

DFS MEASUREMENT REPORT

FCC 15.407 WLAN 802.11a/n/ac/ax



FCC ID: Q9DAPIN0635

Applicant: Hewlett Packard Enterprise Company

Application Type: Certification

Product: ACCESS POINT

Model No.: APIN0635


Trade Mark:  

FCC Classification: Unlicensed National Information Infrastructure (NII)


Type of Device: Master Device

FCC Rule Part(s): Part 15 Subpart E - 15.407 Section (h)(2)

Test Date: May 19 ~ 23, 2021

Reviewed By: 

(Paddy Chen)

Approved By: 

(Chenz Ker)



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.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Taiwan) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2101TW0003-U5	V1.0	Initial report	05-25-2021	Valid

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General Information

Applicant	Hewlett Packard Enterprise Company
Applicant Address	3333 Scott Blvd, Santa Clara, CA 95054, USA
Manufacturer	Hewlett Packard Enterprise Company
Manufacturer Address	3333 Scott Blvd, Santa Clara, CA 95054, USA
Test Site	MRT Technology (Taiwan) Co., Ltd
Test Site Address	No. 38, Fuxing Second Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C)
MRT FCC Registration No.	291082
FCC Rule Part(s)	Part 15.407
Test Device Serial No.	DKS0BS0028 <input type="checkbox"/> Production <input checked="" type="checkbox"/> Pre-Production <input type="checkbox"/> Engineering

Test Facility / Accreditations

1. MRT facility is a FCC registered (Reg. No. 291082) test facility with the site description report on file and is designated by the FCC as an Accredited Test Firm.
2. MRT facility is an IC registered (MRT Reg. No. 21723) test laboratory with the site description on file at Industry Canada.
3. MRT Lab is accredited to ISO 17025 by the Taiwan Accreditation Foundation (TAF Cert. No. 3261) in EMC, Telecommunications and Radio testing for FCC (Designation Number: TW3261), Industry Taiwan, EU and TELEC Rules.

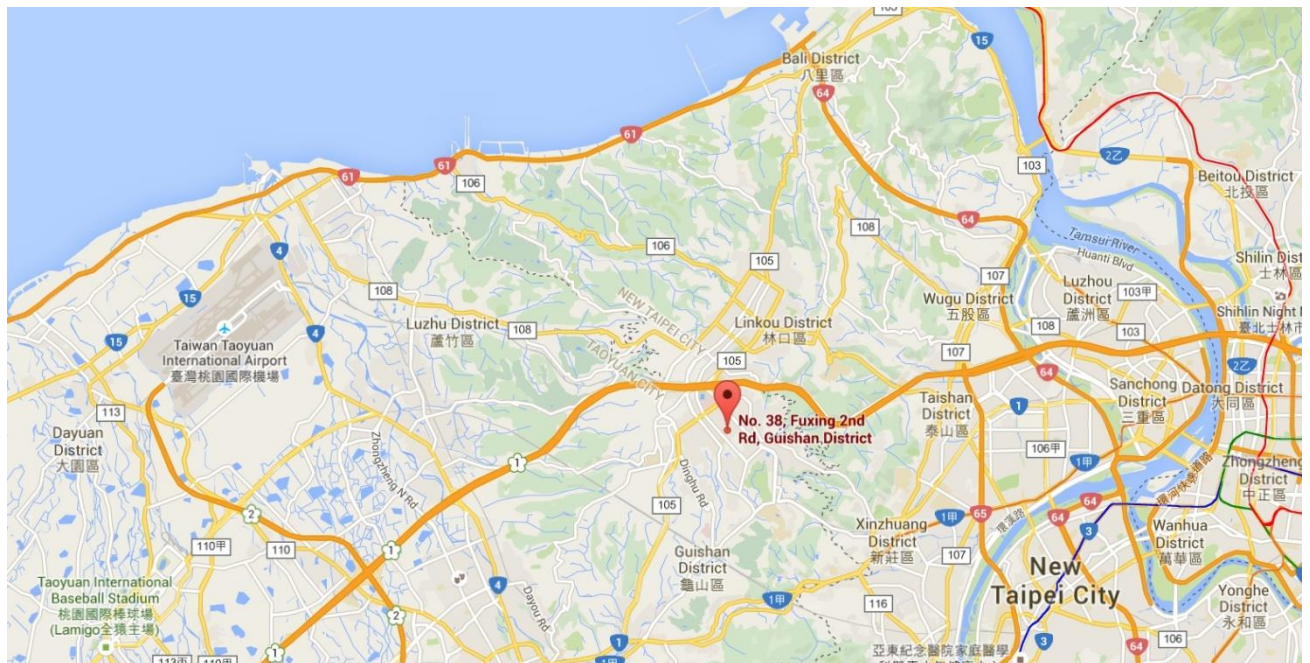
1. INTRODUCTION

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 Industry Canada 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.	APIN0635
Software Version	Aruba OS 8.9.0.0_80031
Wi-Fi Specification	802.11a/b/g/n/ac/ax
Bluetooth Specification	v5.0 single mode, BLE only
Zigbee Specification	802.15.4
GNSS Specification	GPS, GLONASS, Galileo
Operating Temperature	0 ~ 50 °C
Power Type	AC Adapter or PoE input
Operating Environment	Indoor Use

2.2. Product Specification Subjective to this Report

Frequency Range	For 802.11a/n-HT20/ac-VHT20/ax-HE20: 5260~5320MHz, 5500~5720MHz For 802.11n-HT40/ac-VHT40/ax-HE40: 5270~5310MHz, 5510~5710MHz For 802.11ac-VHT80/ax-HE80: 5290MHz, 5530MHz, 5610MHz, 5690MHz
Type of Modulation	802.11a/n/ac: OFDM 802.11ax: OFDMA
Data Rate	802.11a: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.6Mbps 802.11ax: up to 1201Mbps
Power-on cycle	Requires 90.9 seconds to complete its power-on cycle
Uniform Spreading	For the 5250-5350MHz, 5470-5725 MHz bands, the Master device provides, on aggregate, uniform loading of the spectrum across all devices by selecting an operating channel among the available channels using a random algorithm.

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

2.3. Description of Available Antennas

Antenna Type	Frequency Band (GHz)	Max Peak Gain (dBi)	CDD Directional Gain (dBi)		BF Directional Gain (dBi)
			For Power	For PSD	
Wi-Fi Internal Antenna (2*2 MIMO)					
PIFA	2.4 ~ 2.5	2.90	2.90	5.91	5.91
	5.15 ~ 5.9	4.90	4.90	7.91	7.91
	5.9 ~ 7.2	4.30	4.30	4.30	4.30
Bluetooth / ZigBee Internal Antenna					
PIFA	2.4 ~ 2.5	3.0			

Note:

- The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated. For CDD transmissions, directional gain is calculated as follows, $N_{ANT} = 2$, $N_{SS} = 1$. If all antennas have the same gain, G_{ANT} , Directional gain = $G_{ANT} + \text{Array Gain}$, where Array Gain is as follows.
 - For power spectral density (PSD) measurements on all devices,

$$\text{Array Gain} = 10 \log (N_{ANT} / N_{SS}) \text{ dB} = 3.01;$$
 - For power measurements on IEEE 802.11 devices,

$$\text{Array Gain} = 0 \text{ dB for } N_{ANT} \leq 4;$$
- The EUT also supports Beam Forming mode, and the Beam Forming support 802.11n/ac/ax, not include 802.11a/b/g. Directional gain = $G_{ANT} + \text{BF Gain}$. BF mode power setting will be less than or equal to CDD power setting.
- Wi-Fi 6E band antennas are cross polarized, the detail refer to antenna specification.
- All antenna information is provided by the manufacturer, test laboratory will not be responsible if any error.

2.4. Working Frequencies for this report

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	--	--	--	--

2.5. 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

2.6. 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)

2.7. Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- Part 15 Subpart E - 15.407 Section (h)(2)
- KDB 905462 D02v02
- KDB 905462 D04v01

3. DFS DETECTION THRESHOLDS AND RADAR TEST WAVEFORMS

3.1. Applicability

The following table from FCC KDB 905462 D02 NII 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 NII 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 sub section 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	$\text{Roundup} \left\{ \begin{array}{l} \left(\frac{1}{360} \right) \cdot \\ \left(\frac{19 \cdot 10^6}{\text{PRI}_{\mu\text{sec}}} \right) \end{array} \right\}$	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: 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 NII 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.

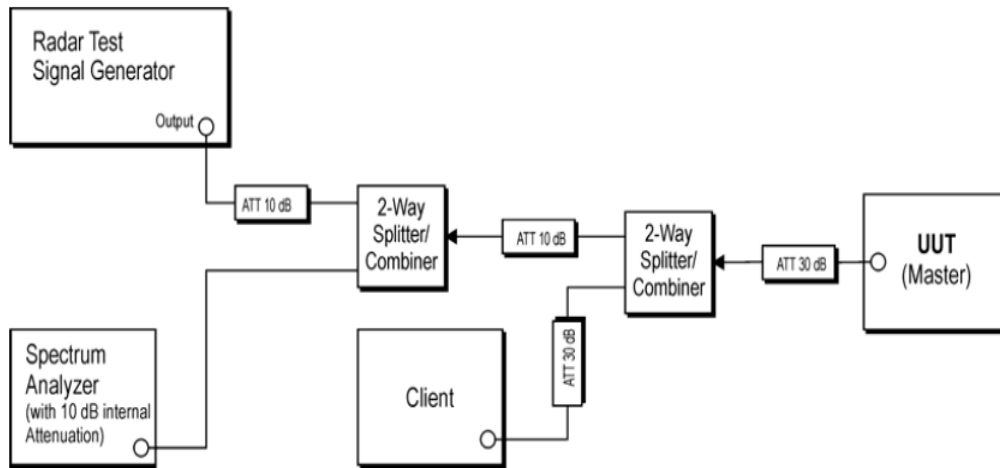


Figure 3-1: Conducted Test Setup where UUT is a Master and Radar Test Waveforms are injected into the Master

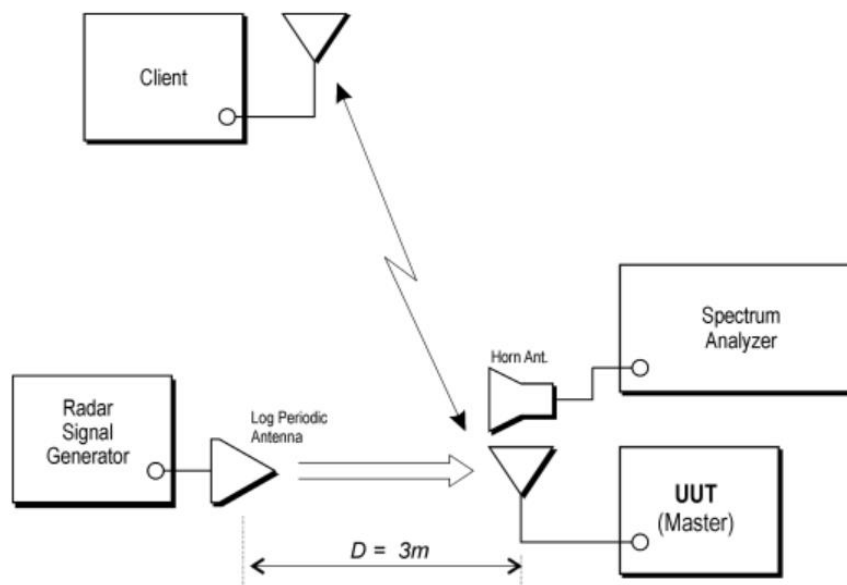


Figure 3-2: Radiated Test Setup where UUT is a master mode and Radar Test Waveforms are injected into the UUT

4. TEST EQUIPMENT CALIBRATION DATE

Dynamic Frequency Selection (DFS) - SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	KEYSIGHT	N9010A	MRTTWA00012	1 year	2021/10/14
EXA Signal Analyzer	KEYSIGHT	N9010B	MRTTWA00074	1 year	2021/7/14
Signal Analyzer	R&S	FSV40	MRTTWA00007	1 year	2022/3/23
Vector Signal Generator	Keysight	N5182B	MRTTWA00010	1 year	2022/4/19
Combiner	WOKEN	0120A04208001S	MRTTWE00008	1 year	2021/6/18

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: 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.

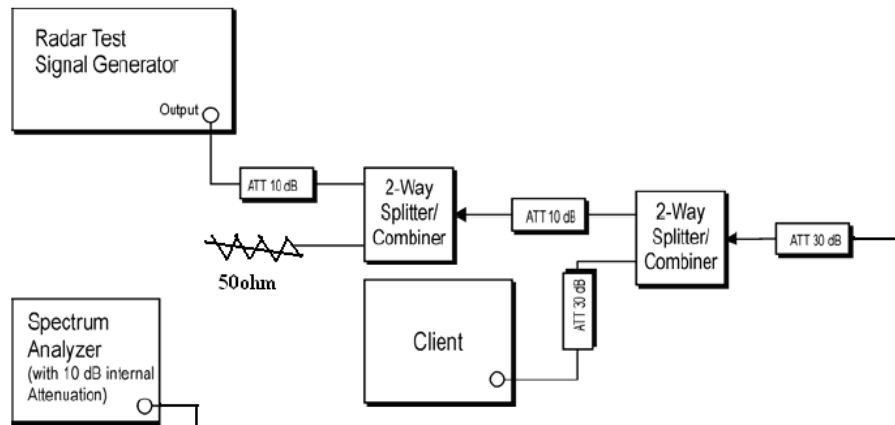


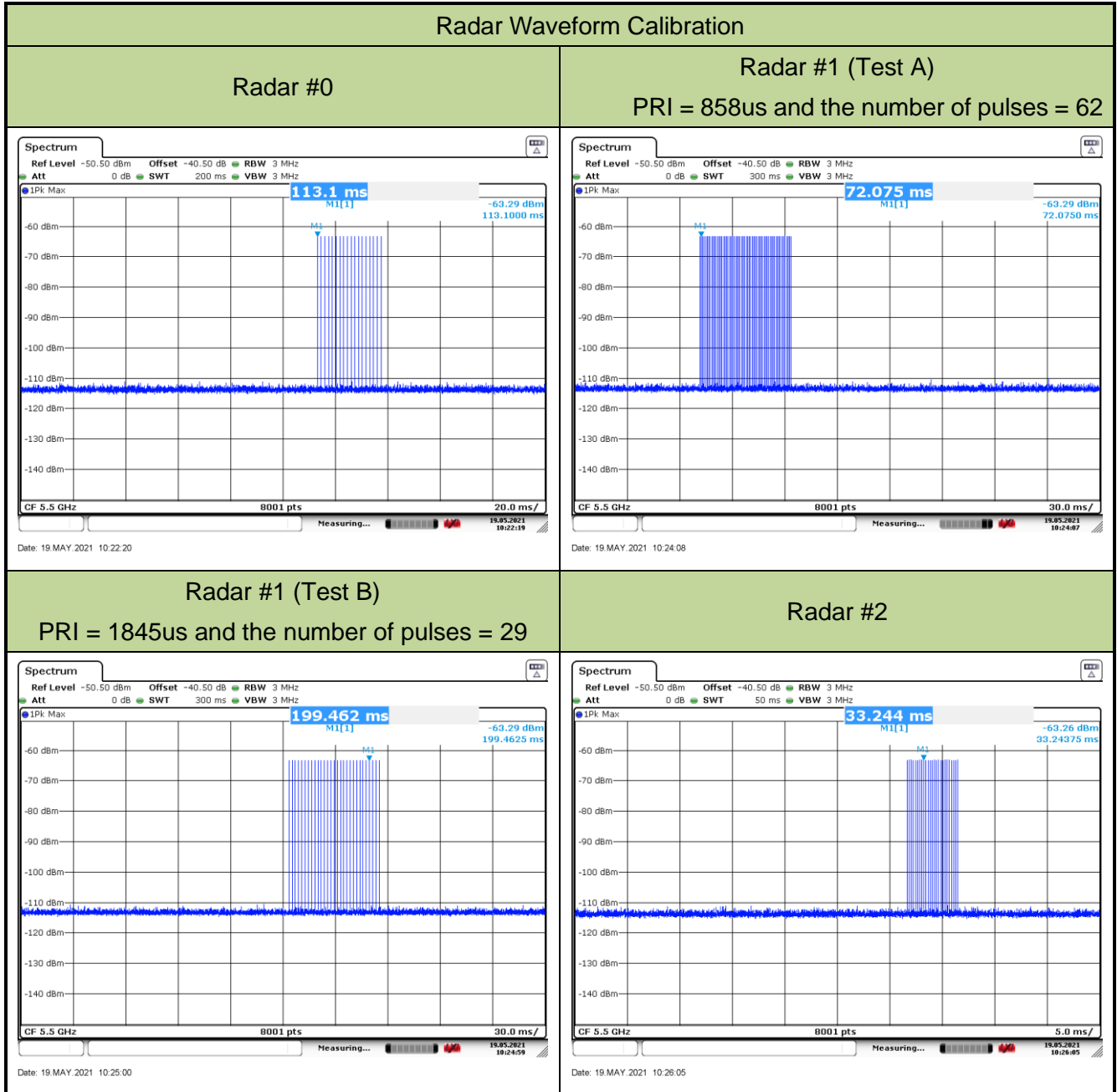
Figure 3-2: Conducted Test Setup

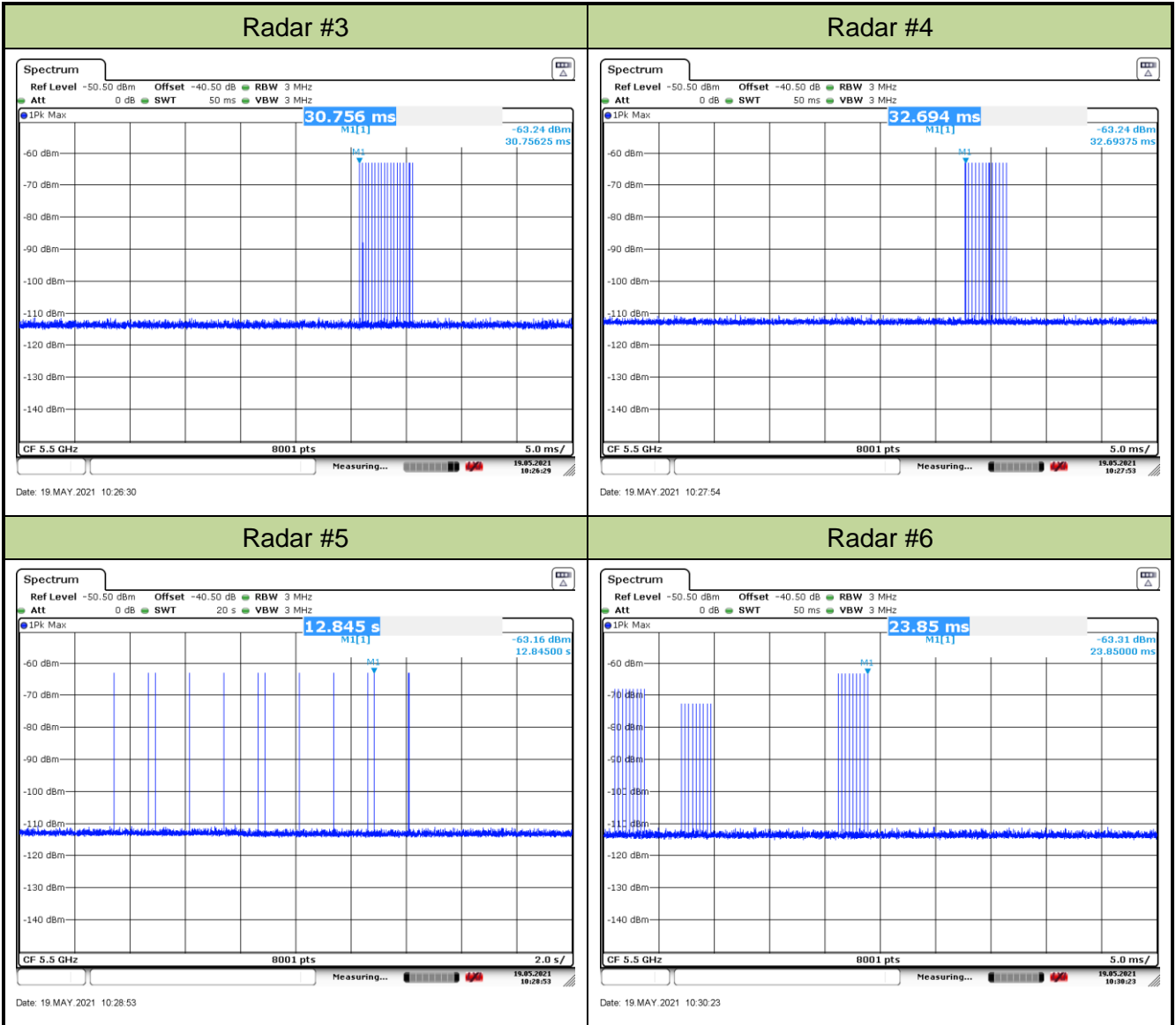
5.2.2. Calibration Procedure

The Interference Radar Detection Threshold Level is $(-64\text{dBm}) + (0) [\text{dBi}] + 1 \text{ dB} = -63 \text{ dBm}$ 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 $(-64\text{dBm}) + (0) [\text{dBi}] + 1 \text{ dB} = -63\text{dBm}$. Capture the spectrum analyzer plots on short pulse radar types, long pulse radar type and hopping radar waveform.

5.2.3. Test Result of Calibration

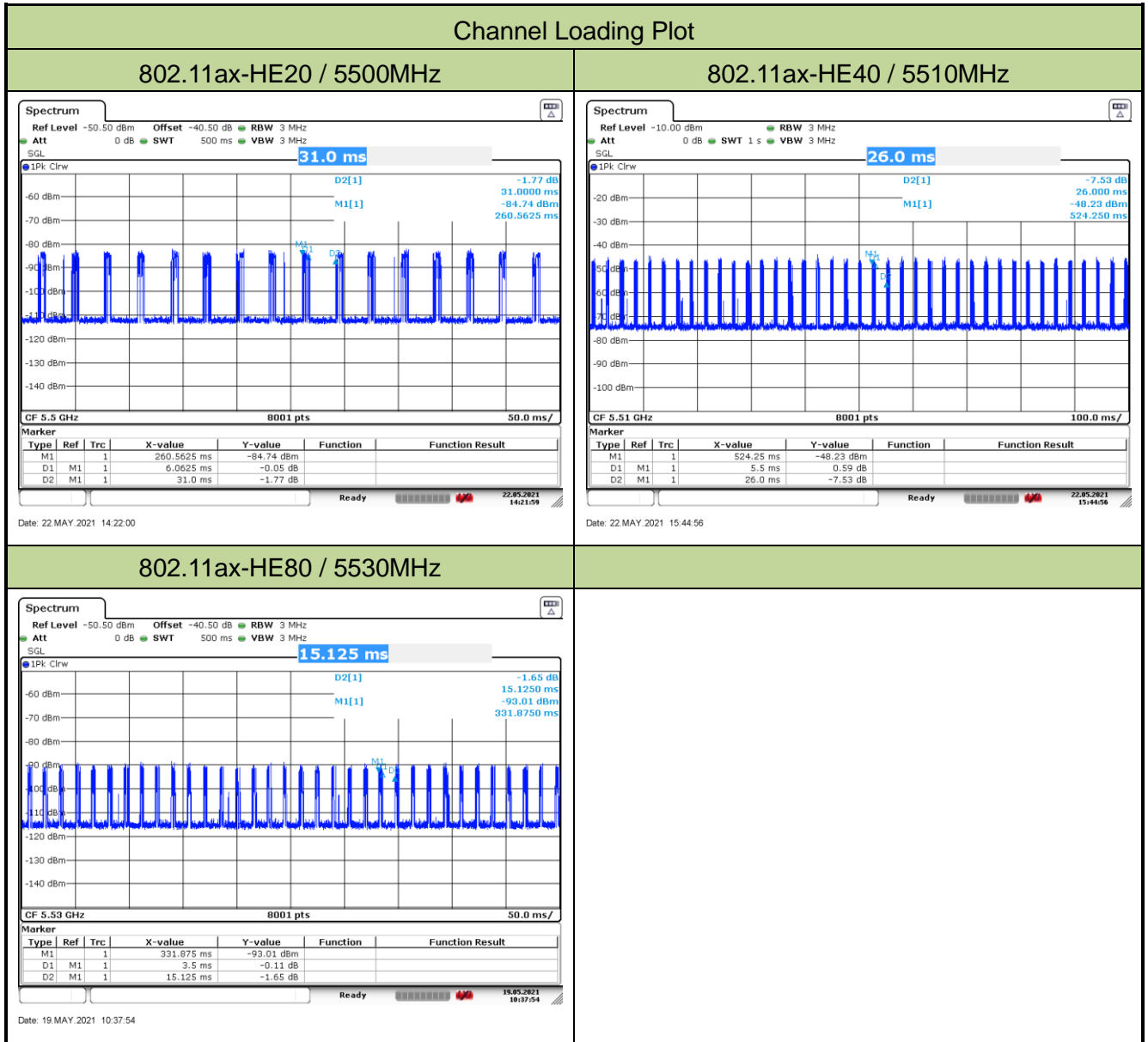
Product	ACCESS POINT	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/05/19
Test Item	Radar Waveform Calibration		





5.2.4. Test Result of Channel Loading

Test Engineer	Eric Lin	Test Site	SR2
Test Item	Channel Loading	Test Date	2021/05/19~05/22



Test Mode	Test Frequency	Packet ratio	Requirement ratio	Test Result
802.11ax-HE20	5500 MHz	19.56%	≥ 17%	Pass
802.11ax-HE40	5510 MHz	21.15%	≥ 17%	Pass
802.11ax-HE80	5530 MHz	23.14%	≥ 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. NII Detection Bandwidth Measurement

5.3.1. Test Limit

Minimum 100% of the NII 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: $\text{U-NII Detection Bandwidth} = \text{FH} - \text{FL}$
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	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/05/22
Test Item	Detection Bandwidth (802.11ax-HE20 mode - 5500MHz)		

Radar Frequency (MHz)	DFS Detection Trials (1=Detection, 0= No Detection)										Detection Rate (%)
	1	2	3	4	5	6	7	8	9	10	
5490	0	0	0	0	0	0	0	0	0	0	0%
5490.4 F _L	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 F _H	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 18.92MHz. (See the 99% BW section of the RF report for further measurement details).

Note 2: Detection Bandwidth = $F_H - F_L = 5509.6\text{MHz} - 5490.4\text{MHz} = 19.2\text{MHz}$.

Note 3: NII Detection Bandwidth Min. Limit (MHz): $18.92\text{MHz} \times 100\% = 18.92\text{MHz}$.

Product	ACCESS POINT	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/05/22
Test Item	Detection Bandwidth (802.11ax-HE40 mode - 5510MHz)		

Radar Frequency (MHz)	DFS Detection Trials (1=Detection, 0= No Detection)										Detection Rate (%)
	1	2	3	4	5	6	7	8	9	10	
5490	0	0	0	0	0	0	0	0	0	0	0%
5491 F _L	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 F _H	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 37.67MHz. (See the 99% BW section of the RF report for further measurement details).

Note 2: Detection Bandwidth = $F_H - F_L = 5529\text{MHz} - 5491\text{MHz} = 38\text{MHz}$.

Note 3: NII Detection Bandwidth Min. Limit (MHz): $37.67\text{MHz} \times 100\% = 37.67\text{MHz}$.



Product	ACCESS POINT	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/05/23
Test Item	Detection Bandwidth (802.11ax-HE80 mode - 5530MHz)		

Radar Frequency (MHz)	DFS Detection Trials (1=Detection, 0= No Detection)										Detection Rate (%)
	1	2	3	4	5	6	7	8	9	10	
5490	0	0	0	0	0	0	0	0	0	0	0%
5491 F _L	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 F _H	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 77.25MHz. (See the 99% BW section of the RF report for further measurement details).

Note 2: Detection Bandwidth = F_H - F_L = 5569MHz - 5491MHz = 78MHz.

Note 3: NII Detection Bandwidth Min. Limit (MHz): 77.25MHz x 100% = 77.25MHz.

5.4. Initial Channel Availability Check Time Measurement

5.4.1. Test Limit

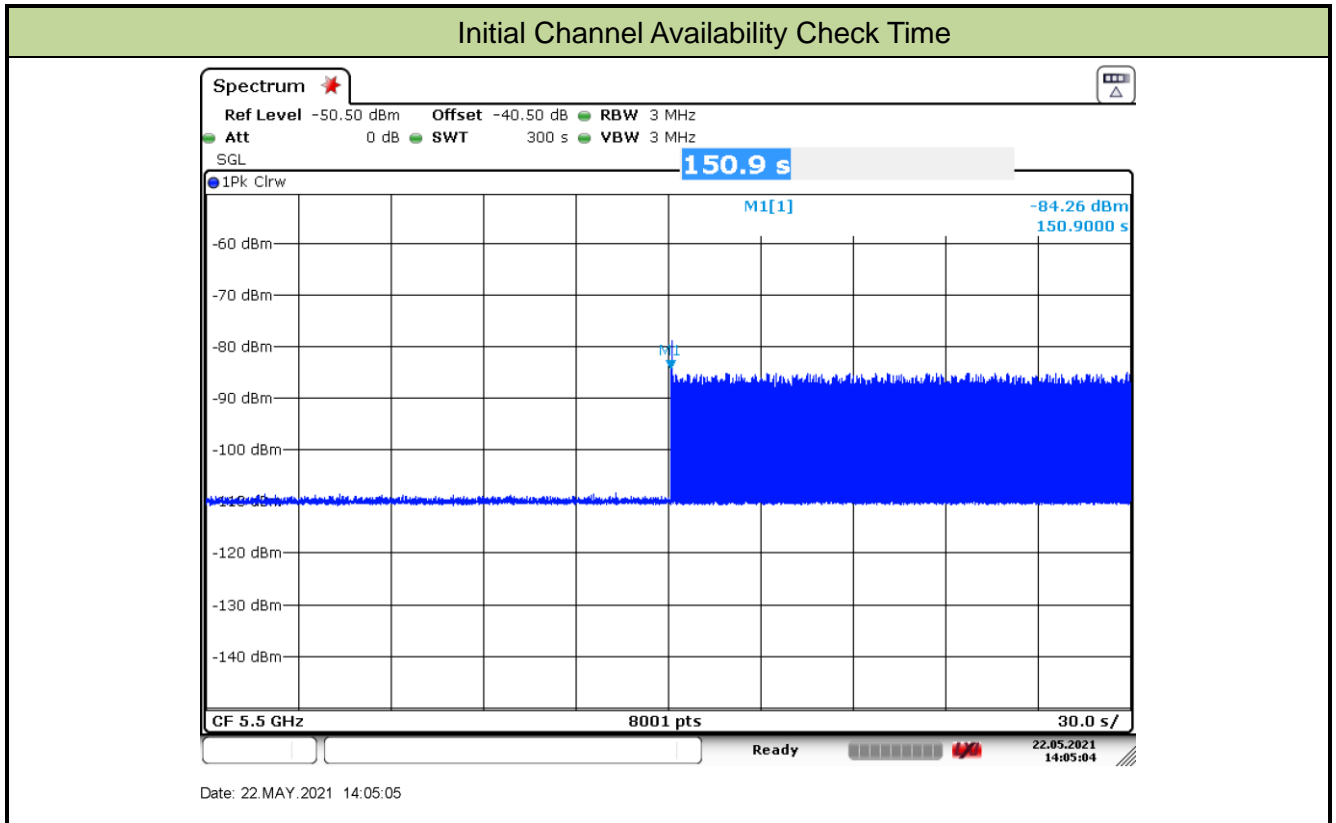
The EUT shall perform a Channel Availability Check to ensure that there is no radar operating on the channel. After power-up sequence, receive at least 1 minute on the intended operating frequency.

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	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/05/22
Test Item	Initial Channel Availability Check Time (802.11ax-HE20 mode - 5500MHz)		



Note: The EUT does not transmit any beacon or data transmissions until at least 1 minute after the completion of the power-on cycle (90.9sec). Initial beacons/data transmissions are indicated by marker 1 (150.9 sec).

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

5.5.1. Test Limit

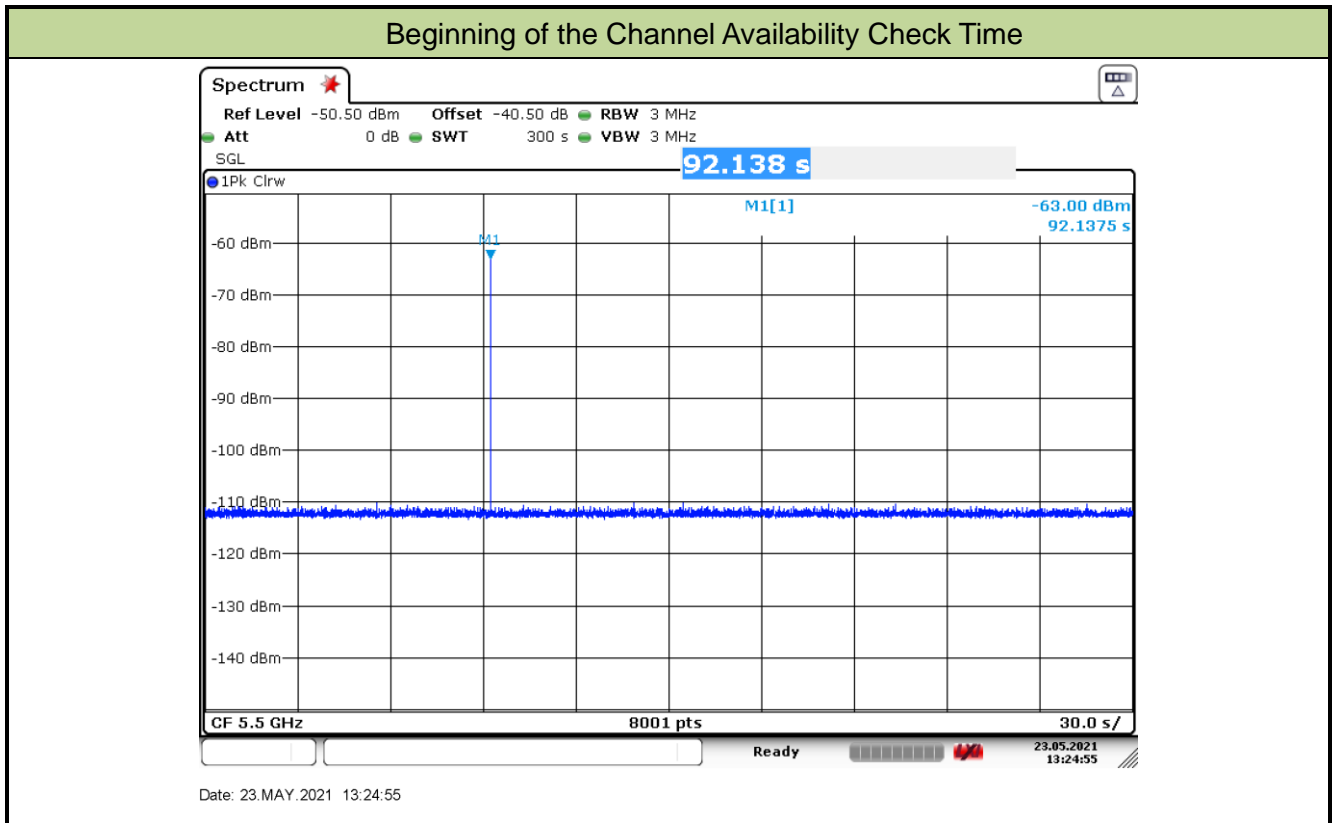
In beginning of the Channel Availability Check (CAC) Time, radar is detected on this channel, select another intended channel and perform a CAC on that channel.

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	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/05/23
Test Item	Beginning of the Channel Availability Check Time (802.11ax-HE20 mode - 5500MHz)		



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

5.6.1. Test Limit

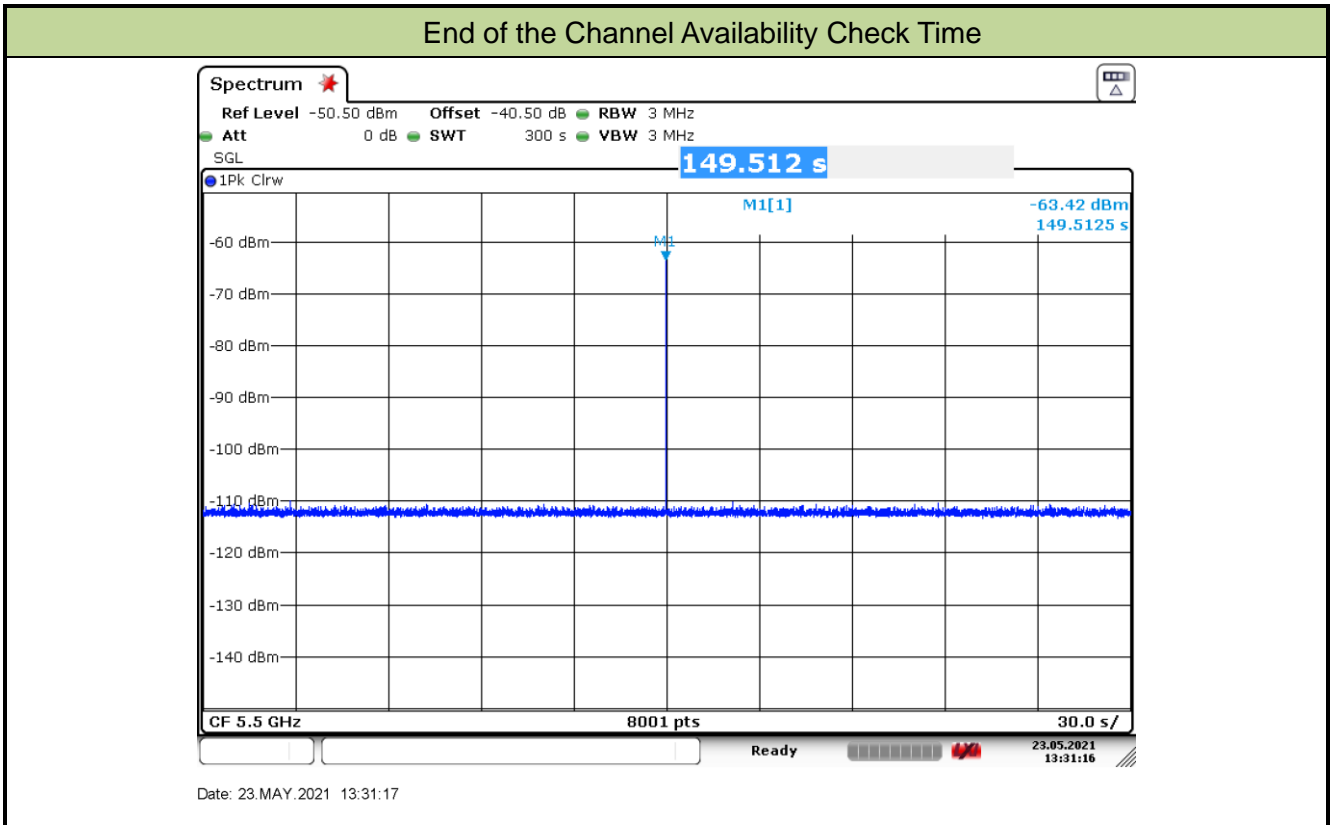
In the end of Channel Availability Check (CAC) Time, radar is detected on this channel, select another intended channel and perform a CAC on that channel.

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 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+ 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	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/05/23
Test Item	End of the Channel Availability Check Time (802.11ax-HE20 mode - 5500MHz)		



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

5.7.1. Test Limit

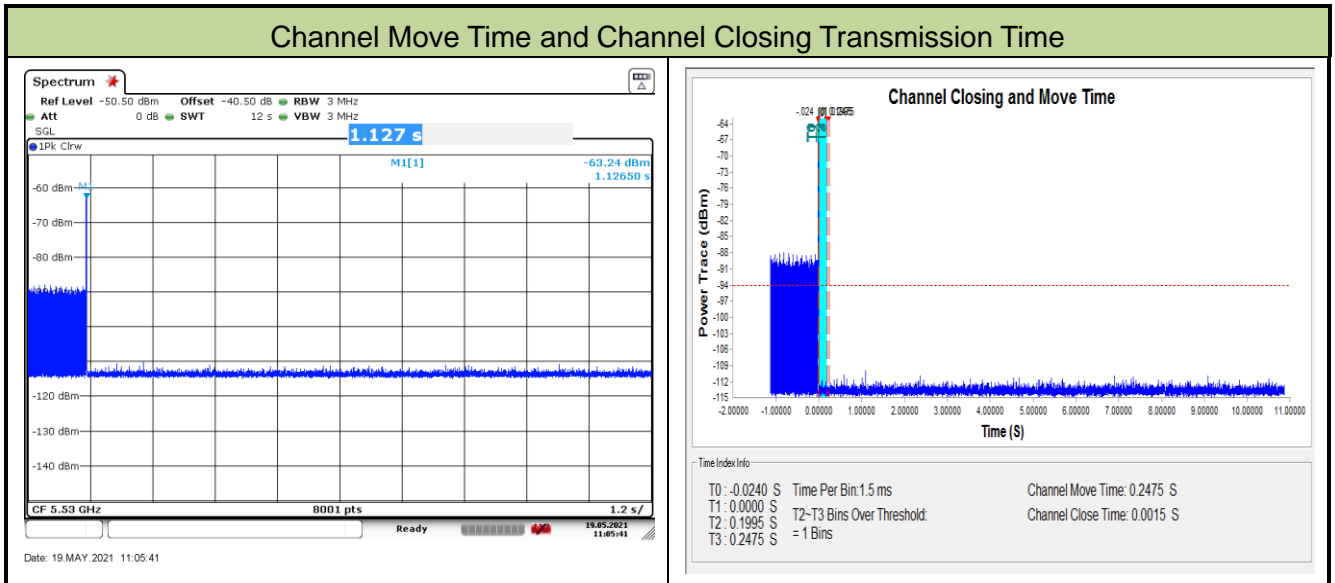
The EUT has In-Service Monitoring function to continuously monitor the radar signals. If the radar is detected, must leave the channel (Shutdown). The Channel Move Time to cease all transmissions on the current channel upon detection of a Radar Waveform above the DFS Detection Threshold within 10 sec. 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 30minute 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: $Dwell (1.5ms) = S (12 \text{ sec}) / B (8000)$; 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: $C = N \times Dwell$; 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

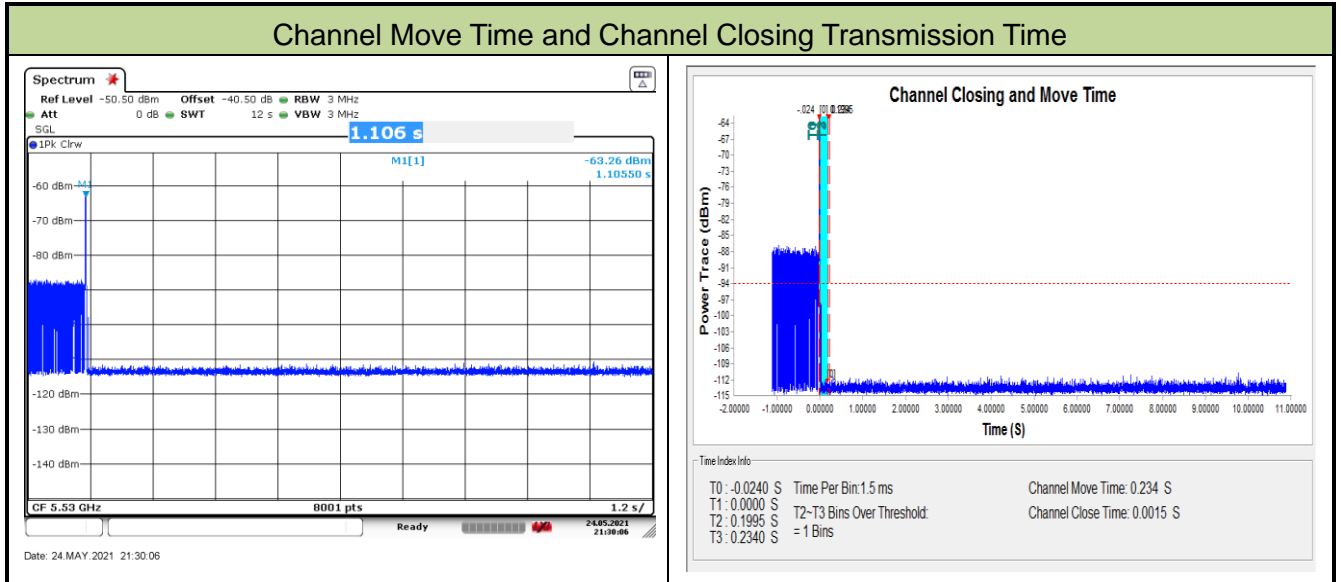
Product	ACCESS POINT	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/05/19
Test Item	Channel Move Time and Channel Closing Transmission Time		
Test Mode	AP Mode, 802.11ax-HE80 mode - 5530MHz		



Parameter	Test Result	Limit
Channel Move Time (s)	0.248s	<10s
Channel Closing Transmission Time (ms) (Note)	1.5ms	< 60ms

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.

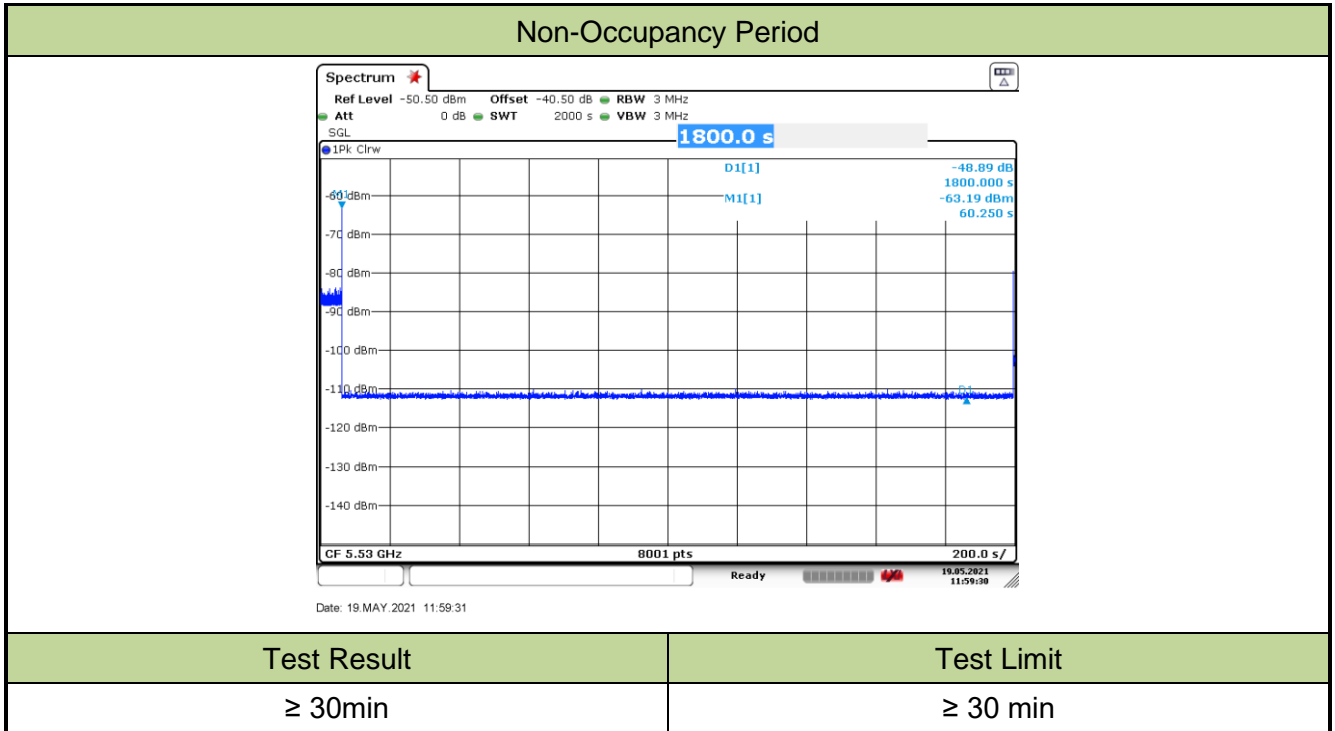
Product	ACCESS POINT	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/05/24
Test Item	Channel Move Time and Channel Closing Transmission Time		
Test Mode	Mesh Mode, 802.11ax-HE80 mode - 5530MHz		



Parameter	Test Result	Limit
Channel Move Time (s)	0.234s	<10s
Channel Closing Transmission Time (ms) (Note)	1.5ms	< 60ms

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.

Product	ACCESS POINT	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/05/19
Test Item	Non-Occupancy Period		



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%

Note: 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	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2020/05/22
Test Item	Radar Statistical Performance Check (802.11ax-HE20 – 5500MHz)		

Radar Type 1 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5490.4	1	558	95	1
2	5491	1	3066	18	1
3	5492	1	618	86	1
4	5500	1	598	89	1
5	5493	1	918	58	1
6	5494	1	698	76	1
7	5496	1	518	102	1
8	5495	1	638	83	1
9	5496	1	718	74	0
10	5504	1	778	68	1
11	5497	1	658	81	1
12	5498	1	758	70	1
13	5502	1	858	62	1
14	5499	1	678	78	1
15	5500	1	818	65	1
16	5492	1	2214	24	1
17	5501	1	602	88	1
18	5506	1	677	78	1
19	5502	1	2262	24	1
20	5503	1	2688	20	1
21	5504	1	1174	45	1
22	5494	1	1695	32	1
23	5505	1	1796	30	1
24	5506	1	1783	30	1
25	5508	1	2074	26	1
26	5507	1	761	70	1

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
27	5498	1	1613	33	1
28	5508	1	1250	43	1
29	5509	1	2964	18	1
30	5509.6	1	2242	24	1
Detection Percentage (%)					96.7%

Radar Type 2 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5490.4	4.6	181	25	1
2	5491	2.0	196	26	1
3	5492	2.1	158	27	0
4	5500	2.8	199	29	1
5	5493	4.2	226	27	1
6	5494	4.2	219	26	1
7	5509	3.8	209	28	1
8	5495	2.2	169	26	1
9	5496	1.6	218	25	1
10	5504	3.1	162	27	1
11	5497	1.8	150	23	0
12	5506	3.2	172	29	1
13	5508	1.5	155	25	0
14	5499	1.3	159	26	1
15	5500	1.9	219	26	1
16	5492	3.8	154	23	1
17	5501	2.2	226	24	1
18	5506	4.6	189	27	0
19	5502	2.6	220	29	1
20	5503	1.3	191	24	0
21	5504	3.4	166	28	1
22	5494	3.2	221	28	1
23	5505	3.1	174	28	1
24	5498	4.1	183	23	0
25	5502	2.6	174	27	1
26	5507	2.3	181	23	0
27	5498	3.8	195	24	1
28	5508	4.3	161	29	0
29	5496	1.1	205	27	1
30	5509.6	1.8	159	27	1
Detection Percentage (%)					73.3%

Radar Type 3 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5490.4	8.7	328	16	1
2	5491	6.2	466	17	1
3	5503	6.7	440	17	0
4	5500	9.3	264	18	1
5	5506	9.9	366	16	1
6	5508	6.5	374	17	1
7	5493	9.2	224	18	1
8	5495	9.2	371	16	1
9	5496	8.6	418	17	1
10	5504	6.2	348	17	0
11	5497	6.3	416	17	1
12	5498	6.9	452	18	1
13	5502	7.5	311	17	1
14	5499	8.7	346	17	1
15	5500	6.7	262	16	1
16	5492	6.7	378	18	0
17	5501	9.2	402	17	1
18	5506	6.1	363	16	1
19	5502	8.7	398	16	1
20	5492	6.3	409	18	0
21	5504	8.6	326	18	1
22	5494	7.3	397	18	0
23	5505	8.3	345	16	0
24	5507	8.9	305	16	0
25	5494	9.2	330	16	1
26	5496	6.8	211	18	1
27	5498	8.1	426	17	1
28	5508	9.0	234	17	1
29	5509	9.4	223	17	1
30	5509.6	7.4	365	17	1
Detection Percentage (%)					76.7%

Radar Type 4 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5490.4	15.1	255	13	1
2	5491	16.0	372	15	1
3	5503	12.2	483	12	1
4	5500	17.1	414	14	0
5	5493	16.2	353	14	1
6	5507	13.7	417	14	0
7	5494	12.7	428	14	1
8	5508	11.5	396	13	1
9	5496	18.7	244	12	1
10	5504	16.3	482	16	0
11	5501	14.3	201	15	1
12	5498	11.6	297	16	0
13	5502	20.0	201	16	1
14	5499	15.6	236	14	1
15	5500	16.3	448	12	1
16	5492	19.8	388	12	1
17	5497	11.7	377	13	1
18	5506	11.0	357	13	1
19	5502	14.3	454	13	1
20	5492	13.3	249	13	0
21	5504	17.7	278	15	1
22	5494	12.9	358	15	1
23	5505	15.8	240	13	1
24	5495	15.9	454	14	1
25	5506	20.0	222	13	1
26	5496	13.3	437	14	1
27	5509	12.8	391	15	0
28	5498	13.7	219	14	1
29	5508	14.4	293	15	0
30	5509.6	15.3	254	13	1
Detection Percentage (%)					76.7%

Note: In addition an average minimum percentage of successful detection across all four Short pulse radar test

waveforms is as follows: $\frac{P_d1 + P_d2 + P_d3 + P_d4}{4} = (96.7\% + 73.3\% + 76.7\% + 76.7\%) / 4 = 80.9\% (>80\%)$



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	1	16	5495.6	0
2	5500	1	17	5503.6	1
3	5500	1	18	5494.4	1
4	5500	1	19	5492.8	0
5	5500	1	20	5506.4	1
6	5500	1	21	5504.4	1
7	5500	1	22	5494.4	1
8	5500	1	23	5504.8	1
9	5500	1	24	5497.2	1
10	5500	1	25	5504.4	1
11	5492.8	1	26	5492.8	1
12	5498	1	27	5504.8	1
13	5504.4	1	28	5497.2	1
14	5507.2	1	29	5506.8	1
15	5493.2	1	30	5502	1
Detection Percentage (%)					93.3%

Type 5 Radar Waveform_1						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	67.8	15	1571		238.43
2	1	70.1	15			372.161
3	2	74.2	15	1966		558.632
4	3	60.5	15	1795	1893	8.273
5	1	77.6	15			414.114
6	1	78.4	15			396.395
7	2	73	15	1998		584.975
8	1	73.2	15			368.906
9	3	60.4	15	1801	1945	904.087
10	2	99.6	15	1983		863.218
11	2	80.1	15	1172		879.609



Type 5 Radar Waveform_2						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	63.2	18	1165		145.295
2	1	82.7	18			13.87
3	3	88.3	18	1172	1261	468.95
4	1	98.9	18			27.51
5	3	73.4	18	1797	1473	269.45
6	2	81	18	1393		850.92
7	2	73.8	18	1027		87.5
8	2	82.8	18	1089		202.62
9	2	56.6	18	1012		183.39
10	2	70.2	18	1846		216.04
11	3	56.5	18	1740	1750	840.4
12	1	92	18			763.2

Type 5 Radar Waveform_3						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	54	5	1853		588.634
2	2	79.2	5	1741		493.02
3	1	94.7	5			306.33
4	2	50	5	1398		122.35
5	3	76.7	5	1994	1920	520.64
6	2	93.4	5	1831		508.54
7	1	55.6	5			185.19
8	2	94	5	1107		300.72
9	2	76.3	5	1341		500.51
10	2	71.5	5	1236		492.68
11	2	71.1	5	1185		183.03
12	3	69.8	5	1177	1291	152.22
13	3	70	5	1506	1363	9.19
14	3	52.8	5	1254	1976	359.28
15	2	94.4	5	1908		386.42
16	3	90.7	5	1275	1111	524.57
17	2	92.2	5	1328		114.26
18	1	77.2	5			395.3
19	3	66.8	5	1214	1008	501.6
20	3	56.1	5	1345	1002	555.2

Type 5 Radar Waveform_4						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	81.9	16	1284		676.237
2	2	86.7	16	1195		420.41
3	2	96.5	16	1966		588.45
4	3	54.2	16	1384	1833	426.83
5	2	80.9	16	1136		606.13
6	1	57.7	16			563.31
7	2	50	16	1700		12.43
8	3	50.7	16	1052	1490	484.25
9	2	87.9	16	1206		180.25
10	2	83.1	16	1378		748.85
11	2	54.3	16	1240		530.76
12	2	79.6	16	1448		343.87
13	2	70.4	16	1117		568.1
14	2	94.3	16	1743		205
15	1	99	16			167.4



Type 5 Radar Waveform_5

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	1	63.4	17			394.109
2	3	77.8	17	1188	1192	792.381
3	2	80.8	17	1947		849.762
4	3	86.3	17	1344	1130	180.093
5	2	79.7	17	1959		746.334
6	2	67.2	17	1971		689.965
7	3	68.8	17	1107	1092	187.165
8	2	99.8	17	1783		200.386
9	1	67.4	17			107.247
10	1	77.5	17			239.518
11	1	78.5	17			543.509

Type 5 Radar Waveform_6

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	1	62.8	5			947.2
2	3	74	5	1625	1005	344.77
3	3	91.6	5	1756	1830	152.29
4	2	74.3	5	1316		992.03
5	3	51.7	5	1290	1703	43.8
6	1	50.7	5			541.91
7	2	74.5	5	1320		171.01
8	1	93.7	5			114.86
9	2	79.2	5	1703		957.77
10	2	83.3	5	1743		82.4
11	3	82.9	5	1602	1769	158.6
12	2	62.9	5	1763		575.4

Type 5 Radar Waveform_7

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	1	74.8	8			555.434
2	1	69.5	8			157.852
3	1	65.6	8			135.652
4	1	71.5	8			1.303
5	3	60.4	8	1785	1162	26.334
6	2	90	8	1297		275.025
7	3	57.1	8	1203	1441	585.496
8	2	67.2	8	1666		428.007
9	2	54	8	1985		336.948
10	2	81.8	8	1794		399.249
11	2	73.8	8	1663		390.351
12	3	73.5	8	1646	1736	303.252
13	2	71.5	8	1947		569.523
14	2	78.2	8	1815		259.524
15	3	77.9	8	1827	1158	199.305
16	1	95.1	8			42.266
17	1	97.8	8			442.537
18	2	64.2	8	1457		201.158
19	2	65.8	8	1433		613.779

Type 5 Radar Waveform_8

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	50.9	13	1109		1015.16
2	3	53.1	13	1377	1144	669.79
3	3	60.1	13	1944	1724	872.19
4	2	93.4	13	1589		94.25
5	2	64.9	13	1760		935.75
6	3	91.3	13	1819	1207	465.61
7	2	94.5	13	1158		720.39
8	1	70.1	13			368.21
9	3	88.3	13	1147	1653	492.3
10	2	83.3	13	1818		753.2

Type 5 Radar Waveform_9

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	1	50.6	13			158.277
2	2	63.4	13	1222		456.503
3	2	90.1	13	1335		843.126
4	3	81.8	13	1781	1897	759.249
5	1	90.5	13			691.562
6	2	65.7	13	1646		775.805
7	2	89	13	1837		673.768
8	3	53	13	1448	1774	528.982
9	2	90.3	13	1065		479.825
10	2	82.2	13	1151		383.738
11	3	60.7	13	1303	1922	451.201
12	2	66.2	13	1504		467.354
13	2	70.5	13	1322		136.777

Type 5 Radar Waveform_10

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	89.4	5	1545		50.665
2	1	85.4	5			688.03
3	2	73.9	5	1529		744.27
4	1	87.9	5			332.99
5	3	87.2	5	1680	1656	745.56
6	3	93.8	5	1918	1490	790.82
7	1	75.5	5			713.23
8	1	74	5			62.67
9	2	62.7	5	1729		91.51
10	2	50.9	5	1607		518
11	3	82.2	5	1774	1288	483.17
12	2	71	5	1704		73.61
13	2	83.2	5	1880		287.96
14	1	59.4	5			477.9
15	1	58.5	5			675.6



Type 5 Radar Waveform_11

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	3	61.3	6	1785	1148	648.366
2	1	93.8	6			120.717
3	2	51.6	6	1457		558.985
4	2	82.2	6	1739		299.323
5	2	95.4	6	1776		459.971
6	3	82.1	6	1494	1178	205.928
7	2	77.4	6	1616		472.696
8	2	92.7	6	1334		113.364
9	2	55.7	6	1819		296.141
10	2	55.4	6	1581		174.209
11	2	98.8	6	1339		466.846
12	2	57.6	6	1222		204.904
13	3	79.1	6	1803	1122	571.592
14	2	79.7	6	1278		11.479
15	2	64.7	6	1761		672.147
16	2	72.3	6	1342		130.065
17	2	67.9	6	1251		242.282

Type 5 Radar Waveform_12

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	1	99.3	19			1113.87
2	3	60.5	19	1753	1117	913.8
3	2	86.8	19	1618		1178.31
4	2	83.5	19	1031		214.19
5	2	97.7	19	1617		307.51
6	2	81.7	19	1329		481.32
7	2	71	19	1282		1107.77
8	2	83.2	19	1387		568.33
9	1	54.5	19			50.42
10	2	57	19	1250		1171.3

Type 5 Radar Waveform_13

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	100	17	1339		468.26
2	3	96.4	17	1025	1137	2.889
3	1	90.3	17			435.247
4	3	99.4	17	1743	1780	61.56
5	2	74.3	17	1163		162.933
6	2	93.4	17	1654		106.827
7	3	77.6	17	1185	1310	581.76
8	2	71.2	17	1867		604.823
9	2	99.2	17	1752		429.747
10	1	76.7	17			249.96
11	2	55.4	17	1273		603.053
12	3	73.8	17	1617	1357	559.637
13	3	70.1	17	1728	1415	578.6
14	2	76	17	1930		321.333
15	1	79.1	17			247.897
16	2	71.2	17	1713		442.8
17	3	68.9	17	1016	1831	55.333
18	2	59.4	17	1106		127.467

Type 5 Radar Waveform_14						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	59.7	10	1003		589.056
2	3	75.3	10	1588	1575	1249.27
3	3	80.6	10	1308	1387	898.58
4	2	59.1	10	1775		235.58
5	3	97.6	10	1452	1214	1355.22
6	2	87.8	10	1276		939.08
7	2	78.8	10	1938		1368.5
8	3	82.6	10	1135	1691	559.9

Type 5 Radar Waveform_15						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	64.9	7	1512		621.451
2	1	78.4	7			79.087
3	2	62.3	7	1714		594.433
4	1	67.8	7			1092.77
5	1	98	7			665.447
6	1	92.5	7			1295.773
7	3	74.3	7	1065	1697	1131.09
8	2	64.6	7	1558		565.077
9	1	72.1	7			400.333

Type 5 Radar Waveform_16						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	62.4	13	1071		1167.13
2	1	81.1	13			84.4
3	2	56.1	13	1437		1029.22
4	2	91.3	13	1207		1125.82
5	3	65	13	1119	1476	1168.31
6	2	65.6	13	1447		1038.67
7	3	51.9	13	1535	1460	1193.13
8	2	54.7	13	1889		645.21
9	3	71.6	13	1925	1581	299.62
10	2	77.9	13	1772		530

Type 5 Radar Waveform_17						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	75.9	6	1541		221.222
2	1	51.7	6			269.197
3	2	94.7	6	1506		39.724
4	3	84	6	1019	1163	144.931
5	3	71	6	1320	1375	564.379
6	2	54	6	1996		671.786
7	1	95.1	6			352.823
8	3	51.8	6	1462	1255	344.4
9	2	70.8	6	1768		57.997
10	2	63.9	6	1312		668.164
11	3	94.8	6	1382	1097	0.341
12	1	80.6	6			90.209
13	2	99.3	6	1554		491.686
14	1	85.2	6			468.143

Type 5 Radar Waveform_18						
Burst	Number of Pulses	Pulse Width (µsec)	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	1628		1032.07
2	2	57.7	10	1820		84.127
3	1	80.9	10			1262.903
4	3	77.4	10	1899	1773	1133.38
5	2	95.2	10	1932		1246.397
6	1	99.7	10			343.813
7	2	77.5	10	1445		704.65
8	2	63.1	10	1971		741.467
9	3	78.1	10	1881	1515	591.233

Type 5 Radar Waveform_19						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	1	87.5	6			866.986
2	2	54.5	6	1710		442.5
3	3	80.8	6	1616	1679	725.51
4	1	94.7	6			23.05
5	1	78.9	6			651.88
6	3	84.7	6	1311	1829	421.19
7	2	78.9	6	1178		1031.16
8	2	82.5	6	1433		653.31
9	2	51	6	1114		162.49
10	1	93.5	6			648.3

Type 5 Radar Waveform_20						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	1	93.3	17			645.792
2	3	69.2	17	1597	1536	374.77
3	3	81.5	17	1326	1310	1186.35
4	2	55.2	17	1883		96.64
5	1	62	17			757.72
6	3	65.7	17	1626	1050	177.3
7	2	64.7	17	1704		182.98
8	2	60	17	1945		277.05
9	3	55.6	17	1293	1865	22.29
10	2	64.3	17	1584		865.9
Type 5 Radar Waveform_21						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	96.6	7	1900		808.009
2	3	74.7	7	1916	1443	484.983
3	2	79	7	1236		153.856
4	2	85.1	7	1495		169.449
5	3	79	7	1136	1608	753.072
6	2	61.5	7	1819		88.015
7	2	87.7	7	1287		770.988
8	1	84.8	7			306.982
9	1	65.2	7			438.465
10	2	76.4	7	1818		420.788
11	1	67.6	7			754.201
12	3	73.6	7	1408	1572	249.054
13	2	90.1	7	1648		418.977
Type 5 Radar Waveform_22						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	53	13	1141		730.702
2	1	56.3	13			839.057
3	2	65.1	13	1624		1244.813
4	3	53.6	13	1058	1709	81.38
5	1	81.9	13			1097.857
6	2	59.4	13	1326		224.223
7	2	99.1	13	1780		395.23
8	3	58.6	13	1547	1103	58.097
9	3	98.9	13	1017	1166	1235.933



Type 5 Radar Waveform_23						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	90.8	12	1108		393.289
2	2	89.3	12	1027		422.85
3	2	56.8	12	1041		213.02
4	2	70.3	12	1707		59.43
5	2	98.2	12	1364		509.73
6	3	69.8	12	1275	1537	387.5
7	1	94.5	12			360.04
8	2	95.6	12	1237		472.8
9	2	66.3	12	1333		733.91
10	2	99.3	12	1038		284.56
11	3	72.7	12	1136	1553	264.26
12	1	58.5	12			578.46
13	2	65.5	12	1918		530.2
14	2	73.4	12	1185		616.9
15	2	60.7	12	1386		101.4
16	1	56	12			123.1

Type 5 Radar Waveform_24						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	80.8	8	1851		620.323
2	1	74.3	8			71.461
3	2	97.6	8	1561		234.815
4	3	87.1	8	1152	1256	559.573
5	2	60.4	8	1254		24.391
6	2	60	8	1451		465.268
7	2	59.2	8	1171		115.856
8	3	65.6	8	1212	1625	650.654
9	2	58.9	8	1454		557.901
10	1	60.8	8			460.749
11	3	76.9	8	1204	1302	631.846
12	2	59	8	1564		40.984
13	3	64.3	8	1082	1563	586.372
14	2	58.9	8	1257		692.519
15	2	79.4	8	1091		251.547
16	2	58.1	8	1352		424.065
17	2	54.7	8	1964		45.882

Type 5 Radar Waveform_25						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	78.7	13	1490		257.456
2	3	85.4	13	1594	1808	94.105
3	3	53.2	13	1999	1438	618.817
4	1	91.3	13			568.79
5	3	99.8	13	1385	1809	10.933
6	2	55.1	13	1552		124.887
7	1	92.9	13			232.3
8	3	88.7	13	1158	1453	60.283
9	1	57	13			25.797
10	1	72.6	13			195.11
11	3	60.6	13	1921	1705	242.603
12	3	84.4	13	1912	1934	200.317
13	3	83.6	13	1878	1464	134.97
14	1	85.9	13			624.283
15	2	73.3	13	1602		550.307
16	2	73	13	1311		92.6
17	3	97	13	1257	1801	531.633
18	2	65.2	13	1899		449.767

Type 5 Radar Waveform_26						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	64.1	15	1842		465.528
2	3	51.9	15	1610	1447	1420.77
3	3	53	15	1162	1890	1007.6
4	1	94	15			336.8
5	2	82.5	15	1125		1072.71
6	2	91.4	15	1630		1126.66
7	1	81.7	15			1293.5
8	3	53.5	15	1376	1545	289.6

Type 5 Radar Waveform_27						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	75.8	12	1828		1140.17
2	2	70.2	12	1448		476.28
3	3	96.1	12	1893	1064	592.39
4	1	89.7	12			550.35
5	2	93.7	12	1686		1132.85
6	2	87.2	12	1201		1022.41
7	3	88	12	1830	1016	749.59
8	2	62.9	12	1917		178.95
9	2	97.6	12	1569		232.9
10	3	74.8	12	1985	1335	346.1

Type 5 Radar Waveform_28						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	3	86.8	6	1914	1408	54.266
2	2	61.4	6	1755		720.451
3	2	59.7	6	1403		637.982
4	2	92.3	6	1360		903.063
5	2	77.3	6	1651		559.144
6	2	72	6	1585		195.625
7	1	61.6	6			657.325
8	2	91.5	6	1936		863.966
9	2	79.4	6	1384		888.947
10	1	99.7	6			252.218
11	2	77.5	6	1821		947.009



Type 5 Radar Waveform_29

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	72.5	13	1171		6.914
2	1	88.2	13			199.911
3	1	90.9	13			49.46
4	3	89.6	13	1300	1784	161.59
5	2	67.7	13	1496		283.16
6	2	78.3	13	1426		503.68
7	3	69.3	13	1628	1653	323.89
8	1	86.6	13			213.33
9	2	66.1	13	1772		589.15
10	3	72	13	1138	1937	93.72
11	2	77.4	13	1411		442.97
12	3	67	13	1847	1874	382.23
13	2	80.2	13	1257		1.71
14	1	79	13			224.78
15	2	80.1	13	1905		167.2
16	1	50.3	13			204.57
17	2	85.7	13	1826		76.87
18	1	86	13			534.5
19	3	67.6	13	1849	1228	173.3
20	1	86.2	13			326.8

Type 5 Radar Waveform_30

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	83.4	19	1631		303.98
2	2	62.1	19	1107		99.826
3	2	75.7	19	1913		41.48
4	2	80.9	19	1079		1.93
5	2	53.6	19	1958		491.91
6	2	64.4	19	1838		500.88
7	3	93.8	19	1769	1501	561.42
8	2	56.2	19	1309		430.34
9	2	89.5	19	1907		286.06
10	3	89	19	1391	1449	614.12
11	1	81.1	19			302.3
12	2	71.1	19	1682		364.86
13	3	62.2	19	1378	1481	406.05
14	1	82.3	19			597.5
15	2	71.3	19	1411		99.4
16	2	98.6	19	1481		360.3

Radar Type 6 - Radar Statistical Performance

Trail #	1=Detection 0=No Detection	Trail #	1=Detection 0=No Detection
1	1	16	1
2	1	17	1
3	1	18	1
4	1	19	0
5	1	20	1
6	1	21	1
7	0	22	1
8	1	23	1
9	1	24	1
10	1	25	0
11	1	26	1
12	1	27	0
13	1	28	1
14	1	29	1
15	1	30	1
Detection Percentage (%)		86.7%	

Radar waveform #1			Radar waveform #2		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5504	15	29	5491	87
17	5497	51	36	5493	108
32	5493	96	47	5506	141
42	5509	126	49	5492	147
--	--	--	57	5503	171

Radar waveform #3			Radar waveform #4		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
12	5490	36	18	5495	54
72	5503	216	68	5493	204
--	--	--	74	5499	222
--	--	--	99	5500	297

Radar waveform #5			Radar waveform #6		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
42	5505	126	5	5495	15
58	5498	174	12	5507	36
59	5503	177	26	5500	78
64	5508	192	56	5501	168
71	5504	213	89	5505	267
89	5510	267	90	5493	270
--	--	--	93	5503	279

Radar waveform #7			Radar waveform #8		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
60	5499	180	23	5501	69
--	--	--	59	5495	177
--	--	--	76	5492	228
--	--	--	90	5504	270

Radar waveform #9			Radar waveform #10		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
27	5509	81	2	5498	6
46	5490	138	17	5510	51
58	5493	174	38	5509	114
63	5504	189	74	5499	222
80	5510	240	76	5505	228
90	5498	270	95	5504	285
99	5491	297	--	--	--

Radar waveform #11			Radar waveform #12		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Frequency (MHz)	Hopping Number	Pulse Start (ms)
49	5509	147	29	5508	87
73	5490	219	79	5506	237
81	5507	243	97	5496	291
91	5502	273	98	5502	294

Radar waveform #13			Radar waveform #14		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
16	5509	48	3	5494	9
--	--	--	32	5490	96
--	--	--	46	5499	138
--	--	--	58	5510	174
--	--	--	79	5507	237

Radar waveform #15			Radar waveform #16		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5504	15	39	5510	117
38	5507	114	89	5504	267
64	5501	192	94	5497	282
99	5494	297	96	5491	288

Radar waveform #17			Radar waveform #18		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
22	5507	66	3	5505	9
26	5499	78	26	5504	78
37	5495	111	30	5507	90
63	5497	189	63	5502	189
81	5503	243	71	5492	213
--	--	--	77	5497	231

Radar waveform #19			Radar waveform #20		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
39	5503	117	2	5508	6
--	--	--	5	5507	15
--	--	--	58	5501	174
--	--	--	77	5509	231

Radar waveform #21			Radar waveform #22		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
27	5496	81	20	5492	60
28	5505	84	29	5500	87
79	5499	237	32	5508	96
87	5495	261	56	5501	168
98	5508	294	--	--	--

Radar waveform #23			Radar waveform #24		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
34	5500	102	2	5500	6
38	5509	114	18	5497	54
66	5491	198	30	5492	90
--	--	--	32	5504	96
--	--	--	69	5498	207
--	--	--	87	5490	261

Radar waveform #25			Radar waveform #26		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
7	5503	21	21	5496	63
--	--	--	23	5507	69
--	--	--	42	5492	126
--	--	--	45	5509	135
--	--	--	46	5490	138
--	--	--	89	5495	267
--	--	--	92	5499	276
--	--	--	99	5505	297

Radar waveform #27			Radar waveform #28		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5506	9	10	5490	30
--	--	--	42	5492	126
--	--	--	93	5510	279

Radar waveform #29			Radar waveform #30		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
21	5495	63	58	5493	174
37	5490	111	65	5509	195
47	5492	141	68	5503	204
--	--	--	93	5510	279
--	--	--	100	5492	300



Product	ACCESS POINT	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2020/05/22
Test Item	Radar Statistical Performance Check (802.11ax-HE40 mode – 5510MHz)		

Radar Type 1 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	1	798	67	1
2	5511	1	1491	36	1
3	5494	1	558	95	1
4	5513	1	819	65	1
5	5526	1	3027	18	1
6	5498	1	898	59	1
7	5516	1	1590	34	1
8	5500	1	538	98	1
9	5501	1	878	61	1
10	5520	1	711	75	1
11	5504	1	678	78	1
12	5522	1	2834	19	1
13	5507	1	638	83	1
14	5508	1	938	57	1
15	5528	1	990	54	1
16	5492	1	858	62	1
17	5512	1	2736	20	1
18	5495	1	698	76	1
19	5521	1	1249	43	1
20	5499	1	658	81	1
21	5517	1	731	73	1
22	5519	1	1725	31	1
23	5505	1	578	92	1
24	5496	1	618	86	1
25	5503	1	598	89	1
26	5524	1	1588	34	1

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
27	5525	1	879	60	1
28	5515	1	924	58	1
29	5509	1	838	63	1
30	5529	1	1145	47	1
Detection Percentage (%)					100%

Radar Type 2 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	4.9	215	26	1
2	5511	1.3	210	24	0
3	5494	3.8	180	25	1
4	5516	1.2	204	28	0
5	5526	1.6	222	24	0
6	5498	4.8	212	26	1
7	5529	1.6	214	25	1
8	5500	3.9	213	29	1
9	5513	4.5	155	27	1
10	5503	4.9	226	25	1
11	5522	1.9	193	26	1
12	5525	5	154	24	1
13	5507	1.1	177	29	1
14	5520	1.3	150	24	1
15	5509	1	174	29	1
16	5495	1.8	163	25	1
17	5512	1.2	165	24	1
18	5501	4.2	176	24	0
19	5515	1.7	180	26	1
20	5492	2.9	163	26	1
21	5517	4.4	228	25	0
22	5508	3.9	192	25	1
23	5521	3.6	150	26	1
24	5519	2.7	206	26	1
25	5505	1.2	213	25	1
26	5524	2.4	215	26	1
27	5504	4.5	177	28	1
28	5496	2.4	156	26	0
29	5528	4.4	230	24	1
30	5499	2	160	26	1
Detection Percentage (%)					80%

Radar Type 3 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	8.4	419	17	1
2	5512	8.7	441	17	1
3	5520	9.7	291	18	1
4	5495	6.2	500	17	1
5	5522	6.2	306	17	1
6	5498	6.3	493	17	1
7	5515	9	384	16	0
8	5500	6.3	470	18	1
9	5528	8.8	279	17	1
10	5516	8.6	459	18	1
11	5504	7.5	287	17	1
12	5524	10	332	17	1
13	5508	6.1	216	16	1
14	5526	10	224	17	0
15	5509	6.9	494	17	0
16	5511	6.6	429	16	0
17	5492	7.2	455	17	1
18	5513	9.9	265	18	1
19	5503	7.5	460	17	1
20	5499	9.1	251	16	1
21	5517	7.8	399	17	1
22	5519	8.5	391	18	1
23	5494	9	475	17	1
24	5521	7	296	17	1
25	5505	6.5	361	18	1
26	5496	7.2	206	18	1
27	5525	6.9	428	16	1
28	5501	6.5	402	17	1
29	5507	8.9	204	16	0
30	5529	7	289	17	1
Detection Percentage (%)					83.3%

Radar Type 4 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	14.5	279	14	0
2	5511	18.8	326	14	1
3	5517	16.4	463	15	0
4	5525	15.3	492	15	1
5	5496	19.7	429	12	1
6	5520	18	290	13	0
7	5499	18.7	305	16	0
8	5526	14.4	292	12	1
9	5512	11.4	254	15	1
10	5528	15.6	468	13	1
11	5504	13.3	435	13	1
12	5522	19.1	311	13	0
13	5515	12.9	230	15	1
14	5505	17.1	431	14	0
15	5509	12.9	378	15	0
16	5501	12.3	252	13	1
17	5492	13	301	16	1
18	5513	17.9	237	14	1
19	5508	16.5	340	16	0
20	5516	14.5	464	14	1
21	5498	13.1	252	12	1
22	5519	14.7	342	15	1
23	5494	17.9	341	13	1
24	5521	11	273	12	1
25	5507	18	316	13	1
26	5524	19.6	430	15	1
27	5495	16.4	419	16	1
28	5500	16.5	422	14	1
29	5503	17.6	487	12	1
30	5529	17.3	270	14	1
Detection Percentage (%)					73.3%

Note: In addition an average minimum percentage of successful detection across all four Short pulse radar test

waveforms is as follows: $\frac{P_d1+P_d2+P_d3+P_d4}{4} = (100\%+80\%+83.3\%+73.3\%)/4 = 84.2\% (>80\%)$

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	1	16	5523.8	1
2	5510	1	17	5499	1
3	5510	1	18	5525.4	1
4	5510	1	19	5497.4	1
5	5510	1	20	5493	1
6	5510	1	21	5495.8	1
7	5510	1	22	5523.4	1
8	5510	1	23	5494.6	1
9	5510	1	24	5526.2	1
10	5510	1	25	5522.2	1
11	5497.8	1	26	5498.6	1
12	5524.2	1	27	5523	1
13	5526.6	1	28	5494.6	1
14	5522.2	1	29	5524.6	1
15	5493.8	1	30	5495.8	1
Detection Percentage (%)					100%

Type 5 Radar Waveform_1						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	1	74	20			1061.1
2	2	62.7	20	1039		747.54
3	2	90.1	20	1502		944.38
4	2	95.1	20	1134		891.98
5	1	75.1	20			462.62
6	3	99	20	1728	1557	762.55
7	3	94.5	20	1917	1495	1247.8
8	3	93	20	1690	1143	454.3



Type 5 Radar Waveform_2

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	68.7	9	1844		106.581
2	2	57.4	9	1939		1008.237
3	3	52	9	1063	1692	947.693
4	2	93.6	9	1827		631.02
5	1	57.6	9			344.077
6	2	66.3	9	1246		261.213
7	2	79	9	1143		225.6
8	2	53.5	9	1442		429.567
9	3	77.6	9	1193	1570	464.933

Type 5 Radar Waveform_3

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	3	85.1	11	1363	1420	391.458
2	3	76.9	11	1698	1992	699.973
3	2	70.2	11	1341		523.646
4	1	75.2	11			416.409
5	3	70.6	11	1671	1718	99.112
6	2	86	11	1046		750.365
7	2	96.6	11	1714		738.798
8	2	62.5	11	1773		744.042
9	1	99.1	11			383.695
10	2	85.6	11	1195		625.068
11	2	56.4	11	1195		869.831
12	1	59.2	11			405.354
13	2	82.9	11	1953		90.477

Type 5 Radar Waveform_4

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	50.8	17	1694		156.54
2	2	99.3	17	1557		241.39
3	3	54	17	1772	1573	470.637
4	1	98.9	17			431.16
5	2	50.2	17	1355		612.143
6	2	54.1	17	1634		216.487
7	3	59.7	17	1309	1569	132.22
8	2	65.5	17	1770		209.363
9	3	81.7	17	1731	1545	651.847
10	2	71.7	17	1149		8.61
11	2	74.1	17	1197		73.053
12	2	93.5	17	1428		143.067
13	2	58.5	17	1362		138
14	2	65	17	1320		247.343
15	2	64	17	1557		660.647
16	2	65.3	17	1648		604.2
17	3	79.2	17	1116	1157	352.533
18	2	73.5	17	1624		300.667



Type 5 Radar Waveform_5

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	85.7	6	1409		564.004
2	1	79.8	6			731.02
3	2	50.9	6	1101		120.61
4	1	83.6	6			232.39
5	2	53.1	6	1458		376.23
6	3	75.7	6	1076	1847	74.59
7	2	67.4	6	1506		694.29
8	1	69.6	6			141.92
9	1	50.1	6			378.47
10	3	79.3	6	1217	1129	428.99
11	2	63.8	6	1660		160.72
12	2	91	6	1350		557.65
13	2	88.1	6	1513		594.41
14	2	56.7	6	1869		364.7
15	2	98.4	6	1745		87.1
16	2	66.2	6	1628		585.5

Type 5 Radar Waveform_6

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	3	98.3	17	1919	1101	627.198
2	2	74.5	17	1779		530.733
3	3	71.4	17	1624	1465	144.847
4	2	62.1	17	1109		57.31
5	2	72.6	17	1701		627.003
6	1	87.3	17			93.147
7	2	81.9	17	1324		482.72
8	2	76.5	17	1196		203.533
9	2	74	17	1879		420.757
10	2	82.5	17	1594		581.44
11	1	79.5	17			499.493
12	1	65.3	17			202.367
13	2	81.8	17	1886		18.44
14	2	84.4	17	1601		384.833
15	2	90.2	17	1061		621.207
16	2	72.8	17	1819		366.4
17	3	88.2	17	1843	1908	230.633
18	2	87.7	17	1829		235.067

Type 5 Radar Waveform_7

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	61.8	20	1555		306.357
2	1	53.4	20			297.53
3	2	94.3	20	1213		788.32
4	1	54.3	20			208.19
5	1	54.1	20			661.91
6	3	98.3	20	1474	1503	568.85
7	1	94.2	20			683.76
8	1	57.6	20			334.46
9	1	75.4	20			735.36
10	3	53.5	20	1288	1025	293.6
11	1	89.7	20			408.86
12	3	87.9	20	1473	1956	285.23
13	2	55.1	20	1409		192.78
14	3	50.6	20	1822	1291	335
15	1	86.1	20			505.2



Type 5 Radar Waveform_8

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	75.1	15	1699		797.067
2	2	96	15	1206		465.607
3	2	68.5	15	1706		1040.673
4	1	51.5	15			961.81
5	1	80.2	15			898.207
6	2	73.1	15	1407		363.643
7	3	51.5	15	1030	1764	439.27
8	2	64.3	15	1254		805.967
9	2	93.8	15	1687		852.733

Type 5 Radar Waveform_9

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	56.3	19	1438		79.912
2	2	92.5	19	1681		504.4
3	2	67.8	19	1992		297.67
4	2	87.5	19	1134		766.65
5	2	81.2	19	1207		739.58
6	3	76.6	19	1707	1821	329.26
7	1	96.3	19			749.13
8	1	75.3	19			613.46
9	3	63	19	1714	1521	564.78
10	2	68.6	19	1082		187.75
11	3	65.3	19	1661	1043	599.75
12	2	55.7	19	1856		436.07
13	2	93.5	19	1952		231.07
14	2	53	19	1882		220.3
15	1	56.7	19			398.5

Type 5 Radar Waveform_10

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	93.4	11			30.608
2	1	70.4	11	1945		4.638
3	1	59.5	11			162.247
4	1	70.2	11			171.77
5	2	63.6	11	1636		332.823
6	2	86.4	11	1960		508.277
7	2	76.1	11	1190		43.5
8	2	53.5	11	1427		532.363
9	2	72.4	11	1817		537.627
10	1	88.3	11			384.71
11	2	87.7	11	1743		171.023
12	2	59.4	11	1674		619.897
13	1	87.6	11			646.12
14	1	66	11			599.243
15	2	55.5	11	1163		194.597
16	2	58	11	1973		390.8
17	2	94.2	11	1980		222.633
18	2	54.9	11	1722		656.667



Type 5 Radar Waveform_11						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	96.8	17	1838		573.229
2	3	72.1	17	1668	1813	659.258
3	3	63.5	17	1459	1961	386.705
4	2	54	17	1270		562.653
5	1	57.6	17			98.131
6	1	81.6	17			627.288
7	1	93.9	17			232.746
8	1	84.8	17			658.194
9	2	91.1	17	1500		656.801
10	2	75.4	17	1190		112.759
11	2	79.3	17	1703		563.196
12	3	50.6	17	1034	1446	679.114
13	1	67.3	17			589.022
14	2	84.9	17	1941		582.279
15	3	60.8	17	1453	1717	635.747
16	1	91.3	17			75.665
17	3	60.4	17	1480	1438	241.882

Type 5 Radar Waveform_12						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	79.4	12	1282		108.66
2	1	99.5	12			451.543
3	1	98.7	12			497.137
4	2	94.9	12	1359		300.15
5	2	65.9	12	1337		553.633
6	2	65.8	12	1781		114.737
7	2	54.5	12	1886		364.85
8	2	76.9	12	1900		292.523
9	1	92.5	12			25.147
10	2	73.3	12	1938		96.42
11	2	84	12	1817		231.573
12	3	80.5	12	1357	1502	326.897
13	2	98.3	12	1239		543.71
14	2	55	12	1378		75.863
15	2	59.1	12	1314		43.147
16	2	69	12	1920		365.5
17	2	87.1	12	1930		533.033
18	2	87.4	12	1453		377.967

Type 5 Radar Waveform_13						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	52.8	19	1950		158.703
2	1	56.2	19			266.327
3	3	98.2	19	1202	1292	432.954
4	2	59.8	19	1263		468.771
5	2	81.6	19	1190		464.699
6	3	50	19	1786	1231	126.526
7	2	69.7	19	1784		159.633
8	2	95.7	19	1494		159.99
9	1	86.6	19			230.327
10	2	61.1	19	1118		222.584
11	1	72.2	19			758.101
12	2	98.6	19	1159		236.429
13	2	59.7	19	1534		511.686
14	2	96.6	19	1723		379.443



Type 5 Radar Waveform_14

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	3	76.8	12	1391	1668	416.536
2	3	61.7	12	1549	1741	82.15
3	1	93.7	12			245.957
4	3	82.7	12	1061	1875	212.83
5	2	86.4	12	1496		643.553
6	1	83	12			183.517
7	3	62.1	12	1392	1851	238.98
8	1	72.7	12			574.003
9	1	69	12			338.917
10	1	68.1	12			643.08
11	1	78.4	12			617.343
12	3	59.5	12	1879	1914	109.317
13	2	72.7	12	1761		604.42
14	2	80.6	12	1332		403.523
15	1	88.7	12			220.697
16	1	89.2	12			436
17	3	90.1	12	1532	1668	389.633
18	3	53.8	12	1332	1649	606.167

Type 5 Radar Waveform_15

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	59.8	7	1908		568.838
2	1	50.9	7			80.371
3	1	54.5	7			218.432
4	2	95.7	7	1326		94.423
5	3	80.8	7	1129	1147	578.284
6	3	97.7	7	1490	1599	463.615
7	1	70.9	7			119.996
8	2	81.5	7	1253		414.977
9	2	52.3	7	1766		342.488
10	2	52.9	7	1890		371.989
11	1	85.2	7			20.411
12	2	53.6	7	1822		156.572
13	3	72.6	7	1201	1995	110.273
14	2	89.2	7	1289		525.954
15	3	52.8	7	1683	1619	512.765
16	2	60.4	7	1760		410.586
17	2	50.8	7	1800		432.837
18	3	67.7	7	1063	1748	57.658
19	1	70.6	7			90.079

Type 5 Radar Waveform_16

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	61.4	9	1087		587.798
2	2	96.6	9	1143		287.547
3	2	87.6	9	1304		412.584
4	2	80.6	9	1587		104.711
5	2	82.7	9	1054		368.819
6	3	92.6	9	1234	1276	176.386
7	2	94.9	9	1644		273.353
8	1	99.9	9			390.45
9	2	59.1	9	1911		687.137
10	1	74.9	9			116.794
11	1	56.5	9			409.581
12	2	67.1	9	1411		464.699
13	2	78.9	9	1930		240.186
14	2	52.5	9	1215		88.943



Type 5 Radar Waveform_17

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	98.3	20	1082		317.996
2	2	76.1	20	1363		378.403
3	1	81.4	20			333.907
4	3	54.6	20	1732	1228	539.52
5	3	58.1	20	1542	1056	331.383
6	2	50.3	20	1376		87.747
7	2	53	20	1256		418.5
8	2	59	20	1727		619.833
9	2	83.9	20	1594		581.097
10	2	57.5	20	1154		395.18
11	2	97.7	20	1717		570.493
12	3	52.9	20	1269	1946	153.237
13	2	97.3	20	1480		409.4
14	2	65.2	20	1014		326.503
15	2	72.6	20	1975		364.907
16	2	85.5	20	1259		573
17	2	61.9	20	1101		580.833
18	2	86.2	20	1396		402.867

Type 5 Radar Waveform_18

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	68.4	9	1761		593.592
2	2	64.4	9	1732		636.94
3	3	55.2	9	1655	1167	545.42
4	2	75.3	9	1046		688.6
5	1	51.7	9			421.57
6	2	82.8	9	1871		691.75
7	1	79.1	9			657.38
8	3	50.3	9	1768	1519	408.38
9	3	52.4	9	1098	1526	680.65
10	2	89.4	9	1266		429.87
11	1	77.1	9			58.15
12	3	88.5	9	1852	1804	742.58
13	1	73.9	9			165.05
14	1	55.7	9			57.71
15	3	59.5	9	1490	1023	272.5
16	2	99.4	9	1237		540.7

Type 5 Radar Waveform_19

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	81.1	16	1380		1041.02
2	1	81.9	16			681.48
3	2	57	16	1113		690.31
4	1	52.6	16			212.74
5	3	87	16	1594	1849	359.15
6	2	63.7	16	1902		618.13
7	2	54	16	1182		1141.02
8	2	74	16	1428		555.26
9	1	70	16			389.11
10	2	77.3	16	1432		631.4



Type 5 Radar Waveform_20

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	61.6	5	1781		101.626
2	1	54.8	5			355.823
3	3	87.2	5	1750	1614	607.557
4	2	74.6	5	1539		124.21
5	2	63.3	5	1671		225.903
6	2	75.1	5	1782		329.887
7	2	67.3	5	1105		244.52
8	1	54.6	5			539.153
9	3	94	5	1452	1219	514.317
10	3	89.6	5	1482	1300	92.28
11	2	95.9	5	1969		178.423
12	2	73	5	1029		380.087
13	2	71.6	5	1540		165.45
14	1	85.9	5			407.623
15	2	51.3	5	1473		61.417
16	2	84.7	5	1274		469.4
17	2	73.3	5	1339		280.033
18	1	50.1	5			540.367

Type 5 Radar Waveform_21

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	1	86.9	6			119.353
2	3	56.6	6	1917	1359	1197.507
3	2	79.7	6	1536		85.893
4	3	99.8	6	1075	1881	50.97
5	2	66.4	6	1029		1178.687
6	2	62.2	6	1736		400.293
7	2	85.9	6	1305		592.93
8	3	96.4	6	1566	1695	76.697
9	2	86.2	6	1901		260.633

Type 5 Radar Waveform_22

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	3	99.8	14	1294	1173	91.416
2	2	95.4	14	1562		190.279
3	1	100	14			651.345
4	2	65.5	14	1581		148.593
5	2	81.4	14	1719		588.871
6	1	74.4	14			453.158
7	2	98.6	14	1367		435.186
8	3	79.6	14	1683	1894	696.484
9	3	55.8	14	1421	1087	606.671
10	1	56.4	14			200.469
11	1	64	14			221.126
12	1	67.5	14			345.194
13	1	86.5	14			429.322
14	2	94.9	14	1070		555.709
15	1	76.4	14			669.047
16	2	58.9	14	1545		525.165
17	2	73.9	14	1834		31.582



Type 5 Radar Waveform_23						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	54.8	9	1296		265.3
2	2	65.9	9	1381		101.332
3	3	69.6	9	1044	1717	349.31
4	2	78.4	9	1502		161.8
5	2	76.5	9	1415		716.79
6	3	99.7	9	1159	1340	432.41
7	2	55.7	9	1595		547
8	2	91.8	9	1767		612.1
9	3	71.2	9	1068	1156	39.01
10	2	90.9	9	1095		640.08
11	2	77.6	9	1636		46.05
12	1	80	9			48.25
13	1	85.1	9			436.4
14	1	64.8	9			133.9
15	2	89.9	9	1997		55

Type 5 Radar Waveform_24						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	55.9	7	1847		49.847
2	3	66.7	7	1331	1991	243.643
3	2	54.9	7	1831		9.86
4	2	79.3	7	1744		594.1
5	1	64.9	7			210.22
6	3	63.6	7	1076	1480	682.36
7	2	51.9	7	1177		710.25
8	2	50.8	7	1528		534.81
9	2	95.5	7	1247		10.44
10	2	71.1	7	1711		25.26
11	2	78.7	7	1322		282.05
12	1	78	7			482.65
13	2	88.4	7	1172		435.92
14	3	89.3	7	1790	1428	262.4
15	2	80.1	7	1804		190.8
16	1	89.7	7			318.8

Type 5 Radar Waveform_25						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	1	99.8	17			816.603
2	3	67	17	1088	1376	536.767
3	2	89.1	17	1572		499.403
4	2	63.6	17	1071		952.2
5	1	75.7	17			115.627
6	2	51.8	17	1177		411.893
7	3	81	17	1014	1442	1289.95
8	2	99.6	17	1125		990.167
9	2	86.9	17	1195		1108.233



Type 5 Radar Waveform_26						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	76.8	12	1901		694.43
2	2	70.7	12	1250		405.45
3	3	64.7	12	1970	1624	285.24
4	2	79.7	12	1793		257.15
5	1	90.8	12			894.65
6	1	51.5	12			220.07
7	2	62.1	12	1643		322.62
8	2	84.5	12	1469		511.07
9	2	94.1	12	1805		209.08
10	2	97.2	12	1898		9.12
11	2	66.2	12	1280		408.9
12	1	99.9	12			145.3

Type 5 Radar Waveform_27						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	58.9	15	1957		126.89
2	2	81.8	15	1123		822.501
3	3	68.3	15	1014	1442	167.752
4	1	92.3	15			301.673
5	2	96.7	15	1537		607.544
6	2	91.1	15	1491		344.175
7	1	63.3	15			555.415
8	3	85.1	15	1058	1621	357.026
9	3	54.8	15	1868	1508	974.267
10	2	94.7	15	1387		175.648
11	1	55.7	15			1058.909

Type 5 Radar Waveform_28						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	80.3	13	1314		1225.45
2	2	85.3	13	1186		421.597
3	1	65.4	13			915.403
4	2	90.3	13	1709		1015.16
5	3	62	13	1426	1681	875.827
6	2	78.5	13	1070		315.513
7	3	61	13	1147	1444	190.36
8	2	94	13	1781		1002.567
9	3	83.8	13	1206	1073	105.733



Type 5 Radar Waveform_29						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	81.7	11	1464		429.216
2	1	56.6	11			580.251
3	3	82.3	11	1217	1106	712.932
4	1	81.3	11			168.483
5	2	61.4	11	1774		564.594
6	2	86.9	11	1766		1064.425
7	1	89.7	11			251.155
8	1	50.4	11			612.856
9	2	93.8	11	1595		1000.147
10	2	83.1	11	1579		1074.918
11	2	86.1	11	1583		797.809

Type 5 Radar Waveform_30						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	97	17	1139		1170.66
2	3	57.7	17	1719	1092	117.24
3	2	75	17	1655		947.41
4	1	59.6	17			891.82
5	3	54.9	17	1684	1989	788.94
6	2	90.8	17	1896		315.65
7	3	97.1	17	1018	1874	282.38
8	2	51.2	17	1357		912.05
9	3	97.1	17	1928	1065	283.54
10	2	61.2	17	1643		1102.5



Radar Type 6 - Radar Statistical Performance

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

Radar waveform #1			Radar waveform #2		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
11	5529	33	15	5519	45
28	5512	84	21	5514	63
29	5526	87	42	5526	126
33	5528	99	46	5505	138
59	5511	177	52	5496	156
61	5499	183	69	5529	207
63	5521	189	99	5508	297
72	5522	216	--	--	--



Radar waveform #3			Radar waveform #4		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
24	5529	72	29	5518	87
31	5508	93	31	5500	93
36	5518	108	36	5503	108
48	5506	144	47	5508	141
50	5530	150	56	5509	168
52	5504	156	61	5496	183
59	5525	177	90	5520	270
90	5523	270	94	5501	282

Radar waveform #5			Radar waveform #6		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5507	15	3	5517	9
9	5519	27	9	5493	27
15	5504	45	45	5521	135
51	5500	153	50	5497	150
55	5517	165	55	5509	165
75	5521	225	56	5523	168
82	5525	246	82	5505	246
100	5509	300	--	--	--

Radar waveform #7			Radar waveform #8		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
10	5505	30	2	5492	6
27	5528	81	20	5526	60
66	5498	198	21	5517	63
71	5521	213	42	5490	126
77	5522	231	69	5504	207
85	5497	255	74	5506	222
98	5524	294	78	5522	234
--	--	--	84	5502	252



Radar waveform #9			Radar waveform #10		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
11	5524	33	10	5503	30
13	5526	39	17	5509	51
25	5513	75	20	5513	60
36	5512	108	67	5501	201
40	5492	120	77	5494	231
41	5498	123	89	5504	267
49	5525	147	91	5518	273
60	5503	180	95	5524	285
74	5523	222	--	--	--
81	5493	243	--	--	--
89	5517	267	--	--	--

Radar waveform #11			Radar waveform #12		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5522	9	10	5512	30
16	5500	48	20	5514	60
17	5526	51	38	5508	114
67	5494	201	52	5518	156
72	5492	216	54	5492	162
79	5490	237	62	5499	186
95	5524	285	66	5497	198
99	5528	297	87	5516	261
--	--	--	93	5505	279
--	--	--	97	5522	291



Radar waveform #13			Radar waveform #14		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
26	5505	78	6	5512	18
33	5530	99	22	5499	66
35	5503	105	32	5523	96
49	5529	147	46	5521	138
50	5495	150	60	5516	180
60	5523	180	68	5510	204
75	5506	225	88	5526	264
77	5517	231	93	5505	279
96	5524	288	--	--	--

Radar waveform #15			Radar waveform #16		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
24	5506	72	17	5501	51
29	5515	87	33	5509	99
43	5517	129	38	5527	114
54	5513	162	54	5502	162
56	5499	168	56	5493	168
57	5496	171	58	5511	174
58	5493	174	62	5494	186
60	5491	180	63	5528	189
71	5526	213	74	5513	222
73	5502	219	84	5529	252
77	5516	231	96	5505	288
83	5512	249	--	--	--
86	5492	258	--	--	--
96	5500	288	--	--	--

Radar waveform #17			Radar waveform #18		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
16	5497	48	29	5502	87
19	5517	57	50	5527	150
21	5495	63	66	5492	198
31	5505	93	73	5507	219
35	5518	105	--	--	--
36	5490	108	--	--	--
42	5522	126	--	--	--
47	5502	141	--	--	--
49	5525	147	--	--	--
72	5523	216	--	--	--
76	5516	228	--	--	--
94	5492	282	--	--	--

Radar waveform #19			Radar waveform #20		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5501	9	5	5507	15
21	5498	63	11	5519	33
53	5507	159	15	5493	45
56	5492	168	32	5514	96
76	5497	228	51	5510	153
78	5513	234	61	5509	183
86	5494	258	63	5513	189
98	5504	294	65	5511	195
99	5525	297	78	5512	234
--	--	--	82	5525	246



Radar waveform #21			Radar waveform #22		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
6	5501	18	1	5520	3
8	5518	24	3	5490	9
12	5502	36	15	5494	45
27	5504	81	21	5508	63
35	5523	105	69	5530	207
40	5510	120	72	5500	216
44	5524	132	97	5505	291
58	5492	174	--	--	--
64	5503	192	--	--	--
80	5527	240	--	--	--
81	5513	243	--	--	--
95	5515	285	--	--	--

Radar waveform #23			Radar waveform #24		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5517	3	17	5504	51
6	5501	18	32	5515	96
7	5506	21	33	5516	99
14	5518	42	55	5517	165
26	5505	78	60	5511	180
30	5490	90	75	5498	225
32	5513	96	83	5518	249
38	5491	114	95	5508	285
39	5526	117	--	--	--
41	5512	123	--	--	--
52	5509	156	--	--	--
53	5522	159	--	--	--
64	5502	192	--	--	--
65	5503	195	--	--	--
66	5497	198	--	--	--
67	5504	201	--	--	--
86	5492	258	--	--	--

Radar waveform #25			Radar waveform #26		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
25	5503	75	9	5512	27
29	5498	87	25	5518	75
38	5519	114	35	5500	105
52	5491	156	40	5517	120
72	5529	216	43	5507	129
89	5504	267	51	5503	153
93	5526	279	62	5494	186
96	5494	288	74	5529	222
--	--	--	78	5514	234
--	--	--	80	5493	240
--	--	--	84	5526	252
--	--	--	93	5492	279

Radar waveform #27			Radar waveform #28		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
10	5519	30	16	5497	48
40	5497	120	25	5517	75
49	5494	147	42	5512	126
73	5495	219	57	5492	171
79	5515	237	60	5514	180
84	5520	252	69	5525	207
--	--	--	74	5530	222
--	--	--	84	5503	252

Radar waveform #29			Radar waveform #30		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5513	6	19	5492	57
6	5499	18	21	5516	63
35	5503	105	46	5518	138
54	5490	162	50	5499	150
63	5521	189	56	5519	168
73	5493	219	63	5523	189
77	5509	231	67	5511	201
79	5500	237	72	5512	216
--	--	--	85	5493	255



Product	ACCESS POINT	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2020/05/23
Test Item	Radar Statistical Performance Check (802.11ax-HE80 mode – 5530MHz)		

Radar Type 1 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	1	878	61	1
2	5520	1	558	95	1
3	5499	1	618	86	1
4	5526	1	898	59	1
5	5502	1	838	63	1
6	5538	1	2510	21	1
7	5565	1	1875	29	1
8	5494	1	918	58	1
9	5512	1	738	72	1
10	5533	1	2584	21	1
11	5518	1	638	83	1
12	5543	1	2365	23	1
13	5551	1	1741	31	1
14	5549	1	2910	19	1
15	5528	1	778	68	1
16	5562	1	2798	19	1
17	5515	1	658	81	1
18	5535	1	1958	27	1
19	5504	1	598	89	1
20	5541	1	2977	18	1
21	5523	1	3066	18	1
22	5496	1	818	65	1
23	5510	1	858	62	1
24	5546	1	1736	31	1
25	5554	1	3007	18	1
26	5557	1	1577	34	1

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
27	5559	1	2037	26	1
28	5530	1	2733	20	1
29	5507	1	678	78	1
30	5569	1	704	75	1
Detection Percentage (%)					100%

Radar Type 2 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	2	171	26	1
2	5530	4	206	26	1
3	5546	2.2	182	24	1
4	5535	1.5	193	29	1
5	5502	4.9	174	26	0
6	5526	2.1	209	25	1
7	5559	1.7	210	28	1
8	5510	1.4	208	25	1
9	5551	3.1	214	25	1
10	5515	2.6	197	24	1
11	5565	1.4	172	25	1
12	5520	4.8	192	23	1
13	5523	2.9	228	26	1
14	5507	1.9	173	26	1
15	5528	2.7	168	28	1
16	5533	4.4	228	26	1
17	5557	1.5	182	27	1
18	5496	1.8	178	29	1
19	5538	1.8	216	25	0
20	5541	2.8	224	24	0
21	5543	4.1	198	28	1
22	5499	4.5	162	29	1
23	5549	4.6	170	23	1
24	5504	1.8	203	26	1
25	5554	3.9	183	26	1
26	5518	3	159	27	1
27	5512	1.9	195	25	1
28	5562	4.7	155	25	1
29	5494	1.1	198	26	1
30	5569	2.1	185	28	1
Detection Percentage (%)					90%

Radar Type 3 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	8.1	246	18	1
2	5518	7.9	339	17	0
3	5526	8.9	423	17	1
4	5551	6.1	392	18	1
5	5543	7.8	490	17	0
6	5533	7.9	212	17	1
7	5504	7.4	245	18	1
8	5510	8.7	352	17	1
9	5554	9.4	451	18	1
10	5515	6.3	306	16	0
11	5559	8.8	355	17	1
12	5520	8.9	417	17	1
13	5523	6.3	236	17	0
14	5565	9.1	453	17	1
15	5528	6.4	361	17	1
16	5530	8.6	289	17	1
17	5507	8.2	428	17	1
18	5535	7.9	253	17	1
19	5549	8.2	283	18	1
20	5541	7.8	449	16	1
21	5499	8.7	387	16	0
22	5546	8.2	263	16	1
23	5502	6.8	465	17	1
24	5494	8.4	422	18	1
25	5512	6.5	466	17	1
26	5557	8.8	378	18	1
27	5538	7.8	453	17	1
28	5562	8.5	483	16	0
29	5496	7.3	247	17	0
30	5569	8.3	368	16	1
Detection Percentage (%)					76.7%

Radar Type 4 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	16	355	15	1
2	5533	18.4	309	14	1
3	5526	16.4	252	12	0
4	5538	13.4	336	14	1
5	5502	11.4	203	13	1
6	5535	20	275	14	1
7	5507	18.2	247	15	1
8	5510	18.3	259	16	1
9	5557	19.5	314	16	1
10	5494	14.7	411	12	0
11	5551	18.5	407	15	1
12	5499	15.6	218	15	0
13	5523	19	416	16	1
14	5546	12	207	14	0
15	5528	14.2	445	13	1
16	5518	13.3	389	13	1
17	5559	18.8	302	13	1
18	5549	11.4	422	15	1
19	5565	11.1	354	16	1
20	5541	17.3	413	12	1
21	5543	12.4	328	13	1
22	5515	11.1	476	13	1
23	5562	13	337	13	0
24	5496	19.3	329	12	0
25	5554	14.3	487	14	1
26	5512	18.2	264	12	1
27	5530	18.1	295	14	1
28	5504	19.4	252	14	0
29	5520	15.7	200	13	1
30	5569	12.2	353	15	1
Detection Percentage (%)					76.7%

Note: In addition an average minimum percentage of successful detection across all four Short pulse radar test

waveforms is as follows:
$$\frac{P_d1 + P_d2 + P_d3 + P_d4}{4} = (100\% + 90\% + 76.7\% + 76.7\%) / 4 = 85.9\% (>80\%)$$



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	5530	1	16	5496.6	1
2	5530	1	17	5494.2	1
3	5530	1	18	5561.8	1
4	5530	1	19	5566.2	1
5	5530	1	20	5493	1
6	5530	1	21	5562.6	1
7	5530	1	22	5497.8	1
8	5530	1	23	5563.4	1
9	5530	1	24	5498.2	1
10	5530	0	25	5495.4	1
11	5495.8	1	26	5498.2	1
12	5562.6	1	27	5564.6	1
13	5493	1	28	5562.6	1
14	5566.2	1	29	5498.2	1
15	5565	1	30	5563.4	1
Detection Percentage (%)					96.7%

Type 5 Radar Waveform_1						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	94.9	17	1035		57.386
2	2	51.8	17	1941		11.05
3	1	81.7	17			74.18
4	2	72.5	17	1216		351.93
5	2	87.6	17	1046		274.52
6	2	93.7	17	1648		729.57
7	2	88.5	17	1187		308.51
8	2	61	17	1294		518.03
9	1	76.3	17			514.88
10	2	95.4	17	1475		739.73
11	1	72	17			365.41
12	1	76.1	17			615.57
13	2	99.6	17	1356		323.64
14	1	85.6	17			523.2
15	3	83.1	17	1115	1965	126.2
16	1	66.6	17			596



Type 5 Radar Waveform_2

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	50.7	12	1205		781.87
2	2	92.7	12	1296		254.473
3	3	65.7	12	1433	1113	847.336
4	2	70.7	12	1029		831.109
5	2	76.9	12	1033		906.282
6	2	76	12	1801		750.255
7	2	95.8	12	1259		496.298
8	2	92.1	12	1963		429.382
9	3	66.9	12	1946	1964	537.905
10	2	57.1	12	1532		552.758
11	3	98.2	12	1398	1108	556.391
12	3	50.4	12	1077	1537	911.454
13	3	95.9	12	1819	1545	82.477

Type 5 Radar Waveform_3

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	1	70.1	17			723.955
2	1	86.1	17			469.801
3	2	71.6	17	1338		835.182
4	2	89.3	17	1283		574.993
5	2	89.7	17	1259		963.224
6	2	88.4	17	1460		593.555
7	2	65.5	17	1264		741.005
8	3	65.7	17	1735	1434	603.636
9	2	82.5	17	1417		49.827
10	2	57.4	17	1410		627.718
11	2	58.5	17	1702		715.509

Type 5 Radar Waveform_4

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	3	66.4	5	1814	1510	645.729
2	2	87.1	5	1710		564.408
3	2	70.6	5	1744		680.915
4	3	55.5	5	1238	1940	327.823
5	1	99.4	5			290.601
6	3	98.2	5	1218	1051	64.708
7	2	97.7	5	1584		99.316
8	3	78.6	5	1930	1217	614.864
9	3	91.7	5	1909	1709	203.361
10	3	79.8	5	1408	1746	649.249
11	2	72.9	5	1049		435.606
12	2	67.2	5	1934		343.234
13	2	97.8	5	1461		378.582
14	3	56.6	5	1730	1349	50.209
15	1	98.5	5			346.147
16	1	72.4	5			152.465
17	3	70.9	5	1568	1649	545.082



Type 5 Radar Waveform_5						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	99.9	18	1295		589.484
2	2	79.2	18	1365		823.217
3	2	63.7	18	1331		417.913
4	2	93.9	18	1752		879.79
5	3	54.4	18	1479	1068	1170.497
6	3	92.9	18	1209	1277	386.443
7	2	67.8	18	1282		1168.52
8	3	63.3	18	1790	1629	1062.567
9	3	91	18	1977	1326	937.033
Type 5 Radar Waveform_6						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	97	7	1698		466.258
2	2	94.5	7	1664		109.33
3	2	80.8	7	1941		891.78
4	2	94.3	7	1869		104.97
5	3	95.2	7	1760	1540	299.98
6	3	82.7	7	1374	1277	582.11
7	2	73.7	7	1297		682.61
8	2	90.9	7	1075		1003.45
9	1	72.3	7			996.1
10	2	94.4	7	1866		227.1
Type 5 Radar Waveform_7						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	88.4	17	1708		323.294
2	3	93	17	1229	1295	106.501
3	3	58.2	17	1757	1347	274.952
4	2	82.5	17	1777		701.173
5	3	57.1	17	1007	1512	170.944
6	2	83.4	17	1705		477.545
7	3	86	17	1062	1614	66.375
8	2	77.5	17	1521		944.996
9	2	65.9	17	1230		455.417
10	2	64.8	17	1257		884.318
11	1	85.5	17			51.009



Type 5 Radar Waveform_8

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	1	52.7	11			439.561
2	2	80.2	11	1765		562.073
3	2	63.2	11	1563		9.577
4	2	76.9	11	1016		266.1
5	3	59.6	11	1099	1607	585.583
6	2	87.2	11	1086		433.147
7	2	93.3	11	1841		632.63
8	2	55.1	11	1963		524.193
9	2	90	11	1831		282.067
10	2	61.5	11	1104		318.33
11	1	99.6	11			648.193
12	2	79.4	11	1460		188.377
13	3	75.6	11	1367	1082	294.38
14	2	67.6	11	1856		474.563
15	3	81.1	11	1008	1109	284.247
16	2	88.1	11	1233		166.2
17	3	93.4	11	1021	1836	226.633
18	3	64.2	11	1618	1898	307.667

Type 5 Radar Waveform_9

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	3	54.5	9	1381	1274	100.491
2	1	91.7	9			212.534
3	2	97	9	1418		239.702
4	2	80.1	9	1011		384.113
5	2	72.6	9	1332		289.874
6	3	62.2	9	1107	1248	563.705
7	2	58.5	9	1472		463.146
8	1	57.6	9			166.957
9	2	55.7	9	1828		136.738
10	2	71.2	9	1439		87.719
11	2	68.8	9	1767		335.361
12	2	58	9	1292		79.612
13	3	68.4	9	1170	1561	399.363
14	2	71.6	9	1226		210.654
15	2	74.9	9	1165		397.665
16	2	66.5	9	1726		182.746
17	3	69.6	9	1440	1710	573.837
18	1	87.5	9			323.558
19	3	60.8	9	1962	1735	443.579

Type 5 Radar Waveform_10

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	1	66.3	10			729.387
2	2	96.8	10	1652		1046.44
3	1	71.9	10			1070.05
4	2	57	10	1455		1309.96
5	3	81	10	1728	1539	25.31
6	2	82	10	1095		844.45
7	2	97.2	10	1922		33.62
8	1	71.8	10			1333.3



Type 5 Radar Waveform_11

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	3	99.5	12	1387	1302	301.159
2	1	57.5	12			171.321
3	2	57.4	12	1080		128.96
4	3	87.6	12	1091	1484	262.3
5	2	77.5	12	1682		4.88
6	1	63	12			483.55
7	1	62.5	12			81.2
8	1	51.1	12			534.53
9	1	90.1	12			390.15
10	2	68.8	12	1023		588.06
11	2	80.1	12	1189		481.24
12	3	84.8	12	1152	1643	426.1
13	1	92.1	12			528.82
14	1	52.2	12			422.82
15	1	94.8	12			185.85
16	3	73.8	12	1287	1924	7.41
17	3	50.2	12	1440	1164	162.35
18	1	50.3	12			14.2
19	1	81.7	12			451.4
20	2	86	12	1849		173

Type 5 Radar Waveform_12

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	3	56.6	8	1879	1483	124.896
2	2	91	8	1495		485.501
3	3	55.4	8	1016	1686	150.322
4	3	90.2	8	1080	1446	187.573
5	1	81.6	8			112.144
6	1	86.5	8			6.185
7	2	79.4	8	1357		506.876
8	3	68.8	8	1204	1954	235.067
9	2	58.2	8	1012		454.088
10	3	71	8	1352	1154	253.779
11	2	57.1	8	1863		374.931
12	1	53.6	8			87.222
13	3	54.7	8	1873	1276	295.623
14	1	82.6	8			92.064
15	1	89	8			553.195
16	2	99.1	8	1263		599.816
17	2	53.8	8	1573		227.437
18	1	56.4	8			380.258
19	2	86.4	8	1679		619.679

Type 5 Radar Waveform_13

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	1	96.9	17			316.292
2	3	63.2	17	1714	1611	158.403
3	1	54.7	17			174.862
4	2	98.9	17	1038		547.543
5	2	51.1	17	1216		496.654
6	2	86.7	17	1155		337.195
7	3	89.4	17	1034	1656	33.526
8	2	51.1	17	1878		412.497
9	2	96.1	17	1510		285.308
10	1	84.2	17			273.889
11	2	75.1	17	1138		442.131
12	2	83.7	17	1677		335.082
13	2	51.1	17	1080		129.823
14	1	52.1	17			240.784
15	2	68.2	17	1377		181.545
16	2	66.5	17	1066		435.386
17	2	69.8	17	1121		409.337
18	1	56.9	17			455.658
19	2	51.9	17	1934		343.079



Type 5 Radar Waveform_14

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	99.1	18	1854		775.171
2	3	77.7	18	1825	1933	183.664
3	2	59.5	18	1181		83.69
4	1	73.1	18			295.7
5	2	63	18	1753		703.28
6	3	72.6	18	1520	1131	355.35
7	2	94.7	18	1261		544.56
8	3	95.3	18	1175	1462	251.17
9	2	84.5	18	1002		787.67
10	2	72.6	18	1730		345.7
11	2	65.8	18	1683		781.35
12	3	59.6	18	1260	1491	350.32
13	2	62.3	18	1001		354.89
14	3	88	18	1029	1151	554.4
15	2	68.6	18	1723		752.1

Type 5 Radar Waveform_15

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	3	78.1	11	1601	1550	98.244
2	2	78.6	11	1214		599.33
3	3	62	11	1228	1526	734.14
4	3	96.8	11	1823	1019	380.82
5	1	92	11			622.98
6	2	62.6	11	1498		241.28
7	3	89.4	11	1524	1934	896.25
8	1	65	11			651.84
9	3	77.7	11	1228	1282	265.98
10	2	67	11	1548		143.2
11	3	93.9	11	1199	1045	329.5
12	2	97.4	11	1768		591.5

Type 5 Radar Waveform_16

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	1	83	14			946.891
2	2	74.1	14	1613		746.091
3	2	65.2	14	1828		403.152
4	2	85.2	14	1811		1006.983
5	2	75.2	14	1238		292.474
6	3	57.8	14	1315	1771	517.335
7	2	75.2	14	1766		452.515
8	2	76.9	14	1391		266.906
9	3	97.2	14	1428	1754	675.147
10	3	91.1	14	1178	1273	220.818
11	2	53.7	14	1912		225.809



Type 5 Radar Waveform_17

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	1	81.2	18			133.757
2	2	71.7	18	1771		759
3	2	72.5	18	1546		75.04
4	2	71.9	18	1844		41.98
5	1	95.1	18			122.41
6	2	87.7	18	1668		46.57
7	2	84.5	18	1543		668.22
8	1	80.7	18			29.53
9	3	66.6	18	1876	1459	15.76
10	1	65.2	18			450.6
11	2	98.5	18	1251		353.92
12	3	60	18	1303	1593	409.49
13	1	62.5	18			738.4
14	1	71.7	18			45.6
15	2	66.4	18	1656		139.7

Type 5 Radar Waveform_18

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	77.1	5	1582		524.703
2	2	69.4	5	1461		233.763
3	3	73	5	1008	1698	165.556
4	3	81.3	5	1912	1738	250.879
5	1	81.5	5			145.032
6	1	55	5			199.425
7	3	70.4	5	1204	1311	22.478
8	3	77.4	5	1437	1745	204.752
9	1	53.5	5			630.485
10	3	96.2	5	1616	1552	736.848
11	2	51.1	5	1111		224.851
12	1	86.9	5			609.654
13	3	62.5	5	1699	1840	718.177

Type 5 Radar Waveform_19

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	57.4	18	1719		599.516
2	2	93	18	1322		651.438
3	1	62.5	18			515.035
4	1	95.9	18			214.333
5	2	50.7	18	1760		386.411
6	2	86.8	18	1290		493.688
7	1	51.3	18			23.166
8	2	58.2	18	1517		506.814
9	2	67.5	18	1472		174.761
10	2	92.7	18	1632		561.519
11	3	84.6	18	1361	1478	686.086
12	1	98.1	18			158.184
13	2	94.8	18	1990		349.642
14	2	55	18	1428		615.619
15	2	87.7	18	1203		475.347
16	2	71.7	18	1766		454.265
17	2	100	18	1255		424.482



Type 5 Radar Waveform_20

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	62	5	1782		552.16
2	2	89.2	5	1236		732.16
3	2	50	5	1157		317.04
4	2	65.4	5	1801		12.63
5	2	88.9	5	1516		264.19
6	1	65.2	5			652.26
7	3	61.2	5	1535	1671	602.07
8	3	52.4	5	1256	1717	14.92
9	2	63.5	5	1803		25.43
10	3	80.3	5	1002	1338	1.82
11	3	67.4	5	1929	1074	546.21
12	1	69.4	5			106.74
13	3	93.1	5	1532	1334	449.91
14	2	98.9	5	1845		273.6
15	3	75.3	5	1309	1222	476.3
16	2	57.9	5	1365		614.7

Type 5 Radar Waveform_21

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	3	65	16	1119	1912	242.749
2	2	67.6	16	1142		553.601
3	1	62.5	16			592.822
4	3	65.7	16	1630	1849	183.463
5	2	89.6	16	1488		599.934
6	3	52.9	16	1505	1402	545.465
7	1	59.1	16			212.376
8	2	99.4	16	1084		128.917
9	2	82.9	16	1693		499.238
10	1	63.1	16			251.819
11	2	70.4	16	1964		578.801
12	3	72	16	1541	1174	83.402
13	1	60.3	16			136.693
14	2	92.2	16	1821		18.004
15	2	67.2	16	1870		19.695
16	3	82.4	16	1844	1836	521.066
17	2	80.3	16	1435		200.437
18	2	87.2	16	1558		350.558
19	1	81.1	16			251.579

Type 5 Radar Waveform_22

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	80.4	11	1719		15.439
2	3	97.1	11	1171	1964	671.943
3	3	85.9	11	1857	1645	414.676
4	1	89.4	11			482.669
5	1	76	11			372.052
6	2	94.8	11	1203		359.895
7	2	85.5	11	1056		844.048
8	1	61.1	11			273.172
9	2	53.9	11	1126		499.995
10	2	54.9	11	1637		170.018
11	2	93	11	1872		549.601
12	3	96.7	11	1051	1940	797.854
13	1	85.1	11			366.777



Type 5 Radar Waveform_23

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	3	79.5	14	1621	1946	467.808
2	2	85.5	14	1282		453.367
3	2	71.9	14	1688		235.844
4	3	94.7	14	1004	1148	304.301
5	3	50.3	14	1482	1153	569.609
6	2	91.1	14	1321		572.596
7	2	96.8	14	1492		549.823
8	1	85.5	14			74.59
9	3	53.1	14	1240	1221	544.387
10	2	73.2	14	1187		677.944
11	3	87	14	1430	1699	588.141
12	2	52.6	14	1995		427.759
13	3	99.1	14	1252	1941	829.186
14	2	53.1	14	1316		832.143

Type 5 Radar Waveform_24

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	3	88.4	16	1353	1661	435.838
2	3	70.1	16	1586	1518	576.08
3	3	59.9	16	1430	1487	182.27
4	1	53.5	16			491.43
5	2	73.7	16	1310		431.34
6	2	56.8	16	1647		394.48
7	1	86.4	16			95.72
8	2	70.5	16	1006		120.66
9	2	82.3	16	1042		370.16
10	3	86.2	16	1973	1523	165.11
11	2	63.9	16	1708		518.35
12	2	61.6	16	1387		376.95
13	3	69.1	16	1627	1911	16.13
14	2	82	16	1966		702.2
15	2	89.3	16	1279		36.3
16	2	93.1	16	1419		167.4

Type 5 Radar Waveform_25

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	1	83.5	18			88.857
2	2	63.6	18	1647		621.631
3	1	76.6	18			179.742
4	1	59	18			571.533
5	2	95.1	18	1999		303.474
6	1	97.3	18			138.775
7	3	70	18	1284	1183	437.526
8	3	79.2	18	1102	1257	280.867
9	2	93.6	18	1100		240.508
10	1	84.2	18			29.399
11	2	51.1	18	1248		388.061
12	2	76	18	1968		49.162
13	3	78	18	1693	1241	484.283
14	3	91.9	18	1658	1742	475.724
15	1	69.3	18			273.095
16	2	64.9	18	1039		197.326
17	2	54.4	18	1859		585.537
18	1	63.1	18			475.058
19	3	59.1	18	1772	1799	527.579



Type 5 Radar Waveform_26

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	59.4	7	1989		345.077
2	2	57.8	7	1916		681.231
3	2	71.7	7	1707		303.812
4	3	86.6	7	1117	1257	644.503
5	2	96.3	7	1545		991.604
6	2	95.1	7	1935		101.285
7	1	56.2	7			621.365
8	2	75.6	7	1426		763.116
9	2	78.9	7	1704		52.167
10	1	56.3	7			320.118
11	1	65.1	7			545.609

Type 5 Radar Waveform_27

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	3	73.5	16	1768	1261	193.382
2	1	78.7	16			30.42
3	3	58.6	16	1161	1752	150.67
4	1	68.3	16			787.12
5	3	90.5	16	1551	1263	301.25
6	3	87.6	16	1793	1012	71.61
7	1	82.6	16			290.95
8	1	76.3	16			912.75
9	2	53.3	16	1345		982.25
10	2	74.3	16	1838		212.09
11	2	65.3	16	1658		942
12	2	62.7	16	1878		4.9

Type 5 Radar Waveform_28

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	59	16	1282		13.081
2	2	85.4	16	1294		379.039
3	3	74.2	16	1555	1710	407.11
4	2	90.8	16	1143		25.06
5	2	91.3	16	1622		214.93
6	2	79.7	16	1003		286.13
7	1	89.4	16			547.21
8	1	73.3	16			209.93
9	1	80.2	16			438.48
10	2	54.9	16	1737		493.72
11	3	62.7	16	1782	1456	414.96
12	2	62.7	16	1478		84.43
13	3	91.2	16	1239	1546	431.78
14	2	62.5	16	1553		248.72
15	1	57.4	16			588.65
16	3	52.8	16	1189	1235	426.56
17	1	96.4	16			441.9
18	1	87.8	16			89.9
19	2	92.1	16	1221		30.1
20	1	88.6	16			379.9



Type 5 Radar Waveform_29						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	65.5	10	1564		359.676
2	3	67.7	10	1768	1365	193.355
3	1	78	10			107.862
4	2	69.2	10	1938		450.443
5	2	83.1	10	1184		277.504
6	2	60.1	10	1054		266.705
7	1	57.3	10			60.276
8	3	60.4	10	1862	1624	156.897
9	3	79.4	10	1437	1387	589.618
10	2	85.5	10	1298		216.319
11	2	89.2	10	1703		107.261
12	3	67.3	10	1051	1006	410.972
13	2	86.4	10	1566		46.053
14	1	65.2	10			510.784
15	2	60.9	10	1462		70.595
16	1	54.3	10			476.226
17	1	65.5	10			164.037
18	1	59.4	10			5.258
19	1	87.7	10			501.979

Type 5 Radar Waveform_30						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	79.3	14	1507		296.197
2	2	57.7	14	1091		584.001
3	1	98.2	14			343.442
4	2	84	14	1128		510.533
5	1	52.3	14			325.904
6	2	52.5	14	1032		21.465
7	2	88.2	14	1165		588.716
8	2	66.6	14	1606		210.617
9	1	97.2	14			510.848
10	2	80.1	14	1286		22.379
11	1	86.1	14			559.591
12	2	92.7	14	1098		479.052
13	2	53.1	14	1442		19.523
14	3	73	14	1959	1230	52.084
15	2	65.8	14	1176		117.275
16	1	96.3	14			575.316
17	3	71.9	14	1174	1119	429.237
18	2	87.3	14	1141		622.958
19	2	55.3	14	1232		423.679

Radar Type 6 - Radar Statistical Performance

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

Radar waveform #1			Radar waveform #2		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5567	9	2	5523	6
8	5513	24	6	5498	18
12	5544	36	7	5502	21
17	5528	51	32	5543	96
27	5550	81	38	5494	114
35	5565	105	41	5511	123
36	5532	108	45	5545	135
37	5527	111	58	5501	174
41	5535	123	61	5561	183
45	5552	135	65	5538	195
49	5553	147	72	5568	216
50	5521	150	82	5542	246
51	5530	153	89	5534	267
68	5510	204	90	5532	270
69	5545	207	92	5564	276
76	5493	228	95	5539	285
81	5512	243	96	5546	288
85	5520	255	--	--	--
88	5502	264	--	--	--
89	5492	267	--	--	--
92	5515	276	--	--	--
95	5548	285	--	--	--
99	5522	297	--	--	--

Radar waveform #3			Radar waveform #4		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5541	15	2	5556	6
13	5526	39	4	5513	12
18	5499	54	5	5561	15
22	5500	66	9	5570	27
25	5511	75	14	5523	42
39	5491	117	26	5567	78
44	5518	132	28	5569	84
48	5496	144	31	5519	93
49	5545	147	35	5544	105
69	5566	207	37	5534	111
74	5508	222	42	5521	126
75	5543	225	48	5533	144
76	5533	228	51	5565	153
90	5554	270	53	5490	159
96	5552	288	55	5503	165
--	--	--	62	5535	186
--	--	--	64	5542	192
--	--	--	68	5562	204
--	--	--	71	5501	213
--	--	--	74	5497	222
--	--	--	76	5514	228
--	--	--	83	5537	249
--	--	--	90	5509	270

Radar waveform #5			Radar waveform #6		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5492	3	2	5505	6
6	5493	18	21	5543	63
8	5518	24	35	5509	105
10	5559	30	52	5499	156
11	5525	33	54	5560	162
17	5531	51	62	5520	186
20	5564	60	68	5545	204
24	5513	72	80	5492	240
27	5523	81	87	5506	261
49	5553	147	92	5556	276
56	5504	168	--	--	--
64	5521	192	--	--	--
70	5499	210	--	--	--
72	5545	216	--	--	--
74	5535	222	--	--	--
76	5495	228	--	--	--
82	5543	246	--	--	--
93	5528	279	--	--	--
94	5500	282	--	--	--

Radar waveform #7			Radar waveform #8		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5514	6	1	5570	3
3	5518	9	10	5553	30
5	5545	15	18	5491	54
9	5528	27	24	5552	72
17	5501	51	25	5521	75
35	5566	105	26	5558	78
39	5534	117	37	5514	111
43	5490	129	42	5545	126
44	5529	132	47	5568	141
47	5535	141	51	5563	153
61	5552	183	52	5533	156
66	5556	198	56	5523	168
70	5570	210	61	5516	183
85	5550	255	64	5536	192
90	5548	270	67	5508	201
96	5497	288	70	5502	210
99	5563	297	71	5547	213
--	--	--	75	5527	225
--	--	--	95	5499	285

Radar waveform #9			Radar waveform #10		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
11	5566	33	17	5509	51
39	5555	117	22	5508	66
45	5527	135	25	5557	75
46	5537	138	28	5514	84
56	5559	168	40	5533	120
71	5535	213	42	5564	126
85	5516	255	50	5547	150
89	5533	267	65	5531	195
96	5522	288	70	5569	210
98	5529	294	73	5506	219
--	--	--	77	5544	231
--	--	--	82	5522	246
--	--	--	83	5536	249
--	--	--	88	5500	264
--	--	--	89	5521	267

Radar waveform #11			Radar waveform #12		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5517	3	4	5506	12
5	5544	15	10	5553	30
6	5527	18	16	5514	48
56	5491	168	17	5509	51
68	5495	204	20	5501	60
70	5543	210	26	5527	78
73	5570	219	29	5516	87
78	5552	234	35	5521	105
80	5514	240	57	5561	171
82	5541	246	58	5522	174
84	5490	252	76	5533	228
85	5522	255	90	5505	270
90	5545	270	92	5511	276
91	5503	273	96	5538	288
94	5494	282	98	5550	294
95	5551	285	--	--	--
97	5513	291	--	--	--

Radar waveform #13			Radar waveform #14		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
6	5509	18	1	5536	3
14	5504	42	16	5553	48
45	5535	135	19	5498	57
51	5490	153	24	5566	72
55	5517	165	33	5508	99
70	5523	210	35	5565	105
78	5512	234	46	5541	138
79	5491	237	47	5510	141
83	5570	249	51	5567	153
99	5563	297	60	5538	180
--	--	--	61	5563	183
--	--	--	62	5560	186
--	--	--	63	5539	189
--	--	--	65	5552	195
--	--	--	69	5493	207
--	--	--	86	5564	258
--	--	--	88	5548	264
--	--	--	92	5495	276
--	--	--	95	5556	285

Radar waveform #15			Radar waveform #16		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5500	6	2	5537	6
14	5569	42	7	5544	21
20	5515	60	9	5561	27
21	5565	63	10	5527	30
32	5547	96	15	5520	45
33	5490	99	26	5559	78
46	5524	138	35	5546	105
48	5512	144	37	5545	111
50	5528	150	48	5543	144
52	5519	156	49	5495	147
59	5556	177	53	5569	159
75	5506	225	56	5556	168
78	5499	234	60	5533	180
80	5562	240	63	5531	189
88	5544	264	77	5501	231
95	5561	285	80	5536	240
96	5529	288	83	5542	249
97	5522	291	88	5560	264
98	5492	294	96	5522	288
--	--	--	98	5519	294

Radar waveform #17			Radar waveform #18		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
4	5568	12	9	5549	27
9	5560	27	35	5498	105
15	5525	45	37	5565	111
31	5510	93	43	5560	129
42	5493	126	45	5563	135
52	5535	156	53	5529	159
82	5515	246	57	5492	171
89	5531	267	61	5513	183
90	5495	270	63	5494	189
91	5553	273	64	5490	192
99	5501	297	71	5556	213
--	--	--	74	5561	222
--	--	--	77	5555	231
--	--	--	79	5536	237
--	--	--	84	5523	252
--	--	--	87	5544	261
--	--	--	91	5521	273
--	--	--	92	5508	276
--	--	--	96	5505	288

Radar waveform #19			Radar waveform #20		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5554	3	1	5570	3
5	5508	15	7	5529	21
16	5569	48	8	5499	24
17	5561	51	11	5509	33
23	5558	69	21	5541	63
24	5552	72	26	5558	78
28	5523	84	28	5524	84
29	5541	87	32	5491	96
37	5557	111	35	5515	105
38	5511	114	36	5504	108
39	5560	117	44	5502	132
42	5516	126	59	5497	177
57	5559	171	66	5564	198
63	5500	189	84	5495	252
78	5493	234	86	5537	258
83	5506	249	91	5557	273
85	5491	255	98	5532	294
91	5536	273	--	--	--
95	5566	285	--	--	--

Radar waveform #21			Radar waveform #22		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5548	15	1	5511	3
8	5560	24	14	5518	42
11	5492	33	20	5505	60
17	5552	51	22	5519	66
24	5544	72	34	5495	102
25	5561	75	48	5523	144
26	5513	78	71	5560	213
28	5522	84	74	5543	222
33	5566	99	79	5506	237
36	5563	108	83	5515	249
61	5504	183	85	5544	255
68	5568	204	86	5548	258
82	5520	246	89	5508	267
91	5517	273	92	5528	276
92	5537	276	96	5569	288

Radar waveform #23			Radar waveform #24		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
4	5567	12	13	5565	39
15	5559	45	16	5536	48
28	5516	84	18	5560	54
34	5507	102	22	5514	66
40	5515	120	25	5534	75
41	5522	123	29	5552	87
43	5564	129	34	5528	102
44	5513	132	44	5537	132
51	5555	153	50	5525	150
55	5540	165	63	5498	189
73	5520	219	65	5512	195
80	5502	240	71	5541	213
90	5562	270	74	5570	222
100	5491	300	84	5510	252
--	--	--	100	5506	300

Radar waveform #25			Radar waveform #26		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5538	6	7	5499	21
13	5531	39	14	5508	42
18	5551	54	18	5495	54
20	5548	60	25	5558	75
23	5504	69	28	5539	84
26	5539	78	29	5554	87
30	5530	90	34	5518	102
31	5549	93	49	5553	147
57	5569	171	54	5561	162
59	5498	177	55	5522	165
64	5499	192	61	5538	183
70	5493	210	68	5555	204
73	5545	219	71	5519	213
83	5519	249	72	5547	216
86	5525	258	81	5491	243
90	5514	270	92	5548	276
95	5541	285	95	5510	285
97	5561	291	98	5551	294
98	5542	294	--	--	--
99	5524	297	--	--	--

Radar waveform #27			Radar waveform #28		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
6	5532	18	2	5498	6
10	5549	30	6	5526	18
11	5551	33	13	5523	39
19	5550	57	17	5536	51
25	5498	75	24	5491	72
26	5560	78	27	5553	81
31	5542	93	29	5547	87
33	5491	99	59	5549	177
34	5520	102	70	5495	210
39	5538	117	73	5538	219
45	5499	135	74	5565	222
51	5543	153	80	5499	240
54	5565	162	81	5556	243
58	5521	174	96	5528	288
61	5493	183	97	5524	291
63	5553	189	--	--	--
68	5513	204	--	--	--
69	5559	207	--	--	--
76	5540	228	--	--	--
86	5531	258	--	--	--
87	5535	261	--	--	--
93	5512	279	--	--	--

Radar waveform #29			Radar waveform #30		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
12	5535	36	6	5546	18
23	5505	69	10	5508	30
25	5516	75	12	5538	36
27	5564	81	24	5558	72
31	5544	93	40	5506	120
33	5561	99	46	5557	138
40	5511	120	65	5511	195
41	5568	123	69	5555	207
48	5553	144	70	5494	210
52	5552	156	71	5516	213
58	5513	174	81	5528	243
60	5534	180	83	5531	249
62	5547	186	87	5533	261
75	5506	225	93	5570	279
81	5504	243	96	5515	288
86	5515	258	98	5541	294
92	5530	276	--	--	--

6. CONCLUSION

The data collected relate only the item(s) tested and show that the device is in compliance with FCC Rules.

————— The End —————

Appendix A - Test Setup Photograph

Refer to "2101TW0003-Test setup photo" file.

Appendix B-EUT Photograph

Refer to "2101TW0003-EUT photo" file.