



427 West 12800 South  
Draper, UT 84020

## Test Report Certification

<b>FCC ID</b>	SWX-U7PROW
<b>ISED ID</b>	6545A-U7PROW
<b>Equipment Under Test</b>	U7-Pro-Wall
<b>Test Report Serial Number</b>	TR8715_01
<b>Date of Tests</b>	24 – 26, 30 October; 2, 8 November 2023
<b>Report Issue Date</b>	9 January 2024

<b>Test Specification</b>	<b>Applicant</b>
47 CFR FCC Part 15, Subpart E	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. 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.

<b>Applicant</b>	Ubiquiti Inc.
<b>Manufacturer</b>	Ubiquiti Inc.
<b>Brand Name</b>	UBIQUITI
<b>Model Number</b>	U7-Pro-Wall
<b>FCC ID</b>	SWX-U7PROW
<b>ISED ID</b>	6545A-U7PROW

On this 9<sup>th</sup> day of January 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

---

<b>Revision History</b>		
<b>Revision</b>	<b>Description</b>	<b>Date</b>
01	Original Report Release	9 January 2024

## Table of Contents

1	Client Information.....	5
1.1	Applicant.....	5
1.2	Manufacturer.....	5
2	Equipment Under Test (EUT).....	6
2.1	Identification of EUT .....	6
2.2	Description of EUT .....	6
2.3	EUT and Support Equipment.....	6
2.4	Interface Ports on EUT .....	7
2.5	Operating Environment.....	7
2.6	Operating Modes.....	7
2.7	EUT Exercise Software.....	8
2.8	Block Diagram of Test Configuration .....	8
2.9	Modification Incorporated/Special Accessories on EUT.....	8
2.10	Deviation, Opinions Additional Information or Interpretations from Test Standard.....	8
3	Test Specification, Method and Procedures.....	9
3.1	Test Specification.....	9
3.2	Methods & Procedures.....	9
3.3	FCC Part 15, Subpart E.....	9
3.4	Results.....	9
3.5	Test Location .....	10
4	Test Equipment .....	11
4.1	Conducted Emissions at Mains Ports.....	11
4.2	Direct Connect at the Antenna Port Tests.....	11
4.3	Radiated Emissions.....	12
4.4	Equipment Calibration .....	13
4.5	Measurement Uncertainty.....	13
5	Test Results.....	14
5.1	§15.203 Antenna Requirements.....	14
5.2	Conducted Emissions at Mains Ports Data .....	14
5.3	§15.403(i) 26 dB Emissions Bandwidth .....	16
5.4	§15.407(a)(2) Maximum Average Output Power .....	17
5.5	§15.407(b) Spurious Emissions .....	19
5.6	§15.407(a) Maximum Power Spectral Density.....	27

# 1 Client Information

## 1.1 Applicant

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

## 1.2 Manufacturer

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

## 2 Equipment Under Test (EUT)

### 2.1 Identification of EUT

<b>Brand Name</b>	UBIQUITI
<b>Model Number</b>	U7-Pro-Wall
<b>Serial Number</b>	05BF1C
<b>Dimensions cm</b>	15 x 10.3 x 3.6

### 2.2 Description of EUT

The U7-Pro-Wall is WiFi 7 access point that represents the next generation of competitively priced, prosumer wireless technology for home and enterprise users. The U7-Pro-Wall provides high aggregate throughput speeds. The U7-Pro-Wall transmit in the 2.4 GHz, 5 GHz and 6 GHz frequency bands and uses integrated antennas. The U7-Pro-Wall is powered from an 802.3at power adapter. The U7-Pro-Wall is an indoor device.

Band	WiFi Mode	Modulation Bandwidth	Modulation Type	Frequency (MHz)
UNII-1	a	20 MHz	OFDM	5180, 5200, 5210, 5240
	ax	20 MHz	HE	5180, 5200, 5210, 5240
	ax	40 MHz	HE	5190, 5230
	ax	80 MHz	HE	5210

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.

<b>Brand Name Model Number Serial Number</b>	<b>Description</b>	<b>Name of Interface Ports / Interface Cables</b>
BN: UBIQUITI MN: U7-Pro-Wall (Note 1) SN: 05BF1C	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	Laptop Personal Computer	Unshielded Cat 5e cable/1 meters

MN: XPS 13 SN: N/A		
-----------------------	--	--

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

<b>Power Supply</b>	120 Volts AC Mains to 48 Volts PoE
<b>AC Mains Frequency</b>	60 Hz
<b>Temperature</b>	21.5 – 24.1 °C
<b>Humidity</b>	16.4 – 34.54 %
<b>Barometric Pressure</b>	1016 mBar

## 2.6 Operating Modes

The U7-Pro-Wall was tested using test software in order to enable a constant transmission. The measurements within this report are corrected to reference a 100% duty cycle. All emission modes of 802.11 a/ax were investigated. All measurements are reported with the worst-case mode (802.11ax) 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

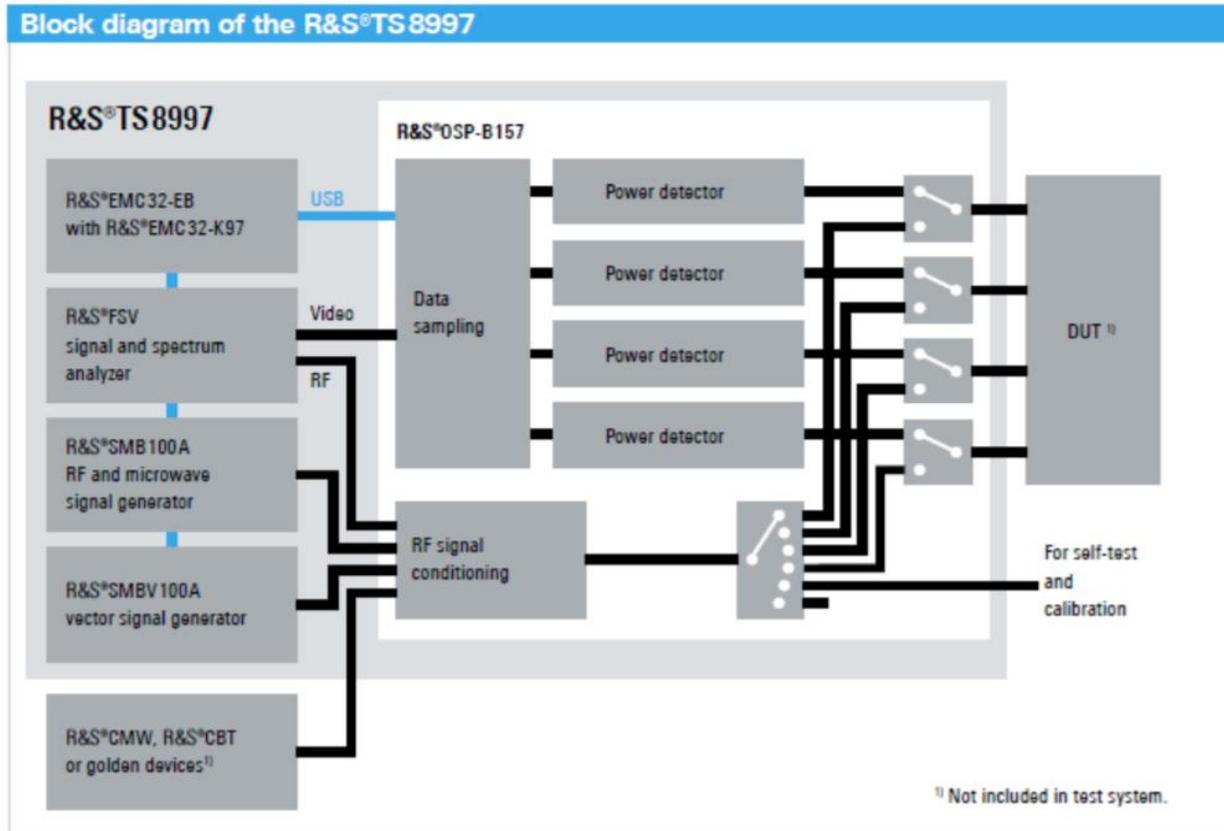


Diagram 1: Test Configuration Block Diagram

## 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

<b>Title</b>	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
<b>Purpose of Test</b>	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(c)	RSS-247 §6.2.2, §6.2.3	Bandwidth Requirement	5180 to 5210	Compliant
15.407(e)	RSS-247 §6.2.2, §6.2.3	Peak Output Power	5180 to 5210	Compliant
15.407(f)	RSS-247 §6.2.2, §6.2.3	Antenna Conducted Spurious Emissions	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	5180 to 5210	Compliant

The testing was performed according to the procedures in ANSI C63.10-2013, KDB 789033 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	6/27/2022	6/27/2024
LISN	Com-Power	LIN-120C	UCL-2612	1/24/2023	1/24/2024
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

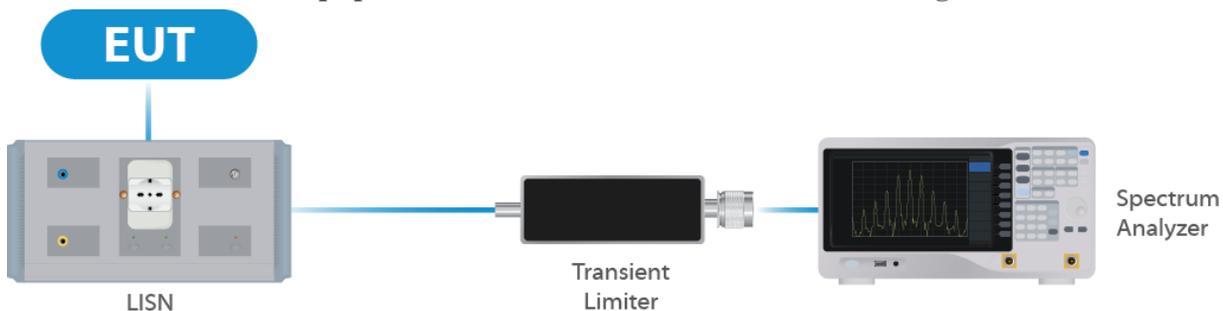
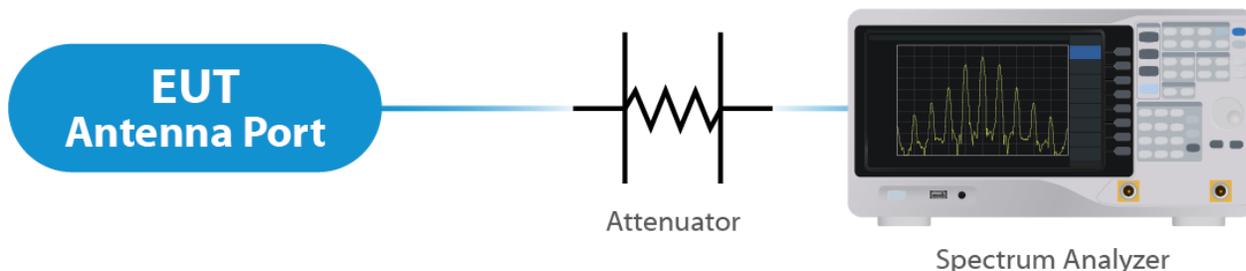


Figure 1: Conducted Emissions Test

### 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	FSVA3044	UCL-8620	5/23/2023	11/08/2024
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	2/22/2023	2/22/2024
Switch Extension	R&S	OSP-150W	UCL-2870	2/22/2023	2/22/2024

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



**Figure 2: Direct Connect at the Antenna Port Test**

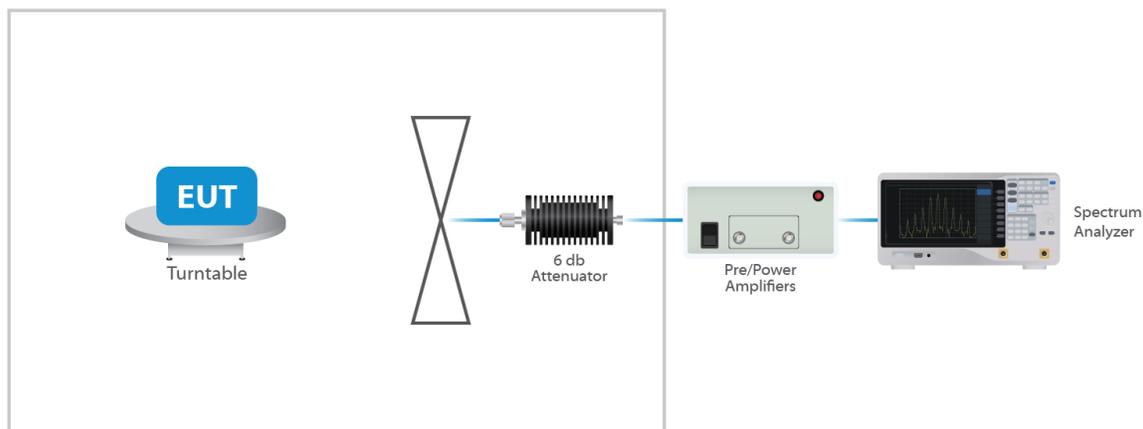


**Figure 3: Output Power Measurement**

### 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	1/27/2023	1/27/2024
Pre-Amplifier 9 kHz – 1 GHz	Sonoma Instruments	310N	UCL-2889	10/7/2021	12/7/2023
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	12/9/2022	12/9/2023
Test Software	UCL	Revision 1	UCL-3108	N/A	N/A

**Table 3: List of equipment used for Radiated Emissions**



**Figure 4: Radiated Emissions Test**

## 4.4 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.

## 4.5 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
<b>Direct Connect Tests</b>	<b>K Factor</b>	<b>Value</b>
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 folding antenna structure. Per the manufacturer, the maximum gain of the antenna per chain is 5 dBi. This is an 802.11 device and utilizes CDD as described in KDB 662911 D01. The antenna is not user replaceable.

For power measurements on IEEE 802.11 devices, Array Gain = 0 dB for NANT ≤ 4;

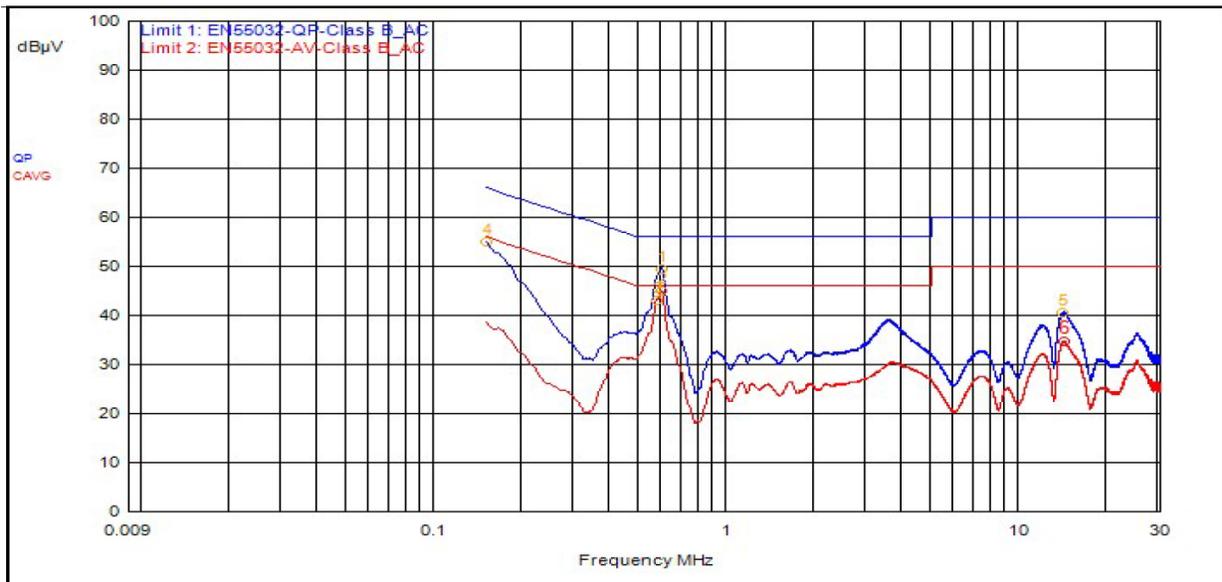
For PSD measurements when Nss=1: Array Gain = 10 log(Nant/Nss) dB = 3.01dB

#### Results

The EUT complied with the specification

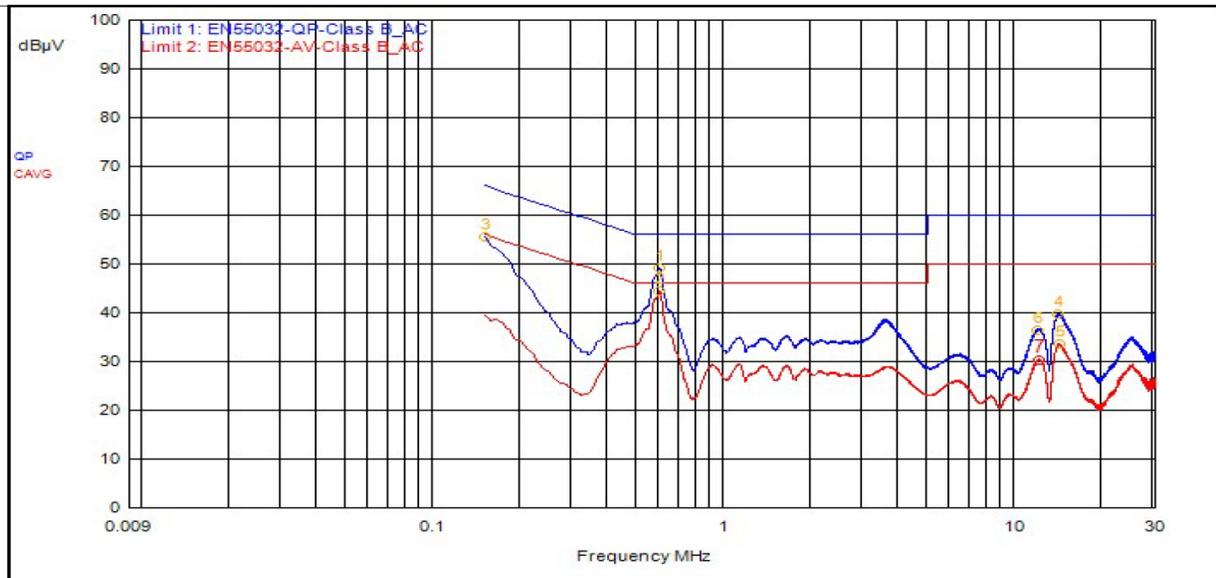
### 5.2 Conducted Emissions at Mains Ports Data

#### 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	591,000kHz	9.50	0.00		QPeak	39.98	49.48	56.00	-6.52			
4	150,000kHz	9.49	0.00		QPeak	45.58	55.07	66.00	-10.93			
5	13.893	9.67	0.00		QPeak	30.98	40.65	60.00	-19.35			
2	594,000kHz	9.50	0.00		C_AVG	35.43	44.93			46.00	-1.07	
3	570,000kHz	9.49	0.00		C_AVG	33.65	43.14			46.00	-2.86	
6	14.019	9.67	0.00		C_AVG	25.08	34.75			50.00	-15.25	

## 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	dBuV	dBuV	dBuV	dB	dBuV	dB	P/F
1	594,000kHz	9.59	0.00		QPeak	39.62	49.21	56.00	-6.79			
3	150,000kHz	9.62	0.00		QPeak	45.80	55.42	66.00	-10.58			
4	13.935	9.72	0.00		QPeak	29.91	39.63	60.00	-20.37			
6	11.739	9.67	0.00		QPeak	26.82	36.49	60.00	-23.51			
2	597,000kHz	9.59	0.00		C_AVG	34.97	44.56			46.00	-1.44	
5	13.998	9.73	0.00		C_AVG	23.77	33.50			50.00	-16.50	
7	11.952	9.68	0.00		C_AVG	20.65	30.33			50.00	-19.67	

### 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.

Nominal BW (MHz)	Frequency (MHz)	99% Bandwidth (MHz)	Emissions 26 dB Bandwidth (MHz)
OFDM 20	5180	16.9	22.3
OFDM 20	5210	21.5	36.0
OFDM 20	5240	17.9	29.1
HE20	5180	19.1	22.7
HE20	5210	21.9	41.8
HE20	5240	19.2	34.9
HE40	5190	38.25	42.9
HE40	5230	38.0	45.45
HE80	5210	77.5	88.0

#### 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)(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 27.74 dBm or 594.29 mW. The limit is 30 dBm, or 1 Watt when using an antenna with 6 dBi (indoor/outdoor access point) or less gain. The antenna has a gain of 5 dBi.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power	Measured EIRP	Measured PSD
OFDM 20	5180	Mcs0	23	23.31	28.31	10.55
OFDM 20	5210	Mcs0	28	27.71	32.71	15.08
OFDM 20	5240	Mcs0	27	26.98	31.98	14.30
HE 20	5180	Mcs0	23	23.42	28.42	10.21
HE 20	5210	Mcs0	28	27.74	32.74	14.53
HE 20	5240	Mcs0	27	27.06	32.06	13.87
HE 40	5190	Mcs0	22	22.60	27.60	6.47
HE 40	5230	Mcs0	25	25.62	30.62	9.41
HE 80	5210	Mcs0	22	22.22	27.22	3.02

### Canada – Indoor only use

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power	Measured EIRP	Measured PSD
OFDM 20	5180	Mcs0	17	17.37	22.37	4.71
OFDM 20	5210	Mcs0	17	17.51	22.51	4.80
OFDM 20	5240	Mcs0	17	17.57	22.57	4.79
HE 20	5180	Mcs0	17	17.49	22.49	4.28
HE 20	5210	Mcs0	17	17.63	22.63	4.38
HE 20	5240	Mcs0	17	17.66	22.66	4.39
HE 40	5190	Mcs0	17	17.65	22.65	1.57
HE 40	5230	Mcs0	17	17.86	22.86	1.52
HE 80	5210	Mcs0	17	17.35	22.35	-1.20

**Result**

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

## 5.5 §15.407(b) Spurious Emissions

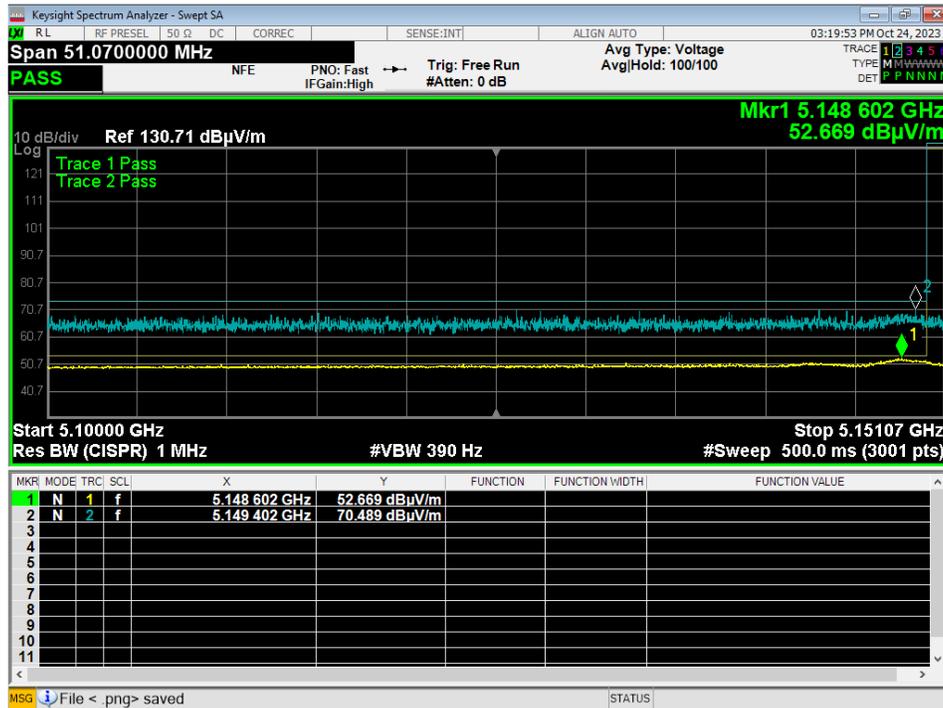
### 5.5.1 Conducted Spurious Emissions

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 5 dBi accounted for. These demonstrate compliance with the provisions of this section at the band edges.

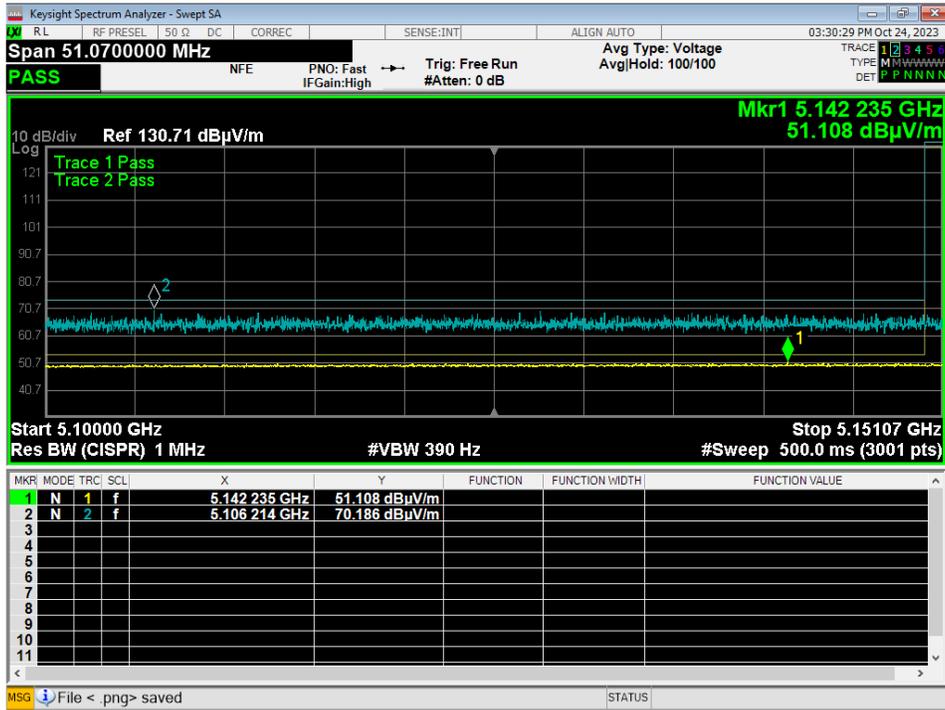
The emissions must remain below -27 dBm EIRP.

#### Result

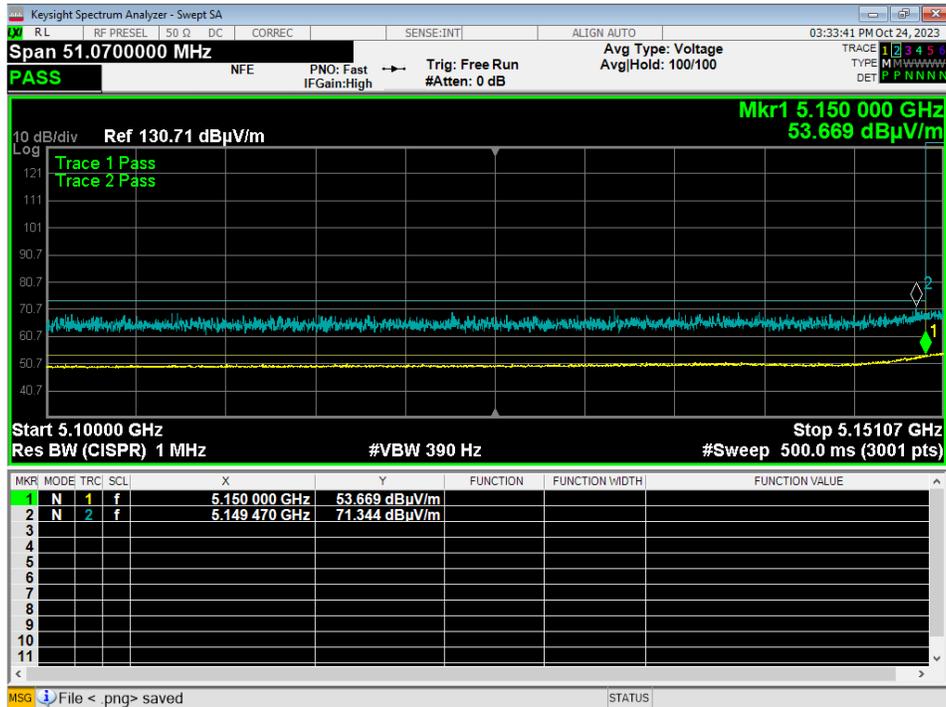
Conducted spurious emissions were below -27 dBm; therefore, the EUT complies with the specification.



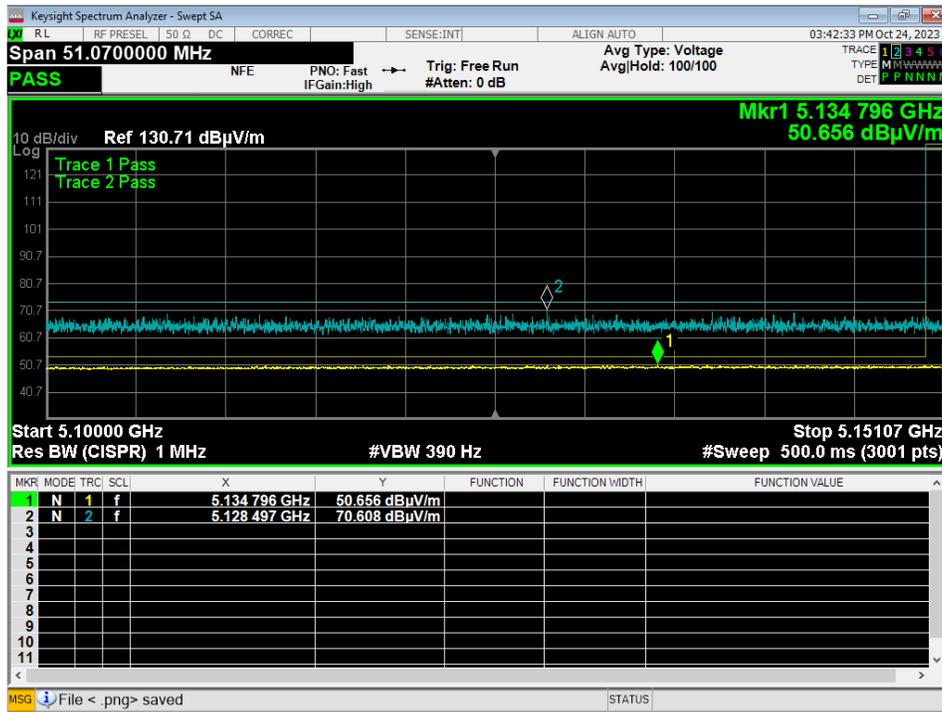
Graph 1: Band Edge Low a Mode 20 MHz



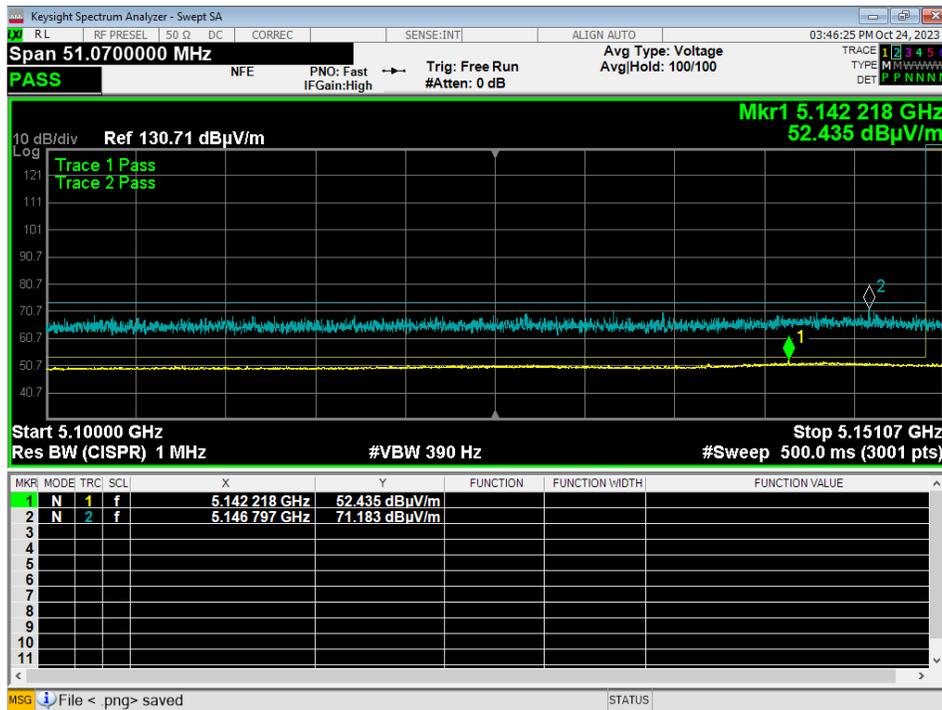
Graph 2: Band Edge High a Mode 20 MHz



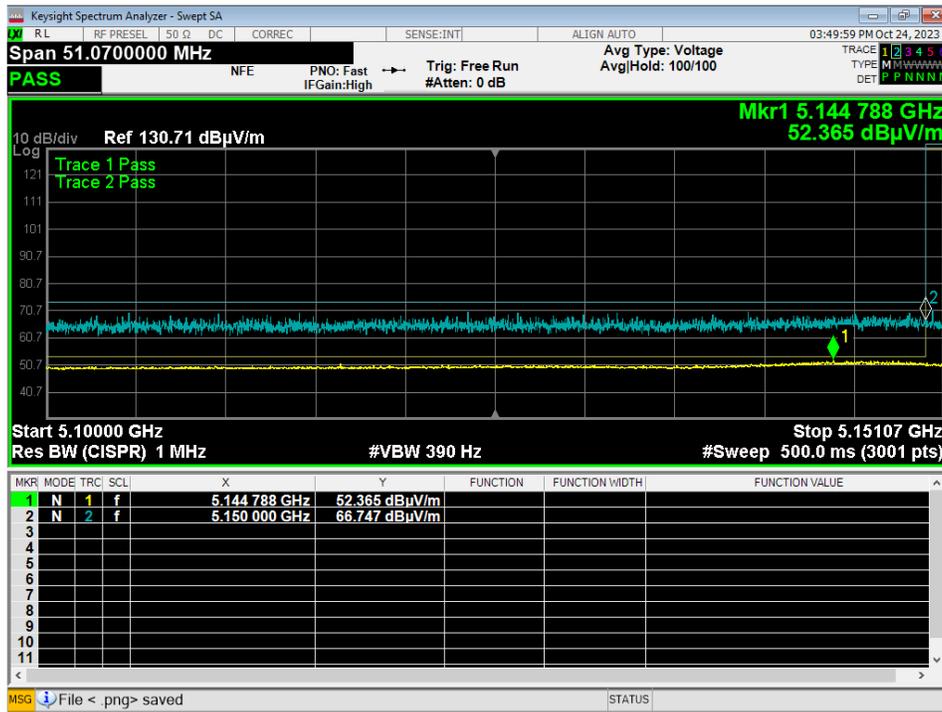
Graph 3: Band Edge Low ax Mode 20 MHz



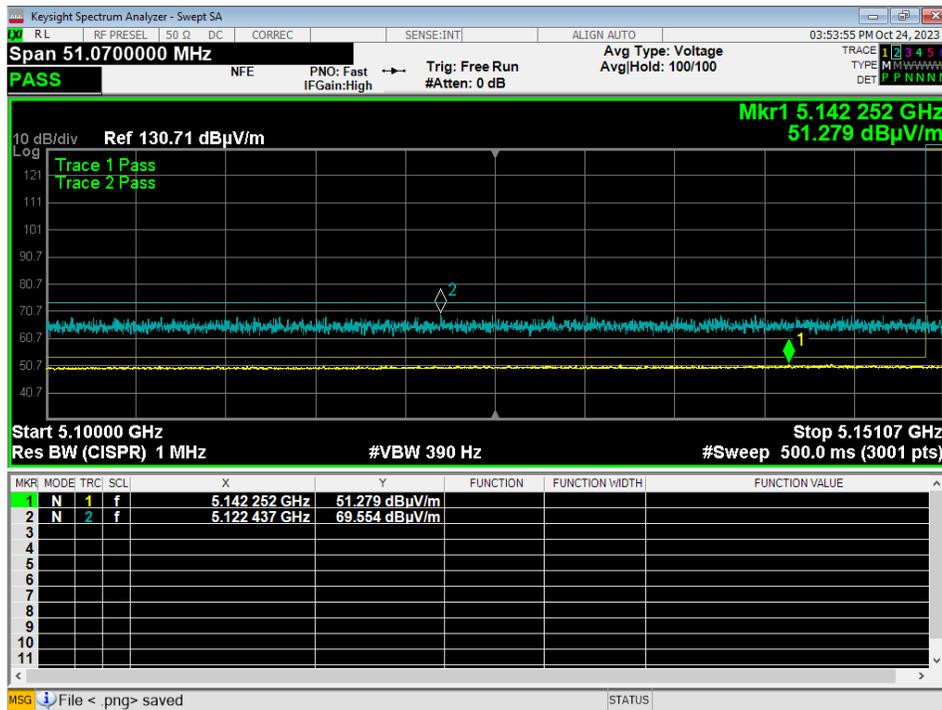
Graph 4: Band Edge High ax Mode 20 MHz



Graph 5: Band Edge Low ax Mode 40 MHz



Graph 6: Band Edge High ax Mode 40 MHz



Graph 7: Band Edge ax Mode 80 MHz

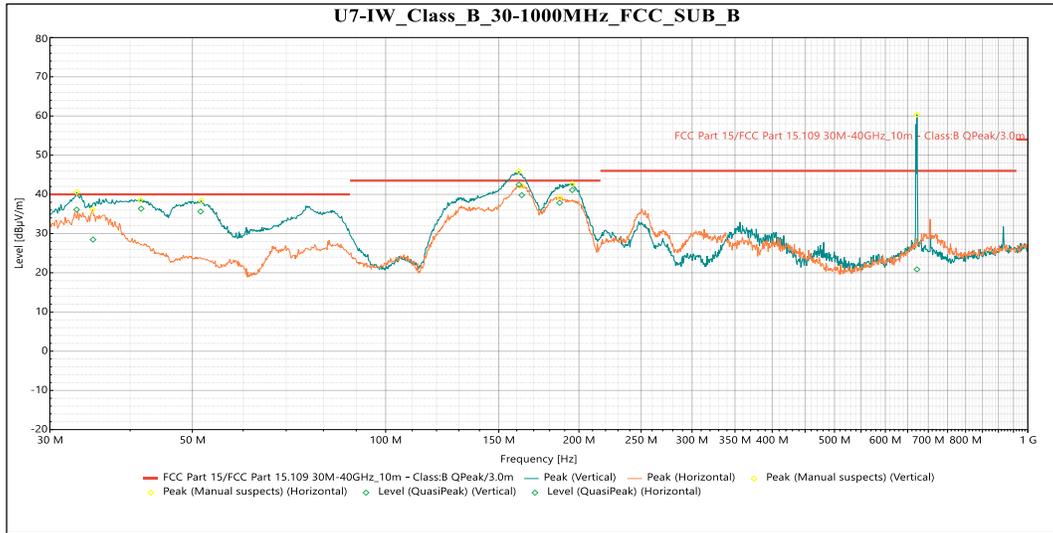
### **5.5.2 Radiated Spurious Emissions in the Restricted Bands of § 15.205**

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 TP30, as this setting was found to be worst case for spurious emissions. Power was subsequently reduced during in-band and band edge testing. The band edge at the restricted band ending at 5180 MHz was measured using radiated measurement or conducted at the antenna port methods. [For radiated] All emissions modes were tested, and the worst-case measurement are shown below. For frequencies above 1 GHz, a measurement of 3 meters was used. For frequencies below 1 GHz, a measurement distance of 10 meters was used.

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

#### **Result**

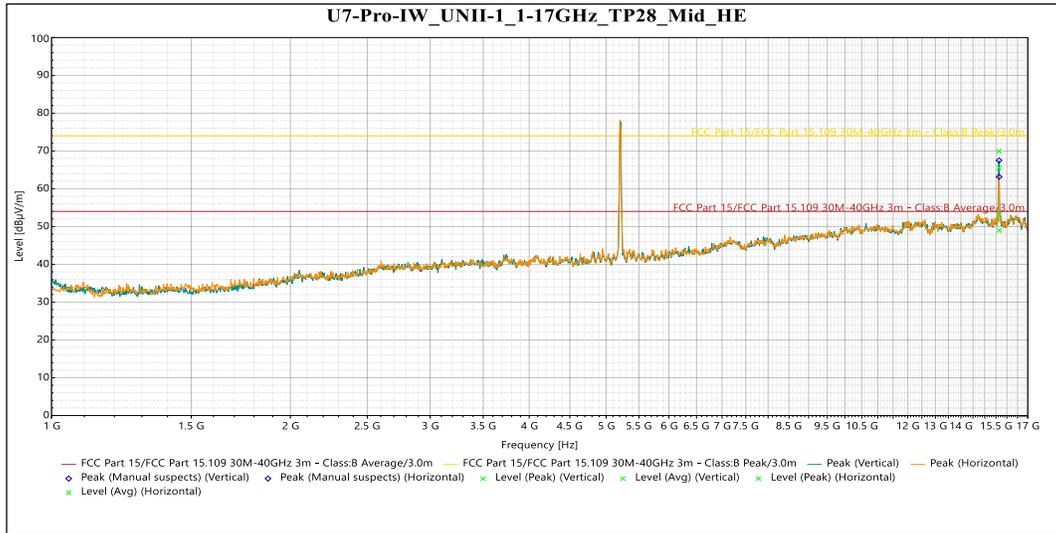
All emissions in the restricted bands of § 15.205 met the limits specified in § 15.209; therefore, the EUT complies with the specification. All emissions met the limits specified in § 15.407(b). Representative band edge plots are included in this report. See Annex for Conducted Band edge plots.



Final source: QuasiPeak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
33.017 MHz	36.111	40	-3.889	204	1.129	Vertical	-9.415
41.61 MHz	36.345	40	-3.655	359	1.129	Vertical	-15.523
51.502 MHz	35.629	40	-4.371	359	1.129	Vertical	-21.223
161.28 MHz	42.492	43.5	-1.008	358	1.132	Vertical	-16.039
195.23 MHz	41.094	43.5	-2.406	353	1.129	Vertical	-15.934
672.08 MHz	20.853	46	-25.147	83	1.667	Vertical	-6.922
35.016 MHz	28.469	40	-11.531	171	3.65	Horizontal	-10.579
162.92 MHz	39.812	43.5	-3.688	103	1.489	Horizontal	-16.105
186.7 MHz	37.853	43.5	-5.647	274	1.712	Horizontal	-16.813

**Table 4: Radiated Emissions 30 – 1000 MHz**



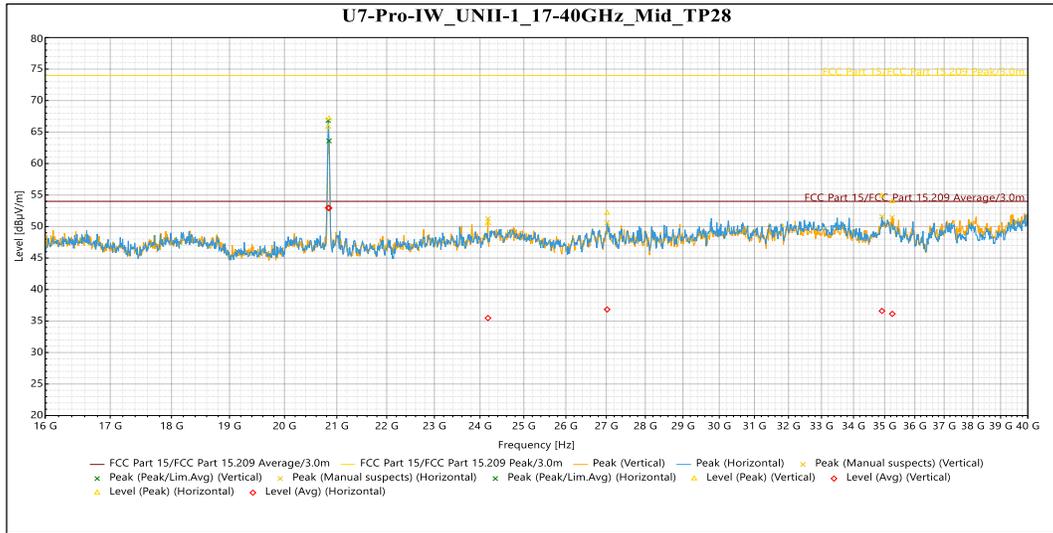
Final source: Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
15.64 GHz	69.917	74	-4.083	5	2.53	Vertical	15.889
15.644 GHz	65.551	74	-8.449	169	1.629	Horizontal	15.911

Final source: Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
15.64 GHz	53.163	54	-0.837	5	2.53	Vertical	15.889
15.644 GHz	48.973	54	-5.027	169	1.629	Horizontal	15.911

**Table 5: Radiated Emissions 1-17 GHz Middle Channel (Worst Case)**


**Final source: Peak**

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
20.849 GHz	67.152	74	-6.848	81	Vertical	-0.469
24.179 GHz	50.543	74	-23.457	35	Vertical	0.541
35.252 GHz	53.983	74	-20.017	295	Vertical	2.895
20.832 GHz	65.819	74	-8.181	15	Horizontal	-0.334
27.02 GHz	52.146	74	-21.854	213	Horizontal	1.89
34.915 GHz	54.854	74	-19.146	343	Horizontal	3.384

**Final source: Avg**

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
20.849 GHz	52.931	54	-1.069	81	Vertical	-0.469
24.179 GHz	35.469	54	-18.531	35	Vertical	0.541
35.252 GHz	36.14	54	-17.86	295	Vertical	2.895
20.832 GHz	52.966	54	-1.034	15	Horizontal	-0.334
27.02 GHz	36.825	54	-17.175	213	Horizontal	1.89
34.915 GHz	36.602	54	-17.398	343	Horizontal	3.384

**Table 6: Radiated Emissions 17-40 GHz Middle Channel (Worst 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 17 dBm in any 1 MHz band during any time interval of continuous transmission.

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 5dBi + Array gain of 3.01 dB which is a total of 8.01 dBi

Results of this testing are summarized.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Measured PSD
OFDM 20	5180	Mcs0_Nss2	23	10.55
OFDM 20	5210	Mcs0_Nss2	28	15.08
OFDM 20	5240	Mcs0_Nss2	27	14.3
HE 20	5180	Mcs0_Nss2	23	10.21
HE 20	5210	Mcs0_Nss2	28	14.53
HE 20	5240	Mcs0_Nss2	27	13.87
HE 40	5190	Mcs0_Nss2	22	6.47
HE 40	5230	Mcs0_Nss2	25	9.41
HE 80	5210	Mcs0_Nss2	22	3.02

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Measured PSD
OFDM 20	5180	Mcs0_Nss1	23	10.55
OFDM 20	5210	Mcs0_Nss1	28	15.08
OFDM 20	5240	Mcs0_Nss1	27	14.3
HE 20	5180	Mcs0_Nss1	23	10.21
HE 20	5210	Mcs0_Nss1	27	14.08
HE 20	5240	Mcs0_Nss1	27	13.87
HE 40	5190	Mcs0_Nss1	22	6.47
HE 40	5230	Mcs0_Nss1	25	9.41
HE 80	5210	Mcs0_Nss1	22	3.02

**Canada – Indoor Only Use**

<b>Modulation (BW)</b>	<b>Frequency (MHz)</b>	<b>Data Rate</b>	<b>TP Setting</b>	<b>Measured PSD</b>
OFDM 20	5180	Mcs0_Nss2	17	4.71
OFDM 20	5210	Mcs0_Nss2	17	4.80
OFDM 20	5240	Mcs0_Nss2	17	4.79
HE 20	5180	Mcs0_Nss2	17	4.28
HE 20	5210	Mcs0_Nss2	17	4.38
HE 20	5240	Mcs0_Nss2	17	4.39
HE 40	5190	Mcs0_Nss2	17	1.57
HE 40	5230	Mcs0_Nss2	17	1.52
HE 80	5210	Mcs0_Nss2	17	-1.20

**Result**

The maximum summed average power spectral density was less than the limit of 17 dBm for Nss2 (5 dBm for Canada) and 14.99 dBm for Nss1; therefore, the EUT complies with the specification.

**-- End of Test Report --**