



427 West 12800 South
Draper, UT 84020

Test Report Certification

FCC ID	SWX-E7CP
ISED ID	6545A-E7CP
Equipment Under Test	E7-Campus
Test Report Serial Number	TR9432_01
Date of Test(s)	8, 21 – 24 and 31 May 2024
Report Issue Date	21 October 2024

Test Specification	Applicant
47 CFR FCC Part 15, Subpart E	Ubiquiti Inc. 685 Third Avenue New York, NY 10017 U.S.A.



Certification of Engineering Report

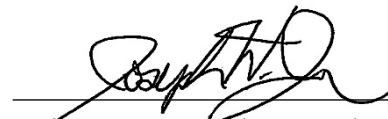
This report has been prepared by Unified Compliance Laboratory (UCL) to document compliance of the device described below with the requirement of Federal Communication Commissions (FCC) Part 15, Subpart E. This report may be reproduced in full. Partial reproduction of this report may only be made with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

Applicant	Ubiquiti Inc.
Manufacturer	Ubiquiti Inc.
Brand Name	UBIQUITI
Model Number	E7-Campus
FCC ID	SWX-E7CP
ISED ID	6545A-E7CP

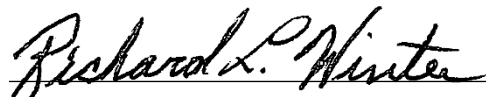
On this 21st day of October 2024, I individually and for Unified Compliance Laboratory certify that the statements made in this engineering report are true, complete and correct to the best of my knowledge and are made in good faith.

Although NVLAP has accredited the Unified Compliance Laboratory testing facilities, this report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the U.S. federal government.

Unified Compliance Laboratory



Written By: Joseph W. Jackson



Reviewed By: Richard L. Winter

Revision History		
Revision	Description	Date
01	Original Report Release	21 October 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.....	7
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	15
5.3	§15.403(i) 26 dB Emissions Bandwidth	17
5.4	§15.407(a)(3) Maximum Average Output Power	18
5.5	§15.407(b)(7) Spurious Emissions.....	19
5.6	§15.407(a) Maximum Power Spectral Density.....	23

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	E7-Campus
Serial Number	F4E2C61FFB30
Dimensions (cm)	25.0 x 25.0 x 4.6

2.2 Description of EUT

The E7-Campus is a WiFi 7 access point with (1) 10GbE PoE port and (1) 1GbE PoE port. The E7-Campus transmits in the 2.4 GHz, 5 GHz, and 6 GHz frequency bands using integral antennas and is powered by an 802.3++ PoE power adapter.

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

Band	WiFi Mode	Modulation Bandwidth	Modulation Type	Frequency (MHz)
UNII-3	a	20 MHz	OFDM	5745, 5775, 5825
	ax	20 MHz	HE	5745, 5775, 5825
	ax	40 MHz	HE	5755, 5775, 5795
	ax	80 MHz	HE	5775

This report covers the circuitry of the device subject to FCC Part 15, Subpart E. The circuitry of the device subject to FCC Part 15 Subpart B was found to be compliant and is covered under a separate Unified Compliance Laboratory test report.

2.3 EUT and Support Equipment

The EUT and support equipment used during the test are listed below.

Brand Name Model Number Serial Number	Description	Name of Interface Ports / Interface Cables
BN: UBIQUITI MN: E7-Campus (Note 1) SN: F4E2C61FFB30	Access Point	PoE Input / Shielded Cat 5E cable
BN: UBIQUITI MN: U-POE++ SN: N/A	PoE Injector	PoE Output / Shielded Cat 5E to E7, and Ethernet / unshielded Cat 5E to PC
BN: DELL MN: XPS SN: N/A	Laptop PC	Ethernet / un-shielded Cat 5E

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 E7 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 POE 48 Volts
AC Mains Frequency	60 Hz
Temperature	21.1 – 22.3 °C
Humidity	20.8 – 26.3 %
Barometric Pressure	1012 mBar

2.6 Operating Modes

The E7-Campus 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

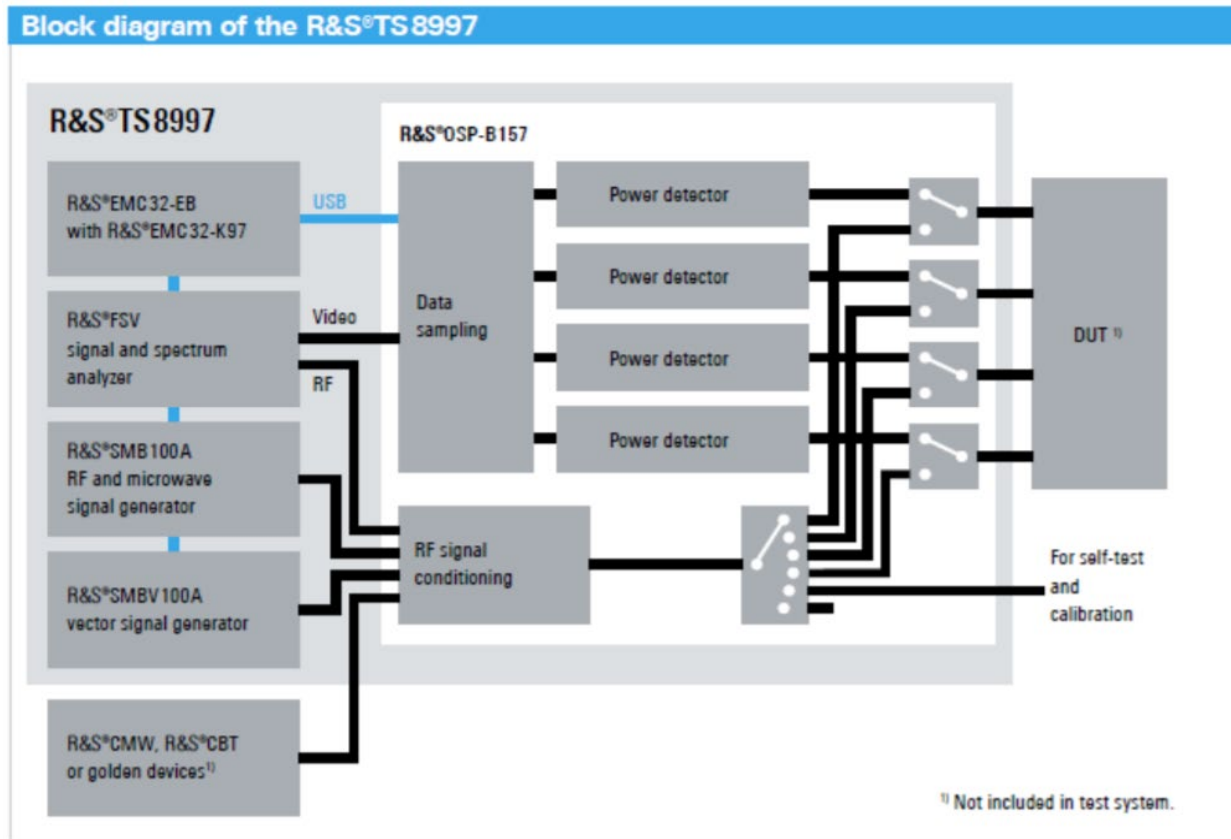


Diagram 1: Test Configuration Block Diagram

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

Title	47 CFR FCC Part 15, Subpart E, Section 15.407 Limits and methods of measurement of radio interference characteristics of Unlicensed National Information Infrastructure Devices
Purpose of Test	The tests were performed to demonstrate initial compliance

3.2 Methods & Procedures

3.2.1 47 CFR FCC Part 15 Section 15.407

See test standard for details.

3.3 FCC Part 15, Subpart E

3.3.1 Summary of Tests

FCC Section	ISED Section	Environmental Phenomena	Frequency Range (MHZ)	Result
15.407(a)	N/A	Antenna requirements	Structural Requirement	Compliant
15.407(b)	RSS-Gen	Conducted Disturbance at Mains Port	0.15 to 30	Compliant
15.407(c)	RSS-247 §6.2.2, §6.2.3	Bandwidth Requirement	5725 to 5850	Compliant
15.407(e)	RSS-247 §6.2.2, §6.2.3	Peak Output Power	5725 to 5850	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	5725 to 5850	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 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

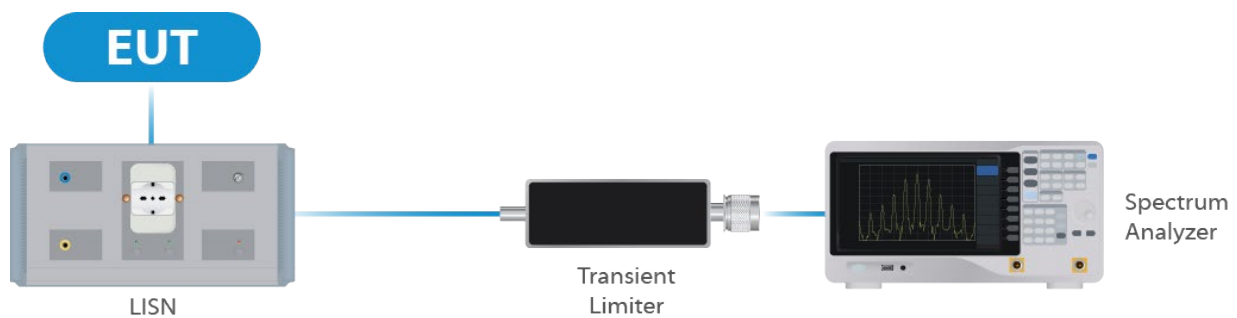


Figure 1: Conducted Emissions Test

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	11/27/2024
Signal Generator	R&S	SMB100A	UCL-2864	N/A	N/A
Vector Signal Generator	R&S	SMBV100A	UCL-2873	N/A	N/A
Switch Extension	R&S	OSP-B157WX	UCL-2867	4/12/2024	4/19/2025
Switch Extension	R&S	OSP-150W	UCL-2870	4/12/2024	4/19/2025

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

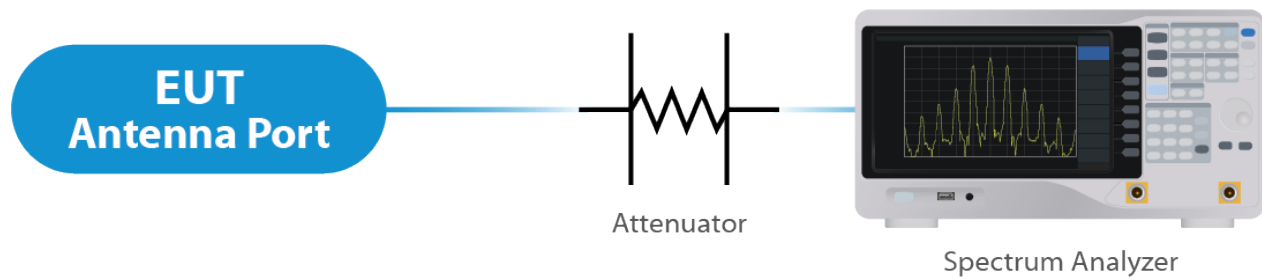


Figure 2: Direct Connect at the Antenna Port Test



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	1/25/2024	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

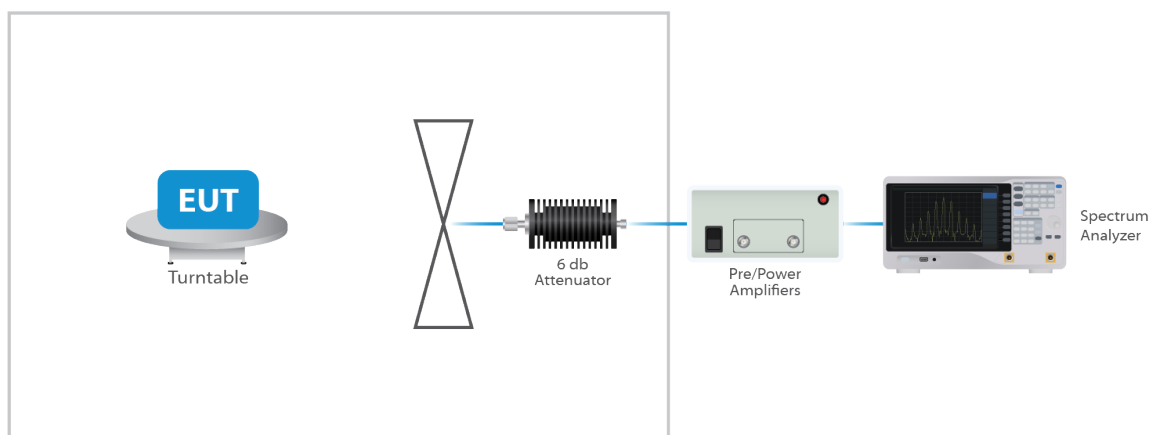


Figure 4: Radiated Emissions Test

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
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 12 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 = $10 \log(\text{NANT}/\text{NSS})$ 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 $\text{NANT} \leq 4$;

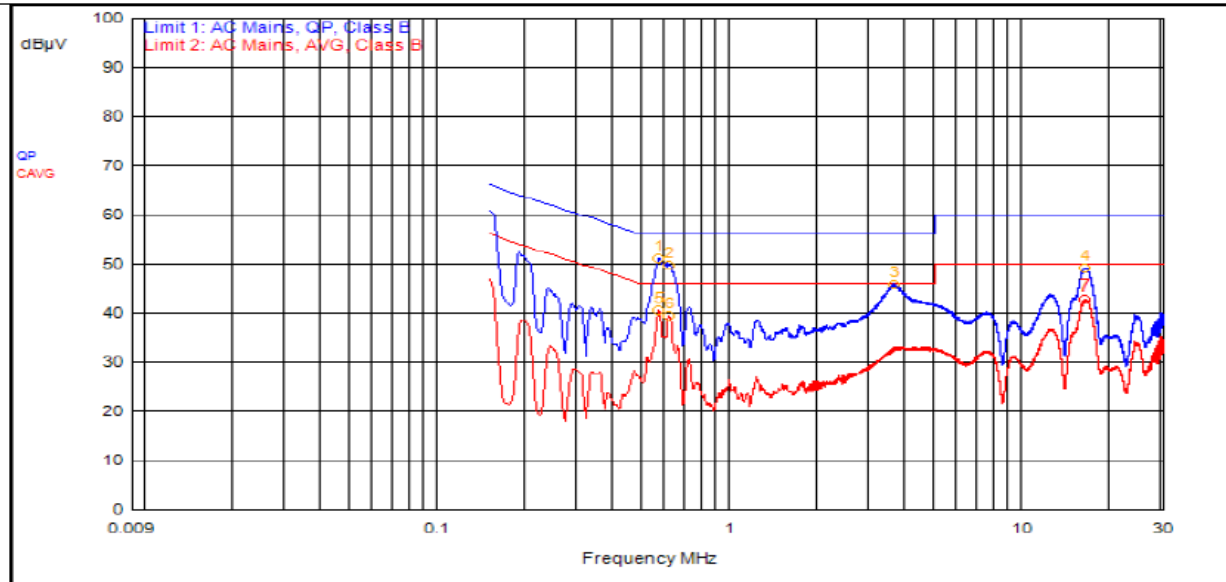
For PSD measurements when $\text{Nss}=1$: Array Gain = $10 \log(\text{NANT}/\text{NSS})$ dB + Antenna Gain (dBi). Or $6.02 \text{ dB} + 12 \text{ dBi} = 18.02 \text{ dBi}$.

Results

The EUT complied with the specification

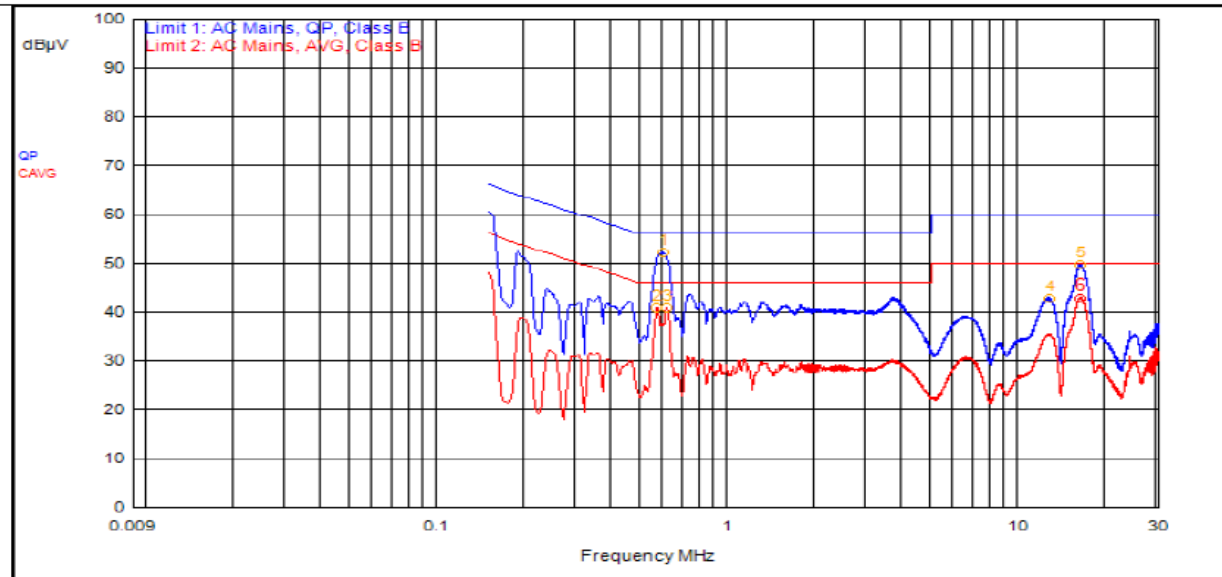
5.2 Conducted Emissions at Mains Ports Data

5.2.1 Line



ID	Frequency	Probe	Cable	Atten.	Detector	Meter Read	Meas Level	Limit 1	Limit 1 Dist.	Limit 2	Limit 2 Dist.	P/F
MU	MHz	dB	dB	dB	Type	dBµV	dBµV	dBµV	dB	dBµV	dB	P/F
1	567,000kHz	12.40	0.00		QPeak	38.61	51.01	56.00	-4.99			
2	615,000kHz	12.38	0.00		QPeak	37.44	49.82	56.00	-6.18			
3	3.594	12.29	0.10		QPeak	33.37	45.76	56.00	-10.24			
4	16.206	12.40	0.20		QPeak	36.61	49.21	60.00	-10.79			
5	567,000kHz	12.40	0.00		C_AVG	28.23	40.63			46.00	-5.37	
6	609,000kHz	12.38	0.00		C_AVG	27.16	39.54			46.00	-6.46	
7	16.206	12.40	0.20		C_AVG	30.08	42.68			50.00	-7.32	

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	591,000kHz	12.40	0.00		QPeak	39.70	52.10	56.00	-3.90			
5	16.143	12.43	0.20		QPeak	37.04	49.67	60.00	-10.33			
4	12.678	12.40	0.20		QPeak	30.24	42.84	60.00	-17.16			
2	567,000kHz	12.41	0.00		C_AVG	28.53	40.94			46.00	-5.06	
3	612,000kHz	12.40	0.00		C_AVG	28.43	40.83			46.00	-5.17	
6	16.155	12.43	0.20		C_AVG	30.17	42.80			50.00	-7.20	

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)
OFDM 20	5745	17.3	22.6
OFDM 20	5775	17.3	22.6
OFDM 20	5825	17.5	23.3
HE 20	5745	19.3	22.9
HE 20	5775	19.5	22.7
HE 20	5825	19.3	22.3
HE 40	5755	38.5	43.7
HE 40	5775	38.5	42.2
HE 40	5795	38.5	42.8
HE 80	5775	79.0	89.5

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 23.87 dBm or 243.78 mW. The limit is 30 dBm, or 1 Watt when using antennas with 6 dBi or less gain. The antenna has a gain of 12 dBi.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power *	Measured EIRP	Measured PSD
OFDM 20	5745	Mcs0_Nss4	20	23.84	35.84	8.70
OFDM 20	5775	Mcs0_Nss4	19	23.55	35.55	8.53
OFDM 20	5825	Mcs0_Nss4	19	23.28	35.28	8.16
HE 20	5745	Mcs0_Nss4	20	23.87	35.87	8.25
HE 20	5775	Mcs0_Nss4	19	23.67	35.67	8.08
HE 20	5825	Mcs0_Nss4	19	23.34	35.34	7.77
HE 40	5755	Mcs0_Nss4	19	22.99	34.99	4.80
HE 40	5775	Mcs0_Nss4	19	23.58	35.58	5.24
HE 40	5795	Mcs0_Nss4	19	23.84	35.84	5.15
HE 80	5775	Mcs0_Nss4	19	23.55	35.55	2.24

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).

* Gated EIRP shown in the Annex is the conducted measurement

5.5 §15.407(b)(7) Spurious Emissions

5.5.1 Conducted Spurious Emissions

The frequency ranges 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 within the annex are plots with the EUT turned to the upper and lower channels with the antenna gain of 12 dBi accounted for. These demonstrate compliance with the provisions of this section at the band edges.

All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

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 + 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. See Annex for Conducted Band edge plots.

QuasiPeak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
No Significant Emissions were Observed in this Orientation of the Antenna						Vertical	--
No Significant Emissions were Observed in this Orientation of the Antenna						Horizontal	--

Table 4: Radiated Emissions 30 – 1000 MHz

Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
1.50 GHz	51.37	74	-22.63	359	2.919	Vertical	-7.41
4.50 GHz	50.50	74	-23.50	345	3.096	Vertical	2.81
12.52 GHz	53.68	74	-20.32	46	2.574	Vertical	16.54

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
14.70 GHz	56.10	74	-17.90	273	2.181	Vertical	17.45
16.43 GHz	57.00	74	-16.00	157	3.617	Vertical	19.22
4.50 GHz	56.03	74	-17.97	32	2.747	Horizontal	2.81
7.25 GHz	49.76	74	-24.24	131	1.643	Horizontal	11.24
11.91 GHz	55.73	74	-18.27	294	4	Horizontal	16.55
13.01 GHz	54.16	74	-19.84	310	3.625	Horizontal	16.76
14.79 GHz	56.88	74	-17.12	351	2.574	Horizontal	16.79

Ave

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
1.50 GHz	22.07	54	-31.93	359	2.919	Vertical	-7.41
4.50 GHz	44.91	54	-9.09	345	3.096	Vertical	2.81
12.52 GHz	36.85	54	-17.16	46	2.574	Vertical	16.54
14.70 GHz	38.69	54	-15.31	273	2.181	Vertical	17.45
16.43 GHz	38.72	54	-15.28	157	3.617	Vertical	19.22
4.50 GHz	53.42	54	-0.58	32	2.747	Horizontal	2.81
7.25 GHz	32.34	54	-21.66	131	1.643	Horizontal	11.24
11.91 GHz	37.10	54	-16.90	294	4	Horizontal	16.55
13.01 GHz	37.14	54	-16.86	310	3.625	Horizontal	16.76
14.79 GHz	38.15	54	-15.85	351	2.574	Horizontal	16.79

Table 5: 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)
2.39 GHz	52.77	74	-21.23	343	2.041	Vertical	-3.41
4.50 GHz	50.51	74	-23.49	5	1.5	Vertical	2.81
12.30 GHz	54.37	74	-19.63	138	2.716	Vertical	16.77
13.02 GHz	55.51	74	-18.49	303	3.444	Vertical	16.60
16.45 GHz	57.69	74	-16.31	82	1.522	Vertical	18.23
1.00 GHz	49.95	74	-24.05	288	1.643	Horizontal	-9.14
2.39 GHz	50.80	74	-23.20	10	2.178	Horizontal	-3.43
4.50 GHz	55.21	74	-18.79	27	1.638	Horizontal	2.81
11.91 GHz	57.63	74	-16.37	325	2.005	Horizontal	16.54

Frequency	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
14.72 GHz	56.67	74	-17.33	180	2.902	Horizontal	17.23

Ave

Frequency	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
2.39 GHz	33.27	54	-20.73	343	2.041	Vertical	-3.41
4.50 GHz	45.16	54	-8.84	5	1.5	Vertical	2.81
12.30 GHz	37.66	54	-16.34	138	2.716	Vertical	16.77
13.02 GHz	37.28	54	-16.72	303	3.444	Vertical	16.60
16.45 GHz	38.35	54	-15.65	82	1.522	Vertical	18.23
1.00 GHz	29.13	54	-24.87	288	1.643	Horizontal	-9.14
2.39 GHz	31.86	54	-22.14	10	2.178	Horizontal	-3.43
4.50 GHz	52.43	54	-1.57	27	1.638	Horizontal	2.81
11.91 GHz	45.65	54	-8.35	325	2.005	Horizontal	16.54
14.72 GHz	38.67	54	-15.33	180	2.902	Horizontal	17.23

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

Peak

Frequency	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
1.58 GHz	53.73	74	-20.27	11	1.82	Vertical	-6.93
1.59 GHz	52.80	74	-21.20	329	2.045	Vertical	-6.93
1.60 GHz	56.78	74	-17.22	1	1.638	Vertical	-6.91
2.39 GHz	51.56	74	-22.44	357	2.178	Vertical	-3.40
4.50 GHz	49.68	74	-24.32	4	1.638	Vertical	2.81
12.59 GHz	54.94	74	-19.06	44	3.079	Vertical	16.74
14.75 GHz	56.44	74	-17.56	196	3.621	Vertical	17.07
1.60 GHz	44.99	74	-29.01	305	3.26	Horizontal	-6.90
2.39 GHz	51.62	74	-22.38	6	2.049	Horizontal	-3.42
4.50 GHz	55.90	74	-18.10	25	1.638	Horizontal	2.81
11.91 GHz	58.31	74	-15.69	323	1.638	Horizontal	16.54
14.72 GHz	56.62	74	-17.38	113	1.638	Horizontal	17.23

Ave

Frequency	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
1.58 GHz	22.92	54	-31.08	11	1.82	Vertical	-6.93

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
1.59 GHz	22.80	54	-31.20	329	2.045	Vertical	-6.93
1.60 GHz	23.25	54	-30.75	1	1.638	Vertical	-6.91
2.39 GHz	32.46	54	-21.54	357	2.178	Vertical	-3.40
4.50 GHz	43.51	54	-10.49	4	1.638	Vertical	2.81
12.59 GHz	38.10	54	-15.90	44	3.079	Vertical	16.74
14.75 GHz	38.14	54	-15.86	196	3.621	Vertical	17.07
1.60 GHz	22.27	54	-31.73	305	3.26	Horizontal	-6.90
2.39 GHz	32.43	54	-21.57	6	2.049	Horizontal	-3.42
4.50 GHz	52.99	54	-1.01	25	1.638	Horizontal	2.81
11.91 GHz	48.20	54	-5.80	323	1.638	Horizontal	16.54
14.72 GHz	38.71	54	-15.29	113	1.638	Horizontal	17.23

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

Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
17.33 GHz	68.65	74	-5.35	13	Vertical	-0.33
23.10 GHz	57.25	74	-16.75	320	Vertical	0.02
30.94 GHz	53.84	74	-20.16	357	Vertical	0.78
37.08 GHz	54.01	74	-19.99	130	Vertical	4.18
17.34 GHz	61.81	74	-12.19	34	Horizontal	-0.33
23.10 GHz	52.52	74	-21.48	13	Horizontal	0.02
23.82 GHz	54.91	74	-19.09	313	Horizontal	0.80
26.66 GHz	51.15	74	-22.85	148	Horizontal	1.84

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
17.33 GHz	53.01	54	-0.99	13	Vertical	-0.33
23.10 GHz	52.61	54	-1.39	320	Vertical	0.02
30.94 GHz	43.55	54	-10.45	357	Vertical	0.78
37.08 GHz	36.76	54	-17.24	130	Vertical	4.18
17.34 GHz	43.55	54	-10.45	34	Horizontal	-0.33
23.10 GHz	41.85	54	-12.15	13	Horizontal	0.02
23.82 GHz	48.05	54	-5.95	313	Horizontal	0.80
26.66 GHz	35.97	54	-18.03	148	Horizontal	1.84

Table 8: Radiated Emissions 17 – 40 GHz at the Middle 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 30 dBm in any 500 kHz band during any time interval of continuous transmission. Results of this testing are summarized.

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 12 dBi + Array gain of 6.02 dB which is a total of 18.02 dBi.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power	Measured EIRP	Measured PSD
OFDM 20	5745	Mcs0	20	23.84	35.84	8.70
OFDM 20	5775	Mcs0	19	23.55	35.55	8.53
OFDM 20	5825	Mcs0	19	23.28	35.28	8.16
HE 20	5745	Mcs0	20	23.87	35.87	8.25
HE 20	5775	Mcs0	19	23.67	35.67	8.08
HE 20	5825	Mcs0	19	23.34	35.34	7.77
HE 40	5755	Mcs0	19	22.99	34.99	4.80
HE 40	5775	Mcs0	19	23.58	35.58	5.24
HE 40	5795	Mcs0	19	23.84	35.84	5.15
HE 80	5775	Mcs0	19	23.55	35.55	2.24

Result

The maximum summed average power spectral density was less than the limit of 30 dBm (Adjusted PSD limit for Nss1 is 17.98 dBi); therefore, the EUT complies with the specification.

-- End of Test Report --