



427 West 12800 South
Draper, UT 84020

Test Report Certification

FCC ID	SWX-UDR7
IC ID	6545A-UDR7
Equipment Under Test	UDR7
Test Report Serial Number	TR9437_01
Date of Test(s)	11 – 13, 16 – 20 September and 22 October 2024
Report Issue Date	23 October 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

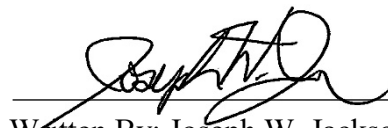
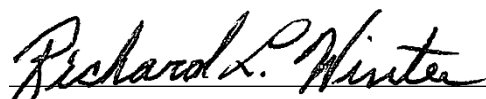
This report has been prepared by Unified Compliance Laboratory (UCL) to document compliance of the device described below with the requirement of Federal Communication Commissions (FCC) Part 15, Subpart C. This report may be reproduced in full. Partial reproduction of this report may only be made with 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	UDR7
FCC ID	SWX-UDR7
IC ID	6545A-UDR7

On this 23rd day of October 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	23 October 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	7
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	Photographs.....	13
6	Test Results	14
6.1	§15.203 Antenna Requirements.....	14
6.2	Conducted Emissions at Mains Ports Data	15
6.3	§15.247(a)(2)	17
6.4	§15.247(b)(3) Maximum Average Output Power.....	18
6.5	§15.247(d) Spurious Emissions	20
6.6	§15.247(e) Maximum Average Power Spectral Density	24

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	UDR7
Serial Number	168
Dimensions (cm)	11.0 x 11.0 x 18.4

2.2 Description of EUT

The UDR7 is a UniFi Desk Gateway with integrated WiFi 7 and PoE switching. The UDR7 has one 10 GbE SFP port and 4 RJ45 PoE ports. The UDR7 transmits in the 2.4 GHz, 5 GHz and 6 GHz frequency bands using internal integral antennas. The UDR7 has a Bluetooth transmitter for system management. The UDR7 is powered from 110 – 240 Volts AC Mains.

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: UDR7 SN: 168	Desktop Gateway	See Section 2.4
BN: Dell MN: XPS SN: N/A	Laptop Computer	Ethernet/un-shielded Cat 5

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	2 conductor power cable to AC mains/200 cm
10 GbE SFP WAN	1	Shielded cat 5E/7m
PoE Input	4	Unshielded Cat 5E/7m

2.5 Operating Environment

Power Supply	120 Volts AC Mains
AC Mains Frequency	60 Hz
Temperature	23.6 – 24.9 °C
Humidity	25.8 – 30.5 %
Barometric Pressure	1013 mBar

2.6 Operating Modes

The UDR7 was connected to a personal computer laptop and tested using test software in order to enable to constant duty cycle greater or equal to 98% of the WiFi 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

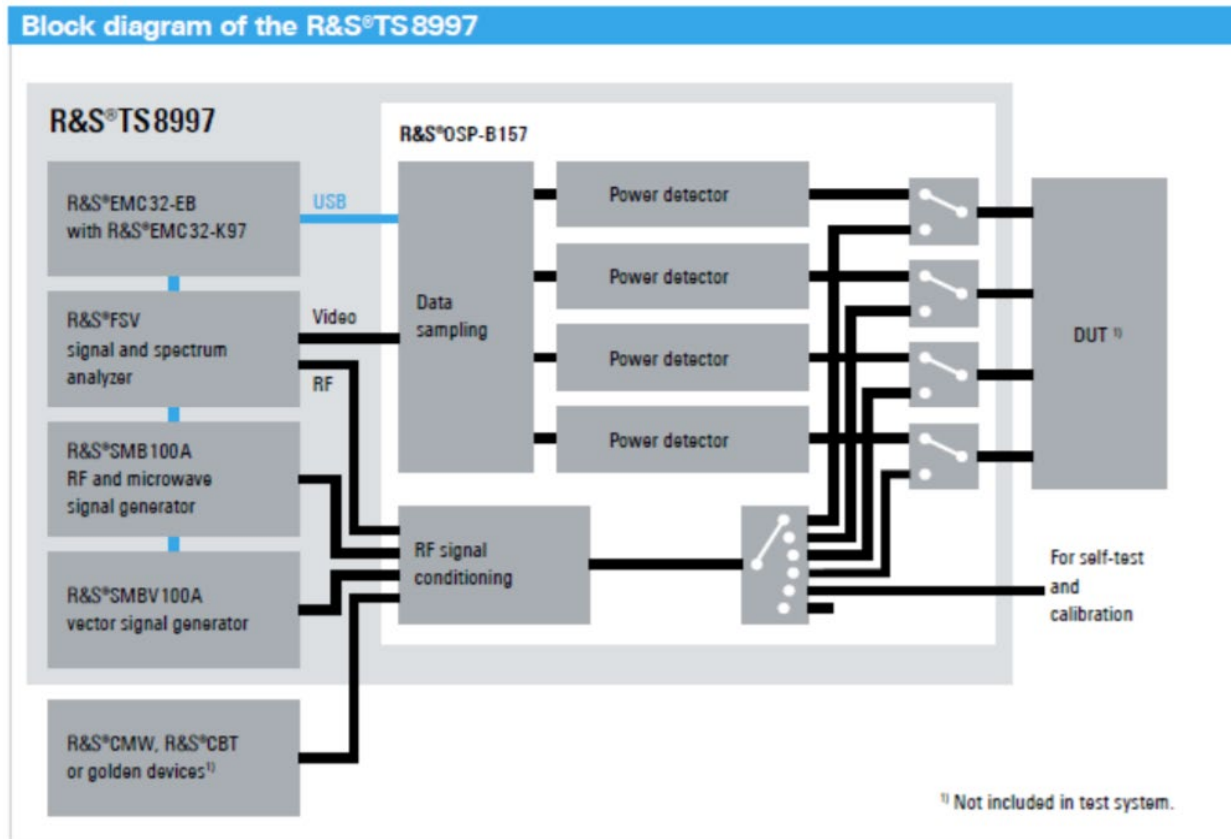


Diagram 1: Test Configuration Block Diagram

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 40000	N/A
15.247(d)	RSS-247 § 5.4	Radiated Spurious Emissions	0.009 to 40000	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-6754	1/23/2024	2/26/2025
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

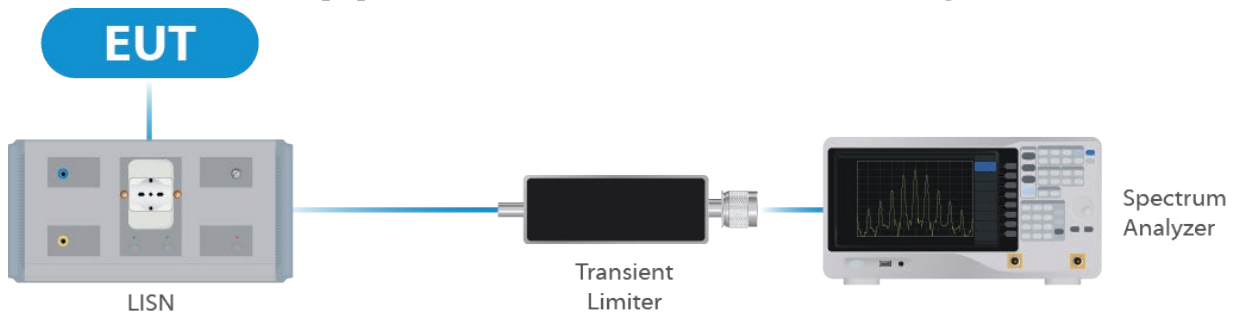


Figure 1: Conducted Emissions Test

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

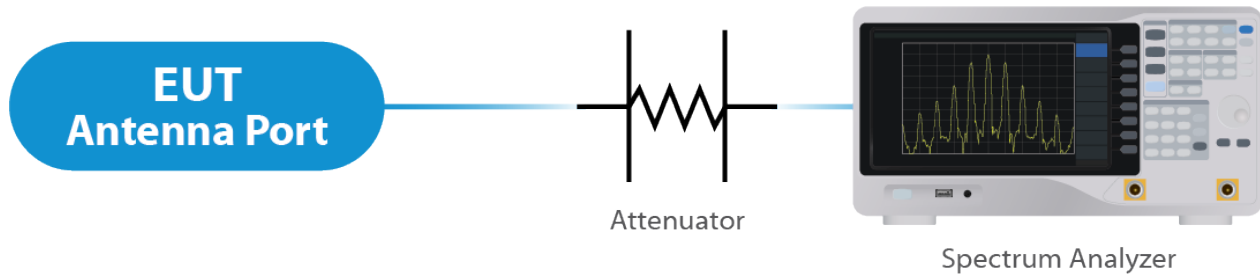


Figure 2: Direct Connect at the Antenna Port Test

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	3/10/2023	3/10/2025
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

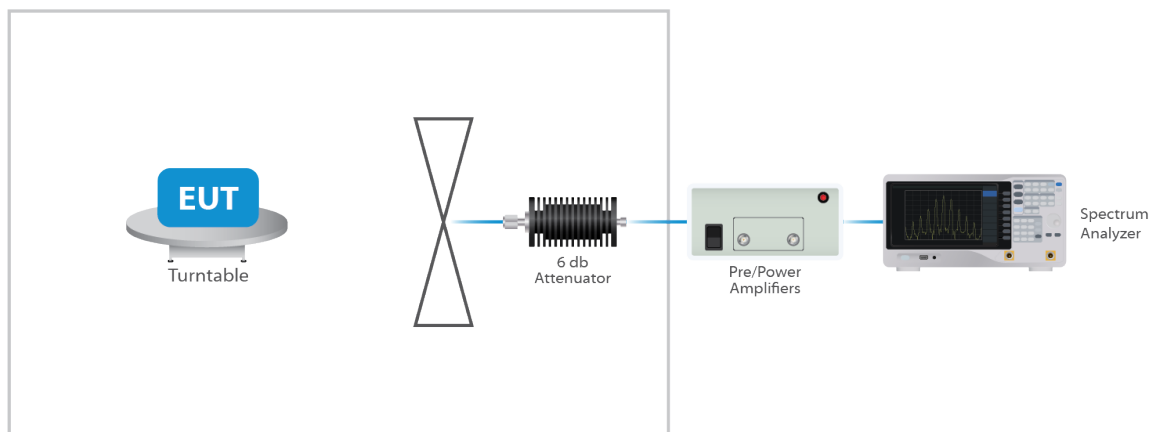


Figure 3: Radiated Emissions Test

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 internal integral antenna. Per the manufacturer, the Maximum gain of the antenna per chain is 5 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.

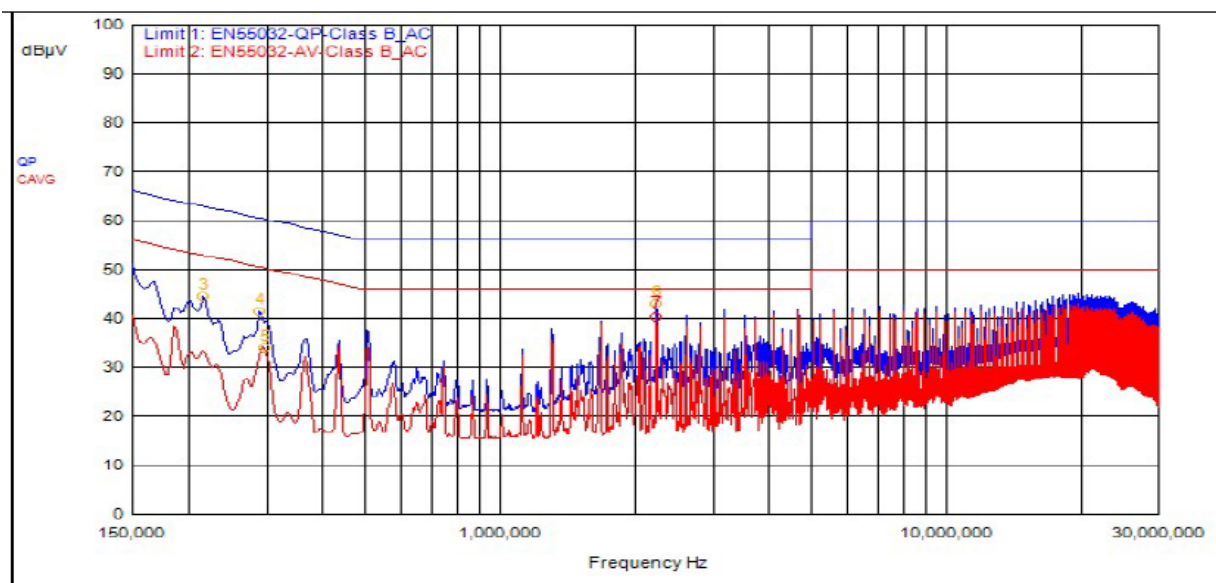
For power measurements on IEEE 802.11 devices, Array Gain = 0 dB for $\text{NANT} \leq 4$;

For PSD measurements when $\text{Nss}=1$: Array Gain = $10 \log(\text{NANT}/\text{NSS})$ dB + Antenna Gain (dBi). Or
 $3.01 \text{ dB} + 5 \text{ dBi} = 8.01 \text{ dBi}$.

Results

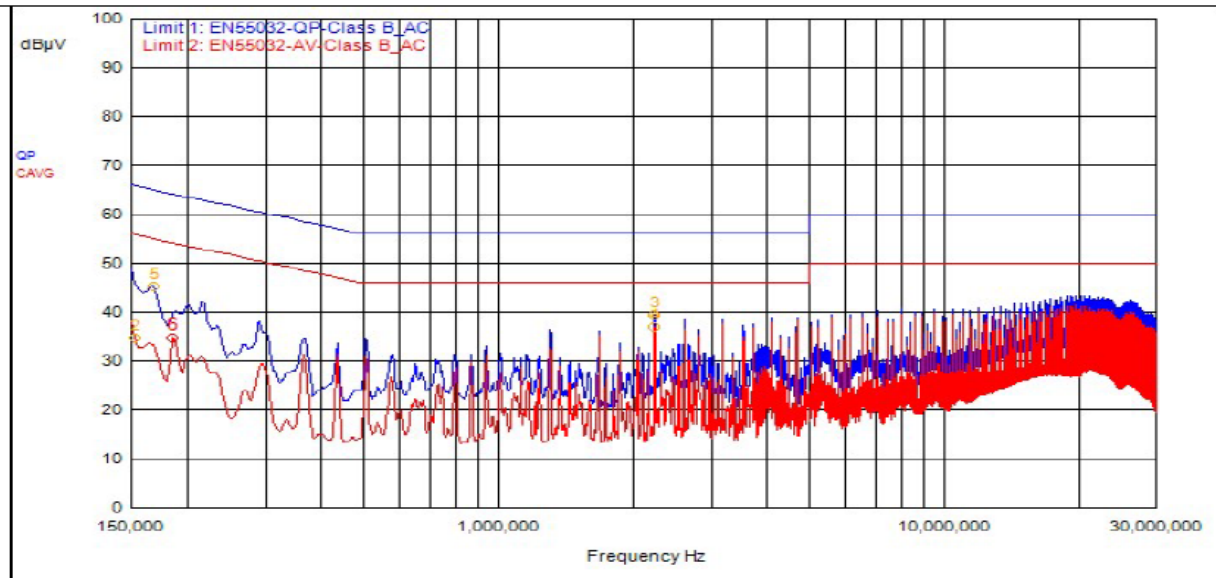
The EUT complied with the specification

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
6	2.244	12.26			QPeak	30.86	43.12	56.00	-12.88			
1	150,000kHz	12.21			QPeak	38.78	50.99	66.00	-15.01			
3	216,000kHz	12.29			QPeak	32.16	44.45	62.97	-18.52			
4	288,000kHz	12.38			QPeak	28.93	41.31	60.58	-19.28			
2	150,000kHz	12.21			C_AVG	28.44	40.65			56.00	-15.35	
5	297,000kHz	12.40			C_AVG	21.47	33.87			50.33	-16.45	
7	2.244	12.26			C_AVG	28.13	40.39			46.00	-5.61	

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
3	2.244	9.59			QPeak	29.98	39.57	56.00	-16.43			
1	150,000kHz	9.49			QPeak	39.46	48.95	66.00	-17.05			
5	168,000kHz	9.49			QPeak	35.88	45.37	65.06	-19.69			
2	153,000kHz	9.49			C_AVG	25.35	34.84			55.84	-21.00	
4	2.244	9.59			C_AVG	27.35	36.94			46.00	-9.06	
6	186,000kHz	9.49			C_AVG	25.10	34.59			54.21	-19.63	

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 662911 D01. Please see associated annex for details on instrument settings.

Mode	Frequency (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth (MHz)
b	2412	12.8	6.6
	2437	12.6	6.2
	2462	12.9	7.7
g	2412	16.6	14.5
	2437	17.3	11.5
	2462	16.6	16.1
n 20	2412	17.9	14.8
	2437	18.0	17.9
	2462	17.6	13.5
n 40	2422	36.3	35.5
	2437	36.0	35.6
	2452	36.3	35.8
ax 20	2412	18.8	14.7
	2437	19.1	12.6
	2462	19.0	19.0
ax 40	2422	37.8	35.1
	2437	37.8	32.3
	2452	37.8	16.2

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 662911 D01. Please see associated annex for details on instrument settings.

The maximum average RF conducted output power measured for this device was 29.99 dBm or 997.70 mW. The limit is 30 dBm or 1 Watt when using antennas with 6 dBi or less gain. The antenna has a gain of 5 dBi.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power *	Measured EIRP
b 20	2412	Mcs0	27	28.39	33.39
	2417	Mcs0	27	28.64	33.64
	2422	Mcs0	27	28.13	33.13
	2427	Mcs0	27	28.08	33.08
	2432	Mcs0	27	28.49	33.49
	2437	Mcs0	27	28.38	33.38
	2442	Mcs0	27	28.54	33.54
	2447	Mcs0	27	28.38	33.38
	2452	Mcs0	27	28.47	33.47
	2457	Mcs0	27	28.06	33.06
g 20	2462	Mcs0	27	28.43	33.43
	2412	Mcs0	23	24.16	29.16
	2417	Mcs0	26	27.25	32.25
	2422	Mcs0	27	28.11	33.11
	2427	Mcs0	27	28.12	33.12
	2432	Mcs0	28	29.92	34.92
	2437	Mcs0	28	29.94	34.94
	2442	Mcs0	28	29.99	34.99
	2447	Mcs0	28	29.97	34.97
	2452	Mcs0	27	28.10	33.10
n 20	2457	Mcs0	27	28.03	33.03
	2462	Mcs0	25	25.96	30.96
	2412	Mcs0	22	23.13	28.13
	2417	Mcs0	25	25.94	30.94
	2422	Mcs0	27	28.11	33.11
	2427	Mcs0	27	27.90	32.90
	2432	Mcs0	27	27.91	32.91

	2437	Mcs0	27	28.17	33.17
	2442	Mcs0	28	28.42	33.42
	2447	Mcs0	27	28.07	33.07
	2452	Mcs0	27	28.21	33.21
	2457	Mcs0	27	28.15	33.15
	2462	Mcs0	23	24.15	29.15
n 40	2422	Mcs0	21	22.63	27.63
	2437	Mcs0	25	26.60	31.60
	2452	Mcs0	21	22.73	27.73
ax 20	2412	Mcs0	21	22.25	27.25
	2417	Mcs0	24	25.29	30.29
	2422	Mcs0	27	28.19	33.19
	2427	Mcs0	27	28.17	33.17
	2432	Mcs0	27	28.23	33.23
	2437	Mcs0	28	29.35	34.35
	2442	Mcs0	28	29.37	34.37
	2447	Mcs0	27	28.35	33.35
	2452	Mcs0	27	27.90	32.90
	2457	Mcs0	25	25.94	30.94
	2462	Mcs0	22	23.06	28.06
ax 40	2422	Mcs0	22	23.76	28.76
	2437	Mcs0	25	26.67	31.67
	2452	Mcs0	22	23.87	28.87

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.

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 bans 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	Level (dBμV/m)	Limit (dBμV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
31.28 MHz	36.62	40	-3.38	1	1.13	Vertical	-11.05
44.62 MHz	38.42	40	-1.58	287	1.13	Vertical	-8.07
50.72 MHz	38.38	40	-1.62	7	1.13	Vertical	-8.03
53.55 MHz	35.94	40	-4.06	62	1.13	Vertical	-8.20
96.10 MHz	32.28	40	-7.72	81	1.13	Vertical	-9.60
152.35 MHz	24.69	40	-15.31	360	1.13	Vertical	-12.72
187.05 MHz	23.28	40	-16.73	359	1.13	Vertical	-10.38
338.56 MHz	34.45	47	-12.55	132	1.13	Horizontal	-5.67

Table 4: Spurious Emissions 30-1000 MHz

Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
2.21 GHz	54.65	74	-19.35	32	1.714	Vertical	-16.38
7.24 GHz	48.08	74	-25.92	92	2.871	Vertical	-5.32
9.64 GHz	56.08	74	-17.92	124	1.5	Vertical	6.15
13.80 GHz	57.32	74	-16.68	290	1.714	Vertical	13.20
15.36 GHz	56.51	74	-17.49	204	3.728	Vertical	12.21
7.24 GHz	43.96	74	-30.04	121	3.728	Horizontal	-5.31
10.34 GHz	54.63	74	-19.37	348	3.164	Horizontal	9.20
15.06 GHz	58.26	74	-15.74	125	3.728	Horizontal	13.30

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
2.21 GHz	40.85	54	-13.15	32	1.714	Vertical	-16.38
7.24 GHz	33.64	54	-20.36	92	2.871	Vertical	-5.32
9.64 GHz	41.56	54	-12.44	124	1.5	Vertical	6.15
13.80 GHz	43.78	54	-10.22	290	1.714	Vertical	13.20
15.36 GHz	43.63	54	-10.37	204	3.728	Vertical	12.21
7.24 GHz	30.77	54	-23.23	121	3.728	Horizontal	-5.31
10.34 GHz	41.40	54	-12.60	348	3.164	Horizontal	9.20
15.06 GHz	45.04	54	-8.96	125	3.728	Horizontal	13.30

Table 5: Spurious Emissions 1-17 GHz, Lowest Frequency

Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
2.16 GHz	54.22	74	-19.78	4	1.714	Vertical	-16.73
7.31 GHz	51.19	74	-22.81	102	2.292	Vertical	-5.22
9.74 GHz	58.18	74	-15.82	124	2.288	Vertical	6.13
10.90 GHz	55.39	74	-18.61	160	4	Vertical	1.22
14.97 GHz	57.81	74	-16.19	199	3.728	Vertical	13.84
9.75 GHz	52.26	74	-21.74	41	3.728	Horizontal	6.12
10.98 GHz	55.89	74	-18.11	199	3.728	Horizontal	11.03
12.37 GHz	55.54	74	-18.46	339	3.728	Horizontal	11.01

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
2.16 GHz	45.65	54	-8.35	4	1.714	Vertical	-16.73
7.31 GHz	36.49	54	-17.51	102	2.292	Vertical	-5.22
9.74 GHz	42.62	54	-11.36	124	2.288	Vertical	6.13
10.90 GHz	42.14	54	-11.86	160	4	Vertical	1.22
14.97 GHz	44.75	54	-9.25	199	3.728	Vertical	13.84
9.75 GHz	39.71	54	-14.29	41	3.728	Horizontal	6.12
10.98 GHz	42.95	54	-11.05	199	3.728	Horizontal	11.03
12.37 GHz	42.41	54	-11.59	339	3.728	Horizontal	11.01

Table 6: Spurious Emissions 1-17 GHz, Middle Frequency

Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
7.38 GHz	49.58	74	-24.42	105	2.871	Vertical	-5.00
10.94 GHz	55.12	74	-18.88	127	3.164	Vertical	11.51
7.38 GHz	44.56	74	-29.45	83	1.5	Horizontal	-5.00
10.25 GHz	52.83	74	-21.17	175	2.871	Horizontal	9.53
13.97 GHz	58.32	74	-15.68	330	3.728	Horizontal	13.33

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
7.38 GHz	35.76	54	-18.24	105	2.871	Vertical	-5.00
10.94 GHz	42.15	54	-11.85	127	3.164	Vertical	11.51
7.38 GHz	30.96	54	-23.04	83	1.5	Horizontal	-5.00
10.25 GHz	40.08	54	-13.92	175	2.871	Horizontal	9.53
13.97 GHz	44.97	54	-9.03	330	3.728	Horizontal	13.33

Table 7: Spurious Emissions 1-17 GHz, Highest Frequency

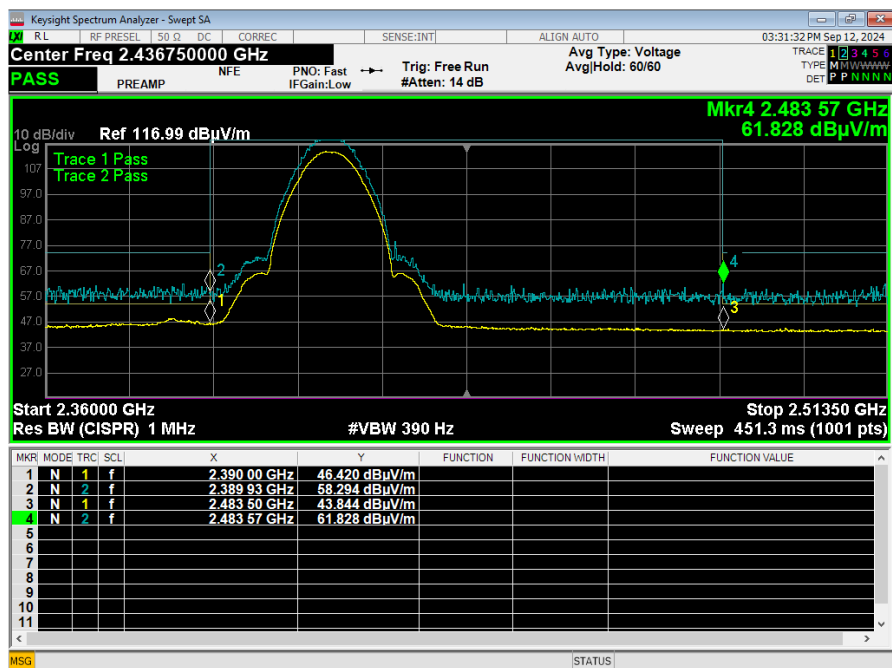
Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
16.57 GHz	50.86	74	-23.14	15	Vertical	1.28
23.30 GHz	51.58	74	-22.42	1	Vertical	1.68
23.82 GHz	53.65	74	-20.36	314	Vertical	1.10
16.62 GHz	51.43	74	-22.57	358	Horizontal	1.29
17.82 GHz	50.96	74	-23.04	236	Horizontal	0.21
18.28 GHz	50.22	74	-23.78	359	Horizontal	0.08

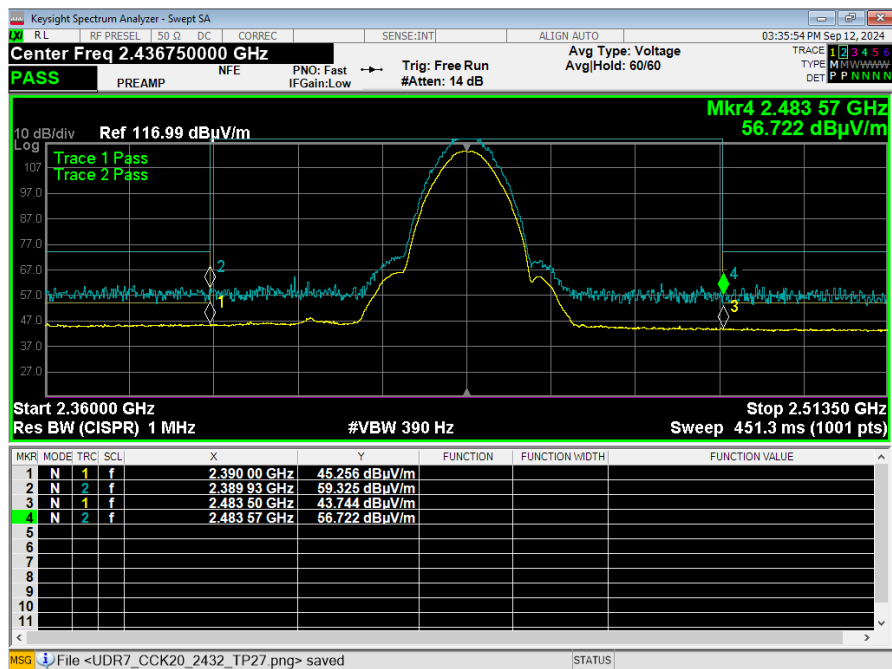
Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
16.57 GHz	37.86	54	-16.14	15	Vertical	1.28
23.30 GHz	38.05	54	-15.95	1	Vertical	1.68
23.82 GHz	44.84	54	-9.16	314	Vertical	1.10
16.62 GHz	38.07	54	-15.93	358	Horizontal	1.29
17.82 GHz	37.09	54	-16.91	236	Horizontal	0.21
18.28 GHz	37.43	54	-16.57	359	Horizontal	0.08

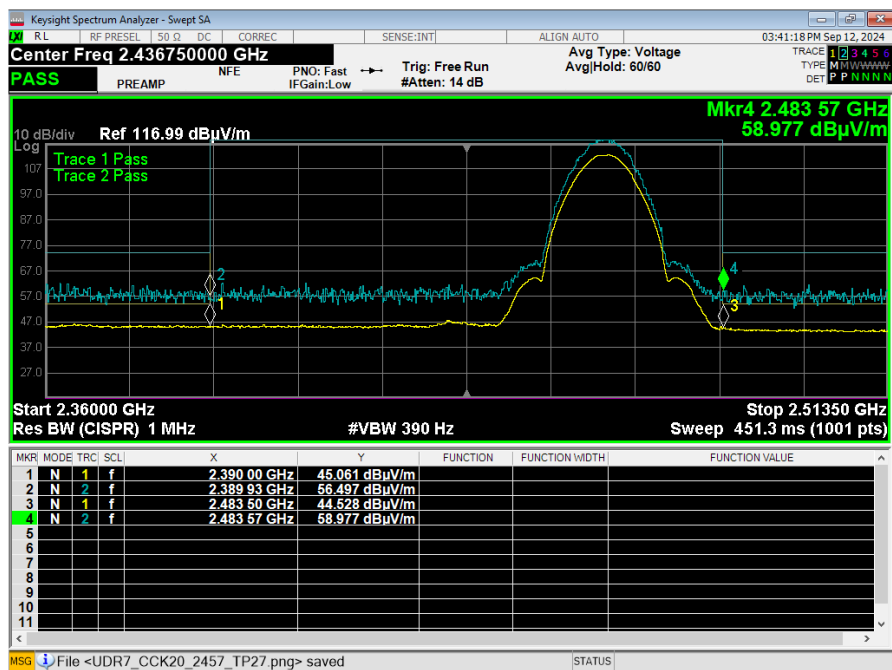
Table 8: Spurious Emissions 17-26 GHz, Lowest Frequency



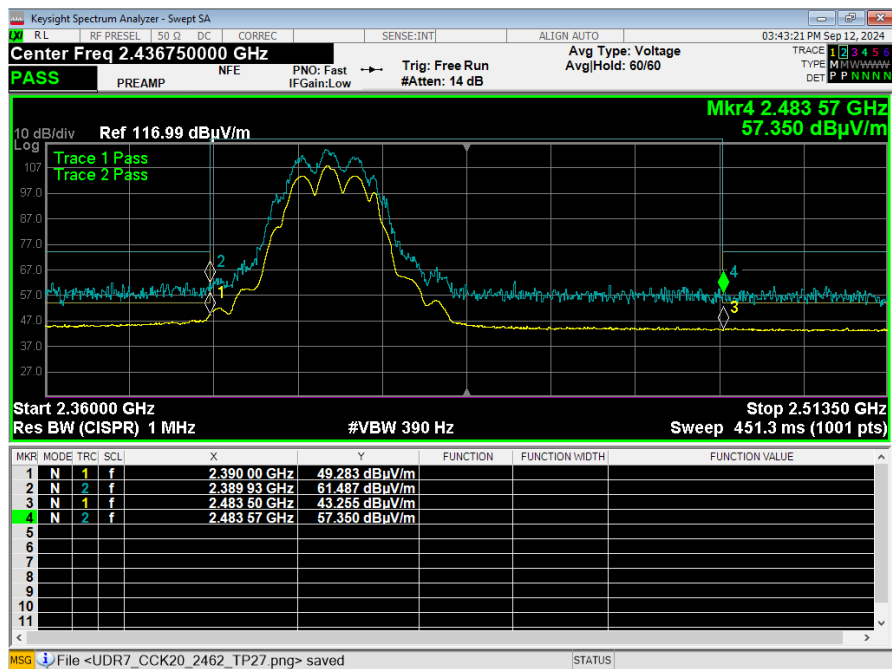
Graph 3: Lower Band Edge Plot – 2412 MHz – b Mode



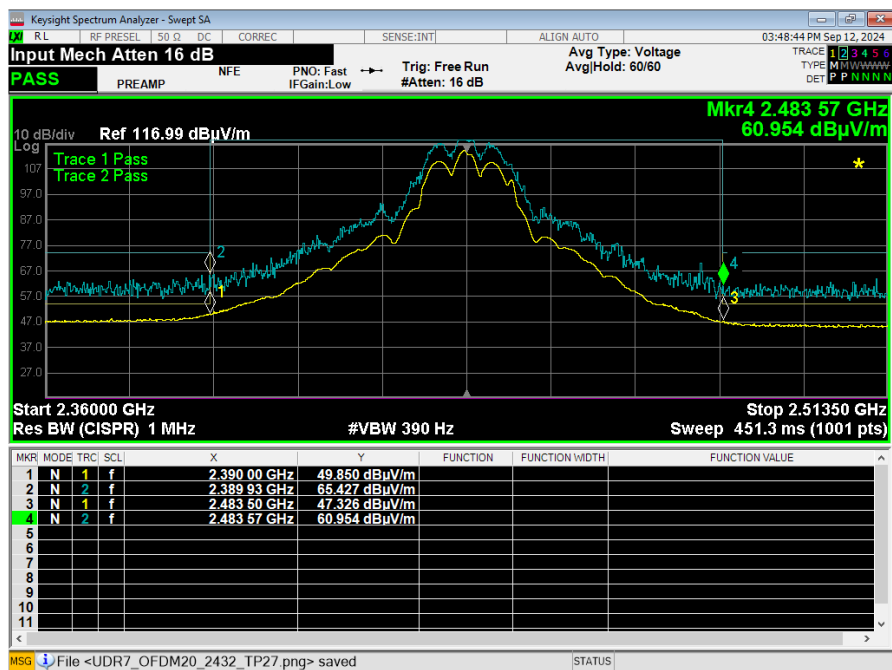
Graph 4: Middle Band Edge Plot – 2437 – g Mode



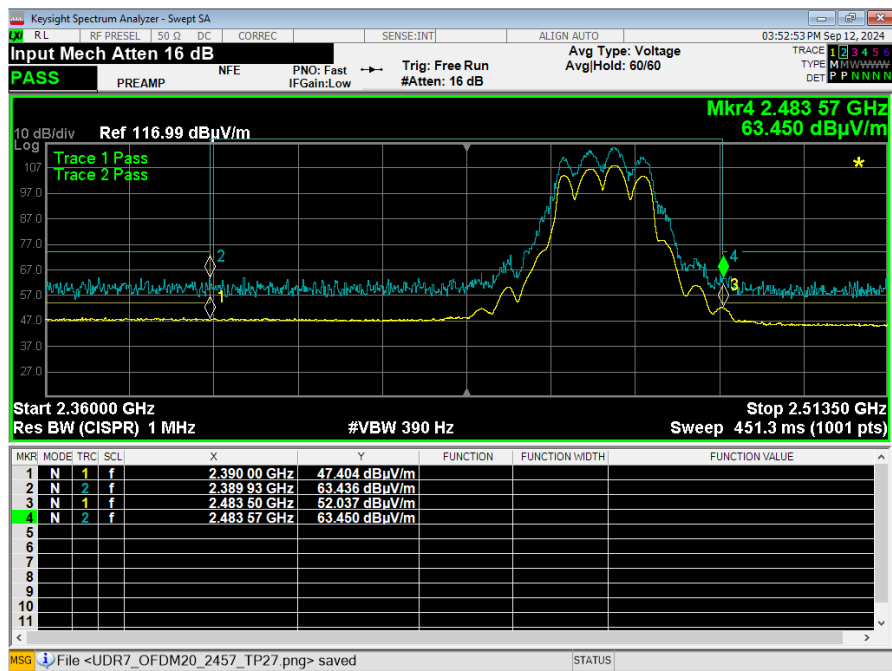
Graph 5: Upper Band Edge Plot – 2462 – b Mode



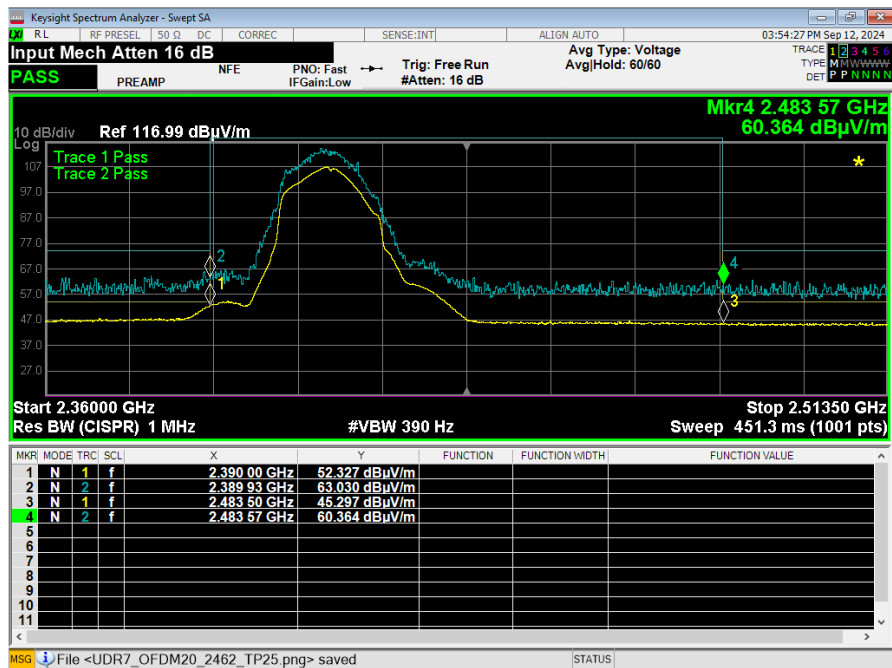
Graph 6: Lower Band Edge Plot – 2412 MHz – g Mode



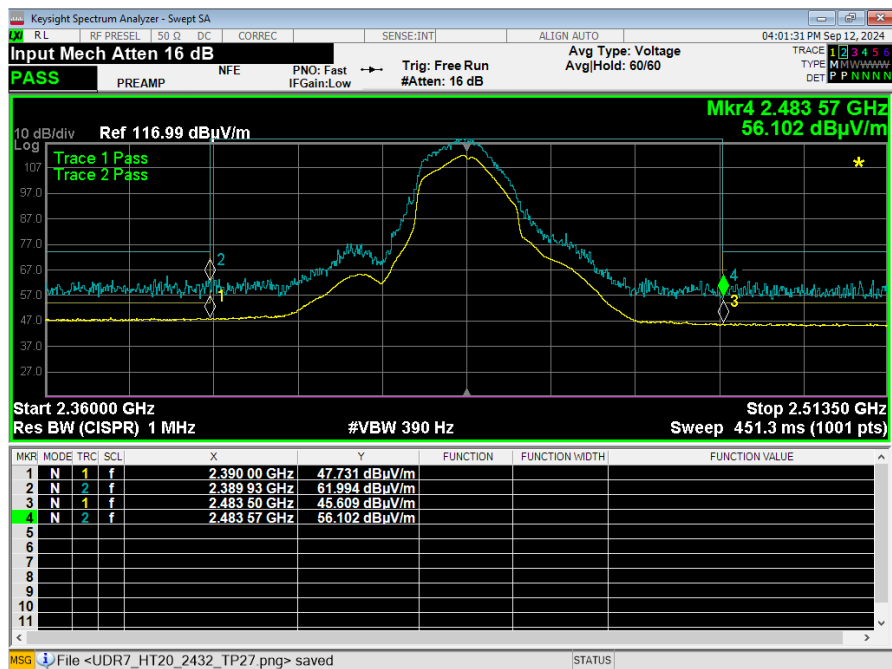
Graph 7: Middle Band Edge Plot – 2437 – g Mode



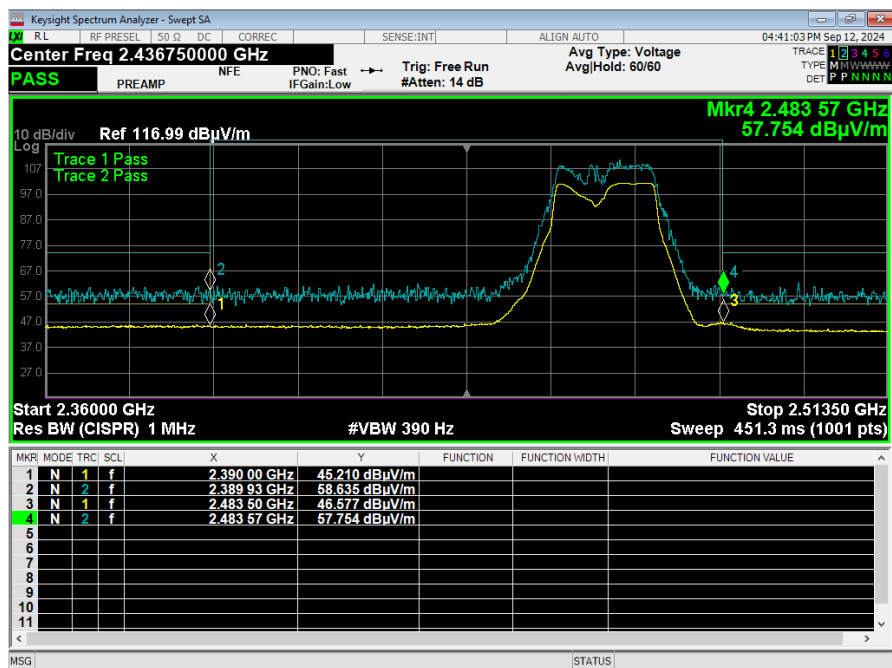
Graph 8: Upper Band Edge Plot – 2462 – g Mode



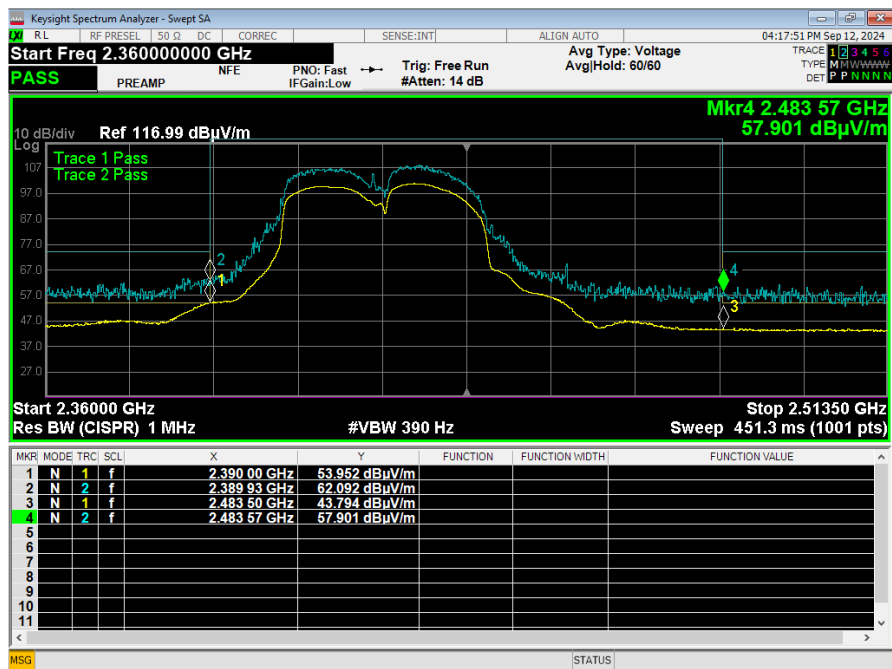
Graph 9: Lower Band Edge Plot – 2412 MHz – n20 Mode



Graph 10: Middle Band Edge Plot – 2437 – n20 Mode



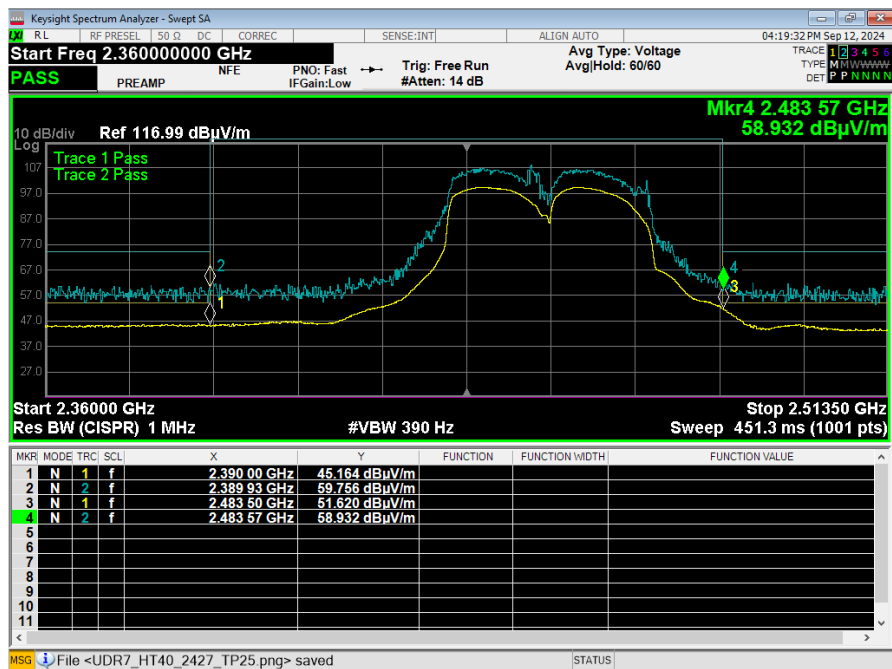
Graph 11: Upper Band Edge Plot – 2462 – n20 Mode



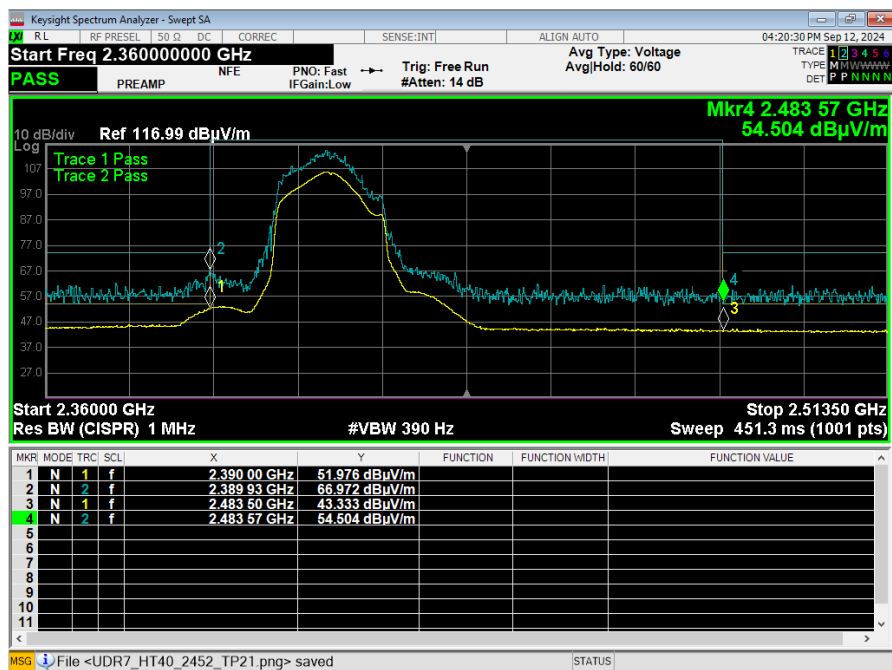
Graph 12: Lower Band Edge Plot – 2422 MHz – n40 Mode



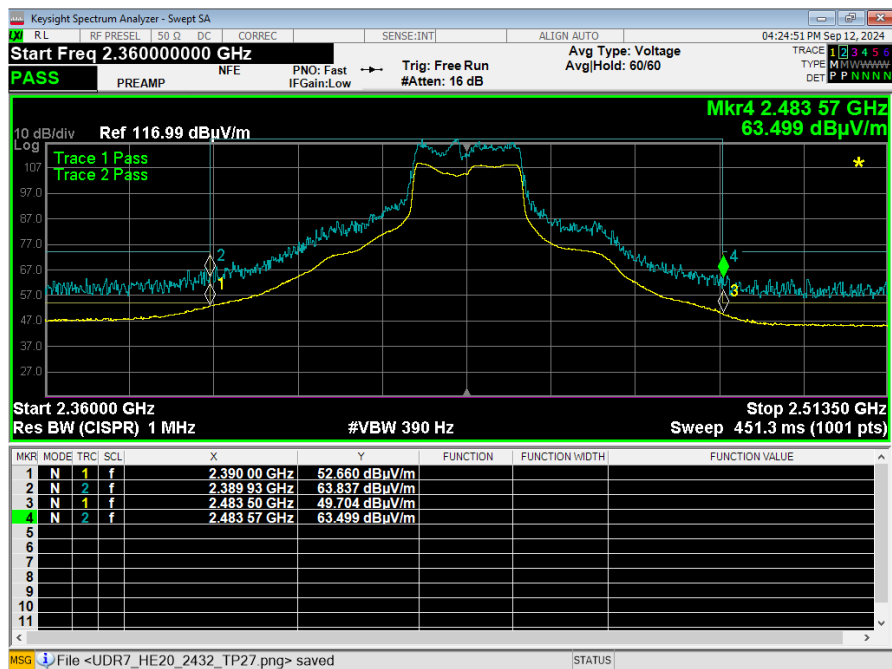
Graph 13: Middle Band Edge Plot – 2437 – n40 Mode



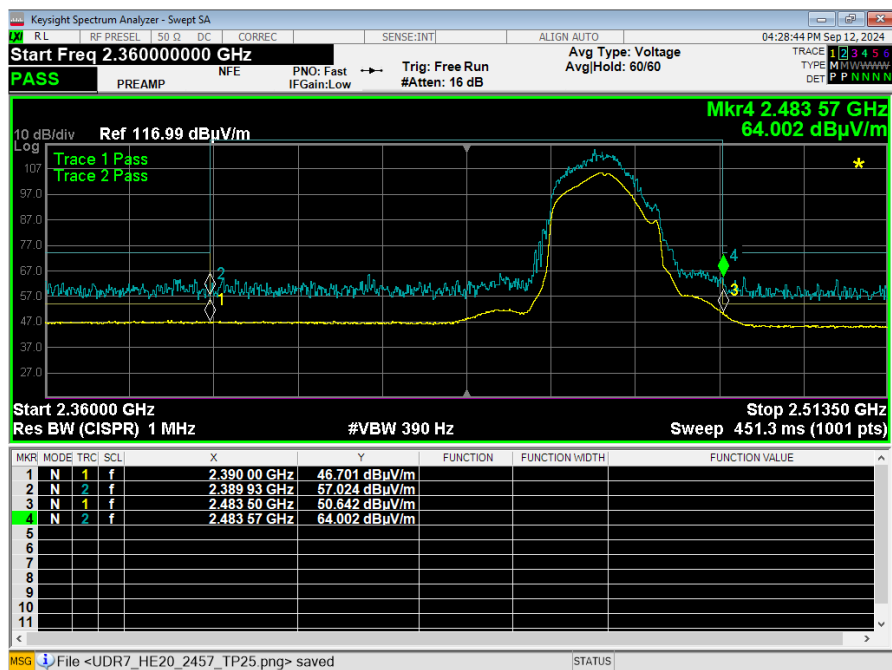
Graph 14: Upper Band Edge Plot – 2462 – n40 Mode



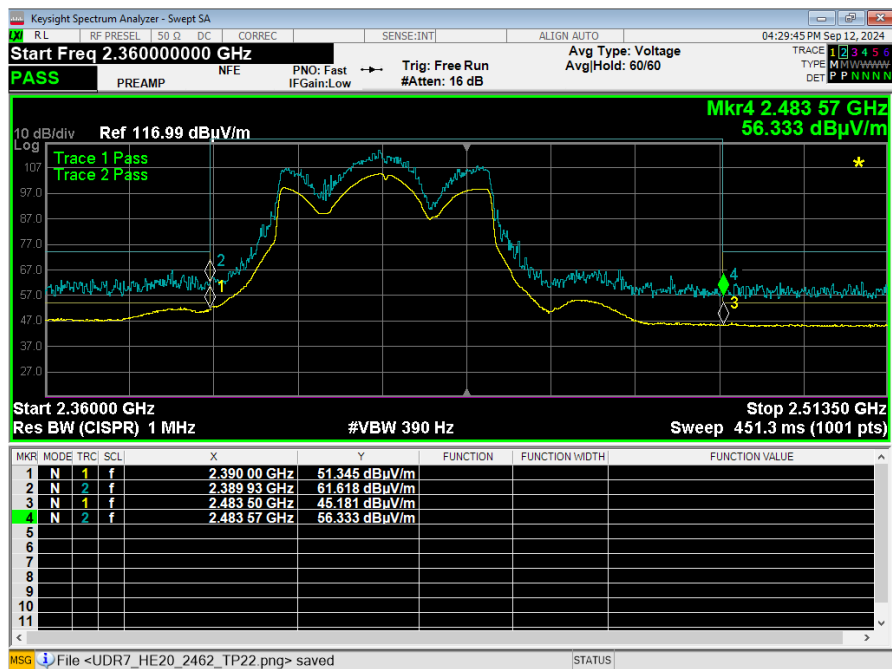
Graph 15: Lower Band Edge Plot – 2412 MHz – ax20 Mode



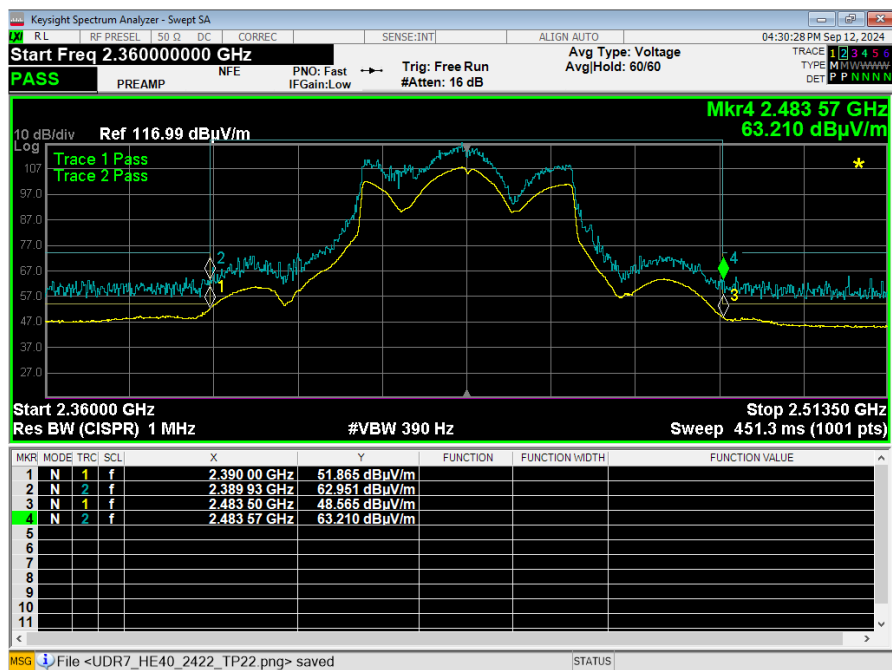
Graph 16: Middle Band Edge Plot – 2437 – ax20 Mode



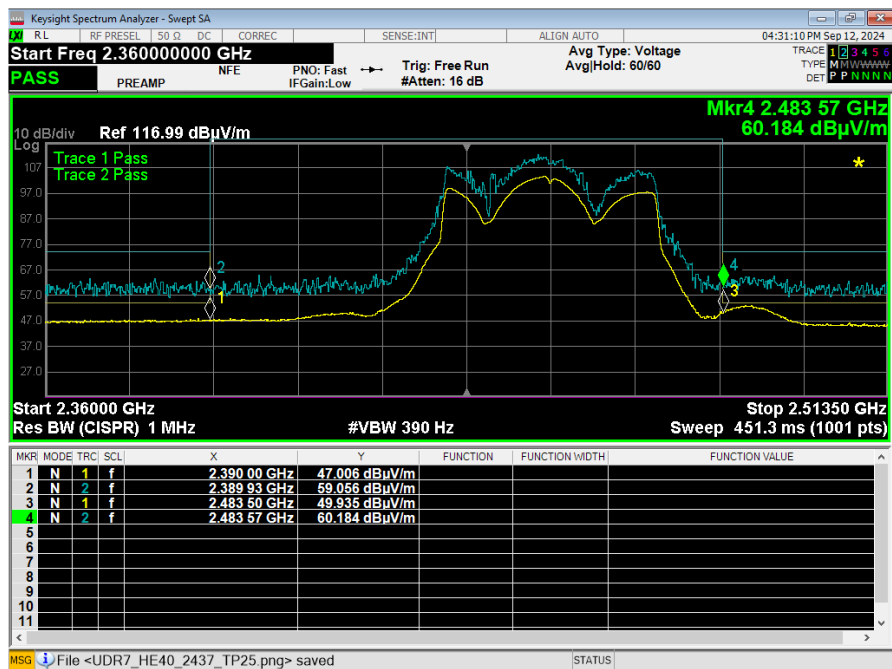
Graph 17: Upper Band Edge Plot – 2462 – ax20 Mode



Graph 18: Lower Band Edge Plot – 2422 MHz – ax20 Mode



Graph 19: Middle Band Edge Plot – 2437 – ax40 Mode



Graph 20: Upper Band Edge Plot – 2452 – ax40 Mode

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 662911 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 5 dBi + Array gain of 3.01 dB which is a total of 8.01 Bi.

Mode	Frequency (MHz)	Measurement (dBm)	Criteria (dBm)
b	2412	4.38	8.0
	2437	3.96	8.0
	2462	4.07	8.0
g	2412	-7.05	8.0
	2437	-0.07	8.0
	2462	-5.71	8.0
n 20	2412	-9.96	8.0
	2437	-4.99	8.0
	2462	-8.42	8.0
n 40	2422	-13.52	8.0
	2437	-9.43	8.0
	2452	-13.69	8.0
ax 20	2412	-11.40	8.0
	2437	-4.42	8.0
	2462	-10.08	8.0
ax 40	2422	-11.40	8.0
	2437	-8.76	8.0
	2452	-11.89	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 --