UNIFIED COMPLIANCE LABORATORY

427 West 12800 South
Draper, UT 84020

Test Report

Certification

FCC ID	SWX-U6EXTR
ISED ID	6545A-U6EXTR
Equipment Under Test	U6-Extender
Test Report Serial Number	TR6357_01
Date of Test(s)	15, 20 July and 5 August 2021
Report Issue Date	30 August 2021

Test Specification	Applicant
47 CFR FCC Part 15, Subpart E	Ubiquiti Inc. 685 Third Avenue New York, NY 10019 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.

Applicant	Ubiquiti Inc.
Manufacturer	Ubiquiti Inc.
Brand Name	UniFi
Model Number	U6-Extender
FCC ID	SWX-U6EXTR
ISED ID	6545A-U6EXTR

On this 30th day of August 2021, 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

Alan Kitchen

Written By: Alan Kitchen

Reviewed By: Joseph W. Jackson

Revision History		
Revision	**Description**	**Date**
01	Original Report Release	30 August 2021

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1 Client Information

1.1 Applicant

Company	Ubiquiti Inc. 685 Third Avenue New York, NY 10017 U.S.A.
Contact Name	Mark Feil
Title	Compliance Manager

1.2 Manufacturer

Company	Ubiquiti Inc. 685 Third Avenue New York, NY 10017 U.S.A.
Contact Name	Mark Feil
Title	Compliance Manager

2 Equipment Under Test (EUT)

2.1 Identification of EUT

Brand Name	UniFi
Model Number	U6-Extender
Serial Number	68D79A1F2912
Dimensions (cm)	16.9 x 11.2 x 3.2

2.2 Description of EUT

The U6-Extender is a WiFi 6 access point to increase a home or office's wireless coverage. With its dual-band design and 5.3+ Gbps aggregate throughput rate, the U6-Extender delivers strong connectivity needed to support device-dense networks. The U6-Extender includes a 5 GHz 4x4 MU-MIMO transceiver and a 2.4 GHz 2x2 MIMO transceiver. The access point fits any standard US duplex wall outlet and is power by AC Mains power. The U6-Extender provides a Bluetooth BLE management radio to be used with the UniFi Network web application or mobile app.

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
	n	20 MHz	HT	5745, 5775, 5825
	n	40 MHz	HT	5755, 5775, 5795
	ac	20 MHz	VHT	5745, 5775, 5825
	ac	40 MHz	VHT	5755, 5775, 5795
	ac	80 MHz	VHT	5775
	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: UniFi MN: U6-Extender SN: 68D79A1F2912	WiFi Access Point	See Section 2.4
BN: Dell MN: XPS 13 SN: N/A	Laptop PC	Shielded or 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 Power	1	N/A

2.5 Operating Environment

Power Supply	120/240 VAC
AC Mains Frequency	50/60 Hz
Temperature	25.1 – 27.5 °C
Humidity	28.5 – 50.6 %
Barometric Pressure	1022 mBar

2.6 Operating Modes

The U6-Extender was tested using testing software 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/n/ac/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

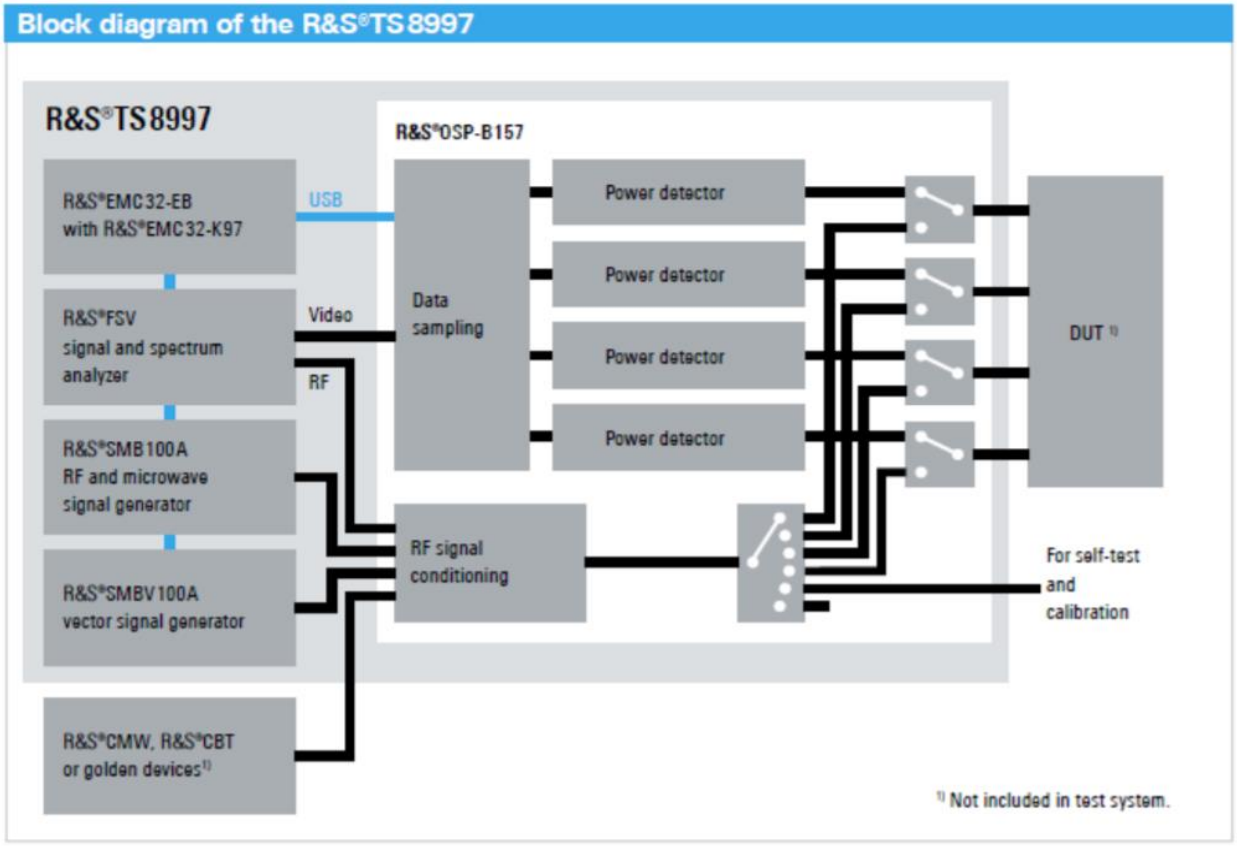


Diagram 1: Test Configuration Block Diagram

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	Compliant
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 2022. 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 2022. Unified Compliance Laboratory has been assigned 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	9/18/2020	9/17/2021
LISN	AFJ	LS16C/10	UCL-2512	5/26/2020	5/26/2022
Cat6 ISN	Teseq	ISN T8-Cat6	UCL-2971	5/18/2020	5/18/2022
ISN	Teseq	ISN T800	UCL-2974	6/4/2021	6/4/2022
LISN	Com-Power	LIN-120C	UCL-2612	5/19/2021	5/19/2022
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

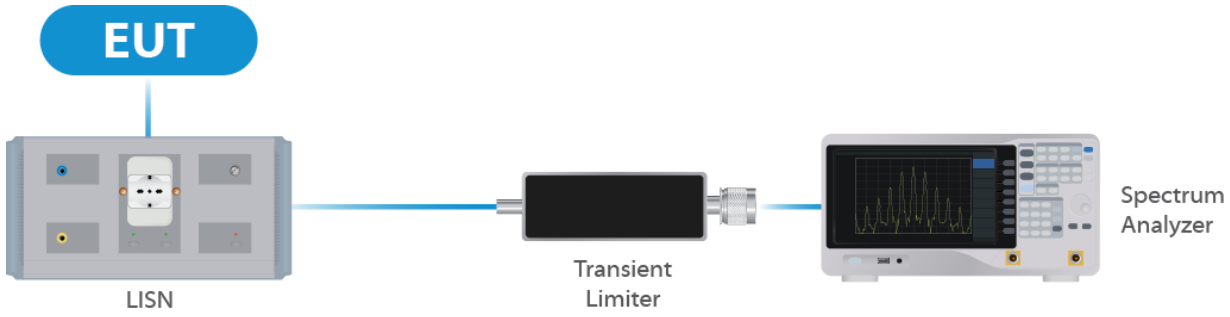


Figure 1: Conducted Emissions Test

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	8/24/2020	8/24/2021
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	9/8/2020	9/8/2021
Switch Extension	R&S	OSP-150W	UCL-2870	3/3/2021	3/3/2022

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

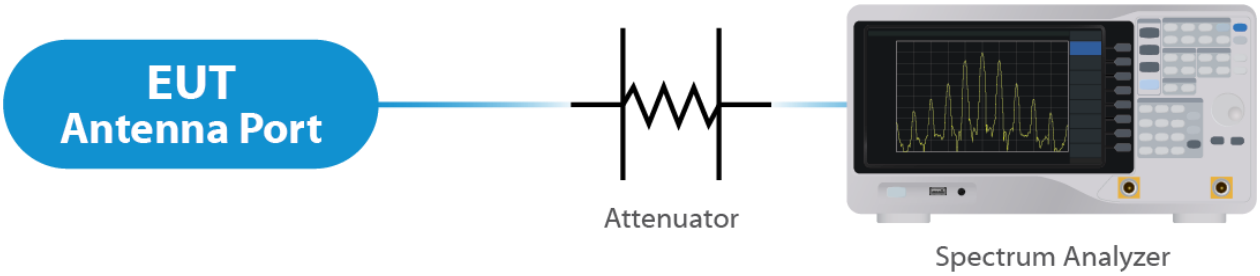


Figure 2: Direct Connect at the Antenna Port Test

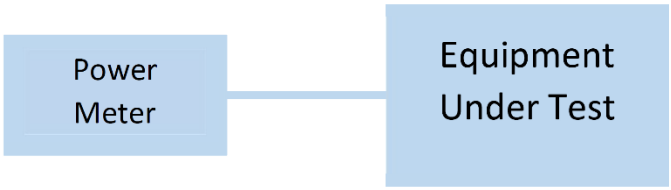


Figure 3: Output Power Measurement

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	6/21/2021	6/21/2022
Pre-Amplifier 9 kHz – 1 GHz	Sonoma Instruments	310N	UCL-2889	9/10/2020	9/10/2021
Double Ridge Horn Antenna	Scwarzbeck	BBHA 9120D	UCL-3065	7/8/2021	7/8/2022
Log Periodic	Scwarzbeck	STLP 9129	UCL-3068	11/16/2020	11/16/2021
15 - 40 GHz Horn Antenna	Scwarzbeck	BBHA 9170	UCL-2487	5/21/2020	5/21/2022
1 – 18 GHz Amplifier	Com-Power	PAM 118A	UCL-3833	9/29/2020	9/29/2021
Test Software	UCL	Revision 1	UCL-3108	N/A	N/A

Table 3:List of equipment used for Radiated Emissions

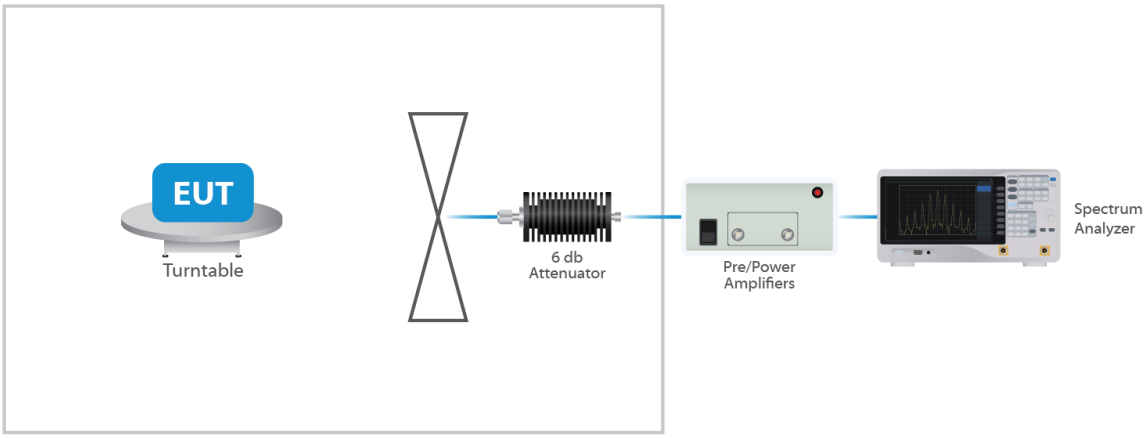


Figure 4: Radiated Emissions Test

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 (± 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. The Maximum gain of the antenna is 6 dBi. This is an 802.11 device and utilizes CDD as described in KDB 662911 D01. The antenna is not user replaceable.

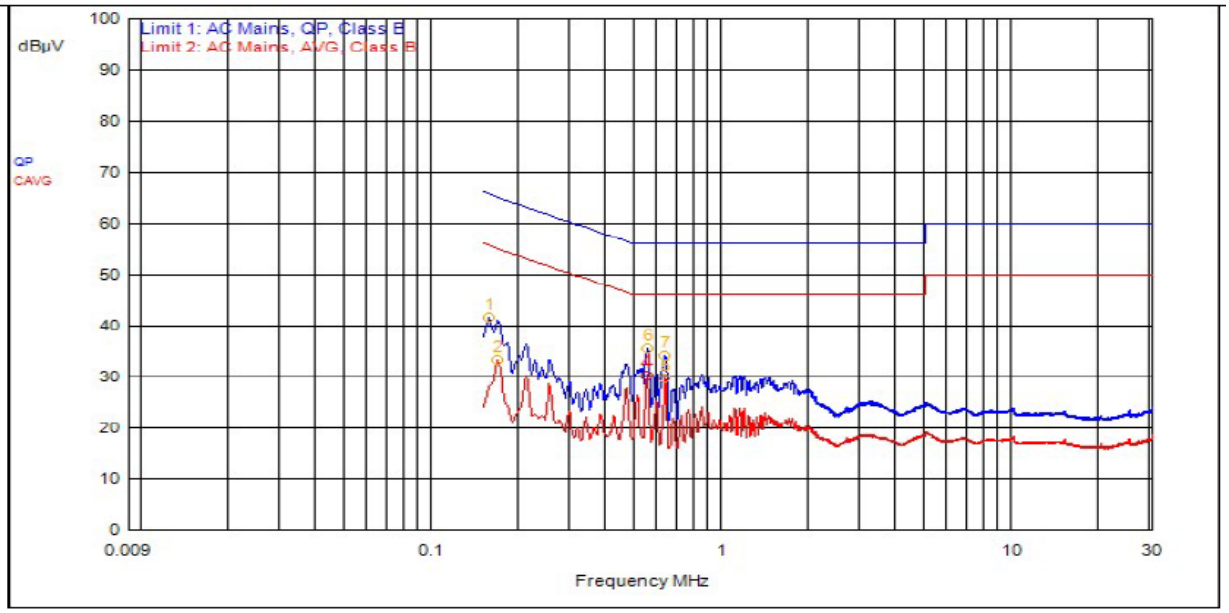
For power measurements on IEEE 802.11 devices, Array Gain = 0 dB for NANT ≤ 4;
For PSD measurements when Nss=1: Array Gain = 10 log(NANT/NSS) dB = 6.02dB

Results

The EUT complied with the specification

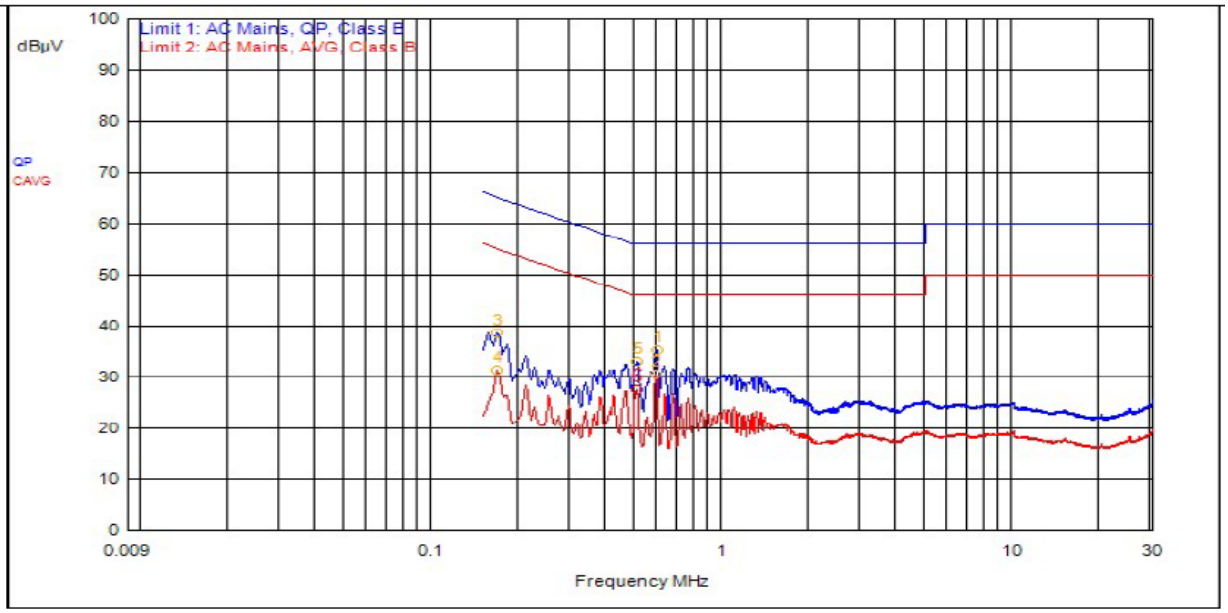
5.2 Conducted Emissions at Mains Ports Data

5.2.1 Line



ID	Frequency	Probe	Cable	Atten.	Detector	Meter Read	Meas Level	Limit 1	Limit 1 Dist.	Limit 2	Limit 2 Dist.
6	552,000kHz	12.4	0.0		QPeak	23.1	35.5	56.0	-20.5		
7	630,000kHz	12.4	0.0		QPeak	21.7	34.1	56.0	-21.9		
1	156,000kHz	12.4	0.0		QPeak	29.4	41.8	65.7	-23.9		
2	168,000kHz	12.4	0.0		C_AVG	20.9	33.3			55.1	-21.8
4	546,000kHz	12.4	0.0		C_AVG	17.8	30.2			46.0	-15.8
5	630,000kHz	12.4	0.0		C_AVG	17.4	29.8			46.0	-16.2

5.2.2 Neutral



ID	Frequency	Probe	Cable	Atten.	Detector	Meter Read	Meas Level	Limit 1	Limit 1 Dist.	Limit 2	Limit 2 Dist.
1	591,000kHz	12.4	0.0		QPeak	22.8	35.2	56.0	-20.8		
5	507,000kHz	12.4	0.0		QPeak	20.5	33.0	56.0	-23.0		
3	168,000kHz	12.4	0.0		QPeak	26.3	38.6	65.1	-26.4		
2	588,000kHz	12.4	0.0		C_AVG	18.1	30.5			46.0	-15.5
4	168,000kHz	12.4	0.0		C_AVG	19.0	31.4			55.1	-23.7
6	504,000kHz	12.4	0.0		C_AVG	15.0	27.5			46.0	-18.5

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)
a20	5745	33.1	40.0
a20	5775	34.6	40.0
a20	5825	32.0	40.0
n20	5745	32.9	40.0
n20	5775	35.8	40.0
n20	5825	33.0	40.0
n40	5755	45.5	79.3
n40	5775	58.5	80.0
n40	5795	53.0	80.0
ac20	5745	32.4	40.0
ac20	5775	35.6	40.0
ac20	5825	33.0	40.0
ac40	5755	45.0	79.9
ac40	5775	56.0	80.0
ac40	5795	53.5	79.9
ac80	5775	76.0	83.0
ax20	5745	31.1	40.0
ax20	5775	35.5	40.0
ax20	5825	32.8	40.0
ax40	5755	44.25	79.1
ax40	5775	55.25	80.0
ax40	5795	50.25	80.0
ax80	5775	77.0	87.0

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 §15.403(a)(3) 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 29.75 dBm or 944.06 mW. The limit is 30 dBm, or 1 Watt when using antennas with 6 dBi or less gain. The antenna has a gain of 6 dBi.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power *	Measured EIRP	Measured PSD
OFDM 20	5745	Mcs0	50	28.72	33.72	11.28
OFDM 20	5775	Mcs0	53	29.75	34.75	12.16
OFDM 20	5825	Mcs0	50	28.76	33.76	10.9
HT 20	5745	Mcs0	50	28.63	33.63	9.92
HT 20	5775	Mcs0	53	29.67	34.67	10.97
HT 20	5825	Mcs0	51	29.1	34.1	10.14
HT 40	5755	Mcs0	46	27.28	32.28	5.73
HT 40	5775	Mcs0	48	28.36	33.36	6.86
HT 40	5795	Mcs0	47	28.03	33.03	6.48
VHT 20	5745	Mcs0	50	28.63	33.63	10.01
VHT 20	5775	Mcs0	53	29.69	34.69	10.95
VHT 20	5825	Mcs0	51	29.07	34.07	10.16
VHT 40	5755	Mcs0	46	27.29	32.29	5.71
VHT 40	5775	Mcs0	48	28.34	33.34	6.7
VHT 40	5795	Mcs0	47	28.01	33.01	6.36
VHT 80	5775	Mcs0	41	24.45	29.45	-0.16
HE 20	5745	Mcs0	50	28.61	33.61	9.86
HE 20	5775	Mcs0	53	29.74	34.74	10.9
HE 20	5825	Mcs0	51	29.15	34.15	10.26
HE 40	5755	Mcs0	46	27.42	32.42	5.7
HE 40	5775	Mcs0	48	28.42	33.42	6.57
HE 40	5795	Mcs0	47	28.11	33.11	6.32
HE 80	5775	Mcs0	41	24.77	29.77	0.02

Result

In the configuration tested, the maximum average RF output power was less than 1 watt; therefore, the EUT compiled 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 5 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.

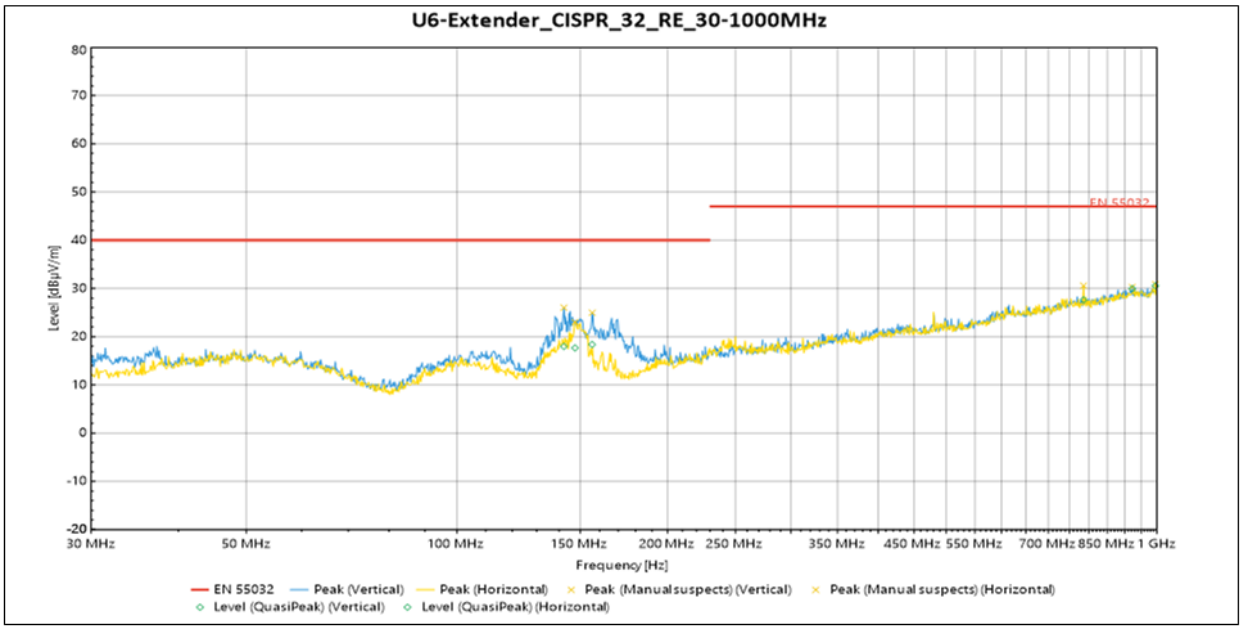
5.5.2 Radiated Spurious Emissions in the Restricted Bands of § 15.205

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 29.75.

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

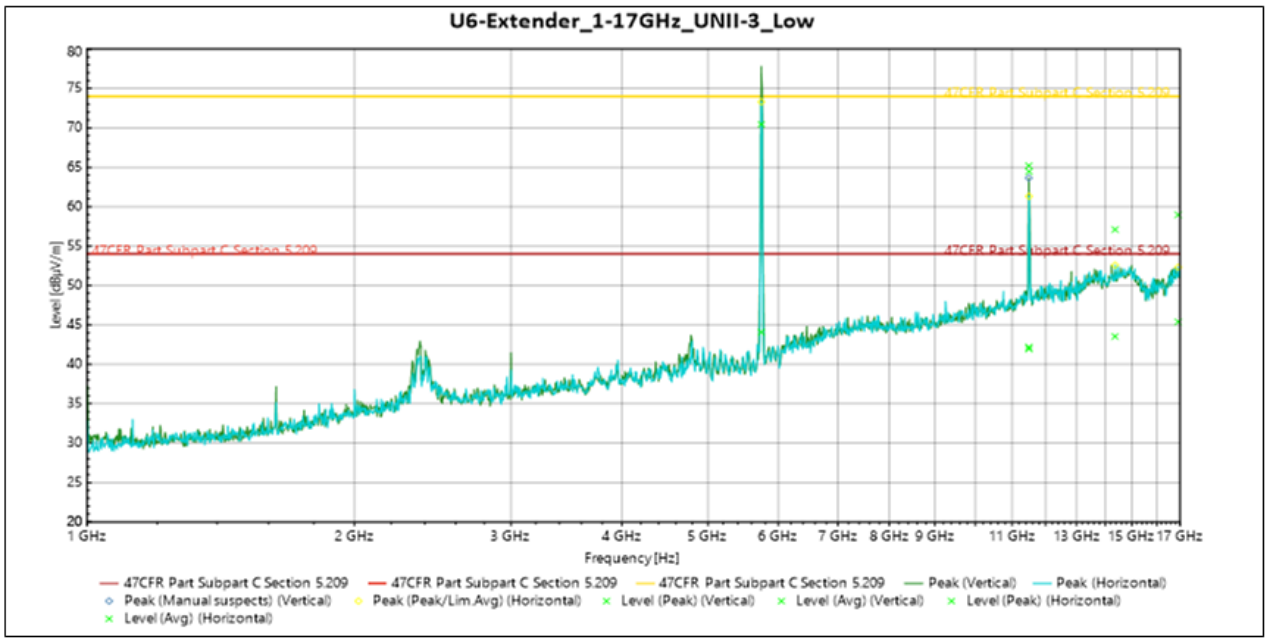
Result

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.



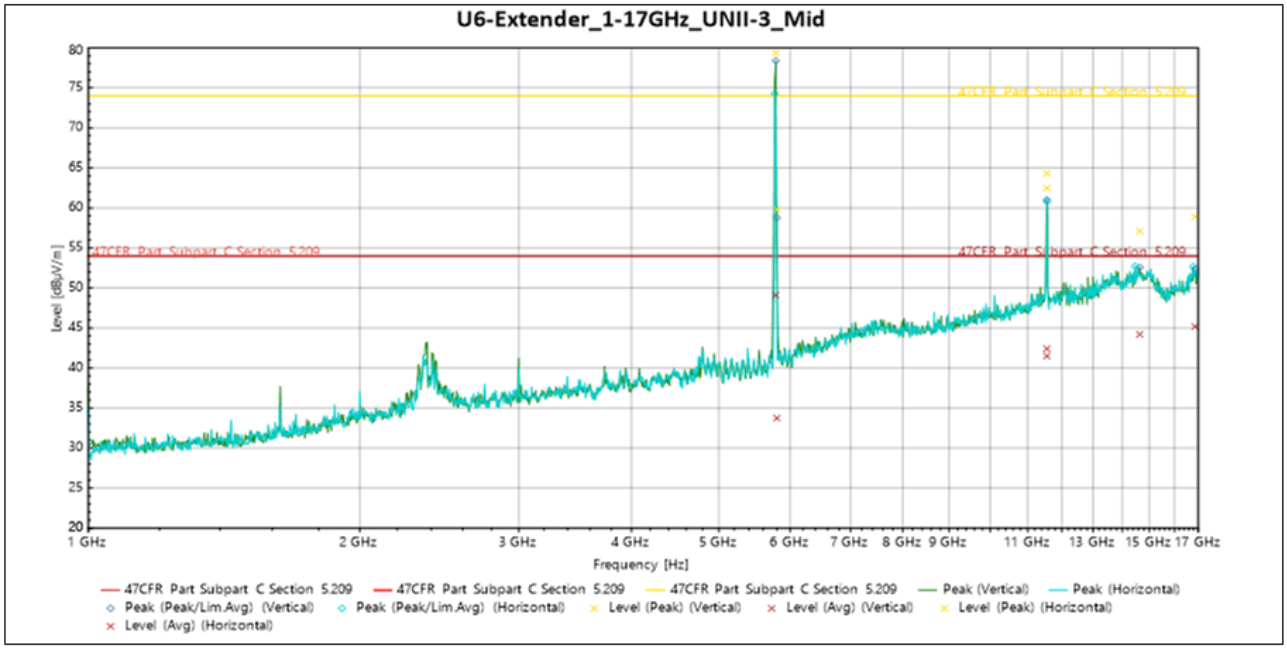
Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
QuasiPeak	142.23 MHz	17.972	40	-22.028	148	1.004	Vertical	-17.752
QuasiPeak	156.02 MHz	18.388	40	-21.612	137	1.054	Vertical	-17.394
QuasiPeak	922.4 MHz	29.956	47	-17.044	349	1.596	Vertical	-0.048
QuasiPeak	147.48 MHz	17.668	40	-22.332	69	3.616	Horizontal	-17.844
QuasiPeak	785.92 MHz	27.651	47	-19.349	134	3.8	Horizontal	-2.989
QuasiPeak	995.7 MHz	30.555	47	-16.445	337	2.117	Horizontal	1.052

Table 4: Radiated Emissions – 30 – 1000 MHz



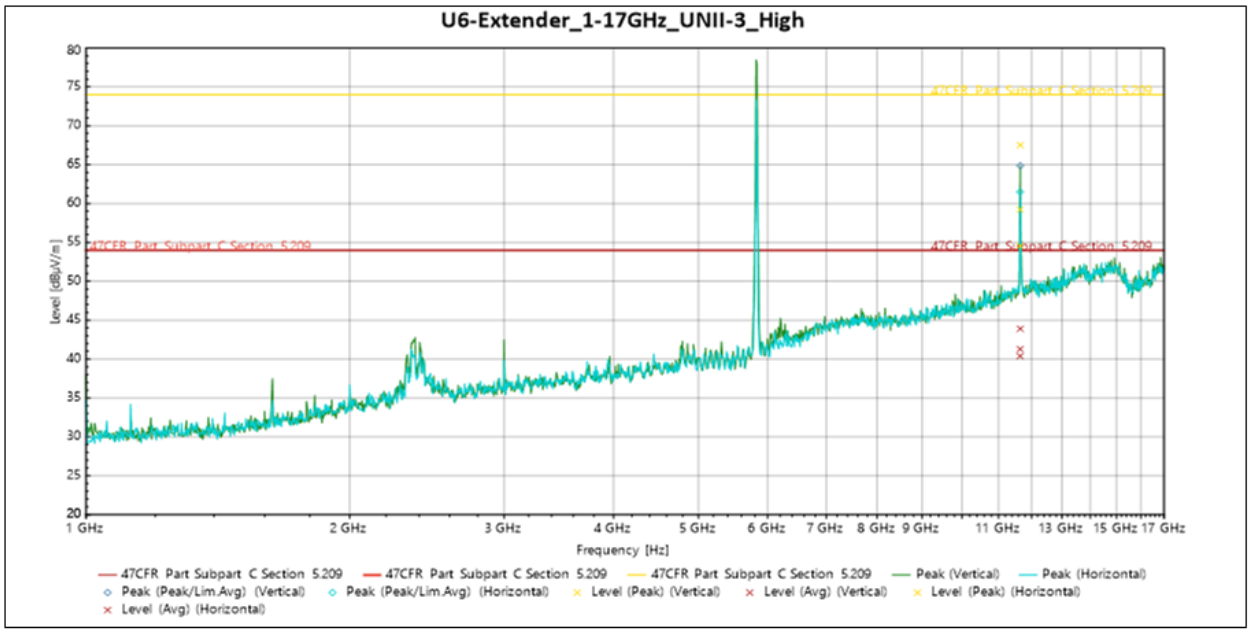
Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
Peak	11.485 GHz	65.213	74	-8.787	180	2.532	Vertical	12.1
Avg	11.485 GHz	42.188	54	-11.812	180	2.532	Vertical	12.1
Peak	5.741 GHz	70.45	74	-3.55	191	3.591	Horizontal	2.642
Peak	11.49 GHz	64.451	74	-9.549	229	1.637	Horizontal	12.141
Peak	14.362 GHz	57.102	74	-16.898	199	3.434	Horizontal	14.509
Peak	16.917 GHz	58.967	74	-15.033	265	3.414	Horizontal	17.162
Avg	5.741 GHz	44.078	54	-9.922	191	3.591	Horizontal	2.642
Avg	11.49 GHz	41.955	54	-12.045	229	1.637	Horizontal	12.141
Avg	14.362 GHz	43.526	54	-10.474	199	3.434	Horizontal	14.509
Avg	16.917 GHz	45.385	54	-8.615	265	3.414	Horizontal	17.162

Table 5: Transmitting on the Lowest Frequency 5745 MHz – 1 – 17 GHz



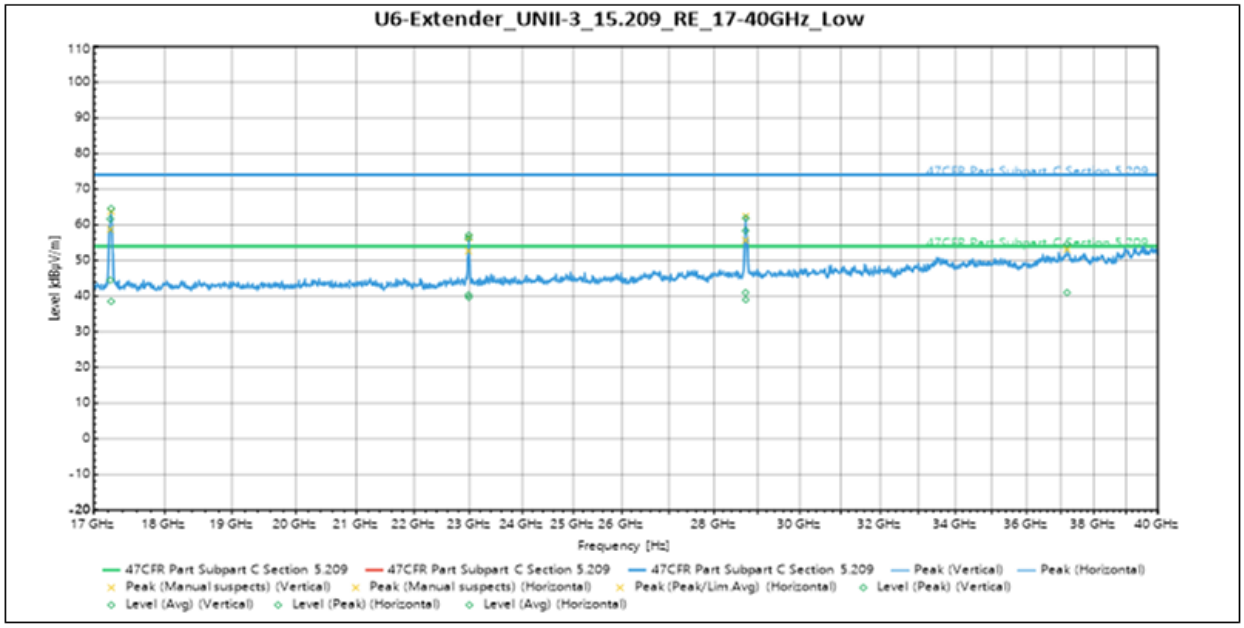
Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
Peak	5.7992 GHz	59.798	74	-14.202	227	2.182	Vertical	3.02
Peak	11.552 GHz	64.297	74	-9.703	232	2.357	Vertical	12.297
Peak	14.641 GHz	57.102	74	-16.898	340	1.821	Vertical	15.101
Peak	16.86 GHz	58.901	74	-15.099	195	4	Vertical	17.048
Avg	5.7992 GHz	33.739	54	-20.261	227	2.182	Vertical	3.02
Avg	11.552 GHz	42.411	54	-11.589	232	2.357	Vertical	12.297
Avg	14.641 GHz	44.204	54	-9.796	340	1.821	Vertical	15.101
Avg	16.86 GHz	45.177	54	-8.823	195	4	Vertical	17.048
Peak	11.551 GHz	62.464	74	-11.536	155	2.356	Horizontal	12.283
Avg	11.551 GHz	41.487	54	-12.513	155	2.356	Horizontal	12.283

Table 6: Transmitting on the Middle Frequency 5775 MHz – 1 – 17 GHz



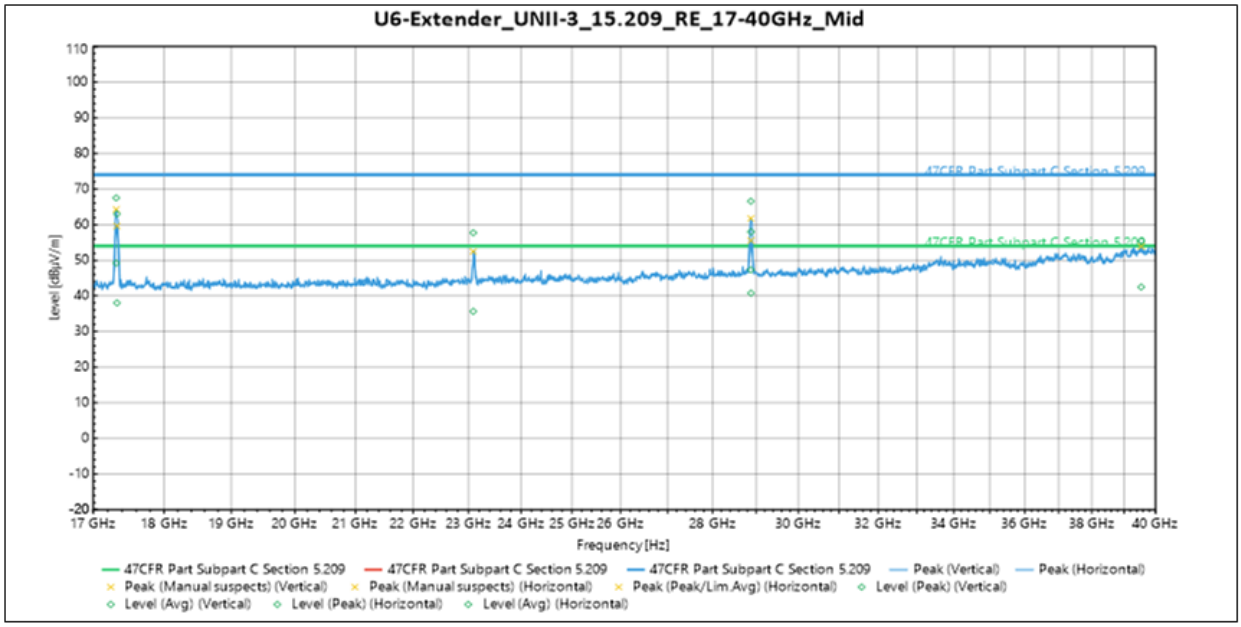
Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
Peak	11.65 GHz	67.513	74	-6.487	220	1.5	Vertical	12.478
Avg	11.65 GHz	43.889	54	-10.111	220	1.5	Vertical	12.478
Peak	11.645 GHz	54.543	74	-19.457	222	1.87	Horizontal	12.453
Peak	11.646 GHz	59.223	74	-14.777	237	2.354	Horizontal	12.458
Avg	11.645 GHz	40.383	54	-13.617	222	1.87	Horizontal	12.453
Avg	11.646 GHz	41.281	54	-12.719	237	2.354	Horizontal	12.458

Table 7: Transmitting on the Highest Frequency 5825 MHz – 1 – 17 GHz



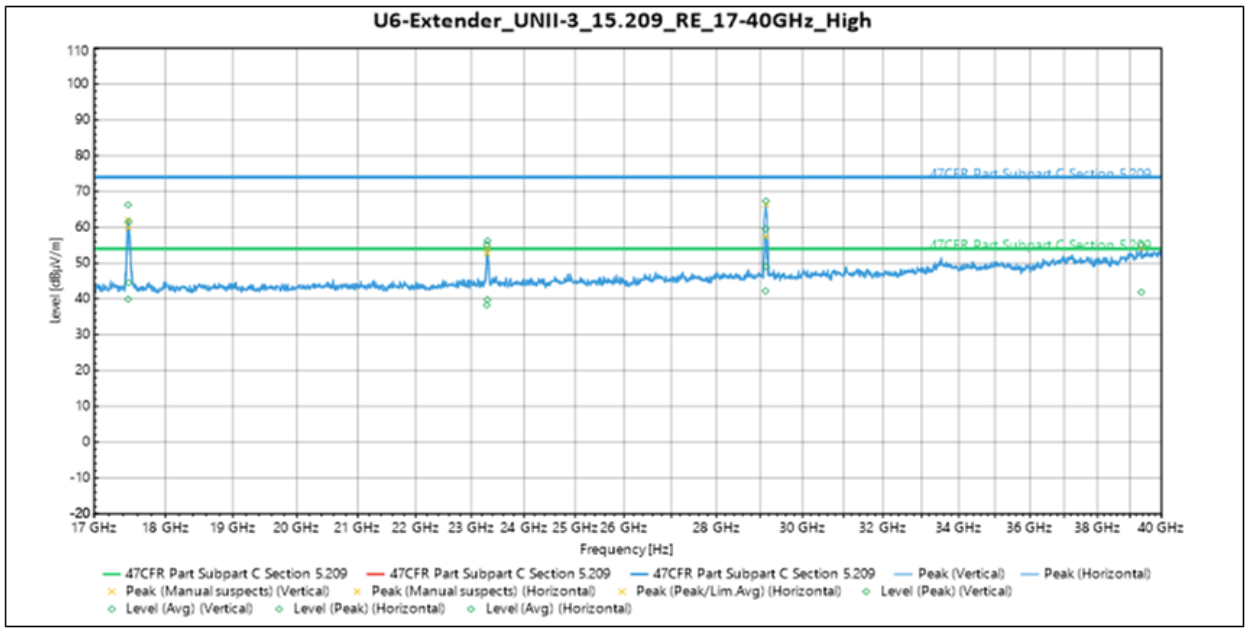
Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
Peak	17.23 GHz	61.647	74	-12.353	247	Vertical	-5.614
Peak	22.98 GHz	56.213	74	-17.787	209	Vertical	-4.999
Peak	28.717 GHz	58.383	74	-15.617	154	Vertical	-4.971
Peak	37.188 GHz	54.52	74	-19.48	304	Vertical	1.283
Avg	17.23 GHz	44.469	54	-9.531	247	Vertical	-5.614
Avg	22.98 GHz	40.382	54	-13.618	209	Vertical	-4.999
Avg	28.717 GHz	40.995	54	-13.005	154	Vertical	-4.971
Avg	37.188 GHz	41.005	54	-12.995	304	Vertical	1.283
Peak	17.241 GHz	64.566	74	-9.434	261	Horizontal	-5.634
Peak	22.986 GHz	57.111	74	-16.889	226	Horizontal	-4.552
Peak	28.722 GHz	61.902	74	-12.098	301	Horizontal	-4.94
Avg	17.241 GHz	38.538	54	-15.462	261	Horizontal	-5.634
Avg	22.986 GHz	39.662	54	-14.338	226	Horizontal	-4.552
Avg	28.722 GHz	38.994	54	-15.006	301	Horizontal	-4.94

Table 8: Transmitting on the Lowest Frequency 5745 MHz – 17 – 40 GHz



Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
Peak	17.33 GHz	63.006	74	-10.994	246	Vertical	-6.028
Peak	28.876 GHz	58.006	74	-15.994	153	Vertical	-4.846
Peak	39.539 GHz	55.46	74	-18.54	291	Vertical	3.24
Avg	17.33 GHz	38.038	54	-15.962	246	Vertical	-6.028
Avg	28.876 GHz	40.786	54	-13.214	153	Vertical	-4.846
Avg	39.539 GHz	42.501	54	-11.499	291	Vertical	3.24
Peak	17.318 GHz	67.515	74	-6.485	122	Horizontal	-5.907
Peak	23.088 GHz	57.744	74	-16.256	232	Horizontal	-5.168
Peak	28.873 GHz	66.606	74	-7.394	296	Horizontal	-4.847
Avg	17.318 GHz	49.225	54	-4.775	122	Horizontal	-5.907
Avg	23.088 GHz	35.658	54	-18.342	232	Horizontal	-5.168
Avg	28.873 GHz	47.309	54	-6.691	296	Horizontal	-4.847

Table 9: Transmitting on the Middle Frequency 5775 MHz – 17 – 40 GHz



Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
Peak	17.476 GHz	61.609	74	-12.391	206	Vertical	-6.041
Peak	23.301 GHz	56.222	74	-17.778	206	Vertical	-5.387
Peak	29.122 GHz	59.542	74	-14.458	165	Vertical	-4.394
Peak	39.36 GHz	55.06	74	-18.94	16	Vertical	3.095
Avg	17.476 GHz	44.55	54	-9.45	206	Vertical	-6.041
Avg	23.301 GHz	39.815	54	-14.185	206	Vertical	-5.387
Avg	29.122 GHz	42.229	54	-11.771	165	Vertical	-4.394
Avg	39.36 GHz	41.873	54	-12.127	16	Vertical	3.095
Peak	17.47 GHz	66.261	74	-7.739	120	Horizontal	-6.041
Peak	23.291 GHz	55.135	74	-18.865	226	Horizontal	-5.421
Peak	29.131 GHz	67.362	74	-6.638	301	Horizontal	-4.382
Avg	17.47 GHz	39.928	54	-14.072	120	Horizontal	-6.041
Avg	23.291 GHz	38.309	54	-15.691	226	Horizontal	-5.421
Avg	29.131 GHz	49.025	54	-4.975	301	Horizontal	-4.382

Table 10: Transmitting on the Highest Frequency 5825 MHz – 17 – 40 GHz

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 30 dBm in any 500 kHz 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 6.02 dB which is a total of 12.02 dBi
Results of this testing are summarized.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Measured PSD
OFDM 20	5745	Mcs0_Nss4	50	11.28
OFDM 20	5775	Mcs0_Nss4	53	12.16
OFDM 20	5825	Mcs0_Nss4	50	10.9
HT 20	5745	Mcs0_Nss4	50	9.92
HT 20	5775	Mcs0_Nss4	53	10.97
HT 20	5825	Mcs0_Nss4	51	10.14
HT 40	5755	Mcs0_Nss4	46	5.73
HT 40	5775	Mcs0_Nss4	48	6.86
HT 40	5795	Mcs0_Nss4	47	6.48
VHT 20	5745	Mcs0_Nss4	50	10.01
VHT 20	5775	Mcs0_Nss4	53	10.95
VHT 20	5825	Mcs0_Nss4	51	10.16
VHT 40	5755	Mcs0_Nss4	46	5.71
VHT 40	5775	Mcs0_Nss4	48	6.7
VHT 40	5795	Mcs0_Nss4	47	6.36
VHT 80	5775	Mcs0_Nss4	41	-0.16
HE 20	5745	Mcs0_Nss4	50	9.86
HE 20	5775	Mcs0_Nss4	53	10.9
HE 20	5825	Mcs0_Nss4	51	10.26
HE 40	5755	Mcs0_Nss4	46	5.7
HE 40	5775	Mcs0_Nss4	48	6.57
HE 40	5795	Mcs0_Nss4	47	6.32
HE 80	5775	Mcs0_Nss4	41	0.02

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Measured PSD
OFDM 20	5745	Mcs0_Nss1	50	11.28
OFDM 20	5775	Mcs0_Nss1	51	11.16
OFDM 20	5825	Mcs0_Nss1	50	10.9
HT 20	5745	Mcs0_Nss1	50	9.92
HT 20	5775	Mcs0_Nss1	53	10.97
HT 20	5825	Mcs0_Nss1	51	10.14
HT 40	5755	Mcs0_Nss1	46	5.73
HT 40	5775	Mcs0_Nss1	48	6.86
HT 40	5795	Mcs0_Nss1	47	6.48
VHT 20	5745	Mcs0_Nss1	50	10.01
VHT 20	5775	Mcs0_Nss1	53	10.95
VHT 20	5825	Mcs0_Nss1	51	10.16
VHT 40	5755	Mcs0_Nss1	46	5.71
VHT 40	5775	Mcs0_Nss1	48	6.7
VHT 40	5795	Mcs0_Nss1	47	6.36
VHT 80	5775	Mcs0_Nss1	41	-0.16
HE 20	5745	Mcs0_Nss1	50	9.86
HE 20	5775	Mcs0_Nss1	53	10.9
HE 20	5825	Mcs0_Nss1	51	10.26
HE 40	5755	Mcs0_Nss1	46	5.7
HE 40	5775	Mcs0_Nss1	48	6.57
HE 40	5795	Mcs0_Nss1	47	6.32
HE 80	5775	Mcs0_Nss1	41	0.02

Result

The maximum average power spectral density was less than the limit of 30 dBm; therefore, the EUT complies with the specification.

-- End of Test Report --