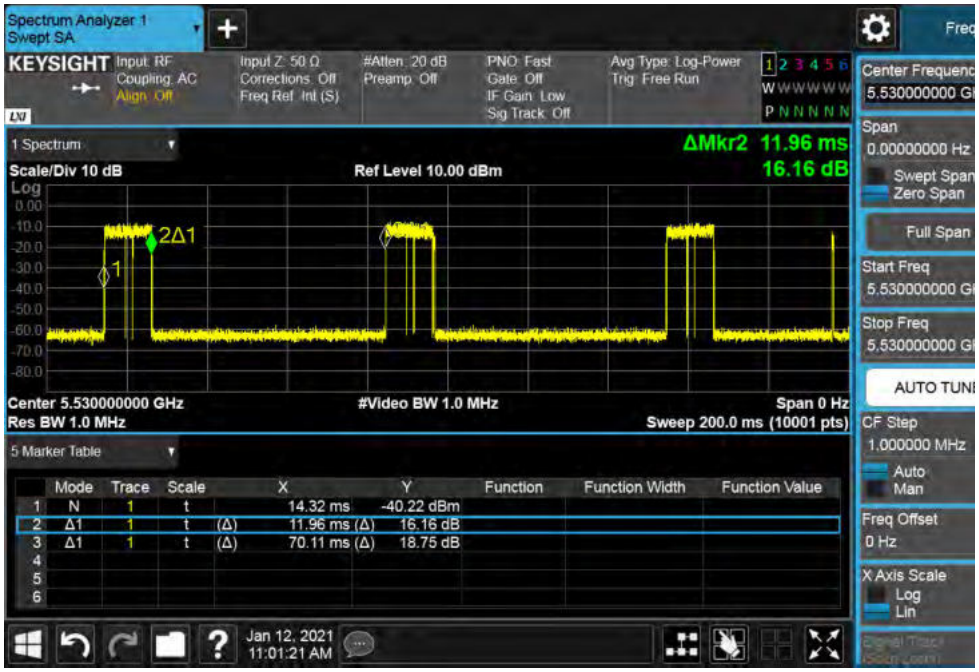
Plot of WLAN Traffic at IEEE 802.11ax_20M_5500MHz

Channel loading	Requirement loading
17.25539%	>17%

Plot of WLAN Traffic at IEEE 802.11ax_80M_5290MHz

Channel loading	Requirement loading
17.0540425%	>17%

Plot of WLAN Traffic at IEEE 802.11ax_80M_5530MHz



Channel loading	Requirement loading
17.05891%	>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. A single *Burst* of the short pulse radar type 0 is produced at 5300MHz and 5510 at a -63dBm level. The EUT is set up as a standalone device (no associated Client and no traffic).

A single radar Burst is generated for a minimum of 10 trials, and the response of the EUT is noted.

The EUT must detect the Radar Waveform 90% or more of the time. 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 Fh.

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 Fl.

The U-NII Detection Bandwidth is calculated as follows:

U-NII Detection Bandwidth = $F_H - F_L$

The U-NII Detection Bandwidth must be at least 100% of the EUT transmitter 99% power, otherwise, the EUT does not comply with DFS requirements.

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

Product	Mesh Wi-Fi Router		
Test Item	UNII Detection Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2021/01/12	Test Site	SR10-H
Temperature (°C)	17.5	Humidity (%RH)	47

IEEE 802.11ax_20M_5300MHz											
		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	v	v	v	v	v	v	v	v	v	v
	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
FH	5310	v	v	v	v	v	v	v	v	v	v

Detection Bandwidth = FH - FL = 20MHz

EUT 99% Bandwidth = 19.174MHz

UNII Detection Bandwidth Min. Limit = MHz * 100% = 19.174MHz

IEEE 802.11ax_20M_5500MHz											
		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	v	v	v	v	v	v	v	v	v	v
	5497	v	v	v	v	v	v	v	v	v	v
	5498	v	v	v	v	v	v	v	v	v	v
	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 = 19.185MHz

UNII Detection Bandwidth Min. Limit = MHz * 100% = 19.185MHz

IEEE 802.11ax_80M_5290MHz											
		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	v	v	v
	5266	v	v	v	v	v	v	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	v	v	v	v
	5274	v	v	v	v	v	v	v	v	v	v
	5275	v	v	v	v	v	v	v	v	v	v
	5276	v	v	v	v	v	v	v	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

IEEE 802.11ax_80M_5290MHz											
		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	v	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	v	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	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	v	v	v	v	v	v	v	v	v	v
	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

IEEE 802.11ax_80M_5290MHz											
		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	v	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	v	v	v	v	v	v	v	v	v
	5324	v	v	v	v	v	v	v	v	v	v
	5325	v	v	v	v	v	v	v	v	v	v
	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 = 80MHz

EUT 99% Bandwidth = 77.124MHz

UNII Detection Bandwidth Min. Limit = MHz * 100% = 77.124MHz

IEEE 802.11ax_80M_5530MHz											
		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	v	v	v	v	v	v	v	v	v	v
	5497	v	v	v	v	v	v	v	v	v	v
	5498	v	v	v	v	v	v	v	v	v	v
	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
	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

IEEE 802.11ax_80M_5530MHz											
		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	v	v	v	v	v	v	v	v	v
	5545	v	v	v	v	v	v	v	v	v	v
	5546	v	v	v	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

IEEE 802.11ax_80M_5530MHz											
		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	v	v	v	v	v	v	v	v	v	v
	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	v	v	v	v	v	v	v	v	v	v
	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	v	v	v	v	v	v	v	v	v
	5569	v	v	v	v	v	v	v	v	v	v
FH	5570	v	v	v	v	v	v	v	v	v	v

Detection Bandwidth = FH - FL = 80MHz

EUT 99% Bandwidth = 77.153MHz

UNII Detection Bandwidth Min. Limit = MHz * 100% = 77.153MHz

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

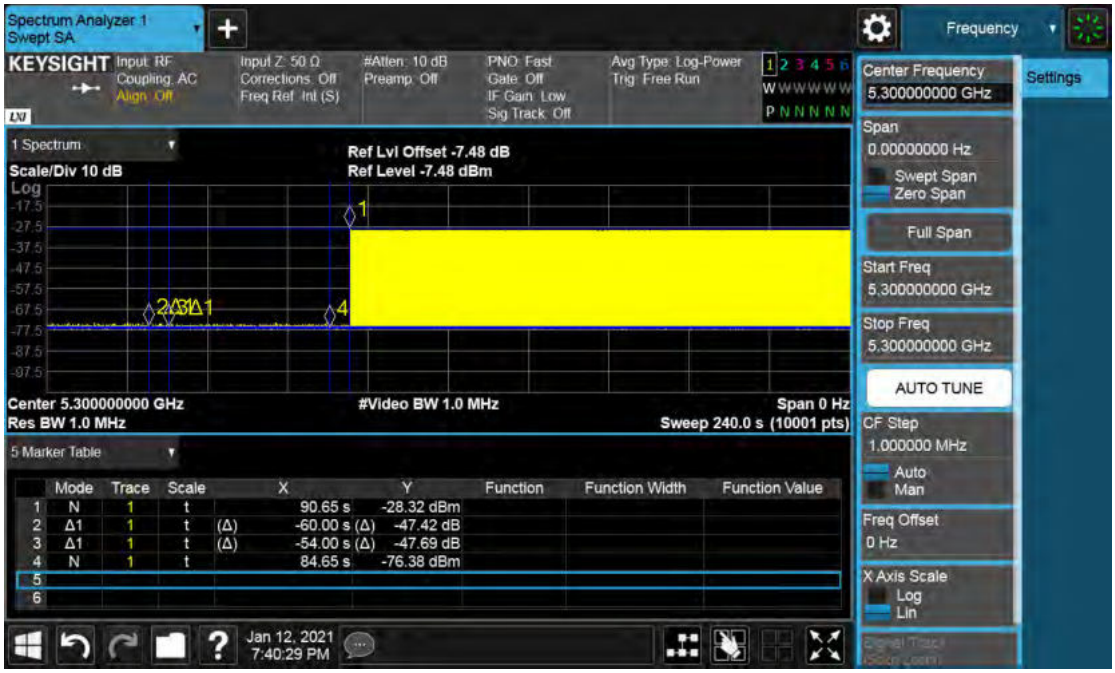
The EUT shall perform a channel availability check to ensure that there is no radar operation on the channel, after power-up sequence, receiver at least 1 minute on the intended operation frequency.

3.3. Test Result of Initial Channel Availability Check Time

Product	Mesh Wi-Fi Router		
Test Item	Initial Channel Availability Check Time		
Test Mode	Mode 1: Transmit		
Date of Test	2021/01/12	Test Site	SR10-H
Temperature (°C)	17.5	Humidity (%RH)	47

The EUT does not transmit any beacon or data transmission until at least 1 minute after the completion of the power-on cycle (30.65 sec). The initial power up time of the EUT is indicated by Marker 1 (90.65 sec) – CAC (60 sec). Initial beacons/data transmission is indicated by Marker 1 (90.65 sec)

IEEE 802.11ax_20M_5300MHz

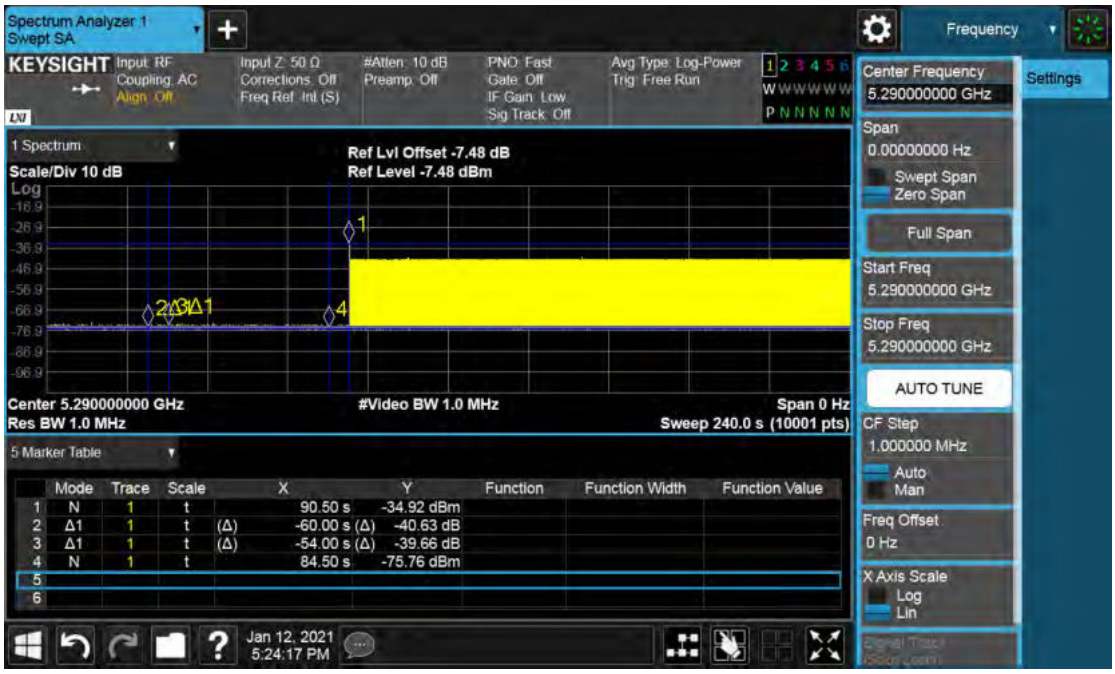


The EUT does not transmit any beacon or data transmission until at least 1 minute after the completion of the power-on cycle (31.22 sec). The initial power up time of the EUT is indicated by Marker 1 (91.22 sec) – CAC (60 sec). Initial beacons/data transmission is indicated by Marker 1 (91.22 sec)

IEEE 802.11ax_20M_5500MHz

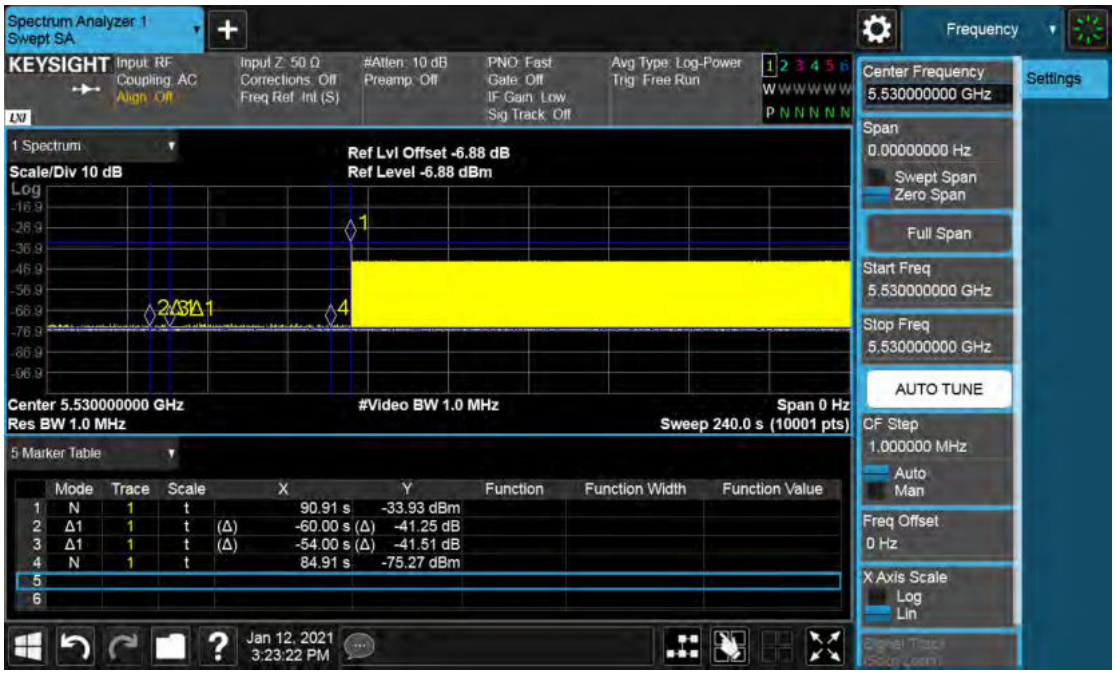
The EUT does not transmit any beacon or data transmission until at least 1 minute after the completion of the power-on cycle (30.50 sec). The initial power up time of the EUT is indicated by Marker 1 (90.50 sec) – CAC (60 sec). Initial beacons/data transmission is indicated by Marker 1 (90.50 sec)

IEEE 802.11ax_80M_5290MHz



The EUT does not transmit any beacon or data transmission until at least 1 minute after the completion of the power-on cycle (30.91 sec). The initial power up time of the EUT is indicated by Marker 1 (90.91 sec) – CAC (60 sec). Initial beacons/data transmission is indicated by Marker 1 (90.91 sec)

IEEE 802.11ax_80M_5530MHz



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

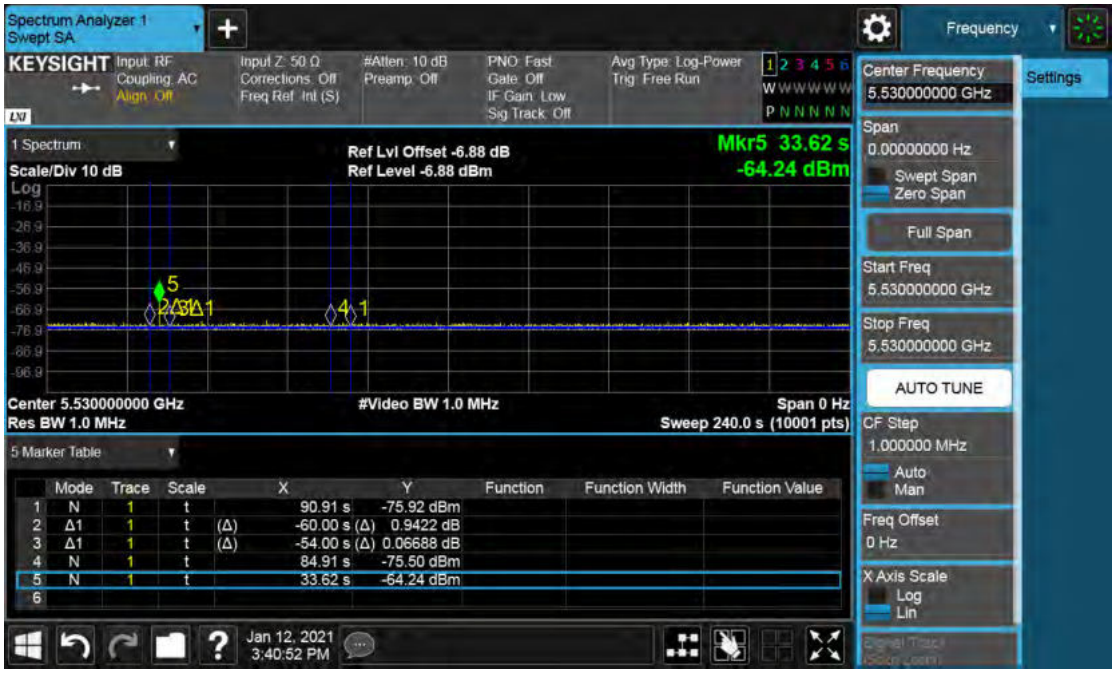
Product	Mesh Wi-Fi Router		
Test Item	Radar Burst at the Beginning of the Channel Availability Check Time		
Test Mode	Mode 1: Transmit		
Date of Test	2021/01/12	Test Site	SR10-H
Temperature (°C)	17.5	Humidity (%RH)	47

IEEE 802.11ax_20M_5300MHz

IEEE 802.11ax_20M_5500MHz

IEEE 802.11ax_80M_5290MHz

IEEE 802.11ax_80M_5530MHz



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 T_0. T_1 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 T_1 + 60 seconds. A single Burst of short pulse of radar type 1 at -63 dBm will commence within a 6 second window starting at T_1+ 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.

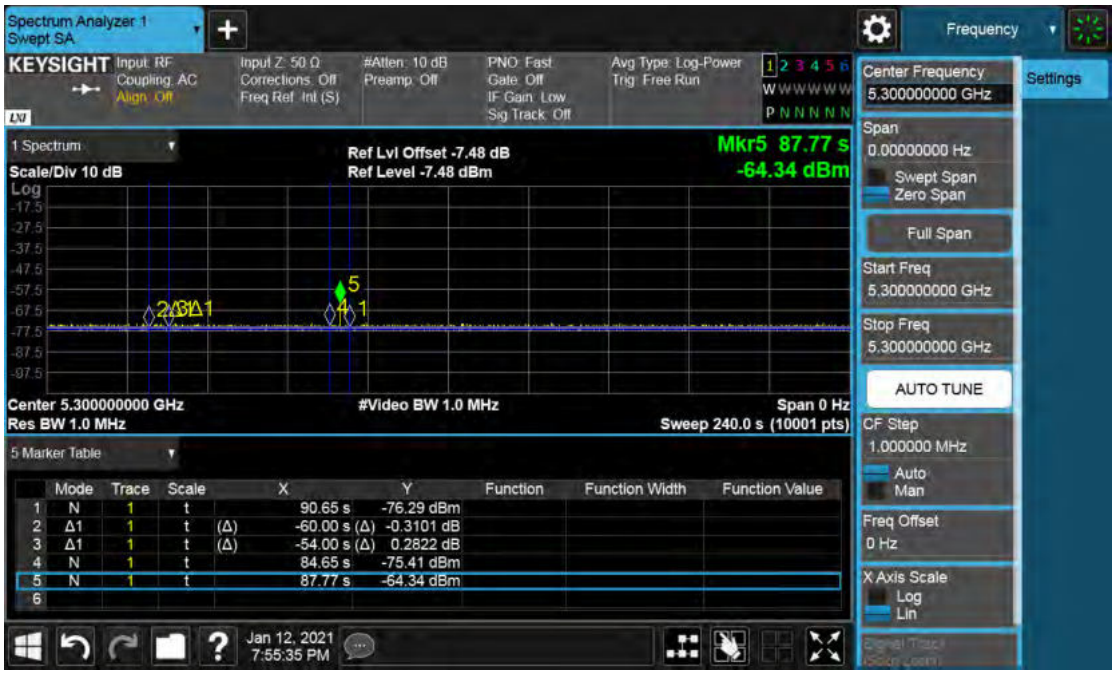
5.2. Test Requirement

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.

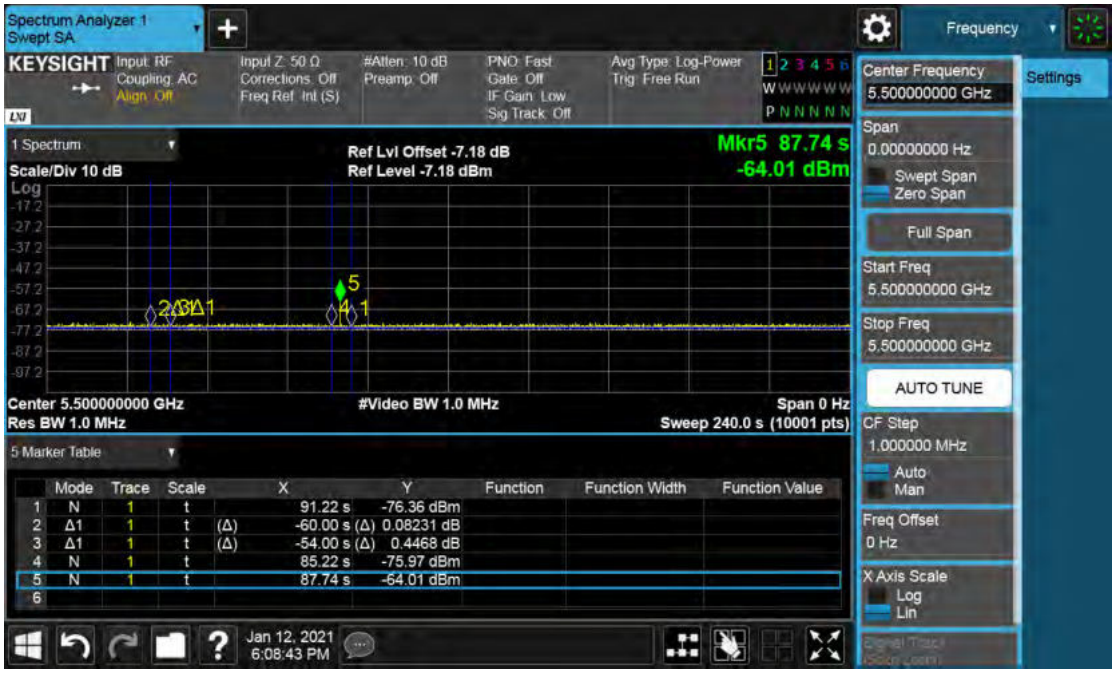
5.3. Test Result of Radar Burst at the End of the Channel Availability Check Time

Product	Mesh Wi-Fi Router		
Test Item	Radar Burst at the End of the Channel Availability Check Time		
Test Mode	Mode 1: Transmit		
Date of Test	2021/01/12	Test Site	SR10-H
Temperature (°C)	17.5	Humidity (%RH)	47

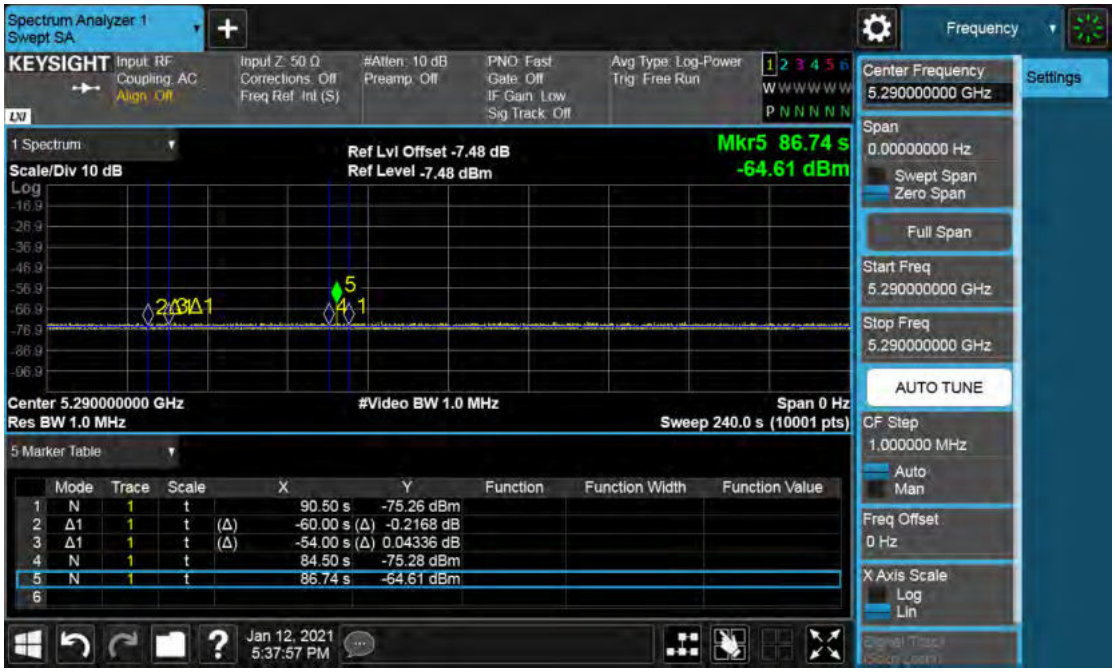
IEEE 802.11ax_20M_5300MHz



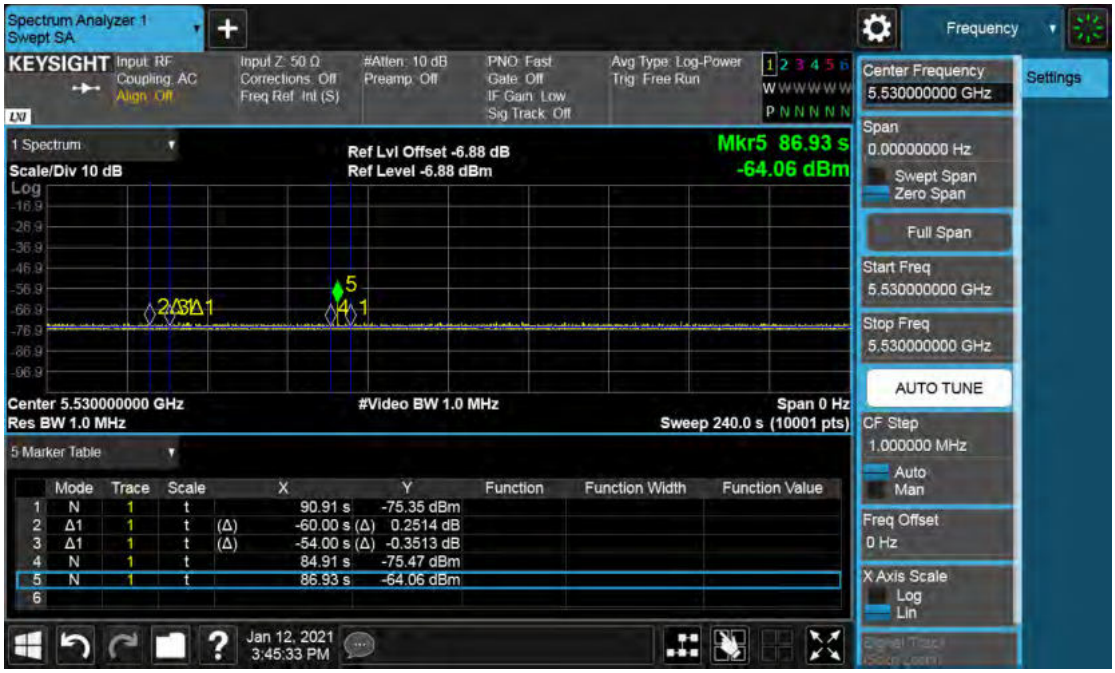
IEEE 802.11ax_20M_5500MHz



IEEE 802.11ax_80M_5290MHz



IEEE 802.11ax_80M_5530MHz



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

Product	Mesh Wi-Fi Router		
Test Item	In-Service Monitoring		
Test Mode	Mode 1: Transmit		
Date of Test	2021/01/12	Test Site	SR10-H
Temperature (°C)	17.5	Humidity (%RH)	47

In-Service Monitoring Results at IEEE 802.11ax_20M_5300MHz

Radar Test Summary:				
Signal Type	Trial No.	Detection (%)	Limit (%)	Result
Type D.4.1	20	90.00	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	86.67	60	Pass
Type D.4.5	20	86.67	60	Pass
Type D.4.6	20	100.00	60	Pass

IEEE 802.11ax_20M_5300MHz_C60						
	Type_1	Type_2	Type_3	Type_4	Type_5	Type_6
1	v	v	v	v	v	v
2	v	v	x	v	v	v
3	v	v	v	v	v	v
4	v	x	v	v	v	v
5	v	x	v	v	v	v
6	v	v	v	v	v	v
7	v	x	v	x	v	v
8	v	v	v	v	v	v
9	v	v	v	v	v	v
10	v	v	v	v	v	v
11	v	v	v	v	v	v
12	v	v	v	v	v	v
13	x	v	v	v	x	v
14	v	v	v	v	x	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	x	x	v	v
19	v	x	x	v	v	v
20	v	v	v	v	x	v
21	v	v	v	v	v	v
22	v	v	v	x	v	v
23	v	v	v	v	x	v
24	v	x	x	v	v	v
25	v	v	v	v	v	v
26	v	v	v	v	v	v
27	x	x	v	v	v	v
28	v	v	v	v	v	v
29	v	v	v	v	v	v
30	x	v	v	v	v	v
Number of Successful	27	24	25	26	26	30
% of Successful	90.00%	80.00%	83.33%	86.67%	86.67%	100.00%
	85.00%					

In-Service Monitoring Results at IEEE 802.11ax_20M_5500MHz

Radar Test Summary:				
Signal Type	Trial No.	Detection (%)	Limit (%)	Result
Type D.4.1	20	96.67	60	Pass
Type D.4.2	20	90.00	60	Pass
Type D.4.3	20	83.33	60	Pass
Type D.4.4	20	93.33	60	Pass
Type D.4.5	20	93.33	60	Pass
Type D.4.6	20	100.00	60	Pass

IEEE 802.11ax_20M_5500MHz _C100						
	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	v	v	v
4	v	v	v	v	v	v
5	x	v	v	v	v	v
6	v	v	x	v	v	v
7	v	v	x	v	v	v
8	v	v	v	v	v	v
9	v	v	v	v	v	v
10	v	v	v	v	v	v
11	v	x	v	v	v	v
12	v	v	v	v	v	v
13	v	v	v	v	x	v
14	v	v	v	v	v	v
15	v	v	v	x	v	v
16	v	v	v	v	v	v
17	v	v	v	v	v	v
18	v	v	v	v	v	v
19	v	x	v	v	v	v
20	v	v	v	v	v	v
21	v	v	x	v	v	v
22	v	v	v	v	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	x	v	v
27	v	v	v	v	v	v
28	v	v	x	v	v	v
29	v	v	v	v	v	v
30	v	v	v	v	v	v
Number of Successful	29	27	25	28	28	30
% of Successful	96.67%	90.00%	83.33%	93.33%	93.33%	100.00%
	90.83%					

In-Service Monitoring Results at IEEE 802.11ax_80M_5290MHz

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	90.00	60	Pass
Type D.4.4	20	86.67	60	Pass
Type D.4.5	20	83.33	60	Pass
Type D.4.6	20	100.00	60	Pass

IEEE 802.11ax_80M_5290MHz_C58						
	Type_1	Type_2	Type_3	Type_4	Type_5	Type_6
1	v	v	v	v	v	v
2	v	v	v	v	x	v
3	v	v	v	v	v	v
4	v	v	v	v	v	v
5	v	v	v	v	v	v
6	v	x	v	v	v	v
7	v	v	v	v	v	v
8	v	v	v	v	v	v
9	v	v	v	v	v	v
10	v	v	x	v	v	v
11	v	v	v	v	v	v
12	v	v	v	v	v	v
13	v	v	v	v	x	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	v	v	v
18	v	v	v	x	x	v
19	v	v	v	x	v	v
20	v	x	v	v	v	v
21	v	v	v	v	v	v
22	v	v	v	v	x	v
23	v	x	v	v	x	v
24	v	v	v	v	v	v
25	v	x	v	x	v	v
26	v	v	v	v	v	v
27	v	v	x	v	v	v
28	v	v	v	v	v	v
29	v	x	v	x	v	v
30	v	v	x	v	v	v
Number of Successful	30	24	27	26	25	30
% of Successful	100.00%	80.00%	90.00%	86.67%	83.33%	100.00%
	89.17%					

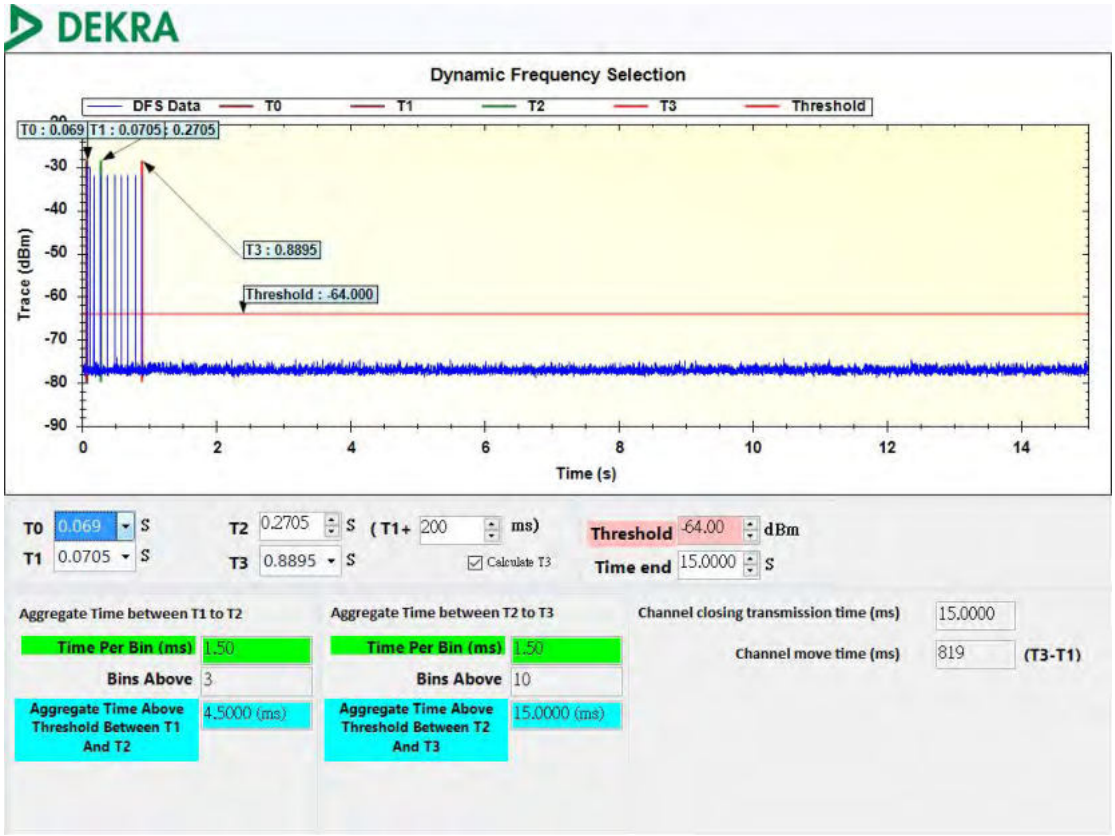
In-Service Monitoring Results at IEEE 802.11ax_80M_5530MHz

Radar Test Summary:				
Signal Type	Trial No.	Detection (%)	Limit (%)	Pass/Fail
Type D.4.1	20	100.00	60	Pass
Type D.4.2	20	86.67	60	Pass
Type D.4.3	20	86.67	60	Pass
Type D.4.4	20	90.00	60	Pass
Type D.4.5	20	86.67	60	Pass
Type D.4.6	20	100.00	60	Pass

IEEE 802.11ax_80M_5530MHz_C106						
	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	x	v	v	v	v
7	v	v	v	v	x	v
8	v	v	x	v	v	v
9	v	x	x	v	v	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	x	x	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	v	v	v	v
18	v	x	v	v	v	v
19	v	v	x	v	v	v
20	v	v	v	v	v	v
21	v	v	v	v	v	v
22	v	v	v	v	v	v
23	v	v	v	v	x	v
24	v	v	x	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	x	v	v
29	v	v	v	v	x	v
30	v	v	v	x	v	v
Number of Successful	30	26	26	27	26	30
% of Successful	100.00%	86.67%	86.67%	90.00%	86.67%	100.00%
	90.83%					

Product	Mesh Wi-Fi Router		
Test Item	Channel Closing Transmission Time		
Test Mode	Mode 1: Transmit		
Date of Test	2021/01/12	Test Site	SR10-H
Temperature (°C)	17.5	Humidity (%RH)	47

Channel Closing Transmission Time at IEEE 802.11ax_20M_5300MHz



Test Item	Test Result (Sec)	Limit (Sec)
Channel Move Time	819	10
Channel Closing Transmission	0.015	200 milliseconds + approx. 60 milliseconds over remaining 10 seconds period

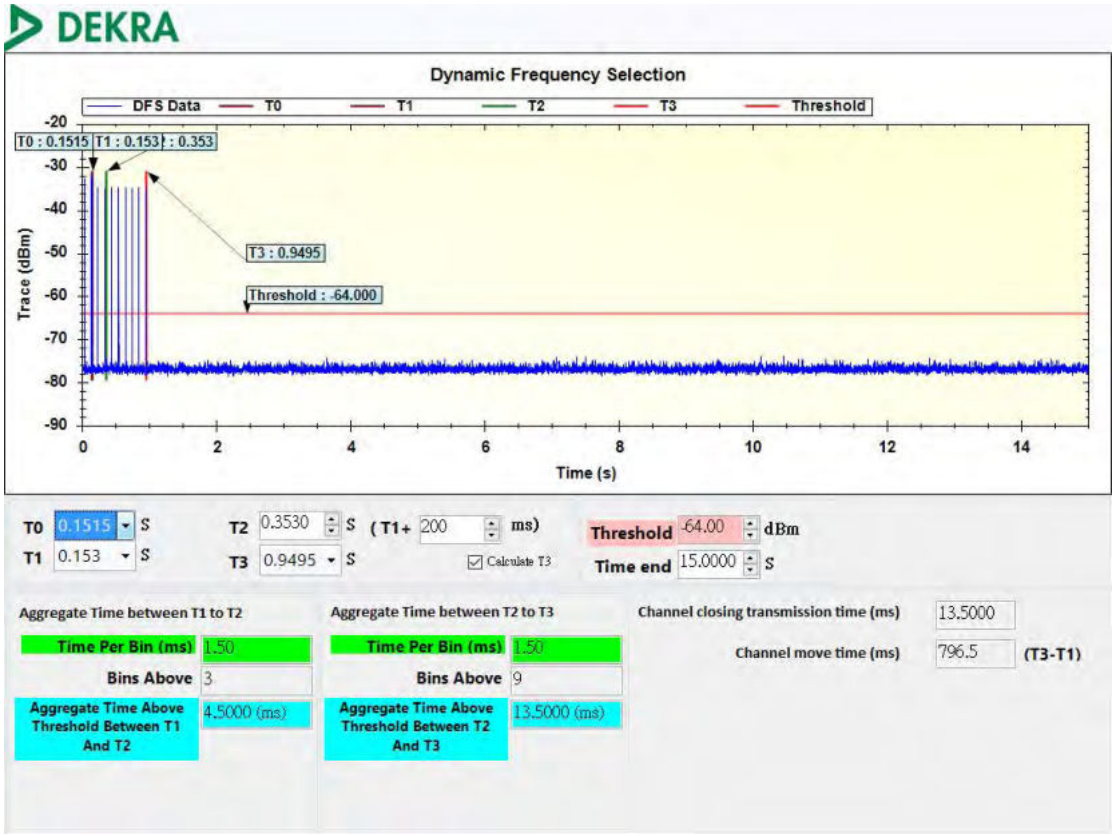
The results showed that after radar signal injected the channel move time was less than 10 seconds and channel transmission closing time less than 200 milliseconds and an aggregate of no more than 60 milliseconds.

Non-Occupancy Period at IEEE 802.11ax_20M_5300MHz

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.

Channel Closing Transmission Time at IEEE 802.11ax_20M_5500MHz



Test Item	Test Result (Sec)	Limit (Sec)
Channel Move Time	796.5	10
Channel Closing Transmission	0.0135	200 milliseconds + approx. 60 milliseconds over remaining 10 seconds period

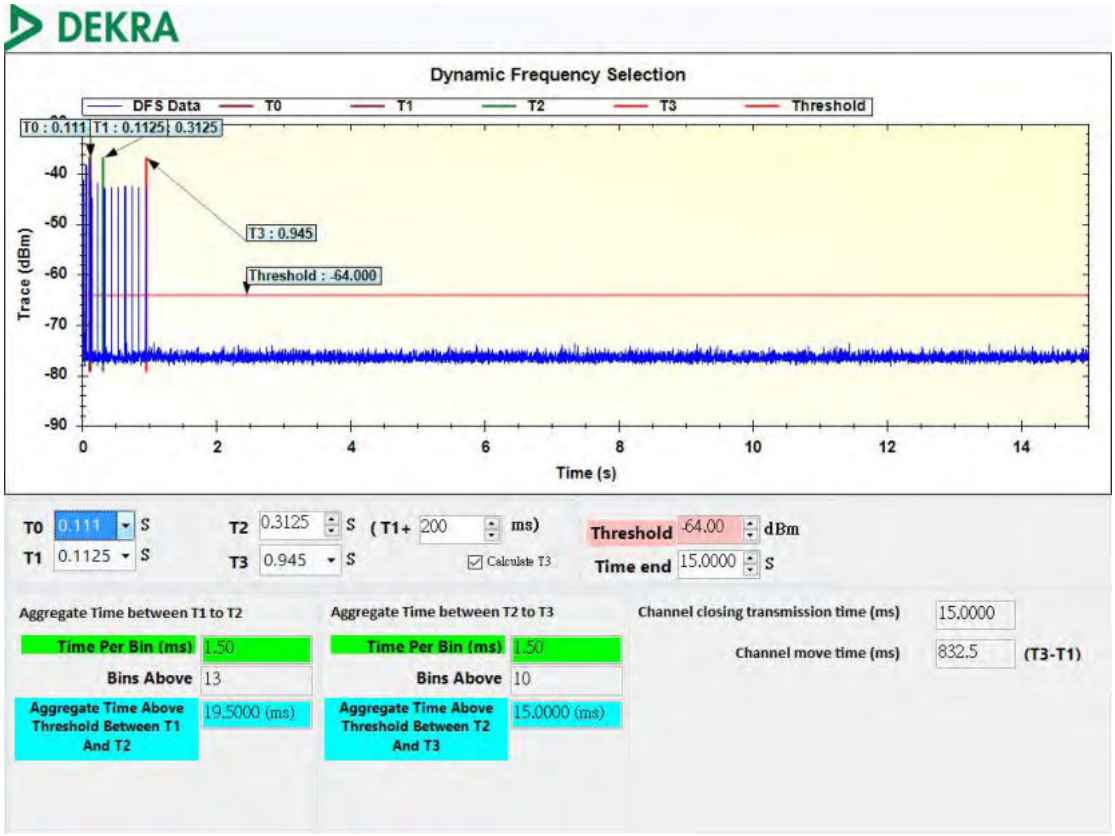
The results showed that after radar signal injected the channel move time was less than 10 seconds and channel transmission closing time less than 200 milliseconds and an aggregate of no more than 60 milliseconds.

Non-Occupancy Period at IEEE 802.11ax_20M_5500MHz

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.

Channel Closing Transmission Time at IEEE 802.11ax_80M_5290MHz



Test Item	Test Result (Sec)	Limit (Sec)
Channel Move Time	832.5	10
Channel Closing Transmission	0.015	200 milliseconds + approx. 60 milliseconds over remaining 10 seconds period

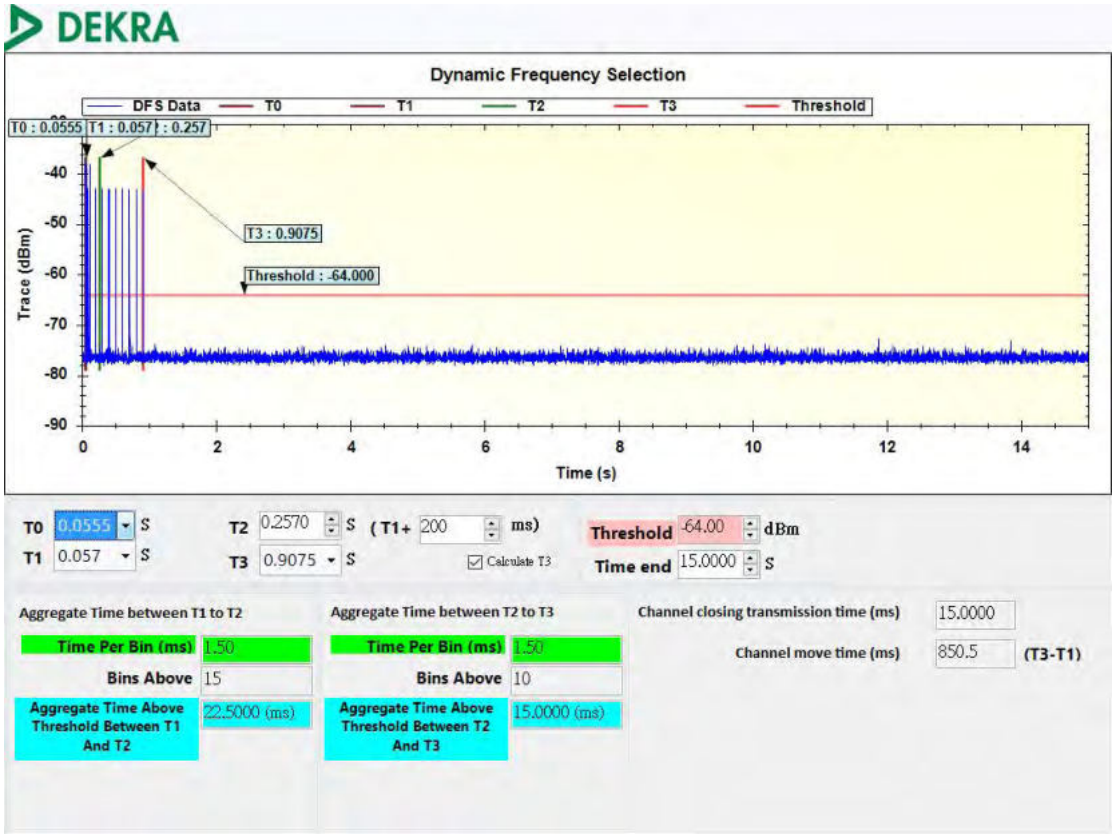
The results showed that after radar signal injected the channel move time was less than 10 seconds and channel transmission closing time less than 200 milliseconds and an aggregate of no more than 60 milliseconds.

Non-Occupancy Period at IEEE 802.11ax_80M_5290MHz

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.

Channel Closing Transmission Time at IEEE 802.11ax_80M_5530MHz



Test Item	Test Result (Sec)	Limit (Sec)
Channel Move Time	850.5	10
Channel Closing Transmission	0.015	200 milliseconds + approx. 60 milliseconds over remaining 10 seconds period

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 at IEEE 802.11ax_80M_5530MHz

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) at5300MHz 、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

Product	Mesh Wi-Fi Router		
Test Item	Statistical Performance Check		
Test Mode	Mode 1: Transmit(IEEE 802.11ax_20M_5300MHz)		
Date of Test	2021/01/12	Test Site	SR10-H
Temperature (°C)	17.5	Humidity (%RH)	47

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 1	1	778	68	52904
1	Type 1	1	878	61	53558
2	Type 1	1	918	58	53244
3	Type 1	1	558	95	53010
4	Type 1	1	698	76	53048
5	Type 1	1	618	86	53148
6	Type 1	1	818	65	53170
7	Type 1	1	578	92	53176
8	Type 1	1	538	99	53262
9	Type 1	1	938	57	53466
10	Type 1	1	638	83	52954
11	Type 1	1	858	62	53196
12	Type 1	1	738	72	53136
13	Type 1	1	758	70	53060
14	Type 1	1	518	102	52836
15	Type 1	1	2777	20	55540
16	Type 1	1	689	77	53053
17	Type 1	1	2260	24	54240
18	Type 1	1	643	83	53369
19	Type 1	1	1323	40	52920
20	Type 1	1	2496	22	54912
21	Type 1	1	554	96	53184
22	Type 1	1	2284	24	54816
23	Type 1	1	2524	21	53004
24	Type 1	1	2282	24	54768
25	Type 1	1	2329	23	53567
26	Type 1	1	1686	32	53952
27	Type 1	1	2975	18	53550
28	Type 1	1	2466	22	54252
29	Type 1	1	1000	53	53000

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 2	3.8	195	27	5265
1	Type 2	4	171	28	4788
2	Type 2	4	160	28	4480
3	Type 2	4.3	190	28	5320
4	Type 2	3.7	223	27	6021
5	Type 2	2.8	204	26	5304
6	Type 2	1.3	155	23	3565
7	Type 2	1.3	164	23	3772
8	Type 2	3.3	188	27	5076
9	Type 2	1.4	213	23	4899
10	Type 2	2	162	24	3888
11	Type 2	2.8	150	26	3900
12	Type 2	1.2	207	23	4761
13	Type 2	1.4	194	23	4462
14	Type 2	4	198	28	5544
15	Type 2	4.8	176	29	5104
16	Type 2	4.4	156	28	4368
17	Type 2	1.7	173	24	4152
18	Type 2	4.9	229	29	6641
19	Type 2	1.9	163	24	3912
20	Type 2	3.1	170	26	4420
21	Type 2	1.6	151	24	3624
22	Type 2	1.4	184	23	4232
23	Type 2	1.3	169	23	3887
24	Type 2	2.3	228	25	5700
25	Type 2	2.8	201	26	5226
26	Type 2	4.1	212	28	5936
27	Type 2	4.4	222	28	6216
28	Type 2	1	214	23	4922
29	Type 2	3.1	208	26	5408

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 3	8.8	498	18	8964
1	Type 3	9	469	18	8442
2	Type 3	9	477	18	8586
3	Type 3	9.3	314	18	5652
4	Type 3	8.7	482	18	8676
5	Type 3	7.8	200	17	3400
6	Type 3	6.3	338	16	5408
7	Type 3	6.3	437	16	6992
8	Type 3	8.3	258	17	4386
9	Type 3	6.4	452	16	7232
10	Type 3	7	339	16	5424
11	Type 3	7.8	480	17	8160
12	Type 3	6.2	307	16	4912
13	Type 3	6.4	391	16	6256
14	Type 3	9	263	18	4734
15	Type 3	9.8	256	18	4608
16	Type 3	9.4	276	18	4968
17	Type 3	6.7	442	16	7072
18	Type 3	9.9	344	18	6192
19	Type 3	6.9	237	16	3792
20	Type 3	8.1	291	17	4947
21	Type 3	6.6	488	16	7808
22	Type 3	6.4	201	16	3216
23	Type 3	6.3	311	16	4976
24	Type 3	7.3	227	16	3632
25	Type 3	7.8	250	17	4250
26	Type 3	9.1	293	18	5274
27	Type 3	9.4	315	18	5670
28	Type 3	6	218	16	3488
29	Type 3	8.1	423	17	7191

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 4	17.2	498	15	7470
1	Type 4	17.8	469	15	7035
2	Type 4	17.7	477	15	7155
3	Type 4	18.5	314	16	5024
4	Type 4	17.1	482	15	7230
5	Type 4	15	200	14	2800
6	Type 4	11.7	338	12	4056
7	Type 4	11.7	437	12	5244
8	Type 4	16.2	258	14	3612
9	Type 4	12	452	12	5424
10	Type 4	13.3	339	13	4407
11	Type 4	15.1	480	14	6720
12	Type 4	11.5	307	12	3684
13	Type 4	11.8	391	12	4692
14	Type 4	17.7	263	15	3945
15	Type 4	19.5	256	16	4096
16	Type 4	18.7	276	16	4416
17	Type 4	12.7	442	12	5304
18	Type 4	19.7	344	16	5504
19	Type 4	13.1	237	13	3081
20	Type 4	15.7	291	14	4074
21	Type 4	12.5	488	12	5856
22	Type 4	11.8	201	12	2412
23	Type 4	11.7	311	12	3732
24	Type 4	13.9	227	13	2951
25	Type 4	15.1	250	14	3500
26	Type 4	17.9	293	15	4395
27	Type 4	18.6	315	16	5040
28	Type 4	11	218	12	2616
29	Type 4	15.7	423	14	5922

Trinl Id	Radar Type	Number of Bursts	Burst Period(s)	Waveform Length(s)	Center Frequency (GHz)
0	Type 5	16	0.75	12	5.3
1	Type 5	17	0.7058824	12	5.3
2	Type 5	17	0.7058824	12	5.3
3	Type 5	18	0.6666667	12	5.3
4	Type 5	16	0.75	12	5.3
5	Type 5	13	0.9230769	12	5.3
6	Type 5	9	1.3333333	12	5.3
7	Type 5	9	1.3333333	12	5.3
8	Type 5	15	0.8	12	5.3
9	Type 5	9	1.3333333	12	5.3
10	Type 5	11	1.0909091	12	5.294
11	Type 5	13	0.9230769	12	5.295
12	Type 5	8	1.5	12	5.292
13	Type 5	9	1.3333333	12	5.292
14	Type 5	17	0.7058824	12	5.296
15	Type 5	20	0.6	12	5.298
16	Type 5	19	0.6315789	12	5.297
17	Type 5	10	1.2	12	5.293
18	Type 5	20	0.6	12	5.298
19	Type 5	11	1.0909091	12	5.293
20	Type 5	14	0.8571429	12	5.305
21	Type 5	10	1.2	12	5.307
22	Type 5	9	1.3333333	12	5.308
23	Type 5	9	1.3333333	12	5.308
24	Type 5	12	1	12	5.306
25	Type 5	13	0.9230769	12	5.305
26	Type 5	17	0.7058824	12	5.303
27	Type 5	18	0.6666667	12	5.303
28	Type 5	8	1.5	12	5.308
29	Type 5	14	0.8571429	12	5.305

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	5
2	Type 6	1	333.3	9	0.3333	300	4
3	Type 6	1	333.3	9	0.3333	300	4
4	Type 6	1	333.3	9	0.3333	300	3
5	Type 6	1	333.3	9	0.3333	300	3
6	Type 6	1	333.3	9	0.3333	300	6
7	Type 6	1	333.3	9	0.3333	300	4
8	Type 6	1	333.3	9	0.3333	300	6
9	Type 6	1	333.3	9	0.3333	300	3
10	Type 6	1	333.3	9	0.3333	300	1
11	Type 6	1	333.3	9	0.3333	300	4
12	Type 6	1	333.3	9	0.3333	300	5
13	Type 6	1	333.3	9	0.3333	300	4
14	Type 6	1	333.3	9	0.3333	300	3
15	Type 6	1	333.3	9	0.3333	300	5
16	Type 6	1	333.3	9	0.3333	300	7
17	Type 6	1	333.3	9	0.3333	300	3
18	Type 6	1	333.3	9	0.3333	300	2
19	Type 6	1	333.3	9	0.3333	300	6
20	Type 6	1	333.3	9	0.3333	300	5
21	Type 6	1	333.3	9	0.3333	300	4
22	Type 6	1	333.3	9	0.3333	300	3
23	Type 6	1	333.3	9	0.3333	300	2
24	Type 6	1	333.3	9	0.3333	300	4
25	Type 6	1	333.3	9	0.3333	300	3
26	Type 6	1	333.3	9	0.3333	300	9
27	Type 6	1	333.3	9	0.3333	300	1
28	Type 6	1	333.3	9	0.3333	300	5
29	Type 6	1	333.3	9	0.3333	300	7

Product	Mesh Wi-Fi Router		
Test Item	Statistical Performance Check		
Test Mode	Mode 1: Transmit(IEEE 802.11ax_20M_5500MHz)		
Date of Test	2021/01/12	Test Site	SR10-H
Temperature (°C)	17.5	Humidity (%RH)	47

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 1	1	778	68	52904
1	Type 1	1	878	61	53558
2	Type 1	1	918	58	53244
3	Type 1	1	558	95	53010
4	Type 1	1	698	76	53048
5	Type 1	1	618	86	53148
6	Type 1	1	818	65	53170
7	Type 1	1	578	92	53176
8	Type 1	1	538	99	53262
9	Type 1	1	938	57	53466
10	Type 1	1	638	83	52954
11	Type 1	1	858	62	53196
12	Type 1	1	738	72	53136
13	Type 1	1	758	70	53060
14	Type 1	1	518	102	52836
15	Type 1	1	2777	20	55540
16	Type 1	1	689	77	53053
17	Type 1	1	2260	24	54240
18	Type 1	1	643	83	53369
19	Type 1	1	1323	40	52920
20	Type 1	1	2496	22	54912
21	Type 1	1	554	96	53184
22	Type 1	1	2284	24	54816
23	Type 1	1	2524	21	53004
24	Type 1	1	2282	24	54768
25	Type 1	1	2329	23	53567
26	Type 1	1	1686	32	53952
27	Type 1	1	2975	18	53550
28	Type 1	1	2466	22	54252
29	Type 1	1	1000	53	53000

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 2	3.8	195	27	5265
1	Type 2	4	171	28	4788
2	Type 2	4	160	28	4480
3	Type 2	4.3	190	28	5320
4	Type 2	3.7	223	27	6021
5	Type 2	2.8	204	26	5304
6	Type 2	1.3	155	23	3565
7	Type 2	1.3	164	23	3772
8	Type 2	3.3	188	27	5076
9	Type 2	1.4	213	23	4899
10	Type 2	2	162	24	3888
11	Type 2	2.8	150	26	3900
12	Type 2	1.2	207	23	4761
13	Type 2	1.4	194	23	4462
14	Type 2	4	198	28	5544
15	Type 2	4.8	176	29	5104
16	Type 2	4.4	156	28	4368
17	Type 2	1.7	173	24	4152
18	Type 2	4.9	229	29	6641
19	Type 2	1.9	163	24	3912
20	Type 2	3.1	170	26	4420
21	Type 2	1.6	151	24	3624
22	Type 2	1.4	184	23	4232
23	Type 2	1.3	169	23	3887
24	Type 2	2.3	228	25	5700
25	Type 2	2.8	201	26	5226
26	Type 2	4.1	212	28	5936
27	Type 2	4.4	222	28	6216
28	Type 2	1	214	23	4922
29	Type 2	3.1	208	26	5408

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 3	8.8	498	18	8964
1	Type 3	9	469	18	8442
2	Type 3	9	477	18	8586
3	Type 3	9.3	314	18	5652
4	Type 3	8.7	482	18	8676
5	Type 3	7.8	200	17	3400
6	Type 3	6.3	338	16	5408
7	Type 3	6.3	437	16	6992
8	Type 3	8.3	258	17	4386
9	Type 3	6.4	452	16	7232
10	Type 3	7	339	16	5424
11	Type 3	7.8	480	17	8160
12	Type 3	6.2	307	16	4912
13	Type 3	6.4	391	16	6256
14	Type 3	9	263	18	4734
15	Type 3	9.8	256	18	4608
16	Type 3	9.4	276	18	4968
17	Type 3	6.7	442	16	7072
18	Type 3	9.9	344	18	6192
19	Type 3	6.9	237	16	3792
20	Type 3	8.1	291	17	4947
21	Type 3	6.6	488	16	7808
22	Type 3	6.4	201	16	3216
23	Type 3	6.3	311	16	4976
24	Type 3	7.3	227	16	3632
25	Type 3	7.8	250	17	4250
26	Type 3	9.1	293	18	5274
27	Type 3	9.4	315	18	5670
28	Type 3	6	218	16	3488
29	Type 3	8.1	423	17	7191

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 4	17.2	498	15	7470
1	Type 4	17.8	469	15	7035
2	Type 4	17.7	477	15	7155
3	Type 4	18.5	314	16	5024
4	Type 4	17.1	482	15	7230
5	Type 4	15	200	14	2800
6	Type 4	11.7	338	12	4056
7	Type 4	11.7	437	12	5244
8	Type 4	16.2	258	14	3612
9	Type 4	12	452	12	5424
10	Type 4	13.3	339	13	4407
11	Type 4	15.1	480	14	6720
12	Type 4	11.5	307	12	3684
13	Type 4	11.8	391	12	4692
14	Type 4	17.7	263	15	3945
15	Type 4	19.5	256	16	4096
16	Type 4	18.7	276	16	4416
17	Type 4	12.7	442	12	5304
18	Type 4	19.7	344	16	5504
19	Type 4	13.1	237	13	3081
20	Type 4	15.7	291	14	4074
21	Type 4	12.5	488	12	5856
22	Type 4	11.8	201	12	2412
23	Type 4	11.7	311	12	3732
24	Type 4	13.9	227	13	2951
25	Type 4	15.1	250	14	3500
26	Type 4	17.9	293	15	4395
27	Type 4	18.6	315	16	5040
28	Type 4	11	218	12	2616
29	Type 4	15.7	423	14	5922

Trinl Id	Radar Type	Number of Bursts	Burst Period(s)	Waveform Length(s)	Center Frequency (GHz)
0	Type 5	16	0.75	12	5.5
1	Type 5	17	0.7058824	12	5.5
2	Type 5	17	0.7058824	12	5.5
3	Type 5	18	0.6666667	12	5.5
4	Type 5	16	0.75	12	5.5
5	Type 5	13	0.9230769	12	5.5
6	Type 5	9	1.3333333	12	5.5
7	Type 5	9	1.3333333	12	5.5
8	Type 5	15	0.8	12	5.5
9	Type 5	9	1.3333333	12	5.5
10	Type 5	11	1.0909091	12	5.494
11	Type 5	13	0.9230769	12	5.495
12	Type 5	8	1.5	12	5.492
13	Type 5	9	1.3333333	12	5.492
14	Type 5	17	0.7058824	12	5.496
15	Type 5	20	0.6	12	5.498
16	Type 5	19	0.6315789	12	5.497
17	Type 5	10	1.2	12	5.493
18	Type 5	20	0.6	12	5.498
19	Type 5	11	1.0909091	12	5.493
20	Type 5	14	0.8571429	12	5.505
21	Type 5	10	1.2	12	5.507
22	Type 5	9	1.3333333	12	5.508
23	Type 5	9	1.3333333	12	5.508
24	Type 5	12	1	12	5.506
25	Type 5	13	0.9230769	12	5.505
26	Type 5	17	0.7058824	12	5.503
27	Type 5	18	0.6666667	12	5.503
28	Type 5	8	1.5	12	5.508
29	Type 5	14	0.8571429	12	5.505

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	5
2	Type 6	1	333.3	9	0.3333	300	3
3	Type 6	1	333.3	9	0.3333	300	5
4	Type 6	1	333.3	9	0.3333	300	9
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	4
8	Type 6	1	333.3	9	0.3333	300	6
9	Type 6	1	333.3	9	0.3333	300	4
10	Type 6	1	333.3	9	0.3333	300	6
11	Type 6	1	333.3	9	0.3333	300	3
12	Type 6	1	333.3	9	0.3333	300	2
13	Type 6	1	333.3	9	0.3333	300	5
14	Type 6	1	333.3	9	0.3333	300	5
15	Type 6	1	333.3	9	0.3333	300	6
16	Type 6	1	333.3	9	0.3333	300	4
17	Type 6	1	333.3	9	0.3333	300	5
18	Type 6	1	333.3	9	0.3333	300	6
19	Type 6	1	333.3	9	0.3333	300	2
20	Type 6	1	333.3	9	0.3333	300	5
21	Type 6	1	333.3	9	0.3333	300	3
22	Type 6	1	333.3	9	0.3333	300	4
23	Type 6	1	333.3	9	0.3333	300	2
24	Type 6	1	333.3	9	0.3333	300	4
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	2
28	Type 6	1	333.3	9	0.3333	300	2
29	Type 6	1	333.3	9	0.3333	300	3

Product	Mesh Wi-Fi Router		
Test Item	Statistical Performance Check		
Test Mode	Mode 1: Transmit(IEEE 802.11ax_80M_5290MHz)		
Date of Test	2021/01/12	Test Site	SR10-H
Temperature (°C)	17.5	Humidity (%RH)	47

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 1	1	778	68	52904
1	Type 1	1	878	61	53558
2	Type 1	1	918	58	53244
3	Type 1	1	558	95	53010
4	Type 1	1	698	76	53048
5	Type 1	1	618	86	53148
6	Type 1	1	818	65	53170
7	Type 1	1	578	92	53176
8	Type 1	1	538	99	53262
9	Type 1	1	938	57	53466
10	Type 1	1	638	83	52954
11	Type 1	1	858	62	53196
12	Type 1	1	738	72	53136
13	Type 1	1	758	70	53060
14	Type 1	1	518	102	52836
15	Type 1	1	2777	20	55540
16	Type 1	1	689	77	53053
17	Type 1	1	2260	24	54240
18	Type 1	1	643	83	53369
19	Type 1	1	1323	40	52920
20	Type 1	1	2496	22	54912
21	Type 1	1	554	96	53184
22	Type 1	1	2284	24	54816
23	Type 1	1	2524	21	53004
24	Type 1	1	2282	24	54768
25	Type 1	1	2329	23	53567
26	Type 1	1	1686	32	53952
27	Type 1	1	2975	18	53550
28	Type 1	1	2466	22	54252
29	Type 1	1	1000	53	53000

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 2	3.8	195	27	5265
1	Type 2	4	171	28	4788
2	Type 2	4	160	28	4480
3	Type 2	4.3	190	28	5320
4	Type 2	3.7	223	27	6021
5	Type 2	2.8	204	26	5304
6	Type 2	1.3	155	23	3565
7	Type 2	1.3	164	23	3772
8	Type 2	3.3	188	27	5076
9	Type 2	1.4	213	23	4899
10	Type 2	2	162	24	3888
11	Type 2	2.8	150	26	3900
12	Type 2	1.2	207	23	4761
13	Type 2	1.4	194	23	4462
14	Type 2	4	198	28	5544
15	Type 2	4.8	176	29	5104
16	Type 2	4.4	156	28	4368
17	Type 2	1.7	173	24	4152
18	Type 2	4.9	229	29	6641
19	Type 2	1.9	163	24	3912
20	Type 2	3.1	170	26	4420
21	Type 2	1.6	151	24	3624
22	Type 2	1.4	184	23	4232
23	Type 2	1.3	169	23	3887
24	Type 2	2.3	228	25	5700
25	Type 2	2.8	201	26	5226
26	Type 2	4.1	212	28	5936
27	Type 2	4.4	222	28	6216
28	Type 2	1	214	23	4922
29	Type 2	3.1	208	26	5408

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 3	8.8	498	18	8964
1	Type 3	9	469	18	8442
2	Type 3	9	477	18	8586
3	Type 3	9.3	314	18	5652
4	Type 3	8.7	482	18	8676
5	Type 3	7.8	200	17	3400
6	Type 3	6.3	338	16	5408
7	Type 3	6.3	437	16	6992
8	Type 3	8.3	258	17	4386
9	Type 3	6.4	452	16	7232
10	Type 3	7	339	16	5424
11	Type 3	7.8	480	17	8160
12	Type 3	6.2	307	16	4912
13	Type 3	6.4	391	16	6256
14	Type 3	9	263	18	4734
15	Type 3	9.8	256	18	4608
16	Type 3	9.4	276	18	4968
17	Type 3	6.7	442	16	7072
18	Type 3	9.9	344	18	6192
19	Type 3	6.9	237	16	3792
20	Type 3	8.1	291	17	4947
21	Type 3	6.6	488	16	7808
22	Type 3	6.4	201	16	3216
23	Type 3	6.3	311	16	4976
24	Type 3	7.3	227	16	3632
25	Type 3	7.8	250	17	4250
26	Type 3	9.1	293	18	5274
27	Type 3	9.4	315	18	5670
28	Type 3	6	218	16	3488
29	Type 3	8.1	423	17	7191

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 4	17.2	498	15	7470
1	Type 4	17.8	469	15	7035
2	Type 4	17.7	477	15	7155
3	Type 4	18.5	314	16	5024
4	Type 4	17.1	482	15	7230
5	Type 4	15	200	14	2800
6	Type 4	11.7	338	12	4056
7	Type 4	11.7	437	12	5244
8	Type 4	16.2	258	14	3612
9	Type 4	12	452	12	5424
10	Type 4	13.3	339	13	4407
11	Type 4	15.1	480	14	6720
12	Type 4	11.5	307	12	3684
13	Type 4	11.8	391	12	4692
14	Type 4	17.7	263	15	3945
15	Type 4	19.5	256	16	4096
16	Type 4	18.7	276	16	4416
17	Type 4	12.7	442	12	5304
18	Type 4	19.7	344	16	5504
19	Type 4	13.1	237	13	3081
20	Type 4	15.7	291	14	4074
21	Type 4	12.5	488	12	5856
22	Type 4	11.8	201	12	2412
23	Type 4	11.7	311	12	3732
24	Type 4	13.9	227	13	2951
25	Type 4	15.1	250	14	3500
26	Type 4	17.9	293	15	4395
27	Type 4	18.6	315	16	5040
28	Type 4	11	218	12	2616
29	Type 4	15.7	423	14	5922

Trinl Id	Radar Type	Number of Bursts	Burst Period(s)	Waveform Length(s)	Center Frequency (GHz)
0	Type 5	16	0.75	12	5.29
1	Type 5	17	0.7058824	12	5.29
2	Type 5	17	0.7058824	12	5.29
3	Type 5	18	0.6666667	12	5.29
4	Type 5	16	0.75	12	5.29
5	Type 5	13	0.9230769	12	5.29
6	Type 5	9	1.3333333	12	5.29
7	Type 5	9	1.3333333	12	5.29
8	Type 5	15	0.8	12	5.29
9	Type 5	9	1.3333333	12	5.29
10	Type 5	11	1.0909091	12	5.255
11	Type 5	13	0.9230769	12	5.256
12	Type 5	8	1.5	12	5.254
13	Type 5	9	1.3333333	12	5.254
14	Type 5	17	0.7058824	12	5.258
15	Type 5	20	0.6	12	5.259
16	Type 5	19	0.6315789	12	5.259
17	Type 5	10	1.2	12	5.255
18	Type 5	20	0.6	12	5.26
19	Type 5	11	1.0909091	12	5.255
20	Type 5	14	0.8571429	12	5.323
21	Type 5	10	1.2	12	5.326
22	Type 5	9	1.3333333	12	5.326
23	Type 5	9	1.3333333	12	5.326
24	Type 5	12	1	12	5.324
25	Type 5	13	0.9230769	12	5.324
26	Type 5	17	0.7058824	12	5.322
27	Type 5	18	0.6666667	12	5.321
28	Type 5	8	1.5	12	5.326
29	Type 5	14	0.8571429	12	5.323

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	14
1	Type 6	1	333.3	9	0.3333	300	16
2	Type 6	1	333.3	9	0.3333	300	20
3	Type 6	1	333.3	9	0.3333	300	12
4	Type 6	1	333.3	9	0.3333	300	17
5	Type 6	1	333.3	9	0.3333	300	17
6	Type 6	1	333.3	9	0.3333	300	15
7	Type 6	1	333.3	9	0.3333	300	23
8	Type 6	1	333.3	9	0.3333	300	18
9	Type 6	1	333.3	9	0.3333	300	13
10	Type 6	1	333.3	9	0.3333	300	14
11	Type 6	1	333.3	9	0.3333	300	23
12	Type 6	1	333.3	9	0.3333	300	17
13	Type 6	1	333.3	9	0.3333	300	15
14	Type 6	1	333.3	9	0.3333	300	11
15	Type 6	1	333.3	9	0.3333	300	16
16	Type 6	1	333.3	9	0.3333	300	17
17	Type 6	1	333.3	9	0.3333	300	17
18	Type 6	1	333.3	9	0.3333	300	15
19	Type 6	1	333.3	9	0.3333	300	23
20	Type 6	1	333.3	9	0.3333	300	15
21	Type 6	1	333.3	9	0.3333	300	16
22	Type 6	1	333.3	9	0.3333	300	15
23	Type 6	1	333.3	9	0.3333	300	12
24	Type 6	1	333.3	9	0.3333	300	15
25	Type 6	1	333.3	9	0.3333	300	15
26	Type 6	1	333.3	9	0.3333	300	16
27	Type 6	1	333.3	9	0.3333	300	9
28	Type 6	1	333.3	9	0.3333	300	21
29	Type 6	1	333.3	9	0.3333	300	17

Product	Mesh Wi-Fi Router		
Test Item	Statistical Performance Check		
Test Mode	Mode 1: Transmit(IEEE 802.11ax_80M_5530MHz)		
Date of Test	2021/01/12	Test Site	SR10-H
Temperature (°C)	17.5	Humidity (%RH)	47

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 1	1	778	68	52904
1	Type 1	1	878	61	53558
2	Type 1	1	918	58	53244
3	Type 1	1	558	95	53010
4	Type 1	1	698	76	53048
5	Type 1	1	618	86	53148
6	Type 1	1	818	65	53170
7	Type 1	1	578	92	53176
8	Type 1	1	538	99	53262
9	Type 1	1	938	57	53466
10	Type 1	1	638	83	52954
11	Type 1	1	858	62	53196
12	Type 1	1	738	72	53136
13	Type 1	1	758	70	53060
14	Type 1	1	518	102	52836
15	Type 1	1	2777	20	55540
16	Type 1	1	689	77	53053
17	Type 1	1	2260	24	54240
18	Type 1	1	643	83	53369
19	Type 1	1	1323	40	52920
20	Type 1	1	2496	22	54912
21	Type 1	1	554	96	53184
22	Type 1	1	2284	24	54816
23	Type 1	1	2524	21	53004
24	Type 1	1	2282	24	54768
25	Type 1	1	2329	23	53567
26	Type 1	1	1686	32	53952
27	Type 1	1	2975	18	53550
28	Type 1	1	2466	22	54252
29	Type 1	1	1000	53	53000

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 2	3.8	195	27	5265
1	Type 2	4	171	28	4788
2	Type 2	4	160	28	4480
3	Type 2	4.3	190	28	5320
4	Type 2	3.7	223	27	6021
5	Type 2	2.8	204	26	5304
6	Type 2	1.3	155	23	3565
7	Type 2	1.3	164	23	3772
8	Type 2	3.3	188	27	5076
9	Type 2	1.4	213	23	4899
10	Type 2	2	162	24	3888
11	Type 2	2.8	150	26	3900
12	Type 2	1.2	207	23	4761
13	Type 2	1.4	194	23	4462
14	Type 2	4	198	28	5544
15	Type 2	4.8	176	29	5104
16	Type 2	4.4	156	28	4368
17	Type 2	1.7	173	24	4152
18	Type 2	4.9	229	29	6641
19	Type 2	1.9	163	24	3912
20	Type 2	3.1	170	26	4420
21	Type 2	1.6	151	24	3624
22	Type 2	1.4	184	23	4232
23	Type 2	1.3	169	23	3887
24	Type 2	2.3	228	25	5700
25	Type 2	2.8	201	26	5226
26	Type 2	4.1	212	28	5936
27	Type 2	4.4	222	28	6216
28	Type 2	1	214	23	4922
29	Type 2	3.1	208	26	5408

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 3	8.8	498	18	8964
1	Type 3	9	469	18	8442
2	Type 3	9	477	18	8586
3	Type 3	9.3	314	18	5652
4	Type 3	8.7	482	18	8676
5	Type 3	7.8	200	17	3400
6	Type 3	6.3	338	16	5408
7	Type 3	6.3	437	16	6992
8	Type 3	8.3	258	17	4386
9	Type 3	6.4	452	16	7232
10	Type 3	7	339	16	5424
11	Type 3	7.8	480	17	8160
12	Type 3	6.2	307	16	4912
13	Type 3	6.4	391	16	6256
14	Type 3	9	263	18	4734
15	Type 3	9.8	256	18	4608
16	Type 3	9.4	276	18	4968
17	Type 3	6.7	442	16	7072
18	Type 3	9.9	344	18	6192
19	Type 3	6.9	237	16	3792
20	Type 3	8.1	291	17	4947
21	Type 3	6.6	488	16	7808
22	Type 3	6.4	201	16	3216
23	Type 3	6.3	311	16	4976
24	Type 3	7.3	227	16	3632
25	Type 3	7.8	250	17	4250
26	Type 3	9.1	293	18	5274
27	Type 3	9.4	315	18	5670
28	Type 3	6	218	16	3488
29	Type 3	8.1	423	17	7191

Trinl Id	Radar Type	Pulse Width (us)	PRI(us)	Number of Pulses	Waveform Length(us)
0	Type 4	17.2	498	15	7470
1	Type 4	17.8	469	15	7035
2	Type 4	17.7	477	15	7155
3	Type 4	18.5	314	16	5024
4	Type 4	17.1	482	15	7230
5	Type 4	15	200	14	2800
6	Type 4	11.7	338	12	4056
7	Type 4	11.7	437	12	5244
8	Type 4	16.2	258	14	3612
9	Type 4	12	452	12	5424
10	Type 4	13.3	339	13	4407
11	Type 4	15.1	480	14	6720
12	Type 4	11.5	307	12	3684
13	Type 4	11.8	391	12	4692
14	Type 4	17.7	263	15	3945
15	Type 4	19.5	256	16	4096
16	Type 4	18.7	276	16	4416
17	Type 4	12.7	442	12	5304
18	Type 4	19.7	344	16	5504
19	Type 4	13.1	237	13	3081
20	Type 4	15.7	291	14	4074
21	Type 4	12.5	488	12	5856
22	Type 4	11.8	201	12	2412
23	Type 4	11.7	311	12	3732
24	Type 4	13.9	227	13	2951
25	Type 4	15.1	250	14	3500
26	Type 4	17.9	293	15	4395
27	Type 4	18.6	315	16	5040
28	Type 4	11	218	12	2616
29	Type 4	15.7	423	14	5922

Trinl Id	Radar Type	Number of Bursts	Burst Period(s)	Waveform Length(s)	Center Frequency (GHz)
0	Type 5	16	0.75	12	5.53
1	Type 5	17	0.7058824	12	5.53
2	Type 5	17	0.7058824	12	5.53
3	Type 5	18	0.6666667	12	5.53
4	Type 5	16	0.75	12	5.53
5	Type 5	13	0.9230769	12	5.53
6	Type 5	9	1.3333333	12	5.53
7	Type 5	9	1.3333333	12	5.53
8	Type 5	15	0.8	12	5.53
9	Type 5	9	1.3333333	12	5.53
10	Type 5	11	1.0909091	12	5.495
11	Type 5	13	0.9230769	12	5.496
12	Type 5	8	1.5	12	5.494
13	Type 5	9	1.3333333	12	5.494
14	Type 5	17	0.7058824	12	5.498
15	Type 5	20	0.6	12	5.499
16	Type 5	19	0.6315789	12	5.499
17	Type 5	10	1.2	12	5.495
18	Type 5	20	0.6	12	5.5
19	Type 5	11	1.0909091	12	5.495
20	Type 5	14	0.8571429	12	5.563
21	Type 5	10	1.2	12	5.566
22	Type 5	9	1.3333333	12	5.566
23	Type 5	9	1.3333333	12	5.566
24	Type 5	12	1	12	5.564
25	Type 5	13	0.9230769	12	5.564
26	Type 5	17	0.7058824	12	5.562
27	Type 5	18	0.6666667	12	5.561
28	Type 5	8	1.5	12	5.566
29	Type 5	14	0.8571429	12	5.563

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	17
1	Type 6	1	333.3	9	0.3333	300	15
2	Type 6	1	333.3	9	0.3333	300	16
3	Type 6	1	333.3	9	0.3333	300	18
4	Type 6	1	333.3	9	0.3333	300	20
5	Type 6	1	333.3	9	0.3333	300	9
6	Type 6	1	333.3	9	0.3333	300	18
7	Type 6	1	333.3	9	0.3333	300	15
8	Type 6	1	333.3	9	0.3333	300	21
9	Type 6	1	333.3	9	0.3333	300	19
10	Type 6	1	333.3	9	0.3333	300	20
11	Type 6	1	333.3	9	0.3333	300	13
12	Type 6	1	333.3	9	0.3333	300	18
13	Type 6	1	333.3	9	0.3333	300	15
14	Type 6	1	333.3	9	0.3333	300	17
15	Type 6	1	333.3	9	0.3333	300	19
16	Type 6	1	333.3	9	0.3333	300	17
17	Type 6	1	333.3	9	0.3333	300	11
18	Type 6	1	333.3	9	0.3333	300	16
19	Type 6	1	333.3	9	0.3333	300	12
20	Type 6	1	333.3	9	0.3333	300	12
21	Type 6	1	333.3	9	0.3333	300	22
22	Type 6	1	333.3	9	0.3333	300	17
23	Type 6	1	333.3	9	0.3333	300	11
24	Type 6	1	333.3	9	0.3333	300	15
25	Type 6	1	333.3	9	0.3333	300	15
26	Type 6	1	333.3	9	0.3333	300	15
27	Type 6	1	333.3	9	0.3333	300	14
28	Type 6	1	333.3	9	0.3333	300	18
29	Type 6	1	333.3	9	0.3333	300	15