Dynamic Frequency Selection (DFS) Test Report

AIR-CAP702W-A-K9

Cisco Aironet 802.11n

FCC ID: LDK102092
IC:2461B-102092

Also covers:

AIR-CAP702W-D-K9

AIR-CAP702W-N-K9

AIR-CAP702W-T-K9

AIR-CAP702W-Z-K9

5250-5350, 5470-5725 MHz

Against the following Specifications:

CFR47 Part 15.407

RSS210

Cisco Systems

170 West Tasman Drive

San Jose, CA 95134

Test Engineer: _____

Date: 11/27/2013

This test report has been electronically authorized and archived using the CISCO Engineering Document Control system.

Dynamic Frequency Selection (DFS) Test Results

15.407: 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.

U-NII devices operating 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.

1.0 UNII Device Description

1. The RM3000 Series Cisco Aironet 802.11ac Module operates in the following bands:
    a. 5150-5250 MHz
    b. 5250-5350 MHz
    c. 5470-5725 MHz (excluding 5600-5650 MHz)
    d. 5725-5850 MHz

2. The maximum EIRP of the 5GHz equipment is 29 dBm, and the minimum possible EIRP is 10 dBm.

   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	Part Number	Antenna Type	Antenna Gain (dBi)
5GHz	Internal	omnidirectional	4

3. System testing was performed with the designated MPEG test file that streams full motion video at 30 frames per second from the Master to the Client IP based system.

4. The Master requires 106.5 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.

2.0 DFS Detection Thresholds

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

Maximum Transmit Power	**Value (see note)**
≥ 200 milliwatt	-64 dBm
< 200 milliwatt	-62 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.	

2. **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 80% of the 99% power bandwidth See Note 3.

Note 1: The instant that the *Channel Move Time* and the *Channel Closing Transmission Time* begins is as follows:

- For the Short pulse radar Test Signals this instant is the end of the *Burst*.
- For the Frequency Hopping radar Test Signal, this instant is the end of the last radar *Burst* generated.
- For the Long Pulse radar Test Signal this instant is the end of the 12 second period defining the radar transmission.

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 *Channel* changes (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 1 is used and for each frequency step the minimum percentage of detection is 90%. Measurements are performed with no data traffic.

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**

Radar Type	Pulse Width (µsec)	PRI (µsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Trials
1	1	1428	18	60%	30
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

A minimum of 30 unique waveforms are required for each of the short pulse radar types 2 through 4. For short pulse radar type 1, the same waveform is used a minimum of 30 times. 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. The aggregate is the average of the percentage of successful detections of short pulse radar types 1-4.

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:

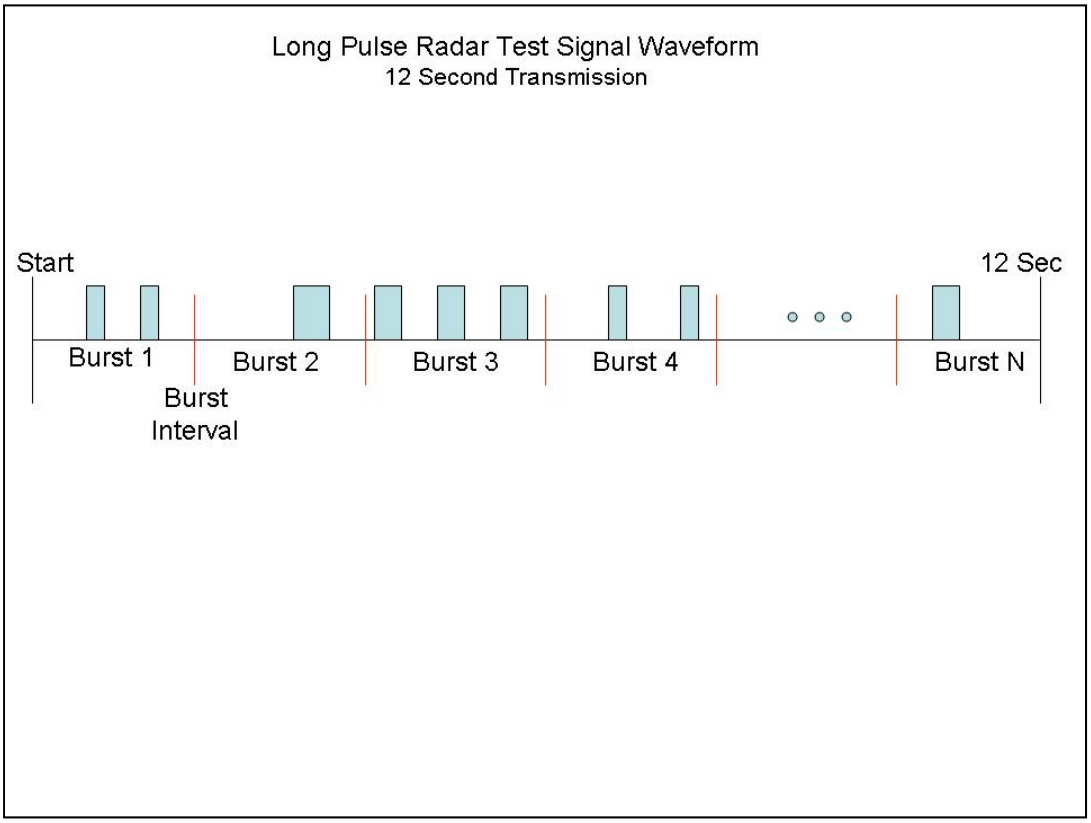
1) The transmission period for the Long Pulse Radar test signal is 12 seconds.
2) There are a total of 8 to 20 Bursts in the 12 second period, with the number of Bursts being randomly chosen. This number is Burst_Count.
3) Each Burst consists of 1 to 3 pulses, with the number of pulses being randomly 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 test waveform:

1) The total test signal length is 12 seconds.
2) 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).

Graphical Representation of a Long Pulse radar Test Waveform



3.

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

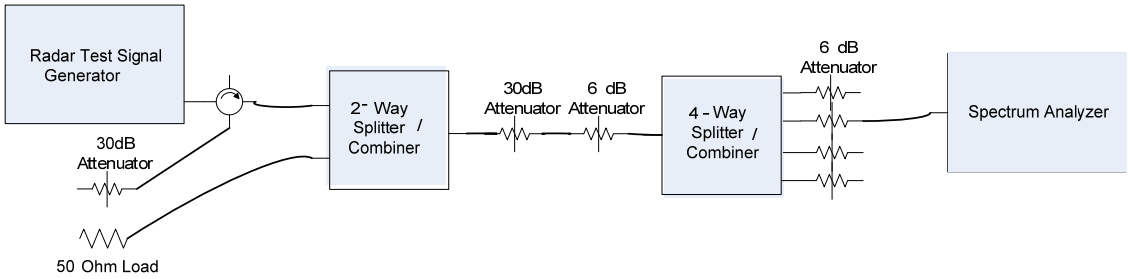
For the Frequency Hopping Radar Type, the same *Burst* parameters are used for each waveform. The hopping sequence is different for each waveform and a 100-length segment is selected[1] from the hopping sequence defined by the following algorithm:

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.

4.0 Radar Waveform Calibration

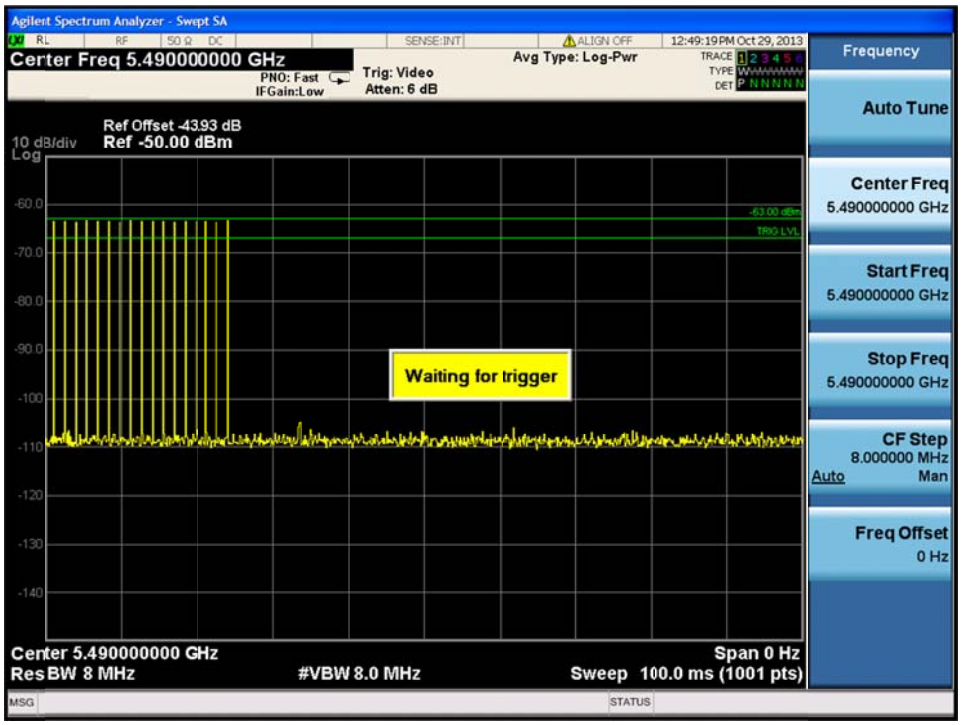
1. The following equipment setup was used to calibrate the conducted Radar Waveform. A spectrum analyzer was used to establish the test signal level for each radar type. During this process there were no transmissions by either the Master or Client Device. The spectrum analyzer was switched to the zero 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.

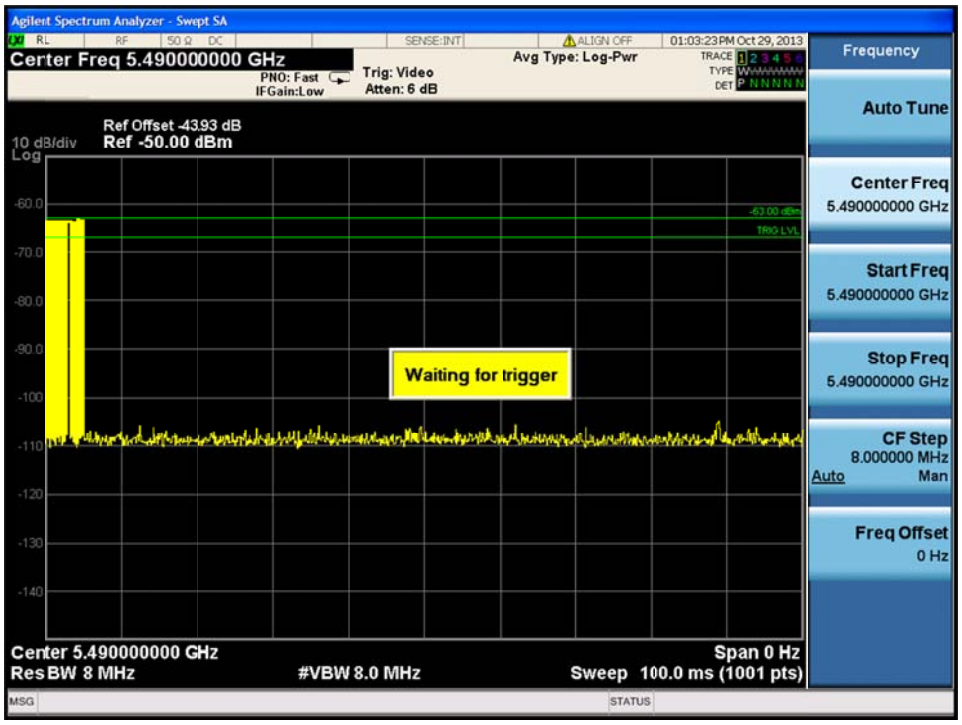


Conducted Calibration Setup

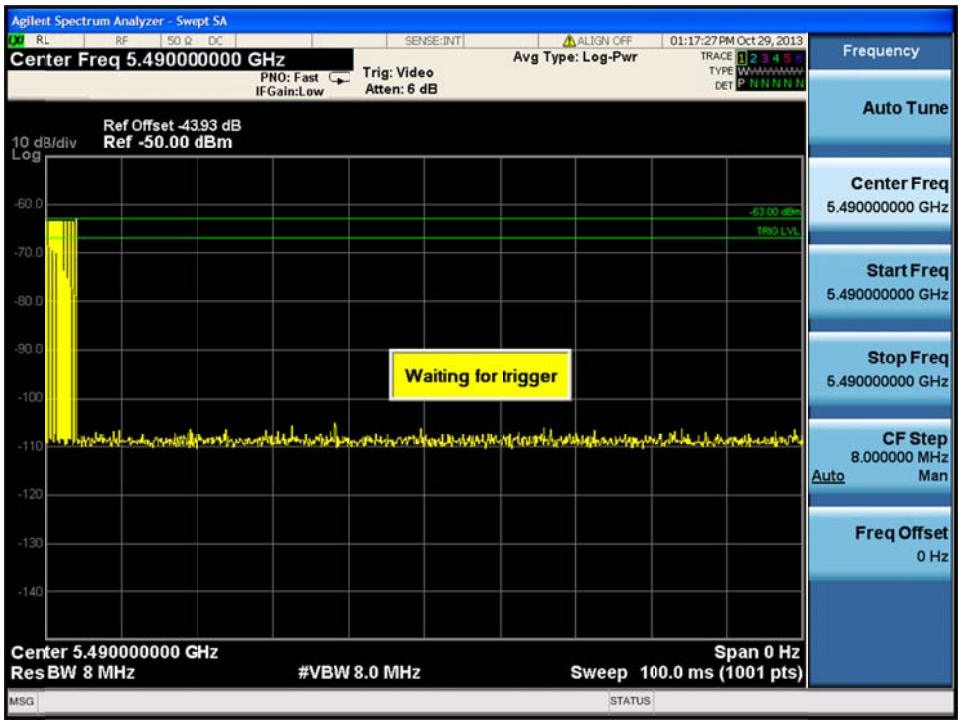
2. Following are the calibration plots for each of the required radar waveforms.



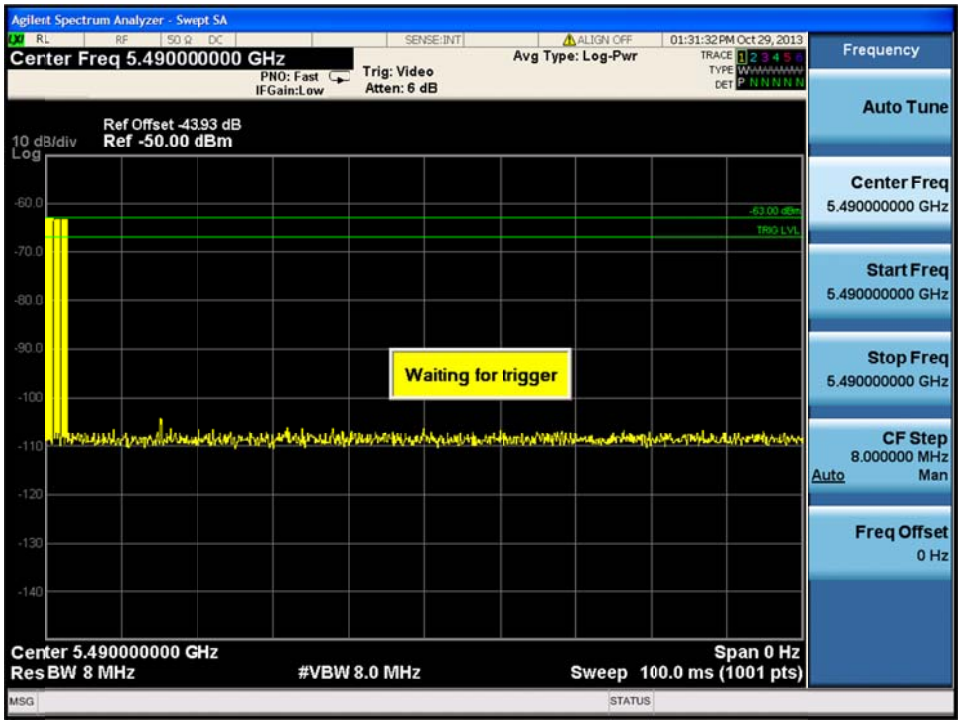
USA Bin 1 Radar Calibration



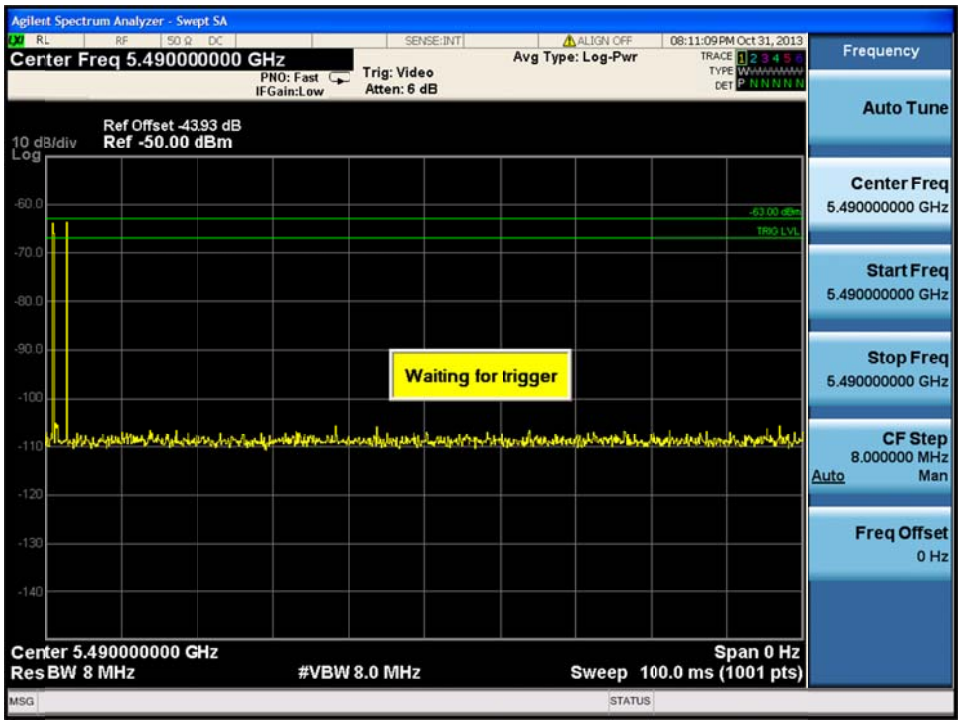
USA Bin 2 Radar Calibration



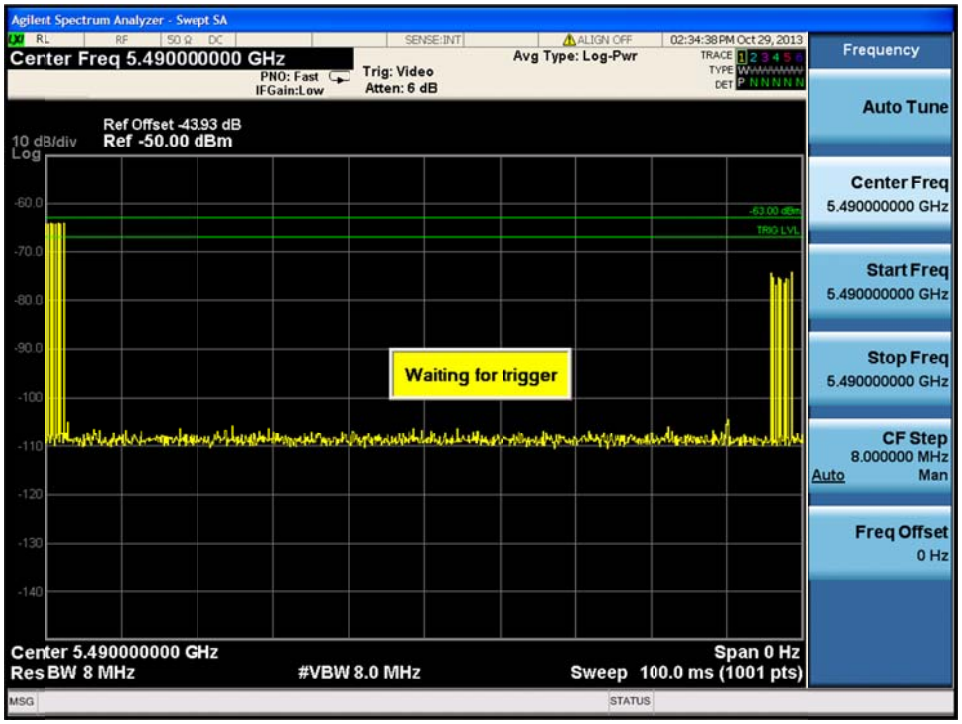
USA Bin 3 Radar Calibration



USA Bin 4 Radar Calibration



USA Bin 5 Radar Calibration



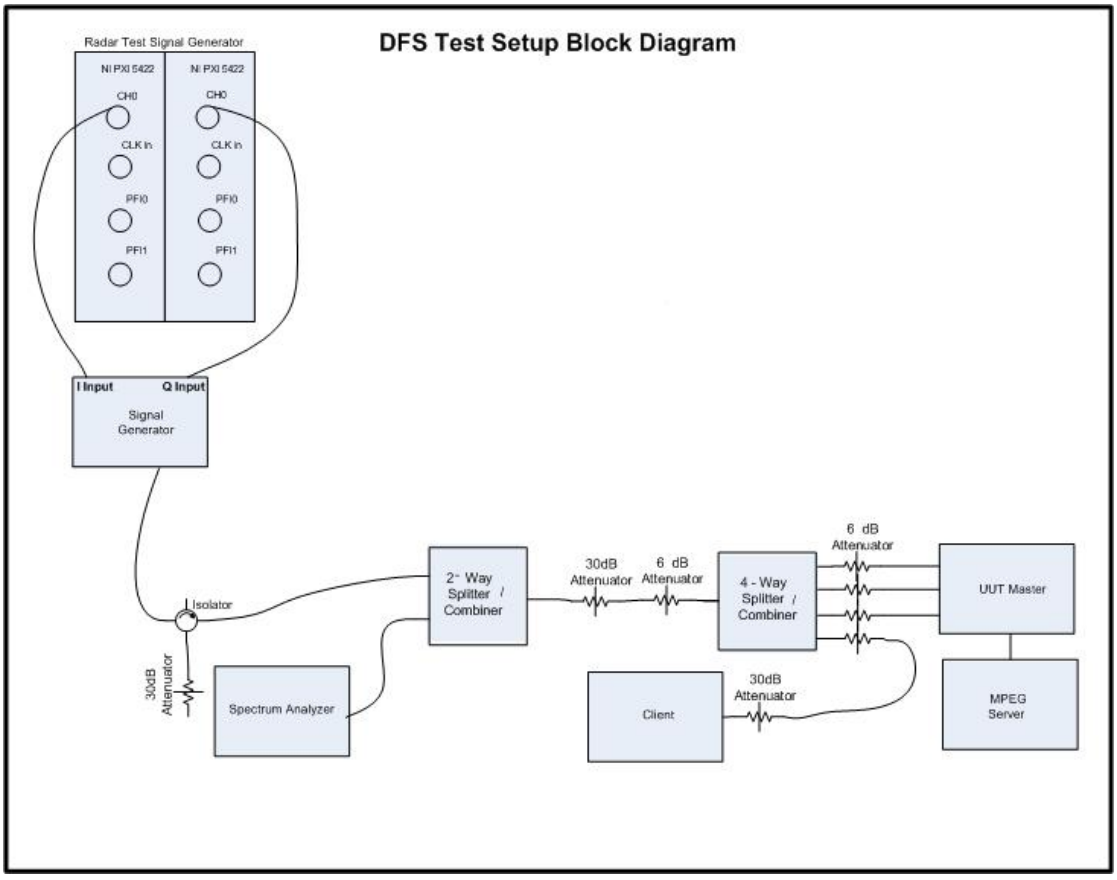
USA Frequency Hopping Radar Calibration

5.0 Test Procedure/Results

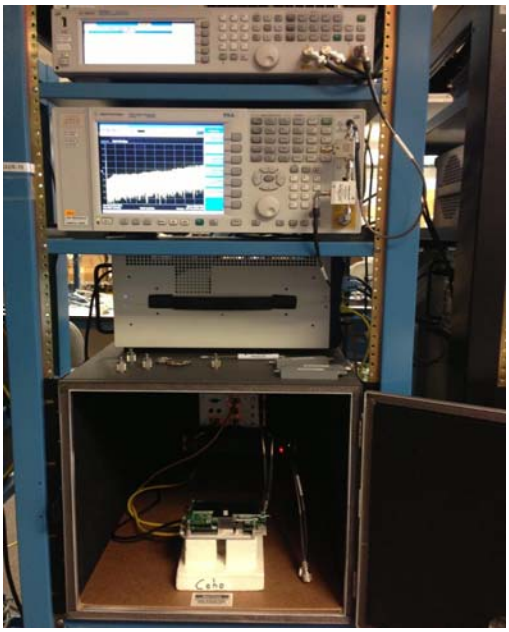
1. A spectrum analyzer is used as a monitor to verify that the UUT has vacated the Channel within the (Channel Closing Transmission Time and Channel Move Time, and does not transmit on a Channel

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



DFS Setup

The test setup is constructed of the following equipment:

Radar Test Signal Generator
  National Instruments NI PXI-1042 8-Slot 3U Chassis
  National Instruments NI PXI-5422 16-Bit 200MS/s Arbitrary Waveform Generator (Qty. 2)
  Agilent N5182A MXG Signal Generator
Agilent E4448A Spectrum Analyzer
Mini-Circuits ZFSC-2-9G Splitter/Combiner (Qty. 1)
Weinschel 1594 4 to 1 power Splitter/Combiner (Qty. 1)
Ditom Microwave D3C-4080-11 Circulator/Isolator (Qty. 1)
Mini-Circuits BW-S30W2 30dB Attenuator (Qty. 4)
Mini-Circuits BW-S6W2 30dB Attenuator (Qty. 5)
Megaphase SF26 S1S1 36” Coaxial Cable (Qty. 2)
MicroCoax 18” Coaxial Cable (Qty. 3)
Dell 600M Laptop (Qty. 2: 1 for wireless client, 1 for MPEG server)
Cisco-Linksys WPC600N 802.11n NIC card (wireless client)

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

3. **UNII Detection Bandwidth**
   All UNII 20 MHz channels for this device have identical Channel bandwidths, all 40 MHz channels have identical Channel bandwidths, and all 40 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 generating equipment is configured as shown in the Conducted Test Setup above. A single *Burst* of the desired radar profile is produced at 5500MHz at a -63dBm level. The UUT is set up as a standalone device (no associated Client and no traffic).

   A single radar Burst is generated for a minimum of 10 trials, and the response of the UUT is noted. The UUT must detect the Radar Waveform 90% or more of the time.

   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 is calculated as follows:

   U-NII Detection Bandwidth = $F_H - F_L$

   The U-NII Detection Bandwidth must be at least 80% of the UUT transmitter 99% power bandwidth (14.4 MHz for 20MHz signals, 28.8 MHz for 40 MHz signals, and 57.6 MHz for 80 MHz signlas), otherwise, the UUT does not comply with DFS requirements.

UNII Detection Bandwidth Results, 20MHz Signal Bandwidth

	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)**
5490	1	1	1	1	1	1	1	1	1	1	100	
5491	1	1	1	1	1	1	1	1	1	1	100	
5492	1	1	1	1	1	1	1	1	1	1	100	
5493	1	1	1	1	1	1	1	1	1	1	100	
5494	1	1	1	1	1	1	1	1	1	1	100	
5495	1	1	1	1	1	1	1	1	1	1	100	
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	20
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	

USA Bin 1 Radar

	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)**
5490	1	1	1	1	1	1	1	1	1	1	100	
5491	1	1	1	1	1	1	1	1	1	1	100	
5492	1	1	1	1	1	1	1	1	1	1	100	
5493	1	1	1	1	1	1	1	1	1	1	100	
5494	1	1	1	1	1	1	1	1	1	1	100	
5495	1	1	1	1	1	1	1	1	1	1	100	
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	20
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	

USA Bin 2 Radar

	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)**
5490	1	1	1	1	1	1	1	1	1	1	100	
5491	1	1	1	1	1	1	1	1	1	1	100	
5492	1	1	1	1	1	1	1	1	1	1	100	
5493	1	1	1	1	1	1	1	1	1	1	100	
5494	1	1	1	1	1	1	1	1	1	1	100	
5495	1	1	1	1	1	1	1	1	1	1	100	
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	20
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	

USA Bin 3 Radar

	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)**
5490	1	1	1	1	1	1	1	1	1	1	100	
5491	1	1	1	1	1	1	1	1	1	1	100	
5492	1	1	1	1	1	1	1	1	1	1	100	
5493	1	1	1	1	1	1	1	1	1	1	100	
5494	1	1	1	1	1	1	1	1	1	1	100	
5495	1	1	1	1	1	1	1	1	1	1	100	
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	20
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	

USA Bin 4 Radar

	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)**
5490	0	0	1	1	0	1	1	1	0	0	50	
5491	1	1	0	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	0	90	
5494	1	1	1	1	1	1	1	0	1	1	90	
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	18
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	

USA Bin 5 Radar

	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)**
5490	1	1	1	1	0	0	1	1	1	1	80	
5491	1	1	1	1	1	1	1	1	1	1	100	
5492	0	1	1	1	1	1	1	1	1	1	90	
5493	1	1	1	1	1	1	1	1	1	1	100	
5494	1	1	1	1	1	1	1	1	1	0	90	
5495	1	1	1	1	1	1	1	1	1	1	100	
5496	1	1	1	1	1	1	1	0	1	1	90	
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	16
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	0	1	1	1	1	90	
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	0	1	1	1	1	1	1	1	1	1	90	
5508	1	1	1	1	1	1	1	1	1	1	100	
5509	0	1	1	1	0	1	1	1	1	1	80	
5510	1	1	1	1	1	1	1	1	1	1	100	

USA Frequency Hopping Radar

	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)**
5490	1	1	1	1	1	1	1	1	1	1	100	
5491	1	1	1	1	1	1	1	1	1	1	100	
5492	1	1	1	1	1	1	1	1	1	1	100	
5493	1	1	1	1	1	1	1	1	1	1	100	
5494	1	1	1	1	1	1	1	1	1	1	100	
5495	1	1	1	1	1	1	1	1	1	1	100	
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	40
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	

USA Bin 1 Radar

	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)**
5490	1	0	1	1	1	1	1	1	1	1	90	
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	40
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	

USA Bin 2 Radar

	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)**
5490	1	1	1	1	1	1	1	1	1	1	100	
5491	1	1	1	1	1	1	1	1	1	1	100	
5492	1	1	1	1	1	1	1	1	1	1	100	
5493	1	1	1	1	1	1	1	1	1	1	100	
5494	1	1	1	1	1	1	1	1	1	1	100	
5495	1	1	1	1	1	1	1	1	1	1	100	
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	38
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	0	0	1	0	0	1	1	1	1	1	60	

USA Bin 3 Radar

	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)**
5490	1	1	1	1	1	1	1	1	1	1	100	
5491	1	1	1	1	1	1	1	1	1	1	100	
5492	1	1	1	1	1	1	1	1	1	1	100	
5493	1	1	1	1	1	1	1	1	1	1	100	
5494	1	1	1	1	1	1	1	1	1	1	100	
5495	1	1	1	1	1	1	1	1	1	1	100	
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	40
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	

USA Bin 4 Radar

	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)**
5490	1	0	1	1	0	1	1	1	1	1	80	
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	38
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	

USA Bin 5 Radar

	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)**
5490	1	1	1	1	0	1	0	1	1	0	70	
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	0	1	1	1	90	
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	0	1	1	1	1	1	1	1	1	90	
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	0	1	1	1	1	1	1	1	90	
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	38
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	0	1	1	1	1	1	1	90	
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	0	1	1	1	1	1	90	
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	0	1	1	1	1	1	1	1	1	1	90	
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	0	1	1	1	1	1	1	1	90	
5527	1	1	1	1	1	1	1	1	1	1	100	
5528	1	1	1	0	1	1	1	1	1	1	90	
5529	1	1	1	1	1	1	1	0	1	1	90	
5530	1	1	1	1	1	1	0	1	1	1	90	

USA Frequency Hopping Radar

4. **Initial Channel Availability Check Time**

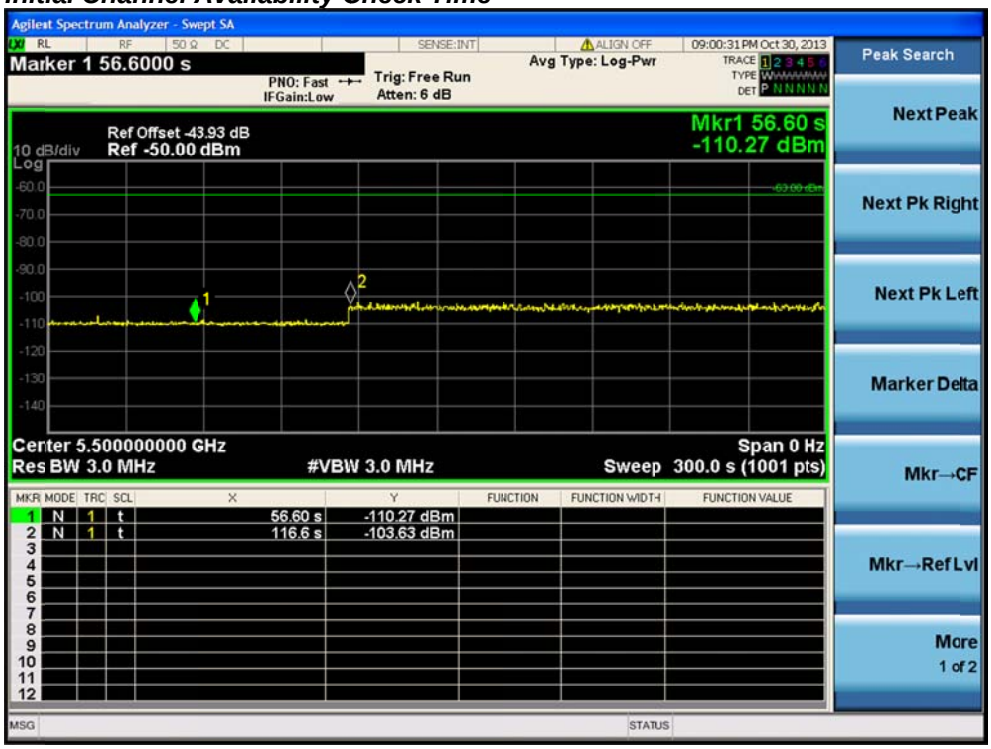
The tests that the UUT does not emit beacon, control, or data signals on the test Channel until the power-up sequence has been completed and the U-NII device checks for Radar Waveforms for one minute on the test Channel. This test does not use any Radar Waveforms.

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



5. **Radar Burst at the Beginning of the Channel Availability Check Time**

   The steps below define the procedure to verify successful radar detection on the selected Channel during a period equal to the Channel Availability Check Time and avoidance of operation on that Channel when a radar Burst with a level equal to the DFS Detection Threshold + 1 dB (-63dBm) occurs at the beginning of the Channel Availability Check Time.

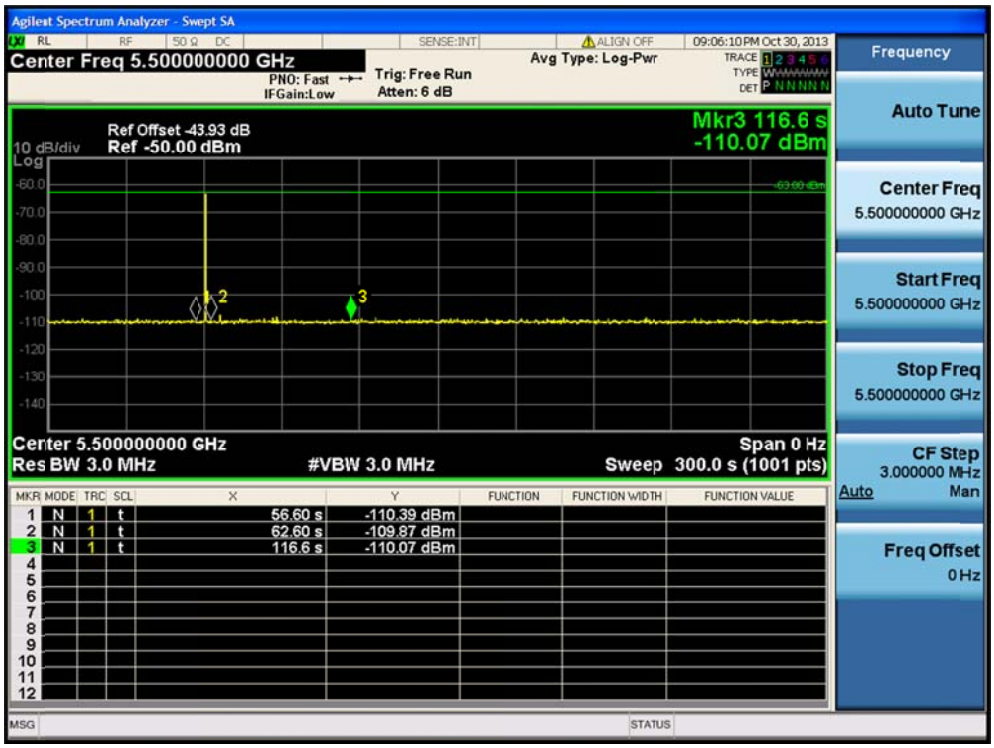
   The UUT is powered on at T_0. T_1 denotes the instant when the UUT has completed its power-up sequence. The Channel Availability Check Time commences at instant T_1 and will end no sooner than T_1 + 60 seconds.

   A single Burst of short pulse of radar type 1 at -63 dBm will commence within a 6 second window starting at T_1.

   Visual indication on the UUT of successful detection of the radar Burst will be recorded and reported. Observation of emissions at 5500MHz will continue for 2.5 minutes after the radar Burst has been generated.

   Verify that during the 2.5 minute measurement window no UUT transmissions occurred at 5500MHz.

Radar Burst at the Beginning of the Channel Availability Check Time



6. **Radar Burst at the End of the Channel Availability Check Time**

   The steps below define the procedure to verify successful radar detection on the selected Channel during a period equal to the Channel Availability Check Time and avoidance of operation on that Channel when a radar Burst with a level equal to the DFS Detection Threshold + 1 dB (-63dBm) occurs at the end of the Channel Availability Check Time.

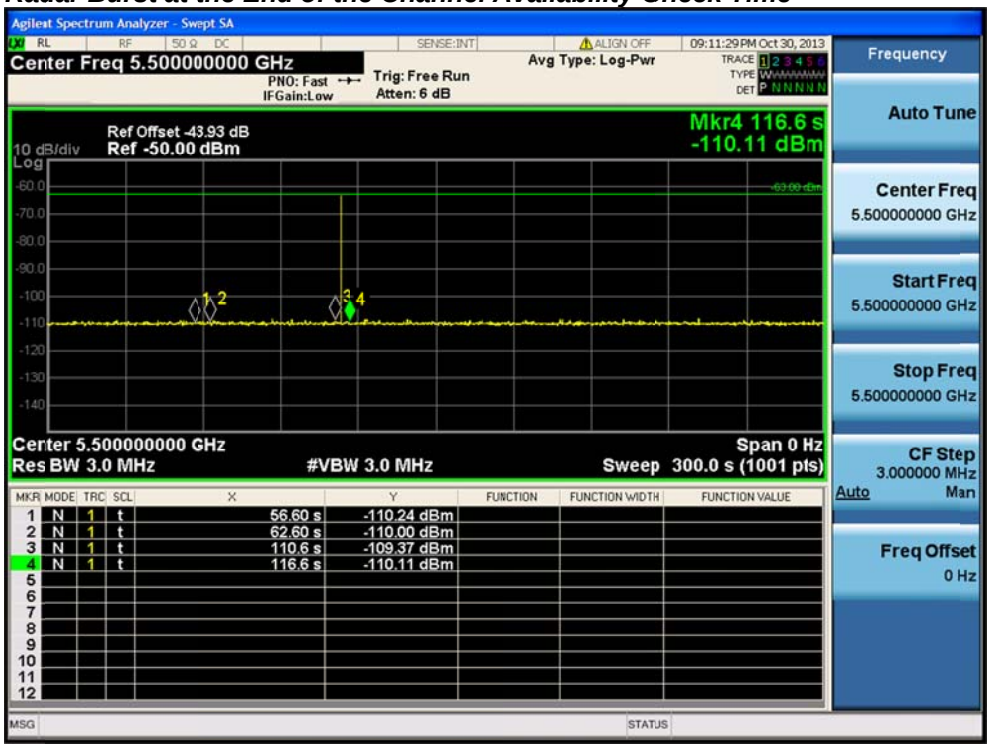
   The UUT is powered on at T_0. T_1 denotes the instant when the UUT has completed its power-up sequence. The Channel Availability Check Time commences at instant T_1 and will end no sooner than T_1 + 60 seconds.

   A single Burst of short pulse of radar type 1 at -63 dBm will commence within a 6 second window starting at T_1+ 54 seconds.

   Visual indication on the UUT of successful detection of the radar Burst will be recorded and reported. Observation of emissions at 5500MHz will continue for 2.5 minutes after the radar Burst has been generated.

   Verify that during the 2.5 minute measurement window no UUT transmissions occurred at 5500MHz.

Radar Burst at the End of the Channel Availability Check Time



7. **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, and Non-Occupancy Period.

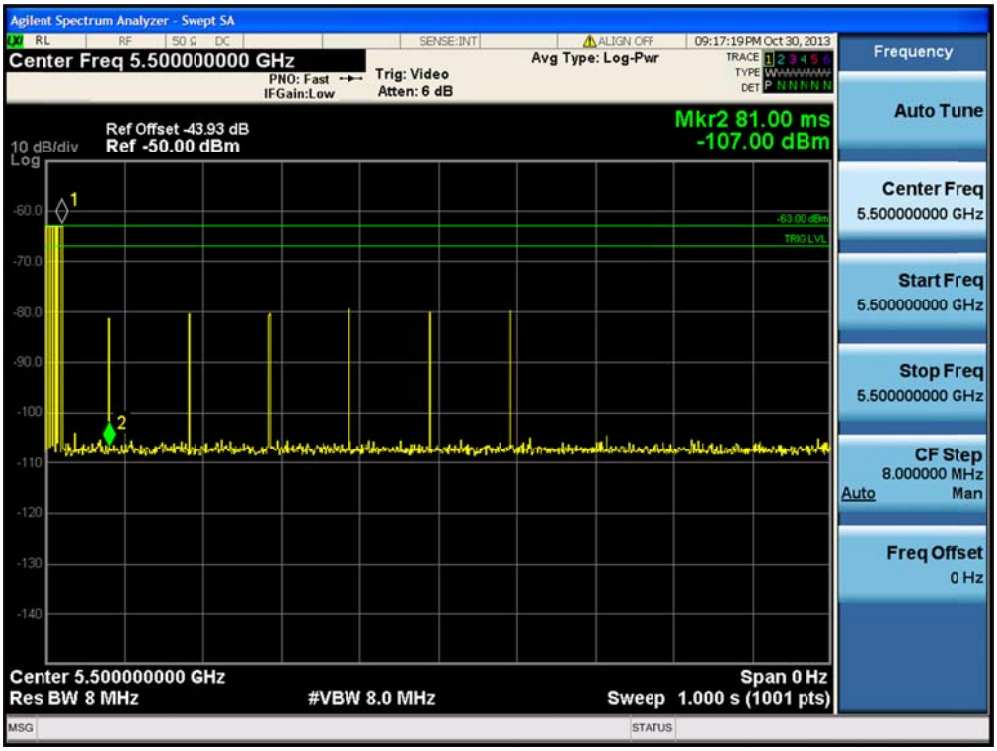
The steps below define the procedure to determine the above mentioned parameters when a radar Burst with a level equal to the DFS Detection Threshold + 1dB (-63dBm) is generated on the Operating Channel of the U-NII device.

A U-NII device operating as a Client Device will associate with the UUT (Master) at 5500 MHz. Stream the MPEG test file from the Master Device to the Client Device on the selected Channel for the entire period of the test.

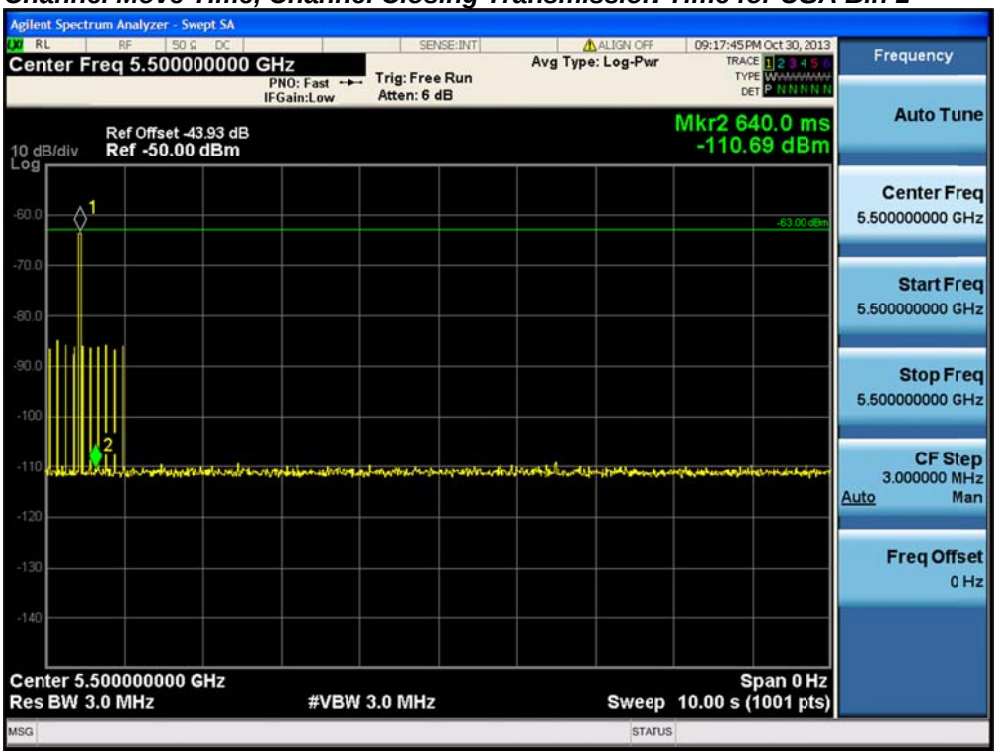
At time T_0 the Radar Waveform generator sends a Burst of pulses for each of the radar types at -63dBm.

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). Compare the Channel Move Time and Channel Closing Transmission Time results to the limits defined in the *DFS Response requirement values table*.

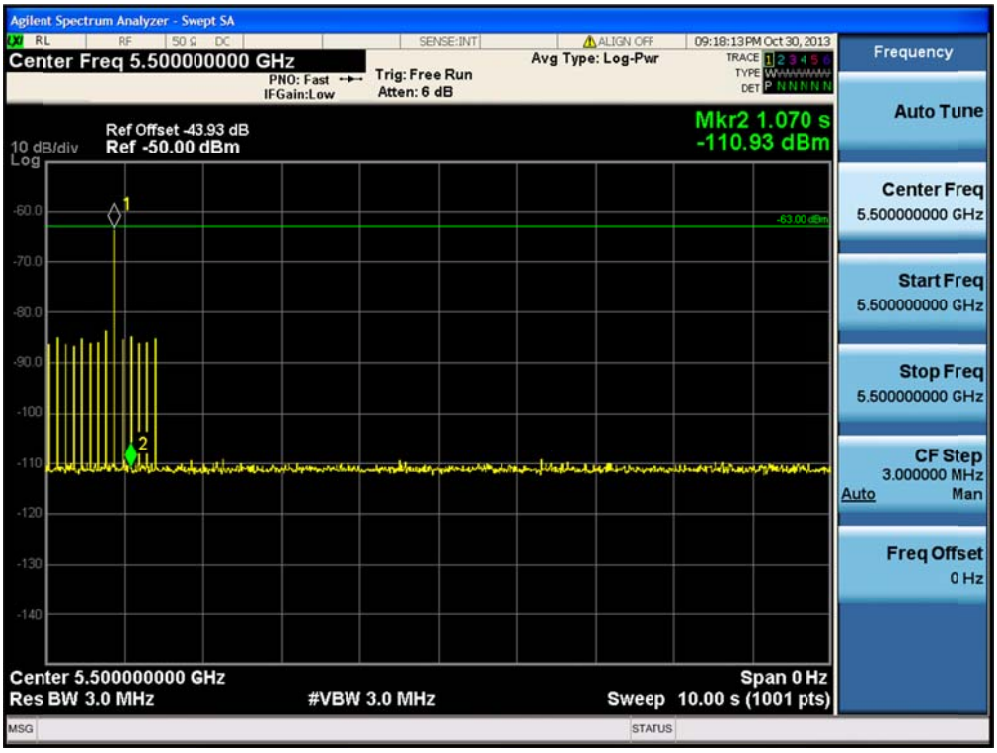
The following plot demonstrates a channel close time of 50ms, with an aggregate of no more than 60 ms. Type 1 radar was used for this data.



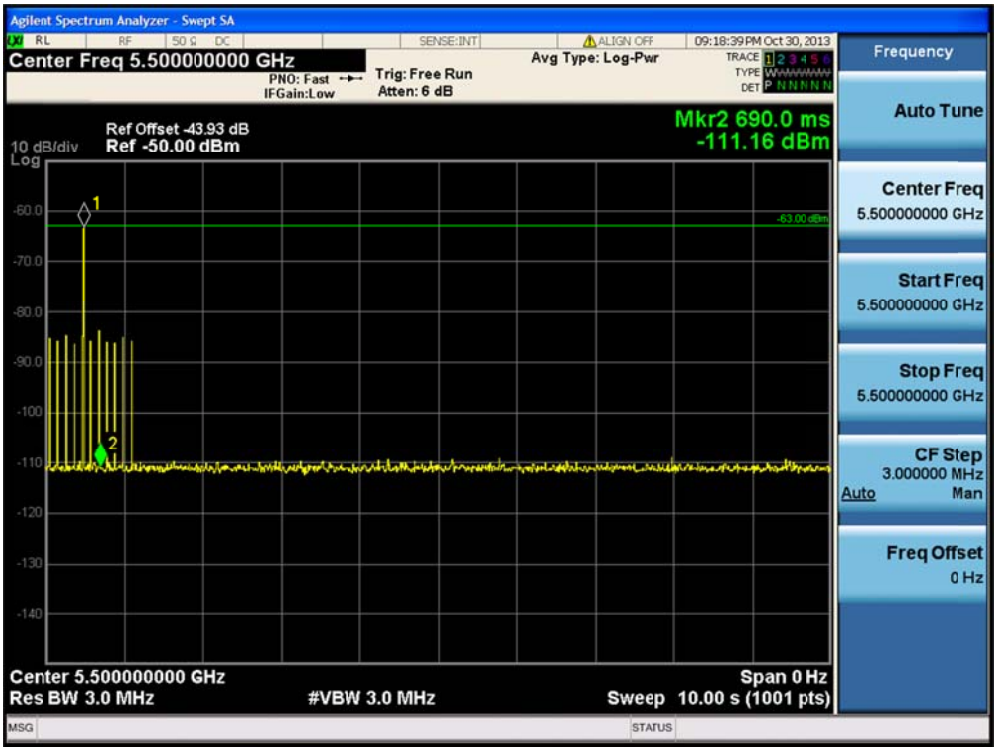
Channel Move Time, Channel Closing Transmission Time for USA Bin 1



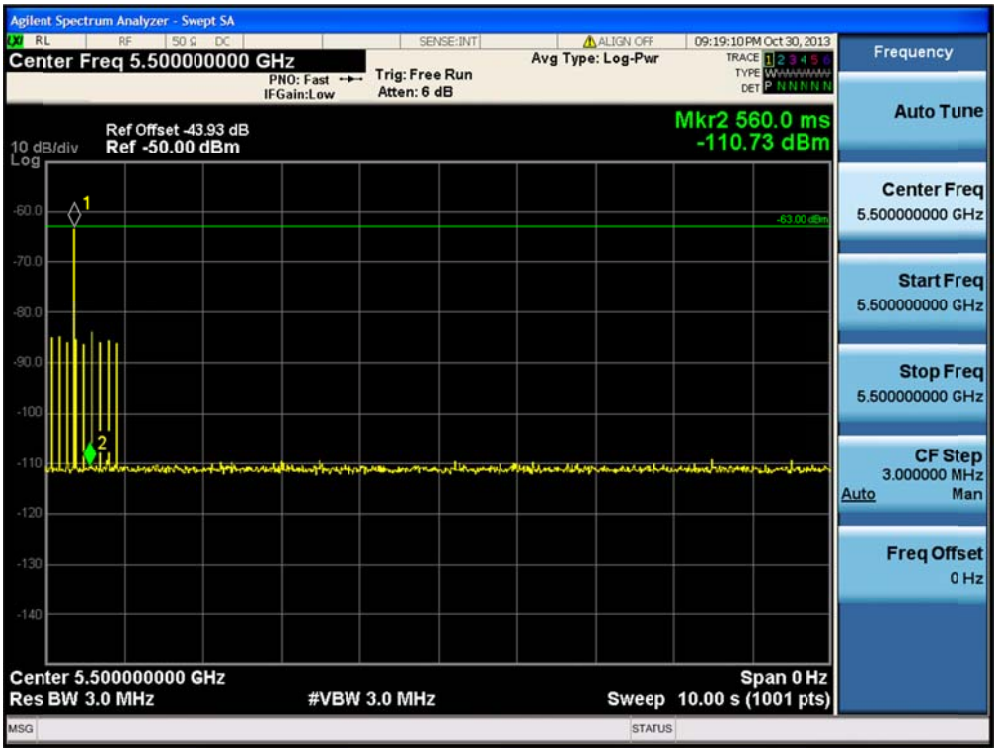
Channel Move Time, Channel Closing Transmission Time for USA Bin 2



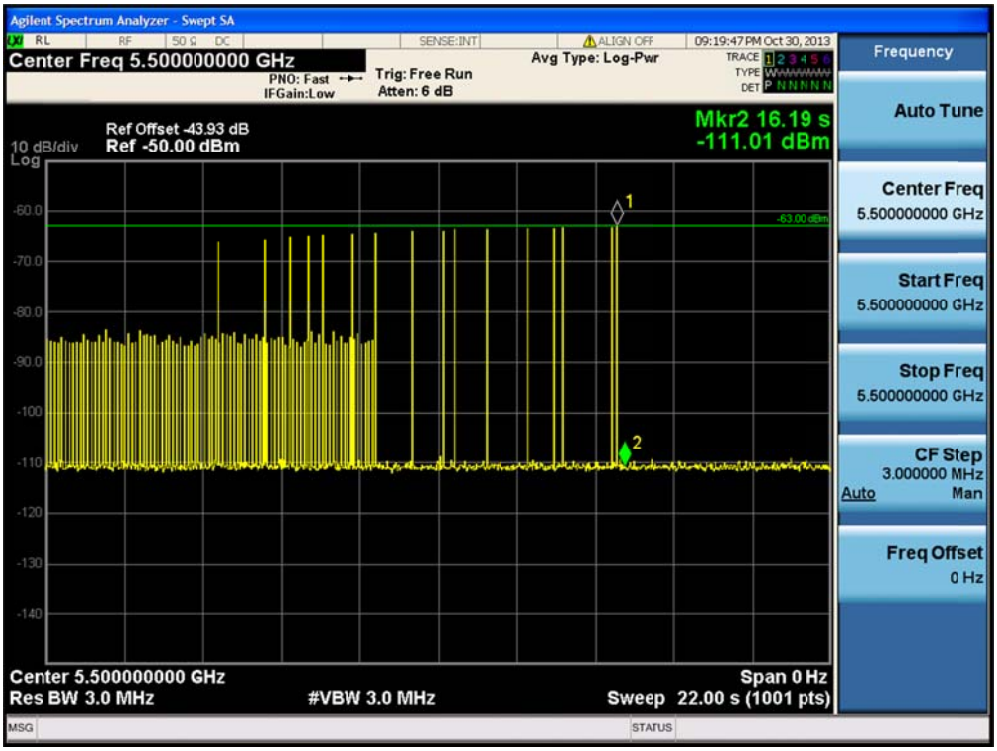
Channel Move Time, Channel Closing Transmission Time for USA Bin 3



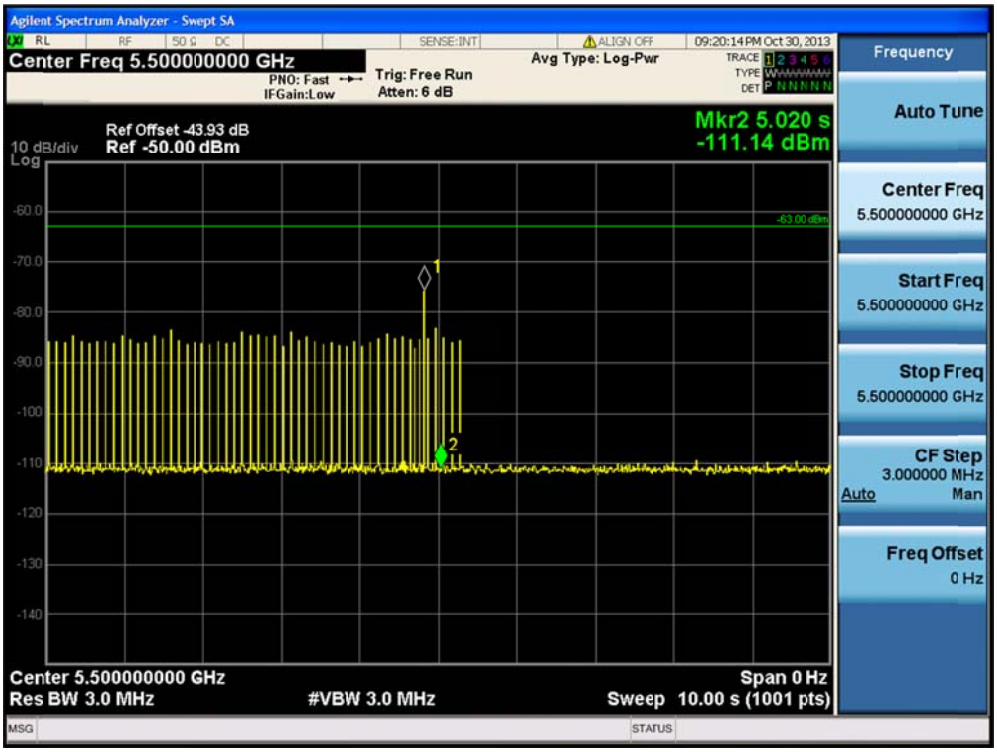
Channel Move Time, Channel Closing Transmission Time for USA Bin 4



Channel Move Time, Channel Closing Transmission Time for USA Bin 5

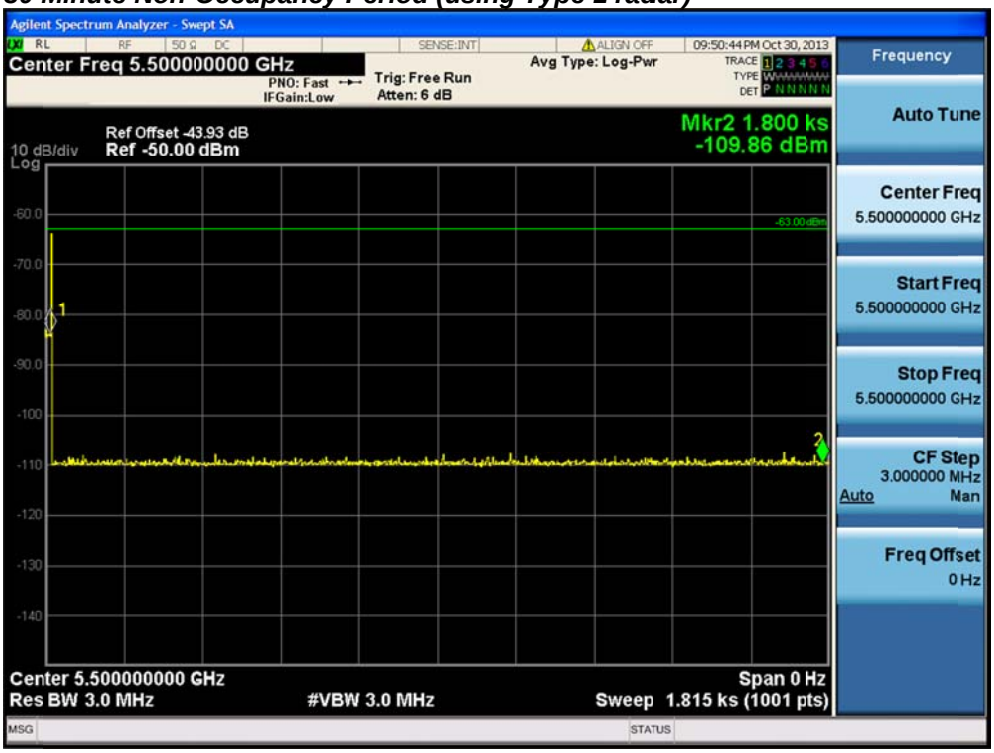


Channel Move Time, Channel Closing Transmission Time for USA Frequency Hopping



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

30 Minute Non-Occupancy Period (using Type 1 radar)



8. **Statistical Performance Check**

The steps below define the procedure to determine the minimum percentage of detection when a radar burst with a level equal to the DFS Detection Threshold + 1dB (-63dBm) is generated on the Operating Channel of the U-NII device.

A U-NII device operating as a Client Device will associate with the UUT (Master) at 5500 MHz. Stream the MPEG test file from the Master Device to the Client Device on the selected Channel for the entire period of the test.

The Radar Waveform generator sends the individual waveform for each of the radar types 1-6 at -63dbm. Statistical data will be gathered to determine the ability of the device to detect the radar test waveforms. The device can utilize a test mode to demonstrate when detection occurs to prevent the need to reset the device between trial runs. The percentage of successful detection is calculated by:

$$\frac{TotalWaveformDetections}{TotalWaveformTrials} \times 100$$ = Probability of Detection Radar Waveform

The Minimum number of trails, minimum percentage of successful detection and the average minimum percentage of successful detection are found in the *Radar Test Waveforms* section. The data represents the worst case detection for 20 MHz and 40 MHz signal bandwidths.

USA Bin 1 Radar Statistical Performance

Trial #	PW	PRI	Pulses	1=Detection 0=No Detection	Detection Percentage	Limit
1	18	1	1428	1	93.3%	60.0%
2	18	1	1428	1		
3	18	1	1428	1		
4	18	1	1428	1		
5	18	1	1428	1		
6	18	1	1428	1		
7	18	1	1428	1		
8	18	1	1428	1		
9	18	1	1428	1		
10	18	1	1428	0		
11	18	1	1428	1		
12	18	1	1428	1		
13	18	1	1428	1		
14	18	1	1428	1		
15	18	1	1428	1		
16	18	1	1428	1		
17	18	1	1428	1		
18	18	1	1428	1		
19	18	1	1428	1		
20	18	1	1428	1		
21	18	1	1428	1		
22	18	1	1428	1		
23	18	1	1428	1		
24	18	1	1428	1		
25	18	1	1428	1		
26	18	1	1428	1		
27	18	1	1428	0		
28	18	1	1428	1		
29	18	1	1428	1		
30	18	1	1428	1		

USA Bin 2 Radar Statistical Performance

Trial #	PW	PRI	Pulses	1=Detection 0=No Detection	Detection Percentage	Limit
1	24	4.8	221	1	86.7%	60.0%
2	28	4.7	229	1		
3	23	1.4	194	0		
4	25	3.2	216	1		
5	26	4.3	153	1		
6	23	4.1	188	1		
7	29	1.7	163	1		
8	23	2.8	222	1		
9	29	2.6	225	1		
10	23	4.9	181	1		
11	24	4.1	204	1		
12	28	3.8	153	1		
13	26	4.3	215	1		
14	29	4.5	213	1		
15	25	3.9	189	1		
16	23	2.3	215	1		
17	24	2.4	211	1		
18	25	2.4	155	0		
19	28	3.7	204	1		
20	29	3	183	1		
21	25	3.2	228	0		
22	29	3.5	187	1		
23	24	3.6	188	1		
24	25	2.8	168	1		
25	28	4.8	176	1		
26	27	2.7	191	1		
27	24	4.4	182	0		
28	25	2.9	170	1		
29	25	3.1	222	1		
30	23	1.1	184	1		

USA Bin 3 Radar Statistical Performance

Trial #	PW	PRI	Pulses	1=Detection 0=No Detection	Detection Percentage	Limit
1	18	7.8	394	1	80.0%	60.0%
2	17	7.5	329	1		
3	18	7.5	494	0		
4	17	8.8	385	1		
5	18	9.9	485	1		
6	16	6.7	219	0		
7	16	7.7	324	1		
8	16	8.8	299	1		
9	16	7.3	357	1		
10	17	9.3	334	1		
11	17	6.3	341	1		
12	17	6.6	486	0		
13	17	8.8	320	1		
14	16	6.1	237	1		
15	17	8.5	489	1		
16	17	9.3	221	1		
17	17	6.3	444	1		
18	17	7.2	488	1		
19	18	8.3	367	0		
20	18	6.6	206	1		
21	16	6.1	358	1		
22	16	6.8	259	1		
23	16	8.2	489	0		
24	16	7.1	459	1		
25	16	8.1	251	1		
26	18	7.6	360	0		
27	16	7.6	394	1		
28	16	9.2	336	1		
29	18	8.2	276	1		
30	18	7.9	371	1		

USA Bin 4 Radar Statistical Performance

Trial #	PW	PRI	Pulses	1=Detection 0=No Detection	Detection Percentage	Limit
1	14	11.5	244	0	70.0%	60.0%
2	13	11.8	310	1		
3	12	15.7	371	1		
4	16	18.2	293	1		
5	14	13.8	263	1		
6	13	16.3	201	1		
7	14	14.4	257	0		
8	14	13.3	317	1		
9	14	19.1	445	1		
10	14	14.1	384	0		
11	13	11.7	217	1		
12	16	14.9	274	0		
13	16	18.3	437	1		
14	13	18.2	369	1		
15	16	12.6	260	1		
16	16	18.4	252	0		
17	12	12.8	232	1		
18	16	13	282	1		
19	13	13.3	402	1		
20	12	16.9	458	0		
21	13	15.9	270	0		
22	16	12.5	213	1		
23	12	11.5	281	1		
24	16	14.1	295	0		
25	12	19.8	411	1		
26	15	13.2	322	1		
27	14	18.1	323	1		
28	14	18.2	329	1		
29	15	19	373	0		
30	13	13.8	439	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:

$$\frac{P_d 1 + P_d 2 + P_d 3 + P_d 4}{4}$$ = (93.3%+86.7%+80.0%+70.0)/4 = 82.5% (>80%)

*See the Bin5 Radar Characteristics at the end of this report.

USA Bin 5 Radar Statistical Performance

Trial #	Name	1=Detection 0=No Detection	Detection Percentage	Limit
1	USA Bin 5 Radar Test 1	1		
2	USA Bin 5 Radar Test 2	1		
3	USA Bin 5 Radar Test 3	1		
4	USA Bin 5 Radar Test 4	1		
5	USA Bin 5 Radar Test 5	1		
6	USA Bin 5 Radar Test 6	1		
7	USA Bin 5 Radar Test 7	1		
8	USA Bin 5 Radar Test 8	1		
9	USA Bin 5 Radar Test 9	1		
10	USA Bin 5 Radar Test 10	1		
11	USA Bin 5 Radar Test 11	1		
12	USA Bin 5 Radar Test 12	1		
13	USA Bin 5 Radar Test 13	1		
14	USA Bin 5 Radar Test 14	1		
15	USA Bin 5 Radar Test 15	1	100.0%	80.0%
16	USA Bin 5 Radar Test 16	1		
17	USA Bin 5 Radar Test 17	1		
18	USA Bin 5 Radar Test 18	1		
19	USA Bin 5 Radar Test 19	1		
20	USA Bin 5 Radar Test 20	1		
21	USA Bin 5 Radar Test 21	1		
22	USA Bin 5 Radar Test 22	1		
23	USA Bin 5 Radar Test 23	1		
24	USA Bin 5 Radar Test 24	1		
25	USA Bin 5 Radar Test 25	1		
26	USA Bin 5 Radar Test 26	1		
27	USA Bin 5 Radar Test 27	1		
28	USA Bin 5 Radar Test 28	1		
29	USA Bin 5 Radar Test 29	1		
30	USA Bin 5 Radar Test 30	1		

*See the Bin6 Radar Characteristics at the end of this report.

USA Frequency Hopping Radar Statistical Performance

Trial #	Name	1=Detection 0=No Detection	Detection Percentage	Limit
1	USA Bin 6 Radar Test 1	1	93.3%	70.0%
2	USA Bin 6 Radar Test 2	1		
3	USA Bin 6 Radar Test 3	1		
4	USA Bin 6 Radar Test 4	1		
5	USA Bin 6 Radar Test 5	0		
6	USA Bin 6 Radar Test 6	1		
7	USA Bin 6 Radar Test 7	1		
8	USA Bin 6 Radar Test 8	1		
9	USA Bin 6 Radar Test 9	0		
10	USA Bin 6 Radar Test 10	1		
11	USA Bin 6 Radar Test 11	1		
12	USA Bin 6 Radar Test 12	1		
13	USA Bin 6 Radar Test 13	1		
14	USA Bin 6 Radar Test 14	1		
15	USA Bin 6 Radar Test 15	1		
16	USA Bin 6 Radar Test 16	1		
17	USA Bin 6 Radar Test 17	1		
18	USA Bin 6 Radar Test 18	1		
19	USA Bin 6 Radar Test 19	1		
20	USA Bin 6 Radar Test 20	1		
21	USA Bin 6 Radar Test 21	1		
22	USA Bin 6 Radar Test 22	1		
23	USA Bin 6 Radar Test 23	1		
24	USA Bin 6 Radar Test 24	1		
25	USA Bin 6 Radar Test 25	1		
26	USA Bin 6 Radar Test 26	1		
27	USA Bin 6 Radar Test 27	1		
28	USA Bin 6 Radar Test 28	1		
29	USA Bin 6 Radar Test 29	1		
30	USA Bin 6 Radar Test 30	1		

USA Bin 5 Trial #1

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	16	85			0.900224
2	2	16	85	1935		1.566347
3	1	6	85			3.190549
4	3	13	60	1968	1627	3.752966
5	1	8	50			4.394006
6	2	9	100	1016		6.461598
7	2	17	50	1655		7.600708
8	1	9	90			8.325084
9	3	17	65	1933	1531	9.282374
10	3	7	80	1256	1949	10.888087
11	3	5	65	1560	1560	11.337705

USA Bin 5 Trial #2

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	12	60	1689		0.071251
2	1	9	85			1.322452
3	3	7	75	1287	1390	1.560738
4	2	17	50	1969		2.251769
5	2	18	55	1799		3.359765
6	3	15	55	1316	1439	4.422745
7	1	13	65			4.582856
8	1	20	50			5.535347
9	3	18	70	1449	1374	6.49273
10	1	8	85			6.841207
11	2	5	65	1244		8.097653
12	2	6	90	1444		8.346238
13	1	6	60			9.36436
14	2	17	50	1093		10.087306
15	2	17	95	1835		10.92735
16	2	12	50	1473		11.894806

USA Bin 5 Trial #3

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	9	50	1108		0.113731
2	3	9	65	1874	1643	1.410305
3	3	7	75	1075	1124	3.845274
4	2	12	55	1640		4.045989
5	2	8	50	1570		6.578137
6	3	15	60	1258	1804	7.216944
7	2	5	75	1984		8.593061
8	1	7	85			9.919248
9	3	16	85	1392	1462	11.638279

USA Bin 5 Trial #4

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	16	90	1405		0.186727
2	1	5	55			1.383621
3	3	8	75	1450	1628	1.706953
4	2	19	65	1724		2.625477
5	3	5	55	1618	1953	3.174716

6	1	6	75			3.781993
7	2	11	75	1279		4.804488
8	1	7	55			5.571162
9	1	14	95			6.236226
10	1	15	80			6.494238
11	3	9	85	1592	1169	7.689615
12	2	5	100	1548		8.263829
13	2	15	70	1817		8.912702
14	2	11	95	1795		9.218814
15	2	15	65	1587		10.552278
16	3	17	95	1102	1581	10.879454
17	1	20	90			11.396547

USA Bin 5 Trial #5

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	18	80			0.142541
2	1	16	100			1.349536
3	2	5	95	1793		1.576478
4	2	9	55	1521		2.490886
5	2	5	75	1984		3.08395
6	3	7	70	1170	1713	3.695691
7	1	16	60			4.913316
8	3	10	90	1415	1292	5.370409
9	3	13	95	1082	1973	5.727345
10	3	9	95	1268	1682	6.610623
11	1	7	70			7.710239
12	1	16	65			8.244284
13	2	5	70	1988		8.870658
14	1	20	75			9.677058
15	1	7	80			10.565856
16	3	12	70	1898	1611	11.173746
17	1	5	85			11.898271

USA Bin 5 Trial #6

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	17	90	1325		0.571373
2	2	7	50	1251		0.86606
3	2	18	100	1458		2.225461
4	3	17	75	1484	1922	3.098169
5	3	17	90	1719	1766	3.492972
6	1	5	95			5.044469
7	1	14	75			5.639062
8	1	18	70			6.124631
9	2	20	60	1892		7.389822
10	3	10	85	1503	1730	8.194733
11	1	9	60			9.065077
12	3	5	60	1367	1312	9.79926
13	2	19	70	1131		10.74523
14	3	19	85	1607	1359	11.266646

USA Bin 5 Trial #7

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)

1	2	9	55	1541		0.458384
2	1	18	60			0.800657
3	1	20	55			1.581476
4	2	10	55	1339		2.199546
5	1	11	55			3.082357
6	2	14	55	1006		3.703687
7	1	10	100			4.240946
8	3	9	75	1058	1437	5.087097
9	2	11	85	1724		5.972606
10	3	6	80	1806	1654	6.867321
11	2	15	60	1342		7.063333
12	1	14	75			8.422719
13	2	20	95	1754		9.105247
14	3	14	80	1179	1772	9.560728
15	1	11	85			10.430514
16	2	12	90	1228		10.808308
17	1	13	55			11.460328

USA Bin 5 Trial #8

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	17	95	1748		0.407584
2	3	16	85	1157	1293	1.102627
3	1	19	55			1.535249
4	1	18	100			2.094286
5	2	13	50	1621		3.144452
6	3	11	95	1364	1818	3.825772
7	3	11	95	1735	1271	4.467937
8	1	15	100			4.803713
9	3	10	100	1045	1961	5.636054
10	2	6	80	1420		6.017074
11	2	9	50	1798		7.055653
12	2	15	75	1045		7.939794
13	2	16	90	1749		8.067242
14	2	20	80	1819		9.221205
15	3	11	65	1242	1251	9.482378
16	3	18	55	1486	1357	10.643779
17	3	17	90	1613	1664	10.909613
18	3	8	100	1713	1420	11.786447

USA Bin 5 Trial #9

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	17	65	1562		0.76951
2	1	6	85			1.002515
3	2	11	55	1669		2.875365
4	1	17	85			3.479469
5	2	15	85	1424		4.32576
6	2	14	70	1470		5.747489
7	2	15	65	1175		6.598444
8	3	16	70	1890	1583	7.378628
9	1	14	70			8.453991
10	3	14	100	1463	1367	9.59795

11	2	11	70	1018		10.917849
12	1	9	80			11.48278

USA Bin 5 Trial #10

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	7	50			0.771519
2	1	16	90			0.996965
3	2	17	60	1380		2.218184
4	3	17	75	1415	1132	2.635622
5	1	20	75			3.553429
6	2	19	80	1836		4.456888
7	2	9	85	1867		5.205297
8	2	14	90	1954		5.796251
9	3	12	55	1594	1312	6.884125
10	1	9	95			7.343489
11	3	8	100	1497	1743	8.729584
12	1	17	90			8.836753
13	3	12	65	1059	1289	10.332786
14	1	17	95			10.872812
15	2	5	80	1797		11.530763

USA Bin 5 Trial #11

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	13	65			0.346958
2	1	20	80			1.105063
3	2	11	100	1400		1.28267
4	2	7	80	1522		1.961256
5	2	20	65	1276		2.929665
6	2	17	80	1730		3.439941
7	1	9	65			4.072255
8	1	20	65			4.613869
9	3	13	80	1364	1236	4.966139
10	1	16	90			5.65668
11	1	19	100			6.285619
12	1	17	80			6.866062
13	1	15	85			7.494809
14	2	11	55	1400		8.342732
15	2	5	50	1251		8.403906
16	3	13	50	1877	1418	9.542325
17	2	8	65	1882		9.737224
18	3	14	75	1524	1106	10.658486
19	3	5	70	1794	1114	11.23297
20	1	7	60			11.757935

USA Bin 5 Trial #12

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	6	60	1139	1503	0.554933
2	2	20	60	1587		2.918755
3	1	18	100			4.056715
4	3	10	55	1812	1996	4.941375
5	1	19	100			6.459698
6	3	19	85	1739	1370	8.41269

7	2	15	100	1816		10.099013
8	1	11	55			11.878776

USA Bin 5 Trial #13

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	5	75	1292	1052	0.176844
2	2	14	65	1135		1.690812
3	3	18	70	1791	1352	1.801273
4	2	16	85	1463		3.29626
5	2	10	80	1925		4.281466
6	2	14	55	1089		4.376052
7	3	10	85	1850	1875	5.93267
8	3	9	100	1576	1572	6.234622
9	1	6	100			7.312884
10	3	19	90	1046	1541	8.036084
11	2	9	100	1934		8.94888
12	3	12	75	1326	1626	9.528209
13	1	7	65			10.560078
14	2	13	65	1667		11.14493

USA Bin 5 Trial #14

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	19	95			0.083852
2	2	18	95	1297		1.460285
3	1	13	100			1.991599
4	1	10	60			3.313023
5	2	7	65	1453		3.844716
6	2	15	85	1802		4.893118
7	3	12	50	1138	1534	5.912525
8	3	9	90	1531	1841	7.094797
9	1	11	60			7.931833
10	1	15	90			8.99662
11	2	11	70	1111		9.892404
12	3	15	55	1665	1945	10.999718
13	2	7	95	1091		11.79165

USA Bin 5 Trial #15

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	17	50	1486		0.032697
2	1	16	85			0.694744
3	2	11	60	1125		1.919583
4	3	9	85	1221	1707	2.602906
5	2	11	85	1362		2.952324
6	3	16	50	1851	1751	3.852313
7	2	9	65	1688		4.123189
8	2	19	75	1621		4.762748
9	3	20	60	1145	1936	5.954209
10	2	12	70	1243		6.457483
11	2	17	50	1161		6.759643
12	1	20	100			7.795954
13	2	6	50	1491		8.38504
14	1	13	65			8.980133

15	1	17	75			9.975918
16	3	16	80	1584	1284	10.139433
17	1	10	75			10.905099
18	2	13	65	1104		11.915128

USA Bin 5 Trial #16

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	15	95	1667	1512	1.210377
2	2	10	75	1471		1.922874
3	3	14	75	1504	1667	2.946047
4	2	17	55	1569		4.65957
5	1	9	60			5.804848
6	3	6	60	1594	1243	7.128041
7	1	10	100			8.821546
8	2	5	85	1796		9.447866
9	2	9	85	1354		11.994633

USA Bin 5 Trial #17

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	8	85	1365		0.828668
2	1	20	95			1.643744
3	2	10	100	1156		2.11599
4	1	11	50			2.661424
5	3	6	70	1792	1856	3.902716
6	2	6	70	1938		4.546759
7	1	10	95			5.44036
8	1	7	75			6.730623
9	3	6	50	1147	1258	7.620513
10	3	12	50	1138	1028	8.257422
11	1	19	70			8.967629
12	1	19	100			10.233844
13	1	18	65			10.352275
14	3	15	50	1391	1011	11.228762

USA Bin 5 Trial #18

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	20	65	1800		0.787238
2	3	14	70	1064	1737	2.446971
3	3	18	60	1016	1808	3.610614
4	2	12	70	1921		5.431846
5	2	20	55	1564		6.223894
6	2	11	95	1468		7.864539
7	3	11	85	1170	1679	10.196691
8	2	18	55	1074		10.535326

USA Bin 5 Trial #19

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	8	80			0.050164
2	3	12	90	1976	1491	1.83794
3	3	6	75	1545	1820	2.98729
4	3	14	85	1396	1065	3.618948
5	2	13	100	1930		4.046962
6	1	13	55			5.225653

7	2	7	85	1363		6.853168
8	3	9	100	1918	1437	7.465025
9	3	19	50	1936	1816	8.362872
10	1	11	95			9.359563
11	3	16	90	1344	1191	10.687244
12	2	15	60	1062		11.390838

USA Bin 5 Trial #20

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	13	60	1844	1597	0.657784
2	3	19	95	1508	1817	1.361658
3	1	19	50			2.240893
4	3	15	65	1110	1139	2.853517
5	2	11	60	1779		3.508782
6	2	18	55	1120		4.899083
7	3	13	95	1359	1698	5.299603
8	1	12	70			6.81786
9	1	12	65			7.580918
10	1	14	65			8.255563
11	3	7	95	1085	1658	9.360798
12	3	15	100	1097	1602	9.958227
13	2	19	50	1542		10.391782
14	2	9	55	1227		11.38216

USA Bin 5 Trial #21

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	18	70	1116		0.202751
2	1	15	85			1.189192
3	3	18	60	1176	1157	1.46836
4	2	6	75	1733		2.284253
5	1	9	75			2.515253
6	2	16	95	1435		3.506387
7	2	16	65	1754		3.663357
8	1	14	100			4.215709
9	3	18	55	1818	1698	5.393201
10	3	6	90	1017	1230	5.438801
11	2	8	70	1784		6.385614
12	1	19	55			6.706778
13	3	9	95	1375	1319	7.340953
14	3	20	95	1968	1492	8.031053
15	2	11	50	1629		8.850574
16	2	16	60	1127		9.430746
17	2	16	60	1106		10.051312
18	2	7	95	1229		10.349133
19	3	20	55	1990	1390	11.145691
20	3	19	65	1410	1803	11.465272

USA Bin 5 Trial #22

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	15	50			0.379316
2	2	5	85	1081		1.995849
3	2	13	95	1145		2.900824

4	3	12	55	1388	1378	5.17414
5	2	10	60	1238		5.401833
6	3	15	60	1313	1336	7.510178
7	1	14	70			8.82981
8	2	5	55	1031		10.096374
9	3	9	60	1882	1135	11.514646

USA Bin 5 Trial #23

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	19	55	1998	1186	0.289464
2	2	18	60	1194		1.514218
3	2	19	80	1820		2.640662
4	3	9	100	1759	1789	4.239547
5	2	9	60	1746		5.92245
6	3	11	65	1693	1732	6.547907
7	2	14	60	1788		8.233329
8	1	19	50			9.015622
9	1	19	65			9.960172
10	1	11	95			11.387393

USA Bin 5 Trial #24

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	15	95	1572		0.587627
2	2	10	75	1232		1.613952
3	1	12	100			2.126351
4	3	13	95	1375	1253	2.674633
5	1	16	80			3.797418
6	1	10	100			4.498943
7	3	11	95	1677	1953	5.938253
8	2	8	75	1363		6.547893
9	3	15	80	1654	1603	7.202128
10	3	7	95	1394	1830	8.361538
11	1	7	95			8.871557
12	2	10	95	1615		9.702963
13	1	20	55			10.718583
14	3	17	90	1844	1238	11.612165

USA Bin 5 Trial #25

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	9	55	1741		0.578074
2	3	16	100	1304	1963	2.651697
3	1	16	60			3.3775
4	1	6	80			4.752796
5	2	14	100	1956		7.088365
6	3	18	90	1775	1222	8.774168
7	3	11	90	1719	1263	10.294024
8	1	14	55			11.251034

USA Bin 5 Trial #26

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	15	75			0.921837
2	2	6	95	1904		1.86317
3	1	14	50			2.962182

4	1	15	65			3.044988
5	3	7	60	1004	1348	4.986188
6	2	5	65	1101		5.610243
7	1	12	90			6.384089
8	1	11	70			7.395769
9	1	5	95			8.180023
10	3	13	60	1406	1058	9.196213
11	3	6	55	1370	1975	10.740427
12	1	14	65			11.357193

USA Bin 5 Trial #27

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	11	90	1037	1511	0.037096
2	3	11	60	1165	1415	1.435757
3	2	15	70	1911		2.077511
4	1	12	55			3.22253
5	3	17	55	1259	1356	4.449042
6	3	13	70	1088	1436	5.115498
7	2	8	90	1383		6.164303
8	2	6	80	1393		7.092492
9	1	6	85			7.914064
10	2	15	60	1700		8.646706
11	3	20	70	1944	1998	9.670221
12	2	7	60	1329		11.008579
13	1	17	60			11.344991

USA Bin 5 Trial #28

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	3	20	65	1589	1179	0.544641
2	2	17	75	1941		1.013326
3	1	14	60			1.356097
4	1	9	100			2.396819
5	1	7	95			2.602397
6	1	19	80			3.436132
7	3	12	55	1145	1371	4.395325
8	1	13	65			4.499304
9	2	11	95	1569		5.062733
10	3	11	75	1196	1023	5.952395
11	1	20	55			6.612596
12	3	20	55	1650	1544	7.48631
13	3	10	95	1338	1746	8.177065
14	2	16	60	1019		8.494082
15	3	6	60	1618	1265	9.355958
16	2	20	65	1453		9.739192
17	3	10	55	1093	1218	10.570518
18	1	16	50			11.071992
19	1	7	100			11.607135

USA Bin 5 Trial #29

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	2	8	75	1432		0.235968
2	2	8	95	1802		0.843817

3	2	8	90	1900		1.73792
4	1	10	70			2.581286
5	2	7	95	1902		2.869129
6	2	9	55	1019		3.77587
7	2	13	95	1729		4.269623
8	1	19	100			5.161172
9	1	6	70			5.852211
10	3	15	55	1585	1589	6.05018
11	3	6	65	1267	1373	7.091169
12	1	9	80			7.721865
13	1	10	90			8.024939
14	3	17	80	1549	1153	9.015534
15	2	8	85	1031		9.506938
16	2	20	100	1379		10.576498
17	3	10	60	1700	1761	11.284762
18	2	14	65	1352		11.849677

USA Bin 5 Trial #30

Burst #	Pulses	Chirp (MHz)	PW (uS)	Inter-pulse spacing (uS)	Inter-pulse spacing (uS)	Pulse Start (S)
1	1	5	70			0.634732
2	2	7	100	1007		1.895661
3	2	16	65	1953		2.977175
4	2	13	85	1244		4.642506
5	1	7	60			5.452693
6	3	17	90	1705	1723	6.830616
7	3	7	70	1226	1914	8.270604
8	3	13	80	1959	1043	8.917803
9	1	9	85			10.25043
10	1	6	55			11.355721

USA Frequency Hopping Trial #1

Hop #	Freq (GHz)	Pulse Start (mS)
2	5505	6
21	5499	63
39	5506	117
60	5503	180
79	5501	237
91	5507	273
93	5494	279

USA Frequency Hopping Trial #2

Hop #	Freq (GHz)	Pulse Start (mS)
25	5500	75
26	5504	78
56	5507	168
60	5503	180
75	5499	225
87	5497	261

USA Frequency Hopping Trial #3

Hop #	Freq (GHz)	Pulse Start (mS)
44	5493	132
90	5504	270

USA Frequency Hopping Trial #4

Hop #	Freq (GHz)	Pulse Start (mS)
19	5495	57
39	5503	117
60	5496	180
96	5499	288

USA Frequency Hopping Trial #5

Hop #	Freq (GHz)	Pulse Start (mS)
81	5494	243

USA Frequency Hopping Trial #6

Hop #	Freq (GHz)	Pulse Start (mS)
7	5498	21
22	5505	66
45	5503	135
52	5500	156
78	5497	234
89	5504	267

USA Frequency Hopping Trial #7

Hop #	Freq (GHz)	Pulse Start (mS)
12	5506	36
44	5497	132
71	5494	213

USA Frequency Hopping Trial #8

Hop #	Freq (GHz)	Pulse Start (mS)
28	5506	84
30	5503	90
44	5492	132
99	5504	297

USA Frequency Hopping Trial #9

Hop #	Freq (GHz)	Pulse Start (mS)
2	5502	6
92	5500	276

USA Frequency Hopping Trial #10

Hop #	Freq (GHz)	Pulse Start (mS)
3	5499	9
12	5495	36
29	5506	87
42	5505	126
92	5504	276
98	5498	294

USA Frequency Hopping Trial #11

Hop #	Freq (GHz)	Pulse Start (mS)
22	5492	66
35	5508	105
53	5495	159
67	5494	201

USA Frequency Hopping Trial #12

Hop #	Freq (GHz)	Pulse Start (mS)
7	5496	21
28	5503	84
74	5493	222
92	5494	276

USA Frequency Hopping Trial #13

Hop #	Freq (GHz)	Pulse Start (mS)
28	5503	84

USA Frequency Hopping Trial #14

Hop #	Freq (GHz)	Pulse Start (mS)
18	5498	54
25	5507	75
48	5506	144

USA Frequency Hopping Trial #15

Hop #	Freq (GHz)	Pulse Start (mS)
31	5507	93
63	5494	189

USA Frequency Hopping Trial #16

Hop #	Freq (GHz)	Pulse Start (mS)
5	5497	15
6	5504	18
39	5492	117
65	5493	195
94	5496	282
95	5499	285

USA Frequency Hopping Trial #17

Hop #	Freq (GHz)	Pulse Start (mS)
20	5503	60
26	5492	78
35	5496	105

40	5494	120
50	5498	150
77	5495	231
79	5505	237

USA Frequency Hopping Trial #18

Hop #	Freq (GHz)	Pulse Start (mS)
3	5506	9
41	5508	123
70	5492	210
88	5495	264

USA Frequency Hopping Trial #19

Hop #	Freq (GHz)	Pulse Start (mS)
7	5493	21
16	5495	48

USA Frequency Hopping Trial #20

Hop #	Freq (GHz)	Pulse Start (mS)
5	5497	15
6	5504	18
53	5503	159
93	5494	279

USA Frequency Hopping Trial #21

Hop #	Freq (GHz)	Pulse Start (mS)
0	5500	0
4	5507	12
30	5504	90
60	5505	180

USA Frequency Hopping Trial #22

Hop #	Freq (GHz)	Pulse Start (mS)
8	5505	24
13	5500	39
24	5504	72
49	5493	147

USA Frequency Hopping Trial #23

Hop #	Freq (GHz)	Pulse Start (mS)
6	5508	18
71	5496	213
94	5497	282

USA Frequency Hopping Trial #24

Hop #	Freq (GHz)	Pulse Start (mS)
40	5494	120
51	5502	153
55	5497	165

USA Frequency Hopping Trial #25

Hop #	Freq (GHz)	Pulse Start (mS)
12	5494	36
49	5492	147

USA Frequency Hopping Trial #26

Hop #	Freq (GHz)	Pulse Start (mS)
65	5493	195

72	5502	216

USA Frequency Hopping Trial #27

Hop #	Freq (GHz)	Pulse Start (mS)
39	5506	117
51	5493	153
90	5501	270
95	5494	285

USA Frequency Hopping Trial #28

Hop #	Freq (GHz)	Pulse Start (mS)
26	5502	78
61	5508	183

USA Frequency Hopping Trial #29

Hop #	Freq (GHz)	Pulse Start (mS)
6	5503	18
16	5499	48
74	5494	222
78	5507	234
99	5502	297

USA Frequency Hopping Trial #30

Hop #	Freq (GHz)	Pulse Start (mS)
36	5493	108
46	5500	138
71	5495	213