UNIFIED COMPLIANCE LABORATORY

427 West 12800 South
Draper, UT 84020

Test Report

Certification

FCC ID	SWX-UX7
ISED ID	6545A-UX7
Equipment Under Test	UX7
Test Report Serial Number	TR9546_02
Date of Tests	9 September, 14-21 November 2024
Report Issue Date	26 November 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

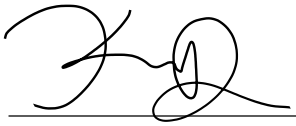
This report has been prepared by Unified Compliance Laboratory (UCL) to document compliance of the device described below with the requirement of Federal Communication Commissions (FCC) Part 15, Subpart E. This report may be reproduced in full. Partial reproduction of this report may only be made with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

Applicant	Ubiquiti Inc.
Manufacturer	Ubiquiti Inc.
Brand Name	UBIQUITI
Model Number	UX7
FCC ID	SWX-UX7
ISED ID	6545A-UX7

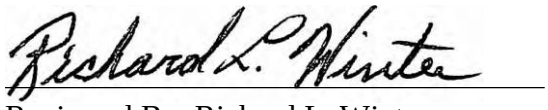
On this 27th day of November 2024, I individually and for Unified Compliance Laboratory certify that the statements made in this engineering report are true, complete and correct to the best of my knowledge and are made in good faith.

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: Kimberly DeBole



Reviewed By: Richard L. Winter

Revision History		
Revision	**Description**	**Date**
01	Original Report Release	26 November 2024
02	Amend FCC and IC ID	3 December 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	UX7
Serial Number	942A6F4226AE
Dimensions (cm)	11.7 x 11.7 x 4.3

2.2 Description of EUT

The UX7 is a WiFi 7 access point designed for wide-ranging wireless coverage while maintaining overall network capacity. The UX7 operates in the 2.4 GHz, 5 GHz, and 6 GHz range. The UX7 has a Bluetooth management radio for easy setup and administration of the wireless system. The UX7 is powered from a USB-C connector.

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 show the channels used within the different modulation bandwidths.

Band	Modulation Bandwidth	Frequency (MHz)	Maximum Power Setting
UNII-7	be (EHT20)	6535	TP9
		6695	TP10
		6875	TP9
	be (EHT40)	6525	TP13
		6685	TP13
		6885	TP12
	be (EHT80)	6545	TP15
		6705	TP16
		6865	TP15
	be (EHT160)	6505	TP18
		6665	TP19
		6825	TP19
	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: UX7 SN: 942A6F422528	Wireless Access Point	See Section 2.4
BN: UBIQUITI MN: GP-M015-QC SN: N/A	USB C Power Adapter	2 conductor power cord/80 cm
BN: Dell MN: XPS 13 SN: N/A	Laptop Personal Computer	LAN Port / Un-shielded Cat 5e cable (Note 2)

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

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

2.4 Interface Ports on EUT

Name of Ports	No. of Ports Fitted to EUT	Cable Description/Length
AC / USB-C	1	2 conductor power cord/80 cm
LAN	1	Un-shielded Cat 5e cable/5 meter
WAN	1	Un-shielded Cat 5e cable/5 meter

2.5 Operating Environment

Power Supply	120 Volts AC Mains to USB-C Power
AC Mains Frequency	50 Hz
Temperature	21.8 – 23.5 °C
Humidity	25.7 – 41.5 %
Barometric Pressure	1019 mBar

2.6 Operating Modes

The UX7 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 802.11be were investigated.

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

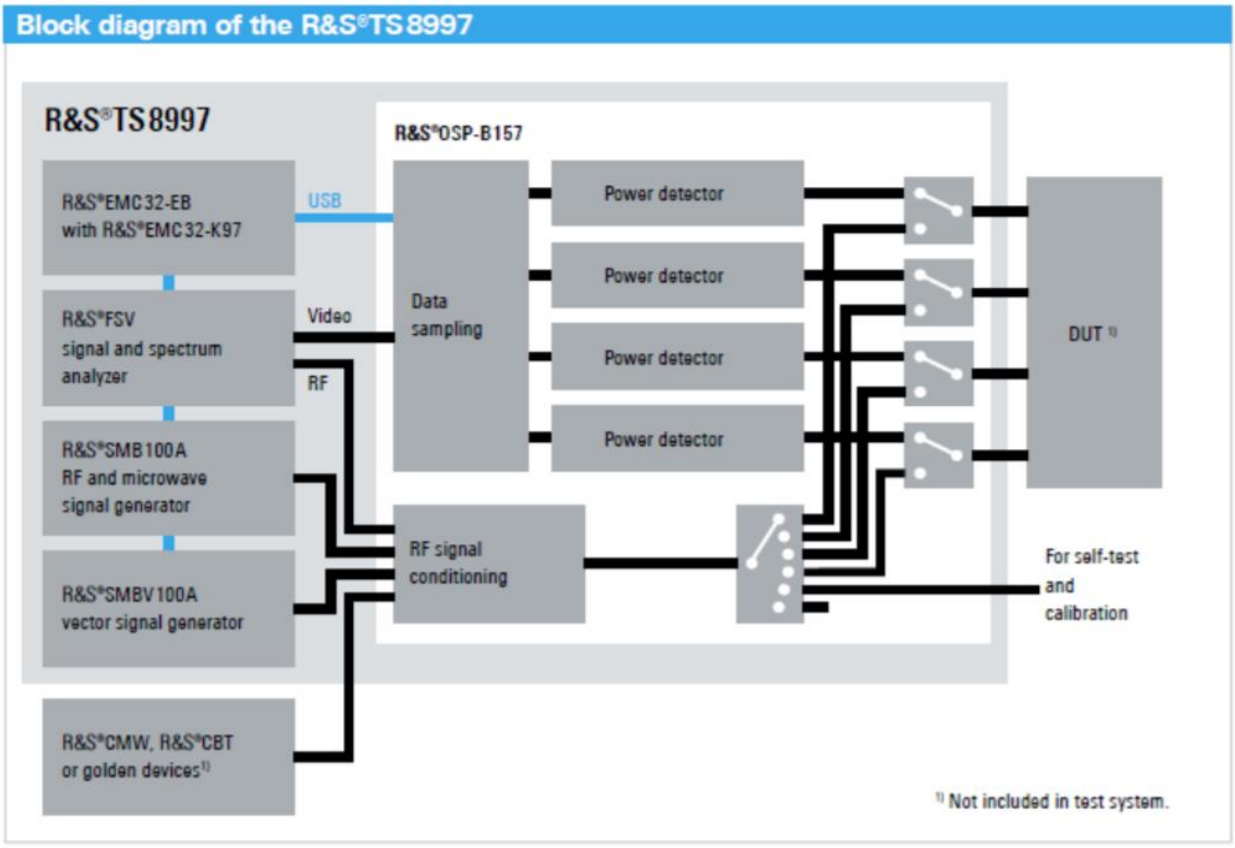


Diagram 1: Test Configuration Block Diagram

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(c)	RSS-247 §6.2.2, §6.2.3	Bandwidth Requirement	6535 to 6885	Compliant
15.407(e)	RSS-247 §6.2.2, §6.2.3	Peak Output Power[1]	6535 to 6885	Compliant
15.407(f)	RSS-247 §6.2.2, §6.2.3	Antenna Conducted Spurious Emissions[1]	0.009 to 40000	N/A
15.407(g)	RSS-247 §6.2.2, §6.2.3	Radiated Spurious Emissions	0.009 to 40000	Compliant
15.407(h)	RSS-247 §6.2.2, §6.2.3	Peak Power Spectral Density[1]	6535 to 6885	Compliant
15.407(d)	RSS-247 §6.2.2, §6.2.3	Contention Based Protocol	6535 to 6885	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.

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 2025. 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 2025.

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	1/23/2024	2/26/2025
LISN	AFJ	LS16C/10	UCL-2512	7/08/2024	7/08/2025
ISN	Teseq	ISN T800	UCL-2974	7/09/2024	7/09/2025
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 1: List of equipment used for Conducted Emissions Testing at Mains Port

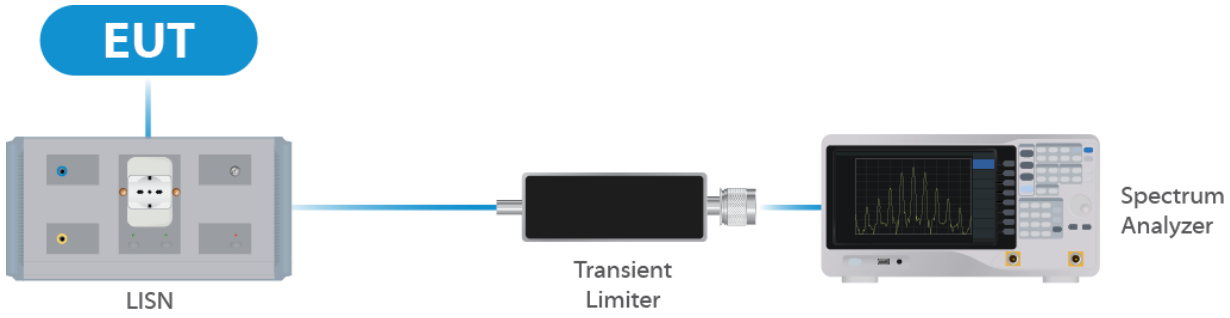


Figure 1: Conducted Emissions Test

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	11/27/2023	12/22/2024
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 2: List of equipment used for Direct Connect at the Antenna Port

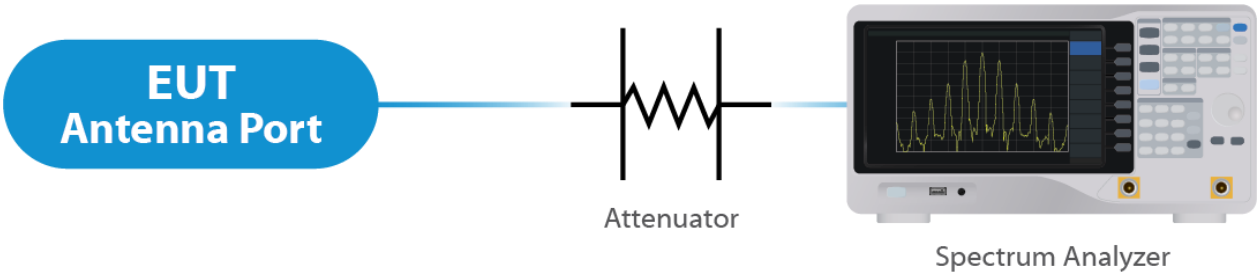


Figure 2: Direct Connect at the Antenna Port Test

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	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	3/10/2023	3/10/2025
Log Periodic	Scwarzbeck	STLP 9129	UCL-3068	1/27/2023	1/27/2025
15 - 40 GHz Horn Antenna	Scwarzbeck	BBHA 9170	UCL-2487	3/10/2023	3/10/2025
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 3: List of equipment used for Radiated Emissions

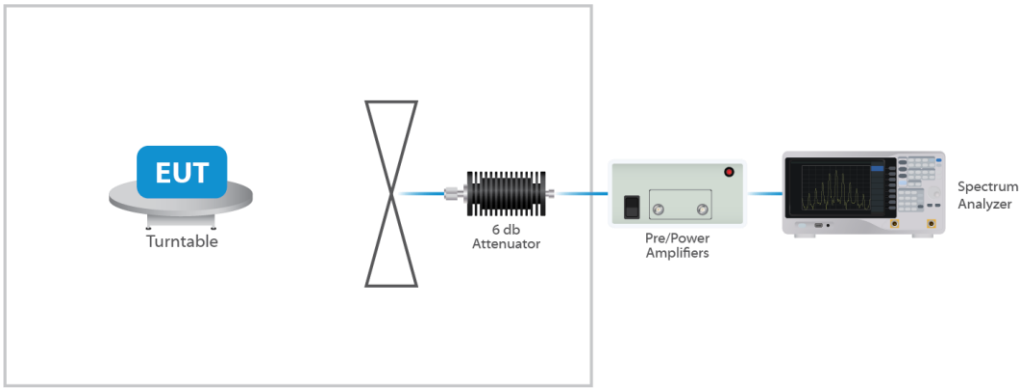


Figure 3: Radiated Emissions Test

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	5/3/2024	5/3/2025
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

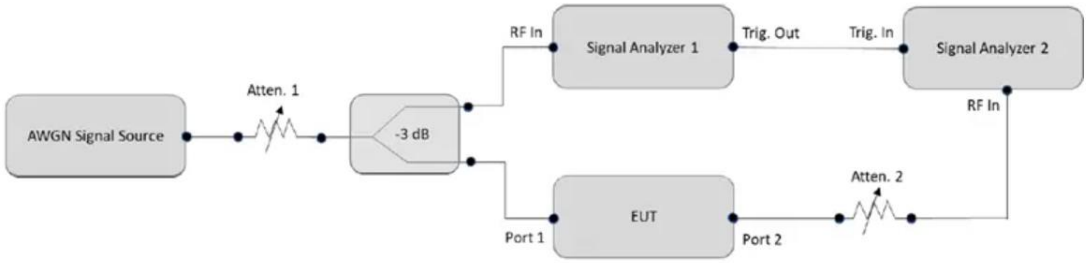


Figure 1. CBP conducted test setup diagram. Source: KDB 987594 D02 V01r01

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

5 Test Results

5.1 §15.203 Antenna Requirements

The EUT uses an integral antenna. Per the manufacturer, the Maximum gain of the antenna per chain is 6 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.

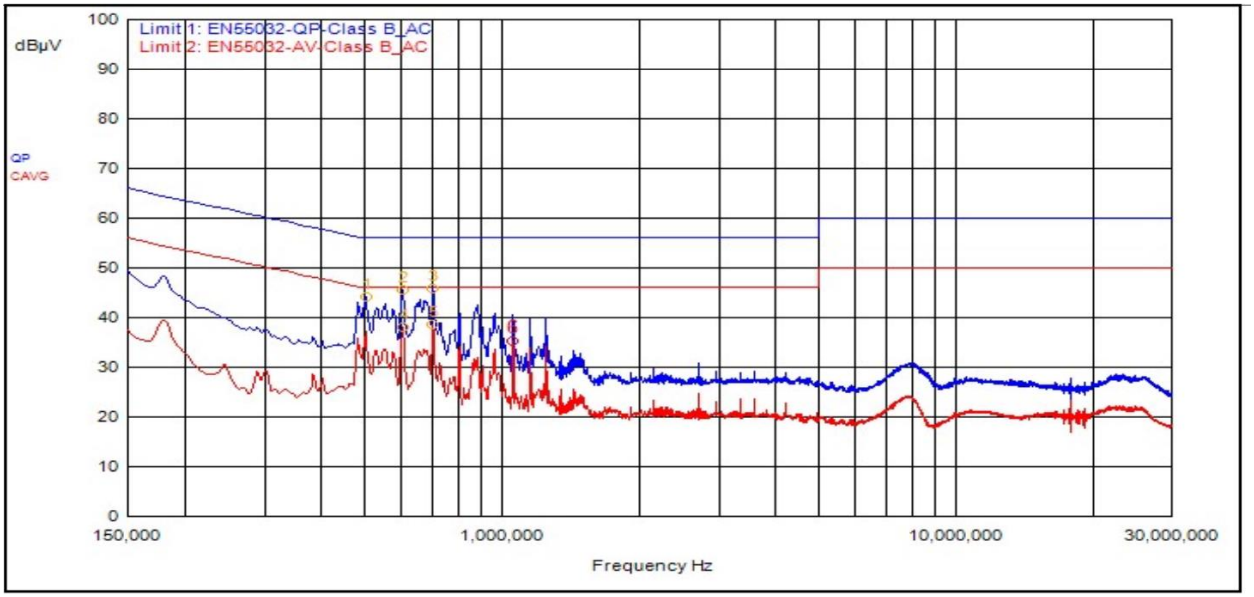
For power measurements on IEEE 802.11 devices, Array Gain = 0 dB for NANT ≤ 4;
For PSD measurements when Nss=1: Array Gain = 10 log(NANT/NSS) dB + Antenna Gain (dBi). Or 3.01 dB + 6 dBi = 9.01 dBi.

Results

The EUT complied with the specification

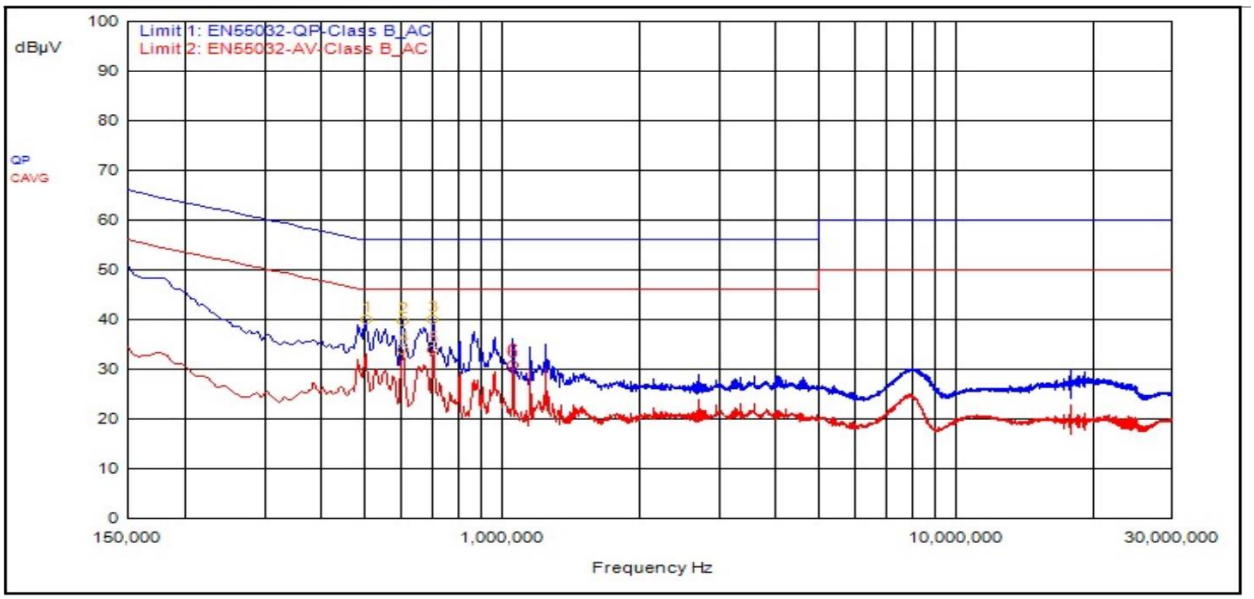
5.2 Conducted Emissions at Mains Ports Data

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
3	705,000kHz	9.50			QPeak	36.47	45.97	56.00	-10.03			
2	603,000kHz	9.50			QPeak	36.03	45.53	56.00	-10.47			
1	501,000kHz	9.49			QPeak	34.78	44.27	56.00	-11.73			
4	606,000kHz	9.50			C_AVG	28.49	37.99			46.00	-8.01	
5	705,000kHz	9.50			C_AVG	29.04	38.54			46.00	-7.46	
6	1.059	9.58			C_AVG	25.65	35.23			46.00	-10.77	

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	501,000kHz	9.64			QPeak	30.41	40.05	56.00	-15.95			
3	705,000kHz	9.54			QPeak	30.33	39.87	56.00	-16.13			
2	603,000kHz	9.59			QPeak	30.02	39.61	56.00	-16.39			
4	606,000kHz	9.59			C_AVG	24.26	33.85			46.00	-12.15	
5	705,000kHz	9.54			C_AVG	24.44	33.98			46.00	-12.02	
6	1.059	9.56			C_AVG	21.14	30.70			46.00	-15.30	

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 662911 D01. Please see associated annex for details on instrument settings.

Nominal BW (MHz)	Frequency (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)
20	6535	19.25	23.80
20	6695	19.50	22.80
20	6875	19.2	22.90
40	6525	38.50	42.93
40	6685	38.50	43.53
40	6885	38.50	42.93
80	6545	79.00	86.00
80	6705	79.00	86.50
80	6865	79.00	91.50
160	6505	159.25	169.00
160	6665	159.25	174.00
160	6825	159.25	172.00
320	6585	325.00	340.23

Result

All chains were tested and the highest bandwidth per chain is reported above.
The 26 dB bandwidths are reported for information purposes. 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.

The maximum average RF conducted output power measured for this device was 22.66 dBm or 184.50 mW. The limit is 30 dBm EIRP, or 1 Watt EIRP. The antenna has a gain of 6 dBi.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power	EIRP	Measured PSD
EHT20	6535	Mcs0_Nss2	9.00	11.32	17.32	-2.04
EHT20	6695	Mcs0_Nss2	10.00	10.73	16.73	-2.12
EHT20	6875	Mcs0_Nss2	9.00	11.51	17.51	-1.53
EHT40	6525	Mcs0_Nss2	13.00	15.13	21.13	-1.09
EHT40	6685	Mcs0_Nss2	13.00	14.07	20.07	-1.93
EHT40	6885	Mcs0_Nss2	12.00	14.47	20.47	-1.52
EHT80	6545	Mcs0_Nss2	15.00	17.30	23.30	-1.88
EHT80	6705	Mcs0_Nss2	16.00	17.17	23.17	-1.65
EHT80	6865	Mcs0_Nss2	15.00	17.65	23.65	-1.55
EHT160	6505	Mcs0_Nss2	18.00	20.25	26.25	-1.81
EHT160	6665	Mcs0_Nss2	19.00	20.11	26.11	-1.40
EHT160	6825	Mcs0_Nss2	18.00	20.40	26.40	-1.37
EHT320	6585	Mcs0_Nss2	21.00	22.66	28.66	-2.02

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power	EIRP	Measured PSD
EHT20	6535	Mcs0_Nss1	6	8.13	14.13	-5.08
EHT20	6695	Mcs0_Nss1	7	7.80	13.80	-4.99
EHT20	6875	Mcs0_Nss1	6	8.28	14.28	-4.66
EHT40	6525	Mcs0_Nss1	9	11.00	17.00	-5.08
EHT40	6685	Mcs0_Nss1	10	10.73	16.73	-5.18
EHT40	6885	Mcs0_Nss1	9	11.46	17.46	-4.47
EHT80	6545	Mcs0_Nss1	12	14.07	20.07	-4.94
EHT80	6705	Mcs0_Nss1	13	14.27	20.27	-4.26
EHT80	6865	Mcs0_Nss1	12	14.55	20.55	-4.52
EHT160	6505	Mcs0_Nss1	15	17.30	23.30	-4.49
EHT160	6665	Mcs0_Nss1	16	17.41	23.41	-4.16
EHT160	6825	Mcs0_Nss1	15	17.57	23.57	-4.17
EHT320	6585	Mcs0_Nss1	18	19.94	25.94	-4.59

Result

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

5.5 §15.407(b)(7) 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 6 dBi accounted for. These demonstrate compliance with the provisions of this section at the band edges.

The emissions must be remain below -27 dBm EIRP.

Result

Conducted spurious emissions were attenuated below the limit; therefore, the EUT complies with the specification.

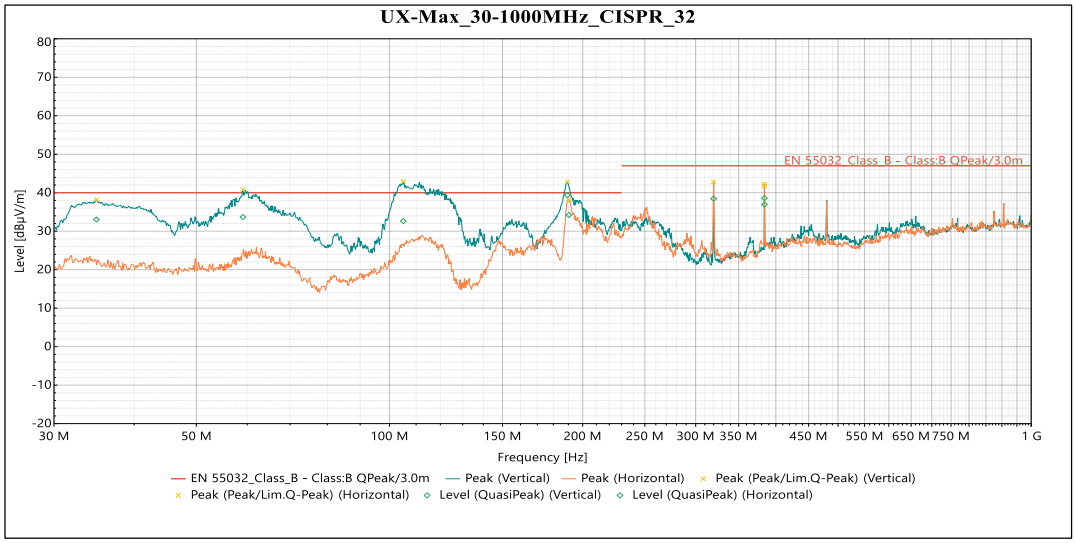
5.5.2 Radiated Spurious Emissions in the Restricted Bands of § 15.205

The EUT uses various power settings based on the channel in use. In order to redure 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.

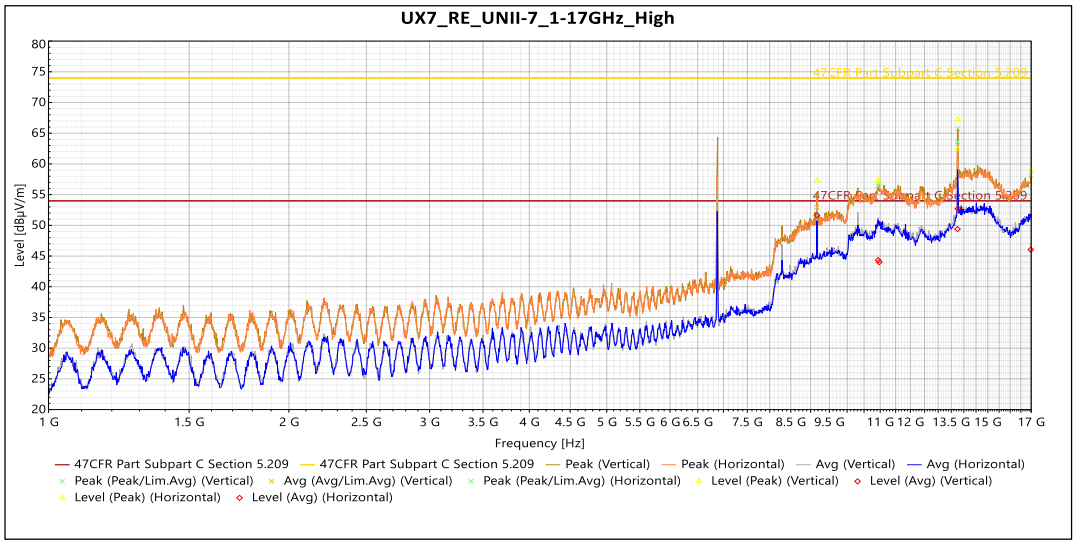
Result

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.



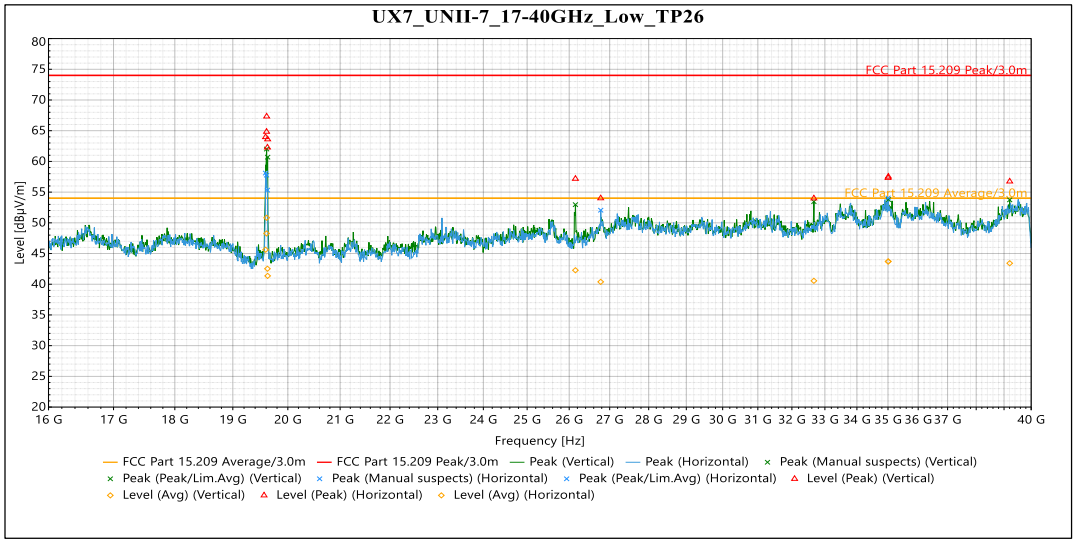
Frequency	SR #	Level (dBµV/m)	Limit (dBµV/m)	Margin	Azimuth (°)	Height	Pol.	RBW (Hz)	Correction (dB)
34.945975 MHz	QP	33.027	40	-6.973	200	1	Vertical	120 kHz	-10.415
59.11511 MHz	QP	33.683	40	-6.317	349	1.13	Vertical	120 kHz	-8.763
105.073162 MHz	QP	32.625	40	-7.375	166	1.13	Vertical	120 kHz	-8.953
189.288564 MHz	QP	39.353	40	-0.647	168	1.13	Vertical	120 kHz	-9.976
383.934924 MHz	QP	38.59	47	-8.41	151	1.13	Vertical	120 kHz	-4.861
190.368388 MHz	QP	34.215	40	-5.785	288	1.35	Horizontal	120 kHz	-9.777
320.023216 MHz	QP	38.442	47	-8.558	109	1.13	Horizontal	120 kHz	-6.691
384.019152 MHz	QP	36.961	47	-10.039	351	2.14	Horizontal	120 kHz	-4.857

Table 5: Radiated Emissions within 30MHz-1GHz



Frequency	SR #	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
9.1666043 GHz	Peak	57.271	74	-16.729	359	3.175	Vertical	5.037
10.9699262 GHz	Peak	57.102	74	-16.898	302	3.738	Vertical	11.708
13.7619248 GHz	Peak	67.248	74	-6.752	41	3.737	Vertical	13.47
9.1666043 GHz	Avg	51.644	54	-2.356	359	3.175	Vertical	5.037
10.9699262 GHz	Avg	44.007	54	-9.993	302	3.738	Vertical	11.708
13.7619248 GHz	Avg	52.691	54	-1.309	41	3.737	Vertical	13.47
10.9350149 GHz	Peak	57.296	74	-16.704	305	1.702	Horizontal	12.131
13.7448828 GHz	Peak	62.461	74	-11.539	269	1.7	Horizontal	13.333
16.9809083 GHz	Peak	58.975	74	-15.025	268	1.703	Horizontal	15.21
10.9350149 GHz	Avg	44.332	54	-9.668	305	1.702	Horizontal	12.131
13.7448828 GHz	Avg	49.39	54	-4.61	269	1.7	Horizontal	13.333
16.9809083 GHz	Avg	46.037	54	-7.963	268	1.703	Horizontal	15.21

Table 6: Radiated Emissions within 1-17GHz



Frequency	SR #	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
19.6089653 GHz	Peak	67.317	74	-6.683	217	Vertical	-1.558
19.6273561 GHz	Peak	63.6	74	-10.4	217	Vertical	-1.598
26.1514695 GHz	Peak	57.178	74	-16.822	276	Vertical	0.809
32.663361 GHz	Peak	53.987	74	-20.013	268	Vertical	0.59
35.011189 GHz	Peak	57.524	74	-16.476	227	Vertical	5.054
39.2061157 GHz	Peak	56.737	74	-17.263	278	Vertical	3.016
19.6089653 GHz	Avg	50.82	54	-3.18	217	Vertical	-1.558
19.6273561 GHz	Avg	41.359	54	-12.641	217	Vertical	-1.598
26.1514695 GHz	Avg	42.278	54	-11.722	276	Vertical	0.809
32.663361 GHz	Avg	40.555	54	-13.445	268	Vertical	0.59
35.011189 GHz	Avg	43.713	54	-10.287	227	Vertical	5.054
39.2061157 GHz	Avg	43.419	54	-10.581	278	Vertical	3.016
19.5893665 GHz	Peak	63.961	74	-10.039	143	Horizontal	-1.514
19.6073939 GHz	Peak	64.833	74	-9.167	153	Horizontal	-1.554
19.6237064 GHz	Peak	62.272	74	-11.728	174	Horizontal	-1.59
26.7749631 GHz	Peak	54.003	74	-19.997	207	Horizontal	2.471
35.0035071 GHz	Peak	57.326	74	-16.674	260	Horizontal	5.1
19.5893665 GHz	Avg	45.621	54	-8.379	143	Horizontal	-1.514
19.6073939 GHz	Avg	48.274	54	-5.726	153	Horizontal	-1.554
19.6237064 GHz	Avg	42.524	54	-11.476	174	Horizontal	-1.59
26.7749631 GHz	Avg	40.386	54	-13.614	207	Horizontal	2.471
35.0035071 GHz	Avg	43.698	54	-10.302	260	Horizontal	5.1

Table 7: Radiated Emissions within 17-40GHz

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. As per KDB 662911, When the EUT is using spatial-multiplexing in EHT modes, there is not additional array gain to accommodate. When the EUT uses Nss=1 data rates, the antenna gain is 6 dBi + Array gain of 3.01 dB which is a total of 9.01 dBi.
Results of this testing are summarized.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power	Measured PSD
EHT20	6535	Mcs0_Nss2	9.00	11.32	-2.04
EHT20	6695	Mcs0_Nss2	10.00	10.73	-2.12
EHT20	6875	Mcs0_Nss2	9.00	11.51	-1.53
EHT40	6525	Mcs0_Nss2	13.00	15.13	-1.09
EHT40	6685	Mcs0_Nss2	13.00	14.07	-1.93
EHT40	6885	Mcs0_Nss2	12.00	14.47	-1.52
EHT80	6545	Mcs0_Nss2	15.00	17.30	-1.88
EHT80	6705	Mcs0_Nss2	16.00	17.17	-1.65
EHT80	6865	Mcs0_Nss2	15.00	17.65	-1.55
EHT160	6505	Mcs0_Nss2	18.00	20.25	-1.81
EHT160	6665	Mcs0_Nss2	19.00	20.11	-1.40
EHT160	6825	Mcs0_Nss2	18.00	20.40	-1.37
EHT320	6585	Mcs0_Nss2	21.00	22.66	-2.02

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power	Measured PSD
EHT20	6535	Mcs0_Nss1	6	8.13	-5.08
EHT20	6695	Mcs0_Nss1	7	7.80	-4.99
EHT20	6875	Mcs0_Nss1	6	8.28	-4.66
EHT40	6525	Mcs0_Nss1	9	11.00	-5.08
EHT40	6685	Mcs0_Nss1	10	10.73	-5.18
EHT40	6885	Mcs0_Nss1	9	11.46	-4.47
EHT80	6545	Mcs0_Nss1	12	14.07	-4.94
EHT80	6705	Mcs0_Nss1	13	14.27	-4.26
EHT80	6865	Mcs0_Nss1	12	14.55	-4.52
EHT160	6505	Mcs0_Nss1	15	17.30	-4.49
EHT160	6665	Mcs0_Nss1	16	17.41	-4.16
EHT160	6825	Mcs0_Nss1	15	17.57	-4.17
EHT320	6585	Mcs0_Nss1	18	19.94	-4.59

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

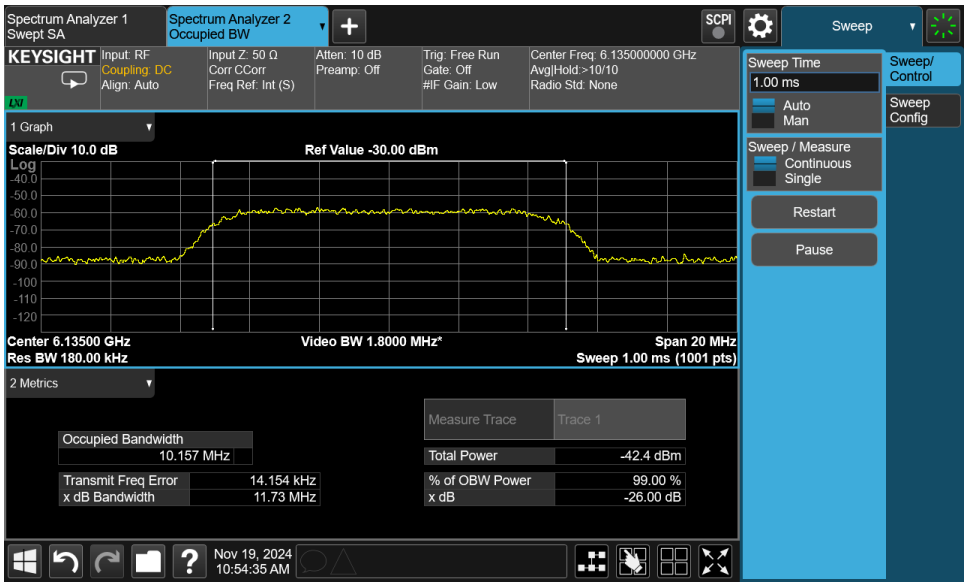
This product was tested and found to be compliant with the requirements of Contention-based Protocol as specified in FCC Part 15.407 and KDB 987594 D02.

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 6 dBi. The level at the signal generator required to achieve the required signal level at the DUT was recorded for use during testing.

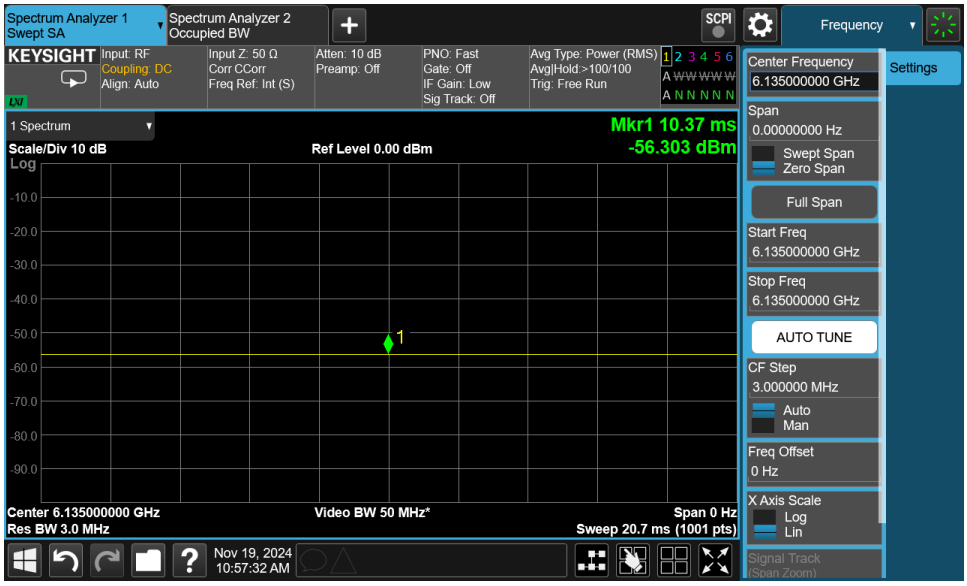
The DUT was connected as shown in figure 4 above and set to transmit at a constant duty cycle at each frequency and bandwidth noted in the table below and verified to be communicating with the companion device as intended.

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.

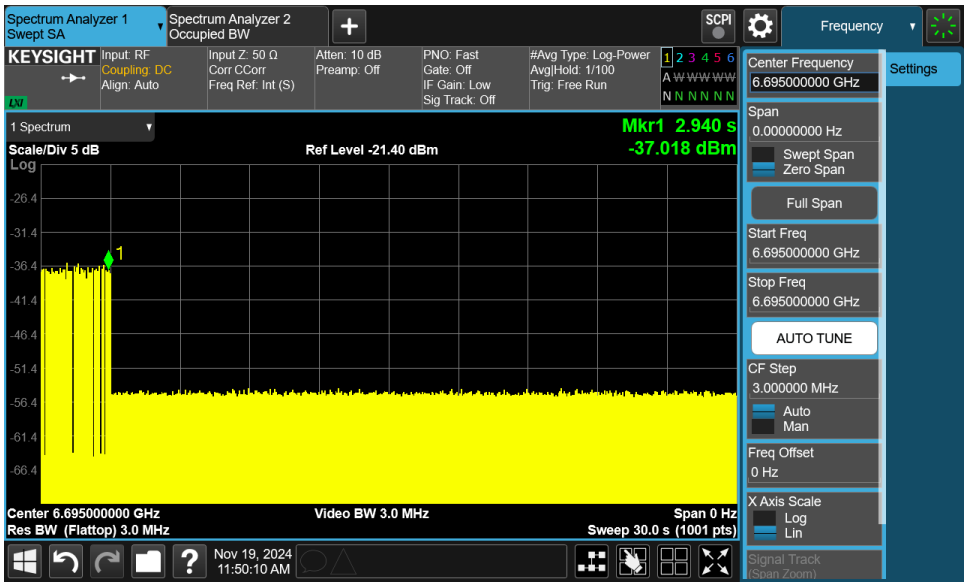
Testing shall be repeated at each applicable channel and bandwidth as noted in Table 1 of KDB 987594 D02.



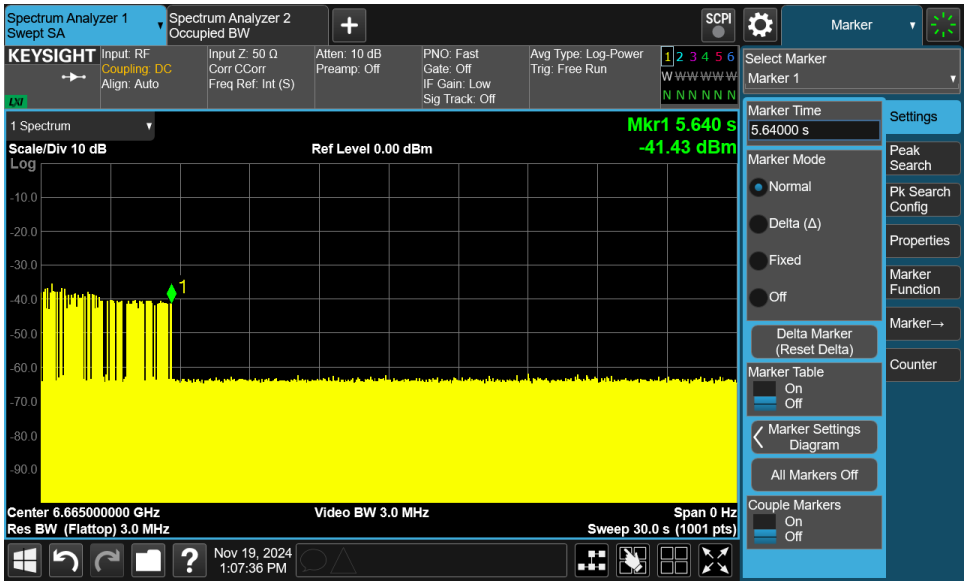
Plot 1: AWGN Signal BW Details



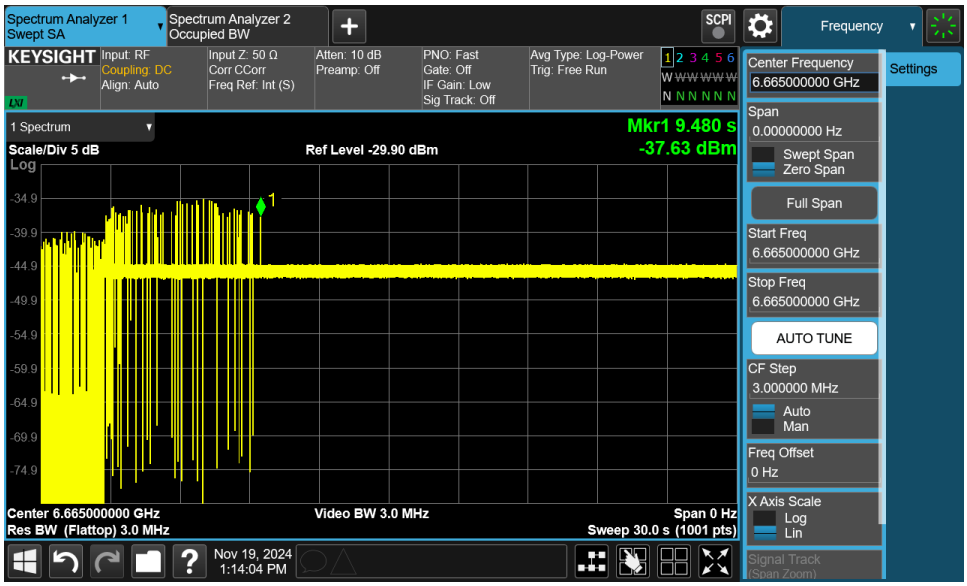
Plot 2: AWGN Signal Level Details



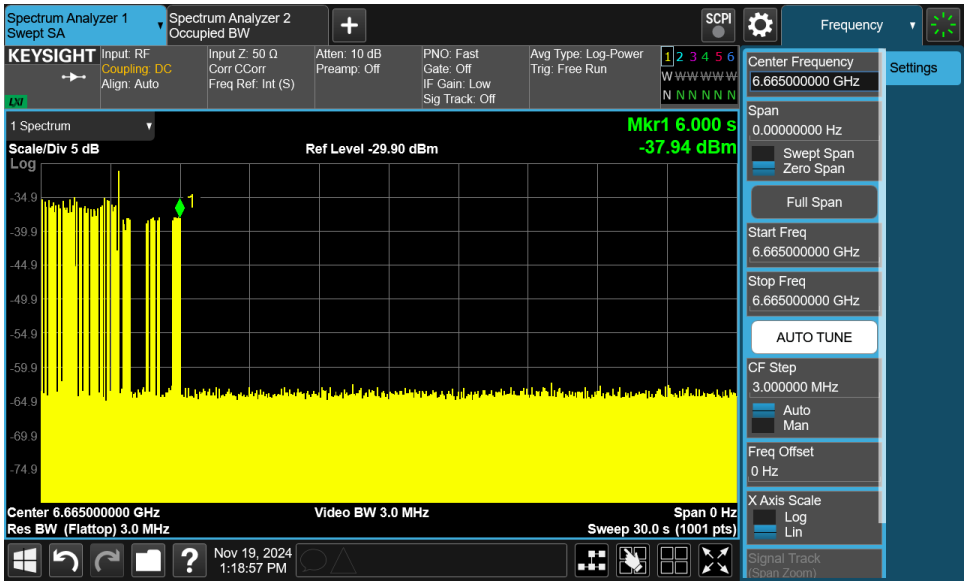
Plot 3: AWGN Signal Detection 20MHz



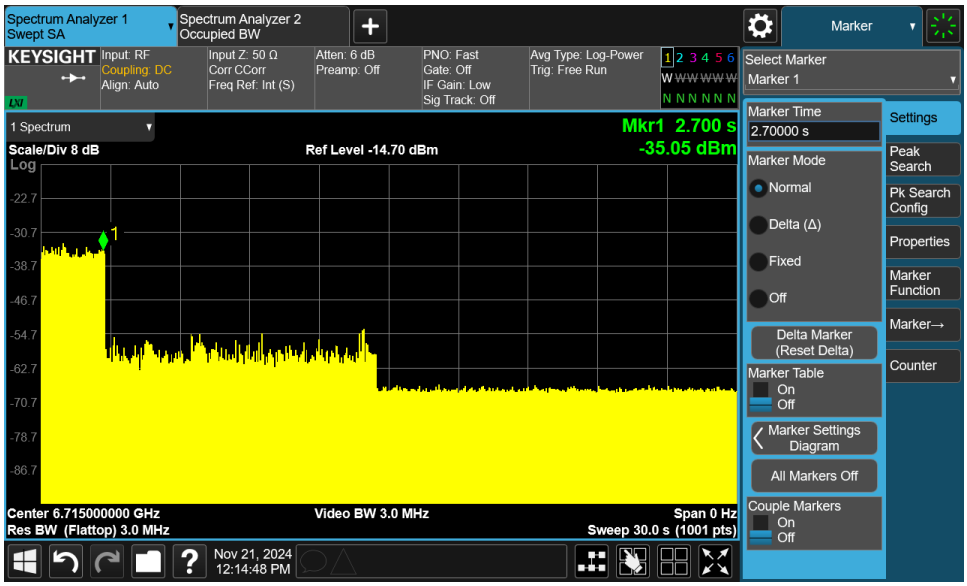
Plot 4: AWGN Signal Detection Lower Edge 160MHz



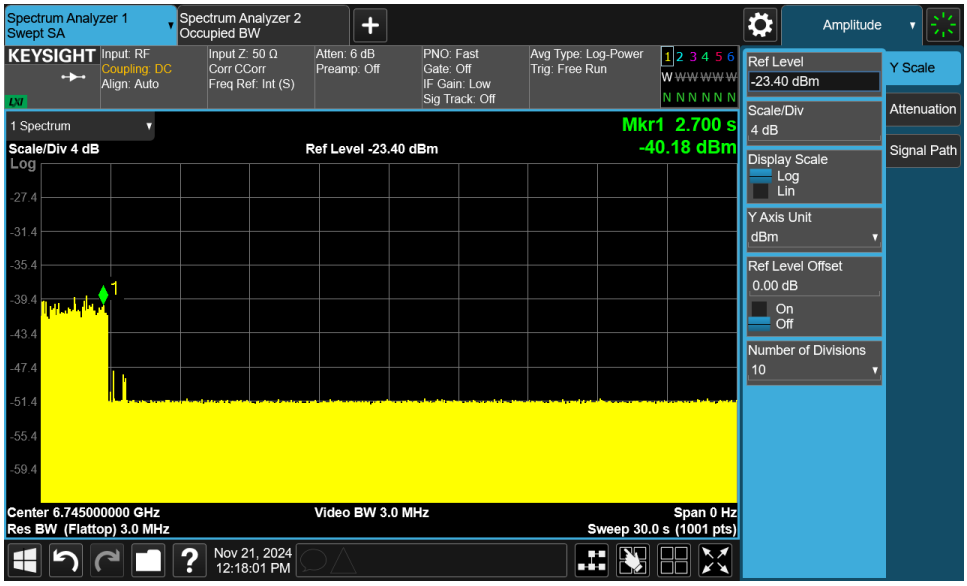
Plot 5: AWGN Signal Detection Center 160MHz



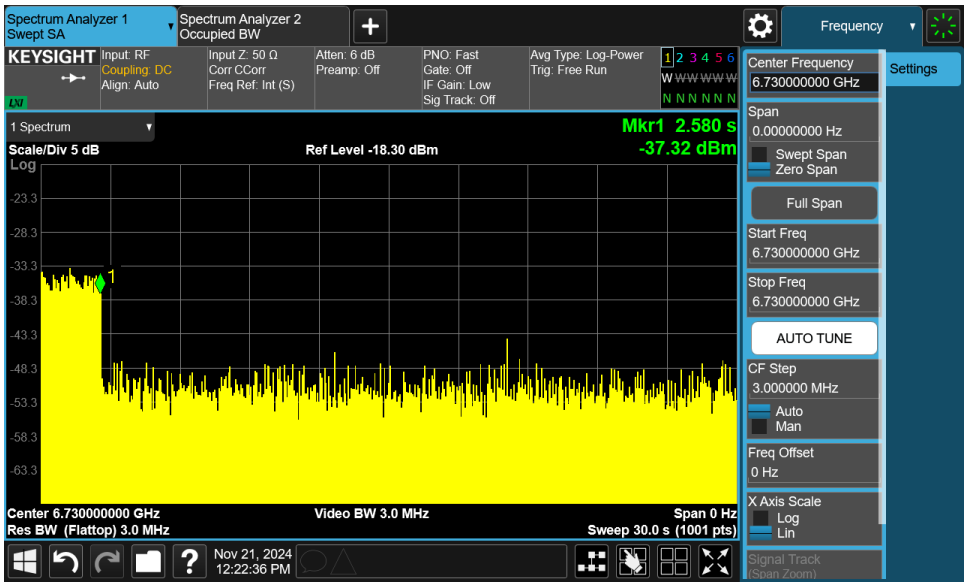
Plot 6: AWGN Signal Detection Upper Edge 160MHz



Plot 7: AWGN Signal Detection Lower Edge 320MHz



Plot 8: AWGN Signal Detection Center 320MHz



Plot 9: AWGN Signal Detection Upper Edge 320MHz

Contention Based Protocol 987594 D02 U-NNI 6 GHz EMC Measurement								
Band	BW_{EUT}	F_{c1}	F_{c2}	EU Tx Minimal (dBm)	AWGN Power (dBm)	Adjusted Power (dBm)	Limit (dBm)	Margin (dB)
UNII-5 5.925 - 6.425GHz	20	6135	6135	-38	-35	-70.9	-56	14.9
	160	6185	6110	-33	-30	-65.9	-56	9.9
			6185	-37	-35	-70.9	-56	14.9
			6260	-23	-21	-56.9	-56	0.9
	320	6105	5965	-24	-21.5	-57.4	-56	1.4
			6105	-35	-31	-66.9	-56	10.9
			6255	-23	-21	-56.9	-56	0.9
UNII-6 6.425 - 6.525GHz	20	6455	6455	-38	-36	-71.9	-56	15.9
	160	6505	6430	-22	-21	-56.9	-56	0.9
			6505	-22.5	-21	-56.9	-56	0.9
			6580	-35	-23	-58.9	-56	2.9
UN1I-7 6.525 - 6.875GHz	20	6695	6695	-38	-37	-72.9	-56	16.9
	160	6665	6595	-24	-23	-58.9	-56	2.9
			6665	-24	-21	-56.9	-56	0.9
			6740	-26	-24	-59.9	-56	3.9
	320	6745	6590	-35	-30	-65.9	-56	9.9
			6745	-35	-33	-68.9	-56	12.9
			6860	-35	-34	-69.9	-56	13.9
UNII-8 6.875 - 7.125GHz	20	7015	7015	-39	-34	-69.9	-56	13.9
	160	6985	6910	-25	-23	-58.9	-56	2.9
			6985	-22	-21	-56.9	-56	0.9
			7060	-35	-23	-58.9	-56	2.9

Min. Antenna Gain (dBi)	6
Max Threshold Level (TL)	-56

Ports	Path Loss (dB)
FJ3,FJ4	-35.9

AWGN Clock
23MHz

F_{c1} *EUT transmission center frequency*

F_{c2} *Incumbent signal center frequency*

Signal Power Level *Starts at TL-20dBm and increased until EUT trasmission stops*

Result

The EUT complies with the specification.

-- End of Test Report –