Company: Radwin Ltd

Test of: AP0158770 RF Wireless Module

To: FCC CFR 47 Part 15 Subpart E 15.407 & RSS-247

Report No.: RDWN34-PCA 3.2 U3c DFS Rev B

DFS TEST REPORT

MiCOM Labs

opening wireless markets

DFS TEST REPORT

FROM

Test of: Radwin Ltd AP0158770 RF Wireless Module
to

To: FCC CFR 47 Part 15 Subpart E 15.407 & RSS-247

Test Report Serial No.: RDWN34-PCA 3.2 U3c DFS Rev B

This report supersedes: NONE

Applicant:	Radwin 27 Habarzel Street Tel Aviv, 69710 Israel
Product Function:	5 GHz Wireless Module
Issue Date:	28th August 2015

This Test Report is Issued Under the Authority of:

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ACCREDITED
TESTING CERT #2381.01

MiCOM Labs is an ISO 17025 Accredited Testing Laboratory

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1. ACCREDITATION, LISTINGS & RECOGNITION

1.1. TESTING ACCREDITATION

MiCOM Labs, Inc. is an accredited Electrical testing laboratory per the international standard ISO/IEC 17025:2005. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.01. MiCOM Labs test schedule is available at the following URL; http://www.a2la.org/scopepdf/2381-01.pdf

American Association for Laboratory Accreditation

Accredited Laboratory

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for technical competence in the field of

Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 *General Requirements for the Competence of Testing and Calibration Laboratories*. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communique dated 8 January 2009*).

Presented this 28th day of February 2014.

President & CEO
For the Accreditation Council
Certificate Number 2381.01
Valid to November 30, 2015

For the tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

1.2. RECOGNITION

MiCOM Labs, Inc has widely recognized wireless testing capabilities. Our international recognition includes Conformity Assessment Body designation by APEC MRA countries. MiCOM Labs test reports are accepted globally.

Country	Recognition Body	Status	Phase	Identification No.
USA	Federal Communications Commission (FCC)	TCB	-	US0159 Listing #: 102167
Canada	Industry Canada (IC)	FCB	APEC MRA 2	US0159 Listing #: 4143A-2 4143A-3
Japan	MIC (Ministry of Internal Affairs and Communication)	CAB	APEC MRA 2	RCB 210
	VCCI	--	--	A-0012
Europe	European Commission	NB	EU MRA	NB 2280
Australia	Australian Communications and Media Authority (ACMA)	CAB	APEC MRA 1	US0159
Hong Kong	Office of the Telecommunication Authority (OFTA)	CAB	APEC MRA 1	
Korea	Ministry of Information and Communication Radio Research Laboratory (RRL)	CAB	APEC MRA 1	
Singapore	Infocomm Development Authority (IDA)	CAB	APEC MRA 1	
Taiwan	National Communications Commission (NCC) Bureau of Standards, Metrology and Inspection (BSMI)	CAB	APEC MRA 1	
Vietnam	Ministry of Communication (MIC)	CAB	APEC MRA 1	

EU MRA – European Union Mutual Recognition Agreement.
NB – Notified Body
APEC MRA – Asia Pacific Economic Community Mutual Recognition Agreement. Recognition agreement under which test lab is accredited to regulatory standards of the APEC member countries.

Phase I - recognition for product testing
Phase II – recognition for both product testing and certification

1.3. PRODUCT CERTIFICATION

MiCOM Labs, Inc. is an accredited Product Certification Body per the international standard ISO/IEC 17065:2012. The company is accredited by the American Association for Laboratory Accreditation (A2LA) www.a2la.org test laboratory number 2381.02. MiCOM Labs test schedule is available at the following URL; http://www.a2la.org/scopepdf/2381-02.pdf

American Association for Laboratory Accreditation

Accredited Product Certification Body

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for technical competence as a

Product Certification Body

This product certification body is accredited in accordance with the recognized International Standard ISO/IEC 17065:2012 - *Requirements for bodies certifying products, processes and services*. This accreditation demonstrates technical competence for a defined scope and the operation of a quality management system.

Presented this 28th day of February 2014.

President & CEO
For the Accreditation Council
Certificate Number 2381.02
Valid to November 30, 2015

For the product certification schemes to which this accreditation applies, please refer to the organization's Product Certification Scope of Accreditation

United States of America – Telecommunication Certification Body (TCB)
Industry Canada – Certification Body, CAB Identifier – US0159
Europe – Notified Body (NB), NB Identifier - 2280
Japan – Recognized Certification Body (RCB), RCB Identifier - 210

2. DOCUMENT HISTORY

Document History		
Revision	Date	Comments
Draft	27th July 2015	
Draft #2	4th August 2015	
Rev A	5th August 2015	Initial Release
Rev B	28th August 2015	Updated radar Type 5 signatures to prove compliance over the radar detection bandwidth, see Section 10.5.1.2 (page 83)
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.		

In the above table the latest report revision will replace all earlier versions.

3. TEST RESULT CERTIFICATE

Manufacturer:	Radwin Ltd 27 Habarzel Street Tel Aviv 69710 Israel	**Tested By:**	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Model:	AP0158770	**Telephone:** **Fax:**	+1 925 462 0304 +1 925 462 0306
Type Of Equipment:	5 GHz Wireless Module		
S/N's:	Prototype		
Test Date(s):	10th – 14th July 2015	**Website:**	www.micomlabs.com

STANDARD(S)	TEST RESULTS
FCC CFR 47 Part 15 Subpart E 15.407 & RSS-247 (Limited to DFS Testing)	**EQUIPMENT COMPLIES**

MiCOM Labs, Inc. tested the equipment mentioned in accordance with the requirements set forth in the above standards. Test results indicate that the equipment tested is capable of demonstrating compliance with the requirements as documented within this report.

Notes:

1. This document reports conditions under which testing was conducted and the results of testing performed.

2. Details of test methods used have been recorded and kept on file by the laboratory.

3. Test results apply only to the item(s) tested.

ACCREDITED
TESTING CERT #2381.01

Approved & Released for MiCOM Labs, Inc. by:

Graeme Grieve
Quality Manager MiCOM Labs, Inc.

Gordon Hurst
President & CEO MiCOM Labs, Inc.

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4. REFERENCES AND MEASUREMENT UNCERTAINTY

4.1. Normative References

REF.	PUBLICATION	YEAR	TITLE
I	KDB 662911	Oct 31 2013	Guidance for measurement of output emission of devices that employ single transmitter with multiple outputs or systems with multiple transmitters operating simultaneously in the same frequency band
II	KDB 905462 D07 v01	10th June 2015	Test guidance to demonstrate compliance for U-NII devices subject to DFS requirements.
III	KDB 926956 DO1 v01r02	17th October 2014	U-NII Device Transition Plan
IV	KDB 789033 D02 v01	6th June 2014	General UNII Test Procedures New Rules V01
V	A2LA	June 2015	R105 - Requirement's When Making Reference to A2LA Accreditation Status
VI	ANSI C63.10	2013	American National Standard for Testing Unlicensed Wireless Devices
VII	ANSI C63.4	2014	American National Standards for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
VIII	CISPR 22	2008	Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement
IX	ETSI TR 100 028	2001-12	Parts 1 and 2 Electromagnetic compatibility and Radio Spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics
X	FCC 06-96	Jun 3 2006	Memorandum Opinion and Order
XI	FCC 47 CFR Part 15.407	2014	Radio Frequency Devices; Subpart E –Unlicensed National Information Infrastructure Devices
XII	ICES-003	Issue 5 2012	Spectrum Management and Telecommunications; Interference-Causing Equipment Standard. Information Technology Equipment (ITE) – Limits and methods of measurement.
XIII	M 3003	Edition 3 Nov. 2012	Expression of Uncertainty and Confidence in Measurements
XIV	RSS-247, Issue 1	May 2015	Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
XV	RSS-Gen, Issue 4	Nov 2014	General Requirements and Information for the Certification of Radiocommunication Equipment
XVI	KDB 644545 D03 v01	August 14th 2014	Guidance for IEEE 802.11ac New Rules
XVII	FCC 47 CFR Part 2.1033	2014	FCC requirements and rules regarding photographs and test setup diagrams.

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4.2. Test and Uncertainty Procedure

Conducted and radiated emission measurements were conducted in accordance with American National Standards Institute ANSI C63.4, listed in the Normative References section of this report.

Measurement uncertainty figures are calculated in accordance with ETSI TR 100 028 Parts 1 and 2.

Measurement uncertainties stated are based on a standard uncertainty multiplied by a coverage factor k = 2, providing a level of confidence of approximately 95 % in accordance with UKAS document M 3003 listed in the Normative References section of this report.

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5. PRODUCT DETAILS AND TEST CONFIGURATIONS

5.1. Technical Details

Details	Description
Purpose:	Test of the Radwin Ltd AP0158770 to FCC CFR 47 Part 15 Subpart E 15.407 and RSS-247 Radio Frequency Devices; Subpart E –Unlicensed National Information Infrastructure Devices
Applicant:	Radwin Ltd 27 Habarzel Street Tel Aviv 69710 Israel
Manufacturer:	As Applicant
Laboratory performing the tests:	MiCOM Labs, Inc. 575 Boulder Court Pleasanton California 94566 USA
Test report reference number:	RDWN34-PCA 3.2 U3c DFS
Date EUT received:	6th July 2015
Standard(s) applied:	FCC CFR 47 Part 15 Subpart E 15.407 & RSS-247 Issue 1
Dates of test (from - to):	10th – 14th July 2015
No of Units Tested:	1
Type of Equipment:	5 GHz Wireless Module 2x2 Spatial Multiplexing MIMO configuration
Product Family Name:	5.x DPLUS RF Module
Model(s):	AP0158770
Location for use:	Outdoor
Declared Frequency Range(s):	5250 – 5350, 5470 - 5725 MHz;
Primary function of equipment:	Multipole MIMO PtP/PtMP Smart Antenna Outdoor Radio Device
Secondary function of equipment:	None Provided
Type of Modulation:	Per 802.11n/ac BPSK, QPSK, 16QAM, 64QAM, 256 QAM, OFDM
EUT Modes of Operation:	Bandwidths 5, 10, 20, 40, 80 MHz
Transmit/Receive Operation:	Time Division Duplex
Rated Input Voltage and Current:	POE 55Vdc 1A
Operating Temperature Range:	Declared Range -35°C to 60°C
ITU Emission Designator:	5 MHz 5M00W7W 10 MHz 10M0W7W 20 MHz 20M0W7W 40 MHz 40M0W7W 80 MHz 80M0W7W
Equipment Dimensions:	1.9” X 2.0” x 0.3”
Weight:	0.042 lb. (19g)
Hardware Rev:	Prototype
Software Rev:	Prototype

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5.2. Scope Of Test Program

Radwin AP0158770 5 GHz Wireless Module

The scope of the test program was to test the Radwin AP0158770 configurations in the frequency ranges 5250 - 5350 MHz and 5470 - 5725 MHz for compliance against the following specification:

FCC CFR 47 Part 15 Subpart E 15.407
Radio Frequency Devices; Subpart E – Unlicensed National Information Infrastructure Devices

Industry Canada RSS-247 Issue 1
Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

Radwin AP0158770 5 GHz Wireless Module

5.3. Equipment Model(s) and Serial Number(s)

Equipment Type	Equipment Description (Including Brand Name)	Mfr	Model No.	Serial No.
EUT	5 GHz Wireless Module	RADWIN Ltd	AP0158770	Prototype
Support	Laptop PC	DELL	LATITUDE D530	None

5.4. Antenna Details

Type	Manufacturer	Model	Family	Gain (dBi)	BF Gain	Dir BW	X-Pol	Frequency Band (MHz)
Integrated	RADWIN Ltd	MT0128930	Sector	11.0	-	120	Yes	5250 – 5350 5470 - 5725
external	RADWIN Ltd	RW-9061-5004	Sector	11.0	-	120	Yes	5250 – 5350 5470 - 5725
Integrated	RADWIN Ltd	AM0135060	Sector	12.0	-	95	Yes	5250 – 5350 5470 - 5725
external	RADWIN Ltd	RW-9061-5001	Sector	14.0	-	90	Yes	5250 – 5350 5470 - 5725
external	RADWIN Ltd	RW-9061-5002	Sector	15.5	-	60	Yes	5250 – 5350 5470 - 5725
Integrated	RADWIN Ltd	MT0125250	Sector	13.0	-	90	Yes	5250 – 5350 5470 - 5725
Integrated	RADWIN Ltd	AM0119960	Panel	16.0	-	35	Yes	5250 – 5350 5470 - 5725
Integrated	RADWIN Ltd	AM0111760	Panel (Pt-Pt)	16.5	-	35	Yes	5250 – 5350 5470 - 5725
external	RADWIN Ltd	RW-9612-5001	Panel	23.0	-	8	Yes	5250 – 5350 5470 - 5725
Integrated	RADWIN Ltd	MT0070760	Panel (Pt-Pt)	23.5	-	8	Yes	5250 – 5350 5470 - 5725
external	RADWIN Ltd	RW-9622-5001	Panel (Pt-Pt)	29.0	-	5	Yes	5250 – 5350 5470 - 5725
external	RADWIN Ltd	RW-9721-5158	Parabolic	28.0	-	5.5	Yes	5250 – 5350 5470 - 5725
external	RADWIN Ltd	RW-9732-4958	Parabolic (Pt-Pt)	32.0	-	4	Yes	5250 – 5350 5470 - 5725
external	RADWIN Ltd	RW-9401-5002	OMNI	12.5	-	50	Yes	5250 – 5350 5470 - 5725

BF Gain - Beamforming Gain
Dir BW - Directional BeamWidth
X-Pol - Cross Polarization

5.5. Cabling and I/O Ports

Port Type	Max Cable Length	# Of Ports	Screened	Conn Type	Data Type
Ethernet	100m	1	Y	RJ-45	Packet

6.5. Test Configurations

Results for the following configurations are provided in this report:

Operational Mode(s)	Data Rate with Highest Power	Channel Frequency (MHz)		
		Low	Mid	High
5470 - 5725 MHz				
5 MHz	QAM 64	5500	--	--
10 MHz	QAM 64	5500	--	--
20 MHz	QAM 64	5500	--	--
40 MHz	QAM 256	5500	--	--
80 MHz	QAM 256	5500	--	--

6.6. Equipment Modifications

The following modifications were required to bring the equipment into compliance:

1. NONE

6.7. Deviations from the Test Standard

The following deviations were required to bring the equipment into compliance:

1. NONE

7. TEST SUMMARY

List of Measurements

Test Header	Result	Data Link
(h) Transmit Power Control (TPC) and Dynamic Frequency Selection (DFS)	-	-
(h)(2) Radar Detection Function of Dynamic Frequency Selection (DFS)	-	-
(h)(2)(ii) Channel Availability Check (CAC)	-	-
(a) Initial CAC	Complies	View Data
(b) Beginning CAC	Complies	View Data
(c) End CAC	Complies	View Data
Probability of Detection	Complies	View Data
Detection Bandwidth	Complies	View Data
(h)(2)(iv) Non-Occupancy Period	Complies	View Data
(h)(2)(iii) Channel Close / Transmission Time	Complies	View Data

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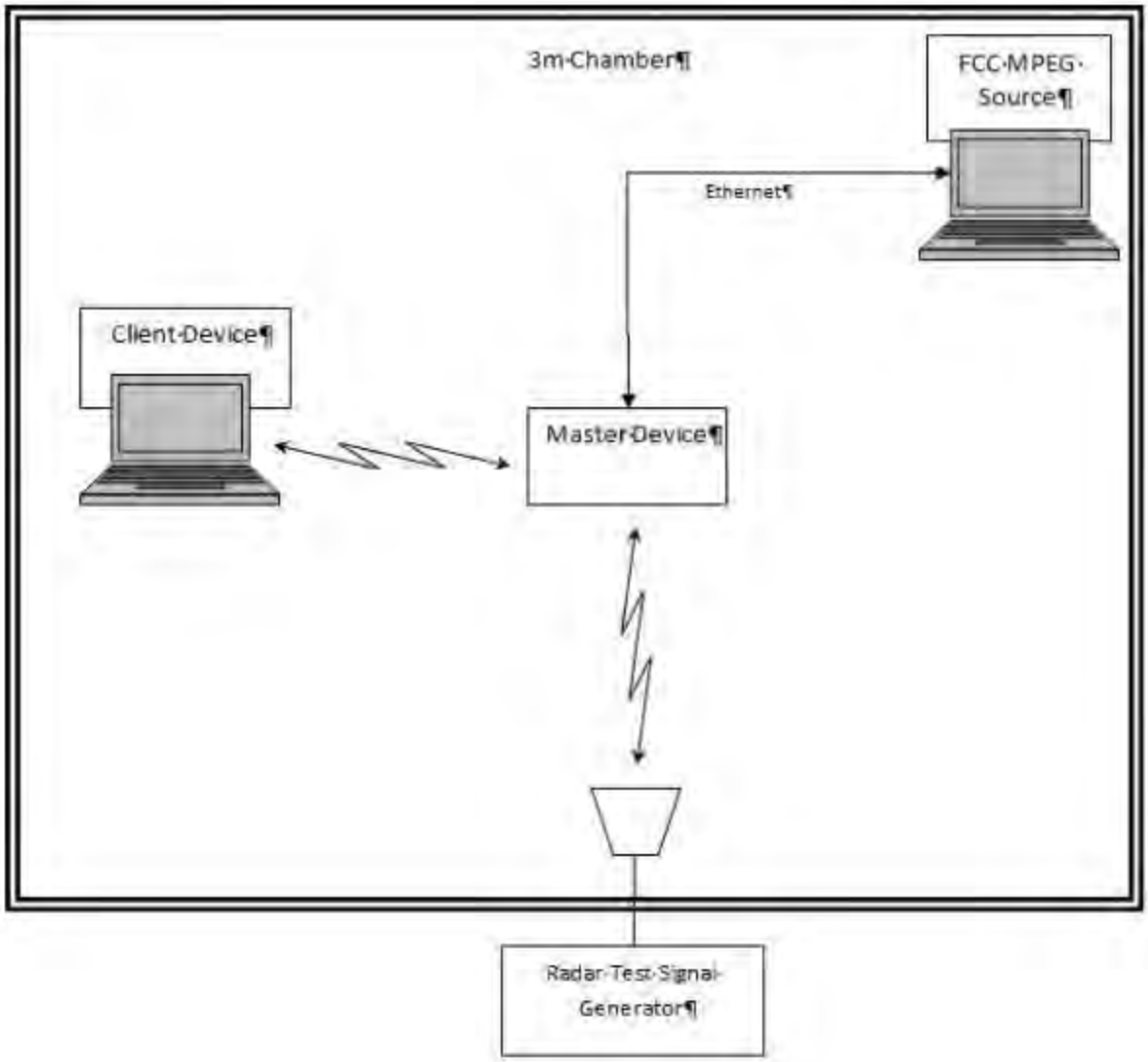
8. TEST EQUIPMENT CONFIGURATION(S)

8.5. Radiated DFS Testing

Setup for Radiated DFS testing in 3 m chamber where the EUT is the Master device communicating with client device over the air. Radar Test Waveforms are injected from the Aeroflex PXI equipment and detected by the Master.



A full system calibration was performed on the test station and any resulting system losses (or gains) were taken into account in the production of all final measurement data.

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
71	Spectrum Analyzer 9 KHz - 50 GHz	HP	8565E	3425A00181	06 Aug 2015
104	Antenna Horn 1-18GHz	Electro-Mechanics	3115	9205-3882	26 Jan 2016
117	Low Power Sensor - 70dBm to -20dBm 50 MHz - 50GHz	HP	8487D	3318A00371	18 Oct 2015
158	Barometer/Thermometer	Control Company	4196	E2846	04 Dec 2015
207	Semi-Anechoic Chamber, Radiated Immunity & DFS testing.	ETS Lingren	ETS/Lingren 25	SL12462	26 Jan 2016
223	Power Meter	HP	EPM-442A	US37480256	18 Oct 2015
299	Test Software DFS Test System	Aeroflex	DFS test Software	V2.4.0	Not Required
359	DFS System	Aeroflex	PXI-1042	300001/004	29 Dec 2015
417	Laptop for DFS with DFS software	Lenova	W520	DFS	Not Required
418	PCI-e interface card	National Instruments	Express 8360	174AAC5	Not Required
444	SMA Cable Assembly	ETS-Lindgren	RFC-NMS-100-SMS-256 IN	001	Cal when used
DFS PCIe#1	PCIe cable for Aeroflex	National Instruments	PCIe cable	None	Not Required

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8.6. DFS - Conducted

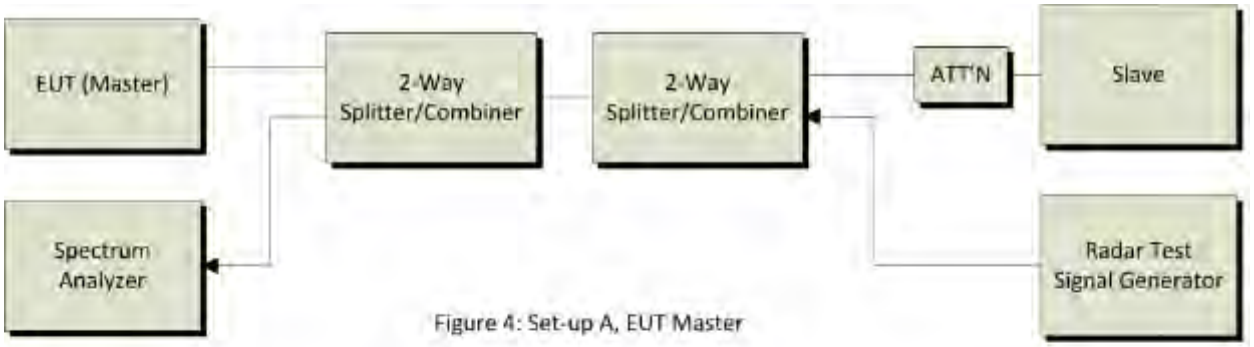

Figure 4: Set-up A, EUT Master

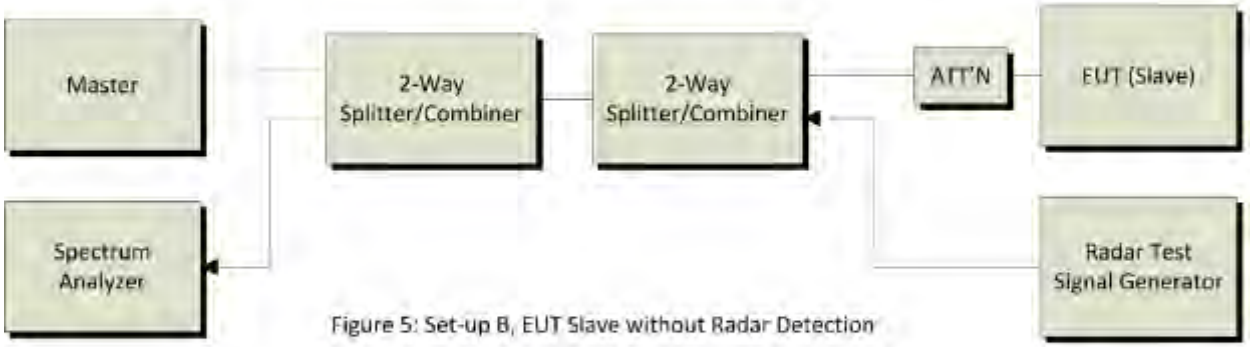

Figure 5: Set-up B, EUT Slave without Radar Detection

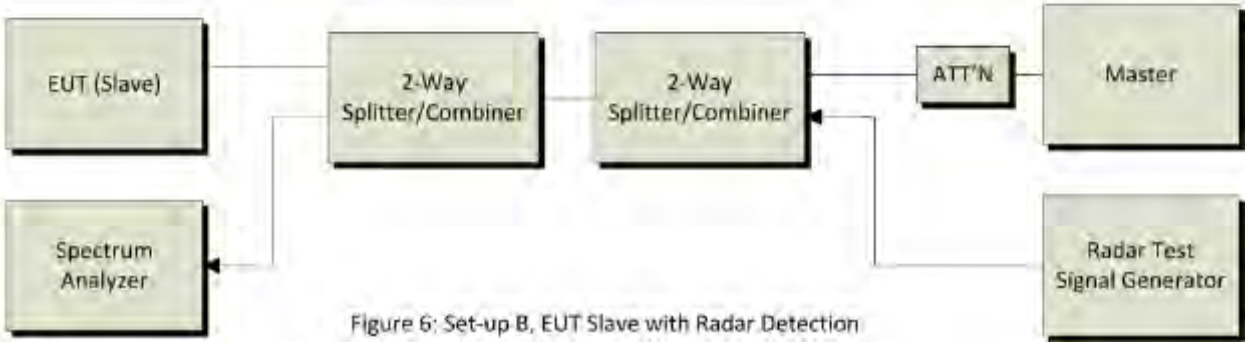

Figure 6: Set-up B, EUT Slave with Radar Detection

A full system calibration was performed on the test station and any resulting system losses (or gains) were taken into account in the production of all final measurement data.

Asset#	Description	Manufacturer	Model#	Serial#	Calibration Due Date
71	Spectrum Analyser 9KHz-50GHz	HP	8565E	3425A00181	06 Aug 2015
158	Barometer/Thermometer	Control Company	4196	E2846	04 Dec 2015
299	Test Software DFS Test System	Aeroflex	DFS test Software	V2.4.0	Not Required
359	DFS System	Aeroflex	PXI-1042	300001/004	29 Dec 2015
417	Laptop for DFS with DFS software	Lenova	W520	DFS	Not Required
418	PCI-e interface card	National Instruments	Express 8360	174AAC5	Not Required
422	Splitter/Combiner	Pasternack	PE 2031	001	Cal when used
DFS PCIe#1	PCIe cable for Aeroflex	National Instruments	PCIe cable	None	Not Required
DFS SMA#1	SMA Cable for DFS	Megaphase	SMA Cable	None	Cal when used
DFS SMA#2	SMA Cable for DFS	Megaphase	SMA Cable	None	Cal when used
DFS SMA#3	SMA Cable for DFS	Megaphase	SMA Cable	None	Cal when used
DFS SMA#4	SMA Cable for DFS	Megaphase	SMA Cable	None	Cal when used

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9. TEST METHODOLOGY

9.5. Dynamic Frequency Selection (DFS) Overview

A U-NII network will employ a DFS function to detect signals from radar systems and to avoid co-channel operation with these systems. This applies to the 5250-5350 MHz and/or 5470-5725 MHz bands. Within the context of the operation of the DFS function, a U-NII device will operate in either Master Mode or Client Mode. U-NII devices operating in Client Mode can only operate in a network controlled by a U-NII device operating in Master Mode. The following tables summarize the requirements.

Requirement	Master Device or Client with Radar Detection	Client without Radar Detection
	Operational Mode	
DFS Detection Threshold	Yes	Not Required
Channel Closing Transmission Time	Yes	Yes
Channel Move Time	Yes	Yes
U-NII Detection Bandwidth	Yes	Not Required

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 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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The operational behavior and individual DFS requirements associated with these modes are as follows:

9.5.1. Master Devices

a) The Master Device will use DFS in order to detect Radar Waveforms with received signal strength above the DFS Detection Threshold in the 5250 − 5350 MHz and 5470 − 5725 MHz bands. DFS is not required in the 5150 − 5250 MHz or 5725 – 5850 MHz bands.

b) Before initiating a network on a Channel, the Master Device will perform a Channel Availability Check for a specified time duration (Channel Availability Check Time) to ensure that there is no radar system operating on the Channel, using DFS described under subsection a) above.

c) The Master Device initiates a U-NII network by transmitting control signals that will enable other U-NII devices to Associate with the Master Device.

d) During normal operation, the Master Device will monitor the Channel (In-Service Monitoring) to ensure that there is no radar system operating on the Channel, using DFS described under a).

e) If the Master Device has detected a Radar Waveform during In-Service Monitoring as described under d), the Operating Channel of the U-NII network is no longer an Available Channel. The Master Device will instruct all associated Client Device(s) to stop transmitting on this Channel within the Channel Move Time. The transmissions during the Channel Move Time will be limited to the Channel Closing Transmission Time.

f) Once the Master Device has detected a Radar Waveform it will not utilize the Channel for the duration of the Non-Occupancy Period.

g) If the Master Device delegates the In-Service Monitoring to a Client Device, then the combination will be tested to the requirements described under d) through f) above.

9.5.2. Client Devices

a) A Client Device will not transmit before having received appropriate control signals from a Master Device.

b) A Client Device will stop all its transmissions whenever instructed by a Master Device to which it is associated and will meet the Channel Move Time and Channel Closing Transmission Time requirements. The Client Device will not resume any transmissions until it has again received control signals from a Master Device.

c) If a Client Device is performing In-Service Monitoring and detects a Radar Waveform above the DFS Detection Threshold, it will inform the Master Device. This is equivalent to the Master Device detecting the Radar Waveform and d) through f) of section 5.1.1 apply.

d) Irrespective of Client Device or Master Device detection the Channel Move Time and Channel Closing Transmission Time requirements remain the same.

e) The client test frequency must be monitored to ensure no transmission of any type has occurred for 30 minutes. Note: If the client moves with the master, the device is considered compliant if nothing appears in the client non-occupancy period test. For devices that shutdown (rather than

moving channels), no beacons should appear.

9.6. DFS Detection Thresholds

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

DFS Detection Thresholds for Master Devices and Client Devices with Radar Detection

Maximum Transmit Power	Value (see Notes 1, 2 and 3)
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power density <10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm

NOTE 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna

NOTE 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.

NOTE 3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.

9.7. Response Requirements

The following table provides the response requirements for Master and Client Devices incorporating DFS.

DFS Response Requirement Values

Parameter	Value
Non-Occupancy Period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds, see NOTE 1
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period, see NOTES 1 and 2
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth, see NOTE 3

NOTE 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

NOTE 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

NOTE 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

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9.8. 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.

9.8.1. Short Radar Pulses

Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (µS)	PRI (µS)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a	$\text{Roundup}\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot 10^6}{PRI_{\mu sec}}\right)\right\}$	60%	30
		Test B: 15 unique PRI values randomly selected in the range 518-3066 µS, with a minimum increment of 1 µS, 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 Radar Pulse Type 0 should be used for the Detection Bandwidth test, Channel Move Time and Channel Closing Time tests					

A minimum of 30 unique waveforms are required for each of the Short Pulse Radar Types 2 through 4. If more than 30 waveforms are used for Short Pulse Radar Types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms. If more than 30 waveforms are used for Short Pulse Radar Type 1, then each additional waveform is generated with Test B and must also be unique and not repeated from the previous waveforms in Tests A or B.

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9.8.2. Long Radar Pulse Test

Long Pulse Radar Test Waveforms

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

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

Each waveform is defined as follows:

1. The transmission period for the Long Pulse Radar test signal is 12 seconds.

2. There are a total of 8 to 20 Bursts in the 12 second period, with the number of Bursts being randomly chosen. This number is Burst Count.

3. Each Burst consists of 1 to 3 pulses, with the number of pulses being randomly chosen. Each Burst within the 12 second sequence may have a different number of pulses.

4. The pulse width is between 50 and 100 microseconds, with the pulse width being randomly chosen. Each pulse within a Burst will have the same pulse width. Pulses in different Bursts may have different pulse widths.

5. Each pulse has a linear FM chirp between 5 and 20 MHz, with the chirp width being randomly chosen. Each pulse within a Burst will have the same chirp width. Pulses in different Bursts may have different chirp widths. The chirp is centered on the pulse. For example, with a radar frequency of 5300 MHz and a 20 MHz chirped signal, the chirp starts at 5290 MHz and ends at 5310 MHz.

6. If more than one pulse is present in a Burst, the time between the pulses will be between 1000 and 2000 microseconds, with the time being randomly chosen. If three pulses are present in a Burst, the time between the first and second pulses is chosen independently of the time between the second and third pulses.

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

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A representative example of a Long Pulse radar test waveform:

1. The total test signal length is 12 seconds.

2. 8 Bursts are randomly generated for the Burst_Count

3. Burst 1 has 2 randomly generated pulses.

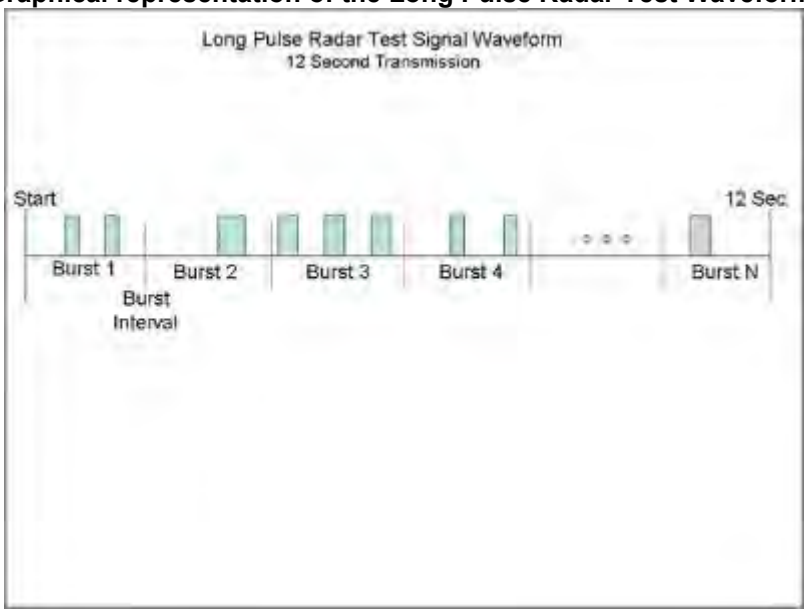
4. The pulse width (for both pulses) is randomly selected to be 75 microseconds.

5. The PRI is randomly selected to be at 1213 microseconds.

6. Bursts 2 through 8 are generated using steps 3 – 5.

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

Graphical representation of the Long Pulse Radar Test Waveform.



9.8.3. Frequency Hopping Radar Test Waveform

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

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

9.9. Radar Waveform Calibration

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

The signal generator amplitude was set so that the power level measured at the spectrum analyzer was equal to the DFS detection threshold +1dB (Ref Section 9.2).

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9.10. Test Program Details

EUT Type: Master with radar detection

Frequency band(s): 5,250 - 5,350 MHz and 5,470 – 5,725 MHz

Uniform Loading: For the above frequency band(s) the manufacturer declared that the device provides an aggregate uniform loading of the spectrum across all devices by selecting an operating channel among the available channels using a random algorithm.

Test Environment: Conducted
Antenna Gain used for Testing: 11 dBi

DFS Receive Signal Strength: -64 dBm + antenna gain +1 = -64 + 11 + 1 = -52 dBm

Radio parameters
Transmit Power: Maximum
Data Rate: QAM64
Duty Cycle: 35%

Number of Antenna Chains: 2

Test Communication Throughput Methodology
The requisite MPEG video file ("TestFile.mpg" available on the NTIA website at the following link http://ntiacsd.ntia.doc.gov/dfs/) is used during this video stream.

EUT Software Version: Prototype

EUT Build number: Prototype

Test Environmental Conditions - Ambient:
Temperature: 17 to 23 °C
Relative humidity: 31 to 57%
Pressure: 999 to 1012 mbar

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10. TEST RESULTS

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

10.5.1. Radar Detection Function of Dynamic Frequency Selection (DFS)

10.5.1.1. Channel Availability Check (CAC)

10.5.1.1.1. Power-On CAC

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

The EUT is instructed to power up at the appropriate center frequency. The spectrum analyzer is set on zero span with a 1 MHz resolution bandwidth and 260 second sweep time to monitor the RF output of the EUT during power up. The analyzer's sweep will be started the same time power is applied to the U-NII device.

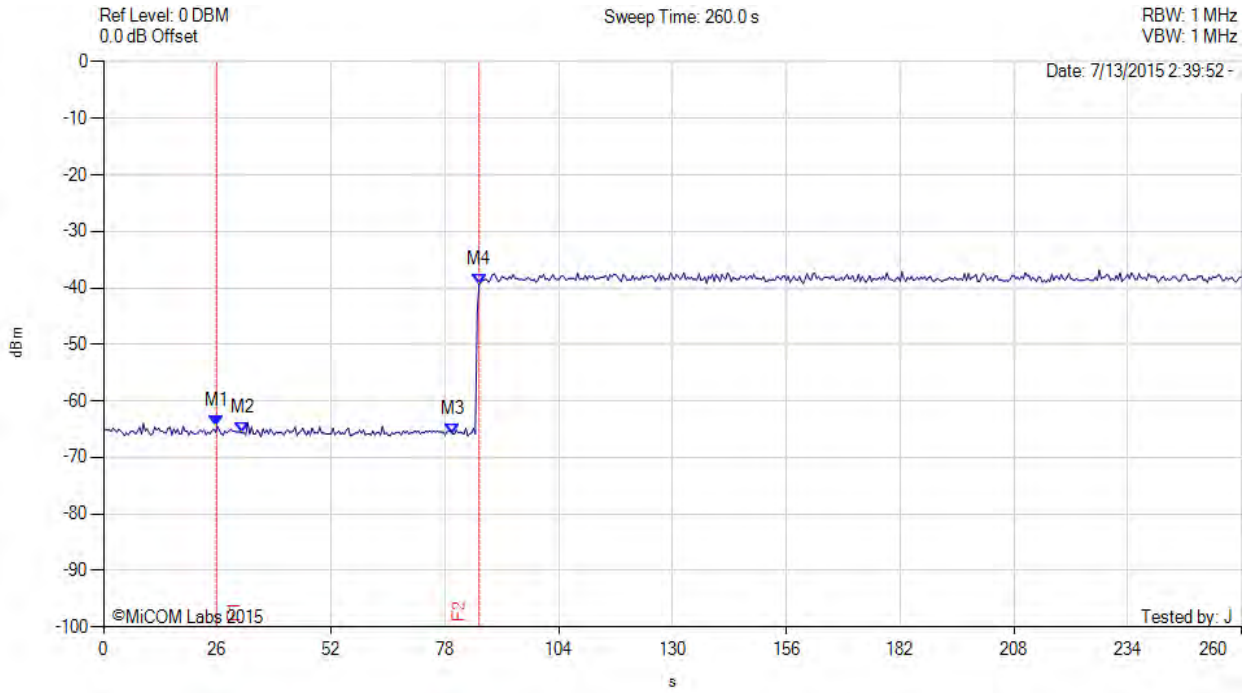
The EUT should not transmit any pulse or data transmissions until at least 1 minute after the completion of the power-on cycle.

The first red vertical line shown on the following plot denotes the instant when the EUT starts its power-up sequence i.e. T0 (as defined within the FCC's KDB 905462 D02 Section 4.1). The power-up reference T0 is determined by the time it takes for the EUT to start "beaconing" i.e. Power-On beacon – 60 secs = end of power-up.

The Channel Availability Check Time commences at instant T0 and will end no sooner than T0 + 60 seconds. T0 + 60 is indicated on the plot by the second vertical line.

POWER-ON CAC

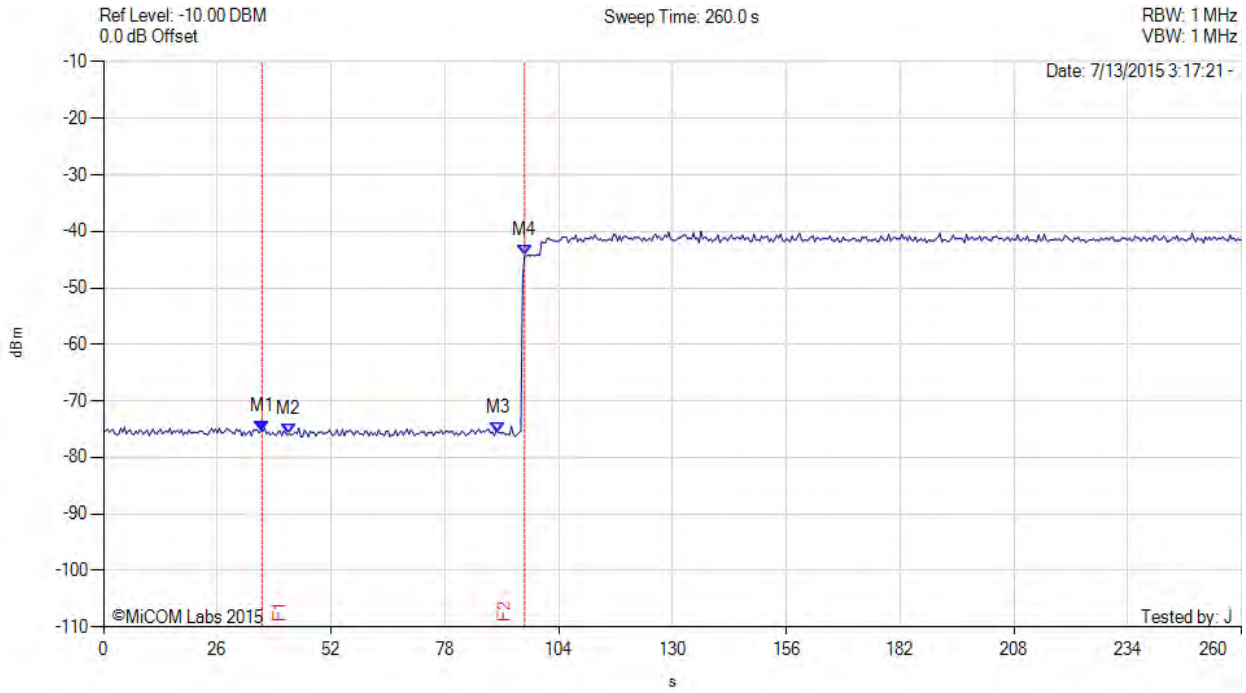
Variant: 5 MHz, Channel: 5500.00 MHz, Data Rate: QAM64, Duty Cycle : 35.00%, Antenna Gain: 11.00 dBi



Analyser Setup	Marker:Time:Amplitude	Test Results
Detector = POS Sweep Count = View RF Atten (dB) = 10 Trace Mode = 0	M1(5500.00 MHz) : 25.800 s : -64.500 dBm M2(5500.00 MHz) : 31.800 s : -65.660 dBm M3(5500.00 MHz) : 79.800 s : -65.830 dBm M4(5500.00 MHz) : 85.800 s : -39.330 dBm	Channel Frequency: 5500.00 MHz

POWER-ON CAC

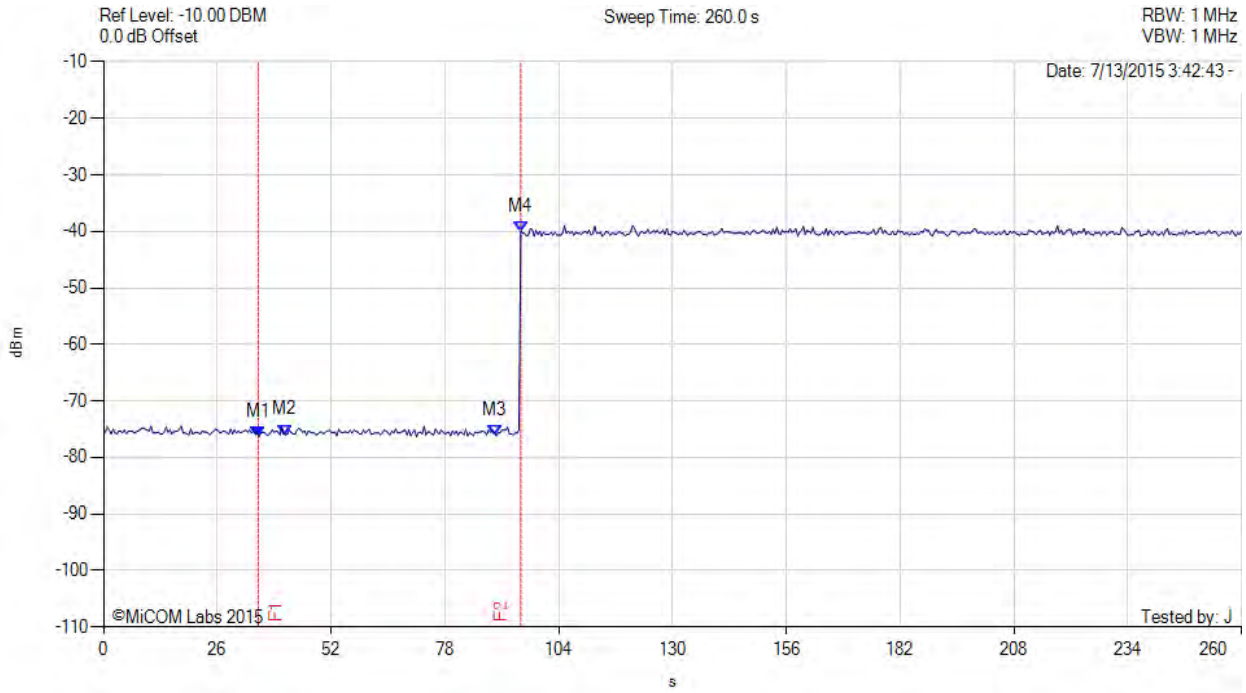
Variant: 10 MHz, Channel: 5500.00 MHz, Data Rate: QAM64, Duty Cycle : 35.00%, Antenna Gain: 11.00 dBi



Analyser Setup	Marker:Time:Amplitude	Test Results
Detector = POS Sweep Count = View RF Atten (dB) = 0 Trace Mode = 0	M1(5500.00 MHz) : 36.200 s : -75.330 dBm M2(5500.00 MHz) : 42.200 s : -75.830 dBm M3(5500.00 MHz) : 90.200 s : -75.660 dBm M4(5500.00 MHz) : 96.200 s : -44.330 dBm	Channel Frequency: 5500.00 MHz

POWER-ON CAC

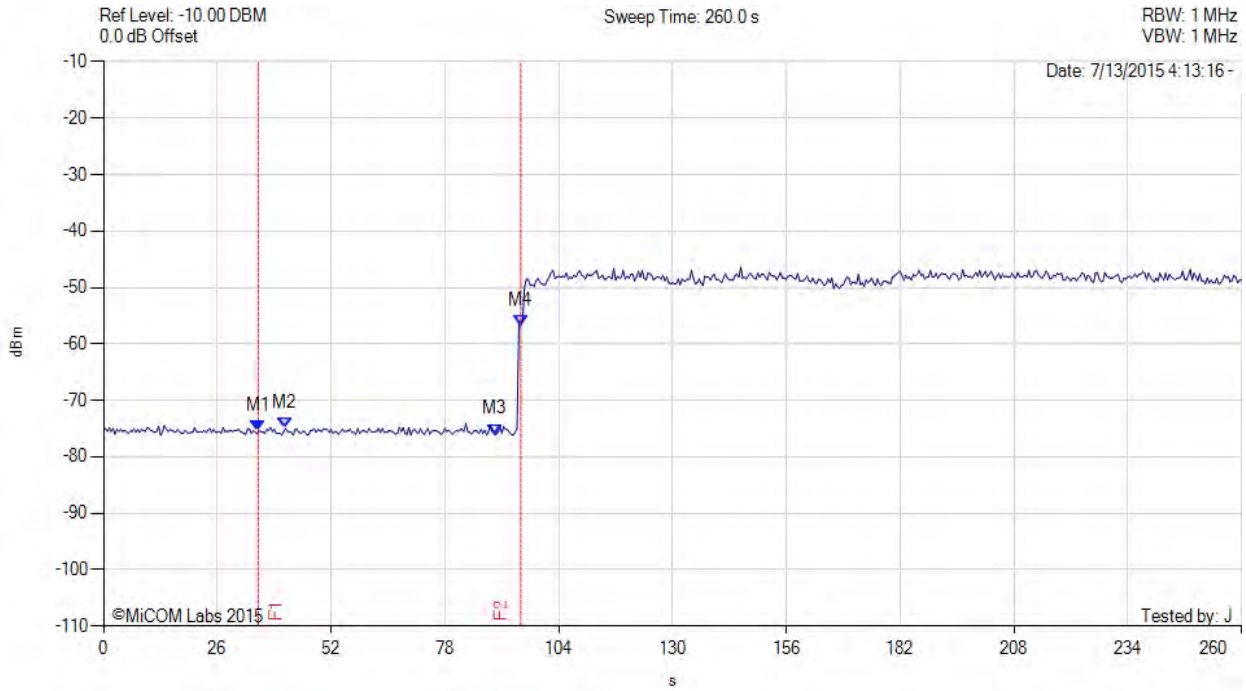
Variant: 20 MHz, Channel: 5500.00 MHz, Data Rate: QAM64, Duty Cycle : 35.00%, Antenna Gain: 11.00 dBi



Analyser Setup	Marker:Time:Amplitude	Test Results
Detector = POS Sweep Count = View RF Atten (dB) = 0 Trace Mode = 0	M1(5500.00 MHz) : 35.330 s : -76.330 dBm M2(5500.00 MHz) : 41.330 s : -76.000 dBm M3(5500.00 MHz) : 89.330 s : -76.160 dBm M4(5500.00 MHz) : 95.330 s : -40.000 dBm	Channel Frequency: 5500.00 MHz

POWER-ON CAC

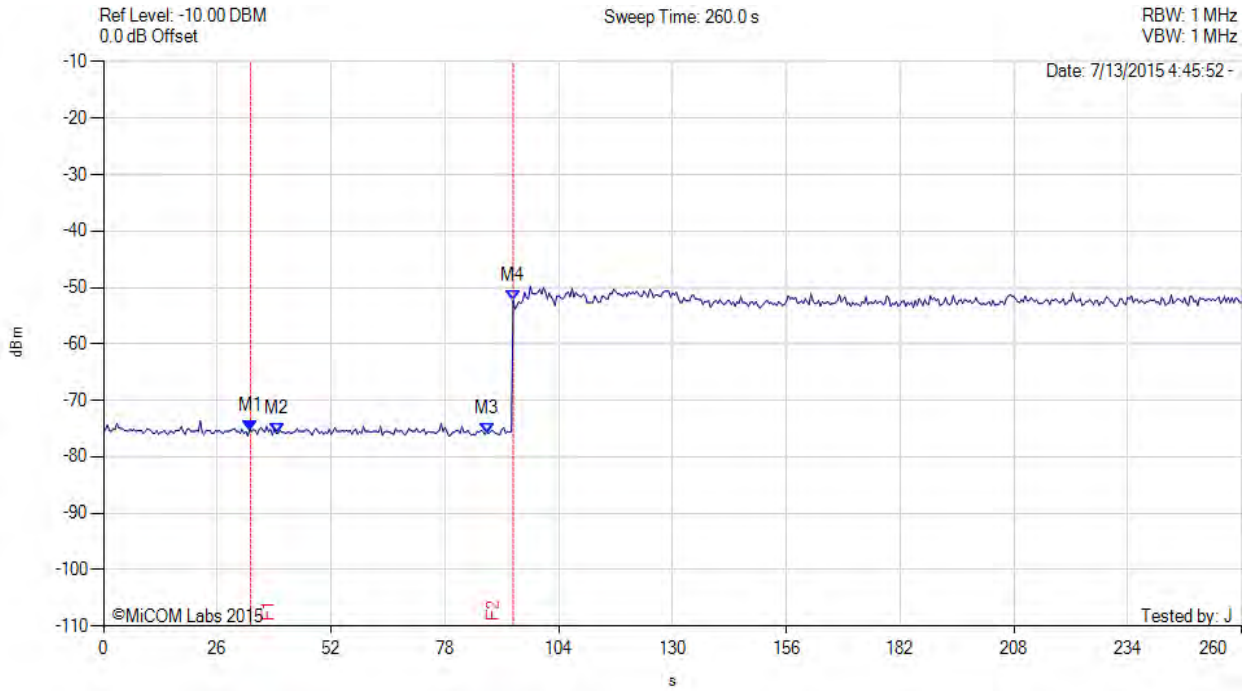
Variant: 40 MHz, Channel: 5500.00 MHz, Data Rate: QAM 256, Duty Cycle : 35.00%, Antenna Gain: 11.00 dBi



Analyser Setup	Marker:Time:Amplitude	Test Results
Detector = POS Sweep Count = View RF Atten (dB) = 0 Trace Mode = 0	M1(5500.00 MHz) : 35.330 s : -75.500 dBm M2(5500.00 MHz) : 41.330 s : -75.000 dBm M3(5500.00 MHz) : 89.330 s : -76.000 dBm M4(5500.00 MHz) : 95.330 s : -56.830 dBm	Channel Frequency: 5500.00 MHz

POWER-ON CAC

Variant: 80 MHz, Channel: 5500.00 MHz, Data Rate: QAM 256, Duty Cycle : 35.00%, Antenna Gain: 11.00 dBi



Analyser Setup	Marker:Time:Amplitude	Test Results
Detector = POS Sweep Count = View RF Atten (dB) = 0 Trace Mode = 0	M1(5500.00 MHz) : 33.600 s : -75.500 dBm M2(5500.00 MHz) : 39.600 s : -75.830 dBm M3(5500.00 MHz) : 87.600 s : -75.830 dBm M4(5500.00 MHz) : 93.600 s : -52.330 dBm	Channel Frequency: 5500.00 MHz

10.5.1.1.2. Beginning CAC

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 +1dB (Ref Section 9.2) occurs at the beginning of the Channel Availability Check Time.

A single Burst of short pulse of radar Type 1 will commence within a 6 second window starting at T0 (first red vertical marker line on the plot).

Visual indication on the EUT of successful detection of the radar Burst is recorded and reported. Observation of emissions at the appropriate center frequency will continue for 2.5 minutes after the radar burst has been generated.

T0 + 60 is indicated on the plot by the second vertical line.

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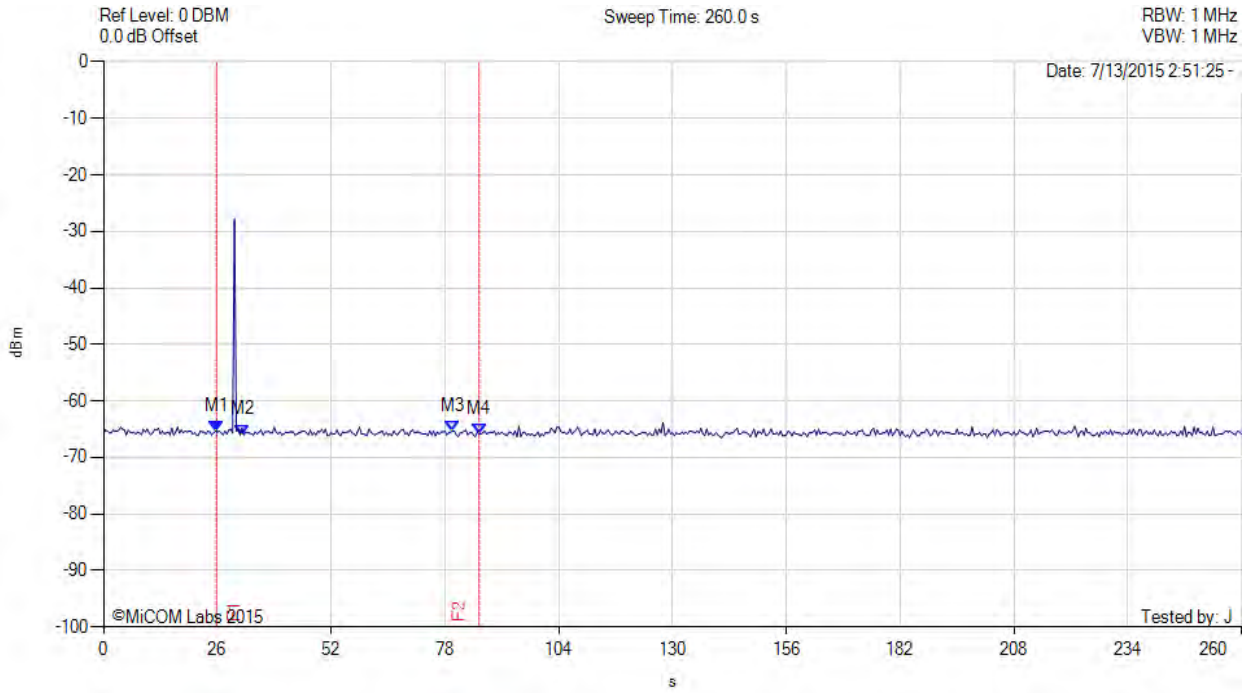
BEGINNING CAC

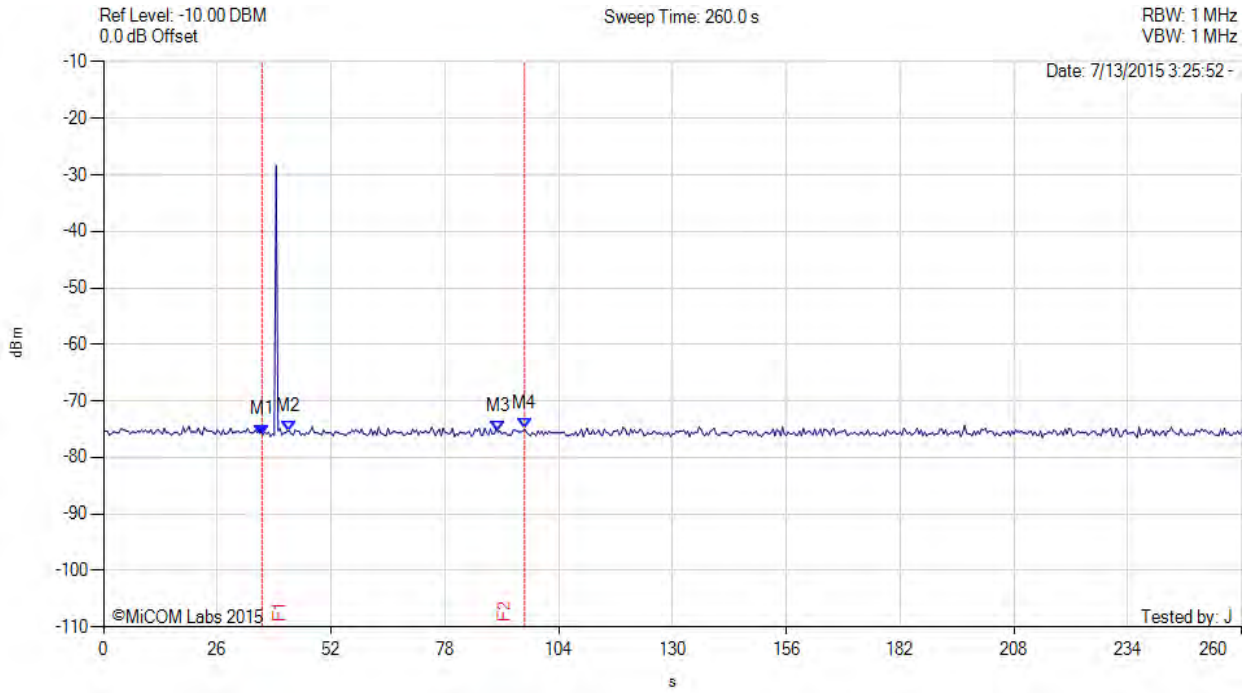
Variant: 5 MHz, Channel: 5500.00 MHz, Data Rate: QAM64, Duty Cycle : 35.00%, Antenna Gain: 11.00 dBi



Analyser Setup	Marker:Time:Amplitude	Test Results
Detector = POS Sweep Count = View RF Atten (dB) = 10 Trace Mode = 0	M1(5500.00 MHz) : 25.800 s : -65.500 dBm M2(5500.00 MHz) : 31.800 s : -66.000 dBm M3(5500.00 MHz) : 79.800 s : -65.330 dBm M4(5500.00 MHz) : 85.800 s : -65.830 dBm	Channel Frequency: 5500.00 MHz

BEGINNING CAC

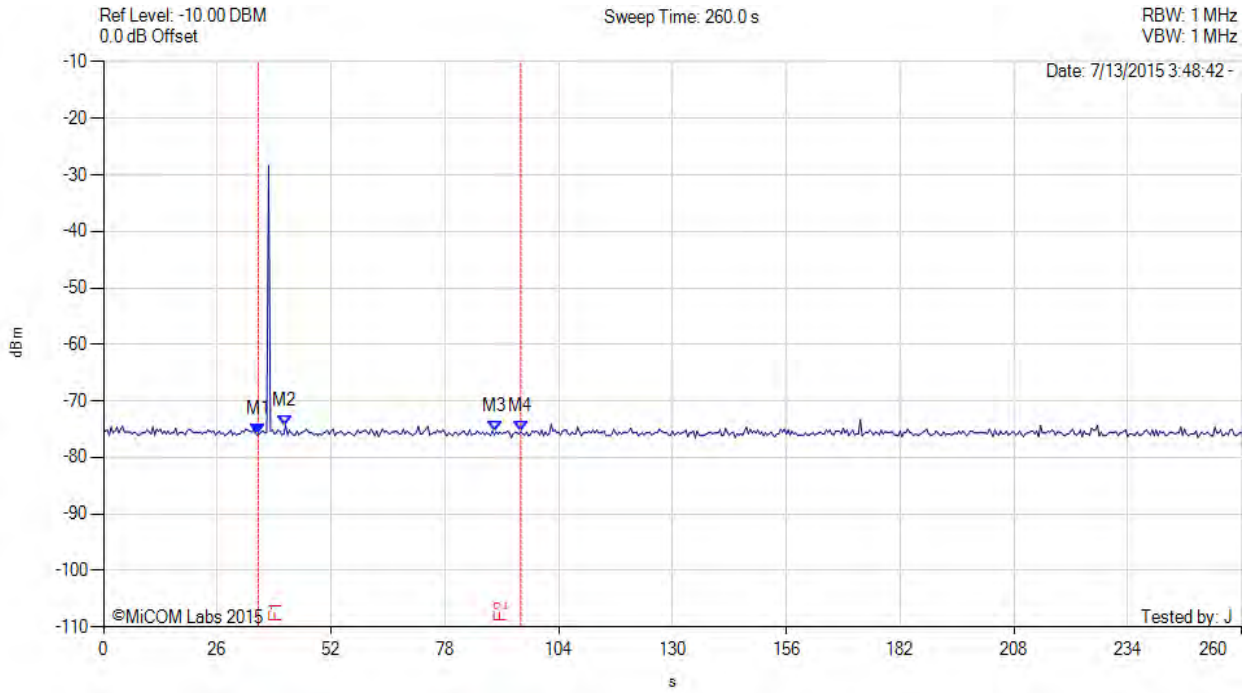
Variant: 10 MHz, Channel: 5500.00 MHz, Data Rate: QAM64, Duty Cycle : 35.00%, Antenna Gain: 11.00 dBi



Analyser Setup	Marker:Time:Amplitude	Test Results
Detector = POS Sweep Count = View RF Atten (dB) = 0 Trace Mode = 0	M1(5500.00 MHz) : 36.200 s : -76.000 dBm M2(5500.00 MHz) : 42.200 s : -75.330 dBm M3(5500.00 MHz) : 90.200 s : -75.330 dBm M4(5500.00 MHz) : 96.200 s : -75.000 dBm	Channel Frequency: 5500.00 MHz

BEGINNING CAC

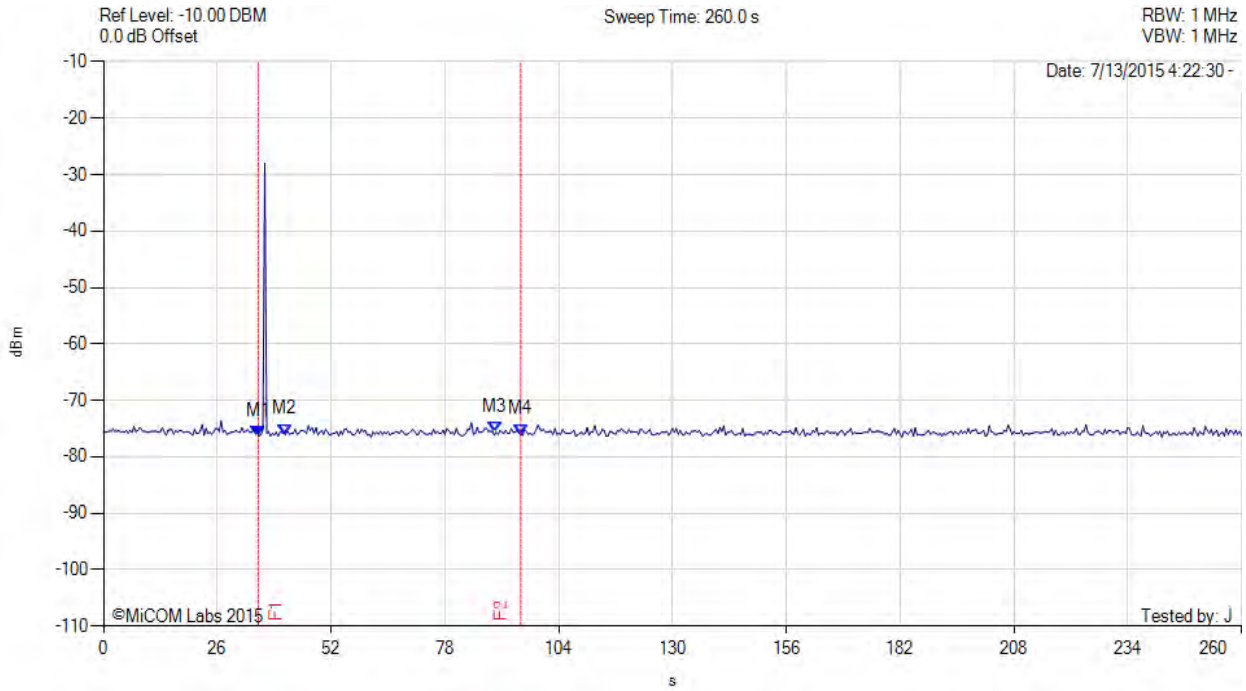
Variant: 20 MHz, Channel: 5500.00 MHz, Data Rate: QAM64, Duty Cycle : 35.00%, Antenna Gain: 11.00 dB



Analyser Setup	Marker:Time:Amplitude	Test Results
Detector = POS Sweep Count = View RF Atten (dB) = 0 Trace Mode = 0	M1(5500.00 MHz) : 35.330 s : -75.830 dBm M2(5500.00 MHz) : 41.330 s : -74.330 dBm M3(5500.00 MHz) : 89.330 s : -75.500 dBm M4(5500.00 MHz) : 95.330 s : -75.500 dBm	Channel Frequency: 5500.00 MHz

BEGINNING CAC

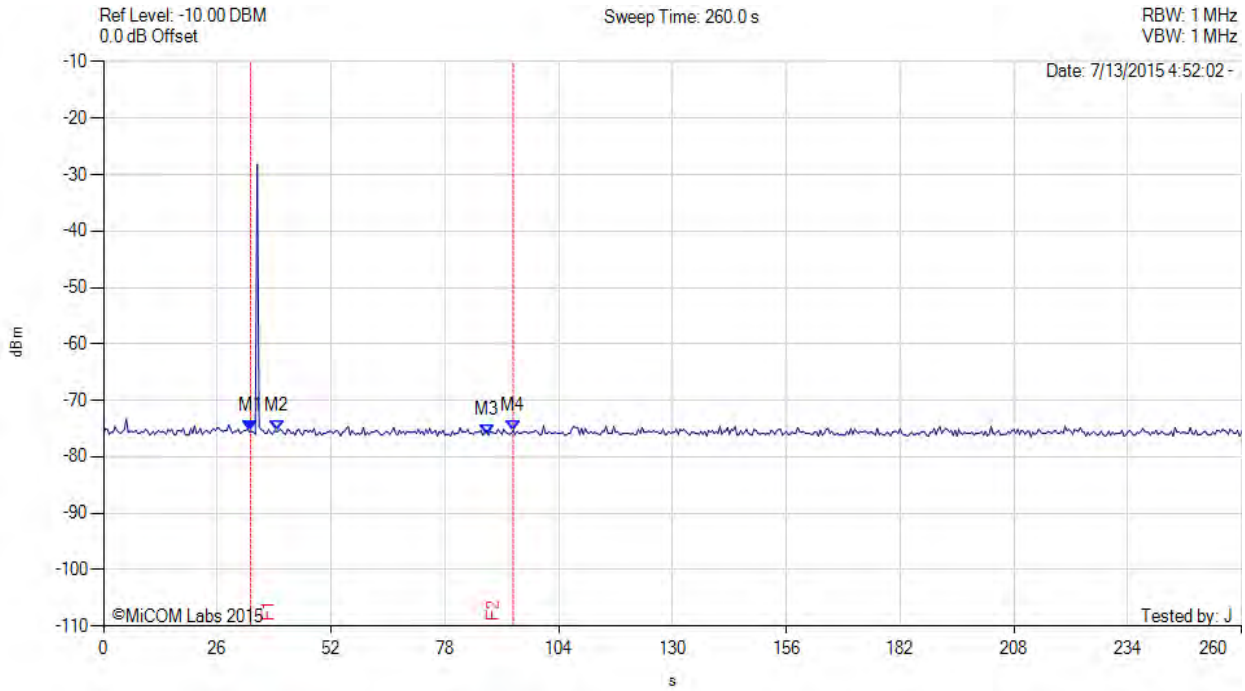
Variant: 40 MHz, Channel: 5500.00 MHz, Data Rate: QAM 256, Duty Cycle : 35.00%, Antenna Gain: 11.00 dB



Analyser Setup	Marker:Time:Amplitude	Test Results
Detector = POS Sweep Count = View RF Atten (dB) = 0 Trace Mode = 0	M1(5500.00 MHz) : 35.330 s : -76.330 dBm M2(5500.00 MHz) : 41.330 s : -76.000 dBm M3(5500.00 MHz) : 89.330 s : -75.660 dBm M4(5500.00 MHz) : 95.330 s : -76.000 dBm	Channel Frequency: 5500.00 MHz

BEGINNING CAC

Variant: 80 MHz, Channel: 5500.00 MHz, Data Rate: QAM 256, Duty Cycle : 35.00%, Antenna Gain: 11.00 dB



Analyser Setup	Marker:Time:Amplitude	Test Results
Detector = POS Sweep Count = View RF Atten (dB) = 0 Trace Mode = 0	M1(5500.00 MHz) : 33.600 s : -75.500 dBm M2(5500.00 MHz) : 39.600 s : -75.500 dBm M3(5500.00 MHz) : 87.600 s : -76.160 dBm M4(5500.00 MHz) : 93.600 s : -75.330 dBm	Channel Frequency: 5500.00 MHz

10.5.1.1.3. End CAC

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 occurs at the end of the Channel Availability Check Time.

A single Burst of short pulse of radar Type 1 will commence within a 6 second window starting at T0 + 54 seconds. The window will commence at marker 3 and end at the red time line T2 (T0 + 60 secs)

Visual indication on the EUT of successful detection of the radar Burst is recorded and reported. Observation of emissions at the appropriate center frequency will continue for 2.5 minutes after the radar burst has been generated.

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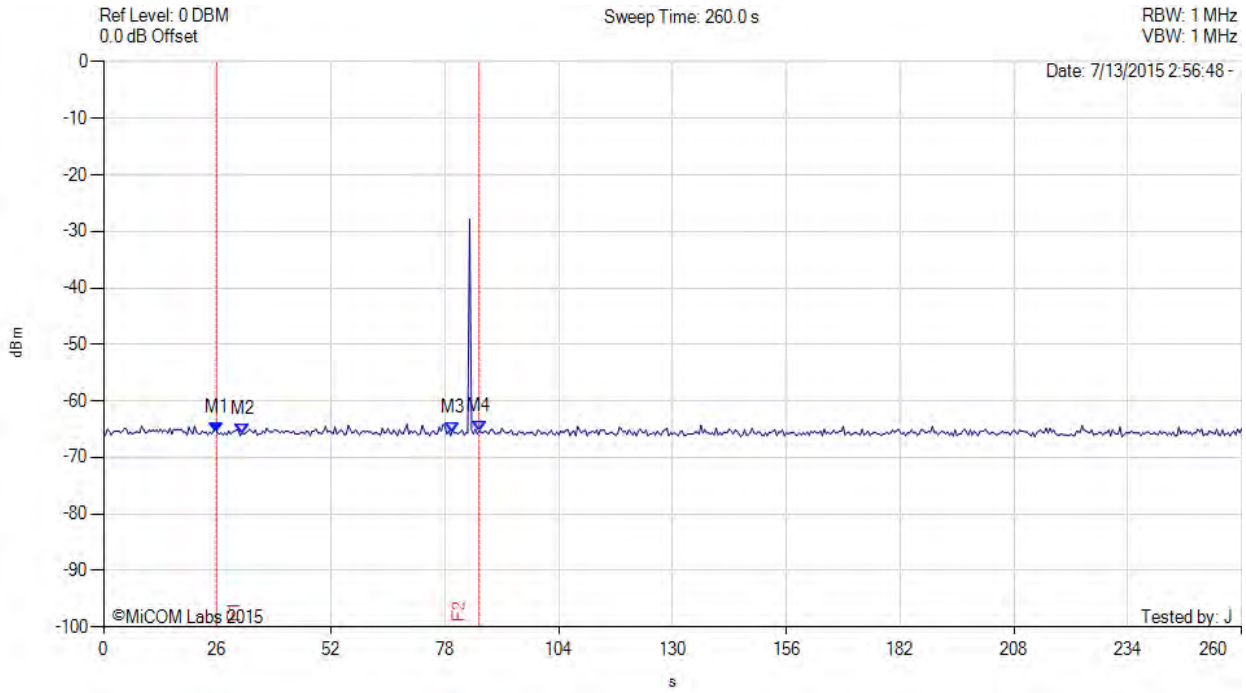
END CAC

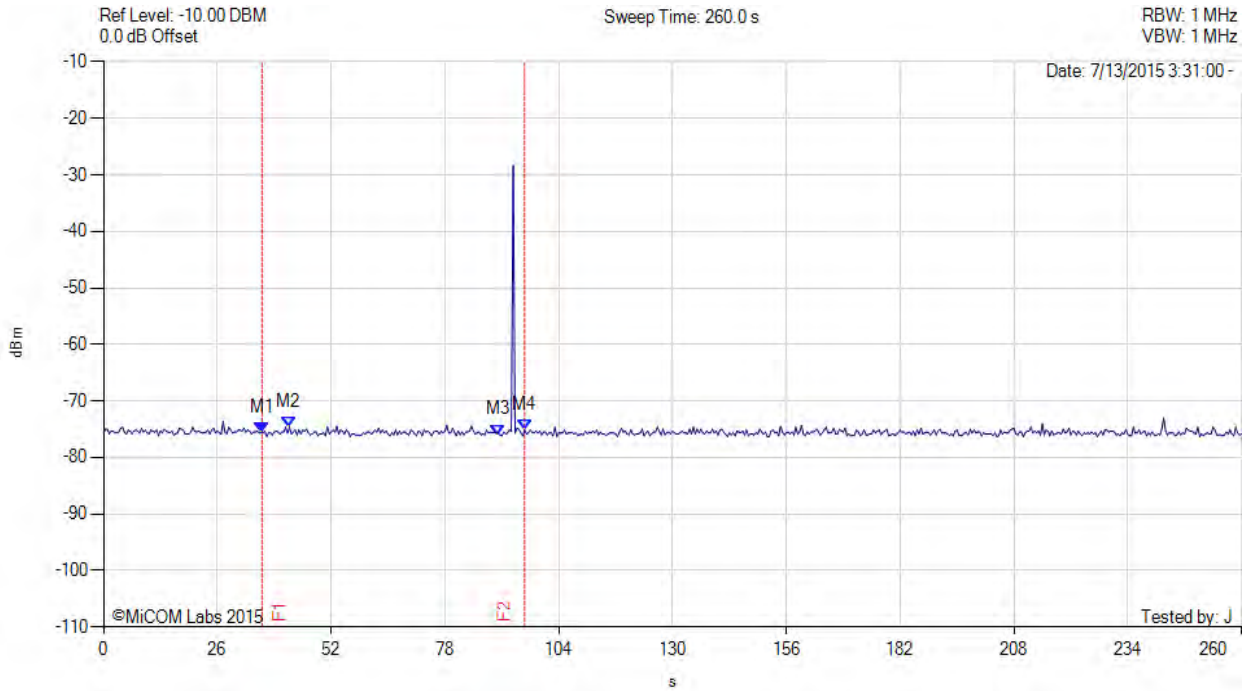
Variant: 5 MHz, Channel: 5500.00 MHz, Data Rate: QAM64, Duty Cycle : 35.00%, Antenna Gain: 11.00 dBi



Analyser Setup	Marker:Time:Amplitude	Test Results
Detector = POS Sweep Count = View RF Atten (dB) = 10 Trace Mode = 0	M1(5500.00 MHz) : 25.800 s : -65.660 dBm M2(5500.00 MHz) : 31.800 s : -65.830 dBm M3(5500.00 MHz) : 79.800 s : -65.660 dBm M4(5500.00 MHz) : 85.800 s : -65.330 dBm	Channel Frequency: 5500.00 MHz

END CAC

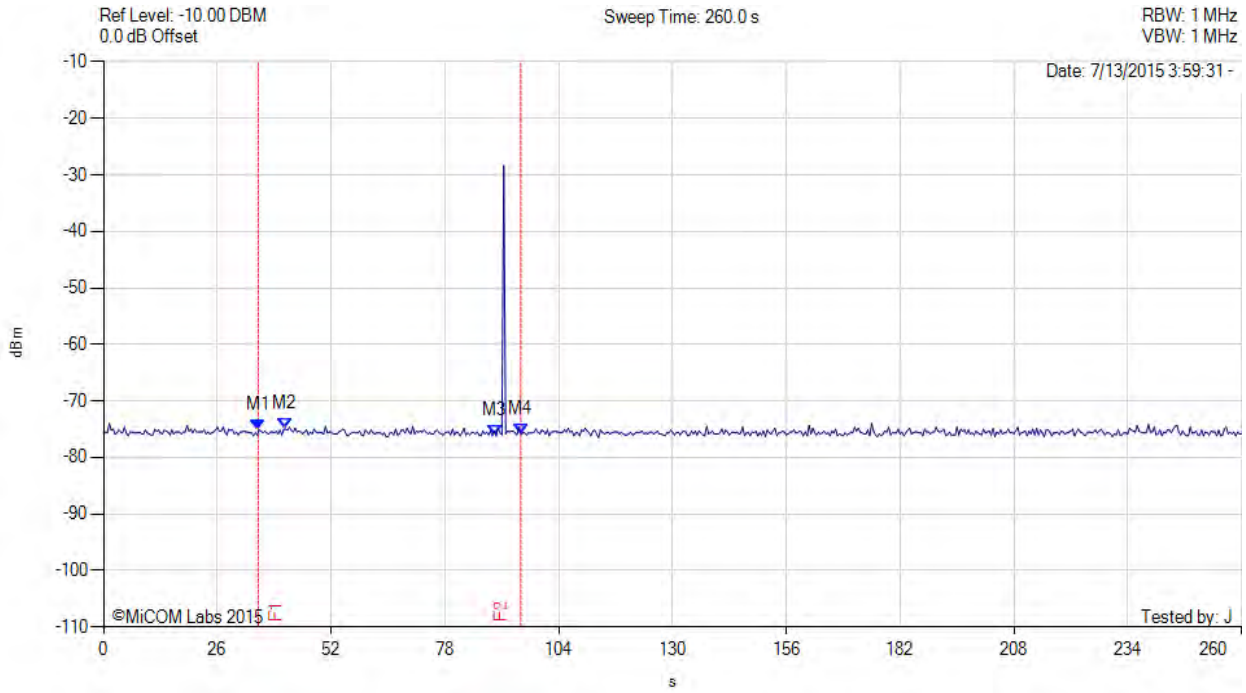
Variant: 10 MHz, Channel: 5500.00 MHz, Data Rate: QAM64, Duty Cycle : 35.00%, Antenna Gain: 11.00 dBi



Analyser Setup	Marker:Time:Amplitude	Test Results
Detector = POS Sweep Count = View RF Atten (dB) = 0 Trace Mode = 0	M1(5500.00 MHz) : 36.200 s : -75.660 dBm M2(5500.00 MHz) : 42.200 s : -74.660 dBm M3(5500.00 MHz) : 90.200 s : -76.000 dBm M4(5500.00 MHz) : 96.200 s : -75.160 dBm	Channel Frequency: 5500.00 MHz

END CAC

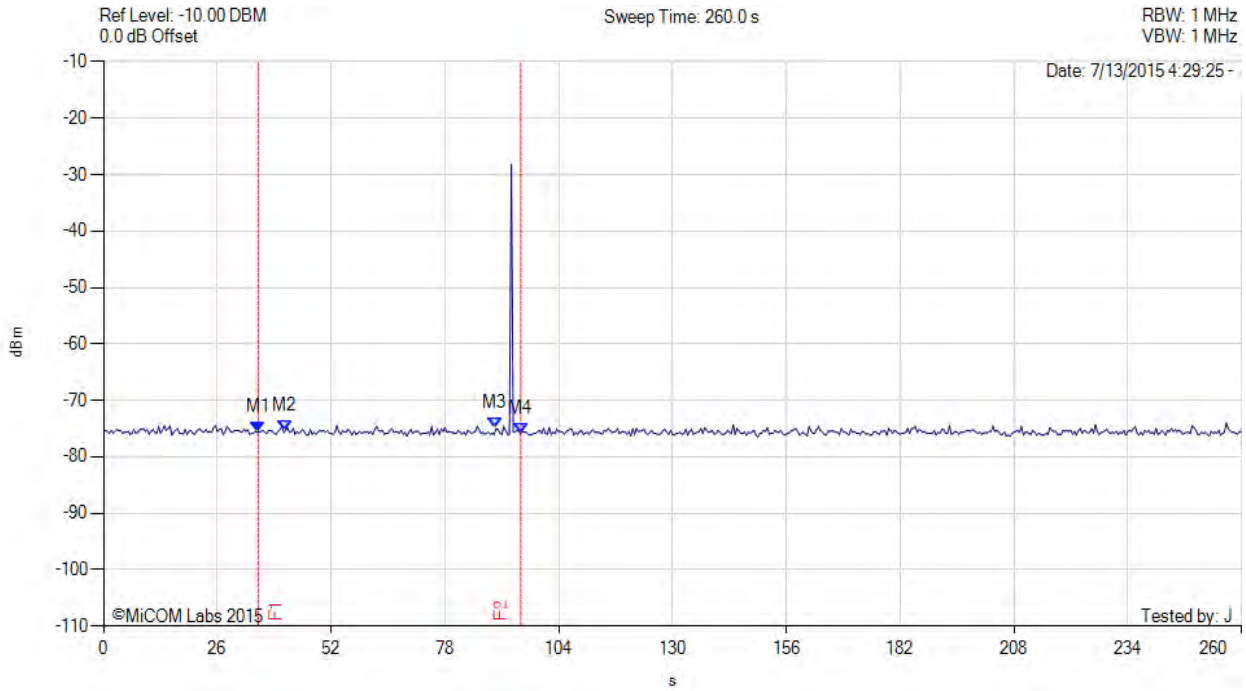
Variant: 20 MHz, Channel: 5500.00 MHz, Data Rate: QAM64, Duty Cycle : 35.00%, Antenna Gain: 11.00 dB



Analyser Setup	Marker:Time:Amplitude	Test Results
Detector = POS Sweep Count = View RF Atten (dB) = 0 Trace Mode = 0	M1(5500.00 MHz) : 35.330 s : -75.160 dBm M2(5500.00 MHz) : 41.330 s : -75.000 dBm M3(5500.00 MHz) : 89.330 s : -76.160 dBm M4(5500.00 MHz) : 95.330 s : -75.830 dBm	Channel Frequency: 5500.00 MHz

END CAC

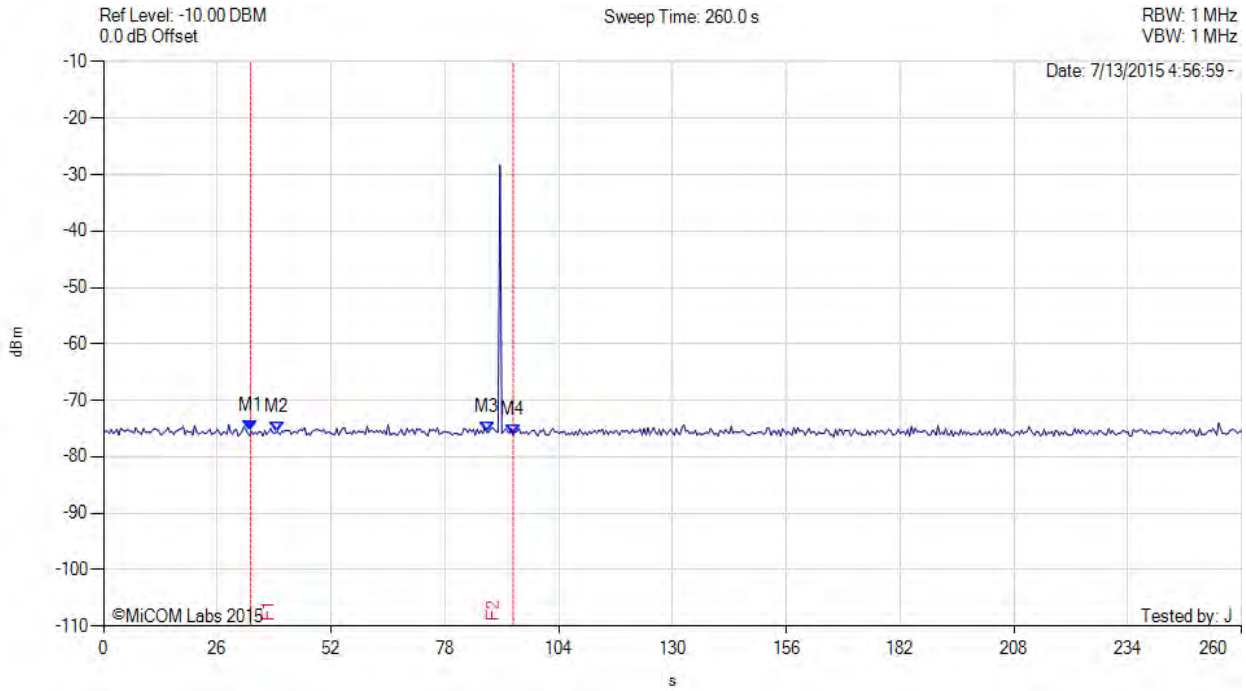
Variant: 40 MHz, Channel: 5500.00 MHz, Data Rate: QAM 256, Duty Cycle : 35.00%, Antenna Gain: 11.00 dB



Analyser Setup	Marker:Time:Amplitude	Test Results
Detector = POS Sweep Count = View RF Atten (dB) = 0 Trace Mode = 0	M1(5500.00 MHz) : 35.330 s : -75.660 dBm M2(5500.00 MHz) : 41.330 s : -75.330 dBm M3(5500.00 MHz) : 89.330 s : -75.000 dBm M4(5500.00 MHz) : 95.330 s : -75.830 dBm	Channel Frequency: 5500.00 MHz

END CAC

Variant: 80 MHz, Channel: 5500.00 MHz, Data Rate: QAM 256, Duty Cycle : 35.00%, Antenna Gain: 11.00 dB



Analyser Setup	Marker:Time:Amplitude	Test Results
Detector = POS Sweep Count = View RF Atten (dB) = 0 Trace Mode = 0	M1(5500.00 MHz) : 33.600 s : -75.500 dBm M2(5500.00 MHz) : 39.600 s : -75.660 dBm M3(5500.00 MHz) : 87.600 s : -75.660 dBm M4(5500.00 MHz) : 93.600 s : -76.160 dBm	Channel Frequency: 5500.00 MHz

10.5.1.2. Probability of Detection

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 is generated on the Operating Channel of the U-NII device.

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

Total # of detections ÷ Total # of Trials × 100 = Probability of Detection

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

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

Example - Calculation of Aggregate Percentage

Radar Type	Number of Trials	Number of Successful Detections	Minimum Percentage of Successful Detections
1	35	29	82.9%
2	30	18	60.0%
3	30	27	90.0%
4	30	44	88.0%
Aggregate (82.9% + 60.0% + 90.0% +88.0%) / 4 = 80.2%			

OFDM 5 MHz 5500 MHz

Statistical Performance Check					
Radar Type	**Number of Trials**	**Number of Successful Detections**	**Minimum Percentage of Successful Detections**	**Result**	**Data Link**
Radar Type 0	30	30	100%	Complies	View Data
Radar Type 1 through 4					
Radar Type 1	30	30	100.00%	Complies	View Data
Radar Type 2	30	30	100.00%	Complies	View Data
Radar Type 3	30	28	93.33%	Complies	View Data
Radar Type 4	30	28	93.33%	Complies	View Data
Aggregate (100% + 100.00% + 93.33% + 93.33%) / 4 = 96.6%				Complies	--
Radar Type 5				--	View Data
Radar Type 6				--	View Data

OFDM 10 MHz 5500 MHz

Statistical Performance Check					
Radar Type	**Number of Trials**	**Number of Successful Detections**	**Minimum Percentage of Successful Detections**	**Result**	**Data Link**
Radar Type 0	30	30	100%	Complies	View Data
Radar Type 1 through 4					
Radar Type 1	30	30	100.00%	Complies	View Data
Radar Type 2	30	30	100.00%	Complies	View Data
Radar Type 3	30	30	100.00%	Complies	View Data
Radar Type 4	30	30	100.00%	Complies	View Data
Aggregate (100.00% + 100.00% + 100.00% + 100.00%) / 4 = 100%				Complies	--
Radar Type 5				Complies	View Data
Radar Type 6				Complies	View Data

OFDM 20 MHz 5500 MHz

Statistical Performance Check					
Radar Type	**Number of Trials**	**Number of Successful Detections**	**Minimum Percentage of Successful Detections**	**Result**	**Data Link**
Radar Type 0	30	30	100%	Complies	View Data
Radar Type 1 through 4					
Radar Type 1	30	30	100.00%	Complies	View Data
Radar Type 2	30	30	100.00%	Complies	View Data
Radar Type 3	30	30	100.00%	Complies	View Data
Radar Type 4	30	30	100.00%	Complies	View Data
Aggregate (100.00% + 100.00% + 100.00% + 100.00) / 4 = 100%				Complies	--
Radar Type 5				--	View Data
Radar Type 6				--	View Data

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OFDM 40 MHz 5500 MHz

Statistical Performance Check					
Radar Type	**Number of Trials**	**Number of Successful Detections**	**Minimum Percentage of Successful Detections**	**Result**	**Data Link**
Radar Type 0	30	30	100%	Complies	View Data
Radar Type 1 through 4					
Radar Type 1	30	30	100.00%	Complies	View Data
Radar Type 2	30	30	100.00%	Complies	View Data
Radar Type 3	30	30	100.00%	Complies	View Data
Radar Type 4	30	30	100.00%	Complies	View Data
Aggregate (100.00% + 100.00% + 100.00% + 100.00) / 4 = 100%				Complies	--
Radar Type 5				--	View Data
Radar Type 6				--	View Data

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OFDM 80 MHz 5500 MHz

Statistical Performance Check					
Radar Type	**Number of Trials**	**Number of Successful Detections**	**Minimum Percentage of Successful Detections**	**Result**	**Data Link**
Radar Type 0	30	30	100%	Complies	View Data
Radar Type 1 through 4					
Radar Type 1	30	30	100.00%	Complies	View Data
Radar Type 2	30	30	100.00%	Complies	View Data
Radar Type 3	30	30	100.00%	Complies	View Data
Radar Type 4	30	30	100.00%	Complies	View Data
Aggregate (100.00% + 100.00% + 100.00% + 100.00) / 4 = 100%				Complies	--
Radar Type 5				--	View Data
Radar Type 6				--	View Data

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Equipment Configuration for Radar Type 0

Variant:	5 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
1	700	1427	18	30	30	100.00%	See Agg.
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 0

Variant:	10 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
1	700	1427	18	30	30	100.00%	See Agg.
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 0

Variant:	20 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
1	700	1427	18	30	30	100.00%	See Agg.
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 0

Variant:	40 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 256	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
1	700	1427	18	30	30	100.00%	See Agg.
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 0

Variant:	80 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 256	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
1	700	1427	18	30	30	100.00%	See Agg.
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 1

Variant:	5 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
1	1355	737	72	1	1	100.00%	DETECTED
1	1433	697	76	1	1	100.00%	DETECTED
1	1393	717	74	1	1	100.00%	DETECTED
1	1139	877	61	1	1	100.00%	DETECTED
1	1792	557	95	1	1	100.00%	DETECTED
1	1319	757	70	1	1	100.00%	DETECTED
1	1253	797	67	1	1	100.00%	DETECTED
1	1089	917	58	1	1	100.00%	DETECTED
1	1618	617	86	1	1	100.00%	DETECTED
1	1166	857	62	1	1	100.00%	DETECTED
1	1672	597	89	1	1	100.00%	DETECTED
1	1730	577	92	1	1	100.00%	DETECTED
1	1222	817	65	1	1	100.00%	DETECTED
1	1520	657	81	1	1	100.00%	DETECTED
1	1066	937	57	1	1	100.00%	DETECTED
1	1133	882	60	1	1	100.00%	DETECTED
1	339	2949	18	1	1	100.00%	DETECTED
1	919	1087	49	1	1	100.00%	DETECTED
1	1107	902	59	1	1	100.00%	DETECTED
1	1017	982	54	1	1	100.00%	DETECTED
1	1736	575	92	1	1	100.00%	DETECTED
1	745	1342	40	1	1	100.00%	DETECTED
1	359	2785	19	1	1	100.00%	DETECTED
1	333	3001	18	1	1	100.00%	DETECTED
1	468	2138	25	1	1	100.00%	DETECTED
1	393	2545	21	1	1	100.00%	DETECTED
1	966	1034	51	1	1	100.00%	DETECTED
1	611	1636	33	1	1	100.00%	DETECTED
1	446	2240	24	1	1	100.00%	DETECTED
1	922	1084	49	1	1	100.00%	DETECTED
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 1

Variant:	10 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
1	1355	737	72	1	1	100.00%	DETECTED
1	1433	697	76	1	1	100.00%	DETECTED
1	1393	717	74	1	1	100.00%	DETECTED
1	1139	877	61	1	1	100.00%	DETECTED
1	1792	557	95	1	1	100.00%	DETECTED
1	1319	757	70	1	1	100.00%	DETECTED
1	1253	797	67	1	1	100.00%	DETECTED
1	1089	917	58	1	1	100.00%	DETECTED
1	1618	617	86	1	1	100.00%	DETECTED
1	1166	857	62	1	1	100.00%	DETECTED
1	1672	597	89	1	1	100.00%	DETECTED
1	1730	577	92	1	1	100.00%	DETECTED
1	1222	817	65	1	1	100.00%	DETECTED
1	1520	657	81	1	1	100.00%	DETECTED
1	1066	937	57	1	1	100.00%	DETECTED
1	1133	882	60	1	1	100.00%	DETECTED
1	339	2949	18	1	1	100.00%	DETECTED
1	919	1087	49	1	1	100.00%	DETECTED
1	1107	902	59	1	1	100.00%	DETECTED
1	1017	982	54	1	1	100.00%	DETECTED
1	1736	575	92	1	1	100.00%	DETECTED
1	745	1342	40	1	1	100.00%	DETECTED
1	359	2785	19	1	1	100.00%	DETECTED
1	333	3001	18	1	1	100.00%	DETECTED
1	468	2138	25	1	1	100.00%	DETECTED
1	393	2545	21	1	1	100.00%	DETECTED
1	966	1034	51	1	1	100.00%	DETECTED
1	611	1636	33	1	1	100.00%	DETECTED
1	446	2240	24	1	1	100.00%	DETECTED
1	922	1084	49	1	1	100.00%	DETECTED
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 1

Variant:	20 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
1	1355	737	72	1	1	100.00%	DETECTED
1	1433	697	76	1	1	100.00%	DETECTED
1	1393	717	74	1	1	100.00%	DETECTED
1	1139	877	61	1	1	100.00%	DETECTED
1	1792	557	95	1	1	100.00%	DETECTED
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1	611	1636	33	1	1	100.00%	DETECTED
1	446	2240	24	1	1	100.00%	DETECTED
1	922	1084	49	1	1	100.00%	DETECTED
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 1

Variant:	40 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 256	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
1	1355	737	72	1	1	100.00%	DETECTED
1	1433	697	76	1	1	100.00%	DETECTED
1	1393	717	74	1	1	100.00%	DETECTED
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1	966	1034	51	1	1	100.00%	DETECTED
1	611	1636	33	1	1	100.00%	DETECTED
1	446	2240	24	1	1	100.00%	DETECTED
1	922	1084	49	1	1	100.00%	DETECTED
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 1

Variant:	80 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 256	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
1	1355	737	72	1	1	100.00%	DETECTED
1	1433	697	76	1	1	100.00%	DETECTED
1	1393	717	74	1	1	100.00%	DETECTED
1	1139	877	61	1	1	100.00%	DETECTED
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1	1089	917	58	1	1	100.00%	DETECTED
1	1618	617	86	1	1	100.00%	DETECTED
1	1166	857	62	1	1	100.00%	DETECTED
1	1672	597	89	1	1	100.00%	DETECTED
1	1730	577	92	1	1	100.00%	DETECTED
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1	1107	902	59	1	1	100.00%	DETECTED
1	1017	982	54	1	1	100.00%	DETECTED
1	1736	575	92	1	1	100.00%	DETECTED
1	745	1342	40	1	1	100.00%	DETECTED
1	359	2785	19	1	1	100.00%	DETECTED
1	333	3001	18	1	1	100.00%	DETECTED
1	468	2138	25	1	1	100.00%	DETECTED
1	393	2545	21	1	1	100.00%	DETECTED
1	966	1034	51	1	1	100.00%	DETECTED
1	611	1636	33	1	1	100.00%	DETECTED
1	446	2240	24	1	1	100.00%	DETECTED
1	922	1084	49	1	1	100.00%	DETECTED
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 2

Variant:	5 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
1.4	5051	196.6	28	1	1	100.00%	DETECTED
1.5	6494	152.5	25	1	1	100.00%	DETECTED
1.5	4444	223.5	26	1	1	100.00%	DETECTED
1.7	5155	192.3	26	1	1	100.00%	DETECTED
2	6329	156	28	1	1	100.00%	DETECTED
2	5988	165	27	1	1	100.00%	DETECTED
2.1	5102	193.9	29	1	1	100.00%	DETECTED
2.2	5128	192.8	23	1	1	100.00%	DETECTED
2.3	5405	182.7	24	1	1	100.00%	DETECTED
2.8	6211	158.2	25	1	1	100.00%	DETECTED
3.2	4717	208.8	26	1	1	100.00%	DETECTED
3.3	5155	190.7	23	1	1	100.00%	DETECTED
3.5	6579	148.5	23	1	1	100.00%	DETECTED
3.5	6061	161.5	29	1	1	100.00%	DETECTED
3.6	6494	150.4	27	1	1	100.00%	DETECTED
3.7	4878	201.3	26	1	1	100.00%	DETECTED
3.8	5525	177.2	23	1	1	100.00%	DETECTED
3.8	6369	153.2	28	1	1	100.00%	DETECTED
3.8	6623	147.2	23	1	1	100.00%	DETECTED
3.9	4608	213.1	23	1	1	100.00%	DETECTED
4	4785	205	29	1	1	100.00%	DETECTED
4.2	5076	192.8	26	1	1	100.00%	DETECTED
4.5	6369	152.5	27	1	1	100.00%	DETECTED
4.7	5236	186.3	24	1	1	100.00%	DETECTED
4.7	5525	176.3	27	1	1	100.00%	DETECTED
4.7	6667	145.3	28	1	1	100.00%	DETECTED
4.8	5435	179.2	23	1	1	100.00%	DETECTED
4.8	5291	184.2	29	1	1	100.00%	DETECTED
4.9	5917	164.1	25	1	1	100.00%	DETECTED
5	6536	148	27	1	1	100.00%	DETECTED
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 2

Variant:	10 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
1.4	5051	196.6	28	1	1	100.00%	DETECTED
1.5	6494	152.5	25	1	1	100.00%	DETECTED
1.5	4444	223.5	26	1	1	100.00%	DETECTED
1.7	5155	192.3	26	1	1	100.00%	DETECTED
2	6329	156	28	1	1	100.00%	DETECTED
2	5988	165	27	1	1	100.00%	DETECTED
2.1	5102	193.9	29	1	1	100.00%	DETECTED
2.2	5128	192.8	23	1	1	100.00%	DETECTED
2.3	5405	182.7	24	1	1	100.00%	DETECTED
2.8	6211	158.2	25	1	1	100.00%	DETECTED
3.2	4717	208.8	26	1	1	100.00%	DETECTED
3.3	5155	190.7	23	1	1	100.00%	DETECTED
3.5	6579	148.5	23	1	1	100.00%	DETECTED
3.5	6061	161.5	29	1	1	100.00%	DETECTED
3.6	6494	150.4	27	1	1	100.00%	DETECTED
3.7	4878	201.3	26	1	1	100.00%	DETECTED
3.8	5525	177.2	23	1	1	100.00%	DETECTED
3.8	6369	153.2	28	1	1	100.00%	DETECTED
3.8	6623	147.2	23	1	1	100.00%	DETECTED
3.9	4608	213.1	23	1	1	100.00%	DETECTED
4	4785	205	29	1	1	100.00%	DETECTED
4.2	5076	192.8	26	1	1	100.00%	DETECTED
4.5	6369	152.5	27	1	1	100.00%	DETECTED
4.7	5236	186.3	24	1	1	100.00%	DETECTED
4.7	5525	176.3	27	1	1	100.00%	DETECTED
4.7	6667	145.3	28	1	1	100.00%	DETECTED
4.8	5435	179.2	23	1	1	100.00%	DETECTED
4.8	5291	184.2	29	1	1	100.00%	DETECTED
4.9	5917	164.1	25	1	1	100.00%	DETECTED
5	6536	148	27	1	1	100.00%	DETECTED
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 2

Variant:	20 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
1.4	5051	196.6	28	1	1	100.00%	DETECTED
1.5	6494	152.5	25	1	1	100.00%	DETECTED
1.5	4444	223.5	26	1	1	100.00%	DETECTED
1.7	5155	192.3	26	1	1	100.00%	DETECTED
2	6329	156	28	1	1	100.00%	DETECTED
2	5988	165	27	1	1	100.00%	DETECTED
2.1	5102	193.9	29	1	1	100.00%	DETECTED
2.2	5128	192.8	23	1	1	100.00%	DETECTED
2.3	5405	182.7	24	1	1	100.00%	DETECTED
2.8	6211	158.2	25	1	1	100.00%	DETECTED
3.2	4717	208.8	26	1	1	100.00%	DETECTED
3.3	5155	190.7	23	1	1	100.00%	DETECTED
3.5	6579	148.5	23	1	1	100.00%	DETECTED
3.5	6061	161.5	29	1	1	100.00%	DETECTED
3.6	6494	150.4	27	1	1	100.00%	DETECTED
3.7	4878	201.3	26	1	1	100.00%	DETECTED
3.8	5525	177.2	23	1	1	100.00%	DETECTED
3.8	6369	153.2	28	1	1	100.00%	DETECTED
3.8	6623	147.2	23	1	1	100.00%	DETECTED
3.9	4608	213.1	23	1	1	100.00%	DETECTED
4	4785	205	29	1	1	100.00%	DETECTED
4.2	5076	192.8	26	1	1	100.00%	DETECTED
4.5	6369	152.5	27	1	1	100.00%	DETECTED
4.7	5236	186.3	24	1	1	100.00%	DETECTED
4.7	5525	176.3	27	1	1	100.00%	DETECTED
4.7	6667	145.3	28	1	1	100.00%	DETECTED
4.8	5435	179.2	23	1	1	100.00%	DETECTED
4.8	5291	184.2	29	1	1	100.00%	DETECTED
4.9	5917	164.1	25	1	1	100.00%	DETECTED
5	6536	148	27	1	1	100.00%	DETECTED
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 2

Variant:	40 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 256	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
1.4	5051	196.6	28	1	1	100.00%	DETECTED
1.5	6494	152.5	25	1	1	100.00%	DETECTED
1.5	4444	223.5	26	1	1	100.00%	DETECTED
1.7	5155	192.3	26	1	1	100.00%	DETECTED
2	6329	156	28	1	1	100.00%	DETECTED
2	5988	165	27	1	1	100.00%	DETECTED
2.1	5102	193.9	29	1	1	100.00%	DETECTED
2.2	5128	192.8	23	1	1	100.00%	DETECTED
2.3	5405	182.7	24	1	1	100.00%	DETECTED
2.8	6211	158.2	25	1	1	100.00%	DETECTED
3.2	4717	208.8	26	1	1	100.00%	DETECTED
3.3	5155	190.7	23	1	1	100.00%	DETECTED
3.5	6579	148.5	23	1	1	100.00%	DETECTED
3.5	6061	161.5	29	1	1	100.00%	DETECTED
3.6	6494	150.4	27	1	1	100.00%	DETECTED
3.7	4878	201.3	26	1	1	100.00%	DETECTED
3.8	5525	177.2	23	1	1	100.00%	DETECTED
3.8	6369	153.2	28	1	1	100.00%	DETECTED
3.8	6623	147.2	23	1	1	100.00%	DETECTED
3.9	4608	213.1	23	1	1	100.00%	DETECTED
4	4785	205	29	1	1	100.00%	DETECTED
4.2	5076	192.8	26	1	1	100.00%	DETECTED
4.5	6369	152.5	27	1	1	100.00%	DETECTED
4.7	5236	186.3	24	1	1	100.00%	DETECTED
4.7	5525	176.3	27	1	1	100.00%	DETECTED
4.7	6667	145.3	28	1	1	100.00%	DETECTED
4.8	5435	179.2	23	1	1	100.00%	DETECTED
4.8	5291	184.2	29	1	1	100.00%	DETECTED
4.9	5917	164.1	25	1	1	100.00%	DETECTED
5	6536	148	27	1	1	100.00%	DETECTED
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 2

Variant:	80 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 256	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
1.4	5051	196.6	28	1	1	100.00%	DETECTED
1.5	6494	152.5	25	1	1	100.00%	DETECTED
1.5	4444	223.5	26	1	1	100.00%	DETECTED
1.7	5155	192.3	26	1	1	100.00%	DETECTED
2	6329	156	28	1	1	100.00%	DETECTED
2	5988	165	27	1	1	100.00%	DETECTED
2.1	5102	193.9	29	1	1	100.00%	DETECTED
2.2	5128	192.8	23	1	1	100.00%	DETECTED
2.3	5405	182.7	24	1	1	100.00%	DETECTED
2.8	6211	158.2	25	1	1	100.00%	DETECTED
3.2	4717	208.8	26	1	1	100.00%	DETECTED
3.3	5155	190.7	23	1	1	100.00%	DETECTED
3.5	6579	148.5	23	1	1	100.00%	DETECTED
3.5	6061	161.5	29	1	1	100.00%	DETECTED
3.6	6494	150.4	27	1	1	100.00%	DETECTED
3.7	4878	201.3	26	1	1	100.00%	DETECTED
3.8	5525	177.2	23	1	1	100.00%	DETECTED
3.8	6369	153.2	28	1	1	100.00%	DETECTED
3.8	6623	147.2	23	1	1	100.00%	DETECTED
3.9	4608	213.1	23	1	1	100.00%	DETECTED
4	4785	205	29	1	1	100.00%	DETECTED
4.2	5076	192.8	26	1	1	100.00%	DETECTED
4.5	6369	152.5	27	1	1	100.00%	DETECTED
4.7	5236	186.3	24	1	1	100.00%	DETECTED
4.7	5525	176.3	27	1	1	100.00%	DETECTED
4.7	6667	145.3	28	1	1	100.00%	DETECTED
4.8	5435	179.2	23	1	1	100.00%	DETECTED
4.8	5291	184.2	29	1	1	100.00%	DETECTED
4.9	5917	164.1	25	1	1	100.00%	DETECTED
5	6536	148	27	1	1	100.00%	DETECTED
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 3

Variant:	5 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
10	3077	315	18	1	1	100.00%	DETECTED
6.2	2268	434.8	17	1	1	100.00%	DETECTED
6.2	2320	424.8	18	1	1	100.00%	DETECTED
6.5	3497	279.5	18	1	1	100.00%	DETECTED
6.5	2801	350.5	17	1	1	100.00%	DETECTED
6.9	2809	349.1	18	1	1	100.00%	DETECTED
7	2066	477	17	1	1	100.00%	DETECTED
7.5	2273	432.5	17	1	0	0.00%	NOT DETECTED
7.5	2915	335.5	17	1	1	100.00%	DETECTED
7.6	3268	298.4	16	1	1	100.00%	DETECTED
7.6	4975	193.4	18	1	1	100.00%	DETECTED
7.9	2801	349.1	16	1	1	100.00%	DETECTED
7.9	2188	449.1	18	1	1	100.00%	DETECTED
8	2494	393	18	1	1	100.00%	DETECTED
8.1	2208	444.9	17	1	1	100.00%	DETECTED
8.6	2488	393.4	18	1	1	100.00%	DETECTED
8.6	2273	431.4	16	1	1	100.00%	DETECTED
8.7	3546	273.3	18	1	1	100.00%	DETECTED
8.8	3717	260.2	18	1	0	0.00%	NOT DETECTED
9	2083	471	16	1	1	100.00%	DETECTED
9.1	2070	473.9	18	1	1	100.00%	DETECTED
9.2	2288	427.8	17	1	1	100.00%	DETECTED
9.3	2463	396.7	17	1	1	100.00%	DETECTED
9.3	3731	258.7	16	1	1	100.00%	DETECTED
9.6	3049	318.4	17	1	1	100.00%	DETECTED
9.6	3344	289.4	18	1	1	100.00%	DETECTED
9.8	2833	343.2	17	1	1	100.00%	DETECTED
9.8	2494	391.2	17	1	1	100.00%	DETECTED
9.9	2179	449.1	16	1	1	100.00%	DETECTED
9.9	2427	402.1	16	1	1	100.00%	DETECTED
			Aggregate:	**30**	**28**	**93.33%**	**Complies**

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Equipment Configuration for Radar Type 3

Variant:	10 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
10	3077	315	18	1	1	100.00%	DETECTED
6.2	2268	434.8	17	1	1	100.00%	DETECTED
6.2	2320	424.8	18	1	1	100.00%	DETECTED
6.5	3497	279.5	18	1	1	100.00%	DETECTED
6.5	2801	350.5	17	1	1	100.00%	DETECTED
6.9	2809	349.1	18	1	1	100.00%	DETECTED
7	2066	477	17	1	1	100.00%	DETECTED
7.5	2273	432.5	17	1	1	100.00%	DETECTED
7.5	2915	335.5	17	1	1	100.00%	DETECTED
7.6	3268	298.4	16	1	1	100.00%	DETECTED
7.6	4975	193.4	18	1	1	100.00%	DETECTED
7.9	2801	349.1	16	1	1	100.00%	DETECTED
7.9	2188	449.1	18	1	1	100.00%	DETECTED
8	2494	393	18	1	1	100.00%	DETECTED
8.1	2208	444.9	17	1	1	100.00%	DETECTED
8.6	2488	393.4	18	1	1	100.00%	DETECTED
8.6	2273	431.4	16	1	1	100.00%	DETECTED
8.7	3546	273.3	18	1	1	100.00%	DETECTED
8.8	3717	260.2	18	1	1	100.00%	DETECTED
9	2083	471	16	1	1	100.00%	DETECTED
9.1	2070	473.9	18	1	1	100.00%	DETECTED
9.2	2288	427.8	17	1	1	100.00%	DETECTED
9.3	2463	396.7	17	1	1	100.00%	DETECTED
9.3	3731	258.7	16	1	1	100.00%	DETECTED
9.6	3049	318.4	17	1	1	100.00%	DETECTED
9.6	3344	289.4	18	1	1	100.00%	DETECTED
9.8	2833	343.2	17	1	1	100.00%	DETECTED
9.8	2494	391.2	17	1	1	100.00%	DETECTED
9.9	2179	449.1	16	1	1	100.00%	DETECTED
9.9	2427	402.1	16	1	1	100.00%	DETECTED
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 3

Variant:	20 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
10	3077	315	18	1	1	100.00%	DETECTED
6.2	2268	434.8	17	1	1	100.00%	DETECTED
6.2	2320	424.8	18	1	1	100.00%	DETECTED
6.5	3497	279.5	18	1	1	100.00%	DETECTED
6.5	2801	350.5	17	1	1	100.00%	DETECTED
6.9	2809	349.1	18	1	1	100.00%	DETECTED
7	2066	477	17	1	1	100.00%	DETECTED
7.5	2273	432.5	17	1	1	100.00%	DETECTED
7.5	2915	335.5	17	1	1	100.00%	DETECTED
7.6	3268	298.4	16	1	1	100.00%	DETECTED
7.6	4975	193.4	18	1	1	100.00%	DETECTED
7.9	2801	349.1	16	1	1	100.00%	DETECTED
7.9	2188	449.1	18	1	1	100.00%	DETECTED
8	2494	393	18	1	1	100.00%	DETECTED
8.1	2208	444.9	17	1	1	100.00%	DETECTED
8.6	2488	393.4	18	1	1	100.00%	DETECTED
8.6	2273	431.4	16	1	1	100.00%	DETECTED
8.7	3546	273.3	18	1	1	100.00%	DETECTED
8.8	3717	260.2	18	1	1	100.00%	DETECTED
9	2083	471	16	1	1	100.00%	DETECTED
9.1	2070	473.9	18	1	1	100.00%	DETECTED
9.2	2288	427.8	17	1	1	100.00%	DETECTED
9.3	2463	396.7	17	1	1	100.00%	DETECTED
9.3	3731	258.7	16	1	1	100.00%	DETECTED
9.6	3049	318.4	17	1	1	100.00%	DETECTED
9.6	3344	289.4	18	1	1	100.00%	DETECTED
9.8	2833	343.2	17	1	1	100.00%	DETECTED
9.8	2494	391.2	17	1	1	100.00%	DETECTED
9.9	2179	449.1	16	1	1	100.00%	DETECTED
9.9	2427	402.1	16	1	1	100.00%	DETECTED
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 3

Variant:	40 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 256	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
10	3077	315	18	1	1	100.00%	DETECTED
6.2	2268	434.8	17	1	1	100.00%	DETECTED
6.2	2320	424.8	18	1	1	100.00%	DETECTED
6.5	3497	279.5	18	1	1	100.00%	DETECTED
6.5	2801	350.5	17	1	1	100.00%	DETECTED
6.9	2809	349.1	18	1	1	100.00%	DETECTED
7	2066	477	17	1	1	100.00%	DETECTED
7.5	2273	432.5	17	1	1	100.00%	DETECTED
7.5	2915	335.5	17	1	1	100.00%	DETECTED
7.6	3268	298.4	16	1	1	100.00%	DETECTED
7.6	4975	193.4	18	1	1	100.00%	DETECTED
7.9	2801	349.1	16	1	1	100.00%	DETECTED
7.9	2188	449.1	18	1	1	100.00%	DETECTED
8	2494	393	18	1	1	100.00%	DETECTED
8.1	2208	444.9	17	1	1	100.00%	DETECTED
8.6	2488	393.4	18	1	1	100.00%	DETECTED
8.6	2273	431.4	16	1	1	100.00%	DETECTED
8.7	3546	273.3	18	1	1	100.00%	DETECTED
8.8	3717	260.2	18	1	1	100.00%	DETECTED
9	2083	471	16	1	1	100.00%	DETECTED
9.1	2070	473.9	18	1	1	100.00%	DETECTED
9.2	2288	427.8	17	1	1	100.00%	DETECTED
9.3	2463	396.7	17	1	1	100.00%	DETECTED
9.3	3731	258.7	16	1	1	100.00%	DETECTED
9.6	3049	318.4	17	1	1	100.00%	DETECTED
9.6	3344	289.4	18	1	1	100.00%	DETECTED
9.8	2833	343.2	17	1	1	100.00%	DETECTED
9.8	2494	391.2	17	1	1	100.00%	DETECTED
9.9	2179	449.1	16	1	1	100.00%	DETECTED
9.9	2427	402.1	16	1	1	100.00%	DETECTED
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 3

Variant:	80 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 256	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
10	3077	315	18	1	1	100.00%	DETECTED
6.2	2268	434.8	17	1	1	100.00%	DETECTED
6.2	2320	424.8	18	1	1	100.00%	DETECTED
6.5	3497	279.5	18	1	1	100.00%	DETECTED
6.5	2801	350.5	17	1	1	100.00%	DETECTED
6.9	2809	349.1	18	1	1	100.00%	DETECTED
7	2066	477	17	1	1	100.00%	DETECTED
7.5	2273	432.5	17	1	1	100.00%	DETECTED
7.5	2915	335.5	17	1	1	100.00%	DETECTED
7.6	3268	298.4	16	1	1	100.00%	DETECTED
7.6	4975	193.4	18	1	1	100.00%	DETECTED
7.9	2801	349.1	16	1	1	100.00%	DETECTED
7.9	2188	449.1	18	1	1	100.00%	DETECTED
8	2494	393	18	1	1	100.00%	DETECTED
8.1	2208	444.9	17	1	1	100.00%	DETECTED
8.6	2488	393.4	18	1	1	100.00%	DETECTED
8.6	2273	431.4	16	1	1	100.00%	DETECTED
8.7	3546	273.3	18	1	1	100.00%	DETECTED
8.8	3717	260.2	18	1	1	100.00%	DETECTED
9	2083	471	16	1	1	100.00%	DETECTED
9.1	2070	473.9	18	1	1	100.00%	DETECTED
9.2	2288	427.8	17	1	1	100.00%	DETECTED
9.3	2463	396.7	17	1	1	100.00%	DETECTED
9.3	3731	258.7	16	1	1	100.00%	DETECTED
9.6	3049	318.4	17	1	1	100.00%	DETECTED
9.6	3344	289.4	18	1	1	100.00%	DETECTED
9.8	2833	343.2	17	1	1	100.00%	DETECTED
9.8	2494	391.2	17	1	1	100.00%	DETECTED
9.9	2179	449.1	16	1	1	100.00%	DETECTED
9.9	2427	402.1	16	1	1	100.00%	DETECTED
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 4

Variant:	5 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
11	2577	377	15	1	1	100.00%	DETECTED
11.5	2174	448.5	12	1	1	100.00%	DETECTED
11.6	2364	411.4	14	1	1	100.00%	DETECTED
12.3	2012	484.7	12	1	1	100.00%	DETECTED
12.4	3802	250.6	13	1	1	100.00%	DETECTED
12.5	2096	464.5	15	1	1	100.00%	DETECTED
12.5	2639	366.5	13	1	1	100.00%	DETECTED
13.5	2079	467.5	16	1	1	100.00%	DETECTED
13.8	2571	375.2	15	1	1	100.00%	DETECTED
13.8	2427	398.2	14	1	1	100.00%	DETECTED
13.9	3390	281.1	16	1	0	0.00%	NOT DETECTED
14.8	4762	195.2	12	1	1	100.00%	DETECTED
15.3	4878	189.7	16	1	1	100.00%	DETECTED
16.1	4032	231.9	14	1	1	100.00%	DETECTED
16.7	4049	230.3	15	1	1	100.00%	DETECTED
16.7	4425	209.3	12	1	1	100.00%	DETECTED
16.7	5000	183.3	12	1	1	100.00%	DETECTED
17	2101	459	13	1	1	100.00%	DETECTED
17.3	3333	282.7	12	1	1	100.00%	DETECTED
17.5	2933	323.5	16	1	1	100.00%	DETECTED
17.6	2283	420.4	16	1	1	100.00%	DETECTED
17.7	2232	430.3	13	1	1	100.00%	DETECTED
18	3344	281	13	1	1	100.00%	DETECTED
18.5	3788	245.5	15	1	1	100.00%	DETECTED
18.5	3534	264.5	12	1	1	100.00%	DETECTED
18.7	3135	300.3	16	1	1	100.00%	DETECTED
19.1	3968	232.9	16	1	0	0.00%	NOT DETECTED
19.2	2160	443.8	16	1	1	100.00%	DETECTED
19.2	4016	229.8	14	1	1	100.00%	DETECTED
19.4	2375	401.6	13	1	1	100.00%	DETECTED
			Aggregate:	**30**	**28**	**93.33%**	**Complies**

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Equipment Configuration for Radar Type 4

Variant:	10 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
11	2577	377	15	1	1	100.00%	DETECTED
11.5	2174	448.5	12	1	1	100.00%	DETECTED
11.6	2364	411.4	14	1	1	100.00%	DETECTED
12.3	2012	484.7	12	1	1	100.00%	DETECTED
12.4	3802	250.6	13	1	1	100.00%	DETECTED
12.5	2096	464.5	15	1	1	100.00%	DETECTED
12.5	2639	366.5	13	1	1	100.00%	DETECTED
13.5	2079	467.5	16	1	1	100.00%	DETECTED
13.8	2571	375.2	15	1	1	100.00%	DETECTED
13.8	2427	398.2	14	1	1	100.00%	DETECTED
13.9	3390	281.1	16	1	1	100.00%	DETECTED
14.8	4762	195.2	12	1	1	100.00%	DETECTED
15.3	4878	189.7	16	1	1	100.00%	DETECTED
16.1	4032	231.9	14	1	1	100.00%	DETECTED
16.7	4049	230.3	15	1	1	100.00%	DETECTED
16.7	4425	209.3	12	1	1	100.00%	DETECTED
16.7	5000	183.3	12	1	1	100.00%	DETECTED
17	2101	459	13	1	1	100.00%	DETECTED
17.3	3333	282.7	12	1	1	100.00%	DETECTED
17.5	2933	323.5	16	1	1	100.00%	DETECTED
17.6	2283	420.4	16	1	1	100.00%	DETECTED
17.7	2232	430.3	13	1	1	100.00%	DETECTED
18	3344	281	13	1	1	100.00%	DETECTED
18.5	3788	245.5	15	1	1	100.00%	DETECTED
18.5	3534	264.5	12	1	1	100.00%	DETECTED
18.7	3135	300.3	16	1	1	100.00%	DETECTED
19.1	3968	232.9	16	1	1	100.00%	DETECTED
19.2	2160	443.8	16	1	1	100.00%	DETECTED
19.2	4016	229.8	14	1	1	100.00%	DETECTED
19.4	2375	401.6	13	1	1	100.00%	DETECTED
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 4

Variant:	20 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
11	2577	377	15	1	1	100.00%	DETECTED
11.5	2174	448.5	12	1	1	100.00%	DETECTED
11.6	2364	411.4	14	1	1	100.00%	DETECTED
12.3	2012	484.7	12	1	1	100.00%	DETECTED
12.4	3802	250.6	13	1	1	100.00%	DETECTED
12.5	2096	464.5	15	1	1	100.00%	DETECTED
12.5	2639	366.5	13	1	1	100.00%	DETECTED
13.5	2079	467.5	16	1	1	100.00%	DETECTED
13.8	2571	375.2	15	1	1	100.00%	DETECTED
13.8	2427	398.2	14	1	1	100.00%	DETECTED
13.9	3390	281.1	16	1	1	100.00%	DETECTED
14.8	4762	195.2	12	1	1	100.00%	DETECTED
15.3	4878	189.7	16	1	1	100.00%	DETECTED
16.1	4032	231.9	14	1	1	100.00%	DETECTED
16.7	4049	230.3	15	1	1	100.00%	DETECTED
16.7	4425	209.3	12	1	1	100.00%	DETECTED
16.7	5000	183.3	12	1	1	100.00%	DETECTED
17	2101	459	13	1	1	100.00%	DETECTED
17.3	3333	282.7	12	1	1	100.00%	DETECTED
17.5	2933	323.5	16	1	1	100.00%	DETECTED
17.6	2283	420.4	16	1	1	100.00%	DETECTED
17.7	2232	430.3	13	1	1	100.00%	DETECTED
18	3344	281	13	1	1	100.00%	DETECTED
18.5	3788	245.5	15	1	1	100.00%	DETECTED
18.5	3534	264.5	12	1	1	100.00%	DETECTED
18.7	3135	300.3	16	1	1	100.00%	DETECTED
19.1	3968	232.9	16	1	1	100.00%	DETECTED
19.2	2160	443.8	16	1	1	100.00%	DETECTED
19.2	4016	229.8	14	1	1	100.00%	DETECTED
19.4	2375	401.6	13	1	1	100.00%	DETECTED
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 4

Variant:	40 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 256	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
11	2577	377	15	1	1	100.00%	DETECTED
11.5	2174	448.5	12	1	1	100.00%	DETECTED
11.6	2364	411.4	14	1	1	100.00%	DETECTED
12.3	2012	484.7	12	1	1	100.00%	DETECTED
12.4	3802	250.6	13	1	1	100.00%	DETECTED
12.5	2096	464.5	15	1	1	100.00%	DETECTED
12.5	2639	366.5	13	1	1	100.00%	DETECTED
13.5	2079	467.5	16	1	1	100.00%	DETECTED
13.8	2571	375.2	15	1	1	100.00%	DETECTED
13.8	2427	398.2	14	1	1	100.00%	DETECTED
13.9	3390	281.1	16	1	1	100.00%	DETECTED
14.8	4762	195.2	12	1	1	100.00%	DETECTED
15.3	4878	189.7	16	1	1	100.00%	DETECTED
16.1	4032	231.9	14	1	1	100.00%	DETECTED
16.7	4049	230.3	15	1	1	100.00%	DETECTED
16.7	4425	209.3	12	1	1	100.00%	DETECTED
16.7	5000	183.3	12	1	1	100.00%	DETECTED
17	2101	459	13	1	1	100.00%	DETECTED
17.3	3333	282.7	12	1	1	100.00%	DETECTED
17.5	2933	323.5	16	1	1	100.00%	DETECTED
17.6	2283	420.4	16	1	1	100.00%	DETECTED
17.7	2232	430.3	13	1	1	100.00%	DETECTED
18	3344	281	13	1	1	100.00%	DETECTED
18.5	3788	245.5	15	1	1	100.00%	DETECTED
18.5	3534	264.5	12	1	1	100.00%	DETECTED
18.7	3135	300.3	16	1	1	100.00%	DETECTED
19.1	3968	232.9	16	1	1	100.00%	DETECTED
19.2	2160	443.8	16	1	1	100.00%	DETECTED
19.2	4016	229.8	14	1	1	100.00%	DETECTED
19.4	2375	401.6	13	1	1	100.00%	DETECTED
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 4

Variant:	80 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 256	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Pulse Width (us)	PRF (Hz)	PRI - PW (us)	# Pulses	Injections	Detections	Detection Rate	Result
11	2577	377	15	1	1	100.00%	DETECTED
11.5	2174	448.5	12	1	1	100.00%	DETECTED
11.6	2364	411.4	14	1	1	100.00%	DETECTED
12.3	2012	484.7	12	1	1	100.00%	DETECTED
12.4	3802	250.6	13	1	1	100.00%	DETECTED
12.5	2096	464.5	15	1	1	100.00%	DETECTED
12.5	2639	366.5	13	1	1	100.00%	DETECTED
13.5	2079	467.5	16	1	1	100.00%	DETECTED
13.8	2571	375.2	15	1	1	100.00%	DETECTED
13.8	2427	398.2	14	1	1	100.00%	DETECTED
13.9	3390	281.1	16	1	1	100.00%	DETECTED
14.8	4762	195.2	12	1	1	100.00%	DETECTED
15.3	4878	189.7	16	1	1	100.00%	DETECTED
16.1	4032	231.9	14	1	1	100.00%	DETECTED
16.7	4049	230.3	15	1	1	100.00%	DETECTED
16.7	4425	209.3	12	1	1	100.00%	DETECTED
16.7	5000	183.3	12	1	1	100.00%	DETECTED
17	2101	459	13	1	1	100.00%	DETECTED
17.3	3333	282.7	12	1	1	100.00%	DETECTED
17.5	2933	323.5	16	1	1	100.00%	DETECTED
17.6	2283	420.4	16	1	1	100.00%	DETECTED
17.7	2232	430.3	13	1	1	100.00%	DETECTED
18	3344	281	13	1	1	100.00%	DETECTED
18.5	3788	245.5	15	1	1	100.00%	DETECTED
18.5	3534	264.5	12	1	1	100.00%	DETECTED
18.7	3135	300.3	16	1	1	100.00%	DETECTED
19.1	3968	232.9	16	1	1	100.00%	DETECTED
19.2	2160	443.8	16	1	1	100.00%	DETECTED
19.2	4016	229.8	14	1	1	100.00%	DETECTED
19.4	2375	401.6	13	1	1	100.00%	DETECTED
			Aggregate:	**30**	**30**	**100.00%**	**Complies**

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Equipment Configuration for Radar Type 5

Variant:	5 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	BJ
Engineering Test Notes:			

Test Measurement Results

Burst Segment	Injections	Detections	Detection Rate	Result
Type 5 #1	1	1	100.00%	DETECTED
Type 5 #2	1	1	100.00%	DETECTED
Type 5 #3	1	0	0.00%	NOT DETECTED
Type 5 #4	1	1	100.00%	DETECTED
Type 5 #5	1	1	100.00%	DETECTED
Type 5 #6	1	1	100.00%	DETECTED
Type 5 #7	1	0	0.00%	NOT DETECTED
Type 5 #8	1	1	100.00%	DETECTED
Type 5 #9	1	1	100.00%	DETECTED
Type 5 #10	1	1	100.00%	DETECTED
Type 5 #11	1	1	100.00%	DETECTED
Type 5 #12	1	1	100.00%	DETECTED
Type 5 #13	1	1	100.00%	DETECTED
Type 5 #14	1	0	0.00%	NOT DETECTED
Type 5 #15	1	1	100.00%	DETECTED
Type 5 #16	1	1	100.00%	DETECTED
Type 5 #17	1	1	100.00%	DETECTED
Type 5 #18	1	1	100.00%	DETECTED
Type 5 #19	1	0	0.00%	NOT DETECTED
Type 5 #20	1	1	100.00%	DETECTED
Type 5 #21	1	1	100.00%	DETECTED
Type 5 #22	1	1	100.00%	DETECTED
Type 5 #23	1	1	100.00%	DETECTED
Type 5 #24	1	1	100.00%	DETECTED
Type 5 #25	1	0	0.00%	NOT DETECTED
Type 5 #26	1	1	100.00%	DETECTED
Type 5 #27	1	1	100.00%	DETECTED
Type 5 #28	1	1	100.00%	DETECTED
Type 5 #29	1	1	100.00%	DETECTED
Type 5 #30	1	1	100.00%	DETECTED

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Equipment Configuration for Radar Type 5

Variant:	10 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	BJ
Engineering Test Notes:			

Test Measurement Results

Burst Segment	Injections	Detections	Detection Rate	Result
Type 5 #1	1	1	100.00%	DETECTED
Type 5 #2	1	1	100.00%	DETECTED
Type 5 #3	1	0	0.00%	NOT DETECTED
Type 5 #4	1	1	100.00%	DETECTED
Type 5 #5	1	1	100.00%	DETECTED
Type 5 #6	1	1	100.00%	DETECTED
Type 5 #7	1	0	0.00%	NOT DETECTED
Type 5 #8	1	1	100.00%	DETECTED
Type 5 #9	1	1	100.00%	DETECTED
Type 5 #10	1	1	100.00%	DETECTED
Type 5 #11	1	1	100.00%	DETECTED
Type 5 #12	1	1	100.00%	DETECTED
Type 5 #13	1	0	0.00%	NOT DETECTED
Type 5 #14	1	1	100.00%	DETECTED
Type 5 #15	1	1	100.00%	DETECTED
Type 5 #16	1	1	100.00%	DETECTED
Type 5 #17	1	0	0.00%	NOT DETECTED
Type 5 #18	1	1	100.00%	DETECTED
Type 5 #19	1	1	100.00%	DETECTED
Type 5 #20	1	1	100.00%	DETECTED
Type 5 #21	1	1	100.00%	DETECTED
Type 5 #22	1	1	100.00%	DETECTED
Type 5 #23	1	1	100.00%	DETECTED
Type 5 #24	1	1	100.00%	DETECTED
Type 5 #25	1	1	100.00%	DETECTED
Type 5 #26	1	1	100.00%	DETECTED
Type 5 #27	1	1	100.00%	DETECTED
Type 5 #28	1	1	100.00%	DETECTED
Type 5 #29	1	1	100.00%	DETECTED
Type 5 #30	1	1	100.00%	DETECTED

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Equipment Configuration for Radar Type 5

Variant:	20 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	BJ
Engineering Test Notes:			

Test Measurement Results

Burst Segment	Injections	Detections	Detection Rate	Result
Type 5 #1	1	1	100.00%	DETECTED
Type 5 #2	1	1	100.00%	DETECTED
Type 5 #3	1	1	100.00%	DETECTED
Type 5 #4	1	1	100.00%	DETECTED
Type 5 #5	1	1	100.00%	DETECTED
Type 5 #6	1	1	100.00%	DETECTED
Type 5 #7	1	1	100.00%	DETECTED
Type 5 #8	1	1	100.00%	DETECTED
Type 5 #9	1	1	100.00%	DETECTED
Type 5 #10	1	1	100.00%	DETECTED
Type 5 #11	1	1	100.00%	DETECTED
Type 5 #12	1	1	100.00%	DETECTED
Type 5 #13	1	1	100.00%	DETECTED
Type 5 #14	1	1	100.00%	DETECTED
Type 5 #15	1	1	100.00%	DETECTED
Type 5 #16	1	1	100.00%	DETECTED
Type 5 #17	1	1	100.00%	DETECTED
Type 5 #18	1	1	100.00%	DETECTED
Type 5 #19	1	1	100.00%	DETECTED
Type 5 #20	1	1	100.00%	DETECTED
Type 5 #21	1	1	100.00%	DETECTED
Type 5 #22	1	1	100.00%	DETECTED
Type 5 #23	1	1	100.00%	DETECTED
Type 5 #24	1	1	100.00%	DETECTED
Type 5 #25	1	1	100.00%	DETECTED
Type 5 #26	1	1	100.00%	DETECTED
Type 5 #27	1	1	100.00%	DETECTED
Type 5 #28	1	1	100.00%	DETECTED
Type 5 #29	1	1	100.00%	DETECTED
Type 5 #30	1	1	100.00%	DETECTED

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Equipment Configuration for Radar Type 5

Variant:	40 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 256	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Burst Segment	Injections	Detections	Detection Rate	Result
Type 5 #1	1	1	100.00%	DETECTED
Type 5 #2	1	1	100.00%	DETECTED
Type 5 #3	1	1	100.00%	DETECTED
Type 5 #4	1	1	100.00%	DETECTED
Type 5 #5	1	1	100.00%	DETECTED
Type 5 #6	1	1	100.00%	DETECTED
Type 5 #7	1	1	100.00%	DETECTED
Type 5 #8	1	1	100.00%	DETECTED
Type 5 #9	1	1	100.00%	DETECTED
Type 5 #10	1	1	100.00%	DETECTED
Type 5 #11	1	1	100.00%	DETECTED
Type 5 #12	1	1	100.00%	DETECTED
Type 5 #13	1	1	100.00%	DETECTED
Type 5 #14	1	1	100.00%	DETECTED
Type 5 #15	1	1	100.00%	DETECTED
Type 5 #16	1	1	100.00%	DETECTED
Type 5 #17	1	1	100.00%	DETECTED
Type 5 #18	1	1	100.00%	DETECTED
Type 5 #19	1	1	100.00%	DETECTED
Type 5 #20	1	1	100.00%	DETECTED
Type 5 #21	1	1	100.00%	DETECTED
Type 5 #22	1	1	100.00%	DETECTED
Type 5 #23	1	1	100.00%	DETECTED
Type 5 #24	1	1	100.00%	DETECTED
Type 5 #25	1	1	100.00%	DETECTED
Type 5 #26	1	1	100.00%	DETECTED
Type 5 #27	1	1	100.00%	DETECTED
Type 5 #28	1	1	100.00%	DETECTED
Type 5 #29	1	1	100.00%	DETECTED
Type 5 #30	1	1	100.00%	DETECTED

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Equipment Configuration for Radar Type 5

Variant:	80 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 256	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Burst Segment	Injections	Detections	Detection Rate	Result
Type 5 #1	1	1	100.00%	DETECTED
Type 5 #2	1	1	100.00%	DETECTED
Type 5 #3	1	1	100.00%	DETECTED
Type 5 #4	1	1	100.00%	DETECTED
Type 5 #5	1	1	100.00%	DETECTED
Type 5 #6	1	1	100.00%	DETECTED
Type 5 #7	1	1	100.00%	DETECTED
Type 5 #8	1	1	100.00%	DETECTED
Type 5 #9	1	1	100.00%	DETECTED
Type 5 #10	1	1	100.00%	DETECTED
Type 5 #11	1	1	100.00%	DETECTED
Type 5 #12	1	1	100.00%	DETECTED
Type 5 #13	1	1	100.00%	DETECTED
Type 5 #14	1	1	100.00%	DETECTED
Type 5 #15	1	1	100.00%	DETECTED
Type 5 #16	1	1	100.00%	DETECTED
Type 5 #17	1	1	100.00%	DETECTED
Type 5 #18	1	1	100.00%	DETECTED
Type 5 #19	1	1	100.00%	DETECTED
Type 5 #20	1	1	100.00%	DETECTED
Type 5 #21	1	1	100.00%	DETECTED
Type 5 #22	1	1	100.00%	DETECTED
Type 5 #23	1	1	100.00%	DETECTED
Type 5 #24	1	1	100.00%	DETECTED
Type 5 #25	1	1	100.00%	DETECTED
Type 5 #26	1	1	100.00%	DETECTED
Type 5 #27	1	1	100.00%	DETECTED
Type 5 #28	1	1	100.00%	DETECTED
Type 5 #29	1	1	100.00%	DETECTED
Type 5 #30	1	1	100.00%	DETECTED

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In order to verify radar detection of the Type 5 signature over the detection bandwidth the radar injection frequency was varied. The following table identifies the injection frequency and the result.

Radar #5	Injection Frequency (MHz)	Result
5 MHz	5500 (5 MHz)	
Type 5 #1	5498	Detected
Type 5 #2	5499	Detected
Type 5 #3	5500	Detected
Type 5 #4	5501	Detected
Type 5 #5	5502	Detected
10 MHz	5500 (10 MHz)	
Type 5 #1	5495	Detected
Type 5 #2	5498	Detected
Type 5 #3	5500	Detected
Type 5 #4	5502	Detected
Type 5 #5	5505	Detected
20 MHz	5500 (20 MHz)	
Type 5 #1	5490	Detected
Type 5 #2	5495	Detected
Type 5 #3	5500	Detected
Type 5 #4	5505	Detected
Type 5 #5	5510	Detected
40 MHz	5500 (40 MHz)	
Type 5 #1	5480	Detected
Type 5 #2	5485	Detected
Type 5 #3	5490	Detected
Type 5 #4	5495	Detected
Type 5 #5	5500	Detected
Type 5 #6	5505	Detected
Type 5 #7	5510	Detected
Type 5 #8	5515	Detected
Type 5 #9	5520	Detected

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80 MHz	5500 (80 MHz)	
Type 5 #1	5465	Detected
Type 5 #2	5470	Detected
Type 5 #3	5475	Detected
Type 5 #4	5480	Detected
Type 5 #5	5485	Detected
Type 5 #6	5490	Detected
Type 5 #7	5495	Detected
Type 5 #8	5500	Detected
Type 5 #9	5505	Detected
Type 5 #10	5510	Detected
Type 5 #11	5515	Detected
Type 5 #12	5520	Detected
Type 5 #13	5525	Detected
Type 5 #14	5530	Detected
Type 5 #15	5535	Detected

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Equipment Configuration for Radar Type 6

Variant:	5 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	BJ
Engineering Test Notes:			

Test Measurement Results

Burst Segment	Detections	Injection #	Detection Rate	Pass/Fail
Type 6 #1	1	1	100.00%	DETECTED
Type 6 #2	1	1	100.00%	DETECTED
Type 6 #3	1	1	100.00%	DETECTED
Type 6 #4	1	1	100.00%	DETECTED
Type 6 #5	1	0	0.00%	NOT DETECTED
Type 6 #6	1	1	100.00%	DETECTED
Type 6 #7	1	1	100.00%	DETECTED
Type 6 #8	1	1	100.00%	DETECTED
Type 6 #9	1	1	100.00%	DETECTED
Type 6 #10	1	1	100.00%	DETECTED
Type 6 #11	1	1	100.00%	DETECTED
Type 6 #12	1	1	100.00%	DETECTED
Type 6 #13	1	1	100.00%	DETECTED
Type 6 #14	1	1	100.00%	DETECTED
Type 6 #15	1	1	100.00%	DETECTED
Type 6 #16	1	1	100.00%	DETECTED
Type 6 #17	1	1	100.00%	DETECTED
Type 6 #18	1	1	100.00%	DETECTED
Type 6 #19	1	1	100.00%	DETECTED
Type 6 #20	1	1	100.00%	DETECTED
Type 6 #21	1	1	100.00%	DETECTED
Type 6 #22	1	1	100.00%	DETECTED
Type 6 #23	1	1	100.00%	DETECTED
Type 6 #24	1	1	100.00%	DETECTED
Type 6 #25	1	1	100.00%	DETECTED
Type 6 #26	1	1	100.00%	DETECTED
Type 6 #27	1	1	100.00%	DETECTED
Type 6 #28	1	1	100.00%	DETECTED
Type 6 #29	1	1	100.00%	DETECTED
Type 6 #30	1	1	100.00%	DETECTED

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Equipment Configuration for Radar Type 6

Variant:	10 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	BJ
Engineering Test Notes:			

Test Measurement Results

Burst Segment	Detections	Injection #	Detection Rate	Pass/Fail
Type 6 #1	1	1	100.00%	DETECTED
Type 6 #2	1	1	100.00%	DETECTED
Type 6 #3	1	1	100.00%	DETECTED
Type 6 #4	1	1	100.00%	DETECTED
Type 6 #5	1	1	100.00%	DETECTED
Type 6 #6	1	1	100.00%	DETECTED
Type 6 #7	1	1	100.00%	DETECTED
Type 6 #8	1	1	100.00%	DETECTED
Type 6 #9	1	1	100.00%	DETECTED
Type 6 #10	1	1	100.00%	DETECTED
Type 6 #11	1	1	100.00%	DETECTED
Type 6 #12	1	1	100.00%	DETECTED
Type 6 #13	1	1	100.00%	DETECTED
Type 6 #14	1	1	100.00%	DETECTED
Type 6 #15	1	1	100.00%	DETECTED
Type 6 #16	1	1	100.00%	DETECTED
Type 6 #17	1	1	100.00%	DETECTED
Type 6 #18	1	1	100.00%	DETECTED
Type 6 #19	1	1	100.00%	DETECTED
Type 6 #20	1	1	100.00%	DETECTED
Type 6 #21	1	1	100.00%	DETECTED
Type 6 #22	1	1	100.00%	DETECTED
Type 6 #23	1	1	100.00%	DETECTED
Type 6 #24	1	1	100.00%	DETECTED
Type 6 #25	1	1	100.00%	DETECTED
Type 6 #26	1	1	100.00%	DETECTED
Type 6 #27	1	1	100.00%	DETECTED
Type 6 #28	1	1	100.00%	DETECTED
Type 6 #29	1	1	100.00%	DETECTED
Type 6 #30	1	1	100.00%	DETECTED

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Equipment Configuration for Radar Type 6

Variant:	20 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	BJ
Engineering Test Notes:			

Test Measurement Results

Burst Segment	Detections	Injection #	Detection Rate	Pass/Fail
Type 6 #1	1	1	100.00%	DETECTED
Type 6 #2	1	1	100.00%	DETECTED
Type 6 #3	1	1	100.00%	DETECTED
Type 6 #4	1	1	100.00%	DETECTED
Type 6 #5	1	1	100.00%	DETECTED
Type 6 #6	1	1	100.00%	DETECTED
Type 6 #7	1	0	0.00%	NOT DETECTED
Type 6 #8	1	1	100.00%	DETECTED
Type 6 #9	1	1	100.00%	DETECTED
Type 6 #10	1	1	100.00%	DETECTED
Type 6 #11	1	1	100.00%	DETECTED
Type 6 #12	1	1	100.00%	DETECTED
Type 6 #13	1	1	100.00%	DETECTED
Type 6 #14	1	1	100.00%	DETECTED
Type 6 #15	1	1	100.00%	DETECTED
Type 6 #16	1	1	100.00%	DETECTED
Type 6 #17	1	1	100.00%	DETECTED
Type 6 #18	1	1	100.00%	DETECTED
Type 6 #19	1	1	100.00%	DETECTED
Type 6 #20	1	1	100.00%	DETECTED
Type 6 #21	1	1	100.00%	DETECTED
Type 6 #22	1	1	100.00%	DETECTED
Type 6 #23	1	1	100.00%	DETECTED
Type 6 #24	1	1	100.00%	DETECTED
Type 6 #25	1	1	100.00%	DETECTED
Type 6 #26	1	1	100.00%	DETECTED
Type 6 #27	1	1	100.00%	DETECTED
Type 6 #28	1	1	100.00%	DETECTED
Type 6 #29	1	1	100.00%	DETECTED
Type 6 #30	1	1	100.00%	DETECTED

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Equipment Configuration for Radar Type 6

Variant:	40 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 256	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Burst Segment	Detections	Injection #	Detection Rate	Pass/Fail
Type 6 #1	1	1	100.00%	DETECTED
Type 6 #2	1	1	100.00%	DETECTED
Type 6 #3	1	1	100.00%	DETECTED
Type 6 #4	1	1	100.00%	DETECTED
Type 6 #5	1	1	100.00%	DETECTED
Type 6 #6	1	1	100.00%	DETECTED
Type 6 #7	1	1	100.00%	DETECTED
Type 6 #8	1	1	100.00%	DETECTED
Type 6 #9	1	1	100.00%	DETECTED
Type 6 #10	1	1	100.00%	DETECTED
Type 6 #11	1	1	100.00%	DETECTED
Type 6 #12	1	1	100.00%	DETECTED
Type 6 #13	1	1	100.00%	DETECTED
Type 6 #14	1	1	100.00%	DETECTED
Type 6 #15	1	1	100.00%	DETECTED
Type 6 #16	1	1	100.00%	DETECTED
Type 6 #17	1	1	100.00%	DETECTED
Type 6 #18	1	1	100.00%	DETECTED
Type 6 #19	1	1	100.00%	DETECTED
Type 6 #20	1	1	100.00%	DETECTED
Type 6 #21	1	1	100.00%	DETECTED
Type 6 #22	1	1	100.00%	DETECTED
Type 6 #23	1	1	100.00%	DETECTED
Type 6 #24	1	1	100.00%	DETECTED
Type 6 #25	1	1	100.00%	DETECTED
Type 6 #26	1	1	100.00%	DETECTED
Type 6 #27	1	1	100.00%	DETECTED
Type 6 #28	1	1	100.00%	DETECTED
Type 6 #29	1	1	100.00%	DETECTED
Type 6 #30	1	1	100.00%	DETECTED

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Equipment Configuration for Radar Type 6

Variant:	80 MHz (5500 MHz)	**Duty Cycle (%):**	35.00
Data Rate:	QAM 256	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	SB
Engineering Test Notes:			

Test Measurement Results

Burst Segment	Detections	Injection #	Detection Rate	Pass/Fail
Type 6 #1	1	1	100.00%	DETECTED
Type 6 #2	1	1	100.00%	DETECTED
Type 6 #3	1	1	100.00%	DETECTED
Type 6 #4	1	1	100.00%	DETECTED
Type 6 #5	1	1	100.00%	DETECTED
Type 6 #6	1	1	100.00%	DETECTED
Type 6 #7	1	1	100.00%	DETECTED
Type 6 #8	1	1	100.00%	DETECTED
Type 6 #9	1	1	100.00%	DETECTED
Type 6 #10	1	1	100.00%	DETECTED
Type 6 #11	1	1	100.00%	DETECTED
Type 6 #12	1	1	100.00%	DETECTED
Type 6 #13	1	1	100.00%	DETECTED
Type 6 #14	1	1	100.00%	DETECTED
Type 6 #15	1	1	100.00%	DETECTED
Type 6 #16	1	1	100.00%	DETECTED
Type 6 #17	1	1	100.00%	DETECTED
Type 6 #18	1	1	100.00%	DETECTED
Type 6 #19	1	1	100.00%	DETECTED
Type 6 #20	1	1	100.00%	DETECTED
Type 6 #21	1	1	100.00%	DETECTED
Type 6 #22	1	1	100.00%	DETECTED
Type 6 #23	1	1	100.00%	DETECTED
Type 6 #24	1	1	100.00%	DETECTED
Type 6 #25	1	1	100.00%	DETECTED
Type 6 #26	1	1	100.00%	DETECTED
Type 6 #27	1	1	100.00%	DETECTED
Type 6 #28	1	1	100.00%	DETECTED
Type 6 #29	1	1	100.00%	DETECTED
Type 6 #30	1	1	100.00%	DETECTED

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10.5.1.3. Detection Bandwidth

To determine the equipment Detection Bandwidth for each applicable operational mode a single burst of the short pulse radar Type 0 was produced at the appropriate power level. The EUT was set up as a standalone device (no associated Client or Master, as appropriate) and no traffic. Frame based systems will be set to a talk/listen ratio reflecting the worst case (maximum) that is user configurable during this test.

To determine the actual receiver bandwidth a single radar burst is generated for a minimum of 10 trials and the response of the EUT noted. The EUT must detect the Radar Waveform until it fails to detect, at this point testing is stopped and the frequency noted.

Starting from the actual channel center frequency the radar frequency is increased in 1 MHz steps, repeating the above test sequence, until the detection rate falls below 90%. The highest frequency at which detection is greater than or equal to 90% is denoted as FH. Note for the higher bandwidths ac-80 etc the 1 MHz step size can be increased.

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

The U-NII Detection Bandwidth is calculated as follows:
U-NII Detection Bandwidth = FH – FL

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

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Equipment Configuration for Detection Bandwidth

Variant:	5 MHz	**Duty Cycle (%):**	35.00
Data Rate:	QAM64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	BJ
Engineering Test Notes:			

Test Measurement Results

Frequency	Injections	Detections	Detection Rate	Result
5488 MHz				
5489 MHz				
5490 MHz				
5491 MHz				
5492 MHz				
5493 MHz				
5494 MHz				
5495 MHz				
5496 MHz				
5497 MHz	10	0	0.00%	Fail
5498 MHz	10	10	100.00%	Pass
5499 MHz	10	10	100.00%	Pass
5500	10	10	100.00%	Pass
5501 MHz	10	10	100.00%	Pass
5502 MHz	10	10	100.00%	Pass
5503 MHz	10	0	0.00%	Fail
5504 MHz				
5505 MHz				
5506 MHz				
5507 MHz				
5508 MHz				
5509 MHz				
5510 MHz				
5511 MHz				
5512 MHz				
5513 MHz				
5514 MHz				

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Equipment Configuration for Detection Bandwidth

Variant:	10 MHz	**Duty Cycle (%):**	35.00
Data Rate:	QAM64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	BJ
Engineering Test Notes:			

Test Measurement Results

Frequency	Injections	Detections	Detection Rate	Result
5494 MHz	10	0	0.00%	Fail
5495 MHz	10	10	100.00%	Pass
5496 MHz	10	10	100.00%	Pass
5497 MHz	10	10	100.00%	Pass
5498 MHz	10	10	100.00%	Pass
5499 MHz	10	10	100.00%	Pass
5500	10	10	100.00%	Pass
5501 MHz	10	10	100.00%	Pass
5502 MHz	10	10	100.00%	Pass
5503 MHz	10	10	100.00%	Pass
5504 MHz	10	10	100.00%	Pass
5505 MHz	10	10	100.00%	Pass
5506 MHz	10	0	0.00%	Fail

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Equipment Configuration for Detection Bandwidth

Variant:	20 MHz	**Duty Cycle (%):**	35.00
Data Rate:	QAM64	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	BJ
Engineering Test Notes:			

Test Measurement Results

Frequency	Injections	Detections	Detection Rate	Result
5489 MHz	10	0	0.00%	Fail
5490 MHz	10	10	100.00%	Pass
5491 MHz	10	10	100.00%	Pass
5492 MHz	10	10	100.00%	Pass
5493 MHz	10	10	100.00%	Pass
5494 MHz	10	10	100.00%	Pass
5495 MHz	10	10	100.00%	Pass
5496 MHz	10	10	100.00%	Pass
5497 MHz	10	10	100.00%	Pass
5498 MHz	10	10	100.00%	Pass
5499 MHz	10	10	100.00%	Pass
5500	10	10	100.00%	Pass
5501 MHz	10	10	100.00%	Pass
5502 MHz	10	10	100.00%	Pass
5503 MHz	10	10	100.00%	Pass
5504 MHz	10	10	100.00%	Pass
5505 MHz	10	10	100.00%	Pass
5506 MHz	10	10	100.00%	Pass
5507 MHz	10	10	100.00%	Pass
5508 MHz	10	10	100.00%	Pass
5509 MHz	10	10	100.00%	Pass
5510 MHz	10	10	100.00%	Pass
5511 MHz	10	0	0.00%	Fail

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Equipment Configuration for Detection Bandwidth

Variant:	40 MHz	**Duty Cycle (%):**	35.00
Data Rate:	QAM 256	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	BJ
Engineering Test Notes:			

Test Measurement Results

Frequency	Injections	Detections	Detection Rate	Result
5474 MHz				
5475 MHz				
5476 MHz				
5477 MHz				
5478 MHz				
5479 MHz	10	0	0.00%	Fail
5480 MHz	10	10	100.00%	Pass
5481 MHz	10	10	100.00%	Pass
5482 MHz	10	10	100.00%	Pass
5483 MHz	10	10	100.00%	Pass
5484 MHz	10	10	100.00%	Pass
5485 MHz	10	10	100.00%	Pass
5486 MHz	10	10	100.00%	Pass
5487 MHz	10	10	100.00%	Pass
5488 MHz	10	10	100.00%	Pass
5489 MHz	10	10	100.00%	Pass
5490 MHz	10	10	100.00%	Pass
5491 MHz	10	10	100.00%	Pass
5492 MHz	10	10	100.00%	Pass
5493 MHz	10	10	100.00%	Pass
5494 MHz	10	10	100.00%	Pass
5495 MHz	10	10	100.00%	Pass
5496 MHz	10	10	100.00%	Pass
5497 MHz	10	10	100.00%	Pass
5498 MHz	10	10	100.00%	Pass
5499 MHz	10	10	100.00%	Pass
5500	10	10	100.00%	Pass
5501 MHz	10	10	100.00%	Pass
5502 MHz	10	10	100.00%	Pass
5503 MHz	10	10	100.00%	Pass
5504 MHz	10	10	100.00%	Pass
5505 MHz	10	10	100.00%	Pass
5506 MHz	10	10	100.00%	Pass

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5507 MHz	10	10	100.00%	Pass
5508 MHz	10	10	100.00%	Pass
5509 MHz	10	10	100.00%	Pass
5510 MHz	10	10	100.00%	Pass
5511 MHz	10	10	100.00%	Pass
5512 MHz	10	10	100.00%	Pass
5513 MHz	10	10	100.00%	Pass
5514 MHz	10	10	100.00%	Pass
5515 MHz	10	10	100.00%	Pass
5516 MHz	10	10	100.00%	Pass
5517 MHz	10	10	100.00%	Pass
5518 MHz	10	10	100.00%	Pass
5519 MHz	10	10	100.00%	Pass
5520 MHz	10	10	100.00%	Pass
5521 MHz	10	0	0.00%	Fail
5522 MHz				
5523 MHz				
5524 MHz				
5525 MHz				
5526 MHz				
5527 MHz				

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Equipment Configuration for Detection Bandwidth

Variant:	80 MHz	**Duty Cycle (%):**	35.00
Data Rate:	QAM 256	**Antenna Gain (dBi):**	11.00
Modulation:	OFDM	**Beam Forming Gain (Y):**	Not Applicable
TPC:		**Tested By:**	BJ
Engineering Test Notes:			

Test Measurement Results

Frequency	Injections	Detections	Detection Rate	Result
5459 MHz	10	0	0.00%	Fail
5460 MHz	10	10	100.00%	Pass
5461 MHz	10	10	100.00%	Pass
5462 MHz	10	10	100.00%	Pass
5463 MHz	10	10	100.00%	Pass
5464 MHz	10	10	100.00%	Pass
5465 MHz	10	10	100.00%	Pass
5466 MHz	10	10	100.00%	Pass
5467 MHz	10	10	100.00%	Pass
5468 MHz	10	10	100.00%	Pass
5469 MHz	10	10	100.00%	Pass
5470 MHz	10	10	100.00%	Pass
5471 MHz	10	10	100.00%	Pass
5472 MHz	10	10	100.00%	Pass
5473 MHz	10	10	100.00%	Pass
5474 MHz	10	10	100.00%	Pass
5475 MHz	10	10	100.00%	Pass
5476 MHz	10	10	100.00%	Pass
5477 MHz	10	10	100.00%	Pass
5478 MHz	10	10	100.00%	Pass
5479 MHz	10	10	100.00%	Pass
5480 MHz	10	10	100.00%	Pass
5481 MHz	10	10	100.00%	Pass
5482 MHz	10	10	100.00%	Pass
5483 MHz	10	10	100.00%	Pass
5484 MHz	10	10	100.00%	Pass
5485 MHz	10	10	100.00%	Pass
5486 MHz	10	10	100.00%	Pass
5487 MHz	10	10	100.00%	Pass
5488 MHz	10	10	100.00%	Pass
5489 MHz	10	10	100.00%	Pass
5490 MHz	10	10	100.00%	Pass
5491 MHz	10	10	100.00%	Pass

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5492 MHz	10	10	100.00%	Pass
5493 MHz	10	10	100.00%	Pass
5494 MHz	10	10	100.00%	Pass
5495 MHz	10	10	100.00%	Pass
5496 MHz	10	10	100.00%	Pass
5497 MHz	10	10	100.00%	Pass
5498 MHz	10	10	100.00%	Pass
5499 MHz	10	10	100.00%	Pass
5500	10	10	100.00%	Pass
5501 MHz	10	10	100.00%	Pass
5502 MHz	10	10	100.00%	Pass
5503 MHz	10	10	100.00%	Pass
5504 MHz	10	10	100.00%	Pass
5505 MHz	10	10	100.00%	Pass
5506 MHz	10	10	100.00%	Pass
5507 MHz	10	10	100.00%	Pass
5508 MHz	10	10	100.00%	Pass
5509 MHz	10	10	100.00%	Pass
5510 MHz	10	10	100.00%	Pass
5511 MHz	10	10	100.00%	Pass
5512 MHz	10	10	100.00%	Pass
5513 MHz	10	10	100.00%	Pass
5514 MHz	10	10	100.00%	Pass
5515 MHz	10	10	100.00%	Pass
5516 MHz	10	10	100.00%	Pass
5517 MHz	10	10	100.00%	Pass
5518 MHz	10	10	100.00%	Pass
5519 MHz	10	10	100.00%	Pass
5520 MHz	10	10	100.00%	Pass
5521 MHz	10	10	100.00%	Pass
5522 MHz	10	10	100.00%	Pass
5523 MHz	10	10	100.00%	Pass
5524 MHz	10	10	100.00%	Pass
5525 MHz	10	10	100.00%	Pass
5526 MHz	10	10	100.00%	Pass
5527 MHz	10	10	100.00%	Pass
5528 MHz	10	10	100.00%	Pass
5529 MHz	10	10	100.00%	Pass
5530 MHz	10	10	100.00%	Pass
5531 MHz	10	10	100.00%	Pass
5532 MHz	10	10	100.00%	Pass
5533 MHz	10	10	100.00%	Pass
5534 MHz	10	10	100.00%	Pass
5535 MHz	10	10	100.00%	Pass

5536 MHz	10	10	100.00%	Pass
5537 MHz	10	10	100.00%	Pass
5538 MHz	10	10	100.00%	Pass
5539 MHz	10	10	100.00%	Pass
5540 MHz	10	10	100.00%	Pass
5541 MHz	10	0	0.00%	Fail
5546 MHz				

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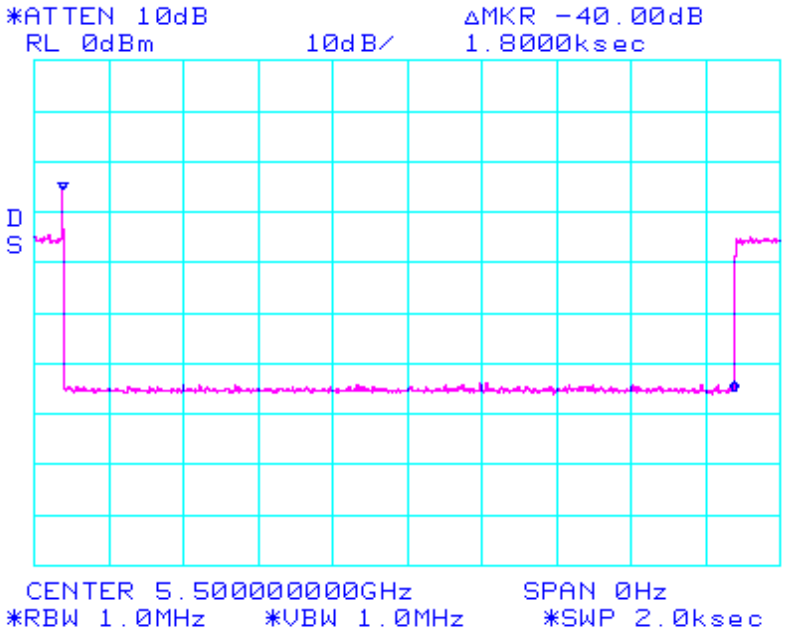
10.5.1.4. Non-Occupancy Period

The EUT is monitored for more than 30 minutes following the channel close/move time to verify no transmissions resume on this Channel. There should be no transmissions on the frequency of interest during the non-occupancy period.

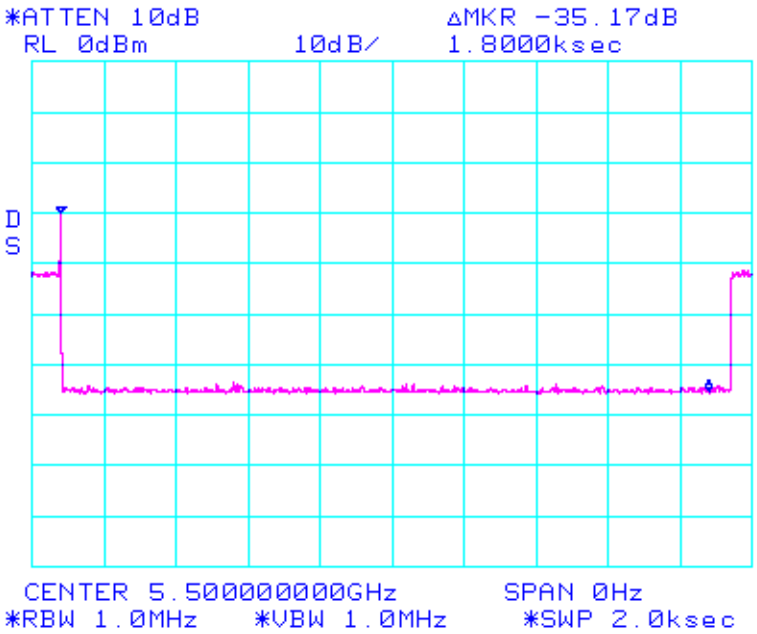
NON-OCCUPANCY PERIOD

Variant: 5 MHz, Channel: 5500.00 MHz, Data Rate: QAM64, Duty Cycle : 35.00%, Antenna Gain: 11 dBi



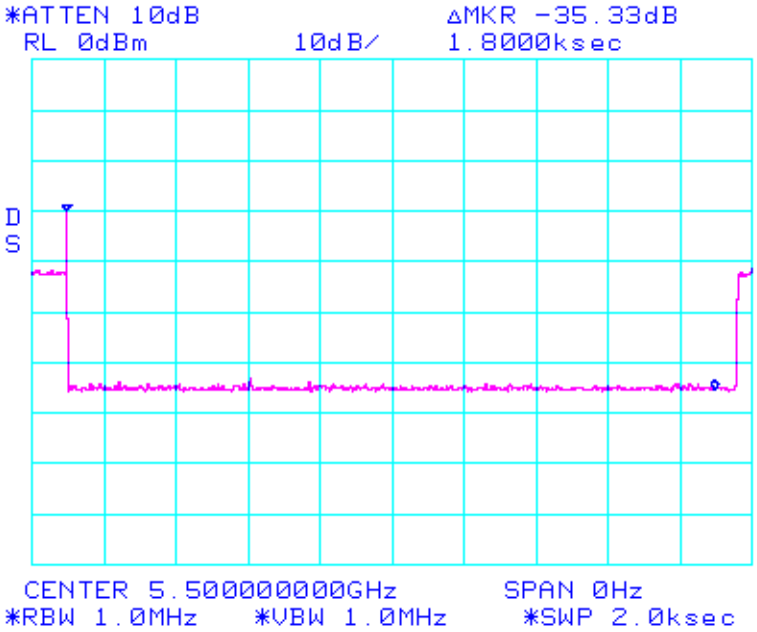
NON-OCCUPANCY PERIOD

Variant: 10 MHz, Channel: 5500.00 MHz, Data Rate: QAM64, Duty Cycle : 35.00%, Antenna Gain: 11 dBi



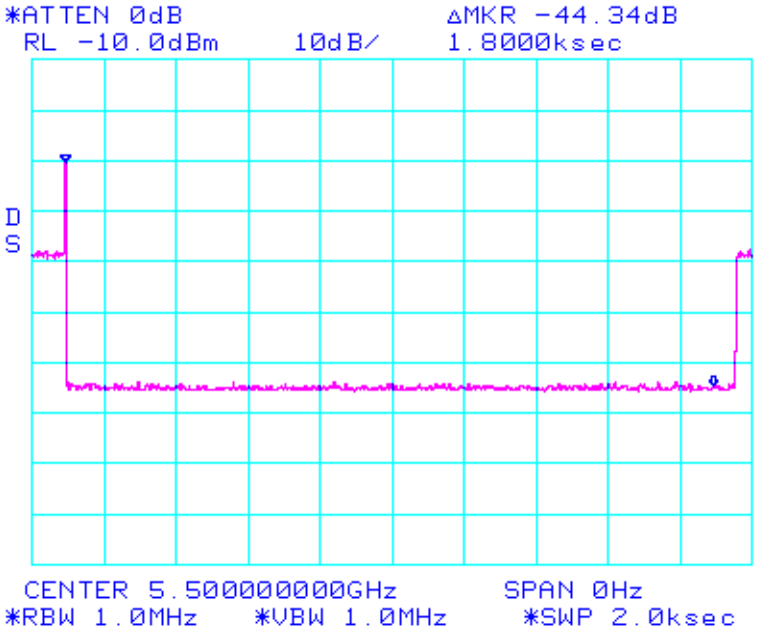
NON-OCCUPANCY PERIOD

Variant: 20 MHz, Channel: 5500.00 MHz, Data Rate: QAM64, Duty Cycle : 35.00%, Antenna Gain: 11 dBi



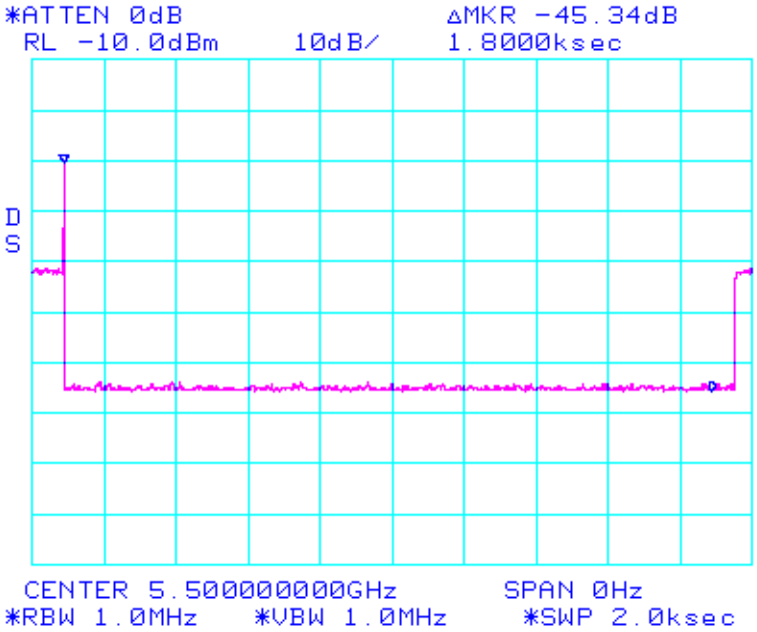
NON-OCCUPANCY PERIOD

Variant: 40 MHz, Channel: 5500.00 MHz, Data Rate: QAM64, Duty Cycle : 35.00%, Antenna Gain: 11 dBi



NON-OCCUPANCY PERIOD

Variant: 80 MHz, Channel: 5500.00 MHz, Data Rate: QAM64, Duty Cycle : 35.00%, Antenna Gain: 11.00 dBi



10.5.1.5. Channel Close / Transmission Time

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 is generated on the Operating Channel of the U-NII device.

The EUT will is associated with a support U-NII device in order to setup an appropriate transmission media in accordance with the FCC requirements.

Channel Closing Transmission Time and Channel Mode Time - Measurement

The test system was set-up to capture all transmission data for access point events above a threshold level of -50 dBm. The test equipment time stamps all captured events.

A Type 0 waveform was introduced to the EUT, from which a 12 second transmission record was digitally captured. The start of the Type 0 radar waveform is indicated in the test result plot as “Start Waveform”, the end of the waveform is indicated as “End waveform”.

Channel Closing Transmission Time, and the Channel Move Time start immediately after the last radar pulse is transmitted.

The aggregate of all pulses seen after the end of the radar injection are measured as the “Channel Closing Transmission time”.

The last EUT activity after the end of the radar pulse is identified and used to determine the “Channel Move Time”

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Frequency 5500 MHz (5 MHz)

The PXI system measures and aggregates the pulses occurring after the end of the radar pulse to determine;-

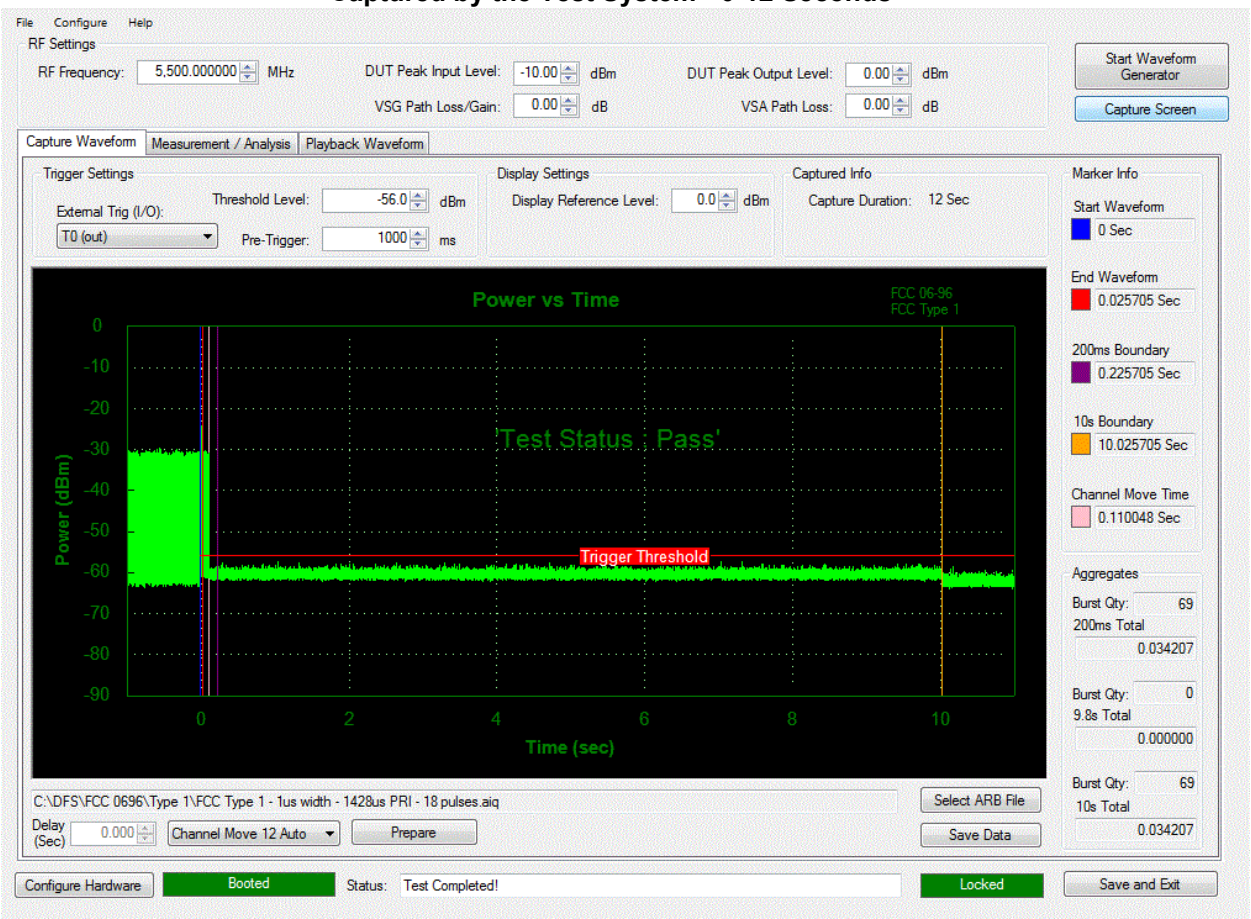
1) Channel Closing Transmission Time (limit is 1 second)

2) Channel Move Time (limit is 10 seconds)

1) Channel Closing Transmission Time = <u>34.207 mSecs (limit 250 mSec)</u>

2) Channel Move Time = <u>0.110 Secs (limit is 10 seconds)</u>

Channel Move Time, Channel Closing Transmission Time for Type 1 Radar Captured by the Test System - 0-12 Seconds



Frequency 5500 MHz (10 MHz)

The PXI system measures and aggregates the pulses occurring after the end of the radar pulse to determine;-

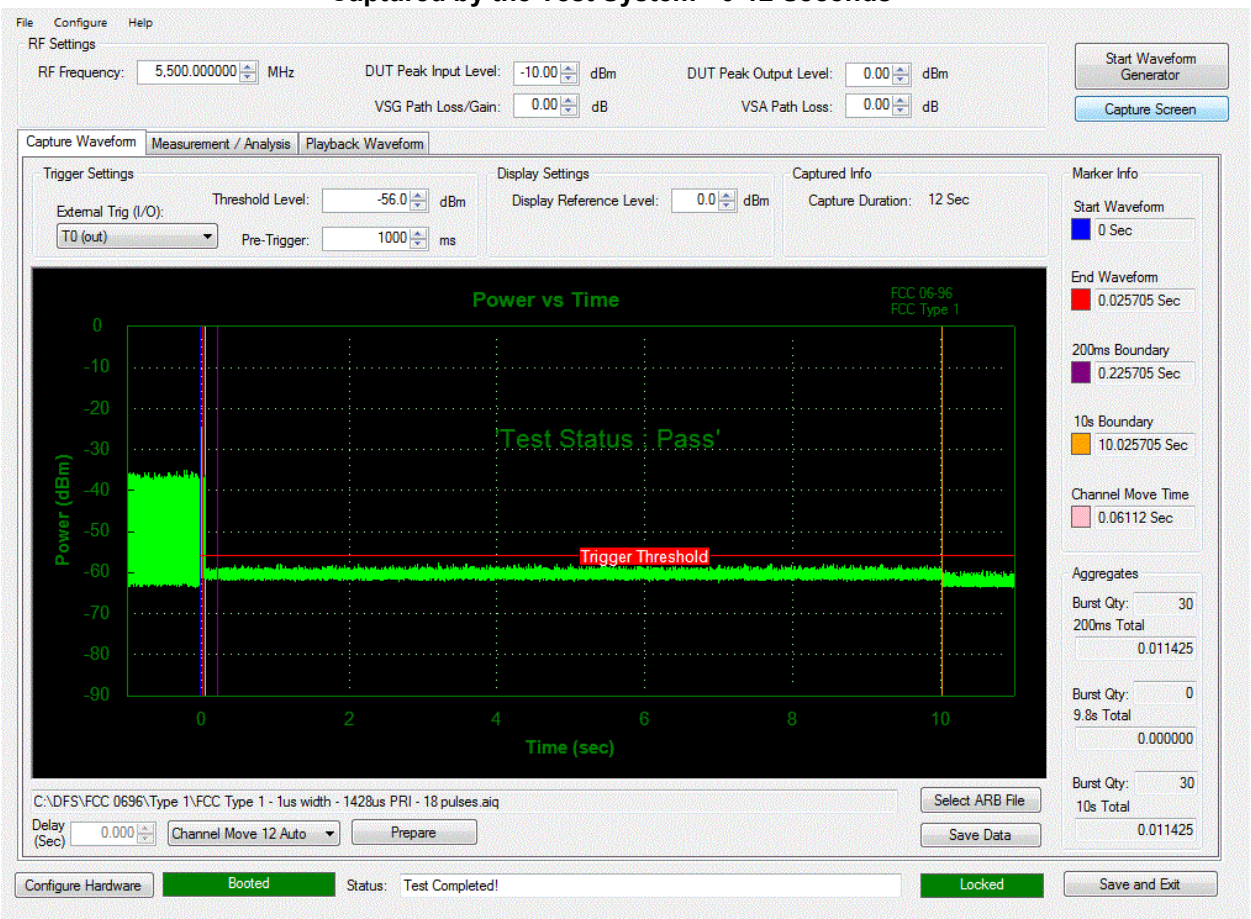
1) Channel Closing Transmission Time (limit is 1 second)

2) Channel Move Time (limit is 10 seconds)

1) Channel Closing Transmission Time = <u>11.425 mSecs (limit 250 mSec)</u>

2) Channel Move Time = <u>0.06112 Secs (limit is 10 seconds)</u>

Channel Move Time, Channel Closing Transmission Time for Type 1 Radar Captured by the Test System - 0-12 Seconds



Frequency 5500 MHz (20 MHz)

The PXI system measures and aggregates the pulses occurring after the end of the radar pulse to determine;-

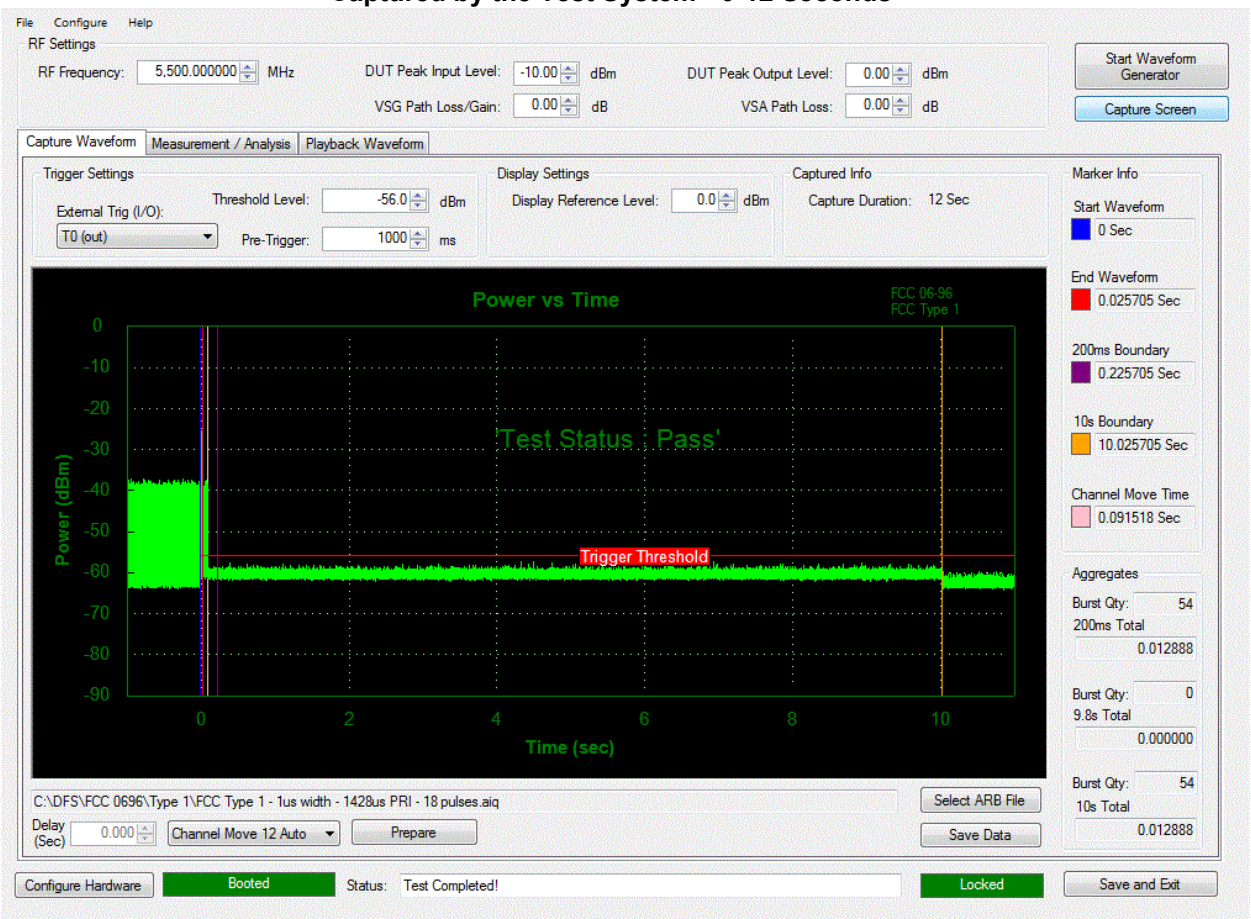
1) Channel Closing Transmission Time (limit is 1 second)

2) Channel Move Time (limit is 10 seconds)

1) Channel Closing Transmission Time = <u>12.88 mSecs (limit 250 mSec)</u>

2) Channel Move Time = <u>0.0915 Secs (limit is 10 seconds)</u>

Channel Move Time, Channel Closing Transmission Time for Type 1 Radar Captured by the Test System - 0-12 Seconds



Frequency 5500 MHz (40 MHz)

The PXI system measures and aggregates the pulses occurring after the end of the radar pulse to determine;-

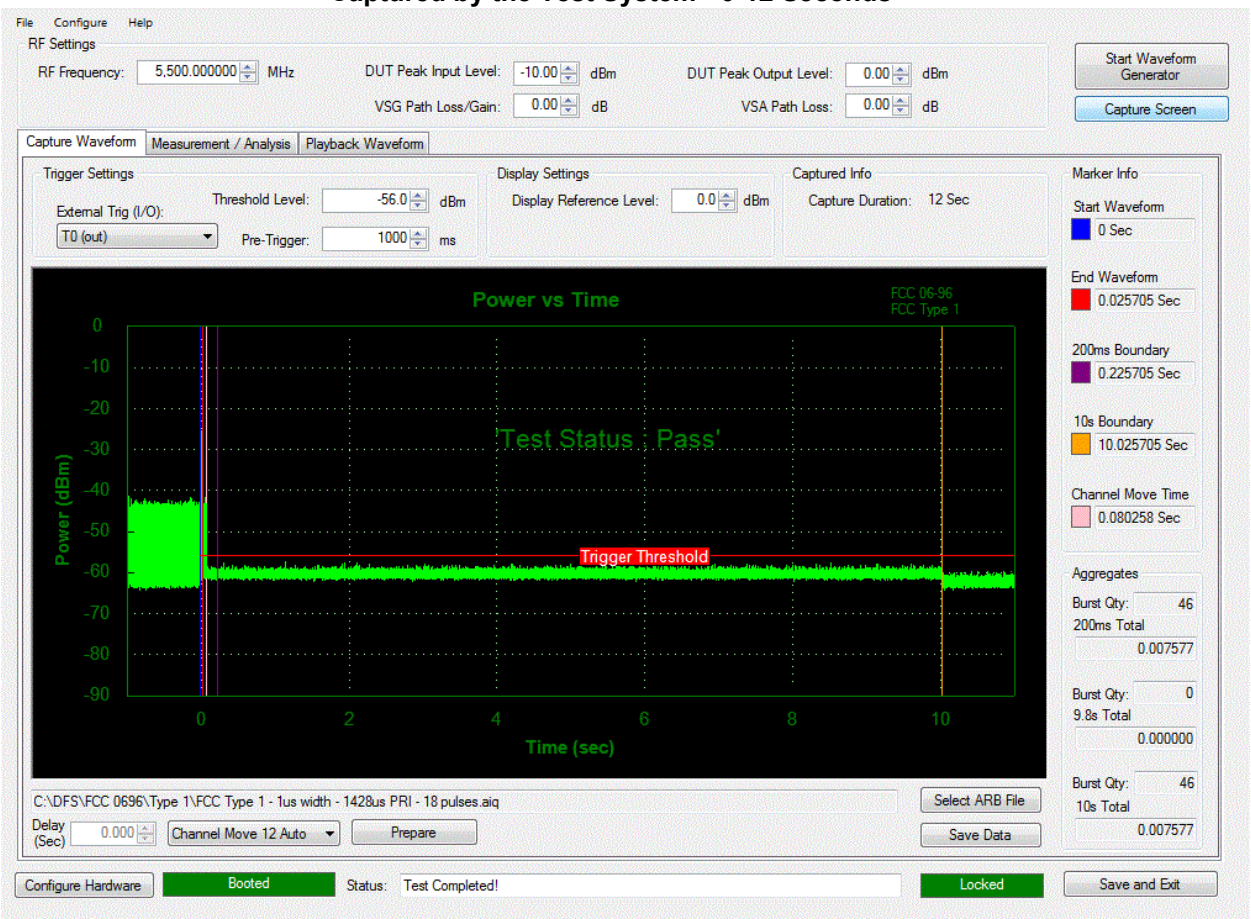
1) Channel Closing Transmission Time (limit is 1 second)

2) Channel Move Time (limit is 10 seconds)

1) Channel Closing Transmission Time = <u>7.577 mSecs (limit 250 mSec)</u>

2) Channel Move Time = <u>0.0080258 Secs (limit is 10 seconds)</u>

Channel Move Time, Channel Closing Transmission Time for Type 1 Radar Captured by the Test System - 0-12 Seconds



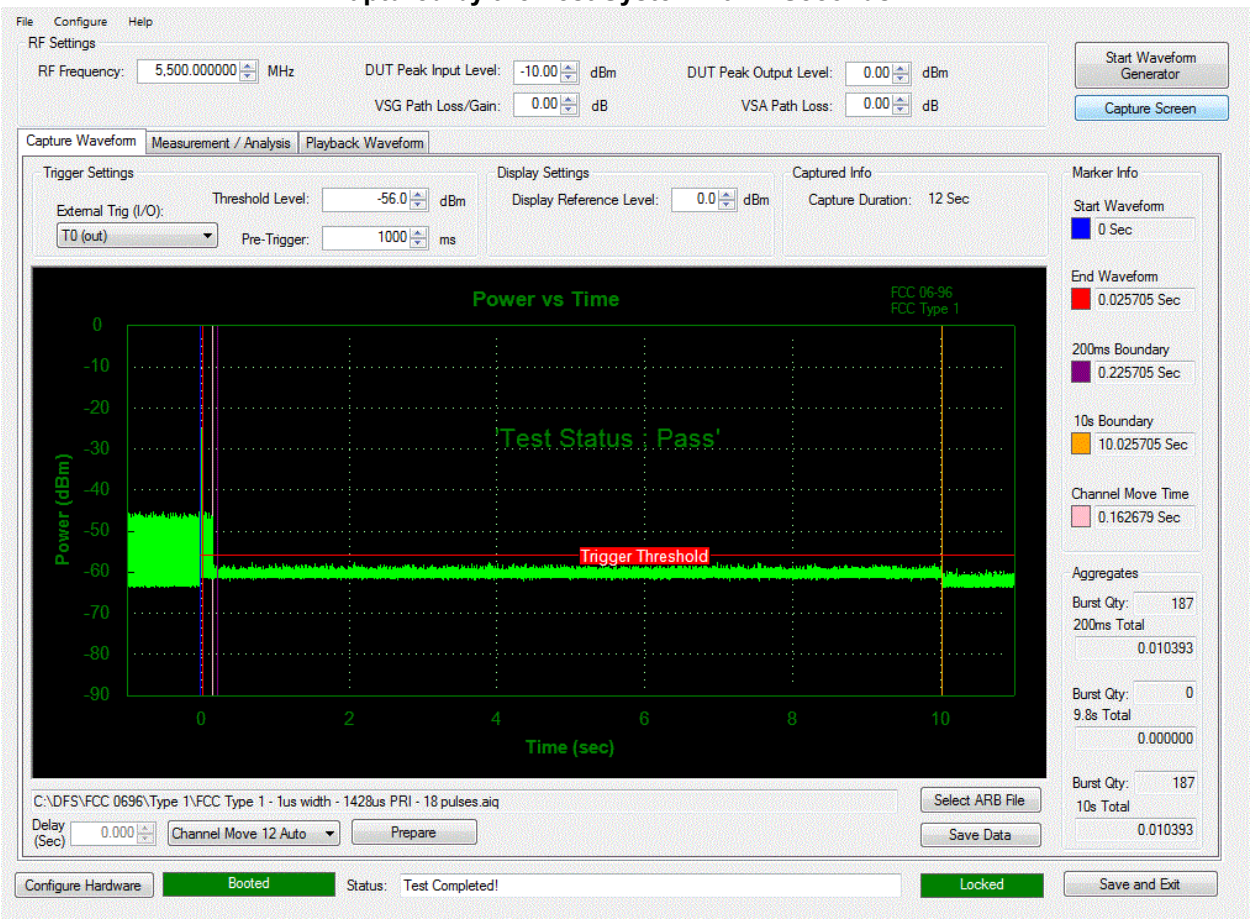
Frequency 5500 MHz (80 MHz)

The PXI system measures and aggregates the pulses occurring after the end of the radar pulse to determine;-

1) Channel Closing Transmission Time (limit is 1 second)

2) Channel Move Time (limit is 10 seconds)

1) Channel Closing Transmission Time = <u>10.393 mSecs (limit 250 mSec)</u>

2) Channel Move Time = <u>0.162679 Secs (limit is 10 seconds)</u>

Channel Move Time, Channel Closing Transmission Time for Type 1 Radar Captured by the Test System - 0-12 Seconds