DFS MEASUREMENT REPORT

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

FCC ID:	Q9DAPEX057457
APPLICANT:	Hewlett Packard Enterprise Company
Application Type:	Certification
Product:	ACCESS POINT
Model No.:	APEX0574, APEX0575, APEX0577
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 ~ March 31, 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
2003TW0002-U5	Rev. 01	Initial report	04-20-2020	Valid

CONTENTS

Description Page

General Information

Applicant:	Hewlett Packard Enterprise Company
Applicant Address:	3333 Scott Blvd, Santa Clara, CA 94089, USA
Manufacturer:	Hewlett Packard Enterprise Company
Manufacturer Address:	3333 Scott Blvd, Santa Clara, CA 94089, 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.:	APEX0575 S/N: DB1959003D

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

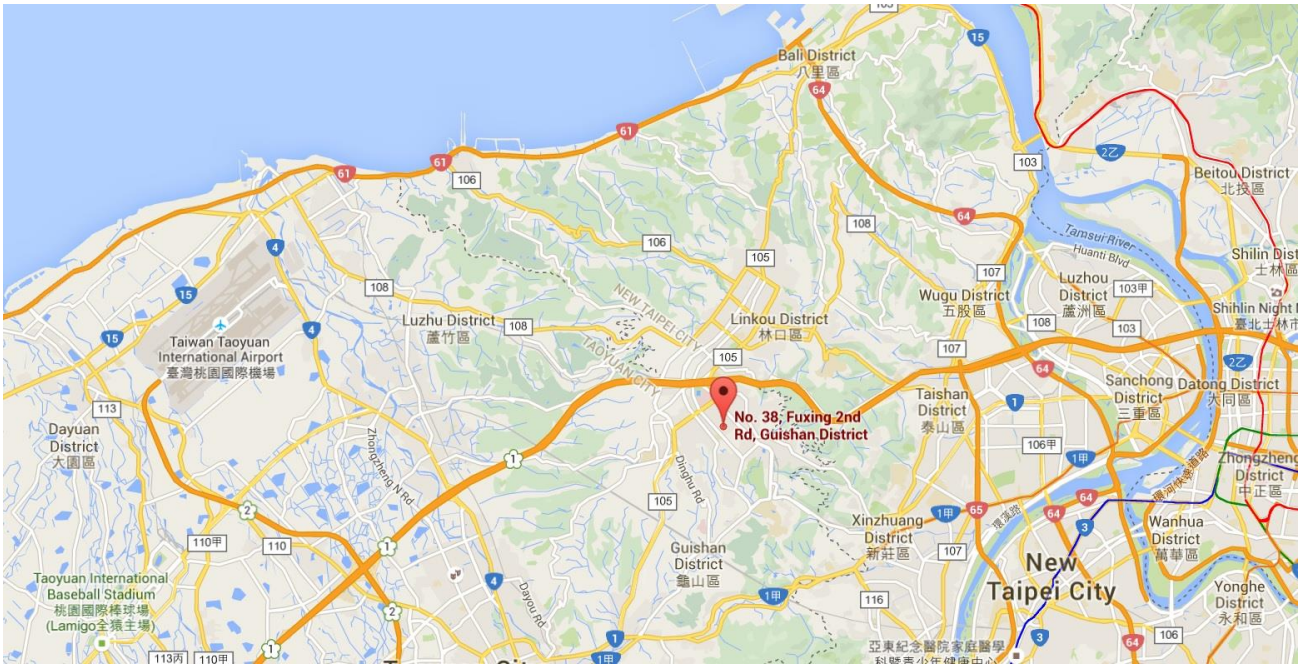
1. INTRODUCTION

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.:	APEX0574, APEX0575, APEX0577
Wi-Fi Specification:	802.11a/b/g/n/ac/ax
Bluetooth Specification:	v4.2 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:	Outdoor Use

Note 1: The difference between three models is that EUT use different antenna and appearance, other hardware and software are the same. Each model has its own power parameter value.
Note 2: We selected product model APIN0575 that has lowest antenna gain to perform the DFS testing.

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

Model No.: APEX0574

Antenna No.	Antenna Type	Frequency Band (GHz)	Model No.	Max Peak Gain (dBi)	30 Degree Ant 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 (Note 3)	Omni	2.4	ANT-2x2-2005	5.0	N/A	5.0	5.0	5.0
2 (Note 3)	Omni	5	ANT-2x2-5005	5.0	0	8.01	5.0	8.01
3 (Note 3)	Omni	5	ANT-2x2-5010	10.0	0	13.01	10.0	13.01
4 (Note 3)	Directional	2.4	ANT-2x2-2314	14.0	N/A	14.0	14.0	14.0
5 (Note 3)	Directional	5	ANT-3x3-5712	11.5	1.5	14.51	11.5	14.51
6 (Note 3)	Directional	5	ANT-4x4-5314	14.0	6.0	17.01	14.0	17.01
7 (Note 3)	Directional	5	MT-484052/NVH	16.0	3.0	19.01	16.0	19.01
8 (Note 3)	Directional	2.4	ANT-3x3-D608	7.5	N/A	10.51	7.5	10.51
		5		7.5	4.5	10.51	7.5	10.51
9 (Note 3)	Directional	2.4	ANT-3x3-D100	5.0	N/A	8.01	5.0	8.01
		5		5.0	4.0	8.01	5.0	8.01
Bluetooth Internal Antenna								
PCB		2.4		4.2				

Model No.: APEX0577

Antenna Type	Frequency Band (GHz)	Max Peak Gain (dBi)	30 Degree Ant Gain (dBi)	BF Dir Gain (dBi)	CDD Dir Gain (dBi)	
					For Power	For PSD
Wi-Fi Internal Antenna List (2.4GHz 2*2 MIMO, 5GHz 4*4 MIMO)						
Directional (Note 3)	2.4	6.8	N/A	6.80	6.8	6.80
Directional (Note 3)	5	5.6	5.6	8.60	5.6	8.60
Bluetooth Internal Antenna						
PCB	2.4	8.4				

Model No.: APEX0575

Antenna Type	Frequency Band (GHz)	Max Peak Gain (dBi)	30 Degree Ant Gain (dBi)	BF Dir Gain (dBi)	CDD Dir Gain (dBi)	
					For Power	For PSD
Wi-Fi Internal Antenna List (2.4GHz 2*2 MIMO, 5GHz 4*4 MIMO)						
Omni (Note 3)	2.4	3.4	N/A	3.4	3.4	3.4
Omni (Note 3)	5	5.0	-2.7	8.0	5.0	8.0
Bluetooth Internal Antenna						
PCB	2.4	6.0				

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 or 4, 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 $N_{ANT} \leq 4$;

   Abbreviation “Dir” means directional.
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

<table>
<tr><td colspan="7">Antenna RF Port</td></tr>
<tr><td>--</td><td colspan="2">2.4GHz RF Port</td><td colspan="4">5GHz RF Port</td></tr>
<tr><td>Software Control Port</td><td>Ant 0</td><td>Ant 1</td><td>Ant 0</td><td>Ant 1</td><td>Ant 2</td><td>Ant 3</td></tr>
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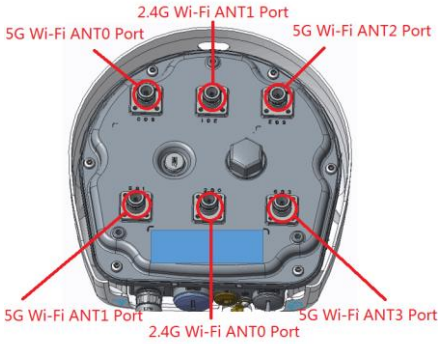
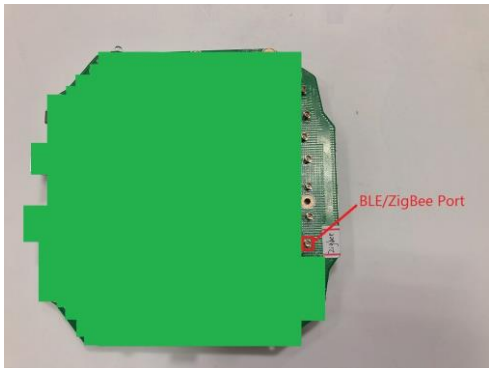
<tr><td colspan="7"> 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<tr><td colspan="3">APEX0577</td><td colspan="4">APEX0575</td></tr>
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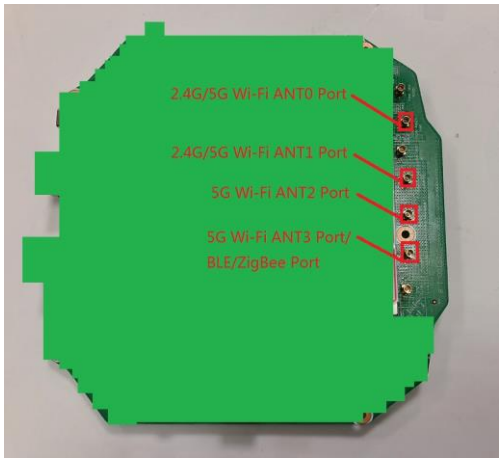
</td><td colspan="4"> 
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2.5. Operating Frequency and Channel List

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.

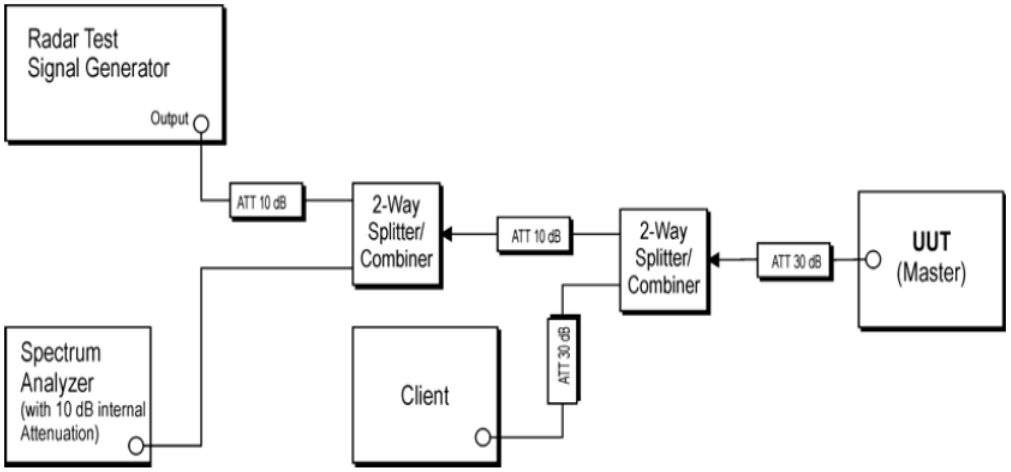


Figure 3-1: Conducted Test Setup where UUT is a Master and Radar Test Waveforms are injected into the Masters

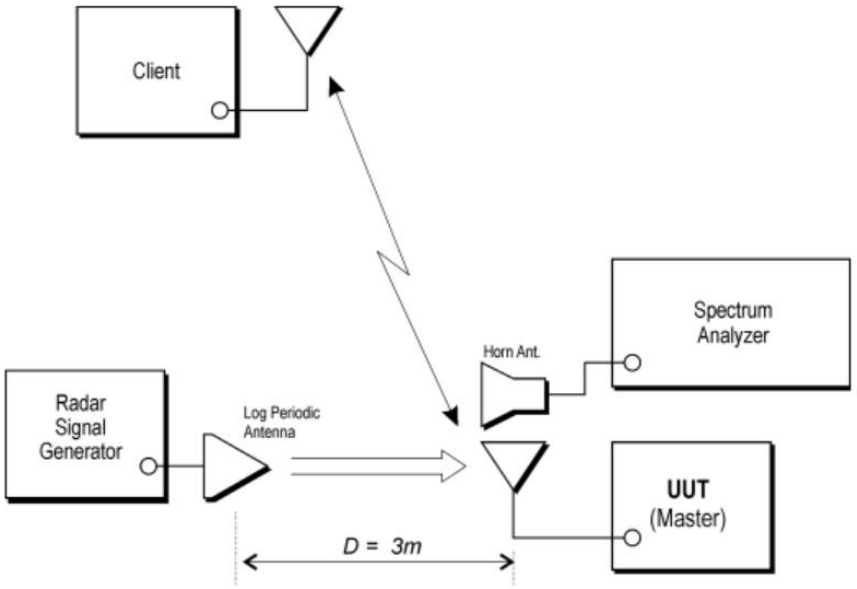


Figure 3-2: Radiated Test Setup where UUT is a Bridge or Mesh mode and Radar Test Waveforms are injected into the UUT

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	2020/10/02
EXA Signal Analyzer	KEYSIGHT	N9010B	MRTTWA00074	1 year	2020/07/11
Vector Signal Generator	Keysight	N5182B	MRTTWA00010	1 year	2020/04/22
Combiner	WOKEN	0120A04208001S	MRTTWE00008	1 year	2020/06/17
Temperature/Humidity Meter	TFA	35.1078.10.IT	MRTTWA00032	1 year	2020/05/30
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	MRTTWA00003	1 year	2020/04/22

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.

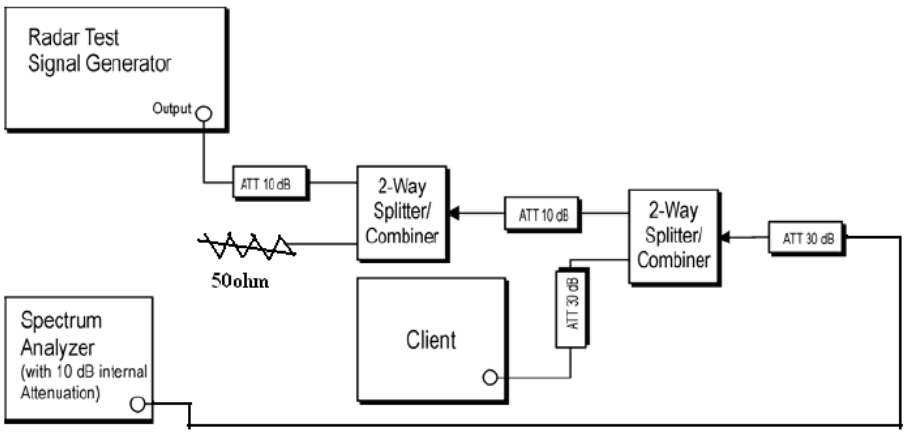


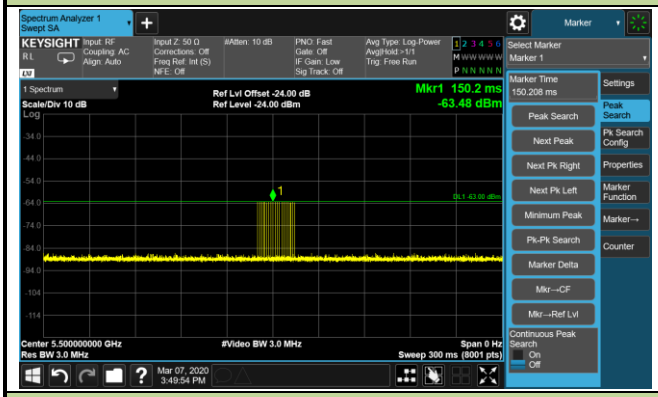
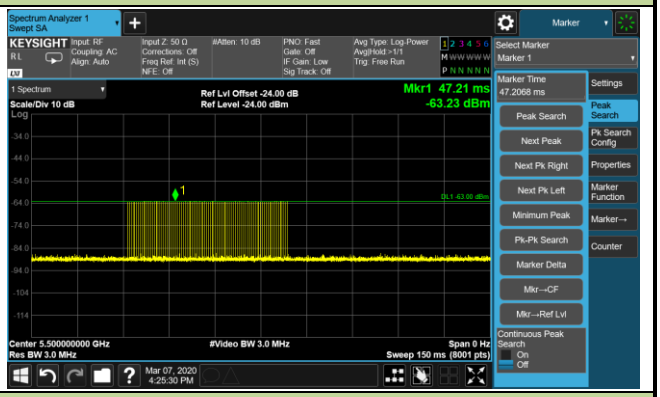
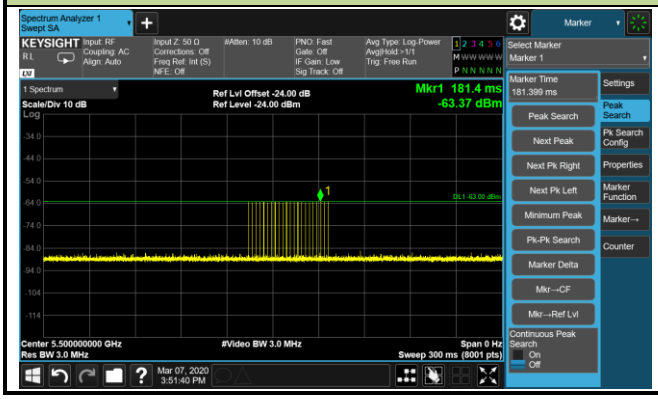
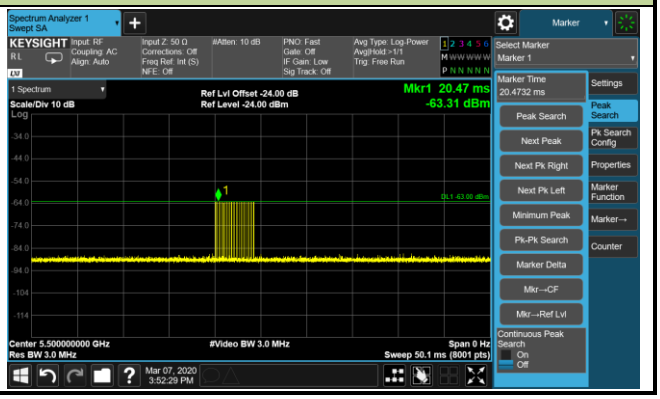
Figure 3-2: Conducted Test Setup

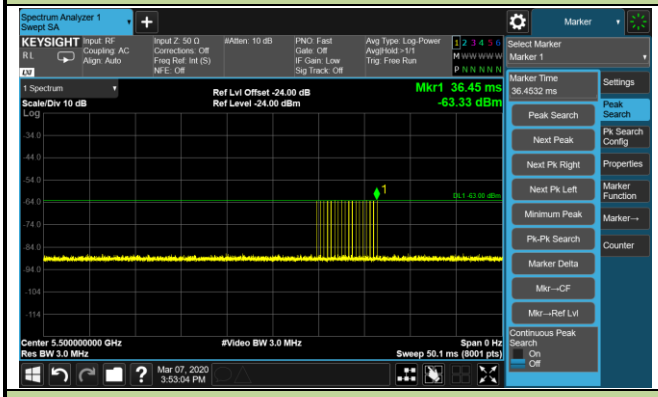
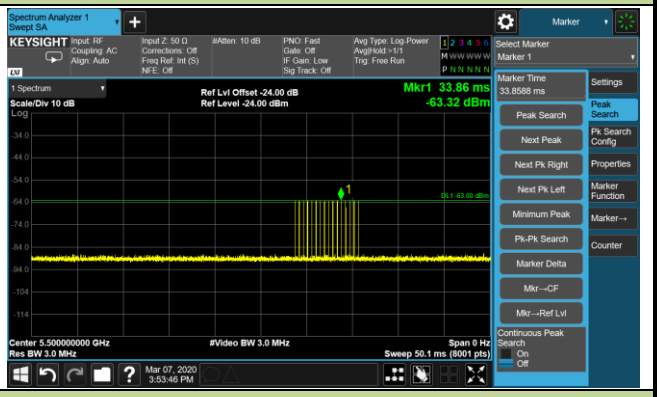
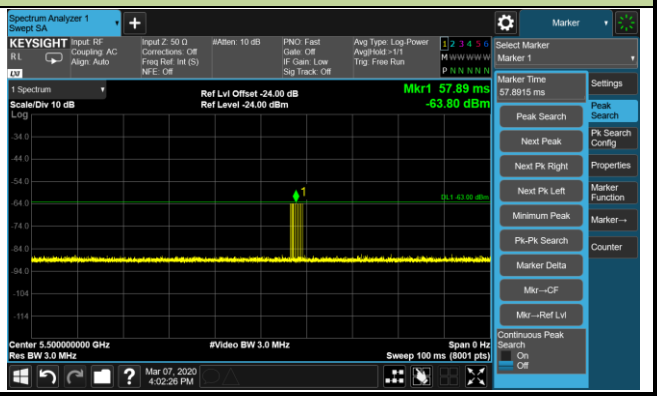
5.2.2. Calibration Procedure

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

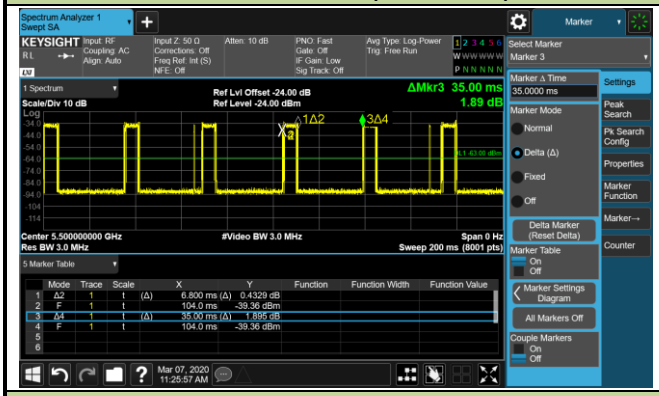
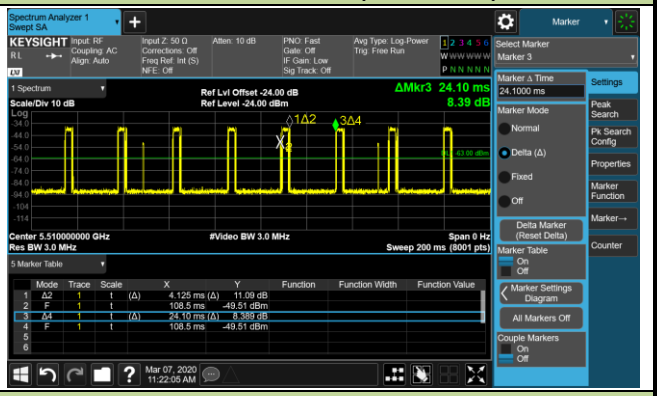
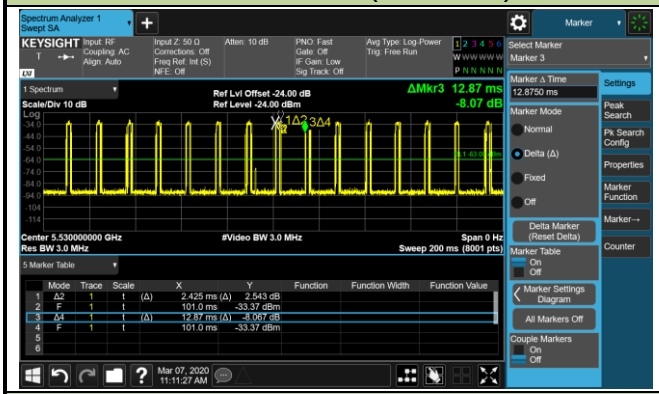
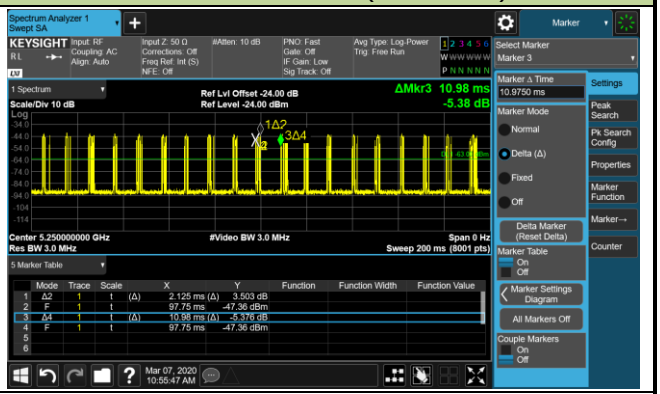
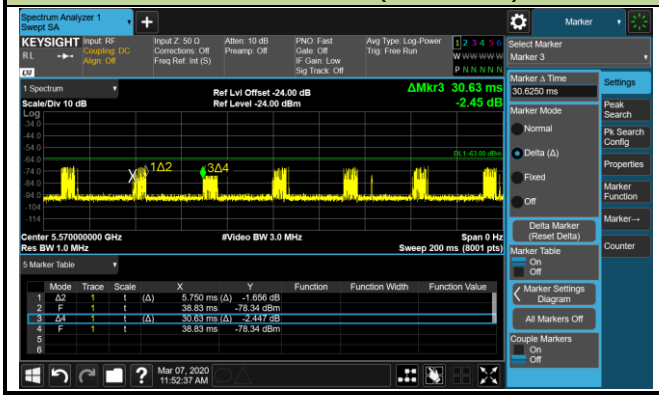
Product	ACCESS POINT	Temperature	27°C
Test Engineer	Kevin Ker	Relative Humidity	65%
Test Site	AC1	Test Date	2020/03/07
Test Item	Radar Waveform Calibration		

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): 19.01MHz x 100% = 19.01MHz.

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): 37.48MHz x 100% = 37.48MHz.

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): 76.79MHz x 100% = 76.79MHz.

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): 77.56MHz x 100% = 77.56MHz.

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): 154.16MHz x 100% = 154.16MHz.

5.4. Initial Channel Availability Check Time Measurement

5.4.1. Test Limit

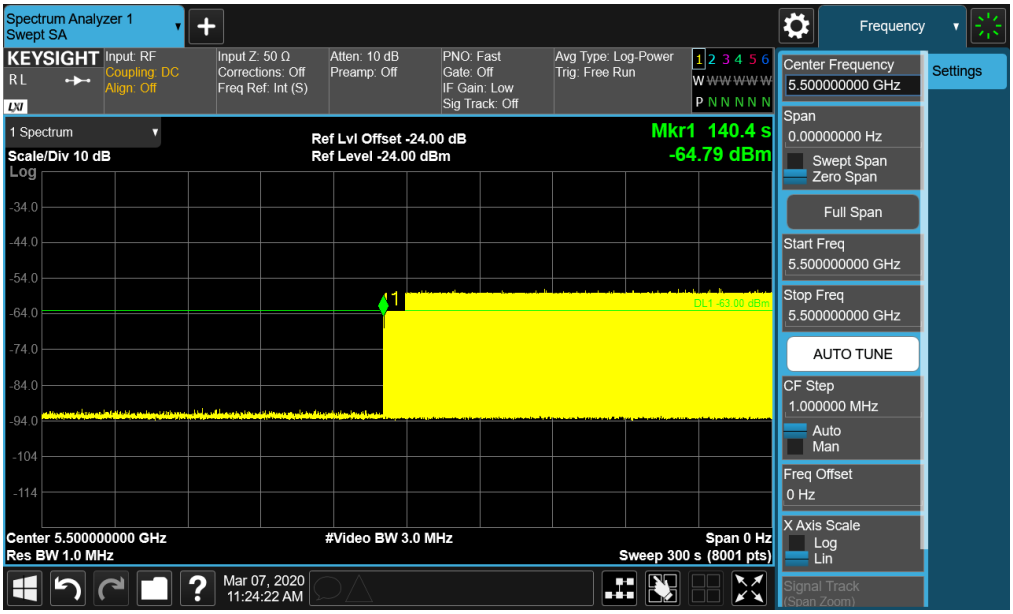
The EUT shall perform a Channel Availability Check to ensure that there is no radar operating on the channel. After power-up sequence, receive at least 1 minute on the intended operating frequency.

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

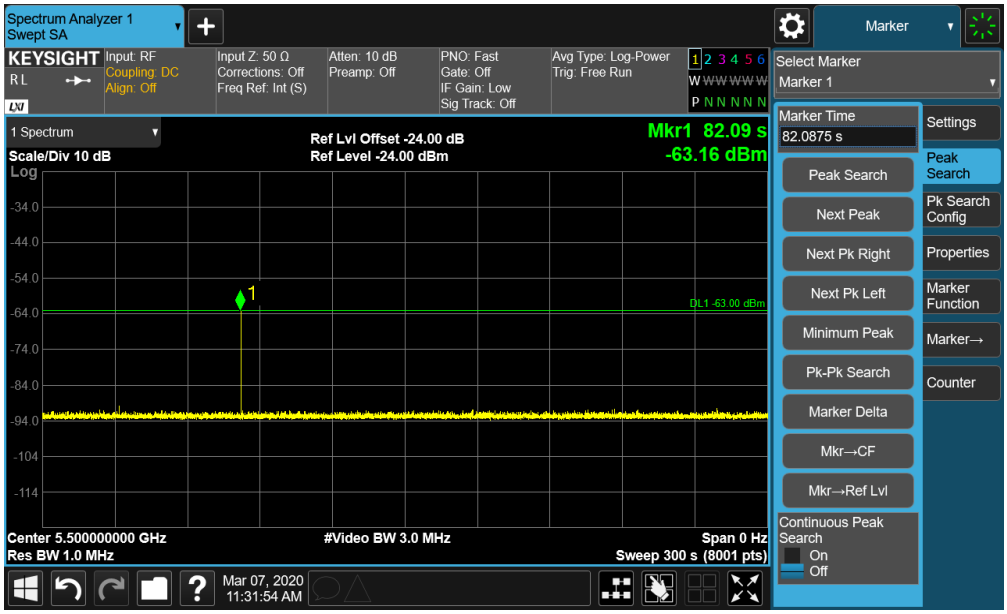
In beginning of the Channel Availability Check (CAC) Time, radar is detected on this channel, select another intended channel and perform a CAC on that channel.

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.

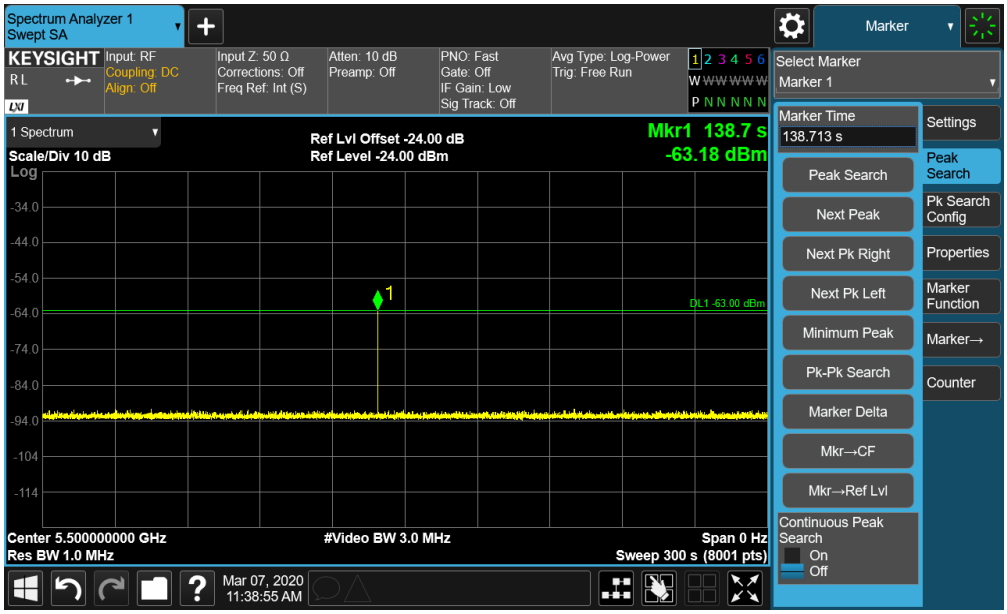
5.6.2. Test Procedure

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.

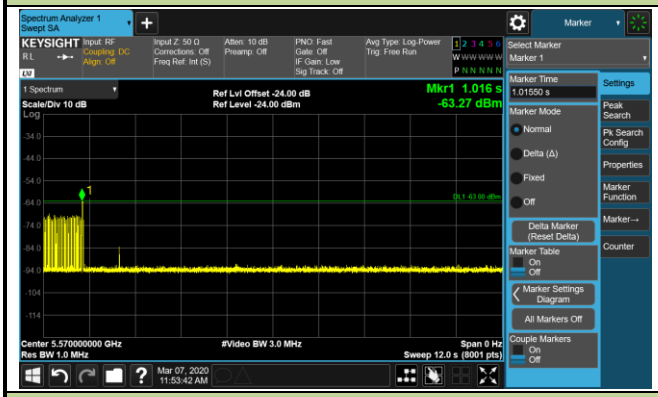
5.7.2. Test Procedure Used

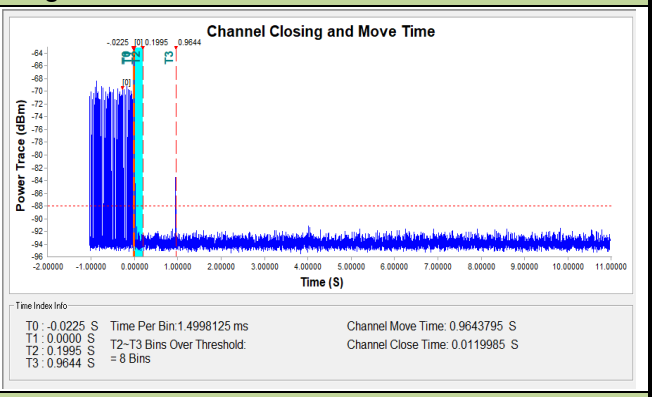
1. The test should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0.
2. When the radar burst with a level equal to the DFS Detection Threshold + 1dB is generated on the Operating Channel of the U-NII device. A U-NII device operating as a Master Device will 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

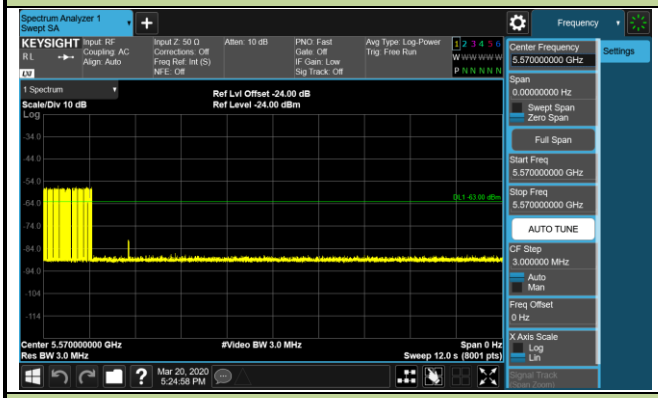
Product	ACCESS POINT	Temperature	27°C
Test Engineer	Kevin Ker	Relative Humidity	65%
Test Site	AC1	Test Date	2020/03/07
Test Item	Channel Move Time and Channel Closing Transmission Time (802.11ax-HE160 - 5570MHz)		

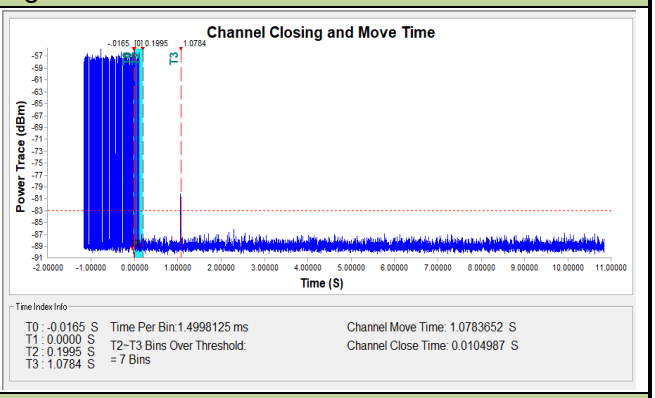
Channel Move Time and Channel Closing Transmission Time - AP Mode





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	27°C
Test Engineer	Amy Zhang	Relative Humidity	65%
Test Site	SR2	Test Date	2020/03/09
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	5492.6	1	698	76	1
2	5500.0	1	918	58	1
3	5497.6	1	538	98	1
4	5506.3	1	618	86	1
5	5491.8	1	898	59	1
6	5500.0	1	798	67	1
7	5506.9	1	638	83	1
8	5495.5	1	938	57	1
9	5508.8	1	838	63	1
10	5508.3	1	738	72	1
11	5490.4	1	878	61	1
12	5509.6	1	658	81	1
13	5507.2	1	758	70	1
14	5492.9	1	858	62	1
15	5494.0	1	518	102	1
16	5501.2	1	1286	41	1
17	5490.9	1	1512	35	1
18	5498.5	1	2732	20	1
19	5496.3	1	2741	20	1
20	5504.7	1	830	64	1
21	5493.2	1	648	82	1
22	5502.8	1	2690	20	1
23	5491.5	1	707	75	1
24	5504.1	1	2769	20	1
25	5499.8	1	693	77	1
26	5493.8	1	542	98	1

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
27	5505.2	1	1207	44	1
28	5507.8	1	2834	19	1
29	5503.3	1	1297	41	1
30	5505.8	1	2832	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	5492.6	1.6	173	28	0
2	5500.0	4.9	191	23	1
3	5499.8	3.3	215	26	1
4	5504.1	4.7	189	24	1
5	5491.8	2.3	213	26	1
6	5506.9	1.8	159	23	1
7	5498.5	4.0	203	26	1
8	5508.3	1.3	156	27	1
9	5503.3	4.7	168	27	1
10	5492.9	4.3	186	25	1
11	5508.8	4.8	165	24	1
12	5507.2	1.3	211	25	1
13	5491.5	1.9	176	27	1
14	5504.7	1.8	223	28	1
15	5500.0	2.3	169	26	1
16	5490.4	3.9	203	28	1
17	5506.3	4.3	173	25	1
18	5497.6	1.0	176	24	1
19	5509.6	1.0	163	23	1
20	5501.2	1.9	219	24	1
21	5493.2	2.7	183	23	1
22	5505.2	1.4	178	26	1
23	5495.5	4.6	210	27	1
24	5493.8	4.6	157	27	1
25	5507.8	4.7	156	29	1
26	5490.9	1.9	163	26	0
27	5502.8	2.0	155	28	0
28	5496.3	4.2	183	24	1
29	5505.8	1.8	153	24	0
30	5494.0	3.1	163	25	1
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	5494.0	8.9	412	16	1
2	5490.9	9.1	253	17	1
3	5500.0	6.8	349	18	1
4	5492.9	6.0	418	16	1
5	5504.7	9.2	434	16	0
6	5490.4	6.9	276	17	1
7	5507.8	7.4	315	16	1
8	5504.1	7.0	203	18	1
9	5493.8	6.3	327	17	1
10	5506.9	8.5	324	17	1
11	5492.6	7.3	300	17	1
12	5509.6	7.2	318	17	1
13	5506.3	7.2	326	17	1
14	5507.2	6.3	345	18	1
15	5495.5	7.9	305	17	1
16	5500.0	6.1	205	16	1
17	5499.8	7.0	370	16	1
18	5493.2	10.0	275	17	1
19	5508.3	6.3	448	17	1
20	5491.5	6.5	276	18	1
21	5503.3	10.0	316	18	1
22	5501.2	7.2	368	18	1
23	5508.8	8.5	412	17	1
24	5505.8	8.9	281	17	1
25	5496.3	9.3	407	18	1
26	5505.2	6.7	235	18	1
27	5497.6	6.6	245	17	1
28	5491.8	8.3	375	18	1
29	5502.8	7.4	301	17	1
30	5498.5	9.2	302	16	1
Detection Percentage (%)					96.7%

Radar Type 4 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5492.9	17.8	218	13	1
2	5502.8	13.2	278	12	1
3	5500.0	17.6	329	15	1
4	5508.8	14.0	401	13	1
5	5506.9	11.2	276	13	1
6	5509.6	20.0	496	12	1
7	5490.4	15.0	229	15	1
8	5499.8	14.3	345	13	1
9	5506.3	16.9	498	16	1
10	5492.6	18.7	208	14	1
11	5504.1	13.6	358	13	1
12	5501.2	18.9	500	12	1
13	5490.9	15.8	449	15	1
14	5507.2	15.1	375	14	1
15	5493.2	15.4	367	16	1
16	5495.5	14.6	286	14	1
17	5491.8	16.2	370	14	1
18	5508.3	18.8	409	13	1
19	5500.0	19.2	345	16	1
20	5493.8	14.1	411	14	1
21	5503.3	18.4	445	16	1
22	5491.5	17.8	247	13	1
23	5505.2	19.2	469	13	1
24	5504.7	15.4	218	13	1
25	5496.3	19.4	295	14	1
26	5498.5	16.8	433	14	1
27	5507.8	16.1	282	16	1
28	5497.6	13.2	206	12	1
29	5505.8	13.9	466	13	1
30	5494.0	17.9	418	15	1
Detection Percentage (%)					100%

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%+96.7%+100%)/4 = 95.9% (>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	5494.4	0
2	5500.0	1	17	5496.0	1
3	5500.0	1	18	5497.2	1
4	5500.0	1	19	5493.2	1
5	5500.0	1	20	5494.8	1
6	5500.0	1	21	5503.2	1
7	5500.0	1	22	5502.0	1
8	5500.0	1	23	5506.0	1
9	5500.0	1	24	5503.2	1
10	5500.0	1	25	5503.2	1
11	5493.6	1	26	5507.6	1
12	5492.8	1	27	5503.6	1
13	5498.0	1	28	5502.4	1
14	5495.2	1	29	5507.2	0
15	5494.8	1	30	5504.8	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	74.7	12	1913		773.275
2	3	80.2	12	1402	1127	511.391
3	2	76.8	12	1934		382.792
4	3	98.9	12	1149	1476	760.103
5	2	58.8	12	1154		667.994
6	1	87.7	12			249.245
7	3	79.6	12	1742	1220	401.765
8	1	69.3	12			189.516
9	1	66.7	12			518.657
10	2	93.1	12	1318		658.918
11	3	80.8	12	1686	1310	119.409

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	67	12	1748		7.737
2	2	50.3	12	1393		868.13
3	2	78.9	12	1450		931.02
4	2	95.7	12	1344		1113.61
5	2	78.8	12	1481		249.07
6	3	63.9	12	1605	1798	86.39
7	2	84.2	12	1277		987.95
8	1	82.7	12			4.24
9	2	81.4	12	1367		583.5
10	3	81.8	12	1812	1271	862.7

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	2	93.9	5	1428		553.476
2	3	61.5	5	1071	1948	20.186
3	2	65.8	5	1548		444.606
4	1	81.2	5			727.839
5	1	60.2	5			139.992
6	3	69.4	5	1845	1450	157.735
7	3	97.3	5	1999	1285	822.918
8	2	87.4	5	1364		404.122
9	1	98	5			492.435
10	2	81.4	5	1717		545.618
11	2	83	5	1328		648.611
12	1	50	5			263.654
13	1	72.8	5			720.977

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	85.2	16	1972	1183	235.087
2	3	69.3	16	1217	1700	849.957
3	3	79.1	16	1656	1135	365.454
4	1	71.8	16			583.101
5	2	59.4	16	1630		749.069
6	2	56.8	16	1901		292.376
7	2	60.4	16	1888		152.433
8	2	96	16	1802		735.11
9	3	74.5	16	1798	1180	563.237
10	2	55.1	16	1221		469.224
11	2	91.7	16	1603		201.111
12	2	51.6	16	1095		147.999
13	2	59.9	16	1530		444.986
14	2	62.2	16	1675		204.543

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	1	59.8	5			772.452
2	2	78.5	5	1021		655.597
3	1	55.8	5			134.984
4	2	81.8	5	1804		541.941
5	1	74.8	5			119.019
6	2	90.4	5	1430		166.466
7	2	84.7	5	1269		569.683
8	2	53.2	5	1346		637.44
9	3	73.4	5	1680	1320	156.627
10	3	88.9	5	1711	1989	694.184
11	2	52.3	5	1521		70.911
12	2	97.4	5	1607		303.139
13	2	70	5	1278		800.786
14	3	78.4	5	1578	1165	631.443

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	3	93.1	13	1880	1020	84.818
2	1	81.7	13			192.105
3	3	75	13	1814	1420	349.025
4	1	90.3	13			674.333
5	1	52	13			624.671
6	2	90.3	13	1973		536.118
7	3	97.5	13	1139	1287	284.736
8	3	78.5	13	1510	1896	161.414
9	2	65.8	13	1157		331.511
10	3	75.7	13	1904	1436	64.509
11	2	86.7	13	1451		283.176
12	1	85.1	13			323.994
13	2	51.4	13	1916		8.242
14	3	65.8	13	1960	1422	272.899
15	3	91.1	13	1056	1810	654.947
16	3	98.7	13	1634	1227	592.765
17	2	53.5	13	1835		106.982

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	71.4	7	1595	1606	461.167
2	3	64.3	7	1527	1015	44.85
3	2	87.2	7	1657		727.044
4	2	71.2	7	1638		603.041
5	3	61	7	1385	1537	796.399
6	1	60	7			627.436
7	2	66.1	7	1738		32.333
8	3	70.2	7	1958	1200	27.18
9	1	59.4	7			101.927
10	3	91.9	7	1250	1693	237.854
11	1	56.3	7			754.341
12	2	58.5	7	1357		60.329
13	3	59.7	7	1524	1514	673.286
14	3	78.4	7	1072	1934	56.343

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	90.4	10	1814	1068	451.122
2	1	63.6	10			481.32
3	2	83.9	10	1528		383.94
4	2	88.9	10	1647		972.8
5	1	61.9	10			730.67
6	2	52.9	10	1532		350.7
7	1	61.8	10			1164.33
8	3	90.2	10	1084	1013	1186.21
9	1	81	10			106.66
10	3	98.4	10	1450	1589	304.5

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	3	53.3	6	1090	1864	402.534
2	2	84	6	1352		339.677
3	3	75.9	6	1623	1932	768.264
4	2	70.8	6	1428		480.311
5	1	91.2	6			326.519
6	1	75.3	6			408.836
7	1	52.2	6			149.993
8	2	93.7	6	1868		200.71
9	1	75.6	6			801.127
10	2	51.5	6	1622		393.134
11	2	60.4	6	1514		816.231
12	2	61.1	6	1228		314.389
13	2	77.5	6	1149		337.386
14	2	89.8	6	1756		770.043

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	80.7	14			753.323
2	2	55	14	1945		71.006
3	3	53.1	14	1420	1908	520.35
4	3	88.4	14	1554	1896	615.28
5	3	55.9	14	1327	1462	687.6
6	2	99.6	14	1967		587.86
7	3	56.8	14	1389	1132	244.56
8	2	98	14	1321		700.38
9	2	82.2	14	1371		275.57
10	1	63.5	14			150.2
11	3	65.5	14	1046	1410	294.88
12	2	78.5	14	1329		701.12
13	3	53.3	14	1764	1988	657
14	2	98.1	14	1433		537.5
15	1	88.3	14			147.4

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	3	70.5	8	1261	1915	54.414
2	1	91.4	8			288.96
3	2	82.2	8	1951		319.06
4	3	96.3	8	1905	1804	858.34
5	1	62.7	8			412.86
6	2	50.5	8	1853		494.62
7	2	67.4	8	1810		511.72
8	2	81.8	8	1312		135.86
9	2	97	8	1205		1088.2
10	3	61.1	8	1100	1267	1185.3

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	92.2	6	1463		608.978
2	2	53.8	6	1366		609.08
3	1	85.9	6			819.57
4	2	92.2	6	1240		876.89
5	3	73.4	6	1960	1357	904.51
6	3	94.4	6	1085	1304	258.2
7	2	73.5	6	1991		54.98
8	2	89.5	6	1040		949.24
9	2	82	6	1548		6.63
10	2	68.1	6	1916		766

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	61	19	1157		686.445
2	2	64.2	19	1598		184.719
3	1	95.1	19			734.58
4	2	59.5	19	1417		218.03
5	3	78.5	19	1096	1548	382.66
6	3	56.5	19	1179	1849	395.67
7	1	50.6	19			363.75
8	1	58.7	19			695.38
9	1	85.8	19			285.48
10	1	57.1	19			519.78
11	3	67.4	19	1704	1963	518.35
12	2	76	19	1638		774.14
13	2	51.1	19	1721		123.12
14	1	95.6	19			781.3
15	2	76.6	19	1694		427.1

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	64.6	12			689.545
2	1	85.9	12			800.427
3	3	62.5	12	1470	1905	183.114
4	2	89.6	12	1041		97.561
5	3	61.2	12	1511	1263	0.129
6	3	92.6	12	1897	1407	92.136
7	2	63.8	12	1404		65.573
8	1	67.6	12			290.91
9	1	58.8	12			58.637
10	1	72.8	12			800.314
11	2	68.9	12	1082		515.431
12	2	57.6	12	1828		491.099
13	2	93.5	12	1534		272.086
14	3	59.1	12	1277	1895	396.143

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	56.5	11			472.458
2	2	60.1	11	1546		766.151
3	2	93.3	11	1340		1053.412
4	3	73.5	11	1012	1508	895.013
5	1	88	11			287.944
6	1	87.1	11			298.515
7	3	97.3	11	1667	1750	571.435
8	1	92.8	11			533.866
9	3	85.4	11	1890	1005	0.077
10	3	67	11	1733	1400	963.818
11	2	54.1	11	1468		1033.909

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	59.5	10			739.271
2	1	77.4	10			676.771
3	1	96.9	10			693.072
4	2	78.9	10	1771		414.673
5	1	91.9	10			28.464
6	1	60.9	10			91.075
7	2	60.4	10	1047		167.715
8	2	85	10	1473		348.016
9	1	97	10			712.167
10	3	58	10	1541	1611	680.318
11	2	92.8	10	1604		141.609

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	96.1	14	1092		620.577
2	2	88	14	1029		283.361
3	3	65.8	14	1612	1468	357.642
4	2	55.2	14	1999		364.323
5	1	93.5	14			887.164
6	2	60.6	14	1173		411.365
7	2	72.4	14	1781		184.195
8	3	54.7	14	1831	1514	535.866
9	3	69.3	14	1725	1862	834.247
10	2	95.5	14	1764		247.018
11	2	73.7	14	1610		579.009

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	1	57.9	17			519.067
2	2	69.7	17	1917		126.305
3	2	70.3	17	1278		342.875
4	3	62	17	1219	1146	560.433
5	2	90.8	17	1390		615.931
6	1	95.5	17			634.498
7	1	96.6	17			301.426
8	3	68.3	17	1119	1694	30.004
9	2	99.8	17	1054		199.921
10	2	74	17	1025		282.659
11	3	73	17	1235	1978	435.516
12	1	90.2	17			589.014
13	1	95.2	17			363.852
14	3	76	17	1513	1525	217.889
15	3	95.5	17	2000	1846	257.347
16	3	66.4	17	1568	1918	464.265
17	1	80.9	17			12.882

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	89.9	7	1056		409.972
2	3	70.4	7	1997	1971	876.453
3	2	84.1	7	1775		709.816
4	2	95.2	7	1003		58.699
5	3	58.4	7	1749	1464	570.102
6	3	53.9	7	1837	1902	454.785
7	3	88.3	7	1833	1465	504.118
8	2	68	7	1719		560.752
9	2	99.6	7	1445		784.925
10	3	97	7	1053	1187	16.338
11	1	77.8	7			488.361
12	3	56.9	7	1868	1493	417.454
13	3	95.7	7	1112	1124	689.577

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	61.4	11	1760		668.553
2	1	68.8	11			411.467
3	2	83.1	11	1080		476.164
4	2	56.8	11	1106		833.291
5	2	59.1	11	1551		544.659
6	3	58.3	11	1722	1933	394.996
7	2	53.1	11	1551		292.893
8	2	73.8	11	1049		729.63
9	1	62.5	11			548.897
10	2	81	11	1544		386.494
11	2	87.9	11	1651		743.921
12	2	64.1	11	1447		271.699
13	2	64.4	11	1404		567.586
14	1	63.4	11			297.943

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	1	67.7	16			455.227
2	1	54.1	16			7.122
3	2	89.7	16	1588		578.845
4	2	87.9	16	1728		49.363
5	2	69.5	16	1056		536.981
6	3	81.9	16	1279	1143	373.098
7	2	92.3	16	1323		65.016
8	2	63.2	16	1329		571.404
9	3	93.1	16	1089	1115	534.071
10	2	68.9	16	1943		251.249
11	1	70.9	16			77.336
12	2	84.5	16	1957		66.694
13	3	54.8	16	1967	1405	614.172
14	1	90.3	16			442.089
15	2	50.9	16	1363		698.347
16	1	58.4	16			59.565
17	3	59.5	16	1403	1617	343.182

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	57.6	19			53.226
2	2	73.4	19	1583		226.53
3	2	76.2	19	1655		605.15
4	2	83.5	19	1270		658.67
5	3	93.4	19	1254	1206	474.54
6	3	59.6	19	1176	1751	114.28
7	1	82.1	19			803.94
8	2	54.4	19	1017		781.18
9	2	65.4	19	1769		509.33
10	1	83.7	19			895.7
11	2	54.3	19	1782		915.4
12	2	60.6	19	1221		523

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	71.5	9	1078		303.659
2	1	98.5	9			108.582
3	2	75	9	1042		67.062
4	2	68.5	9	1736		277.373
5	2	77.5	9	1861		267.364
6	2	77.6	9	1180		404.045
7	2	72.8	9	1161		288.376
8	3	51.1	9	1997	1359	284.197
9	3	98	9	1732	1459	85.328
10	2	83.1	9	1487		189.819
11	3	89.4	9	1978	1300	426.621
12	1	55.3	9			619.772
13	2	63.1	9	1750		198.843
14	2	74.5	9	1019		384.844
15	2	69.1	9	1444		247.795
16	2	51.6	9	1108		619.016
17	3	63.3	9	1066	1101	477.937
18	3	89.8	9	1752	1982	515.258
19	3	82.8	9	1681	1381	361.779

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	64.3	16	1028	1944	606.564
2	3	92.7	16	1637	1508	875.793
3	2	63.6	16	1164		871.286
4	3	53.7	16	1587	1877	386.789
5	1	56.6	16			601.832
6	1	69.6	16			153.215
7	3	56.3	16	1509	1374	465.798
8	3	61.1	16	1465	1464	487.352
9	2	54.5	16	1276		651.155
10	1	85.3	16			134.408
11	2	50.6	16	1201		99.711
12	3	89.6	16	1497	1884	362.554
13	2	77.2	16	1910		187.477

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	3	65.5	16	1236	1092	169.083
2	3	78.2	16	1204	1720	433.67
3	2	83.5	16	1812		996.53
4	2	81.7	16	1612		718.43
5	3	82.2	16	1620	1913	976.58
6	1	71.5	16			805.61
7	1	77.7	16			50.49
8	3	68	16	1876	1230	741.21
9	2	82.1	16	1084		829
10	2	73	16	1775		33.3

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	3	51.8	5	1639	1921	364.658
2	1	81.9	5			545.88
3	1	91.8	5			741.65
4	2	78.5	5	1758		27.21
5	3	66.6	5	1154	1662	2.29
6	2	61.8	5	1184		679.74
7	2	78.4	5	1625		705.71
8	2	86.8	5	1937		381.43
9	1	51.7	5			516.4
10	1	72	5			107.58
11	2	62	5	1615		8.34
12	2	57.9	5	1543		356.75
13	3	73.7	5	1146	1337	25.05
14	2	83.7	5	1587		306.6
15	2	77.1	5	1341		656.8

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	1	71.6	15			180.995
2	2	50.3	15	1034		432.04
3	1	98.4	15			548.51
4	2	80.1	15	1578		404.71
5	2	89.1	15	1874		0.6
6	1	57.8	15			230.91
7	2	67	15	1570		223.51
8	2	75.7	15	1642		331.53
9	3	89.7	15	1308	1376	246.01
10	2	65.3	15	1649		515.17
11	3	66.8	15	1918	1778	384.34
12	1	61.3	15			490.58
13	2	65.3	15	1997		287.67
14	2	64.2	15	1442		135.03
15	3	53.2	15	1235	1811	491.14
16	2	71.6	15	1410		428.95
17	1	70.5	15			209.09
18	2	65.3	15	1967		377.4
19	1	76.8	15			60
20	3	86	15	1784	1018	35.3

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	2	79.9	18	1389		370.43
2	2	81.3	18	1891		341.95
3	2	93.6	18	1898		408.682
4	1	60.7	18			63.073
5	2	78.9	18	1175		251.054
6	2	62	18	1484		293.645
7	3	94	18	1024	1622	604.346
8	2	85.5	18	1374		101.597
9	2	72.1	18	1244		422.968
10	2	94.9	18	1359		58.319
11	1	72.8	18			205.911
12	2	51.2	18	1148		281.652
13	1	89.3	18			452.103
14	2	63.3	18	1093		12.964
15	2	73.2	18	1871		267.255
16	3	84.4	18	1898	1321	265.256
17	3	66.8	18	1344	1599	120.137
18	2	55.8	18	1618		126.058
19	3	70.7	18	1681	1981	400.979

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	1	55.9	6			229.631
2	3	54.7	6	1172	1302	377.463
3	3	69.3	6	1717	1744	145.237
4	2	65.9	6	1042		340.47
5	2	59	6	1254		247.773
6	3	63.4	6	1941	1485	487.447
7	1	88.7	6			517.79
8	1	53.3	6			138.013
9	2	58.3	6	1044		614.707
10	2	53.3	6	1808		581.96
11	1	51.3	6			423.653
12	2	65.6	6	1898		432.507
13	2	88.1	6	1181		111.75
14	2	70.5	6	1016		149.353
15	1	68.8	6			69.447
16	2	66.2	6	1931		138.8
17	2	85.6	6	1038		483.733
18	2	72.1	6	1135		482.667

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	1	87.8	12			241.016
2	1	85.5	12			404.533
3	3	64.1	12	1147	1318	229.767
4	3	96.4	12	1236	1260	518.66
5	2	62.1	12	1770		313.133
6	2	88.1	12	1646		390.937
7	3	55.5	12	1442	1171	254.11
8	3	59.5	12	1829	1953	27.863
9	2	64.7	12	1153		49.637
10	2	74.4	12	1256		449.42
11	2	99.6	12	1124		361.093
12	1	92.1	12			71.487
13	2	64.5	12	1244		9.32
14	1	65.5	12			644.513
15	2	65.8	12	1641		316.927
16	2	70.4	12	1789		24.4
17	1	91.8	12			564.433
18	3	72.4	12	1011	1799	164.067

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	5498.5	1	16	5493.2	1
2	5491.5	1	17	5499.8	1
3	5494.0	1	18	5504.7	1
4	5490.4	1	19	5492.9	1
5	5495.5	1	20	5506.3	1
6	5506.9	1	21	5493.8	1
7	5504.1	1	22	5503.3	1
8	5508.3	1	23	5496.3	1
9	5491.8	1	24	5505.2	1
10	5508.8	1	25	5502.8	1
11	5509.6	1	26	5500.0	1
12	5490.9	1	27	5507.2	1
13	5507.8	1	28	5497.6	1
14	5500.0	1	29	5505.8	1
15	5492.6	1	30	5501.2	1
Detection Percentage (%)					100%

Radar waveform #1			Radar waveform #2		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
13	5.502	39	23	5.51	69
84	5.506	252	30	5.495	90
--	--	--	53	5.491	159

Radar waveform #3			Radar waveform #4		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
24	5.502	72	44	5.504	132
42	5.493	126	64	5.499	192
45	5.503	135	79	5.502	237
--	--	--	93	5.494	279

Radar waveform #5			Radar waveform #6		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
9	5.509	27	3	5.51	9
18	5.5	54	45	5.492	135
22	5.498	66	56	5.503	168
51	5.507	153	88	5.499	264
61	5.503	183	100	5.491	300

Radar waveform #7			Radar waveform #8		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
19	5.492	57	4	5.496	12
23	5.501	69	60	5.497	180
89	5.5	267	70	5.503	210
--	--	--	71	5.493	213

Radar waveform #9			Radar waveform #10		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5.49	3	29	5.495	87
18	5.501	54	54	5.494	162
24	5.498	72	--	--	--
54	5.509	162	--	--	--
69	5.506	207	--	--	--
83	5.497	249	--	--	--
95	5.493	285	--	--	--

Radar waveform #11			Radar waveform #12		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
61	5.507	183	3	5.49	9
65	5.492	195	19	5.491	57
75	5.498	225	43	5.495	129
81	5.49	243	83	5.498	249

Radar waveform #13			Radar waveform #14		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
49	5.501	147	16	5.494	48
78	5.505	234	24	5.507	72
--	--	--	38	5.495	114
--	--	--	43	5.502	129
--	--	--	63	5.506	189
--	--	--	67	5.5	201
--	--	--	79	5.509	237

Radar waveform #15			Radar waveform #16		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5.495	3	44	5.495	132
45	5.497	135	49	5.51	147
--	--	--	68	5.498	204
--	--	--	83	5.494	249
--	--	--	96	5.505	288

Radar waveform #17			Radar waveform #18		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
36	5.49	108	22	5.5	66
37	5.505	111	33	5.51	99
60	5.51	180	49	5.503	147
--	--	--	98	5.509	294

Radar waveform #19			Radar waveform #20		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
63	5.49	189	3	5.49	9
85	5.497	255	96	5.494	288

Radar waveform #21			Radar waveform #22		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
11	5.502	33	15	5.499	45
18	5.507	54	68	5.503	204
37	5.498	111	73	5.496	219
92	5.506	276	--	--	--

Radar waveform #23			Radar waveform #24		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5.509	3	41	5.504	123
10	5.506	30	51	5.494	153
40	5.51	120	59	5.505	177
43	5.505	129	79	5.497	237
45	5.498	135	88	5.492	264
66	5.501	198	--	--	--
68	5.493	204	--	--	--
83	5.495	249	--	--	--

Radar waveform #25			Radar waveform #26		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
23	5.505	69	6	5.501	18
92	5.495	276	28	5.505	84
95	5.49	285	63	5.504	189
--	--	--	65	5.503	195
--	--	--	84	5.502	252

Radar waveform #27			Radar waveform #28		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
29	5.504	87	3	5.506	9
32	5.51	96	27	5.508	81
96	5.493	288	30	5.495	90
99	5.506	297	39	5.507	117
--	--	--	69	5.502	207
--	--	--	75	5.509	225

Radar waveform #29			Radar waveform #30		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
52	5.491	156	21	5.496	63
63	5.499	189	43	5.5	129
72	5.493	216	48	5.49	144
99	5.508	297	49	5.497	147
100	5.506	300	68	5.503	204
--	--	--	97	5.505	291

Product	ACCESS POINT	Temperature	27°C
Test Engineer	Amy Zhang	Relative Humidity	65%
Test Site	SR2	Test Date	2020/03/09
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	5510.0	1	758	70	1
2	5497.1	1	838	63	1
3	5515.7	1	598	89	1
4	5505.2	1	918	58	1
5	5518.4	1	738	72	1
6	5491.0	1	698	76	1
7	5526.7	1	558	95	1
8	5504.7	1	938	57	1
9	5524.6	1	878	61	1
10	5509.4	1	718	74	1
11	5529.0	1	778	68	1
12	5519.8	1	798	67	1
13	5492.4	1	898	59	1
14	5503.7	1	638	83	1
15	5500.2	1	678	78	1
16	5498.5	1	1888	28	1
17	5528.3	1	1255	42	1
18	5520.4	1	2336	23	1
19	5506.5	1	604	88	1
20	5516.9	1	2599	21	1
21	5493.5	1	1370	39	1
22	5522.7	1	683	78	1
23	5514.3	1	1067	50	1
24	5494.7	1	2104	26	1
25	5508.3	1	1700	31	1
26	5495.2	1	955	56	1

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
27	5512.5	1	2666	20	1
28	5499.5	1	1374	39	1
29	5502.4	1	978	54	1
30	5496.8	1	2960	18	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	5496.8	4.6	226	29	0
2	5491.0	4.1	166	29	1
3	5522.7	1.0	187	23	1
4	5528.3	4.2	161	28	1
5	5495.2	2.6	229	24	1
6	5526.7	3.4	189	28	1
7	5499.5	1.8	226	26	1
8	5524.6	2.4	154	26	1
9	5492.4	2.1	212	27	1
10	5529.0	3.1	198	27	1
11	5500.2	2.6	176	27	1
12	5520.4	3.2	215	26	1
13	5497.1	3.1	186	25	1
14	5510.0	1.6	223	28	1
15	5516.9	2.3	186	28	1
16	5493.5	4.3	171	28	1
17	5503.7	4.2	181	26	1
18	5519.8	1.0	203	23	0
19	5494.7	3.2	163	26	1
20	5514.3	4.9	196	24	1
21	5502.4	1.8	199	26	1
22	5498.5	4.3	222	24	1
23	5515.7	4.6	186	26	1
24	5508.3	3.9	150	27	1
25	5518.4	1.4	179	26	1
26	5505.2	3.5	173	26	1
27	5509.4	4.0	157	24	0
28	5512.5	3.0	187	28	1
29	5504.7	1.3	201	24	1
30	5506.5	1.0	180	29	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	5495.2	9.0	240	16	1
2	5515.7	7.3	437	17	1
3	5510.0	6.3	381	17	1
4	5514.3	9.6	415	16	1
5	5496.8	7.4	351	17	1
6	5522.7	8.5	458	17	1
7	5500.2	9.5	384	17	1
8	5492.4	7.1	374	17	1
9	5512.5	9.7	289	17	1
10	5506.5	8.5	342	18	1
11	5497.1	6.2	213	17	1
12	5520.4	7.0	462	17	1
13	5508.3	8.7	452	17	1
14	5491.0	10.0	240	17	1
15	5528.3	9.5	269	17	1
16	5499.5	9.4	218	17	1
17	5509.4	8.1	293	17	1
18	5505.2	9.9	447	18	1
19	5493.5	7.1	322	18	1
20	5519.8	6.7	264	18	1
21	5498.5	7.2	295	16	1
22	5516.9	9.8	459	16	1
23	5494.7	6.4	291	17	1
24	5524.6	8.2	439	17	1
25	5504.7	6.5	333	17	0
26	5529.0	6.2	272	16	1
27	5502.4	6.8	322	17	1
28	5526.7	8.9	280	17	1
29	5518.4	9.1	404	16	1
30	5503.7	6.3	223	18	1
Detection Percentage (%)					96.7%

Radar Type 4 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5510.0	11.3	454	12	0
2	5494.7	11.6	390	14	1
3	5509.4	11.2	430	14	0
4	5497.1	15.2	403	12	1
5	5508.3	20.0	499	16	1
6	5492.4	19.8	490	13	1
7	5518.4	15.8	317	16	1
8	5512.5	12.8	489	13	1
9	5506.5	14.3	423	13	1
10	5491.0	13.5	232	13	1
11	5504.7	15.1	235	15	1
12	5516.9	19.5	277	12	1
13	5496.8	19.7	286	15	1
14	5515.7	19.7	406	14	1
15	5499.5	18.3	307	13	1
16	5519.8	15.1	358	12	1
17	5498.5	18.8	465	13	1
18	5522.7	18.3	435	15	1
19	5493.5	18.6	361	13	1
20	5514.3	19.1	417	16	1
21	5505.2	14.9	346	15	1
22	5528.3	13.2	479	12	1
23	5495.2	15.3	478	15	1
24	5529.0	17.9	342	16	1
25	5503.7	14.4	208	14	1
26	5520.4	18.6	461	13	1
27	5500.2	18.5	217	15	1
28	5524.6	13.3	240	13	1
29	5526.7	11.4	288	15	1
30	5502.4	18.2	465	15	1
Detection Percentage (%)					93.3%

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%+96.7%+93.3%)/4 = 94.2% (>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	5497.8	0
2	5510.0	1	17	5493.8	0
3	5510.0	1	18	5497.0	1
4	5510.0	1	19	5493.8	1
5	5510.0	1	20	5497.8	1
6	5510.0	1	21	5526.2	0
7	5510.0	1	22	5523.4	1
8	5510.0	1	23	5524.2	1
9	5510.0	1	24	5524.6	1
10	5510.0	1	25	5523.0	1
11	5494.2	1	26	5521.4	1
12	5497.8	1	27	5526.2	0
13	5494.6	1	28	5522.2	1
14	5493.4	1	29	5523.8	1
15	5499.0	1	30	5521.4	1
Detection Percentage (%)					86.7%

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	68.8	10	1757		767.157
2	3	51.8	10	1198	1800	310.033
3	2	57.7	10	1255		732.656
4	1	82.3	10			723.649
5	3	89	10	1641	1772	137.902
6	1	98.6	10			762.265
7	1	70.7	10			52.568
8	1	55.5	10			152.832
9	2	78.5	10	1644		313.155
10	3	95.6	10	1096	1090	686.308
11	1	92.9	10			49.191
12	3	74.6	10	1217	1116	69.154
13	2	58.9	10	1263		80.577

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	3	75.5	19	1678	1819	314.782
2	2	59	19	1508		602.33
3	2	76.3	19	1466		68.95
4	2	72	19	1146		512
5	2	53.9	19	1428		7.32
6	3	82.1	19	1505	1943	593.61
7	3	73.7	19	1420	1139	251.01
8	2	82.8	19	1144		234.63
9	2	98.3	19	1315		362.09
10	1	83.7	19			247.78
11	2	89.8	19	1247		194.09
12	3	69.1	19	1256	1910	530.84
13	3	70.8	19	1737	1966	519.02
14	1	89.9	19			476.3
15	2	77.8	19	1181		84.7
16	3	72.8	19	1573	1375	253.1

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	64.3	13	1895	1475	1035.43
2	1	69	13			778.751
3	1	77.7	13			392.122
4	1	54.4	13			381.883
5	1	51.6	13			872.984
6	1	62.8	13			553.725
7	3	99.1	13	2000	1540	304.005
8	1	57.4	13			753.396
9	1	66.8	13			218.077
10	1	73.5	13			1065.918
11	2	75.3	13	1900		773.909

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	61.6	14	1792		275.758
2	2	84	14	1020		710.677
3	1	71.9	14			468.244
4	3	70.6	14	1279	1099	289.301
5	1	85.6	14			635.879
6	2	91	14	1545		617.056
7	2	60.5	14	1809		249.733
8	2	90.6	14	1095		751.46
9	3	70.6	14	1081	1405	185.677
10	1	60.6	14			180.854
11	2	93.2	14	1167		272.301
12	3	93.4	14	1297	1404	838.629
13	3	84.4	14	1344	1588	201.286
14	1	77.2	14			492.343

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	1	52	15			75.604
2	2	53.8	15	1077		106.866
3	2	88.1	15	1668		737.344
4	1	72.2	15			405.661
5	2	52.7	15	1215		550.969
6	3	99.7	15	1827	1932	797.676
7	2	62.9	15	1996		128.203
8	2	54	15	1242		519.15
9	1	59.5	15			438.667
10	2	100	15	1652		242.094
11	2	76	15	1264		199.651
12	3	75	15	1656	1370	553.569
13	1	94.6	15			101.386
14	3	82.2	15	1857	1767	115.643

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	2	55	14	1917		521.062
2	2	65.3	14	1720		347.403
3	2	96.2	14	1761		170.816
4	3	67.7	14	1569	1153	142.899
5	3	98.8	14	1534	1543	498.762
6	2	99.8	14	1204		901.215
7	1	64.1	14			777.248
8	2	54.3	14	1859		244.292
9	2	92.9	14	1580		875.465
10	3	75.6	14	1863	1560	819.378
11	1	77.4	14			33.141
12	3	88.3	14	1466	1462	560.454
13	3	61.8	14	1528	1675	886.277

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	56.3	10	1025		219.08
2	2	69.2	10	1988		728.113
3	2	65.7	10	1207		803.576
4	2	96.8	10	1034		163.999
5	3	72.5	10	1237	1385	746.062
6	1	90.3	10			247.155
7	2	66.7	10	1095		138.958
8	3	77.1	10	1414	1215	337.622
9	1	95.9	10			280.045
10	2	69.1	10	1402		400.718
11	3	75.5	10	1352	1198	436.341
12	1	72.7	10			697.054
13	2	76.4	10	1663		809.977

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	90.8	20	1221		958.507
2	3	68.8	20	1162	1444	923.951
3	2	73.6	20	1275		539.252
4	1	67.9	20			768.163
5	2	79.5	20	1977		304.254
6	2	63.7	20	1958		60.445
7	2	87.1	20	1560		137.675
8	1	82.4	20			1051.896
9	2	77.4	20	1483		290.367
10	1	64.9	20			511.218
11	2	88.2	20	1509		92.109

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	1	53.8	9			113.978
2	2	79.7	9	1392		357.33
3	1	71.6	9			243.78
4	2	78.3	9	1195		148.09
5	2	65	9	1823		152.86
6	1	58.2	9			133.1
7	1	64.8	9			862.86
8	2	75.9	9	1909		235.3
9	1	79.6	9			175.3
10	2	77.8	9	1484		92.45
11	2	55.9	9	1695		125.3
12	3	63.1	9	1881	1574	968.8

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	87.8	15	1479		593.841
2	3	68.5	15	1813	1146	136.373
3	2	60.6	15	1631		611.904
4	2	97.6	15	1497		250.941
5	2	77.8	15	1230		268.749
6	2	71.8	15	1298		840.116
7	3	67.4	15	1587	1380	138.143
8	2	84.5	15	1743		778.89
9	3	74.6	15	1848	1962	504.247
10	2	67.1	15	1708		321.464
11	1	73.3	15			314.901
12	2	79.4	15	1414		178.649
13	2	66	15	1444		337.986
14	2	59.7	15	1769		594.143

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	3	82.9	8	1621	1634	161.985
2	2	75.8	8	1634		267.08
3	1	68.2	8			117.55
4	3	66	8	1587	1989	567.61
5	2	69	8	1082		881.56
6	1	83.7	8			210.43
7	2	80.1	8	1972		767.16
8	3	66.2	8	1686	1253	751.4
9	2	65.5	8	1450		804.99
10	2	75.9	8	1431		646.26
11	3	51.8	8	1222	1441	163.6
12	1	80.2	8			583.3

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	64.5	17	1382	1831	593.9
2	3	98.9	17	1617	1297	562.72
3	2	62.8	17	1469		560.98
4	2	99.6	17	1290		495.37
5	1	79.4	17			20.57
6	1	63.2	17			14.57
7	2	89.1	17	1940		270.18
8	2	55.6	17	1960		32.68
9	1	70.5	17			278.46
10	3	50	17	1993	1918	183.65
11	1	63.4	17			395.88
12	1	74.9	17			58.57
13	1	91.2	17			341.62
14	2	69.3	17	1832		62.06
15	2	81.8	17	1142		561.56
16	2	52.2	17	1873		340.73
17	2	90.8	17	1253		291.65
18	2	77.1	17	1758		260.3
19	2	85.4	17	1136		504.8
20	2	50.5	17	1891		310.4

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	1	89.6	9			234.394
2	1	58.2	9			236.611
3	3	84.7	9	1238	1529	370.952
4	2	90.3	9	1871		404.233
5	2	79.9	9	1515		377.914
6	3	67	9	1762	1762	329.235
7	2	53	9	1373		200.696
8	1	82.8	9			108.987
9	1	97.9	9			89.148
10	1	72.4	9			601.549
11	2	59	9	1937		120.181
12	2	91.9	9	1522		307.082
13	3	72	9	1068	1253	396.993
14	2	88.9	9	1626		473.444
15	1	73.9	9			356.515
16	1	56.6	9			464.926
17	3	87.3	9	1245	1800	115.537
18	2	72.9	9	1063		172.658
19	2	87.1	9	1265		206.579

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	97.8	6	1859		21.867
2	2	56.9	6	1578		589.111
3	1	50.3	6			138.882
4	2	54	6	1251		466.413
5	2	51	6	1711		351.334
6	3	84.1	6	1085	1622	456.025
7	2	63.2	6	1341		372.256
8	2	56	6	1958		110.857
9	2	57.1	6	1895		518.268
10	2	82.3	6	1827		564.559
11	2	82.8	6	1508		363.521
12	1	56.6	6			427.322
13	2	86.3	6	1617		130.813
14	2	50.1	6	1699		520.994
15	2	96.5	6	1582		283.405
16	1	58.7	6			33.566
17	2	83.5	6	1982		246.637
18	2	63.2	6	1032		283.058
19	1	62.8	6			177.179

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	20			44.795
2	2	66.2	20	1197		411.137
3	3	95.6	20	1376	1094	812.604
4	1	70.8	20			413.541
5	1	60.2	20			844.849
6	3	78.3	20	1490	1541	456.956
7	2	71.5	20	1857		597.193
8	2	74.2	20	1968		94.81
9	3	61.1	20	1042	1998	387.037
10	3	87	20	1522	1452	29.004
11	3	74.5	20	1604	1410	526.261
12	2	99.9	20	1705		331.039
13	1	84.5	20			166.086
14	2	77.2	20	1472		5.343

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	58.1	17	1874		129.719
2	1	99	17			415.53
3	2	67.9	17	1960		793.95
4	1	83.9	17			749.34
5	1	98.9	17			680.22
6	1	75.1	17			642.06
7	3	55.5	17	1395	1671	7.7
8	3	69.2	17	1410	1024	699.19
9	3	91.7	17	1747	1976	418.26
10	2	89.8	17	1104		212.17
11	3	65.3	17	1842	1631	212.8
12	2	79.1	17	1366		16.12
13	3	72.2	17	1813	1116	108.69
14	3	63.2	17	1537	1935	554.4
15	2	68.7	17	1713		739.4

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	3	89.2	7	1132	1581	315.716
2	2	58.8	7	1326		949.711
3	2	80.4	7	1020		826.352
4	2	70.5	7	1039		837.183
5	1	97.7	7			653.544
6	2	77.1	7	1595		887.385
7	2	77.2	7	1441		703.895
8	2	95	7	1260		242.696
9	3	54.1	7	1317	1615	352.047
10	2	83.7	7	1029		769.618
11	3	94	7	1610	1639	121.009

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	3	92.6	15	1153	1948	305.71
2	2	65	15	1133		244.386
3	3	56.6	15	1461	1275	346.117
4	1	88.6	15			536.67
5	3	54.1	15	1127	1775	645.613
6	3	77.8	15	1922	1541	152.097
7	2	74.7	15	1055		473.7
8	2	99.2	15	1903		25.093
9	2	94	15	1594		349.047
10	2	67.4	15	1856		481.63
11	3	87.6	15	1254	1558	131.443
12	1	64.8	15			505.987
13	2	63.4	15	1292		581.92
14	3	56.8	15	1127	1002	571.213
15	2	61.5	15	1251		573.077
16	3	70.2	15	1022	1222	178.3
17	2	74.7	15	1977		470.733
18	2	65.6	15	1255		207.167

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	3	90.1	7	1831	1918	328.918
2	3	89.3	7	1203	1965	439.79
3	2	99.1	7	1113		178.96
4	2	70.9	7	1427		42.04
5	1	77.3	7			606.55
6	3	55.7	7	1745	1360	728.55
7	3	84.7	7	1445	1167	13.24
8	2	85.5	7	1455		598.87
9	3	59	7	1238	1492	137.53
10	2	97.5	7	1607		667.2
11	2	52.4	7	1800		489.92
12	2	85.3	7	1054		4.64
13	3	58.6	7	1546	1755	199.01
14	2	81.2	7	1187		246.83
15	2	86.4	7	1675		376.2
16	1	59.6	7			611.8

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	93.5	17	1367		731.981
2	1	50.1	17			49.59
3	2	82.4	17	1711		424.7
4	3	72.4	17	1296	1951	288.06
5	2	80.6	17	1450		532.47
6	1	68.9	17			50.1
7	2	93.1	17	1702		642.14
8	2	90.4	17	1158		6.98
9	2	54	17	1622		419.83
10	1	59.7	17			319.99
11	3	66.8	17	1431	1688	717.75
12	2	63.3	17	1720		12.1
13	2	84.6	17	1419		623.92
14	3	70.1	17	1903	1325	211.03
15	3	86.7	17	1723	1098	524
16	3	81.4	17	1293	1811	16.5

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	52.6	7	1042		452.119
2	2	82.4	7	1227		206.177
3	2	86.8	7	1476		913.433
4	1	79.3	7			1154.95
5	3	99.8	7	1044	1402	704.297
6	2	96	7	1276		166.183
7	1	95.9	7			391.37
8	3	90.2	7	1530	1003	1273.567
9	2	98	7	1818		501.133

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	62.4	14	1335		245.927
2	3	90.1	14	1613	1677	461.768
3	3	62.6	14	1017	1652	196.895
4	2	56.8	14	1040		2.183
5	2	50.6	14	1933		574.401
6	2	93.8	14	1816		355.708
7	2	96.3	14	1681		640.896
8	2	69.9	14	1387		303.784
9	1	71.6	14			533.791
10	2	89.2	14	1991		241.089
11	3	51.8	14	1912	1804	445.106
12	1	95.9	14			637.134
13	2	50.5	14	1747		187.282
14	3	57.3	14	1258	1508	326.289
15	2	77.2	14	1920		114.407
16	1	83	14			637.365
17	3	67.4	14	1559	1854	8.982

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	56.1	12	1158		480.81
2	2	52.1	12	1948		632.838
3	2	95.6	12	1143		609.455
4	3	72.1	12	1999	1658	194.953
5	2	88.3	12	1205		35.311
6	2	79.7	12	1280		528.598
7	2	71.3	12	1879		134.246
8	2	73.5	12	1676		299.064
9	2	65	12	1560		412.821
10	2	54.7	12	1944		650.889
11	2	83.1	12	1817		269.116
12	2	76.7	12	1464		257.024
13	3	95.6	12	1353	1432	588.562
14	2	99.8	12	1931		133.279
15	2	78.6	12	1284		310.747
16	2	61.8	12	1273		11.165
17	2	85.5	12	1386		177.682

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	73	11	1342		506.347
2	1	90	11			311.06
3	1	55	11			510.64
4	2	78.1	11	1916		519
5	1	50.5	11			332.58
6	3	85	11	1889	1750	453.39
7	3	76.1	11	1969	1242	473.54
8	2	81.9	11	1350		116.52
9	1	66.4	11			466.48
10	2	70.9	11	1510		624.3
11	2	79.6	11	1751		379.74
12	3	85.5	11	1301	1965	126.29
13	2	95.4	11	1425		741.97
14	3	90.5	11	1385	1081	522
15	1	72	11			385.7
16	2	68.6	11	1970		713.8

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	92.4	15	1261		719.045
2	2	91.4	15	1332		655.341
3	2	67.5	15	1810		373.142
4	2	80.5	15	1768		1045.033
5	1	66.2	15			258.324
6	3	52.7	15	1649	1804	350.535
7	2	98.5	15	1907		511.745
8	3	54.6	15	1410	1841	593.726
9	2	91.6	15	1791		244.787
10	3	91	15	1193	1344	658.318
11	2	91.8	15	1806		77.409

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	84.6	19	1907		106.606
2	1	66	19			381.811
3	3	56	19	1431	1294	264.632
4	1	52.9	19			438.613
5	3	61.6	19	1537	1818	223.964
6	3	59.3	19	1828	1044	491.215
7	2	99.3	19	1413		591.296
8	3	58.3	19	1608	1841	208.077
9	2	75.8	19	1124		584.168
10	1	75.9	19			515.599
11	1	93.3	19			16.251
12	1	68.6	19			56.472
13	2	77.7	19	1888		103.273
14	3	61.6	19	1489	1202	450.884
15	3	66.6	19	1030	1499	427.455
16	1	93.6	19			397.536
17	2	64.6	19	1167		119.337
18	1	89.3	19			327.858
19	2	66.5	19	1925		398.779

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	81.6	7	1342		692.241
2	3	88.7	7	1232	1924	382.037
3	2	77.1	7	1800		476.834
4	3	85.3	7	1262	1995	30.001
5	2	68.3	7	1589		748.019
6	1	92.3	7			601.036
7	2	75.8	7	1544		468.993
8	2	81.5	7	1306		474.99
9	1	65.4	7			100.997
10	2	83.2	7	1766		353.374
11	2	62.9	7	1061		715.701
12	3	50.6	7	1507	1876	177.729
13	1	79.3	7			768.486
14	2	99.3	7	1361		671.143

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	76.7	17	1202	1363	655.876
2	1	52	17			80.523
3	2	82.8	17	1067		68.94
4	2	84.4	17	1306		305.98
5	3	66.3	17	1830	1067	8.56
6	1	71.2	17			612.07
7	2	80.2	17	1637		612.18
8	2	90.8	17	1326		597.35
9	2	57.1	17	1051		477.91
10	2	56.8	17	1282		71.26
11	3	94.9	17	1363	1270	124.98
12	3	88.7	17	1432	1168	743.68
13	2	67.4	17	1144		269
14	1	71.9	17			590
15	2	63.3	17	1814		239.2

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	2	87.6	13	1398		201.814
2	3	68.1	13	1634	1255	499.303
3	1	60.3	13			426.996
4	2	52.2	13	1261		258.609
5	1	82.2	13			657.222
6	2	53.8	13	1814		728.745
7	3	52.1	13	1420	1260	566.128
8	1	94.2	13			541.212
9	2	56.6	13	1247		711.305
10	1	64.2	13			6.298
11	2	58.1	13	1625		698.341
12	3	52.6	13	1775	1220	217.554
13	3	88.9	13	1698	1586	457.877

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	3	69.6	19	1722	1049	185.241
2	2	90.2	19	1120		636.933
3	1	84.8	19			15.537
4	2	88	19	1303		306.45
5	1	70.3	19			369.903
6	3	64.3	19	1637	1980	571.917
7	2	79.7	19	1860		84.28
8	1	94.6	19			188.103
9	2	77.4	19	1863		138.887
10	2	94.8	19	1431		149.33
11	1	99.3	19			196.313
12	1	94.4	19			247.827
13	2	67.1	19	1057		135.63
14	3	80.3	19	1255	1979	563.743
15	3	84	19	1949	1699	490.037
16	1	57.6	19			335.1
17	2	74.6	19	1893		542.933
18	2	83.7	19	1413		455.267

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	5499.5	1	16	5522.7	1
2	5493.5	1	17	5495.2	1
3	5496.8	1	18	5514.3	1
4	5502.4	1	19	5528.3	1
5	5526.7	1	20	5519.8	1
6	5520.4	1	21	5510.0	1
7	5492.4	1	22	5491.0	1
8	5512.5	1	23	5524.6	1
9	5494.7	1	24	5509.4	1
10	5500.2	1	25	5506.5	1
11	5503.7	1	26	5518.4	1
12	5497.1	1	27	5508.3	1
13	5498.5	1	28	5529.0	1
14	5505.2	1	29	5516.9	1
15	5504.7	1	30	5515.7	1
Detection Percentage (%)					100%

Radar waveform #1			Radar waveform #2		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
20	5.525	60	4	5.49	12
24	5.521	72	13	5.517	39
39	5.519	117	37	5.504	111
41	5.511	123	54	5.491	162
61	5.522	183	78	5.503	234
100	5.512	300	84	5.528	252
--	--	--	94	5.508	282

Radar waveform #3			Radar waveform #4		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5.491	9	2	5.506	6
15	5.508	45	32	5.528	96
26	5.492	78	77	5.497	231
38	5.526	114	78	5.503	234
43	5.501	129	85	5.493	255
67	5.49	201	90	5.513	270
85	5.513	255	91	5.514	273
90	5.523	270	96	5.507	288
97	5.52	291	--	--	--
100	5.499	300	--	--	--

Radar waveform #5			Radar waveform #6		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
21	5.525	63	13	5.512	39
32	5.494	96	23	5.522	69
36	5.509	108	45	5.515	135
38	5.53	114	48	5.521	144
69	5.491	207	53	5.497	159
80	5.523	240	67	5.527	201
93	5.492	279	90	5.502	270
--	--	--	94	5.53	282

Radar waveform #7			Radar waveform #8		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5.512	9	18	5.5	54
9	5.507	27	45	5.529	135
16	5.496	48	74	5.49	222
21	5.493	63	90	5.522	270
35	5.499	105	99	5.506	297
48	5.526	144	100	5.502	300
62	5.519	186	--	--	--
78	5.523	234	--	--	--
81	5.504	243	--	--	--

Radar waveform #9			Radar waveform #10		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5.524	9	9	5.499	27
10	5.492	30	19	5.502	57
17	5.523	51	25	5.495	75
28	5.493	84	62	5.504	186
39	5.495	117	72	5.51	216
65	5.529	195	98	5.498	294
68	5.496	204	100	5.523	300
97	5.513	291	--	--	--

Radar waveform #11			Radar waveform #12		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Frequency (MHz)	Hopping Number	Pulse Start (ms)
3	5.508	9	2	5.511	6
92	5.505	276	4	5.514	12
--	--	--	21	5.516	63
--	--	--	35	5.505	105
--	--	--	48	5.512	144
--	--	--	51	5.501	153
--	--	--	75	5.528	225
--	--	--	95	5.496	285
--	--	--	97	5.525	291

Radar waveform #13			Radar waveform #14		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
34	5.522	102	14	5.529	42
37	5.517	111	15	5.53	45
45	5.528	135	22	5.52	66
46	5.508	138	35	5.522	105
47	5.525	141	45	5.507	135
53	5.514	159	53	5.494	159
78	5.518	234	76	5.509	228
88	5.494	264	86	5.527	258
96	5.506	288	98	5.521	294

Radar waveform #15			Radar waveform #16		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
7	5.509	21	8	5.51	24
27	5.513	81	14	5.521	42
37	5.508	111	90	5.529	270
69	5.497	207	93	5.525	279
83	5.523	249	95	5.496	285
84	5.527	252	96	5.501	288
87	5.526	261	--	--	--
95	5.52	285	--	--	--

Radar waveform #17			Radar waveform #18		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5.526	15	9	5.523	27
12	5.516	36	15	5.504	45
19	5.519	57	24	5.497	72
46	5.515	138	29	5.508	87
52	5.51	156	32	5.498	96
59	5.498	177	33	5.527	99
69	5.504	207	46	5.493	138
80	5.499	240	57	5.502	171
86	5.511	258	72	5.53	216
89	5.49	267	84	5.528	252

Radar waveform #19			Radar waveform #20		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5.499	15	5	5.528	15
11	5.518	33	24	5.495	72
35	5.524	105	27	5.527	81
39	5.521	117	68	5.529	204
67	5.508	201	89	5.494	267
70	5.5	210	96	5.499	288
79	5.49	237	--	--	--
81	5.507	243	--	--	--

Radar waveform #21			Radar waveform #22		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
17	5.492	51	12	5.517	36
51	5.506	153	29	5.511	87
74	5.518	222	30	5.492	90
75	5.519	225	36	5.529	108
84	5.5	252	40	5.503	120
93	5.526	279	47	5.49	141
--	--	--	49	5.516	147
--	--	--	85	5.501	255
--	--	--	89	5.497	267

Radar waveform #23			Radar waveform #24		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
15	5.513	45	6	5.5	18
17	5.517	51	17	5.528	51
32	5.521	96	25	5.491	75
62	5.501	186	30	5.495	90
78	5.509	234	36	5.501	108
99	5.49	297	37	5.513	111
--	--	--	61	5.506	183
--	--	--	76	5.498	228
--	--	--	91	5.496	273

Radar waveform #25			Radar waveform #26		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
33	5.529	99	7	5.508	21
38	5.505	114	13	5.498	39
43	5.516	129	16	5.51	48
65	5.519	195	26	5.502	78
85	5.501	255	31	5.49	93
91	5.507	273	95	5.53	285

Radar waveform #27			Radar waveform #28		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
18	5.501	54	3	5.513	9
23	5.51	69	40	5.505	120
25	5.522	75	45	5.508	135
42	5.498	126	49	5.523	147
47	5.499	141	62	5.506	186
62	5.507	186	65	5.491	195
82	5.53	246	73	5.522	219
--	--	--	92	5.503	276

Radar waveform #29			Radar waveform #30		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
4	5.495	12	15	5.493	45
14	5.529	42	35	5.514	105
25	5.511	75	39	5.496	117
53	5.53	159	40	5.501	120
55	5.504	165	54	5.528	162
61	5.5	183	55	5.526	165
64	5.518	192	60	5.497	180
90	5.491	270	90	5.502	270
--	--	--	95	5.495	285
--	--	--	99	5.499	297
--	--	--	100	5.491	300

Product	ACCESS POINT	Temperature	27°C
Test Engineer	Amy Zhang	Relative Humidity	65%
Test Site	SR2	Test Date	2020/03/09
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	5563.6	1	578	92	1
2	5567.9	1	898	59	1
3	5500.0	1	658	81	1
4	5564.8	1	858	62	1
5	5494.2	1	798	67	1
6	5565.2	1	538	98	1
7	5506.5	1	598	89	1
8	5521.3	1	558	95	1
9	5545.7	1	778	68	1
10	5491.0	1	918	58	1
11	5562.3	1	618	86	1
12	5515.8	1	818	65	1
13	5557.9	1	638	83	1
14	5497.5	1	938	57	1
15	5536.3	1	738	72	1
16	5524.7	1	2920	19	1
17	5551.5	1	2864	19	1
18	5503.3	1	2701	20	1
19	5533.4	1	1187	45	1
20	5554.8	1	2019	27	1
21	5509.5	1	2606	21	1
22	5560.7	1	1575	34	1
23	5539.8	1	579	92	1
24	5530.0	1	1150	46	1
25	5512.6	1	1328	40	1
26	5569.0	1	2595	21	1

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
27	5542.5	1	1197	45	1
28	5518.4	1	1549	35	1
29	5568.3	1	734	72	1
30	5548.2	1	1526	35	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	5561.3	1.5	162	27	1
2	5501.4	3.7	194	28	1
3	5563.4	1.8	178	26	1
4	5510.1	2.3	189	29	1
5	5568.5	2.6	224	28	1
6	5492.5	3.8	205	24	1
7	5558.0	4.3	185	24	1
8	5569.0	3.1	194	27	1
9	5504.7	2.2	156	26	1
10	5543.5	2.6	221	28	1
11	5522.4	3.4	176	24	1
12	5495.6	3.2	191	26	1
13	5528.7	4.1	205	23	1
14	5555.5	3.6	225	25	1
15	5491.0	4.1	178	25	1
16	5552.5	4.1	179	24	1
17	5537.2	2.3	154	29	1
18	5507.2	3.4	185	26	1
19	5565.5	1.7	224	28	1
20	5540.6	4.3	171	27	1
21	5498.8	4.6	181	23	1
22	5567.2	2.4	180	24	1
23	5525.6	2.7	218	27	1
24	5546.2	2.6	193	29	1
25	5513.4	3.9	192	28	1
26	5531.4	1.3	181	26	1
27	5519.6	2.0	196	25	1
28	5534.6	2.9	155	28	1
29	5549.7	2.6	214	26	1
30	5516.2	1.9	200	28	1
Detection Percentage (%)					100%

Radar Type 3 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5502.7	6.2	491	17	1
2	5493.6	6.2	483	18	1
3	5563.0	6.5	379	18	1
4	5511.1	6.8	206	18	1
5	5568.8	7.1	340	16	1
6	5505.6	8.6	449	17	1
7	5569.0	8.1	230	17	1
8	5562.3	8.0	316	17	1
9	5496.8	7.1	465	18	1
10	5553.4	6.8	457	16	1
11	5523.7	8.8	229	18	1
12	5514.7	9.8	280	17	1
13	5556.6	9.5	396	16	1
14	5532.9	6.1	429	18	1
15	5491.0	9.9	375	17	1
16	5550.4	8.4	263	16	1
17	5529.3	6.3	391	17	1
18	5541.9	7.5	372	16	1
19	5499.2	7.1	424	17	1
20	5547.6	7.6	462	16	1
21	5508.2	7.2	351	16	1
22	5559.9	10.0	310	17	1
23	5526.2	7.6	323	16	1
24	5565.7	7.9	401	18	1
25	5517.5	8.9	273	17	1
26	5535.2	8.1	220	18	1
27	5538.7	7.0	490	17	1
28	5544.5	8.4	247	17	1
29	5520.3	6.4	204	16	1
30	5567.3	8.2	220	17	1
Detection Percentage (%)					100%

Radar Type 4 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5563.6	18.0	251	13	1
2	5567.9	17.3	384	14	1
3	5500.0	17.4	417	15	1
4	5564.8	14.7	451	14	1
5	5494.2	14.7	255	15	1
6	5565.2	18.0	257	14	1
7	5506.5	15.2	328	15	1
8	5521.3	16.9	226	14	1
9	5545.7	14.3	254	15	1
10	5491.0	12.7	469	13	1
11	5562.3	15.7	298	13	1
12	5515.8	19.5	437	13	1
13	5557.9	13.7	303	14	1
14	5497.5	16.5	436	13	1
15	5536.3	12.6	252	15	1
16	5524.7	18.2	395	16	1
17	5551.5	14.3	282	12	1
18	5503.3	20.0	345	15	1
19	5533.4	16.8	490	13	1
20	5554.8	18.7	463	16	1
21	5509.5	16.5	458	14	1
22	5560.7	19.7	469	15	1
23	5539.8	13.0	318	14	1
24	5530.0	11.0	258	14	1
25	5512.6	14.6	215	16	1
26	5569.0	14.6	265	16	1
27	5542.5	13.8	285	16	1
28	5518.4	17.6	291	14	1
29	5568.3	19.4	254	15	1
30	5548.2	13.4	488	14	1
Detection Percentage (%)					100%

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%+100%+100%+100%)/4 = 100% (>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	5498.6	1
2	5530.0	1	17	5493.4	1
3	5530.0	1	18	5493.4	1
4	5530.0	1	19	5498.2	1
5	5530.0	1	20	5493.4	1
6	5530.0	1	21	5565.4	0
7	5530.0	1	22	5563.0	0
8	5530.0	1	23	5564.2	0
9	5530.0	1	24	5565.0	1
10	5530.0	1	25	5564.2	1
11	5496.2	1	26	5563.4	1
12	5496.6	1	27	5565.8	0
13	5495.4	1	28	5561.0	0
14	5494.2	1	29	5563.0	1
15	5493.0	1	30	5562.6	1
Detection Percentage (%)					83.3%

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	71.4	11			866.795
2	1	57.4	11			932.7
3	3	74.9	11	1597	1417	867.85
4	2	50.4	11	1666		933.23
5	2	83.7	11	1661		855.96
6	2	98.7	11	1356		729.53
7	2	80.5	11	1112		864.9
8	2	85.2	11	1290		693.18
9	1	88.7	11			614.45
10	2	95.2	11	1609		820.46
11	2	83.8	11	1630		369.5
12	2	73.4	11	1570		401.1

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	70.6	8	1302		625.322
2	2	67.8	8	1474		84.89
3	2	88.8	8	1184		115.312
4	3	91.5	8	1757	1490	15.893
5	2	70.5	8	1488		338.514
6	2	74.6	8	1693		393.215
7	3	93.8	8	1834	1094	411.306
8	2	59.9	8	1993		215.527
9	2	62.3	8	1532		312.308
10	3	55.7	8	1025	1357	592.319
11	2	88.6	8	1277		162.621
12	1	61.2	8			77.692
13	2	89.1	8	1556		167.523
14	1	73.9	8			263.104
15	2	67.8	8	1916		417.255
16	1	97.2	8			103.686
17	2	97.5	8	1034		385.937
18	1	84.2	8			340.358
19	3	76	8	1723	1418	450.179

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	82.2	11	1190		683.138
2	1	79.6	11			459.538
3	1	88	11			319.665
4	3	86.6	11	1954	1370	375.313
5	2	84.1	11	1076		268.421
6	1	97.3	11			140.548
7	3	60.6	11	1427	1070	2.046
8	3	96.7	11	1992	1766	356.764
9	3	60.5	11	1887	1486	349.691
10	2	60.9	11	1783		59.009
11	3	82.9	11	1264	1192	549.036
12	2	50.8	11	1763		267.844
13	2	65.5	11	1635		280.852
14	1	70	11			115.049
15	2	67.7	11	1712		444.347
16	3	78.6	11	1828	1619	238.365
17	2	84.7	11	1603		216.482

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	83.3	12	1029	1688	69.721
2	2	81.3	12	1180		330.75
3	1	87.8	12			508.26
4	2	55.4	12	1646		420.9
5	2	76	12	1070		409.51
6	2	73.1	12	1618		59
7	2	64.3	12	1367		495.67
8	2	77.5	12	1107		285.08
9	2	93.1	12	1655		718.87
10	2	84.3	12	1047		64
11	3	80.6	12	1211	1412	393.92
12	2	97.5	12	1323		737.11
13	1	89.5	12			46.51
14	2	81.5	12	1840		435
15	2	71.9	12	1337		270.8
16	1	79.4	12			499.5

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	75.1	12	1150	1576	1266.48
2	3	74.3	12	1875	1201	315.98
3	3	58.5	12	1733	1152	526.87
4	2	86	12	1433		404.61
5	2	65.1	12	1132		246.08
6	3	68	12	1253	1742	377.85
7	2	93.4	12	1085		743.15
8	2	55.9	12	1413		1217.9

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	3	66.6	20	1642	1413	152.579
2	2	51.8	20	1628		712.321
3	1	56.7	20			386.372
4	1	97.3	20			51.973
5	1	56.7	20			512.564
6	3	57.2	20	1702	1164	493.325
7	1	58.4	20			202.485
8	1	64.3	20			846.226
9	2	59.5	20	1261		489.997
10	3	58.3	20	1038	1529	809.418
11	2	82.1	20	1046		63.309

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	98.3	11	1210		139.883
2	2	63.2	11	1298		384.961
3	2	61.4	11	1074		319.672
4	2	73.8	11	1601		324.063
5	1	93.3	11			139.194
6	2	73.8	11	1579		308.275
7	2	67.7	11	1099		18.186
8	2	73.8	11	1541		440.877
9	2	84.5	11	1145		415.288
10	2	58.5	11	1778		315.769
11	1	92.2	11			603.801
12	2	59.2	11	1292		43.092
13	2	99.5	11	1545		159.663
14	2	61.1	11	1085		552.434
15	2	99.5	11	1412		453.125
16	1	97.6	11			219.646
17	2	55.4	11	1973		5.337
18	3	86.2	11	1883	1874	405.258
19	1	89.4	11			385.279

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	77.3	10	1112		140.974
2	3	74.9	10	1709	1871	317.576
3	2	80.1	10	1158		399.477
4	2	60.3	10	1177		208.79
5	2	94.1	10	1382		199.103
6	2	66.3	10	1294		62.757
7	1	64.6	10			625.56
8	3	70	10	1418	1833	24.753
9	2	95.8	10	1688		15.447
10	2	59.5	10	1045		340.35
11	2	52.6	10	1082		317.283
12	3	53.2	10	1740	1294	114.767
13	2	74.4	10	1741		195.93
14	2	74	10	1917		164.053
15	1	90.8	10			288.597
16	3	65.7	10	1417	1671	337.8
17	1	58	10			96.833
18	3	59.5	10	1680	1045	554.667

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	3	82.7	19	1827	1799	382.764
2	2	81.2	19	1985		273.665
3	1	87.7	19			145.042
4	2	95.8	19	1507		284.653
5	3	55	19	1498	1989	622.074
6	1	92.5	19			585.575
7	2	80.4	19	1811		348.056
8	2	92.6	19	1565		421.847
9	2	68	19	1300		158.418
10	3	75.9	19	1292	1284	300.669
11	2	75.8	19	1310		161.551
12	2	94.8	19	1858		201.412
13	3	50.6	19	1249	1850	26.913
14	2	90	19	1040		61.904
15	3	85.7	19	1323	1036	550.765
16	3	56.3	19	1473	1364	93.306
17	1	80.2	19			338.937
18	1	74.7	19			460.058
19	1	58	19			44.779

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	55.1	18			309.63
2	2	70.7	18	1243		617.98
3	1	74.1	18			654.04
4	1	62.4	18			711.65
5	2	73.5	18	1110		69.04
6	3	52.2	18	1071	1456	696.26
7	2	96.2	18	1182		131.07
8	1	55.4	18			279.18
9	1	79.5	18			101.73
10	1	54.3	18			527.12
11	3	58.8	18	1334	1996	152.98
12	3	69.5	18	1323	1031	687.29
13	3	76.5	18	1837	1862	100.21
14	3	70.7	18	1632	1690	350.3
15	1	50.9	18			704
16	2	81.4	18	1827		702.4

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	93.4	13			415.328
2	1	99.8	13			184.22
3	2	82.4	13	1808		108.02
4	1	98.9	13			261.15
5	3	94.8	13	1444	1592	388.22
6	3	92.2	13	1659	1337	755.7
7	3	89.2	13	1083	1576	76.66
8	2	77.1	13	1779		146.52
9	1	74.9	13			443.31
10	3	87.5	13	1630	1250	634.48
11	3	69.3	13	1799	1198	681.6
12	2	54.5	13	1426		371

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	63.3	14	1079		51.398
2	1	82.9	14			786.093
3	2	88.4	14	1196		509.106
4	2	96.3	14	1620		788.549
5	2	73.7	14	1795		561.482
6	1	95.4	14			213.775
7	1	65.6	14			605.078
8	2	89.4	14	1510		534.962
9	1	57.6	14			189.495
10	1	89.2	14			448.468
11	1	74.1	14			837.031
12	2	76.7	14	1189		728.754
13	3	82.6	14	1273	1705	405.277

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	1	79.4	11			570.773
2	2	94.3	11	1374		626.35
3	1	89.6	11			456.81
4	3	97.9	11	1751	1218	739.21
5	2	77.3	11	1349		383.21
6	3	73.3	11	1961	1515	414.95
7	3	95.6	11	1721	1394	526.75
8	3	92.1	11	1588	1067	323.87
9	2	63.7	11	1042		110.25
10	2	72.5	11	1860		400.77
11	1	76.6	11			517.82
12	1	99.3	11			50.82
13	1	95.2	11			256.45
14	2	65.9	11	1402		783.7
15	2	77.9	11	1069		142.6

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	67.4	8			533.334
2	1	79	8			291.46
3	2	99.5	8	1053		945.71
4	2	53.4	8	1774		389.65
5	2	67.3	8	1354		347.37
6	3	52.6	8	1027	1988	419.86
7	2	55.9	8	1000		230.39
8	1	77.4	8			640.84
9	3	65.8	8	1615	1901	1057.7
10	2	91.2	8	1076		305.1

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	2	57.4	5	1500		114.444
2	2	67.2	5	1258		628.05
3	2	53.7	5	1729		269.87
4	1	69.5	5			141.09
5	3	66.5	5	1764	1462	528.97
6	2	94.2	5	1658		463.09
7	2	84.3	5	1637		177.51
8	1	59.3	5			471.44
9	3	74.6	5	1604	1345	295.62
10	3	61.6	5	1685	1931	522.59
11	2	84.3	5	1033		20.35
12	2	51.5	5	1214		312.95
13	2	82.5	5	1278		710.56
14	2	63.8	5	1347		458.3
15	2	63.2	5	1761		721.5
16	2	64.4	5	1449		295.2

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	58.2	19	1584		442.41
2	2	91.1	19	1582		613.793
3	3	97.9	19	1409	1335	461.716
4	1	65.4	19			636.009
5	2	92.9	19	1809		707.092
6	3	91	19	1064	1503	338.385
7	3	84.9	19	1525	1265	256.838
8	3	87.8	19	1207	1132	173.602
9	2	66.8	19	1426		163.145
10	1	54	19			248.358
11	2	96	19	1039		108.701
12	3	56.1	19	1264	1189	473.554
13	2	84.2	19	1483		797.477

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	1	83	6			1155.61
2	1	57.9	6			732
3	2	51.3	6	1235		1060.34
4	2	76.1	6	1375		828.83
5	2	97.6	6	1705		31
6	1	90.5	6			756.05
7	2	96.7	6	1990		742.62
8	3	83.6	6	1358	1310	308.45
9	3	87	6	1242	1297	100.91
10	3	65.2	6	1075	1406	63.6

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	66.1	6	1558		228.619
2	3	75.5	6	1648	1535	524.258
3	2	65.5	6	1856		547.255
4	3	86.9	6	1632	1181	134.693
5	1	94.4	6			615.961
6	2	99.7	6	1640		697.748
7	1	99.9	6			555.566
8	1	70.9	6			650.794
9	1	72	6			384.651
10	3	86.7	6	1949	1949	476.409
11	3	62.5	6	1292	1225	211.256
12	2	59.8	6	1597		12.194
13	1	93.4	6			681.222
14	3	72.8	6	1632	1284	4.379
15	3	50.3	6	1565	1448	403.147
16	3	51.5	6	1561	1868	555.565
17	1	58	6			531.682

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	87.2	18	1154		418.28
2	2	90.1	18	1999		146.04
3	1	54.9	18			190.81
4	2	67.5	18	1734		452.75
5	3	97.6	18	1369	1932	238.57
6	3	66.3	18	1687	1161	610.7
7	2	96.7	18	1513		900.7
8	2	87.2	18	1860		565.03
9	2	88	18	1848		723.6
10	3	78.2	18	1412	1711	1190.4

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	81.5	6	1655		227.125
2	3	55.1	6	1101	1993	19.963
3	1	94	6			719.99
4	2	73.5	6	1143		781.64
5	3	74.7	6	1660	1566	618.78
6	1	58.9	6			704.14
7	2	97.3	6	1492		20.86
8	2	69.1	6	1088		48.62
9	3	85.9	6	1749	1217	305.75
10	3	78	6	1752	1597	706.78
11	3	60.1	6	1735	1701	530.26
12	2	63.4	6	1846		455.83
13	2	84.8	6	1441		314.72
14	2	86.4	6	1709		657.6
15	2	97.2	6	1919		508

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	53	9	1214		648.362
2	2	67.2	9	1644		726.36
3	3	59.7	9	1118	1041	116.82
4	1	66	9			20.72
5	2	72.5	9	1304		692.18
6	2	64.2	9	1816		217.32
7	2	98.2	9	1823		7.79
8	3	95.8	9	1454	1931	443.18
9	2	88.1	9	1841		388.45
10	2	64.5	9	1129		353.66
11	3	91.4	9	1246	1961	73.99
12	2	76.9	9	1579		195.25
13	3	97	9	1801	1651	206.33
14	1	54.3	9			475.1
15	2	53.4	9	1669		779

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	3	77.2	15	1989	1090	555.539
2	3	57.4	15	1724	1086	227.857
3	3	83.8	15	1808	1104	395.964
4	1	55.6	15			259.551
5	3	62.1	15	1822	1021	670.399
6	2	88	15	1211		705.486
7	3	61.9	15	1948	1707	787.543
8	1	60.1	15			684.58
9	2	96.7	15	1215		398.497
10	3	75	15	1042	1287	469.254
11	1	59.4	15			705.901
12	3	81.5	15	1365	1427	167.169
13	2	85.9	15	1184		818.586
14	3	51.8	15	1773	1278	254.343

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	3	51.7	12	1612	1385	794.172
2	3	75.2	12	1425	1740	0.09
3	1	81.9	12			403.09
4	1	80.5	12			463.94
5	2	52.5	12	1607		761.69
6	2	71.7	12	1301		440.36
7	1	82.2	12			661.16
8	2	55	12	1114		354.89
9	2	96.8	12	1001		417.4
10	2	94.1	12	1680		544.7

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	87.7	10	1908		135.084
2	2	79.5	10	1533		241.895
3	1	81.6	10			42.97
4	3	53.2	10	1630	1413	287.8
5	3	55.9	10	1079	1772	343.82
6	3	60.7	10	1872	1440	446.89
7	1	93.9	10			291.87
8	3	98.7	10	1987	1375	225.72
9	3	81.9	10	1484	1080	284.98
10	1	96.4	10			417.95
11	2	56.8	10	1969		553.96
12	3	56.9	10	1327	1963	337.68
13	1	63.5	10			138.65
14	2	99.1	10	1207		217.3
15	2	90.5	10	1071		485.21
16	3	96.6	10	1232	1340	119.53
17	3	81.2	10	1403	1540	195.86
18	3	60.2	10	1646	1084	410.6
19	3	50.2	10	1567	1585	531
20	1	83.7	10			412

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	81.7	12	1861		524.147
2	1	89.9	12			211.743
3	2	80.9	12	1866		363.146
4	2	87	12	1066		82.709
5	3	59.3	12	1217	1754	438.642
6	2	97.1	12	1639		139.215
7	2	76.7	12	1082		231.008
8	2	99.8	12	1316		281.732
9	2	60.3	12	1797		287.535
10	1	69.6	12			388.578
11	2	82.7	12	1675		204.931
12	3	78	12	1275	1355	821.454
13	1	59.8	12			519.977

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	3	96.8	14	1866	1577	28.803
2	3	55.4	14	1906	1756	64.121
3	2	95.6	14	1503		111.932
4	2	56.4	14	1610		488.183
5	2	97.5	14	1255		342.564
6	2	79.4	14	1493		598.985
7	1	62.2	14			237.316
8	3	71.5	14	1204	1926	428.707
9	2	66.6	14	1950		616.388
10	2	94.4	14	1095		3.539
11	2	64.3	14	1857		571.131
12	3	59.5	14	1487	1008	135.362
13	2	58.4	14	1377		333.653
14	1	51.4	14			612.944
15	2	94.6	14	1000		497.405
16	2	65.2	14	1703		41.786
17	1	57.8	14			228.537
18	3	57.6	14	1410	1628	395.658
19	2	89.6	14	1562		275.979

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	1	87.9	8			754.726
2	2	78	8	1460		58.36
3	2	90.5	8	1724		104.05
4	3	77.4	8	1007	1665	791.52
5	2	97.3	8	1492		640.23
6	3	87.5	8	1153	1451	412.21
7	2	53.3	8	1183		11.24
8	2	54.1	8	1538		273.27
9	2	74	8	1048		103.84
10	2	58.8	8	1906		189.14
11	2	60.4	8	1182		668.7
12	1	70.7	8			427.7

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	2	94.8	20	1951		904.302
2	2	64.4	20	1958		718.517
3	1	95.2	20			784.143
4	2	68.8	20	1852		1234.59
5	1	62.2	20			886.967
6	2	81.5	20	1248		542.903
7	2	90.2	20	1775		585.61
8	1	85.5	20			437.497
9	2	68.9	20	1096		1167.633

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	73.5	15	1169		279.1
2	2	71.6	15	1266		375.94
3	3	56.4	15	1387	1185	108.68
4	2	66.2	15	1548		253.08
5	3	97.9	15	1268	1718	418.99
6	2	50.2	15	1569		357.98
7	2	77.1	15	1393		211.53
8	3	70.9	15	1486	1600	396.1
9	2	50.3	15	1921		111.02
10	3	77	15	1849	1370	722.08
11	2	72.4	15	1417		194.54
12	2	85	15	1964		477.81
13	2	53.8	15	1885		618
14	3	65	15	1233	1317	124.9
15	1	73.5	15			401.6

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	3	54.6	16	1750	1324	573.669
2	1	52.8	16			55.302
3	3	82.3	16	1660	1646	902.286
4	2	61.6	16	1630		117.179
5	1	62	16			40.992
6	1	60.3	16			394.285
7	2	57	16	1659		284.678
8	3	97.3	16	1316	1921	261.692
9	2	99.8	16	1491		120.195
10	2	55.7	16	1917		786.958
11	2	94.7	16	1405		491.561
12	2	60.4	16	1281		431.654
13	2	77.5	16	1552		149.077

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	5561.3	1	16	5552.5	1
2	5501.4	1	17	5537.2	1
3	5563.4	1	18	5507.2	1
4	5510.1	1	19	5565.5	1
5	5568.5	1	20	5540.6	1
6	5492.5	1	21	5498.8	1
7	5558.0	1	22	5567.2	1
8	5569.0	1	23	5525.6	1
9	5504.7	1	24	5546.2	1
10	5543.5	1	25	5513.4	1
11	5522.4	1	26	5531.4	1
12	5495.6	1	27	5519.6	1
13	5528.7	1	28	5534.6	1
14	5555.5	1	29	5549.7	1
15	5491.0	1	30	5516.2	1
Detection Percentage (%)					100%

Radar waveform #1			Radar waveform #2		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5.493	6	3	5.558	9
15	5.539	45	4	5.566	12
24	5.52	72	23	5.493	69
25	5.525	75	32	5.505	96
27	5.5	81	39	5.51	117
35	5.569	105	43	5.533	129
36	5.551	108	46	5.492	138
37	5.49	111	61	5.523	183
38	5.558	114	63	5.527	189
46	5.517	138	68	5.519	204
47	5.497	141	70	5.516	210
51	5.516	153	79	5.539	237
52	5.529	156	82	5.546	246
53	5.495	159	88	5.509	264
68	5.524	204	93	5.503	279
78	5.559	234	94	5.506	282
90	5.535	270	100	5.531	300
94	5.526	282	--	--	--
96	5.527	288	--	--	--

Radar waveform #3			Radar waveform #4		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5.562	9	5	5.56	15
9	5.491	27	7	5.499	21
12	5.515	36	11	5.545	33
25	5.524	75	19	5.506	57
31	5.563	93	25	5.534	75
43	5.521	129	37	5.507	111
52	5.52	156	39	5.523	117
60	5.518	180	45	5.519	135
64	5.499	192	51	5.522	153
67	5.541	201	55	5.556	165
72	5.516	216	58	5.527	174
74	5.542	222	60	5.515	180

80	5.551	240	61	5.521	183
85	5.501	255	67	5.562	201
89	5.564	267	76	5.491	228
95	5.539	285	79	5.564	237
97	5.534	291	80	5.55	240
99	5.553	297	96	5.565	288
--	--	--	99	5.494	297

Radar waveform #5			**Radar waveform #6**		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5.51	6	2	5.568	6
9	5.514	27	3	5.548	9
24	5.537	72	4	5.501	12
53	5.56	159	11	5.514	33
56	5.518	168	13	5.537	39
65	5.493	195	14	5.519	42
68	5.549	204	18	5.498	54
72	5.568	216	28	5.51	84
81	5.497	243	30	5.566	90
86	5.519	258	32	5.505	96
98	5.554	294	40	5.559	120
100	5.548	300	48	5.526	144
--	--	--	51	5.527	153
--	--	--	54	5.543	162
--	--	--	66	5.57	198
--	--	--	69	5.507	207
--	--	--	74	5.504	222
--	--	--	86	5.5	258
--	--	--	88	5.508	264
--	--	--	89	5.524	267
--	--	--	97	5.511	291
--	--	--	100	5.499	300

Radar waveform #7			Radar waveform #8		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
8	5.522	24	1	5.533	3
15	5.527	45	3	5.531	9
19	5.521	57	7	5.569	21
25	5.514	75	10	5.534	30
29	5.499	87	11	5.511	33
31	5.508	93	13	5.549	39
36	5.537	108	18	5.529	54
41	5.548	123	21	5.543	63
66	5.505	198	24	5.528	72
91	5.547	273	26	5.556	78
--	--	--	33	5.557	99
--	--	--	39	5.506	117
--	--	--	43	5.555	129
--	--	--	47	5.53	141
--	--	--	56	5.49	168
--	--	--	57	5.541	171
--	--	--	59	5.57	177
--	--	--	60	5.563	180
--	--	--	65	5.494	195
--	--	--	87	5.503	261
--	--	--	90	5.542	270
--	--	--	91	5.552	273
--	--	--	100	5.538	300

Radar waveform #9			Radar waveform #10		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
4	5.507	12	3	5.569	9
10	5.53	30	5	5.549	15
19	5.533	57	11	5.525	33
41	5.495	123	13	5.508	39
50	5.553	150	18	5.531	54
58	5.545	174	24	5.534	72
60	5.555	180	36	5.552	108
61	5.543	183	38	5.544	114

63	5.558	189	50	5.522	150
66	5.568	198	71	5.528	213
75	5.494	225	83	5.562	249
82	5.523	246	87	5.502	261
85	5.515	255	90	5.545	270
88	5.502	264	98	5.533	294
90	5.551	270	99	5.497	297
99	5.499	297	100	5.526	300

Radar waveform #11			Radar waveform #12		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Frequency (MHz)	Hopping Number	Pulse Start (ms)
2	5.536	6	11	5.529	33
6	5.508	18	12	5.494	36
11	5.547	33	19	5.515	57
14	5.504	42	25	5.517	75
15	5.544	45	30	5.492	90
18	5.554	54	36	5.558	108
24	5.503	72	37	5.557	111
38	5.565	114	39	5.509	117
49	5.498	147	43	5.53	129
53	5.557	159	55	5.552	165
58	5.568	174	57	5.5	171
65	5.566	195	61	5.565	183
67	5.512	201	65	5.511	195
68	5.518	204	72	5.564	216
69	5.49	207	77	5.546	231
71	5.548	213	79	5.495	237
73	5.502	219	86	5.533	258
75	5.539	225	98	5.553	294
79	5.537	237	99	5.537	297
81	5.522	243	--	--	--
83	5.57	249	--	--	--
84	5.492	252	--	--	--
91	5.546	273	--	--	--

Radar waveform #13			Radar waveform #14		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5.527	6	14	5.534	42
4	5.513	12	18	5.535	54
11	5.517	33	19	5.541	57
15	5.49	45	22	5.532	66
17	5.565	51	28	5.517	84
21	5.511	63	41	5.501	123
32	5.491	96	49	5.552	147
34	5.56	102	51	5.52	153

41	5.536	123	56	5.491	168
55	5.545	165	57	5.528	171
58	5.531	174	60	5.561	180
63	5.503	189	68	5.516	204
72	5.564	216	72	5.499	216
77	5.542	231	73	5.547	219
83	5.522	249	85	5.536	255
84	5.557	252	93	5.526	279
90	5.559	270	94	5.519	282
93	5.544	279	--	--	--
98	5.541	294	--	--	--

Radar waveform #15			Radar waveform #16		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5.49	3	11	5.566	33
8	5.535	24	13	5.52	39
10	5.495	30	18	5.524	54
12	5.511	36	22	5.55	66
22	5.545	66	36	5.552	108
41	5.538	123	42	5.514	126
43	5.551	129	44	5.554	132
57	5.554	171	49	5.542	147
67	5.503	201	52	5.551	156
77	5.519	231	53	5.515	159
81	5.527	243	55	5.555	165
82	5.499	246	58	5.559	174
87	5.559	261	63	5.512	189
92	5.539	276	69	5.516	207
97	5.509	291	75	5.509	225
99	5.53	297	89	5.508	267
--	--	--	95	5.492	285
--	--	--	98	5.519	294
--	--	--	100	5.532	300

Radar waveform #17			Radar waveform #18		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5.544	9	3	5.497	9
9	5.524	27	8	5.514	24
13	5.506	39	14	5.494	42
14	5.49	42	17	5.559	51
15	5.504	45	21	5.537	63
17	5.562	51	49	5.554	147
20	5.563	60	51	5.501	153
27	5.51	81	53	5.527	159
34	5.507	102	54	5.492	162
39	5.498	117	89	5.532	267
45	5.513	135	90	5.551	270
50	5.533	150	92	5.565	276
71	5.495	213	94	5.525	282
78	5.518	234	--	--	--
79	5.516	237	--	--	--
82	5.55	246	--	--	--
83	5.57	249	--	--	--
85	5.501	255	--	--	--
94	5.497	282	--	--	--
97	5.552	291	--	--	--

Radar waveform #19			Radar waveform #20		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5.556	6	1	5.525	3
4	5.517	12	41	5.555	123
5	5.513	15	63	5.503	189
13	5.522	39	80	5.497	240
19	5.563	57	85	5.501	255
22	5.529	66	--	--	--
23	5.533	69	--	--	--
24	5.555	72	--	--	--
26	5.564	78	--	--	--
27	5.505	81	--	--	--
39	5.56	117	--	--	--

41	5.534	123	--	--	--
46	5.562	138	--	--	--
50	5.493	150	--	--	--
76	5.518	228	--	--	--
79	5.51	237	--	--	--
88	5.527	264	--	--	--
100	5.512	300	--	--	--

Radar waveform #21			Radar waveform #22		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5.561	6	4	5.534	12
4	5.507	12	12	5.494	36
9	5.529	27	18	5.565	54
24	5.534	72	29	5.566	87
25	5.491	75	32	5.54	96
26	5.516	78	36	5.539	108
27	5.538	81	41	5.508	123
28	5.57	84	46	5.543	138
33	5.559	99	68	5.518	204
40	5.522	120	83	5.542	249
44	5.525	132	85	5.549	255
49	5.541	147	94	5.499	282
52	5.55	156	--	--	--
59	5.555	177	--	--	--
65	5.556	195	--	--	--
78	5.563	234	--	--	--
100	5.551	300	--	--	--

Radar waveform #23			Radar waveform #24		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5.536	15	2	5.542	6
6	5.556	18	9	5.549	27
7	5.545	21	11	5.563	33
12	5.559	36	13	5.545	39
17	5.5	51	19	5.51	57
20	5.53	60	22	5.511	66
23	5.549	69	25	5.533	75
25	5.55	75	31	5.507	93
29	5.547	87	34	5.528	102
37	5.568	111	39	5.523	117
39	5.554	117	55	5.491	165
51	5.503	153	58	5.518	174
62	5.492	186	59	5.546	177
67	5.49	201	69	5.557	207
70	5.538	210	86	5.539	258
78	5.525	234	96	5.54	288
79	5.507	237	--	--	--
80	5.539	240	--	--	--

Radar waveform #25			Radar waveform #26		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5.528	6	21	5.52	63
4	5.498	12	23	5.514	69
10	5.568	30	30	5.552	90
22	5.535	66	32	5.503	96
29	5.497	87	37	5.497	111
36	5.561	108	38	5.515	114
42	5.522	126	40	5.518	120
43	5.531	129	45	5.493	135
47	5.51	141	57	5.519	171
69	5.52	207	58	5.524	174
76	5.533	228	66	5.535	198
77	5.544	231	86	5.516	258
79	5.518	237	99	5.55	297

81	5.56	243	--	--	--
87	5.526	261	--	--	--
98	5.496	294	--	--	--

Radar waveform #27			Radar waveform #28		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5.563	6	10	5.564	30
20	5.56	60	12	5.506	36
23	5.516	69	32	5.515	96
29	5.502	87	39	5.513	117
37	5.561	111	40	5.55	120
50	5.567	150	41	5.541	123
53	5.499	159	51	5.547	153
61	5.55	183	53	5.555	159
72	5.51	216	59	5.568	177
80	5.514	240	73	5.552	219
87	5.5	261	74	5.495	222
89	5.527	267	81	5.527	243
92	5.497	276	89	5.561	267
93	5.513	279	98	5.493	294
98	5.541	294	--	--	--
99	5.551	297	--	--	--

Radar waveform #29			Radar waveform #30		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
4	5.49	12	6	5.569	18
7	5.503	21	8	5.542	24
30	5.549	90	12	5.559	36
32	5.563	96	13	5.523	39
35	5.526	105	20	5.546	60
57	5.541	171	23	5.536	69
60	5.501	180	37	5.541	111
65	5.523	195	40	5.503	120
66	5.502	198	42	5.511	126
67	5.506	201	44	5.512	132
68	5.538	204	51	5.491	153
69	5.546	207	65	5.539	195
71	5.567	213	69	5.496	207
74	5.537	222	73	5.495	219
77	5.516	231	77	5.556	231
78	5.569	234	100	5.506	300
79	5.508	237	--	--	--
81	5.53	243	--	--	--
83	5.556	249	--	--	--
95	5.529	285	--	--	--

Product	ACCESS POINT	Temperature	27°C
Test Engineer	Amy Zhang	Relative Humidity	65%
Test Site	SR2	Test Date	2020/03/09
Test Item	Radar Statistical Performance Check (802.11ax-HE160 mode - 5250MHz)		

Radar Type 1 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5274.5	1	618	86	1
2	5310.3	1	918	58	1
3	5256.4	1	518	102	1
4	5271.2	1	758	70	1
5	5262.4	1	838	63	1
6	5253.3	1	718	74	1
7	5326.8	1	738	72	1
8	5277.5	1	698	76	1
9	5268.5	1	558	95	1
10	5329.0	1	898	59	1
11	5298.5	1	578	92	1
12	5250.0	1	598	89	1
13	5295.7	1	818	65	1
14	5313.5	1	938	57	1
15	5280.2	1	638	83	1
16	5322.7	1	2156	25	1
17	5259.3	1	2341	23	1
18	5304.6	1	1257	42	1
19	5290.0	1	2402	22	0
20	5283.7	1	2223	24	1
21	5307.3	1	569	93	1
22	5265.8	1	1704	31	1
23	5319.2	1	1195	45	1
24	5301.4	1	2656	20	1
25	5321.3	1	1830	29	1
26	5286.9	1	1546	35	1

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
27	5316.4	1	2144	25	1
28	5289.5	1	1406	38	1
29	5328.2	1	1624	33	0
30	5292.2	1	2305	23	0
Detection Percentage (%)					90%

Radar Type 2 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5257.4	1.0	216	23	1
2	5320.2	3.8	206	26	1
3	5251.6	2.2	163	25	1
4	5318.3	4.2	221	26	1
5	5263.5	4.8	186	23	1
6	5329.0	2.7	152	25	1
7	5266.7	2.4	174	25	1
8	5275.4	3.2	156	27	1
9	5254.5	3.4	172	25	1
10	5296.8	1.2	204	27	1
11	5315.7	1.4	167	24	1
12	5272.4	3.1	167	27	1
13	5312.4	2.1	206	28	1
14	5260.1	4.5	211	29	1
15	5309.4	1.3	150	27	1
16	5281.3	4.6	191	26	1
17	5323.5	3.0	180	25	1
18	5250.0	3.0	164	25	1
19	5300.2	2.1	203	25	1
20	5278.5	3.8	212	23	1
21	5306.3	2.2	196	25	1
22	5290.0	1.2	157	23	1
23	5269.3	3.2	201	26	1
24	5328.7	5.0	156	28	1
25	5297.4	2.3	179	28	1
26	5293.5	2.5	159	23	1
27	5327.4	3.6	150	24	1
28	5284.6	5.0	185	25	1
29	5303.4	2.7	159	25	1
30	5287.2	2.1	150	25	1
Detection Percentage (%)					100%

Radar Type 3 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5299.2	7.0	486	17	1
2	5328.7	8.1	317	16	1
3	5258.2	7.6	267	16	1
4	5282.5	8.8	466	16	1
5	5270.2	8.0	441	17	1
6	5279.8	8.2	331	17	1
7	5323.5	6.7	341	17	1
8	5250.0	7.8	380	16	1
9	5288.4	7.1	328	17	1
10	5276.2	7.4	279	17	1
11	5327.4	7.7	416	18	1
12	5261.7	9.3	337	17	1
13	5329.0	6.1	367	17	1
14	5294.9	6.8	355	18	1
15	5290.0	9.7	305	16	1
16	5320.2	8.0	481	17	1
17	5252.4	9.2	489	18	1
18	5300.2	8.2	289	16	1
19	5264.9	8.7	232	17	1
20	5309.4	6.8	455	16	1
21	5303.4	8.6	340	16	1
22	5255.7	7.9	429	18	1
23	5312.4	7.2	403	18	1
24	5297.4	6.5	444	17	1
25	5318.3	6.5	374	18	1
26	5267.2	8.4	387	16	1
27	5306.3	7.6	371	17	1
28	5315.7	9.8	347	17	1
29	5273.7	9.6	415	16	1
30	5285.3	9.3	420	18	1
Detection Percentage (%)					100%

Radar Type 4 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5274.5	15.0	249	16	0
2	5310.3	12.4	210	12	1
3	5256.4	11.9	435	14	1
4	5271.2	18.6	430	13	1
5	5262.4	18.2	254	12	1
6	5253.3	14.1	457	14	1
7	5326.8	14.2	458	14	1
8	5277.5	11.1	264	13	1
9	5268.5	17.4	421	13	1
10	5329.0	18.6	278	14	1
11	5298.5	18.9	210	16	1
12	5250.0	16.1	449	13	1
13	5295.7	12.5	263	15	1
14	5313.5	12.9	415	13	1
15	5280.2	18.7	470	13	1
16	5322.7	11.7	487	14	1
17	5259.3	16.3	278	16	1
18	5304.6	11.0	353	14	1
19	5290.0	19.1	391	14	1
20	5283.7	15.0	422	14	1
21	5307.3	12.8	343	14	0
22	5265.8	19.7	288	16	1
23	5319.2	18.2	268	14	1
24	5301.4	13.7	325	13	1
25	5321.3	13.4	401	16	1
26	5286.9	14.5	450	13	1
27	5316.4	14.8	485	14	1
28	5289.5	14.1	431	14	1
29	5328.2	16.9	334	13	1
30	5292.2	15.5	236	13	1
Detection Percentage (%)					93.3%

Note: In addition an average minimum percentage of successful detection across all four Short pulse radar test waveforms is as follows: $\frac{P_d1+P_d2+P_d3+P_d4}{4}$ = (90%+100%+100%+93.3%)/4 = 95.8% (>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	5290.0	1	16	5253.6	1
2	5290.0	1	17	5256.4	1
3	5290.0	1	18	5258.0	1
4	5290.0	1	19	5253.6	1
5	5290.0	1	20	5255.6	1
6	5290.0	1	21	5325.4	0
7	5290.0	1	22	5326.6	1
8	5290.0	1	23	5326.6	1
9	5290.0	1	24	5326.6	1
10	5290.0	1	25	5322.6	1
11	5253.2	1	26	5322.2	1
12	5257.2	1	27	5327.0	0
13	5254.4	1	28	5326.6	1
14	5256.4	1	29	5324.6	1
15	5253.2	1	30	5327.0	0
Detection Percentage (%)					90%

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	3	80.4	13	1886	1998	418.574
2	1	93	13			307.11
3	1	76.5	13			438.16
4	2	51.8	13	1849		275.77
5	3	91.4	13	1383	1792	24.12
6	2	82.3	13	1760		644.2
7	2	51.5	13	1799		5.3
8	2	74.6	13	1982		787.93
9	3	69.5	13	1333	1155	807.5
10	3	76.8	13	1281	1760	635.8

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	1	76.1	12			1076.27
2	3	52.7	12	1348	1073	216.017
3	2	92.7	12	1397		1041.183
4	2	68.4	12	1948		1240.12
5	3	63.5	12	1683	1188	91.917
6	2	94.2	12	1085		222.263
7	2	84.1	12	1491		678.23
8	3	80.2	12	1146	1865	1139.267
9	1	57.7	12			550.233

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	1	72.6	8			1309.7
2	3	66.6	8	1363	1057	1113.337
3	1	65.4	8			641.263
4	2	57.7	8	1147		431.59
5	2	71.4	8	1918		1268.037
6	2	94.1	8	1238		68.083
7	3	52.9	8	1137	1679	15.24
8	2	61.4	8	1465		547.737
9	2	57.6	8	1773		771.233

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	50.2	10	1554		72.284
2	1	77.4	10			304.354
3	2	77.6	10	1707		390.587
4	3	88.1	10	1530	1806	611.49
5	2	63.9	10	1978		161.243
6	1	84	10			581.467
7	3	80.9	10	1315	1314	562.67
8	2	83.8	10	1646		626.313
9	2	77.8	10	1153		533.957
10	3	79	10	1933	1816	420.22
11	3	69.5	10	1951	1520	40.113
12	2	70.3	10	1842		639.547
13	3	50.4	10	1209	1935	501.09
14	2	82.4	10	1559		15.923
15	3	60.6	10	1638	1392	568.137
16	3	52.3	10	1295	1025	246.8
17	2	71.5	10	1235		508.433
18	3	58	10	1533	1194	138.167

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	2	83.4	7	1045		646.332
2	2	65	7	1823		420.82
3	1	94.1	7			67.5
4	2	54.5	7	1526		35.71
5	2	81.2	7	1615		588.13
6	2	99.4	7	1804		222.28
7	3	69	7	1479	1378	510.58
8	2	79.4	7	1456		663.55
9	2	59.2	7	1791		362.69
10	2	91.1	7	1010		101.91
11	2	59.4	7	1009		306.91
12	1	93.4	7			626.85
13	3	78.4	7	1002	1255	736
14	3	94.7	7	1075	1404	304.2
15	1	75.5	7			318.9

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	100	7			817.071
2	3	78.1	7	1444	1304	113.38
3	2	66.9	7	1935		245.15
4	3	58.1	7	1919	1060	391.89
5	2	66.5	7	1218		419.41
6	1	72.3	7			534.33
7	3	79.4	7	1965	1489	818.42
8	2	76.5	7	1512		623.21
9	3	81.3	7	1151	1601	502.02
10	2	90.8	7	1617		641.06
11	1	52.9	7			342.4
12	1	95.7	7			98.2

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	96.7	11	1634		625.846
2	2	64.7	11	1883		363.087
3	1	55.1	11			250.294
4	2	99.1	11	1424		836.891
5	1	81.2	11			139.209
6	1	70.7	11			3.836
7	3	50.9	11	1606	1115	60.333
8	3	63.2	11	1483	1364	544.42
9	1	82.5	11			77.717
10	2	97.3	11	1585		464.074
11	3	77.2	11	1575	1087	535.671
12	3	64.6	11	1049	1387	848.429
13	1	72.2	11			382.286
14	2	92.1	11	1410		621.043

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	1	65	13			162.355
2	2	74.8	13	1085		410.53
3	3	50.2	13	1537	1996	592.94
4	2	99.9	13	1342		472.13
5	3	74.8	13	1160	1042	546.92
6	2	74	13	1107		463.37
7	2	69.8	13	1814		78.4
8	2	81.2	13	1759		337.93
9	2	98.9	13	1894		513.27
10	3	65.4	13	1929	1348	55.39
11	2	94.3	13	1984		152.51
12	2	85.4	13	1137		170.88
13	2	74.3	13	1842		476.23
14	3	89.2	13	1244	1521	40.6
15	3	52.8	13	1440	1939	367.6
16	1	84.2	13			355.27
17	3	85.1	13	1368	1717	560.8
18	1	66.9	13			118.2
19	2	85.3	13	1209		506.9
20	1	56.9	13			506.4

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	70.7	11	1161		147.519
2	1	51.7	11			181.79
3	2	75.9	11	1078		1475.34
4	3	72.6	11	1683	1036	444.71
5	3	82.6	11	1714	1574	321.91
6	2	62.3	11	1040		455.45
7	1	90	11			396.88
8	3	57.2	11	1575	1702	1390.2

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	2	86.2	13	1874		496.004
2	1	81.2	13			226.203
3	2	87.2	13	1245		447.946
4	3	86.2	13	1229	1556	270.109
5	3	53	13	1993	1604	750.722
6	1	89.5	13			909.185
7	1	57.6	13			341.338
8	1	80.3	13			593.382
9	2	75.5	13	1357		129.735
10	2	91.2	13	1613		264.838
11	2	87.4	13	1570		752.081
12	3	64.9	13	1645	1583	222.954
13	2	63.5	13	1706		222.377

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	67.6	8	1290		131.88
2	2	82.3	8	1437		895.881
3	2	74.2	8	1507		634.312
4	2	84.1	8	1359		806.563
5	2	57.8	8	1747		98.324
6	1	56	8			804.715
7	1	53.9	8			571.225
8	3	61.5	8	1991	1410	22.876
9	1	74.3	8			1062.607
10	1	57	8			297.518
11	3	97.3	8	1755	1558	541.009

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	93.8	18			1093.94
2	1	65.5	18			242.5
3	2	98.2	18	1621		960.8
4	2	50.5	18	1511		277.52
5	1	63.4	18			1081.48
6	1	57.4	18			785.64
7	2	65.2	18	1220		1100.41
8	2	97.4	18	1827		722.59
9	3	79.5	18	1796	1565	406.5
10	2	93	18	1949		470.3

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	51	11	1950	1070	782.724
2	1	91.5	11			54.597
3	2	55.6	11	1012		757.706
4	2	53.3	11	1955		823.979
5	2	63.5	11	1217		11.412
6	2	80.1	11	1809		565.135
7	3	87	11	1982	1624	506.048
8	2	55.8	11	1900		847.902
9	3	89.2	11	1928	1527	34.465
10	3	87.4	11	1482	1361	290.018
11	3	56.2	11	1176	1883	73.931
12	3	64.7	11	1009	1384	842.254
13	1	96.9	11			587.277

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	80.4	16	1520		625.148
2	3	60.2	16	1491	1360	126.874
3	2	69.3	16	1232		162.235
4	2	54.6	16	1028		207.643
5	1	99.8	16			81.521
6	3	58.4	16	1439	1824	298.238
7	1	88.9	16			414.506
8	1	50.9	16			354.304
9	2	95.8	16	1610		273.471
10	2	99.7	16	1402		495.479
11	1	75.1	16			657.196
12	1	66.2	16			562.384
13	1	62.4	16			22.922
14	1	72.5	16			300.109
15	2	65.3	16	1990		431.747
16	1	82.2	16			419.265
17	3	84	16	1909	1957	201.182

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	2	50.7	8	1921		340.461
2	2	62.7	8	1827		26.597
3	2	51	8	1688		112.09
4	1	84	8			90.24
5	2	90.6	8	1735		358.22
6	2	100	8	1962		65.72
7	3	91.5	8	1846	1387	231.8
8	1	97.4	8			76.84
9	3	93.5	8	1142	1375	324.92
10	1	80	8			257.99
11	1	68.9	8			582.09
12	1	54.4	8			196.95
13	2	52.7	8	1014		10.11
14	1	87.6	8			187.08
15	2	76.2	8	1250		472.94
16	3	55	8	1305	1153	50.78
17	2	57	8	1033		227.02
18	2	86.6	8	1245		540.8
19	2	70.2	8	1679		430.9
20	2	67.4	8	1831		287.2

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	87	9	1419		869.747
2	2	77.6	9	1894		1302.907
3	1	57	9			994.603
4	2	91.4	9	1559		1299.55
5	3	57.5	9	1136	1181	1005.477
6	2	89.2	9	1473		1067.763
7	3	70.2	9	1662	1002	1185.84
8	2	67.8	9	1048		257.957
9	3	73.1	9	1432	1661	1087.033