DFS MEASUREMENT REPORT

FCC PART 15 Subpart E WLAN 802.11a/n/ac/ax

FCC ID:	Q9DAPIN0518
Applicant:	Hewlett Packard Enterprise Company
Application Type:	Certification
Product:	ACCESS POINT
Model No.:	APIN0518
Brand Name:	aruba a Hewlett Packard Enterprise company , Hewlett Packard Enterprise
FCC Classification:	Unlicensed National Information Infrastructure (UNII)
FCC Rule Part(s):	Part 15.407 Section (h)(2) KDB 905462 D02v02, KDB 905462 D04v01
Type of Device:	Master Device
Test Date:	February 28 ~ May 17, 2020

Reviewed By: Paddy Chen
(Paddy Chen)

Approved By:
(Chenz Ker)

Testing Laboratory 3261

The test results relate only to the samples tested.
This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in KDB 905462 D02v02. Test results reported herein relate only to the item(s) tested.

Revision History

Report No.	Version	Description	Issue Date	Note
2003TW0003-U5	Rev. 01	Initial report	05-23-2020	Valid

Note: The APIN0518 is based on original report no. 2003TW0002-U5 (APEX0575). APEX0575 is currently FCC certified under FCC ID: Q9DAPEX057457 and ISED certified under IC: 4675A-APEX057457.

APIN0518 differs from the APEX0575 in the following ways:

1, Different shells;

2, APIN0518 use external antenna, APEX0575 use internal antenna;

Except for two above conditions, any other hardware and software are same.

According to FCC KDB905462 D02 table3, we use the worst case -64dBm as DFS Detection level, this is the level at the input of the receiver assuming a 0dBi receive antenna.

Conclusion: Reassess test item statistical performance, any others conducted items were same as APEX0575.

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Description Page

General Information

Applicant:	Hewlett Packard Enterprise Company
Applicant Address:	3333 Scott Blvd, Santa Clara, CA 95054, USA
Manufacturer:	Hewlett Packard Enterprise Company
Manufacturer Address:	3333 Scott Blvd, Santa Clara, CA 95054, USA
Test Site:	MRT Technology (Taiwan) Co., Ltd
Test Site Address:	No. 38, Fuxing Second Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C)
Test Device Serial No.:	APIN0518 S/N: CNK8KV101C (Used for the test of Statistical Performance Check)

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Fuxing Rd., Taoyuan, Taiwan (R.O.C)

- **MRT facility is a FCC registered (Reg. No. 291082 and 153292) test facility with the site description report on file and is designated by the FCC as an Accredited Test Film.**
- **MRT facility is an IC registered (MRT Reg. No. 21723-1) test laboratory with the site description on file at Industry Canada.**
- **MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (TAF) under the American Association for Laboratory Accreditation Program (TAF Cert. No. 3261) in EMC, Telecommunications and Radio testing for FCC, Industry Canada, Taiwan, EU and TELEC Rules.**

TAF certificate here

Testing Laboratory
3261

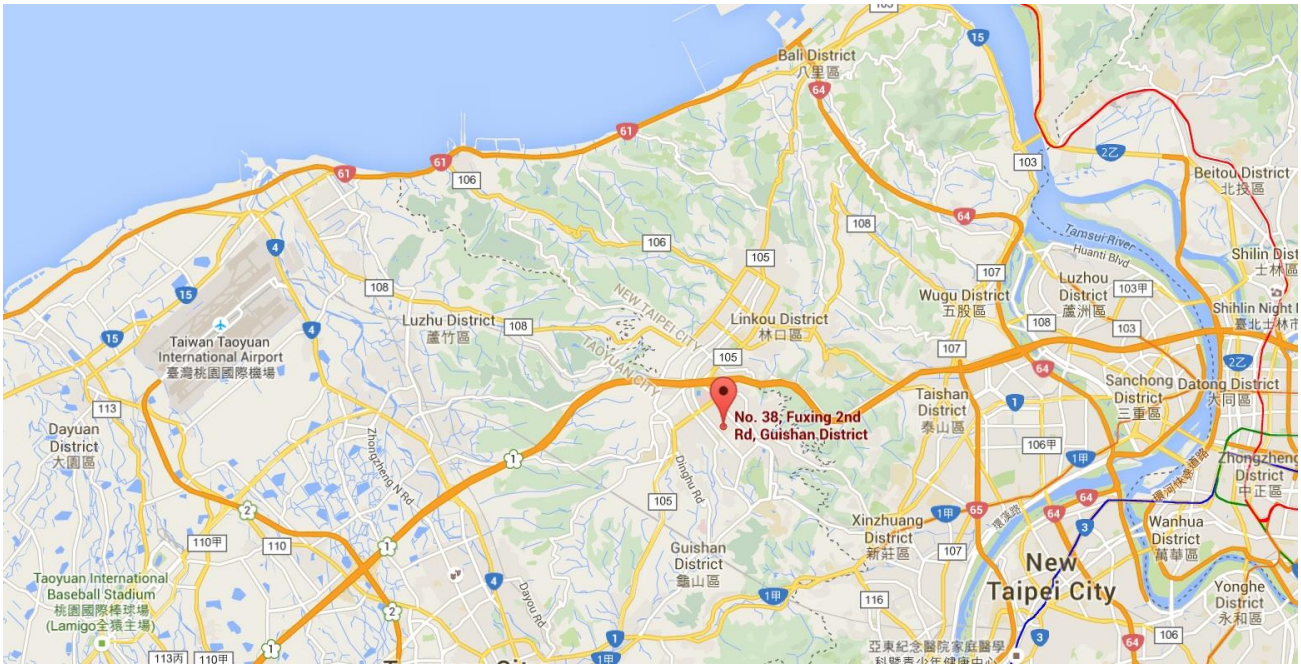
1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Innovation, Science and Economic Development Canada and Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taoyuan City. These measurement tests were conducted at the MRT Technology (Taiwan) Co., Ltd. Facility located at No.38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan (R.O.C).



2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name:	ACCESS POINT
Model No.:	APIN0518
Wi-Fi Specification:	802.11a/b/g/n/ac/ax
Bluetooth Specification:	v5.0 single mode
Zigbee Specification:	802.15.4
Software Version:	ArubaOS_8.7.0.0_73451
Operating Temperature:	-40 ~ 65 °C
Power Type:	PoE input
Operating Environment:	Indoor Use

2.2. Product Specification Subjective to this Report

Frequency Range:	For 802.11a/n-HT20/ac-VHT20/ax-HE20: 5260~5320MHz, 5500~5720MHz For 802.11n-HT40/ac-VHT40/ax-HE40: 5270~5310MHz, 5510~5710MHz For 802.11ac-VHT80/ax-HE80: 5290MHz, 5530MHz, 5610MHz, 5690MHz For 802.11ac-VHT160/ax-HE160: 5250MHz, 5570MHz
Type of Modulation:	802.11a/n/ac: OFDM 802.11ax: OFDMA
Power-on cycle:	Requires 80.4 seconds to complete its power-on cycle
Uniform Spreading: (For DFS Frequency Band)	For the 5250-5350MHz, 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.

Note: For other features of this EUT, test report will be issued separately.

2.3. Description of Available Antennas

Antenna No.	Antenna Type	Frequency Band (GHz)	Model No.	Max Peak Gain (dBi)	BF Dir Gain (dBi)	CDD Dir Gain (dBi)	
						For Power	For PSD
Wi-Fi External Antenna List (2.4GHz 2*2 MIMO, 5GHz 4*4 MIMO)							
1	Omni	2.4	AP-ANT-40	4.0	7.01	4.0	7.01
		5		5.0	11.02	5.0	11.02
2	Omni	2.4	AP-ANT-19	3.0	6.01	3.0	6.01
		5		6.0	12.02	6.0	12.02
3	Omni	2.4	AP-ANT-1W	3.8	6.81	3.8	6.81
		5		5.8	11.82	5.8	11.82
4	Omni	2.4	AP-ANT-13B	2.3	5.31	2.3	5.31
		5		4.0	10.02	4.0	10.02
5	Omni	2.4	AP-ANT-20W	2.0	5.01	2.0	5.01
		5		2.0	8.02	2.0	8.02
6	Omni	2.4	AP-ANT-22	2.0	5.01	2.0	5.01
		5		4.0	10.02	4.0	10.02
7	Omni	2.4	AP-ANT-16	3.9	6.91	3.9	6.91
		5		4.7	10.72	4.7	10.72
8 (Note 3)	Directional	2.4	AP-ANT-45	4.5	4.5	4.5	4.5
		5		5.5	8.51	5.5	8.51
9 (Note 3)	Directional	2.4	AP-ANT-48	8.5	8.5	8.5	8.5
		5		8.5	11.51	8.5	11.51
10 (Note 3)	Directional	2.4	ANT-2x2-2314	14.0	14.0	14.0	14.0
11 (Note 3)	Directional	5	ANT-4x4-5314	14.0	17.01	14.0	17.01
12 (Note 3)	Directional	5	ANT-3x3-5712	11.5	14.51	11.5	14.51
13 (Note 3)	Directional	2.4	AP-ANT-25	5.0	5.0	5.0	5.0
		5		5.0	8.01	5.0	8.01
14 (Note 3)	Directional	2.4	AP-ANT-28	7.5	7.5	7.5	7.5
		5		7.5	10.51	7.5	10.51
Bluetooth / ZigBee Internal Antenna							
PCB		2.4		4.2			

Note:

1. The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.

For CDD transmissions, directional gain is calculated as follows, N_{ANT} = 2, N_{SS} = 1.

If all antennas have the same gain, G_{ANT}, Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

- For power spectral density (PSD) measurements on all devices,

  Array Gain = 10 log (N_{ANT}/ N_{SS}) dB = 3.01;

- For power measurements on IEEE 802.11 devices,

  Array Gain = 0 dB for N_{ANT} ≤ 4;

2. The EUT also supports Beam Forming mode, and the Beam Forming support 802.11n/ac/ax, not include 802.11a/b/g. Directional gain = G_{ANT} + BF Gain, BF Gain was declared by the applicant.
3. These antennas have Cross-Polarized design, only each two outputs driving a pair of antennas that are cross-polarized, the detail see the antenna specification.

2.4. Description of Antenna RF Port

Antenna RF Port						
--	2.4GHz RF Port		5GHz RF Port			
Software Control Port	Ant 0	Ant 1	Ant 0	Ant 1	Ant 2	Ant 3

2.5. Operating Frequency and Channel List

802.11a/n-HT20/ac-VHT20/ax-HE20

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
144	5720 MHz	--	--	--	--

802.11n-HT40/ac-VHT40/ax-HE40

Channel	Frequency	Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz	102	5510 MHz
110	5550 MHz	118	5590 MHz	126	5630 MHz
134	5670 MHz	142	5710 MHz	--	--

802.11ac-VHT80/ax-HE80

Channel	Frequency	Channel	Frequency	Channel	Frequency
58	5290 MHz	106	5530 MHz	122	5610 MHz
138	5690 MHz	--	--	--	--

802.11ac-VHT160/ax-HE160

Channel	Frequency	Channel	Frequency	Channel	Frequency
50	5250 MHz	114	5570 MHz	--	--

2.6. Test Channel for this Report

Test Mode	Test Channel	Test Frequency
802.11ax-HE20	100	5500 MHz
802.11ax-HE40	102	5510 MHz
802.11ax-HE80	106	5530 MHz
802.11ax-HE160	50	5250 MHz
802.11ax-HE160	114	5570 MHz

2.7. Test Mode

Mode 1: Make the EUT communicate with client device at DFS channel (AP Mode)
Mode 2: Make the EUT communicate with client device at DFS channel (Mesh Mode)

3. DFS DETECTION THRESHOLDS AND RADAR TEST WAVEFORMS

3.1. Applicability

The following table from FCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02 lists the applicable requirements for the DFS testing.

Requirement	Operational Mode		
	Master	Client Without Radar Detection	Client With Radar Detection
Non-Occupancy Period	Yes	Not required	Yes
DFS Detection Threshold	Yes	Not required	Yes
Channel Availability Check Time	Yes	Not required	Not required
U-NII Detection Bandwidth	Yes	Not required	Yes

Table 3-1: Applicability of DFS Requirements Prior to Use of a Channel

Requirement	Operational Mode	
	Master Device or Client With Radar Detection	Client Without Radar Detection
DFS Detection Threshold	Yes	Not required
Channel Closing Transmission Time	Yes	Yes
Channel Move Time	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required

Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar Detection	Client Without Radar Detection
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required
Note: Frequencies selected for statistical performance check should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.		

Table 3-2: Applicability of DFS Requirements during normal operation

3.2. DFS Devices Requirements

Per FCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02 the following are the requirements for Master Devices:

(a) The Master Device will use DFS in order to detect Radar Waveforms with received signal strength above the DFS Detection Threshold in the 5250 ~ 5350 MHz and 5470 ~ 5725 MHz bands. DFS is not required in the 5150 ~ 5250 MHz or 5725 ~ 5825 MHz bands.

(b) Before initiating a network on a Channel, the Master Device will perform a Channel Availability Check for a specified time duration (Channel Availability Check Time) to ensure that there is no radar system operating on the Channel, using DFS described under subsection a) above.

(c) The Master Device initiates a U-NII network by transmitting control signals that will enable other U-NII devices to Associate with the Master Device.

(d) During normal operation, the Master Device will monitor the Channel (In-Service Monitoring) to ensure that there is no radar system operating on the Channel, using DFS described under a).

(e) If the Master Device has detected a Radar Waveform during In-Service Monitoring as described under d), the Operating Channel of the U-NII network is no longer an Available Channel. The Master Device will instruct all associated Client Device(s) to stop transmitting on this Channel within the Channel Move Time. The transmissions during the Channel Move Time will be limited to the Channel Closing Transmission Time.

(f) Once the Master Device has detected a Radar Waveform it will not utilize the Channel for the duration of the Non-Occupancy Period.

(g) If the Master Device delegates the In-Service Monitoring to a Client Device, then the combination will be tested to the requirements described under d) through f) above.

Channel Move Time and Channel Closing Transmission Time requirements are listed in the following table.

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 + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.
Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.	

Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions. Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

Table 3-3: DFS Response Requirements

3.3. DFS Detection Threshold Values

The DFS detection thresholds are defined for Master devices and Client Devices with In-service monitoring. These detection thresholds are listed in the following table.

Maximum Transmit Power	**Value (See Notes 1, 2, and 3)**
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna. Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response. Note 3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.	

Table 3-4: Detection Thresholds for Master Devices and Client Devices with Radar Detection

3.4. Parameters of DFS Test Signals

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.

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 3-6	$\text{Roundup}\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot 10^6}{\text{PRI}_{\text{usec}}}\right)\right\}$	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.					

Table 3-5: Parameters for Short Pulse Radar Waveforms

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.

Pulse Repetition Frequency Number	Pulse Repetition Frequency (Pulses Per Second)	Pulse Repetition Interval (Microseconds)
1	1930.5	518
2	1858.7	538
3	1792.1	558
4	1730.1	578
5	1672.2	598
6	1618.1	618
7	1567.4	638
8	1519.8	658
9	1474.9	678
10	1432.7	698
11	1392.8	718
12	1355	738
13	1319.3	758
14	1285.3	778
15	1253.1	798
16	1222.5	818
17	1193.3	838
18	1165.6	858
19	1139	878
20	1113.6	898
21	1089.3	918
22	1066.1	938
23	326.2	3066

Table 3-6: Pulse Repetition Intervals Values for Test A

Long Pulse Radar Test Waveform

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

Table 3-7: Parameters for Long Pulse Radar Waveforms

The parameters for this waveform are randomly chosen. Thirty unique waveforms are required for the Long Pulse Radar Type waveforms. If more than 30 waveforms are used for the Long Pulse Radar Type waveforms, then each additional waveform must also be unique and not repeated from the previous waveforms.

Frequency Hopping Radar Test Waveform

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

Table 3-8: Parameters for Frequency Hopping Radar Waveforms

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 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 – 5724MHz. 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.

3.5. Conducted Test Setup

The FCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02 describes a radiated test setup and a conducted test setup. The conducted test setup was used for this testing. Figure 3-1 shows the typical test setup.

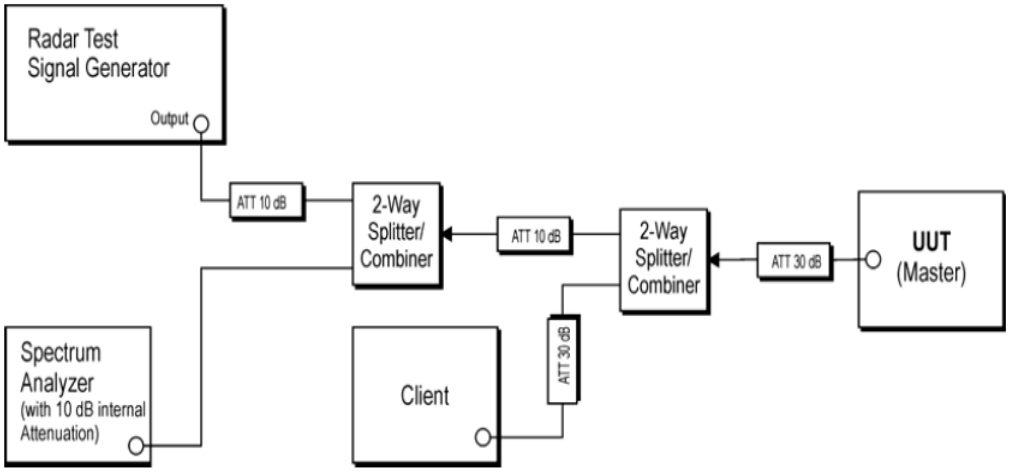


Figure 3-1: Conducted Test Setup where UUT is a Master and Radar Test Waveforms are injected into the Masters

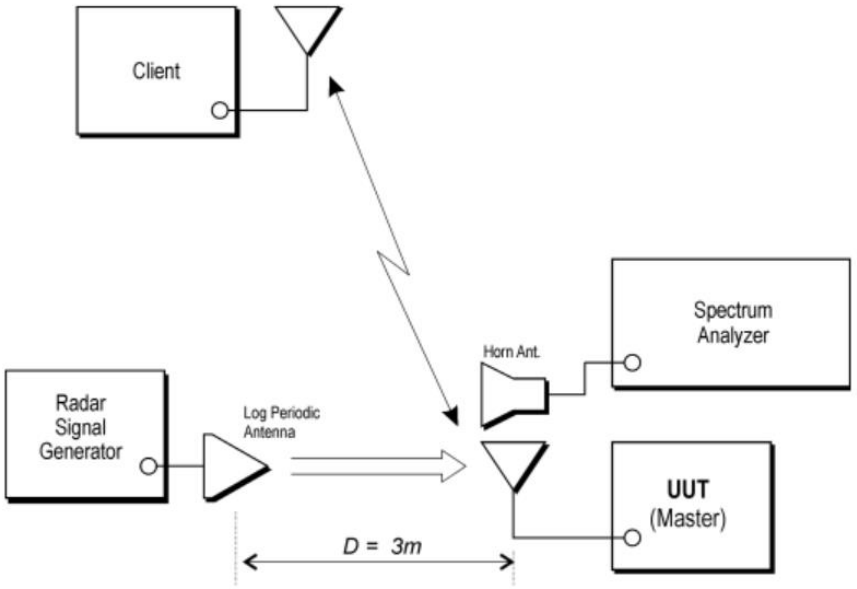


Figure 3-2: Radiated Test Setup where UUT is a Bridge or Mesh mode and Radar Test Waveforms are injected into the UUT

4. TEST EQUIPMENT CALIBRATION DATE

Dynamic Frequency Selection (DFS) - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	KEYSIGHT	N9010A	MRTTWA00012	1 year	2020/10/2
EXA Signal Analyzer	KEYSIGHT	N9010B	MRTTWA00074	1 year	2020/7/11
Vector Signal Generator	Keysight	N5182B	MRTTWA00010	1 year	2021/4/24
Combiner	WOKEN	0120A04208001S	MRTTWE00008	1 year	2021/6/18
Temperature/Humidity Meter	TFA	35.1078.10.IT	MRTTWA00032	1 year	2020/5/30
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	MRTTWA00003	1 year	2021/4/24

Client Information

Instrument	Manufacturer	Type No.	FCC ID
Wireless Network Adapter	Intel	AX200NGW	PD9AX200NG

Software	Version	Manufacturer	Function
Pulse Building(N7607B)	V3.0.0	Keysight	Radar Signal Generation Software
DFS Tool	V6.7	Keysight	DFS Test Software

5. TEST RESULT

5.1. Summary

Parameter	Limit	Test Result	Reference
UNII Detection Bandwidth Measurement	Refer Table 3-3	Pass	Section 5.4
Initial Channel Availability Check Time	Refer Table 3-3	Pass	Section 5.5
Radar Burst at the Beginning of the Channel Availability Check Time	Refer Table 3-3	Pass	Section 5.6
Radar Burst at the End of the Channel Availability Check Time	Refer Table 3-3	Pass	Section 5.7
In-Service Monitoring for Channel Move Time, Channel Closing Transmission Time	Refer Table 3-3	Pass	Section 5.8
Non-Occupancy Period	Refer Table 3-3	Pass	Section 5.8
Statistical Performance Check	Refer Table 3-3	Pass	Section 5.9

Note 1: Item “Statistical Performance Check” was tested by radiated test method and any other items were tested by conducted test method.

Note 2: We used the worst case level -64dBm as DFS detection thresholds for all DFS testing.

5.2. Radar Waveform Calibration

5.2.1. Calibration Setup

The conducted test setup was used for this calibration testing. Figure 3-2 shows the typical test setup.

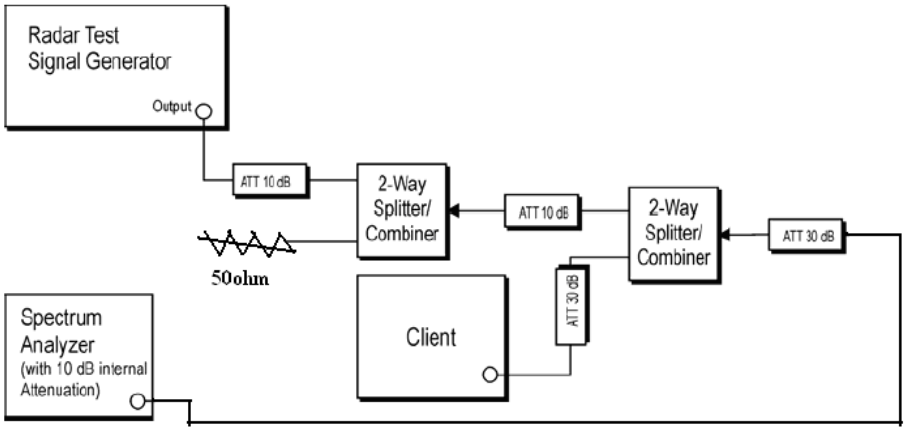


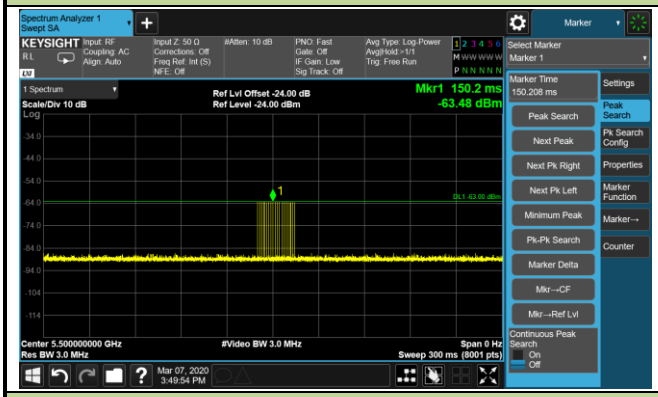
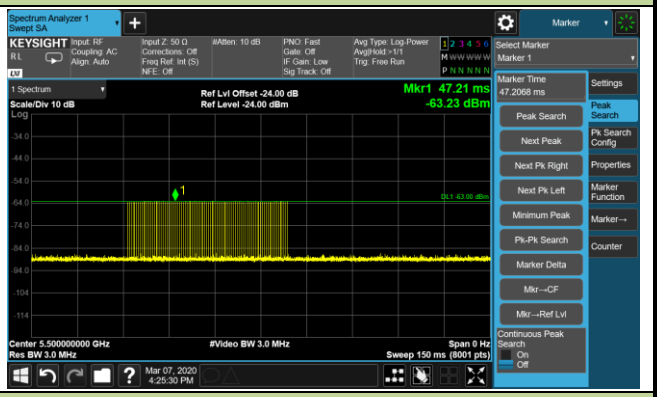
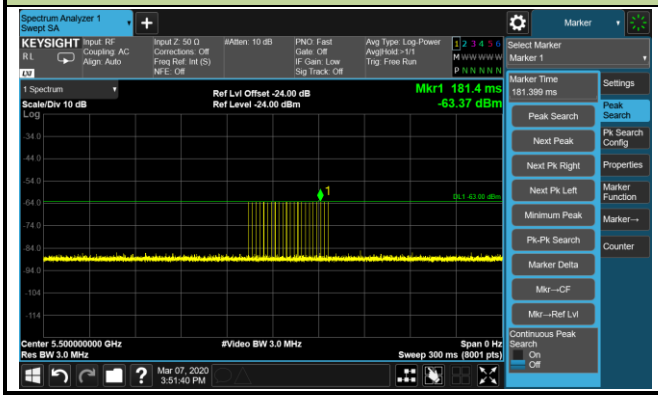
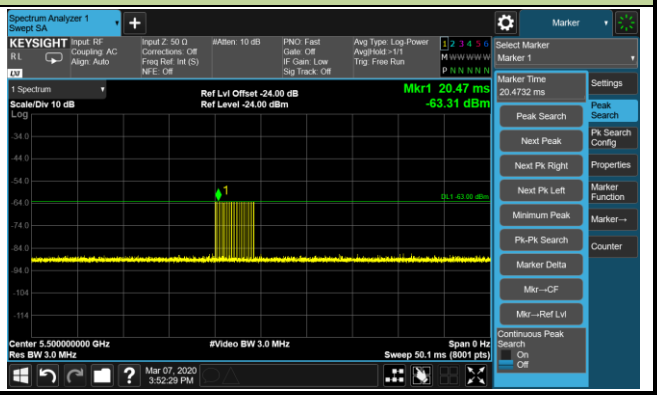
Figure 3-2: Conducted Test Setup

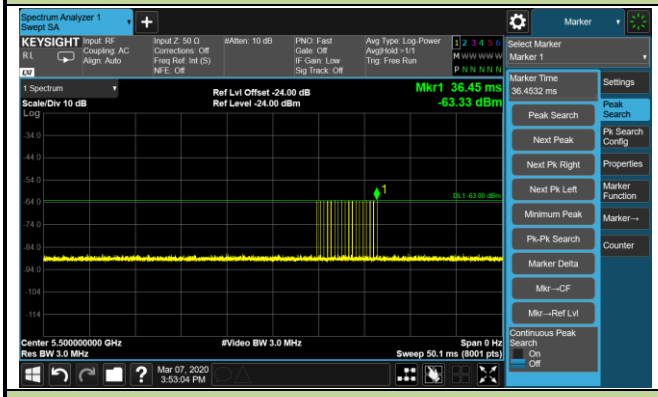
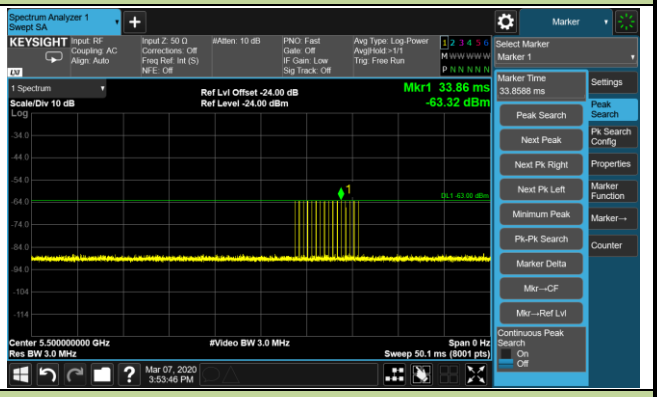
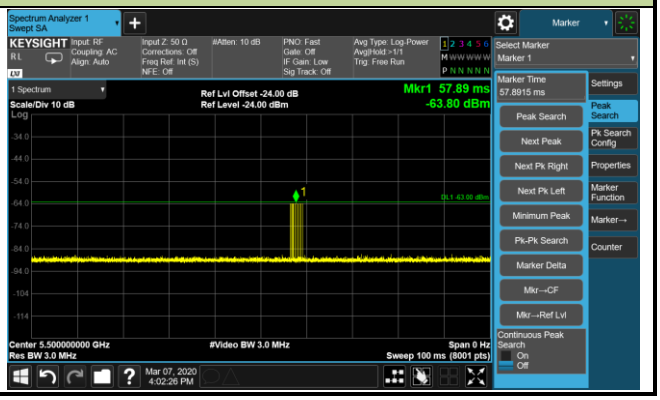
5.2.2. Calibration Procedure

The Interference Radar Detection Threshold Level is (-64dBm) + (0) [dBi] + 1 dB= -63 dBm that had been taken into account the output power range and antenna gain. The above equipment setup was used to calibrate the conducted Radar Waveform. A vector signal generator was utilized to establish the test signal level for each radar type. During this process there were replace 50ohm terminal form 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 used. The spectrum analyzer resolution bandwidth (RBW) and video bandwidth (VBW) were set to at least 3MHz. The vector signal generator amplitude was set so that the power level measured at the spectrum analyzer was (-64dBm) + (0) [dBi] + 1 dB= -63dBm. Capture the spectrum analyzer plots on short pulse radar types, long pulse radar type and hopping radar waveform.

5.2.3. Cablibration Result

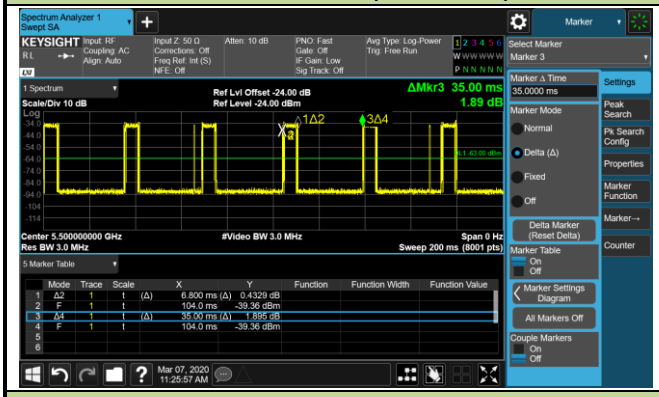
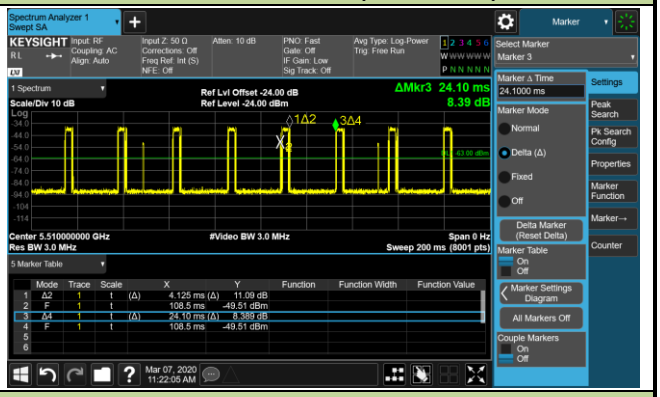
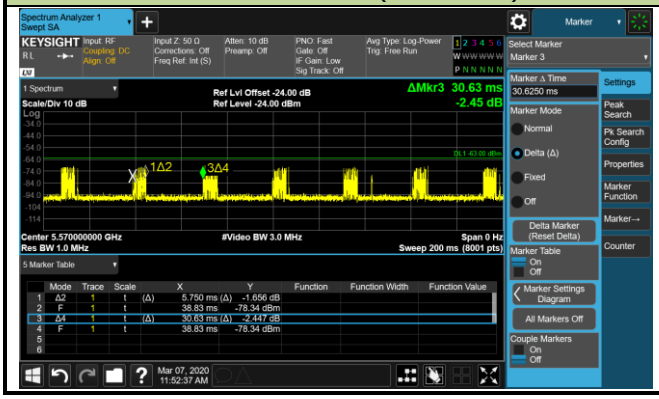
Product	ACCESS POINT	Temperature	27°C
Test Engineer	Kevin Ker	Relative Humidity	65%
Test Site	AC1	Test Date	2020/03/07
Test Item	Radar Waveform Calibration		

Radar #0	Radar #1 (Test A) PRI = 678us and the number of pulses = 78
	
Radar #1 (Test B) **PRI = 2.484ms and the number of pulses = 22**	**Radar #2**
	

Radar #3	Radar #4
	
Radar #5	**Radar #6**
	

5.2.4. Channel Loading Test Result

Product	ACCESS POINT	Temperature	27°C
Test Engineer	Kevin Ker	Relative Humidity	65%
Test Site	AC1	Test Date	2020/03/07
Test Item	Channel Loading		

802.11ax-HE20 (5500MHz)	802.11ax-HE40 (5510MHz)
	
802.11ax-HE80 (5530MHz)	**802.11ax-HE160 (5250MHz)**
	
802.11ax-HE160 (5570MHz)	
	

Test Mode	Test Frequency	Packet ratio	Requirement ratio	Test Result
802.11ax-HE20	5500 MHz	19.43%	≥ 17%	Pass
802.11ax-HE40	5510 MHz	17.12%	≥ 17%	Pass
802.11ax-HE80	5530 MHz	18.84%	≥ 17%	Pass
802.11ax-HE160	5250 MHz	19.35%	≥ 17%	Pass
802.11ax-HE160	5570 MHz	18.77%	≥ 17%	Pass
Note: System testing was performed with the designated iperf test file. This file is used by IP and Frame based systems for loading the test channel during the In-service compliance testing of the U-NII device. Packet ratio = Time On / (Time On + Off Time).				

5.3. UNII Detection Bandwidth Measurement

5.3.1. Test Limit

Minimum 100% of the UNII 99% transmission power bandwidth. During the U-NII Detection Bandwidth detection test, each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

5.3.2. Test Procedure

1. Adjust the equipment to produce a single Burst of any one of the Short Pulse Radar Types 0-4 in Table 3-5 at the center frequency of the EUT Operating Channel at the specified DFS Detection Threshold level.
2. The generating equipment is configured as shown in the Conducted Test Setup above section 3.5.
3. The EUT is set up as a stand-alone device (no associated Client or Master, as appropriate) and no traffic. Frame based systems will be set to a talk/listen ratio reflecting the worst case (maximum) that is user configurable during this test.
4. Generate a single radar Burst, and note the response of the EUT. Repeat for a minimum of 10 trials. The EUT must detect the Radar Waveform using the specified U-NII Detection Bandwidth criterion shown in Table 3-5. In cases where the channel bandwidth may exceed past the DFS band edge on specific channels (i.e., 802.11ac or wideband frame based systems) select a channel that has the entire emission bandwidth within the DFS band. If this is not possible, test the detection BW to the DFS band edge.
5. Starting at the center frequency of the UUT operating Channel, increase the radar frequency in 5 MHz steps, repeating the above test sequence, until the detection rate falls below the U-NII Detection Bandwidth criterion specified in Table 3-3. Repeat this measurement in 1MHz steps at frequencies 5 MHz below where the detection rate begins to fall. Record the highest frequency (denote as FH) at which detection is greater than or equal to the U-NII Detection Bandwidth criterion. Recording the detection rate at frequencies above FH is not required to demonstrate compliance.
6. Starting at the center frequency of the EUT operating Channel, decrease the radar frequency in 1 MHz steps, repeating the above item 4 test sequence, until the detection rate falls below the U-NII Detection Bandwidth criterion. Record the lowest frequency (denote as FL) at which detection is greater than or equal to the U-NII Detection Bandwidth criterion. Recording the detection rate at frequencies below FL is not required to demonstrate compliance.
7. The U-NII Detection Bandwidth is calculated as follows: U-NII Detection Bandwidth = FH – FL
8. 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.

5.3.3. Test Result

Product	ACCESS POINT	Temperature	27°C
Test Engineer	Amy Zhang	Relative Humidity	65%
Test Site	SR2	Test Date	2020/03/08
Test Item	Detection Bandwidth (802.11ax-HE20 mode - 5500MHz)		

Radar Frequency (MHz)	DFS Detection Trials (1=Detection, 0= No Detection)										
	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)
5490	0	0	0	0	0	0	0	0	0	0	0%
5490.4 FL	1	1	1	1	1	1	1	1	1	1	100%
5490	1	1	1	1	1	1	1	1	1	1	100%
5491	1	1	1	1	1	1	1	1	1	1	100%
5492	1	1	1	1	1	1	1	1	1	1	100%
5493	1	1	1	1	1	1	1	1	1	1	100%
5494	1	1	1	1	1	1	1	1	1	1	100%
5495	1	1	1	1	1	1	1	1	1	1	100%
5500	1	1	1	1	1	1	1	1	1	1	100%
5505	1	1	1	1	1	1	1	1	1	1	100%
5506	1	1	1	1	1	1	1	1	1	1	100%
5507	1	1	1	1	1	1	1	1	1	1	100%
5508	1	1	1	1	1	1	1	1	1	1	100%
5509	1	1	1	1	1	1	1	1	1	1	100%
5509.6 FH	1	1	1	1	1	1	1	1	1	1	100%
5510	0	0	0	0	0	0	0	0	0	0	0%

Note 1: All NII channels for this device have identical Channel bandwidths. Therefore, all DFS testing was done at 5500MHz. The 99% channel bandwidth is 19.01MHz. (See the 99% BW section of the RF report for further measurement details).

Note 2: Detection Bandwidth = FH - FL = 5509.6MHz - 5490.4MHz = 19.20MHz

Note 3: NII Detection Bandwidth Min. Limit (MHz): 19.00MHz x 100% = 19.00MHz.

Product	ACCESS POINT	Temperature	27°C
Test Engineer	Amy Zhang	Relative Humidity	65%
Test Site	SR2	Test Date	2020/03/08
Test Item	Detection Bandwidth (802.11ax-HE40 mode - 5510MHz)		

Radar Frequency (MHz)	DFS Detection Trials (1=Detection, 0= No Detection)										
	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)
5490	0	0	0	0	0	0	0	0	0	0	0%
5491 FL	1	1	1	1	1	1	1	1	1	1	100%
5492	1	1	1	1	1	1	1	1	1	1	100%
5493	1	1	1	1	1	1	1	1	1	1	100%
5494	1	1	1	1	1	1	1	1	1	1	100%
5495	1	1	1	1	1	1	1	1	1	1	100%
5500	1	1	1	1	1	1	1	1	1	1	100%
5505	1	1	1	1	1	1	1	1	1	1	100%
5510	1	1	1	1	1	1	1	1	1	1	100%
5515	1	1	1	1	1	1	1	1	1	1	100%
5520	1	1	1	1	1	1	1	1	1	1	100%
5525	1	1	1	1	1	1	1	1	1	1	100%
5526	1	1	1	1	1	1	1	1	1	1	100%
5527	1	1	1	1	1	1	1	1	1	1	100%
5528	1	1	1	1	1	1	1	1	1	1	100%
5529 FH	1	1	1	1	1	1	1	1	1	1	100%
5530	0	0	0	0	0	0	0	0	0	0	0%

Note 1: All NII channels for this device have identical Channel bandwidths. Therefore, all DFS testing was done at 5510MHz. The 99% channel bandwidth is 37.48MHz. (See the 99% BW section of the RF report for further measurement details).

Note 2: Detection Bandwidth = FH - FL = 5529MHz - 5491MHz = 38MHz.

Note 3: NII Detection Bandwidth Min. Limit (MHz): 37.54MHz x 100% = 37.54MHz.

Product	ACCESS POINT	Temperature	27°C
Test Engineer	Amy Zhang	Relative Humidity	65%
Test Site	SR2	Test Date	2020/03/08
Test Item	Detection Bandwidth (802.11ax-HE80 mode - 5530MHz)		

Radar Frequency (MHz)	DFS Detection Trials (1=Detection, 0= No Detection)										
	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)
5490	0	0	0	0	0	0	0	0	0	0	0%
5491 FL	1	1	1	1	1	1	1	1	1	1	100%
5492	1	1	1	1	1	1	1	1	1	1	100%
5493	1	1	1	1	1	1	1	1	1	1	100%
5494	1	1	1	1	1	1	1	1	1	1	100%
5495	1	1	1	1	1	1	1	1	1	1	100%
5500	1	1	1	1	1	1	1	1	1	1	100%
5505	1	1	1	1	1	1	1	1	1	1	100%
5510	1	1	1	1	1	1	1	1	1	1	100%
5515	1	1	1	1	1	1	1	1	1	1	100%
5520	1	1	1	1	1	1	1	1	1	1	100%
5525	1	1	1	1	1	1	1	1	1	1	100%
5530	1	1	1	1	1	1	1	1	1	1	100%
5535	1	1	1	1	1	1	1	1	1	1	100%
5540	1	1	1	1	1	1	1	1	1	1	100%
5545	1	1	1	1	1	1	1	1	1	1	100%
5550	1	1	1	1	1	1	1	1	1	1	100%
5555	1	1	1	1	1	1	1	1	1	1	100%
5560	1	1	1	1	1	1	1	1	1	1	100%
5565	1	1	1	1	1	1	1	1	1	1	100%
5566	1	1	1	1	1	1	1	1	1	1	100%
5567	1	1	1	1	1	1	1	1	1	1	100%
5568	1	1	1	1	1	1	1	1	1	1	100%
5569 FH	1	1	1	1	1	1	1	1	1	1	100%
5570	0	0	0	0	0	0	0	0	0	0	0%

Note 1: All NII channels for this device have identical Channel bandwidths. Therefore, all DFS testing was done at 5530MHz. The 99% channel bandwidth is 76.79MHz. (See the 99% BW section of the RF report for further measurement details).

Note 2: Detection Bandwidth = FH - FL = 5569MHz - 5491MHz = 78MHz.

Note 3: NII Detection Bandwidth Min. Limit (MHz): 76.75MHz x 100% = 76.75MHz.

Product	ACCESS POINT	Temperature	27°C
Test Engineer	Amy Zhang	Relative Humidity	65%
Test Site	SR2	Test Date	2020/03/08
Test Item	Detection Bandwidth (802.11ax-HE160 mode - 5250MHz)		

Radar Frequency (MHz)	DFS Detection Trials (1=Detection, 0= No Detection)										
	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)
5250 FL	1	1	1	1	1	1	1	1	1	1	100%
5255	1	1	1	1	1	1	1	1	1	1	100%
5260	1	1	1	1	1	1	1	1	1	1	100%
5265	1	1	1	1	1	1	1	1	1	1	100%
5270	1	1	1	1	1	1	1	1	1	1	100%
5275	1	1	1	1	1	1	1	1	1	1	100%
5280	1	1	1	1	1	1	1	1	1	1	100%
5285	1	1	1	1	1	1	1	1	1	1	100%
5290	1	1	1	1	1	1	1	1	1	1	100%
5295	1	1	1	1	1	1	1	1	1	1	100%
5300	1	1	1	1	1	1	1	1	1	1	100%
5305	1	1	1	1	1	1	1	1	1	1	100%
5310	1	1	1	1	1	1	1	1	1	1	100%
5315	1	1	1	1	1	1	1	1	1	1	100%
5320	1	1	1	1	1	1	1	1	1	1	100%
5325	1	1	1	1	1	1	1	1	1	1	100%
5326	1	1	1	1	1	1	1	1	1	1	100%
5327	1	1	1	1	1	1	1	1	1	1	100%
5328	1	1	1	1	1	1	1	1	1	1	100%
5329 FH	1	1	1	1	1	1	1	1	1	1	100%
5330	0	0	0	0	0	0	0	0	0	0	0%

Note 1: All NII channels for this device have identical channel bandwidths. Therefore, all DFS testing was done at 5250MHz. The 99% channel bandwidth fall within DFS band is 77.56MHz. (See the 99% BW section of the RF report for further measurement details).

Note 2: Detection Bandwidth = FH - FL = 5329MHz - 5250MHz = 79MHz.

Note 3: NII Detection Bandwidth Min. Limit (MHz): 77.53MHz x 100% = 77.63MHz.

Product	ACCESS POINT	Temperature	27°C
Test Engineer	Amy Zhang	Relative Humidity	65%
Test Site	SR2	Test Date	2020/03/08
Test Item	Detection Bandwidth (802.11ax-HE160 mode - 5570MHz)		

Radar Frequency (MHz)	DFS Detection Trials (1=Detection, 0= No Detection)										
	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)
5490	0	0	0	0	0	0	0	0	0	0	0%
5491 FL	1	1	1	1	1	1	1	1	1	1	100%
5492	1	1	1	1	1	1	1	1	1	1	100%
5493	1	1	1	1	1	1	1	1	1	1	100%
5494	1	1	1	1	1	1	1	1	1	1	100%
5495	1	1	1	1	1	1	1	1	1	1	100%
5500	1	1	1	1	1	1	1	1	1	1	100%
5505	1	1	1	1	1	1	1	1	1	1	100%
5510	1	1	1	1	1	1	1	1	1	1	100%
5515	1	1	1	1	1	1	1	1	1	1	100%
5520	1	1	1	1	1	1	1	1	1	1	100%
5525	1	1	1	1	1	1	1	1	1	1	100%
5530	1	1	1	1	1	1	1	1	1	1	100%
5535	1	1	1	1	1	1	1	1	1	1	100%
5540	1	1	1	1	1	1	1	1	1	1	100%
5545	1	1	1	1	1	1	1	1	1	1	100%
5550	1	1	1	1	1	1	1	1	1	1	100%
5555	1	1	1	1	1	1	1	1	1	1	100%
5560	1	1	1	1	1	1	1	1	1	1	100%
5565	1	1	1	1	1	1	1	1	1	1	100%
5570	1	1	1	1	1	1	1	1	1	1	100%
5575	1	1	1	1	1	1	1	1	1	1	100%
5580	1	1	1	1	1	1	1	1	1	1	100%
5585	1	1	1	1	1	1	1	1	1	1	100%
5590	1	1	1	1	1	1	1	1	1	1	100%
5595	1	1	1	1	1	1	1	1	1	1	100%
5600	1	1	1	1	1	1	1	1	1	1	100%
5600	1	1	1	1	1	1	1	1	1	1	100%
5610	1	1	1	1	1	1	1	1	1	1	100%
5615	1	1	1	1	1	1	1	1	1	1	100%
5620	1	1	1	1	1	1	1	1	1	1	100%

5625	1	1	1	1	1	1	1	1	1	1	100%
5630	1	1	1	1	1	1	1	1	1	1	100%
5635	1	1	1	1	1	1	1	1	1	1	100%
5640	1	1	1	1	1	1	1	1	1	1	100%
5645	1	1	1	1	1	1	1	1	1	1	100%
5646	1	1	1	1	1	1	1	1	1	1	100%
5647	1	1	1	1	1	1	1	1	1	1	100%
5648	1	1	1	1	1	1	1	1	1	1	100%
5649 FH	1	1	1	1	1	1	1	1	1	1	100%
5650	0	0	0	0	0	0	0	0	0	0	0%

Note 1: All NII channels for this device have identical Channel bandwidths. Therefore, all DFS testing was done at 5570MHz. The 99% channel bandwidth is 154.16MHz. (See the 99% BW section of the RF report for further measurement details).

Note 2: Detection Bandwidth = FH - FL = 5649MHz - 5491MHz = 158MHz.

Note 3: NII Detection Bandwidth Min. Limit (MHz): 155.83MHz x 100% = 155.83MHz.

5.4. Initial Channel Availability Check Time Measurement

5.4.1. Test Limit

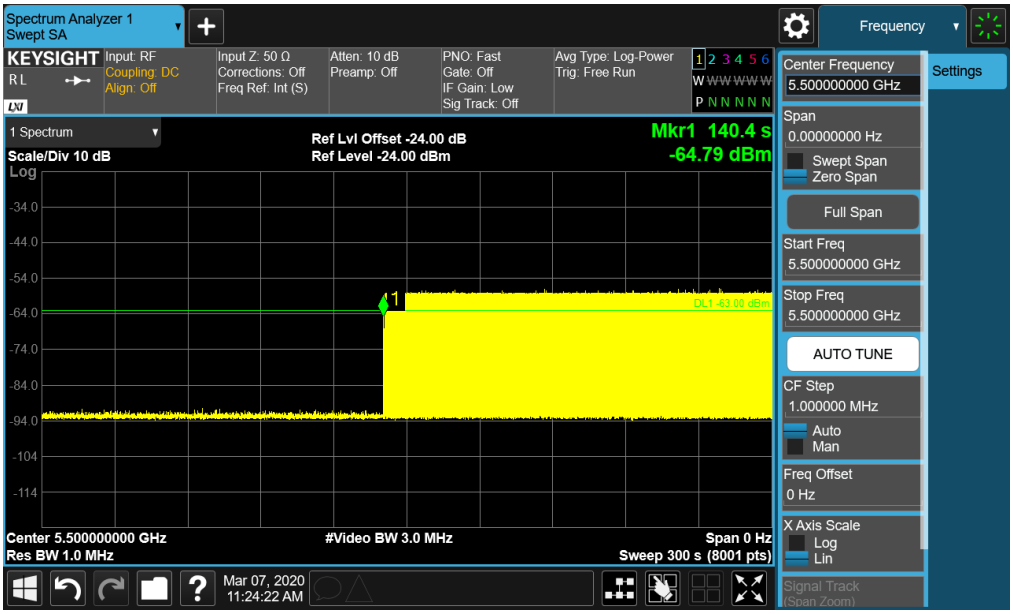
The EUT shall perform a Channel Availability Check to ensure that there is no radar operating on the channel. After power-up sequence, receive at least 1 minute on the intended operating frequency.

5.4.2. Test Procedure

1. The U-NII devices will be powered on and be instructed to operate on the appropriate U-NII Channel that must incorporate DFS functions. At the same time the EUT is powered on, the spectrum analyzer will be set to zero span mode with a 3 MHz RBW and 3 MHz VBW on the Channel occupied by the radar (Chr) with a 2.5 minute sweep time. The spectrum analyzer's sweep will be started at the same time power is applied to the U-NII device.
2. The EUT should not transmit any beacon or data transmissions until at least 1 minute after the completion of the power-on cycle.
3. Confirm that the EUT initiates transmission on the channel. Measurement system showing its nominal noise floor is marker1.

5.4.3. Test Result

Product	ACCESS POINT	Temperature	27°C
Test Engineer	Kevin Ker	Relative Humidity	65%
Test Site	AC1	Test Date	2020/03/07
Test Item	Initial Channel Availability Check Time (802.11ax-HE20 mode - 5500MHz)		

Initial Channel Availability Check Time

Note: The EUT does not transmit any beacon or data transmissions until at least 1 minute after the completion of the power-on cycle (80.4sec). Initial beacons/data transmissions are indicated by marker 1 (140.4 sec).

5.5. Radar Burst at the Beginning of the Channel Availability Check Time Measurement

5.5.1. Test Limit

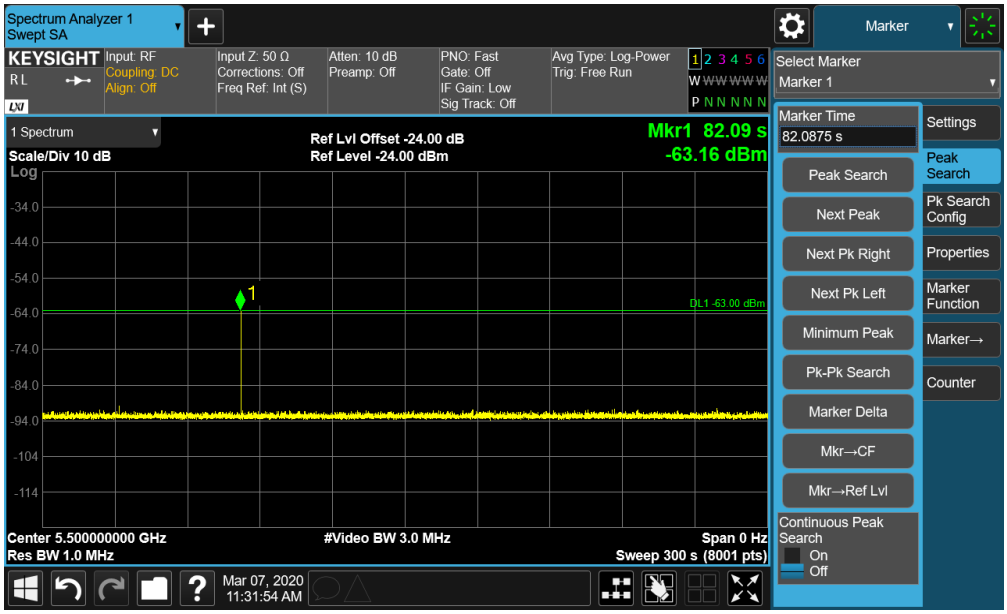
In beginning of the Channel Availability Check (CAC) Time, radar is detected on this channel, select another intended channel and perform a CAC on that channel.

5.5.2. Test Procedure

1. 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 occurs at the beginning of the Channel Availability Check Time.
2. The EUT is in completion power-up cycle (from T0 to T1). 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 one of Short Pulse Radar Types 0-4 at DFS Detection Threshold + 1 dB will commence within a 6 second window starting at T1.
3. Visual indication on the EUT of successful detection of the radar Burst will be recorded and reported. Observation of emissions will continue for 2.5 minutes after the radar Burst has been generated. Verify that during the 2.5 minutes measurement window no EUT transmissions occurred.

5.5.3. Test Result

Product	ACCESS POINT	Temperature	27°C
Test Engineer	Kevin Ker	Relative Humidity	65%
Test Site	AC1	Test Date	2020/03/07
Test Item	Beginning of the Channel Availability Check Time (802.11ax-HE20 - 5500MHz)		

Beginning of the Channel Availability Check Time

Note: The trace was triggered meanwhile the device power up.

5.6. Radar Burst at the End of the Channel Availability Check Time Measurement

5.6.1. Test Limit

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

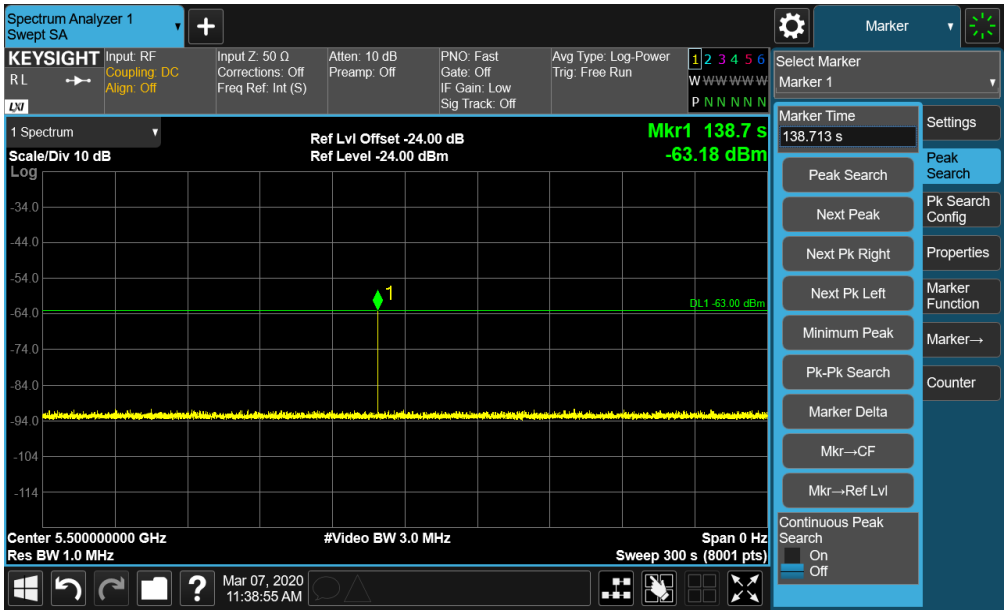
5.6.2. Test Procedure

1. 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 occurs at the beginning of the Channel Availability Check Time.
2. 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 thanT1 + 60 seconds. A single Burst of one of Short Pulse Radar Types 0-4 at DFS Detection Threshold + 1 dB will commence within a 6 second window starting at T1+ 54 seconds.
3. Visual indication on the EUT of successful detection of the radar Burst will be recorded and reported. Observation of emissions will continue for 2.5 minutes after the radar Burst has been generated. Verify that during the 2.5 minutes measurement window no EUT transmissions occurred.

5.6.3. Test Result

Product	ACCESS POINT	Temperature	27°C
Test Engineer	Kevin Ker	Relative Humidity	65%
Test Site	AC1	Test Date	2020/03/07
Test Item	End of the Channel Availability Check Time (802.11ax-HE20 - 5500MHz)		

End of the Channel Availability Check Time



Note: The trace was triggered meanwhile the device power up.

5.7. In-Service Monitoring for Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period Measurement

5.7.1. Test Limit

The EUT has In-Service Monitoring function to continuously monitor the radar signals. If the radar is detected, must leave the channel (Shutdown). The Channel Move Time to cease all transmissions on the current channel upon detection of a Radar Waveform above the DFS Detection Threshold within 10 sec. The total duration of Channel Closing Transmission Time is 260ms, consisting of data signals and the aggregate of control signals, by a U-NII device during the Channel Move Time. The Non-Occupancy Period time is 30 minute during which a Channel will not be utilized after a Radar Waveform is detected on that Channel.

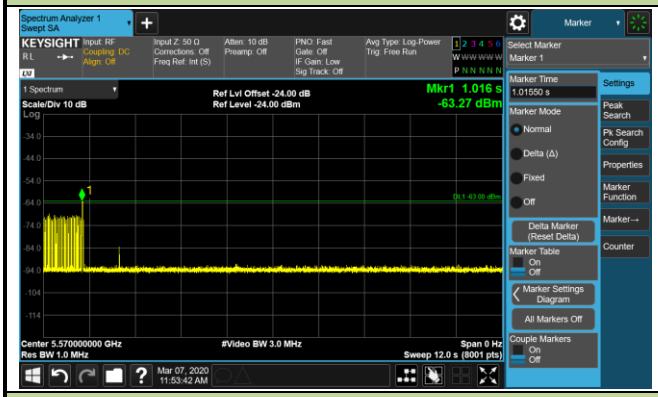
5.7.2. Test Procedure Used

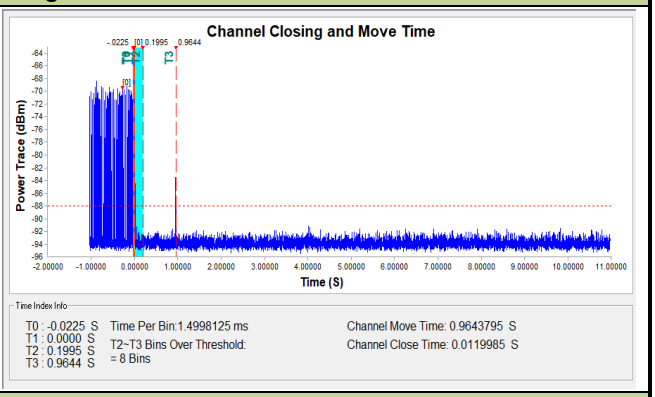
1. The test should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0.
2. When the radar burst with a level equal to the DFS Detection Threshold + 1dB is generated on the Operating Channel of the U-NII device. A U-NII device operating as a Master Device will associate with the Client Device at Channel. 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 Detection Threshold + 1dB.
3. Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the EUT during the observation time (Channel Move Time).
4. Measurement of the aggregate duration of the Channel Closing Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: Dwell (1.5ms) = S (12 sec) / B (8000); where Dwell is the dwell time per spectrum analyzer sampling bin, S is the sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: C = N X Dwell; where C is the Closing Time, N is the number of spectrum analyzer sampling bins showing a U-NII transmission and Dwell is the dwell time per bin.
5. Measure the EUT for more than 30 minutes following the channel close/move time to verify that the EUT does not resume any transmissions on this Channel.

5.7.3. Test Result

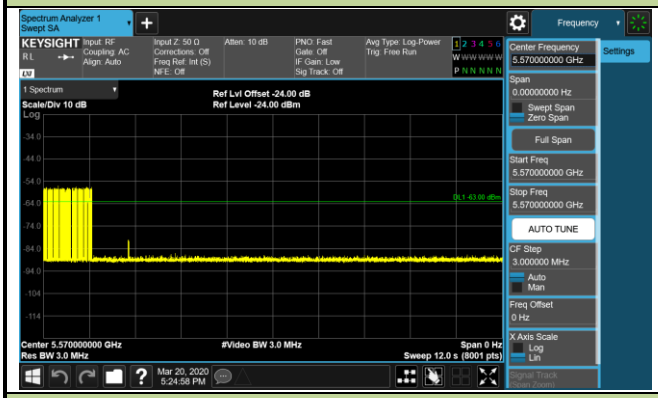
Product	ACCESS POINT	Temperature	23 ~ 27°C
Test Engineer	Kevin Ker	Relative Humidity	48 ~ 65%
Test Site	AC1	Test Date	2020/03/07 ~ 2020/03/20
Test Item	Channel Move Time and Channel Closing Transmission Time (802.11ax-HE160 - 5570MHz)		

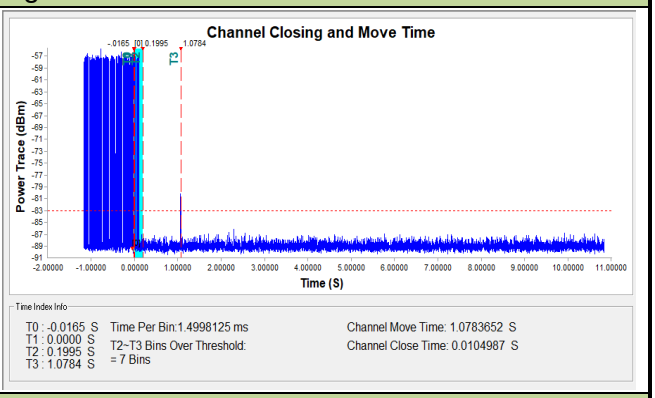
Channel Move Time and Channel Closing Transmission Time - AP Mode





Channel Move Time and Channel Closing Transmission Time – Mesh Mode





Non-Occupancy Period

Parameter	Test Result		Limit
	Type 0		
	AP Mode	Mesh Mode	
Channel Move Time (s)	0.964s	1.078s	<10s
Channel Closing Transmission Time (ms) (Note)	12.0ms	10.5ms	< 60ms
Non-Occupancy Period (min)	≥ 30min		≥ 30 min
Note: 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 seconds period. The aggregate duration of control signals will not count quiet periods in between transmissions.			

5.8. Statistical Performance Check Measurement

5.8.1. Test Limit

The minimum percentage of successful detection requirements found in below table when a radar burst with a level equal to the DFS Detection Threshold + 1dB is generated on the Operating Channel of the U-NII device (In- Service Monitoring).

Radar Type	Minimum Number of Trails	Detection Probability
0	30	Pd > 60%
1	30(15 of test A and 15 of test B)	Pd > 60%
2	30	Pd > 60%
3	30	Pd > 60%
4	30	Pd > 60%
Aggregate (Radar Types 1-4)	120	Pd > 80%
5	30	Pd > 80%
6	30	Pd > 70%

The percentage of successful detection is calculated by:
(Total Waveform Detections / Total Waveform Trails) * 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: (Pd1 + Pd2 + Pd3 + Pd4) / 4.

5.8.2. Test Procedure

1. Stream the MPEG test file from the Master Device to the Client Device on the test Channel for the entire period of the test.
2. At time T0 the Radar Waveform generator sends the individual waveform for each of the Radar Types 1-6, at levels equal to the DFS Detection Threshold + 1dB, on the Operating Channel.
3. Observe the transmissions of the EUT at the end of the Burst on the Operating Channel for duration greater than 10 seconds for Short Pulse Radar Types 0 to ensure detection occurs.
4. Observe the transmissions of the EUT at the end of the Burst on the Operating Channel for duration greater than 22 seconds for Long Pulse Radar Type 5 to ensure detection occurs.
5. The device can utilize a test mode to demonstrate when detection occurs to prevent the need to reset the device between trial runs.
6. The Minimum number of trails, minimum percentage of successful detection and the average minimum percentage of successful detection are found in below table.

5.8.3. Test Result

Product	ACCESS POINT	Temperature	23 ~ 25°C
Test Engineer	Amy Zhang	Relative Humidity	48 ~ 62%
Test Site	SR2	Test Date	2020/05/13 ~ 2020/05/15
Test Item	Radar Statistical Performance Check (802.11ax-HE20 - 5500MHz)		

Radar Type 1 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5490.4	1	898	59	1
2	5490.4	1	538	98	1
3	5490.4	1	838	63	1
4	5490.4	1	718	74	1
5	5490.4	1	698	76	1
6	5490.4	1	938	57	1
7	5490.4	1	678	78	1
8	5490.4	1	618	86	1
9	5490.4	1	658	81	1
10	5490.4	1	918	58	1
11	5500.0	1	798	67	1
12	5500.0	1	578	92	1
13	5500.0	1	558	95	1
14	5500.0	1	638	83	1
15	5500.0	1	818	65	1
16	5500.0	1	2926	19	1
17	5500.0	1	2882	19	1
18	5500.0	1	1636	33	1
19	5500.0	1	2664	20	1
20	5500.0	1	1779	30	1
21	5509.6	1	642	83	1
22	5509.6	1	1412	38	1
23	5509.6	1	2696	20	1
24	5509.6	1	2260	24	1
25	5509.6	1	1904	28	1
26	5509.6	1	1378	39	1

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
27	5509.6	1	1654	32	1
28	5509.6	1	2069	26	1
29	5509.6	1	2018	27	1
30	5509.6	1	2830	19	1
Detection Percentage (%)					100%

Radar Type 2 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5490.4	3.7	219	26	1
2	5490.4	1.5	203	29	1
3	5490.4	4.8	153	27	1
4	5490.4	3.4	218	26	1
5	5490.4	4.0	225	28	1
6	5490.4	4.0	193	23	1
7	5490.4	4.9	194	27	1
8	5490.4	4.0	174	29	1
9	5490.4	3.2	173	26	1
10	5490.4	2.8	216	29	1
11	5500.0	3.4	175	23	1
12	5500.0	3.4	189	28	1
13	5500.0	2.1	172	28	1
14	5500.0	3.4	216	28	1
15	5500.0	3.4	212	29	1
16	5500.0	4.5	155	29	1
17	5500.0	3.2	219	23	1
18	5500.0	4.1	209	27	0
19	5500.0	1.4	183	24	1
20	5500.0	4.4	194	25	0
21	5509.6	3.4	221	26	1
22	5509.6	4.7	226	27	1
23	5509.6	2.6	186	27	1
24	5509.6	3.7	210	26	1
25	5509.6	4.9	160	28	1
26	5509.6	1.8	224	23	1
27	5509.6	5.0	167	28	1
28	5509.6	1.6	168	25	1
29	5509.6	1.9	194	26	1
30	5509.6	4.3	227	24	1
Detection Percentage (%)					93.3%

Radar Type 3 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5490.4	6.4	335	17	1
2	5490.4	7.1	398	16	1
3	5490.4	7.8	450	17	1
4	5490.4	9.8	218	17	1
5	5490.4	7.8	416	17	1
6	5490.4	6.2	383	16	1
7	5490.4	8.3	424	17	1
8	5490.4	6.8	386	18	1
9	5490.4	6.3	327	18	1
10	5490.4	7.8	372	17	1
11	5500.0	8.7	203	18	1
12	5500.0	9.2	346	16	1
13	5500.0	6.4	411	17	1
14	5500.0	7.4	288	18	1
15	5500.0	9.0	399	18	1
16	5500.0	6.0	346	17	1
17	5500.0	7.2	325	16	1
18	5500.0	6.9	421	18	1
19	5500.0	6.1	240	18	0
20	5500.0	9.4	461	18	1
21	5509.6	9.3	430	16	0
22	5509.6	6.4	254	18	1
23	5509.6	8.9	243	17	1
24	5509.6	6.0	356	18	0
25	5509.6	9.1	338	18	1
26	5509.6	9.2	284	17	1
27	5509.6	7.3	309	17	1
28	5509.6	6.3	203	16	1
29	5509.6	8.3	400	16	1
30	5509.6	8.6	206	16	1
Detection Percentage (%)					90%

Radar Type 4 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5490.4	12.9	226	13	1
2	5490.4	19.8	340	14	1
3	5490.4	13.1	282	15	0
4	5490.4	16.0	414	13	1
5	5490.4	16.7	254	16	1
6	5490.4	17.5	452	13	1
7	5490.4	16.1	445	14	1
8	5490.4	13.1	378	14	1
9	5490.4	18.8	420	14	1
10	5490.4	14.6	248	14	1
11	5500.0	15.1	360	13	0
12	5500.0	15.5	478	16	1
13	5500.0	13.9	494	13	1
14	5500.0	17.5	248	12	1
15	5500.0	19.3	312	13	1
16	5500.0	17.7	236	13	1
17	5500.0	16.7	472	14	0
18	5500.0	18.6	293	14	1
19	5500.0	17.0	492	13	1
20	5500.0	16.4	429	15	1
21	5509.6	14.8	405	16	1
22	5509.6	18.3	376	13	1
23	5509.6	12.8	412	16	0
24	5509.6	18.5	210	16	1
25	5509.6	13.9	274	15	1
26	5509.6	11.1	241	15	1
27	5509.6	12.0	294	13	1
28	5509.6	11.7	474	13	1
29	5509.6	19.1	491	15	1
30	5509.6	19.3	468	15	1
Detection Percentage (%)					86.7%

Note: In addition an average minimum percentage of successful detection across all four Short pulse radar test waveforms is as follows: $\frac{P_d1+P_d2+P_d3+P_d4}{4}$ = (100%+93.3%+90%+86.7%)/4 = 92.5% (>80%)

Radar Type 5 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	1=Detection 0=No Detection	Trail #	Test Freq. (MHz)	1=Detection 0=No Detection
1	5500.0	1	16	5498.6	1
2	5500.0	1	17	5498.6	1
3	5500.0	1	18	5498.6	1
4	5500.0	1	19	5498.6	1
5	5500.0	1	20	5495.4	1
6	5500.0	1	21	5505.4	1
7	5500.0	1	22	5502.2	1
8	5500.0	1	23	5501.0	1
9	5500.0	1	24	5505.8	1
10	5500.0	1	25	5507.0	1
11	5494.2	1	26	5504.6	1
12	5493.0	1	27	5501.0	1
13	5499.0	1	28	5503.0	1
14	5499.0	1	29	5505.0	1
15	5497.4	1	30	5504.2	1
Detection Percentage (%)					100%

Type 5 Radar Waveform_1						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	86.7	9			253.05
2	3	98.7	9	1672	1352	74.835
3	3	82.6	9	1931	1596	417.714
4	2	51.9	9	1949		190.091
5	1	78	9			657.209
6	3	75.5	9	1854	1010	146.746
7	2	98.6	9	1343		106.313
8	2	54.4	9	1366		145.9
9	2	83.1	9	1529		726.507
10	3	82.3	9	1641	1574	590.934
11	1	66.3	9			800.681
12	1	69.1	9			537.919
13	1	59	9			471.986
14	2	89.2	9	1405		647.943

Type 5 Radar Waveform_2

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	98.1	8	1653		271.605
2	1	98.4	8			483.851
3	3	95.9	8	1354	1384	375.492
4	2	90.2	8	1497		851.213
5	3	56.7	8	1214	1046	398.184
6	3	50.9	8	1277	1974	857.685
7	1	53.9	8			914.095
8	1	64.7	8			893.036
9	1	82.8	8			375.317
10	3	54.7	8	1732	1041	624.218
11	1	99.7	8			712.109

Type 5 Radar Waveform_3

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	67.4	16	1764		1258.87
2	2	85.3	16	1348		1380.35
3	1	85	16			1322.91
4	1	65.4	16			369.58
5	1	91.5	16			92.17
6	3	98.3	16	1403	1287	59.75
7	3	87.5	16	1773	1645	1231.4
8	2	59.9	16	1705		312.3

Type 5 Radar Waveform_4

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	60.5	10	1406		741.806
2	2	51	10	1547		277.57
3	2	73.3	10	1633		612.21
4	1	90.3	10			102.73
5	1	51.3	10			410.38
6	1	72.8	10			437.81
7	1	54.8	10			45.5
8	2	58.2	10	1197		643.44
9	2	54.5	10	1100		205.94
10	3	83.9	10	1346	1541	402.81
11	3	83.9	10	1923	1430	102.35
12	2	93.5	10	1265		599.6
13	2	96.8	10	1362		302.97
14	3	81.5	10	1514	1621	545.7
15	2	96.8	10	1379		157
16	2	87.9	10	1567		511.2

Type 5 Radar Waveform_5

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	56.1	17	1171	1234	624.441
2	2	58.5	17	1362		111.831
3	1	94.5	17			673.554
4	2	64.4	17	1630		359.161
5	2	92.8	17	1520		814.099
6	3	56	17	1795	1247	396.486
7	3	53.6	17	1762	1151	185.463
8	1	91.8	17			746.31
9	2	95.5	17	1310		153.027
10	3	77.3	17	1563	1043	191.664
11	2	83.7	17	1040		19.021
12	2	93	17	1558		282.939
13	2	50.8	17	1913		488.886
14	2	73.6	17	1363		329.643

Type 5 Radar Waveform_6

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	94	8			590.904
2	2	89.1	8	1824		207.576
3	2	78.8	8	1343		43.56
4	2	96.1	8	1541		211.64
5	3	69.3	8	1762	1856	6.11
6	2	97.8	8	1337		496.73
7	2	73	8	1337		233.61
8	3	76.1	8	1134	1592	507.61
9	3	60.8	8	1197	1816	394.62
10	1	51.5	8			462.01
11	2	75.5	8	1718		478.35
12	2	54.6	8	1354		414.21
13	2	99.1	8	1684		337.37
14	2	61.1	8	1950		238.71
15	2	54.8	8	1902		103.03
16	1	66.6	8			323.89
17	1	93.6	8			174.05
18	1	51.2	8			380.7
19	3	92.6	8	1227	1415	89.3
20	2	65.7	8	1876		541.2

Type 5 Radar Waveform_7

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	57	15	1156		290.967
2	2	91.2	15	1638		588.55
3	2	52.6	15	1899		535.2
4	2	72.7	15	1057		471
5	2	55.2	15	1610		657.94
6	1	75.5	15			366.49
7	1	91.3	15			487.02
8	1	66.6	15			638.97
9	3	97.3	15	1399	1914	709.29
10	2	91.6	15	1495		732.32
11	2	74.1	15	1416		694.59
12	1	57.2	15			139.33
13	3	53.3	15	1693	1110	629.41
14	2	56.7	15	1222		287.6
15	2	54.1	15	1336		607.7
16	1	76.7	15			111.2

Type 5 Radar Waveform_8

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μ sec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	85.3	5	1678		506.64
2	2	98.5	5	1483		249.983
3	1	96.7	5			693.025
4	2	70.7	5	1659		406.733
5	1	53.8	5			630.251
6	2	59	5	1583		301.688
7	3	53.2	5	1180	1270	213.016
8	1	92.9	5			27.074
9	3	92.3	5	1960	1413	352.431
10	3	76.4	5	1193	1517	314.459
11	1	83.8	5			3.426
12	2	53.7	5	1353		162.154
13	1	87.8	5			324.332
14	1	54.2	5			409.469
15	3	63.4	5	1598	1104	227.447
16	3	71.5	5	1267	1188	678.765
17	1	95.5	5			510.582

Type 5 Radar Waveform_9

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	83.5	15	1211		350.919
2	3	70.2	15	1905	1886	742.31
3	2	68.9	15	1180		195.7
4	2	57.8	15	1989		652.38
5	2	51.2	15	1419		644.1
6	1	94	15			299.11
7	2	76.6	15	1317		596.52
8	1	98.4	15			418.57
9	3	91.4	15	1786	1392	256.61
10	3	91.6	15	1529	1335	613.38
11	2	61.6	15	1136		200.19
12	3	70	15	1499	1809	516.77
13	3	61.1	15	1246	1519	727.95
14	3	75.9	15	1557	1135	147.35
15	3	66.4	15	1769	1138	590.9
16	3	96.1	15	1075	1136	500.2

Type 5 Radar Waveform_10

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	50.1	11			1192.22
2	1	80.4	11			1240.93
3	2	97.5	11	1025		1022.75
4	1	66.9	11			621.34
5	3	94.6	11	1012	1117	1102.39
6	2	65.5	11	1310		1337.36
7	1	89	11			1169.4
8	2	79.9	11	1300		666.2

Type 5 Radar Waveform_11

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	64	8			59.672
2	2	87.3	8	1080		615.58
3	2	95.4	8	1220		766.65
4	3	70.7	8	1453	1033	743.33
5	3	94.2	8	1231	1953	719.4
6	2	96.9	8	1114		38.6
7	3	89.3	8	1163	1172	379.75
8	2	91.9	8	1829		424.65
9	2	92.6	8	1216		436.88
10	2	66.2	8	1805		717.11
11	3	98.4	8	1223	1297	477.2
12	2	89.5	8	1586		772.41
13	3	75.6	8	1457	1067	398.29
14	3	74.4	8	1906	1987	36.6
15	1	97	8			772.1

Type 5 Radar Waveform_12

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	73.9	5	1962		632.31
2	2	66.9	5	1116		277.751
3	1	73	5			350.372
4	2	93.8	5	1153		525.123
5	2	55.7	5	1865		742.054
6	3	81.9	5	1649	1090	530.445
7	2	76.6	5	1641		769.955
8	2	95.1	5	1318		609.476
9	1	80.4	5			173.547
10	3	82.5	5	1859	1164	657.918
11	1	87	5			803.809

Type 5 Radar Waveform_13

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	87.9	20	1175	1322	366.918
2	1	95.6	20			54.118
3	2	92.7	20	1000		426.485
4	1	96.8	20			661.703
5	3	84.6	20	1049	1019	155.821
6	2	89.4	20	1435		70.268
7	3	59.6	20	1140	1871	364.476
8	1	70.5	20			540.784
9	1	84.4	20			316.081
10	3	83	20	1493	1416	62.779
11	1	93.4	20			164.846
12	2	51.7	20	1823		319.034
13	3	56.2	20	1827	1060	596.502
14	2	71.1	20	1733		214.459
15	2	61.2	20	1694		374.047
16	1	96.1	20			454.965
17	2	57.8	20	1699		84.782

Type 5 Radar Waveform_14						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	66.6	20	1079		689.786
2	2	98.2	20	1998		253.3
3	3	83.3	20	1828	1771	776.87
4	2	58.1	20	1787		536.38
5	2	64.6	20	1038		186.95
6	2	77.3	20	1468		305.61
7	2	58.8	20	1820		193.35
8	1	78.1	20			609.08
9	1	59	20			115.77
10	2	98.8	20	1987		288.4

Type 5 Radar Waveform_15						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	97.4	16	1197	1819	25.142
2	1	60.2	16			231.097
3	1	52.4	16			805.834
4	3	82	16	1353	1004	161.721
5	3	89.1	16	1291	1407	839.069
6	2	55.3	16	1661		398.056
7	3	88.1	16	1690	1930	688.993
8	2	74.5	16	1766		31.43
9	2	62.4	16	1356		245.527
10	3	70.5	16	1790	1774	166.414
11	1	75	16			703.901
12	3	63.2	16	1788	1892	414.389
13	2	78.4	16	1602		630.386
14	1	53.9	16			404.443

Type 5 Radar Waveform_16						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	59.6	19	1247		12.43
2	3	87.3	19	1444	1585	93.192
3	3	76.2	19	1565	1280	594.41
4	2	56.5	19	1678		362.76
5	1	75.6	19			138.71
6	2	74.2	19	1432		150.63
7	3	78	19	1918	1020	443.02
8	1	74.9	19			417.5
9	1	72.5	19			80.25
10	3	69.4	19	1157	1747	550.86
11	3	55.8	19	1619	1556	145.53
12	2	66.3	19	1147		48.99
13	2	97.1	19	1225		208.87
14	3	60.8	19	1158	1289	114.5
15	1	64.1	19			717.6

Type 5 Radar Waveform_17						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	92.8	19	1366	1744	196.055
2	2	63.9	19	1881		5.092
3	1	58.3	19			29.46
4	2	95.8	19	1934		696.74
5	2	94.8	19	1927		96.23
6	1	91.8	19			657.03
7	2	69.7	19	1968		487.69
8	1	96.8	19			724.9
9	2	81.7	19	1448		564.71
10	3	79.5	19	1213	1625	369.55
11	3	56.3	19	1489	1258	380.84
12	2	70	19	1868		478.6
13	2	99	19	1213		344.67
14	1	50.3	19			36.24
15	2	63.6	19	1345		301.9
16	2	70.7	19	1679		702.9

Type 5 Radar Waveform_18						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	93.3	19	1397		237.375
2	2	68.7	19	1063		64.228
3	2	88.1	19	1794		152.442
4	1	81	19			621.423
5	2	50.3	19	1422		266.244
6	1	79.7	19			355.925
7	3	84.7	19	1408	1073	162.766
8	1	52.1	19			224.027
9	2	87.2	19	1887		343.588
10	2	75.3	19	1356		438.079
11	1	89.1	19			303.791
12	3	88	19	1452	1154	447.122
13	1	82.3	19			123.253
14	2	94.3	19	1536		71.834
15	3	60.3	19	1728	1472	553.005
16	3	57.9	19	1299	1504	437.176
17	3	71.1	19	1155	1075	611.537
18	2	73.9	19	1834		383.758
19	3	71.7	19	1178	1001	74.879

Type 5 Radar Waveform_19						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	58.7	19	1620		738.329
2	1	76.8	19			327.067
3	2	64.5	19	1125		45.014
4	1	61.6	19			138.491
5	1	80.3	19			347.059
6	1	64.8	19			46.716
7	2	58.8	19	1271		775.263
8	2	66.4	19	1689		408.47
9	2	74.4	19	1524		179.997
10	2	90.5	19	1699		255.824
11	3	71.8	19	1452	1273	7.861
12	1	86.6	19			487.599
13	1	52.6	19			649.686
14	2	71.4	19	1264		268.643

Type 5 Radar Waveform_20

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	57.3	11	1531	1802	362.875
2	1	71.9	11			214.781
3	2	81.1	11	1991		522.072
4	2	57.8	11	1485		9.103
5	1	51.9	11			736.764
6	1	52.5	11			783.815
7	2	96.7	11	1629		161.305
8	1	78	11			480.606
9	3	66.3	11	1229	1627	446.987
10	2	68.4	11	1519		828.118
11	2	53.1	11	1876		1021.809

Type 5 Radar Waveform_21

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	84.8	9	1810		519.168
2	3	67.2	9	1627	1549	463.52
3	2	69.7	9	1997		685.07
4	1	92.5	9			220.78
5	2	80.6	9	1790		279.74
6	2	80.5	9	1431		184.92
7	1	57.9	9			295.36
8	3	72.6	9	1226	1510	228.82
9	3	91.6	9	1926	1068	398.54
10	3	83.8	9	1552	1623	56.14
11	2	98.2	9	1173		645.11
12	1	77.9	9			102.88
13	1	61.5	9			543.6
14	2	55	9	1984		481.1
15	1	63.9	9			314.2
16	2	52.7	9	1330		318.7

Type 5 Radar Waveform_22

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	93.7	17	1704		135.89
2	3	66.9	17	1798	1475	743.91
3	2	61.4	17	1124		504.94
4	3	65.9	17	1077	1698	132.67
5	2	78.9	17	1590		307.74
6	2	62.9	17	1184		556.28
7	3	59.2	17	1231	1839	317.49
8	2	59.9	17	1218		574.15
9	2	51.8	17	1378		439.53
10	1	68.2	17			623.06
11	3	92.4	17	1602	1286	0.67
12	3	69.5	17	1026	1464	718.58
13	2	91.8	17	1165		50.3
14	2	52.7	17	1643		7.36
15	2	67.8	17	1067		729.8
16	3	61.3	17	1292	1796	11

Type 5 Radar Waveform_23

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	58.5	20	1867		55.895
2	1	53.9	20			672.208
3	3	81.6	20	1496	1183	302.985
4	1	70.4	20			241.993
5	2	66.8	20	1993		134.361
6	2	52.5	20	1240		210.118
7	2	54.6	20	1236		358.496
8	2	99.8	20	1292		697.874
9	3	83.9	20	1206	1459	404.881
10	2	99.2	20	1129		512.509
11	2	51.7	20	1175		677.516
12	2	88.3	20	1997		189.764
13	1	99.6	20			271.922
14	2	73.5	20	1409		44.949
15	1	84.1	20			22.107
16	2	52.4	20	1388		676.565
17	3	90.2	20	1179	1892	220.782

Type 5 Radar Waveform_24

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	73.8	8			367.168
2	1	69.8	8			219.6
3	2	53.4	8	1458		462.85
4	2	85.2	8	1004		149.54
5	2	94.4	8	1899		985.69
6	3	54	8	1466	1508	323.45
7	1	93.8	8			527.07
8	3	54.5	8	1691	1256	571.29
9	2	82.9	8	1391		921.1
10	3	93.7	8	1553	1319	433.4

Type 5 Radar Waveform_25

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	93.4	5	1146		273.105
2	3	73	5	1309	1987	65.496
3	2	95.4	5	1530		361.094
4	2	52.8	5	1909		390.161
5	1	76.8	5			128.749
6	2	86.8	5	1964		93.136
7	2	99.3	5	1438		240.503
8	2	52.1	5	1051		583.02
9	3	76.3	5	1405	2000	86.787
10	3	67	5	1555	1615	377.564
11	1	73.6	5			191.231
12	1	80.9	5			328.109
13	2	80.8	5	1776		730.186
14	3	83.9	5	1593	1914	524.243

Type 5 Radar Waveform_26

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	73	11	1469		409.175
2	1	76.7	11			535.84
3	2	67.2	11	1509		741.76
4	3	56.2	11	1173	1693	371.29
5	3	70.6	11	1724	1171	378.99
6	1	72.1	11			256.36
7	3	72.9	11	1845	1992	125.93
8	2	68.3	11	1600		697.95
9	3	85.9	11	1185	1458	642.02
10	3	56	11	1122	1151	87.93
11	2	66.5	11	1470		724.19
12	3	89.1	11	1234	1161	664.57
13	2	62.4	11	1050		643.55
14	2	51.2	11	1431		408.1
15	3	84.8	11	1777	1091	47.8
16	2	96.3	11	1040		359

Type 5 Radar Waveform_27

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	69.1	20	1178		115.078
2	2	59.5	20	1377		243.014
3	3	76.3	20	1572	1492	385.017
4	1	94.4	20			325.65
5	2	77.6	20	1428		243.613
6	3	72.2	20	1100	1488	643.077
7	3	55.7	20	1048	1185	349.63
8	2	81.3	20	1348		145.833
9	3	59.7	20	1033	1285	114.717
10	3	77.5	20	1226	1209	307.17
11	3	81.5	20	1377	1727	317.053
12	2	89.1	20	1076		133.327
13	1	99.1	20			617.68
14	2	83.8	20	1193		442.343
15	3	95.1	20	1394	1293	644.657
16	2	64.5	20	1081		435.4
17	1	75.6	20			53.533
18	2	66.7	20	1432		84.867

Type 5 Radar Waveform_28

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	96.3	15	1907	1786	830.502
2	2	66.6	15	1482		892.28
3	2	77.1	15	1498		150.68
4	1	65.3	15			1336.19
5	2	94.8	15	1283		258.71
6	2	73.4	15	1054		345.51
7	3	91.8	15	1418	1298	684.58
8	2	59.1	15	1061		1316.2

Type 5 Radar Waveform_29						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	94.3	10	1497	1250	126.657
2	3	98.5	10	1016	1434	644.183
3	2	78.3	10	1278		455.226
4	2	99.9	10	1237		599.079
5	2	69.7	10	1926		550.862
6	3	51.8	10	1512	1949	217.075
7	2	98.3	10	1531		392.958
8	1	85.9	10			683.612
9	2	60.3	10	1153		654.705
10	2	81.9	10	1012		677.558
11	3	79.8	10	1987	1829	35.671
12	2	99.9	10	1942		6.754
13	2	57.9	10	1969		598.277

Type 5 Radar Waveform_30						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	82.7	12	1898		783.886
2	2	58	12	1280		304.83
3	2	94.6	12	1619		549.36
4	2	87	12	1526		786.97
5	3	60.3	12	1756	1057	483.28
6	2	55.4	12	1709		340.27
7	2	84.2	12	1274		64.46
8	1	52.6	12			726.61
9	2	80.2	12	1674		491.27
10	1	84.6	12			176.99
11	2	84.2	12	1837		638.38
12	3	80.9	12	1334	1728	192.09
13	3	73.4	12	1335	1198	563.1
14	1	96.3	12			627.2
15	1	80.4	12			581.7

Radar Type 6 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	1=Detection 0=No Detection	Trail #	Test Freq. (MHz)	1=Detection 0=No Detection
1	5490.4	1	16	5500.0	1
2	5490.4	1	17	5500.0	1
3	5490.4	1	18	5500.0	1
4	5490.4	1	19	5500.0	1
5	5490.4	1	20	5500.0	1
6	5490.4	1	21	5509.6	1
7	5490.4	1	22	5509.6	1
8	5490.4	1	23	5509.6	1
9	5490.4	1	24	5509.6	1
10	5490.4	1	25	5509.6	1
11	5500.0	1	26	5509.6	1
12	5500.0	1	27	5509.6	1
13	5500.0	1	28	5509.6	1
14	5500.0	1	29	5509.6	1
15	5500.0	1	30	5509.6	1
Detection Percentage (%)					100%

Radar waveform #1			Radar waveform #2		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5501	9	6	5500	18
18	5497	54	28	5491	84
23	5500	69	61	5507	183
38	5505	114	--	--	--
80	5499	240	--	--	--

Radar waveform #3			Radar waveform #4		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
66	5495	198	21	5500	63
123	5497	369	27	5491	81
264	5506	792	30	5510	90
276	5503	828	42	5496	126
--	--	--	53	5507	159
--	--	--	99	5498	297

Radar waveform #5			Radar waveform #6		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
10	5496	30	13	5502	39
19	5490	57	22	5505	66
65	5493	195	25	5503	75
66	5507	198	37	5510	111
81	5500	243	41	5491	123
93	5506	279	47	5507	141
--	--	--	56	5501	168
--	--	--	98	5508	294

Radar waveform #7			Radar waveform #8		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
17	5506	51	6	5499	18
64	5494	192	12	5504	36
98	5507	294	36	5491	108

--	--	--	45	5509	135
--	--	--	76	5497	228

Radar waveform #9			Radar waveform #10		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
71	5506	213	19	5503	57
--	--	--	49	5491	147
--	--	--	82	5490	246
--	--	--	92	5502	276

Radar waveform #11			Radar waveform #12		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
27	5496	81	9	5506	27
41	5504	123	15	5497	45
54	5509	162	18	5500	54
83	5490	249	36	5508	108
--	--	--	38	5491	114

Radar waveform #13			Radar waveform #14		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
12	5504	36	27	5508	81
39	5495	117	66	5507	198
57	5506	171	73	5494	219
--	--	--	81	5506	243

Radar waveform #15			Radar waveform #16		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
17	5510	51	30	5491	90
43	5507	129	49	5493	147
57	5501	171	79	5496	237
--	--	--	88	5508	264

Radar waveform #17			Radar waveform #18		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
25	5500	75	14	5503	42
51	5504	153	30	5504	90
72	5510	216	52	5508	156
--	--	--	81	5500	243
--	--	--	88	5492	264

Radar waveform #19			Radar waveform #20		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
10	5493	30	20	5498	60
12	5490	36	30	5490	90
16	5507	48	33	5494	99
69	5502	207	37	5496	111
--	--	--	69	5506	207
--	--	--	83	5491	249
--	--	--	85	5503	255

Radar waveform #21			Radar waveform #22		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
24	5497	72	70	5494	210
34	5509	102	95	5498	285
50	5500	150	--	--	--
75	5506	225	--	--	--

Radar waveform #23			Radar waveform #24		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
21	5509	63	26	5498	78
25	5497	75	38	5499	114
--	--	--	57	5506	171
--	--	--	97	5496	291

Radar waveform #25			Radar waveform #26		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5493	6	2	5508	6
16	5496	48	34	5494	102
21	5495	63	84	5506	252

Radar waveform #27			Radar waveform #28		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
77	5504	231	10	5500	30
--	--	--	23	5498	69
--	--	--	31	5495	93
--	--	--	32	5502	96
--	--	--	48	5491	144
--	--	--	56	5490	168
--	--	--	59	5494	177
--	--	--	83	5501	249

Radar waveform #29			Radar waveform #30		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
20	5498	60	10	5490	30
59	5510	177	49	5503	147
71	5509	213	50	5500	150
87	5493	261	67	5494	201
92	5490	276	96	5510	288
99	5491	297	--	--	--

Product	ACCESS POINT	Temperature	23 ~ 25°C
Test Engineer	Amy Zhang	Relative Humidity	48 ~ 62%
Test Site	SR2	Test Date	2020/05/13 ~ 2020/05/15
Test Item	Radar Statistical Performance Check (802.11ax-HE40 mode - 5510MHz)		

Radar Type 1 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	1	938	57	1
2	5491	1	638	83	1
3	5491	1	778	68	1
4	5491	1	598	89	1
5	5491	1	878	61	1
6	5500	1	838	63	1
7	5500	1	858	62	1
8	5500	1	698	76	1
9	5500	1	558	95	1
10	5509	1	758	70	1
11	5509	1	518	102	1
12	5509	1	3066	18	1
13	5509	1	738	72	1
14	5510	1	918	58	1
15	5510	1	618	86	1
16	5510	1	2426	22	1
17	5510	1	1562	34	1
18	5511	1	1372	39	1
19	5511	1	1106	48	1
20	5511	1	2476	22	1
21	5511	1	2046	26	1
22	5520	1	2238	24	1
23	5520	1	1488	36	1
24	5520	1	2616	21	1
25	5520	1	913	58	1
26	5529	1	1389	38	1

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
27	5529	1	2066	26	1
28	5529	1	2919	19	1
29	5529	1	2001	27	1
30	5529	1	2584	21	1
Detection Percentage (%)					100%

Radar Type 2 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	1.9	192	29	1
2	5491	3.7	166	27	1
3	5491	1.6	199	24	1
4	5491	2.4	204	27	1
5	5491	2.4	189	27	1
6	5500	1.2	163	24	1
7	5500	1.6	154	24	1
8	5500	2.7	150	28	1
9	5500	1.7	189	27	0
10	5509	1.2	173	23	1
11	5509	2.9	181	23	1
12	5509	3.4	152	26	0
13	5509	3.6	155	29	1
14	5510	2.4	218	24	1
15	5510	1.1	198	24	0
16	5510	3.6	153	28	1
17	5510	3.6	220	29	1
18	5511	1.3	217	26	1
19	5511	2.9	173	28	1
20	5511	1.0	206	24	1
21	5511	4.8	201	26	1
22	5520	2.5	188	28	1
23	5520	1.2	174	25	1
24	5520	3.9	216	29	0
25	5520	4.8	210	25	1
26	5529	2.3	157	25	1
27	5529	1.0	152	23	1
28	5529	4.7	218	29	1
29	5529	1.4	189	24	1
30	5529	1.0	203	26	0
Detection Percentage (%)					86.7%

Radar Type 3 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	9.2	340	17	1
2	5491	6.7	284	17	1
3	5491	8.5	271	16	1
4	5491	9.0	285	16	1
5	5491	7.0	464	16	1
6	5500	7.9	476	16	1
7	5500	6.8	498	16	1
8	5500	6.3	303	17	1
9	5500	9.1	341	17	1
10	5509	6.9	251	17	1
11	5509	9.8	477	18	1
12	5509	9.5	400	18	0
13	5509	6.7	412	17	1
14	5510	6.8	288	17	1
15	5510	6.2	499	17	1
16	5510	9.3	306	16	0
17	5510	8.7	317	16	1
18	5511	6.4	326	17	1
19	5511	6.2	492	17	0
20	5511	9.0	269	17	1
21	5511	6.8	378	18	0
22	5520	6.6	482	16	1
23	5520	6.4	273	16	1
24	5520	8.7	461	16	1
25	5520	6.1	483	17	1
26	5529	7.0	409	17	1
27	5529	8.9	389	17	0
28	5529	8.6	306	18	1
29	5529	6.5	303	18	1
30	5529	6.6	388	18	1
Detection Percentage (%)					83.3%

Radar Type 4 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	13.6	250	14	1
2	5491	14.6	447	14	1
3	5491	11.1	281	12	1
4	5491	11.6	319	16	1
5	5491	16.2	282	16	0
6	5500	19.0	456	15	1
7	5500	18.4	382	12	1
8	5500	16.4	350	12	1
9	5500	16.2	350	12	1
10	5509	16.3	489	13	0
11	5509	18.8	394	13	1
12	5509	14.8	253	16	1
13	5509	16.4	306	15	1
14	5510	18.2	303	15	0
15	5510	19.3	427	15	1
16	5510	12.7	327	16	1
17	5510	19.9	305	16	1
18	5511	14.3	278	16	1
19	5511	11.8	364	13	0
20	5511	18.6	377	15	1
21	5511	15.4	423	13	1
22	5520	13.3	412	14	1
23	5520	19.1	295	14	1
24	5520	17.7	456	13	1
25	5520	19.1	305	12	1
26	5529	13.2	298	16	1
27	5529	18.0	383	13	1
28	5529	12.4	332	13	1
29	5529	16.4	429	15	1
30	5529	19.7	411	15	1
Detection Percentage (%)					86.7%

Note: In addition an average minimum percentage of successful detection across all four Short pulse radar test waveforms is as follows: $\frac{P_d1+P_d2+P_d3+P_d4}{4}$ = (100%+86.7%+83.3%+86.7%)/4 = 89.17% (>80%)

Radar Type 5 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	1=Detection 0=No Detection	Trail #	Test Freq. (MHz)	1=Detection 0=No Detection
1	5510.0	1	16	5496.6	1
2	5510.0	1	17	5493.4	0
3	5510.0	1	18	5496.2	1
4	5510.0	1	19	5498.6	1
5	5510.0	0	20	5495.0	1
6	5510.0	1	21	5523.8	1
7	5510.0	1	22	5526.6	1
8	5510.0	1	23	5522.2	1
9	5510.0	1	24	5523.8	1
10	5510.0	1	25	5523.8	1
11	5497.8	1	26	5526.2	1
12	5498.2	1	27	5524.6	1
13	5498.2	1	28	5525.8	1
14	5495.4	1	29	5525.8	1
15	5493.8	1	30	5527.0	1
Detection Percentage (%)					93.3%

Type 5 Radar Waveform_1

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	67.6	6			648.523
2	1	56.6	6			36.09
3	2	64.7	6	1891		7.447
4	3	93.7	6	1296	1360	267.4
5	2	60.5	6	1531		346.113
6	1	74.9	6			96.157
7	2	70.9	6	1128		468.95
8	2	74.5	6	1980		109.573
9	3	88.6	6	1428	1371	157.807
10	3	63.7	6	1634	1339	514.63
11	2	70.4	6	1286		190.123
12	2	66	6	1433		341.707
13	3	55.7	6	1482	1546	655.98
14	2	54.1	6	1290		107.963
15	2	98	6	1764		105.727
16	2	68.3	6	1182		330.3
17	2	65.2	6	1985		75.133
18	2	63.7	6	1427		237.767

Type 5 Radar Waveform_2

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	76.1	9	1342		658.082
2	2	74.9	9	1053		337.25
3	1	92.6	9			245.55
4	2	74.7	9	1439		65.37
5	1	89.2	9			325.17
6	2	64.9	9	1768		331.98
7	2	69.5	9	1099		105.59
8	1	84.4	9			345.45
9	3	86.9	9	1683	1765	355.9
10	2	75.7	9	1127		16.77
11	2	70.1	9	1737		483.55
12	2	99.4	9	1773		44.84
13	3	93.1	9	1135	1157	634.4
14	1	51.5	9			379.9
15	2	92.6	9	1801		276.3
16	3	64.9	9	1183	1429	421.7

Type 5 Radar Waveform_3

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	84.8	15	1903	1964	67.719
2	2	51.3	15	1269		70.553
3	2	89.5	15	1864		213.002
4	2	58.7	15	1687		163.123
5	3	86.1	15	1727	1048	588.854
6	3	71.1	15	1189	1847	323.795
7	3	88.8	15	1410	1806	94.456
8	3	57.1	15	1824	1933	71.127
9	3	60.7	15	1332	1539	450.798
10	2	85.2	15	1474		75.479
11	2	74.5	15	1823		186.821
12	1	63.2	15			530.812
13	1	82	15			160.103
14	2	62.5	15	1886		478.014
15	2	84.3	15	1510		224.555
16	1	56.2	15			576.916
17	2	66.2	15	1512		552.337
18	2	92.8	15	1885		317.358
19	2	50.5	15	1640		64.179

Type 5 Radar Waveform_4

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	53.4	13	1893	1044	416.405
2	3	95.3	13	1547	1727	412.368
3	3	98.2	13	1958	1814	300.185
4	1	90.4	13			110.663
5	2	74.3	13	1846		641.261
6	1	76.3	13			530.098
7	1	60.3	13			350.646
8	1	50.1	13			252.674
9	3	66.7	13	1176	1147	187.961
10	1	94.2	13			541.389
11	3	65	13	1352	1284	667.506
12	1	51.3	13			278.774
13	3	74.3	13	1740	1282	474.522
14	1	73.1	13			588.019
15	2	71.1	13	1052		37.817
16	3	92.9	13	1124	1838	171.465
17	3	54.7	13	1517	1747	518.482

Type 5 Radar Waveform_5

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	58.2	7	1705	1503	264.27
2	2	79.1	7	1197		512.831
3	1	80.2	7			263.552
4	1	68.4	7			255.853
5	1	63.8	7			451.134
6	1	75.1	7			108.405
7	2	65.6	7	1958		498.626
8	2	66.2	7	1630		71.627
9	2	76	7	1917		461.878
10	3	74.6	7	1024	1029	616.579
11	1	57.4	7			454.011
12	2	62.6	7	1248		209.832
13	3	83	7	1119	1201	392.403
14	2	72	7	1145		607.774
15	3	59.8	7	1306	1547	382.855
16	2	91.7	7	1859		246.336
17	3	64.9	7	1308	1151	114.537
18	2	72.5	7	1237		558.758
19	1	97.5	7			572.679

Type 5 Radar Waveform_6

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	87.2	18	1311		86.368
2	2	56.8	18	1357		203.754
3	1	94.7	18			74.132
4	2	64.2	18	1576		65.963
5	2	87.4	18	1373		61.814
6	1	98.5	18			92.375
7	2	69	18	1718		13.256
8	2	93	18	1096		84.897
9	1	59.5	18			602.408
10	3	74	18	1005	1240	461.329
11	2	60.6	18	1367		243.531
12	2	90.8	18	1007		246.472
13	2	91.7	18	1077		216.233
14	2	51.9	18	1622		592.734
15	2	65.6	18	1417		439.815
16	1	60	18			483.226
17	3	78.5	18	1753	1290	339.837
18	2	83	18	1796		184.258
19	2	51.8	18	1283		87.779

Type 5 Radar Waveform_7

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	98.8	10	1679	1509	431.853
2	2	51	10	1723		185.235
3	3	92.7	10	1342	1680	119.63
4	2	82	10	1304		589.11
5	2	78.4	10	1459		88.75
6	2	82.2	10	1821		458.98
7	3	95.4	10	1984	1517	727.16
8	1	97.9	10			356.73
9	3	80	10	1335	1873	213.27
10	1	73.7	10			623.65
11	1	54.5	10			734.68
12	1	78.2	10			274.82
13	3	79.5	10	1972	1434	245.13
14	2	96.1	10	1433		100.62
15	3	52.6	10	1381	1460	421.2
16	2	66.4	10	1154		275.5

Type 5 Radar Waveform_8

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μ sec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	68.2	5	1564	1767	358.168
2	2	89.7	5	1635		649.707
3	1	96.1	5			664.264
4	2	90.3	5	1734		144.061
5	1	94.2	5			204.269
6	2	76	5	1276		746.926
7	1	76.1	5			150.403
8	2	70.2	5	1565		679.22
9	2	59.3	5	1027		729.997
10	2	51	5	1681		408.714
11	1	98.4	5			520.991
12	2	78.5	5	1347		810.429
13	1	76.3	5			287.386
14	2	84.7	5	1633		673.043

Type 5 Radar Waveform_9

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	52.2	6	1495		625.195
2	1	92.9	6			107.076
3	1	95.2	6			356.337
4	3	53.5	6	1673	1552	54.09
5	3	90	6	1768	1350	176.183
6	1	70.2	6			313.947
7	2	60.3	6	1499		536.36
8	2	97.8	6	1040		396.113
9	3	72	6	1364	1631	516.007
10	2	89.2	6	1782		520.77
11	3	55.3	6	1655	1952	462.243
12	1	54.1	6			526.927
13	3	54	6	1067	1045	391.78
14	1	79.2	6			524.283
15	2	74.1	6	1862		70.537
16	3	50.3	6	1083	1137	175.8
17	2	66.2	6	1555		240.333
18	3	78.7	6	1778	1094	428.667

Type 5 Radar Waveform_10

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	60.2	15	1175	1079	564.838
2	1	73.4	15			459.19
3	1	63.6	15			630.35
4	2	94.9	15	1745		597.19
5	1	50.6	15			11.96
6	3	71.4	15	1172	1312	41.57
7	1	99	15			588.83
8	1	83	15			653.4
9	2	58.6	15	1000		380.32
10	2	70.6	15	1955		323.41
11	2	56.7	15	1579		653.76
12	2	60.8	15	1114		388.51
13	3	75.1	15	1776	1349	743.32
14	1	51.9	15			525.3
15	3	92.7	15	1008	1805	51.6
16	1	59.4	15			485

Type 5 Radar Waveform_11

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	68.5	17	1580		142.808
2	1	51	17			92.416
3	3	85	17	1893	1472	72.912
4	2	99.7	17	1158		190.833
5	1	76.9	17			334.284
6	2	78.4	17	1634		326.265
7	3	79.5	17	1322	1707	162.706
8	1	92.7	17			50.917
9	2	86.3	17	1289		546.108
10	2	64.2	17	1941		370.189
11	2	98.5	17	1475		101.991
12	1	58.1	17			241.512
13	2	94.1	17	1322		484.423
14	2	69.7	17	1195		625.184
15	1	51.4	17			127.965
16	3	97.5	17	1452	1921	619.516
17	3	88.5	17	1776	1063	189.337
18	3	64.9	17	1472	1139	172.358
19	3	91.9	17	1701	1393	60.479

Type 5 Radar Waveform_12

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	68.8	18			365.764
2	1	95.8	18			313.731
3	2	87.9	18	1838		604.872
4	3	97.2	18	1518	1193	458.343
5	2	76	18	1261		294.634
6	2	78.5	18	1810		512.305
7	3	67.4	18	1975	1621	340.635
8	3	67.5	18	1537	1884	486.056
9	1	83.6	18			76.467
10	2	54.2	18	1941		795.018
11	2	77.1	18	1012		1033.409

Type 5 Radar Waveform_13

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	62.7	18	1298	1285	647.598
2	1	56.5	18			394.271
3	2	67.4	18	1507		264.162
4	2	96.1	18	1891		976.813
5	3	71.9	18	1799	1735	338.674
6	2	51	18	1568		886.125
7	1	71.6	18			221.885
8	2	81.6	18	1608		872.476
9	3	63.2	18	1724	1178	40.027
10	2	58.4	18	1198		1033.418
11	3	52	18	1195	1054	786.409

Type 5 Radar Waveform_14

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	54.3	11	1980		181.801
2	2	59.6	11	1669		301.041
3	2	74.3	11	1584		545.627
4	1	61.5	11			430.29
5	3	87.8	11	1992	1570	381.743
6	3	68.4	11	1968	1135	535.657
7	2	60.8	11	1475		8.98
8	3	60.6	11	1234	1896	58.623
9	3	70.2	11	1736	1016	211.537
10	1	83.9	11			138.58
11	3	50	11	1805	1829	251.813
12	2	73.5	11	1009		186.987
13	1	78.4	11			358.35
14	3	73.5	11	1011	1909	159.323
15	1	66.8	11			654.757
16	2	73.6	11	1896		475.7
17	2	89.6	11	1221		434.733
18	3	51.8	11	1434	1246	171.167

Type 5 Radar Waveform_15

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	68.9	7			254.085
2	1	93.2	7			549.1
3	2	69.7	7	1095		270.08
4	2	89	7	1553		272.6
5	2	98.7	7	1002		578.13
6	3	87.8	7	1779	1923	38.26
7	3	85.9	7	1770	1063	506.26
8	1	82.8	7			579.03
9	2	93.3	7	1816		548.69
10	2	98.1	7	1211		128.05
11	2	93.9	7	1500		491.57
12	3	74.2	7	1145	1115	421.12
13	1	68.6	7			488.38
14	3	97	7	1443	1290	570.24
15	1	97	7			520.55
16	3	87.8	7	1447	1676	590.84
17	2	52.7	7	1339		313.51
18	2	55.9	7	1886		13.4
19	3	71.1	7	1179	1058	249.8
20	2	85	7	1963		587

Type 5 Radar Waveform_16

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	94.2	14	1799		63.726
2	2	74.6	14	1866		258.022
3	2	50.4	14	1271		81.63
4	2	96.1	14	1670		45.76
5	3	72.3	14	1787	1973	491.76
6	3	51.7	14	1271	1912	546.09
7	2	64.8	14	1778		495.57
8	2	83.1	14	1126		271.38
9	2	59.8	14	1269		102.09
10	3	93.9	14	1041	1590	294.71
11	2	99.8	14	1234		1.4
12	3	96.6	14	1504	1462	250.64
13	3	99.8	14	1408	1012	187.12
14	2	85.3	14	1170		428.54
15	1	61.6	14			519.01
16	2	52.4	14	1596		291.9
17	2	54.2	14	1907		56.67
18	1	58.4	14			160.9
19	1	53.5	14			562
20	1	92.4	14			181.2

Type 5 Radar Waveform_17

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	89.1	6	1591	1385	235.05
2	2	62.5	6	1066		596.62
3	2	73.9	6	1686		35.46
4	2	98.9	6	1093		703.07
5	2	93	6	1795		238.96
6	1	57.2	6			413.73
7	3	77.6	6	1524	1428	232.86
8	2	95.6	6	1997		66.42
9	2	74.2	6	1705		622.22
10	1	56.8	6			250.03
11	2	84.9	6	1567		434.65
12	2	95.5	6	1222		591.25
13	2	96.1	6	1481		23.18
14	1	98.7	6			169.84
15	1	52.6	6			698.2
16	1	92.1	6			8.3

Type 5 Radar Waveform_18

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	70.7	13	1268		831.8
2	1	85.6	13			523.391
3	2	94.3	13	1115		251.732
4	1	87.1	13			89.443
5	1	71.2	13			85.964
6	1	54.7	13			866.765
7	3	54.1	13	1455	1126	401.335
8	2	58.6	13	1553		174.536
9	3	98.2	13	1440	1111	463.507
10	2	88	13	1376		826.418
11	2	58.3	13	1192		198.009

Type 5 Radar Waveform_19

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	62.4	19	1177		243.316
2	2	87.7	19	1457		1110.097
3	1	93.7	19			559.523
4	2	73	19	1299		158.69
5	2	95	19	1579		463.257
6	3	97.2	19	1267	1476	1129.883
7	3	73.8	19	1417	1495	832.21
8	2	87.4	19	1950		1311.567
9	3	68.1	19	1316	1215	729.133

Type 5 Radar Waveform_20

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	73.7	10	1070		743.836
2	3	52.6	10	1355	1925	141.482
3	2	68.3	10	1231		396
4	1	71.8	10			114.49
5	1	99.5	10			86.98
6	2	57.5	10	1171		667.98
7	2	65.6	10	1766		544.79
8	2	86.3	10	1214		598.17
9	2	96.4	10	1276		201.37
10	2	61.8	10	1487		450.57
11	3	50.3	10	1429	1215	102.34
12	3	67	10	1920	1902	363.64
13	3	66.1	10	1872	1788	65.28
14	3	74	10	1963	1602	291.3
15	3	97.4	10	1730	1590	73.4
16	2	66.1	10	1876		287.2

Type 5 Radar Waveform_21

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	58.2	13	1046	1535	284.608
2	3	82.4	13	1142	1874	561.02
3	2	95.8	13	1460		506.17
4	1	93	13			27.97
5	2	69.9	13	1010		37.34
6	2	95.9	13	1079		380.88
7	2	88.7	13	1073		586.69
8	2	91.9	13	1486		398.41
9	3	93.9	13	1289	1245	38.95
10	3	64.3	13	1715	1038	239.57
11	2	99.2	13	1013		580.1
12	3	67.3	13	1224	1701	572.85
13	2	79.2	13	1300		508.7
14	1	82.1	13			439.84
15	3	84	13	1923	1066	295.19
16	3	53.6	13	1701	1240	366.11
17	1	83.2	13			14.4
18	1	96.9	13			475.8
19	1	94.6	13			317.7
20	1	62.1	13			31.4

Type 5 Radar Waveform_22

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	74.6	6	1769		122.087
2	2	97.6	6	1151		934.38
3	1	57.6	6			830.36
4	2	67.9	6	1720		649.47
5	2	56.1	6	1986		142.45
6	1	80.1	6			470.74
7	3	86.9	6	1856	1702	613.95
8	3	53.7	6	1699	1464	794.17
9	1	67	6			89.52
10	1	97.6	6			693.13
11	3	59	6	1118	1912	722.3
12	3	87.2	6	1632	1029	249.2

Type 5 Radar Waveform_23

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	78.5	17	1737		120.8
2	2	99.5	17	1636		487.92
3	2	87.1	17	1667		537.94
4	2	55.6	17	1034		322.26
5	2	54.1	17	1715		253.46
6	3	91.4	17	1953	1473	736.08
7	2	98.9	17	1140		304.03
8	1	85.4	17			500.35
9	2	76.5	17	1886		422.24
10	1	79.7	17			677.73
11	3	52.9	17	1877	1551	631.48
12	3	73.4	17	1584	1620	13.45
13	1	50.3	17			424.01
14	2	86.8	17	1525		21.46
15	3	78.6	17	1359	1367	697.6
16	2	79.4	17	1584		48.1

Type 5 Radar Waveform_24

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	76.5	13	1680		309.145
2	1	58.2	13			205.58
3	2	93	13	1486		573.52
4	1	85.6	13			689.26
5	2	99.2	13	1090		713.92
6	2	88.3	13	1988		641.27
7	3	72.9	13	1502	1726	102.57
8	3	93.6	13	1480	1949	204.28
9	2	65.5	13	1815		8.14
10	1	67.4	13			635.8
11	2	79.2	13	1268		147.48
12	3	57.1	13	1001	1349	91.87
13	2	60.8	13	1756		561.5
14	1	70.8	13			86.9
15	3	79.3	13	1656	1307	766.7

Type 5 Radar Waveform_25

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	50.1	13	1901		929.393
2	1	53.7	13			1098.63
3	3	68.4	13	1649	1886	1370.84
4	3	59.1	13	1630	1498	875.7
5	2	82.6	13	1366		874.84
6	3	98	13	1673	1270	695.43
7	2	58.8	13	1644		1039.8
8	2	54.5	13	1633		1266.9

Type 5 Radar Waveform_26

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	59.9	7	1827		489.07
2	2	63.3	7	1171		490.297
3	3	86.5	7	1558	1224	705.123
4	2	99.4	7	1057		219.65
5	1	80.2	7			132.127
6	2	87.9	7	1653		10.723
7	2	88.3	7	1291		1149.51
8	3	80	7	1138	1444	931.867
9	1	55.2	7			1161.833

Type 5 Radar Waveform_27

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	81.1	11	1056		462.983
2	2	63.2	11	1392		288.488
3	2	65.8	11	1114		242.282
4	2	88.9	11	1008		531.683
5	1	89.7	11			100.354
6	1	87.7	11			543.185
7	1	82.3	11			624.336
8	2	59.9	11	1106		406.407
9	2	88	11	1471		266.988
10	3	98.7	11	1895	1151	371.429
11	1	84.4	11			515.551
12	2	63.6	11	1431		34.392
13	2	66.9	11	1679		609.703
14	1	77.2	11			360.074
15	3	96.1	11	1763	1899	253.205
16	1	78.8	11			364.606
17	1	72.8	11			148.837
18	2	50.9	11	1143		292.458
19	2	81.3	11	1251		22.179

Type 5 Radar Waveform_28

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	75.6	8	1587	1549	559.5
2	3	81.4	8	1400	1267	589.63
3	1	82.7	8			296.75
4	3	54.9	8	1268	1508	180.16
5	2	67.7	8	1286		717.13
6	1	64.5	8			275.49
7	3	83.4	8	1630	1834	581.73
8	1	88.1	8			825

Type 5 Radar Waveform_29						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	56.9	8	1798		1261.79
2	1	96	8			68.667
3	3	62.5	8	1517	1032	324.043
4	3	52.2	8	1036	1501	395.8
5	2	96.3	8	1699		1182.957
6	2	70.8	8	1942		137.243
7	2	85.6	8	1764		77.03
8	3	57.8	8	1452	1208	1.377
9	2	70.4	8	1092		723.433

Type 5 Radar Waveform_30						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	93.6	5	1311		359.032
2	1	74.4	5			908.061
3	2	85.9	5	1144		1021.752
4	3	76.3	5	1857	1427	200.123
5	3	78	5	1126	1512	229.654
6	2	62.8	5	1544		452.475
7	2	92.2	5	1646		526.475
8	1	97.4	5			682.336
9	3	67.8	5	1278	1387	1048.497
10	1	67	5			642.718
11	2	50.4	5	1972		451.809

Radar Type 6 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	1=Detection 0=No Detection	Trail #	Test Freq. (MHz)	1=Detection 0=No Detection
1	5491	1	16	5510	1
2	5491	1	17	5510	1
3	5491	1	18	5511	1
4	5491	1	19	5511	1
5	5491	1	20	5511	1
6	5500	1	21	5511	1
7	5500	1	22	5520	1
8	5500	1	23	5520	1
9	5500	1	24	5520	1
10	5509	1	25	5520	1
11	5509	1	26	5529	1
12	5509	1	27	5529	1
13	5509	1	28	5529	1
14	5510	1	29	5529	1
15	5510	1	30	5529	1
Detection Percentage (%)					100%

Radar waveform #1			Radar waveform #2		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
10	5506	30	12	5505	36
26	5491	78	33	5498	99
45	5520	135	42	5512	126
54	5518	162	69	5492	207
59	5496	177	102	5499	306
67	5521	201	120	5506	360
71	5529	213	192	5527	576
72	5509	216	225	5524	675
77	5513	231	282	5490	846
82	5515	246	285	5495	855
92	5503	276	--	--	--

Radar waveform #3			Radar waveform #4		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
8	5512	24	6	5516	18
9	5498	27	16	5495	48
18	5520	54	32	5491	96
33	5528	99	39	5502	117
37	5508	111	40	5513	120
44	5492	132	41	5517	123
48	5510	144	47	5504	141
50	5497	150	74	5525	222
72	5525	216	90	5511	270
79	5506	237	92	5501	276
89	5502	267	--	--	--

Radar waveform #5			Radar waveform #6		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
6	5505	18	4	5511	12
12	5501	36	21	5507	63
15	5519	45	29	5491	87
20	5513	60	43	5527	129

32	5518	96	52	5526	156
35	5507	105	59	5523	177
52	5490	156	63	5498	189
54	5524	162	100	5528	300
55	5504	165	--	--	--
60	5526	180	--	--	--
73	5502	219	--	--	--
83	5515	249	--	--	--

Radar waveform #7			Radar waveform #8		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5516	9	4	5519	12
6	5520	18	20	5490	60
8	5500	24	22	5527	66
42	5528	126	23	5526	69
44	5523	132	65	5513	195
52	5518	156	83	5502	249
72	5513	216	98	5524	294

Radar waveform #9			Radar waveform #10		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
9	5493	27	2	5490	6
19	5505	57	4	5512	12
26	5501	78	8	5525	24
33	5502	99	14	5511	42
53	5528	159	27	5509	81
61	5507	183	32	5508	96
74	5497	222	44	5495	132
86	5527	258	46	5501	138
97	5510	291	47	5492	141
--	--	--	54	5502	162
--	--	--	86	5504	258
--	--	--	89	5518	267
--	--	--	95	5507	285

Radar waveform #11			Radar waveform #12		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Frequency (MHz)	Hopping Number	Pulse Start (ms)
18	5512	54	25	5500	75
24	5508	72	33	5510	99
38	5525	114	47	5528	141
71	5526	213	50	5495	150
75	5527	225	52	5502	156
93	5523	279	64	5506	192

96	5522	288	77	5494	231
--	--	--	84	5525	252
--	--	--	94	5524	282

Radar waveform #13			**Radar waveform #14**		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5511	15	11	5505	33
20	5496	60	22	5496	66
25	5521	75	25	5490	75
32	5501	96	30	5523	90
34	5514	102	36	5510	108
38	5525	114	90	5524	270
54	5506	162	--	--	--
58	5523	174	--	--	--
60	5494	180	--	--	--
63	5497	189	--	--	--
65	5520	195	--	--	--
74	5519	222	--	--	--

Radar waveform #15			**Radar waveform #16**		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5503	6	21	5496	63
7	5495	21	32	5520	96
10	5505	30	40	5492	120
40	5507	120	52	5497	156
66	5491	198	76	5502	228
71	5526	213	79	5490	237
90	5494	270	88	5514	264
Radar waveform #17			**Radar waveform #18**		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
14	5527	42	4	5530	12
32	5512	96	12	5523	36
41	5506	123	33	5524	99
43	5518	129	63	5507	189

70	5515	210	74	5504	222
76	5498	228	75	5497	225
80	5526	240	77	5506	231
90	5504	270	95	5514	285

Radar waveform #19			**Radar waveform #20**		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
28	5500	84	14	5514	42
29	5519	87	24	5522	72
53	5520	159	48	5490	144
--	--	--	56	5525	168
--	--	--	69	5529	207
--	--	--	80	5499	240
--	--	--	81	5519	243
--	--	--	100	5501	300

Radar waveform #21			**Radar waveform #22**		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
17	5490	51	16	5505	48
47	5497	141	18	5530	54
55	5504	165	26	5491	78
63	5527	189	51	5497	153
86	5528	258	63	5513	189
94	5526	282	74	5506	222
100	5500	300	91	5504	273

Radar waveform #23			**Radar waveform #24**		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
7	5521	21	32	5498	96
21	5509	63	33	5495	99
26	5493	78	34	5490	102
36	5526	108	35	5499	105
40	5517	120	41	5512	123
42	5512	126	45	5493	135

57	5530	171	63	5523	189
58	5502	174	65	5497	195
64	5506	192	73	5522	219
68	5508	204	90	5502	270
86	5513	258	--	--	--
87	5527	261	--	--	--
95	5500	285	--	--	--

Radar waveform #25			**Radar waveform #26**		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
9	5508	27	6	5490	18
19	5500	57	17	5526	51
23	5498	69	30	5511	90
35	5509	105	49	5497	147
42	5519	126	63	5503	189
57	5514	171	66	5509	198
78	5527	234	68	5507	204
88	5524	264	71	5525	213
--	--	--	73	5520	219

Radar waveform #27			**Radar waveform #28**		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
20	5527	60	23	5519	69
27	5522	81	40	5498	120
91	5529	273	63	5526	189
92	5517	276	86	5503	258
93	5516	279	--	--	--

Radar waveform #29			**Radar waveform #30**		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
7	5496	21	2	5522	6
35	5510	105	31	5504	93
37	5508	111	36	5502	108
45	5522	135	39	5499	117

48	5529	144	48	5494	144
56	5513	168	55	5525	165
63	5493	189	74	5493	222
74	5525	222	81	5490	243
87	5500	261	83	5491	249
88	5519	264	84	5492	252
97	5517	291	88	5510	264
--	--	--	97	5516	291

Product	ACCESS POINT	Temperature	23 ~ 25°C
Test Engineer	Amy Zhang	Relative Humidity	48 ~ 62%
Test Site	SR2	Test Date	2020/05/13 ~ 2020/05/15
Test Item	Radar Statistical Performance Check (802.11ax-HE80 mode - 5530MHz)		

Radar Type 1 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	1	578	92	1
2	5491	1	658	81	1
3	5500	1	718	74	1
4	5500	1	678	78	1
5	5509	1	818	65	1
6	5509	1	598	89	1
7	5510	1	838	63	1
8	5510	1	938	57	1
9	5511	1	558	95	1
10	5511	1	878	61	1
11	5520	1	518	102	1
12	5520	1	538	99	1
13	5529	1	898	59	1
14	5529	1	858	62	1
15	5530	1	738	72	1
16	5530	1	2390	23	1
17	5531	1	670	79	1
18	5531	1	1629	33	1
19	5540	1	2314	23	1
20	5540	1	2217	24	1
21	5549	1	1901	28	1
22	5549	1	1892	28	1
23	5550	1	2933	18	1
24	5550	1	779	68	1
25	5551	1	2746	20	1
26	5551	1	2098	26	1

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
27	5560	1	2824	19	1
28	5560	1	850	63	1
29	5569	1	1614	33	1
30	5569	1	923	58	1
Detection Percentage (%)					100%

Radar Type 2 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	1.1	198	29	1
2	5491	3.6	193	27	1
3	5500	4.0	164	29	1
4	5500	1.8	227	25	1
5	5509	2.5	178	24	1
6	5509	4.4	207	27	1
7	5510	2.4	153	23	1
8	5510	1.8	227	24	1
9	5511	3.4	171	25	1
10	5511	4.9	165	25	1
11	5520	3.4	215	29	1
12	5520	5.0	189	27	1
13	5529	5.0	170	27	1
14	5529	3.2	157	26	1
15	5530	1.4	222	27	1
16	5530	4.2	193	29	1
17	5531	3.9	190	24	0
18	5531	1.6	222	28	1
19	5540	2.9	219	24	1
20	5540	3.9	230	27	1
21	5549	3.2	216	28	1
22	5549	2.7	166	25	1
23	5550	4.1	224	25	1
24	5550	1.1	222	26	1
25	5551	1.9	178	23	0
26	5551	3.1	226	29	1
27	5560	1.3	151	26	0
28	5560	4.9	176	26	1
29	5569	3.6	169	28	1
30	5569	2.6	222	23	0
Detection Percentage (%)					86.7%

Radar Type 3 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	8.1	480	16	1
2	5491	9.3	298	16	1
3	5500	9.5	427	17	1
4	5500	9.1	393	16	1
5	5509	6.8	257	18	1
6	5509	8.9	441	17	0
7	5510	9.0	406	18	1
8	5510	9.9	368	18	1
9	5511	6.7	293	16	0
10	5511	8.2	346	16	1
11	5520	8.0	417	17	1
12	5520	8.6	292	17	1
13	5529	7.6	411	16	1
14	5529	6.5	354	16	1
15	5530	9.0	474	18	1
16	5530	8.1	489	18	1
17	5531	6.8	378	18	1
18	5531	8.9	395	17	1
19	5540	9.5	291	18	1
20	5540	9.1	472	18	1
21	5549	9.9	379	18	1
22	5549	9.5	476	16	1
23	5550	8.8	469	18	1
24	5550	9.0	257	18	1
25	5551	9.8	425	18	1
26	5551	6.4	443	17	0
27	5560	7.0	431	17	0
28	5560	6.6	478	17	1
29	5569	7.3	424	16	1
30	5569	8.5	337	16	1
Detection Percentage (%)					86.7%

Radar Type 4 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	12.3	328	15	1
2	5491	13.8	271	16	1
3	5500	13.9	417	16	1
4	5500	11.7	290	16	1
5	5509	12.7	452	12	1
6	5509	15.6	254	13	1
7	5510	18.3	494	14	1
8	5510	16.1	437	15	1
9	5511	11.2	442	15	1
10	5511	19.3	265	12	1
11	5520	11.4	259	15	1
12	5520	18.4	269	13	1
13	5529	19.1	469	16	1
14	5529	18.1	263	12	1
15	5530	17.8	395	15	1
16	5530	17.2	399	12	1
17	5531	12.6	271	15	1
18	5531	14.5	350	13	1
19	5540	15.5	286	14	0
20	5540	16.3	399	15	1
21	5549	19.2	257	13	1
22	5549	12.4	405	16	1
23	5550	15.8	318	12	1
24	5550	17.2	383	12	1
25	5551	15.7	339	14	1
26	5551	16.1	416	15	1
27	5560	12.0	282	14	1
28	5560	19.5	465	14	1
29	5569	12.4	498	16	1
30	5569	19.8	385	14	1
Detection Percentage (%)					96.7%

Note: In addition an average minimum percentage of successful detection across all four Short pulse radar test waveforms is as follows: $\frac{P_d1+P_d2+P_d3+P_d4}{4}$ = (100%+86.7%+86.7%+96.7%)/4 = 92.5% (>80%)

Radar Type 5 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	1=Detection 0=No Detection	Trail #	Test Freq. (MHz)	1=Detection 0=No Detection
1	5530.0	1	16	5495.0	1
2	5530.0	1	17	5497.0	1
3	5530.0	1	18	5495.8	1
4	5530.0	1	19	5497.0	1
5	5530.0	0	20	5494.6	1
6	5530.0	1	21	5561.0	1
7	5530.0	1	22	5561.0	1
8	5530.0	1	23	5562.6	1
9	5530.0	1	24	5561.8	1
10	5530.0	1	25	5566.2	1
11	5493.8	1	26	5563.0	0
12	5493.4	1	27	5567.0	1
13	5496.2	1	28	5562.6	1
14	5495.8	1	29	5565.4	1
15	5497.4	1	30	5563.8	1
Detection Percentage (%)					93.3%

Type 5 Radar Waveform_1

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	100	7	1489		286.468
2	3	74.1	7	1879	1578	109.382
3	1	70.8	7			315.89
4	1	96.4	7			40.25
5	2	50.9	7	1441		402.19
6	2	71.3	7	1651		393.06
7	1	53.4	7			78.43
8	2	78.5	7	1718		367.27
9	1	78	7			24.07
10	3	58.2	7	1471	1090	382.74
11	1	83.3	7			433.87
12	2	91.1	7	1119		92.45
13	3	70	7	1569	1503	122.6
14	2	53.8	7	1700		465.17
15	2	82.4	7	1900		514.42
16	2	62	7	1895		41.4
17	2	75.1	7	1945		563.7
18	3	89.3	7	1302	1587	166.1
19	2	69	7	1707		489.8
20	2	76.3	7	1725		315.3

Type 5 Radar Waveform_2

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	66.2	6	1379		290.295
2	3	88.4	6	1055	1404	567.241
3	2	65.3	6	1129		1.222
4	2	74	6	1458		166.423
5	3	64.2	6	1443	1166	341.684
6	2	70	6	1687		190.115
7	2	92.5	6	1297		239.526
8	1	56.9	6			404.027
9	3	60	6	1589	1108	356.518
10	2	66.3	6	1894		50.639
11	2	74.8	6	1384		352.861
12	2	67.6	6	1463		279.922
13	2	76.5	6	1153		598.753
14	2	78.5	6	1084		508.144
15	2	67.8	6	1360		479.545
16	3	97	6	1865	1641	518.086
17	2	93.3	6	1951		489.437
18	1	70	6			116.158
19	1	52.8	6			620.479

Type 5 Radar Waveform_3

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	77.1	15	1240		223.91
2	3	53.8	15	1072	1512	152.362
3	3	64	15	1855	1806	625.392
4	3	98.6	15	1876	1856	112.243
5	2	80.4	15	1384		621.244
6	2	53.2	15	1544		320.315
7	2	76	15	1063		65.636
8	3	70.6	15	1395	1112	137.057
9	2	79.6	15	1319		350.668
10	2	99.1	15	1413		616.259
11	2	81.3	15	1448		76.501
12	1	62.4	15			148.142
13	1	56.9	15			29.723
14	1	98.5	15			376.784
15	2	57.5	15	1516		283.575
16	2	81.3	15	1249		412.576
17	2	57.5	15	1048		567.437
18	1	100	15			352.258
19	2	54.9	15	1400		262.979

Type 5 Radar Waveform_4

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	76.6	13	1982		209.509
2	2	99.2	13	1226		397.123
3	2	80.1	13	1261		428.367
4	1	63.7	13			312.11
5	2	70.4	13	1880		316.393
6	2	61.1	13	1750		643.207
7	1	84.1	13			298.89
8	3	70.2	13	1742	1932	423.003
9	2	96.8	13	1316		8.717
10	2	54.9	13	1741		244.56
11	2	96	13	1416		101.583
12	2	52.9	13	1630		425.557
13	2	84.2	13	1347		655.09
14	2	59.1	13	1159		233.203
15	2	70.8	13	1478		141.057
16	1	66.1	13			387.3
17	2	74.2	13	1714		138.133
18	3	51.5	13	1687	1832	76.967

Type 5 Radar Waveform_5						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	97.5	14	1670	1951	242.771
2	1	99.5	14			311.567
3	1	76.3	14			641.223
4	2	98.9	14	1858		653.19
5	1	50.1	14			664.177
6	2	77.9	14	1965		1123.463
7	3	64.3	14	1946	1810	421.49
8	3	66.8	14	1259	1250	734.367
9	1	61.5	14			563.433

Type 5 Radar Waveform_6						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	57.9	8	1694		1035.52
2	1	58.9	8			826.45
3	3	56.3	8	1782	1421	43.9
4	3	54.3	8	1209	1536	854.36
5	3	81.4	8	1780	1518	691.45
6	2	99.4	8	1076		908.31
7	3	66.3	8	1598	1121	1065.78
8	2	79.2	8	1478		1192.47
9	1	69	8			526.4
10	2	55.7	8	1233		1154.4

Type 5 Radar Waveform_7						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	69.5	10	1747		149.444
2	2	53.2	10	1330		608.11
3	3	87.4	10	1740	1299	953.62
4	1	81.4	10			271.63
5	2	66.9	10	1757		28.41
6	1	62.8	10			717.5
7	2	72.9	10	1970		583.71
8	1	63.9	10			570.14
9	3	58.5	10	1364	1992	618.27
10	3	80.7	10	1245	1415	626.8
11	2	62.6	10	1409		386.9
12	1	61.6	10			239.6

Type 5 Radar Waveform_8

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μ sec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	88.2	7	1338		187.29
2	3	66	7	1188	1619	364.3
3	3	51.8	7	1435	1874	562.29
4	3	58.7	7	1210	1958	563.88
5	2	79.2	7	1440		494.17
6	3	56.4	7	1627	1830	573.92
7	2	79.4	7	1002		392.3
8	2	54.4	7	1031		535.28
9	1	88.8	7			211.55
10	3	75.3	7	1191	1006	241.98
11	2	96.5	7	1314		535.39
12	2	50.2	7	1150		727.42
13	2	81.4	7	1979		410.89
14	3	72.6	7	1279	1332	188.81
15	1	53.9	7			173.6
16	2	97.7	7	1613		595.3

Type 5 Radar Waveform_9

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	90.5	5	1391		251.486
2	3	69.4	5	1392	1111	40.21
3	1	71	5			291.407
4	3	99.1	5	1416	1526	49.21
5	2	77.4	5	1311		420.293
6	1	71.8	5			110.487
7	2	76	5	1380		281.39
8	2	73.7	5	1138		42.233
9	1	86.3	5			79.567
10	2	59.2	5	1465		580.38
11	2	66.3	5	1023		474.233
12	3	57.8	5	1195	1824	632.897
13	2	88.1	5	1684		404.17
14	1	84.2	5			420.943
15	1	90.4	5			545.987
16	2	66.4	5	1935		68.7
17	1	90.8	5			632.133
18	1	81.3	5			156.467

Type 5 Radar Waveform_10

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	86.1	9	1750		625.632
2	2	74.4	9	1983		304.92
3	3	59.5	9	1051	1775	767.72
4	2	77.9	9	1331		895.23
5	3	57.6	9	1744	1941	893.43
6	3	62.9	9	1063	1463	351.99
7	2	56.2	9	1803		76.91
8	2	56	9	1515		223.36
9	3	74.2	9	1422	1756	610.32
10	2	58.4	9	1531		754.13
11	2	80.2	9	1216		554.3
12	3	65.1	9	1445	1206	780.8

Type 5 Radar Waveform_11

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	62.8	7	1217		36.823
2	2	74.7	7	1544		467.87
3	2	83.7	7	1844		301.25
4	2	75.2	7	1188		221.88
5	2	96	7	1448		112.84
6	2	96.3	7	1950		686.66
7	3	55.6	7	1913	1537	230.24
8	2	98.3	7	1985		282.7
9	2	55.9	7	1558		123.94
10	1	89.6	7			131.69
11	3	72.9	7	1481	1478	186.04
12	2	92.7	7	1361		514.85
13	2	67.8	7	1482		468.23
14	2	69.3	7	1119		45.75
15	2	54.7	7	1233		271.3
16	1	89.8	7			209.4

Type 5 Radar Waveform_12

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	73.2	6	1167	1355	134.569
2	2	65.9	6	1507		259.681
3	1	87.8	6			549.18
4	3	61.6	6	1074	1328	106.8
5	2	72.5	6	1808		230.27
6	3	70.5	6	1605	1205	507.69
7	2	68.5	6	1718		51.71
8	2	90.5	6	1396		106.48
9	3	85.1	6	1126	1173	111.73
10	1	52.3	6			80.29
11	2	85.2	6	1011		448.82
12	1	76.8	6			560.12
13	2	91	6	1584		496.37
14	3	77.1	6	1960	1130	558.9
15	3	96.3	6	1257	1473	129.75
16	2	50.1	6	1963		364.87
17	1	59	6			545.7
18	2	77	6	1741		271.8
19	3	57.5	6	1114	1127	141.7
20	3	67	6	1679	1506	279.2

Type 5 Radar Waveform_13

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	69.7	13	1764		1134.23
2	3	99.7	13	1534	1298	347.32
3	2	89	13	1779		85.49
4	3	92.4	13	1795	1852	702.73
5	2	93.4	13	1483		100.78
6	1	87.9	13			399.05
7	1	89.2	13			540.3
8	3	53.7	13	1030	1020	787
9	3	93.4	13	1731	1842	603.8
10	3	56.1	13	1914	1000	432.5

Type 5 Radar Waveform_14

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	59.3	12			265.567
2	1	84.8	12			99.921
3	2	72.4	12	1444		70.504
4	2	85.8	12	1372		143.161
5	3	62.1	12	1342	1814	723.999
6	2	53	12	1731		221.836
7	2	85.6	12	1471		522.083
8	2	66	12	1967		256.03
9	3	62.5	12	1508	1182	511.167
10	3	62.1	12	1389	1529	814.504
11	2	50.4	12	1797		90.711
12	2	55.7	12	1583		340.809
13	2	72	12	1684		847.486
14	1	66.2	12			213.643

Type 5 Radar Waveform_15

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	68.7	16	1067	1483	565.742
2	2	63.9	16	1742		1205.677
3	1	76.5	16			525.453
4	3	86.7	16	1592	1889	868.3
5	3	71.1	16	1017	1096	217.687
6	3	96.7	16	1951	1465	271.583
7	3	95.3	16	1358	1638	1235.21
8	1	57.4	16			672.767
9	2	76.3	16	1798		852.733

Type 5 Radar Waveform_16

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	75	10			329.624
2	1	65.3	10			513.24
3	1	82.5	10			569.57
4	1	72.5	10			32.77
5	2	97	10	1846		4.22
6	2	56.4	10	1003		170.87
7	3	73.6	10	1782	1976	369.83
8	2	74.2	10	1382		310.58
9	1	52.1	10			128.64
10	2	93.3	10	1849		26.27
11	3	94.5	10	1662	1164	19.35
12	1	56.6	10			69.62
13	1	85	10			104.43
14	2	53.5	10	1721		9.43
15	2	91.7	10	1490		484.44
16	3	59.3	10	1828	1133	455.32
17	3	67.5	10	1368	1378	229.23
18	1	96.7	10			532.8
19	3	97.4	10	1832	1441	172
20	2	94.5	10	1884		142.4

Type 5 Radar Waveform_17

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	93.8	15	1100		0.141
2	1	50.4	15			133.13
3	1	90.5	15			380.05
4	2	69.7	15	1271		441.65
5	2	91.7	15	1149		35.92
6	3	78.6	15	1430	1117	665.86
7	3	87.4	15	1358	1534	170.64
8	3	88	15	1199	1877	357.06
9	1	85	15			818.15
10	1	75.9	15			8.77
11	1	88	15			872.7
12	2	82.8	15	1338		239.8

Type 5 Radar Waveform_18

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	51.3	12	1292		109.413
2	2	99	12	1300		451.323
3	1	83.2	12			142.407
4	2	75.2	12	1349		508.26
5	3	85.4	12	1898	1745	384.783
6	3	67	12	1913	1613	169.277
7	3	68.8	12	1057	1741	575.29
8	1	74.8	12			305.033
9	2	94.4	12	1611		281.287
10	2	73.9	12	1596		355.82
11	3	65.8	12	1418	1368	363.863
12	2	58.1	12	1735		411.847
13	2	72.6	12	1119		102.52
14	2	84	12	1793		205.723
15	3	72.7	12	1299	1325	570.157
16	1	82.7	12			60.5
17	1	98.6	12			258.333
18	2	71.5	12	1962		427.667

Type 5 Radar Waveform_19

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	93.2	15	1646		221.009
2	2	68.4	15	1229		910.047
3	2	57.2	15	1564		1183.903
4	2	52.3	15	1764		681.05
5	2	53.2	15	1317		188.777
6	2	86.6	15	1591		625.953
7	2	57.6	15	1028		761.15
8	2	64.5	15	1150		79.217
9	2	78.7	15	1116		1056.133

Type 5 Radar Waveform_20

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	59.5	9	1999		150.681
2	1	51.9	9			199.423
3	2	63.3	9	1282		642.346
4	3	67.5	9	1124	1065	139.789
5	1	61.9	9			637.152
6	2	69.3	9	1538		150.315
7	3	82.9	9	1110	1492	757.068
8	1	88.9	9			265.282
9	2	70.9	9	1490		230.065
10	1	53.4	9			786.758
11	2	96.8	9	1175		225.041
12	3	59.4	9	1097	1939	451.254
13	3	75.4	9	1661	1363	127.977

Type 5 Radar Waveform_21

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	88.2	20	1307	1262	929.609
2	3	90.1	20	1001	1522	662.85
3	2	64.7	20	1876		590.51
4	1	82.4	20			1049.76
5	3	64.3	20	1523	1340	227.64
6	2	87.4	20	1956		160
7	2	61.6	20	1296		1477.9
8	2	94.9	20	1145		1216.8

Type 5 Radar Waveform_22

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	81.6	20			497.164
2	1	62.6	20			389.591
3	3	79.3	20	1034	1059	88.722
4	1	72.4	20			395.523
5	2	69.5	20	1476		26.294
6	2	96.7	20	1691		192.205
7	2	53.8	20	1847		67.456
8	3	95.2	20	1090	1488	318.237
9	1	91.3	20			300.798
10	2	95.7	20	1724		622.959
11	2	67.8	20	1155		345.051
12	2	81.6	20	1598		35.642
13	1	52	20			448.573
14	3	90.5	20	1338	1144	156.284
15	2	64.4	20	1235		588.035
16	3	83.8	20	1702	1723	97.176
17	2	90.6	20	1723		564.437
18	2	70.4	20	1822		484.358
19	2	71.9	20	1430		489.679

Type 5 Radar Waveform_23

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	84.6	16	1538		655.342
2	2	83.8	16	1367		392.41
3	2	57.2	16	1008		401.4
4	2	80.2	16	1056		238.18
5	2	74.3	16	1777		664.65
6	2	88.9	16	1423		340.33
7	3	67.8	16	1447	1284	539.19
8	2	89.1	16	1779		137.88
9	1	97.1	16			142.54
10	2	61	16	1767		49.4
11	3	91.3	16	1247	1572	378.84
12	1	90.3	16			287.13
13	2	80.9	16	1069		430.51
14	2	91.6	16	1145		79.95
15	2	86.5	16	1901		116.2
16	2	73.6	16	1577		138

Type 5 Radar Waveform_24

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	85.2	18	1991	1660	2.359
2	2	74.2	18	1273		123.34
3	3	57	18	1975	1193	564.642
4	2	53.4	18	1513		133.613
5	3	98.7	18	1540	1867	546.674
6	2	82.2	18	1272		9.665
7	3	89.4	18	1621	1379	620.576
8	3	70.9	18	1316	1835	200.957
9	1	86.6	18			592.698
10	2	66	18	1994		285.889
11	1	53.8	18			115.531
12	2	62.6	18	1706		432.602
13	1	99.5	18			511.273
14	2	92.4	18	1243		278.774
15	3	72.6	18	1380	1318	313.115
16	1	81.6	18			368.516
17	1	97.3	18			333.437
18	1	78.7	18			521.358
19	3	66.8	18	1924	1268	44.379

Type 5 Radar Waveform_25

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	93.2	7	1290		860.93
2	2	81.9	7	1427		527.613
3	3	97.2	7	1688	1632	884.086
4	2	84.3	7	1945		606.389
5	1	80.9	7			71.432
6	1	89.5	7			638.475
7	2	95.3	7	1563		472.258
8	2	78.4	7	1812		713.052
9	2	97.6	7	1112		791.545
10	1	50.9	7			163.478
11	1	73.3	7			650.561
12	3	80.9	7	1103	1564	470.254
13	1	83.9	7			558.177

Type 5 Radar Waveform_26

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	51	15			650.428
2	2	70.3	15	1941		805.571
3	2	65.4	15	1456		144.352
4	2	91.6	15	1026		826.913
5	2	90.2	15	1356		256.284
6	3	99.2	15	1685	1355	423.185
7	2	83.7	15	1598		647.815
8	2	72.7	15	1402		321.966
9	2	92.2	15	1579		724.977
10	3	95.2	15	1360	1940	154.668
11	1	88.6	15			20.609

Type 5 Radar Waveform_27

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	67.1	5	1707	1529	458.675
2	3	79	5	1038	1694	242.015
3	3	96.6	5	1718	1326	639.225
4	1	77.9	5			425.913
5	1	99.1	5			677.181
6	2	60	5	1760		673.478
7	2	71.7	5	1615		143.636
8	2	64.4	5	1999		491.344
9	3	67.2	5	1234	1708	475.581
10	2	66.9	5	1603		212.319
11	1	80.7	5			644.866
12	1	65.6	5			144.474
13	3	78	5	1773	1783	256.042
14	3	57.8	5	1015	1726	590.319
15	1	70.5	5			19.457
16	2	67.3	5	1871		307.365
17	3	86.8	5	1519	1319	76.982

Type 5 Radar Waveform_28

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	66.6	16			227.485
2	3	96.3	16	1529	1105	187.147
3	2	54.4	16	1857		350.024
4	1	93.3	16			240.781
5	2	52.7	16	1334		620.469
6	1	53.7	16			513.306
7	1	57.1	16			125.713
8	1	81.9	16			486.3
9	1	90.6	16			173.417
10	1	51	16			23.724
11	1	97.9	16			466.901
12	1	70	16			454.829
13	1	71.5	16			433.286
14	3	93.6	16	1906	1302	148.143