UNIFIED COMPLIANCE LABORATORY

427 West 12800 South
Draper, UT 84020

Test Report

Certification

FCC ID	SWX-LTUXR
ISED ID	6545A-LTUXR
Equipment Under Test	LTU-XR
Test Report Serial Number	TR6325_01
Date of Test(s)	10, 11, 14, 29 and 30 June 2021
Report Issue Date	4 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

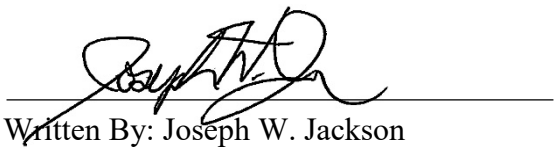
This report has been prepared by Unified Compliance Laboratory (UCL) to document compliance of the device described below with the requirement of Federal Communication Commissions (FCC) Part 15, Subpart E. This report may be reproduced in full. Partial reproduction of this report may only be made with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

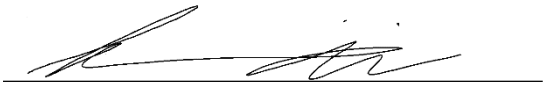
On this 4th day of August 2021, I individually and for Unified Compliance Laboratory certify that the statements made in this engineering report are true, complete, and correct to the best of my knowledge and are made in good faith.

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



Written By: Joseph W. Jackson



Reviewed By: Alex Macon

Revision History		
Revision	**Description**	**Date**
01	Original Report Release	4 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	LTU
Model Number	LTU-XR
Serial Number	68D79A1F2C26
Dimensions (cm)	74.7 x 52.5 x 34.7

2.2 Description of EUT

The LTU-XR is a high-performance point-to-multi-point transceiver operating in the 5 GHz WiFi band. The LTU-XR is designed to provide 550 Mbps wireless throughput and allows independent transmit and receive channel configurations to avoid local interference. The LTU-XR has an integrated Bluetooth transceiver for system management control. The LTU-XR is powered from a Model POE-24-12W-G-WH PoE Power adapter.

Band	Modulation Bandwidth (MHz)	Modulation Type	Frequency (MHz)
UNII-1	10	HT	5160, 5165, 5170, 5200, 5245
	20	HT	5165, 5170, 5175, 5180, 5185, 5190, 5195, 5200, 5202, 5240
	30	HT	5170, 5175, 5180, 5185, 5190, 5195, 5200, 5235
	40	VHT	5175, 5180, 5185, 5190, 5195, 5200, 5205, 5210, 5215, 5230
	50	VHT	5180, 5185, 5190, 5195, 5200, 5205, 5210, 5215, 5220, 5225

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: LTU MN: LTU-XR (Note 1) SN: 68D79A1F2C26	Wireless Transceiver	See Section 2.4
BN: Ubiquiti MN: POE-24-12W-G-WH (Note 1) SN: N/A	PoE Power Adapter	Shielded or Un-Shielded Cat 5e cable (Note 2)
BN: Dell MN: XPS 13 SN: N/A	Laptop Computer	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 Mains	1	3 conductor power cord/80cm
PoE	1	Shielded or Un-Shielded Cat 5e Cable/> 3 meters
Data	1	Shielded or Un-Shielded Cat 5e Cable/> 3 Meters

2.5 Operating Environment

Power Supply	120 Vac to 24 Volt PoE Power
AC Mains Frequency	60 Hz
Temperature	21.2 – 25.4 °C
Humidity	33.6 – 53.3 %
Barometric Pressure	1019 mBar

2.6 Operating Modes

The LTU-XR was tested using test software in order to enable to constant transmission of over 98%. All emission modes of 10/20/30/40/50 MHz were investigated.

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

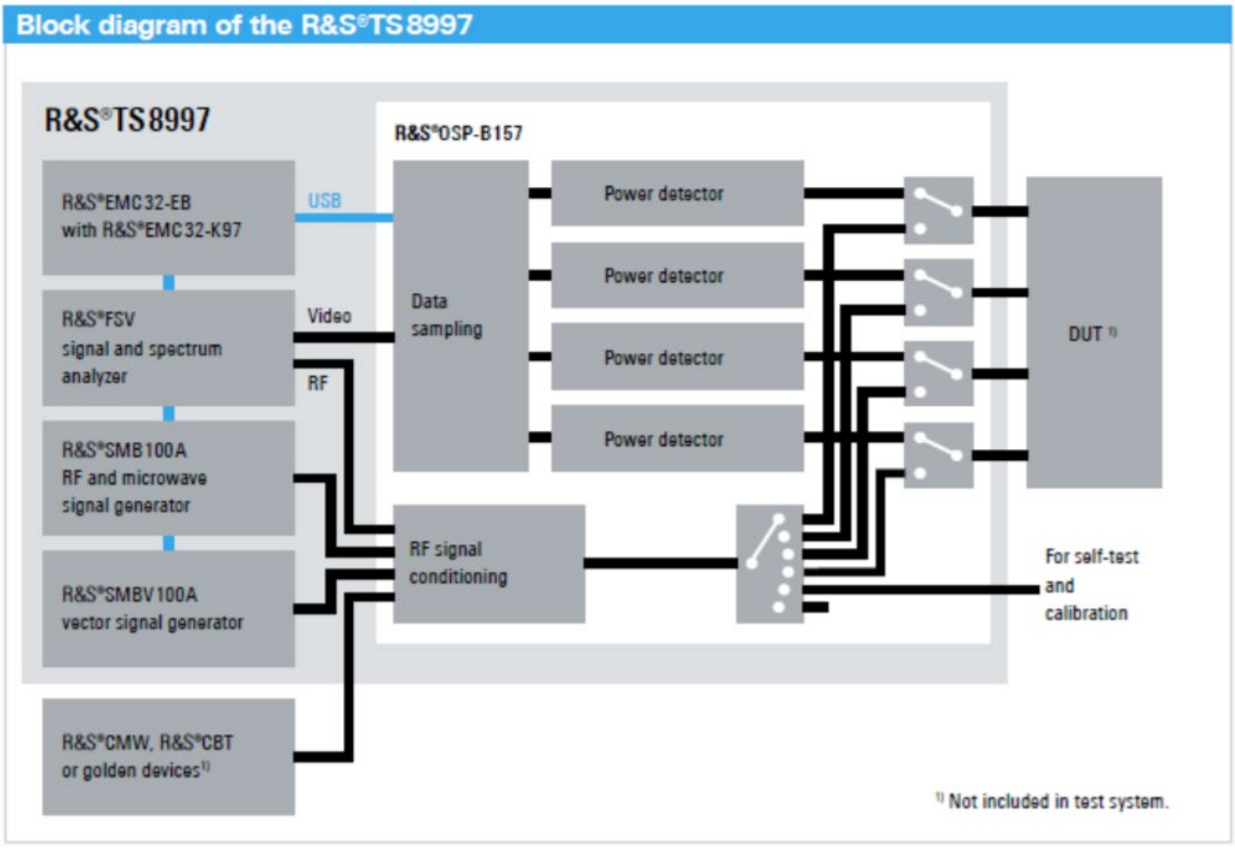


Diagram 1: Test Configuration Block Diagram

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	5160 to 5245	Compliant
15.407(e)	RSS-247 §6.2.2, §6.2.3	Peak Output Power	5160 to 5245	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	5160 to 5245	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

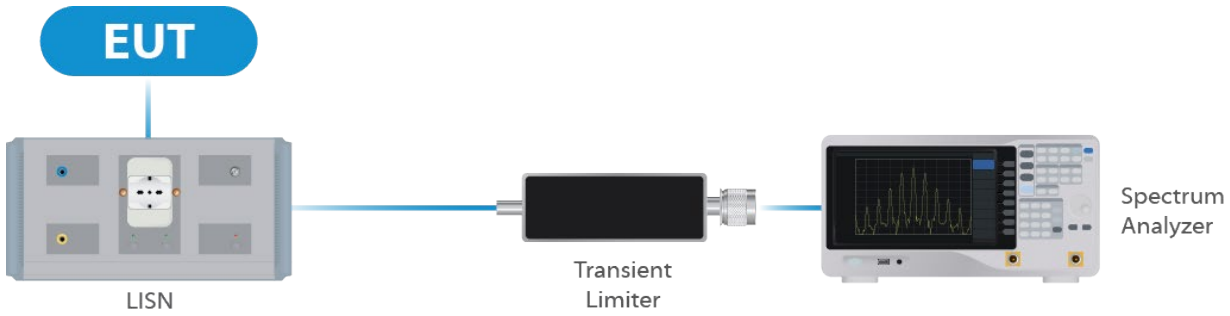


Figure 1: Conducted Emissions Test

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

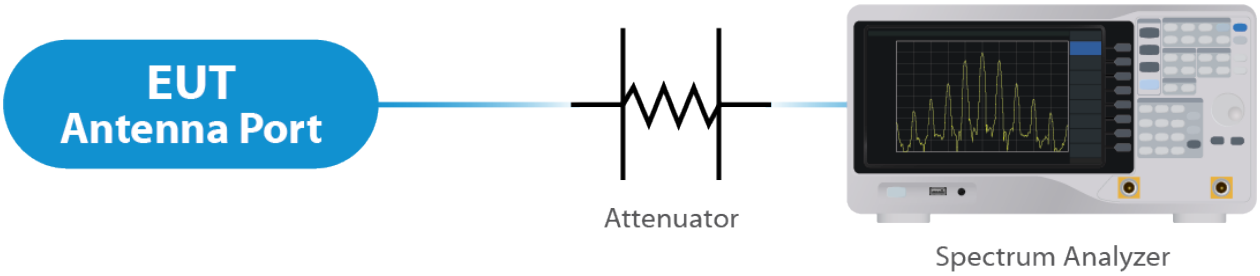


Figure 2: Direct Connect at the Antenna Port Test

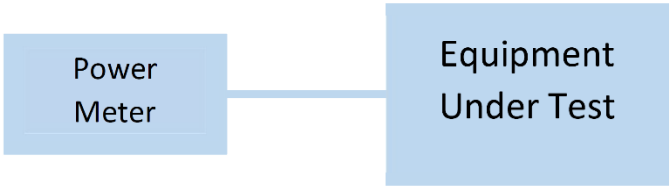


Figure 3: Output Power Measurement

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	6/1/2020	8/1/2021
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	7/8/2020	7/8/2021
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

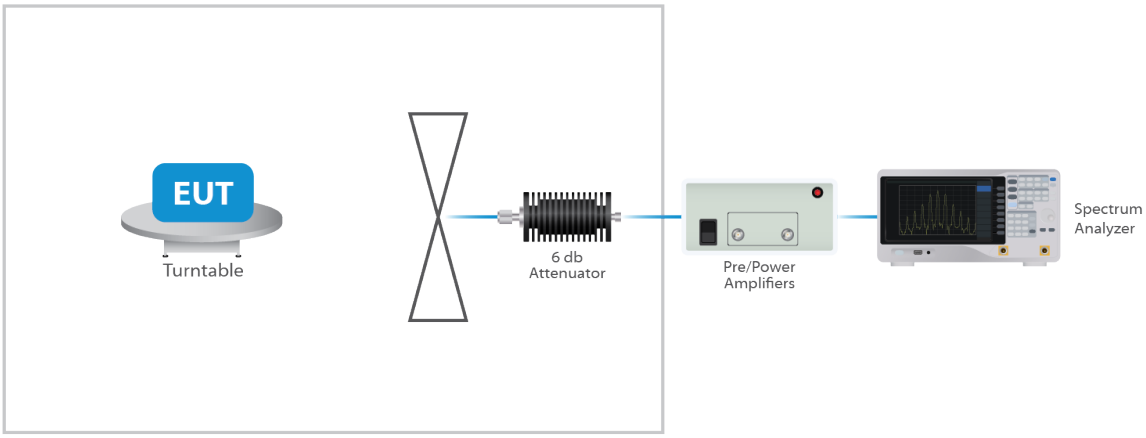


Figure 4: Radiated Emissions Test

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

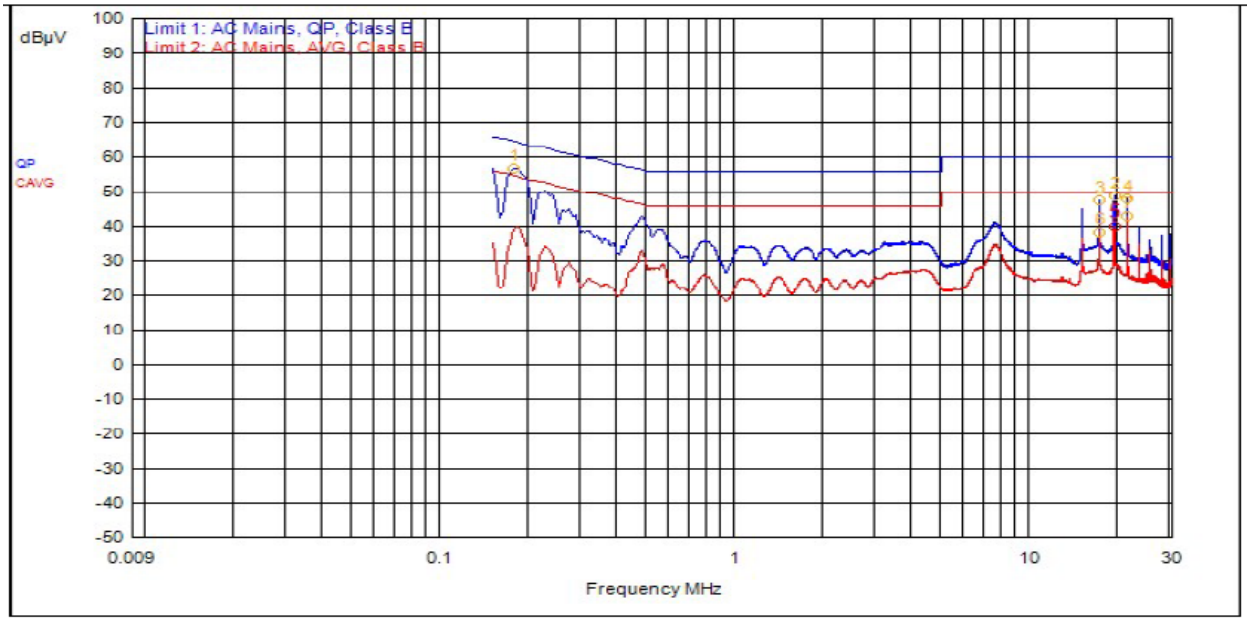
The EUT uses an integral antenna and an optional accessory dish antenna. The Maximum gain of the integral antenna is 3 dBi and the optional dish antenna is 29 dBi. The integral antenna is not user replaceable while the optional dish antenna is user replaceable.
The 2 chains of the radio are cross-polarized.

Results

The EUT complied with the specification.

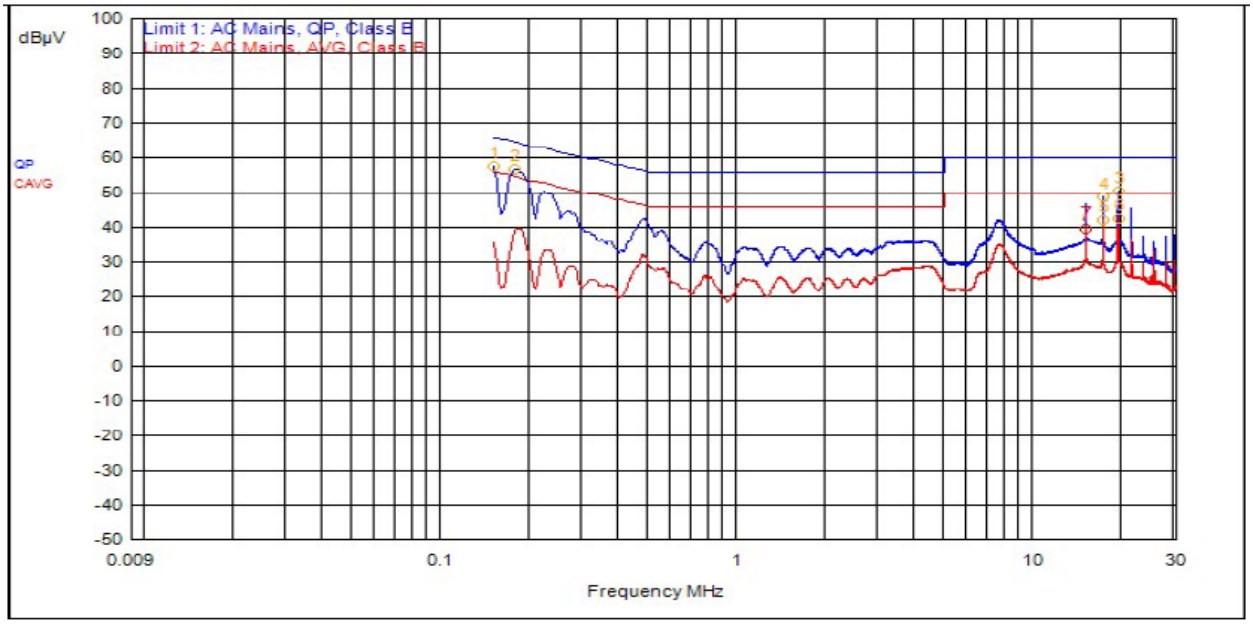
5.2 Conducted Emissions at Mains Ports Data

5.2.1 Line



ID	Frequency	Probe	Cable	Atten.	Detector	Meter Read	Meas Level	Limit 1	Limit 1 Dist.	Limit 2	Limit 2 Dist.
1	177,000kHz	12.4	0.0		QPeak	44.2	56.6	64.6	-8.0		
2	19.074MHz	12.3	0.2		QPeak	36.1	48.6	60.0	-11.4		
4	21.195MHz	12.3	0.2		QPeak	35.3	47.8	60.0	-12.2		
3	16.956MHz	12.4	0.2		QPeak	35.0	47.6	60.0	-12.4		
5	19.074MHz	12.3	0.2		C_AVG	27.4	39.9			50.0	-10.1
6	16.953MHz	12.4	0.2		C_AVG	25.6	38.2			50.0	-11.8
7	21.195MHz	12.3	0.2		C_AVG	30.4	42.8			50.0	-7.2

5.2.2 Neutral



ID	Frequency	Probe	Cable	Atten.	Detector	Meter Read	Meas Level	Limit 1	Limit 1 Dist.	Limit 2	Limit 2 Dist.
2	177,000kHz	12.4	0.0		QPeak	44.2	56.6	64.6	-8.0		
1	150,000kHz	12.4	0.0		QPeak	45.1	57.4	66.0	-8.6		
3	19.080MHz	12.3	0.2		QPeak	37.8	50.3	60.0	-9.7		
4	16.959MHz	12.4	0.2		QPeak	36.3	48.9	60.0	-11.1		
5	16.959MHz	12.4	0.2		C_AVG	29.4	42.0			50.0	-8.0
6	19.077MHz	12.3	0.2		C_AVG	30.2	42.7			50.0	-7.3
7	14.838MHz	12.5	0.2		C_AVG	26.9	39.6			50.0	-10.4

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)
10	5160	9.40	10.35
10	5200	9.40	11.15
10	5245	9.40	10.50
20	5165	18.80	20.60
20	5200	18.80	20.60
20	5240	18.70	20.70
30	5170	28.20	31.05
30	5200	28.05	31.05
30	5235	28.20	31.20
40	5175	37.75	41.10
40	5200	37.50	41.55
40	5230	37.75	41.25
50	5180	46.75	52.25
50	5200	47.00	52.25
50	5225	46.75	51.75

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 21.56 dBm or 143.22 mW. The limit is 30 dBm, or 1 Watt when using an antenna with 23 dBi (Fixed point to point) or less gain. The integral antenna has a gain of 3 dBi with the dish antenna having a gain of 29 dBi. TP setting reflected are with the 3 dBi antenna.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power	Measured EIRP	Measured PSD
HT 10	5160	Mcs0	15	14.41	17.41	2.79
HT 10	5200	Mcs0	22	20.91	23.91	8.87
HT 10	5245	Mcs0	22	21.52	24.52	9.29
HT 20	5165	Mcs0	13	12.93	15.93	-1.72
HT 20	5200	Mcs0	18	17.52	20.52	3.23
HT 20	5240	Mcs0	22	21.56	24.56	7.01
HT 30	5170	Mcs0	13	12.97	15.97	-3.35
HT 30	5200	Mcs0	19	18.27	21.27	1.94
HT 30	5235	Mcs0	22	21.55	24.55	5.17
VHT 40	5175	Mcs0	13	12.94	15.94	-4.40
VHT 40	5200	Mcs0	15	14.55	17.88	-2.79
VHT 40	5230	Mcs0	22	21.34	24.34	3.75
VHT 50	5180	Mcs0	13	12.86	15.86	-5.15
VHT 50	5200	Mcs0	14	13.62	16.62	-4.66
VHT 50	5225	Mcs0	14	13.83	16.83	-4.44

Table 4: 3 dBi Antenna

Modulation (BW)	Frequency (MHz)	Data Rate	Conducted Output Power
HT 10	5160	Mcs0	- 11.59
HT 10	5200	Mcs0	- 5.09
HT 10	5245	Mcs0	- 4.48
HT 20	5165	Mcs0	- 13.07
HT 20	5200	Mcs0	- 8.48
HT 20	5240	Mcs0	- 4.44
HT 30	5170	Mcs0	- 13.03
HT 30	5200	Mcs0	- 10.73
HT 30	5235	Mcs0	- 4.45
VHT 40	5175	Mcs0	- 13.06
VHT 40	5200	Mcs0	- 11.12
VHT 40	5230	Mcs0	- 4.66
VHT 50	5180	Mcs0	- 13.14
VHT 50	5200	Mcs0	- 12.38
VHT 50	5225	Mcs0	- 12.17

Table 5: 29 dBi Antenna

Result

In the configuration tested, the maximum summed 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

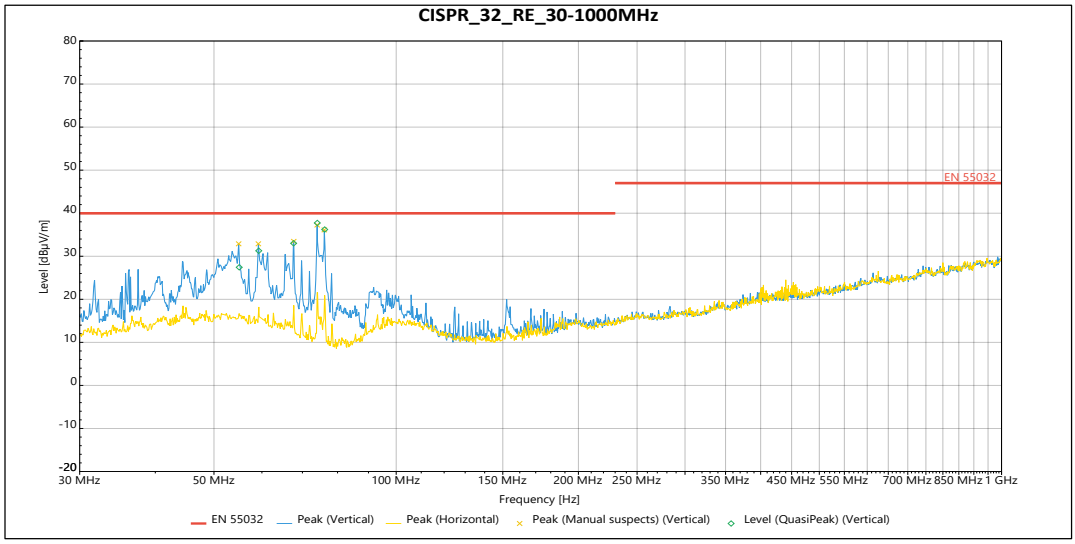
5.5.1 Radiated Spurious Emissions in the Restricted Bands of § 15.205

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 TP22, 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 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 meet the limits specified in § 15.407(b). Representative band edge plots are shown below.

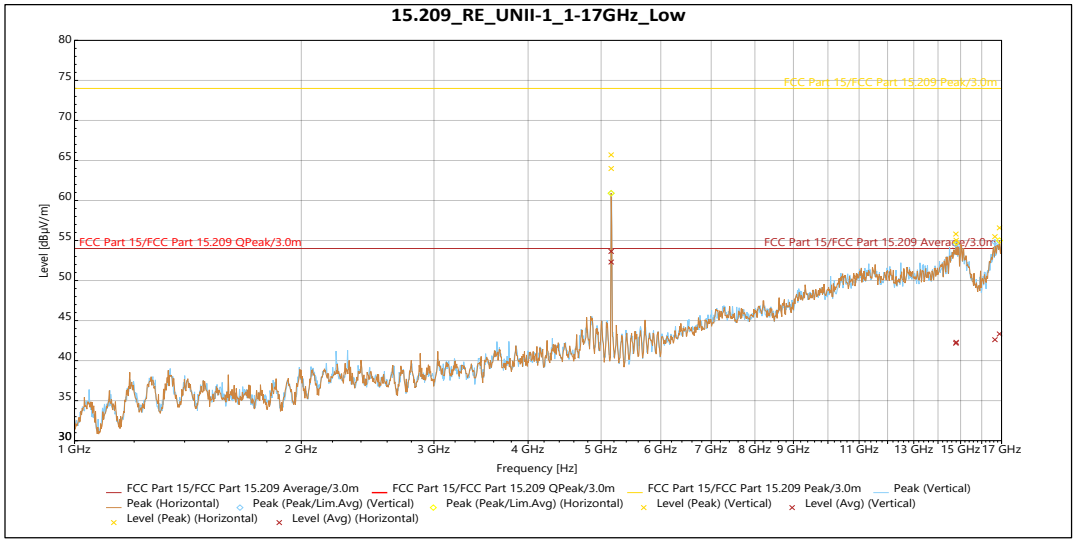


Vertical

Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
QuasiPeak	55.046 MHz	27.43	40	-12.57	230	3.751	Vertical	-12.734
QuasiPeak	59.28 MHz	31.266	40	-8.734	113	3.983	Vertical	-13.298
QuasiPeak	67.692 MHz	33.008	40	-6.992	157	3.974	Vertical	-15.527
QuasiPeak	74.077 MHz	37.732	40	-2.268	93	3.955	Vertical	-18.014
QuasiPeak	76.184 MHz	36.207	40	-3.793	321	3.914	Vertical	-18.687

Horizontal: No significant emissions were observed in this orientation of the antenna.

Table 6: Radiated Emissions 30 – 1000 MHz



Vertical

Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
Peak	14.787 GHz	55.809	74	-18.191	128	2.15	Vertical	9.304
Peak	16.66 GHz	55.484	74	-18.516	233	2.146	Vertical	11.2

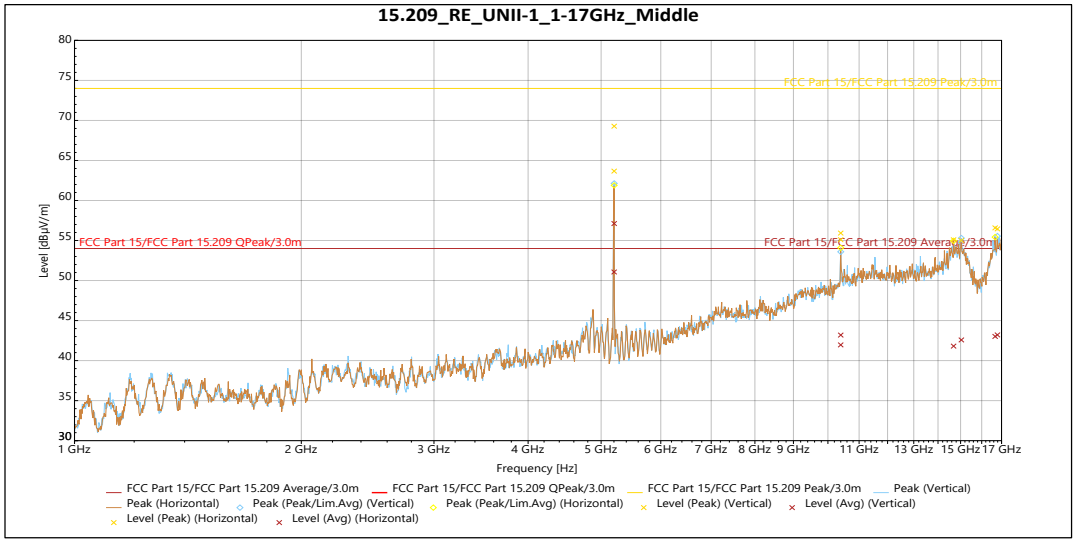
Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
Avg	14.787 GHz	42.169	54	-11.831	128	2.15	Vertical	9.304
Avg	16.66 GHz	42.615	54	-11.385	233	2.146	Vertical	11.2

Horizontal

Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
Peak	14.802 GHz	55.027	74	-18.973	173	3.662	Horizontal	9.491
Peak	16.896 GHz	56.579	74	-17.421	143	3.793	Horizontal	11.931

Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
Avg	14.802 GHz	42.294	54	-11.706	173	3.662	Horizontal	9.491
Avg	16.896 GHz	43.331	54	-10.669	143	3.793	Horizontal	11.931

Table 7: Transmitting on the Lowest Frequency 5160 MHz



Vertical

Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
Peak	10.4 GHz	55.933	74	-18.067	296	2.146	Vertical	4.605
Peak	15.036 GHz	55.011	74	-18.989	85	1.647	Vertical	9.794
Peak	16.788 GHz	56.449	74	-17.551	8	2.655	Vertical	11.593

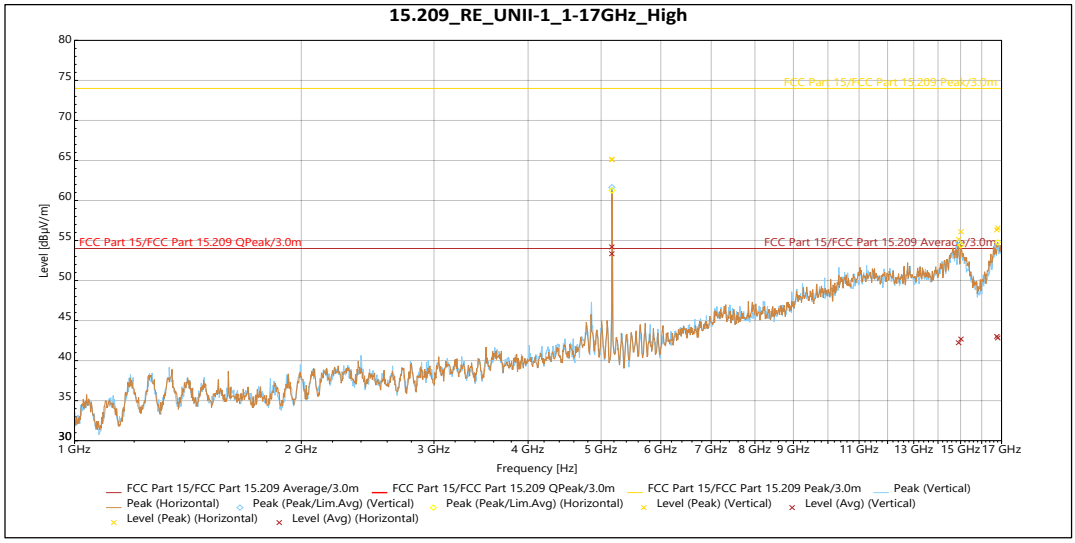
Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
Avg	10.4 GHz	43.19	54	-10.81	296	2.146	Vertical	4.605
Avg	15.036 GHz	42.584	54	-11.416	85	1.647	Vertical	9.794
Avg	16.788 GHz	43.212	54	-10.788	8	2.655	Vertical	11.593

Horizontal

Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
Peak	10.399 GHz	55.097	74	-18.903	59	2.802	Horizontal	4.577
Peak	14.683 GHz	55.093	74	-18.907	274	2.32	Horizontal	8.787
Peak	16.671 GHz	56.585	74	-17.415	137	4	Horizontal	11.407

Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
Avg	10.399 GHz	41.956	54	-12.044	59	2.802	Horizontal	4.577
Avg	14.683 GHz	41.811	54	-12.189	274	2.32	Horizontal	8.787
Avg	16.671 GHz	43.021	54	-10.979	137	4	Horizontal	11.407

Table 8: Transmitting on the Middle Frequency 5200 MHz



Vertical

Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
Peak	14.911 GHz	55.138	74	-18.862	108	2.65	Vertical	9.998
Peak	16.76 GHz	56.317	74	-17.683	140	3.684	Vertical	11.534

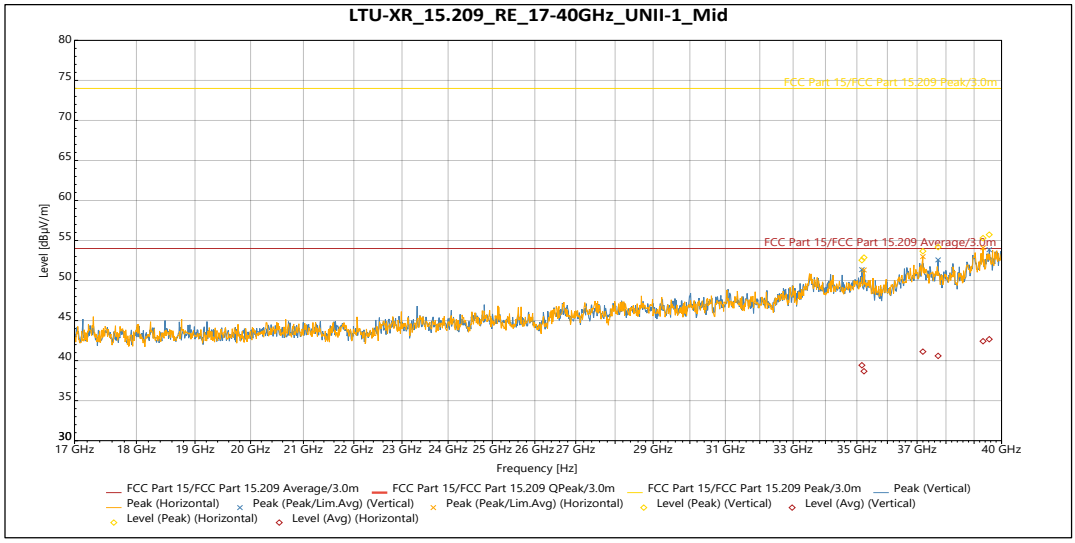
Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
Avg	14.911 GHz	42.233	54	-11.767	108	2.65	Vertical	9.998
Avg	16.76 GHz	43.019	54	-10.981	140	3.684	Vertical	11.534

Horizontal

Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
Peak	15.018 GHz	56.087	74	-17.913	157	2.146	Horizontal	10.112
Peak	16.805 GHz	56.566	74	-17.434	129	4	Horizontal	11.411

Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
Avg	15.018 GHz	42.693	54	-11.307	157	2.146	Horizontal	10.112
Avg	16.805 GHz	42.827	54	-11.173	129	4	Horizontal	11.411

Table 9: Transmitting on the Highest Frequency 5245 MHz



Vertical

Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
Peak	35.163 GHz	52.537	74	-21.463	40	Vertical	1.07
Peak	37.726 GHz	54.181	74	-19.819	2	Vertical	1.155
Peak	39.549 GHz	55.726	74	-18.274	217	Vertical	3.256

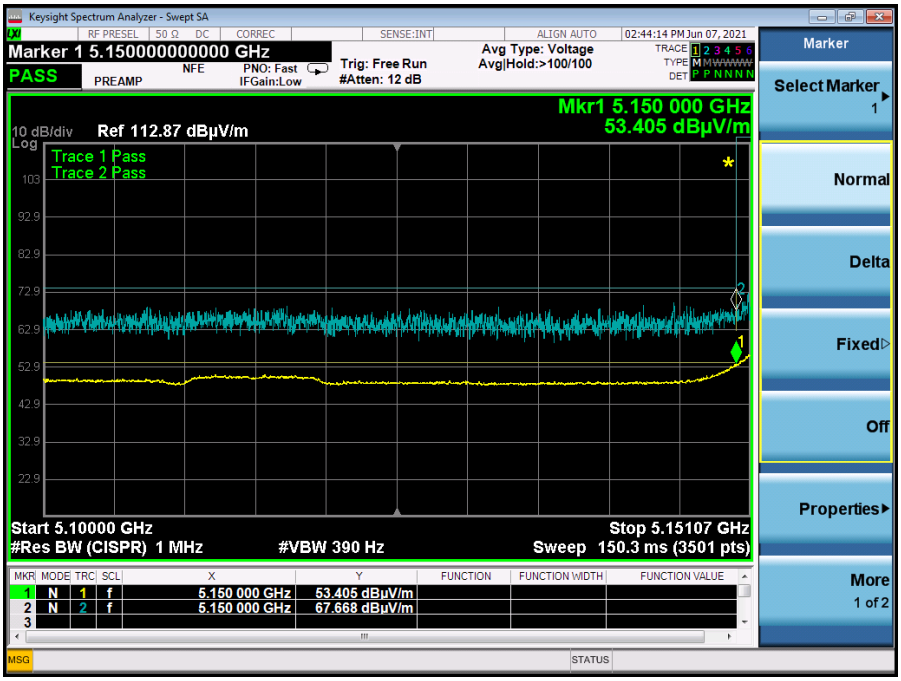
Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
Avg	35.163 GHz	39.417	54	-14.583	40	Vertical	1.07
Avg	37.726 GHz	40.585	54	-13.415	2	Vertical	1.155
Avg	39.549 GHz	42.667	54	-11.333	217	Vertical	3.256

Horizontal

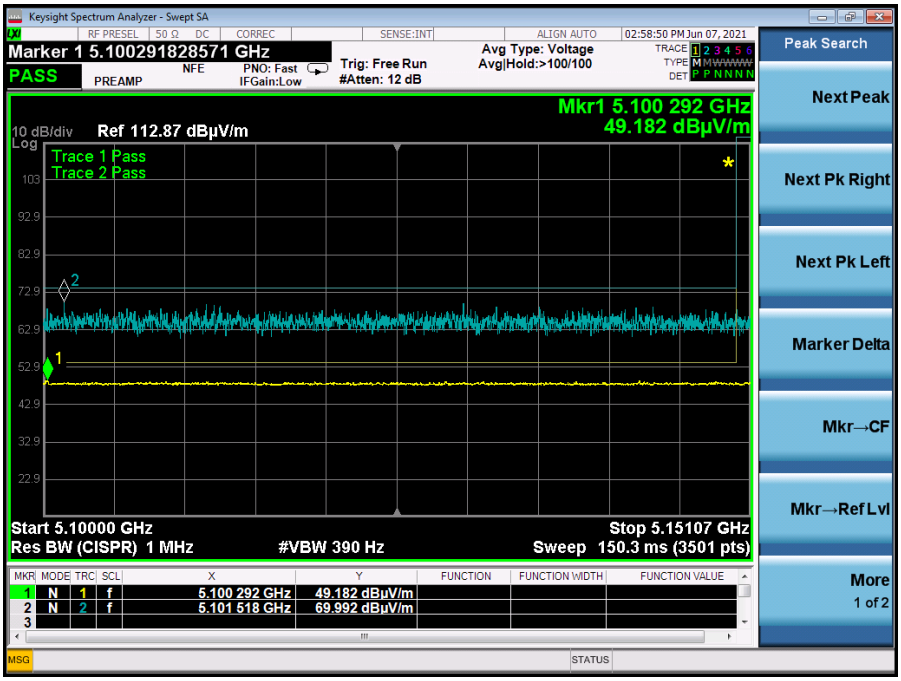
Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
Peak	35.231 GHz	52.866	74	-21.134	75	Horizontal	0.603
Peak	37.199 GHz	53.674	74	-20.326	256	Horizontal	1.329
Peak	39.323 GHz	55.305	74	-18.695	280	Horizontal	3.196

Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
Avg	35.231 GHz	38.667	54	-15.333	75	Horizontal	0.603
Avg	37.199 GHz	41.12	54	-12.88	256	Horizontal	1.329
Avg	39.323 GHz	42.417	54	-11.583	280	Horizontal	3.196

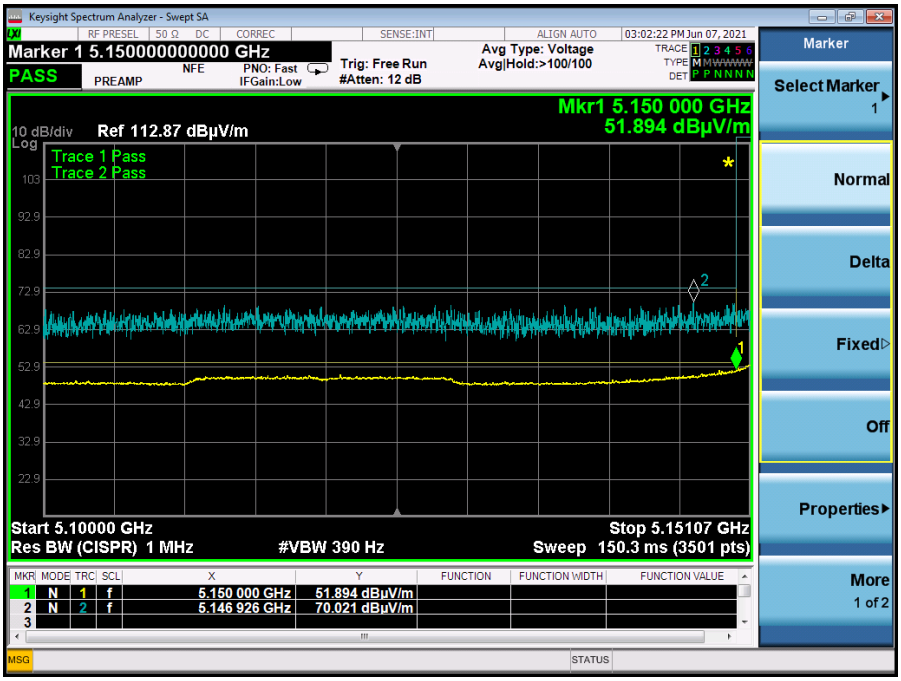
Table 10: Transmitting on the Middle Frequency 5245 MHz (worse case)



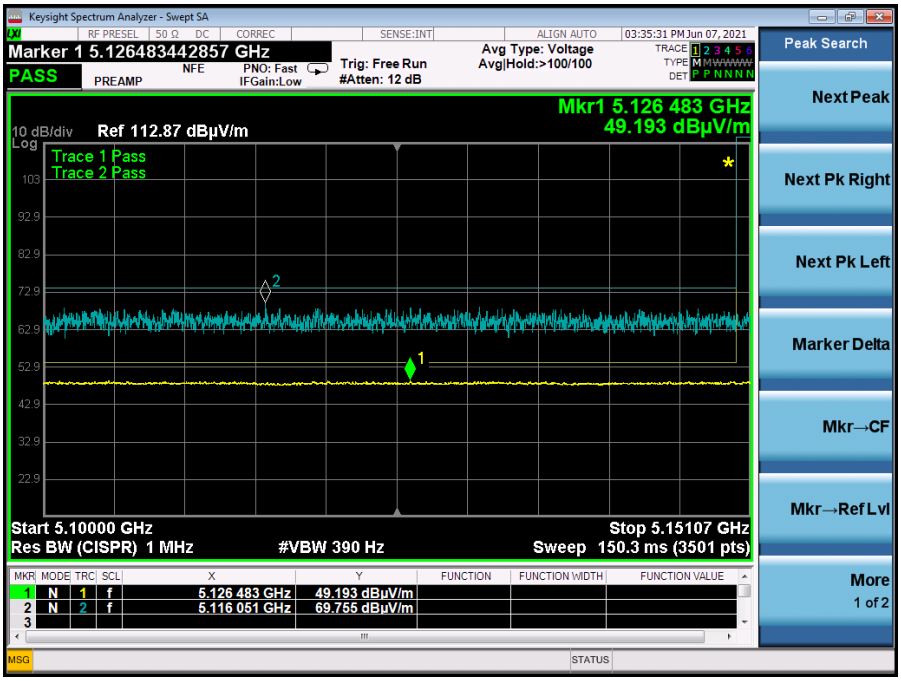
Graph 1: Band Edge HT10 – 5160 MHz



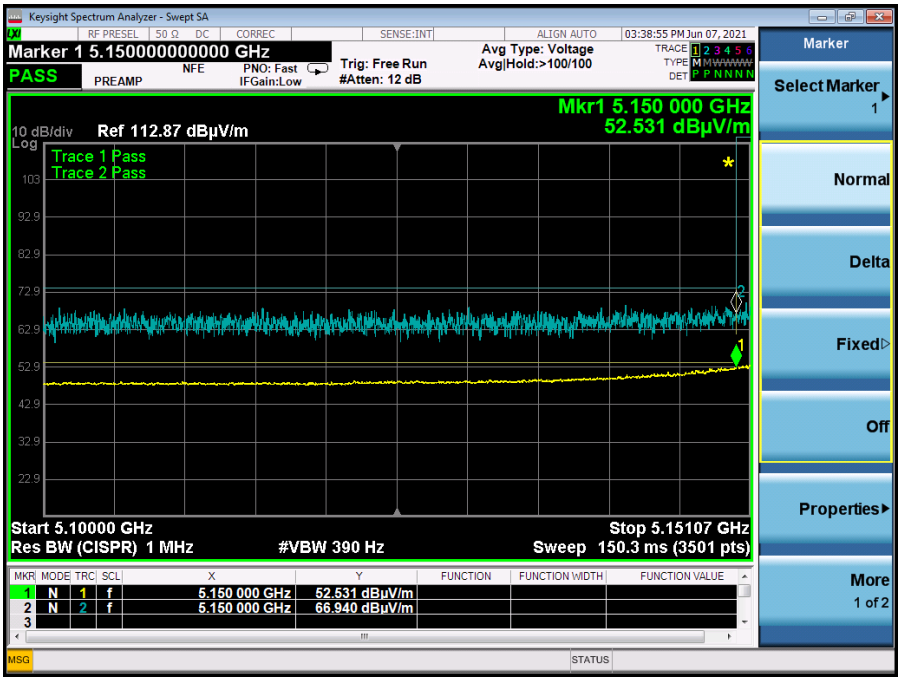
Graph 2: Band Edge HT10 – 5245 MHz



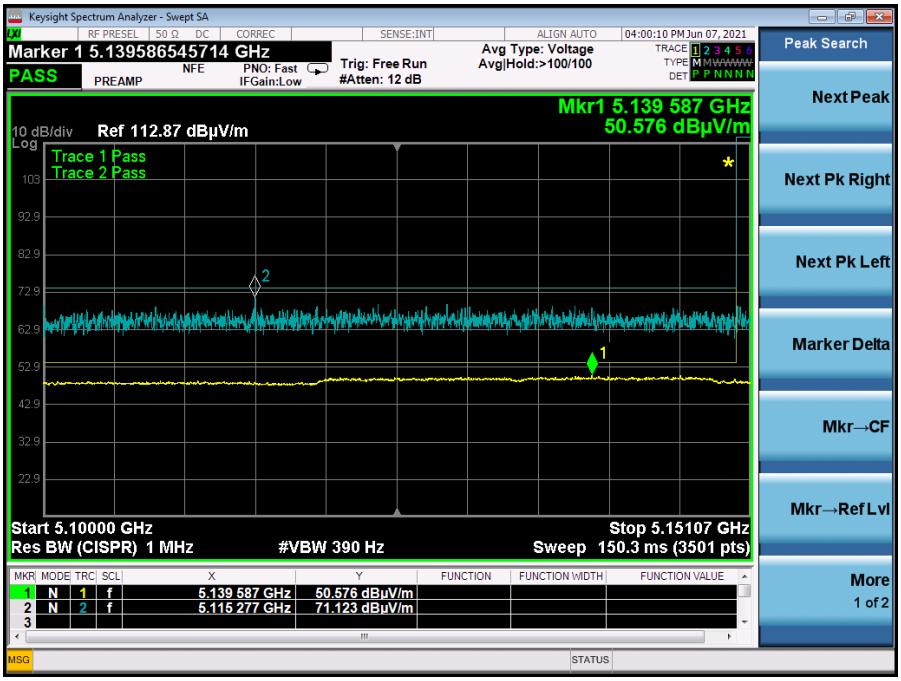
Graph 3: Band Edge HT20 – 5165 MHz



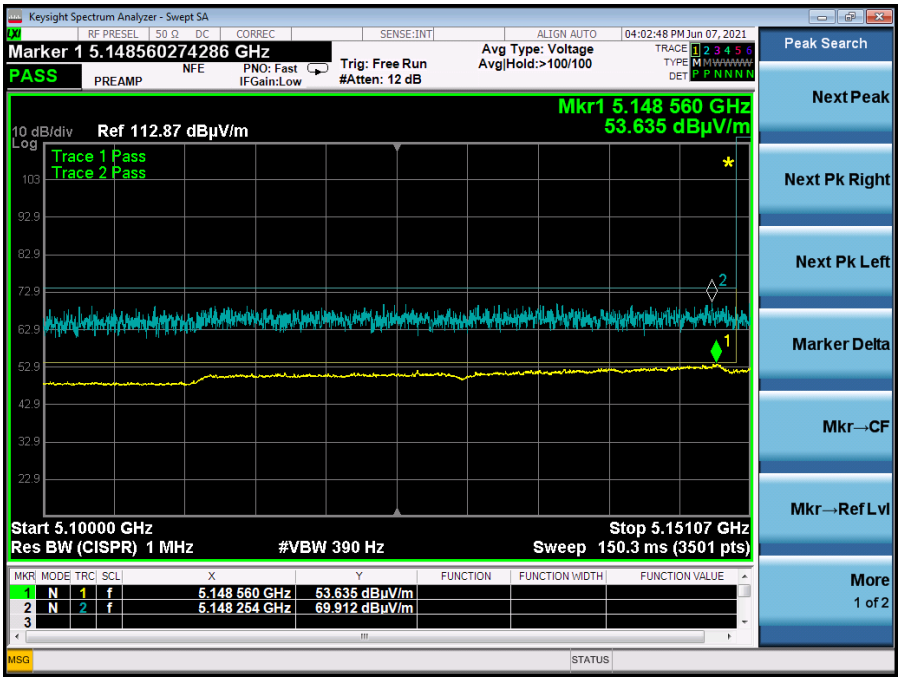
Graph 4: Band Edge HT20 – 5240 MHz



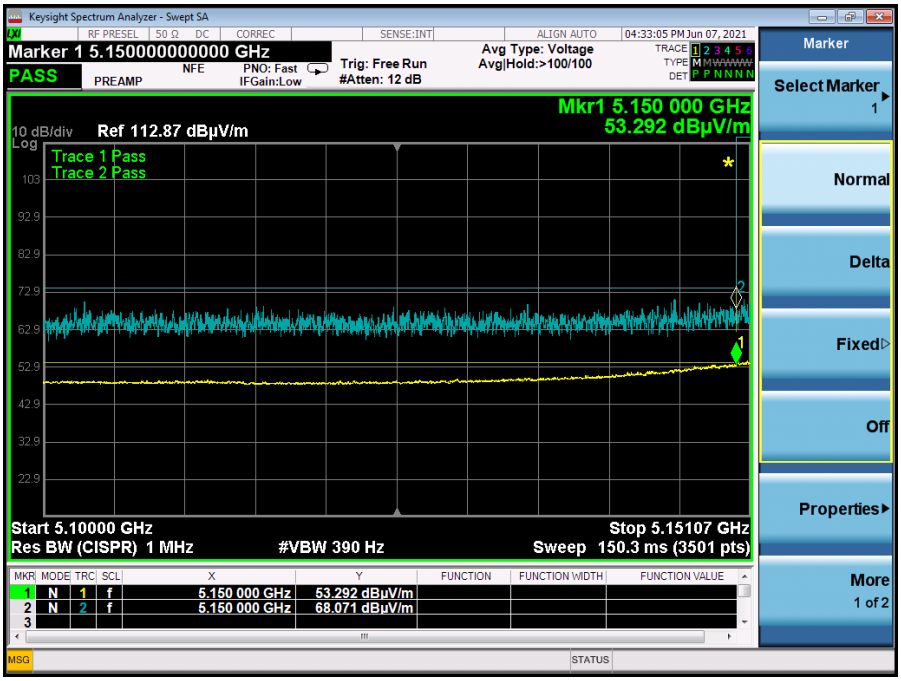
Graph 5: Band Edge HT30 – 5170 MHz



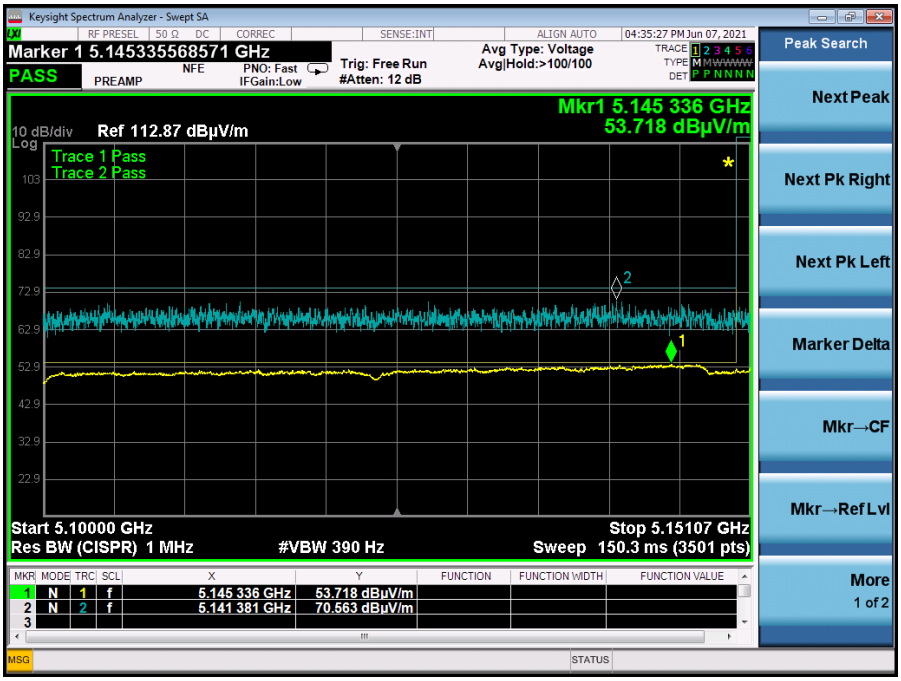
Graph 6: Band Edge HT30 – 5235 MHz



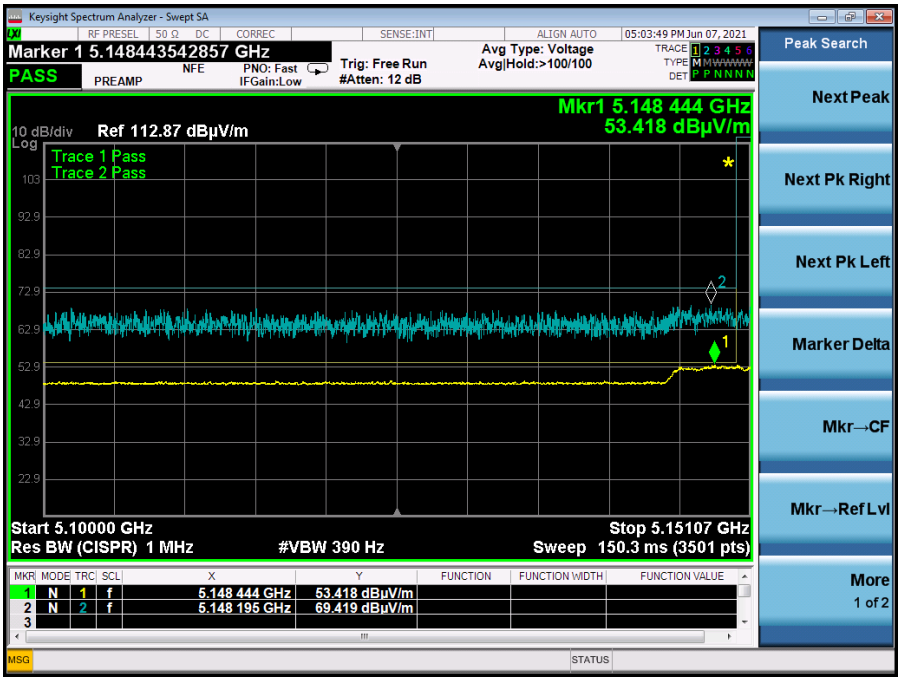
Graph 7: Band Edge HT40 – 5175 MHz



Graph 8: Band Edge HT40 – 5230 MHz



Graph 9: Band Edge HT50 – 5180 MHz



Graph 10: Band Edge HT50 – 5225 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.
Results of this testing are summarized.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Measured PSD
HT 10	5160	Mcs0	15	2.79
HT 10	5200	Mcs0	22	8.87
HT 10	5245	Mcs0	22	9.29
HT 20	5165	Mcs0	13	-1.72
HT 20	5200	Mcs0	18	3.23
HT 20	5240	Mcs0	22	7.01
HT 30	5170	Mcs0	13	-3.35
HT 30	5200	Mcs0	19	1.94
HT 30	5235	Mcs0	22	5.17
VHT 40	5175	Mcs0	13	-4.40
VHT 40	5200	Mcs0	15	-2.79
VHT 40	5230	Mcs0	22	3.75
VHT 50	5180	Mcs0	13	-5.15
VHT 50	5200	Mcs0	14	-4.66
VHT 50	5225	Mcs0	14	-4.44

Table 11: 3 dBi Antenna

Modulation (BW)	Frequency (MHz)	Data Rate	Measured PSD
HT 10	5160	Mcs0	- 23.21
HT 10	5200	Mcs0	- 17.13
HT 10	5245	Mcs0	- 16.71
HT 20	5165	Mcs0	- 27.72
HT 20	5200	Mcs0	- 22.77
HT 20	5240	Mcs0	- 18.99
HT 30	5170	Mcs0	- 29.35
HT 30	5200	Mcs0	- 24.06
HT 30	5235	Mcs0	- 20.83
VHT 40	5175	Mcs0	- 30.40
VHT 40	5200	Mcs0	- 28.79
VHT 40	5230	Mcs0	- 22.25
VHT 50	5180	Mcs0	- 31.15
VHT 50	5200	Mcs0	- 30.66
VHT 50	5225	Mcs0	- 30.44

Table 12: 29 dBi Antenna

Result

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

-- End of Test Report --