



427 West 12800 South
Draper, UT 84020

Test Report Certification

FCC ID	SWX-UDBS
ISED ID	6545A-UDBS
Equipment Under Test	UDB-Switch
Test Report Serial Number	TR10403_02
Date of Test(s)	13, 19 - 20 September 2024; 20, 26 March; 4 June; 20 August; 16 - 17 September 2025
Report Issue Date	6 October 2025

Test Specification	Applicant
47 CFR FCC Part 15, Subpart E RSS-248, Issue 3 (October 2024)	Ubiquiti Inc. 685 Third Avenue New York, NY 10017 U.S.A.



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 and RSS-248, Issue 3 (October 2024). 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 with the specifications provided by the manufacturer.

Applicant	Ubiquiti Inc.
Manufacturer	Ubiquiti Inc.
Brand Name	UBIQUITI
Model Number	UDB-Switch
FCC ID	SWX-UDBS
ISED ID	6545A-UDBS

On this 6th day of October 2025, 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. Unified Compliance laboratory is not responsible for incorrect information provided by the manufacturer.

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: Kimberly DeBole

Revision History		
Revision	Description	Date
01	Original Report Release	10/06/2025
02	Modified Section 2.6 and CBP Trail Table	11/11/2025

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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-Switch
Serial Number	05B1B5
Dimensions (cm)	21.3 x 11.3 x 3.3

2.2 Description of EUT

The UDB-Switch is a compact PoE+ switch with one (1) 10 GbE port and seven (7) 2.5 GbE ports. The UDB-Switch has 2x2 5GHz and 2x2 6 GHz dual-band WiFi 7 transmitters with a wireless uplink of up to 8.4 Gbps capacity. The UDB-Switch is an indoor device and is powered from a 54 volts DC power adapter with 60 watts' capacity.

This device does not support channel puncturing.

For CDD transmission, direction gain is calculated as follows.

Array Gain = $10 \log(\text{NANT}/\text{NSS})$ 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 $\text{NANT} \leq 4$;

For PSD measurements when $\text{Nss}=1$: Array Gain = $10 \log(\text{NANT}/\text{NSS})$ dB + Antenna Gain (dBi). Or $3.01 \text{ dB} + 8 \text{ dBi} = 11.01 \text{ dBi}$.

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.

The table below shows the channels used within the different modulation bandwidths.

Band	Modulation Bandwidth	Frequency (MHz)	Maximum Power Setting
UNII-7	be (EHT20)	6535, 6555, 6575, 6595, 6615, 6635, 6655, 6675, 6695, 6715, 6735, 6755, 6775, 6795, 6815, 6835, 6855	TP9
		6875	TP8
	be (EHT40)	6525, 6565, 6605, 6645, 6685, 6725, 6765, 6805, 6845	TP12

		6885	TP10
	be (EHT80)	6545, 6625, 6705, 6785	TP14
		6865	TP13
	be (EHT160)	6505, 6665	TP17
		6825	TP15
	be (EHT320)	6585	TP21

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: UBIQUITI MN: UDB-Switch (Note 1) SN: 05B1B5	WiFi Switch	See Section 2.4
BN: UBIQUITI MN: ADS-60SH-54-354060E SN: N/A	Power Adapter	2 Conductor power cord to AC mains/80cm
BN: Dell MN: XPS 13 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 (PoE Injector)	1	3 Conductor power cord to AC mains/80cm
LAN (PoE Injector)	8	unshielded Cat 5e cable/1 meters

2.5 Operating Environment

Power Supply	120 Volts AC Mains to 54 Volts DC
AC Mains Frequency	60 Hz
Temperature	21.1 - 23.8 °C
Humidity	24.5 - 31.6 %
Barometric Pressure	1017 mBar

2.6 Operating Modes

The UDB-Switch 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 802.11a/be were investigated. All measurements are reported with the worst-case mode (802.11be maximum conducted output power and maximum power spectral density) 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

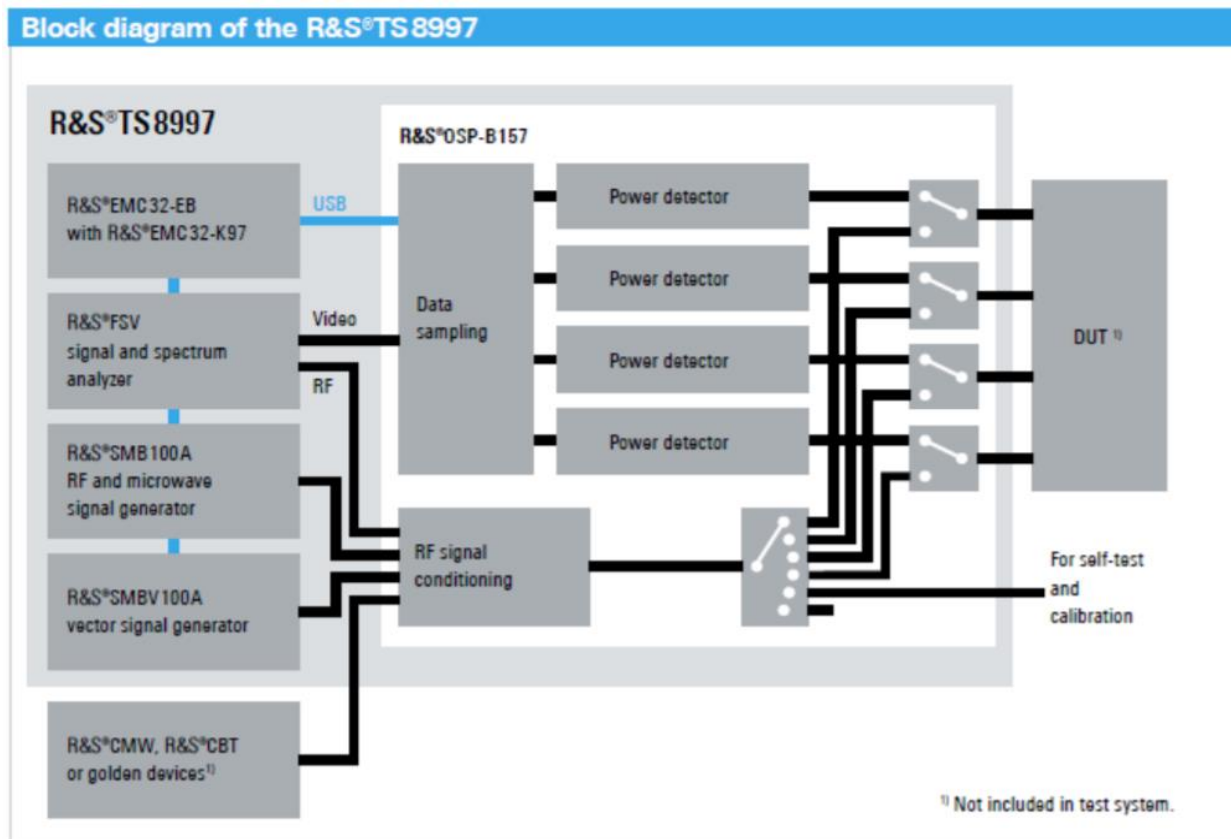


Diagram 1: Test Configuration Block Diagram

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
15.203	N/A	Antenna requirements	Structural Requirement	Compliant
15.207	RSS-Gen	Conducted Disturbance at Mains Port	0.15 to 30	Compliant
15.407(a)	RSS-248 §4.4	Bandwidth Requirement	6535 to 6865	Compliant
15.407(a)	RSS-248 §4.5	Peak Output Power ¹	6535 to 6865	Compliant
15.407(b)	RSS-248 §4.6	Antenna Conducted Spurious Emissions ¹	0.009 to 40000	N/A Note ²
15.209	RSS-248 §4.6	Radiated Spurious Emissions	0.009 to 40000	Compliant
15.407(a)	RSS-248 §4.5	Peak Power Spectral Density ¹	6535 to 6865	Compliant
15.407(d)	RSS-248 §4.7	Contention Based Protocol	6535 to 6865	Compliant

The testing was performed according to the procedures in ANSI C63.10-2013, KDB 789033, KDB 987594 and 47 CFR Part 15. Where applicable, KDB 662911 was followed to sum required measurements.

Note ¹: Various RU modes were considered for RF Power, PSD, and Spurious Emissions, and the "single client" RU mode is the worst case - the results herein are "single client" RU mode.

Note ²: Radiated Spurious was performed per 15.209 with the antenna unterminated.

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 2026. 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 2026.

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-6754	2/27/2025	2/27/2026
LISN	AFJ	LS16C/10	UCL-6749	3/3/2025	3/3/2026
ISN	Teseq	ISN T800	UCL-2971	3/31/2025	3/31/2026
AC Power Source	Laplace Instruments	AC1000A	UCL-2857	N/A	N/A
Test Software	UCL	Revision 1	UCL-3107	N/A	N/A

Table 1: List of equipment used for Conducted Emissions Testing at Mains Port

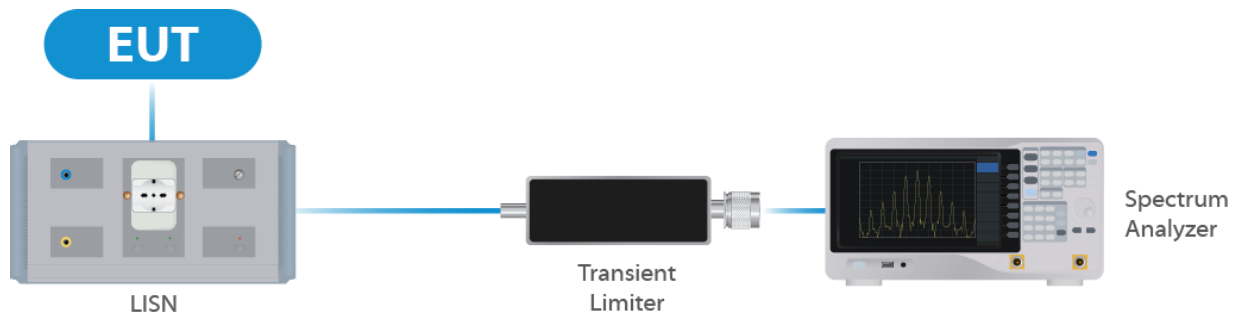


Figure 1: Conducted Emissions Test

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	1/16/2025	1/16/2026
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	4/28/2025	1/16/2026
Switch Extension	R&S	OSP-150W	UCL-2870	4/28/2025	1/16/2026
Test Software	R&S	EMC32	UCL-9442	--	--

Table 2: List of equipment used for Direct Connect at the Antenna Port

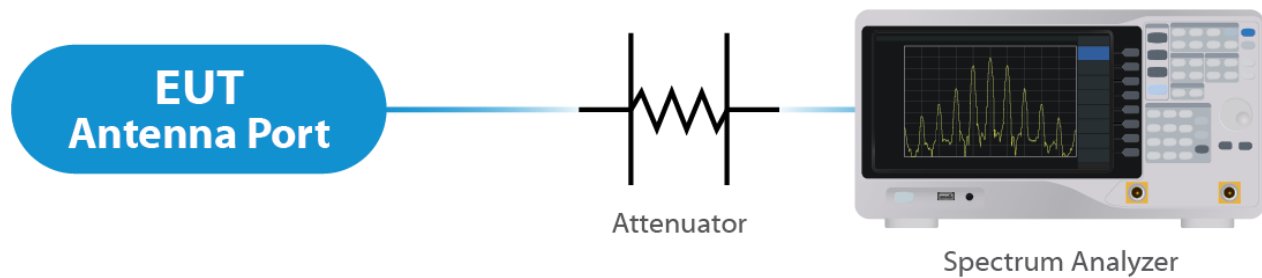


Figure 2: Direct Connect at the Antenna Port Test

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	12/27/2024	12/27/2025
Pre-Amplifier 9 kHz – 1 GHz	Sonoma Instruments	310N	UCL-2889	1/19/2024	1/19/2026
Broadband Antenna	ETS-Lindgren	3142E	UCL-9782	2/6/2025	2/6/2026
Double Ridge Horn Antenna	Scwarzbeck	BBHA 9120D	UCL-3065	4/2/2025	4/2/2027
Log Periodic	Scwarzbeck	STLP 9129	UCL-3068	2/11/2025	2/4/2027
10 - 40 GHz Horn Antenna	ETS-Lindgren	3116C	UCL-7209	6/6/2024	6/6/2026
1 – 18 GHz Amplifier	Com-Power	PAM 118A	UCL-3833	7/22/2025	7/22/2026
Test Software	Nexio	BatEMC	UCL-5253 & UCL- 5249	N/A	N/A

Table 3: List of equipment used for Radiated Emissions

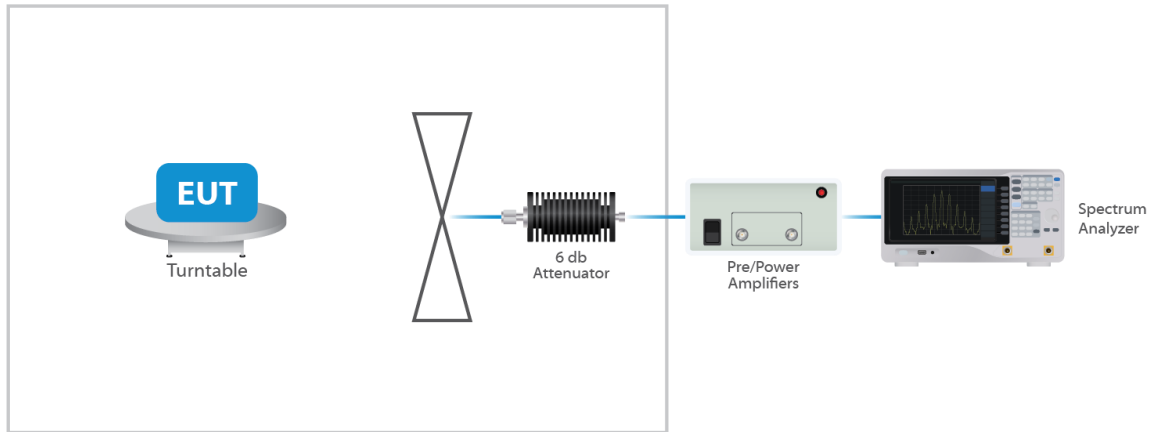


Figure 3: Radiated Emissions Test

4.4 Contention Base Protocol Tests

Type of Equipment	Manufacturer	Model Number	Asset Number	Date of Last Calibration	Due Date of Calibration
Spectrum Analyzer	Keysight	N9010B EXA	UCL-7069	5/20/2025	5/20/2026
Signal Generator	Keysight	MXG-B	UCL-6291	6/28/2024	6/22/2026
MIMO Test Set	Keysight	X8750A	UCL-7372	9/24/2024	10/07/2025

Table 4: List of equipment used for Direct Connect at the Antenna Port

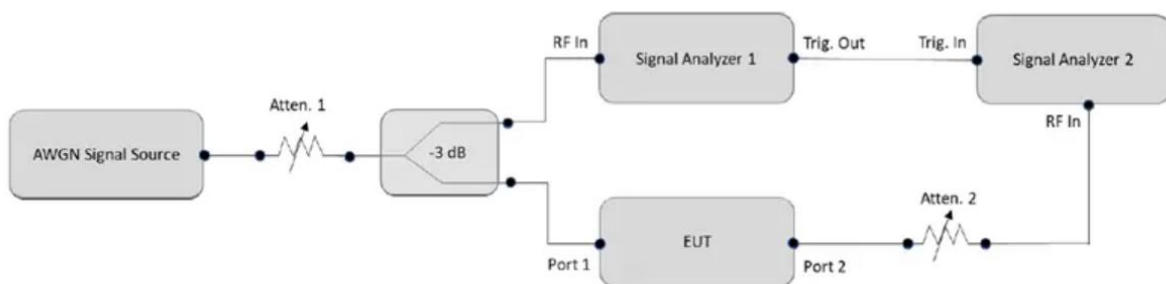


Figure 1. CBP conducted test setup diagram. Source: KDB 987594 D02 V01r01

Figure 4: Contention Base Protocol Test

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 ($\pm$ 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 internal integral antenna. Per the manufacturer, the Maximum gain of the antenna per chain is 8 dBi. This is an 802.11 device and utilizes CDD as described in KDB 662911 D01. The antenna is not user replaceable.

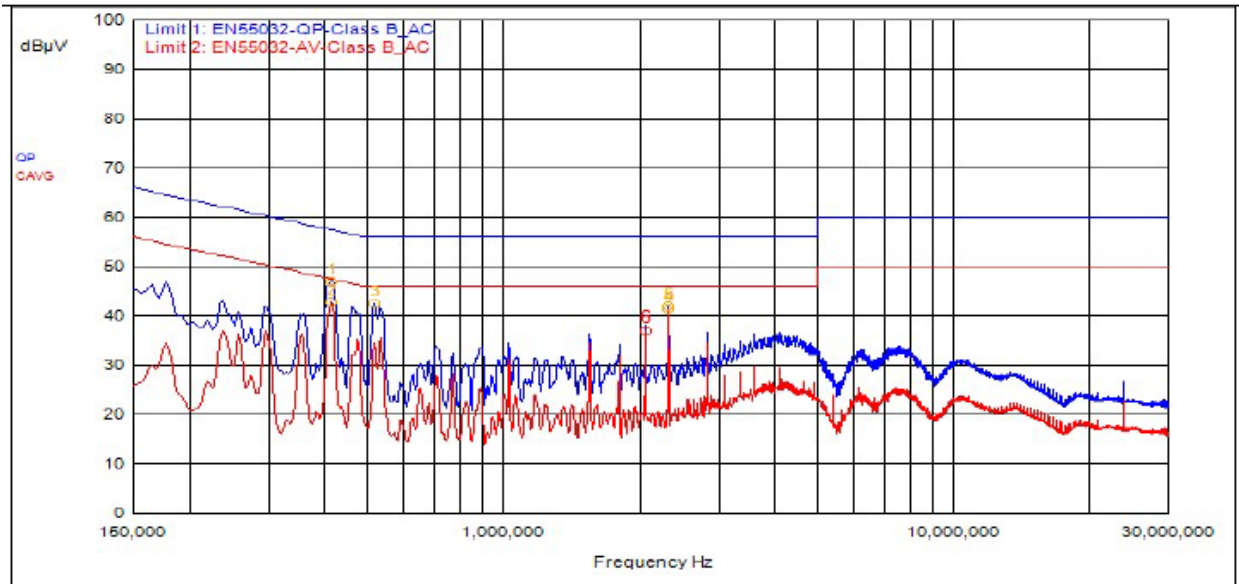
See Section 2.2 for directional gain calculation.

Results

The EUT complied with the specification

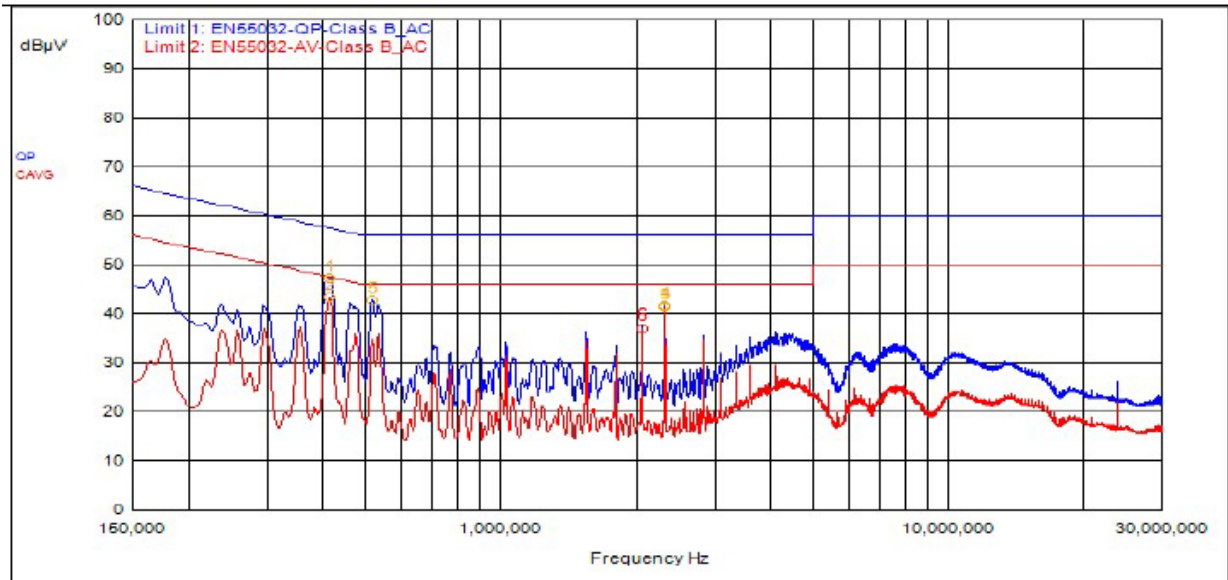
5.2 §15.207 Conducted Emissions at Mains Ports Data

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	414,000kHz	9.49			QPeak	37.35	46.84	57.57	-10.72			
3	516,000kHz	9.49			QPeak	32.89	42.38	56.00	-13.62			
5	2.322	9.59			QPeak	32.35	41.94	56.00	-14.06			
2	414,000kHz	9.49			C_AVG	33.35	42.84			47.57	-4.73	
4	2.322	9.59			C_AVG	31.75	41.34			46.00	-4.66	
6	2.064	9.60			C_AVG	27.36	36.96			46.00	-9.04	

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	414,000kHz	9.64			QPeak	37.64	47.28	57.57	-10.29			
5	516,000kHz	9.63			QPeak	33.06	42.69	56.00	-13.31			
4	2.322	9.57			QPeak	32.20	41.77	56.00	-14.23			
2	414,000kHz	9.64			C_AVG	33.69	43.33			47.57	-4.24	
3	2.322	9.57			C_AVG	31.93	41.50			46.00	-4.50	
6	2.064	9.57			C_AVG	27.49	37.06			46.00	-8.94	

Result

The EUT complied with the specification limit.

5.3 §15.407(a) 26 dB Emissions Bandwidth

All chains were measured under the guidance of KDB 789033 Section II.C. and KDB 662911 D01.

Please see associated annex for details on instrument settings.

Nominal BW (MHz)	Frequency (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)
EHT 20	6535	19.8	22.6
EHT 20	6695	19.3	23.6
EHT 20	6875	19.3	22.5
EHT 40	6525	38.5	42.9
EHT 40	6685	38.5	43.4
EHT 40	6885	38.5	42.0
EHT 80	6545	79.0	86.0
EHT 80	6705	79.0	88.5
EHT 80	6865	79.0	89.0
EHT 160	6505	162.5	171.0
EHT 160	6665	160.0	168.0
EHT 160	6825	162.5	168.0
EHT 320	6585	317.5	342.5

Result

All chains were tested and the highest bandwidth per chain is reported above. For the 320 MHz emissions bandwidth the 99% bandwidth was used. Please see Annex for all bandwidth measurements.

5.4 §15.407(a)(3) Maximum Average Output Power

All chains were measured and summed under the guidance of KDB 789033 Section II. E.2. and KDB 662911 D01. Please see associated annex for details on instrument settings.

See Section 2.2 of this report for the directional gain calculation.

The maximum average RF conducted output power measured for this device was 21.88 dBm or 154.17 mW. The limit is 30 dBm EIRP, or 1 Watt EIRP. The antenna has a gain of 8 dBi.

Nss>1

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Total Summed Output Power* (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm) EIRP	Margin (dBm)
EHT 20	6535	Mcs0_Nss2	9	10.00	8	18.00	30	-12.00
EHT 20	6695	Mcs0_Nss2	9	9.76	8	17.76	30	-12.24
EHT 20	6875	Mcs0_Nss2	8	10.20	8	18.20	30	-11.80
EHT 40	6525	Mcs0_Nss2	12	12.77	8	20.77	30	-9.23
EHT 40	6685	Mcs0_Nss2	12	12.57	8	20.57	30	-9.43
EHT 40	6885	Mcs0_Nss2	10	12.12	8	20.12	30	-9.88
EHT 80	6545	Mcs0_Nss2	14	14.53	8	22.53	30	-7.47
EHT 80	6705	Mcs0_Nss2	14	15.00	8	23.00	30	-7.00
EHT 80	6865	Mcs0_Nss2	13	15.70	8	23.70	30	-6.30
EHT 160	6505	Mcs0_Nss2	17	18.24	8	26.24	30	-3.76
EHT 160	6665	Mcs0_Nss2	17	17.95	8	25.95	30	-4.05
EHT 160	6825	Mcs0_Nss2	15	18.42	8	26.42	30	-3.58
EHT 320	6585	Mcs0_Nss2	21	21.88	8	29.88	30	-0.12

Nss=1

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Total Summed Output Power* (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm) EIRP	Margin (dBm)
EHT 20	6535	Mcs0_Nss1	5	5.57	8	13.57	30	-16.43
EHT 20	6695	Mcs0_Nss1	5	5.02	8	13.02	30	-16.98
EHT 20	6875	Mcs0_Nss1	3	5.19	8	13.19	30	-16.81
EHT 40	6525	Mcs0_Nss1	8	8.35	8	16.35	30	-13.65
EHT 40	6685	Mcs0_Nss1	8	7.91	8	15.91	30	-14.09
EHT 40	6885	Mcs0_Nss1	7	8.38	8	16.38	30	-13.62
EHT 80	6545	Mcs0_Nss1	11	11.27	8	19.27	30	-10.73
EHT 80	6705	Mcs0_Nss1	11	11.36	8	19.36	30	-10.64
EHT 80	6865	Mcs0_Nss1	9	10.82	8	18.82	30	-11.18
EHT 160	6505	Mcs0_Nss1	13	13.74	8	21.74	30	-8.26
EHT 160	6665	Mcs0_Nss1	13	13.18	8	21.18	30	-8.82
EHT 160	6825	Mcs0_Nss1	11	14.62	8	22.62	30	-7.38
EHT 320	6585	Mcs0_Nss1	16	16.93	8	24.93	30	-5.07

Result

In the configuration tested, the maximum average RF outpower was less than 1 watt EIRP; therefore, the EUT complied with the requirements of the specification (see spectrum analyzer plots in attached Annex).

* Gated EIRP shown in the Annex is the conducted measurement.

5.5 §15.407(b)(7) Spurious Emissions

5.5.1 Radiated Spurious Emissions in the Restricted Bands of § 15.205

The EUT uses various power settings based on the channel in use. In order to reduce test time, the radiated spurious emissions at the lowest, middle, and highest channel were measured at the maximum power of TP31.

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

Result

All emissions in the restricted bands of § 15.205 met the limits specified in § 15.209; therefore, the EUT complies with the specification. See Annex for Conducted Band edge plots.

QuasiPeak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
32.22 MHz	37.75	40	-2.25	202	1.64	Vertical	-10.97
35.86 MHz	39.92	40	-0.28	324	1.13	Vertical	-10.09
38.61 MHz	36.77	40	-3.23	327	1.13	Vertical	-9.21
41.85 MHz	36.46	40	-3.54	28	1.13	Vertical	-8.43
101.59 MHz	35.27	40	-4.73	307	1.13	Vertical	-8.93
129.84 MHz	31.52	40	-8.48	229	1.13	Vertical	-12.48
No significant emissions were observed in the Horizontal orientation of the antenna							

Table 5: Radiated Emissions 30 – 1000 MHz

Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.31 GHz	59.97	74.0	-14.03	263	1.643	Vertical	11.38
12.45 GHz	57.40	74.0	-16.60	289	1.643	Vertical	13.49
12.46 GHz	57.74	74.0	-16.26	98	2.645	Vertical	13.44
14.69 GHz	58.74	74.0	-15.26	69	2.645	Vertical	15.07
15.09 GHz	58.34	74.0	-15.66	2	1.643	Vertical	13.73
10.31 GHz	58.37	74.0	-15.63	87	1.643	Horizontal	11.38
12.43 GHz	57.30	74.0	-16.70	351	1.638	Horizontal	13.59
12.45 GHz	57.71	74.0	-16.29	174	3.154	Horizontal	13.48
14.68 GHz	58.74	74.0	-15.26	31	3.802	Horizontal	14.88
16.23 GHz	55.70	74.0	-18.30	224	2.329	Horizontal	14.50

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.31 GHz	50.45	54.0	-3.55	263	1.643	Vertical	11.38
12.45 GHz	44.27	54.0	-9.73	289	1.643	Vertical	13.49
12.46 GHz	43.92	54.0	-10.08	98	2.645	Vertical	13.44
14.69 GHz	45.71	54.0	-8.29	69	2.645	Vertical	15.07
15.09 GHz	45.53	54.0	-8.47	2	1.643	Vertical	13.73
10.31 GHz	47.11	54.0	-6.89	87	1.643	Horizontal	11.38
12.43 GHz	43.99	54.0	-10.01	351	1.638	Horizontal	13.59
12.45 GHz	44.19	54.0	-9.81	174	3.154	Horizontal	13.48
14.68 GHz	45.41	54.0	-8.59	31	3.802	Horizontal	14.88
16.23 GHz	43.17	54.0	-10.83	224	2.329	Horizontal	14.50

Table 6: Radiated Emissions 1 – 17 GHz at the Lowest Frequency

Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.31 GHz	60.83	74.0	-13.17	103	3.798	Vertical	11.38
12.45 GHz	57.31	74.0	-16.69	48	3.802	Vertical	13.50
14.67 GHz	58.37	74.0	-15.63	1	1.833	Vertical	14.70
14.76 GHz	58.33	74.0	-15.67	243	4	Vertical	14.33
10.31 GHz	59.13	74.0	-14.87	18	3.802	Horizontal	11.38
12.41 GHz	57.12	74.0	-16.88	341	3.798	Horizontal	13.65
12.50 GHz	57.11	74.0	-16.89	104	3.307	Horizontal	13.31
14.70 GHz	57.89	74.0	-16.11	139	1.834	Horizontal	15.12
14.72 GHz	59.64	74.0	-14.36	307	4	Horizontal	14.90

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.31 GHz	50.83	54.0	-3.17	103	3.798	Vertical	11.38
12.45 GHz	44.38	54.0	-9.62	48	3.802	Vertical	13.50
14.67 GHz	45.49	54.0	-8.51	1	1.833	Vertical	14.70
14.76 GHz	45.17	54.0	-8.83	243	4	Vertical	14.33
10.31 GHz	49.09	54.0	-4.91	18	3.802	Horizontal	11.38
12.41 GHz	44.47	54.0	-9.53	341	3.798	Horizontal	13.65
12.50 GHz	44.02	54.0	-9.98	104	3.307	Horizontal	13.31
14.70 GHz	45.23	54.0	-8.77	139	1.834	Horizontal	15.12
14.72 GHz	45.48	54.0	-8.52	307	4	Horizontal	14.90

Table 7: Radiated Emissions 1 – 17 GHz at the Middle Frequency

Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.31 GHz	59.88	74.0	-14.12	87	1.638	Vertical	11.38
12.38 GHz	58.19	74.0	-15.81	119	1.643	Vertical	13.87
12.49 GHz	57.35	74.0	-16.65	254	2.65	Vertical	13.32
14.17 GHz	64.89	74.0	-9.11	253	3.15	Vertical	11.63
7.10 GHz	48.54	74.0	-25.46	110	3.802	Horizontal	-3.36
10.31 GHz	60.29	74.0	-13.71	19	3.311	Horizontal	11.38
12.41 GHz	57.95	74.0	-16.05	191	3.798	Horizontal	13.66
12.42 GHz	57.26	74.0	-16.74	51	3.307	Horizontal	13.61
14.17 GHz	61.92	74.0	-12.08	284	3.798	Horizontal	11.63

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.31 GHz	49.78	54.0	-4.22	87	1.638	Vertical	11.38
12.38 GHz	45.11	54.0	-8.89	119	1.643	Vertical	13.87
12.49 GHz	43.90	54.0	-10.10	254	2.65	Vertical	13.32
14.17 GHz	51.35	54.0	-2.65	253	3.15	Vertical	11.63
7.10 GHz	33.81	54.0	-20.19	110	3.802	Horizontal	-3.36
10.31 GHz	51.02	54.0	-2.98	19	3.311	Horizontal	11.38
12.41 GHz	44.44	54.0	-9.56	191	3.798	Horizontal	13.66
12.42 GHz	44.31	54.0	-9.69	51	3.307	Horizontal	13.61
14.17 GHz	48.39	54.0	-5.61	284	3.798	Horizontal	11.63

Table 8: Radiated Emissions 1 – 17 GHz at the Highest Frequency

Peak

Frequency	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
36.16 GHz	56.56	74.0	-14.44	69	Vertical	10.08
36.74 GHz	56.39	74.0	-17.61	214	Vertical	9.14
36.78 GHz	56.09	74.0	-17.91	146	Vertical	9.25
38.85 GHz	57.79	74.0	-16.21	138	Vertical	8.43
35.60 GHz	56.19	74.0	-17.81	306	Horizontal	9.13
36.76 GHz	56.41	74.0	-17.59	1	Horizontal	9.20
39.54 GHz	59.80	74.0	-14.20	153	Horizontal	9.18

Avg

Frequency	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
36.16 GHz	37.41	54.0	-16.59	69	Vertical	10.08
36.74 GHz	36.42	54.0	-17.58	214	Vertical	9.14
36.78 GHz	36.92	54.0	-17.08	146	Vertical	9.25
38.85 GHz	37.22	54.0	-16.78	138	Vertical	8.43
35.60 GHz	37.22	54.0	-16.78	306	Horizontal	9.13
36.76 GHz	36.82	54.0	-14.18	1	Horizontal	9.20
39.54 GHz	37.26	54.0	-16.74	153	Horizontal	9.18

Table 9: Radiated Emissions 17 – 40 GHz at the Lowest Frequency (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 662911 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 5 dBm EIRP in any 1 MHz band during any time interval of continuous transmission.

See Section 2.2 of this report for the directional gain calculation.

Results of this testing are summarized.

Nss>1

Modulation (BW)	Freq. (MHz)	Data Rate	TP Setting	Total Sum PSD EIRP (dBm)	Antenna Gain (dBi)	Limit (dBm)	Margin (dBm)
EHT 20	6535	Mcs0_Nss2	9	-3.41	8	-3	-0.41
EHT 20	6695	Mcs0_Nss2	9	-3.22	8	-3	-0.22
EHT 20	6875	Mcs0_Nss2	8	-3.10	8	-3	-0.10
EHT 40	6525	Mcs0_Nss2	12	-3.52	8	-3	-0.52
EHT 40	6685	Mcs0_Nss2	12	-3.53	8	-3	-0.53
EHT 40	6885	Mcs0_Nss2	10	-4.02	8	-3	-1.02
EHT 80	6545	Mcs0_Nss2	14	-4.39	8	-3	-1.39
EHT 80	6705	Mcs0_Nss2	14	-3.92	8	-3	-0.92
EHT 80	6865	Mcs0_Nss2	13	-3.50	8	-3	-0.50
EHT 160	6505	Mcs0_Nss2	17	-3.60	8	-3	-0.60
EHT 160	6665	Mcs0_Nss2	17	-3.75	8	-3	-0.75
EHT 160	6825	Mcs0_Nss2	15	-3.49	8	-3	-0.49
EHT 320	6585	Mcs0_Nss2	21	-2.26	8	-3	-0.74

Nss=1

Modulation (BW)	Freq. (MHz)	Data Rate	TP Setting	Total Sum PSD EIRP (dBm)	Antenna Gain (dBi)	Limit (dBm)	Margin (dBm)
EHT 20	6535	Mcs0_Nss1	5	-8.33	8	-8.01	-0.32
EHT 20	6695	Mcs0_Nss1	5	-8.52	8	-8.01	-0.51
EHT 20	6875	Mcs0_Nss1	3	-8.53	8	-8.01	-0.52
EHT 40	6525	Mcs0_Nss1	8	-8.38	8	-8.01	-0.37
EHT 40	6685	Mcs0_Nss1	8	-8.67	8	-8.01	-0.66
EHT 40	6885	Mcs0_Nss1	7	-8.33	8	-8.01	-0.32
EHT 80	6545	Mcs0_Nss1	11	-8.29	8	-8.01	0.38
EHT 80	6705	Mcs0_Nss1	11	-8.05	8	-8.01	-0.04
EHT 80	6865	Mcs0_Nss1	9	-8.79	8	-8.01	-0.78
EHT 160	6505	Mcs0_Nss1	13	-8.68	8	-8.01	-0.67
EHT 160	6665	Mcs0_Nss1	13	-9.09	8	-8.01	-1.08
EHT 160	6825	Mcs0_Nss1	11	-8.79	8	-8.01	-0.78
EHT 320	6585	Mcs0_Nss1	16	-8.27	8	-8.01	-0.26

Result

The maximum average power spectral density was less than the limit of 5 dBm EIRP; therefore, the EUT complies with the specification.

5.7 §15.407(d) Contention Based Protocol

This product was tested and found to be compliant with the requirements of Contention-based Protocol as specified in FCC Part 15.407 and KDB 987594 D02.

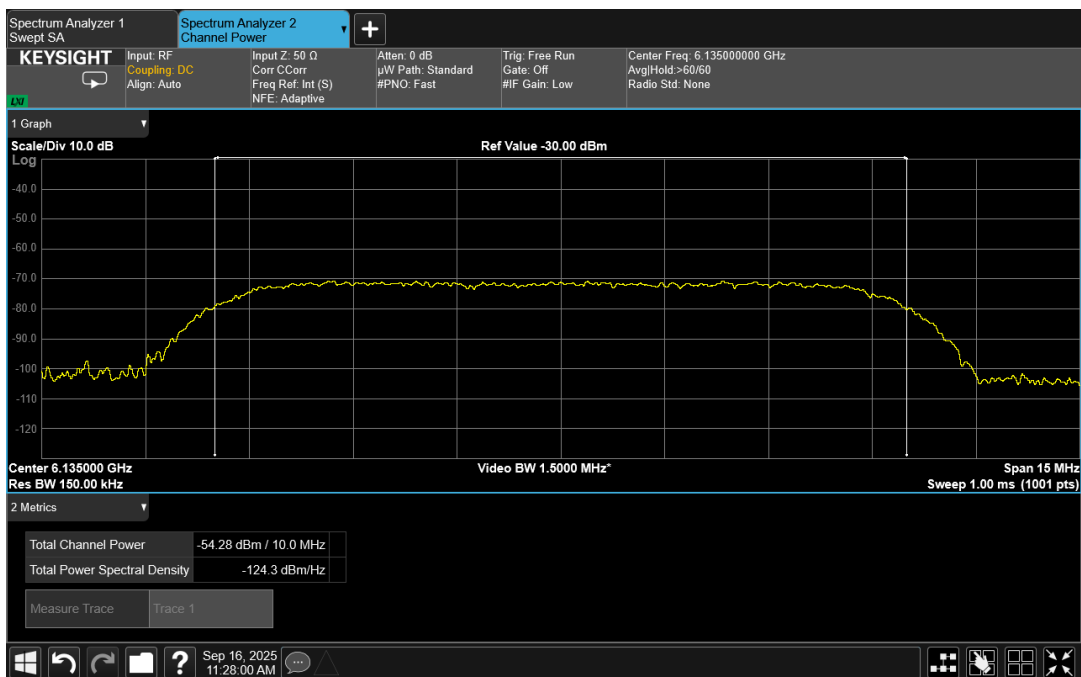
Initially the test setup was connected directly to the signal source with all splitters (splitters terminated with a 50-ohm loads on unused ports) and cables in place to verify the AWGN signal is 10MHz wide at a signal level of less than or equal to -62dBm and for conducted measurements the threshold was adjusted for an antenna gain of 8 dBi. The level at the signal generator required to achieve the required signal level at the DUT was recorded for use during testing.

The DUT was connected as shown in figure 4 above and set to transmit at a constant duty cycle at each frequency and bandwidth noted in the table below and verified to be communicating with the companion device as intended.

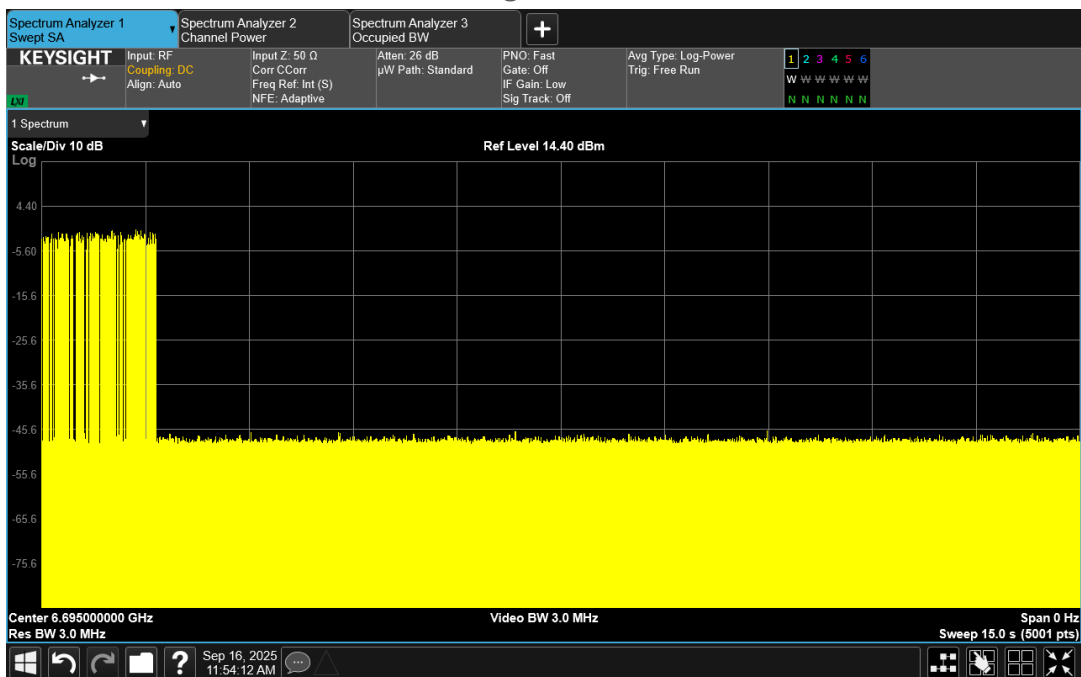
Starting at the levels established above, the AWGN signal was introduced to the DUT and increased to determine a threshold level at where the DUT will terminate with at least a 90% detection rate. The level at the DUT, which the 90% detection rate was achieved was recorded as the “Sensitivity Level” below.

Any measurement below the sensitivity level will result in the Tx minimal and any further measurement below the sensitivity level will result in Tx on.

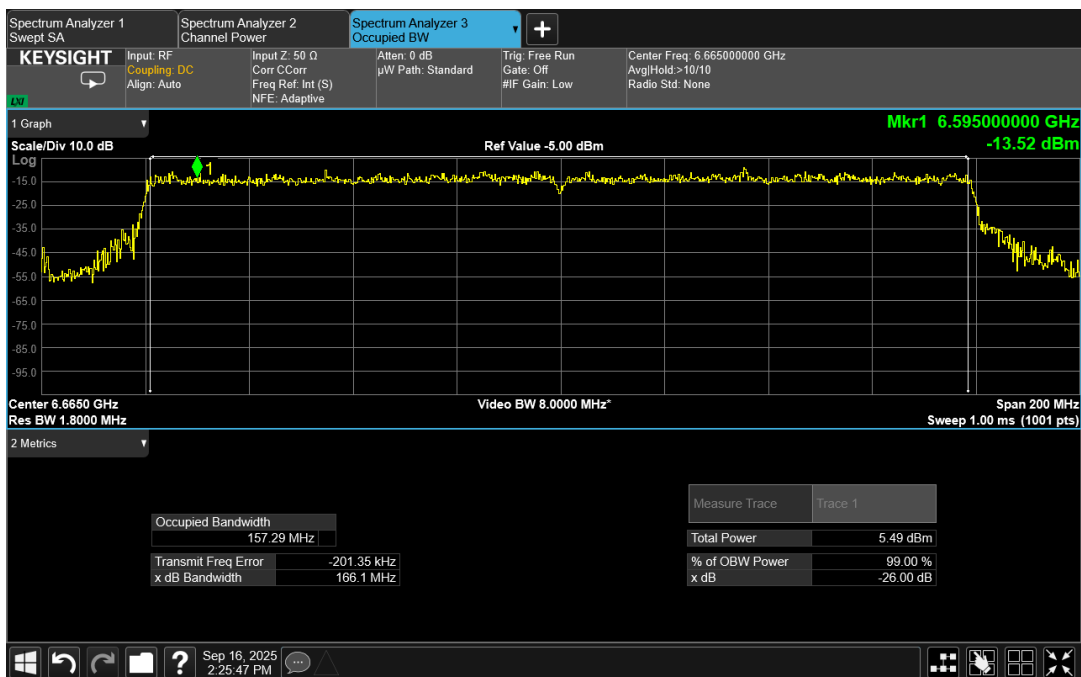
Testing shall be repeated at each applicable channel and bandwidth as noted in Table 1 of KDB 987594 D02.



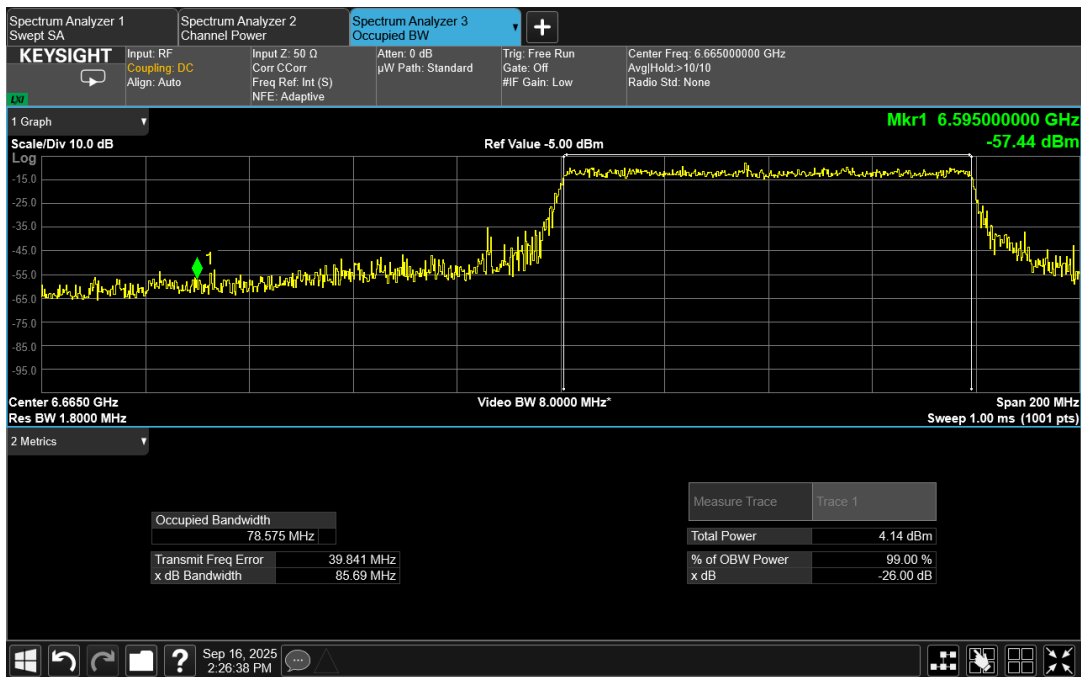
Plot 1: AWGN Signal BW/Power Details



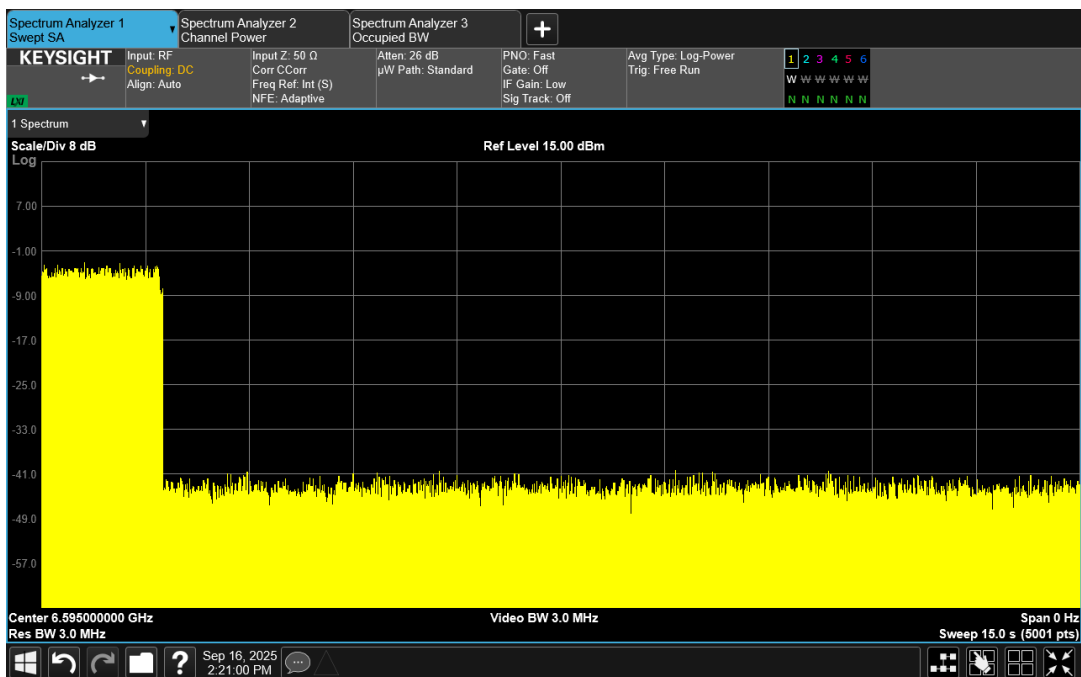
Plot 2: AWGN Signal Detection 20MHz



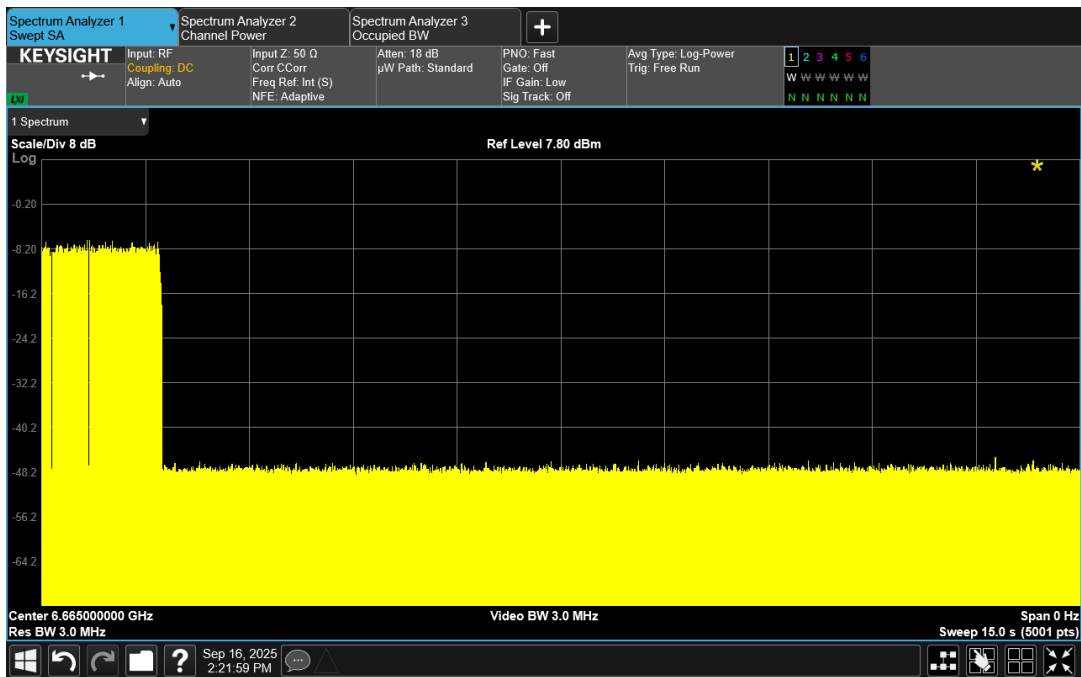
Plot 3: EUT 160MHz Bandwidth



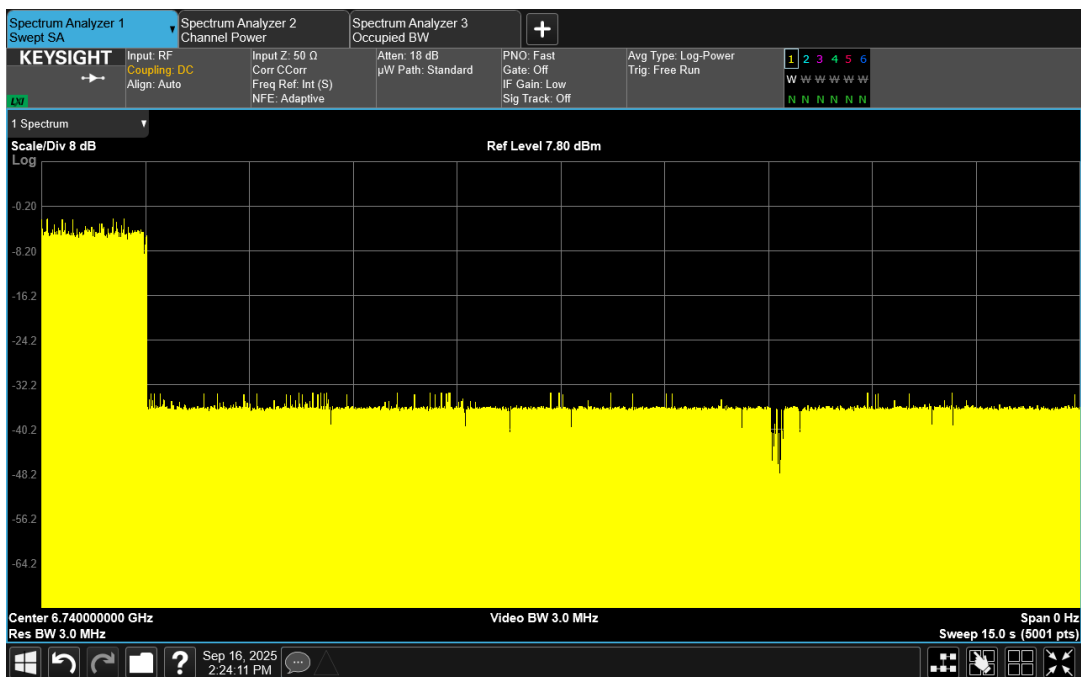
Plot 4: EUT 160MHz Bandwidth Reduction



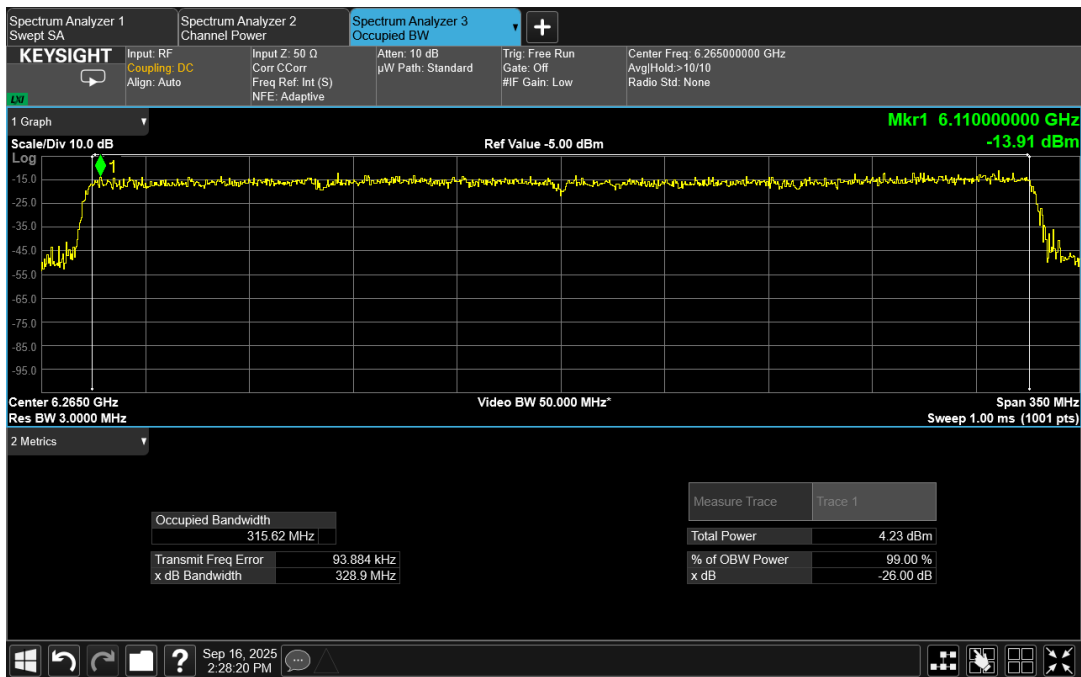
Plot 5: AWGN Signal Detection 160MHz



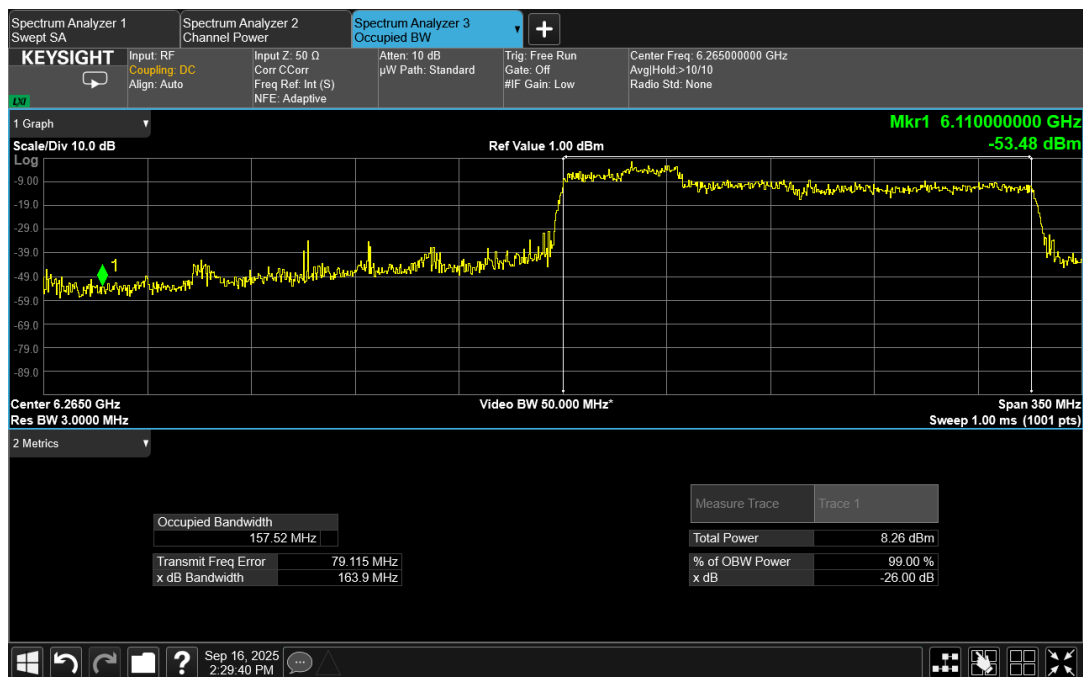
Plot 6: AWGN Signal Detection 160MHz



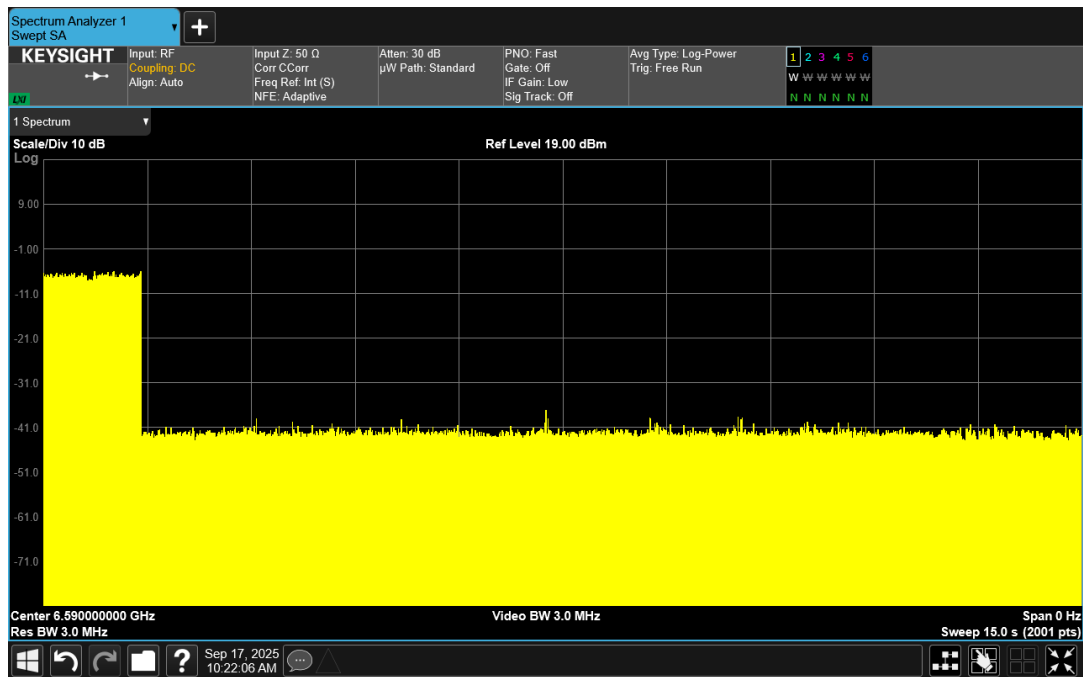
Plot 7: AWGN Signal Detection 160MHz



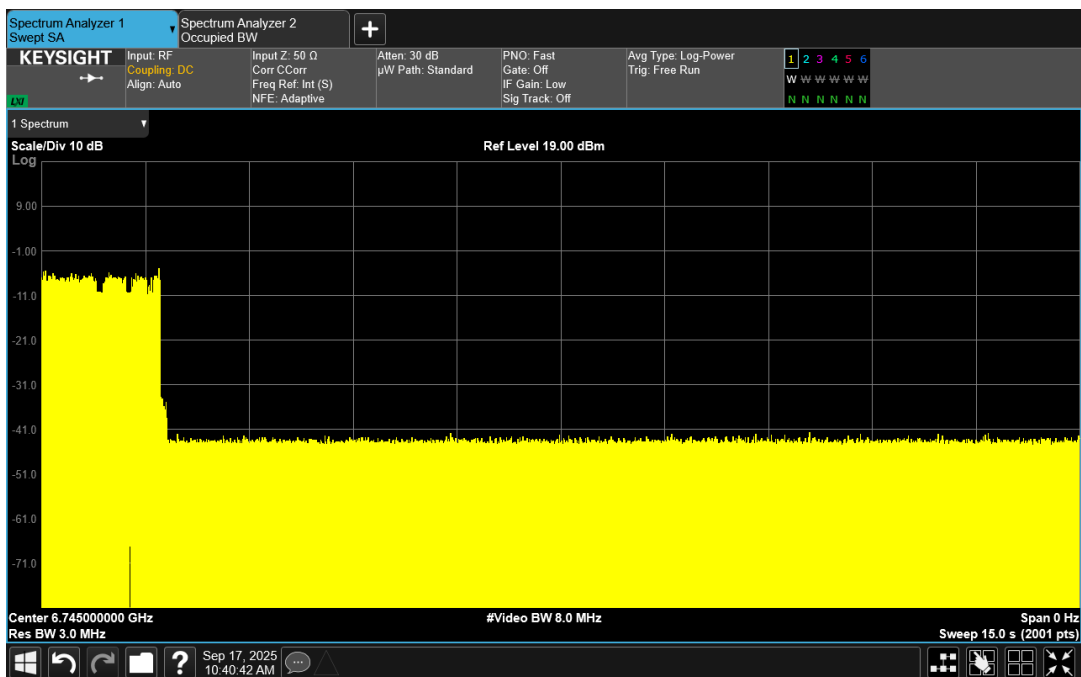
Plot 8: EUT 320MHz Bandwidth



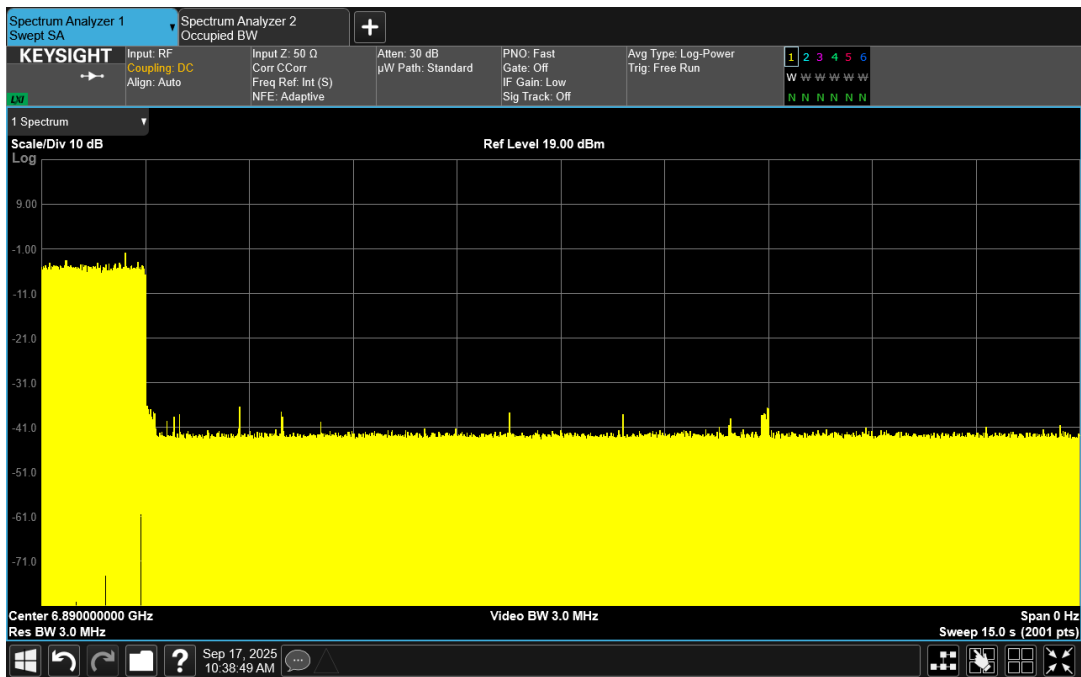
Plot 9: EUT 320MHz Bandwidth Reduction



Plot 10: AWGN Signal Detection 320MHz



Plot 11: AWGN Signal Detection 320MHz



Plot 12: AWGN Signal Detection 320MHz

Contention Based Protocol 987594 D02 U-NNI 6 GHz EMC Measurement

Band	BW _{EUT}	F _{c1}	F _{c2}	Reduce Tx AWGN Level (dBm)	Stop Tx AWGN Level (dBm)	Adjusted Power (dBm)	Limit (dBm)	Margin (dB)	Result Detection >90%
UNII-5 5.925 - 6.425 GHz	20	6135	6135	-51	-40	-58.2	-54	-4.2	Pass
	160	6185	6110	-44	-38	-56.2	-54	-2.2	Pass
			6185	-48	-46	-64.2	-54	-10.2	Pass
			6260	-48	-46	-64.2	-54	-10.2	Pass
	320	6265	6110	-46	-44	-62.2	-54	-8.2	Pass
			6265	-50	-46	-64.2	-54	-10.2	Pass
6410			-41	-38	-56.2	-54	-2.2	Pass	
UNII-6 6.425 - 6.525 GHz	20	6455	6455	-51	-43	-61.2	-54	-7.2	Pass
	160	6505	6430	-48	-39	-57.2	-54	-3.2	Pass
			6505	-51	-48	-66.2	-54	-12.2	Pass
			6580	-50	-48	-66.2	-54	-12.2	Pass
UNII-7 6.525 - 6.875 GHz	20	6695	6695	-51	-43	-61.2	-54	-7.2	Pass
	160	6665	6595	-45	-44	-62.2	-54	-8.2	Pass
			6665	-48	-46	-64.2	-54	-10.2	Pass
			6740	-46	-41	-59.2	-54	-5.2	Pass
	320	6745	6590	-56	-50	-68.2	-54	-14.2	Pass
			6745	-40	-36	-54.2	-54	-0.2	Pass
6890			-45	-41	-59.2	-54	-5.2	Pass	
UNII-8 6.875 - 7.125 GHz	20	7015	7015	-51	-44	-62.2	-54	-8.2	Pass
	160	6985	6910	-42	-37	-55.2	-54	-1.2	Pass
			6985	-44	-37	-55.2	-54	-1.2	Pass
			7060	-44	-37	-55.2	-54	-1.2	Pass

Antenna Gain (dBi)	8
Max Threshold Level (TL)	-54

Ports	Path Loss (dBm)
CH3,CH2	-18.2

AWGN BW (Clock)
24MHz

Table 10: Trial Table

CBP Path Loss is – 18.2 dB

Detection Level = Injected AWGN Power (dBm) – Antenna Gain (dBi) + Path Loss (dB)

Result

The EUT complies with the specification.

-- End of Test Report --