DFS TEST REPORT

SIEMIC
A Bureau Veritas Group Company

Report No.: NCC_DFS_SL19011701-RUC-005 Rev_1.0
Supersede Report No.: NCC_DFS_SL19011701-RUC-005

Applicant	Ruckus Wireless, Inc.
Product Name	R320 Access Point
Model No.	R320
Test Standard	LP0002:2018
Test Method	905462 D02 UNII DFS Compliance Procedures New Rules v02
Date of test	12/11/2018
Issue Date	02/20/2019
Test Result	Pass Fail
Equipment complied with the specification	[x]
Equipment did not comply with the specification	[ ]

Deon Dai	Chen Ge
Test Engineer	Engineer Reviewer

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Test result presented in this test report is applicable to the tested sample only

Issued By:
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ilac-MRA
ACCREDITED
TESTING CERT # 2742-01

Laboratory Introduction

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Accreditations for Conformity Assessment

Country/Region	Accreditation Body	Scope
USA	FCC, A2LA	EMC, RF/Wireless, Telecom
Canada	IC, A2LA, NIST	EMC, RF/Wireless, Telecom
Taiwan	BSMI, NCC, NIST	EMC, RF, Telecom, Safety
Hong Kong	OFTA, NIST	RF/Wireless, Telecom
Australia	NATA, NIST	EMC, RF, Telecom, Safety
Korea	KCC/RRA, NIST	EMI, EMS, RF, Telecom, Safety
Japan	VCCI, JATE, TELEC, RFT	EMI, RF/Wireless, Telecom
Mexico	NOM, COFETEL, Caniety	Safety, EMC, RF/Wireless, Telecom
Europe	A2LA, NIST	EMC, RF, Telecom, Safety
Israel	MOC, NIST	EMC, RF, Telecom, Safety

Accreditations for Product Certifications

Country	Accreditation Body	Scope
USA	FCC TCB, NIST	EMC , RF , Telecom
Canada	IC FCB , NIST	EMC , RF , Telecom
Singapore	iDA, NIST	EMC , RF , Telecom
EU	NB	EMC & R&TTE Directive
Japan	MIC (RCB 208)	RF , Telecom
HongKong	OFTA (US002)	RF , Telecom

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1 Report Revision History

Report No.	Report Version	Description	Issue Date
NCC_DFS_SL19011701-RUC-005	None	Original	01/24/2019
NCC_DFS_SL19011701-RUC-005 Rev_1.0	Rev_1.0	Update Radio Description	02/20/2019

2 Executive Summary

The purpose of this test program was to demonstrate compliance of following product

Company:	Ruckus Wireless, Inc.
Product:	R320 Access Point
Model:	R320

against the current Stipulated Standards. The specified model product stated above has demonstrated compliance with the Stipulated Standard listed on 1st page.

3 Customer information

Applicant Name	Ruckus Wireless, Inc.
Applicant Address	350 West Java Drive, Sunnyvale, California 94089 U.S.A
Manufacturer Name	Lite-On Network Communication (Dongguan) Limited
Manufacturer Address	30#Keji Rd., Yin Hu Industrial Area, Qingxi Town, Dongguan City, Guangdong, China

4 Test site information

Lab performing tests	SIEMIC Laboratories
Lab Address	775 Montague Expressway, Milpitas, CA 95035
FCC Test Site No.	881796
IC Test Site No.	4842D-2
VCCI Test Site No.	A0133

5 Modification

Index	Item	Description	Note
-	-	-	-

6 EUT Information

6.1 EUT Description

Product Name	R320 Access Point
Model No.	R320
Trade Name	Ruckus
Serial No.	N/A
Host Model No.	N/A
Input Power	48VDC (PoE)
Power Adapter Manu/Model	N/A
Power Adapter SN	N/A
Date of EUT received	12/10/2018
Equipment Class/ Category	DTS, UNII
Port/Connectors	PoE, Ethernet

6.2 Radio Description

Radio Type	802.11b-20M	802.11g/n-20M	802.11n-40M
Operating Frequency	2412-2462MHz		2422-2452MHz
Modulation	DSSS (CCK, DQPSK, DBPSK)	OFDM (BPSK, QPSK, 16QAM, 64QAM)	OFDM (BPSK, QPSK, 16QAM, 64QAM)
Channel Spacing	5MHz		5MHz
Number of Channels	11		7
Antenna Type	Internal Omni PCB Antenna		
Antenna Gain (Peak)	0 dBi		
Antenna Connector Type	I-pex		
Note	2.4GHz and 5GHz Radio transmit simultaneously		

Radio Type	802.11a/n(20MHz)	802.11ac(20MHz)	802.11n(40MHz)	802.11ac(40MHz)	802.11ac (80MHz)
Operating Frequency	5180-5240MHz 5260-5320MHz 5500-5720MHz 5745-5825MHz		5190-5310MHz 5510-5710MHz 5755-5795MHz		5210MHz,5290MHz 5530MHz,5610MHz 5690MHz,5775MHz
Modulation	OFDM (BPSK, QPSK, 16QAM, 64QAM)	OFDM (BPSK, QPSK, 16QAM, 64QAM,256QAM)	OFDM (BPSK, QPSK, 16QAM, 64QAM)	OFDM (BPSK, QPSK, 16QAM, 64QAM,256QAM)	OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Channel Spacing	20MHz		40MHz		80MHz
Number of Channels	25		12		6
Antenna Type	Internal Omni PCB Antenna				
Antenna Gain (Peak)	5GHz: 3dBi				
Antenna Connector Type	I-pex				
Note	2.4GHz and 5GHz Radio transmit simultaneously				

Note:

1. The EUT operates in master mode.
2. The EUT was set to transmit at 20MHz, 40MHz and 80MHz during test.

7 Supporting Equipment/Software and cabling Description

7.1 Supporting Equipment

Item	Supporting Equipment Description	Model	Serial Number	Manufacturer	Note
1	Laptop	PP01L Latitude E5440	F1WPF12	Dell	-

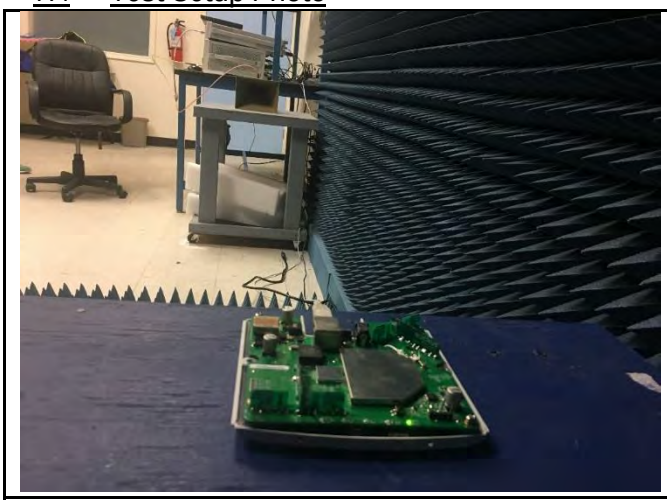
7.2 Cabling Description

Name	Connection Start		Connection Stop		Length / shielding Info		Note
	From	I/O Port	To	I/O Port	Length (m)	Shielding	
RJ45	EUT	RJ45	Laptop	RJ45	1	Unshielded	-

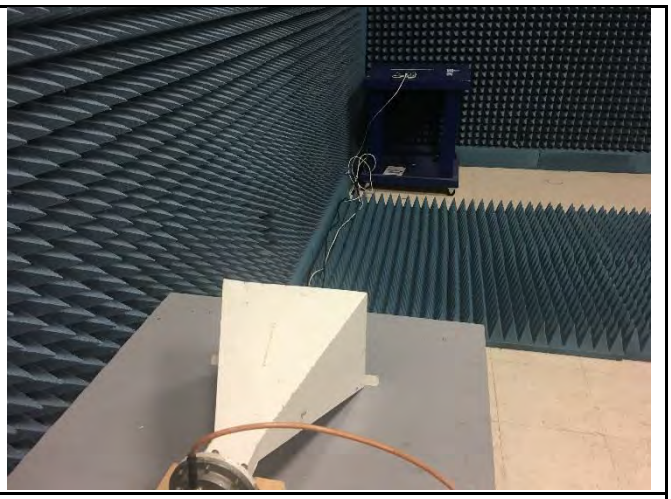
7.3 Test Software Description

Test Item	Software	Description
DFS Testing	Manufacturer test software	Monitor the statistic performance

7.4 Test Setup Photo



DFS Set up Rear View



DFS Set up Front View

8 Test Summary

Test Item	Test standard	Test Method/Procedure	Pass / Fail
UNII Detection Bandwidth	LP0002:2018	905462 D02 UNII DFS Compliance Procedures New Rules v02	☒ Pass ☐ N/A
Initial Channel Availability Check Time	LP0002:2018	905462 D02 UNII DFS Compliance Procedures New Rules v02	☒ Pass ☐ N/A
Radar Burst at the Beginning of the Channel Availability Check Time	LP0002:2018	905462 D02 UNII DFS Compliance Procedures New Rules v02	☒ Pass ☐ N/A
Radar Burst at the End of the Channel Availability Check Time	LP0002:2018	905462 D02 UNII DFS Compliance Procedures New Rules v02	☒ Pass ☐ N/A
In-Service Monitoring - Channel Move Time	LP0002:2018	905462 D02 UNII DFS Compliance Procedures New Rules v02	☒ Pass ☐ N/A
In-Service Monitoring - Channel Closing Transmission Time	LP0002:2018	905462 D02 UNII DFS Compliance Procedures New Rules v02	☒ Pass ☐ N/A
In-Service Monitoring - Non-Occupancy Period	LP0002:2018	905462 D02 UNII DFS Compliance Procedures New Rules v02	☒ Pass ☐ N/A
Statistical Performance Check	LP0002:2018	905462 D02 UNII DFS Compliance Procedures New Rules v02	☒ Pass ☐ N/A
Remark	Only DFS has been tested for this report.		

9 Measurement Uncertainty

Test Item	Frequency Range	Description	Uncertainty
Dynamic frequency selection (DFS) Conducted Measurement	5GHz – 6GHz	Confidence level of approximately 95% (in the case where distributions are normal), with a coverage factor of 2	±1.5dB

10 Measurements, examination and derived results

10.1 Dynamic Frequency Selection (DFS)

10.1.1 General introduction

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

Maximum Transmit Power	Value (see note)
≥ 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 spectra density requirement	-64 dBm

Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna.
Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.
Note3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.

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 UNII 99% transmission power bandwidth See Note 3.

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.
Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required facilitating a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.
Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

Radar Test Waveforms

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

1. Short Pulse Radar Test Waveforms

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

2. Long Pulse Radar Test Waveform

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

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

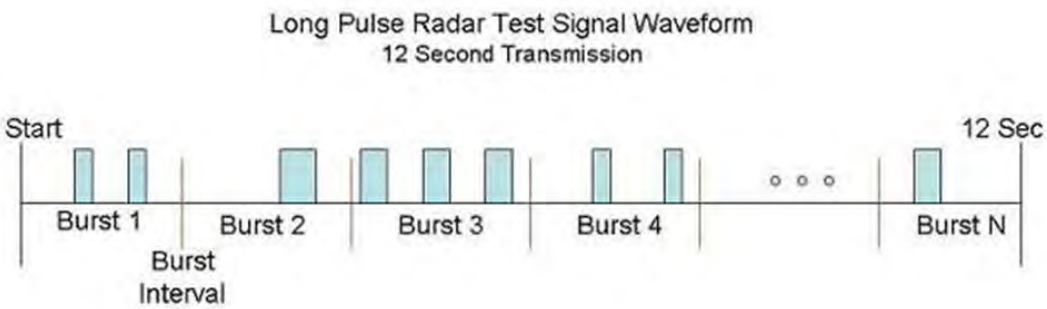
Each waveform is defined as follows:

1) The transmission period for the Long Pulse Radar test signal is 12 seconds.
2) There are a total of 8 to 20 Bursts in the 12 second period, with the number of Bursts being randomly chosen. This number is Burst_Count.
3) Each Burst consists of 1 to 3 pulses, with the number of pulses being randomly chosen. Each Burst within the 12 second sequence may have a different number of pulses.
4) The pulse width is between 50 and 100 microseconds, with the pulse width being randomly chosen. Each pulse within a Burst will have the same pulse width. Pulses in different Bursts may have different pulse widths.
5) Each pulse has a linear FM chirp between 5 and 20 MHz, with the chirp width being randomly chosen. Each pulse within a Burst will have the same chirp width. Pulses in different Bursts may have different chirp widths. The chirp is centered on the pulse. For example, with a radar frequency of 5300 MHz and a 20 MHz chirped signal, the chirp starts at 5290 MHz and ends at 5310 MHz.

6) If more than one pulse is present in a Burst, the time between the pulses will be between 1000 and 2000 microseconds, with the time being randomly chosen. If three pulses are present in a Burst, the time between the first and second pulses is chosen independently of the time between the second and third pulses.
7) The 12 second transmission period is divided into even intervals. The number of intervals is equal to Burst_Count. Each interval is of length (12,000,000 / Burst_Count) microseconds. Each interval contains one Burst. The start time for the Burst, relative to the beginning of the interval, is between 1 and [(12,000,000 / Burst_Count) – (Total Burst Length) + (One Random PRI Interval)] microseconds, with the start time being randomly chosen. The step interval for the start time is 1 microsecond. The s9tart 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).



3. Frequency Hopping Radar Type

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

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

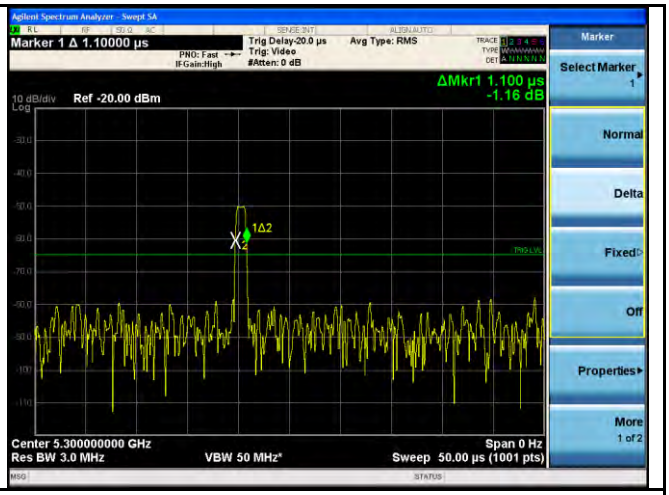
The first frequency in a hopping sequence is selected randomly from the group of 475 integer frequencies from 5250 – 5724 MHz. Next, the frequency that was just chosen is removed from the group and a frequency is randomly selected from the remaining 474 frequencies in the group. This process continues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

10.1.2 Radar Waveform Calibration

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

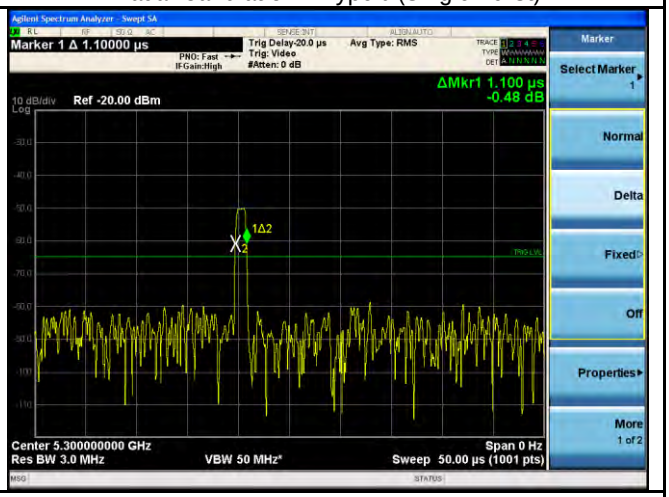
Calibration Test Plots

Radar Calibration - Type 0

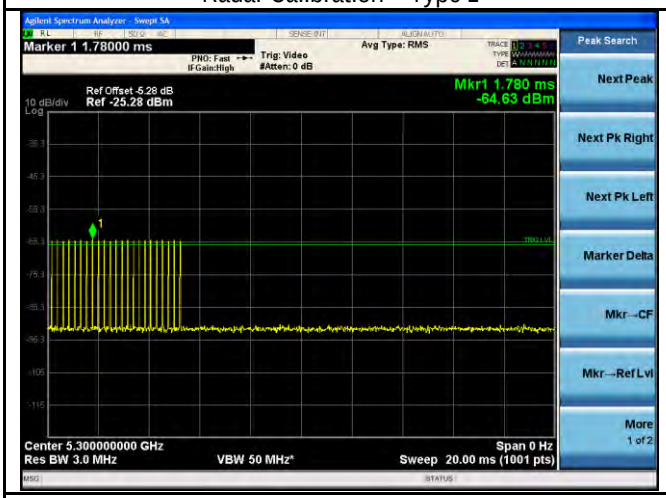


Radar Calibration - Type 0 (Single Burst)

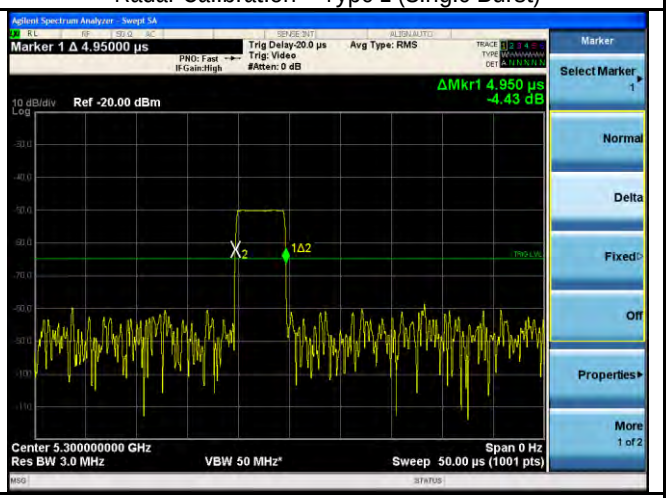
Radar Calibration - Type 1



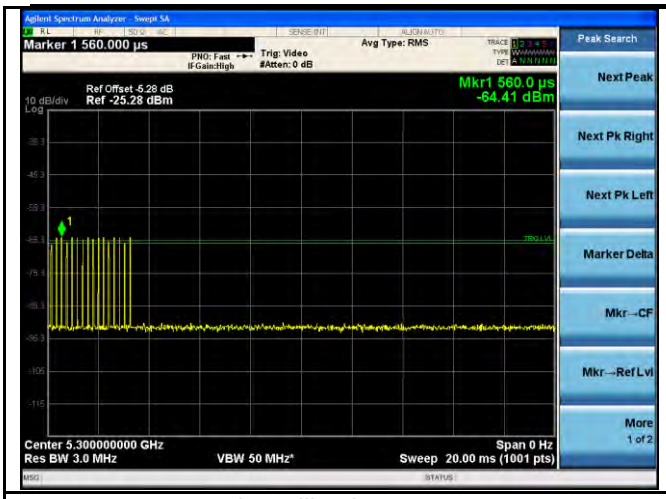
Radar Calibration - Type 1 (Single Burst)



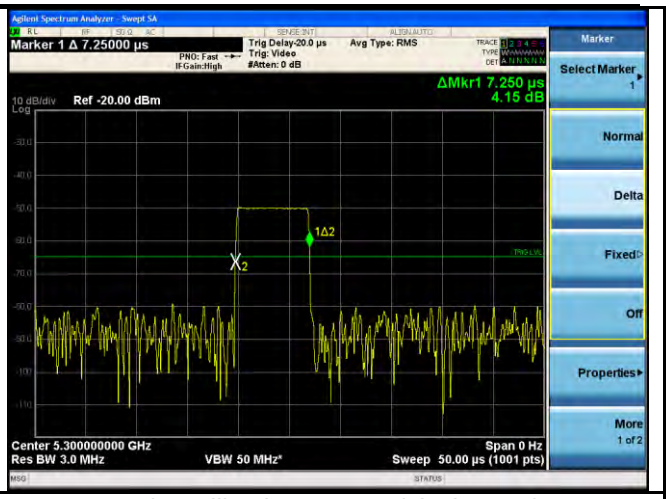
Radar Calibration - Type 2



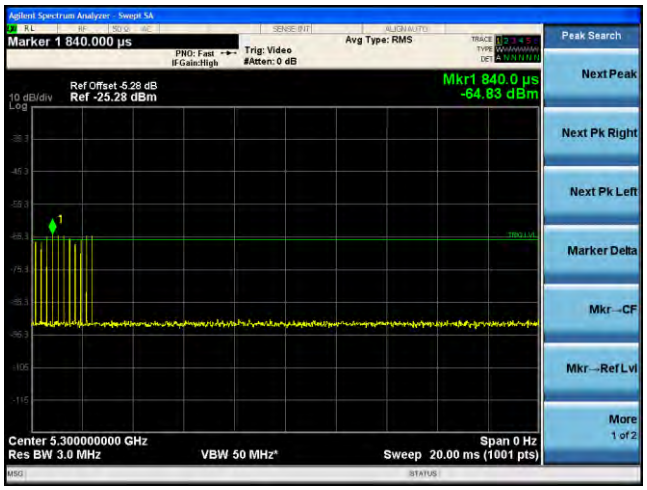
Radar Calibration - Type 2 (Single Burst)



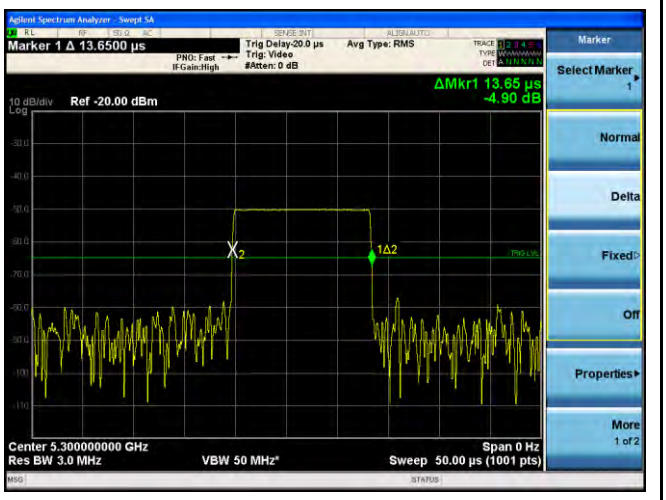
Radar Calibration - Type 3



Radar Calibration - Type 3 (Single Burst)

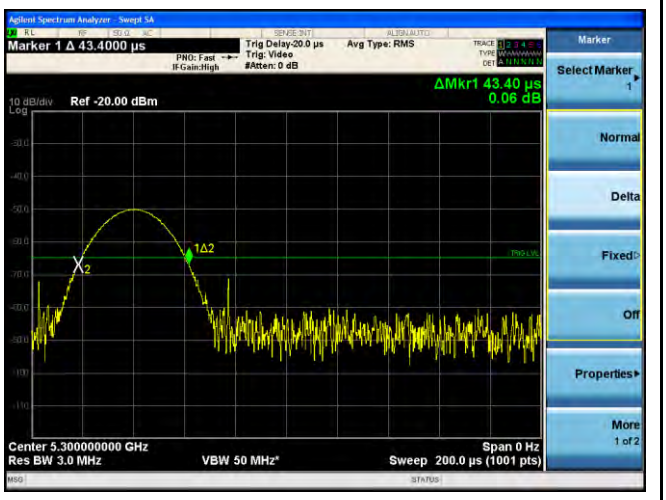


Radar Calibration - Type 4

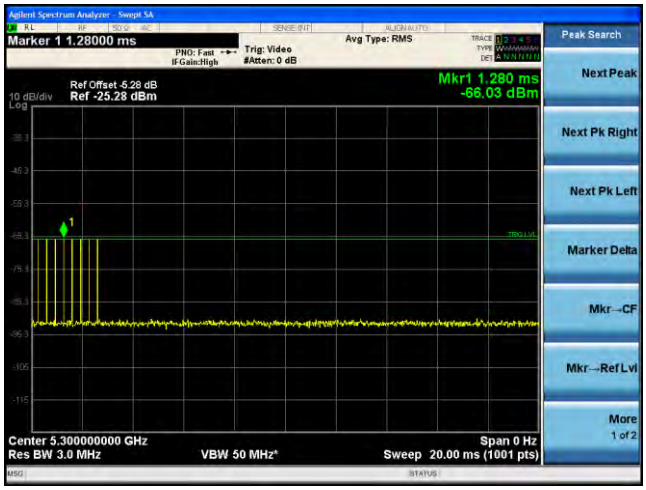


Radar Calibration - Type 4 (Single Burst)

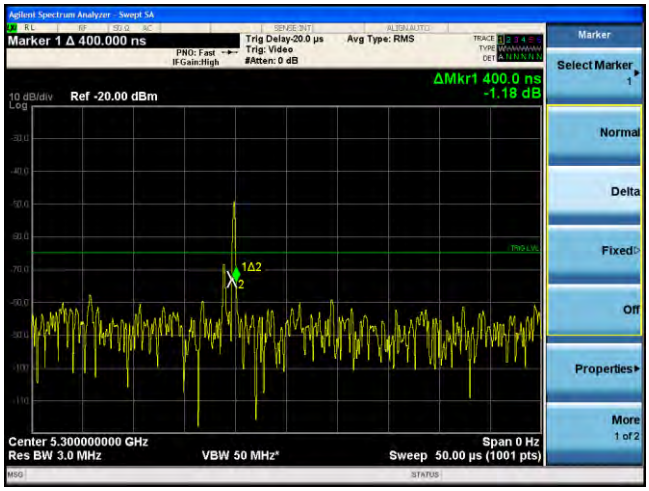
Radar Calibration - Type 5



Radar Calibration - Type 5 (Single Burst)



Radar Calibration - Type 6



Radar Calibration - Type 6 (Single Burst)

10.1.3 Test Procedure

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

These tests define how the following DFS parameters are verified during In-Service Monitoring; Channel Closing Transmission Time, Channel Move Time, and Non-Occupancy Period.

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

UUT operating as a Client Device will associate with the (Master) at Mid Channel. DFS testing while the System testing was performed with the designated MPEG test file that streams full motion video at 30 frames per second from the Master to the Client IP based system

At time T0 the Radar Waveform generator sends a Burst of pulses for each of the radar types.

Observe the transmissions of the UUT at the end of the radar Burst on the Operating Channel for duration greater than 10 seconds. Measure and record the transmissions from the UUT during the observation time (Channel Move Time). Compare the Channel Move Time and Channel Closing Transmission Time results to the limits defined in the DFS Response requirement values table.

Channel Closing Transmission Time- Measurement

A type 1 waveform was introduced to the EUT and the Spectrum Analyzer sweep time was set to 1s for monitoring and capturing the plot. A LabView program was created to collect trace data and capturing the plot. The program will calculate the channel closing time base on the spectrum analyzer result. The result will be calculated based on FCC procedure.

C= N*Dwell

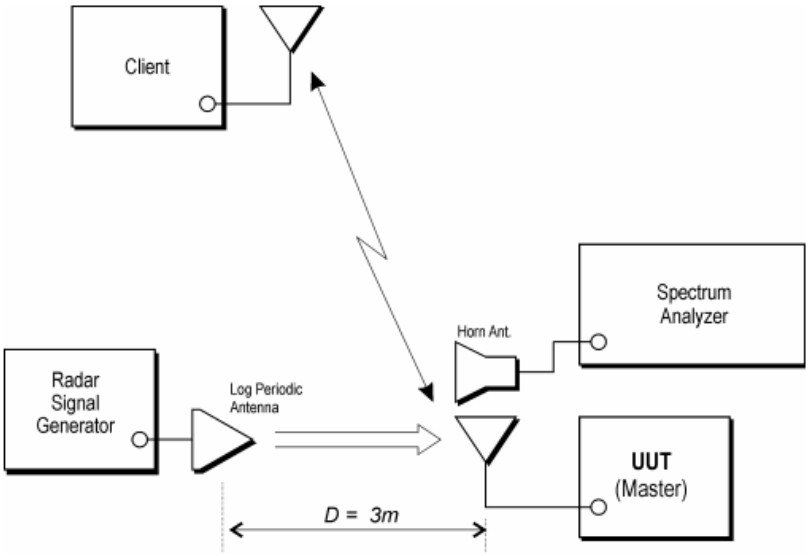
C is the closing time, N is the number of spectrum analyzer sampling bins showing a U-NII transmission and dwell is the dwell time per bin.

Dwell= S/B

Where Dwell is the dwell time per spectrum analyzer sampling bin, S is the sweep time and B is the number 0f spectrum analyzer sampling bins.

10.1.4 DFS Test Setup

Test Setup Block Diagram



The radio was set at the center channel frequency of tested Channel.
A FCC approved Client device – (FCC ID: Q87-WUSB6300) USB wireless adapter was used to link with the UUT (master) device.

For the frequency bands 5470MHz to 5725MHz the master device provides, on aggregate, uniform loading of the spectrum across all devices by selecting an operating channel among the available channels using a random algorithm.

For W53 band, the rated output power of the Master unit is 23.95 dBm > 23 dBm (EIRP).and W56 band, the rated output power of the Master unit is 20.85 dBm < 23 dBm (EIRP) , Therefore the required interference threshold use worse level – 64 dBm.

The calibrated radiated DFS detection threshold level is set to -64 dBm. The tested level is lower than the required level hence it provides margining to the limit.

10.1.5 DFS Test Results

10.1.5.1 UNII Detection Bandwidth

UNII Detection Bandwidth: All UNII channels for this device have identical Channel bandwidths and testing was performed on Mid Channel

The generating equipment is configured as shown in the Conducted Test Setup above. A single *Burst* of the short pulse radar type 0 is produced at Mid Channel at a -63 dBm level. The UUT is set up as a standalone device (no associated Client and no traffic).

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

Starting at the center frequency of the UUT operating Channel, increase the radar frequency in 5 MHz steps, repeating the above test sequence, until the detection rate falls below the U-NII Detection Bandwidth criterion specified. Repeat this measurement in 1MHz steps at frequencies 5 MHz below where the detection rate begins to fall. Record the highest frequency (denote as FH) at which detection is greater than or equal to the U-NII Detection Bandwidth criterion. Recording the detection rate at frequencies above FH is not required to demonstrate compliance.

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

The U-NII Detection Bandwidth is calculated as follows:

U-NII Detection Bandwidth = FH – FL

The U-NII Detection Bandwidth must be at least 100% of the UUT transmitter 99% power, otherwise, the UUT does not comply with DFS requirements.

Test Result

EUT Frequency = 5280MHz (20MHz mode)

Frequency (MHz)	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Trial 6	Trial 7	Trial 8	Trial 9	Trial 10	Detection Rate %
5269	No	No	No	No	No	No	No	No	No	No	0.00%
5270	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5275	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5280	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5285	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5290	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5311	No	No	No	No	No	No	No	No	No	No	0.00%
Detection Bandwidth: 20 MHz											
Specification: at least 100% of 99% of EUT bandwidth= 16.305 MHz											

EUT Frequency = 5500MHz (20MHz mode)

Frequency (MHz)	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Trial 6	Trial 7	Trial 8	Trial 9	Trial 10	Detection Rate %
5489	No	No	No	No	No	No	No	No	No	No	0.00%
5490	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5495	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5500	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5505	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5510	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5511	No	No	No	No	No	No	No	No	No	No	0.00%
Detection Bandwidth: 20 MHz											
Specification: at least 100% of 99% of EUT bandwidth= 16.406 MHz											

EUT Frequency = 5270MHz (11n-40MHz mode)

Frequency (MHz)	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Trial 6	Trial 7	Trial 8	Trial 9	Trial 10	Detection Rate %
5249	No	No	No	No	No	No	No	No	No	No	0.00%
5250	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5255	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5260	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5265	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5270	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5275	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5280	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5285	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5290	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5291	No	No	No	No	No	No	No	No	No	No	0.00%
Detection Bandwidth: 40 MHz											
Specification: at least 100% of 99% of EUT bandwidth= 36.472 MHz											

EUT Frequency = 5510MHz (11n-40MHz mode)

Frequency (MHz)	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Trial 6	Trial 7	Trial 8	Trial 9	Trial 10	Detection Rate %
5489	No	No	No	No	No	No	No	No	No	No	0.00%
5490	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5495	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5500	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5505	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5510	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5515	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5520	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5525	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5530	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5531	No	No	No	Yes	No	No	No	No	No	No	0.00%
Detection Bandwidth: 40 MHz											
Specification: at least 100% of 99% of EUT bandwidth= 36.452 MHz											

EUT Frequency = 5290MHz (11ac-80MHz mode)

Frequency (MHz)	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Trial 6	Trial 7	Trial 8	Trial 9	Trial 10	Detection Rate %
5249	No	No	No	Yes	No	No	No	No	No	No	0.00%
5250	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5255	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5260	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5265	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5270	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5275	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5280	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5285	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5290	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5295	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5300	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5305	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5310	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5315	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5320	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5325	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5330	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5331	No	No	No	Yes	No	No	No	No	No	No	0.00%
Detection Bandwidth: 80 MHz											
Specification: at least 100% of 99% of EUT bandwidth= 75.425 MHz											

EUT Frequency = 5530MHz (11ac-80MHz mode)

Frequency (MHz)	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Trial 6	Trial 7	Trial 8	Trial 9	Trial 10	Detection Rate %
5489	No	No	No	Yes	No	No	No	No	No	No	0.00%
5490	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5495	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5500	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5505	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5510	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5515	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5520	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5525	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5530	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5535	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5540	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5545	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5550	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5555	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5560	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5565	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5570	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	100.00%
5571	No	No	No	Yes	No	No	No	No	No	No	0.00%
Detection Bandwidth: 80 MHz											
Specification: at least 100% of 99% of EUT bandwidth= 75.475 MHz											

10.1.5.2 Initial Channel Availability Check Time

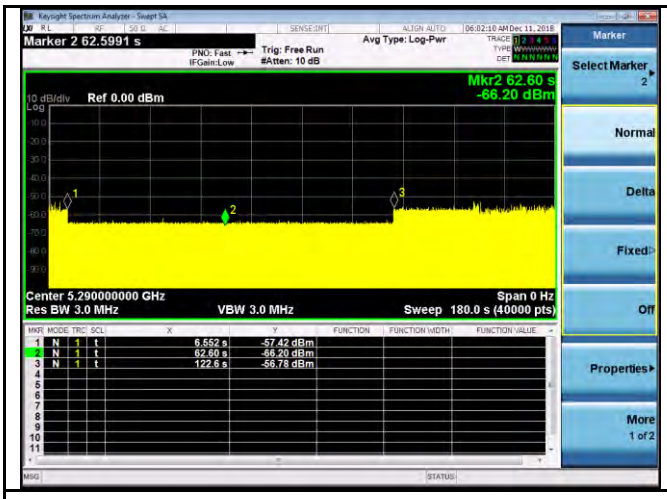
The Initial Channel Availability Check Time tests that the UUT does not emit beacon, control, or data signals on the test Channel until the power-up sequence has been completed and the U-NII device checks for Radar Waveforms for one minute on the test Channel. This test does not use any Radar Waveforms and only needs to be performed one time.

The U-NII device is powered on and be instructed to operate at Low channel, Mid Channel or High channel. At the same time the UUT is powered on, the spectrum analyzer is set to zero span modes with a 3 MHz resolution bandwidth at testing channels with a 3 minute sweep time. The analyzer's sweep will be started the same time power is applied to the UNII device.

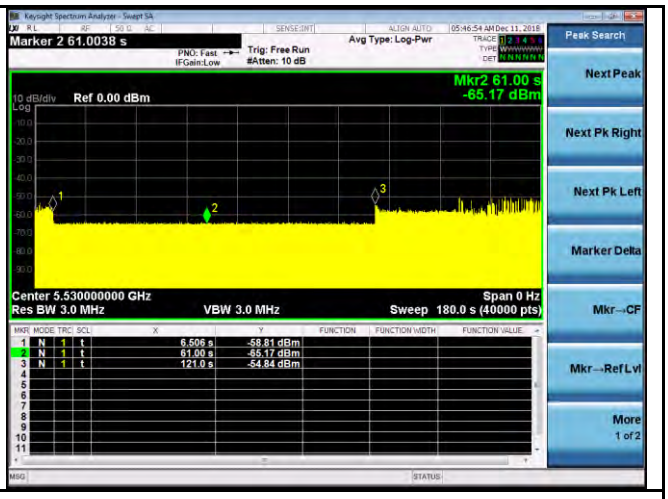
The UUT should not transmit any beacon or data transmissions until at least 1 minute after the completion of the power-on cycle.

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

Test Plots



Initial CAC – VHT80 – 5290MHz



Initial CAC – VHT80 – 5530MHz

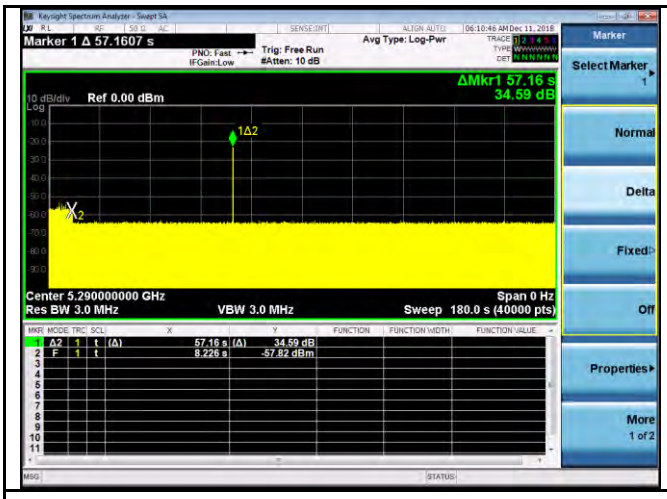
10.1.5.3 Radar Burst at the Beginning of the Channel Availability Check Time

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

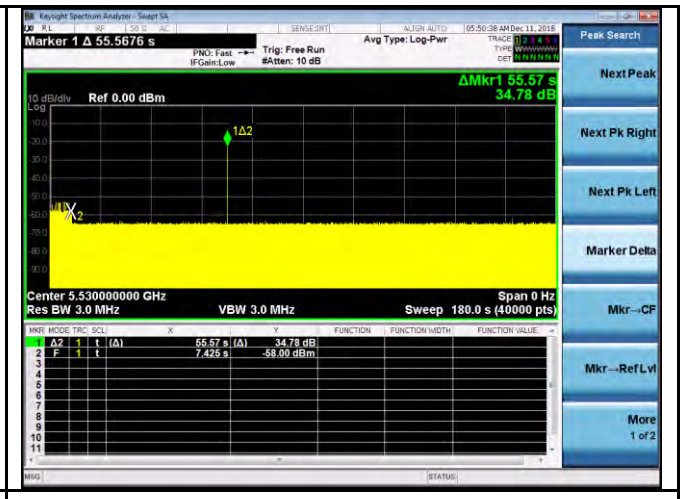
The UUT is powered on at T0. T1 denotes the instant when the UUT has completed its power-up sequence. The Channel Availability Check Time commences at instant T1 and will end no sooner than T1 + 60 seconds. A single Burst of short pulse of radar type 0 at -64 dBm will commence within a 6 second window.

Verify that during the 3 minute measurement window no UUT transmissions occurred at mid channel. Visual indication on the UUT of successful detection of the radar Burst will be recorded and reported.
Observation of emissions at center frequency of low channel, mid channel and high channel will continue for 2.5 minutes after the radar Burst has been generated.

Test Plots



Radar at beginning of CAC – VHT80 – 5290MHz



Radar at beginning of CAC – VHT80 – 5530MHz

10.1.5.4 Radar Burst at the End of the Channel Availability Check Time

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

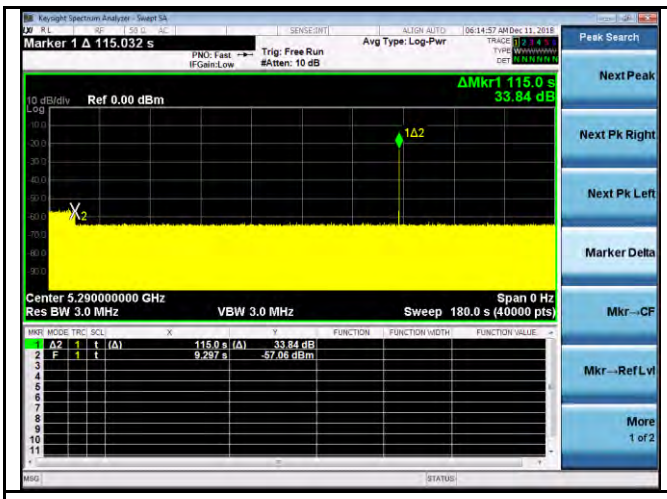
The UUT is powered on at T0. T1 denotes the instant when the UUT has completed its power-up sequence. The Channel Availability Check Time commences at instant T1 and will end no sooner than T1 + 60 seconds.

A single Burst of short pulse of radar type 0 at -64 dBm will commence within a last 6 second window.

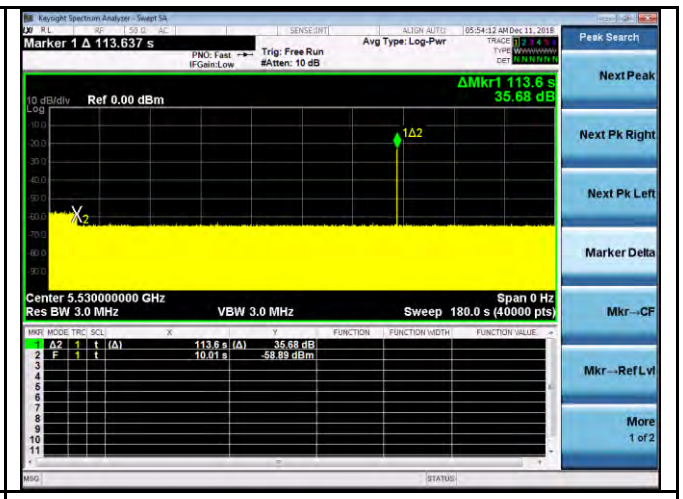
Visual indication on the UUT of successful detection of the radar Burst will be recorded and reported.
Observation of emissions at center frequency of mid channel will continue for 2.5 minutes after the radar Burst has been generated.

Verify that during the 3 minute measurement window no UUT transmissions occurred at mid channel.

Test Plots



Radar at end of CAC – VHT80 – 5290MHz



Radar at end of CAC – VHT80 – 5530MHz

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

These tests define how the following DFS parameters are verified during In-Service Monitoring; Channel Closing Transmission Time, Channel Move Time, and Non-Occupancy Period.

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

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

At time T0 the Radar Waveform generator sends a Burst of pulses for each of the radar types at -64dBm.

Observe the transmissions of the UUT at the end of the radar Burst on the Operating Channel for duration greater than 10 seconds. Measure and record the transmissions from the UUT during the observation time (Channel Move Time). Compare the Channel Move Time and Channel Closing Transmission Time results to the limits defined in the DFS Response requirement values table.

Channel Closing Transmission Time- Measurement

A type 1 waveform was introduced to the EUT and the Spectrum Analyzer sweep time was set to 1s for monitoring and capturing the plot. A LabView program was created to collect trace data and capturing the plot. The program will calculate the channel closing time base on the spectrum analyzer result. The result will be calculated based on FCC procedure.

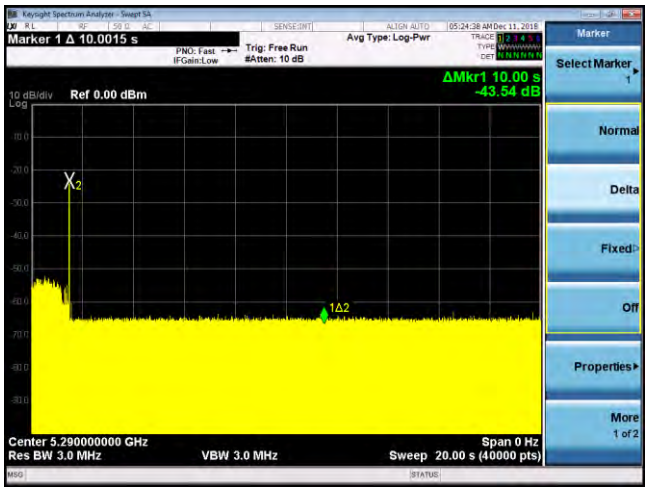
C= N*Dwell

C is the closing time, N is the number of spectrum analyzer sampling bins showing a U-NII transmission and dwell is the dwell time per bin.

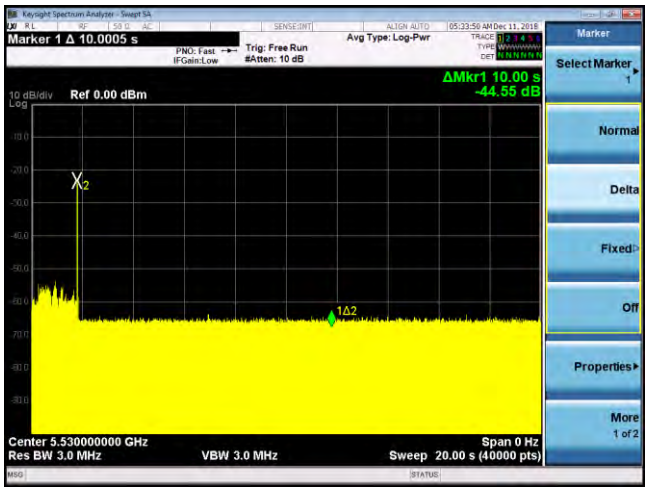
Dwell= S/B

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.

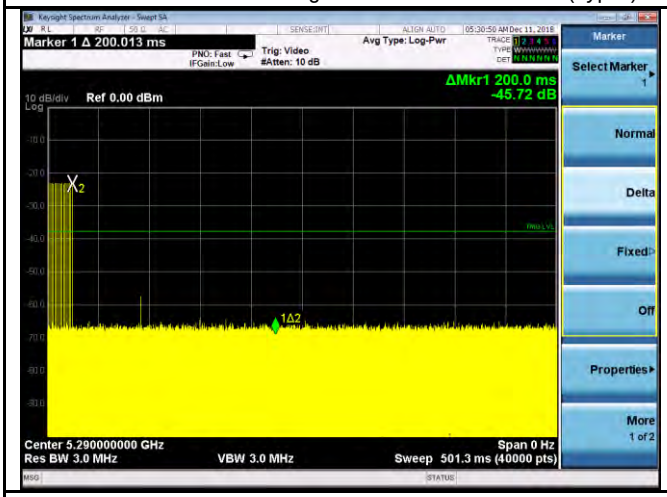
Test Result



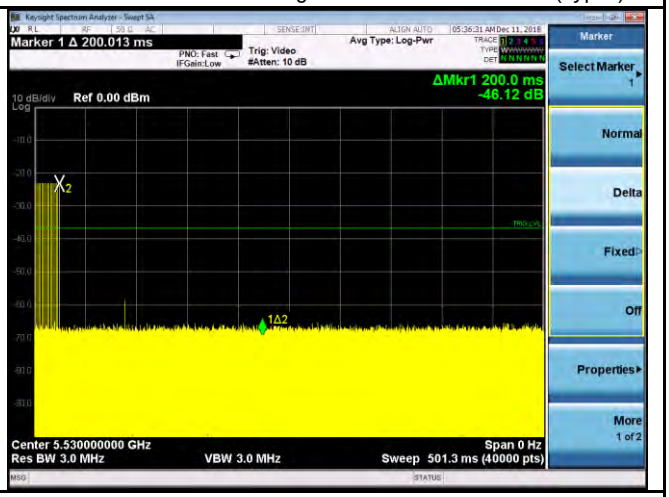
Channel Move Time& Closing Time - 802.11ac-5290MHz (Type0)



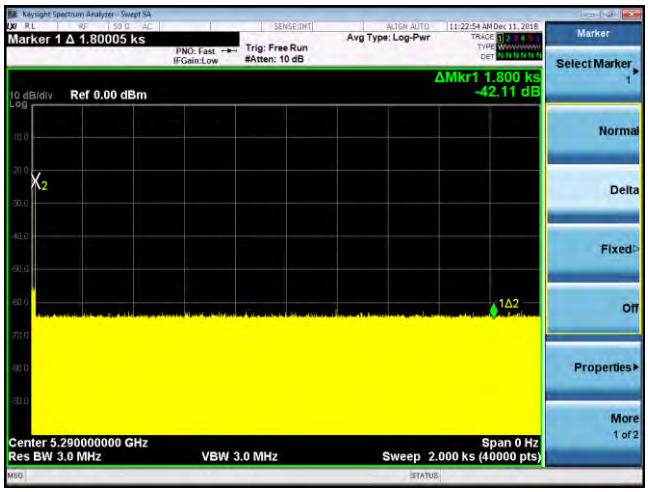
Channel Move Time& Closing Time - 802.11ac-5530MHz (Type0)



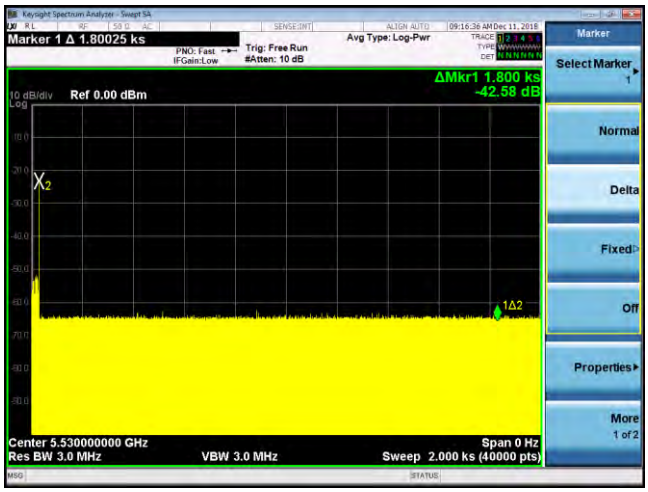
Channel Move Time& Closing Time - 802.11ac-5290MHz (Type0)



Channel Move Time& Closing Time - 802.11ac-5530MHz (Type0)



Non-Occupancy Period - 802.11ac-5290MHz



Non-Occupancy Period - 802.11ac-5530MHz

10.1.5.6 Statistical Performance Check

Statistical Performance Check, the steps below define the procedure to determine the minimum percentage of detection when a radar burst with a level equal to the DFS Detection Threshold + 1dB is generated on the Operating Channel of the U-NII device.

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

The Radar Waveform generator sends the individual waveform for each of the radar types 0-6 at -62dbm. Statistical data will be gathered to determine the ability of the device to detect the radar test waveforms. The device can utilize a test mode to demonstrate when detection occurs to prevent the need to reset the device

$$\frac{TotalWaveformDetections}{TotalWaveformTrials} \times 100 = \text{Probability of Detection Radar Waveform calculated by:}$$

The Minimum number of trails, minimum percentage of successful detection and the average minimum percentage of successful detection are found in the Radar Test Waveforms section.

Test Result-5280MHz – 20MHz

Type 0

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	1	1428	18	25704	Pass
1	1	1428	18	25704	Pass
2	1	1428	18	25704	Pass
3	1	1428	18	25704	Pass
4	1	1428	18	25704	Pass
5	1	1428	18	25704	Pass
6	1	1428	18	25704	Pass
7	1	1428	18	25704	Pass
8	1	1428	18	25704	Pass
9	1	1428	18	25704	Pass
10	1	1428	18	25704	Pass
11	1	1428	18	25704	Pass
12	1	1428	18	25704	Pass
13	1	1428	18	25704	Pass
14	1	1428	18	25704	Pass
15	1	1428	18	25704	Pass
16	1	1428	18	25704	Pass
17	1	1428	18	25704	Pass
18	1	1428	18	25704	Pass
19	1	1428	18	25704	Pass
20	1	1428	18	25704	Pass
21	1	1428	18	25704	Pass
22	1	1428	18	25704	Pass
23	1	1428	18	25704	Pass
24	1	1428	18	25704	Pass
25	1	1428	18	25704	Pass
26	1	1428	18	25704	Pass
27	1	1428	18	25704	Pass
28	1	1428	18	25704	Pass
29	1	1428	18	25704	Pass

Test Result-5280MHz – 20MHz

Type 1

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	1	938	57	53466	Pass
1	1	698	76	53048	Pass
2	1	618	86	53148	Pass
3	1	538	99	53262	Pass
4	1	878	61	53558	Pass
5	1	3066	18	55188	Pass
6	1	638	83	52954	Pass
7	1	918	58	53244	Pass
8	1	838	63	52794	Pass
9	1	858	62	53196	Pass
10	1	798	67	53466	Pass
11	1	718	74	53132	Pass
12	1	578	92	53176	Pass
13	1	598	89	53222	Pass
14	1	558	95	53010	Pass
15	1	2536	21	53256	Pass
16	1	966	55	53130	Pass
17	1	827	64	52928	Pass
18	1	2501	22	55022	Pass
19	1	2595	21	54495	Pass
20	1	1114	48	53472	Pass
21	1	1302	41	53382	Pass
22	1	3045	18	54810	Pass
23	1	1624	33	53592	Pass
24	1	2878	19	54682	Pass
25	1	1027	52	53404	Pass
26	1	2485	22	54670	Pass
27	1	1600	33	52800	Pass
28	1	1172	46	53912	Pass
29	1	1177	45	52965	Pass

Test Result-5280MHz – 20MHz

Type 2

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	3.2	179	26	4654	Pass
1	1.1	207	23	4761	Pass
2	2.1	230	24	5520	Pass
3	4.8	200	29	5800	Pass
4	3.9	214	28	5992	Pass
5	2.9	222	26	5772	Pass
6	3.2	204	26	5304	Pass
7	2.5	192	25	4800	Pass
8	3.1	164	26	4264	Pass
9	1.2	156	23	3588	Pass
10	3.9	210	27	5670	Pass
11	4.6	201	29	5829	Pass
12	3.2	162	26	4212	Pass
13	2.2	197	25	4925	Pass
14	4.5	163	29	4727	Pass
15	3	203	26	5278	Pass
16	5	168	29	4872	Pass
17	2.4	217	25	5425	Pass
18	2.9	191	26	4966	Pass
19	2.3	166	25	4150	Pass
20	3.7	150	27	4050	Pass
21	2.2	176	25	4400	Pass
22	4.9	195	29	5655	Pass
23	2.9	202	26	5252	Pass
24	2.5	178	25	4450	Pass
25	1.1	206	23	4738	Pass
26	3.8	155	27	4185	Pass
27	4.7	157	29	4553	Pass
28	2.4	224	25	5600	Pass
29	4.2	159	28	4452	Pass

Test Result-5280MHz – 20MHz

Type 3

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	8.2	355	17	6035	Pass
1	6.1	487	16	7792	Pass
2	7.1	344	16	5504	Pass
3	9.8	288	18	5184	Pass
4	8.9	230	18	4140	Pass
5	7.9	432	17	7344	Pass
6	8.2	207	17	3519	Pass
7	7.5	443	17	7531	Pass
8	8.1	439	17	7463	Pass
9	6.2	223	16	3568	Pass
10	8.9	208	18	3744	Pass
11	9.6	463	18	8334	Pass
12	8.2	441	17	7497	Pass
13	7.2	323	16	5168	Pass
14	9.5	297	18	5346	Pass
15	8	412	17	7004	Pass
16	10	324	18	5832	Pass
17	7.4	271	17	4607	Pass
18	7.9	349	17	5933	Pass
19	7.3	409	16	6544	Pass
20	8.7	373	18	6714	Pass
21	7.2	254	16	4064	Pass
22	9.9	274	18	4932	Pass
23	7.9	278	17	4726	Pass
24	7.5	317	17	5389	Pass
25	6.1	260	16	4160	Pass
26	8.8	211	18	3798	Pass
27	9.7	272	18	4896	Pass
28	7.4	264	17	4488	Pass
29	9.2	284	18	5112	Pass

Test Result-5280MHz – 20MHz

Type 4

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	16	355	14	4970	Pass
1	11.3	487	12	5844	Pass
2	13.5	344	13	4472	Pass
3	19.4	288	16	4608	Pass
4	17.5	230	15	3450	Pass
5	15.3	432	14	6048	Pass
6	15.9	207	14	2898	Pass
7	14.3	443	13	5759	Pass
8	15.8	439	14	6146	Pass
9	11.5	223	12	2676	Pass
10	17.4	208	15	3120	Pass
11	19	463	16	7408	Pass
12	16	441	14	6174	Pass
13	13.8	323	13	4199	Pass
14	18.9	297	16	4752	Pass
15	15.5	412	14	5768	Pass
16	19.9	324	16	5184	Pass
17	14.1	271	13	3523	Pass
18	15.2	349	14	4886	Pass
19	13.8	409	13	5317	Pass
20	17.1	373	15	5595	Pass
21	13.8	254	13	3302	Pass
22	19.8	274	16	4384	Pass
23	15.3	278	14	3892	Pass
24	14.5	317	13	4121	Pass
25	11.3	260	12	3120	Pass
26	17.3	211	15	3165	Pass
27	19.2	272	16	4352	Pass
28	14.2	264	13	3432	Pass
29	18.2	284	15	4260	Pass

Test Result-5280MHz – 20MHz

Type 5

Trial Id	Number of Bursts	Burst Period(s)	Waveform Length(s)	Center Frequency(GHz)	Result
0	15	0.8	12	5.5	Pass
1	8	1.5	12	5.5	Pass
2	11	1.090909	12	5.5	Pass
3	20	0.6	12	5.5	Pass
4	17	0.705882	12	5.5	Pass
5	14	0.857143	12	5.5	Pass
6	15	0.8	12	5.5	Pass
7	12	1	12	5.5	Pass
8	14	0.857143	12	5.5	Pass
9	8	1.5	12	5.5	Pass
10	17	0.705882	12	5.5039	Pass
11	19	0.631579	12	5.5051	Pass
12	15	0.8	12	5.5027	Pass
13	12	1	12	5.5015	Pass
14	19	0.631579	12	5.5047	Pass
15	14	0.857143	12	5.5023	Pass
16	20	0.6	12	5.5055	Pass
17	12	1	12	5.5015	Pass
18	14	0.857143	12	5.5023	Pass
19	12	1	12	5.5015	Pass
20	16	0.75	12	5.4965	Pass
21	12	1	12	5.4989	Pass
22	20	0.6	12	5.4945	Pass
23	14	0.857143	12	5.4977	Pass
24	13	0.923077	12	5.4981	Pass
25	8	1.5	12	5.5005	Pass
26	17	0.705882	12	5.4961	Pass
27	19	0.631579	12	5.4949	Pass
28	12	1	12	5.4985	Pass
29	18	0.666667	12	5.4957	Pass

Note: Radar waveform center frequencies are selected based on section 7.8.4.2 Long Pulse Radar Test of 905462 D02 UNII DFS Compliance Procedures New Rules v02.
For each detail Radar waveform please refer Annex B.

Test Result-5280MHz – 20MHz

Type 6

Trial Id	Pulse Width(us)	PRI(us)	Pulses per Hop	Hopping Rate(kHz)	Hopping Sequence Length(ms)	Visible Frequency Number	Result
0	1	333.3	9	0.3333	300	32	Pass
1	1	333.3	9	0.3333	300	27	Pass
2	1	333.3	9	0.3333	300	25	Pass
3	1	333.3	9	0.3333	300	33	Pass
4	1	333.3	9	0.3333	300	37	Pass
5	1	333.3	9	0.3333	300	30	Pass
6	1	333.3	9	0.3333	300	33	Pass
7	1	333.3	9	0.3333	300	27	Pass
8	1	333.3	9	0.3333	300	33	Pass
9	1	333.3	9	0.3333	300	30	Pass
10	1	333.3	9	0.3333	300	37	Pass
11	1	333.3	9	0.3333	300	36	Pass
12	1	333.3	9	0.3333	300	38	Pass
13	1	333.3	9	0.3333	300	35	Pass
14	1	333.3	9	0.3333	300	28	Pass
15	1	333.3	9	0.3333	300	37	Pass
16	1	333.3	9	0.3333	300	35	Pass
17	1	333.3	9	0.3333	300	37	Pass
18	1	333.3	9	0.3333	300	27	Pass
19	1	333.3	9	0.3333	300	34	Pass
20	1	333.3	9	0.3333	300	35	Pass
21	1	333.3	9	0.3333	300	37	Pass
22	1	333.3	9	0.3333	300	41	Pass
23	1	333.3	9	0.3333	300	36	Pass
24	1	333.3	9	0.3333	300	29	Pass
25	1	333.3	9	0.3333	300	32	Pass
26	1	333.3	9	0.3333	300	30	Pass
27	1	333.3	9	0.3333	300	31	Pass
28	1	333.3	9	0.3333	300	31	Pass
29	1	333.3	9	0.3333	300	40	Pass

Test Result-5500MHz – 20MHz

Type 0

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	1	1428	18	25704	Pass
1	1	1428	18	25704	Pass
2	1	1428	18	25704	Pass
3	1	1428	18	25704	Pass
4	1	1428	18	25704	Pass
5	1	1428	18	25704	Pass
6	1	1428	18	25704	Pass
7	1	1428	18	25704	Pass
8	1	1428	18	25704	Pass
9	1	1428	18	25704	Pass
10	1	1428	18	25704	Pass
11	1	1428	18	25704	Pass
12	1	1428	18	25704	Pass
13	1	1428	18	25704	Pass
14	1	1428	18	25704	Pass
15	1	1428	18	25704	Pass
16	1	1428	18	25704	Pass
17	1	1428	18	25704	Pass
18	1	1428	18	25704	Pass
19	1	1428	18	25704	Pass
20	1	1428	18	25704	Pass
21	1	1428	18	25704	Pass
22	1	1428	18	25704	Pass
23	1	1428	18	25704	Pass
24	1	1428	18	25704	Pass
25	1	1428	18	25704	Pass
26	1	1428	18	25704	Pass
27	1	1428	18	25704	Pass
28	1	1428	18	25704	Pass
29	1	1428	18	25704	Pass

Test Result-5500MHz – 20MHz

Type 1

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	1	938	57	53466	Pass
1	1	698	76	53048	Pass
2	1	618	86	53148	Pass
3	1	538	99	53262	Pass
4	1	878	61	53558	Pass
5	1	3066	18	55188	Pass
6	1	638	83	52954	Pass
7	1	918	58	53244	Pass
8	1	838	63	52794	Pass
9	1	858	62	53196	Pass
10	1	798	67	53466	Pass
11	1	718	74	53132	Pass
12	1	578	92	53176	Pass
13	1	598	89	53222	Pass
14	1	558	95	53010	Pass
15	1	2536	21	53256	Pass
16	1	966	55	53130	Pass
17	1	827	64	52928	Pass
18	1	2501	22	55022	Pass
19	1	2595	21	54495	Pass
20	1	1114	48	53472	Pass
21	1	1302	41	53382	Pass
22	1	3045	18	54810	Pass
23	1	1624	33	53592	Pass
24	1	2878	19	54682	Pass
25	1	1027	52	53404	Pass
26	1	2485	22	54670	Pass
27	1	1600	33	52800	Pass
28	1	1172	46	53912	Pass
29	1	1177	45	52965	Pass

Test Result-5500MHz – 20MHz

Type 2

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	3.2	179	26	4654	Pass
1	1.1	207	23	4761	Pass
2	2.1	230	24	5520	Pass
3	4.8	200	29	5800	Pass
4	3.9	214	28	5992	Pass
5	2.9	222	26	5772	Pass
6	3.2	204	26	5304	Pass
7	2.5	192	25	4800	Pass
8	3.1	164	26	4264	Pass
9	1.2	156	23	3588	Pass
10	3.9	210	27	5670	Pass
11	4.6	201	29	5829	Pass
12	3.2	162	26	4212	Pass
13	2.2	197	25	4925	Pass
14	4.5	163	29	4727	Pass
15	3	203	26	5278	Pass
16	5	168	29	4872	Pass
17	2.4	217	25	5425	Pass
18	2.9	191	26	4966	Pass
19	2.3	166	25	4150	Pass
20	3.7	150	27	4050	Pass
21	2.2	176	25	4400	Pass
22	4.9	195	29	5655	Pass
23	2.9	202	26	5252	Pass
24	2.5	178	25	4450	Pass
25	1.1	206	23	4738	Pass
26	3.8	155	27	4185	Pass
27	4.7	157	29	4553	Pass
28	2.4	224	25	5600	Pass
29	4.2	159	28	4452	Pass

Test Result-5500MHz – 20MHz

Type 3

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	8.2	355	17	6035	Pass
1	6.1	487	16	7792	Pass
2	7.1	344	16	5504	Pass
3	9.8	288	18	5184	Pass
4	8.9	230	18	4140	Pass
5	7.9	432	17	7344	Pass
6	8.2	207	17	3519	Pass
7	7.5	443	17	7531	Pass
8	8.1	439	17	7463	Pass
9	6.2	223	16	3568	Pass
10	8.9	208	18	3744	Pass
11	9.6	463	18	8334	Pass
12	8.2	441	17	7497	Pass
13	7.2	323	16	5168	Pass
14	9.5	297	18	5346	Pass
15	8	412	17	7004	Pass
16	10	324	18	5832	Pass
17	7.4	271	17	4607	Pass
18	7.9	349	17	5933	Pass
19	7.3	409	16	6544	Pass
20	8.7	373	18	6714	Pass
21	7.2	254	16	4064	Pass
22	9.9	274	18	4932	Pass
23	7.9	278	17	4726	Pass
24	7.5	317	17	5389	Pass
25	6.1	260	16	4160	Pass
26	8.8	211	18	3798	Pass
27	9.7	272	18	4896	Pass
28	7.4	264	17	4488	Pass
29	9.2	284	18	5112	Pass

Test Result-5500MHz – 20MHz

Type 4

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	16	355	14	4970	Pass
1	11.3	487	12	5844	Pass
2	13.5	344	13	4472	Pass
3	19.4	288	16	4608	Pass
4	17.5	230	15	3450	Pass
5	15.3	432	14	6048	Pass
6	15.9	207	14	2898	Pass
7	14.3	443	13	5759	Pass
8	15.8	439	14	6146	Pass
9	11.5	223	12	2676	Pass
10	17.4	208	15	3120	Pass
11	19	463	16	7408	Pass
12	16	441	14	6174	Pass
13	13.8	323	13	4199	Pass
14	18.9	297	16	4752	Pass
15	15.5	412	14	5768	Pass
16	19.9	324	16	5184	Pass
17	14.1	271	13	3523	Pass
18	15.2	349	14	4886	Pass
19	13.8	409	13	5317	Pass
20	17.1	373	15	5595	Pass
21	13.8	254	13	3302	Pass
22	19.8	274	16	4384	Pass
23	15.3	278	14	3892	Pass
24	14.5	317	13	4121	Pass
25	11.3	260	12	3120	Pass
26	17.3	211	15	3165	Pass
27	19.2	272	16	4352	Pass
28	14.2	264	13	3432	Pass
29	18.2	284	15	4260	Pass

Test Result-5500MHz – 20MHz

Type 5

Trial Id	Number of Bursts	Burst Period(s)	Waveform Length(s)	Center Frequency(GHz)	Result
0	15	0.8	12	5.5	Pass
1	8	1.5	12	5.5	Pass
2	11	1.090909	12	5.5	Pass
3	20	0.6	12	5.5	Pass
4	17	0.705882	12	5.5	Pass
5	14	0.857143	12	5.5	Pass
6	15	0.8	12	5.5	Pass
7	12	1	12	5.5	Pass
8	14	0.857143	12	5.5	Pass
9	8	1.5	12	5.5	Pass
10	17	0.705882	12	5.5039	Pass
11	19	0.631579	12	5.5051	Pass
12	15	0.8	12	5.5027	Pass
13	12	1	12	5.5015	Pass
14	19	0.631579	12	5.5047	Pass
15	14	0.857143	12	5.5023	Pass
16	20	0.6	12	5.5055	Pass
17	12	1	12	5.5015	Pass
18	14	0.857143	12	5.5023	Pass
19	12	1	12	5.5015	Pass
20	16	0.75	12	5.4965	Pass
21	12	1	12	5.4989	Pass
22	20	0.6	12	5.4945	Pass
23	14	0.857143	12	5.4977	Pass
24	13	0.923077	12	5.4981	Pass
25	8	1.5	12	5.5005	Pass
26	17	0.705882	12	5.4961	Pass
27	19	0.631579	12	5.4949	Pass
28	12	1	12	5.4985	Pass
29	18	0.666667	12	5.4957	Pass

Note: Radar waveform center frequencies are selected based on section 7.8.4.2 Long Pulse Radar Test of 905462 D02 UNII DFS Compliance Procedures New Rules v02.
For each detail Radar waveform please refer Annex B.

Test Result-5500MHz – 20MHz

Type 6

Trial Id	Pulse Width(us)	PRI(us)	Pulses per Hop	Hopping Rate(kHz)	Hopping Sequence Length(ms)	Visible Frequency Number	Result
0	1	333.3	9	0.3333	300	32	Pass
1	1	333.3	9	0.3333	300	27	Pass
2	1	333.3	9	0.3333	300	25	Pass
3	1	333.3	9	0.3333	300	33	Pass
4	1	333.3	9	0.3333	300	37	Pass
5	1	333.3	9	0.3333	300	30	Pass
6	1	333.3	9	0.3333	300	33	Pass
7	1	333.3	9	0.3333	300	27	Pass
8	1	333.3	9	0.3333	300	33	Pass
9	1	333.3	9	0.3333	300	30	Pass
10	1	333.3	9	0.3333	300	37	Pass
11	1	333.3	9	0.3333	300	36	Pass
12	1	333.3	9	0.3333	300	38	Pass
13	1	333.3	9	0.3333	300	35	Pass
14	1	333.3	9	0.3333	300	28	Pass
15	1	333.3	9	0.3333	300	37	Pass
16	1	333.3	9	0.3333	300	35	Pass
17	1	333.3	9	0.3333	300	37	Pass
18	1	333.3	9	0.3333	300	27	Pass
19	1	333.3	9	0.3333	300	34	Pass
20	1	333.3	9	0.3333	300	35	Pass
21	1	333.3	9	0.3333	300	37	Pass
22	1	333.3	9	0.3333	300	41	Pass
23	1	333.3	9	0.3333	300	36	Pass
24	1	333.3	9	0.3333	300	29	Pass
25	1	333.3	9	0.3333	300	32	Pass
26	1	333.3	9	0.3333	300	30	Pass
27	1	333.3	9	0.3333	300	31	Pass
28	1	333.3	9	0.3333	300	31	Pass
29	1	333.3	9	0.3333	300	40	Pass

Test Result-5270MHz – 40MHz

Type 0

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	1	1428	18	25704	Pass
1	1	1428	18	25704	Pass
2	1	1428	18	25704	Pass
3	1	1428	18	25704	Pass
4	1	1428	18	25704	Pass
5	1	1428	18	25704	Pass
6	1	1428	18	25704	Pass
7	1	1428	18	25704	Pass
8	1	1428	18	25704	Pass
9	1	1428	18	25704	Pass
10	1	1428	18	25704	Pass
11	1	1428	18	25704	Pass
12	1	1428	18	25704	Pass
13	1	1428	18	25704	Pass
14	1	1428	18	25704	Pass
15	1	1428	18	25704	Pass
16	1	1428	18	25704	Pass
17	1	1428	18	25704	Pass
18	1	1428	18	25704	Pass
19	1	1428	18	25704	Pass
20	1	1428	18	25704	Pass
21	1	1428	18	25704	Pass
22	1	1428	18	25704	Pass
23	1	1428	18	25704	Pass
24	1	1428	18	25704	Pass
25	1	1428	18	25704	Pass
26	1	1428	18	25704	Pass
27	1	1428	18	25704	Pass
28	1	1428	18	25704	Pass
29	1	1428	18	25704	Pass

Test Result-5270MHz – 40MHz

Type 1

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	1	938	57	53466	Pass
1	1	698	76	53048	Pass
2	1	618	86	53148	Pass
3	1	538	99	53262	Pass
4	1	878	61	53558	Pass
5	1	3066	18	55188	Pass
6	1	638	83	52954	Pass
7	1	918	58	53244	Pass
8	1	838	63	52794	Pass
9	1	858	62	53196	Pass
10	1	798	67	53466	Pass
11	1	718	74	53132	Pass
12	1	578	92	53176	Pass
13	1	598	89	53222	Pass
14	1	558	95	53010	Pass
15	1	2536	21	53256	Pass
16	1	966	55	53130	Pass
17	1	827	64	52928	Pass
18	1	2501	22	55022	Pass
19	1	2595	21	54495	Pass
20	1	1114	48	53472	Pass
21	1	1302	41	53382	Pass
22	1	3045	18	54810	Pass
23	1	1624	33	53592	Pass
24	1	2878	19	54682	Pass
25	1	1027	52	53404	Pass
26	1	2485	22	54670	Pass
27	1	1600	33	52800	Pass
28	1	1172	46	53912	Pass
29	1	1177	45	52965	Pass

Test Result-5270MHz – 40MHz

Type 2

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	3.2	179	26	4654	Pass
1	1.1	207	23	4761	Pass
2	2.1	230	24	5520	Pass
3	4.8	200	29	5800	Pass
4	3.9	214	28	5992	Pass
5	2.9	222	26	5772	Pass
6	3.2	204	26	5304	Pass
7	2.5	192	25	4800	Pass
8	3.1	164	26	4264	Pass
9	1.2	156	23	3588	Pass
10	3.9	210	27	5670	Pass
11	4.6	201	29	5829	Pass
12	3.2	162	26	4212	Pass
13	2.2	197	25	4925	Pass
14	4.5	163	29	4727	Pass
15	3	203	26	5278	Pass
16	5	168	29	4872	Pass
17	2.4	217	25	5425	Pass
18	2.9	191	26	4966	Pass
19	2.3	166	25	4150	Pass
20	3.7	150	27	4050	Pass
21	2.2	176	25	4400	Pass
22	4.9	195	29	5655	Pass
23	2.9	202	26	5252	Pass
24	2.5	178	25	4450	Pass
25	1.1	206	23	4738	Pass
26	3.8	155	27	4185	Pass
27	4.7	157	29	4553	Pass
28	2.4	224	25	5600	Pass
29	4.2	159	28	4452	Pass

Test Result-5270MHz – 40MHz

Type 3

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	8.2	355	17	6035	Pass
1	6.1	487	16	7792	Pass
2	7.1	344	16	5504	Pass
3	9.8	288	18	5184	Pass
4	8.9	230	18	4140	Pass
5	7.9	432	17	7344	Pass
6	8.2	207	17	3519	Pass
7	7.5	443	17	7531	Pass
8	8.1	439	17	7463	Pass
9	6.2	223	16	3568	Pass
10	8.9	208	18	3744	Pass
11	9.6	463	18	8334	Pass
12	8.2	441	17	7497	Pass
13	7.2	323	16	5168	Pass
14	9.5	297	18	5346	Pass
15	8	412	17	7004	Pass
16	10	324	18	5832	Pass
17	7.4	271	17	4607	Pass
18	7.9	349	17	5933	Pass
19	7.3	409	16	6544	Pass
20	8.7	373	18	6714	Pass
21	7.2	254	16	4064	Pass
22	9.9	274	18	4932	Pass
23	7.9	278	17	4726	Pass
24	7.5	317	17	5389	Pass
25	6.1	260	16	4160	Pass
26	8.8	211	18	3798	Pass
27	9.7	272	18	4896	Pass
28	7.4	264	17	4488	Pass
29	9.2	284	18	5112	Pass

Test Result-5270MHz – 40MHz

Type 4

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	16	355	14	4970	Pass
1	11.3	487	12	5844	Pass
2	13.5	344	13	4472	Pass
3	19.4	288	16	4608	Pass
4	17.5	230	15	3450	Pass
5	15.3	432	14	6048	Pass
6	15.9	207	14	2898	Pass
7	14.3	443	13	5759	Pass
8	15.8	439	14	6146	Pass
9	11.5	223	12	2676	Pass
10	17.4	208	15	3120	Pass
11	19	463	16	7408	Pass
12	16	441	14	6174	Pass
13	13.8	323	13	4199	Pass
14	18.9	297	16	4752	Pass
15	15.5	412	14	5768	Pass
16	19.9	324	16	5184	Pass
17	14.1	271	13	3523	Pass
18	15.2	349	14	4886	Pass
19	13.8	409	13	5317	Pass
20	17.1	373	15	5595	Pass
21	13.8	254	13	3302	Pass
22	19.8	274	16	4384	Pass
23	15.3	278	14	3892	Pass
24	14.5	317	13	4121	Pass
25	11.3	260	12	3120	Pass
26	17.3	211	15	3165	Pass
27	19.2	272	16	4352	Pass
28	14.2	264	13	3432	Pass
29	18.2	284	15	4260	Pass

Test Result-5270MHz – 40MHz

Type 5

Trial Id	Number of Bursts	Burst Period(s)	Waveform Length(s)	Center Frequency(GHz)	Result
0	15	0.8	12	5.5	Pass
1	8	1.5	12	5.5	Pass
2	11	1.090909	12	5.5	Pass
3	20	0.6	12	5.5	Pass
4	17	0.705882	12	5.5	Pass
5	14	0.857143	12	5.5	Pass
6	15	0.8	12	5.5	Pass
7	12	1	12	5.5	Pass
8	14	0.857143	12	5.5	Pass
9	8	1.5	12	5.5	Pass
10	17	0.705882	12	5.5039	Pass
11	19	0.631579	12	5.5051	Pass
12	15	0.8	12	5.5027	Pass
13	12	1	12	5.5015	Pass
14	19	0.631579	12	5.5047	Pass
15	14	0.857143	12	5.5023	Pass
16	20	0.6	12	5.5055	Pass
17	12	1	12	5.5015	Pass
18	14	0.857143	12	5.5023	Pass
19	12	1	12	5.5015	Pass
20	16	0.75	12	5.4965	Pass
21	12	1	12	5.4989	Pass
22	20	0.6	12	5.4945	Pass
23	14	0.857143	12	5.4977	Pass
24	13	0.923077	12	5.4981	Pass
25	8	1.5	12	5.5005	Pass
26	17	0.705882	12	5.4961	Pass
27	19	0.631579	12	5.4949	Pass
28	12	1	12	5.4985	Pass
29	18	0.666667	12	5.4957	Pass

Note: Radar waveform center frequencies are selected based on section 7.8.4.2 Long Pulse Radar Test of 905462 D02 UNII DFS Compliance Procedures New Rules v02.
For each detail Radar waveform please refer Annex B.

Test Result-5270MHz – 40MHz

Type 6

Trial Id	Pulse Width(us)	PRI(us)	Pulses per Hop	Hopping Rate(kHz)	Hopping Sequence Length(ms)	Visible Frequency Number	Result
0	1	333.3	9	0.3333	300	32	Pass
1	1	333.3	9	0.3333	300	27	Pass
2	1	333.3	9	0.3333	300	25	Pass
3	1	333.3	9	0.3333	300	33	Pass
4	1	333.3	9	0.3333	300	37	Pass
5	1	333.3	9	0.3333	300	30	Pass
6	1	333.3	9	0.3333	300	33	Pass
7	1	333.3	9	0.3333	300	27	Pass
8	1	333.3	9	0.3333	300	33	Pass
9	1	333.3	9	0.3333	300	30	Pass
10	1	333.3	9	0.3333	300	37	Pass
11	1	333.3	9	0.3333	300	36	Pass
12	1	333.3	9	0.3333	300	38	Pass
13	1	333.3	9	0.3333	300	35	Pass
14	1	333.3	9	0.3333	300	28	Pass
15	1	333.3	9	0.3333	300	37	Pass
16	1	333.3	9	0.3333	300	35	Pass
17	1	333.3	9	0.3333	300	37	Pass
18	1	333.3	9	0.3333	300	27	Pass
19	1	333.3	9	0.3333	300	34	Pass
20	1	333.3	9	0.3333	300	35	Pass
21	1	333.3	9	0.3333	300	37	Pass
22	1	333.3	9	0.3333	300	41	Pass
23	1	333.3	9	0.3333	300	36	Pass
24	1	333.3	9	0.3333	300	29	Pass
25	1	333.3	9	0.3333	300	32	Pass
26	1	333.3	9	0.3333	300	30	Pass
27	1	333.3	9	0.3333	300	31	Pass
28	1	333.3	9	0.3333	300	31	Pass
29	1	333.3	9	0.3333	300	40	Pass

Test Result-5510MHz – 40MHz

Type 0

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	1	1428	18	25704	Pass
1	1	1428	18	25704	Pass
2	1	1428	18	25704	Pass
3	1	1428	18	25704	Pass
4	1	1428	18	25704	Pass
5	1	1428	18	25704	Pass
6	1	1428	18	25704	Pass
7	1	1428	18	25704	Pass
8	1	1428	18	25704	Pass
9	1	1428	18	25704	Pass
10	1	1428	18	25704	Pass
11	1	1428	18	25704	Pass
12	1	1428	18	25704	Pass
13	1	1428	18	25704	Pass
14	1	1428	18	25704	Pass
15	1	1428	18	25704	Pass
16	1	1428	18	25704	Pass
17	1	1428	18	25704	Pass
18	1	1428	18	25704	Pass
19	1	1428	18	25704	Pass
20	1	1428	18	25704	Pass
21	1	1428	18	25704	Pass
22	1	1428	18	25704	Pass
23	1	1428	18	25704	Pass
24	1	1428	18	25704	Pass
25	1	1428	18	25704	Pass
26	1	1428	18	25704	Pass
27	1	1428	18	25704	Pass
28	1	1428	18	25704	Pass
29	1	1428	18	25704	Pass

Test Result-5510MHz – 40MHz

Type 1

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	1	938	57	53466	Pass
1	1	698	76	53048	Pass
2	1	618	86	53148	Pass
3	1	538	99	53262	Pass
4	1	878	61	53558	Pass
5	1	3066	18	55188	Pass
6	1	638	83	52954	Pass
7	1	918	58	53244	Pass
8	1	838	63	52794	Pass
9	1	858	62	53196	Pass
10	1	798	67	53466	Pass
11	1	718	74	53132	Pass
12	1	578	92	53176	Pass
13	1	598	89	53222	Pass
14	1	558	95	53010	Pass
15	1	2536	21	53256	Pass
16	1	966	55	53130	Pass
17	1	827	64	52928	Pass
18	1	2501	22	55022	Pass
19	1	2595	21	54495	Pass
20	1	1114	48	53472	Pass
21	1	1302	41	53382	Pass
22	1	3045	18	54810	Pass
23	1	1624	33	53592	Pass
24	1	2878	19	54682	Pass
25	1	1027	52	53404	Pass
26	1	2485	22	54670	Pass
27	1	1600	33	52800	Pass
28	1	1172	46	53912	Pass
29	1	1177	45	52965	Pass

Test Result-5510MHz – 40MHz

Type 2

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	3.2	179	26	4654	Pass
1	1.1	207	23	4761	Pass
2	2.1	230	24	5520	Pass
3	4.8	200	29	5800	Pass
4	3.9	214	28	5992	Pass
5	2.9	222	26	5772	Pass
6	3.2	204	26	5304	Pass
7	2.5	192	25	4800	Pass
8	3.1	164	26	4264	Pass
9	1.2	156	23	3588	Pass
10	3.9	210	27	5670	Pass
11	4.6	201	29	5829	Pass
12	3.2	162	26	4212	Pass
13	2.2	197	25	4925	Pass
14	4.5	163	29	4727	Pass
15	3	203	26	5278	Pass
16	5	168	29	4872	Pass
17	2.4	217	25	5425	Pass
18	2.9	191	26	4966	Pass
19	2.3	166	25	4150	Pass
20	3.7	150	27	4050	Pass
21	2.2	176	25	4400	Pass
22	4.9	195	29	5655	Pass
23	2.9	202	26	5252	Pass
24	2.5	178	25	4450	Pass
25	1.1	206	23	4738	Pass
26	3.8	155	27	4185	Pass
27	4.7	157	29	4553	Pass
28	2.4	224	25	5600	Pass
29	4.2	159	28	4452	Pass

Test Result-5510MHz – 40MHz

Type 3

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	8.2	355	17	6035	Pass
1	6.1	487	16	7792	Pass
2	7.1	344	16	5504	Pass
3	9.8	288	18	5184	Pass
4	8.9	230	18	4140	Pass
5	7.9	432	17	7344	Pass
6	8.2	207	17	3519	Pass
7	7.5	443	17	7531	Pass
8	8.1	439	17	7463	Pass
9	6.2	223	16	3568	Pass
10	8.9	208	18	3744	Pass
11	9.6	463	18	8334	Pass
12	8.2	441	17	7497	Pass
13	7.2	323	16	5168	Pass
14	9.5	297	18	5346	Pass
15	8	412	17	7004	Pass
16	10	324	18	5832	Pass
17	7.4	271	17	4607	Pass
18	7.9	349	17	5933	Pass
19	7.3	409	16	6544	Pass
20	8.7	373	18	6714	Pass
21	7.2	254	16	4064	Pass
22	9.9	274	18	4932	Pass
23	7.9	278	17	4726	Pass
24	7.5	317	17	5389	Pass
25	6.1	260	16	4160	Pass
26	8.8	211	18	3798	Pass
27	9.7	272	18	4896	Pass
28	7.4	264	17	4488	Pass
29	9.2	284	18	5112	Pass

Test Result-5510MHz – 40MHz

Type 4

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	16	355	14	4970	Pass
1	11.3	487	12	5844	Pass
2	13.5	344	13	4472	Pass
3	19.4	288	16	4608	Pass
4	17.5	230	15	3450	Pass
5	15.3	432	14	6048	Pass
6	15.9	207	14	2898	Pass
7	14.3	443	13	5759	Pass
8	15.8	439	14	6146	Pass
9	11.5	223	12	2676	Pass
10	17.4	208	15	3120	Pass
11	19	463	16	7408	Pass
12	16	441	14	6174	Pass
13	13.8	323	13	4199	Pass
14	18.9	297	16	4752	Pass
15	15.5	412	14	5768	Pass
16	19.9	324	16	5184	Pass
17	14.1	271	13	3523	Pass
18	15.2	349	14	4886	Pass
19	13.8	409	13	5317	Pass
20	17.1	373	15	5595	Pass
21	13.8	254	13	3302	Pass
22	19.8	274	16	4384	Pass
23	15.3	278	14	3892	Pass
24	14.5	317	13	4121	Pass
25	11.3	260	12	3120	Pass
26	17.3	211	15	3165	Pass
27	19.2	272	16	4352	Pass
28	14.2	264	13	3432	Pass
29	18.2	284	15	4260	Pass

Test Result-5510MHz – 40MHz

Type 5

Trial Id	Number of Bursts	Burst Period(s)	Waveform Length(s)	Center Frequency(GHz)	Result
0	15	0.8	12	5.5	Pass
1	8	1.5	12	5.5	Pass
2	11	1.090909	12	5.5	Pass
3	20	0.6	12	5.5	Pass
4	17	0.705882	12	5.5	Pass
5	14	0.857143	12	5.5	Pass
6	15	0.8	12	5.5	Pass
7	12	1	12	5.5	Pass
8	14	0.857143	12	5.5	Pass
9	8	1.5	12	5.5	Pass
10	17	0.705882	12	5.5039	Pass
11	19	0.631579	12	5.5051	Pass
12	15	0.8	12	5.5027	Pass
13	12	1	12	5.5015	Pass
14	19	0.631579	12	5.5047	Pass
15	14	0.857143	12	5.5023	Pass
16	20	0.6	12	5.5055	Pass
17	12	1	12	5.5015	Pass
18	14	0.857143	12	5.5023	Pass
19	12	1	12	5.5015	Pass
20	16	0.75	12	5.4965	Pass
21	12	1	12	5.4989	Pass
22	20	0.6	12	5.4945	Pass
23	14	0.857143	12	5.4977	Pass
24	13	0.923077	12	5.4981	Pass
25	8	1.5	12	5.5005	Pass
26	17	0.705882	12	5.4961	Pass
27	19	0.631579	12	5.4949	Pass
28	12	1	12	5.4985	Pass
29	18	0.666667	12	5.4957	Pass

Note: Radar waveform center frequencies are selected based on section 7.8.4.2 Long Pulse Radar Test of 905462 D02 UNII DFS Compliance Procedures New Rules v02.
For each detail Radar waveform please refer Annex B.

Test Result-5510MHz – 40MHz

Type 6

Trial Id	Pulse Width(us)	PRI(us)	Pulses per Hop	Hopping Rate(kHz)	Hopping Sequence Length(ms)	Visible Frequency Number	Result
0	1	333.3	9	0.3333	300	32	Pass
1	1	333.3	9	0.3333	300	27	Pass
2	1	333.3	9	0.3333	300	25	Pass
3	1	333.3	9	0.3333	300	33	Pass
4	1	333.3	9	0.3333	300	37	Pass
5	1	333.3	9	0.3333	300	30	Pass
6	1	333.3	9	0.3333	300	33	Pass
7	1	333.3	9	0.3333	300	27	Pass
8	1	333.3	9	0.3333	300	33	Pass
9	1	333.3	9	0.3333	300	30	Pass
10	1	333.3	9	0.3333	300	37	Pass
11	1	333.3	9	0.3333	300	36	Pass
12	1	333.3	9	0.3333	300	38	Pass
13	1	333.3	9	0.3333	300	35	Pass
14	1	333.3	9	0.3333	300	28	Pass
15	1	333.3	9	0.3333	300	37	Pass
16	1	333.3	9	0.3333	300	35	Pass
17	1	333.3	9	0.3333	300	37	Pass
18	1	333.3	9	0.3333	300	27	Pass
19	1	333.3	9	0.3333	300	34	Pass
20	1	333.3	9	0.3333	300	35	Pass
21	1	333.3	9	0.3333	300	37	Pass
22	1	333.3	9	0.3333	300	41	Pass
23	1	333.3	9	0.3333	300	36	Pass
24	1	333.3	9	0.3333	300	29	Pass
25	1	333.3	9	0.3333	300	32	Pass
26	1	333.3	9	0.3333	300	30	Pass
27	1	333.3	9	0.3333	300	31	Pass
28	1	333.3	9	0.3333	300	31	Pass
29	1	333.3	9	0.3333	300	40	Pass

Test Result-5290MHz – 80MHz

Type 0

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	1	1428	18	25704	Pass
1	1	1428	18	25704	Pass
2	1	1428	18	25704	Pass
3	1	1428	18	25704	Pass
4	1	1428	18	25704	Pass
5	1	1428	18	25704	Pass
6	1	1428	18	25704	Pass
7	1	1428	18	25704	Pass
8	1	1428	18	25704	Pass
9	1	1428	18	25704	Pass
10	1	1428	18	25704	Pass
11	1	1428	18	25704	Pass
12	1	1428	18	25704	Pass
13	1	1428	18	25704	Pass
14	1	1428	18	25704	Pass
15	1	1428	18	25704	Pass
16	1	1428	18	25704	Pass
17	1	1428	18	25704	Pass
18	1	1428	18	25704	Pass
19	1	1428	18	25704	Pass
20	1	1428	18	25704	Pass
21	1	1428	18	25704	Pass
22	1	1428	18	25704	Pass
23	1	1428	18	25704	Pass
24	1	1428	18	25704	Pass
25	1	1428	18	25704	Pass
26	1	1428	18	25704	Pass
27	1	1428	18	25704	Pass
28	1	1428	18	25704	Pass
29	1	1428	18	25704	Pass

Test Result-5290MHz – 80MHz

Type 1

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	1	938	57	53466	Pass
1	1	698	76	53048	Pass
2	1	618	86	53148	Pass
3	1	538	99	53262	Pass
4	1	878	61	53558	Pass
5	1	3066	18	55188	Pass
6	1	638	83	52954	Pass
7	1	918	58	53244	Pass
8	1	838	63	52794	Pass
9	1	858	62	53196	Pass
10	1	798	67	53466	Pass
11	1	718	74	53132	Pass
12	1	578	92	53176	Pass
13	1	598	89	53222	Pass
14	1	558	95	53010	Pass
15	1	2536	21	53256	Pass
16	1	966	55	53130	Pass
17	1	827	64	52928	Pass
18	1	2501	22	55022	Pass
19	1	2595	21	54495	Pass
20	1	1114	48	53472	Pass
21	1	1302	41	53382	Pass
22	1	3045	18	54810	Pass
23	1	1624	33	53592	Pass
24	1	2878	19	54682	Pass
25	1	1027	52	53404	Pass
26	1	2485	22	54670	Pass
27	1	1600	33	52800	Pass
28	1	1172	46	53912	Pass
29	1	1177	45	52965	Pass

Test Result-5290MHz – 80MHz

Type 2

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	3.2	179	26	4654	Pass
1	1.1	207	23	4761	Pass
2	2.1	230	24	5520	Pass
3	4.8	200	29	5800	Pass
4	3.9	214	28	5992	Pass
5	2.9	222	26	5772	Pass
6	3.2	204	26	5304	Pass
7	2.5	192	25	4800	Pass
8	3.1	164	26	4264	Pass
9	1.2	156	23	3588	Pass
10	3.9	210	27	5670	Pass
11	4.6	201	29	5829	Pass
12	3.2	162	26	4212	Pass
13	2.2	197	25	4925	Pass
14	4.5	163	29	4727	Pass
15	3	203	26	5278	Pass
16	5	168	29	4872	Pass
17	2.4	217	25	5425	Pass
18	2.9	191	26	4966	Pass
19	2.3	166	25	4150	Pass
20	3.7	150	27	4050	Pass
21	2.2	176	25	4400	Pass
22	4.9	195	29	5655	Pass
23	2.9	202	26	5252	Pass
24	2.5	178	25	4450	Pass
25	1.1	206	23	4738	Pass
26	3.8	155	27	4185	Pass
27	4.7	157	29	4553	Pass
28	2.4	224	25	5600	Pass
29	4.2	159	28	4452	Pass

Test Result-5290MHz – 80MHz

Type 3

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	8.2	355	17	6035	Pass
1	6.1	487	16	7792	Pass
2	7.1	344	16	5504	Pass
3	9.8	288	18	5184	Pass
4	8.9	230	18	4140	Pass
5	7.9	432	17	7344	Pass
6	8.2	207	17	3519	Pass
7	7.5	443	17	7531	Pass
8	8.1	439	17	7463	Pass
9	6.2	223	16	3568	Pass
10	8.9	208	18	3744	Pass
11	9.6	463	18	8334	Pass
12	8.2	441	17	7497	Pass
13	7.2	323	16	5168	Pass
14	9.5	297	18	5346	Pass
15	8	412	17	7004	Pass
16	10	324	18	5832	Pass
17	7.4	271	17	4607	Pass
18	7.9	349	17	5933	Pass
19	7.3	409	16	6544	Pass
20	8.7	373	18	6714	Pass
21	7.2	254	16	4064	Pass
22	9.9	274	18	4932	Pass
23	7.9	278	17	4726	Pass
24	7.5	317	17	5389	Pass
25	6.1	260	16	4160	Pass
26	8.8	211	18	3798	Pass
27	9.7	272	18	4896	Pass
28	7.4	264	17	4488	Pass
29	9.2	284	18	5112	Pass

Test Result-5290MHz – 80MHz

Type 4

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	16	355	14	4970	Pass
1	11.3	487	12	5844	Pass
2	13.5	344	13	4472	Pass
3	19.4	288	16	4608	Pass
4	17.5	230	15	3450	Pass
5	15.3	432	14	6048	Pass
6	15.9	207	14	2898	Pass
7	14.3	443	13	5759	Pass
8	15.8	439	14	6146	Pass
9	11.5	223	12	2676	Pass
10	17.4	208	15	3120	Pass
11	19	463	16	7408	Pass
12	16	441	14	6174	Pass
13	13.8	323	13	4199	Pass
14	18.9	297	16	4752	Pass
15	15.5	412	14	5768	Pass
16	19.9	324	16	5184	Pass
17	14.1	271	13	3523	Pass
18	15.2	349	14	4886	Pass
19	13.8	409	13	5317	Pass
20	17.1	373	15	5595	Pass
21	13.8	254	13	3302	Pass
22	19.8	274	16	4384	Pass
23	15.3	278	14	3892	Pass
24	14.5	317	13	4121	Pass
25	11.3	260	12	3120	Pass
26	17.3	211	15	3165	Pass
27	19.2	272	16	4352	Pass
28	14.2	264	13	3432	Pass
29	18.2	284	15	4260	Pass

Test Result-5290MHz – 80MHz

Type 5

Trial Id	Number of Bursts	Burst Period(s)	Waveform Length(s)	Center Frequency(GHz)	Result
0	15	0.8	12	5.5	Pass
1	8	1.5	12	5.5	Pass
2	11	1.090909	12	5.5	Pass
3	20	0.6	12	5.5	Pass
4	17	0.705882	12	5.5	Pass
5	14	0.857143	12	5.5	Pass
6	15	0.8	12	5.5	Pass
7	12	1	12	5.5	Pass
8	14	0.857143	12	5.5	Pass
9	8	1.5	12	5.5	Pass
10	17	0.705882	12	5.5039	Pass
11	19	0.631579	12	5.5051	Pass
12	15	0.8	12	5.5027	Pass
13	12	1	12	5.5015	Pass
14	19	0.631579	12	5.5047	Pass
15	14	0.857143	12	5.5023	Pass
16	20	0.6	12	5.5055	Pass
17	12	1	12	5.5015	Pass
18	14	0.857143	12	5.5023	Pass
19	12	1	12	5.5015	Pass
20	16	0.75	12	5.4965	Pass
21	12	1	12	5.4989	Pass
22	20	0.6	12	5.4945	Pass
23	14	0.857143	12	5.4977	Pass
24	13	0.923077	12	5.4981	Pass
25	8	1.5	12	5.5005	Pass
26	17	0.705882	12	5.4961	Pass
27	19	0.631579	12	5.4949	Pass
28	12	1	12	5.4985	Pass
29	18	0.666667	12	5.4957	Pass

Note: Radar waveform center frequencies are selected based on section 7.8.4.2 Long Pulse Radar Test of 905462 D02 UNII DFS Compliance Procedures New Rules v02.
For each detail Radar waveform please refer Annex B.

Test Result-5290MHz – 80MHz

Type 6

Trial Id	Pulse Width(us)	PRI(us)	Pulses per Hop	Hopping Rate(kHz)	Hopping Sequence Length(ms)	Visible Frequency Number	Result
0	1	333.3	9	0.3333	300	32	Pass
1	1	333.3	9	0.3333	300	27	Pass
2	1	333.3	9	0.3333	300	25	Pass
3	1	333.3	9	0.3333	300	33	Pass
4	1	333.3	9	0.3333	300	37	Pass
5	1	333.3	9	0.3333	300	30	Pass
6	1	333.3	9	0.3333	300	33	Pass
7	1	333.3	9	0.3333	300	27	Pass
8	1	333.3	9	0.3333	300	33	Pass
9	1	333.3	9	0.3333	300	30	Pass
10	1	333.3	9	0.3333	300	37	Pass
11	1	333.3	9	0.3333	300	36	Pass
12	1	333.3	9	0.3333	300	38	Pass
13	1	333.3	9	0.3333	300	35	Pass
14	1	333.3	9	0.3333	300	28	Pass
15	1	333.3	9	0.3333	300	37	Pass
16	1	333.3	9	0.3333	300	35	Pass
17	1	333.3	9	0.3333	300	37	Pass
18	1	333.3	9	0.3333	300	27	Pass
19	1	333.3	9	0.3333	300	34	Pass
20	1	333.3	9	0.3333	300	35	Pass
21	1	333.3	9	0.3333	300	37	Pass
22	1	333.3	9	0.3333	300	41	Pass
23	1	333.3	9	0.3333	300	36	Pass
24	1	333.3	9	0.3333	300	29	Pass
25	1	333.3	9	0.3333	300	32	Pass
26	1	333.3	9	0.3333	300	30	Pass
27	1	333.3	9	0.3333	300	31	Pass
28	1	333.3	9	0.3333	300	31	Pass
29	1	333.3	9	0.3333	300	40	Pass

Test Result-5530MHz – 80MHz

Type 0

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	1	1428	18	25704	Pass
1	1	1428	18	25704	Pass
2	1	1428	18	25704	Pass
3	1	1428	18	25704	Pass
4	1	1428	18	25704	Pass
5	1	1428	18	25704	Pass
6	1	1428	18	25704	Pass
7	1	1428	18	25704	Pass
8	1	1428	18	25704	Pass
9	1	1428	18	25704	Pass
10	1	1428	18	25704	Pass
11	1	1428	18	25704	Pass
12	1	1428	18	25704	Pass
13	1	1428	18	25704	Pass
14	1	1428	18	25704	Pass
15	1	1428	18	25704	Pass
16	1	1428	18	25704	Pass
17	1	1428	18	25704	Pass
18	1	1428	18	25704	Pass
19	1	1428	18	25704	Pass
20	1	1428	18	25704	Pass
21	1	1428	18	25704	Pass
22	1	1428	18	25704	Pass
23	1	1428	18	25704	Pass
24	1	1428	18	25704	Pass
25	1	1428	18	25704	Pass
26	1	1428	18	25704	Pass
27	1	1428	18	25704	Pass
28	1	1428	18	25704	Pass
29	1	1428	18	25704	Pass

Test Result-5530MHz – 80MHz

Type 1

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	1	938	57	53466	Pass
1	1	698	76	53048	Pass
2	1	618	86	53148	Pass
3	1	538	99	53262	Pass
4	1	878	61	53558	Pass
5	1	3066	18	55188	Pass
6	1	638	83	52954	Pass
7	1	918	58	53244	Pass
8	1	838	63	52794	Pass
9	1	858	62	53196	Pass
10	1	798	67	53466	Pass
11	1	718	74	53132	Pass
12	1	578	92	53176	Pass
13	1	598	89	53222	Pass
14	1	558	95	53010	Pass
15	1	2536	21	53256	Pass
16	1	966	55	53130	Pass
17	1	827	64	52928	Pass
18	1	2501	22	55022	Pass
19	1	2595	21	54495	Pass
20	1	1114	48	53472	Pass
21	1	1302	41	53382	Pass
22	1	3045	18	54810	Pass
23	1	1624	33	53592	Pass
24	1	2878	19	54682	Pass
25	1	1027	52	53404	Pass
26	1	2485	22	54670	Pass
27	1	1600	33	52800	Pass
28	1	1172	46	53912	Pass
29	1	1177	45	52965	Pass

Test Result-5530MHz – 80MHz

Type 2

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	3.2	179	26	4654	Pass
1	1.1	207	23	4761	Pass
2	2.1	230	24	5520	Pass
3	4.8	200	29	5800	Pass
4	3.9	214	28	5992	Pass
5	2.9	222	26	5772	Pass
6	3.2	204	26	5304	Pass
7	2.5	192	25	4800	Pass
8	3.1	164	26	4264	Pass
9	1.2	156	23	3588	Pass
10	3.9	210	27	5670	Pass
11	4.6	201	29	5829	Pass
12	3.2	162	26	4212	Pass
13	2.2	197	25	4925	Pass
14	4.5	163	29	4727	Pass
15	3	203	26	5278	Pass
16	5	168	29	4872	Pass
17	2.4	217	25	5425	Pass
18	2.9	191	26	4966	Pass
19	2.3	166	25	4150	Pass
20	3.7	150	27	4050	Pass
21	2.2	176	25	4400	Pass
22	4.9	195	29	5655	Pass
23	2.9	202	26	5252	Pass
24	2.5	178	25	4450	Pass
25	1.1	206	23	4738	Pass
26	3.8	155	27	4185	Pass
27	4.7	157	29	4553	Pass
28	2.4	224	25	5600	Pass
29	4.2	159	28	4452	Pass

Test Result-5530MHz – 80MHz

Type 3

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	8.2	355	17	6035	Pass
1	6.1	487	16	7792	Pass
2	7.1	344	16	5504	Pass
3	9.8	288	18	5184	Pass
4	8.9	230	18	4140	Pass
5	7.9	432	17	7344	Pass
6	8.2	207	17	3519	Pass
7	7.5	443	17	7531	Pass
8	8.1	439	17	7463	Pass
9	6.2	223	16	3568	Pass
10	8.9	208	18	3744	Pass
11	9.6	463	18	8334	Pass
12	8.2	441	17	7497	Pass
13	7.2	323	16	5168	Pass
14	9.5	297	18	5346	Pass
15	8	412	17	7004	Pass
16	10	324	18	5832	Pass
17	7.4	271	17	4607	Pass
18	7.9	349	17	5933	Pass
19	7.3	409	16	6544	Pass
20	8.7	373	18	6714	Pass
21	7.2	254	16	4064	Pass
22	9.9	274	18	4932	Pass
23	7.9	278	17	4726	Pass
24	7.5	317	17	5389	Pass
25	6.1	260	16	4160	Pass
26	8.8	211	18	3798	Pass
27	9.7	272	18	4896	Pass
28	7.4	264	17	4488	Pass
29	9.2	284	18	5112	Pass

Test Result-5530MHz – 80MHz

Type 4

Trial Id	Pulse Width(us)	PRI(us)	Number of Pulses	Waveform Length(us)	Result
0	16	355	14	4970	Pass
1	11.3	487	12	5844	Pass
2	13.5	344	13	4472	Pass
3	19.4	288	16	4608	Pass
4	17.5	230	15	3450	Pass
5	15.3	432	14	6048	Pass
6	15.9	207	14	2898	Pass
7	14.3	443	13	5759	Pass
8	15.8	439	14	6146	Pass
9	11.5	223	12	2676	Pass
10	17.4	208	15	3120	Pass
11	19	463	16	7408	Pass
12	16	441	14	6174	Pass
13	13.8	323	13	4199	Pass
14	18.9	297	16	4752	Pass
15	15.5	412	14	5768	Pass
16	19.9	324	16	5184	Pass
17	14.1	271	13	3523	Pass
18	15.2	349	14	4886	Pass
19	13.8	409	13	5317	Pass
20	17.1	373	15	5595	Pass
21	13.8	254	13	3302	Pass
22	19.8	274	16	4384	Pass
23	15.3	278	14	3892	Pass
24	14.5	317	13	4121	Pass
25	11.3	260	12	3120	Pass
26	17.3	211	15	3165	Pass
27	19.2	272	16	4352	Pass
28	14.2	264	13	3432	Pass
29	18.2	284	15	4260	Pass

Test Result-5530MHz – 80MHz

Type 5

Trial Id	Number of Bursts	Burst Period(s)	Waveform Length(s)	Center Frequency(GHz)	Result
0	15	0.8	12	5.5	Pass
1	8	1.5	12	5.5	Pass
2	11	1.090909	12	5.5	Pass
3	20	0.6	12	5.5	Pass
4	17	0.705882	12	5.5	Pass
5	14	0.857143	12	5.5	Pass
6	15	0.8	12	5.5	Pass
7	12	1	12	5.5	Pass
8	14	0.857143	12	5.5	Pass
9	8	1.5	12	5.5	Pass
10	17	0.705882	12	5.5039	Pass
11	19	0.631579	12	5.5051	Pass
12	15	0.8	12	5.5027	Pass
13	12	1	12	5.5015	Pass
14	19	0.631579	12	5.5047	Pass
15	14	0.857143	12	5.5023	Pass
16	20	0.6	12	5.5055	Pass
17	12	1	12	5.5015	Pass
18	14	0.857143	12	5.5023	Pass
19	12	1	12	5.5015	Pass
20	16	0.75	12	5.4965	Pass
21	12	1	12	5.4989	Pass
22	20	0.6	12	5.4945	Pass
23	14	0.857143	12	5.4977	Pass
24	13	0.923077	12	5.4981	Pass
25	8	1.5	12	5.5005	Pass
26	17	0.705882	12	5.4961	Pass
27	19	0.631579	12	5.4949	Pass
28	12	1	12	5.4985	Pass
29	18	0.666667	12	5.4957	Pass

Note: Radar waveform center frequencies are selected based on section 7.8.4.2 Long Pulse Radar Test of 905462 D02 UNII DFS Compliance Procedures New Rules v02.
For each detail Radar waveform please refer Annex B.

Test Result-5530MHz – 80MHz

Type 6

Trial Id	Pulse Width(us)	PRI(us)	Pulses per Hop	Hopping Rate(kHz)	Hopping Sequence Length(ms)	Visible Frequency Number	Result
0	1	333.3	9	0.3333	300	32	Pass
1	1	333.3	9	0.3333	300	27	Pass
2	1	333.3	9	0.3333	300	25	Pass
3	1	333.3	9	0.3333	300	33	Pass
4	1	333.3	9	0.3333	300	37	Pass
5	1	333.3	9	0.3333	300	30	Pass
6	1	333.3	9	0.3333	300	33	Pass
7	1	333.3	9	0.3333	300	27	Pass
8	1	333.3	9	0.3333	300	33	Pass
9	1	333.3	9	0.3333	300	30	Pass
10	1	333.3	9	0.3333	300	37	Pass
11	1	333.3	9	0.3333	300	36	Pass
12	1	333.3	9	0.3333	300	38	Pass
13	1	333.3	9	0.3333	300	35	Pass
14	1	333.3	9	0.3333	300	28	Pass
15	1	333.3	9	0.3333	300	37	Pass
16	1	333.3	9	0.3333	300	35	Pass
17	1	333.3	9	0.3333	300	37	Pass
18	1	333.3	9	0.3333	300	27	Pass
19	1	333.3	9	0.3333	300	34	Pass
20	1	333.3	9	0.3333	300	35	Pass
21	1	333.3	9	0.3333	300	37	Pass
22	1	333.3	9	0.3333	300	41	Pass
23	1	333.3	9	0.3333	300	36	Pass
24	1	333.3	9	0.3333	300	29	Pass
25	1	333.3	9	0.3333	300	32	Pass
26	1	333.3	9	0.3333	300	30	Pass
27	1	333.3	9	0.3333	300	31	Pass
28	1	333.3	9	0.3333	300	31	Pass
29	1	333.3	9	0.3333	300	40	Pass

Annex A. TEST INSTRUMENT

Instrument	Model	Serial #	Cal Date	Cal Cycle	Cal Due	In use
Radiated DFS Measurement						
Keysight Signal Analyzer	N9010A	MY50210206	01/18/2018	1 Year	01/18/2019	☑
Splitter/Combiner (Mini-Circuit)	ZFSC-2-9G+	S F030000719	N/A	1 Year	N/A	☑
Splitter/Combiner (Mini-Circuit)	ZFSC-2-9G+	S F030000718	N/A	1 Year	N/A	☑
Agilent Signal Generator	MXG N5182B	MY56200550	07/20/2018	1 Year	07/20/2019	☑

Annex B. Radar Type waveform characteristic

Type 5:
Waveform 1

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.0 - 1.5	2	60	1728	0.51	20
2	1.5 - 3.0	3	76	1076, 1580	2.55	10
3	3.0 - 4.5	3	72	1872, 1208	3.96	20
4	4.5 - 6.0	2	76	1860	5.655	10
5	6.0 - 7.5	3	100	1400, 1860	6.825	20
6	7.5 - 9.0	1	52	/	7.89	10
7	9.0 - 10.5	3	92	1460, 1720	9.735	20
8	10.5 - 12.0	3	64	1704, 1240	10.98	10

Waveform 2

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.0 - 1.5	1	96	/	0.315	20
2	1.5 - 3.0	2	56	1784	1.68	10
3	3.0 - 4.5	3	100	1204, 1064	3.675	20
4	4.5 - 6.0	1	72	/	4.905	10
5	6.0 - 7.5	1	92	/	6.75	20
6	7.5 - 9.0	3	68	1060, 1808	7.71	10
7	9.0 - 10.5	3	72	1824, 1700	9.45	20
8	10.5 - 12.0	1	64	/	11.355	10

Waveform 3

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.0 - 1.5	1	76	/	0.705	20
2	1.5 - 3.0	2	88	1964	2.505	10
3	3.0 - 4.5	1	100	/	3.375	20
4	4.5 - 6.0	1	60	/	5.19	10
5	6.0 - 7.5	1	64	/	6.585	20
6	7.5 - 9.0	1	56	/	7.905	10
7	9.0 - 10.5	1	100	/	9.75	20
8	10.5 - 12.0	3	96	1256, 1104	11.04	10

Waveform 4

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.0 - 1.5	1	52	/	0.645	20
2	1.5 - 3.0	3	56	1836, 1788	1.845	10
3	3.0 - 4.5	2	52	1416	3.66	20
4	4.5 - 6.0	2	56	1812	5.52	10
5	6.0 - 7.5	1	80	/	6.6	20
6	7.5 - 9.0	3	92	1928, 1036	8.58	10
7	9.0 - 10.5	2	84	2000	9.24	20
8	10.5 - 12.0	2	88	1036	11.115	10

Waveform 5

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.0 - 1.5	2	56	1952	0.435	20
2	1.5 - 3.0	1	60	/	2.04	10
3	3.0 - 4.5	2	92	1064	3.99	20
4	4.5 - 6.0	2	64	1540	4.875	10
5	6.0 - 7.5	1	72	/	6.525	20
6	7.5 - 9.0	2	76	1692	7.785	10
7	9.0 - 10.5	3	80	1900, 1072	9.465	20
8	10.5 - 12.0	2	76	1136	10.74	10

Waveform 6

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.0 - 1.2	3	56	1484, 1292	0.252	20
2	1.2 - 2.4	3	68	1028, 1424	1.764	10
3	2.4 - 3.6	1	56	/	3.252	20
4	3.6 - 4.8	2	64	1956	3.9	10
5	4.8 - 6.0	2	100	1004	5.088	20
6	6.0 - 7.2	3	88	1368, 1652	6.672	10
7	7.2 - 8.4	3	52	1208, 1656	7.836	20
8	8.4 - 9.6	1	96	/	8.832	10
9	9.6 - 10.8	2	84	1288	9.972	20
10	10.8 - 12.0	1	100	/	11.16	10

Waveform 7

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.0 - 1.2	3	80	1656, 1788	0.852	20
2	1.2 - 2.4	1	96	/	1.404	10
3	2.4 - 3.6	1	84	/	3.108	20
4	3.6 - 4.8	3	56	1728, 1768	4.536	10
5	4.8 - 6.0	3	76	1596, 1656	5.496	20
6	6.0 - 7.2	3	64	1232, 1696	6.36	10
7	7.2 - 8.4	2	92	1924	7.848	20
8	8.4 - 9.6	1	96	/	8.544	10
9	9.6 - 10.8	1	60	/	9.78	20
10	10.8 - 12.0	1	76	/	10.992	10

Waveform 8

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.0 - 1.2	3	96	1940, 1260	0.636	20
2	1.2 - 2.4	1	72	/	1.368	10
3	2.4 - 3.6	3	60	1820, 1556	3.276	20
4	3.6 - 4.8	2	92	1416	3.72	10
5	4.8 - 6.0	3	96	1480, 1604	5.496	20
6	6.0 - 7.2	1	56	/	6.528	10
7	7.2 - 8.4	1	68	/	7.764	20
8	8.4 - 9.6	1	64	/	8.772	10
9	9.6 - 10.8	2	88	1232	10.08	20
10	10.8 - 12.0	2	76	1396	11.124	10

Waveform 9

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing (us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.0 - 1.2	1	76	/	0.588	20
2	1.2 - 2.4	1	56	/	1.86	10
3	2.4 - 3.6	3	92	1860, 1084	3.3	20
4	3.6 - 4.8	1	96	/	4.236	10
5	4.8 - 6.0	3	92	1432, 1860	5.28	20
6	6.0 - 7.2	1	100	/	6.264	10
7	7.2 - 8.4	3	64	1544, 1368	8.064	20
8	8.4 - 9.6	2	72	1248	8.724	10
9	9.6 - 10.8	1	76	/	9.828	20
10	10.8 - 12.0	3	84	1136, 1992	11.568	10

Waveform 10

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.0 - 1.2	1	68	/	0.576	20
2	1.2 - 2.4	1	84	/	1.44	10
3	2.4 - 3.6	3	64	1620, 1340	2.928	20
4	3.6 - 4.8	2	72	1552	4.2	10
5	4.8 - 6.0	3	64	1608, 1880	5.388	20
6	6.0 - 7.2	2	60	1672	6.192	10
7	7.2 - 8.4	3	52	1080, 1344	8.04	20
8	8.4 - 9.6	3	76	1828, 1868	8.568	10
9	9.6 - 10.8	2	56	1032	10.08	20
10	10.8 - 12.0	3	64	1728, 1256	11.088	10

Waveform 11

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	1	3	72	1440, 1968	0.14	20
2	2	1	64	/	1.42	10
3	3	2	60	1924	2.79	20
4	4	3	88	1188, 1956	3.17	10
5	5	3	52	1380, 1472	4.75	20
6	6	1	64	/	5.57	10
7	7	2	68	1856	6.76	20
8	8	1	100	/	7.59	10
9	9	1	72	/	8.7	20
10	10	3	60	1328, 1160	9.24	10
11	11	3	80	1740, 1248	10.72	20
12	12	2	88	1448	11.28	10

Waveform 12

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	1	1	100	/	0.61	20
2	2	3	92	1680, 1104	1.2	10
3	3	1	88	/	2.46	20
4	4	3	80	1628, 1052	3.22	10
5	5	2	68	1356	4.5	20
6	6	2	80	1532	5.15	10
7	7	1	52	/	6.33	20
8	8	2	60	1828	7.57	10
9	9	2	72	1492	8.74	20
10	10	2	80	1096	9.21	10
11	11	1	88	/	10.62	20
12	12	3	100	1744, 1860	11.65	10

Waveform13

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	1	3	84	1576, 1216	0.72	20
2	2	1	92	/	1.27	10
3	3	3	52	1356, 1236	2.68	20
4	4	3	80	1096, 1252	3.79	10
5	5	2	52	1224	4.7	20
6	6	3	76	1532, 1684	5.47	10
7	7	1	60	/	6.16	20
8	8	1	56	/	7.1	10
9	9	2	100	1572	8.44	20
10	10	1	72	/	9.41	10
11	11	2	80	1004	10.61	20
12	12	1	84	/	11.21	10

Waveform 14

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	1	1	80	/	0.48	20
2	2	1	92	/	1.66	10
3	3	1	88	/	2.51	20
4	4	2	96	1372	3.29	10
5	5	1	84	/	4.27	20
6	6	2	64	1396	5.28	10
7	7	2	80	1572	6.79	20
8	8	2	68	1932	7.21	10
9	9	1	60	/	8.11	20
10	10	1	68	/	9.15	10
11	11	1	84	/	10.2	20
12	12	3	100	1328, 1812	11.33	10

Waveform 15

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	1	1	80	/	0.71	20
2	2	3	96	1508, 1240	1.38	10
3	3	2	60	1072	2.7	20
4	4	2	64	1812	3.5	10
5	5	2	60	1672	4.57	20
6	6	2	92	1412	5.23	10
7	7	1	56	/	6.29	20
8	8	3	96	1812, 1336	7.3	10
9	9	2	88	1584	8.15	20
10	10	2	72	1700	9.49	10
11	11	1	76	/	10.37	20
12	12	2	68	1060	11.52	10

Waveform 16

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.00 - 0.80	3	92	1244, 1572	0.496	20
2	0.80 - 1.60	1	80	/	1.232	10
3	1.60 - 2.40	3	84	1432, 1632	1.688	20
4	2.40 - 3.20	3	60	1448, 1972	2.816	10
5	3.20 - 4.00	3	92	1080, 1184	3.32	20
6	4.00 - 4.80	3	96	1160, 1228	4.28	10
7	4.80 - 5.60	3	60	1036, 1736	4.936	20
8	5.60 - 6.40	2	56	1172	6.008	10
9	6.40 - 7.20	1	52	/	6.6	20
10	7.20 - 8.00	2	76	1980	7.512	10
11	8.00 - 8.80	3	80	1280, 1588	8.224	20
12	8.80 - 9.60	2	68	1664	9.008	10
13	9.60 - 10.40	2	92	1676	10.168	20
14	10.40 - 11.20	2	84	1332	10.728	10
15	11.20 - 12.00	2	60	1684	11.496	20

Waveform 17

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.00 - 0.80	1	72	/	0.632	20
2	0.80 - 1.60	3	92	1884, 1104	1.424	10
3	1.60 - 2.40	1	84	/	2.08	20
4	2.40 - 3.20	2	60	1912	2.912	10
5	3.20 - 4.00	3	72	1584, 1492	3.608	20
6	4.00 - 4.80	3	60	1588, 1752	4.272	10
7	4.80 - 5.60	2	64	1780	5.168	20
8	5.60 - 6.40	3	76	1588, 1744	5.808	10
9	6.40 - 7.20	1	56	/	6.888	20
10	7.20 - 8.00	2	76	1940	7.512	10
11	8.00 - 8.80	2	92	1444	8.592	20
12	8.80 - 9.60	3	60	1988, 1864	9.4	10
13	9.60 - 10.40	1	100	/	9.864	20
14	10.40 - 11.20	3	84	1284, 1748	10.728	10
15	11.20 - 12.00	2	100	1900	11.752	20

Waveform 18

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.00 - 0.80	1	56	/	0.504	20
2	0.80 - 1.60	3	76	1116, 1584	1.208	10
3	1.60 - 2.40	1	80	/	1.72	20
4	2.40 - 3.20	1	100	/	2.664	10
5	3.20 - 4.00	3	84	1264, 1140	3.568	20
6	4.00 - 4.80	1	72	/	4.544	10
7	4.80 - 5.60	3	56	1872, 1108	4.944	20
8	5.60 - 6.40	3	60	1320, 1920	6.208	10
9	6.40 - 7.20	2	76	1756	6.744	20
10	7.20 - 8.00	3	60	1596, 1400	7.776	10
11	8.00 - 8.80	1	56	/	8.36	20
12	8.80 - 9.60	3	88	1356, 1840	9.336	10
13	9.60 - 10.40	2	64	1712	9.896	20
14	10.40 - 11.20	1	100	/	10.984	10
15	11.20 - 12.00	3	76	1028, 1688	11.76	20

Waveform 19

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.00 - 0.80	1	84	/	0.408	20
2	0.80 - 1.60	3	64	1780, 1296	1.304	10
3	1.60 - 2.40	3	68	1400, 1292	1.824	20
4	2.40 - 3.20	1	92	/	2.944	10
5	3.20 - 4.00	1	64	/	3.352	20
6	4.00 - 4.80	2	56	1264	4.232	10
7	4.80 - 5.60	1	72	/	4.92	20
8	5.60 - 6.40	2	76	1460	5.992	10
9	6.40 - 7.20	1	84	/	6.528	20
10	7.20 - 8.00	2	68	1188	7.44	10
11	8.00 - 8.80	3	72	1576, 1536	8.456	20
12	8.80 - 9.60	2	64	1056	8.968	10
13	9.60 - 10.40	1	100	/	9.808	20
14	10.40 - 11.20	2	52	1092	10.616	10
15	11.20 - 12.00	3	68	1936, 1464	11.528	20

Waveform 20

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us))	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.00 - 0.80	1	88	/	0.2	20
2	0.80 - 1.60	1	68	/	1.376	10
3	1.60 - 2.40	2	88	1496	1.92	20
4	2.40 - 3.20	1	64	/	2.608	10
5	3.20 - 4.00	3	84	1768, 1184	3.584	20
6	4.00 - 4.80	3	52	1620, 1552	4.568	10
7	4.80 - 5.60	3	80	1908, 1884	5.432	20
8	5.60 - 6.40	3	92	1728, 1684	6.032	10
9	6.40 - 7.20	3	60	1536, 1496	6.928	20
10	7.20 - 8.00	3	76	1776, 1580	7.304	10
11	8.00 - 8.80	1	80	/	8.36	20
12	8.80 - 9.60	3	56	1020, 1292	9.072	10
13	9.60 - 10.40	2	60	1380	9.712	20
14	10.40 - 11.20	3	96	1324, 1664	10.992	10
15	11.20 - 12.00	2	72	1896	11.416	20

Waveform 21

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.00 - 0.75	3	52	1384, 1180	0.3225	20
2	0.75 - 1.50	2	60	1096	1.2525	10
3	1.50 - 2.25	3	72	1520, 1716	1.755	20
4	2.25 - 3.00	1	60	/	2.4675	10
5	3.00 - 3.75	2	56	1292	3.5475	20
6	3.75 - 4.50	2	64	1704	4.23	10
7	4.50 - 5.25	2	84	1708	4.9575	20
8	5.25 - 6.00	3	56	1008, 1624	5.565	10
9	6.00 - 6.75	3	80	1468, 1056	6.5325	20
10	6.75 - 7.50	2	88	1160	7.1325	10
11	7.50 - 8.25	3	56	1216, 1852	7.6575	20
12	8.25 - 9.00	1	52	/	8.37	10
13	9.00 - 9.75	1	80	/	9.45	20
14	9.75 - 10.50	3	60	1020, 1996	9.99	10
15	10.50 - 11.25	3	88	1960, 1620	10.6125	20
16	11.25 - 12.00	3	92	1760, 1496	11.46	10

Waveform 22

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.00 - 0.75	3	56	1704, 1692	0.3825	20
2	0.75 - 1.50	1	100	/	1.335	10
3	1.50 - 2.25	2	92	1068	2.025	20
4	2.25 - 3.00	2	84	1844	2.715	10
5	3.00 - 3.75	2	68	1896	3.0975	20
6	3.75 - 4.50	2	100	1656	3.8775	10
7	4.50 - 5.25	2	60	1960	5.0175	20
8	5.25 - 6.00	1	88	/	5.73	10
9	6.00 - 6.75	1	84	/	6.3975	20
10	6.75 - 7.50	3	56	1784, 1692	7.0125	10
11	7.50 - 8.25	3	52	1784, 1648	7.83	20
12	8.25 - 9.00	1	60	/	8.655	10
13	9.00 - 9.75	3	80	1460, 1564	9.195	20
14	9.75 - 10.50	2	68	1604	10.0875	10
15	10.50 - 11.25	1	76	/	10.77	20
16	11.25 - 12.00	2	96	1276	11.415	10

Waveform 23

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.00 - 0.75	3	52	1240, 1024	0.2025	20
2	0.75 - 1.50	2	100	1632	0.825	10
3	1.50 - 2.25	3	76	1112, 1156	1.6725	20
4	2.25 - 3.00	2	56	1808	2.43	10
5	3.00 - 3.75	1	64	/	3.585	20
6	3.75 - 4.50	3	68	1960, 1672	4.3425	10
7	4.50 - 5.25	2	52	1700	4.7625	20
8	5.25 - 6.00	1	100	/	5.385	10
9	6.00 - 6.75	3	60	1084, 1112	6.42	20
10	6.75 - 7.50	3	64	1972, 1164	7.0875	10
11	7.50 - 8.25	3	92	1752, 1168	7.845	20
12	8.25 - 9.00	3	80	1448, 1432	8.775	10
13	9.00 - 9.75	2	88	1744	9.39	20
14	9.75 - 10.50	2	92	1548	10.125	10
15	10.50 - 11.25	2	80	1812	11.0625	20
16	11.25 - 12.00	2	52	1508	11.3475	10

Waveform 24

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.00 - 0.75	2	56	1404	0.2775	20
2	0.75 - 1.50	3	64	1964, 1024	1.1625	10
3	1.50 - 2.25	3	84	1708, 1640	2.0475	20
4	2.25 - 3.00	2	88	1128	2.79	10
5	3.00 - 3.75	1	100	/	3.0825	20
6	3.75 - 4.50	1	60	/	3.885	10
7	4.50 - 5.25	2	96	1436	5.07	20
8	5.25 - 6.00	1	68	/	5.64	10
9	6.00 - 6.75	3	72	1496, 1800	6.3375	20
10	6.75 - 7.50	1	100	/	6.975	10
11	7.50 - 8.25	2	68	1752	8.0025	20
12	8.25 - 9.00	1	84	/	8.6025	10
13	9.00 - 9.75	1	72	/	9.3225	20
14	9.75 - 10.50	2	88	1552	10.215	10
15	10.50 - 11.25	3	52	1884, 1864	10.9425	20
16	11.25 - 12.00	3	60	1776, 1700	11.34	10

Waveform 25

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.00 - 0.75	1	88	/	0.105	20
2	0.75 - 1.50	1	96	/	1.0125	10
3	1.50 - 2.25	1	60	/	2.055	20
4	2.25 - 3.00	1	80	/	2.5875	10
5	3.00 - 3.75	3	76	1344, 1716	3.2475	20
6	3.75 - 4.50	2	64	1560	4.3275	10
7	4.50 - 5.25	2	84	1964	4.935	20
8	5.25 - 6.00	3	60	1760, 1532	5.7225	10
9	6.00 - 6.75	2	80	1432	6.375	20
10	6.75 - 7.50	1	96	/	7.1925	10
11	7.50 - 8.25	3	60	1904, 1676	7.6125	20
12	8.25 - 9.00	1	80	/	8.535	10
13	9.00 - 9.75	2	68	1724	9.465	20
14	9.75 - 10.50	3	76	1936, 1648	10.2	10
15	10.50 - 11.25	2	88	1728	10.92	20
16	11.25 - 12.00	3	84	1908, 1144	11.64	10

Waveform 26

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.00 - 0.60	1	96	/	0.36	20
2	0.60 - 1.20	3	80	1072, 1772	0.84	10
3	1.20 - 1.80	1	88	/	1.392	20
4	1.80 - 2.40	1	100	/	2.202	10
5	2.40 - 3.00	2	56	1692	2.718	20
6	3.00 - 3.60	3	84	1572, 1816	3.084	10
7	3.60 - 4.20	1	60	/	3.678	20
8	4.20 - 4.80	1	92	/	4.674	10
9	4.80 - 5.40	3	52	1628, 1704	5.13	20
10	5.40 - 6.00	3	84	1200, 1716	5.466	10
11	6.00 - 6.60	2	80	1580	6.432	20
12	6.60 - 7.20	3	68	1552, 1236	6.66	10
13	7.20 - 7.80	1	60	/	7.482	20
14	7.80 - 8.40	3	88	1192, 1516	8.094	10
15	8.40 - 9.00	3	56	1372, 1284	8.598	20
16	9.00 - 9.60	3	88	1824, 1280	9.354	10
17	9.60 - 10.20	1	60	/	10.014	20
18	10.20 - 10.80	3	84	1644, 1420	10.272	10
19	10.80 - 11.40	3	72	1348, 1724	11.226	20
20	11.40 - 12.00	1	88	/	11.742	10

Waveform 27

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.00 - 0.60	2	56	1976	0.192	20
2	0.60 - 1.20	2	100	1968	0.78	10
3	1.20 - 1.80	3	60	1892, 1628	1.476	20
4	1.80 - 2.40	3	64	1752, 1328	2.268	10
5	2.40 - 3.00	2	92	1664	2.484	20
6	3.00 - 3.60	2	84	1236	3.234	10
7	3.60 - 4.20	1	64	/	3.858	20
8	4.20 - 4.80	2	80	1280	4.572	10
9	4.80 - 5.40	3	76	1588, 1452	4.92	20
10	5.40 - 6.00	1	64	/	5.688	10
11	6.00 - 6.60	3	80	1464, 1924	6.204	20
12	6.60 - 7.20	1	76	/	6.996	10
13	7.20 - 7.80	1	72	/	7.65	20
14	7.80 - 8.40	1	60	/	8.01	10
15	8.40 - 9.00	2	76	1320	8.694	20
16	9.00 - 9.60	2	100	1684	9.408	10
17	9.60 - 10.20	2	56	1656	9.822	20
18	10.20 - 10.80	3	80	1064, 1868	10.374	10
19	10.80 - 11.40	1	60	/	10.866	20
20	11.40 - 12.00	3	88	1124, 1952	11.718	10

Waveform 28

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.00 - 0.60	2	68	1484	0.306	20
2	0.60 - 1.20	1	88	/	0.834	10
3	1.20 - 1.80	2	92	1832	1.398	20
4	1.80 - 2.40	2	72	1160	2.076	10
5	2.40 - 3.00	1	68	/	2.472	20
6	3.00 - 3.60	3	72	1320, 1844	3.18	10
7	3.60 - 4.20	1	92	/	3.768	20
8	4.20 - 4.80	2	72	1384	4.668	10
9	4.80 - 5.40	1	100	/	5.274	20
10	5.40 - 6.00	1	92	/	5.802	10
11	6.00 - 6.60	1	96	/	6.252	20
12	6.60 - 7.20	3	92	1364, 1348	6.732	10
13	7.20 - 7.80	3	72	1596, 1464	7.464	20
14	7.80 - 8.40	1	60	/	7.878	10
15	8.40 - 9.00	3	64	1444, 1224	8.508	20
16	9.00 - 9.60	1	100	/	9.438	10
17	9.60 - 10.20	3	72	1712, 1152	9.93	20
18	10.20 - 10.80	1	88	/	10.584	10
19	10.80 - 11.40	2	68	1368	11.022	20
20	11.40 - 12.00	1	88	/	11.544	10

Waveform29

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.00 - 0.60	1	72	/	0.348	20
2	0.60 - 1.20	1	92	/	1.068	10
3	1.20 - 1.80	2	60	1624	1.41	20
4	1.80 - 2.40	2	100	1336	2.082	10
5	2.40 - 3.00	3	72	1924, 1172	2.67	20
6	3.00 - 3.60	3	88	1488, 1396	3.438	10
7	3.60 - 4.20	1	76	/	4.008	20
8	4.20 - 4.80	1	72	/	4.674	10
9	4.80 - 5.40	2	92	1864	5.1	20
10	5.40 - 6.00	2	64	1748	5.604	10
11	6.00 - 6.60	2	84	1356	6.198	20
12	6.60 - 7.20	1	68	/	6.996	10
13	7.20 - 7.80	3	96	1236, 1988	7.542	20
14	7.80 - 8.40	3	56	1328, 1864	8.034	10
15	8.40 - 9.00	3	76	1160, 1264	8.538	20
16	9.00 - 9.60	2	96	1224	9.18	10
17	9.60 - 10.20	3	84	1136, 1364	10.002	20
18	10.20 - 10.80	1	56	/	10.302	10
19	10.80 - 11.40	2	64	1388	11.124	20
20	11.40 - 12.00	1	88	/	11.628	10

Waveform 30

Burst #	Burst Interval(s)	Number of Pulses	Pulse Width (us)	Pulse Spacing(us)	Pulse Start (s)	Chirp Width (MHZ)
1	0.00 - 0.60	2	52	1352	0.12	20
2	0.60 - 1.20	1	100	/	0.876	10
3	1.20 - 1.80	1	96	/	1.314	20
4	1.80 - 2.40	3	60	1220, 1504	1.974	10
5	2.40 - 3.00	1	92	/	2.46	20
6	3.00 - 3.60	2	100	1100	3.45	10
7	3.60 - 4.20	1	88	/	3.99	20
8	4.20 - 4.80	1	68	/	4.428	10
9	4.80 - 5.40	2	72	1396	5.154	20
10	5.40 - 6.00	3	92	1240, 1216	5.67	10
11	6.00 - 6.60	1	72	/	6.21	20
12	6.60 - 7.20	1	92	/	6.858	10
13	7.20 - 7.80	2	96	1896	7.602	20
14	7.80 - 8.40	2	68	1552	7.926	10
15	8.40 - 9.00	1	64	/	8.838	20
16	9.00 - 9.60	1	60	/	9.396	10
17	9.60 - 10.20	3	72	1996, 1516	9.978	20
18	10.20 - 10.80	2	68	1992	10.518	10
19	10.80 - 11.40	3	60	1448, 1792	11.148	20
20	11.40 - 12.00	2	68	1156	11.736	10

Annex C. SIEMIC Accreditation

Accreditations	Document	Scope / Remark
ISO 17025 (A2LA)		Please see the documents for the detailed scope
ISO Guide 65 (A2LA)		Please see the documents for the detailed scope
TCB Designation		A1, A2, A3, A4, B1, B2, B3, B4, C
FCC DoC Accreditation		FCC Declaration of Conformity Accreditation
FCC Site Registration		3 meter site
FCC Site Registration		10 meter site
IC Site Registration		3 meter site
IC Site Registration		10 meter site
EU NB		Radio & Telecommunications Terminal Equipment: EN45001 – EN ISO/IEC 17025
		Electromagnetic Compatibility: EN45001 – EN ISO/IEC 17025
Singapore iDA CB(Certification Body)		Phase I, Phase II
Vietnam MIC CAB Accreditation		Please see the document for the detailed scope
HongKong OFCA		(Phase II) OFCA Foreign Certification Body for Radio and Telecom
		(Phase I) Conformity Assessment Body for Radio and Telecom
Industry Canada CAB		Radio: Scope A – All Radio Standard Specification in Category I
		Telecom: CS-03 Part I, II, V, VI, VII, VIII

Japan Recognized Certification Body Designation		Radio : A1. Terminal equipment for purpose of calling Telecom : B1. Specified radio equipment specified in Article 38-2, Paragraph 1, Item 1 of the Radio Law
Korea CAB Accreditation		EMI: KCC Notice 2008-39, RRL Notice 2008-3: CA Procedures for EMI KN22: Test Method for EMIEMS: KCC Notice 2008-38, RRL Notice 2008-4: CA Procedures for EMS KN24, KN61000-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11: Test Method for EMS
		Radio: RRL Notice 2008-26, RRL Notice 2008-2, RRL Notice 2008-10, RRL Notice 2007-49, RRL Notice 2007-20, RRL Notice 2007-21, RRL Notice 2007-80, RRL Notice 2004-68
		Telecom: President Notice 20664, RRL Notice 2007-30, RRL Notice 2008-7 with attachments 1, 3, 5, 6; President Notice 20664, RRL Notice 2008-7 with attachment 4
Taiwan NCC CAB Recognition		LP0002, PSTN01, ADSL01, ID0002, IS6100, CNS14336, PLMN07, PLMN01, PLMN08
Taiwan BSMI CAB Recognition		CNS 13438
Japan VCCI		R-3083: Radiation 3 meter site C-3421: Main Ports Conducted Interference Measurement T-1597: Telecommunication Ports Conducted Interference Measuremet
Australia CAB Regocnition		EMC: AS/NZS CISPR 11, AS/NZS CISPR 14.1, AS/NZS CISPR22, AS/NZS 61000.6.3, AS/NZS 61000.6.4
		Radiocommunications: AS/NZS 4281, AS/NZS 4268, AS/NZS 4280.1, AS/NZS 4280.2, AS/NZS 4295, AS/NZS 4582, AS/NZS 4583, AS/NZS 4769.1, AS/NZS 4769.2, AS/NZS 4770, AS/NZS 4771
		Telecommunications: AS/ACIF S002:05, AS/ACIF S003:06, AS/ACIF S004:06 AS/ACIF S006:01, AS/ACIF S016:01, AS/ACIF S031:01, AS/ACIF S038:01, AS/ACIF S040:01, AS/ACIF S041:05, AS/ACIF S043.2:06, AS/ACIF S60950.1
Australia NATA Recognition		AS/ACIF S002, AS/ACIF S003, AS/ACIF S004, AS/ACIF S006, AS/ACIF S016,AS/ACIF S031, AS/ACIF S038, AS/ACIF S040, AS/ACIF S041, AS/ACIF S043.2