



427 West 12800 South
 Draper, UT 84020

Test Report Certification

FCC ID	SWX-U7PROP
IC ID	6545A-U7PROP
Equipment Under Test	U7 Pro
Test Report Serial Number	TR9339_01
Date of Test(s)	14 – 16 and 26 – 28 August 2024
Report Issue Date	29 August 2024

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



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 C. This report may be reproduced in full. Partial reproduction of this report may only be made with the written consent of the laboratory. The results in this report apply only to the sample tested.

Applicant	Ubiquiti Inc.
Manufacturer	Ubiquiti Inc.
Brand Name	UBIQUITI
Model Number	U7 Pro
FCC ID	SWX-U7PROP
IC ID	6545A-U7PROP

On this 29th day of August 2024, I individually and for Unified Compliance Laboratory certify that the statements made in this engineering report are true, complete, and correct to the best of my knowledge and are made in good faith.

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

Unified Compliance Laboratory



Written By: Joseph W. Jackson



Reviewed By: Richard L. Winter

Revision History		
Revision	Description	Date
01	Original Report Release	29 August 2024

Table of Contents

1	Client Information.....	5
1.1	Applicant.....	5
1.2	Manufacturer.....	5
2	Equipment Under Test (EUT).....	6
2.1	Identification of EUT	6
2.2	Description of EUT	6
2.3	EUT and Support Equipment.....	6
2.4	Interface Ports on EUT	6
2.5	Operating Environment.....	7
2.6	Operating Modes.....	7
2.7	EUT Exercise Software.....	7
2.8	Block Diagram of Test Configuration	8
2.9	Modification Incorporated/Special Accessories on EUT.....	8
2.10	Deviation, Opinions Additional Information or Interpretations from Test Standard.....	8
3	Test Specification, Method and Procedures.....	9
3.1	Test Specification.....	9
3.2	Methods & Procedures.....	9
3.3	FCC Part 15, Subpart C	9
3.4	Results.....	10
3.5	Test Location	10
4	Test Equipment	11
4.1	Conducted Emissions at Mains Ports.....	11
4.2	Direct Connect at the Antenna Port Tests.....	11
4.3	Radiated Emissions.....	12
4.4	Equipment Calibration	13
4.5	Measurement Uncertainty.....	13
5	Test Results.....	14
5.1	§15.203 Antenna Requirements.....	14
5.2	Conducted Emissions at Mains Ports Data	15
5.3	§15.247(a)(2) Emissions Bandwidth.....	17
5.4	§15.247(b)(3) Maximum Average Output Power.....	18
5.5	§15.247(d) Spurious Emissions	20
5.6	§15.247(e) Maximum Average Power Spectral Density	36

1 Client Information

1.1 Applicant

Company	Ubiquiti Inc. 685 Third Avenue New York, NY 10017 U.S.A.
Contact Name	Alex Macon
Title	Compliance

1.2 Manufacturer

Company	Ubiquiti Inc. 685 Third Avenue New York, NY 10017 U.S.A.
Contact Name	Alex Macon
Title	Compliance

2 Equipment Under Test (EUT)

2.1 Identification of EUT

Brand Name	UBIQUITI
Model Number	U7 Pro
Serial Number	05B1B5
Dimensions (cm)	20.6 x 20.6 x 4.6

2.2 Description of EUT

The U7 Pro is a PoE powered WiFi 7 access point with a 2.5 GbE PoE port. The U7 Pro provides a 9.3 Gbps aggregate throughput rate. The U7 Pro transmits in the 2.4 GHz, 5 GHz and 6 GHz frequency bands and uses integrated antennas. The U7 Pro is powered from an 802.3at PoE power adapter.

This report covers the circuitry of the device subject to FCC Part 15, Subpart C. 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: U7 Pro SN: 05B1B5	Access Point	PoE Input / Shielded Cat 5E cable
BN: UBIQUITI MN: GP-H480-065G SN: N/A	PoE Injector	PoE Output / Shielded Cat 5E to U7-Pro, and Ethernet / unshielded Cat 5E to PC
BN: DELL MN: XPS SN: N/A	Laptop PC	Ethernet / un-shielded Cat 5E

Notes: (1) EUT

(2) Interface port connected to EUT (See Section 2.4)

The support equipment listed above was not modified in order to achieve compliance with this standard.

2.4 Interface Ports on EUT

Name of Ports	No. of Ports Fitted to EUT	Cable Description/Length
PoE Input	1	7m Shielded Cat 5E

PoE Output (PoE Injector)	1	7m Shielded Cat 5E to U7-Pro PoE Input
LAN (PoE Injector)	1	unshielded Cat 5E to Laptop PC
AC (PoE Injector)	1	3 Conductor power cord to AC mains/80cm

2.5 Operating Environment

Power Supply	120 Volts of 48 Volts PoE Power
AC Mains Frequency	60 Hz
Temperature	24.1 – 25.4 °C
Humidity	29.0 – 39.8 %
Barometric Pressure	1017 mBar

2.6 Operating Modes

The U7 Pro was connected to a personal computer laptop and tested using test software in order to enable constant duty cycle greater than or equal to 98% of the Wi-Fi transceiver. All emission modes of 802.11 b/g/n/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

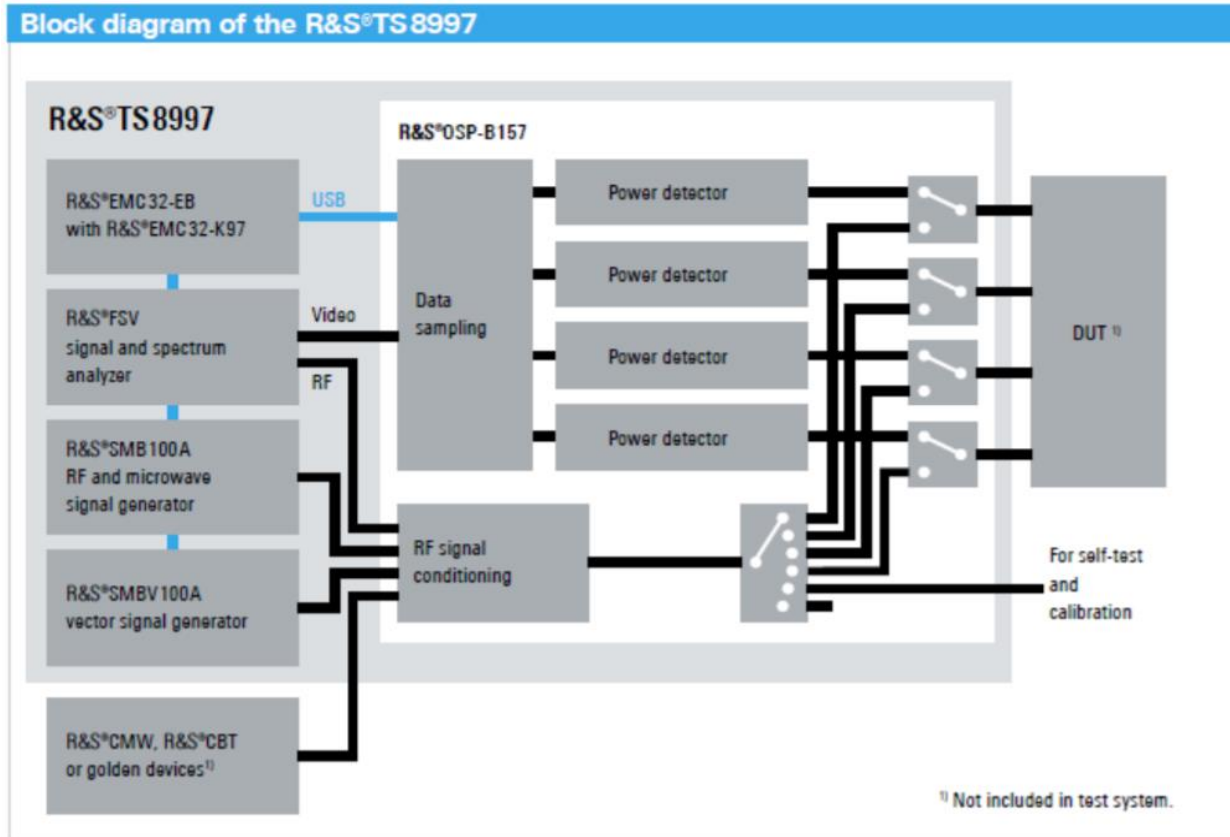


Diagram 1: Test Configuration Block Diagram

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 C 15.203, 15.207 and 15.247 Limits and methods of measurement of radio interference characteristics of radio frequency 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 15.203

See test standard for details.

3.2.2 47 CFR FCC Part 15 Section 15.207

See test standard for details.

3.2.3 47 CFR FCC Part 15 Section 15.247

See test standard for details.

3.3 FCC Part 15, Subpart C

3.3.1 Summary of Tests

FCC Section	ISED Section	Environmental Phenomena	Frequency Range (MHZ)	Result
15.203	N/A	Antenna requirements	Structural Requirement	Compliant
15.207	RSS-Gen	Conducted Disturbance at Mains Port	0.15 to 30	Compliant
15.247(a)	RSS-247 § 5.2	Bandwidth Requirement	2412 to 2462	Compliant
15.247(b)	RSS-247 § 5.4	Peak Output Power	2412 to 2462	Compliant
15.247(d)	RSS-247 § 5.4	Antenna Conducted Spurious Emissions	0.009 to 26000	N/A
15.247(d)	RSS-247 § 5.4	Radiated Spurious Emissions	0.009 to 26000	Compliant
15.247(e)	RSS-247 § 5.2	Peak Power Spectral Density	2412 to 2462	Compliant

The testing was performed according to the procedures in ANSI C63.10-2013, KDB 558074 and 47 CFR Part 15. Where applicable, KDB 662911 was followed to sum required measurements.

3.4 Results

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

3.5 Test Location

Testing was performed at the Unified Compliance Laboratory 3-Meter and 10-Meter chambers located at 427 West 12800 South, Draper, UT 84020. Unified Compliance Laboratory is accredited by National Voluntary Laboratory Accreditation Program (NVLAP); NVLAP Code 600241-0 which is effective until 30 June 2025. This site has also been registered with Innovations, Science and Economic Development (ISED) department and was accepted under Appendix B, Phase 1 procedures of the APEC Tel MRA for Canadian recognition. ISED No.: 25346, effective until 30 June 2025.

Unified Compliance Laboratory has been assigned Designation Number US5037 by the FCC and Conformity Assessment Number US0223 by ISED.

4 Test Equipment

4.1 Conducted Emissions at Mains Ports

Type of Equipment	Manufacturer	Model Number	Asset Number	Date of Last Calibration	Due Date of Calibration
EMI Receiver	AFJ	FFT3010	UCL-2500	7/13/2023	8/29/2024
LISN	AFJ	LS16C/10	UCL-2512	7/08/2024	7/08/2025
ISN	Teseq	ISN T800	UCL-2974	7/09/2024	7/09/2025
LISN	AFJ	LS16C\10	UCL-6749	1/29/2024	1/29/2025
AC Power Source	Laplace Instruments	AC1000A	UCL-2857	N/A	N/A
Test Software	UCL	Revision 1	UCL-3107	N/A	N/A

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

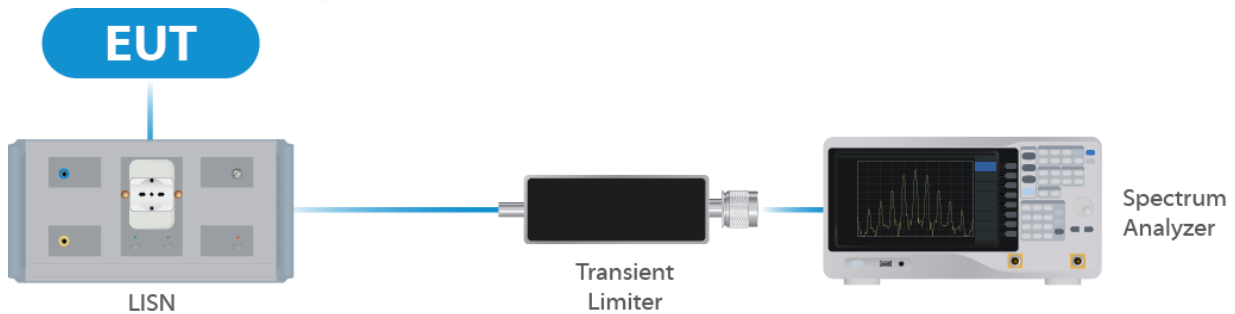


Figure 1: Conducted Emissions Test

4.2 Direct Connect at the Antenna Port Tests

Type of Equipment	Manufacturer	Model Number	Asset Number	Date of Last Calibration	Due Date of Calibration
Spectrum Analyzer	R&S	FSV40	UCL-2861	11/27/2023	11/27/2024
Signal Generator	R&S	SMB100A	UCL-2864	N/A	N/A
Vector Signal Generator	R&S	SMBV100A	UCL-2873	N/A	N/A
Switch Extension	R&S	OSP-B157WX	UCL-2867	4/12/2024	4/19/2025
Switch Extension	R&S	OSP-150W	UCL-2870	4/12/2024	4/19/2025

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

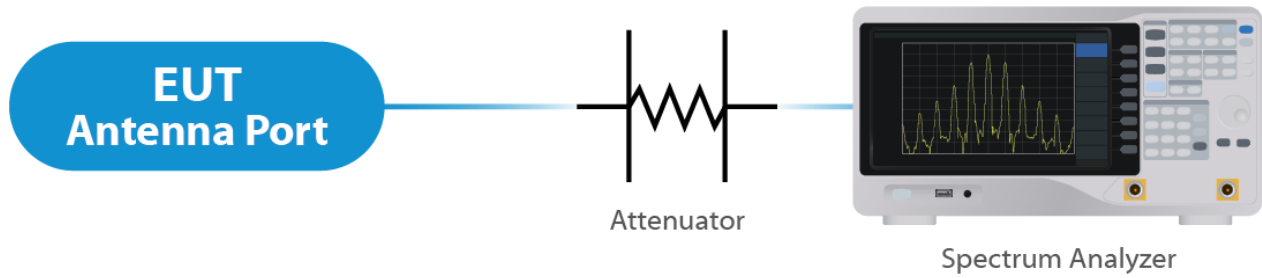


Figure 2: Direct Connect at the Antenna Port Test

4.3 Radiated Emissions

Type of Equipment	Manufacturer	Model Number	Asset Number	Date of Last Calibration	Due Date of Calibration
EMI Receiver	Keysight	N9038A	UCL-2778	1/25/2024	1/29/2025
Pre-Amplifier 9 kHz – 1 GHz	Sonoma Instruments	310N	UCL-2889	1/19/2024	1/19/2026
Broadband Antenna	Scwarzbeck	VULB 9163	UCL-3062	2/22/2023	2/22/2025
Broadband Antenna	Scwarzbeck	VULB 9163	UCL-3071	1/11/2023	1/11/2025
Double Ridge Horn Antenna	Scwarzbeck	BBHA 9120D	UCL-3065	9/22/2022	9/22/2024
Log Periodic	Scwarzbeck	STLP 9129	UCL-3068	1/27/2023	1/27/2025
15 - 40 GHz Horn Antenna	Scwarzbeck	BBHA 9170	UCL-2487	3/10/2023	3/10/2025
1 – 18 GHz Amplifier	Com-Power	PAM 118A	UCL-3833	1/19/2024	1/19/2026
Test Software	UCL	Revision 1	UCL-3108	N/A	N/A

Table 3: List of equipment used for Radiated Emissions

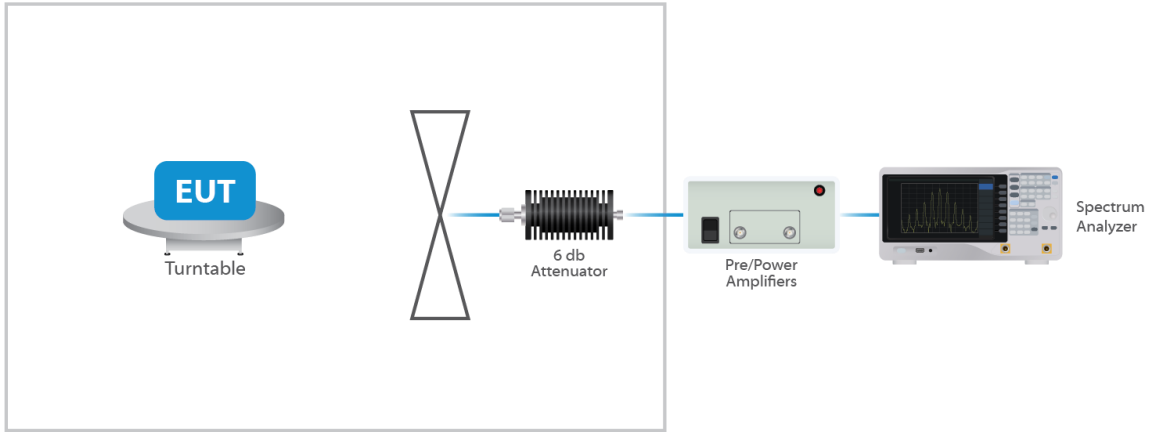


Figure 3: Radiated Emissions Test

4.4 Equipment Calibration

All applicable equipment is calibrated using either an independent calibration laboratory or Unified Compliance Laboratory personnel at intervals defined in ANSI C63.4:2014 following outlined calibration procedures. All measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST). Supporting documentation relative to traceability is on file and is available for examination upon request.

4.5 Measurement Uncertainty

Test	Uncertainty (\pm dB)	Confidence (%)
Conducted Emissions	1.44	95
Radiated Emissions (9 kHz to 30 MHz)	2.50	95
Radiated Emissions (30 MHz to 1 GHz)	4.38	95
Radiated Emissions (1 GHz to 18 GHz)	4.37	95
Radiated Emissions (18 GHz to 40 GHz)	3.93	95
Direct Connect Tests	K Factor	Value
Emissions Bandwidth	2	2.0%
Output Power	2	1.0 dB
Peak Power Spectral Density	2	1.3 dB
Band Edge	2	0.8 dB
Transmitter Spurious Emissions	2	1.8 dB

5 Test Results

5.1 §15.203 Antenna Requirements

The EUT uses an integrated internal antenna. Per the manufacturer, the Maximum gain of the antenna per chain is 4 dBi. This is an 802.11 device and utilizes CDD as described in KDB 662911 D01. The antenna is not user replaceable. For CDD transmissions, directional gain is calculated as follows.

Array Gain = $10 \log(\text{NANT}/\text{NSS})$ dB

NANT = number of transmit antennas and

NSS = number of spatial streams. NSS = 1 considered worst case.

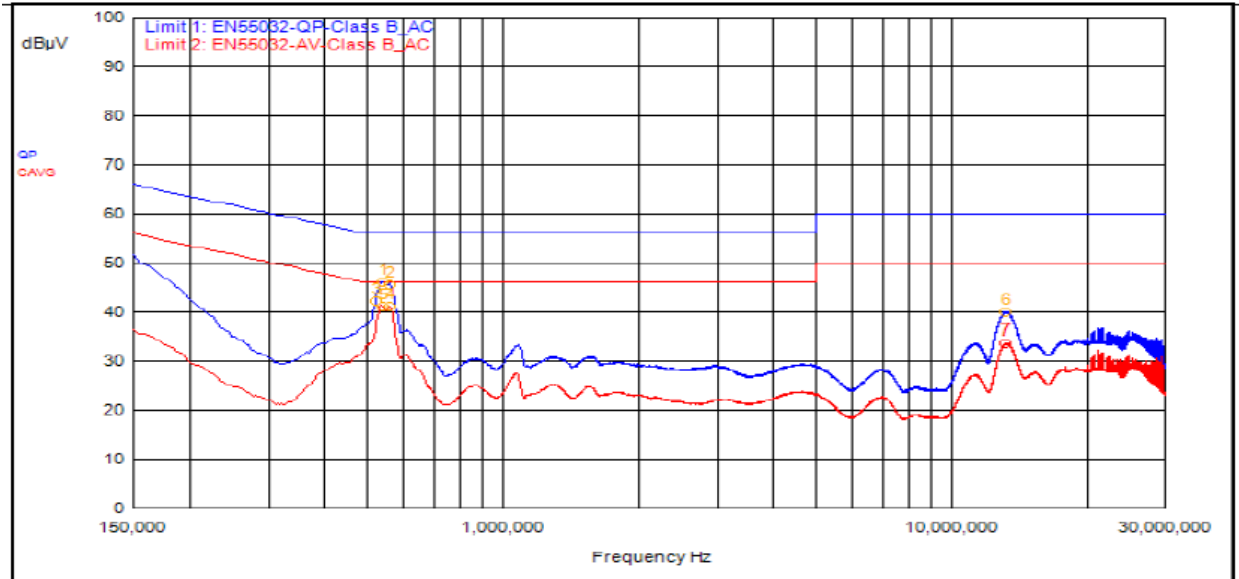
For power measurements on IEEE 802.11 devices, Array Gain = 0 dB for $\text{NANT} \leq 4$;

For PSD measurements when $\text{Nss}=1$: Array Gain = $10 \log(\text{NANT}/\text{NSS})$ dB + Antenna Gain (dBi). Or $3.01 \text{ dB} + 4 \text{ dBi} = 7.01 \text{ dBi}$.

Results

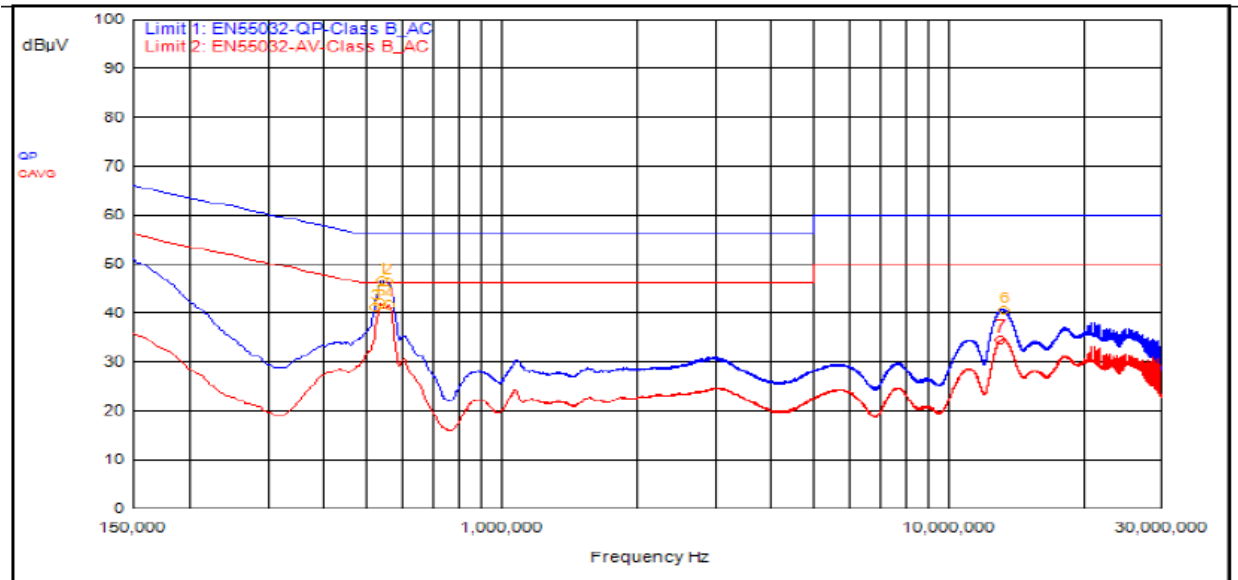
The EUT complied with the specification

5.2 Conducted Emissions at Mains Ports Data



ID	Frequency	Probe	Cable	Atten.	Detector	Meter Read	Meas Level	Limit 1	Limit 1 Dist.	Limit 2	Limit 2 Dist.	P/F
MU	MHz	dB	dB	dB	Type	dBμV	dBμV	dBμV	dB	dBμV	dB	P/F
1	540,000kHz	9.62			QPeak	36.54	46.16	56.00	-9.84			
2	561,000kHz	9.61			QPeak	35.94	45.55	56.00	-10.45			
3	519,000kHz	9.63			QPeak	32.51	42.14	56.00	-13.86			
6	13.203	9.71			QPeak	30.16	39.87	60.00	-20.13			
4	558,000kHz	9.61			C_AVG	31.37	40.98			46.00	-5.02	
5	540,000kHz	9.62			C_AVG	31.44	41.06			46.00	-4.94	
7	13.188	9.71			C_AVG	23.83	33.54			50.00	-16.46	

Graph 1: Conducted Emissions Plot - Neutral



ID	Frequency	Probe	Cable	Atten.	Detector	Meter Read	Meas Level	Limit 1	Limit 1 Dist.	Limit 2	Limit 2 Dist.	P/F
MU	MHz	dB	dB	dB	Type	dBµV	dBµV	dBµV	dB	dBµV	dB	P/F
1	540,000kHz	9.49			QPeak	37.09	46.58	56.00	-9.42			
2	555,000kHz	9.49			QPeak	36.84	46.33	56.00	-9.67			
3	519,000kHz	9.49			QPeak	31.64	41.13	56.00	-14.87			
6	13.281	9.66			QPeak	30.82	40.48	60.00	-19.52			
4	558,000kHz	9.49			C_AVG	32.18	41.67			46.00	-4.33	
5	537,000kHz	9.49			C_AVG	32.32	41.81			46.00	-4.19	
7	13.122	9.66			C_AVG	24.79	34.45			50.00	-15.55	

Graph 2: Conducted Emissions Plot – Line 1

Result

The EUT complied with the specification limit.

5.3 §15.247(a)(2) Emissions Bandwidth

All chains were measured under the guidance of KDB 558074 Section 8.2. and KDB 66291 D01. Please see associated annex for details on instrument settings.

Mode	Frequency (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth (MHz)
b	2412	13.3	7.9
	2437	12.7	7.4
	2462	13.0	6.2
g	2412	16.8	15.4
	2437	16.6	13.5
	2462	16.8	16.4
n 20	2412	17.9	17.7
	2437	17.6	15.8
	2462	17.9	17.8
n 40	2422	36.3	36.1
	2437	36.3	32.6
	2452	36.5	35.8
ax 20	2412	18.9	15.0
	2437	18.8	17.6
	2462	19.1	19.1
ax 40	2422	37.8	37.0
	2437	37.8	33.6
	2452	38.0	36.3

Result

All chains were tested and the highest bandwidth per chain is reported above.

In the configuration tested, the 6 dB bandwidth was greater than 500 kHz; therefore, the EUT complied with the requirements of the specification (see spectrum analyzer plot within the Annex).

5.4 §15.247(b)(3) Maximum Average Output Power

All chains were measured and summed under the guidance of KDB 558074 Section 8.3.2.3. 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 29.26 dBm or 843.33 mW. The limit is 30 dBm or 1 Watt when using antennas with 6 dBi or less gain. The antenna has a gain of 4 dBi.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power *	Measured EIRP
b 20	2412	Mcs0	27	28.98	32.98
	2417	Mcs0	27	29.05	33.05
	2422	Mcs0	27	29.26	33.26
	2427	Mcs0	27	29.26	33.26
	2432	Mcs0	27	29.04	33.04
	2437	Mcs0	27	29.20	33.20
	2442	Mcs0	27	29.00	33.00
	2447	Mcs0	27	29.11	33.11
	2452	Mcs0	27	29.02	33.02
	2457	Mcs0	26	27.98	31.96
2462	Mcs0	26	27.96	31.96	
g 20	2412	Mcs0	24	25.89	29.89
	2417	Mcs0	25	30.81	30.81
	2422	Mcs0	25	30.85	30.85
	2427	Mcs0	25	30.87	30.87
	2432	Mcs0	25	30.74	30.74
	2437	Mcs0	25	30.76	30.76
	2442	Mcs0	25	30.65	30.65
	2447	Mcs0	25	30.70	30.70
	2452	Mcs0	24	29.60	29.60
	2457	Mcs0	24	29.69	29.69
2462	Mcs0	23	28.90	28.90	
n 20	2412	Mcs0	24	29.83	29.83
	2417	Mcs0	24	29.96	29.96
	2422	Mcs0	25	30.65	30.65
	2427	Mcs0	25	30.59	30.59

	2432	Mcs0	25	30.50	30.50
	2437	Mcs0	25	30.65	30.65
	2442	Mcs0	25	30.61	30.61
	2447	Mcs0	25	30.67	30.67
	2452	Mcs0	24	29.37	29.37
	2457	Mcs0	24	29.49	29.48
	2462	Mcs0	22	27.96	27.96
n 40	2422	Mcs0	21	27.27	27.27
	2437	Mcs0	23	29.07	29.07
	2452	Mcs0	20	26.29	26.29
ax 20	2412	Mcs0	23	24.72	28.72
	2417	Mcs0	24	26.01	30.01
	2422	Mcs0	24	25.98	29.98
	2427	Mcs0	25	26.93	30.93
	2432	Mcs0	24	25.80	29.80
	2437	Mcs0	24	25.58	29.58
	2442	Mcs0	24	25.70	29.70
	2447	Mcs0	24	25.52	29.52
	2452	Mcs0	24	25.53	29.53
	2457	Mcs0	23	24.63	28.63
ax 40	2462	Mcs0	21	23.13	27.13
	2422	Mcs0	21	23.32	27.32
	2437	Mcs0	23	25.14	29.14
	2452	Mcs0	20	22.29	26.29

Result

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

* Gated EIRP shown in the Annex is the conducted measurement

5.5 §15.247(d) Spurious Emissions

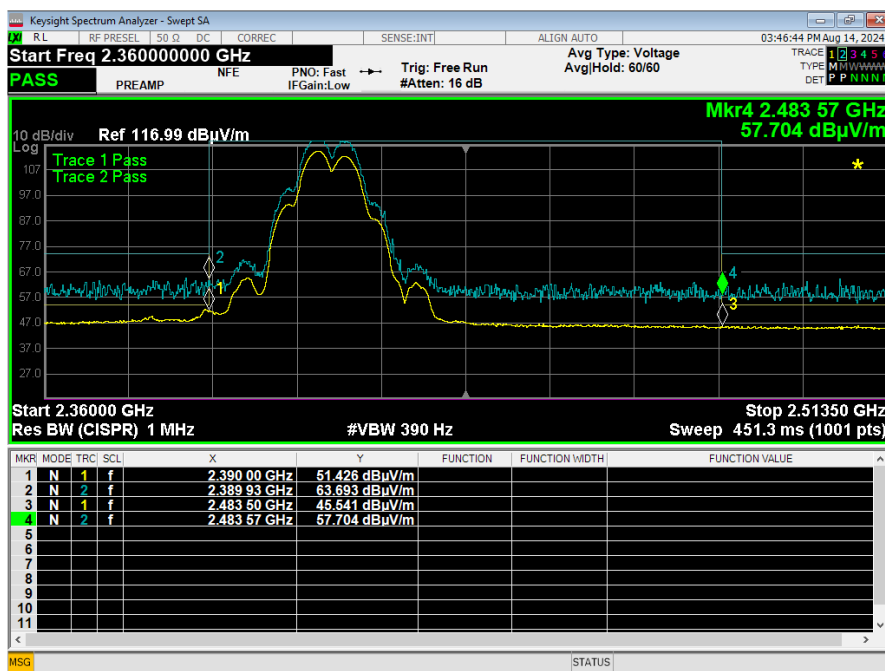
5.5.1 Conducted Spurious Emissions

The frequency range 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 table show the measurement data from spurious emissions noted across the frequency range when transmitting at the lowest frequency, middle frequency and upper frequency. Shown below are plot(s) with the EUT tuned to the upper and lower channels. These demonstrate compliance with the provisions of this section at the band edges.

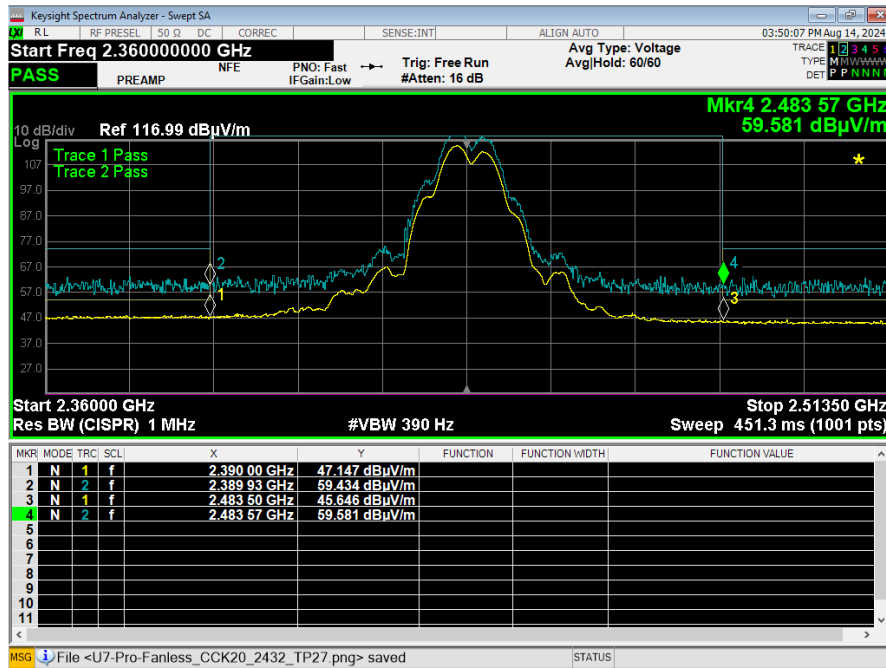
The emissions must be attenuated 30 dB below the highest power spectral density level measured within the authorized band as measured with a 100 kHz RBW.

Result

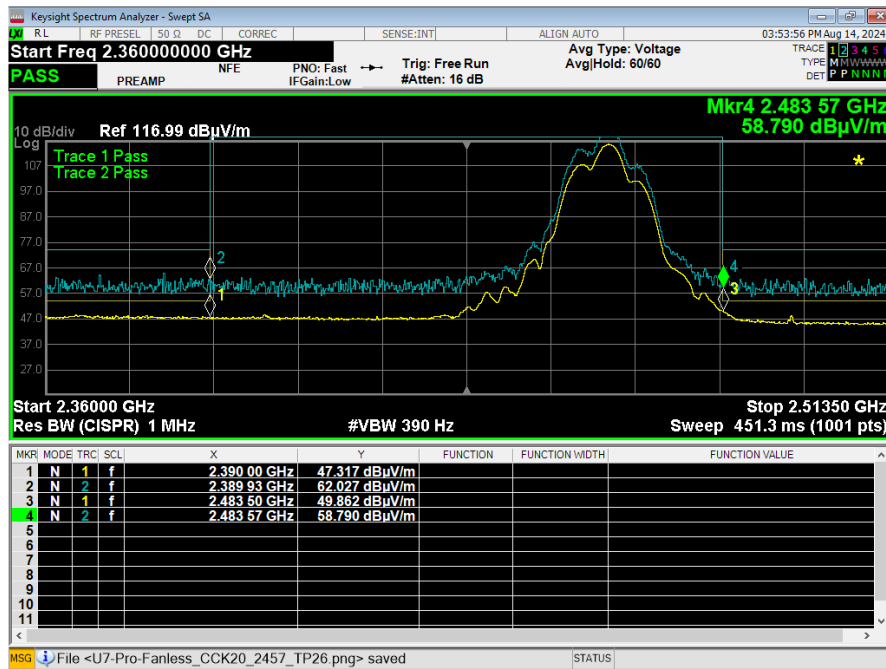
Conducted spurious emissions were attenuated 30 dB or more below the fundamental; therefore, the EUT complies with the specification.



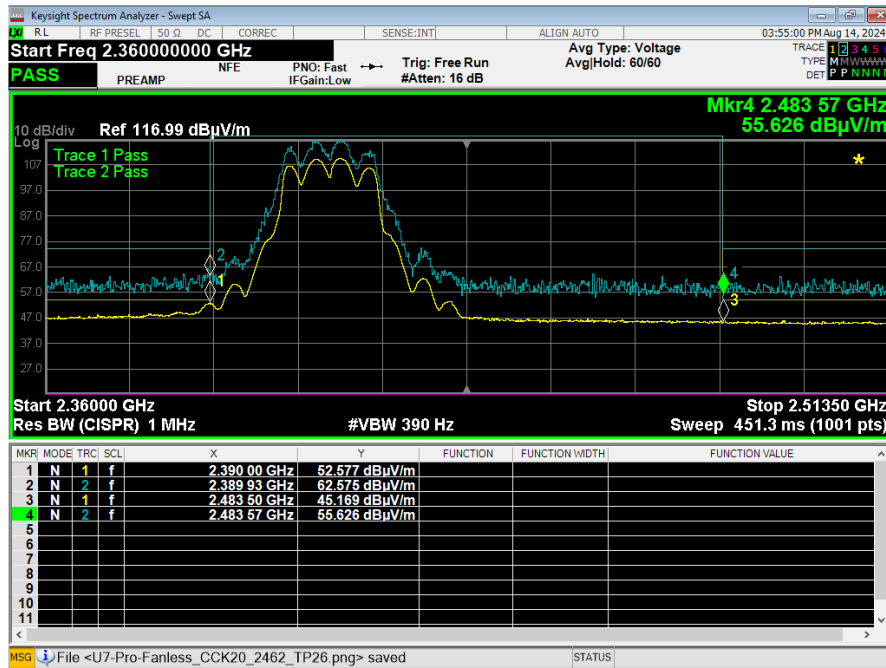
Graph 3: Band Edge Low b Mode 20 MHz



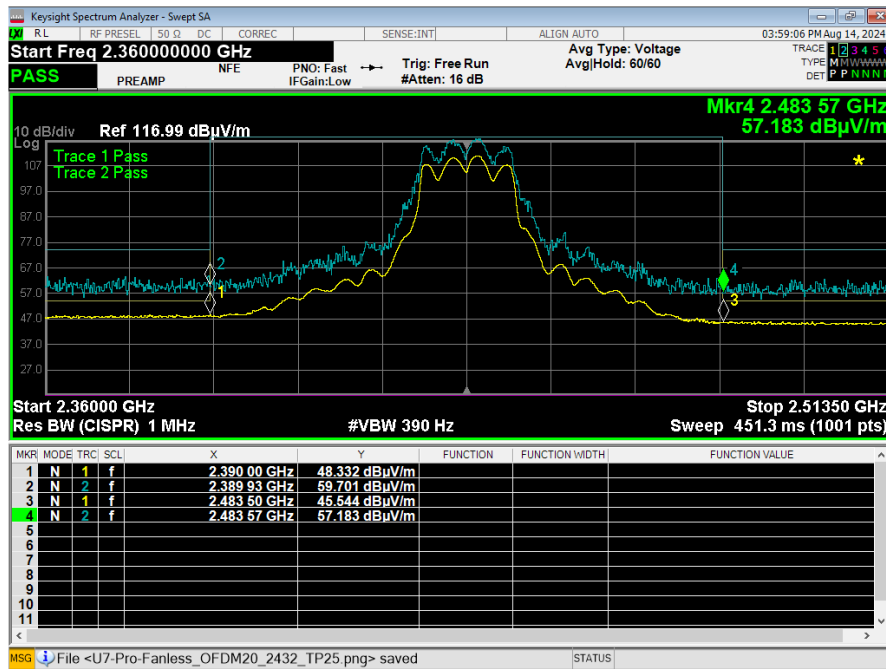
Graph 4: Band Edge Middle b Mode 20 MHz



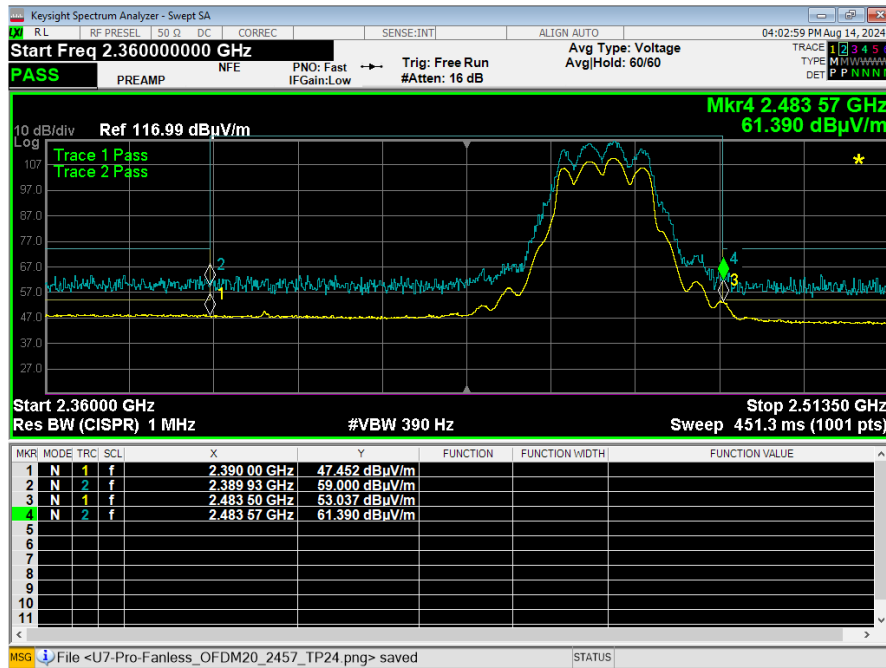
Graph 5: Band Edge High b Mode 20 MHz



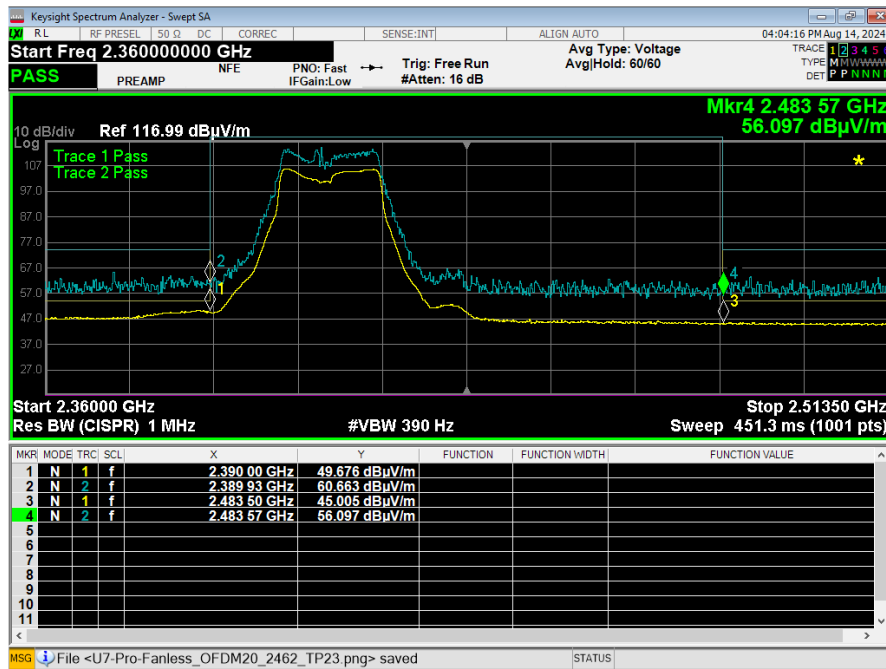
Graph 6: Band Edge Low g Mode 20 MHz



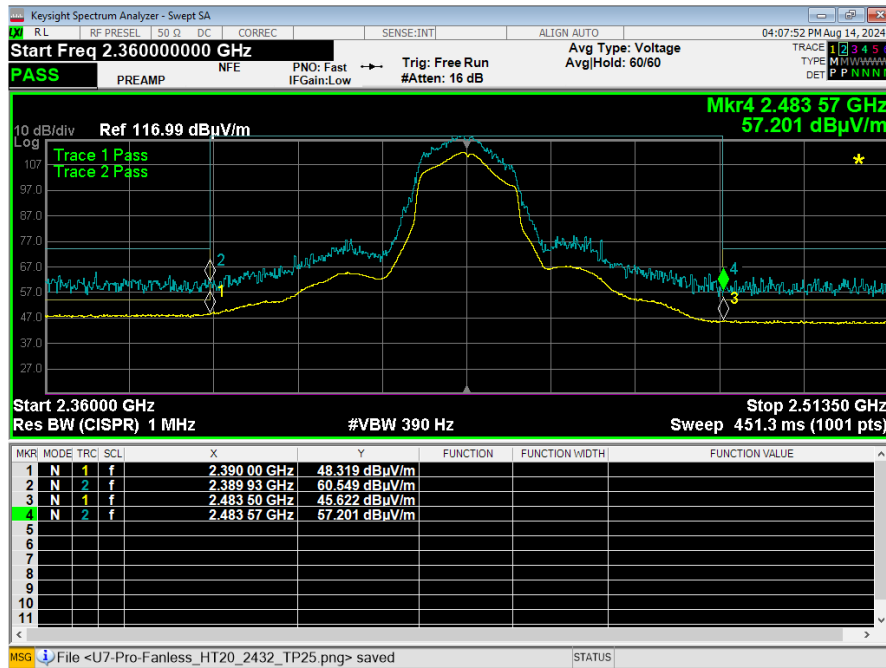
Graph 7: Band Edge Middle g Mode 20 MHz



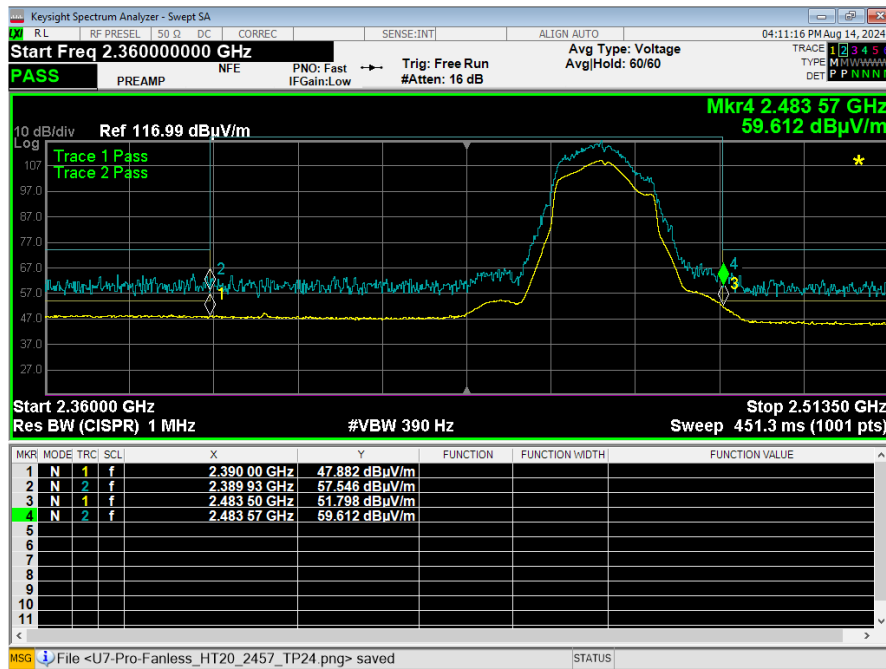
Graph 8: Band Edge High g Mode 20 MHz



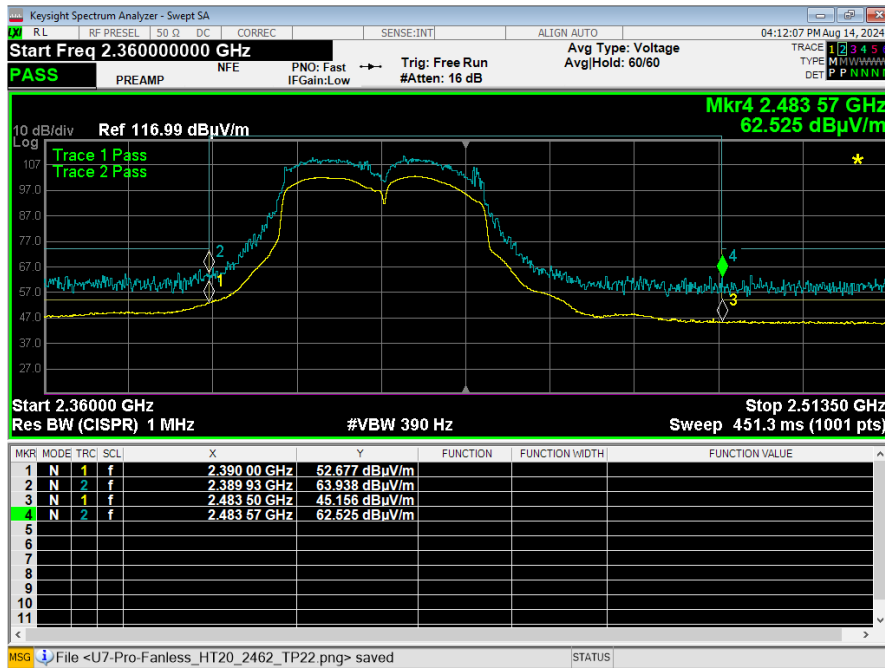
Graph 9: Band Edge Low n Mode 20 MHz



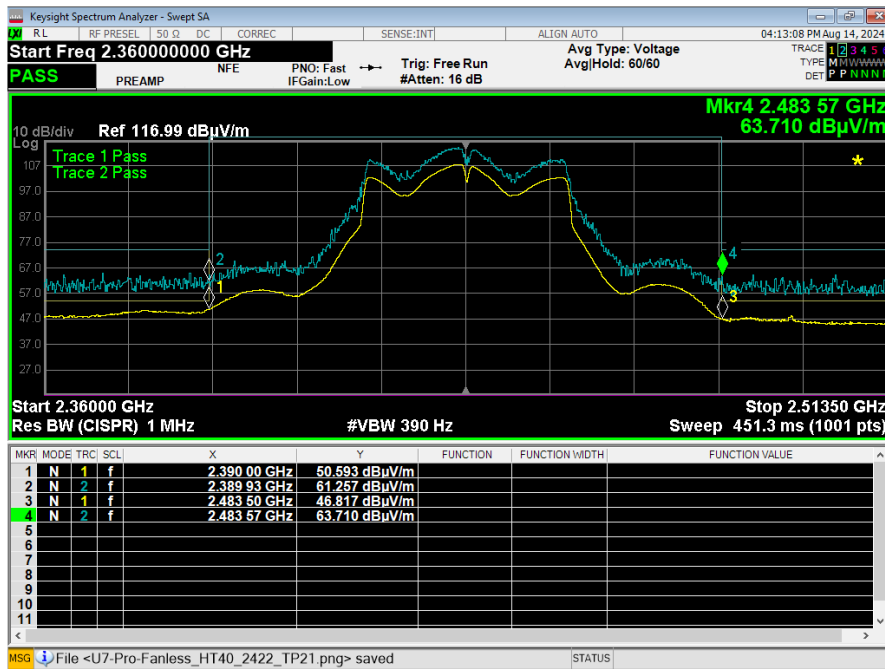
Graph 10: Band Edge Middle n Mode 20 MHz



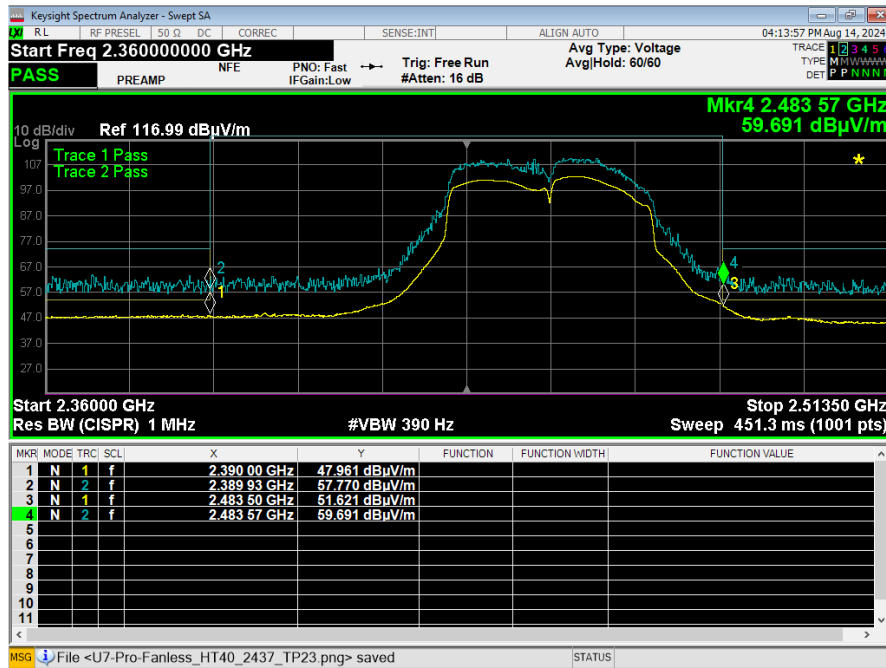
Graph 11: Band Edge High n Mode 20 MHz



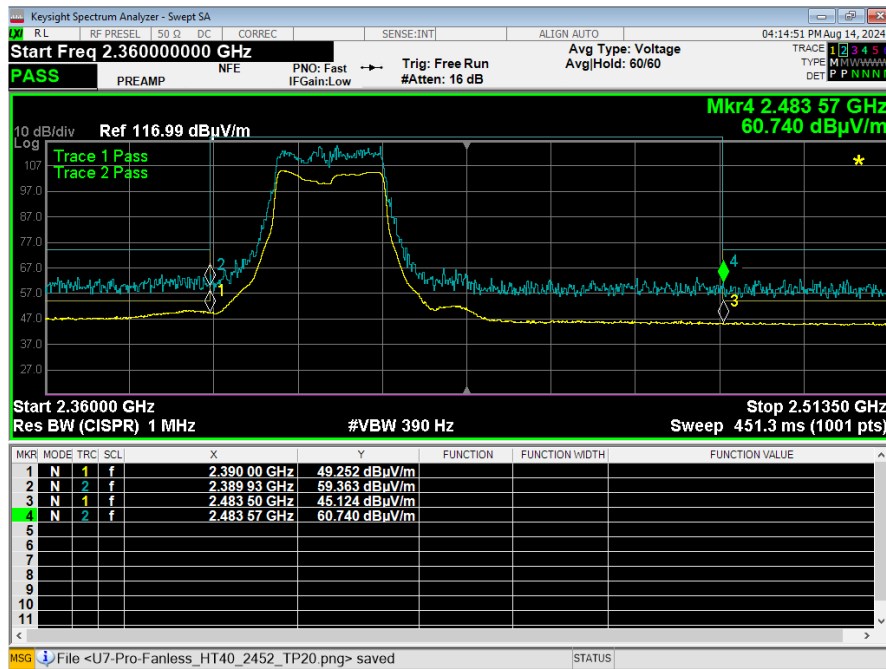
Graph 12: Band Edge Low n Mode 40 MHz



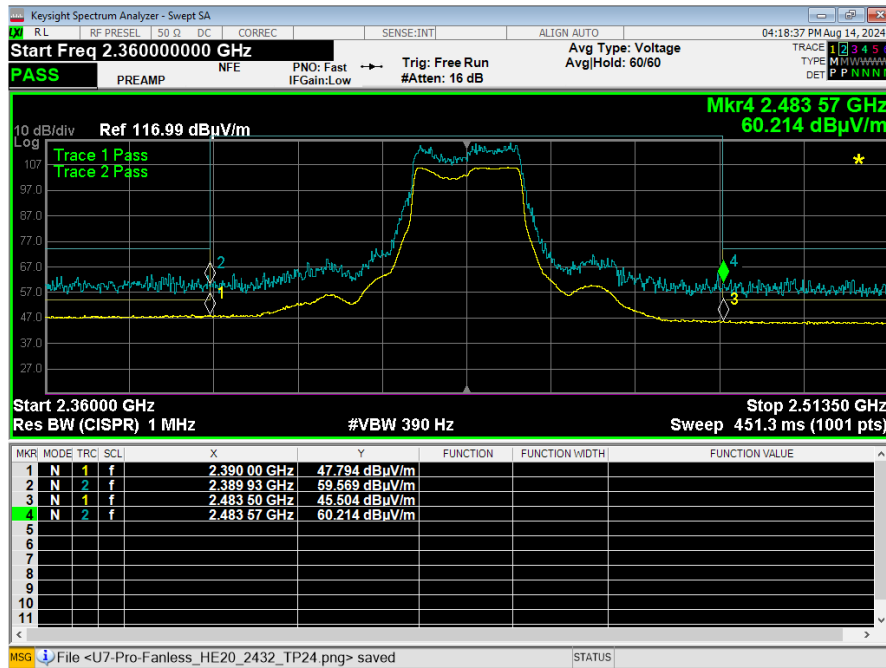
Graph 13: Band Edge Middle n Mode 40 MHz



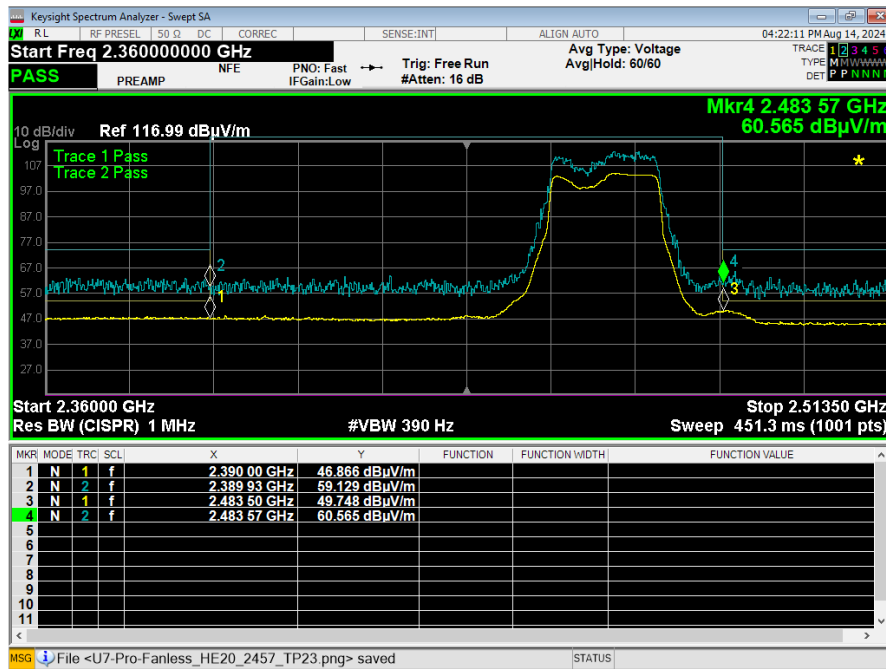
Graph 14: Band Edge High n Mode 40 MHz



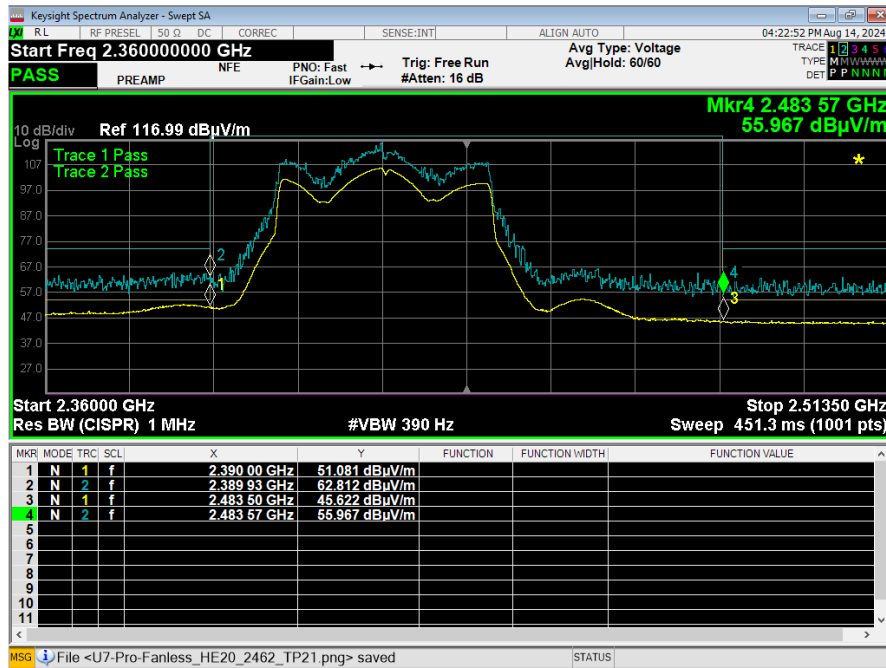
Graph 15: Band Edge Low ax Mode 20 MHz



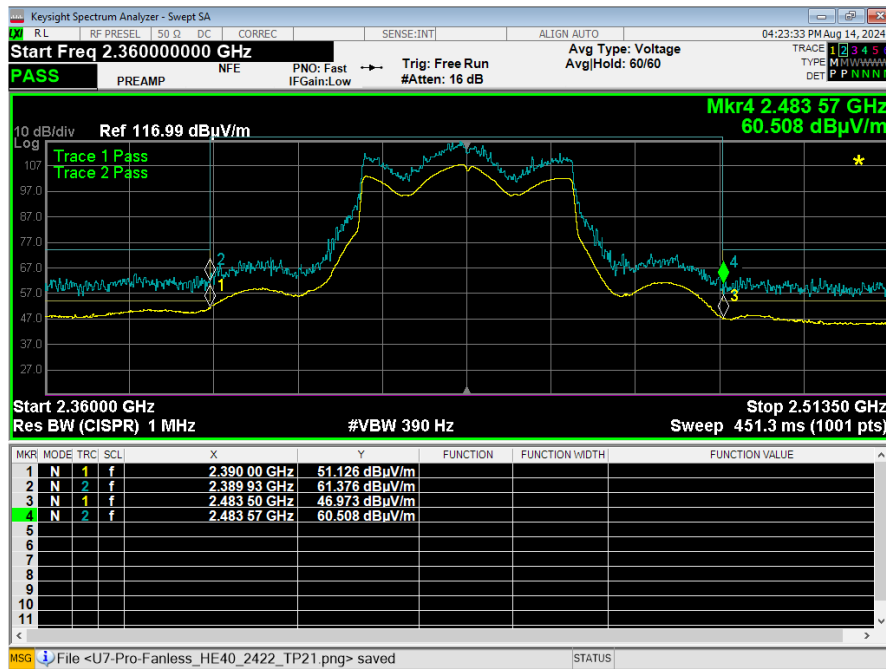
Graph 16: Band Edge Middle ax Mode 20 MHz



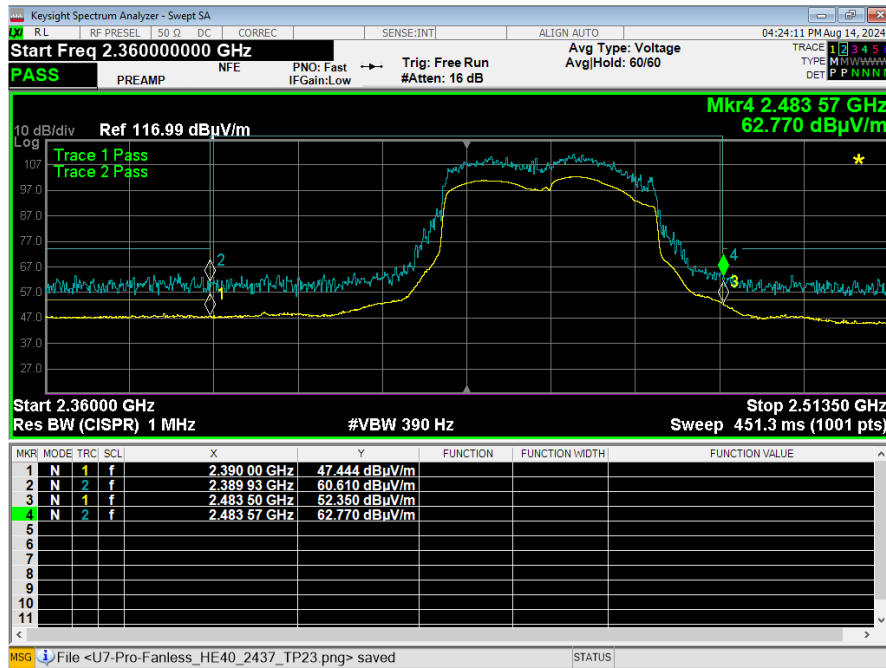
Graph 17: Band Edge High ax Mode 20 MHz



Graph 18: Band Edge Low ax Mode 40 MHz



Graph 19: Band Edge Middle ax Mode 40 MHz



Graph 20: Band Edge High ax Mode 40 MHz

5.5.2 Radiated Spurious Emissions in the Restricted Bands of §15.205

The frequency range from the lowest frequency generated or used in the device to the tenth harmonic of the highest fundamental emissions was investigated to measure any radiated emissions in the restricted bands. The following tables show measurements of any emissions that fell into the restricted bands of §15.205. The tables show the worst-case emissions measured from the EUT. For frequencies above 18.0 GHz, a measurement distance of 1 meter was used. The noise floor was a minimum of 6 dB below the limits. The emissions in the restricted bands must meet the limits specified in §15.209. Tabular data for each of the spurious emissions is shown below for each of the units. Plots of the band edges are also shown.

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.

QuasiPeak

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
43.68	38.49	40.0	-1.51	87	1.13	Vertical	-8.19
46.87	38.74	40.0	-1.26	123	1.64	Vertical	-7.96
211.53	33.37	43.5	-10.13	210	2.13	Vertical	-9.78
227.86	39.22	46.0	-6.78	167	2.64	Vertical	-8.76
219.07	37.89	46.0	-8.12	249	1.13	Horizontal	-9.42
224.46	42.36	46.0	-3.64	262	1.13	Horizontal	-9.08
227.26	43.21	46.0	-2.79	257	1.13	Horizontal	-8.82
229.27	44.88	46.0	-1.12	266	1.13	Horizontal	-8.62
243.76	39.86	46.0	-6.14	266	1.63	Horizontal	-7.79

Table 4: Radiated Emissions 30 – 1000 MHz

Peak

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
2187.77	51.03	74.0	-22.97	1	4	Vertical	-3.63
8458.91	46.89	74.0	-27.11	185	2.04	Vertical	11.95
9534.81	48.66	74.0	-25.34	248	2.54	Vertical	12.65
10738.3	49.37	74.0	-24.63	360	1.63	Vertical	14.29
11896.9	49.97	74.0	-24.03	328	3.45	Vertical	16.08
14227.0	49.48	74.0	-24.52	226	3.81	Vertical	15.27
15117.1	50.86	74.0	-23.14	80	2.04	Vertical	16.23
16198.5	52.03	74.0	-21.97	194	2.35	Vertical	17.82
2191.45	52.77	74.0	-21.23	314	1.5	Horizontal	-3.63
7236.94	46.99	74.0	-27.01	282	2.17	Horizontal	11.26
8542.76	46.29	74.0	-27.71	219	2.35	Horizontal	12.34
10015.3	49.20	74.0	-24.80	321	1.63	Horizontal	14.01
11903.0	50.37	74.0	-23.63	28	2.18	Horizontal	16.11
12511.2	50.64	74.0	-23.36	337	3.45	Horizontal	16.13
13107.1	50.65	74.0	-23.35	202	2.04	Horizontal	15.43
14711.1	51.19	74.0	-22.81	67	1.63	Horizontal	17.11
16161.9	51.41	74.0	-22.59	307	3.44	Horizontal	17.39

Avg

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
2187.77	37.66	54.0	-16.34	1	4	Vertical	-3.63
8458.91	33.62	54.0	-20.38	185	2.04	Vertical	11.95
9534.81	35.43	54.0	-18.57	248	2.54	Vertical	12.65
10738.3	35.87	54.0	-18.13	360	1.63	Vertical	14.29
11896.9	36.88	54.0	-17.12	328	3.45	Vertical	16.08
14227.0	36.56	54.0	-17.44	226	3.81	Vertical	15.27
15117.1	37.91	54.0	-16.09	80	2.04	Vertical	16.23
16198.5	38.51	54.0	-15.49	194	2.35	Vertical	17.82
2191.45	39.43	54.0	-14.57	314	1.5	Horizontal	-3.63
7236.94	33.80	54.0	-20.20	282	2.17	Horizontal	11.26
8542.76	33.25	54.0	-20.75	219	2.35	Horizontal	12.34
10015.3	36.07	54.0	-17.93	321	1.63	Horizontal	14.01

Frequency (MHz)	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth ($^{\circ}$)	Height (m)	Pol.	Correction (dB)
11903.0	37.27	54.0	-16.73	28	2.18	Horizontal	16.11
12511.2	37.76	54.0	-16.24	337	3.45	Horizontal	16.13
13107.1	36.51	54.0	-17.49	202	2.04	Horizontal	15.43
14711.1	38.18	54.0	-15.82	67	1.63	Horizontal	17.11
16161.9	37.81	54.0	-16.19	307	3.44	Horizontal	17.39

Table 5: Radiated Emissions 1 – 17 GHz at the Lowest Frequency

Peak

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
2175.57	51.80	74.0	-22.20	355	4	Vertical	-3.61
11067.3	49.36	74.0	-24.64	1	1.5	Vertical	14.79
12995.5	50.37	74.0	-23.63	336	3.62	Vertical	16.44
16201.0	51.95	74.0	-22.05	73	1.7	Vertical	17.82
2155.7	56.06	74.0	-17.94	309	2.54	Horizontal	-3.59
12285.3	50.64	74.0	-23.36	157	2.72	Horizontal	16.16
14718.7	52.10	74.0	-21.90	132	1.63	Horizontal	17.04
16102.3	51.34	74.0	-22.66	310	3.98	Horizontal	16.63

Avg

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
2175.57	36.81	54.0	-17.19	355	4	Vertical	-3.61
11067.3	36.31	54.0	-17.69	1	1.5	Vertical	14.79
12995.5	36.98	54.0	-17.02	336	3.62	Vertical	16.44
16201.0	38.63	54.0	-15.37	73	1.7	Vertical	17.82
2155.7	39.05	54.0	-14.95	309	2.54	Horizontal	-3.59
12285.3	37.70	54.0	-16.30	157	2.72	Horizontal	16.16
14718.7	38.24	54.0	-15.76	132	1.63	Horizontal	17.04
16102.3	37.94	54.0	-16.06	310	3.98	Horizontal	16.63

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

Peak

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
2173.13	52.41	74.0	-21.59	357	3.81	Vertical	-3.61
12289.8	50.85	74.0	-23.15	49	2.93	Vertical	16.2
13115.1	49.42	74.0	-24.58	165	3.63	Vertical	15.49
14680.9	50.74	74.0	-23.26	70	1.5	Vertical	17
16207.1	52.10	74.0	-21.9	2	1.63	Vertical	17.74
2123.27	55.73	74.0	-18.27	303	2.04	Horizontal	-3.61
2217.98	55.18	74.0	-18.82	315	3.08	Horizontal	-3.75
12617.9	50.84	74.0	-23.16	113	3.8	Horizontal	16.13
16434.2	50.78	74.0	-23.22	126	3.28	Horizontal	17.99

Avg

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
2173.13	34.76	54.0	-19.24	357	3.81	Vertical	-3.61
12289.8	37.85	54.0	-16.15	49	2.93	Vertical	16.2
13115.1	36.58	54.0	-17.42	165	3.63	Vertical	15.49
14680.9	37.81	54.0	-16.19	70	1.5	Vertical	17
16207.1	38.66	54.0	-15.34	2	1.63	Vertical	17.74
2123.27	37.64	54.0	-16.36	303	2.04	Horizontal	-3.61
2217.98	36.34	54.0	-17.66	315	3.08	Horizontal	-3.75
12617.9	37.51	54.0	-16.49	113	3.8	Horizontal	16.13
16434.2	36.98	54.0	-17.02	126	3.28	Horizontal	17.99

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

Peak

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
16.66 GHz	51.10	74.0	-22.90	146	Vertical	1.01
22.75 GHz	50.13	74.0	-23.87	3	Vertical	0.45
23.36 GHz	51.42	74.0	-22.58	129	Vertical	1.60
25.61 GHz	53.65	74.0	-20.35	183	Vertical	3.74
16.54 GHz	50.93	74.0	-23.07	269	Horizontal	1.12
23.26 GHz	51.31	74.0	-22.69	40	Horizontal	1.60
25.29 GHz	53.27	74.0	-20.73	178	Horizontal	3.16
25.56 GHz	54.20	74.0	-19.80	1	Horizontal	3.63

Avg

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
16.66 GHz	37.63	54.0	-16.37	146	Vertical	1.01
22.75 GHz	37.06	54.0	-16.94	3	Vertical	0.45
23.36 GHz	38.09	54.0	-15.91	129	Vertical	1.60
25.61 GHz	40.57	54.0	-13.43	183	Vertical	3.74
16.54 GHz	37.56	54.0	-16.44	269	Horizontal	1.12
23.26 GHz	38.24	54.0	-15.77	40	Horizontal	1.60
25.29 GHz	39.92	54.0	-14.08	178	Horizontal	3.16
25.56 GHz	40.45	54.0	-13.55	1	Horizontal	3.63

Table 8: Radiated Emissions 17 – 26 GHz at the Highest Frequency (worse case)

5.6 §15.247(e) Maximum Average Power Spectral Density

All chains were measured and summed under the guidance of KDB 558074 Section 8.4. 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 8 dBm in any 3 kHz band during any time interval of continuous transmission. The antenna gain is 4 dBi + Array gain of 3.01 dB which is a total of 7.01 dBi.

Mode	Frequency (MHz)	Measurement (dBm)	Criteria (dBm)
b	2412	3.89	8.0
	2437	4.87	8.0
	2462	3.46	8.0
g	2412	-5.52	8.0
	2437	-4.78	8.0
	2462	-6.09	8.0
n 20	2412	-6.60	8.0
	2437	-6.29	8.0
	2462	-8.66	8.0
n 40	2422	-13.34	8.0
	2437	-11.11	8.0
	2452	-14.12	8.0
ax 20	2412	-9.00	8.0
	2437	-8.04	8.0
	2462	-10.03	8.0
ax 40	2422	-12.61	8.0
	2437	-11.01	8.0
	2452	-13.49	8.0

Result

The maximum average power spectral density was less than the limit of 8 dBm; therefore, the EUT complies with the specification.

-- End of Test Report --