MRT Technology (Suzhou) Co., Ltd   Report No.: 2009RSU002-U3
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DFS MEASUREMENT REPORT

FCC 15.407 WLAN 802.11a/n/ac

FCC ID: LDK-ONT4TVCW

Applicant: Cisco Systems, Inc.

Application Type: Certification

Product: GPON ONT

Model No.:   CGP-ONT-4TVCW

Brand Name: CISCO

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)

     KDB 905462 D02v02, KDB 905462 D04v01

Test Date: September 22 ~ October 09, 2020

Reviewed By: *Vincent Yu*
     Vincent Yu

Approved By: *Robin Wu*
     Robin Wu

Revision History

Report No.	Version	Description	Issue Date	Note
2009RSU002-U3	Rev. 01	Initial Report	06-01-2021	Valid

CONTENTS

1.   GENERAL INFORMATION

1.1. Applicant

Cisco Systems, Inc.

125 West Tasman Drive, San Jose, California, United States 95134-1706

1.2. Manufacturer

Cisco Systems, Inc.

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1.3. Testing Facility

⊠	**Test Site – MRT Suzhou Laboratory**	
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	Laboratory Accreditations	
	A2LA: 3628.01	CNAS: L10551
	FCC: CN1166	ISED: CN0001
	VCCI: R-20025, G-20034, C-20020, T-20020	
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	Laboratory Accreditations	
	A2LA: 3628.02	CNAS: L10551
	FCC: CN1284	ISED: CN0105
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	Laboratory Accreditations	
	TAF: L3261-190725	
	FCC: 291082, TW3261	ISED: TW3261

2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name	GPON ONT
Model No.	CGP-ONT-4TVCW
Wi-Fi Specification	802.11a/b/g/n/ac
Operating Temp.	-5 ~ 45°C
Power Supply	External Power Adapter
Firmware Version	1.1.3.3_03
Accessories	
Adapter	MODEL: DSA-18PFR-12 FUS 120150 INPUT: 100-240V~50/60Hz 0.6A OUTPUT: 12VDC, 1.5A, 18.0W

2.2. Product Specification Subjective to this Report

Frequency Range	For 802.11a/n-HT20/ac-VHT20: 5260~5320MHz, 5500~5720MHz For 802.11n-HT40/ac-VHT40: 5270~5310MHz, 5510~5710MHz For 802.11ac-VHT80: 5290MHz, 5530MHz, 5610MHz, 5690MHz
Type of Modulation	802.11a/n/ac: OFDM
Data Rate	802.11a: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.6Mbps
Power-on cycle	Requires 49.7 seconds to complete its power-on cycle
Uniform Spreading (For DFS Frequency Band)	For the 5250-5350MHz, 5470-5725 MHz bands, the Master device provides, on aggregate, uniform loading of the spectrum across all devices by selecting an operating channel among the available channels using a random algorithm.

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

2.3. DFS Band Carrier Frequencies Operation

802.11a/n-HT20/ac-VHT20

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

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

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

2.4. Description of Available Antennas

Antenna Type	Frequency Band (MHz)	T_X Paths	Number of spatial streams	Max Antenna Gain (dBi)	CDD Directional Gain (dBi)	
					For Power	For PSD
PCB Antenna	2412 ~ 2462	2	1	3.80	3.80	6.81
	5180 ~ 5825	2	1	3.34	3.34	6.35

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

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;

· For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB for N_{ANT} ≤ 4;

2.5. Test Mode

Test Mode	Mode 1: Operating under AP mode

2.6. Test Environment Condition

Ambient Temperature	15°C~35°C
Relative Humidity	20%RH ~75%RH

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 subsection a) above.

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

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

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

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

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

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

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds See Note 1.
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.
Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.
Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

Table 3-3: DFS Response Requirements

3.3. DFS Detection Threshold Values

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

Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna.	
Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.	
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	$\text{Roundup}\left\{ \dfrac{\left(\dfrac{1}{360}\right) \cdot}{\left(\dfrac{19 \cdot 10^6}{PRI_{usec}}\right)} \right\}$	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.
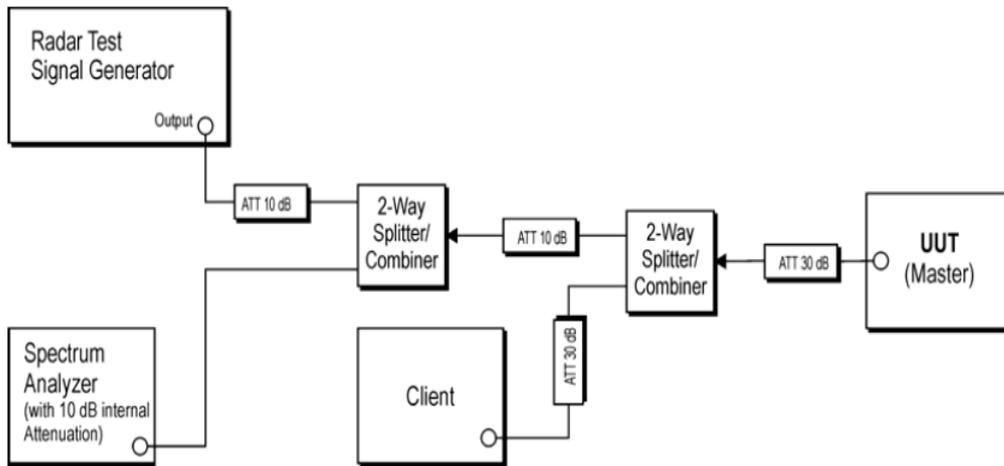
Figure 3-1: Conducted Test Setup where UUT is a Master and Radar Test Waveforms are injected into the Masters

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4. TEST EQUIPMENT CALIBRATION DATE

Dynamic Frequency Selection (DFS) (WZ-SR4)

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	KEYSIGHT	N9010B	MRTSUE06457	1 year	2021/07/02
ESG Vector Signal Generator	Agilent	E4438C	MRTSUE06026	1 year	2021/10/22
Vector Signal Generator	R&S	SMBV100A	MRTSUE06279	1 year	2021/04/14
Thermohygrometer	Testo	608-H1	MRTSUE06402	1 year	2021/07/26

Client Information

Instrument	Manufacturer	Type No.
Wireless Network Adapter	Intel	7260HMW

Software	Version	Manufacturer	Function
Pulse Building	N/A	Agilent	Radar Signal Generation Software
DFS Tool	V 6.9.2	Agilent	DFS Test Software
R&S Pulse Sequencer DFS	V 2.0	R&S	DFS Test Software

5. TEST RESULT

5.1. Summary

Parameter	Limit	Test Result	Reference
NII Detection Bandwidth Measurement	Refer Table 3-3	Pass	Section 5.3
Initial Channel Availability Check Time	Refer Table 3-3	Pass	Section 5.4
Radar Burst at the Beginning of the Channel Availability Check Time	Refer Table 3-3	Pass	Section 5.5
Radar Burst at the End of the Channel Availability Check Time	Refer Table 3-3	Pass	Section 5.6
In-Service Monitoring for Channel Move Time, Channel Closing Transmission Time	Refer Table 3-3	Pass	Section 5.7
Non-Occupancy Period	Refer Table 3-3	Pass	
Statistical Performance Check	Refer Table 3-3	Pass	Section 5.8

5.2. Radar Waveform Calibration

5.2.1. Calibration Setup

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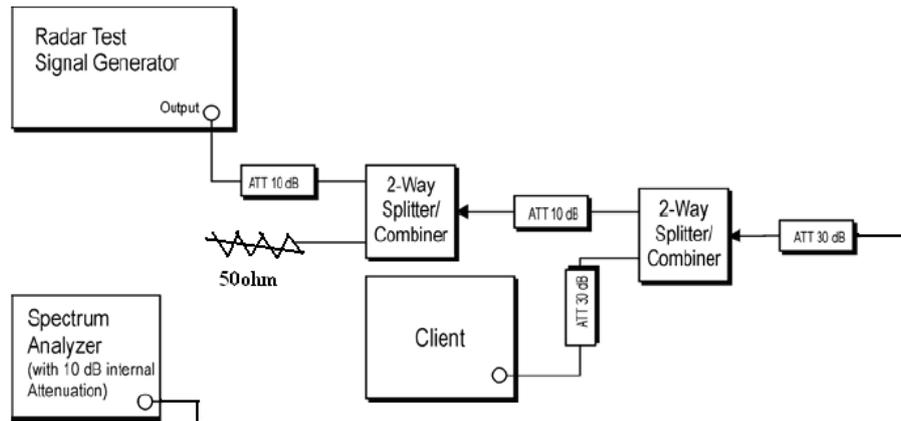
Figure 3-2: Conducted Test Setup

5.2.2. Calibration Procedure

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

5.2.3. Cablibration Result

Test Site	WZ-SR4	Test Engineer	Jake Lan
Test Date	2020/09/22	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 = 3.007ms and the number of pulses = 18	Radar #2
Radar #3	Radar #4

Radar #5	Radar #6
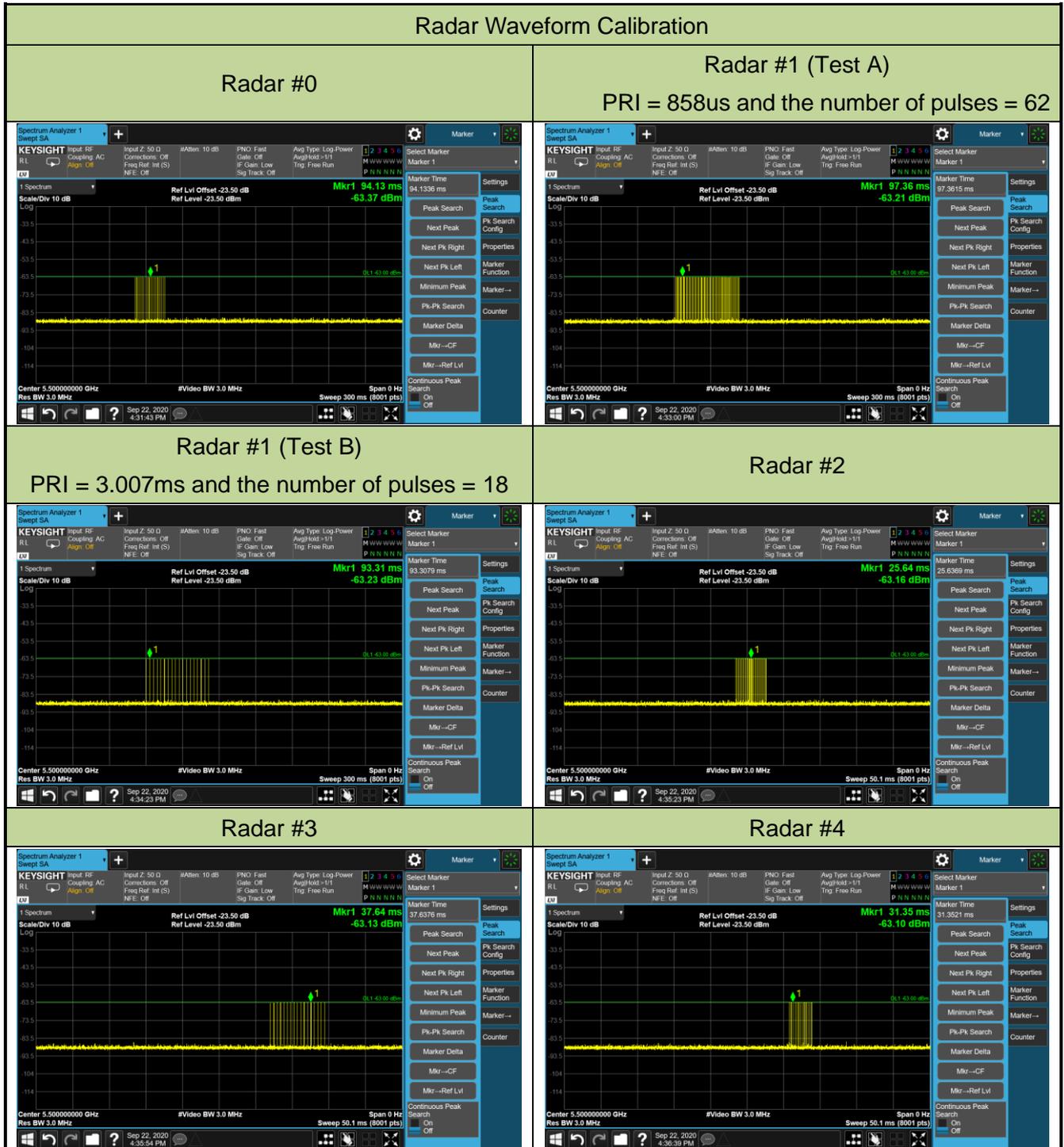
5.2.4. Channel Loading Test Result

Test Site	WZ-SR4	Test Engineer	Jake Lan
Test Date	2020/09/26	Test Item	Channel Loading

<table>
<tr><th colspan="4">Channel Loading Plot</th></tr>
<tr><th colspan="2">802.11ac-VHT20 5500MHz</th><th colspan="2">802.11ac-VHT40 5510MHz</th></tr>
<tr><td colspan="2"></td><td colspan="2"></td></tr>
<tr><th colspan="2">802.11ac-VHT80 5530MHz</th><td colspan="2"></td></tr>
<tr><td colspan="2"></td><td colspan="2"></td></tr>
</table>

Test Mode	Test Frequency	Packet ratio	Requirement ratio	Test Result
802.11ac-VHT20	5500 MHz	19.58%	≥ 17%	Pass
802.11ac-VHT40	5510 MHz	21.70%	≥ 17%	Pass
802.11ac-VHT80	5530 MHz	21.23%	≥ 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

Test Site	WZ-SR4	Test Engineer	Jake Lan
Test Date	2020/09/26	Test Item	Detection Bandwidth (802.11ac-VHT20 mode - 5500MHz)

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

Note 1: All NII channels for this device have identical Channel bandwidths. Therefore, all DFS testing was done at 5500MHz. The 99% channel bandwidth is 17.56MHz. (See the 99% BW section of the RF report for further measurement details).

Note 2: Detection Bandwidth = FH - FL = 5509MHz – 5491MHz = 18MHz.

Note 3: NII Detection Bandwidth Min. Limit (MHz): 17.56MHz x 100% = 17.56MHz.

Test Site	WZ-SR4	Test Engineer	Jake Lan
Test Date	2020/09/26	Test Item	Detection Bandwidth (802.11ac-VHT40 mode - 5510MHz)

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

Note 1: All NII channels for this device have identical Channel bandwidths. Therefore, all DFS testing was done at 5510MHz. The 99% channel bandwidth is 36.14MHz. (See the 99% BW section of the RF report for further measurement details).

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

Note 3: NII Detection Bandwidth Min. Limit (MHz):36.14MHz x 100% = 36.14MHz.

Test Site	WZ-SR4	Test Engineer	Jake Lan
Test Date	2020/09/26	Test Item	Detection Bandwidth (802.11ac-VHT80 mode - 5530MHz)

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

Note 1: All NII channels for this device have identical Channel bandwidths. Therefore, all DFS testing was done at 5530MHz. The 99% channel bandwidth is 75.34MHz. (See the 99% BW section of the RF report for further measurement details).

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

Note 3: NII Detection Bandwidth Min. Limit (MHz): 75.34MHz x 100% = 75.34MHz.

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

Test Site	WZ-SR4	Test Engineer	Jake Lan
Test Date	2020/09/26	Test Item	Initial Channel Availability Check Time (802.11ac-VHT20 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 (49.7 sec). Initial beacons/data transmissions are indicated by marker 1 (109.7sec).
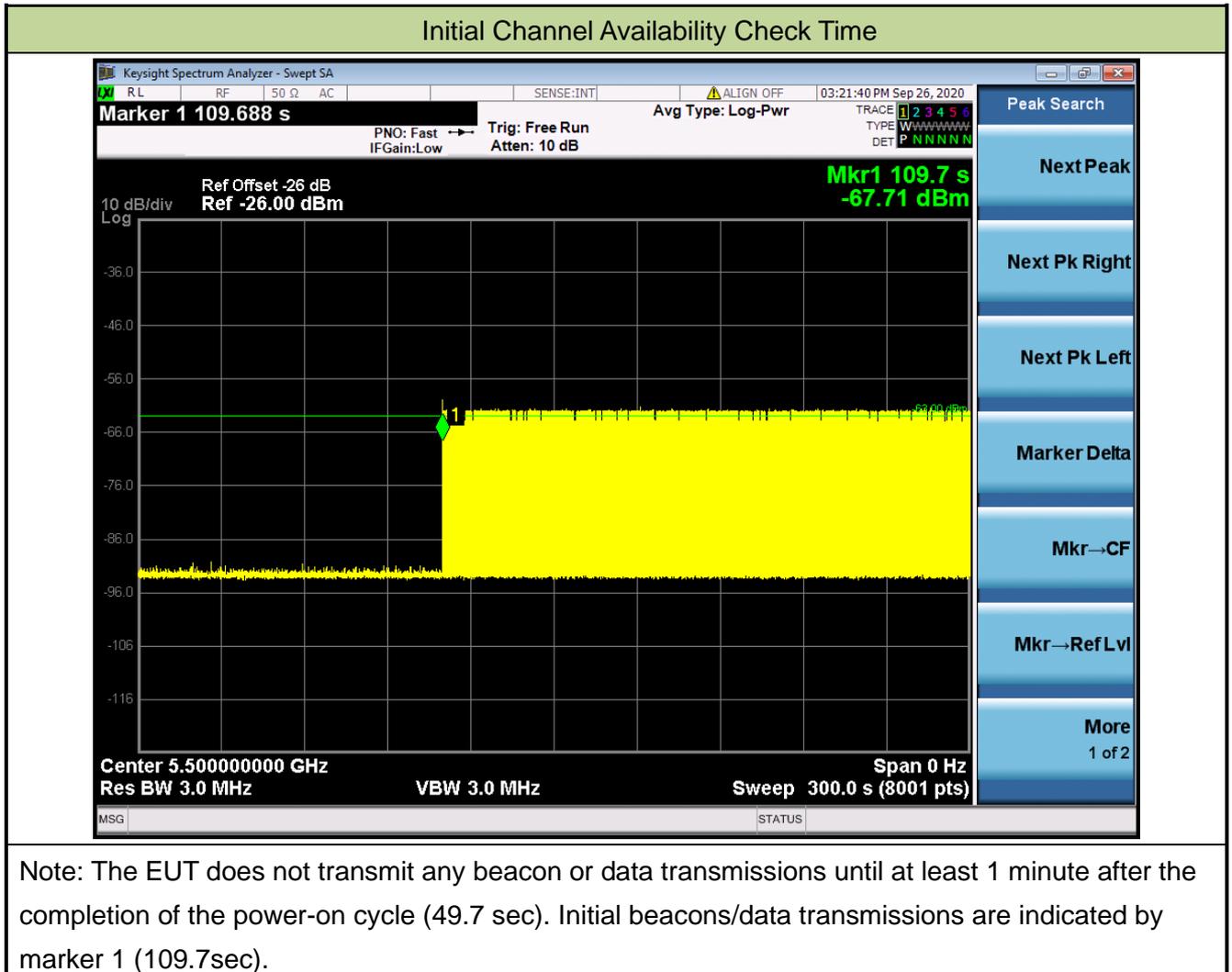
5.5. Radar Burst at the Beginning of the Channel Availability Check Time Measurement

5.5.1. Test Limit

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

5.5.2. Test Procedure

1. The steps below define the procedure to verify successful radar detection on the selected Channel during a period equal to the Channel Availability Check Time and avoidance of operation on that Channel when a radar Burst with a level equal to the DFS Detection Threshold + 1 dB occurs at the beginning of the Channel Availability Check Time.

2. The EUT is in completion power-up cycle (from T0 to T1). T1 denotes the instant when the EUT has completed its power-up sequence. The Channel Availability Check Time commences at instant T1 and will end no sooner than T1 + 60 seconds. A single Burst of one of Short Pulse Radar Types 0-4 at DFS Detection Threshold + 1 dB will commence within a 6 second window starting at T1.

3. Visual indication on the EUT of successful detection of the radar Burst will be recorded and reported. Observation of emissions will continue for 2.5 minutes after the radar Burst has been generated. Verify that during the 2.5 minutes measurement window no EUT transmissions occurred.

5.5.3. Test Result

Test Site	WZ-SR4	Test Engineer	Jake Lan
Test Date	2020/09/26	Test Item	Beginning of the Channel Availability Check Time (802.11ac-VHT20 mode - 5500MHz)

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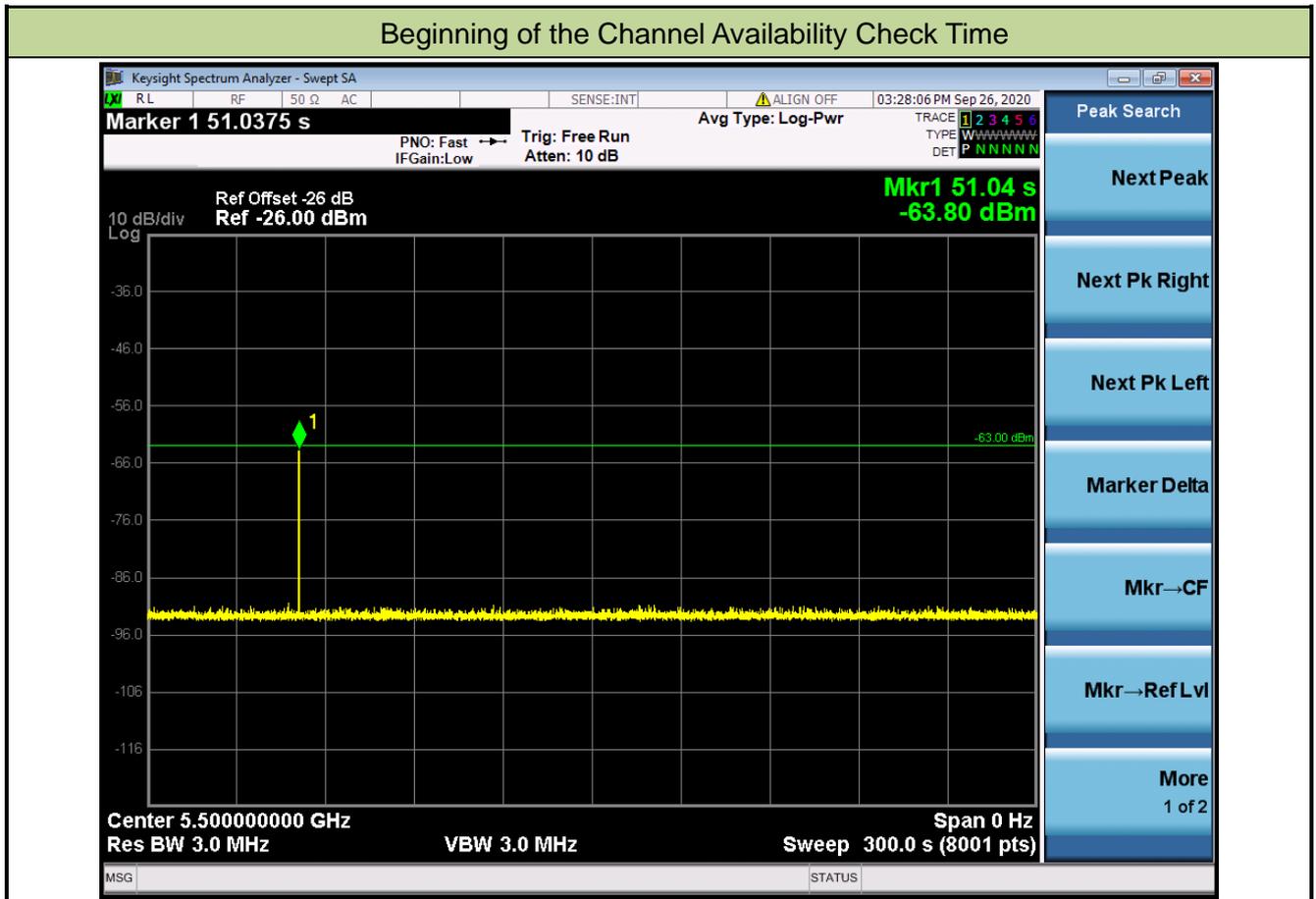
5.6. Radar Burst at the End of the Channel Availability Check Time Measurement

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 for 2.5 minutes after the radar Burst has been generated. Verify that during the 2.5 minutes measurement window no EUT transmissions occurred.

5.6.3. Test Result

Test Site	WZ-SR4	Test Engineer	Jake Lan
Test Date	2020/09/26	Test Item	End of the Channel Availability Check Time (802.11ac-VHT20 mode - 5500MHz)

End of the Channel Availability Check Time
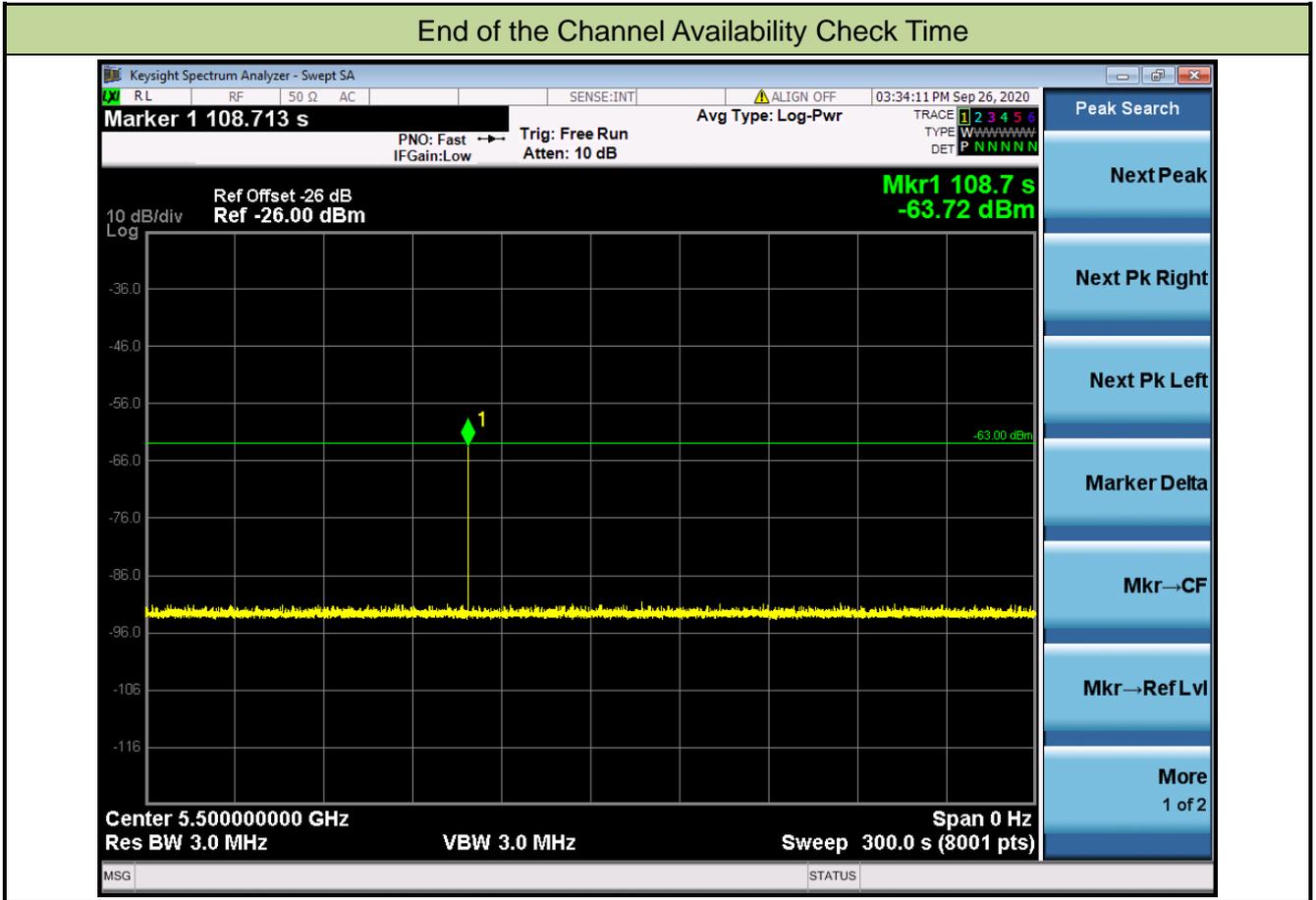
5.7. In-Service Monitoring for Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period Measurement

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 30 minute during which a Channel will not be utilized after a Radar Waveform is detected on that Channel.

5.7.2. Test Procedure Used

1.   The test should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0.

2.   When the radar burst with a level equal to the DFS Detection Threshold + 1dB is generated on the Operating Channel of the U-NII device. A U-NII device operating as a Master Device will associate with the Client Device at Channel. Stream the MPEG test file from the Master Device to the Client Device on the selected Channel for the entire period of the test. At time T0 the Radar Waveform generator sends a Burst of pulses for each of the radar types at Detection Threshold + 1dB.

3.   Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the EUT during the observation time (Channel Move Time).

4.   Measurement of the aggregate duration of the Channel Closing Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: Dwell (1.5ms) = S (12 sec) / B (8000); where Dwell is the dwell time per spectrum analyzer sampling bin, S is the sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: C = N X Dwell; where C is the Closing Time, N is the number of spectrum analyzer sampling bins showing a U-NII transmission and Dwell is the dwell time per bin.

5.   Measure the EUT for more than 30 minutes following the channel close/move time to verify that the EUT does not resume any transmissions on this Channel.

5.7.3. Test Result

Test Site	WZ-SR4	Test Engineer	Jake Lan
Test Date	2020/09/26	Test Item	Channel Move Time and Channel Closing Transmission Time (802.11ac-VHT80 mode - 5530MHz)
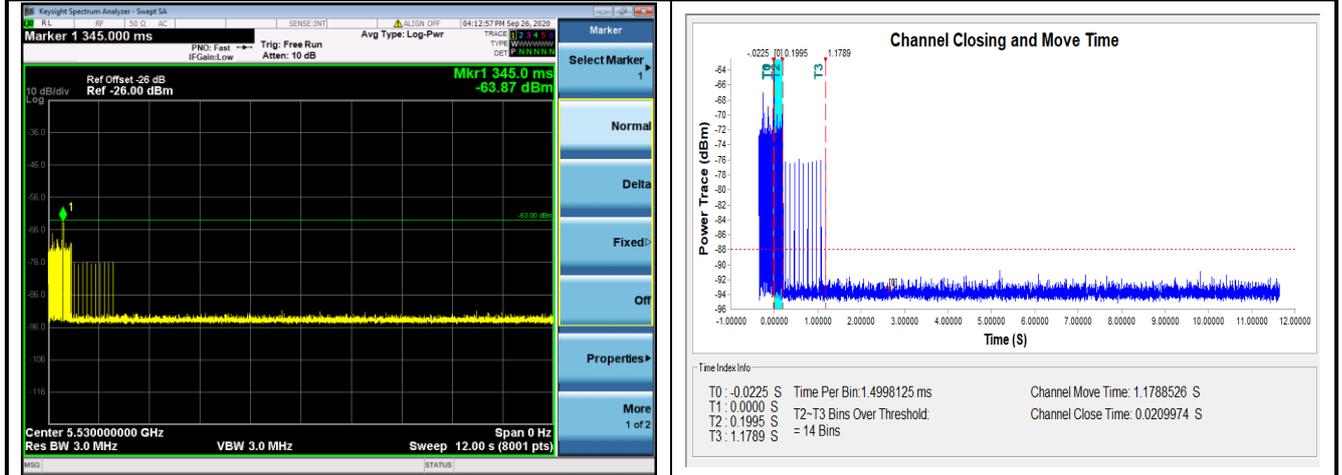
Channel Move Time and Channel Closing Transmission Time
Non-Occupancy Period
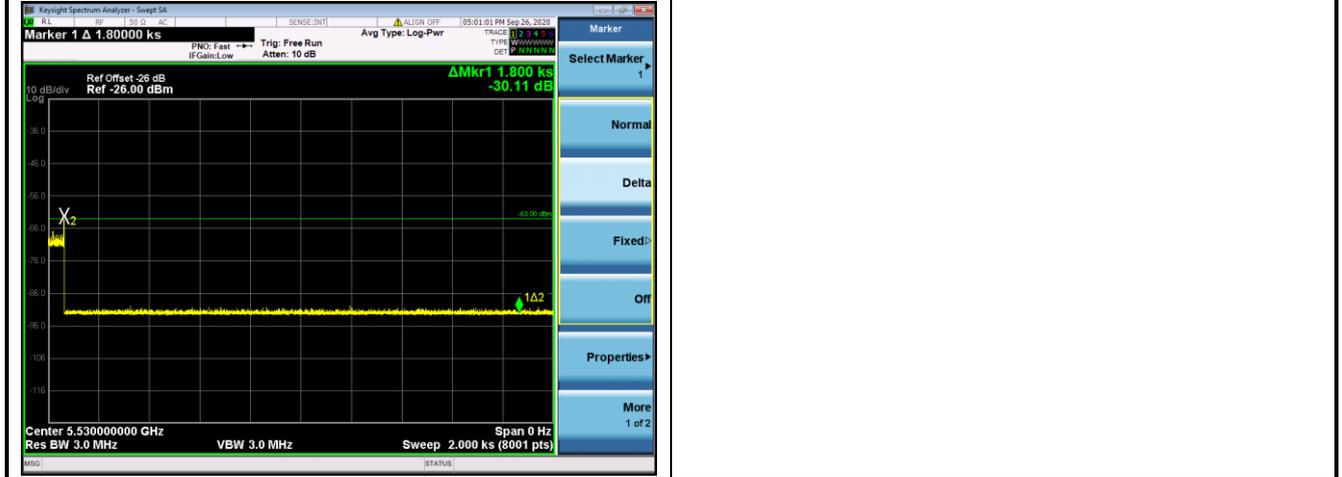
Parameter	Test Result	Limit
Channel Move Time (s)	1.179s	<10s
Channel Closing Transmission Time (ms) (Note)	21.0ms	< 60ms
Non-Occupancy Period (min)	≥ 30min	≥ 30 min
Note: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 seconds period. The aggregate duration of control signals will not count quiet periods in between transmissions.		

5.8. Statistical Performance Check Measurement

5.8.1. Test Limit

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

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

Test Site	WZ-SR4	Test Engineer	Jake Lan
Test Date	2020/09/26	Test Item	Radar Statistical Performance Check (802.11ac-VHT20 mode - 5500MHz)

Radar Type 1 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5502.3	1	658	81	0
2	5498.5	1	678	78	1
3	5491.0	1	558	95	1
4	5493.5	1	818	65	1
5	5495.8	1	898	59	1
6	5493.2	1	798	67	1
7	5501.3	1	518	102	1
8	5493.9	1	738	72	1
9	5498.2	1	758	70	1
10	5497.3	1	578	92	1
11	5492.1	1	938	57	1
12	5502.8	1	918	58	1
13	5496.2	1	638	83	0
14	5491.4	1	858	62	0
15	5497.9	1	838	63	1
16	5506.4	1	1830	29	1
17	5492.7	1	2162	25	1
18	5497.4	1	1492	36	1
19	5505.0	1	1080	49	1
20	5500.0	1	2565	21	1
21	5505.8	1	2146	25	1
22	5502.3	1	3053	18	1
23	5495.8	1	945	56	1
24	5498.6	1	1495	36	1
25	5509.0	1	1403	38	1
26	5507.8	1	2231	24	1
27	5506.9	1	813	65	1
28	5505.7	1	2833	19	1
29	5496.0	1	529	100	1

30	5502.2	1	2515	21	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	5502.3	5	180	24	1
2	5498.5	2.6	164	26	1
3	5491.0	4.4	165	26	1
4	5493.5	2.2	212	28	0
5	5495.8	4.3	179	23	1
6	5493.2	1.3	197	27	0
7	5501.3	4.2	180	26	1
8	5493.9	2.2	154	26	1
9	5498.2	4.8	213	29	1
10	5497.3	3.2	163	28	1
11	5492.1	5	173	29	1
12	5502.8	2.6	178	25	1
13	5496.2	1	216	28	1
14	5491.4	2.1	197	24	1
15	5497.9	2.1	202	28	1
16	5506.4	3.2	213	26	1
17	5492.7	4.4	220	27	1
18	5497.4	3.2	156	28	1
19	5505.0	3	207	29	1
20	5500.0	2.4	164	27	1
21	5505.8	3.4	213	26	1
22	5502.3	2.8	204	24	1
23	5495.8	2.5	215	26	1
24	5498.6	1.2	205	27	1
25	5509.0	3.2	181	28	1
26	5507.8	2.1	207	23	0
27	5506.9	1.5	207	25	0
28	5505.7	2.6	223	24	1
29	5496.0	3.4	198	25	1
30	5502.2	3.7	172	29	1
Detection Percentage (%)					86.7%

Radar Type 3 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5502.3	6	455	17	0
2	5498.5	7.1	238	16	1
3	5491.0	7.6	405	18	1
4	5493.5	7.6	419	18	0
5	5495.8	8	218	17	1
6	5493.2	7	400	18	1
7	5501.3	9.9	223	16	1
8	5493.9	7.3	259	18	1
9	5498.2	7.7	361	16	1
10	5497.3	9	446	18	1
11	5492.1	8.6	204	17	1
12	5502.8	9.7	399	16	1
13	5496.2	7.8	248	18	0
14	5491.4	7.6	336	17	1
15	5497.9	7.6	221	18	1
16	5506.4	6.4	385	17	1
17	5492.7	9.9	209	18	1
18	5497.4	7.8	266	18	1
19	5505.0	9.6	458	16	1
20	5500.0	9.5	261	17	1
21	5505.8	7	403	16	1
22	5502.3	6.4	217	16	1
23	5495.8	6.1	479	18	1
24	5498.6	7.1	265	16	1
25	5509.0	7.4	217	18	1
26	5507.8	7	230	16	1
27	5506.9	9.6	298	18	1
28	5505.7	7.8	416	16	1
29	5496.0	9.1	424	17	1
30	5502.2	9.8	339	17	0
Detection Percentage (%)					86.7%

Radar Type 4 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5502.3	15.9	265	13	0
2	5498.5	13.1	278	12	1
3	5491.0	11.3	369	15	0
4	5493.5	13.7	481	16	1
5	5495.8	11.9	472	12	1
6	5493.2	20	218	13	1
7	5501.3	16.8	369	14	1
8	5493.9	12.5	267	15	1
9	5498.2	20	279	15	1
10	5497.3	12.2	344	14	1
11	5492.1	17.7	450	15	1
12	5502.8	11.4	389	13	1
13	5496.2	14.2	300	14	1
14	5491.4	15.7	237	13	1
15	5497.9	14.5	213	16	1
16	5506.4	15.6	222	15	1
17	5492.7	18.7	321	13	1
18	5497.4	13.3	494	12	0
19	5505.0	18.2	213	13	1
20	5500.0	18.5	267	13	1
21	5505.8	12.7	331	15	1
22	5502.3	18.2	465	14	1
23	5495.8	16	484	15	0
24	5498.6	15.8	228	12	1
25	5509.0	14.9	444	13	1
26	5507.8	12.5	447	16	1
27	5506.9	12.9	410	12	1
28	5505.7	13.6	299	14	1
29	5496.0	14.5	248	14	1
30	5502.2	11.6	442	14	0
Detection Percentage (%)					83.3%

Note: In addition, an average minimum percentage of successful detection across all four Short pulse radar test waveforms is as follows: $\frac{P_d 1 + P_d 2 + P_d 3 + P_d 4}{4}$ = (90%+86.7%+86.7%+83.3%)/4 =86.7% (>80%)

Radar Type 5 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	1=Detection 0=No Detection	Trail #	Test Freq. (MHz)	1=Detection 0=No Detection
1	5500	1	16	5495.4	1
2	5500	1	17	5494.6	1
3	5500	1	18	5497.8	1
4	5500	0	19	5497	1
5	5500	1	20	5493.4	1
6	5500	1	21	5505.4	1
7	5500	1	22	5501.8	1
8	5500	1	23	5503.4	1
9	5500	1	24	5506.6	1
10	5500	1	25	5507	1
11	5497.4	1	26	5503	1
12	5493.4	0	27	5503.8	1
13	5496.2	1	28	5503.8	1
14	5495.8	1	29	5501	0
15	5495.4	0	30	5501	1
Detection Percentage (%)					86.7%

Type 5 Radar Waveform_1						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	94.8	14			377.864
2	2	98.4	14	1689		189.693
3	3	68.7	14	1747	1030	173.852
4	2	92	14	1082		101.323
5	3	58	14	1326	1926	187.154
6	2	72.8	14	1162		544.125
7	1	97.4	14			587.766
8	1	56.4	14			492.177
9	1	67.9	14			99.098
10	2	82.2	14	1821		372.699
11	1	92.5	14			223.111
12	2	97.3	14	1980		332.362
13	2	71.2	14	1667		290.523
14	2	67.7	14	1777		535.064
15	2	85.6	14	1569		286.895
16	2	88.9	14	1625		422.496
17	1	80.9	14			119.437
18	2	93.4	14	1738		92.858
19	1	59.5	14			84.979

Type 5 Radar Waveform_2

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	94.2	19			513.374
2	2	52.2	19	1957		376.158
3	2	62.6	19	1828		390.155
4	2	74.1	19	1717		627.113
5	3	71.7	19	1664	1790	184.321
6	3	70.9	19	1351	1698	377.088
7	3	86.1	19	1905	1339	410.846
8	2	69.9	19	1200		650.744
9	2	54.4	19	1758		266.301
10	3	83.6	19	1150	1068	107.079
11	1	87.3	19			50.636
12	3	60.9	19	1481	1981	380.424
13	2	63.8	19	1761		680.592
14	2	69.8	19	1843		328.939
15	1	89.9	19			400.147
16	3	79.6	19	1122	1994	3.565
17	1	88.3	19			65.682

Type 5 Radar Waveform_3

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	82.8	14	1166		465.23
2	3	80.7	14	1405	1728	907.623
3	2	92.5	14	1066		70.056
4	2	87.5	14	1370		720.169
5	2	57.4	14	1636		841.892
6	1	50.1	14			753.145
7	2	57.1	14	1983		340.618
8	2	56.3	14	1377		41.622
9	1	56.5	14			264.565
10	2	88	14	1209		812.318
11	2	59.4	14	1142		509.261
12	2	80.3	14	1869		13.554
13	1	74.8	14			51.577

Type 5 Radar Waveform_4

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	96.1	7	1828	1219	798.867
2	3	69.2	7	1720	1114	446.497
3	2	62.4	7	1349		689.423
4	2	87.3	7	1264		1148.86
5	2	82.3	7	1949		1055.267
6	1	80.2	7			56.083
7	1	91.5	7			1121.11
8	1	92.1	7			729.667
9	2	91.8	7	1641		1106.033

Type 5 Radar Waveform_5						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	65.1	15			213.004
2	3	61.3	15	1817	1316	535.473
3	2	87.6	15	1977		174.137
4	1	94.6	15			93.2
5	2	66.5	15	1330		654.483
6	1	67.9	15			561.747
7	2	87.3	15	1558		299.66
8	2	59.6	15	1166		566.873
9	1	50	15			343.637
10	2	84.1	15	1592		424.72
11	1	50.1	15			142.473
12	3	82.3	15	1993	1318	251.297
13	2	66.9	15	1246		577.83
14	2	78.7	15	1046		321.113
15	2	95.9	15	1455		387.497
16	2	66.8	15	1233		612.1
17	2	98.5	15	1308		52.933
18	3	65.9	15	1318	1531	333.767

Type 5 Radar Waveform_6						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	97.5	13	1756		158.988
2	2	53.5	13	1137		649.378
3	2	75.3	13	1868		686.365
4	3	78.8	13	1461	1122	73.103
5	2	84.6	13	1919		649.881
6	3	76.5	13	1290	1774	228.298
7	1	53.1	13			315.126
8	3	90.5	13	1468	1991	608.214
9	1	84.2	13			451.981
10	1	94	13			155.999
11	1	57.7	13			655.356
12	2	71.6	13	1645		371.494
13	1	80.5	13			175.392
14	2	80.1	13	1452		562.869
15	3	51.3	13	1831	1908	427.947
16	3	59.6	13	1352	1625	338.465
17	3	90.5	13	1935	1019	679.182

Type 5 Radar Waveform_7						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	96.6	9	1584	1106	1080.5
2	1	55.7	9			74.477
3	2	65.9	9	1681		934.513
4	1	61.6	9			819.34
5	1	67.7	9			1012.537
6	2	99.9	9	1032		517.113
7	1	90.2	9			561.2
8	3	81.5	9	1978	1102	313.997
9	3	91.1	9	1372	1762	202.033

Type 5 Radar Waveform_8						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μ sec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	97.9	15			611.454
2	2	62.9	15	1848		492.863
3	1	86.4	15			538.476
4	3	67.2	15	1536	1445	70.529
5	2	69.8	15	1354		370.542
6	3	57.7	15	1397	1842	832.325
7	2	54.9	15	1647		415.078
8	1	74	15			685.332
9	3	74.6	15	1583	1531	357.405
10	2	72.4	15	1827		105.948
11	2	62.7	15	1131		482.301
12	2	56.1	15	1339		618.754
13	2	70.4	15	1469		436.177

Type 5 Radar Waveform_9						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	84.2	8	1379		766.557
2	3	71	8	1956	1619	687.803
3	1	77	8			56.546
4	2	55.1	8	1981		307.569
5	2	52.2	8	1342		556.882
6	2	78.6	8	1082		110.365
7	2	67.9	8	1852		206.968
8	1	98.3	8			177.732
9	2	70.4	8	1356		351.975
10	2	56.2	8	1660		892.778
11	1	64.8	8			3.561
12	2	82.1	8	1021		696.054
13	1	87.1	8			686.577

Type 5 Radar Waveform_10						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	52.1	5			163.335
2	2	94.5	5	1189		57.206
3	1	71.5	5			767.61
4	1	77.8	5			664.57
5	2	76.3	5	1664		692.69
6	2	73.1	5	1827		608.35
7	2	83.1	5	1594		251.42
8	2	73.3	5	1456		537.23
9	2	60.5	5	1281		83.56
10	3	89.1	5	1699	1151	262.63
11	2	51.6	5	1857		285.75
12	3	51.5	5	1214	1350	20.58
13	2	70.8	5	1584		41.49
14	2	60.3	5	1489		502.6
15	2	95.4	5	1245		626.1

		Type 5 Radar Waveform_11				
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	95.9	16	1338		382.159
2	1	64.6	16			264.08
3	1	61.9	16			803.94
4	2	66.5	16	1570		932.08
5	2	74.1	16	1057		1145.48
6	2	58.7	16	1475		678.44
7	3	62	16	1116	1253	371.94
8	2	61.4	16	1594		551.12
9	1	87.8	16			962.9
10	1	51.3	16			308.4

		Type 5 Radar Waveform_12				
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	94.1	6	1727		191.391
2	2	69.2	6	1663		463.49
3	1	52.6	6			382.98
4	3	59.8	6	1891	1136	95.65
5	2	74.6	6	1465		18.84
6	2	89.6	6	1956		187.07
7	2	75.8	6	1349		393.26
8	3	86.7	6	1967	1072	34.03
9	3	55.4	6	1798	1225	11.31
10	1	96.1	6			61.71
11	3	93.2	6	1667	1352	126.42
12	2	80.9	6	1838		691.06
13	3	86	6	1472	1038	580.3
14	1	82.7	6			23.88
15	3	97.3	6	1735	1907	202.5
16	3	58.1	6	1184	1841	74.2

		Type 5 Radar Waveform_13				
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	85.5	13			405.476
2	3	79.7	13	1311	1848	2.876
3	2	97.2	13	1963		743.004
4	2	89.1	13	1926		685.331
5	2	78.6	13	1960		641.509
6	1	54.4	13			352.376
7	3	97.4	13	1423	1263	647.493
8	2	88.5	13	1770		308.31
9	1	59.8	13			133.557
10	2	92.6	13	1420		573.404
11	2	89.4	13	1270		587.811
12	2	82.4	13	1737		685.529
13	2	80.7	13	1854		378.686
14	3	87.4	13	1066	1954	783.543

			Type 5 Radar Waveform_14			
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	68.3	12	1051		105.966
2	2	71.5	12	1085		47.995
3	2	51.8	12	1227		132.077
4	1	60.8	12			47.88
5	2	79.8	12	1024		599.823
6	2	97.4	12	1609		91.537
7	2	62.4	12	1953		193.52
8	1	86.5	12			200.903
9	1	58.2	12			145.487
10	1	52.2	12			598.67
11	2	79	12	1450		481.333
12	2	91.3	12	1419		104.347
13	2	92.2	12	1548		611
14	1	99.9	12			77.233
15	2	78.5	12	1435		162.957
16	2	67.2	12	1164		246.8
17	3	53.5	12	1268	1096	482.933
18	3	73.4	12	1313	1173	599.867

			Type 5 Radar Waveform_15			
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	79.5	11	1917		485.798
2	2	59.1	11	1124		629.64
3	2	55.9	11	1069		482.21
4	3	53.1	11	1768	1980	362.39
5	1	74.2	11			176.66
6	2	83.8	11	1992		666.15
7	3	70.9	11	1366	1109	622.22
8	1	50	11			394.12
9	2	78.8	11	1523		30.14
10	1	53.9	11			265.47
11	1	90.6	11			190.35
12	2	86.4	11	1462		390.78
13	2	54.1	11	1854		421.4
14	3	64.3	11	1344	1698	273.3
15	2	68	11	1029		742.5
16	3	54.7	11	1276	1160	132.8

			Type 5 Radar Waveform_16			
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	81.2	11	1250	1317	588.603
2	2	82.5	11	1997		750.21
3	2	97.5	11	1825		200.12
4	3	53.4	11	1694	1967	589.8
5	2	80.1	11	1349		230.69
6	2	84.8	11	1478		171.33
7	3	60.5	11	1454	1733	284.85
8	1	68.4	11			146.81
9	2	72.9	11	1557		655.98
10	2	91.1	11	1386		175.24
11	2	91.2	11	1852		747.14
12	2	82.1	11	1302		652.35
13	1	50.6	11			379.72
14	3	81.7	11	1216	1549	590.1
15	1	81.5	11			6.2

Type 5 Radar Waveform_17						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	73.1	9			594.689
2	2	66.3	9	1054		67.265
3	2	72.2	9	1166		498.132
4	2	75.7	9	1589		9.183
5	2	84.7	9	1570		1.874
6	2	72.3	9	1145		285.915
7	2	81.3	9	1993		164.646
8	2	71.5	9	1959		416.137
9	2	82.2	9	1626		318.538
10	3	69.2	9	1078	1095	69.319
11	3	98.5	9	1574	1087	243.681
12	2	62.1	9	1984		157.292
13	2	68.3	9	1419		311.493
14	3	89.7	9	1691	1628	318.124
15	3	67.7	9	1298	1602	65.665
16	2	84.4	9	1116		449.266
17	2	63.5	9	1070		6.337
18	2	93.4	9	1816		615.658
19	3	58.5	9	1758	1480	560.979

Type 5 Radar Waveform_18						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	79.7	17			336.397
2	1	61.7	17			58.582
3	1	68.5	17			682.294
4	2	80.2	17	1271		501.041
5	1	73.1	17			440.639
6	2	60.5	17	1150		650.166
7	2	73.4	17	1727		298.053
8	1	86.4	17			198.29
9	1	98.3	17			636.207
10	3	50.6	17	1766	1348	523.054
11	1	73.8	17			543.101
12	2	53.3	17	1867		653.829
13	1	83.3	17			256.786
14	1	79.8	17			74.343

Type 5 Radar Waveform_19						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	74	15	1110	1980	1448.06
2	3	72.6	15	1750	1963	90.06
3	3	98.6	15	1097	1535	1389.59
4	3	94.9	15	1114	1991	1466.2
5	3	89.5	15	1422	1266	267.26
6	3	58.9	15	1520	1810	556.31
7	1	93.3	15			1380.3
8	3	66.3	15	1571	1988	1235.9

Type 5 Radar Waveform_20						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	65.4	6	1226		1073.31
2	2	84.4	6	1324		405.02
3	3	74.2	6	1908	1706	191.77
4	2	56.3	6	1835		334.37
5	2	80.9	6	1583		562.67
6	1	99.9	6			279.94
7	1	74.3	6			1179.9
8	1	66.8	6			820.97
9	3	56	6	1376	1280	1052.2
10	1	51.6	6			227.1

Type 5 Radar Waveform_21						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	67.4	9			532.051
2	2	65.7	9	1603		185.021
3	3	58.2	9	1783	1754	270.682
4	2	97.3	9	1913		182.353
5	2	71.5	9	1509		534.284
6	3	99.6	9	1750	1139	414.725
7	1	71.7	9			69.326
8	2	81	9	1133		334.907
9	2	91.7	9	1769		106.888
10	2	92.3	9	1254		182.679
11	3	57.3	9	1243	1627	131.541
12	3	59	9	1516	1169	482.372
13	2	96.2	9	1439		226.203
14	3	80.3	9	1605	1310	570.104
15	1	68.4	9			200.955
16	1	64.2	9			19.056
17	1	95	9			160.937
18	2	59.3	9	1003		407.658
19	3	55.2	9	1420	1212	522.579

Type 5 Radar Waveform_22						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	54.9	18	1225		23.699
2	2	88.5	18	1464		431.521
3	3	96	18	1884	1819	197.152
4	2	84.4	18	1690		333.183
5	2	91.4	18	1860		598.144
6	3	86.9	18	1628	1613	455.075
7	1	91.5	18			75.026
8	2	89.2	18	1005		547.297
9	1	67.6	18			251.218
10	2	68.8	18	1828		348.229
11	1	97.6	18			128.611
12	1	91.8	18			28.252
13	3	90.3	18	1894	1132	36.613
14	3	54	18	1482	1541	304.784
15	1	78.4	18			142.045
16	3	66.3	18	1973	1533	268.566
17	3	69.5	18	1035	1944	214.937
18	3	50.8	18	1713	1483	216.458
19	1	91.6	18			229.279

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	84.9	14	1911		144.43
2	1	69.5	14			638.673
3	1	58	14			503.497
4	2	97.8	14	1792		443.83
5	1	59.7	14			429.463
6	2	80	14	1523		490.847
7	3	55.8	14	1744	1979	451.89
8	1	95.1	14			104.323
9	2	89.2	14	1010		456.457
10	2	90.7	14	1257		77.82
11	2	60.3	14	1425		273.873
12	2	85.2	14	1030		206.327
13	2	59.4	14	1420		416.49
14	2	96.8	14	1301		72.963
15	1	92	14			301.817
16	2	74.8	14	1565		437.4
17	2	81.1	14	1801		49.733
18	2	71.4	14	1823		463.767

Type 5 Radar Waveform_24

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	63	6	1456		640.195
2	2	57.2	6	1626		98.83
3	2	83.7	6	1507		697.12
4	2	54	6	1873		88.04
5	2	78	6	1623		304.42
6	2	91	6	1461		19.83
7	3	50.3	6	1212	1685	1019.1
8	2	57.1	6	1156		1081.1

Type 5 Radar Waveform_25

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	83.6	5	1664		68.087
2	2	51.3	5	1552		700.06
3	1	65.3	5			767.84
4	2	71.2	5	1041		551.48
5	2	58.3	5	1016		324.78
6	2	79.3	5	1207		549.93
7	2	56.4	5	1048		252.88
8	3	85.9	5	1583	1098	288.09
9	2	65.1	5	1568		276.36
10	2	51.6	5	1627		620.1

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	1	78.5	15			1043.42
2	2	83.8	15	1559		216.527
3	1	65.1	15			1055.383
4	3	50.2	15	1509	1447	1211.07
5	2	63.9	15	1416		1188.707
6	2	66.2	15	1604		644.773
7	2	96.3	15	1568		1077.34
8	3	80.6	15	1866	1788	557.557
9	2	85.4	15	1928		1203.633

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	67.9	13	1490		383.595
2	2	70.4	13	1730		168.8
3	2	93.1	13	1904		51.96
4	2	92.5	13	1633		685.11
5	2	94.5	13	1857		315.04
6	1	61.7	13			62.85
7	3	90.3	13	1332	1918	989.15
8	2	68.3	13	1989		604.83
9	2	84	13	1018		727.89
10	1	89.9	13			263.7
11	2	68.2	13	1486		434.3
12	2	77.9	13	1485		767.5

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	92.3	13	1929		718.492
2	2	93.6	13	1102		920.16
3	2	54	13	1542		518.02
4	3	50.1	13	1673	1376	169.13
5	1	82	13			768.23
6	2	63.1	13	1707		1179.5
7	2	100	13	1965		779.07
8	2	98.3	13	1795		1354

Type 5 Radar Waveform_29

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	55.3	20	1029		512.874
2	2	79.8	20	1883		261.456
3	2	98.9	20	1407		425.832
4	1	78.2	20			517.033
5	2	79.7	20	1121		450.654
6	2	87.8	20	1995		493.565
7	2	58.9	20	1325		198.016
8	3	80.9	20	1642	1170	122.247
9	2	57.7	20	1566		412.878
10	3	77.6	20	1215	1245	381.409
11	3	57.8	20	1173	1493	116.691
12	2	51.8	20	1272		565.172
13	3	66.1	20	1115	1935	233.193
14	2	81.5	20	1958		234.984
15	2	93.3	20	1740		167.595
16	1	52.8	20			620.516
17	3	82.1	20	1587	1778	551.637
18	3	79.7	20	1332	1620	493.858
19	1	72.6	20			531.079

Type 5 Radar Waveform_30

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	89.4	20			114.071
2	2	86.8	20	1981		509.858
3	1	58.2	20			486.575
4	2	94.3	20	1513		204.043
5	1	90.6	20			66.831
6	1	90.4	20			49.118
7	1	63.9	20			379.656
8	3	50.7	20	1577	1835	206.224
9	2	94.8	20	1506		450.311
10	3	85.7	20	1225	1215	246.889
11	2	68.3	20	1032		131.986
12	1	82.6	20			130.754
13	1	62.8	20			166.202
14	3	84.8	20	1543	1122	552.929
15	2	70.1	20	1143		446.147
16	2	63.3	20	1542		389.565
17	3	54.5	20	1134	1549	90.082

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	0	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 (%)			96.7%

Radar waveform #1			Radar waveform #2		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
76	5507	228	9	5501	27
--	--	--	11	5491	33
--	--	--	14	5499	42
--	--	--	65	5490	195
--	--	--	70	5495	210
--	--	--	72	5494	216

Radar waveform #3			Radar waveform #4		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
8	5493	24	12	5491	36
32	5507	96	18	5510	54
87	5494	261	33	5499	99
96	5502	288	68	5509	204
--	--	--	81	5493	243
--	--	--	98	5494	294

Radar waveform #5			Radar waveform #6		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
9	5501	27	16	5491	48
82	5510	246	26	5494	78
83	5503	249	42	5504	126
95	5494	285	80	5506	240
--	--	--	90	5509	270

Radar waveform #7			Radar waveform #8		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
21	5506	63	42	5504	126
65	5501	195	58	5507	174
66	5494	198	80	5506	240
93	5502	279	85	5509	255

Radar waveform #9			Radar waveform #10		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
4	5504	12	22	5499	66
11	5500	33	47	5496	141
30	5495	90	53	5491	159
60	5496	180	65	5498	195
91	5501	273	85	5492	255

Radar waveform #11			Radar waveform #12		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
6	5505	18	17	5493	51
100	5506	300	37	5497	111
--	--	--	41	5494	123
--	--	--	62	5504	186
--	--	--	84	5492	252

Radar waveform #13			Radar waveform #14		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
9	5493	27	80	5499	240
51	5510	153	88	5500	264
--	--	--	100	5497	300

Radar waveform #15			Radar waveform #16		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5499	6	3	5508	9
30	5493	90	--	--	--
43	5495	129	--	--	--
64	5505	192	--	--	--
65	5490	195	--	--	--
98	5492	294	--	--	--

Radar waveform #17			Radar waveform #18		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
14	5494	42	7	5508	21
45	5497	135	14	5497	42
55	5501	165	27	5510	81
--	--	--	30	5505	90

Radar waveform #19			Radar waveform #20		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
4	5503	12	16	5505	48
34	5499	102	20	5494	60
35	5510	105	23	5492	69
45	5496	135	24	5495	72
48	5501	144	43	5507	129
63	5509	189	87	5510	261
66	5494	198	--	--	--
83	5498	249	--	--	--
91	5504	273	--	--	--

Radar waveform #21			Radar waveform #22		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
26	5499	78	1	5504	3
45	5506	135	10	5500	30
55	5505	165	15	5497	45
66	5503	198	32	5510	96
84	5498	252	46	5506	138

Radar waveform #23			Radar waveform #24		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
10	5504	30	6	5494	18
26	5502	78	51	5493	153
27	5503	81	60	5499	180
32	5500	96	64	5495	192
49	5501	147	--	--	--

Radar waveform #25			Radar waveform #26		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
7	5492	21	2	5492	6
11	5506	33	61	5498	183
29	5501	87	91	5500	273
35	5495	105	--	--	--
45	5494	135	--	--	--
52	5509	156	--	--	--
74	5508	222	--	--	--
94	5505	282	--	--	--
99	5502	297	--	--	--

Radar waveform #27			Radar waveform #28		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
38	5494	114	5	5498	15
42	5500	126	54	5502	162
56	5496	168	67	5492	201
--	--	--	78	5494	234
--	--	--	80	5507	240
--	--	--	95	5508	285

Radar waveform #29			Radar waveform #30		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
30	5502	90	29	5505	87
46	5503	138	36	5507	108
59	5504	177	50	5504	150
80	5505	240	70	5506	210
--	--	--	74	5499	222
--	--	--	89	5492	267
--	--	--	90	5509	270

Test Site	WZ-SR4	Test Engineer	Jake Lan
Test Date	2020/09/26	Test Item	Radar Statistical Performance Check (802.11ac-VHT40 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	5493.0	1	638	83	1
2	5527.6	1	878	61	1
3	5524.1	1	778	68	1
4	5522.2	1	938	57	1
5	5497.4	1	598	89	1
6	5520.4	1	3066	18	1
7	5524.1	1	518	102	1
8	5526.1	1	718	74	1
9	5527.4	1	578	92	1
10	5508.4	1	678	78	1
11	5493.6	1	758	70	1
12	5505.1	1	898	59	1
13	5494.6	1	838	63	1
14	5524.9	1	558	95	1
15	5521.1	1	858	62	1
16	5494.7	1	2413	22	1
17	5510.0	1	1327	40	1
18	5508.6	1	1101	48	1
19	5491.0	1	1656	32	1
20	5521.2	1	2943	18	1
21	5519.1	1	2730	20	1
22	5510.9	1	2240	24	1
23	5507.8	1	1971	27	1
24	5491.6	1	793	67	1
25	5529.0	1	1664	32	1
26	5520.4	1	1364	39	1
27	5511.4	1	2467	22	1
28	5519.4	1	2399	22	1
29	5527.5	1	2980	18	1
30	5501.3	1	792	67	1

Detection Percentage (%)	100%

Radar Type 2 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5493.0	2.6	203	26	1
2	5527.6	1.8	192	26	1
3	5524.1	2.7	156	24	0
4	5522.2	2.6	178	25	1
5	5497.4	1.6	213	29	1
6	5520.4	2.8	156	28	1
7	5524.1	2.2	217	26	1
8	5526.1	3.9	185	25	1
9	5527.4	1.9	217	25	1
10	5508.4	2.8	181	29	1
11	5493.6	2.7	179	28	1
12	5505.1	1.4	175	24	1
13	5494.6	4.1	201	24	1
14	5524.9	4.4	186	25	1
15	5521.1	3	185	24	1
16	5494.7	2.1	167	26	1
17	5510.0	4	164	26	1
18	5508.6	4.2	192	25	1
19	5491.0	4.4	193	24	1
20	5521.2	1.2	183	26	1
21	5519.1	4.4	178	25	1
22	5510.9	2.7	228	27	1
23	5507.8	3.9	219	24	0
24	5491.6	3.9	173	26	1
25	5529.0	2.3	150	26	1
26	5520.4	5	177	26	1
27	5511.4	3.4	212	29	1
28	5519.4	3.3	152	26	1
29	5527.5	2.3	199	24	1
30	5501.3	4.4	213	28	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	5493.0	10	221	16	1
2	5527.6	7.4	364	16	1
3	5524.1	7.7	335	17	1
4	5522.2	7.5	269	16	1
5	5497.4	9.2	473	18	1
6	5520.4	9.3	213	17	1
7	5524.1	6.9	483	17	1
8	5526.1	6.5	255	17	1
9	5527.4	9.1	471	17	1
10	5508.4	7.4	478	16	1
11	5493.6	7.6	222	17	1
12	5505.1	7.1	308	17	1
13	5494.6	6.8	402	17	1
14	5524.9	8.6	266	16	1
15	5521.1	6.6	385	18	1
16	5494.7	8.5	456	18	1
17	5510.0	8.4	201	17	1
18	5508.6	6.6	384	17	1
19	5491.0	8.3	200	18	1
20	5521.2	7.4	340	17	1
21	5519.1	7.4	280	16	1
22	5510.9	6.9	409	18	0
23	5507.8	7.7	431	18	1
24	5491.6	8.6	340	18	1
25	5529.0	10	481	17	1
26	5520.4	7.9	311	17	1
27	5511.4	6.2	271	17	1
28	5519.4	9.1	287	16	1
29	5527.5	7.8	208	18	1
30	5501.3	6.5	287	16	1
Detection Percentage (%)					96.7%

Radar Type 4 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5493.0	16.9	356	15	1
2	5527.6	15.4	284	14	1
3	5524.1	15.8	288	14	0
4	5522.2	11.3	333	12	1
5	5497.4	19.8	462	14	1
6	5520.4	18.6	458	12	1
7	5524.1	11.1	332	14	1
8	5526.1	16.7	339	14	1
9	5527.4	16.4	218	12	1
10	5508.4	11.9	362	14	1
11	5493.6	15.4	497	13	1
12	5505.1	12.1	500	15	1
13	5494.6	12.6	391	13	1
14	5524.9	17.1	285	12	0
15	5521.1	17.9	315	14	1
16	5494.7	15.7	401	15	0
17	5510.0	15.8	327	12	1
18	5508.6	16.8	319	14	1
19	5491.0	16.7	437	15	1
20	5521.2	12.8	283	13	1
21	5519.1	18.9	453	14	1
22	5510.9	16.3	334	16	1
23	5507.8	14.8	364	15	1
24	5491.6	18.6	499	15	1
25	5529.0	16.6	346	15	1
26	5520.4	18	407	15	1
27	5511.4	15.8	258	16	1
28	5519.4	15.7	418	13	1
29	5527.5	19.4	247	15	1
30	5501.3	19.5	345	15	0
Detection Percentage (%)					86.7%

Note: In addition, an average minimum percentage of successful detection across all four Short pulse radar test waveforms is as follows: $\frac{P_d1 + P_d2 + P_d3 + P_d4}{4}$ = (100%+93.3%+96.7%+86.7%)/4 = 94.2% (>80%)

Radar Type 5 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	1=Detection 0=No Detection	Trail #	Test Freq. (MHz)	1=Detection 0=No Detection
1	5510	0	16	5495.8	1
2	5510	1	17	5494.6	0
3	5510	1	18	5495.0	1
4	5510	1	19	5493.0	1
5	5510	1	20	5497.4	1
6	5510	1	21	5524.2	1
7	5510	1	22	5522.6	1
8	5510	1	23	5521.4	1
9	5510	1	24	5521.4	1
10	5510	1	25	5522.6	1
11	5497.0	1	26	5526.6	1
12	5493.4	1	27	5527.0	0
13	5495.4	1	28	5526.2	1
14	5493.0	1	29	5524.2	1
15	5493.8	1	30	5527.0	1
Detection Percentage (%)					90%

Type 5 Radar Waveform_1						
Burst	Number of Pulses	Pulse Width (µ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	65.1	19	1289		426.86
2	3	62.6	19	1574	1676	303.56
3	2	55.7	19	1640		502.63
4	3	65.2	19	1263	1581	889.53
5	2	50.6	19	1166		384.55
6	2	69.9	19	1095		468.46
7	3	91.6	19	1336	1382	791.21
8	2	83.9	19	1728		835.38
9	1	55.2	19			490.5
10	2	76	19	1388		815.64
11	1	62.7	19			586.7
12	2	89.4	19	1402		99.9

Type 5 Radar Waveform_2						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	60	16	1870	1511	96.517
2	3	91.6	16	1701	1275	491.12
3	2	72.9	16	1435		236.41
4	3	52.2	16	1526	1235	174.6
5	3	87.9	16	1726	1227	14.37
6	1	53	16			354.05
7	3	90.4	16	1194	1929	109.5
8	2	50.1	16	1660		270.71
9	3	57.3	16	1477	1984	134.44
10	2	51.5	16	1098		261.88
11	2	59.8	16	1309		262.22
12	3	79.3	16	1880	1465	753.4
13	3	99.5	16	1368	1292	542.6
14	2	85.5	16	1591		12.9
15	3	63.1	16	1746	1646	26.3

Type 5 Radar Waveform_3						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	68.6	9			617.366
2	2	53.3	9	1008		455.563
3	2	84.7	9	1887		36.756
4	3	64	9	1459	1874	458.219
5	2	85	9	1177		535.082
6	3	67.5	9	1310	1969	590.205
7	1	79.8	9			292.778
8	2	89.6	9	1508		653.242
9	3	52.7	9	1700	1653	498.655
10	1	89.6	9			5.328
11	3	96.6	9	1660	1727	693.581
12	1	79	9			209.654
13	1	77.3	9			379.877

Type 5 Radar Waveform_4						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	98.7	15			120.992
2	2	65.3	15	1345		251.259
3	2	75.8	15	1289		486.847
4	2	63.5	15	1296		586.8
5	3	77	15	1492	1484	580.803
6	2	56	15	1231		52.147
7	2	98.1	15	1526		573.55
8	2	85.1	15	1166		48.383
9	1	68.9	15			428.977
10	2	61	15	1442		633.56
11	1	83.4	15			175.983
12	2	91.9	15	1312		388.217
13	2	68.2	15	1400		542.29
14	2	82.1	15	1682		373.493
15	2	67.7	15	1710		4.207
16	2	57.7	15	1469		127.2
17	2	84.3	15	1597		637.833
18	2	64.1	15	1213		369.367

Type 5 Radar Waveform_5						
Burst	Number of Pulses	Pulse Width (µ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	1	81.9	14			785.634
2	2	90.2	14	1841		84.672
3	3	80.1	14	1063	1234	365.134
4	1	70.9	14			805.601
5	2	51.6	14	1824		518.409
6	1	55.9	14			313.146
7	2	63.6	14	1996		431.633
8	2	85.1	14	1288		592.76
9	2	53.8	14	1052		489.657
10	1	88.3	14			193.224
11	1	55.6	14			437.481
12	2	79.2	14	1829		465.099
13	2	97.5	14	1257		736.586
14	3	98.9	14	1582	1688	697.643

Type 5 Radar Waveform_6						
Burst	Number of Pulses	Pulse Width (µ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	72.4	6	1329		713.178
2	2	59.5	6	1805		373.497
3	3	86.6	6	1418	1581	688.824
4	1	85.9	6			430.151
5	1	57.5	6			75.539
6	2	92.8	6	1171		764.086
7	2	87.4	6	1512		261.983
8	2	71.8	6	1824		811.52
9	2	96.1	6	1530		28.277
10	2	72.8	6	1275		772.604
11	2	50.3	6	1305		156.561
12	2	83.9	6	1679		429.049
13	3	90.6	6	1097	1502	821.886
14	2	81.7	6	1595		318.743

Type 5 Radar Waveform_7						
Burst	Number of Pulses	Pulse Width (µ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	62.9	15	1935		121.52
2	2	67.3	15	1203		397.809
3	3	82	15	1658	1915	212.63
4	2	98.5	15	1315		316.83
5	1	97.5	15			231.71
6	2	53.1	15	1062		221.23
7	3	66.2	15	1064	1329	587.82
8	2	58.4	15	1214		89.5
9	2	88.1	15	1711		148.85
10	3	61.9	15	1964	1767	425.58
11	2	70.5	15	1615		2.98
12	2	61.1	15	1249		271.49
13	2	80.1	15	1570		378.12
14	2	64.1	15	1640		212.66
15	3	78.5	15	1393	1611	344.87
16	2	79.4	15	1765		79.88
17	2	92.8	15	1919		182.92
18	2	87.1	15	1986		533.9
19	2	54.8	15	1668		548.5
20	3	80.9	15	1950	1447	580.8

Type 5 Radar Waveform_8						
Burst	Number of Pulses	Pulse Width (μsec)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	69.5	16			721.111
2	2	92.4	16	1887		28.797
3	1	83.2	16			1218.173
4	2	68.6	16	1874		770.26
5	2	67.6	16	1162		603.687
6	2	86	16	1543		81.323
7	3	56.6	16	1686	1947	289.66
8	2	63.9	16	1278		487.467
9	2	85.2	16	1297		635.833

Type 5 Radar Waveform_9						
Burst	Number of Pulses	Pulse Width (μsec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	62.9	9			687.838
2	1	60.7	9			377.788
3	3	98.4	9	1519	1232	628.815
4	3	76	9	1998	1145	166.603
5	1	86.2	9			86.811
6	3	83.5	9	1846	1818	690.428
7	3	79.5	9	1834	1855	66.326
8	3	70.2	9	1047	1880	537.614
9	3	89.8	9	1643	1129	413.151
10	2	83.5	9	1135		602.449
11	2	98.3	9	1691		662.036
12	3	64.7	9	1249	1816	50.394
13	2	61.6	9	1049		169.902
14	2	93.4	9	1108		560.739
15	2	54.7	9	1332		9.157
16	1	57.4	9			507.265
17	1	86.8	9			465.482

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	85.7	17	1004	1370	6.833
2	1	84.6	17			184.807
3	3	92.6	17	1015	1666	170.424
4	2	56.5	17	1326		418.011
5	2	92.4	17	1851		110.969
6	1	85.2	17			111.176
7	1	78.3	17			228.113
8	1	58.7	17			127.86
9	1	58.7	17			298.437
10	1	95	17			538.294
11	3	71.5	17	1210	1580	631.601
12	1	89.3	17			818.129
13	3	50.7	17	1299	1858	58.386
14	2	74.5	17	1618		179.043

				Type 5 Radar Waveform_11			

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	61.9	15			336.321
2	3	55.3	15	1710	1914	288.11
3	1	55.5	15			196.497
4	3	100	15	1641	1860	325.09
5	2	96	15	1046		405.823
6	2	98.4	15	1832		578.867
7	2	95.7	15	1118		571.19
8	3	74.1	15	1579	1123	402.373
9	2	54.7	15	1573		602.837
10	2	58.1	15	1226		32.85
11	1	80.6	15			534.183
12	3	99.7	15	1592	1363	225.007
13	2	53.2	15	1736		17.81
14	2	90.1	15	1840		416.473
15	2	54.7	15	1503		205.057
16	2	97.4	15	1883		186.1
17	3	89	15	1459	1385	605.233
18	1	89.1	15			216.967

				Type 5 Radar Waveform_12			

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	53.2	6			561.524
2	2	65.7	6	1604		324.701
3	1	94.1	6			559.592
4	3	67.9	6	1281	1181	843.123
5	2	93.5	6	1380		380.114
6	2	63.3	6	1527		667.485
7	3	87.1	6	1469	1662	388.155
8	2	80.6	6	1119		400.356
9	2	73.4	6	1855		69.517
10	3	55.1	6	1073	1893	3.798
11	1	97	6			177.309

				Type 5 Radar Waveform_13			

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	57.8	11	1558	1589	585.754
2	1	89.9	11			972.92
3	3	74.4	11	1314	1026	988.56
4	2	78.3	11	1859		105.17
5	2	93.8	11	1494		526.85
6	2	51.8	11	1036		111.16
7	3	59.1	11	1600	1192	928.93
8	3	54.5	11	1802	1981	64.82
9	3	74.6	11	1308	1390	184.78
10	2	68	11	1055		380.01
11	2	91.9	11	1975		405.9
12	2	78.4	11	1911		547.8

Type 5 Radar Waveform_14						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	57.9	5			63.156
2	1	92.2	5			1063.877
3	2	58.4	5	1396		767.563
4	1	96	5			657.82
5	3	70.3	5	1921	1730	1187.657
6	3	98.5	5	1841	2000	939.063
7	2	82.9	5	1504		67.3
8	1	50.5	5			152.267
9	1	85.3	5			804.933

Type 5 Radar Waveform_15						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	75.5	7	1505	1465	1116.7
2	3	65.4	7	1173	1742	1110.25
3	1	77.9	7			416.8
4	2	77.2	7	1110		914.31
5	2	84.8	7	1151		726.93
6	2	61.4	7	1317		548.37
7	3	56.1	7	1460	1703	519.66
8	1	95.1	7			262.14
9	3	55.3	7	1064	1437	1001.8
10	1	85.7	7			778.7

Type 5 Radar Waveform_16						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	91.8	12			975.717
2	3	60.1	12	1683	1308	912.33
3	3	93.8	12	1686	1568	808.55
4	2	85.3	12	1900		203.47
5	2	87.1	12	1340		1128.54
6	3	76.7	12	1090	1023	888.6
7	2	63.6	12	1932		800
8	3	59.3	12	1474	1802	1021.01
9	2	70.9	12	1554		520.4
10	1	86	12			400.4

Type 5 Radar Waveform_17

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	52.6	9	1424	1856	12.774
2	3	78.6	9	1673	1418	552.838
3	1	86	9			74.525
4	3	82.3	9	1190	1238	381.603
5	3	95.8	9	1626	1438	255.691
6	2	81.8	9	1096		71.238
7	3	72.1	9	1388	1897	334.516
8	2	69.1	9	1020		389.374
9	2	82	9	1995		159.231
10	1	52.8	9			443.939
11	3	56.5	9	1962	1231	615.926
12	2	67.1	9	1266		236.854
13	2	67.6	9	1252		384.792
14	2	74.8	9	1104		527.489
15	1	66.7	9			77.897
16	2	64.3	9	1292		496.965
17	1	95.7	9			325.182

Type 5 Radar Waveform_18

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	83.7	10			180.863
2	3	88.9	10	1501	1030	71.18
3	2	75.7	10	1537		234.69
4	1	99.3	10			100.34
5	2	77.7	10	1887		664.45
6	1	77.3	10			96.9
7	1	97.5	10			417.13
8	1	79.6	10			349.24
9	2	94.7	10	1074		513.19
10	3	57.5	10	1638	1191	722.59
11	2	70.2	10	1150		156.4
12	3	94	10	1876	1654	140.69
13	3	55.8	10	1535	1234	503.55
14	2	99.6	10	1812		109.91
15	3	93.6	10	1945	1361	418.6
16	2	68	10	1232		259.7

Type 5 Radar Waveform_19

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	71.9	5	1567	1561	139.293
2	3	98.7	5	1109	1399	918.44
3	2	98.9	5	1806		820.73
4	2	82.8	5	1975		712.17
5	3	86.6	5	1759	1658	794.47
6	3	95.5	5	1478	1859	792.04
7	2	79.7	5	1342		132.19
8	2	50.3	5	1327		86.07
9	2	52.6	5	1206		259.08
10	3	59.3	5	1544	1588	1046.2

Type 5 Radar Waveform_20						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	83.1	16	1967		502.531
2	2	88.7	16	1315		512.913
3	1	68.6	16			400.046
4	2	87.6	16	1301		616.019
5	3	99.8	16	1771	1098	503.372
6	2	60.8	16	1364		153.285
7	3	69.4	16	1683	1816	52.508
8	3	61.3	16	1554	1188	180.312
9	3	59	16	1876	1255	668.245
10	3	89.2	16	1558	1429	736.358
11	1	68.6	16			32.651
12	2	74.1	16	1605		732.154
13	2	60	16	1957		588.577

Type 5 Radar Waveform_21						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	56.8	12	1256		849.306
2	3	64.3	12	1215	1094	35.1
3	1	80.2	12			887.91
4	2	82.4	12	1799		1043.16
5	3	62.9	12	1286	1224	1151.63
6	1	82.4	12			516.15
7	3	55.6	12	1333	1894	88.27
8	2	91.8	12	1653		233.21
9	2	92.7	12	1992		760.8
10	1	77.1	12			597.4

Type 5 Radar Waveform_22						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	91.1	16			617.709
2	1	96.2	16			708.777
3	3	95.1	16	1883	1181	635.004
4	2	81.7	16	1456		410.731
5	3	52.7	16	1469	1383	577.689
6	2	98.6	16	1826		641.126
7	2	75.6	16	1415		735.663
8	2	52.3	16	1625		767.97
9	3	56.4	16	1046	1805	594.717
10	1	99.3	16			184.214
11	1	54.2	16			464.551
12	1	51.4	16			192.989
13	3	87.5	16	1789	1344	752.286
14	3	50.5	16	1357	1651	600.843

						Type 5 Radar Waveform_23

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	94.4	19	1177	1975	58.569
2	3	89.8	19	1618	1483	1012.821
3	3	93.2	19	1597	1816	1039.352
4	2	53.3	19	1453		713.593
5	1	82.5	19			770.614
6	2	91.2	19	1246		493.615
7	2	83.1	19	1344		579.025
8	3	92.6	19	1085	1004	991.136
9	1	98.5	19			732.127
10	1	55.2	19			175.848
11	2	66.6	19	1620		189.509

						Type 5 Radar Waveform_24

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	66.4	19	1903		444.895
2	2	59.1	19	1955		323.62
3	2	87.5	19	1592		343.047
4	3	89.3	19	1592	1939	533.23
5	2	91.4	19	1916		633.373
6	2	52	19	1255		309.577
7	1	56.7	19			376.74
8	3	90.3	19	1116	1821	547.843
9	2	98.4	19	1407		441.057
10	3	81.7	19	1913	1356	36.93
11	2	72.8	19	1301		584.663
12	3	58.7	19	1681	1565	113.417
13	1	56	19			345.79
14	1	50.3	19			570.953
15	2	77.9	19	1607		252.577
16	1	67.6	19			266.5
17	2	81.9	19	1227		28.633
18	2	66.4	19	1055		427.567

						Type 5 Radar Waveform_25

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	78.2	16	1580		633.351
2	2	81.3	16	1231		604.753
3	1	90.8	16			176.596
4	1	71.2	16			594.779
5	2	73.4	16	1819		584.902
6	2	94.7	16	1200		529.845
7	3	63.4	16	1248	1690	858.648
8	3	75.6	16	1493	1778	720.532
9	2	64.7	16	1040		227.605
10	3	51	16	1599	1154	584.658
11	2	68.3	16	1370		105.521
12	2	56.2	16	1278		189.254
13	2	52.5	16	1741		62.777

			Type 5 Radar Waveform_26			
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	76.7	6			1255.37
2	2	51	6	1529		658.307
3	2	54	6	1719		675.993
4	2	90.1	6	1460		1131.93
5	3	69.6	6	1701	1038	106.567
6	2	84.3	6	1402		372.963
7	3	61.1	6	1973	1203	1174.92
8	2	79.7	6	1657		1256.867
9	2	57.3	6	1770		30.433

			Type 5 Radar Waveform_27			
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	80.4	5			591.122
2	1	63.8	5			566.303
3	2	99.4	5	1844		412.566
4	1	51.7	5			373.329
5	2	64.6	5	1900		638.532
6	2	99.3	5	1514		310.415
7	1	92.3	5			283.198
8	3	64.3	5	1678	1685	170.662
9	2	65.2	5	1828		415.135
10	3	58	5	1111	1036	420.468
11	3	54.5	5	1120	1037	314.641
12	2	93.6	5	1905		867.054
13	2	85	5	1972		363.577

			Type 5 Radar Waveform_28			
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	77.3	7	1990	1938	228.213
2	2	77.5	7	1566		589.4
3	3	52.7	7	1656	1112	6.28
4	2	56.4	7	1791		340.9
5	2	87.7	7	1611		491.44
6	2	84.8	7	1438		375.68
7	1	99.7	7			153.92
8	2	64.3	7	1368		206.07
9	2	56.3	7	1153		408.75
10	2	87.1	7	1234		566.71
11	3	89.1	7	1853	1243	734.76
12	1	90.4	7			130.15
13	2	88.1	7	1661		57.39
14	3	69.9	7	1789	1960	538.3
15	3	74.3	7	1446	1878	569.8
16	2	84	7	1720		21.7

			Type 5 Radar Waveform_29			
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	52.7	12	1622		481.927
2	1	67.9	12			574.02
3	1	96.4	12			6.24
4	2	85.8	12	1504		574.85
5	2	93.1	12	1111		14.62
6	1	64.9	12			478.87
7	2	97.1	12	1505		504.17
8	1	96.7	12			6.04
9	3	80.3	12	1034	1102	710.86
10	2	90.9	12	1676		318.92
11	3	55.6	12	1369	1236	212.54
12	2	90.8	12	1663		159.96
13	1	89.2	12			653.91
14	2	84.7	12	1104		127.76
15	1	63.8	12			40.5
16	2	55.4	12	1112		233

			Type 5 Radar Waveform_30			
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	85.7	5	1367		516.099
2	3	75.1	5	1558	1654	406.598
3	2	90.9	5	1846		273.595
4	2	59.5	5	1136		186.283
5	2	76.7	5	1770		678.761
6	3	95.7	5	1253	1312	78.368
7	2	81.8	5	1945		199.336
8	2	92.8	5	1569		440.604
9	2	71.9	5	1177		154.021
10	1	56.6	5			396.589
11	3	96.7	5	1593	1020	498.486
12	3	83.9	5	1970	1906	563.604
13	2	67.7	5	1951		665.922
14	2	82	5	1472		296.539
15	1	66.1	5			522.947
16	3	98.1	5	1633	1892	573.365
17	1	85.9	5			500.082

Radar Type 6 - Radar Statistical Performance

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

Radar waveform #1			Radar waveform #2		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5511	6	4	5512	12
10	5492	30	17	5498	51
18	5519	54	30	5509	90
19	5510	57	43	5523	129
38	5522	114	69	5493	207
52	5500	156	76	5495	228
67	5528	201	91	5527	273

Radar waveform #3			Radar waveform #4		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
40	5491	120	7	5523	21
46	5496	138	19	5529	57
56	5517	168	20	5516	60
71	5510	213	28	5494	84
100	5513	300	43	5501	129
--	--	--	54	5512	162
--	--	--	57	5498	171
--	--	--	75	5499	225
--	--	--	76	5496	228

Radar waveform #5			Radar waveform #6		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5530	6	3	5506	9
6	5497	18	8	5524	24
9	5525	27	11	5513	33
13	5514	39	12	5510	36
23	5500	69	43	5516	129
31	5501	93	44	5490	132
32	5521	96	47	5520	141
40	5520	120	55	5518	165
41	5503	123	68	5497	204
48	5492	144	70	5500	210
50	5512	150	87	5522	261
66	5507	198	96	5505	288
69	5527	207	--	--	--
73	5502	219	--	--	--

Radar waveform #7			Radar waveform #8		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5511	6	4	5528	12
29	5510	87	26	5530	78
41	5496	123	30	5521	90
53	5517	159	57	5502	171
54	5491	162	61	5514	183
70	5506	210	67	5519	201
73	5527	219	83	5493	249
74	5495	222	96	5506	288
76	5501	228	--	--	--
77	5528	231	--	--	--
91	5519	273	--	--	--
97	5529	291	--	--	--

Radar waveform #9			Radar waveform #10		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5491	3	7	5506	21
15	5499	45	29	5510	87
17	5505	51	47	5509	141
28	5490	84	53	5530	159
32	5513	96	55	5517	165
65	5526	195	75	5515	225
81	5509	243	82	5491	246
95	5493	285	98	5497	294

Radar waveform #11			Radar waveform #12		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5501	6	1	5507	3
9	5493	27	18	5523	54
12	5498	36	19	5530	57
27	5502	81	29	5520	87
29	5526	87	36	5518	108
35	5523	105	39	5513	117
42	5505	126	77	5526	231
63	5512	189	88	5519	264
75	5496	225	92	5492	276
78	5491	234	--	--	--
87	5511	261	--	--	--
96	5510	288	--	--	--

Radar waveform #13			Radar waveform #14		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
7	5508	21	12	5503	36
10	5527	30	15	5529	45
13	5518	39	19	5491	57
32	5509	96	28	5524	84
38	5506	114	64	5526	192
46	5528	138	66	5520	198
53	5502	159	71	5509	213
70	5526	210	90	5501	270
84	5499	252	--	--	--
91	5501	273	--	--	--
98	5515	294	--	--	--
99	5507	297	--	--	--

Radar waveform #15			Radar waveform #16		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5530	9	10	5530	30
9	5494	27	17	5514	51
19	5516	57	20	5519	60
46	5500	138	36	5524	108
51	5511	153	49	5515	147
60	5513	180	84	5493	252
76	5505	228	88	5529	264
78	5519	234	94	5494	282
81	5522	243	--	--	--

Radar waveform #17			Radar waveform #18		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
10	5506	30	12	5499	36
43	5495	129	20	5514	60
57	5499	171	37	5507	111
69	5500	207	38	5530	114
85	5513	255	40	5508	120
--	--	--	43	5493	129
--	--	--	49	5525	147
--	--	--	59	5503	177
--	--	--	65	5491	195
--	--	--	66	5522	198
--	--	--	79	5504	237
--	--	--	83	5490	249

Radar waveform #19			Radar waveform #20		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
36	5513	108	15	5492	45
38	5504	114	22	5495	66
53	5508	159	23	5503	69
56	5523	168	24	5517	72
71	5506	213	26	5494	78
81	5527	243	28	5491	84
96	5519	288	30	5490	90
--	--	--	39	5513	117

Radar waveform #21			Radar waveform #22		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
11	5521	33	9	5490	27
20	5492	60	23	5522	69
30	5506	90	40	5503	120
41	5530	123	51	5517	153
53	5520	159	60	5493	180
88	5501	264	--	--	--
99	5523	297	--	--	--

Radar waveform #23			Radar waveform #24		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5522	6	8	5510	24
3	5510	9	14	5524	42
11	5492	33	29	5499	87
17	5523	51	36	5503	108
23	5512	69	37	5496	111
37	5530	111	42	5501	126
46	5525	138	73	5515	219
48	5526	144	81	5527	243
60	5516	180	93	5495	279
63	5527	189	96	5507	288
75	5513	225	--	--	--
85	5528	255	--	--	--

Radar waveform #25			Radar waveform #26		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5519	15	6	5527	18
15	5518	45	30	5517	90
21	5513	63	31	5494	93
23	5511	69	33	5491	99
27	5494	81	35	5509	105
29	5493	87	62	5524	186
32	5507	96	65	5508	195
50	5502	150	67	5504	201
93	5508	279	85	5528	255
--	--	--	90	5514	270
--	--	--	92	5525	276
--	--	--	94	5497	282

Radar waveform #27			Radar waveform #28		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5523	3	5	5528	15
9	5491	27	26	5526	78
19	5530	57	32	5530	96
45	5526	135	43	5493	129
50	5497	150	44	5499	132
57	5528	171	60	5522	180
60	5514	180	95	5497	285
87	5496	261	--	--	--
89	5525	267	--	--	--
99	5501	297	--	--	--

Radar waveform #29			Radar waveform #30		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5524	6	19	5496	57
15	5491	45	24	5514	72
30	5529	90	29	5494	87
33	5527	99	31	5492	93
34	5511	102	38	5517	114
48	5504	144	43	5516	129
60	5493	180	45	5520	135
71	5520	213	46	5501	138
84	5498	252	87	5530	261

Test Site	WZ-SR4	Test Engineer	Jake Lan
Test Date	2020/09/26	Test Item	Radar Statistical Performance Check (802.11ac-VHT80 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	5555.2	1	878	61	1
2	5491.0	1	938	57	1
3	5532.0	1	678	78	0
4	5503.4	1	818	65	1
5	5569.0	1	758	70	1
6	5524.1	1	578	92	1
7	5546.8	1	3066	18	1
8	5533.2	1	598	89	1
9	5495.4	1	778	68	1
10	5512.8	1	738	72	1
11	5492.5	1	638	83	1
12	5500.3	1	658	81	1
13	5539.9	1	798	67	1
14	5515.3	1	518	102	1
15	5510.4	1	698	76	1
16	5541.9	1	1888	28	1
17	5496.1	1	1930	28	1
18	5544.8	1	1389	38	1
19	5497.1	1	2639	20	1
20	5559.0	1	1490	36	1
21	5537.7	1	1049	51	0
22	5509.7	1	1185	45	1
23	5544.9	1	2520	21	1
24	5523.6	1	2533	21	1
25	5544.8	1	828	64	1
26	5530.0	1	876	61	1
27	5511.3	1	2824	19	1
28	5567.9	1	2866	19	1
29	5498.2	1	1341	40	1
30	5539.2	1	1105	48	1

Detection Percentage (%)	93.3%

Radar Type 2 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5555.2	1.9	218	27	1
2	5491.0	1.8	179	23	1
3	5532.0	1.6	175	24	1
4	5503.4	4.4	153	24	1
5	5569.0	2.1	221	25	1
6	5524.1	4.1	175	23	1
7	5546.8	3.5	172	25	1
8	5533.2	5	219	27	1
9	5495.4	2.7	172	27	1
10	5512.8	1.2	218	25	1
11	5492.5	4.3	193	26	1
12	5500.3	2.6	209	26	1
13	5539.9	3.3	211	25	1
14	5515.3	1.1	184	25	1
15	5510.4	4.6	171	24	1
16	5541.9	1.4	188	25	1
17	5496.1	4.5	174	26	1
18	5544.8	1.7	193	28	1
19	5497.1	1.4	211	28	1
20	5559.0	3.2	185	28	1
21	5537.7	3.1	170	27	1
22	5509.7	2.3	223	28	1
23	5544.9	3.7	210	24	1
24	5523.6	1.5	194	29	1
25	5544.8	2.9	214	29	1
26	5530.0	4.4	175	29	1
27	5511.3	3.9	196	25	1
28	5567.9	1.9	182	24	1
29	5498.2	1.4	215	25	0
30	5539.2	1.6	161	27	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	5555.2	6.8	300	17	1
2	5491.0	7.2	241	18	1
3	5532.0	8.3	219	16	0
4	5503.4	8.4	212	16	0
5	5569.0	6.9	428	17	1
6	5524.1	9.7	378	18	1
7	5546.8	6.4	386	18	1
8	5533.2	8.3	407	17	1
9	5495.4	6.6	258	17	1
10	5512.8	9.8	233	17	1
11	5492.5	7.4	315	16	1
12	5500.3	9.4	300	18	1
13	5539.9	9.1	229	16	1
14	5515.3	7.2	308	17	1
15	5510.4	7.1	244	18	1
16	5541.9	6.3	271	17	1
17	5496.1	9.9	341	17	1
18	5544.8	6.9	420	18	1
19	5497.1	7.8	326	17	1
20	5559.0	6.3	364	17	1
21	5537.7	6.7	328	18	1
22	5509.7	7.6	393	16	0
23	5544.9	10	435	17	1
24	5523.6	9.1	334	17	1
25	5544.8	9	413	17	1
26	5530.0	6.2	251	16	1
27	5511.3	9.6	428	17	1
28	5567.9	6.3	339	17	1
29	5498.2	9	225	18	1
30	5539.2	9.5	363	17	1
Detection Percentage (%)					90%

Radar Type 4 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5555.2	17.1	275	14	0
2	5491.0	14.9	455	16	1
3	5532.0	18.3	257	16	1
4	5503.4	19.2	200	15	1
5	5569.0	15.3	487	16	1
6	5524.1	19.3	251	15	1
7	5546.8	12.7	340	14	0
8	5533.2	13	425	14	1
9	5495.4	11.4	231	16	1
10	5512.8	13.8	468	13	1
11	5492.5	13.8	269	16	1
12	5500.3	15	296	14	1
13	5539.9	12.1	346	12	1
14	5515.3	11.9	261	14	1
15	5510.4	13.3	464	16	1
16	5541.9	13.7	445	15	1
17	5496.1	11.8	273	14	1
18	5544.8	14.6	478	13	1
19	5497.1	12.4	282	13	1
20	5559.0	11.1	231	14	0
21	5537.7	13.7	288	13	1
22	5509.7	20	431	14	1
23	5544.9	12.9	470	15	1
24	5523.6	16.5	446	13	1
25	5544.8	19	467	12	1
26	5530.0	16.4	307	16	1
27	5511.3	13.3	356	13	0
28	5567.9	16.8	396	15	1
29	5498.2	13	461	16	0
30	5539.2	14.3	422	13	1
Detection Percentage (%)					83.3%

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

waveforms is as follows: $\dfrac{P_d1 + P_d2 + P_d3 + P_d4}{4}$ = (93.3%+96.7%+90%+83.3%)/4 = 90.8% (>80%)

Radar Type 5 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	1=Detection 0=No Detection	Trail #	Test Freq. (MHz)	1=Detection 0=No Detection
1	5530	1	16	5493.0	1
2	5530	1	17	5497.4	1
3	5530	1	18	5498.6	1
4	5530	1	19	5493.4	1
5	5530	0	20	5496.2	1
6	5530	1	21	5562.2	1
7	5530	1	22	5567.0	1
8	5530	1	23	5563.4	1
9	5530	1	24	5562.6	1
10	5530	1	25	5565.8	1
11	5493.0	1	26	5563.8	1
12	5493.8	0	27	5562.6	1
13	5498.6	1	28	5564.6	1
14	5494.6	1	29	5565.0	1
15	5497.4	1	30	5561.4	1
Detection Percentage (%)					93.3%

Type 5 Radar Waveform_1						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	70.7	7	1369		475.74
2	2	100	7	1267		433.037
3	2	61	7	1700		433.224
4	1	91.1	7			763.751
5	2	68.7	7	1125		209.219
6	3	90.4	7	1842	1332	637.116
7	2	70.4	7	1033		534.533
8	3	94.9	7	1441	1607	11.11
9	2	53.1	7	1918		46.017
10	2	86.5	7	1228		319.034
11	3	92.8	7	1889	1691	446.251
12	2	88.1	7	1300		495.749
13	2	99.1	7	1150		479.286
14	2	54.4	7	1559		164.743

Type 5 Radar Waveform_2						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	96.4	7	1927		627.577
2	2	72.3	7	1435		190.977
3	2	55.4	7	1900		779.144
4	1	82.7	7			100.041
5	3	86.5	7	1065	1999	782.379
6	3	51.2	7	1736	1403	119.286
7	3	84.3	7	1328	1248	138.123
8	3	65.3	7	1094	1800	841.73
9	3	67	7	1389	1572	620.977
10	1	70.1	7			19.204
11	3	51.1	7	1422	1538	179.061
12	1	94.7	7			283.089
13	1	99.3	7			134.186
14	1	70.5	7			180.343

Type 5 Radar Waveform_3						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	62.5	8	1744	1439	533.522
2	2	51.6	8	1505		363.47
3	2	76.7	8	1668		415.48
4	2	52.7	8	1812		35.14
5	2	67.9	8	1052		552.56
6	2	84.8	8	1286		384.99
7	2	64.5	8	1021		255.99
8	1	81.5	8			503.17
9	2	68.5	8	1903		157.32
10	2	87.5	8	1356		472.95
11	3	90.5	8	1229	1186	264.09
12	3	95.9	8	1060	1483	106.4
13	3	75.5	8	1425	1373	350.74
14	3	94.2	8	1886	1270	550.3
15	2	79.2	8	1162		248.4

Type 5 Radar Waveform_4						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	51.5	6			174.792
2	3	93.1	6	1277	1484	426.921
3	3	86.1	6	1304	1634	223.842
4	2	92.5	6	1577		417.463
5	1	85.8	6			178.794
6	1	57.2	6			504.375
7	2	92.5	6	1750		254.935
8	2	91.3	6	1604		1040.256
9	2	95.5	6	1021		661.257
10	3	85.4	6	1508	1688	536.618
11	2	78.6	6	1289		711.209

Type 5 Radar Waveform_5						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	59.7	19	1523	1037	242.891
2	2	96.9	19	1121		481.237
3	2	95.4	19	1853		406.534
4	2	87.3	19	1135		800.311
5	2	55	19	1017		501.529
6	1	50.7	19			755.886
7	3	90.6	19	1758	1139	712.743
8	2	60.3	19	1339		342.84
9	2	79.5	19	1967		807.357
10	1	66.6	19			166.564
11	3	70.2	19	1795	1480	409.061
12	1	87	19			45.769
13	3	85.7	19	1341	1310	663.186
14	1	60.3	19			839.843

Type 5 Radar Waveform_6						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	59	5	1864		465.344
2	3	63.2	5	1772	1273	367.531
3	2	89.3	5	1437		761.622
4	3	74.3	5	1420	1790	521.733
5	2	62	5	1281		94.364
6	3	71.5	5	1770	1773	479.445
7	2	92	5	1403		180.215
8	2	94.8	5	1845		94.856
9	3	59.6	5	1912	1077	1082.437
10	1	91.4	5			1051.018
11	1	59.3	5			414.409

Type 5 Radar Waveform_7						
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	89.6	13			956.127
2	3	51.2	13	1431	1217	766.027
3	2	86.3	13	1741		1016.603
4	3	95	13	1051	1046	530.21
5	3	73.7	13	1123	1426	1064.207
6	1	74.1	13			1166.833
7	1	86.7	13			329.29
8	2	81	13	1235		639.827
9	3	63.3	13	1697	1339	1146.233

			Type 5 Radar Waveform_8			
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μ sec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	50.4	14			389.713
2	2	67.7	14	1602		415.368
3	2	56.3	14	1888		73.235
4	2	54.9	14	1308		113.483
5	3	81.1	14	1118	1224	115.101
6	2	90.8	14	1464		535.578
7	1	66.8	14			44.266
8	1	65.4	14			471.584
9	2	77.5	14	1607		445.101
10	1	98.9	14			260.749
11	1	56.4	14			478.126
12	3	61.3	14	1623	1743	501.874
13	1	95.8	14			6.402
14	2	68.6	14	1128		315.699
15	3	51.7	14	1936	1700	308.147
16	3	62.3	14	1087	1853	629.365
17	1	70.3	14			476.682

			Type 5 Radar Waveform_9			
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	90	11	1765		53.264
2	3	86.9	11	1728	1175	408.677
3	1	86.6	11			736.884
4	1	65.7	11			807.041
5	3	55.3	11	1808	1097	465.259
6	2	63	11	1390		834.266
7	2	93.4	11	1349		755.793
8	2	73.6	11	1509		707.64
9	1	64.5	11			848.267
10	2	65.8	11	1242		266.024
11	2	74	11	1411		692.501
12	3	76.3	11	1047	1198	265.969
13	3	76.8	11	1031	1601	672.886
14	1	83.3	11			140.643

			Type 5 Radar Waveform_10			
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	87.6	6			177.898
2	2	69.7	6	1804		333.768
3	2	98.3	6	1998		511.215
4	2	100	6	1741		642.683
5	2	81.1	6	1571		674.881
6	3	83.5	6	1409	1622	369.488
7	1	96.4	6			22.396
8	3	71.8	6	1343	1443	563.894
9	2	90.8	6	1637		560.151
10	3	80.6	6	1168	1356	405.529
11	1	74.3	6			498.216
12	1	97.4	6			209.204
13	2	76.8	6	1956		88.212
14	2	64.1	6	1815		404.819
15	2	93.7	6	1766		29.407
16	1	99	6			602.765
17	1	95	6			379.182

Type 5 Radar Waveform_11

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	69.7	5	1017		54.239
2	2	94.4	5	1002		352.531
3	1	77.1	5			456.94
4	1	79.1	5			589.21
5	3	56.6	5	1199	1025	213.33
6	2	52.1	5	1916		389.2
7	3	98.9	5	1779	1113	207.77
8	1	72.7	5			98.86
9	1	66.3	5			118.33
10	1	94.3	5			558.47
11	2	66.5	5	1750		465.83
12	2	77.2	5	1011		155.83
13	2	96.2	5	1923		212.55
14	2	94.4	5	1794		19.55
15	2	97.9	5	1045		166.25
16	2	98.3	5	1271		59.65
17	2	75	5	1835		176.26
18	3	61.5	5	1412	1326	384.6
19	2	58.6	5	1964		31.9
20	2	75.8	5	1879		430.5

Type 5 Radar Waveform_12

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	63.1	7	1538		512.63
2	3	80.2	7	1137	1457	437.608
3	3	54.6	7	1792	1152	675.565
4	2	53.3	7	1248		28.413
5	1	53.9	7			252.221
6	2	95.3	7	1538		168.728
7	2	90.5	7	1923		473.036
8	2	62.7	7	1706		597.994
9	2	80.4	7	1163		18.991
10	3	66.3	7	1194	1514	334.829
11	3	98.2	7	1387	1769	391.026
12	1	98.6	7			289.874
13	3	96.1	7	1693	1251	673.722
14	2	92.3	7	1772		424.039
15	2	90.8	7	1091		272.747
16	3	98.2	7	1109	1556	406.065
17	3	80.3	7	1420	1737	85.582

Type 5 Radar Waveform_13

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	67.4	19	1916	1875	898.858
2	2	75.3	19	1597		548.627
3	2	50.2	19	1182		774.623
4	1	51.4	19			132.81
5	2	93.1	19	1457		1063.367
6	3	96.4	19	1941	1951	344.843
7	2	51.1	19	1825		11.79
8	2	90.5	19	1555		9.027
9	1	76.5	19			584.233

table						
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	87.6	9	1739		791.584
2	2	89.8	9	1694		62.766
3	3	59.6	9	1408	1326	521.674
4	3	55.8	9	1801	1514	814.021
5	1	75.7	9			486.419
6	2	74.8	9	1543		250.766
7	2	79.2	9	1972		663.913
8	3	89.2	9	1374	1827	306.92
9	2	78.4	9	1535		127.227
10	2	99.2	9	1456		484.884
11	1	88.1	9			352.011
12	1	69.3	9			220.549
13	3	79.7	9	1028	1655	486.886
14	1	98.4	9			284.043

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	68.3	16	1668		510.89
2	1	74.1	16			328.043
3	1	73	16			231.906
4	3	60	16	1459	1092	609.799
5	2	71	16	1123		588.382
6	2	69.1	16	1664		146.825
7	1	83.6	16			458.478
8	2	97.8	16	1177		883.262
9	2	51.3	16	1265		905.505
10	3	95.9	16	1499	1211	152.828
11	2	52.5	16	1309		803.031
12	2	92.3	16	1964		519.654
13	2	66.7	16	1350		715.177

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	52.4	5	1928	1139	654.776
2	1	52.5	5			8.87
3	2	79.2	5	1887		309.69
4	1	77.8	5			858.96
5	3	62.6	5	1620	1861	497.9
6	2	86.7	5	1643		799.36
7	1	88.4	5			485.92
8	1	97.6	5			27.19
9	1	74.7	5			306.68
10	2	68.2	5	1211		413.41
11	2	84.6	5	1984		666
12	2	85.7	5	1116		468.8

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	51.7	16			691.004
2	1	73.6	16			638.493
3	3	94	16	1579	1424	115.396
4	1	58.1	16			487.419
5	3	68.4	16	1566	1296	783.932
6	2	81.5	16	1470		399.135
7	2	89.6	16	1819		672.858
8	2	54.2	16	1479		44.402
9	1	52.9	16			211.395
10	2	69.1	16	1409		584.638
11	3	78	16	1207	1635	382.621
12	1	66.1	16			7.554
13	3	76.3	16	1213	1734	497.277

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	78.2	19	1294	1199	230.329
2	1	72	19			115.75
3	3	97.8	19	1282	1006	704
4	2	99.6	19	1289		247.14
5	1	71.3	19			1070.7
6	3	62.5	19	1025	1551	64.77
7	2	58.5	19	1505		322.77
8	1	84.5	19			608.57
9	3	60.6	19	1576	1478	772.9
10	1	52.3	19			692.8

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	57.1	6	1652		318.869
2	2	78.1	6	1277		185.233
3	2	92.9	6	1508		300.997
4	3	81	6	1594	1216	234.74
5	3	82.2	6	1913	1403	133.743
6	1	60.8	6			622.747
7	2	70.4	6	1587		565.81
8	2	84.8	6	1593		566.373
9	3	94.7	6	1890	1364	16.367
10	3	95.6	6	1842	1974	290.82
11	3	69.5	6	1061	1512	651.183
12	2	97.3	6	1896		306.837
13	3	83.6	6	1980	1725	210.48
14	3	64.7	6	1295	1268	55.743
15	1	72.1	6			236.997
16	2	55.5	6	1382		551.1
17	1	55.3	6			19.133
18	2	79.3	6	1482		455.667

Type 5 Radar Waveform_19

			Type 5 Radar Waveform_20			
Burst	Number of Pulses	Pulse Width (µ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	3	69.2	13	1174	1668	387.066
2	2	69.5	13	1847		284.14
3	2	75.8	13	1231		665.79
4	3	96.7	13	1461	1803	843.62
5	1	97.4	13			220.67
6	2	83.3	13	1464		316.68
7	3	85.9	13	1284	1992	101.05
8	1	92.9	13			579.07
9	1	67.1	13			878.04
10	2	89.6	13	1580		508.97
11	3	87.5	13	1855	1835	760.1
12	3	58.3	13	1265	1857	175.2

			Type 5 Radar Waveform_21			
Burst	Number of Pulses	Pulse Width (µ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	1	77.9	17			744.86
2	2	87.2	17	1221		801.423
3	1	68.3	17			516.546
4	1	63.7	17			210.239
5	2	77.3	17	1665		881.342
6	2	67.2	17	1154		165.655
7	1	98.4	17			486.178
8	1	91	17			870.502
9	3	63	17	1611	1585	901.335
10	3	78.5	17	1761	1568	601.328
11	3	91.1	17	1126	1441	651.741
12	1	55.3	17			805.154
13	3	99.3	17	1783	1181	683.477

			Type 5 Radar Waveform_22			
Burst	Number of Pulses	Pulse Width (µ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (µsec)	Pulse 2-to-3 PRI (µsec)	Start Location Within Interval (msec)
1	2	83.4	5	1731		249.472
2	3	56.1	5	1772	1702	236.204
3	2	64.1	5	1431		88.917
4	2	75.6	5	1159		424.09
5	1	73.4	5			376.053
6	1	85.8	5			339.827
7	3	63.3	5	1849	1096	62.16
8	2	89.9	5	1579		647.113
9	3	82.3	5	1725	1634	20.627
10	3	78.2	5	1992	1642	116.74
11	3	85.7	5	1969	1923	523.803
12	3	61.7	5	1441	1466	633.577
13	3	79.1	5	1007	1389	400.39
14	2	54	5	1343		422.343
15	3	69.6	5	1446	1240	590.757
16	2	69.4	5	1026		73.6
17	3	64.1	5	1210	1750	424.833
18	1	94.5	5			408.567

			Type 5 Radar Waveform_23			
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	83.4	14	1216		486.466
2	3	89.6	14	1991	1186	360.989
3	3	89.1	14	1119	1516	345.49
4	2	87.9	14	1010		519.09
5	2	66.2	14	1549		392.3
6	2	67	14	1734		418.63
7	2	52.3	14	1289		386.79
8	2	55.9	14	1448		551.96
9	2	99.5	14	1015		266.46
10	1	72	14			27.6
11	1	97.2	14			234.74
12	2	84.1	14	1914		521.97
13	2	77.5	14	1966		443.45
14	3	96.4	14	1935	1664	354.74
15	2	90.7	14	1588		443.43
16	1	81.6	14			397.97
17	2	67.5	14	1218		8.17
18	1	58.4	14			117
19	2	62.4	14	1486		363.3
20	1	82.7	14			85.3

			Type 5 Radar Waveform_24			
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	1	77.9	16			34.659
2	2	85	16	1347		881.78
3	2	70.7	16	1217		984.42
4	2	91	16	1248		722.65
5	2	94.7	16	1772		366.39
6	3	57.3	16	1795	1791	146.27
7	2	80.8	16	1435		239.8
8	2	55.2	16	1338		487.24
9	2	75.2	16	1622		880.65
10	1	88.9	16			404.37
11	3	99.3	16	1875	1097	894.1
12	3	64.2	16	1276	1024	75.2

			Type 5 Radar Waveform_25			
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	99.2	8	1095	1266	249.45
2	1	78	8			600.86
3	1	56.5	8			77.25
4	1	87.9	8			214.22
5	1	83	8			429.53
6	2	76.9	8	1246		479.65
7	1	59.3	8			57.78
8	2	78.8	8	1941		649.46
9	2	85.5	8	1824		552.96
10	2	99	8	1481		65.57
11	2	94.3	8	1486		162.98
12	2	88.2	8	1278		530.22
13	2	57.1	8	1764		303.15
14	2	98.4	8	1214		547
15	3	79.6	8	1012	1609	403
16	1	61.3	8			657.2

			Type 5 Radar Waveform_26			
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	54.3	13	1801	1421	440.944
2	1	63.8	13			428.231
3	2	62.1	13	1697		191.522
4	1	60.5	13			413.963
5	2	94.7	13	1226		468.624
6	3	75.7	13	1105	1902	253.575
7	1	69.6	13			412.776
8	1	68.9	13			149.737
9	2	69.8	13	1012		149.788
10	2	90.6	13	1329		384.729
11	1	83.8	13			399.831
12	2	87	13	1376		177.142
13	2	99.9	13	1293		123.873
14	2	65.9	13	1259		478.504
15	2	54.4	13	1924		314.255
16	3	61	13	1265	1849	306.286
17	2	52.9	13	1653		385.337
18	2	79	13	1385		283.358
19	2	82.5	13	1013		299.279

			Type 5 Radar Waveform_27			
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	2	52.4	16	1557		498.066
2	1	82.7	16			342.801
3	1	99	16			53.22
4	1	76.4	16			24.45
5	2	51.5	16	1027		196.59
6	1	58.2	16			528.8
7	2	80.2	16	1221		40.16
8	2	98.5	16	1971		371.75
9	2	78.1	16	1297		315.47
10	1	82.9	16			214.06
11	3	68.7	16	1872	1563	76.66
12	3	80.3	16	1247	1060	87.01
13	3	95.1	16	1118	1839	182.5
14	1	86.9	16			67.84
15	1	95.8	16			593.3
16	2	77.7	16	1050		367.16
17	2	62.2	16	1620		472.5
18	1	83.4	16			194.8
19	3	87	16	1645	1169	535.1
20	1	81.1	16			354.3

			Type 5 Radar Waveform_28			
Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	68.9	11	1348	1060	446.134
2	1	67.9	11			389.25
3	2	76.2	11	1621		689.5
4	2	90.3	11	1406		139.34
5	2	75	11	1245		467.4
6	2	79.5	11	1857		482.38
7	1	55.4	11			508.1
8	2	68.8	11	1635		453.05
9	3	91.2	11	1202	1910	720.04
10	2	78.6	11	1220		369.39
11	2	51.2	11	1123		648.22
12	1	51.7	11			505.3
13	3	61.8	11	1542	1523	458.6
14	2	94.4	11	1810		724.2
15	1	74.8	11			719

Type 5 Radar Waveform_29

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	88.7	10	1651	1565	716.452
2	2	72.7	10	1239		707.831
3	3	69.4	10	1063	1133	1043.072
4	3	71.4	10	1174	1763	226.873
5	2	99	10	1583		487.944
6	1	90	10			639.075
7	1	85.7	10			72.275
8	1	84.6	10			936.706
9	3	52.4	10	1602	1025	59.287
10	3	86.2	10	1957	1011	248.918
11	3	95.2	10	1682	1625	46.309

Type 5 Radar Waveform_30

Burst	Number of Pulses	Pulse Width (μ sec)	Chirp Width (MHz)	Pulse 1-to-2 PRI (μsec)	Pulse 2-to-3 PRI (μsec)	Start Location Within Interval (msec)
1	3	83.1	19	1070	1371	572.19
2	2	59.6	19	1746		194.134
3	2	59	19	1309		588.59
4	3	69.2	19	1933	1628	79.6
5	2	51	19	1468		380.84
6	2	50	19	1885		543.22
7	2	88.9	19	1747		494.51
8	2	80.7	19	1647		370.27
9	2	74	19	1691		449.36
10	2	99.7	19	1460		59.22
11	2	76.2	19	1121		522.72
12	3	95.5	19	1202	1599	258.77
13	1	96.6	19			363.95
14	2	67.6	19	1561		453.5
15	2	90.5	19	1873		397.51
16	2	95	19	1042		487
17	2	84.3	19	1929		269.87
18	2	95.5	19	1830		275.7
19	2	86.4	19	1927		425.3
20	2	61.5	19	1219		166.8

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	0
7	1	22	1
8	1	23	1
9	0	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 (%)			93.3%

Radar waveform #1			Radar waveform #2		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
8	5490	24	3	5522	9
9	5533	27	10	5535	30
12	5529	36	20	5569	60
20	5560	60	22	5556	66
21	5548	63	26	5564	78
22	5491	66	27	5536	81
36	5551	108	37	5553	111
37	5522	111	40	5557	120
42	5521	126	51	5521	153
55	5500	165	59	5567	177
70	5498	210	60	5520	180
73	5530	219	71	5512	213
80	5536	240	77	5543	231
84	5565	252	79	5542	237
85	5566	255	80	5516	240
98	5492	294	84	5517	252
99	5538	297	85	5519	255
--	--	--	93	5490	279
--	--	--	94	5547	282
--	--	--	97	5518	291

Radar waveform #3			Radar waveform #4		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
10	5500	30	12	5490	36
23	5502	69	19	5563	57
28	5523	84	25	5503	75
31	5520	93	27	5519	81
32	5569	96	36	5521	108
34	5541	102	39	5545	117
42	5562	126	46	5499	138
67	5529	201	54	5553	162
74	5525	222	57	5559	171
75	5543	225	60	5509	180
78	5493	234	66	5491	198
81	5506	243	70	5557	210
91	5519	273	89	5513	267
93	5521	279	90	5562	270
100	5568	300	98	5518	294

Radar waveform #5			Radar waveform #6		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
18	5560	54	3	5560	9
27	5556	81	7	5565	21
28	5546	84	8	5559	24
32	5565	96	14	5514	42
33	5522	99	38	5524	114
39	5541	117	40	5502	120
44	5566	132	45	5547	135
47	5552	141	48	5567	144
50	5561	150	53	5490	159
52	5521	156	57	5546	171
57	5524	171	62	5521	186
60	5545	180	68	5506	204
63	5506	189	73	5540	219
82	5499	246	87	5530	261
87	5564	261	92	5539	276
98	5563	294	99	5497	297
100	5495	300	--	--	--

Radar waveform #7			Radar waveform #8		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5567	15	16	5508	48
22	5498	66	19	5504	57
26	5558	78	23	5538	69
48	5533	144	28	5539	84
50	5507	150	56	5515	168
52	5501	156	66	5526	198
53	5556	159	71	5536	213
58	5508	174	97	5532	291
72	5524	216	--	--	--
77	5520	231	--	--	--
78	5568	234	--	--	--
82	5513	246	--	--	--

Radar waveform #9			Radar waveform #10		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
10	5547	30	15	5554	45
12	5554	36	23	5549	69
14	5509	42	35	5504	105
38	5490	114	39	5552	117
43	5493	129	49	5564	147
59	5567	177	59	5536	177
62	5551	186	60	5512	180
64	5552	192	61	5566	183
--	--	--	68	5498	204
--	--	--	69	5511	207
--	--	--	74	5529	222
--	--	--	75	5556	225
--	--	--	78	5548	234
--	--	--	81	5490	243
--	--	--	83	5543	249
--	--	--	95	5534	285

Radar waveform #11			Radar waveform #12		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5522	9	5	5526	15
13	5547	39	10	5547	30
18	5523	54	14	5529	42
23	5552	69	21	5562	63
30	5516	90	29	5507	87
33	5558	99	30	5505	90
40	5507	120	35	5519	105
43	5538	129	45	5548	135
46	5564	138	59	5528	177
48	5503	144	61	5551	183
49	5512	147	65	5559	195
55	5565	165	67	5515	201
57	5543	171	76	5554	228
74	5555	222	88	5567	264
83	5491	249	92	5517	276
89	5530	267	96	5533	288
98	5526	294	--	--	--

Radar waveform #13			Radar waveform #14		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5551	6	3	5557	9
4	5569	12	6	5518	18
10	5544	30	8	5558	24
26	5508	78	37	5568	111
29	5518	87	43	5545	129
30	5523	90	47	5533	141
37	5565	111	49	5535	147
43	5509	129	60	5501	180
49	5531	147	80	5524	240
60	5563	180	81	5499	243
61	5491	183	87	5525	261
67	5504	201	98	5517	294
69	5556	207	--	--	--
70	5496	210	--	--	--
71	5525	213	--	--	--
74	5501	222	--	--	--
88	5537	264	--	--	--
89	5554	267	--	--	--
94	5493	282	--	--	--

Radar waveform #15			Radar waveform #16		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5558	15	9	5512	27
7	5532	21	10	5495	30
9	5550	27	11	5568	33
15	5562	45	13	5549	39
23	5539	69	17	5491	51
30	5568	90	25	5538	75
33	5502	99	29	5493	87
40	5551	120	32	5518	96
44	5522	132	40	5552	120
52	5535	156	44	5520	132
58	5506	174	48	5501	144
63	5517	189	54	5560	162
66	5516	198	56	5490	168
67	5553	201	79	5558	237
76	5533	228	80	5505	240
83	5545	249	90	5544	270
85	5547	255	94	5557	282
90	5537	270	100	5565	300
100	5564	300	--	--	--

Radar waveform #17			Radar waveform #18		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
14	5544	42	1	5511	3
15	5529	45	3	5494	9
20	5545	60	7	5492	21
29	5539	87	9	5569	27
34	5533	102	12	5518	36
37	5566	111	18	5545	54
38	5518	114	21	5490	63
47	5528	141	24	5521	72
51	5550	153	29	5537	87
62	5522	186	31	5561	93
63	5536	189	39	5540	117
65	5502	195	42	5544	126
77	5557	231	45	5562	135
98	5511	294	50	5497	150
99	5547	297	63	5528	189
100	5512	300	68	5530	204
--	--	--	69	5542	207
--	--	--	71	5550	213
--	--	--	96	5496	288
--	--	--	97	5516	291
--	--	--	98	5524	294

Radar waveform #19			Radar waveform #20		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5520	15	4	5541	12
7	5510	21	9	5514	27
9	5539	27	11	5496	33
11	5565	33	16	5521	48
18	5502	54	17	5525	51
20	5495	60	19	5540	57
24	5559	72	31	5561	93
32	5496	96	32	5518	96
43	5494	129	38	5502	114
49	5556	147	41	5556	123
57	5535	171	42	5569	126
59	5513	177	43	5505	129
61	5529	183	47	5555	141
62	5560	186	61	5491	183
66	5525	198	71	5567	213
76	5527	228	76	5501	228
78	5515	234	81	5508	243
81	5561	243	88	5547	264
84	5530	252	91	5504	273

Radar waveform #21			Radar waveform #22		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
12	5505	36	12	5549	36
13	5503	39	18	5530	54
14	5495	42	20	5504	60
17	5506	51	28	5564	84
18	5547	54	30	5509	90
21	5530	63	35	5551	105
23	5560	69	39	5567	117
28	5546	84	43	5558	129
32	5550	96	58	5560	174
36	5517	108	67	5519	201
37	5533	111	72	5561	216
44	5520	132	76	5570	228
45	5559	135	78	5495	234
51	5534	153	80	5524	240
62	5514	186	88	5502	264
63	5561	189	89	5528	267
73	5540	219	--	--	--
76	5527	228	--	--	--
81	5498	243	--	--	--
85	5535	255	--	--	--
90	5496	270	--	--	--
92	5569	276	--	--	--

Radar waveform #23			Radar waveform #24		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
13	5493	39	7	5522	21
17	5557	51	13	5569	39
37	5560	111	15	5506	45
38	5558	114	20	5532	60
43	5533	129	23	5554	69
53	5566	159	30	5547	90
79	5563	237	37	5495	111
80	5543	240	53	5564	159
82	5521	246	57	5551	171
86	5534	258	70	5498	210
89	5518	267	74	5504	222
99	5553	297	80	5517	240
--	--	--	83	5558	249
--	--	--	86	5493	258
--	--	--	89	5491	267

Radar waveform #25			Radar waveform #26		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
4	5502	12	5	5532	15
7	5504	21	26	5548	78
17	5536	51	45	5531	135
21	5561	63	51	5521	153
26	5544	78	52	5561	156
37	5548	111	53	5511	159
46	5509	138	66	5540	198
50	5559	150	71	5526	213
55	5531	165	79	5520	237
58	5569	174	84	5508	252
81	5498	243	94	5537	282
82	5558	246	96	5554	288
84	5493	252	97	5502	291
85	5532	255	100	5496	300
87	5552	261	--	--	--
95	5570	285	--	--	--
100	5518	300	--	--	--

Radar waveform #27			Radar waveform #28		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
21	5556	63	8	5549	24
28	5558	84	13	5530	39
34	5523	102	17	5563	51
45	5538	135	24	5542	72
69	5564	207	26	5511	78
70	5518	210	31	5552	93
71	5536	213	41	5526	123
75	5517	225	42	5525	126
85	5570	255	51	5555	153
89	5544	267	52	5490	156
92	5553	276	59	5517	177
97	5494	291	65	5515	195
--	--	--	75	5556	225
--	--	--	85	5498	255
--	--	--	89	5562	267
--	--	--	97	5566	291

Radar waveform #29			Radar waveform #30		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5521	3	6	5501	18
3	5524	9	10	5568	30
6	5542	18	12	5539	36
12	5562	36	25	5524	75
13	5510	39	28	5549	84
17	5570	51	43	5505	129
22	5559	66	45	5521	135
36	5501	108	56	5525	168
47	5541	141	57	5527	171
50	5550	150	60	5513	180
57	5500	171	66	5520	198
63	5537	189	72	5531	216
66	5520	198	75	5498	225
73	5553	219	81	5507	243
74	5509	222	88	5561	264
76	5543	228	97	5499	291
86	5540	258	100	5530	300
90	5491	270	--	--	--
97	5497	291	--	--	--

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 "2009RSU002-UT" file.

Appendix B - EUT Photograph

Refer to "2009RSU002-UE" file.