UNIFIED COMPLIANCE LABORATORY

427 West 12800 South
Draper, UT 84020

Test Report

Certification

FCC ID	SWX-U7PROXS
ISED ID	6545A-U7PROXS
Equipment Under Test	U7-Pro-XGS
Test Report Serial Number	TR9753_02
Date of Test(s)	19 – 20 December 2024; 10, 13 – 14 January; 5 February 2025
Report Issue Date	6 February 2025

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

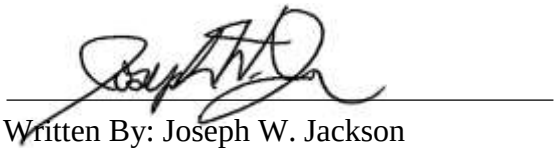
This report has been prepared by Unified Compliance Laboratory (UCL) to document compliance of the device described below with the requirement of Federal Communication Commissions (FCC) Part 15, Subpart E. This report may be reproduced in full. Partial reproduction of this report may only be made with 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	U7-Pro-XGS
FCC ID	SWX-U7PROXS
ISED ID	6545A-U7PROXS

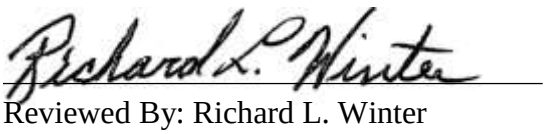
On this 6th day of February 2025, I individually and for Unified Compliance Laboratory certify that the statements made in this engineering report are true, complete, and correct to the best of my knowledge and are made in good faith. Unified Compliance laboratory is not responsible for incorrect information 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: Richard L. Winter

Revision History		
Revision	**Description**	**Date**
01	Original Report Release	6 February 2025
02	Amend FCC ID on Title Page	17 February 2025

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	U7-Pro-XGS
Serial Number	DA65B3
Dimensions (cm)	21.5 x 21.5 x 3.3

2.2 Description of EUT

The U7-Pro-XGS is a WiFi7 access point with 2.4 GHz, 6 GHz 2x2 and 5 GHz 4x4 transmitters. The U7-Pro-XGS has an aggregate throughput rate of 15.1 Gbps. The U7-Pro-XGS is powered by an 802.3at PoE power adapter.

This device does not support channel puncturing.

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-6	be (EHT20)	6435, 6455	TP8
		6475, 6495, 6515	TP10
	be (EHT40)	6445	TP11
		6485	TP13
	be (EHT80)	6465	TP15
	beEHT160)	6505	TP19

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: U7-Pro-XGS (Note 1) SN: DA65B3	Wireless Access Point	See Section 2.4

BN: UBIQUITI MN: U-POE-at SN: N/A	PoE Injector	PoE Output / Shielded Cat 5E/ unshielded Cat 5E to AE
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
PoE Input	1	7m Shielded Cat 5E
PoE Output (PoE Injector)	1	7m Shielded Cat 5E to U7-Pro-XGS PoE Input
LAN (PoE Injector)	1	unshielded Cat 5E to Laptop PC
AC (PoE Injector)	1	3 Conductor power cord to AC mains/80cm

2.5 Operating Environment

Power Supply	120 Volts AC to 48 Volts PoE
AC Mains Frequency	60 Hz
Temperature	21.2 – 23.2 °C
Humidity	21.2 – 27.8 %
Barometric Pressure	1015 mBar

2.6 Operating Modes

The U7-Pro-XGS 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. All measurements are reported with the worst-case mode (802.11be) 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

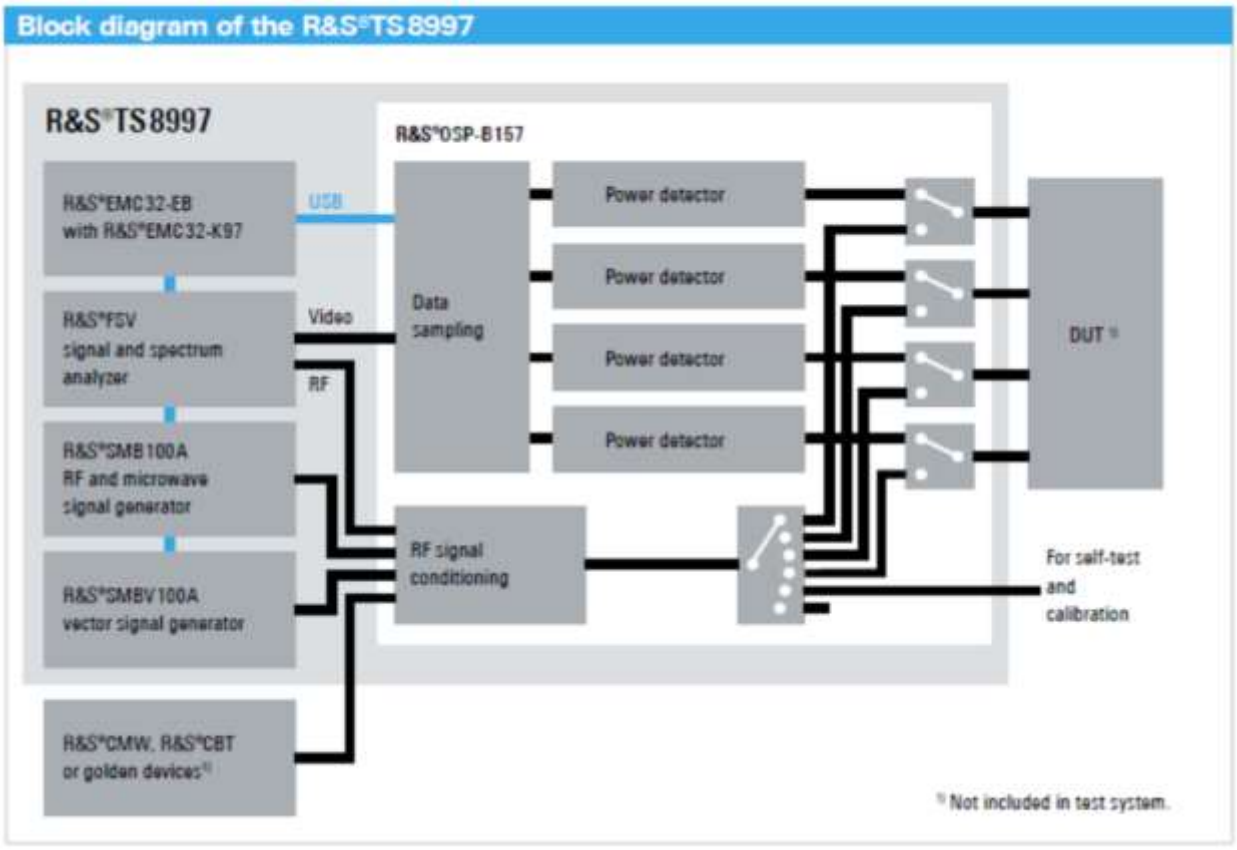


Diagram 1: Test Configuration Block Diagram

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(c)	RSS-247 §6.2.2, §6.2.3	Bandwidth Requirement	6435 to 6515	Compliant
15.407(e)	RSS-247 §6.2.2, §6.2.3	Peak Output Power[1]	6435 to 6515	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]	6435 to 6515	Compliant
15.407(d)	RSS-247 §6.2.2, §6.2.3	Contention Based Protocol	6435 to 6515	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 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 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-2500	8/27/2024	8/27/2025
LISN	AFJ	LS16C/10	UCL-2512	7/08/2024	7/08/2025
ISN	Teseq	ISN T800	UCL-2974	7/09/2024	7/09/2025
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

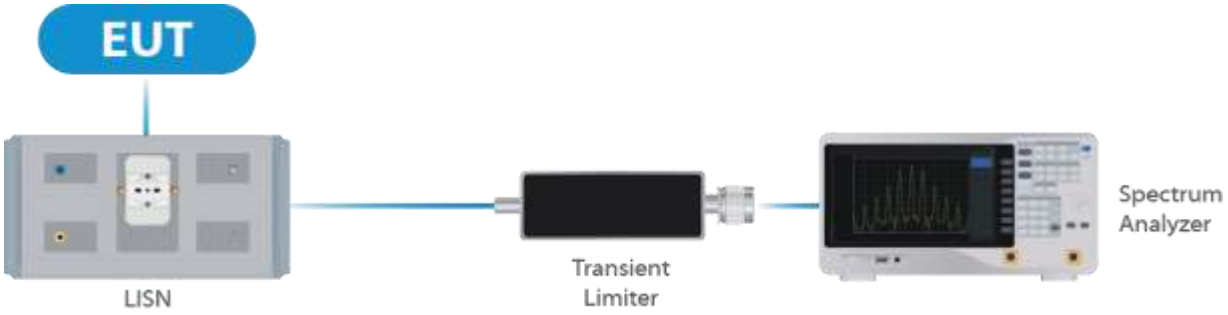


Figure 1: Conducted Emissions Test

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	4/12/2024	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

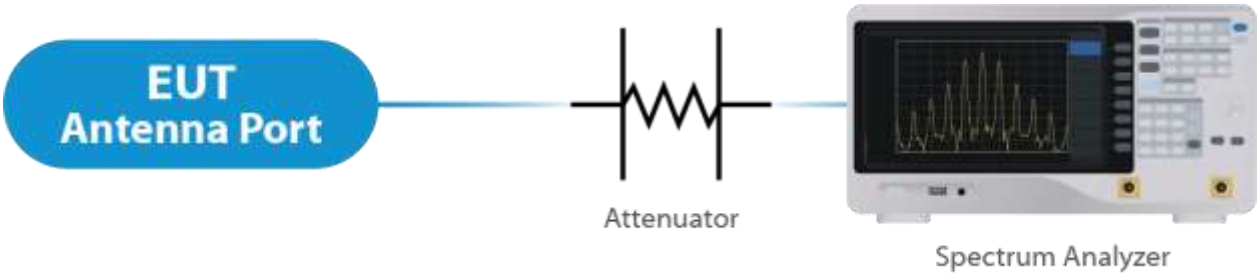


Figure 2: Direct Connect at the Antenna Port Test

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	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	Scwarzbeck	VULB 9163	UCL-3062	2/22/2023	2/22/2025
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

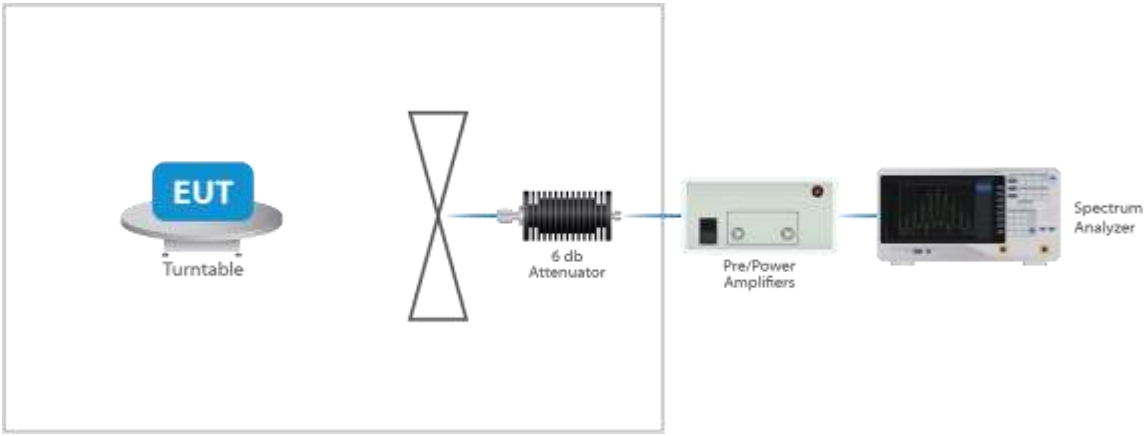


Figure 3: Radiated Emissions Test

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

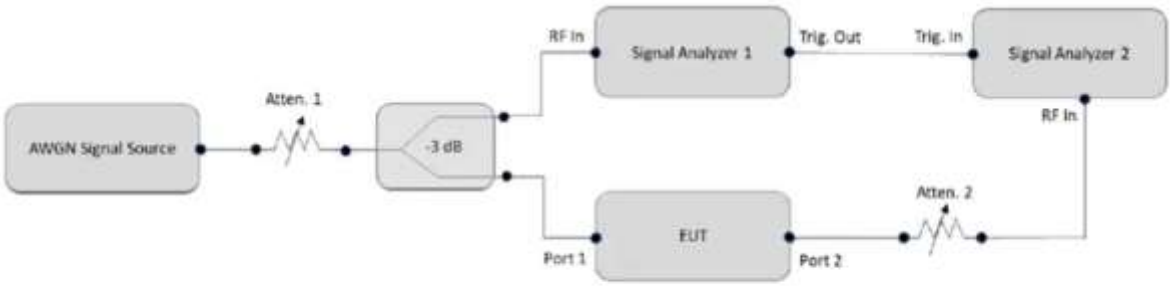


Figure 1. CBP conducted test setup diagram. Source: KDB 987594 D02 V01r01

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 internal integrated 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.

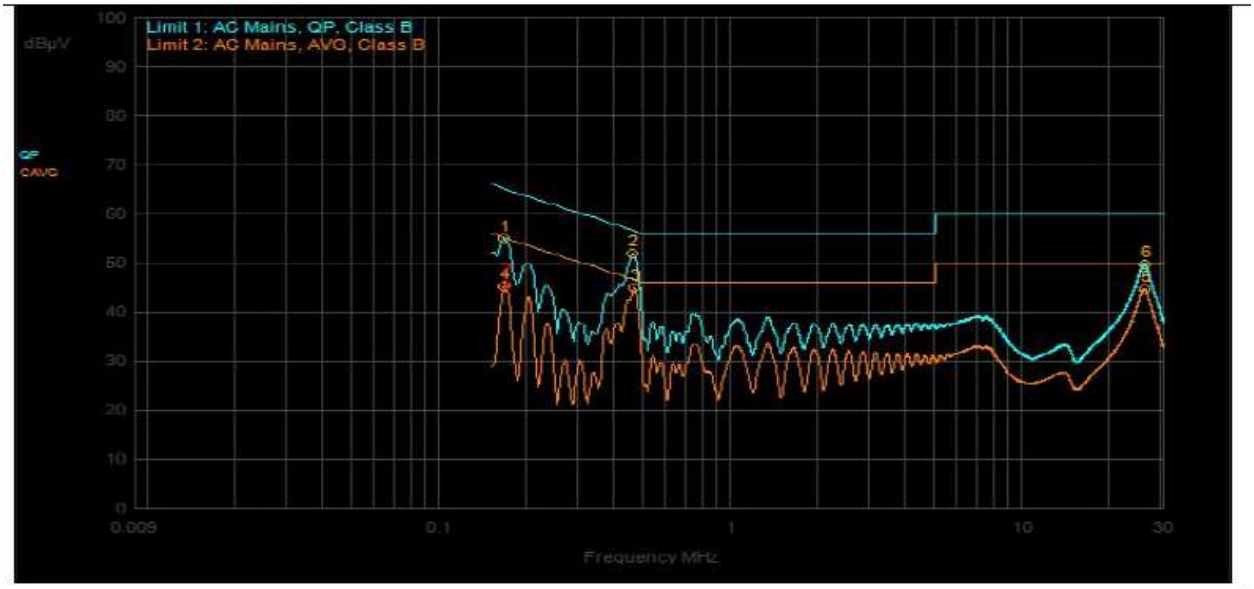
For power measurements on IEEE 802.11 devices, Array Gain = 0 dB for NANT ≤ 4;
For PSD measurements when Nss=1: Array Gain = 10 log(NANT/NSS) dB + Antenna Gain (dBi). Or 3.01 dB + 6 dBi = 9.01 dBi.

Results

The EUT complied with the specification

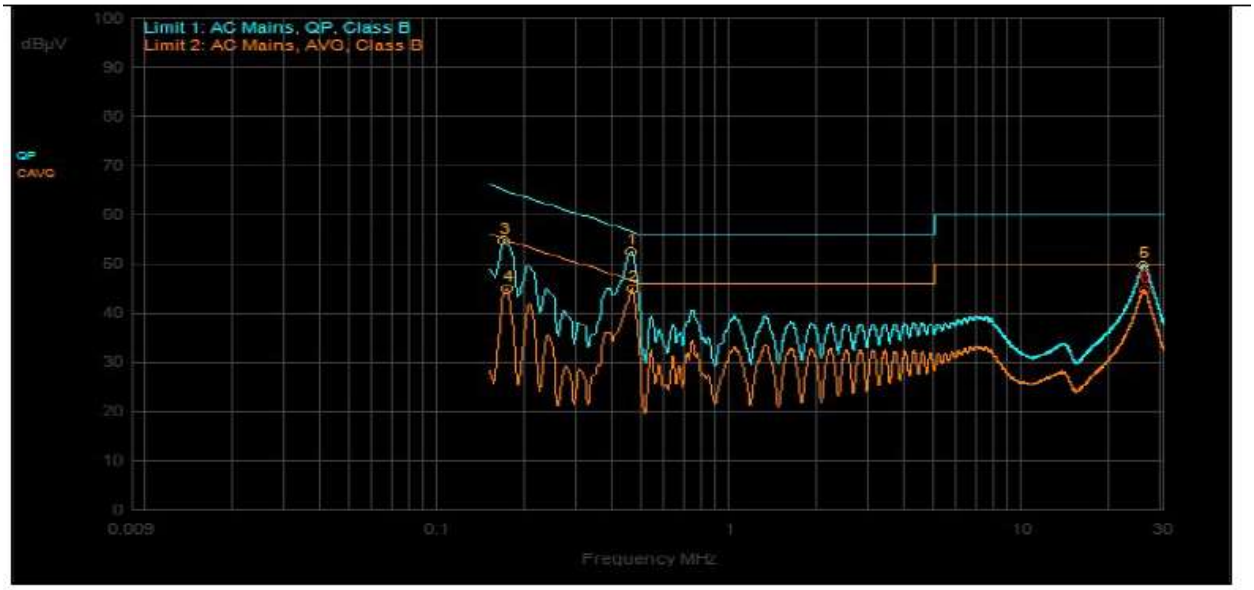
5.2 Conducted Emissions at Mains Ports Data

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
2	456,000kHz	9.84	0.00		QPeak	42.22	52.06	56.77	-4.70			
6	25.899	10.33	0.27		QPeak	39.15	49.75	60.00	-10.25			
1	165,000kHz	10.43	0.00		QPeak	44.49	54.92	65.21	-10.29			
3	462,000kHz	9.83	0.00		C_AVG	35.13	44.96			46.66	-1.70	
4	165,000kHz	10.43	0.00		C_AVG	34.91	45.34			55.21	-9.86	
5	25.797	10.32	0.27		C_AVG	34.18	44.77			50.00	-5.23	
7	168,000kHz	10.41	0.00		C_AVG	35.05	45.46			55.06	-9.60	

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	456,000kHz	9.84	0.00		QPeak	42.67	52.51	56.77	-4.26			
5	25.671	10.21	0.27		QPeak	39.29	49.77	60.00	-10.23			
3	168,000kHz	10.41	0.00		QPeak	44.25	54.66	65.06	-10.40			
2	459,000kHz	9.84	0.00		C_AVG	35.24	45.08			46.71	-1.63	
4	171,000kHz	10.38	0.00		C_AVG	34.54	44.92			54.91	-9.99	
6	25.782	10.21	0.27		C_AVG	34.20	44.68			50.00	-5.32	

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)
EHT 20	6435	19.3	22.6
EHT 20	6475	19.5	22.6
EHT 20	6515	19.5	23.1
EHT 40	6445	38.5	43.1
EHT 40	6485	38.5	43.7
EHT 80	6465	79.0	90.5
EHT 160	6505	162.5	175.0

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 20.86 dBm or 121.90 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
HE20	6435	Mcs0_Nss2	8	11.30	17.30	-1.99
HE20	6475	Mcs0_Nss2	10	12.06	18.06	-1.07
HE20	6515	Mcs0_Nss2	10	11.19	17.19	-1.84
HE40	6445	Mcs0_Nss2	11	14.04	20.04	-2.08
HE40	6485	Mcs0_Nss2	13	15.25	21.25	-1.14
HE80	6465	Mcs0_Nss2	15	17.63	23.63	-1.38
HE160	6505	Mcs0_Nss2	19	20.86	26.86	-1.59

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power	EIRP	Measured PSD
HE20	6435	Mcs0_Nss1	8	9.75	15.75	-4.30
HE20	6475	Mcs0_Nss1	7	9.02	15.02	-4.80
HE20	6515	Mcs0_Nss1	7	9.30	15.30	-4.63
HE40	6445	Mcs0_Nss1	11	12.73	18.73	-4.08
HE40	6485	Mcs0_Nss1	10	12.10	18.10	-4.84
HE80	6465	Mcs0_Nss1	13	15.06	21.05	-4.86
HE160	6505	Mcs0_Nss1	15	18.41	24.41	-4.17

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.

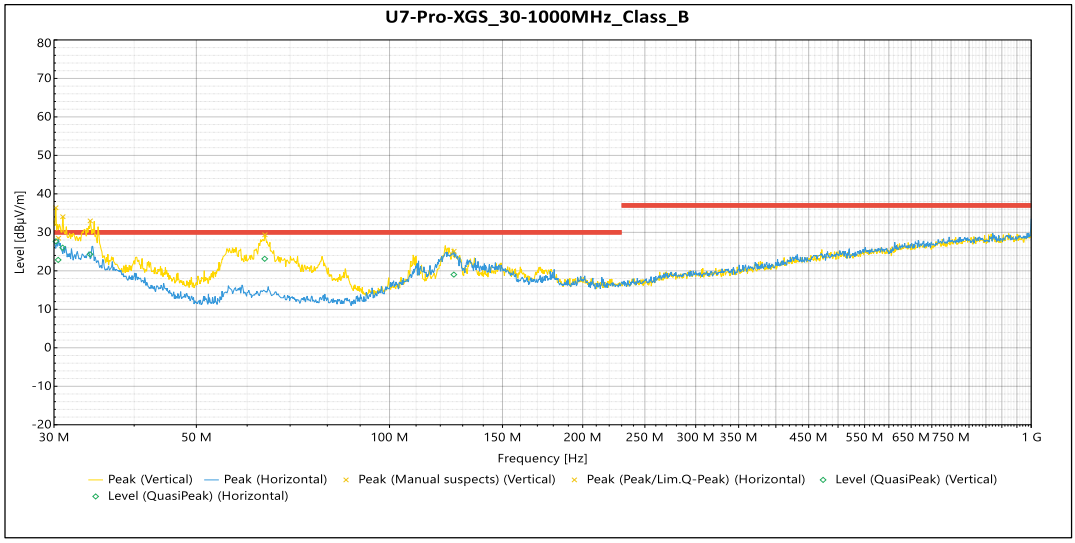
5.5.2 Radiated Spurious Emissions in the Restricted Bands of § 15.205

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

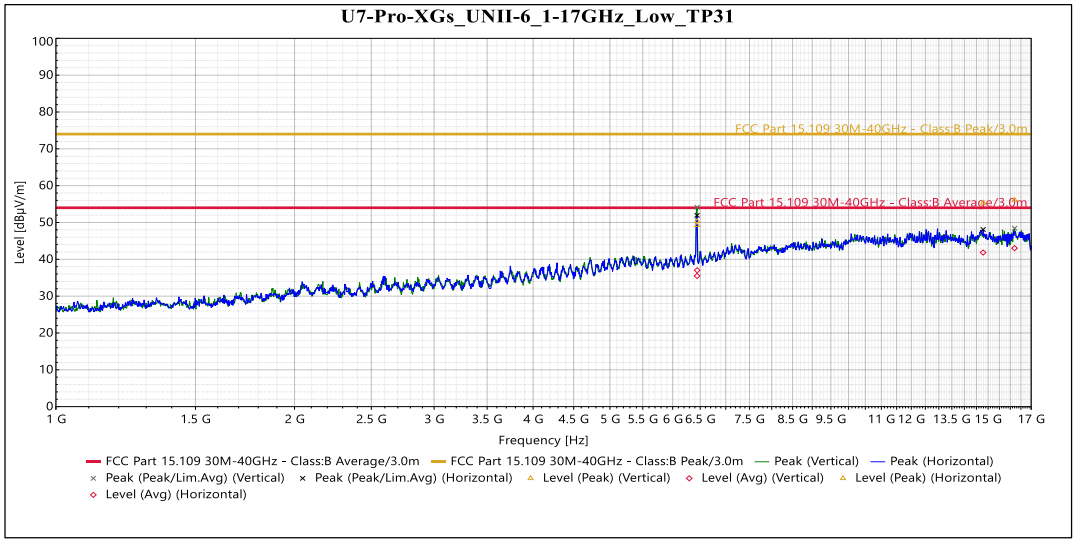
All emissions in the restricted bands of § 15.205 met the limits specified in § 15.209; therefore, the EUT complies with the specification. See Annex for Conducted Band edge plots.



QuasiPeak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
30.21 MHz	27.67	30	-2.33	263	1.58	Vertical	-3.67
30.95 MHz	26.01	30	-3.99	276	1.05	Vertical	-4.26
34.15 MHz	24.29	30	-5.71	166	2.23	Vertical	-5.96
63.90 MHz	23.12	30	-6.88	60	2.04	Vertical	-16.06
30.45 MHz	22.84	30	-7.16	320	1.99	Horizontal	-3.86
125.97 MHz	19.02	30	-10.98	176	3.95	Horizontal	-9.94

Table 5: Radiated Emissions 30 – 1000 MHz



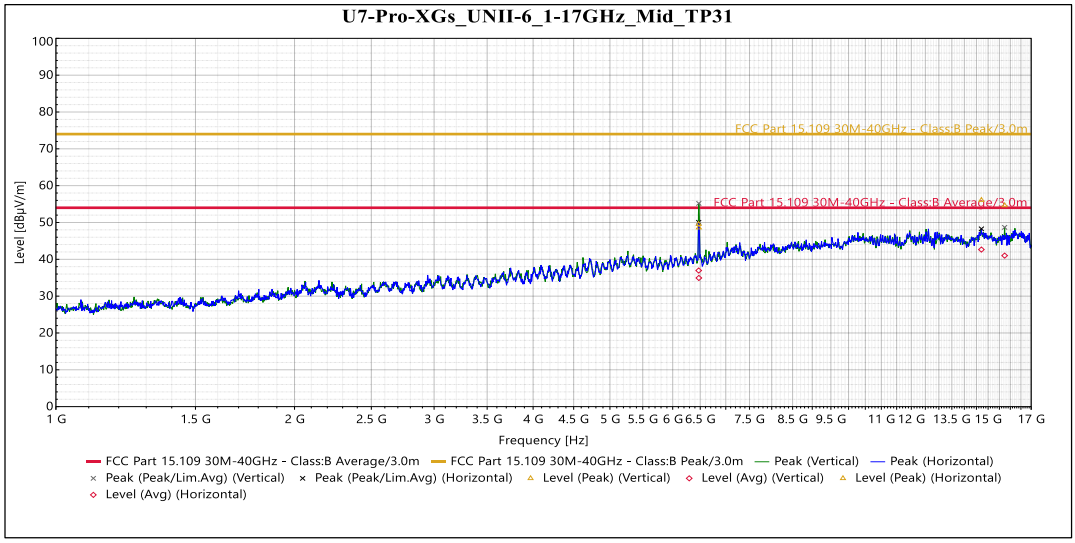
Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
6.44 GHz	50.35	74.0	-23.65	33	4	Vertical	6.41
16.20 GHz	56.11	74.0	-17.89	265	2.04	Vertical	15.78
6.44 GHz	49.25	74.0	-24.75	23	4	Horizontal	6.41
14.78 GHz	55.34	74.0	-18.66	347	3.728	Horizontal	14.05

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
6.44 GHz	37.02	54.0	-16.98	33	4	Vertical	6.41
16.20 GHz	43.03	54.0	-10.97	265	2.04	Vertical	15.78
6.44 GHz	35.48	54.0	-18.52	23	4	Horizontal	6.41
14.78 GHz	41.85	54.0	-12.15	347	3.728	Horizontal	14.05

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



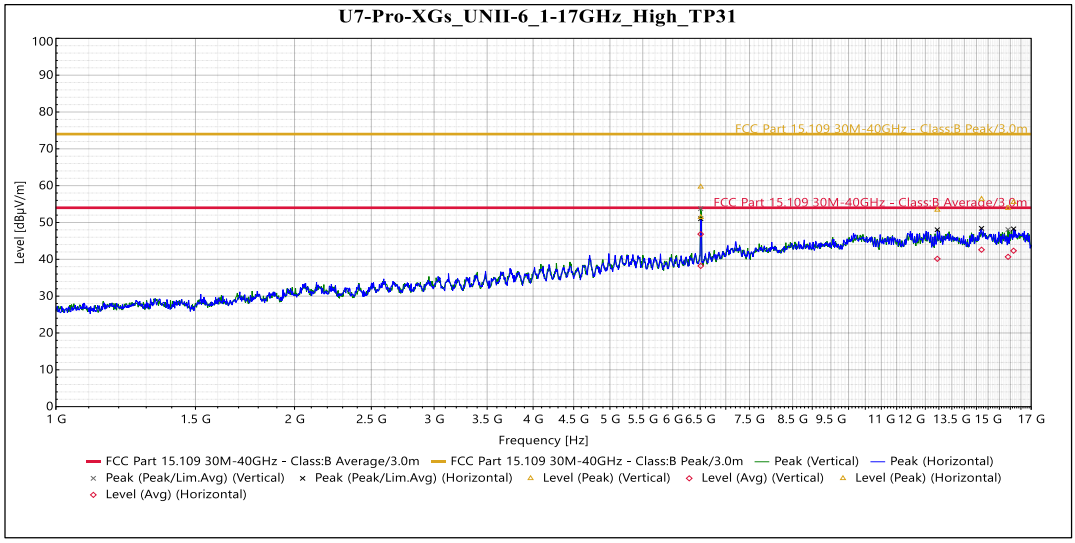
Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
6.47 GHz	48.60	74.0	-25.40	330	4	Vertical	6.41
15.74 GHz	54.63	74.0	-19.37	207	2.041	Vertical	13.13
6.47 GHz	49.54	74.0	-24.46	82	3.449	Horizontal	6.41
14.71 GHz	56.08	74.0	-17.92	239	3.164	Horizontal	14.85

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
6.47 GHz	34.93	54.0	-19.07	330	4	Vertical	6.41
15.74 GHz	41.01	54.0	-12.99	207	2.041	Vertical	13.13
6.47 GHz	36.96	54.0	-17.04	82	3.449	Horizontal	6.41
14.71 GHz	42.65	54.0	-11.35	239	3.164	Horizontal	14.85

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



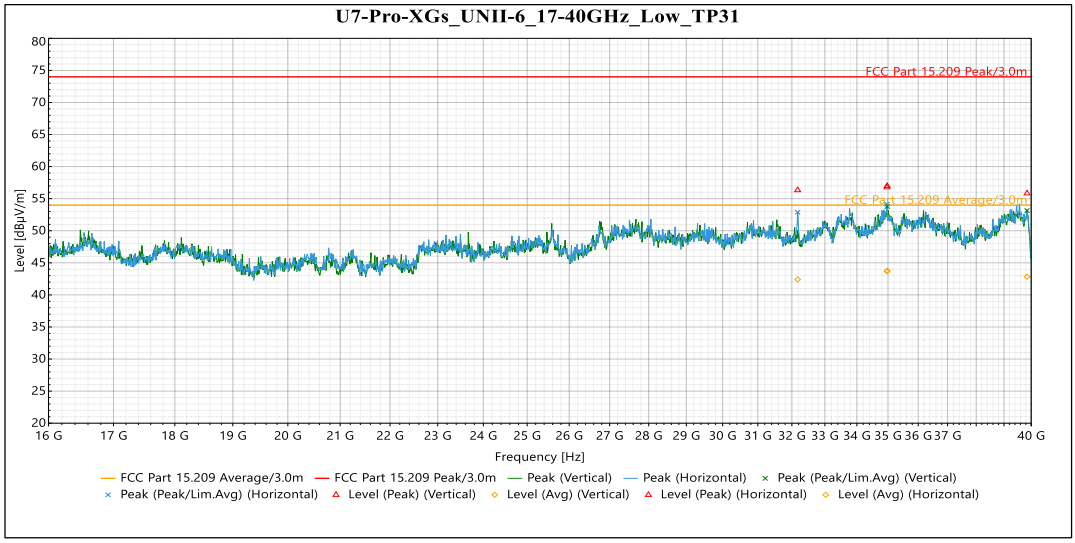
Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
6.51 GHz	59.69	74.0	-14.31	59	2.604	Vertical	6.45
15.90 GHz	53.92	74.0	-20.08	179	2.292	Vertical	12.98
6.51 GHz	51.43	74.0	-22.57	66	1.5	Horizontal	6.44
12.94 GHz	53.41	74.0	-20.59	128	4	Horizontal	13.88
14.72 GHz	56.37	74.0	-17.63	352	3.728	Horizontal	14.79
16.15 GHz	55.51	74.0	-18.49	196	2.041	Horizontal	14.86

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
6.51 GHz	46.84	54.0	-7.16	59	2.604	Vertical	6.45
15.90 GHz	40.67	54.0	-13.33	179	2.292	Vertical	12.98
6.51 GHz	38.20	54.0	-15.80	66	1.5	Horizontal	6.44
12.94 GHz	40.13	54.0	-13.87	128	4	Horizontal	13.88
14.72 GHz	42.60	54.0	-11.40	352	3.728	Horizontal	14.79
16.15 GHz	42.33	54.0	-11.67	196	2.041	Horizontal	14.86

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



Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
34.97 GHz	56.99	74.0	-17.01	237	Vertical	5.08
39.85 GHz	55.83	74.0	-18.17	350	Vertical	2.56
32.17 GHz	56.33	74.0	-17.67	345	Horizontal	-0.08
34.97 GHz	56.78	74.0	-17.22	5	Horizontal	5.07

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
34.97 GHz	43.78	54.0	-10.22	237	Vertical	5.08
39.85 GHz	42.84	54.0	-11.16	350	Vertical	2.56
32.17 GHz	42.42	54.0	-11.58	345	Horizontal	-0.08
34.97 GHz	43.67	54.0	-10.33	5	Horizontal	5.07

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. As per KDB 662911, When the EUT is using spatial-multiplexing in HE 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
HE20	6435	Mcs0_Nss2	8	11.30	-1.99
HE20	6475	Mcs0_Nss2	10	12.06	-1.07
HE20	6515	Mcs0_Nss2	10	11.19	-1.84
HE40	6445	Mcs0_Nss2	11	14.04	-2.08
HE40	6485	Mcs0_Nss2	13	15.25	-1.14
HE80	6465	Mcs0_Nss2	15	17.63	-1.38
HE160	6505	Mcs0_Nss2	19	20.86	-1.59

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power	Measured PSD
HE20	6435	Mcs0_Nss1	8	9.75	-4.30
HE20	6475	Mcs0_Nss1	7	9.02	-4.80
HE20	6515	Mcs0_Nss1	7	9.30	-4.63
HE40	6445	Mcs0_Nss1	11	12.73	-4.08
HE40	6485	Mcs0_Nss1	10	12.10	-4.84
HE80	6465	Mcs0_Nss1	13	15.06	-4.86
HE160	6505	Mcs0_Nss1	15	18.41	-4.17

Result

The maximum average power spectral density was less than the limit of 5 dBm EIRP (adjusted limit of -4.01 for Nss1); 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.

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 Level

Plot 3: AWGN Signal Detection 20MHz

Plot 4: AWGN Signal BW 160 MHz

Plot 5: AWGN Signal BW Reduction 160 MHz

Plot 6: AWGN Signal Detection 160MHz

Plot 7: AWGN Signal Detection 160MHz

Plot 8: AWGN Signal Detection 160MHz

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

Band	BW_{EUT}	F_{c1}	F_{c2}	AWGN Power (dBm)	Adjusted Power (dBm)	Limit (dBm)	Margin (dB)
UNII-5 5.925 - 6.425GHz	20	6135	6135	-36	-68	-56	12
	160	6185	6110	-33	-65	-56	9
			6185	-37	-69	-56	13
			6260	-35	-67	-56	11
	320	6265	6110	-36	-68	-56	12
			6265	-37	-69	-56	13
			6410	-34	-66	-56	10
UNII-6 6.425 - 6.525GHz	20	6455	6455	-37	-69	-56	13
	160	6505	6430	-34	-66	-56	10
			6505	-37	-69	-56	13
			6580	-34	-66	-56	10
UN1I-7 6.525 - 6.875GHz	20	6695	6695	-37	-69	-56	13
	160	6665	6595	-35	-67	-56	11
			6665	-36	-68	-56	12
			6740	-35	-67	-56	11
	320	6745	6590	-35	-67	-56	11
			6745	-36	-68	-56	12
			6890	-33	-65	-56	9
UNII-8 6.875 - 7.125GHz	20	7015	7015	-36	-68	-56	12
	160	6985	6910	-35	-67	-56	11
			6985	-35	-67	-56	11
			7060	-31	-63	-56	7

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

Ports	Path Loss (dBm)
6G0, 6G1	-31.806

AWGN Clock
20.5 MHz

Table 10: Trial Table

CBP Path Loss is – 22 dB
Detection Level = Injected AWGN Power (dBm) – Antenna Gain (dBi) + Path Loss (dB)

Result

The EUT complies with the specification.

-- End of Test Report --