UNIFIED COMPLIANCE LABORATORY

427 West 12800 South
Draper, UT 84020

Test Report

Certification

FCC ID	SWX-WAVEAM
ISED ID	6545A-WAVEAM
Equipment Under Test	Wave-AP-Micro
Test Report Serial Number	TR7689_02
Date of Tests	October 11; November 15, 29-30, 2022
Report Issue Date	December 2, 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

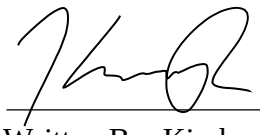
This report has been prepared by Unified Compliance Laboratory (UCL) to document compliance of the device described below with the requirement of Federal Communication Commissions (FCC) Part 15, Subpart E. This report may be reproduced in full. Partial reproduction of this report may only be made with 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	Wave
Model Number	Wave-AP-Micro
FCC ID	SWX-WAVEAM
ISED ID	6545A-WAVEAM

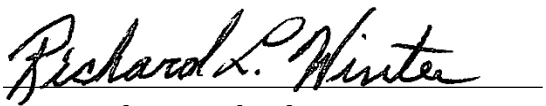
On this 2nd day of December 2022, I individually and for Unified Compliance Laboratory certify that the statements made in this engineering report are true, complete and correct to the best of my knowledge and are made in good faith.

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	December 2, 2022
02	Amend Section 3.5	February 1, 2023

Table of Contents

1 Client Information 5
1.1 Applicant 5
1.2 Manufacturer 5
2 Equipment Under Test (EUT) 6
2.1 Identification of EUT 6
2.2 Description of EUT 6
2.3 EUT and Support Equipment 7
2.4 Interface Ports on EUT 7
2.5 Operating Environment 7
2.6 Operating Modes 8
2.7 EUT Exercise Software 8
2.8 Block Diagram of Test Configuration 8
2.9 Modification Incorporated/Special Accessories on EUT 8
2.10 Deviation, Opinions Additional Information or Interpretations from Test Standard 8
3 Test Specification, Method and Procedures 9
3.1 Test Specification 9
3.2 Methods & Procedures 9
3.3 FCC Part 15, Subpart E 9
3.4 Results 9
3.5 Test Location 10
4 Test Equipment 10
4.1 Conducted Emissions at Mains Ports 10
4.2 Direct Connect at the Antenna Port Tests 11
4.3 Radiated Emissions 11
4.4 DFS Testing 12
4.5 Equipment Calibration 13
4.6 Measurement Uncertainty 13
5 Test Results 14
5.1 §15.203 Antenna Requirements 14
5.2 §15.403(i) 26 dB Emissions Bandwidth 14
5.3 §15.407(a)(2) Maximum Average Output Power 15
5.4 §15.407(b) Spurious Emissions 16
5.5 §15.407(a) Maximum Power Spectral Density 18
5.6 DFS Requirement 20

1 Client Information

1.1 Applicant

Company	Ubiquiti Inc. 685 Third Avenue New York, NY 10017 U.S.A.
Contact Name	Alex Macon
Title	Compliance

1.2 Manufacturer

Company	Ubiquiti Inc. 685 Third Avenue New York, NY 10017 U.S.A.
Contact Name	Alex Macon
Title	Compliance

2 Equipment Under Test (EUT)

2.1 Identification of EUT

Brand Name	Wave
Model Number	Wave-AP-Micro
Serial Number	0418D6A28CB3
Dimensions (cm)	28.4 x 15.6 x 7.6

2.2 Description of EUT

The Wave-AP-Micro is 60 GHz point-to-multipoint customer premise equipment that features wave technology with a 1.5+ Gbps throughput rate. The Wave-AP-Micro is also equipped with a 5 GHz WiFi 6 backup radio to sustain connectivity during a 60 GHz link disruption caused by inclement weather conditions. A Bluetooth LE transceiver is included for device management. The Wave-AP-Micro is an outdoor device and has an Ethernet port which is used for data transfer and to provide power using an Ubiquiti U-POE-at 48-volt PoE power adapter.

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
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
* 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: Wave MN: Wave-AP-Micro (Note 1) SN: 0418D6A28CB3	Wireless P-P/P-MP Radio	See Section 2.4
BN: Ubiquiti MN: U-POE-at SN: N/A	PoE Power Adapter	Shielded or Un-shielded cat 5e cable
BN: Dell MN: XPS 13 SN: N/A	Laptop Computer	Shielded or Un-shielded cat 5e cable

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
PoE In	1	Shielded or Un-shielded cat 5e cable/7 meter

2.5 Operating Environment

Power Supply	120 Volts AC to 48 Volts PoE
AC Mains Frequency	60 Hz
Temperature	22.1-22.8 °C
Humidity	19.3-23.9 %
Barometric Pressure	1009 mBar

2.6 Operating Modes

The Wave-AP-Micro was tested using test software in order to enable to constant transmission. The measurements within this report are corrected to reference a 100% duty cycle. All measurements are reported with the worst-case mode (802.11ax) unless otherwise stated.

2.7 EUT Exercise Software

EUT firmware version 3.3.0 was used to operate the transmitter using a constant transmit mode.

2.8 Block Diagram of Test Configuration

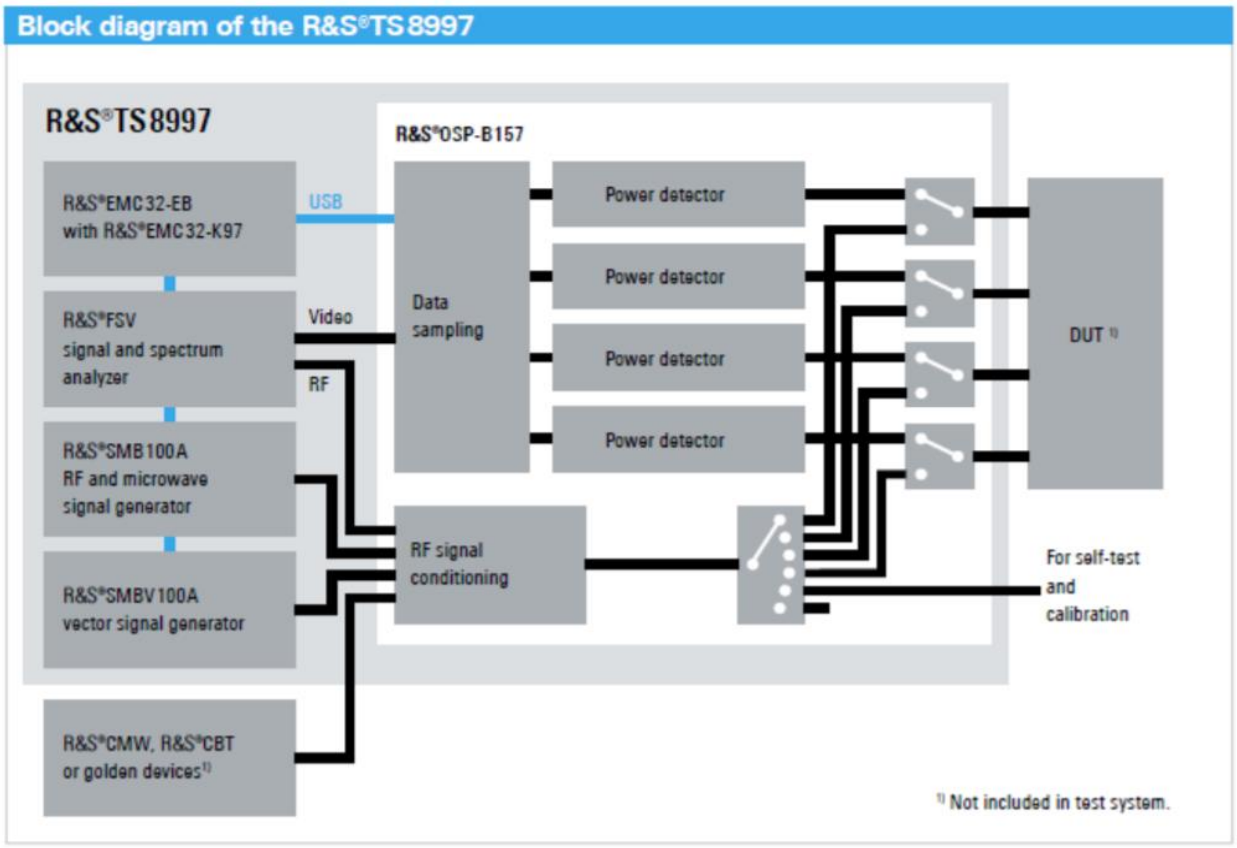


Diagram 1: Test Configuration Block Diagram

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 5570	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 5570	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 2023. 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 2023. Unified Compliance Laboratory has been assigned Conformity Assessment Number US0223 by ISED and Designation Number US5037 by FCC.

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-6754	12/8/2021	12/8/2022
LISN	AFJ	LS16C/10	UCL-6749	12/6/2021	12/6/2023
Cat6 ISN	Teseq	ISN T8-Cat6	UCL-2971	1/30/2022	1/30/2023
ISN	Teseq	ISN T800	UCL-2974	6/27/2022	6/272023
LISN	Com-Power	LIN-120C	UCL-2612	1/6/2022	1/6/2023
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

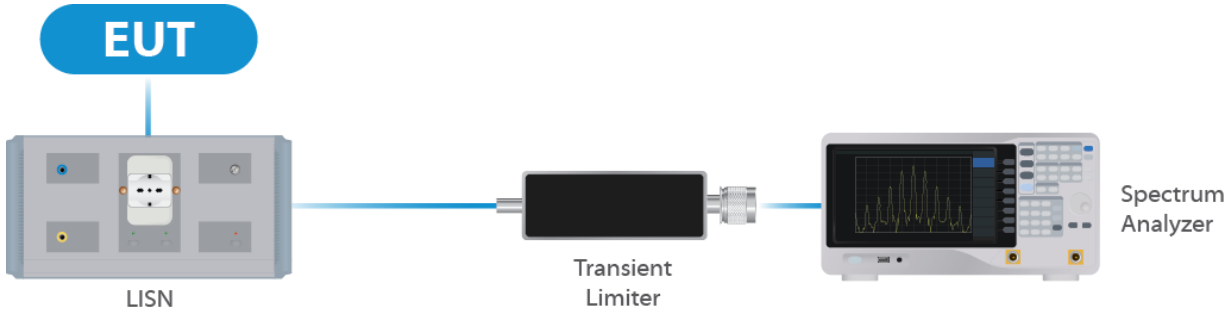


Figure 1: Conducted Emissions Test

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

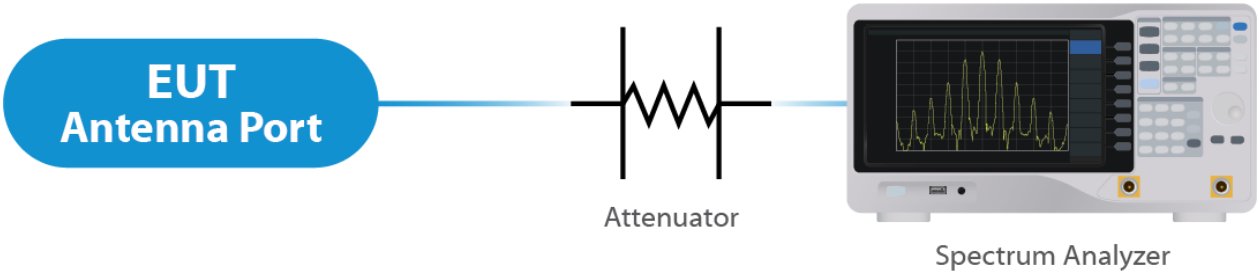


Figure 2: Direct Connect at the Antenna Port Test

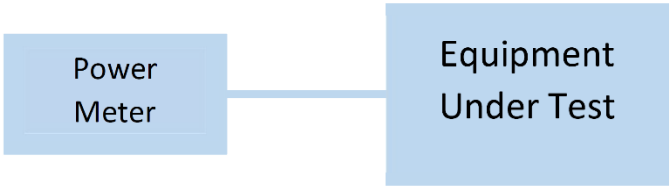


Figure 3: Output Power Measurement

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	1/4/2022	1/4/2023
Pre-Amplifier 9 kHz – 1 GHz	Sonoma Instruments	310N	UCL-2889	10/7/2021	11/7/2022
Broadband Antenna	Scwarzbeck	VULB 9163	UCL-3062	9/13/2022	9/13/2024
Broadband Antenna	Scwarzbeck	VULB 9163	UCL-3071	6/08/2022	6/22/2024
Double Ridge Horn Antenna	Scwarzbeck	BBHA 9120D	UCL-3065	9/22/2022	9/22/2024

Log Periodic	Scwarzbeck	STLP 9129	UCL-3068	11/16/2020	11/16/2022
15 - 40 GHz Horn Antenna	Scwarzbeck	BBHA 9170	UCL-2487	6/09/2022	6/09/2024
1 – 18 GHz Amplifier	Com-Power	PAM 118A	UCL-3833	10/7/2021	11/7/2022
Test Software	UCL	Revision 1	UCL-3108	N/A	N/A

Table 4: List of equipment used for Radiated Emissions

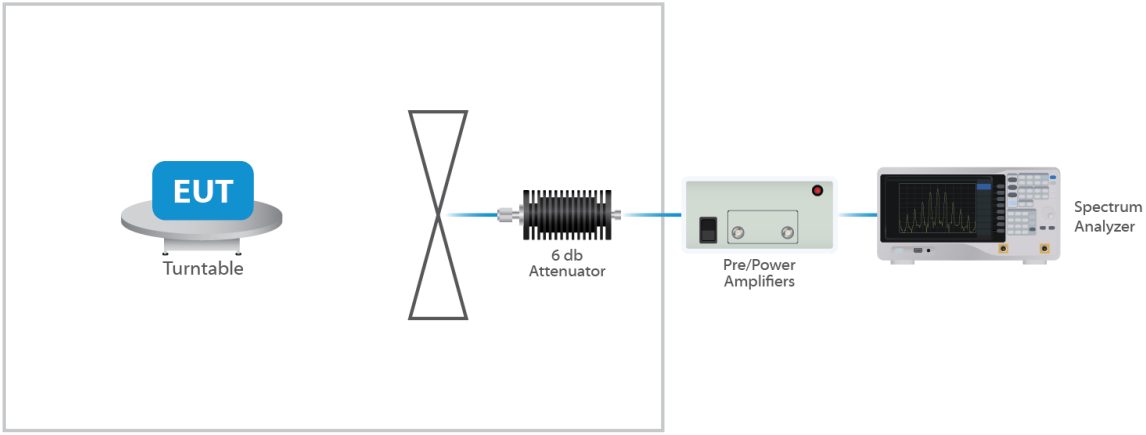


Figure 4: Radiated Emissions Test

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	N9010B	UCL-7069	4/25/2022	4/25/2023

4.4.1 Master Test Set Up

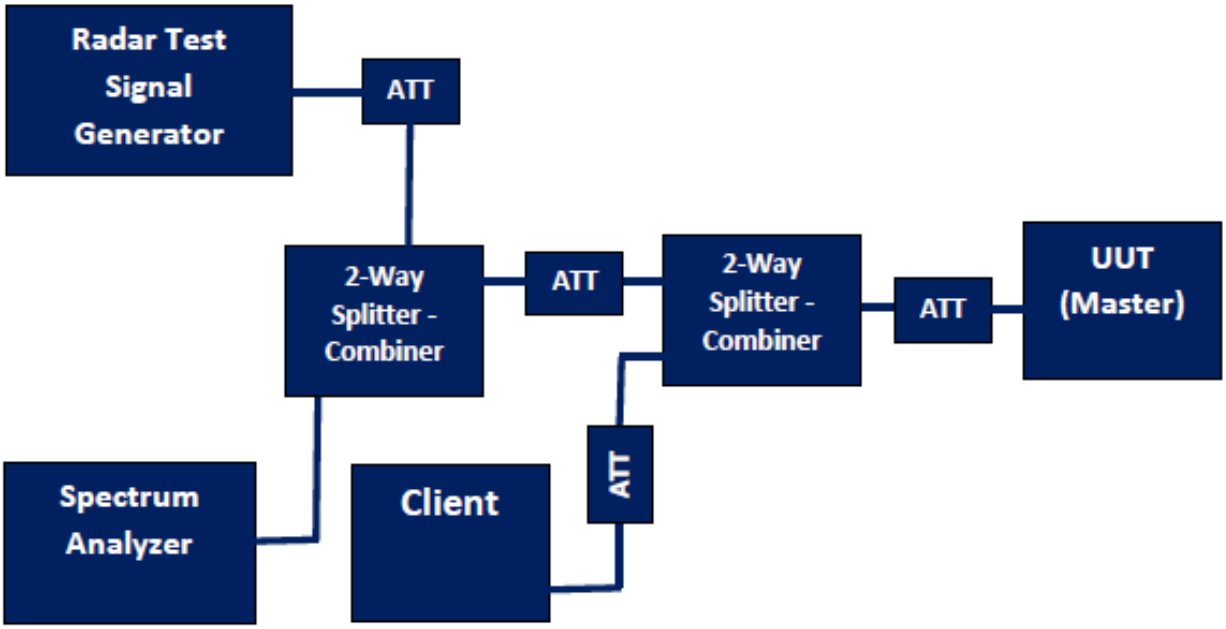


Figure 5: DFS Test Set Up - Master

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 a single integral antenna structure. The maximum gain of the antenna per chain is 13.5 dBi. This is an 802.11 device and utilizes CDD as described in KDB 662911 D01. The antenna is not user replaceable.

For power measurements on IEEE 802.11 devices, Array Gain = 0 dB for NANT ≤ 4;
For PSD measurements when Nss=1: Array Gain = 13 log(Nant/Nss) dB = 13.5dB

Results

The EUT complied with the specification

5.2 §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.

5.2.1 UNII-2A

Modulation	Nominal BW (MHz)	Frequency (MHz)	99% Bandwidth (MHz)	Emissions 26 dB Bandwidth (MHz)
HE	20	5260	19.20	21.20
HE	20	5300	19.20	21.80
HE	20	5335	19.20	21.90
HE	40	5270	38.00	40.20
HE	40	5300	37.75	39.60
HE	40	5325	37.75	40.20
HE	80	5290	77.50	82.00
HE	80	5300	77.50	82.50
HE	80	5305	77.50	83.00

5.2.2 UNII-2C

Modulation	Nominal BW (MHz)	Frequency (MHz)	99% Bandwidth (MHz)	Emissions 26 dB Bandwidth (MHz)
HE	20	5485	19.10	22.10
HE	20	5600	19.10	21.90

HE	20	5710	19.10	21.20
HE	40	5495	37.75	40.20
HE	40	5600	37.75	40.05
HE	40	5700	37.75	39.90
HE	80	5515	77.50	83.00
HE	80	5600	77.50	83.00
HE	80	5680	77.50	83.00

Result

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

5.3 §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 16.46 dBm or 44.26 mW. The limit is 24 dBm or 250 mW when using antennas with 6 dBi or less gain. The antenna has a maximum gain of 13.5 dBi.

5.3.1 UNII-2A

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power*	Measured PSD
HE20	5260	Mcs0	31	16.10	0.76
HE20	5300	Mcs0	30	15.98	0.55
HE20	5335	Mcs0	30	15.94	0.38
HE40	5270	Mcs0	31	16.27	-2.36
HE40	5300	Mcs0	30	16.03	-2.58
HE40	5325	Mcs0	30	15.90	-2.65
HE80	5290	Mcs0	31	16.46	-4.99
HE80	5300	Mcs0	30	16.00	-5.60
HE80	5305	Mcs0	30	16.05	-5.49

5.3.2 UNII-2C

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power*	Measured PSD

HE20	5485	Mcs0	31	15.94	0.52
HE20	5600	Mcs0	31	16.07	0.83
HE20	5710	Mcs0	31	16.14	0.43
HE40	5495	Mcs0	32	16.41	-2.07
HE40	5600	Mcs0	31	16.01	-2.34
HE40	5700	Mcs0	31	16.33	-2.26
HE80	5515	Mcs0	31	15.93	-5.23
HE80	5600	Mcs0	31	16.03	-5.43
HE80	5680	Mcs0	31	16.11	-5.65

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.

5.4 §15.407(b) Spurious Emissions

5.4.1 Conducted Spurious Emissions

The frequency ranges from the lowest frequency generated or used in the device to the tenth harmonic of the highest fundamental frequency was investigated to measure any antenna-conducted emissions. The graphs show the measurement data from spurious emissions noted across the frequency range when transmitting at the lowest frequency, middle frequency and upper frequency. Shown below are plots with the EUT turned to the upper and lower channels with the antenna gain of 13.5 dBi accounted for. These demonstrate compliance with the provisions of this section at the band edges.

The emissions must be below -27 dBm EIRP.

Result

Conducted spurious emissions were below -27 dBm; therefore, the EUT complies with the specification. See Annex for results.

5.4.2 Radiated Spurious Emissions in the Restricted Bands of § 15.205

The frequency range from the lowest frequency generated or used in 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. The “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.

5.4.3 UNII-2A

Frequency	SR #	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.687 GHz	Peak	46.623	74	-27.377	53	3.798	Vertical	2.245
16.029 GHz	Peak	49.438	74	-24.562	308	1.5	Vertical	5.196
16.864 GHz	Peak	52.719	74	-21.281	267	1.638	Vertical	9.472
10.687 GHz	Avg	33.419	54	-20.581	53	3.798	Vertical	2.245
16.029 GHz	Avg	36.647	54	-17.353	308	1.5	Vertical	5.196
16.864 GHz	Avg	39.341	54	-14.659	267	1.638	Vertical	9.472
10.684 GHz	Peak	47.643	74	-26.357	215	1.5	Horizontal	2.17
16.03 GHz	Peak	50.1	74	-23.9	159	4	Horizontal	5.143
16.768 GHz	Peak	52.404	74	-21.596	124	3.802	Horizontal	9.069
10.684 GHz	Avg	34.24	54	-19.76	215	1.5	Horizontal	2.17
16.03 GHz	Avg	37.044	54	-16.956	159	4	Horizontal	5.143
16.768 GHz	Avg	39.409	54	-14.591	124	3.802	Horizontal	9.069
16.012 GHz	Peak	57.232	74	-16.768	327	1.5	Vertical	-3.541
28.587 GHz	Peak	47.932	74	-26.068	327	1.5	Vertical	-4.421
36.838 GHz	Peak	52.919	74	-21.081	310	1.5	Vertical	1.425
39.839 GHz	Peak	54.474	74	-19.526	249	1.5	Vertical	3.954
16.012 GHz	Avg	40.499	54	-13.501	327	1.5	Vertical	-3.541
28.587 GHz	Avg	34.08	54	-19.92	327	1.5	Vertical	-4.421
36.838 GHz	Avg	36.377	54	-17.623	310	1.5	Vertical	1.425
39.839 GHz	Avg	38.482	54	-15.518	249	1.5	Vertical	3.954
16.011 GHz	Peak	50.177	74	-23.823	339	1.5	Horizontal	-3.546
29.113 GHz	Peak	48.179	74	-25.821	319	1.5	Horizontal	-3.597
38.974 GHz	Peak	55.426	74	-18.574	85	1.5	Horizontal	3.929
39.545 GHz	Peak	55.144	74	-18.856	92	1.5	Horizontal	4.026
16.011 GHz	Avg	35.831	54	-18.169	339	1.5	Horizontal	-3.546
29.113 GHz	Avg	33.704	54	-20.296	319	1.5	Horizontal	-3.597
38.974 GHz	Avg	39.024	54	-14.976	85	1.5	Horizontal	3.929
39.545 GHz	Avg	38.378	54	-15.622	92	1.5	Horizontal	4.026

5.4.4 UNII-2C

Frequency	SR #	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
6.0962 GHz	Peak	52.265	74	-21.735	326	1.5	Vertical	-8.714
11.426 GHz	Peak	47.127	74	-26.873	55	2.142	Vertical	2.354
14.909 GHz	Peak	50.727	74	-23.273	250	3.149	Vertical	7.321
6.0962 GHz	Avg	37.286	54	-16.714	326	1.5	Vertical	-8.714
11.426 GHz	Avg	34.085	54	-19.915	55	2.142	Vertical	2.354
14.909 GHz	Avg	37.921	54	-16.079	250	3.149	Vertical	7.321
6.0893 GHz	Peak	44.648	74	-29.352	2	1.5	Horizontal	-8.818
11.423 GHz	Peak	47.395	74	-26.605	344	2.645	Horizontal	2.367
16.87 GHz	Peak	53.504	74	-20.496	88	4	Horizontal	9.63
6.0893 GHz	Avg	30.601	54	-23.399	2	1.5	Horizontal	-8.818
11.423 GHz	Avg	34.452	54	-19.548	344	2.645	Horizontal	2.367
16.87 GHz	Avg	39.772	54	-14.228	88	4	Horizontal	9.63
16.785 GHz	Peak	55.71	74	-18.29	351	1.5	Vertical	-4.547
22.414 GHz	Peak	57.729	74	-16.271	317	1.5	Vertical	-5.411
38.978 GHz	Peak	54.721	74	-19.279	142	1.5	Vertical	3.945
16.785 GHz	Avg	38.844	54	-15.156	351	1.5	Vertical	-4.547
22.414 GHz	Avg	41.464	54	-12.536	317	1.5	Vertical	-5.411
38.978 GHz	Avg	39.225	54	-14.775	142	1.5	Vertical	3.945
16.804 GHz	Peak	55.064	74	-18.936	347	1.5	Horizontal	-4.533
22.383 GHz	Peak	62.756	74	-11.244	274	1.5	Horizontal	-5.395
39.53 GHz	Peak	55.088	74	-18.912	40	1.5	Horizontal	4.077
16.804 GHz	Avg	40.304	54	-13.696	347	1.5	Horizontal	-4.533
22.383 GHz	Avg	45.295	54	-8.705	274	1.5	Horizontal	-5.395
39.53 GHz	Avg	38.213	54	-15.787	40	1.5	Horizontal	4.077

5.5 §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 13.5 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.
Results of this testing are summarized.

5.5.1 UNII-2A

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Measured PSD
HE20	5260	Mcs0	31	0.76
HE20	5300	Mcs0	30	0.55
HE20	5335	Mcs0	30	0.38
HE40	5270	Mcs0	31	-2.36
HE40	5300	Mcs0	30	-2.58
HE40	5325	Mcs0	30	-2.65
HE80	5290	Mcs0	31	-4.99
HE80	5300	Mcs0	30	-5.60
HE80	5305	Mcs0	30	-5.49

5.5.2 UNII-2C

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Measured PSD
HE20	5485	Mcs0	31	0.52
HE20	5600	Mcs0	31	0.83
HE20	5710	Mcs0	31	0.43
HE40	5495	Mcs0	32	-2.07
HE40	5600	Mcs0	31	-2.34
HE40	5700	Mcs0	31	-2.26
HE80	5515	Mcs0	31	-5.23
HE80	5600	Mcs0	31	-5.43
HE80	5680	Mcs0	31	-5.65

Result

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

5.6 DFS Requirement

This product is a master with radar detection. The outcome of the required DFS tests is located in this section. DFS testing was performed following the test procedures as outlined in KDB 905462.

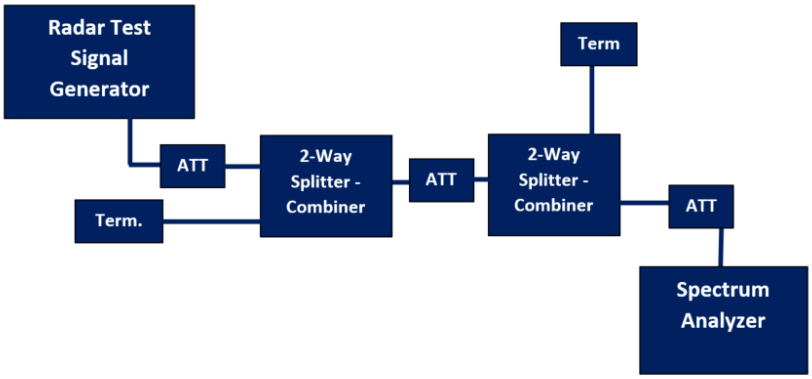
The product passes all required DFS tests for a master with radar detection.

Information	Status	
Possible Antenna/s	Integral	
Antenna used for test	Integral	
Operating mode	Master	
Port used for testing	F J1	
EIRP range	> 200 milliwatts	
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	43s	
Detection threshold level	-64 dBm	

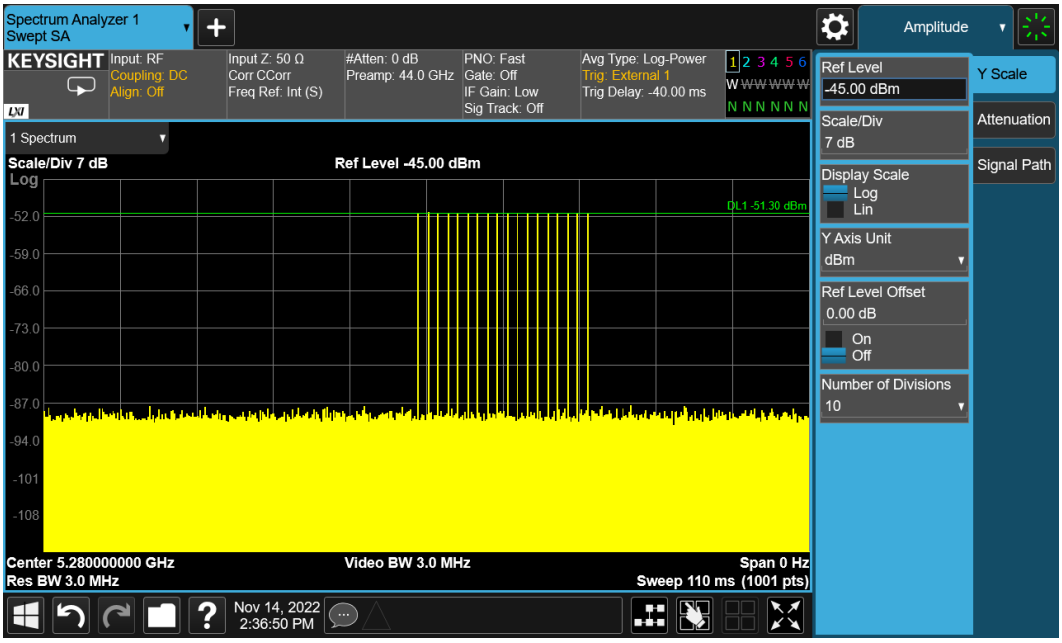
Requirement	Operational Mode		
	Master	Client Without Radar Detection	Client With Radar Detection
Non-Occupancy Period	Yes	Not Required	Yes
DFS Detection Threshold	Yes	Not Required	Yes
Channel Availability Check Time	Yes	Not Required	Not Required
U-NII Detection Bandwidth	Yes	Not Required	Yes

Requirement	Operational Mode	
	Master 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

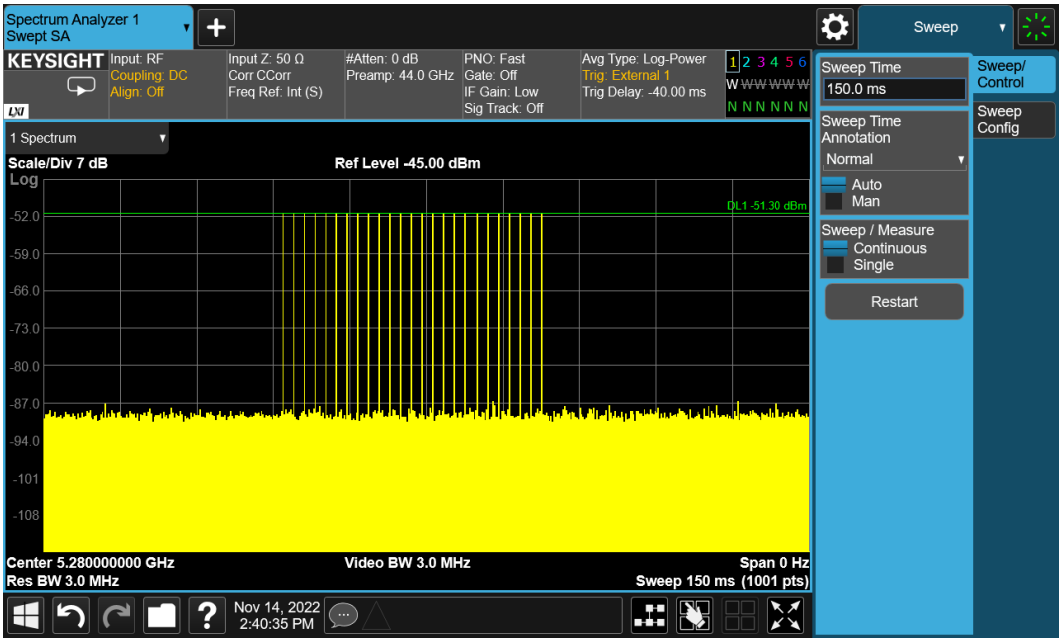
U-NII Detection Bandwidth	Yes	Not Required



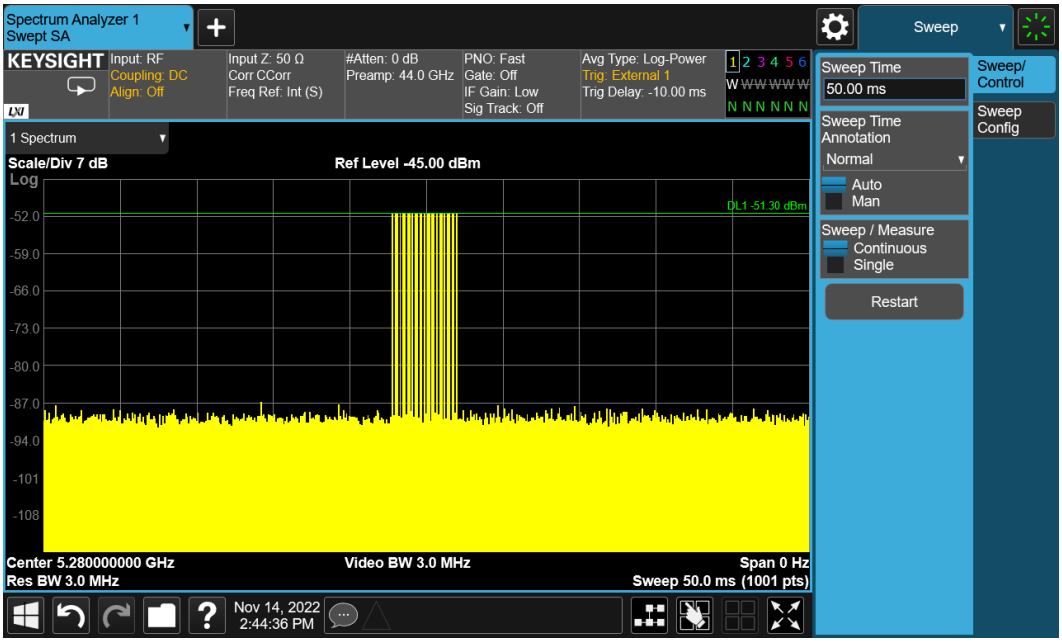
Maximum Transmit Power	**Value (See Notes 1, 2, and 3)**
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm
Note 1: This is the level at the input of the receiver assuming 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.	



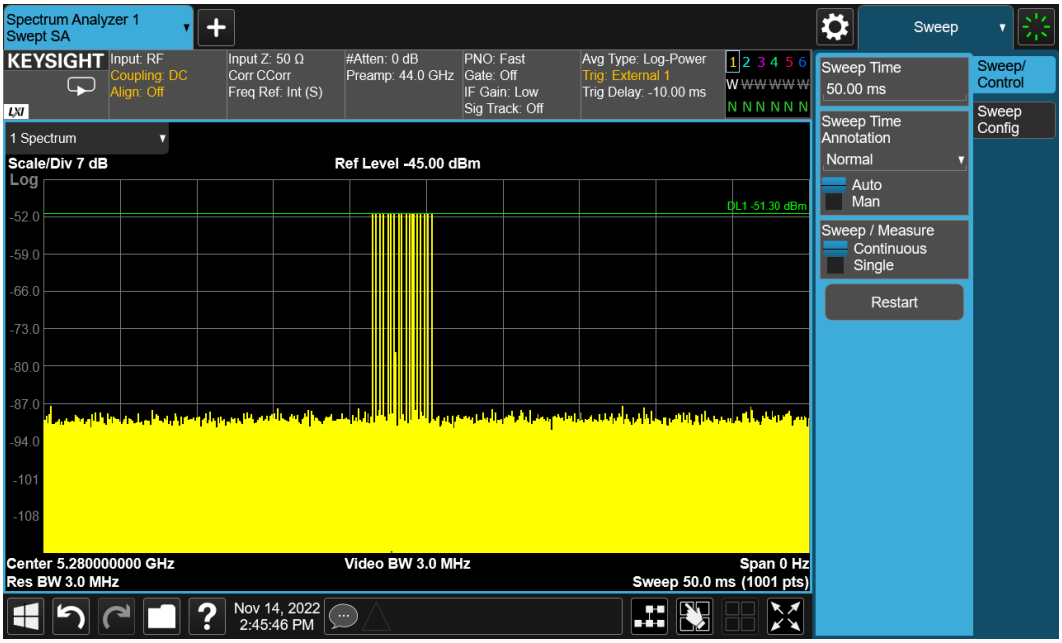
Plot 1: Radar Level 0



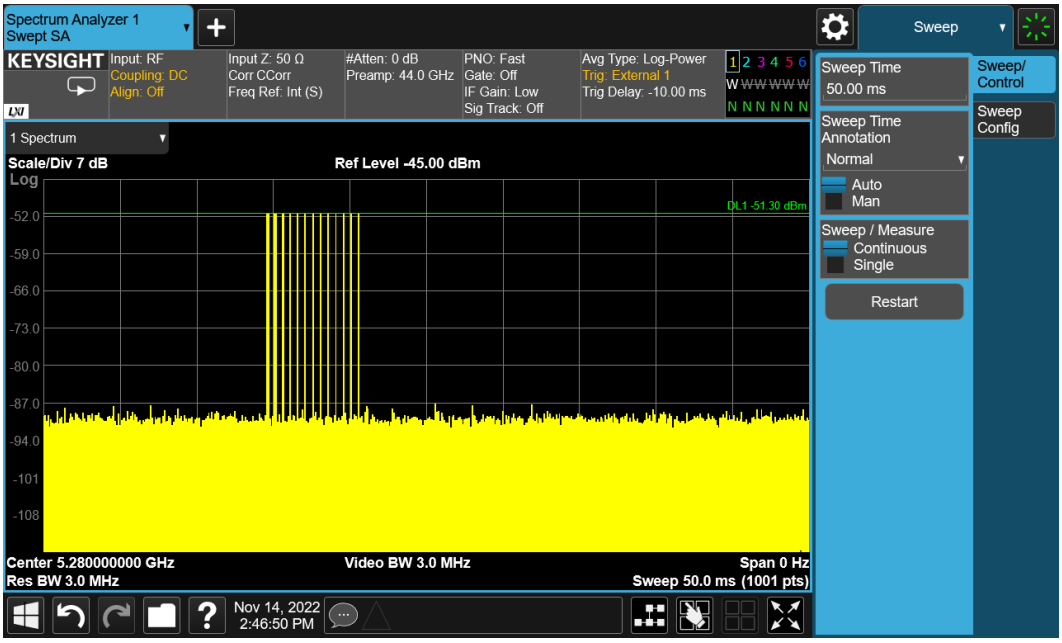
Plot 2: Radar Level 1



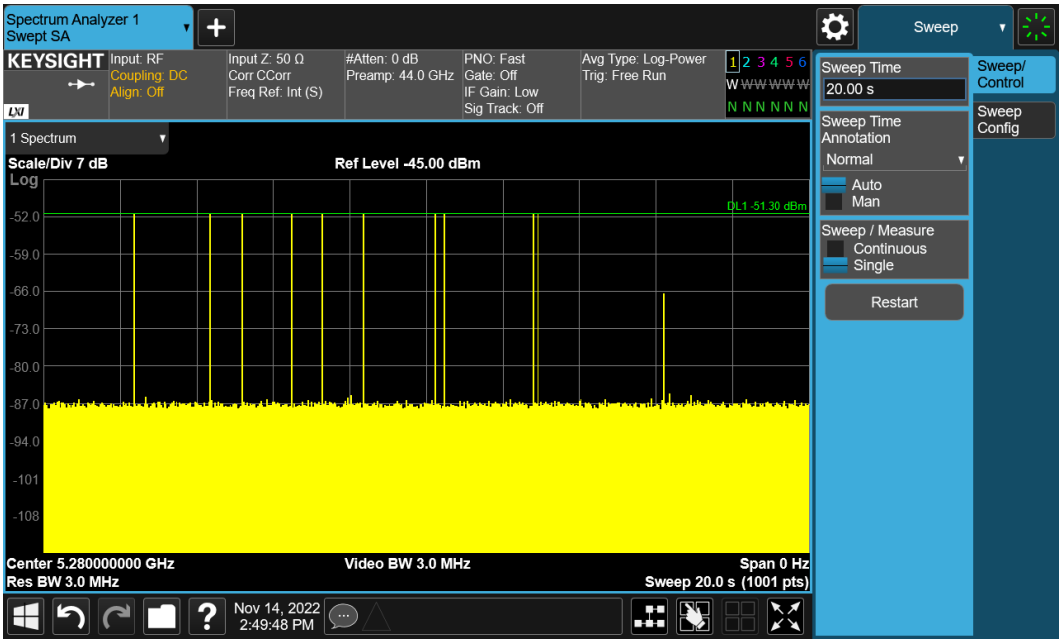
Plot 3: Radar Level 2



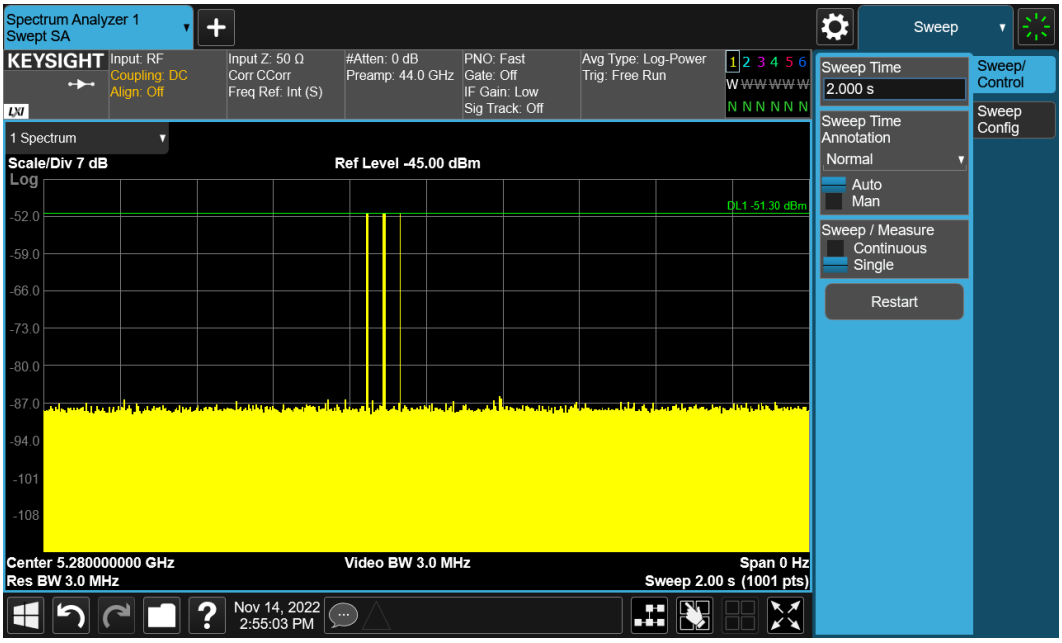
Plot 4: Radar Level 3



Plot 5: Radar Level 4



Plot 6: Radar Level 5



Plot 7: Radar Level 6

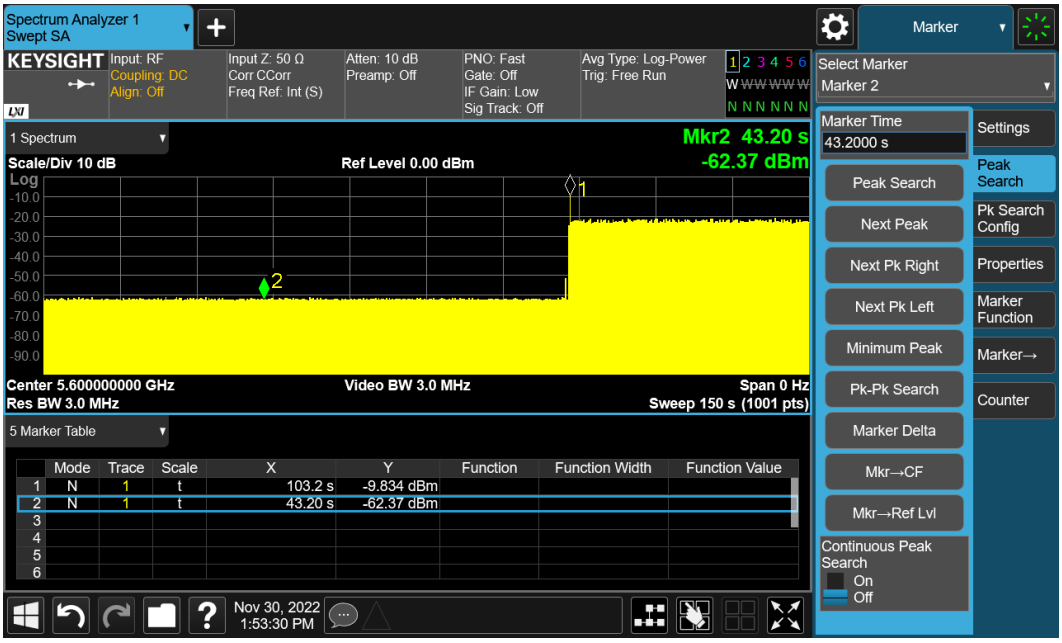
5.6.1 Channel Availability Check (CAC)

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 indicate initial beacons.

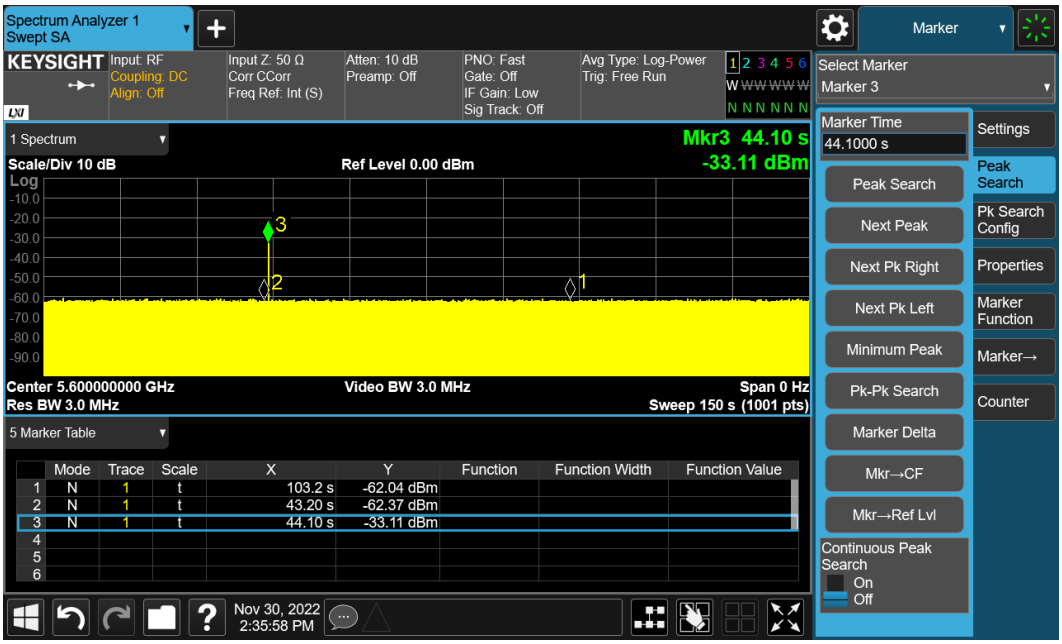
For radar burst at the beginning of the CAC. To verify successful radar detection on the selected channel during a period equal to the beginning of the CAC time, visual indication on the EUT of successful detection of the radar burst will be recorded and reported. Observation of the radar burst is show 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.

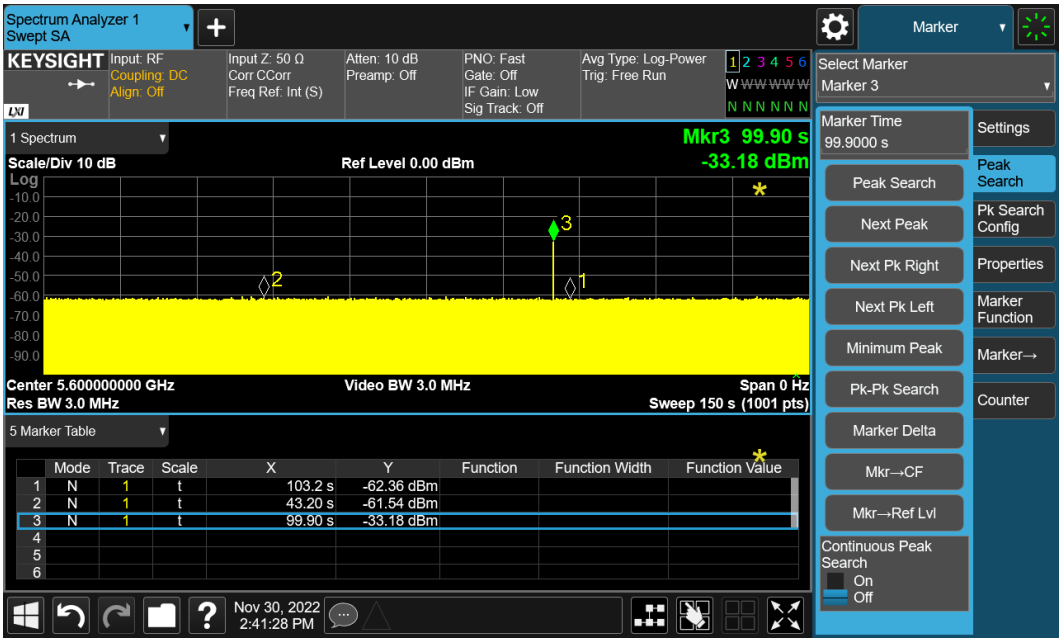
A spectrum analyzer is used as a monitor to verify that the EUT has vacated the channel within the channel closing transmission time and channel move time, and does not transmit on a channel during the non-occupancy period after the detection and channel move.



Plot 8: DUT Turn On



Plot 9: Beginning



Plot 10: End

5.6.2 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

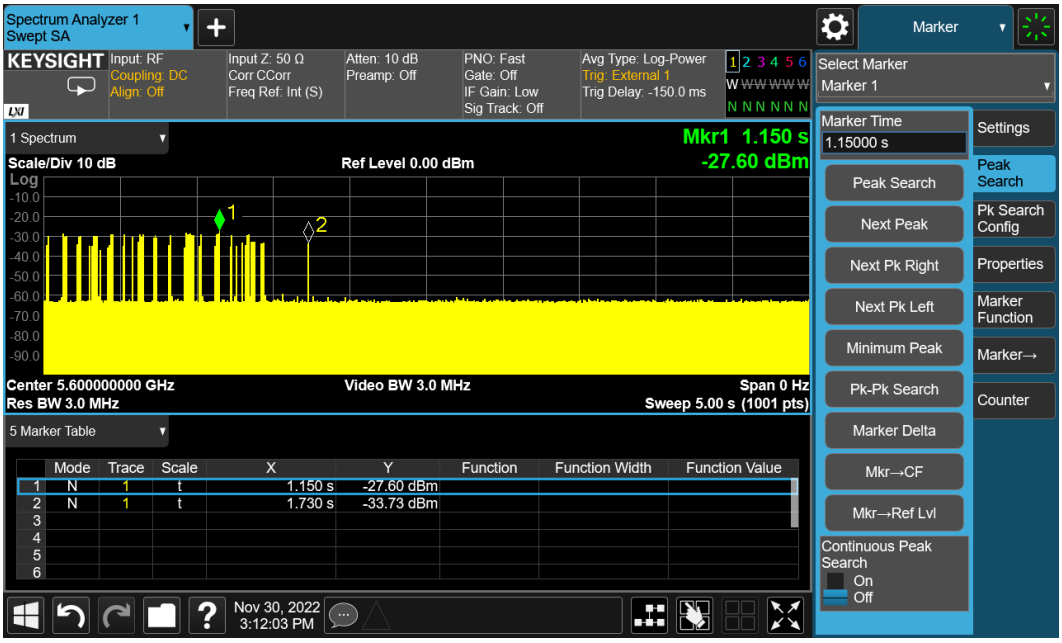
Verified during in-service monitoring: channel closing transmission time and channel move time. The transmissions were observed at the end of the radar burst on the operating channel for a duration of greater than 10 seconds. The transmissions were measured and recorded during the observation time. This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

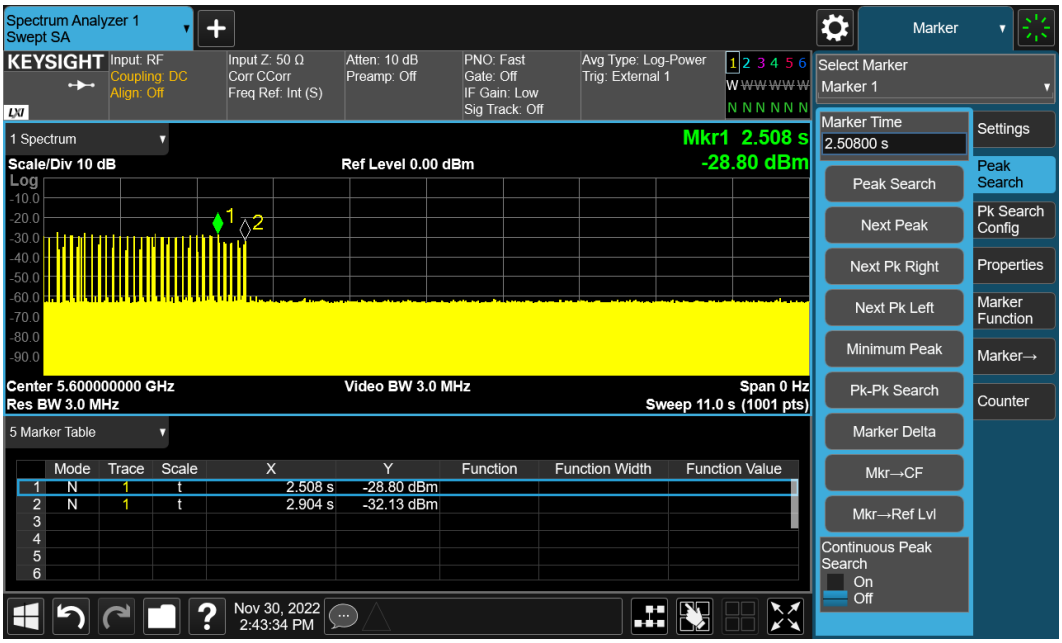
During the 30 minutes observation time, the EUT did not make any transmissions on a channel after a radar signal was detected.

Please see plots below.

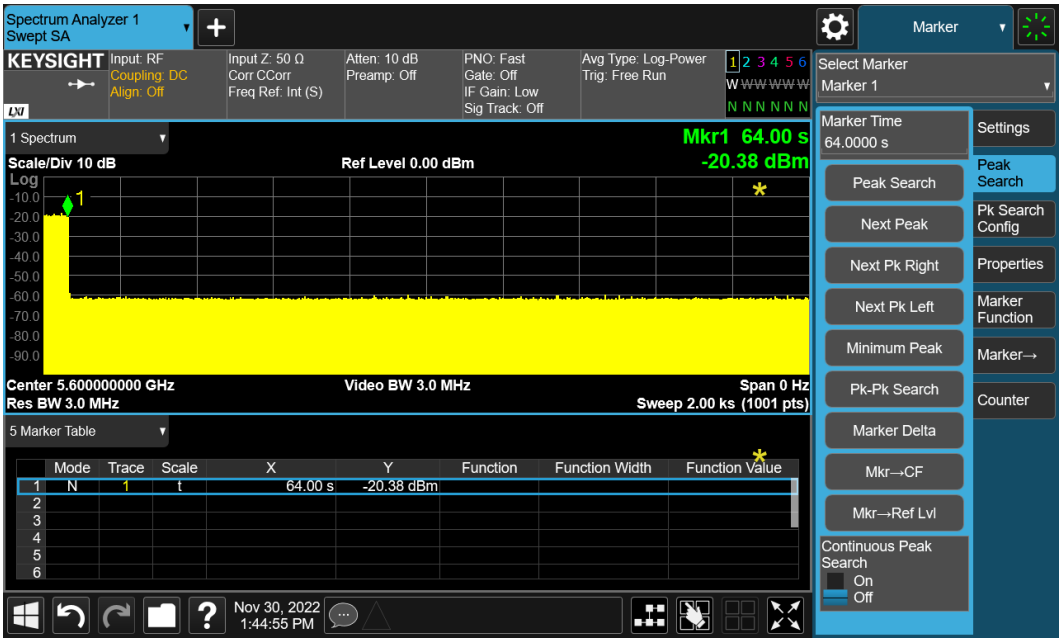
A spectrum analyzer is used as a monitor to verify that the EUT has vacated the channel within the channel closing transmission time and channel move time, and does not transmit on a channel during the non-occupancy period after the detection and channel move.



Plot 11: Close (2 s)



Plot 12: Move



Plot 13: Non-Occupancy

5.6.3 DFS Detection Bandwidth

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 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											
F_High 5610	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 = 19.8 MHz											

40 MHz

EUT Frequency = 5600 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	
F_Low 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											
F_High 5620	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 = 39.6 MHz											

80 MHz

EUT Frequency = 5600 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	
F_Low 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	0	1	1	1	1	1	1	1	1	90
5621											
5622											
5623											
5624											
5625	1	1	1	1	1	1	1	1	1	1	100
5626											
5627											
5628											
5629											

5630	1	1	1	1	1	1	1	1	1	1	100
5631											
5632											
5633											
5634											
5635	1	1	1	1	1	1	1	1	1	1	100
5636											
5637											
5638											
5639											
F_High 5640	1	1	1	1	1	1	1	1	1	1	100
Total Detection Percentage											99.41176471
Detection Bandwidth = FH-FL = 5570 MHz - 5650 MHz = 80 MHz											
99% Bandwidth = 79.2 MHz											

5.6.4 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 below.

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

20 MHz

Summary			
Type	Detections	Trials	Detection Probability
Type 1	25	30	83%
Type 2	19	30	63%
Type 3	22	30	73%
Type 4	22	30	73%
Type 5	30	30	100%
Type 6	30	30	100%
Aggregate 1-4	88	120	73%

RADAR TYPE 1				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	Number of Pulses per Burst	Pulse Width (µsec)	PRI (µs)	Detection (yes/no)
1	62	1	859	y
2	34	1	1551	y
3	31	1	1715	y
4	20	1	2772	n
5	21	1	2622	y
6	27	1	1966	y
7	25	1	2131	y
8	27	1	1960	n
9	25	1	2147	y
10	24	1	2210	n
11	66	1	802	y
12	44	1	1219	n
13	28	1	1914	y
14	20	1	2763	y
15	24	1	2266	y
16	52	1	1018	y
17	18	1	2981	y
18	69	1	771	y
19	19	1	2894	n
20	32	1	1697	y
21	36	1	1471	y
22	23	1	2307	y
23	82	1	648	y
24	25	1	2127	y
25	34	1	1550	y
26	94	1	565	y
27	19	1	2919	y
28	19	1	2905	y
29	29	1	1821	y
30	25	1	2192	y
				25/30: 83.3%

RADAR TYPE 2				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	Number of Pulses per Burst	Pulse Width (µsec)	PRI (µs)	Detection (yes/no)
1	25	1	222	y
2	26	3.1	213	y
3	25	3.9	217	n
4	25	2	176	y
5	23	3.3	217	y
6	27	4.8	202	y
7	26	2	208	y
8	26	4.5	212	n
9	24	3.5	175	y
10	26	2.4	206	n
11	24	1.7	151	y
12	25	1	175	y
13	25	4.7	204	n
14	28	2.7	174	n
15	28	2.3	217	n
16	27	2.3	229	y
17	27	4.6	172	y
18	24	1.8	177	y
19	26	2.1	188	n
20	28	2.4	174	y
21	29	1	201	y
22	29	3.9	180	y
23	28	3.8	183	n
24	28	2.4	171	y
25	24	1.1	212	y
26	25	1.9	173	n
27	26	3.8	154	y
28	28	1.3	205	y
29	29	3.6	164	n
30	29	3.2	188	n
				19/30: 63.3%

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	7	494	y
2	16	6.7	200	y
3	17	8.8	284	y
4	17	6	250	n
5	18	6	231	n
6	17	9.9	428	n
7	18	7.8	204	y
8	17	8.2	204	y
9	18	6	363	y
10	18	7.8	460	y
11	17	6.9	239	y
12	17	9.7	213	y
13	18	6.1	303	y
14	16	9.7	239	y
15	17	8.2	283	n
16	17	9.7	292	y
17	18	7.1	359	y
18	17	7.5	301	n
19	17	8.4	260	y
20	16	7.8	202	n
21	17	7	215	n
22	17	8.5	242	y
23	17	6.9	221	y
24	17	9	369	y
25	18	8.8	282	n
26	17	8.2	215	y
27	18	8	234	y
28	17	6.5	476	y
29	17	9.8	282	y
30	16	7.3	306	y
				22/30: 73.3%

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	11.9	400	y
2	14	11.8	438	y
3	14	18.2	408	y
4	14	18.1	314	y
5	14	13.6	403	n
6	14	15.2	449	n
7	14	11.3	484	y
8	16	12.9	485	y
9	16	19.1	477	y
10	16	17.3	248	y
11	12	11.9	472	y
12	13	11	263	n
13	14	16.5	348	y
14	14	18.2	201	y
15	13	16.9	294	n
16	15	12.9	252	y
17	14	17.7	380	y
18	14	17.7	385	y
19	16	11.1	421	n
20	13	15.2	317	y
21	14	14.5	489	n
22	13	12.9	345	y
23	13	15.3	420	n
24	12	17.2	294	n
25	12	18.4	370	y
26	16	17.5	466	y
27	14	16.8	358	y
28	15	11.2	388	y
29	15	18.5	489	y
30	13	16.7	434	y
				22/30: 73.3%

TYPE 5	Rohde & Schwarz K350 Pulse Sequencer DFS			
Trial #	**Detection (yes/no)**	**Chirp Width (MHz)**	**Subset**	**Fc**
1	y	6	1	5600
2	y	16	1	5600
3	y	19	1	5600
4	y	14	1	5600
5	y	15	1	5600
6	y	11	1	5600
7	y	18	1	5600
8	y	17	1	5600
9	y	7	1	5600
10	y	13	1	5600
11	y	12	2	5594.8
12	y	18	2	5597.2
13	y	19	2	5597.6
14	y	10	2	5594
15	y	8	2	5593.2
16	y	18	2	5597.2
17	y	16	2	5596.4
18	y	8	2	5593.2
19	y	15	2	5596
20	y	14	2	5595.6
21	y	9	3	5606.4
22	y	11	3	5605.6
23	y	18	3	5602.8
24	y	19	3	5602.4
25	y	9	3	5606.4
26	y	6	3	5607.6
27	y	15	3	5604
28	y	12	3	5605.2
29	y	7	3	5607.2
30	y	15	3	5604
	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
	30/30: 100%

40 MHz

Summary

Type	Detections	Trials	Detection Probability
Type 1	26	30	87%
Type 2	26	30	87%
Type 3	23	30	77%
Type 4	20	30	67%
Type 5	30	30	100%
Type 6	30	30	100%
Aggregate 1-4	95	120	79%

RADAR TYPE 1

Rohde & Schwarz K350 Pulse Sequencer DFS

Trial #	Number of Pulses per Burst	Pulse Width (µsec)	PRI (µs)	Detection (yes/no)
1	32	1	1662	y
2	27	1	1989	y
3	30	1	1812	y
4	47	1	1141	y
5	21	1	2632	n
6	20	1	2702	n
7	31	1	1708	y
8	47	1	1125	y
9	35	1	1538	y
10	72	1	737	n
11	92	1	575	y
12	26	1	2089	y
13	23	1	2361	y
14	27	1	1963	y
15	19	1	2834	y
16	58	1	916	y
17	31	1	1745	y
18	28	1	1890	y
19	19	1	2910	y
20	47	1	1132	y
21	26	1	2073	y
22	32	1	1691	y
23	25	1	2126	y
24	45	1	1173	y
25	31	1	1741	y
26	20	1	2669	y
27	27	1	1985	y
28	29	1	1863	y
29	21	1	2600	n
30	20	1	2644	y
				26/30: 86.7%

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	1.7	199	y
2	28	1.2	176	y
3	24	1.7	177	n
4	25	4.4	220	y
5	27	3.4	162	y
6	29	4.5	172	n
7	28	3.9	201	y
8	29	2.1	191	y
9	23	2.3	175	y
10	28	2.9	153	y
11	24	4.8	215	y
12	24	4.3	165	y
13	28	3.5	150	y
14	23	3.4	221	y
15	27	4.1	164	y
16	29	4	208	y
17	24	1.5	206	y
18	24	3.2	178	y
19	29	4.2	161	y
20	28	2.5	154	y
21	24	4.3	169	y
22	27	2	207	n
23	27	2.4	152	y
24	27	4.1	222	y
25	25	4.2	196	n
26	27	3	211	y
27	29	4.2	224	y
28	27	1.5	166	y
29	25	4.5	226	y
30	26	2.4	199	y
				26/30: 86.7%

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	7.7	420	y
2	16	8.5	297	y
3	17	6.1	373	y
4	17	8.9	213	y
5	16	7.7	231	y
6	16	6.7	400	n
7	17	6.6	237	y
8	17	8.4	479	n
9	17	9.9	493	n
10	17	7.2	209	n
11	17	7.4	225	n
12	18	7.4	365	n
13	17	6.1	373	y
14	17	7.8	204	y
15	16	7.7	308	y
16	16	7	226	y
17	17	9.9	276	y
18	17	8.9	431	y
19	18	7.5	200	y
20	18	7.4	280	y
21	17	8.8	375	y
22	17	6.4	204	y
23	17	6	283	y
24	17	9.6	268	n
25	17	8.2	228	y
26	18	6.5	406	y
27	17	7.6	364	y
28	18	9.1	482	y
29	16	9.4	462	y
30	16	9.2	290	y
				23/30: 76.7%

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	19	244	y
2	13	14.7	262	y
3	14	17	310	n
4	16	12.7	492	n
5	13	15.9	363	y
6	15	14.1	480	y
7	15	15.3	469	y
8	15	12.5	489	y
9	15	12.8	219	y
10	13	13.5	479	y
11	14	13.1	437	n
12	12	11.4	274	n
13	14	14.5	482	y
14	13	16.7	323	n
15	15	16.8	214	n
16	13	14	285	y
17	13	11.5	398	y
18	15	18.9	313	n
19	14	15.8	277	n
20	16	11.9	313	y
21	16	19.3	301	y
22	16	18	241	y
23	12	16.3	388	y
24	12	17	452	y
25	13	14.7	497	y
26	12	18.3	350	n
27	14	13.6	257	n
28	13	14.6	287	y
29	15	14.9	488	y
30	16	12.1	448	y
				20/30: 66.7%

TYPE 5				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	Detection (yes/no)	Chirp Width (MHz)	Subset	Fc
1	y	8	1	5590
2	y	16	1	5590
3	y	9	1	5590
4	y	6	1	5590
5	y	16	1	5590
6	y	8	1	5590
7	y	16	1	5590
8	y	17	1	5590
9	y	17	1	5590
10	y	11	1	5590
11	y	13	2	5575.2
12	y	7	2	5572.8
13	y	17	2	5576.8
14	y	7	2	5572.8
15	y	7	2	5572.8
16	y	7	2	5572.8
17	y	17	2	5576.8
18	y	14	2	5575.6
19	y	19	2	5577.6
20	y	9	2	5573.6
21	y	16	3	5603.6
22	y	13	3	5604.8
23	y	15	3	5604
24	y	12	3	5605.2
25	y	6	3	5607.6
26	y	9	3	5606.4
27	y	19	3	5602.4
28	y	5	3	5608
29	y	10	3	5606
30	y	6	3	5607.6
	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
	30/30: 100%

80 MHz

Summary			
Type	**Detections**	**Trials**	**Detection Probability**
Type 1	24	30	80%
Type 2	27	30	90%
Type 3	27	30	90%
Type 4	25	30	83%
Type 5	30	30	100%
Type 6	30	30	100%
Aggregate 1-4	103	120	86%

RADAR TYPE 1				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	Number of Pulses per Burst	Pulse Width (µsec)	PRI (µs)	Detection (yes/no)
1	23	1	2389	y
2	36	1	1485	y
3	76	1	700	y
4	21	1	2577	y
5	38	1	1401	y
6	33	1	1632	y
7	37	1	1434	y
8	46	1	1154	y
9	70	1	753	n
10	70	1	760	y
11	18	1	3003	n
12	56	1	947	y
13	21	1	2540	y
14	44	1	1216	y
15	19	1	2847	y
16	19	1	2789	n
17	19	1	2922	n
18	22	1	2456	y
19	42	1	1257	y
20	39	1	1385	y
21	34	1	1588	y
22	54	1	976	y
23	21	1	2612	n
24	18	1	3015	y
25	31	1	1709	y
26	32	1	1682	y
27	27	1	2009	y
28	20	1	2660	n
29	94	1	564	y
30	22	1	2480	y
				24/30: 80%

RADAR TYPE 2				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	Number of Pulses per Burst	Pulse Width (µsec)	PRI (µs)	Detection (yes/no)
1	25	2.3	193	y
2	26	3.9	152	y
3	28	1.6	227	y
4	26	1.8	186	n
5	26	1.9	202	y
6	28	2.8	202	y
7	28	1.4	162	y
8	25	1.4	169	y
9	26	3.4	221	y
10	27	2.3	210	y
11	28	3.6	217	y
12	25	3.4	198	y
13	29	2.2	163	y
14	28	4	220	y
15	27	1.1	220	n
16	24	2.3	158	y
17	26	2.1	173	y
18	24	4.2	178	y
19	26	1.5	179	y
20	27	3	196	y
21	24	2.9	214	y
22	28	2.7	218	y
23	27	2.2	199	y
24	24	4.9	221	y
25	27	2.7	154	y
26	26	2.1	185	y
27	24	1.4	159	n
28	23	2.1	175	y
29	28	4.8	162	y
30	25	3.5	187	y
				27/30: 90%

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	9.4	298	y
2	17	8.1	377	n
3	16	7.5	427	y
4	18	9.1	337	y
5	17	8	277	n
6	18	9.4	203	y
7	18	7	447	y
8	18	7.1	228	y
9	18	6.3	251	y
10	16	9.3	234	y
11	17	8.2	443	y
12	17	9.2	419	y
13	16	9.2	364	y
14	17	7.5	474	y
15	17	8.7	442	y
16	16	9.8	445	y
17	17	7.5	274	y
18	17	6.2	275	y
19	18	7.9	493	y
20	17	9.3	295	n
21	17	6.8	366	y
22	17	9.8	217	y
23	16	9	472	y
24	17	7.3	359	y
25	18	6.8	249	y
26	18	6	227	y
27	18	7.5	329	y
28	17	9.7	381	y
29	17	9.4	389	y
30	18	7.7	214	y
				27/30: 90%

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	12.6	205	y
2	15	16.1	366	y
3	13	17.6	250	n
4	13	14.2	295	y
5	15	19.2	229	y
6	12	14.8	472	y
7	13	17.8	290	y
8	13	16.9	413	n
9	14	18.8	425	y
10	15	12.7	337	y
11	13	12.4	365	y
12	15	17.7	208	y
13	15	19.3	470	y
14	15	11.1	308	y
15	13	19	471	n
16	14	18.7	238	y
17	12	13.3	414	y
18	14	12	493	y
19	15	18.8	238	y
20	15	13.7	219	n
21	15	15.5	239	y
22	14	19.3	431	y
23	14	11.6	246	y
24	15	17	233	y
25	12	15.6	404	y
26	15	18.1	430	y
27	14	19.7	236	y
28	12	19.2	354	y
29	14	18.4	393	n
30	13	11.3	238	y
				25/30: 83.3%

TYPE 5		Rohde & Schwarz K350 Pulse Sequencer DFS		
Trial #	Detection (yes/no)	Chirp Width (MHz)	Subset	Fc
1	y	17	1	5600
2	y	5	1	5600
3	y	13	1	5600
4	y	12	1	5600
5	y	6	1	5600
6	y	19	1	5600
7	y	9	1	5600
8	y	8	1	5600
9	y	12	1	5600
10	y	19	1	5600
11	y	16	2	5566.4
12	y	16	2	5566.4
13	y	13	2	5565.2
14	y	6	2	5562.4
15	y	18	2	5567.2
16	y	6	2	5562.4
17	y	17	2	5566.8
18	y	16	2	5566.4
19	y	10	2	5564
20	y	13	2	5565.2
21	y	12	3	5635.2
22	y	5	3	5638
23	y	15	3	5634
24	y	13	3	5634.8
25	y	11	3	5635.6
26	y	14	3	5634.4
27	y	12	3	5635.2
28	y	8	3	5636.8
29	y	8	3	5636.8
30	y	19	3	5632.4
	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
	30/30: 100%

-- End of Test Report --