

DFS MEASUREMENT REPORT

FCC PART 15 Subpart E & IC RSS-247

FCC ID: 2AD8UFZCWO2CA1
IC: 109D-FZCWO2CA1
APPLICANT: Nokia Solutions and Networks, OY

Application Type: Certification
Product: AC220 Wi-Fi AP OD directional antenna US;
AC220 Wi-Fi AP OD external antenna US;
AC220 Wi-Fi AP OD small omni antenna US
Model No.: WO2C-AC220
Brand Name: Nokia
FCC Classification: Unlicensed National Information Infrastructure (UNII)
FCC Rule Part(s): Part 15 Subpart E - 15.407 Section (h)(2)
KDB 905462 D02v02, KDB 905462 D04v01
Type of Device: Master Device
 Client Device (No radar detection)
 Client Device with radar detection
Test Date: December 12 ~ 19, 2018

Reviewed By:

Paddy Chen

(Paddy Chen)

Approved By:

Chenz Ker

(Chenz Ker)



Testing Laboratory

3261

The test results relate only to the samples tested.

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

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

Revision History

Report No.	Version	Description	Issue Date	Note
1812TW0110-U1	Rev. 01	Initial Report	01-11-2019	Valid

This report is supplemented to MRT Original "1707TW0110-U5" Report adding "MESH mode" and related data

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§2.1033 General Information

Applicant:	Nokia Solutions and Networks, OY
Applicant Address:	2000 W. Lucent Lane, Naperville, Illinois, United States, 60563
Manufacturer:	Nokia Solutions and Networks, OY
Manufacturer Address:	2000 W. Lucent Lane, Naperville, Illinois, United States, 60563
Test Site:	MRT Technology (Taiwan) Co., Ltd
Test Site Address:	No. 38, Fuxing Second Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C)
MRT Registration No.:	153292
MRT IC Registration No.:	21723-1
Test Device Serial No.:	NH174200136 <input checked="" type="checkbox"/> Production <input type="checkbox"/> Pre-Production <input type="checkbox"/> Engineering

Test Facility / Accreditations

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

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

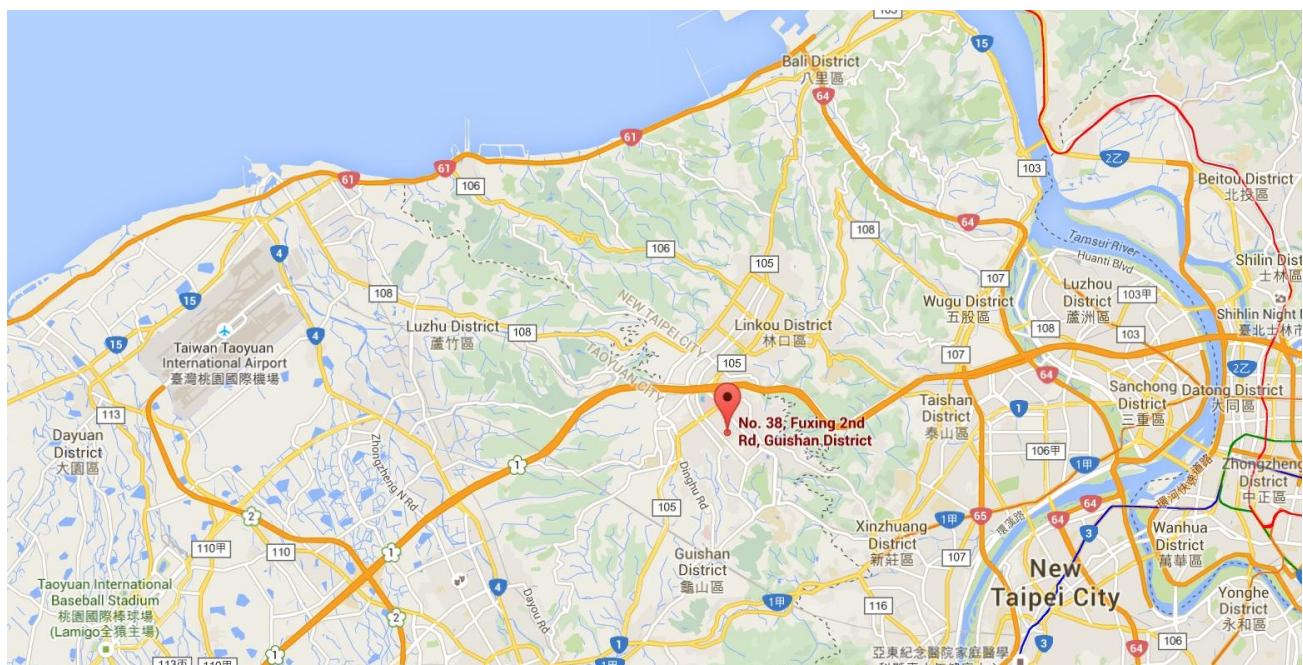
1. INTRODUCTION

1.1. Scope

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

1.2. MRT Test Location

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



2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name	AC220 Wi-Fi AP OD directional antenna US AC220 Wi-Fi AP OD external antenna US AC220 Wi-Fi AP OD small omni antenna US
Model No.	WO2C-AC220
Test Device Serial No.	NH174200136
Software Version	NWF.6D.12
Radio Type	Intentional Radiators
Operation Mode	Master Device
Frequency Range	<u>2.4GHz:</u> For 802.11b/g/n-HT20: 2412 ~ 2462 MHz For 802.11n-HT40: 2422 ~ 2452 MHz <u>5GHz:</u> For 802.11a/n-HT20/ac-VHT20: 5180~5320MHz, 5500~5720MHz, 5745~5825MHz For 802.11n-HT40/ac-VHT40: 5190~5310MHz, 5510~5710MHz, 5755~5795MHz For 802.11ac-VHT80: 5210MHz, 5290MHz, 5530MHz, 5610MHz, 5690MHz, 5775MHz
Type of Modulation	802.11b: DSSS, 802.11a/g/n/ac: OFDM
Modulation Type	16QAM, 64QAM, QPSK, BPSK for OFDM 802.11a/n/ac: OFDM
Power-on cycle	Requires 45.3 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.

2.2. Description of Available Antennas

Antenna	Manufacture	Frequency Band (MHz)	Antenna Type	Part Number
	Galtronics	2412 ~ 2472	Directional Antenna	02078140-06561U2
		5150 ~ 5250 5725 ~ 5850		
	PCTEL, Inc.	2412 ~ 2472	Panel Antenna	FPMI2458-DP2RPSMA
		5150 ~ 5850		
	Galtronics	2412 ~ 2472	Small Omni Antenna	02078140-06561U1

Antenna Type	Frequency Band (MHz)	TX Paths	Per Chain Max Antenna Gain (dBi)		Beam Forming Directional Gain (dBi)	CDD Directional Gain (dBi)	
			Ant 1	Ant 2		For Power	For PSD
Directional Antenna	2412 ~ 2462	2	9.00	9.00	12.01	9.00	12.01
	5150 ~ 5250	2	11.00	11.00	14.01	11.00	14.01
	5150 ~ 5250 30° elevation angle	2	3.00	3.00	6.01	3.00	N/A
	5250 ~ 5350	2	11.00	11.00	14.01	11.00	14.01
	5470 ~ 5725	2	10.50	10.50	13.51	10.50	13.51
	5725 ~ 5850	2	10.00	10.00	13.01	10.00	13.01
Panel Antenna	2412 ~ 2462	2	6.00	6.00	9.01	6.00	9.01
	5150 ~ 5250	2	5.00	5.00	8.01	5.00	8.01
	5150 ~ 5250 30° elevation angle	2	2.27	2.27	5.28	2.27	N/A
	5250 ~ 5350	2	5.00	5.00	8.01	5.00	8.01
	5470 ~ 5725	2	5.00	5.00	8.01	5.00	8.01
	5725 ~ 5850	2	5.00	5.00	8.01	5.00	8.01
Small Omni Antenna	2412 ~ 2462	2	5.25	5.25	8.26	5.25	8.26
	5150 ~ 5250	2	6.50	6.50	9.51	6.50	9.51
	5150 ~ 5250 30° elevation angle	2	-1.25	-1.25	1.76	-1.25	N/A
	5250 ~ 5350	2	6.50	6.50	9.51	6.50	9.51
	5470 ~ 5725	2	6.50	6.50	9.51	6.50	9.51
	5725 ~ 5850	2	6.50	6.50	9.51	6.50	9.51

Note:

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

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

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

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

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

- For power measurements on IEEE 802.11 devices,

$$\text{Array Gain} = 0 \text{ dB for } N_{ANT} \leq 4;$$

- If antenna gains are not equal, the user may use either of the following methods to calculate directional gain, provided that each transmit antenna is driven by only one spatial stream:

- Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain;

$$\bullet \quad DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

$g_{j,k} = 10^{G_k/20}$ if the kth antenna is being fed by spatial stream j, or zero if it is not;

G_k is the gain in dBi of the kth antenna.

2. The EUT also supports Beam Forming mode, and the Beam Forming support 802.11n, not include 802.11a/ac.

Correlated signals include, but are not limited to, signals transmitted in any of the following modes:

- Any transmit Beam Forming mode, whether fixed or adaptive (e.g., phased array modes, closed loop MIMO modes, Transmitter Adaptive Antenna modes, Maximum Ratio Transmission (MRT) modes, and Statistical Eigen Beam Forming (EBF) modes).

Unequal antenna gains, with equal transmit powers. For antenna gains given by G_1, G_2, \dots, G_N dBi.

- transmit signals are correlated, then
- Directional gain = $10 \cdot \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}]$ dBi [Note the "20"s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

2.3. Description of Antenna RF Port

2.4. DFS Band Carrier Frequencies Operation

802.11 a/n-HT20/ac-VHT20 Center Working Frequency of Each Channel

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 Center Working Frequency of Each Channel

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	--	--	--	--

802.11ac-VHT80 Center Working Frequency of Each Channel

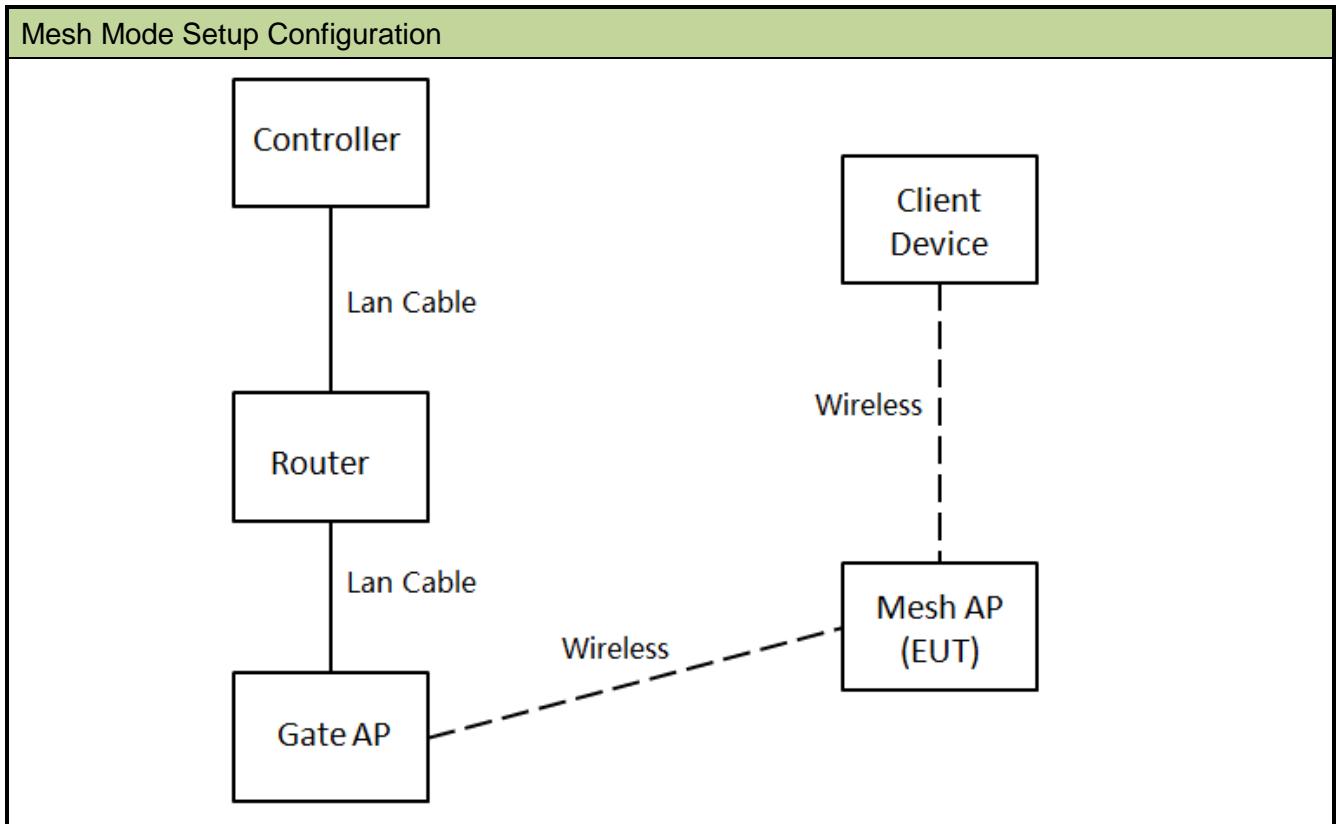
Channel	Frequency	Channel	Frequency	Channel	Frequency
58	5290 MHz	106	5530 MHz	122	5610 MHz
138	5690 MHz	--	--	--	--

Note: The device can't operate in 5600~5650 MHz band in Canada (The frequency of blue font).

2.5. Test Mode

Test Mode	Mode 1: Communication with Notebook by MESH mode
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2.6. Configuration of Mesh Mode



3. DFS DETECTION THRESHOLDS AND RADAR TEST WAVEFORMS

3.1. Applicability

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

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

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

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

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

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

3.2. DFS Devices Requirements

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

- (a) The Master Device will use DFS in order to detect Radar Waveforms with received signal strength above the DFS Detection Threshold in the 5250 ~ 5350 MHz and 5470 ~ 5725 MHz bands. DFS is not required in the 5150 ~ 5250 MHz or 5725 ~ 5825 MHz bands.
- (b) Before initiating a network on a Channel, the Master Device will perform a Channel Availability Check for a specified time duration (Channel Availability Check Time) to ensure that there is no radar system operating on the Channel, using DFS described under subsection a) above.
- (c) The Master Device initiates a U-NII network by transmitting control signals that will enable other U-NII devices to Associate with the Master Device.
- (d) During normal operation, the Master Device will monitor the Channel (In-Service Monitoring) to ensure that there is no radar system operating on the Channel, using DFS described under a).
- (e) If the Master Device has detected a Radar Waveform during In-Service Monitoring as described under d), the Operating Channel of the U-NII network is no longer an Available Channel. The Master Device will instruct all associated Client Device(s) to stop transmitting on this Channel within the Channel Move Time. The transmissions during the Channel Move Time will be limited to the Channel Closing Transmission Time.
- (f) Once the Master Device has detected a Radar Waveform it will not utilize the Channel for the duration of the Non-Occupancy Period.
- (g) If the Master Device delegates the In-Service Monitoring to a Client Device, then the combination will be tested to the requirements described under d) through f) above.

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

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds See Note 1.
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.
Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.	

Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

Table 3-3: DFS Response Requirements

3.3. DFS Detection Threshold Values

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

Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP \geq 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm

Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna.

Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.

Note 3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.

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

3.4. Parameters of DFS Test Signals

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

Short Pulse Radar Test Waveforms

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

Table 3-5: Parameters for Short Pulse Radar Waveforms

A minimum of 30 unique waveforms are required for each of the Short Pulse Radar Types 2 through 4. If more than 30 waveforms are used for Short Pulse Radar Types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms.

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

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

Long Pulse Radar Test Waveform

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

Table 3-7: Parameters for Long Pulse Radar Waveforms

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

Frequency Hopping Radar Test Waveform

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

Table 3-8: Parameters for Frequency Hopping Radar Waveforms

For the Frequency Hopping Radar Type, the same Burst parameters are used for each waveform. The hopping sequence is different for each waveform and a 100-length segment is selected from the hopping sequence defined by the following algorithm:

The first frequency in a hopping sequence is selected randomly from the group of 475 integer frequencies from 5250 – 5724MHz. Next, the frequency that was just chosen is removed from the group and a frequency is randomly selected from the remaining 474 frequencies in the group. This process continues until all 475 frequencies are chosen for the set. For selection of a random frequency, the frequencies remaining within the group are always treated as equally likely.

3.5. Radiated Test Setup

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

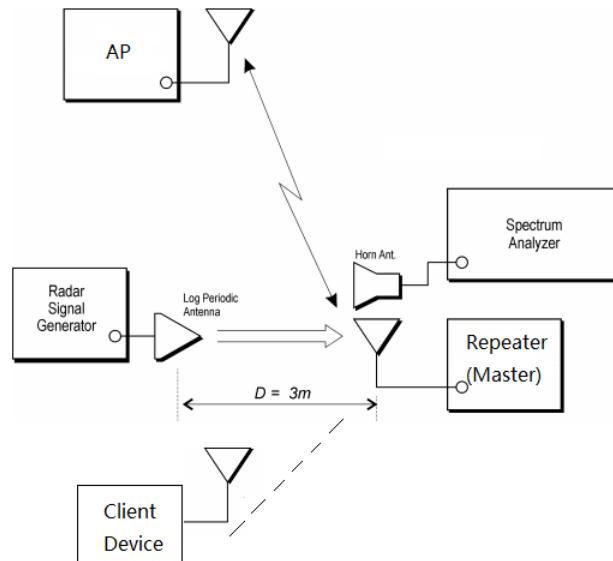


Figure 3-1: Radiated Test Setup where UUT is a Master and Radar Test Waveforms are injected into the Masters

4. TEST EQUIPMENT CALIBRATION DATE

Dynamic Frequency Selection (DFS) – TR3

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Keysight	N9010A	MRTTWA00012	1 year	2019/7/30
Vector Signal Generator	Keysight	N5182B	MRTTWA00010	1 year	2019/4/23
Combiner	WOKEN	0120A04208001S	MRTTWE00008	1 year	2019/6/11
Broadband Hornantenna	SCHWARZBECK	BBHA 9120D	MRTTWA00003	1 year	2019/04/05

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

5. TEST RESULT

5.1. Summary

Company Name: **Nokia Solutions and Networks, OY**

FCC ID: **2AD8UFZCWO2CA1**

IC: **109D-FZCWO2CA1**

Parameter	Limit	Test Result	Reference
UNII Detection Bandwidth Measurement	Refer Table 3-3	Pass	Section 5.3
Statistical Performance Check	Refer Table 3-3	Pass	Section 5.4

5.2. Radar Waveform Calibration

5.2.1. Calibration Setup

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

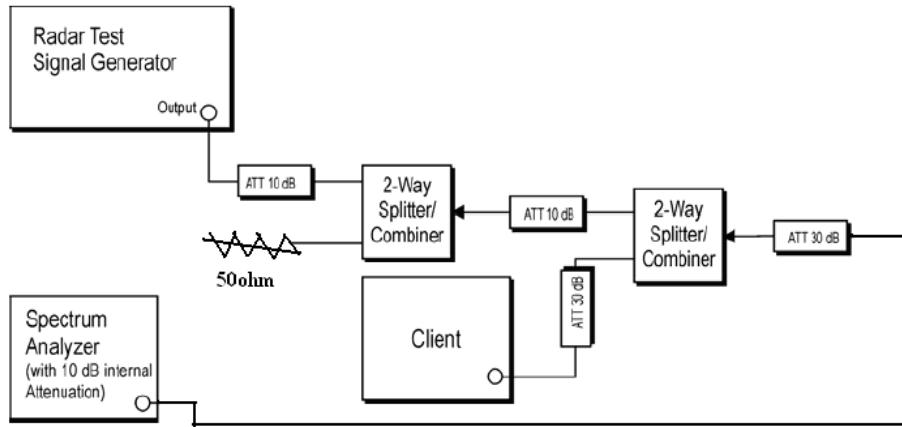


Figure 3-2: Conducted Test Setup

5.2.2. Calibration Procedure

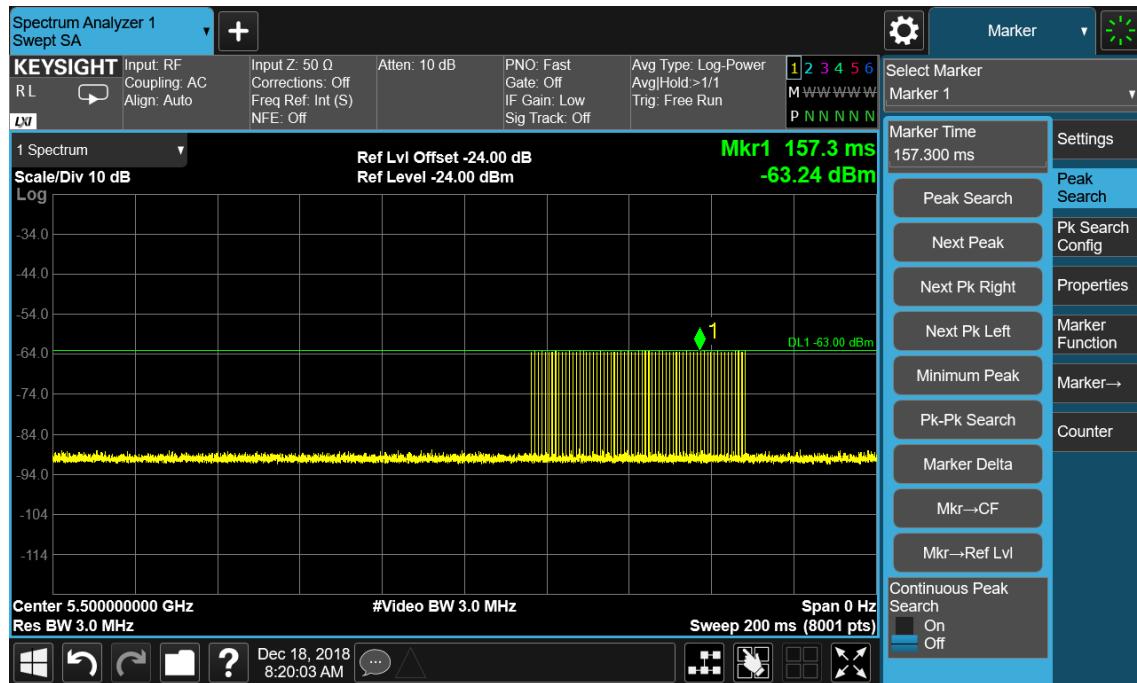
The Interference Radar Detection Threshold Level is $(-64\text{dBm}) + (0) [\text{dBi}] + 1 \text{ dB} = -63 \text{ dBm}$ that had been taken into account the output power range and antenna gain. The above equipment setup was used to calibrate the conducted Radar Waveform. A vector signal generator was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

5.2.3. Cablibration Result

Radar #0 DFS detection threshold level and the burst of pulses on the Channel frequency



Radar #1(Test A) DFS detection threshold level and the burst of pulses on the Channel frequency



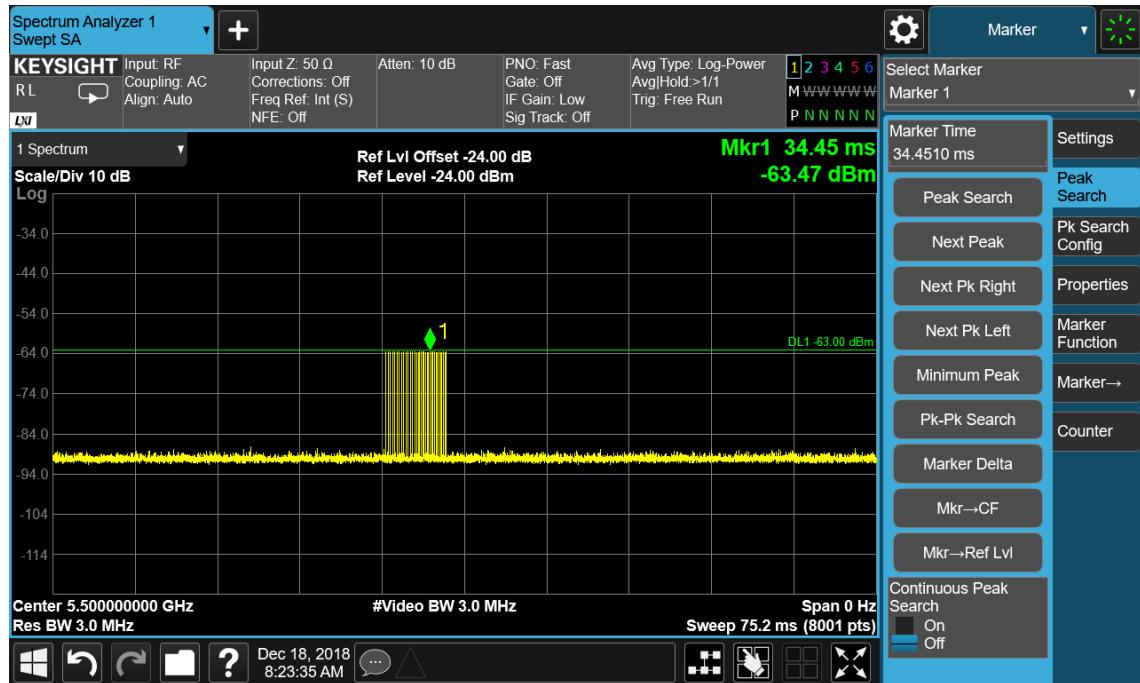
PRI = 838us and the number of pulses = 63

Radar #1(Test B) DFS detection threshold level and the burst of pulses on the Channel frequency

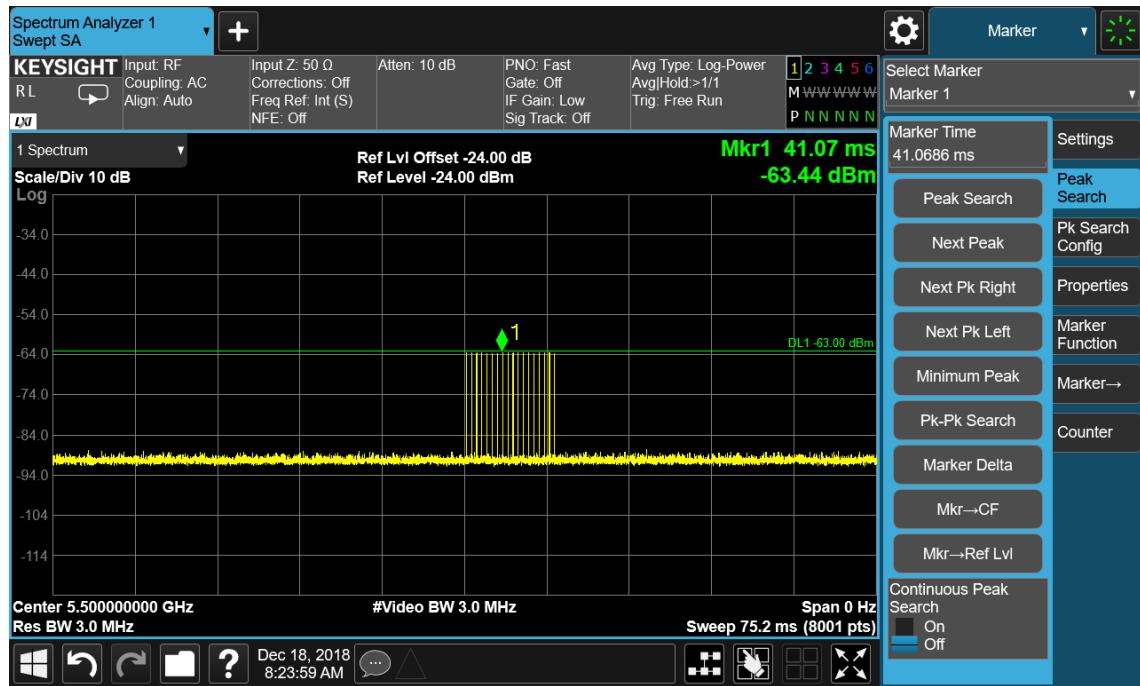


PRI = 1.583ms and the number of pulses = 34

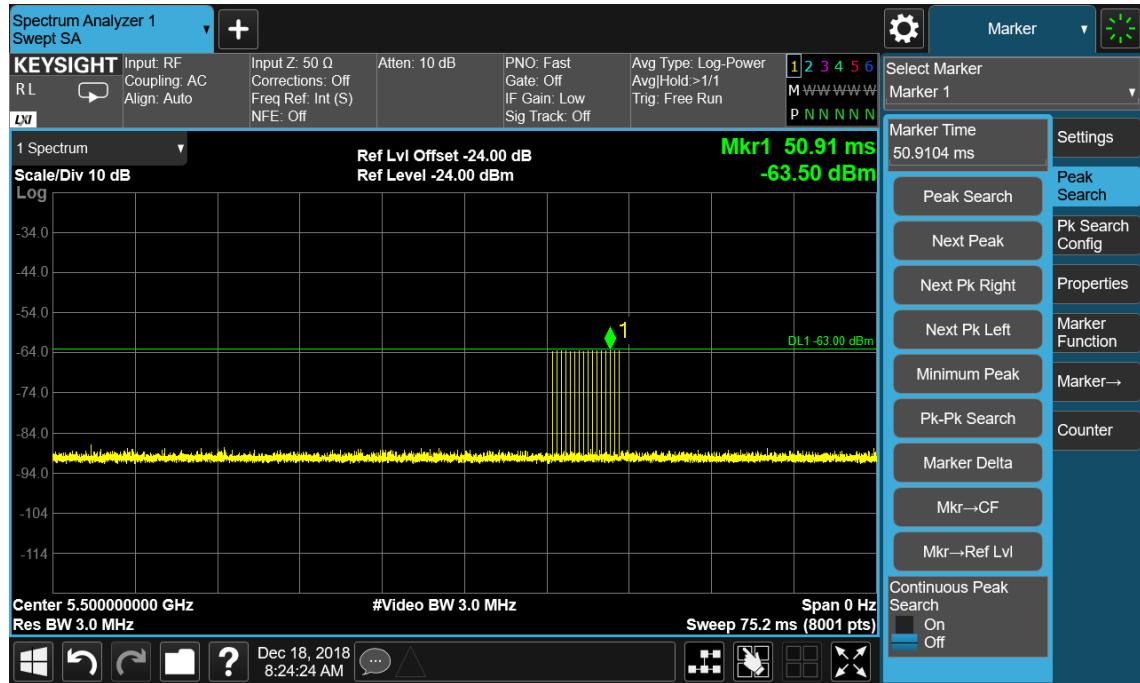
Radar #2 DFS detection threshold level and the burst of pulses on the Channel frequency



Radar #3 DFS detection threshold level and the burst of pulses on the Channel frequency



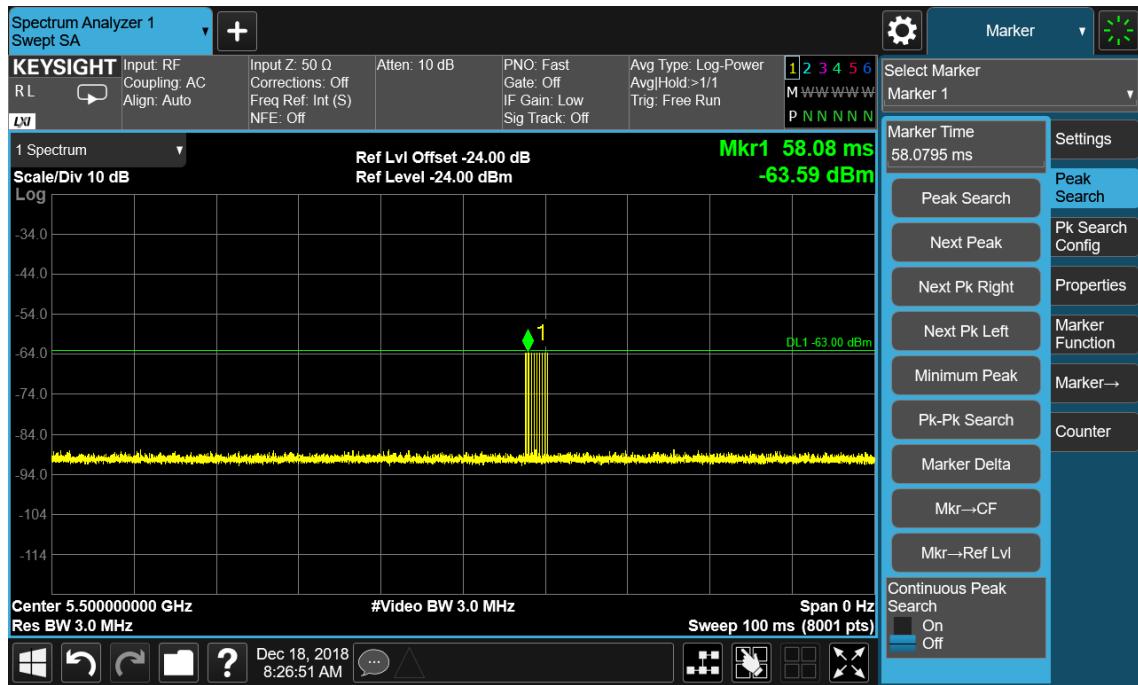
Radar #4 DFS detection threshold level and the burst of pulses on the Channel frequency



Radar #5 DFS detection threshold level and 12sec long burst on the Channel frequency



Radar #6 DFS detection threshold level and a single hop (9 pulses) on the Channel frequency within UNII detection bandwidth



5.2.4. Channel Loading Test Result

System testing was performed with the designated MPEG test file that streams full motion video from the **AC220 Wi-Fi AP OD directional antenna US; AC220 Wi-Fi AP OD external antenna US; AC220 Wi-Fi AP OD small omni antenna US** to the Client in full motion video mode using the media player with the V2.61 Codec package. 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).



Test Mode	Test Frequency	Packet ratio	Requirement ratio	Test Result
802.11a	5500 MHz	22.30%	≥ 17%	Pass
802.11n-HT40	5510 MHz	23.33%	≥ 17%	Pass
802.11ac-VHT80	5530 MHz	21.38%	≥ 17%	Pass

5.3. UNII Detection Bandwidth Measurement

5.3.1. Test Limit

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

5.3.2. Test Procedure

1. Adjust the equipment to produce a single Burst of any one of the Short Pulse Radar Types 0-4 in Table 3-5 at the center frequency of the EUT Operating Channel at the specified DFS Detection Threshold level.
2. The generating equipment is configured as shown in the Conducted Test Setup above section 3.5.
3. The EUT is set up as a stand-alone device (no associated Client or Master, as appropriate) and no traffic. Frame based systems will be set to a talk/listen ratio reflecting the worst case (maximum) that is user configurable during this test.
4. Generate a single radar Burst, and note the response of the EUT. Repeat for a minimum of 10 trials. The EUT must detect the Radar Waveform using the specified U-NII Detection Bandwidth criterion shown in Table 3-5. In cases where the channel bandwidth may exceed past the DFS band edge on specific channels (i.e., 802.11ac or wideband frame based systems) select a channel that has the entire emission bandwidth within the DFS band. If this is not possible, test the detection BW to the DFS band edge.
5. Starting at the center frequency of the UUT operating Channel, increase the radar frequency in 5 MHz steps, repeating the above test sequence, until the detection rate falls below the U-NII Detection Bandwidth criterion specified in Table 3-3. Repeat this measurement in 1MHz steps at frequencies 5 MHz below where the detection rate begins to fall. Record the highest frequency (denote as FH) at which detection is greater than or equal to the U-NII Detection Bandwidth criterion. Recording the detection rate at frequencies above FH is not required to demonstrate compliance.
6. Starting at the center frequency of the EUT operating Channel, decrease the radar frequency in 1 MHz steps, repeating the above item 4 test sequence, until the detection rate falls below the U-NII Detection Bandwidth criterion. Record the lowest frequency (denote as FL) at which detection is greater than or equal to the U-NII Detection Bandwidth criterion. Recording the detection rate at frequencies below FL is not required to demonstrate compliance.
7. The U-NII Detection Bandwidth is calculated as follows: U-NII Detection Bandwidth = FH – FL
8. The U-NII Detection Bandwidth must be at least 100% of the EUT transmitter 99% power, otherwise, the EUT does not comply with DFS requirements.

5.3.3. Test Result

EUT Frequency = 5500MHz for 802.11a											
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%

Detection Bandwidth = FH - FL = 5509MHz - 5491MHz = 18MHz

EUT 99% Bandwidth = 16.57MHz (see note)

UNII Detection Bandwidth Min. Limit (MHz): $16.57\text{MHz} \times 100\% = 16.57\text{MHz}$

Note: All UNII channels for this device have identical Channel bandwidths. Therefore, all DFS testing was done at 5500MHz. The 99% channel bandwidth is 16.57MHz. (See the 99% BW section of the RF report for further measurement details).

EUT Frequency = 5510MHz for 802.11n-HT40											
Radar Frequency (MHz)	DFS Detection Trials (1=Detection, 0= No Detection)										
	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)
5490	0	0	0	0	0	0	0	0	0	0	0%
5491 FL	1	1	1	1	1	1	1	1	1	1	100%
5492	1	1	1	1	1	1	1	1	1	1	100%
5493	1	1	1	1	1	1	1	1	1	1	100%
5494	1	1	1	1	1	1	1	1	1	1	100%
5495	1	1	1	1	1	1	1	1	1	1	100%
5500	1	1	1	1	1	1	1	1	1	1	100%
5505	1	1	1	1	1	1	1	1	1	1	100%
5510	1	1	1	1	1	1	1	1	1	1	100%
5515	1	1	1	1	1	1	1	1	1	1	100%
5520	1	1	1	1	1	1	1	1	1	1	100%
5525	1	1	1	1	1	1	1	1	1	1	100%
5526	1	1	1	1	1	1	1	1	1	1	100%
5527	1	1	1	1	1	1	1	1	1	1	100%
5528	1	1	1	1	1	1	1	1	1	1	100%
5529 FH	1	1	1	1	1	1	1	1	1	1	100%
5530	0	0	0	0	0	0	0	0	0	0	0%

Detection Bandwidth = FH - FL = 5529MHz - 5491MHz = 38MHz

EUT 99% Bandwidth = 35.97MHz (see note)

UNII Detection Bandwidth Min. Limit (MHz): $35.91\text{MHz} \times 100\% = 35.97\text{MHz}$

Note: All UNII channels for this device have identical Channel bandwidths. Therefore, all DFS testing was done at 5510MHz. The 99% channel bandwidth is 35.97MHz. (See the 99% BW section of the RF report for further measurement details).

EUT Frequency = 5530MHz for 802.11ac-VHT80											
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%

Detection Bandwidth = FH - FL = 5569MHz - 5491MHz = 78MHz

EUT 99% Bandwidth = 75.82MHz (see note)

UNII Detection Bandwidth Min. Limit (MHz): $75.65\text{MHz} \times 100\% = 75.82\text{MHz}$

Note: All UNII channels for this device have identical Channel bandwidths. Therefore, all DFS testing was done at 5530MHz. The 99% channel bandwidth is 75.82MHz. (See the 99% BW section of the RF report for further measurement details).

5.4. Statistical Performance Check Measurement

5.4.1. Test Limit

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

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

The percentage of successful detection is calculated by:

(Total Waveform Detections / Total Waveform Trails) * 100 = Probability of Detection Radar

Waveform In addition an aggregate minimum percentage of successful detection across all Short Pulse Radar Types 1-4 is required and is calculated as follows: (Pd1 + Pd2 + Pd3 + Pd4) / 4.

5.4.2. 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.

5.4.3. Test Result

Statistical Performance Check for 802.11a

Radar Type 1 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	1	598	89	1
2	5491	1	918	58	1
3	5491	1	618	86	1
4	5491	1	578	92	1
5	5491	1	758	70	1
6	5491	1	638	83	1
7	5491	1	678	78	1
8	5491	1	658	81	1
9	5491	1	938	57	1
10	5491	1	858	62	1
11	5500	1	3066	18	1
12	5500	1	798	67	1
13	5500	1	738	72	1
14	5500	1	538	99	1
15	5500	1	778	68	1
16	5500	1	746	71	1
17	5500	1	555	96	1
18	5500	1	1782	30	1
19	5500	1	3014	18	1
20	5500	1	1752	31	1
21	5509	1	2931	19	1
22	5509	1	2476	22	1
23	5509	1	1512	35	1
24	5509	1	2860	19	1
25	5509	1	1112	48	1
26	5509	1	997	53	1
27	5509	1	2983	18	1
28	5509	1	2662	20	1
29	5509	1	1286	42	1
30	5509	1	2944	18	1
Detection Percentage (%)					100%

Radar Type 2 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	3.9	168	27	1
2	5491	4.9	227	24	1
3	5491	2.5	221	24	1
4	5491	3.0	222	27	1
5	5491	4.2	194	29	1
6	5491	2.9	185	27	1
7	5491	2.7	192	28	1
8	5491	4.5	223	23	1
9	5491	2.1	162	27	1
10	5491	2.8	209	28	1
11	5500	4.9	190	28	1
12	5500	2.7	219	23	1
13	5500	2.7	220	28	1
14	5500	2.7	219	29	1
15	5500	3.6	158	28	1
16	5500	4.6	188	29	1
17	5500	4.1	153	26	1
18	5500	3.4	229	26	1
19	5500	4.0	219	24	1
20	5500	1.2	165	28	1
21	5509	2.7	157	29	1
22	5509	3.3	164	23	1
23	5509	1.6	220	23	1
24	5509	4.1	202	25	1
25	5509	3.4	218	27	1
26	5509	1.9	169	27	1
27	5509	3.1	222	26	1
28	5509	1.9	184	25	1
29	5509	1.4	228	23	1
30	5509	1.0	162	28	1
Detection Percentage (%)					100%

Radar Type 3 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	7.5	370	18	1
2	5491	9.7	274	16	1
3	5491	7.4	298	16	1
4	5491	6.1	381	17	1
5	5491	8.6	357	16	1
6	5491	6.0	369	17	1
7	5491	9.7	364	17	1
8	5491	9.5	268	17	1
9	5491	9.5	471	16	1
10	5491	7.3	281	17	1
11	5500	7.0	322	16	1
12	5500	7.7	432	17	1
13	5500	8.2	367	16	1
14	5500	6.9	268	17	1
15	5500	6.8	380	16	1
16	5500	7.1	400	16	1
17	5500	8.6	464	18	1
18	5500	10.0	358	16	1
19	5500	7.7	295	18	1
20	5500	8.6	308	18	1
21	5509	7.3	351	16	1
22	5509	8.7	421	17	1
23	5509	9.8	271	17	1
24	5509	9.5	287	16	1
25	5509	7.2	443	16	1
26	5509	9.5	353	18	1
27	5509	9.1	453	17	1
28	5509	6.6	466	18	1
29	5509	9.3	413	18	1
30	5509	8.0	415	17	1
Detection Percentage (%)					100%

Radar Type 4 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	14.3	275	12	1
2	5491	17.0	422	12	1
3	5491	17.3	353	12	1
4	5491	12.6	330	12	1
5	5491	18.0	376	15	1
6	5491	11.2	329	16	1
7	5491	12.6	448	12	1
8	5491	11.8	406	16	1
9	5491	16.2	489	14	1
10	5491	17.4	336	13	1
11	5500	18.4	250	16	1
12	5500	16.8	260	12	1
13	5500	17.7	325	15	1
14	5500	16.0	353	12	1
15	5500	13.2	267	14	1
16	5500	20.0	283	12	1
17	5500	18.1	310	14	1
18	5500	16.4	361	13	1
19	5500	17.1	439	12	1
20	5500	15.6	442	14	1
21	5509	15.4	485	15	1
22	5509	19.4	484	16	1
23	5509	15.4	341	16	1
24	5509	13.2	251	12	1
25	5509	12.7	323	16	1
26	5509	13.7	344	15	1
27	5509	18.5	364	12	1
28	5509	15.4	416	15	1
29	5509	14.5	354	12	1
30	5509	18.2	430	12	1
Detection Percentage (%)					100%

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

waveforms is as follows: $\frac{P_d\ 1 + P_d\ 2 + P_d\ 3 + P_d\ 4}{4} = (100\% + 100\% + 100\% + 100\%)/4 = 100\% (>80\%)$

Radar Type 5 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	1=Detection 0=No Detection	Trail #	Test Freq. (MHz)	1=Detection 0=No Detection
1	5498.2	1	16	5500.0	1
2	5494.6	1	17	5500.0	1
3	5496.6	1	18	5500.0	1
4	5497.8	1	19	5500.0	1
5	5495.0	1	20	5500.0	1
6	5493.0	1	21	5505.8	1
7	5493.4	1	22	5501.8	1
8	5498.6	1	23	5504.2	1
9	5495.8	1	24	5507.0	1
10	5494.2	1	25	5502.2	1
11	5500.0	1	26	5501.4	1
12	5500.0	1	27	5505.0	1
13	5500.0	1	28	5506.6	1
14	5500.0	1	29	5503.4	1
15	5500.0	1	30	5505.4	1
Detection Percentage (%)					100%

Type 5 Radar Waveform_1												
Num of Bursts = 17	Burst Interval (us)= 705882	Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	77712	1	833016	3	18	60	1278	1083	1565	77712	0	705881
2	730222	2	736906	18	70	55	1304	1754	0	964654	705882	1411763
3	753747	1	753747	18	75	55	1285	0	0	1697934	1411764	2117645
4	692728	1	418445	18	65	1246	0	0	2436125	2117646	2823527	
5	1142879	1	1142879	18	100	1295	0	0	3191118	2823528	3529409	
6	203311	2	203311	18	95	1883	1143	1398	1986	3885141	3529410	4235291
7	1275162	2	1275162	18	65	1633	1107	0	0	4308853	4235292	4941173
8	494938	1	494938	18	70	1688	1241	1135	0	5452875	4941174	5647055
9	1008145	1	1008145	18	95	1956	0	0	6937732	5647056	6352937	
10	178127	1	178127	18	85	1244	0	0	7435046	6352938	7058819	
11	770408	2	770408	18	90	1771	1212	1115	0	8444435	7058820	7764701
12	1077923	1	1077923	18	50	1977	0	0	8624333	7764702	8470583	
13	321543	2	321543	18	75	1631	0	0	9397068	8470584	9176465	
14	928148	1	928148	18	100	1802	1305	1049	0	10476968	9176466	9882347
15	Total number of pulses in waveform = 27									10800142	9882348	10588229
16										11731141	10588230	11294111
17											11294112	11999993

Type 5 Radar Waveform_2

Type 5 Radar Waveform_2											
Num of Bursts = 19 Burst Interval (us)= 631579											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	720373	3	9	75	1183	1359	1770	257605	0	631578	
2	779685	3	9	70	1125	1648	1613	982290	631579	1263157	
3	577670	3	9	85	1676	1513	1785	1766361	1263158	1894736	
4	327144	3	9	75	1160	1543	1805	2349005	1894737	2526315	
5	733608	1	9	80	1608	0	0	2680657	2526316	3157894	
6	476023	2	9	70	1952	1046	0	3415873	3157895	3789473	
7	1087117	1	9	60	1049	0	0	3894894	3789474	4421052	
8	452678	1	9	65	1741	0	0	4983060	4421053	5052631	
9	605306	1	9	50	1888	0	0	5437479	5052632	5684210	
10	537013	2	9	70	1545	1661	0	6044673	5684211	6315789	
11	602222	1	9	100	1183	0	0	6584892	6315790	6947368	
12	885772	1	9	100	1942	0	0	7188297	6947369	7578947	
13	496551	2	9	95	1836	1689	0	8076011	7578948	8210526	
14	478964	3	9	80	1593	1869	1768	8576087	8210527	8842105	
15	836331	2	9	80	1294	1898	0	9060281	8842106	9473684	
16	710114	2	9	100	1212	1527	0	9899804	9473685	10105263	
17	308313	3	9	75	1880	1539	1986	10612657	10105264	10736842	
18	478085	2	9	60	1828	1449	0	10926375	10736843	11368421	
19	3	9	90	1210	1800	1625	11407737	11368422	12000000		

Total number of pulses in waveform = 39											

Type 5 Radar Waveform_3

Type 5 Radar Waveform_3											
Num of Bursts = 18 Burst Interval (us)= 666667											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	892579	1	14	75	1420	0	0	343695	0	666666	
2	410404	3	14	85	1508	1714	1901	1237694	666667	1333333	
3	647516	2	14	85	1695	1473	0	1653221	1333334	2000000	
4	390970	1	14	55	1909	0	0	2303905	2000001	2666667	
5	1271360	2	14	50	1079	1020	0	2696784	2666668	3333334	
6	634410	3	14	90	1117	1294	1431	3970243	3333335	4000001	
7	482889	3	14	70	1202	1506	1214	4608495	4000002	4666668	
8	697678	1	14	80	1814	0	0	5095306	4666669	5333335	
9	693296	3	14	100	1222	1596	1241	5794798	5333336	6000002	
10	180091	1	14	70	1030	0	0	6492153	6000003	6666669	
11	1183819	1	14	80	1412	0	0	6673274	6666670	7333336	
12	584940	3	14	90	1393	1488	1043	7858505	7333337	8000003	
13	232356	2	14	65	1873	1132	0	8447369	8000004	8666670	
14	856164	3	14	85	1250	1715	1653	8682730	8666671	9333337	
15	590969	3	14	55	1019	1634	1779	9543512	9333338	10000004	
16	691293	3	14	70	1645	1502	1755	10138913	10000005	10666671	
17	1129611	1	14	85	1445	0	0	10835108	10666672	11333338	
18	1	14	95	1985	0	0	11966164	11333339	12000005		

Total number of pulses in waveform = 37											

Type 5 Radar Waveform_4

Type 5 Radar Waveform_4											
Num of Bursts = 12 Burst Interval (us)= 1000000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	795257	3	17	75	1049	1397	1368	597951	0	999999	
2	1380688	3	17	60	1181	1015	1025	1397022	1000000	1999999	
3	577652	1	17	80	1614	0	0	2780931	2000000	2999999	
4	674818	2	17	60	1712	1456	0	3360197	3000000	3999999	
5	1211153	1	17	70	1189	0	0	4038183	4000000	4999999	
6	1411122	3	17	95	1530	1473	1958	5250525	5000000	5999999	
7	1068967	1	17	95	1880	0	0	6666608	6000000	6999999	
8	1074029	3	17	80	1131	1094	1569	7737455	7000000	7999999	
9	668479	2	17	55	1966	1145	0	8815278	8000000	8999999	
10	1187156	2	17	90	1943	1130	0	9486868	9000000	9999999	
11	1201818	2	17	60	1784	1900	0	10677097	10000000	10999999	
12	2	17	50	1351	1577	0	11882599	11000000	11999999		

Total number of pulses in waveform = 25											

Type 5 Radar Waveform_5										
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	78595	3	10	85	1941	1747	1371	78595	0	1499999
2	2314632	1	10	65	1771	0	0	2398286	1500000	2999999
3	1682074	3	10	95	1191	1593	1782	4082131	3000000	4499999
4	1233343	1	10	80	1222	0	0	5320040	4500000	5999999
5	1512878	3	10	65	1452	1057	1405	6834140	6000000	7499999
6	963742	2	10	75	1320	1967	0	7801796	7500000	8999999
7	1649837	2	10	95	1514	1053	0	9454920	9000000	10499999
8	1647528	3	10	95	1519	1929	1384	11105015	10500000	11999999
Total number of pulses in waveform = 18										

Type 5 Radar Waveform_6										
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	86799	3	5	95	1002	1044	1842	86799	0	749999
2	747951	3	5	55	1116	1959	1648	838638	750000	1499999
3	1279909	2	5	90	1580	1159	0	2123270	1500000	2249999
4	676653	2	5	75	1900	1090	0	2802662	2250000	2999999
5	764033	2	5	85	1524	1713	0	3569685	3000000	3749999
6	289363	3	5	55	1980	1091	1766	3862285	3750000	4499999
7	1331191	2	5	95	1250	1543	0	5198313	4500000	5249999
8	82127	1	5	75	1265	0	0	5283233	5250000	5999999
9	1393833	2	5	60	1980	1254	0	6678331	6000000	6749999
10	561825	2	5	90	1567	1479	0	7243390	6750000	7499999
11	825611	3	5	65	1524	1021	1164	8072047	7500000	8249999
12	299615	1	5	90	1777	0	0	8375371	8250000	8999999
13	708909	3	5	85	1056	1701	1045	9086057	9000000	9749999
14	1152041	3	5	65	1553	1073	1156	10241900	9750000	10499999
15	949972	3	5	80	1830	1106	1530	11195654	10500000	11249999
16	685413	2	5	80	1146	1962	0	11885533	11250000	11999999
Total number of pulses in waveform = 37										

Type 5 Radar Waveform_7										
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	64345	1	6	60	1013	0	0	64345	0	705821
2	791436	3	6	75	1819	1677	1261	856794	705822	1411763
3	1219362	3	6	85	1710	1146	1987	2080913	1411764	2117645
4	424738	3	6	55	1575	1969	1079	2510494	2117646	2823527
5	478936	2	6	100	1024	1111	0	2994053	2823528	3529409
6	1087378	1	6	85	1477	0	0	4084066	3529410	4235291
7	268388	2	6	80	1681	1732	0	4353931	4235292	4941173
8	880251	1	6	85	1594	0	0	5237595	4941174	5647055
9	1000341	3	6	55	1758	1834	1683	6239530	5647056	6352937
10	730935	2	6	50	1325	1417	0	6975740	6352938	7058219
11	440551	3	6	80	1910	1599	1413	7419033	7058220	7764701
12	815681	1	6	80	1007	0	0	8239636	7764702	8470583
13	838630	2	6	80	1146	1960	0	9079273	8470584	9176465
14	720339	1	6	80	1731	0	0	9802718	9176466	9882347
15	319843	3	6	90	1050	1573	1866	10124292	9882348	1058229
16	743348	1	6	55	1851	0	0	10872129	10582230	11294111
17	520973	2	6	85	1279	1308	0	11394953	11294112	11999993
Total number of pulses in waveform = 34										

Type 5 Radar Waveform_8

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	81747	1	19	70	1373	0	0	667777	0	705881
2	689074	1	19	70	1200	0	0	750897	705882	1411763
3	1090354	1	19	75	1778	0	0	1441171	1411764	2117645
4	339821	1	19	90	1131	0	0	2533303	2117646	2823527
5	1315500	1	19	60	1973	0	0	2874255	2823528	3529409
6	387531	2	19	95	1211	1444	0	4191728	3529410	4235291
7	1030300	3	19	85	1446	1087	1340	4581914	4235292	4941173
8	531426	3	19	85	1976	1039	1177	5616087	4941174	5647055
9	438820	2	19	80	1811	1623	0	6151705	5647056	6352937
10	708058	3	19	90	1496	1956	1938	6593959	6352938	7058819
11	473365	3	19	55	1625	1133	1012	7307407	7058820	7764701
12	1226448	3	19	90	1938	1352	1457	7784542	7764702	8470583
13	607873	3	19	60	1860	1510	1023	9015737	8470584	9176465
14	311328	2	19	85	1837	1618	0	9628003	9176466	9882347
15	1103444	3	19	50	1762	1677	1335	9942786	9882348	10588229
16	869324	3	19	55	1144	1834	1766	11051004	10588230	11294111
17		3	19	70	1685	1450	1270	11925072	11294112	11999993

Total number of pulses in waveform = 38										

Type 5 Radar Waveform_9

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	61986	3	12	85	1609	1960	1390	61986	0	666666
2	1212435	3	12	65	1990	1556	1700	1279380	666667	1333333
3	282492	3	12	95	1432	1763	1037	1567118	1333334	2000000
4	701353	1	12	60	1879	0	0	2272703	2000001	2666667
5	956876	3	12	90	1056	1189	1606	3231458	2666668	3333334
6	1416111	3	12	85	1178	1484	1556	3376920	3333335	4000001
7	994059	1	12	75	1094	0	0	4375197	4000002	4666668
8	670139	3	12	80	1826	1161	1413	5046430	4666669	5333335
9	713423	1	12	100	1262	0	0	5764253	5333336	6000002
10	686202	2	12	60	1518	1037	0	6451717	6000003	6666669
11	686812	3	12	80	1831	1033	1769	7141084	6666670	7333336
12	431531	3	12	95	1018	1573	1402	7577248	7333337	8000003
13	789569	1	12	95	1017	0	0	8370810	8000004	8666670
14	571105	1	12	100	1309	0	0	8942932	8666671	9333337
15	446102	2	12	60	1663	1315	0	9390343	9333338	10000004
16	667440	3	12	70	1556	1647	1932	10060761	10000005	10666671
17	1212106	2	12	50	1985	1683	0	11278002	10666672	11333338
18	308968	2	12	95	1787	1798	0	11590638	11333339	12000005

Total number of pulses in waveform = 40										

Type 5 Radar Waveform_10

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	811144	3	8	100	1396	1993	1547	811144	0	1499999
2	1593721	2	8	60	1575	1725	0	2409801	1500000	2999999
3	977467	2	8	55	1850	1600	0	3390568	3000000	4499999
4	1926457	2	8	70	1004	1381	0	5320475	4500000	5999999
5	2088399	2	8	80	1984	1077	0	7411259	6000000	7499999
6	237542	3	8	60	1670	1431	1013	7651862	7500000	8999999
7	2231361	1	8	90	1707	0	0	9887337	9000000	10499999
8	625407	1	8	75	1670	0	0	10514451	10500000	11999999

Total number of pulses in waveform = 16										

Type 5 Radar Waveform_11

Type 5 Radar Waveform_11											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	685784	3	18	80	1672	1938	1084	685784	0	923076	
2	355588	2	18	90	1747	1953	0	1046066	923077	1846153	
3	1539937	3	18	65	1802	1946	1552	2589703	1846154	2769230	
4	1067789	1	18	65	1561	0	0	3662792	2769231	3692307	
5	521235	1	18	75	1086	0	0	4185583	3692308	4615384	
6	494551	1	18	50	1560	0	0	4681225	4615385	5538461	
7	1576980	1	18	75	1419	0	0	6259765	5538462	6461538	
8	341035	3	18	55	1640	1628	1732	6602219	6461539	7384615	
9	882393	3	18	80	1472	1676	1760	7489612	7384616	8307692	
10	1605902	1	18	95	1602	0	0	9100422	8307693	9230769	
11	482396	2	18	60	1313	1603	0	9584420	9230770	10153846	
12	986135	3	18	80	1489	1716	1997	10573471	10153847	11076923	
13	1383449	2	18	95	1536	1744	0	11962122	11076924	12000000	
Total number of pulses in waveform = 26											

Type 5 Radar Waveform_12

Type 5 Radar Waveform_12											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	936016	3	8	100	1402	1250	1954	936016	0	1199999	
2	321367	2	8	70	1396	1251	0	1261989	1200000	2399999	
3	2169382	3	8	60	1399	1255	1380	3434018	2400000	3599999	
4	824961	1	8	75	1930	0	0	4263013	3600000	4799999	
5	836404	2	8	100	1526	1878	0	5101347	4800000	5999999	
6	1389704	3	8	65	1048	1537	1970	6494455	6000000	7199999	
7	1295555	2	8	90	1205	1433	0	7794565	7200000	8399999	
8	1041254	1	8	80	1617	0	0	8838457	8400000	9599999	
9	810120	1	8	50	1311	0	0	9650194	9600000	10799999	
10	1834566	3	8	100	1771	1982	1120	11486071	10800000	11999999	
Total number of pulses in waveform = 21											

Type 5 Radar Waveform_13

Type 5 Radar Waveform_13											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	466925	3	10	55	1870	1313	1736	466925	0	1199999	
2	1363780	1	10	95	1617	0	0	1835624	1200000	2399999	
3	1164606	1	10	75	1913	0	0	3001847	2400000	3599999	
4	1365755	3	10	90	1194	1958	1134	4369515	3600000	4799999	
5	869604	3	10	95	1921	1970	1840	5243405	4800000	5999999	
6	1158744	3	10	95	1173	1761	1375	6407880	6000000	7199999	
7	1422444	1	10	60	1188	0	0	7834633	7200000	8399999	
8	1284141	2	10	70	1163	1531	0	9119962	8400000	9599999	
9	1538035	3	10	90	1657	1486	1802	10660691	9600000	10799999	
10	188237	1	10	75	1787	0	0	10853873	10800000	11999999	
Total number of pulses in waveform = 21											

Type 5 Radar Waveform_14											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	561752	1	19	95	1814	0	0	561752	0	705882	
2	411223	3	19	85	1948	1150	1325	974789	705882	1411763	
3	721399	2	19	70	1067	1425	0	1700611	1411764	2117645	
4	970813	3	19	70	1827	1673	1963	2673916	2117646	2823527	
5	490253	2	19	65	1194	1628	0	3169632	2823528	3529409	
6	894073	2	19	70	1414	1648	0	4066527	3529410	4235291	
7	629670	2	19	75	1731	1420	0	4699259	4235292	4941173	
8	637914	3	19	70	1678	1489	1099	5340324	4941174	5647055	
9	977808	3	19	70	1497	1525	1824	6322398	5647056	6352937	
10	549633	3	19	90	1528	1901	1848	6876877	6352938	7058819	
11	434366	1	19	75	1021	0	0	7316520	7058820	7764701	
12	740097	2	19	95	1950	1632	0	8057638	7764702	8470583	
13	11111781	2	19	55	1179	1586	0	9173001	8470584	9176465	
14	547884	1	19	90	1672	0	0	9723650	9176466	9882347	
15	324791	3	19	70	1570	1769	1955	10050113	9882348	10588229	
16	1008889	1	19	85	1895	0	0	11064296	10588230	11294111	
17	664658	1	19	90	1343	0	0	11730849	11294112	11999993	
*****Total number of pulses in waveform = 35*****											
Type 5 Radar Waveform_15											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	21277	2	14	100	1341	1203	0	21277	0	999999	
2	1059237	1	14	90	1310	0	0	1083058	1000000	1999999	
3	1829958	3	14	65	1468	1717	1116	2914326	2000000	2999999	
4	140676	1	14	75	1681	0	0	3059303	3000000	3999999	
5	1574598	2	14	70	1124	1437	0	4635582	4000000	4999999	
6	761456	1	14	70	1278	0	0	5399599	5000000	5999999	
7	909335	3	14	65	1635	1502	1217	6310212	6000000	6999999	
8	1342264	3	14	80	1067	1281	1209	7656830	7000000	7999999	
9	1132891	3	14	65	1415	1750	1076	8793278	8000000	8999999	
10	1118736	2	14	85	1162	1834	0	9916255	9000000	9999999	
11	788785	3	14	85	1611	1019	1133	10708036	10000000	10999999	
12	384353	2	14	80	1216	1254	0	11096152	11000000	11999999	
*****Total number of pulses in waveform = 26*****											
Type 5 Radar Waveform_16											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	202114	1	17	70	1017	0	0	202114	0	599999	
2	576772	2	17	80	1894	1162	0	779903	600000	1199999	
3	893201	3	17	75	1936	1002	1759	1676160	1200000	1799999	
4	272272	1	17	80	1218	0	0	1953129	1800000	2399999	
5	751046	1	17	75	1894	0	0	2705393	2400000	2999999	
6	844807	3	17	95	1097	1450	1807	3552094	3000000	3699999	
7	505579	3	17	70	1428	1406	1408	4062027	3600000	4199999	
8	527589	3	17	75	1409	1811	1705	4593868	4200000	4799999	
9	206500	1	17	50	1891	0	0	4805292	4800000	5399999	
10	608799	1	17	85	1632	0	0	5415982	5400000	5999999	
11	920714	1	17	60	1402	0	0	6338328	6000000	6599999	
12	763574	1	17	100	1044	0	0	7103304	6600000	7199999	
13	572750	1	17	95	1204	0	0	7677098	7200000	7799999	
14	145712	3	17	95	1387	1684	1666	7824014	7800000	8399999	
15	824177	1	17	90	1711	0	0	8652928	8400000	8999999	
16	914103	1	17	75	1290	0	0	9568742	9000000	9599999	
17	39803	3	17	70	1911	1244	1527	9609835	9600000	10199999	
18	919863	3	17	80	1412	1190	1904	10534380	10200000	10799999	
19	611120	2	17	90	1706	1105	0	11150006	10800000	11399999	
20	316246	3	17	60	1963	1820	1856	11469063	11400000	11999999	
*****Total number of pulses in waveform = 38*****											

Type 5 Radar Waveform_17

Type 5 Radar Waveform_17											
Num of Bursts = 15 Burst Interval (us)= 800000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	669843	2	12	65	1624	1248	0	669843	0	799999	
2	323091	3	12	70	1117	1121	1027	995806	800000	1599999	
3	1019793	3	12	55	1467	1973	1840	2018264	1600000	2399999	
4	1109523	1	12	75	1747	0	0	3133667	2400000	3199999	
5	203814	3	12	100	1322	1795	1956	3339228	3200000	3999999	
6	1235972	1	12	95	1397	0	0	4580273	4000000	4799999	
7	366755	1	12	60	1000	0	0	4948425	4800000	5599999	
8	1087420	1	12	90	1901	0	0	6036845	5600000	6399999	
9	406530	3	12	50	1716	1426	1008	6445276	6400000	7199999	
10	794741	3	12	55	1343	1181	1636	7244167	7200000	7999999	
11	1449103	2	12	90	1036	1780	0	8697430	8000000	8799999	
12	256344	1	12	80	1116	0	0	8956590	8800000	9599999	
13	692745	1	12	90	1245	0	0	9650451	9600000	10399999	
14	1524080	3	12	90	1818	1066	1124	11175776	10400000	11199999	
15	592501	1	12	55	1451	0	0	11772285	11200000	11999999	
Total number of pulses in waveform = 29											

Type 5 Radar Waveform_18

Type 5 Radar Waveform_18											
Num of Bursts = 12 Burst Interval (us)= 1000000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	568432	1	5	85	1295	0	0	568432	0	999999	
2	1290601	3	5	90	1244	1770	1192	1860328	1000000	1999999	
3	743695	1	5	65	1838	0	0	2608229	2000000	2999999	
4	978174	2	5	60	1025	1156	0	3588241	3000000	3999999	
5	733886	3	5	100	1196	1998	1377	4324308	4000000	4999999	
6	1332427	3	5	65	1598	1125	1306	5661306	5000000	5999999	
7	816063	1	5	100	1056	0	0	6481398	6000000	6999999	
8	606015	2	5	90	1946	1433	0	7088469	7000000	7999999	
9	1045759	3	5	50	1223	1693	1897	8137607	8000000	8999999	
10	1220596	3	5	100	1340	1045	1800	9363016	9000000	9999999	
11	1200090	3	5	70	1088	1142	1797	10567291	10000000	10999999	
12	1008389	2	5	100	1543	1422	0	11579707	11000000	11999999	
Total number of pulses in waveform = 27											

Type 5 Radar Waveform_19

Type 5 Radar Waveform_19											
Num of Bursts = 11 Burst Interval (us)= 1090909											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	892971	1	9	95	1982	0	0	892971	0	1090908	
2	1123638	1	9	65	1920	0	0	2018591	1090909	2181817	
3	242533	2	9	85	1044	1912	0	2263044	2181818	3272726	
4	1631236	2	9	90	1189	1090	0	3897236	3272727	4363635	
5	787909	1	9	85	1868	0	0	4687424	4363636	5454544	
6	1210299	1	9	90	1953	0	0	5899591	5454545	6545453	
7	1124623	1	9	85	1640	0	0	7026167	6545454	7636362	
8	1566028	1	9	65	1250	1103	0	8593835	7636363	8727271	
9	353235	2	9	75	1089	1521	0	8949423	8727272	9818180	
10	1209570	2	9	70	1768	1881	0	10161603	9818181	10909089	
11	798582	2	9	60	1227	1630	0	10963834	10909090	11999998	
Total number of pulses in waveform = 17											

Type 5 Radar Waveform_20											
Num of Bursts = 18 Burst Interval (us)= 6666667											
Burst # Off Time (us) # Pulses Chirp (MHz) PW (us) Pulse 1 Pri(us) Pulse 2 Pri(us) Pulse 3 Pri(us) Start Loc (us) Start Burst Interval(us) End Burst Interval(us)											
1	530204	1	6	60	1346	0	0	530204	0	666666	
2	283533	1	6	70	1696	0	0	815083	666667	1333333	
3	660994	1	6	55	1695	0	0	1477773	1333334	2000000	
4	545196	3	6	60	1639	1032	1310	2024664	2000001	2666667	
5	1200930	2	6	70	1309	1239	0	3229575	2666668	3333334	
6	232632	2	6	75	1827	1717	0	3464755	3333335	4000001	
7	1032041	2	6	85	1167	1927	0	4500340	4000002	4666668	
8	802247	2	6	50	1542	1976	0	5305681	4666669	5333335	
9	118890	1	6	90	1876	0	0	5428089	5333336	6000002	
10	807644	3	6	85	1043	1102	1498	6353634	6000003	6666669	
11	771885	3	6	85	1377	1752	1415	7164921	6666670	7333336	
12	658493	3	6	60	1410	1972	1859	7941350	7333337	8000003	
13	311661	1	6	80	1903	0	0	8605084	8000004	8666670	
14	428032	1	6	50	1156	0	0	8918648	8666671	9333337	
15	856480	2	6	70	1466	1767	0	9347836	9333338	10000004	
16	975176	2	6	100	1577	1364	0	10207549	10000005	10666671	
17	145472	3	6	80	1899	1014	1389	11185666	10666672	11333338	
18		3	6	75	1949	1462	1318	11335440	11333339	12000005	

Num of Bursts = 14 Burst Interval (us)= 857143											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)	
1	144295	2	8	90	1663	1165	0	144295	0	857142	
2	1427870	1	8	80	1007	0	0	1574993	857143	1714285	
3	165902	2	8	55	1012	1591	0	1741902	1714286	2571428	
4	1084893	2	8	90	1915	1672	0	2829398	2571429	3428571	
5	1318340	2	8	55	1075	1152	0	4151325	3428572	4285714	
6	569440	1	8	100	1563	0	0	4722992	4285715	5142857	
7	434471	1	8	75	1537	0	0	5159026	5142858	6000000	
8	1587516	1	8	85	1427	0	0	6748079	6000001	6857143	
9	900970	2	8	55	1368	1273	0	7650476	6857144	7714286	
10	890185	1	8	95	1844	0	0	8543302	7714287	8571429	
11	565341	3	8	70	1958	1368	1614	9110487	8571430	9428573	
12	488740	3	8	80	1389	1825	1552	9604167	9428573	10285715	
13	1261344	3	8	100	1914	1101	1985	10870277	10285716	11142858	
14	1047711	2	8	95	1693	1122	0	11922988	11142859	12000001	

Num of Bursts = 10 Burst Interval (us)= 1200000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)	
1	1098532	2	18	55	1563	1535	0	1098532	0	1199999	
2	692602	1	18	90	1040	0	0	1794232	1200000	2399999	
3	1713619	3	18	85	1494	1865	1372	3508891	2400000	3599999	
4	119913	1	18	90	1225	0	0	3633535	3600000	4799999	
5	2175505	2	18	85	1829	1076	0	5810265	4800000	5999999	
6	896217	3	18	50	1917	1753	1366	6709387	6000000	7199999	
7	1678413	2	18	50	1548	1086	0	8392836	7200000	8399999	
8	1191178	3	18	95	1959	1191	1549	9586648	8400000	9599999	
9	812180	1	18	80	1383	0	0	10403527	9600000	10799999	
10	543028	3	18	75	1869	1105	1614	10947938	10800000	11999999	

Type 5 Radar Waveform_23

Type 5 Radar Waveform_23											
Num of Bursts = 19 Burst Interval (us)= 631579											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	660176	3	12	60	1366	1952	1566	184870	0	631578	
2	687410	1	12	65	1665	0	0	849930	631579	1263157	
3	582927	2	12	65	1819	1251	0	1539005	1263158	1894736	
4	756228	1	12	50	1066	0	0	2125002	1894737	2526315	
5	454411	2	12	55	1450	1169	0	2882296	2526316	3157894	
6	678242	1	12	85	1588	0	0	3339326	3157895	3789473	
7	456979	3	12	90	1331	1453	1489	4019156	3789474	4421052	
8	1049701	1	12	50	1302	0	0	4480408	4421053	5052631	
9	642470	2	12	80	1600	1797	0	5531411	5052632	5684210	
10	463035	2	12	80	1619	1744	0	6177278	5684211	6315789	
11	857117	1	12	60	1029	0	0	6643676	6315790	6947368	
12	356841	1	12	65	1701	0	0	7501822	6947369	7578947	
13	518778	2	12	95	1079	1944	0	7860364	7578948	8210526	
14	476385	1	12	50	1834	0	0	8382165	8210527	8842105	
15	623937	2	12	80	1130	1487	0	8860384	8842106	9473684	
16	834598	1	12	70	1360	0	0	9486938	9473685	10105263	
17	957552	1	12	90	1636	0	0	10322896	10105264	10736842	
18	318974	3	12	100	1761	1566	1949	11282084	10736843	11368421	
19	2	12	85	1571	1320	0	0	11606324	11368422	12000000	

Total number of pulses in waveform = 32											

Type 5 Radar Waveform_24

Type 5 Radar Waveform_24											
Num of Bursts = 14 Burst Interval (us)= 857143											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	298386	3	5	80	1656	1335	1096	298386	0	857142	
2	1145076	1	5	55	1419	0	0	1447549	857143	1714285	
3	825860	3	5	50	1550	1586	1294	2274282	1714286	2571428	
4	737588	1	5	70	1481	0	0	3016846	2571429	3428571	
5	835756	1	5	100	1996	0	0	3854083	3428572	4285714	
6	822706	2	5	100	1952	1611	0	4678785	4285715	5142857	
7	851639	2	5	80	1116	1177	0	5533987	5142858	6000000	
8	1003512	3	5	85	1394	1643	1035	6539792	6000001	6857143	
9	509261	3	5	55	1153	1224	1282	7053125	6857144	7714286	
10	1096538	1	5	50	1120	0	0	8153322	7714287	8571429	
11	676878	2	5	95	1844	1977	0	8831320	8571430	9428572	
12	629989	1	5	80	1434	0	0	9465130	9428573	10285715	
13	1238554	3	5	55	1626	1263	1607	10705118	10285716	11142858	
14	1256687	1	5	85	1657	0	0	11966301	11142859	12000001	

Total number of pulses in waveform = 27											

Type 5 Radar Waveform_25

Type 5 Radar Waveform_25											
Num of Bursts = 12 Burst Interval (us)= 1000000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	608222	1	17	90	1895	0	0	608222	0	999999	
2	544167	2	17	50	1095	1738	0	1154284	1000000	1999999	
3	1506147	1	17	60	1133	0	0	2663264	2000000	2999999	
4	1304845	1	17	70	1627	0	0	3969242	3000000	3999999	
5	147683	3	17	100	1673	1029	1207	4118552	4000000	4999999	
6	1723266	2	17	85	1806	1318	0	5845727	5000000	5999999	
7	533110	3	17	60	1527	1606	1997	6381961	6000000	6999999	
8	1105691	1	17	50	1675	0	0	7492782	7000000	7999999	
9	555371	2	17	70	1137	1640	0	8049828	8000000	8999999	
10	1348636	2	17	50	1093	1544	0	9401241	9000000	9999999	
11	1298307	1	17	75	1542	0	0	10702185	10000000	10999999	
12	1006909	3	17	60	1856	1655	1942	11710636	11000000	11999999	

Total number of pulses in waveform = 22											

Type 5 Radar Waveform_26											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
Num of Bursts = 13											
Burst Interval (us)= 923077											
1	351478	2	19	75	1392	1692	0	351478	0	923076	
2	732319	1	19	85	1629	0	0	1086881	923077	1846153	
3	1460186	1	19	60	1689	0	0	2548696	1846154	2769230	
4	653324	2	19	60	1494	1859	0	3203709	2769231	3692307	
5	830526	1	19	70	1373	0	0	4037588	3692308	4615384	
6	1341758	2	19	50	1168	1673	0	5380719	4615385	5538461	
7	779330	3	19	60	1072	1986	1190	6162890	5538462	6461538	
8	770756	1	19	65	1308	0	0	6937894	6461539	7384615	
9	729563	3	19	60	1045	1831	1109	7668765	7384616	8307692	
10	772963	3	19	65	1655	1841	1381	8445713	8307693	9230769	
11	1143519	2	19	70	1821	1600	0	9594109	9230770	10153846	
12	600573	1	19	100	1716	0	0	10198103	10153847	11076923	
13	1181817	1	19	95	1777	0	0	11381636	11076924	12000000	
Total number of pulses in waveform = 23											

Type 5 Radar Waveform_27											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
Num of Bursts = 20											
Burst Interval (us)= 600000											
1	107011	1	10	65	1501	0	0	107011	0	599999	
2	1031471	1	10	75	1451	0	0	1139983	600000	1199999	
3	299152	1	10	50	1261	0	0	1440586	1200000	1799999	
4	359998	1	10	65	1388	0	0	1801245	1800000	2399999	
5	818807	3	10	70	1061	1286	1802	2621440	2400000	2999999	
6	396396	1	10	90	1790	0	0	3021985	3000000	3599999	
7	895909	1	10	80	1126	1523	1544	3919684	3600000	4199999	
8	702441	1	10	55	1448	0	0	4626318	4200000	4799999	
9	453928	2	10	55	1990	1699	0	5081694	4800000	5399999	
10	345813	1	10	60	1860	0	0	5431196	5400000	5999999	
11	1081451	2	10	90	1872	1196	0	6514507	6000000	6599999	
12	421127	2	10	90	1954	1017	0	6938702	6600000	7199999	
13	322493	2	10	65	1540	1611	0	7264165	7200000	7799999	
14	722082	3	10	95	1420	1064	1842	7989399	7800000	8399999	
15	941815	2	10	80	1337	1814	0	8935540	8400000	8899999	
16	74016	3	10	50	1866	1465	1112	9012707	9000000	9599999	
17	1069013	1	10	95	1124	0	0	10086163	9600000	10199999	
18	641342	1	10	55	1002	0	0	10723629	10200000	10799999	
19	438429	1	10	60	1612	0	0	11168060	10800000	11399999	
20	676116	3	10	95	1947	1955	1319	11845788	11400000	11999999	
Total number of pulses in waveform = 35											

Type 5 Radar Waveform_28											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
Num of Bursts = 17											
Burst Interval (us)= 705882											
1	327620	1	6	70	1597	0	0	327620	0	705881	
2	499147	3	6	85	1591	1903	1274	828364	705882	1411763	
3	1018181	2	6	95	1042	1969	0	12851313	1411764	2117645	
4	560792	1	6	80	1806	0	0	2415116	2117646	2823527	
5	626018	3	6	70	1843	1927	1986	3042940	2823528	3529409	
6	766644	2	6	90	1159	1767	0	3815340	3529410	4235291	
7	1039623	1	6	55	1024	0	0	4857889	4235292	4941173	
8	562093	3	6	60	1584	1203	1779	5421006	4941174	5647055	
9	892397	1	6	85	1800	0	0	6317969	5647056	6352937	
10	683914	1	6	85	1419	0	0	7003683	6352938	7058819	
11	504410	3	6	100	1226	1971	1334	7509512	7058820	7764701	
12	747623	3	6	95	1312	1098	1349	8261666	7764702	8470583	
13	827511	2	6	80	1492	1042	0	9092936	8470584	9176465	
14	117552	2	6	65	1599	1332	0	9213022	9176466	982347	
15	1101451	1	6	95	1348	0	0	10317404	982348	1058229	
16	483036	2	6	60	1817	1934	0	10801788	10582230	11294111	
17	626645	3	6	50	1478	1856	1194	11432184	11294112	11999993	
Total number of pulses in waveform = 34											

Type 5 Radar Waveform_29											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	236588	2	14	55	1448	1149	0	236588	0	1199999	
2	1679070	1	14	65	1003	0	0	1918255	1200000	2399999	
3	541461	3	14	55	1353	1268	1903	2460719	2400000	3599999	
4	1443762	3	14	90	1921	1366	1773	3909005	3600000	4799999	
5	1357150	3	14	55	1362	1240	1366	5271215	4800000	5999999	
6	1562106	1	14	55	1842	0	0	6837289	6000000	7199999	
7	1187446	2	14	70	1902	1335	0	8026577	7200000	8399999	
8	531660	2	14	80	1252	1215	0	8561474	8400000	9599999	
9	1765753	1	14	50	1993	0	0	10329694	9600000	10799999	
10	1370862	3	14	50	1034	1982	1309	11702549	10800000	11999999	
Total number of pulses in waveform = 21											

Type 5 Radar Waveform_30											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	390523	2	9	80	1588	1537	0	390523	0	799999	
2	1034167	1	9	90	1008	0	0	1427815	800000	1599999	
3	612126	2	9	100	1684	1560	0	2040949	1600000	2399999	
4	1143657	2	9	55	1053	1245	0	3187850	2400000	3199999	
5	675780	1	9	60	1982	0	0	3865928	3200000	3999999	
6	814906	3	9	100	1886	1106	1145	4682816	4000000	4799999	
7	277699	2	9	95	1311	1594	0	4964652	4800000	5599999	
8	1045292	3	9	75	1065	1630	1073	6012849	5600000	6399999	
9	1172818	1	9	60	1898	0	0	7189435	6400000	7199999	
10	189175	3	9	80	1156	1206	1549	7380508	7200000	7999999	
11	1184310	2	9	80	1667	1507	0	8568729	8000000	8799999	
12	650111	3	9	75	1578	1612	1255	9222014	8800000	9599999	
13	999949	3	9	100	1653	1354	1442	10226408	9600000	10399999	
14	804791	2	9	70	1811	1652	0	11035648	10400000	11199999	
15	297131	1	9	80	1628	0	0	11336242	11200000	11999999	
Total number of pulses in waveform = 31											

Radar Type 6 - Radar Statistical Performance

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

Radar waveform #1			Radar waveform #2		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5492	15	0	5506	0
17	5512	51	3	5471	9
25	5487	75	8	5480	24
34	5500	102	12	5510	36
37	5509	111	21	5463	63
40	5461	120	36	5493	108
41	5513	123	43	5467	129
47	5497	141	59	5488	177
49	5468	147	61	5464	183
50	5485	150	69	5484	207
55	5471	165	71	5487	213
58	5520	174	90	5481	270
63	5514	189	93	5520	279
86	5503	258	98	5460	294
90	5495	270	--	--	--
93	5476	279	--	--	--

Radar waveform #3			Radar waveform #4		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5510	3	2	5469	6
4	5480	12	26	5513	78
6	5512	18	28	5460	84
8	5504	24	30	5496	90
9	5475	27	32	5499	96
13	5517	39	49	5491	147
34	5498	102	60	5462	180
45	5461	135	64	5514	192
51	5494	153	65	5494	195
57	5518	171	69	5507	207
60	5501	180	70	5492	210
61	5496	183	71	5478	213
71	5513	213	83	5493	249
82	5499	246	99	5465	297
86	5515	258	--	--	--
95	5479	285	--	--	--

Radar waveform #5			Radar waveform #6		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
4	5513	12	0	5496	0
14	5486	42	6	5498	18
21	5519	63	9	5512	27
22	5489	66	10	5467	30
32	5493	96	13	5484	39
33	5480	99	20	5468	60
34	5460	102	63	5490	189
37	5517	111	64	5517	192
41	5464	123	77	5487	231
49	5479	147	78	5520	234
52	5463	156	84	5476	252
60	5514	180	88	5504	264
72	5502	216	92	5473	276
75	5518	225	98	5466	294
91	5512	273	--	--	--
96	5497	288	--	--	--
97	5475	291	--	--	--

Radar waveform #7			Radar waveform #8		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5467	3	2	5499	6
3	5506	9	19	5498	57
7	5487	21	36	5467	108
10	5495	30	37	5470	111
13	5500	39	42	5512	126
14	5472	42	48	5474	144
48	5485	144	56	5461	168
55	5517	165	59	5491	177
59	5460	177	64	5468	192
60	5505	180	69	5494	207
65	5492	195	94	5473	282
68	5519	204	--	--	--
89	5510	267	--	--	--
98	5518	294	--	--	--

Radar waveform #9			Radar waveform #10		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
18	5507	54	0	5462	0
20	5504	60	8	5499	24
22	5460	66	13	5506	39
24	5484	72	15	5466	45
28	5467	84	29	5497	87
33	5476	99	31	5511	93
41	5466	123	35	5487	105
43	5498	129	44	5473	132
44	5483	132	55	5515	165
52	5500	156	56	5489	168
56	5474	168	63	5481	189
71	5510	213	67	5509	201
75	5513	225	70	5477	210
79	5495	237	73	5480	219
82	5461	246	77	5475	231
83	5496	249	78	5519	234
93	5491	279	82	5474	246
94	5465	282	83	5514	249
--	--	--	88	5476	264
--	--	--	92	5518	276

Radar waveform #11			Radar waveform #12		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
0	5482	0	2	5527	6
7	5508	21	21	5499	63
21	5481	63	22	5509	66
23	5498	69	38	5480	114
25	5522	75	44	5473	132
43	5485	129	45	5478	135
47	5488	141	54	5503	162
53	5504	159	57	5475	171
57	5523	171	68	5470	204
63	5511	189	78	5517	234
68	5499	204	79	5492	237
69	5530	207	--	--	--
80	5512	240	--	--	--
86	5480	258	--	--	--
96	5475	288	--	--	--

Radar waveform #13			Radar waveform #14		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
9	5484	27	3	5530	9
18	5493	54	5	5470	15
19	5497	57	9	5511	27
21	5472	63	22	5529	66
35	5491	105	23	5493	69
37	5499	111	37	5515	111
40	5509	120	48	5516	144
46	5530	138	54	5495	162
51	5500	153	61	5505	183
63	5523	189	66	5522	198
85	5485	255	70	5473	210
--	--	--	74	5499	222
--	--	--	88	5520	264
--	--	--	90	5518	270
--	--	--	92	5521	276
--	--	--	98	5513	294

Radar waveform #15			Radar waveform #16		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
6	5505	18	8	5526	24
10	5482	30	19	5495	57
14	5504	42	24	5500	72
34	5479	102	31	5504	93
37	5473	111	34	5486	102
38	5480	114	35	5513	105
44	5499	132	49	5488	147
66	5511	198	51	5496	153
72	5512	216	58	5520	174
78	5471	234	68	5479	204
90	5510	270	70	5485	210
97	5491	291	71	5516	213
--	--	--	73	5518	219
--	--	--	79	5473	237
--	--	--	97	5502	291

Radar waveform #17			Radar waveform #18		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
36	5494	108	14	5495	42
38	5512	114	16	5485	48
46	5481	138	21	5499	63
55	5516	165	25	5476	75
64	5519	192	26	5478	78
72	5528	216	48	5515	144
77	5472	231	69	5470	207
81	5502	243	84	5508	252
87	5473	261	88	5529	264
92	5486	276	98	5492	294
99	5520	297	--	--	--

Radar waveform #19			Radar waveform #20		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
8	5486	24	11	5519	33
16	5494	48	13	5484	39
19	5488	57	16	5498	48
21	5526	63	17	5523	51
22	5472	66	20	5502	60
26	5525	78	22	5516	66
40	5519	120	32	5520	96
58	5490	174	34	5491	102
62	5471	186	47	5503	141
68	5529	204	65	5476	195
71	5497	213	66	5483	198
75	5514	225	69	5501	207
84	5513	252	81	5529	243

Radar waveform #21			Radar waveform #22		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5487	6	7	5495	21
22	5495	66	13	5535	39
24	5492	72	25	5513	75
26	5498	78	39	5538	117
28	5497	84	66	5484	198
46	5500	138	72	5521	216
50	5489	150	73	5504	219
52	5507	156	79	5510	237
55	5528	165	88	5516	264
58	5503	174	91	5526	273
61	5511	183	--	--	--
67	5481	201	--	--	--
71	5508	213	--	--	--
72	5535	216	--	--	--
75	5514	225	--	--	--

Radar waveform #23			Radar waveform #24		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5482	9	9	5525	27
6	5507	18	20	5536	60
12	5516	36	35	5513	105
28	5488	84	38	5491	114
33	5527	99	42	5508	126
36	5513	108	48	5521	144
37	5520	111	55	5532	165
43	5493	129	76	5501	228
56	5540	168	82	5539	246
57	5509	171	88	5518	264
60	5480	180	90	5480	270
66	5487	198	98	5524	294
69	5495	207	--	--	--
74	5491	222	--	--	--
77	5506	231	--	--	--
84	5489	252	--	--	--
85	5529	255	--	--	--
87	5511	261	--	--	--
97	5536	291	--	--	--
99	5538	297	--	--	--

Radar waveform #25			Radar waveform #26		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
8	5518	24	21	5503	63
35	5484	105	29	5510	87
36	5524	108	36	5507	108
47	5519	141	48	5506	144
50	5533	150	56	5498	168
61	5502	183	60	5515	180
67	5503	201	62	5488	186
78	5523	234	64	5527	192
98	5506	294	77	5517	231
--	--	--	79	5537	237
--	--	--	82	5490	246
--	--	--	88	5522	264
--	--	--	91	5481	273

Radar waveform #27			Radar waveform #28		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
0	5516	0	4	5488	12
16	5486	48	8	5528	24
40	5521	120	9	5487	27
53	5500	159	23	5504	69
65	5497	195	27	5523	81
70	5487	210	29	5522	87
72	5489	216	40	5516	120
76	5482	228	45	5535	135
97	5531	291	59	5489	177
--	--	--	91	5481	273
--	--	--	96	5510	288

Radar waveform #29			Radar waveform #30		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5512	3	19	5536	57
5	5518	15	23	5507	69
11	5490	33	33	5517	99
17	5500	51	36	5494	108
25	5517	75	40	5526	120
31	5485	93	47	5487	141
47	5508	141	52	5522	156
59	5516	177	55	5486	165
89	5523	267	57	5482	171
--	--	--	75	5499	225
--	--	--	77	5490	231
--	--	--	78	5531	234
--	--	--	92	5529	276
--	--	--	97	5510	291
--	--	--	98	5491	294

Radar Statistical Performance for 802.11n-HT40

Radar Type 1 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	1	558	95	1
2	5491	1	878	61	1
3	5491	1	838	63	1
4	5491	1	818	65	1
5	5500	1	898	59	1
6	5500	1	758	70	1
7	5500	1	618	86	1
8	5500	1	718	74	1
9	5509	1	638	83	1
10	5509	1	858	62	1
11	5509	1	698	76	1
12	5509	1	938	57	1
13	5510	1	518	102	1
14	5510	1	678	78	1
15	5510	1	3066	18	1
16	5510	1	1546	35	1
17	5510	1	682	78	1
18	5510	1	1891	28	1
19	5511	1	1648	33	1
20	5511	1	1140	47	1
21	5511	1	1102	48	1
22	5511	1	1808	30	1
23	5520	1	2784	19	1
24	5520	1	1381	39	1
25	5520	1	1449	37	1
26	5520	1	2545	21	1
27	5529	1	659	81	1
28	5529	1	1401	38	1
29	5529	1	1878	29	1
30	5529	1	2578	21	1
Detection Percentage (%)					100%

Radar Type 2 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	3.1	158	27	1
2	5491	2.2	194	25	1
3	5491	2.1	198	27	1
4	5491	2.8	227	28	1
5	5500	3.6	175	29	1
6	5500	2.8	202	27	1
7	5500	3.9	180	27	1
8	5500	4.3	204	29	1
9	5509	3.1	163	24	1
10	5509	4.5	212	28	1
11	5509	3.8	168	26	1
12	5509	2.6	168	23	1
13	5510	4.6	200	27	1
14	5510	2.4	228	23	1
15	5510	4.6	214	23	1
16	5510	3.4	163	27	1
17	5510	4.4	226	23	1
18	5510	3.2	172	23	1
19	5511	1.1	216	25	1
20	5511	1.1	212	28	1
21	5511	4.5	213	26	1
22	5511	4.7	155	29	1
23	5520	3.8	155	27	1
24	5520	4.8	150	29	1
25	5520	1.0	221	24	1
26	5520	1.3	218	26	1
27	5529	2.2	176	25	1
28	5529	4.6	200	27	1
29	5529	4.6	206	25	1
30	5529	4.2	161	23	1
Detection Percentage (%)					100%

Radar Type 3 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	9.9	370	16	1
2	5491	7.6	488	18	1
3	5491	9.4	381	17	1
4	5491	6.7	342	18	1
5	5500	8.7	265	16	1
6	5500	6.6	321	17	1
7	5500	6.3	296	17	1
8	5500	9.0	293	17	1
9	5509	7.4	339	16	1
10	5509	7.7	419	18	1
11	5509	7.5	291	18	1
12	5509	6.5	456	16	1
13	5510	9.2	321	17	1
14	5510	8.5	385	18	1
15	5510	6.4	339	18	1
16	5510	9.4	338	16	1
17	5510	7.7	404	17	1
18	5510	7.9	290	16	1
19	5511	7.9	494	17	1
20	5511	9.5	361	16	1
21	5511	8.5	418	16	1
22	5511	9.4	440	18	1
23	5520	9.9	268	17	1
24	5520	7.3	267	18	1
25	5520	7.4	417	16	1
26	5520	6.8	299	18	1
27	5529	8.8	301	18	1
28	5529	9.1	255	16	1
29	5529	7.6	389	17	1
30	5529	9.9	389	17	1
Detection Percentage (%)					100%

Radar Type 4 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	19.7	454	14	1
2	5491	16.5	360	15	1
3	5491	16.7	298	12	1
4	5491	16.8	412	14	1
5	5500	15.3	321	16	1
6	5500	11.6	386	15	1
7	5500	14.7	497	12	1
8	5500	15.5	276	16	1
9	5509	17.3	341	12	1
10	5509	14.6	319	12	1
11	5509	17.4	496	13	1
12	5509	11.5	292	12	1
13	5510	19.2	455	13	1
14	5510	18.7	256	13	1
15	5510	14.2	384	15	1
16	5510	13.6	276	13	1
17	5510	12.9	392	15	1
18	5510	14.4	392	12	1
19	5511	18.8	397	15	1
20	5511	14.6	355	12	1
21	5511	15.0	462	15	1
22	5511	19.5	397	15	1
23	5520	16.2	393	12	1
24	5520	14.5	413	14	1
25	5520	11.6	428	15	1
26	5520	19.9	373	15	1
27	5529	14.6	319	12	1
28	5529	12.9	391	14	1
29	5529	14.1	426	16	1
30	5529	14.3	481	13	1
Detection Percentage (%)					100%

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

waveforms is as follows: $\frac{P_d 1 + P_d 2 + P_d 3 + P_d 4}{4} = (100\%+100\%+100\%+100\%)/4 = 100\% (>80\%)$

Radar Type 5 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	1=Detection 0=No Detection	Trail #	Test Freq. (MHz)	1=Detection 0=No Detection
1	5497.8	1	16	5510.0	1
2	5494.2	1	17	5510.0	1
3	5498.2	1	18	5510.0	1
4	5493.0	1	19	5510.0	1
5	5493.4	1	20	5510.0	1
6	5495.0	1	21	5523.4	1
7	5495.8	1	22	5525.4	1
8	5496.6	1	23	5521.8	1
9	5494.6	1	24	5525.0	1
10	5498.6	1	25	5521.4	1
11	5510.0	1	26	5527.0	1
12	5510.0	1	27	5524.2	1
13	5510.0	1	28	5525.8	1
14	5510.0	1	29	5526.6	1
15	5510.0	1	30	5522.2	1
Detection Percentage (%)					100%

Type 5 Radar Waveform_1										
Num of Bursts = 8 Burst Interval (us)= 1500000										

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)
1	257148	1	17	70	1033	0	0	257148	0	1499999
2	1710175	2	17	55	1684	1277	0	1968356	1500000	2999999
3	1719896	1	17	95	1707	0	0	3691213	3000000	4499999
4	1482430	2	17	100	1973	1582	0	5175350	4500000	5999999
5	957738	3	17	85	1047	1877	1880	6136643	6000000	7499999
6	1951705	3	17	60	1744	1183	1837	8093152	7500000	8999999
7	2392287	3	17	50	1730	1190	1237	10490203	9000000	10499999
8	708603	2	17	90	1944	1591	0	11202963	10500000	11999999
Total number of pulses in waveform = 17 *****										

Type 5 Radar Waveform_2

Type 5 Radar Waveform_2											
Num of Bursts = 16 Burst Interval (us)= 750000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	425554	3	8	90	1714	1255	1355	425554	0	749999	
2	912904	1	8	60	1246	0	0	1342782	750000	1499999	
3	874903	2	8	75	1355	1651	0	2218931	1500000	2249999	
4	664649	1	8	100	1718	0	0	2886586	2250000	2999999	
5	790884	2	8	95	1214	1424	0	3679188	3000000	3749999	
6	393935	2	8	65	1580	1016	0	4075761	3750000	4499999	
7	546395	3	8	80	1018	1829	1991	4624752	4500000	5249999	
8	673014	2	8	70	1304	1606	0	5302604	5250000	5999999	
9	1439520	3	8	80	2000	1294	1560	6745034	6000000	6749999	
10	589640	3	8	60	1613	1487	1941	7339528	6750000	7499999	
11	747643	1	8	85	1196	0	0	8092212	7500000	8249999	
12	213794	1	8	85	1971	0	0	8307202	8250000	8999999	
13	991503	3	8	60	1238	1517	1576	9300676	9000000	9749999	
14	506315	3	8	95	1308	1385	1795	9811322	9750000	10499999	
15	1006839	2	8	75	1773	1802	0	10822649	10500000	11249999	
16	1104880	2	8	75	1276	1611	0	11931104	11250000	11999999	

Total number of pulses in waveform = 34

Type 5 Radar Waveform_3

Type 5 Radar Waveform_3											
Num of Bursts = 12 Burst Interval (us)= 1000000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	677812	2	18	75	1229	1230	0	677812	0	999999	
2	1216285	2	18	80	1126	1911	0	1896556	1000000	1999999	
3	900432	3	18	90	1121	1970	1964	2800025	2000000	2999999	
4	371107	2	18	75	1280	1749	0	3176187	3000000	3999999	
5	879382	2	18	90	1054	1419	0	4058598	4000000	4999999	
6	1104523	2	18	95	1563	1786	0	5165594	5000000	5999999	
7	1339576	2	18	75	1893	0	0	6508519	6000000	6999999	
8	1023116	1	18	75	1452	1741	1249	7533528	7000000	7999999	
9	637212	3	18	75	1428	1089	0	8175182	8000000	8999999	
10	1392126	2	18	65	1637	1856	0	9569825	9000000	9999999	
11	828067	2	18	80	1563	1141	0	10401385	10000000	10999999	
12	756731	1	18	85	1464	0	0	11160820	11000000	11999999	

Total number of pulses in waveform = 24

Type 5 Radar Waveform_4

Type 5 Radar Waveform_4											
Num of Bursts = 15 Burst Interval (us)= 800000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	460640	1	5	65	1821	0	0	460640	0	799999	
2	426322	1	5	60	1415	0	0	882783	800000	1599999	
3	1161857	2	5	90	1044	1037	0	2052055	1600000	2399999	
4	1002144	2	5	85	1896	1197	0	3056280	2400000	3199999	
5	371847	1	5	65	1151	0	0	3431220	3200000	3999999	
6	1113764	3	5	60	1637	1992	1701	4546135	4000000	4799999	
7	511242	1	5	55	1032	0	0	5062707	4800000	5599999	
8	847989	2	5	60	1046	1219	0	5911728	5600000	6399999	
9	833387	1	5	70	1643	0	0	6747380	6400000	7199999	
10	1036346	1	5	65	1974	0	0	7785369	7200000	7999999	
11	756923	2	5	100	1551	1414	0	8544266	8000000	8799999	
12	847167	3	5	80	1119	1144	1566	9394398	8800000	9599999	
13	438080	1	5	55	1753	0	0	9836307	9600000	10399999	
14	963222	3	5	85	1656	1756	1814	10801282	10400000	11199999	
15	948957	1	5	75	1231	0	0	11755465	11200000	11999999	

Total number of pulses in waveform = 25

Type 5 Radar Waveform_5

Num of Bursts = 8
Burst Interval (us)= 1500000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)
1	977657	3	6	75	1229	1214	1592	977657	0	1499999
2	1116460	1	6	85	1376	0	0	2098152	1500000	2999999
3	1086918	3	6	55	1899	1328	1633	3186446	3000000	4499999
4	1626545	3	6	55	1286	1485	1769	4817851	4500000	5999999
5	1829695	1	6	50	1965	0	0	6652086	6000000	7499999
6	1105849	3	6	85	1267	1549	1304	7759900	7500000	8999999
7	1503712	2	6	80	1391	1854	0	9267732	9000000	10499999
8	2253528	3	6	90	1034	1189	1248	11529505	10500000	11999999

Total number of pulses in waveform = 19

Type 5 Radar Waveform_6

Num of Bursts = 18
Burst Interval (us)= 666667

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)
1	247126	2	10	90	1007	1125	0	247126	0	666666
2	464343	1	10	60	1910	0	0	713601	666667	1333333
3	817403	2	10	70	1235	1264	0	1532914	1333334	2000000
4	755900	3	10	75	1438	1157	1494	2291313	2000001	2666667
5	942827	2	10	50	1009	1124	0	3238229	2666668	3333334
6	351951	2	10	95	1234	1012	0	3591713	3333335	4000001
7	481898	3	10	55	1583	1766	1604	4075857	4000002	4666668
8	1205788	3	10	100	1935	1317	1692	5286598	4666669	5333335
9	439297	1	10	100	1154	0	0	5730839	5333336	6000002
10	289923	3	10	70	1431	1652	1966	6021316	6000003	6666669
11	1266675	3	10	90	1089	1009	1705	7292040	6666670	7333336
12	222196	1	10	75	1388	0	0	7518039	7333337	8000003
13	544976	2	10	50	1819	1808	0	8064403	8000004	8666670
14	1216282	1	10	90	1379	0	0	9284312	8666671	9333337
15	219015	1	10	60	1016	0	0	9504706	9333338	10000004
16	742832	3	10	80	1203	1640	1645	10248554	10000005	10666671
17	905895	3	10	100	1427	1746	1059	11158937	10666672	11333338
18	399538	2	10	90	1906	1199	0	11562707	11333339	12000005

Total number of pulses in waveform = 38

Type 5 Radar Waveform_7

Num of Bursts = 10
Burst Interval (us)= 1200000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)
1	949900	2	12	70	1292	1472	0	949900	0	1199999
2	1233479	1	12	65	1279	0	0	2186143	1200000	2399999
3	1136096	1	12	85	1525	0	0	3323518	2400000	3599999
4	415380	3	12	80	1016	1985	1202	3740423	3600000	4799999
5	1820205	3	12	50	1705	1378	1452	5564831	4800000	5999999
6	659632	3	12	90	1700	1911	1363	6228998	6000000	7199999
7	1064520	3	12	60	1461	1490	1356	7298492	7200000	8399999
8	2158411	2	12	75	1411	1069	0	9461210	8400000	9599999
9	874753	3	12	80	1194	1652	1723	10338443	9600000	10799999
10	1395604	1	12	60	1452	0	0	11738616	10800000	11999999

Total number of pulses in waveform = 22

Type 5 Radar Waveform_8

Type 5 Radar Waveform_8											
Num of Bursts = 19 Burst Interval (us)= 631579											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	346476	3	14	55	1594	1097	1637	346476	0	631578	
2	847719	1	14	60	1020	0	0	1198523	631579	1263157	
3	532591	1	14	60	1171	0	0	1732134	1263158	1894736	
4	552838	1	14	80	1748	0	0	2286143	1894737	2526315	
5	802171	3	14	60	1804	1316	1314	3090062	2526316	3157894	
6	344670	3	14	80	1250	1780	1078	3439166	3157895	3789473	
7	943859	3	14	80	1901	1620	1995	4387134	3789474	4421052	
8	280147	3	14	70	1957	1953	1557	4672797	4421053	5052631	
9	940863	2	14	95	1850	1440	0	5619127	5052632	5684210	
10	494336	1	14	75	1694	0	0	6116753	5684211	6315789	
11	570849	2	14	75	1185	1625	0	6689196	6315790	6947368	
12	796701	3	14	65	1068	1616	1068	7488707	6947369	7578947	
13	652682	3	14	90	1700	1460	1640	8145141	7578948	8210526	
14	502274	1	14	70	1176	0	0	8652215	8210527	8842105	
15	214410	2	14	85	1922	1685	0	8867801	8842106	9473684	
16	10636562	1	14	80	1004	0	0	9935060	9473685	10105263	
17	528690	3	14	65	1275	1150	1878	10464754	10105264	10736842	
18	705613	1	14	85	1603	0	0	11174670	10736843	11368421	
19	329620	2	14	75	1940	1055	0	11505893	11368422	12000000	
***** Total number of pulses in waveform = 39 *****											

Type 5 Radar Waveform_9

Type 5 Radar Waveform_9											
Num of Bursts = 14 Burst Interval (us)= 857143											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	196384	1	9	85	1188	0	0	196384	0	857142	
2	1457834	3	9	100	1255	1962	1684	1655406	857143	1714285	
3	245078	1	9	85	1018	0	0	1905385	1714286	2571428	
4	1255468	1	9	75	1794	0	0	3161871	2571429	3428571	
5	690241	1	9	55	1037	0	0	3853906	3428572	4285714	
6	747446	2	9	50	1508	1699	0	4602389	4285715	5142857	
7	1237064	1	9	60	1818	0	0	5842660	5142858	6000000	
8	314162	1	9	70	1258	0	0	6158640	6000001	6857143	
9	741151	1	9	95	1501	0	0	6901049	6857144	7714286	
10	1193499	1	9	50	1716	0	0	8096049	7714287	8571429	
11	880530	3	9	65	1958	1505	1112	8978295	8571430	9428572	
12	1199780	1	9	50	1800	0	0	10182650	9428573	10285715	
13	222182	1	9	75	1073	0	0	10406632	10285716	11142858	
14	1496927	1	9	80	1905	0	0	11904632	11142859	12000001	
***** Total number of pulses in waveform = 19 *****											

Type 5 Radar Waveform_10

Type 5 Radar Waveform_10											
Num of Bursts = 10 Burst Interval (us)= 1200000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	411538	3	19	75	1413	1934	1252	411538	0	1199999	
2	1111032	3	19	65	1461	1855	1350	1527169	1200000	2399999	
3	1216153	3	19	75	1189	1244	1773	2747988	2400000	3599999	
4	1614209	3	19	85	1180	1612	1216	4366403	3600000	4799999	
5	561179	3	19	80	1878	1653	1503	4931590	4800000	5999999	
6	1646775	3	19	60	1612	1442	1225	6583399	6000000	7199999	
7	1038214	2	19	55	1386	1143	0	7625892	7200000	8399999	
8	1301920	2	19	80	1093	1644	0	9430341	8400000	9599999	
9	178236	1	19	85	1759	0	0	9611314	9600000	10799999	
10	1706328	2	19	85	1353	1044	0	11319401	10800000	11999999	
***** Total number of pulses in waveform = 25 *****											

Type 5 Radar Waveform_11										
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	685148	3	9	65	1170	1156	1724	685148	0	1090908
2	865558	2	9	70	1581	1850	0	1554756	1090909	2181817
3	849651	2	9	55	1783	1646	0	2407838	2181818	3272726
4	1250368	2	9	80	1834	1607	0	3661635	3272727	4363635
5	1082424	3	9	50	1752	1954	1397	4747500	4363636	5454544
6	861352	1	9	100	1742	0	0	5613955	5454545	6545453
7	1525531	2	9	85	1391	1093	0	7141228	6545454	7636362
8	1044805	3	9	60	1029	1000	1739	8188517	7636363	8727271
9	1091600	2	9	50	1437	1228	0	9283885	8727272	9818180
10	1074074	2	9	95	1737	1260	0	10360624	9818181	10909089
11	730478	2	9	90	1458	1713	0	11094099	10909090	11999998
Total number of pulses in waveform = 24										

Type 5 Radar Waveform_12										
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	1168633	2	19	90	1971	1821	0	1168633	0	1199999
2	272640	3	19	55	1896	1850	1848	1445065	1200000	2399999
3	2075016	1	19	55	1143	0	0	3525675	2400000	3599999
4	781331	3	19	55	1407	1499	1102	4308149	3600000	4799999
5	1022997	2	19	50	1632	1739	0	5335154	4800000	5999999
6	1409665	3	19	65	1195	1264	1105	6748190	6000000	7199999
7	538454	2	19	100	1048	1415	0	7290208	7200000	8399999
8	1691903	3	19	55	1923	1413	1602	8984574	8400000	9599999
9	648516	1	19	80	1570	0	0	9638028	9600000	10799999
10	2319833	2	19	95	1550	1535	0	11959431	10800000	11999999
Total number of pulses in waveform = 22										

Type 5 Radar Waveform_13										
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	608600	3	5	80	1424	1735	1216	608600	0	857142
2	410076	3	5	60	1523	1000	1290	1023051	857143	1714285
3	696619	2	5	95	1789	1118	0	1723483	1714286	2571428
4	1458734	2	5	85	1234	1478	0	3185124	2571429	3428571
5	744460	1	5	55	1115	0	0	3932296	3428572	4285714
6	983419	3	5	65	1635	1223	1449	4916830	4285715	5142857
7	354944	1	5	60	1417	0	0	5276081	5142858	6000000
8	1386022	2	5	65	1827	1839	0	6663520	6000001	6857143
9	923645	3	5	95	1512	1478	1150	7590831	6857144	7714286
10	264659	1	5	85	1576	0	0	7859630	7714287	8571429
11	743295	3	5	100	1945	1575	1434	8604501	8571430	9428572
12	1137696	2	5	95	1595	1327	0	9747151	9428573	10285715
13	941384	3	5	50	1642	1887	1466	10691457	10285716	11142858
14	1214416	1	5	50	1052	0	0	11910868	11142859	12000001
Total number of pulses in waveform = 30										

Type 5 Radar Waveform_14											
Num of Bursts = 12 Burst Interval (us)= 1000000											
Burst # Off Time (us) # Pulses Chirp (MHz) PW (us) Pulse 1 Pri(us) Pulse 2 Pri(us) Pulse 3 Pri(us) Start Loc (us) Start Burst Interval (us) End Burst Interval (us)											
1	729195	3	17	55	1211	1423	1567	729195	0	999999	
2	715891	2	17	75	1639	1102	0	1449287	1000000	1999999	
3	1039161	3	17	50	1733	1822	1165	2491189	2000000	2999999	
4	1317990	3	17	50	1770	1578	1863	3813899	3000000	3999999	
5	1080510	3	17	95	1316	1907	1782	4899620	4000000	4999999	
6	640933	1	17	60	1747	0	0	5545558	5000000	5999999	
7	1172178	1	17	95	1131	0	0	6719483	6000000	6999999	
8	594431	1	17	85	1113	0	0	7315045	7000000	7999999	
9	730407	3	17	75	1144	1696	1470	8046565	8000000	8999999	
10	1009351	1	17	80	1036	0	0	9060226	9000000	9999999	
11	939293	3	17	55	1964	1749	1523	10000555	10000000	10999999	
12	1022882	2	17	65	1101	1385	0	11028673	11000000	11999999	
Total number of pulses in waveform = 26											

Type 5 Radar Waveform_15											
Num of Bursts = 9 Burst Interval (us)= 1333333											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	672692	2	12	55	1148	1538	0	672692	0	1333332	
2	1740183	3	12	95	1522	1079	1768	2415561	1333333	2666665	
3	1468590	3	12	80	1468	1824	1352	3888520	2666666	3999998	
4	602148	3	12	75	1576	1970	1318	4495312	3999999	5333331	
5	924690	3	12	85	1603	1184	1849	5424866	5333332	6666664	
6	1661222	2	12	100	1626	1791	0	7090724	6666665	7999997	
7	2091745	3	12	65	1105	1866	1429	9185886	7999998	9333330	
8	978387	3	12	55	1436	1560	1900	10168673	9333331	10666663	
9	1639235	3	12	75	1537	1014	1023	11812854	10666664	11999996	
Total number of pulses in waveform = 25											

Type 5 Radar Waveform_16											
Num of Bursts = 12 Burst Interval (us)= 1000000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	347759	1	14	85	1458	0	0	347759	0	999999	
2	984936	1	14	60	1231	0	0	1334153	1000000	1999999	
3	1442450	3	14	75	1854	1512	1811	2777834	2000000	2999999	
4	281537	1	14	70	1294	0	0	3064548	3000000	3999999	
5	1382136	2	14	90	1465	1948	0	4447978	4000000	4999999	
6	1015359	3	14	90	1884	1946	1567	5466750	5000000	5999999	
7	1084799	3	14	50	1500	1867	1055	6556946	6000000	6999999	
8	1132056	1	14	100	1981	0	0	7693424	7000000	7999999	
9	484638	2	14	80	1747	1268	0	8180043	8000000	8999999	
10	1394237	3	14	80	1129	1279	1037	9577295	9000000	9999999	
11	1352986	1	14	95	1122	0	0	10933726	10000000	10999999	
12	816884	2	14	50	1472	1939	0	11751732	11000000	11999999	
Total number of pulses in waveform = 23											

Type 5 Radar Waveform_17

Type 5 Radar Waveform_17											
Num of Bursts = 16 Burst Interval (us)= 750000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	318908	1	18	50	1889	0	0	318908	0	749999	
2	711779	2	18	65	1678	1150	0	1032576	750000	1499999	
3	537775	1	18	50	1696	0	0	1573179	1500000	2249999	
4	1412212	3	18	70	1327	1291	1254	2987087	2250000	2999999	
5	52520	2	18	80	1873	1599	0	3043479	3000000	3749999	
6	1094933	3	18	70	1137	1817	1741	4141884	3750000	4499999	
7	857581	1	18	100	1192	0	0	5004160	4500000	5249999	
8	796632	2	18	65	1522	1366	0	5801984	5250000	5999999	
9	413886	2	18	60	1017	1426	0	6218758	6000000	6749999	
10	711409	2	18	55	1207	1045	0	6932610	6750000	7499999	
11	895773	3	18	55	1981	1643	1077	7830635	7500000	8249999	
12	849613	2	18	50	1782	1158	0	8684949	8250000	8999999	
13	999463	1	18	85	1274	0	0	9687352	9000000	9749999	
14	629198	2	18	75	1761	1712	0	10317824	9750000	10499999	
15	768434	2	18	65	1346	1391	0	11089731	10500000	11249999	
16	352725	3	18	70	1202	1853	1689	11445193	11250000	11999999	
Total number of pulses in waveform = 32											

Type 5 Radar Waveform_18

Type 5 Radar Waveform_18											
Num of Bursts = 19 Burst Interval (us)= 631579											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	127889	1	6	55	1415	0	0	127889	0	631578	
2	1088526	1	6	80	1510	0	0	1217830	631579	1263157	
3	596859	2	6	50	1828	1405	0	1816199	1263158	1894736	
4	370130	3	6	65	1811	1848	1745	2189562	1894737	2526315	
5	436115	3	6	60	1029	1318	1267	2631081	2526316	3197894	
6	786625	2	6	55	1768	1612	0	3421320	3157895	3789473	
7	842601	3	6	60	1271	1503	1921	4267301	3789474	4421052	
8	471144	2	6	80	1360	1657	0	4743140	4421053	5052631	
9	917896	3	6	100	1389	1561	1706	5664053	5052632	5684210	
10	561402	3	6	95	1041	1013	1180	6230111	5684211	6315789	
11	222165	3	6	75	1235	1224	1481	6455510	6315790	6947368	
12	497480	3	6	55	1358	1787	1558	6956930	6947369	7578947	
13	766398	2	6	55	1301	1862	0	7728091	7578948	8210526	
14	551594	2	6	70	1078	1081	0	8282488	8210527	8842105	
15	727535	1	6	75	1817	0	0	9012182	8842106	9473684	
16	799095	1	6	60	1393	0	0	9813074	9473685	10105263	
17	398238	1	6	100	1733	0	0	10212705	10105264	10736842	
18	769006	2	6	60	1404	1766	0	10983444	10736843	11368421	
19	673686	3	6	70	1498	1581	1042	11660900	11368422	12000000	
Total number of pulses in waveform = 41											

Type 5 Radar Waveform_19

Type 5 Radar Waveform_19											
Num of Bursts = 13 Burst Interval (us)= 923077											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	620466	3	10	90	1974	1729	1368	620466	0	923076	
2	581963	1	10	90	1871	0	0	1207500	923077	1846153	
3	787450	2	10	80	1655	1533	0	1996821	1846154	2769230	
4	1298508	2	10	80	1049	1435	0	3298517	2769231	3692307	
5	1269708	3	10	55	1665	1042	1767	4570709	3692308	4615384	
6	825507	2	10	85	1827	1253	0	5400690	4615385	5538461	
7	577560	1	10	95	1554	0	0	5981330	5538462	6461538	
8	1184982	3	10	60	1950	1803	1762	7167366	6461539	7384615	
9	340857	3	10	100	1202	1084	1122	7514238	7384616	8307692	
10	1486345	1	10	50	1644	0	0	9003991	8307693	9230769	
11	249815	3	10	80	1510	1194	1434	9255450	9230770	10153846	
12	1179391	3	10	100	1554	1786	1051	10438979	10153847	11076923	
13	867758	2	10	95	1011	1202	0	11311128	11076924	12000000	
Total number of pulses in waveform = 29											

Type 5 Radar Waveform_20											
Num of Bursts = 16 Burst Interval (us)= 750000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	220326	1	8	60	1155	0	0	220326	0	749999	
2	642255	2	8	100	1679	1343	0	863736	750000	1499999	
3	963240	1	8	95	1736	0	0	1829998	1500000	2249999	
4	918862	3	8	60	1118	1518	1455	2750596	2250000	2999999	
5	748721	2	8	50	1356	1510	0	3503408	3000000	3749999	
6	255242	2	8	85	1546	1147	0	3761516	3750000	4499999	
7	1346970	1	8	55	1352	0	0	5111173	4500000	5249999	
8	807721	2	8	100	1137	1499	0	5920252	5250000	5999999	
9	617423	3	8	90	1325	1621	1855	6540311	6000000	6749999	
10	688226	2	8	65	1385	1368	0	7233338	6750000	7499999	
11	491700	3	8	65	1260	1519	1734	7727791	7500000	8249999	
12	789914	2	8	55	1399	1300	0	8522218	8250000	8999999	
13	829656	3	8	70	1712	1379	1446	9354573	9000000	9749999	
14	523128	2	8	60	1857	1259	0	9882238	9750000	10499999	
15	856665	1	8	60	1786	0	0	10742019	10500000	11249999	
16	1137187	1	8	80	1010	0	0	11880992	11250000	11999999	

Total number of pulses in waveform = 31											
Type 5 Radar Waveform_21											
Num of Bursts = 15 Burst Interval (us)= 800000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	505709	2	14	65	1842	1403	0	505709	0	799999	
2	309720	2	14	75	1483	1606	0	818674	800000	1599999	
3	1154370	2	14	70	1363	1607	0	1976133	1600000	2399999	
4	931904	2	14	55	1948	1097	0	2911007	2400000	3199999	
5	957637	3	14	95	1249	1690	1753	3871689	3200000	3999999	
6	290463	2	14	100	1079	1587	0	4166844	4000000	4799999	
7	1190712	1	14	55	1140	0	0	5360222	4800000	5599999	
8	376197	3	14	90	1313	1912	1970	5737559	5600000	6399999	
9	742544	2	14	80	1701	1776	0	6485298	6400000	7199999	
10	1085260	1	14	100	1764	0	0	7574035	7200000	7999999	
11	656601	1	14	50	1525	0	0	8232400	8000000	8799999	
12	721375	3	14	90	1965	1955	1661	8955300	8800000	9599999	
13	1414669	2	14	50	1564	1179	0	10375550	9600000	10399999	
14	646333	1	14	60	1446	0	0	11024626	10400000	11199999	
15	610740	3	14	95	1669	1211	1405	11636812	11200000	11999999	

Total number of pulses in waveform = 30											
Type 5 Radar Waveform_22											
Num of Bursts = 19 Burst Interval (us)= 631579											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	618595	1	9	75	1427	0	0	618595	0	631578	
2	516696	2	9	50	1297	1192	0	1136718	631579	1263157	
3	752645	2	9	75	1135	1132	0	1891852	1263158	1894736	
4	72591	3	9	60	1471	1968	1333	1966710	1894737	2526315	
5	1051588	3	9	65	1714	1502	1262	3023070	2526316	3157894	
6	351864	1	9	60	1067	0	0	3379412	3157895	3789473	
7	451128	2	9	85	1307	1269	0	3831607	3789474	4421052	
8	1117376	3	9	90	1609	1552	1533	4951559	4421053	5052631	
9	576280	1	9	70	1919	0	0	5532533	5052632	5684210	
10	547795	2	9	70	1534	1438	0	6082247	5684211	6315789	
11	552803	1	9	60	1809	0	0	6638022	6315790	6947368	
12	764469	2	9	75	1602	1874	0	7404300	6947369	7578947	
13	434084	2	9	90	1683	1364	0	7841860	7578948	8210526	
14	910183	3	9	100	1823	1246	1246	8755090	8210527	8842105	
15	238137	3	9	70	1572	1422	1765	8997542	8842106	9473684	
16	939138	3	9	70	1387	1218	1205	9941439	9473685	10105263	
17	208506	3	9	50	1949	1974	1445	10153755	10105264	10736842	
18	1195667	3	9	90	1360	1648	1751	11354690	10736843	11368421	
19	155188	2	9	90	1595	1101	0	11514637	11368422	12000000	

Total number of pulses in waveform = 42											

Type 5 Radar Waveform_23

Type 5 Radar Waveform_23											
Num of Bursts = 19 Burst Interval (us)= 631579											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)	
1	961581	2	18	100	1384	1848	0	133725	0	631578	
2	766142	3	18	85	1597	1360	1597	1098538	631579	1263157	
3	421502	2	18	75	1476	1032	0	1869234	1263158	1894736	
4	833906	2	18	75	1339	1272	0	2293244	1894737	2526315	
5	344586	3	18	100	1051	1999	1739	3129761	2526316	3157894	
6	862528	2	18	95	1635	1088	0	3479136	3157895	3789473	
7	424881	3	18	60	1431	1585	1736	4344387	3789474	4421052	
8	551134	1	18	80	1212	0	0	4774020	4421053	5052631	
9	424688	1	18	65	1834	0	0	5326366	5052632	5684210	
10	906870	3	18	65	1904	1906	2000	5752888	5684211	6315789	
11	477779	2	18	50	1997	1351	0	6665568	6315790	6947368	
12	496118	2	18	75	1548	1126	0	7146695	6947369	7578947	
13	953289	3	18	70	1360	1449	1445	7645487	7578948	8210526	
14	446442	3	18	50	1000	1144	1827	8603090	8210527	8842105	
15	714146	1	18	50	1104	0	0	9053443	8842106	9473684	
16	455410	1	18	80	1059	0	0	9768693	9473685	10105263	
17	855207	1	18	65	1608	0	0	10225162	10105264	10736842	
18	719365	1	18	85	1107	0	0	11081977	10736843	11368421	
19		1	18	85	1113	0	0	11802449	11368422	12000000	
***** Total number of pulses in waveform = 37 *****											

Type 5 Radar Waveform_24

Type 5 Radar Waveform_24											
Num of Bursts = 16 Burst Interval (us)= 750000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)	
1	93765	3	10	95	1486	1217	1206	93765	0	749999	
2	994930	2	10	95	1465	1091	0	1092604	750000	1499999	
3	671559	3	10	60	1536	1224	1896	1766719	1500000	2249999	
4	987821	2	10	65	1000	1908	0	2759196	2250000	2999999	
5	423678	1	10	95	1737	0	0	3185782	3000000	3749999	
6	1257730	2	10	85	1848	1855	0	4445249	3750000	4499999	
7	117309	2	10	75	1772	1088	0	4566261	4500000	5249999	
8	1423787	3	10	50	1169	1328	1946	5992908	5250000	5999999	
9	215558	2	10	75	1936	1383	0	6212909	6000000	6749999	
10	837430	3	10	65	1620	1792	1046	7053658	6750000	7499999	
11	655791	2	10	60	1204	1427	0	7713907	7500000	8249999	
12	618798	1	10	50	1910	0	0	8335336	8250000	8999999	
13	1041666	3	10	80	1469	1028	1113	9378912	9000000	9749999	
14	706766	2	10	100	1760	1504	0	10089288	9750000	10499999	
15	541038	3	10	55	1280	1252	1155	10633590	10500000	11249999	
16	694616	2	10	75	1444	1942	0	11331893	11250000	11999999	
***** Total number of pulses in waveform = 36 *****											

Type 5 Radar Waveform_25

Type 5 Radar Waveform_25											
Num of Bursts = 8 Burst Interval (us)= 1500000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)	
1	1329558	3	19	55	1258	1129	1847	1329558	0	1499999	
2	610501	2	19	65	1440	1208	0	1944293	1500000	2999999	
3	1742288	3	19	75	1603	1810	1595	3689769	3000000	4499999	
4	894925	3	19	65	1341	1199	1921	4589702	4500000	5999999	
5	2778691	1	19	65	1389	0	0	7372854	6000000	7499999	
6	434320	3	19	80	1703	1845	1554	7808563	7500000	8999999	
7	2599565	3	19	55	1542	1113	0	10413230	9000000	10499999	
8	1089290	3	19	90	1088	1550	1783	11505175	10500000	11999999	
***** Total number of pulses in waveform = 20 *****											

Type 5 Radar Waveform_26											
Num of Bursts = 10 Burst Interval (us)= 1200000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	996465	2	5	90	1698	1910	0	996465	0	1199999	
2	1330911	1	5	55	1528	0	0	2330984	1200000	2399999	
3	1208752	1	5	100	1179	0	0	3541264	2400000	3599999	
4	120990	2	5	75	1208	1439	0	3663433	3600000	4799999	
5	2254162	3	5	85	1656	1835	1530	5920242	4800000	5999999	
6	198525	3	5	100	1489	1473	1764	6123788	6000000	7199999	
7	2037482	2	5	75	1691	1966	0	8165996	7200000	8399999	
8	452871	3	5	85	1559	1158	1711	8622524	8400000	9599999	
9	2076284	3	5	80	1816	1229	1534	10703236	9600000	10799999	
10	935295	1	5	70	1400	0	0	11643110	10800000	11999999	
Total number of pulses in waveform = 21											

Type 5 Radar Waveform_27											
Num of Bursts = 14 Burst Interval (us)= 857143											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	735113	2	12	60	1618	1660	0	735113	0	857142	
2	252899	3	12	60	1962	1930	1528	991290	857143	1714285	
3	880352	1	12	75	1805	0	0	1877062	1714286	2571428	
4	1024418	1	12	100	1808	0	0	2903285	2571429	3428571	
5	569089	3	12	65	1386	1573	1778	3474182	3428572	4285714	
6	1182393	3	12	85	1222	1398	1861	4661312	4285715	5142857	
7	757524	3	12	50	1694	1796	1043	5423317	5142858	6000000	
8	599330	1	12	85	1499	0	0	6027180	6000001	6857143	
9	1159005	2	12	85	1906	1046	0	7187684	6857144	7714286	
10	1071792	3	12	80	1280	1659	1217	8262428	7714287	8571429	
11	987674	2	12	55	1198	1779	0	9254258	8571430	9428572	
12	335456	2	12	55	1034	1354	0	9592691	9428573	10285715	
13	1167398	3	12	55	1147	1471	1858	10762477	10285716	11142858	
14	908550	1	12	75	1162	0	0	11675503	11142859	12000001	
Total number of pulses in waveform = 30											

Type 5 Radar Waveform_28											
Num of Bursts = 19 Burst Interval (us)= 631579											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	566769	1	8	55	1570	0	0	566769	0	631578	
2	344096	1	8	100	1767	0	0	912435	631579	1263157	
3	889370	2	8	95	1012	1808	0	1803572	1263158	1894736	
4	263872	1	8	75	1770	0	0	2070264	1894737	2526315	
5	845001	1	8	80	1195	0	0	2917035	2526316	3157894	
6	831210	2	8	50	1491	1076	0	3749440	3157895	3789473	
7	75360	1	8	70	1940	0	0	3827367	3789474	4421052	
8	1054748	3	8	100	1468	1322	1989	4884055	4421053	5052631	
9	983490	3	8	50	1408	1419	1251	5272324	5052632	5684210	
10	423253	3	8	55	1594	1150	1761	5699655	5684211	6315789	
11	1200048	1	8	85	1820	0	0	6904208	6315790	6947368	
12	607892	3	8	60	1945	1955	1534	7513920	6947369	7578947	
13	68076	2	8	75	1451	1916	0	7587430	7578948	8210526	
14	738957	3	8	50	1021	1818	1347	8329754	8210527	8842105	
15	867394	3	8	60	1761	1799	1363	9201334	8842106	9473684	
16	297919	2	8	65	1797	1099	0	9504176	9473685	10105263	
17	740424	1	8	65	1646	0	0	10247496	10105264	10736842	
18	1110110	2	8	70	1272	1614	0	11359252	10736843	11368421	
19	150234	1	8	90	1940	0	0	11512372	11368422	12000000	
Total number of pulses in waveform = 36											

Type 5 Radar Waveform_29											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	747362	1	6	70	1877	0	0	747362	0	857142	
2	662447	3	6	70	1625	1633	1152	1411686	857143	1714285	
3	515951	3	6	80	1149	1367	1084	1932047	1714286	2571428	
4	1328168	2	6	100	1802	1320	0	3263815	2571429	3428571	
5	429846	2	6	50	1155	1685	0	3696783	3428572	4285714	
6	828809	2	6	65	1425	1431	0	4528432	4285715	5142857	
7	724304	1	6	75	1271	0	0	5255592	5142858	6000000	
8	924417	2	6	95	1805	1342	0	6181280	6000001	6857143	
9	903899	1	6	65	1646	0	0	7088326	6857144	7714286	
10	899256	2	6	95	1228	1198	0	7989228	7714287	8571429	
11	1347059	2	6	60	1976	1461	0	9338713	8571430	9428572	
12	481710	1	6	60	1240	0	0	9823860	9428573	10285715	
13	1137522	2	6	55	1168	1158	0	10962622	10285716	11142858	
14	501629	1	6	90	1506	0	0	11466577	11142859	12000001	

Total number of pulses in waveform = 25											
Type 5 Radar Waveform_30											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	62731	1	17	75	1098	0	0	62731	0	999999	
2	1478935	3	17	100	1759	1419	1844	1542764	1000000	1999999	
3	486158	3	17	85	1983	1438	1286	2033944	2000000	2999999	
4	1411562	1	17	80	1536	0	0	3450213	3000000	3999999	
5	690528	1	17	50	1362	0	0	4142277	4000000	4999999	
6	1307081	2	17	60	1289	1774	0	5450720	5000000	5999999	
7	1364243	1	17	50	1476	0	0	6818026	6000000	6999999	
8	479888	2	17	95	1263	1640	0	7299390	7000000	7999999	
9	1497870	3	17	70	1761	1432	1437	8800163	8000000	8999999	
10	974705	1	17	80	1001	0	0	9779498	9000000	9999999	
11	1000001	2	17	50	1896	1965	0	10780500	10000000	10999999	
12	685181	3	17	95	1064	1967	1628	11469542	11000000	11999999	

Radar Type 6 - Radar Statistical Performance

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

Radar waveform #1			Radar waveform #2		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5500	15	3	5496	9
20	5512	60	4	5482	12
28	5468	84	6	5508	18
31	5508	93	19	5518	57
40	5482	120	27	5487	81
44	5504	132	38	5494	114
48	5501	144	42	5488	126
70	5475	210	50	5465	150
73	5462	219	63	5506	189
86	5476	258	74	5516	222
99	5472	297	78	5473	234
--	--	--	82	5462	246
--	--	--	93	5479	279
--	--	--	99	5481	297

Radar waveform #3			Radar waveform #4		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5504	3	2	5477	6
6	5503	18	11	5519	33
8	5469	24	13	5504	39
12	5513	36	19	5517	57
14	5514	42	20	5469	60
19	5520	57	29	5501	87
37	5465	111	30	5488	90
43	5474	129	39	5507	117
57	5511	171	44	5500	132
60	5499	180	49	5489	147
83	5461	249	51	5490	153
--	--	--	57	5509	171
--	--	--	58	5481	174
--	--	--	62	5463	186
--	--	--	63	5512	189
--	--	--	68	5510	204
--	--	--	71	5470	213
--	--	--	74	5465	222

Radar waveform #5			Radar waveform #6		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5526	15	12	5503	36
17	5484	51	14	5481	42
39	5496	117	29	5517	87
42	5508	126	34	5484	102
52	5513	156	42	5492	126
57	5486	171	44	5506	132
67	5524	201	48	5471	144
70	5475	210	56	5470	168
92	5493	276	73	5521	219
93	5499	279	77	5485	231
96	5494	288	78	5509	234

Radar waveform #7			Radar waveform #8		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
20	5521	60	2	5488	6
21	5522	63	6	5495	18
22	5496	66	7	5503	21
38	5514	114	9	5527	27
41	5518	123	22	5484	66
46	5526	138	23	5470	69
54	5480	162	42	5478	126
61	5505	183	43	5507	129
66	5489	198	44	5509	132
67	5494	201	66	5498	198
73	5475	219	72	5512	216
75	5470	225	80	5511	240
80	5487	240	85	5518	255
85	5507	255	94	5522	282
97	5472	291	96	5523	288

Radar waveform #9			Radar waveform #10		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
0	5528	0	0	5534	0
9	5521	27	37	5523	111
24	5537	72	67	5533	201
29	5490	87	80	5516	240
39	5519	117	88	5517	264
55	5481	165	90	5498	270
70	5498	210	98	5518	294
72	5520	216	--	--	--
81	5480	243	--	--	--
85	5501	255	--	--	--
90	5508	270	--	--	--
96	5526	288	--	--	--

Radar waveform #11			Radar waveform #12		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5516	9	17	5530	51
10	5531	30	22	5490	66
20	5517	60	28	5503	84
23	5509	69	32	5512	96
27	5513	81	38	5536	114
30	5483	90	43	5486	129
31	5501	93	57	5492	171
34	5526	102	63	5523	189
57	5538	171	68	5508	204
58	5514	174	74	5510	222
60	5508	180	76	5502	228
61	5505	183	80	5479	240
67	5486	201	85	5488	255
77	5522	231	95	5501	285
85	5485	255	--	--	--
92	5489	276	--	--	--

Radar waveform #13			Radar waveform #14		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
0	5510	0	9	5482	27
11	5520	33	20	5524	60
16	5524	48	27	5486	81
20	5523	60	32	5509	96
28	5485	84	43	5538	129
34	5493	102	51	5516	153
46	5491	138	60	5519	180
47	5509	141	92	5540	276
58	5535	174	99	5481	297
62	5540	186	--	--	--
65	5480	195	--	--	--
80	5483	240	--	--	--
92	5515	276	--	--	--

Radar waveform #15			Radar waveform #16		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5489	9	14	5530	42
5	5535	15	28	5481	84
8	5501	24	43	5499	129
21	5480	63	45	5490	135
24	5506	72	48	5497	144
29	5538	87	56	5531	168
92	5518	276	75	5496	225
98	5505	294	76	5505	228
--	--	--	77	5488	231
--	--	--	78	5503	234
--	--	--	83	5515	249
--	--	--	94	5494	282
--	--	--	98	5517	294

Radar waveform #17			Radar waveform #18		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
6	5536	18	3	5497	9
7	5490	21	7	5531	21
10	5492	30	24	5533	72
13	5495	39	25	5493	75
27	5519	81	26	5538	78
28	5507	84	29	5501	87
41	5484	123	38	5512	114
59	5533	177	46	5490	138
78	5512	234	48	5513	144
85	5498	255	73	5499	219
87	5540	261	75	5514	225
93	5506	279	77	5540	231
94	5525	282	78	5485	234
--	--	--	86	5487	258
--	--	--	90	5518	270

Radar waveform #19			Radar waveform #20		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5494	15	0	5504	0
12	5521	36	4	5541	12
16	5505	48	23	5482	69
19	5493	57	31	5506	93
23	5528	69	55	5513	165
24	5491	72	79	5483	237
36	5481	108	84	5488	252
37	5482	111	94	5535	282
57	5498	171	--	--	--
74	5483	222	--	--	--
82	5522	246	--	--	--
86	5506	258	--	--	--
92	5519	276	--	--	--
96	5492	288	--	--	--

Radar waveform #21			Radar waveform #22		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5499	3	2	5513	6
9	5484	27	4	5502	12
11	5512	33	12	5499	36
17	5490	51	15	5510	45
23	5504	69	20	5512	60
26	5530	78	35	5491	105
40	5501	120	44	5483	132
48	5532	144	51	5528	153
50	5496	150	52	5496	156
61	5494	183	72	5522	216
62	5538	186	84	5488	252
63	5540	189	96	5514	288
64	5497	192	--	--	--
86	5481	258	--	--	--
95	5523	285	--	--	--

Radar waveform #23			Radar waveform #24		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5522	3	2	5510	6
2	5498	6	20	5516	60
6	5535	18	25	5544	75
19	5537	57	38	5547	114
21	5544	63	45	5543	135
31	5550	93	47	5496	141
38	5514	114	61	5538	183
51	5548	153	87	5520	261
52	5515	156	88	5490	264
55	5541	165	90	5498	270
56	5502	168	95	5521	285
87	5519	261	--	--	--
93	5503	279	--	--	--

Radar waveform #25			Radar waveform #26		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
8	5496	24	7	5540	21
9	5491	27	9	5502	27
21	5525	63	25	5533	75
27	5490	81	40	5541	120
29	5509	87	43	5493	129
33	5543	99	44	5514	132
34	5523	102	45	5536	135
40	5540	120	46	5529	138
45	5528	135	57	5513	171
49	5516	147	59	5507	177
61	5547	183	76	5508	228
67	5503	201	88	5497	264
71	5526	213	--	--	--
73	5510	219	--	--	--
80	5546	240	--	--	--
82	5527	246	--	--	--
85	5507	255	--	--	--
93	5533	279	--	--	--
99	5517	297	--	--	--

Radar waveform #27			Radar waveform #28		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
6	5525	18	4	5514	12
8	5509	24	5	5533	15
11	5548	33	14	5527	42
14	5544	42	35	5559	105
16	5512	48	42	5499	126
19	5556	57	46	5526	138
31	5542	93	61	5553	183
44	5535	132	66	5536	198
47	5521	141	67	5522	201
66	5550	198	69	5500	207
77	5501	231	73	5532	219
90	5552	270	75	5512	225
93	5549	279	82	5530	246
99	5538	297	--	--	--

Radar waveform #29			Radar waveform #30		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
13	5509	39	2	5544	6
34	5512	102	3	5499	9
41	5518	123	5	5513	15
46	5506	138	7	5512	21
48	5523	144	10	5500	30
52	5538	156	16	5550	48
55	5513	165	28	5524	84
69	5519	207	60	5551	180
75	5546	225	77	5517	231
77	5556	231	79	5531	237
82	5508	246	81	5519	243
84	5544	252	90	5503	270
85	5524	255	93	5508	279
94	5500	282	--	--	--

Radar Statistical Performance for 802.11ac-VHT80

Radar Type 1 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	1	578	92	1
2	5491	1	538	99	1
3	5500	1	778	68	1
4	5500	1	838	63	1
5	5509	1	558	95	1
6	5509	1	738	72	1
7	5510	1	798	67	1
8	5510	1	918	58	1
9	5511	1	658	81	1
10	5511	1	718	74	1
11	5520	1	638	83	1
12	5520	1	898	59	1
13	5529	1	938	57	1
14	5529	1	598	89	1
15	5530	1	878	61	1
16	5530	1	794	67	1
17	5531	1	1673	32	1
18	5531	1	2295	23	1
19	5540	1	2521	21	1
20	5540	1	1804	30	1
21	5549	1	2347	23	1
22	5549	1	2246	24	1
23	5550	1	887	60	1
24	5550	1	2936	18	1
25	5551	1	1366	39	1
26	5551	1	589	90	1
27	5560	1	2989	18	1
28	5560	1	2583	21	1
29	5569	1	1039	51	1
30	5569	1	2898	19	1
Detection Percentage (%)					100%

Radar Type 2 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	2.2	223	28	1
2	5491	4.2	195	28	1
3	5500	4.6	200	29	1
4	5500	3.7	221	24	1
5	5509	1.7	183	27	1
6	5509	3.1	195	28	1
7	5510	4.1	153	25	1
8	5510	2.9	151	29	1
9	5511	4.1	212	28	1
10	5511	4.0	203	23	1
11	5520	1.9	171	27	1
12	5520	4.2	204	29	1
13	5529	4.1	218	24	1
14	5529	3.3	214	26	1
15	5530	1.2	157	28	1
16	5530	4.3	207	24	1
17	5531	3.6	211	26	1
18	5531	2.8	203	25	1
19	5540	3.7	215	29	1
20	5540	2.8	168	24	1
21	5549	3.0	177	24	1
22	5549	3.5	218	25	1
23	5550	1.4	153	25	1
24	5550	4.6	167	23	1
25	5551	2.7	181	24	1
26	5551	1.1	204	26	1
27	5560	4.9	195	25	1
28	5560	2.6	171	29	1
29	5569	1.2	178	27	1
30	5569	4.3	198	26	1
Detection Percentage (%)					100%

Radar Type 3 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	7.0	454	18	1
2	5491	7.3	287	16	1
3	5500	8.3	269	17	1
4	5500	7.0	438	17	1
5	5509	6.6	449	17	1
6	5509	9.8	363	17	1
7	5510	7.2	318	16	1
8	5510	6.5	266	17	1
9	5511	6.7	444	16	1
10	5511	7.5	356	17	1
11	5520	8.5	378	18	1
12	5520	8.6	430	16	1
13	5529	6.9	274	16	1
14	5529	7.4	310	17	1
15	5530	6.0	388	18	1
16	5530	8.1	462	18	1
17	5531	6.6	400	16	1
18	5531	6.5	263	17	1
19	5540	9.0	486	17	1
20	5540	6.0	435	18	1
21	5549	6.1	465	16	1
22	5549	9.6	266	16	1
23	5550	8.8	424	16	1
24	5550	8.2	350	17	1
25	5551	9.5	358	16	1
26	5551	9.2	324	17	1
27	5560	9.3	496	16	1
28	5560	8.6	474	17	1
29	5569	9.8	395	16	1
30	5569	8.6	324	17	1
Detection Percentage (%)					100%

Radar Type 4 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	13.2	363	13	1
2	5491	15.7	471	14	1
3	5500	18.6	384	13	1
4	5500	13.7	494	13	1
5	5509	19.2	310	13	1
6	5509	19.8	348	12	1
7	5510	15.9	408	12	1
8	5510	15.8	443	12	1
9	5511	17.3	375	14	1
10	5511	15.2	353	13	1
11	5520	12.8	348	13	1
12	5520	13.3	335	12	1
13	5529	19.1	420	13	1
14	5529	12.8	313	13	1
15	5530	19.1	356	15	1
16	5530	18.5	305	13	1
17	5531	13.1	395	15	1
18	5531	11.0	420	14	1
19	5540	14.9	442	14	1
20	5540	15.7	312	15	1
21	5549	18.0	255	16	1
22	5549	15.0	278	15	1
23	5550	14.4	327	14	1
24	5550	14.3	475	16	1
25	5551	19.3	431	12	1
26	5551	15.8	388	16	1
27	5560	17.9	300	14	1
28	5560	14.4	405	13	1
29	5569	18.9	256	14	1
30	5569	12.1	261	13	1
Detection Percentage (%)					100%

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

waveforms is as follows: $\frac{P_d 1 + P_d 2 + P_d 3 + P_d 4}{4} = (100\%+100\%+100\%+100\%)/4 = 100\% (>80\%)$

Radar Type 5 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	1=Detection 0=No Detection	Trail #	Test Freq. (MHz)	1=Detection 0=No Detection
1	5493.4	1	16	5530.0	1
2	5496.6	1	17	5530.0	1
3	5497.8	1	18	5530.0	1
4	5494.2	1	19	5530.0	1
5	5494.6	1	20	5530.0	1
6	5495.8	1	21	5565.0	1
7	5495.0	1	22	5565.4	1
8	5498.6	1	23	5561.4	1
9	5493.0	1	24	5564.2	1
10	5498.2	1	25	5562.2	1
11	5530.0	1	26	5561.8	1
12	5530.0	1	27	5567.0	1
13	5530.0	1	28	5565.8	1
14	5530.0	1	29	5566.6	1
15	5530.0	1	30	5563.4	1
Detection Percentage (%)					100%

Type 5 Radar Waveform_1											
Num of Bursts = 12 Burst Interval (us)= 1000000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	747524	3	6	90	1525	1993	1137	747524	0	999999	
2	354800	3	6	95	1921	1717	1293	1106979	1000000	1999999	
3	1774796	3	6	85	1463	1247	1544	2886706	2000000	2999999	
4	959473	2	6	55	1524	1364	0	3850433	3000000	3999999	
5	155599	1	6	60	1193	0	0	4008920	4000000	4999999	
6	1290763	2	6	70	1357	1217	0	5300876	5000000	5999999	
7	1673737	3	6	65	1640	1879	1665	6977187	6000000	6999999	
8	656146	2	6	95	1246	1233	0	7638517	7000000	7999999	
9	441014	1	6	95	1260	0	0	8082010	8000000	8999999	
10	1029832	3	6	65	1721	1300	1031	9113102	9000000	9999999	
11	974880	3	6	65	1316	1759	1983	10092034	10000000	10999999	
12	1817076	1	6	95	1174	0	0	11914168	11000000	11999999	
Total number of pulses in waveform = 27											

Type 5 Radar Waveform_2

Type 5 Radar Waveform_2											
Num of Bursts = 14 Burst Interval (us)= 857143											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	153663	2	14	80	1507	1971	0	153663	0	857142	
2	884728	2	14	100	1136	1500	0	1041869	857143	1714285	
3	1046360	3	14	80	1119	1701	1042	2090865	1714286	2571428	
4	1065864	3	14	55	1936	1097	1375	3160591	2571429	3428571	
5	866926	3	14	95	1873	1403	1424	4031925	3428572	4285714	
6	409667	1	14	100	1278	0	0	4446292	4285715	5142857	
7	1347930	2	14	60	1605	1706	0	5795500	5142858	6000000	
8	216894	3	14	65	1311	1782	1825	6015705	6000001	6857143	
9	1608123	2	14	90	1000	1412	0	7628746	6857144	7714286	
10	885427	3	14	100	1168	1692	1088	8516645	7714287	8571429	
11	575812	2	14	95	1197	1530	0	9096405	8571430	9428572	
12	785051	3	14	50	1027	1298	1402	9884183	9428573	10285715	
13	457250	1	14	85	1459	0	0	10345160	10285716	11142858	
14	915310	2	14	80	1776	1011	0	11261929	11142859	12000001	

Total number of pulses in waveform = 32

Type 5 Radar Waveform_3

Type 5 Radar Waveform_3											
Num of Bursts = 18 Burst Interval (us)= 666667											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	24148	2	17	60	1210	1122	0	84148	0	666666	
2	1021175	3	17	70	1873	1843	1219	1107655	666667	1333333	
3	826315	1	17	100	1841	0	0	1937905	1333334	2000000	
4	316624	2	17	90	1759	1945	0	2256370	2000001	2666667	
5	449447	2	17	60	1790	1514	0	2709521	2666668	3333334	
6	626187	1	17	90	1022	0	0	3339012	3333335	4000001	
7	916254	2	17	95	1686	1960	0	4256288	4000002	4666668	
8	718891	1	17	85	1924	0	0	4978825	4666669	5333335	
9	713726	1	17	75	1174	0	0	5694475	5333336	6000002	
10	535476	3	17	65	1470	1216	1785	6231125	6000003	6666669	
11	657850	3	17	95	1490	1161	1004	6893446	6666670	7333336	
12	1072399	2	17	85	1270	1217	0	7969500	7333337	8000003	
13	81715	1	17	80	1599	0	0	8053702	8000004	8666670	
14	674776	3	17	90	1527	1786	1045	8730077	8666671	9333337	
15	682859	2	17	100	1058	1111	0	9417294	9333338	10000004	
16	965792	1	17	100	1813	0	0	10385255	10000005	10666671	
17	758646	2	17	85	1617	1560	0	11145714	10666672	11333338	
18	797429	3	17	100	1538	1703	1949	11946320	11333339	12000005	

Total number of pulses in waveform = 35

Type 5 Radar Waveform_4

Type 5 Radar Waveform_4											
Num of Bursts = 19 Burst Interval (us)= 631579											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	337172	2	8	55	1620	1566	0	337172	0	631578	
2	425747	1	8	95	1648	0	0	766105	631579	1263157	
3	1060066	3	8	75	1185	1669	1889	1827819	1263158	1894736	
4	609034	3	8	80	1467	1644	1567	2441596	1894737	2526315	
5	666818	2	8	50	1994	1845	0	3113092	2526316	3157894	
6	583477	3	8	55	1430	1186	1827	3700408	3157895	3789473	
7	89916	3	8	100	1326	1124	1198	3794767	3789474	4421052	
8	1018331	1	8	70	1089	0	0	4816746	4421053	5052631	
9	332724	2	8	60	1282	1690	0	5150559	5052632	5684210	
10	686810	1	8	85	1821	0	0	5840641	5684211	6315789	
11	1093958	1	8	65	1015	0	0	6936420	6315790	6947368	
12	495271	1	8	90	1518	0	0	7432706	6947369	7578947	
13	399062	2	8	65	1440	1658	0	7833286	7578948	8210526	
14	406392	2	8	100	1413	1237	0	8242776	8210527	8842105	
15	792342	3	8	80	1002	1993	1085	9037768	8842106	9473684	
16	857962	1	8	70	1917	0	0	9889810	9473685	10105263	
17	768975	3	8	80	1611	1085	1806	10670702	10105264	10736842	
18	363950	3	8	60	1435	1443	1307	11039154	10736843	11368421	
19	553439	2	8	90	1890	1637	0	11596778	11368422	12000000	

Total number of pulses in waveform = 39

Type 5 Radar Waveform_5

Num of Bursts = 15
 Burst Interval (us)= 800000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	509832	1	9	55	1019	0	0	509832	0	799999
2	629424	3	9	70	1889	1257	1398	1140275	800000	1599999
3	1175162	2	9	55	1739	1326	0	2319981	1600000	2399999
4	245800	1	9	70	1458	0	0	2568846	2400000	3199999
5	1268573	2	9	90	1232	1112	0	3838877	3200000	3999999
6	304503	2	9	60	1937	1472	0	4145724	4000000	4799999
7	1429424	1	9	100	1774	0	0	5578557	4800000	5599999
8	531532	2	9	55	1467	1736	0	6111863	5600000	6399999
9	610452	3	9	85	1978	1532	1645	6725518	6400000	7199999
10	1081343	2	9	55	1152	1133	0	7812016	7200000	7999999
11	313369	1	9	100	1723	0	0	8127670	8000000	8799999
12	1301563	2	9	75	1016	1636	0	9430956	8800000	9599999
13	296416	1	9	95	1154	0	0	9730024	9600000	10399999
14	867992	3	9	60	1157	1561	1034	10599170	10400000	11199999
15	1100062	2	9	90	1681	1686	0	11702984	11200000	11999999

Total number of pulses in waveform = 28

Type 5 Radar Waveform_6

Num of Bursts = 16
 Burst Interval (us)= 750000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	208746	3	12	60	1401	1719	1272	208746	0	749999
2	1174323	3	12	50	1435	1860	1684	1387461	750000	1499999
3	653237	2	12	65	1509	1209	0	2045677	1500000	2249999
4	329452	3	12	70	1399	1691	1707	2377847	2250000	2999999
5	704500	3	12	90	1198	1538	1998	3087144	3000000	3749999
6	662730	2	12	65	1066	1369	0	3754608	3750000	4499999
7	1281778	1	12	60	1228	0	0	5038821	4500000	5249999
8	618623	1	12	75	1424	0	0	5658672	5250000	5999999
9	1008160	1	12	65	1210	0	0	6668256	6000000	6749999
10	287088	2	12	55	1683	1890	0	6965554	6750000	7499999
11	553866	1	12	90	1523	0	0	7513993	7500000	8249999
12	1366365	1	12	60	1148	0	0	8881881	8250000	8999999
13	810475	2	12	65	1121	1290	0	9693504	9000000	9749999
14	683275	2	12	55	1471	1007	0	10379190	9750000	10499999
15	512553	2	12	55	1368	1111	0	10894221	10500000	11249999
16	876862	1	12	65	1036	0	0	11773562	11250000	11999999

Total number of pulses in waveform = 30

Type 5 Radar Waveform_7

Num of Bursts = 8
 Burst Interval (us)= 1500000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	748312	3	10	80	1794	1667	1115	748312	0	1499999
2	2011632	2	10	85	1593	1814	0	2764520	1500000	2999999
3	460745	2	10	50	1752	1337	0	3228672	3000000	4499999
4	1313611	1	10	90	1003	0	0	4545372	4500000	5999999
5	1720304	2	10	65	1174	1168	0	6266679	6000000	7499999
6	2701137	1	10	80	1735	0	0	8970158	7500000	8999999
7	422321	2	10	90	1755	1794	0	9394214	9000000	10499999
8	2344092	3	10	70	1559	1107	1013	11741855	10500000	11999999

Total number of pulses in waveform = 16

Type 5 Radar Waveform_8

Num of Bursts = 11
Burst Interval (us)= 1090909

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	697424	1	19	60	1808	0	0	697424	0	1090908
2	1471151	1	19	65	1422	0	0	2170383	1090909	2181817
3	1008542	3	19	95	1153	1131	1150	3180347	2181818	3272726
4	786418	1	19	80	1383	0	0	3970199	3272727	4363635
5	440086	1	19	85	1930	0	0	4411668	4363636	5454544
6	1276027	1	19	70	1847	1361	0	5689625	5454545	6545453
7	1939829	2	19	55	1049	1489	0	7632662	6545454	7636362
8	762710	2	19	85	1589	1459	0	8397910	7636363	8727271
9	1226807	2	19	80	1844	1786	0	9627765	8727272	9818180
10	693658	2	19	85	1740	1397	0	10325053	9818181	10909089
11	1236771	1	19	75	1934	0	0	11564961	10909090	11999998

Total number of pulses in waveform = 18

Type 5 Radar Waveform_9

Num of Bursts = 19
Burst Interval (us)= 631579

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	794554	3	5	50	1423	1523	1311	389777	0	631578
2	370574	3	5	60	1150	1571	1288	1183388	631579	1263157
3	390568	3	5	100	1327	1594	1625	1562971	1263158	1894736
4	695518	3	5	90	1787	1249	1046	1958085	1894737	2526315
5	980013	1	5	85	1342	0	0	2657665	2526316	3157894
6	491249	3	5	50	1370	1724	1516	3639020	3157895	3789473
7	409991	2	5	60	1474	1823	0	4134879	3789474	4421052
8	537093	3	5	70	1686	1495	1986	4548167	4421053	5052631
9	754524	1	5	95	1825	0	0	5090427	5052632	5684210
10	685322	2	5	60	1817	1378	0	5846776	5684211	6315789
11	608856	2	5	80	1058	1230	0	6535293	6315790	6947368
12	824808	1	5	55	1212	0	0	7146437	6947369	7578947
13	367342	3	5	90	1759	1355	1364	7972457	7578948	8210526
14	527059	3	5	100	1743	1132	1905	8334277	8210527	8842105
15	922630	1	5	75	1909	0	0	8866116	8842106	9473684
16	911654	1	5	95	1662	0	0	9790655	9473685	10105263
17	416892	1	5	50	1435	0	0	10703971	10105264	10736842
18	614601	1	5	50	1291	0	0	11122298	10736843	11368421
19	380404	2	5	70	1445	1557	0	11738190	11368422	12000000

Total number of pulses in waveform = 39

Type 5 Radar Waveform_10

Num of Bursts = 8
Burst Interval (us)= 1500000

Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)
1	204057	3	18	65	1944	1621	1287	204057	0	1499999
2	1534593	1	18	95	1104	0	0	1743502	1500000	2999999
3	2734020	2	18	75	1841	1951	0	4478626	3000000	4499999
4	976362	3	18	100	1459	1983	1597	5458780	4500000	5999999
5	1498459	2	18	95	1773	1391	0	6962278	6000000	7499999
6	1974306	3	18	95	1746	1522	1974	8939748	7500000	8999999
7	1447967	3	18	80	1248	1130	1869	10392957	9000000	10499999
8	380404	2	18	95	1641	1874	0	10777608	10500000	11999999

Total number of pulses in waveform = 19

Type 5 Radar Waveform_11											
Num of Bursts = 14 Burst Interval (us)= 857143											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	207883	1	19	55	1107	0	0	207883	0	857142	
2	1064026	1	19	90	1158	0	0	1273016	857143	1714285	
3	795796	2	19	65	1103	1672	0	2069970	1714286	2571428	
4	980979	1	19	55	1322	0	0	3053724	2571429	3428571	
5	1137798	2	19	95	1060	1083	0	4192844	3428572	4285714	
6	126092	1	19	75	1073	0	0	4321079	4285715	5142857	
7	1006209	3	19	55	1576	1331	1583	5328361	5142858	6000000	
8	1422132	1	19	85	1126	0	0	6754983	6000001	6857143	
9	771347	1	19	50	1775	0	0	7527456	6857144	7714286	
10	795822	3	19	95	1674	1282	1938	8325053	7714287	8571429	
11	803702	2	19	65	1816	1208	0	9133649	8571430	9428572	
12	529146	2	19	100	1378	1492	0	9665819	9428573	10285715	
13	1093267	3	19	70	1773	1329	1070	10761956	10285716	11142858	
14	712526	1	19	50	1077	0	0	11478654	11142859	12000001	
Total number of pulses in waveform = 24 ****											
Type 5 Radar Waveform_12											
Num of Bursts = 10 Burst Interval (us)= 1200000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	1119	1	10	100	1247	0	0	1119	0	1199999	
2	1269361	2	10	80	1688	1646	0	1271727	1200000	2399999	
3	1777843	2	10	75	1076	1712	0	3052904	2400000	3599999	
4	958599	3	10	70	1273	1650	1521	4014291	3600000	4799999	
5	1110703	1	10	85	1194	0	0	5129438	4800000	5999999	
6	1811655	3	10	95	1049	1178	1112	6942287	6000000	7199999	
7	1029218	1	10	95	1938	0	0	7974844	7200000	8399999	
8	956900	2	10	80	1821	1258	0	8933682	8400000	9599999	
9	1060293	3	10	75	1057	1855	1111	9997054	9600000	10799999	
10	1972384	3	10	95	1575	1151	1485	11973461	10800000	11999999	
Total number of pulses in waveform = 21 ****											
Type 5 Radar Waveform_13											
Num of Bursts = 17 Burst Interval (us)= 705882											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	372318	3	12	85	1036	1119	1025	372318	0	705881	
2	496462	1	12	70	1232	0	0	871960	705882	1411763	
3	849539	2	12	70	1416	1272	0	1722731	1411764	2117645	
4	472375	2	12	90	1060	1339	0	2197794	2117646	2823527	
5	1135939	1	12	60	1889	0	0	3336132	2823528	3529409	
6	753268	1	12	70	1345	0	0	4091289	3629410	4235291	
7	162159	2	12	80	1202	1140	0	4254793	4235292	4941173	
8	1096439	2	12	95	1738	1057	0	5353574	4941174	5647055	
9	379157	1	12	95	1489	0	0	5735526	5647056	6352937	
10	923903	1	12	95	1797	0	0	6660918	6352938	7058819	
11	1060637	1	12	50	1005	0	0	7723352	7058820	7764701	
12	732818	3	12	100	1613	1834	1993	8457175	7764702	8470583	
13	645775	3	12	70	1003	1060	1926	9108390	8470584	9176465	
14	560589	1	12	65	1812	0	0	9672968	9176466	9882347	
15	474058	3	12	75	1787	1280	1308	10148838	9882348	10588229	
16	1109188	2	12	85	1950	1938	0	11262401	10588230	11294111	
17	198366	2	12	75	1922	1996	0	11464655	11294112	11999993	
Total number of pulses in waveform = 31 ****											

Type 5 Radar Waveform_14											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)	
1	1187696	2	6	90	1915	1533	0	1187696	0	1333332	
2	864981	3	6	85	1360	1107	1312	2056125	1333333	2666665	
3	1522786	3	6	50	1507	1858	1047	3582690	2666666	3999998	
4	1730804	1	6	95	1673	0	0	5317906	3999999	5333331	
5	421375	2	6	75	1866	1735	0	5740954	5333332	6666664	
6	928478	3	6	75	1191	1949	1462	6673033	6666665	7999997	
7	1522403	3	6	85	1134	1987	1058	8200038	7999998	9333330	
8	1872182	2	6	55	1671	1860	0	10076399	9333331	10666663	
9	1493774	2	6	75	1018	1547	0	11573704	10666664	11999996	
Total number of pulses in waveform = 21											

Type 5 Radar Waveform_15											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)	
1	469057	1	17	100	1736	0	0	469057	0	1090908	
2	1210718	1	17	95	1377	0	0	1681511	1090909	2181817	
3	1366553	1	17	80	1806	0	0	3049441	2181818	3272726	
4	1166880	2	17	50	1992	1285	0	4218127	3272727	4363635	
5	265026	2	17	100	1062	1368	0	4486430	4363636	5454544	
6	1447422	1	17	90	1972	0	0	5936282	5454545	6545453	
7	1250089	3	17	60	1769	1819	1612	7188343	6545454	7636362	
8	890374	1	17	70	1245	0	0	8083917	7636363	8727271	
9	1261769	2	17	85	1281	1349	0	9346931	8727272	9818180	
10	1196177	3	17	80	1193	1255	1798	10545738	9818181	10909089	
11	1214767	2	17	75	1943	1811	0	11764751	10909090	11999998	
Total number of pulses in waveform = 19											

Type 5 Radar aveform_16											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)	
1	472143	2	9	55	1852	1198	0	472143	0	799999	
2	467957	1	9	60	1420	0	0	943150	800000	1599999	
3	1388850	2	9	50	1177	1956	0	2333420	1600000	2399999	
4	500396	1	9	50	1877	0	0	2836949	2400000	3199999	
5	915256	2	9	65	1297	1158	0	3754082	3200000	3999999	
6	924986	2	9	60	1563	1045	0	4681523	4000000	4799999	
7	753206	3	9	80	1486	1490	1758	5437337	4800000	5599999	
8	726334	1	9	50	1105	0	0	6168405	5600000	6399999	
9	717670	3	9	100	1331	1747	1362	6887180	6400000	7199999	
10	952873	2	9	100	1030	1633	0	7844493	7200000	7999999	
11	177728	3	9	65	1142	1803	1156	8024884	8000000	8799999	
12	1269404	3	9	75	1953	1216	1197	9298389	8800000	9599999	
13	302196	1	9	60	1124	0	0	9604951	9600000	10399999	
14	881832	3	9	70	1742	1610	1484	10487907	10400000	11199999	
15	1049888	2	9	90	1453	1062	0	11542631	11200000	11999999	
Total number of pulses in waveform = 31											

Type 5 Radar Waveform_17

Type 5 Radar Waveform_17											
Num of Bursts = 15 Burst Interval (us)= 800000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	175625	2	5	70	1916	1789	0	175625	0	799999	
2	730208	3	5	65	1762	1432	1621	909538	800000	1599999	
3	811142	1	5	100	1301	0	0	1725495	1600000	2399999	
4	677368	2	5	50	1818	1742	0	2404164	2400000	3199999	
5	1154337	3	5	90	1805	1751	1945	3562061	3200000	3999999	
6	684540	1	5	85	1160	0	0	4252102	4000000	4799999	
7	808746	3	5	50	1881	1697	1338	5062008	4800000	5599999	
8	743804	1	5	65	1764	0	0	5810728	5600000	6399999	
9	651773	2	5	80	1654	1038	0	6464265	6400000	7199999	
10	1316202	2	5	90	1546	1236	0	7783159	7200000	7999999	
11	708899	1	5	85	1238	0	0	8494840	8000000	8799999	
12	756023	1	5	65	1430	0	0	9252101	8800000	9599999	
13	1125323	1	5	55	1081	0	0	10378854	9600000	10399999	
14	660000	2	5	90	1169	1946	0	11039935	10400000	11199999	
15	860762	2	5	80	1332	1585	0	11903812	11200000	11999999	
Total number of pulses in waveform = 27											

Type 5 Radar Waveform_18

Type 5 Radar Waveform_18											
Num of Bursts = 13 Burst Interval (us)= 923077											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	664861	1	14	70	1774	0	0	664861	0	923076	
2	580986	2	14	85	1836	1876	0	1247621	923077	1846153	
3	626447	2	14	55	1804	1040	0	1877780	1846154	2769230	
4	913240	3	14	90	1341	1355	1683	2793864	2769231	3692307	
5	1587984	3	14	100	1770	1442	1607	4386227	3692308	4615384	
6	1055424	3	14	70	1324	1676	1784	5446470	4615385	5538461	
7	278750	2	14	80	1100	1242	0	5730004	5538462	6461538	
8	1300231	3	14	90	1098	1346	1482	7032577	6461539	7384615	
9	535868	3	14	85	1167	1973	1664	7572371	7384616	8307692	
10	765194	3	14	50	1684	1871	1438	8342369	8307693	9230769	
11	1495391	1	14	85	1847	0	0	9842753	9230770	10153846	
12	1055569	1	14	65	1516	0	0	10900169	10153847	11076923	
13	781181	1	14	50	1573	0	0	11682866	11076924	12000000	
Total number of pulses in waveform = 28											

Type 5 Radar Waveform_19

Type 5 Radar Waveform_19											
Num of Bursts = 10 Burst Interval (us)= 1200000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	613500	2	18	70	1515	1288	0	613500	0	1199999	
2	1111869	2	18	55	1917	1928	0	1728172	1200000	2399999	
3	1073469	1	18	80	1842	0	0	2805486	2400000	3599999	
4	1564103	1	18	65	1114	0	0	4371431	3600000	4799999	
5	1175620	2	18	55	1282	1516	0	5548165	4800000	5999999	
6	576683	3	18	100	1292	1038	1769	6127646	6000000	7199999	
7	1633041	1	18	85	1090	0	0	7764786	7200000	8399999	
8	1656771	1	18	65	1349	0	0	9422647	8400000	9599999	
9	1175392	1	18	95	1569	0	0	10599388	9600000	10799999	
10	557283	3	18	80	1849	1836	1353	11158240	10800000	11999999	
Total number of pulses in waveform = 17											

Type 5 Radar Waveform_20											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	381077	3	8	100	1587	1589	1693	587551	0	5999999	
2	402986	2	8	70	1166	1366	0	973497	600000	11999999	
3	877578	3	8	60	1328	1199	1047	1379015	1200000	17999999	
4	521845	2	8	70	1394	1740	0	2260167	1800000	23999999	
5	539082	2	8	80	1745	1964	0	2785146	2400000	29999999	
6	379485	1	8	55	1880	0	0	3327937	3000000	35999999	
7	943548	1	8	85	1554	0	0	3709302	3600000	41999999	
8	168440	2	8	70	1313	1092	0	4654404	4200000	47999999	
9	1164971	1	8	70	1469	0	0	4826249	4800000	53999999	
10	180913	1	8	50	1674	0	0	5991689	5400000	59999999	
11	725086	3	8	65	1093	1648	1408	6174276	6000000	65999999	
12	676231	3	8	75	1884	1029	1309	6903511	6600000	71999999	
13	516731	1	8	95	1711	0	0	7583964	7200000	77999999	
14	650661	3	8	85	1128	1457	1292	8102406	7800000	83999999	
15	348747	1	8	80	1187	0	0	8765944	8400000	89999999	
16	661157	2	8	55	1145	1242	0	9106878	9000000	95999999	
17	1006344	3	8	60	1636	1495	1127	9770422	9600000	101999999	
18	544919	2	8	70	1158	1080	0	10781024	10200000	107999999	
19	389849	3	8	95	1617	1220	1388	11328181	10800000	113999999	
20		2	8	95	1367	1371	0	11722255	11400000	119999999	
***** Total number of pulses in waveform = 41 *****											
Type 5 Radar Waveform_21											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	983671	1	10	90	1297	0	0	983671	0	1199999	
2	483870	2	10	80	1971	1476	0	1468838	1200000	2399999	
3	1030607	3	10	80	1584	1660	1476	2502892	2400000	3599999	
4	1845669	2	10	80	1678	1421	0	4353281	3600000	4799999	
5	1194254	2	10	70	1475	1120	0	5550634	4800000	5999999	
6	1304782	1	10	100	1994	0	0	6858011	6000000	7199999	
7	1291765	3	10	100	1161	1106	1104	8151770	7200000	8399999	
8	696637	1	10	60	1980	0	0	8851778	8400000	9599999	
9	1715276	3	10	65	1349	1424	1250	10569034	9600000	107999999	
10	1295611	2	10	85	1101	1951	0	11868668	10800000	119999999	
***** Total number of pulses in waveform = 20 *****											
Type 5 Radar Waveform_22											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	618388	1	9	60	1598	0	0	618388	0	1090908	
2	575445	2	9	100	1011	1676	0	1195431	1090909	2181817	
3	1681886	2	9	60	1633	1883	0	2880004	2181818	3272726	
4	1220027	1	9	60	1360	0	0	4103547	3272727	4363635	
5	1001250	1	9	85	1692	0	0	5106157	4363636	5454544	
6	1190443	3	9	50	1418	1515	1776	6298292	5454545	6545453	
7	1088949	1	9	85	1063	0	0	7391950	6545454	7636362	
8	823529	3	9	95	1195	1498	1633	8216542	7636363	8727271	
9	1136212	3	9	55	1127	1662	0	9357080	8727272	9818180	
10	852546	2	9	85	1711	1134	0	10212415	9818181	10909089	
11	1198551	3	9	70	1225	1494	1453	11413811	10909090	11999998	
***** Total number of pulses in waveform = 21 *****											

Type 5 Radar Waveform_23											
Num of Bursts = 11 Burst Interval (us)= 1090909											
Burst # Off Time (us) # Pulses Chirp (MHz) PW (us) Pulse 1 Pri(us) Pulse 2 Pri(us) Pulse 3 Pri(us) Start Loc (us) Start Burst Interval (us) End Burst Interval (us)											
1	998381	2	19	100	1689	1137	0	998381	0	1090908	
2	608672	2	19	100	1792	1035	0	1609879	1090909	2181817	
3	1424776	1	19	75	1237	0	0	3037482	2181818	3272726	
4	934471	3	19	55	1116	1689	1955	3973190	3272727	4363635	
5	836018	3	19	75	1215	1697	1324	4813968	4363636	5454544	
6	1335924	2	19	70	1877	1245	0	6154128	5454545	6545453	
7	1047245	3	19	60	1265	1620	1271	7204495	6545454	7636362	
8	603104	2	19	55	1201	1286	0	7811755	7636363	8727271	
9	1938707	2	19	95	1959	1332	0	9752949	8727272	9818180	
10	787477	2	19	75	1216	1805	0	10543717	9818181	10909089	
11	546607	2	19	95	1965	1410	0	11093345	10909090	11999998	
Total number of pulses in waveform = 24											

Type 5 Radar Waveform_24											
Num of Bursts = 12 Burst Interval (us)= 1000000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	164936	2	12	100	1614	1114	0	164936	0	999999	
2	1289861	3	12	90	1678	1990	1721	1457525	1000000	1999999	
3	1124965	2	12	100	1706	1438	0	2587879	2000000	2999999	
4	604571	3	12	50	1575	1748	1784	3195594	3000000	3999999	
5	1205796	3	12	65	1124	1584	1379	4406497	4000000	4999999	
6	998517	1	12	55	1774	0	0	5409101	5000000	5999999	
7	861626	2	12	65	1985	1436	0	6272501	6000000	6999999	
8	741754	1	12	60	1871	0	0	7017676	7000000	7999999	
9	1416191	1	12	100	1040	0	0	8435738	8000000	8999999	
10	1309972	3	12	70	1750	1672	1984	9746750	9000000	9999999	
11	281510	2	12	95	1257	1036	0	10033666	10000000	10999999	
12	1408687	3	12	75	1692	1782	1524	11444646	11000000	11999999	
Total number of pulses in waveform = 26											

Type 5 Radar Waveform_25											
Num of Bursts = 20 Burst Interval (us)= 600000											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	210438	3	17	70	1147	1405	1188	210438	0	599999	
2	927944	3	17	55	1864	1810	1874	1142122	600000	1199999	
3	465159	1	17	85	1994	0	0	1612829	1200000	1799999	
4	517757	1	17	75	1564	0	0	2132580	1800000	2399999	
5	326037	3	17	50	1513	1163	1843	2460181	2400000	2999999	
6	877483	3	17	60	1280	1945	1811	3342183	3000000	3699999	
7	568371	2	17	60	1958	1612	0	3915690	3600000	4199999	
8	551075	3	17	95	1272	1075	1792	4470235	4200000	4799999	
9	433794	2	17	55	1639	1887	0	4908168	4800000	5399999	
10	1011390	1	17	85	1417	0	0	5923084	5400000	5999999	
11	225480	2	17	85	1967	1729	0	6149981	6000000	6599999	
12	954709	3	17	70	1674	1452	1409	7108386	6600000	7199999	
13	445136	1	17	100	1533	0	0	7558057	7200000	7799999	
14	626678	2	17	95	1981	1245	0	8185268	7800000	8399999	
15	243158	1	17	50	1848	0	0	8431652	8400000	8999999	
16	1112489	3	17	85	1043	1533	1163	9545989	9000000	9599999	
17	134671	3	17	60	1374	1115	1613	9684399	9600000	10199999	
18	553283	3	17	90	1992	1306	1875	10241684	10200000	10799999	
19	1121007	2	17	55	1297	1220	0	11367864	10800000	11399999	
20	402691	2	17	65	1579	1330	0	11773072	11400000	11999999	
Total number of pulses in waveform = 44											

Type 5 Radar Waveform_26											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	604146	3	18	65	1187	1398	1880	337283	0	599999	
2	294390	3	18	80	1503	1971	1845	945882	600000	1199999	
3	691233	3	18	70	1881	1012	1751	1245591	1200000	1799999	
4	769210	3	18	60	1777	1126	1813	1941468	1800000	2399999	
5	708706	2	18	80	1188	1902	0	2715394	2400000	2999999	
6	237662	3	18	100	1800	1209	1558	3427190	3000000	3599999	
7	850842	3	18	70	1516	1913	1696	3669419	3600000	4199999	
8	790406	2	18	80	1146	1837	0	4525386	4200000	4799999	
9	286986	2	18	60	1457	1379	0	5318775	4800000	5399999	
10	553861	2	18	95	1251	1503	0	5608597	5400000	5999999	
11	946704	2	18	100	1424	1986	0	6165212	6000000	6599999	
12	580473	2	18	95	1459	1398	0	7115326	6600000	7199999	
13	316856	1	18	80	1687	0	0	7698656	7200000	7799999	
14	957008	2	18	60	1308	1300	0	8017199	7800000	8399999	
15	514421	1	18	55	1036	0	0	8976815	8400000	8999999	
16	181110	3	18	75	1168	1354	1113	9492272	9000000	9599999	
17	1045641	3	18	60	1596	1299	1405	9677017	9600000	10199999	
18	158838	3	18	65	1149	1464	1501	10726958	10200000	10799999	
19	971266	3	18	90	1532	1553	1834	10889910	10800000	11399999	
20	1	18	55	1135	0	0	11866095	11400000	11999999		

Type 5 Radar Waveform_27											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	1192408	3	5	55	1074	1998	1223	1192408	0	1199999	
2	269486	1	5	80	1750	0	0	1466189	1200000	2399999	
3	1712248	1	5	80	1804	0	0	3180187	2400000	3599999	
4	1343898	2	5	85	1991	1604	0	4525389	3600000	4799999	
5	320230	3	5	60	1397	1978	1757	4849714	4800000	5999999	
6	1275336	3	5	55	1737	1746	1645	6130182	6000000	7199999	
7	1555760	2	5	70	1325	1539	0	7691070	7200000	8399999	
8	828358	3	5	100	1900	1872	1113	8522292	8400000	9599999	
9	2124138	2	5	60	1950	1263	0	10651315	9600000	10799999	
10	1167412	1	5	65	1616	0	0	11821940	10800000	11999999	
Total number of pulses in waveform = 21											

Type 5 Radar Waveform_28											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval (us)	End Burst Interval (us)	
1	175760	1	8	70	1884	0	0	175760	0	1090908	
2	1752466	3	8	50	1979	1461	1367	1930110	1090909	2181817	
3	1248010	2	8	60	1941	1019	0	3182927	2181818	3272726	
4	1000652	3	8	50	1455	1491	1844	4186539	3272727	4363635	
5	401515	2	8	90	1252	1619	0	4592844	4363636	5454544	
6	1925524	2	8	85	1632	1066	0	6521239	5454545	6545453	
7	1087421	1	8	50	1906	0	0	7611358	6545454	7636362	
8	779896	3	8	70	1286	1434	1203	8393160	7636363	8727271	
9	678928	3	8	55	1824	1661	0	9076011	8727272	9818180	
10	1451768	2	8	85	1324	0	0	10531264	9818181	10909089	
11	1122601	1	8	70	1314	1938	1053	11655189	10909090	11999998	
Total number of pulses in waveform = 23											

Type 5 Radar Waveform_29

Type 5 Radar Waveform_29											
Num of Bursts = 18 Burst Interval (us)= 666667											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)	
1	141487	3	6	60	1259	1381	1384	141487	0	666666	
2	705099	2	6	50	1472	1215	0	850610	666667	1333333	
3	734338	3	6	65	1469	1271	1843	1587635	1333334	2000000	
4	1015071	2	6	65	1226	1717	0	2607289	2000001	2666667	
5	523639	1	6	85	1614	0	0	3133871	2666668	3333334	
6	285510	3	6	65	1140	1165	1064	3420995	3333335	4000001	
7	1137129	2	6	70	1475	1043	0	4561493	4000002	4666668	
8	442790	2	6	75	1319	1395	0	5006801	4666669	5333335	
9	426763	1	6	75	1236	0	0	5436278	5333336	6000002	
10	692444	1	6	60	1391	0	0	6129958	6000003	6666669	
11	914646	1	6	65	1541	0	0	7045994	6666670	7333336	
12	874165	2	6	50	1131	1979	0	7921700	7333337	8000003	
13	304576	1	6	95	1076	0	0	8229386	8000004	8666670	
14	642095	1	6	90	1763	0	0	8872557	8666671	9333337	
15	647848	1	6	70	1694	0	0	9522168	9333338	10000004	
16	798588	3	6	95	1376	1133	1188	10322450	10000005	10666671	
17	1002343	3	6	70	1241	1341	1468	11328490	10666672	11333338	
18	597026	1	6	100	1537	0	0	11929566	11333339	12000005	
Total number of pulses in waveform = 33											

Type 5 Radar Waveform_30

Type 5 Radar Waveform_30											
Num of Bursts = 18 Burst Interval (us)= 666667											
Burst #	Off Time (us)	# Pulses	Chirp (MHz)	PW (us)	Pulse 1 Pri(us)	Pulse 2 Pri(us)	Pulse 3 Pri(us)	Start Loc (us)	Start Burst Interval(us)	End Burst Interval(us)	
1	520099	2	14	85	1542	1161	0	520099	0	666666	
2	803869	3	14	55	1157	1356	1467	1326671	666667	1333333	
3	354324	1	14	85	1797	0	0	1684965	1333334	2000000	
4	794222	2	14	90	1010	1323	0	2480984	2000001	2666667	
5	586137	2	14	50	1437	1265	0	3069454	2666668	3333334	
6	581366	2	14	50	1351	1644	0	3653522	3333335	4000001	
7	526465	3	14	90	1483	1043	1275	4182982	4000002	4666668	
8	568166	3	14	95	1133	1470	1169	4754949	4666669	5333335	
9	983670	2	14	50	1467	1824	0	5742391	5333336	6000002	
10	560797	2	14	55	1935	1377	0	6306479	6000003	6666669	
11	832483	2	14	80	1019	1603	0	7142274	6666670	7333336	
12	644676	3	14	70	1489	1973	1646	7789572	7333337	8000003	
13	616199	1	14	55	1861	0	0	8410879	8000004	8666670	
14	699115	3	14	90	1226	1117	1890	9111856	8666671	9333337	
15	265894	3	14	60	1466	1905	1319	9381982	9333338	10000004	
16	665684	1	14	75	1932	0	0	10052356	10000005	10666671	
17	733272	2	14	90	1956	1151	0	10787560	10666672	11333338	
18	931500	2	14	70	1315	1524	0	11722167	11333339	12000005	
Total number of pulses in waveform = 39											

Radar Type 6 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	1=Detection 0=No Detection	Trail #	Test Freq. (MHz)	1=Detection 0=No Detection
1	5491	1	16	5530	1
2	5491	1	17	5531	1
3	5500	1	18	5531	1
4	5500	1	19	5540	1
5	5509	1	20	5540	1
6	5509	1	21	5549	1
7	5510	1	22	5549	1
8	5510	1	23	5550	1
9	5511	1	24	5550	1
10	5511	1	25	5551	1
11	5520	1	26	5551	1
12	5520	1	27	5560	1
13	5529	1	28	5560	1
14	5529	1	29	5569	1
15	5530	1	30	5569	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	5470	6	10	5513	30
5	5494	15	19	5484	57
6	5513	18	20	5506	60
7	5462	21	22	5493	66
13	5469	39	27	5461	81
26	5497	78	52	5520	156
40	5484	120	54	5479	162
43	5514	129	55	5514	165
49	5481	147	60	5476	180
53	5475	159	68	5495	204
64	5473	192	70	5469	210
77	5511	231	74	5508	222
90	5509	270	89	5489	267
95	5466	285	94	5504	282

Radar waveform #3			Radar waveform #4		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
0	5530	0	0	5516	0
1	5500	3	3	5528	9
6	5508	18	4	5509	12
9	5485	27	10	5495	30
26	5475	78	11	5520	33
41	5521	123	17	5484	51
43	5473	129	20	5491	60
45	5504	135	48	5482	144
59	5487	177	49	5525	147
67	5483	201	72	5480	216
73	5490	219	80	5507	240
81	5482	243	86	5515	258
89	5515	267	91	5485	273
94	5527	282	98	5513	294

Radar waveform #5			Radar waveform #6		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
4	5519	12	24	5518	72
5	5511	15	27	5497	81
11	5504	33	34	5490	102
16	5522	48	47	5480	141
17	5533	51	58	5537	174
19	5518	57	62	5528	186
21	5534	63	67	5501	201
31	5487	93	85	5495	255
48	5501	144	86	5515	258
51	5508	153	93	5500	279
69	5495	207	97	5504	291
94	5531	282	--	--	--
97	5516	291	--	--	--

Radar waveform #7			Radar waveform #8		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
6	5496	18	3	5520	9
9	5508	27	12	5501	36
12	5497	36	18	5533	54
21	5488	63	30	5512	90
31	5489	93	33	5515	99
41	5505	123	49	5489	147
56	5518	168	50	5491	150
69	5540	207	51	5530	153
80	5490	240	55	5511	165
81	5511	243	60	5496	180
82	5527	246	65	5521	195
84	5501	252	67	5536	201
86	5529	258	68	5492	204
94	5500	282	80	5480	240
96	5526	288	81	5529	243
97	5525	291	--	--	--

Radar waveform #9			Radar waveform #10		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
4	5492	12	2	5513	6
18	5496	54	3	5540	9
21	5508	63	8	5516	24
26	5505	78	11	5482	33
30	5517	90	28	5484	84
31	5521	93	38	5537	114
43	5487	129	49	5506	147
45	5515	135	72	5533	216
47	5493	141	74	5525	222
55	5523	165	77	5536	231
56	5532	168	83	5492	249
64	5482	192	84	5489	252
80	5529	240	88	5517	264
89	5533	267	--	--	--
95	5524	285	--	--	--
96	5506	288	--	--	--

Radar waveform #11			Radar waveform #12		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
0	5522	0	20	5495	60
10	5500	30	24	5521	72
14	5546	42	28	5542	84
21	5502	63	34	5517	102
27	5492	81	62	5493	186
28	5529	84	76	5513	228
37	5528	111	77	5498	231
46	5550	138	81	5496	243
47	5513	141	85	5510	255
68	5509	204	89	5492	267
69	5541	207	91	5546	273
71	5507	213	96	5540	288
74	5499	222	--	--	--
81	5547	243	--	--	--
82	5523	246	--	--	--
92	5503	276	--	--	--
93	5534	279	--	--	--

Radar waveform #13			Radar waveform #14		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
0	5519	0	0	5531	0
2	5510	6	2	5507	6
3	5522	9	3	5541	9
5	5558	15	6	5511	18
43	5548	129	24	5524	72
52	5525	156	25	5513	75
54	5528	162	28	5504	84
59	5555	177	29	5543	87
65	5515	195	55	5550	165
75	5512	225	73	5509	219
86	5532	258	77	5558	231
--	--	--	86	5533	258
--	--	--	88	5544	264
--	--	--	96	5537	288
--	--	--	99	5522	297

Radar waveform #15			Radar waveform #16		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5505	3	5	5531	15
4	5538	12	9	5525	27
6	5558	18	25	5511	75
9	5523	27	38	5507	114
16	5550	48	42	5513	126
17	5546	51	44	5552	132
21	5510	63	55	5559	165
23	5552	69	60	5547	180
33	5527	99	61	5528	183
35	5530	105	67	5539	201
64	5531	192	68	5538	204
75	5512	225	70	5548	210
80	5542	240	71	5535	213
84	5513	252	86	5549	258
92	5541	276	91	5523	273
93	5545	279	93	5534	279

Radar waveform #17			Radar waveform #18		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5553	15	3	5519	9
17	5522	51	32	5529	96
19	5560	57	34	5552	102
21	5556	63	37	5553	111
38	5520	114	48	5548	144
44	5526	132	57	5558	171
54	5509	162	85	5526	255
61	5511	183	90	5541	270
70	5542	210	92	5521	276
84	5537	252	--	--	--

Radar waveform #19			Radar waveform #20		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
4	5565	12	12	5556	36
7	5526	21	26	5549	78
14	5524	42	37	5557	111
39	5515	117	55	5554	165
40	5552	120	56	5520	168
41	5569	123	60	5517	180
54	5527	162	61	5550	183
61	5568	183	67	5564	201
75	5523	225	70	5562	210
78	5544	234	71	5568	213
83	5538	249	73	5546	219
85	5529	255	81	5532	243
--	--	--	87	5547	261

Radar waveform #21			Radar waveform #22		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
4	5565	12	24	5542	72
9	5521	27	25	5526	75
15	5561	45	34	5577	102
27	5535	81	41	5552	123
34	5546	102	42	5558	126
43	5526	129	53	5539	159
58	5548	174	71	5560	213
61	5571	183	93	5565	279
73	5568	219	98	5527	294
89	5520	267	--	--	--
90	5530	270	--	--	--

Radar waveform #23			Radar waveform #24		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
10	5547	30	5	5551	15
12	5565	36	17	5520	51
34	5530	102	23	5526	69
37	5578	111	33	5564	99
48	5546	144	38	5553	114
52	5520	156	41	5541	123
61	5549	183	45	5549	135
69	5541	207	57	5544	171
72	5531	216	58	5554	174
77	5543	231	69	5556	207
79	5545	237	71	5574	213
87	5551	261	99	5565	297
93	5542	279	--	--	--
98	5539	294	--	--	--

Radar waveform #25			Radar waveform #26		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5557	9	2	5530	6
18	5578	54	4	5555	12
19	5529	57	15	5525	45
47	5541	141	31	5572	93
49	5536	147	41	5561	123
50	5574	150	58	5532	174
74	5548	222	82	5529	246
80	5546	240	83	5531	249
83	5523	249	85	5534	255
88	5567	264	--	--	--
89	5580	267	--	--	--

Radar waveform #27			Radar waveform #28		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
19	5576	57	0	5560	0
21	5557	63	14	5533	42
26	5572	78	23	5585	69
31	5553	93	41	5579	123
36	5538	108	46	5539	138
50	5571	150	48	5531	144
69	5536	207	50	5538	150
83	5559	249	51	5549	153
84	5555	252	53	5569	159
85	5530	255	58	5532	174
92	5550	276	76	5550	228
--	--	--	81	5537	243
--	--	--	96	5555	288

Radar waveform #29			Radar waveform #30		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5598	15	0	5586	0
12	5582	36	8	5546	24
18	5569	54	9	5584	27
20	5555	60	11	5589	33
25	5580	75	28	5568	84
27	5573	81	29	5540	87
30	5552	90	35	5563	105
37	5588	111	50	5578	150
38	5592	114	52	5566	156
53	5550	159	62	5594	186
60	5561	180	65	5547	195
65	5596	195	84	5575	252
76	5551	228	87	5558	261
77	5576	231	95	5573	285
78	5558	234	--	--	--

6. CONCLUSION

The data collected relate only the item(s) tested and show that the AC220 Wi-Fi AP OD directional antenna US; AC220 Wi-Fi AP OD external antenna US; AC220 Wi-Fi AP OD small omni antenna US FCC ID: 2AD8UFZCWO2CA1, Model Number: WO2C-AC220 is in compliance with Part 15E of the FCC Rules and ISED Rules.

The End
