UNIFIED COMPLIANCE LABORATORY

427 West 12800 South
Draper, UT 84020

Test Report

Certification

FCC ID	SWX-UX
IC ID	6545A-UX
Equipment Under Test	UX
Test Report Serial Number	TR8072_01
Date of Test(s)	April 20 Through May 1, 2023
Report Issue Date	May 4, 2023

Test Specification	Applicant
47 CFR FCC Part 15, Subpart C RSS-GEN Issue 5	Ubiquiti Inc. 685 Third Avenue New York, NY 10017 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 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.

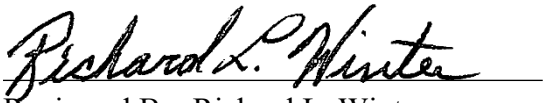
Applicant	Ubiquiti Inc.
Manufacturer	Ubiquiti Inc.
Brand Name	UBIQUITI
Model Number	UX
FCC ID	SWX-UX
IC ID	6545A-UX

On this 4th day of May 2023, 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: Clay Allred



Reviewed By: Richard L. Winter

Revision History		
Revision	**Description**	**Date**
01	Original Report Release	May 4, 2023

Table of Contents

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	UX
Serial Number	N/A
Dimensions (cm)	9.8 x 9.8 x 2.8

2.2 Description of EUT

The UX is a WiFi 6 access point designed for wide-ranging wireless coverage while maintain overall network capacity. The UX delivers and aggregate radio rate of up to 2.7 Gbps with 5 GHz (2x2) and 2.4 GHz (2x2) radios. The UX uses a sophisticated antenna design to offer excellent range. The UX has a Bluetooth management radio for easy in setup and administration of the wireless system. The UX is power from a USB C connector.

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: UX SN: N/A	Wireless Access Point	See Section 2.4
BN: UBIQUITI MN: GP-M015-QC SN: N/A	USB C Power Adapter	See Section 2.4
BN: Dell MN: XPS 13 SN: N/A	Laptop Personal Computer	LAN Port / 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 / USB-C	1	2 conductor power cord/80 cm
LAN	1	Un-shielded Cat 5e cable/5 meter
WAN	1	Un-shielded Cat 5e cable/5 meter

2.5 Operating Environment

Power Supply	120 VAC
AC Mains Frequency	60 Hz
Temperature	21.3 – 23.2 °C
Humidity	22.3 – 28.5 %
Barometric Pressure	1015 mBar

2.6 Operating Modes

The UX 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.

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

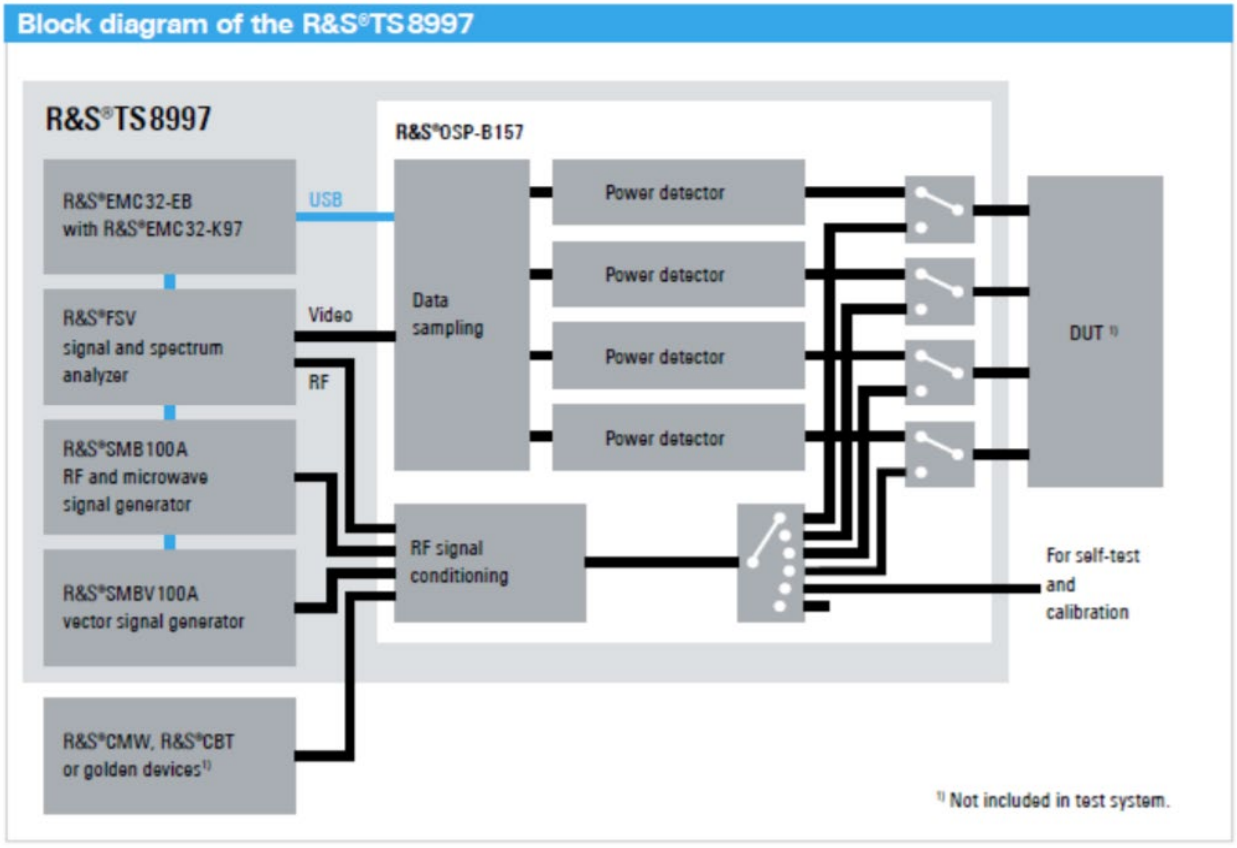


Diagram 1: Test Configuration Block Diagram

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 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 2023. 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 2023.

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	6/27/2022	6/27/2023
LISN	AFJ	LS16C/10	UCL-6749	12/6/2021	12/6/2023
ISN	Teseq	ISN T800	UCL-2974	6/27/2022	6/272023
LISN	Com-Power	LIN-120C	UCL-2612	1/24/2023	1/24/2024
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

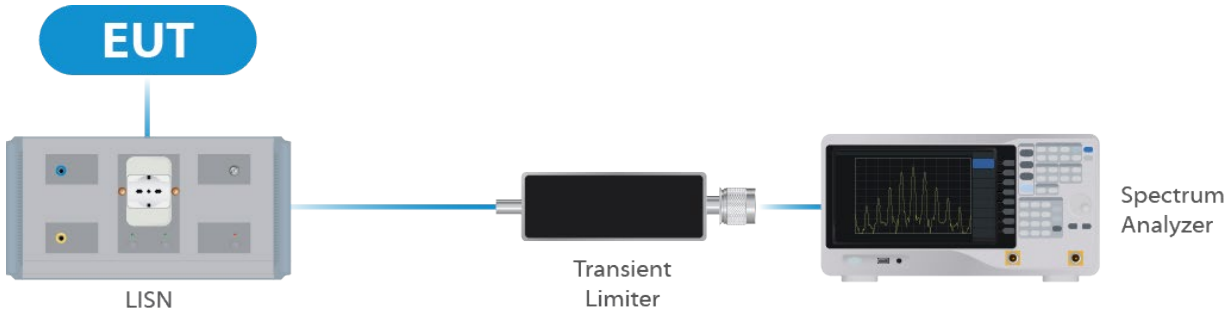


Figure 1: Conducted Emissions Test

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	11/7/2022	11/7/2023
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	2/22/2023	2/22/2024
Switch Extension	R&S	OSP-150W	UCL-2870	2/22/2023	2/22/2024

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

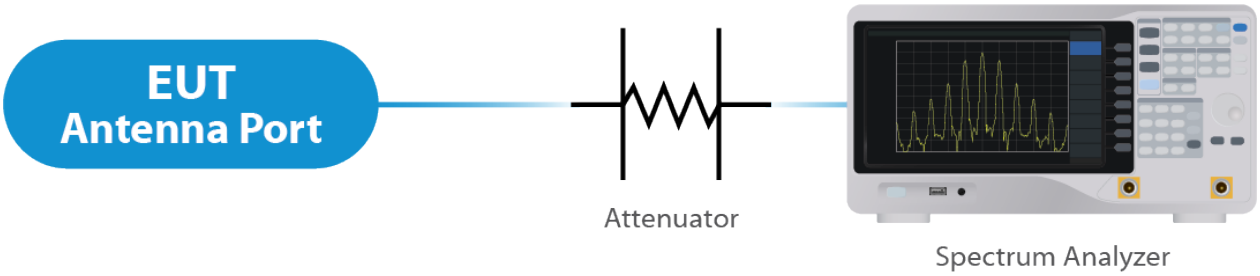


Figure 2: Direct Connect at the Antenna Port Test

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	1274/2023	1274/2024
Pre-Amplifier 9 kHz – 1 GHz	Sonoma Instruments	310N	UCL-2889	10/7/2021	10/7/2023
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	6/09/2022	6/09/2024
1 – 18 GHz Amplifier	Com-Power	PAM 118A	UCL-3833	12/9/2022	12/9/2023
Test Software	UCL	Revision 1	UCL-3108	N/A	N/A

Table 3: List of equipment used for Radiated Emissions

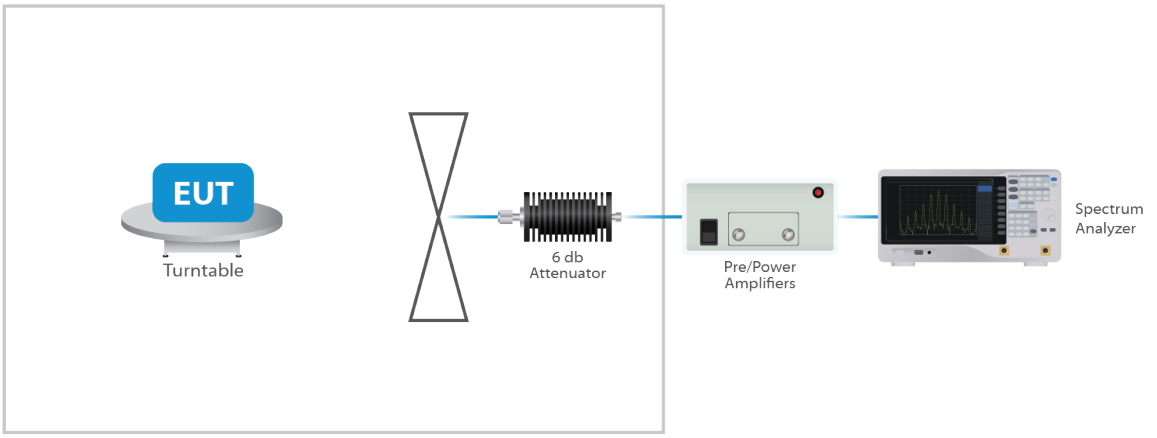


Figure 3: Radiated Emissions Test

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 (± 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. Per the manufacturer, the Maximum gain of the antenna is 3.5 dBi. This is an 802.11 device and utilizes CDD as described in KDB 662911 D01. The antenna is not user replaceable.

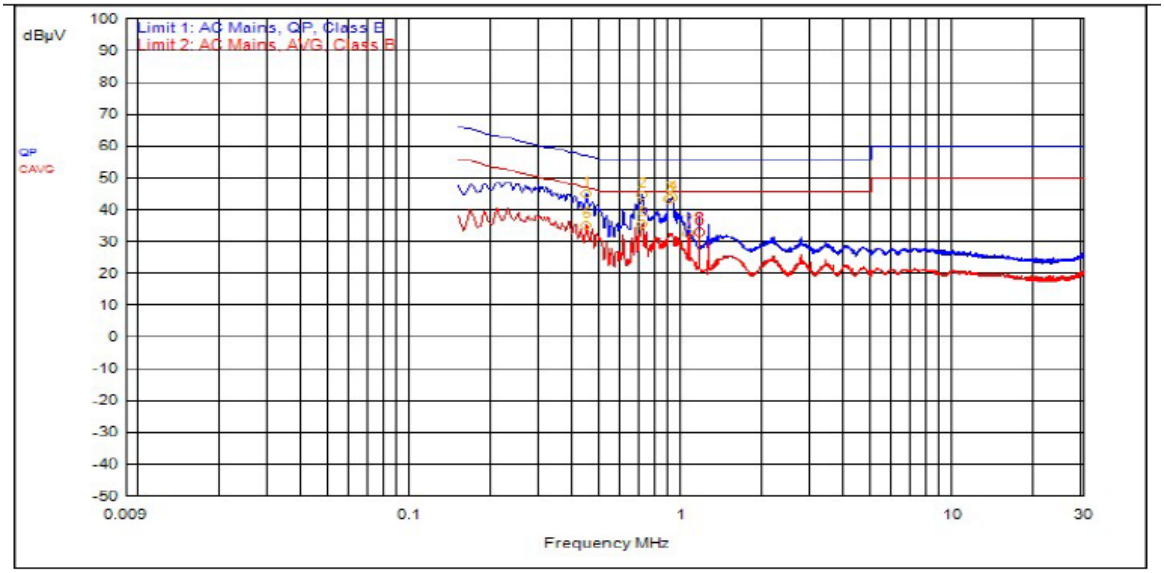
For power measurements on IEEE 802.11 devices, Array Gain = 0 dB for NANT ≤ 4;
For PSD measurements when Nss=1: Array Gain = 10 log(Nant/Nss) dB = 3.01dB; Direction gain = Ant Gain + Array Gain or 6.51dB (3.5 dBi + 3.01 dB)

Results

The EUT complied with the specification

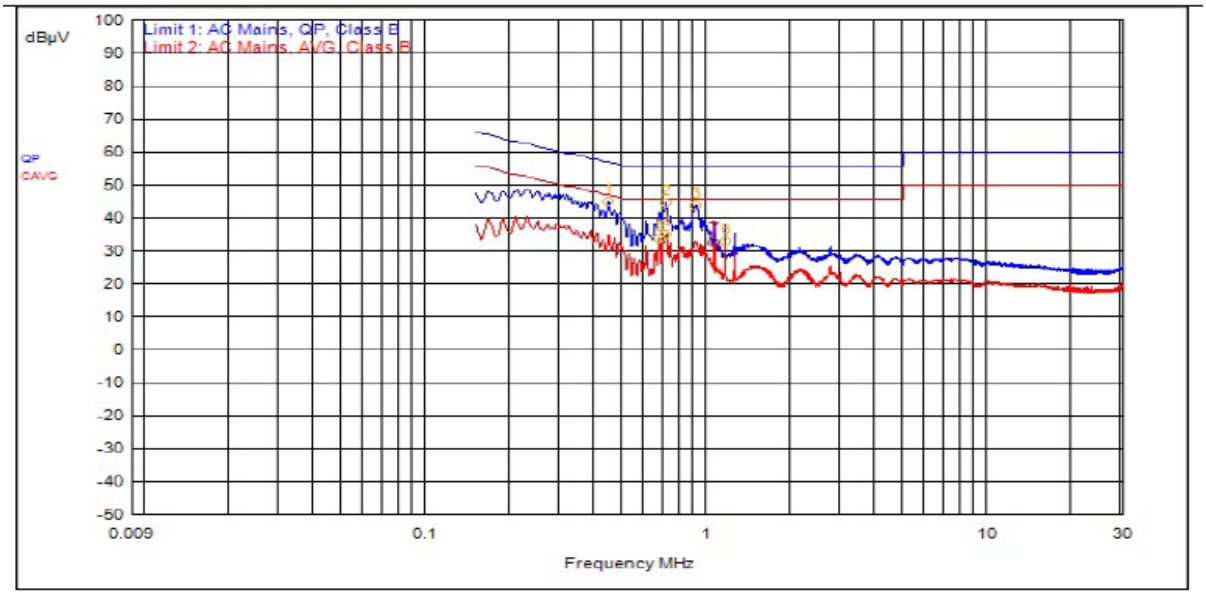
5.2 Conducted Emissions at Mains Ports Data

5.2.1 Line



ID	Frequency	Probe	Cable	Atten.	Detector	Meter Read	Meas Level	Limit 1	Limit 1 Dist.	Limit 2	Limit 2 Dist.
2	708,000kHz	12.4	0.0		QPeak	32.0	44.4	56.0	-11.6		
1	444,000kHz	12.4	0.0		QPeak	32.7	45.1	57.0	-11.9		
4	921,000kHz	12.4	0.1		QPeak	31.1	43.6	56.0	-12.4		
3	891,000kHz	12.4	0.1		QPeak	30.9	43.4	56.0	-12.6		
5	444,000kHz	12.4	0.0		C_AVG	22.8	35.2			47.0	-11.8
6	711,000kHz	12.4	0.0		C_AVG	22.9	35.3			46.0	-10.7
7	1.056MHz	12.4	0.1		C_AVG	20.2	32.7			46.0	-13.3
8	1.152MHz	12.4	0.1		C_AVG	20.3	32.8			46.0	-13.2

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	708,000kHz	12.4	0.0		QPeak	32.3	44.7	56.0	-11.3		
1	444,000kHz	12.4	0.0		QPeak	32.6	45.0	57.0	-12.0		
3	909,000kHz	12.4	0.1		QPeak	31.1	43.7	56.0	-12.3		
4	708,000kHz	12.4	0.0		C_AVG	22.8	35.2			46.0	-10.8
5	672,000kHz	12.4	0.0		C_AVG	21.3	33.8			46.0	-12.2
6	1.152MHz	12.4	0.1		C_AVG	20.3	32.8			46.0	-13.2
7	1.056MHz	12.4	0.1		C_AVG	20.1	32.6			46.0	-13.4

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	12.5	6.8
	2437	12.9	9.1
	2462	12.9	6.6
g	2412	16.3	16.4
	2437	16.3	15.9
	2462	16.3	12.7
n 20	2412	17.5	16.9
	2437	17.6	17.3
	2462	17.5	17.7
n 40	2422	35.8	34.8
	2437	36.0	35.7
	2452	35.8	33.3
ax 20	2412	18.9	17.2
	2437	18.8	18.8
	2462	18.9	16.6
ax 40	2422	37.8	37.0
	2437	37.8	35.5
	2452	37.5	31.6

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

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 24.73 dBm or 297.2 mW. The limit is 30 dBm or 1 Watt when using antennas with 6 dBi or less gain. The antenna has a gain of 3.5 dBi.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power *	Measured EIRP
b 20	2412	Mcs0	42	23.36	26.86
	2417	Mcs0	43	23.72	27.22
	2422	Mcs0	43	23.62	27.12
	2427	Mcs0	44	24.02	27.52
	2432	Mcs0	44	24.14	27.64
	2437	Mcs0	45	24.73	28.23
	2442	Mcs0	45	24.53	28.03
	2447	Mcs0	44	24.14	27.64
	2452	Mcs0	44	24.13	27.63
	2457	Mcs0	44	24.10	27.60
	2462	Mcs0	42	23.00	26.50
g 20	2412	Mcs0	31	18.33	21.83
	2417	Mcs0	35	20.17	23.67
	2422	Mcs0	36	20.67	24.17
	2427	Mcs0	37	21.04	24.54
	2432	Mcs0	38	21.39	24.89
	2437	Mcs0	38	21.49	24.99
	2442	Mcs0	37	21.17	24.67
	2447	Mcs0	37	21.29	24.79
	2452	Mcs0	37	21.31	24.81
	2457	Mcs0	36	20.83	24.33
	2462	Mcs0	35	20.37	23.87
n 20	2412	Mcs0	35	19.53	23.03
	2417	Mcs0	38	20.82	24.32
	2422	Mcs0	39	21.18	24.68
	2427	Mcs0	40	21.68	25.18
	2432	Mcs0	40	21.70	25.20

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power *	Measured EIRP
	2437	Mcs0	41	22.31	25.81
	2442	Mcs0	41	22.43	25.93
	2447	Mcs0	40	22.07	25.57
	2452	Mcs0	40	22.09	25.59
	2457	Mcs0	38	21.13	24.63
	2462	Mcs0	36	19.99	23.49
n 40	2422	Mcs0	32	18.21	21.71
	2437	Mcs0	34	19.42	22.92
	2452	Mcs0	31	18.02	21.52
ax 20	2412	Mcs0	33	18.72	22.22
	2417	Mcs0	36	20.01	23.51
	2422	Mcs0	37	20.41	23.91
	2427	Mcs0	38	20.84	24.34
	2432	Mcs0	39	21.39	24.89
	2437	Mcs0	39	21.45	24.95
	2442	Mcs0	39	21.55	25.05
	2447	Mcs0	38	21.18	24.68
	2452	Mcs0	38	21.26	24.76
	2457	Mcs0	37	20.78	24.28
	2462	Mcs0	34	19.27	22.77
ax 40	2422	Mcs0	32	17.92	21.42
	2437	Mcs0	33	18.63	22.13
	2452	Mcs0	31	17.74	21.24

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

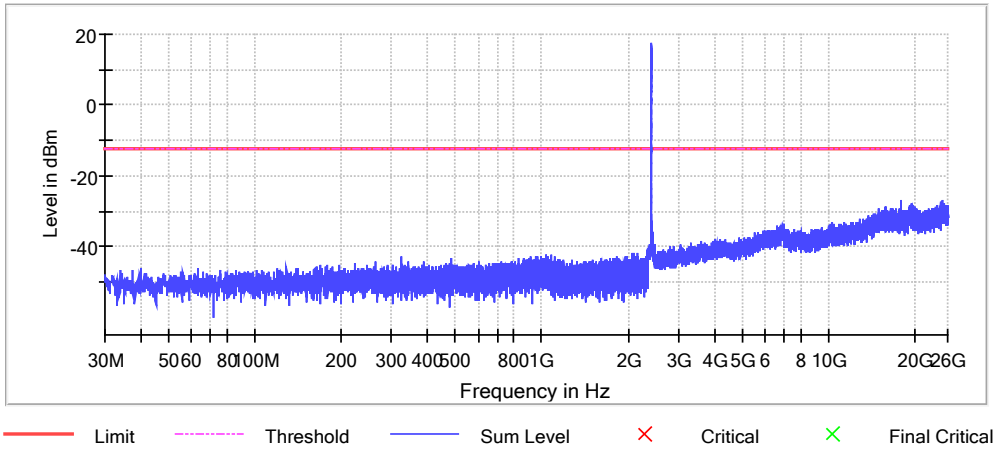
5.5.1 Conducted Spurious Emissions

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. See the plot(s) in the Annex of the EUT tuned to the upper and lower channels. These demonstrate compliance with the provisions of this section at the band edges.

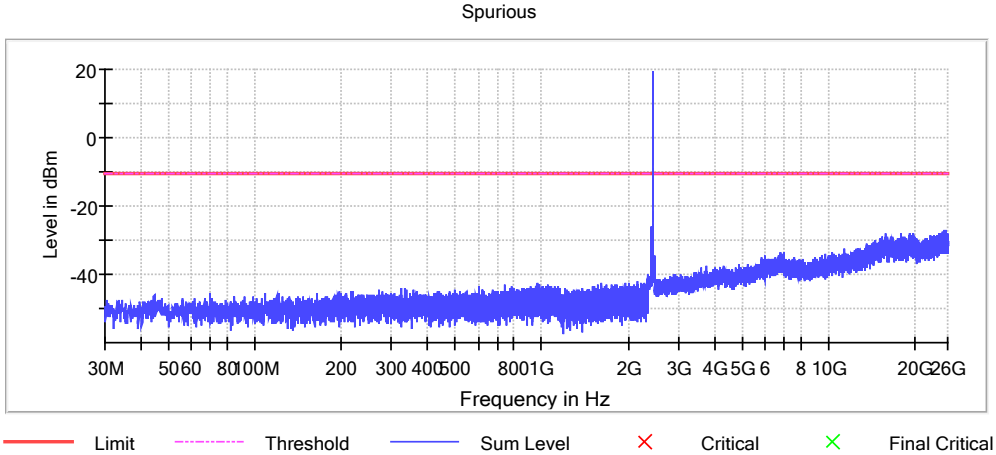
The emissions must be attenuated 30 dB below the highest power spectral density level measured within the authorized band as measured with a 100 kHz RBW.

Result

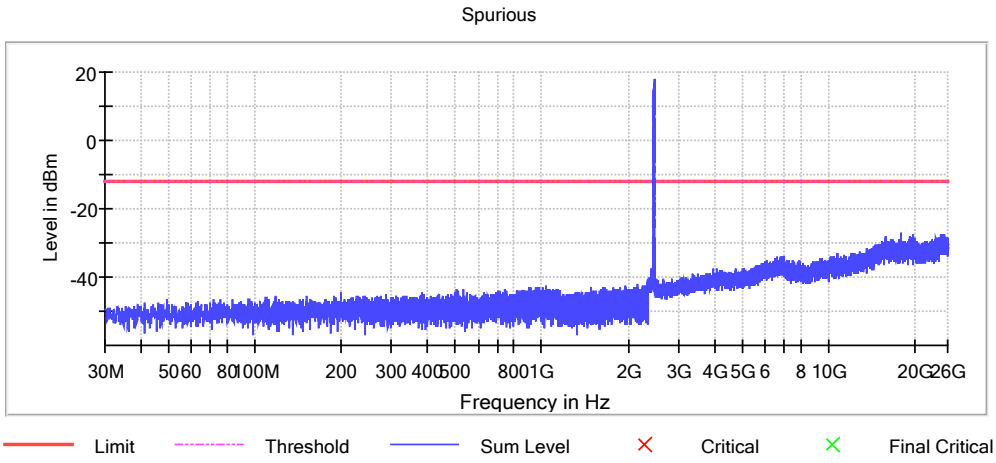
Conducted spurious emissions were attenuated 30 dB or more below the fundamental; therefore, the EUT complies with the specification.



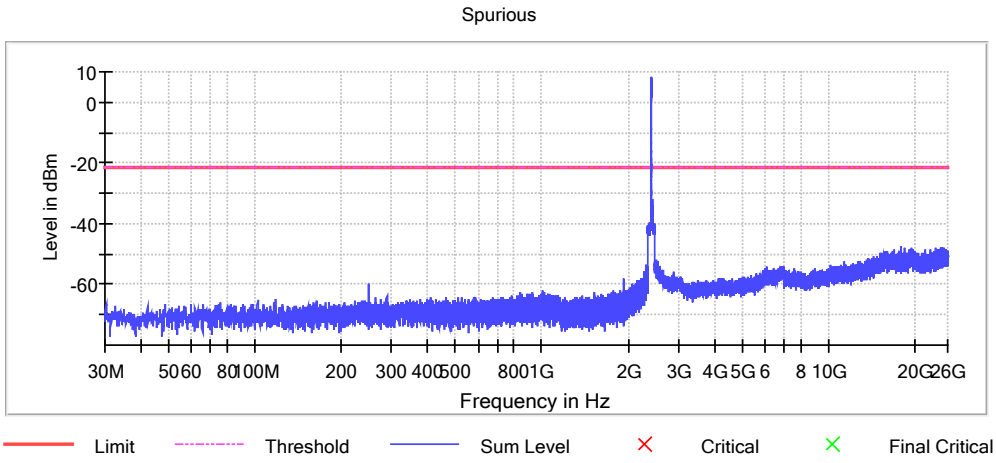
Graph 1: B- Mode 20MHz Lower Conducted Spurious Plot



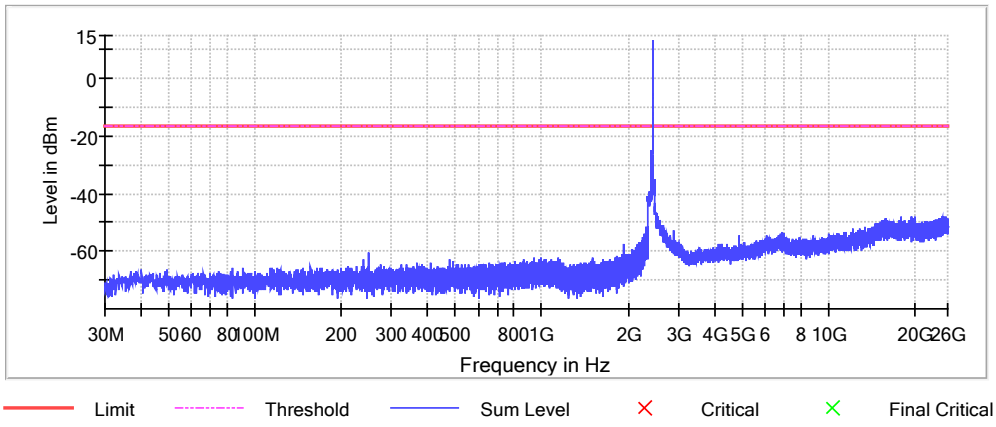
Graph 2: B- Mode 20MHz Middle Conducted Spurious Plot



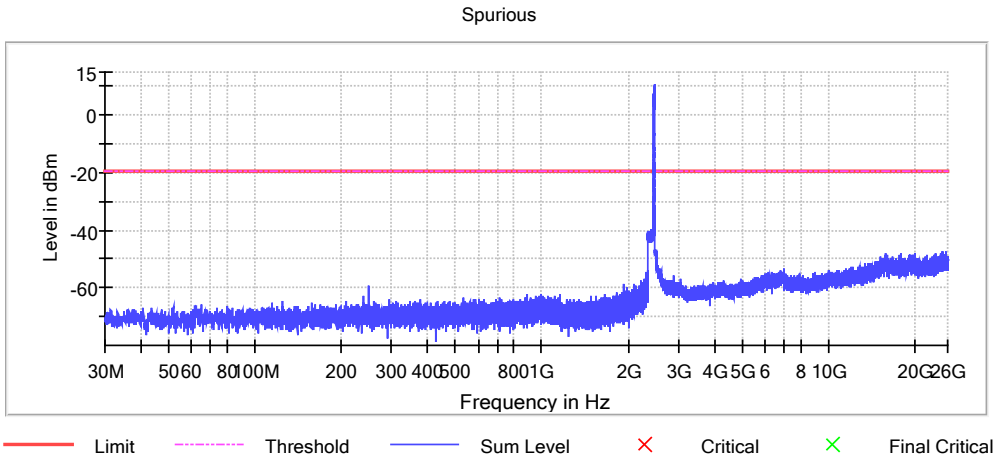
Graph 3: B- Mode 20MHz Upper Conducted Spurious Plot



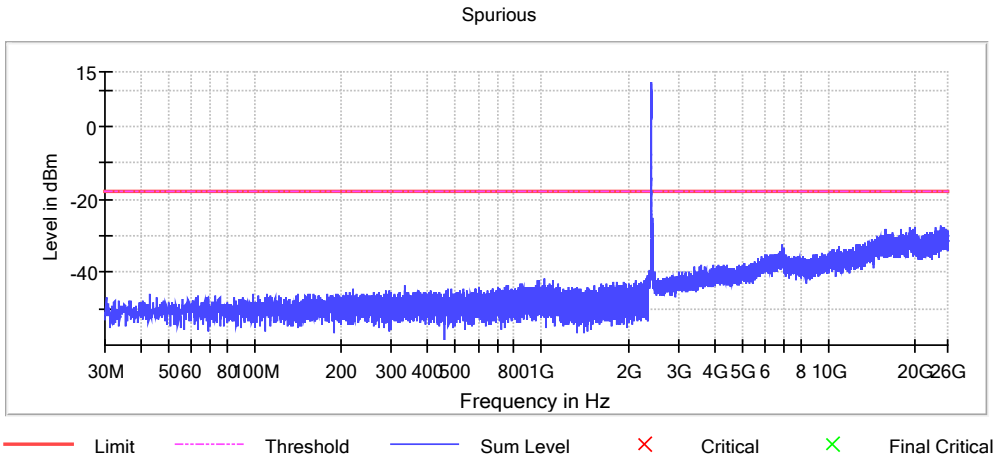
Graph 4: G- Mode 20MHz Lower Conducted Spurious Plot



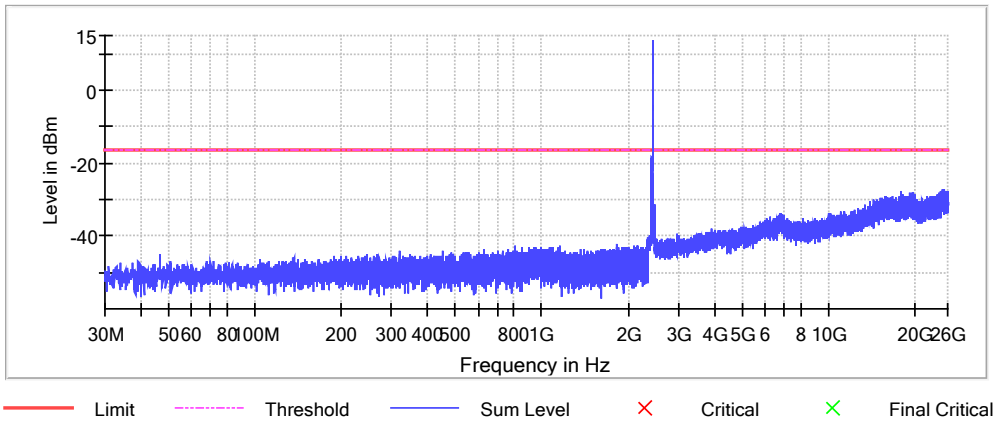
Graph 5: G- Mode 20MHz Middle Conducted Spurious Plot



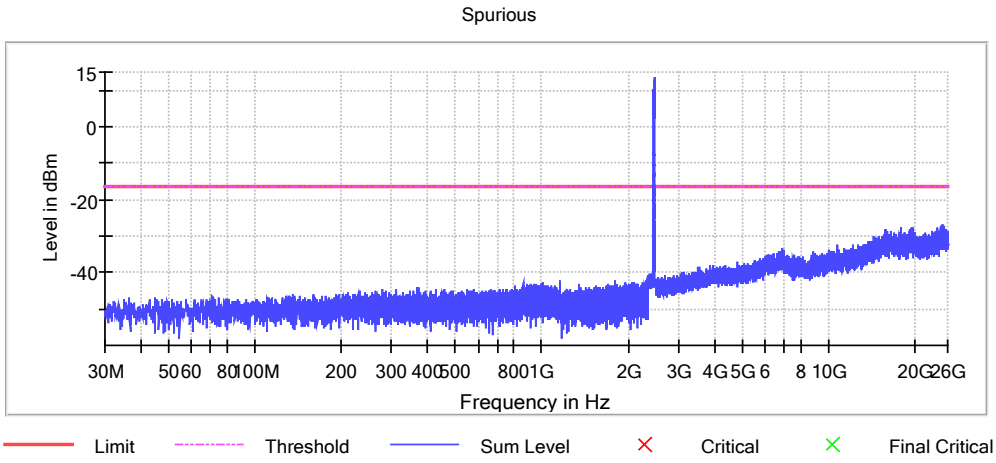
Graph 6: G- Mode 20MHz Upper Conducted Spurious Plot



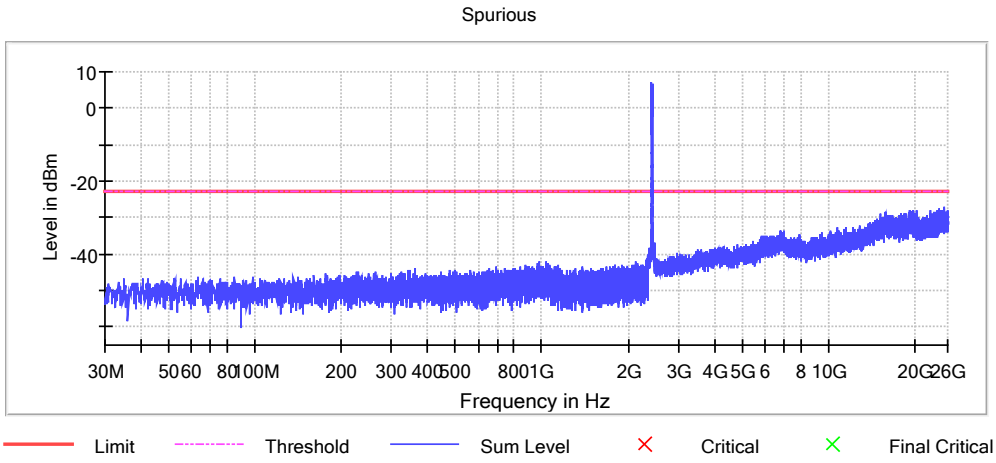
Graph 7: N- Mode 20MHz Lower Conducted Spurious Plot



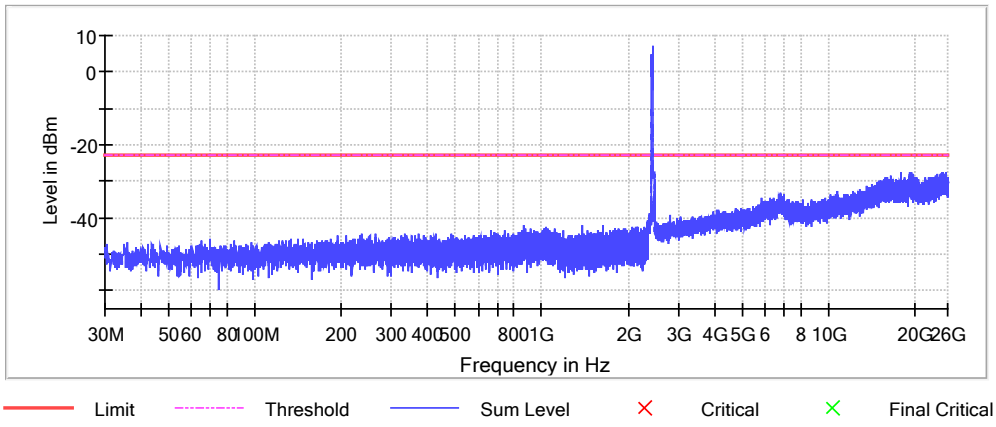
Graph 8: N- Mode 20MHz Middle Conducted Spurious Plot



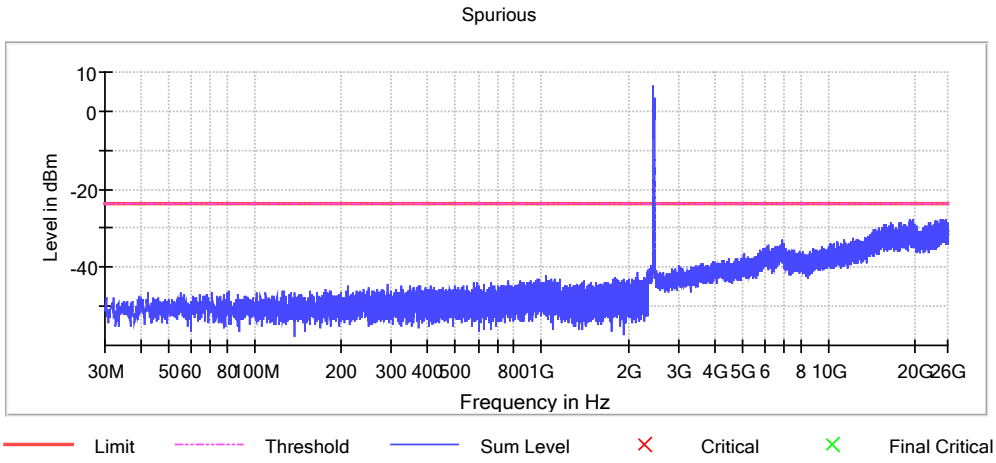
Graph 9: N- Mode 20MHz Upper Conducted Spurious Plot



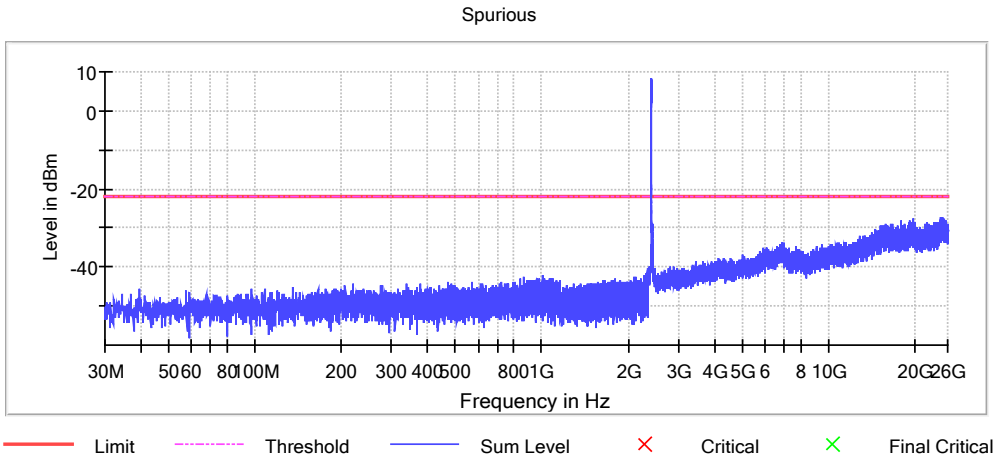
Graph 10: N- Mode 40MHz Lower Conducted Spurious Plot



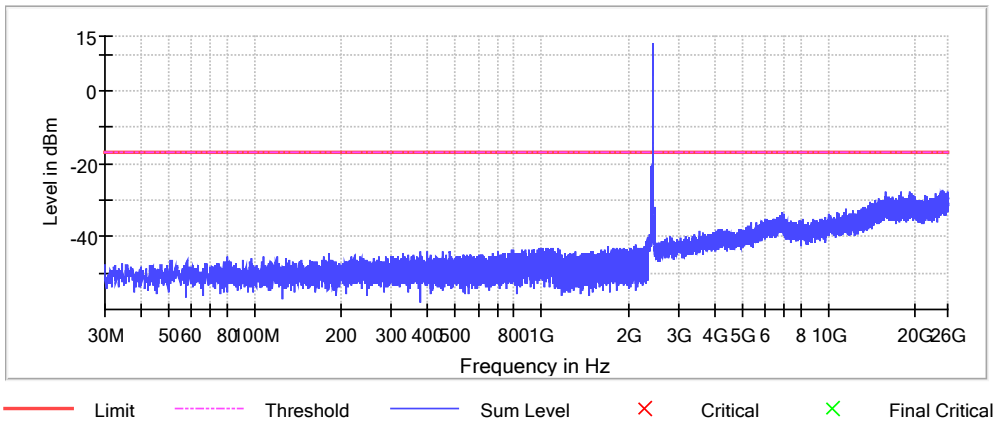
Graph 11: N- Mode 40MHz Middle Conducted Spurious Plot



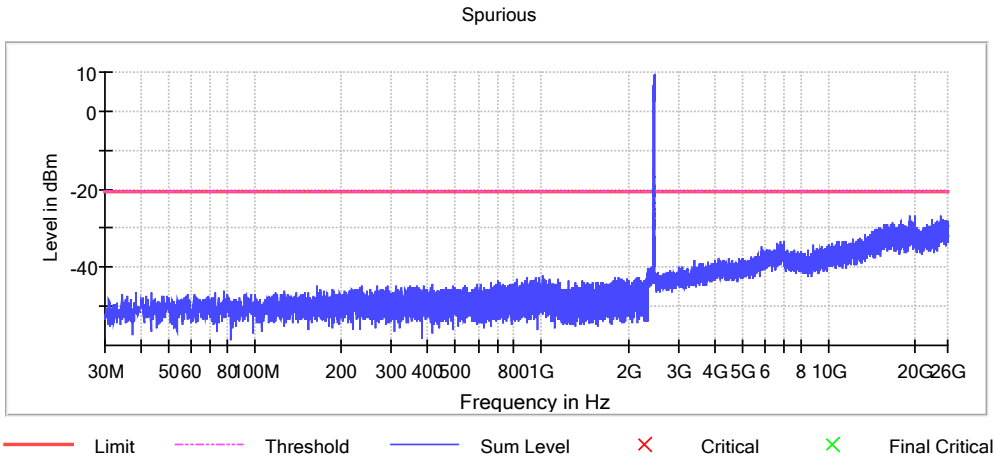
Graph 12: N- Mode 40MHz Upper Conducted Spurious Plot



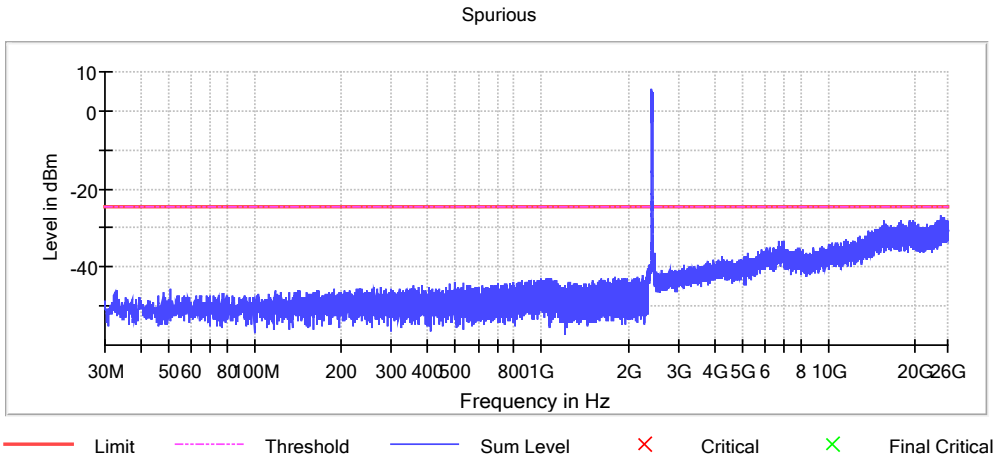
Graph 13: AX- z Mode 20MHz Lower Conducted Spurious Plot



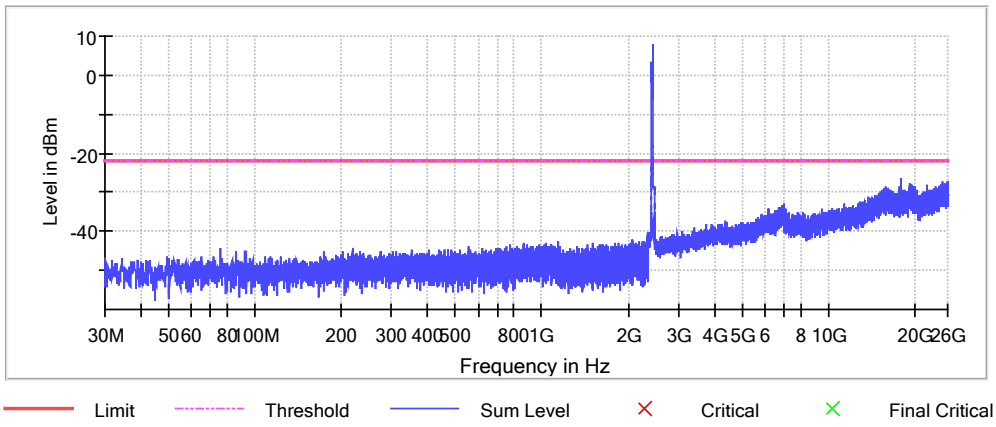
Graph 14: N- Mode 20MHz Middle Conducted Spurious Plot



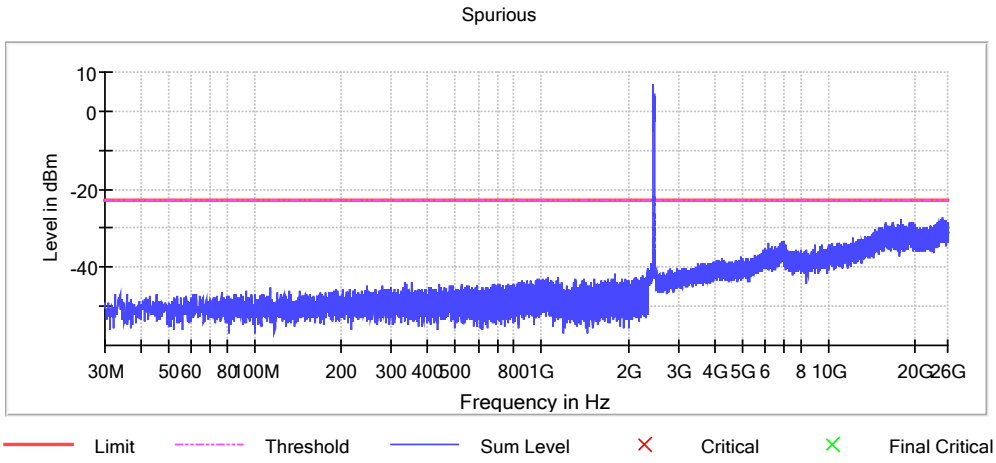
Graph 15: AX- Mode 20MHz Upper Conducted Spurious Plot



Graph 16: AX- Mode 40MHz Lower Conducted Spurious Plot

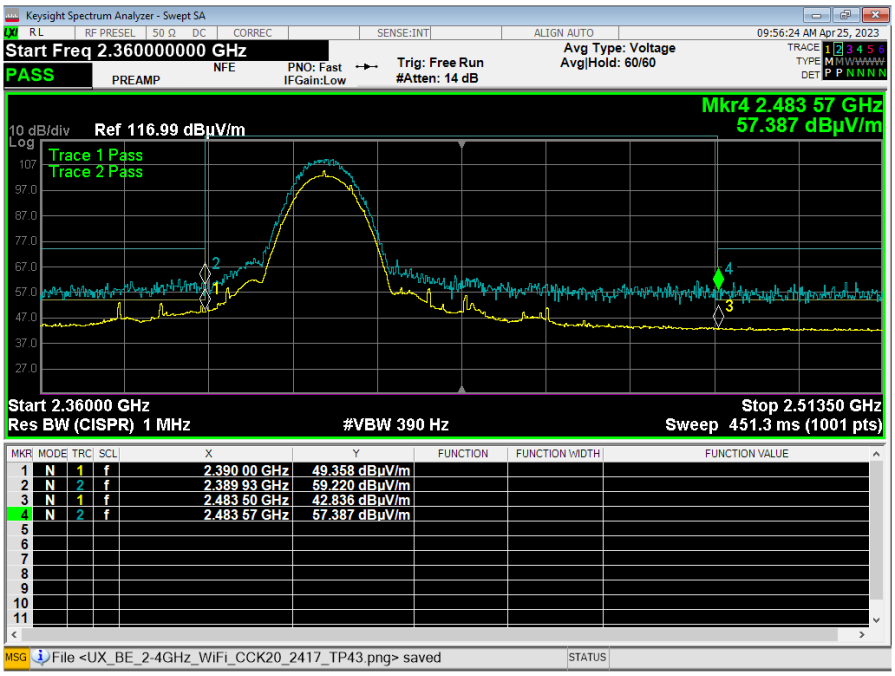


Graph 17: N- Mode 40MHz Middle Conducted Spurious Plot

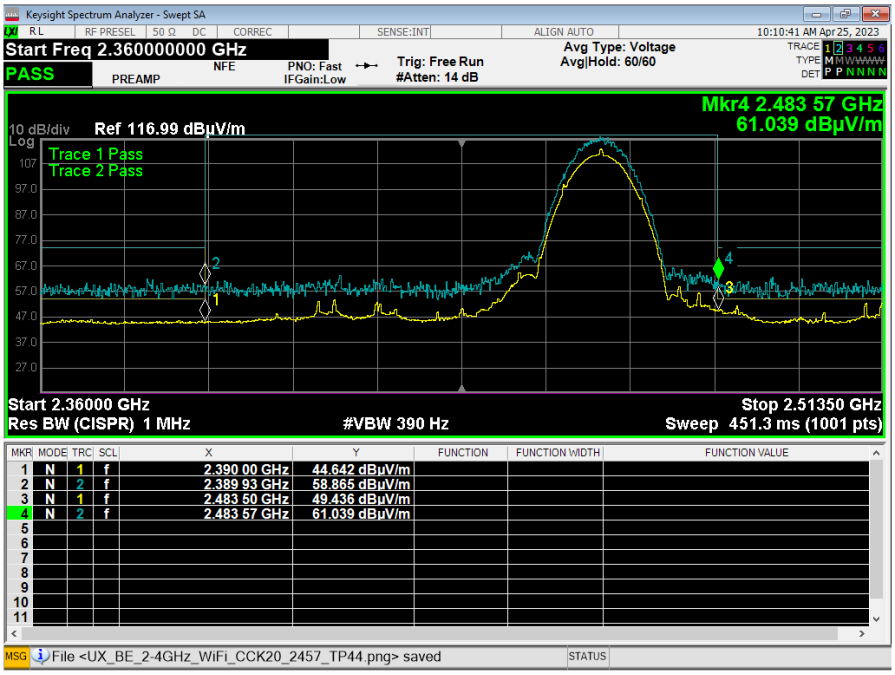


Graph 18: AX- Mode 40MHz Upper Conducted Spurious Plot

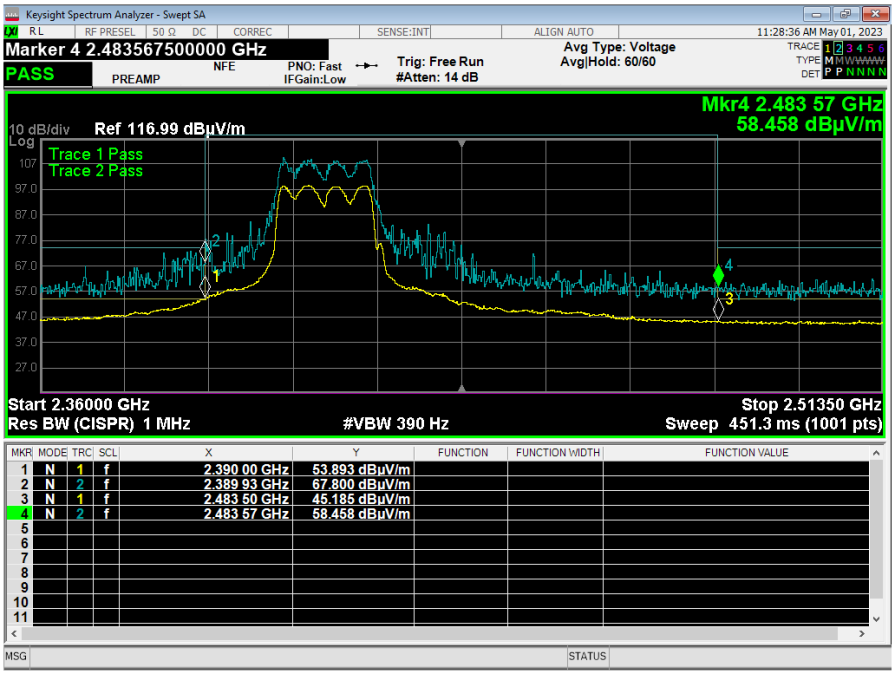
5.5.2 Band Edge



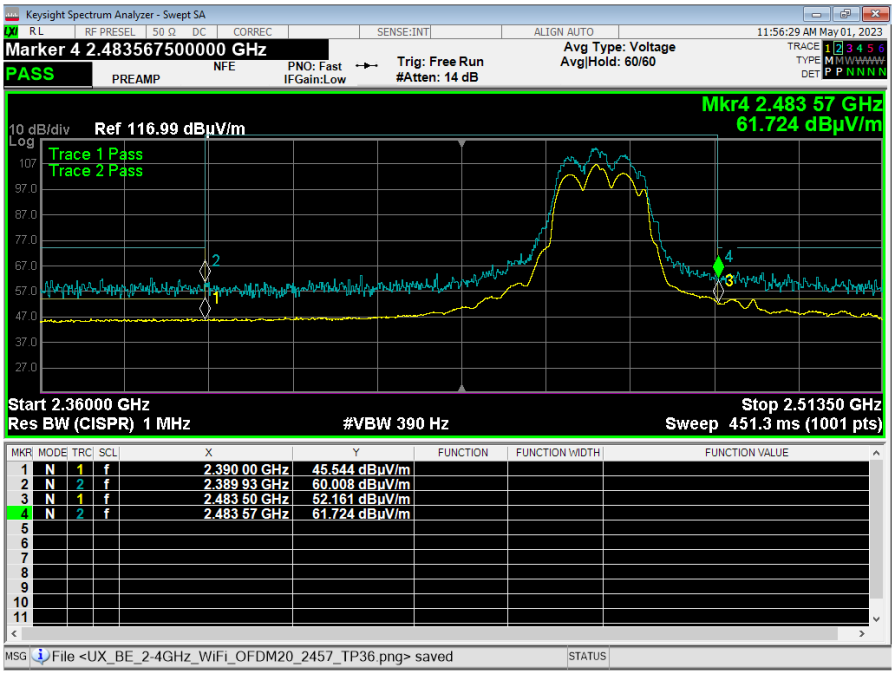
Graph 19: B- Mode 20MHz Lower Band Edge Plot



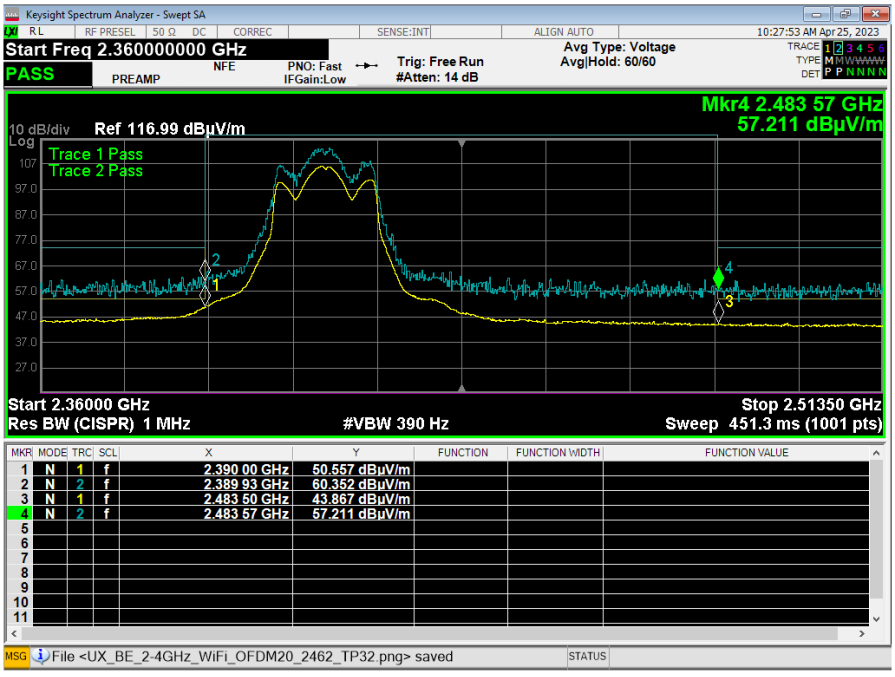
Graph 20: B- Mode 20MHz Upper Band Edge Plot



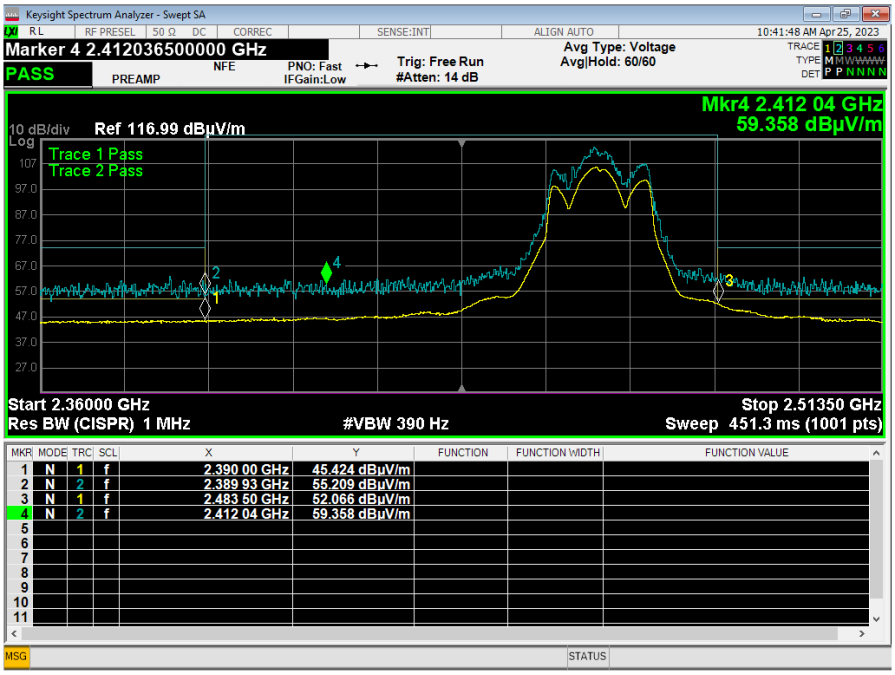
Graph 21: G- Mode 20MHz Lower Band Edge Plot



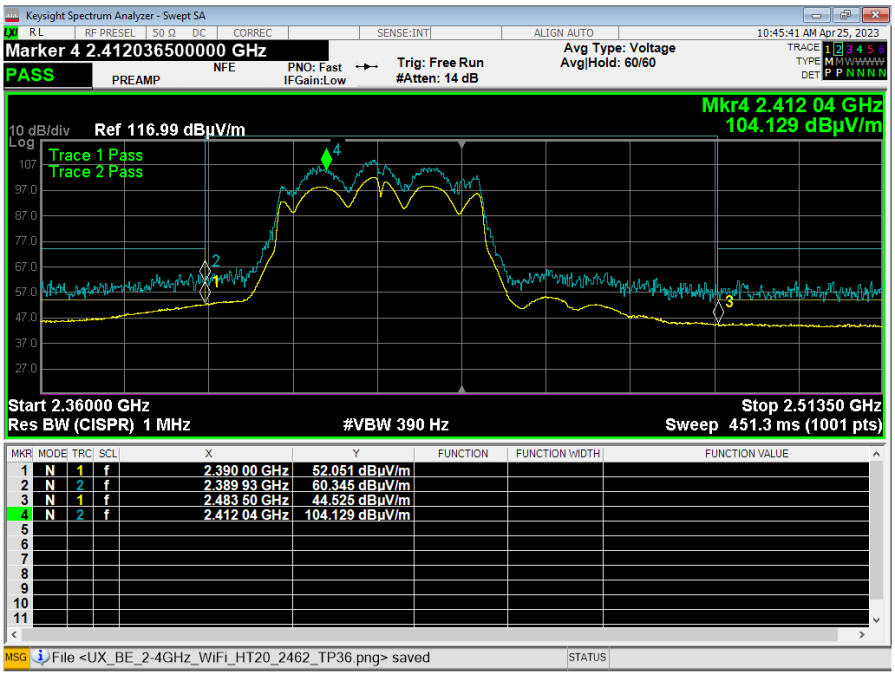
Graph 22: G- Mode 20MHz Upper Band Edge Plot



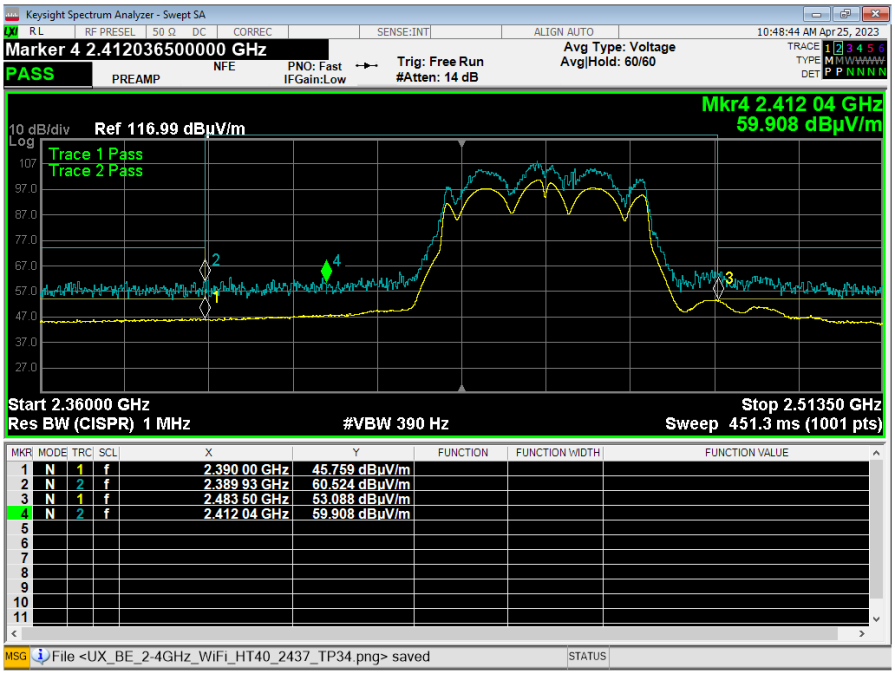
Graph 23: N- Mode 20MHz Lower Band Edge Plot



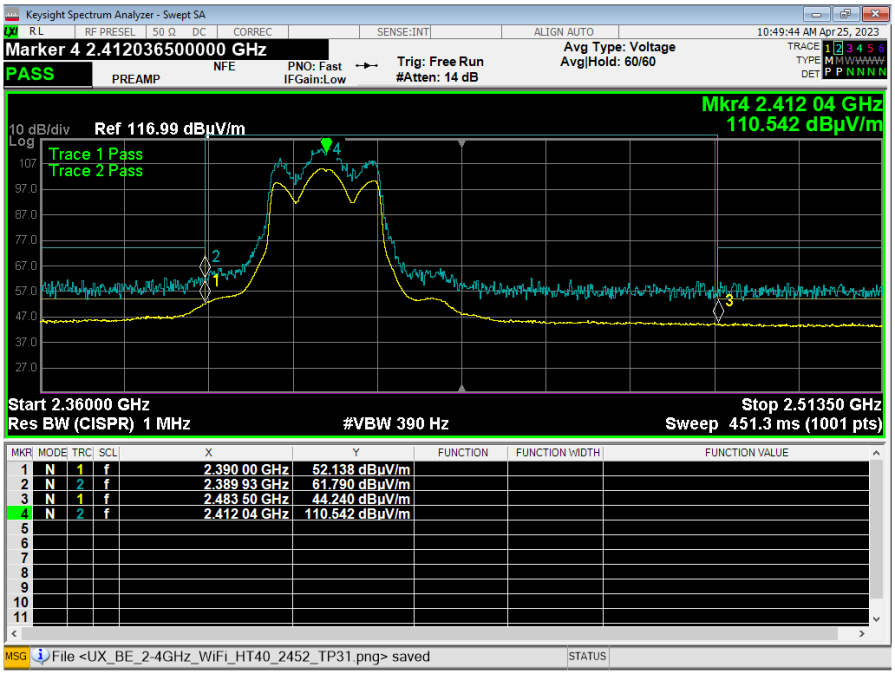
Graph 24: N- Mode 20MHz Upper Band Edge Plot



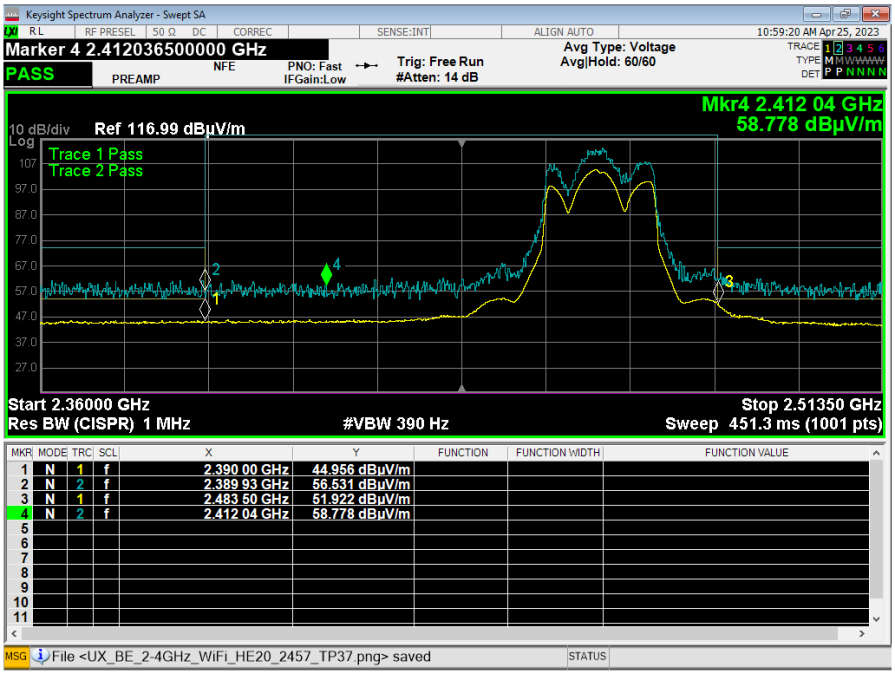
Graph 25: N- Mode 40MHz Lower Band Edge Plot



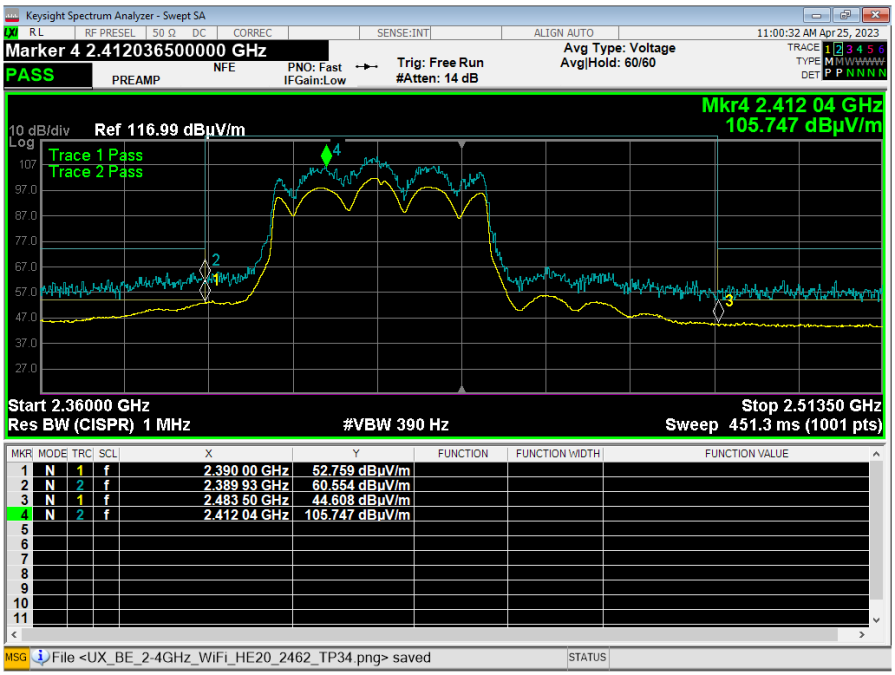
Graph 26: N- Mode 40MHz Upper Band Edge Plot



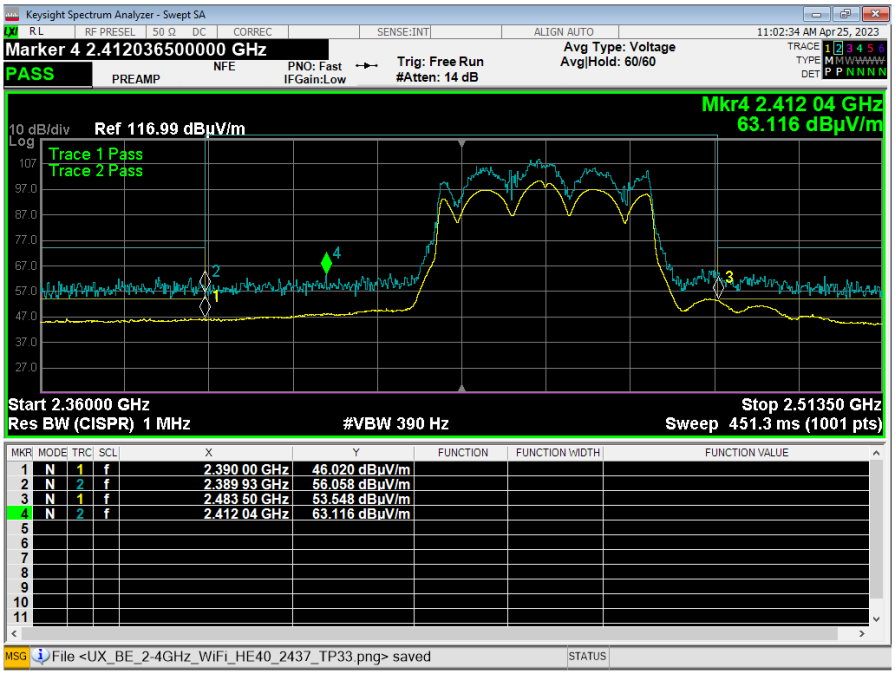
Graph 27: AX- Mode 20MHz Lower Band Edge Plot



Graph 28: AX- Mode 20MHz Upper Band Edge Plot



Graph 29: AX- Mode 40MHz Lower Band Edge Plot



Graph 30: AX- Mode 40MHz Upper Band Edge Plot

5.5.3 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.

Frequency	Det.	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
2.2466 GHz	PK	56.945	74	-17.055	334	3.613	Vertical	1 MHz	-5.975
7.1901 GHz	PK	52.755	74	-21.245	246	3.107	Vertical	1 MHz	9.201
2.2466 GHz	AV	32.681	54	-21.319	334	3.613	Vertical	1 MHz	-5.975
7.1901 GHz	AV	33.334	54	-20.666	246	3.107	Vertical	1 MHz	9.201
2.2401 GHz	PK	56.739	74	-17.261	198	2.758	Horizontal	1 MHz	-5.921
7.2048 GHz	PK	51.508	74	-22.492	47	3.61	Horizontal	1 MHz	9.282
2.2401 GHz	AV	31.572	54	-22.428	198	2.758	Horizontal	1 MHz	-5.921
7.2048 GHz	AV	34.453	54	-19.547	47	3.61	Horizontal	1 MHz	9.282

Table 4: Transmitting at the Lowest Frequency

Frequency	Det.	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
2.2527 GHz	PK	54.222	74	-19.778	242	2.932	Vertical	1 MHz	-6.004
4.8535 GHz	PK	44.484	74	-29.516	27	2.893	Vertical	1 MHz	1.993
7.2802 GHz	PK	51.057	74	-22.943	30	2.709	Vertical	1 MHz	9.289
2.2527 GHz	AV	29.941	54	-24.059	242	2.932	Vertical	1 MHz	-6.004
4.8535 GHz	AV	27.659	54	-26.341	27	2.893	Vertical	1 MHz	1.993
7.2802 GHz	AV	33.343	54	-20.657	30	2.709	Vertical	1 MHz	9.289
2.269 GHz	PK	49.957	74	-24.043	201	2.758	Horizontal	1 MHz	-6.007
7.2856 GHz	PK	52.368	74	-21.632	102	3.461	Horizontal	1 MHz	9.266
11.892 GHz	PK	53.378	74	-20.622	30	3.632	Horizontal	1 MHz	14.777
2.269 GHz	AV	27.42	54	-26.58	201	2.758	Horizontal	1 MHz	-6.007
7.2856 GHz	AV	34.884	54	-19.116	102	3.461	Horizontal	1 MHz	9.266
11.892 GHz	AV	35.56	54	-18.44	30	3.632	Horizontal	1 MHz	14.777

Table 5:Transmitting at the Middle Frequency

Frequency	Det.	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	RBW (Hz)	Correction (dB)
2.2312 GHz	PK	52.017	74	-21.983	244	2.707	Vertical	1 MHz	-5.852
7.3529 GHz	PK	51.823	74	-22.177	67	3.789	Vertical	1 MHz	8.647
2.2312 GHz	AV	29.45	54	-24.55	244	2.707	Vertical	1 MHz	-5.852
7.3529 GHz	AV	34.492	54	-19.508	67	3.789	Vertical	1 MHz	8.647
2.2507 GHz	PK	50.356	74	-23.644	188	3.633	Horizontal	1 MHz	-6.004
7.3586 GHz	PK	49.161	74	-24.839	26	3.283	Horizontal	1 MHz	8.563
12.126 GHz	PK	51.584	74	-22.416	2	1.527	Horizontal	1 MHz	13.474
2.2507 GHz	AV	28.186	54	-25.814	188	3.633	Horizontal	1 MHz	-6.004
7.3586 GHz	AV	32.22	54	-21.78	26	3.283	Horizontal	1 MHz	8.563
12.126 GHz	AV	35.019	54	-18.981	2	1.527	Horizontal	1 MHz	13.474

Table 6: Transmitting at the Highest Frequency

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. However as per KDB 662911, when the EUT uses Nss=1 data rates, the antenna gain is 3.5 dBi + Array gain of 3.01 dB which is a total of 3.51 dBi. Therefore, the limit was adjusted as follows: PSD Limit = 8 – (6.51 – 6) = 7.49.

Mode	Frequency (MHz)	Measurement (dBm)	Criteria (dBm)
b	2412	-4.17	7.49
	2437	-1.44	7.49
	2462	-5.81	7.49
g	2412	-13.98	7.49
	2437	-10.70	7.49
	2462	-11.88	7.49
n 20	2412	-13.87	7.49
	2437	-11.19	7.49
	2462	-13.50	7.49
n 40	2422	-18.31	7.49
	2437	-17.07	7.49
	2452	-18.42	7.49
ax 20	2412	-16.08	7.49
	2437	-13.73	7.49
	2462	-15.15	7.49
ax 40	2422	-19.58	7.49
	2437	-18.94	7.49
	2452	-19.90	7.49

Please see associated annex for Plots and details on instrument settings.

Result

The maximum average power spectral density was less than the limit of 7.49 dBm; therefore, the EUT complies with the specification.

-- End of Test Report --