



# DFS MEASUREMENT REPORT

## FCC PART 15 Subpart E / RSS-247 Issue 2

**FCC ID:** 2ABLK-8X4G-2V2  
**IC:** 4009A-8X4G2  
**APPLICANT:** Calix Inc.  
**Application Type:** Certification  
**Product:** WIFI dual band 4 GE LAN GPON HGU  
**Model No.:** 844G-2, 854G-2, 844GE-2  
**Brand Name:** Calix  
**FCC Classification:** Unlicensed National Information Infrastructure (NII)  
**FCC Rule Part(s):** Part 15 Subpart E – 15.407 Section (h)(2)  
 KDB 905462 D02v02, KDB 905462 D04v01  
**IC Part(s):** RSS-247 Issue 2  
**Type of Device:**  Master Device  
 Client Device (No radar detection)  
 Client Device with radar detection  
**Test Date:** August 19 ~ 31, 2018

Reviewed By: Sunny Sun  
 ( Sunny Sun )

Approved By: Robin Wu  
 ( Robin Wu )



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 (Suzhou) Co., Ltd.

## Revision History

Report No.	Version	Description	Issue Date	Note
1808RSU022-U1	Rev. 01	Initial Report	09-25-2018	Valid

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## §2.1033 General Information

<b>Applicant:</b>	Calix Inc.
<b>Applicant Address:</b>	1035 N. McDowell Blvd Petaluma, CA94954 U.S.A
<b>Manufacturer:</b>	Calix Inc.
<b>Manufacturer Address:</b>	1035 N. McDowell Blvd Petaluma, CA94954 U.S.A
<b>Test Site:</b>	MRT Technology (Suzhou) Co., Ltd
<b>Test Site Address:</b>	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
<b>FCC Registration No.:</b>	893164
<b>IC Registration No.:</b>	11384A-1
<b>Test Device Serial No.:</b>	N/A <input type="checkbox"/> Production <input checked="" type="checkbox"/> Pre-Production <input type="checkbox"/> Engineering

### Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- MRT facility is a FCC registered (MRT Reg. No. 893164) test facility with the site description report on file and has met all the requirements specified in ANSI C63.4-2014.
- MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.
- MRT facility is a VCCI registered (R-20025, G-20034, C-20020, T-20020) test laboratory with the site description on file at VCCI Council.
- MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications, Radio and SAR testing.



# 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 Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The measurement facility compliant with the test site requirements specified in ANSI C63.4-2014.



## 2. PRODUCT INFORMATION

### 2.1. Equipment Description

Product Name:	WIFI dual band 4 GE LAN GPON HGU
Model No.:	844G-2, 854G-2, 844GE-2
Brand Name:	Calix
Wi-Fi Specification:	802.11a/b/g/n/ac
Frequency Range	<p><b><u>2.4GHz:</u></b>            For 802.11b/g/n-HT20: 2412 ~ 2462 MHz            For 802.11n-HT40: 2422 ~ 2452 MHz</p> <p><b><u>5GHz:</u></b>            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</p>
Type of Modulation	802.11b: DSSS, 802.11a/g/n/ac: OFDM
Modulation Type	CCK, DQPSK, DBPSK for DSSS 16QAM, 64QAM, 256QAM, QPSK, BPSK for OFDM
Power-on cycle	Requires 178.1 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 Type	Frequency Band (GHz)	T <sub>x</sub> Paths	Directional Gain (dBi)	
			Beam Forming	CDD
PCB Antenna	5.2	4	8.04	8.04
	5.3	4	7.78	7.78
	5.6	4	8.38	8.38
	5.8	4	8.70	8.70

Note:

1. The EUT working on Beam Forming technology with 802.11n/ac mode, and 802.11a working on CDD mode.
2. 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).
3. 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 =  $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{\text{ANT}}]$  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

Antenna RF Port						
--	2.4GHz RF Port		5GHz RF Port			
Software Control Port	Ant 0	Ant 1	Ant 0	Ant 1	Ant 2	Ant 3
						

## 2.4. DFS Band Carrier Frequencies Operation

### 802.11 a/n-HT20/ac-VHT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
52	5260 MHz	56	5280 MHz	60	5300 MHz
64	5320 MHz	100	5500 MHz	104	5520 MHz
108	5540 MHz	112	5560 MHz	116	5580 MHz
120	5600 MHz	124	5620 MHz	128	5640 MHz
132	5660 MHz	136	5680 MHz	140	5700 MHz
144	5720 MHz	--	--	--	--

### 802.11n-HT40/ac-VHT40

Channel	Frequency	Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz	102	5510 MHz
110	5550 MHz	118	5590 MHz	126	5630 MHz
134	5670 MHz	142	5710 MHz	--	--

### 802.11ac-VHT80

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

## 2.5. Test Mode

Test Mode	Mode 1: Communication with Notebook
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### 3. DFS DETECTION THRESHOLDS AND RADAR TEST WAVEFORMS

#### 3.1. Applicability

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

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

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

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

Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar Detection	Client Without Radar Detection
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required

Note: Frequencies selected for statistical performance check should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.

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

### 3.2. DFS Devices Requirements

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

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

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

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

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

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

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

**Table 3-3: DFS Response Requirements**

### 3.3. DFS Detection Threshold Values

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

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

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

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

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

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

### 3.4. Parameters of DFS Test Signals

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

**Short Pulse Radar Test Waveforms**

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

**Table 3-5: Parameters for Short Pulse Radar Waveforms**

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

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

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

### Long Pulse Radar Test Waveform

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

**Table 3-7: Parameters for Long Pulse Radar Waveforms**

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

### Frequency Hopping Radar Test Waveform

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

**Table 3-8: Parameters for Frequency Hopping Radar Waveforms**

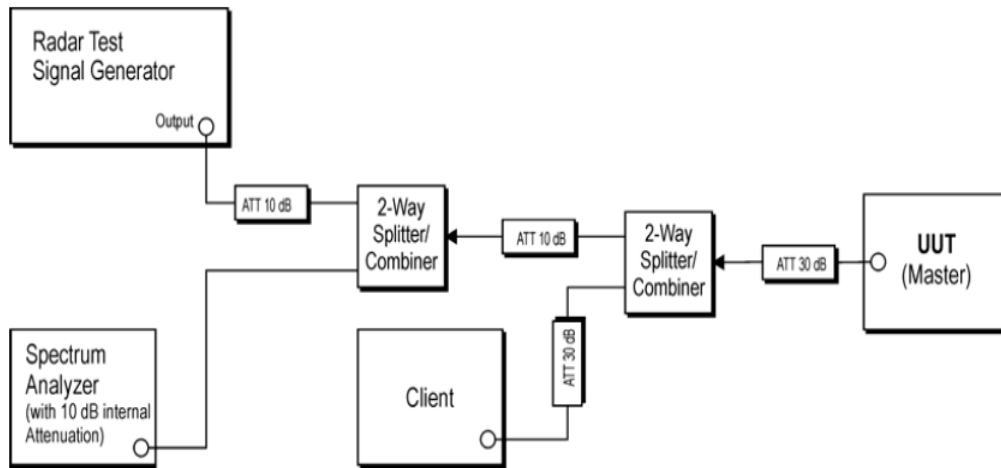
For the Frequency Hopping Radar Type, the same Burst parameters are used for each waveform. The hopping sequence is different for each waveform and a 100-length segment is selected from the hopping sequence defined by the following algorithm:

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



### 3.5. Conducted Test Setup

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



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

#### 4. TEST EQUIPMENT CALIBRATION DATE

Dynamic Frequency Selection (DFS) - TR4

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2019/04/20
Vector Signal Generator	Agilent	E4438C	MRTSUE06026	1 year	2018/12/08
Thermohygrometer	Testo	608-H1	MRTSUE06222	1 year	2018/11/21

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

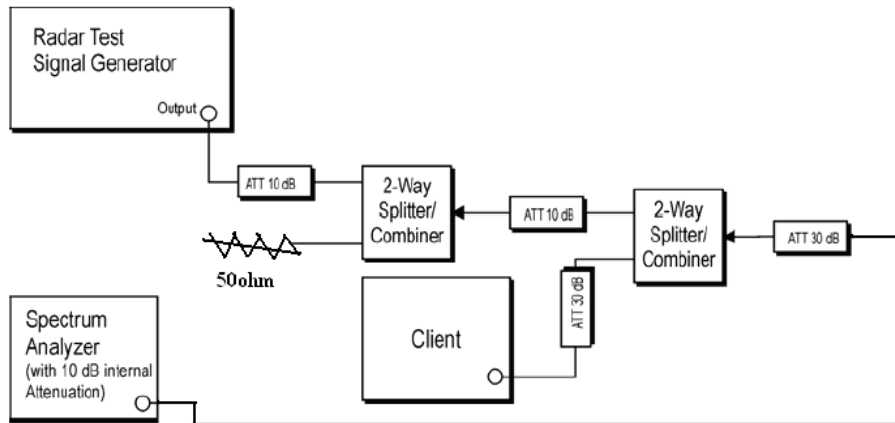
**Product Name:**                    **WIFI dual band 4 GE LAN GPON HGU**  
**FCC ID:**                            **2ABLK-8X4G-2V2**  
**IC:**                                    **4009A-8X4G2**

Parameter	Limit	Test Result	Reference
NII Detection Bandwidth Measurement	Refer Table 3-3	Pass	Section 5.4
Initial Channel Availability Check Time	Refer Table 3-3	Pass	Section 5.5
Radar Burst at the Beginning of the Channel Availability Check Time	Refer Table 3-3	Pass	Section 5.6
Radar Burst at the End of the Channel Availability Check Time	Refer Table 3-3	Pass	Section 5.7
In-Service Monitoring for Channel Move Time, Channel Closing Transmission Time	Refer Table 3-3	Pass	Section 5.8
Non-Occupancy Period	Refer Table 3-3	Pass	Section 5.8
Statistical Performance Check	Refer Table 3-3	Pass	Section 5.9

## 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.



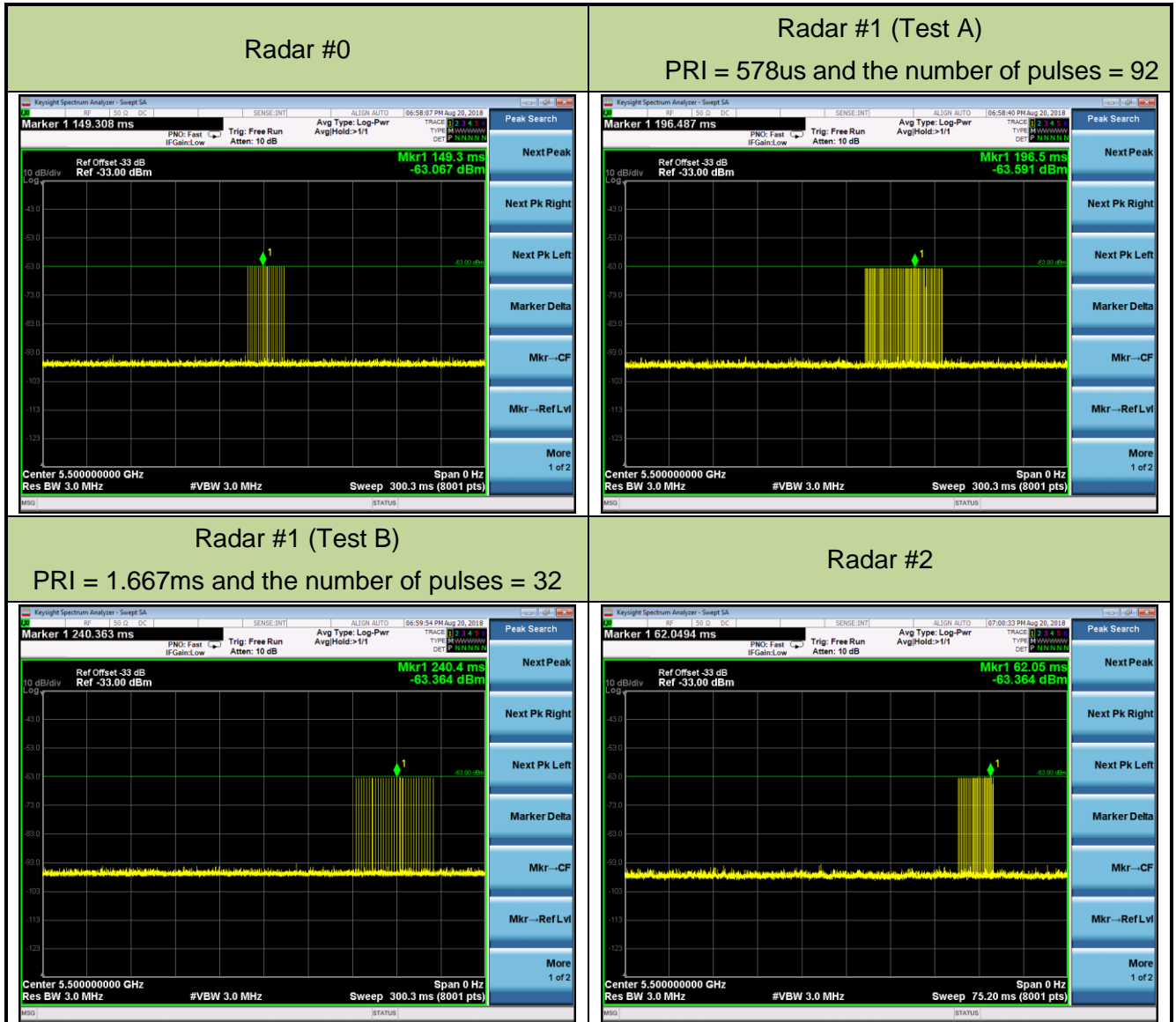
**Figure 3-2: Conducted Test Setup**

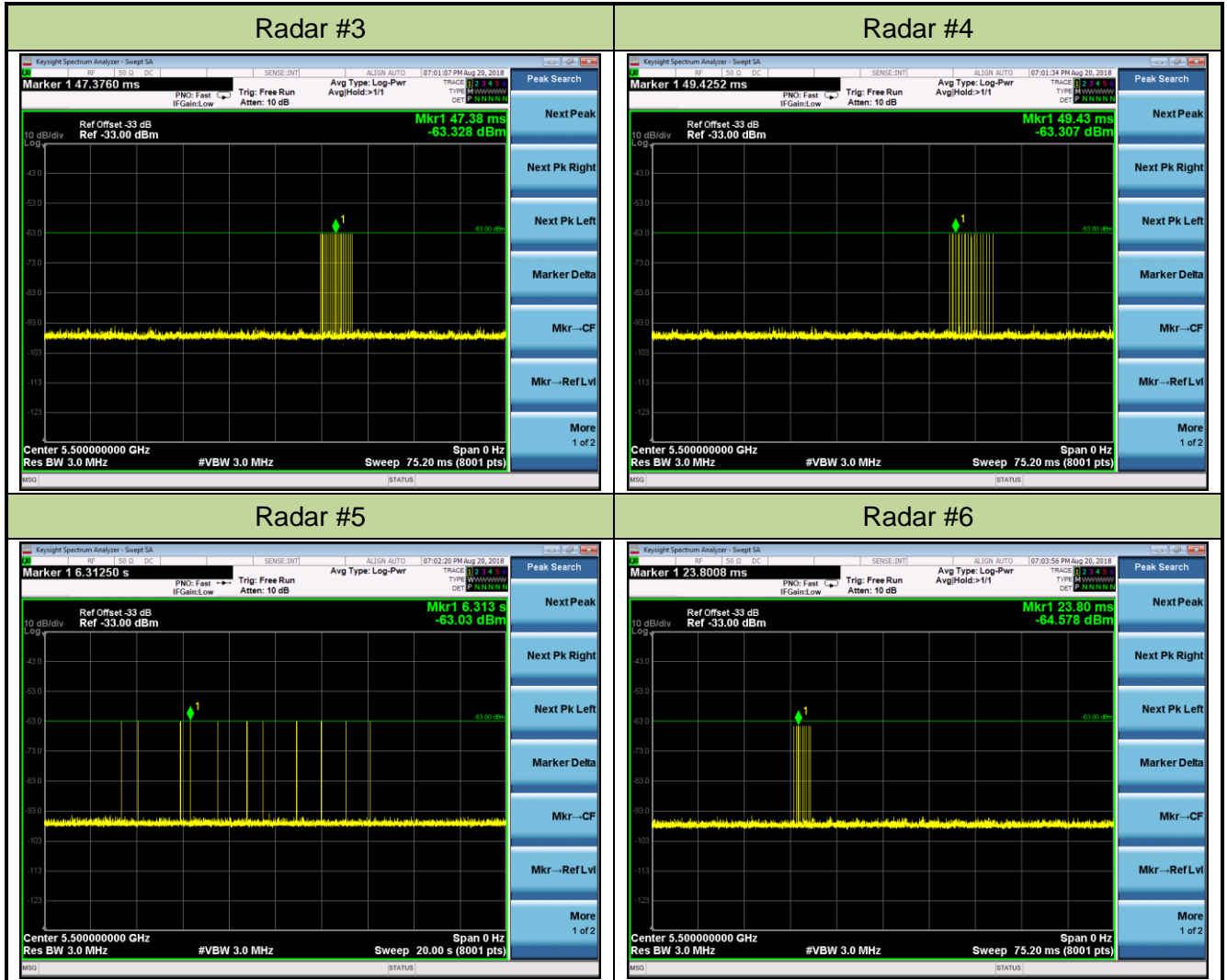
### 5.2.2. Calibration Procedure

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

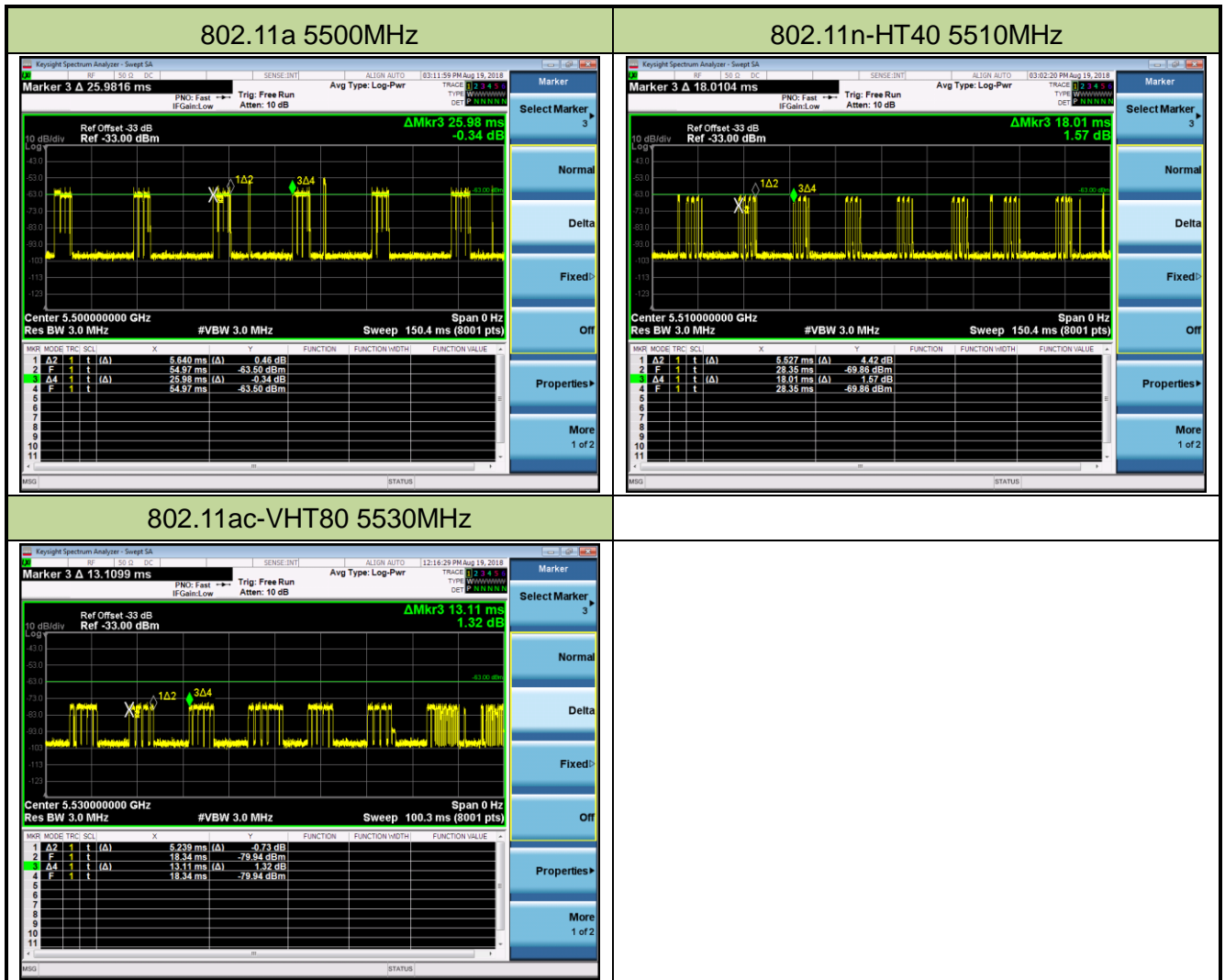
Product	WIFI dual band 4 GE LAN GPON HGU	Temperature	27°C
Test Engineer	Amy Zhang	Relative Humidity	65%
Test Site	TR5	Test Date	2018/08/20
Test Item	Radar Waveform Calibration		





### 5.2.4. Channel Loading Test Result

Product	WIFI dual band 4 GE LAN GPON HGU	Temperature	27°C
Test Engineer	Amy Zhang	Relative Humidity	65%
Test Site	TR5	Test Date	2018/08/19
Test Item	Channel Loading		



Test Mode	Test Frequency	Packet ratio	Requirement ratio	Test Result
802.11a	5500 MHz	21.71%	≥ 17%	Pass
802.11n-HT40	5510 MHz	30.69%	≥ 17%	Pass
802.11ac-VHT80	5530 MHz	39.96%	≥ 17%	Pass

Note: System testing was performed with the designated iperf test file. This file is used by IP and Frame based systems for loading the test channel during the In-service compliance testing of the U-NII device. Packet ratio = Time On / (Time On + Off Time).

### 5.3. NII Detection Bandwidth Measurement

#### 5.3.1. Test Limit

Minimum 100% of the NII 99% transmission power bandwidth. During the U-NII Detection Bandwidth detection test, each frequency step the minimum percentage of detection is 90 percent.

Measurements are performed with no data traffic.

#### 5.3.2. Test Procedure

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



**5.3.3. Test Result**

Product	WIFI dual band 4 GE LAN GPON HGU	Temperature	27°C
Test Engineer	Amy Zhang	Relative Humidity	65%
Test Site	TR5	Test Date	2018/08/24
Test Item	Detection Bandwidth (802.11a mode – 5500MHz)		

Radar Frequency (MHz)	DFS Detection Trials (1=Detection, 0= No Detection)										Detection Rate (%)
	1	2	3	4	5	6	7	8	9	10	
5490	0	0	0	0	0	0	0	0	0	0	0%
5491 FL	1	1	1	1	1	1	1	1	1	1	100%
5492	1	1	1	1	1	1	1	1	1	1	100%
5493	1	1	1	1	1	1	1	1	1	1	100%
5494	1	1	1	1	1	1	1	1	1	1	100%
5495	1	1	1	1	1	1	1	1	1	1	100%
5500	1	1	1	1	1	1	1	1	1	1	100%
5505	1	1	1	1	1	1	1	1	1	1	100%
5506	1	1	1	1	1	1	1	1	1	1	100%
5507	1	1	1	1	1	1	1	1	1	1	100%
5508	1	1	1	1	1	1	1	1	1	1	100%
5509 FH	1	1	1	1	1	1	1	1	1	1	100%
5510	0	0	0	0	0	0	0	0	0	0	0%

Note 1: All NII channels for this device have identical Channel bandwidths. Therefore, all DFS testing was done at 5500MHz. The 99% channel bandwidth is 16.80MHz. (See the 99% BW section of the RF report for further measurement details).

Note 2: Detection Bandwidth = FH - FL = 5309MHz - 5291MHz = 18MHz.

Note 3: NII Detection Bandwidth Min. Limit (MHz): 16.80MHz x 100% = 16.80MHz.

Product	WIFI dual band 4 GE LAN GPON HGU	Temperature	27°C
Test Engineer	Amy Zhang	Relative Humidity	65%
Test Site	TR5	Test Date	2018/08/24
Test Item	Detection Bandwidth (802.11n-HT40 mode – 5510MHz)		

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

Note 1: All NII channels for this device have identical Channel bandwidths. Therefore, all DFS testing was done at 5510MHz. The 99% channel bandwidth is 36.45MHz. (See the 99% BW section of the RF report for further measurement details).

Note 2: Detection Bandwidth = FH - FL = 5329MHz - 5292MHz = 37MHz.

Note 3: NII Detection Bandwidth Min. Limit (MHz): 36.45MHz x 100% = 36.45MHz.



Product	WIFI dual band 4 GE LAN GPON HGU	Temperature	27°C
Test Engineer	Amy Zhang	Relative Humidity	65%
Test Site	TR5	Test Date	2018/08/25
Test Item	Detection Bandwidth (802.11ac-VHT80 mode – 5530MHz)		

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

Note 1: All NII channels for this device have identical Channel bandwidths. Therefore, all DFS testing was done at 5530MHz. The 99% channel bandwidth is 75.15MHz. (See the 99% BW section of the RF report for further measurement details).

Note 2: Detection Bandwidth = FH - FL = 5329MHz - 5251MHz = 78MHz.

Note 3: NII Detection Bandwidth Min. Limit (MHz):  $75.15\text{MHz} \times 100\% = 75.15\text{MHz}$ .

## **5.4. Initial Channel Availability Check Time Measurement**

### **5.4.1. Test Limit**

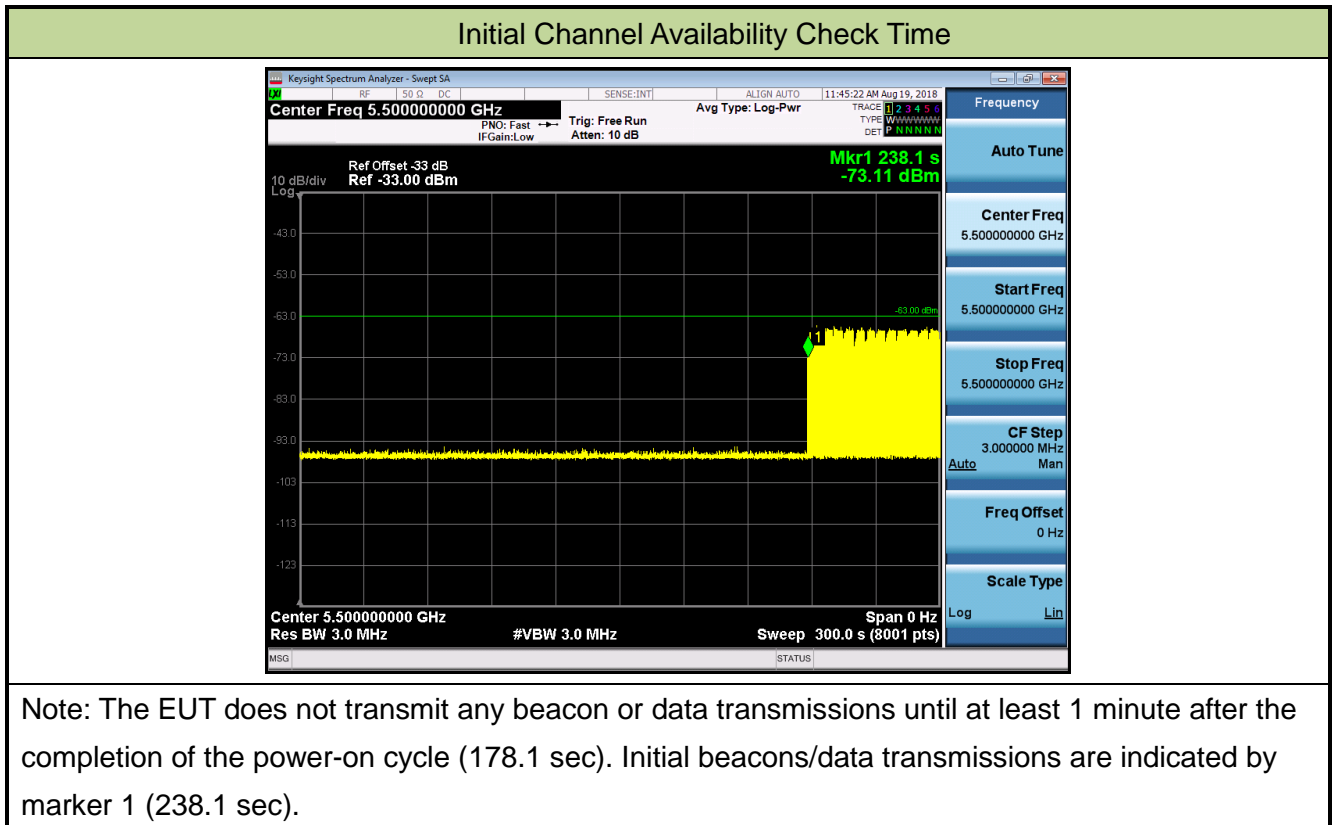
The EUT shall perform a Channel Availability Check to ensure that there is no radar operating on the channel. After power-up sequence, receive at least 1 minute on the intended operating frequency.

### **5.4.2. Test Procedure**

1. The U-NII devices will be powered on and be instructed to operate on the appropriate U-NII Channel that must incorporate DFS functions. At the same time the EUT is powered on, the spectrum analyzer will be set to zero span mode with a 3 MHz RBW and 3 MHz VBW on the Channel occupied by the radar (Chr) with a 2.5 minute sweep time. The spectrum analyzer's sweep will be started at the same time power is applied to the U-NII device.
2. The EUT should not transmit any beacon or data transmissions until at least 1 minute after the completion of the power-on cycle.
3. Confirm that the EUT initiates transmission on the channel. Measurement system showing its nominal noise floor is marker1.

5.4.3. Test Result

Product	WIFI dual band 4 GE LAN GPON HGU	Temperature	27°C
Test Engineer	Amy Zhang	Relative Humidity	65%
Test Site	TR5	Test Date	2018/08/19
Test Item	Initial Channel Availability Check Time (802.11a mode – 5500MHz)		



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

### **5.5.1. Test Limit**

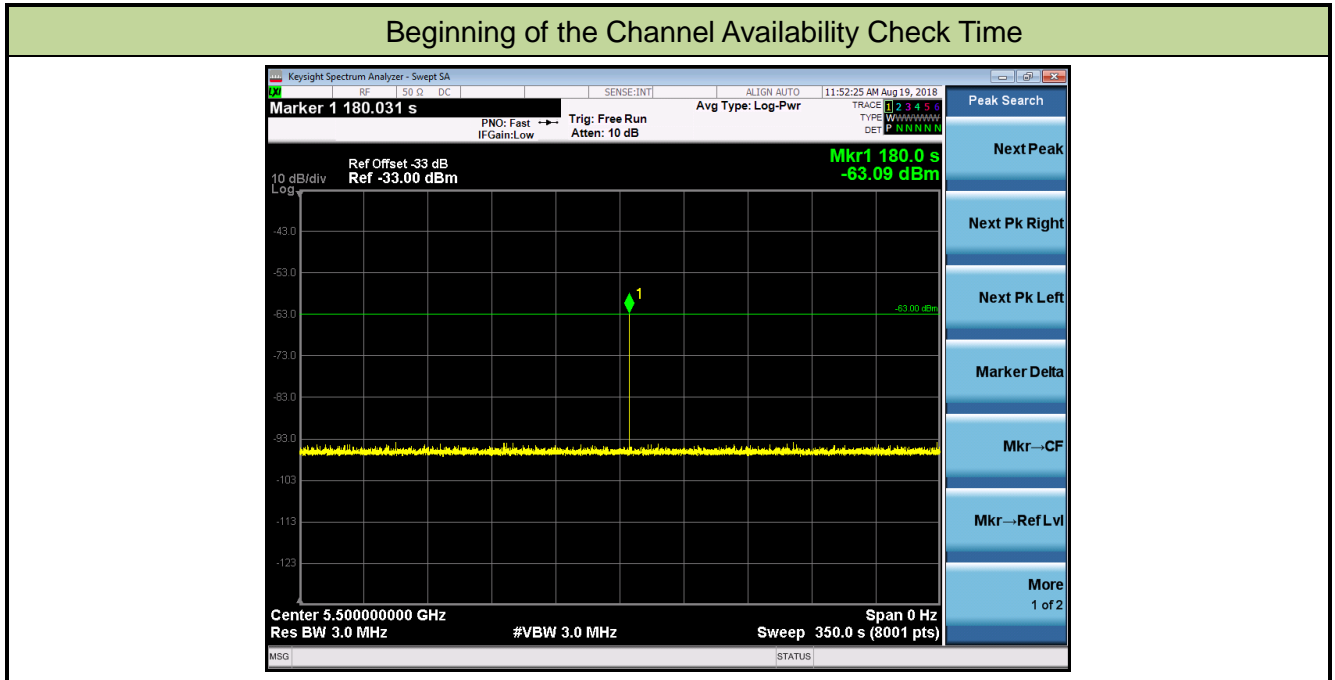
In beginning of the Channel Availability Check (CAC) Time, radar is detected on this channel, select another intended channel and perform a CAC on that channel.

### **5.5.2. Test Procedure**

1. The steps below define the procedure to verify successful radar detection on the selected Channel during a period equal to the Channel Availability Check Time and avoidance of operation on that Channel when a radar Burst with a level equal to the DFS Detection Threshold + 1 dB occurs at the beginning of the Channel Availability Check Time.
2. The EUT is in completion power-up cycle (from T0 to T1). T1 denotes the instant when the EUT has completed its power-up sequence. The Channel Availability Check Time commences at instant T1 and will end no sooner than T1 + 60 seconds. A single Burst of one of Short Pulse Radar Types 0-4 at DFS Detection Threshold + 1 dB will commence within a 6 second window starting at T1.
3. Visual indication on the EUT of successful detection of the radar Burst will be recorded and reported. Observation of emissions will continue for 2.5 minutes after the radar Burst has been generated. Verify that during the 2.5 minutes measurement window no EUT transmissions occurred.

### 5.5.3. Test Result

Product	WIFI dual band 4 GE LAN GPON HGU	Temperature	27°C
Test Engineer	Amy Zhang	Relative Humidity	65%
Test Site	TR5	Test Date	2018/08/19
Test Item	Beginning of the Channel Availability Check Time (802.11a mode – 5500MHz)		





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

### **5.6.1. Test Limit**

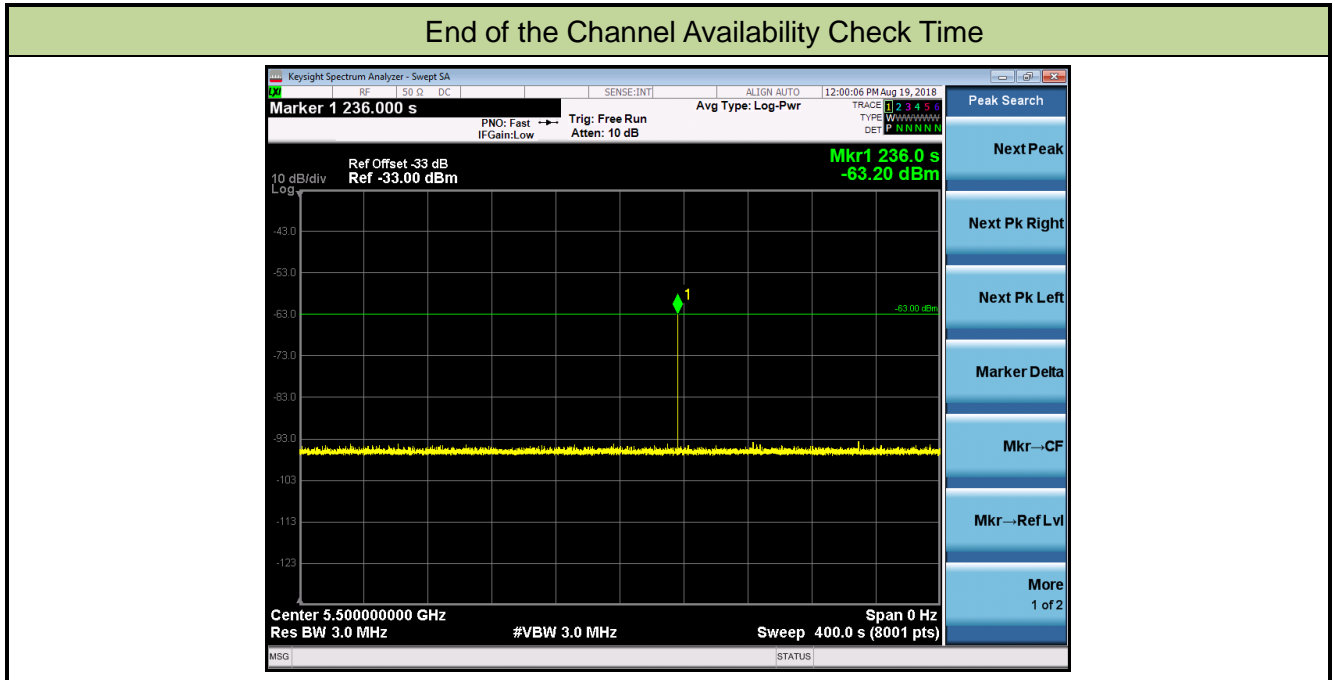
In the end of Channel Availability Check (CAC) Time, radar is detected on this channel, select another intended channel and perform a CAC on that channel.

### **5.6.2. Test Procedure**

1. The steps below define the procedure to verify successful radar detection on the selected Channel during a period equal to the Channel Availability Check Time and avoidance of operation on that Channel when a radar Burst with a level equal to the DFS Detection Threshold + 1 dB occurs at the beginning of the Channel Availability Check Time.
2. The EUT is powered on at T0. T1 denotes the instant when the EUT has completed its power-up sequence. The Channel Availability Check Time commences at instant T1 and will end no sooner than T1 + 60 seconds. A single Burst of one of Short Pulse Radar Types 0-4 at DFS Detection Threshold + 1 dB will commence within a 6 second window starting at T1+ 54 seconds.
3. Visual indication on the EUT of successful detection of the radar Burst will be recorded and reported. Observation of emissions will continue for 2.5 minutes after the radar Burst has been generated. Verify that during the 2.5 minutes measurement window no EUT transmissions occurred.

5.6.3. Test Result

Product	WIFI dual band 4 GE LAN GPON HGU	Temperature	27°C
Test Engineer	Amy Zhang	Relative Humidity	65%
Test Site	TR5	Test Date	2018/08/19
Test Item	End of the Channel Availability Check Time (802.11a mode – 5500MHz)		



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

### **5.7.1. Test Limit**

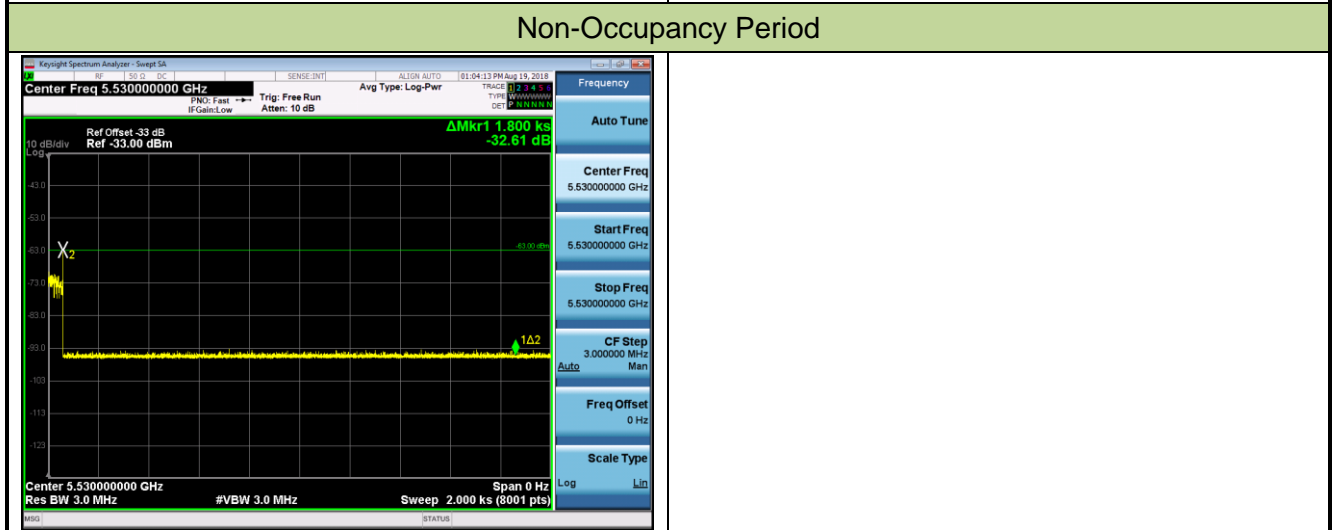
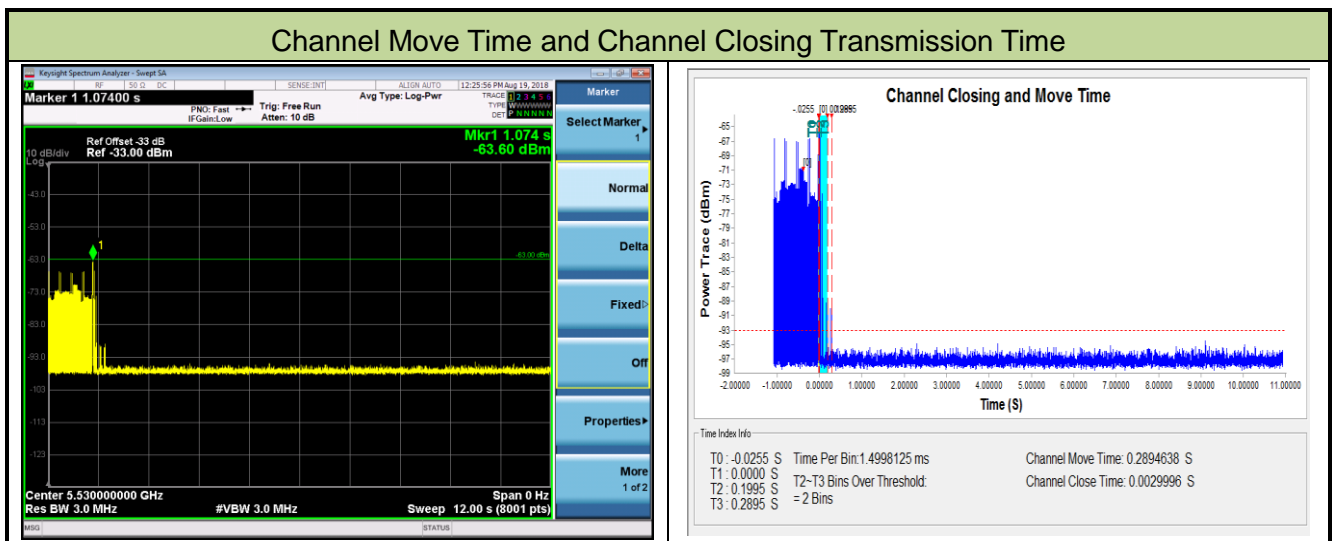
The EUT has In-Service Monitoring function to continuously monitor the radar signals. If the radar is detected, must leave the channel (Shutdown). The Channel Move Time to cease all transmissions on the current channel upon detection of a Radar Waveform above the DFS Detection Threshold within 10 sec. The total duration of Channel Closing Transmission Time is 260ms, consisting of data signals and the aggregate of control signals, by a U-NII device during the Channel Move Time. The Non-Occupancy Period time is 30 minute during which a Channel will not be utilized after a Radar Waveform is detected on that Channel.

### **5.7.2. Test Procedure Used**

1. The test should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0.
2. When the radar burst with a level equal to the DFS Detection Threshold + 1dB is generated on the Operating Channel of the U-NII device. A U-NII device operating as a Master Device will associate with the Client Device at Channel. Stream the MPEG test file from the Master Device to the Client Device on the selected Channel for the entire period of the test. At time T0 the Radar Waveform generator sends a Burst of pulses for each of the radar types at Detection Threshold + 1dB.
3. Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the EUT during the observation time (Channel Move Time).
4. Measurement of the aggregate duration of the Channel Closing Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by:  $Dwell (1.5ms) = S (12 \text{ sec}) / B (8000)$ ; where Dwell is the dwell time per spectrum analyzer sampling bin, S is the sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by:  $C = N \times Dwell$ ; where C is the Closing Time, N is the number of spectrum analyzer sampling bins showing a U-NII transmission and Dwell is the dwell time per bin.
5. Measure the EUT for more than 30 minutes following the channel close/move time to verify that the EUT does not resume any transmissions on this Channel.

### 5.7.3. Test Result

Product	WIFI dual band 4 GE LAN GPON HGU	Temperature	27°C
Test Engineer	Amy Zhang	Relative Humidity	65%
Test Site	TR5	Test Date	2018/08/19
Test Item	Channel Move Time and Channel Closing Transmission Time (802.11ac-VHT80 mode – 5530MHz)		



Parameter	Test Result	Limit
	Type 0	
Channel Move Time (s)	0.289s	<10s
Channel Closing Transmission Time (ms) (Note)	3.0ms	< 60ms
Non-Occupancy Period (min)	≥ 30min	≥ 30 min
<p>Note: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 seconds period. The aggregate duration of control signals will not count quiet periods in between transmissions.</p>		

## 5.8. Statistical Performance Check Measurement

### 5.8.1. Test Limit

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

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

Note: The percentage of successful detection is calculated by:  
 $(\text{Total Waveform Detections} / \text{Total Waveform Trails}) * 100 = \text{Probability of Detection Radar}$   
 Waveform In addition an aggregate minimum percentage of successful detection across all Short Pulse Radar Types 1-4 is required and is calculated as follows:  $(Pd1 + Pd2 + Pd3 + Pd4) / 4$ .

### 5.8.2. Test Procedure

1. Stream the MPEG test file from the Master Device to the Client Device on the test Channel for the entire period of the test.
2. At time T0 the Radar Waveform generator sends the individual waveform for each of the Radar Types 1-6, at levels equal to the DFS Detection Threshold + 1dB, on the Operating Channel.
3. Observe the transmissions of the EUT at the end of the Burst on the Operating Channel for duration greater than 10 seconds for Short Pulse Radar Types 0 to ensure detection occurs.
4. Observe the transmissions of the EUT at the end of the Burst on the Operating Channel for duration greater than 22 seconds for Long Pulse Radar Type 5 to ensure detection occurs.
5. The device can utilize a test mode to demonstrate when detection occurs to prevent the need to reset the device between trial runs.
6. The Minimum number of trails, minimum percentage of successful detection and the average minimum percentage of successful detection are found in below table.

### 5.8.3. Test Result

Product	WIFI dual band 4 GE LAN GPON HGU	Temperature	27°C
Test Engineer	Amy Zhang	Relative Humidity	65%
Test Site	TR5	Test Date	2018/08/25
Test Item	Radar Statistical Performance Check (802.11a mode – 5500MHz)		

#### Radar Type 1 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	1	718	74	1
2	5491	1	698	76	1
3	5491	1	598	89	1
4	5491	1	678	78	1
5	5491	1	778	68	1
6	5491	1	638	83	1
7	5491	1	658	81	1
8	5491	1	538	99	1
9	5491	1	738	72	1
10	5491	1	838	63	1
11	5500	1	858	62	1
12	5500	1	578	92	1
13	5500	1	898	59	1
14	5500	1	618	86	1
15	5500	1	3066	18	1
16	5500	1	2242	24	1
17	5500	1	1008	53	1
18	5500	1	2088	26	1
19	5500	1	2411	22	1
20	5500	1	2153	25	1
21	5509	1	2302	23	1
22	5509	1	894	60	1
23	5509	1	2368	23	1
24	5509	1	3014	18	1
25	5509	1	779	68	1
26	5509	1	2311	23	1



Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
27	5509	1	2848	19	1
28	5509	1	1848	29	1
29	5509	1	646	82	1
30	5509	1	1782	30	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	2.9	167	29	1
2	5491	2.6	171	23	1
3	5491	2.9	168	26	1
4	5491	2.6	200	27	1
5	5491	3.3	188	28	1
6	5491	2.3	218	24	1
7	5491	3.7	173	29	1
8	5491	3.1	208	27	1
9	5491	4.2	186	28	1
10	5491	3.0	218	26	1
11	5500	1.2	223	27	1
12	5500	4.2	204	25	1
13	5500	2.7	169	24	1
14	5500	2.8	175	28	1
15	5500	2.3	157	26	1
16	5500	2.1	178	28	1
17	5500	2.2	202	27	1
18	5500	4.5	183	25	1
19	5500	2.6	156	29	1
20	5500	3.6	190	23	1
21	5509	2.5	188	27	1
22	5509	3.1	183	24	1
23	5509	1.1	208	24	1
24	5509	1.4	175	28	1
25	5509	4.1	226	24	1
26	5509	1.5	212	24	1
27	5509	2.7	159	23	1
28	5509	4.0	187	23	1
29	5509	1.0	194	29	1
30	5509	2.7	228	24	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	9.8	404	16	1
2	5491	9.6	262	18	1
3	5491	7.5	433	17	1
4	5491	9.2	356	18	1
5	5491	6.0	265	17	1
6	5491	8.7	340	17	1
7	5491	8.1	336	16	1
8	5491	6.3	306	16	1
9	5491	9.2	485	16	1
10	5491	9.4	326	16	1
11	5500	7.3	267	17	1
12	5500	9.3	495	18	1
13	5500	8.3	280	17	1
14	5500	9.1	268	18	1
15	5500	9.3	306	18	1
16	5500	9.4	476	17	1
17	5500	8.6	253	17	1
18	5500	8.2	458	16	1
19	5500	6.9	460	16	1
20	5500	9.6	346	16	1
21	5509	6.5	296	18	1
22	5509	7.5	419	17	1
23	5509	8.6	421	16	1
24	5509	6.4	351	18	1
25	5509	6.0	361	18	1
26	5509	6.4	413	18	1
27	5509	7.6	369	16	1
28	5509	8.0	305	16	1
29	5509	7.6	459	18	1
30	5509	8.2	389	16	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	14.8	275	12	1
2	5491	12.5	498	13	1
3	5491	13.2	472	15	1
4	5491	11.9	252	12	1
5	5491	18.8	257	13	1
6	5491	19.9	364	16	1
7	5491	14.0	316	14	1
8	5491	19.2	312	13	1
9	5491	13.5	333	14	1
10	5491	12.9	351	16	1
11	5500	14.9	423	16	1
12	5500	18.6	482	14	1
13	5500	19.9	258	14	1
14	5500	17.0	447	13	1
15	5500	13.4	432	15	1
16	5500	15.1	402	15	1
17	5500	11.7	430	13	1
18	5500	12.2	276	16	1
19	5500	14.7	350	13	1
20	5500	15.0	481	14	1
21	5509	11.1	411	12	1
22	5509	11.3	381	16	1
23	5509	19.9	454	13	1
24	5509	16.1	373	16	1
25	5509	19.5	416	14	1
26	5509	16.1	273	14	1
27	5509	14.3	340	13	1
28	5509	13.3	448	14	1
29	5509	17.1	466	14	1
30	5509	13.0	285	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:  $\frac{P_d1+P_d2+P_d3+P_d4}{4} = (100\%+100\%+100\%+100\%)/4 = 100\%$

4

(>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	5495.8	1	16	5500.0	1
2	5493.0	1	17	5500.0	1
3	5493.4	1	18	5500.0	1
4	5498.6	1	19	5500.0	1
5	5497.8	1	20	5500.0	1
6	5495.0	1	21	5505.8	1
7	5496.6	1	22	5502.2	1
8	5498.2	1	23	5501.8	1
9	5494.2	1	24	5506.6	1
10	5494.6	1	25	5505.4	1
11	5500.0	1	26	5505.0	1
12	5500.0	1	27	5501.4	1
13	5500.0	1	28	5504.2	1
14	5500.0	1	29	5507.0	1
15	5500.0	1	30	5503.4	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	541096	2	12	100	1253	1447	0	541096	0	999999
2	986501	1	12	50	1860	0	0	1530297	1000000	1999999
3	1203876	3	12	75	1366	1041	1023	2736033	2000000	2999999
4	422104	2	12	55	1427	1438	0	3161567	3000000	3999999
5	1434952	1	12	50	1227	0	0	4599384	4000000	4999999
6	501555	2	12	85	1286	1586	0	5102166	5000000	5999999
7	1169762	2	12	70	1473	1089	0	6274800	6000000	6999999
8	748281	1	12	90	1210	0	0	7025643	7000000	7999999
9	1088353	3	12	70	1111	1688	1251	8115206	8000000	8999999
10	1161801	2	12	50	1998	1740	0	9281057	9000000	9999999
11	1412326	2	12	85	1429	1167	0	10697121	10000000	10999999
12	764862	2	12	95	1240	1135	0	11464579	11000000	11999999
Total number of pulses in waveform = 23										
*****										



### Type 5 Radar Waveform\_2

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	638258	3	5	65	1542	1925	1397	638258	0	799999
2	199432	1	5	100	1001	0	0	842554	800000	1599999
3	1460508	2	5	85	1560	1274	0	2304063	1600000	2399999
4	583052	2	5	55	1115	1298	0	2889949	2400000	3199999
5	560223	1	5	80	1604	0	0	3452585	3200000	3999999
6	840661	3	5	75	1667	1953	1541	4294850	4000000	4799999
7	583207	1	5	60	1886	0	0	4883218	4800000	5599999
8	918033	2	5	80	1622	1358	0	5803137	5600000	6399999
9	827028	1	5	85	1997	0	0	6633145	6400000	7199999
10	1024569	2	5	60	1210	1600	0	7659711	7200000	7999999
11	703654	3	5	100	1131	1367	1562	8366175	8000000	8799999
12	577360	3	5	95	1947	1506	1952	8947595	8800000	9599999
13	1065678	3	5	55	1701	1169	1993	10018678	9600000	10399999
14	1121773	3	5	60	1322	1073	1036	11145314	10400000	11199999
15	780392	2	5	80	1369	1910	0	11929137	11200000	11999999

Total number of pulses in waveform = 32  
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### Type 5 Radar Waveform\_3

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	44504	1	6	100	1485	0	0	44504	0	705881
2	1336753	2	6	70	1260	1190	0	1382742	705882	1411763
3	100448	1	6	55	1697	0	0	1485640	1411764	2117645
4	716668	2	6	90	1370	1466	0	2204005	2117646	2823527
5	807780	1	6	60	1897	0	0	3014621	2823528	3529409
6	565350	3	6	60	1013	1454	1475	3581868	3529410	4235291
7	1211032	1	6	95	1143	0	0	4796842	4235292	4941173
8	302983	1	6	100	1685	0	0	5100968	4941174	5647055
9	992607	2	6	50	1518	1952	0	6095260	5647056	6352937
10	321471	2	6	55	1561	1206	0	6420201	6352938	7058819
11	1271540	2	6	50	1475	1763	0	7694508	7058820	7764701
12	625440	2	6	90	1441	1228	0	8323186	7764702	8470583
13	471457	3	6	90	1222	1520	1383	8797312	8470584	9176465
14	493947	2	6	100	1047	1120	0	9295384	9176466	9882347
15	642738	3	6	55	1047	1788	1034	9940289	9882348	10588229
16	677991	1	6	65	1920	0	0	10622149	10588230	11294111
17	1175202	1	6	70	1543	0	0	11799271	11294112	11999993

Total number of pulses in waveform = 30  
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### 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	772801	1	19	50	1601	0	0	772801	0	799999
2	726467	2	19	55	1191	1255	0	1500869	800000	1599999
3	450613	1	19	55	1547	0	0	1953928	1600000	2399999
4	1195933	3	19	100	1509	1472	1281	3151408	2400000	3199999
5	563390	1	19	60	1786	0	0	3719060	3200000	3999999
6	990856	1	19	95	1651	0	0	4711702	4000000	4799999
7	550556	1	19	95	1832	0	0	5263909	4800000	5599999
8	1005105	3	19	95	1653	1249	1194	6270846	5600000	6399999
9	314090	2	19	75	1211	1582	0	6589032	6400000	7199999
10	1189430	2	19	50	1207	1735	0	7781255	7200000	7999999
11	684515	3	19	95	1276	1560	1532	8468712	8000000	8799999
12	982576	1	19	95	1912	0	0	9455656	8800000	9599999
13	479712	2	19	75	1723	1867	0	9937280	9600000	10399999
14	1020868	1	19	85	1435	0	0	10961738	10400000	11199999
15	483284	2	19	95	1535	1428	0	11446457	11200000	11999999

Total number of pulses in waveform = 26  
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### Type 5 Radar Waveform\_5

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	256895	2	17	60	1473	1609	0	256895	0	749999
2	981477	2	17	80	1216	1505	0	1241454	750000	1499999
3	436238	2	17	60	1971	1172	0	1680413	1500000	2249999
4	675310	3	17	70	1504	1829	1869	2358866	2250000	2999999
5	1279473	3	17	85	1498	1712	1935	3643541	3000000	3749999
6	271890	3	17	50	1680	1922	1612	3920576	3750000	4499999
7	988260	2	17	70	1170	1163	0	4914050	4500000	5249999
8	707868	3	17	80	1384	1530	1310	5624251	5250000	5999999
9	758324	3	17	70	1670	1330	1492	6386799	6000000	6749999
10	824244	1	17	90	1443	0	0	7215535	6750000	7499999
11	934513	2	17	85	1830	1653	0	8151491	7500000	8249999
12	786836	1	17	95	1937	0	0	8941810	8250000	8999999
13	99494	2	17	95	1846	1775	0	9043241	9000000	9749999
14	1062070	3	17	100	1592	1752	1355	10108932	9750000	10499999
15	990768	3	17	60	1313	1063	1552	11104399	10500000	11249999
16	575229	1	17	65	1807	0	0	11683556	11250000	11999999

Total number of pulses in waveform = 36  
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### 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	212330	2	10	65	1944	1903	0	212330	0	749999
2	1245728	2	10	90	1255	1470	0	1461905	750000	1499999
3	327137	3	10	50	1842	1796	1596	1791767	1500000	2249999
4	747785	3	10	90	1121	1200	1207	2544786	2250000	2999999
5	618707	2	10	65	1365	1634	0	3167021	3000000	3749999
6	652435	3	10	65	1795	1554	1717	3822455	3750000	4499999
7	709290	3	10	95	1046	1719	1029	4536811	4500000	5249999
8	1408251	1	10	65	1187	0	0	5948856	5250000	5999999
9	460238	1	10	85	1869	0	0	6410281	6000000	6749999
10	692777	2	10	70	1807	1493	0	7104927	6750000	7499999
11	440603	2	10	80	1525	1296	0	7548830	7500000	8249999
12	1052377	1	10	50	1553	0	0	8604028	8250000	8999999
13	553926	2	10	90	1594	1053	0	9159507	9000000	9749999
14	1068273	2	10	70	1747	1148	0	10230427	9750000	10499999
15	480707	3	10	55	1182	1302	1176	10714029	10500000	11249999
16	829717	2	10	60	1032	1875	0	11547406	11250000	11999999

Total number of pulses in waveform = 34  
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### Type 5 Radar Waveform\_7

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	112630	3	14	70	1762	1300	1352	112630	0	857142
2	1395075	1	14	80	1606	0	0	1512119	857143	1714285
3	745553	3	14	80	1339	1969	1890	2259278	1714286	2571428
4	481920	1	14	85	1746	0	0	2746396	2571429	3428571
5	865510	2	14	85	1438	1891	0	3613652	3428572	4285714
6	1164806	1	14	65	1369	0	0	4781787	4285715	5142857
7	559402	1	14	80	1966	0	0	5342558	5142858	6000000
8	1283117	2	14	55	1852	1351	0	6627641	6000001	6857143
9	340547	3	14	75	1756	1864	1903	6971391	6857144	7714286
10	1380651	1	14	95	1160	0	0	8357565	7714287	8571429
11	983725	1	14	85	1846	0	0	9342450	8571430	9428572
12	133303	2	14	70	1400	1776	0	9477599	9428573	10285715
13	1426162	3	14	95	1182	1507	1515	10906937	10285716	11142858
14	531262	3	14	80	1338	1961	1950	11442403	11142859	12000001

Total number of pulses in waveform = 27  
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### 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	195999	3	18	80	1922	1571	1718	195999	0	1090908
2	1412920	2	18	50	1847	1151	0	1614130	1090909	2181817
3	1315057	3	18	75	1480	1713	1786	2932185	2181818	3272726
4	1414944	1	18	50	1183	0	0	4352108	3272727	4363635
5	668004	1	18	55	1664	0	0	5021295	4363636	5454544
6	1348833	2	18	95	1755	1364	0	6371792	5454545	6545453
7	659580	1	18	50	1127	0	0	7034491	6545454	7636362
8	1204884	3	18	65	1754	1854	1221	8240502	7636363	8727271
9	1130429	3	18	60	1695	1262	1612	9375760	8727272	9818180
10	1433111	3	18	100	1901	1496	1928	10813440	9818181	10909089
11	666116	1	18	100	1648	0	0	11484881	10909090	11999998

Total number of pulses in waveform = 23  
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### Type 5 Radar Waveform\_9

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	499243	3	8	65	1421	1673	1992	499243	0	999999
2	1248776	2	8	55	1300	1404	0	1753105	1000000	1999999
3	349319	1	8	85	1000	0	0	2105128	2000000	2999999
4	1216323	2	8	80	1459	1498	0	3322451	3000000	3999999
5	733844	1	8	70	1027	0	0	4059252	4000000	4999999
6	1083455	3	8	75	1642	1178	1407	5143734	5000000	5999999
7	1351106	3	8	65	1764	1292	1437	6499067	6000000	6999999
8	1177681	3	8	65	1317	1436	1660	7681241	7000000	7999999
9	789614	1	8	95	1712	0	0	8475268	8000000	8999999
10	1247575	1	8	95	1197	0	0	9724555	9000000	9999999
11	1037191	3	8	70	1486	1136	1377	10762943	10000000	10999999
12	402276	1	8	70	1810	0	0	11169218	11000000	11999999

Total number of pulses in waveform = 24  
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### Type 5 Radar Waveform\_10

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	344207	3	9	55	1059	1348	1377	344207	0	631578
2	574769	2	9	80	1153	1995	0	922760	631579	1263157
3	750461	3	9	90	1471	1834	1453	1676369	1263158	1894736
4	547751	1	9	55	2000	0	0	2228878	1894737	2526315
5	506995	1	9	95	1929	0	0	2737873	2526316	3157894
6	554224	1	9	65	1331	0	0	3294026	3157895	3789473
7	699832	2	9	55	1468	1004	0	3995189	3789474	4421052
8	560305	1	9	90	1727	0	0	4557966	4421053	5052631
9	798107	2	9	60	1633	1627	0	5317800	5052632	5684210
10	410848	1	9	80	1545	0	0	5731908	5684211	6315789
11	965276	3	9	70	1923	1215	1848	6698729	6315790	6947368
12	665262	3	9	55	1875	1205	1905	7368977	6947369	7578947
13	442983	3	9	100	1322	1680	1836	7816945	7578948	8210526
14	1007567	2	9	75	1355	1284	0	8829349	8210527	8842105
15	328255	3	9	60	1816	1696	1737	9160243	8842106	9473684
16	465559	3	9	50	1121	1791	1232	9631051	9473685	10105263
17	1064671	1	9	65	1057	0	0	10699866	10105264	10736842
18	451984	3	9	85	1246	1882	1318	11152907	10736843	11368421
19	525755	2	9	55	1905	1706	0	11683108	11368422	12000000

Total number of pulses in waveform = 40  
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### Type 5 Radar Waveform\_11

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	309948	1	9	70	1919	0	0	309948	0	599999
2	495179	3	9	60	1479	1920	1429	807046	600000	1199999
3	506480	2	9	55	1946	1727	0	1318354	1200000	1799999
4	528350	1	9	55	1814	0	0	1848377	1800000	2399999
5	934016	1	9	85	1551	0	0	2784207	2400000	2999999
6	460829	2	9	85	1977	1977	0	3246587	3000000	3599999
7	677553	2	9	50	1173	1307	0	3919416	3600000	4199999
8	599718	1	9	100	1219	0	0	4599449	4200000	4799999
9	673013	3	9	60	1516	1325	1161	5273681	4800000	5399999
10	599718	2	9	95	1130	1933	0	5877401	5400000	5999999
11	176757	1	9	55	1551	0	0	6057221	6000000	6599999
12	753941	3	9	50	1677	1065	1395	6812713	6600000	7199999
13	790226	1	9	50	1389	0	0	7607076	7200000	7799999
14	512221	2	9	90	1392	1760	0	8120686	7800000	8399999
15	463826	1	9	65	1049	0	0	8587684	8400000	8999999
16	968579	3	9	90	1591	1772	1250	9557292	9000000	9599999
17	133872	3	9	80	1684	1780	1920	9695777	9600000	10199999
18	892169	2	9	55	1047	1748	0	10593330	10200000	10799999
19	476757	2	9	65	1521	1382	0	11072882	10800000	11399999
20	719705	2	9	55	1556	1441	0	11795490	11400000	11999999

Total number of pulses in waveform = 38  
\*\*\*\*\*

### 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	275278	3	19	75	1372	1622	1988	275278	0	1199999
2	1798305	2	19	95	1451	1723	0	2078565	1200000	2399999
3	781837	2	19	50	1674	1175	0	2863576	2400000	3599999
4	1767068	2	19	95	1771	1681	0	4633493	3600000	4799999
5	950941	1	19	95	1546	0	0	5587886	4800000	5999999
6	1596735	2	19	75	1936	1505	0	7186167	6000000	7199999
7	543842	1	19	85	1878	0	0	7733450	7200000	8399999
8	1786456	3	19	55	1652	1336	1372	9521784	8400000	9599999
9	437897	2	19	60	1819	1065	0	9964041	9600000	10799999
10	1240290	2	19	65	1237	1912	0	11207215	10800000	11999999

Total number of pulses in waveform = 20  
\*\*\*\*\*

### Type 5 Radar Waveform\_13

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	1483569	1	6	50	1373	0	0	1483569	0	1499999
2	619802	2	6	50	1083	1996	0	2104744	1500000	2999999
3	1358339	1	6	75	1824	0	0	3466162	3000000	4499999
4	1069901	1	6	95	1354	0	0	4537887	4500000	5999999
5	2829569	2	6	100	1668	1701	0	7368810	6000000	7499999
6	923079	3	6	50	1999	1674	1475	8295258	7500000	8999999
7	1747229	1	6	75	1169	0	0	10047635	9000000	10499999
8	1806512	2	6	100	1653	1245	0	11855316	10500000	11999999

Total number of pulses in waveform = 13  
\*\*\*\*\*



### Type 5 Radar Waveform\_14

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	668321	3	8	75	1603	1371	1410	668321	0	705881
2	73433	1	8	55	1798	0	0	746138	705882	1411763
3	1121446	2	8	75	1019	1166	0	1869382	1411764	2117645
4	714490	1	8	50	1478	0	0	2586057	2117646	2823527
5	402753	2	8	90	1964	1203	0	2990288	2823528	3529409
6	903836	1	8	100	1400	0	0	3897291	3529410	4235291
7	1028852	3	8	95	1465	1932	1918	4927543	4235292	4941173
8	678268	1	8	95	1149	0	0	5611126	4941174	5647055
9	240702	1	8	55	1543	0	0	5852977	5647056	6352937
10	1124797	3	8	90	1617	1242	1875	6979317	6352938	7058819
11	199461	3	8	85	1292	1376	1302	7183512	7058820	7764701
12	1254881	1	8	90	1350	0	0	8442363	7764702	8470583
13	315573	3	8	55	1996	1524	1834	8759286	8470584	9176465
14	688851	2	8	100	1760	1546	0	9453491	9176466	9882347
15	571543	1	8	100	1945	0	0	10028340	9882348	10588229
16	682342	1	8	100	1350	0	0	10712627	10588230	11294111
17	1158338	2	8	100	1246	1912	0	11872315	11294112	11999993

Total number of pulses in waveform = 31  
\*\*\*\*\*

### Type 5 Radar Waveform\_15

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	526142	3	17	75	1132	1193	1837	526142	0	857142
2	667141	2	17	80	1212	1407	0	1197445	857143	1714285
3	929975	2	17	90	1002	1604	0	2130039	1714286	2571428
4	1273616	1	17	90	1450	0	0	3406261	2571429	3428571
5	845999	2	17	95	1414	1666	0	4253710	3428572	4285714
6	330386	1	17	85	1127	0	0	4587176	4285715	5142857
7	1303319	1	17	95	1634	0	0	5891622	5142858	6000000
8	904407	2	17	50	1145	1074	0	6797663	6000001	6857143
9	611667	2	17	100	1778	1653	0	7411549	6857144	7714286
10	551829	2	17	65	1854	1578	0	7966809	7714287	8571429
11	1028274	2	17	100	1450	1294	0	8998515	8571430	9428572
12	1263422	2	17	60	1755	1736	0	10264681	9428573	10285715
13	31803	3	17	60	1505	1496	1546	10299975	10285716	11142858
14	1159047	3	17	60	1491	1596	1138	11463569	11142859	12000001

Total number of pulses in waveform = 28  
\*\*\*\*\*

### Type 5 Radar Waveform\_16

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	1009891	1	12	50	1305	0	0	1009891	0	1199999
2	215126	3	12	100	1311	1623	1969	1226322	1200000	2399999
3	2319736	3	12	75	1686	1031	1960	3550961	2400000	3599999
4	443332	2	12	50	1459	1319	0	3998970	3600000	4799999
5	1091916	3	12	95	1716	1795	1549	5093664	4800000	5999999
6	1624157	2	12	90	1997	1833	0	6722881	6000000	7199999
7	1628327	1	12	70	1620	0	0	8355038	7200000	8399999
8	690772	1	12	70	1682	0	0	9047430	8400000	9599999
9	1504669	2	12	90	1184	1018	0	10553781	9600000	10799999
10	999037	1	12	90	1218	0	0	11555020	10800000	11999999

Total number of pulses in waveform = 19  
\*\*\*\*\*



### Type 5 Radar Waveform\_17

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	340495	2	10	65	1779	1800	0	340495	0	599999
2	502075	1	10	75	1888	0	0	846149	600000	1199999
3	463240	2	10	95	1052	1882	0	1311257	1200000	1799999
4	506819	1	10	55	1880	0	0	1821010	1800000	2399999
5	1026551	3	10	100	1599	1120	1643	2849441	2400000	2999999
6	669158	2	10	55	1865	1484	0	3522961	3000000	3599999
7	354384	2	10	85	1071	1555	0	3880694	3600000	4199999
8	890725	3	10	95	1407	1032	1458	4774045	4200000	4799999
9	567884	1	10	100	1569	0	0	5345826	4800000	5399999
10	280089	3	10	50	1217	1233	1713	5627464	5400000	5999999
11	505074	3	10	60	1711	1447	1052	6136701	6000000	6599999
12	768751	2	10	80	1012	1969	0	6909662	6600000	7199999
13	335094	3	10	100	1649	1591	1935	7247737	7200000	7799999
14	901296	1	10	70	1888	0	0	8154208	7800000	8399999
15	445784	3	10	60	1971	1724	1983	8801880	8400000	8999999
16	625876	3	10	60	1998	1063	1767	9233434	9000000	9599999
17	638730	3	10	70	1548	1848	1422	9876992	9600000	10199999
18	699954	2	10	55	1698	1014	0	10581764	10200000	10799999
19	728409	3	10	80	1980	1201	1957	11312885	10800000	11399999
20	335459	1	10	90	1961	0	0	11652882	11400000	11999999
Total number of pulses in waveform = 44 *****										

### Type 5 Radar Waveform\_18

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	511490	1	5	100	1434	0	0	511490	0	705881
2	451375	3	5	60	1119	1740	1935	964299	705882	1411763
3	804671	2	5	50	1556	1414	0	1773764	1411764	2117645
4	610859	1	5	100	1653	0	0	2387593	2117646	2823527
5	1056816	1	5	95	1211	0	0	3446062	2823528	3529409
6	602780	3	5	60	1950	1464	1670	4050053	3529410	4235291
7	368118	2	5	60	1283	1333	0	4423255	4235292	4941173
8	627968	3	5	95	1421	1359	1748	5053839	4941174	5647055
9	802190	2	5	75	1963	1381	0	5860557	5647056	6352937
10	656977	3	5	65	1516	1448	1298	6520878	6352938	7058819
11	772260	2	5	85	1341	1589	0	7297400	7058820	7764701
12	787077	3	5	75	1136	1870	1370	8087407	7764702	8470583
13	632614	2	5	85	1291	1650	0	8724397	8470584	9176465
14	596240	1	5	75	1456	0	0	9323578	9176466	9882347
15	925079	3	5	90	1726	1791	1165	10250113	9882348	10588229
16	386111	2	5	55	1139	1445	0	10640906	10588230	11294111
17	1349436	2	5	100	1681	1544	0	11992926	11294112	11999993
Total number of pulses in waveform = 36 *****										

### Type 5 Radar Waveform\_19

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 = 12 Burst Interval (us)= 1000000										
1	730092	1	14	90	1656	0	0	730092	0	999999
2	274933	1	14	50	1374	0	0	1006681	1000000	1999999
3	1805223	3	14	75	1438	1340	1458	2813278	2000000	2999999
4	1152309	1	14	75	1868	0	0	3969823	3000000	3999999
5	411090	2	14	95	1301	1350	0	4382781	4000000	4999999
6	914717	3	14	65	1308	1048	1003	5300149	5000000	5999999
7	1525190	3	14	65	1471	1948	1201	6828698	6000000	6999999
8	915878	2	14	70	1684	1089	0	7749196	7000000	7999999
9	537211	1	14	70	1497	0	0	8289180	8000000	8999999
10	1563524	1	14	70	1859	0	0	9854201	9000000	9999999
11	1026038	2	14	100	1618	1000	0	10882098	10000000	10999999
12	978997	1	14	90	1300	0	0	11863713	11000000	11999999
Total number of pulses in waveform = 21 *****										



### Type 5 Radar Waveform\_20

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	238672	2	18	75	1575	1346	0	238672	0	631578
2	697524	3	18	95	1186	1723	1991	939117	631579	1263157
3	326474	1	18	80	1884	0	0	1270491	1263158	1894736
4	975046	3	18	70	1216	1878	1538	2247421	1894737	2526315
5	902467	2	18	70	1097	1949	0	3154520	2526316	3157894
6	126488	3	18	80	1412	1999	1740	3284054	3157895	3789473
7	920467	1	18	75	1380	0	0	4209672	3789474	4421052
8	222557	2	18	60	1227	1854	0	4433609	4421053	5052631
9	1101802	2	18	60	1616	1291	0	5538492	5052632	5684210
10	457151	2	18	95	1349	1216	0	5998550	5684211	6315789
11	756698	1	18	85	1045	0	0	6757813	6315790	6947368
12	799617	1	18	85	1693	0	0	7558475	6947369	7578947
13	109429	3	18	95	1010	1226	1491	7669597	7578948	8210526
14	1009620	1	18	50	1835	0	0	8682944	8210527	8842105
15	316683	2	18	95	1423	1439	0	9001462	8842106	9473684
16	696155	2	18	90	1890	1700	0	9700479	9473685	10105263
17	721628	3	18	55	1410	1977	1888	10425697	10105264	10736842
18	485191	1	18	50	1775	0	0	10916163	10736843	11368421
19	917758	1	18	85	1735	0	0	11835696	11368422	12000000

Total number of pulses in waveform = 36  
\*\*\*\*\*

### Type 5 Radar Waveform\_21

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	835893	2	8	70	1588	1191	0	835893	0	1333332
2	544704	1	8	85	1988	0	0	1383376	1333333	2666665
3	2131463	3	8	60	1768	1951	1771	3516827	2666666	3999998
4	1146192	3	8	55	1383	1411	1779	4668509	3999999	5333331
5	1457709	1	8	90	1453	0	0	6130791	5333332	6666664
6	914720	2	8	70	1707	1299	0	7046964	6666665	7999997
7	1511350	1	8	95	1322	0	0	8561320	7999998	9333330
8	1952119	3	8	80	1339	1812	1333	10514761	9333331	10666663
9	1109299	1	8	100	1047	0	0	11628544	10666664	11999996

Total number of pulses in waveform = 17  
\*\*\*\*\*

### 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	374745	2	17	65	1201	1996	0	374745	0	631578
2	820048	1	17	50	1950	0	0	1197990	631579	1263157
3	180369	3	17	55	1840	1830	1413	1380309	1263158	1894736
4	985304	3	17	65	1270	1954	1350	2370696	1894737	2526315
5	719124	3	17	65	1787	1679	1165	3094394	2526316	3157894
6	93071	1	17	55	1476	0	0	3192096	3157895	3789473
7	878073	3	17	60	1438	1795	1358	4071645	3789474	4421052
8	398266	3	17	50	1507	1107	1920	4474492	4421053	5052631
9	847195	2	17	75	1408	1722	0	5326221	5052632	5684210
10	384741	2	17	100	1852	1268	0	5714092	5684211	6315789
11	1185845	1	17	70	1309	0	0	6903057	6315790	6947368
12	78325	3	17	50	1580	1350	1310	6982691	6947369	7578947
13	1156643	2	17	80	1736	1236	0	8143574	7578948	8210526
14	77093	2	17	95	1718	1390	0	8223639	8210527	8842105
15	752756	3	17	80	1098	1599	1212	8979503	8842106	9473684
16	1034486	1	17	65	1178	0	0	10017898	9473685	10105263
17	444006	2	17	80	1834	1896	0	10463082	10105264	10736842
18	528601	1	17	60	1060	0	0	10995413	10736843	11368421
19	971397	1	17	80	1919	0	0	11967870	11368422	12000000

Total number of pulses in waveform = 39  
\*\*\*\*\*



Type 5 Radar Waveform\_23

Num of Bursts = 9
Burst Interval (us)= 1333333

Table with 11 columns: 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). Rows 1-9.

Total number of pulses in waveform = 19
\*\*\*\*\*

Type 5 Radar Waveform\_24

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

Table with 11 columns: 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). Rows 1-16.

Total number of pulses in waveform = 29
\*\*\*\*\*

Type 5 Radar Waveform\_25

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

Table with 11 columns: 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). Rows 1-11.

Total number of pulses in waveform = 29
\*\*\*\*\*



### Type 5 Radar Waveform\_26

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	243956	2	10	90	1744	1999	0	243956	0	631578
2	426396	2	10	80	1794	1956	0	674095	631579	1263157
3	640911	1	10	100	1811	0	0	1318756	1263158	1894736
4	971029	3	10	100	1913	1674	1499	2291596	1894737	2526315
5	820314	2	10	60	1971	1482	0	3116996	2526316	3157894
6	170341	1	10	70	1598	0	0	3290790	3157895	3789473
7	666983	3	10	50	1550	1798	1145	3959371	3789474	4421052
8	617662	1	10	50	1575	0	0	4581526	4421053	5052631
9	723133	2	10	75	1974	1745	0	5306234	5052632	5684210
10	742997	3	10	75	1026	1046	1490	6052950	5684211	6315789
11	372123	1	10	95	1067	0	0	6428635	6315790	6947368
12	1107379	1	10	85	1645	0	0	7537081	6947369	7578947
13	438116	1	10	60	1351	0	0	7976842	7578948	8210526
14	826714	3	10	90	1346	1099	1662	8804907	8210527	8842105
15	90400	3	10	70	1922	1540	1154	8899414	8842106	9473684
16	685754	2	10	50	1714	1107	0	9589784	9473685	10105263
17	660758	1	10	90	1841	0	0	10253363	10105264	10736842
18	837110	2	10	85	1263	1064	0	11092314	10736843	11368421
19	348370	1	10	50	1841	0	0	11443011	11368422	12000000

Total number of pulses in waveform = 35  
\*\*\*\*\*

### Type 5 Radar Waveform\_27

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	462539	1	19	90	1030	0	0	462539	0	631578
2	323780	2	19	90	1622	1996	0	787349	631579	1263157
3	983239	1	19	95	1056	0	0	1774206	1263158	1894736
4	610357	1	19	80	1835	0	0	2385619	1894737	2526315
5	722963	3	19	70	1738	1351	1068	3110417	2526316	3157894
6	61646	1	19	55	1953	0	0	3176220	3157895	3789473
7	1223081	1	19	65	1916	0	0	4401254	3789474	4421052
8	502578	2	19	70	1745	1338	0	4905748	4421053	5052631
9	616637	3	19	90	1422	1812	1210	5525468	5052632	5684210
10	173106	2	19	55	1286	1431	0	5703018	5684211	6315789
11	803686	1	19	95	1573	0	0	6509421	6315790	6947368
12	610130	1	19	80	1134	0	0	7121124	6947369	7578947
13	789013	1	19	60	1778	0	0	7911271	7578948	8210526
14	919892	1	19	90	1797	0	0	8832941	8210527	8842105
15	168644	2	19	50	1501	1426	0	9003382	8842106	9473684
16	605465	2	19	70	1722	1579	0	9611774	9473685	10105263
17	918653	3	19	65	1618	1926	1957	10533728	10105264	10736842
18	274134	3	19	70	1980	1572	1883	10813363	10736843	11368421
19	742970	2	19	65	1991	1537	0	11561768	11368422	12000000

Total number of pulses in waveform = 33  
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### Type 5 Radar Waveform\_28

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	145649	2	12	90	1220	1152	0	145649	0	857142
2	848869	2	12	80	1540	1153	0	996890	857143	1714285
3	1038546	3	12	70	1272	1929	1794	2038129	1714286	2571428
4	820621	1	12	65	1144	0	0	2863745	2571429	3428571
5	565622	2	12	100	1833	1512	0	3430511	3428572	4285714
6	1696737	2	12	75	1654	1261	0	5130593	4285715	5142857
7	192893	2	12	55	1073	1073	0	5326401	5142858	6000000
8	1178855	1	12	75	1373	0	0	6507402	6000001	6857143
9	761484	1	12	50	1989	0	0	7270259	6857144	7714286
10	538678	3	12	100	1360	1763	1505	7810926	7714287	8571429
11	1529678	3	12	65	1037	1790	1300	9345232	8571430	9428572
12	600783	2	12	90	1539	1538	0	9950142	9428573	10285715
13	1139943	2	12	50	1133	1737	0	11093162	10285716	11142858
14	580287	3	12	55	1683	1437	1679	11676319	11142859	12000001

Total number of pulses in waveform = 29  
\*\*\*\*\*



### Type 5 Radar Waveform\_29

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	805641	3	5	80	1528	1104	1127	805641	0	1090908
2	283633	1	5	65	1208	0	0	1093033	1090909	2181817
3	1945536	2	5	85	1566	1229	0	3039777	2181818	3272726
4	699870	2	5	100	1943	1286	0	3742442	3272727	4363635
5	1446636	3	5	95	1649	1660	1206	5192307	4363636	5454544
6	837720	3	5	95	1340	1576	1297	6034542	5454545	6545453
7	709493	2	5	65	1750	1158	0	6748248	6545454	7636362
8	1666445	3	5	100	1263	1067	1478	8417601	7636363	8727271
9	906127	3	5	60	1673	1773	1375	9327536	8727272	9818180
10	559505	1	5	100	1180	0	0	9891862	9818181	10909089
11	1945969	1	5	55	1071	0	0	11839011	10909090	11999998

Total number of pulses in waveform = 24  
\*\*\*\*\*

### Type 5 Radar Waveform\_30

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	163853	3	14	60	1797	1286	1056	163853	0	749999
2	824807	3	14	80	1578	1284	1593	992799	750000	1499999
3	1181823	2	14	55	1918	1859	0	2179077	1500000	2249999
4	257219	3	14	80	1149	1925	1301	2440073	2250000	2999999
5	746064	2	14	95	1023	1382	0	3190512	3000000	3749999
6	1065287	3	14	70	1512	1231	1134	4258204	3750000	4499999
7	600005	3	14	50	1196	1219	1362	4862086	4500000	5249999
8	663645	3	14	85	1097	1972	1304	5529508	5250000	5999999
9	1023326	1	14	100	1545	0	0	6557207	6000000	6749999
10	563191	2	14	90	1185	1265	0	7121943	6750000	7499999
11	951362	1	14	80	1367	0	0	8075755	7500000	8249999
12	619454	1	14	50	1370	0	0	8696576	8250000	8999999
13	805864	3	14	50	1830	1359	1130	9503810	9000000	9749999
14	474532	2	14	55	1136	1171	0	9982661	9750000	10499999
15	795745	3	14	100	1382	1547	1722	10780713	10500000	11249999
16	1042471	1	14	95	1124	0	0	11827835	11250000	11999999

Total number of pulses in waveform = 36  
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## 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)
20	5466	60	0	5501	0
31	5474	93	1	5520	3
46	5492	138	3	5502	9
51	5510	153	18	5491	54
52	5462	156	20	5503	60
81	5500	243	26	5495	78
92	5469	276	31	5497	93
--	--	--	41	5496	123
--	--	--	43	5474	129
--	--	--	45	5463	135
--	--	--	53	5510	159
--	--	--	59	5493	177
--	--	--	65	5484	195
--	--	--	73	5488	219
--	--	--	82	5515	246
--	--	--	84	5485	252

Radar waveform #3			Radar waveform #4		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5520	3	2	5514	6
3	5515	9	13	5512	39
14	5485	42	16	5482	48
15	5470	45	34	5501	102
20	5513	60	49	5464	147
34	5479	102	57	5483	171
60	5484	180	73	5463	219
62	5509	186	75	5479	225
74	5471	222	84	5507	252
78	5475	234	86	5506	258
87	5498	261	--	--	--
95	5490	285	--	--	--
96	5483	288	--	--	--
99	5462	297	--	--	--



Radar waveform #5			Radar waveform #6		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
9	5473	27	0	5496	0
28	5513	84	3	5519	9
33	5487	99	10	5510	30
39	5499	117	19	5482	57
54	5495	162	22	5489	66
55	5491	165	23	5498	69
68	5508	204	24	5463	72
77	5498	231	33	5516	99
93	5505	279	44	5492	132
97	5496	291	46	5515	138
--	--	--	60	5477	180
--	--	--	64	5466	192
--	--	--	70	5495	210
--	--	--	73	5465	219
--	--	--	79	5493	237
--	--	--	80	5508	240
--	--	--	90	5473	270
--	--	--	92	5520	276

Radar waveform #7			Radar waveform #8		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5469	15	0	5513	0
16	5466	48	4	5497	12
22	5500	66	10	5511	30
35	5467	105	15	5507	45
44	5505	132	18	5486	54
60	5475	180	20	5492	60
67	5463	201	28	5473	84
75	5504	225	33	5484	99
82	5499	246	36	5494	108
86	5484	258	55	5479	165
87	5496	261	74	5499	222
92	5488	276	88	5500	264



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--	--	--	99	5466	297
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Radar waveform #9			Radar waveform #10		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5486	3	14	5512	42
4	5498	12	27	5508	81
11	5489	33	30	5505	90
17	5519	51	50	5481	150
22	5482	66	59	5475	177
37	5516	111	63	5496	189
45	5466	135	69	5494	207
62	5517	186	71	5470	213
70	5472	210	84	5480	252
77	5471	231	86	5462	258
86	5506	258	87	5511	261
88	5497	264	88	5513	264
96	5477	288	92	5517	276



Radar waveform #11			Radar waveform #12		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Frequency (MHz)	Hopping Number	Pulse Start (ms)
5	5517	15	5	5471	15
6	5522	18	6	5523	18
17	5498	51	19	5475	57
18	5486	54	42	5487	126
20	5505	60	44	5490	132
22	5529	66	49	5477	147
33	5510	99	52	5502	156
80	5512	240	53	5524	159
88	5475	264	56	5495	168
90	5504	270	61	5503	183
--	--	--	66	5511	198
--	--	--	77	5527	231
--	--	--	92	5472	276
--	--	--	97	5493	291

Radar waveform #13			Radar waveform #14		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5520	6	9	5494	27
6	5482	18	10	5519	30
41	5502	123	18	5471	54
42	5509	126	19	5522	57
48	5510	144	22	5485	66
50	5505	150	23	5499	69
51	5486	153	25	5523	75
61	5512	183	31	5514	93
68	5507	204	33	5489	99
71	5476	213	43	5473	129
72	5474	216	61	5492	183
82	5470	246	73	5504	219
--	--	--	77	5503	231
--	--	--	80	5488	240



Radar waveform #15			Radar waveform #16		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5493	9	0	5482	0
7	5482	21	11	5511	33
18	5487	54	12	5489	36
21	5519	63	18	5491	54
24	5504	72	23	5483	69
39	5496	117	28	5519	84
46	5494	138	29	5493	87
49	5485	147	33	5477	99
61	5473	183	41	5498	123
66	5471	198	52	5496	156
70	5516	210	55	5476	165
93	5529	279	68	5500	204
94	5474	282	70	5523	210
--	--	--	75	5507	225
--	--	--	77	5502	231

Radar waveform #17			Radar waveform #18		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
0	5520	0	5	5475	15
15	5522	45	8	5526	24
18	5495	54	13	5513	39
36	5516	108	17	5471	51
37	5488	111	25	5484	75
58	5498	174	30	5504	90
78	5492	234	32	5476	96
80	5487	240	33	5472	99
93	5475	279	34	5477	102
96	5507	288	35	5507	105
--	--	--	59	5512	177
--	--	--	67	5525	201
--	--	--	74	5508	222
--	--	--	75	5506	225
--	--	--	77	5515	231



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--	--	--	91	5519	273
--	--	--	98	5499	294



Radar waveform #19			Radar waveform #20		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
37	5487	111	2	5490	6
41	5505	123	7	5505	21
47	5492	141	8	5517	24
51	5494	153	21	5516	63
--	--	--	22	5487	66
--	--	--	23	5479	69
--	--	--	26	5484	78
--	--	--	34	5471	102
--	--	--	36	5493	108
--	--	--	40	5492	120
--	--	--	66	5507	198
--	--	--	75	5514	225
--	--	--	87	5504	261
--	--	--	93	5524	279
--	--	--	96	5478	288

Radar waveform #21			Radar waveform #22		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
10	5519	30	5	5530	15
37	5487	111	12	5479	36
43	5520	129	33	5502	99
48	5516	144	34	5527	102
49	5501	147	44	5497	132
50	5497	150	49	5488	147
51	5503	153	51	5494	153
64	5500	192	54	5495	162
68	5517	204	67	5509	201
86	5485	258	77	5537	231
97	5536	291	78	5480	234
--	--	--	86	5500	258
--	--	--	88	5504	264
--	--	--	91	5481	273
--	--	--	94	5521	282



Radar waveform #23			Radar waveform #24		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
0	5516	0	2	5521	6
9	5498	27	3	5492	9
21	5511	63	5	5531	15
40	5539	120	27	5485	81
43	5527	129	40	5504	120
45	5505	135	44	5525	132
54	5513	162	47	5538	141
63	5493	189	58	5501	174
72	5506	216	59	5498	177
--	--	--	64	5532	192
--	--	--	75	5493	225
--	--	--	79	5530	237
--	--	--	82	5502	246



Radar waveform #25			Radar waveform #26		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5492	9	6	5501	18
7	5539	21	19	5522	57
12	5532	36	20	5486	60
13	5521	39	39	5488	117
28	5494	84	44	5496	132
29	5503	87	46	5492	138
36	5508	108	54	5531	162
38	5488	114	63	5533	189
42	5527	126	64	5487	192
43	5497	129	76	5512	228
44	5506	132	79	5489	237
46	5493	138	80	5493	240
49	5479	147	--	--	--
61	5496	183	--	--	--
66	5513	198	--	--	--
75	5531	225	--	--	--
93	5524	279	--	--	--
95	5522	285	--	--	--
96	5518	288	--	--	--
98	5530	294	--	--	--

Radar waveform #27			Radar waveform #28		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5531	6	8	5529	24
4	5522	12	38	5487	114
5	5479	15	40	5521	120
51	5515	153	49	5482	147
55	5529	165	50	5483	150
59	5491	177	52	5480	156
69	5520	207	57	5519	171
73	5516	219	59	5527	177
98	5523	294	67	5532	201
--	--	--	69	5488	207



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--	--	--	77	5489	231
--	--	--	80	5491	240
--	--	--	90	5504	270

Radar waveform #29			Radar waveform #30		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
6	5529	18	11	5523	33
11	5512	33	33	5488	99
34	5523	102	35	5504	105
43	5511	129	61	5489	183
62	5534	186	--	--	--
63	5537	189	--	--	--
73	5522	219	--	--	--
77	5521	231	--	--	--
87	5519	261	--	--	--
90	5491	270	--	--	--
99	5516	297	--	--	--



Product	WIFI dual band 4 GE LAN GPON HGU	Temperature	27°C
Test Engineer	Amy Zhang	Relative Humidity	65%
Test Site	TR5	Test Date	2018/08/26
Test Item	Radar Statistical Performance Check (802.11n-HT40 mode – 5510MHz)		

## Radar Type 1 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5492	1	758	70	1
2	5492	1	878	61	1
3	5492	1	558	95	1
4	5492	1	918	58	1
5	5500	1	798	67	1
6	5500	1	938	57	1
7	5500	1	718	74	1
8	5500	1	678	78	1
9	5508	1	518	102	1
10	5508	1	698	76	1
11	5508	1	838	63	1
12	5508	1	598	89	1
13	5510	1	858	62	1
14	5510	1	538	99	1
15	5510	1	738	72	1
16	5510	1	1099	49	1
17	5510	1	1325	40	1
18	5510	1	1446	37	1
19	5512	1	1056	50	1
20	5512	1	759	70	1
21	5512	1	722	74	1
22	5512	1	1743	31	1
23	5520	1	633	84	1
24	5520	1	935	57	1
25	5520	1	666	80	1
26	5520	1	2382	23	1



Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
27	5529	1	1051	51	1
28	5529	1	584	91	1
29	5529	1	1114	48	1
30	5529	1	1962	27	1
Detection Percentage (%)					100%



## Radar Type 2 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5492	2.1	193	28	1
2	5492	4.7	192	27	1
3	5492	2.5	190	26	1
4	5492	1.9	181	26	1
5	5500	2.7	213	28	1
6	5500	2.3	190	28	1
7	5500	2.2	181	27	1
8	5500	2.0	224	28	1
9	5508	2.3	209	27	1
10	5508	2.0	172	27	1
11	5508	4.3	158	26	1
12	5508	4.9	151	28	1
13	5510	1.3	153	28	1
14	5510	4.4	160	23	1
15	5510	2.3	158	26	1
16	5510	3.5	211	23	1
17	5510	3.2	226	28	1
18	5510	1.6	212	29	1
19	5512	1.1	201	28	1
20	5512	1.7	163	26	1
21	5512	1.5	200	24	1
22	5512	3.0	188	26	1
23	5520	4.7	207	24	1
24	5520	3.6	220	27	1
25	5520	3.5	205	24	1
26	5520	2.0	197	28	1
27	5529	1.2	172	23	1
28	5529	5.0	150	26	1
29	5529	5.0	194	26	1
30	5529	1.2	210	25	1
Detection Percentage (%)					100%



## Radar Type 3 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5492	9.1	429	18	1
2	5492	6.6	382	17	1
3	5492	9.5	384	17	1
4	5492	9.4	267	16	1
5	5500	8.0	303	16	1
6	5500	6.2	387	16	1
7	5500	9.9	482	16	1
8	5500	8.3	381	17	1
9	5508	7.7	391	16	1
10	5508	6.2	485	17	1
11	5508	6.9	285	16	1
12	5508	9.4	318	16	1
13	5510	9.7	287	16	1
14	5510	8.8	317	17	1
15	5510	9.5	435	17	1
16	5510	6.6	414	16	1
17	5510	7.2	269	18	1
18	5510	9.0	341	17	1
19	5512	7.1	458	18	1
20	5512	7.1	481	16	1
21	5512	6.2	482	18	1
22	5512	7.2	443	18	1
23	5520	9.2	316	17	1
24	5520	7.8	397	16	1
25	5520	6.7	442	17	1
26	5520	7.1	353	17	1
27	5529	6.6	475	16	1
28	5529	8.4	428	18	1
29	5529	8.5	473	17	1
30	5529	6.1	342	16	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	5492	16.5	396	15	1
2	5492	20.0	280	15	1
3	5492	15.5	284	16	1
4	5492	14.2	398	14	1
5	5500	16.4	428	16	1
6	5500	19.2	457	16	1
7	5500	13.0	273	13	1
8	5500	17.6	261	12	1
9	5508	19.7	323	16	1
10	5508	14.3	458	14	1
11	5508	18.5	440	15	1
12	5508	14.5	472	16	1
13	5510	12.8	323	14	1
14	5510	14.2	303	12	1
15	5510	14.5	379	15	1
16	5510	11.4	348	15	1
17	5510	12.6	352	15	1
18	5510	18.5	277	13	1
19	5512	14.4	359	12	1
20	5512	14.6	385	13	1
21	5512	13.0	346	12	1
22	5512	13.3	312	13	1
23	5520	13.2	490	16	1
24	5520	12.8	428	16	1
25	5520	12.6	294	14	1
26	5520	17.4	449	15	1
27	5529	17.8	407	12	1
28	5529	16.8	376	16	1
29	5529	17.9	485	14	1
30	5529	15.6	306	14	1
Detection Percentage (%)					100%

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

(>80%)



Radar Type 5 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	1=Detection 0=No Detection	Trail #	Test Freq. (MHz)	1=Detection 0=No Detection
1	5499.2	1	16	5510.0	1
2	5496.0	1	17	5510.0	1
3	5494.0	1	18	5510.0	1
4	5496.8	1	19	5510.0	1
5	5498.8	1	20	5510.0	1
6	5494.4	1	21	5524.2	1
7	5495.2	1	22	5525.0	1
8	5497.6	1	23	5527.0	1
9	5495.6	1	24	5522.2	1
10	5499.6	1	25	5525.4	1
11	5510.0	1	26	5521.4	1
12	5510.0	1	27	5523.4	1
13	5510.0	1	28	5525.8	1
14	5510.0	1	29	5526.6	1
15	5510.0	1	30	5521.8	1
Detection Percentage (%)					5296.8

Type 5 Radar Waveform_1										
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	484551	1	18	95	1293	0	0	484551	0	923076
2	595451	3	18	80	1597	1897	1940	1081295	923077	1846153
3	953923	3	18	75	1710	1045	1596	2040652	1846154	2769230
4	1145824	3	18	60	1251	1056	1465	3190827	2769231	3692307
5	588198	3	18	65	1513	1355	1378	3782797	3692308	4615384
6	1649205	1	18	75	1045	0	0	5436248	4615385	5538461
7	636022	3	18	55	1904	1991	1803	6073315	5538462	6461538
8	1259705	1	18	75	1245	0	0	7338718	6461539	7384615
9	384572	1	18	75	1496	0	0	7724535	7384616	8307692
10	1258524	3	18	55	1047	1744	1429	8984555	8307693	9230769
11	811921	2	18	75	1668	1792	0	9800696	9230770	10153846
12	890017	3	18	55	1050	1693	1145	10694173	10153847	11076923
13	1209650	1	18	50	1786	0	0	11907711	11076924	12000000
Total number of pulses in waveform = 28										
*****										



### Type 5 Radar Waveform\_2

Burst #	Interval (us)	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	705882	523347	2	10	70	1152	1232	0	523347	0	705881
2		726218	3	10	80	1205	1469	1219	1251949	705882	1411763
3		247714	2	10	60	1310	1545	0	1503556	1411764	2117645
4		647059	3	10	60	1375	1165	1703	2153470	2117646	2823527
5		1243392	1	10	70	1854	0	0	3401105	2823528	3529409
6		337634	2	10	65	1007	1575	0	3740593	3529410	4235291
7		698609	2	10	65	1575	1037	0	4441784	4235292	4941173
8		924318	3	10	100	1987	1278	1023	5368714	4941174	5647055
9		722403	1	10	55	1881	0	0	6095405	5647056	6352937
10		398243	3	10	75	1076	1665	1636	6495529	6352938	7058819
11		990768	1	10	90	1942	0	0	7490674	7058820	7764701
12		747852	1	10	95	1862	0	0	8240468	7764702	8470583
13		787426	1	10	80	1231	0	0	9029756	8470584	9176465
14		174294	1	10	85	1031	0	0	9205281	9176466	9882347
15		1346792	2	10	85	1277	1863	0	10553104	9882348	10588229
16		588677	2	10	60	1247	1164	0	11144921	10588230	11294111
17		609274	3	10	90	1897	1508	1264	11756606	11294112	11999993

Total number of pulses in waveform = 33  
\*\*\*\*\*

### Type 5 Radar Waveform\_3

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	42668	2	5	80	1733	1333	0	42668	0	1333332
2	2580991	3	5	75	1051	1862	1369	2626725	1333333	2666665
3	176481	3	5	75	1245	1713	1331	2807488	2666666	3999998
4	2014712	3	5	70	1104	1591	1396	4826489	3999999	5333331
5	736777	3	5	55	1849	1041	1305	5567357	5333332	6666664
6	1394985	1	5	65	1121	0	0	6966537	6666665	7999997
7	1710298	1	5	70	1998	0	0	8677956	7999998	9333330
8	1657721	3	5	90	1604	1468	1142	10337675	9333331	10666663
9	1390091	3	5	75	1769	1726	1425	11731980	10666664	11999996

Total number of pulses in waveform = 22  
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### Type 5 Radar Waveform\_4

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	618713	1	12	70	1945	0	0	618713	0	923076
2	1025362	2	12	95	1250	1755	0	1646020	923077	1846153
3	1104706	3	12	95	1913	1138	1399	2753731	1846154	2769230
4	784676	2	12	60	1155	1294	0	3542857	2769231	3692307
5	766108	1	12	95	1246	0	0	4311414	3692308	4615384
6	1016025	1	12	75	1711	0	0	5328635	4615385	5538461
7	926067	1	12	85	1029	0	0	6256463	5538462	6461538
8	458960	1	12	70	1595	0	0	6716452	6461539	7384615
9	1358846	1	12	65	1326	0	0	8076893	7384616	8307692
10	914986	1	12	95	1506	0	0	8993205	8307693	9230769
11	1059435	1	12	65	1007	0	0	10054146	9230770	10153846
12	721048	3	12	95	1249	1638	1368	10776201	10153847	11076923
13	325423	3	12	65	1318	1813	1266	11105879	11076924	12000000

Total number of pulses in waveform = 21  
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### 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	425174	3	17	90	1302	1167	1974	425174	0	799999
2	521475	2	17	60	1009	1663	0	951092	800000	1599999
3	1079257	1	17	55	1237	0	0	2033021	1600000	2399999
4	795122	1	17	55	1176	0	0	2829380	2400000	3199999
5	458881	2	17	85	1013	1337	0	3289437	3200000	3999999
6	1429507	2	17	80	1568	1603	0	4721294	4000000	4799999
7	770010	1	17	95	1995	0	0	5494475	4800000	5599999
8	798522	3	17	50	1582	1638	1127	6294992	5600000	6399999
9	154431	2	17	65	1451	1604	0	6453770	6400000	7199999
10	1458516	3	17	80	1691	1177	1845	7915341	7200000	7999999
11	238587	1	17	85	1472	0	0	8158641	8000000	8799999
12	952285	1	17	50	1993	0	0	9112398	8800000	9599999
13	521190	2	17	65	1889	1587	0	9635581	9600000	10399999
14	974781	2	17	85	1784	1851	1284	10613838	10400000	11199999
15	944577	3	17	95	1031	1327	1758	11563334	11200000	11999999

Total number of pulses in waveform = 30

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### Type 5 Radar Waveform\_6

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	600438	3	6	80	1820	1302	1000	600438	0	923076
2	929015	3	6	90	1667	1426	1199	1533575	923077	1846153
3	1016398	1	6	85	1196	0	0	2554265	1846154	2769230
4	1120649	1	6	65	1877	0	0	3676110	2769231	3692307
5	394544	3	6	65	1153	1682	1221	4072531	3692308	4615384
6	1370072	3	6	100	1416	1807	1671	5446659	4615385	5538461
7	388497	3	6	50	1175	1983	1597	5840050	5538462	6461538
8	1155015	2	6	60	1347	1070	0	6999820	6461539	7384615
9	517487	2	6	85	1400	1627	0	7519724	7384616	8307692
10	1250390	3	6	55	1002	1457	1116	8773141	8307693	9230769
11	674313	3	6	80	1041	1547	1536	9451029	9230770	10153846
12	1450952	2	6	70	1172	1398	0	10906105	10153847	11076923
13	912827	1	6	85	1135	0	0	11821502	11076924	12000000

Total number of pulses in waveform = 30

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### Type 5 Radar Waveform\_7

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	305304	3	8	85	1379	1684	1993	305304	0	923076
2	870722	3	8	60	1554	1639	1495	1181082	923077	1846153
3	1159094	3	8	75	1858	1396	1284	2344864	1846154	2769230
4	1248296	3	8	100	1832	1565	1816	3597698	2769231	3692307
5	331899	2	8	90	1660	1343	0	3934810	3692308	4615384
6	1349194	2	8	100	1941	1907	0	5287007	4615385	5538461
7	748750	2	8	95	1741	1465	0	6039605	5538462	6461538
8	1307566	2	8	65	1551	1076	0	7350377	6461539	7384615
9	674311	2	8	85	1616	1585	0	8027315	7384616	8307692
10	557932	1	8	55	1549	0	0	8588448	8307693	9230769
11	782098	2	8	100	1331	1781	0	9372095	9230770	10153846
12	1666661	2	8	65	1887	1958	0	11041868	10153847	11076923
13	903864	2	8	100	1988	1621	0	11949577	11076924	12000000

Total number of pulses in waveform = 29

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### Type 5 Radar Waveform\_8

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	320637	3	14	90	1233	1346	1324	320637	0	857142
2	1268979	2	14	95	1712	1676	0	1593519	857143	1714285
3	685572	3	14	65	1661	1620	1522	2282479	1714286	2571428
4	421833	1	14	85	1418	0	0	2709115	2571429	3428571
5	1519656	1	14	50	1110	0	0	4230189	3428572	4285714
6	417050	1	14	60	1269	0	0	4648349	4285715	5142857
7	1025571	2	14	85	1728	1148	0	5675189	5142858	6000000
8	425483	3	14	85	1228	1828	1928	6103548	6000001	6857143
9	831794	2	14	75	1372	1843	0	6940326	6857144	7714286
10	883036	1	14	100	1956	0	0	7826577	7714287	8571429
11	1319534	2	14	80	1949	1059	0	9148067	8571430	9428572
12	1115923	3	14	85	1670	1327	1450	10266998	9428573	10285715
13	88605	1	14	65	1868	0	0	10360050	10285716	11142858
14	1416090	3	14	70	1290	1142	1726	11778008	11142859	12000001

Total number of pulses in waveform = 28

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### Type 5 Radar Waveform\_9

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	163099	1	9	60	1735	0	0	163099	0	599999
2	838159	2	9	75	1171	1684	0	1002993	600000	1199999
3	631950	3	9	80	1622	1368	1388	1637798	1200000	1799999
4	534152	3	9	85	1697	1772	1853	2176328	1800000	2399999
5	403178	2	9	65	1536	1072	0	2584828	2400000	2999999
6	429421	3	9	60	1418	1055	1350	3016887	3000000	3599999
7	979588	3	9	90	1932	1832	1631	4000288	3600000	4199999
8	364434	2	9	65	1883	1097	0	4370097	4200000	4799999
9	737634	3	9	50	1099	1385	1481	5110711	4800000	5399999
10	804152	3	9	60	1426	1304	1698	5918828	5400000	5999999
11	377711	3	9	80	1126	1827	1969	6300887	6000000	6599999
12	811993	3	9	85	1620	1058	1195	7117782	6600000	7199999
13	551018	1	9	95	1614	0	0	7672673	7200000	7799999
14	453889	1	9	90	1262	0	0	8128176	7800000	8399999
15	301515	1	9	95	1503	0	0	8430953	8400000	8999999
16	795569	3	9	60	1344	1459	1655	9228025	9000000	9599999
17	824508	2	9	90	1970	1137	0	10056991	9600000	10199999
18	225032	1	9	80	1152	0	0	10285130	10200000	10799999
19	926497	3	9	70	1457	1842	1467	11212779	10800000	11399999
20	335411	2	9	85	1151	1888	0	11552956	11400000	11999999

Total number of pulses in waveform = 45

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### Type 5 Radar Waveform\_10

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	745490	1	19	80	1915	0	0	745490	0	799999
2	713299	2	19	60	1496	1931	0	1460704	800000	1599999
3	491266	3	19	85	1009	1083	1666	1955397	1600000	2399999
4	491300	3	19	90	1855	1798	1585	2450455	2400000	3199999
5	1460803	1	19	85	1434	0	0	3916496	3200000	3999999
6	293184	3	19	95	1696	1410	1091	4211114	4000000	4799999
7	1334495	1	19	75	1392	0	0	5549806	4800000	5599999
8	528056	3	19	50	1280	1874	1798	6079254	5600000	6399999
9	929017	2	19	90	1547	1990	0	7013223	6400000	7199999
10	838470	2	19	60	1897	1519	0	7855230	7200000	7999999
11	415529	2	19	65	1115	1834	0	8274175	8000000	8799999
12	1011714	1	19	95	1671	0	0	9288838	8800000	9599999
13	419058	1	19	95	1704	0	0	9709567	9600000	10399999
14	908479	3	19	75	1891	1541	1111	10619750	10400000	11199999
15	649268	3	19	85	1840	1333	1131	11273561	11200000	11999999

Total number of pulses in waveform = 31

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### 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	406386	2	18	60	1762	1122	0	406386	0	857142
2	479012	3	18	95	1196	1739	1741	888282	857143	1714285
3	1086941	3	18	100	1978	1412	1236	1979899	1714286	2571428
4	1290842	2	18	60	1196	1954	0	3275367	2571429	3428571
5	310727	2	18	90	1753	1706	0	3589244	3428572	4285714
6	1058412	3	18	55	1384	1383	1312	4651115	4285715	5142857
7	1159468	1	18	80	1175	0	0	5814662	5142858	6000000
8	713371	3	18	50	1030	1829	1572	6529208	6000001	6857143
9	563859	2	18	65	1362	1390	0	7097498	6857144	7714286
10	1239114	1	18	65	1558	0	0	8339364	7714287	8571429
11	831548	3	18	85	1300	1835	1736	9172470	8571430	9428572
12	607211	1	18	55	1342	0	0	9784552	9428573	10285715
13	1282022	2	18	75	1893	1374	0	11067916	10285716	11142858
14	752686	2	18	50	1961	1438	0	11823869	11142859	12000001

Total number of pulses in waveform = 30

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### Type 5 Radar Waveform\_12

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	101583	3	14	65	1668	1955	1894	101583	0	923076
2	1111539	1	14	100	1862	0	0	1218639	923077	1846153
3	821823	1	14	60	1019	0	0	2042324	1846154	2769230
4	782734	3	14	55	1614	1762	1973	2826077	2769231	3692307
5	1575938	2	14	80	1833	1309	0	4407364	3692308	4615384
6	530044	1	14	95	1260	0	0	4940550	4615385	5538461
7	1478623	1	14	65	1313	0	0	6420433	5538462	6461538
8	112853	1	14	65	1792	0	0	6534599	6461539	7384615
9	974908	2	14	75	1393	1857	0	7511299	7384616	8307692
10	829568	3	14	75	1260	1344	1291	8344117	8307693	9230769
11	1369691	2	14	75	1008	1609	0	9717703	9230770	10153846
12	997233	2	14	90	1691	1466	0	10717553	10153847	11076923
13	971475	1	14	70	1444	0	0	11692185	11076924	12000000

Total number of pulses in waveform = 23

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### Type 5 Radar Waveform\_13

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	879696	1	9	80	1189	0	0	879696	0	923076
2	85474	2	9	75	1371	1061	0	966359	923077	1846153
3	1445658	3	9	80	1256	1814	1938	2414449	1846154	2769230
4	1188868	1	9	75	1806	0	0	3608325	2769231	3692307
5	161764	3	9	55	1335	1368	1654	3771895	3692308	4615384
6	1650900	2	9	70	1072	1944	0	5427152	4615385	5538461
7	826936	2	9	65	1863	1754	0	6257104	5538462	6461538
8	532947	1	9	75	1519	0	0	6793668	6461539	7384615
9	750753	1	9	55	1337	0	0	7545940	7384616	8307692
10	905831	1	9	50	1030	0	0	8453108	8307693	9230769
11	976965	3	9	80	1154	1110	1955	9431103	9230770	10153846
12	742825	1	9	90	1395	0	0	10178147	10153847	11076923
13	1335427	1	9	80	1229	0	0	11514969	11076924	12000000

Total number of pulses in waveform = 22

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### Type 5 Radar Waveform\_14

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	284009	1	10	90	1833	0	0	284009	0	799999
2	1121180	2	10	85	1202	1373	0	1407022	800000	1599999
3	888309	2	10	85	1768	1819	0	2297906	1600000	2399999
4	135083	1	10	65	1821	0	0	2436576	2400000	3199999
5	1304770	3	10	75	1414	1590	1241	3743167	3200000	3999999
6	676658	2	10	100	1229	1120	0	4424070	4000000	4799999
7	705814	3	10	100	1810	1461	1135	5132233	4800000	5599999
8	828270	1	10	70	1305	0	0	5964909	5600000	6399999
9	758239	1	10	80	1847	0	0	6724453	6400000	7199999
10	537801	3	10	80	1247	1562	1780	7264101	7200000	7999999
11	1081706	1	10	75	1976	0	0	8350396	8000000	8799999
12	587042	1	10	65	1045	0	0	8939414	8800000	9599999
13	1025124	3	10	75	1592	1143	1625	9965583	9600000	10399999
14	865746	1	10	85	1310	0	0	10835689	10400000	11199999
15	575854	3	10	80	1854	1827	1925	11412853	11200000	11999999

Total number of pulses in waveform = 28  
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### Type 5 Radar Waveform\_15

Num of Bursts = 15  
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	72129	3	19	55	1850	1275	1829	72129	0	631578
2	1006818	1	19	65	1360	0	0	1083901	631579	1263157
3	431824	3	19	55	1520	1195	1026	1516785	1263158	1894736
4	736842	2	19	75	1210	1454	0	2257368	1894737	2526315
5	485543	3	19	65	1190	1952	1640	2745575	2526316	3157894
6	561874	3	19	75	1490	1333	1721	3312231	3157895	3789473
7	982754	1	19	70	1325	0	0	4299529	3789474	4421052
8	732856	2	19	90	1507	1557	0	5033710	4421053	5052631
9	556707	2	19	100	1059	1477	0	5593481	5052632	5684210
10	386950	3	19	50	1602	1396	1838	5982967	5684211	6315789
11	889675	2	19	50	1419	1713	0	6877478	6315790	6947368
12	446256	2	19	85	1678	1519	0	7326866	6947369	7578947
13	570090	1	19	60	1835	0	0	7900153	7578948	8210526
14	356208	1	19	95	1888	0	0	8268196	8210527	8842105
15	854352	3	19	70	1809	1080	1058	9114436	8842106	9473684
16	692350	1	19	60	1832	0	0	9810733	9473685	10105263
17	533328	1	19	100	1739	0	0	10345893	10105264	10736842
18	593449	2	19	55	1757	1728	0	10941081	10736843	11368421
19	466468	3	19	65	1435	1168	1956	11411034	11368422	12000000

Total number of pulses in waveform = 39  
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### Type 5 Radar Waveform\_16

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	437828	2	17	65	1127	1472	0	437828	0	1090908
2	764906	1	17	60	1485	0	0	1205333	1090909	2181817
3	1173760	3	17	50	1781	1280	1238	2380578	2181818	3272726
4	1134680	1	17	70	1131	0	0	3519557	3272727	4363635
5	1348261	3	17	60	1290	1373	1843	4868949	4363636	5454544
6	703195	3	17	75	1736	1731	1250	5576650	5454545	6545453
7	1342311	2	17	95	1228	1110	0	6923678	6545454	7636362
8	808511	3	17	90	1017	1617	1081	7734527	7636363	8727271
9	1860084	1	17	65	1011	0	0	9598326	8727272	9818180
10	797336	2	17	75	1656	1543	0	10396673	9818181	10909089
11	516380	3	17	80	1231	1580	1005	10916252	10909090	11999998

Total number of pulses in waveform = 24  
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### Type 5 Radar Waveform\_17

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	889779	2	12	80	1882	1423	0	889779	0	1499999
2	1745370	2	12	55	1145	1145	0	2638454	1500000	2999999
3	1624562	1	12	50	1693	0	0	4265306	3000000	4499999
4	1168960	2	12	100	1525	1068	0	5435959	4500000	5999999
5	1137483	1	12	85	1402	0	0	6576035	6000000	7499999
6	1835139	1	12	55	1402	0	0	8412576	7500000	8999999
7	1759339	2	12	55	1325	1007	0	10173317	9000000	10499999
8	866709	3	12	60	1954	1189	1417	11042358	10500000	11999999

Total number of pulses in waveform = 14

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### Type 5 Radar Waveform\_18

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	134410	3	5	100	1832	1965	1920	134410	0	749999
2	1004860	2	5	75	1444	1038	0	1144987	750000	1499999
3	585309	1	5	65	1456	0	0	1732778	1500000	2249999
4	1009504	1	5	50	1933	0	0	2743738	2250000	2999999
5	737193	2	5	85	1657	1867	0	3482864	3000000	3749999
6	593455	1	5	65	1273	0	0	4079843	3750000	4499999
7	1034026	1	5	65	1321	0	0	5115142	4500000	5249999
8	385373	3	5	85	1376	1735	1957	5501836	5250000	5999999
9	748480	1	5	95	1356	0	0	6255384	6000000	6749999
10	1134538	1	5	80	1060	0	0	7391278	6750000	7499999
11	382369	3	5	80	1773	1071	1311	7774707	7500000	8249999
12	566584	1	5	50	1194	0	0	8345446	8250000	8999999
13	964161	3	5	50	1115	1638	1579	9310801	9000000	9749999
14	609236	2	5	65	1133	1429	0	9924369	9750000	10499999
15	639586	3	5	95	1631	1351	1595	10566517	10500000	11249999
16	748817	2	5	70	1121	1418	0	11319911	11250000	11999999

Total number of pulses in waveform = 30

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### Type 5 Radar Waveform\_19

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	644439	1	6	100	1552	0	0	644439	0	749999
2	337758	1	6	95	1886	0	0	983749	750000	1499999
3	584794	2	6	60	1064	1034	0	1570429	1500000	2249999
4	895557	2	6	50	1500	1076	0	2468084	2250000	2999999
5	924337	3	6	85	1581	1217	1096	3394997	3000000	3749999
6	584637	3	6	75	1319	1541	1826	3983528	3750000	4499999
7	552307	1	6	80	1891	0	0	4540521	4500000	5249999
8	1065301	1	6	70	1871	0	0	5607713	5250000	5999999
9	700201	3	6	80	1667	1468	1323	6309785	6000000	6749999
10	1003530	3	6	90	1451	1126	1622	7317773	6750000	7499999
11	518067	3	6	85	1494	1255	1031	7840039	7500000	8249999
12	1103028	1	6	75	1204	0	0	8946847	8250000	8999999
13	111226	2	6	65	1736	1509	0	9059277	9000000	9749999
14	1069436	2	6	70	1061	1510	0	10131958	9750000	10499999
15	718724	3	6	90	1853	1704	1606	10853253	10500000	11249999
16	952959	1	6	95	1020	0	0	11811375	11250000	11999999

Total number of pulses in waveform = 32

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### Type 5 Radar Waveform\_20

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	385868	1	8	95	1244	0	0	385868	0	631578
2	718352	1	8	55	1895	0	0	1105464	631579	1263157
3	363132	1	8	80	1708	0	0	1470491	1263158	1894736
4	962116	3	8	100	1434	1102	1735	2434315	1894737	2526315
5	319934	2	8	70	1975	1988	0	2768520	2526316	3157894
6	646299	2	8	60	1835	1171	0	3408782	3157895	3789473
7	556930	1	8	80	1327	0	0	3968718	3789474	4421052
8	774634	1	8	60	1532	0	0	4744579	4421053	5052631
9	314633	3	8	65	1636	1638	1396	5060744	5052632	5684210
10	1223272	3	8	60	1398	1149	1022	6286686	5684211	6315789
11	537489	2	8	95	1772	1092	0	6829744	6315790	6947368
12	482503	1	8	100	1141	0	0	7315111	6947369	7578947
13	608759	2	8	70	1449	1674	0	7925011	7578948	8210526
14	458349	3	8	95	1397	1071	1002	8386483	8210527	8842105
15	699291	2	8	75	1872	1763	0	9089244	8842106	9473684
16	395889	1	8	85	1757	0	0	9488748	9473685	10105263
17	751422	3	8	65	1002	1882	1933	10241927	10105264	10736842
18	972292	2	8	50	1538	1806	0	11219016	10736843	11368421
19	584668	3	8	80	1284	1825	1814	11806928	11368422	12000000

Total number of pulses in waveform = 97  
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### Type 5 Radar Waveform\_21

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	744502	3	12	70	1277	1795	1059	744502	0	1499999
2	846719	2	12	50	1991	1067	0	1595352	1500000	2999999
3	2079250	3	12	60	1656	1144	1991	3677660	3000000	4499999
4	1302361	1	12	65	1293	0	0	4984812	4500000	5999999
5	2204953	3	12	95	1553	1687	1411	7191058	6000000	7499999
6	954330	1	12	70	1325	0	0	8150039	7500000	8999999
7	2214128	3	12	85	1666	1084	1753	10365492	9000000	10499999
8	764972	1	12	60	1382	0	0	11134967	10500000	11999999

Total number of pulses in waveform = 17  
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### Type 5 Radar Waveform\_22

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	1283126	3	10	95	1510	1646	1976	1283126	0	1333332
2	609415	2	10	80	1459	1575	0	1897673	1333333	2666665
3	1379275	1	10	85	1495	0	0	3279982	2666666	3999998
4	1860338	1	10	95	1001	0	0	5141815	3999999	5333331
5	435992	3	10	100	1817	1859	1505	5578808	5333332	6666664
6	2079907	2	10	80	1992	1024	0	7663896	6666665	7999997
7	1203747	3	10	90	1843	1831	1125	8870659	7999998	9333330
8	1013794	1	10	65	1167	0	0	9889252	9333331	10666663
9	1411120	1	10	65	1987	0	0	11301539	10666664	11999996

Total number of pulses in waveform = 17  
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### Type 5 Radar Waveform\_23

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	919996	1	5	90	1729	0	0	919996	0	999999
2	741344	1	5	60	1189	0	0	1663069	1000000	1999999
3	928412	2	5	60	1089	1100	0	2592670	2000000	2999999
4	728694	2	5	80	1980	1708	0	3323553	3000000	3999999
5	1193062	2	5	75	1336	1202	0	4520303	4000000	4999999
6	736974	3	5	65	1528	1628	1610	5259815	5000000	5999999
7	1537373	1	5	85	1702	0	0	6801954	6000000	6999999
8	513113	1	5	95	1208	0	0	7316769	7000000	7999999
9	1211652	1	5	50	1967	0	0	8529629	8000000	8999999
10	802290	3	5	90	1374	1694	1978	9333886	9000000	9999999
11	1110153	3	5	85	1560	1300	1475	10449085	10000000	10999999
12	591782	3	5	55	1757	1356	1428	11045202	11000000	11999999

Total number of pulses in waveform = 23  
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### Type 5 Radar Waveform\_24

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	215139	1	17	75	1821	0	0	215139	0	631578
2	654641	1	17	85	1928	0	0	871601	631579	1263157
3	936605	3	17	100	1059	1887	1838	1810134	1263158	1894736
4	207971	2	17	90	1624	1906	0	2022889	1894737	2526315
5	984266	3	17	85	1885	1249	1176	3010685	2526316	3157894
6	551562	2	17	100	1973	1590	0	3566557	3157895	3789473
7	586461	3	17	85	1921	1344	1470	4156581	3789474	4421052
8	469936	3	17	90	1736	1612	1582	4621252	4421053	5052631
9	556146	3	17	90	1311	1191	1242	5182328	5052632	5684210
10	1028539	2	17	60	1651	1843	0	6214611	5684211	6315789
11	323954	1	17	90	1096	0	0	6542059	6315790	6947368
12	791414	1	17	55	1320	0	0	7334569	6947369	7578947
13	374019	1	17	65	1559	0	0	7709908	7578948	8210526
14	1061627	2	17	90	1790	1993	0	8763094	8210527	8842105
15	102066	3	17	55	1940	1212	1092	8868943	8842106	9473684
16	1037660	2	17	60	1495	1789	0	9910847	9473685	10105263
17	583415	1	17	85	1668	0	0	10497546	10105264	10736842
18	450818	2	17	95	1245	1983	0	10949932	10736843	11368421
19	852254	3	17	50	1175	1709	1488	11805414	11368422	12000000

Total number of pulses in waveform = 39  
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### Type 5 Radar Waveform\_25

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	610898	2	9	70	1770	1366	0	610898	0	1199999
2	796468	3	9	100	1160	1762	1985	1410502	1200000	2399999
3	1285955	1	9	55	1190	0	0	2701364	2400000	3599999
4	1243391	2	9	55	1894	1404	0	3945945	3600000	4799999
5	1462938	1	9	60	1192	0	0	5412181	4800000	5999999
6	1530807	2	9	75	1681	1984	0	6944180	6000000	7199999
7	1267173	3	9	65	1473	1874	1194	8215018	7200000	8399999
8	548632	2	9	75	1217	1499	0	8768191	8400000	9599999
9	1482519	3	9	65	1614	1301	1302	10253426	9600000	10799999
10	1068735	3	9	80	1363	1162	1706	11326378	10800000	11999999

Total number of pulses in waveform = 22  
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### 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	494917	2	19	50	1983	1886	0	494917	0	1199999
2	1425041	3	19	55	1743	1426	1198	1923827	1200000	2399999
3	1359581	2	19	75	1596	1650	0	3287775	2400000	3599999
4	421834	2	19	60	1509	1951	0	3712855	3600000	4799999
5	1206105	3	19	70	1037	1070	1994	4922420	4800000	5999999
6	1885701	1	19	70	1448	0	0	6812222	6000000	7199999
7	847904	2	19	100	1707	1127	0	7661574	7200000	8399999
8	982939	3	19	90	1173	1066	1919	8647347	8400000	9599999
9	1149770	2	19	100	1598	1774	0	9801275	9600000	10799999
10	1912145	2	19	90	1247	1179	0	11716792	10800000	11999999

Total number of pulses in waveform = 22

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### Type 5 Radar Waveform\_27

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	87368	1	14	95	1568	0	0	87368	0	705881
2	1289538	1	14	95	1767	0	0	1378474	705882	1411763
3	358845	3	14	65	1692	1324	1896	1739086	1411764	2117645
4	457850	3	14	90	1326	1062	1814	2201848	2117646	2823527
5	741476	1	14	70	1784	0	0	2947526	2823528	3529409
6	913840	1	14	85	1005	0	0	3863150	3529410	4235291
7	719820	3	14	70	1449	1719	1215	4583975	4235292	4941173
8	851256	1	14	90	1442	0	0	5439614	4941174	5647055
9	234828	2	14	75	1386	1300	0	5675884	5647056	6352937
10	930075	1	14	65	1888	0	0	6608645	6352938	7058819
11	747151	1	14	90	1950	0	0	7357684	7058820	7764701
12	577112	2	14	90	1983	1372	0	7936746	7764702	8470583
13	1092735	1	14	95	1141	0	0	9032836	8470584	9176465
14	373375	1	14	55	1749	0	0	9407352	9176466	9882347
15	1162582	3	14	95	1923	1225	1666	10571683	9882348	10588229
16	633141	1	14	60	1039	0	0	11209638	10588230	11294111
17	321487	3	14	55	1515	1265	1838	11532164	11294112	11999993

Total number of pulses in waveform = 29

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### Type 5 Radar Waveform\_28

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	531312	1	8	80	1963	0	0	531312	0	749999
2	770741	2	8	100	1131	1888	0	1304016	750000	1499999
3	743470	3	8	95	1686	1904	1032	2050505	1500000	2249999
4	464567	1	8	70	1956	0	0	2519694	2250000	2999999
5	628961	1	8	55	1332	0	0	3150611	3000000	3749999
6	1020736	1	8	70	1946	0	0	4172679	3750000	4499999
7	349201	1	8	60	1507	0	0	4523826	4500000	5249999
8	1203571	1	8	100	1532	0	0	5728904	5250000	5999999
9	689621	2	8	65	1383	1103	0	6420057	6000000	6749999
10	994622	3	8	65	1447	1067	1574	7417165	6750000	7499999
11	197662	2	8	70	1626	1004	0	7618915	7500000	8249999
12	911778	2	8	60	1918	1175	0	8533323	8250000	8999999
13	565970	1	8	60	1612	0	0	9102386	9000000	9749999
14	1166793	1	8	70	1393	0	0	10270791	9750000	10499999
15	421388	3	8	50	1243	1052	1192	10693572	10500000	11249999
16	1134216	1	8	90	1122	0	0	11831275	11250000	11999999

Total number of pulses in waveform = 26

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### Type 5 Radar Waveform\_29

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	734300	2	6	85	1593	1093	0	734300	0	749999
2	317736	2	6	85	1978	1508	0	1054722	750000	1499999
3	882799	1	6	60	1901	0	0	1941007	1500000	2249999
4	616709	3	6	90	1354	1748	1644	2559617	2250000	2999999
5	688683	2	6	100	1382	1100	0	3253046	3000000	3749999
6	833856	3	6	80	1783	1112	1038	4089384	3750000	4499999
7	560014	3	6	70	1890	1938	1936	4653331	4500000	5249999
8	1237321	2	6	60	1470	1422	0	5896416	5250000	5999999
9	665170	1	6	50	1177	0	0	6564478	6000000	6749999
10	668151	3	6	50	1634	1117	1779	7233806	6750000	7499999
11	310635	3	6	60	1940	1636	1484	7548971	7500000	8249999
12	1126697	1	6	60	1282	0	0	8680728	8250000	8999999
13	905006	2	6	65	1824	1718	0	9587016	9000000	9749999
14	643085	1	6	95	1646	0	0	10233643	9750000	10499999
15	740027	1	6	50	1137	0	0	10975316	10500000	11249999
16	372461	2	6	50	1454	1715	0	11348914	11250000	11999999

Total number of pulses in waveform = 32  
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### Type 5 Radar Waveform\_30

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	283781	1	18	100	1280	0	0	283781	0	749999
2	819976	1	18	75	1009	0	0	1105037	750000	1499999
3	592075	3	18	85	1000	1621	1213	1698121	1500000	2249999
4	904131	1	18	75	1670	0	0	2606086	2250000	2999999
5	1048430	2	18	70	1507	1709	0	3656186	3000000	3749999
6	525977	1	18	80	1650	0	0	4185379	3750000	4499999
7	359151	1	18	60	1103	0	0	4546180	4500000	5249999
8	1304570	1	18	85	1572	0	0	5851853	5250000	5999999
9	401801	3	18	50	1292	1177	1439	6255226	6000000	6749999
10	1048124	1	18	80	1097	0	0	7307258	6750000	7499999
11	675823	1	18	65	1227	0	0	7984178	7500000	8249999
12	702732	3	18	90	1267	1418	1651	8688137	8250000	8999999
13	728179	3	18	55	1552	1795	1892	9420652	9000000	9749999
14	805121	2	18	75	1558	1546	0	10231012	9750000	10499999
15	289720	2	18	55	1447	1460	0	10523836	10500000	11249999
16	1293072	1	18	70	1501	0	0	11819815	11250000	11999999

Total number of pulses in waveform = 27  
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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	5492	1	16	5510	1
2	5492	1	17	5510	1
3	5492	1	18	5510	1
4	5492	1	19	5512	1
5	5500	1	20	5512	1
6	5500	1	21	5512	1
7	5500	1	22	5512	1
8	5500	1	23	5520	1
9	5508	1	24	5520	1
10	5508	1	25	5520	1
11	5508	1	26	5520	1
12	5508	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)
0	5517	0	5	5498	15
6	5483	18	7	5508	21
9	5492	27	8	5487	24
10	5522	30	9	5511	27
34	5481	102	36	5492	108
42	5509	126	50	5469	150
45	5513	135	52	5501	156
53	5502	159	54	5473	162
56	5497	168	71	5503	213
57	5463	171	73	5490	219
59	5504	177	82	5515	246
68	5488	204	84	5506	252
75	5510	225	92	5520	276
77	5482	231	--	--	--
84	5479	252	--	--	--
98	5478	294	--	--	--

Radar waveform #3			Radar waveform #4		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
21	5511	63	3	5481	9
31	5499	93	13	5471	39
37	5516	111	19	5506	57
49	5484	147	33	5521	99
72	5473	216	34	5516	102
77	5490	231	37	5498	111
92	5519	276	46	5499	138
97	5476	291	51	5497	153
--	--	--	64	5490	192
--	--	--	70	5493	210
--	--	--	79	5522	237
--	--	--	85	5491	255
--	--	--	91	5518	273
--	--	--	92	5501	276
--	--	--	94	5512	282
--	--	--	96	5488	288



Radar waveform #5			Radar waveform #6		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
6	5489	18	20	5489	60
13	5472	39	24	5477	72
17	5507	51	30	5503	90
20	5509	60	39	5498	117
22	5528	66	49	5507	147
35	5523	105	54	5473	162
40	5504	120	58	5497	174
50	5486	150	62	5470	186
52	5493	156	66	5479	198
64	5513	192	71	5502	213
66	5521	198	80	5483	240
67	5526	201	84	5521	252
77	5494	231	87	5528	261
79	5522	237	--	--	--
92	5517	276	--	--	--
96	5476	288	--	--	--

Radar waveform #7			Radar waveform #8		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
6	5520	18	19	5529	57
16	5479	48	21	5479	63
17	5518	51	27	5510	81
25	5496	75	43	5522	129
39	5508	117	57	5512	171
41	5521	123	74	5476	222
65	5504	195	86	5516	258
69	5494	207	88	5485	264
97	5480	291	95	5514	285
99	5489	297	--	--	--



Radar waveform #9			Radar waveform #10		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5501	3	3	5519	9
2	5482	6	7	5482	21
6	5521	18	15	5529	45
9	5484	27	16	5528	48
10	5525	30	23	5478	69
21	5515	63	25	5533	75
24	5486	72	29	5489	87
34	5520	102	32	5487	96
46	5530	138	33	5518	99
54	5528	162	38	5510	114
55	5538	165	40	5524	120
63	5537	189	45	5530	135
66	5516	198	53	5494	159
79	5508	237	57	5483	171
91	5481	273	61	5485	183
99	5522	297	62	5537	186
--	--	--	82	5531	246
--	--	--	83	5492	249

Radar waveform #11			Radar waveform #12		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5503	15	17	5532	51
7	5492	21	22	5531	66
16	5525	48	26	5519	78
23	5538	69	29	5516	87
25	5493	75	34	5483	102
40	5508	120	41	5510	123
45	5511	135	45	5487	135
47	5517	141	53	5514	159
50	5526	150	57	5501	171
51	5513	153	61	5522	183
53	5527	159	62	5529	186
60	5534	180	87	5538	261



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63	5515	189	89	5530	267
82	5529	246	98	5504	294
93	5490	279	--	--	--



Radar waveform #13			Radar waveform #14		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5525	15	5	5521	15
8	5481	24	24	5531	72
11	5518	33	47	5518	141
23	5495	69	56	5512	168
27	5493	81	64	5535	192
35	5487	105	73	5538	219
36	5539	108	74	5523	222
57	5507	171	79	5481	237
58	5536	174	81	5506	243
62	5516	186	94	5490	282
63	5515	189	95	5496	285
65	5497	195	97	5539	291
79	5519	237	--	--	--
87	5514	261	--	--	--
88	5524	264	--	--	--

Radar waveform #15			Radar waveform #16		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5486	9	4	5488	12
8	5489	24	21	5532	63
18	5492	54	24	5496	72
26	5517	78	30	5530	90
27	5487	81	31	5511	93
29	5540	87	37	5480	111
34	5488	102	39	5491	117
41	5481	123	44	5537	132
45	5523	135	45	5489	135
48	5511	144	50	5481	150
49	5528	147	62	5509	186
50	5513	150	63	5524	189
51	5524	153	68	5498	204
54	5537	162	70	5501	210
--	--	--	74	5485	222



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--	--	--	81	5500	243
--	--	--	90	5529	270



Radar waveform #17			Radar waveform #18		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
13	5489	39	2	5489	6
30	5524	90	6	5538	18
37	5503	111	22	5483	66
43	5526	129	23	5485	69
49	5505	147	24	5519	72
51	5534	153	32	5499	96
52	5497	156	35	5522	105
54	5499	162	48	5510	144
57	5530	171	54	5511	162
61	5494	183	58	5529	174
64	5485	192	62	5480	186
66	5506	198	74	5512	222
76	5483	228	76	5492	228
83	5481	249	--	--	--
86	5517	258	--	--	--

Radar waveform #19			Radar waveform #20		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5528	6	2	5541	6
5	5494	15	7	5494	21
26	5490	78	8	5482	24
29	5533	87	22	5497	66
30	5527	90	24	5520	72
32	5537	96	44	5542	132
33	5509	99	46	5488	138
58	5513	174	61	5518	183
60	5521	180	65	5510	195
65	5486	195	67	5536	201
66	5526	198	69	5535	207
69	5503	207	70	5499	210
74	5539	222	78	5516	234
76	5499	228	79	5540	237
77	5531	231	85	5517	255



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82	5506	246	89	5538	267
86	5514	258	99	5513	297



Radar waveform #21			Radar waveform #22		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
5	5502	15	6	5529	18
9	5497	27	7	5487	21
13	5531	39	30	5534	90
14	5516	42	31	5509	93
56	5506	168	35	5536	105
58	5510	174	39	5528	117
62	5514	186	49	5493	147
66	5494	198	54	5517	162
75	5507	225	68	5484	204
77	5537	231	94	5535	282
83	5503	249	--	--	--
87	5504	261	--	--	--
89	5527	267	--	--	--
94	5535	282	--	--	--

Radar waveform #23			Radar waveform #24		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5545	3	6	5497	18
2	5528	6	15	5493	45
10	5518	30	18	5546	54
11	5527	33	20	5515	60
39	5520	117	26	5544	78
67	5510	201	28	5543	84
70	5517	210	33	5540	99
74	5490	222	35	5548	105
82	5533	246	52	5531	156
85	5516	255	53	5492	159
90	5505	270	54	5536	162
--	--	--	79	5507	237
--	--	--	91	5525	273
--	--	--	98	5504	294





Radar waveform #25			Radar waveform #26		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
9	5548	27	3	5532	9
13	5512	39	5	5504	15
21	5495	63	9	5546	27
26	5527	78	19	5534	57
33	5494	99	23	5539	69
34	5500	102	24	5523	72
37	5497	111	35	5525	105
42	5498	126	38	5542	114
44	5503	132	50	5529	150
52	5522	156	63	5530	189
79	5538	237	81	5516	243
84	5511	252	98	5541	294
93	5529	279	--	--	--

Radar waveform #27			Radar waveform #28		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
0	5528	0	6	5556	18
4	5538	12	9	5533	27
19	5502	57	11	5543	33
42	5506	126	22	5544	66
43	5529	129	28	5538	84
51	5546	153	37	5529	111
58	5517	174	75	5509	225
65	5507	195	96	5535	288
66	5523	198	98	5498	294
94	5515	282	--	--	--



Radar waveform #29			Radar waveform #30		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5499	3	2	5507	6
13	5526	39	3	5524	9
24	5536	72	12	5502	36
36	5509	108	16	5549	48
40	5547	120	23	5529	69
41	5535	123	30	5522	90
50	5544	150	42	5536	126
51	5551	153	59	5516	177
74	5514	222	64	5521	192
88	5519	264	79	5527	237
--	--	--	80	5503	240
--	--	--	97	5538	291



Product	WIFI dual band 4 GE LAN GPON HGU	Temperature	27°C
Test Engineer	Amy Zhang	Relative Humidity	65%
Test Site	TR5	Test Date	2018/08/27
Test Item	Radar Statistical Performance Check (802.11ac-VHT80 mode – 5530MHz)		

## Radar Type 1 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5491	1	578	92	1
2	5491	1	918	58	1
3	5500	1	838	63	1
4	5500	1	678	78	1
5	5509	1	618	86	1
6	5509	1	898	59	1
7	5510	1	538	99	1
8	5510	1	758	70	1
9	5511	1	3066	18	1
10	5511	1	858	62	1
11	5520	1	558	95	1
12	5520	1	518	102	1
13	5529	1	878	61	1
14	5529	1	938	57	1
15	5530	1	798	67	1
16	5530	1	1763	30	1
17	5531	1	1657	32	1
18	5531	1	2176	25	1
19	5540	1	723	73	1
20	5540	1	1869	29	1
21	5549	1	1550	35	1
22	5549	1	1546	35	1
23	5550	1	960	55	1
24	5550	1	2319	23	1
25	5551	1	2856	19	1
26	5551	1	2492	22	1



Trail #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
27	5560	1	1944	28	1
28	5560	1	1564	34	1
29	5569	1	1135	47	1
30	5569	1	1007	53	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	1.8	211	29	1
2	5491	3.0	159	25	1
3	5500	3.8	224	24	1
4	5500	5.0	220	28	1
5	5509	3.7	224	26	1
6	5509	4.1	224	28	1
7	5510	2.8	220	26	1
8	5510	2.1	186	25	1
9	5511	1.2	181	29	1
10	5511	5.0	213	25	1
11	5520	1.7	221	26	1
12	5520	3.7	176	25	1
13	5529	3.3	188	25	1
14	5529	2.6	176	24	1
15	5530	3.3	175	24	1
16	5530	4.4	200	28	1
17	5531	3.7	207	29	1
18	5531	2.8	215	27	1
19	5540	3.9	211	23	1
20	5540	3.2	162	23	1
21	5549	1.3	215	24	1
22	5549	2.7	192	25	1
23	5550	4.6	211	25	1
24	5550	4.9	154	27	1
25	5551	3.3	229	27	1
26	5551	1.8	186	25	1
27	5560	1.7	156	25	1
28	5560	2.1	202	29	1
29	5569	3.2	184	29	1
30	5569	1.1	225	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	9.7	321	16	1
2	5491	8.1	422	16	1
3	5500	6.8	424	16	1
4	5500	8.5	459	18	1
5	5509	6.2	297	16	1
6	5509	6.9	250	18	1
7	5510	9.1	277	17	1
8	5510	8.6	305	17	1
9	5511	8.9	303	18	1
10	5511	6.6	336	16	1
11	5520	10.0	285	16	1
12	5520	9.6	440	18	1
13	5529	9.4	483	16	1
14	5529	9.4	499	16	1
15	5530	8.7	418	17	1
16	5530	8.1	484	18	1
17	5531	6.5	413	16	1
18	5531	10.0	379	16	1
19	5540	8.7	325	18	1
20	5540	8.8	272	16	1
21	5549	9.8	338	17	1
22	5549	8.5	425	16	1
23	5550	8.4	291	18	1
24	5550	8.8	401	18	1
25	5551	8.3	396	18	1
26	5551	7.7	401	16	1
27	5560	7.6	369	17	1
28	5560	7.9	373	16	1
29	5569	6.4	255	16	1
30	5569	7.7	396	16	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	18.1	345	14	1
2	5491	12.3	409	12	1
3	5500	15.2	482	15	1
4	5500	11.3	263	13	1
5	5509	17.5	279	15	1
6	5509	15.1	326	12	1
7	5510	16.3	309	14	1
8	5510	15.9	381	15	1
9	5511	18.2	474	12	1
10	5511	18.3	463	13	1
11	5520	17.1	295	16	1
12	5520	16.2	295	13	1
13	5529	16.7	281	16	1
14	5529	15.6	354	13	1
15	5530	15.6	432	15	1
16	5530	13.4	429	15	1
17	5531	19.7	301	13	1
18	5531	16.9	379	13	1
19	5540	14.4	439	15	1
20	5540	16.9	428	16	1
21	5549	17.0	434	14	1
22	5549	11.4	402	16	1
23	5550	18.6	377	15	1
24	5550	13.7	436	15	1
25	5551	12.5	352	15	1
26	5551	11.5	343	13	1
27	5560	13.7	370	16	1
28	5560	11.3	331	12	1
29	5569	12.9	428	13	1
30	5569	13.4	500	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:  $\frac{P_d1+P_d2+P_d3+P_d4}{4} = (100\%+100\%+100\%+100\%)/4 = 100\%$

(>80%)





Radar Type 5 - Radar Statistical Performance

Trail #	Test Freq. (MHz)	1=Detection 0=No Detection	Trail #	Test Freq. (MHz)	1=Detection 0=No Detection
1	5498.6	1	16	5530	1
2	5494.6	1	17	5530	1
3	5497.8	1	18	5530	1
4	5493.0	1	19	5530	1
5	5494.2	1	20	5530	1
6	5495.0	1	21	5565.8	1
7	5498.2	1	22	5566.6	1
8	5496.6	1	23	5565.4	1
9	5495.8	1	24	5565.0	1
10	5493.4	1	25	5563.4	1
11	5530.0	1	26	5562.2	1
12	5530.0	1	27	5561.8	1
13	5530.0	1	28	5564.2	1
14	5530.0	1	29	5561.4	1
15	5530.0	1	30	5567.0	1
Detection Percentage (%)					100%

Type 5 Radar Waveform_1										
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	1056271	3	19	60	1367	1156	1327	1056271	0	1199999
2	1257408	3	19	95	1850	1881	1701	2317529	1200000	2399999
3	477198	3	19	95	1088	1077	1683	2800159	2400000	3599999
4	1625091	2	19	100	1984	1494	0	4429098	3600000	4799999
5	1339436	3	19	70	1328	1409	1470	5772012	4800000	5999999
6	574112	3	19	80	1850	1896	1171	6350331	6000000	7199999
7	1956795	2	19	55	1846	1869	0	8312043	7200000	8399999
8	716923	1	19	60	1831	0	0	9032681	8400000	9599999
9	1111640	2	19	80	1941	1817	0	10146152	9600000	10799999
10	1644443	2	19	95	1315	1003	0	11794353	10800000	11999999
Total number of pulses in waveform = 24										
*****										



### Type 5 Radar Waveform\_2

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	486679	1	9	75	1410	0	0	486679	0	923076
2	1336409	1	9	55	1197	0	0	1824498	923077	1846153
3	503366	3	9	75	1521	1554	1489	2329061	1846154	2769230
4	1070648	1	9	95	1737	0	0	3404273	2769231	3692307
5	1070022	2	9	100	1832	1987	0	4476032	3692308	4615384
6	642697	1	9	50	1977	0	0	5122548	4615385	5538461
7	1043421	2	9	80	1270	1200	0	6167946	5538462	6461538
8	591932	1	9	50	1644	0	0	6762348	6461539	7384615
9	690110	2	9	50	1960	1152	0	7454102	7384616	8307692
10	1588883	1	9	90	1572	0	0	9046097	8307693	9230769
11	699547	1	9	50	1152	0	0	9747216	9230770	10153846
12	776593	2	9	65	1739	1429	0	10524961	10153847	11076923
13	869239	3	9	60	1072	1093	1793	11397368	11076924	12000000

Total number of pulses in waveform = 21  
\*\*\*\*\*

### Type 5 Radar Waveform\_3

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	577052	2	17	60	1681	1243	0	577052	0	1199999
2	631467	3	17	95	1311	1694	1980	1211443	1200000	2399999
3	1685205	3	17	95	1176	1276	1256	2901633	2400000	3599999
4	1018346	3	17	95	1714	1059	1533	3923687	3600000	4799999
5	1602479	2	17	70	1569	1109	0	5530472	4800000	5999999
6	742656	1	17	55	1284	0	0	6275806	6000000	7199999
7	1384566	3	17	60	1504	1916	1918	7661656	7200000	8399999
8	1806415	3	17	65	1085	1515	1652	9473409	8400000	9599999
9	617572	2	17	100	1251	1608	0	10095233	9600000	10799999
10	1042784	1	17	60	1947	0	0	11140876	10800000	11999999

Total number of pulses in waveform = 23  
\*\*\*\*\*

### Type 5 Radar Waveform\_4

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	1466124	1	5	95	1995	0	0	1466124	0	1499999
2	1137214	3	5	60	1646	1487	1960	2605333	1500000	2999999
3	1169959	1	5	70	1768	0	0	3780385	3000000	4499999
4	1322455	1	5	60	1684	0	0	5104608	4500000	5999999
5	999134	3	5	70	1011	1014	1687	6105426	6000000	7499999
6	2736608	2	5	60	1340	1205	0	8845746	7500000	8999999
7	1382568	1	5	100	1644	0	0	10230859	9000000	10499999
8	1245072	2	5	100	1869	1757	0	11477575	10500000	11999999

Total number of pulses in waveform = 14  
\*\*\*\*\*



### Type 5 Radar Waveform\_5

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	432147	3	S	75	1698	1704	1934	432147	0	631578
2	596873	2	S	75	1069	1304	0	1034356	631579	1263157
3	653898	2	S	55	1659	1962	0	1690617	1263158	1894736
4	284808	1	S	65	1454	0	0	1979046	1894737	2526315
5	567809	3	S	70	1544	1414	1562	2548309	2526316	3157894
6	1180086	1	S	90	1887	0	0	3732915	3157895	3789473
7	464227	1	S	75	1407	0	0	4199029	3789474	4421052
8	424893	1	S	80	1020	0	0	4625329	4421053	5052631
9	716702	3	S	65	1378	1275	1762	5343051	5052632	5684210
10	771881	3	S	60	1124	1962	1995	6119347	5684211	6315789
11	341637	3	S	100	1713	1724	1437	6466065	6315790	6947368
12	1043510	2	S	65	1626	1704	0	7514449	6947369	7578947
13	198272	3	S	60	1687	1679	1873	7716051	7578948	8210526
14	833036	1	S	70	1021	0	0	8564326	8210527	8842105
15	871111	3	S	60	1850	1482	1340	9426458	8842106	9473684
16	156809	2	S	60	1181	1396	0	9587939	9473685	10105263
17	563306	3	S	50	1735	1669	1443	10153822	10105264	10736842
18	710286	1	S	85	1044	0	0	10668955	10736843	11368421
19	744633	2	S	95	1187	1290	0	11614632	11368422	12000000

Total number of pulses in waveform = 40

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### Type 5 Radar Waveform\_6

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	314585	3	10	85	1159	1643	1210	314585	0	799999
2	610712	2	10	75	1554	1695	0	929309	800000	1599999
3	842864	3	10	65	1432	1692	1155	1775422	1600000	2399999
4	1296528	1	10	100	1408	0	0	3076229	2400000	3199999
5	509241	1	10	80	1342	0	0	3586878	3200000	3999999
6	799885	3	10	90	1441	1821	1491	4388105	4000000	4799999
7	484353	1	10	85	1267	0	0	4877211	4800000	5599999
8	1511655	3	10	65	1067	1539	1287	6390133	5600000	6399999
9	695797	3	10	55	1378	1203	1823	7089823	6400000	7199999
10	868335	2	10	75	1455	1326	0	7962562	7200000	7999999
11	150622	1	10	85	1002	0	0	8115965	8000000	8799999
12	1130283	2	10	80	1536	1948	0	9247250	8800000	9599999
13	349506	3	10	55	1763	1827	1114	9600240	9600000	10399999
14	934949	2	10	55	1254	1174	0	10539893	10400000	11199999
15	924159	3	10	100	1002	1191	1710	11466480	11200000	11999999

Total number of pulses in waveform = 33

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### Type 5 Radar Waveform\_7

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	573601	3	18	50	1431	1605	1567	573601	0	599999
2	53451	3	18	65	1842	1290	1817	631645	600000	1199999
3	1084211	2	18	90	1020	1231	0	1720805	1200000	1799999
4	594107	1	18	100	1088	0	0	2317163	1800000	2399999
5	161133	2	18	95	1668	1184	0	2479384	2400000	2999999
6	746515	3	18	75	1504	1107	1463	3228751	3000000	3599999
7	687464	2	18	80	1850	1460	0	3920279	3600000	4199999
8	374828	3	18	75	1741	1096	1579	4298417	4200000	4799999
9	789465	1	18	80	1626	0	0	5092298	4800000	5399999
10	872001	1	18	55	1165	0	0	5965925	5400000	5999999
11	491593	2	18	90	1101	1136	0	6458683	6000000	6599999
12	454485	2	18	55	1304	1769	0	6915405	6600000	7199999
13	738338	1	18	85	1285	0	0	7656816	7200000	7799999
14	208178	1	18	70	1218	0	0	7866279	7800000	8399999
15	675064	3	18	65	1276	1232	1999	8542561	8400000	8999999
16	678512	2	18	55	1196	1007	0	9225580	9000000	9599999
17	457618	1	18	60	1712	0	0	9685401	9600000	10199999
18	805917	3	18	75	1761	1966	1461	10493030	10200000	10799999
19	316922	1	18	60	1244	0	0	10815130	10800000	11399999
20	1063554	2	18	70	1011	1475	0	11879928	11400000	11999999

Total number of pulses in waveform = 39

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### Type 5 Radar Waveform\_8

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	247843	2	14	50	1185	1925	0	247843	0	857142
2	1407537	2	14	60	1638	1534	0	1658490	857143	1714285
3	54633	3	14	70	1256	1278	1282	1716295	1714286	2571428
4	1351201	3	14	55	1251	1840	1769	3071312	2571429	3428571
5	885648	1	14	80	1848	0	0	3961820	3428572	4285714
6	483414	3	14	55	1130	1650	1745	4447082	4285715	5142857
7	1375269	2	14	85	1532	1049	0	5826876	5142858	6000000
8	882251	1	14	50	1340	0	0	6711708	6000001	6857143
9	556028	1	14	75	1031	0	0	7269076	6857144	7714286
10	938798	1	14	90	1586	0	0	8208905	7714287	8571429
11	850919	1	14	50	1250	0	0	9061410	8571430	9428572
12	687520	3	14	70	1639	1239	1319	9750180	9428573	10285715
13	908847	2	14	55	1752	1352	0	10663224	10285716	11142858
14	825752	1	14	65	1039	0	0	11492080	11142859	12000001

Total number of pulses in waveform = 26  
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### Type 5 Radar Waveform\_9

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	348489	3	12	100	1709	1613	1320	348489	0	923076
2	1378483	2	12	100	1237	1113	0	1731614	923077	1846153
3	134035	2	12	70	1583	1049	0	1867999	1846154	2769230
4	1528105	3	12	85	1424	1178	1556	3398736	2769231	3692307
5	569092	3	12	90	1040	1823	1706	3971986	3692308	4615384
6	1452119	3	12	100	1509	1104	1613	5428674	4615385	5538461
7	495001	2	12	85	1032	1694	0	5927901	5538462	6461538
8	690650	2	12	55	1448	1008	0	6621277	6461539	7384615
9	1402998	1	12	50	1270	0	0	8026731	7384616	8307692
10	745381	1	12	70	1954	0	0	8773382	8307693	9230769
11	1090964	3	12	60	1879	1652	1439	9866300	9230770	10153846
12	503622	1	12	70	1654	0	0	10374892	10153847	11076923
13	732801	3	12	60	1307	1279	1566	11109347	11076924	12000000

Total number of pulses in waveform = 29  
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### Type 5 Radar Waveform\_10

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	557545	2	6	75	1412	1418	0	557545	0	923076
2	985073	1	6	85	1222	0	0	1545448	923077	1846153
3	1190587	2	6	95	1255	1478	0	2737257	1846154	2769230
4	774597	2	6	65	1323	1964	0	3514587	2769231	3692307
5	943296	3	6	80	1383	1337	1407	4461170	3692308	4615384
6	731592	1	6	65	1306	0	0	5196889	4615385	5538461
7	482478	2	6	60	1221	1413	0	5680673	5538462	6461538
8	1091137	2	6	90	1355	1912	0	6774444	6461539	7384615
9	1156375	3	6	50	1008	1430	1725	7934086	7384616	8307692
10	1028794	2	6	95	1421	1197	0	8967043	8307693	9230769
11	409319	3	6	75	1585	1212	1031	9378980	9230770	10153846
12	1182669	3	6	90	1627	1863	1810	10565477	10153847	11076923
13	677723	3	6	50	1434	1195	1865	11248500	11076924	12000000

Total number of pulses in waveform = 29  
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### Type 5 Radar Waveform\_11

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	392990	3	17	80	1672	1789	1641	392990	0	599999
2	385751	1	17	65	1297	0	0	783743	600000	1199999
3	635126	3	17	80	1193	1058	1976	1420166	1200000	1799999
4	687140	3	17	85	1264	1127	1983	2111533	1800000	2399999
5	522938	1	17	90	1320	0	0	2638845	2400000	2999999
6	601942	1	17	65	1634	0	0	3242107	3000000	3599999
7	789876	3	17	55	1387	1518	1978	4033617	3600000	4199999
8	284365	1	17	70	1528	0	0	4322865	4200000	4799999
9	757411	2	17	100	1969	1355	0	5081804	4800000	5399999
10	437284	3	17	60	1463	1406	1586	5522412	5400000	5999999
11	771197	1	17	100	1059	0	0	6298064	6000000	6599999
12	705380	1	17	100	1235	0	0	7005503	6600000	7199999
13	320289	3	17	100	1293	1586	1221	7327037	7200000	7799999
14	799276	1	17	90	1427	0	0	8130413	7800000	8399999
15	724619	2	17	70	1434	1577	0	8866459	8400000	8999999
16	717172	3	17	65	1889	1725	1158	9576642	9000000	9599999
17	145541	2	17	65	1118	1674	0	9726955	9600000	10199999
18	828132	3	17	50	1391	1898	1283	10557879	10200000	10799999
19	253305	2	17	90	1982	1316	0	10815756	10800000	11399999
20	901980	3	17	50	1056	1063	1243	11721034	11400000	11999999

Total number of pulses in waveform = 42  
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### Type 5 Radar Waveform\_12

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	273952	1	14	70	1507	0	0	273952	0	1333332
2	2211991	1	14	70	1396	0	0	2487450	1333333	2666665
3	1186732	1	14	85	1089	0	0	3675578	2666666	3999998
4	433200	3	14	65	1237	1036	1276	4109867	3999999	5333331
5	1451054	3	14	50	1188	1391	1907	5564470	5333332	6666664
6	1898400	2	14	95	1455	1968	0	7467356	6666665	7999997
7	871200	1	14	50	1230	0	0	8341979	7999998	9333330
8	2201478	1	14	55	1287	0	0	10544687	9333331	10666663
9	480488	2	14	50	1844	1941	0	11026462	10666664	11999996

Total number of pulses in waveform = 15  
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### Type 5 Radar Waveform\_13

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	72198	1	19	95	1137	0	0	72198	0	599999
2	959448	1	19	100	1364	0	0	1032783	600000	1199999
3	237849	1	19	100	1875	0	0	1271996	1200000	1799999
4	1080904	1	19	75	1456	0	0	2354775	1800000	2399999
5	245573	1	19	60	1671	0	0	2601804	2400000	2999999
6	743816	1	19	70	1012	0	0	3347291	3000000	3599999
7	579613	2	19	60	1261	1851	0	3927916	3600000	4199999
8	591648	3	19	55	1128	1187	1098	4522676	4200000	4799999
9	719713	2	19	65	1364	1946	0	5245802	4800000	5399999
10	628790	3	19	70	1990	1315	1770	5877902	5400000	5999999
11	695849	2	19	50	1123	1259	0	6578826	6000000	6599999
12	167591	3	19	70	1884	1134	1246	6748799	6600000	7199999
13	719699	2	19	70	1909	1030	0	7472762	7200000	7799999
14	726932	2	19	90	1534	1202	0	8202633	7800000	8399999
15	384873	1	19	100	1992	0	0	8923530	8400000	8999999
16	468847	2	19	80	1723	1079	0	9310395	9000000	9599999
17	802504	2	19	95	1196	1135	0	9782044	9600000	10199999
18	274383	1	19	85	1291	0	0	10586879	10200000	10799999
19	1016450	3	19	85	1483	1520	1975	10862553	10800000	11399999
20	1016450	2	19	85	1019	1669	0	11883981	11400000	11999999

Total number of pulses in waveform = 36  
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### Type 5 Radar Waveform\_14

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	188528	1	8	100	1565	0	0	188528	0	631578
2	489915	1	8	85	1498	0	0	630008	631579	1263157
3	678135	3	8	60	1124	1937	1017	1359641	1263158	1894736
4	731314	3	8	95	1110	1314	1684	2095033	1894737	2526315
5	484018	1	8	100	1392	0	0	2583159	2526316	3157894
6	1117086	2	8	60	1000	1741	0	3701637	3157895	3789473
7	112801	1	8	55	1383	0	0	3817179	3789474	4421052
8	739889	2	8	95	1195	1109	0	4558451	4421053	5052631
9	992168	3	8	95	1570	1485	1961	5552923	5052632	5684210
10	599248	3	8	80	1368	1639	1665	6157188	5684211	6315789
11	601040	3	8	95	1625	1033	1050	6762901	6315790	6947368
12	192761	1	8	70	1251	0	0	6959370	6947369	7578947
13	1160903	3	8	80	1121	1371	1311	8121524	7578948	8210526
14	620601	3	8	60	1483	1270	1974	8745928	8210527	8842105
15	441830	3	8	55	1264	1255	1597	9192485	8842106	9473684
16	506521	3	8	100	1503	1299	1991	9703122	9473685	10105263
17	691064	3	8	50	1533	1783	1885	10398979	10105264	10736842
18	869488	3	8	50	1242	1781	1834	11273688	10736843	11368421
19	479985	3	8	70	1461	1039	1870	11758510	11368422	12000000

Total number of pulses in waveform = 45  
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### 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	1186722	1	18	100	1484	0	0	1186722	0	1333332
2	954413	3	18	70	1548	1590	1848	2142619	1333333	2666665
3	1300475	2	18	75	1114	1127	0	3448080	2666666	3999998
4	1695341	1	18	60	1543	0	0	5145662	3999999	5333331
5	1450426	3	18	65	1171	1193	1239	6597631	5333332	6666664
6	1038241	3	18	50	1924	1907	1759	7639475	6666665	7999997
7	1099646	2	18	90	1510	1861	0	8744711	7999998	9333330
8	1011107	3	18	95	1419	1647	1539	9759189	9333331	10666663
9	1204784	1	18	90	1460	0	0	10968578	10666664	11999996

Total number of pulses in waveform = 19  
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### Type 5 Radar Waveform\_16

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	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	1851313	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	9882347
15	1101451	1	6	95	1348	0	0	10317404	9882348	10588229
16	483036	2	6	60	1817	1934	0	10801788	10588230	11294111
17	626645	3	6	50	1478	1856	1194	11432184	11294112	11999993

Total number of pulses in waveform = 34  
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### Type 5 Radar Waveform\_17

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	67465	2	10	50	1116	1446	0	67465	0	705881
2	996270	3	10	90	1280	1729	1802	1066297	705882	1411763
3	918824	1	10	55	1972	0	0	1989932	1411764	2117645
4	791786	2	10	70	1915	1543	0	2783690	2117646	2823527
5	692510	1	10	100	1116	0	0	3479658	2823528	3529409
6	686583	3	10	85	1494	1688	1682	4167357	3529410	4235291
7	750459	3	10	100	1578	1757	1327	4922680	4235292	4941173
8	527685	3	10	70	1890	1886	1811	5455027	4941174	5647055
9	246024	2	10	90	1671	1386	0	5706638	5647056	6352937
10	920395	2	10	65	1968	1536	0	6630090	6352938	7058819
11	978776	3	10	90	1462	1689	1899	7612370	7058820	7764701
12	549943	3	10	90	1665	1723	1436	8167363	7764702	8470583
13	739765	2	10	100	1500	1407	0	8911952	8470584	9176465
14	282740	3	10	70	1944	1930	1373	9197599	9176466	9882347
15	877960	2	10	55	1549	1129	0	10080806	9882348	10588229
16	760297	1	10	60	1954	0	0	10843781	10588230	11294111
17	798913	2	10	95	1599	1196	0	11644648	11294112	11999993

Total number of pulses in waveform = 38  
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### 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	972644	3	9	90	1723	1510	1187	972644	0	999999
2	853644	2	9	95	1051	1044	0	1830708	1000000	1999999
3	772382	3	9	65	1801	1643	1372	2605185	2000000	2999999
4	1214019	1	9	95	1727	0	0	3824020	3000000	3999999
5	977567	2	9	95	1311	1432	0	4803314	4000000	4999999
6	785293	2	9	100	1257	1360	0	5591350	5000000	5999999
7	443751	3	9	80	1317	1905	1659	6037718	6000000	6999999
8	1053000	2	9	90	1671	1896	0	7095599	7000000	7999999
9	1339991	3	9	60	1093	1272	1405	8439157	8000000	8999999
10	566764	3	9	80	1883	1671	1221	9009691	9000000	9999999
11	1268258	3	9	80	1542	1290	1133	10282724	10000000	10999999
12	776589	3	9	95	1738	1866	1734	11063278	11000000	11999999

Total number of pulses in waveform = 30  
\*\*\*\*\*

### Type 5 Radar Waveform\_19

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	687906	1	5	90	1397	0	0	687906	0	1333332
2	1718494	2	5	100	1042	1041	0	2407797	1333333	2666665
3	751383	2	5	50	1543	1510	0	3161263	2666666	3999998
4	1420635	1	5	75	1026	0	0	4584951	3999999	5333331
5	2066361	1	5	95	1561	0	0	6652338	5333332	6666664
6	697087	2	5	60	1910	1769	0	7350986	6666665	7999997
7	1886712	3	5	60	1336	1205	1934	9241377	7999998	9333330
8	870883	3	5	95	1722	1275	1604	10116735	9333331	10666663
9	707140	3	5	65	1694	1103	1701	10828476	10666664	11999996

Total number of pulses in waveform = 18  
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### Type 5 Radar Waveform\_20

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	430025	2	12	90	1275	1359	0	430025	0	857142
2	1127234	1	12	70	1562	0	0	1559893	857143	1714285
3	165268	2	12	65	1772	1455	0	1726723	1714286	2571428
4	1311351	3	12	85	1840	1124	1265	3041301	2571429	3428571
5	492648	2	12	95	1617	1826	0	3538178	3428572	4285714
6	1185096	3	12	75	1267	1154	1673	4726717	4285715	5142857
7	428582	3	12	100	1739	1649	1274	5159393	5142858	6000000
8	1588804	3	12	70	1194	1494	1164	6752859	6000001	6857143
9	890677	1	12	70	1834	0	0	7647388	6857144	7714286
10	822364	1	12	65	1777	0	0	8471586	7714287	8571429
11	445050	1	12	100	1638	0	0	8918413	8571430	9428572
12	1118362	1	12	80	1909	0	0	10038413	9428573	10285715
13	975681	3	12	60	1588	1189	1011	11016003	10285716	11142858
14	294753	3	12	95	1260	1119	1945	11314544	11142859	12000001

Total number of pulses in waveform = 29  
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### Type 5 Radar Waveform\_21

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	16285	3	8	100	1705	1724	1818	16285	0	631578
2	760521	1	8	100	1828	0	0	782053	631579	1263157
3	581362	2	8	75	1770	1360	0	1365233	1263158	1894736
4	676447	3	8	85	1927	1811	1422	2044810	1894737	2526315
5	719566	2	8	85	1276	1846	0	2769536	2526316	3157894
6	733400	1	8	60	1192	0	0	3506058	3157895	3789473
7	882404	3	8	50	1252	1341	1445	4389654	3789474	4421052
8	173421	1	8	70	1395	0	0	4567113	4421053	5052631
9	532465	1	8	70	1830	0	0	5100913	5052632	5684210
10	1129212	2	8	90	1803	1600	0	6231955	5684211	6315789
11	202238	1	8	100	1578	0	0	6437596	6315790	6947368
12	1081993	1	8	85	1785	0	0	7521167	6947369	7578947
13	108177	3	8	80	1253	1098	1819	7631129	7578948	8210526
14	930232	2	8	80	1668	1279	0	8665531	8210527	8842105
15	564497	1	8	95	1404	0	0	9132975	8842106	9473684
16	909325	1	8	65	1707	0	0	10043704	9473685	10105263
17	429433	2	8	50	1488	1879	0	10474844	10105264	10736842
18	816714	3	8	85	1412	1866	1731	11294925	10736843	11368421
19	530421	3	8	60	1646	1014	1043	11830355	11368422	12000000

Total number of pulses in waveform = 96  
\*\*\*\*\*

### Type 5 Radar Waveform\_22

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	875230	3	6	100	1206	1557	1744	875230	0	1333332
2	1529885	3	6	60	1134	1116	1598	2409622	1333333	2666665
3	1135862	2	6	80	1112	1775	0	3549332	2666666	3999998
4	905844	1	6	90	1176	0	0	4458063	3999999	5333331
5	1925316	2	6	90	1705	1416	0	6384555	5333332	6666664
6	1237501	2	6	75	1364	1502	0	7625177	6666665	7999997
7	529915	1	6	80	1852	0	0	8157958	7999998	9333330
8	2467272	1	6	55	1033	0	0	10627082	9333331	10666663
9	494558	3	6	50	1450	1412	1482	11122673	10666664	11999996

Total number of pulses in waveform = 18  
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### 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	693164	1	9	60	1252	0	0	693164	0	1090908
2	1354213	2	9	60	1603	1429	0	2048629	1090909	2181817
3	814697	1	9	60	1690	0	0	2866358	2181818	3272726
4	1157919	1	9	85	1951	0	0	4025967	3272727	4363635
5	605581	3	9	80	1515	1385	1934	4633499	4363636	5454544
6	1282624	1	9	100	1498	0	0	5920957	5454545	6545453
7	1083929	1	9	70	1668	0	0	7006384	6545454	7636362
8	890447	1	9	65	1862	0	0	7898499	7636363	8727271
9	1205752	1	9	55	1135	0	0	9106113	8727272	9818180
10	766067	3	9	85	1554	1116	1755	9873315	9818181	10909089
11	1664834	3	9	50	1322	1232	1711	11542574	10909090	11999998

Total number of pulses in waveform = 18  
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### Type 5 Radar Waveform\_24

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	124033	2	10	95	1840	1132	0	124033	0	799999
2	1154520	1	10	60	1572	0	0	1281525	800000	1599999
3	856886	1	10	85	1894	0	0	2139983	1600000	2399999
4	825455	2	10	95	1145	1414	0	2967332	2400000	3199999
5	503265	2	10	95	1003	1250	0	3473156	3200000	3999999
6	795327	1	10	85	1385	0	0	4270736	4000000	4799999
7	1098911	3	10	95	1007	1641	1523	5371032	4800000	5599999
8	714383	1	10	65	1156	0	0	6089586	5600000	6399999
9	629253	3	10	75	1455	1726	1742	6719995	6400000	7199999
10	1218502	3	10	95	1850	1996	1133	7943420	7200000	7999999
11	212776	1	10	75	1532	0	0	8161175	8000000	8799999
12	698289	2	10	100	1392	1650	0	8860996	8800000	9599999
13	1169486	1	10	50	1307	0	0	10033524	9600000	10399999
14	843591	3	10	80	1838	1724	1690	10878422	10400000	11199999
15	347604	2	10	50	1433	1115	0	11231278	11200000	11999999

Total number of pulses in waveform = 28  
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### Type 5 Radar Waveform\_25

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	654630	3	14	70	1481	1423	1328	654630	0	1090908
2	1380016	1	14	85	1389	0	0	2038878	1090909	2181817
3	1205673	1	14	80	1789	0	0	3245940	2181818	3272726
4	541410	3	14	55	1606	1378	1656	3789139	3272727	4363635
5	623266	3	14	95	1866	1837	1883	4417045	4363636	5454544
6	1171637	1	14	80	1492	0	0	5594268	5454545	6545453
7	1113027	1	14	90	1058	0	0	6708787	6545454	7636362
8	1834592	1	14	100	1751	0	0	8544437	7636363	8727271
9	407561	1	14	65	1955	0	0	8953749	8727272	9818180
10	1724386	3	14	75	1114	1563	1097	10680090	9818181	10909089
11	378481	3	14	55	1429	1069	1039	11062345	10909090	11999998

Total number of pulses in waveform = 21  
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### Type 5 Radar Waveform\_26

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	165774	2	17	100	1769	1942	0	165774	0	666666
2	666825	2	17	90	1327	1916	0	836310	666667	1333333
3	966185	1	17	90	1924	0	0	1805738	1333334	2000000
4	358385	3	17	95	1089	1445	1031	2166047	2000001	2666667
5	931351	3	17	90	1657	1262	1832	3100963	2666668	3333334
6	730900	2	17	60	1912	1737	0	3836514	3333335	4000001
7	163448	2	17	80	1465	1094	0	4003611	4000002	4666668
8	951808	3	17	55	1240	1099	1373	4957978	4666669	5333335
9	575193	1	17	55	1390	0	0	5536883	5333336	6000002
10	874075	1	17	65	1070	0	0	6412348	6000003	6666669
11	355098	2	17	100	1387	1321	0	6768516	6666670	7333336
12	688878	2	17	75	1524	1931	0	7430102	7333337	8000003
13	857986	2	17	80	1251	1437	0	8291543	8000004	8666670
14	382991	2	17	50	1116	1187	0	8677222	8666671	9333337
15	1298969	2	17	75	1335	1847	0	9978494	9333338	10000004
16	454181	1	17	75	1531	0	0	10435857	10000005	10666671
17	420233	1	17	65	1484	0	0	10857621	10666672	11333338
18	589355	1	17	55	1508	0	0	11448460	11333339	12000005

Total number of pulses in waveform = 33  
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### Type 5 Radar Waveform\_27

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	297473	2	18	70	1243	1559	0	297473	0	749999
2	704986	3	18	80	1135	1943	1948	1005261	750000	1499999
3	766073	3	18	50	1119	1662	1832	1776360	1500000	2249999
4	912885	1	18	75	1235	0	0	2693858	2250000	2999999
5	776430	2	18	80	1822	1601	0	3471523	3000000	3749999
6	481345	3	18	95	1338	1707	1717	3956291	3750000	4499999
7	1210639	1	18	60	1849	0	0	5171692	4500000	5249999
8	323165	3	18	65	1804	1510	1462	5496706	5250000	5999999
9	968884	3	18	90	1952	1681	1916	6470366	6000000	6749999
10	886405	1	18	50	1930	0	0	7362320	6750000	7499999
11	153283	2	18	55	1789	1033	0	7517533	7500000	8249999
12	1282920	2	18	50	1319	1930	0	8803275	8250000	8999999
13	897603	2	18	100	1242	1991	0	9704127	9000000	9749999
14	489580	1	18	75	1136	0	0	10196940	9750000	10499999
15	394192	1	18	85	1648	0	0	10592268	10500000	11249999
16	838116	3	18	55	1923	1670	1748	11432032	11250000	11999999

Total number of pulses in waveform = 33  
\*\*\*\*\*

### Type 5 Radar Waveform\_28

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	562134	3	12	90	1282	1441	1750	562134	0	857142
2	684982	3	12	80	1512	1236	1475	1251589	857143	1714285
3	1235557	2	12	95	1388	1652	0	2491369	1714286	2571428
4	80954	3	12	100	1900	1601	1495	2575363	2571429	3428571
5	924929	2	12	85	1327	1787	0	3505288	3428572	4285714
6	1314915	1	12	90	1600	0	0	4823317	4285715	5142857
7	1000391	3	12	90	1325	1468	1082	5825308	5142858	6000000
8	583247	3	12	100	1220	1057	1553	6412430	6000001	6857143
9	988138	1	12	55	1580	0	0	7404398	6857144	7714286
10	1095525	1	12	90	1562	0	0	8501503	7714287	8571429
11	370884	1	12	70	1014	0	0	8873949	8571430	9428572
12	966893	1	12	85	1991	0	0	9841856	9428573	10285715
13	1163334	2	12	55	1038	1042	0	11007181	10285716	11142858
14	416217	1	12	100	1851	0	0	11425478	11142859	12000001

Total number of pulses in waveform = 27  
\*\*\*\*\*



### Type 5 Radar Waveform\_29

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	880447	3	19	85	1772	1678	1558	880447	0	1090908
2	609667	1	19	85	1281	0	0	1495122	1090909	2181817
3	1148169	3	19	100	1657	1588	1882	2644572	2181818	3272726
4	993125	2	19	50	1710	1275	0	3642824	3272727	4363635
5	1585935	1	19	90	1094	0	0	5231744	4363636	5454544
6	229545	1	19	60	1122	0	0	5462383	5454545	6545453
7	1342729	3	19	80	1806	1711	1863	6806234	6545454	7636362
8	1361006	1	19	50	1481	0	0	8172620	7636363	8727271
9	1317274	2	19	85	1816	1514	0	9491375	8727272	9818180
10	1331716	3	19	55	1180	1362	1710	10826421	9818181	10909089
11	651923	3	19	80	1822	1298	1132	11482596	10909090	11999998

Total number of pulses in waveform = 23  
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### Type 5 Radar Waveform\_30

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	100675	2	5	85	1601	1877	0	100675	0	705881
2	721588	3	5	50	1229	1298	1837	825741	705882	1411763
3	1135607	3	5	85	1967	1739	1125	1965712	1411764	2117645
4	369210	2	5	55	1896	1781	0	2339753	2117646	2823527
5	668617	3	5	55	1483	1730	1215	3012047	2823528	3529409
6	1093729	1	5	80	1096	0	0	4110204	3529410	4235291
7	558987	3	5	60	1846	1341	1031	4670287	4235292	4941173
8	455757	1	5	95	1100	0	0	5130262	4941174	5647055
9	622370	3	5	90	1327	1649	1607	5753732	5647056	6352937
10	813487	3	5	60	1842	1443	1774	6571802	6352938	7058819
11	1129231	1	5	80	1484	0	0	7706092	7058820	7764701
12	445502	3	5	75	1415	2000	1024	8153078	7764702	8470583
13	991991	2	5	55	1559	1928	0	9149508	8470584	9176465
14	214319	1	5	60	1740	0	0	9367314	9176466	9882347
15	861275	1	5	55	1671	0	0	10230329	9882348	10588229
16	488392	3	5	70	1819	1338	1170	10720392	10588230	11294111
17	661640	2	5	50	1792	1395	0	11386359	11294112	11999993

Total number of pulses in waveform = 37  
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## 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)
9	5517	27	7	5490	21
24	5492	72	9	5471	27
25	5509	75	12	5501	36
26	5515	78	18	5508	54
45	5513	135	26	5503	78
52	5464	156	29	5469	87
59	5512	177	36	5502	108
67	5522	201	53	5492	159
70	5476	210	78	5514	234
91	5487	273	88	5517	264
92	5463	276	89	5516	267

Radar waveform #3			Radar waveform #4		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
12	5486	36	31	5492	93
18	5514	54	34	5474	102
24	5513	72	45	5503	135
37	5523	111	47	5471	141
39	5503	117	63	5527	189
47	5515	141	68	5517	204
60	5480	180	73	5519	219
63	5518	189	90	5493	270
67	5512	201	93	5487	279
73	5497	219	94	5484	282
74	5528	222	95	5511	285
79	5498	237	--	--	--
82	5493	246	--	--	--
85	5476	255	--	--	--
89	5481	267	--	--	--



Radar waveform #5			Radar waveform #6		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5509	3	0	5538	0
3	5516	9	6	5495	18
9	5524	27	7	5532	21
10	5497	30	15	5493	45
30	5484	90	22	5501	66
32	5483	96	27	5481	81
35	5518	105	36	5494	108
43	5488	129	47	5482	141
56	5503	168	60	5515	180
67	5521	201	64	5507	192
68	5536	204	65	5521	195
70	5495	210	66	5497	198
86	5507	258	71	5492	213
89	5482	267	78	5509	234
90	5485	270	83	5534	249
--	--	--	87	5533	261
--	--	--	90	5537	270
--	--	--	97	5480	291
--	--	--	99	5498	297

Radar waveform #7			Radar waveform #8		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
0	5489	0	4	5525	12
10	5491	30	6	5517	18
23	5527	69	8	5495	24
27	5503	81	19	5515	57
61	5537	183	20	5507	60
63	5482	189	24	5510	72
65	5480	195	26	5498	78
78	5532	234	27	5492	81
85	5507	255	30	5499	90
87	5533	261	36	5537	108
88	5514	264	39	5531	117



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90	5492	270	40	5504	120
91	5490	273	44	5529	132
--	--	--	84	5519	252
--	--	--	85	5497	255
--	--	--	91	5527	273



Radar waveform #9			Radar waveform #10		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5540	6	7	5490	21
5	5496	15	15	5501	45
10	5533	30	18	5538	54
12	5506	36	21	5541	63
24	5511	72	41	5505	123
32	5492	96	47	5482	141
40	5526	120	68	5485	204
50	5521	150	70	5502	210
58	5507	174	95	5520	285
64	5519	192	97	5534	291
76	5531	228	--	--	--
85	5517	255	--	--	--
86	5483	258	--	--	--
88	5520	264	--	--	--
92	5538	276	--	--	--
98	5498	294	--	--	--

Radar waveform #11			Radar waveform #12		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
1	5523	3	5	5492	15
36	5494	108	15	5541	45
38	5535	114	29	5550	87
39	5549	117	35	5527	105
40	5513	120	44	5530	132
43	5495	129	64	5543	192
53	5536	159	72	5510	216
72	5522	216	97	5511	291
89	5498	267	99	5504	297
99	5508	297	--	--	--





Radar waveform #13			Radar waveform #14		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
3	5539	9	6	5529	18
7	5555	21	9	5505	27
31	5533	93	17	5511	51
37	5503	111	18	5548	54
38	5544	114	30	5556	90
49	5535	147	44	5546	132
50	5553	150	60	5552	180
51	5514	153	64	5509	192
59	5518	177	69	5543	207
64	5510	192	75	5521	225
65	5528	195	77	5540	231
70	5504	210	86	5526	258
82	5509	246	--	--	--
96	5534	288	--	--	--
97	5552	291	--	--	--

Radar waveform #15			Radar waveform #16		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
6	5509	18	4	5508	12
8	5535	24	9	5553	27
20	5518	60	16	5541	48
25	5559	75	29	5544	87
30	5542	90	30	5509	90
34	5545	102	50	5535	150
35	5544	105	53	5500	159
38	5520	114	60	5524	180
55	5519	165	62	5555	186
61	5522	183	63	5526	189
75	5526	225	79	5511	237
80	5501	240	93	5556	279
85	5534	255	95	5512	285
87	5512	261	96	5550	288
96	5516	288	--	--	--



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98	5527	294	--	--	--
99	5531	297	--	--	--



Radar waveform #17			Radar waveform #18		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
21	5509	63	15	5537	45
26	5529	78	36	5522	108
29	5560	87	37	5524	111
30	5516	90	40	5545	120
38	5520	114	60	5555	180
61	5558	183	80	5556	240
64	5514	192	93	5532	279
68	5502	204	--	--	--
69	5521	207	--	--	--
77	5525	231	--	--	--
94	5539	282	--	--	--
95	5544	285	--	--	--

Radar waveform #19			Radar waveform #20		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
8	5547	24	8	5567	24
11	5513	33	31	5516	93
13	5548	39	49	5529	147
19	5535	57	57	5512	171
36	5568	108	58	5547	174
39	5546	117	62	5538	186
42	5536	126	66	5553	198
46	5540	138	69	5554	207
51	5518	153	72	5562	216
71	5523	213	85	5565	255
72	5558	216	92	5522	276
79	5511	237	--	--	--
91	5517	273	--	--	--
93	5563	279	--	--	--
95	5543	285	--	--	--



Radar waveform #21			Radar waveform #22		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
7	5550	21	11	5554	33
20	5571	60	13	5519	39
28	5527	84	20	5547	60
29	5574	87	26	5541	78
35	5567	105	52	5549	156
37	5570	111	62	5571	186
39	5565	117	68	5557	204
40	5568	120	83	5537	249
43	5558	129	98	5522	294
47	5534	141	--	--	--
56	5524	168	--	--	--
77	5518	231	--	--	--
78	5562	234	--	--	--
79	5578	237	--	--	--
92	5556	276	--	--	--
96	5533	288	--	--	--

Radar waveform #23			Radar waveform #24		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
23	5534	69	6	5566	18
31	5527	93	9	5567	27
40	5556	120	14	5580	42
57	5566	171	18	5555	54
60	5580	180	23	5549	69
62	5553	186	24	5535	72
71	5572	213	29	5537	87
72	5521	216	33	5551	99
75	5545	225	35	5534	105
80	5535	240	37	5523	111
--	--	--	40	5548	120
--	--	--	42	5564	126
--	--	--	44	5531	132
--	--	--	59	5559	177



--	--	--	70	5530	210
--	--	--	76	5550	228

Radar waveform #25			Radar waveform #26		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
4	5544	12	6	5573	18
17	5575	51	12	5547	36
18	5528	54	45	5563	135
42	5579	126	47	5552	141
45	5547	135	62	5522	186
56	5554	168	69	5574	207
60	5549	180	70	5523	210
67	5574	201	81	5560	243
71	5541	213	98	5533	294
84	5543	252	--	--	--
87	5553	261	--	--	--
99	5556	297	--	--	--

Radar waveform #27			Radar waveform #28		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
6	5590	18	13	5589	39
13	5566	39	50	5562	150
17	5558	51	81	5573	243
23	5534	69	87	5536	261
26	5559	78	88	5566	264
31	5531	93	94	5546	282
39	5540	117	97	5558	291
42	5555	126	--	--	--
43	5553	129	--	--	--
56	5588	168	--	--	--



Radar waveform #29			Radar waveform #30		
Hopping Number	Frequency (MHz)	Pulse Start (ms)	Hopping Number	Frequency (MHz)	Pulse Start (ms)
2	5544	6	2	5585	6
14	5564	42	12	5549	36
17	5572	51	14	5583	42
26	5540	78	24	5598	72
31	5573	93	29	5562	87
43	5550	129	35	5538	105
45	5585	135	38	5573	114
48	5546	144	45	5584	135
53	5542	159	46	5569	138
57	5545	171	55	5559	165
63	5582	189	62	5588	186
69	5561	207	63	5572	189
78	5579	234	64	5565	192
--	--	--	98	5596	294

## 6. CONCLUSION

The data collected relate only the item(s) tested and show that the **WIFI dual band 4 GE LAN GPON HGU, FCC ID: 2ABLK-8X4G-2V2** is in compliance with FCC Rules & ISED Rules.

\_\_\_\_\_ The End \_\_\_\_\_

## Appendix A – Test Setup Photograph

Refer to “1808RSU022-UT” file.



## **Appendix B – EUT Photograph**

Refer to “1808RSU022-UE” file.