Dynamic Frequency Selection (DFS) Test Report

C9115AXI-B

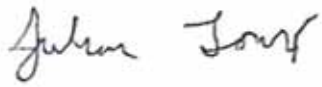
FCC ID: LDKSLTSP1905

5250-5350, 5470-5725 MHz

Against the following Specifications:

CFR47 Part 15.407

Cisco Systems
170 West Tasman Drive
San Jose, CA 95134

	
Author: Julian Land **Tested By:** Julian Land	**Approved By:** Gerard Thorpe **Title:** Compliance Manager **Revision:** 1.0

This report replaces any previously entered test report under EDCS – 16403095**.** This test report has been electronically authorized and archived using the CISCO Engineering Document Control system. Test Report Template EDCS# 1537616

Section 1: Overview

Samples were assessed against the tests detailed in section 3 under the requirements of the following specifications:

Specifications:
15.407

Measurements were made in accordance with

1. KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02

Section 2: Assessment Information

2.1 General

This report contains an assessment of an apparatus against Radio Standards based upon tests carried out on the samples submitted. The testing was performed by and for the use of Cisco systems Inc:

With regard to this assessment, the following points should be noted:

a) The results contained in this report relate only to the items tested and were obtained in the period between the date of the initial assessment and the date of issue of the report. Manufactured products will not necessarily give identical results due to production and measurement tolerances.
b) The apparatus was set up and exercised using the configuration and modes of operation defined in this report only.
c) Where relevant, the apparatus was only assessed using the susceptibility criteria defined in this report and the Test Assessment Plan (TAP).
d) All testing was performed under the following environmental conditions:

Temperature	15°C to 35°C (54°F to 95°F)
Atmospheric Pressure	860mbar to 1060mbar (25.4" to 31.3")
Humidity	10% to 75*%

All AC testing was performed at one or more of the following supply voltages:
110V 60 Hz (+/-20%)

Units of Measurement

The units of measurements defined in the appendices are reported in specific terms, which are test dependent. Where radiated measurements are concerned these are defined at a particular distance. Basic voltage measurements are defined in units of [dBuV]

As an example, the basic calculation for all measurements is as follows:

Emission level [dBuV] = Indicated voltage level [dBuV] + Cable Loss [dB] + Other correction factors [dB]

The combinations of correction factors are dependent upon the exact test configurations [see test equipment lists for further details] and may include:-

Antenna Factors, Pre Amplifier Gain, LISN Loss, Pulse Limiter Loss and Filter Insertion Loss..

Note: to convert the results from dBuV/m to uV/m use the following formula:-

Level in uV/m = Common Antilogarithm [(X dBuV/m)/20] = Y uV/m

Measurement Uncertainty Values

voltage and power measurements	± 2 dB
conducted EIRP measurements	± 1.4 dB
radiated measurements	± 3.2 dB
frequency measurements	± 2.4 10-7
temperature measurements	± 0.54º.
humidity measurements	± 2.3%
DC and low frequency measurements	± 2.5%.

Where relevant measurement uncertainty levels have been estimated for tests performed on the apparatus. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Radiated emissions (expanded uncertainty, confidence interval 95%)

30 MHz - 300 MHz	+/- 3.8 dB
300 MHz - 1000 MHz	+/- 4.3 dB
1 GHz - 10 GHz	+/- 4.0 dB
10 GHz - 18GHz	+/- 8.2 dB
18GHz - 26.5GHz	+/- 4.1 dB
26.5GHz - 40GHz	+/- 3.9 dB

Conducted emissions (expanded uncertainty, confidence interval 95%)

30 MHz – 40GHz	+/- 0.38 dB

A product is considered to comply with a requirement if the nominal measured value is below the limit line.
The product is considered to not be in compliance in case the nominal measured value is above the limit line.

2.2 Date of testing (initial sample receipt date to last date of testing)

17-DEC-2018 – 01 Feb 2019

2.3 Report Issue Date

Cisco uses an electronic system to issue, store and control the revision of test reports. This system is called the Engineering Document Control System (EDCS). The actual report issue date is embedded into the original file on EDCS. Any copies of this report, either electronic or paper, that are not on EDCS must be considered uncontrolled

2.4 Testing facilities

This assessment was performed by:

Testing Laboratory

Cisco Systems, Inc.
125 West Tasman Drive (Building P)
San Jose, CA 95134
USA

Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134
USA

Test Engineers

Julian Land

2.5 Equipment Assessed (EUT)
C9115AXI-B

2.6 EUT Description
The C9115AXI is a next generation access point. The dual band 2.4GHz and 5GHz WIFI radio supports the next generation WIFI protocol of 802.11ax and is backwards compatible with 802.11a, b, g, n, ac. The access point features 4 internal antennas and operates in a 4x4 configuration in both the 2.4GHz and 5GHz bands.

The following antennas are supported by this product series.

The data included in this report represent the worst-case data for all antennas.

Frequency	Port	Antenna Type	Antenna Gain (dBi)
2.4GHz / 5GHz	(A antenna port)	Dual Band Omnidirectional	2.3 / 4.1
2.4GHz / 5GHz	(B antenna port)	Dual Band Omnidirectional	2.6 / 4.2
2.4GHz / 5GHz	(C antenna port)	Dual Band Omnidirectional	2.2 / 4.4
2.4GHz / 5GHz	(D antenna port)	Dual Band Omnidirectional	2.4 / 4.2

Section 3: Result Summary

Antenna Conducted Test

Basic Standard	Technical Requirement / Details	Result
15.407	Dynamic Frequency Selection (DFS) Detection Threshold	Pass
	U-NII Detection Bandwidth	Pass
	Performance Requirements Check • Initial Channel Availability Check Time • Radar Pulse at the Beginning of the Channel Availability Check Time • Radar Pulse at the End of the Channel Availability Check Time	Pass
	In-Service Monitoring • Channel Move Time • Channel Closing Time	Pass
	Non-Occupancy Period	Pass
	Statistical Performance Check	Pass

Section 4: Sample Details

Note: Each sample was evaluated to ensure that its condition was suitable to be used as a test sample prior to the commencement of testing.

4.1 Sample Details

Sample No.	Equipment Details	Manufacturer	Hardware Rev.	Firmware Rev.	Software Rev.	Serial Number
S01	C9115AXI	Cisco Systems, Inc.	07 (P2C)	17.10 RC25.11	8.9.1.73	FOC22204U51
S02	Catalyst 3850 48 PoE+	Cisco Systems, Inc.	M0	1.2 (cat3k_caa-universalk9)	03.03.03SE	FOC18218BFL

4.2 System Details

System #	Description	Samples
1	EUT and Power Supply (Conducted Tests)	S01, S02

4.3 Mode of Operation Details

Mode#	Description	Comments
1	802.11a, OFDM	Receive and Transmit (1, 2, 3, or 4 chains)
2	Duplicate mode NonHT40	Receive and Transmit (1, 2, 3, or 4 chains)
3	Duplicate mode NonHT80	Receive and Transmit (1, 2, 3, or 4 chains)
4	Duplicate mode NonHT160	Receive and Transmit (1, 2, 3, or 4 chains)
5	802.11n20, OFDM	Receive and Transmit (1, 2, 3, or 4 chains)
6	802.11n40, OFDM	Receive and Transmit (1, 2, 3, or 4 chains)
7	802.11ac20, OFDM	Receive and Transmit (1, 2, 3, or 4 chains)
8	802.11ac40, OFDM	Receive and Transmit (1, 2, 3, or 4 chains)
9	802.11ac80, OFDM	Receive and Transmit (1, 2, 3, or 4 chains)
10	802.11ac160, OFDM	Receive and Transmit (1, 2, 3, or 4 chains)
11	802.11ax20, OFDMA	Receive and Transmit (1, 2, 3, or 4 chains)
12	802.11ax40, OFDMA	Receive and Transmit (1, 2, 3, or 4 chains)
13	802.11ax80, OFDMA	Receive and Transmit (1, 2, 3, or 4 chains)
14	802.11ax160, OFDMA	Receive and Transmit (1, 2, 3, or 4 chains)

Appendix A: Dynamic Frequency Selection (DFS)

From 15.407:

(h) Transmit Power Control (TPC) and Dynamic Frequency Selection (DFS).

(1) Transmit power control (TPC). U-NII devices operating in the 5.25-5.35 GHz band and the 5.47-5.725 GHz band shall employ a TPC mechanism. The U-NII device is required to have the capability to operate at least 6 dB below the mean EIRP value of 30 dBm. A TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW.

(2) Radar Detection Function of Dynamic Frequency Selection (DFS). U-NII devices operating with any part of its 26 dB emission bandwidth in the 5.25-5.35 GHz and 5.47-5.725 GHz bands shall employ a DFS radar detection mechanism to detect the presence of radar systems and to avoid co-channel operation with radar systems. Operators shall only use equipment with a DFS mechanism that is turned on when operating in these bands. The device must sense for radar signals at 100 percent of its emission bandwidth. The minimum DFS detection threshold for devices with a maximum e.i.r.p. of 200 mW to 1 W is −64 dBm. For devices that operate with less than 200 mW e.i.r.p. and a power spectral density of less than 10 dBm in a 1 MHz band, the minimum detection threshold is −62 dBm. The detection threshold is the received power averaged over 1 microsecond referenced to a 0 dBi antenna. For the initial channel setting, the manufacturers shall be permitted to provide for either random channel selection or manual channel selection.

(i) Operational Modes. The DFS requirement applies to the following operational modes:

(A) The requirement for channel availability check time applies in the master operational mode.

(B) The requirement for channel move time applies in both the master and slave operational modes.

(ii) Channel Availability Check Time. A U-NII device shall check if there is a radar system already operating on the channel before it can initiate a transmission on a channel and when it has to move to a new channel. The U-NII device may start using the channel if no radar signal with a power level greater than the interference threshold values listed in paragraph (h)(2) of this section, is detected within 60 seconds.

(iii) Channel Move Time. After a radar's presence is detected, all transmissions shall cease on the operating channel within 10 seconds. Transmissions during this period shall consist of normal traffic for a maximum of 200 ms after detection of the radar signal. In addition, intermittent management and control signals can be sent during the remaining time to facilitate vacating the operating channel.

(iv) Non-occupancy Period. A channel that has been flagged as containing a radar system, either by a channel availability check or in-service monitoring, is subject to a non-occupancy period of at least 30 minutes. The non-occupancy period starts at the time when the radar system is detected.

(i) *Device Security.* All U-NII devices must contain security features to protect against modification of software by unauthorized parties.

(1) Manufacturers must implement security features in any digitally modulated devices capable of operating in any of the U-NII bands, so that third parties are not able to reprogram the device to operate outside the parameters for which the device was certified. The software must prevent the user from

operating the transmitter with operating frequencies, output power, modulation types or other radio frequency parameters outside those that were approved for the device. Manufacturers may use means including, but not limited to the use of a private network that allows only authenticated users to download software, electronic signatures in software or coding in hardware that is decoded by software to verify that new software can be legally loaded into a device to meet these requirements and must describe the methods in their application for equipment authorization.

(2) Manufacturers must take steps to ensure that DFS functionality cannot be disabled by the operator of the U-NII device.

A.1.0 UNII Device Description

1. The device operates in the following bands:
    a. 5150-5250 MHz
    b. 5250-5350 MHz
    c. 5470-5725 MHz
    d. 5725-5850 MHz

2. The maximum EIRP of the 5GHz equipment is 34.35dBm, and the minimum possible EIRP is 0dBm.

    Below are the available 50 ohm antenna assemblies and their corresponding gains. 0dBi gain was used to set the -63 dBm threshold level (-64dBm +1 dB) during calibration of the test setup.

Frequency	Port	Antenna Type	Antenna Gain (dBi)
2.4GHz / 5GHz	(A antenna port)	Dual Band Omnidirectional	2.3 / 4.1
2.4GHz / 5GHz	(B antenna port)	Dual Band Omnidirectional	2.6 / 4.2
2.4GHz / 5GHz	(C antenna port)	Dual Band Omnidirectional	2.2 / 4.4
2.4GHz / 5GHz	(D antenna port)	Dual Band Omnidirectional	2.4 / 4.2

3. System testing was performed with channel traffic that met the required 17% traffic loading

4. The Master requires 199.2 seconds to complete its power-on cycle.

5. Information regarding the parameters of the detected Radar Waveforms is not available to the end user.

6. For the 5250-5350 MHz and 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.

A.2.0 DFS Detection Thresholds

1. **Interference Threshold values, Master or Client incorporating In-Service Monitoring**

Table 3: DFS Detection Thresholds for Master Devices and Client Devices With Radar Detection

Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna. **Note 2:** Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response. **Note3:** EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.	

2. **DFS Response Requirement Values**

Table 4: DFS Response Requirement Values

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.	

A.3.0 Radar Test Waveforms

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.

1. **Short Pulse Radar Test Waveforms**

Table 5 – 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 5a	Roundup $\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot 10^6}{PRI_{\mu sec}}\right)\right\}$	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.					

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. If more than 30 waveforms are used for Short Pulse Radar Type 1, then each additional waveform is generated with Test B and must also be unique and not repeated from the previous waveforms in Tests A or B.

For example if in Short Pulse Radar Type 1 Test B a PRI of 3066 usec is selected, the number of pulses would be $\text{Roundup}\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot 10^6}{3066}\right)\right\} = \text{Roundup}\{17.2\} = 18.$

Table 5a - Pulse Repetition Intervals Values for Test A

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

The aggregate is the average of the percentage of successful detections of Short Pulse Radar Types 1-4. For example, the following table indicates how to compute the aggregate of percentage of successful detections.

Radar Type	Number of Trials	Number of Successful Detections	Minimum Percentage of Successful Detection
1	35	29	82.9%
2	30	18	60%
3	30	27	90%
4	50	44	88%
Aggregate (82.9% + 60% + 90% + 88%)/4 = 80.2%			

2. **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 Trials
5	50-100	5-20	1000-2000	1-3	8-20	80%	30

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

Each waveform is defined as follows:

1) The transmission period for the Long Pulse Radar test signal is 12 seconds.
2) There are a total of 8 to 20 Bursts in the 12 second period, with the number of Bursts being randomly chosen. This number is Burst_Count.
3) Each Burst consists of 1 to 3 pulses, with the number of pulses being randomly chosen. Each Burst within the 12 second sequence may have a different number of pulses.
4) The pulse width is between 50 and 100 microseconds, with the pulse width being randomly chosen. Each pulse within a Burst will have the same pulse width. Pulses in different Bursts may have different pulse widths.
5) Each pulse has a linear FM chirp between 5 and 20 MHz, with the chirp width being randomly chosen. Each pulse within a Burst will have the same chirp width. Pulses in different Bursts may have different chirp widths. The chirp is centered on the pulse. For example, with a radar frequency of 5300 MHz and a 20 MHz chirped signal, the chirp starts at 5290 MHz and ends at 5310 MHz.
6) If more than one pulse is present in a Burst, the time between the pulses will be between 1000 and 2000 microseconds, with the time being randomly chosen. If three pulses are present in a Burst, the time between the first and second pulses is chosen independently of the time between the second and third pulses.
7) The 12 second transmission period is divided into even intervals. The number of intervals is equal to Burst_Count. Each interval is of length (12,000,000 / Burst_Count) microseconds. Each interval contains one Burst. The start time for the Burst, relative to the beginning of the interval, is between 1 and [(12,000,000 / Burst_Count) – (Total Burst Length) + (One Random PRI Interval)] microseconds, with the start time being randomly chosen. The step interval for the start time is 1 microsecond. The start time for each Burst is chosen independently.

A representative example of a Long Pulse Radar Type waveform:

1) The total test waveform length is 12 seconds.
2) Eight (8) *Bursts* are randomly generated for the *Burst_Count*.
3) *Burst* 1 has 2 randomly generated pulses.
4) The pulse width (for both pulses) is randomly selected to be 75 microseconds.
5) The PRI is randomly selected to be at 1213 microseconds.
6) *Bursts* 2 through 8 are generated using steps 3 – 5.

7) Each *Burst* is contained in even intervals of 1,500,000 microseconds. The starting location for Pulse 1, *Burst* 1 is randomly generated (1 to 1,500,000 minus the total *Burst* 1 length + 1 random PRI interval) at the 325,001 microsecond step. *Bursts* 2 through 8 randomly fall in successive 1,500,000 microsecond intervals (i.e. *Burst* 2 falls in the 1,500,001 – 3,000,000 microsecond range).

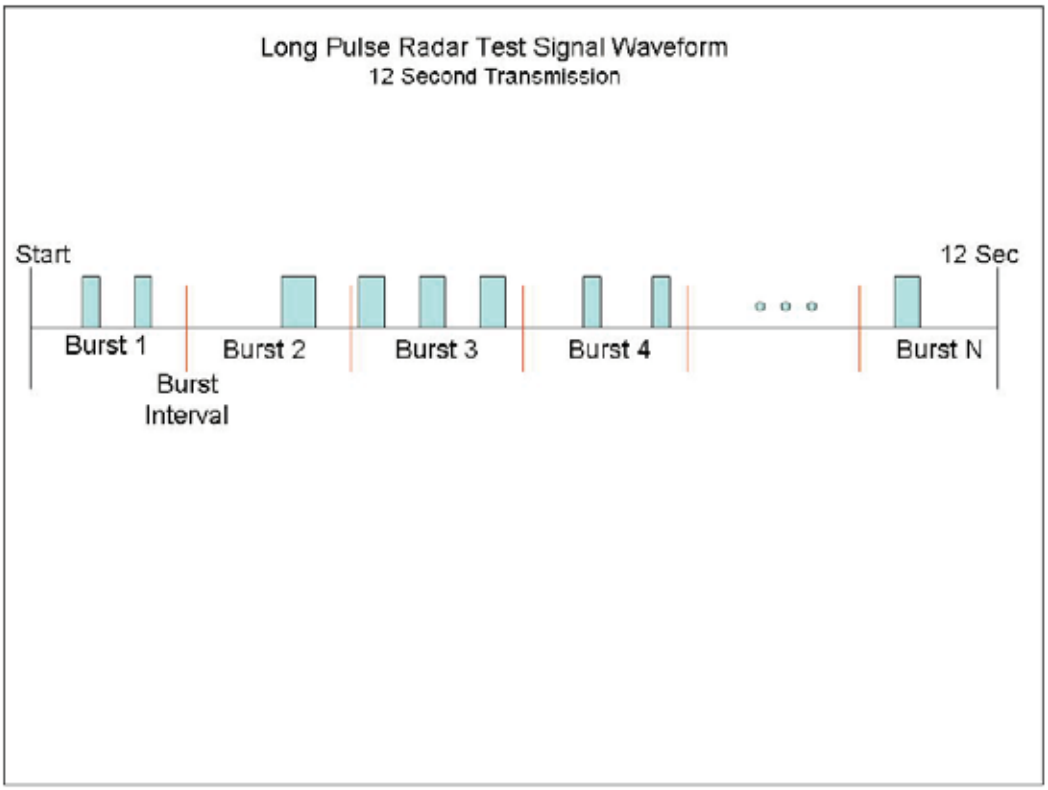


Figure 1: Graphical Representation of a Long Pulse Radar Type Waveform

3. **Frequency Hopping Radar Test Waveform**

Table 7 – 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 Trials
6	1	333	9	.333	300	70%	30

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[1] 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 – 5724 MHz. 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.

Appendix B: Dynamic Frequency Selection / Test Results

Standards Reference:

15.407 / RSS-247

Test Procedure

Ref. KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02

Test parameters
Span = 0 Hz RBW ≥ 3 MHz VBW ≥ 3 MHz Detector = Peak Trace = Single sweep

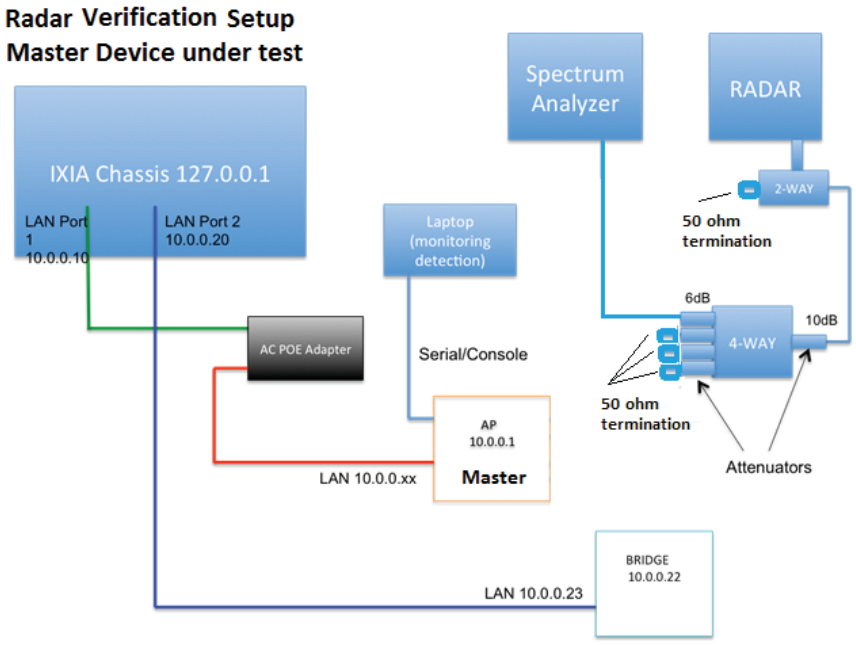
Tested By :	**Date of testing:**
Julian Land	17-DEC-2018 – 02 Feb 2019
Test Result : PASS	

See Appendix C for list of test equipment

Waveform Verification

The following equipment setup was used to calibrate the conducted Radar Waveform. A spectrum analyzer was used to establish the test signal level for each radar type. During this process there were no transmissions by either the Master or Client Device. The spectrum analyzer was switched to the zero span (Time Domain) mode at the frequency of the Radar Waveform generator. Peak detection was utilized. The spectrum analyzer resolution bandwidth (RBW) and video bandwidth (VBW) were set to 3 MHz.

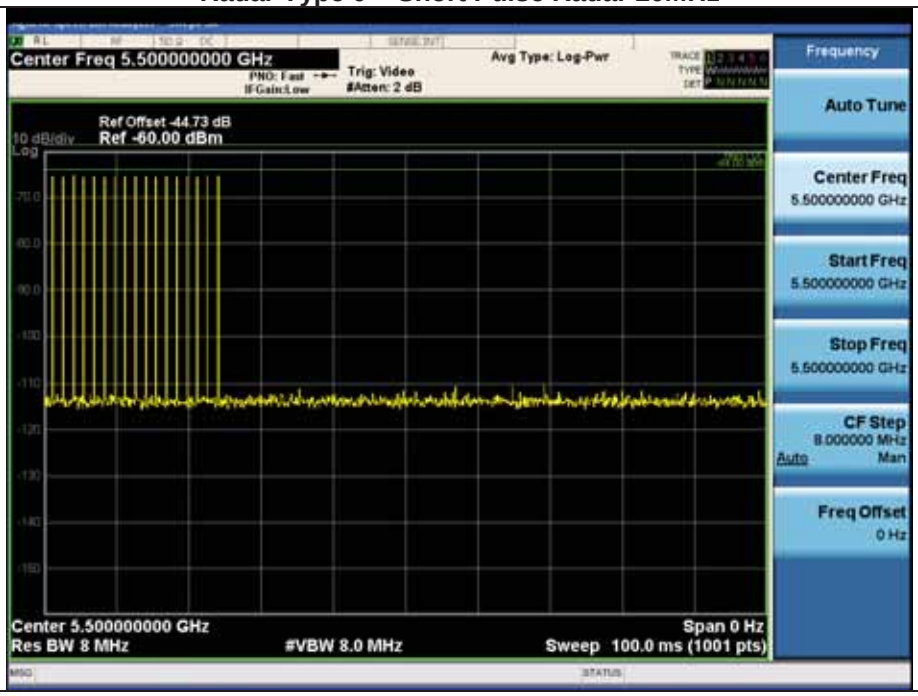
The signal generator amplitude was set so that the power level measured at the spectrum analyzer was -63dBm.



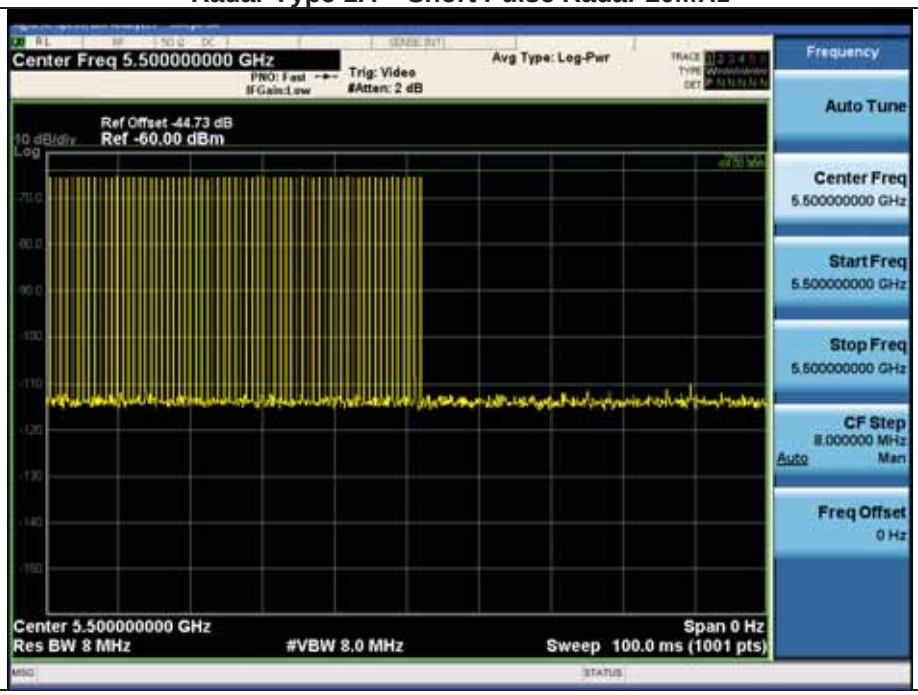
Conducted Calibration Setup

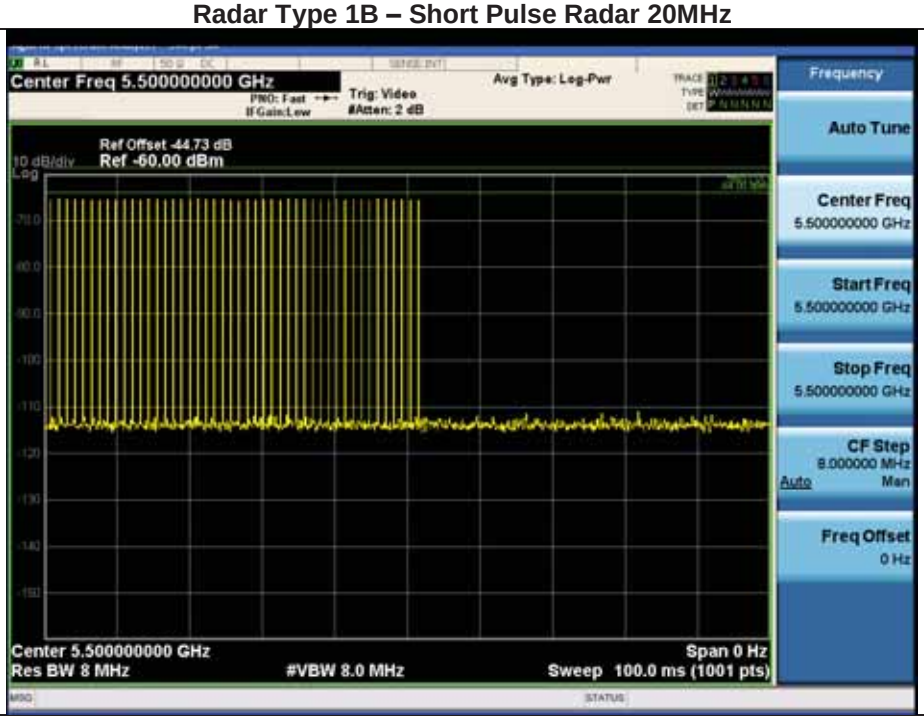
Following are the verification plots for each of the required radar waveforms.

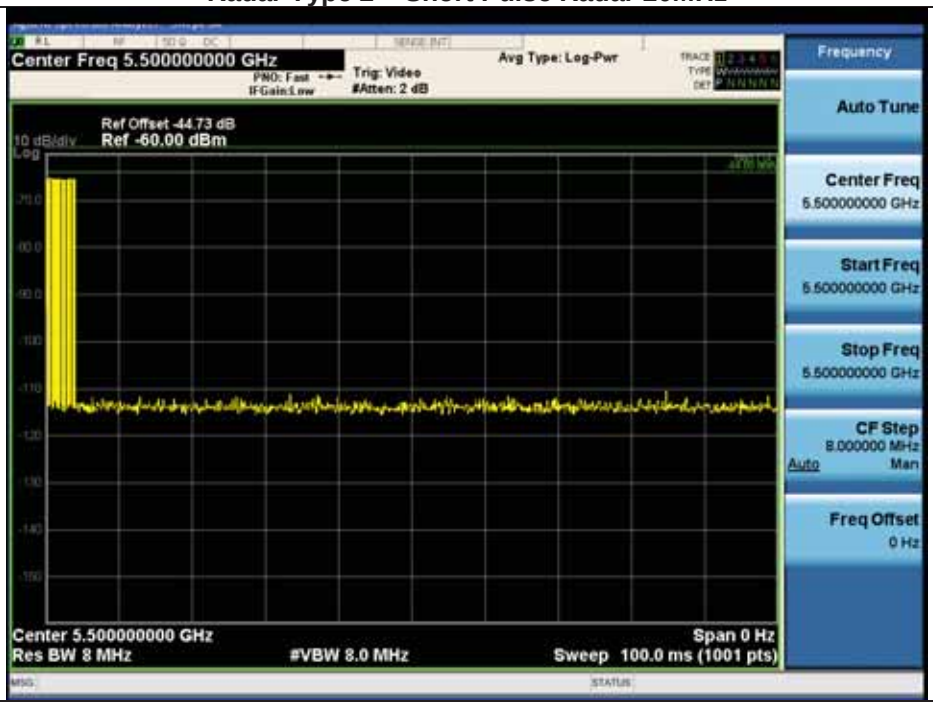
Radar Type 0 – Short Pulse Radar 20MHz



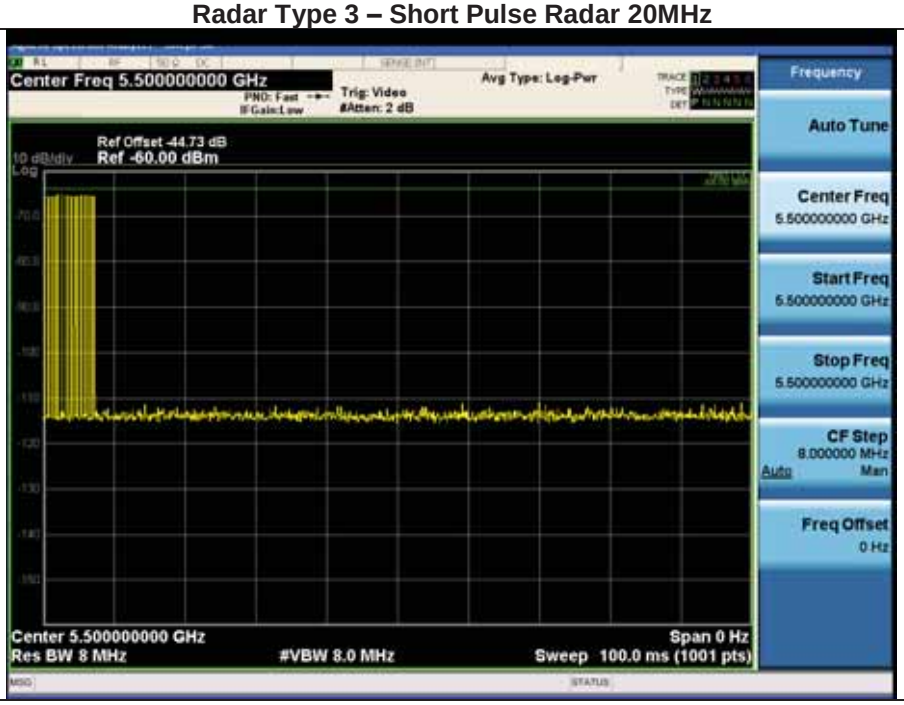
Radar Type 1A – Short Pulse Radar 20MHz



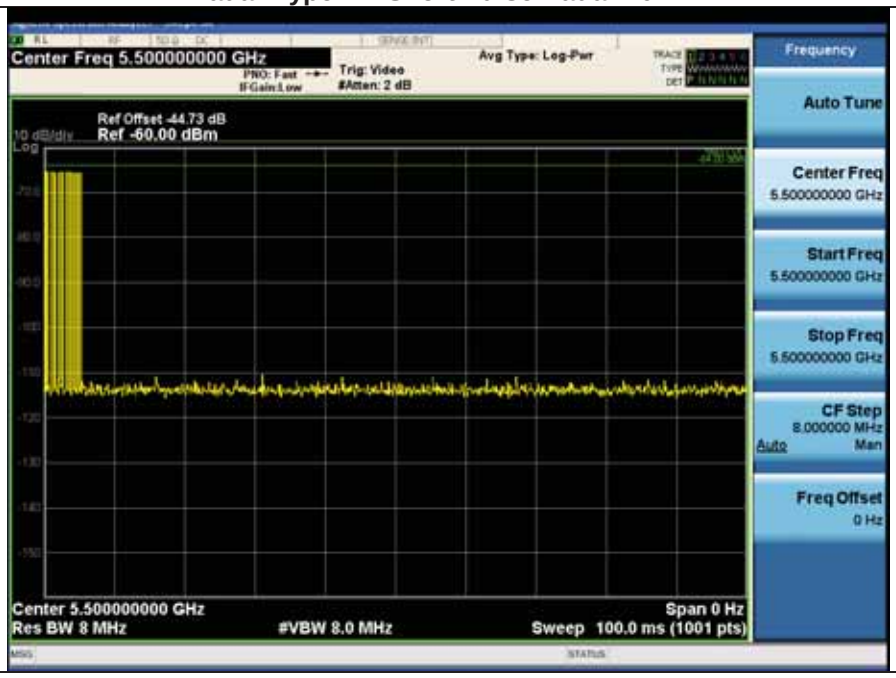
Radar Type 1B – Short Pulse Radar 20MHz


Radar Type 2 – Short Pulse Radar 20MHz


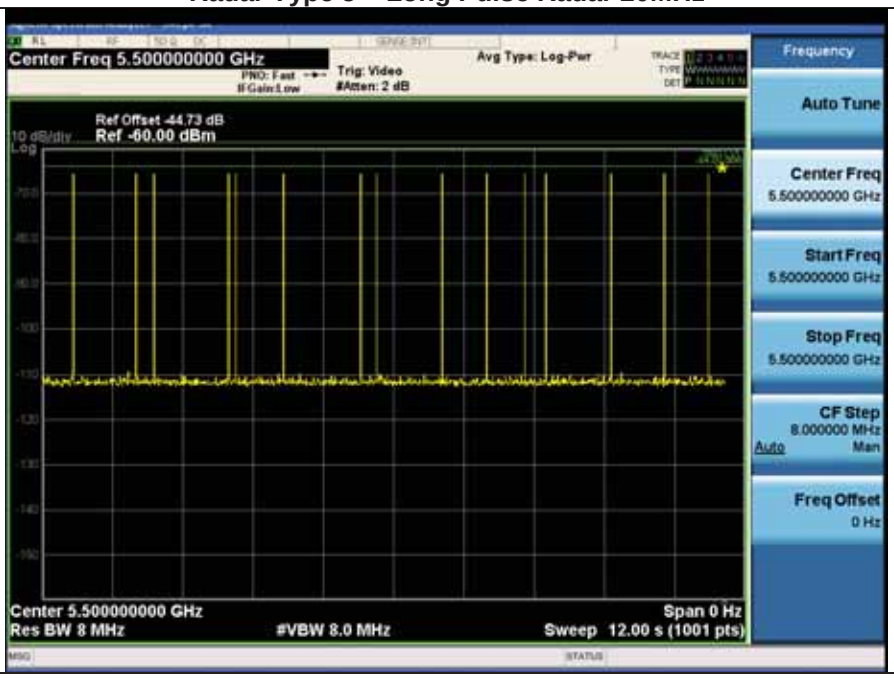
Radar Type 3 – Short Pulse Radar 20MHz



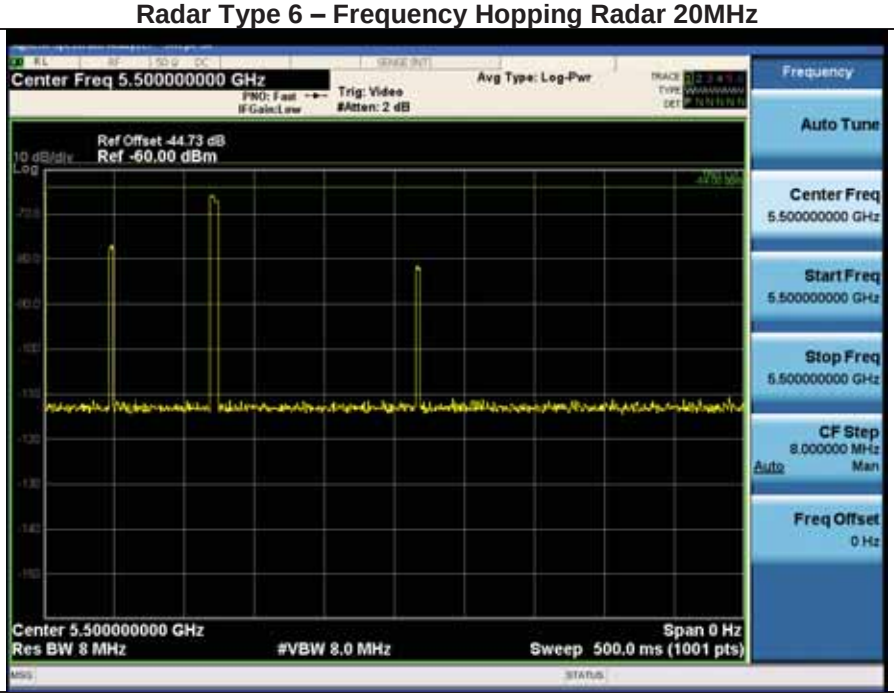
Radar Type 4 – Short Pulse Radar 20MHz

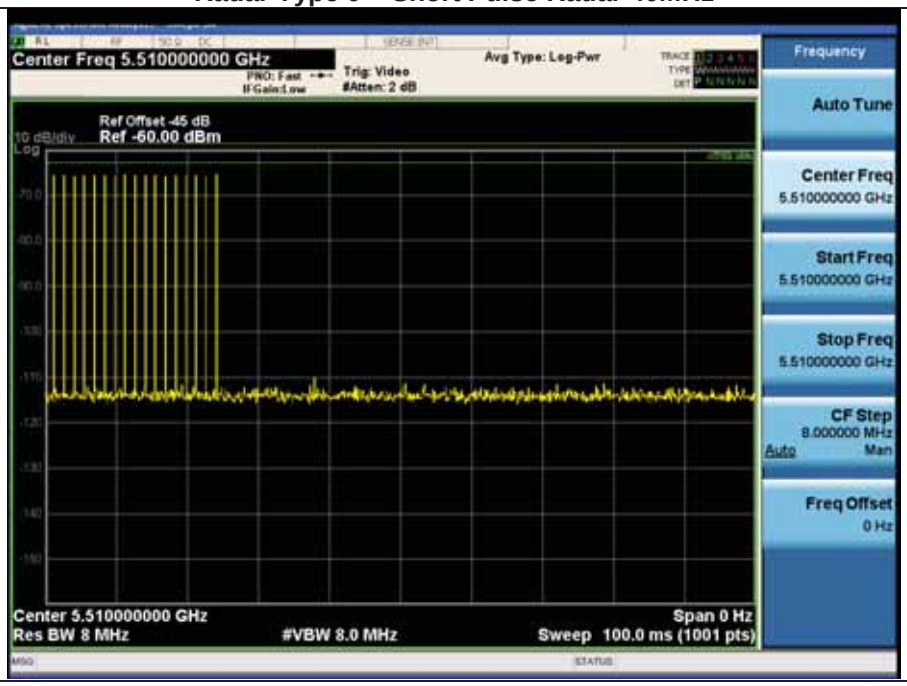


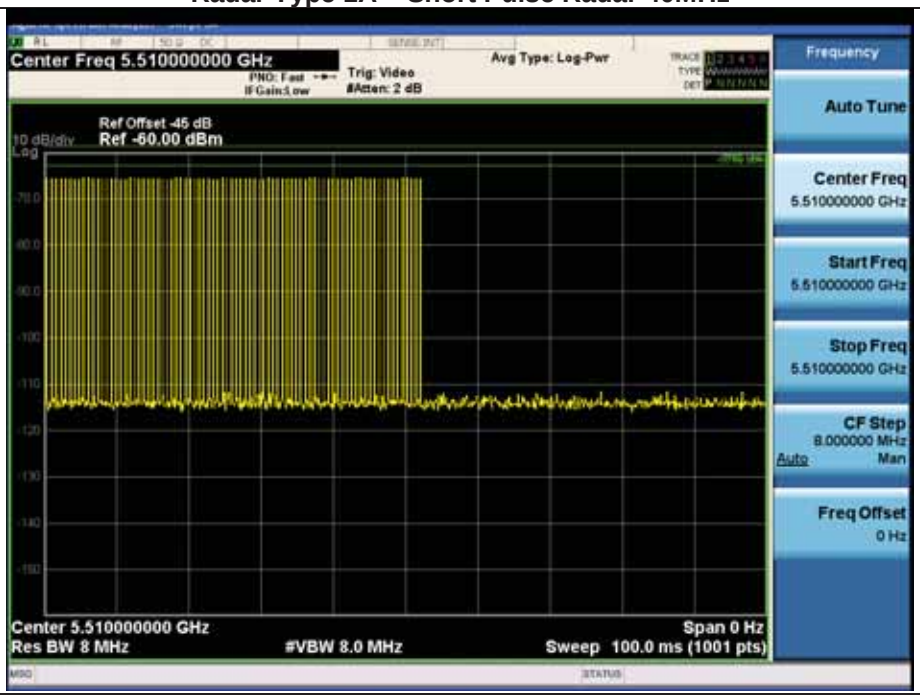
Radar Type 5 – Long Pulse Radar 20MHz



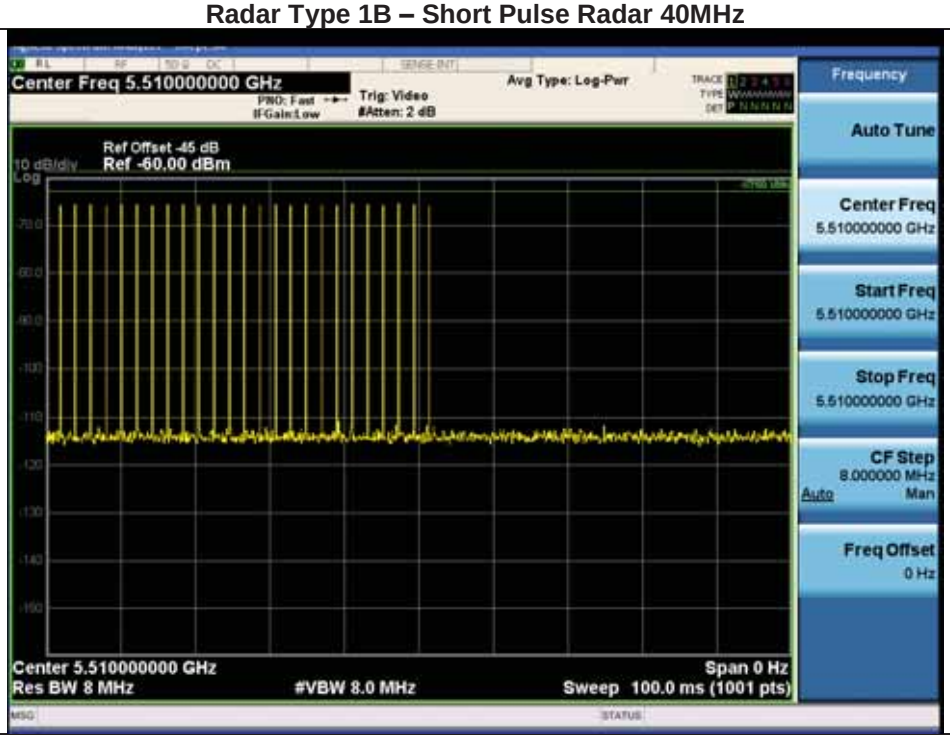
Radar Type 6 – Frequency Hopping Radar 20MHz



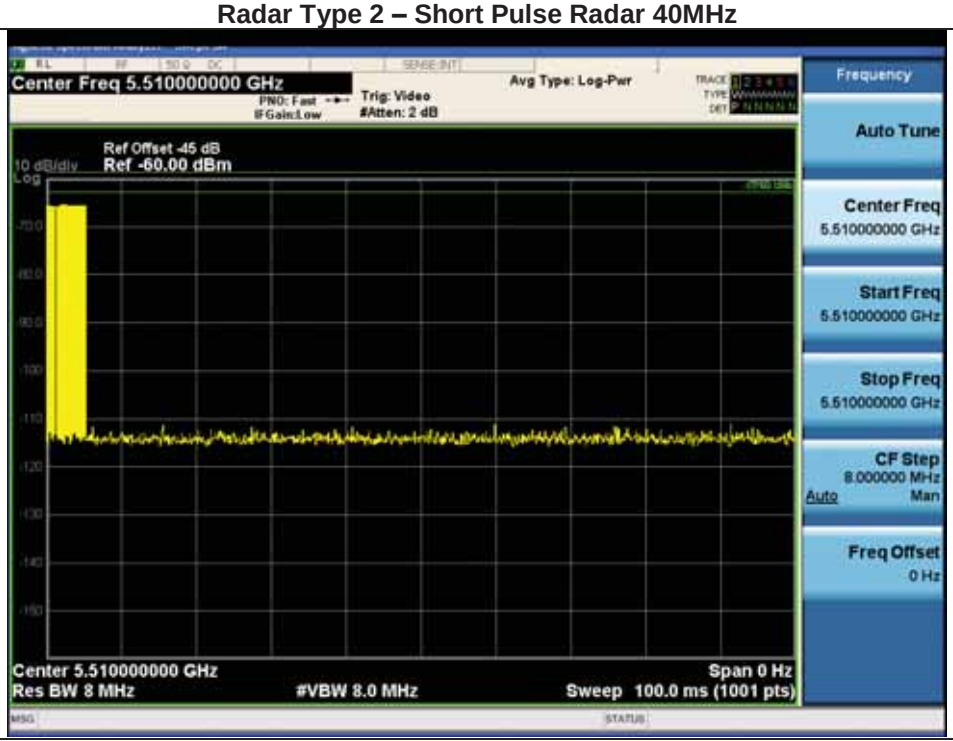
Radar Type 0 – Short Pulse Radar 40MHz


Radar Type 1A – Short Pulse Radar 40MHz


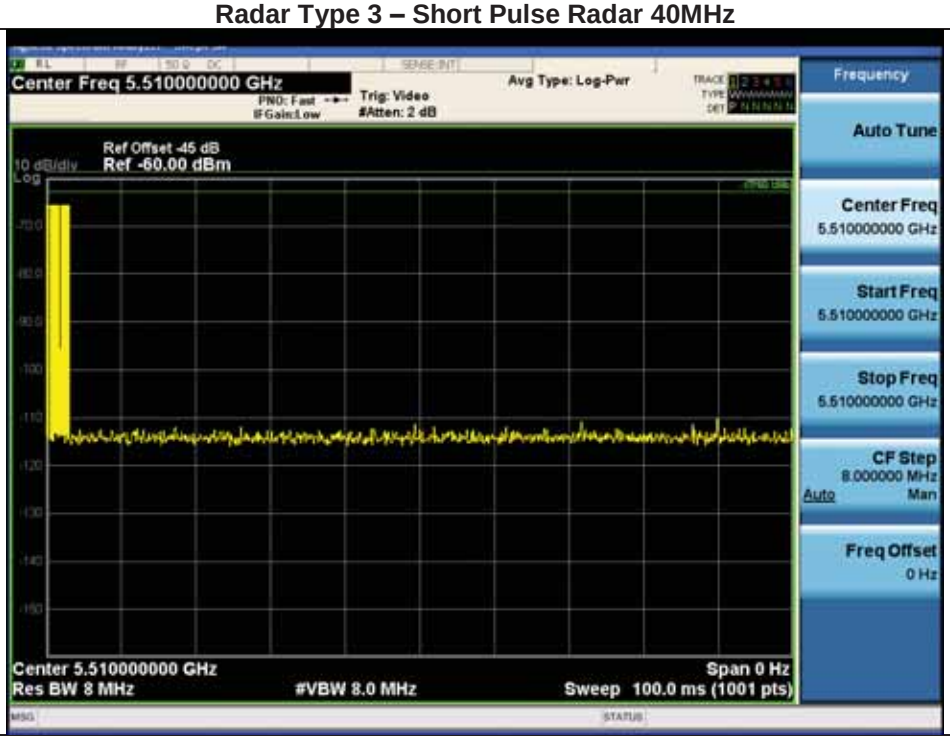
Radar Type 1B – Short Pulse Radar 40MHz



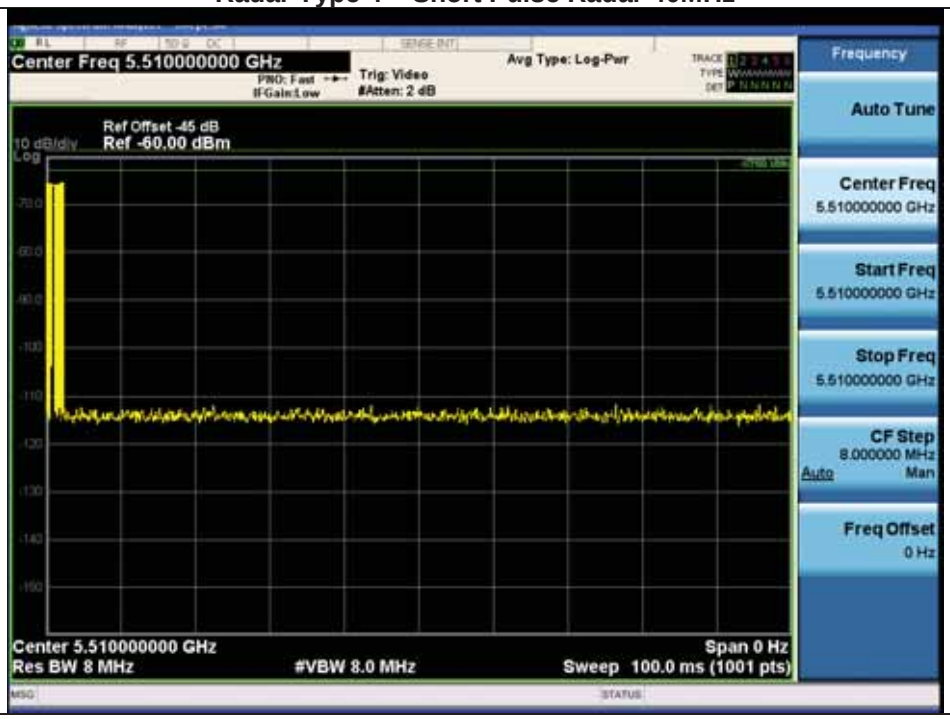
Radar Type 2 – Short Pulse Radar 40MHz



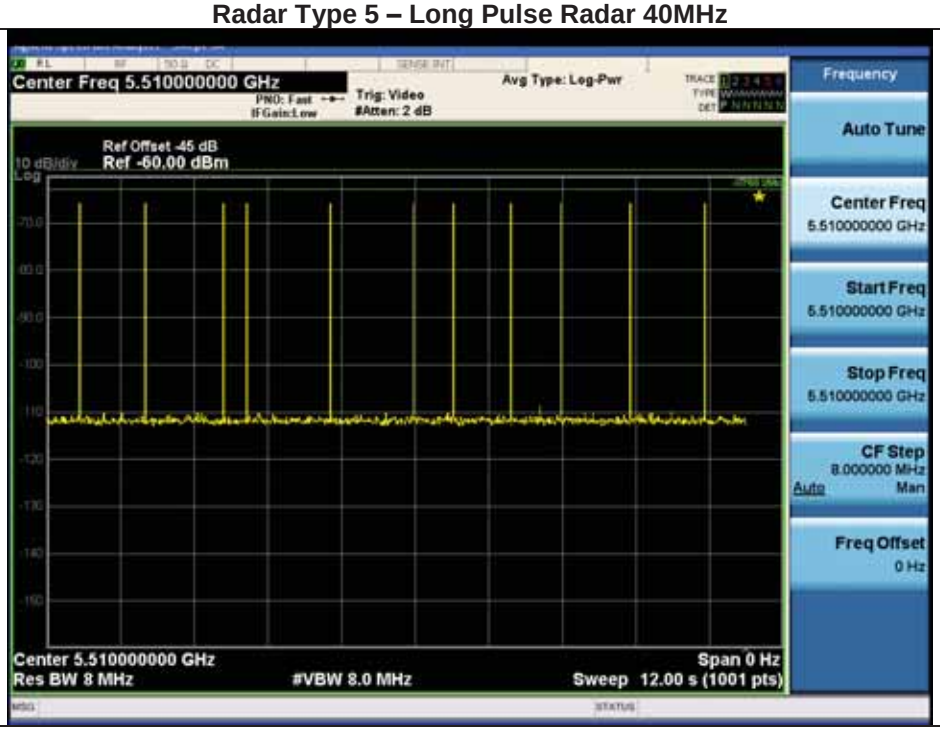
Radar Type 3 – Short Pulse Radar 40MHz



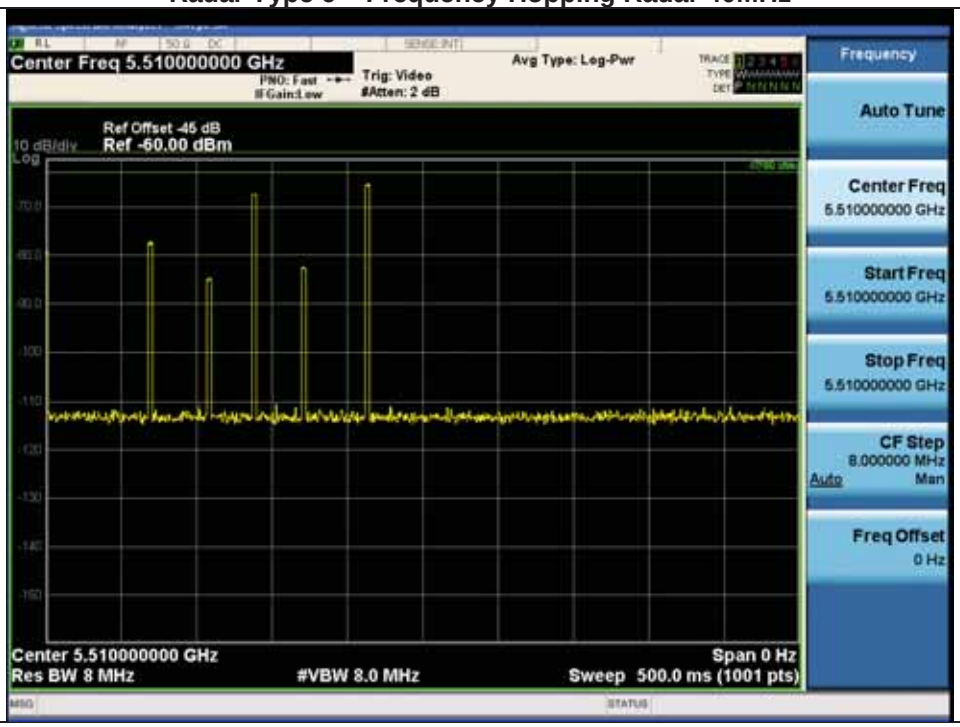
Radar Type 4 – Short Pulse Radar 40MHz



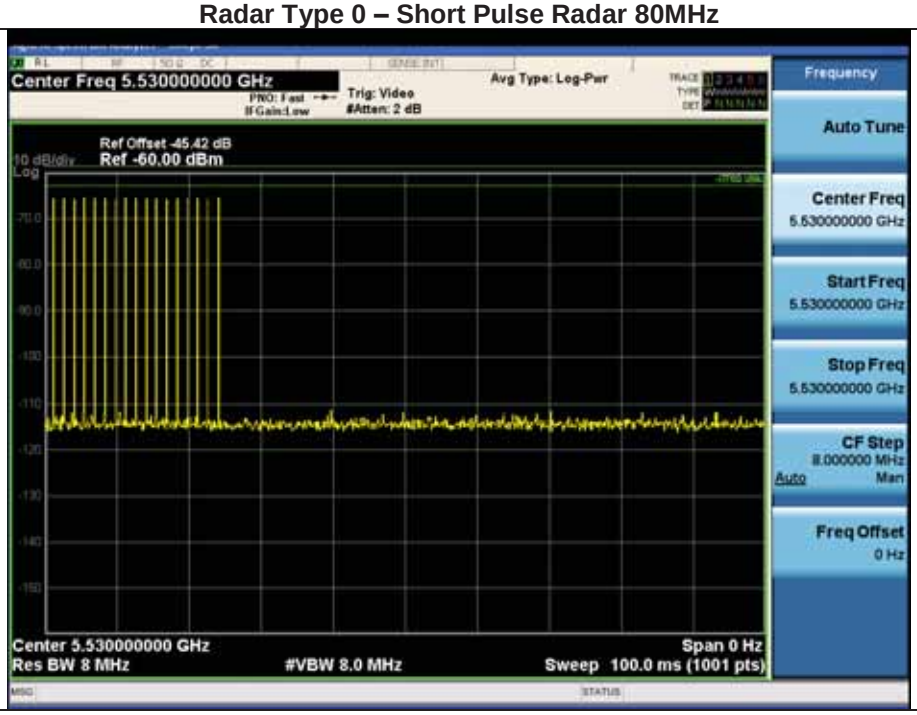
Radar Type 5 – Long Pulse Radar 40MHz



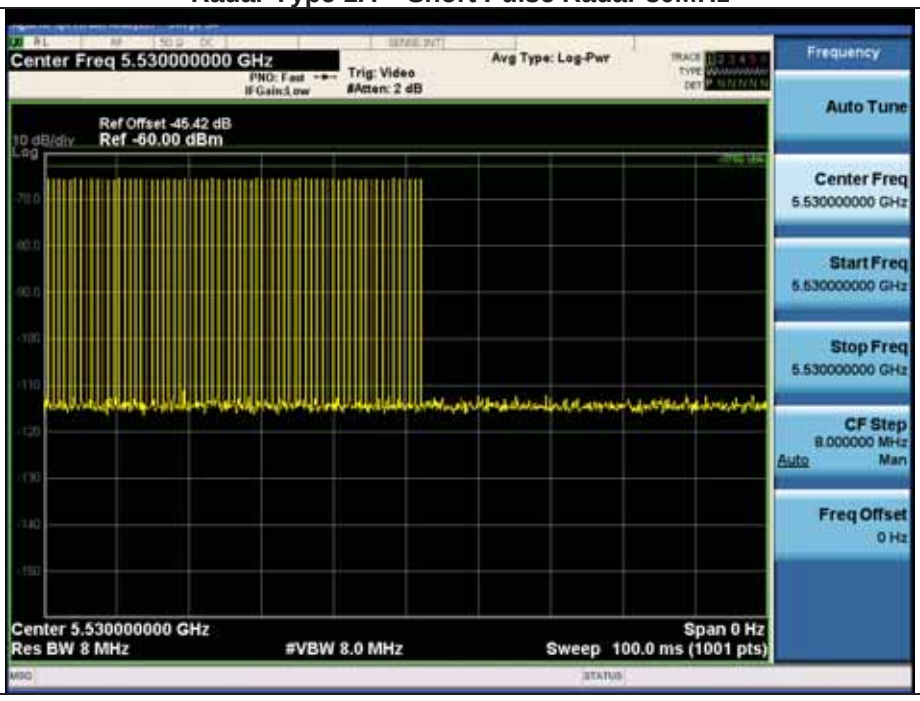
Radar Type 6 – Frequency Hopping Radar 40MHz

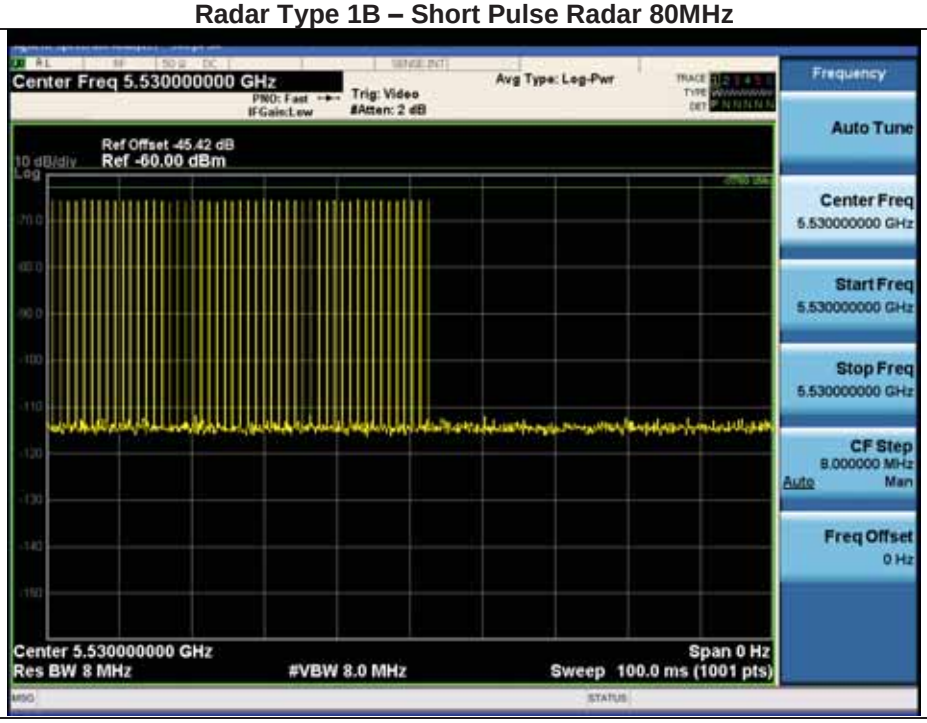


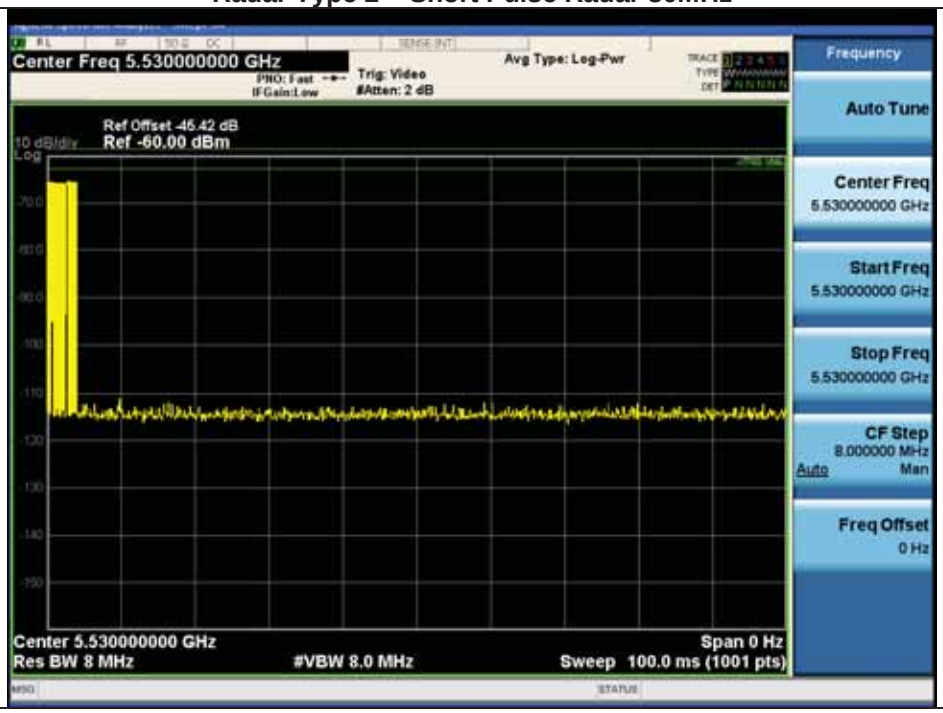
Radar Type 0 – Short Pulse Radar 80MHz



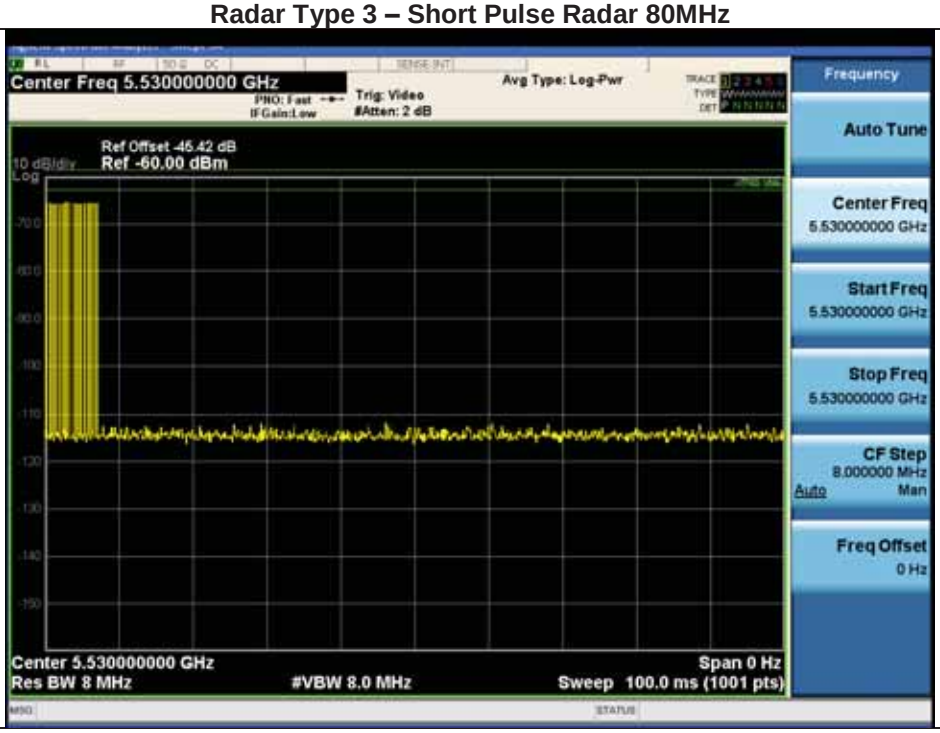
Radar Type 1A – Short Pulse Radar 80MHz



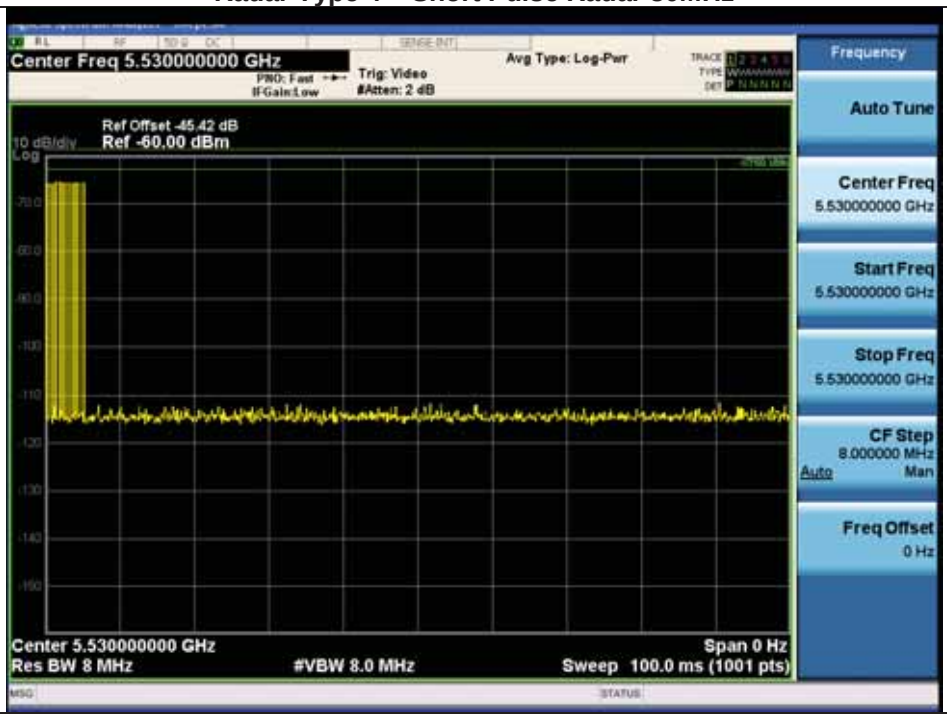
Radar Type 1B – Short Pulse Radar 80MHz


Radar Type 2 – Short Pulse Radar 80MHz


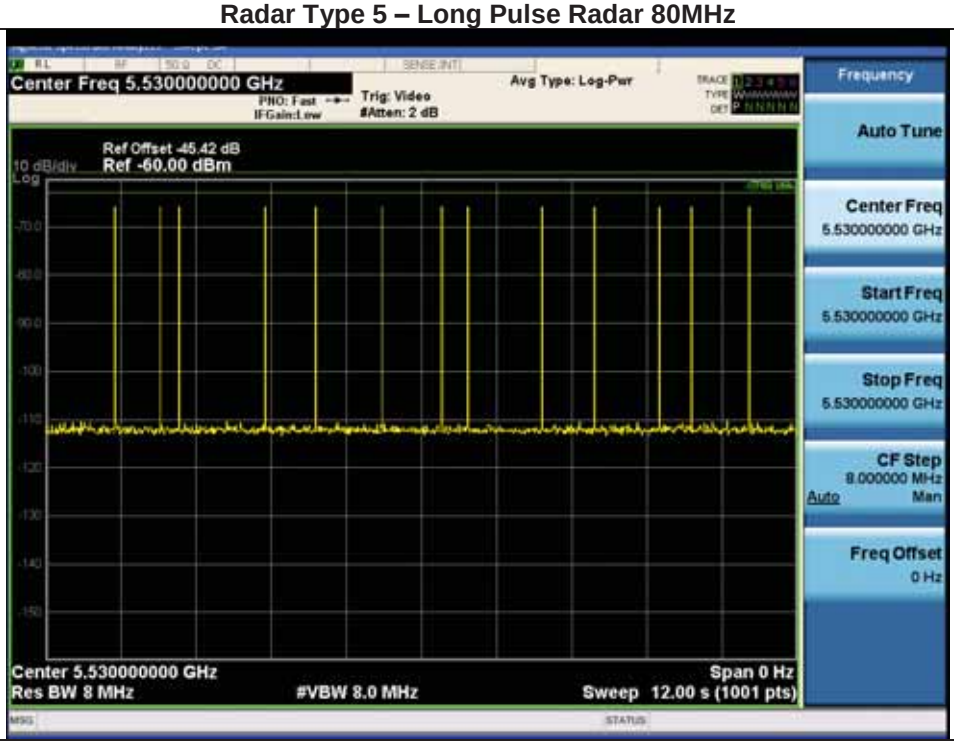
Radar Type 3 – Short Pulse Radar 80MHz



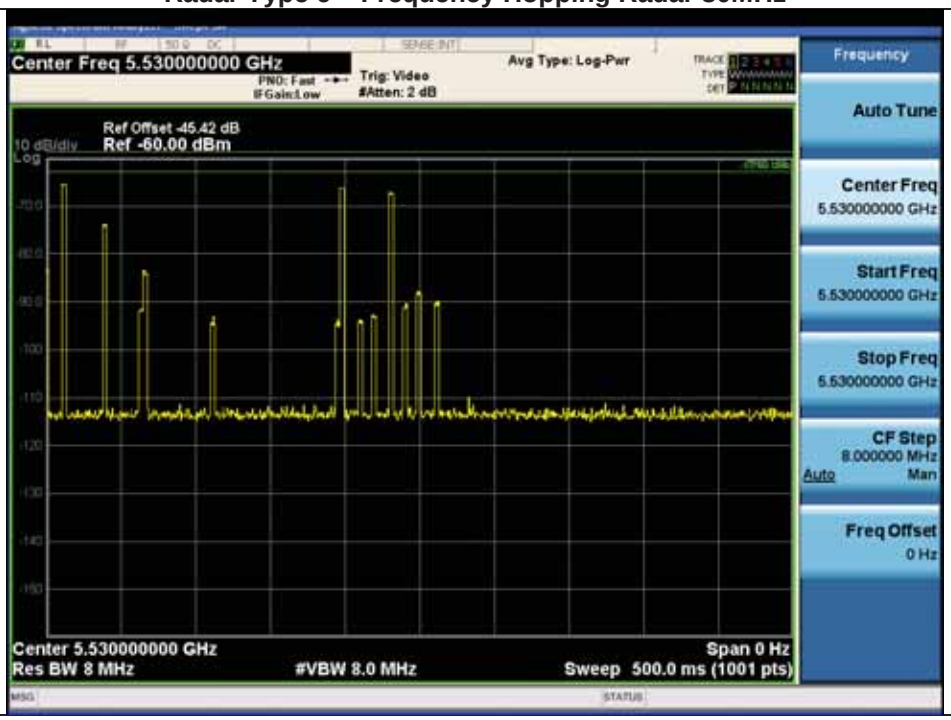
Radar Type 4 – Short Pulse Radar 80MHz



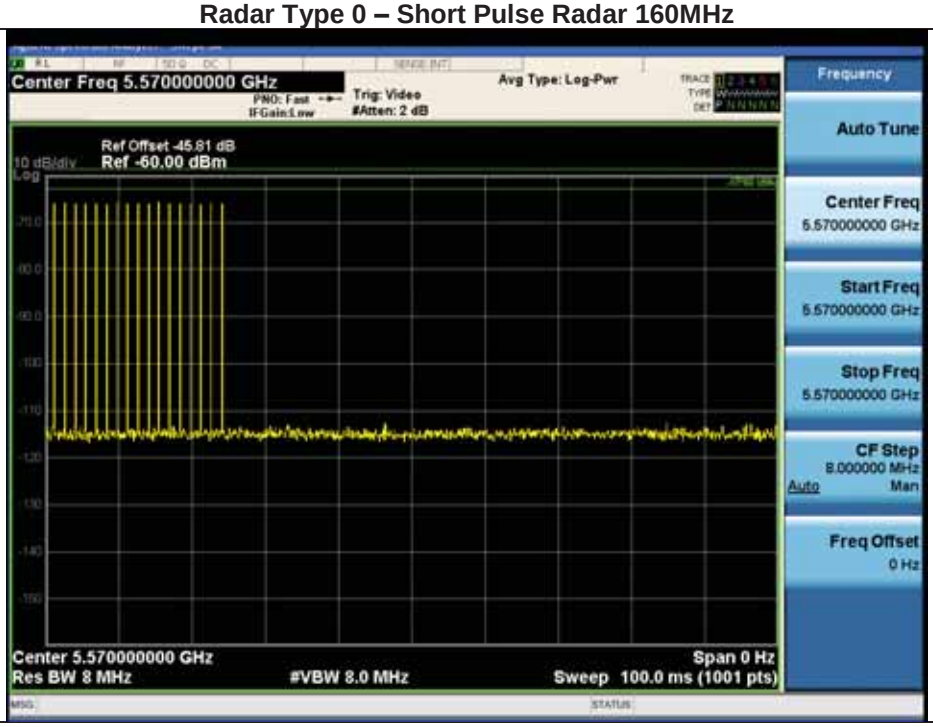
Radar Type 5 – Long Pulse Radar 80MHz



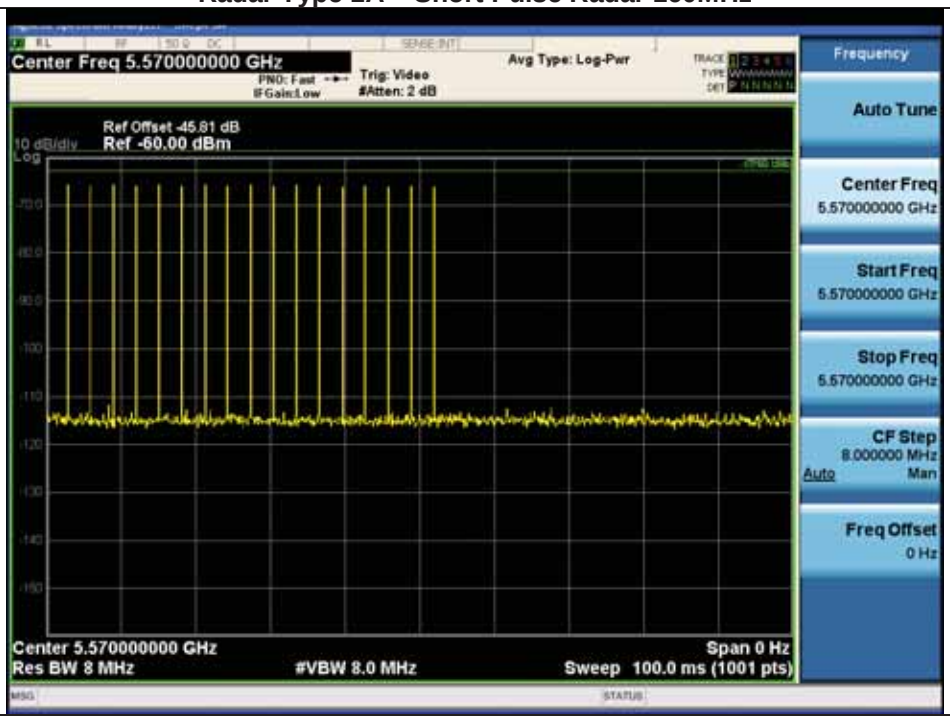
Radar Type 6 – Frequency Hopping Radar 80MHz

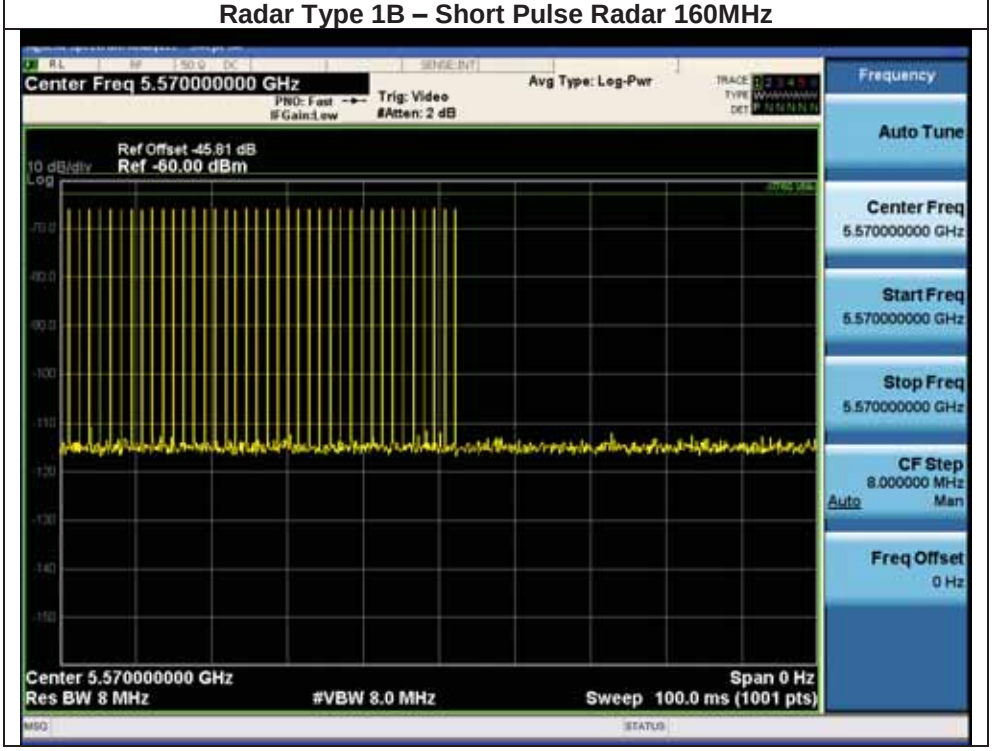


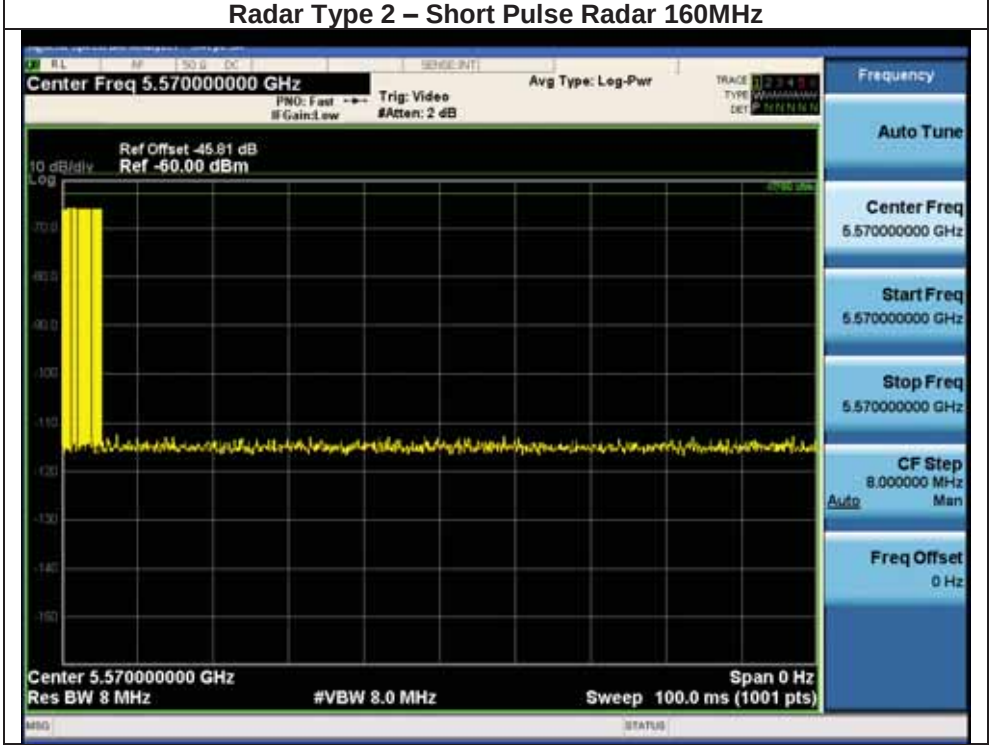
Radar Type 0 – Short Pulse Radar 160MHz



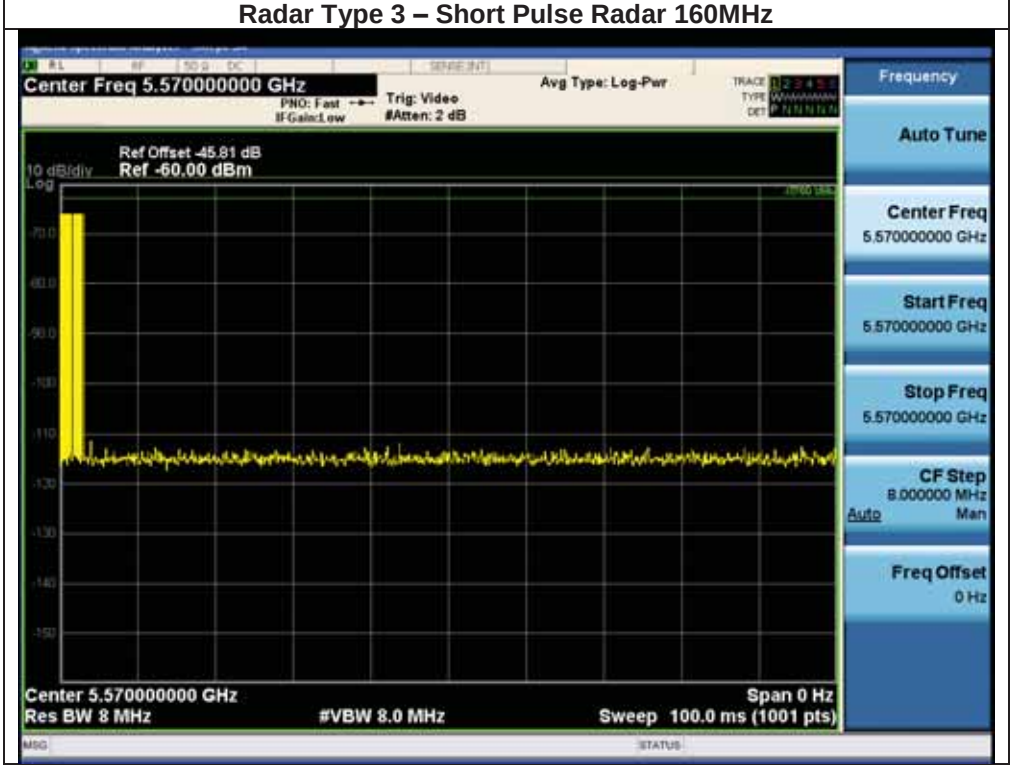
Radar Type 1A – Short Pulse Radar 160MHz



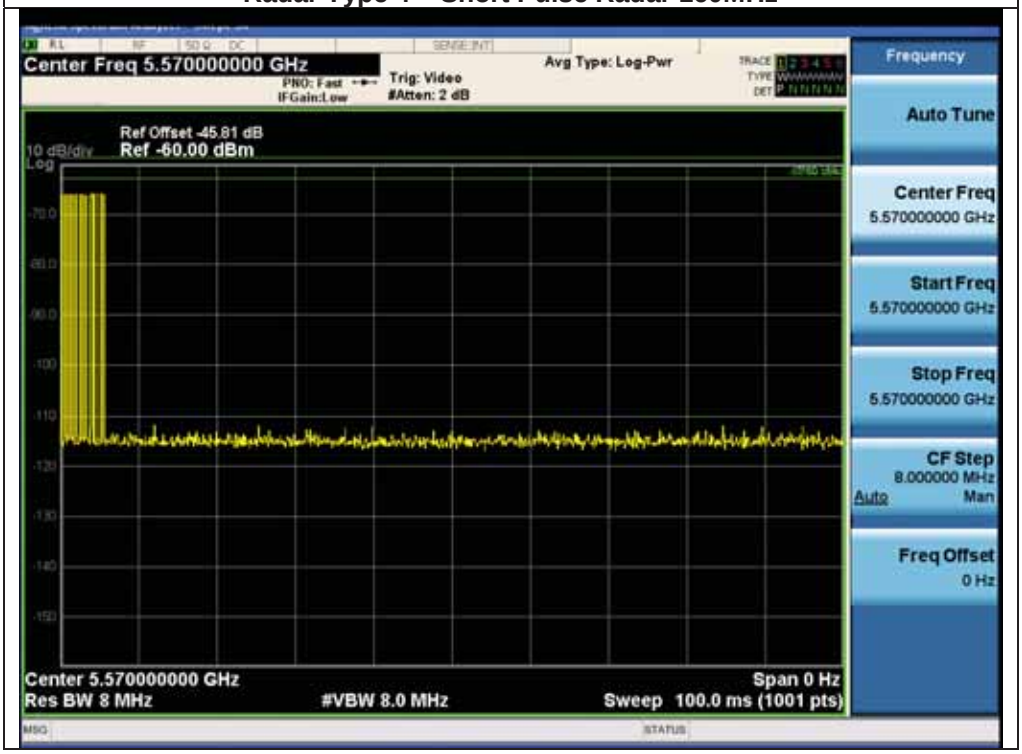
Radar Type 1B – Short Pulse Radar 160MHz


Radar Type 2 – Short Pulse Radar 160MHz


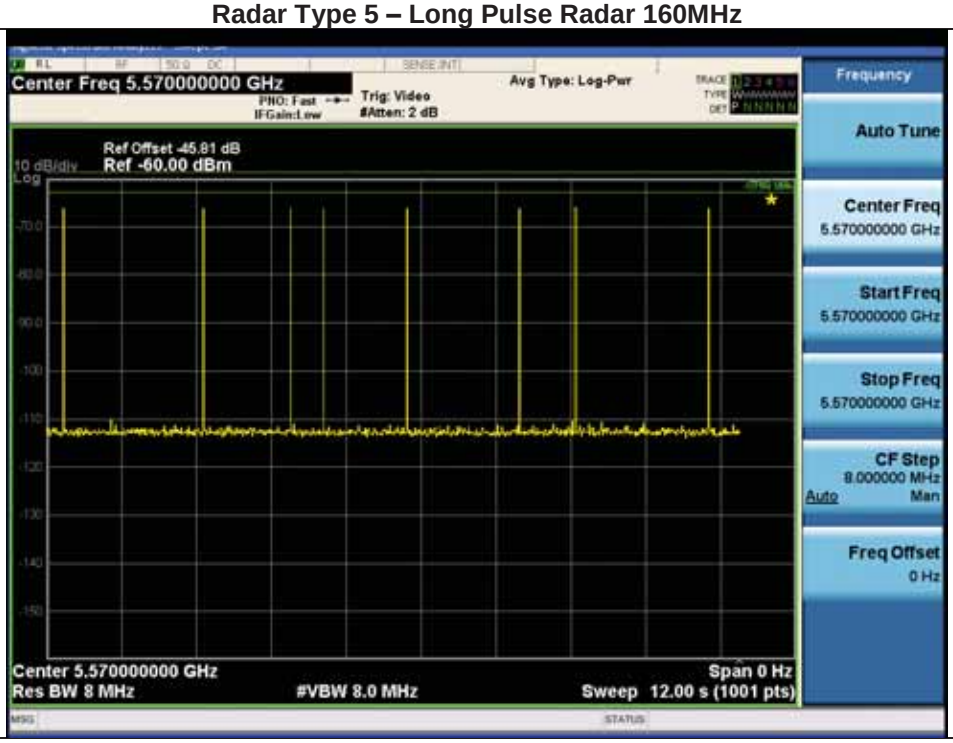
Radar Type 3 – Short Pulse Radar 160MHz



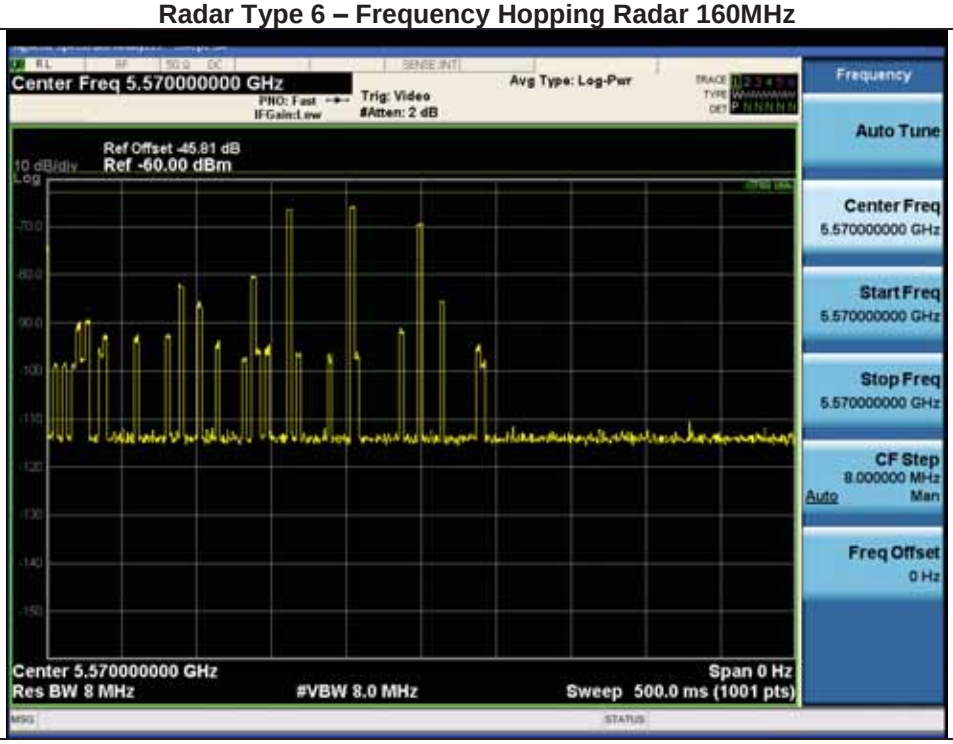
Radar Type 4 – Short Pulse Radar 160MHz



Radar Type 5 – Long Pulse Radar 160MHz

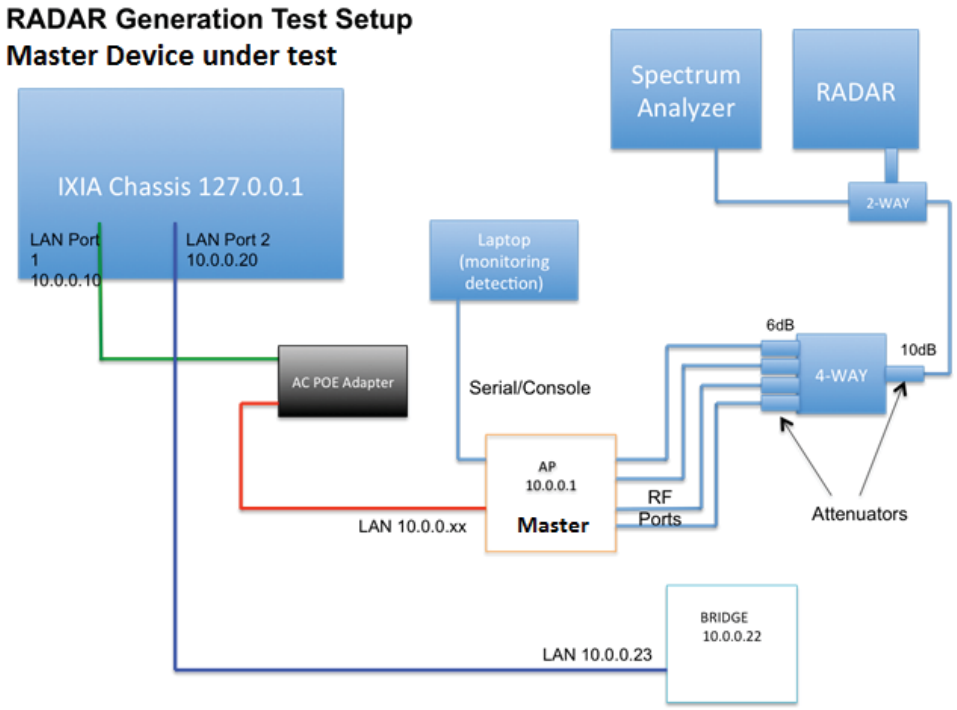


Radar Type 6 – Frequency Hopping Radar 160MHz



Test Procedure/Results

1. A spectrum analyzer is used as a monitor to verify that the UUT has vacated the Channel within the (Channel Closing Transmission Time and Channel Move Time, and does not transmit on a Channel during the Non-Occupancy Period after the detection and Channel move. It is also used to monitor UUT transmissions during the Channel Availability Check Time.
2. Following is the test setup used to generate the Radar Waveforms, and for all DFS tests described herein.



Conducted Setup: Radar Test Waveforms are injected into the Master

The waveform parameters from within the bounds of the signal type are selected randomly using uniform distribution.

UNII Detection Bandwidth

Procedure from KDB 905462, Section 7.8.1 U-NII Detection Bandwidth:

Set up the generating equipment as shown in **Figure 8**, or equivalent. Set up the DFS timing monitoring equipment as shown in **Figure 13** or **Figure 14**. Set up the overall system for either radiated or conducted coupling to the UUT.

Adjust the equipment to produce a single *Burst* of any one of the Short Pulse Radar Types 0 – 4 in **Table 5** at the center frequency of the UUT *Operating Channel* at the specified *DFS Detection Threshold* level found in **Table 3**.

Set the UUT up as a standalone 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.

Generate a single radar *Burst*, and note the response of the UUT. Repeat for a minimum of 10 trials. The UUT must detect the *Radar Waveform* within the DFS band using the specified *U-NII Detection Bandwidth* criterion shown in **Table 4**. 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.

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 4**. Repeat this measurement in 1MHz steps at frequencies 5 MHz below where the detection rate begins to fall. Record the highest frequency (denote as F_H) at which detection is greater than or equal to the *U-NII Detection Bandwidth* criterion. Recording the detection rate at frequencies above F_H is not required to demonstrate compliance.

Starting at the center frequency of the UUT operating *Channel*, decrease 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 4**. Repeat this measurement in 1MHz steps at frequencies 5 MHz above where the detection rate begins to fall. Record the lowest frequency (denote as F_L) at which detection is greater than or equal to the *U-NII Detection Bandwidth* criterion. Recording the detection rate at frequencies below F_L is not required to demonstrate compliance.

The *U-NII Detection Bandwidth* is calculated as follows:
U-NII Detection Bandwidth = $F_H - F_L$

The *U-NII Detection Bandwidth* must meet the *U-NII Detection Bandwidth* criterion specified in **Table 4**. Otherwise, the UUT does not comply with DFS requirements. This is essential to ensure that the UUT is capable of detecting *Radar Waveforms* across the same frequency spectrum that contains the significant energy from the system. In the case that the *U-NII Detection Bandwidth* is greater than or equal to the 99 percent power bandwidth for the measured F_H and F_L, the test can be truncated and the *U-NII Detection Bandwidth* can be reported as the measured F_H and F_L.

All UNII 20 MHz channels for this device have identical Channel bandwidths, all 40 MHz channels have identical Channel bandwidths, and all 80 MHz channels have identical Channel bandwidths. Therefore, all DFS testing was done at 5500 MHz. The 99% channel bandwidth for 20MHz signals is 18 MHz, the the 99% channel bandwidth for 40MHz signals is 36 MHz, and the 99% channel bandwidth for 80MHz signals is 72. (See the 26dB BW section of the RF report for further measurement details).

The radar frequency is increased in 1 MHz steps, repeating the above test sequence, until the detection rate falls below 90%. The highest frequency at which detection is greater than or equal to 90% is denoted as Fh.

The radar frequency is decreased in 1 MHz steps, repeating the above test sequence, until the detection rate falls below 90%. The lowest frequency at which detection is greater than or equal to 90% is denoted as Fl.

The U-NII Detection Bandwidth must be at least 100% of the UUT transmitter 99% power bandwidth (20 MHz for 20MHz signals, 40 MHz for 40 MHz signals, and 80 MHz for 80 MHz signals), otherwise, the UUT does not comply with DFS requirements.

For the chirped Bin 5 radar, the U-NII Detection Bandwidth must be at least 80% of the UUT transmitter 99% power bandwidth (16 MHz for 20MHz signals, 32 MHz for 40 MHz signals, and 64 MHz for 80 MHz signals), otherwise, the UUT does not comply with DFS requirements.

UNII Detection Bandwidth Results, 20MHz Signal Bandwidth

Type 0 Radar Pulse

	DFS Detection Trials (1=Detection, 0= No Detection)											
Radar Frequency	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)	Detection Bandwidth (MHz)	Limit (MHz)
5490	0	0	0	0	0	0	0	0	0	0	0		
5491	0	1	1	1	1	1	1	1	1	1	90		
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		
5496	1	1	1	1	1	1	1	1	1	1	100		
5497	1	1	1	0	1	1	1	1	1	1	90		
5498	1	1	1	1	1	1	1	1	1	1	100		
5499	1	1	1	1	1	1	1	1	1	1	100		
5500	1	1	1	1	1	1	1	1	1	1	100	18	18
5501	1	0	1	1	1	1	1	1	1	1	90		
5502	0	1	1	1	1	1	1	1	1	1	90		
5503	1	1	1	1	1	1	1	1	1	1	100		
5504	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	0	1	1	1	1	1	90		
5507	1	1	1	1	1	1	1	1	1	1	100		
5508	1	1	1	1	1	1	1	1	1	1	100		
5509	1	1	1	1	1	1	1	1	1	1	100		
5510	0	0	0	0	0	0	0	0	0	0	0		

UNII Detection Bandwidth Results, 40MHz Signal Bandwidth

Type 0 Radar Pulse

	DFS Detection Trials (1=Detection, 0= No Detection)											
Radar Frequency	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)	Detection Bandwidth (MHz)	Limit (MHz)
5490	1	1	1	1	1	1	1	1	1	1	100	40	38
5491	1	1	1	1	1	1	1	1	1	1	100		
5492	1	1	1	1	1	1	1	1	1	1	100		
5493	1	1	1	1	1	1	1	1	1	1	100		
5494	1	1	1	1	1	1	1	1	1	1	100		
5495	1	1	1	1	1	1	1	1	1	1	100		
5496	1	1	1	1	1	1	1	1	1	1	100		
5497	1	1	1	1	1	1	1	1	1	1	100		
5498	1	1	1	1	1	1	1	1	1	1	100		
5499	1	1	1	1	1	1	1	1	1	1	100		
5500	1	1	1	1	1	1	1	1	1	1	100		
5501	1	1	1	1	1	1	1	1	1	1	100		
5502	1	1	1	1	1	1	1	1	1	1	100		
5503	1	1	1	1	1	1	1	1	1	1	100		
5504	1	1	1	1	1	1	1	1	1	1	100		
5505	1	1	1	1	1	1	1	1	1	1	100		
5506	1	1	1	1	1	1	1	1	1	1	100		
5507	1	1	1	1	1	1	1	1	1	1	100		
5508	1	1	1	1	1	1	1	1	1	1	100		
5509	1	1	1	1	1	1	1	1	1	1	100		
5510	1	1	1	1	1	1	1	1	1	1	100		
5511	1	1	1	1	1	1	1	1	1	1	100		
5512	1	1	1	1	1	1	1	1	1	1	100		
5513	1	1	1	1	1	1	1	1	1	1	100		
5514	1	1	1	1	1	1	1	1	1	1	100		
5515	1	1	1	1	1	1	1	1	1	1	100		
5516	1	1	1	1	1	1	1	1	1	1	100		
5517	1	1	1	1	1	1	1	1	1	1	100		
5518	1	1	1	1	1	1	1	1	1	1	100		
5519	1	1	1	1	1	1	1	1	1	1	100		
5520	1	1	1	1	1	1	1	1	1	1	100		
5521	1	1	1	1	1	1	1	1	1	1	100		

5522	1	1	1	1	1	1	1	1	1	1	100	
5523	1	1	1	1	1	1	1	1	1	1	100	
5524	1	1	1	1	1	1	1	1	1	1	100	
5525	1	1	1	1	1	1	1	1	1	1	100	
5526	1	1	1	1	1	1	1	1	1	1	100	
5527	1	1	1	1	1	1	1	1	1	1	100	
5528	1	1	1	1	1	1	1	1	1	1	100	
5529	1	1	1	1	1	1	1	1	1	1	100	
5530	1	1	1	1	1	1	1	1	1	1	100	

UNII Detection Bandwidth Results, 80MHz Signal Bandwidth

Type 0 Radar Pulse

	DFS Detection Trials (1=Detection, Blank= No Detection)												
Radar Frequency	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)	Detection Bandwidth (MHz)	Limit (MHz)
5490	0	1	1	1	1	1	1	1	1	1	90	80	77
5491	1	1	1	1	1	1	1	1	1	1	100		
5492	1	1	1	1	1	1	1	1	1	1	100		
5493	1	1	1	1	1	1	1	1	1	1	100		
5494	1	1	1	1	1	1	1	1	1	1	100		
5495	1	1	1	1	1	1	1	1	1	1	100		
5496	1	1	1	1	1	1	1	1	1	1	100		
5497	1	1	1	1	1	1	1	1	1	1	100		
5498	1	1	1	1	1	1	1	1	1	1	100		
5499	1	1	1	1	1	1	1	1	1	1	100		
5500	1	1	1	1	1	1	1	1	1	1	100		
5501	1	1	1	1	1	1	1	1	1	1	100		
5502	1	1	1	1	1	1	1	1	1	1	100		
5503	1	1	1	1	1	1	1	1	1	1	100		
5504	1	1	1	1	1	1	1	1	1	1	100		
5505	1	1	1	1	1	1	1	1	1	1	100		
5506	1	1	1	1	1	1	1	1	1	1	100		
5507	1	1	1	1	1	1	1	1	1	1	100		
5508	1	1	1	1	1	1	1	1	1	1	100		
5509	1	1	1	1	1	1	1	1	1	1	100		
5510	1	1	1	1	1	1	1	1	1	1	100		
5511	1	1	1	1	1	1	1	1	1	1	100		
5512	1	1	1	1	1	1	1	1	1	1	100		
5513	1	1	1	1	1	1	1	1	1	1	100		
5514	1	1	1	1	1	1	1	1	1	1	100		
5515	1	1	1	1	1	1	1	1	1	1	100		
5516	1	1	1	1	1	1	1	1	1	1	100		
5517	1	1	1	1	1	1	1	1	1	1	100		
5518	1	1	1	1	1	1	1	1	1	1	100		
5519	1	1	1	1	1	1	1	1	1	1	100		
5520	1	1	1	1	1	1	1	1	1	1	100		
5521	1	1	1	1	1	1	1	1	1	1	100		

5522	1	1	1	1	1	1	1	1	1	1	100	
5523	1	1	1	1	1	1	1	1	1	1	100	
5524	1	1	1	1	1	1	1	1	1	1	100	
5525	1	1	1	1	1	1	1	1	1	1	100	
5526	1	1	1	1	1	1	1	1	1	1	100	
5527	1	1	1	1	1	1	1	1	1	1	100	
5528	1	1	1	1	1	1	1	1	1	1	100	
5529	1	1	1	1	1	1	1	1	1	1	100	
5530	1	1	1	1	1	1	1	1	1	1	100	
5531	1	1	1	1	1	1	1	1	1	1	100	
5532	1	1	1	1	1	1	1	1	1	1	100	
5533	1	1	1	1	1	1	1	1	1	1	100	
5534	1	1	1	1	1	1	1	1	1	1	100	
5535	1	1	1	1	1	1	1	1	1	1	100	
5536	1	1	1	1	1	1	1	1	1	1	100	
5537	1	1	1	1	1	1	1	1	1	1	100	
5538	1	1	1	1	1	1	1	1	1	1	100	
5539	1	1	1	1	1	1	1	1	1	1	100	
5540	1	1	1	1	1	1	1	1	1	1	100	
5541	1	1	1	1	1	1	1	1	1	1	100	
5542	1	1	1	1	1	1	1	1	1	1	100	
5543	1	1	1	1	1	1	1	1	1	1	100	
5544	1	1	1	1	1	1	1	1	1	1	100	
5545	1	1	1	1	1	1	1	1	1	1	100	
5546	1	1	1	1	1	1	1	1	1	1	100	
5547	1	1	1	1	1	1	1	1	1	1	100	
5548	1	1	1	1	1	1	1	1	1	1	100	
5549	1	1	1	1	1	1	1	1	1	1	100	
5550	1	1	1	1	1	1	1	1	1	1	100	
5551	1	1	1	1	1	1	1	1	1	1	100	
5552	1	1	1	1	1	1	1	1	1	1	100	
5553	1	1	1	1	1	1	1	1	1	1	100	
5554	1	1	1	1	1	1	1	1	1	1	100	
5555	1	1	1	1	1	1	1	1	1	1	100	
5556	1	1	1	1	1	1	1	1	1	1	100	
5557	1	1	1	1	1	1	1	1	1	1	100	
5558	1	1	1	1	1	1	1	1	1	1	100	
5559	1	1	1	1	1	1	1	1	1	1	100	
5560	1	1	1	1	1	1	1	1	1	1	100	
5561	1	1	1	1	1	1	1	1	1	1	100	
5562	1	1	1	1	1	1	1	1	1	1	100	

5563	1	1	1	1	1	1	1	1	1	1	100		
5564	1	1	1	1	1	1	1	1	1	1	100		
5565	1	1	1	1	1	1	1	1	1	1	100		
5566	1	1	1	1	1	1	1	1	1	1	100		
5567	1	1	1	1	1	1	1	1	1	1	100		
5568	1	1	1	1	1	1	1	1	1	1	100		
5569	1	1	1	1	1	1	1	1	1	1	100		
5570	1	1	1	1	1	1	1	1	1	1	100		

UNII Detection Bandwidth Results, 160MHz Signal Bandwidth

Type 0 Radar Pulse

	DFS Detection Trials (1=Detection, Blank= No Detection)												
Radar Frequency	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)	Detection Bandwidth (MHz)	Limit (MHz)
5490	1	1	1	1	1	1	1	1	1	1	100	160	156
5491	1	1	1	1	1	1	1	1	1	1	100		
5492	1	1	1	1	1	1	1	1	1	1	100		
5493	1	1	1	1	1	1	1	1	1	1	100		
5494	1	1	1	1	1	1	1	1	1	1	100		
5495	1	1	1	1	1	1	1	1	0	1	90		
5496	1	1	1	1	1	1	1	1	1	1	100		
5497	1	1	1	1	1	1	1	1	1	1	100		
5498	1	1	1	1	1	1	1	1	1	1	100		
5499	1	1	1	1	1	1	1	1	1	1	100		
5500	1	1	1	1	1	1	1	1	1	1	100		
5501	1	1	1	1	1	1	1	1	1	1	100		
5502	1	1	1	1	1	1	1	1	1	1	100		
5503	1	1	1	1	1	1	1	1	1	1	100		
5504	1	1	1	1	1	1	1	1	1	1	100		
5505	1	1	1	1	1	1	1	1	1	1	100		
5506	1	1	1	1	1	1	1	1	1	1	100		
5507	1	1	1	1	1	1	1	1	1	1	100		
5508	1	1	1	1	1	1	1	1	1	1	100		
5509	1	1	1	1	1	1	1	1	1	1	100		
5510	1	1	1	1	1	1	1	1	1	1	100		
5511	1	1	1	1	1	1	1	1	1	1	100		
5512	1	1	1	1	1	1	1	1	1	1	100		
5513	1	1	1	1	1	1	1	1	1	1	100		
5514	1	1	1	1	1	1	1	1	1	1	100		
5515	1	1	1	1	1	1	1	1	1	1	100		
5516	1	1	1	1	1	1	1	1	1	1	100		
5517	1	1	1	1	1	1	1	1	1	1	100		
5518	1	1	1	1	1	1	1	1	1	1	100		
5519	1	1	1	1	1	1	1	1	1	1	100		
5520	1	1	1	1	1	1	1	1	1	1	100		
5521	1	1	1	1	1	1	1	1	1	1	100		

5522	1	1	1	1	1	1	1	1	1	1	100		
5523	1	1	1	1	1	1	1	1	1	1	100		
5524	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	0	1	1	1	1	1	1	1	90		
5528	1	1	1	1	1	1	1	1	1	1	100		
5529	1	0	1	1	1	1	1	1	1	1	90		
5530	1	1	1	1	1	1	1	1	1	1	100		
5531	1	1	1	1	1	1	1	1	1	1	100		
5532	1	1	1	1	1	1	1	1	1	1	100		
5533	1	1	1	1	1	1	1	1	1	1	100		
5534	1	1	1	1	1	1	1	1	1	1	100		
5535	1	1	1	1	1	1	1	1	1	1	100		
5536	1	1	1	1	1	1	1	1	1	1	100		
5537	1	1	1	1	1	1	1	1	1	1	100		
5538	1	1	1	1	1	1	1	1	1	1	100		
5539	1	1	1	1	1	1	1	1	1	1	100		
5540	1	1	1	1	1	1	1	1	1	1	100		
5541	1	1	1	1	1	1	1	1	1	1	100		
5542	1	1	1	1	1	1	1	1	1	1	100		
5543	1	1	1	1	1	1	1	1	1	1	100		
5544	1	1	1	1	1	1	1	1	1	1	100		
5545	1	1	1	1	1	1	1	1	1	1	100		
5546	1	1	1	1	1	1	1	1	1	1	100		
5547	1	1	1	1	1	1	1	1	1	1	100		
5548	1	1	1	1	1	1	1	1	1	1	100		
5549	1	1	1	1	1	1	1	1	1	1	100		
5550	1	1	1	1	1	1	1	1	1	1	100		
5551	1	1	1	1	1	1	1	1	1	1	100		
5552	1	1	1	1	1	1	1	1	1	1	100		
5553	1	1	1	1	1	1	1	1	1	1	100		
5554	1	1	1	1	1	1	1	1	1	1	100		
5555	1	1	1	1	1	1	1	1	1	1	100		
5556	1	1	1	1	1	1	1	1	1	1	100		
5557	1	1	1	1	1	1	1	1	1	1	100		
5558	1	1	1	1	1	1	1	1	1	1	100		
5559	1	1	1	1	1	1	1	1	1	1	100		
5560	1	1	1	1	1	1	1	1	1	1	100		
5561	1	1	1	1	1	1	1	1	1	1	100		
5562	1	1	1	1	1	1	1	1	1	1	100		

5563	1	1	1	1	1	1	1	1	1	1	100		
5564	1	1	1	1	1	1	1	1	1	1	100		
5565	1	1	1	1	1	1	1	1	1	1	100		
5566	1	1	1	1	1	1	1	1	1	1	100		
5567	1	1	1	1	1	1	1	1	1	1	100		
5568	1	1	1	1	1	1	1	1	1	1	100		
5569	1	1	1	1	1	1	1	1	1	1	100		
5570	1	1	1	1	1	1	1	1	1	1	100		
5571	1	1	1	1	1	1	1	1	1	1	100		
5572	1	1	1	1	1	1	1	1	1	1	100		
5573	1	1	1	1	1	1	1	1	1	1	100		
5574	1	1	1	1	1	1	1	1	1	1	100		
5575	1	1	1	1	1	1	1	1	1	1	100		
5576	1	1	1	1	1	1	1	1	1	1	100		
5577	1	1	1	1	1	1	1	1	1	1	100		
5578	1	1	1	1	1	1	1	1	1	1	100		
5579	1	1	1	1	1	1	1	1	1	1	100		
5580	1	1	1	1	1	1	1	1	1	1	100		
5581	1	1	1	1	1	1	1	1	1	1	100		
5582	1	1	1	1	1	1	1	1	1	1	100		
5583	1	1	1	1	1	1	1	1	1	1	100		
5584	1	1	1	1	1	1	1	1	1	1	100		
5585	1	1	1	1	1	1	1	1	1	1	100		
5586	1	1	1	1	1	1	1	1	1	1	100		
5587	1	1	1	1	1	1	1	1	1	1	100		
5588	1	1	1	1	1	1	1	1	1	1	100		
5589	1	1	1	1	1	1	1	1	1	1	100		
5590	1	1	1	1	1	1	1	1	1	1	100		
5591	1	1	1	1	1	1	1	1	1	1	100		
5592	1	1	1	1	1	1	1	1	1	1	100		
5593	1	1	1	1	1	1	1	1	1	1	100		
5594	1	1	1	1	1	1	1	1	1	1	100		
5595	1	1	1	1	1	1	1	1	1	1	100		
5596	1	1	1	1	1	1	1	1	1	1	100		
5597	1	1	1	1	1	1	1	1	1	1	100		
5598	1	1	1	1	1	1	1	1	1	1	100		
5599	1	1	1	1	1	1	1	1	1	1	100		
5600	1	1	1	1	1	1	1	1	1	1	100		
5601	1	1	1	1	1	1	1	1	1	1	100		
5602	1	1	1	1	1	1	1	1	1	1	100		
5603	1	1	1	1	1	1	1	1	1	1	100		

5604	1	1	1	1	1	1	1	1	1	1	100		
5605	1	1	1	1	1	1	1	1	1	1	100		
5606	1	1	1	1	1	1	1	1	1	1	100		
5607	1	1	1	1	1	1	1	1	1	1	100		
5608	1	1	1	1	1	1	1	1	1	1	100		
5609	1	1	1	1	1	1	1	1	1	1	100		
5610	1	1	1	1	1	1	1	1	1	1	100		
5611	1	1	1	1	1	1	1	1	1	1	100		
5612	1	1	1	1	1	1	1	1	1	1	100		
5613	1	1	1	1	1	1	1	1	1	1	100		
5614	1	1	1	1	1	1	1	1	1	1	100		
5615	1	1	1	1	1	1	1	1	1	1	100		
5616	1	1	1	1	1	1	1	1	1	1	100		
5617	1	1	1	1	1	1	1	1	1	1	100		
5618	1	1	1	1	1	1	1	1	1	1	100		
5619	1	1	1	1	1	1	1	1	1	1	100		
5620	1	1	1	1	1	1	1	1	1	1	100		
5621	1	1	1	1	1	1	1	1	1	1	100		
5622	1	1	1	1	1	1	1	1	1	1	100		
5623	1	1	1	1	1	1	1	1	1	1	100		
5624	1	1	1	1	1	1	1	1	1	1	100		
5625	1	1	1	1	1	1	1	1	1	1	100		
5626	1	1	1	1	1	1	1	1	1	1	100		
5627	1	1	1	1	1	1	1	1	1	1	100		
5628	1	1	1	1	1	1	1	1	1	1	100		
5629	1	1	1	1	1	1	1	1	1	1	100		
5630	1	1	1	1	1	1	1	1	1	1	100		
5631	1	1	1	1	1	1	1	1	1	1	100		
5632	1	1	1	1	1	1	1	1	1	1	100		
5633	1	1	1	1	1	1	1	1	1	1	100		
5634	1	1	1	1	1	1	1	1	1	1	100		
5635	1	1	1	1	1	1	1	1	1	1	100		
5636	1	1	1	1	1	1	1	1	1	1	100		
5637	1	1	1	1	1	1	1	1	1	1	100		
5638	1	1	1	1	1	1	1	1	1	1	100		
5639	1	1	1	1	1	1	1	1	1	1	100		
5640	1	1	1	1	1	1	1	1	1	1	100		
5641	1	1	1	1	1	1	1	1	1	1	100		
5642	1	1	1	1	1	1	1	1	1	1	100		
5643	1	1	1	1	1	1	1	1	1	1	100		
5644	1	1	1	1	1	1	1	1	1	1	100		

5645	1	1	1	1	1	1	1	1	1	1	100		
5646	1	1	1	0	1	1	1	1	1	1	90		
5647	1	1	1	1	1	1	1	1	1	1	100		
5648	1	1	1	1	1	1	1	1	1	1	100		
5649	1	1	1	1	1	1	1	1	1	1	100		
5650	1	1	1	1	1	1	1	1	1	1	100		

Initial Channel Availability Check Time

Procedure from KDB 905462, Section 7.8.2.1 Initial Channel Availability Check Time:

> The Initial *Channel Availability Check Time* tests that the UUT does not emit beacon, control, or data signals on the test *Channel* until the power-up sequence has been completed and the U-NII device checks for *Radar Waveforms* for one minute on the test *Channel*. This test does not use any *Radar Waveforms* and only needs to be performed one time.
>
> > a) 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 UUT 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.
> >
> > b) The UUT should not transmit any beacon or data transmissions until at least 1 minute after the completion of the power-on cycle.
> >
> > c) Confirm that the UUT initiates transmission on the channel
>
> This measurement can be used to determine the length of the power-on cycle if it is not supplied by the manufacturer. If the spectrum analyzer sweep is started at the same time the UUT is powered on and the UUT does not begin transmissions until it has completed the cycle, the power-on time can be determined by comparing the two times.

The tests that the UUT does not emit beacon, control, or data signals on the test Channel until the power-up sequence has been completed and the U-NII device checks for Radar Waveforms for one minute on the test Channel. This test does not use any Radar Waveforms.

The U-NII device is powered on and instructed to operate at 5500 MHz. At the same time the UUT is powered on, the spectrum analyzer is set to zero span mode with a 3 MHz resolution bandwidth at 5500MHz with a 2.5 minute sweep time. The analyzer's sweep will be started the same time power is applied to the U-NII device.

The UUT should not transmit any beacon or data transmissions until at least 1 minute after the completion of the power-on cycle.

The initial power up time of the UUT is indicated by marker 1 in the plot. Initial beacons/data transmissions are indicated by marker 1R.

Initial Channel Availability Check Time – 5500MHz, 20MHz

Radar Burst at the Beginning of the Channel Availability Check Time

Procedure from KDB 905462, 7.8.2.2 Radar Burst at the Beginning of the Channel Availability Check Time:

The steps below define the procedure to verify successful radar detection on the test *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*. This is illustrated in **Figure 15**.

a) The *Radar Waveform* generator and UUT are connected using the applicable test setup described in the sections on configuration for Conducted Tests (7.2) or Radiated Tests (7.3) and the power of the UUT is switched off.

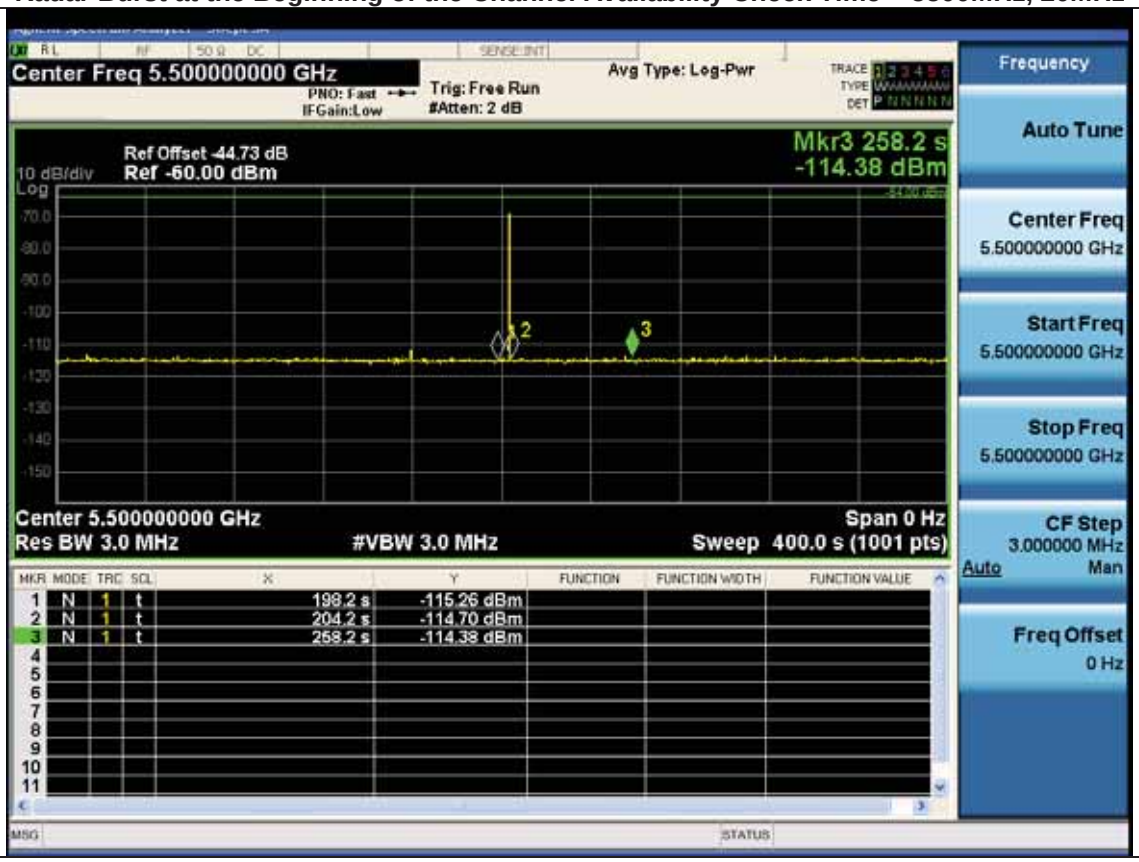
b) The UUT is powered on at T0. T1 denotes the instant when the UUT has completed its power-up sequence (Tpower_up). The *Channel Availability Check Time* commences on Chr at instant T1 and will end no sooner than T1 + Tch_avail_check.

c) A single *Burst* of one of the Short Pulse Radar Types 0-4 will commence within a 6 second window starting at T1. An additional 1 dB is added to the radar test signal to ensure it is at or above the *DFS Detection Threshold*, accounting for equipment variations/errors.

d) Visual indication or measured results on the UUT of successful detection of the radar *Burst* will be recorded and reported. Observation of Chr for UUT emissions will continue for 2.5 minutes after the radar *Burst* has been generated.

e) Verify that during the 2.5 minute measurement window no UUT transmissions occurred on Chr. The *Channel Availability Check* results will be recorded.

Radar Burst at the Beginning of the Channel Availability Check Time – 5500MHz, 20MHz



Radar Burst at the End of the Channel Availability Check Time

Procedure from KDB 905462, 7.8.2.3 Radar Burst at the End of the Channel Availability Check Time:

The steps below define the procedure to verify successful radar detection on the test *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* + 1dB occurs at the end of the *Channel Availability Check Time*. This is illustrated in **Figure 16**.

a) The *Radar Waveform* generator and UUT are connected using the applicable test setup described in the sections for Conducted Tests (7.2) or Radiated Tests (7.3) and the power of the UUT is switched off.

b) The UUT is powered on at T0. T1 denotes the instant when the UUT has completed its power-up sequence (Tpower_up). The *Channel Availability Check Time* commences on Chr at instant T1 and will end no sooner than T1 + Tch_avail_check.

c) A single *Burst* of one of the Short Pulse Radar Types 0-4 will commence within a 6 second window starting at T1 + 54 seconds. An additional 1 dB is added to the radar test signal to ensure it is at or above the *DFS Detection Threshold*, accounting for equipment variations/errors.

d) Visual indication or measured results on the UUT of successful detection of the radar *Burst* will be recorded and reported. Observation of Chr for UUT emissions will continue for 2.5 minutes after the radar *Burst* has been generated.

e) Verify that during the 2.5 minute measurement window no UUT transmissions occurred on Chr. The *Channel Availability Check* results will be recorded.

Radar Burst at the End of the Channel Availability Check Time – 5500MHz, 20MHz

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

Procedure from KDB 905462, 7.8.3 In-Service Monitoring for Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period:

These tests define how the following DFS parameters are verified during *In-Service Monitoring;*

- *Channel Closing Transmission Time*
- *Channel Move Time*
- *Non-Occupancy Period*

The steps below define the procedure to determine the above mentioned parameters 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).*

a) One frequency will be chosen from the *Operating Channels* of the UUT within the 5250-5350 MHz or 5470-5725 MHz bands. For 802.11 devices, the test frequency must contain control signals. This can be verified by disabling channel loading and monitoring the spectrum analyzer. If no control signals are detected, another frequency must be selected within the emission bandwidth where control signals are detected.

b) In case the UUT is a U-NII device operating as a *Client Device* (with or without DFS), a U-NII device operating as a *Master Device* will be used to allow the UUT (Client device) to *Associate* with the *Master Device*. In case the UUT is a *Master Device*, a U-NII device operating as a *Client Device* will be used and it is assumed that the Client will *Associate* with the UUT (Master). In both cases for conducted tests, the *Radar Waveform* generator will be connected to the *Master Device*. For radiated tests, the emissions of the *Radar Waveform* generator will be directed towards the *Master Device*. If the *Master Device* has antenna gain, the main beam of the antenna will be directed toward the radar emitter. Vertical polarization is used for testing.

c) Stream the channel loading test file from the *Master Device* to the *Client Device* on the test *Channel* for the entire period of the test.

d) At time T0 the *Radar Waveform* generator sends a *Burst* of pulses for one of the Radar Type 0 in **Table 5** at levels defined in **Table 3**, on the *Operating Channel*. An additional 1 dB is added to the radar test signal to ensure it is at or above the *DFS Detection Threshold*, accounting for equipment variations/errors.

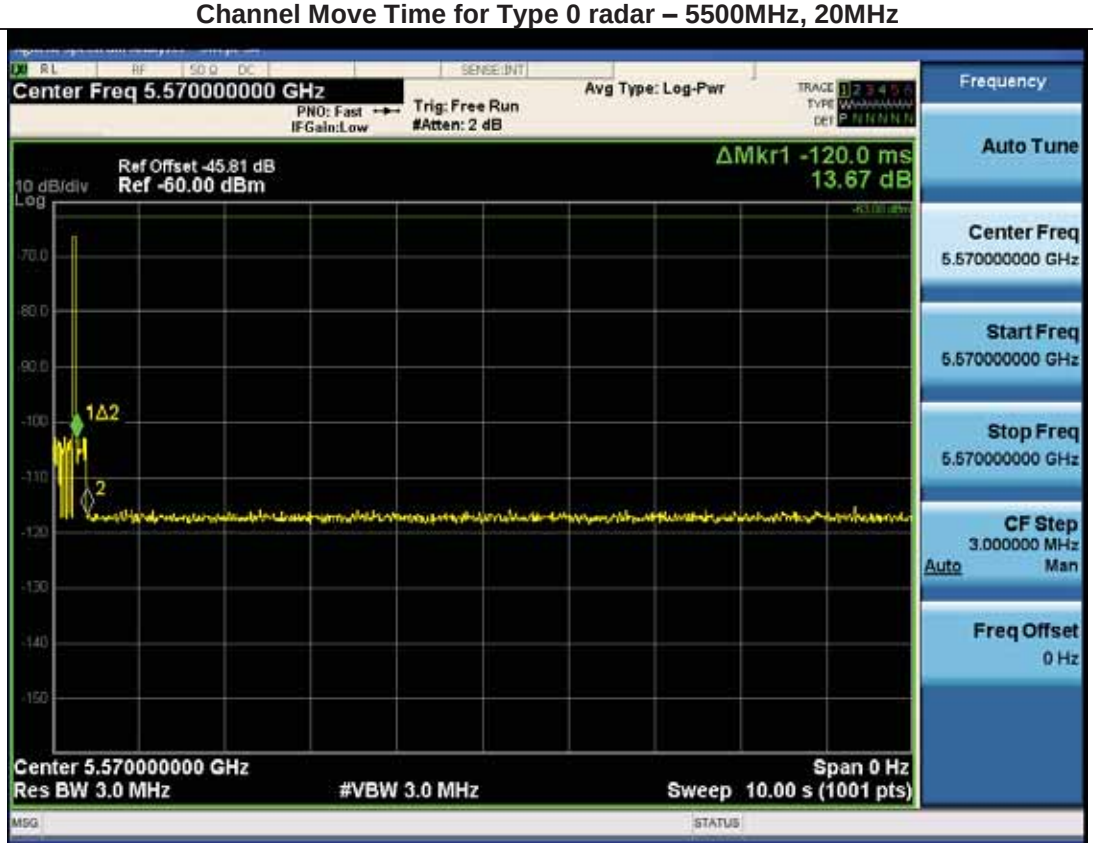
e) Observe the transmissions of the UUT at the end of the radar *Burst* on the *Operating Channel* for duration greater than 10 seconds. Measure and record the transmissions from the UUT during the observation time (*Channel Move Time)*. Measure and record the *Channel Move Time* and *Channel Closing Transmission Time* if radar detection occurs. **Figure 17** illustrates *Channel Closing Transmission Time.*

f) When operating as a *Master Device*, monitor the UUT for more than 30 minutes following instant T2 to verify that the UUT does not resume any transmissions on this *Channel*. Perform this test once and record the measurement result.

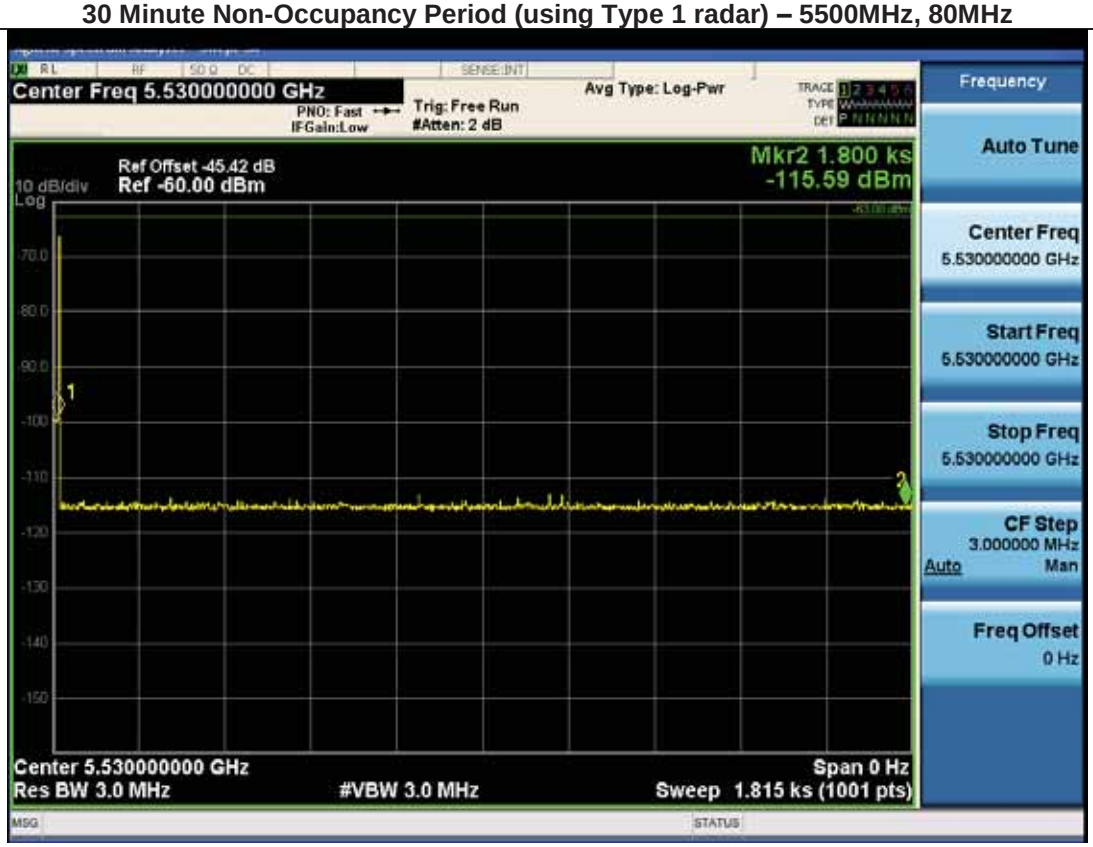
g) In case the UUT is a U-NII device operating as a *Client Device* with *In-Service Monitoring*, perform steps a) to f).

Channel Closing Transmission Time - Type 0 radar – 5500MHz, 20MHz

Channel Move Time for Type 0 radar – 5500MHz, 20MHz



30 Minute Non-Occupancy Period (using Type 1 radar) – 5500MHz, 80MHz



Statistical Performance Check

Procedure from KDB 905462, 7.8.4 Statistical Performance Check:

The steps below define the procedure to determine the minimum percentage of successful detection requirements found in **Tables 5-7** 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).*

a) One frequency will be chosen from the *Operating Channels* of the UUT within the 5250-5350 MHz or 5470-5725 MHz bands.

b) In case the UUT is a U-NII device operating as a *Client Device* (with or without Radar Detection), a U-NII device operating as a *Master Device* will be used to allow the UUT (Client device) to *Associate* with the *Master Device*. In case the UUT is a *Master Device*, a U-NII device operating as a *Client Device* will be used and it is assumed that the Client will *Associate* with the UUT (Master). In both cases for conducted tests, the *Radar Waveform* generator will be connected to the *Master Device*. For radiated tests, the emissions of the *Radar Waveform* generator will be directed towards the *Master Device*. If the *Master Device* has antenna gain, the main beam of the antenna will be directed toward the radar emitter. Vertical polarization is used for testing.

c) Stream the channel loading test file from the *Master Device* to the Client Device on the test *Channel* for the entire period of the test.

d) At time T0 the *Radar Waveform* generator sends the individual waveform for each of the Radar Types 1- 6 in **Tables 5-7**, at levels defined in **Table 3**, on the *Operating Channel*. An additional 1 dB is added to the radar test signal to ensure it is at or above the *DFS Detection Threshold*, accounting for equipment variations/errors.

e) Observe the transmissions of the UUT at the end of the Burst on the *Operating Channel* for duration greater than 10 seconds for Radar Type 0 to ensure detection occurs.

f) Observe the transmissions of the UUT 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.

g) In case the UUT is a U-NII device operating as a *Client Device* with *In-Service Monitoring*, perform steps a) to f).

7.8.4.1 Short Pulse Radar Test

Once the performance requirements check is complete, statistical data will be gathered, to determine the ability of the device to detect the radar test waveforms (Short Pulse Radar Types 1-4) found in **Table 5**. The device can utilize a test mode to demonstrate when detection occurs to prevent the need to reset the device between trials. The percentage of successful detection is calculated by:

$$\frac{TotalWaveformDetections}{TotalWaveformTrials} \times 100 = \text{Percentage of Successful Detection } \textit{Radar Waveform } N = P_d N$$

In addition an aggregate minimum percentage of successful detection across all Short Pulse Radar Types 1-4 is required and is calculated as follows:

$$\frac{P_d 1 + P_d 2 + P_d 3 + P_d 4}{4}$$

The minimum number of trails, minimum percentage of successful detection and the aggregate minimum percentage of successful detection are found in **Table 5**.

7.8.4.2 Long Pulse Radar Test

Statistical data will be gathered to determine the ability of the device to detect the Long Pulse Radar Type 5 found in **Table 6**. The device can utilize a test mode to demonstrate when detection occurs to prevent the need to reset the device between trials. The percentage of successful detection is calculated by:

$$\frac{TotalWaveformDetections}{TotalWaveformTrials} \times 100$$

7.8.4.3 Frequency Hopping Radar Test

Statistical data will be gathered to determine the ability of the device to detect the Frequency Hopping radar test signal (radar type 6) found in **Table** 7. The device can utilize a test mode to demonstrate when detection occurs to prevent the need to reset the device between trial runs. The probability of successful detection is calculated by:

$$\frac{TotalWaveformDetections}{TotalWaveformTrials} \times 100$$

Statistical Performance Check - 20MHz Bandwidth, 5500MHz

Type 1A/1B Radar Statistical Performance

Trial	Frequency	Pulses	PW (uS)	PRI (uS)	1=Detection 0=No Detection	Detection Percentage	Limit
1	5494	81	1	658	0	70.0%	60.0%
2	5494	63	1	838	0		
3	5494	89	1	598	0		
4	5494	89	1	598	1		
5	5494	81	1	658	1		
6	5494	95	1	558	1		
7	5495	76	1	698	1		
8	5495	99	1	538	1		
9	5495	59	1	898	1		
10	5495	18	1	3066	1		
11	5495	68	1	778	1		
12	5495	89	1	598	1		
13	5500	74	1	718	1		
14	5500	68	1	778	1		
15	5500	57	1	938	1		
16	5500	34	1	1576	0		
17	5500	38	1	1417	0		
18	5500	31	1	1750	1		
19	5505	45	1	1174	1		
20	5505	37	1	1437	1		
21	5505	18	1	3006	1		
22	5505	74	1	715	1		
23	5505	21	1	2585	0		
24	5505	19	1	2906	0		
25	5506	41	1	1317	1		
26	5506	70	1	760	0		
27	5506	42	1	1271	1		
28	5506	35	1	1545	1		
29	5506	59	1	908	1		
30	5506	22	1	2495	0		

Type 2 Radar Statistical Performance

Trial	Frequency	Pulses	PW (uS)	PRI (uS)	1=Detection 0=No Detection	Detection Percentage	Limit
1	5494	28	2	215	0	90.0%	60.0%
2	5494	25	1	185	1		
3	5494	28	1.9	210	1		
4	5494	23	2.2	181	1		
5	5494	23	4.2	216	1		
6	5494	29	2.2	154	0		
7	5495	28	3.3	172	0		
8	5495	23	4	184	1		
9	5495	27	3.4	205	1		
10	5495	23	2.5	191	1		
11	5495	27	3.9	193	1		
12	5495	28	1.9	208	1		
13	5500	24	3.9	177	1		
14	5500	25	2	221	1		
15	5500	23	2.4	159	1		
16	5500	28	4.5	154	1		
17	5500	26	4.9	152	1		
18	5500	23	1.9	219	1		
19	5505	27	2.1	175	1		
20	5505	24	3.2	163	1		
21	5505	27	1.8	172	1		
22	5505	29	2.3	220	1		
23	5505	24	3.4	190	1		
24	5505	27	2.3	177	1		
25	5506	29	1.5	167	1		
26	5506	23	4.6	218	1		
27	5506	27	1.6	183	1		
28	5506	25	2.7	151	1		
29	5506	27	2.6	230	1		
30	5506	24	1.2	229	1		

Type 3 Radar Statistical Performance

Trial	Frequency	Pulses	PW (uS)	PRI (uS)	1=Detection 0=No Detection	Detection Percentage	Limit
1	5494	17	9.9	235	0	86.7%	60.0%
2	5494	17	6.3	453	1		
3	5494	18	8.1	419	1		
4	5494	18	7.9	276	1		
5	5494	17	7.1	216	1		
6	5494	18	7.4	419	1		
7	5495	18	7.9	444	1		
8	5495	16	6.2	326	0		
9	5495	16	8.3	330	1		
10	5495	16	8.9	450	1		
11	5495	17	8.3	420	1		
12	5495	16	10	240	1		
13	5500	16	9.6	419	1		
14	5500	18	10	486	1		
15	5500	17	9.1	317	1		
16	5500	17	9.2	343	1		
17	5500	17	6.7	350	1		
18	5500	18	7.6	430	0		
19	5505	18	6.9	413	1		
20	5505	18	6.3	363	1		
21	5505	16	9	261	1		
22	5505	18	7.6	262	1		
23	5505	17	8.3	467	0		
24	5505	18	6.3	201	1		
25	5506	18	8.7	487	1		
26	5506	18	9.9	322	1		
27	5506	18	9.2	335	1		
28	5506	17	9.3	411	1		
29	5506	17	6	418	1		
30	5506	16	7.6	232	1		

Type 4 Radar Statistical Performance

Trial	Frequency	Pulses	PW (uS)	PRI (uS)	1=Detection 0=No Detection	Detection Percentage	Limit
1	5494	16	15.5	289	0	96.7%	60.0%
2	5494	12	11.4	219	1		
3	5494	14	19.2	491	1		
4	5494	15	11.7	261	1		
5	5494	14	17.2	490	1		
6	5494	14	11.1	480	1		
7	5495	15	16.6	292	1		
8	5495	15	13.2	280	1		
9	5495	15	15.2	416	1		
10	5495	16	11.7	267	1		
11	5495	15	14.4	470	1		
12	5495	15	17	248	1		
13	5500	14	17.9	455	1		
14	5500	15	11.3	260	1		
15	5500	16	16.6	412	1		
16	5500	16	18	304	1		
17	5500	16	12	220	1		
18	5500	12	11.1	239	1		
19	5505	16	19	357	1		
20	5505	14	18.7	476	1		
21	5505	12	13.7	303	1		
22	5505	16	13.9	306	1		
23	5505	16	17.9	278	1		
24	5505	16	18.5	371	1		
25	5506	13	14.7	492	1		
26	5506	12	17.5	456	1		
27	5506	13	12.9	472	1		
28	5506	15	16.1	271	1		
29	5506	15	11.5	324	1		
30	5506	12	19.3	496	1		

In addition an average minimum percentage of successful detection across all four Short pulse radar test waveforms is required and is calculated as follows:

$$\frac{P_d 1 + P_d 2 + P_d 3 + P_d 4}{4}$$ = (70%+90%+86.7%+96.7%)/4 = 85.85% (>80%)

Type 5 Long Pulse Radar Statistical Performance

Trial	Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)	1=Detection 0=No Detection	Detection Percentage	Limit
1	1	3	5493.4	6	100	1649	1244	0.155211	0	83.3%	80.0%
2	1	1	5497	15	100			0.686067	1		
3	1	2	5495.8	12	80	1295		0.477176	1		
4	1	1	5495.4	11	60			0.211712	1		
5	1	3	5498.2	18	85	1885	1237	0.448142	1		
6	1	2	5497.8	17	55	1374		0.302236	1		
7	1	3	5499	20	95	1448	1580	0.900899	1		
8	1	2	5497.8	17	50	1641		0.664097	1		
9	1	2	5498.6	19	85	1638		0.392485	1		
10	1	1	5498.2	18	55			1.109622	0		
11	1	1	5500	8	50			0.153206	0		
12	1	3	5500	16	90	1395	1056	1.057469	0		
13	1	3	5500	6	55	1990	1523	0.142834	1		
14	1	2	5500	13	60	1214		0.630356	1		
15	1	1	5500	16	65			0.669074	1		
16	1	2	5500	17	80	1416		0.756977	0		
17	1	1	5500	8	90			0.482242	1		
18	1	1	5500	10	90			0.059364	1		
19	1	3	5500	18	85	1672	1036	0.369906	1		
20	1	2	5500	19	85	1880		0.449798	1		
21	1	1	5501.4	19	50			0.188836	1		
22	1	2	5502.6	16	75	1721		0.808546	1		
23	1	3	5506.6	6	60	1571	1649	0.531261	1		
24	1	1	5506.2	7	100			0.49797	1		
25	1	2	5506.6	6	100	1607		0.179037	1		
26	1	1	5505.8	8	80			0.523077	1		
27	1	1	5503.8	13	75			0.595584	1		
28	1	1	5502.6	16	75			0.409333	1		
29	1	2	5502.6	16	100	1787		0.947083	1		
30	1	2	5502.2	17	70	1661		0.446295	1		

Type 5 Long Pulse Radar Statistical Performance – Details

USA Bin 5 Trial #1							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5493.4	6	100	1649	1244	0.155211
2	1	5493.4	6	85			0.945259
3	2	5493.4	6	90	1977		1.367003
4	3	5493.4	6	100	1044	1014	2.51412
5	3	5493.4	6	85	1452	1292	2.599464
6	1	5493.4	6	55			3.69971
7	2	5493.4	6	90	1297		3.834558
8	3	5493.4	6	85	1981	1883	4.773314
9	3	5493.4	6	90	1579	1614	5.440302
10	2	5493.4	6	55	1706		5.723762
11	1	5493.4	6	80			6.844631
12	1	5493.4	6	60			7.251308
13	3	5493.4	6	55	1123	1486	7.579793
14	2	5493.4	6	85	1549		8.418706
15	3	5493.4	6	100	1134	1720	8.849463
16	2	5493.4	6	95	1230		10.032094
17	2	5493.4	6	75	1352		10.439862
18	3	5493.4	6	60	1213	1003	11.326429
19	2	5493.4	6	50	1046		11.793745
USA Bin 5 Trial #2	2	5495.8	12	85	1313		2.105115
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5497	15	100			0.686067
2	3	5497	15	65	1470	1692	1.275955
3	3	5497	15	70	1857	1578	2.245982
4	2	5497	15	50	1010		2.699531
5	1	5497	15	80			3.568713
6	3	5497	15	75	1284	1154	4.463774
7	2	5497	15	50	1221		5.561295
8	2	5497	15	60	1631		5.824531
9	1	5497	15	95			6.640074
10	2	5497	15	85	1286		7.290332

11	3	5497	15	90	1870	1558	8.221023
12	2	5497	15	75	1516		9.253463
13	3	5497	15	50	1611	1090	9.898144
14	3	5497	15	60	1508	1480	10.528163
15	3	5497	15	55	1405	1317	11.463732
USA Bin 5 Trial #3	1	5495.8	12	95			7.423863
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5495.8	12	80	1295		0.477176
2	3	5495.8	12	95	1232	1304	1.245804
3	2	5495.8	12	100	1492		2.242549
4	3	5495.8	12	80	1216	1612	2.734425
5	3	5495.8	12	95	1551	1215	3.50217
6	3	5495.8	12	85	1268	1857	4.427614
7	1	5495.8	12	100			5.862913
8	1	5495.8	12	65			6.070404
9	1	5495.8	12	55			7.419652
10	1	5495.8	12	50			7.87661
11	3	5495.8	12	100	1563	1887	8.86381
12	3	5495.8	12	50	1378	1839	9.710586
13	2	5495.8	12	100	1893		10.677688
14	3	5495.8	12	100	1060	1364	11.172529
USA Bin 5 Trial #4	2	5493.8	7	55	1659		7.006827
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5495.4	11	60			0.211712
2	1	5495.4	11	95			1.295555
3	1	5495.4	11	75			1.962574
4	2	5495.4	11	60	1620		2.689055
5	1	5495.4	11	50			2.984332
6	3	5495.4	11	95	1712	1543	3.825955
7	3	5495.4	11	65	1052	1193	4.733576
8	2	5495.4	11	95	1801		4.956161
9	3	5495.4	11	90	1209	1811	6.228704
10	1	5495.4	11	85			6.365156
11	1	5495.4	11	95			7.711168
12	3	5495.4	11	85	1357	1090	8.178929

13	3	5495.4	11	85	1489	1920	8.959837
14	3	5495.4	11	80	1888	1059	9.658987
15	2	5495.4	11	95	1087		10.560866
16	1	5495.4	11	100			10.779108
17	1	5495.4	11	55			11.992446
USA Bin 5 Trial #5	2	5493.8	7	85	1700		7.149
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5498.2	18	85	1885	1237	0.448142
2	1	5498.2	18	100			1.664369
3	1	5498.2	18	100			2.528474
4	2	5498.2	18	55	1224		3.118806
5	3	5498.2	18	90	1027	1618	4.09907
6	2	5498.2	18	80	1850		4.548787
7	1	5498.2	18	70			5.711589
8	2	5498.2	18	50	1976		6.451457
9	3	5498.2	18	85	1007	1515	7.401927
10	2	5498.2	18	60	1361		7.921404
11	3	5498.2	18	60	1677	1074	9.065809
12	1	5498.2	18	60			9.746727
13	1	5498.2	18	75			10.633223
14	2	5498.2	18	90	1250		11.675181
USA Bin 5 Trial #6	3	5495	10	85	1198	1172	7.735528
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5497.8	17	55	1374		0.302236
2	1	5497.8	17	85			1.240849
3	1	5497.8	17	85			1.827572
4	1	5497.8	17	100			2.463462
5	3	5497.8	17	90	1711	1123	3.061947
6	3	5497.8	17	65	1771	1927	4.230253
7	1	5497.8	17	100			4.429326
8	3	5497.8	17	55	1994	1145	5.616224
9	3	5497.8	17	50	1787	1400	6.203778
10	1	5497.8	17	75			6.420044
11	3	5497.8	17	100	1070	1962	7.731229
12	1	5497.8	17	90			7.812214

13	2	5497.8	17	100	1500		8.7532
14	2	5497.8	17	60	1475		9.353912
15	2	5497.8	17	65	1657		10.458932
16	1	5497.8	17	80			11.222808
17	1	5497.8	17	75			11.559171
USA Bin 5 Trial #7	3	5496.6	14	75	1325	1289	8.937339
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5499	20	95	1448	1580	0.900899
2	1	5499	20	65			2.078965
3	2	5499	20	60	1949		2.322184
4	2	5499	20	80	1693		4.118562
5	2	5499	20	70	1655		4.863079
6	3	5499	20	60	1685	1640	5.646413
7	2	5499	20	85	1405		7.098297
8	2	5499	20	100	1853		7.828007
9	3	5499	20	50	1967	1995	9.220791
10	3	5499	20	65	1855	1217	9.971195
11	3	5499	20	100	1017	1563	11.717517
USA Bin 5 Trial #8	1	5494.6	9	70			5.916181
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5497.8	17	50	1641		0.664097
2	1	5497.8	17	65			1.350628
3	3	5497.8	17	70	1134	1965	2.38548
4	2	5497.8	17	70	1408		3.059985
5	2	5497.8	17	75	1507		3.846559
6	2	5497.8	17	60	1583		4.724189
7	3	5497.8	17	70	1062	1885	4.934061
8	1	5497.8	17	75			5.87247
9	2	5497.8	17	65	1228		6.402472
10	1	5497.8	17	80			7.729891
11	2	5497.8	17	55	1776		8.512409
12	2	5497.8	17	100	1531		9.030499
13	3	5497.8	17	75	1202	1352	9.622232
14	3	5497.8	17	60	1745	1001	10.749846
15	2	5497.8	17	100	1295		11.9499

USA Bin 5 Trial #9	3	5495	10	100	1200	1499	4.909958
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5498.6	19	85	1638		0.392485
2	1	5498.6	19	80			1.053627
3	3	5498.6	19	80	1694	1700	1.577944
4	1	5498.6	19	95			2.119415
5	3	5498.6	19	85	1385	1860	2.69118
6	2	5498.6	19	95	1314		3.259524
7	2	5498.6	19	90	1885		3.746321
8	2	5498.6	19	80	1486		4.419505
9	1	5498.6	19	85			5.277466
10	2	5498.6	19	60	1225		5.84083
11	2	5498.6	19	55	1259		6.353011
12	1	5498.6	19	55			6.666071
13	1	5498.6	19	90			7.265123
14	1	5498.6	19	70			7.985585
15	2	5498.6	19	65	1091		8.860027
16	2	5498.6	19	80	1105		9.538439
17	2	5498.6	19	75	1550		9.965437
18	1	5498.6	19	90			10.568716
19	1	5498.6	19	75			10.98753
20	2	5498.6	19	55	1128		11.40891
USA Bin 5 Trial #10	2	5494.2	8	85	1137		9.023741
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5498.2	18	55			1.109622
2	3	5498.2	18	100	1605	1759	1.636436
3	1	5498.2	18	75			2.789102
4	1	5498.2	18	70			4.239315
5	2	5498.2	18	70	1105		5.967485
6	3	5498.2	18	55	1316	1368	6.075198
7	3	5498.2	18	70	1021	1806	8.323433
8	3	5498.2	18	75	1243	1145	8.830459
9	2	5498.2	18	100	1960		10.772253
10	1	5498.2	18	65			11.037464

USA Bin 5 Trial #11	2	5500	15	60	1088		8.556872
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5500	8	50			0.153206
2	1	5500	8	75			1.730559
3	1	5500	8	75			3.658864
4	2	5500	8	65	1005		5.473591
5	1	5500	8	55			6.348943
6	1	5500	8	90			8.755364
7	1	5500	8	100			9.839631
8	1	5500	8	90			10.824827
USA Bin 5 Trial #12	2	5500	19	55	1995		4.232273
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5500	16	90	1395	1056	1.057469
2	1	5500	16	90			1.442785
3	3	5500	16	95	1143	1402	3.794315
4	2	5500	16	55	1503		4.882679
5	1	5500	16	100			6.619859
6	3	5500	16	55	1732	1399	7.738854
7	3	5500	16	55	1412	1781	9.23704
8	3	5500	16	80	1358	1734	10.150026
9	2	5500	16	65	1079		11.19541
USA Bin 5 Trial #13							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5500	6	55	1990	1523	0.142834
2	2	5500	6	65	1978		1.653037
3	2	5500	6	80	1323		2.54665
4	1	5500	6	75			3.679061
5	2	5500	6	70	1039		4.471514
6	3	5500	6	90	1987	1528	5.053736
7	1	5500	6	100			6.445515
8	3	5500	6	80	1400	1123	7.099077
9	2	5500	6	55	1892		7.596859

10	2	5500	6	60	1996		8.84047
11	1	5500	6	50			9.236464
12	1	5500	6	50			10.843866
13	3	5500	6	60	1358	1230	11.251603
USA Bin 5 Trial #14	2	5500	6	75	1841		4.732407
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5500	13	60	1214		0.630356
2	1	5500	13	60			1.367743
3	3	5500	13	85	1531	1980	3.127549
4	3	5500	13	90	1266	1543	3.593139
5	1	5500	13	60			5.300031
6	1	5500	13	65			5.514536
7	1	5500	13	65			6.681443
8	2	5500	13	70	1847		7.959596
9	2	5500	13	80	1315		8.767973
10	3	5500	13	95	1701	1515	10.859726
11	3	5500	13	60	1922	1156	11.879644
USA Bin 5 Trial #15	1	5500	12	65			3.680133
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5500	16	65			0.669074
2	1	5500	16	65			1.572999
3	2	5500	16	80	1717		3.438662
4	1	5500	16	60			4.670991
5	3	5500	16	55	1432	1293	4.960413
6	1	5500	16	95			6.620137
7	2	5500	16	85	1901		8.031772
8	2	5500	16	95	1627		8.896049
9	2	5500	16	50	1903		10.482087
10	1	5500	16	90			11.824739
USA Bin 5 Trial #16	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)

1	2	5500	17	80	1416		0.756977
2	2	5500	17	55	1501		1.784586
3	1	5500	17	90			2.459606
4	1	5500	17	75			2.987802
5	1	5500	17	100			4.556457
6	2	5500	17	65	1439		5.132282
7	1	5500	17	95			5.960779
8	2	5500	17	75	1476		6.919387
9	2	5500	17	95	1866		7.689038
10	2	5500	17	85	1132		8.459288
11	1	5500	17	75			9.276194
12	3	5500	17	55	1277	1574	10.715596
13	2	5500	17	50	1070		11.57201
USA Bin 5 Trial #17	2	5500	5	85	1203		3.703119
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5500	8	90			0.482242
2	1	5500	8	55			1.139745
3	2	5500	8	70	1788		1.652529
4	2	5500	8	80	1987		2.142994
5	1	5500	8	85			3.056137
6	1	5500	8	85			3.433307
7	3	5500	8	90	1075	1218	4.302666
8	3	5500	8	100	1461	1216	4.734771
9	2	5500	8	90	1114		5.369906
10	3	5500	8	70	1008	1303	5.772484
11	1	5500	8	90			6.579994
12	2	5500	8	70	1720		7.439826
13	2	5500	8	95	1063		7.600925
14	2	5500	8	80	1229		8.743745
15	2	5500	8	55	1525		8.932118
16	3	5500	8	50	1087	1037	9.611897
17	3	5500	8	85	1287	1501	10.12234
18	2	5500	8	55	1813		11.24283
19	1	5500	8	90			11.813231
USA Bin 5 Trial #18							

Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5500	10	90			0.059364
2	2	5500	10	70	1857		1.250736
3	2	5500	10	80	1176		1.519392
4	1	5500	10	50			2.375498
5	3	5500	10	50	1138	1802	3.073418
6	1	5500	10	80			3.512269
7	3	5500	10	70	1942	1404	3.790642
8	1	5500	10	55			4.593247
9	2	5500	10	80	1271		5.270167
10	3	5500	10	95	1200	1069	6.083323
11	2	5500	10	55	1996		6.33384
12	3	5500	10	85	1095	1179	7.143854
13	3	5500	10	80	1641	1610	7.887631
14	1	5500	10	85			8.730742
15	1	5500	10	95			8.936007
16	3	5500	10	60	1606	1113	9.77117
17	3	5500	10	70	1445	1822	10.509928
18	1	5500	10	60			10.754494
19	3	5500	10	100	1927	1456	11.787706

USA Bin 5 Trial #19	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5500	18	85	1672	1036	0.369906
2	2	5500	18	50	1217		0.642664
3	3	5500	18	70	1306	1846	1.823589
4	2	5500	18	75	1088		2.012704
5	3	5500	18	70	1120	1343	2.847931
6	3	5500	18	50	1883	1540	3.474365
7	3	5500	18	65	2000	1847	4.024616
8	2	5500	18	90	1537		4.941754
9	1	5500	18	60			5.393554
10	3	5500	18	80	1603	1846	6.112754
11	3	5500	18	55	1439	1636	6.435404
12	1	5500	18	100			7.522543
13	3	5500	18	60	1688	1590	8.067958

14	2	5500	18	80	1660		8.411358
15	3	5500	18	75	1299	1531	9.062659
16	3	5500	18	60	1617	1997	9.901906
17	2	5500	18	60	1636		10.510041
18	2	5500	18	65	1632		10.740014
19	2	5500	18	95	1757		11.989977
USA Bin 5 Trial #20	1	5505.8	8	50			3.346326
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5500	19	85	1880		0.449798
2	2	5500	19	60	1051		0.917446
3	2	5500	19	60	1214		1.324052
4	2	5500	19	60	1021		1.935056
5	2	5500	19	75	1629		2.684179
6	3	5500	19	50	1120	1545	3.542869
7	1	5500	19	80			3.956738
8	2	5500	19	70	1148		4.523857
9	3	5500	19	95	1636	1426	5.162903
10	2	5500	19	70	1550		6.292847
11	1	5500	19	55			6.642939
12	3	5500	19	100	1342	1128	7.115722
13	1	5500	19	75			7.863532
14	1	5500	19	55			8.339965
15	1	5500	19	60			8.974585
16	1	5500	19	55			9.778299
17	1	5500	19	70			10.613038
18	2	5500	19	55	1155		11.16558
19	3	5500	19	90	1786	1020	11.559705
USA Bin 5 Trial #21	2	5505	10	75	1579		7.769718
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5501.4	19	50			0.188836
2	3	5501.4	19	95	1287	1405	1.309595
3	1	5501.4	19	65			1.37981
4	1	5501.4	19	60			2.085015
5	3	5501.4	19	90	1094	1881	2.668505
6	3	5501.4	19	95	1862	1262	3.665266

7	2	5501.4	19	50	1518		4.576907
8	3	5501.4	19	85	1573	1996	5.188006
9	1	5501.4	19	85			5.720012
10	3	5501.4	19	75	1663	1103	6.587363
11	1	5501.4	19	85			7.126501
12	1	5501.4	19	75			7.698194
13	1	5501.4	19	60			8.16944
14	3	5501.4	19	75	1637	1742	9.22699
15	3	5501.4	19	95	1239	1184	9.951001
16	3	5501.4	19	70	1688	1551	10.249002
17	1	5501.4	19	100			10.79518
18	3	5501.4	19	90	1079	1168	11.916349
USA Bin 5 Trial #22	1	5502.6	16	85			2.209775
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5502.6	16	75	1721		0.808546
2	3	5502.6	16	100	1539	1794	1.505535
3	1	5502.6	16	55			2.657354
4	1	5502.6	16	95			3.605402
5	3	5502.6	16	100	1735	1546	4.365973
6	2	5502.6	16	70	1328		5.2144
7	2	5502.6	16	65	1453		6.11185
8	2	5502.6	16	90	1015		6.606789
9	1	5502.6	16	60			7.720402
10	1	5502.6	16	90			8.579486
11	3	5502.6	16	50	1766	1771	9.699814
12	3	5502.6	16	50	1093	1851	10.555106
13	2	5502.6	16	100	1115		11.821223
USA Bin 5 Trial #23	3	5502.6	16	55	1035	1102	11.709432
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5506.6	6	60	1571	1649	0.531261
2	1	5506.6	6	70			1.019325
3	1	5506.6	6	90			1.454012
4	3	5506.6	6	60	1993	1780	2.099964
5	2	5506.6	6	95	1384		2.909374
6	3	5506.6	6	95	1615	1552	3.302715

7	3	5506.6	6	100	1020	1642	4.387389
8	2	5506.6	6	65	1669		5.036669
9	2	5506.6	6	75	1457		5.490802
10	3	5506.6	6	80	1584	1519	5.962693
11	1	5506.6	6	70			6.782849
12	2	5506.6	6	100	1320		7.536012
13	2	5506.6	6	95	1089		7.767606
14	2	5506.6	6	100	1813		8.27526
15	2	5506.6	6	80	1162		9.182529
16	1	5506.6	6	70			9.550341
17	3	5506.6	6	90	1229	1785	10.37772
18	3	5506.6	6	80	1272	1706	10.910729
19	1	5506.6	6	85			11.827561
USA Bin 5 Trial #24	3	5501.4	19	85	1319	1799	0.304393
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5506.2	7	100			0.49797
2	3	5506.2	7	100	1935	1479	1.45511
3	2	5506.2	7	100	1402		2.470738
4	3	5506.2	7	90	1266	1041	3.547763
5	2	5506.2	7	65	1621		3.833388
6	1	5506.2	7	60			5.417654
7	2	5506.2	7	75	1905		5.692457
8	1	5506.2	7	60			7.350019
9	1	5506.2	7	65			8.207165
10	2	5506.2	7	80	1851		9.007478
11	3	5506.2	7	50	1914	1207	10.018519
12	2	5506.2	7	75	1955		10.909197
13	3	5506.2	7	60	1154	1558	11.164327
USA Bin 5 Trial #25	3	5501.4	19	75	1698	1356	11.822544
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5506.6	6	100	1607		0.179037
2	1	5506.6	6	90			0.9183
3	3	5506.6	6	90	1498	1214	1.613139
4	1	5506.6	6	95			2.417299
5	3	5506.6	6	90	1703	1021	3.324782

6	2	5506.6	6	100	1028		3.993896
7	2	5506.6	6	85	1973		4.751736
8	3	5506.6	6	70	1573	1925	5.05539
9	3	5506.6	6	55	1721	1658	6.165835
10	1	5506.6	6	55			6.433648
11	3	5506.6	6	55	1503	1430	7.751989
12	2	5506.6	6	75	1518		8.43902
13	3	5506.6	6	70	1848	1404	8.476767
14	1	5506.6	6	100			9.566912
15	2	5506.6	6	50	1682		10.381639
16	3	5506.6	6	60	1982	1082	11.02001
17	1	5506.6	6	80			11.855811
USA Bin 5 Trial #26	2	5507	5	80	1918		11.407197
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5505.8	8	80			0.523077
2	2	5505.8	8	80	1189		1.017769
3	2	5505.8	8	95	1767		1.475518
4	3	5505.8	8	80	1067	1959	2.660722
5	1	5505.8	8	70			3.375816
6	2	5505.8	8	100	1048		3.886879
7	1	5505.8	8	55			4.447215
8	3	5505.8	8	90	1964	1258	5.47796
9	1	5505.8	8	55			6.051818
10	3	5505.8	8	70	1300	1775	6.780737
11	1	5505.8	8	60			7.113895
12	1	5505.8	8	60			8.204683
13	1	5505.8	8	95			9.099338
14	1	5505.8	8	85			9.498002
15	1	5505.8	8	70			9.932864
16	1	5505.8	8	80			11.279711
17	1	5505.8	8	95			11.620883
USA Bin 5 Trial #27	1	5501	20	70			10.153613
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5503.8	13	75			0.595584
2	2	5503.8	13	55	1637		1.048339

3	2	5503.8	13	70	1634		1.656257
4	1	5503.8	13	90			2.139322
5	1	5503.8	13	85			2.54167
6	1	5503.8	13	85			3.137322
7	2	5503.8	13	55	1881		3.89019
8	3	5503.8	13	95	1832	1117	4.371482
9	2	5503.8	13	70	1807		5.093185
10	2	5503.8	13	95	1305		5.914868
11	2	5503.8	13	50	1196		6.282862
12	2	5503.8	13	70	1302		6.667183
13	1	5503.8	13	75			7.46068
14	1	5503.8	13	95			8.132381
15	2	5503.8	13	75	1802		8.821284
16	2	5503.8	13	100	1210		9.008651
17	3	5503.8	13	100	1584	1765	9.961429
18	1	5503.8	13	100			10.467498
19	3	5503.8	13	75	1209	1176	11.375538
20	2	5503.8	13	80	1732		11.443203
USA Bin 5 Trial #28	3	5507	5	50	1472	1825	5.206903
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5502.6	16	75			0.409333
2	1	5502.6	16	75			0.735225
3	3	5502.6	16	95	1798	1753	1.563201
4	2	5502.6	16	55	1012		2.077129
5	1	5502.6	16	70			2.857887
6	3	5502.6	16	55	1944	1771	3.445541
7	2	5502.6	16	80	1357		4.2526
8	2	5502.6	16	95	1103		4.825041
9	3	5502.6	16	65	1743	1175	5.413662
10	1	5502.6	16	85			6.016732
11	3	5502.6	16	65	1332	1270	7.302088
12	3	5502.6	16	85	1781	1325	7.491765
13	3	5502.6	16	60	1106	1989	8.287677
14	1	5502.6	16	75			9.26302
15	1	5502.6	16	80			9.380508
16	1	5502.6	16	80			10.324992
17	2	5502.6	16	60	1535		10.99917
18	3	5502.6	16	70	1677	1340	11.963634

USA Bin 5 Trial #29							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5502.6	16	100	1787		0.947083
2	3	5502.6	16	75	1655	1150	2.062402
3	1	5502.6	16	55			3.781447
4	3	5502.6	16	65	1124	1354	5.177608
5	1	5502.6	16	65			5.833182
6	3	5502.6	16	70	1288	1991	7.255549
7	1	5502.6	16	100			8.841214
8	3	5502.6	16	70	1781	1740	10.115956
9	1	5502.6	16	55			11.873178
USA Bin 5 Trial #30							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5502.2	17	70	1661		0.446295
2	1	5502.2	17	85			1.306172
3	2	5502.2	17	90	1900		1.961406
4	1	5502.2	17	75			2.479645
5	3	5502.2	17	100	1373	1609	3.239207
6	2	5502.2	17	60	1553		3.927035
7	3	5502.2	17	65	1660	1108	4.348713
8	2	5502.2	17	70	1755		5.148574
9	2	5502.2	17	95	1979		5.764112
10	2	5502.2	17	55	1083		6.59539
11	1	5502.2	17	85			6.776225
12	2	5502.2	17	100	1918		7.679321
13	3	5502.2	17	90	1090	1891	8.373685
14	2	5502.2	17	80	1785		8.893261
15	2	5502.2	17	55	1642		9.489973
16	2	5502.2	17	75	1631		10.046603
17	3	5502.2	17	65	1817	1877	11.060833
18	1	5502.2	17	95			11.804543

Type 6 Frequency Hopping Radar Statistical Performance

Trial	Hop #	Freq (MHz)	Pulse Start (mS)	1=Detection 0=No Detection	Detection Percentage	Limit
1	27	5508	81	1	86.7%	70.0%
2	23	5493	69	1		
3	28	5493	84	1		
4	2	5500	6	0		
5	28	5493	84	1		
6	35	5495	105	1		
7	49	5493	147	1		
8	2	5502	6	1		
9	3	5502	9	1		
10	19	5493	57	1		
11	5	5509	15	1		
12	18	5499	54	1		
13	32	5500	96	0		
14	14	5509	42	1		
15	40	5492	120	1		
16	8	5508	24	1		
17	3	5498	9	1		
18	38	5498	114	0		
19	14	5493	42	1		
20	21	5494	63	1		
21	13	5507	39	1		
22	38	5507	114	0		
23	1	5509	3	1		
24	46	5499	138	1		
25	17	5502	51	1		
26	14	5504	42	1		
27	54	5508	162	1		
28	1	5501	3	1		
29	26	5507	78	1		
30	2	5495	6	1		

Type 6 Frequency Hopping Radar Statistical Performance - Details

USA Frequency Hopping Trial #1		
Hop #	Freq (MHz)	Pulse Start (mS)
27	5508	81
30	5507	90
33	5493	99
39	5506	117
51	5494	153
73	5498	219
77	5503	231
95	5509	285
USA Frequency Hopping Trial #2		
Hop #	Freq (MHz)	Pulse Start (mS)
23	5493	69
26	5499	78
55	5500	165
70	5503	210
USA Frequency Hopping Trial #3		
Hop #	Freq (MHz)	Pulse Start (mS)
28	5493	84
59	5507	177
76	5495	228
80	5494	240
89	5509	267
USA Frequency Hopping Trial #4		
Hop #	Freq (MHz)	Pulse Start (mS)
2	5500	6
53	5506	159
94	5492	282
USA Frequency Hopping Trial #5		
Hop #	Freq (MHz)	Pulse Start (mS)
28	5493	84
30	5494	90
87	5500	261
USA Frequency Hopping Trial #6		

Hop #	Freq (MHz)	Pulse Start (mS)
35	5495	105
49	5507	147
78	5506	234
USA Frequency Hopping Trial #7		
Hop #	Freq (MHz)	Pulse Start (mS)
49	5493	147
51	5504	153
91	5495	273
97	5503	291
USA Frequency Hopping Trial #8		
Hop #	Freq (MHz)	Pulse Start (mS)
2	5502	6
18	5499	54
42	5500	126
66	5496	198
69	5492	207
USA Frequency Hopping Trial #9		
Hop #	Freq (MHz)	Pulse Start (mS)
3	5502	9
28	5508	84
44	5507	132
63	5500	189
66	5498	198
USA Frequency Hopping Trial #10		
Hop #	Freq (MHz)	Pulse Start (mS)
19	5493	57
20	5507	60
24	5500	72
33	5494	99
55	5509	165
62	5504	186
87	5492	261
USA Frequency Hopping Trial #11		
Hop #	Freq (MHz)	Pulse Start (mS)

5	5509	15
6	5494	18
12	5496	36
18	5493	54
30	5501	90
37	5502	111
66	5495	198
USA Frequency Hopping Trial #12		
Hop #	Freq (MHz)	Pulse Start (mS)
18	5499	54
22	5506	66
46	5498	138
84	5494	252
USA Frequency Hopping Trial #13		
Hop #	Freq (MHz)	Pulse Start (mS)
32	5500	96
78	5501	234
USA Frequency Hopping Trial #14		
Hop #	Freq (MHz)	Pulse Start (mS)
14	5509	42
17	5498	51
23	5506	69
84	5507	252
USA Frequency Hopping Trial #15		
Hop #	Freq (MHz)	Pulse Start (mS)
40	5492	120
47	5507	141
67	5499	201
70	5501	210
USA Frequency Hopping Trial #16		
Hop #	Freq (MHz)	Pulse Start (mS)
8	5508	24
44	5492	132
51	5491	153
99	5499	297
USA Frequency Hopping Trial #17		

Hop #	Freq (MHz)	Pulse Start (mS)
3	5498	9
7	5505	21
20	5493	60
28	5501	84
32	5491	96
78	5502	234
95	5495	285
USA Frequency Hopping Trial #18		
Hop #	Freq (MHz)	Pulse Start (mS)
38	5498	114
80	5505	240
USA Frequency Hopping Trial #19		
Hop #	Freq (MHz)	Pulse Start (mS)
14	5493	42
82	5504	246
89	5492	267
98	5503	294
USA Frequency Hopping Trial #20		
Hop #	Freq (MHz)	Pulse Start (mS)
21	5494	63
28	5497	84
30	5504	90
39	5493	117
48	5491	144
71	5509	213
91	5507	273
USA Frequency Hopping Trial #21		
Hop #	Freq (MHz)	Pulse Start (mS)
13	5507	39
36	5492	108
85	5504	255
93	5500	279
98	5499	294
USA Frequency Hopping Trial #22		

Hop #	Freq (MHz)	Pulse Start (mS)
38	5507	114
39	5499	117
USA Frequency Hopping Trial #23		
Hop #	Freq (MHz)	Pulse Start (mS)
1	5509	3
28	5492	84
43	5493	129
55	5505	165
75	5496	225
USA Frequency Hopping Trial #24		
Hop #	Freq (MHz)	Pulse Start (mS)
46	5499	138
58	5502	174
70	5495	210
USA Frequency Hopping Trial #25		
Hop #	Freq (MHz)	Pulse Start (mS)
17	5502	51
30	5509	90
58	5507	174
66	5505	198
73	5503	219
78	5493	234
USA Frequency Hopping Trial #26		
Hop #	Freq (MHz)	Pulse Start (mS)
14	5504	42
29	5499	87
37	5506	111
38	5505	114
65	5503	195
69	5502	207
USA Frequency Hopping Trial #27		
Hop #	Freq (MHz)	Pulse Start (mS)
54	5508	162
57	5498	171

68	5505	204
75	5497	225
90	5507	270
95	5500	285
USA Frequency Hopping Trial #28		
Hop #	Freq (MHz)	Pulse Start (mS)
1	5501	3
7	5502	21
8	5491	24
31	5506	93
63	5505	189
USA Frequency Hopping Trial #29		
Hop #	Freq (MHz)	Pulse Start (mS)
26	5507	78
44	5498	132
56	5494	168
91	5497	273
USA Frequency Hopping Trial #30		
Hop #	Freq (MHz)	Pulse Start (mS)
2	5495	6
5	5507	15
54	5499	162
97	5508	291

Statistical Performance Check - 40MHz Bandwidth

Type 1A/1B Radar Statistical Performance

Trial	Frequency	Pulses	PW (uS)	PRI (uS)	1=Detection 0=No Detection	Detection Percentage	Limit
1	5494	102	1	518	1	80.0%	60.0%
2	5494	67	1	798	1		
3	5494	70	1	758	1		
4	5494	83	1	638	1		
5	5494	81	1	658	1		
6	5494	67	1	798	1		
7	5500	67	1	798	1		
8	5500	61	1	878	1		
9	5500	99	1	538	1		
10	5500	95	1	558	1		
11	5500	58	1	918	1		
12	5500	92	1	578	1		
13	5510	72	1	738	1		
14	5510	70	1	758	1		
15	5510	18	1	3066	1		
16	5510	35	1	1516	0		
17	5510	51	1	1049	1		
18	5510	25	1	2121	1		
19	5520	56	1	952	1		
20	5520	36	1	1501	0		
21	5520	98	1	544	1		
22	5520	53	1	1008	1		
23	5520	38	1	1402	0		
24	5520	23	1	2340	1		
25	5526	28	1	1915	1		
26	5526	67	1	792	1		
27	5526	39	1	1368	0		
28	5526	35	1	1551	0		
29	5526	19	1	2884	1		
30	5526	31	1	1725	0		

Type 2 Radar Statistical Performance

Trial	Frequency	Pulses	PW (uS)	PRI (uS)	1=Detection 0=No Detection	Detection Percentage	Limit
1	5494	23	2.6	176	1	100.0%	60.0%
2	5494	28	2.6	201	1		
3	5494	23	1.6	162	1		
4	5494	26	2.5	163	1		
5	5494	25	1.5	178	1		
6	5494	25	1	186	1		
7	5500	25	3.1	170	1		
8	5500	23	3.3	220	1		
9	5500	25	4.8	160	1		
10	5500	27	3.2	165	1		
11	5500	25	1.6	179	1		
12	5500	25	2.3	205	1		
13	5510	26	1.4	207	1		
14	5510	28	5	185	1		
15	5510	23	1.2	195	1		
16	5510	26	3.5	180	1		
17	5510	28	2.7	210	1		
18	5510	26	3.5	197	1		
19	5520	23	4.1	202	1		
20	5520	28	3.9	160	1		
21	5520	27	3.1	167	1		
22	5520	29	1.2	206	1		
23	5520	23	4.9	216	1		
24	5520	25	4.6	167	1		
25	5526	25	4.4	173	1		
26	5526	25	2.6	228	1		
27	5526	27	3.5	156	1		
28	5526	24	1.7	224	1		
29	5526	26	1	213	1		
30	5526	26	2.9	219	1		

Type 3 Radar Statistical Performance

Trial	Frequency	Pulses	PW (uS)	PRI (uS)	1=Detection 0=No Detection	Detection Percentage	Limit
1	5494	17	7.9	486	0	86.7%	60.0%
2	5494	17	6	453	1		
3	5494	18	7	272	1		
4	5494	18	9.5	207	0		
5	5494	16	6.5	338	0		
6	5494	17	9.5	366	0		
7	5500	18	6	338	1		
8	5500	16	9.6	416	1		
9	5500	17	9.1	431	1		
10	5500	17	8.3	481	1		
11	5500	16	7.7	390	1		
12	5500	17	6.6	388	1		
13	5510	18	6	372	1		
14	5510	18	7.3	311	1		
15	5510	18	7.4	490	1		
16	5510	18	9	456	1		
17	5510	18	7.6	363	1		
18	5510	18	6.7	323	1		
19	5520	17	7.1	202	1		
20	5520	16	8.8	207	1		
21	5520	16	7.3	462	1		
22	5520	18	6.9	481	1		
23	5520	17	8.7	277	1		
24	5520	16	9.7	366	1		
25	5526	17	7.9	474	1		
26	5526	17	9.3	287	1		
27	5526	17	6.2	249	1		
28	5526	16	6.1	239	1		
29	5526	17	6.2	441	1		
30	5526	16	7.9	326	1		

Type 4 Radar Statistical Performance

Trial	Frequency	Pulses	PW (uS)	PRI (uS)	1=Detection 0=No Detection	Detection Percentage	Limit
1	5494	14	19.4	408	1	76.7%	60.0%
2	5494	14	19.1	478	1		
3	5494	13	14.1	465	0		
4	5494	16	16.7	275	1		
5	5494	12	15.2	411	0		
6	5494	14	16.1	378	1		
7	5500	14	16.9	483	1		
8	5500	13	14.1	360	1		
9	5500	15	17.7	390	1		
10	5500	15	19.3	432	0		
11	5500	14	14.2	393	1		
12	5500	13	19.7	367	1		
13	5510	14	17.6	236	1		
14	5510	16	12.7	310	1		
15	5510	13	11.9	342	0		
16	5510	12	11.7	212	1		
17	5510	13	11.4	303	1		
18	5510	16	11.2	455	0		
19	5520	14	18.6	481	1		
20	5520	13	18.1	274	1		
21	5520	14	11.5	365	0		
22	5520	15	12.1	206	1		
23	5520	15	19.8	370	1		
24	5520	12	12.8	342	0		
25	5526	14	15.9	334	1		
26	5526	15	13.3	277	1		
27	5526	16	17.2	229	1		
28	5526	16	14.8	369	1		
29	5526	14	15.4	495	1		
30	5526	12	16.4	463	1		

In addition an average minimum percentage of successful detection across all four Short pulse radar test waveforms is required and is calculated as follows:

$$\frac{P_d 1 + P_d 2 + P_d 3 + P_d 4}{4}$$ = (80%+100%+86.7%+76.7%)/4 = 85.85% (>80%)

Type 5 Long Pulse Radar Statistical Performance

Trial	Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)	1=Detection 0=No Detection	Detection Percentage	Limit
1	1	3	5498.6	19	80	1085	1383	0.630325	1	93.3%	80.0%
2	1	1	5497.8	17	55			0.660677	1		
3	1	3	5498.2	18	70	1632	1555	0.533378	1		
4	1	2	5493	5	55	1012		0.657558	1		
5	1	3	5498.6	19	100	1260	1267	0.764094	1		
6	1	1	5495.4	11	60			0.362825	1		
7	1	2	5495	10	55	1957		0.461549	1		
8	1	2	5497.4	16	95	1406		0.443435	1		
9	1	2	5498.6	19	55	1439		0.095562	0		
10	1	3	5495.8	12	100	1939	1237	0.132495	1		
11	1	3	5510	16	70	1115	1195	0.045606	1		
12	1	2	5510	19	80	1270		0.106821	1		
13	1	2	5510	14	65	1348		0.301071	1		
14	1	2	5510	20	65	1523		0.688976	1		
15	1	3	5510	18	85	1703	1091	0.055013	1		
16	1	3	5510	7	95	1550	1337	0.348232	1		
17	1	2	5510	5	95	1476		0.52535	1		
18	1	1	5510	17	50			0.396091	1		
19	1	2	5510	12	55	1718		0.461288	1		
20	1	2	5510	16	80	1047		0.735583	1		
21	1	3	5527	5	100	1887	1196	0.080537	1		
22	1	2	5522.2	17	60	1297		0.535298	1		
23	1	1	5521.4	19	75			0.518334	1		
24	1	3	5522.2	17	90	1141	1664	0.086353	1		
25	1	3	5522.2	17	55	1037	1628	0.537044	1		
26	1	3	5522.2	17	70	1321	1613	1.053752	0		
27	1	2	5523.4	14	95	1227		1.491921	1		
28	1	3	5525.8	8	90	1014	1560	0.318936	1		
29	1	2	5521	20	60	1207		0.143658	1		
30	1	2	5523.4	14	65	1759		0.86172	1		

Type 5 Long Pulse Radar Statistical Performance - Details

USA Bin 5 Trial #1							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5498.6	19	80	1085	1383	0.630325
2	1	5498.6	19	90			0.87187
3	1	5498.6	19	95			1.847868
4	3	5498.6	19	85	1651	1170	2.229263
5	1	5498.6	19	90			2.750189
6	2	5498.6	19	60	1429		3.785822
7	1	5498.6	19	95			4.656805
8	3	5498.6	19	60	1631	1472	5.237134
9	3	5498.6	19	55	1098	1548	5.630785
10	1	5498.6	19	100			6.544334
11	3	5498.6	19	55	1091	1594	7.17962
12	2	5498.6	19	95	1451		7.350036
13	3	5498.6	19	50	1976	1297	8.14091
14	1	5498.6	19	65			8.84422
15	1	5498.6	19	80			9.934242
16	3	5498.6	19	75	1968	1467	10.06374
17	3	5498.6	19	80	1414	1299	10.791732
18	1	5498.6	19	90			11.564371
USA Bin 5 Trial #2							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5497.8	17	55			0.660677
2	3	5497.8	17	100	1756	1171	1.347722
3	3	5497.8	17	95	1528	1096	2.194781
4	2	5497.8	17	90	1851		3.393162
5	3	5497.8	17	70	1548	1609	4.553813
6	2	5497.8	17	100	1040		4.695824
7	2	5497.8	17	100	1797		5.772992
8	1	5497.8	17	55			7.281054
9	2	5497.8	17	100	1623		7.556298
10	2	5497.8	17	65	1563		8.754252
11	2	5497.8	17	60	1273		10.039389

12	2	5497.8	17	70	1571		10.971137
13	1	5497.8	17	60			11.554211
USA Bin 5 Trial #3							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5498.2	18	70	1632	1555	0.533378
2	2	5498.2	18	60	1679		1.827659
3	1	5498.2	18	55			2.010695
4	1	5498.2	18	95			3.380313
5	2	5498.2	18	50	1688		3.905406
6	3	5498.2	18	85	1784	1691	4.793655
7	3	5498.2	18	60	1906	1121	5.702261
8	3	5498.2	18	70	1553	1761	7.04583
9	1	5498.2	18	85			8.210073
10	1	5498.2	18	75			8.579034
11	3	5498.2	18	75	1997	1708	9.77253
12	1	5498.2	18	50			10.549029
13	1	5498.2	18	75			11.865637
USA Bin 5 Trial #4							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5493	5	55	1012		0.657558
2	1	5493	5	100			1.780829
3	1	5493	5	80			2.80264
4	1	5493	5	70			3.65458
5	3	5493	5	55	1473	1177	4.395305
6	1	5493	5	85			5.468358
7	1	5493	5	75			6.158634
8	3	5493	5	65	1422	1120	7.322862
9	2	5493	5	60	1598		8.38397
10	3	5493	5	75	1749	1590	9.81754
11	2	5493	5	80	1910		10.395624
12	2	5493	5	90	1010		11.112305
USA Bin 5 Trial #5							

Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5498.6	19	100	1260	1267	0.764094
2	2	5498.6	19	100	1690		2.070235
3	3	5498.6	19	85	1211	1363	3.09448
4	2	5498.6	19	70	1354		4.040522
5	1	5498.6	19	55			4.873193
6	2	5498.6	19	60	1654		6.393111
7	2	5498.6	19	100	1977		6.957635
8	3	5498.6	19	65	1306	1384	7.839209
9	1	5498.6	19	80			9.218377
10	1	5498.6	19	80			10.83229
11	2	5498.6	19	55	1001		11.395705
USA Bin 5 Trial #6							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5495.4	11	60			0.362825
2	1	5495.4	11	85			0.915043
3	2	5495.4	11	100	1156		1.369133
4	2	5495.4	11	85	1393		1.985997
5	2	5495.4	11	100	1331		2.801193
6	2	5495.4	11	100	1254		3.550471
7	2	5495.4	11	75	1326		3.879778
8	1	5495.4	11	50			4.516812
9	2	5495.4	11	50	1228		5.482935
10	3	5495.4	11	70	1717	1272	6.041279
11	2	5495.4	11	95	1158		6.514718
12	2	5495.4	11	90	1225		7.2593
13	1	5495.4	11	100			8.108213
14	2	5495.4	11	70	1126		8.471015
15	1	5495.4	11	90			8.913277
16	3	5495.4	11	75	1655	1420	9.496046
17	2	5495.4	11	65	1357		10.380721
18	1	5495.4	11	65			11.29304
19	1	5495.4	11	100			11.67815
USA Bin 5 Trial #7							

Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5495	10	55	1957		0.461549
2	2	5495	10	95	1718		1.544457
3	3	5495	10	65	1276	1273	1.832508
4	3	5495	10	60	1408	1025	2.868242
5	2	5495	10	60	1771		3.503713
6	2	5495	10	70	1518		4.548062
7	2	5495	10	65	1746		4.908927
8	1	5495	10	65			6.002285
9	3	5495	10	75	1570	1094	7.048253
10	1	5495	10	80			7.323988
11	2	5495	10	50	1463		8.324345
12	2	5495	10	60	1206		8.970644
13	1	5495	10	70			9.79832
14	3	5495	10	50	1892	1281	10.915199
15	3	5495	10	80	1513	1799	11.314738
USA Bin 5 Trial #8							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5497.4	16	95	1406		0.443435
2	3	5497.4	16	95	1163	1920	1.330176
3	3	5497.4	16	90	1506	1221	2.113249
4	2	5497.4	16	100	1320		2.817042
5	3	5497.4	16	70	1928	1811	3.246488
6	2	5497.4	16	65	1204		4.401604
7	2	5497.4	16	100	1006		4.772836
8	3	5497.4	16	65	1211	1372	5.954049
9	1	5497.4	16	85			6.452101
10	2	5497.4	16	95	1418		7.218277
11	1	5497.4	16	70			8.17979
12	3	5497.4	16	100	1566	1473	8.906332
13	2	5497.4	16	90	1306		9.306987
14	2	5497.4	16	75	1139		10.309413
15	1	5497.4	16	70			10.5877
16	1	5497.4	16	55			11.957564
USA Bin 5 Trial #9							

Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5498.6	19	55	1439		0.095562
2	1	5498.6	19	50			2.260733
3	2	5498.6	19	85	1557		4.213676
4	2	5498.6	19	55	1337		4.553136
5	3	5498.6	19	65	1161	1981	7.378761
6	1	5498.6	19	55			7.824755
7	2	5498.6	19	80	1977		10.451086
8	2	5498.6	19	80	1285		11.560722
USA Bin 5 Trial #10							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5495.8	12	100	1939	1237	0.132495
2	1	5495.8	12	85			1.264556
3	1	5495.8	12	85			2.268773
4	3	5495.8	12	70	1636	1833	2.876137
5	2	5495.8	12	90	1014		3.874707
6	2	5495.8	12	70	1369		4.471081
7	2	5495.8	12	80	1372		4.997271
8	1	5495.8	12	85			5.769278
9	1	5495.8	12	85			6.598373
10	1	5495.8	12	55			7.230126
11	3	5495.8	12	95	1429	1408	8.354956
12	1	5495.8	12	85			9.113084
13	1	5495.8	12	85			10.136674
14	1	5495.8	12	95			10.588519
15	1	5495.8	12	90			11.244259
USA Bin 5 Trial #11							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5510	16	70	1115	1195	0.045606
2	3	5510	16	50	1712	1721	0.917496
3	1	5510	16	95			1.660928
4	3	5510	16	50	1421	1305	2.497816
5	1	5510	16	70			2.685912

6	1	5510	16	100			3.647113
7	2	5510	16	100	1798		4.037433
8	1	5510	16	80			4.468081
9	2	5510	16	80	1538		5.371474
10	1	5510	16	95			6.153574
11	3	5510	16	90	1728	1661	6.600009
12	2	5510	16	60	1659		7.321469
13	1	5510	16	90			7.908289
14	3	5510	16	60	1018	1052	8.484494
15	3	5510	16	70	1980	1954	9.203083
16	3	5510	16	50	1216	1381	9.735413
17	1	5510	16	90			10.390278
18	2	5510	16	50	1685		10.944543
19	3	5510	16	85	1395	1317	11.663869
USA Bin 5 Trial #12							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5510	19	80	1270		0.106821
2	1	5510	19	65			1.265607
3	3	5510	19	50	1528	2000	2.397261
4	1	5510	19	85			2.997972
5	2	5510	19	65	1260		3.524191
6	1	5510	19	90			4.693406
7	2	5510	19	55	1116		5.364399
8	3	5510	19	80	1582	1054	6.308394
9	1	5510	19	85			7.602024
10	3	5510	19	95	1085	1481	8.075708
11	2	5510	19	90	1833		8.963992
12	1	5510	19	80			9.758176
13	1	5510	19	70			10.730272
14	1	5510	19	50			11.568499
USA Bin 5 Trial #13							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5510	14	65	1348		0.301071
2	3	5510	14	85	1869	1622	0.930936
3	1	5510	14	90			1.698097

4	3	5510	14	75	1235	1545	2.546479
5	3	5510	14	65	1677	1111	2.907658
6	1	5510	14	65			3.80582
7	1	5510	14	85			4.498684
8	2	5510	14	80	1786		4.898416
9	1	5510	14	55			5.749876
10	1	5510	14	100			6.411935
11	3	5510	14	95	1483	1528	6.733586
12	1	5510	14	80			7.599082
13	2	5510	14	95	1879		8.619949
14	2	5510	14	100	1686		9.222434
15	3	5510	14	75	1202	1103	9.602147
16	1	5510	14	100			10.038696
17	3	5510	14	85	1307	1929	11.237766
18	1	5510	14	100			11.367762
USA Bin 5 Trial #14							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5510	20	65	1523		0.688976
2	3	5510	20	80	1355	1904	1.030607
3	1	5510	20	55			2.884288
4	3	5510	20	65	1081	1787	3.964958
5	3	5510	20	65	1859	1932	4.315174
6	1	5510	20	65			5.749518
7	1	5510	20	80			6.176605
8	3	5510	20	55	1607	1723	7.740351
9	2	5510	20	55	1761		8.892714
10	3	5510	20	95	1142	1582	9.861169
11	3	5510	20	100	1023	1077	10.28814
12	1	5510	20	55			11.538022
USA Bin 5 Trial #15							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5510	18	85	1703	1091	0.055013
2	2	5510	18	100	1724		0.77182
3	1	5510	18	80			1.460792
4	1	5510	18	75			2.012823

5	3	5510	18	85	1620	1337	3.251816
6	3	5510	18	75	1278	1085	3.838124
7	3	5510	18	60	1666	1229	4.599798
8	1	5510	18	75			5.08671
9	2	5510	18	60	1690		5.644893
10	3	5510	18	100	1197	1955	6.09763
11	2	5510	18	50	1797		6.817964
12	1	5510	18	60			7.984574
13	2	5510	18	70	1429		8.532797
14	3	5510	18	80	1747	1759	8.918363
15	3	5510	18	85	1191	1018	9.368141
16	2	5510	18	95	1920		10.210646
17	3	5510	18	90	1478	1581	10.977722
18	1	5510	18	55			11.47996
USA Bin 5 Trial #16							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5510	7	95	1550	1337	0.348232
2	2	5510	7	60	1555		0.845565
3	1	5510	7	65			1.577015
4	1	5510	7	65			2.062182
5	3	5510	7	80	1655	1878	2.901373
6	2	5510	7	70	1787		3.412876
7	3	5510	7	70	1853	1529	4.013402
8	2	5510	7	60	1729		5.001516
9	3	5510	7	65	1371	1309	5.508534
10	3	5510	7	50	1365	1611	6.241202
11	3	5510	7	95	1911	1127	6.432995
12	3	5510	7	100	1203	1966	7.359884
13	3	5510	7	70	1532	1043	7.657699
14	2	5510	7	75	1773		8.342766
15	1	5510	7	50			9.105471
16	1	5510	7	70			9.560555
17	3	5510	7	60	1187	1414	10.193308
18	2	5510	7	55	1906		11.019521
19	2	5510	7	100	1069		11.5243
USA Bin 5 Trial #17							

Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5510	5	95	1476		0.52535
2	3	5510	5	70	1306	1333	0.908991
3	2	5510	5	50	1655		1.915759
4	3	5510	5	100	1371	1018	2.539141
5	1	5510	5	80			2.999299
6	2	5510	5	95	1086		3.601182
7	2	5510	5	60	1052		4.241373
8	1	5510	5	100			5.021706
9	3	5510	5	80	1960	1781	5.346585
10	2	5510	5	85	1161		6.483321
11	2	5510	5	50	1803		7.261241
12	1	5510	5	55			7.68428
13	3	5510	5	50	1490	1275	8.268548
14	2	5510	5	65	1969		8.791513
15	2	5510	5	85	1473		9.454908
16	1	5510	5	70			10.510283
17	1	5510	5	100			10.681122
18	1	5510	5	75			11.745161
USA Bin 5 Trial #18							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5510	17	50			0.396091
2	3	5510	17	60	1911	1952	0.931629
3	1	5510	17	70			1.60252
4	3	5510	17	55	1691	1655	2.211215
5	2	5510	17	55	1082		3.186584
6	1	5510	17	95			3.399044
7	1	5510	17	75			4.526772
8	3	5510	17	85	1496	1586	5.088714
9	3	5510	17	50	1478	1274	5.590114
10	2	5510	17	65	1280		6.583747
11	3	5510	17	90	1068	1003	7.161053
12	2	5510	17	75	1379		7.484974
13	3	5510	17	85	1201	1949	8.193864
14	1	5510	17	90			9.294675
15	2	5510	17	55	1461		9.521131

16	1	5510	17	80			10.155874
17	1	5510	17	65			10.868536
18	2	5510	17	90	1283		11.537078
USA Bin 5 Trial #19							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5510	12	55	1718		0.461288
2	3	5510	12	60	1906	1674	1.126641
3	1	5510	12	70			1.643462
4	3	5510	12	100	1853	1486	2.77191
5	3	5510	12	90	1443	1637	3.338778
6	2	5510	12	70	1809		3.536207
7	1	5510	12	90			4.484676
8	3	5510	12	55	1239	1731	5.497176
9	2	5510	12	50	1854		5.76435
10	1	5510	12	70			6.73288
11	2	5510	12	80	1250		7.641471
12	3	5510	12	60	1957	1976	8.124313
13	2	5510	12	65	1902		8.725004
14	2	5510	12	65	1079		9.546488
15	3	5510	12	80	1766	1725	10.264585
16	2	5510	12	55	1221		10.718846
17	1	5510	12	65			11.771919
USA Bin 5 Trial #20							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5510	16	80	1047		0.735583
2	1	5510	16	100			2.037403
3	3	5510	16	85	1812	1574	3.072184
4	3	5510	16	65	1138	1191	3.837128
5	2	5510	16	75	1935		4.847664
6	1	5510	16	55			6.708482
7	3	5510	16	65	1129	1395	7.580036
8	1	5510	16	95			8.437179
9	1	5510	16	85			9.99106
10	2	5510	16	70	1138		11.402983

USA Bin 5 Trial #21							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5527	5	100	1887	1196	0.080537
2	2	5527	5	95	1053		1.318499
3	1	5527	5	95			1.609388
4	2	5527	5	100	1198		2.1235
5	1	5527	5	55			3.430844
6	1	5527	5	60			3.951066
7	1	5527	5	50			4.339288
8	3	5527	5	90	1209	1272	5.059171
9	3	5527	5	50	1959	1607	6.299203
10	3	5527	5	55	1208	1830	6.90696
11	3	5527	5	80	1250	1475	7.107204
12	1	5527	5	85			7.940755
13	3	5527	5	75	1637	1423	9.047897
14	2	5527	5	100	1247		9.446307
15	1	5527	5	95			10.20034
16	2	5527	5	70	1398		11.048177
17	3	5527	5	60	1487	1270	11.804402
USA Bin 5 Trial #22							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5522.2	17	60	1297		0.535298
2	3	5522.2	17	80	1103	1861	1.0883
3	2	5522.2	17	70	1423		1.778971
4	2	5522.2	17	100	1214		2.022966
5	2	5522.2	17	80	1995		3.136396
6	3	5522.2	17	100	1140	1349	3.613081
7	2	5522.2	17	80	1406		4.639213
8	3	5522.2	17	90	1831	1270	4.793127
9	2	5522.2	17	70	1663		5.423149
10	3	5522.2	17	65	1462	1805	6.444493
11	3	5522.2	17	85	1407	1111	6.879666
12	2	5522.2	17	70	1217		7.877124
13	3	5522.2	17	80	1844	1095	8.24325
14	3	5522.2	17	85	1460	1811	8.738942

15	1	5522.2	17	100			9.495435
16	2	5522.2	17	55	1946		10.601776
17	3	5522.2	17	70	1463	1544	11.15125
18	2	5522.2	17	95	1235		11.561931
USA Bin 5 Trial #23							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5521.4	19	75			0.518334
2	1	5521.4	19	100			1.2158
3	3	5521.4	19	75	1226	1487	1.84461
4	3	5521.4	19	95	1491	1267	2.159996
5	3	5521.4	19	90	1217	1915	3.002702
6	3	5521.4	19	75	1052	1634	3.766258
7	3	5521.4	19	80	1559	1012	4.650643
8	3	5521.4	19	85	1736	1290	5.062062
9	3	5521.4	19	55	1136	1262	5.587757
10	3	5521.4	19	100	1892	1554	6.312995
11	1	5521.4	19	60			7.10026
12	3	5521.4	19	85	1664	1360	7.675188
13	3	5521.4	19	65	1272	1803	8.460726
14	3	5521.4	19	60	1972	1460	8.935932
15	2	5521.4	19	50	1117		9.405787
16	3	5521.4	19	85	1453	1473	10.031131
17	2	5521.4	19	90	1862		11.288091
18	1	5521.4	19	80			11.779843
USA Bin 5 Trial #24							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5522.2	17	90	1141	1664	0.086353
2	3	5522.2	17	60	1380	1899	0.827355
3	2	5522.2	17	70	1982		2.071218
4	2	5522.2	17	75	1662		2.472369
5	1	5522.2	17	65			3.578563
6	3	5522.2	17	100	1962	1983	4.184001
7	1	5522.2	17	70			4.826555
8	3	5522.2	17	100	1392	1967	5.97921
9	1	5522.2	17	60			6.55633

10	1	5522.2	17	70			7.376645
11	3	5522.2	17	55	1240	1735	7.50977
12	2	5522.2	17	95	1183		8.408712
13	1	5522.2	17	100			9.201835
14	3	5522.2	17	95	1156	1804	10.374694
15	1	5522.2	17	85			10.873067
16	3	5522.2	17	60	1695	1137	11.356469
USA Bin 5 Trial #25							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5522.2	17	55	1037	1628	0.537044
2	2	5522.2	17	90	1341		1.701031
3	1	5522.2	17	60			2.873188
4	3	5522.2	17	70	1423	1973	4.203802
5	1	5522.2	17	75			5.084563
6	2	5522.2	17	70	1284		7.175771
7	1	5522.2	17	70			7.976674
8	1	5522.2	17	80			9.070543
9	1	5522.2	17	85			10.445757
10	2	5522.2	17	75	1444		11.612701
USA Bin 5 Trial #26							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5522.2	17	70	1321	1613	1.053752
2	1	5522.2	17	95			2.225159
3	3	5522.2	17	65	1421	1687	2.555322
4	1	5522.2	17	85			4.246848
5	2	5522.2	17	50	1550		5.625257
6	2	5522.2	17	60	1218		7.10775
7	1	5522.2	17	55			7.87744
8	1	5522.2	17	100			8.745846
9	1	5522.2	17	80			10.189275
10	1	5522.2	17	65			11.55807
USA Bin 5 Trial #27							

Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5523.4	14	95	1227		1.491921
2	3	5523.4	14	65	1009	1451	2.668368
3	3	5523.4	14	65	1216	1056	3.933057
4	2	5523.4	14	85	1330		5.379266
5	3	5523.4	14	75	1941	1894	7.377003
6	1	5523.4	14	95			8.181537
7	3	5523.4	14	80	1448	1598	9.215037
8	2	5523.4	14	90	1236		11.213479
USA Bin 5 Trial #28							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5525.8	8	90	1014	1560	0.318936
2	3	5525.8	8	95	1775	1091	0.862439
3	3	5525.8	8	65	1920	1566	1.466091
4	1	5525.8	8	80			1.827388
5	2	5525.8	8	50	1828		2.434049
6	1	5525.8	8	60			3.38358
7	2	5525.8	8	80	1258		4.057488
8	3	5525.8	8	80	1787	1224	4.339038
9	3	5525.8	8	65	1393	1843	5.267243
10	1	5525.8	8	85			5.603296
11	2	5525.8	8	70	1373		6.558049
12	2	5525.8	8	70	1401		6.731363
13	2	5525.8	8	90	1995		7.621459
14	3	5525.8	8	80	1466	1110	7.90546
15	1	5525.8	8	75			8.968565
16	3	5525.8	8	85	1502	1606	9.370549
17	2	5525.8	8	75	1673		9.723024
18	2	5525.8	8	80	1420		10.591687
19	1	5525.8	8	50			11.196186
20	3	5525.8	8	100	1052	1484	11.507942
USA Bin 5 Trial #29							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)

1	2	5521	20	60	1207		0.143658
2	2	5521	20	50	1936		0.66806
3	2	5521	20	90	1872		1.438275
4	3	5521	20	80	1011	1467	2.629056
5	1	5521	20	60			3.309936
6	2	5521	20	90	1391		3.874896
7	1	5521	20	100			4.263753
8	1	5521	20	50			5.117334
9	2	5521	20	90	1461		5.522062
10	1	5521	20	50			6.026104
11	1	5521	20	85			7.256129
12	3	5521	20	90	1922	1873	7.506988
13	1	5521	20	55			8.503677
14	1	5521	20	75			9.131478
15	2	5521	20	55	1417		9.753038
16	3	5521	20	80	1730	1459	10.195346
17	3	5521	20	90	1196	1151	11.243771
18	1	5521	20	70			11.411495
USA Bin 5 Trial #30							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5523.4	14	65	1759		0.86172
2	2	5523.4	14	95	1772		1.676934
3	1	5523.4	14	50			2.663232
4	2	5523.4	14	60	1664		3.605262
5	3	5523.4	14	85	1149	1784	5.001286
6	3	5523.4	14	100	1429	1359	6.237658
7	3	5523.4	14	65	1024	1775	7.647572
8	3	5523.4	14	70	1720	1780	9.380904
9	1	5523.4	14	85			10.376933
10	1	5523.4	14	90			11.632115

Type 6 Frequency Hopping Radar Statistical Performance

Trial	Hop #	Freq (MHz)	Pulse Start (mS)	1=Detection 0=No Detection	Detection Percentage	Limit
1	0	5502	0	1	100.0%	70.0%
2	7	5515	21	1		
3	1	5514	3	1		
4	11	5495	33	1		
5	18	5528	54	1		
6	35	5515	105	1		
7	17	5512	51	1		
8	0	5518	0	1		
9	10	5510	30	1		
10	3	5510	9	1		
11	7	5492	21	1		
12	19	5519	57	1		
13	4	5496	12	1		
14	9	5520	27	1		
15	4	5519	12	1		
16	3	5528	9	1		
17	9	5526	27	1		
18	1	5497	3	1		
19	6	5521	18	1		
20	1	5502	3	1		
21	12	5496	36	1		
22	8	5498	24	1		
23	6	5511	18	1		
24	5	5504	15	1		
25	10	5492	30	1		
26	11	5527	33	1		
27	9	5518	27	1		
28	11	5513	33	1		
29	0	5524	0	1		
30	11	5529	33	1		

Type 6 Frequency Hopping Radar Statistical Performance - Details

USA Frequency Hopping Trial #1		
Hop #	Freq (MHz)	Pulse Start (mS)
0	5502	0
21	5497	63
38	5506	114
41	5529	123
57	5509	171
78	5513	234
93	5523	279
USA Frequency Hopping Trial #2		
Hop #	Freq (MHz)	Pulse Start (mS)
7	5515	21
25	5520	75
31	5521	93
53	5496	159
68	5517	204
75	5491	225
USA Frequency Hopping Trial #3		
Hop #	Freq (MHz)	Pulse Start (mS)
1	5514	3
19	5493	57
34	5502	102
45	5523	135
46	5529	138
55	5528	165
89	5527	267
91	5515	273
99	5511	297
USA Frequency Hopping Trial #4		
Hop #	Freq (MHz)	Pulse Start (mS)
11	5495	33
26	5496	78
37	5507	111
46	5523	138

50	5510	150
65	5517	195
75	5522	225
USA Frequency Hopping Trial #5		
Hop #	Freq (MHz)	Pulse Start (mS)
18	5528	54
29	5519	87
40	5520	120
47	5491	141
66	5514	198
70	5499	210
74	5512	222
83	5504	249
92	5529	276
96	5513	288
USA Frequency Hopping Trial #6		
Hop #	Freq (MHz)	Pulse Start (mS)
35	5515	105
65	5520	195
84	5516	252
91	5508	273
93	5501	279
USA Frequency Hopping Trial #7		
Hop #	Freq (MHz)	Pulse Start (mS)
17	5512	51
24	5492	72
25	5517	75
30	5507	90
58	5523	174
76	5510	228
84	5515	252
USA Frequency Hopping Trial #8		
Hop #	Freq (MHz)	Pulse Start (mS)
0	5518	0
3	5514	9
19	5512	57
45	5526	135

72	5492	216
73	5522	219
76	5513	228
92	5509	276
USA Frequency Hopping Trial #9		
Hop #	Freq (MHz)	Pulse Start (mS)
10	5510	30
12	5518	36
13	5519	39
14	5512	42
16	5527	48
18	5522	54
40	5491	120
41	5515	123
56	5525	168
96	5503	288
USA Frequency Hopping Trial #10		
Hop #	Freq (MHz)	Pulse Start (mS)
3	5510	9
4	5502	12
18	5501	54
41	5516	123
42	5491	126
53	5506	159
75	5492	225
86	5518	258
USA Frequency Hopping Trial #11		
Hop #	Freq (MHz)	Pulse Start (mS)
7	5492	21
11	5501	33
42	5517	126
81	5497	243
83	5510	249
84	5529	252
86	5495	258
USA Frequency Hopping Trial #12		
Hop #	Freq (MHz)	Pulse Start (mS)

19	5519	57
20	5509	60
35	5522	105
38	5518	114
45	5497	135
80	5515	240
89	5500	267
USA Frequency Hopping Trial #13		
Hop #	Freq (MHz)	Pulse Start (mS)
4	5496	12
14	5494	42
16	5513	48
18	5506	54
23	5527	69
29	5504	87
45	5502	135
61	5509	183
67	5528	201
84	5507	252
USA Frequency Hopping Trial #14		
Hop #	Freq (MHz)	Pulse Start (mS)
9	5520	27
19	5512	57
23	5506	69
65	5511	195
68	5501	204
69	5524	207
73	5499	219
USA Frequency Hopping Trial #15		
Hop #	Freq (MHz)	Pulse Start (mS)
4	5519	12
5	5501	15
18	5508	54
28	5494	84
34	5521	102
37	5493	111
40	5491	120
44	5515	132

60	5527	180
95	5520	285
USA Frequency Hopping Trial #16		
Hop #	Freq (MHz)	Pulse Start (mS)
3	5528	9
9	5523	27
20	5522	60
47	5499	141
59	5515	177
85	5494	255
88	5500	264
89	5508	267
USA Frequency Hopping Trial #17		
Hop #	Freq (MHz)	Pulse Start (mS)
9	5526	27
11	5507	33
24	5527	72
42	5493	126
55	5515	165
93	5514	279
USA Frequency Hopping Trial #18		
Hop #	Freq (MHz)	Pulse Start (mS)
1	5497	3
5	5499	15
10	5507	30
30	5494	90
32	5509	96
43	5510	129
46	5505	138
56	5501	168
69	5502	207
70	5491	210
72	5526	216
95	5529	285
USA Frequency Hopping Trial #19		
Hop #	Freq (MHz)	Pulse Start (mS)
6	5521	18

10	5525	30
20	5524	60
22	5510	66
31	5529	93
33	5514	99
38	5495	114
46	5523	138
47	5509	141
49	5493	147
68	5499	204
72	5496	216
75	5497	225
78	5520	234
88	5522	264
USA Frequency Hopping Trial #20		
Hop #	Freq (MHz)	Pulse Start (mS)
1	5502	3
3	5510	9
11	5523	33
28	5508	84
39	5503	117
41	5498	123
55	5522	165
59	5527	177
74	5511	222
USA Frequency Hopping Trial #21		
Hop #	Freq (MHz)	Pulse Start (mS)
12	5496	36
23	5514	69
59	5493	177
60	5523	180
68	5503	204
79	5506	237
93	5497	279
94	5526	282
97	5524	291
USA Frequency Hopping Trial #22		
Hop #	Freq (MHz)	Pulse Start (mS)

8	5498	24
37	5491	111
39	5521	117
50	5520	150
67	5494	201
77	5502	231
91	5526	273
USA Frequency Hopping Trial #23		
Hop #	Freq (MHz)	Pulse Start (mS)
6	5511	18
17	5499	51
23	5497	69
26	5513	78
61	5529	183
71	5503	213
88	5498	264
97	5512	291
USA Frequency Hopping Trial #24		
Hop #	Freq (MHz)	Pulse Start (mS)
5	5504	15
11	5502	33
15	5500	45
21	5519	63
22	5525	66
29	5507	87
36	5494	108
39	5509	117
45	5515	135
50	5524	150
85	5520	255
93	5523	279
94	5527	282
USA Frequency Hopping Trial #25		
Hop #	Freq (MHz)	Pulse Start (mS)
10	5492	30
29	5502	87
36	5499	108
48	5521	144

59	5495	177
69	5529	207
85	5493	255
88	5500	264
96	5494	288
USA Frequency Hopping Trial #26		
Hop #	Freq (MHz)	Pulse Start (mS)
11	5527	33
26	5508	78
31	5524	93
53	5529	159
68	5497	204
86	5519	258
89	5516	267
USA Frequency Hopping Trial #27		
Hop #	Freq (MHz)	Pulse Start (mS)
9	5518	27
12	5494	36
31	5510	93
35	5527	105
46	5493	138
93	5526	279
USA Frequency Hopping Trial #28		
Hop #	Freq (MHz)	Pulse Start (mS)
11	5513	33
12	5519	36
17	5528	51
34	5505	102
45	5509	135
70	5506	210
84	5491	252
85	5498	255
93	5492	279
94	5511	282
96	5500	288
98	5525	294
USA Frequency Hopping Trial #29		

Hop #	Freq (MHz)	Pulse Start (mS)
0	5524	0
4	5528	12
8	5492	24
29	5505	87
56	5502	168
63	5513	189
75	5515	225
77	5511	231
90	5516	270
99	5496	297
USA Frequency Hopping Trial #30		
Hop #	Freq (MHz)	Pulse Start (mS)
11	5529	33
18	5528	54
28	5521	84
38	5507	114
42	5493	126
48	5524	144
97	5522	291

Statistical Performance Check - 80MHz Bandwidth

Type 1A/1B Radar Statistical Performance

Trial	Frequency	Pulses	PW (uS)	PRI (uS)	1=Detection 0=No Detection	Detection Percentage	Limit
1	5494	95	1	558	1	73.3%	60.0%
2	5494	63	1	838	1		
3	5494	72	1	738	1		
4	5494	63	1	838	1		
5	5494	65	1	818	1		
6	5500	81	1	658	1		
7	5500	61	1	878	1		
8	5500	72	1	738	1		
9	5500	65	1	818	1		
10	5520	86	1	618	1		
11	5520	72	1	738	1		
12	5520	95	1	558	1		
13	5520	18	1	3066	0		
14	5530	61	1	878	1		
15	5530	68	1	778	1		
16	5530	19	1	2828	0		
17	5530	30	1	1789	1		
18	5530	24	1	2267	0		
19	5540	20	1	2697	0		
20	5540	20	1	2697	0		
21	5540	57	1	931	1		
22	5540	32	1	1656	1		
23	5560	48	1	1107	1		
24	5560	28	1	1906	0		
25	5560	75	1	710	1		
26	5560	25	1	2195	1		
27	5566	32	1	1686	1		
28	5566	24	1	2289	0		
29	5566	25	1	2117	1		
30	5566	18	1	2981	0		

Type 2 Radar Statistical Performance

Trial	Frequency	Pulses	PW (uS)	PRI (uS)	1=Detection 0=No Detection	Detection Percentage	Limit
1	5494	23	2.6	172	1	80.0%	60.0%
2	5494	24	4.5	203	1		
3	5494	23	2.7	170	0		
4	5494	24	4	219	0		
5	5494	29	3.5	226	1		
6	5500	28	3.2	198	1		
7	5500	29	1.6	200	1		
8	5500	26	2.7	199	0		
9	5500	27	3.7	210	1		
10	5520	27	2.6	175	1		
11	5520	26	3.2	168	0		
12	5520	24	3.6	183	0		
13	5520	27	3.5	171	1		
14	5530	23	3.6	216	1		
15	5530	26	1.8	200	1		
16	5530	27	4	197	1		
17	5530	26	2.6	180	1		
18	5530	25	1.1	203	1		
19	5540	27	1.7	182	1		
20	5540	27	1.4	152	1		
21	5540	29	4.1	159	0		
22	5540	29	1.2	150	1		
23	5560	25	3	179	1		
24	5560	24	3.5	216	1		
25	5560	25	3.8	218	1		
26	5560	26	4.2	150	1		
27	5566	25	4.2	210	1		
28	5566	23	2.7	209	1		
29	5566	26	1.2	171	1		
30	5566	29	4.6	194	1		

Type 3 Radar Statistical Performance

Trial	Frequency	Pulses	PW (uS)	PRI (uS)	1=Detection 0=No Detection	Detection Percentage	Limit
1	5494	17	8.8	484	1	93.3%	60.0%
2	5494	16	8.2	250	0		
3	5494	17	7.3	299	1		
4	5494	18	8.7	278	1		
5	5494	16	8.1	375	1		
6	5500	16	8.1	291	1		
7	5500	16	8.7	486	1		
8	5500	17	9.6	457	1		
9	5500	18	8.4	355	1		
10	5520	17	6.5	445	1		
11	5520	16	7.8	297	1		
12	5520	16	7	287	1		
13	5520	18	6.9	251	1		
14	5530	16	7.4	430	1		
15	5530	18	8.6	447	1		
16	5530	18	8.6	466	1		
17	5530	18	8.7	323	1		
18	5530	17	9.5	443	1		
19	5540	17	7.4	273	1		
20	5540	18	7.9	335	1		
21	5540	16	9.5	357	1		
22	5540	16	8.3	392	1		
23	5560	18	8.1	484	1		
24	5560	17	7.1	311	1		
25	5560	16	6.2	348	1		
26	5560	18	6.4	238	0		
27	5566	16	6.6	421	1		
28	5566	16	8.5	340	1		
29	5566	18	6.8	245	1		
30	5566	18	6.7	202	1		

Type 4 Radar Statistical Performance

Trial	Frequency	Pulses	PW (uS)	PRI (uS)	1=Detection 0=No Detection	Detection Percentage	Limit
1	5494	13	16.9	312	1	80.0%	60.0%
2	5494	14	12.2	465	1		
3	5494	15	15.8	416	0		
4	5494	15	16.1	477	1		
5	5494	13	14.6	363	0		
6	5500	15	14.5	347	1		
7	5500	14	18.5	276	1		
8	5500	13	14.7	247	1		
9	5500	16	17.3	311	1		
10	5520	12	15.3	330	0		
11	5520	16	16.9	476	1		
12	5520	12	11.3	215	1		
13	5520	15	18.3	227	1		
14	5530	14	18.3	392	1		
15	5530	16	18.9	465	1		
16	5530	16	15.2	200	1		
17	5530	14	15.9	209	0		
18	5530	13	14.1	226	1		
19	5540	14	17	276	1		
20	5540	12	18.3	419	1		
21	5540	12	19.6	250	1		
22	5540	13	19.9	246	1		
23	5560	13	19.4	343	1		
24	5560	12	11.2	287	1		
25	5560	15	12.6	398	1		
26	5560	16	13	215	1		
27	5566	16	15.3	345	0		
28	5566	14	17.4	442	1		
29	5566	15	14.8	315	0		
30	5566	12	15.9	469	1		

In addition an average minimum percentage of successful detection across all four Short pulse radar test waveforms is required and is calculated as follows:

$$\frac{P_d 1 + P_d 2 + P_d 3 + P_d 4}{4}$$ = (73.3%+80%+93.3%+80%)/4 = 81.65% (>80%)

Type 5 Long Pulse Radar Statistical Performance

Trial	Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)	1=Detection 0=No Detection	Detection Percentage	Limit
1	1	1	5498.7	18	80			0.214181	0		
2	1	2	5493.5	5	65	1892		0.340666	1		
3	1	2	5498.3	17	70	1740		0.253647	1		
4	1	2	5495.5	10	100	1128		0.80822	1		
5	1	2	5496.7	13	60	1126		0.889101	1		
6	1	2	5497.1	14	85	1501		0.003151	1		
7	1	1	5499.1	19	100			0.169105	1		
8	1	1	5493.9	6	100			0.011771	1		
9	1	1	5499.1	19	100			0.198543	1		
10	1	3	5495.9	11	55	1219	1893	0.506053	1		
11	1	2	5530	9	95	1287		1.288043	1		
12	1	1	5530	9	50			0.51408	0		
13	1	2	5530	11	75	1328		0.337015	1		
14	1	2	5530	7	80	1354		0.585156	1		
15	1	3	5530	19	55	1286	1919	0.499884	1		
16	1	3	5530	13	90	1021	1199	0.156073	1	83.3%	80.0%
17	1	3	5530	12	80	1787	2000	0.59536	1		
18	1	1	5530	20	100			0.273431	0		
19	1	2	5530	14	90	1352		0.034493	1		
20	1	3	5530	19	80	1020	1181	0.487527	0		
21	1	2	5562.5	15	70	1065		0.11941	1		
22	1	2	5564.1	11	65	1620		0.293843	1		
23	1	1	5564.5	10	70			0.277482	1		
24	1	1	5562.1	16	80			0.91274	1		
25	1	1	5566.5	5	95			0.499147	1		
26	1	2	5561.7	17	60	1383		0.012153	1		
27	1	2	5564.5	10	100	1985		0.686126	1		
28	1	3	5563.3	13	60	1153	1163	0.573063	0		
29	1	1	5560.9	19	80			0.596993	1		
30	1	2	5562.5	15	85	1107		0.238744	1		

Type 5 Long Pulse Radar Statistical Performance - Details

USA Bin 5 Trial #1							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5498.7	18	80			0.214181
2	1	5498.7	18	100			1.320377
3	3	5498.7	18	100	1945	1378	1.654064
4	1	5498.7	18	60			2.984414
5	3	5498.7	18	80	1855	1556	3.607903
6	1	5498.7	18	85			4.474012
7	2	5498.7	18	50	1007		5.405163
8	3	5498.7	18	70	1792	1956	5.892696
9	2	5498.7	18	100	1815		6.928561
10	2	5498.7	18	90	1134		7.662499
11	3	5498.7	18	80	1268	1703	8.609385
12	2	5498.7	18	60	1554		9.345553
13	1	5498.7	18	60			10.081679
14	2	5498.7	18	55	1960		10.929869
15	2	5498.7	18	60	1035		11.711907
USA Bin 5 Trial #2							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5493.5	5	65	1892		0.340666
2	3	5493.5	5	65	1548	1719	1.239891
3	2	5493.5	5	85	1939		1.514319
4	1	5493.5	5	75			2.327105
5	3	5493.5	5	65	1005	1600	2.69806
6	2	5493.5	5	55	1585		3.476309
7	2	5493.5	5	75	1031		4.368966
8	2	5493.5	5	85	1716		5.005543
9	3	5493.5	5	60	1375	1881	5.905309
10	2	5493.5	5	60	1857		6.634104
11	2	5493.5	5	70	1068		7.061322
12	2	5493.5	5	75	1795		7.913317
13	3	5493.5	5	70	1861	1955	8.138365

14	1	5493.5	5	65			9.005975
15	1	5493.5	5	80			9.565458
16	1	5493.5	5	90			10.09043
17	2	5493.5	5	50	1030		10.840221
18	1	5493.5	5	55			11.665728
USA Bin 5 Trial #3							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5498.3	17	70	1740		0.253647
2	2	5498.3	17	55	1632		1.165013
3	3	5498.3	17	50	1981	1929	1.621564
4	1	5498.3	17	90			2.630766
5	3	5498.3	17	95	1543	1432	3.213947
6	1	5498.3	17	75			3.554583
7	1	5498.3	17	95			4.866298
8	1	5498.3	17	95			4.971478
9	3	5498.3	17	95	1646	1033	5.856997
10	1	5498.3	17	50			6.838626
11	2	5498.3	17	100	1366		7.291393
12	1	5498.3	17	70			8.301665
13	3	5498.3	17	75	1639	1789	8.962539
14	2	5498.3	17	95	1584		9.575433
15	3	5498.3	17	80	1888	1072	10.240182
16	2	5498.3	17	100	1896		11.251906
17	2	5498.3	17	60	1651		11.940021
USA Bin 5 Trial #4							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5495.5	10	100	1128		0.80822
2	1	5495.5	10	80			1.250035
3	2	5495.5	10	95	1430		2.723474
4	2	5495.5	10	90	1917		3.060203
5	3	5495.5	10	65	1033	1408	4.288134
6	2	5495.5	10	50	1277		5.011679
7	1	5495.5	10	100			6.34208
8	1	5495.5	10	100			7.436347
9	3	5495.5	10	90	1015	1359	8.796636

10	3	5495.5	10	65	1563	1452	9.546956
11	3	5495.5	10	80	1671	1116	10.842766
12	2	5495.5	10	60	1173		11.313443
USA Bin 5 Trial #5							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5496.7	13	60	1126		0.889101
2	1	5496.7	13	90			1.456501
3	2	5496.7	13	55	1106		2.360436
4	1	5496.7	13	100			3.951538
5	1	5496.7	13	85			4.517157
6	1	5496.7	13	55			5.18351
7	2	5496.7	13	75	1734		6.323428
8	3	5496.7	13	55	1076	1165	7.702176
9	2	5496.7	13	90	1669		8.882687
10	3	5496.7	13	50	1541	1158	9.21041
11	3	5496.7	13	80	1896	1693	10.102581
12	2	5496.7	13	60	1169		11.003523
USA Bin 5 Trial #6							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5497.1	14	85	1501		0.003151
2	2	5497.1	14	60	1787		1.130355
3	2	5497.1	14	80	1642		2.373374
4	3	5497.1	14	50	1542	1028	3.397307
5	1	5497.1	14	70			3.67872
6	2	5497.1	14	60	1866		4.710684
7	1	5497.1	14	55			5.238703
8	1	5497.1	14	55			6.184462
9	1	5497.1	14	50			7.650244
10	2	5497.1	14	100	1581		8.497825
11	2	5497.1	14	100	1136		8.817402
12	1	5497.1	14	90			9.628536
13	3	5497.1	14	90	1004	1488	10.703956
14	1	5497.1	14	70			11.427212
USA Bin 5 Trial #7							

Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5499.1	19	100			0.169105
2	1	5499.1	19	60			0.771329
3	2	5499.1	19	50	1661		1.238609
4	3	5499.1	19	95	1101	1912	2.029422
5	2	5499.1	19	60	1616		2.590065
6	3	5499.1	19	65	1552	1038	3.151465
7	2	5499.1	19	60	1444		3.944222
8	2	5499.1	19	50	1518		4.514195
9	1	5499.1	19	85			5.366189
10	1	5499.1	19	85			5.947602
11	3	5499.1	19	65	1774	1965	6.430553
12	2	5499.1	19	70	1898		6.719717
13	1	5499.1	19	80			7.606247
14	1	5499.1	19	55			8.271177
15	3	5499.1	19	95	1862	1363	8.943907
16	3	5499.1	19	75	1480	1170	9.566447
17	2	5499.1	19	50	1621		10.126859
18	1	5499.1	19	95			10.201755
19	3	5499.1	19	50	1040	1918	11.319369
20	1	5499.1	19	60			11.606702
USA Bin 5 Trial #8							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5493.9	6	100			0.011771
2	2	5493.9	6	55	1048		0.770738
3	2	5493.9	6	70	1678		1.634424
4	3	5493.9	6	50	1138	1225	1.94265
5	2	5493.9	6	65	1515		2.492916
6	2	5493.9	6	100	1798		3.508859
7	1	5493.9	6	95			4.196218
8	2	5493.9	6	100	1986		4.325611
9	1	5493.9	6	95			5.166353
10	2	5493.9	6	50	1566		5.459504
11	1	5493.9	6	75			6.541092
12	1	5493.9	6	55			7.190126
13	2	5493.9	6	90	1521		7.230995

14	2	5493.9	6	65	1325		8.083652
15	1	5493.9	6	85			8.687799
16	1	5493.9	6	55			9.156336
17	1	5493.9	6	60			10.095531
18	1	5493.9	6	65			10.422586
19	1	5493.9	6	50			10.803805
20	2	5493.9	6	60	1498		11.975933
USA Bin 5 Trial #9							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5499.1	19	100			0.198543
2	3	5499.1	19	95	1527	1601	1.4441
3	3	5499.1	19	85	1517	1752	2.413951
4	3	5499.1	19	65	1498	1272	2.84168
5	3	5499.1	19	50	1346	1118	3.675773
6	2	5499.1	19	65	1629		4.776265
7	3	5499.1	19	60	1430	1748	5.175437
8	2	5499.1	19	85	1643		6.390716
9	1	5499.1	19	80			7.434823
10	1	5499.1	19	50			8.353592
11	3	5499.1	19	80	1996	1188	8.6098
12	1	5499.1	19	75			9.940326
13	3	5499.1	19	60	1987	1491	10.744265
14	2	5499.1	19	50	1391		11.242356
USA Bin 5 Trial #10							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5495.9	11	55	1219	1893	0.506053
2	2	5495.9	11	75	1151		0.80257
3	3	5495.9	11	55	1937	1276	1.657596
4	3	5495.9	11	50	1119	1858	2.366159
5	2	5495.9	11	65	1317		2.869977
6	2	5495.9	11	90	1530		3.884457
7	2	5495.9	11	65	1557		4.662226
8	2	5495.9	11	55	1693		4.85361
9	2	5495.9	11	75	1543		5.893441
10	2	5495.9	11	70	1907		6.117894

11	1	5495.9	11	60			6.818853
12	2	5495.9	11	70	1075		7.62986
13	3	5495.9	11	90	1847	1326	8.300916
14	3	5495.9	11	50	1513	1237	9.244489
15	2	5495.9	11	85	1990		9.579633
16	3	5495.9	11	95	1251	1460	10.240736
17	3	5495.9	11	65	1100	1989	11.11658
18	3	5495.9	11	70	1711	1098	11.620428
USA Bin 5 Trial #11							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5530	9	95	1287		1.288043
2	3	5530	9	85	1213	1872	2.434217
3	1	5530	9	95			2.760418
4	1	5530	9	100			4.020514
5	1	5530	9	60			6.363546
6	2	5530	9	50	1903		7.195829
7	2	5530	9	90	1336		8.595435
8	2	5530	9	55	1592		10.461244
9	2	5530	9	100	1331		11.294231
USA Bin 5 Trial #12							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5530	9	50			0.51408
2	3	5530	9	60	1263	1448	1.561391
3	1	5530	9	50			1.94734
4	1	5530	9	95			2.781896
5	1	5530	9	75			3.723193
6	1	5530	9	75			4.335242
7	1	5530	9	80			5.338018
8	3	5530	9	80	1678	1497	6.501799
9	2	5530	9	75	1702		6.952669
10	1	5530	9	55			8.188254
11	1	5530	9	100			8.722766
12	3	5530	9	55	1408	1764	9.754103
13	1	5530	9	60			10.311818
14	1	5530	9	95			11.342939

USA Bin 5 Trial #13							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5530	11	75	1328		0.337015
2	3	5530	11	60	1807	1969	1.192517
3	1	5530	11	75			2.75491
4	2	5530	11	85	1191		3.524605
5	2	5530	11	90	1311		4.23215
6	2	5530	11	100	1267		4.819397
7	1	5530	11	85			5.58246
8	2	5530	11	95	1514		7.171507
9	2	5530	11	95	1376		8.130238
10	2	5530	11	90	1489		8.922663
11	2	5530	11	90	1731		9.467581
12	1	5530	11	50			10.978456
13	1	5530	11	80			11.396168
USA Bin 5 Trial #14							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5530	7	80	1354		0.585156
2	1	5530	7	80			0.966195
3	3	5530	7	100	1735	1302	1.938848
4	2	5530	7	70	1311		2.159895
5	1	5530	7	95			2.749613
6	3	5530	7	50	1256	1547	3.746702
7	2	5530	7	85	1210		4.520018
8	2	5530	7	55	1637		5.235826
9	2	5530	7	85	1440		5.583415
10	2	5530	7	90	1016		6.58617
11	2	5530	7	75	1479		7.038282
12	2	5530	7	60	1890		7.82246
13	2	5530	7	60	1020		8.07982
14	1	5530	7	60			9.113634
15	1	5530	7	80			9.989974
16	2	5530	7	100	1349		10.146945
17	2	5530	7	90	1116		10.92595
18	1	5530	7	50			11.503156

USA Bin 5 Trial #15							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5530	19	55	1286	1919	0.499884
2	1	5530	19	60			1.69967
3	1	5530	19	95			1.963106
4	2	5530	19	85	1312		3.059778
5	1	5530	19	50			4.073371
6	1	5530	19	75			4.64603
7	3	5530	19	80	1548	1766	6.069657
8	1	5530	19	55			7.296527
9	2	5530	19	60	1713		7.990441
10	2	5530	19	90	1987		8.692475
11	3	5530	19	85	1918	1239	9.729003
12	3	5530	19	90	1857	1832	10.962428
13	1	5530	19	75			11.891259
USA Bin 5 Trial #16							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5530	13	90	1021	1199	0.156073
2	2	5530	13	90	1095		0.753192
3	3	5530	13	65	1424	1751	1.677895
4	1	5530	13	55			2.299777
5	1	5530	13	80			2.533933
6	2	5530	13	100	1734		3.16663
7	2	5530	13	50	1055		4.168624
8	3	5530	13	100	1170	1703	4.26657
9	2	5530	13	90	1147		5.256386
10	3	5530	13	95	1677	1808	5.417223
11	2	5530	13	85	1296		6.594287
12	2	5530	13	85	1503		6.93528
13	2	5530	13	100	1623		7.462648
14	1	5530	13	55			7.872475
15	2	5530	13	100	1619		8.817945
16	1	5530	13	70			9.081633
17	3	5530	13	100	1746	1568	9.74699
18	3	5530	13	85	1751	1393	10.521519

19	2	5530	13	85	1760		11.393929
20	2	5530	13	90	1373		11.687337
USA Bin 5 Trial #17							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5530	12	80	1787	2000	0.59536
2	3	5530	12	75	1869	1659	0.634829
3	1	5530	12	60			1.598933
4	1	5530	12	95			2.371362
5	1	5530	12	55			2.822527
6	1	5530	12	85			3.556179
7	3	5530	12	70	1419	1110	4.272948
8	3	5530	12	70	1183	1889	4.758336
9	3	5530	12	100	1793	1156	5.308794
10	2	5530	12	95	1068		6.257819
11	2	5530	12	85	1255		6.752131
12	3	5530	12	65	1772	1129	7.439374
13	2	5530	12	90	1380		8.204677
14	1	5530	12	75			8.614828
15	1	5530	12	100			9.093776
16	2	5530	12	50	1102		9.941434
17	3	5530	12	80	1203	1126	10.560166
18	1	5530	12	70			10.772198
19	3	5530	12	55	1385	1997	11.589908
USA Bin 5 Trial #18							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5530	20	100			0.273431
2	1	5530	20	65			2.411868
3	3	5530	20	100	1417	1356	4.070826
4	1	5530	20	100			4.836343
5	3	5530	20	95	1766	1811	7.028751
6	1	5530	20	100			7.943318
7	2	5530	20	85	1974		9.339384
8	2	5530	20	85	1598		10.500041
USA Bin 5 Trial #19							

Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5530	14	90	1352		0.034493
2	2	5530	14	95	1819		1.584257
3	3	5530	14	75	1438	1206	2.184916
4	3	5530	14	65	1095	1034	4.284172
5	1	5530	14	55			4.90029
6	1	5530	14	95			6.149452
7	3	5530	14	50	1157	1776	7.028509
8	2	5530	14	75	1543		7.853677
9	2	5530	14	55	1186		8.871152
10	1	5530	14	100			10.228788
11	2	5530	14	90	1281		11.481887
USA Bin 5 Trial #20							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5530	19	80	1020	1181	0.487527
2	2	5530	19	95	1646		2.012162
3	1	5530	19	85			2.98043
4	1	5530	19	50			5.186035
5	1	5530	19	70			6.522799
6	2	5530	19	100	1569		7.878609
7	1	5530	19	90			8.826812
8	2	5530	19	50	1230		10.635522
9	2	5530	19	90	1735		11.295541
USA Bin 5 Trial #21							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5562.5	15	70	1065		0.11941
2	2	5562.5	15	100	1713		1.140842
3	2	5562.5	15	90	1931		1.932462
4	2	5562.5	15	60	1080		2.744085
5	2	5562.5	15	60	1540		3.641017
6	1	5562.5	15	70			4.99958
7	1	5562.5	15	70			5.598367
8	2	5562.5	15	50	1933		6.292128

9	1	5562.5	15	80			7.507273
10	2	5562.5	15	95	1821		8.121493
11	2	5562.5	15	70	1069		8.934033
12	2	5562.5	15	70	1603		10.151182
13	1	5562.5	15	65			11.079936
14	2	5562.5	15	70	1665		11.859385
USA Bin 5 Trial #22							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5564.1	11	65	1620		0.293843
2	2	5564.1	11	75	1766		1.131294
3	3	5564.1	11	90	1034	1410	1.714001
4	2	5564.1	11	55	1645		1.968811
5	1	5564.1	11	50			3.002607
6	3	5564.1	11	60	1812	1749	3.55006
7	1	5564.1	11	65			3.860059
8	1	5564.1	11	60			4.776611
9	3	5564.1	11	55	1175	1040	5.178397
10	2	5564.1	11	95	1523		5.938018
11	1	5564.1	11	70			6.345852
12	1	5564.1	11	60			7.551919
13	3	5564.1	11	100	1232	1921	8.051836
14	1	5564.1	11	55			8.529097
15	1	5564.1	11	95			8.849317
16	3	5564.1	11	50	1773	1067	9.831853
17	2	5564.1	11	70	1030		10.289818
18	2	5564.1	11	60	1589		11.015172
19	2	5564.1	11	60	1517		11.976773
USA Bin 5 Trial #23							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5564.5	10	70			0.277482
2	3	5564.5	10	70	1507	1252	0.885261
3	3	5564.5	10	60	1757	1944	1.76785
4	1	5564.5	10	75			2.233542
5	2	5564.5	10	100	1446		2.836404
6	3	5564.5	10	65	1567	1198	3.367544

7	2	5564.5	10	80	1393		3.921176
8	2	5564.5	10	90	1816		4.518574
9	3	5564.5	10	50	1807	1327	5.572453
10	2	5564.5	10	55	1564		6.1142
11	3	5564.5	10	65	1308	1752	6.684959
12	2	5564.5	10	70	1732		7.339471
13	1	5564.5	10	50			8.092623
14	2	5564.5	10	70	1464		8.458347
15	2	5564.5	10	95	1434		8.897823
16	3	5564.5	10	75	1346	1411	10.002889
17	1	5564.5	10	85			10.337127
18	1	5564.5	10	50			10.8428
19	2	5564.5	10	90	1851		11.902783
USA Bin 5 Trial #24							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5562.1	16	80			0.91274
2	3	5562.1	16	65	1809	1151	1.366612
3	2	5562.1	16	60	1119		2.208547
4	3	5562.1	16	55	1539	1664	3.771553
5	3	5562.1	16	80	1500	1992	5.095176
6	3	5562.1	16	65	1431	1872	6.344158
7	2	5562.1	16	75	1762		6.736094
8	2	5562.1	16	75	1642		7.902801
9	3	5562.1	16	80	1133	1906	9.188331
10	3	5562.1	16	70	1916	1658	10.807713
11	2	5562.1	16	50	1416		11.879336
USA Bin 5 Trial #25							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5566.5	5	95			0.499147
2	3	5566.5	5	85	1233	1543	1.412913
3	3	5566.5	5	75	1447	1505	2.083195
4	3	5566.5	5	85	1195	1455	3.337412
5	2	5566.5	5	85	1479		3.759379
6	1	5566.5	5	95			4.870433
7	1	5566.5	5	80			5.569854

8	2	5566.5	5	95	1979		6.32629
9	2	5566.5	5	55	1076		7.301762
10	1	5566.5	5	80			7.94961
11	3	5566.5	5	95	1752	1839	9.040837
12	2	5566.5	5	75	1389		9.91406
13	3	5566.5	5	60	1160	1977	10.880603
14	2	5566.5	5	100	1064		11.598526
USA Bin 5 Trial #26							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5561.7	17	60	1383		0.012153
2	3	5561.7	17	80	1125	1416	0.652442
3	3	5561.7	17	95	1371	1772	1.528314
4	3	5561.7	17	85	1223	1899	2.080436
5	1	5561.7	17	100			2.519304
6	1	5561.7	17	50			3.405753
7	1	5561.7	17	60			3.796798
8	2	5561.7	17	100	1254		4.44389
9	1	5561.7	17	70			5.374737
10	2	5561.7	17	95	1276		5.714477
11	3	5561.7	17	90	1468	1121	6.380034
12	2	5561.7	17	65	1231		7.072512
13	2	5561.7	17	85	1993		7.415467
14	2	5561.7	17	90	1005		8.110984
15	1	5561.7	17	80			8.62308
16	2	5561.7	17	50	1913		9.250429
17	2	5561.7	17	90	1128		9.6841
18	2	5561.7	17	100	1213		10.342439
19	2	5561.7	17	55	1325		11.017581
20	3	5561.7	17	60	1481	1468	11.695746
USA Bin 5 Trial #27							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5564.5	10	100	1985		0.686126
2	1	5564.5	10	80			1.135697
3	3	5564.5	10	60	1771	1058	2.14139
4	3	5564.5	10	75	1857	1862	2.579036

5	1	5564.5	10	80			3.533746
6	3	5564.5	10	50	1445	1781	3.789359
7	2	5564.5	10	50	1533		5.109334
8	3	5564.5	10	50	1853	1229	5.902972
9	3	5564.5	10	55	1148	1438	6.496669
10	1	5564.5	10	90			7.468739
11	2	5564.5	10	60	1142		7.562674
12	2	5564.5	10	95	1114		8.498255
13	3	5564.5	10	65	1745	1743	9.267494
14	2	5564.5	10	95	1340		10.37001
15	1	5564.5	10	90			11.027468
16	3	5564.5	10	75	1952	1570	11.689815
USA Bin 5 Trial #28							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5563.3	13	60	1153	1163	0.573063
2	1	5563.3	13	75			1.161892
3	2	5563.3	13	80	1992		1.587257
4	2	5563.3	13	75	1276		1.862301
5	1	5563.3	13	85			2.516784
6	3	5563.3	13	70	1443	1107	3.518071
7	2	5563.3	13	65	1636		3.926575
8	1	5563.3	13	50			4.271593
9	2	5563.3	13	50	1232		5.065442
10	2	5563.3	13	55	1574		5.932813
11	1	5563.3	13	95			6.019555
12	1	5563.3	13	55			7.195258
13	3	5563.3	13	60	1240	1492	7.623622
14	2	5563.3	13	60	1249		8.080277
15	2	5563.3	13	55	1391		8.9546
16	2	5563.3	13	50	1418		9.01463
17	3	5563.3	13	65	1529	1153	9.981996
18	3	5563.3	13	70	1307	1202	10.289614
19	1	5563.3	13	50			10.875794
20	1	5563.3	13	80			11.681899
USA Bin 5 Trial #29							

Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5560.9	19	80			0.596993
2	1	5560.9	19	60			1.357173
3	1	5560.9	19	75			1.889292
4	3	5560.9	19	85	1349	1037	2.678946
5	1	5560.9	19	50			3.20903
6	2	5560.9	19	65	1480		3.555703
7	2	5560.9	19	75	1358		4.784581
8	3	5560.9	19	55	1399	1809	5.133439
9	1	5560.9	19	55			6.330629
10	1	5560.9	19	80			6.586995
11	2	5560.9	19	100	1373		7.454453
12	2	5560.9	19	55	1289		7.789985
13	2	5560.9	19	80	1211		8.566221
14	1	5560.9	19	60			9.436652
15	3	5560.9	19	85	1819	1569	10.208602
16	1	5560.9	19	75			10.879324
17	3	5560.9	19	90	1145	1742	11.931818
USA Bin 5 Trial #30							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5562.5	15	85	1107		0.238744
2	2	5562.5	15	75	1871		1.050499
3	1	5562.5	15	50			2.178044
4	3	5562.5	15	95	1427	1743	2.416752
5	3	5562.5	15	60	1853	1455	3.026494
6	2	5562.5	15	55	1890		3.840099
7	3	5562.5	15	60	1213	1986	4.932968
8	1	5562.5	15	55			5.437166
9	3	5562.5	15	70	1428	1914	6.397734
10	1	5562.5	15	95			6.760461
11	3	5562.5	15	60	1383	1016	8.00929
12	3	5562.5	15	50	1968	1662	8.583926
13	3	5562.5	15	65	1133	1123	9.377901
14	2	5562.5	15	60	1866		9.853081
15	3	5562.5	15	60	1098	1687	10.848221
16	1	5562.5	15	95			11.615127

Type 6 Frequency Hopping Radar Statistical Performance

Trial	Hop #	Freq (MHz)	Pulse Start (mS)	1=Detection 0=No Detection	Detection Percentage	Limit
1	5	5561	15	1	100.0%	70.0%
2	1	5519	3	1		
3	7	5497	21	1		
4	2	5491	6	1		
5	3	5547	9	1		
6	0	5516	0	1		
7	4	5541	12	1		
8	0	5493	0	1		
9	1	5534	3	1		
10	16	5520	48	1		
11	17	5527	51	1		
12	11	5543	33	1		
13	2	5493	6	1		
14	1	5566	3	1		
15	5	5499	15	1		
16	1	5493	3	1		
17	3	5544	9	1		
18	3	5559	9	1		
19	1	5521	3	1		
20	8	5562	24	1		
21	18	5544	54	1		
22	12	5524	36	1		
23	14	5559	42	1		
24	2	5542	6	1		
25	2	5492	6	1		
26	6	5491	18	1		
27	3	5544	9	1		
28	15	5515	45	1		
29	2	5546	6	1		
30	2	5541	6	1		

Type 6 Frequency Hopping Radar Statistical Performance - Details

USA Frequency Hopping Trial #1		
Hop #	Freq (MHz)	Pulse Start (mS)
5	5561	15
6	5529	18
10	5546	30
14	5508	42
18	5511	54
27	5538	81
28	5500	84
39	5566	117
48	5502	144
49	5553	147
61	5496	183
65	5559	195
67	5518	201
70	5558	210
78	5544	234
85	5515	255
93	5494	279
99	5516	297
USA Frequency Hopping Trial #2		
Hop #	Freq (MHz)	Pulse Start (mS)
1	5519	3
7	5524	21
15	5504	45
17	5563	51
20	5493	60
23	5525	69
26	5499	78
30	5539	90
34	5555	102
40	5537	120
43	5553	129
45	5512	135
46	5543	138
57	5505	171
69	5566	207

70	5567	210
88	5564	264
95	5495	285
98	5521	294
USA Frequency Hopping Trial #3		
Hop #	Freq (MHz)	Pulse Start (mS)
7	5497	21
12	5520	36
19	5564	57
25	5501	75
34	5557	102
37	5555	111
38	5507	114
44	5524	132
57	5547	171
61	5509	183
66	5567	198
71	5498	213
73	5510	219
82	5527	246
84	5544	252
USA Frequency Hopping Trial #4		
Hop #	Freq (MHz)	Pulse Start (mS)
2	5491	6
4	5501	12
12	5512	36
18	5507	54
19	5493	57
22	5536	66
32	5499	96
35	5566	105
39	5560	117
44	5517	132
45	5545	135
56	5503	168
73	5565	219
76	5537	228
78	5519	234
80	5559	240

82	5538	246
89	5548	267
97	5550	291
98	5567	294
USA Frequency Hopping Trial #5		
Hop #	Freq (MHz)	Pulse Start (mS)
3	5547	9
4	5532	12
5	5493	15
6	5506	18
9	5560	27
20	5542	60
30	5555	90
41	5526	123
42	5548	126
57	5503	171
58	5520	174
71	5525	213
82	5498	246
86	5491	258
87	5508	261
USA Frequency Hopping Trial #6		
Hop #	Freq (MHz)	Pulse Start (mS)
0	5516	0
10	5501	30
13	5566	39
14	5502	42
23	5521	69
24	5544	72
28	5568	84
33	5493	99
35	5509	105
38	5515	114
39	5548	117
40	5560	120
41	5505	123
42	5504	126
52	5567	156
59	5538	177

61	5526	183
63	5558	189
66	5553	198
74	5532	222
75	5494	225
79	5510	237
88	5503	264
89	5492	267
92	5525	276
96	5550	288
USA Frequency Hopping Trial #7		
Hop #	Freq (MHz)	Pulse Start (mS)
4	5541	12
12	5561	36
20	5518	60
27	5521	81
39	5549	117
51	5552	153
60	5516	180
61	5494	183
64	5553	192
66	5558	198
71	5539	213
79	5514	237
86	5562	258
97	5556	291
USA Frequency Hopping Trial #8		
Hop #	Freq (MHz)	Pulse Start (mS)
0	5493	0
3	5544	9
31	5522	93
32	5563	96
37	5528	111
46	5559	138
49	5537	147
58	5540	174
59	5538	177
63	5514	189
65	5532	195

67	5492	201
69	5527	207
71	5520	213
75	5525	225
79	5508	237
80	5517	240
82	5547	246
96	5519	288
97	5549	291
USA Frequency Hopping Trial #9		
Hop #	Freq (MHz)	Pulse Start (mS)
1	5534	3
6	5510	18
14	5544	42
23	5528	69
26	5539	78
35	5513	105
37	5522	111
44	5548	132
45	5508	135
46	5566	138
48	5504	144
52	5558	156
53	5567	159
55	5541	165
63	5496	189
71	5552	213
84	5517	252
92	5515	276
98	5540	294
USA Frequency Hopping Trial #10		
Hop #	Freq (MHz)	Pulse Start (mS)
16	5520	48
18	5517	54
19	5555	57
22	5525	66
44	5507	132
45	5558	135
47	5543	141

57	5513	171
65	5491	195
68	5504	204
76	5495	228
78	5550	234
81	5516	243
85	5527	255
97	5567	291
98	5566	294
USA Frequency Hopping Trial #11		
Hop #	Freq (MHz)	Pulse Start (mS)
17	5527	51
30	5494	90
31	5548	93
36	5496	108
41	5549	123
43	5566	129
52	5497	156
54	5562	162
64	5542	192
67	5528	201
70	5522	210
71	5526	213
73	5554	219
78	5534	234
USA Frequency Hopping Trial #12		
Hop #	Freq (MHz)	Pulse Start (mS)
11	5543	33
28	5545	84
29	5491	87
38	5564	114
51	5560	153
59	5538	177
62	5510	186
73	5499	219
83	5552	249
89	5500	267
96	5559	288
USA Frequency Hopping Trial #13		

Hop #	Freq (MHz)	Pulse Start (mS)
2	5493	6
8	5510	24
22	5513	66
28	5545	84
43	5498	129
45	5554	135
47	5524	141
49	5519	147
57	5541	171
59	5526	177
63	5504	189
64	5549	192
65	5535	195
68	5563	204
75	5552	225
80	5517	240
85	5529	255
96	5497	288
99	5547	297
USA Frequency Hopping Trial #14		
Hop #	Freq (MHz)	Pulse Start (mS)
1	5566	3
7	5549	21
8	5567	24
18	5517	54
21	5505	63
24	5511	72
28	5537	84
37	5560	111
42	5529	126
56	5533	168
63	5521	189
64	5498	192
67	5526	201
77	5536	231
83	5515	249
85	5557	255
87	5528	261

93	5563	279
96	5502	288
USA Frequency Hopping Trial #15		
Hop #	Freq (MHz)	Pulse Start (mS)
5	5499	15
8	5498	24
16	5568	48
18	5514	54
23	5524	69
28	5563	84
33	5513	99
34	5520	102
44	5507	132
50	5535	150
52	5531	156
62	5491	186
83	5561	249
91	5512	273
96	5516	288
USA Frequency Hopping Trial #16		
Hop #	Freq (MHz)	Pulse Start (mS)
1	5493	3
3	5552	9
18	5502	54
20	5507	60
21	5531	63
25	5521	75
32	5534	96
43	5506	129
51	5494	153
53	5543	159
55	5508	165
68	5538	204
87	5498	261
89	5555	267
91	5532	273
95	5518	285
USA Frequency Hopping Trial #17		

Hop #	Freq (MHz)	Pulse Start (mS)
3	5544	9
4	5500	12
5	5550	15
8	5502	24
9	5559	27
34	5545	102
46	5540	138
47	5568	141
53	5536	159
55	5569	165
65	5553	195
80	5522	240
84	5514	252
88	5525	264
89	5564	267
93	5541	279
95	5529	285
99	5491	297
USA Frequency Hopping Trial #18		
Hop #	Freq (MHz)	Pulse Start (mS)
3	5559	9
9	5500	27
14	5539	42
18	5568	54
21	5515	63
27	5542	81
42	5552	126
43	5544	129
46	5497	138
52	5498	156
65	5558	195
66	5569	198
74	5521	222
83	5534	249
84	5564	252
91	5531	273
USA Frequency Hopping Trial #19		

Hop #	Freq (MHz)	Pulse Start (mS)
1	5521	3
5	5565	15
8	5503	24
14	5539	42
22	5551	66
33	5558	99
34	5550	102
36	5553	108
50	5497	150
52	5501	156
88	5534	264
90	5568	270
91	5519	273
USA Frequency Hopping Trial #20		
Hop #	Freq (MHz)	Pulse Start (mS)
8	5562	24
11	5530	33
21	5554	63
25	5529	75
39	5555	117
70	5526	210
78	5547	234
88	5504	264
93	5493	279
94	5511	282
99	5546	297
USA Frequency Hopping Trial #21		
Hop #	Freq (MHz)	Pulse Start (mS)
18	5544	54
19	5554	57
37	5500	111
38	5545	114
40	5541	120
47	5562	141
52	5497	156
55	5537	165
68	5509	204

69	5528	207
70	5552	210
76	5546	228
85	5564	255
86	5527	258
91	5566	273
USA Frequency Hopping Trial #22		
Hop #	Freq (MHz)	Pulse Start (mS)
12	5524	36
22	5519	66
27	5501	81
30	5551	90
35	5537	105
36	5533	108
43	5552	129
46	5513	138
47	5547	141
56	5529	168
68	5492	204
74	5511	222
83	5535	249
95	5493	285
USA Frequency Hopping Trial #23		
Hop #	Freq (MHz)	Pulse Start (mS)
14	5559	42
19	5566	57
22	5555	66
26	5558	78
36	5560	108
37	5552	111
41	5542	123
45	5561	135
53	5491	159
57	5547	171
79	5546	237
80	5496	240
87	5492	261
89	5513	267
93	5540	279

99	5516	297
USA Frequency Hopping Trial #24		
Hop #	Freq (MHz)	Pulse Start (mS)
2	5542	6
6	5549	18
7	5561	21
15	5547	45
16	5545	48
17	5543	51
18	5500	54
20	5498	60
33	5526	99
43	5512	129
69	5569	207
70	5513	210
73	5552	219
74	5506	222
77	5566	231
83	5504	249
84	5493	252
90	5529	270
91	5499	273
92	5501	276
93	5539	279
USA Frequency Hopping Trial #25		
Hop #	Freq (MHz)	Pulse Start (mS)
2	5492	6
8	5555	24
10	5569	30
12	5530	36
15	5520	45
16	5498	48
18	5497	54
19	5512	57
28	5523	84
35	5536	105
40	5546	120
45	5551	135
48	5556	144

51	5559	153
62	5552	186
65	5499	195
66	5526	198
73	5563	219
81	5500	243
94	5504	282
97	5548	291
98	5494	294
USA Frequency Hopping Trial #26		
Hop #	Freq (MHz)	Pulse Start (mS)
6	5491	18
11	5525	33
14	5508	42
16	5538	48
26	5501	78
40	5523	120
50	5562	150
56	5514	168
57	5532	171
69	5497	207
70	5520	210
72	5548	216
75	5555	225
80	5566	240
81	5509	243
83	5561	249
87	5551	261
94	5540	282
98	5529	294
USA Frequency Hopping Trial #27		
Hop #	Freq (MHz)	Pulse Start (mS)
3	5544	9
5	5502	15
6	5535	18
8	5500	24
10	5528	30
12	5514	36
22	5545	66

23	5541	69
33	5534	99
36	5533	108
78	5561	234
79	5536	237
93	5565	279
96	5493	288
98	5559	294
USA Frequency Hopping Trial #28		
Hop #	Freq (MHz)	Pulse Start (mS)
15	5515	45
16	5532	48
21	5556	63
32	5551	96
49	5555	147
53	5567	159
56	5560	168
58	5507	174
62	5541	186
72	5526	216
79	5538	237
82	5540	246
85	5530	255
96	5491	288
USA Frequency Hopping Trial #29		
Hop #	Freq (MHz)	Pulse Start (mS)
2	5546	6
25	5564	75
29	5555	87
32	5514	96
36	5516	108
41	5566	123
42	5556	126
45	5510	135
52	5563	156
54	5524	162
57	5561	171
77	5545	231
79	5537	237

82	5494	246
USA Frequency Hopping Trial #30		
Hop #	Freq (MHz)	Pulse Start (mS)
2	5541	6
12	5519	36
24	5518	72
28	5545	84
36	5544	108
37	5559	111
50	5521	150
63	5494	189
68	5491	204
75	5513	225
91	5549	273
93	5560	279

Statistical Performance Check - 160MHz Bandwidth

Type 1A/1B Radar Statistical Performance

Trial	Frequency	Pulses	PW (uS)	PRI (uS)	1=Detection 0=No Detection	Detection Percentage	Limit
1	5570	102	1	518	1	80.0%	60.0%
2	5570	65	1	818	1		
3	5570	83	1	638	1		
4	5570	78	1	678	1		
5	5570	68	1	778	1		
6	5580	68	1	778	1		
7	5580	89	1	598	1		
8	5580	99	1	538	1		
9	5580	78	1	678	1		
10	5580	102	1	518	1		
11	5600	78	1	678	1		
12	5600	74	1	718	1		
13	5600	81	1	658	1		
14	5600	81	1	658	1		
15	5600	92	1	578	1		
16	5620	42	1	1273	1		
17	5620	42	1	1264	1		
18	5620	22	1	2511	0		
19	5620	19	1	2788	0		
20	5620	55	1	973	1		
21	5640	66	1	802	1		
22	5640	18	1	3017	1		
23	5640	29	1	1873	0		
24	5640	53	1	996	1		
25	5640	64	1	836	1		
26	5645	22	1	2470	0		
27	5645	22	1	2473	0		
28	5645	45	1	1194	1		
29	5645	43	1	1244	1		
30	5645	18	1	2972	0		

Type 2 Radar Statistical Performance

Trial	Frequency	Pulses	PW (uS)	PRI (uS)	1=Detection 0=No Detection	Detection Percentage	Limit
1	5570	28	1.4	173	1	100.0%	60.0%
2	5570	26	3.3	187	1		
3	5570	28	1.4	222	1		
4	5570	26	3.9	198	1		
5	5570	25	4.7	226	1		
6	5580	27	4.6	164	1		
7	5580	23	3.4	187	1		
8	5580	28	4	194	1		
9	5580	23	2.3	205	1		
10	5580	23	2.4	189	1		
11	5600	26	4.1	156	1		
12	5600	28	5	207	1		
13	5600	26	2.7	199	1		
14	5600	27	3.2	227	1		
15	5600	28	4.6	194	1		
16	5620	25	5	222	1		
17	5620	24	2.7	213	1		
18	5620	23	1.1	180	1		
19	5620	29	2.8	194	1		
20	5620	27	4.3	160	1		
21	5640	29	2.2	150	1		
22	5640	27	3.4	161	1		
23	5640	24	3.3	195	1		
24	5640	29	3.2	188	1		
25	5640	23	2.1	151	1		
26	5645	25	1.2	213	1		
27	5645	27	3.6	219	1		
28	5645	26	4.6	222	1		
29	5645	25	2.2	151	1		
30	5645	24	4.8	170	1		

Type 3 Radar Statistical Performance

Trial	Frequency	Pulses	PW (uS)	PRI (uS)	1=Detection 0=No Detection	Detection Percentage	Limit
1	5570	18	6.8	374	0	76.7%	60.0%
2	5570	17	9.3	388	1		
3	5570	16	7.4	336	0		
4	5570	18	8.4	428	1		
5	5570	16	9.5	252	0		
6	5580	17	6.4	382	1		
7	5580	17	8.4	276	1		
8	5580	16	9.1	431	1		
9	5580	18	8.1	449	1		
10	5580	18	8.5	363	1		
11	5600	16	6.9	254	1		
12	5600	17	6.6	456	0		
13	5600	18	6.9	335	0		
14	5600	17	7.8	482	1		
15	5600	18	8.3	440	1		
16	5620	16	8.5	309	1		
17	5620	16	6.5	378	1		
18	5620	17	9.3	242	1		
19	5620	18	6.7	334	1		
20	5620	17	8.3	254	1		
21	5640	16	8.4	257	1		
22	5640	18	8.9	467	1		
23	5640	16	8.4	352	1		
24	5640	16	7	473	0		
25	5640	17	6	460	1		
26	5645	17	9	383	1		
27	5645	17	6.5	455	0		
28	5645	18	8.5	394	1		
29	5645	18	9.6	349	1		
30	5645	17	9.5	391	1		

Type 4 Radar Statistical Performance

Trial	Frequency	Pulses	PW (uS)	PRI (uS)	1=Detection 0=No Detection	Detection Percentage	Limit
1	5570	16	11.3	370	1	80.0%	60.0%
2	5570	16	17.3	266	1		
3	5570	15	17.8	470	0		
4	5570	14	11.8	302	1		
5	5570	13	14.1	380	1		
6	5580	15	14.3	399	0		
7	5580	12	12.2	300	1		
8	5580	12	17.7	432	1		
9	5580	12	14.1	274	1		
10	5580	13	18.4	220	1		
11	5600	12	13.1	432	1		
12	5600	15	13	228	1		
13	5600	13	18.1	326	1		
14	5600	15	14.2	477	0		
15	5600	15	18.6	396	1		
16	5620	14	18.4	454	0		
17	5620	15	12.1	326	0		
18	5620	13	18.3	249	1		
19	5620	16	19.9	242	1		
20	5620	15	15.7	382	1		
21	5640	15	16.7	314	1		
22	5640	14	14.1	253	1		
23	5640	14	18.3	397	1		
24	5640	13	18.2	206	1		
25	5640	14	14	358	1		
26	5645	12	19.5	246	0		
27	5645	15	16.2	473	1		
28	5645	12	17.7	347	1		
29	5645	12	11.8	220	1		
30	5645	16	11.2	332	1		

In addition an average minimum percentage of successful detection across all four Short pulse radar test waveforms is required and is calculated as follows:

$$\frac{P_d 1 + P_d 2 + P_d 3 + P_d 4}{4}$$ = (80%+100%+76.7%+80%)/4 = 84.175% (>80%)

Type 5 Long Pulse Radar Statistical Performance

Trial	Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)	1=Detection 0=No Detection	Detection Percentage	Limit
1	1	3	5570	11	60	1957	1599	0.812438	0		
2	1	2	5570	11	85	1420		0.21471	1		
3	1	3	5570	15	50	1227	1854	0.362884	1		
4	1	1	5570	8	50			0.444788	1		
5	1	1	5570	16	75			0.312946	1		
6	1	1	5570	19	90			0.54401	1		
7	1	2	5570	14	50	1643		0.48417	1		
8	1	3	5570	6	70	1202	1943	0.536781	1		
9	1	2	5570	18	100	1925		0.136345	1		
10	1	3	5570	9	70	1282	1402	1.136684	1		
11	1	1	5570	6	60			0.651077	1		
12	1	3	5570	11	65	1661	1147	0.533446	1		
13	1	3	5570	16	100	1653	1224	0.822868	1		
14	1	1	5570	10	90			1.458345	1		
15	1	1	5570	8	50			0.414835	1		
16	1	1	5570	16	80			0.057366	1	93.3%	80.0%
17	1	1	5570	6	100			0.436054	1		
18	1	1	5570	5	75			0.119518	0		
19	1	2	5570	14	80	1975		0.063128	1		
20	1	2	5570	8	65	1762		1.155387	1		
21	1	1	5645.2	7	55			0.038855	1		
22	1	3	5643.6	11	50	1825	1765	0.413822	1		
23	1	3	5644	10	100	1743	1238	0.370071	1		
24	1	2	5640.4	19	65	1654		0.653964	1		
25	1	2	5645.2	7	95	1282		0.298159	1		
26	1	1	5642	15	95			0.659726	1		
27	1	3	5640.8	18	90	1730	1773	0.428747	1		
28	1	2	5640	20	70	1096		0.659223	1		
29	1	3	5645.6	6	55	1315	1069	0.634857	1		
30	1	3	5640.8	18	85	1459	1788	0.357282	1		

Type 5 Long Pulse Radar Statistical Performance - Details

USA Bin 5 Trial #1							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5570	11	60	1957	1599	0.812438
2	3	5570	11	80	1078	1781	1.559482
3	2	5570	11	60	1921		4.283961
4	3	5570	11	65	1207	1350	5.901816
5	1	5570	11	95			6.880917
6	1	5570	11	90			7.998093
7	2	5570	11	95	1555		9.32853
8	3	5570	11	65	1682	1179	10.779752
USA Bin 5 Trial #2							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5570	11	85	1420		0.21471
2	1	5570	11	95			0.810385
3	1	5570	11	95			1.480354
4	3	5570	11	65	1625	1981	2.25378
5	1	5570	11	75			2.696214
6	1	5570	11	55			3.817932
7	1	5570	11	95			4.418799
8	3	5570	11	90	1543	1950	5.132794
9	1	5570	11	95			5.733327
10	2	5570	11	50	1539		6.560965
11	2	5570	11	90	1914		6.90827
12	3	5570	11	80	1668	1533	7.715805
13	1	5570	11	55			8.40319
14	2	5570	11	100	1437		8.962343
15	2	5570	11	85	1702		9.550766
16	1	5570	11	70			10.434467
17	2	5570	11	90	1950		10.941842
18	1	5570	11	55			11.620232
USA Bin 5 Trial #3							

Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5570	15	50	1227	1854	0.362884
2	2	5570	15	65	1743		1.129726
3	3	5570	15	90	1359	1816	1.433551
4	1	5570	15	80			2.291087
5	2	5570	15	60	1198		3.016599
6	1	5570	15	95			3.483266
7	2	5570	15	100	1654		4.351162
8	1	5570	15	85			5.322718
9	2	5570	15	60	1792		5.657788
10	1	5570	15	95			6.407494
11	2	5570	15	95	1102		6.966107
12	3	5570	15	95	1076	1751	7.744719
13	1	5570	15	50			8.278499
14	2	5570	15	75	1193		9.159968
15	3	5570	15	80	1305	1536	9.502805
16	3	5570	15	100	1721	1859	10.562363
17	2	5570	15	70	1619		10.987904
18	2	5570	15	85	1545		11.359852
USA Bin 5 Trial #4							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5570	8	50			0.444788
2	3	5570	8	65	1459	1897	1.06414
3	3	5570	8	50	1942	1149	1.876454
4	2	5570	8	85	1528		3.109493
5	2	5570	8	55	1742		3.993592
6	3	5570	8	70	1250	1855	4.555798
7	2	5570	8	50	1757		5.346069
8	2	5570	8	65	1703		5.989587
9	3	5570	8	75	1636	1469	6.450355
10	1	5570	8	75			7.299599
11	2	5570	8	95	1734		8.337654
12	3	5570	8	85	1670	1116	8.906961
13	2	5570	8	60	1015		9.692979
14	1	5570	8	65			10.955175
15	2	5570	8	60	1112		11.318921

USA Bin 5 Trial #5							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5570	16	75			0.312946
2	2	5570	16	80	1513		0.881848
3	2	5570	16	55	1941		1.633557
4	3	5570	16	95	1307	1613	1.865102
5	3	5570	16	50	1684	1984	2.740898
6	2	5570	16	75	1175		3.111326
7	3	5570	16	55	1589	1235	4.152157
8	3	5570	16	90	1514	1358	4.303339
9	3	5570	16	50	1055	1475	5.197261
10	1	5570	16	80			5.595267
11	1	5570	16	55			6.465538
12	2	5570	16	50	1621		6.765915
13	3	5570	16	60	1565	1671	7.505241
14	1	5570	16	55			8.395217
15	1	5570	16	100			8.755516
16	2	5570	16	80	1128		9.562594
17	3	5570	16	75	1763	1715	10.022432
18	2	5570	16	80	1904		10.405407
19	3	5570	16	80	1697	1802	11.393273
20	1	5570	16	85			11.401966
USA Bin 5 Trial #6							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5570	19	90			0.54401
2	2	5570	19	85	1323		1.454244
3	3	5570	19	75	1565	1534	2.273379
4	1	5570	19	100			2.830553
5	2	5570	19	65	1064		4.121532
6	3	5570	19	70	1157	1583	4.576792
7	2	5570	19	80	1589		5.153193
8	1	5570	19	70			6.043842
9	3	5570	19	85	1328	1383	7.211872
10	1	5570	19	95			7.723019
11	1	5570	19	60			9.3667

12	3	5570	19	55	1136	1268	9.460203
13	2	5570	19	70	1518		10.856339
14	1	5570	19	55			11.389901
USA Bin 5 Trial #7							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5570	14	50	1643		0.48417
2	3	5570	14	75	1038	1132	1.616448
3	3	5570	14	75	1901	1604	2.847707
4	3	5570	14	50	1926	1938	3.292129
5	2	5570	14	60	1069		4.704592
6	3	5570	14	85	1920	1034	5.844874
7	2	5570	14	80	1172		6.960813
8	2	5570	14	50	1113		7.613691
9	1	5570	14	75			8.045722
10	1	5570	14	70			9.431829
11	2	5570	14	90	1702		10.653421
12	2	5570	14	90	1729		11.673772
USA Bin 5 Trial #8							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5570	6	70	1202	1943	0.536781
2	2	5570	6	95	1144		1.332544
3	1	5570	6	50			1.960953
4	1	5570	6	60			3.652571
5	3	5570	6	55	1343	1803	4.200696
6	2	5570	6	90	1079		4.757304
7	3	5570	6	60	1634	1202	5.600338
8	2	5570	6	60	1281		7.243941
9	2	5570	6	80	1873		7.55883
10	2	5570	6	85	1335		8.908064
11	2	5570	6	55	1201		9.591893
12	1	5570	6	85			10.322656
13	1	5570	6	85			11.191587
USA Bin 5 Trial #9							

Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5570	18	100	1925		0.136345
2	2	5570	18	50	1924		1.714699
3	1	5570	18	100			4.223333
4	1	5570	18	100			5.412738
5	2	5570	18	75	1537		6.206152
6	1	5570	18	60			7.590377
7	2	5570	18	95	1774		9.126503
8	1	5570	18	100			10.866243
USA Bin 5 Trial #10							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5570	9	70	1282	1402	1.136684
2	3	5570	9	95	1403	1467	2.135077
3	1	5570	9	80			3.978666
4	1	5570	9	65			5.940074
5	1	5570	9	80			6.392908
6	1	5570	9	55			8.801365
7	2	5570	9	70	1381		9.664316
8	3	5570	9	100	1364	1071	10.806307
USA Bin 5 Trial #11							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5570	6	60			0.651077
2	2	5570	6	55	1168		1.237474
3	3	5570	6	90	1186	1833	1.965589
4	2	5570	6	50	1647		2.997791
5	2	5570	6	60	1222		3.227544
6	2	5570	6	85	1709		4.77643
7	2	5570	6	100	1363		5.276759
8	3	5570	6	70	1272	1942	5.780747
9	3	5570	6	80	1625	1954	7.116445
10	2	5570	6	95	1056		7.751453
11	3	5570	6	100	1994	1562	8.04613
12	1	5570	6	80			9.407358

13	2	5570	6	80	1595		9.906934
14	1	5570	6	55			10.49101
15	1	5570	6	60			11.693881
USA Bin 5 Trial #12							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5570	11	65	1661	1147	0.533446
2	3	5570	11	95	1409	1827	1.085157
3	1	5570	11	50			1.759447
4	1	5570	11	75			2.634031
5	3	5570	11	100	1363	1257	3.45459
6	1	5570	11	60			3.862971
7	3	5570	11	60	1408	1757	4.772048
8	3	5570	11	50	1291	1763	5.459619
9	2	5570	11	100	1118		5.919397
10	2	5570	11	70	1681		6.971522
11	3	5570	11	55	1923	1445	7.471849
12	1	5570	11	85			8.363452
13	1	5570	11	70			8.88885
14	3	5570	11	50	1220	1376	9.844512
15	1	5570	11	50			10.485707
16	2	5570	11	70	1636		10.832759
17	3	5570	11	60	1937	1503	11.785515
USA Bin 5 Trial #13							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5570	16	100	1653	1224	0.822868
2	3	5570	16	60	1660	1161	1.575084
3	1	5570	16	50			3.476449
4	2	5570	16	85	1002		5.832947
5	2	5570	16	80	1264		6.630726
6	3	5570	16	60	1929	1450	8.343858
7	1	5570	16	55			10.148187
8	1	5570	16	55			11.290546
USA Bin 5 Trial #14							

Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5570	10	90			1.458345
2	1	5570	10	60			2.992825
3	3	5570	10	85	1579	1904	3.815417
4	3	5570	10	95	1045	1859	5.545982
5	1	5570	10	90			7.418412
6	1	5570	10	65			8.295537
7	1	5570	10	85			9.188577
8	3	5570	10	65	1328	1826	10.649384
USA Bin 5 Trial #15							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5570	8	50			0.414835
2	1	5570	8	75			0.829295
3	1	5570	8	75			1.532391
4	2	5570	8	65	1684		1.881008
5	1	5570	8	85			2.64243
6	1	5570	8	75			3.256739
7	3	5570	8	90	1026	1477	4.04838
8	1	5570	8	70			4.784752
9	1	5570	8	90			5.139486
10	3	5570	8	95	1284	1091	5.801801
11	3	5570	8	100	1303	1365	6.260848
12	2	5570	8	90	1718		6.63419
13	1	5570	8	90			7.330597
14	2	5570	8	80	1168		8.239997
15	1	5570	8	100			8.430258
16	1	5570	8	100			9.554784
17	3	5570	8	55	1689	1610	10.110339
18	2	5570	8	65	1495		10.651763
19	3	5570	8	90	1955	1730	11.290808
20	3	5570	8	50	1230	1249	11.420886
USA Bin 5 Trial #16							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)

1	1	5570	16	80			0.057366
2	3	5570	16	90	1568	1470	1.201896
3	3	5570	16	55	1382	1288	2.275752
4	3	5570	16	80	1350	1359	2.623229
5	2	5570	16	80	1403		3.404295
6	2	5570	16	70	1626		4.407584
7	2	5570	16	85	1523		5.005807
8	2	5570	16	75	1606		5.687734
9	3	5570	16	70	1127	1106	6.519731
10	2	5570	16	85	1097		7.573297
11	3	5570	16	55	1238	1807	8.059257
12	2	5570	16	60	1941		8.942291
13	2	5570	16	100	1752		9.646526
14	1	5570	16	90			10.995954
15	1	5570	16	80			11.669039
USA Bin 5 Trial #17							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5570	6	100			0.436054
2	2	5570	6	50	1084		0.972717
3	3	5570	6	55	1872	1526	1.417098
4	1	5570	6	60			2.292429
5	3	5570	6	70	1302	1259	2.948809
6	1	5570	6	90			3.83356
7	2	5570	6	65	1562		4.153459
8	1	5570	6	55			4.829619
9	3	5570	6	85	1717	1222	5.738209
10	1	5570	6	80			6.377861
11	1	5570	6	60			6.980628
12	1	5570	6	85			7.70128
13	2	5570	6	95	1262		8.394793
14	1	5570	6	55			9.306687
15	3	5570	6	65	1905	1833	9.645274
16	1	5570	6	65			10.623358
17	2	5570	6	70	1647		11.258791
18	1	5570	6	65			11.988912
USA Bin 5 Trial #18							

Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5570	5	75			0.119518
2	1	5570	5	100			1.25889
3	1	5570	5	95			1.558035
4	3	5570	5	65	1891	1282	2.174905
5	1	5570	5	95			3.351747
6	3	5570	5	90	1041	1961	3.88314
7	2	5570	5	70	1259		4.353482
8	1	5570	5	80			5.491243
9	1	5570	5	95			5.671939
10	2	5570	5	85	1461		6.996791
11	2	5570	5	60	1502		7.294723
12	3	5570	5	80	1677	1404	7.847718
13	1	5570	5	100			8.661945
14	2	5570	5	70	1330		9.664096
15	2	5570	5	100	1546		9.911716
16	2	5570	5	85	1491		10.625936
17	3	5570	5	85	1655	1920	11.616045
USA Bin 5 Trial #19							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5570	14	80	1975		0.063128
2	2	5570	14	65	1272		0.862906
3	2	5570	14	80	1385		1.26984
4	2	5570	14	80	1730		2.067004
5	2	5570	14	75	1483		2.933839
6	2	5570	14	85	1393		3.399207
7	1	5570	14	90			3.885399
8	3	5570	14	50	1314	1508	4.581322
9	1	5570	14	80			5.674862
10	1	5570	14	100			5.888361
11	1	5570	14	50			6.350579
12	1	5570	14	80			7.136934
13	1	5570	14	100			8.041312
14	1	5570	14	65			8.304412
15	3	5570	14	95	1726	1521	9.025545
16	1	5570	14	100			9.554726

17	3	5570	14	90	1453	1042	10.421547
18	3	5570	14	75	1274	1116	10.910651
19	1	5570	14	100			11.476128
USA Bin 5 Trial #20							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5570	8	65	1762		1.155387
2	2	5570	8	50	1853		1.512793
3	1	5570	8	65			3.554623
4	2	5570	8	80	1436		3.638217
5	2	5570	8	75	1292		5.977904
6	3	5570	8	80	1019	1610	7.082173
7	1	5570	8	60			8.113807
8	3	5570	8	70	1829	1198	8.899693
9	3	5570	8	90	1219	1183	9.91483
10	3	5570	8	55	1482	1440	11.477433
USA Bin 5 Trial #21							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5645.2	7	55			0.038855
2	2	5645.2	7	50	1305		1.211315
3	2	5645.2	7	55	1342		2.070704
4	2	5645.2	7	100	1619		2.488483
5	3	5645.2	7	70	1891	1242	3.228231
6	3	5645.2	7	90	1411	1466	3.583251
7	3	5645.2	7	90	1940	1035	4.573673
8	3	5645.2	7	95	1534	1794	5.255292
9	2	5645.2	7	75	1799		6.24598
10	2	5645.2	7	55	1431		6.660696
11	1	5645.2	7	60			7.233902
12	3	5645.2	7	75	1795	1838	8.098655
13	3	5645.2	7	55	1524	1570	8.493903
14	1	5645.2	7	60			9.499637
15	3	5645.2	7	70	1658	1829	10.337116
16	2	5645.2	7	75	1848		11.169052
17	1	5645.2	7	50			11.568567

USA Bin 5 Trial #22							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5643.6	11	50	1825	1765	0.413822
2	3	5643.6	11	85	1109	1514	0.683551
3	3	5643.6	11	85	1896	1671	1.484325
4	1	5643.6	11	90			2.460942
5	2	5643.6	11	60	1988		2.672871
6	3	5643.6	11	85	1979	1464	3.664253
7	1	5643.6	11	100			4.36262
8	3	5643.6	11	60	1527	1361	4.729752
9	1	5643.6	11	100			5.448094
10	3	5643.6	11	65	1143	1502	6.271595
11	3	5643.6	11	60	1716	1428	6.469869
12	1	5643.6	11	95			7.003919
13	1	5643.6	11	85			7.962329
14	1	5643.6	11	100			8.470591
15	2	5643.6	11	55	1252		9.084819
16	3	5643.6	11	60	1103	1784	10.009606
17	1	5643.6	11	90			10.260513
18	1	5643.6	11	55			10.875354
19	2	5643.6	11	85	1302		11.718374
USA Bin 5 Trial #23							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5644	10	100	1743	1238	0.370071
2	3	5644	10	90	1242	1080	1.11959
3	3	5644	10	70	1090	1357	1.698676
4	2	5644	10	80	1151		2.573367
5	1	5644	10	70			3.128385
6	2	5644	10	55	1073		3.345023
7	3	5644	10	75	1984	1538	4.475412
8	1	5644	10	65			4.844734
9	2	5644	10	100	1174		5.506187
10	3	5644	10	65	1539	1488	6.303633
11	2	5644	10	60	1033		6.829624
12	2	5644	10	75	1137		7.385962

13	3	5644	10	65	1275	1591	8.390314
14	1	5644	10	50			8.687578
15	2	5644	10	90	1275		9.567175
16	3	5644	10	70	1873	1982	10.568923
17	2	5644	10	50	1477		10.758743
18	2	5644	10	60	1407		11.429369
USA Bin 5 Trial #24							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5640.4	19	65	1654		0.653964
2	2	5640.4	19	75	1254		1.069629
3	1	5640.4	19	90			1.915381
4	2	5640.4	19	50	1733		2.510073
5	1	5640.4	19	50			3.095314
6	2	5640.4	19	80	1875		3.978894
7	3	5640.4	19	95	1067	1883	4.486733
8	2	5640.4	19	90	1704		5.236306
9	1	5640.4	19	60			5.387468
10	2	5640.4	19	55	1005		6.052783
11	1	5640.4	19	80			7.245739
12	2	5640.4	19	80	1938		7.849582
13	2	5640.4	19	95	1701		8.185937
14	3	5640.4	19	90	1460	1089	8.929767
15	2	5640.4	19	60	1817		9.826568
16	2	5640.4	19	75	1678		10.368457
17	1	5640.4	19	85			11.27373
18	3	5640.4	19	80	1569	1084	11.747202
USA Bin 5 Trial #25							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5645.2	7	95	1282		0.298159
2	3	5645.2	7	95	1298	1438	0.753405
3	2	5645.2	7	75	1825		1.788768
4	1	5645.2	7	90			2.387711
5	3	5645.2	7	70	1758	1099	2.833586
6	1	5645.2	7	100			4.00492
7	2	5645.2	7	70	1910		4.335646

8	3	5645.2	7	55	1735	1036	5.423835
9	3	5645.2	7	65	1504	1462	5.881412
10	2	5645.2	7	80	1622		6.631793
11	3	5645.2	7	95	1827	1802	7.639302
12	3	5645.2	7	60	1110	1365	7.858906
13	2	5645.2	7	60	1703		9.159814
14	2	5645.2	7	70	1539		9.353966
15	2	5645.2	7	75	1646		10.36986
16	3	5645.2	7	70	1290	1869	11.048724
17	2	5645.2	7	60	1071		11.770775
USA Bin 5 Trial #26							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5642	15	95			0.659726
2	1	5642	15	70			0.973335
3	1	5642	15	55			1.443506
4	1	5642	15	85			2.564008
5	2	5642	15	60	1807		2.988695
6	2	5642	15	80	1533		4.188287
7	1	5642	15	95			4.679286
8	1	5642	15	55			5.64439
9	2	5642	15	95	1833		5.950099
10	3	5642	15	95	1423	1578	6.517203
11	2	5642	15	70	1924		7.407185
12	3	5642	15	85	1667	1633	8.385645
13	3	5642	15	55	1974	1110	9.0449
14	1	5642	15	80			9.801014
15	3	5642	15	60	1226	1147	10.459217
16	1	5642	15	80			11.179278
17	3	5642	15	100	1951	1630	11.694251
USA Bin 5 Trial #27							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5640.8	18	90	1730	1773	0.428747
2	3	5640.8	18	85	1950	1645	1.199926
3	2	5640.8	18	75	1112		2.22115
4	2	5640.8	18	50	1513		2.879087

5	1	5640.8	18	55			3.450836
6	3	5640.8	18	70	1121	1043	4.305582
7	2	5640.8	18	75	1148		4.994269
8	3	5640.8	18	60	1975	1279	5.971726
9	3	5640.8	18	50	1154	1557	6.432594
10	1	5640.8	18	65			6.993126
11	3	5640.8	18	80	1097	1055	7.557508
12	2	5640.8	18	80	1636		8.636594
13	2	5640.8	18	55	1340		9.17514
14	1	5640.8	18	95			9.81075
15	2	5640.8	18	90	1883		11.051249
16	1	5640.8	18	65			11.618907
USA Bin 5 Trial #28							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	5640	20	70	1096		0.659223
2	3	5640	20	70	1160	1265	2.079735
3	2	5640	20	65	1094		3.30692
4	1	5640	20	50			4.033157
5	1	5640	20	80			5.467711
6	2	5640	20	60	1654		6.794196
7	3	5640	20	85	1740	1821	9.063865
8	3	5640	20	55	1710	1470	10.05083
9	2	5640	20	55	1908		11.178107
USA Bin 5 Trial #29							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5645.6	6	55	1315	1069	0.634857
2	3	5645.6	6	85	1576	1570	0.97456
3	2	5645.6	6	50	1974		1.483261
4	2	5645.6	6	70	1138		2.662806
5	2	5645.6	6	95	1912		3.216064
6	1	5645.6	6	100			4.15171
7	3	5645.6	6	60	1969	1827	4.866607
8	2	5645.6	6	55	1241		5.283841
9	1	5645.6	6	65			5.708721
10	2	5645.6	6	100	1556		6.881223

11	2	5645.6	6	55	1790		7.725256
12	2	5645.6	6	70	1416		7.853942
13	3	5645.6	6	80	1356	1457	9.107537
14	1	5645.6	6	70			9.310693
15	2	5645.6	6	70	1446		10.115007
16	2	5645.6	6	85	1841		11.184051
17	3	5645.6	6	60	1035	1122	11.499838
USA Bin 5 Trial #30							
Burst #	Pulses	Frequency (MHz)	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5640.8	18	85	1459	1788	0.357282
2	3	5640.8	18	75	1093	1960	1.519213
3	2	5640.8	18	90	1018		3.592544
4	3	5640.8	18	55	1224	1073	3.776279
5	3	5640.8	18	65	1347	1653	5.410352
6	3	5640.8	18	75	1844	1952	6.368116
7	2	5640.8	18	80	1670		7.599969
8	1	5640.8	18	70			9.204219
9	2	5640.8	18	65	1658		10.393547
10	2	5640.8	18	95	1687		11.343026

Type 6 Frequency Hopping Radar Statistical Performance

Trial	Hop #	Freq (MHz)	Pulse Start (mS)	1=Detection 0=No Detection	Detection Percentage	Limit
1	1	5516	3	1	100.0%	70.0%
2	4	5599	12	1		
3	2	5555	6	1		
4	4	5505	12	1		
5	1	5536	3	1		
6	1	5525	3	1		
7	2	5512	6	1		
8	2	5501	6	1		
9	0	5623	0	1		
10	0	5626	0	1		
11	0	5572	0	1		
12	3	5532	9	1		
13	5	5644	15	1		
14	1	5639	3	1		
15	6	5646	18	1		
16	4	5583	12	1		
17	1	5554	3	1		
18	0	5609	0	1		
19	0	5628	0	1		
20	5	5542	15	1		
21	4	5620	12	1		
22	3	5578	9	1		
23	0	5507	0	1		
24	0	5593	0	1		
25	3	5578	9	1		
26	3	5611	9	1		
27	0	5602	0	1		
28	3	5594	9	1		
29	1	5584	3	1		
30	2	5618	6	1		

Type 6 Frequency Hopping Radar Statistical Performance - Details

USA Frequency Hopping Trial #1		
Hop #	Freq (MHz)	Pulse Start (mS)
1	5516	3
3	5542	9
8	5618	24
9	5539	27
10	5629	30
12	5578	36
13	5519	39
16	5559	48
24	5608	72
25	5535	75
32	5606	96
33	5546	99
36	5589	108
39	5579	117
42	5500	126
45	5613	135
47	5595	141
48	5501	144
50	5515	150
51	5531	153
56	5510	168
57	5563	171
60	5628	180
62	5537	186
64	5612	192
70	5624	210
74	5544	222
78	5523	234
81	5574	243
82	5588	246
83	5593	249
84	5533	252
89	5530	267
95	5586	285
USA Frequency Hopping Trial #2		

Hop #	Freq (MHz)	Pulse Start (mS)
4	5599	12
7	5550	21
13	5539	39
14	5583	42
18	5579	54
20	5514	60
21	5559	63
24	5501	72
25	5553	75
29	5606	87
30	5509	90
33	5624	99
36	5530	108
40	5537	120
44	5575	132
45	5594	135
46	5498	138
48	5544	144
58	5510	174
72	5615	216
76	5640	228
80	5565	240
87	5589	261
91	5517	273
93	5612	279
94	5525	282
99	5613	297
USA Frequency Hopping Trial #3		
Hop #	Freq (MHz)	Pulse Start (mS)
2	5555	6
4	5589	12
7	5645	21
8	5619	24
9	5506	27
10	5624	30
13	5532	39
15	5611	45
17	5590	51

20	5570	60
22	5592	66
28	5493	84
36	5538	108
40	5575	120
49	5595	147
52	5577	156
53	5500	159
57	5554	171
59	5634	177
60	5549	180
62	5520	186
64	5581	192
66	5512	198
68	5550	204
70	5630	210
72	5588	216
74	5528	222
76	5626	228
77	5502	231
79	5593	237
80	5503	240
82	5505	246
85	5576	255
88	5499	264
94	5526	282
USA Frequency Hopping Trial #4		
Hop #	Freq (MHz)	Pulse Start (mS)
4	5505	12
5	5527	15
7	5566	21
11	5621	33
16	5620	48
20	5520	60
21	5588	63
24	5551	72
25	5628	75
26	5559	78
28	5617	84
33	5553	99

39	5538	117
41	5507	123
50	5648	150
54	5528	162
60	5506	180
61	5536	183
66	5578	198
68	5598	204
76	5597	228
77	5493	231
79	5574	237
82	5637	246
85	5565	255
86	5587	258
88	5541	264
92	5494	276
93	5497	279
97	5606	291
USA Frequency Hopping Trial #5		
Hop #	Freq (MHz)	Pulse Start (mS)
1	5536	3
2	5644	6
10	5588	30
13	5492	39
14	5523	42
15	5501	45
17	5634	51
18	5576	54
21	5543	63
22	5629	66
23	5639	69
24	5577	72
25	5518	75
28	5572	84
33	5600	99
35	5606	105
39	5558	117
43	5522	129
50	5573	150
54	5643	162

67	5533	201
70	5539	210
71	5596	213
72	5549	216
73	5499	219
80	5633	240
84	5604	252
88	5525	264
89	5531	267
91	5503	273
USA Frequency Hopping Trial #6		
Hop #	Freq (MHz)	Pulse Start (mS)
1	5525	3
2	5530	6
3	5500	9
4	5527	12
6	5622	18
10	5597	30
12	5557	36
16	5639	48
19	5515	57
20	5610	60
25	5551	75
28	5647	84
32	5498	96
34	5547	102
37	5612	111
39	5524	117
41	5627	123
42	5565	126
44	5605	132
47	5509	141
48	5545	144
51	5615	153
55	5568	165
60	5623	180
67	5645	201
77	5642	231
78	5505	234
79	5606	237

80	5544	240
83	5609	249
86	5546	258
87	5566	261
88	5582	264
90	5620	270
92	5573	276
USA Frequency Hopping Trial #7		
Hop #	Freq (MHz)	Pulse Start (mS)
2	5512	6
3	5603	9
6	5506	18
7	5561	21
10	5626	30
11	5529	33
12	5532	36
16	5611	48
21	5498	63
27	5631	81
35	5587	105
36	5511	108
37	5513	111
40	5615	120
44	5557	132
45	5612	135
56	5610	168
57	5633	171
58	5516	174
65	5624	195
66	5609	198
74	5547	222
76	5552	228
78	5568	234
82	5597	246
85	5531	255
87	5548	261
93	5640	279
95	5629	285
99	5500	297
USA Frequency Hopping Trial #8		

Hop #	Freq (MHz)	Pulse Start (mS)
2	5501	6
5	5599	15
14	5530	42
15	5563	45
16	5589	48
26	5558	78
30	5508	90
34	5543	102
38	5542	114
47	5500	141
48	5642	144
49	5538	147
54	5610	162
58	5617	174
59	5505	177
63	5597	189
64	5572	192
67	5636	201
71	5608	213
73	5639	219
76	5622	228
77	5541	231
83	5590	249
85	5569	255
86	5510	258
88	5643	264
90	5527	270
92	5582	276
98	5594	294
USA Frequency Hopping Trial #9		
Hop #	Freq (MHz)	Pulse Start (mS)
0	5623	0
4	5548	12
6	5605	18
9	5565	27
10	5637	30
15	5518	45
17	5604	51

23	5583	69
28	5524	84
30	5595	90
32	5493	96
36	5567	108
39	5566	117
41	5572	123
43	5494	129
46	5613	138
53	5593	159
56	5579	168
58	5624	174
62	5514	186
64	5570	192
69	5535	207
70	5555	210
71	5574	213
73	5586	219
78	5495	234
79	5497	237
83	5599	249
93	5602	279
96	5569	288
97	5568	291
98	5525	294
99	5571	297
USA Frequency Hopping Trial #10		
Hop #	Freq (MHz)	Pulse Start (mS)
0	5626	0
1	5535	3
8	5622	24
13	5580	39
14	5514	42
16	5627	48
18	5540	54
21	5574	63
22	5641	66
24	5501	72
26	5578	78
31	5562	93

47	5595	141
48	5548	144
49	5612	147
50	5505	150
52	5585	156
57	5584	171
58	5582	174
61	5567	183
64	5541	192
65	5534	195
72	5592	216
77	5504	231
80	5527	240
81	5557	243
82	5610	246
83	5608	249
86	5581	258
87	5559	261
88	5597	264
92	5637	276
94	5620	282
USA Frequency Hopping Trial #11		
Hop #	Freq (MHz)	Pulse Start (mS)
0	5572	0
2	5507	6
3	5512	9
4	5613	12
12	5530	36
13	5624	39
17	5532	51
18	5582	54
20	5558	60
29	5576	87
30	5605	90
39	5580	117
41	5502	123
43	5642	129
48	5589	144
55	5583	165
56	5614	168

57	5537	171
58	5603	174
62	5548	186
67	5586	201
78	5541	234
79	5557	237
81	5516	243
84	5550	252
86	5604	258
87	5645	261
88	5554	264
90	5578	270
92	5577	276
97	5506	291
98	5573	294
USA Frequency Hopping Trial #12		
Hop #	Freq (MHz)	Pulse Start (mS)
3	5532	9
8	5507	24
10	5627	30
14	5502	42
16	5505	48
20	5545	60
21	5586	63
23	5551	69
27	5639	81
29	5565	87
30	5648	90
31	5632	93
32	5612	96
36	5599	108
40	5619	120
41	5603	123
43	5602	129
44	5597	132
49	5571	147
50	5592	150
55	5588	165
56	5642	168
57	5606	171

58	5610	174
60	5516	180
64	5557	192
68	5634	204
72	5640	216
76	5522	228
77	5645	231
80	5638	240
81	5517	243
82	5499	246
88	5584	264
89	5536	267
91	5611	273
95	5569	285
97	5492	291
99	5561	297
USA Frequency Hopping Trial #13		
Hop #	Freq (MHz)	Pulse Start (mS)
5	5644	15
6	5610	18
7	5551	21
9	5547	27
13	5560	39
14	5639	42
15	5590	45
19	5500	57
20	5582	60
23	5634	69
27	5535	81
30	5625	90
32	5554	96
33	5515	99
38	5521	114
40	5513	120
45	5542	135
53	5628	159
55	5572	165
58	5562	174
60	5618	180
65	5606	195

67	5518	201
68	5559	204
74	5524	222
80	5534	240
83	5614	249
85	5589	255
91	5647	273
93	5580	279
95	5585	285
96	5552	288
98	5526	294
99	5603	297
USA Frequency Hopping Trial #14		
Hop #	Freq (MHz)	Pulse Start (mS)
1	5639	3
2	5569	6
8	5547	24
13	5581	39
16	5603	48
23	5560	69
26	5542	78
28	5513	84
33	5496	99
34	5620	102
36	5629	108
37	5525	111
39	5501	117
46	5595	138
49	5597	147
51	5577	153
57	5498	171
58	5573	174
59	5590	177
65	5509	195
68	5493	204
72	5641	216
74	5564	222
91	5531	273
95	5527	285
USA Frequency Hopping Trial #15		

Hop #	Freq (MHz)	Pulse Start (mS)
6	5646	18
13	5558	39
22	5559	66
25	5553	75
26	5540	78
29	5534	87
35	5500	105
38	5585	114
43	5511	129
46	5611	138
47	5539	141
49	5597	147
51	5633	153
54	5568	162
55	5518	165
57	5547	171
62	5520	186
64	5606	192
66	5561	198
71	5529	213
77	5596	231
83	5571	249
85	5620	255
90	5542	270
92	5582	276
93	5638	279
94	5629	282
97	5504	291
99	5618	297
USA Frequency Hopping Trial #16		
Hop #	Freq (MHz)	Pulse Start (mS)
4	5583	12
5	5642	15
10	5548	30
12	5595	36
15	5587	45
17	5520	51
19	5611	57

20	5506	60
22	5522	66
23	5561	69
26	5615	78
32	5637	96
36	5603	108
37	5544	111
44	5613	132
45	5596	135
50	5648	150
59	5547	177
62	5609	186
65	5621	195
67	5632	201
70	5513	210
74	5590	222
75	5537	225
79	5553	237
81	5541	243
82	5604	246
84	5564	252
91	5598	273
94	5588	282
95	5535	285
96	5584	288
97	5495	291
USA Frequency Hopping Trial #17		
Hop #	Freq (MHz)	Pulse Start (mS)
1	5554	3
3	5594	9
5	5601	15
6	5645	18
12	5590	36
14	5588	42
16	5509	48
26	5531	78
32	5513	96
34	5546	102
35	5582	105
36	5522	108

39	5586	117
41	5613	123
43	5618	129
44	5640	132
48	5517	144
49	5541	147
50	5591	150
51	5606	153
52	5518	156
56	5585	168
62	5614	186
68	5502	204
69	5612	207
70	5549	210
71	5562	213
76	5623	228
83	5515	249
USA Frequency Hopping Trial #18		
Hop #	Freq (MHz)	Pulse Start (mS)
0	5609	0
1	5635	3
3	5548	9
5	5611	15
9	5520	27
10	5570	30
15	5521	45
18	5540	54
23	5539	69
26	5526	78
27	5560	81
31	5512	93
34	5616	102
36	5535	108
37	5498	111
40	5511	120
43	5574	129
44	5600	132
45	5586	135
47	5581	141
51	5518	153

55	5564	165
59	5594	177
60	5595	180
64	5576	192
65	5559	195
66	5514	198
72	5533	216
73	5589	219
74	5501	222
75	5565	225
77	5587	231
84	5592	252
87	5614	261
90	5645	270
91	5504	273
93	5601	279
96	5639	288
99	5542	297
USA Frequency Hopping Trial #19		
Hop #	Freq (MHz)	Pulse Start (mS)
0	5628	0
1	5561	3
10	5556	30
11	5544	33
15	5621	45
16	5527	48
17	5514	51
18	5616	54
30	5524	90
31	5635	93
37	5536	111
40	5630	120
47	5611	141
48	5530	144
53	5513	159
54	5541	162
56	5625	168
58	5565	174
62	5573	186
63	5564	189

64	5517	192
65	5576	195
66	5521	198
67	5552	201
71	5510	213
74	5624	222
80	5519	240
82	5515	246
91	5543	273
92	5617	276
93	5534	279
94	5637	282
USA Frequency Hopping Trial #20		
Hop #	Freq (MHz)	Pulse Start (mS)
5	5542	15
7	5553	21
10	5519	30
12	5521	36
15	5574	45
17	5536	51
21	5608	63
24	5613	72
26	5635	78
28	5549	84
29	5611	87
32	5627	96
34	5591	102
35	5539	105
38	5498	114
43	5590	129
48	5582	144
49	5509	147
54	5543	162
56	5619	168
62	5595	186
63	5588	189
71	5512	213
72	5503	216
74	5596	222
75	5547	225

76	5639	228
77	5576	231
83	5535	249
89	5571	267
96	5564	288
USA Frequency Hopping Trial #21		
Hop #	Freq (MHz)	Pulse Start (mS)
4	5620	12
6	5520	18
9	5641	27
10	5584	30
12	5626	36
16	5615	48
17	5647	51
19	5538	57
20	5648	60
30	5607	90
35	5635	105
41	5612	123
44	5532	132
46	5636	138
47	5504	141
48	5630	144
54	5546	162
58	5521	174
59	5543	177
64	5533	192
66	5596	198
73	5542	219
75	5624	225
77	5540	231
80	5570	240
85	5512	255
87	5633	261
91	5585	273
92	5556	276
96	5634	288
USA Frequency Hopping Trial #22		
Hop #	Freq (MHz)	Pulse Start (mS)

3	5578	9
4	5559	12
8	5606	24
13	5598	39
14	5588	42
15	5630	45
24	5602	72
27	5604	81
30	5593	90
33	5618	99
36	5610	108
37	5547	111
44	5635	132
47	5589	141
54	5614	162
55	5520	165
58	5632	174
61	5585	183
62	5613	186
63	5538	189
65	5642	195
66	5620	198
67	5570	201
70	5579	210
73	5542	219
74	5645	222
75	5525	225
77	5605	231
79	5522	237
80	5580	240
81	5533	243
82	5564	246
83	5534	249
84	5494	252
87	5619	261
93	5628	279
94	5500	282
USA Frequency Hopping Trial #23		
Hop #	Freq (MHz)	Pulse Start (mS)
0	5507	0

11	5640	33
17	5569	51
18	5576	54
23	5509	69
24	5646	72
25	5590	75
27	5605	81
34	5608	102
35	5535	105
36	5529	108
39	5615	117
40	5560	120
43	5624	129
55	5583	165
56	5494	168
58	5597	174
59	5568	177
61	5550	183
62	5497	186
64	5587	192
69	5586	207
72	5622	216
73	5493	219
79	5515	237
91	5500	273
92	5585	276
93	5620	279
USA Frequency Hopping Trial #24		
Hop #	Freq (MHz)	Pulse Start (mS)
0	5593	0
5	5605	15
6	5598	18
7	5599	21
9	5577	27
23	5592	69
27	5514	81
32	5539	96
46	5636	138
49	5517	147
50	5589	150

51	5612	153
52	5622	156
65	5625	195
69	5637	207
73	5574	219
74	5617	222
78	5645	234
84	5576	252
86	5596	258
88	5642	264
89	5628	267
93	5615	279
98	5523	294
USA Frequency Hopping Trial #25		
Hop #	Freq (MHz)	Pulse Start (mS)
3	5578	9
7	5581	21
16	5539	48
19	5601	57
25	5553	75
29	5626	87
30	5561	90
32	5500	96
34	5637	102
35	5552	105
38	5612	114
41	5589	123
44	5610	132
47	5580	141
51	5544	153
55	5632	165
62	5554	186
67	5615	201
69	5530	207
73	5522	219
79	5608	237
81	5510	243
85	5555	255
86	5604	258
91	5648	273

92	5529	276
94	5575	282
96	5590	288
USA Frequency Hopping Trial #26		
Hop #	Freq (MHz)	Pulse Start (mS)
3	5611	9
8	5538	24
9	5512	27
11	5623	33
15	5496	45
16	5569	48
19	5576	57
20	5566	60
21	5517	63
23	5531	69
24	5562	72
29	5493	87
37	5621	111
44	5578	132
45	5612	135
46	5610	138
47	5553	141
51	5524	153
53	5535	159
60	5543	180
66	5492	198
68	5549	204
71	5614	213
72	5513	216
74	5494	222
77	5632	231
81	5561	243
83	5567	249
84	5529	252
85	5523	255
88	5587	264
95	5570	285
98	5536	294
99	5520	297
USA Frequency Hopping Trial #27		

Hop #	Freq (MHz)	Pulse Start (mS)
0	5602	0
4	5544	12
8	5556	24
12	5621	36
13	5598	39
17	5532	51
23	5577	69
24	5593	72
25	5552	75
26	5496	78
27	5585	81
35	5517	105
37	5645	111
41	5636	123
42	5546	126
48	5510	144
61	5537	183
68	5606	204
75	5590	225
78	5576	234
81	5613	243
86	5519	258
87	5559	261
88	5623	264
90	5610	270
92	5618	276
93	5599	279
99	5538	297
USA Frequency Hopping Trial #28		
Hop #	Freq (MHz)	Pulse Start (mS)
3	5594	9
5	5615	15
6	5493	18
8	5537	24
11	5534	33
22	5503	66
29	5522	87
31	5498	93

35	5550	105
37	5638	111
41	5567	123
42	5500	126
43	5570	129
47	5517	141
53	5531	159
54	5545	162
55	5544	165
62	5582	186
64	5602	192
67	5646	201
69	5645	207
72	5505	216
76	5603	228
77	5588	231
82	5563	246
83	5513	249
85	5520	255
88	5512	264
89	5618	267
91	5583	273
93	5573	279
95	5547	285
96	5609	288
USA Frequency Hopping Trial #29		
Hop #	Freq (MHz)	Pulse Start (mS)
1	5584	3
3	5529	9
7	5515	21
9	5499	27
10	5517	30
14	5615	42
16	5511	48
17	5620	51
18	5506	54
20	5616	60
27	5501	81
29	5643	87
30	5546	90

32	5601	96
34	5543	102
40	5588	120
41	5535	123
42	5566	126
45	5624	135
47	5587	141
48	5532	144
55	5493	165
57	5551	171
63	5502	189
66	5608	198
67	5570	201
71	5618	213
76	5521	228
77	5520	231
79	5597	237
81	5567	243
89	5528	267
93	5576	279
95	5523	285
97	5609	291
USA Frequency Hopping Trial #30		
Hop #	Freq (MHz)	Pulse Start (mS)
2	5618	6
9	5628	27
11	5585	33
12	5555	36
15	5532	45
16	5616	48
18	5548	54
19	5566	57
25	5630	75
26	5647	78
30	5550	90
33	5525	99
37	5646	111
39	5529	117
43	5642	129
44	5591	132

46	5588	138
48	5625	144
49	5626	147
55	5604	165
57	5493	171
58	5560	174
59	5523	177
63	5530	189
64	5589	192
66	5549	198
68	5568	204
71	5504	213
76	5544	228
81	5557	243
82	5538	246
83	5621	249
90	5558	270
92	5641	276
94	5640	282
99	5498	297

Appendix C: List of Test Equipment Used to perform the test

Equip#	Manufacturer/ Model	Description	Last Cal	Next Due
45066	MINI-CIRCUITS / ZFSC-2-10G	Splitter, 2-10GHz	02 Feb, 2018	02 Feb. 2019
50721	Keysight (Agilent/HP) / N9030A-550	PXA Signal Analyzer, 3Hz to 50GHz	10 Apr. 2018	10 Apr. 2019
54346	Keysight (Agilent/HP) / N5182B	MXG X-Series RF Vector Signal Generator	5 Oct. 2018	5 Oct. 2019
54371	Aeroflex / 40AH2W-30	SMA Attenuator, 30dB 40GHz	19 Apr. 2018	19 Apr. 2019
54393	HUBER + SUHNER / Sucoflex 102	RF Cable 2.4mm – N Type 18GHz	24 Apr. 2018	24 Apr. 2019
54394	HUBER + SUHNER / Sucoflex 102	RF Cable 2.4mm – N Type 18GHz	24 Apr. 2018	24 Apr. 2019
54395	HUBER + SUHNER / Sucoflex 102	RF Cable 2.4mm – N Type 18GHz	24 Apr. 2018	24 Apr. 2019
54397	HUBER + SUHNER / Sucoflex 102	RF Cable 2.4mm – N Type 18GHz	24 Apr. 2018	24 Apr. 2019
54623	Megaphase / RA08S1S1-18	SMA Cable	31 Jul. 2018	31 Jul. 2019
54658	DITOM / D3C2060	Splitter	15 Nov. 2018	15 Nov. 2019
54686	National Instruments / PXI-2796	40GHz Dual 6x1 Multiplexer (SP6T)	Verify before use	Verify before use
55094	National Instruments / PXI-1042	Chassis PXI	Verify before use	Verify before use
55562	Megaphase / F120-S1S1-48	SMA Cable	31 Jul. 2018	31 Jul. 2019
56062	Pulsar / PS4-09-452/4S	Splitter	11 Apr. 2019	11 Apr. 2019
56091	National Instruments / PXI-2796	40GHz Dual 6x1 Multiplexer (SP6T)	Verify before use	Verify before use
57224	National Instruments / PXI-5422	200ms/S, 16BIT Arbitrary Waveform Generator	18 Sep. 2018	18 Sep. 2019
57230	National Instruments / PXI-5422	200ms/S, 16BIT Arbitrary Waveform Generator	15 Nov. 2018	15 Nov. 2019
57245	National Instruments / PXI-2799	Switch 1x1	Verify before use	Verify before use
57476	Cisco	Radio Test Rack System	Verify before use	Verify before use

Note: Test Date December 17, 2018 – February 1, 2019

Appendix C: Abbreviation Key and Definitions

The following table defines abbreviations used within this test report.

Abbreviation	Description
DFS	Dynamic Frequency Selection
EIRP	Equivalent Isotropic Radiated Power
CAC	Channel Availability Check
TPC	Transmit Power Control
PRI	Pulse Repetition Interval
U-NII	Unlicensed National Information Infrastructure
RSS	Received Signal Strength
UUT	Unit Under Test
RDD	Radar Detection Device
RBW	Resolution Bandwidth
VBW	Video Bandwidth

Appendix D: Software Used to Perform Testing

DFS_Automation_Main.vi: Version 14

Appendix E: Test Procedures

Measurements were made in accordance with

- KDB Publication 905462 D02 UNII DFS Compliance Procedures New Rules v02

Test procedures are summarized below:

FCC 5GHz DFS Test Procedures	EDCS # - 1445052

Appendix F: Scope of Accreditation (A2LA certificate number 1178-01)

The scope of accreditation of Cisco Systems, Inc. can be found on the A2LA web page at:

http://www.a2la.org/scopepdf/1178-01.pdf

Appendix G: Test Assessment Plan

Test Plan EDCS# 15438021
Power Tables EDCS# 11793772