

Report No.: FZ6D0253-01

Project No: CB10512090

# **FCC DFS Test Report**

Equipment : PMP450

**Brand Name** : Cambium Networks

Model No. : C054045A002A

FCC ID : Z8H89FT0002

: 47 CFR FCC Part 15.407 Standard

Frequency Range: 5250 MHz - 5350 MHz

5470 MHz - 5725 MHz

Applicant : Cambium Networks Inc.

3800 Golf Road, Suite 360 Rolling Meadows, IL 60008,

USA

Operate Mode : Master

The product sample received on Nov. 28, 2016 and completely tested on Nov. 30, 2016. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in FCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in

Sam Chen

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# **Summary of Test Result**

	Conformance Test Specifications						
Report Clause	Ref. Std. Clause	Description	Limit	Result			
3.3	FCC KDB 905462 7.8.1	DFS: UNII Detection Bandwidth Measurement	100% of the 99% BW	Complied			
3.4	FCC KDB 905462 7.8.2.1	DFS: Initial Channel Availability Check Time	CAC ≥ 60 sec	Complied			
3.4	FCC KDB 905462 7.8.2.2	DFS: Radar Burst at the Beginning of the Channel Availability Check Time	Detection Threshold: -63 dBm	Complied			
3.4	FCC KDB 905462 7.8.2.3	DFS: Radar Burst at the End of the Channel Availability Check Time	Detection Threshold: -63 dBm	Complied			
3.5	FCC KDB 905462 7.8.3	DFS: In-Service Monitoring for Channel Move Time (CMT)	CMT ≤ 10sec	Complied			
3.5	FCC KDB 905462 7.8.3	DFS: In-Service Monitoring for Channel Closing Transmission Time (CCTT)	CCTT ≤ 60 ms starting at CMT 200ms	Complied			
3.5	FCC KDB 905462 7.8.3	DFS: In-Service Monitoring for Non-Occupancy Period (NOP)	NOP ≥ 30 min	Complied			
3.6	FCC KDB 905462 7.8.4	DFS: Statistical Performance Check	Table 5 - 7 (KDB 905462)	Complied			
3.1.4	FCC KDB 905462 8.1	User Access Restrictions	DFS controls	Complied			

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# **Revision History**

Report No.	Version	Description	Issued Date
FZ6D0253-01	Rev. 01	Initial issue of report	Dec. 08, 2016

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# 1 General Description

# 1.1 Information

# 1.1.1 RF General Information

Specification Items	Description		
Product Type	WLAN (2TX, 2RX)		
Radio Type	Intentional Transceiver		
Power Type	From PoE		
Modulation	OFDM		
Channel Bandwidth	30/40 MHz operating channel bandwidth		
Operating Mode	Client with radar detection		
	Client without radar detection		
Communication Mode	☐ IP Based (Load Based) ☐ Frame Based		
Weather Band (5600~5650MHz)	) ☑ With 5600~5650MHz ☐ Without 5600~5650MHz		
Power-on cycle	40MHz: Requires 47.326 seconds to complete its power-on cycle.		
Software / Firmware Version	CANOPY 15.1(Build pavel_161122) AP-No		

## 1.1.2 Antenna Information

Ant.	Brand	P/N	Gain (dBi)
1	Laird	85009324001	17
2	Laird	85009324001	17

Note: The EUT has two antennas. (2TX/2RX)

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## 1.2 Accessories

N/A

# 1.3 Support Equipment

	Support Equipment							
No.	No. Equipment Brand Name Model Name FCC ID							
1	Notebook	DELL	E4300	DoC				
2	Notebook	DELL	E4300	DoC				
3	Device	Cambium	C054045B001A	Z8H89FT0001				

# 1.4 Testing Applied Standards

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

FCC KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02

# 1.5 Testing Location Information

Testing Location							
	HWA YA	ADD	) :	: No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.			
		TEL	: 886-3-327-3456				
$\boxtimes$	JHUBEI	ADD	) :	: No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C.			
	TEL: 886-3-656-9065 FAX: 886-3-656-9085						
Te	Test Condition Test Site No. Test Engineer Test Environment Test Date						
	DFS Site DF01-CB Jeff Wu 20.6°C / 58% Nov-28-16 ~ Nov.30-16				Nov-28-16 ~ Nov.30-16		

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Test site Designation No. TW0006 with FCC

Test site registered number IC 4086D with Industry Canada.

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# 2 Test Configuration of EUT

# 2.1 Test Channel Frequencies Configuration

Test Channel Frequencies Configuration				
IEEE Std.	Test Channel Freq. (MHz)			
OFDM 30MHz	5550 MHz			
OFDM 40MHz	5550 MHz			

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# 2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests			
Tests Item Dynamic Frequency Selection (DFS)			
Test Condition	Conducted measurement at transmit chains The EUT shall be configured to operate at the highest transmitter output power setting. If more than one antenna assembly is intended for this power setting, the gain of the antenna assembly with the lowest gain shall be used.		
Modulation Mode	OFDM 30MHz, OFDM 40MHz		

Note: All the specification of DFS test was based on customer's request.

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# 3 Dynamic Frequency Selection (DFS) Test Result

## 3.1 General DFS Information

#### 3.1.1 DFS Parameters

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

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

Table D.2: Interference threshold values				
Maximum Transmit Power	Value (see note)			
EIRP ≥ 200 mW	-64 dBm			
EIRP < 200 mW and PSD < 10dBm/MHz	-62 dBm			
EIRP < 200 mW and PSD >= 10dBm/MHz	-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 662911D01.

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# 3.1.2 Applicability of DFS Requirements Prior to Use of a Channel

	DFS Operational mode			
Requirement	Master	Client without radar detection	Client with radar detection	
Non-Occupancy Period	Yes	Not required	Yes	
DFS Detection Threshold	Yes	Not required	Yes	
Channel Availability Check Time	Yes	Not required	Not required	
U-NII Detection Bandwidth	Yes	Not required	Yes	

# 3.1.3 Applicability of DFS Requirements during Normal Operation

	DFS Operational mode						
Requirement	Master	Master Client without radar detection					
DFS Detection Threshold	Yes	Not required	Yes				
Channel Closing Transmission Time	Yes	Yes	Yes				
Channel Move Time	Yes	Yes	Yes				
U-NII Detection Bandwidth	Yes	Not required	Yes				

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

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

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#### 3.1.4 User Access Restrictions

# User Access Restrictions □ DFS controls (hardware or software) related to radar detection are NOT accessible to the user. Manufacturer statement confirming that information regarding the parameters of the detected Radar Waveforms is not available to the end user.

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# 3.1.5 Channel Loading/Data Streaming

••••	onamor zoaamg/zata oaroammg
	The data file (MPEG-4) has been transmitting in a streaming mode.
	Software to ping the client is permitted to simulate data transfer with random ping intervals.
$\boxtimes$	Minimum channel loading of approximately 17%.
	Unicast protocol has been used.

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#### 3.2 Radar Test Waveform Calibration

#### 3.2.1 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
1A	1	15 unique PRI in KDB 905462 D02 Table 5a	[( 1 ) (19×10 <sup>6</sup> )]	60%	15
1B	1	15 unique PRI within 518-3066, Excluding 1A PRI	$Roundup \left\{ \left( \frac{1}{360} \right) \times \left( \frac{19 \times 10^6}{PRI} \right) \right\}$	60%	15
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	60%	30	
Aggrega	ate (Radar Type	80%	120		

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**Note 1**: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.

A minimum of 30 unique waveforms are required for each of the short pulse radar types 1 through 4. If more than 30 waveforms are used for short pulse radar types 1 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms. The aggregate is the average of the percentage of successful detections of short pulse radar types 1-4.

## 3.2.2 Long Pulse Radar Test Waveform

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

Each waveform is defined as follows:

- The transmission period for the Long Pulse Radar test signal is 12 seconds.
- 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.
- 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.
- 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.
- Each pulse has a linear FM chirp between 5 and 20 MHz, with the chirp width being randomly chosen. Each pulse within a transmission period will have the same chirp width. The chirp is centered on the pulse. For example, with a radar frequency of 5300 MHz and a 20 MHz chirped signal, the chirp starts at 5290 MHz and ends at 5310 MHz.
- 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

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between the first and second pulses is chosen independently of the time between the second and third pulses.

The 12 second transmission period is divided into even intervals. The number of intervals is equal to Burst Count. Each interval is of length (12,000,000 / Burst Count) microseconds. Each interval contains one Burst. The start time for the Burst, relative to the beginning of the interval, is between 1 and [(12,000,000 / Burst Count) – (Total Burst Length) + (One Random PRI Interval)] microseconds, with the start time being randomly chosen. The step interval for the start time is 1 microsecond. The start time for each Burst is chosen independently.

## 3.2.3 Frequency Hopping Radar Test Waveform

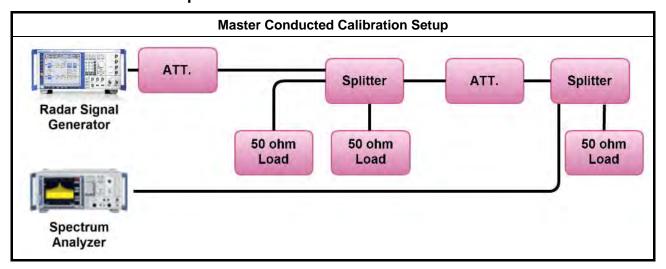
Radar Type	Pulse Width (µsec)	PRI (µsec)	Pulses per Hop	Hopping Rate (kHz)	Hopping Sequence Length (ms)	Minimum Percentage of Successful Detection	Minimum Trials
6	1	333	9	0.333	300	70%	30

The FCC Type 6 waveform uses a static waveform with 100 bursts in the instruments ARB. In addition, the RF list mode is operated with a list containing 100 frequencies from a randomly generated list and it had be ensured that at least one of the random frequencies falls into the UNII Detection Bandwidth of the DUT. Each burst from the waveform file initiates a trigger pulse at the beginning that switches the RF list from one item to the next one.

#### 3.2.4 DFS Threshold Level

DFS Threshold Level								
DFS Threshold level:	-63	dBm	at the antenna connector					
			in front of the antenna					
The Interference <b>Radar Detection Threshold Level</b> is is $-64  dBm + 0  [dBi] + 1  dB = -63  dBm$ . That had beer taken into account the output power range and antenna gain.								

#### 3.2.5 Calibration Setup



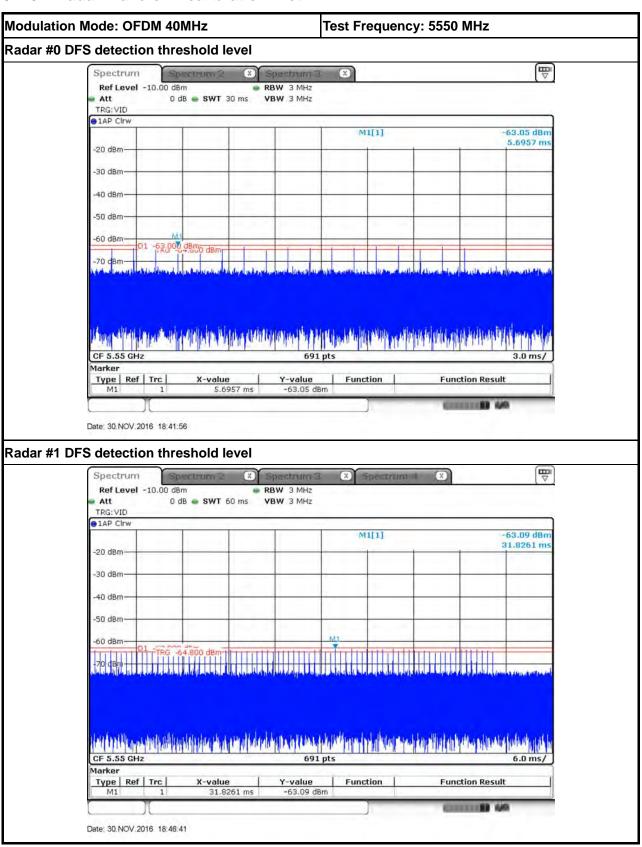
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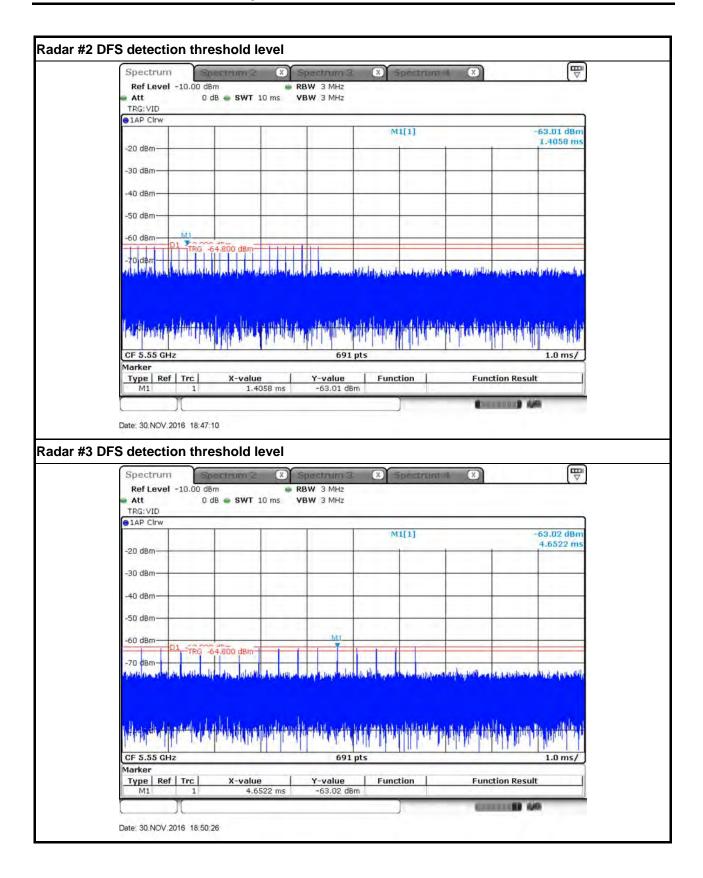
#### 3.2.6 Radar Waveform calibration Plot



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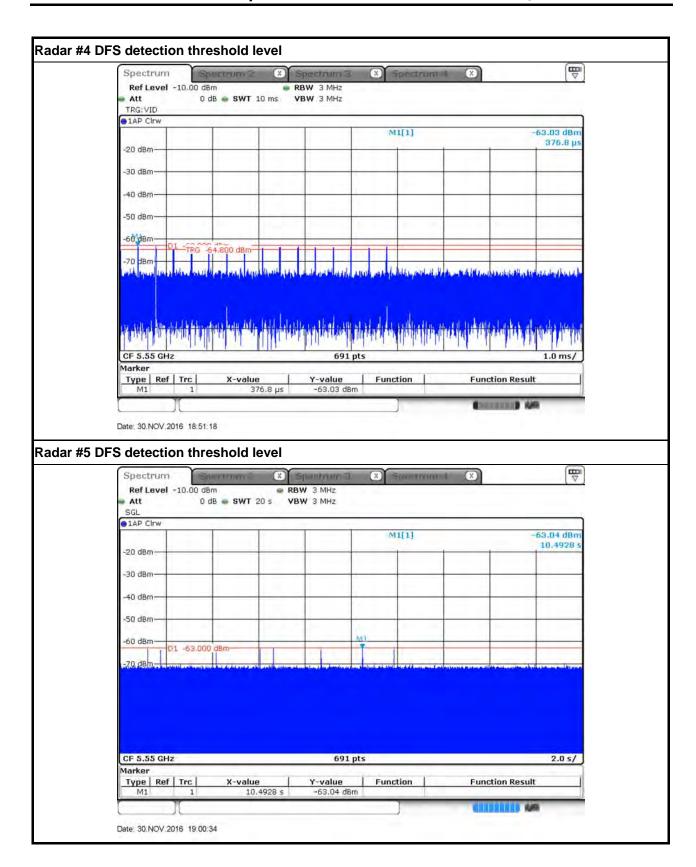
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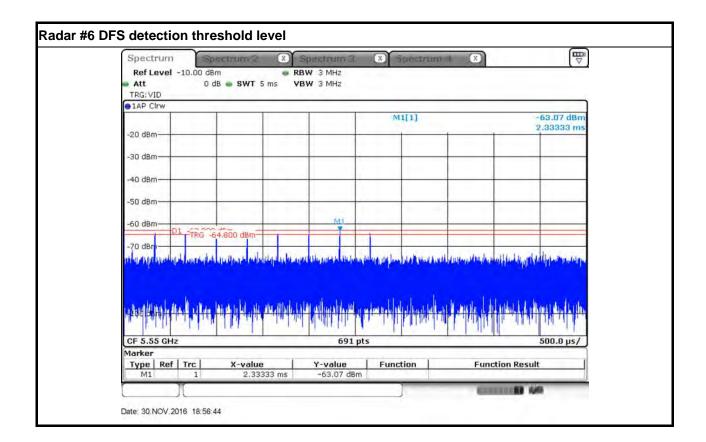
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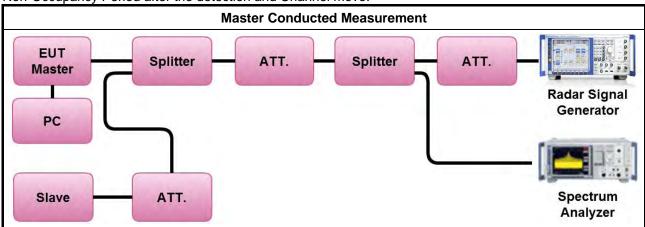


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## 3.2.7 Test Setup

A spectrum analyzer is used as a monitor to verify that the EUT has vacated the Channel within the (Channel Closing Transmission Time and Channel Move Time, and does not transmit on a Channel during the Non-Occupancy Period after the detection and Channel move.

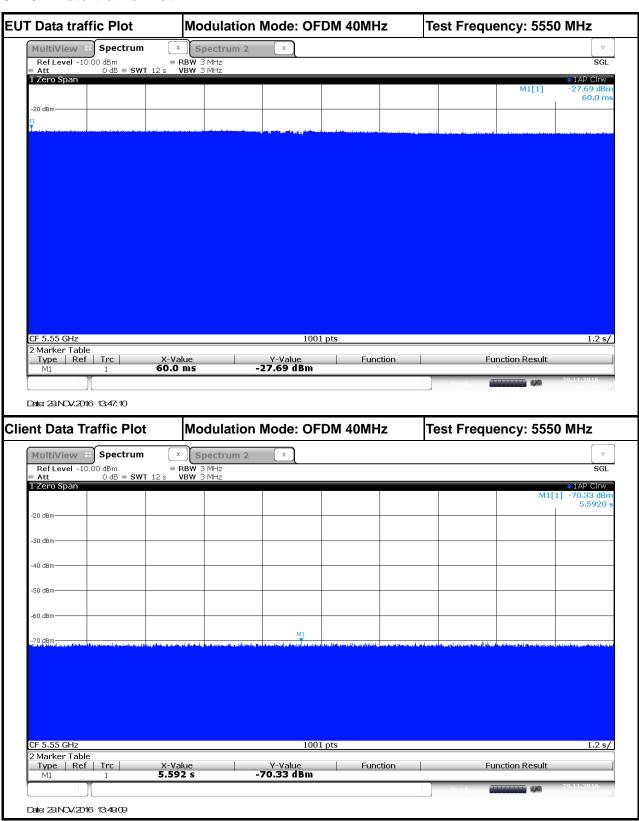


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3.2.8 Data traffic Plot

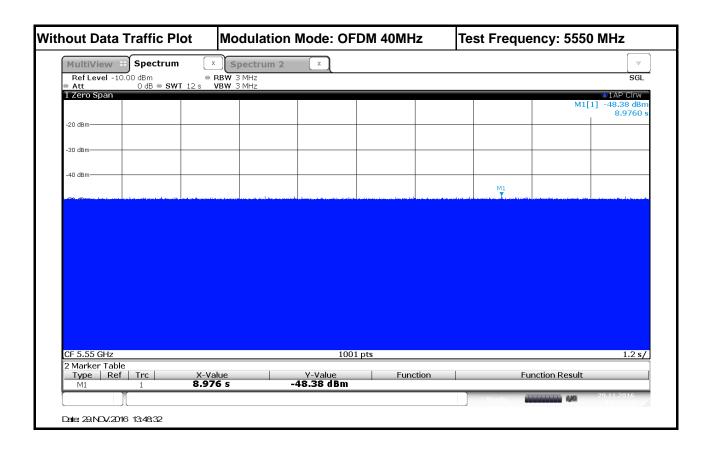


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#### 3.3 UNII Detection Bandwidth

#### 3.3.1 UNII Detection Bandwidth Limit

Channel Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	UNII Detection Bandwidth Min. Limit (MHz)
30	27.272	28
40	36.363	37

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UNII Detection Bandwidth is minimum 100% of the 99% power bandwidth. 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.

#### 3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.3.3 Test Procedures

# **Test Method**

During the U-NII Detection Bandwidth detection test, radar type 0 is used and for each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic. The EUT is set up as a standalone device (no associated Client and no traffic). The radar frequency is increased in 1 MHz steps, repeating the above test sequence, until the detection rate falls below 90%. The highest frequency at which detection is greater than or equal to 90% is denoted as F<sub>H</sub>. The radar frequency is decreased in 1 MHz steps, repeating the above test sequence, until the detection rate falls below 90%. The lowest frequency at which detection is greater than or equal to 90% is denoted as F<sub>L</sub>. UNII Detection Bandwidth = F<sub>H</sub> - F<sub>L</sub>.

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# 3.3.4 Test Result of UNII Detection Bandwidth

	EU	T Fre	quer	icy=5	5550	MHz					
Channel Bandwidth (MHz)	20										
		DFS Detection Trials (1=Detection, 0= No I							Detection)		
Radar Frequency (MHz)	1	2	3	4	5	6	7	8	9	10	Detection Rate (%)
5535	0	0	0	0	0	0	0	0	0	0	0
5536 (FL)	1	1	1	1	1	1	1	1	1	0	90
5537	1	1	1	1	1	1	1	1	1	1	100
5538	1	1	1	1	1	1	1	1	1	1	100
5539	1	1	1	1	1	1	1	1	1	1	100
5540	1	1	1	1	1	1	1	1	1	1	100
5545	1	1	1	1	1	1	1	1	1	1	100
5550	1	1	1	1	1	1	1	1	1	1	100
5555	1	1	1	1	1	1	1	1	1	1	100
5560	1	1	1	1	1	1	1	1	1	1	100
5561	1	1	1	1	1	1	1	1	1	1	100
5562	1	1	1	1	1	1	1	1	1	1	100
5563	1	1	1	1	1	1	1	1	1	1	100
5564 (FH)	1	1	1	1	1	0	1	1	1	1	90
5565	0	0	0	0	0	0	0	0	0	0	0
Radar Type 0-Detection Bandwidth (MHz) = (FH-FL) = (5564MHz-5536MHz)=								28			
UNII Detection Bandwidth Min. Limit	(MHz	) =									28
Test Result											Complied

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	1	T Fre	quer	icy=t	550	MHZ					
Channel Bandwidth (MHz) 40											
	DFS Detection Trials (1=Detection, 0= No I							,			
Radar Frequency (MHz)	1	2	3	4	5	6	7	8	9	10	Detection Rate
	ļ <u> </u>			-			-				(%)
5530	0	0	0	0	0	0	0	0	0	0	0
5531 (FL)	1	1	1	1	1	1	1	0	1	1	90
5532	1	1	1	1	1	1	1	1	1	1	100
5533	1	1	1	1	1	1	1	1	1	1	100
5534	1	1	1	1	1	1	1	1	1	1	100
5535	1	1	1	1	1	1	1	1	1	1	100
5536	1	1	1	1	1	1	1	1	1	1	100
5537	1	1	1	1	1	1	1	1	1	1	100
5538	1	1	1	1	1	1	1	1	1	1	100
5539	1	1	1	1	1	1	1	1	1	1	100
5540	1	1	1	1	1	1	1	1	1	1	100
5550	1	1	1	1	1	1	1	1	1	1	100
5555	1	1	1	1	1	1	1	1	1	1	100
5560	1	1	1	1	1	1	1	1	1	1	100
5565	1	1	1	1	1	1	1	1	1	1	100
5566	1	1	1	1	1	1	1	1	1	1	100
5567	1	1	1	1	1	1	1	1	1	1	100
5568	1	1	1	1	1	1	1	1	1	1	100
5569 (FH)	0	1	1	1	1	1	1	1	1	1	90
5570	0	0	0	0	0	0	0	0	0	0	0
Radar Type 0-Detection Bandwidth (I	Radar Type 0-Detection Bandwidth (MHz) = (FH-FL) = (5569MHz-5531MHz)=								38		
UNII Detection Bandwidth Min. Limit	(MHz	) =		-				•			37
Test Result											Complied

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# 3.4 Channel Availability Check (CAC)

#### 3.4.1 Channel Availability Check Limit

#### **Channel Availability Check Limit**

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The EUT shall perform a Channel Availability Check to ensure that there is no radar operating on the channel. After power-up sequence, receive at least 1 minute (60 sec) on the intended operating frequency.

#### 3.4.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.4.3 Test Procedures

#### **Test Method**

- For Initial Channel Availability Check Time. The EUT does not emit beacon, control, or data signals on the test Channel until the power-up sequence has been completed and the UNII device checks for Radar Waveforms for one minute on the test Channel. This test does not use any Radar Waveforms.
- For Radar Burst at the Beginning of the Channel Availability Check Time. To verify successful radar detection on the selected Channel during a period equal to the Beginning of the Channel Availability Check Time.
- For Radar Burst at the End of the Channel Availability Check Time. To verify successful radar detection on the selected Channel during a period equal to the End of the Channel Availability Check Time.

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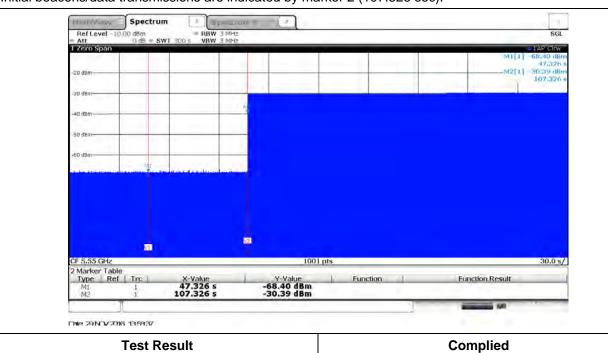
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# 3.4.4 Test Result of Initial Channel Availability Check Time

Modulation Mode	Freq.	Radar Test Signal
OFDM 40MHz	5550 MHz	N/A

The EUT does not transmit any beacon or data transmissions until at least 1 minute after the completion of the power-on cycle (47.326 sec). The initial power up time of the EUT is indicated by marker 1 (47.236 sec). Initial beacons/data transmissions are indicated by marker 2 (107.326 sec).



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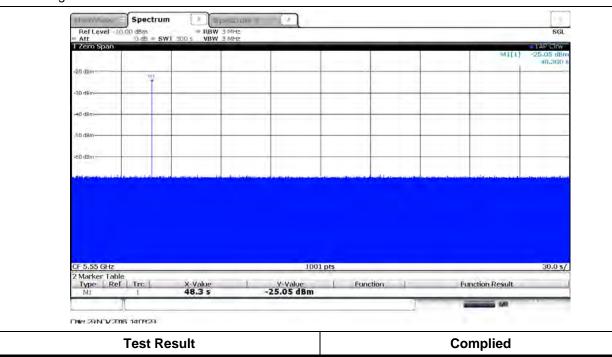
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# 3.4.5 Test Result of Radar Burst at the Beginning of the Channel Availability Check Time

<b>Modulation Mode</b>	Freq. (MHz)	Radar Type Signal
OFDM 40MHz	5550 MHz	0

Visual indication on the EUT of successful detection of the radar Burst will be recorded and reported. Observation of emissions will continue for 251.7 seconds after the radar Burst has been generated. Verify that during the 300 seconds measurement window no EUT transmissions occurred.



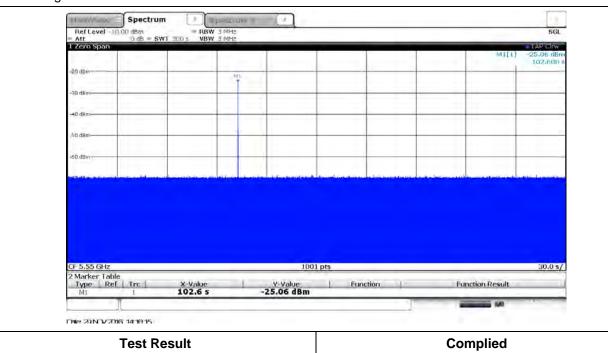
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# 3.4.6 Test Result of Radar Burst at the End of the Channel Availability Check Time

Modulation Mode	Freq. (MHz)	Radar Type Signal
OFDM 40MHz	5550 MHz	0

Visual indication on the EUT of successful detection of the radar Burst will be recorded and reported. Observation of emissions will continue for 197.4 seconds after the radar Burst has been generated. Verify that during the 300 seconds measurement window no EUT transmissions occurred.



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# 3.5 In-service Monitoring

#### 3.5.1 In-service Monitoring Limit

In-service Monitoring Limit				
Channel Move Time	10 sec			
Channel Closing Transmission Time	200 ms + an aggregate of 60 ms over remaining 10 sec periods.			
Non-occupancy period	Minimum 30 minutes			

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#### 3.5.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

#### 3.5.3 Test Procedures

# Test Method

- ✓ Verified during In-Service Monitoring; Channel Closing Transmission Time, Channel Move Time. Client Device will associate with the EUT. Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel for duration greater than 10 seconds. Measure and record the transmissions from the EUT during the observation time (Channel Move Time). Compare the Channel Move Time and Channel Closing Transmission Time limits.
- ✓ Verified during In-Service Monitoring; Channel Closing Transmission Time, Channel Move Time. One 12 sec plot needs to be reported for the Short Pulse Radar Types 0. And zoom-in a 60 ms plot verified channel closing time for the aggregate transmission time starting from 200ms after the end of the radar signal to the completion of the channel move.
- Verified during In-Service Monitoring; Non-Occupancy Period. Client Device will associate with the EUT. Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel for duration greater than 10 seconds. Measure and record the transmissions from the EUT during the observation time (Non-Occupancy Period). Compare the Non-Occupancy Period limits.

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# 3.5.4 Test Result of In-service Monitoring

**Modulation Mode: OFDM 40MHz** 

Parameter	Test Result	Limit	
Farameter	Туре 0		
Test Channel (MHz)	5550 MHz	-	
Channel Move Time (sec.)	0	< 10s	
Channel Closing Transmission Time (ms) (Note)	0	< 60ms	
Non-Occupancy Period (min.)	≧30	≥ 30 min	

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

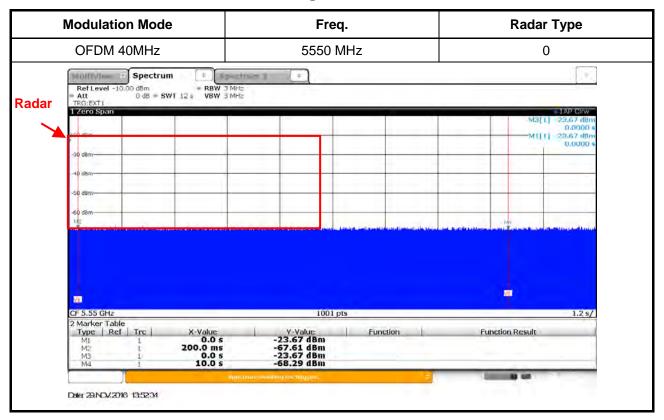
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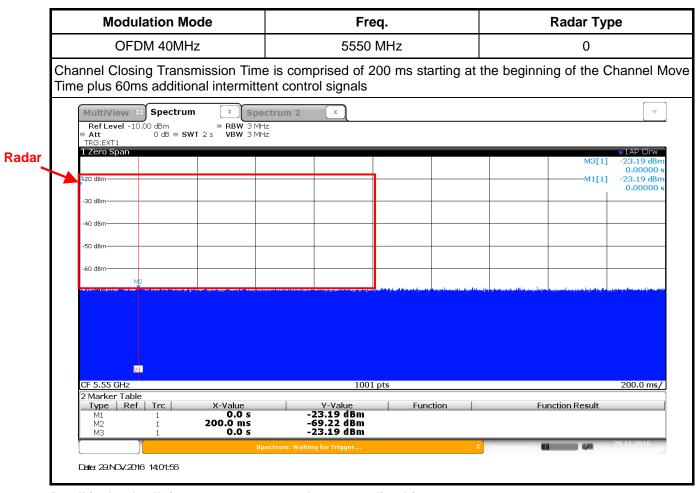


# 3.5.5 Test Plot of In-Service Monitoring for Channel Move Time



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## **Test Plot of In-Service Monitoring for Channel Closing Transmission Time**



Dwell is the dwell time per spectrum analyzer sampling bin.

S is the sweep time

B is the number of spectrum analyzer sampling bins

C is the intermittent control signals of Channel Closing Transmission Time

N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission

Dwell (2 ms)= S (2000 ms) / B (1000) C (0.0 ms) = N (0) X Dwell (2 ms)

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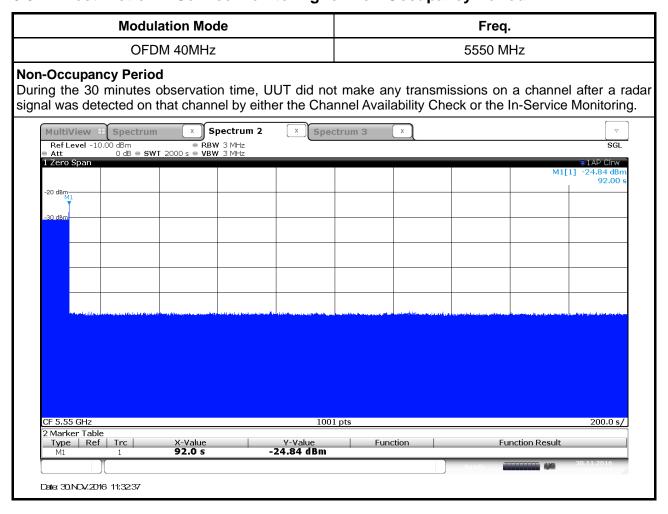
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# .5.7 Test Plot of In-Service Monitoring for Non-Occupancy Period



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#### 3.6 **Statistical Performance Check**

#### 3.6.1 **Statistical Performance Check Limit**

Radar Type	Minimum Percentage of Successful Detection (Pd)	Minimum Trials	
1	60%	30	
2	60%	30	
3	60%	30	
4	60%	30	
Aggregate (Radar Types 1-4)	80%	120	
5	80%	30	
6	70%	30	

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The percentage of successful detection is calculated by:

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

Pd1 + Pd2 + Pd3 + Pd4

4

#### 3.6.2 **Measuring Instruments**

Refer a test equipment and calibration data table in this test report.

#### 3.6.3 **Test Procedures**

#### **Test Method**

For Statistical Performance Check test. Demonstrating a minimum channel loading of approximately 17% or greater of the test. Observe the transmissions of the UUT at the end of the Burst on the Operating Channel for duration greater than 10 seconds for Short Pulse Radar Types 1-4 and 6 to ensure detection occurs. Then Observe the transmissions of the UUT at the end of the Burst on the Operating Channel for duration greater than 22 seconds for Long Pulse Radar Type 5 to ensure detection occurs. The device can utilize a test mode to demonstrate when detection occurs to prevent the need to reset the device between trial runs.

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 $<sup>\</sup>frac{TotalWaveformDetections}{-} \times 100 = Probability of Detection Radar Waveform$ 

# 3.6.4 Test Result of Statistical Performance Check

Modulation Mode: OFDM 30MHz

Type 1 Radar Statistical Performance

Trial #	adar Statistical Perf	Pulse Repetition Frequency Number	Pulse Repetition Frequency (Pulse Per Second)	PRI (us)	1=Detection 0=No Detection
1	5536	1	1930.5	518	1
2	5537	23	326.2	3066	1
3	5538	19	1139.0	878	1
4	5539	12	1355.0	738	1
5	5540	4	1730.1	578	0
6	5541	8	1519.8	658	1
7	5542	15	1253.1	798	1
8	5543	6	1618.1	618	1
9	5544	14	1285.3	778	1
10	5545	3	1792.1	558	1
11	5546	13	1319.3	758	1
12	5547	9	1474.9	678	0
13	5548	7	1567.4	638	1
14	5549	17	1193.3	838	1
15	5550	10	1432.7	698	1
16	5551	-	1692.0	591	1
17	5552	-	328.1	3048	1
18	5553	-	373.4	2678	1
19	5554	-	574.4	1741	1
20	5555	-	1216.5	822	1
21	5556	-	801.3	1248	0
22	5557	-	488.5	2047	1
23	5558	-	956.0	1046	1
24	5559	-	517.6	1932	1
25	5560	-	1422.5	703	1
26	5561	-	542.0	1845	1
27	5562	-	741.3	1349	1
28	5563	-	881.8	1134	1
29	5564	-	427.4	2340	1
30	5556	-	628.9	1590	1
Detection Percentage (%)					90.000
Limit					60% Complied
Test Res	Test Result				

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Type 2 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5537	2.6	221	23	1
2	5539	4.6	198	27	1
3	5540	1.1	184	29	1
4	5544	4.8	203	24	1
5	5550	2.4	162	25	1
6	5561	3.4	204	28	1
7	5562	2.3	170	27	1
8	5563	3.5	184	23	1
9	5539	4.9	150	27	1
10	5540	4.6	211	29	1
11	5550	2.9	158	23	1
12	5551	2.6	226	27	1
13	5552	1.6	204	26	1
14	5553	3.9	181	25	1
15	5554	4.6	202	24	1
16	5555	4.1	194	27	1
17	5556	2.3	193	28	1
18	5557	3.9	173	29	0
19	5558	4.3	188	23	1
20	5559	1.5	215	26	1
21	5560	4.9	227	27	1
22	5561	1.1	199	23	1
23	5562	4.5	155	29	1
24	5555	4.0	190	27	1
25	5544	2.4	151	23	1
26	5545	2.5	180	28	1
27	5546	2.5	228	23	1
28	5547	2.5	203	25	1
29	5548	1.5	188	25	0
30	5549	1.9	217	24	1
Detection Percentage (%)					93.333
Limit					60%
Test Result				Complied	

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Type 3 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection; 0=No Detection
1	5542	8.0	205	16	1
2	5543	6.7	382	18	1
3	5544	8.6	418	16	0
4	5545	9.4	351	17	1
5	5546	7.4	383	18	1
6	5547	9.8	232	16	1
7	5548	9.1	377	17	1
8	5549	9.6	457	16	1
9	5550	8.0	471	18	0
10	5551	9.0	304	18	1
11	5552	8.0	316	17	1
12	5553	9.8	325	16	1
13	5536	8.0	409	17	1
14	5538	9.9	200	17	1
15	5555	8.8	458	16	0
16	5560	8.0	232	18	1
17	5561	8.3	250	16	1
18	5564	8.7	270	16	1
19	5560	7.7	350	17	1
20	5561	7.1	230	16	1
21	5562	7.3	416	18	0
22	5564	7.6	498	18	1
23	5541	7.3	286	17	1
24	5542	7.3	287	16	1
25	5543	7.5	462	17	1
26	5544	6.2	300	17	0
27	5545	6.4	323	18	1
28	5546	7.1	420	16	1
29	5547	7.2	395	18	1
30	5548	8.4	377	16	1
Detection Percentage (%)					83.333
Limit		0 \	•		60%
Test Res	Test Result				Complied

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Type 4 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5550	18.0	242	15	1
2	5551	19.9	279	12	1
3	5553	12.9	487	14	0
4	5557	15.0	452	13	1
5	5558	16.3	230	12	1
6	5559	19.8	238	13	1
7	5538	18.2	420	16	1
8	5537	16.3	452	15	1
9	5539	14.2	495	12	1
10	5544	17.8	228	16	1
11	5545	19.1	211	16	1
12	5546	18.4	283	15	1
13	5547	11.8	411	12	1
14	5548	14.2	284	13	1
15	5549	13.9	202	12	1
16	5550	17.8	340	14	1
17	5551	15.6	290	16	1
18	5552	14.6	250	16	1
19	5553	14.4	484	15	0
20	5554	18.9	387	13	1
21	5555	11.1	348	15	1
22	5556	13.8	291	16	1
23	5557	14.3	295	12	1
24	5558	12.5	300	12	0
25	5559	12.5	322	14	1
26	5536	12.5	383	13	1
27	5537	15.7	322	16	1
28	5540	19.8	469	13	1
29	5550	18.6	406	15	1
30	5553	15.9	238	14	0
Detection Percentage (%)					86.667
Limit				60%	
Test Res	Test Result				

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Total Type 1~4 Radar Statistical Performance

Radar Type #	Detection Percentage (%)
1	90.000
2	93.333
3	83.333
4	86.667
Aggregate (Radar Types 1-4)	88.33 3
Limit	80%
Test Result	Complied

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Type 5 Radar Statistical Performance

Center Freq. (MHz)	Low Edge (MHz)	High Edge (MHz)		
5510	5536	5564	VSG Freq. (MHz)	Detection
Trial	Chirp	Offset		
1	5	0	5550	1
2	20	0	5550	1
3	7	0	5550	1
4	8	0	5550	1
5	9	0	5550	1
6	10	0	5550	1
7	11	0	5550	1
8	12	0	5550	1
9	13	0	5550	1
10	14	0	5550	1
11	15	6	5542	1
12	16	6.4	5542	1
13	17	6.8	5543	1
14	20	8	5544	0
15	19	7.6	5544	0
16	18	7.2	5543	0
17	17	6.8	5543	1
18	16	6.4	5542	1
19	15	6	5542	1
20	14	5.6	5542	0
21	13	5.2	5559	1
22	12	4.8	5559	1
23	11	4.4	5560	1
24	10	4	5560	1
25	9	3.6	5560	1
26	8	3.2	5561	1
27	18	7.2	5557	1
28	19	7.6	5556	1
29	20	8	5556	1
30	5	2	5562	1
	To	otal		26
	Detection Per	centage (%)		87%
Limit				80%
Test Result				Complied

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Trial Number				1				
Number of Bui	Number of Bursts in Trial			3	3			
Chirp Center F	requency			55	50			
Burst No. of Pulses Pulse Width (us)			Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)		Starting Location Within Interval (ms)		
1	1	62.1	5	-	-	1091		
2	2	56	5	1729	-	133		
3	2	91.3	5	1230	-	1057		
4	3	50.7	5	1762	1616	1442		
5	2	92.6	5	1723	-	544		
6	2	87.3	5	1089				
7	2	59.5	5 1291 - 137					
8 2 52.2 5 1653 -					1237			
<b>Detection Chec</b>	k (1=Detection; C	=No Detection)				1		

Trial Number			2					
Number of Bu	Number of Bursts in Trial			(	9			
Chirp Center	Frequency			55	50			
Burst No. of Pulses Pulse Width (us)			Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)		Starting Location Within Interval (ms)		
1	3	90	20	1007	1326	30		
2	2	73.7	20	1785	-	979		
3	1	78.1	20	-	-	683		
4	2	92.4	20	1281	-	950		
5	1	61.2	20	-	-	612		
6	3	67.2	20	1525	1870	17		
7	1	78.5	20	429				
8	2	60.3	20 1931 - 936					
9	3	92.9	20 1403 1476 548					
<b>Detection Chee</b>	ck (1=Detection; 0	=No Detection)				1		

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Trial Number	Trial Number			3				
Number of Bu	Number of Bursts in Trial			10				
Chirp Center	Chirp Center Frequency			55	50			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)				
1	3	63.4	7	1574	1607	801		
2	1	98	7	-	-	966		
3	1	58.7	7	-	-	185		
4	1	88	7	-	-	1012		
5	3	79.5	7	1562	1370	943		
6	3	57.1	7	1900	1188	686		
7	2	64.4	7	1090	-	599		
8	1	78.7	7	1089				
9	1	69.3	7					
10	3	55.3	7	933				
<b>Detection Che</b>	ck (1=Detection; 0	=No Detection)				1		

Trial Number	Trial Number			4			
Number of Bur	rsts in Trial		11				
Chirp Center Frequency				55	50		
Burst	No. of Pulses	Pulse Width (us)					
1	2	74.3	8	1642	-	24	
2	1	83.1	8	-	-	985	
3	2	59.5	8	1680	-	988	
4	2	59.8	8	1786	-	800	
5	2	77.6	8	1617	-	339	
6	2	79.9	8	1553	-	1040	
7	1	56	8	-	-	544	
8	3	71.4	8	1406	1927	452	
9	1	97.4	8	204			
10	2	98.3	8	926			
11	1	63.6	8	1052			
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)				1	

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Trial Number			5					
Number of Bur	sts in Trial		12					
Chirp Center F	Chirp Center Frequency			55	50			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Chirp Width Pulse 1-to-2 Pulse 2-to-3				
1	1	50	9	_	-	Interval (ms) 557		
2	2	62.5	9	1731	-	567		
3	2	55.4	9	1070	-	460		
4	1	65.7	9	-	-	4		
5	2	58	9	1512	-	64		
6	2	60.9	9	1230	-	650		
7	3	89.6	9	1598	1738	235		
8	3	84.4	9	1271	1617	873		
9	3	72.3	9	1498	1321	901		
10	1	58.9	9	-	-	663		
11	2	74.8	9	1584	-	919		
12	1	71.8	9 375					
<b>Detection Check</b>	k (1=Detection; 0	=No Detection)				1		

Trial Number	Trial Number			6			
Number of Bu	Number of Bursts in Trial			13			
Chirp Center Frequency				55	50		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Chirp Width Pulse 1-to-2 Pulse 2-to-3			
1	2	88.1	10	1257	-	846	
2	1	58.7	10	-	-	725	
3	2	97.1	10	1037	-	30	
4	3	83.1	10	1029	1106	490	
5	1	62.1	10	-	-	262	
6	2	71.4	10	1058	-	283	
7	2	86.3	10	1867	-	49	
8	3	77.3	10	1418	1876	634	
9	1	78.9	10	-	-	304	
10	3	79.2	10	1055	1572	564	
11	3	52	10	1582	1836	852	
12	3	56.5	10	1195	1542	525	
13	3	100	10	1638	1729	750	
Detection Chec	k (1=Detection; C	=No Detection)				1	

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Trial Number			7				
Number of Bur	rsts in Trial		14				
Chirp Center Frequency				55	50		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Chirp Width   Pulse 1-to-2   Pulse 2-to-3			
1	2	92.7	11	1208	-	231	
2	2	81.3	11	1144	-	804	
3	2	60.4	11	1555	-	34	
4	2	62.1	11	1320	-	427	
5	1	50	11	-	-	577	
6	3	65.9	11	1020	1365	3	
7	2	73.8	11	1308	-	51	
8	2	74.3	11	1143	-	360	
9	1	62.9	11	-	-	394	
10	2	74.8	11	1404	-	317	
11	2	69.7	11	1309	-	532	
12	2	69.8	11	1688	-	339	
13	2	77.4	11	1857	-	381	
14	1	55.1	11	-	-	426	
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)				1	

Trial Number	Trial Number			8			
Number of Bur	Number of Bursts in Trial			15			
Chirp Center Frequency				55	50		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Chirp Width   Pulse 1-to-2   Pulse 2-to-3			
1	1	91.7	12	-	-	776	
2	2	90	12	1196	-	187	
3	3	92.3	12	1486	1853	448	
4	2	66.8	12	1545	-	702	
5	1	64	12	-	-	403	
6	3	95.4	12	1123	1473	230	
7	3	66.8	12	1867	1401	604	
8	3	67.7	12	1472	1397	38	
9	1	68.2	12	-	-	735	
10	2	82.2	12	1297	-	610	
11	1	92.1	12	-	-	618	
12	2	57	12	1764	-	705	
13	2	58.5	12	1310	-	22	
14	3	85.5	12	1630	1447	641	
15	2	82.2	12	1371	-	109	
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)	_	·	·	1	

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Trial Number			9			
Number of Bur	sts in Trial		16			
Chirp Center Frequency				55	50	
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)		Starting Location Within Interval (ms)
1	2	74.4	13	1707	-	442
2	2	63.6	13	1725	-	280
3	2	71.3	13	1704	-	459
4	3	77.6	13	1063	1405	197
5	3	65.2	13	1731	1294	101
6	3	55.1	13	1109	1549	17
7	2	96.8	13	1034	-	131
8	3	80.8	13	1533	1051	365
9	1	60.4	13	-	-	222
10	2	61.8	13	1312	-	371
11	2	71.3	13	1657	-	33
12	2	98.1	13	1024	-	291
13	1	57.9	13	-	-	188
14	1	91.8	13	-	-	163
15	2	56.7	13	1259	-	426
16	2	89.7	13	1690	-	606
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)				1

Trial Number	Trial Number			10			
Number of Bu	ursts in Trial			1	7		
Chirp Center Frequency				55	50		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Chirp Width   Pulse 1-to-2   Pulse 2-to-3			
1	2	74.4	14	1107	-	462	
2	1	87.6	14	-	-	653	
3	2	61.7	14	1741	-	457	
4	2	57.5	14	1566	-	388	
5	2	66.1	14	1855	-	63	
6	3	70.1	14	1044	1012	136	
7	1	66.4	14	-	-	343	
8	1	59.2	14	-	-	349	
9	2	88.3	14	1240	-	362	
10	1	64.7	14	-	-	221	
11	2	73	14	1703	-	144	
12	2	81.7	14	1450	-	671	
13	3	70.1	14	1741	1278	320	
14	1	63.6	14	-	-	196	
15	1	58.7	14	-	-	413	
16	2	65.9	14	1478	-	170	
17	1	72.7	14	-	-	564	
Detection Che	ck (1=Detection; 0	=No Detection)				1	

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Trial Number			11				
Number of B	ursts in Trial		18				
Chirp Center	Chirp Center Frequency			55	42		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)			
1	2	72.1	15	1193	-	130	
2	3	76.3	15	1484	1390	114	
3	1	86.1	15	-	-	14	
4	1	73.2	15	-	-	604	
5	1	81.2	15	-	-	548	
6	2	99.5	15	1398	-	173	
7	1	93.9	15	-	-	262	
8	2	75.9	15	1921	-	38	
9	3	79.2	15	1100	1429	84	
10	3	77	15	1166	1799	610	
11	1	91.8	15	-	-	339	
12	3	56.8	15	1330	1556	580	
13	2	83.1	15	1556	-	295	
14	2	63	15	1552	-	156	
15	1	65.7	15	-	-	439	
16	1	64.5	15	-	-	188	
17	1	88.5	15	-	-	419	
18	1	60.6	15	-	-	205	
<b>Detection Che</b>	eck (1=Detection; C	=No Detection)				1	

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Trial Number				1	2		
Number of Bu	ırsts in Trial		19				
Chirp Center Frequency				55	42		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)			
1	2	90.5	16	1299	-	381	
2	2	88.4	16	1418	-	327	
3	2	53.7	16	1055	-	536	
4	1	80.5	16	-	-	285	
5	1	50.4	16	-	-	398	
6	2	61.2	16	1749	-	439	
7	2	78.8	16	1065	-	129	
8	3	75	16	1748	1820	325	
9	2	96.7	16	1254	-	440	
10	3	76.3	16	1848	1106	397	
11	1	73.3	16	-	-	232	
12	2	92.4	16	1317	-	91	
13	2	92.4	16	1854	-	256	
14	3	64.4	16	1240	1634	582	
15	2	67.3	16	1473	-	117	
16	2	84.1	16	1795	-	202	
17	1	80.9	16	-	-	135	
18	1	74.6	16	-	-	396	
19	2	97.6	16	1805	-	615	
<b>Detection Che</b>	ck (1=Detection; 0	=No Detection)	·			1	

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Trial Number	Trial Number			13				
Number of Bu	rsts in Trial		20					
Chirp Center F	Chirp Center Frequency			55	43			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)		
1	2	66.1	17	1417	-	388		
2	2	86.7	17	1693	-	348		
3	2	70.5	17	1263	-	215		
4	2	78	17	1446	-	28		
5	2	66	17	1185	-	585		
6	2	80.6	17	1855	-	65		
7	1	95.5	17	-	-	92		
8	1	98.8	17	-	-	68		
9	3	64.3	17	1641	1108	517		
10	1	75.1	17	-	-	121		
11	2	72.6	17	1499	-	448		
12	1	60.3	17	-	-	567		
13	2	54.9	17	1056	-	245		
14	2	98.8	17	1023	-	584		
15	2	60.9	17	1243	-	579		
16	2	62.7	17	1226	-	464		
17	1	80.1	17	-	-	89		
18	2	70.9	17	1711	-	153		
19	1	90.7	17	-	-	282		
20	1	98.9	17	-	-	71		
<b>Detection Chec</b>	ck (1=Detection; 0	=No Detection)				1		

Trial Number	Trial Number			14			
Number of Bursts in Trial				3	3		
Chirp Center F	Chirp Center Frequency			55	44		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz) Pulse 1-to-2 Pulse 2-to-3 Location Spacing (us) Spacing (us) Within Interval (r				
1	2	67.5	20	1542	-	947	
2	3	83.6	20	1272	1696	124	
3	2	93.2	20	1877	-	701	
4	1	55.6	20	-	-	1123	
5	3	84.2	20	1733	1619	756	
6	3	69.1	20	1612	1071	1	
7	2	66.9	20	1905	-	7	
8	3	86.8	20 1697 1621 1082				
<b>Detection Chec</b>	k (1=Detection; C	=No Detection)				0	

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Trial Number			15			
Number of Bur	Number of Bursts in Trial			9	9	
Chirp Center F	Chirp Center Frequency			55	44	
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)
1	2	62.2	19	1571	-	949
2	2	85	19	1669	-	189
3	2	64.5	19	1505	-	176
4	2	50.4	19	1325	-	538
5	2	66.1	19	1483	-	908
6	2	71.2	19	1110	-	1017
7	3	53.7	19	1445	1677	492
8	3	62.5	19	1596	1341	349
9	3	62	19	1929	1221	1105
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)				0

Trial Number			16				
Number of Bui	Number of Bursts in Trial			10			
Chirp Center Frequency				55	43		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)		Starting Location Within Interval (ms)	
1	2	80.5	18	1910	-	284	
2	2	64.2	18	1661	-	751	
3	2	90.1	18	1041	ı	491	
4	2	69.8	18	1495	ı	107	
5	1	73.1	18	-	-	490	
6	3	77.2	18	1418	1145	1155	
7	3	52.6	18	1732	1787	772	
8	2	71.4	18	1562	-	121	
9	2	89.8	18	1491	-	89	
10	2	76.4	18	1355	-	615	
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)				0	

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Trial Number			17			
Number of Bur	sts in Trial		11			
Chirp Center Frequency				55	43	
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz) Pulse 1-to-2 Pulse 2-to-3 Location Spacing (us) Spacing (us) Within Interval (r			
1	2	51.2	17	1236	-	740
2	1	71.7	17	-	-	941
3	2	74.7	17	1164	-	370
4	2	50.9	17	1919	-	371
5	2	65.2	17	1206	-	1033
6	2	98	17	1182	-	346
7	2	58.7	17	1612	-	639
8	1	63.8	17	-	-	1056
9	3	86.3	17	1545	1065	205
10	1	94.4	17	-	-	753
11	3	88.5	17	1699	1319	58
<b>Detection Chec</b>	k (1=Detection; C	=No Detection)				1

Trial Number			18				
Number of Bu	rsts in Trial			12			
Chirp Center F	Chirp Center Frequency			55	42		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width Pulse 1-to-2 Pulse 2-to-3 Locatio (MHz) Spacing (us) Spacing (us) Within				
						Interval (ms)	
1	2	88.7	16	1405	-	448	
2	3	90.2	16	1544	1235	621	
3	1	96.5	16	-	-	512	
4	2	80.5	16	1090	-	321	
5	2	63.7	16	1268	-	798	
6	1	53.4	16	-	-	809	
7	2	52.3	16	1043	-	301	
8	3	54.7	16	1701	1104	796	
9	3	75.6	16	1923	1729	669	
10	2	59.2	16	1244	-	369	
11	1	56.3	16	-	-	51	
12	2	87.8	16	1608	-	733	
Detection Chec	ck (1=Detection; C	=No Detection)	•	•	•	1	

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Trial Number	Trial Number			19			
Number of Bu	rsts in Trial			13			
Chirp Center F	Chirp Center Frequency			55	42		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz) Pulse 1-to-2 Pulse 2-to-3 Locati Spacing (us) Spacing (us) Withi Interval				
1	2	68.2	15	1104	-	229	
2	2	58.4	15	1627	-	488	
3	3	74.7	15	1861	1015	137	
4	2	58.2	15	1593	-	520	
5	1	51.6	15	-	-	799	
6	2	94.7	15	1469	-	43	
7	2	70.7	15	1091	-	126	
8	2	82.9	15	1472	-	607	
9	3	62.7	15	1168	1453	527	
10	2	63.1	15	1529	-	143	
11	1	96.1	15	-	-	176	
12	2	57	15	1457	-	882	
13	3	95.6	15	1707	1501	214	
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)				1	

Trial Number	Trial Number			20				
Number of Bu	ursts in Trial		14					
Chirp Center	Chirp Center Frequency			55	42			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width Pulse 1-to-2 Pulse 2-to-3 Loc (MHz) Spacing (us) Spacing (us) Interv					
1	1	95.7	14	-	-	117		
2	1	93.1	14	-	-	720		
3	1	55.8	14	-	-	297		
4	1	76.7	14	-	-	284		
5	2	68	14	1686	-	472		
6	3	94.1	14	1796	1393	264		
7	2	53.9	14	1293	-	525		
8	1	99.3	14	-	-	155		
9	2	73.3	14	1458	-	65		
10	2	93.3	14	1196	-	451		
11	3	55.8	14	1895	1034	243		
12	1	66.4	14	-	-	228		
13	2	65.6	14	1732	-	746		
14	2	76.5	14	1187	-	522		
<b>Detection Che</b>	ck (1=Detection; 0	=No Detection)				0		

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Trial Number	Trial Number			21			
Number of Bu	rsts in Trial		15				
Chirp Center Frequency				55	59		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)	
1	1	85.1	13	-	-	565	
2	2	72.5	13	1648	-	211	
3	1	67.5	13	-	-	348	
4	2	56.1	13	1360	-	156	
5	1	71.1	13	-	-	718	
6	2	93.1	13	1391	-	400	
7	1	56.5	13	-	ı	482	
8	1	63.8	13	-	ı	703	
9	2	67.4	13	1727	ı	780	
10	1	52.3	13	-	ı	102	
11	3	62.4	13	1228	1715	304	
12	2	53.3	13	1630	ı	57	
13	2	83.1	13	1205	1	768	
14	2	93.7	13	1085	1	461	
15	2	90.7	13	1297	1	746	
<b>Detection Chec</b>	ck (1=Detection; 0	=No Detection)				1	

Trial Number	Trial Number			22				
Number of Bur	sts in Trial			1	6			
Chirp Center Frequency				55	59			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)		Starting Location Within Interval (ms)		
1	2	98.8	12	1439	-	95		
2	1	54.5	12	-	-	676		
3	2	80.5	12	1360	-	8		
4	2	55.9	12	1906	-	373		
5	2	72.1	12	1623	-	254		
6	2	84.4	12	1604	-	480		
7	1	78.5	12	-	-	663		
8	1	88	12	-	-	314		
9	2	74.7	12	1157	-	596		
10	2	97.1	12	1673	-	264		
11	1	81.6	12	-	-	740		
12	1	83.6	12	-	-	163		
13	3	87.6	12	1757	1322	628		
14	2	58.5	12	1372	-	132		
15	3	91.8	12	1767	1183	106		
16	2	58.8	12	1432	-	659		
<b>Detection Check</b>	k (1=Detection; 0	=No Detection)				1		

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Trial Number			23					
Number of Bur	rsts in Trial			1	7			
Chirp Center F	requency			55	60			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)					
1	1	96	11	-	-	284		
2	2	92.5	11	1241	-	488		
3	2	89.5	11	1347	-	76		
4	2	74.8	11	1607	-	688		
5	2	60.6	11	1523	-	28		
6	2	71.5	11	1659	-	383		
7	2	71.1	11	1454	-	182		
8	1	98.7	11	-	-	20		
9	2	85.1	11	1770	-	576		
10	2	89.2	11	1086	-	410		
11	2	60.7	11	1101	-	458		
12	2	75.2	11	1719	-	348		
13	2	75.7	11	1799	-	481		
14	3	56.7	11	1132	1884	587		
15	2	65	11	1885	-	480		
16	2	64.6	11	1910	-	195		
17	3	69.9	11	1410	1190	396		
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)				1		

Trial Number			24					
Number of Bur	sts in Trial			1	8			
Chirp Center F	Chirp Center Frequency			55	60			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)					
1	3	83.8	10	1290	1021	536		
2	2	66.9	10	1112	-	44		
3	3	91	10	1220	1504	611		
4	2	86.1	10	1678	-	456		
5	3	65.5	10	1928	1222	330		
6	1	62.6	10	-	-	297		
7	3	68.7	10	1505	1200	351		
8	3	59.2	10	1452	1114	230		
9	1	73.9	10	-	-	222		
10	1	77.2	10	-	-	57		
11	2	96.4	10	1357	-	399		
12	2	99.9	10	1173	-	299		
13	2	99.9	10	1520	-	464		
14	1	86.7	10	-	-	294		
15	1	92.6	10	-	-	653		
16	1	77.1	10	-	-	550		
17	2	81.1	10	1664	-	566		
18	3	68.4	10	1536	1309	580		
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)				1		

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Trial Number			25					
Number of B	ursts in Trial		19					
Chirp Center	Chirp Center Frequency			55	60			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)					
1	3	68.2	9	1723	1868	Interval (ms) 471		
2	3	83.7	9	1711	1405	368		
3	2	69.7	9	1781	-	425		
4	1	59.7	9	-	-	440		
5	2	96.7	9	1484	-	123		
6	2	95.8	9	1319	-	261		
7	3	71.3	9	1095	1354	332		
8	3	53.2	9	1527	1427	427		
9	2	69.5	9	1771	-	397		
10	3	63.9	9	1075	1447	67		
11	2	93.4	9	1783	-	174		
12	2	77.3	9	1564	-	17		
13	2	73.1	9	1294	-	216		
14	1	77.4	9	-	-	292		
15	3	57.2	9	1722	1886	619		
16	2	68.7	9	1629	-	233		
17	1	60.8	9	-	-	226		
18	3	69.7	9	1128	1224	599		
19	1	62.2	9	-	-	433		
<b>Detection Che</b>	eck (1=Detection; C	=No Detection)				1		

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Trial Number			26				
Number of Bui	rsts in Trial			2	0		
Chirp Center F	requency			55	61		
Burst	Pulso Width Chirn Width Pulso 1-to-2 Pulso 2-				Starting Location Within Interval (ms)		
1	1	80.5	8	-	-	90	
2	3	62.6	8	1406	1343	319	
3	3	85.6	8	1190	1529	384	
4	2	83.9	8	1208	-	567	
5	2	92.4	8	1488	-	234	
6	2	54	8	1529	-	535	
7	3	81.3	8	1501	1812	325	
8	1	98.5	8	-	-	532	
9	1	85.8	8	-	-	272	
10	2	84.7	8	1593	-	182	
11	2	83.3	8	1705	-	134	
12	2	79.8	8	1567	-	286	
13	1	77.9	8	-	-	368	
14	3	98.4	8	1510	1569	290	
15	2	79.9	8	1588	-	231	
16	3	78	8	1140	1353	353	
17	3	55.2	8	1700	1327	53	
18	3	71.9	8	1081	1224	44	
19	1	62	8	-	-	298	
20	3	70.5	8	1888	1442	529	
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)				1	

Trial Number	Trial Number			27				
Number of Bur	sts in Trial		8					
Chirp Center F	requency			55	57			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within				
1	2	69.1	18	1076	_	Interval (ms) 1436		
2	2	62.1	18	1688	-	22		
3	2	94.8	18	1891	-	897		
4	1	75.8	18	-	-	1186		
5	2	65.4	18	1713	-	589		
6	2	97.7	18	18 1292 -				
7	3	98.1	18 1670 1711 500					
8	2	85.4	18	776				
<b>Detection Chec</b>	k (1=Detection; C	=No Detection)		•		1		

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Trial Number			28			
Number of Bur	Number of Bursts in Trial			9	9	
Chirp Center F	Chirp Center Frequency			55	56	
Ruret No of Pulege					Starting Location Within Interval (ms)	
1	3	82	19	1233	1713	679
2	3	87.7	19	1554	1123	473
3	2	98.9	19	1518	-	869
4	1	55	19	-	-	719
5	1	93.6	19	-	-	902
6	2	58.7	19	1641	-	1243
7	2	88.7	19	1387	-	410
8	1	60.3	19	1154		
9	1	97.7	19	512		
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)				1

Trial Number			29			
Number of Bur	Number of Bursts in Trial			1	0	
Chirp Center Frequency				55	56	
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)		
1	1	69.6	20	-	-	1131
2	1	74.5	20	-	ı	290
3	1	60.9	20	-	ı	895
4	1	74.6	20	-	-	202
5	2	99.3	20	1501	-	139
6	2	95.3	20	1065	-	854
7	2	91.9	20	1722	-	219
8	2	51	20	1285	-	57
9	2	87.7	20	141		
10	1	87.2	20	596		
<b>Detection Chec</b>	k (1=Detection; C	=No Detection)				1

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Trial Number	•			3	0		
Number of B	ursts in Trial		11				
Chirp Center	Frequency			55	62		
Burst No. of Pulses Pulse Width (us) Chirp Width Pulse 1-to-2 Spacing (us) Spacing (us)				Starting Location Within Interval (ms)			
1	3	59.9	5	1901	1196	935	
2	2	77.1	5	1590	-	1038	
3	2	62.7	5	1227	-	690	
4	1	77.1	5	-	-	547	
5	3	99.8	5	1798	1790	551	
6	2	61.5	5	1135	-	876	
7	2	77.5	5	1583	-	448	
8	2	57.3	5	1890	-	736	
9	2	53.5	5	1757	-	362	
10	1	66.6	5	-	-	836	
11	3	80.7	5	1811	1289	410	
Detection Che	eck (1=Detection; 0	=No Detection)				1	

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Type 6 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulses / Hop	Pulse Width (us)	PRI (us)	1=Detection 0=No Detection
1	5550	9	1	333	1
2	5550	9	1	333	1
3	5550	9	1	333	1
4	5550	9	1	333	1
5	5550	9	1	333	1
6	5550	9	1	333	1
7	5550	9	1	333	1
8	5550	9	1	333	1
9	5550	9	1	333	1
10	5550	9	1	333	1
11	5550	9	1	333	1
12	5550	9	1	333	1
13	5550	9	1	333	1
14	5550	9	1	333	1
15	5550	9	1	333	1
16	5550	9	1	333	1
17	5550	9	1	333	1
18	5550	9	1	333	1
19	5550	9	1	333	1
20	5550	9	1	333	1
21	5550	9	1	333	1
22	5550	9	1	333	1
23	5550	9	1	333	1
24	5550	9	1	333	1
25	5550	9	1	333	1
26	5550	9	1	333	1
27	5550	9	1	333	1
28	5550	9	1	333	1
29	5550	9	1	333	1
30	5550	9	1	333	1
	D	etection Percenta	ge (%)		100.000
Limit	70%				
Test Res	Complied				

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Modulation Mode: OFDM 40MHz

Type 1 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulse Repetition Frequency Number	Pulse Repetition Frequency (Pulse Per Second)	PRI (us)	1=Detection 0=No Detection
1	5535	1	1930.5	518	1
2	5536	23	326.2	3066	1
3	5537	19	1139.0	878	1
4	5538	12	1355.0	738	1
5	5539	4	1730.1	578	1
6	5540	8	1519.8	658	1
7	5541	15	1253.1	798	1
8	5542	6	1618.1	618	1
9	5543	14	1285.3	778	1
10	5544	3	1792.1	558	1
11	5545	13	1319.3	758	1
12	5546	9	1474.9	678	1
13	5547	7	1567.4	638	1
14	5548	17	1193.3	838	0
15	5549	10	1432.7	698	1
16	5550	-	1692.0	591	1
17	5551	-	328.1	3048	1
18	5552	-	373.4	2678	1
19	5553	-	574.4	1741	1
20	5554	-	1216.5	822	1
21	5555	-	801.3	1248	1
22	5556	-	488.5	2047	0
23	5557	-	956.0	1046	1
24	5558	-	517.6	1932	1
25	5559	-	1422.5	703	1
26	5560	-	542.0	1845	1
27	5561	-	741.3	1349	0
28	5562	-	881.8	1134	1
29	5563	-	427.4	2340	1
30	5564	-	628.9	1590	1
		Detection Percentage	(%)		90.000
Limit					60%
Test Res	ult				Complied

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Type 2 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5535	2.6	221	23	1
2	5536	4.6	198	27	1
3	5537	1.1	184	29	1
4	5538	4.8	203	24	1
5	5539	2.4	162	25	0
6	5540	3.4	204	28	1
7	5541	2.3	170	27	1
8	5542	3.5	184	23	1
9	5543	4.9	150	27	1
10	5544	4.6	211	29	0
11	5545	2.9	158	23	1
12	5546	2.6	226	27	1
13	5547	1.6	204	26	1
14	5548	3.9	181	25	0
15	5549	4.6	202	24	1
16	5550	4.1	194	27	1
17	5551	2.3	193	28	1
18	5552	3.9	173	29	1
19	5553	4.3	188	23	1
20	5554	1.5	215	26	1
21	5555	4.9	227	27	1
22	5556	1.1	199	23	0
23	5560	4.5	155	29	1
24	5561	4.0	190	27	1
25	5562	2.4	151	23	1
26	5563	2.5	180	28	1
27	5564	2.5	228	23	1
28	5565	2.5	203	25	1
29	5550	1.5	188	25	1
30	5536	1.9	217	24	1
	D	etection Percentage (	%)		86.667
Limit	60%				
Test Resi	Complied				

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Type 3 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5541	8.0	205	16	1
2	5542	6.7	382	18	1
3	5543	8.6	418	16	0
4	5544	9.4	351	17	1
5	5545	7.4	383	18	1
6	5546	9.8	232	16	1
7	5547	9.1	377	17	1
8	5548	9.6	457	16	1
9	5549	8.0	471	18	1
10	5550	9.0	304	18	1
11	5551	8.0	316	17	1
12	5552	9.8	325	16	1
13	5553	8.0	409	17	0
14	5554	9.9	200	17	1
15	5555	8.8	458	16	1
16	5556	8.0	232	18	0
17	5557	8.3	250	16	1
18	5558	8.7	270	16	1
19	5559	7.7	350	17	1
20	5560	7.1	230	16	1
21	5561	7.3	416	18	1
22	5562	7.6	498	18	0
23	5563	7.3	286	17	1
24	5535	7.3	287	16	1
25	5540	7.5	462	17	1
26	5549	6.2	300	17	1
27	5550	6.4	323	18	1
28	5551	7.1	420	16	1
29	5565	7.2	395	18	1
30	5566	8.4	377	16	1
•	D	etection Percentage (	%)		86.667
Limit	60%				
Test Resu	<u>ult</u>				Complied

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Type 4 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulse Width (us)	PRI (us)	Pulses / Burst	1=Detection 0=No Detection
1	5536	18.0	242	15	1
2	5537	19.9	279	12	1
3	5538	12.9	487	14	1
4	5539	15.0	452	13	1
5	5540	16.3	230	12	1
6	5541	19.8	238	13	1
7	5542	18.2	420	16	1
8	5543	16.3	452	15	1
9	5544	14.2	495	12	1
10	5545	17.8	228	16	1
11	5546	19.1	211	16	1
12	5547	18.4	283	15	1
13	5548	11.8	411	12	1
14	5549	14.2	284	13	0
15	5550	13.9	202	12	1
16	5551	17.8	340	14	1
17	5552	15.6	290	16	1
18	5553	14.6	250	16	1
19	5554	14.4	484	15	0
20	5555	18.9	387	13	1
21	5556	11.1	348	15	1
22	5557	13.8	291	16	1
23	5558	14.3	295	12	0
24	5559	12.5	300	12	0
25	5560	12.5	322	14	1
26	5561	12.5	383	13	1
27	5562	15.7	322	16	1
28	5563	19.8	469	13	1
29	5564	18.6	406	15	0
30	5565	15.9	238	14	1
'	D	etection Percentage (9	%)		83.333
imit			•		60%
est Resu	ılt				Complied

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Total Type 1~4 Radar Statistical Performance

Radar Type #	Detection Percentage (%)
1	90.000
2	86.667
3	86.667
4	83.333
Aggregate (Radar Types 1-4)	86.667
Limit	80%
Test Result	Complied

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Type 5 Radar Statistical Performance

Center Freq. (MHz)	Low Edge (MHz)	High Edge (MHz)		
5510	5531	5569	VSG Freq. (MHz)	Detection
Trial	Chirp	Offset		
1	5	0	5550	1
2	20	0	5550	1
3	7	0	5550	1
4	8	0	5550	1
5	9	0	5550	1
6	10	0	5550	1
7	11	0	5550	1
8	12	0	5550	1
9	13	0	5550	1
10	14	0	5550	1
11	15	6	5537	1
12	16	6.4	5537	1
13	17	6.8	5538	1
14	20	8	5539	0
15	19	7.6	5539	1
16	18	7.2	5538	1
17	17	6.8	5538	1
18	16	6.4	5537	1
19	15	6	5537	1
20	14	5.6	5537	1
21	13	5.2	5564	1
22	12	4.8	5564	1
23	11	4.4	5565	1
24	10	4	5565	1
25	9	3.6	5565	1
26	8	3.2	5566	1
27	18	7.2	5562	1
28	19	7.6	5561	1
29	20	8	5561	1
30	5	2	5567	1
	To	otal		29
	Detection Per	centage (%)		97%
_imit		- · ·		80%
Test Result				Complied

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Trial Number			1			
Number of Bursts in Trial				3	3	
Chirp Center F	requency			55	50	
Burst	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)		
1	1	62.1	5	-	-	1091
2	2	56	5	1729	-	133
3	2	91.3	5	1230	-	1057
4	3	50.7	5	1762	1616	1442
5	2	92.6	5	1723	-	544
6	2	87.3	5	1089		
7	2	59.5	5	1374		
8 2 52.2 5 1653 -						1237
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)				1

Trial Number	Trial Number Number of Bursts in Trial			9			
Number of Bu							
Chirp Center	Frequency			55	50		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)		Starting Location Within Interval (ms)	
1	3	90	20	1007	1326	30	
2	2	73.7	20	1785	-	979	
3	1	78.1	20	-	-	683	
4	2	92.4	20	1281	-	950	
5	1	61.2	20	-	-	612	
6	3	67.2	20	1525	1870	17	
7	1	78.5	20	429			
8	2	60.3	20 1931 - 93				
9	3	92.9	20	548			
<b>Detection Chee</b>	ck (1=Detection; 0	=No Detection)				1	

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Trial Number	Trial Number			3			
Number of Bur	Number of Bursts in Trial			10			
Chirp Center F	Chirp Center Frequency			55	50		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Chirp Width (MHz) Pulse 1-to-2 Pulse 2-to-3 Spacing (us) Spacing (us)			
1	3	63.4	7	1574	1607	801	
2	1	98	7	-	-	966	
3	1	58.7	7	-	-	185	
4	1	88	7	-	-	1012	
5	3	79.5	7	1562	1370	943	
6	3	57.1	7	1900	1188	686	
7	2	64.4	7	1090	-	599	
8	1	78.7	7	-	-	1089	
9	1	69.3	7	-	-	188	
10 3 55.3 7 1375 1691							
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)				1	

Trial Number			4						
Number of Bur	Number of Bursts in Trial			11					
Chirp Center F	Chirp Center Frequency			55	50				
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	. ,					
1	2	74.3	8	1642	-	Interval (ms)			
2	1	83.1	8	-	-	985			
3	2	59.5	8	1680	-	988			
4	2	59.8	8	1786	-	800			
5	2	77.6	8	1617	-	339			
6	2	79.9	8	1553	-	1040			
7	1	56	8	-	-	544			
8	3	71.4	8	1406	1927	452			
9	1	97.4	8	-	-	204			
10	2	98.3	8	1037	-	926			
11	1	63.6	8						
<b>Detection Chec</b>	k (1=Detection; C	=No Detection)				1			

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Trial Number			5				
Number of Bur	Number of Bursts in Trial			12			
Chirp Center F	requency			55	50		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Chirp Width Pulse 1-to-2 Pulse 2-to-3			
1	1	50	9	_	-	Interval (ms) 557	
2	2	62.5	9	1731	-	567	
3	2	55.4	9	1070	-	460	
4	1	65.7	9	-	-	4	
5	2	58	9	1512	-	64	
6	2	60.9	9	1230	-	650	
7	3	89.6	9	1598	1738	235	
8	3	84.4	9	1271	1617	873	
9	3	72.3	9	1498	1321	901	
10	1	58.9	9	-	-	663	
11	2	74.8	9	1584	-	919	
12	1	71.8	9	-	-	375	
<b>Detection Check</b>	k (1=Detection; 0	=No Detection)				1	

Trial Number			6				
Number of Bur	Number of Bursts in Trial			13			
Chirp Center F	requency			55	50		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)				
1	2	88.1	10	1257	-	846	
2	1	58.7	10	-	-	725	
3	2	97.1	10	1037	-	30	
4	3	83.1	10	1029	1106	490	
5	1	62.1	10	-	-	262	
6	2	71.4	10	1058	-	283	
7	2	86.3	10	1867	-	49	
8	3	77.3	10	1418	1876	634	
9	1	78.9	10	-	-	304	
10	3	79.2	10	1055	1572	564	
11	3	52	10	1582	1836	852	
12	3	56.5	10	1195	1542	525	
13	3	100	10	1638	1729	750	
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)				1	

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Trial Number			7					
Number of Bur	Number of Bursts in Trial			14				
Chirp Center Frequency				55	50			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Chirp Width Pulse 1-to-2 Pulse 2-to-3				
1	2	92.7	11	1208	-	231		
2	2	81.3	11	1144	-	804		
3	2	60.4	11	1555	-	34		
4	2	62.1	11	1320	-	427		
5	1	50	11	-	-	577		
6	3	65.9	11	1020	1365	3		
7	2	73.8	11	1308	-	51		
8	2	74.3	11	1143	-	360		
9	1	62.9	11	-	-	394		
10	2	74.8	11	1404	-	317		
11	2	69.7	11	1309	-	532		
12	2	69.8	11	1688	-	339		
13	2	77.4	11	1857	-	381		
14	1	55.1	11	-	-	426		
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)				1		

Trial Number			8					
Number of Bui	Number of Bursts in Trial			1	5			
Chirp Center F	Chirp Center Frequency			55	50			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)					
1	1	91.7	12	-	-	776		
2	2	90	12	1196	-	187		
3	3	92.3	12	1486	1853	448		
4	2	66.8	12	1545	-	702		
5	1	64	12	-	-	403		
6	3	95.4	12	1123	1473	230		
7	3	66.8	12	1867	1401	604		
8	3	67.7	12	1472	1397	38		
9	1	68.2	12	-	-	735		
10	2	82.2	12	1297	-	610		
11	1	92.1	12	-	-	618		
12	2	57	12	1764	-	705		
13	2	58.5	12	1310	-	22		
14	3	85.5	12	1630	1447	641		
15	2	82.2	12	1371	-	109		
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)				1		

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Trial Number			9					
Number of Bu	lumber of Bursts in Trial			16				
Chirp Center	Chirp Center Frequency			55	50			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)					
1	2	74.4	13	1707	-	442		
2	2	63.6	13	1725	-	280		
3	2	71.3	13	1704	-	459		
4	3	77.6	13	1063	1405	197		
5	3	65.2	13	1731	1294	101		
6	3	55.1	13	1109	1549	17		
7	2	96.8	13	1034	-	131		
8	3	80.8	13	1533	1051	365		
9	1	60.4	13	-	-	222		
10	2	61.8	13	1312	-	371		
11	2	71.3	13	1657	-	33		
12	2	98.1	13	1024	-	291		
13	1	57.9	13	-	-	188		
14	1	91.8	13	-	-	163		
15	2	56.7	13	1259	-	426		
16	2	89.7	13	1690	-	606		
<b>Detection Che</b>	ck (1=Detection; C	=No Detection)				1		

Trial Number			10				
Number of Bu	rsts in Trial		17				
Chirp Center Frequency				55	50		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)			
1	2	74.4	14	1107	-	462	
2	1	87.6	14	-	-	653	
3	2	61.7	14	1741	-	457	
4	2	57.5	14	1566	-	388	
5	2	66.1	14	1855	-	63	
6	3	70.1	14	1044	1012	136	
7	1	66.4	14	-	-	343	
8	1	59.2	14	-	-	349	
9	2	88.3	14	1240	-	362	
10	1	64.7	14	-	-	221	
11	2	73	14	1703	-	144	
12	2	81.7	14	1450	-	671	
13	3	70.1	14	1741	1278	320	
14	1	63.6	14	-	-	196	
15	1	58.7	14	-	-	413	
16	2	65.9	14	1478	-	170	
17	1	72.7	14	-	-	564	
<b>Detection Chec</b>	ck (1=Detection; 0	=No Detection)				1	

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Trial Number			11				
Number of Bu	ırsts in Trial		18				
Chirp Center Frequency				55	37		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)			
1	2	72.1	15	1193	-	130	
2	3	76.3	15	1484	1390	114	
3	1	86.1	15	-	-	14	
4	1	73.2	15	-	-	604	
5	1	81.2	15	-	-	548	
6	2	99.5	15	1398	-	173	
7	1	93.9	15	-	-	262	
8	2	75.9	15	1921	-	38	
9	3	79.2	15	1100	1429	84	
10	3	77	15	1166	1799	610	
11	1	91.8	15	-	-	339	
12	3	56.8	15	1330	1556	580	
13	2	83.1	15	1556	-	295	
14	2	63	15	1552	-	156	
15	1	65.7	15	-	-	439	
16	1	64.5	15	-	-	188	
17	1	88.5	15	-	-	419	
18	1	60.6	15	-	-	205	
<b>Detection Che</b>	ck (1=Detection; C	=No Detection)				1	

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Trial Number	Trial Number			12				
Number of B	ursts in Trial		19					
Chirp Center Frequency				55	37			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)					
1	2	90.5	16	1299	_	Interval (ms) 381		
2	2	88.4	16	1418	-	327		
3	2	53.7	16	1055	-	536		
4	1	80.5	16	-	-	285		
5	1	50.4	16	-	-	398		
6	2	61.2	16	1749	-	439		
7	2	78.8	16	1065	-	129		
8	3	75	16	1748	1820	325		
9	2	96.7	16	1254	-	440		
10	3	76.3	16	1848	1106	397		
11	1	73.3	16	-	-	232		
12	2	92.4	16	1317	-	91		
13	2	92.4	16	1854	-	256		
14	3	64.4	16	1240	1634	582		
15	2	67.3	16	1473	-	117		
16	2	84.1	16	1795	-	202		
17	1	80.9	16	-	-	135		
18	1	74.6	16	-	-	396		
19	2	97.6	16	1805	-	615		
<b>Detection Che</b>	ck (1=Detection; 0	=No Detection)	•	•	•	1		

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Trial Number			13				
Number of Bu	rsts in Trial		20				
Chirp Center Frequency				55	38		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)			
1	2	66.1	17	1417	-	388	
2	2	86.7	17	1693	-	348	
3	2	70.5	17	1263	-	215	
4	2	78	17	1446	-	28	
5	2	66	17	1185	-	585	
6	2	80.6	17	1855	-	65	
7	1	95.5	17	-	-	92	
8	1	98.8	17	-	-	68	
9	3	64.3	17	1641	1108	517	
10	1	75.1	17	-	-	121	
11	2	72.6	17	1499	-	448	
12	1	60.3	17	-	-	567	
13	2	54.9	17	1056	-	245	
14	2	98.8	17	1023	-	584	
15	2	60.9	17	1243	-	579	
16	2	62.7	17	1226	-	464	
17	1	80.1	17	-	-	89	
18	2	70.9	17	1711	-	153	
19	1	90.7	17	-	-	282	
20	1	98.9	17	-	-	71	
<b>Detection Chee</b>	ck (1=Detection; C	=No Detection)				1	

Trial Number			14				
Number of Bursts in Trial			8				
Chirp Center F	requency			55	39		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)			
1	2	67.5	20	1542	-	947	
2	3	83.6	20	1272	1696	124	
3	2	93.2	20	1877	-	701	
4	1	55.6	20	-	-	1123	
5	3	84.2	20	1733	1619	756	
6	3	69.1	20	1612	1071	1	
7	2	66.9	20	1905	-	7	
8	3	86.8	20	1697	1621	1082	
<b>Detection Chec</b>	k (1=Detection; C	=No Detection)				0	

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Trial Number			15					
Number of Bursts in Trial				9				
Chirp Center	Frequency			55	39			
Burst No. of Pulses Pulse Width (us)			Chirp Width (MHz)		Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)		
1	2	62.2	19	1571	-	949		
2	2	85	19	1669	-	189		
3	2	64.5	19	1505	-	176		
4	2	50.4	19	1325	-	538		
5	2	66.1	19	1483	-	908		
6	2	71.2	19	1110	-	1017		
7	3	53.7	19	1445	1677	492		
8	3	62.5	19	1596	1341	349		
9	3	62	19	1929	1221	1105		
<b>Detection Che</b>	ck (1=Detection; 0	=No Detection)				1		

Trial Number			16			
Number of Bursts in Trial			10			
Chirp Center Frequency				55	38	
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)		
1	2	80.5	18	1910	-	284
2	2	64.2	18	1661	-	751
3	2	90.1	18	1041	-	491
4	2	69.8	18	1495	-	107
5	1	73.1	18	-	-	490
6	3	77.2	18	1418	1145	1155
7	3	52.6	18	1732	1787	772
8	2	71.4	18	1562	-	121
9	2	89.8	18	1491	-	89
10	2	76.4	18	1355	-	615
<b>Detection Chec</b>	k (1=Detection; C	=No Detection)				1

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Trial Number	Trial Number Number of Bursts in Trial			17			
Number of Bu				11			
Chirp Center	Frequency			55	38		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)			
1	2	51.2	17	1236	-	740	
2	1	71.7	17	-	-	941	
3	2	74.7	17	1164	-	370	
4	2	50.9	17	1919	-	371	
5	2	65.2	17	1206	-	1033	
6	2	98	17	1182	-	346	
7	2	58.7	17	1612	-	639	
8	1	63.8	17	-	-	1056	
9	3	86.3	17	1545	1065	205	
10	1	94.4	17	-	-	753	
11	3	88.5	17	1699	1319	58	
Detection Che	ck (1=Detection; C	=No Detection)				1	

Trial Number	Trial Number			18			
Number of Bur	Number of Bursts in Trial			12			
Chirp Center F	Chirp Center Frequency			55	37		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)			
1	2	88.7	16	1405	-	448	
2	3	90.2	16	1544	1235	621	
3	1	96.5	16	-	-	512	
4	2	80.5	16	1090	-	321	
5	2	63.7	16	1268	-	798	
6	1	53.4	16	-	-	809	
7	2	52.3	16	1043	-	301	
8	3	54.7	16	1701	1104	796	
9	3	75.6	16	1923	1729	669	
10	2	59.2	16	1244	-	369	
11	1	56.3	16	-	-	51	
12	2	87.8	16	1608	-	733	
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)				1	

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Trial Number			19				
Number of Bur	sts in Trial		13				
Chirp Center Frequency				55	37		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz) Pulse 1-to-2 Pulse 2-to-3 Locati Spacing (us) Spacing (us) Within Interval				
1	2	68.2	15	1104	-	229	
2	2	58.4	15	1627	-	488	
3	3	74.7	15	1861	1015	137	
4	2	58.2	15	1593	-	520	
5	1	51.6	15	-	-	799	
6	2	94.7	15	1469	-	43	
7	2	70.7	15	1091	-	126	
8	2	82.9	15	1472	-	607	
9	3	62.7	15	1168	1453	527	
10	2	63.1	15	1529	-	143	
11	1	96.1	15	-	-	176	
12	2	57	15	1457	-	882	
13	3	95.6	15	1707	1501	214	
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)				1	

Trial Number			20			
Number of Bur	sts in Trial		14			
Chirp Center F	Chirp Center Frequency			55	37	
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)		
1	1	95.7	14	-	-	117
2	1	93.1	14	-	-	720
3	1	55.8	14	-	-	297
4	1	76.7	14	-	-	284
5	2	68	14	1686	-	472
6	3	94.1	14	1796	1393	264
7	2	53.9	14	1293	-	525
8	1	99.3	14	-	-	155
9	2	73.3	14	1458	-	65
10	2	93.3	14	1196	-	451
11	3	55.8	14	1895	1034	243
12	1	66.4	14	-	-	228
13	2	65.6	14	1732	-	746
14	2	76.5	14	1187	-	522
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)	·	·		1

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Trial Number			21			
Number of Bu	rsts in Trial		15			
Chirp Center Frequency				55	64	
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)	Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)
1	1	85.1	13	-	-	565
2	2	72.5	13	1648	-	211
3	1	67.5	13	-	-	348
4	2	56.1	13	1360	-	156
5	1	71.1	13	-	-	718
6	2	93.1	13	1391	-	400
7	1	56.5	13	-	ı	482
8	1	63.8	13	-	ı	703
9	2	67.4	13	1727	ı	780
10	1	52.3	13	-	ı	102
11	3	62.4	13	1228	1715	304
12	2	53.3	13	1630	ı	57
13	2	83.1	13	1205	1	768
14	2	93.7	13	1085	1	461
15	2	90.7	13	1297	1	746
<b>Detection Chec</b>	ck (1=Detection; 0	=No Detection)				1

Trial Number				2	2		
Number of Bu	ırsts in Trial		16				
Chirp Center Frequency				55	64		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)			
1	2	98.8	12	1439	-	95	
2	1	54.5	12	-	-	676	
3	2	80.5	12	1360	-	8	
4	2	55.9	12	1906	-	373	
5	2	72.1	12	1623	-	254	
6	2	84.4	12	1604	-	480	
7	1	78.5	12	-	-	663	
8	1	88	12	-	-	314	
9	2	74.7	12	1157	-	596	
10	2	97.1	12	1673	-	264	
11	1	81.6	12	-	-	740	
12	1	83.6	12	-	-	163	
13	3	87.6	12	1757	1322	628	
14	2	58.5	12	1372	-	132	
15	3	91.8	12	1767	1183	106	
16	2	58.8	12	1432	-	659	
<b>Detection Che</b>	ck (1=Detection; C	=No Detection)	•			1	

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Trial Number			23					
Number of Bur	sts in Trial		17					
Chirp Center Frequency				55	65			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)					
1	1	96	11	-	-	284		
2	2	92.5	11	1241	-	488		
3	2	89.5	11	1347	-	76		
4	2	74.8	11	1607	-	688		
5	2	60.6	11	1523	-	28		
6	2	71.5	11	1659	-	383		
7	2	71.1	11	1454	-	182		
8	1	98.7	11	-	-	20		
9	2	85.1	11	1770	-	576		
10	2	89.2	11	1086	-	410		
11	2	60.7	11	1101	-	458		
12	2	75.2	11	1719	-	348		
13	2	75.7	11	1799	-	481		
14	3	56.7	11	1132	1884	587		
15	2	65	11	1885	-	480		
16	2	64.6	11	1910	-	195		
17	3	69.9	11	1410	1190	396		
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)				1		

Trial Number			24				
Number of Bur	sts in Trial		18				
Chirp Center F	Chirp Center Frequency			5565			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)		Starting Location Within Interval (ms)	
1	3	83.8	10	1290	1021	536	
2	2	66.9	10	1112	-	44	
3	3	91	10	1220	1504	611	
4	2	86.1	10	1678	-	456	
5	3	65.5	10	1928	1222	330	
6	1	62.6	10	-	-	297	
7	3	68.7	10	1505	1200	351	
8	3	59.2	10	1452	1114	230	
9	1	73.9	10	-	-	222	
10	1	77.2	10	-	-	57	
11	2	96.4	10	1357	-	399	
12	2	99.9	10	1173	-	299	
13	2	99.9	10	1520	-	464	
14	1	86.7	10	-	-	294	
15	1	92.6	10	-	-	653	
16	1	77.1	10	-	-	550	
17	2	81.1	10	1664	-	566	
18	3	68.4	10	1536	1309	580	
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)				1	

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Trial Number			25				
Number of Bu	rsts in Trial		19				
Chirp Center F	requency		5565				
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Pulse 1-to-2 Spacing (us)		Starting Location Within Interval (ms)	
1	3	68.2	9	1723	1868	471	
2	3	83.7	9	1711	1405	368	
3	2	69.7	9	1781	-	425	
4	1	59.7	9	-	-	440	
5	2	96.7	9	1484	-	123	
6	2	95.8	9	1319	-	261	
7	3	71.3	9	1095	1354	332	
8	3	53.2	9	1527	1427	427	
9	2	69.5	9	1771	-	397	
10	3	63.9	9	1075	1447	67	
11	2	93.4	9	1783	-	174	
12	2	77.3	9	1564	-	17	
13	2	73.1	9	1294	-	216	
14	1	77.4	9	-	-	292	
15	3	57.2	9	1722	1886	619	
16	2	68.7	9	1629	-	233	
17	1	60.8	9	-	-	226	
18	3	69.7	9	1128	1224	599	
19	1	62.2	9	-	-	433	
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)				1	

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Trial Number	Trial Number			26				
Number of Bu	rsts in Trial		20					
Chirp Center I	Frequency			5566				
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)		Pulse 2-to-3 Spacing (us)	Starting Location Within Interval (ms)		
1	1	80.5	8	-	-	90		
2	3	62.6	8	1406	1343	319		
3	3	85.6	8	1190	1529	384		
4	2	83.9	8	1208	-	567		
5	2	92.4	8	1488	-	234		
6	2	54	8	1529	-	535		
7	3	81.3	8	1501	1812	325		
8	1	98.5	8	-	-	532		
9	1	85.8	8	-	-	272		
10	2	84.7	8	1593	-	182		
11	2	83.3	8	1705	-	134		
12	2	79.8	8	1567	-	286		
13	1	77.9	8	-	-	368		
14	3	98.4	8	1510	1569	290		
15	2	79.9	8	1588	-	231		
16	3	78	8	1140	1353	353		
17	3	55.2	8	1700	1327	53		
18	3	71.9	8	1081	1224	44		
19	1	62	8	-	-	298		
20	3	70.5	8	1888	1442	529		
Detection Ched	ck (1=Detection; 0	=No Detection)				1		

Trial Number			27				
Number of Bursts in Trial				8			
Chirp Center Frequency				55	62		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz) Pulse 1-to-2 Spacing (us) Sta Loc Spacing (us) With the control of the control				
1	2	69.1	18	1076	_	Interval (ms) 1436	
2	2	62.1	18	1688		22	
3	2	94.8	18	1891	-	897	
4	1	75.8	18	-	-	1186	
5	2	65.4	18	1713	-	589	
6	2	97.7	18	1292	-	614	
7	3	98.1	18	1670	1711	506	
8	2	85.4	18 1672 - 776				
<b>Detection Chec</b>	k (1=Detection; C	=No Detection)		•	•	1	

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Trial Number			28				
Number of Bur	Number of Bursts in Trial			9			
Chirp Center Frequency			55	61			
Burst	No. of Pulses	Pulse Width (us)	Chirp Width Pulse 1-to-2 Pulse 2-to-3 Location (MHz) Spacing (us) Spacing (us) Within Interval (				
1	3	82	19	1233	1713	679	
2	3	87.7	19	1554	1123	473	
3	2	98.9	19	1518	-	869	
4	1	55	19	-	-	719	
5	1	93.6	19	-	-	902	
6	2	58.7	19	1641	-	1243	
7	2	88.7	19	1387	-	410	
8	1	60.3	19	-	-	1154	
9	1	97.7	19	-	-	512	
<b>Detection Chec</b>	k (1=Detection; 0	=No Detection)				1	

Trial Number			29				
Number of Bu	Number of Bursts in Trial			10			
Chirp Center Frequency				55	61		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz) Pulse 1-to-2 Pulse 2-to-3 Local Spacing (us) Spacing (us) With Interval				
1	1	69.6	20	-	-	1131	
2	1	74.5	20	-	-	290	
3	1	60.9	20	-	-	895	
4	1	74.6	20	-	-	202	
5	2	99.3	20	1501	-	139	
6	2	95.3	20	1065	-	854	
7	2	91.9	20	1722	-	219	
8	2	51	20	1285	-	57	
9	2	87.7	20	1747	-	141	
10	1	87.2	20	-	-	596	
Detection Chec	k (1=Detection; C	=No Detection)				1	

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Trial Number			30				
Number of B	ursts in Trial			11			
Chirp Center Frequency				55	67		
Burst	No. of Pulses	Pulse Width (us)	Chirp Width (MHz)	Starting Location Within Interval (ms)			
1	3	59.9	5	1901	1196	935	
2	2	77.1	5	1590	-	1038	
3	2	62.7	5	1227	-	690	
4	1	77.1	5	-	-	547	
5	3	99.8	5	1798	1790	551	
6	2	61.5	5	1135	-	876	
7	2	77.5	5	1583	-	448	
8	2	57.3	5	1890	-	736	
9	2	53.5	5	1757	-	362	
10	1	66.6	5	-	-	836	
11	3	80.7	5	1811	1289	410	
Detection Che	eck (1=Detection; 0	=No Detection)	•	•	•	1	

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Type 6 Radar Statistical Performance

Trial #	Test Freq. (MHz)	Pulses / Hop	Pulse Width (us)	PRI (us)	1=Detection 0=No Detection
1	5550	9	1	333	1
2	5550	9	1	333	1
3	5550	9	1	333	1
4	5550	9	1	333	1
5	5550	9	1	333	1
6	5550	9	1	333	1
7	5550	9	1	333	1
8	5550	9	1	333	1
9	5550	9	1	333	1
10	5550	9	1	333	1
11	5550	9	1	333	1
12	5550	9	1	333	1
13	5550	9	1	333	1
14	5550	9	1	333	1
15	5550	9	1	333	1
16	5550	9	1	333	1
17	5550	9	1	333	1
18	5550	9	1	333	1
19	5550	9	1	333	1
20	5550	9	1	333	1
21	5550	9	1	333	1
22	5550	9	1	333	1
23	5550	9	1	333	1
24	5550	9	1	333	1
25	5550	9	1	333	1
26	5550	9	1	333	1
27	5550	9	1	333	1
28	5550	9	1	333	1
29	5550	9	1	333	1
30	5550	9	1	333	1
	100.00				
Limit	70%				
Test Res	Complied				

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4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSV40	101026	9kHz~40GHz	Sep. 14, 2016	Conducted (DF01-CB)
Signal Generator	R&S	SMR40	100302	10MHz-40GHz	Jan. 08, 2016	Conducted (DF01-CB)
Signal generator	R&S	SMU200A	105352	25MHz-6GHz	Aug. 01, 2016	Conducted (DF01-CB)
RF Power Divider	ANAREN	2 Way	DFS-01-DV-02	1GHz ~ 6GHz	Oct. 24, 2016	Conducted (DF01-CB)
RF Power Divider	MTJ	2 Way	DFS-01-DV-03	1GHz ~ 6GHz	Oct. 24, 2016	Conducted (DF01-CB)
RF Power Divider	ANAREN	4 Way	DFS-01-DV-01	1GHz ~ 6GHz	Oct. 24, 2016	Conducted (DF01-CB)
RF Cable-high	Woken	RG402	High Cable-53	1 GHz –18 GHz	Oct. 24, 2016	Conducted (DF01-CB)
RF Cable-high	Woken	RG402	High Cable-54	1 GHz –18 GHz	Oct. 24, 2016	Conducted (DF01-CB)
RF Cable-high	Woken	RG402	High Cable-56	1 GHz –18 GHz	Oct. 24, 2016	Conducted (DF01-CB)
RF Cable-high	Woken	RG402	High Cable-60	1 GHz –18 GHz	Oct. 24, 2016	Conducted (DF01-CB)

Note: Calibration Interval of instruments listed above is one year.

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## **5** Measurement Uncertainty

Test Items	Uncertainty	Remark
Conducted Emission	1.7 dB	Confidence levels of 95%

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# Appendix A. Test Photos

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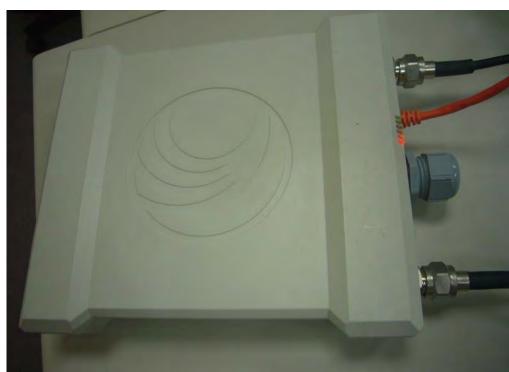




## 1. Photographs of Dynamic Frequency Selection Test Configuration



**FRONT VIEW** 



**REAR VIEW** 

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