DFS MEASUREMENT REPORT

FCC 15.407 WLAN 802.11a/n/ac/ax

FCC ID:	2AI9TOAW-AP1301H
Applicant:	ALE USA Inc.
Application Type:	Certification
Product:	OmniAccess Stellar
Model No.:	OAW-AP1301H
Brand Name:	Alcatel-Lucent Enterprise
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:	August 28 ~ September 10, 2021

Reviewed By: (Paddy Chen)

Approved By: (Chenz Ker)

Testing Laboratory 3261

The test results relate only to the samples tested.

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

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
2108TW0001-U4	V1.0	Initial Report	11-12-2021	Valid

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General Information

Applicant	ALE USA Inc.
Applicant Address	26801 West Agoura Road, Calabasas, CA 91301, United States
Manufacturer	ALE USA Inc.
Manufacturer Address	26801 West Agoura Road, Calabasas, CA 91301, United States
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 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.

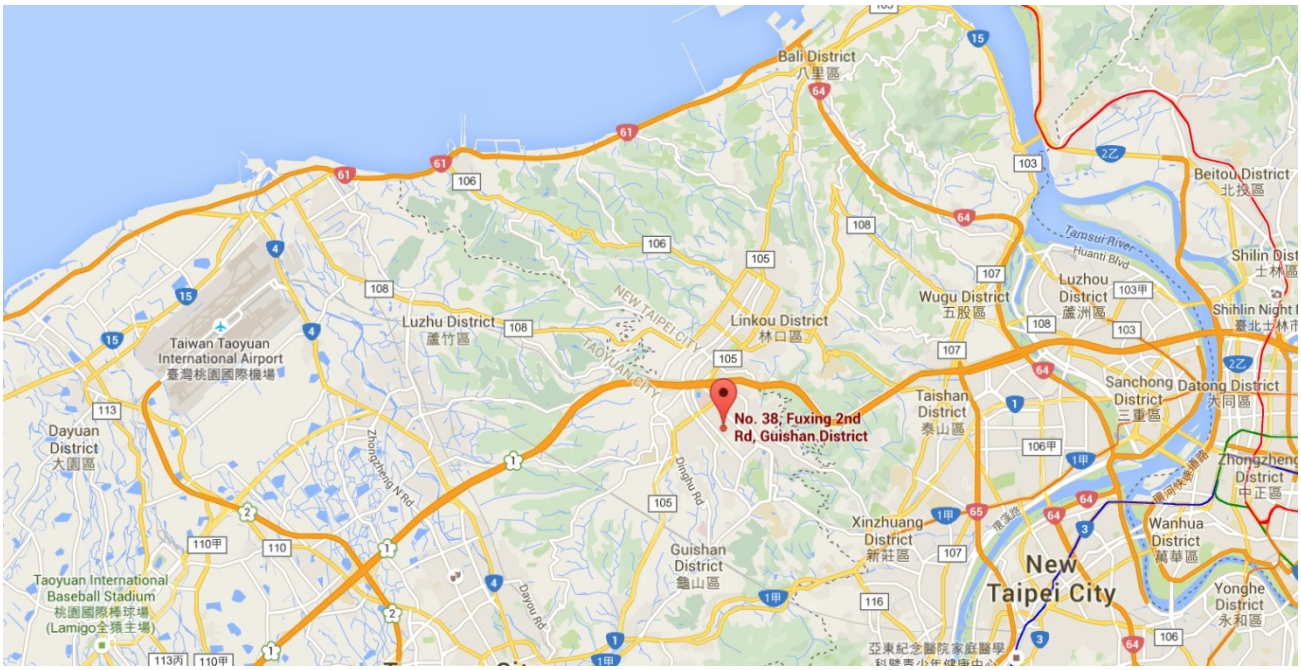
1. INTRODUCTION

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	OmniAccess Stellar
Model No.	OAW-AP1301H
Wi-Fi Specification	802.11a/b/g/n/ac/ax
Bluetooth Specification	v5.0 single mode, BLE only
Operating Temperature	0 ~ 50 °C
Power Type	AC Power Adapter or PoE Injector Input
EUT Identification No.:	20210803Sample#01
Operating Environment	Indoor Use
Antenna Information	Refer to Section 2.3

Note: The information shown above was provided by manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.

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 46.65 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 reports 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 Antenna (2*2 MIMO)					
PIFA	2.4 ~ 2.5	3.92	3.92	6.93	6.93
	5.15 ~ 5.25	4.41	4.41	7.42	7.42
	5.25 ~ 5.35	4.41	4.41	7.42	7.42
	5.47 ~ 5.725	3.89	3.89	6.90	6.90
	5.725 ~ 5.85	4.25	4.25	7.26	7.26
Bluetooth Antenna					
PIFA	2.4 ~ 2.5	3.85			

Note:

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

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

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

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

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

- For power measurements on IEEE 802.11 devices,

  Array Gain = 0 dB for N_{ANT} ≤ 4;

2. The EUT also supports Beam Forming mode, and the Beam Forming support 802.11n/ac/ax, not include 802.11a/b/g. Directional gain = G_{ANT} + BF Gain. BF mode power setting will be less than or equal to CDD power setting.

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

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. Note3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.	

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

3.4. Parameters of DFS Test Signals

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

Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 3-6	$\text{Roundup}\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot 10^6}{\text{PRI}_{\text{usec}}}\right)\right\}$	60%	30
		Test B: 15 unique PRI values randomly selected within the range of 518-3066 μsec, with a minimum increment of 1 μsec, excluding PRI values selected in Test A			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120
Note: 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.

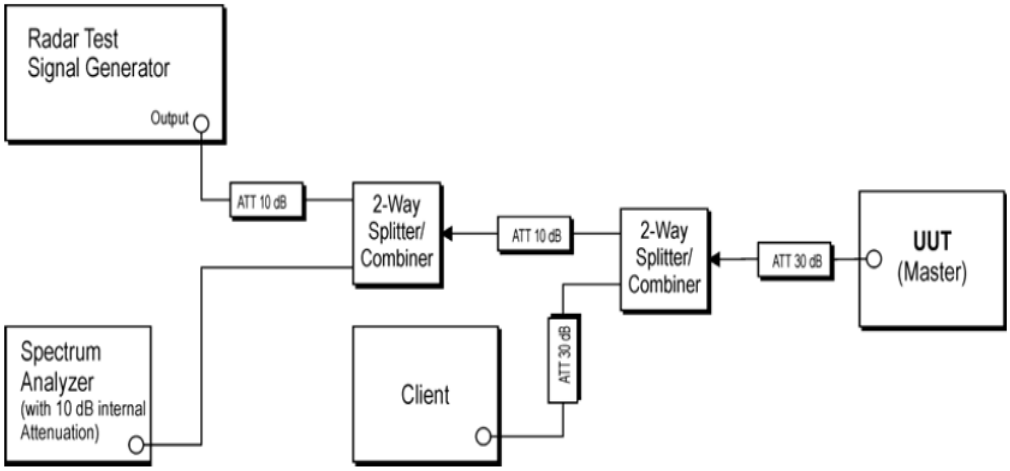


Figure 3-1: Conducted Test Setup where UUT is a Master and Radar Test Waveforms are injected into the Master

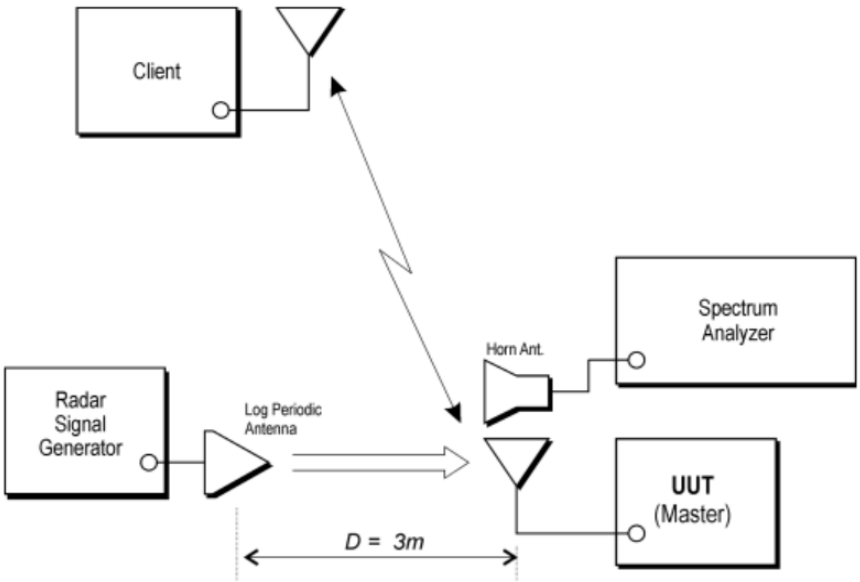


Figure 3-2: Radiated Test Setup where UUT is a master mode and Radar Test Waveforms are injected into the UUT

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	2021/11/14
EXA Signal Analyzer	KEYSIGHT	N9010B	MRTTWA00074	1 year	2022/7/19
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	2022/6/17

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.

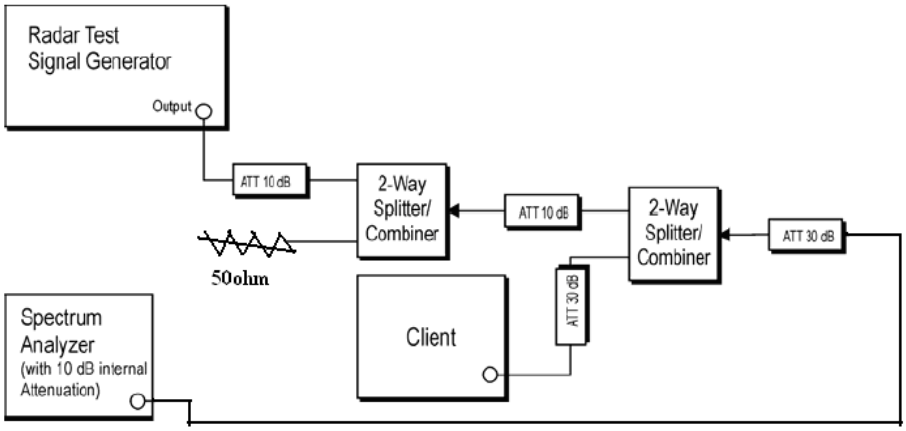


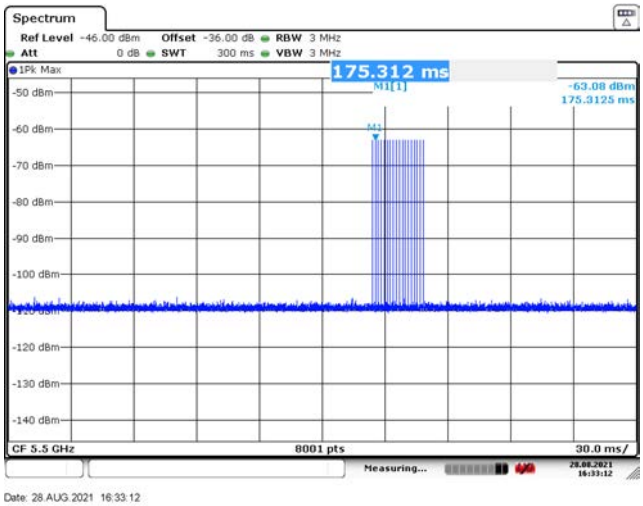
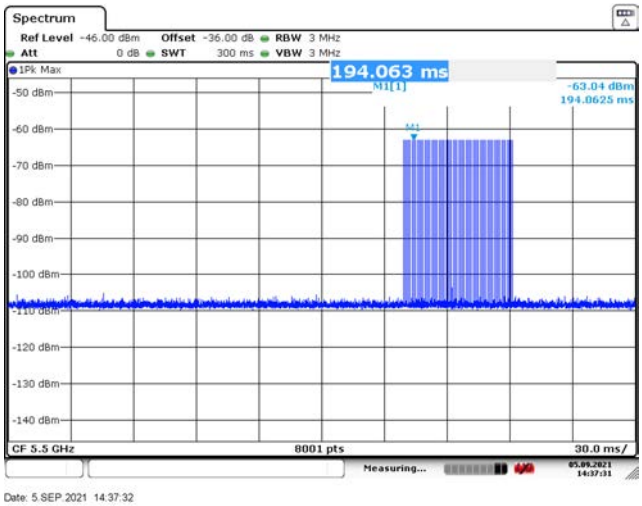
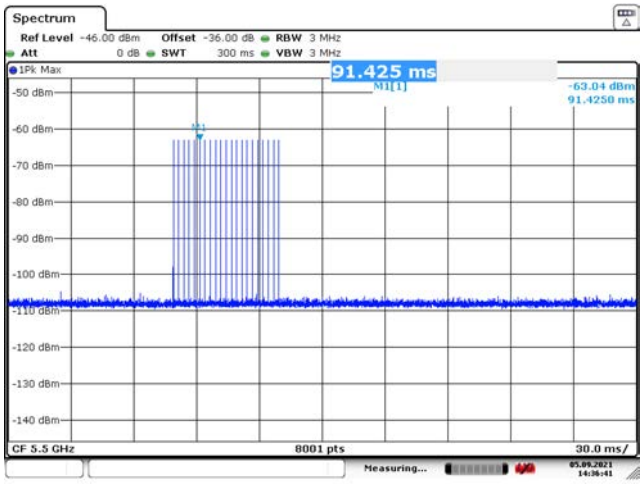
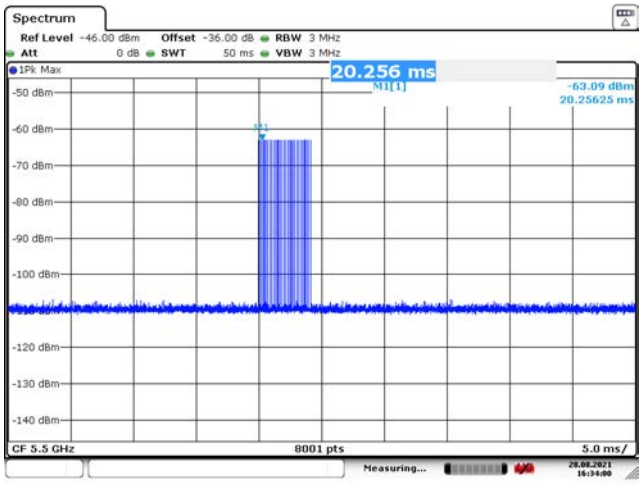
Figure 3-2: Conducted Test Setup

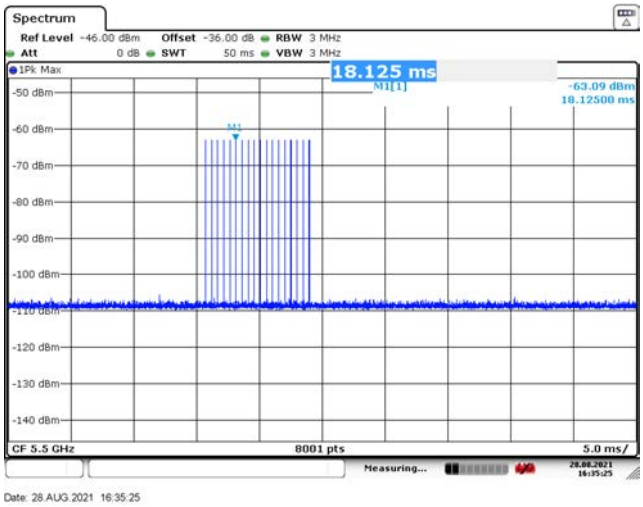
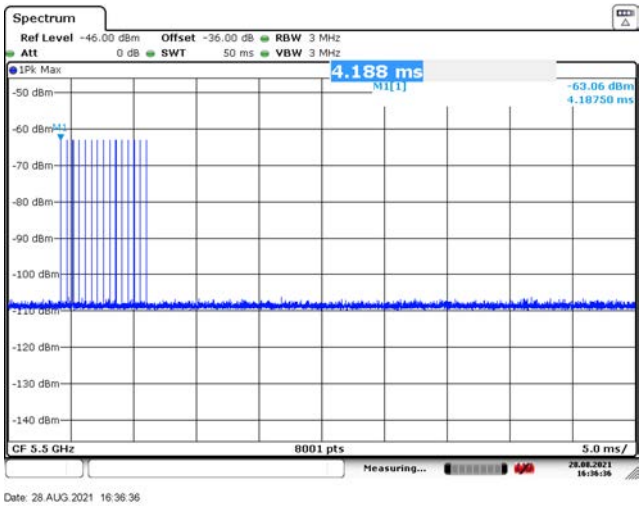
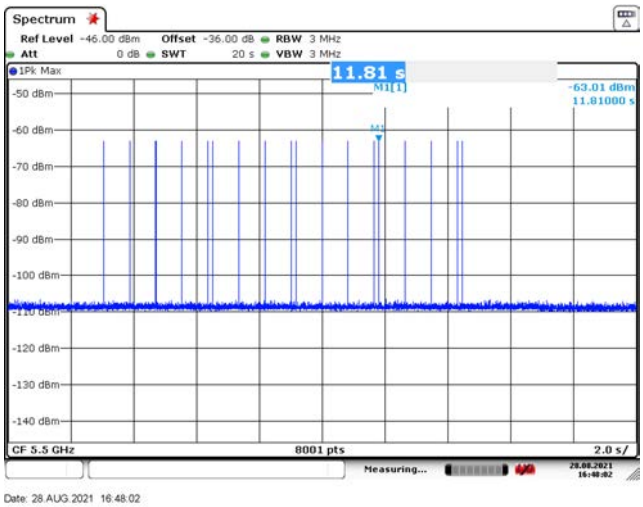
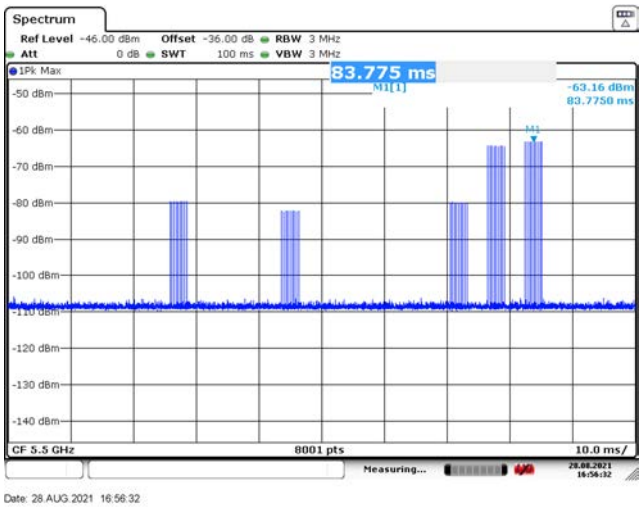
5.2.2. Calibration Procedure

The Interference Radar Detection Threshold Level is (-64dBm) + (0) [dBi]+ 1 dB= -63 dBm that had been taken into account the output power range and antenna gain. The above equipment setup was used to calibrate the conducted Radar Waveform. A vector signal generator was utilized to establish the test signal level for each radar type. During this process there were replace 50ohm terminal form Master and Client device and no transmissions by either the Master or Client Device. The spectrum analyzer was switched to the zero span (Time Domain) at the frequency of the Radar Waveform generator. Peak detection was used. The spectrum analyzer resolution bandwidth (RBW) and video bandwidth (VBW) were set to at least 3MHz. The vector signal generator amplitude was set so that the power level measured at the spectrum analyzer was(-64dBm) + (0) [dBi]+ 1 dB= -63dBm. Capture the spectrum analyzer plots on short pulse radar types, long pulse radar type and hopping radar waveform.

5.2.3. Test Result of Calibration

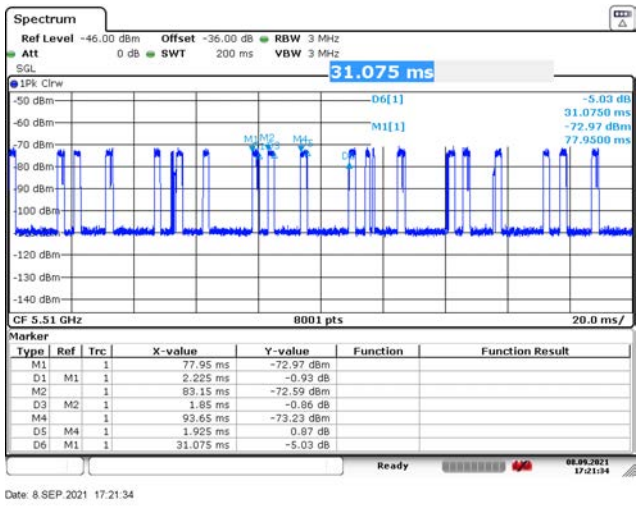
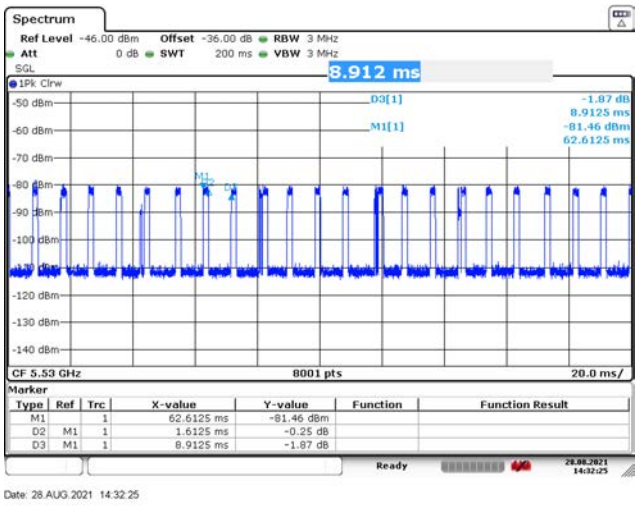
Product	OmniAccess Stellar	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/08/28~09/05
Test Item	Radar Waveform Calibration		

Radar Waveform Calibration	
Radar #0	Radar #1 (Test A) PRI = 858us and the number of pulses = 62
	
Radar #1 (Test B) PRI = 2523us and the number of pulses = 21	Radar #2
	

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

5.2.4. Test Result of Channel Loading

Test Engineer	Eric Lin	Test Site	SR2
Test Item	Channel Loading	Test Date	2021/08/28~09/08

Channel Loading Plot	
802.11ax-HE20 / 5500MHz	802.11ax-HE40 / 5510MHz
	
802.11ax-HE80 / 5530MHz	
	

Test Mode	Test Frequency	Packet ratio	Requirement ratio	Test Result
802.11ax-HE20	5500 MHz	17.42%	≥ 17%	Pass
802.11ax-HE40	5510 MHz	19.31%	≥ 17%	Pass
802.11ax-HE80	5530 MHz	18.09%	≥ 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: U-NII Detection Bandwidth = FH – FL

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

5.3.3. Test Result

Product	OmniAccess Stellar	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/09/03
Test Item	Detection Bandwidth (802.11ax-HE20 mode - 5500MHz)		

Radar Frequency (MHz)	DFS Detection Trials (1=Detection, 0= No Detection)										
	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)
5490 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%
5510 F_H	1	1	1	1	1	1	1	1	1	1	100%

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 18.93MHz. (See the 99% BW section of the RF report for further measurement details).

Note 2: Detection Bandwidth = F_H - F_L = 5510MHz – 5490MHz = 20MHz.

Note 3: NII Detection Bandwidth Min. Limit (MHz): 18.93MHz x 100% = 18.93MHz.

Product	OmniAccess Stellar	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/09/03
Test Item	Detection Bandwidth (802.11ax-HE40 mode - 5510MHz)		

Radar Frequency (MHz)	DFS Detection Trials (1=Detection, 0= No Detection)										
	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)
5490 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%
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	1	1	1	1	1	1	1	1	1	1	100%
5530 F_H	1	1	1	1	1	1	1	1	1	1	100%

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 37.76MHz. (See the 99% BW section of the RF report for further measurement details).

Note 2: Detection Bandwidth = F_H - F_L = 5530MHz - 5490MHz = 40MHz.

Note 3: NII Detection Bandwidth Min. Limit (MHz): 37.76MHz x 100% = 37.76MHz.

Product	OmniAccess Stellar	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/09/03
Test Item	Detection Bandwidth (802.11ax-HE80 mode - 5530MHz)		

Radar Frequency (MHz)	DFS Detection Trials (1=Detection, 0= No Detection)										
	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)
5490 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%
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	1	1	1	1	1	1	1	1	1	1	100%
5570 F_H	1	1	1	1	1	1	1	1	1	1	100%

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 75.41MHz. (See the 99% BW section of the RF report for further measurement details).

Note 2: Detection Bandwidth = F_H - F_L = 5570MHz - 5490MHz = 80MHz.

Note 3: NII Detection Bandwidth Min. Limit (MHz): 75.41MHz x 100% = 75.41MHz.

5.4. Initial Channel Availability Check Time Measurement

5.4.1. Test Limit

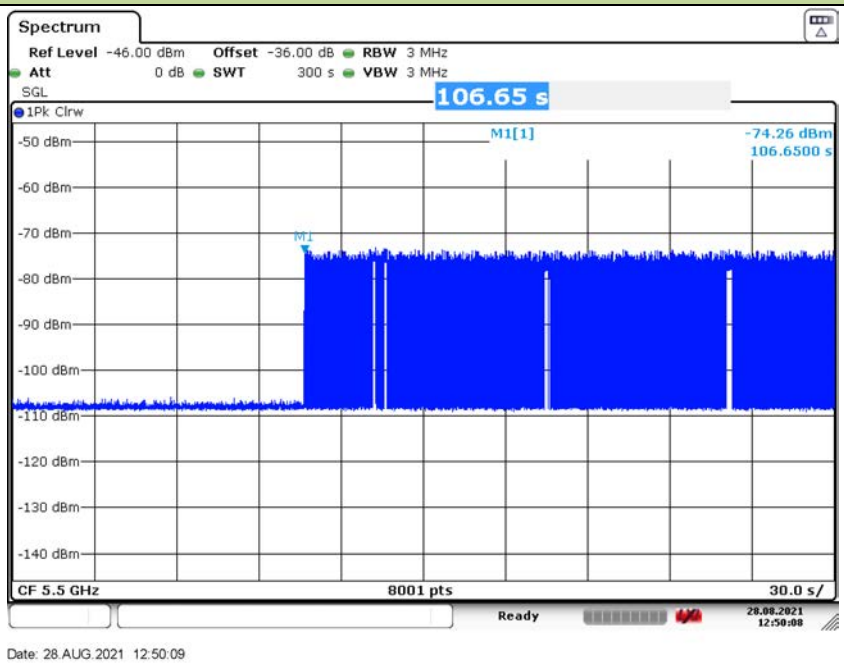
The EUT shall perform a Channel Availability Check to ensure that there is no radar operating on the channel. After power-up sequence, receive at least 1 minute on the intended operating frequency.

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	OmniAccess Stellar	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/08/28
Test Item	Initial Channel Availability Check Time (802.11ax-HE20 mode - 5500MHz)		

Initial Channel Availability Check Time

Note: The EUT does not transmit any beacon or data transmissions until at least 1 minute after the completion of the power-on cycle (46.65sec). Initial beacons/data transmissions are indicated by marker 1 (106.65 sec).

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

5.5.1. Test Limit

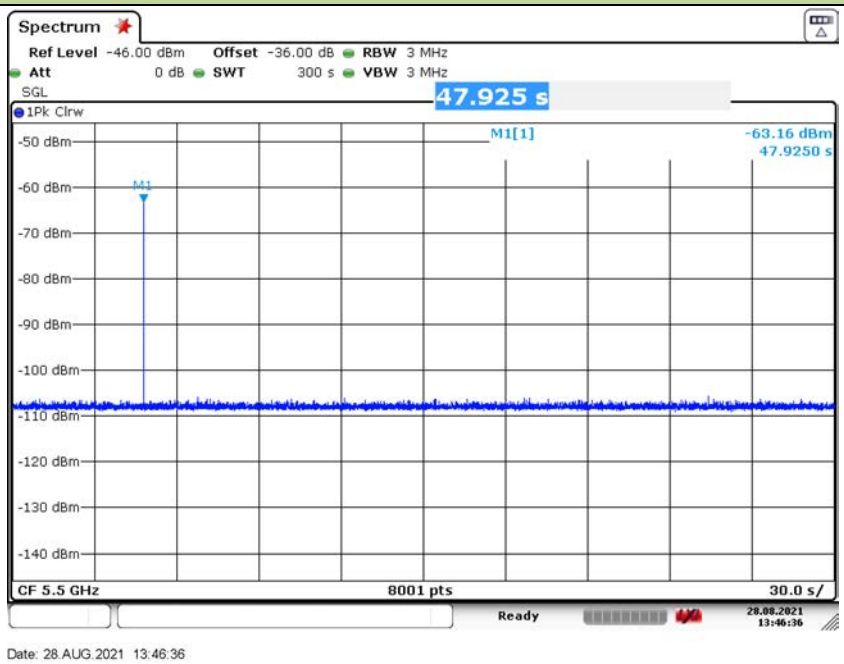
In beginning of the Channel Availability Check (CAC) Time, radar is detected on this channel, select another intended channel and perform a CAC on that channel.

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 for2.5 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	OmniAccess Stellar	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/08/28
Test Item	Beginning of the Channel Availability Check Time (802.11ax-HE20 mode - 5500MHz)		

Beginning of the Channel Availability Check Time


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

5.6.1. Test Limit

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

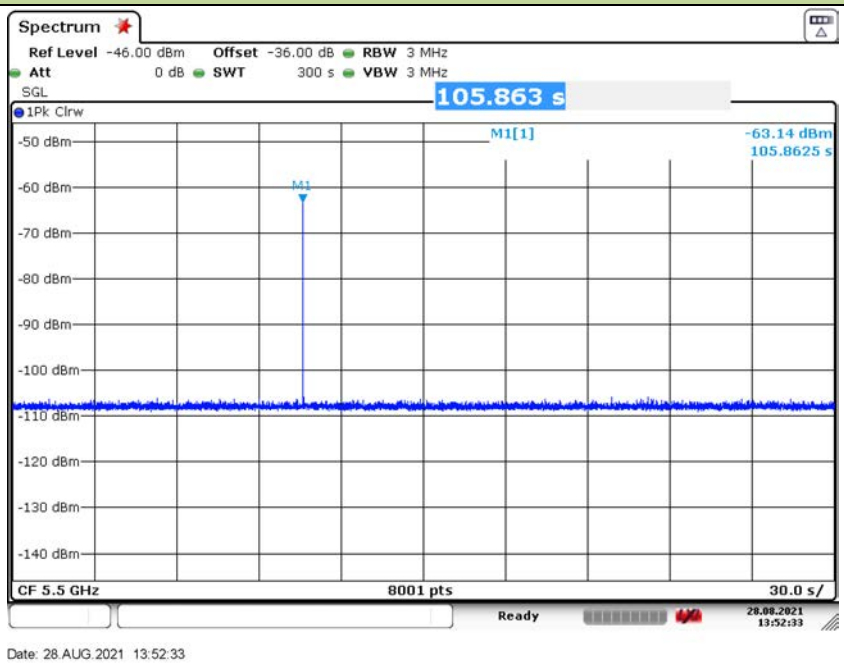
5.6.2. Test Procedure

1. The steps below define the procedure to verify successful radar detection on the selected Channel during a period equal to the Channel Availability Check Time and avoidance of operation on that Channel when a radar Burst with a level equal to the DFS Detection Threshold + 1 dB occurs at the beginning of the Channel Availability Check Time.
2. The EUT is powered on at T0. T1 denotes the instant when the EUT has completed its power-up sequence. The Channel Availability Check Time commences at instant T1 and will end no sooner thanT1 + 60 seconds. A single Burst of one of Short Pulse Radar Types 0-4 at DFS Detection Threshold + 1 dB will commence within a 6 second window starting at T1+ 54 seconds.
3. Visual indication on the EUT of successful detection of the radar Burst will be recorded and reported. Observation of emissions will continue for2.5 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	OmniAccess Stellar	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/08/28
Test Item	End of the Channel Availability Check Time (802.11ax-HE20 mode - 5500MHz)		

End of the Channel Availability Check Time



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.

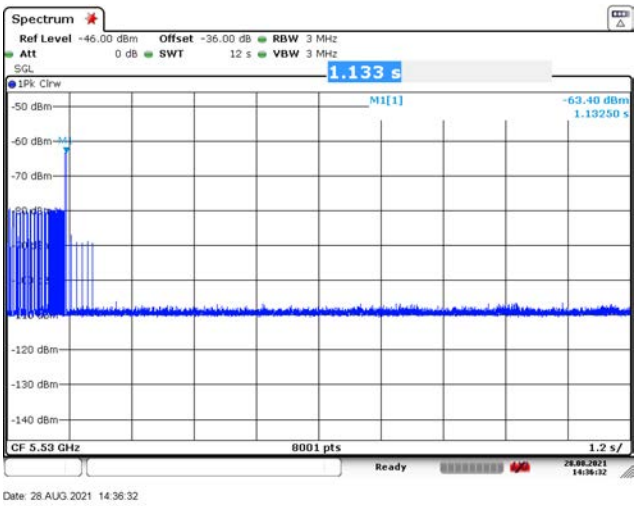
5.7.2. Test Procedure Used

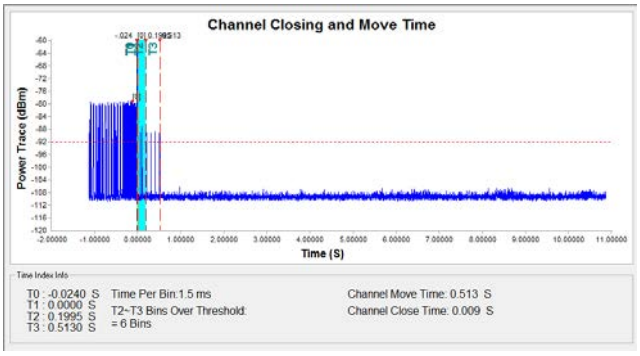
1. The test should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0.
2. When the radar burst with a level equal to the DFS Detection Threshold + 1dB is generated on the Operating Channel of the U-NII device. A U-NII device operating as a Master Device will 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 sec) / B (8000); where Dwell is the dwell time per spectrum analyzer sampling bin, S is the sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: C = N X Dwell; where C is the Closing Time, N is the number of spectrum analyzer sampling bins showing a U-NII transmission and Dwell is the dwell time per bin.
5. Measure the EUT for more than 30 minutes following the channel close/move time to verify that the EUT does not resume any transmissions on this Channel.

5.7.3. Test Result

Product	OmniAccess Stellar	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/08/28~09/06
Test Item	Channel Move Time and Channel Closing Transmission Time		
Test Mode	802.11ax-HE80 mode - 5530MHz		

Channel Move Time and Channel Closing Transmission Time

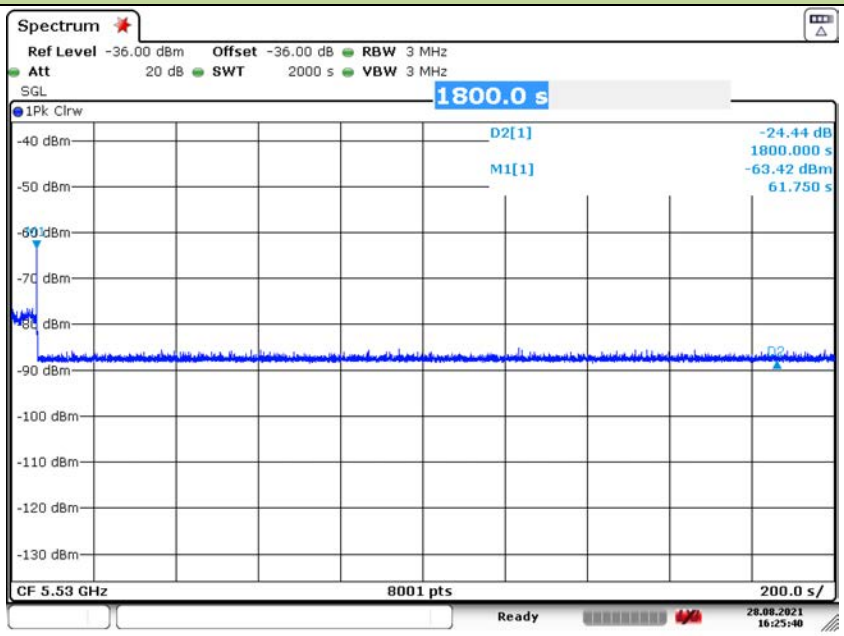




Parameter	Test Result	Limit
Channel Move Time (s)	0.513s	<10s
Channel Closing Transmission Time (ms) (Note)	9ms	< 60ms

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	OmniAccess Stellar	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/08/28
Test Item	Non-Occupancy Period		

Non-Occupancy Period	
	
Test Result	Test Limit
≥ 30min	≥ 30 min

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	OmniAccess Stellar	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/09/03~09/10
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	5497	1	578	92	1
2	5493	1	938	57	1
3	5491	1	838	63	0
4	5503	1	3066	18	1
5	5494	1	818	65	1
6	5503	1	658	81	1
7	5493	1	678	78	1
8	5495	1	538	98	1
9	5500	1	918	58	1
10	5504	1	718	74	0
11	5506	1	798	67	1
12	5493	1	738	72	1
13	5508	1	558	95	1
14	5500	1	618	86	1
15	5506	1	638	83	1
16	5499	1	1194	45	1
17	5502	1	1137	47	1
18	5505	1	1783	30	1
19	5496	1	1176	45	1
20	5507	1	1394	38	1
21	5495	1	1635	33	1
22	5500	1	1180	45	1
23	5503	1	713	74	0
24	5509	1	2834	19	1
25	5506	1	2749	20	1
26	5497	1	1469	36	1

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
27	5510	1	1231	43	0
28	5491	1	1454	37	0
29	5507	1	2512	21	1
30	5495	1	2968	18	1
Detection Percentage (%)					83.3%

Radar Type 2 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5497	3	210	26	1
2	5493	3.9	201	23	1
3	5491	1.2	153	28	0
4	5503	1.8	161	28	1
5	5494	2.8	217	28	1
6	5503	3.4	196	25	0
7	5493	3.7	218	23	1
8	5495	2.6	155	28	1
9	5500	1.6	170	27	1
10	5504	2.8	221	23	1
11	5506	1.5	179	24	0
12	5493	3.1	226	24	1
13	5508	3.7	180	26	1
14	5500	3.3	164	24	1
15	5506	2.5	187	24	1
16	5499	1.7	180	27	0
17	5502	2.3	194	28	1
18	5505	3.5	180	29	1
19	5496	4.9	181	24	1
20	5507	2.7	221	26	1
21	5495	2.6	222	28	1
22	5500	1.7	198	23	1
23	5503	4	215	25	1
24	5509	1.3	183	27	1
25	5506	2.3	175	23	1
26	5497	3	168	25	0
27	5510	4.2	174	29	1
28	5491	3	188	25	1
29	5507	4.7	191	24	1
30	5495	5	186	24	1
Detection Percentage (%)					83.3%

Radar Type 3 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5497	9.1	339	17	1
2	5493	8.9	305	16	1
3	5491	7.8	231	17	1
4	5503	8.6	283	17	1
5	5494	6.9	443	18	1
6	5503	7.8	321	17	0
7	5493	7	469	17	0
8	5495	7.3	345	18	1
9	5500	9	295	16	1
10	5504	8.6	366	16	1
11	5506	6	343	17	1
12	5493	7	493	17	1
13	5508	8.2	260	17	1
14	5500	6.5	295	17	1
15	5506	8.5	211	17	1
16	5499	7.4	345	17	1
17	5502	9.7	393	18	1
18	5505	6.9	282	16	1
19	5496	8.1	395	18	1
20	5507	8.9	246	18	1
21	5495	7.4	487	18	1
22	5500	8	290	16	0
23	5503	6.8	284	17	0
24	5509	7.8	281	16	1
25	5506	6.8	280	18	1
26	5497	9.7	387	18	0
27	5510	6.2	387	18	0
28	5491	9.9	345	18	1
29	5507	7.3	272	18	1
30	5495	6.1	316	17	1
Detection Percentage (%)					80.0%

Radar Type 4 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5497	17.3	333	14	1
2	5493	12.1	422	14	0
3	5491	18.3	320	13	0
4	5503	11.9	445	12	1
5	5494	15.2	458	15	1
6	5503	19.8	500	15	1
7	5493	17.9	451	14	0
8	5495	14.6	452	14	1
9	5500	19	273	14	1
10	5504	15.2	277	13	1
11	5506	19.3	247	12	1
12	5493	11.8	459	15	1
13	5508	17.6	425	15	1
14	5500	12.9	472	13	1
15	5506	16.2	342	16	1
16	5499	14.8	404	14	1
17	5502	15	297	15	1
18	5505	16.7	401	16	1
19	5496	13.5	418	15	0
20	5507	17.4	372	12	1
21	5495	11.5	273	13	1
22	5500	19.5	297	13	1
23	5503	18.6	380	14	1
24	5509	19.8	242	15	1
25	5506	12.6	233	13	1
26	5497	13.8	400	15	1
27	5510	17.3	431	15	1
28	5491	15.5	317	14	1
29	5507	13.6	308	13	1
30	5495	16.7	357	16	1
Detection Percentage (%)					86.7%

Note: In addition, an average minimum percentage of successful detection across all four Short pulse radar test waveforms is as follows: $\frac{P_d1+P_d2+P_d3+P_d4}{4}$ = (83.3%+83.3%+80.0%+86.7%)/4 = 83.3% (>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	5492.8	1
2	5500	1	17	5492	1
3	5500	1	18	5494.4	1
4	5500	1	19	5492.8	1
5	5500	1	20	5494.8	0
6	5500	1	21	5502	1
7	5500	1	22	5504.4	1
8	5500	1	23	5507.6	1
9	5500	1	24	5504	1
10	5500	1	25	5507.2	1
11	5496.4	1	26	5504	1
12	5498	0	27	5507.6	1
13	5492	1	28	5503.2	1
14	5492.4	1	29	5505.2	1
15	5493.6	1	30	5508	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	1	68.7	6			37.575
2	3	85.3	6	1184	1456	379.9
3	1	80	6			158.82
4	2	59.3	6	1206		252.87
5	3	81.3	6	1194	1745	722.54
6	1	64.6	6			459.21
7	3	58.7	6	1044	1011	354.73
8	2	92.2	6	1801		653.62
9	2	82.8	6	1172		529.66
10	2	52.1	6	1851		21.81
11	3	83.3	6	1245	1824	741.95
12	2	59.9	6	1516		503.23
13	2	53	6	1592		274.22
14	2	79.9	6	1316		360.8
15	3	53.9	6	1175	1422	270.7

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	90.7	11	1879		1204.1
2	1	82.5	11			663.567
3	1	52.3	11			590.313
4	1	63.2	11			1091.38
5	2	99.3	11	1428		436.717
6	1	88.4	11			643.923
7	3	60.1	11	1991	1942	895.07
8	3	87	11	1933	1110	1272.167
9	1	92.4	11			1197.933

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	2	50.3	16	1360		509.074
2	2	70.6	16	1200		302.344
3	2	57.2	16	1279		180.377
4	2	66.6	16	1160		334.14
5	1	88.8	16			452.593
6	3	67.1	16	1045	1342	40.787
7	2	65.4	16	1959		16.45
8	2	98.3	16	1071		366.353
9	3	65.4	16	1321	1362	535.177
10	2	91.6	16	1852		16.36
11	2	63.3	16	1264		656.153
12	2	79.7	16	1874		405.607
13	1	61.6	16			399.76
14	3	70.5	16	1476	1492	434.893
15	3	87.3	16	1793	1642	614.007
16	1	62.9	16			657
17	3	99.3	16	1289	1579	105.233
18	2	97.1	16	1027		403.167

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	59.5	8	1720	1955	13.716
2	2	61.8	8	1098		572.25
3	2	60.1	8	1284		156.1
4	2	88.5	8	1625		37.18
5	1	95.5	8			325.23
6	2	68.9	8	1847		4.65
7	2	75.2	8	1786		5.15
8	2	94.4	8	1182		591.8
9	1	50.8	8			80.63
10	2	52.7	8	1481		505.52
11	2	72.3	8	1809		201.89
12	2	97.3	8	1539		80.9
13	3	58.7	8	1021	1690	369.25
14	1	88.6	8			180.84
15	2	72.9	8	1325		597.9
16	2	76.3	8	1410		693.4

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	84.5	13			828.587
2	2	65.5	13	1023		5.089
3	2	55.1	13	1495		613.386
4	2	78.2	13	1701		349.799
5	2	67.3	13	1169		255.722
6	1	50.2	13			779.045
7	1	89.3	13			36.648
8	1	59	13			53.462
9	1	56.3	13			505.925
10	3	58.2	13	1833	1339	42.788
11	3	84.2	13	1029	1723	151.241
12	2	87.8	13	1704		528.054
13	3	83.6	13	1990	1141	358.977

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	62.7	16	1534		991.44
2	2	92.1	16	1889		260.35
3	1	59.6	16			33.48
4	1	62.3	16			790.72
5	3	69.5	16	1617	1775	425.35
6	2	93.4	16	1719		473.84
7	3	95.8	16	1880	1018	382.12
8	3	97.1	16	1652	1804	719.63
9	2	58.3	16	1075		718.7
10	2	89.2	16	1851		607.92
11	3	53.9	16	1225	1387	307.9
12	1	75.1	16			227.5

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	55.5	15	1765		796.694
2	1	83.2	15			703.211
3	2	77.7	15	1950		797.352
4	2	68.9	15	1570		290.713
5	3	59.5	15	1118	1473	211.634
6	1	93.3	15			941.525
7	3	58.2	15	1156	1051	155.565
8	1	89.9	15			887.736
9	3	91	15	1821	1934	188.367
10	3	71.9	15	1162	1629	408.618
11	2	72.3	15	1892		703.709

Type 5 Radar Waveform_8

Burst	Number of Pulses	Pulse Width (μsec)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μ sec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	51.7	12	1011		509.805
2	3	89.9	12	1862	1940	1098.707
3	2	52.7	12	1277		203.903
4	1	56.6	12			391.06
5	2	89.3	12	1667		1039.227
6	3	91.6	12	1842	1913	1245.473
7	3	53	12	1146	1914	583.95
8	3	92.3	12	1871	1744	845.467
9	2	50.9	12	1339		1258.733

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	66.5	15	1632		317.506
2	3	95.3	15	1469	1174	133.632
3	2	59.2	15	1029		59.072
4	2	50.5	15	1922		623.693
5	3	52.5	15	1867	1629	251.704
6	1	60.4	15			9.835
7	2	76.6	15	1276		339.076
8	3	79	15	1052	1541	601.777
9	2	88.1	15	1038		98.488
10	2	55.1	15	1310		85.269
11	3	99.4	15	1424	1597	48.891
12	3	81.9	15	1265	1511	266.582
13	3	75.4	15	1459	1118	79.393
14	3	50.4	15	1804	1031	540.744
15	2	74.3	15	1336		105.995
16	3	70.4	15	1324	1544	217.616
17	2	95	15	1463		391.037
18	2	92.2	15	1697		443.858
19	2	58.9	15	1652		172.379

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	71.6	17	1399		593.655
2	2	75.5	17	1228		596.963
3	3	95.7	17	1714	1160	711.956
4	2	63.8	17	1478		791.209
5	3	71.4	17	1481	1745	799.642
6	2	52.1	17	1263		705.745
7	2	93.7	17	1827		144.708
8	2	93.2	17	1412		437.092
9	3	89.4	17	1772	1891	315.655
10	3	74.6	17	1208	1025	347.388
11	2	79.1	17	1422		296.551
12	1	60.2	17			806.354
13	3	89.2	17	1215	1310	285.277

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	98.6	16	1204	1268	783.593
2	2	64.8	16	1834		941.111
3	2	93	16	1593		582.492
4	1	70.6	16			586.663
5	2	64.9	16	1544		409.544
6	1	66	16			484.885
7	1	66.6	16			1067.635
8	2	53.2	16	1304		40.236
9	2	79.2	16	1125		378.277
10	2	50.5	16	1013		748.918
11	2	58.1	16	1763		591.409

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	73.6	20	1283		624.093
2	2	90.3	20	1893		104.333
3	2	72.4	20	1235		646.29
4	1	75.3	20			8.51
5	1	87.9	20			661.39
6	3	52.5	20	1239	1391	580
7	1	60	20			667.84
8	2	79.4	20	1095		34.97
9	2	54.7	20	1505		712.58
10	3	77.9	20	1126	1383	289.51
11	2	58.3	20	1058		493.54
12	1	85.4	20			97.62
13	2	79.2	20	1402		425.78
14	2	85.9	20	1703		69.3
15	2	85.1	20	1199		10.1
16	3	63	20	1937	1000	436.7

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	3	94.7	5	1107	1981	581.422
2	1	50.3	5			828.031
3	2	60.1	5	1891		764.822
4	2	51.9	5	1342		221.683
5	2	94.2	5	1248		817.904
6	2	63.8	5	1793		303.965
7	2	76.1	5	1855		723.225
8	2	91.3	5	1308		1005.826
9	2	69.9	5	1121		831.737
10	3	96	5	1982	1440	651.918
11	1	86.2	5			337.309

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	76.4	6	1304		394.911
2	2	98.3	6	1209		530.61
3	2	53.1	6	1608		143.05
4	3	54.3	6	1969	1024	466
5	1	70.2	6			935.95
6	3	53.5	6	1995	1459	1008.41
7	3	84.3	6	1878	1728	252.94
8	2	58.8	6	1586		938.25
9	2	54.3	6	1572		719
10	3	82.4	6	1976	1939	541.5

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	98.7	9	1716		26.964
2	2	69.3	9	1758		31.657
3	3	87.6	9	1849	1870	745.424
4	2	63.6	9	1967		600.241
5	2	88.2	9	1544		175.739
6	1	82.4	9			663.716
7	1	83.3	9			85.963
8	2	61.3	9	1152		706.88
9	1	59.2	9			34.007
10	1	69.7	9			34.064
11	2	99.8	9	1361		727.861
12	3	64.4	9	1234	1590	346.529
13	3	94.4	9	1417	1025	652.986
14	3	66.7	9	1908	1739	802.243

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	3	75.9	7	1844	1425	137.512
2	1	83.5	7			305.19
3	3	72	7	1484	1309	287.38
4	3	94.5	7	1033	1748	401.25
5	2	76.7	7	1574		696.18
6	2	64.6	7	1165		417.02
7	3	83.1	7	1185	1706	648.3
8	1	58.7	7			472.61
9	3	50.1	7	1445	1891	208.91
10	1	60.3	7			515.39
11	2	58.6	7	1980		269.91
12	2	91.2	7	1950		609.51
13	2	53.8	7	1416		258.54
14	1	87.3	7			647.2
15	1	66.2	7			509.6
16	2	60.4	7	1515		415.9

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	52.3	5	1987		451.613
2	2	64.8	5	1167		532.89
3	2	86.3	5	1900		625.82
4	2	77.7	5	1718		562.73
5	2	72.3	5	1047		332.02
6	3	79.1	5	1607	1587	68.29
7	2	66.5	5	1407		578.32
8	2	87	5	1092		565.2
9	2	60.3	5	1191		320.07
10	2	66.8	5	1319		412.88
11	2	66.1	5	1639		284.54
12	2	88.5	5	1862		181.95
13	3	91.4	5	1692	1766	556.6
14	3	66.5	5	1660	1414	304.2
15	2	83.2	5	1987		417.1

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	1	54.8	11			298.777
2	3	69.1	11	1790	1640	270.09
3	2	59.3	11	1288		37.717
4	1	65.8	11			294.22
5	3	90.7	11	1049	1191	508.633
6	2	82.5	11	1519		576.827
7	3	71.8	11	1752	1142	655.95
8	3	78	11	1223	1200	610.703
9	3	87.4	11	1732	1343	267.077
10	1	69.3	11			653.81
11	3	92	11	1487	1003	160.513
12	2	90.7	11	1919		585.217
13	2	89.1	11	1586		427.35
14	3	94.6	11	1283	1184	230.623
15	2	57	11	1516		226.807
16	2	58.4	11	1059		457.5
17	1	68.7	11			594.533
18	1	98.8	11			83.167

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	92.1	7	1016		326.698
2	1	71.7	7			320.107
3	1	68.8	7			679.093
4	1	94.4	7			884.1
5	1	62	7			1244.147
6	2	54.8	7	1108		747.813
7	2	77.8	7	1415		282.19
8	2	73.8	7	1602		791.767
9	3	96.1	7	1111	1071	1036.433

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	3	50.3	12	1556	1408	732.533
2	3	91.3	12	1004	1375	178.83
3	3	98.3	12	1116	1679	116.03
4	2	62.6	12	1103		955.34
5	3	52	12	1480	1695	1085.18
6	2	65.9	12	1727		180.05
7	1	99.1	12			35.32
8	2	67.5	12	1531		1102.12
9	2	88.7	12	1220		665.8
10	2	72.5	12	1213		103.3

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	90.1	20			585.113
2	2	97	20	1307		435.76
3	3	89.8	20	1809	1404	75.01
4	3	99.3	20	1705	1100	404.01
5	2	71.4	20	1246		64
6	3	82.8	20	1624	1097	318.69
7	1	97.9	20			213.76
8	2	85.2	20	1472		159.16
9	3	64.2	20	1573	1548	25.02
10	2	57	20	1856		578.69
11	3	96.1	20	1365	1913	431.81
12	3	72.5	20	1961	1870	4.3
13	2	51.8	20	1039		13.34
14	3	68.5	20	1118	1206	563.8
15	2	75.9	20	1530		199.3
16	1	98.2	20			437.5

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	1	85.3	14			528.217
2	1	90.8	14			159.827
3	3	54.4	14	1407	1159	838.474
4	1	99.6	14			385.191
5	1	95.2	14			428.819
6	2	80.8	14	1972		183.386
7	2	61.2	14	1325		454.523
8	2	77.8	14	1159		697.21
9	1	82.3	14			771.737
10	1	73.4	14			681.044
11	1	51.8	14			477.481
12	3	97.4	14	1654	1088	426.199
13	1	73	14			606.286
14	2	69.3	14	1158		299.643

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	90.9	6	1525		247.436
2	2	68.2	6	1078		301.04
3	2	75.7	6	1225		710.71
4	1	78.2	6			229.89
5	2	78.7	6	1467		711.13
6	3	99.5	6	1734	1864	577.6
7	3	88.6	6	1748	1304	148.28
8	2	77.9	6	1036		96.27
9	2	67	6	1122		642.7
10	3	92.5	6	1331	1862	109.3
11	2	91	6	1834		121.18
12	3	56.3	6	1119	1552	440.57
13	1	66	6			413.77
14	2	74.9	6	1786		427.3
15	1	87.6	6			58.8
16	1	84.5	6			73.3

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	59.4	15	1994	1886	530.744
2	2	52.7	15	1672		58.844
3	1	87.8	15			379.09
4	2	96	15	1288		54.08
5	2	66.6	15	1961		254.1
6	1	91.4	15			515.97
7	3	74.3	15	1771	1243	420.87
8	2	93.9	15	1827		324.45
9	3	58	15	1286	1841	67.96
10	3	67.1	15	1890	1126	740.72
11	3	90.6	15	1142	1264	111.44
12	1	86.7	15			576.51
13	3	78	15	1119	1783	78.09
14	2	76	15	1459		444.6
15	1	91.1	15			19.2
16	3	65.4	15	1646	1471	468.8

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	87.1	7			580.629
2	2	53.2	7	1232		4.07
3	3	93.4	7	1464	1189	369.377
4	3	88.2	7	1061	1613	347.85
5	3	73.2	7	1046	1414	215.793
6	3	63.2	7	1982	1560	183.877
7	2	90.1	7	1917		280.53
8	3	86.5	7	1384	1391	236.753
9	2	81.7	7	1461		495.007
10	1	86.2	7			542.08
11	3	65.6	7	1785	1569	364.773
12	2	91.6	7	1527		465.737
13	3	58.3	7	1890	1851	620.66
14	2	99.9	7	1722		356.533
15	2	71	7	1685		136.277
16	3	58.7	7	1172	1884	367.8
17	1	75.1	7			551.533
18	3	53.6	7	1400	1391	320.167

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	97.6	15	1976		594.54
2	1	52.7	15			451.828
3	2	82.8	15	1733		467.335
4	2	81.6	15	1387		222.933
5	2	70.6	15	1343		117.031
6	2	88.7	15	1324		209.078
7	2	94.1	15	1585		438.146
8	1	98.2	15			642.994
9	2	58.7	15	1170		666.691
10	2	87	15	1980		671.289
11	1	55.4	15			559.796
12	3	71.7	15	1902	1895	432.904
13	1	78.9	15			353.352
14	2	80	15	1674		606.949
15	3	60.2	15	1774	1401	63.017
16	1	84.7	15			71.565
17	1	65.8	15			504.382

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	1	73.8	6			490.134
2	2	66.2	6	1733		288.66
3	3	55.1	6	1368	1766	558.502
4	2	95.7	6	1303		611.913
5	3	52.1	6	1694	1860	63.914
6	2	53.5	6	1282		414.145
7	2	70.4	6	1731		364.946
8	1	75.8	6			526.897
9	2	87.3	6	1766		44.128
10	3	78.4	6	1117	1626	62.039
11	2	77.2	6	1846		260.201
12	3	58.2	6	1346	1033	350.152
13	2	70.9	6	1713		425.393
14	2	64.4	6	1027		173.014
15	2	81.2	6	1790		460.585
16	2	67.5	6	1278		161.636
17	2	67.8	6	1714		79.837
18	3	57.6	6	1323	1079	486.258
19	2	87.8	6	1399		462.679

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	1	96.5	17			32.905
2	2	82.5	17	1785		100.463
3	3	65.1	17	1806	1818	233.506
4	2	59.4	17	1651		443.949
5	1	53.3	17			831.492
6	3	95.3	17	1480	1089	85.265
7	3	73.4	17	1009	1247	503.608
8	2	85.3	17	1723		51.502
9	1	86.9	17			475.485
10	2	95.6	17	1248		597.568
11	2	76.9	17	1052		693.621
12	3	86.2	17	1774	1659	146.754
13	1	84.3	17			97.477

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	53	12	1967		311.513
2	1	70.2	12			747.733
3	1	99.7	12			884.196
4	2	74.3	12	1134		419.669
5	1	80.5	12			404.202
6	2	92.9	12	1046		910.445
7	2	79.1	12	1941		805.448
8	2	65.6	12	1957		763.362
9	3	65.1	12	1440	1218	253.405
10	2	70.4	12	1763		476.598
11	1	92.9	12			483.711
12	1	85.8	12			297.854
13	3	56.2	12	1983	1265	213.277

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	96.1	5	1706		658.65
2	1	72.1	5			376.373
3	2	52.4	5	1462		64.017
4	2	60.5	5	1238		534.38
5	3	93.2	5	1296	1783	565.053
6	3	69.6	5	1442	1638	549.317
7	2	66.6	5	1935		578.05
8	1	78.1	5			350.233
9	1	63	5			571.677
10	3	99.6	5	1009	1763	174.06
11	1	51.4	5			74.283
12	2	66.5	5	1761		231.547
13	3	73.4	5	1870	1086	99.15
14	1	81.7	5			223.773
15	2	55.4	5	1660		360.197
16	2	58.4	5	1655		124.2
17	2	93.7	5	1718		401.633
18	1	79.9	5			300.567

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 (%)		100.0%	

Radar waveform #1			**Radar waveform #2**		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
24	5505	72	28	5502	84
55	5507	165	37	5509	111
70	5492	210	54	5498	162
81	5495	243	58	5495	174
--	--	--	76	5506	228
--	--	--	77	5490	231
--	--	--	79	5510	237
--	--	--	83	5496	249
--	--	--	100	5501	300

Radar waveform #3			Radar waveform #4		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
12	5490	36	33	5508	99
17	5497	51	86	5495	258
39	5509	117	--	--	--
81	5502	243	--	--	--
97	5493	291	--	--	--

Radar waveform #5			Radar waveform #6		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5492	3	10	5505	30
13	5490	39	16	5497	48
23	5503	69	23	5496	69
49	5504	147	42	5510	126
--	--	--	58	5498	174

Radar waveform #7			Radar waveform #8		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
22	5498	66	2	5495	6
36	5496	108	13	5501	39
50	5501	150	23	5503	69
--	--	--	34	5496	102
--	--	--	50	5507	150
--	--	--	60	5491	180
--	--	--	86	5509	258
--	--	--	92	5506	276

Radar waveform #9			Radar waveform #10		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5496	6	10	5499	30
24	5505	72	21	5502	63
37	5503	111	67	5496	201
45	5490	135	85	5510	255
80	5510	240	--	--	--
91	5508	273	--	--	--

Radar waveform #11			Radar waveform #12		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Frequency (MHz)	Hopping Number	Pulse Start (ms)
26	5499	78	2	5492	6
73	5507	219	23	5498	69
83	5503	249	91	5497	273
85	5504	255	--	--	--
97	5509	291	--	--	--

Radar waveform #13			Radar waveform #14		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
23	5501	69	39	5504	117
27	5503	81	40	5500	120
52	5493	156	56	5495	168

Radar waveform #15			Radar waveform #16		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
22	5500	66	6	5490	18
24	5508	72	31	5505	93
38	5492	114	41	5491	123
76	5510	228	54	5502	162
97	5491	291	--	--	--

Radar waveform #17			Radar waveform #18		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
46	5495	138	6	5509	18
--	--	--	41	5499	123
--	--	--	61	5507	183
--	--	--	62	5502	186

Radar waveform #19			Radar waveform #20		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5495	6	1	5498	3
9	5499	27	31	5501	93
26	5494	78	--	--	--

Radar waveform #21			Radar waveform #22		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
18	5494	54	13	5505	39
23	5504	69	20	5495	60
53	5503	159	57	5502	171
--	--	--	61	5508	183

Radar waveform #23			Radar waveform #24		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
12	5508	36	14	5510	42
26	5490	78	41	5507	123
30	5505	90	58	5504	174
43	5503	129	61	5490	183
69	5496	207	97	5491	291
73	5491	219	--	--	--

Radar waveform #25			Radar waveform #26		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
9	5502	27	13	5501	39
49	5509	147	17	5491	51
50	5492	150	38	5504	114
60	5496	180	71	5502	213
68	5510	204	90	5503	270
84	5507	252	93	5492	279

Radar waveform #27			Radar waveform #28		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
13	5493	39	17	5490	51
--	--	--	83	5496	249
--	--	--	95	5505	285
--	--	--	98	5497	294

Radar waveform #29			Radar waveform #30		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5490	6	21	5496	63
3	5493	9	51	5495	153
19	5496	57	72	5499	216
31	5502	93	87	5504	261
75	5491	225	--	--	--
92	5495	276	--	--	--
99	5497	297	--	--	--
100	5501	300	--	--	--

Product	OmniAccess Stellar	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/09/03~09/10
Test Item	Radar Statistical Performance Check (802.11ax-HE40 mode – 5510MHz)		

Radar Type 1 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5510	1	798	67	1
2	5494	1	678	78	1
3	5499	1	698	76	1
4	5519	1	518	102	1
5	5493	1	538	98	1
6	5498	1	778	68	1
7	5491	1	918	58	0
8	5524	1	638	83	1
9	5517	1	898	59	1
10	5492	1	618	86	1
11	5507	1	658	81	1
12	5519	1	858	62	1
13	5491	1	578	92	0
14	5524	1	838	63	1
15	5503	1	878	61	1
16	5516	1	1032	52	1
17	5504	1	1341	40	1
18	5502	1	2232	24	1
19	5529	1	1134	47	1
20	5511	1	2385	23	1
21	5526	1	1474	36	1
22	5491	1	2486	22	0
23	5511	1	1624	33	1
24	5507	1	1710	31	1
25	5498	1	1291	41	1
26	5504	1	2423	22	1

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
27	5497	1	2728	20	1
28	5522	1	1080	49	1
29	5503	1	1873	29	1
30	5497	1	592	90	1
Detection Percentage (%)					90%

Radar Type 2 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5510	1.6	225	26	1
2	5494	2.1	155	28	1
3	5499	3.9	230	26	1
4	5519	2.8	175	24	1
5	5493	4.9	162	28	1
6	5498	4.6	185	26	1
7	5491	3.9	191	27	1
8	5524	1.7	199	28	1
9	5517	2.8	213	28	1
10	5492	4.4	219	29	1
11	5507	4	166	23	1
12	5519	1.2	156	24	1
13	5491	2.2	165	29	1
14	5524	4.4	186	29	1
15	5503	3.1	167	26	1
16	5516	3	178	26	1
17	5504	4.2	209	27	0
18	5502	3.7	215	27	1
19	5529	4.7	205	26	1
20	5511	1.3	189	28	1
21	5526	3.1	155	24	1
22	5491	3.8	217	28	1
23	5511	2	203	23	1
24	5507	4.3	177	25	1
25	5498	1.4	196	24	1
26	5504	2.8	189	26	1
27	5497	1.4	207	28	1
28	5522	4.1	208	24	1
29	5503	3.6	159	23	1
30	5497	1.1	221	25	1
Detection Percentage (%)					96.7%

Radar Type 3 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5510	8	486	18	1
2	5494	8.4	457	18	1
3	5499	10	396	16	1
4	5519	6.4	454	16	1
5	5493	6.7	427	17	1
6	5498	8.2	376	17	1
7	5491	7.1	391	17	0
8	5524	6.7	233	17	1
9	5517	8.3	469	18	1
10	5492	6.5	495	17	1
11	5507	7.1	249	18	0
12	5519	7.3	425	17	1
13	5491	9.8	217	17	0
14	5524	7.1	310	17	1
15	5503	6	241	18	1
16	5516	7.2	243	17	1
17	5504	9.3	451	17	1
18	5502	7.9	238	18	1
19	5529	7.6	473	17	1
20	5511	6	202	17	1
21	5526	7	361	16	1
22	5491	9.1	315	18	1
23	5511	8.1	332	18	1
24	5507	8.4	267	18	1
25	5498	8.7	448	16	1
26	5504	7	362	16	1
27	5497	8.1	474	18	1
28	5522	6.3	269	16	1
29	5503	8.3	474	16	1
30	5497	9.7	408	16	1
Detection Percentage (%)					90.0%

Radar Type 4 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5510	13.7	262	14	0
2	5494	14.3	365	13	1
3	5499	14.2	366	16	1
4	5519	11.8	393	14	1
5	5493	16.7	438	13	1
6	5498	15.1	460	14	1
7	5491	15.1	463	15	0
8	5524	12.7	249	14	1
9	5517	18.5	202	13	1
10	5492	12.6	433	12	1
11	5507	19.7	353	14	1
12	5519	11.4	487	14	1
13	5491	19.8	482	14	0
14	5524	14.8	461	15	1
15	5503	16.9	421	14	1
16	5516	19.9	395	14	1
17	5504	18.2	482	13	1
18	5502	11.6	370	13	1
19	5529	14.7	420	14	1
20	5511	12.3	310	13	0
21	5526	19.2	223	14	1
22	5491	13.6	438	16	0
23	5511	18.7	321	13	0
24	5507	19	201	16	1
25	5498	16.8	338	15	1
26	5504	17.2	362	13	0
27	5497	14.9	426	16	1
28	5522	18.2	357	13	1
29	5503	11.6	389	16	1
30	5497	17.1	414	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: $\frac{P_d1+P_d2+P_d3+P_d4}{4}$ = (90.0%+96.7%+90.0%+76.7%)/4 = 88.3% (>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	5496.8	1
2	5510	1	17	5495.2	1
3	5510	1	18	5492.8	1
4	5510	1	19	5495.6	1
5	5510	1	20	5498	1
6	5510	1	21	5525.2	1
7	5510	1	22	5525.2	1
8	5510	1	23	5526.8	1
9	5510	1	24	5527.6	1
10	5510	1	25	5524.8	1
11	5494	1	26	5525.2	1
12	5494.8	1	27	5526	1
13	5494	1	28	5526.8	1
14	5498	1	29	5524.4	1
15	5496.8	1	30	5525.6	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	3	96.2	18	1238	1388	680.426
2	2	51.5	18	1874		401.733
3	2	69.7	18	1020		829.606
4	3	50	18	1005	1670	884.339
5	1	66.7	18			883.492
6	2	62.6	18	1308		512.165
7	3	99.6	18	1965	1403	586.968
8	1	78.9	18			796.552
9	1	70.4	18			92.045
10	2	57.7	18	1589		164.748
11	2	59.9	18	1594		548.481
12	3	85.7	18	1202	1540	758.354
13	2	82	18	1211		698.077

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	3	59.8	11	1447	1130	121.549
2	2	83.8	11	1297		110.353
3	1	71.6	11			614.206
4	2	81.8	11	1559		778.479
5	2	94.2	11	1370		111.042
6	3	90.3	11	1631	1271	240.395
7	2	62.8	11	1237		476.928
8	2	98	11	1294		258.552
9	1	53	11			347.165
10	2	90.5	11	1063		124.578
11	2	74.4	11	1634		645.291
12	3	90.5	11	1038	1886	475.854
13	1	75.6	11			177.777

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	72.4	6	1314	1781	1279.31
2	2	57.1	6	1994		302.47
3	1	98.5	6			602.1
4	1	52.8	6			872.61
5	2	87.5	6	1030		670.64
6	2	69.7	6	1047		277.2
7	2	53.9	6	1957		1377.6
8	1	61.2	6			148.4

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	54.2	13	1772		277.252
2	2	99.2	13	1350		49.44
3	2	57.1	13	1364		324.89
4	2	84.1	13	1071		949.98
5	2	83.7	13	1567		730.6
6	2	59.3	13	1025		550.72
7	3	85.4	13	1241	1759	443.95
8	2	73.6	13	1889		510.95
9	2	75.3	13	1105		951.3
10	2	63	13	1665		204.3

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	65.2	14	1699		785.469
2	2	59.5	14	1384		131.06
3	3	90.2	14	1253	1151	501.22
4	2	98.1	14	1228		1147.03
5	2	71.1	14	1478		1148.1
6	3	82.9	14	1878	1524	615.67
7	3	54.7	14	1247	1931	172.82
8	2	94.7	14	1341		518.25
9	1	63.8	14			1087.1
10	3	52.5	14	1246	1081	718.7

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	98	7	1897		1311
2	2	76.9	7	1129		1057.037
3	2	84.7	7	1899		487.793
4	2	61.3	7	1510		1125.42
5	2	69.7	7	1355		411.377
6	1	69.4	7			672.093
7	2	83.4	7	1945		700.63
8	3	67.5	7	1550	1047	711.567
9	2	64.4	7	1015		332.133

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	55.4	18	1866		765.601
2	1	81.8	18			10.37
3	3	86.3	18	1557	1275	1149.07
4	3	95	18	1316	1757	1020.27
5	2	98.2	18	1512		847.82
6	2	90.1	18	1453		486.18
7	1	55	18			473.78
8	2	74.1	18	1784		395.91
9	2	58	18	1460		188.86
10	2	66	18	1425		978.3

Type 5 Radar Waveform_8

Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µ sec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	99.9	10	1142		617.747
2	2	57	10	1948		409.663
3	2	73.2	10	1706		351.156
4	3	59.3	10	1457	1961	484.719
5	1	70.2	10			59.632
6	2	71	10	1735		258.265
7	2	60	10	1645		303.398
8	3	65.3	10	1895	1636	23.792
9	2	78.1	10	1472		78.115
10	1	58.2	10			76.068
11	3	69.2	10	1885	1697	801.631
12	3	57.5	10	1365	1675	305.954
13	1	55.5	10			67.077

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	78.6	20	1327	1094	504.131
2	1	59.3	20			13.582
3	1	76.6	20			579.515
4	2	66.4	20	1323		589.053
5	2	66	20	1319		515.271
6	2	81.8	20	1791		102.918
7	2	94.9	20	1868		680.706
8	3	91	20	1804	1617	412.794
9	2	75.4	20	1315		509.031
10	2	55.6	20	1375		672.699
11	1	88.7	20			89.296
12	1	50.5	20			445.334
13	1	90	20			381.682
14	2	60.3	20	1641		24.199
15	3	59.2	20	1856	1864	59.737
16	2	79.8	20	1666		128.965
17	3	92.3	20	1389	1124	522.782

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	68.7	6	1097		476.729
2	2	62.7	6	1091		582.787
3	2	56	6	1021		363.704
4	1	62.4	6			424.571
5	2	52.4	6	1719		48.629
6	2	75.3	6	1427		66.566
7	2	68.8	6	1527		551.923
8	1	95	6			762.95
9	2	62.4	6	1700		401.077
10	1	99.9	6			522.404
11	1	69.9	6			105.811
12	3	95.3	6	1633	1444	485.099
13	3	80.9	6	1641	1943	705.486
14	2	54.1	6	1354		9.143

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	1	86	10			910.907
2	1	73.6	10			1099.87
3	2	79.4	10	1794		1411.74
4	3	83.9	10	1797	1538	618.41
5	2	94.3	10	1998		1288.39
6	1	63	10			16.8
7	2	65.7	10	1871		989.37
8	2	56.8	10	1427		91.9

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	75.2	12	1786	1958	1033.21
2	1	82.8	12			1328.81
3	1	80.9	12			852.43
4	2	82	12	1153		296.22
5	2	71.4	12	1500		224.28
6	1	87.6	12			229.56
7	2	78.2	12	1917		1000.1
8	2	87	12	1934		1393.8

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	98.8	10	1015		204.758
2	1	75.2	10			156.955
3	3	96.3	10	1994	1142	379.99
4	2	91.7	10	1492		178.18
5	2	67.4	10	1259		252.07
6	1	86.7	10			789.27
7	2	81.6	10	1242		381.92
8	2	76	10	1497		416.18
9	2	97.2	10	1467		23.24
10	3	97.3	10	1193	1862	714.52
11	2	95	10	1488		611.71
12	2	90	10	1099		434.49
13	1	67.5	10			596.3
14	2	87	10	1883		251.5
15	2	78.3	10	1782		665.2

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	74.3	20	1165	1107	189.198
2	3	51.3	20	1531	1823	621.551
3	2	79.9	20	1629		340.092
4	2	88.9	20	1189		79.823
5	2	84	20	1610		350.774
6	2	84.5	20	1829		432.125
7	3	80.5	20	1982	1020	7.866
8	3	55.4	20	1897	1757	253.427
9	1	93.5	20			117.388
10	1	59.7	20			265.369
11	2	94	20	1625		295.461
12	2	53.8	20	1840		326.202
13	3	62.8	20	1931	1471	187.303
14	2	71.2	20	1126		247.044
15	3	92.1	20	1695	1550	229.485
16	2	60.3	20	1661		215.696
17	1	65.9	20			266.237
18	1	91.7	20			175.358
19	2	70	20	1774		444.179

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	97	17	1971		256.51
2	1	74	17			99.556
3	2	66.8	17	1430		90.89
4	1	97	17			398.37
5	2	75.6	17	1096		13.61
6	2	52.2	17	1814		252.14
7	2	67.6	17	1260		475.15
8	2	92.4	17	1572		442.77
9	1	75.8	17			304.21
10	3	58.9	17	1575	1249	641.35
11	2	99.5	17	1250		226.9
12	3	72.1	17	1147	1574	535.68
13	2	50.2	17	1997		450.14
14	1	73.9	17			1.34
15	2	52	17	1932		393
16	2	83.6	17	1355		224.9

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	3	61.4	17	1936	1288	715.892
2	2	81.5	17	1018		360.14
3	2	92.3	17	1158		471.77
4	2	88.4	17	1347		92.12
5	2	82.5	17	1626		13.67
6	1	100	17			153.57
7	2	57.8	17	1279		552.95
8	2	50.5	17	1185		356.46
9	2	92.7	17	1236		282.75
10	1	61.2	17			479.11
11	2	84.8	17	1485		295.93
12	2	79.7	17	1007		40.39
13	2	95.2	17	1507		102.64
14	2	52.9	17	1269		510.6
15	1	56.4	17			36.3
16	1	85.6	17			189.4

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	59.7	13			280.308
2	2	61.1	13	1877		509.68
3	1	88.4	13			309.34
4	2	76.7	13	1498		96.4
5	1	74.6	13			200.03
6	2	54.1	13	1718		534.76
7	3	86.6	13	1170	1194	220.96
8	3	64	13	1661	1842	252.62
9	2	92.8	13	1216		95.57
10	3	51.2	13	1562	1265	516.71
11	2	73.5	13	1590		331.74
12	1	66.3	13			396.94
13	2	90.6	13	1155		137.12
14	2	79.7	13	1317		85.23
15	3	64.2	13	1280	1648	447.32
16	1	90	13			271.7
17	2	64.2	13	1499		193.97
18	2	82.9	13	1160		242.4
19	2	68.7	13	1455		162.1
20	2	62	13	1732		532.9

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	65.6	7	1834		304.365
2	2	99.5	7	1400		470.711
3	2	75.5	7	1983		599.862
4	2	76.7	7	1762		301.543
5	2	69.4	7	1361		2.644
6	2	98.8	7	1898		555.185
7	3	94.1	7	1851	1601	31.166
8	2	76.3	7	1202		63.027
9	2	87.1	7	1234		529.098
10	2	91.9	7	1873		283.899
11	3	82.5	7	1897	1174	307.301
12	2	87.8	7	1142		562.032
13	2	65.2	7	1979		540.183
14	2	87.7	7	1399		250.244
15	2	54.6	7	1435		214.815
16	2	79.6	7	1254		4.096
17	3	88.3	7	1633	1738	446.237
18	1	92.5	7			558.958
19	2	92	7	1611		320.079

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	65.2	14	1468		318.969
2	2	90.5	14	1160		201.361
3	2	95.5	14	1035		113.542
4	3	99.7	14	1825	1613	34.733
5	2	61	14	1849		54.404
6	2	59.3	14	1457		180.075
7	3	88.4	14	1419	1381	12.006
8	3	92.3	14	1279	1862	233.637
9	3	90.3	14	1098	1062	511.428
10	2	72.5	14	1982		503.219
11	3	64.2	14	1692	1247	577.571
12	3	59.5	14	1031	1868	509.752
13	2	92.6	14	1174		536.733
14	1	76.2	14			617.024
15	3	96.4	14	1281	1729	513.955
16	1	63.9	14			42.706
17	2	57.1	14	1816		40.237
18	2	85	14	1859		176.758
19	2	62	14	1076		34.579

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	3	91.6	20	1673	1163	137.222
2	2	50.1	20	1840		287.574
3	3	98.8	20	1672	1512	46.167
4	3	86.8	20	1758	1814	182.59
5	2	57.2	20	1121		123.423
6	2	64.9	20	1985		623.367
7	2	92.7	20	1365		304.29
8	1	99.1	20			136.053
9	3	87.9	20	1774	1278	288.587
10	2	61.5	20	1728		475.01
11	2	62.3	20	1393		566.963
12	2	72.3	20	1904		485.427
13	2	62	20	2000		385.6
14	1	89.1	20			642.663
15	2	75.4	20	1941		533.327
16	3	70.1	20	1212	1608	23.6
17	3	54.9	20	1594	1442	298.033
18	3	64.9	20	1037	1069	619.167

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	51.7	12	1355		26.136
2	2	74.8	12	1829		248.068
3	3	66	12	1611	1921	513.58
4	2	65.9	12	1919		239.67
5	2	64.8	12	1953		627.83
6	3	59.5	12	1520	1747	261.86
7	2	79.7	12	1998		224.57
8	2	93.1	12	1061		91.27
9	2	79.7	12	1828		250.02
10	2	56.8	12	1988		265.83
11	2	52.5	12	1221		715.7
12	3	78.6	12	1438	1175	75.1
13	1	52.2	12			385.48
14	2	91.7	12	1025		590.9
15	2	90.3	12	1180		386.5
16	2	60.2	12	1895		401.6

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	56.7	12	1702		792.537
2	2	56.3	12	1371		88.643
3	2	62.3	12	1466		579.456
4	1	88.1	12			224.579
5	2	68.9	12	1529		596.492
6	2	67.3	12	1333		655.925
7	3	81.8	12	1307	1861	138.528
8	1	82.8	12			456.482
9	3	80.7	12	1178	1279	141.615
10	2	71	12	1081		699.318
11	3	65.3	12	1373	1149	386.331
12	3	97.2	12	1154	1492	511.054
13	3	75.7	12	1410	1926	190.077

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	67	8	1076		1180.49
2	3	86	8	1912	1713	1427.82
3	2	86.3	8	1023		501.74
4	2	77.6	8	1201		1401
5	2	79.9	8	1055		1482.52
6	3	83.8	8	1254	1978	349.98
7	2	55.6	8	1998		854.91
8	3	68.8	8	1850	1434	667.6

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	57.3	6	1725		655.472
2	3	97.2	6	1300	1300	201.25
3	1	54	6			418.3
4	3	62.3	6	1859	1916	639.67
5	3	64.8	6	1025	1465	740.81
6	2	95.8	6	1978		120.27
7	1	65.3	6			896.63
8	2	59.4	6	1150		197.29
9	2	95.9	6	1349		292.38
10	2	97.2	6	1589		341.34
11	1	85.6	6			340.5
12	1	83.9	6			30.9

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	81.8	13	1805		293.937
2	2	54.9	13	1034		78.193
3	1	79.7	13			458.88
4	2	69.7	13	1031		512.41
5	2	82.7	13	1684		67.81
6	2	86.3	13	1685		151.51
7	1	53.8	13			507.28
8	2	99.4	13	1707		45.69
9	1	65.4	13			60.13
10	2	85.2	13	1978		297.94
11	3	77.8	13	1569	1596	400.74
12	2	63.1	13	1245		347.31
13	2	58.9	13	1862		258.38
14	2	82.9	13	1543		289.31
15	2	62	13	1105		368.7
16	2	90	13	1655		458.69
17	2	95.4	13	1048		532.1
18	2	69.7	13	1171		19.5
19	3	64.6	13	1865	1007	539.6
20	1	81.8	13			526.1

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	79.9	12	1955		401.736
2	1	77.2	12			887.99
3	2	53.4	12	1784		927.94
4	2	88.3	12	1233		675.29
5	1	53.1	12			197.72
6	2	65.8	12	1526		815.14
7	3	99.3	12	1492	1009	902.35
8	3	92.6	12	1304	1229	741.93
9	3	82	12	1820	1662	143.25
10	2	89.2	12	1611		410.97
11	2	94	12	1524		935.4
12	2	86.1	12	1258		373.3

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	3	51.2	10	1847	1852	749.618
2	3	77	10	1007	1904	26.67
3	2	63.4	10	1122		8.79
4	3	94	10	1493	1297	813.34
5	1	59.4	10			802.89
6	2	92.1	10	1260		152.33
7	2	76.4	10	1271		113.6
8	2	76.9	10	1301		704.39
9	1	55	10			260.31
10	3	68.2	10	1085	1455	201.62
11	2	62.1	10	1538		791.4
12	2	87.1	10	1894		479

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	61.1	8	1126	1887	335.662
2	1	55.2	8			686.588
3	1	89.4	8			145.535
4	2	94.1	8	1869		213.503
5	2	54.2	8	1010		141.711
6	3	70.7	8	1905	1799	258.328
7	3	65.3	8	1769	1015	190.246
8	2	60.7	8	1287		309.864
9	2	70.7	8	1277		652.401
10	2	89.1	8	1063		698.889
11	2	64.2	8	1272		213.406
12	3	99.4	8	1063	1703	236.074
13	1	56.2	8			530.332
14	2	75.8	8	1819		346.089
15	2	81.7	8	1380		15.657
16	2	90.4	8	1730		269.465
17	2	55.1	8	1343		352.182

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	1	69.8	14			383.377
2	2	89.1	14	1668		387.87
3	1	91.6	14			360.43
4	1	53.1	14			35.74
5	3	62.3	14	1848	1828	539.31
6	1	94.9	14			157.92
7	2	85.9	14	1103		231.32
8	2	95.2	14	1146		423.56
9	1	72.1	14			265.17
10	2	60.9	14	1935		551.33
11	3	75.6	14	1268	1029	466.3
12	2	92.7	14	1433		86.04
13	3	54.5	14	1738	1785	121.12
14	1	68.9	14			54.3
15	2	60.2	14	1253		606.1

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	3	56.6	11	1935	1509	410.716
2	3	63.5	11	1470	1824	515.57
3	1	61.6	11			689.97
4	2	52.3	11	1549		713.35
5	1	66.1	11			440.22
6	1	69.8	11			390.15
7	3	79.6	11	1983	1739	668.24
8	3	73	11	1811	1364	677.09
9	3	77.4	11	1183	1834	375.32
10	1	57.4	11			196.42
11	3	71.2	11	1626	1687	580.73
12	2	95.3	11	1881		644.32
13	2	66.8	11	1544		133.43
14	2	73.3	11	1472		581.6
15	1	99.3	11			544.3
16	1	68	11			226.9

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)
3	5496	9	32	5496	96
9	5494	27	40	5522	120
77	5505	231	42	5509	126
83	5514	249	52	5494	156
96	5495	288	64	5524	192
--	--	--	68	5512	204
--	--	--	92	5519	276

Radar waveform #3			Radar waveform #4		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
15	5496	45	28	5505	84
20	5511	60	29	5529	87
22	5492	66	33	5521	99
28	5526	84	55	5502	165
33	5516	99	61	5520	183
34	5506	102	66	5526	198
78	5499	234	71	5496	213
--	--	--	72	5492	216
--	--	--	73	5501	219
--	--	--	83	5495	249
--	--	--	92	5525	276

Radar waveform #5			Radar waveform #6		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
4	5505	12	6	5519	18
13	5502	39	88	5503	264
51	5516	153	89	5518	267
55	5518	165	90	5507	270
56	5522	168	99	5524	297
61	5514	183	100	5520	300
84	5527	252	--	--	--

Radar waveform #7			Radar waveform #8		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5518	3	6	5498	18
12	5527	36	9	5520	27
38	5497	114	17	5492	51
47	5506	141	18	5500	54
48	5495	144	44	5508	132
59	5513	177	48	5507	144
69	5528	207	65	5495	195
93	5503	279	76	5515	228
--	--	--	80	5490	240
--	--	--	88	5530	264
--	--	--	95	5523	285
--	--	--	100	5505	300

Radar waveform #9			Radar waveform #10		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5490	9	12	5520	36
7	5519	21	19	5523	57
8	5496	24	32	5521	96
31	5507	93	34	5506	102
40	5508	120	66	5514	198
48	5509	144	69	5501	207
60	5522	180	83	5495	249
--	--	--	84	5516	252
--	--	--	86	5524	258

Radar waveform #11			Radar waveform #12		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
68	5519	204	1	5496	3
93	5524	279	2	5516	6
--	--	--	7	5527	21
--	--	--	12	5503	36
--	--	--	23	5517	69
--	--	--	44	5490	132
--	--	--	59	5519	177
--	--	--	65	5524	195
--	--	--	70	5513	210
--	--	--	71	5499	213
--	--	--	77	5511	231

Radar waveform #13			Radar waveform #14		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
12	5490	36	18	5496	54
16	5527	48	43	5490	129
22	5526	66	55	5517	165
26	5514	78	59	5506	177
53	5529	159	61	5524	183
54	5508	162	75	5491	225
68	5518	204	76	5527	228
93	5497	279	86	5515	258
100	5503	300	98	5505	294

Radar waveform #15			Radar waveform #16		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5509	6	13	5496	39
12	5501	36	18	5500	54
24	5525	72	24	5501	72
41	5494	123	36	5513	108
47	5502	141	39	5504	117
59	5511	177	40	5515	120
69	5519	207	46	5512	138
76	5527	228	50	5528	150
81	5499	243	55	5505	165
94	5526	282	83	5506	249
--	--	--	96	5494	288

Radar waveform #17			Radar waveform #18		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5510	15	18	5525	54
30	5529	90	19	5505	57
46	5504	138	23	5490	69
57	5494	171	31	5519	93
76	5497	228	47	5506	141
--	--	--	52	5514	156
--	--	--	62	5491	186
--	--	--	95	5526	285
--	--	--	99	5511	297
--	--	--	100	5508	300

Radar waveform #19			Radar waveform #20		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
25	5520	75	8	5496	24
32	5524	96	10	5529	30
42	5498	126	17	5495	51
48	5516	144	40	5490	120
50	5513	150	47	5527	141
83	5503	249	48	5508	144
96	5500	288	52	5506	156
--	--	--	56	5515	168
--	--	--	57	5525	171

Radar waveform #21			Radar waveform #22		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
30	5524	90	29	5519	87
52	5490	156	32	5491	96
66	5493	198	56	5510	168
75	5494	225	59	5490	177
80	5526	240	72	5521	216
85	5519	255	90	5514	270
88	5530	264	--	--	--

Radar waveform #23			Radar waveform #24		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
8	5508	24	2	5523	6
11	5521	33	36	5519	108
13	5506	39	42	5517	126
23	5529	69	57	5525	171
37	5500	111	65	5497	195
40	5525	120	76	5507	228
46	5520	138	81	5514	243
47	5495	141	--	--	--
69	5514	207	--	--	--

Radar waveform #25			Radar waveform #26		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
16	5519	48	34	5526	102
20	5495	60	51	5516	153
33	5501	99	69	5527	207
65	5526	195	70	5524	210
73	5498	219	81	5512	243
78	5508	234	94	5530	282
83	5518	249	--	--	--
85	5499	255	--	--	--
86	5512	258	--	--	--
89	5517	267	--	--	--

Radar waveform #27			Radar waveform #28		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
39	5523	117	1	5492	3
50	5507	150	3	5520	9
63	5509	189	21	5519	63
79	5496	237	24	5521	72
85	5521	255	30	5502	90
87	5490	261	32	5529	96
--	--	--	37	5497	111
--	--	--	39	5490	117
--	--	--	40	5506	120
--	--	--	42	5493	126
--	--	--	60	5504	180
--	--	--	66	5491	198
--	--	--	72	5496	216
--	--	--	84	5508	252
--	--	--	85	5512	255
--	--	--	97	5516	291

Radar waveform #29			Radar waveform #30		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
17	5520	51	86	5492	258
23	5527	69	--	--	--
33	5510	99	--	--	--
52	5502	156	--	--	--
75	5523	225	--	--	--

Product	OmniAccess Stellar	Test Site	SR2
Test Engineer	Eric Lin	Test Date	2021/09/03~09/10
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	5492	1	778	68	1
2	5567	1	858	62	1
3	5506	1	698	76	1
4	5521	1	918	58	1
5	5561	1	938	57	1
6	5528	1	898	59	1
7	5562	1	618	86	1
8	5563	1	678	78	0
9	5491	1	718	74	1
10	5565	1	538	98	1
11	5546	1	738	72	1
12	5530	1	598	89	1
13	5555	1	558	95	1
14	5509	1	838	63	1
15	5507	1	3066	18	1
16	5569	1	596	89	1
17	5502	1	779	68	1
18	5549	1	1525	35	1
19	5525	1	1991	27	1
20	5498	1	2306	23	1
21	5569	1	2288	24	1
22	5556	1	1970	27	1
23	5491	1	1565	34	1
24	5546	1	2190	25	1
25	5542	1	610	87	1
26	5532	1	1996	27	1

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
27	5540	1	2146	25	1
28	5508	1	1349	40	1
29	5561	1	2101	26	1
30	5544	1	1204	44	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	5492	1.8	174	27	1
2	5567	1.8	164	27	1
3	5506	3.2	163	26	1
4	5521	1.7	152	25	1
5	5561	2.4	181	25	1
6	5528	3.4	184	27	1
7	5562	1.5	192	24	1
8	5563	3	187	28	1
9	5491	3.6	227	25	0
10	5565	3.8	208	25	1
11	5546	1.2	190	25	1
12	5530	4.4	230	27	1
13	5555	4.9	202	24	1
14	5509	1.6	173	25	1
15	5507	4	216	26	1
16	5569	3.4	220	27	1
17	5502	3.5	151	24	1
18	5549	3.4	189	27	1
19	5525	2.4	211	26	1
20	5498	2.9	161	28	1
21	5569	2.4	200	24	1
22	5556	2.7	190	24	1
23	5491	1.9	224	28	0
24	5546	1.6	173	26	1
25	5542	2.8	200	26	1
26	5532	1	193	25	1
27	5540	1	213	23	1
28	5508	3.4	204	26	1
29	5561	4	214	29	1
30	5544	1.3	184	27	1
Detection Percentage (%)					93.3%

Radar Type 3 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5492	8.2	438	17	1
2	5567	9.9	358	18	1
3	5506	6.4	311	16	1
4	5521	9.7	204	17	1
5	5561	6.7	274	17	1
6	5528	9.4	300	17	1
7	5562	7	440	18	1
8	5563	7.5	496	16	1
9	5491	6.8	489	18	1
10	5565	9.5	382	17	1
11	5546	9.1	249	16	1
12	5530	9.9	221	18	1
13	5555	9.2	467	18	1
14	5509	7.4	337	17	1
15	5507	6.9	478	17	1
16	5569	8.5	203	18	1
17	5502	6.7	334	17	1
18	5549	8.1	440	17	1
19	5525	8.9	262	17	1
20	5498	9.4	404	16	1
21	5569	6.3	461	17	1
22	5556	8.6	305	17	0
23	5491	8.5	327	17	1
24	5546	7.4	429	17	1
25	5542	6.5	490	18	1
26	5532	8.3	500	17	1
27	5540	6.7	327	16	1
28	5508	6.8	280	18	1
29	5561	7.3	421	16	1
30	5544	6.4	499	17	1
Detection Percentage (%)					96.7%

Radar Type 4 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5492	17.5	408	14	1
2	5567	14.3	376	13	1
3	5506	17.2	229	14	1
4	5521	18.6	238	14	1
5	5561	18.3	419	14	1
6	5528	14.1	448	13	1
7	5562	16.8	200	16	1
8	5563	12.9	288	13	1
9	5491	15.1	402	15	1
10	5565	17.6	494	12	1
11	5546	11.8	205	14	1
12	5530	11.8	488	15	1
13	5555	18.1	361	14	1
14	5509	17.9	290	13	1
15	5507	18.9	454	12	1
16	5569	19.5	427	15	1
17	5502	18.6	432	15	1
18	5549	19	303	15	1
19	5525	19.5	446	15	1
20	5498	17.1	289	14	1
21	5569	17.2	327	13	1
22	5556	16.2	284	12	0
23	5491	13.3	246	14	0
24	5546	15.9	478	15	1
25	5542	16.7	372	16	1
26	5532	14.5	465	13	1
27	5540	12.8	493	16	1
28	5508	12.9	355	14	1
29	5561	16.2	327	12	1
30	5544	18.3	426	14	1
Detection Percentage (%)					93.3%

Note: In addition, an average minimum percentage of successful detection across all four Short pulse radar test waveforms is as follows: $\frac{P_d1+P_d2+P_d3+P_d4}{4}$ = (96.7%+93.3%+96.7%+93.3%)/4 = 95% (>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	5496.4	1
2	5530	1	17	5493.6	1
3	5530	1	18	5496.4	1
4	5530	1	19	5496.4	1
5	5530	1	20	5496.8	1
6	5530	1	21	5565.6	0
7	5530	1	22	5563.2	1
8	5530	1	23	5564.4	1
9	5530	1	24	5562.8	1
10	5530	1	25	5567.6	1
11	5495.2	1	26	5568	1
12	5496.8	1	27	5563.2	1
13	5494	1	28	5566.8	1
14	5498	1	29	5563.6	1
15	5492.4	1	30	5566.4	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	90	14	1994		565.383
2	1	77.5	14			202.573
3	2	91.6	14	1442		604.576
4	2	94.8	14	1489		848.469
5	1	65	14			213.472
6	2	76.2	14	1526		424.035
7	3	91.6	14	1164	1540	603.058
8	2	99.5	14	1449		884.452
9	1	67.3	14			10.645
10	3	81.4	14	1419	1131	195.528
11	1	78.9	14			297.171
12	1	81.2	14			619.754
13	2	64.7	14	1432		51.677

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	92.4	20	1377		75.538
2	2	56.9	20	1875		820.751
3	2	84.7	20	1301		902.952
4	1	72	20			509.043
5	2	95.6	20	1854		955.174
6	2	58.5	20	1993		669.005
7	2	76.6	20	1681		169.035
8	2	72.4	20	1266		1000.646
9	2	92.2	20	1785		980.677
10	3	52.7	20	1665	1573	462.218
11	2	88.7	20	1219		290.609

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	64.9	6			259.213
2	1	94.1	6			663.521
3	2	74.5	6	1348		183.342
4	2	50.2	6	1091		177.023
5	1	88.8	6			967.194
6	3	66.1	6	1747	1529	445.905
7	2	62.1	6	1059		386.915
8	1	57.9	6			961.056
9	2	55.5	6	1855		1066.207
10	1	80.1	6			788.718
11	2	63.5	6	1713		273.409

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	55.1	16	1875		833.647
2	2	52.2	16	1975		854.35
3	1	86.6	16			682.14
4	2	62	16	1038		83.45
5	2	81	16	1104		291.96
6	2	70.2	16	1379		202.87
7	1	88.7	16			992.31
8	2	63.9	16	1888		75.63
9	1	90.4	16			592.12
10	3	67.4	16	1820	1706	654.73
11	1	80	16			495.4
12	1	84.6	16			873.1

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	84.9	10			279.795
2	2	96.3	10	1728		354.123
3	3	60.5	10	1883	1024	520.227
4	2	55.4	10	1543		75.29
5	3	63.3	10	1968	1965	27.313
6	1	75.3	10			558.467
7	1	68.7	10			526.36
8	2	79.2	10	1066		258.603
9	2	51.5	10	1758		305.187
10	2	88.4	10	1425		188.09
11	3	82.6	10	1950	1266	515.643
12	1	72.4	10			625.947
13	1	76.6	10			239.69
14	2	93.4	10	1062		117.733
15	1	76.1	10			14.687
16	1	64.5	10			345.5
17	1	53.1	10			410.333
18	2	86.1	10	1793		367.467

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	59.7	10			749.924
2	3	73.8	10	1246	1712	735.257
3	2	50.2	10	1041		498.464
4	2	58.4	10	1688		421.911
5	1	58	10			323.809
6	1	83.1	10			612.096
7	1	93.4	10			349.083
8	3	60.3	10	1174	1626	285.08
9	3	60.5	10	1461	1871	493.567
10	2	87	10	1054		165.074
11	2	56.2	10	1304		656.351
12	3	65.1	10	1958	1425	428.999
13	2	80.7	10	1929		806.786
14	3	64.7	10	1617	1489	676.143

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	3	87	20	1309	1347	99.329
2	2	97.3	20	1314		551.231
3	3	80.2	20	1941	1686	104.132
4	3	58.4	20	1958	1932	474.473
5	1	95.9	20			503.884
6	2	81	20	1222		578.745
7	2	83.6	20	1383		448.316
8	2	88.9	20	1342		181.777
9	2	56	20	1736		15.548
10	2	61.3	20	1361		223.969
11	1	75.5	20			287.001
12	3	57.6	20	1212	1344	337.502
13	2	68.5	20	1720		537.873
14	2	91	20	1860		199.204
15	2	89.8	20	1205		476.025
16	2	57	20	1649		533.616
17	2	57	20	1704		447.337
18	2	76.8	20	1920		343.658
19	3	51.9	20	1952	1442	516.179

Type 5 Radar Waveform_8						
Burst	Number of Pulses	Pulse Width (µsec)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (µ sec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	1	64	16			301.035
2	3	78.2	16	1305	1836	777.56
3	2	89.5	16	1813		101.81
4	2	67.2	16	1854		406.15
5	3	78.5	16	1346	1421	597.38
6	2	96	16	1966		426.67
7	2	55.5	16	1662		854.23
8	3	97	16	1795	1421	373.63
9	3	96.2	16	1722	1696	731.4
10	2	61.6	16	1116		986.7

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	90.5	16	1737		262.834
2	2	93.5	16	1674		738.22
3	1	61.4	16			459.51
4	2	79.6	16	1278		561.75
5	2	72.9	16	1874		1181.49
6	3	63.4	16	1011	1414	1123.56
7	2	85.7	16	1991		731.05
8	2	93	16	1598		425.39
9	2	81.8	16	1182		848.7
10	3	58.5	16	1195	1318	666.6

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	3	87.8	14	1444	1957	482.588
2	3	95.2	14	1004	1761	443.25
3	1	90.5	14			26.57
4	1	51.5	14			66.69
5	2	53.9	14	1050		233.02
6	2	91.6	14	1715		798.57
7	2	55	14	1570		92.38
8	2	77.6	14	1123		601.93
9	1	68.9	14			777.86
10	2	68.8	14	1911		21.72
11	3	94.4	14	1347	1406	547.7
12	2	84	14	1526		95.5

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	75.4	13	1292	1414	157.676
2	3	67	13	1645	1814	128.7
3	2	80.5	13	1688		244.517
4	1	71.8	13			461.27
5	2	58.6	13	1808		245.113
6	3	74.7	13	1632	1457	657.207
7	2	95.2	13	1025		618.57
8	3	87	13	1751	1876	44.713
9	1	94	13			447.007
10	1	70.3	13			298.45
11	1	99.5	13			542.843
12	2	50.6	13	1816		300.437
13	3	53.4	13	1794	1679	338.97
14	2	50.8	13	1649		648.433
15	1	52.3	13			375.217
16	2	95.3	13	1523		444.2
17	1	90.2	13			19.533
18	3	78.6	13	1940	1394	85.467

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	57.8	17	1141		278.983
2	1	66.4	17			1389.96
3	1	89.8	17			230.6
4	2	91.5	17	1568		5.16
5	1	54.6	17			1111.12
6	2	65.6	17	1718		320.11
7	2	93.6	17	1135		678.91
8	2	88.3	17	1485		1045.8

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	99.3	10			647.546
2	2	83.6	10	1190		293.432
3	2	93	10	1320		284.635
4	3	68.7	10	1552	1622	571.993
5	2	63.7	10	1017		144.211
6	2	64	10	1610		660.678
7	2	97.4	10	1205		63.306
8	3	89.1	10	1323	1242	467.534
9	3	58.7	10	1771	1351	25.221
10	2	76.3	10	1838		144.379
11	2	83.2	10	1237		124.006
12	3	89.7	10	1413	1267	229.754
13	2	98.5	10	1459		83.442
14	1	91.6	10			412.549
15	1	57.8	10			288.547
16	3	62.6	10	1821	1443	602.065
17	2	95.7	10	1206		262.182

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	57.8	20	1026		742.664
2	2	58.3	20	1798		22.741
3	2	81.4	20	1291		764.302
4	2	51.1	20	1600		63.143
5	3	59.3	20	1325	1959	767.704
6	2	54.1	20	1571		78.625
7	2	50.2	20	1796		711.745
8	1	51	20			193.646
9	1	72.7	20			651.647
10	3	73.5	20	1267	1270	710.618
11	3	56.1	20	1303	1080	143.909

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	91.7	6	1761		435.385
2	2	54.2	6	1713		567.721
3	1	54.4	6			348.512
4	2	63.8	6	1407		877.973
5	1	56.5	6			278.794
6	2	71.6	6	1175		107.385
7	3	78.1	6	1238	1204	752.915
8	1	81.8	6			245.446
9	1	97.6	6			366.307
10	2	65	6	1809		575.618
11	2	59.9	6	1722		157.509

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	61.9	16	1959		278.693
2	2	76.8	16	1558		502.173
3	2	77.9	16	1790		641.977
4	2	89	16	1299		537.48
5	3	62.5	16	1703	1970	599.543
6	3	91.2	16	1805	1918	417.187
7	3	57.3	16	1152	1171	485.65
8	3	93.6	16	1745	1056	236.963
9	3	57.3	16	1053	1635	40.327
10	2	69.3	16	1936		386.66
11	2	93.2	16	1928		171.593
12	2	85.6	16	1529		544.467
13	2	57.1	16	1445		177.48
14	2	94.6	16	1711		172.653
15	2	82.6	16	1442		329.957
16	2	90.3	16	1682		97.9
17	2	92.1	16	1781		20.933
18	2	56.4	16	1418		207.467

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	3	91.3	9	1139	1480	804.061
2	2	66.9	9	1984		206.02
3	2	90.9	9	1111		551.39
4	2	86.2	9	1432		28.54
5	2	82.3	9	1233		555.73
6	3	53.4	9	1645	1973	115.94
7	2	95	9	1843		241.62
8	2	95.6	9	1119		973.58
9	3	60.5	9	1526	1106	938.83
10	1	87.1	9			541.21
11	1	92.3	9			342.3
12	1	66.3	9			193

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	65	16	1257		692.471
2	2	93	16	1265		494.21
3	3	51.6	16	1622	1040	443.93
4	2	55.2	16	1718		423.66
5	2	61.7	16	1820		208.17
6	2	70.5	16	1468		508.99
7	1	99	16			135.69
8	2	57.1	16	1732		478.72
9	2	97.7	16	1366		503.3
10	2	95	16	1990		435.26
11	1	53.4	16			281.49
12	3	52.1	16	1337	1562	574.64
13	1	96	16			709.89
14	2	74.6	16	1838		157.37
15	2	74.9	16	1859		707.7
16	2	98.5	16	1796		89.7

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	72.2	16	1627		21.78
2	1	59.5	16			203.487
3	2	84.4	16	1850		623.943
4	1	99.4	16			187.3
5	3	65.7	16	1261	1813	1035.147
6	2	59.2	16	1984		77.103
7	3	58.2	16	1637	1137	1303.23
8	3	59.8	16	1866	1313	984.167
9	2	99.6	16	1733		640.133

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	77	17			434.646
2	3	83.4	17	1830	1708	367.038
3	3	80.4	17	1074	1691	694.095
4	2	60	17	1005		459.773
5	2	98.7	17	1914		483.831
6	2	80.5	17	1630		371.408
7	2	81.4	17	1612		307.736
8	2	91.8	17	1380		155.274
9	2	84.7	17	1691		73.141
10	2	56.7	17	1670		681.819
11	2	90.2	17	1430		685.196
12	1	66.9	17			644.864
13	1	70.8	17			120.262
14	2	91.3	17	1236		361.309
15	1	85.4	17			601.747
16	2	68.5	17	1790		567.265
17	1	77.8	17			616.482

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	93.6	11	1085		891.056
2	2	97.5	11	1973		485.751
3	1	93.3	11			629.682
4	2	98.6	11	1518		370.783
5	2	69.4	11	1669		509.754
6	2	95.4	11	1839		39.155
7	1	50.1	11			1045.945
8	1	75	11			401.436
9	1	60.3	11			753.677
10	3	71.9	11	1497	1788	878.518
11	3	75.6	11	1733	1261	679.809

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	65.8	17	1448		194.362
2	3	78.4	17	1027	1067	670.018
3	2	99.9	17	1770		477.765
4	3	88.7	17	1703	1371	261.323
5	3	90.8	17	1182	1331	85.361
6	3	61.3	17	1090	1592	86.468
7	2	87.7	17	1965		63.646
8	3	78.8	17	1972	1148	40.224
9	2	66	17	1596		366.871
10	3	69.9	17	1865	1580	28.059
11	3	85.9	17	1647	1362	134.226
12	3	54.9	17	1585	1117	506.294
13	2	87	17	1463		304.872
14	2	90.5	17	1221		399.299
15	2	61.3	17	1379		638.347
16	2	96.6	17	1549		52.165
17	2	71.7	17	1342		526.482

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	71.3	14	1940		345.535
2	1	81.9	14			292.628
3	1	80.2	14			387.342
4	2	79.3	14	1079		55.903
5	1	66.5	14			302.184
6	2	72.9	14	1164		96.515
7	1	87.6	14			184.806
8	3	58.3	14	1921	1228	177.367
9	2	90.3	14	1338		373.308
10	2	80.9	14	1489		578.699
11	1	62.9	14			171.091
12	2	73.1	14	1341		455.352
13	3	79.9	14	1892	1953	22.873
14	1	62.8	14			188.664
15	3	62.8	14	1390	1556	309.325
16	3	81	14	1592	1978	262.316
17	2	79.3	14	1081		456.137
18	1	56.4	14			252.758
19	3	85.9	14	1371	1638	624.679

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	51.7	18	1262		335.337
2	2	97.3	18	1326		448.431
3	2	57.5	18	1122		92.802
4	2	95.5	18	1800		17.413
5	2	83.9	18	1654		454.724
6	2	94.8	18	1979		510.945
7	2	58.3	18	1606		602.976
8	2	53.8	18	1198		454.957
9	2	85.3	18	1620		537.118
10	3	78.7	18	1025	1595	558.189
11	3	96.2	18	1408	1791	281.101
12	2	55.4	18	1336		298.682
13	2	97.6	18	1724		618.453
14	2	75.7	18	1247		90.864
15	1	63.2	18			86.265
16	2	78.6	18	1060		585.416
17	1	66.5	18			336.337
18	2	54.3	18	1735		189.558
19	2	67.9	18	1137		529.779

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	79	6	1604		145.922
2	3	90.5	6	1752	1094	581.873
3	2	99.1	6	1425		511.097
4	1	91.8	6			355.7
5	2	88.4	6	1912		521.303
6	2	87.4	6	1164		353.777
7	1	72.6	6			534.91
8	2	96.6	6	1259		311.293
9	3	75.3	6	1092	1437	585.217
10	1	54.9	6			285.27
11	3	93.8	6	1724	1477	392.003
12	2	65.6	6	1072		580.777
13	3	56.4	6	1445	1101	294.43
14	2	96.4	6	1765		268.843
15	1	80.3	6			412.457
16	3	74.5	6	1989	1773	272.9
17	2	90.4	6	1783		164.633
18	2	76.1	6	1633		267.467

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	82.6	5	1664		369.963
2	1	85	5			639.028
3	2	61.6	5	1882		113.545
4	3	95.5	5	1990	1598	643.563
5	2	54.9	5	1911		338.371
6	2	82.8	5	1467		381.278
7	3	86.8	5	1970	1002	255.596
8	1	80.4	5			626.784
9	1	73.8	5			683.891
10	1	82.4	5			454.619
11	1	94.8	5			72.036
12	1	72.9	5			112.044
13	2	82.9	5	1780		559.182
14	2	69.7	5	1459		503.549
15	2	95.2	5	1652		317.247
16	2	88.1	5	1617		21.265
17	2	94.4	5	1042		589.582

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	62.9	17	1747		616.202
2	3	91.8	17	1551	1229	176.508
3	2	56.6	17	1618		332.55
4	3	93.3	17	1788	1048	357.67
5	3	98.1	17	1289	1571	671.8
6	1	69.9	17			584.55
7	2	67.4	17	1100		15.43
8	3	54.3	17	1730	1991	421.13
9	2	96.8	17	1967		706.41
10	3	74.7	17	1971	1585	1.29
11	1	64.9	17			274.87
12	2	94.6	17	1477		448.99
13	2	66.3	17	1716		537.66
14	1	54	17			482.5
15	2	56.8	17	1528		479.4
16	1	93.3	17			603

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	64.2	8	1499		378.834
2	2	50.9	8	1802		358.638
3	1	91.9	8			68.725
4	3	52.4	8	1735	1124	93.993
5	2	50.5	8	1913		146.901
6	2	57.3	8	1291		447.908
7	1	77.6	8			73.956
8	2	51.8	8	1964		415.674
9	3	80.6	8	1316	1170	192.011
10	2	97.4	8	1499		110.229
11	1	72.4	8			45.846
12	1	82.2	8			407.944
13	3	71	8	1560	1856	237.182
14	2	95.5	8	1679		284.029
15	2	80.9	8	1097		26.777
16	1	87.8	8			212.165
17	3	91.8	8	1780	1860	6.482

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	1	90	16			656.557
2	1	67.7	16			539.047
3	2	81.8	16	1296		326.514
4	2	59.1	16	1343		23.091
5	2	53.9	16	1907		444.399
6	1	92.4	16			120.386
7	2	54.8	16	1264		613.033
8	2	98.1	16	1639		624.87
9	2	84.4	16	1642		130.897
10	2	68.2	16	1324		336.944
11	3	70.6	16	1758	1539	15.741
12	3	94.5	16	1071	1626	609.229
13	1	93.6	16			500.386
14	2	71.3	16	1600		650.743

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	50.6	9	1828		894.953
2	1	89.8	9			829.09
3	1	66.9	9			868.95
4	1	58.9	9			581.76
5	1	83.8	9			241.4
6	2	71.7	9	1470		606.83
7	1	97.9	9			929.8
8	2	71.4	9	1671		666.85
9	3	71	9	1454	1598	750.26
10	2	94.5	9	1895		946.76
11	2	68.1	9	1765		605.9
12	3	90.7	9	1701	1283	485.8

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	0	28	1
14	1	29	1
15	1	30	1
Detection Percentage (%)		96.7%	

Radar waveform #1			**Radar waveform #2**		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
33	5525	99	1	5540	3
36	5533	108	6	5536	18
39	5528	117	45	5534	135
42	5529	126	61	5538	183
72	5537	216	--	--	--

Radar waveform #3			Radar waveform #4		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5525	15	12	5532	36
39	5526	117	15	5522	45
41	5529	123	79	5524	237
44	5528	132	82	5520	246
83	5524	249	86	5525	258
--	--	--	97	5534	291

Radar waveform #5			Radar waveform #6		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
20	5526	60	2	5531	6
39	5520	117	46	5526	138
57	5529	171	77	5525	231
67	5527	201	--	--	--

Radar waveform #7			Radar waveform #8		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
13	5527	39	1	5523	3
22	5532	66	42	5540	126
33	5522	99	57	5527	171
93	5535	279	--	--	--

Radar waveform #9			Radar waveform #10		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
35	5533	105	9	5536	27
48	5522	144	42	5540	126
87	5527	261	47	5531	141
--	--	--	81	5529	243
--	--	--	82	5533	246

Radar waveform #11			Radar waveform #12		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5520	3	3	5524	9
32	5531	96	90	5525	270
43	5532	129	94	5528	282
53	5530	159	97	5522	291
65	5523	195	--	--	--
88	5524	264	--	--	--

Radar waveform #13			Radar waveform #14		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
80	5537	240	--	--	--

Radar waveform #15			Radar waveform #16		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5529	15	4	5535	12
13	5530	39	11	5539	33
33	5520	99	37	5536	111
83	5532	249	47	5531	141
--	--	--	86	5521	258

Radar waveform #17			Radar waveform #18		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5529	6	24	5524	72
8	5539	24	27	5536	81
10	5527	30	36	5523	108
27	5531	81	40	5534	120
48	5532	144	50	5538	150
58	5520	174	71	5535	213
--	--	--	100	5527	300

Radar waveform #19			Radar waveform #20		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
6	5534	18	22	5531	66
11	5532	33	24	5537	72
45	5533	135	--	--	--
93	5538	279	--	--	--

Radar waveform #21			Radar waveform #22		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
4	5539	12	27	5525	81
13	5540	39	65	5522	195
89	5523	267	72	5536	216
--	--	--	85	5533	255

Radar waveform #23			Radar waveform #24		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
54	5535	162	47	5531	141
71	5531	213	50	5525	150
82	5538	246	52	5533	156
100	5524	300	--	--	--

Radar waveform #25			**Radar waveform #26**		
Hopping Number	**Frequency (MHz)**	**Pulse Start (ms)**	**Hopping Number**	**Frequency (MHz)**	**Pulse Start (ms)**
30	**5539**	**90**	**29**	**5536**	**87**
32	**5530**	**96**	**33**	**5526**	**99**
44	**5525**	**132**	**41**	**5532**	**123**
53	**5521**	**159**	**83**	**5524**	**249**
62	**5540**	**186**	**100**	**5520**	**300**

Radar waveform #27			Radar waveform #28		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
10	5535	30	28	5536	84
75	5523	225	38	5521	114
--	--	--	46	5530	138
--	--	--	62	5539	186
--	--	--	70	5522	210

Radar waveform #29			Radar waveform #30		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5536	15	37	5529	111
41	5525	123	62	5522	186
71	5529	213	77	5520	231
77	5522	231	--	--	--
80	5520	240	--	--	--

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 “2108TW0001-Test setup photo” file.

Appendix B-EUT Photograph

Refer to “OAW-AP1301H Photo” file.