UNIFIED COMPLIANCE LABORATORY

427 West 12800 South
Draper, UT 84020

Test Report

Certification

FCC ID	SWX-UDBP
ISED ID	6545A-UDBP
Equipment Under Test	UDB-Pro
Test Report Serial Number	TR9019_02
Date of Test(s)	14 – 15 February; 28 March; 1 – 4, 11 and 25 April 2024
Report Issue Date	21 May 2024

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

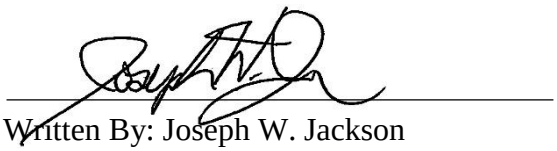
This report has been prepared by Unified Compliance Laboratory (UCL) to document compliance of the device described below with the requirement of Federal Communication Commissions (FCC) Part 15, Subpart E. This report may be reproduced in full. Partial reproduction of this report may only be made with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

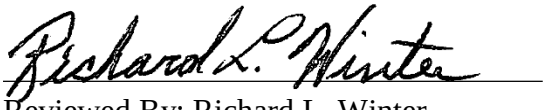
On this 21st day of May 2024, I individually and for Unified Compliance Laboratory certify that the statements made in this engineering report are true, complete and correct to the best of my knowledge and are made in good faith.

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: Joseph W. Jackson



Reviewed By: Richard L. Winter

Revision History		
Revision	**Description**	**Date**
01	Original Report Release	21 May 2024
02	Amended Sections 2.2, 5.3, 5.4 and 5.6 to Remove 80 MHz Bandwidth Reference	30 September 2024

Table of Contents

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	UBIQUITI
Model Number	UDB-Pro
Serial Number	316
Dimensions (cm)	19.0 x 19.0 x 6.4

2.2 Description of EUT

The UDB-Pro is a 5 GHz wireless point-to-point bridge for long-range applications. The UDB-Pro is designed for long-range camera back-haul or data-streaming. The UDB-Pro is managed by the UniFi Network application. The UDB-Pro has an Ethernet port for power and data transfer and has a pass-through PoE port. The UDB-Pro is powered by an 802.3at PoE power adapter. The UDB-Pro is designed for outdoor use.

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
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
* 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	Description	Name of Interface Ports / Interface Cables

Serial Number		
BN: UBIQUITI MN: UDB-Pro (Note 1) SN: 316	WiFi Access Point	See Section 2.4
BN: UBIQUITI MN: U-POE-at SN: N/A	PoE Power Adapter	Unshielded Cat 5e cable/1 meters
BN: Dell MN: XPS 13 SN: N/A	Laptop Personal Computer	Unshielded Cat 5e cable/1 meters
BN: Dell MN: Latitude SN: N/A	Laptop Personal Computer	Unshielded Cat 5e cable/1 meters

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 Mains	1	3 conductor power cord/80 cm
POE (POE Injector)	1	Unshielded Cat 5e cable/8 meters
LAN (POE Injector)	1	Unshielded Cat 5e cable/1 meters

2.5 Operating Environment

Power Supply	120 Volts AC Mains to 48 Volts PoE
AC Mains Frequency	60 Hz
Temperature	20.9 – 22.2 °C
Humidity	21.6 – 26.9 %
Barometric Pressure	1021 mBar

2.6 Operating Modes

The UDB-Pro 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 emission modes of 802.11 a/ac were investigated. All measurements are reported with the worst-case mode (802.11ac) 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

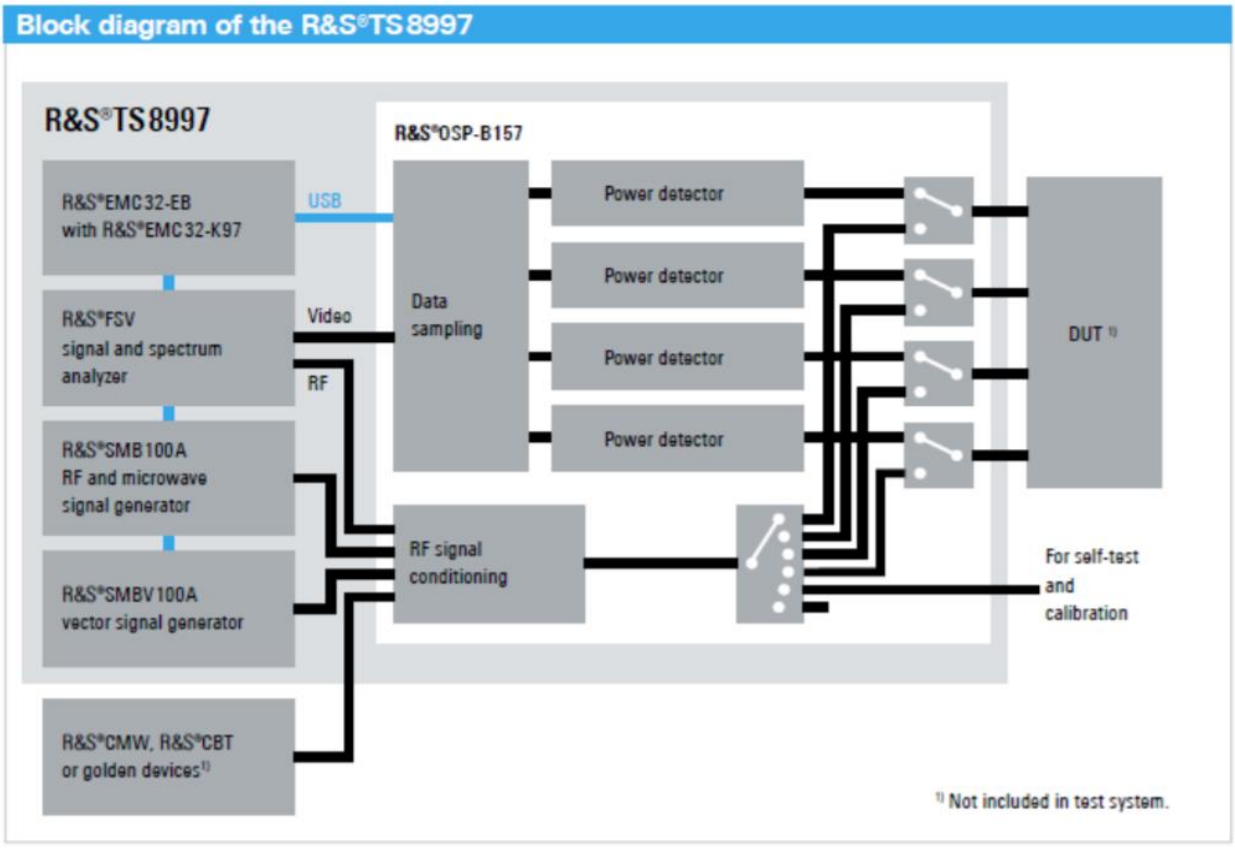


Diagram 1: Test Configuration Block Diagram

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 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 chambers 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 2024. 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 2024.

Unified Compliance Laboratory has been assigned Designation Number US5037 by the FCC and 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	7/13/2023	7/13/2024
LISN	AFJ	LS16C/10	UCL-2512	5/26/2023	5/26/2024
ISN	Teseq	ISN T800	UCL-2974	6/27/2023	6/27/2024
LISN	AFJ	LS16C\10	UCL-6749	1/29/2024	1/29/2025
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

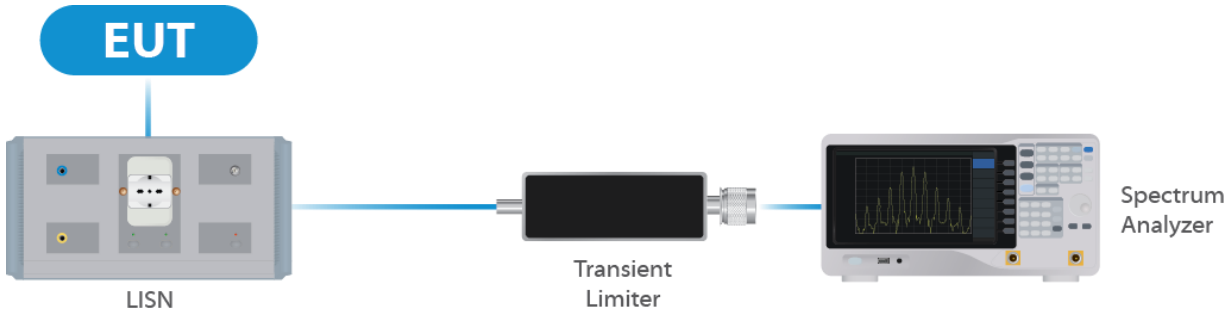


Figure 1: Conducted Emissions Test

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	11/27/2023	11/27/2024
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	4/12/2024	4/19/2025
Switch Extension	R&S	OSP-150W	UCL-2870	4/12/2024	4/19/2025

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

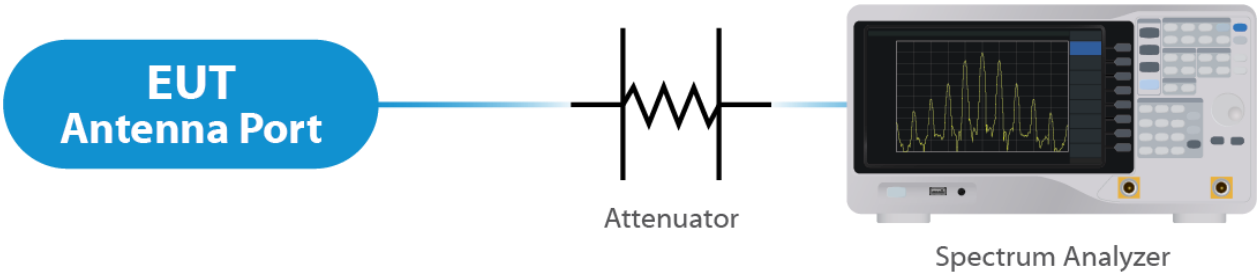


Figure 2: Direct Connect at the Antenna Port Test

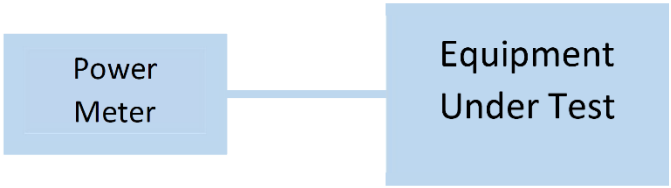


Figure 3: Output Power Measurement

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	1/25/2024	1/29/2025
Pre-Amplifier 9 kHz – 1 GHz	Sonoma Instruments	310N	UCL-2889	1/19/2024	1/19/2026
Broadband Antenna	Scwarzbeck	VULB 9163	UCL-3062	2/22/2023	2/22/2025
Broadband Antenna	Scwarzbeck	VULB 9163	UCL-3071	1/11/2023	1/11/2025
Double Ridge Horn Antenna	Scwarzbeck	BBHA 9120D	UCL-3065	9/22/2022	9/22/2024
Log Periodic	Scwarzbeck	STLP 9129	UCL-3068	1/27/2023	1/27/2025
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	1/19/2024	1/19/2026
Test Software	UCL	Revision 1	UCL-3108	N/A	N/A

Table 4: List of equipment used for Radiated Emissions

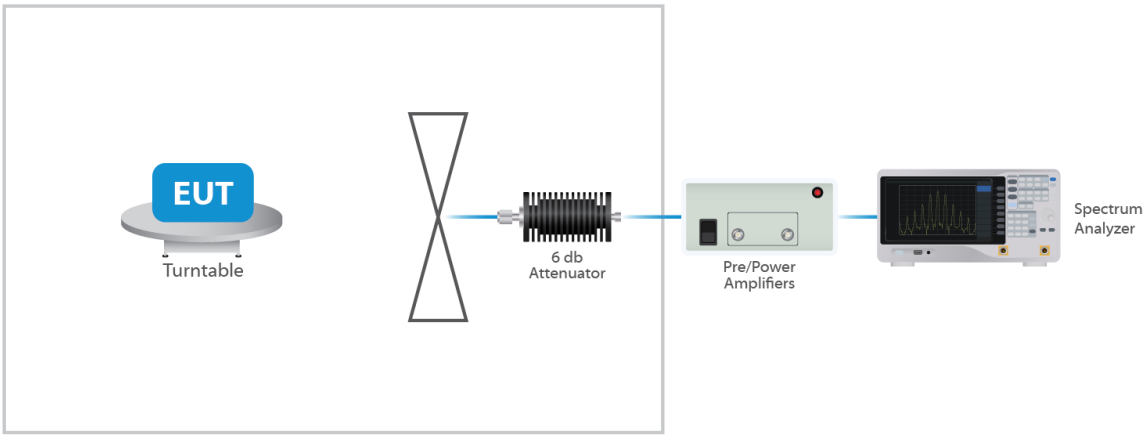


Figure 4: Radiated Emissions Test

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	5/03/2024	5/03/2025

4.4.1 Master Test Set Up

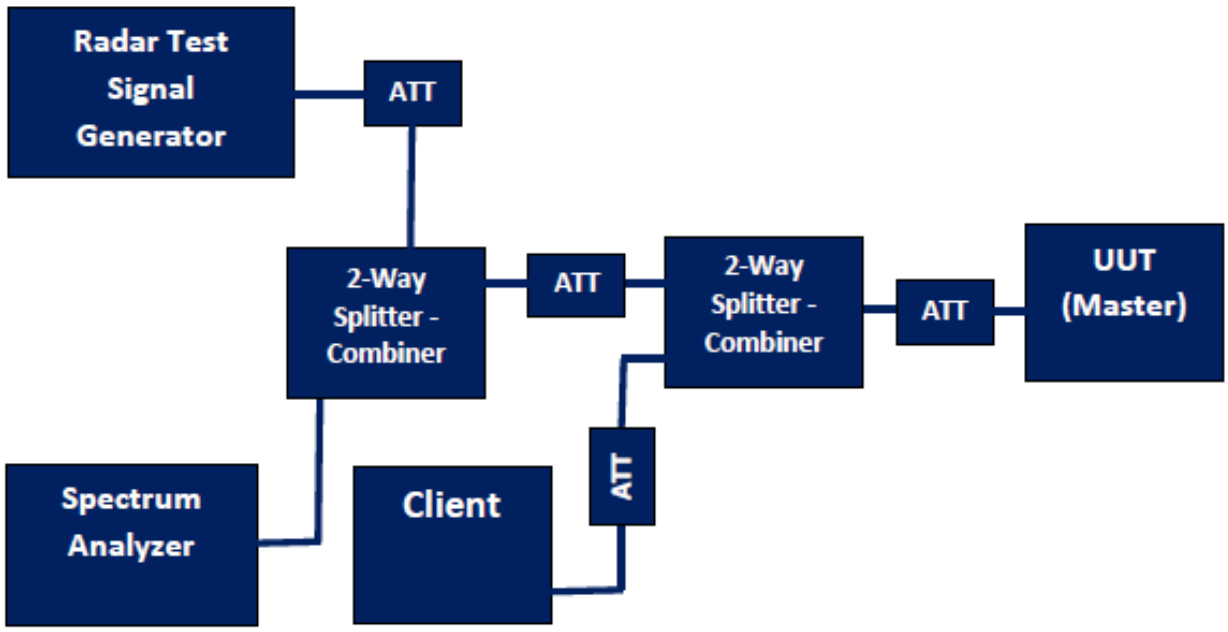


Figure 5: DFS Test Set Up - Master

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 integrated internal antenna. Per the manufacturer, the Maximum gain of the antenna per chain is 19 dBi. This is an 802.11 device and utilizes CDD as described in KDB 662911 D01. The antenna is not user replaceable. For CDD transmissions, directional gain is calculated as follows.

Array Gain = 10 log(NANT/NSS) dB
NANT = number of transmit antennas and
NSS = number of spatial streams. NSS = 1 considered worst case.

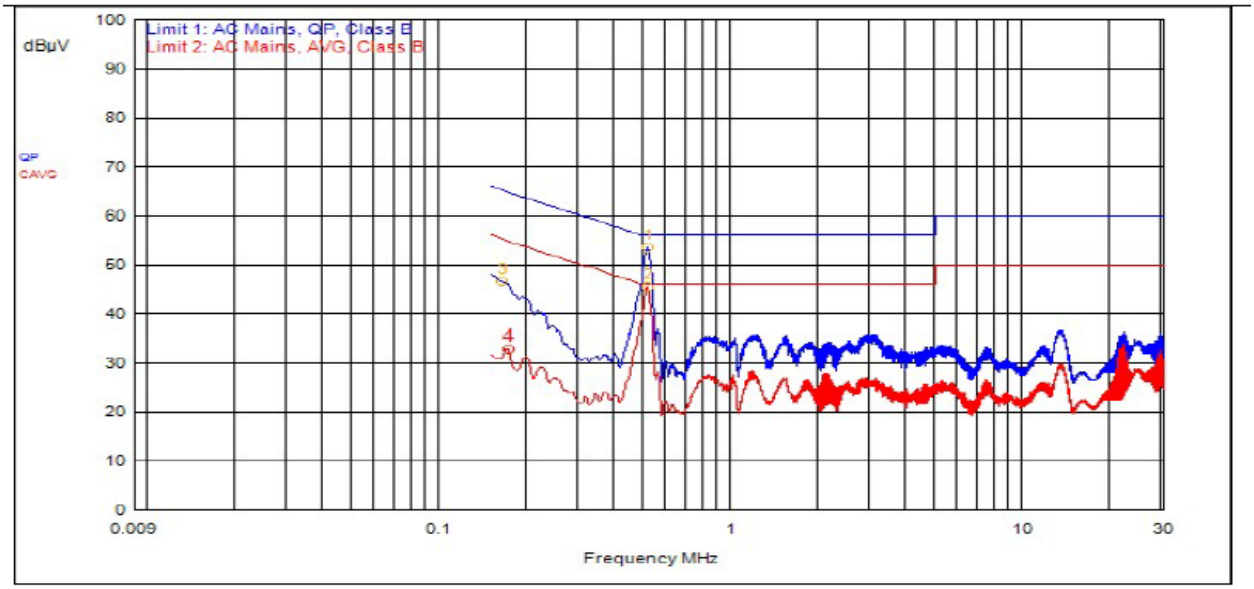
For power measurements on IEEE 802.11 devices, Array Gain = 0 dB for NANT ≤ 4;
For PSD measurements when Nss=1: Array Gain = 10 log(NANT/NSS) dB + Antenna Gain (dBi). Or 3.01 dB + 19.0 dBi = 22.01 dBi.

Results

The EUT complied with the specification

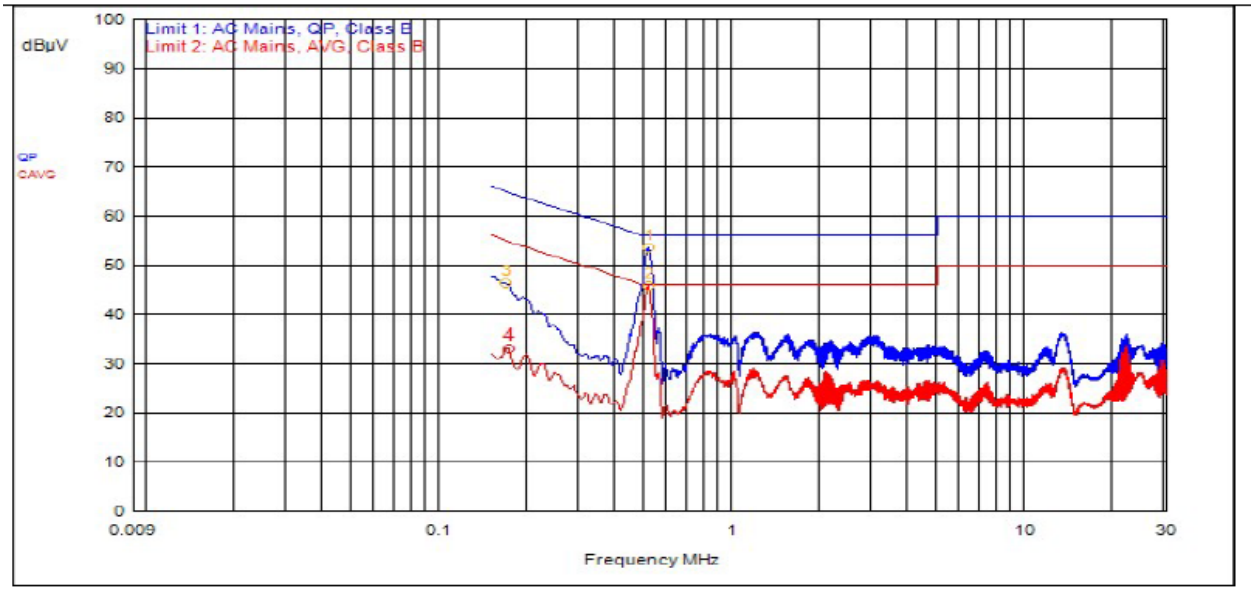
5.2 Conducted Emissions at Mains Ports Data

5.2.1 Line



ID	Frequency	Probe	Cable	Atten.	Detector	Meter Read	Meas Level	Limit 1	Limit 1 Dist.	Limit 2	Limit 2 Dist.	P/F
MU	MHz	dB	dB	dB	Type	dBµV	dBµV	dBµV	dB	dBµV	dB	P/F
1	513,000kHz	12.42	0.00		QPeak	41.14	53.56	56.00	-2.44			
3	162,000kHz	12.36	0.00		QPeak	34.24	46.60	65.36	-18.76			
2	510,000kHz	12.43	0.00		C_AVG	33.22	45.65			46.00	-0.35	
4	171,000kHz	12.35	0.00		C_AVG	20.29	32.64			54.91	-22.27	

5.2.2 Neutral



ID	Frequency	Probe	Cable	Atten.	Detector	Meter Read	Meas Level	Limit 1	Limit 1 Dist.	Limit 2	Limit 2 Dist.	P/F
MU	MHz	dB	dB	dB	Type	dBµV	dBµV	dBµV	dB	dBµV	dB	P/F
1	513,000kHz	12.43	0.00		QPeak	41.19	53.62	56.00	-2.38			
3	168,000kHz	12.40	0.00		QPeak	33.95	46.35	65.06	-18.71			
2	513,000kHz	12.43	0.00		C_AVG	33.27	45.70			46.00	-0.30	
4	171,000kHz	12.40	0.00		C_AVG	20.74	33.14			54.91	-21.77	

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)
OFDM 20 MHz	5260	17.3	22.0
OFDM 20 MHz	5280	17.5	21.3
OFDM 20 MHz	5320	17.3	21.6
VHT 20 MHz	5260	18.5	21.9
VHT 20 MHz	5280	18.5	22.1
VHT 20 MHz	5320	18.3	21.5
VHT 40 MHz	5270	37.0	43.7
VHT 40 MHz	5310	37.0	42.8

5.3.2 UNII-2C

Bandwidth	Frequency (MHz)	99% Bandwidth (MHz)	Emissions 26 dB Bandwidth (MHz)
OFDM 20 MHz	5500	17.3	21.1
OFDM 20 MHz	5600	17.5	20.8
OFDM 20 MHz	5720	17.3	20.6
VHT 20 MHz	5500	18.3	22.4
VHT 20 MHz	5600	18.8	21.5
VHT 20 MHz	5720	18.3	21.3
VHT 40 MHz	5510	37.0	42.8
VHT 40 MHz	5590	36.5	41.1
VHT 40 MHz	5710	37.0	42.3

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 10.84 dBm or 12.13 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 19 dBi. The adjusted limit with the antenna gain of 19 dBi is 11 dBm or 12.59 mW.

5.4.1 UNII-2A

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power*	EIRP Output Power	Measured PSD
a 20 MHz	5260	Mcs0_Nss2	5	8.84	27.84	-2.25
a 20 MHz	5280	Mcs0_Nss2	5	8.86	27.86	-2.68
a 20 MHz	5320	Mcs0_Nss2	5	8.74	27.74	-2.65
ac 20 MHz	5260	Mcs0_Nss2	6	9.90	28.90	-2.28
ac 20 MHz	5280	Mcs0_Nss2	6	9.87	28.87	-2.58
ac 20 MHz	5320	Mcs0_Nss2	6	9.75	28.75	-2.58
ac 40 MHz	5270	Mcs0_Nss2	7	10.49	29.49	-4.57
ac 40 MHz	5310	Mcs0_Nss2	7	10.40	29.40	-4.54

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power*	EIRP Output Power	Measured PSD
a 20 MHz	5260	Mcs0_Nss1	2	5.84	24.84	-5.25
a 20 MHz	5280	Mcs0_Nss1	2	5.86	24.86	-5.68
a 20 MHz	5320	Mcs0_Nss1	2	5.74	24.74	-5.65
ac 20 MHz	5260	Mcs0_Nss1	3	6.90	25.90	-5.28
ac 20 MHz	5280	Mcs0_Nss1	3	6.87	25.87	-5.58
ac 20 MHz	5320	Mcs0_Nss1	3	6.75	25.75	-5.58
ac 40 MHz	5270	Mcs0_Nss1	6	9.49	28.49	-5.57
ac 40 MHz	5310	Mcs0_Nss1	6	9.40	28.40	-5.54

5.4.2 UNII-2C

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power*	EIRP Output Power	Measured PSD
a 20 MHz	5500	Mcs0_Nss2	5	9.50	28.50	-2.07
a 20 MHz	5600	Mcs0_Nss2	5	9.20	28.20	-2.19
a 20 MHz	5720	Mcs0_Nss2	5	9.59	28.59	-2.02
ac 20 MHz	5500	Mcs0_Nss2	5	9.32	28.32	-2.67
ac 20 MHz	5600	Mcs0_Nss2	5	8.94	27.94	-2.89
ac 20 MHz	5720	Mcs0_Nss2	5	9.55	28.55	-2.23
ac 40 MHz	5510	Mcs0_Nss2	7	10.84	29.84	-4.13
ac 40 MHz	5590	Mcs0_Nss2	7	10.59	29.59	-4.28
ac 40 MHz	5710	Mcs0_Nss2	7	10.73	29.73	-4.11

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power*	EIRP Output Power	Measured PSD
a 20 MHz	5500	Mcs0_Nss1	2	6.50	25.50	-5.07
a 20 MHz	5600	Mcs0_Nss1	2	6.20	25.20	-5.19
a 20 MHz	5720	Mcs0_Nss1	2	6.59	25.59	-5.02
ac 20 MHz	5500	Mcs0_Nss1	2	6.32	25.32	-5.67
ac 20 MHz	5600	Mcs0_Nss1	2	5.94	24.94	-5.89
ac 20 MHz	5720	Mcs0_Nss1	2	6.55	25.55	-5.23
ac 40 MHz	5510	Mcs0_Nss1	6	9.84	28.84	-5.13
ac 40 MHz	5590	Mcs0_Nss1	6	9.59	28.59	-5.28
ac 40 MHz	5710	Mcs0_Nss1	6	9.73	28.73	-5.11

Result

In the configuration tested, the maximum average RF output power was less than 0.250 watt; therefore, the EUT complied with the requirements of the specification.

5.5 §15.407(b) Spurious Emissions

5.5.1 Conducted Spurious Emissions

The frequency range 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 19 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

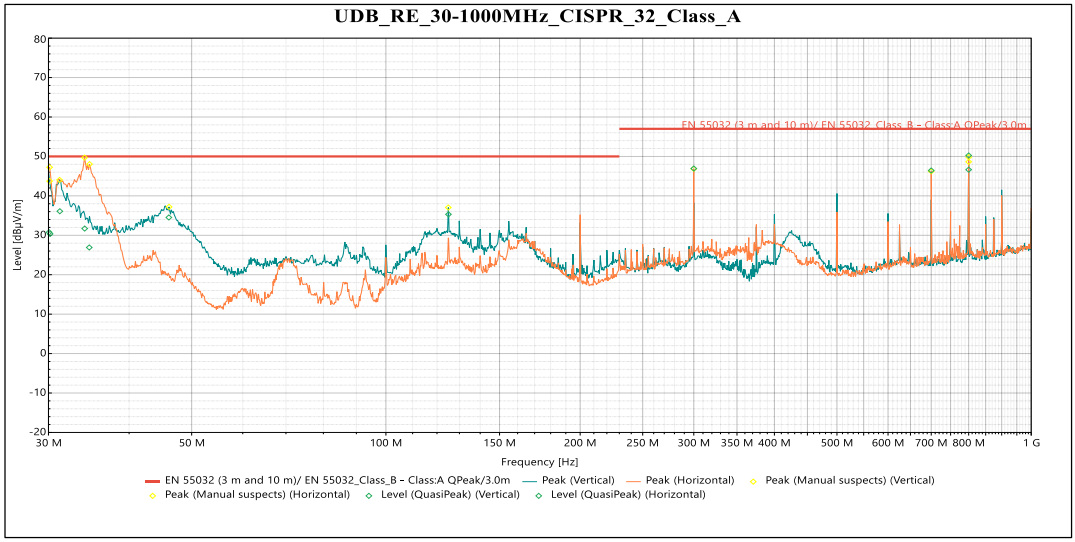
Conducted spurious emissions were below -27 dBm; therefore, the EUT complies with the specification. See Annex for results.

5.5.2 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.

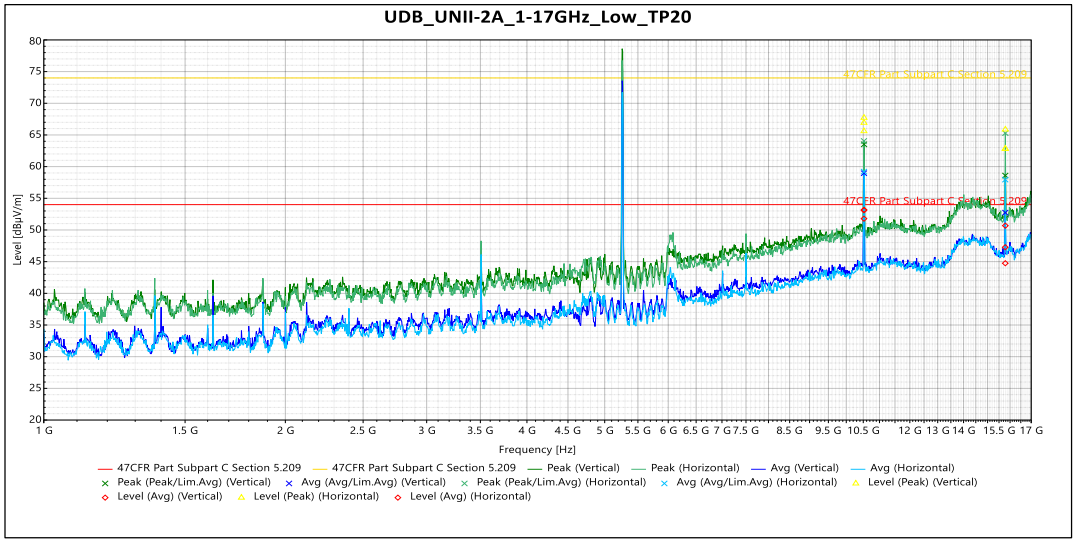
5.5.3 UNII-2A



QuasiPeak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
30.17 MHz	30.336	50	-19.664	206	1	Vertical	-7.794
31.24 MHz	36.103	50	-13.897	122	2.233	Vertical	-8.487
46.09 MHz	34.515	50	-15.485	350	1.319	Vertical	-18.705
125.01 MHz	35.311	50	-14.689	18	1	Vertical	-14.349
799.98 MHz	50.244	57	-6.756	229	1.319	Vertical	-4.946
30.06 MHz	30.767	50	-19.233	241	1.681	Horizontal	-7.714
34.14 MHz	31.707	50	-18.293	45	2.41	Horizontal	-10.063
34.70 MHz	26.913	50	-23.087	186	3.139	Horizontal	-10.387
299.99 MHz	46.931	57	-10.069	224	1	Horizontal	-13.969
699.99MHz	46.428	57	-10.572	200	1.142	Horizontal	-6.672
799.99 MHz	46.644	57	-10.356	262	1.142	Horizontal	-4.946

Table 5: Radiated Emissions 30 – 1000 MHz



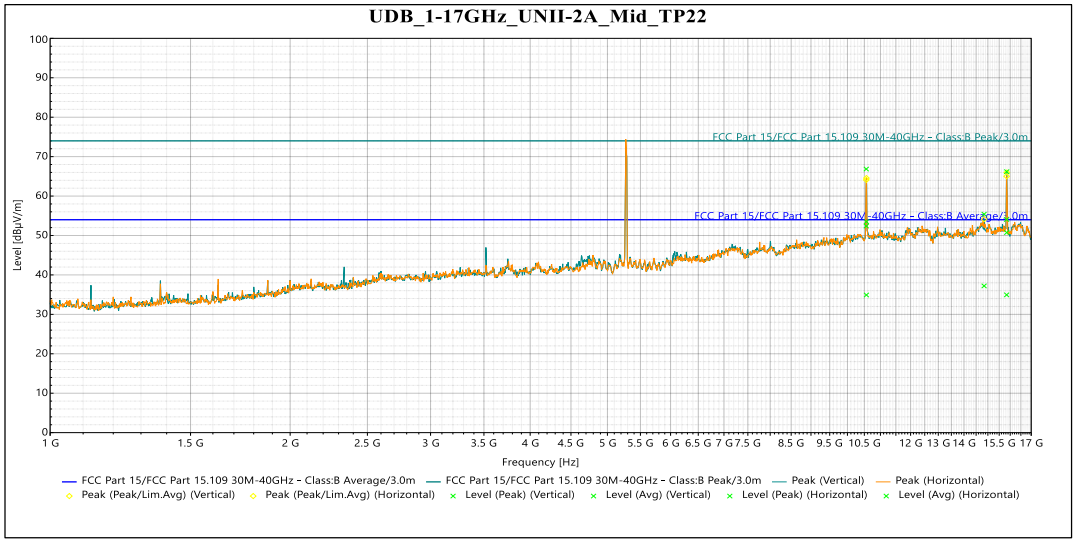
Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.521 GHz	65.6	74	-8.4	287	1.5	Vertical	6.987
10.523 GHz	67.716	74	-6.284	261	2.137	Vertical	6.995
15.782 GHz	62.852	74	-11.148	253	2.635	Vertical	9.286
10.521 GHz	66.925	74	-7.075	223	3.81	Horizontal	6.987
15.781 GHz	62.799	74	-11.201	313	3.812	Horizontal	9.286
15.785 GHz	65.863	74	-8.137	218	2.336	Horizontal	9.288

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.521 GHz	51.781	54	-2.219	287	1.5	Vertical	6.987
10.523 GHz	53.19	54	-0.81	261	2.137	Vertical	6.995
15.782 GHz	44.749	54	-9.251	253	2.635	Vertical	9.286
10.521 GHz	53.101	54	-0.899	223	3.81	Horizontal	6.987
15.781 GHz	47.283	54	-6.717	313	3.812	Horizontal	9.286
15.785 GHz	50.677	54	-3.323	218	2.336	Horizontal	9.288

Table 6: Radiated Emissions 1 – 17 GHz on the Lowest Frequency 5260 MHz



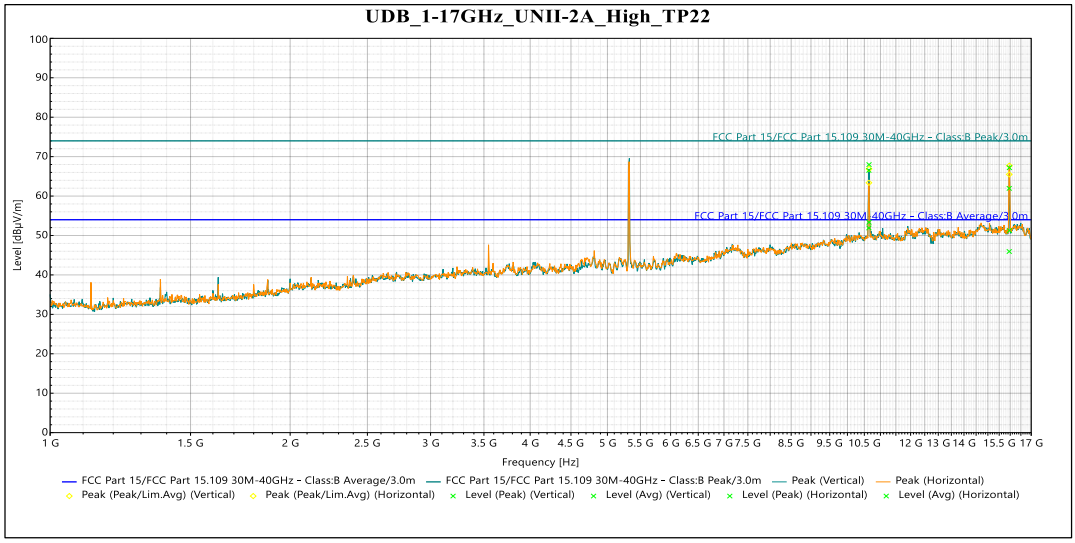
Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.559 GHz	66.848	74	-7.152	312	3.809	Vertical	14.562
14.838 GHz	55.397	74	-18.603	15	3.458	Vertical	16.529
15.841 GHz	66.182	74	-7.818	349	3.283	Vertical	15.358
10.563 GHz	53.515	74	-20.485	335	1.879	Horizontal	14.614
15.835 GHz	54.064	74	-19.936	263	1.992	Horizontal	15.356

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.559 GHz	52.389	54	-1.611	312	3.809	Vertical	14.562
14.838 GHz	37.211	54	-16.789	15	3.458	Vertical	16.529
15.841 GHz	50.753	54	-3.247	349	3.283	Vertical	15.358
10.563 GHz	34.906	54	-19.094	335	1.879	Horizontal	14.614
15.835 GHz	34.939	54	-19.061	263	1.992	Horizontal	15.356

Table 7: Transmitting on the Middle Frequency 5280 MHz



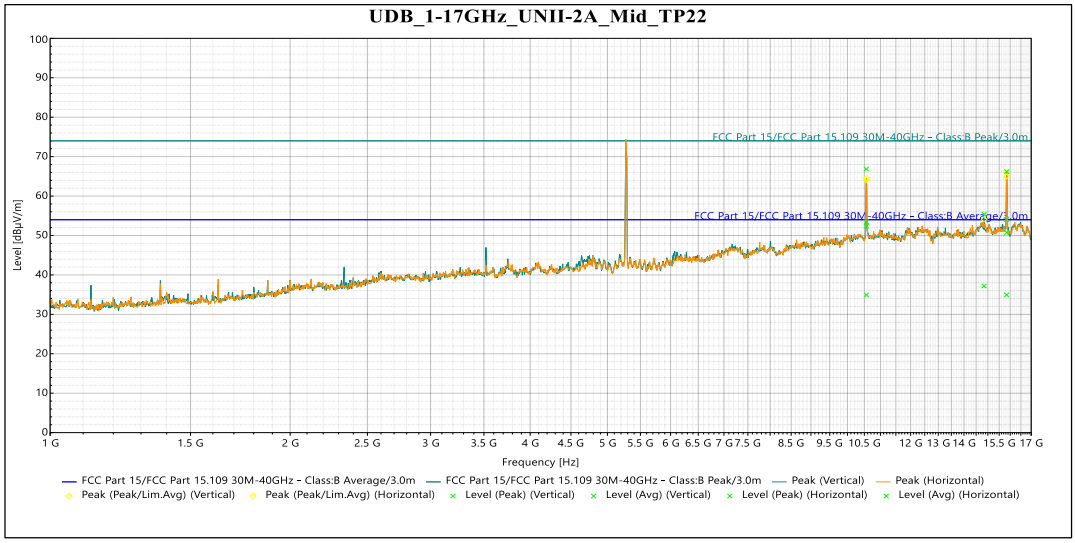
Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.643 GHz	67.98	74	-6.02	344	1.53	Vertical	14.719
15.956 GHz	61.951	74	-12.049	54	1.629	Vertical	15.47
10.639 GHz	66.515	74	-7.485	316	3.633	Horizontal	14.734
15.962 GHz	67.192	74	-6.808	294	3.285	Horizontal	15.491

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.643 GHz	53.348	54	-0.652	344	1.53	Vertical	14.719
15.956 GHz	45.943	54	-8.057	54	1.629	Vertical	15.47
10.639 GHz	51.906	54	-2.094	316	3.633	Horizontal	14.734
15.962 GHz	51.239	54	-2.761	294	3.285	Horizontal	15.491

Table 8: Transmitting on the Highest Frequency 5320 MHz



Peak

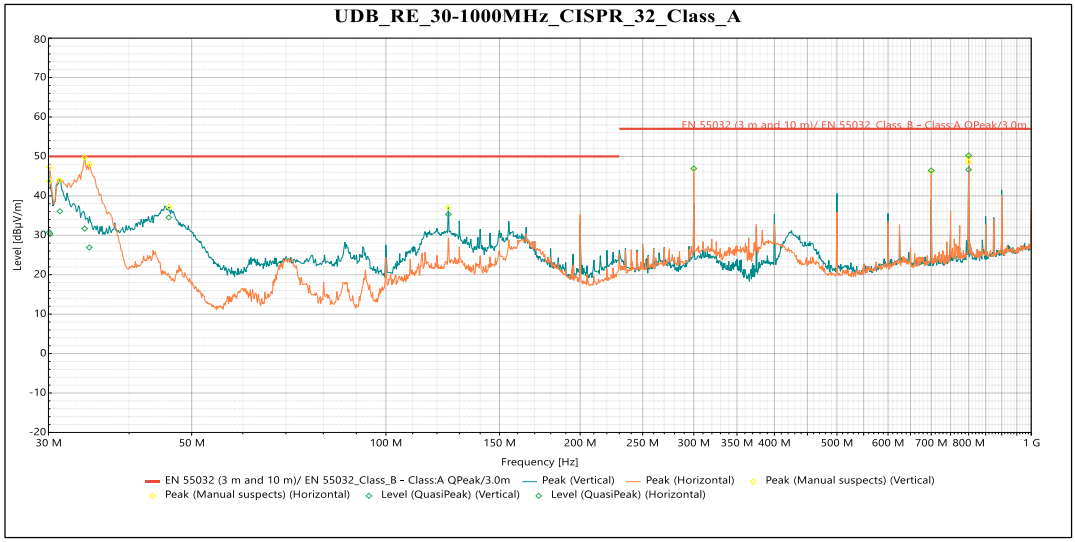
Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.559 GHz	66.848	74	-7.152	312	3.809	Vertical	14.562
14.838 GHz	55.397	74	-18.603	15	3.458	Vertical	16.529
15.841 GHz	66.182	74	-7.818	349	3.283	Vertical	15.358
10.563 GHz	53.515	74	-20.485	335	1.879	Horizontal	14.614
15.835 GHz	54.064	74	-19.936	263	1.992	Horizontal	15.356

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.559 GHz	52.389	54	-1.611	312	3.809	Vertical	14.562
14.838 GHz	37.211	54	-16.789	15	3.458	Vertical	16.529
15.841 GHz	50.753	54	-3.247	349	3.283	Vertical	15.358
10.563 GHz	34.906	54	-19.094	335	1.879	Horizontal	14.614
15.835 GHz	34.939	54	-19.061	263	1.992	Horizontal	15.356

Table 9: Radiated Emissions 17 – 40 GHz on the Middle Frequency 5280 MHz (worse case)

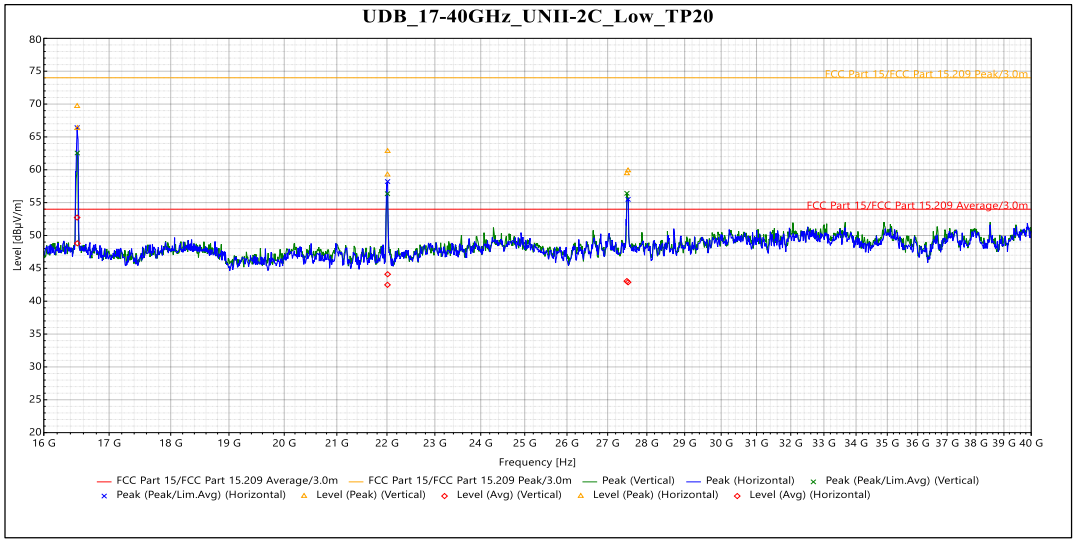
5.5.4 UNII-2C



QuasiPeak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
30.17 MHz	30.336	50	-19.664	206	1	Vertical	-7.794
31.24 MHz	36.103	50	-13.897	122	2.233	Vertical	-8.487
46.09 MHz	34.515	50	-15.485	350	1.319	Vertical	-18.705
125.01 MHz	35.311	50	-14.689	18	1	Vertical	-14.349
799.98 MHz	50.244	57	-6.756	229	1.319	Vertical	-4.946
30.06 MHz	30.767	50	-19.233	241	1.681	Horizontal	-7.714
34.14 MHz	31.707	50	-18.293	45	2.41	Horizontal	-10.063
34.70 MHz	26.913	50	-23.087	186	3.139	Horizontal	-10.387
299.99 MHz	46.931	57	-10.069	224	1	Horizontal	-13.969
699.99MHz	46.428	57	-10.572	200	1.142	Horizontal	-6.672
799.99 MHz	46.644	57	-10.356	262	1.142	Horizontal	-4.946

Table 10: Radiated Emissions 30 – 1000 MHz



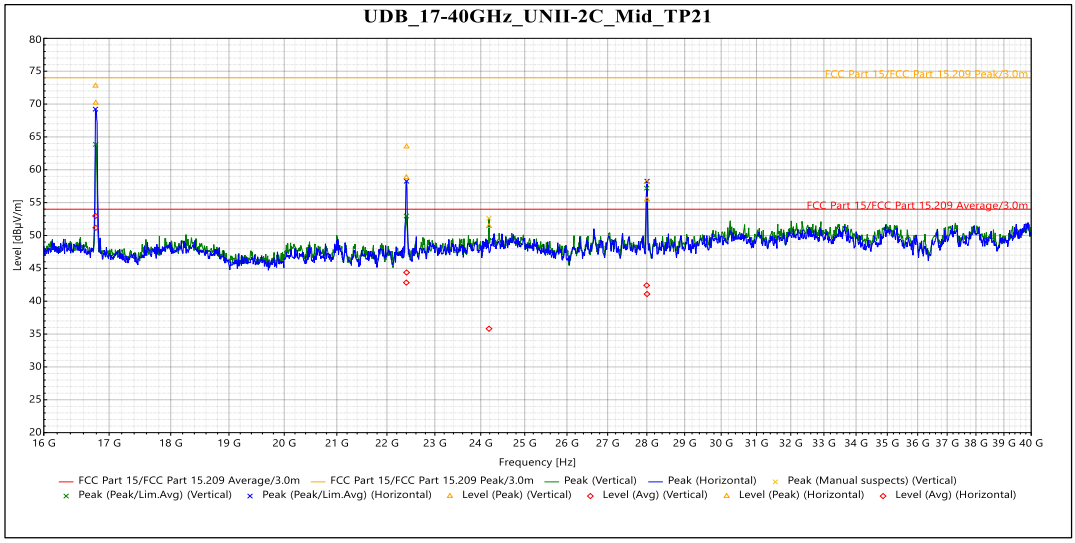
Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
16.506 GHz	66.335	74	-7.665	150	Vertical	0.303
22.011 GHz	59.247	74	-14.753	193	Vertical	-0.521
27.487 GHz	59.441	74	-14.559	175	Vertical	0.596
16.503 GHz	69.675	74	-4.325	111	Horizontal	0.316
22.014 GHz	62.829	74	-11.171	249	Horizontal	-0.454
27.516 GHz	59.888	74	-14.112	231	Horizontal	1.137

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
16.506 GHz	48.812	54	-5.188	150	Vertical	0.303
22.011 GHz	42.49	54	-11.51	193	Vertical	-0.521
27.487 GHz	43.062	54	-10.938	175	Vertical	0.596
16.503 GHz	52.725	54	-1.275	111	Horizontal	0.316
22.014 GHz	44.099	54	-9.901	249	Horizontal	-0.454
27.516 GHz	42.876	54	-11.124	231	Horizontal	1.137

Table 11: Radiated Emissions 1 – 17 GHz on the Lowest Frequency 5500 MHz



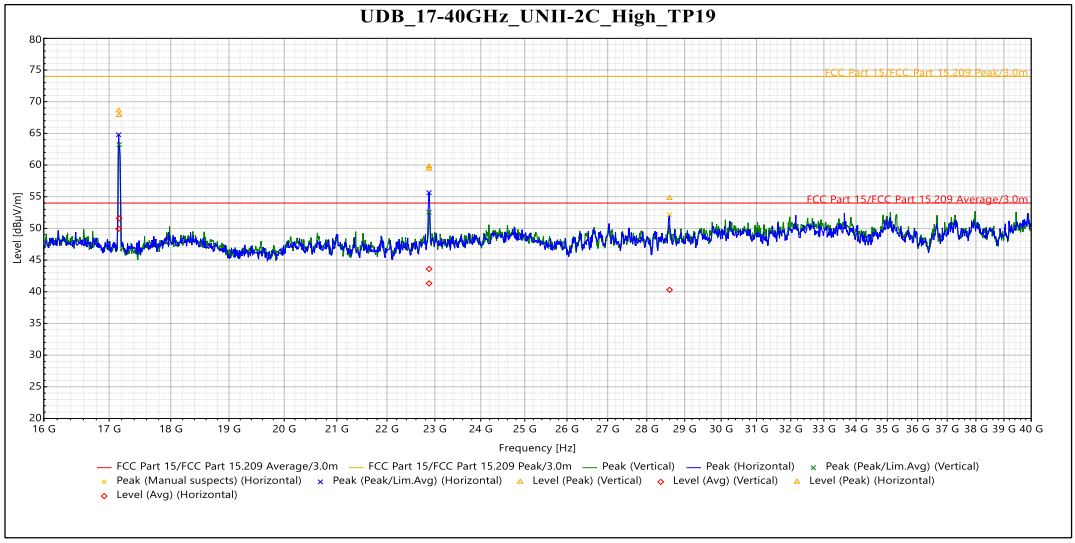
Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
16.791 GHz	70.177	74	-3.823	117	Vertical	-0.004
22.4 GHz	58.854	74	-15.146	176	Vertical	-0.193
24.185 GHz	51.408	74	-22.592	87	Vertical	0.533
27.996 GHz	58.1	74	-15.9	166	Vertical	0.036
16.787 GHz	72.771	74	-1.229	126	Horizontal	-0.027
22.404 GHz	63.523	74	-10.477	125	Horizontal	-0.175
28.005 GHz	55.455	74	-18.545	139	Horizontal	0.109

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
16.791 GHz	51.169	54	-2.831	117	Vertical	-0.004
22.4 GHz	42.832	54	-11.168	176	Vertical	-0.193
24.185 GHz	35.811	54	-18.189	87	Vertical	0.533
27.996 GHz	42.408	54	-11.592	166	Vertical	0.036
16.787 GHz	52.974	54	-1.026	126	Horizontal	-0.027
22.404 GHz	44.366	54	-9.634	125	Horizontal	-0.175
28.005 GHz	41.089	54	-12.911	139	Horizontal	0.109

Table 12: Transmitting on the Middle Frequency 5600 MHz



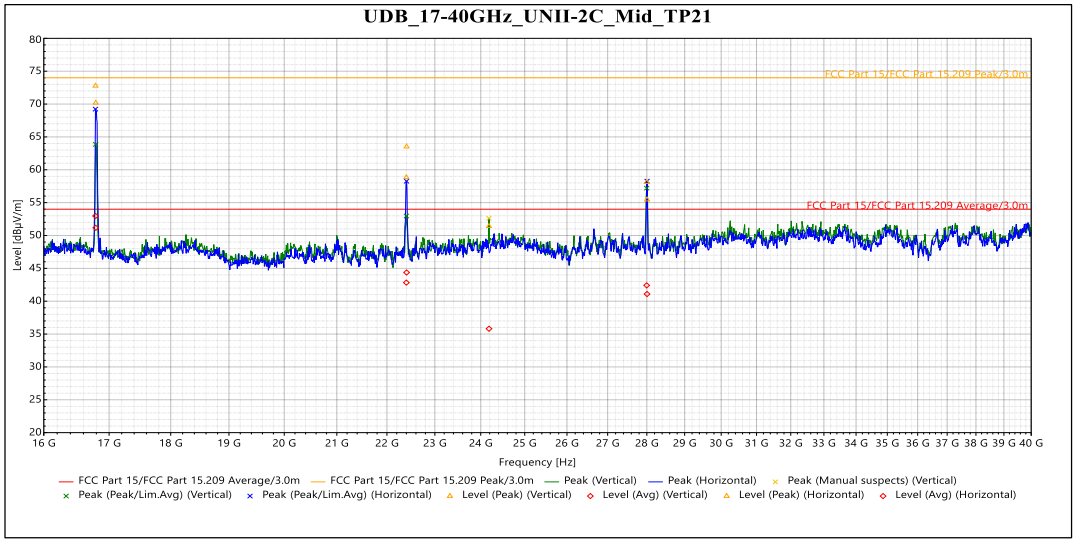
Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
17.159 GHz	67.855	74	-6.145	173	Vertical	0.016
22.877 GHz	59.387	74	-14.613	192	Vertical	0.784
17.151 GHz	68.578	74	-5.422	230	Horizontal	-0.002
22.877 GHz	59.769	74	-14.231	118	Horizontal	0.784
28.596 GHz	54.784	74	-19.216	146	Horizontal	0.194

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
17.159 GHz	51.576	54	-2.424	173	Vertical	0.016
22.877 GHz	41.319	54	-12.681	192	Vertical	0.784
17.151 GHz	49.933	54	-4.067	230	Horizontal	-0.002
22.877 GHz	43.596	54	-10.404	118	Horizontal	0.784
28.596 GHz	40.3	54	-13.7	146	Horizontal	0.194

Table 13: Transmitting on the Highest Frequency 5720 MHz



Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
16.791 GHz	70.177	74	-3.823	117	Vertical	-0.004
22.4 GHz	58.854	74	-15.146	176	Vertical	-0.193
24.185 GHz	51.408	74	-22.592	87	Vertical	0.533
27.996 GHz	58.1	74	-15.9	166	Vertical	0.036
16.787 GHz	72.771	74	-1.229	126	Horizontal	-0.027
22.404 GHz	63.523	74	-10.477	125	Horizontal	-0.175
28.005 GHz	55.455	74	-18.545	139	Horizontal	0.109

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
16.791 GHz	51.169	54	-2.831	117	Vertical	-0.004
22.4 GHz	42.832	54	-11.168	176	Vertical	-0.193
24.185 GHz	35.811	54	-18.189	87	Vertical	0.533
27.996 GHz	42.408	54	-11.592	166	Vertical	0.036
16.787 GHz	52.974	54	-1.026	126	Horizontal	-0.027
22.404 GHz	44.366	54	-9.634	125	Horizontal	-0.175
28.005 GHz	41.089	54	-12.911	139	Horizontal	0.109

Table 14: Radiated Emissions 17 – 40 GHz on the Middle Frequency 5600 MHz (worse 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 6 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 19 dBi + Array gain of 3.01 dB which is a total of 22.01 dBi
Results of this testing are summarized.

5.6.1 UNII-2A

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power*	EIRP Output Power	Measured PSD
a 20 MHz	5260	Mcs0_Nss2	5	8.84	27.84	-2.25
a 20 MHz	5280	Mcs0_Nss2	5	8.86	27.86	-2.68
a 20 MHz	5320	Mcs0_Nss2	5	8.74	27.74	-2.65
ac 20 MHz	5260	Mcs0_Nss2	6	9.90	28.90	-2.28
ac 20 MHz	5280	Mcs0_Nss2	6	9.87	28.87	-2.58
ac 20 MHz	5320	Mcs0_Nss2	6	9.75	28.75	-2.58
ac 40 MHz	5270	Mcs0_Nss2	7	10.49	29.49	-4.57
ac 40 MHz	5310	Mcs0_Nss2	7	10.40	29.40	-4.54

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power*	EIRP Output Power	Measured PSD
a 20 MHz	5260	Mcs0_Nss1	2	5.84	24.84	-5.25
a 20 MHz	5280	Mcs0_Nss1	2	5.86	24.86	-5.68
a 20 MHz	5320	Mcs0_Nss1	2	5.74	24.74	-5.65
ac 20 MHz	5260	Mcs0_Nss1	3	6.90	25.90	-5.28
ac 20 MHz	5280	Mcs0_Nss1	3	6.87	25.87	-5.58
ac 20 MHz	5320	Mcs0_Nss1	3	6.75	25.75	-5.58

ac 40 MHz	5270	Mcs0_Nss1	6	9.49	28.49	-5.57
ac 40 MHz	5310	Mcs0_Nss1	6	9.40	28.40	-5.54

5.6.2 UNII-2C

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power*	EIRP Output Power	Measured PSD
a 20 MHz	5500	Mcs0_Nss2	5	9.50	28.50	-2.07
a 20 MHz	5600	Mcs0_Nss2	5	9.20	28.20	-2.19
a 20 MHz	5720	Mcs0_Nss2	5	9.59	28.59	-2.02
ac 20 MHz	5500	Mcs0_Nss2	5	9.32	28.32	-2.67
ac 20 MHz	5600	Mcs0_Nss2	5	8.94	27.94	-2.89
ac 20 MHz	5720	Mcs0_Nss2	5	9.55	28.55	-2.23
ac 40 MHz	5510	Mcs0_Nss2	7	10.84	29.84	-4.13
ac 40 MHz	5590	Mcs0_Nss2	7	10.59	29.59	-4.28
ac 40 MHz	5710	Mcs0_Nss2	7	10.73	29.73	-4.11

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power*	EIRP Output Power	Measured PSD
a 20 MHz	5500	Mcs0_Nss1	2	6.50	25.50	-5.07
a 20 MHz	5600	Mcs0_Nss1	2	6.20	25.20	-5.19
a 20 MHz	5720	Mcs0_Nss1	2	6.59	25.59	-5.02
ac 20 MHz	5500	Mcs0_Nss1	2	6.32	25.32	-5.67
ac 20 MHz	5600	Mcs0_Nss1	2	5.94	24.94	-5.89
ac 20 MHz	5720	Mcs0_Nss1	2	6.55	25.55	-5.23
ac 40 MHz	5510	Mcs0_Nss1	6	9.84	28.84	-5.13
ac 40 MHz	5590	Mcs0_Nss1	6	9.59	28.59	-5.28
ac 40 MHz	5710	Mcs0_Nss1	6	9.73	28.73	-5.11

Result

The maximum average power spectral density was less than the limit of 11 dBm; therefore, the EUT complies with the specification.

5.7 DFS Requirement

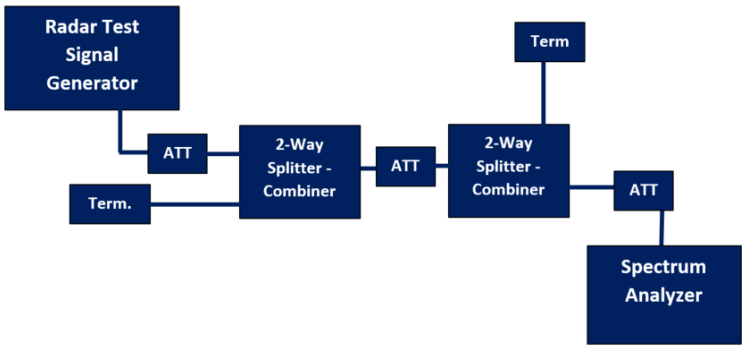
This product in Access Mode (20 MHz and 40 MHz) is a master device with radar detection. This product in Client Mode (20 MHz, 40 MHz and 80 MHz) is a client device without radar detection. The outcome of the required DFS tests is located in this section. DFS testing was performed following the test procedures as outlined in KDB 905462.

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

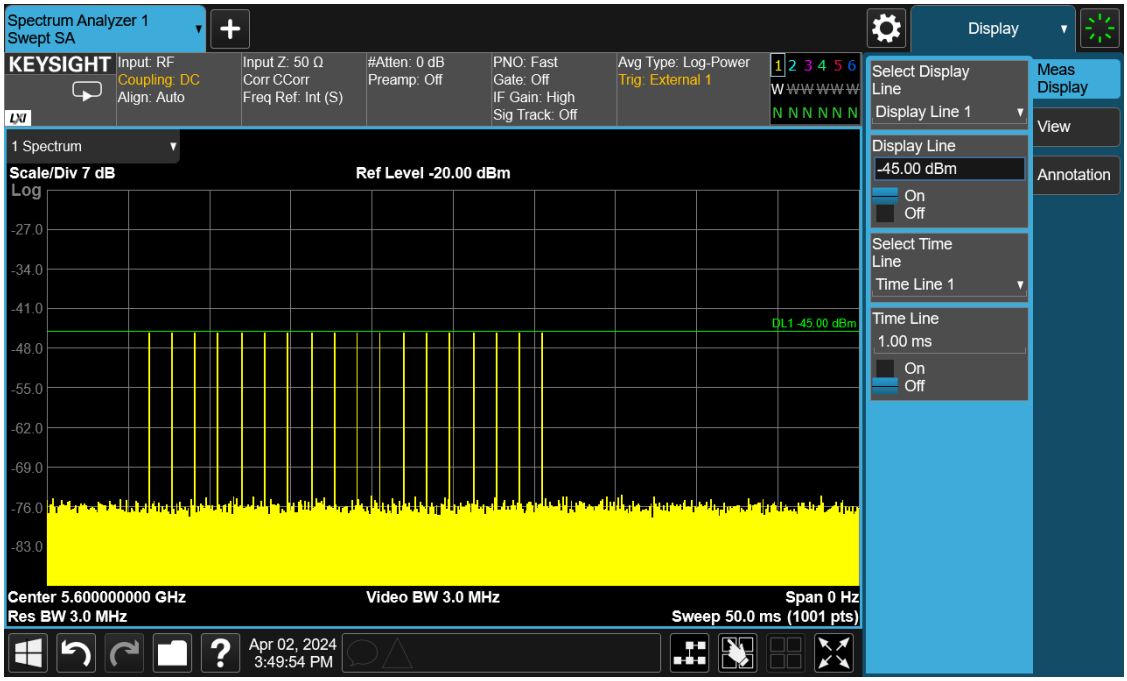
Information	Status
Possible Antenna/s	Integral 19 dBi
Antenna used for test	Integral 19 dBi
Operating mode	Master
If Client	N/A
Port used for testing	J13
EIRP range	> 200 milliwatts
Impedance of port	50 ohms
Channel loading technique	Data transfer was enacted to achieve a minimum channel loading of approximately 17%
Antenna measurement technique	See note 1
Time of power-on cycle	25s
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

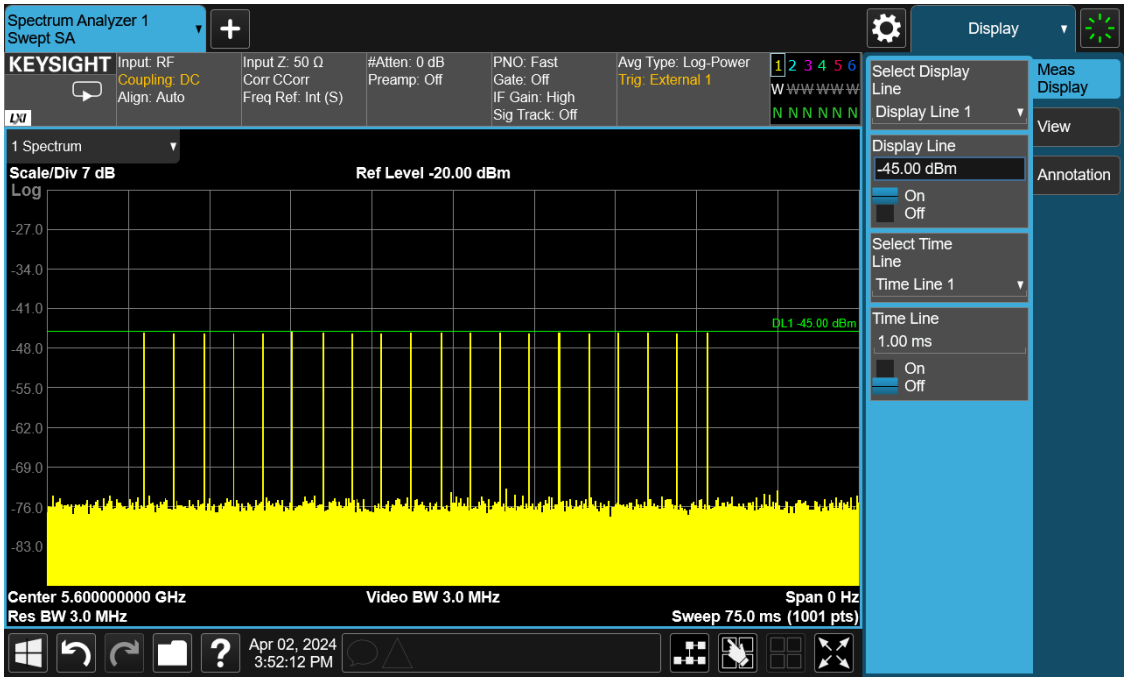
Requirement	Operational Mode	
	Master or Client Client Without Radar Detection	Client Without Radar Detection
DFS Detection Threshold	Yes	Not Required
Channel Closing Transmission Time	Yes	Yes
Channel Move Time	Yes	Yes
U-NII Detection Bandwidth	Yes	Not Required



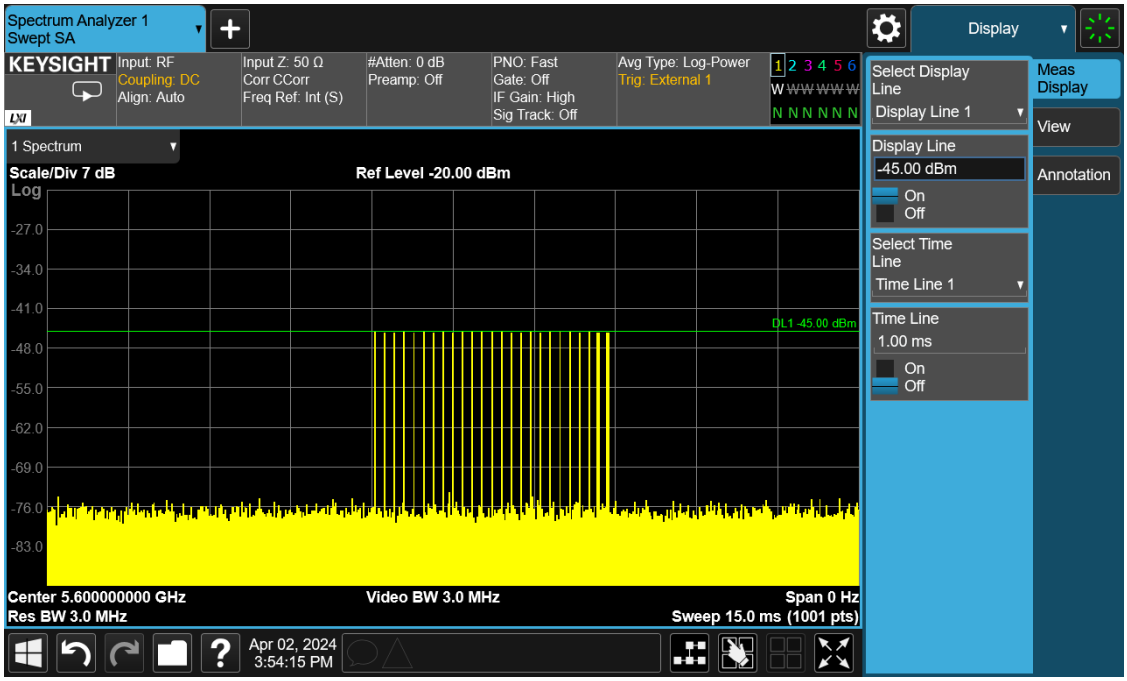
Maximum Transmit Power	**Value (See Notes 1, 2, and 3)**
EIRP ≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm
Note 1: This is the level at the input of the receiver assuming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



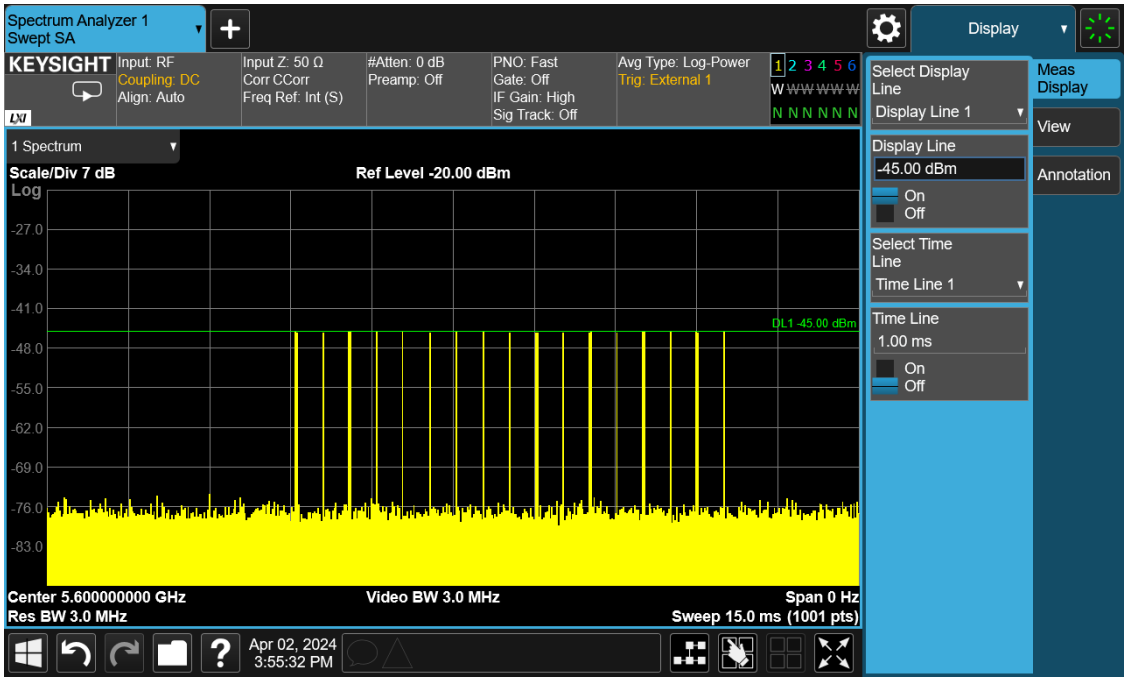
Plot 1: Radar Level 0



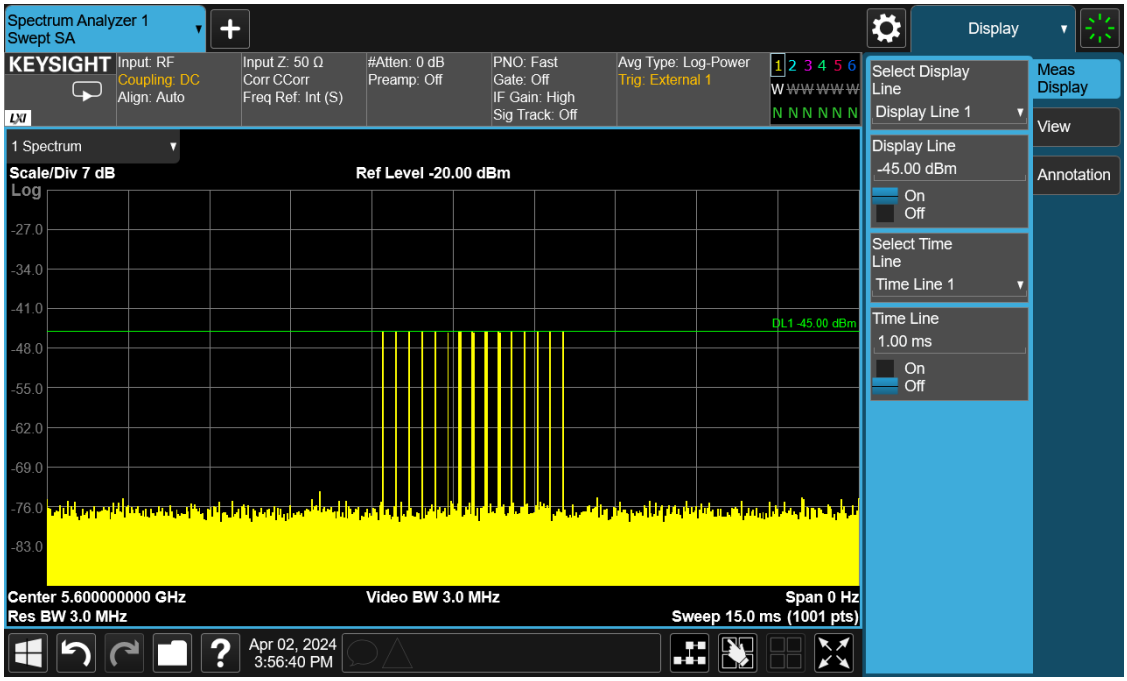
Plot 2: Radar Level 1



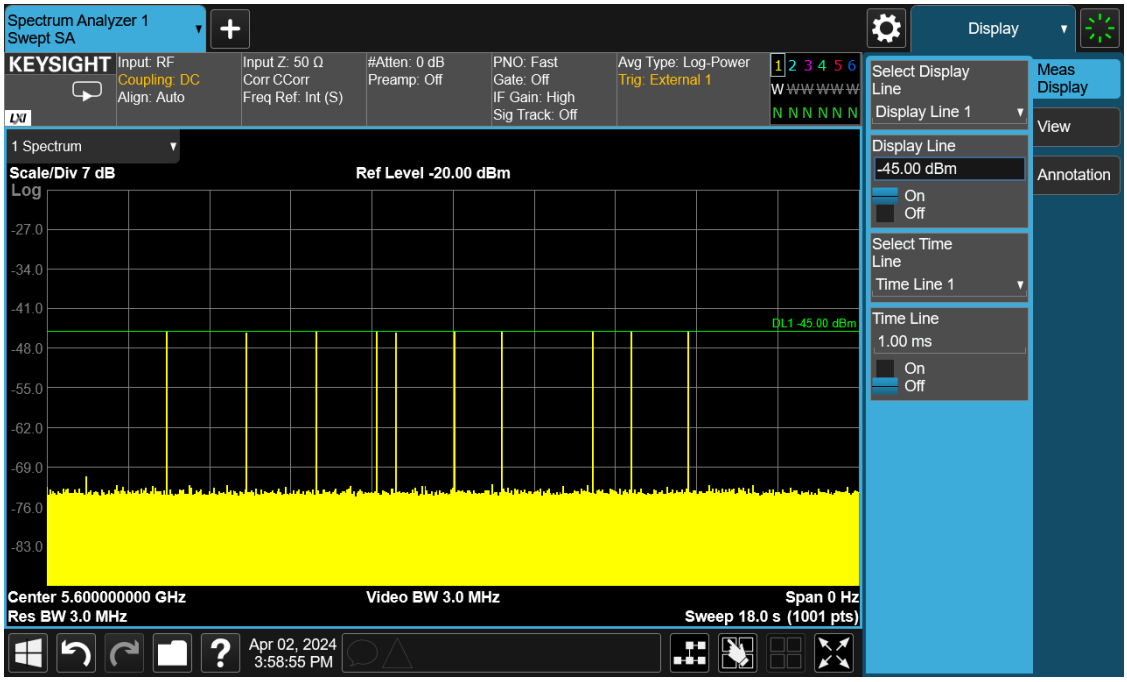
Plot 3: Radar Level 2



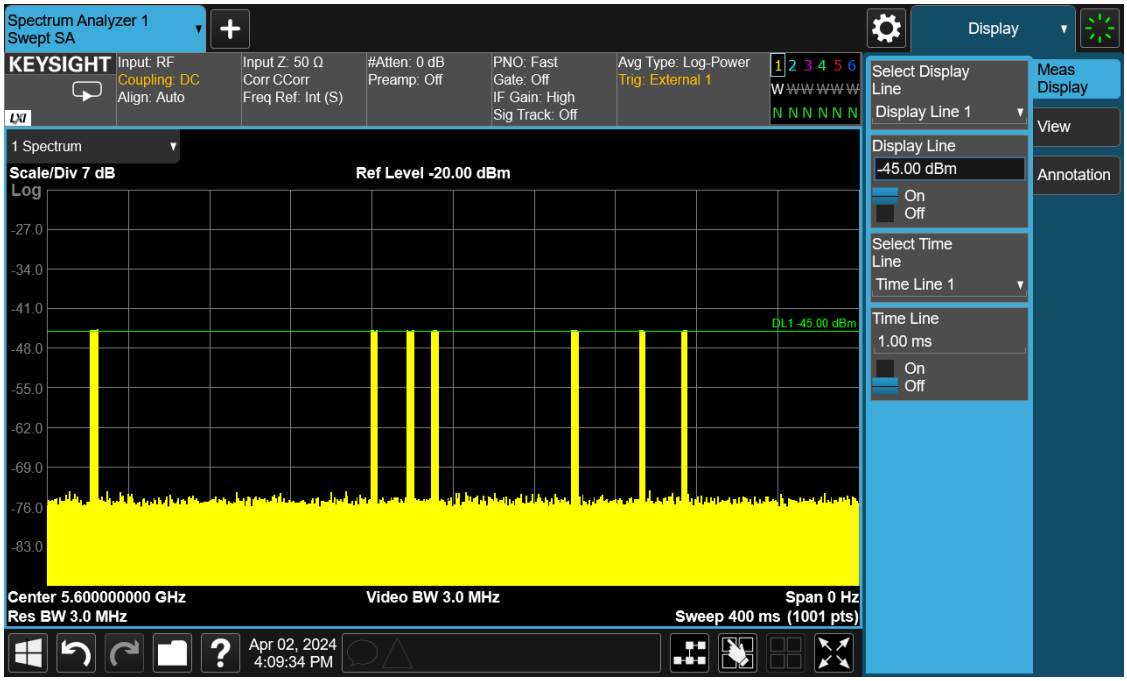
Plot 4: Radar Level 3



Plot 5: Radar Level 4



Plot 6: Radar Level 5



Plot 7: Radar Level 6

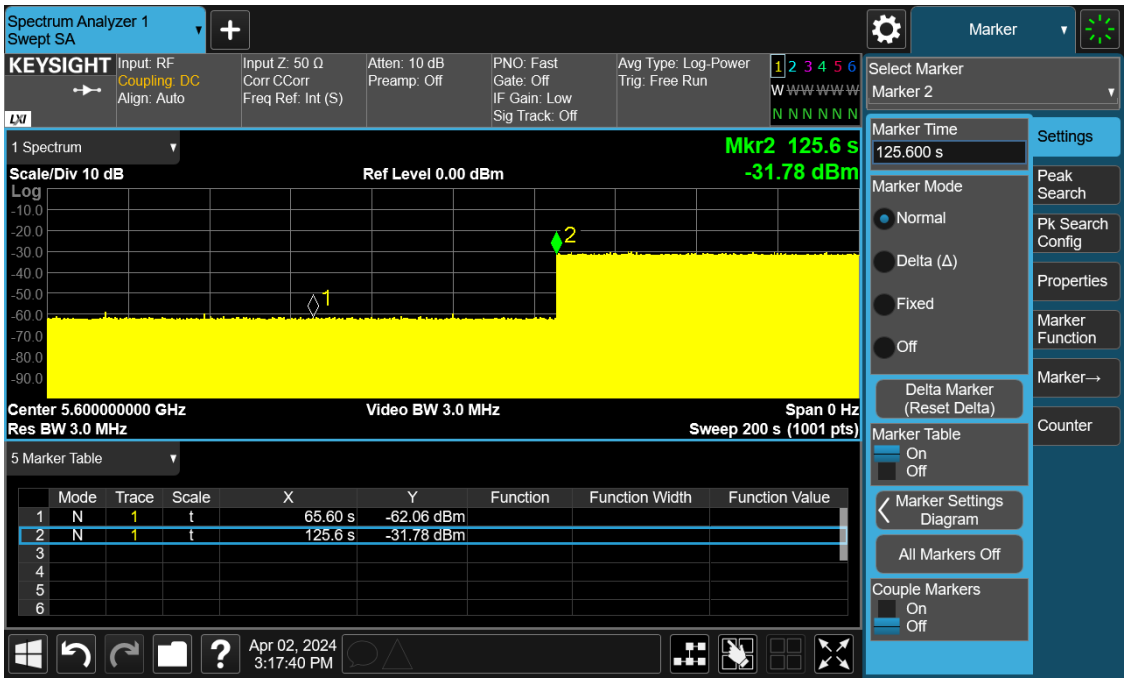
5.7.1 Channel Availability Check (CAC)

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.

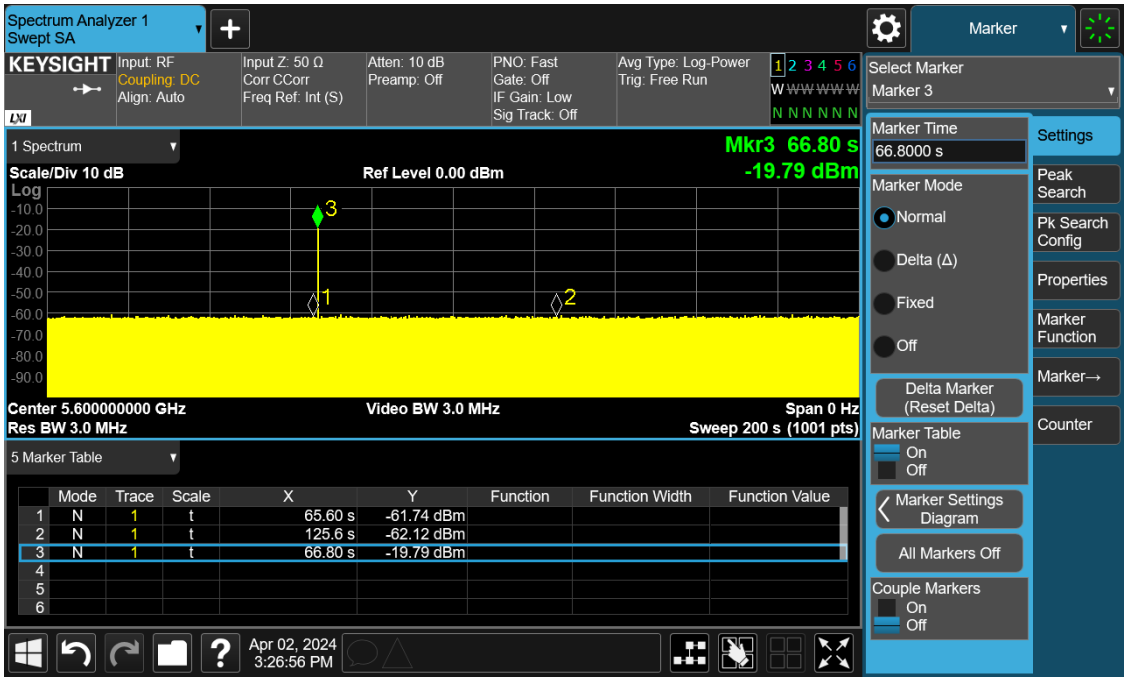
For radar burst at the beginning of the CAC. To verify successful radar detection on the selected channel during a period equal to the beginning of the CAC time, visual indication on the EUT of successful detection of the radar burst will be recorded and reported. Observation of the radar burst is show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

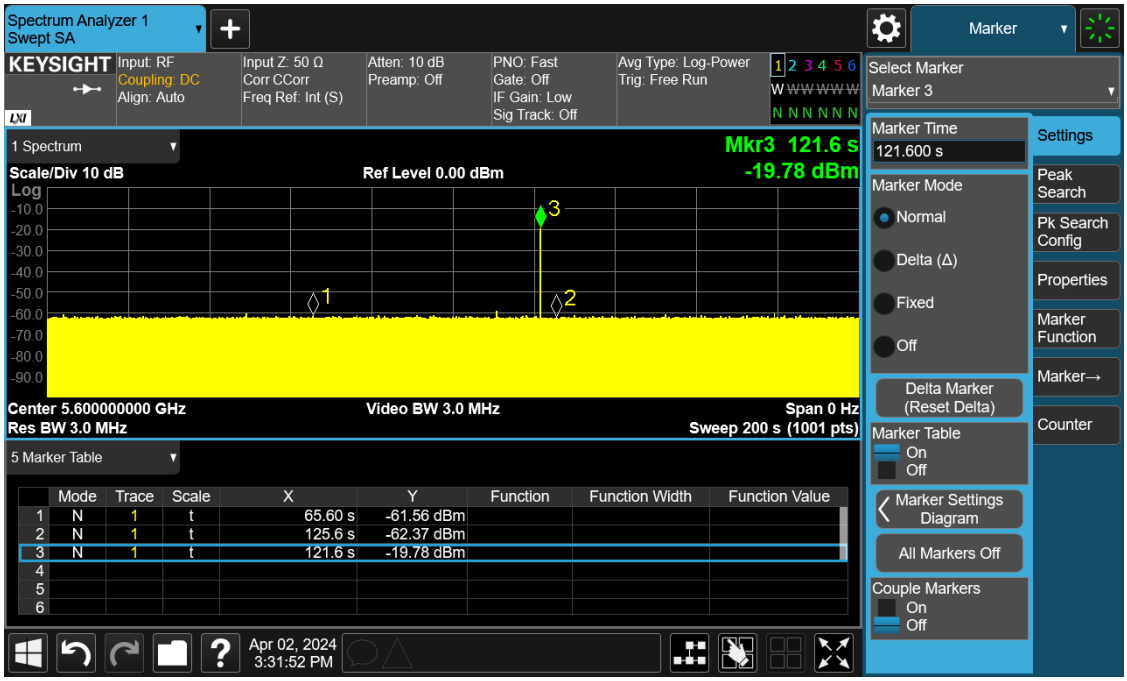
A spectrum analyzer is used as a monitor to verify that the EUT has vacated the channel within the channel closing transmission time and channel move time, and does not transmit on a channel during the non-occupancy period after the detection and channel move.



Plot 8: DUT Turn On



Plot 9: Beginning



Plot 10: End

5.7.2 In-service Monitoring

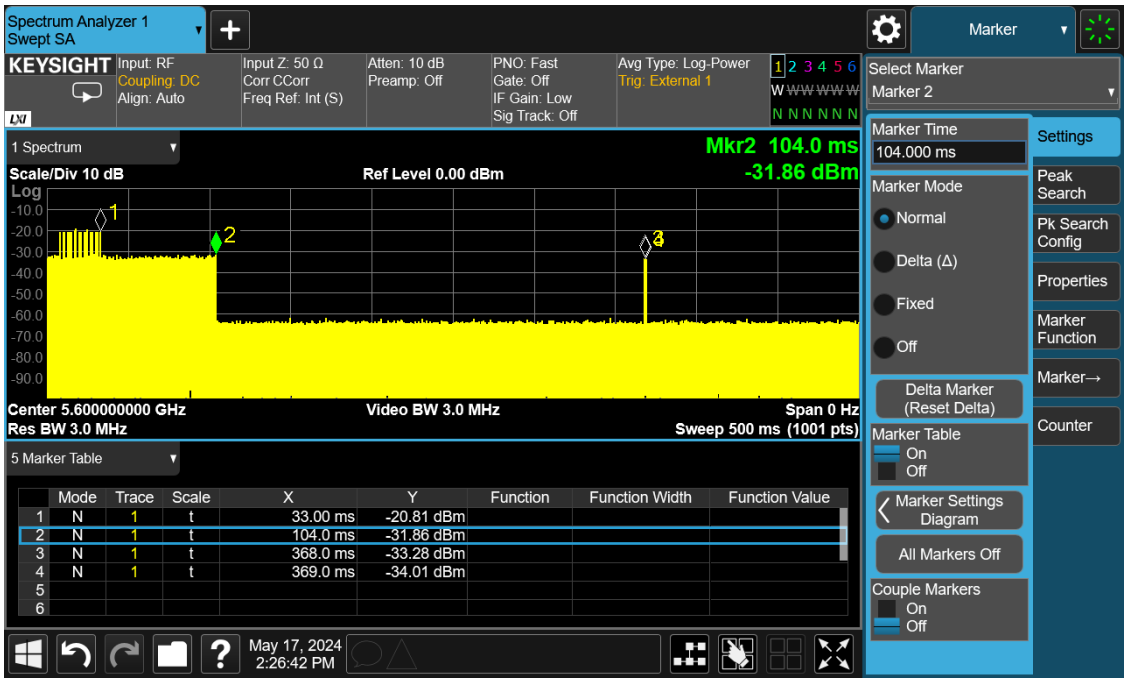
Channel Move Time	10 seconds
Channel Closing Transmission Time	200 ms + aggregate of 60 ms over remaining 10 second period
Non-occupancy period	Minimum 30 minutes

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.

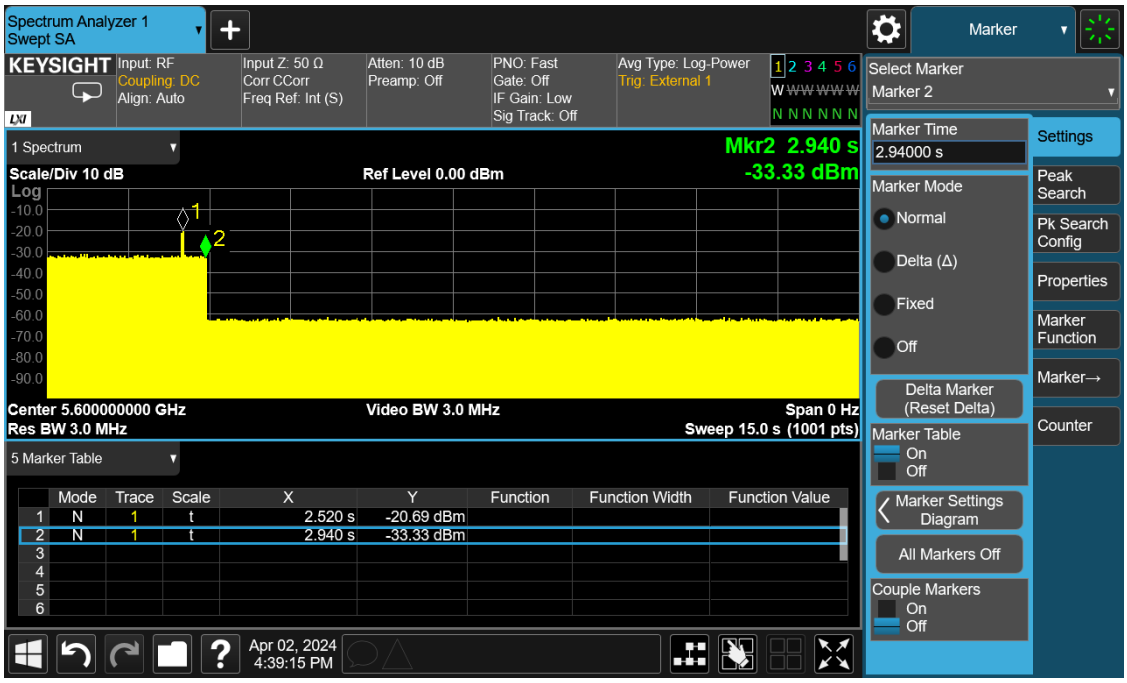
During the 30 minutes observation time, the EUT did not make any transmissions on a channel after a radar signal was detected.

Please see plots below.

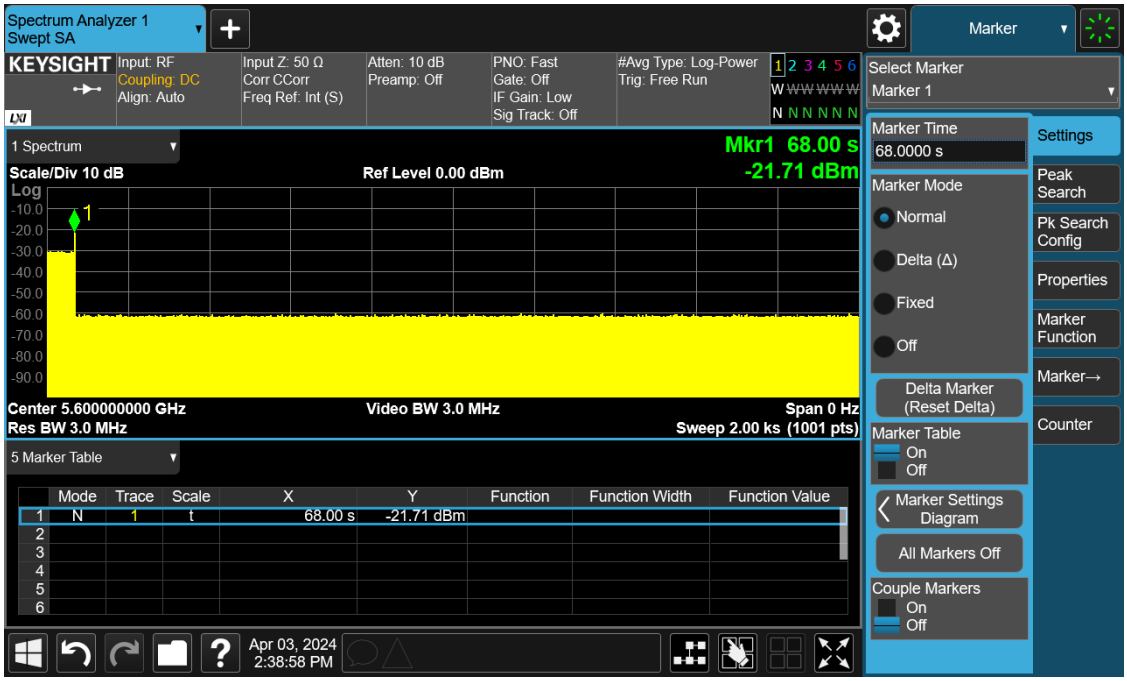
A spectrum analyzer is used as a monitor to verify that the EUT has vacated the channel within the channel closing transmission time and channel move time, and does not transmit on a channel during the non-occupancy period after the detection and channel move.



Plot 11: Channel Closing



Plot 12: Channel Move



Plot 13: Non-Occupancy

5.7.3 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
5595	1	1	1	1	1	1	1	1	1	1	100
5600	1	1	1	1	1	1	1	1	1	1	100
5605	1	1	1	1	1	1	1	1	1	1	100
F_High 5610	1	1	1	1	1	1	1	1	1	1	100
Detection Bandwidth = FH-FL = 5610 MHz - 5590 MHz = 20 MHz											
99% Bandwidth = 18.75 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	
5570	0	0	0	0	0	0	0	0	0	0	0
F_Low 5572	1	1	1	1	1	1	1	1	1	1	100
5573	1	1	1	1	1	1	1	1	1	1	100
5574	1	1	1	1	1	1	1	1	1	1	100
5575	1	1	1	1	1	1	1	1	1	1	100
5580	1	1	1	1	1	1	1	1	1	1	100
5585	1	1	1	1	1	1	1	1	1	1	100
5590	1	1	1	1	1	1	1	1	1	1	100
5595	1	1	1	1	1	1	1	1	1	1	100
5600	1	1	1	1	1	1	1	1	1	1	100
5605	1	1	1	1	1	1	1	1	1	1	100
5606	1	1	1	1	1	1	1	1	1	1	100
5607	1	1	1	1	1	1	1	1	1	1	100
5608	1	1	1	1	1	1	1	1	1	1	100
F_High 5609	1	1	1	1	1	1	1	1	1	1	100
5610	0	0	0	0	0	0	0	0	0	0	0
Detection Bandwidth = FH-FL = 5609 MHz - 5572 MHz = 37 MHz											
99% Bandwidth = 36.5 MHz											

5.7.4 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	27	30	90%
Type 2	24	30	80%
Type 3	26	30	87%
Type 4	26	30	87%
Type 5	29	30	97%
Type 6	29	30	97%
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	67	1	798	y
2	59	1	898	y
3	81	1	658	y
4	62	1	858	y
5	98	1	538	y
6	83	1	638	y
7	76	1	698	y
8	89	1	598	y
9	102	1	518	y
10	68	1	778	y
11	61	1	878	y
12	18	1	3066	y
13	95	1	558	y
14	72	1	738	n
15	57	1	938	y
16	29	1	1837	y
17	24	1	2264	y
18	42	1	1271	y
19	30	1	1802	y
20	34	1	1576	y
21	45	1	1173	y
22	23	1	2331	y
23	40	1	1327	y
24	19	1	2857	y
25	25	1	2141	n
26	18	1	3035	y
27	23	1	2344	y
28	20	1	2752	n
29	76	1	702	y
30	65	1	822	y
				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	23	1.4	197	y
2	28	3.3	161	y
3	23	3.7	170	y
4	29	1.3	174	y
5	24	3.2	150	y
6	25	3.2	205	y
7	26	2.2	153	y
8	25	2.2	189	y
9	25	1	229	y
10	23	3.3	216	y
11	26	1	217	y
12	26	3.7	181	n
13	24	3.4	213	n
14	24	1.3	206	n
15	26	3.4	170	y
16	29	1.2	219	y
17	27	2	209	n
18	24	3.2	195	y
19	26	4.9	203	y
20	27	3	211	y
21	28	2.2	204	y
22	27	3.2	166	y
23	25	4.9	215	y
24	24	3.7	153	y
25	24	1.1	173	n
26	26	3.6	204	y
27	28	2.6	180	n
28	23	1.4	217	y
29	26	1.1	218	y
30	25	1	173	y
				24/30: 80%

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	8.6	418	y
2	17	8.6	235	y
3	18	9.5	303	y
4	17	9.1	264	y
5	18	9.8	219	y
6	17	6.8	308	n
7	18	8.7	316	y
8	16	6.1	497	y
9	17	8.6	470	y
10	17	8.7	477	y
11	17	8.1	269	y
12	17	7.5	431	y
13	17	7.5	268	n
14	17	8.4	420	y
15	16	9.1	422	y
16	18	6.8	458	y
17	17	8.3	251	y
18	17	8.1	318	y
19	16	9.2	313	y
20	16	9.8	464	y
21	18	6.1	461	y
22	17	9.4	293	y
23	17	8	354	y
24	17	6	224	n
25	17	6.1	204	n
26	16	6.8	286	y
27	16	8.3	341	y
28	16	9.9	370	y
29	18	7.7	289	y
30	16	6.3	291	y
				26/30: 86.7%

RADAR TYPE 4				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	15	18.8	260	y
2	13	19.9	320	y
3	13	13.7	210	y
4	16	11.3	433	y
5	15	16.3	394	y
6	16	13.5	474	y
7	15	12.8	381	n
8	14	16.9	299	y
9	13	12.6	464	n
10	14	13.5	437	n
11	16	12.8	439	y
12	15	11.2	311	y
13	15	19.5	236	y
14	12	16.3	495	y
15	15	12.3	351	y
16	15	19.9	243	y
17	15	16.5	210	y
18	12	18.4	246	y
19	14	18.1	308	y
20	13	14.6	413	y
21	13	13.8	291	y
22	12	13.1	336	y
23	13	14.7	309	y
24	14	11	292	y
25	15	11.1	469	y
26	12	13	311	y
27	12	19.6	304	y
28	16	17.6	374	y
29	14	11.9	472	y
30	14	15.1	344	n
				26/30: 86.7%

TYPE 5	Rohde & Schwarz K350 Pulse Sequencer DFS			
Trial #	**Detection (yes/no)**	**Chirp Width (MHz)**	**Subset**	**Fc**
1	y	13	1	5500
2	y	18	1	5500
3	y	13	1	5500
4	y	11	1	5500
5	y	13	1	5500
6	y	19	1	5500
7	y	11	1	5500
8	n	13	1	5500
9	y	15	1	5500
10	y	12	1	5500
11	y	12	2	5495.8
12	y	10	2	5495
13	y	17	2	5497.8
14	y	19	2	5498.6
15	y	14	2	5496.6
16	y	8	2	5494.2
17	y	17	2	5497.8
18	y	9	2	5494.6
19	y	6	2	5493.4
20	y	19	2	5498.6
21	y	7	3	5506.2
22	y	11	3	5504.6
23	y	9	3	5505.4
24	y	17	3	5502.2
25	y	11	3	5504.6
26	y	13	3	5503.8
27	y	18	3	5501.8
28	y	6	3	5506.6
29	y	14	3	5503.4
30	y	8	3	5505.8

29/30: 96.7%

TYPE 6 S	Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Detection (yes/no)**
1	y
2	n
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
	29/30: 96.7%

40 MHz

Summary			
Type	**Detections**	**Trials**	**Detection Probability**
Type 1	29	30	97%
Type 2	25	30	83%
Type 3	24	30	80%
Type 4	25	30	83%
Type 5	29	30	97%
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	22	1	2435	y
2	21	1	2626	y
3	29	1	1821	y
4	33	1	1598	y
5	23	1	2358	y
6	18	1	2948	y
7	32	1	1692	y
8	36	1	1469	y
9	30	1	1787	y
10	31	1	1719	y
11	83	1	636	y
12	39	1	1378	y
13	28	1	1896	y
14	75	1	708	y
15	38	1	1411	y
16	91	1	580	y
17	44	1	1219	y
18	69	1	767	y
19	23	1	2325	y
20	19	1	2862	y
21	54	1	989	y
22	20	1	2742	y
23	22	1	2505	y
24	47	1	1124	y
25	20	1	2718	y
26	30	1	1776	y
27	41	1	1314	y
28	28	1	1950	n
29	50	1	1055	y
30	34	1	1560	y
				29/30: 96.7%

RADAR TYPE 2				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	27	2.4	151	y
2	27	1.4	153	n
3	27	1.9	168	y
4	28	4.3	221	n
5	27	4.1	205	y
6	26	3.9	185	y
7	24	1.2	198	y
8	23	3.4	196	y
9	23	3.1	192	y
10	27	2.4	185	n
11	27	2.1	165	y
12	26	3.7	172	y
13	23	3.8	203	y
14	24	1.7	196	y
15	27	2.6	155	y
16	23	3	219	y
17	28	4.1	218	y
18	27	3.7	172	y
19	27	2.5	159	y
20	24	2.9	188	y
21	25	2.5	182	n
22	25	2.8	183	y
23	28	2.3	163	y
24	28	3.9	211	y
25	24	2.4	163	y
26	25	4.4	192	n
27	28	2.5	214	y
28	26	3.2	184	y
29	25	1.4	190	y
30	29	4.9	213	y
				25/30: 83.3%

RADAR TYPE 3				Rohde & Schwarz K350 Pulse Sequencer DFS
Trial #	**Number of Pulses per Burst**	**Pulse Width (µsec)**	**PRI (µs)**	**Detection (yes/no)**
1	18	7.5	237	n
2	17	7.9	296	y
3	18	9	202	n
4	18	8.2	380	y
5	18	9.1	400	y
6	18	8.6	373	y
7	18	8.4	340	y
8	17	6.9	255	y
9	17	8.8	416	y
10	17	7.4	459	y
11	17	9.4	460	y
12	17	8.9	240	y
13	17	8.2	254	y
14	18	8.3	369	y
15	18	9.4	294	y
16	18	8.9	214	y
17	18	7.8	309	y
18	16	9	221	n
19	16	9.5	316	y
20	17	9.4	321	n
21	18	6	363	n
22	17	6.3	224	y
23	16	6.4	477	y
24	17	9.2	408	y
25	16	7.7	348	y
26	18	7.8	471	y
27	18	7.9	254	y
28	16	8.5	326	n
29	17	8.2	230	y
30	17	6.6	204	y
				24/30: 80%

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	18.2	465	y
2	14	15.2	272	y
3	13	16.8	385	y
4	16	18	461	y
5	14	12	432	y
6	14	16.8	257	y
7	14	15.9	433	y
8	13	12.9	388	y
9	14	11.8	282	n
10	13	19.6	380	y
11	16	16.9	324	y
12	15	16.4	322	y
13	14	12	407	y
14	13	12.5	206	y
15	13	18.4	288	y
16	15	11	310	n
17	16	16.7	205	y
18	14	19.1	478	n
19	14	13.1	294	y
20	15	14.1	239	y
21	16	14.3	369	y
22	13	15.4	359	y
23	15	12.1	341	n
24	12	14.4	375	y
25	14	17.3	335	n
26	12	19.5	419	y
27	13	19.4	497	y
28	12	17.1	497	y
29	14	19.2	243	y
30	13	11.7	291	y
				25/30: 83.3%

TYPE 5	Rohde & Schwarz K350 Pulse Sequencer DFS			
Trial #	**Detection (yes/no)**	**Chirp Width (MHz)**	**Subset**	**Fc**
1	y	9	1	5500
2	y	15	1	5500
3	y	7	1	5500
4	y	19	1	5500
5	y	19	1	5500
6	y	6	1	5500
7	y	12	1	5500
8	y	17	1	5500
9	y	7	1	5500
10	y	6	1	5500
11	y	16	2	5497.4
12	y	13	2	5496.2
13	y	14	2	5496.6
14	y	12	2	5495.8
15	y	6	2	5493.4
16	y	17	2	5497.8
17	y	19	2	5498.6
18	y	13	2	5496.2
19	y	10	2	5495
20	y	19	2	5498.6
21	y	5	3	5507
22	y	5	3	5507
23	y	15	3	5503
24	y	16	3	5502.6
25	y	8	3	5505.8
26	y	17	3	5502.2
27	y	7	3	5506.2
28	n	13	3	5503.8
29	y	7	3	5506.2
30	y	18	3	5501.8

29/30: 96.7%

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 --