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)	12 - 19 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

Table of Contents

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 shows the channels used within the different modulation bandwidths.

Band	WiFi Mode	Modulation Bandwidth	Modulation Type	Frequency (MHz)
UNII-1	a	20 MHz	OFDM	5180, 5200, 5210, 5240
	n	20 MHz	HT	5180, 5200, 5210, 5240
	n	40 MHz	HT	5190, 5230
	ac	20 MHz	VHT	5180, 5200, 5210, 5240
	ac	40 MHz	VHT	5190, 5230
	ac	80 MHz	VHT	5210
	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.

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	24.5 – 27.8 °C
Humidity	29.1 - 54.0%
Barometric Pressure	1022 mBar

2.6 Operating Modes

The U6-Extender 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/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

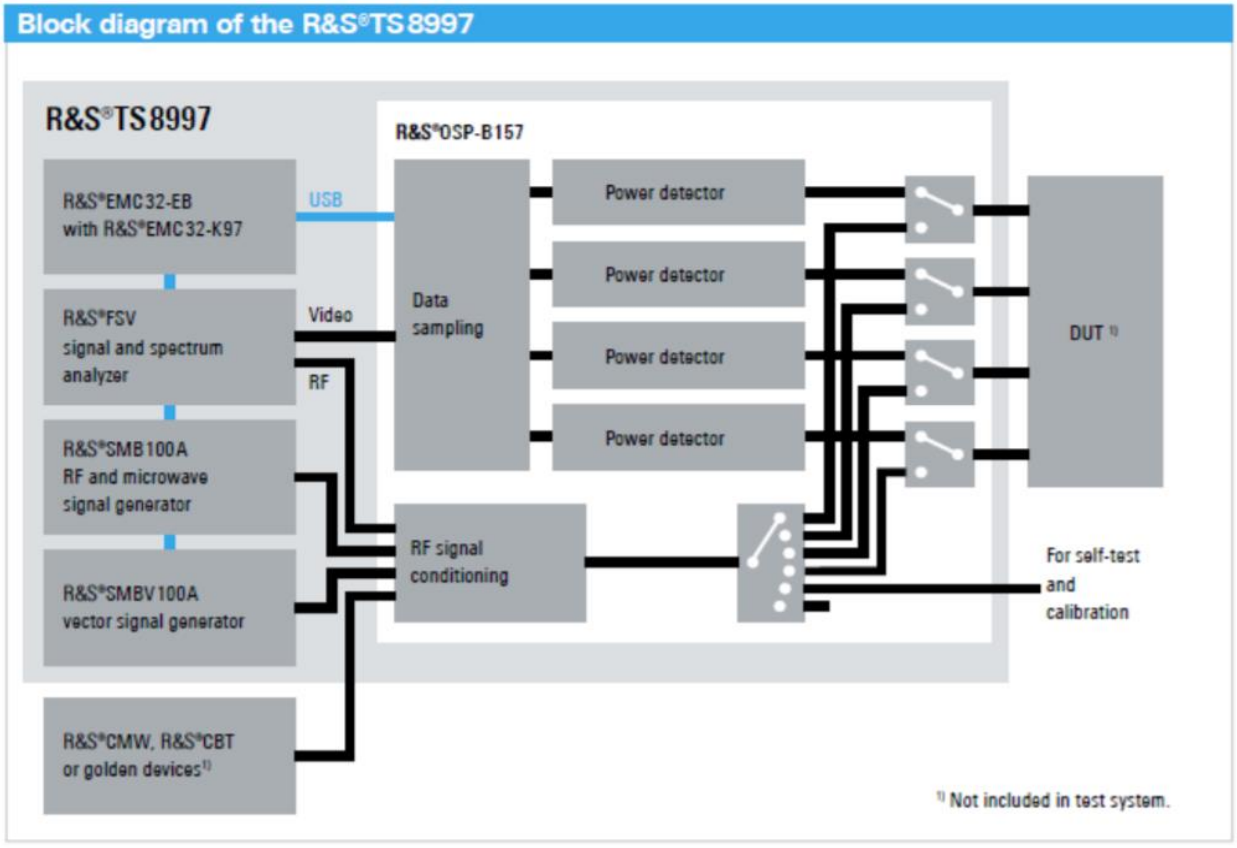


Diagram 1: Test Configuration Block Diagram

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	5180 to 5240	Compliant
15.407(e)	RSS-247 §6.2.2, §6.2.3	Peak Output Power	5180 to 5240	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	5180 to 5240	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

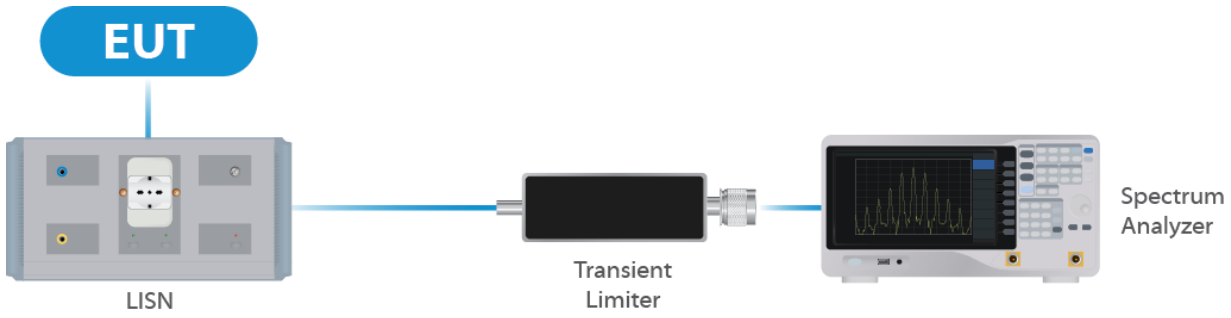


Figure 1: Conducted Emissions Test

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

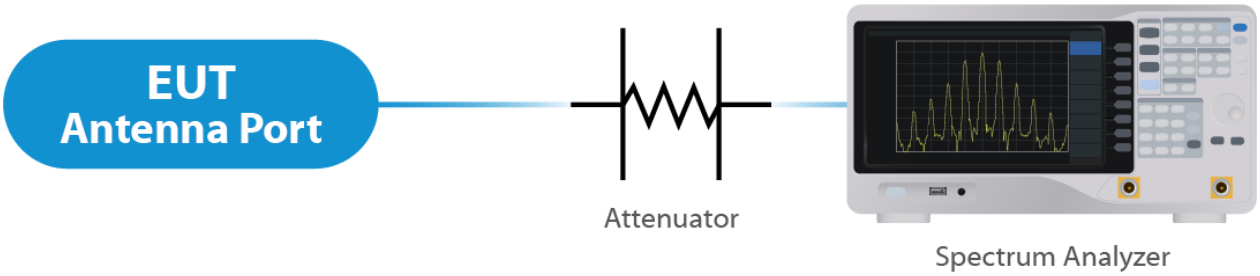


Figure 2: Direct Connect at the Antenna Port Test

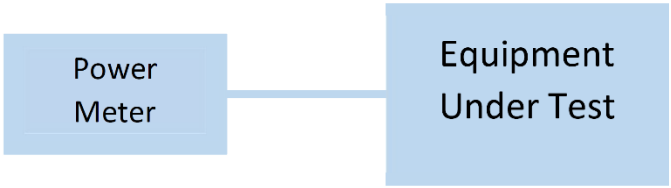


Figure 3: Output Power Measurement

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

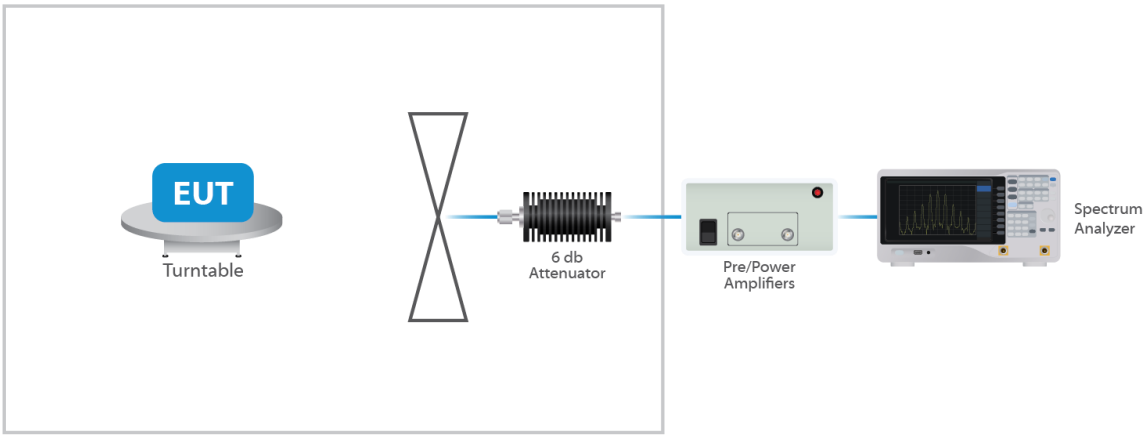


Figure 4: Radiated Emissions Test

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 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.

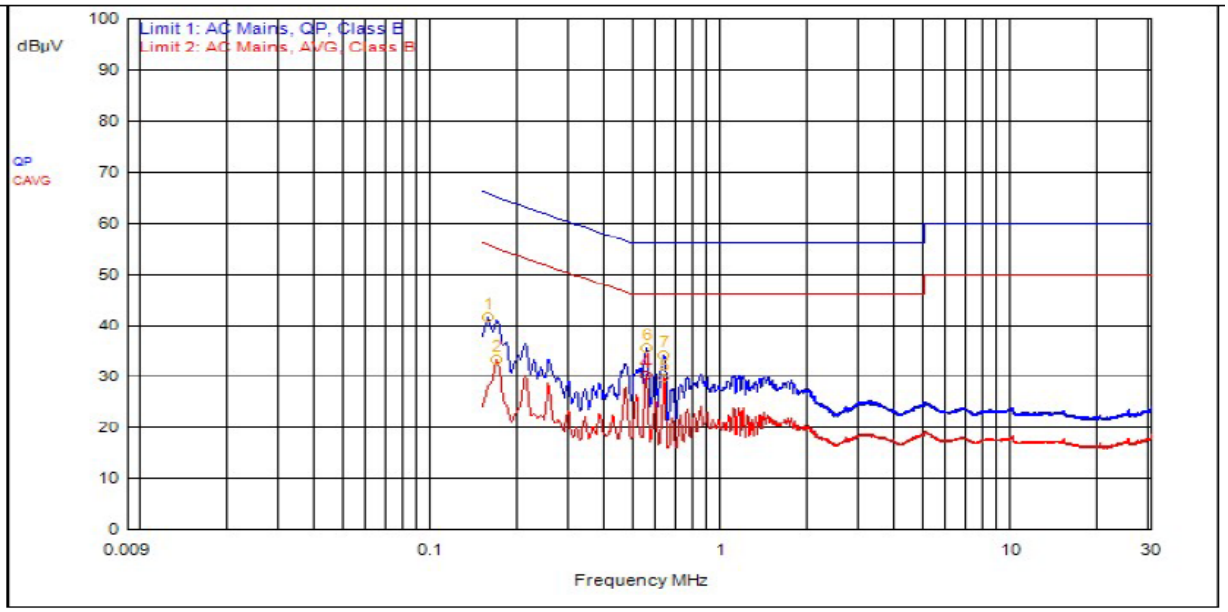
For power measurements on IEEE 802.11 devices, Array Gain = 0 dB for NANT ≤ 4;
For PSD measurements when Nss=1: Array Gain = 10 log(Nant/Nss) dB = 6.02dB

Results

The EUT complied with the specification

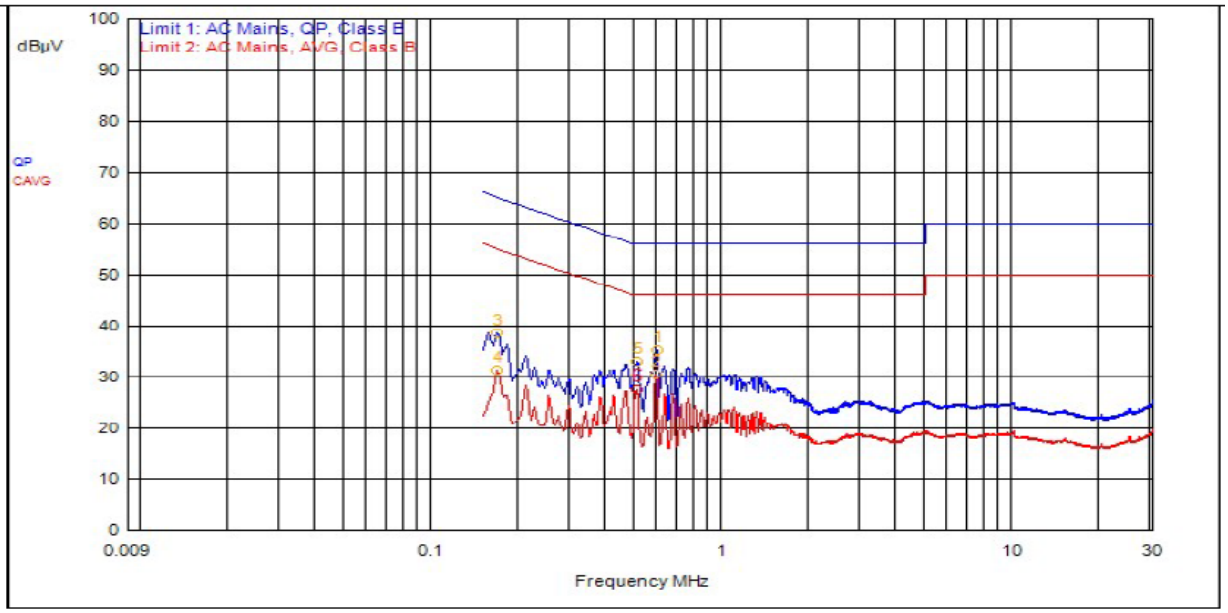
5.2 Conducted Emissions at Mains Ports Data

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	5180	16.6	20.4
a20	5210	23.7	39.0
a20	5240	34.6	59.85
n20	5180	17.8	20.7
n20	5210	21.5	42.2
n20	5240	28.6	44.9
n40	5190	36.25	39.0
n40	5240	36.25	40.8
ac20	5180	17.7	20.8
ac20	5210	21.2	40.9
ac20	5240	28.4	46.9
ac40	5190	36.25	39.0
ac40	5230	36.25	47.55
ac80	5210	75.5	82.5
ax20	5180	19.1	21.4
ax20	5210	19.7	38.1
ax20	5240	28.6	50.2
ax40	5190	37.75	40.2
ax40	5230	38.0	46.95
ax80	5210	77.5	82.0

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)(1) 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 29.28 dBm or 847.23 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 6 dBi.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power	Measured EIRP	Measured PSD
OFDM 20	5180	Mcs0	38	22.85	28.85	8.88
OFDM 20	5210	Mcs0	48	27.53	33.53	13.47
OFDM 20	5240	Mcs0	52	29.28	35.28	15.08
HT 20	5180	Mcs0	40	23.38	29.38	8.04
HT 20	5210	Mcs0	48	27.44	33.44	12.11
HT 20	5240	Mcs0	50	28.49	34.49	13.17
HT 40	5190	Mcs0	30	18.9	24.9	0.67
HT 40	5230	Mcs0	43	25.57	31.57	7.25
VHT 20	5180	Mcs0	40	23.38	29.38	8.11
VHT 20	5210	Mcs0	48	27.4	33.4	12.12
VHT 20	5240	Mcs0	50	28.45	34.45	13.15
VHT 40	5190	Mcs0	30	18.88	24.88	0.67
VHT 40	5230	Mcs0	43	25.57	31.57	7.2
VHT 80	5210	Mcs0	29	18.3	24.3	-3.06
HE 20	5180	Mcs0	38	22.94	28.94	7.41
HE 20	5210	Mcs0	47	27.15	33.15	11.61
HE 20	5240	Mcs0	50	28.56	34.56	12.98
HE 40	5190	Mcs0	34	21.18	27.18	2.69
HE 40	5230	Mcs0	43	25.68	31.68	7.12
HE 80	5210	Mcs0	29	18.6	24.6	-2.88

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).

5.5 §15.407(b) Spurious Emissions

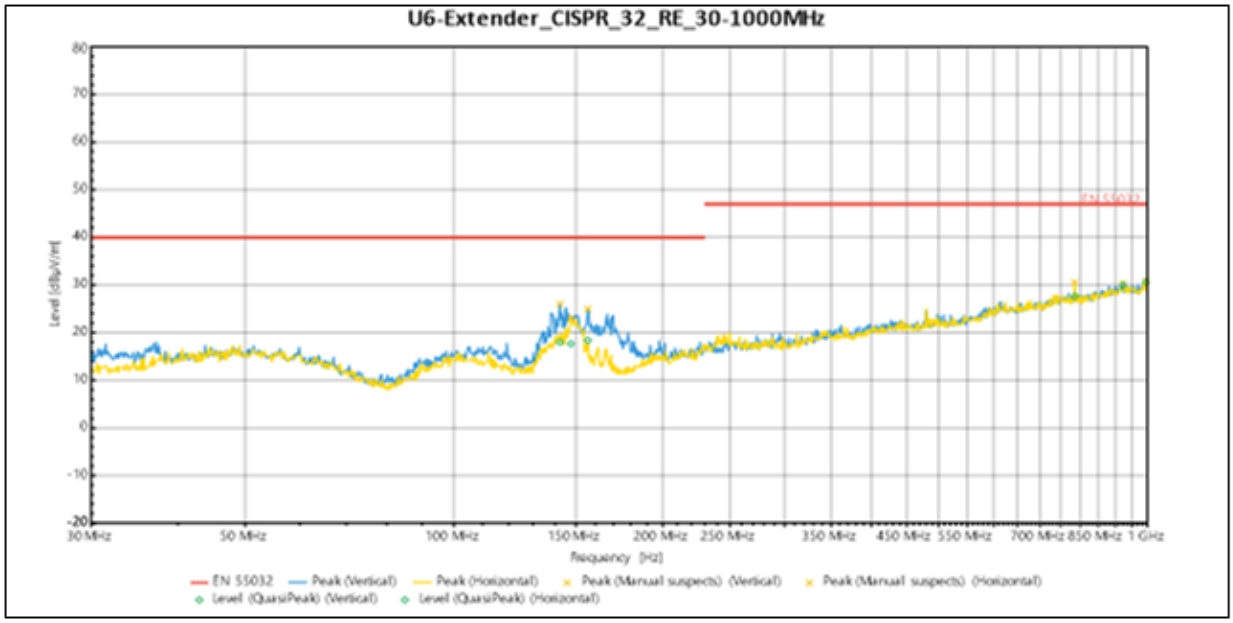
5.5.1 Radiated Spurious Emissions in the Restricted Bands of § 15.205

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 29.28, 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 5150 MHz was measured using radiated measurement. 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-amp Gain, and is added to the Receiver Reading

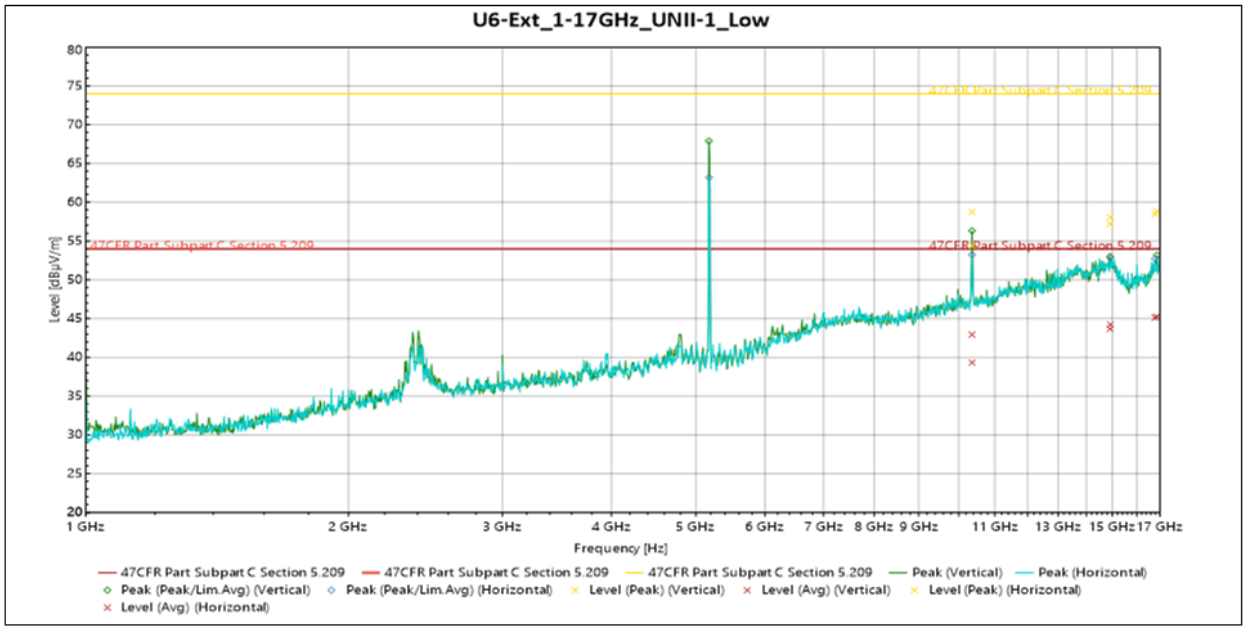
Result

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 me the limits specified in § 15.407(b). Representative band edge plots are included in this report.



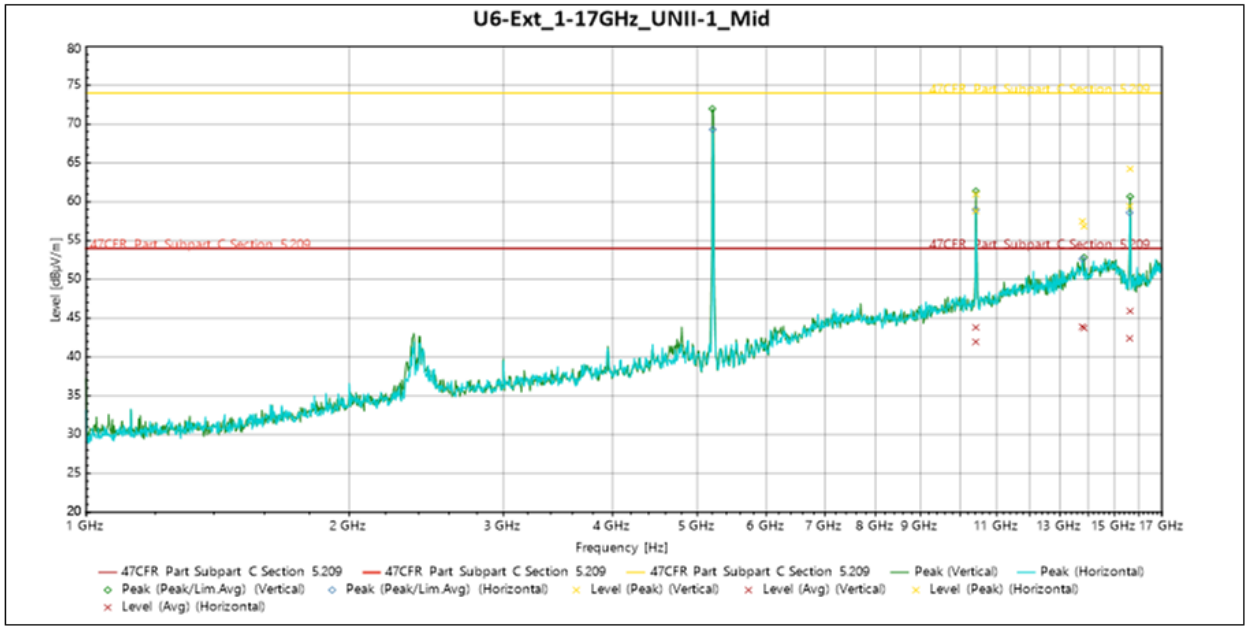
Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
QuasiPeak	142.23 MHz	17.972	40	-22.028	148	1.004	Vertical	-17.752
QuasiPeak	156.02 MHz	18.388	40	-21.612	137	1.054	Vertical	-17.394
QuasiPeak	922.4 MHz	29.956	47	-17.044	349	1.596	Vertical	-0.048
QuasiPeak	147.48 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: Emissions in 30 to 1000 MHz



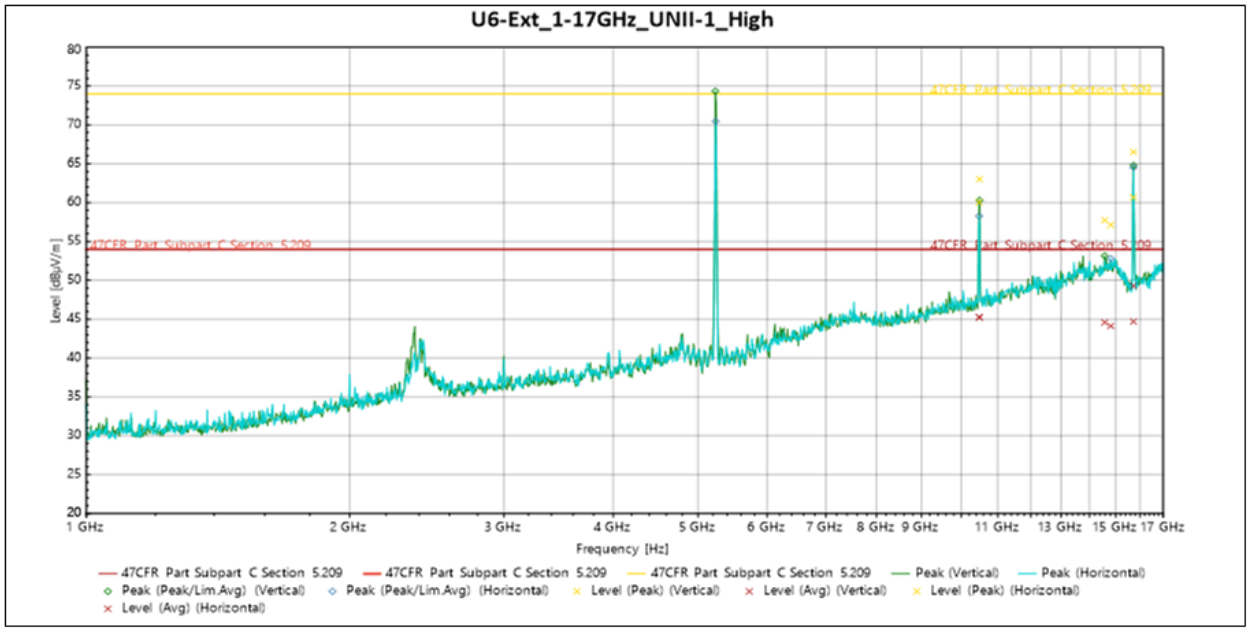
Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
Peak	10.356 GHz	58.748	74	-15.252	315	2.217	Vertical	9.863
Peak	14.906 GHz	57.198	74	-16.802	229	2.539	Vertical	14.615
Peak	16.868 GHz	58.826	74	-15.174	273	2.368	Vertical	17.064
Avg	10.356 GHz	42.941	54	-11.059	315	2.217	Vertical	9.863
Avg	14.906 GHz	43.685	54	-10.315	229	2.539	Vertical	14.615
Avg	16.868 GHz	45.217	54	-8.783	273	2.368	Vertical	17.064
Peak	10.358 GHz	54.393	74	-19.607	241	3.798	Horizontal	9.897
Peak	14.919 GHz	58.06	74	-15.94	227	1.859	Horizontal	15.066
Peak	16.782 GHz	58.461	74	-15.539	52	2.725	Horizontal	16.786
Avg	10.358 GHz	39.329	54	-14.671	241	3.798	Horizontal	9.897
Avg	14.919 GHz	44.216	54	-9.784	227	1.859	Horizontal	15.066
Avg	16.782 GHz	45.136	54	-8.864	52	2.725	Horizontal	16.786

Table 5: Transmitting on the Lower Frequency 5180 MHz, 1-17 GHz



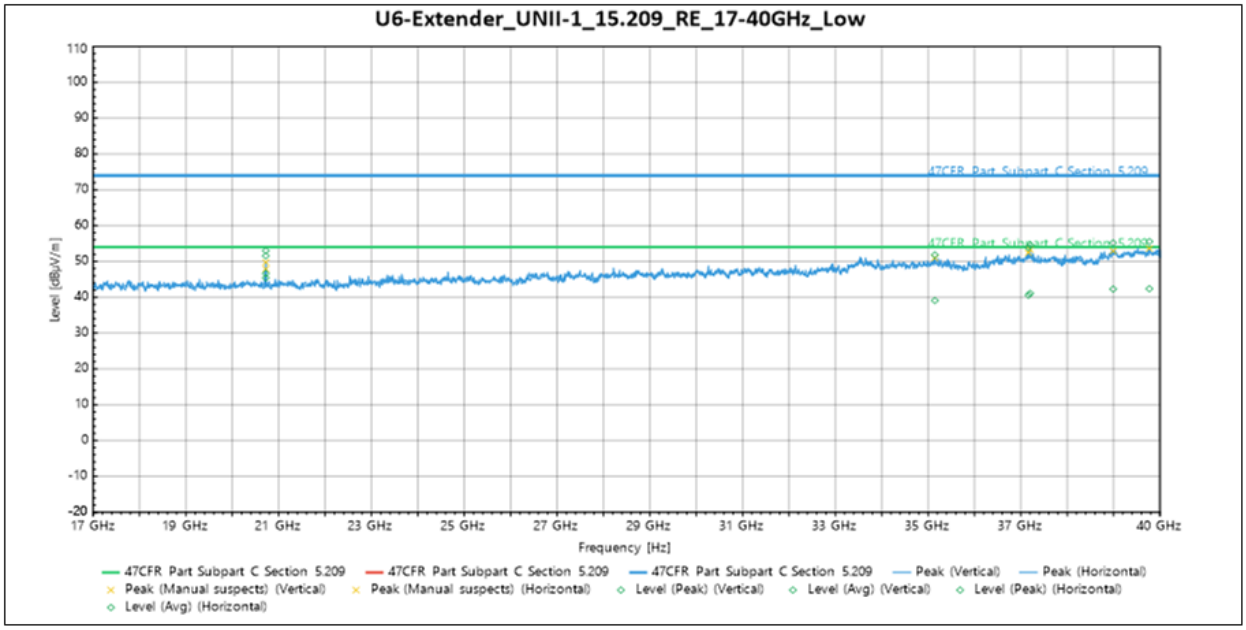
Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
Peak	10.415 GHz	60.97	74	-13.03	159	1.864	Vertical	10.001
Peak	13.849 GHz	56.838	74	-17.162	195	2.005	Vertical	14.595
Peak	15.637 GHz	64.238	74	-9.762	218	2.73	Vertical	11.918
Avg	10.415 GHz	43.809	54	-10.191	159	1.864	Vertical	10.001
Avg	13.849 GHz	43.716	54	-10.284	195	2.005	Vertical	14.595
Avg	15.637 GHz	45.918	54	-8.082	218	2.73	Vertical	11.918
Peak	10.414 GHz	58.799	74	-15.201	247	3.621	Horizontal	9.99
Peak	13.789 GHz	57.492	74	-16.508	336	2.738	Horizontal	14.652
Peak	15.617 GHz	59.431	74	-14.569	142	2.186	Horizontal	11.942
Avg	10.414 GHz	41.937	54	-12.063	247	3.621	Horizontal	9.99
Avg	13.789 GHz	43.912	54	-10.088	336	2.738	Horizontal	14.652
Avg	15.617 GHz	42.393	54	-11.607	142	2.186	Horizontal	11.942

Table 6: Transmitting on the Middle Frequency 5210 MHz, 1-17 GHz



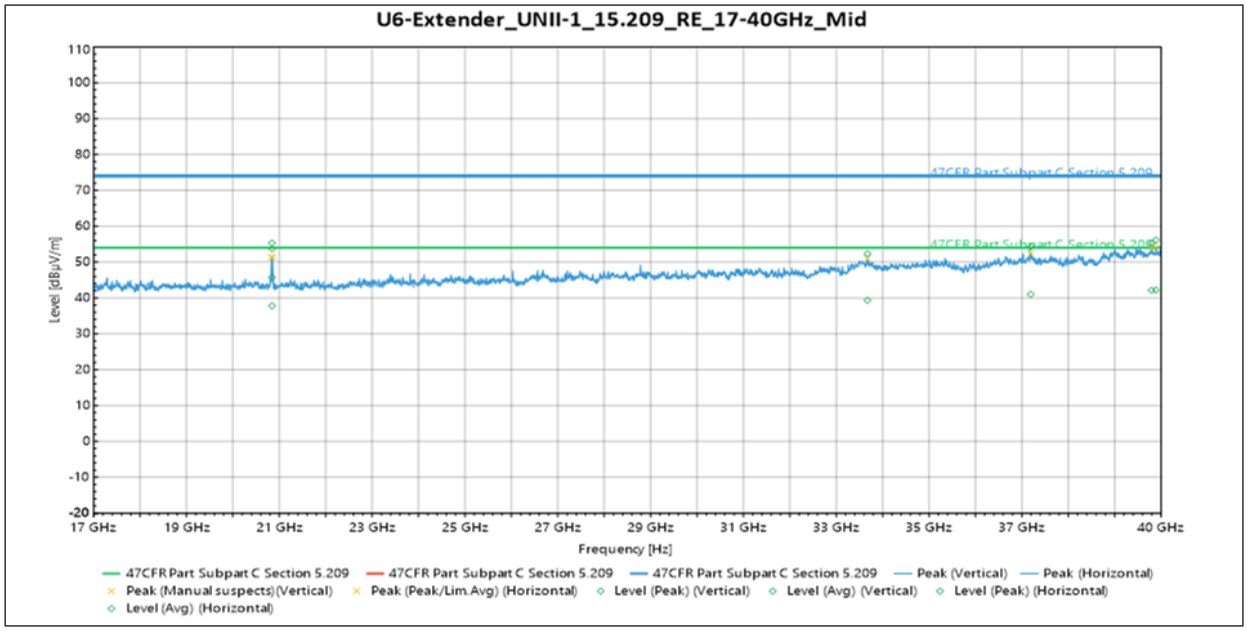
Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
Peak	10.488 GHz	63.024	74	-10.976	327	1.855	Vertical	10.201
Peak	14.576 GHz	57.741	74	-16.259	106	3.1	Vertical	15.158
Peak	15.725 GHz	66.526	74	-7.474	230	2.566	Vertical	12.029
Avg	10.488 GHz	45.211	54	-8.789	327	1.855	Vertical	10.201
Avg	14.576 GHz	44.585	54	-9.415	106	3.1	Vertical	15.158
Avg	15.725 GHz	49.279	54	-4.721	230	2.566	Vertical	12.029
Peak	10.476 GHz	60.05	74	-13.95	242	2.738	Horizontal	10.067
Peak	14.812 GHz	57.123	74	-16.877	358	3.621	Horizontal	15.023
Peak	15.724 GHz	60.684	74	-13.316	192	3.617	Horizontal	12.024
Avg	10.476 GHz	45.271	54	-8.729	242	2.738	Horizontal	10.067
Avg	14.812 GHz	44.13	54	-9.87	358	3.621	Horizontal	15.023
Avg	15.724 GHz	44.693	54	-9.307	192	3.617	Horizontal	12.024

Table 7: Transmitting on the Higher Frequency 5240 MHz, 1-17 GHz



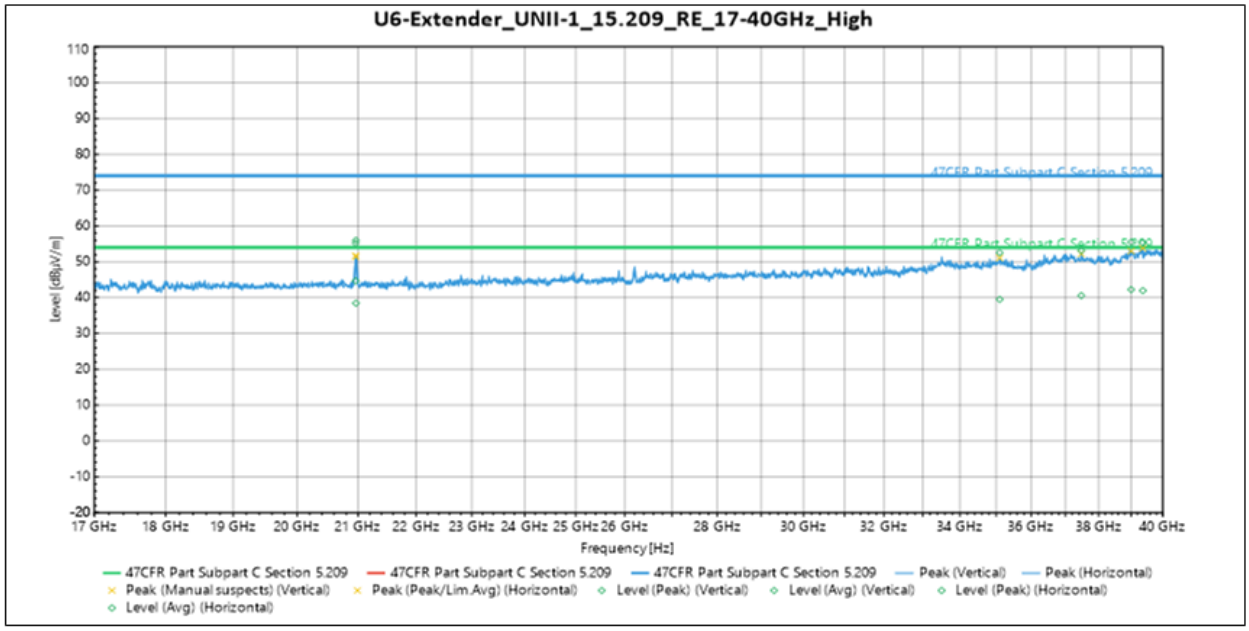
Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
Peak	20.72 GHz	52.989	74	-21.011	180	Vertical	-5.439
Peak	37.2 GHz	54.626	74	-19.374	148	Vertical	1.335
Peak	39.771 GHz	55.573	74	-18.427	132	Vertical	3.369
Avg	20.72 GHz	46.659	54	-7.341	180	Vertical	-5.439
Avg	37.2 GHz	41.09	54	-12.91	148	Vertical	1.335
Avg	39.771 GHz	42.397	54	-11.603	132	Vertical	3.369
Peak	20.72 GHz	51.603	74	-22.397	238	Horizontal	-5.439
Peak	35.145 GHz	51.825	74	-22.175	258	Horizontal	1.02
Peak	37.165 GHz	53.929	74	-20.071	141	Horizontal	0.916
Peak	38.99 GHz	55.168	74	-18.832	317	Horizontal	3.032
Avg	20.72 GHz	45.444	54	-8.556	238	Horizontal	-5.439
Avg	35.145 GHz	39.108	54	-14.892	258	Horizontal	1.02
Avg	37.165 GHz	40.596	54	-13.404	141	Horizontal	0.916
Avg	38.99 GHz	42.296	54	-11.704	317	Horizontal	3.032

Table 8: Transmitting on the Lower Frequency 5180 MHz, 17-40 GHz



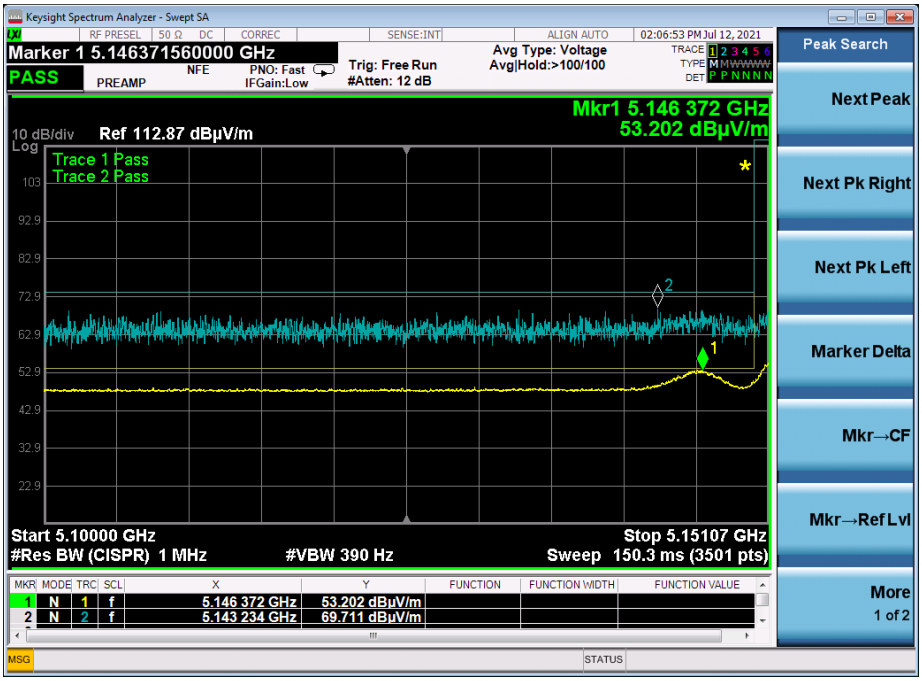
Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
Peak	20.84 GHz	55.326	74	-18.674	200	Vertical	-5.767
Peak	33.673 GHz	52.367	74	-21.633	92	Vertical	1.295
Peak	39.795 GHz	55.324	74	-18.676	228	Vertical	3.28
Avg	20.84 GHz	45.705	54	-8.295	200	Vertical	-5.767
Avg	33.673 GHz	39.345	54	-14.655	92	Vertical	1.295
Avg	39.795 GHz	42.14	54	-11.86	228	Vertical	3.28
Peak	20.842 GHz	53.711	74	-20.289	308	Horizontal	-5.742
Peak	37.19 GHz	54.258	74	-19.742	115	Horizontal	1.302
Peak	39.89 GHz	56.153	74	-17.847	78	Horizontal	3.612
Avg	20.842 GHz	37.798	54	-16.202	308	Horizontal	-5.742
Avg	37.19 GHz	41.02	54	-12.98	115	Horizontal	1.302
Avg	39.89 GHz	42.207	54	-11.793	78	Horizontal	3.612

Table 9: Transmitting on the Middle Frequency 5210 MHz, 17-40 GHz

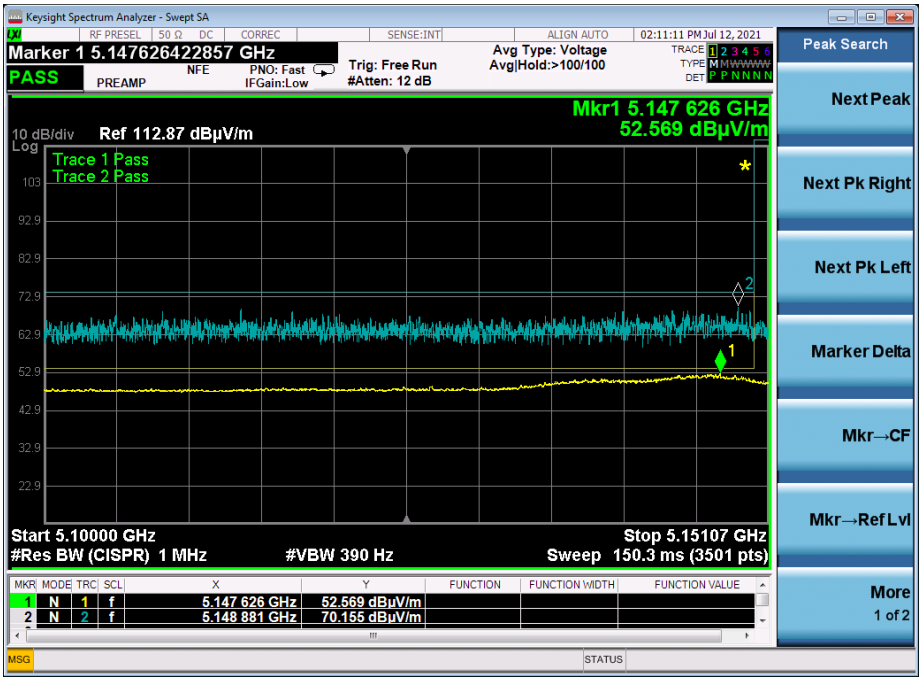


Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
Peak	20.96 GHz	55.19	74	-18.81	200	Vertical	-5.632
Peak	37.472 GHz	53.178	74	-20.822	22	Vertical	1.342
Peak	38.999 GHz	55.507	74	-18.493	204	Vertical	3.061
Avg	20.96 GHz	44.699	54	-9.301	200	Vertical	-5.632
Avg	37.472 GHz	40.584	54	-13.416	22	Vertical	1.342
Avg	38.999 GHz	42.25	54	-11.75	204	Vertical	3.061
Peak	20.963 GHz	55.999	74	-18.001	307	Horizontal	-5.6
Peak	35.102 GHz	52.563	74	-21.437	94	Horizontal	1.171
Peak	39.365 GHz	55.405	74	-18.595	179	Horizontal	3.096
Avg	20.963 GHz	38.45	54	-15.55	307	Horizontal	-5.6
Avg	35.102 GHz	39.522	54	-14.478	94	Horizontal	1.171
Avg	39.365 GHz	41.956	54	-12.044	179	Horizontal	3.096

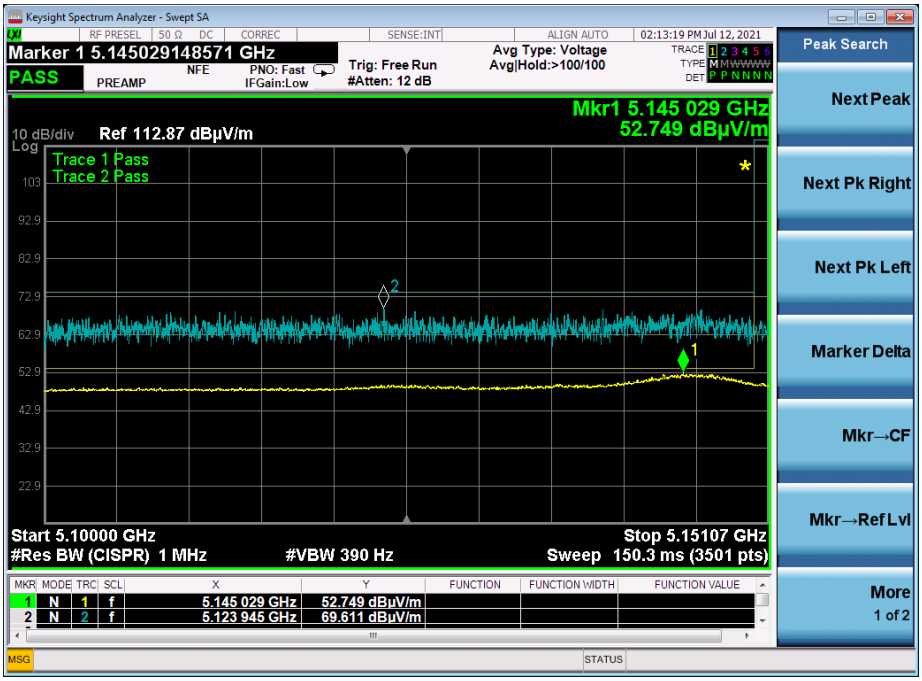
Table 10: Transmitting on the Higher Frequency 5240 MHz, 17-40 GHz



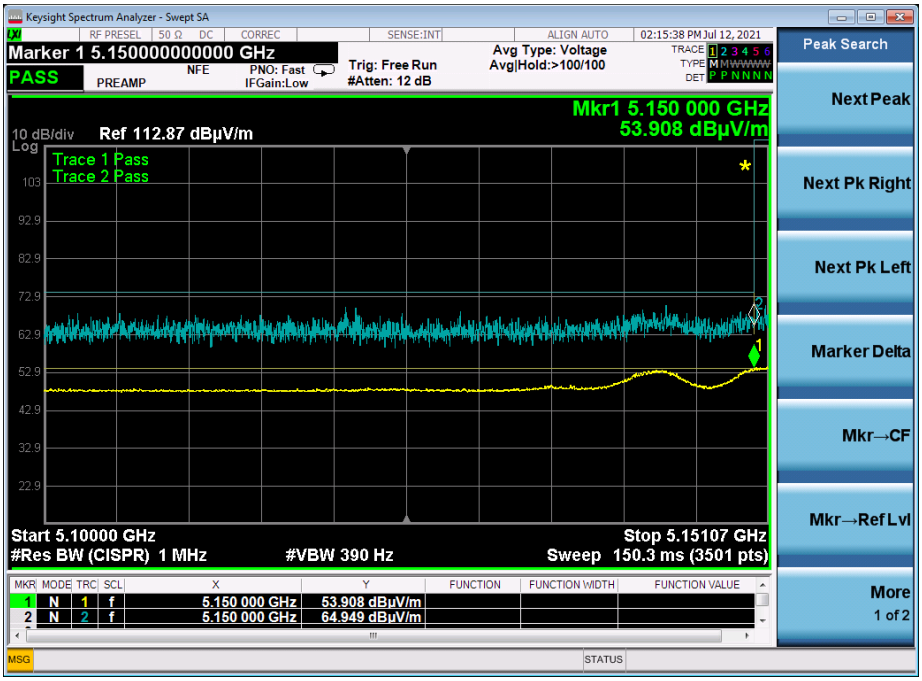
Graph 1: Band Edge ax20 Mode Low 5180 MHz



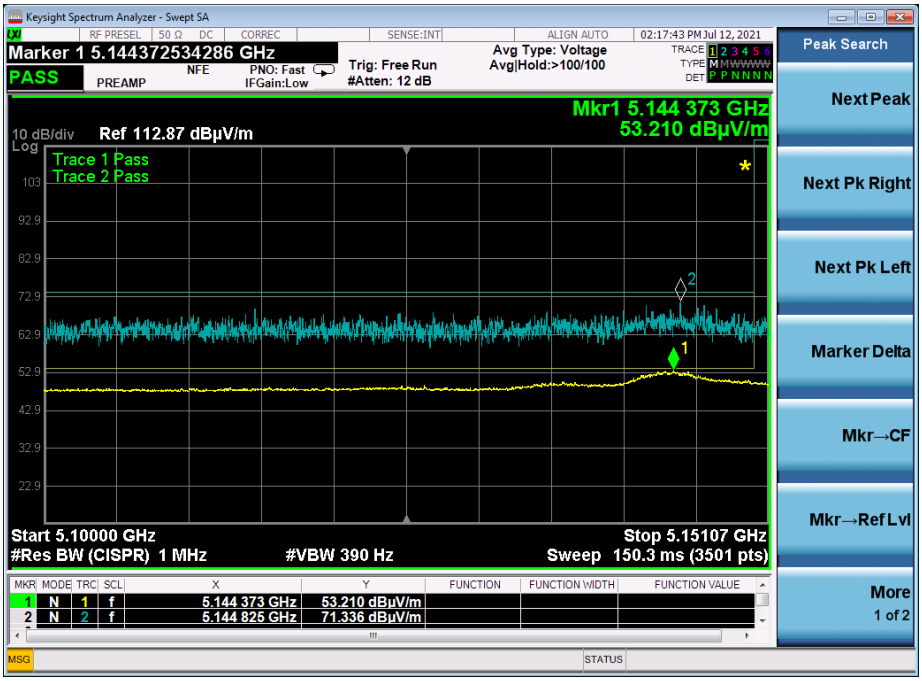
Graph 2: Band Edge ax20 Mode Middle 5210 MHz



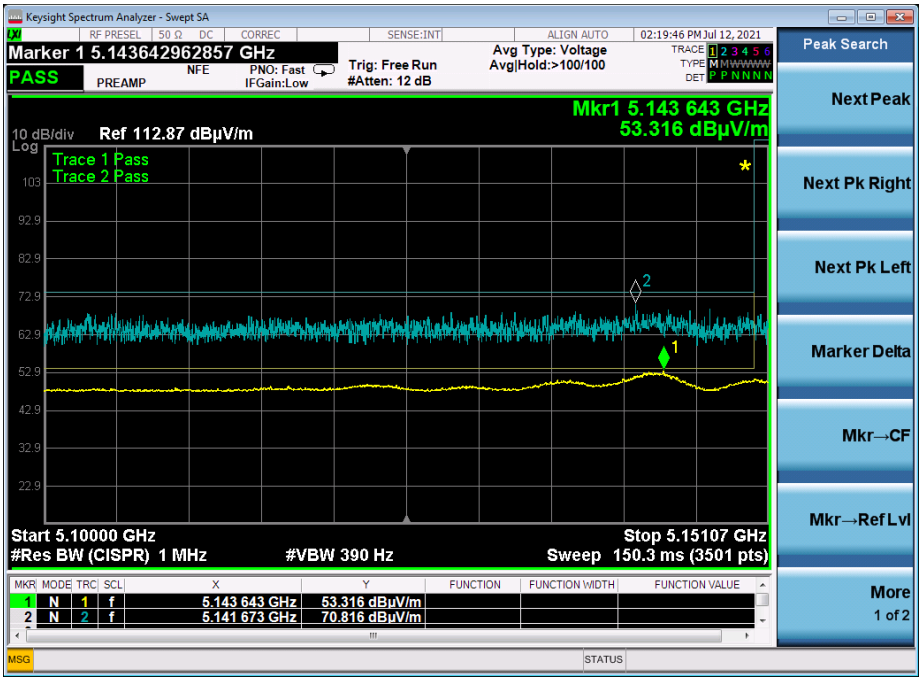
Graph 3: Band Edge ax20 Mode High 5240 MHz



Graph 4: Band Edge ax40 Mode Low 5180 MHz



Graph 5: Band Edge ax40 Mode High 5230 MHz



Graph 6: Band Edge ax80 Mode 5210 MHz

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 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	5180	Mcs0_Nss4	38	8.88
OFDM 20	5210	Mcs0_Nss4	48	13.47
OFDM 20	5240	Mcs0_Nss4	52	15.08
HT 20	5180	Mcs0_Nss4	40	8.04
HT 20	5210	Mcs0_Nss4	48	12.11
HT 20	5240	Mcs0_Nss4	50	13.17
HT 40	5190	Mcs0_Nss4	30	0.67
HT 40	5230	Mcs0_Nss4	43	7.25
VHT 20	5180	Mcs0_Nss4	40	8.11
VHT 20	5210	Mcs0_Nss4	48	12.12
VHT 20	5240	Mcs0_Nss4	50	13.15
VHT 40	5190	Mcs0_Nss4	30	0.67
VHT 40	5230	Mcs0_Nss4	43	7.2
VHT 80	5210	Mcs0_Nss4	29	-3.06
HE 20	5180	Mcs0_Nss4	38	7.41
HE 20	5210	Mcs0_Nss4	47	11.61
HE 20	5240	Mcs0_Nss4	50	12.98
HE 40	5190	Mcs0_Nss4	34	2.69
HE 40	5230	Mcs0_Nss4	43	7.12
HE 80	5210	Mcs0_Nss4	29	-2.88

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Measured PSD
OFDM 20	5180	Mcs0_Nss1	38	8.88
OFDM 20	5210	Mcs0_Nss1	42	10.47
OFDM 20	5240	Mcs0_Nss1	48	10.08
HT 20	5180	Mcs0_Nss1	40	8.04
HT 20	5210	Mcs0_Nss1	46	10.11
HT 20	5240	Mcs0_Nss1	44	10.17
HT 40	5190	Mcs0_Nss1	30	0.67
HT 40	5230	Mcs0_Nss1	43	7.25
VHT 20	5180	Mcs0_Nss1	40	8.11
VHT 20	5210	Mcs0_Nss1	44	10.12
VHT 20	5240	Mcs0_Nss1	44	10.15
VHT 40	5190	Mcs0_Nss1	30	0.67
VHT 40	5230	Mcs0_Nss1	43	7.2
VHT 80	5210	Mcs0_Nss1	29	-3.06
HE 20	5180	Mcs0_Nss1	38	7.41
HE 20	5210	Mcs0_Nss1	43	9.61
HE 20	5240	Mcs0_Nss1	46	10.98
HE 40	5190	Mcs0_Nss1	34	2.69
HE 40	5230	Mcs0_Nss1	43	7.12
HE 80	5210	Mcs0_Nss1	29	-2.88

Result

The maximum average power spectral density was less than the limit of 17dBm; therefore, the EUT complies with the specification.

-- End of Test Report --