



427 West 12800 South
Draper, UT 84020

Test Report Certification

FCC ID	SWX-LTURR
Equipment Under Test	無線橋接器
Equipment Under Test	LTU-Rocket
Test Report Serial Number	TR6647_04
Date of Test(s)	6, 11, 13 and 22 October 2021
Report Issue Date	10 November 2021

Test Specification	Applicant	
47 CFR FCC Part 15, Subpart C RSS-247 Issue 2 LP0002 July 1 2020 Section 5.7.1	Ubiquiti Inc 685 Third Avenue New York, NY 10019	香港商優比快科技有限公司台灣分公司 台北市信義區松仁路107號12樓



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. / 香港商優比快科技有限公司台灣分公司
Manufacturer	Ubiquiti Inc.
Brand Name	UBIQUITI
Equipment Under Test	無線橋接器
Model Number	LTU-Rocket
FCC ID	SWX-LTURR
ISED ID	6545A-LTURR

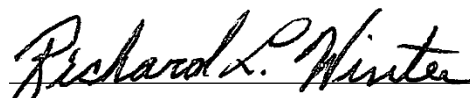
On this 10th day of November 2021, I individually and for Unified Compliance Laboratory certify that the statements made in this engineering report are true, complete, and correct to the best of my knowledge and are made in good faith.

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: Richard L. Winter

Revision History		
Revision	Description	Date
01	Original Report Release	10 November 2021
02	Updated section 5.5.1 with new 30 – 1000 MHz test data	29 November 2021
03	Modified Product Name	17 January 2022
04	Correct PoE Model Name and Add PoE Photographs in Section 6	25 February 2022

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1 Client Information

1.1 Applicant

Company	Ubiquiti, Inc. 685 Third Avenue New York, NY 10017 U.S.A.	香港商優比快科技有限公 司台灣分公司 台北市信義區松仁路 107 號 12 樓
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	UBIQUITI
Model Number	LTU-Rocket
Antenna Brand	Ubiquiti
Antenna Model	LTU-Rocket
Serial Number	F492BF2FD95A
Dimensions (cm)	24.4 x 8.2 x 4.8

2.2 Description of EUT

The LTU-Rocket is a fixed point-to-point or point to multiple point transceiver, intended for outdoor use, operating in the UNII-1, UNII-2A/2C and UNII-3 frequency bands. A Bluetooth LE transceiver is included for device management. An Ethernet port is used for data transfer and to provide power using a POE-24V-5X-HD PoE power supply.

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

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: LTU-Rocket SN: F492BF2FD95A	Wireless Access Point	See Section 2.4
BN: Ubiquiti MN: POE-24V-5X-HD SN: N/A	PoE Power Adapter	Shielded or Un-Shielded Cat 5e cable (Note 2)
BN: Dell MN: XPS 13 SN: N/A	Laptop Personal 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
PoE	1	Shielded or Un-Shielded Cat 5e Cable/> 3 meters
Data	1	Shielded or Un-Shielded Cat 5e Cable/> 3 Meters

僅供測試用途之配件資訊 Accessories used only for supporting the tests			
名稱 Name	廠牌 Brand	型號 Model	備註 Remark
Shielded Cat 5e cable	Cable Matters	160012-BLU-8	8 meters
Shielded Cat 5e cable	Cable Matters	160012-BLU-8	8 meters
POE Power Adapter	Ubiquiti	POE-24V-5X-HD	N/A
Power cord	和可	CH-1902+CHI106	N/A

2.5 Operating Environment

Power Supply	120 Volts ac to 24 Volts PoE Power
--------------	------------------------------------

AC Mains Frequency	60 Hz
Temperature	20.5 – 23.1 °C
Humidity	27.5 – 40.9 %
Barometric Pressure	1017 mBar

2.6 Operating Modes

The LTU-Rocket 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.

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

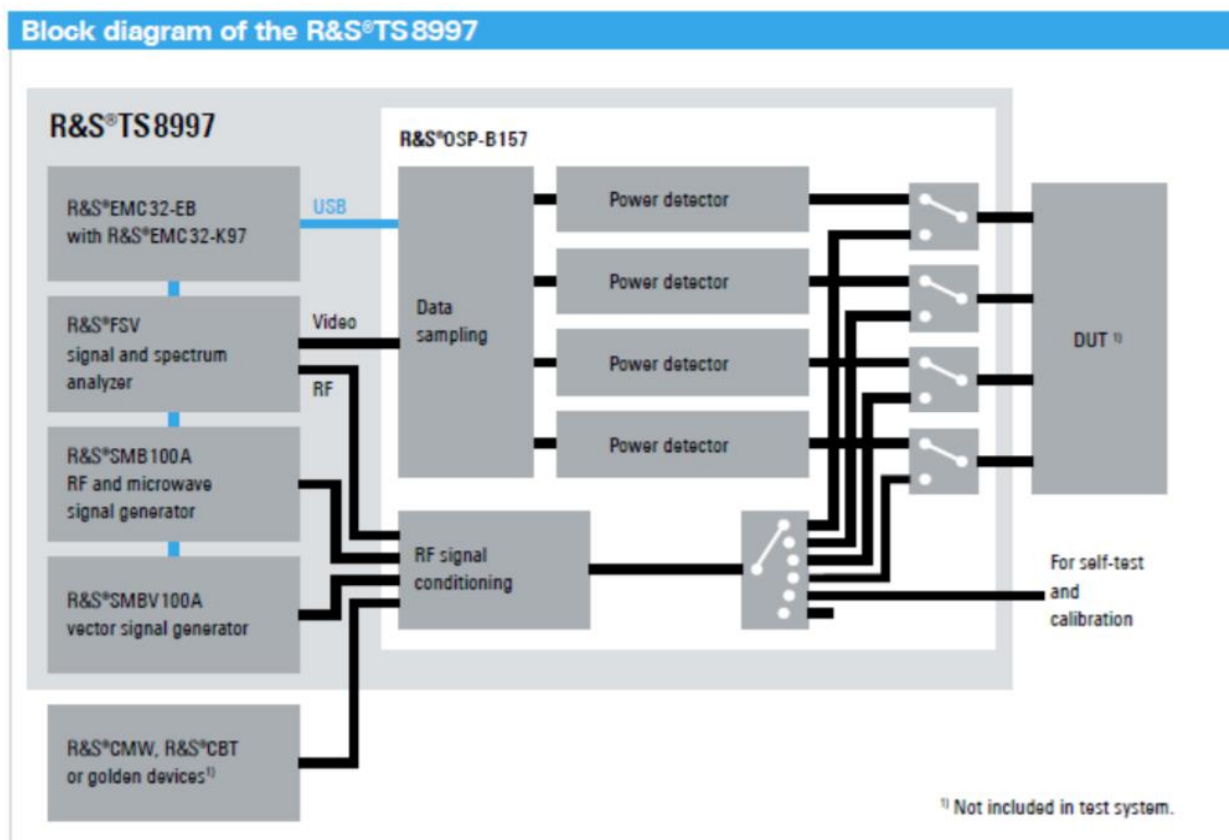


Diagram 1: Test Configuration Block Diagram

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, RSS-247 Limits and methods of measurement of radio interference characteristics of Unlicensed National Information Infrastructure Devices RSS-247 Issue 2 LP0002 July 1, 2020 Section 5.7.1
Purpose of Test	The tests were performed to demonstrate initial compliance

3.2 Summary of Tests

FCC Section	NCC Section	ISED Section	Environmental Phenomena	Frequency Range (MHZ)	Result
15.407(a)	5.7.3.3	SMSE-013-17	Antenna requirements	Structural Requirement	Compliant
15.407(b)	3.3	N/A	Conducted Disturbance at Mains Port	0.15 to 30	Compliant
15.407(c)	5.7.5.	N/A	Bandwidth Requirement	5160 to 5245	Compliant
15.407(e)	5.7.3.3	N/A	Peak Output Power	5160 to 5245	Compliant
15.407(f)	5.7.4	N/A	Antenna Conducted Spurious Emissions	0.009 to 40000	Compliant
15.407(g)	5.7.4, 3.6, 3.5	N/A	Radiated Spurious Emissions	0.009 to 40000	Compliant
15.407(h)	5.7.3.3(2)	N/A	Peak Power Spectral Density	5160 to 5245	Compliant
The testing was performed according to the procedures in ANSI C63.10-2013, KDB 558074, KDB 789033, KDB 662911 and 47 CFR Part 15. See test standard for details.					

3.3 Results

In the configuration tested, the EUT complied with the requirements of the specification.

3.4 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	3/17/2022
LISN	AFJ	LS16C/10	UCL-2512	5/26/2020	5/26/2022

Table 1: List of equipment used for Conducted Emissions Testing at Mains Port

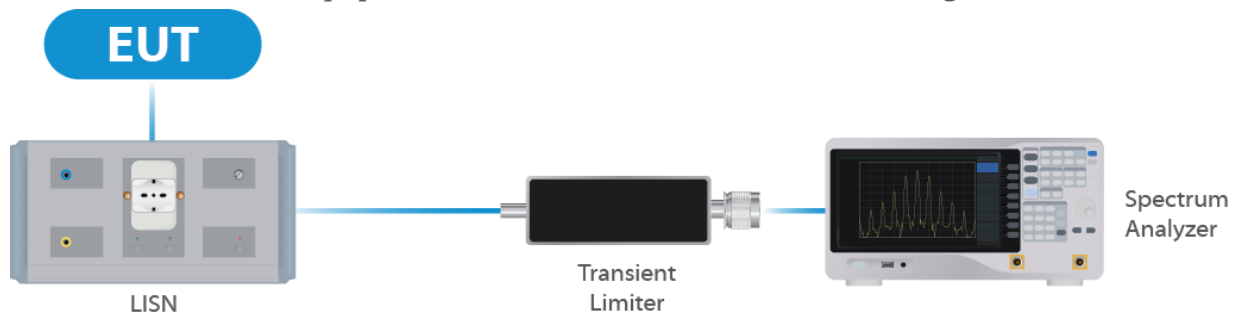


Figure 1: Conducted Emissions Test

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	8/24/2021	12/31/2021
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	12/31/2021
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

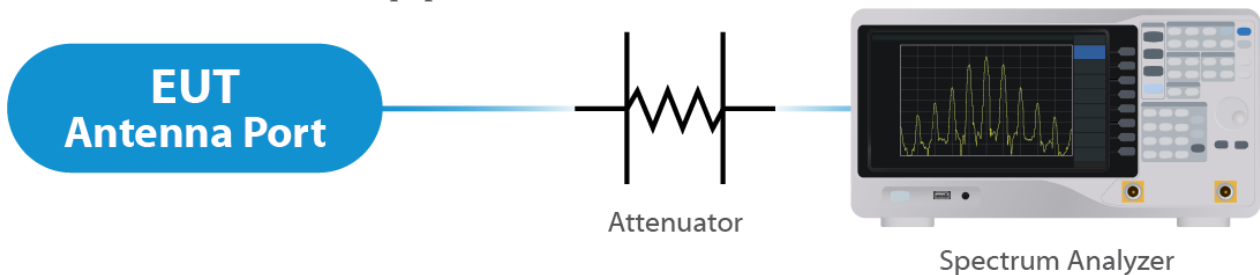


Figure 2: Direct Connect at the Antenna Port Test



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	10/7/2021	10/7/2022
Broadband Antenna	Scwarzbeck	VULB 9163	UCL-3062	8/28/2020	8/27/2022
Broadband Antenna	Scwarzbeck	VULB 9163	UCL-3071	5/19/2020	5/19/2022
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	10/7/2021	10/7/2022
Test Software	UCL	Revision 1	UCL-3108	N/A	N/A

Table 3: List of equipment used for Radiated Emissions

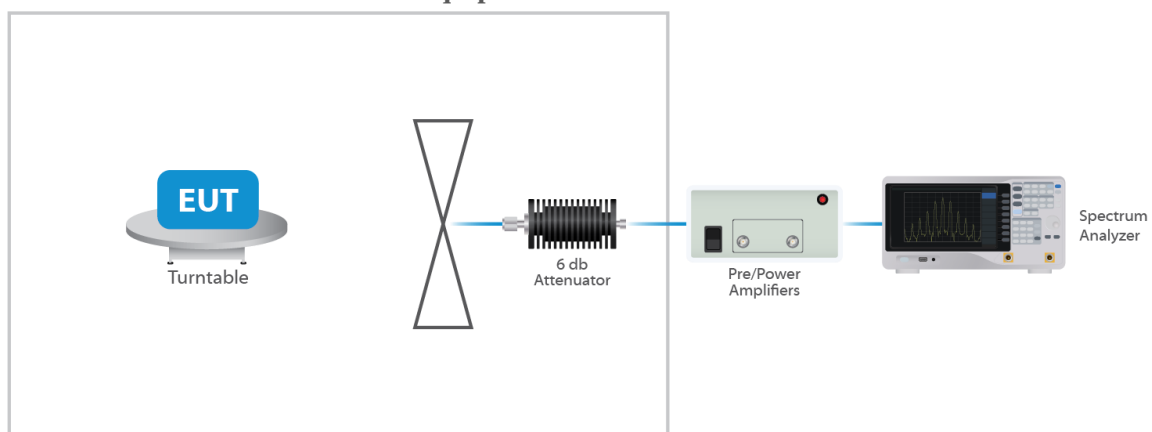


Figure 4: Radiated Emissions Test

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 Antenna Requirements

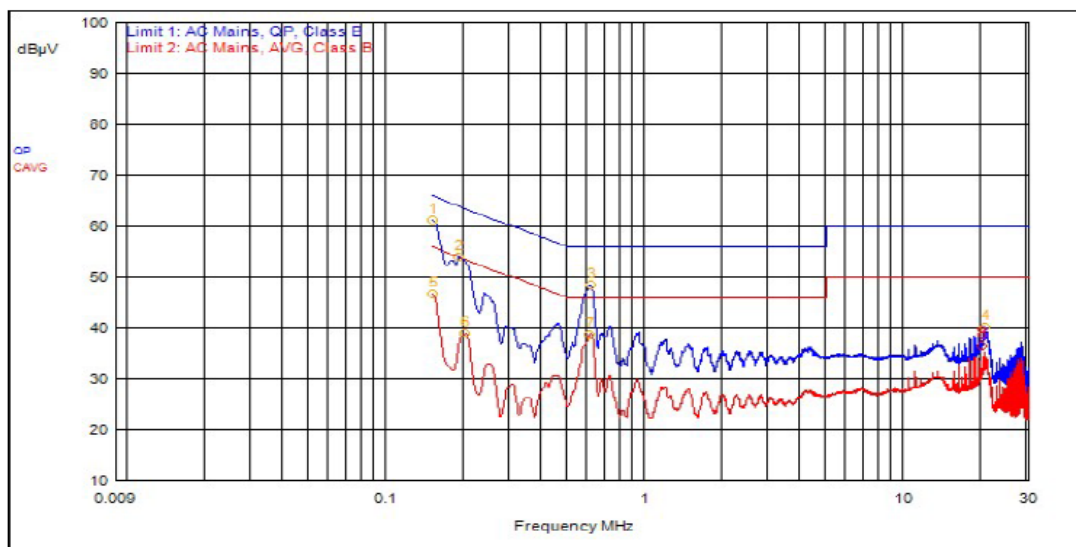
The EUT uses an Omnidirectional antenna. The maximum gain of the antenna 10 dBi. The antenna is user replaceable.

Results

The EUT complied with the specification

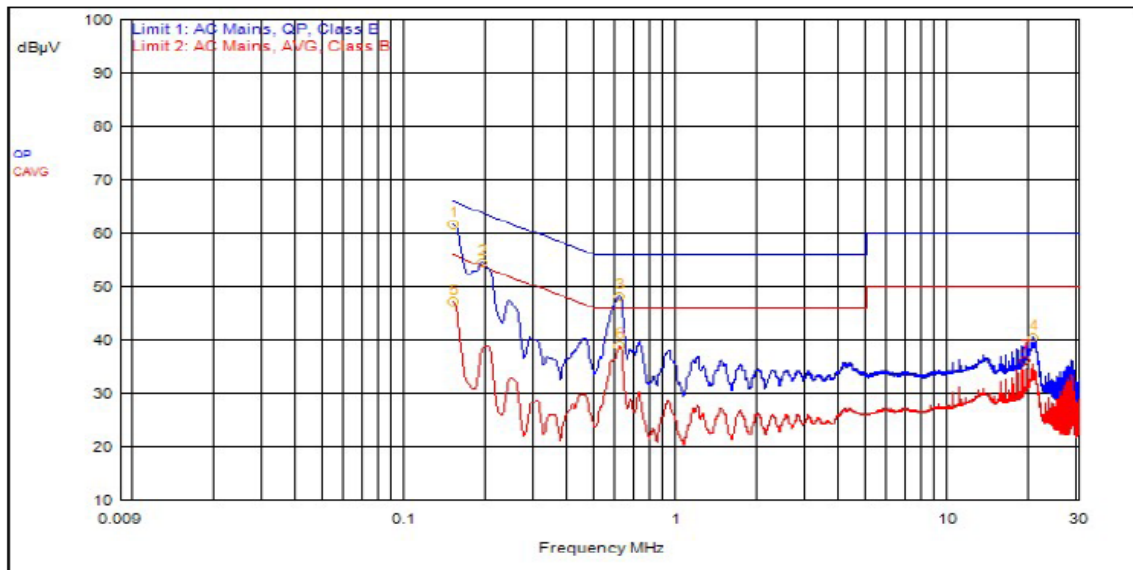
5.2 Conducted Emissions at Mains Ports Data

5.2.1 Line



ID	Frequency	Probe	Cable	Atten.	Detector	Meter Read	Meas Level	Limit	Limit Dist.
1	150.000kHz	12.2	0.0		QPeak	48.9	61.2	66.0	-4.8
7	606.000kHz	12.3	0.0		C_AVG	26.4	38.7	46.0	-7.3
3	612.000kHz	12.3	0.0		QPeak	36.3	48.6	56.0	-7.4
5	150.000kHz	12.2	0.0		C_AVG	34.5	46.7	56.0	-9.3
2	189.000kHz	12.2	0.0		QPeak	41.7	54.0	64.1	-10.1
6	198.000kHz	12.2	0.0		C_AVG	26.6	38.9	53.7	-14.8
4	20.139MHz	12.0	0.2		QPeak	28.0	40.2	60.0	-19.8
8	19.737MHz	12.0	0.2		QPeak	24.2	36.4	60.0	-23.6

5.2.2 Neutral



ID	Frequency	Probe	Cable	Atten.	Detector	Meter Read	Meas Level	Limit	Limit Dist.
1	150.000kHz	12.2	0.0		QPeak	49.5	61.8	66.0	-4.2
6	612.000kHz	12.3	0.0		C_AVG	26.7	38.9	46.0	-7.1
3	609.000kHz	12.3	0.0		QPeak	35.9	48.2	56.0	-7.8
5	150.000kHz	12.2	0.0		C_AVG	35.0	47.2	56.0	-8.8
2	192.000kHz	12.2	0.0		QPeak	42.4	54.6	63.9	-9.3
4	20.136MHz	12.0	0.2		QPeak	28.4	40.6	60.0	-19.4
7	19.020MHz	12.1	0.2		QPeak	24.1	36.3	60.0	-23.7

Result

The EUT complied with the specification limit.

5.3 Measured Bandwidth

Please see associated annex for details on instrument settings.

Nominal BW (MHz)	Frequency (MHz)	99% Bandwidth (MHz)	Emissions 26 dB Bandwidth (MHz)
10	5160	9.4	10.5
10	5200	9.4	10.5
10	5245	9.4	10.5
20	5165	18.9	20.8
20	5200	18.9	20.8
20	5240	18.9	20.8
30	5170	28.2	31.1
30	5200	28.2	31.2
30	5235	28.2	30.8
40	5175	37.8	41.3
40	5200	37.8	41.4
40	5230	37.8	41.4
50	5180	47.0	51.8
50	5200	47.0	52.0
50	5225	47.0	52.0
60	5185	57.5	62.0
60	5200	57.0	62.3
60	5220	56.5	62.3
80	5195	75.5	84.0
80	5200	75.5	83.5
80	5210	75.5	84.0
100	5205	94.5	104.0

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 Maximum Average Output Power

The maximum average RF conducted output power measured for this device was 25.50 dBm or 354.81 mW. The limit is 30 dBm, or 1 Watt when using an antenna with 23 dBi or less gain. The antenna has a gain of 10 dBi.

For the band 5.15 GHz~5.25 GHz

(1) For outdoor access:

(A) The maximum conducted output power shall be less than or equal to 1 Watt.

(B) The maximum power spectral density shall be less than or equal to 17 dBm in any 1 MHz band.

(C) If transmitting antennas of directional gain greater than 6 dBi are used, both the
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maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dBi that the directional gain of the antenna exceeds 6 dBi.

(D) The maximum EIRP at any elevation angle above 30 degrees as measured from the horizon shall be less than or equal to 21 dBm.

(2) For indoor access:

(A) The maximum conducted output power over the frequency band of operation shall be less than or equal to 1 Watt.

(B) The maximum power spectral density shall be less than or equal to 17 dBm in any 1 MHz band.

(C) If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dBi that the directional gain of the antenna exceeds 6 dBi.

(3) For fixed point-to-point access:

(A) The maximum conducted output power shall be less than or equal to 1 Watt.

(B) The maximum power spectral density shall be less than or equal to 17 dBm in any 1 MHz band.

(C) If transmitting antennas of directional gain greater than 23 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dBi that the directional gain of the antenna exceeds 23 dBi.

(D) Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple colocated transmitters transmitting the same information.

The conducted limit for PTP mode is 30 dBm

The conducted limit for PTMP mode is 30 dBm

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power	Measured EIRP	Measured PSD
10	5160	Mcs0	16	17.99	27.99	5.94
10	5200	Mcs0	27	24.68	34.68	13.17
10	5245	Mcs0	27	25.29	35.29	12.97
20	5165	Mcs0	12	13.66	23.66	-0.82
20	5200	Mcs0	20	21.69	31.69	6.86
20	5240	Mcs0	27	25.50	35.50	10.32
30	5170	Mcs0	11	12.51	22.51	-3.33
30	5200	Mcs0	27	24.49	34.49	8.74
30	5235	Mcs0	27	24.65	34.65	8.52
40	5175	Mcs0	16	17.03	27.03	-0.04
40	5200	Mcs0	27	25.36	35.36	7.54
40	5230	Mcs0	27	25.20	35.20	7.29
50	5180	Mcs0	15	16.86	26.86	-1.88
50	5200	Mcs0	16	16.87	26.87	-0.88
50	5225	Mcs0	18	19.51	29.51	0.71
60	5185	Mcs0	20	21.74	31.74	2.32
60	5200	Mcs0	21	21.69	31.69	3.39
60	5220	Mcs0	23	23.41	33.41	4.33
80	5195	Mcs0	20	21.76	31.76	1.19
80	5200	Mcs0	20	21.85	31.85	1.22
80	5210	Mcs0	21	22.70	32.70	2.07
100	5205	Mcs0	18	19.81	29.81	-1.69

Result

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

5.5 Spurious Emissions

5.5.1 Radiated Spurious Emissions in the Restricted Bands

Due to the design of the EUT, radiated measurements are required.

All investigated emissions were subjected to the more stringent limits described below.

Additional regulations shall apply except for this standard, the emissions from the low-power radio-frequency devices shall be less than or equal the field strength levels specified in the following table and the level of any unwanted emissions shall not exceed the level of the fundamental emission. The tighter limit applies at the band edges. The plots below are prescan data, the tabular data is final data. Worst case mode is 802.11ac, the data below reflects worst case.

$\text{dBuV} = 20 \log(\mu\text{V})$

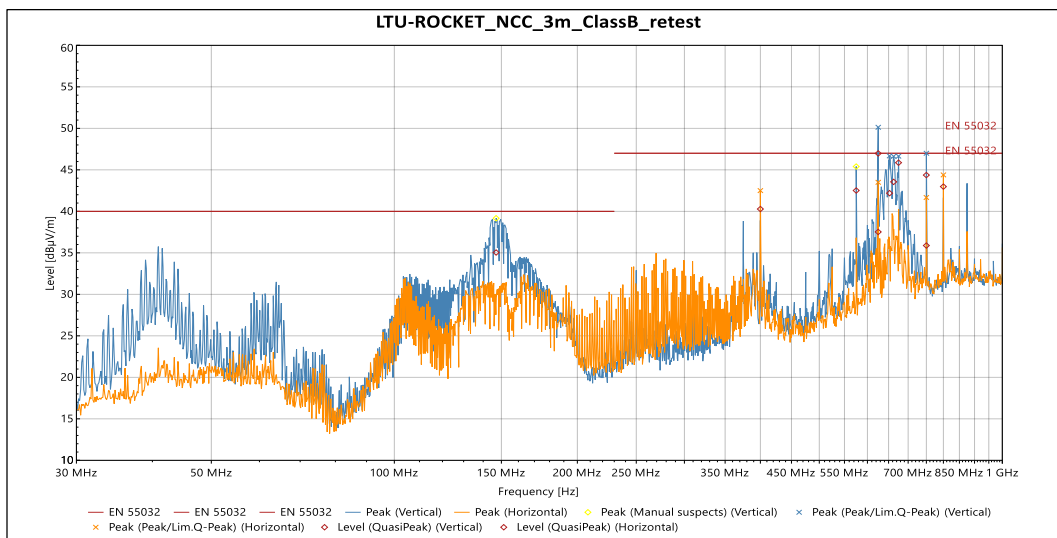
$150\mu\text{V} = 43.5 \text{ dBuV}$

Frequency (MHz)	Field strength (micro-volts/meter)	Measurement distance (meters)
0.009 – 0.490 (included)	2,400/Freq.(kHz)	300
0.490 (excluded) – 1.705 (included)	24,000/Freq. (kHz)	30
1.705 (excluded) – 30 (excluded)	30	30
30 (included) – 88 (included)	100	3
88 (excluded) – 216 (included)	150	3
216 (excluded) – 960 (included)	200	3
Above 960 (excluded)	500	3

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

Result

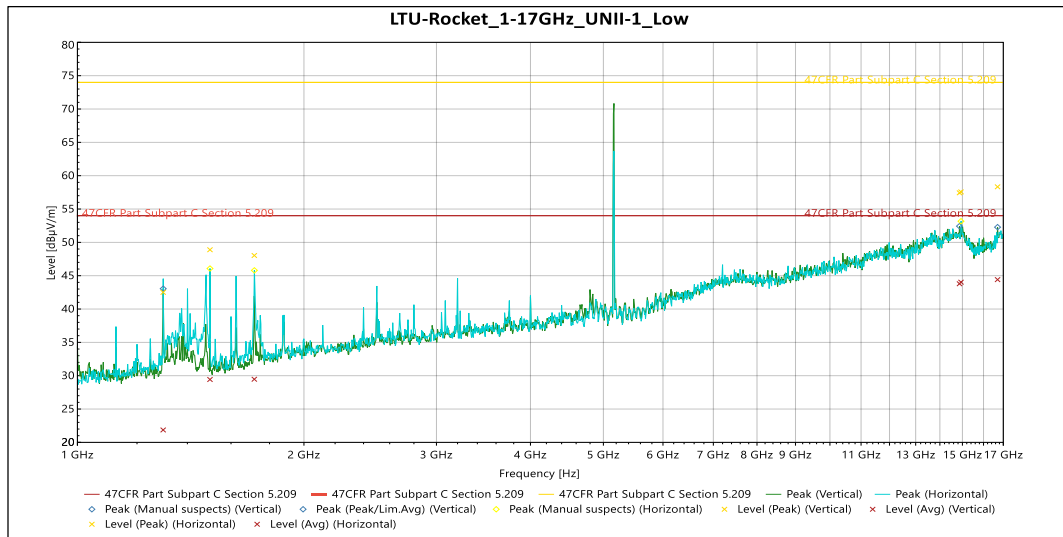
All emissions in and outside of the restricted bands of § 15.205 met the limits specified in § 15.209 and LP0002 Section 3.5 therefore, the EUT complies with the specification. See below for band edge plots. There were no spurious emissions found between the ranges of 30 MHz – 1 GHz and 16 GHz – 40 GHz



QuasiPeak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
147.02 MHz	35.036	40	-4.964	208	1.134	Vertical	-12.725
575.01 MHz	42.512	47	-4.488	62	1.132	Vertical	-1.351
624.96 MHz	46.977	47	-0.023	351	1	Vertical	0.006
652.43 MHz	42.192	47	-4.808	3	1.172	Vertical	-0.128
662.6 MHz	43.545	47	-3.455	63	1.856	Vertical	-0.061
674.96 MHz	45.855	47	-1.145	62	1.677	Vertical	0.129
749.97 MHz	44.371	47	-2.629	53	1.542	Vertical	1.785
400.02 MHz	40.276	47	-6.724	292	1.704	Horizontal	-4.019
624.97 MHz	37.517	47	-9.483	14	1.315	Horizontal	0.006
750.03 MHz	35.879	47	-11.121	323	2.758	Horizontal	1.785
799.98 MHz	42.984	47	-4.016	328	1.495	Horizontal	1.842

Table 4: Radiated Emissions 30 – 1000 MHz



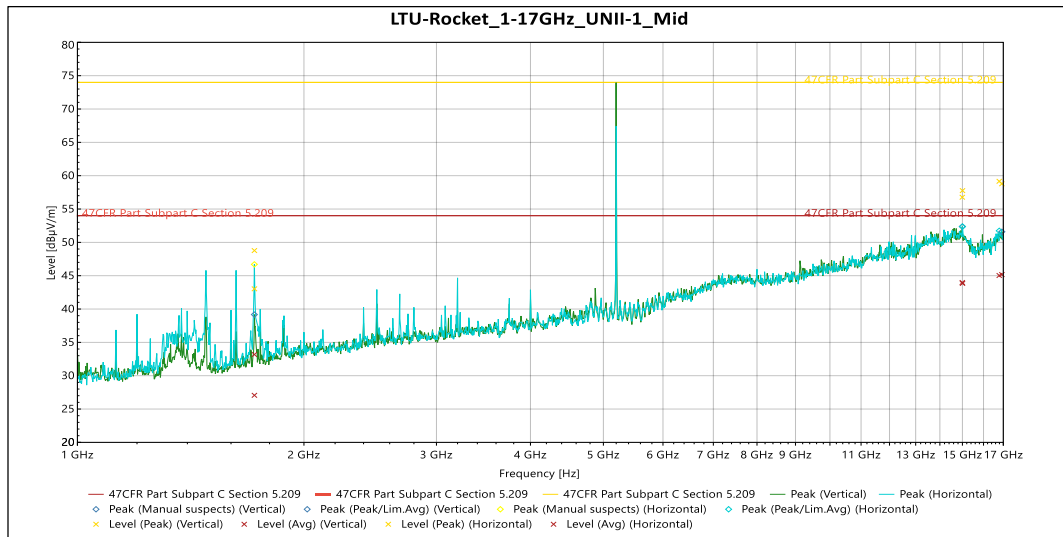
Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
1.3 GHz	42.496	74	-31.504	336	2.043	Vertical	-11.451
14.866 GHz	57.428	74	-16.572	179	1.637	Vertical	15.024
16.703 GHz	58.331	74	-15.669	285	3.438	Vertical	16.315
1.5002 GHz	48.888	74	-25.112	20	1.865	Horizontal	-10.92
1.7182 GHz	48.029	74	-25.971	1	1.636	Horizontal	-9.918
14.935 GHz	57.569	74	-16.431	233	4	Horizontal	15.001

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
1.3 GHz	21.863	54	-32.137	336	2.043	Vertical	-11.451
14.866 GHz	43.788	54	-10.212	179	1.637	Vertical	15.024
16.703 GHz	44.415	54	-9.585	285	3.438	Vertical	16.315
1.5002 GHz	29.427	54	-24.573	20	1.865	Horizontal	-10.92
1.7182 GHz	29.474	54	-24.526	1	1.636	Horizontal	-9.918
14.935 GHz	44.029	54	-9.971	233	4	Horizontal	15.001

Table 5: Radiated Emissions 1 – 17 GHz on the Lowest Frequency 5160 MHz



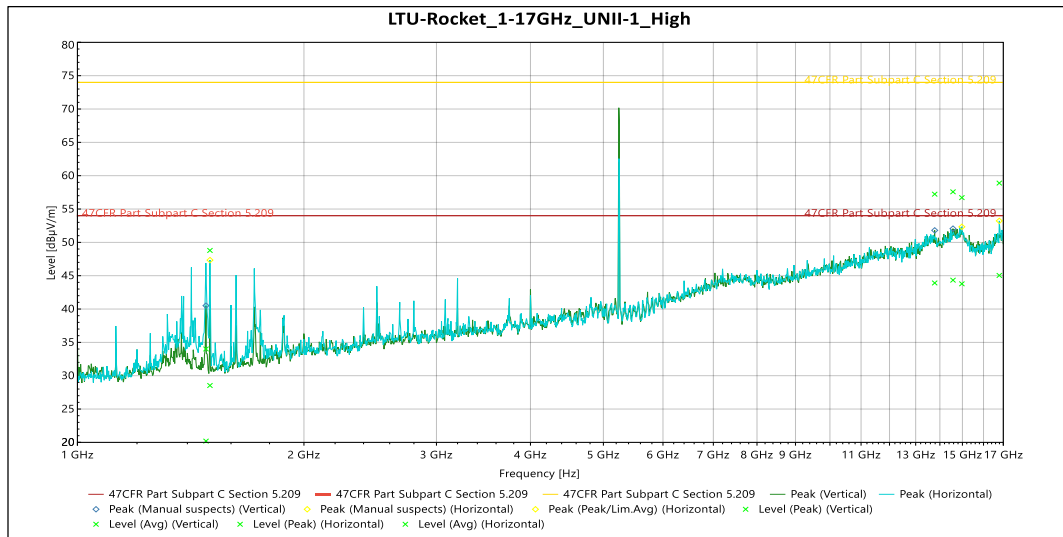
Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
1.7187 GHz	43.033	74	-30.967	340	1.636	Vertical	-9.921
14.994 GHz	56.767	74	-17.233	156	2.176	Vertical	14.866
16.925 GHz	58.781	74	-15.219	49	1.993	Vertical	17.096
1.7187 GHz	48.767	74	-25.233	359	1.5	Horizontal	-9.921
15.004 GHz	57.761	74	-16.239	237	3.617	Horizontal	14.722
16.789 GHz	59.16	74	-14.84	246	2.218	Horizontal	16.855

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
1.7187 GHz	27.063	54	-26.937	340	1.636	Vertical	-9.921
14.994 GHz	43.976	54	-10.024	156	2.176	Vertical	14.866
16.925 GHz	45.168	54	-8.832	49	1.993	Vertical	17.096
1.7187 GHz	33.181	54	-20.819	359	1.5	Horizontal	-9.921
15.004 GHz	43.839	54	-10.161	237	3.617	Horizontal	14.722
16.789 GHz	45.031	54	-8.969	246	2.218	Horizontal	16.855

Table 6: Radiated Emissions 1 – 17 GHz on the Middle Frequency 5200 MHz



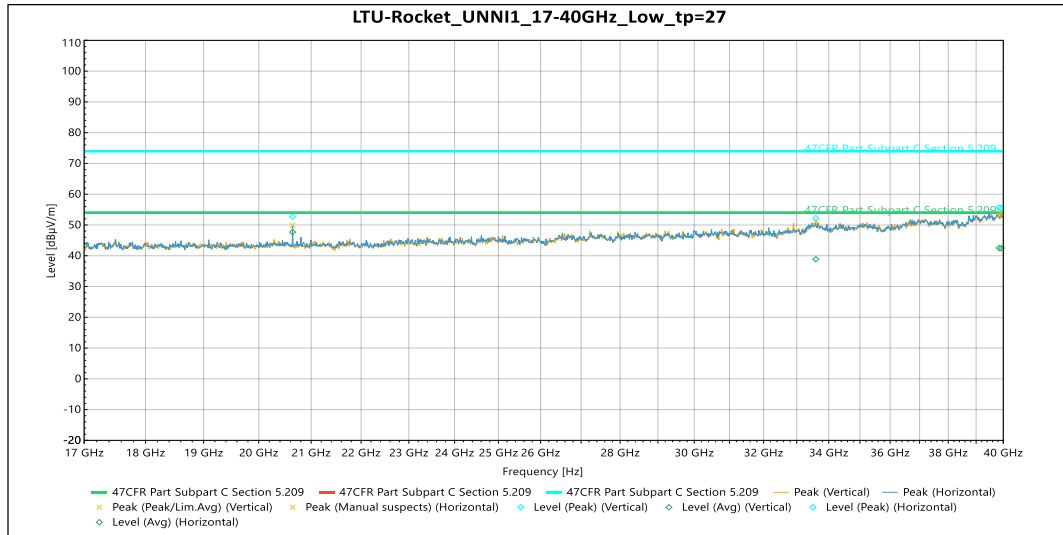
Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
1.4821 GHz	34.015	74	-39.985	358	3.629	Vertical	-11.147
13.78 GHz	57.227	74	-16.773	307	3.452	Vertical	14.799
14.574 GHz	57.585	74	-16.415	356	1.692	Vertical	15.069
1.5001 GHz	48.788	74	-25.212	31	1.692	Horizontal	-10.922
14.975 GHz	56.706	74	-17.294	241	3.794	Horizontal	14.794
16.792 GHz	58.892	74	-15.108	183	1.865	Horizontal	16.884

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
1.4821 GHz	20.19	54	-33.81	358	3.629	Vertical	-11.147
13.78 GHz	43.914	54	-10.086	307	3.452	Vertical	14.799
14.574 GHz	44.327	54	-9.673	356	1.692	Vertical	15.069
1.5001 GHz	28.534	54	-25.466	31	1.692	Horizontal	-10.922
14.975 GHz	43.779	54	-10.221	241	3.794	Horizontal	14.794
16.792 GHz	45.041	54	-8.959	183	1.865	Horizontal	16.884

Table 7: Radiated Emissions 1 – 17 GHz on the Highest Frequency 5245 MHz



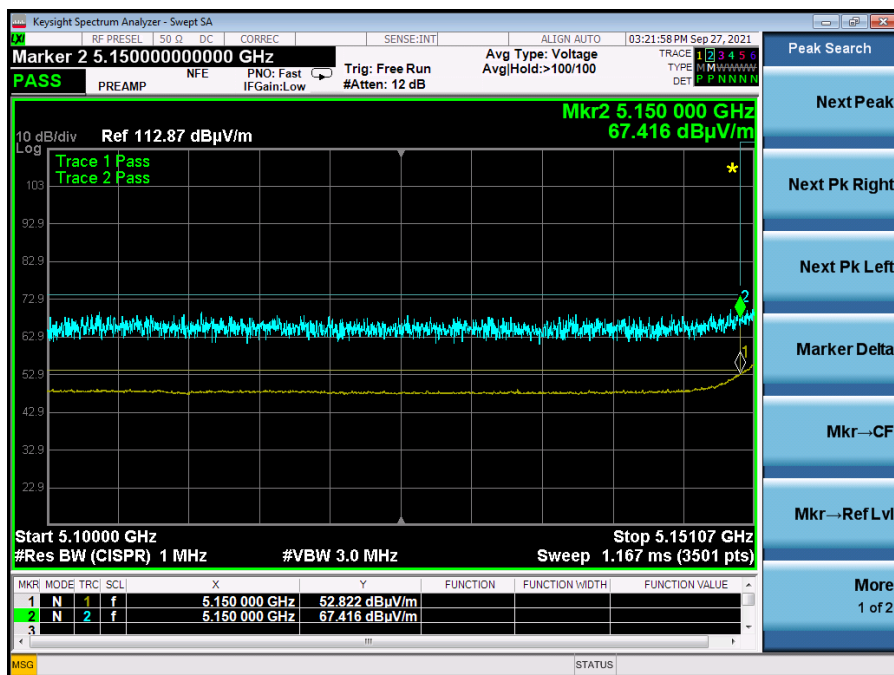
Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
33.594 GHz	52.227	74	-21.773	233	Vertical	0.939
39.928 GHz	55.519	74	-18.481	69	Vertical	3.628
20.641 GHz	52.724	74	-21.276	334	Horizontal	-5.524
39.84 GHz	55.639	74	-18.361	123	Horizontal	3.582

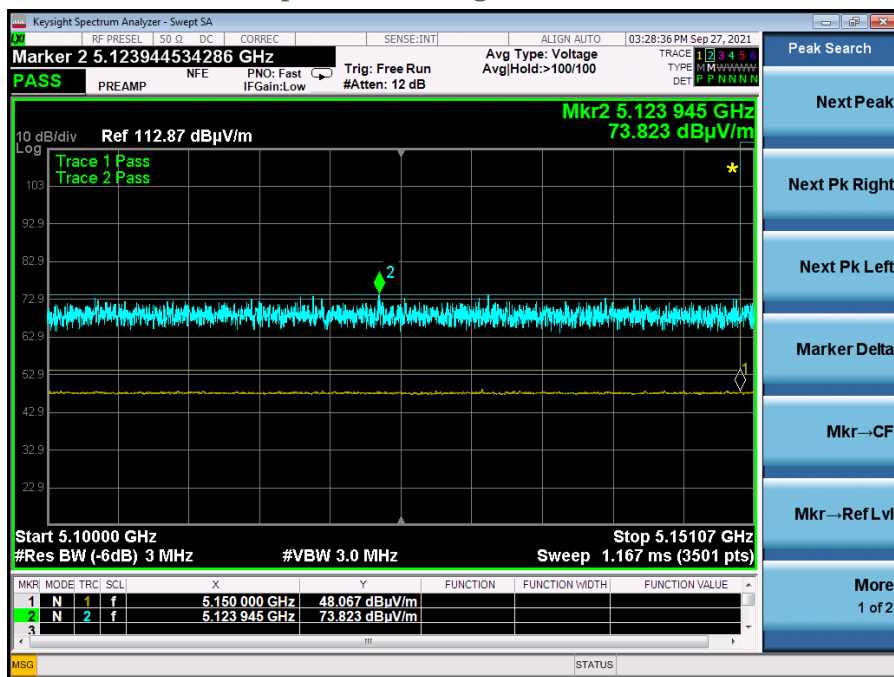
Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
33.594 GHz	38.865	54	-15.135	233	Vertical	0.939
39.928 GHz	42.46	54	-11.54	69	Vertical	3.628
20.641 GHz	47.695	54	-6.305	334	Horizontal	-5.524
39.84 GHz	42.518	54	-11.482	123	Horizontal	3.582

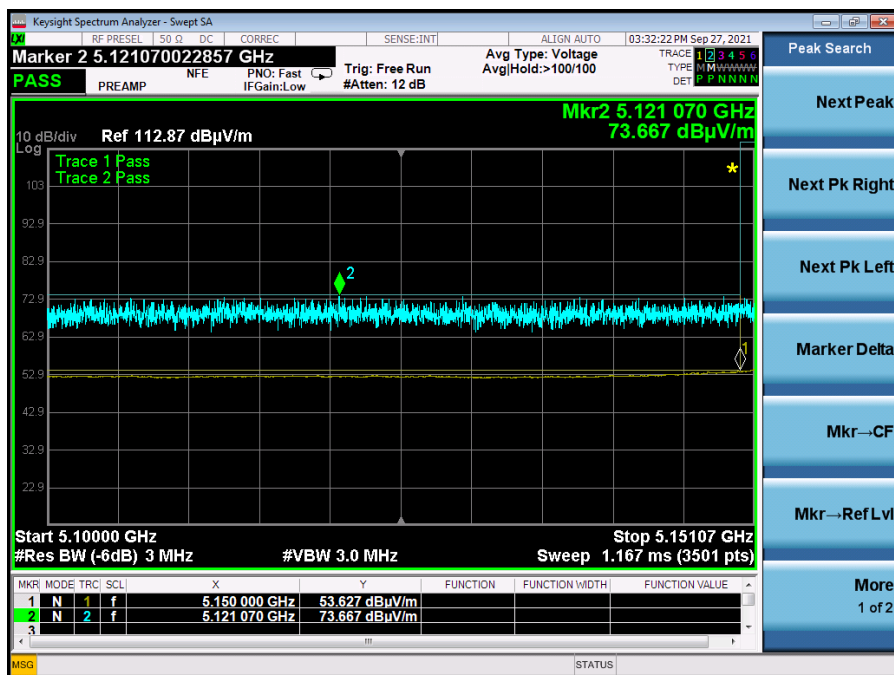
Table 8: Radiated Emissions 17 – 40 GHz on the Lowest Frequency 5160 MHz (worse case)



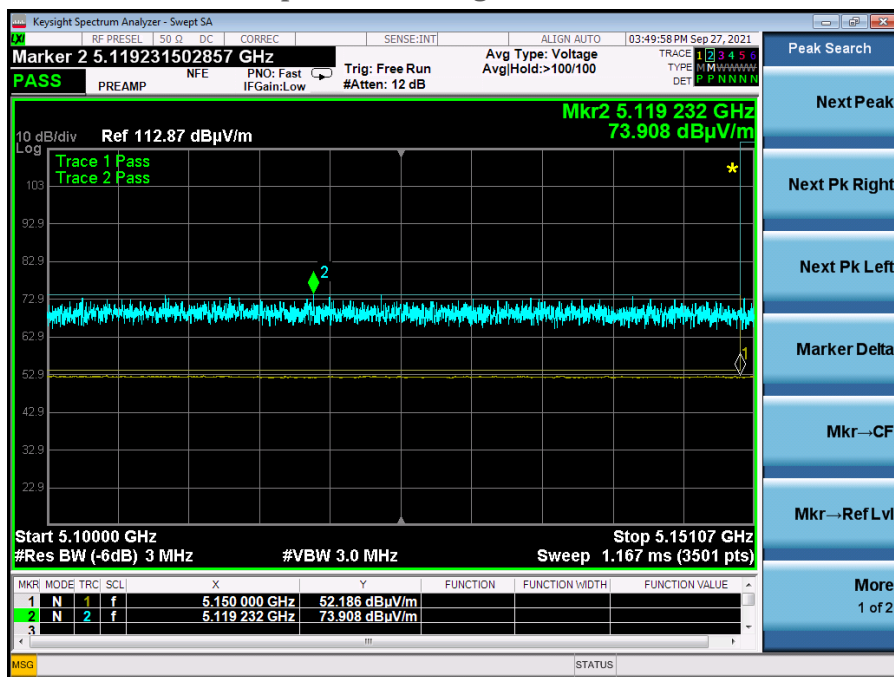
Graph 1: Band Edge Low 10 MHz



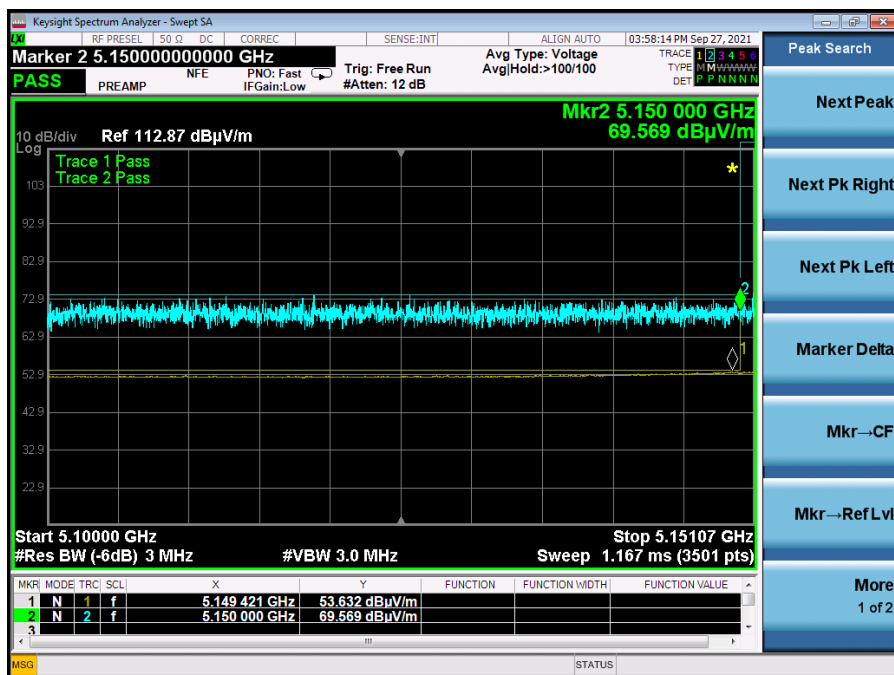
Graph 2: Band Edge High 10 MHz



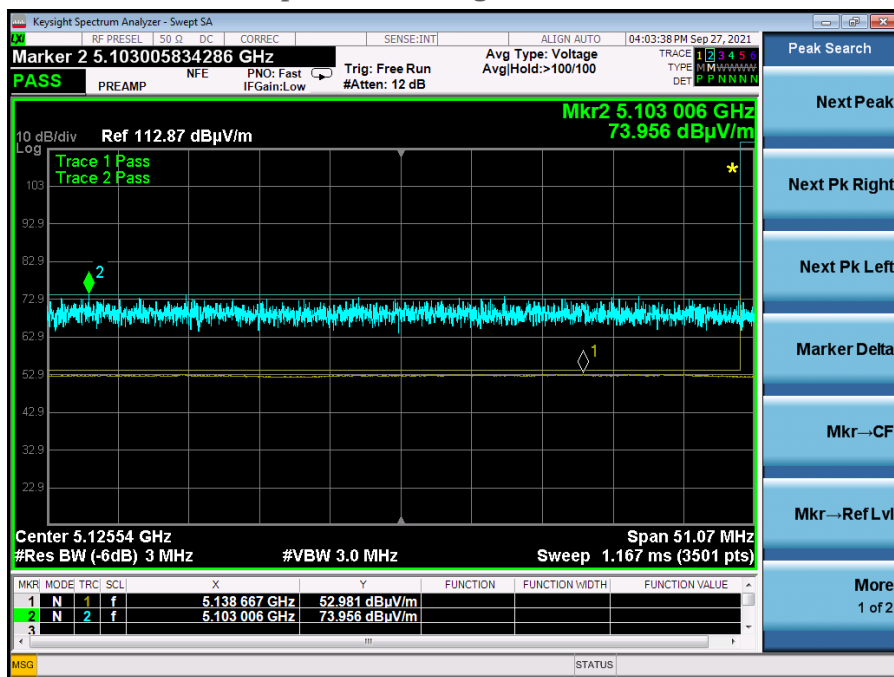
Graph 3: Band Edge Low 20 MHz



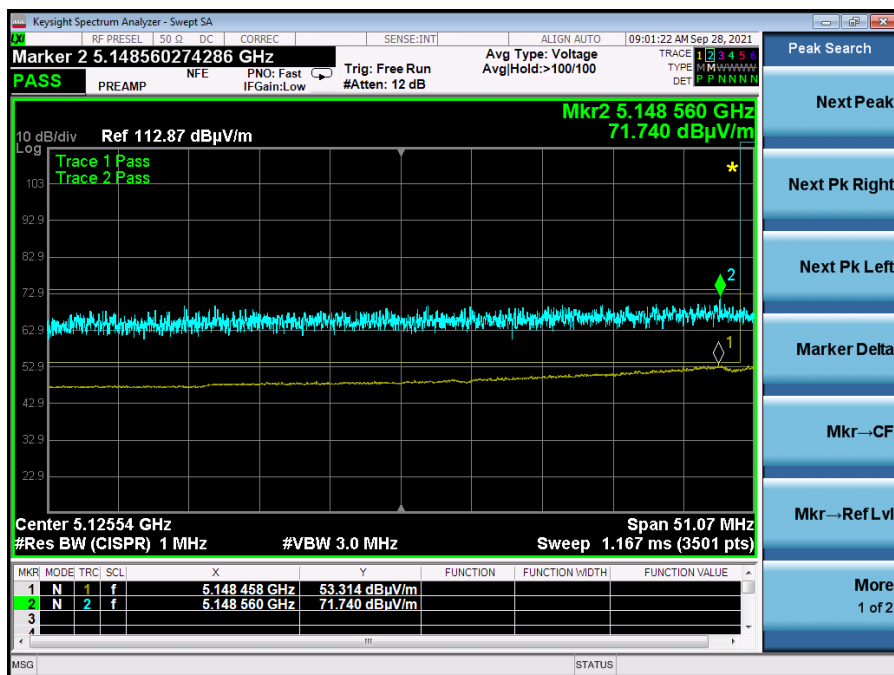
Graph 4: Band Edge High 20 MHz



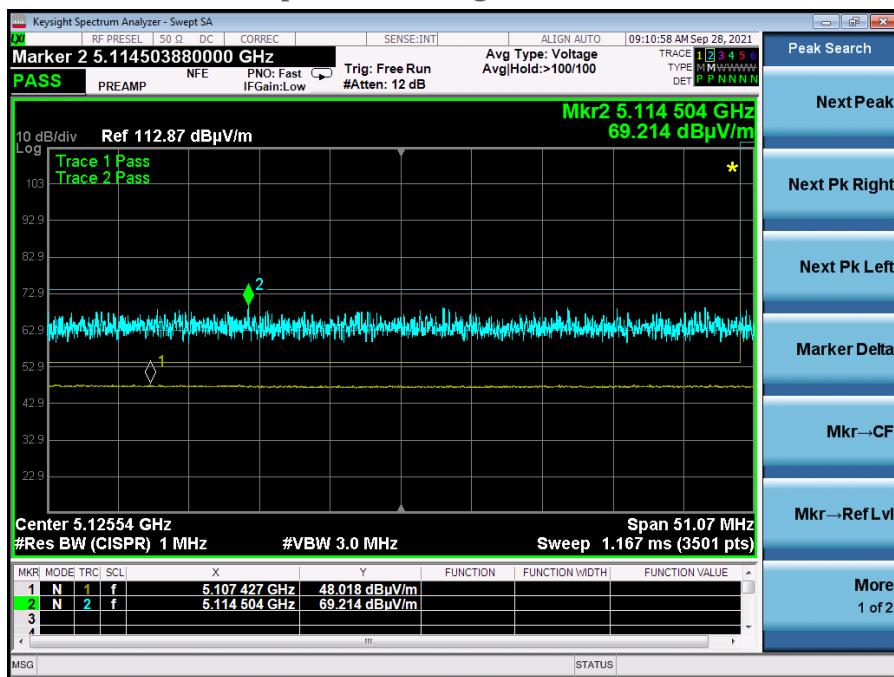
Graph 5: Band Edge Low 30 MHz



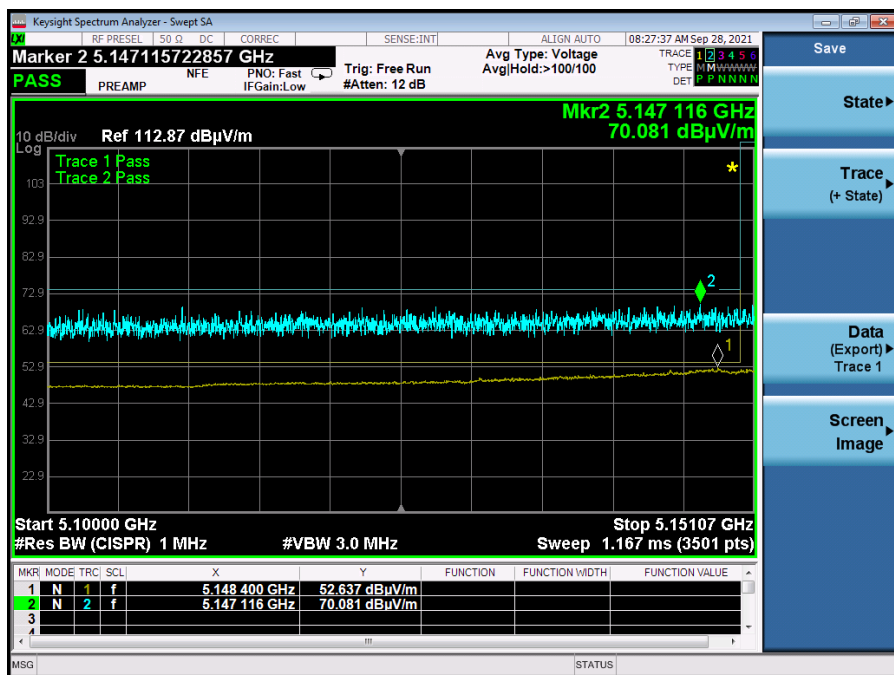
Graph 6: Band Edge High 30 MHz



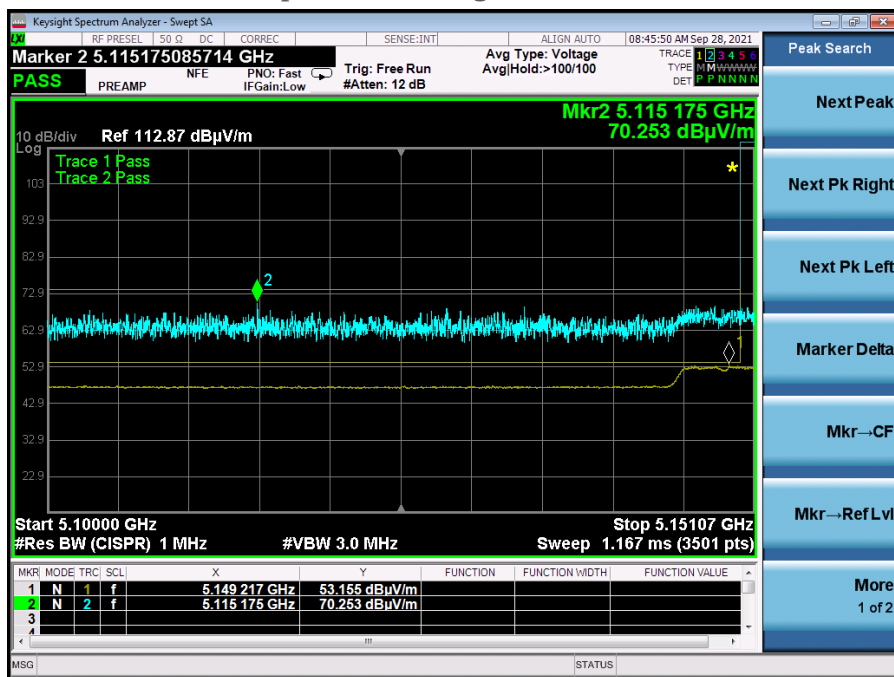
Graph 7: Band Edge Low 40 MHz



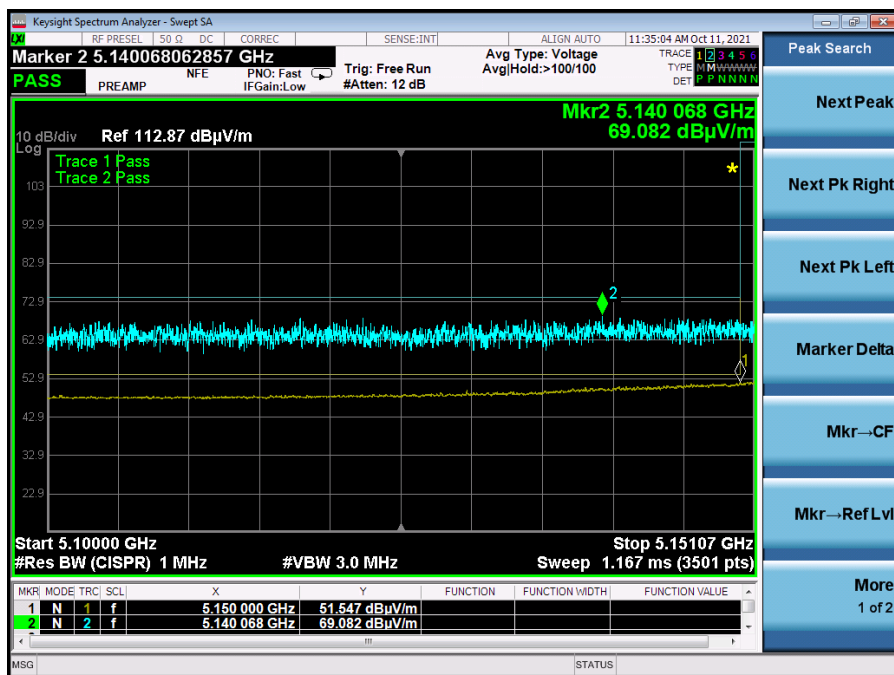
Graph 8: Band Edge High 40 MHz



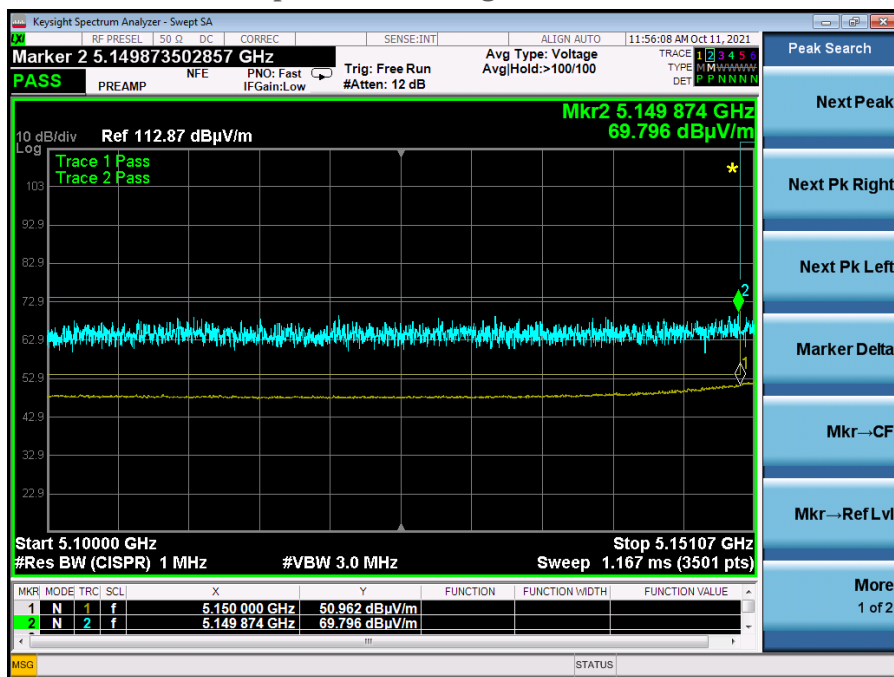
Graph 9: Band Edge Low 50 MHz



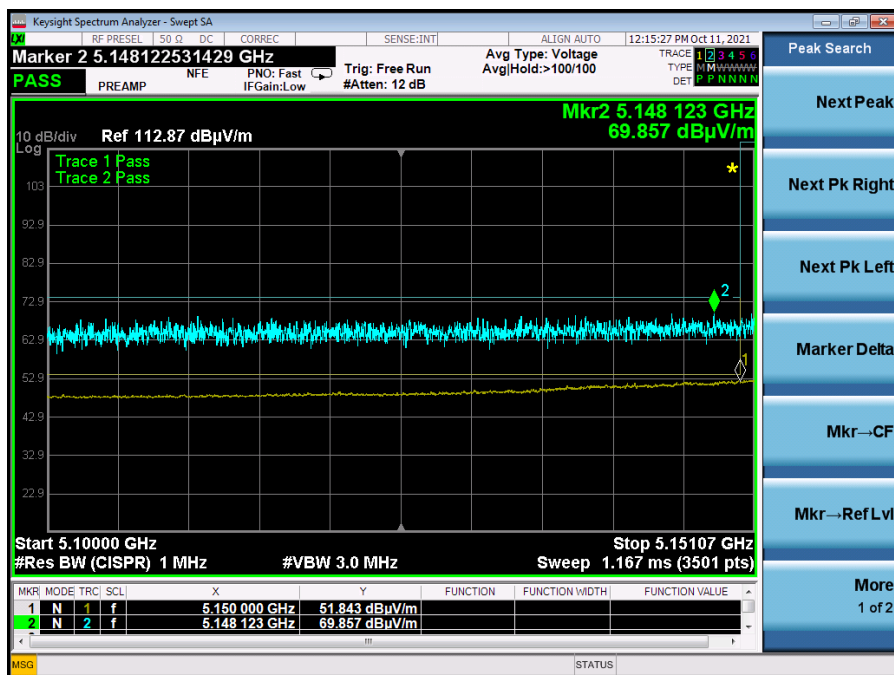
Graph 10: Band Edge High 50 MHz



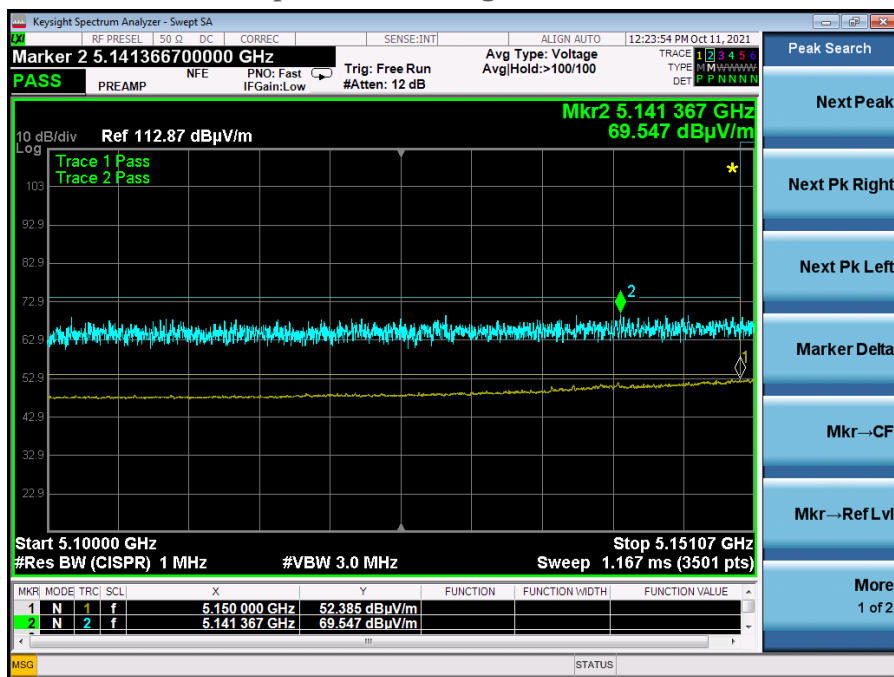
Graph 11: Band Edge Low 60 MHz



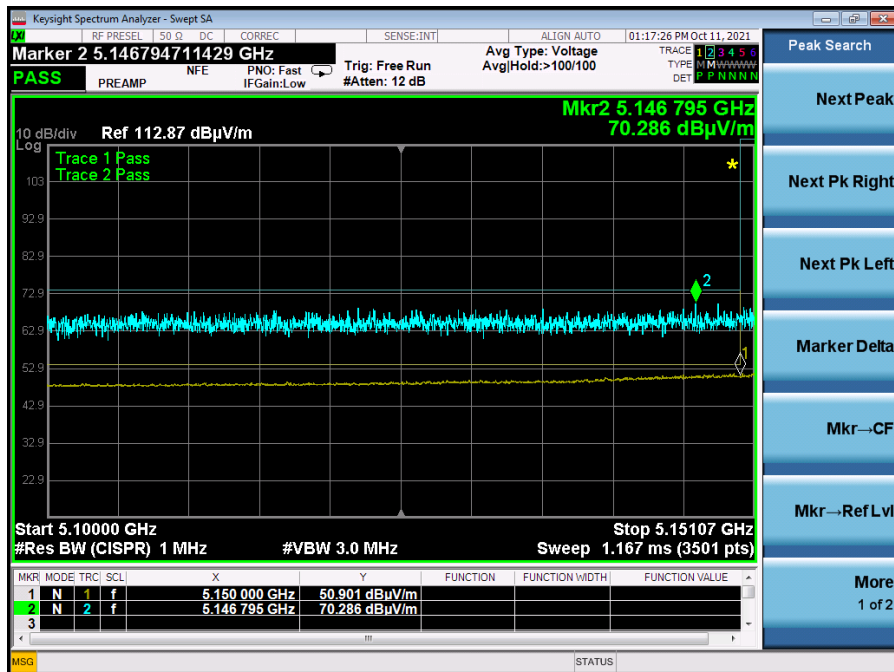
Graph 12: Band Edge High 60 MHz



Graph 13: Band Edge Low 80 MHz



Graph 14: Band Edge High 80 MHz



Graph 15: Band Edge 100 MHz

5.6 Maximum Power Spectral Density

For the band 5.15 GHz~5.25 GHz

(1) For outdoor access:

(A) The maximum conducted output power shall be less than or equal to 1 Watt.
(B) The maximum power spectral density shall be less than or equal to 17 dBm in any 1 MHz band.

(C) If transmitting antennas of directional gain greater than 6 dBi are used, both the
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maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dBi that the directional gain of the antenna exceeds 6 dBi.
(D) The maximum EIRP at any elevation angle above 30 degrees as measured from the horizon shall be less than or equal to 21 dBm.

(2) For indoor access:

(A) The maximum conducted output power over the frequency band of operation shall be less than or equal to 1 Watt.

(B) The maximum power spectral density shall be less than or equal to 17 dBm in any 1 MHz band.

(C) If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dBi that the directional gain of the antenna exceeds 6 dBi.

(3) For fixed point-to-point access:

(A) The maximum conducted output power shall be less than or equal to 1 Watt.

(B) The maximum power spectral density shall be less than or equal to 17 dBm in any 1 MHz band.

(C) If transmitting antennas of directional gain greater than 23 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dBi that the directional gain of the antenna exceeds 23 dBi.

(D) Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information.

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.

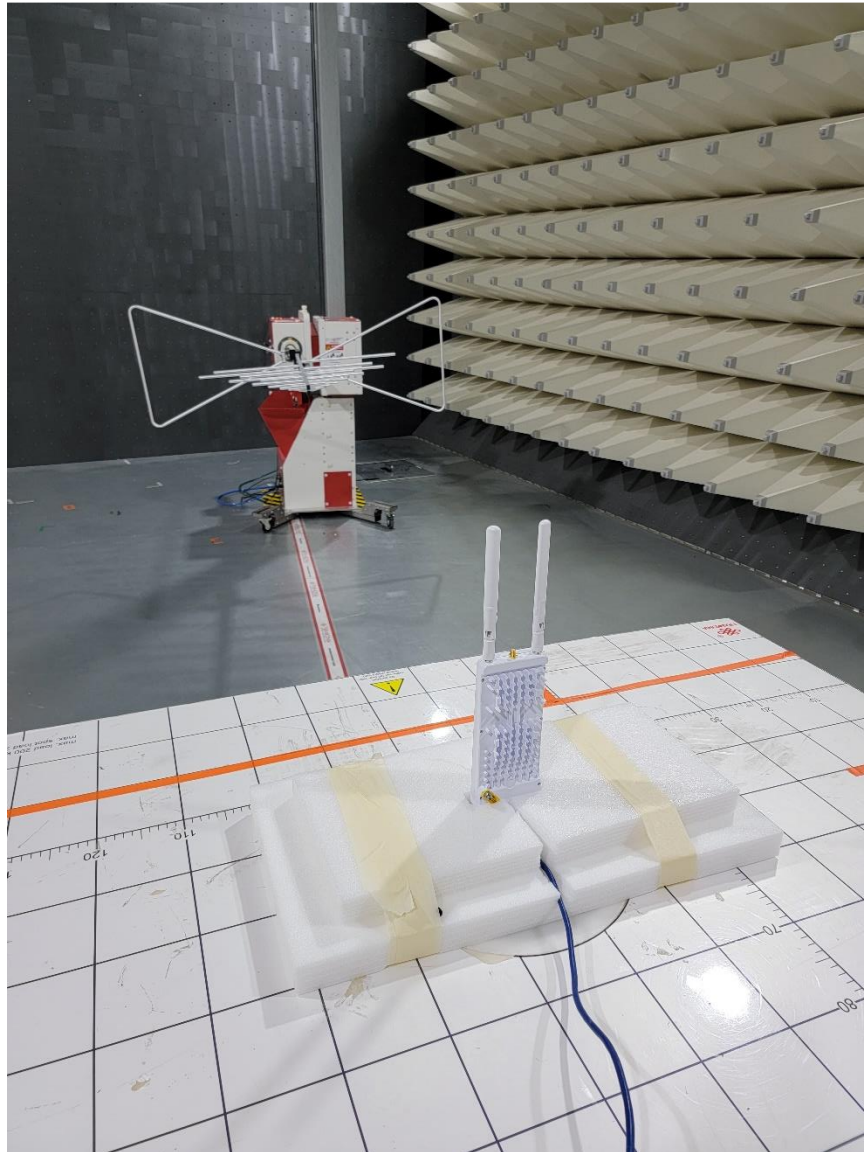
Results of this testing are summarized.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Measured PSD
10	5160	Mcs0	16	5.94
10	5200	Mcs0	27	13.17
10	5245	Mcs0	27	12.97
20	5165	Mcs0	12	-0.82
20	5200	Mcs0	20	6.86
20	5240	Mcs0	27	10.32
30	5170	Mcs0	11	-3.33
30	5200	Mcs0	27	8.74
30	5235	Mcs0	27	8.52
40	5175	Mcs0	16	-0.04
40	5200	Mcs0	27	7.54
40	5230	Mcs0	27	7.29
50	5180	Mcs0	15	-1.88
50	5200	Mcs0	16	-0.88
50	5225	Mcs0	18	0.71
60	5185	Mcs0	20	2.32
60	5200	Mcs0	21	3.39
60	5220	Mcs0	23	4.33
80	5195	Mcs0	20	1.19
80	5200	Mcs0	20	1.22
80	5210	Mcs0	21	2.07
100	5205	Mcs0	18	-1.69

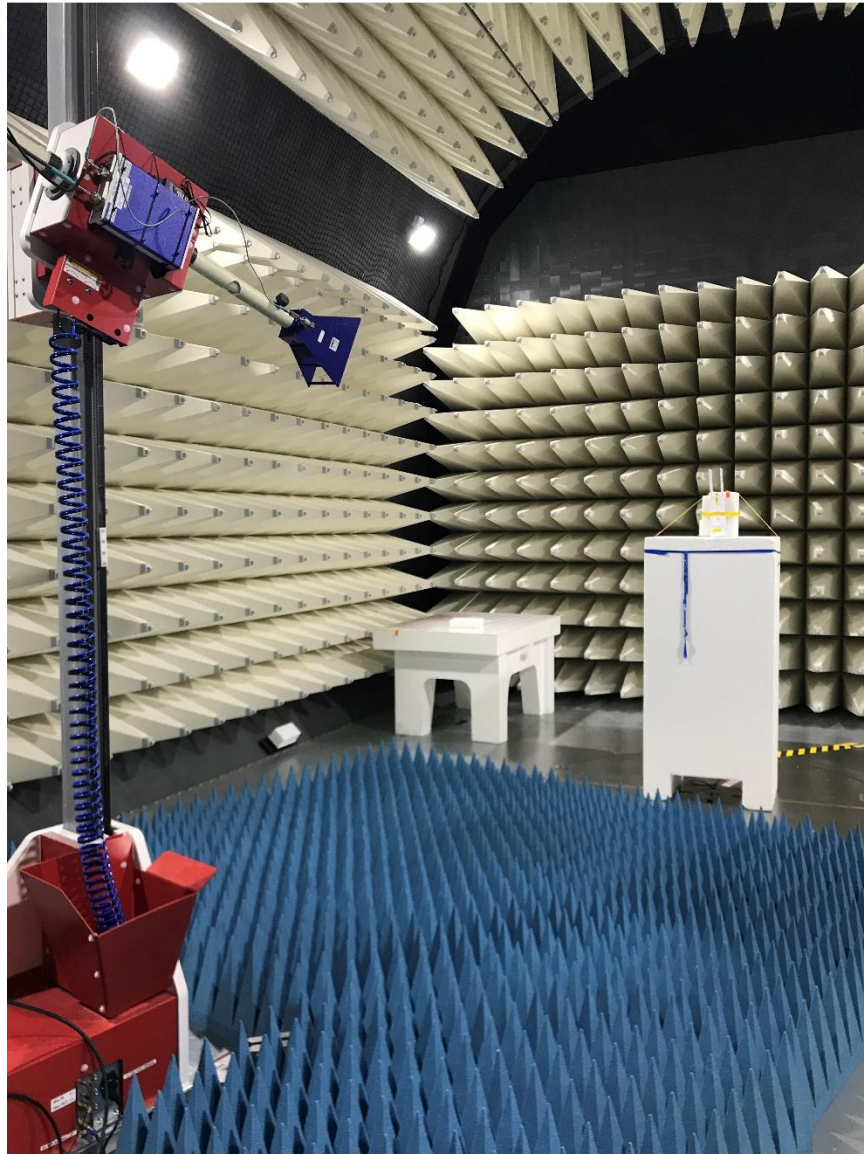
Result

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

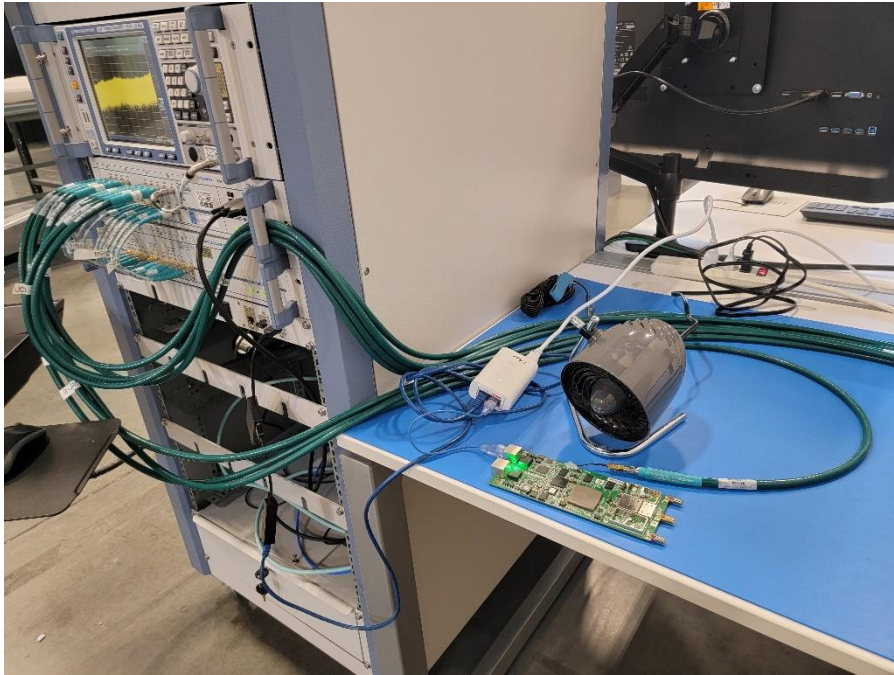
6 Photographs



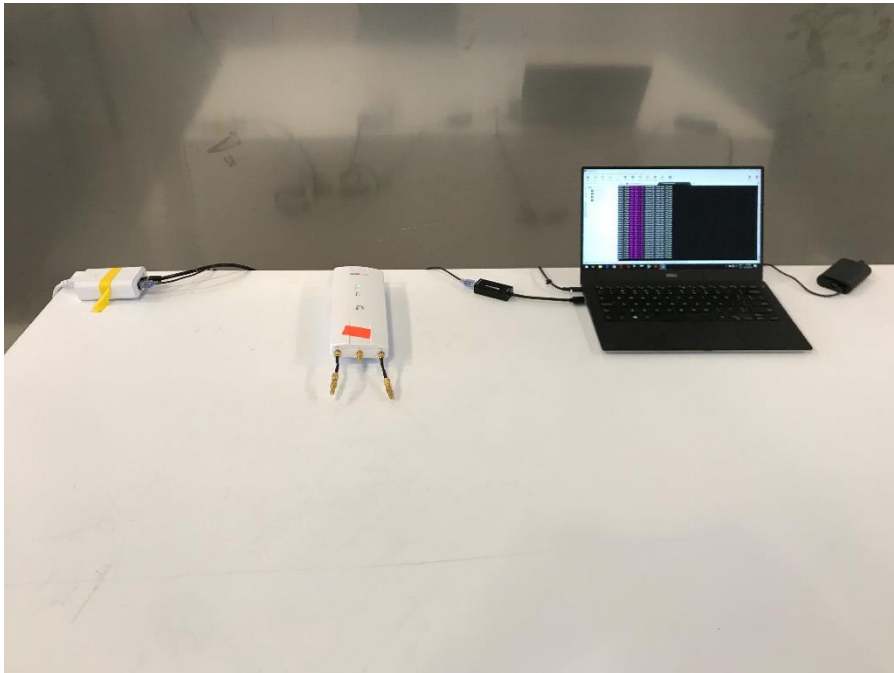
Photograph 1: Radiated Emissions 30 – 1000 MHz



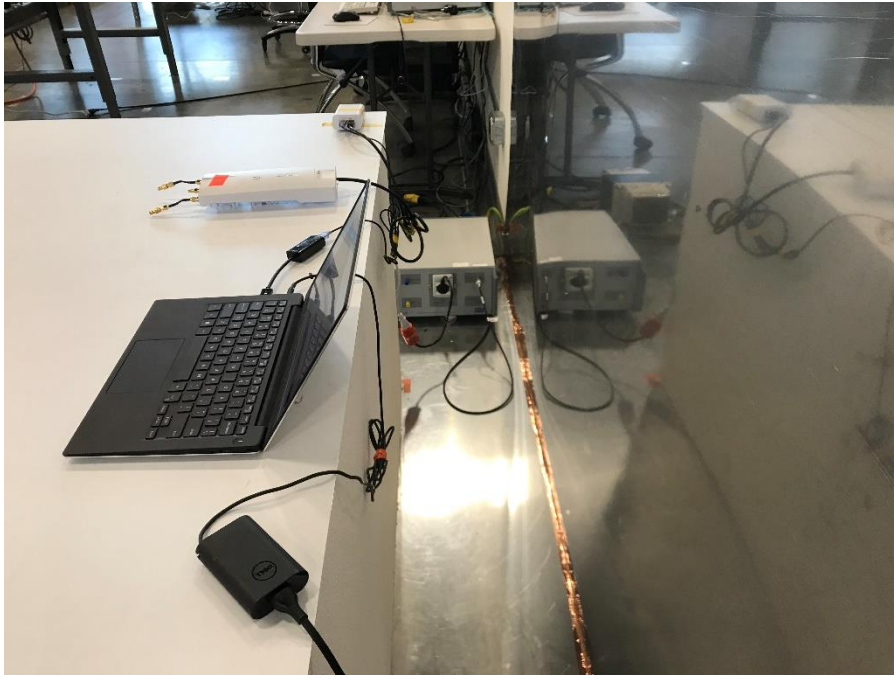
Photograph 2: Radiated Emissions 1 – 17 GHz



Photograph 3: RF Conducted



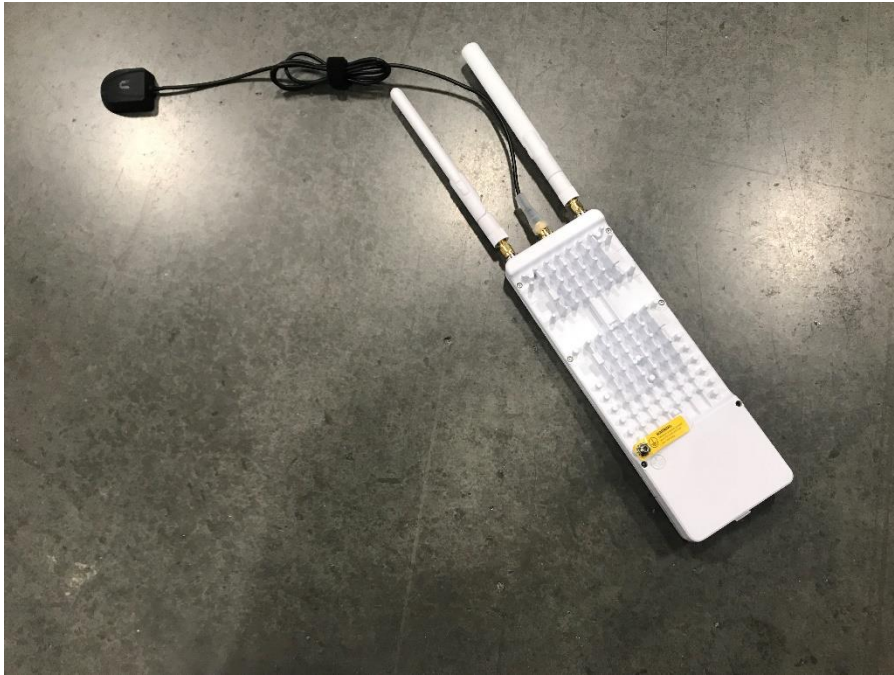
Photograph 4: Front View Test Set Up AC Mains Conducted Emissions



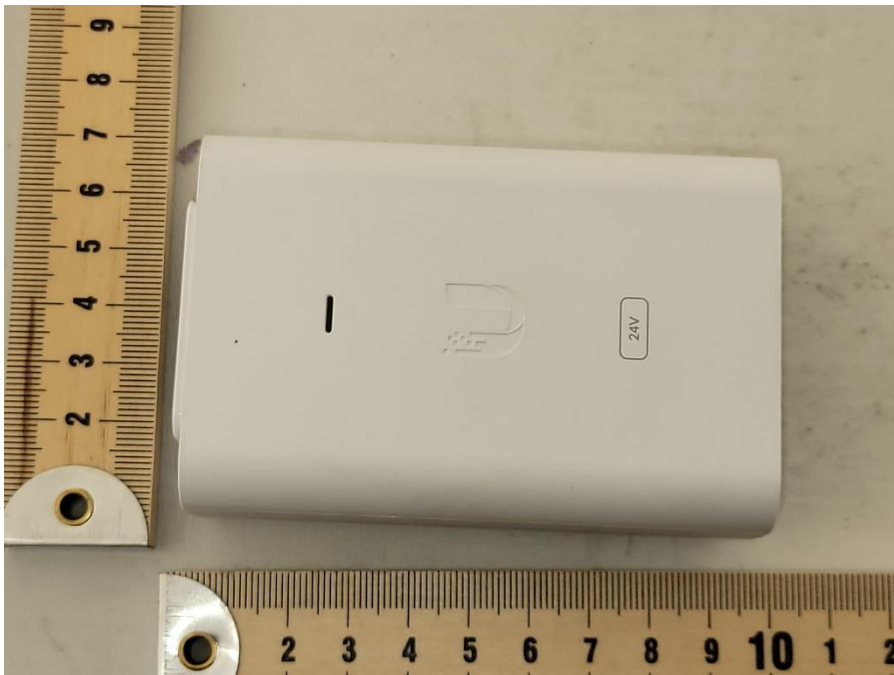
Photograph 5: Back View Test Set Up AC Mains Conducted Emissions



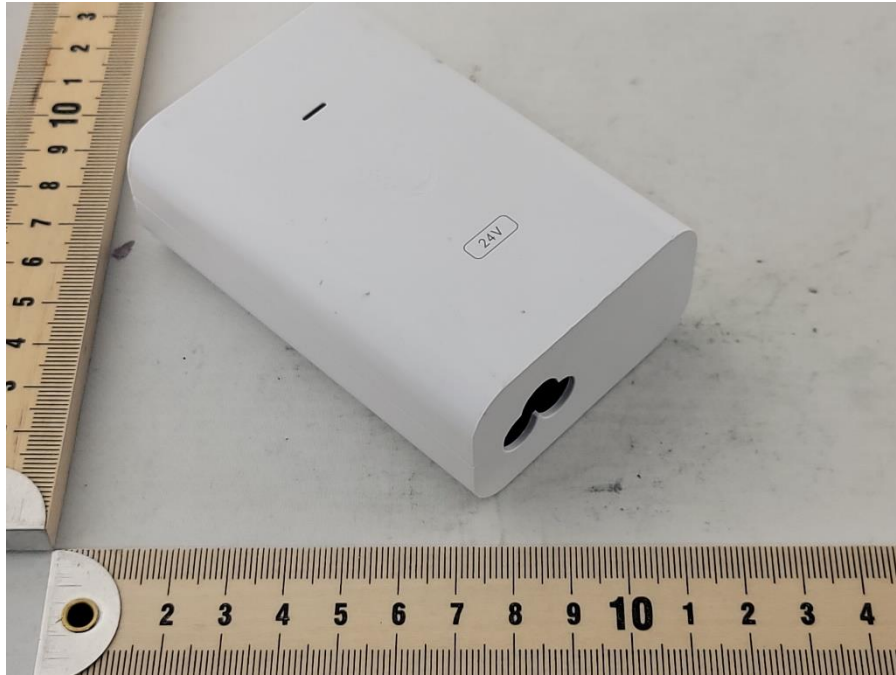
Photograph 6: Front View of the EUT



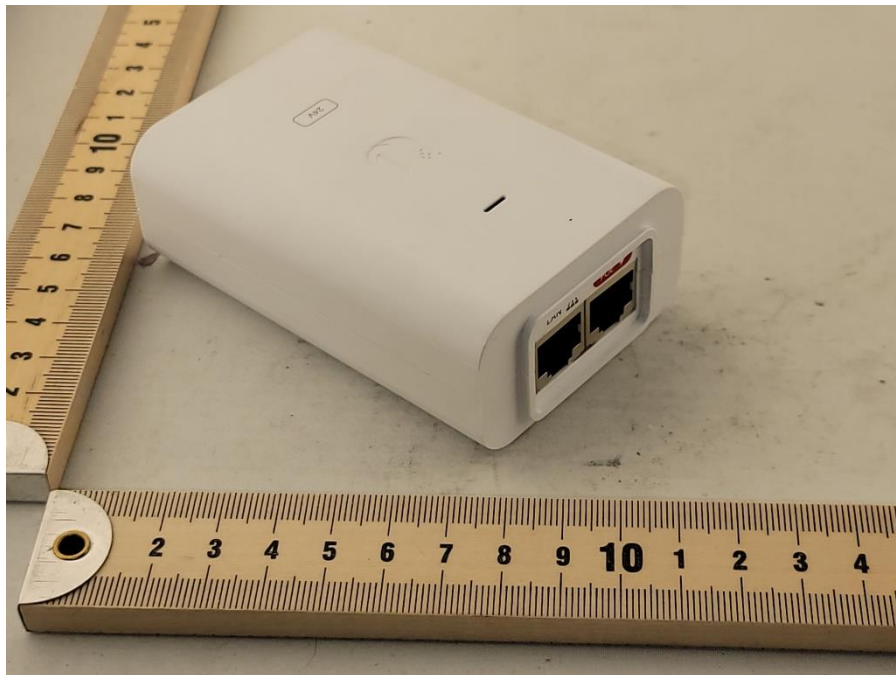
Photograph 7: Back View of the EUT



Photograph 8: Front View of the PoE



Photograph 9: Front/Side View of the PoE



Photograph 10: Front/Slide View of the PoE



Photograph 11: Back View of the PoE



Photograph 12: Back/Side View of the PoE



Photograph 13: Back/Side View of the PoE

-- End of Test Report --