



FCC DFS TEST REPORT

FCC ID : TVE-3901M12
Equipment : Network Security Gateway
Brand Name : FORTINET
Model Name : FortiWiFi 50G-DSLxxxxxxxxxx,
FORTIWIFI-50G-DSLxxxxxxxxxx, FWF-50G-DSLxxxxxxxxxx
(where "x" can be used as "A-Z", or "0-9", or "-", or blank for
software purposes or marketing purposes only)
Applicant : Fortinet, Inc.
909 Kifer Road, Sunnyvale, CA 94086, U.S.A
Manufacturer : Fortinet, Inc.
909 Kifer Road, Sunnyvale, CA 94086, U.S.A
Standard : FCC Part 15 Subpart E

The product was received on Jun. 13, 2024 and testing was performed from Jun. 18, 2024 to Jun. 20, 2024. We, Sporton International (USA) Inc., would like to declare that the tested sample has been evaluated in accordance with the procedures given in FCC Part 15 Subpart E and shown compliance with the applicable technical standards.

The test results in this variant report apply exclusively to the tested model / sample. Without written approval of Sporton International (USA) Inc., the test report shall not be reproduced except in full.

Approved by: Neil Kao

Sporton International (USA) Inc.
1175 Montague Expressway, Milpitas, CA 95035

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History of this test report

Report No.	Version	Description	Issue Date
FZ231214003-01A	01	Initial issue of report	Jun. 26, 2024
FZ231214003-01A	02	Revise Address. This report is an updated version, replacing the report issued on Jun. 26, 2024	Aug. 02, 2024

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.2	7.8.1	U-NII Detection Bandwidth	Pass	-
3.3	7.8.2	Channel Availability Check Time	Pass	-
3.4	7.8.3	Channel Move Time	Pass	-
		Channel Closing Transmission Time	Pass	-
		Non-Occupancy Period Test	Pass	-
3.5	7.8.4	Statistical Performance Check	Pass	-

Note: This is a variant report by changing section 1.1 gray sheet. All the test cases were performed on original report which can be referred to Sporton Report Number FZ231214003. Based on the original report, only worst case was verified.

Conformity Assessment Condition:

The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

1 General Description

1.1 Feature of Equipment Under Test

Product Feature	
Equipment	Network Security Gateway
Model Name	FortiWiFi 50G-DSLxxxxxxxxxx, FORTIWIFI-50G-DSLxxxxxxxxxx, FWF-50G-DSLxxxxxxxxxx (where "x" can be used as "A-Z", or "0-9", or "-", or blank for software purposes or marketing purposes only)

Remark: The above EUT's information was declared by manufacturer.

	FWF-50G-5G (Original Report)	FWF-51G-5G (Original Report)	FWF-50G-DSL
PCB Mainboard	PCB4	PCB4	PCB1
WWAN Module	Yes	Yes	No
WiFi Module	Yes	Yes	Yes
WWAN Antenna	Yes	Yes	No
WiFi Antenna	Yes	Yes	Yes
WiFi Antenna location	Side: Ant1 & Ant2 Back: Ant3	Side: Ant1 & Ant2 Back: Ant3	Back: Ant1, Ant2, Ant3
GNSS Antenna location	Front	Front	No
SSD	No	Yes	No
SFP Port	No	No	No
DSL Function	No	No	Yes
Enclosure Dimension	HxWxL(mm): 42 x 216 x 178	HxWxL(mm): 42 x 216 x 178	HxWxL(mm): 40.5 x 216 x 160

1.2 Product Specification of Equipment Under Test

Product Specification subjective to this standard	
DFS Function	Master
Tx / Rx Frequency Range	5260 MHz ~ 5320 MHz 5500 MHz ~ 5720 MHz
Antenna Type	Dipole Antenna
Antenna Gain	5260 MHz ~ 5320 MHz: 1.88 dBi 5500 MHz ~ 5720 MHz: 2.45 dBi
EUT support WLAN function	802.11 a/n HT20/HT40 802.11 ac VHT20/VHT40/VHT80 802.11 ax HE20/HE40/HE80
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM) 802.11 ax : OFDMA (BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM)

Remark:

1. For other wireless features of this EUT, test report will be issued separately.
2. The EUT's information mentioned above is declared by the manufacturer.

1.3 Testing Facility

Test Site	Sporton International (USA) Inc.
Test Site Location	1175 Montague Expressway, Milpitas, CA 95035 TEL : 408 9043300
Test Site No.	Sporton Site No. DF01-CA

FCC Designation No.: US1250

1.4 Modification of EUT

No modifications are made to the EUT during all test items.

1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart E
- ♦ FCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02
- ♦ FCC KDB 905462 D03 UNII Clients Without Radar Detection New Rules v01r02

Remark: All test items were verified and recorded according to the standards and without any deviation during the test.

1.6 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	HW / FW Version	Power Cord
1.	Notebook	MSI	MS-16J5	PD93165NG	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
2.	Notebook	HP ENVY	13-ba1063cl	PD9AX201D2	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m

2 Requirements and Parameters for DFS Test

2.1 Summary of Dynamic Frequency Selection Test

UNII	Description	Limit
U-NII 2-A 5250-5350 MHz	Channel Availability Check Time	> 60sec
	U-NII Detection Bandwidth	> 100% of the U-NII 99% transmission power bandwidth
	Statistical Performance Check	Type 1,2,3,4 >= 60% Type 1~4 and 5 >= 80% Type 6 >= 70%
	Channel Move Time	< 10 sec
	Channel Closing Transmission Time	< 200 ms + aggregate of 60 ms over remaining 10 s period
	Non-Occupancy Period Test	> 30 minutes
U-NII 2-C 5470-5725 MHz	Channel Availability Check Time	> 60sec
	U-NII Detection Bandwidth	> 100% of the U-NII 99% transmission power bandwidth
	Statistical Performance Check	Type 1,2,3,4 >= 60% Type 1~4 and 5 >= 80% Type 6 >= 70%
	Channel Move Time	< 10 sec
	Channel Closing Transmission Time	< 200 ms + aggregate of 60 ms over remaining 10 s period
	Non-Occupancy Period Test	> 30 minutes

2.2 Applicability of DFS Requirements

EUT is considered as a master device.

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

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

Table 2: Applicability of DFS requirements during normal operation

Requirement	Operational Mode		
	Master	Client Without Radar Detection	Client With Radar Detection
DFS Detection Threshold	Yes	Not required	Yes
Channel Closing Transmission Time	Yes	Yes	Yes
Channel Move Time	Yes	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required	Yes
Client Beacon Test	N/A	Yes	Yes

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

Note

Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.

2.3 DFS Detection Thresholds

Table 3 below provides the DFS Detection Thresholds for Master Devices as well as Client Devices incorporating In-Service Monitoring.

Table 3: DFS Detection Thresholds for Master Devices

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

The radar *Detection Threshold*, lowest antenna gain is the parameter of Interference radar DFS detection threshold, The Interference Detection Threshold is the -64dBm.

2.4 DFS Response requirement values

Table 4 provides the response requirements for Master and Client Devices incorporating DFS.

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 99% 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 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 0 is used and for each frequency step the minimum percentage of detection is 90%. Measurements are performed with no data traffic.	

2.5 Short Pulse Radar Test Waveforms

Radar Type 0 was used in the evaluation of the Client device for the purpose of measuring the Channel Move Time and the Channel Closing Transmission Time.

Radar Type	Pulse Width (μsec)	PRI (μsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Trials
0	1	1428	18	See Note 1.	See Note 1.
1	1	Test A Test B	Roundup $\left\{ \left(\frac{1}{360} \right) \cdot \left(\frac{19 \cdot 10^6}{PRI_{\mu sec}} \right) \right\}$	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
Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.					

Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a

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

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.

The aggregate is the average of the percentage of successful detections of short pulse radar types 1-4.



Table 5a - Pulse Repetition Intervals Values for Test A

Pulse Repetition Frequency Number (1 to 23)	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	1355.0	738
13	1319.3	758
14	1285.3	778
15	1253.1	798
16	1222.5	818
17	1193.3	838
18	1165.5	858
19	1139.0	878
20	1113.6	898
21	1089.3	918
22	1066.1	938
23	326.2	3066

2.6 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

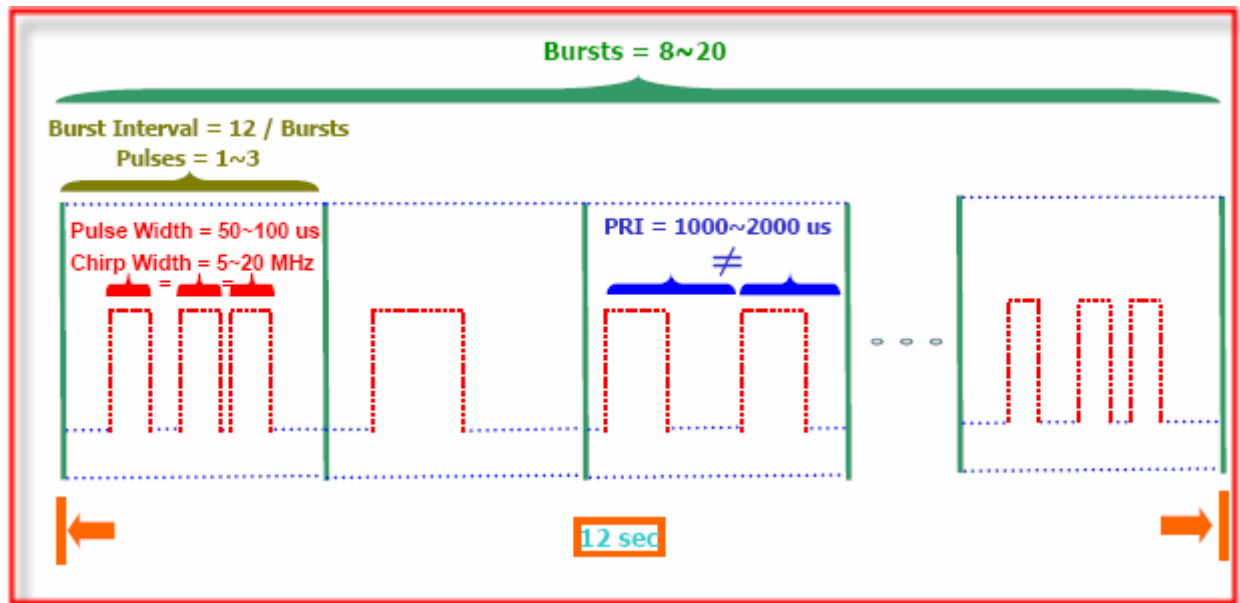
The parameters for this waveform are randomly chosen. Thirty unique waveforms are required for the Long Pulse radar test signal. If more than 30 waveforms are used for the Long Pulse radar test signal, then each additional waveform must also be unique and not repeated from the previous waveforms. Each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

Note: The center frequency for each of the 30 trials of the Bin 5 radar shall be randomly selected within 80% of the Occupied Bandwidth.

- (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 frequency modulated chirp between 5 and 20 MHz, with the chirp width being randomly chosen. Each pulse within a **transmission period** will have the same chirp width. 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 $(12,000,000 / \text{Burst_Count})$ microseconds. Each interval contains one Burst. The start time for the Burst, relative to the beginning of the interval, is between 1 and $[(12,000,000 / \text{Burst_Count}) - (\text{Total Burst Length}) + (\text{One Random PRI Interval})]$ 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).

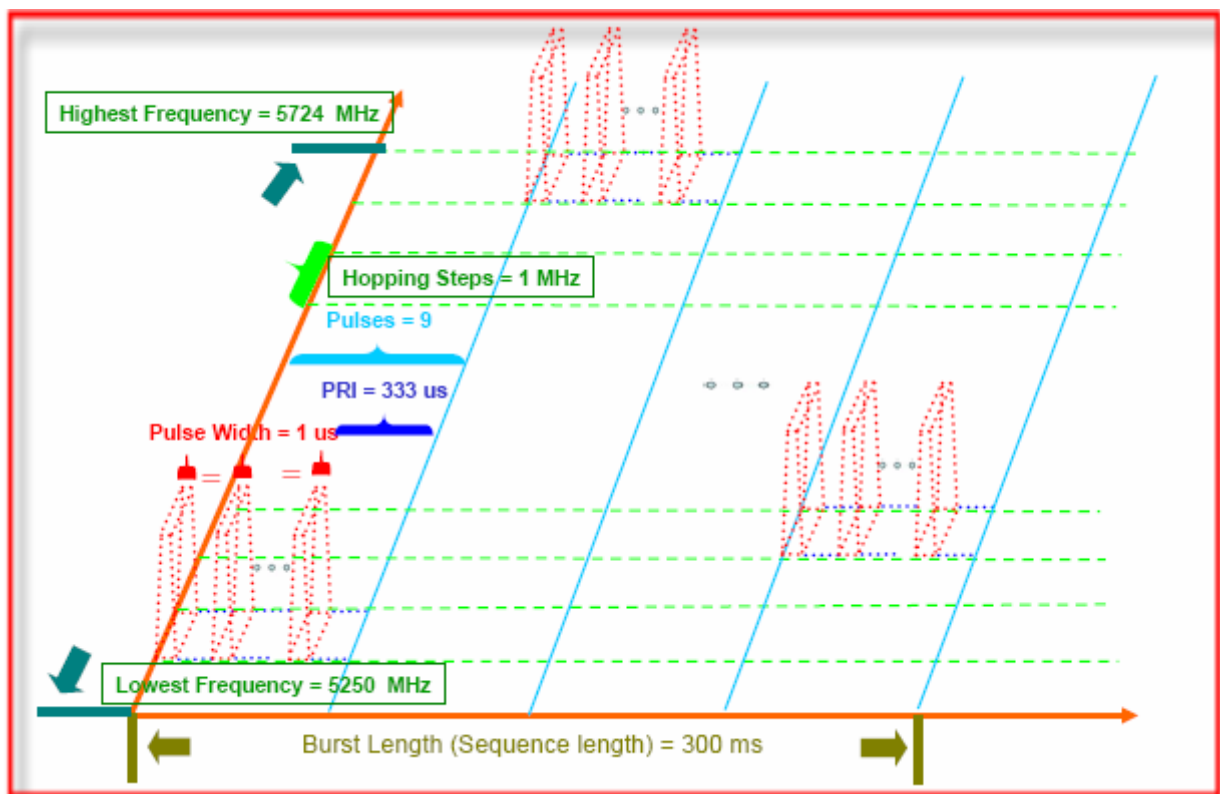


2.7 Frequency Hopping Radar Test Waveform

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	0.333	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 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.



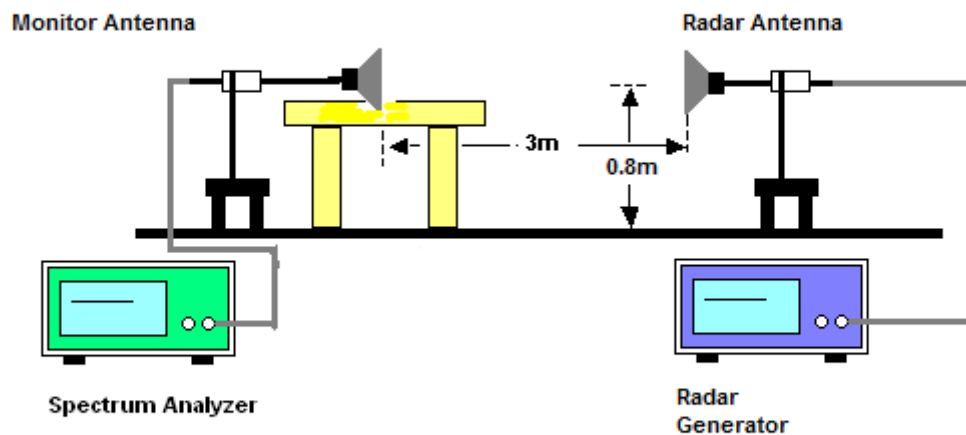
3 Calibration Setup and DFS Test Results

3.1 Calibration of Radar Waveform

3.1.1 Radar Waveform Calibration Procedure

The Interference Radar Detection Threshold Level is -64dBm that had been taken into account the output power range and antenna gain. The following equipment setup was used to calibrate the conducted Radar Waveform. A vector signal generator was utilized to establish the test signal level for radar type 0~6. 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) at the frequency of the Radar Waveform generator. Peak detection was used. The spectrum analyzer resolution bandwidth (RBW) and video bandwidth (VBW) were set to 3 MHz to measure the radar waveform. The vector signal generator amplitude was set so that the power level measured at the spectrum analyzer was -64dBm. Capture the spectrum analyzer plots on radar waveform.

3.1.2 Calibration Setup



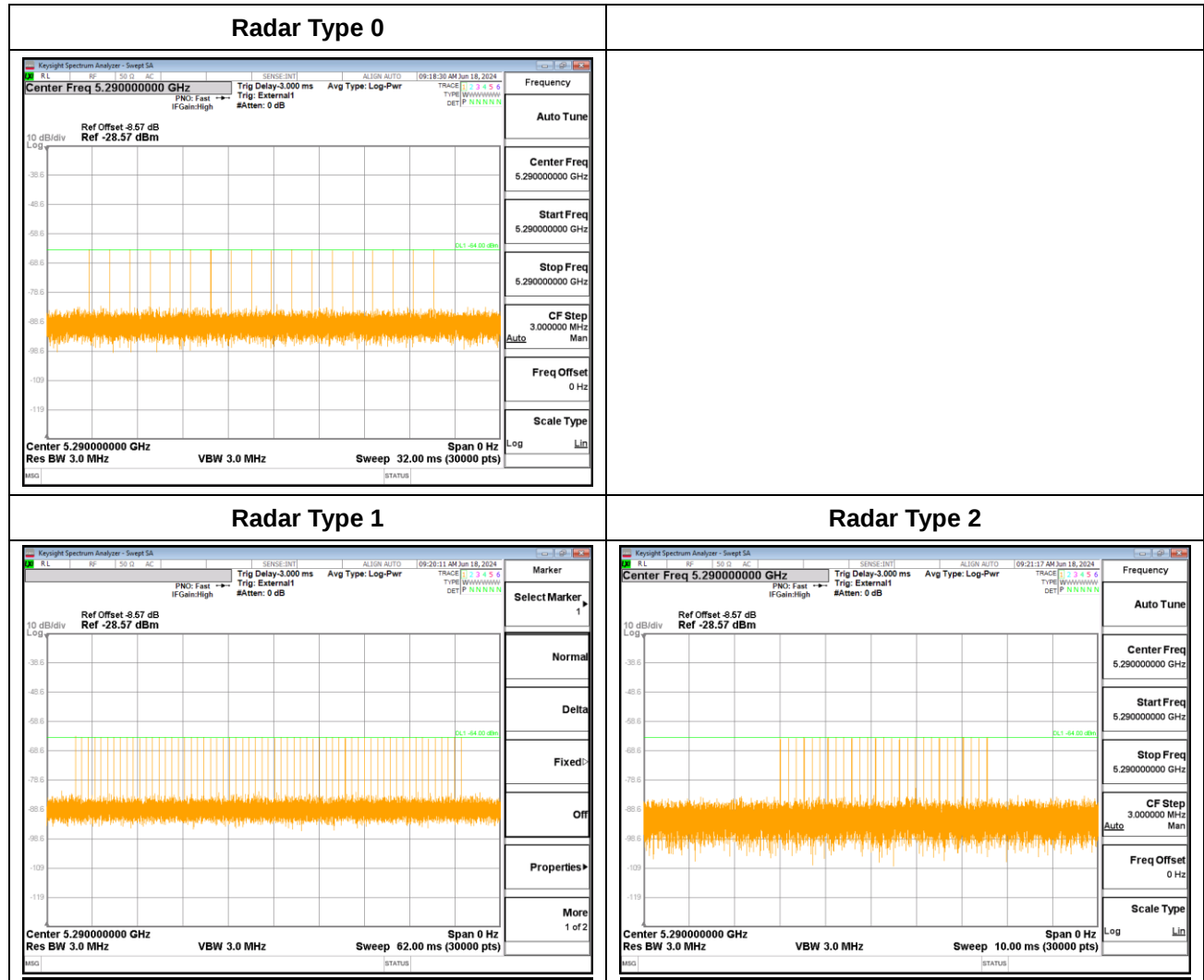
3.1.3 Calibration Deviation

There is no deviation with the original standard.



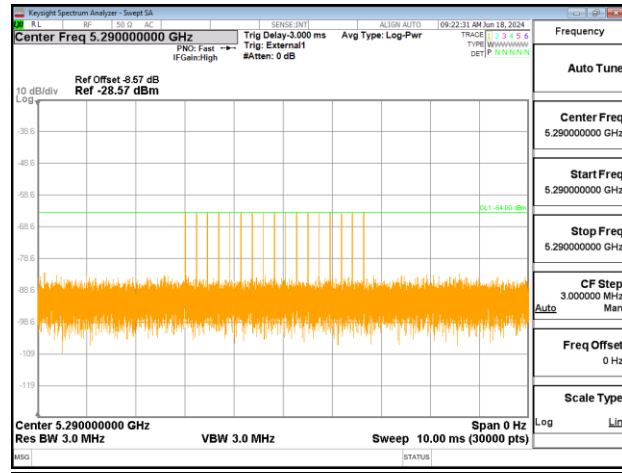
3.1.4 Radar Waveform Calibration Result

<80MHz / 5290MHz>

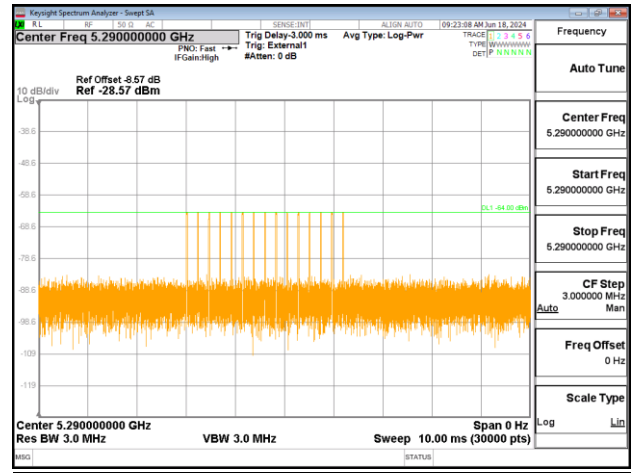




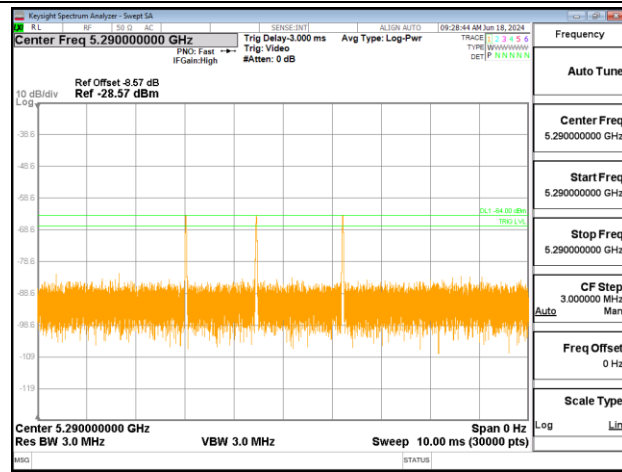
Radar Type 3



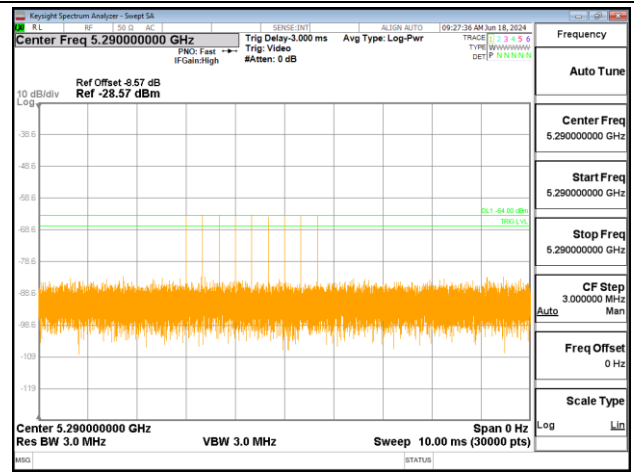
Radar Type 4



Single Burst of Radar Type 5



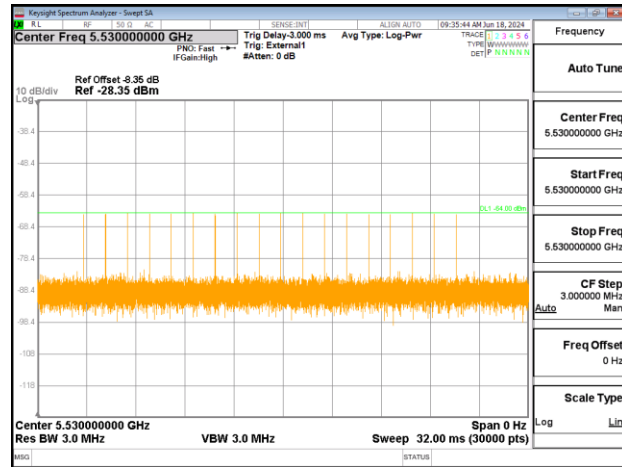
Single Burst of Radar Type 6



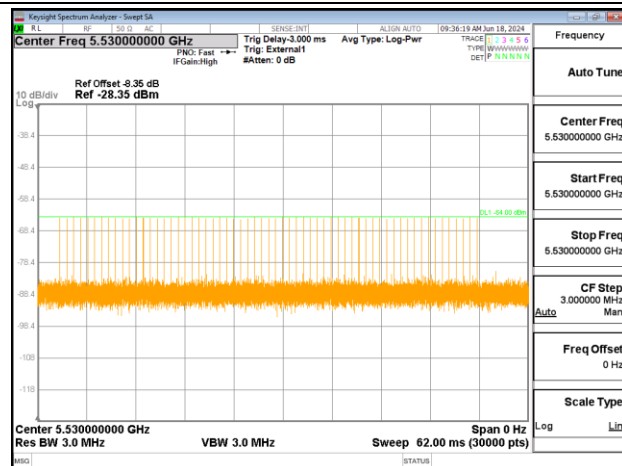


<80MHz / 5530MHz>

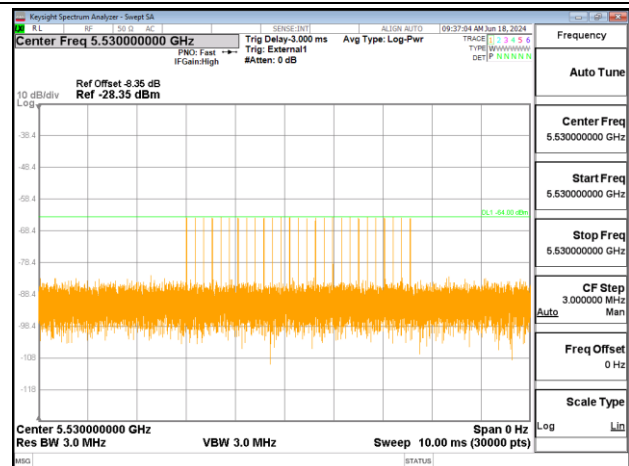
Radar Type 0



Radar Type 1

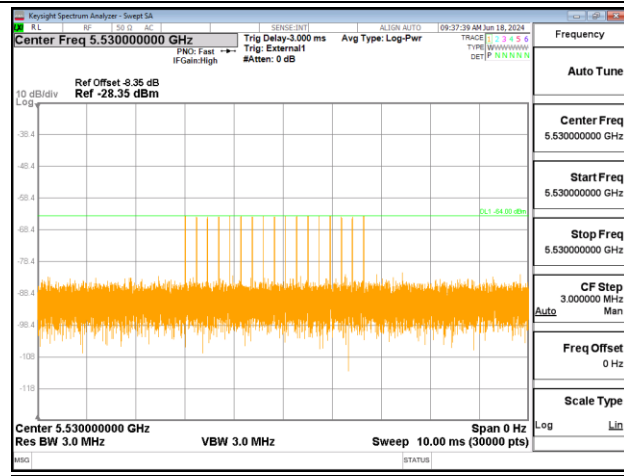


Radar Type 2

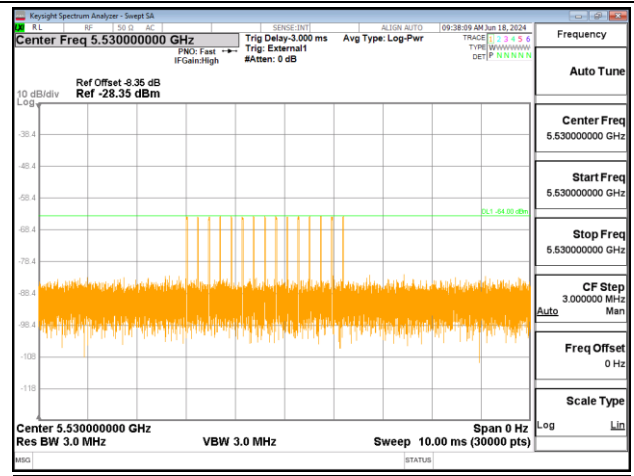




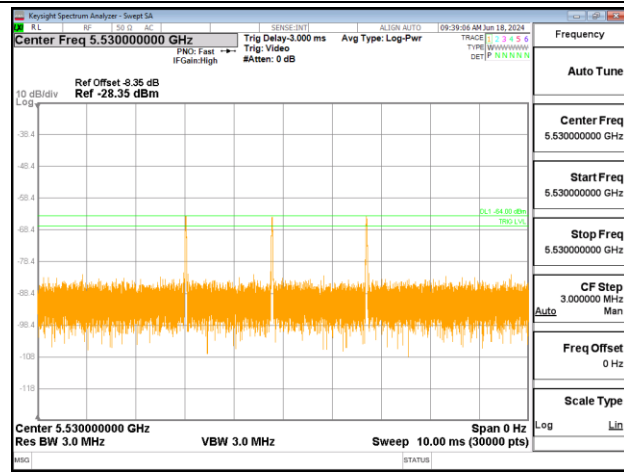
Radar Type 3



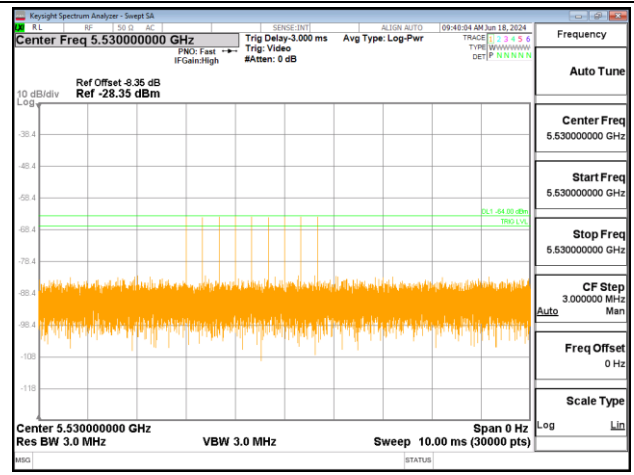
Radar Type 4



Single Burst of Radar Type 5



Single Burst of Radar Type 6



3.2 U-NII Detection Bandwidth

3.2.1 Limit of U-NII Detection Bandwidth

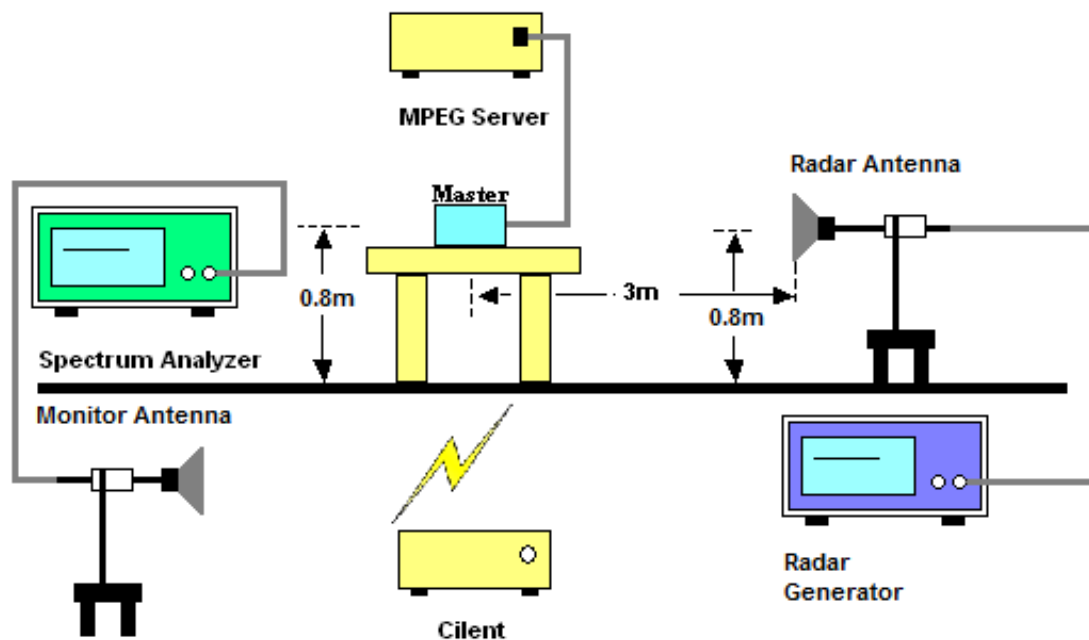
The U-NII Detection Bandwidth shall contain minimum 100% of the 99% power bandwidth.

During the U-NII Detection Bandwidth detection test, radar type 0 is used and for each frequency step the minimum percentage of detection is 90%. Measurements are performed with no data traffic.

3.2.2 Test Procedures

- (1) Adjust the equipment to produce a single burst of the Short Pulse Radar Type 0 at the center frequency of the EUT Operating Channel at the specified DFS Detection Threshold level.
- (2) Set the EUT 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 of 0%/100% during this test.
- (3) Generate a single radar burst, and note the response of the EUT. Repeat for a minimum of 10 trials. The EUT must detect the Radar Waveform using the specified U-NII Detection Bandwidth criterion.
- (4) Starting at the center frequency of the EUT 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 report clause 2.3. Repeat this measurement in 1MHz steps at frequencies 5 MHz below where the detection rate begins to fall. Record the highest frequency (denote as 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.
- (5) Starting at the center frequency of the EUT 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 report clause 2.3. 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.
- (6) The U-NII Detection Bandwidth is calculated as follows:
U-NII Detection Bandwidth = $F_H - F_L$

3.2.3 Test Setup



3.2.4 Test Deviation

There is no deviation with the original standard.

3.2.5 Result of U-NII Detection Bandwidth

<80MHz / 5530MHz>

Frequency (MHz)	Fc	Trial Number (Detection = Y, No Detection = N)										Rate (%)	F _H /F _L
		1	2	3	4	5	6	7	8	9	10		
5475	-55	N	N	N	N	N	N	N	N	N	N	0%	
5476	-54	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5477	-53	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5478	-52	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5479	-51	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5480	-50	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5481	-49	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5482	-48	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5483	-47	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5484	-46	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5485	-45	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5486	-44	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5487	-43	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5488	-42	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5489	-41	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5490	-40	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5491	-39	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5492	-38	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5493	-37	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5494	-36	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5495	-35	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5500	-30	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5505	-25	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5510	-20	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5515	-15	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5520	-10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5525	-5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5530	0	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5535	+5	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	



Frequency (MHz)	Fc	Trial Number (Detection = Y, No Detection = N)										Rate (%)	F _H /F _L
		1	2	3	4	5	6	7	8	9	10		
5540	+10	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5545	+15	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5550	+20	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5555	+25	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5560	+30	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5565	+35	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5566	+36	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5567	+37	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5568	+38	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5569	+39	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5570	+40	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5571	+41	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5572	+42	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5573	+43	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5574	+44	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5575	+45	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5576	+46	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5577	+47	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5578	+48	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5579	+49	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5580	+50	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5581	+51	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	
5582	+52	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	100%	F _H
5583	+53	N	N	N	N	N	N	N	N	N	N	0%	
Detection Bandwidth = F _H – F _L = 5582 – 5476 = 106 MHz													
EUT 99% Bandwidth = 75.876 MHz (Refer to channel 106)													



3.3 Channel Availability Check

3.3.1 Limit of Channel Availability Check

The Initial Channel Availability Check Time tests that the EUT 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.

3.3.2 Test Procedures of Initial Channel Availability Check Time

This test does not use any radar waveforms and only needs to be performed one time.

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

3.3.3 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.

- (1) The Radar Waveform generator and EUT are connected using the applicable test setup and the power of the EUT is switched off.
- (2) The EUT is powered on at T_0 . T_1 denotes the instant when the EUT has completed its power-up sequence ($T_{\text{power_up}}$). The Channel Availability Check Time commences on Chr at instant T_1 and will end no sooner than $T_1 + T_{\text{ch_avail_check}}$.
- (3) A single Burst of one of the Short Pulse Radar Types 1-4 will commence within a 6 second window starting at T_1 . 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.
- (4) Visual indication or measured results on the EUT of successful detection of the radar Burst will be recorded and reported. Observation of Chr for EUT emissions will continue for 2.5 minutes after the radar Burst has been generated.
- (5) Verify that during the 2.5 minute measurement window no EUT transmissions occurred on Chr. The Channel Availability Check results will be recorded.

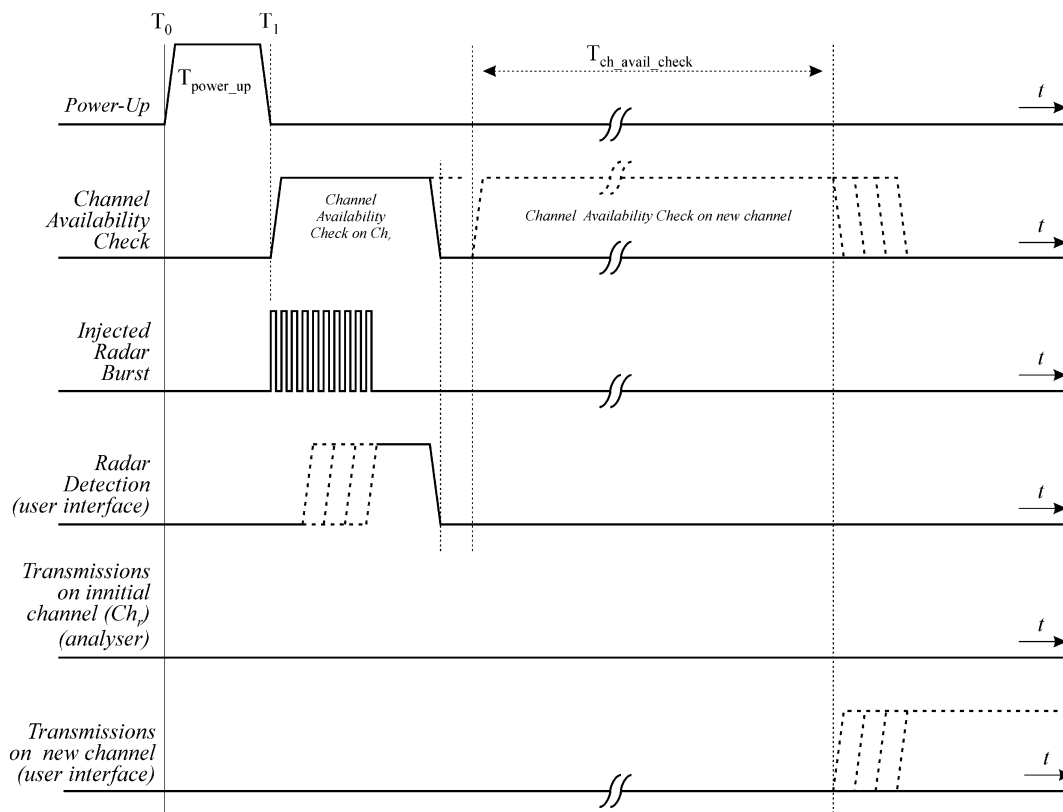


Figure 15: Example of timing for radar testing at the beginning of the Channel Availability Check
Time

3.3.4 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.

- (1) The Radar Waveform generator and EUT are connected using the applicable test setup and the power of the EUT is switched off.
- (2) The EUT is powered on at T_0 . T_1 denotes the instant when the EUT has completed its power-up sequence ($T_{\text{power_up}}$). The Channel Availability Check Time commences on Chr at instant T_1 and will end no sooner than $T_1 + T_{\text{ch_avail_check}}$.
- (3) A single Burst of one of the Short Pulse Radar Types 1-4 will commence within a 6 second window starting at $T_1 + 54$ 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.
- (4) Visual indication or measured results on the EUT of successful detection of the radar Burst will be recorded and reported. Observation of Chr for EUT emissions will continue for 2.5 minutes after the radar Burst has been generated.
- (5) Verify that during the 2.5 minute measurement window no EUT transmissions occurred on Chr. The Channel Availability Check results will be recorded.

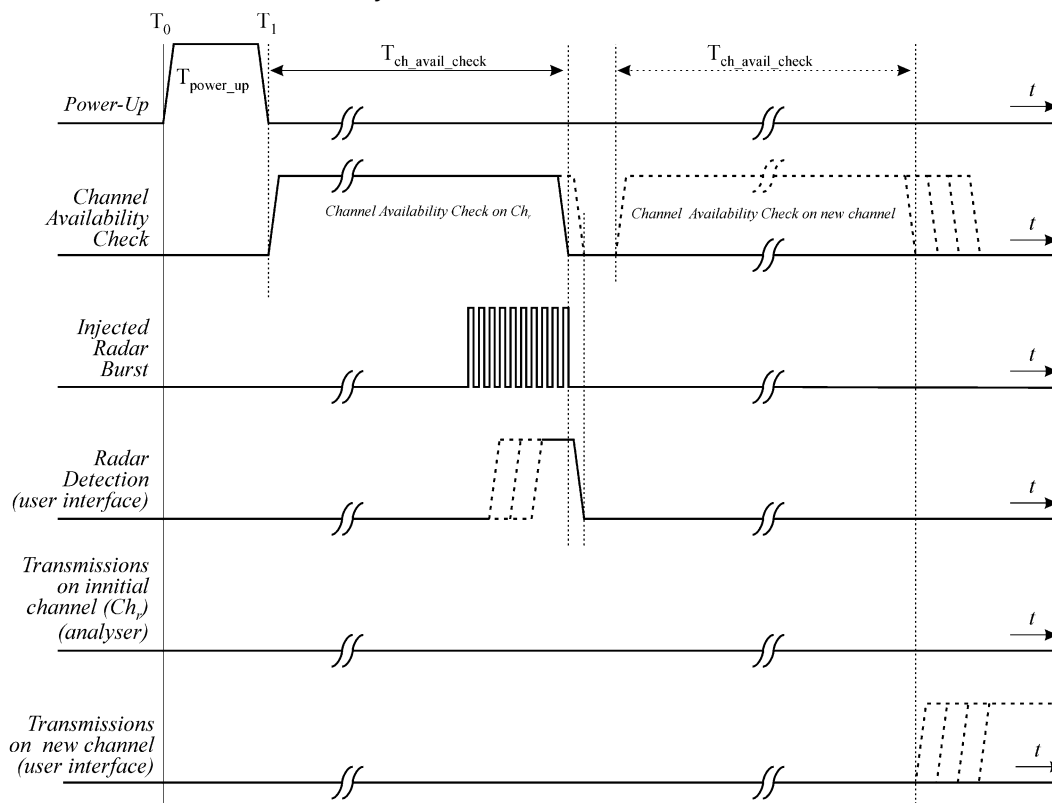
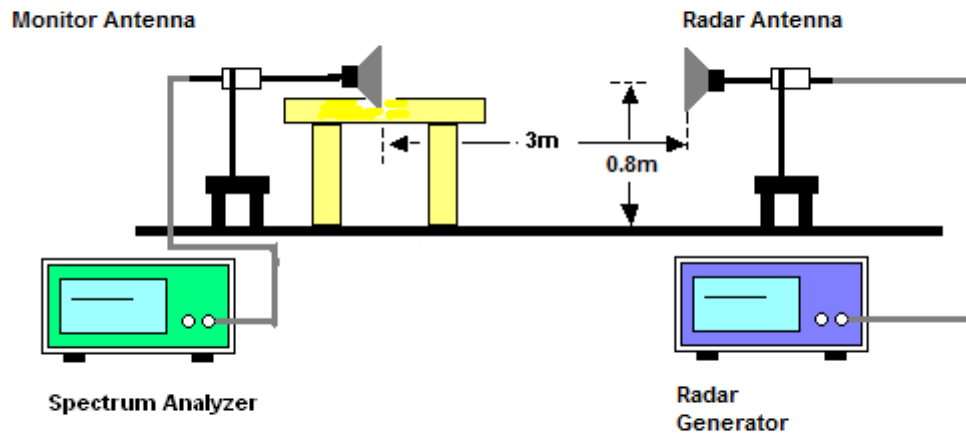


Figure 16: Example of timing for radar testing towards the end of the Channel Availability Check
Time

3.3.5 Test Setup

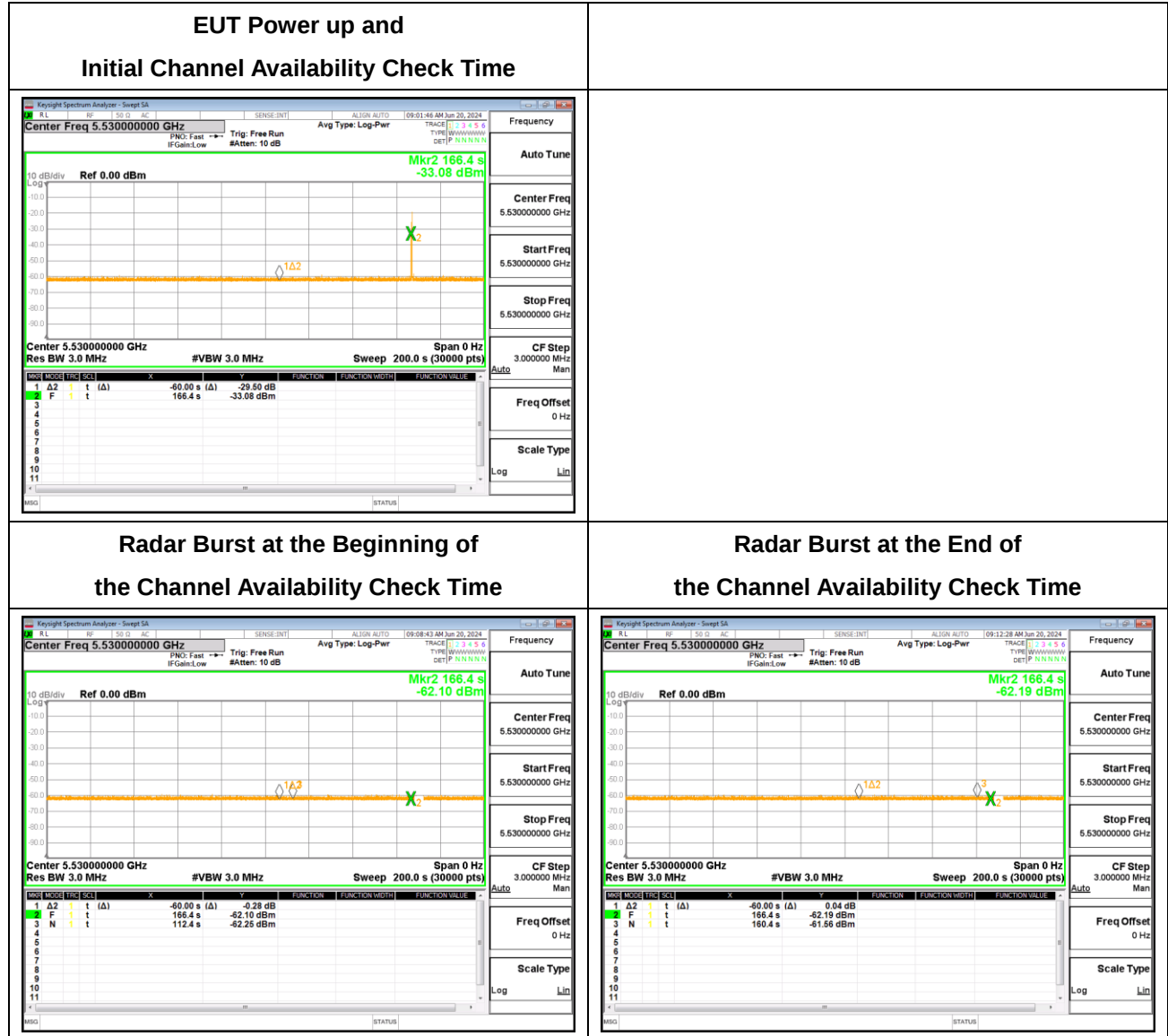


3.3.6 Test Deviation

There is no deviation with the original standard.

3.3.7 Result of Channel Availability Check Time

<80MHz / 5530MHz>



Marker 1(Delta 2): 60 seconds before End of Channel Availability Check

Marker 2: End of Channel Availability Check

Marker 3: 54 seconds or 6 seconds before End of Channel Availability Check

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

3.4.1 Limit of In-Service Monitoring

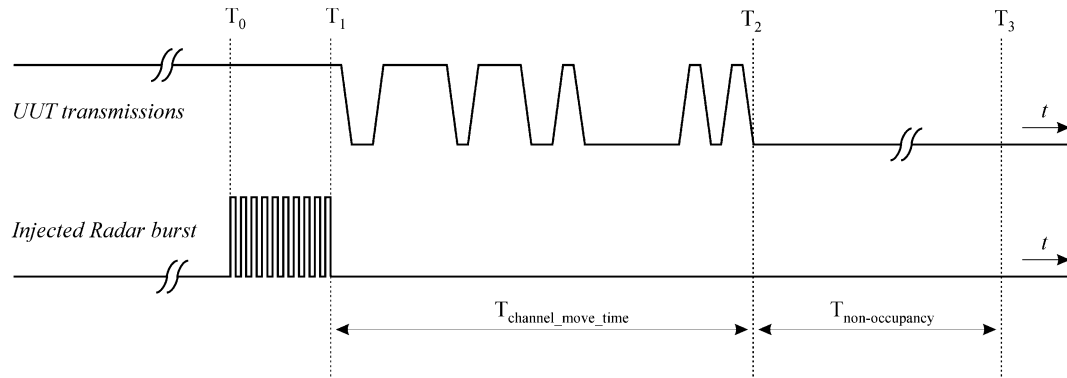
The EUT has In-Service Monitoring function to continuously monitor the radar signals. If radar is detected, it must leave the channel (Shutdown). The Channel Move Time to cease all transmissions on the current Channel upon detection of a Radar Waveform above the DFS Detection Threshold within 10 sec. The total duration of Channel Closing Transmission Time is 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.

Non-Occupancy Period time is 30 minute during which a Channel will not be utilized after a Radar Waveform is detected on that Channel.

3.4.2 Test Procedures

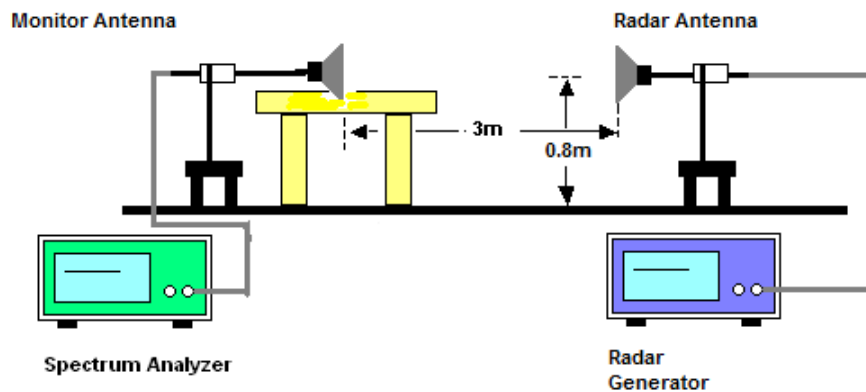
- (1) One frequency will be chosen from the Operating Channels of the EUT within the 5250-5350 MHz or 5470-5725 MHz bands. For 802.11 devices, the test frequency must contain control signals. This can be verified by disabling channel loading and monitoring the spectrum analyzer. If no control signals are detected, another frequency must be selected within the emission bandwidth where control signals are detected.
- (2) In case the EUT 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 EUT (Master). 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.
- (3) The TCP protocol unicast data stream was generated by the iperf software command line with at least 17% activity ratio over any 100ms period.
- (4) Timing plots are reported with calculations demonstrating a minimum channel loading of approximately 17% or greater. For example, channel loading can be estimated by setting the spectrum analyzer for zero span and approximate the Time On/ (Time On + Off Time).
- (5) At time T0 the Radar Waveform generator sends a Burst of pulses for one of the Short Pulse Radar Types 1-4 at DFS Detection Threshold levels 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.
- (6) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel for duration greater than 10 seconds. Measure and record the transmissions from the EUT during the observation time (Channel Move Time). Measure and record the Channel Move Time and Channel Closing Transmission Time if radar detection occurs.

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



- (8) One 12 seconds plot is reported for the Short Pulse Radar Type 0.
- (9) Measurement of the aggregate duration of the Channel Closing Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: $Dwell (0.4ms) = S (12000ms) / B (30000)$; where Dwell is the dwell time per spectrum analyzer sampling bin, S is the sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: $C (ms) = N \times Dwell (0.4 ms)$; where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.

3.4.3 Test Setup



3.4.4 Test Deviation

There is no deviation with the original standard.

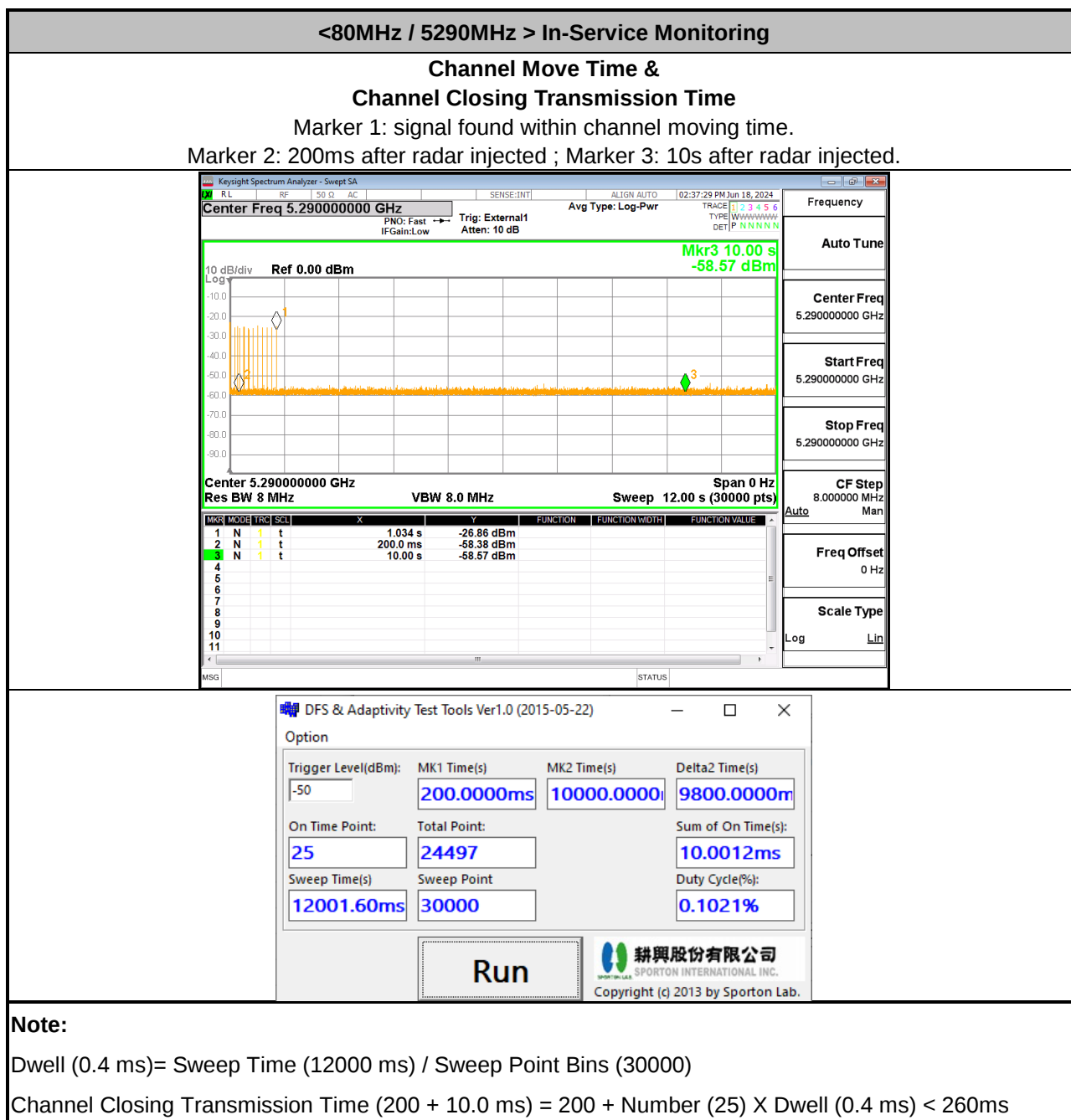
3.4.5 Result of Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period for Client Beacon Test

Test Mode :	Master	Temperature :	20.8~22.6℃
Test Engineer :	Liliana Gonzalez	Relative Humidity :	37.8~44.2%

BW / Channel	Test Item	Test Result	Limit	Pass/Fail
80MHz / 5290MHz	Channel Move Time	1.034 s	< 10s	Pass
	Channel Closing Transmission Time	200ms + 10.0012 ms	< 260ms	Pass
	Non-Occupancy Period	≥ 30	≥ 30 min	Pass
80MHz / 5530MHz	Channel Move Time	0.8909 s	< 10s	Pass
	Channel Closing Transmission Time	200ms + 2.4003 ms	< 260ms	Pass
	Non-Occupancy Period	≥ 30	≥ 30 min	Pass

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

3.4.6 Channel Move Time, Channel Closing Transmission Time and Non-Occupancy Period Test Plots





Non-Occupancy Period

Marker 2: radar injected ; Delta 1: 30 minutes after radar injected





<80MHz / 5530MHz > In-Service Monitoring

Channel Move Time &
Channel Closing Transmission Time

Marker 1: signal found within channel moving time.

Marker 2: 200ms after radar injected ; Marker 3: 10s after radar injected.



DFS & Adaptivity Test Tools Ver1.0 (2015-05-22)

Option

Trigger Level(dBm): -50

MK1 Time(s): 200.0000ms

MK2 Time(s): 10000.0000s

Delta2 Time(s): 9800.0000ms

On Time Point: 6

Total Point: 24497

Sum of On Time(s): 2.4003ms

Sweep Time(s): 12001.60ms

Sweep Point: 30000

Duty Cycle(%): 0.0245%

Run

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Note:

Dwell (0.4 ms)= Sweep Time (12000 ms) / Sweep Point Bins (30000)

Channel Closing Transmission Time (200 + 2.4 ms) = 200 + Number (6) X Dwell (0.4 ms) < 260ms



Non-Occupancy Period

Marker 2: radar injected ; Delta 1: 30 minutes after radar injected



3.4.7 Long Pulsed Radar Type Channel Move Time Test Plots (22seconds)

<80MHz / 5290MHz > Radar Type 5

Channel Move Time

Marker 1: End of transmission time ; Marker 2: 22seconds after radar injected



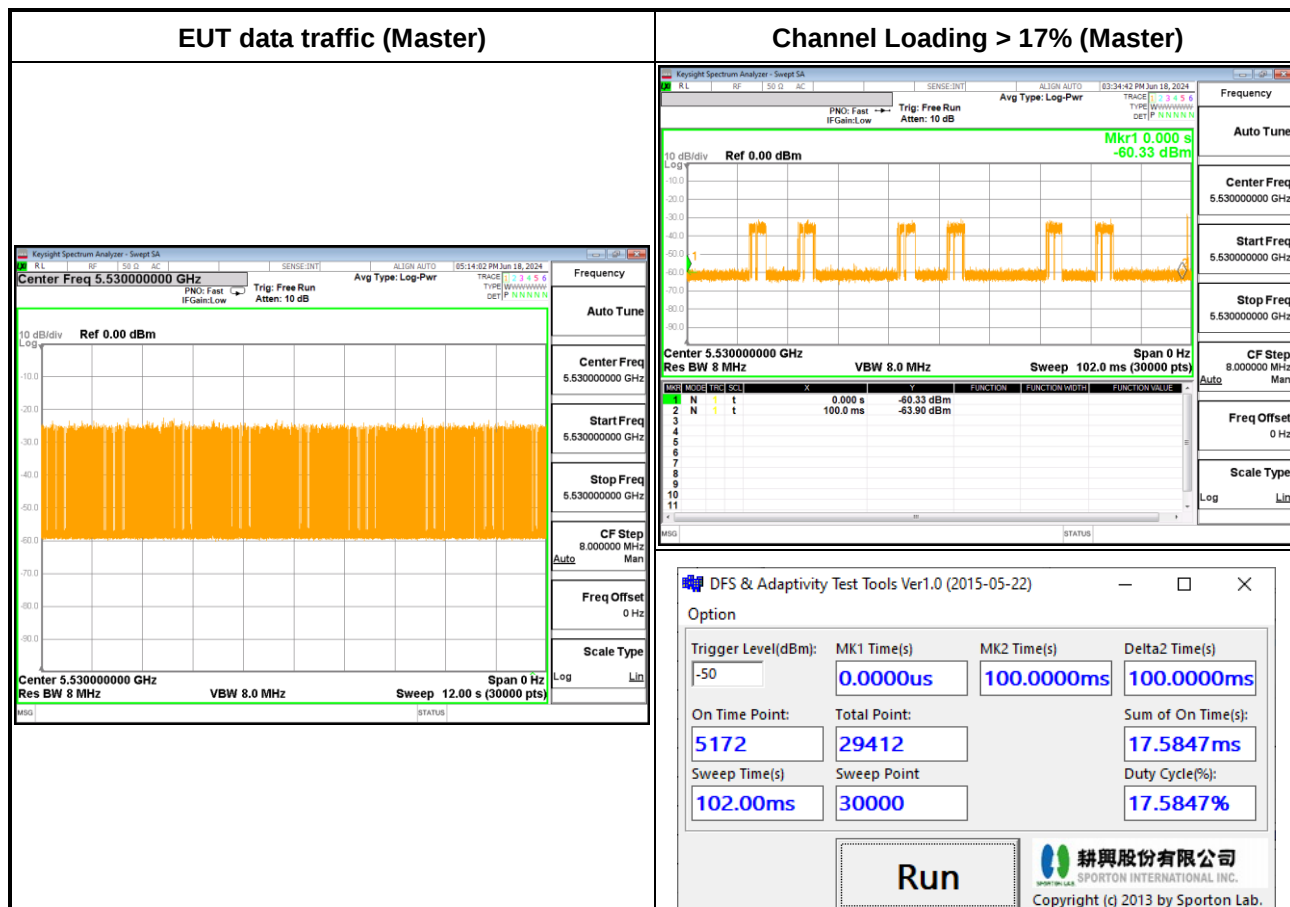
<80MHz / 5530MHz > Radar Type 5

Channel Move Time

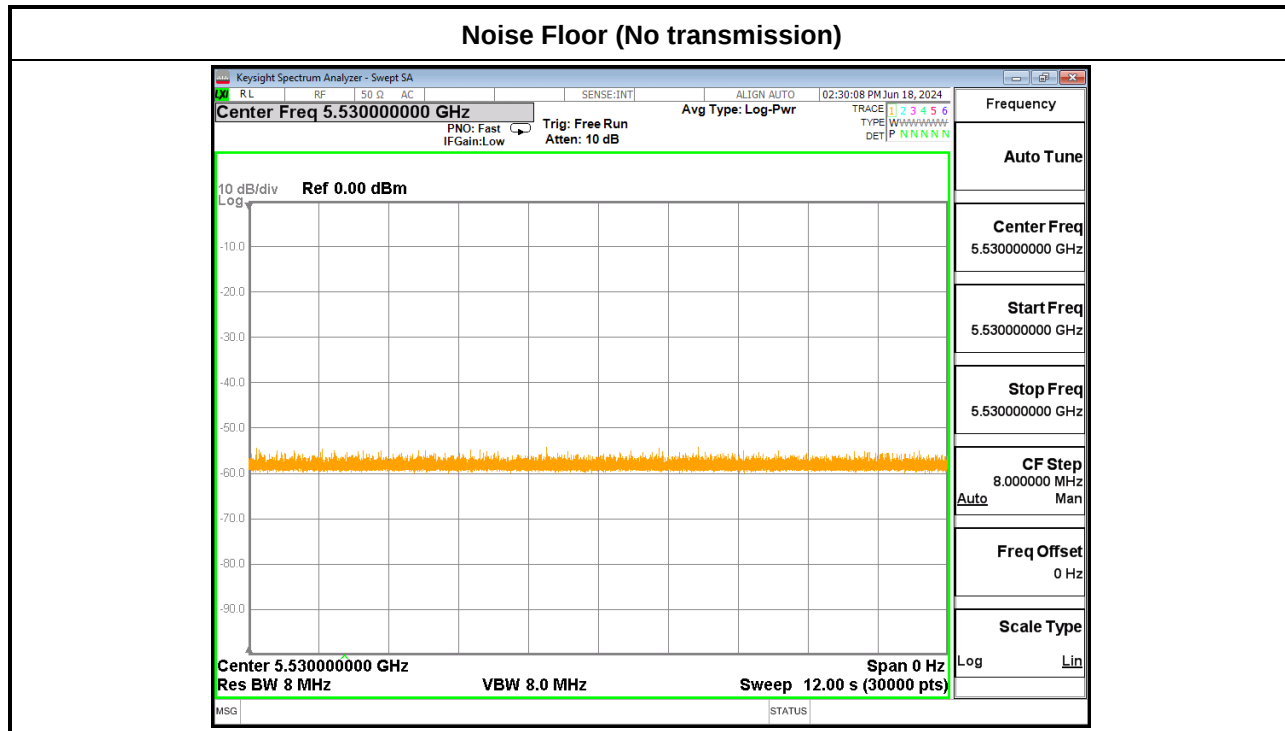
Marker 1: End of transmission time ; Marker 2: 22seconds after radar injected



3.4.8 Data Traffic Channel Loading and Noise Floor Plots



Noise Floor (No transmission)



3.5 Statistical Performance Check

3.5.1 Limit of Statistical Performance Check

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:

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

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**.

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
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 1 through 4. For Short Pulse Radar Type 0, the same waveform is used a minimum of 30 times. If more than 30 waveforms are used for Short Pulse Radar Types 1 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms.

An example of aggregate detection probability calculation is listed in following table:

Radar Type	Number of Trials	Number of Successful Detections	Percentage of Successful Detection
1	30	29	96.7%
2	30	18	60%
3	30	27	90%
4	30	30	100%
Aggregate $(96.7\% + 60\% + 90\% + 100\%)/4 = 86.67\%$			

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.

Table 6 – Long Pulse Radar Test Waveform

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

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

Three subsets of trials will be performed with a minimum of ten trials per subset.

The subset of trials differs in where the Long Pulse Type 5 Signal is tuned in frequency:

- The Channel center frequency (subset case 1).
- Tuned frequencies such that 90% of the Long Pulse Type 5 frequency modulation is within the low edge of the UUT Occupied Bandwidth (subset case 2).
- Tuned frequencies such that 90% of the Long Pulse Type 5 frequency modulation is within the high edge of the UUT Occupied Bandwidth (subset case 3).

For subset case 1: the center frequency of the signal generator will remain fixed at the center of the UUT Channel.

For subset case 2: to retain 90% frequency overlap between the radar signal and the UUT Occupied Bandwidth, the center frequency of the signal generator will vary for each of the ten trials in subset case 2.

The center frequency of the signal generator for each trial is calculated by: $FL + (0.4 * Chirp Width [in MHz])$

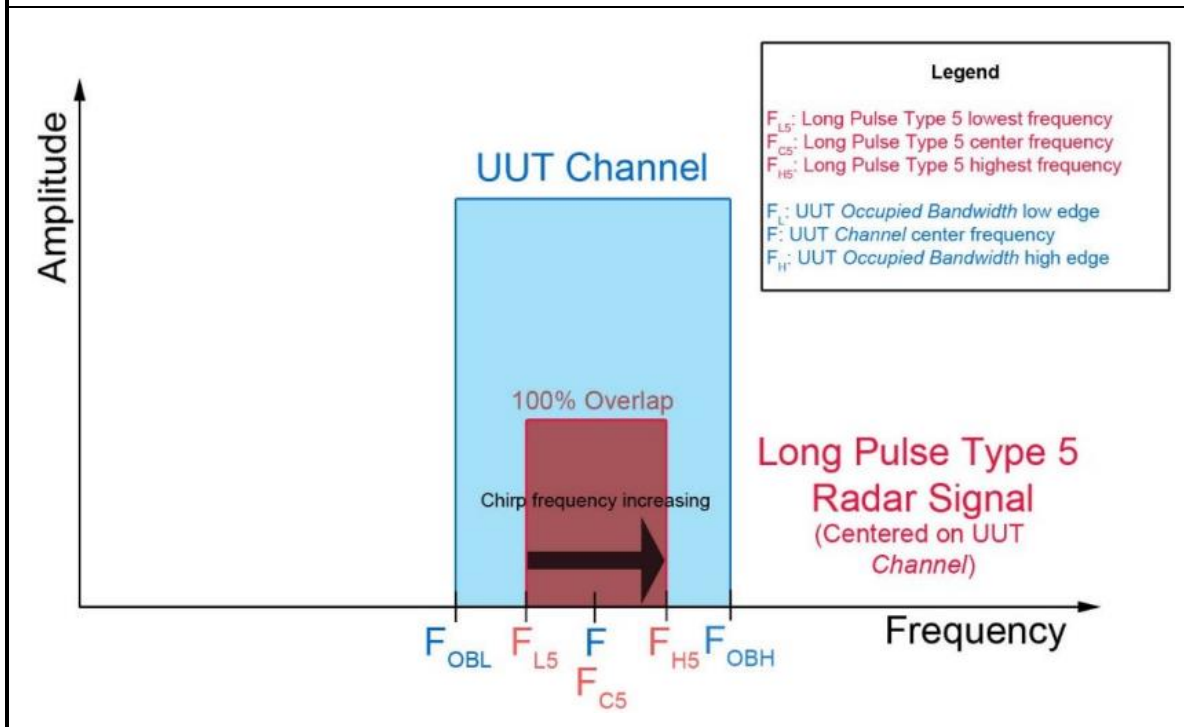
For subset case 3: to retain 90% frequency overlap between the radar signal and the UUT Occupied Bandwidth, the center frequency of the signal generator will vary for each of the ten trials in subset case 3.

The center frequency of the signal generator for each trial is calculated by: $FH - (0.4 * Chirp Width [in MHz])$

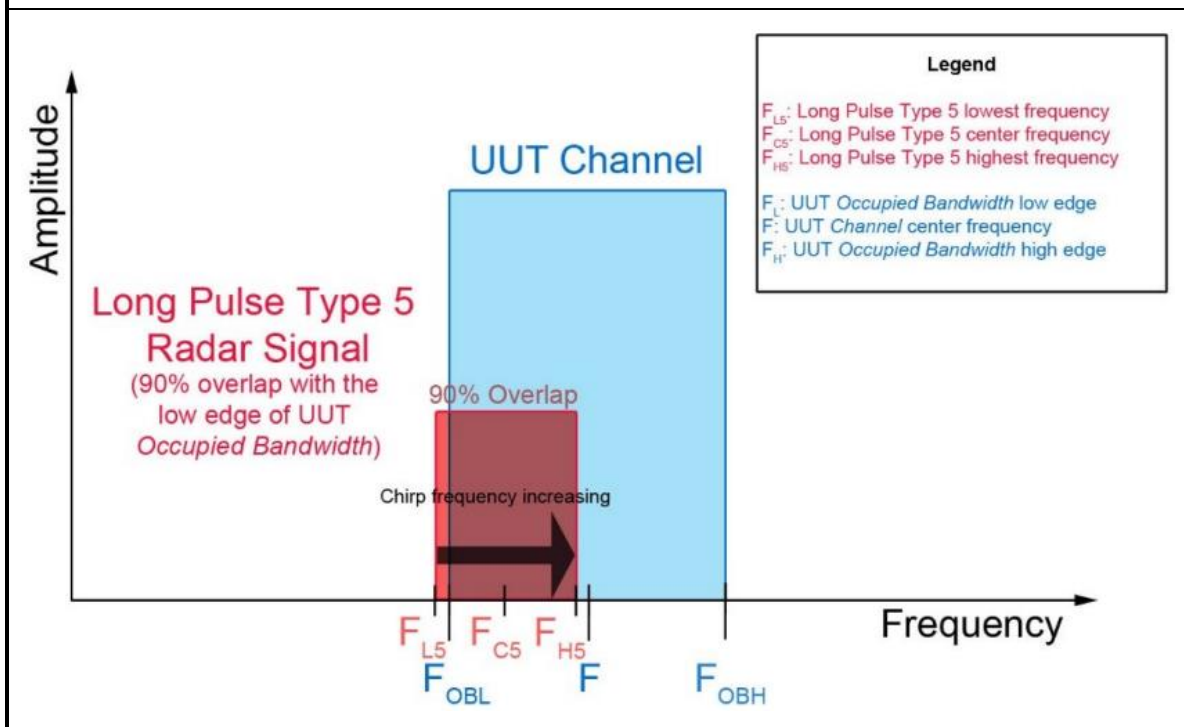
Note: The FH and FL are Occupied Bandwidth low edge and high edge, where

$$FH = F_c + (OBW / 2) \text{ and } FL = F_c - (OBW / 2)$$

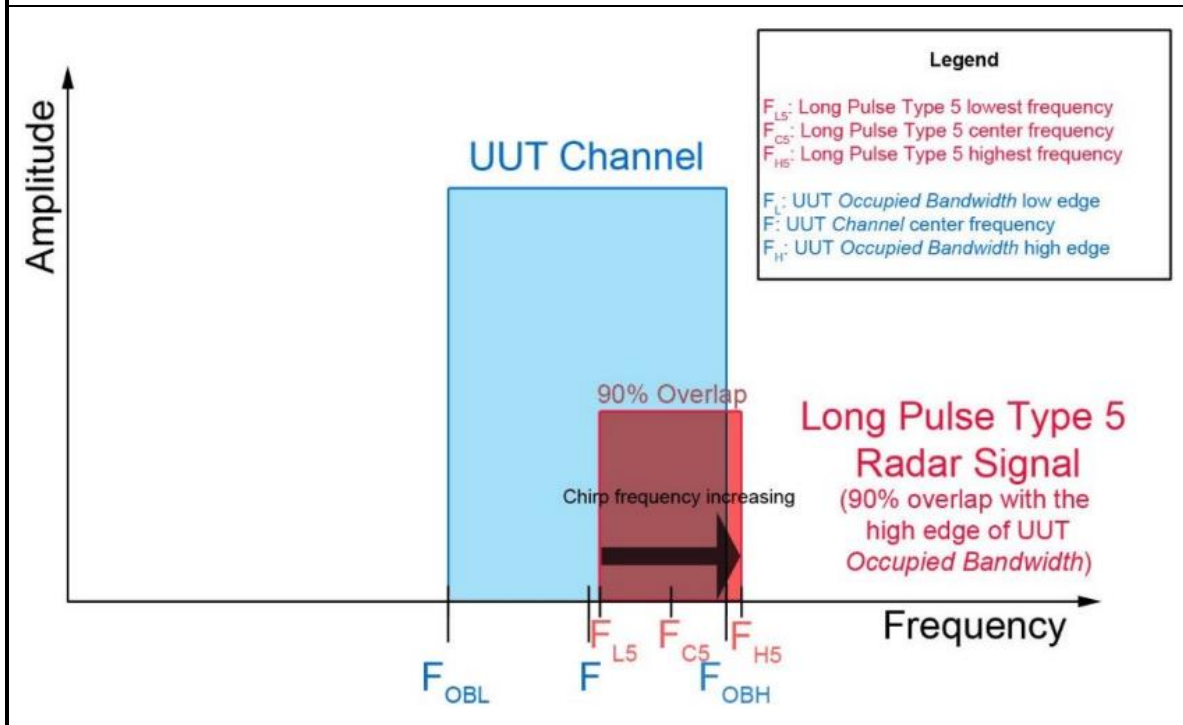
a) Channel center frequency (subset case 1)



b) Tuned frequencies such that 90% of the Long Pulse Type 5 frequency modulation is within the low edge of the UUT Occupied Bandwidth. (subset case 2)



c) Tuned frequencies such that 90% of the Long Pulse Type 5 frequency modulation is within the high edge of the UUT Occupied Bandwidth. (subset case 3)



The percentage of successful detection is calculated by:

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

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:

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

Table 7 – Frequency Hopping Radar Test Waveform

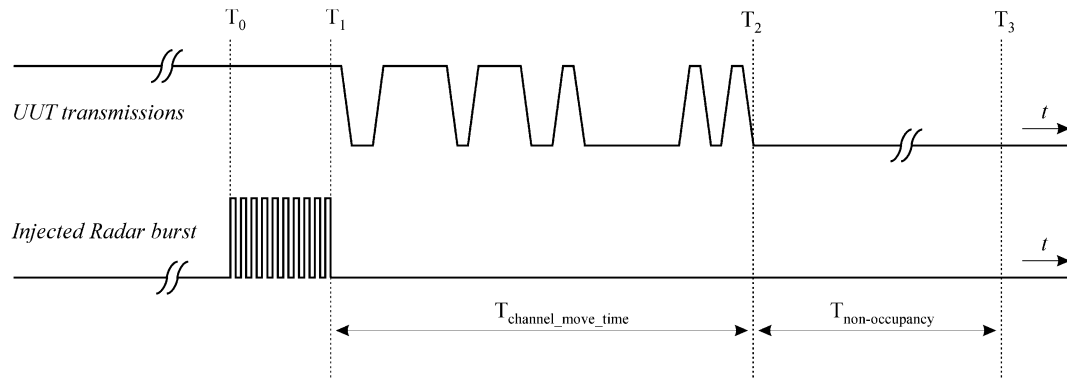
Radar Type	Pulse Width (μsec)	PRI (μsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (msec)	Minimum Percentage of Successful Detection	Minimum Number of Trials
6	1	333	9	0.333	300	70%	30

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 from the hopping sequence defined by the following algorithm:

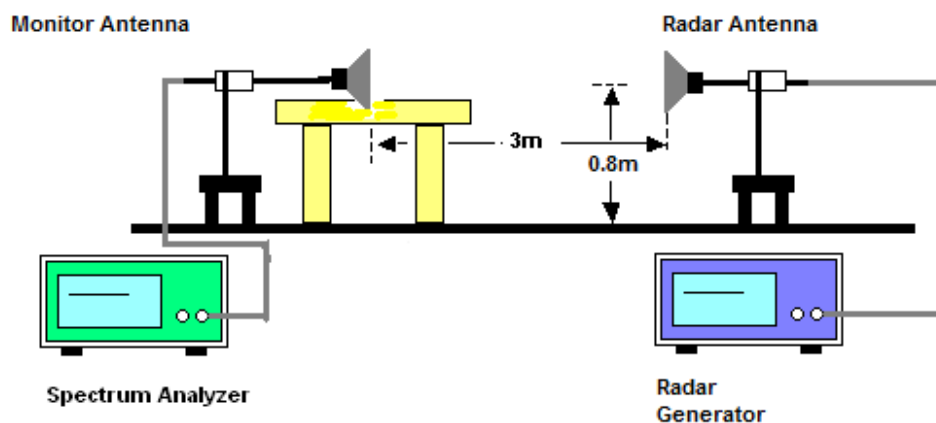
The first frequency in a hopping sequence is selected randomly from the group of 475 integer frequencies from 5250 – 5724 MHz. Next, the frequency that was just chosen is removed from the group and a frequency is randomly selected from the remaining 474 frequencies in the group. This process continues 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.

3.5.2 Test Procedures

- (1) One frequency will be chosen from the Operating Channels of the EUT within the 5250-5350 MHz or 5470-5725 MHz bands.
- (2) In case the EUT 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 EUT (Master). 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.
- (3) The TCP protocol unicast data stream was generated by the iperf software command line with at least 17% activity ratio over any 100ms period.
- (4) At time T_0 the Radar Waveform generator sends a Burst of pulses for each of the Radar Types 1-6 at DFS Detection Threshold levels 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.
- (5) Observe the transmissions of the EUT at the end of the Burst on the Operating Channel for duration greater than 10 seconds for Short Pulse Radar Types 1-4 and 6 to ensure detection occurs.
- (6) Observe the transmissions of the EUT at the end of the Burst on the Operating Channel for duration greater than 22 seconds for Long Pulse Radar Type 5 to ensure detection occurs.



3.5.3 Test Setup



3.5.4 Test Deviation

There is no deviation with the original standard.



3.5.5 Result of Statistical Performance Check

<80MHz / 5290MHz>

(Detection = Y, No Detection = N)						
Trial Number	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6
1	Y	Y	Y	Y	Y	Y
2	Y	Y	Y	Y	Y	Y
3	Y	Y	Y	Y	Y	Y
4	Y	Y	Y	Y	Y	Y
5	Y	Y	Y	Y	Y	Y
6	Y	Y	Y	Y	Y	Y
7	Y	Y	Y	Y	Y	Y
8	Y	Y	Y	Y	Y	Y
9	Y	Y	Y	Y	Y	Y
10	Y	Y	Y	Y	Y	Y
11	Y	Y	Y	Y	Y	Y
12	Y	Y	Y	Y	Y	Y
13	Y	Y	Y	N	Y	Y
14	Y	Y	Y	Y	Y	Y
15	Y	Y	Y	N	Y	Y
16	Y	Y	Y	Y	Y	Y
17	Y	Y	Y	Y	Y	Y
18	Y	Y	Y	Y	Y	Y
19	Y	Y	Y	Y	Y	Y
20	Y	Y	Y	Y	Y	Y
21	Y	Y	Y	Y	Y	Y
22	Y	Y	Y	Y	Y	Y
23	Y	Y	Y	Y	Y	Y
24	Y	Y	Y	Y	Y	Y
25	Y	Y	Y	Y	Y	Y
26	Y	Y	Y	Y	Y	Y
27	Y	Y	Y	Y	Y	Y
28	Y	Y	Y	Y	Y	Y
29	Y	Y	Y	Y	Y	Y
30	Y	Y	Y	Y	Y	Y
Trial of Detection	30/30	30/30	30/30	28/30	30/30	30/30
Probability (%)	100%	100%	100%	93.33%	100%	100%
Limit (%)	>= 60%	>= 60%	>= 60%	>= 60%	>= 80%	>= 70%
Average Probability of Radar Type 1~4 (%)			98.33% (>=80%)			



<80MHz / 5530MHz>

(Detection = Y, No Detection = N)						
Trial Number	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6
1	Y	Y	Y	Y	Y	Y
2	Y	Y	Y	Y	Y	Y
3	Y	Y	Y	Y	Y	Y
4	Y	Y	Y	Y	Y	Y
5	Y	Y	Y	Y	Y	Y
6	Y	Y	Y	Y	Y	Y
7	Y	Y	Y	Y	Y	Y
8	Y	Y	Y	Y	Y	Y
9	Y	Y	Y	Y	Y	Y
10	Y	Y	Y	Y	Y	Y
11	Y	Y	Y	Y	Y	Y
12	Y	Y	Y	Y	Y	Y
13	Y	Y	Y	Y	Y	Y
14	Y	Y	Y	Y	Y	Y
15	Y	Y	Y	Y	Y	Y
16	Y	Y	Y	Y	Y	Y
17	Y	Y	Y	Y	Y	Y
18	Y	Y	Y	Y	Y	Y
19	Y	Y	Y	Y	Y	Y
20	Y	Y	Y	Y	Y	Y
21	Y	Y	Y	Y	Y	Y
22	Y	Y	Y	Y	Y	Y
23	Y	Y	Y	Y	Y	Y
24	Y	Y	Y	Y	Y	Y
25	Y	Y	Y	Y	Y	Y
26	Y	Y	Y	Y	Y	Y
27	Y	Y	Y	Y	Y	Y
28	Y	Y	Y	Y	N	Y
29	Y	N	Y	Y	Y	Y
30	Y	Y	Y	Y	Y	Y
Trial of Detection	30/30	29/30	30/30	30/30	29/30	30/30
Probability (%)	100%	96.67%	100%	100%	96.67%	100%
Limit (%)	>= 60%	>= 60%	>= 60%	>= 60%	>= 80%	>= 70%
Average Probability of Radar Type 1~4 (%)			99.17% (>=80%)			



4 List of Measuring Equipment

Instrument	Brand Name	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
RF Vector Signal Generator	Keysight	N5182B	MY57300963	9KHz~6GHz	Mar. 26, 2024	Jun. 18, 2024~ Jun. 20, 2024	Mar. 25, 2025	DFS (DF01-CA)
Frequency Extender	Keysight	N5182BX07	MY59360230	9kHz~7.2GHz	Mar. 26, 2024	Jun. 18, 2024~ Jun. 20, 2024	Mar. 25, 2025	DFS (DF01-CA)
EXA Signal Analyzer	Keysight	N9010A	MY56070412	10Hz~7GHz	Nov. 30, 2023	Jun. 18, 2024~ Jun. 20, 2024	Nov. 29, 2024	DFS (DF01-CA)
Horn Antenna	SCHWARZBECK	BBHA 9120D	01895	1GHz ~18GHz	Sep. 25, 2023	Jun. 18, 2024~ Jun. 20, 2024	Sep. 24, 2024	DFS (DF01-CA)
Horn Antenna	SCHWARZBECK	BBHA 9120D	01894	1GHz ~18GHz	Aug. 30, 2023	Jun. 18, 2024~ Jun. 20, 2024	Aug. 29, 2024	DFS (DF01-CA)
Hygrometer	Testo	608-H1	45142588	Temperature & Humidity	Jul. 26, 2023	Jun. 18, 2024~ Jun. 20, 2024	Jul. 25, 2024	DFS (DF01-CA)



Appendix A. DFS Radar Parameters

DFS Radar Parameters
FCC Radar Type 1
Channel 58 Bandwidth 80MHz

Trial #	Pulse Repetition Frequency Number (1 to 23)	Pulse Repetition Frequency (Pulses Per Second)	Pulse Repetition Interval (Microseconds)	Detection (Yes / No)
1	19	1138.95	878	Yes
2	14	1285.35	778	Yes
3	16	1222.49	818	Yes
4	6	1618.12	618	Yes
5	5	1672.24	598	Yes
6	11	1392.76	718	Yes
7	15	1253.13	798	Yes
8	17	1193.32	838	Yes
9	20	1113.59	898	Yes
10	9	1474.93	678	Yes
11	8	1519.76	658	Yes
12	13	1319.26	758	Yes
13	22	1066.10	938	Yes
14	10	1432.66	698	Yes
15	1	1930.50	518	Yes
16		459.56	2176	Yes
17		538.21	1858	Yes
18		1199.04	834	Yes
19		787.40	1270	Yes
20		626.17	1597	Yes
21		444.84	2248	Yes
22		569.15	1757	Yes
23		643.50	1554	Yes
24		380.37	2629	Yes
25		888.10	1126	Yes
26		569.48	1756	Yes
27		517.60	1932	Yes
28		551.57	1813	Yes
29		343.64	2910	Yes
30		895.26	1117	Yes

DFS Radar Parameters
FCC Radar Type 2
Channel 58 Bandwidth 80MHz

Trial #	Number Pulses per Burst	Pulse Width (Microseconds)	Pulse Repetition Interval (Microseconds)	Detection (Yes / No)
1	27	3.50	175	Yes
2	25	2.30	209	Yes
3	24	1.90	216	Yes
4	27	3.70	170	Yes
5	26	3.00	214	Yes
6	28	3.90	221	Yes
7	25	2.50	172	Yes
8	25	2.30	174	Yes
9	26	3.20	204	Yes
10	27	3.90	160	Yes
11	28	4.10	217	Yes
12	24	2.00	201	Yes
13	29	5.00	215	Yes
14	24	1.80	167	Yes
15	29	4.90	196	Yes
16	23	1.10	155	Yes
17	27	3.60	206	Yes
18	27	3.40	183	Yes
19	23	1.10	228	Yes
20	26	3.10	225	Yes
21	24	1.90	184	Yes
22	29	4.50	193	Yes
23	26	3.30	223	Yes
24	24	1.70	229	Yes
25	27	3.60	182	Yes
26	25	2.60	151	Yes
27	27	3.40	218	Yes
28	23	1.30	169	Yes
29	29	4.80	166	Yes
30	29	4.70	178	Yes

DFS Radar Parameters
FCC Radar Type 3
Channel 58 Bandwidth 80MHz

Trial #	Number Pulses per Burst	Pulse Width (Microseconds)	Pulse Repetition Interval (Microseconds)	Detection (Yes / No)
1	17	8.50	227	Yes
2	16	7.30	308	Yes
3	16	6.90	223	Yes
4	18	8.70	376	Yes
5	17	8.00	408	Yes
6	18	8.90	350	Yes
7	17	7.50	284	Yes
8	17	7.30	256	Yes
9	17	8.20	441	Yes
10	18	8.90	300	Yes
11	18	9.10	445	Yes
12	16	7.00	207	Yes
13	18	10.00	239	Yes
14	16	6.80	321	Yes
15	18	9.90	326	Yes
16	16	6.10	469	Yes
17	17	8.60	382	Yes
18	17	8.40	295	Yes
19	16	6.10	267	Yes
20	17	8.10	344	Yes
21	16	6.90	334	Yes
22	18	9.50	426	Yes
23	17	8.30	457	Yes
24	16	6.70	367	Yes
25	17	8.60	474	Yes
26	17	7.60	315	Yes
27	17	8.40	430	Yes
28	16	6.30	331	Yes
29	18	9.80	481	Yes
30	18	9.70	215	Yes

DFS Radar Parameters
FCC Radar Type 4
Channel 58 Bandwidth 80MHz

Trial #	Number Pulses per Burst	Pulse Width (Microseconds)	Pulse Repetition Interval (Microseconds)	Detection (Yes / No)
1	15	16.50	227	Yes
2	13	13.90	308	Yes
3	13	13.10	223	Yes
4	15	17.20	376	Yes
5	14	15.40	408	Yes
6	15	17.50	350	Yes
7	13	14.40	284	Yes
8	13	14.00	256	Yes
9	14	15.90	441	Yes
10	15	17.40	300	Yes
11	15	17.90	445	Yes
12	13	13.20	207	Yes
13	16	19.90	239	No
14	13	12.80	321	Yes
15	16	19.80	326	No
16	12	11.20	469	Yes
17	15	16.90	382	Yes
18	14	16.40	295	Yes
19	12	11.20	267	Yes
20	14	15.80	344	Yes
21	13	13.10	334	Yes
22	16	18.90	426	Yes
23	14	16.10	457	Yes
24	12	12.60	367	Yes
25	15	16.80	474	Yes
26	14	14.70	315	Yes
27	15	16.50	430	Yes
28	12	11.70	331	Yes
29	16	19.50	481	Yes
30	16	19.30	215	Yes

DFS Radar Parameters
FCC Radar Type 5
Channel 58 Bandwidth 80MHz

Trial Number:			1			Detection (Yes/No)
Number of Bursts in Trial:			15			
Chirp Center Frequency:			5290			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	80.6	14	1854	-	680418
2	1	66.4	14	-	-	77280
3	1	61.6	14	-	-	270973
4	3	84.2	14	1922	1740	462276
5	2	74.7	14	1261	-	657493
6	3	86.3	14	1231	1613	53206
7	2	68.8	14	1627	-	246638
8	2	66.7	14	1479	-	439998
9	2	77.4	14	1835	-	633097
10	3	85.6	14	1770	1576	29414
11	3	88	14	1759	1808	222207
12	1	62.3	14	-	-	416641
13	3	99.1	14	1559	1563	608179
14	1	60.2	14	-	-	5666
15	3	98.4	14	1275	1567	198731
16						
17						
18						
19						
20						

Trial Number:			2			Detection (Yes/No)
Number of Bursts in Trial:			12			
Chirp Center Frequency:			5290			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	51.3	10	-	-	491559
2	2	82.6	10	1286	-	732956
3	2	79.8	10	1595	-	974323
4	1	51.2	10	-	-	219387
5	2	76.7	10	1675	-	460949
6	1	61.9	10	-	-	703775
7	3	93.9	10	1307	1396	943259
8	2	78.2	10	1109	-	189447
9	1	59.3	10	-	-	431948
10	2	82.2	10	1924	-	672679
11	2	70.7	10	1805	-	914714
12	2	80.5	10	1305	-	159517
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18						
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DFS Radar Parameters
FCC Radar Type 5
Channel 58 Bandwidth 80MHz

Trial Number:			3			Detection (Yes/No)
Number of Bursts in Trial:			11			
Chirp Center Frequency:			5290			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	53.9	8	-	-	438360
2	3	97	8	1266	1464	700875
3	3	96.1	8	1498	1181	964262
4	3	92.6	8	1555	1437	141340
5	1	52.9	8	-	-	405815
6	2	71.1	8	1949	-	669126
7	1	63.8	8	-	-	934161
8	3	85.4	8	1356	1667	108970
9	3	86.6	8	1174	1095	372782
10	1	52.7	8	-	-	637932
11	2	78.8	8	1616	-	900843
12						
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Trial Number:			4			Detection (Yes/No)
Number of Bursts in Trial:			16			
Chirp Center Frequency:			5290			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	55.3	15	-	-	52675
2	3	94.7	15	1598	1378	233432
3	2	69.2	15	1005	-	415117
4	3	98.2	15	1761	1515	594866
5	2	67.8	15	1073	-	30277
6	1	62.5	15	-	-	211753
7	2	67.1	15	1131	-	393003
8	2	76.7	15	1726	-	573354
9	2	82.7	15	1315	-	7948
10	3	88	15	1693	1139	188875
11	3	96.3	15	1281	1821	369536
12	1	63.5	15	-	-	552535
13	3	99.3	15	1210	1896	730903
14	2	79.5	15	1544	-	166835
15	3	90.1	15	1094	1153	347435
16	2	73.2	15	1803	-	528983
17						
18						
19						
20						

DFS Radar Parameters
FCC Radar Type 5
Channel 58 Bandwidth 80MHz

Trial Number:			5			Detection (Yes/No)
Number of Bursts in Trial:			14			
Chirp Center Frequency:			5290			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	65.8	12	-	-	813927
2	3	86.8	12	1645	1980	164856
3	3	88.3	12	1330	1703	371570
4	1	52.2	12	-	-	580469
5	1	52	12	-	-	787958
6	1	54	12	-	-	139871
7	1	55.7	12	-	-	347555
8	1	64.8	12	-	-	554702
9	2	69.7	12	1877	-	760614
10	2	81.3	12	1465	-	114203
11	3	93.1	12	1419	1663	320696
12	3	85	12	1325	1460	527523
13	3	91.2	12	1996	1573	734043
14	3	85.3	12	1506	1514	88454
15						
16						
17						
18						
19						
20						

Trial Number:			6			Detection (Yes/No)
Number of Bursts in Trial:			17			
Chirp Center Frequency:			5290			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	74.9	16	1496	-	243534
2	1	61.7	16	-	-	414868
3	3	98.6	16	1556	1028	583243
4	1	53.8	16	-	-	52046
5	2	74.4	16	1578	-	222325
6	1	56.5	16	-	-	393520
7	1	57.4	16	-	-	564488
8	1	63.8	16	-	-	31025
9	2	76	16	1982	-	201249
10	1	65.7	16	-	-	372772
11	3	92.2	16	1089	1851	541296
12	1	55.4	16	-	-	9982
13	3	88	16	1574	1031	180192
14	3	92.5	16	1235	1459	350192
15	1	57.7	16	-	-	522620
16	3	83.4	16	1752	1589	689752
17	3	96.9	16	1914	1357	159061
18						
19						
20						

DFS Radar Parameters
FCC Radar Type 5
Channel 58 Bandwidth 80MHz

Trial Number:			7			Detection (Yes/No)
Number of Bursts in Trial:			12			
Chirp Center Frequency:			5290			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	63	11	-	-	468712
2	1	62.9	11	-	-	711140
3	3	98	11	1635	1105	950446
4	3	98	11	1179	1965	196138
5	3	98.7	11	1698	1124	437577
6	3	98.4	11	1039	1480	679540
7	1	50.4	11	-	-	922764
8	2	76.8	11	1906	-	166581
9	1	51.3	11	-	-	408948
10	3	88.9	11	1790	1350	648977
11	1	54.3	11	-	-	892924
12	2	78.4	11	1256	-	136893
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19						
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Trial Number:			8			Detection (Yes/No)
Number of Bursts in Trial:			12			
Chirp Center Frequency:			5290			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	3	86.6	10	1764	1697	377953
2	2	69.5	10	1806	-	620198
3	2	82.1	10	1605	-	861703
4	3	85.6	10	1608	1628	106844
5	3	97.5	10	1289	1111	348484
6	1	63.1	10	-	-	591602
7	3	84.5	10	1561	1050	831464
8	1	65	10	-	-	77332
9	3	95.4	10	1453	1689	318642
10	1	55	10	-	-	561416
11	3	83.5	10	1919	1475	801303
12	1	65.7	10	-	-	47504
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DFS Radar Parameters
FCC Radar Type 5
Channel 58 Bandwidth 80MHz

Trial Number:			9			Detection (Yes/No)
Number of Bursts in Trial:			15			
Chirp Center Frequency:			5290			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	52	13	-	-	231719
2	1	60.7	13	-	-	425577
3	2	72.5	13	1691	-	618057
4	1	60.1	13	-	-	14136
5	3	96.6	13	1929	1187	206977
6	1	66.1	13	-	-	401510
7	1	63.3	13	-	-	594995
8	1	57	13	-	-	788987
9	3	86.4	13	1333	1587	183379
10	3	84.5	13	1008	1674	376258
11	2	80	13	1192	-	570283
12	2	72.1	13	1878	-	763502
13	3	93.2	13	1569	1043	159473
14	3	87.3	13	1714	1288	352274
15	2	76.3	13	1654	-	546170
16						
17						
18						
19						
20						

Trial Number:			10			Detection (Yes/No)
Number of Bursts in Trial:			17			
Chirp Center Frequency:			5290			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	63.4	16	-	-	653339
2	3	98.1	16	1743	1750	119627
3	2	77.1	16	1887	-	290039
4	2	73.1	16	1239	-	460964
5	2	67.7	16	1155	-	631741
6	1	53	16	-	-	99103
7	3	85.4	16	1640	1911	268543
8	3	89.5	16	1100	1902	439072
9	3	96.3	16	1087	1495	609594
10	1	60.1	16	-	-	78134
11	2	69.9	16	1388	-	248263
12	3	90.5	16	1257	1513	417830
13	2	79.3	16	1329	-	589193
14	2	73.3	16	1341	-	56913
15	2	68.4	16	1650	-	227423
16	1	51.4	16	-	-	398638
17	1	58	16	-	-	569633
18						
19						
20						

DFS Radar Parameters
FCC Radar Type 5
Channel 58 Bandwidth 80MHz

Trial Number:			11			Detection (Yes/No)
Number of Bursts in Trial:			17			
Chirp Center Frequency:			5259			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	79.4	17	1163	-	35932
2	2	82.3	17	1472	-	206349
3	3	96	17	1172	1511	376445
4	3	87.9	17	1634	1651	546130
5	2	75.9	17	1881	-	14924
6	3	90.4	17	1773	1276	185077
7	2	80.2	17	1882	-	355481
8	3	85.3	17	1748	1461	525381
9	2	75.6	17	1336	-	696978
10	3	97.4	17	1741	1927	163849
11	3	92.1	17	1389	1797	334250
12	1	52	17	-	-	506759
13	3	89.6	17	1618	1638	674567
14	1	59.9	17	-	-	143701
15	3	92.4	17	1412	1564	313377
16	1	60.1	17	-	-	485546
17	3	86.9	17	1553	1706	652917
18						
19						
20						

Trial Number:			12			Detection (Yes/No)
Number of Bursts in Trial:			11			
Chirp Center Frequency:			5255			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	71.1	8	1820	-	189386
2	2	66.9	8	1086	-	453483
3	2	68.3	8	1629	-	716848
4	2	82	8	1660	-	981283
5	1	65.8	8	-	-	157187
6	1	62.6	8	-	-	421205
7	1	66.6	8	-	-	685401
8	2	71.3	8	1352	-	948396
9	2	76.3	8	1245	-	124448
10	1	50	8	-	-	388731
11	2	76.6	8	1832	-	652047
12						
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DFS Radar Parameters
FCC Radar Type 5
Channel 58 Bandwidth 80MHz

Trial Number:			13			Detection (Yes/No)
Number of Bursts in Trial:			20			
Chirp Center Frequency:			5260			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	75.6	20	1408	-	502342
2	3	84	20	1673	1490	50339
3	3	83.8	20	1551	1420	194811
4	2	67.9	20	1711	-	340194
5	2	83	20	1999	-	484344
6	2	72	20	1725	-	32611
7	3	92.8	20	1668	1428	176838
8	1	60.9	20	-	-	322889
9	3	91.4	20	1973	1481	465302
10	3	88.4	20	1777	1146	14769
11	3	87.6	20	1870	1974	159039
12	1	57.6	20	-	-	305091
13	3	96.9	20	1061	1582	448280
14	3	87.9	20	1130	1762	592702
15	3	92.1	20	2000	1786	141285
16	1	55.7	20	-	-	287458
17	3	93.4	20	1136	1699	430175
18	3	87.4	20	1947	1656	574275
19	1	56.6	20	-	-	124254
20	1	50.1	20	-	-	269517

Trial Number:			14			Detection (Yes/No)
Number of Bursts in Trial:			10			
Chirp Center Frequency:			5255			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	77.5	8	1438	-	829266
2	2	80.4	8	1321	-	1119788
3	3	92.5	8	1890	1482	212293
4	1	52.2	8	-	-	503505
5	1	51.4	8	-	-	794482
6	2	83.2	8	1099	-	1084170
7	2	76	8	1404	-	176959
8	1	63.5	8	-	-	467958
9	2	69.6	8	1682	-	757478
10	2	79.3	8	1232	-	1047714
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DFS Radar Parameters
FCC Radar Type 5
Channel 58 Bandwidth 80MHz

Trial Number:			15			Detection (Yes/No)
Number of Bursts in Trial:			20			
Chirp Center Frequency:			5260			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	66.5	20	-	-	70552
2	3	99.6	20	1126	1219	214733
3	3	90.4	20	1362	1766	359097
4	1	53.5	20	-	-	505988
5	1	59.7	20	-	-	52683
6	3	91.7	20	1058	1283	197214
7	1	63.6	20	-	-	343115
8	2	74.1	20	1733	-	487142
9	2	69.1	20	1862	-	34721
10	2	67.6	20	1084	-	179644
11	2	67.2	20	1669	-	324376
12	2	81.5	20	1399	-	469316
13	2	68.7	20	1164	-	16914
14	3	98.5	20	1423	1484	161320
15	3	83.6	20	1144	1524	305869
16	1	59.3	20	-	-	452713
17	2	71.4	20	1502	-	595779
18	3	94.2	20	1936	1744	143364
19	2	73.7	20	1823	-	288581
20	1	56.9	20	-	-	434205

Trial Number:			16			Detection (Yes/No)
Number of Bursts in Trial:			8			
Chirp Center Frequency:			5254			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	73.3	5	1868	-	1449972
2	3	84	5	1596	1309	315823
3	2	69.6	5	1501	-	679305
4	3	99.9	5	1990	1236	1040904
5	3	99.1	5	1493	1441	1404130
6	3	95.2	5	1671	1251	270996
7	3	91.5	5	1081	1284	633873
8	2	81.5	5	1735	-	997096
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DFS Radar Parameters
FCC Radar Type 5
Channel 58 Bandwidth 80MHz

Trial Number:			17			Detection (Yes/No)
Number of Bursts in Trial:			16			
Chirp Center Frequency:			5258			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	66.4	15	-	-	680659
2	3	99.9	15	1688	1140	112881
3	3	96	15	1248	1739	293790
4	2	79.2	15	1875	-	475234
5	3	91.3	15	1149	1500	655253
6	1	62.1	15	-	-	90966
7	2	71.9	15	1499	-	272092
8	3	88	15	1807	1816	451954
9	2	67.3	15	1323	-	634145
10	3	93.3	15	1132	1989	68290
11	2	78.2	15	1590	-	249421
12	1	50.4	15	-	-	431545
13	3	92.2	15	1036	1918	610777
14	2	69.2	15	1745	-	46125
15	2	68.3	15	1852	-	227205
16	3	89.1	15	1939	1375	407448
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Trial Number:			18			Detection (Yes/No)
Number of Bursts in Trial:			15			
Chirp Center Frequency:			5258			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	82.9	14	1137	-	629590
2	3	96.1	14	1201	1960	25329
3	1	61.6	14	-	-	219043
4	3	94	14	1533	1476	411299
5	2	68.6	14	1833	-	604675
6	3	92.2	14	1067	1863	1577
7	1	61.7	14	-	-	195284
8	2	81.9	14	1713	-	387994
9	3	89.9	14	1468	1686	580441
10	1	62.7	14	-	-	776208
11	1	56	14	-	-	171409
12	2	82.5	14	1738	-	364313
13	2	79.9	14	1142	-	557595
14	3	90.5	14	1992	1981	748963
15	1	54.5	14	-	-	147579
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DFS Radar Parameters
FCC Radar Type 5
Channel 58 Bandwidth 80MHz

Trial Number:			19			Detection (Yes/No)
Number of Bursts in Trial:			8			
Chirp Center Frequency:			5254			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	64.5	5	-	-	640147
2	1	50.1	5	-	-	1003656
3	2	82.1	5	1337	-	1365995
4	1	57.7	5	-	-	232134
5	2	69.2	5	1082	-	594991
6	2	71.6	5	1160	-	958328
7	3	88.1	5	1684	1208	1320152
8	3	90.3	5	1418	1216	187011
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Trial Number:			20			Detection (Yes/No)
Number of Bursts in Trial:			14			
Chirp Center Frequency:			5257			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	56.6	13	-	-	314583
2	2	76.6	13	1189	-	521031
3	3	95.6	13	1594	1471	726725
4	3	92	13	1950	1312	81112
5	2	78.2	13	1831	-	288415
6	1	66	13	-	-	496718
7	2	73.3	13	1274	-	702516
8	1	64.7	13	-	-	55846
9	1	54	13	-	-	263401
10	1	65.7	13	-	-	471059
11	2	80.5	13	1120	-	677790
12	2	67	13	1780	-	30220
13	1	53	13	-	-	237771
14	3	83.5	13	1253	1585	443801
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DFS Radar Parameters
FCC Radar Type 5
Channel 58 Bandwidth 80MHz

Trial Number:			21			Detection (Yes/No)
Number of Bursts in Trial:			11			
Chirp Center Frequency:			5325			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	3	97.6	8	1226	1509	829239
2	1	62.8	8	-	-	6013
3	2	74.3	8	1425	-	269896
4	3	88.2	8	1011	1313	533319
5	1	64.1	8	-	-	798945
6	3	89.4	8	1097	1819	1059658
7	2	78.5	8	1678	-	237230
8	1	56	8	-	-	501715
9	3	89.4	8	1826	1954	763550
10	1	58	8	-	-	1030017
11	2	76.8	8	1757	-	204723
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Trial Number:			22			Detection (Yes/No)
Number of Bursts in Trial:			19			
Chirp Center Frequency:			5320			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	3	88.8	19	1112	1653	270127
2	1	63.6	19	-	-	423981
3	1	50.3	19	-	-	576718
4	1	60	19	-	-	99807
5	1	61.5	19	-	-	252691
6	3	99.1	19	1942	1913	402749
7	2	67.5	19	1558	-	557258
8	3	94.9	19	1405	1227	80599
9	1	55.8	19	-	-	233782
10	1	55	19	-	-	386553
11	2	67.4	19	1199	-	538447
12	2	73.1	19	1923	-	62019
13	1	50.1	19	-	-	215124
14	3	83.6	19	1154	1018	366457
15	1	65.8	19	-	-	520535
16	1	66.6	19	-	-	43368
17	3	98	19	1934	1017	195384
18	1	52	19	-	-	349229
19	2	66.8	19	1213	-	500973
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DFS Radar Parameters
FCC Radar Type 5
Channel 58 Bandwidth 80MHz

Trial Number:			23			Detection (Yes/No)
Number of Bursts in Trial:			15			
Chirp Center Frequency:			5322			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	3	99.4	14	1443	1063	31008
2	2	73.5	14	1724	-	224307
3	1	51.4	14	-	-	418395
4	2	81	14	1157	-	610829
5	1	52.6	14	-	-	7229
6	2	69.2	14	1024	-	200748
7	3	83.5	14	1045	1402	393172
8	2	81	14	1406	-	587421
9	1	57.4	14	-	-	781868
10	3	98.8	14	1360	1194	176461
11	1	61.7	14	-	-	370485
12	1	50.5	14	-	-	564225
13	3	87.2	14	1433	1311	755821
14	3	87.5	14	1238	1521	152572
15	1	65.2	14	-	-	347052
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Trial Number:			24			Detection (Yes/No)
Number of Bursts in Trial:			10			
Chirp Center Frequency:			5325			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	3	89.4	7	1439	1071	809603
2	1	52.3	7	-	-	1101686
3	2	72.9	7	1195	-	193946
4	1	54.7	7	-	-	484886
5	3	92.5	7	1975	1065	773382
6	1	66.6	7	-	-	1066303
7	1	63	7	-	-	158340
8	2	72.2	7	1442	-	448496
9	3	97.2	7	1047	1701	738158
10	2	78.4	7	1931	-	1028535
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DFS Radar Parameters
FCC Radar Type 5
Channel 58 Bandwidth 80MHz

Trial Number:			25			Detection (Yes/No)
Number of Bursts in Trial:			16			
Chirp Center Frequency:			5322			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	80.1	15	1417	-	76411
2	3	89.8	15	1269	1532	257042
3	2	74.1	15	1526	-	438601
4	1	54.6	15	-	-	621097
5	3	98.3	15	1076	1310	53952
6	2	72.8	15	1478	-	235290
7	2	80.5	15	1027	-	416482
8	1	54	15	-	-	598840
9	2	72.5	15	1221	-	31753
10	1	58.7	15	-	-	213388
11	1	53.3	15	-	-	394894
12	3	87.3	15	1652	1531	573653
13	2	82.6	15	1020	-	9411
14	3	97.8	15	1477	1293	190340
15	3	90.9	15	1340	1161	371061
16	2	78.1	15	1545	-	553167
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Trial Number:			26			Detection (Yes/No)
Number of Bursts in Trial:			13			
Chirp Center Frequency:			5323			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	68.1	11	1909	-	903785
2	1	60	11	-	-	207694
3	3	96.1	11	1381	1753	429826
4	3	94.1	11	1778	1846	652354
5	1	54.5	11	-	-	878043
6	2	80.3	11	1279	-	179765
7	3	85.6	11	1168	1643	402529
8	3	85	11	1719	1586	624706
9	3	94.2	11	1796	1487	847128
10	1	63.5	11	-	-	152596
11	3	93.7	11	1177	1666	375024
12	3	93.3	11	1046	1845	597748
13	1	59.5	11	-	-	822999
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DFS Radar Parameters
FCC Radar Type 5
Channel 58 Bandwidth 80MHz

Trial Number:			27			Detection (Yes/No)
Number of Bursts in Trial:			15			
Chirp Center Frequency:			5322			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	50.2	14	-	-	108306
2	3	86.4	14	1883	1972	300368
3	1	51.2	14	-	-	495509
4	1	54.2	14	-	-	689711
5	1	52.5	14	-	-	84413
6	2	72.6	14	1995	-	277563
7	2	79.4	14	1830	-	470500
8	1	59.3	14	-	-	665773
9	2	76.4	14	1827	-	60427
10	1	59.2	14	-	-	254192
11	2	76	14	1367	-	447376
12	2	81.3	14	1070	-	640520
13	3	96.5	14	1930	1695	36559
14	1	64.6	14	-	-	230318
15	2	78.8	14	1716	-	423142
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Trial Number:			28			Detection (Yes/No)
Number of Bursts in Trial:			9			
Chirp Center Frequency:			5325			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	61.9	6	-	-	1030456
2	1	52	6	-	-	21478
3	2	69.7	6	1191	-	344214
4	2	75.2	6	1332	-	667012
5	1	63.8	6	-	-	990429
6	1	64.4	6	-	-	1313362
7	3	98.6	6	1369	1801	304007
8	1	53	6	-	-	627867
9	2	76.1	6	1206	-	949548
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DFS Radar Parameters
FCC Radar Type 5
Channel 58 Bandwidth 80MHz

Trial Number:			29			Detection (Yes/No)
Number of Bursts in Trial:			20			
Chirp Center Frequency:			5320			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	53.1	20	-	-	572539
2	2	73.9	20	1941	-	118582
3	3	99.8	20	1658	1886	262611
4	1	54.1	20	-	-	409411
5	3	89.2	20	1200	1940	551344
6	1	60.4	20	-	-	101107
7	3	84.8	20	1751	1943	244950
8	2	79.1	20	1102	-	390894
9	3	87.2	20	1901	1646	533015
10	3	94.6	20	1916	1384	82790
11	2	72.3	20	1836	-	227858
12	2	72.4	20	1534	-	372791
13	1	52	20	-	-	518672
14	2	83.1	20	1876	-	65242
15	2	80.1	20	1006	-	210376
16	2	75.2	20	1440	-	355025
17	1	61.4	20	-	-	501110
18	2	68.7	20	1776	-	47367
19	3	91.7	20	1721	1447	191541
20	1	50.7	20	-	-	337865

Trial Number:			30			Detection (Yes/No)
Number of Bursts in Trial:			19			
Chirp Center Frequency:			5320			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	70.1	19	1169	-	507533
2	1	62.8	19	-	-	31230
3	1	58.1	19	-	-	184149
4	1	65.6	19	-	-	336736
5	1	56.8	19	-	-	489933
6	2	73	19	1554	-	12366
7	3	92.1	19	1767	1630	164330
8	3	93.8	19	1436	1910	316115
9	2	68.4	19	1937	-	469301
10	2	79.5	19	1588	-	621756
11	3	95.2	19	1700	1517	145553
12	1	51.6	19	-	-	299026
13	2	83.3	19	1983	-	450707
14	2	75.2	19	1938	-	603325
15	1	51.1	19	-	-	127591
16	2	78.7	19	1632	-	279864
17	2	72.8	19	1560	-	432066
18	2	75.2	19	1647	-	584473
19	2	70.2	19	1218	-	108576
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DFS Radar Parameters
FCC Radar Type 1
Channel 106 Bandwidth 80MHz

Trial #	Pulse Repetition Frequency Number (1 to 23)	Pulse Repetition Frequency (Pulses Per Second)	Pulse Repetition Interval (Microseconds)	Detection (Yes / No)
1	19	1138.95	878	Yes
2	14	1285.35	778	Yes
3	16	1222.49	818	Yes
4	6	1618.12	618	Yes
5	5	1672.24	598	Yes
6	11	1392.76	718	Yes
7	15	1253.13	798	Yes
8	17	1193.32	838	Yes
9	20	1113.59	898	Yes
10	9	1474.93	678	Yes
11	8	1519.76	658	Yes
12	13	1319.26	758	Yes
13	22	1066.10	938	Yes
14	10	1432.66	698	Yes
15	1	1930.50	518	Yes
16		459.56	2176	Yes
17		538.21	1858	Yes
18		1199.04	834	Yes
19		787.40	1270	Yes
20		626.17	1597	Yes
21		444.84	2248	Yes
22		569.15	1757	Yes
23		643.50	1554	Yes
24		380.37	2629	Yes
25		888.10	1126	Yes
26		569.48	1756	Yes
27		517.60	1932	Yes
28		551.57	1813	Yes
29		343.64	2910	Yes
30		895.26	1117	Yes

DFS Radar Parameters
FCC Radar Type 2
Channel 106 Bandwidth 80MHz

Trial #	Number Pulses per Burst	Pulse Width (Microseconds)	Pulse Repetition Interval (Microseconds)	Detection (Yes / No)
1	27	3.50	175	Yes
2	25	2.30	209	Yes
3	24	1.90	216	Yes
4	27	3.70	170	Yes
5	26	3.00	214	Yes
6	28	3.90	221	Yes
7	25	2.50	172	Yes
8	25	2.30	174	Yes
9	26	3.20	204	Yes
10	27	3.90	160	Yes
11	28	4.10	217	Yes
12	24	2.00	201	Yes
13	29	5.00	215	Yes
14	24	1.80	167	Yes
15	29	4.90	196	Yes
16	23	1.10	155	Yes
17	27	3.60	206	Yes
18	27	3.40	183	Yes
19	23	1.10	228	Yes
20	26	3.10	225	Yes
21	24	1.90	184	Yes
22	29	4.50	193	Yes
23	26	3.30	223	Yes
24	24	1.70	229	Yes
25	27	3.60	182	Yes
26	25	2.60	151	Yes
27	27	3.40	218	Yes
28	23	1.30	169	Yes
29	29	4.80	166	No
30	29	4.70	178	Yes

DFS Radar Parameters
FCC Radar Type 3
Channel 106 Bandwidth 80MHz

Trial #	Number Pulses per Burst	Pulse Width (Microseconds)	Pulse Repetition Interval (Microseconds)	Detection (Yes / No)
1	17	8.50	227	Yes
2	16	7.30	308	Yes
3	16	6.90	223	Yes
4	18	8.70	376	Yes
5	17	8.00	408	Yes
6	18	8.90	350	Yes
7	17	7.50	284	Yes
8	17	7.30	256	Yes
9	17	8.20	441	Yes
10	18	8.90	300	Yes
11	18	9.10	445	Yes
12	16	7.00	207	Yes
13	18	10.00	239	Yes
14	16	6.80	321	Yes
15	18	9.90	326	Yes
16	16	6.10	469	Yes
17	17	8.60	382	Yes
18	17	8.40	295	Yes
19	16	6.10	267	Yes
20	17	8.10	344	Yes
21	16	6.90	334	Yes
22	18	9.50	426	Yes
23	17	8.30	457	Yes
24	16	6.70	367	Yes
25	17	8.60	474	Yes
26	17	7.60	315	Yes
27	17	8.40	430	Yes
28	16	6.30	331	Yes
29	18	9.80	481	Yes
30	18	9.70	215	Yes

DFS Radar Parameters
FCC Radar Type 4
Channel 106 Bandwidth 80MHz

Trial #	Number Pulses per Burst	Pulse Width (Microseconds)	Pulse Repetition Interval (Microseconds)	Detection (Yes / No)
1	15	16.50	227	Yes
2	13	13.90	308	Yes
3	13	13.10	223	Yes
4	15	17.20	376	Yes
5	14	15.40	408	Yes
6	15	17.50	350	Yes
7	13	14.40	284	Yes
8	13	14.00	256	Yes
9	14	15.90	441	Yes
10	15	17.40	300	Yes
11	15	17.90	445	Yes
12	13	13.20	207	Yes
13	16	19.90	239	Yes
14	13	12.80	321	Yes
15	16	19.80	326	Yes
16	12	11.20	469	Yes
17	15	16.90	382	Yes
18	14	16.40	295	Yes
19	12	11.20	267	Yes
20	14	15.80	344	Yes
21	13	13.10	334	Yes
22	16	18.90	426	Yes
23	14	16.10	457	Yes
24	12	12.60	367	Yes
25	15	16.80	474	Yes
26	14	14.70	315	Yes
27	15	16.50	430	Yes
28	12	11.70	331	Yes
29	16	19.50	481	Yes
30	16	19.30	215	Yes

DFS Radar Parameters
FCC Radar Type 5
Channel 106 Bandwidth 80MHz

Trial Number:			1			Detection (Yes/No)
Number of Bursts in Trial:			15			
Chirp Center Frequency:			5530			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	80.6	14	1854	-	680418
2	1	66.4	14	-	-	77280
3	1	61.6	14	-	-	270973
4	3	84.2	14	1922	1740	462276
5	2	74.7	14	1261	-	657493
6	3	86.3	14	1231	1613	53206
7	2	68.8	14	1627	-	246638
8	2	66.7	14	1479	-	439998
9	2	77.4	14	1835	-	633097
10	3	85.6	14	1770	1576	29414
11	3	88	14	1759	1808	222207
12	1	62.3	14	-	-	416641
13	3	99.1	14	1559	1563	608179
14	1	60.2	14	-	-	5666
15	3	98.4	14	1275	1567	198731
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Trial Number:			2			Detection (Yes/No)
Number of Bursts in Trial:			12			
Chirp Center Frequency:			5530			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	51.3	10	-	-	491559
2	2	82.6	10	1286	-	732956
3	2	79.8	10	1595	-	974323
4	1	51.2	10	-	-	219387
5	2	76.7	10	1675	-	460949
6	1	61.9	10	-	-	703775
7	3	93.9	10	1307	1396	943259
8	2	78.2	10	1109	-	189447
9	1	59.3	10	-	-	431948
10	2	82.2	10	1924	-	672679
11	2	70.7	10	1805	-	914714
12	2	80.5	10	1305	-	159517
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DFS Radar Parameters
FCC Radar Type 5
Channel 106 Bandwidth 80MHz

Trial Number:			3			Detection (Yes/No)
Number of Bursts in Trial:			11			
Chirp Center Frequency:			5530			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	53.9	8	-	-	438360
2	3	97	8	1266	1464	700875
3	3	96.1	8	1498	1181	964262
4	3	92.6	8	1555	1437	141340
5	1	52.9	8	-	-	405815
6	2	71.1	8	1949	-	669126
7	1	63.8	8	-	-	934161
8	3	85.4	8	1356	1667	108970
9	3	86.6	8	1174	1095	372782
10	1	52.7	8	-	-	637932
11	2	78.8	8	1616	-	900843
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Trial Number:			4			Detection (Yes/No)
Number of Bursts in Trial:			16			
Chirp Center Frequency:			5530			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	55.3	15	-	-	52675
2	3	94.7	15	1598	1378	233432
3	2	69.2	15	1005	-	415117
4	3	98.2	15	1761	1515	594866
5	2	67.8	15	1073	-	30277
6	1	62.5	15	-	-	211753
7	2	67.1	15	1131	-	393003
8	2	76.7	15	1726	-	573354
9	2	82.7	15	1315	-	7948
10	3	88	15	1693	1139	188875
11	3	96.3	15	1281	1821	369536
12	1	63.5	15	-	-	552535
13	3	99.3	15	1210	1896	730903
14	2	79.5	15	1544	-	166835
15	3	90.1	15	1094	1153	347435
16	2	73.2	15	1803	-	528983
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DFS Radar Parameters
FCC Radar Type 5
Channel 106 Bandwidth 80MHz

Trial Number:			5			Detection (Yes/No)
Number of Bursts in Trial:			14			
Chirp Center Frequency:			5530			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	65.8	12	-	-	813927
2	3	86.8	12	1645	1980	164856
3	3	88.3	12	1330	1703	371570
4	1	52.2	12	-	-	580469
5	1	52	12	-	-	787958
6	1	54	12	-	-	139871
7	1	55.7	12	-	-	347555
8	1	64.8	12	-	-	554702
9	2	69.7	12	1877	-	760614
10	2	81.3	12	1465	-	114203
11	3	93.1	12	1419	1663	320696
12	3	85	12	1325	1460	527523
13	3	91.2	12	1996	1573	734043
14	3	85.3	12	1506	1514	88454
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Trial Number:			6			Detection (Yes/No)
Number of Bursts in Trial:			17			
Chirp Center Frequency:			5530			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	74.9	16	1496	-	243534
2	1	61.7	16	-	-	414868
3	3	98.6	16	1556	1028	583243
4	1	53.8	16	-	-	52046
5	2	74.4	16	1578	-	222325
6	1	56.5	16	-	-	393520
7	1	57.4	16	-	-	564488
8	1	63.8	16	-	-	31025
9	2	76	16	1982	-	201249
10	1	65.7	16	-	-	372772
11	3	92.2	16	1089	1851	541296
12	1	55.4	16	-	-	9982
13	3	88	16	1574	1031	180192
14	3	92.5	16	1235	1459	350192
15	1	57.7	16	-	-	522620
16	3	83.4	16	1752	1589	689752
17	3	96.9	16	1914	1357	159061
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DFS Radar Parameters
FCC Radar Type 5
Channel 106 Bandwidth 80MHz

Trial Number:			7			Detection (Yes/No)
Number of Bursts in Trial:			12			
Chirp Center Frequency:			5530			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	63	11	-	-	468712
2	1	62.9	11	-	-	711140
3	3	98	11	1635	1105	950446
4	3	98	11	1179	1965	196138
5	3	98.7	11	1698	1124	437577
6	3	98.4	11	1039	1480	679540
7	1	50.4	11	-	-	922764
8	2	76.8	11	1906	-	166581
9	1	51.3	11	-	-	408948
10	3	88.9	11	1790	1350	648977
11	1	54.3	11	-	-	892924
12	2	78.4	11	1256	-	136893
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Trial Number:			8			Detection (Yes/No)
Number of Bursts in Trial:			12			
Chirp Center Frequency:			5530			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	3	86.6	10	1764	1697	377953
2	2	69.5	10	1806	-	620198
3	2	82.1	10	1605	-	861703
4	3	85.6	10	1608	1628	106844
5	3	97.5	10	1289	1111	348484
6	1	63.1	10	-	-	591602
7	3	84.5	10	1561	1050	831464
8	1	65	10	-	-	77332
9	3	95.4	10	1453	1689	318642
10	1	55	10	-	-	561416
11	3	83.5	10	1919	1475	801303
12	1	65.7	10	-	-	47504
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DFS Radar Parameters
FCC Radar Type 5
Channel 106 Bandwidth 80MHz

Trial Number:			9			Detection (Yes/No)
Number of Bursts in Trial:			15			
Chirp Center Frequency:			5530			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	52	13	-	-	231719
2	1	60.7	13	-	-	425577
3	2	72.5	13	1691	-	618057
4	1	60.1	13	-	-	14136
5	3	96.6	13	1929	1187	206977
6	1	66.1	13	-	-	401510
7	1	63.3	13	-	-	594995
8	1	57	13	-	-	788987
9	3	86.4	13	1333	1587	183379
10	3	84.5	13	1008	1674	376258
11	2	80	13	1192	-	570283
12	2	72.1	13	1878	-	763502
13	3	93.2	13	1569	1043	159473
14	3	87.3	13	1714	1288	352274
15	2	76.3	13	1654	-	546170
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Trial Number:			10			Detection (Yes/No)
Number of Bursts in Trial:			17			
Chirp Center Frequency:			5530			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	63.4	16	-	-	653339
2	3	98.1	16	1743	1750	119627
3	2	77.1	16	1887	-	290039
4	2	73.1	16	1239	-	460964
5	2	67.7	16	1155	-	631741
6	1	53	16	-	-	99103
7	3	85.4	16	1640	1911	268543
8	3	89.5	16	1100	1902	439072
9	3	96.3	16	1087	1495	609594
10	1	60.1	16	-	-	78134
11	2	69.9	16	1388	-	248263
12	3	90.5	16	1257	1513	417830
13	2	79.3	16	1329	-	589193
14	2	73.3	16	1341	-	56913
15	2	68.4	16	1650	-	227423
16	1	51.4	16	-	-	398638
17	1	58	16	-	-	569633
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DFS Radar Parameters
FCC Radar Type 5
Channel 106 Bandwidth 80MHz

Trial Number:			11			Detection (Yes/No)
Number of Bursts in Trial:			17			
Chirp Center Frequency:			5499			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	79.4	17	1163	-	35932
2	2	82.3	17	1472	-	206349
3	3	96	17	1172	1511	376445
4	3	87.9	17	1634	1651	546130
5	2	75.9	17	1881	-	14924
6	3	90.4	17	1773	1276	185077
7	2	80.2	17	1882	-	355481
8	3	85.3	17	1748	1461	525381
9	2	75.6	17	1336	-	696978
10	3	97.4	17	1741	1927	163849
11	3	92.1	17	1389	1797	334250
12	1	52	17	-	-	506759
13	3	89.6	17	1618	1638	674567
14	1	59.9	17	-	-	143701
15	3	92.4	17	1412	1564	313377
16	1	60.1	17	-	-	485546
17	3	86.9	17	1553	1706	652917
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Trial Number:			12			Detection (Yes/No)
Number of Bursts in Trial:			11			
Chirp Center Frequency:			5495			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	71.1	8	1820	-	189386
2	2	66.9	8	1086	-	453483
3	2	68.3	8	1629	-	716848
4	2	82	8	1660	-	981283
5	1	65.8	8	-	-	157187
6	1	62.6	8	-	-	421205
7	1	66.6	8	-	-	685401
8	2	71.3	8	1352	-	948396
9	2	76.3	8	1245	-	124448
10	1	50	8	-	-	388731
11	2	76.6	8	1832	-	652047
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DFS Radar Parameters
FCC Radar Type 5
Channel 106 Bandwidth 80MHz

Trial Number:			13			Detection (Yes/No)
Number of Bursts in Trial:			20			
Chirp Center Frequency:			5500			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	75.6	20	1408	-	502342
2	3	84	20	1673	1490	50339
3	3	83.8	20	1551	1420	194811
4	2	67.9	20	1711	-	340194
5	2	83	20	1999	-	484344
6	2	72	20	1725	-	32611
7	3	92.8	20	1668	1428	176838
8	1	60.9	20	-	-	322889
9	3	91.4	20	1973	1481	465302
10	3	88.4	20	1777	1146	14769
11	3	87.6	20	1870	1974	159039
12	1	57.6	20	-	-	305091
13	3	96.9	20	1061	1582	448280
14	3	87.9	20	1130	1762	592702
15	3	92.1	20	2000	1786	141285
16	1	55.7	20	-	-	287458
17	3	93.4	20	1136	1699	430175
18	3	87.4	20	1947	1656	574275
19	1	56.6	20	-	-	124254
20	1	50.1	20	-	-	269517

Trial Number:			14			Detection (Yes/No)
Number of Bursts in Trial:			10			
Chirp Center Frequency:			5495			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	77.5	8	1438	-	829266
2	2	80.4	8	1321	-	1119788
3	3	92.5	8	1890	1482	212293
4	1	52.2	8	-	-	503505
5	1	51.4	8	-	-	794482
6	2	83.2	8	1099	-	1084170
7	2	76	8	1404	-	176959
8	1	63.5	8	-	-	467958
9	2	69.6	8	1682	-	757478
10	2	79.3	8	1232	-	1047714
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DFS Radar Parameters
FCC Radar Type 5
Channel 106 Bandwidth 80MHz

Trial Number:			15			Detection (Yes/No)
Number of Bursts in Trial:			20			
Chirp Center Frequency:			5500			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	66.5	20	-	-	70552
2	3	99.6	20	1126	1219	214733
3	3	90.4	20	1362	1766	359097
4	1	53.5	20	-	-	505988
5	1	59.7	20	-	-	52683
6	3	91.7	20	1058	1283	197214
7	1	63.6	20	-	-	343115
8	2	74.1	20	1733	-	487142
9	2	69.1	20	1862	-	34721
10	2	67.6	20	1084	-	179644
11	2	67.2	20	1669	-	324376
12	2	81.5	20	1399	-	469316
13	2	68.7	20	1164	-	16914
14	3	98.5	20	1423	1484	161320
15	3	83.6	20	1144	1524	305869
16	1	59.3	20	-	-	452713
17	2	71.4	20	1502	-	595779
18	3	94.2	20	1936	1744	143364
19	2	73.7	20	1823	-	288581
20	1	56.9	20	-	-	434205

Trial Number:			16			Detection (Yes/No)
Number of Bursts in Trial:			8			
Chirp Center Frequency:			5494			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	73.3	5	1868	-	1449972
2	3	84	5	1596	1309	315823
3	2	69.6	5	1501	-	679305
4	3	99.9	5	1990	1236	1040904
5	3	99.1	5	1493	1441	1404130
6	3	95.2	5	1671	1251	270996
7	3	91.5	5	1081	1284	633873
8	2	81.5	5	1735	-	997096
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DFS Radar Parameters
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Channel 106 Bandwidth 80MHz

Trial Number:			17			Detection (Yes/No)
Number of Bursts in Trial:			16			
Chirp Center Frequency:			5498			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	66.4	15	-	-	680659
2	3	99.9	15	1688	1140	112881
3	3	96	15	1248	1739	293790
4	2	79.2	15	1875	-	475234
5	3	91.3	15	1149	1500	655253
6	1	62.1	15	-	-	90966
7	2	71.9	15	1499	-	272092
8	3	88	15	1807	1816	451954
9	2	67.3	15	1323	-	634145
10	3	93.3	15	1132	1989	68290
11	2	78.2	15	1590	-	249421
12	1	50.4	15	-	-	431545
13	3	92.2	15	1036	1918	610777
14	2	69.2	15	1745	-	46125
15	2	68.3	15	1852	-	227205
16	3	89.1	15	1939	1375	407448
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Trial Number:			18			Detection (Yes/No)
Number of Bursts in Trial:			15			
Chirp Center Frequency:			5498			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	82.9	14	1137	-	629590
2	3	96.1	14	1201	1960	25329
3	1	61.6	14	-	-	219043
4	3	94	14	1533	1476	411299
5	2	68.6	14	1833	-	604675
6	3	92.2	14	1067	1863	1577
7	1	61.7	14	-	-	195284
8	2	81.9	14	1713	-	387994
9	3	89.9	14	1468	1686	580441
10	1	62.7	14	-	-	776208
11	1	56	14	-	-	171409
12	2	82.5	14	1738	-	364313
13	2	79.9	14	1142	-	557595
14	3	90.5	14	1992	1981	748963
15	1	54.5	14	-	-	147579
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DFS Radar Parameters
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Channel 106 Bandwidth 80MHz

Trial Number:			19			Detection (Yes/No)
Number of Bursts in Trial:			8			
Chirp Center Frequency:			5494			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	64.5	5	-	-	640147
2	1	50.1	5	-	-	1003656
3	2	82.1	5	1337	-	1365995
4	1	57.7	5	-	-	232134
5	2	69.2	5	1082	-	594991
6	2	71.6	5	1160	-	958328
7	3	88.1	5	1684	1208	1320152
8	3	90.3	5	1418	1216	187011
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Trial Number:			20			Detection (Yes/No)
Number of Bursts in Trial:			14			
Chirp Center Frequency:			5497			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	56.6	13	-	-	314583
2	2	76.6	13	1189	-	521031
3	3	95.6	13	1594	1471	726725
4	3	92	13	1950	1312	81112
5	2	78.2	13	1831	-	288415
6	1	66	13	-	-	496718
7	2	73.3	13	1274	-	702516
8	1	64.7	13	-	-	55846
9	1	54	13	-	-	263401
10	1	65.7	13	-	-	471059
11	2	80.5	13	1120	-	677790
12	2	67	13	1780	-	30220
13	1	53	13	-	-	237771
14	3	83.5	13	1253	1585	443801
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Trial Number:			21			Detection (Yes/No)
Number of Bursts in Trial:			11			
Chirp Center Frequency:			5565			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	3	97.6	8	1226	1509	829239
2	1	62.8	8	-	-	6013
3	2	74.3	8	1425	-	269896
4	3	88.2	8	1011	1313	533319
5	1	64.1	8	-	-	798945
6	3	89.4	8	1097	1819	1059658
7	2	78.5	8	1678	-	237230
8	1	56	8	-	-	501715
9	3	89.4	8	1826	1954	763550
10	1	58	8	-	-	1030017
11	2	76.8	8	1757	-	204723
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Trial Number:			22			Detection (Yes/No)
Number of Bursts in Trial:			19			
Chirp Center Frequency:			5560			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	3	88.8	19	1112	1653	270127
2	1	63.6	19	-	-	423981
3	1	50.3	19	-	-	576718
4	1	60	19	-	-	99807
5	1	61.5	19	-	-	252691
6	3	99.1	19	1942	1913	402749
7	2	67.5	19	1558	-	557258
8	3	94.9	19	1405	1227	80599
9	1	55.8	19	-	-	233782
10	1	55	19	-	-	386553
11	2	67.4	19	1199	-	538447
12	2	73.1	19	1923	-	62019
13	1	50.1	19	-	-	215124
14	3	83.6	19	1154	1018	366457
15	1	65.8	19	-	-	520535
16	1	66.6	19	-	-	43368
17	3	98	19	1934	1017	195384
18	1	52	19	-	-	349229
19	2	66.8	19	1213	-	500973
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Trial Number:			23			Detection (Yes/No)
Number of Bursts in Trial:			15			
Chirp Center Frequency:			5562			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	3	99.4	14	1443	1063	31008
2	2	73.5	14	1724	-	224307
3	1	51.4	14	-	-	418395
4	2	81	14	1157	-	610829
5	1	52.6	14	-	-	7229
6	2	69.2	14	1024	-	200748
7	3	83.5	14	1045	1402	393172
8	2	81	14	1406	-	587421
9	1	57.4	14	-	-	781868
10	3	98.8	14	1360	1194	176461
11	1	61.7	14	-	-	370485
12	1	50.5	14	-	-	564225
13	3	87.2	14	1433	1311	755821
14	3	87.5	14	1238	1521	152572
15	1	65.2	14	-	-	347052
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Trial Number:			24			Detection (Yes/No)
Number of Bursts in Trial:			10			
Chirp Center Frequency:			5565			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	3	89.4	7	1439	1071	809603
2	1	52.3	7	-	-	1101686
3	2	72.9	7	1195	-	193946
4	1	54.7	7	-	-	484886
5	3	92.5	7	1975	1065	773382
6	1	66.6	7	-	-	1066303
7	1	63	7	-	-	158340
8	2	72.2	7	1442	-	448496
9	3	97.2	7	1047	1701	738158
10	2	78.4	7	1931	-	1028535
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Trial Number:			25			Detection (Yes/No)
Number of Bursts in Trial:			16			
Chirp Center Frequency:			5562			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	80.1	15	1417	-	76411
2	3	89.8	15	1269	1532	257042
3	2	74.1	15	1526	-	438601
4	1	54.6	15	-	-	621097
5	3	98.3	15	1076	1310	53952
6	2	72.8	15	1478	-	235290
7	2	80.5	15	1027	-	416482
8	1	54	15	-	-	598840
9	2	72.5	15	1221	-	31753
10	1	58.7	15	-	-	213388
11	1	53.3	15	-	-	394894
12	3	87.3	15	1652	1531	573653
13	2	82.6	15	1020	-	9411
14	3	97.8	15	1477	1293	190340
15	3	90.9	15	1340	1161	371061
16	2	78.1	15	1545	-	553167
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Trial Number:			26			Detection (Yes/No)
Number of Bursts in Trial:			13			
Chirp Center Frequency:			5564			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	68.1	11	1909	-	903785
2	1	60	11	-	-	207694
3	3	96.1	11	1381	1753	429826
4	3	94.1	11	1778	1846	652354
5	1	54.5	11	-	-	878043
6	2	80.3	11	1279	-	179765
7	3	85.6	11	1168	1643	402529
8	3	85	11	1719	1586	624706
9	3	94.2	11	1796	1487	847128
10	1	63.5	11	-	-	152596
11	3	93.7	11	1177	1666	375024
12	3	93.3	11	1046	1845	597748
13	1	59.5	11	-	-	822999
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Trial Number:			27			Detection (Yes/No)
Number of Bursts in Trial:			15			
Chirp Center Frequency:			5562			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	50.2	14	-	-	108306
2	3	86.4	14	1883	1972	300368
3	1	51.2	14	-	-	495509
4	1	54.2	14	-	-	689711
5	1	52.5	14	-	-	84413
6	2	72.6	14	1995	-	277563
7	2	79.4	14	1830	-	470500
8	1	59.3	14	-	-	665773
9	2	76.4	14	1827	-	60427
10	1	59.2	14	-	-	254192
11	2	76	14	1367	-	447376
12	2	81.3	14	1070	-	640520
13	3	96.5	14	1930	1695	36559
14	1	64.6	14	-	-	230318
15	2	78.8	14	1716	-	423142
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Trial Number:			28			Detection (Yes/No)
Number of Bursts in Trial:			9			
Chirp Center Frequency:			5566			No
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	61.9	6	-	-	1030456
2	1	52	6	-	-	21478
3	2	69.7	6	1191	-	344214
4	2	75.2	6	1332	-	667012
5	1	63.8	6	-	-	990429
6	1	64.4	6	-	-	1313362
7	3	98.6	6	1369	1801	304007
8	1	53	6	-	-	627867
9	2	76.1	6	1206	-	949548
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Trial Number:			29			Detection (Yes/No)
Number of Bursts in Trial:			20			
Chirp Center Frequency:			5560			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	1	53.1	20	-	-	572539
2	2	73.9	20	1941	-	118582
3	3	99.8	20	1658	1886	262611
4	1	54.1	20	-	-	409411
5	3	89.2	20	1200	1940	551344
6	1	60.4	20	-	-	101107
7	3	84.8	20	1751	1943	244950
8	2	79.1	20	1102	-	390894
9	3	87.2	20	1901	1646	533015
10	3	94.6	20	1916	1384	82790
11	2	72.3	20	1836	-	227858
12	2	72.4	20	1534	-	372791
13	1	52	20	-	-	518672
14	2	83.1	20	1876	-	65242
15	2	80.1	20	1006	-	210376
16	2	75.2	20	1440	-	355025
17	1	61.4	20	-	-	501110
18	2	68.7	20	1776	-	47367
19	3	91.7	20	1721	1447	191541
20	1	50.7	20	-	-	337865

Trial Number:			30			Detection (Yes/No)
Number of Bursts in Trial:			19			
Chirp Center Frequency:			5560			Yes
Burst	Number of Pulses	Pulse Width (Microseconds)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (μsec)	Pulse 2-to-3 Spacing (μsec)	Starting Location Within Interval (μsec)
1	2	70.1	19	1169	-	507533
2	1	62.8	19	-	-	31230
3	1	58.1	19	-	-	184149
4	1	65.6	19	-	-	336736
5	1	56.8	19	-	-	489933
6	2	73	19	1554	-	12366
7	3	92.1	19	1767	1630	164330
8	3	93.8	19	1436	1910	316115
9	2	68.4	19	1937	-	469301
10	2	79.5	19	1588	-	621756
11	3	95.2	19	1700	1517	145553
12	1	51.6	19	-	-	299026
13	2	83.3	19	1983	-	450707
14	2	75.2	19	1938	-	603325
15	1	51.1	19	-	-	127591
16	2	78.7	19	1632	-	279864
17	2	72.8	19	1560	-	432066
18	2	75.2	19	1647	-	584473
19	2	70.2	19	1218	-	108576
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