UNIFIED COMPLIANCE LABORATORY

427 West 12800 South
Draper, UT 84020

Test Report

Certification

FCC ID	SWX-LBE5ACXR
ISED ID	6545A-LBE5ACXR
Equipment Under Test	LBE-5AC-XR
Test Report Serial Number	TR6823_04
Date of Tests	9 July, 18-19, 23-24 November, 7 December 2021; 17 January 2022
Report Issue Date	20 January 2022

Test Specification	**Applicant**
47 CFR FCC Part 15, Subpart E	Ubiquiti Inc. 685 Third Avenue New York, NY 10017 U.S.A.

NVLAP® TESTING ilac-MRA

NVLAP LAB CODE 600241-0

Certification of Engineering Report

This report has been prepared by Unified Compliance Laboratory (UCL) to document compliance of the device described below with the requirement of Federal Communication Commissions (FCC) Part 15, Subpart E. This report may be reproduced in full. Partial reproduction of this report may only be made with the written consent of the laboratory. The results in this report apply only to the sample tested.

Applicant	Ubiquiti Inc.
Manufacturer	Ubiquiti Inc.
Brand Name	airMAX
Model Number	LBE-5AC-XR
FCC ID	SWX-LBE5ACXR
ISED ID	6545A-LBE5ACXR

On this 20th day of January 2022, I individually and for Unified Compliance Laboratory certify that the statements made in this engineering report are true, complete, and correct to the best of my knowledge and are made in good faith.

Although NVLAP has accredited the Unified Compliance Laboratory testing facilities, this report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the U.S. federal government.

Unified Compliance Laboratory

Written By: Kimberly Rodriguez

Reviewed By: Richard L. Winter

Revision History		
Revision	**Description**	**Date**
01	Original Report Release	20 January 2022
02	Added KDB Reference in Section 5.7	14 February 2022
03	Add DFS Test Results In Section 5.7	18 February 2022
04	Updated DFS section	8 March 2022
05	Updated section 2.2	16 March 2022

Table of Contents

1 Client Information

1.1 Applicant

Company	Ubiquiti Inc. 685 Third Avenue New York, NY 10017 U.S.A.
Contact Name	Mark Feil
Title	Compliance Manager

1.2 Manufacturer

Company	Ubiquiti Inc. 685 Third Avenue New York, NY 10017 U.S.A.
Contact Name	Mark Feil
Title	Compliance Manager

2 Equipment Under Test (EUT)

2.1 Identification of EUT

Brand Name	airMAX				
Model Number	LBE-5AC-XR				
Serial Number	0418D6A2AFB9				
Dimensions (cm)	74.7	x	52.5	x	34.7

2.2 Description of EUT

The LBE-5AC-XR is a point-to-point transceiver, intended for outdoor use, operating in the 2.4 GHz WiFi, UNII-1, UNII-2 and UNII-3 frequency bands. The LBE-5AC-XR is designed to the lightweight and aimed to create extremely long-distance wireless links. The LBE-5AC-XR also has a Bluetooth LE transceiver for device management. An Ethernet port is used for data transfer and to provide power using a POE-24-24W POE power supply.
The manufacturer has declared that the information regarding the parameters of the detected radar Waveforms during normal use is not reported by the EUT or made available to the end user.

Band	Modulation Bandwidth	Frequency (MHz)
UNII-2A	20 MHz	5260, 5265, 5270, 5275, 5280, 5285, 5290, 5295, 5300, 5305, 5310, 5315, 5320
	40 MHz	5270, 5275, 5280, 5285, 5290, 5295, 5300, 5305, 5310
	80 MHz	5290
	160 MHz	5250
UNII-2C	20 MHz	5500, 5505, 5510, 5515, 5520, 5525, 5530, 5535, 5540, 5545, 5550, 5555, 5560, 5565, 5570, 5575, 5580, 5585, 5590, 5595, 5600, 5605*, 5610*, 5615*, 5620*, 5625*, 5630*, 5635*, 5640*, 5645*, 5650, 5655, 5660, 5665, 5670, 5675, 5680, 5685, 5690, 5695, 5700, 5705, 5710, 5715, 5720
	40 MHz	5510, 5515, 5520, 5525, 5530, 5535, 5540, 5545, 5550, 5555, 5560, 5565, 5570, 5575, 5580, 5585, 5590, 5595, 5600, 5605*, 5610*, 5615*, 5620*, 5625*, 5630*, 5635*, 5640*, 5645*, 5650, 5655, 5660, 5665, 5670, 5675, 5680, 5685, 5690, 5695, 5700, 5705, 5710
	80 MHz	5530, 5535, 5540, 5545, 5550, 5555, 5560, 5565, 5570, 5575, 5580, 5585, 5590, 5595, 5600, 5605*, 5610*, 5615*, 5620*, 5625*, 5630*, 5635*, 5640*, 5645*, 5650, 5655, 5660, 5665, 5670, 5675, 5680, 5685, 5690
	160 MHz	5570
* Frequency not applicable in Canada		

Table 1: UNII-2A and UNII-2C Channel Settings

This report covers the circuitry of the device subject to FCC Part 15, Subpart E. The circuitry of the device subject to FCC Part 15 Subpart B was found to be compliant and is covered under a separate Unified Compliance Laboratory test report.

2.3 EUT and Support Equipment

The EUT and support equipment used during the test are listed below.

Brand Name Model Number Serial Number	Description	Name of Interface Ports / Interface Cables
BN: airMAX MN: LBE-5AC-XR (Note 1) SN: 0418D6A2AFB9	Wireless Transceiver	See Section 2.4
BN: Ubiquiti Inc. MN: POE-24-24W (Note 1) SN: None	POE Supply	POE Port See Section 2.4
BN: Dell MN: XPS 13 SN: None	Laptop PC	LAN Port / Shielded or Unshielded Cat 5e cable (Note 2)
BN: HP MN: Spectre SN: None	Laptop PC	LAN Port / Shielded or Unshielded Cat 5e cable (Note 2)

Notes: (1) EUT
(2) Interface port connected to EUT (See Section 2.4)

The support equipment listed above was not modified in order to achieve compliance with this standard.

2.4 Interface Ports on EUT

Name of Ports	No. of Ports Fitted to EUT	Cable Description/Length
AC (PoE Injector)	1	3 conductor power cord/80cm
LAN (PoE Injector)	1	Shielded or Unshielded Cat 5e cable/1 meter
Data	1	Shielded or Unshielded Cat 5e cable/8meters

2.5 Operating Environment

Power Supply	240 Vac to 24 Volt PoE Power
AC Mains Frequency	50 Hz
Temperature	23.1-26.1 °C
Humidity	19.1-29.8 %
Barometric Pressure	1019.98 mBar

2.6 Operating Modes

The LBE-5AC-XR was tested using test software to enable to constant transmission. The measurements within this report are corrected to reference a 100% duty cycle. All emission modes of 802.11 n/ac were investigated. All measurements are reported with the worst-case mode (802.11ax) unless otherwise stated.

2.7 EUT Exercise Software

EUT firmware version 1.0 was used to operate the transmitter using a constant transmit mode.

2.8 Block Diagram of Test Configuration

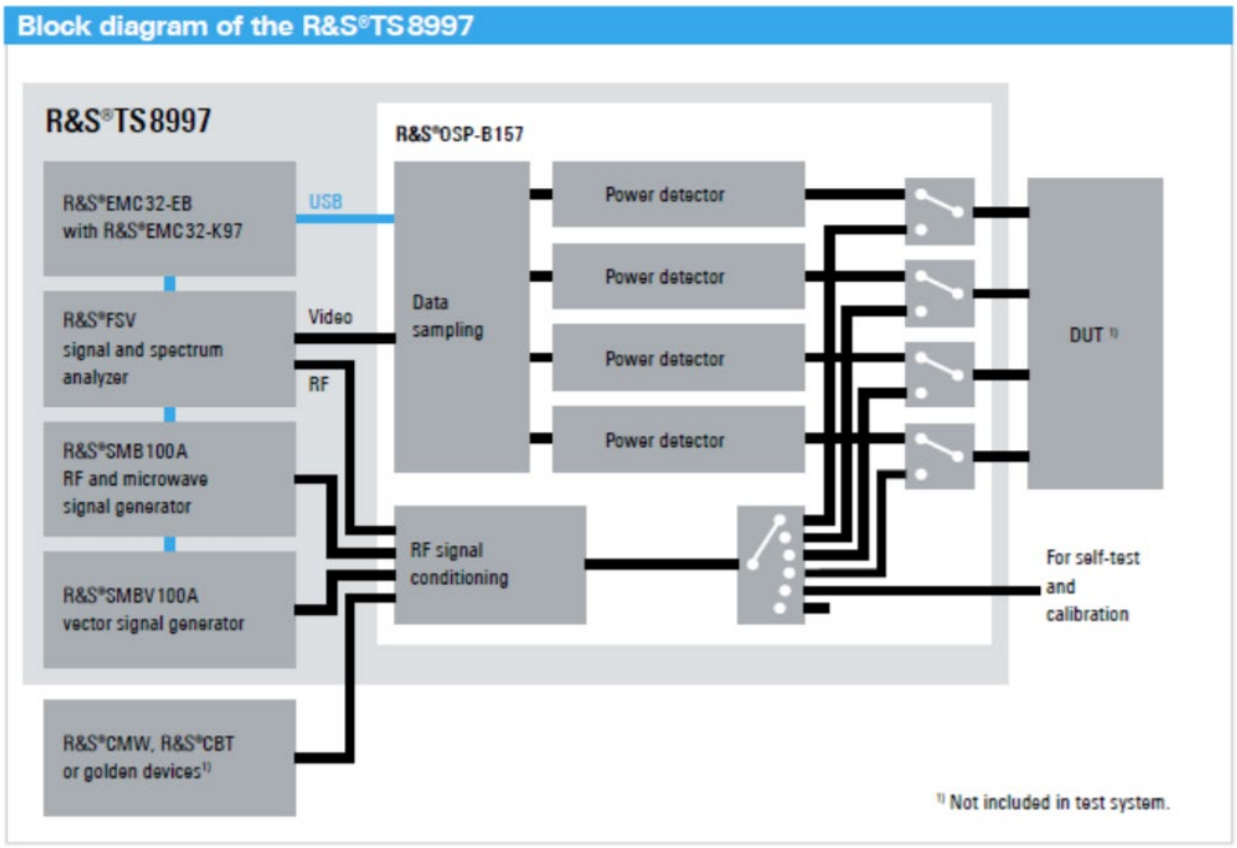


Diagram 1: Test Configuration Block Diagram

2.9 Modification Incorporated/Special Accessories on EUT

There were no modifications made to the EUT during testing to comply with the specification.

2.10 Deviation, Opinions Additional Information, or Interpretations from Test Standard

There were no deviations, opinions, additional information, or interpretations from the test specification.

3 Test Specification, Method and Procedures

3.1 Test Specification

Title	47 CFR FCC Part 15, Subpart E, Section 15.407 Limits and methods of measurement of radio interference characteristics of Unlicensed National Information Infrastructure Devices
Purpose of Test	The tests were performed to demonstrate initial compliance

3.2 Methods & Procedures

3.2.1 47 CFR FCC Part 15 Section 15.407

See test standard for details.

3.3 FCC Part 15, Subpart E

3.3.1 Summary of Tests

FCC Section	ISED Section	Environmental Phenomena	Frequency Range (MHZ)	Result
15.407(a)	N/A	Antenna requirements	Structural Requirement	Compliant
15.407(b)	RSS-Gen	Conducted Disturbance at Mains Port	0.15 to 30	Compliant
15.407(a)	RSS-247 §6.2.2, §6.2.3	Bandwidth Requirement	5260 to 5570	Compliant
15.407(a)	RSS-247 §6.2.2, §6.2.3	Peak Output Power	5260 to 5715	Compliant
15.407(b)	RSS-247 §6.2.2, §6.2.3	Antenna Conducted Spurious Emissions	0.009 to 40000	Compliant
15.407(b)	RSS-247 §6.2.2, §6.2.3	Radiated Spurious Emissions	0.009 to 40000	Compliant
15.407(a)	RSS-247 §6.2.2, §6.2.3	Peak Power Spectral Density	5260 to 5715	Compliant
15.407(h)	RSS-247 §6.3	DFS Requirements	5260 to 5570	Compliant
The testing was performed according to the procedures in ANSI C63.10-2013, KDB 558074 and 47 CFR Part 15. Where applicable, KDB 662911 was followed to sum required measurements.				

3.4 Results

In the configuration tested, the EUT complied with the requirements of the specification.

3.5 Test Location

Testing was performed at the Unified Compliance Laboratory 3-meter and 10-meter chamber located at 427 West 12800 South, Draper, UT 84020. Unified Compliance Laboratory is accredited by National Voluntary Laboratory Accreditation Program (NVLAP); NVLAP Code 600241-0 which is effective until 30 June 2022. This site has also been registered with Innovations, Science and Economic Development (ISED) department as was accepted under Appendix B, Phase 1 procedures of the APEC Tel MRA for Canadian recognition. ISED No.: 25346, effective until 30 June 2022. Unified Compliance Laboratory has been assigned Conformity Assessment Number US0223 by ISED.

4 Test Equipment

4.1 Conducted Emissions at Mains Ports

Type of Equipment	Manufacturer	Model Number	Asset Number	Date of Last Calibration	Due Date of Calibration
EMI Receiver	AFJ	FFT3010	UCL-2500	9/18/2020	3/17/2022
LISN	AFJ	LS16C/10	UCL-2512	5/26/2020	5/26/2022
Cat6 ISN	Teseq	ISN T8-Cat6	UCL-2971	5/18/2020	5/18/2022
ISN	Teseq	ISN T800	UCL-2974	6/4/2021	6/4/2022
LISN	Com-Power	LIN-120C	UCL-2612	5/19/2021	5/19/2022
AC Power Source	Laplace Instruments	AC1000A	UCL-2857	N/A	N/A
Test Software	UCL	Revision 1	UCL-3107	N/A	N/A

Table 2: List of equipment used for Conducted Emissions Testing at Mains Port

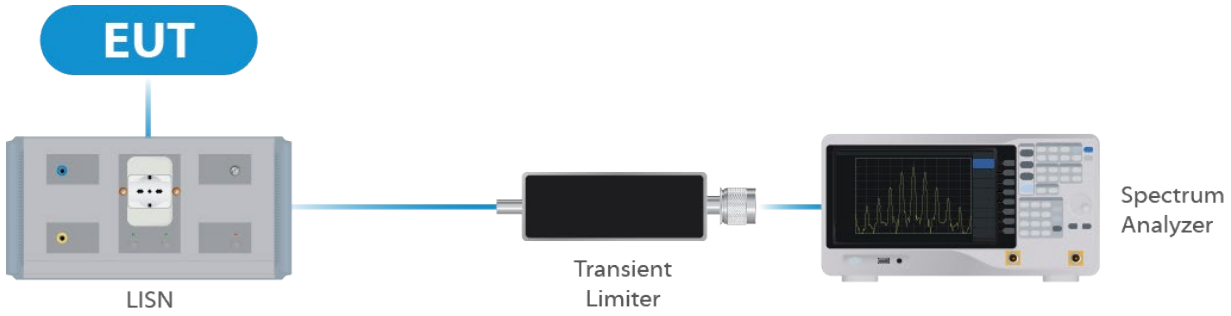


Figure 1: Conducted Emissions Test

4.2 Direct Connect at the Antenna Port Tests

Type of Equipment	Manufacturer	Model Number	Asset Number	Date of Last Calibration	Due Date of Calibration
Spectrum Analyzer	R&S	FSV40	UCL-2861	1/03/2022	1/03/2023
Signal Generator	R&S	SMB100A	UCL-2864	N/A	N/A
Vector Signal Generator	R&S	SMBV100A	UCL-2873	N/A	N/A
Switch Extension	R&S	OSP-B157WX	UCL-2867	1/03/2022	1/03/2023
Switch Extension	R&S	OSP-150W	UCL-2870	1/03/2022	1/03/2023

Table 3: List of equipment used for Direct Connect at the Antenna Port

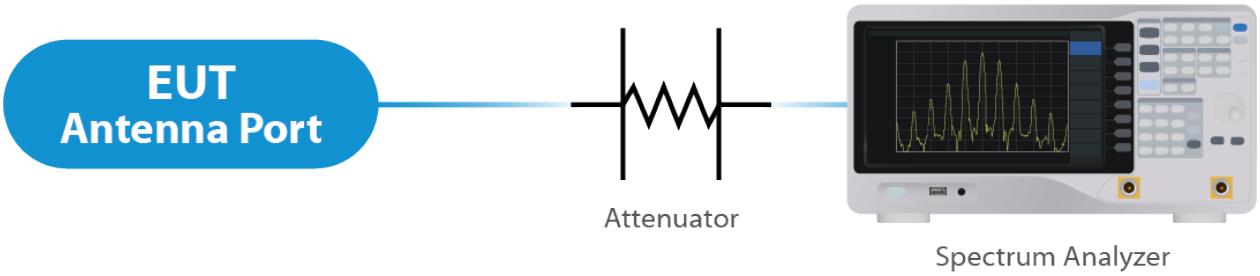


Figure 2: Direct Connect at the Antenna Port Test

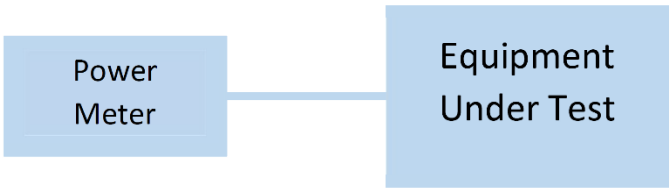


Figure 3: Output Power Measurement

4.3 Radiated Emissions

Type of Equipment	Manufacturer	Model Number	Asset Number	Date of Last Calibration	Due Date of Calibration
EMI Receiver	Keysight	N9038A	UCL-2778	6/21/2021	6/21/2022
Pre-Amplifier 9 kHz – 1 GHz	Sonoma Instruments	310N	UCL-2889	10/7/2021	10/7/2022
Broadband Antenna	Scwarzbeck	VULB 9163	UCL-3062	8/28/2020	8/27/2022
Broadband Antenna	Scwarzbeck	VULB 9163	UCL-3071	5/19/2020	5/19/2022
Double Ridge Horn Antenna	Scwarzbeck	BBHA 9120D	UCL-3065	7/8/2021	7/8/2022
Log Periodic	Scwarzbeck	STLP 9129	UCL-3068	11/16/2020	11/16/2022
15 - 40 GHz Horn Antenna	Scwarzbeck	BBHA 9170	UCL-2487	5/21/2020	5/21/2022
1 – 18 GHz Amplifier	Com-Power	PAM 118A	UCL-3833	10/7/2021	10/7/2022
Test Software	UCL	Revision 1	UCL-3108	N/A	N/A

Table 4: List of equipment used for Radiated Emissions

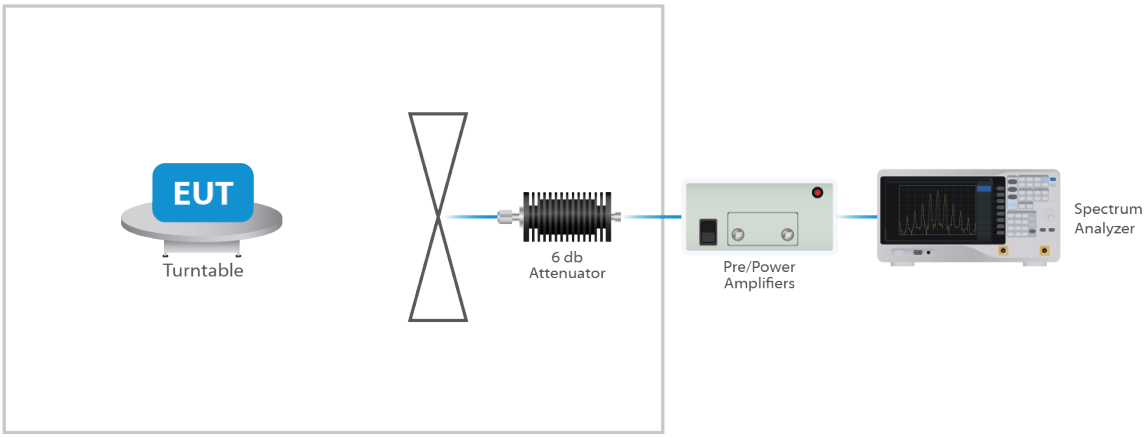


Figure 4: Radiated Emissions Test

4.4 DFS Testing

Type of Equipment	Manufacturer	Model Number	Asset Number	Date of Last Calibration	Due Date of Calibration
Vector Signal Generator	R&S	SMBV100A	UCL-2873	N/A	N/A
Spectrum Analyzer	Keysight	E4407B	UCL-2943	3/29/2021	3/29/2022

4.4.1 Master Test Set Up

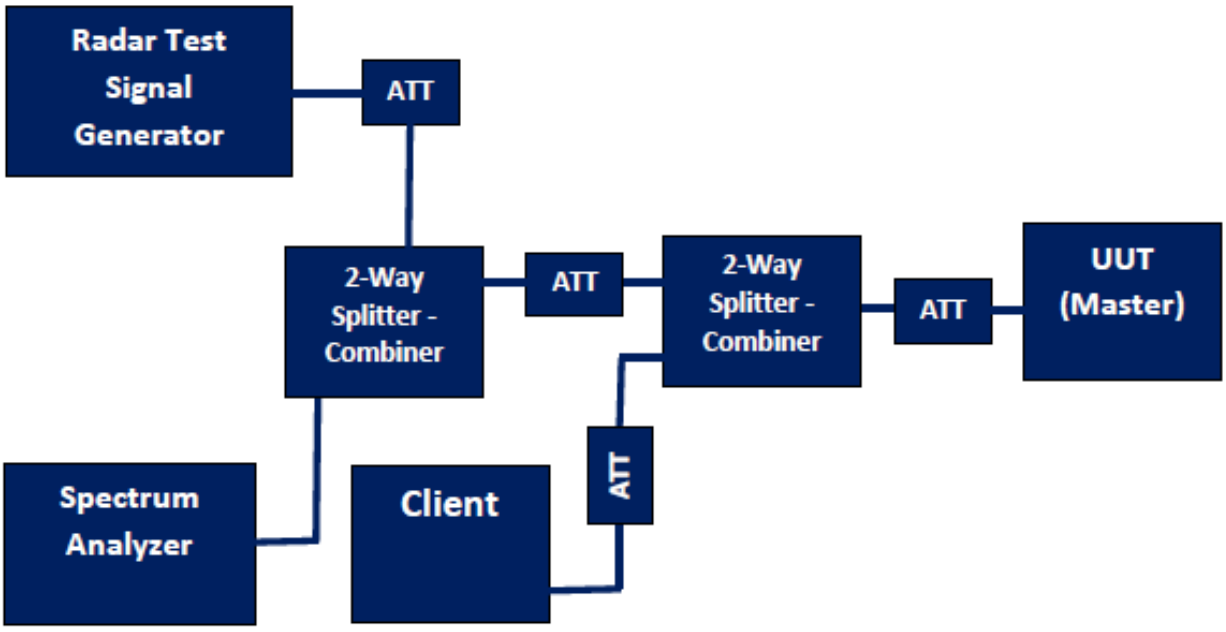


Figure 5: DFS Test Set Up - Master

4.5 Equipment Calibration

All applicable equipment is calibrated using either an independent calibration laboratory or Unified Compliance Laboratory personnel at intervals defined in ANSI C63.4:2014 following outlined calibration procedures. All measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST). Supporting documentation relative to traceability is on file and is available for examination upon request.

4.6 Measurement Uncertainty

Test	Uncertainty (± dB)	Confidence (%)
Conducted Emissions	1.44	95
Radiated Emissions (9 kHz to 30 MHz)	2.50	95
Radiated Emissions (30 MHz to 1 GHz)	4.38	95
Radiated Emissions (1 GHz to 18 GHz)	4.37	95
Radiated Emissions (18 GHz to 40 GHz)	3.93	95
Direct Connect Tests	**K Factor**	**Value**
Emissions Bandwidth	2	2.0%
Output Power	2	1.0 dB
Peak Power Spectral Density	2	1.3 dB
Band Edge	2	0.8 dB
Transmitter Spurious Emissions	2	1.8 dB

5 Test Results

5.1 §15.203 Antenna Requirements

The EUT uses an integral antenna and an additional dish antenna. The maximum gain of the DUT is 2 dBi and the gain of the attachable antenna is 29 dBi. This is an 802.11 device and utilizes CDD as described in KDB 662911 D01. The integral antenna is not user replaceable while the additional reflector/antenna is user replaceable.

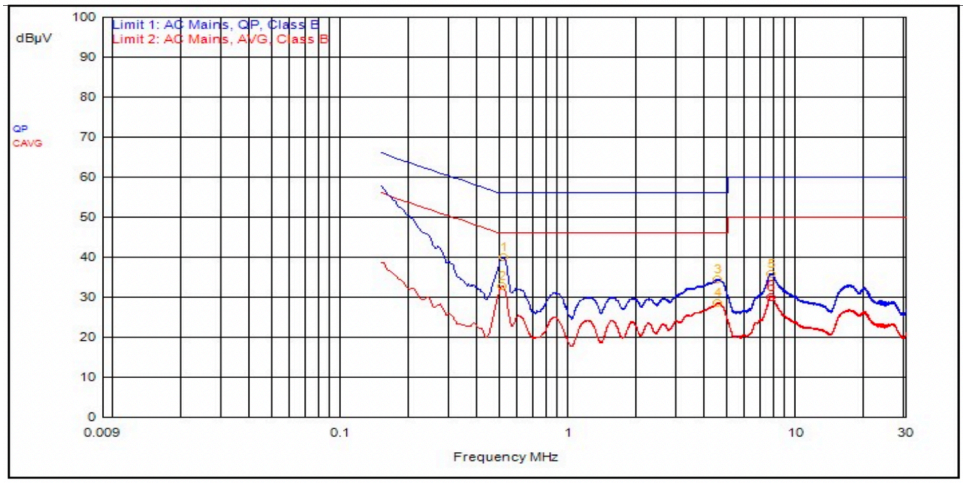
For PSD measurements when Nss=1: Array Gain = 10 log(Nant/Nss) dB = 6.02dB

Results

The EUT complied with the specification

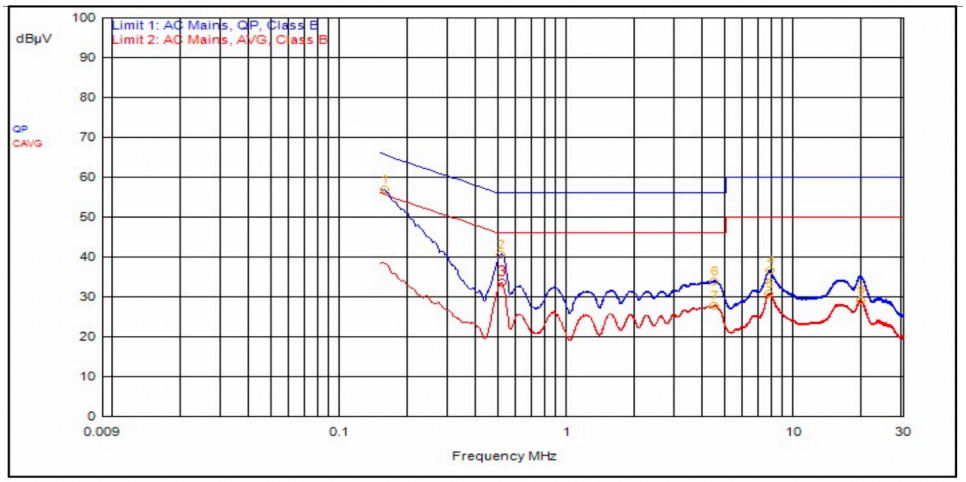
5.2 Conducted Emissions at Mains Ports Data

5.2.1 Line



ID	Frequency	Probe	Cable	Atten.	Detector	Meter Read	Meas Level	Limit 1	Limit 1 Dist.	Limit 2	Limit 2 Dist.
1	510,000kHz	12.4	0.0		QPeak	27.5	39.9	56.0	-16.1		
3	4.437MHz	12.3	0.1		QPeak	22.0	34.4	56.0	-21.6		
5	7.686MHz	12.3	0.2		QPeak	23.4	35.9	60.0	-24.1		
2	507,000kHz	12.4	0.0		C_AVG	20.4	32.8			46.0	-13.2
4	4.467MHz	12.3	0.1		C_AVG	16.1	28.5			46.0	-17.5
6	7.611MHz	12.3	0.2		C_AVG	17.6	30.1			50.0	-19.9

5.2.2 Neutral



ID	Frequency	Probe	Cable	Atten.	Detector	Meter Read	Meas Level	Limit 1	Limit 1 Dist.	Limit 2	Limit 2 Dist.
1	156,000kHz	12.4	0.0		QPeak	44.5	56.9	65.7	-8.8		
2	507,000kHz	12.4	0.0		QPeak	28.2	40.6	56.0	-15.4		
6	4.407MHz	12.3	0.1		QPeak	21.6	34.0	56.0	-22.0		
4	7.719MHz	12.3	0.2		QPeak	24.1	36.6	60.0	-23.4		
3	510,000kHz	12.4	0.0		C_AVG	21.0	33.5			46.0	-12.5
5	7.686MHz	12.3	0.2		C_AVG	18.3	30.8			50.0	-19.2
7	4.419MHz	12.3	0.1		C_AVG	15.5	27.9			46.0	-18.1
9	19.401MHz	12.2	0.2		C_AVG	16.8	29.2			50.0	-20.8

Result

The EUT complied with the specification limit.

5.3 §15.403(i) 26 dB Emissions Bandwidth

All chains were measured under the guidance of KDB 789033 Section II.C. and KDB 66291 D01. Please see associated annex for details on instrument settings.

5.3.1 UNII-2A

Bandwidth	Frequency (MHz)	99% Bandwidth (MHz)	Emissions 26 dB Bandwidth (MHz)
10	5255	8.90	30.00
10	5300	8.85	11.40
10	5340	8.90	10.70
20	5260	17.70	21.40
20	5300	17.70	21.20
20	5335	17.80	21.30
30	5265	25.80	29.85
30	5300	25.65	29.70
30	5330	25.80	29.70
40	5270	36.75	42.45
40	5300	36.50	42.30
40	5325	36.50	42.50
50	5275	44.75	52.50
50	5300	44.50	52.00
50	5320	44.50	51.75
60	5280	53.50	61.00
60	5300	53.50	60.75
60	5315	53.50	60.75
80	5290	76.00	86.00
80	5300	76.00	86.50
80	5305	76.00	89.00

5.3.2 UNII-2C

Bandwidth	Frequency (MHz)	99% Bandwidth (MHz)	Emissions 26 dB Bandwidth (MHz)
10	5480	8.85	30.00
10	5600	8.90	10.85
10	5715	8.90	11.05
20	5485	17.70	21.60
20	5600	17.70	20.90
20	5710	17.70	21.10
30	5490	25.65	29.85
30	5600	25.65	29.70
30	5705	25.65	29.70
40	5495	36.50	42.00
40	5600	36.50	41.40
40	5700	36.75	42.15
50	5500	44.75	51.50
50	5600	44.75	53.25
50	5695	44.75	51.75
60	5505	53.50	60.75
60	5600	53.50	61.00
60	5690	53.50	60.00
80	5515	75.50	85.00
80	5600	76.00	84.00
80	5680	76.00	85.50

Result

The 26 dB bandwidths are reported for information purposes. Please see Annex for all bandwidth measurements.

5.4 §15.407(a)(2) Maximum Average Output Power

All chains were measured and summed under the guidance of KDB 789033 Section II. E.2. and KDB 66291 D01. Please see associated annex for details on instrument settings.

The maximum average RF conducted output power measured for this device was 0.94 dBm or 1.24 mW. The limit is 24 dBm or 250 mW when using antennas with 6 dBi or less gain. The integral antenna has a maximum gain of 2 dBi.

5.4.1 UNII-2A

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power*	Measured EIRP	Measured PSD
HT 10	5255	Mcs0	7	0.78	29.78	-10.53
HT 10	5300	Mcs0	6	0.28	29.28	-11.41
HT 10	5340	Mcs0	7	0.61	29.61	-11.01
HT 20	5260	Mcs0	6	0.07	29.07	-14.38
HT 20	5300	Mcs0	6	0.43	29.43	-14.25
HT 20	5335	Mcs0	7	0.48	29.48	-13.97
HT 30	5265	Mcs0	6	0.22	29.22	-15.62
HT 30	5300	Mcs0	6	0.35	29.35	-15.68
HT 30	5330	Mcs0	6	0.62	29.62	-15.44
VHT 40	5270	Mcs0	7	0.83	29.83	-16.58
VHT 40	5300	Mcs0	6	0.05	29.05	-17.37
VHT 40	5325	Mcs0	6	0.10	29.10	-17.79
VHT 50	5275	Mcs0	7	0.88	29.88	-17.58
VHT 50	5300	Mcs0	6	0.05	29.05	-18.18
VHT 50	5320	Mcs0	6	0.10	29.10	-18.48
VHT 60	5280	Mcs0	7	0.94	29.94	-18.24
VHT 60	5300	Mcs0	6	0.00	29.00	-19.37
VHT 60	5315	Mcs0	6	0.14	29.14	-19.11
VHT 80	5290	Mcs0	7	0.55	29.55	-20.15
VHT 80	5300	Mcs0	7	0.62	29.62	-20.21
VHT 80	5305	Mcs0	7	0.71	29.71	-19.86

5.4.2 UNII-2C

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power*	Measured EIRP	Measured PSD
HT 10	5480	Mcs0	5	0.56	29.56	-11.22
HT 10	5600	Mcs0	4	0.40	29.40	-11.09
HT 10	5715	Mcs0	4	0.03	29.03	-11.55
HT 20	5485	Mcs0	5	0.54	29.54	-14.18
HT 20	5600	Mcs0	4	0.46	29.46	-13.96
HT 20	5710	Mcs0	4	0.05	29.05	-14.80
HT 30	5490	Mcs0	5	0.62	29.62	-15.71
HT 30	5600	Mcs0	4	0.43	29.43	-15.43
HT 30	5705	Mcs0	4	0.11	29.11	-16.23
VHT 40	5495	Mcs0	5	0.12	29.12	-17.49
VHT 40	5600	Mcs0	5	0.79	29.79	-16.59
VHT 40	5700	Mcs0	5	0.85	29.85	-16.80
VHT 50	5500	Mcs0	5	0.14	29.14	-18.19
VHT 50	5600	Mcs0	5	0.75	29.75	-17.51
VHT 50	5695	Mcs0	5	0.82	29.82	-17.63
VHT 60	5505	Mcs0	5	0.10	29.10	-19.17
VHT 60	5600	Mcs0	5	0.78	29.78	-18.27
VHT 60	5690	Mcs0	5	0.76	29.76	-18.67
VHT 80	5515	Mcs0	6	0.62	29.62	-20.29
VHT 80	5600	Mcs0	5	0.42	29.42	-20.25
VHT 80	5680	Mcs0	5	0.45	29.45	-20.44

Result

In the configuration tested, the maximum average RF output power was less than 1 Watt; therefore, the EUT complied with the requirements of the specification.

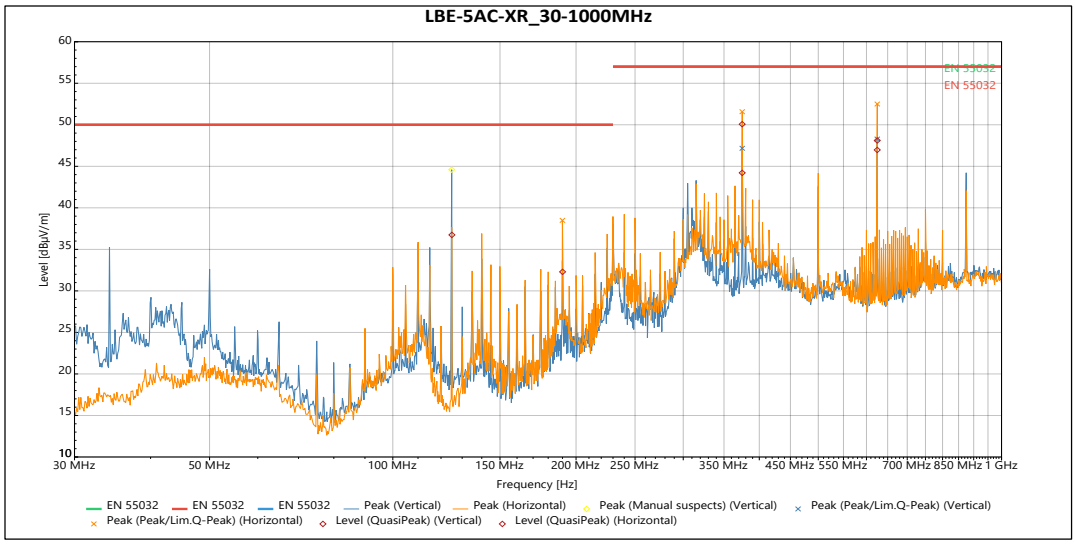
5.5 §15.407(b) Spurious Emissions

5.5.1 Radiated Spurious Emissions in the Restricted Bands of § 15.205

The frequency ranges within the lowest frequency generated by the device to the tenth harmonic of the highest fundamental emissions was investigated to measure any radiated emissions in the restricted bands. For frequencies above 18.0 GHz. The emissions in the restricted bans must meet the limits specified in § 15.209. Conducted measurement results are included in the Annex. Radiated data with the EUT transmitting into a load is included below. All emissions between the required frequencies were investigated, the following plots represent the worst case. Any "fail" is the transmitted signal exceeding the spurious limit.

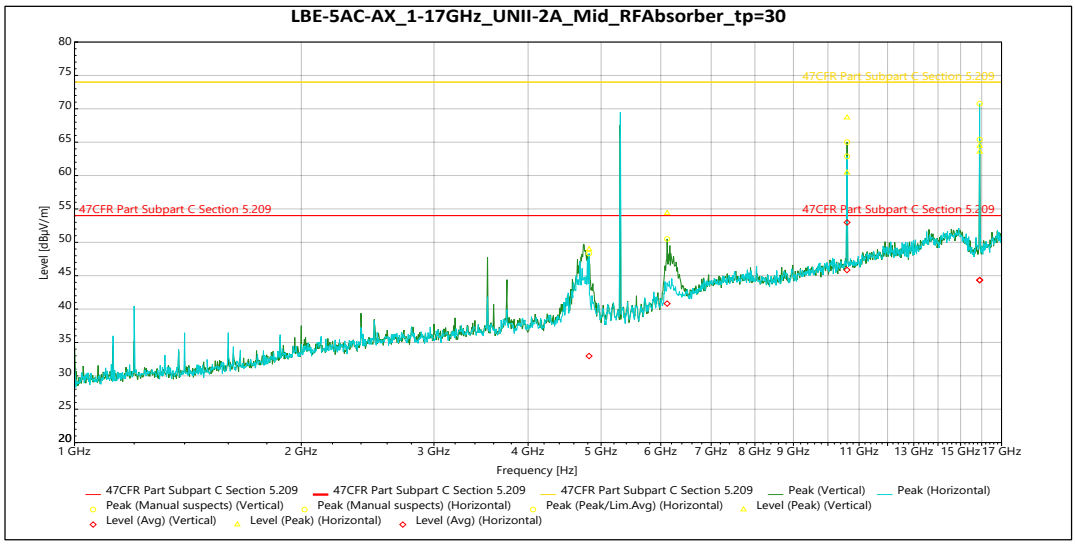
Correction Factor = Antenna Factor + Cable Loss - Pre-Amplifier Gain, and is added to the Receiver reading.

5.5.2 UNII-2A



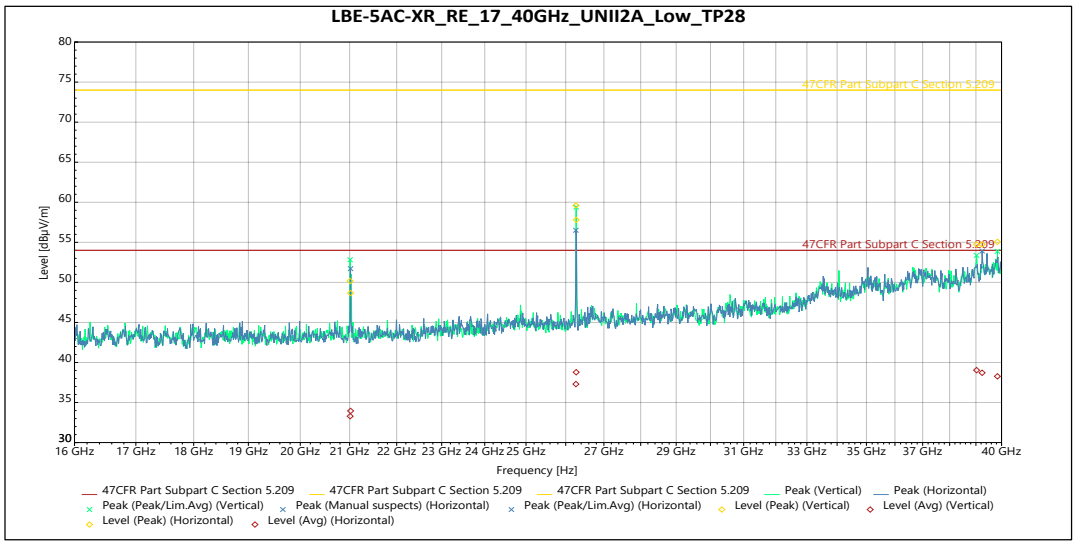
Frequency	SR #	Level (dBµV/m)	Limit (dBµV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
125.05 MHz	1	36.738	50	-13.262	359	1	Vertical	-11.926
374.99 MHz	1	44.205	57	-12.795	254	1.135	Vertical	-4.871
624.99 MHz	1	48.109	57	-8.891	4	2.035	Vertical	0.006
190.06 MHz	2	32.293	50	-17.707	277	1.132	Horizontal	-9.491
374.97 MHz	2	50.07	57	-6.93	1	1.131	Horizontal	-4.871
624.94 MHz	2	46.966	57	-10.034	39	1.132	Horizontal	0.006

Graph 1: Radiated Spurious Emissions in 30MHz – 1GHz



Frequency	Peak/Avg	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
6.1182 GHz	Peak	54.357	74	-19.643	10	1.994	Vertical	3.886
10.604 GHz	Peak	68.682	74	-5.318	22	1.636	Vertical	10.715
15.903 GHz	Peak	63.558	74	-10.442	29	1.636	Vertical	12.554
6.1182 GHz	Avg	40.819	54	-13.181	10	1.994	Vertical	3.886
10.604 GHz	Avg	52.985	54	-1.015	22	1.636	Vertical	10.715
15.903 GHz	Avg	44.353	54	-9.647	29	1.636	Vertical	12.554
4.8194 GHz	Peak	48.959	74	-25.041	18	2.174	Horizontal	0.142
10.601 GHz	Peak	60.43	74	-13.57	43	3.1	Horizontal	10.71
15.899 GHz	Peak	64.437	74	-9.563	16	1.5	Horizontal	12.54
4.8194 GHz	Avg	32.959	54	-21.041	18	2.174	Horizontal	0.142
10.601 GHz	Avg	45.853	54	-8.147	43	3.1	Horizontal	10.71
15.899 GHz	Avg	44.321	54	-9.679	16	1.5	Horizontal	12.54

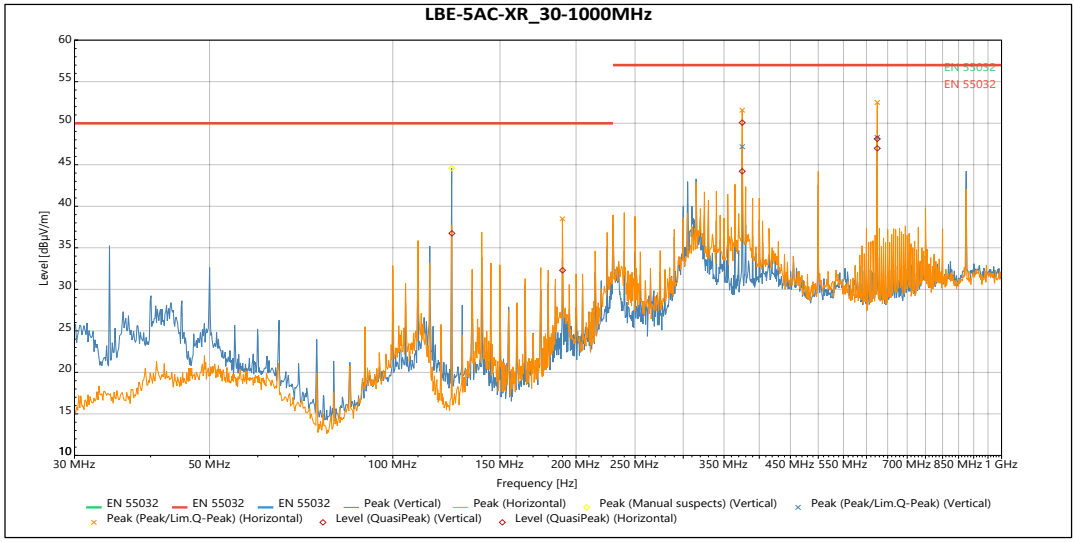
Graph 2: Radiated Spurious Emissions in 1-17GHz on Middle Frequency (worst-case)



Frequency		Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
21.011 GHz	Peak	50.17	74	-23.83	27	Vertical	-5.627
26.271 GHz	Peak	57.823	74	-16.177	36	Vertical	-5.707
39.025 GHz	Peak	54.725	74	-19.275	165	Vertical	3.193
39.838 GHz	Peak	55.061	74	-18.939	293	Vertical	3.594
21.011 GHz	Avg	33.287	54	-20.713	27	Vertical	-5.627
26.271 GHz	Avg	38.783	54	-15.217	36	Vertical	-5.707
39.025 GHz	Avg	39.036	54	-14.964	165	Vertical	3.193
39.838 GHz	Avg	38.271	54	-15.729	293	Vertical	3.594
21.02 GHz	Peak	48.662	74	-25.338	33	Horizontal	-5.718
26.264 GHz	Peak	59.596	74	-14.404	24	Horizontal	-5.701
39.24 GHz	Peak	54.739	74	-19.261	118	Horizontal	3.032
21.02 GHz	Avg	33.945	54	-20.055	33	Horizontal	-5.718
26.264 GHz	Avg	37.303	54	-16.697	24	Horizontal	-5.701
39.24 GHz	Avg	38.713	54	-15.287	118	Horizontal	5

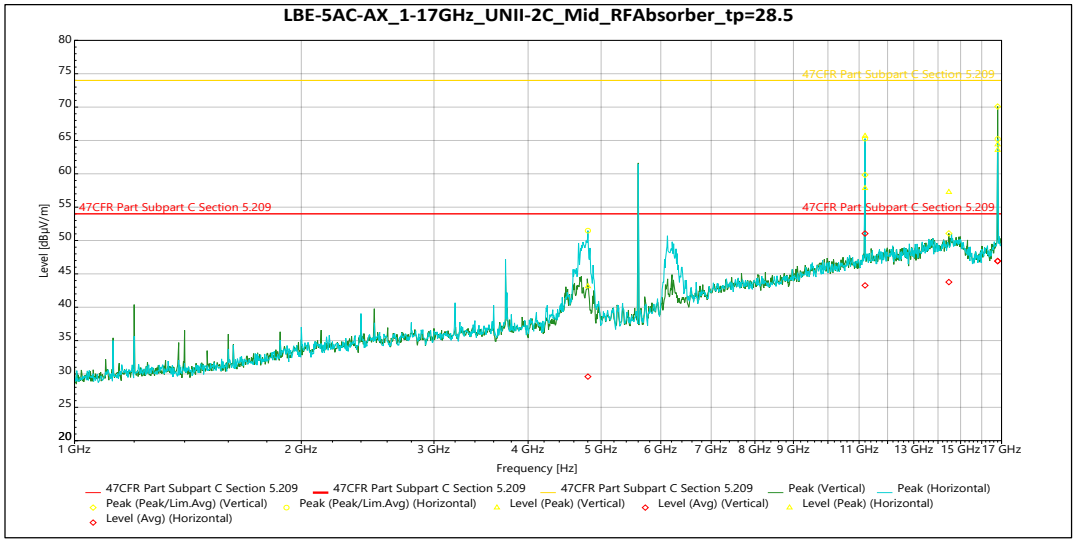
Graph 3: Radiated Spurious Emissions in 16-40GHz on Low Frequency (worst-case)

5.5.3 UNII-2C



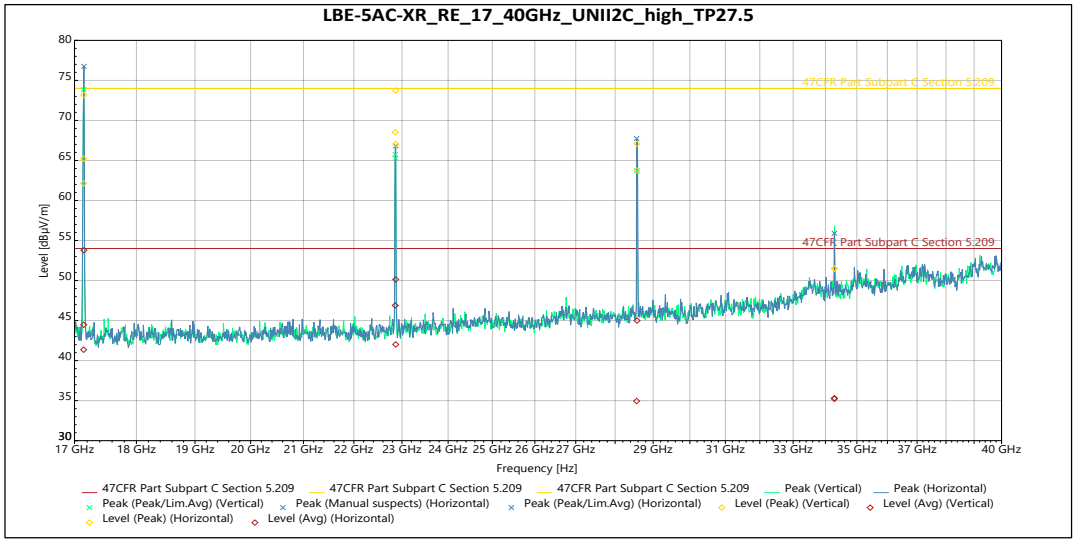
Frequency	SR #	Level (dBµV/m)	Limit (dBµV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
125.05 MHz	1	36.738	50	-13.262	359	1	Vertical	-11.926
374.99 MHz	1	44.205	57	-12.795	254	1.135	Vertical	-4.871
624.99 MHz	1	48.109	57	-8.891	4	2.035	Vertical	0.006
190.06 MHz	2	32.293	50	-17.707	277	1.132	Horizontal	-9.491
374.97 MHz	2	50.07	57	-6.93	1	1.131	Horizontal	-4.871
624.94 MHz	2	46.966	57	-10.034	39	1.132	Horizontal	0.006

Graph 4: Radiated Spurious Emissions in 30MHz–1GHz



Frequency	Peak/Avg	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
11.202 GHz	Peak	57.841	74	-16.159	39	2.921	Vertical	11.324
14.473 GHz	Peak	57.259	74	-16.741	327	1.874	Vertical	14.898
16.8 GHz	Peak	64.398	74	-9.602	356	1.814	Vertical	16.962
11.202 GHz	Avg	43.268	54	-10.732	39	2.921	Vertical	11.324
14.473 GHz	Avg	43.773	54	-10.227	327	1.874	Vertical	14.898
16.8 GHz	Avg	46.932	54	-7.068	356	1.814	Vertical	16.962
4.8026 GHz	Peak	43.126	74	-30.874	102	2.223	Horizontal	0.068
11.202 GHz	Peak	65.661	74	-8.339	22	1.632	Horizontal	11.324
16.802 GHz	Peak	63.565	74	-10.435	9	1.994	Horizontal	16.977
4.8026 GHz	Avg	29.602	54	-24.398	102	2.223	Horizontal	0.068
11.202 GHz	Avg	51.054	54	-2.946	22	1.632	Horizontal	11.324
16.802 GHz	Avg	46.909	54	-7.091	9	1.994	Horizontal	16.977

Graph 5: Radiated Spurious Emissions in 1–16GHz on Low Frequency (worst-case)



Frequency	Peak/Avg	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
17.144 GHz	Peak	62.136	74	-11.864	25	Vertical	-5.407
17.145 GHz	Peak	65.221	74	-8.779	33	Vertical	-5.392
22.857 GHz	Peak	68.534	74	-5.466	34	Vertical	-5.357
22.867 GHz	Peak	73.743	74	-0.257	18	Vertical	-5.077
28.573 GHz	Peak	67.076	74	-6.924	35	Vertical	-5.073
17.144 GHz	Avg	41.356	54	-12.644	25	Vertical	-5.407
17.145 GHz	Avg	44.471	54	-9.529	33	Vertical	-5.392
22.857 GHz	Avg	46.887	54	-7.113	34	Vertical	-5.357
22.867 GHz	Avg	50.141	54	-3.859	18	Vertical	-5.077
28.573 GHz	Avg	45	54	-9	35	Vertical	-5.073
17.148 GHz	Peak	73.195	74	-0.805	33	Horizontal	-5.346
22.867 GHz	Peak	67.039	74	-6.961	33	Horizontal	-5.077
28.561 GHz	Peak	63.745	74	-10.255	34	Horizontal	-5.017
34.281 GHz	Peak	51.5	74	-22.5	35	Horizontal	0.485
34.282 GHz	Peak	51.508	74	-22.492	35	Horizontal	0.483
17.148 GHz	Avg	53.785	54	-0.215	33	Horizontal	-5.346
22.867 GHz	Avg	42.016	54	-11.984	33	Horizontal	-5.077
28.561 GHz	Avg	34.951	54	-19.049	34	Horizontal	-5.017
34.281 GHz	Avg	35.222	54	-18.778	35	Horizontal	0.485
34.282 GHz	Avg	35.305	54	-18.695	35	Horizontal	0.483

Graph 6: Radiated Spurious Emissions in 16-40GHz on High Frequency (worst-case)

5.6 §15.407(a) Maximum Power Spectral Density

All chains were measured and summed under the guidance of KDB 789033 Section II. F. and KDB 66291 D01. Please see associated annex for details on instrument settings.

The maximum average power spectral density conducted from the intentional radiator of the antenna shall not be greater than 11 dBm in any 1 MHz band during any time interval of continuous transmission. Results of this testing are summarized. With a 2 dBi antenna, the conducted limit for power spectral density is 11 dBm. As per KDB 662911, When the EUT is using spatial-multiplexing in HT to HE modes, there is not additional array gain to accommodate. When the EUT uses Nss=1 data rates, the antenna gain is 2 dBi + Array gain of 6.02 dB which is a total of 8.02 dBi
Results of this testing are summarized.

5.6.1 UNII-2A

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power*	Measured EIRP	Measured PSD
HT 10	5255	Mcs0	7	0.78	29.78	-10.53
HT 10	5300	Mcs0	6	0.28	29.28	-11.41
HT 10	5340	Mcs0	7	0.61	29.61	-11.01
HT 20	5260	Mcs0	6	0.07	29.07	-14.38
HT 20	5300	Mcs0	6	0.43	29.43	-14.25
HT 20	5335	Mcs0	7	0.48	29.48	-13.97
HT 30	5265	Mcs0	6	0.22	29.22	-15.62
HT 30	5300	Mcs0	6	0.35	29.35	-15.68
HT 30	5330	Mcs0	6	0.62	29.62	-15.44
VHT 40	5270	Mcs0	7	0.83	29.83	-16.58
VHT 40	5300	Mcs0	6	0.05	29.05	-17.37
VHT 40	5325	Mcs0	6	0.10	29.10	-17.79
VHT 50	5275	Mcs0	7	0.88	29.88	-17.58
VHT 50	5300	Mcs0	6	0.05	29.05	-18.18
VHT 50	5320	Mcs0	6	0.10	29.10	-18.48
VHT 60	5280	Mcs0	7	0.94	29.94	-18.24
VHT 60	5300	Mcs0	6	0.00	29.00	-19.37
VHT 60	5315	Mcs0	6	0.14	29.14	-19.11
VHT 80	5290	Mcs0	7	0.55	29.55	-20.15
VHT 80	5300	Mcs0	7	0.62	29.62	-20.21
VHT 80	5305	Mcs0	7	0.71	29.71	-19.86

5.6.2 UNII-2C

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power*	Measured EIRP	Measured PSD
HT 10	5480	Mcs0	5	0.56	29.56	-11.22
HT 10	5600	Mcs0	4	0.40	29.40	-11.09
HT 10	5715	Mcs0	4	0.03	29.03	-11.55
HT 20	5485	Mcs0	5	0.54	29.54	-14.18
HT 20	5600	Mcs0	4	0.46	29.46	-13.96
HT 20	5710	Mcs0	4	0.05	29.05	-14.80
HT 30	5490	Mcs0	5	0.62	29.62	-15.71
HT 30	5600	Mcs0	4	0.43	29.43	-15.43
HT 30	5705	Mcs0	4	0.11	29.11	-16.23
VHT 40	5495	Mcs0	5	0.12	29.12	-17.49
VHT 40	5600	Mcs0	5	0.79	29.79	-16.59
VHT 40	5700	Mcs0	5	0.85	29.85	-16.80
VHT 50	5500	Mcs0	5	0.14	29.14	-18.19
VHT 50	5600	Mcs0	5	0.75	29.75	-17.51
VHT 50	5695	Mcs0	5	0.82	29.82	-17.63
VHT 60	5505	Mcs0	5	0.10	29.10	-19.17
VHT 60	5600	Mcs0	5	0.78	29.78	-18.27
VHT 60	5690	Mcs0	5	0.76	29.76	-18.67
VHT 80	5515	Mcs0	6	0.62	29.62	-20.29
VHT 80	5600	Mcs0	5	0.42	29.42	-20.25
VHT 80	5680	Mcs0	5	0.45	29.45	-20.44

Result

The maximum average power spectral density was less than the limit of 8 dBm; therefore, the EUT complies with the specification.

5.7 DFS Requirement

This product is a master with radar detection. The outcome of the required DFS tests is in the DFS Annex.
DFS testing followed the test procedures as outlined in KDB 905462.
The product passes all required DFS tests for a master with radar detection.

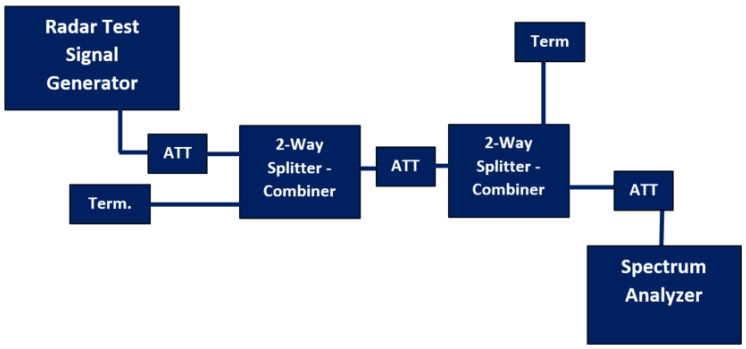
Information	Status
Possible Antenna/s	2 dBi integral, 29 dBi dish
Antenna used for test	2 dBi integral
Operating mode	Master
Port used for testing	J7
EIRP range	< 200 milliwatt
Impedance of port	50 ohms
Channel loading technique	Data transfer was enacted to achieve a minimum channel loading of approximately 17%
Antenna measurement technique	See note 1
Time of power-on cycle	57 secs
Detection threshold level	-62 dBm

*Note 1: The LBE-5AC-XR was designed in Ansys HFSS, industry-leading full-wave 3D electromagnetic simulation software. The hardware was measured against calibrated standard gain horn antennas in two internal Ubiquiti antenna chambers. The first antenna test chamber is a spherical near-field chamber manufactured by The Howland Company. This chamber measures the complex spherical near-field radiated power and computes the near-field to far-field transformation to accurately measure the directivity and realized gain of the antenna under test. The second chamber is a Compact Antenna Test Range (CATR). The compact range radiates a spherical wavefront from a fixed source into a parabolic reflector which collimates the signal into a plane wave to uniformly illuminate the antenna under test. This method is commonly used to accurately measure large antenna structures' directivity and realized gain.

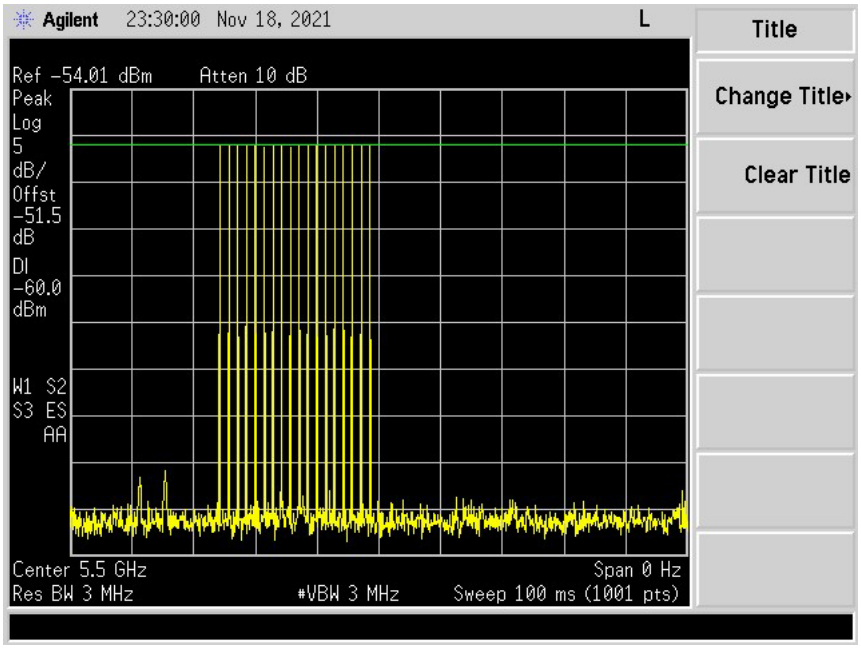
Requirement	Operational Mode		
	Master	Client Without Radar Detection	Client With Radar Detection
Non-Occupancy Period	Yes	Not Required	Yes
DFS Detection Threshold	Yes	Not Required	Yes
Channel Availability Check Time	Yes	Not Required	Not Required
U-NII Detection Bandwidth	Yes	Not Required	Yes

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

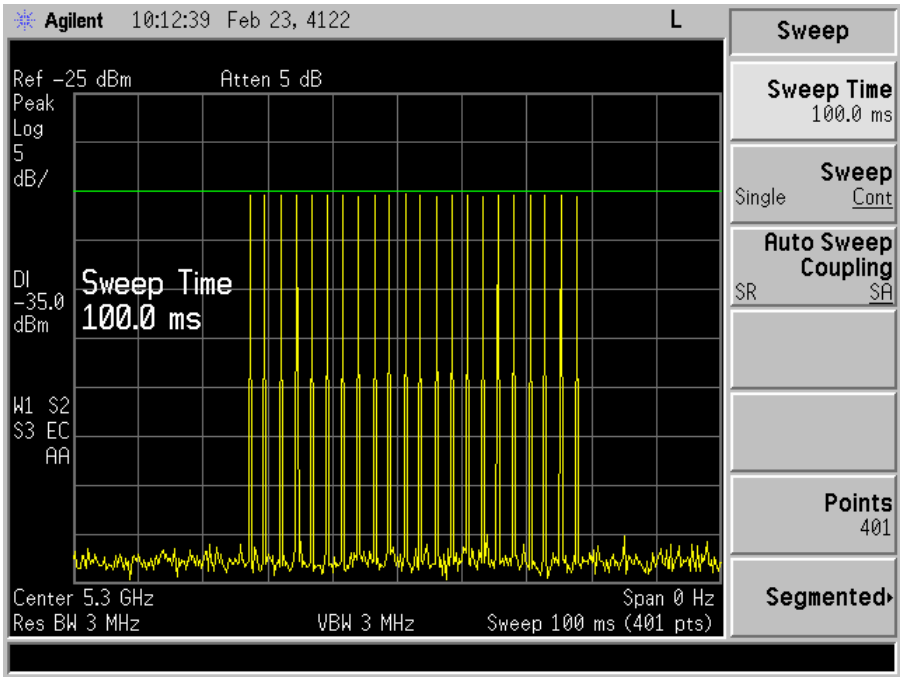
5.7.1 DFS Threshold Level



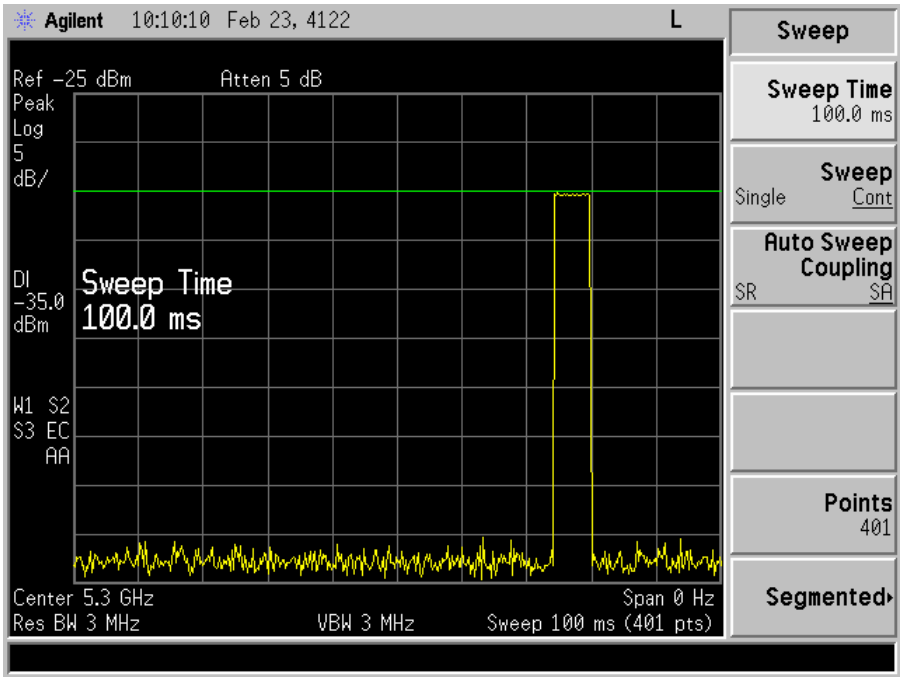
Maximum Transmit Power	Value (See Notes 1, 2, and 3)
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna. **Note 2:** Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response. **Note3:** EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01.	



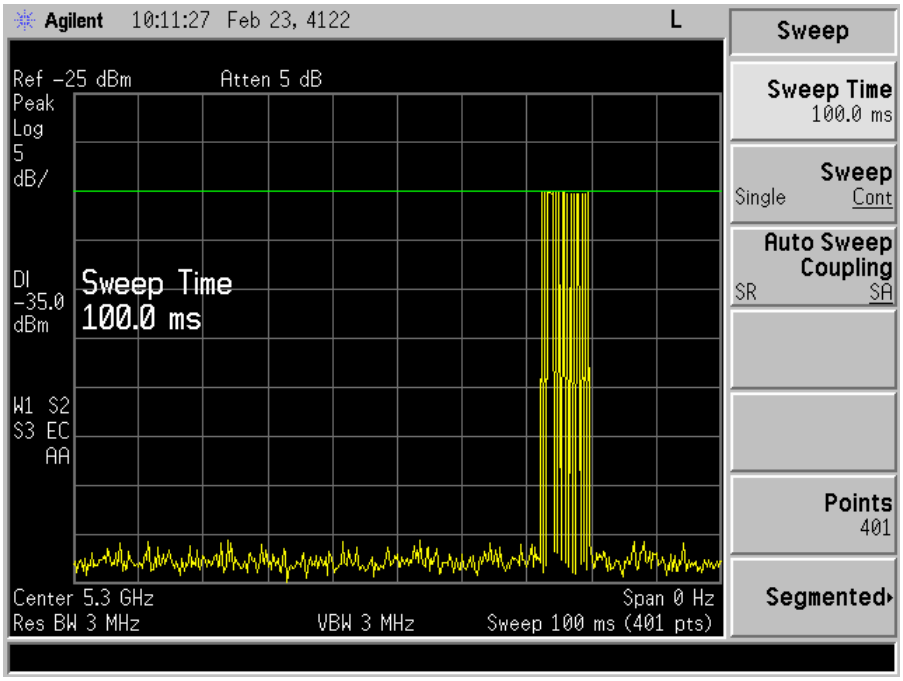
Plot 1: Radar Level 0



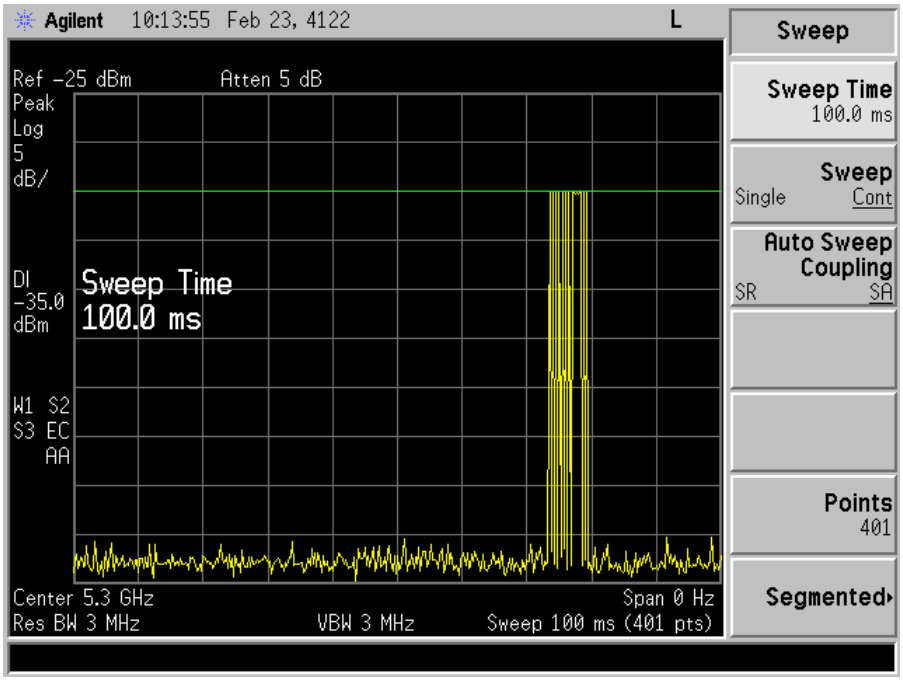
Plot 2: Radar Level 1



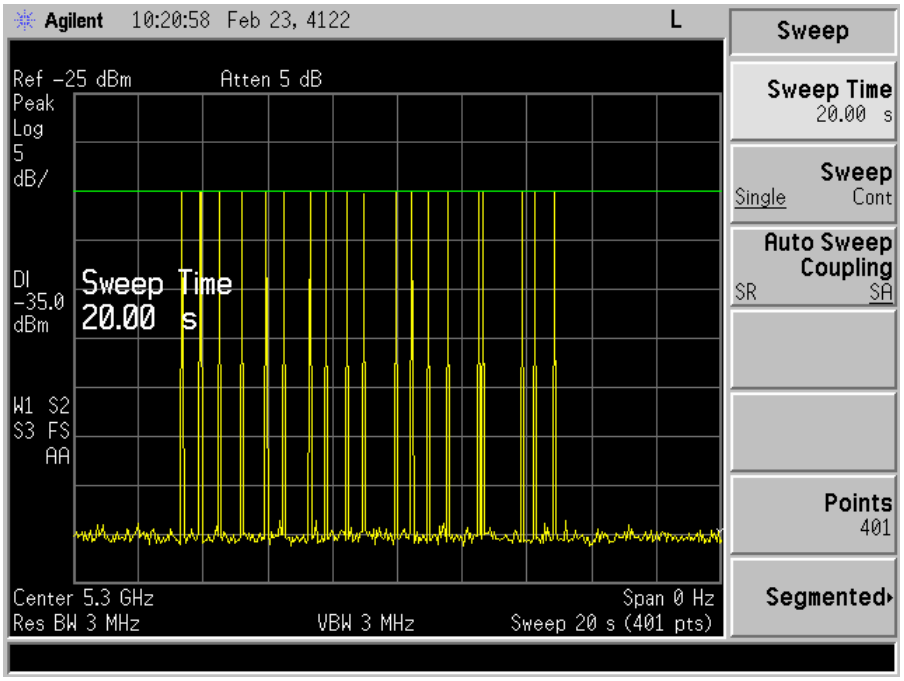
Plot 3: Radar Level 2



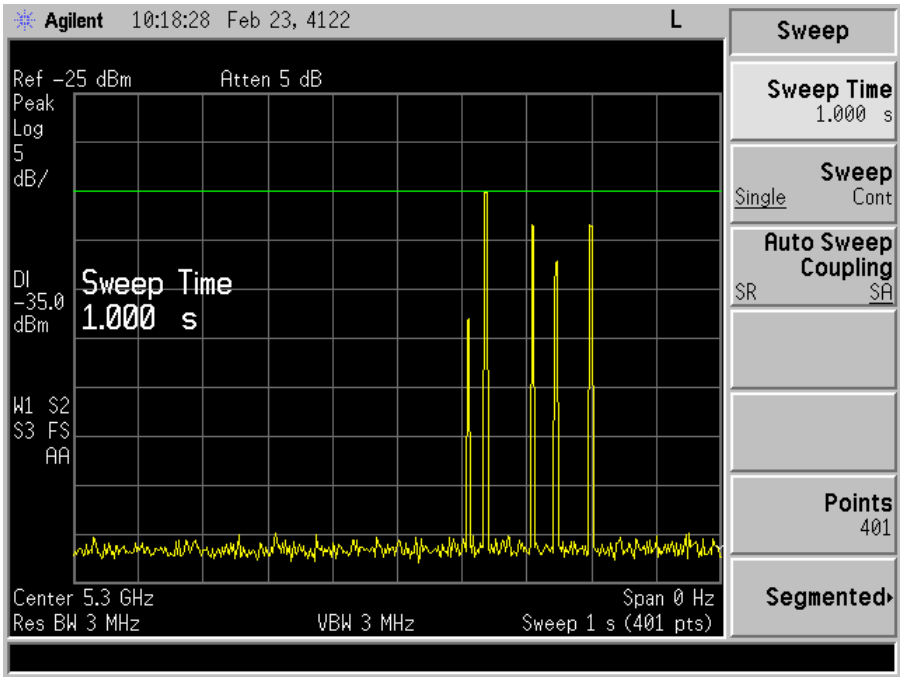
Plot 4: Radar Level 3



Plot 5: Radar Level 4



Plot 6: Radar Level 5



Plot 7: Radar Level 6

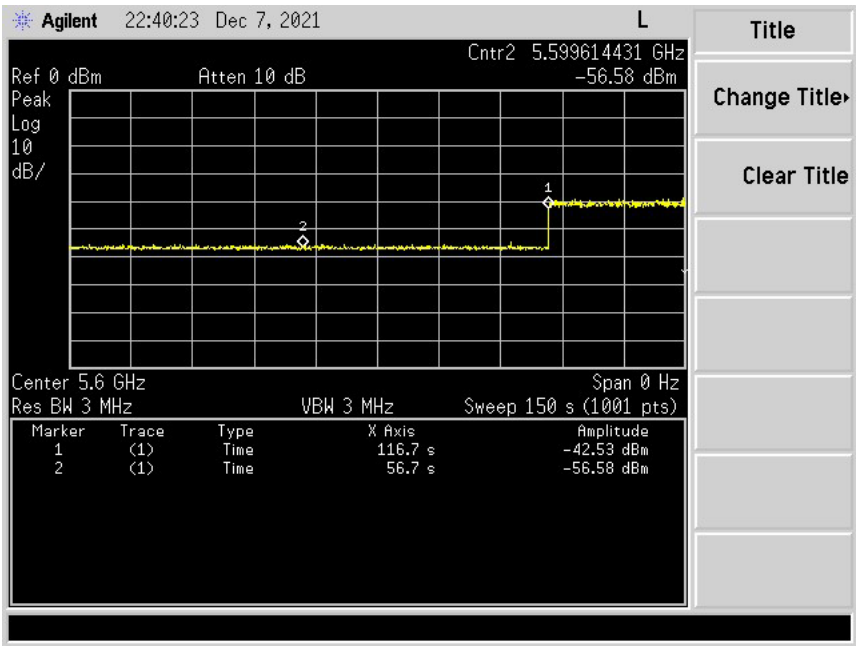
5.7.2 Channel Availability Check (CAC)

The EUT shall perform a CAC to ensure that there is no radar operating on the channel. After the power-up sequence, at-east 1 minute shall be monitored on the intended operating frequency.
For initial CAC, the EUT does not emit beacon, control, or data signals on the test channel until the power-up sequence has been completed and the UNII device checks for radar waveforms for one minute on the test channel. This test does not use any radar waveforms. The markers in the associated plots within the annex indicate initial beacons.

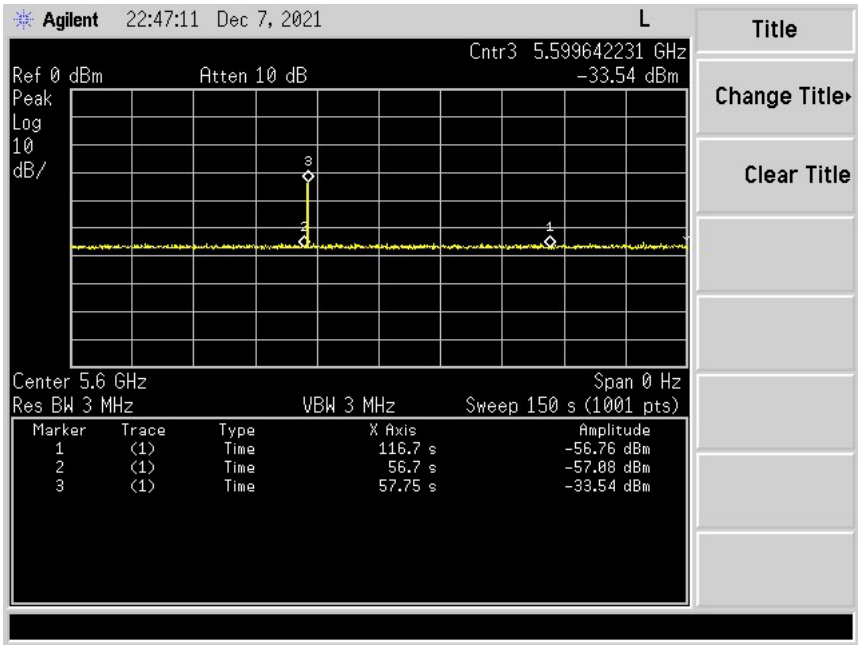
For radar burst at the beginning of the CAC. To verify successful radar detection on the selected channel during a period equal to the beginning of the CAC time, visual indication on the EUT of successful detection of the radar burst will be recorded and reported. Observation of the radar burst is show on the associated plot to be within the beginning of the CAC time. Emissions will continue to be monitored for the remaining 300 seconds.

For radar burst at the end of the CAC. To verify successful radar detection on the selected channel during a period equal to the end of the CAC time, visual indication on the EUT of successful detection of the radar burst will be recorded and reported. Observation of the radar burst is show on the associated plot to be within the end of the CAC time. Emissions will continue to be monitored for the remaining 300 seconds.

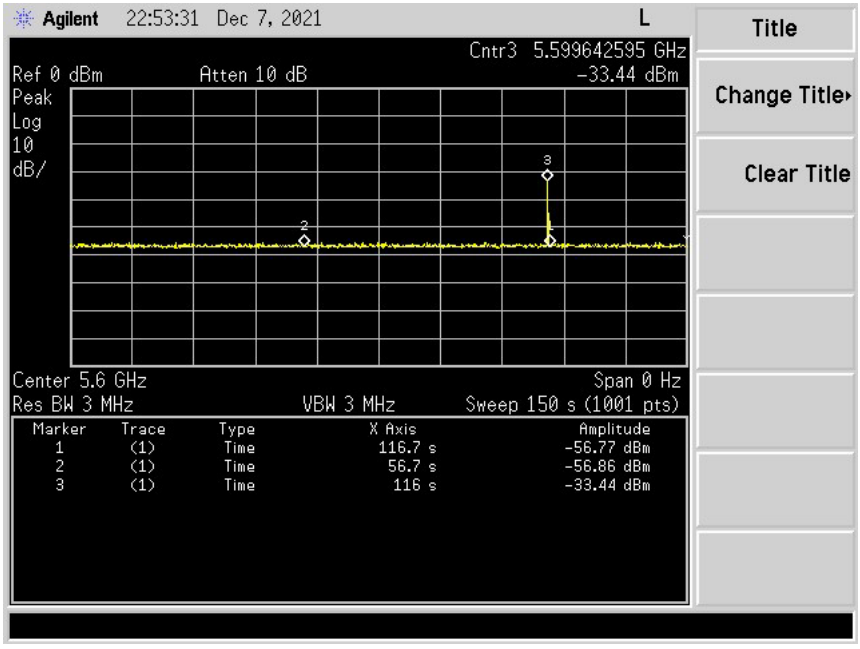
A spectrum analyzer is used as a monitor to verify that the EUT has vacated the channel within the channel closing transmission time and channel move time, and does not transmit on a channel during the non-occupancy period after the detection and channel move.



Plot 8: 5570 MHz



Plot 9: Beginning



Plot 11: End

5.7.3 In-service Monitoring

Channel Move Time	10 seconds
Channel Closing Transmission Time	200 ms + aggregate of 60 ms over remaining 10 second period
Non-occupancy period	Minimum 30 minutes

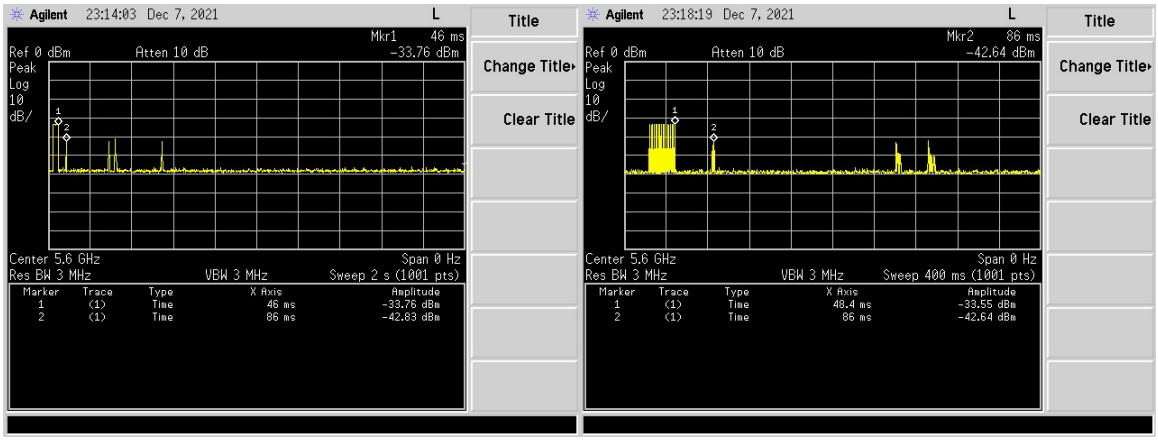
Verified during in-service monitoring: channel closing transmission time and channel move time. The transmissions were observed at the end of the radar burst on the operating channel for a duration of greater than 10 seconds. The transmissions were measured and recorded during the observation time. This was compared to the channel move time and channel closing time limits.

One 12 second plot is reported for the short pulse radar type 0. A 60 ms plot is also provided to verify closing time for the aggregate transmission time starting from 200 ms after the end of the radar signal to the completion of the channel move.

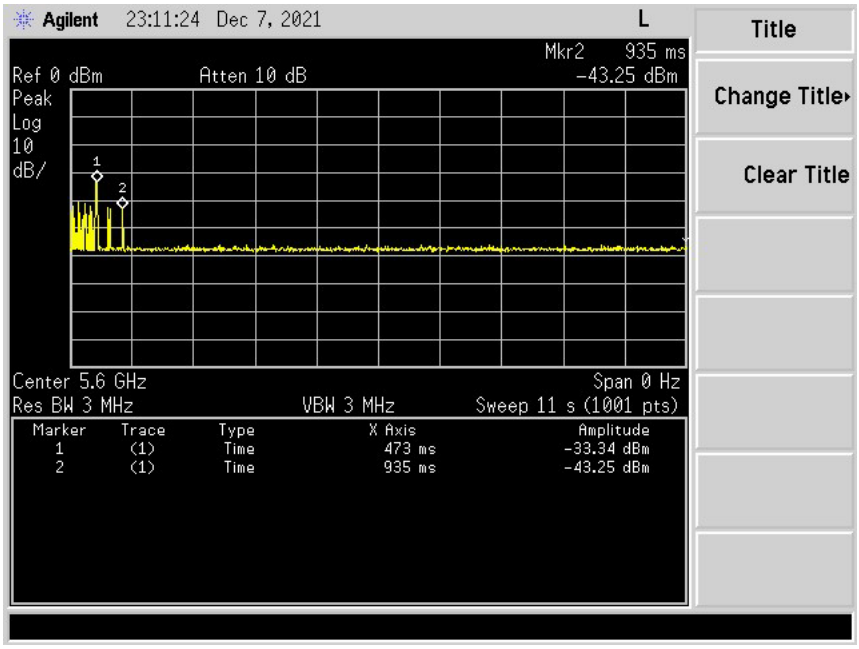
During the 30 minutes observation time, the EUT did not make any transmissions on a channel after a radar signal was detected.

Please see plots within the annex.

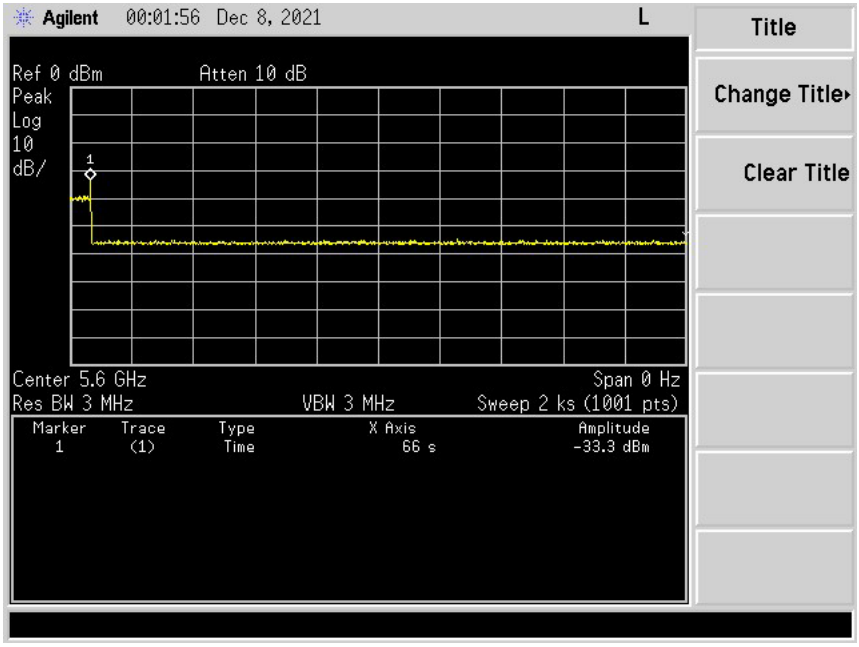
A spectrum analyzer is used as a monitor to verify that the EUT has vacated the channel within the channel closing transmission time and channel move time, and does not transmit on a channel during the non-occupancy period after the detection and channel move.



Plot 12: Close (2s left, 400ms right)



Plot 13: Move



Plot 14: Non-Occupancy

5.7.4 DFS Detection Bandwidth

10 MHz

EUT Frequency = 5600 MHz ; Bandwidth = 10 MHz											
Radar Frequency MHz	**DFS Detection Trials (1 = Detection, 0 = No Detection)**										**Detection Rate %**
	Trials										
	1	2	3	4	5	6	7	8	9	10	
Low 5595.5	1	1	1	1	1	1	1	1	1	1	100
5596											
5597											
5598											
5599											
5600	1	1	1	1	1	1	1	1	1	1	100
5601											
5602											
5603											
High 5604.5	1	1	1	1	1	1	1	1	1	1	100
Total Detection Percentage											100
Detection Bandwidth = FH-FL = 5595 MHz - 5605 MHz = 10 MHz											
99% Bandwidth = 9 MHz											

20 MHz

EUT Frequency = 5600 MHz ; Bandwidth = 20 MHz											
Radar Frequency MHz	**DFS Detection Trials (1 = Detection, 0 = No Detection)**										**Detection Rate %**
	Trials										
	1	2	3	4	5	6	7	8	9	10	
F_Low 5591	1	1	1	1	1	1	1	1	1	1	100
5591											
5592											
5593											
5594											
5595	1	1	1	1	1	1	1	1	1	1	100
5596											
5597											
5598											
5599											
5600	1	1	1	1	1	1	1	1	1	1	100
5601											
5602											
5603											
5604											
5605	1	1	1	1	1	1	1	1	1	1	100
5606											
5607											
5608											
5609											
F_High 5609	1	1	1	1	1	1	1	1	1	1	100
Total Detection Percentage											100
Detection Bandwidth = FH-FL = 5590 MHz - 5610 MHz = 20 MHz											
99% Bandwidth = 18 MHz											

30 MHz

EUT Frequency = 5600 MHz ; Bandwidth = 30 MHz											
Radar Frequency MHz	**DFS Detection Trials (1 = Detection, 0 = No Detection)**										**Detection Rate %**
	Trials										
	1	2	3	4	5	6	7	8	9	10	
Low 5587	1	1	1	1	1	1	1	1	1	1	100
5588											
5589											
5590	1	1	1	1	1	1	1	1	1	1	100
5591											
5592											
5593											
5594											
5595	1	1	1	1	1	1	1	1	1	1	100
5596											
5597											
5598											
5599											
Center 5600	1	1	1	1	1	1	1	1	1	1	100
5601											
5602											
5603											
5604											
5605	1	1	1	1	1	1	1	1	1	1	100
5606											
5607											
5608											
5609											
5610	1	1	1	1	1	1	1	1	1	1	100
5611											
5612											
High 5613	1	1	1	1	1	1	1	1	1	1	100
Total Detection Percentage											100
Detection Bandwidth = FH-FL = 5585 MHz - 5615 MHz = 30 MHz											
99% Bandwidth = 26 MHz											

40 MHz

EUT Frequency = 5590 MHz ; Bandwidth = 40 MHz											
Radar Frequency MHz	DFS Detection Trials (1 = Detection, 0 = No Detection)										Detection Rate %
	Trials										
	1	2	3	4	5	6	7	8	9	10	
Low 5572	1	1	1	1	1	1	1	1	1	1	100
5573											
5574											
5575	1	1	1	1	1	1	1	1	1	1	100
5576											
5577											
5578											
5579											
5580	1	1	1	1	1	1	1	1	1	1	100
5581											
5582											
5583											
5584											
5585	1	1	1	1	1	1	1	1	1	1	100
5586											
5587											
5588											
5589											
5590	1	1	1	1	1	1	1	1	1	1	100
5591											
5592											
5593											
5594											
5595	1	1	1	1	1	1	1	1	1	1	100
5596											
5597											
5598											
5599											
5600	1	1	1	1	1	1	1	1	1	1	100
5601											
5602											
5603											
5604											
5605	1	1	1	1	1	1	1	1	1	1	100
5606											
5607											
High 5608	1	1	1	1	1	1	1	1	1	1	100
Total Detection Percentage											100
Detection Bandwidth = FH-FL = 5570 MHz - 5610 MHz = 40 MHz											
99% Bandwidth = 36 MHz											

50 MHz

EUT Frequency = 5600 MHz ; Bandwidth = 50 MHz											
Radar Frequency MHz	DFS Detection Trials (1 = Detection, 0 = No Detection)										Detection Rate %
	Trials										
	1	2	3	4	5	6	7	8	9	10	
Low 5567.5	1	1	1	1	1	1	1	1	1	1	100
5568	1	1	1	1	1	1	1	1	1	1	100
5569	1	1	1	1	1	1	1	1	1	1	100
5570	1	1	1	1	1	1	1	1	1	1	100
5571											
5572											
5573											
5574											
5575	1	1	1	1	1	1	1	1	1	1	100
5576											
5577											
5578											
5579											
5580	1	1	1	1	1	1	1	1	1	1	100
5581											
5582											
5583											
5584											
5585	1	1	1	1	1	1	1	1	1	1	100
5586											
5587											
5588											
5589											
5590	1	1	1	1	1	1	1	1	1	1	100
5591											
5592											
5593											
5594											
5595	1	1	1	1	1	1	1	1	1	1	100
5596											
5597											
5598											
5599											
5600	1	1	1	1	1	1	1	1	1	1	100
5601											
5602											

5603											
5604											
5605	1	1	1	1	1	1	1	1	1	1	100
5606											
5607											
5608											
5609											
5610	1	1	1	1	1	1	1	1	1	1	100
5611	1	1	1	1	1	1	1	1	1	1	100
5612	1	1	1	1	1	1	1	1	1	1	100
High 5612.5	1	1	1	1	1	1	1	1	1	1	100
Total Detection Percentage											100
Detection Bandwidth = FH-FL = 5570 MHz - 5650 MHz = 50 MHz											
99% Bandwidth = 44 MHz											

60 MHz

EUT Frequency = 5610 MHz ; Bandwidth = 60 MHz											
Radar Frequency MHz	DFS Detection Trials (1 = Detection, 0 = No Detection)										Detection Rate %
	Trials										
	1	2	3	4	5	6	7	8	9	10	
Low 5564	1	1	1	1	1	1	1	1	1	1	100
5565	1	1	1	1	1	1	1	1	1	1	100
5566											
5567											
5568											
5569											
5570	1	1	1	1	1	1	1	1	1	1	100
5571											
5572											
5573											
5574											
5575	1	1	1	1	1	1	1	1	1	1	100
5576											
5577											
5578											
5579											
5580	1	1	1	1	1	1	1	1	1	1	100
5581											
5582											
5583											
5584											
5585	1	1	1	1	1	1	1	1	1	1	100
5586											
5587											
5588											
5589											
5590	1	1	1	1	1	1	1	1	1	1	100
5591											
5592											
5593											
5594											
5595	1	1	1	1	1	1	1	1	1	1	100
5596											
5597											
5598											

5599											
5600	1	1	1	1	1	1	1	1	1	1	100
5601											
5602											
5603											
5604											
5605	1	1	1	1	1	1	1	1	1	1	100
5606											
5607											
5608											
5609											
5610	1	1	1	1	1	1	1	1	1	1	100
5611											
5612											
5613											
5614											
5615	1	1	1	1	1	1	1	1	1	1	100
High 5616	1	1	1	1	1	1	1	1	1	1	100
Total Detection Percentage											100
Detection Bandwidth = FH-FL = 5570 MHz - 5650 MHz = 60 MHz											
99% Bandwidth = 52 MHz											

80 MHz

EUT Frequency = 5610 MHz ; Bandwidth = 80 MHz											
Radar Frequency MHz	DFS Detection Trials (1 = Detection, 0 = No Detection)										Detection Rate %
	Trials										
	1	2	3	4	5	6	7	8	9	10	
Low 5552	1	1	1	1	1	1	1	1	1	1	100
5553	1	1	1	1	1	1	1	1	1	1	100
5554											
5555	1	1	1	1	1	1	1	1	1	1	100
5556											
5557											
5558											
5559											
5560	1	1	1	1	1	1	1	1	1	1	100
5561											
5562											
5563											
5564											
5565	1	1	1	1	1	1	1	1	1	1	100
5566											
5567											
5568											
5569											
5570	1	1	1	1	1	1	1	1	1	1	100
5571											
5572											
5573											
5574											
5575	1	1	1	1	1	1	1	1	1	1	100
5576											
5577											
5578											
5579											
5580	1	1	1	1	1	1	1	1	1	1	100
5581											
5582											
5583											
5584											
5585	1	1	1	1	1	1	1	1	1	1	100
5586											
5587											
5588											

5589											
5590	1	1	1	1	1	1	1	1	1	1	100
5591											
5592											
5593											
5594											
5595	1	1	1	1	1	1	1	1	1	1	100
5596											
5597											
5598											
5599											
5600	1	1	1	1	1	1	1	1	1	1	100
5601											
5602											
5603											
5604											
5605	1	1	1	1	1	1	1	1	1	1	100
5606											
5607											
5608											
5609											
5610	1	1	1	1	1	1	1	1	1	1	100
5611											
5612											
5613											
5614											
5615	1	1	1	1	1	1	1	1	1	1	100
5616											
5617											
5618											
5619											
5620	1	1	1	1	1	1	1	1	1	1	100
5621											
5622											
5623											
5624											
5625	1	1	1	1	1	1	1	1	1	1	100
5626											
5627	1	1	1	1	1	1	1	1	1	1	100
High 5628	1	1	1	1	1	1	1	1	1	1	100
Total Detection Percentage											100
Detection Bandwidth = FH-FL = 5570 MHz - 5650 MHz = 80 MHz											
99% Bandwidth = 79.2 MHz											

5.7.5 Detection Probability

For statistical performance check. Demonstrating a minimum channel loading of approximately 17% or greater of the test. Observe the transmissions of the EUT at the end of the burst on the operating channel for duration greater than 10 seconds for short pulse radar type 1-4 and 6 to ensure detection occurs. Then observe the transmissions of the EUT at the end of the burst on the operating channel for duration greater than 22 seconds for long pulse radar type 5 to ensure detection occurs. The device can utilize a test mode to demonstrate when detection occurs to prevent the need to reset the device between trial runs.
Please see data within the annex.

Radar Type	Min successful detection (%)	Minimum Trials
1	60	30
2	60	30
3	60	30
4	60	30
Types 1 - 4	80	120
5	80	30
6	70	30

10 MHz

RADAR TYPE 1				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	83	1	638	y
2	95	1	558	y
3	86	1	618	y
4	59	1	898	y
5	68	1	778	y
6	63	1	838	y
7	62	1	858	y
8	67	1	798	y
9	70	1	758	y
10	58	1	918	y
11	74	1	718	y
12	18	1	3066	y
13	65	1	818	y
14	81	1	658	y
15	102	1	518	y
16	27	1	2012	n
17	24	1	2203	n
18	69	1	772	y
19	34	1	1594	y
20	29	1	1819	y
21	99	1	533	y
22	22	1	2417	y
23	24	1	2276	y
24	22	1	2502	n
25	20	1	2715	n
26	19	1	2831	n
27	44	1	1217	n
28	18	1	3034	y
29	44	1	1208	n
30	44	1	1211	y
Detection Probability 23/30				77 %

RADAR TYPE 2				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	26	1.5	203	y
2	26	1.4	178	y
3	24	4.6	210	y
4	24	1	209	y
5	27	4.8	158	y
6	29	4.6	184	y
7	27	3.2	206	y
8	24	2.8	210	y
9	29	4.6	197	y
10	23	3.8	171	y
11	25	4.6	218	n
12	28	2.7	151	y
13	24	4.2	203	n
14	29	3.4	176	y
15	24	1.9	228	n
16	26	1.5	223	y
17	28	1.7	214	y
18	25	4.4	194	y
19	25	3.8	207	y
20	26	3.1	167	n
21	28	1.2	209	y
22	27	3.5	229	y
23	26	2.7	209	y
24	27	1.3	216	y
25	28	3.7	217	y
26	26	4.3	169	y
27	24	2.7	223	y
28	26	4.9	197	y
29	25	3.6	168	n
30	26	1.4	159	y
Detection Probability 25/30				83 %

RADAR TYPE 3				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	16	8.3	228	y
2	17	8.4	484	y
3	17	7.9	458	y
4	16	6.1	493	y
5	17	7.2	317	y
6	18	6.1	407	y
7	17	9.6	256	y
8	18	7.5	378	y
9	18	8	355	y
10	18	7.8	392	y
11	16	9.5	478	y
12	16	8	257	y
13	17	9.3	236	y
14	17	8	336	y
15	16	8.6	439	y
16	17	7.1	399	y
17	17	9.9	276	y
18	18	8.5	462	y
19	17	8.2	269	y
20	16	9.1	343	y
21	17	6.6	341	y
22	17	9.7	260	y
23	16	9.7	316	n
24	17	7.2	342	n
25	18	6.1	219	n
26	16	9.4	484	n
27	16	9.9	441	y
28	16	6.5	355	y
29	17	7.3	332	y
30	17	9.9	342	y
Detection Probability 26/30				87 %

RADAR TYPE 4				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	15	13.2	348	y
2	15	14.2	443	y
3	12	16	491	y
4	13	17.7	228	y
5	15	11.3	271	y
6	13	16	274	y
7	14	13.9	265	y
8	14	12.4	415	y
9	13	12.7	215	y
10	15	18.9	419	y
11	15	19.9	353	y
12	15	15	314	y
13	12	17.2	484	y
14	15	16.1	497	y
15	15	14.4	400	y
16	14	14.8	416	y
17	12	12.5	405	y
18	14	16.8	239	y
19	15	16.8	209	y
20	15	14.9	297	y
21	16	19	253	y
22	16	18.5	337	y
23	15	14.2	304	y
24	13	19.4	227	y
25	14	11.8	453	y
26	15	11.2	312	y
27	13	13.5	478	y
28	15	11.1	373	y
29	15	11.4	272	n
30	13	18.5	329	y
Detection Probability 29/30:				96 %

TYPE 5	Rohde & Schwarz K350 Pulse Sequencer DFS			
Trial #	**Detection (yes/no)**	**Chirp Width (MHz)**	**Subset**	**Fc**
1	y	7	1	5500
2	y	7	1	5500
3	y	8	1	5500
4	y	6	1	5500
5	y	7	1	5500
6	y	5	1	5500
7	y	5	1	5500
8	y	9	1	5500
9	y	9	1	5500
10	y	5	1	5500
11	y	8	2	5494.2
12	y	7	2	5493.8
13	y	9	2	5494.6
14	y	8	2	5494.2
15	y	9	2	5494.6
16	y	8	2	5494.2
17	y	8	2	5494.2
18	y	5	2	5493
19	y	6	2	5493.4
20	y	8	2	5494.2
21	y	5	3	5507
22	y	5	3	5507
23	y	6	3	5506.6
24	y	8	3	5505.8
25	y	6	3	5506.6
26	y	6	3	5506.6
27	y	7	3	5506.2
28	y	6	3	5506.6
29	y	6	3	5506.6
30	y	9	3	5505.4
Detection Probability 30/30			100 %	

TYPE 6 S	Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Detection (yes/no)**
1	y
2	y
3	y
4	y
5	y
6	y
7	y
8	y
9	y
10	y
11	y
12	y
13	y
14	y
15	y
16	y
17	y
18	y
19	y
20	y
21	y
22	y
23	y
24	y
25	y
26	y
27	y
28	y
29	y
30	y
Detection Probability 30/30	100 %

20 MHz

RADAR TYPE 1				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	83	1	638	y
2	74	1	718	y
3	63	1	838	y
4	92	1	578	y
5	62	1	858	y
6	89	1	598	y
7	86	1	618	y
8	78	1	678	y
9	76	1	698	y
10	98	1	538	y
11	61	1	878	y
12	59	1	898	y
13	18	1	3066	y
14	95	1	558	y
15	72	1	738	y
16	22	1	2425	y
17	20	1	2736	y
18	19	1	2890	y
19	28	1	1931	y
20	21	1	2580	y
21	24	1	2216	n
22	41	1	1298	y
23	22	1	2472	y
24	30	1	1800	y
25	21	1	2616	y
26	75	1	705	y
27	42	1	1282	y
28	28	1	1915	y
29	68	1	784	y
30	47	1	1127	y
Detection Probability 29/30				97 %

RADAR TYPE 2				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	27	1.4	226	y
2	25	3.2	220	n
3	25	1.4	208	y
4	28	4.1	207	y
5	24	4.5	153	y
6	24	4.9	222	y
7	26	3.3	172	y
8	26	4.4	151	y
9	26	4.5	211	y
10	24	4.3	208	y
11	26	4	195	y
12	26	2.6	199	y
13	26	4	203	y
14	24	1	221	y
15	27	2.9	225	y
16	25	3.4	180	y
17	25	4.3	179	y
18	26	1.8	220	y
19	27	2.2	181	y
20	27	1.6	165	y
21	24	4.6	180	y
22	24	3.9	221	y
23	23	3.9	165	y
24	29	4	151	y
25	29	1.2	223	y
26	28	4	198	y
27	27	1.7	212	y
28	24	1.5	218	y
29	24	4.4	227	y
30	27	2.1	189	y
Detection Probability 29/30				97 %

RADAR TYPE 3				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	17	8.6	239	y
2	18	7.3	321	y
3	18	9.2	311	y
4	16	9.4	304	y
5	16	9.2	299	y
6	18	7.2	347	y
7	16	7.9	216	n
8	16	7.5	228	y
9	16	6.1	288	y
10	18	7.2	277	y
11	18	6.3	421	y
12	17	6	419	y
13	16	9.6	494	y
14	17	8.2	441	y
15	17	7.7	427	y
16	17	6.6	476	y
17	17	8.8	406	y
18	16	6.8	460	y
19	17	9.5	307	y
20	18	6.5	454	y
21	17	6.8	499	y
22	17	6.7	204	y
23	18	8.3	217	y
24	17	8.8	487	n
25	18	7.3	340	y
26	16	7.7	205	y
27	18	8.5	360	y
28	18	9.4	471	y
29	18	8.6	363	y
30	16	6.9	416	y
Detection Probability 28/30				93 %

RADAR TYPE 4				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	14	13.6	337	y
2	14	11.5	418	y
3	13	19.3	279	y
4	13	12.9	469	y
5	14	14	409	y
6	12	12.3	272	y
7	13	11	356	y
8	12	15.3	381	y
9	13	19.4	416	y
10	14	19.8	379	y
11	12	18.6	304	y
12	15	15.5	222	y
13	15	14.7	328	y
14	14	16.4	256	y
15	13	16.8	354	y
16	15	13.7	220	y
17	14	16.2	486	y
18	13	15.6	456	y
19	16	19.7	271	y
20	15	18.7	352	y
21	13	19.7	263	y
22	12	18	457	y
23	13	13.1	380	y
24	13	15.1	384	y
25	13	17.9	257	y
26	12	11.2	253	y
27	14	15.9	416	y
28	16	19.3	403	y
29	16	19.2	353	y
30	12	11	254	y
Detection Probability 30/30				100 %

TYPE 5	Rohde & Schwarz K350 Pulse Sequencer DFS			
Trial #	**Detection (yes/no)**	**Chirp Width (MHz)**	**Subset**	**Fc**
1	y	14	1	5500
2	y	9	1	5500
3	y	16	1	5500
4	y	16	1	5500
5	y	7	1	5500
6	y	19	1	5500
7	y	19	1	5500
8	y	10	1	5500
9	y	7	1	5500
10	y	12	1	5500
11	y	9	2	5494.6
12	y	8	2	5494.2
13	y	6	2	5493.4
14	y	8	2	5494.2
15	y	6	2	5493.4
16	y	17	2	5497.8
17	y	7	2	5493.8
18	y	19	2	5498.6
19	y	8	2	5494.2
20	y	10	2	5495
21	y	12	3	5504.2
22	y	15	3	5503
23	y	9	3	5505.4
24	y	15	3	5503
25	y	19	3	5501.4
26	y	11	3	5504.6
27	y	16	3	5502.6
28	y	5	3	5507
29	y	19	3	5501.4
30	y	18	3	5501.8
Detection Probability 30/30			100 %	

TYPE 6 S	Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Detection (yes/no)**
1	y
2	y
3	y
4	y
5	y
6	y
7	y
8	y
9	y
10	y
11	y
12	y
13	y
14	y
15	y
16	y
17	y
18	y
19	y
20	y
21	y
22	y
23	y
24	y
25	y
26	y
27	y
28	y
29	y
30	y
Detection Probability 30/30	100 %

30 MHz

RADAR TYPE 1				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	75	1	712	y
2	73	1	731	n
3	95	1	555	n
4	40	1	1328	y
5	65	1	820	y
6	73	1	729	n
7	45	1	1174	y
8	33	1	1626	y
9	25	1	2135	y
10	26	1	2080	y
11	35	1	1520	y
12	101	1	523	y
13	23	1	2312	y
14	18	1	2970	y
15	38	1	1413	y
16	101	1	525	y
17	52	1	1021	y
18	28	1	1951	n
19	42	1	1265	y
20	54	1	985	y
21	19	1	2875	y
22	31	1	1707	n
23	42	1	1258	y
24	21	1	2612	y
25	62	1	861	y
26	45	1	1193	y
27	34	1	1567	y
28	49	1	1093	n
29	20	1	2685	y
30	28	1	1927	n
Detection Probability 23/30				77 %

RADAR TYPE 2				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	24	3.3	155	y
2	24	3.6	165	y
3	27	1	164	y
4	24	2.7	162	y
5	25	4.5	225	y
6	23	2.4	158	y
7	25	2.4	187	y
8	24	2.5	160	y
9	23	2	226	n
10	24	4.1	224	y
11	23	3.2	211	y
12	28	4.2	158	y
13	28	1.8	211	y
14	24	2.8	195	y
15	26	1.2	212	y
16	27	3	207	y
17	24	1.9	218	y
18	26	2.4	213	n
19	27	1.1	185	y
20	24	3.3	178	y
21	27	1.3	201	y
22	24	3.5	175	y
23	24	2.8	219	y
24	25	4.4	212	y
25	23	3.2	165	y
26	26	4.2	155	y
27	25	3.4	150	y
28	28	2.5	168	y
29	27	4.5	150	y
30	26	1.4	176	y
Detection Probability 28/30				93 %

RADAR TYPE 3				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	17	6	286	y
2	17	8.7	269	y
3	18	7.3	308	y
4	17	9.6	418	y
5	17	6.4	254	y
6	18	7.7	248	y
7	16	8.9	269	y
8	18	6.9	303	y
9	18	9.7	436	y
10	17	6.3	456	y
11	17	9.8	331	y
12	16	6.5	282	y
13	18	9	497	n
14	17	7.4	348	y
15	17	6.1	278	y
16	17	6.7	317	y
17	17	8.5	217	y
18	17	6.5	299	y
19	17	7.4	385	y
20	17	9.9	331	y
21	17	7.8	431	y
22	17	9.2	300	y
23	16	6.6	484	y
24	17	8.8	404	y
25	17	9.3	313	y
26	16	8.5	386	n
27	17	8.3	441	n
28	18	6.7	374	n
29	17	9.2	478	y
30	16	6.9	297	y
Detection Probability 26/30				87 %

RADAR TYPE 4				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	12	15.1	212	y
2	14	12.6	484	y
3	15	17.4	374	y
4	16	19.9	394	y
5	15	15.7	361	y
6	15	15	206	y
7	14	13.1	425	y
8	14	14.8	242	y
9	14	17.1	208	y
10	14	16.3	485	y
11	15	16.4	366	n
12	16	12.2	350	y
13	13	13.3	436	y
14	15	13.9	335	y
15	14	14.7	444	y
16	13	11.3	312	y
17	15	12.5	424	y
18	12	15.6	306	n
19	13	18.1	281	n
20	14	17.6	271	y
21	14	18.4	428	y
22	13	18.1	395	y
23	12	15.1	236	y
24	15	16.8	313	y
25	15	16.8	272	y
26	14	18.2	300	y
27	13	15.9	406	y
28	13	11.9	437	y
29	13	17	381	n
30	16	16.7	282	y
Detection Probability 26/30				87 %

TYPE 5	Rohde & Schwarz K350 Pulse Sequencer DFS			
Trial #	**Detection (yes/no)**	**Chirp Width (MHz)**	**Subset**	**Fc**
1	y	13	1	5500
2	y	8	1	5500
3	y	13	1	5500
4	y	10	1	5500
5	y	6	1	5500
6	y	16	1	5500
7	y	17	1	5500
8	y	11	1	5500
9	y	10	1	5500
10	y	15	1	5500
11	y	5	2	5493
12	y	18	2	5498.2
13	y	19	2	5498.6
14	y	10	2	5495
15	y	8	2	5494.2
16	y	19	2	5498.6
17	y	16	2	5497.4
18	y	7	2	5493.8
19	y	16	2	5497.4
20	y	11	2	5495.4
21	y	19	3	5501.4
22	y	10	3	5505
23	y	7	3	5506.2
24	y	16	3	5502.6
25	y	6	3	5506.6
26	y	11	3	5504.6
27	y	12	3	5504.2
28	y	16	3	5502.6
29	y	8	3	5505.8
30	y	13	3	5503.8
Detection Probability 30/30			100 %	

TYPE 6 S	Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Detection (yes/no)**
1	y
2	y
3	y
4	y
5	y
6	y
7	y
8	y
9	y
10	y
11	y
12	y
13	y
14	y
15	y
16	y
17	y
18	y
19	y
20	y
21	y
22	y
23	y
24	y
25	y
26	y
27	y
28	n
29	y
30	y
Detection Probability 29/30	97 %

40 MHz

RADAR TYPE 1				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	42	1	1255	y
2	20	1	2769	y
3	68	1	779	y
4	28	1	1945	y
5	64	1	833	y
6	40	1	1341	y
7	50	1	1060	y
8	32	1	1680	y
9	19	1	2912	y
10	19	1	2800	y
11	26	1	2091	y
12	41	1	1305	y
13	22	1	2410	y
14	22	1	2444	y
15	31	1	1725	y
16	26	1	2033	y
17	34	1	1583	y
18	37	1	1457	y
19	54	1	982	y
20	47	1	1141	y
21	91	1	584	y
22	66	1	807	y
23	68	1	777	y
24	43	1	1246	y
25	39	1	1368	y
26	20	1	2747	y
27	82	1	647	y
28	20	1	2746	y
29	74	1	717	y
30	29	1	1851	y
Detection Probability 30/30				100 %

RADAR TYPE 2				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	26	1.8	152	y
2	25	1.3	215	y
3	26	2.7	151	y
4	24	2.9	170	y
5	26	2.8	225	y
6	28	4.5	168	y
7	29	3.3	206	y
8	29	3.1	156	y
9	28	1	197	y
10	28	3.9	181	y
11	24	2.4	221	y
12	27	3	170	y
13	28	2.4	213	y
14	25	4.3	201	y
15	23	1.3	223	y
16	29	1.1	185	y
17	24	4.5	205	y
18	23	2.2	169	y
19	23	4.2	185	y
20	28	3.3	229	y
21	25	4.3	194	y
22	27	3.3	150	y
23	28	4.1	212	y
24	27	4.2	215	y
25	25	4.2	212	y
26	29	1.6	213	y
27	25	3	181	y
28	25	3.4	157	y
29	28	4.2	179	y
30	24	2.4	167	y
Detection Probability 30/30				100 %

RADAR TYPE 3				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	16	7.9	242	y
2	16	6.5	242	y
3	17	9.2	428	y
4	17	7.7	365	y
5	16	8.1	329	y
6	18	8.5	410	y
7	17	7.7	314	y
8	16	9.1	467	y
9	18	9.1	446	y
10	18	8.8	332	y
11	16	9.7	457	y
12	17	6.6	427	y
13	16	9	228	y
14	16	7.5	251	y
15	17	6.5	325	y
16	17	7.4	256	y
17	17	6.9	270	y
18	17	7.1	362	y
19	18	7.3	352	n
20	17	9.3	270	y
21	16	6.1	343	y
22	17	8.8	411	y
23	17	9	444	y
24	18	8.5	395	y
25	18	9.3	381	y
26	18	9.6	492	y
27	17	6.7	328	y
28	17	8.3	446	y
29	16	8.5	440	y
30	16	8	301	y
Detection Probability 29/30				97 %

RADAR TYPE 4				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	13	14	200	y
2	13	16.5	409	y
3	15	12.9	475	y
4	16	14.6	366	y
5	13	17.7	270	y
6	13	16.2	229	y
7	12	19.4	422	y
8	15	12.8	479	y
9	13	11	425	y
10	13	16	368	y
11	15	13.1	231	y
12	16	18.3	451	y
13	13	12.1	461	y
14	15	12.1	444	y
15	13	14.7	345	y
16	16	14.2	263	y
17	15	18	352	y
18	14	18.9	410	y
19	16	11.9	232	y
20	13	11.8	225	y
21	16	19.9	437	y
22	13	18.2	357	y
23	15	17.3	410	y
24	14	14	340	y
25	12	15.2	276	y
26	14	11.9	346	y
27	14	11	352	y
28	16	14.7	218	y
29	12	12.6	221	y
30	16	18.8	314	y
Detection Probability 30/30				100 %

TYPE 5	Rohde & Schwarz K350 Pulse Sequencer DFS			
Trial #	**Detection (yes/no)**	**Chirp Width (MHz)**	**Subset**	**Fc**
1	y	12	1	5500
2	y	11	1	5500
3	y	14	1	5500
4	y	18	1	5500
5	y	19	1	5500
6	y	6	1	5500
7	y	17	1	5500
8	y	15	1	5500
9	y	17	1	5500
10	y	13	1	5500
11	y	17	2	5497.8
12	y	15	2	5497
13	y	14	2	5496.6
14	y	17	2	5497.8
15	y	10	2	5495
16	y	8	2	5494.2
17	y	18	2	5498.2
18	y	9	2	5494.6
19	y	12	2	5495.8
20	y	9	2	5494.6
21	y	17	3	5502.2
22	y	16	3	5502.6
23	y	10	3	5505
24	y	12	3	5504.2
25	y	7	3	5506.2
26	y	5	3	5507
27	y	17	3	5502.2
28	y	18	3	5501.8
29	y	8	3	5505.8
30	y	9	3	5505.4
Detection Probability 30/30			100 %	

TYPE 6 S	Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Detection (yes/no)**
1	y
2	y
3	y
4	y
5	y
6	y
7	y
8	y
9	n
10	y
11	y
12	y
13	y
14	y
15	y
16	y
17	y
18	y
19	y
20	y
21	y
22	y
23	y
24	y
25	y
26	y
27	y
28	y
29	y
30	y
Detection Probability 29/30	97 %

50 MHz

RADAR TYPE 1				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	37	1	1451	n
2	37	1	1445	y
3	34	1	1559	y
4	57	1	928	y
5	19	1	2778	y
6	39	1	1380	y
7	29	1	1882	y
8	32	1	1687	y
9	24	1	2268	y
10	35	1	1525	y
11	19	1	2795	y
12	80	1	660	y
13	37	1	1458	y
14	19	1	2915	y
15	18	1	2930	y
16	18	1	2931	n
17	28	1	1922	y
18	39	1	1367	y
19	25	1	2113	y
20	24	1	2216	n
21	30	1	1811	y
22	34	1	1561	y
23	22	1	2443	y
24	71	1	743	y
25	20	1	2762	y
26	48	1	1121	y
27	23	1	2376	y
28	18	1	3037	y
29	44	1	1225	y
30	25	1	2120	y
Detection Probability 27/30				90 %

RADAR TYPE 2				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	27	3.8	224	y
2	26	2.4	183	y
3	26	2.2	168	y
4	26	1.1	198	y
5	25	2.8	194	y
6	25	3.4	191	y
7	27	4.4	219	y
8	24	1.5	224	y
9	26	4.3	194	y
10	27	1.5	177	y
11	27	2.5	158	y
12	25	3.2	155	y
13	26	1.8	218	y
14	27	3.2	211	y
15	25	2.6	215	y
16	25	1.9	196	y
17	27	1.1	224	y
18	29	2.8	161	y
19	29	2.1	193	y
20	28	1.2	200	y
21	23	1	221	y
22	28	2.9	225	y
23	28	2.2	192	y
24	26	1	193	y
25	23	3.3	154	y
26	26	1.9	211	y
27	26	1.5	174	y
28	26	1.4	156	y
29	27	2.7	222	y
30	24	1.4	172	y
Detection Probability 30/30				100 %

RADAR TYPE 3				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	16	6.5	290	y
2	16	6.8	324	y
3	16	8.1	335	y
4	18	8.2	314	y
5	16	9.5	426	y
6	17	8.1	347	y
7	17	6.7	324	y
8	18	7.9	450	y
9	18	7.9	304	y
10	17	6.5	216	y
11	16	9.3	258	y
12	17	6.8	370	y
13	17	7.3	387	y
14	18	8.4	485	y
15	18	9.4	216	y
16	17	9.7	271	y
17	18	8.7	456	n
18	18	7.3	428	y
19	16	8.9	494	y
20	18	6.6	349	y
21	17	7.8	362	y
22	16	7.3	343	y
23	18	7.3	412	y
24	17	6.2	459	y
25	18	6.4	382	y
26	17	9	373	y
27	17	6	272	y
28	17	6.4	345	y
29	18	9.9	449	y
30	18	9.6	458	y
Detection Probability 29/30				97 %

RADAR TYPE 4				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	13	16.2	325	y
2	14	13.5	328	y
3	16	18.5	252	y
4	16	11.9	461	y
5	14	17.8	245	y
6	13	19.4	228	y
7	15	18.1	280	y
8	16	14.6	217	y
9	13	17.7	449	y
10	15	18.4	463	y
11	16	15	419	y
12	15	16.4	287	y
13	12	12.2	436	y
14	14	14.8	448	n
15	14	17.6	481	y
16	14	12.6	474	y
17	12	12.1	496	y
18	13	12.1	324	y
19	13	15	398	y
20	13	19.5	371	y
21	12	15.9	406	n
22	12	17.5	252	n
23	16	19.1	309	y
24	13	12.9	374	y
25	13	15.1	278	y
26	15	14.5	282	y
27	14	19.9	274	y
28	14	14.5	343	y
29	14	16	401	y
30	16	12.7	427	y
Detection Probability 27/30				90 %

TYPE 5	Rohde & Schwarz K350 Pulse Sequencer DFS			
Trial #	**Detection (yes/no)**	**Chirp Width (MHz)**	**Subset**	**Fc**
1	y	15	1	5500
2	y	10	1	5500
3	y	19	1	5500
4	y	16	1	5500
5	y	8	1	5500
6	y	12	1	5500
7	y	6	1	5500
8	y	6	1	5500
9	y	8	1	5500
10	y	8	1	5500
11	y	5	2	5493
12	y	5	2	5493
13	y	12	2	5495.8
14	y	19	2	5498.6
15	y	7	2	5493.8
16	y	8	2	5494.2
17	y	7	2	5493.8
18	y	18	2	5498.2
19	y	15	2	5497
20	y	18	2	5498.2
21	y	18	3	5501.8
22	y	5	3	5507
23	y	11	3	5504.6
24	y	11	3	5504.6
25	y	11	3	5504.6
26	y	5	3	5507
27	y	14	3	5503.4
28	y	15	3	5503
29	y	15	3	5503
30	y	16	3	5502.6
Detection Probability 30/30			100 %	

TYPE 6 S	Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Detection (yes/no)**
1	y
2	y
3	y
4	y
5	y
6	y
7	y
8	y
9	y
10	y
11	y
12	y
13	y
14	y
15	y
16	y
17	y
18	y
19	y
20	y
21	y
22	y
23	y
24	y
25	y
26	y
27	y
28	y
29	y
30	y
Detection Probability 30/30	100 %

60 MHz

RADAR TYPE 1				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	29	1	1874	y
2	80	1	663	y
3	33	1	1616	y
4	38	1	1410	y
5	37	1	1453	y
6	48	1	1103	n
7	18	1	2952	y
8	27	1	1953	y
9	23	1	2347	y
10	18	1	3041	y
11	23	1	2336	y
12	19	1	2859	y
13	30	1	1795	y
14	34	1	1572	y
15	48	1	1098	n
16	59	1	901	y
17	66	1	803	y
18	32	1	1652	y
19	29	1	1829	y
20	22	1	2508	y
21	28	1	1919	y
22	30	1	1759	y
23	88	1	602	y
24	21	1	2557	y
25	49	1	1092	n
26	29	1	1849	y
27	24	1	2201	n
28	26	1	2065	y
29	48	1	1108	n
30	18	1	2993	y
Detection Probability 25/30				83 %

RADAR TYPE 2				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	28	4	164	y
2	29	4.4	218	y
3	26	2.3	160	y
4	28	4.5	223	y
5	27	3.7	227	y
6	26	1.4	216	y
7	27	4.4	210	y
8	27	1	219	y
9	28	3.5	171	y
10	24	4	214	y
11	25	2.3	223	n
12	26	1.3	184	y
13	25	4.6	154	y
14	27	3.5	200	y
15	29	2.6	222	y
16	28	4.3	190	y
17	25	3.3	225	y
18	28	1.8	194	y
19	24	1.9	180	y
20	24	2	153	y
21	24	4.7	190	y
22	23	1.3	166	y
23	27	2.8	227	y
24	27	2.1	224	n
25	27	4.7	168	y
26	28	1.7	177	y
27	23	4.2	161	y
28	23	4.7	155	y
29	24	2.4	157	y
30	27	2.1	222	y
Detection Probability 28/30				93 %

RADAR TYPE 3				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	16	9	395	y
2	17	9.9	252	y
3	16	6.4	389	y
4	18	6	408	y
5	17	6.4	325	y
6	17	7.8	260	y
7	17	8.5	372	y
8	16	9.8	444	y
9	18	6.3	291	y
10	16	8.3	476	y
11	17	7.6	245	y
12	18	9.2	367	y
13	16	8.1	425	y
14	17	6.4	395	y
15	17	7.7	420	y
16	16	9.3	308	y
17	17	8.8	408	y
18	17	9.6	240	y
19	16	6.3	400	y
20	17	9.5	469	y
21	16	9.4	246	n
22	17	7.6	274	y
23	17	8.7	413	y
24	16	9.2	248	y
25	18	7.5	346	y
26	16	8.4	327	y
27	17	9.5	347	y
28	16	9.3	382	y
29	18	8.4	389	y
30	18	7.2	473	y
Detection Probability 29/30				97 %

RADAR TYPE 4				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	15	18.1	389	y
2	15	15.9	337	y
3	13	18	376	y
4	15	15.7	271	y
5	13	17.4	409	y
6	12	13.7	430	y
7	15	16.9	491	y
8	13	18.1	229	y
9	15	14.5	466	y
10	13	11.2	496	y
11	13	19.8	362	y
12	13	11.9	397	y
13	14	18.8	329	y
14	15	18.9	344	y
15	15	18.7	295	y
16	13	13.4	229	y
17	12	18.4	412	y
18	16	11.6	231	y
19	13	11.6	449	y
20	16	13.7	289	y
21	14	13.5	480	y
22	13	17.1	331	y
23	16	13.4	487	y
24	12	12	312	n
25	15	13.8	432	y
26	12	18.4	306	n
27	15	11.5	326	n
28	14	18.1	422	y
29	14	17.4	315	y
30	15	13.6	227	y
Detection Probability 27/30				90 %

TYPE 5	Rohde & Schwarz K350 Pulse Sequencer DFS			
Trial #	**Detection (yes/no)**	**Chirp Width (MHz)**	**Subset**	**Fc**
1	y	14	1	5500
2	y	11	1	5500
3	y	7	1	5500
4	y	10	1	5500
5	y	17	1	5500
6	y	5	1	5500
7	y	9	1	5500
8	y	13	1	5500
9	y	17	1	5500
10	y	7	1	5500
11	y	19	2	5498.6
12	y	19	2	5498.6
13	y	16	2	5497.4
14	y	14	2	5496.6
15	y	11	2	5495.4
16	y	9	2	5494.6
17	y	14	2	5496.6
18	y	5	2	5493
19	y	11	2	5495.4
20	y	12	2	5495.8
21	y	18	3	5501.8
22	y	17	3	5502.2
23	y	13	3	5503.8
24	y	6	3	5506.6
25	y	14	3	5503.4
26	y	5	3	5507
27	y	8	3	5505.8
28	y	12	3	5504.2
29	y	10	3	5505
30	y	11	3	5504.6
Detection Probability 30/30			100 %	

TYPE 6 S	Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Detection (yes/no)**
1	y
2	y
3	y
4	y
5	y
6	y
7	y
8	y
9	y
10	y
11	y
12	y
13	y
14	y
15	y
16	y
17	y
18	y
19	y
20	y
21	y
22	y
23	n
24	y
25	y
26	y
27	y
28	y
29	y
30	y
Detection Probability 29/30	97 %

80 MHz

RADAR TYPE 1				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	91	1	581	y
2	23	1	2346	y
3	28	1	1928	y
4	47	1	1128	y
5	100	1	530	y
6	18	1	2964	y
7	23	1	2333	y
8	32	1	1696	y
9	18	1	2934	y
10	21	1	2572	y
11	22	1	2399	y
12	35	1	1526	y
13	55	1	967	y
14	31	1	1730	y
15	34	1	1585	y
16	43	1	1237	y
17	82	1	645	y
18	41	1	1296	y
19	30	1	1805	y
20	47	1	1136	y
21	18	1	2988	y
22	19	1	2775	y
23	21	1	2541	y
24	43	1	1228	y
25	18	1	2953	y
26	19	1	2894	n
27	85	1	620	y
28	37	1	1448	y
29	81	1	651	y
30	24	1	2265	y
Detection Probability 29/30				97 %

RADAR TYPE 2				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	23	3.8	187	y
2	26	3.3	197	y
3	24	2	163	y
4	27	2.1	208	y
5	23	2.8	179	y
6	27	3.1	227	n
7	25	4.4	190	y
8	25	4.8	227	y
9	25	4.2	176	y
10	27	1.2	162	y
11	29	1.2	169	y
12	26	4.6	159	y
13	25	1.2	221	y
14	27	3.7	228	y
15	25	3.3	156	y
16	23	3.9	180	y
17	28	4.5	159	y
18	25	4.4	164	y
19	24	2.5	196	y
20	27	4.7	202	y
21	24	4.8	179	y
22	29	3.1	206	y
23	27	4.3	157	y
24	26	2.4	184	y
25	26	3.8	177	y
26	28	2.1	224	y
27	28	2.4	216	y
28	24	1	179	y
29	29	1.7	227	y
30	28	4.7	164	y
Detection Probability 29/30				97 %

RADAR TYPE 3				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	18	9.7	393	y
2	18	6.3	291	y
3	17	8.6	463	y
4	17	7.3	334	y
5	17	7.5	253	y
6	17	9.1	442	y
7	18	6.8	261	y
8	16	6.2	457	y
9	18	6.3	292	y
10	16	7.7	373	y
11	18	8.1	354	y
12	18	8.7	410	y
13	17	8.1	212	y
14	16	7.8	382	y
15	17	6.6	304	y
16	16	7.1	304	y
17	16	8	283	y
18	18	7.7	228	y
19	17	6.7	307	y
20	16	6.6	260	y
21	18	7.2	423	y
22	18	6.4	465	y
23	17	9.4	347	y
24	17	8.4	490	y
25	17	9.8	376	y
26	17	6.3	333	y
27	17	6.8	292	y
28	16	9.6	486	y
29	17	7.3	479	y
30	18	7.9	230	y
Detection Probability 30/30				100 %

RADAR TYPE 4				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	14	16.3	481	y
2	15	13.9	450	y
3	14	14.1	437	y
4	16	18.1	268	y
5	15	14.9	321	y
6	14	18.7	448	y
7	12	15.7	262	y
8	12	11.6	420	y
9	13	12	261	y
10	14	17.8	385	y
11	14	16.1	479	y
12	13	19.8	282	y
13	15	14	361	y
14	12	12.6	476	y
15	14	12.9	270	y
16	16	14.6	323	y
17	13	19.8	417	y
18	15	14	441	y
19	15	18.1	424	y
20	14	16.4	340	y
21	16	17.6	315	y
22	14	17.2	257	y
23	13	17.2	429	y
24	13	15.4	335	y
25	16	11.2	246	y
26	15	12.9	220	y
27	14	17.6	472	y
28	15	18.8	359	y
29	14	15.4	268	y
30	14	18	394	y
Detection Probability 30/30				100 %

TYPE 5	Rohde & Schwarz K350 Pulse Sequencer DFS			
Trial #	**Detection (yes/no)**	**Chirp Width (MHz)**	**Subset**	**Fc**
1	y	17	1	5500
2	n	5	1	5500
3	y	17	1	5500
4	y	13	1	5500
5	y	12	1	5500
6	n	7	1	5500
7	y	13	1	5500
8	y	6	1	5500
9	y	19	1	5500
10	y	7	1	5500
11	y	5	2	5493
12	y	6	2	5493.4
13	y	8	2	5494.2
14	y	18	2	5498.2
15	y	9	2	5494.6
16	y	9	2	5494.6
17	n	7	2	5493.8
18	y	15	2	5497
19	n	8	2	5494.2
20	y	5	2	5493
21	y	19	3	5501.4
22	y	6	3	5506.6
23	y	8	3	5505.8
24	y	9	3	5505.4
25	y	5	3	5507
26	y	7	3	5506.2
27	y	16	3	5502.6
28	y	6	3	5506.6
29	y	5	3	5507
30	y	8	3	5505.8
Detection Probability 26/30			87 %	

TYPE 6 S	Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Detection (yes/no)**
1	y
2	y
3	y
4	y
5	y
6	y
7	y
8	y
9	y
10	y
11	y
12	y
13	y
14	y
15	y
16	y
17	y
18	y
19	y
20	y
21	y
22	y
23	y
24	y
25	y
26	y
27	y
28	y
29	y
30	y
Detection Probability 30/30	100 %

-- End of Test Report --