



427 West 12800 South
Draper, UT 84020

Test Report Certification

FCC ID	SWX-E7
IC ID	6545A-E7
Equipment Under Test	E7
Test Report Serial Number	TR9073_02
Date of Test(s)	22 – 23 February and 9, 24 – 26 April 2024
Report Issue Date	30 September 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

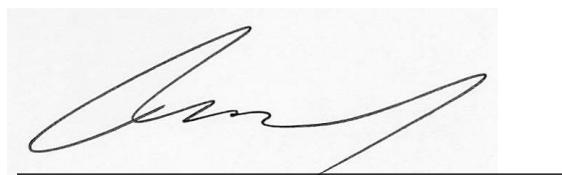
This report has been prepared by Unified Compliance Laboratory (UCL) to document compliance of the device described below with the requirement of Federal Communication Commissions (FCC) Part 15, Subpart C. This report may be reproduced in full. Partial reproduction of this report may only be made with 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	E7
FCC ID	SWX-E7
IC ID	6545A-E7

On this 30th day of September 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: Clay Allred



Reviewed By: Richard L. Winter

Revision History		
Revision	Description	Date
01	Original Report Release	24 June 2024
02	Added clarification to PSD limits	30 September 2024

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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	E7
Serial Number	CEC
Dimensions (cm)	25.0 x 25.0 x 4.4

2.2 Description of EUT

The E7 is a WiFi 7 access point with (1) 10GbE PoE port and (1) 1GbE PoE port. The E7 transmits in the 2.4 GHz, 5 GHz, and 6 GHz frequency bands using integral antennas and is powered by 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: E7 SN: CEC	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 E7, 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 E7 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 AC to 48 Volts POE
AC Mains Frequency	60 Hz
Temperature	21.1 – 23.4 °C
Humidity	24.8 – 30.7 %
Barometric Pressure	1021 mBar

2.6 Operating Modes

The E7 was connected to a personal computer laptop and tested using test software in order to enable to constant transmission. The measurements within this report are corrected to reference a 100% duty cycle. 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

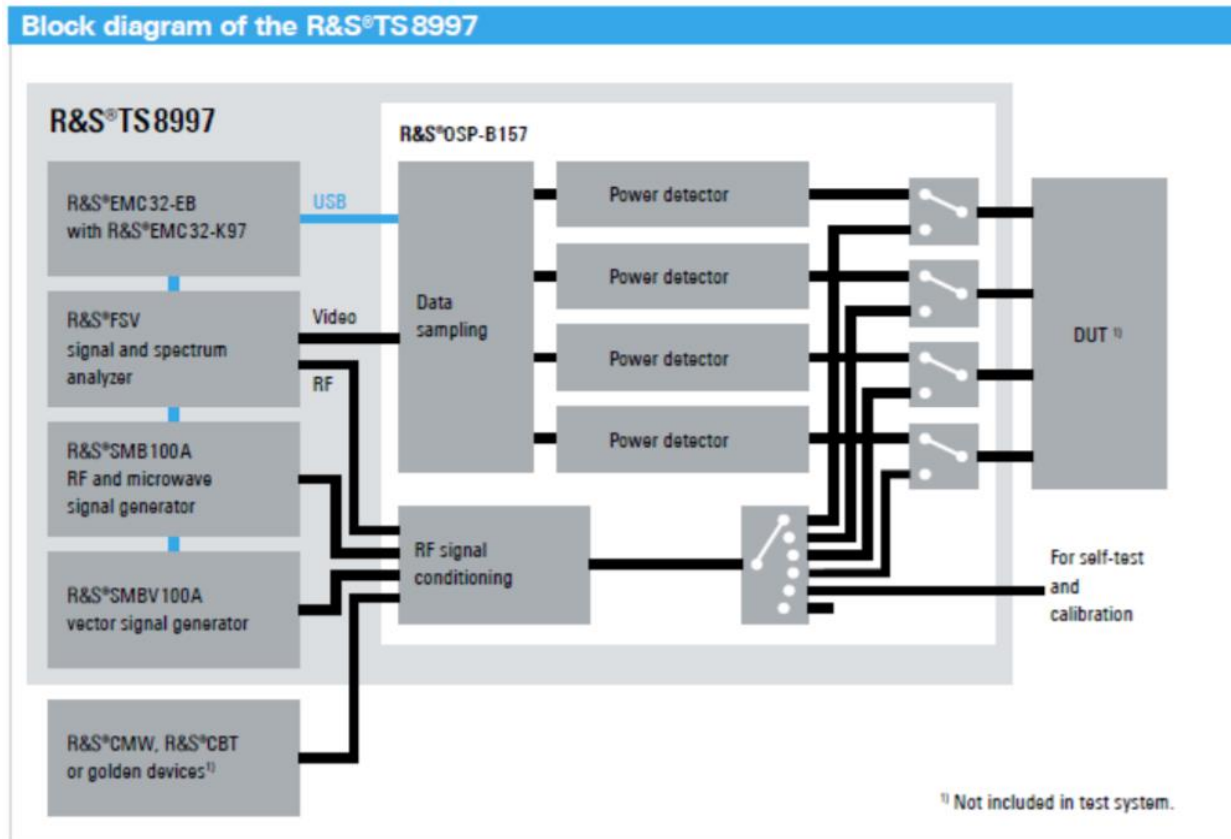


Diagram 1: Test Configuration Block Diagram

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-2500	7/13/2023	7/13/2024
LISN	AFJ	LS16C/10	UCL-2512	5/26/2023	5/26/2024
ISN	Teseq	ISN T800	UCL-2974	6/27/2023	6/27/2024
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

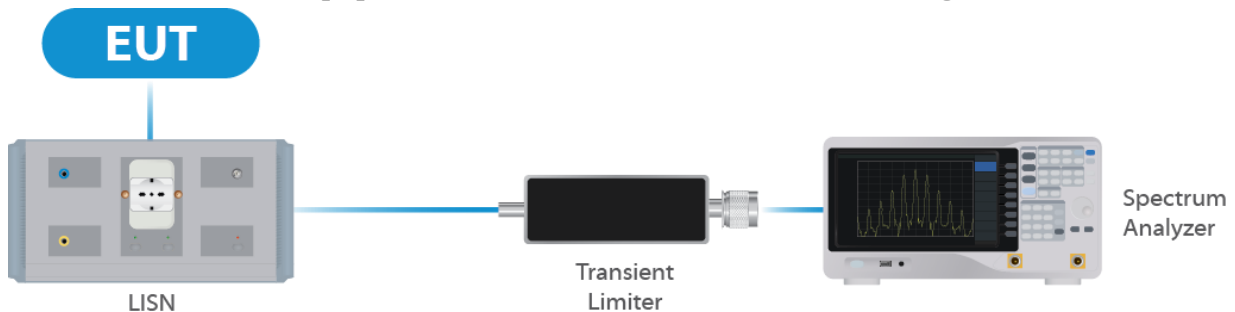


Figure 1: Conducted Emissions Test

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

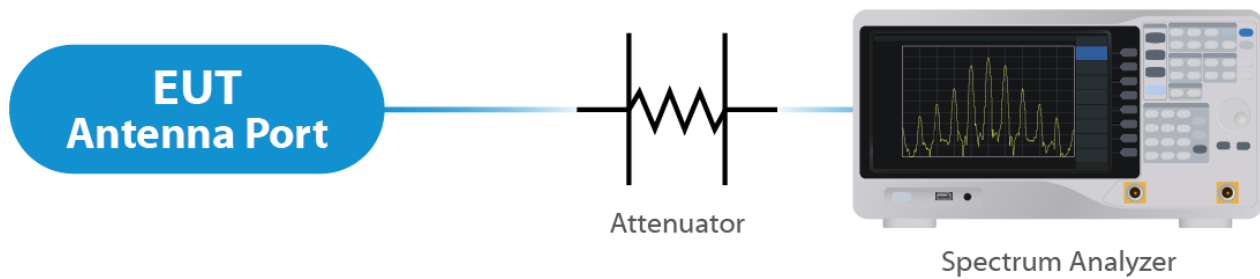


Figure 2: Direct Connect at the Antenna Port Test

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

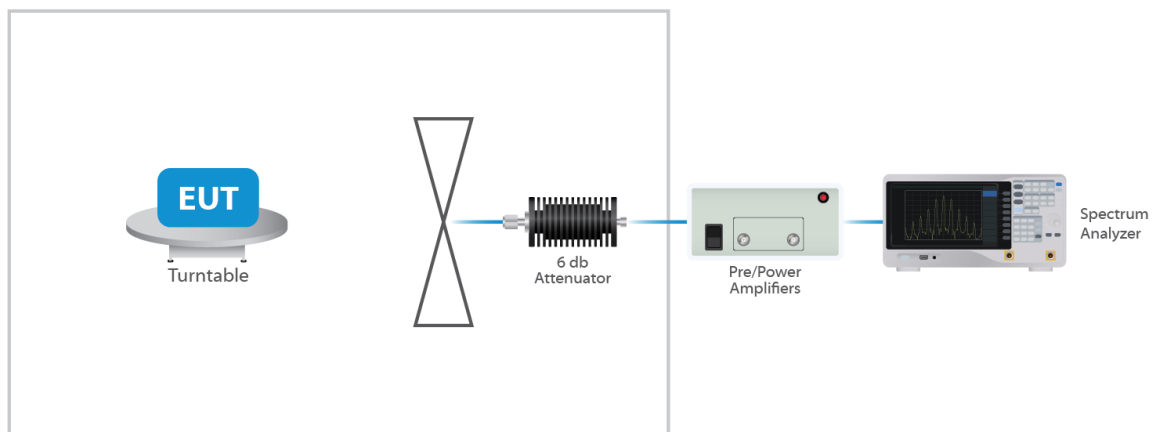


Figure 3: Radiated Emissions Test

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 internal antenna. Per the manufacturer, the Maximum gain of the antenna per chain is 5.0 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.

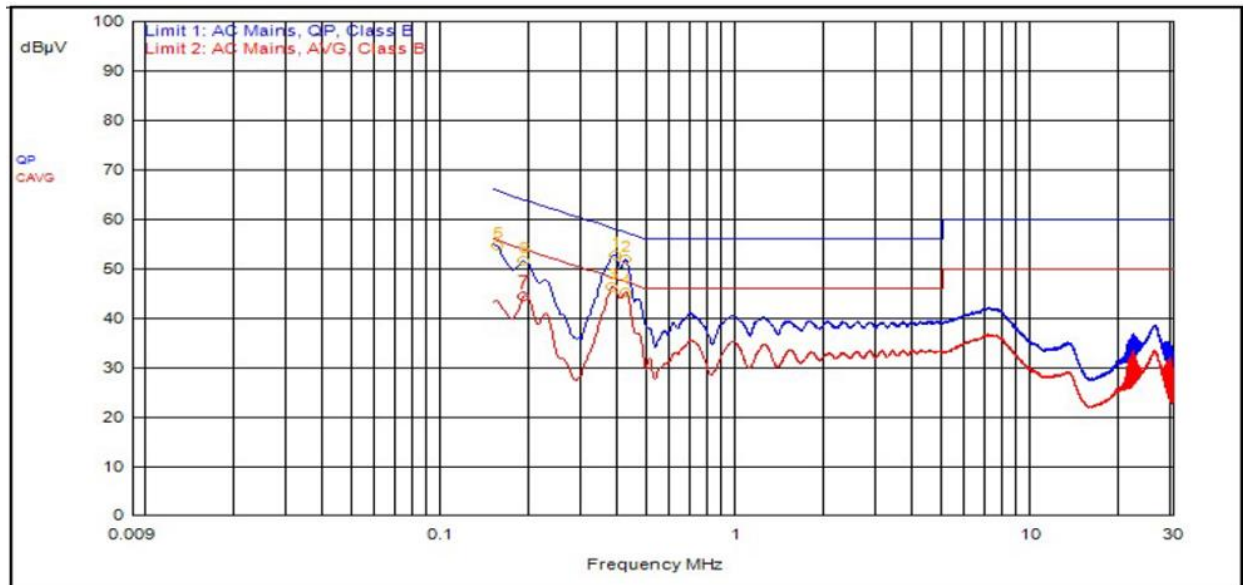
For power measurements on IEEE 802.11 devices, Array Gain = 0 dB for $\text{NANT} \leq 4$;

For PSD measurements when $\text{Nss}=1$: Array Gain = $10 \log(\text{NANT}/\text{NSS})$ dB + Antenna Gain (dBi). Or $3.01 \text{ dB} + 5.0 \text{ dBi} = 8.01 \text{ dBi}$.

Results

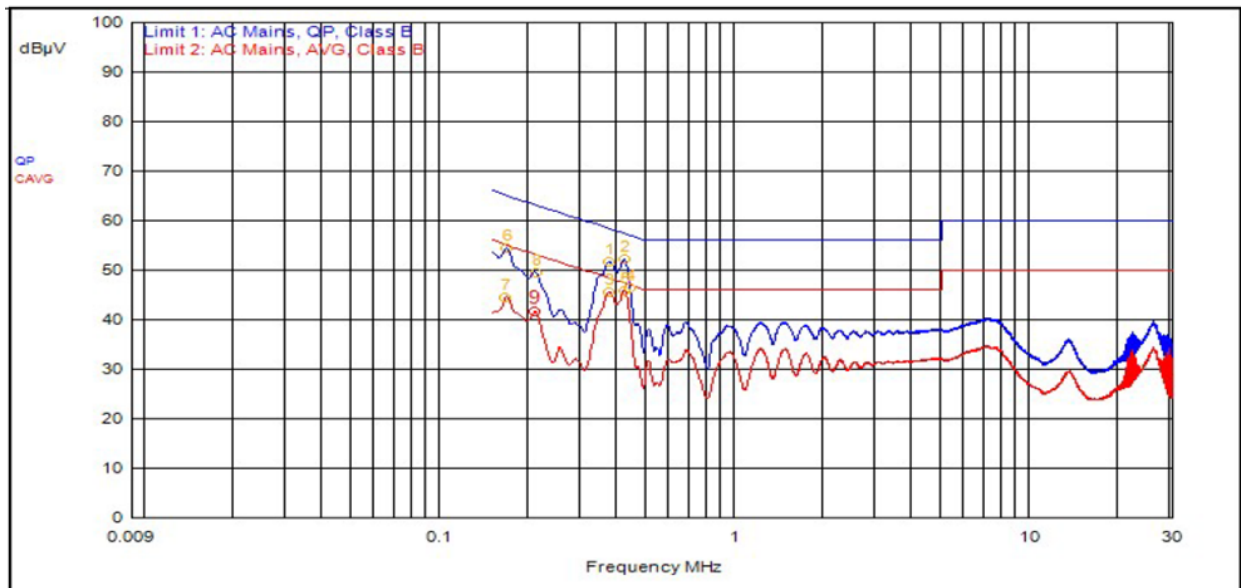
The EUT complied with the specification

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
1	384,000kHz	12.39	0.00		QPeak	40.41	52.80	58.19	-5.40			
2	417,000kHz	12.40	0.00		QPeak	39.46	51.86	57.51	-5.65			
5	153,000kHz	12.37	0.00		QPeak	42.36	54.73	65.84	-11.11			
6	189,000kHz	12.41	0.00		QPeak	39.28	51.69	64.08	-12.39			
3	375,000kHz	12.39	0.00		C_AVG	33.92	46.31			48.39	-2.08	
4	417,000kHz	12.40	0.00		C_AVG	32.90	45.30			47.51	-2.21	
7	189,000kHz	12.41	0.00		C_AVG	32.07	44.48			54.08	-9.60	

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
2	417,000kHz	12.39	0.00		QPeak	39.76	52.15	57.51	-5.36			
1	369,000kHz	12.37	0.00		QPeak	39.39	51.76	58.52	-6.77			
6	168,000kHz	12.35	0.00		QPeak	42.03	54.38	65.06	-10.68			
4	438,000kHz	12.40	0.00		QPeak	33.97	46.37	57.10	-10.73			
8	210,000kHz	12.37	0.00		QPeak	37.09	49.46	63.21	-13.75			
3	369,000kHz	12.37	0.00		C_AVG	33.20	45.57			48.52	-2.96	
5	417,000kHz	12.39	0.00		C_AVG	33.55	45.94			47.51	-1.56	
7	165,000kHz	12.36	0.00		C_AVG	31.95	44.31			55.21	-10.90	
9	207,000kHz	12.37	0.00		C_AVG	29.23	41.60			53.32	-11.72	

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	12.8	7.2
	2437	12.4	7.2
	2462	12.9	7.2
g	2412	16.7	16.4
	2437	16.6	15.1
	2462	17.9	17.7
n 20	2412	17.6	13.8
	2437	17.6	13.3
	2462	17.9	12.7
n 40	2422	36.3	35.1
	2437	36.0	35.8
	2452	36.5	36.2
ax 20	2412	19.0	12.7
	2437	18.8	14.5
	2462	19.0	19.0
ax 40	2422	37.5	36.6
	2437	37.8	24.7
	2452	37.8	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 29.16 dBm or 824.14 mW. The limit is 30 dBm or 1 Watt when using antennas with 6 dBi or less gain. The antenna has a gain of 5.0 dBi.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power *	Measured EIRP
b 20	2412	Mcs0	26	28.78	33.78
	2417	Mcs0	26	28.81	33.81
	2422	Mcs0	26	28.71	33.71
	2427	Mcs0	26	28.77	33.77
	2432	Mcs0	26	28.71	33.71
	2437	Mcs0	26	28.96	33.96
	2442	Mcs0	26	28.83	33.83
	2447	Mcs0	26	29.09	34.09
	2452	Mcs0	26	29.09	34.09
	2457	Mcs0	26	29.16	34.16
g 20	2462	Mcs0	26	29.04	34.04
	2412	Mcs0	23	25.58	30.58
	2417	Mcs0	24	26.60	31.60
	2422	Mcs0	24	26.58	31.58
	2427	Mcs0	25	27.58	32.58
	2432	Mcs0	26	28.46	33.46
	2437	Mcs0	27	28.81	33.81
	2442	Mcs0	27	28.75	33.75
	2447	Mcs0	25	27.75	32.75
	2452	Mcs0	24	26.77	31.77
n 20	2457	Mcs0	24	26.79	31.79
	2462	Mcs0	23	24.85	29.85
	2412	Mcs0	23	25.38	30.38
	2417	Mcs0	23	25.55	30.55
	2422	Mcs0	24	26.35	31.35
	2427	Mcs0	25	27.51	32.51
	2432	Mcs0	26	28.36	33.36

	2437	Mcs0	29	28.58	33.58
	2442	Mcs0	29	28.61	33.61
	2447	Mcs0	24	26.44	31.44
	2452	Mcs0	24	26.47	31.47
	2457	Mcs0	24	26.78	31.78
	2462	Mcs0	22	24.88	29.88
n 40	2422	Mcs0	20	23.37	28.37
	2437	Mcs0	21	24.12	29.12
	2452	Mcs0	21	24.12	29.12
ax 20	2412	Mcs0	22	24.70	29.70
	2417	Mcs0	23	25.49	30.49
	2422	Mcs0	24	26.41	31.41
	2427	Mcs0	24	26.60	31.60
	2432	Mcs0	25	27.48	32.48
	2437	Mcs0	25	27.51	32.51
	2442	Mcs0	25	27.45	32.45
	2447	Mcs0	24	26.51	31.51
	2452	Mcs0	24	26.62	31.62
	2457	Mcs0	23	25.83	30.83
	2462	Mcs0	21	23.92	28.92
ax 40	2422	Mcs0	21	24.55	29.55
	2437	Mcs0	23	25.87	30.87
	2452	Mcs0	19	22.57	27.57

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

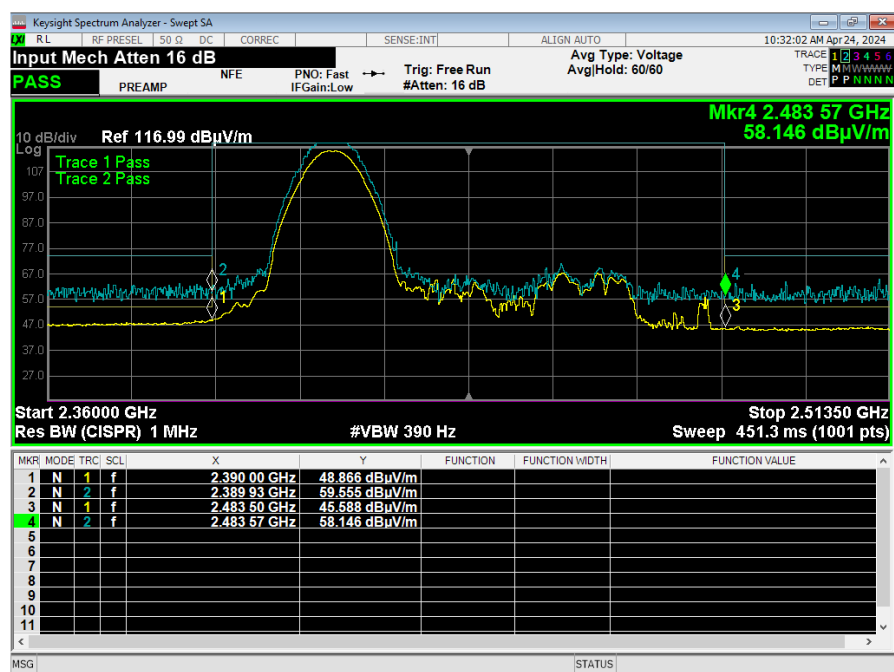
5.5.1 Conducted Spurious Emissions

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.

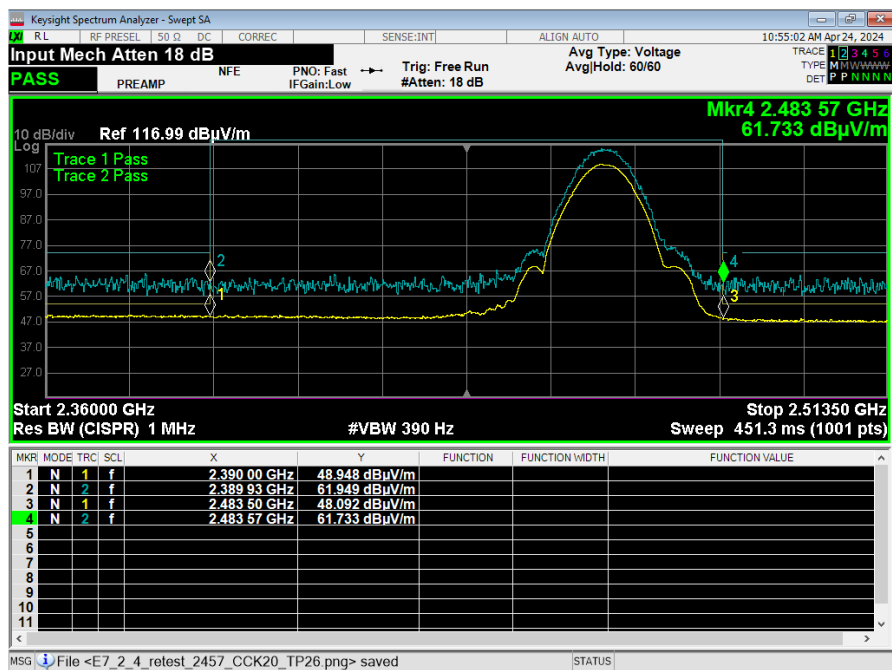
The emissions must be attenuated 30 dB below the highest power spectral density level measured within the authorized band as measured with a 100 kHz RBW.

Result

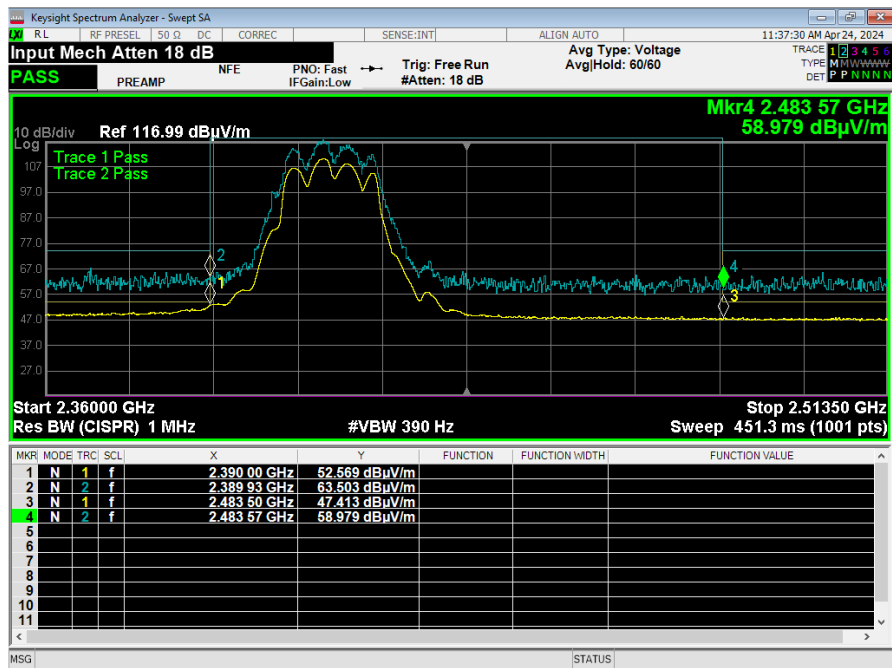
Conducted spurious emissions were attenuated 30 dB or more below the fundamental; therefore, the EUT complies with the specification.



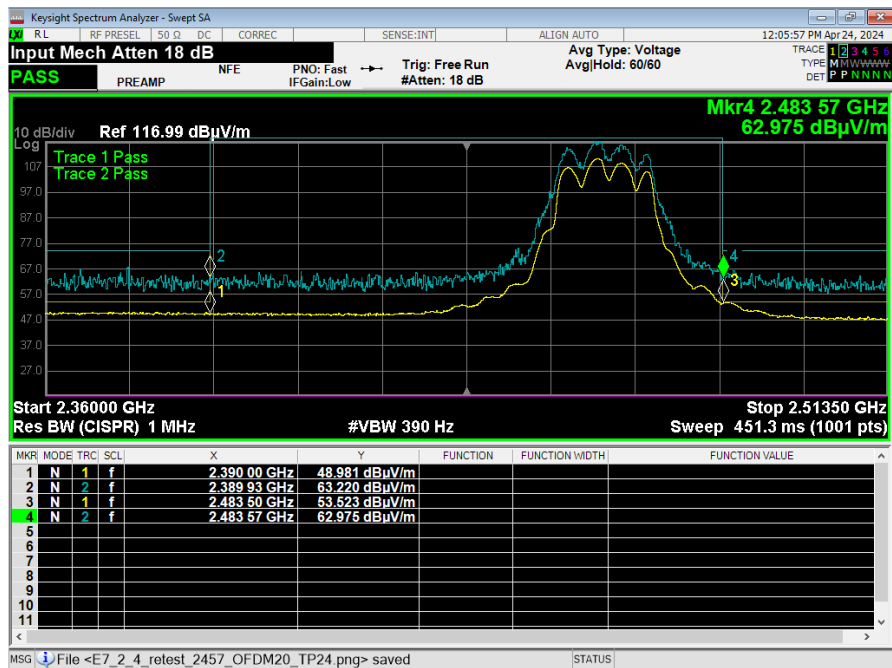
Graph 3: Lower Band Edge Plot b Mode 20 MHz



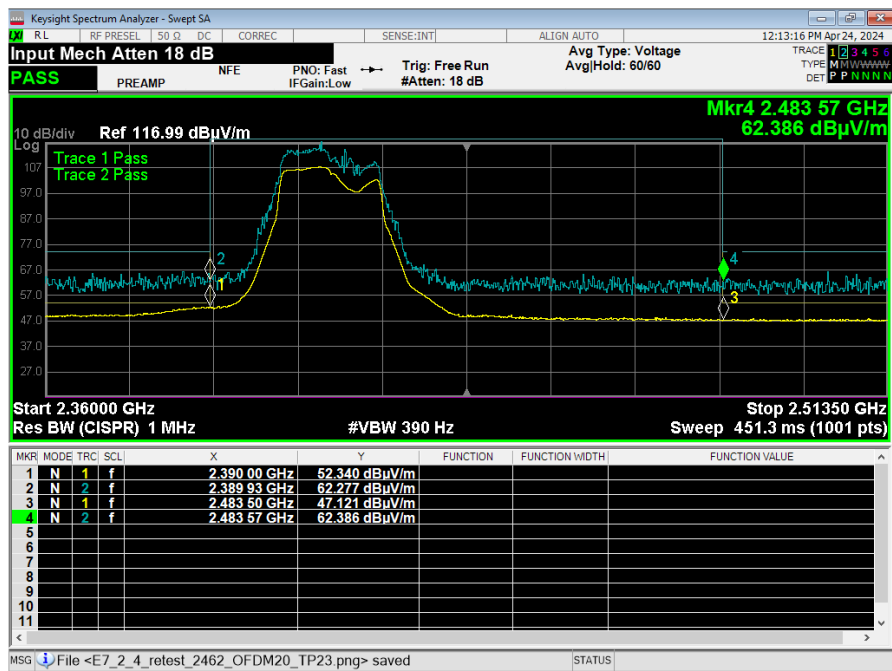
Graph 4: Upper Band Edge Plot b Mode 20 MHz



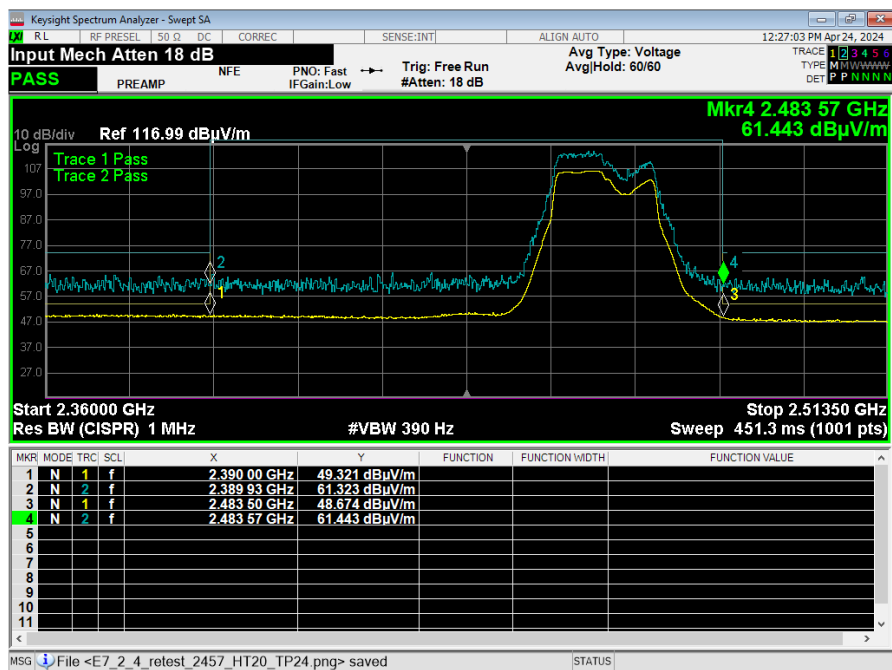
Graph 5: Lower Band Edge Plot g Mode 20 MHz



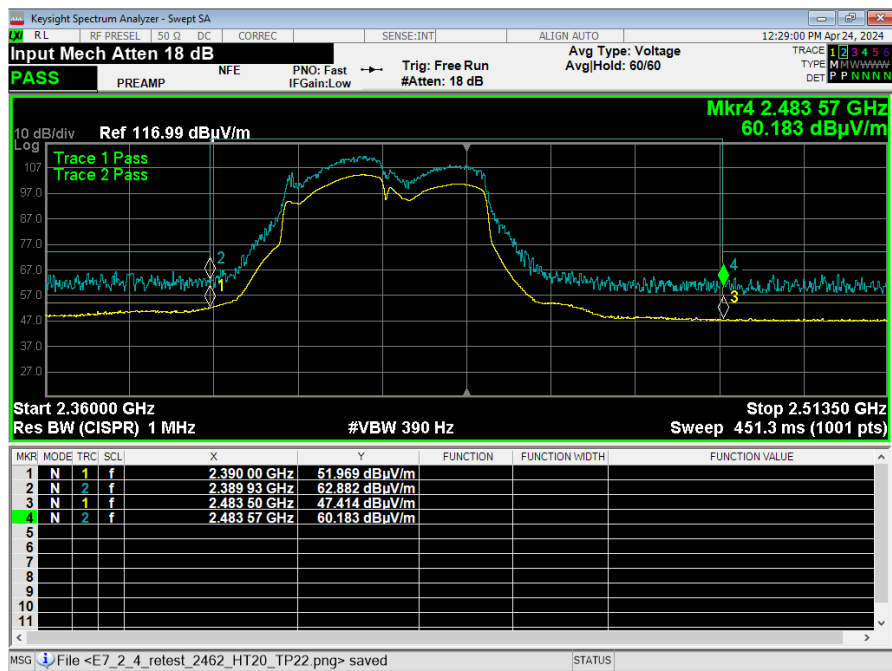
Graph 6: Upper Band Edge Plot g Model 20 MHz



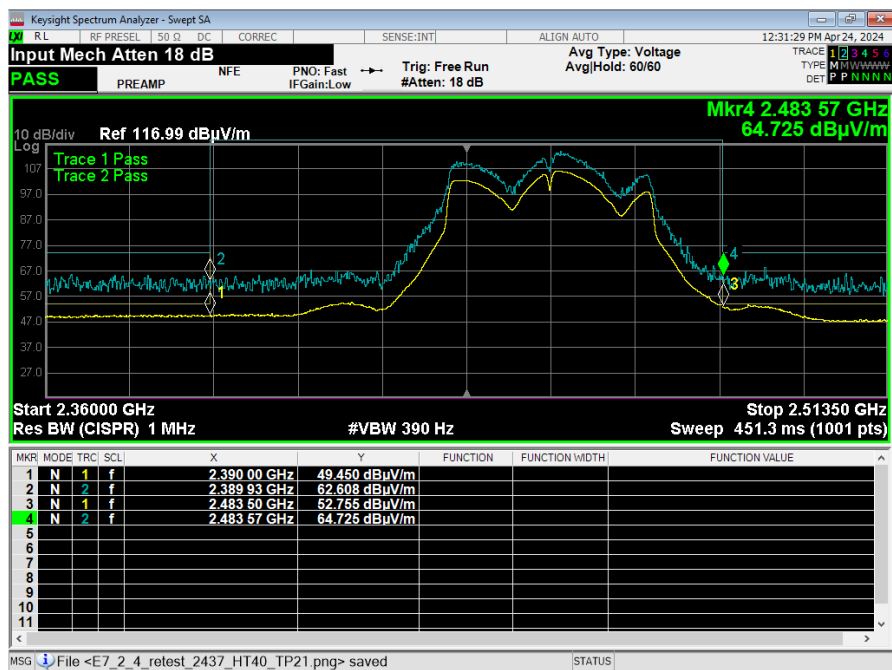
Graph 7: Lower Band Edge Plot n Mode 20 MHz



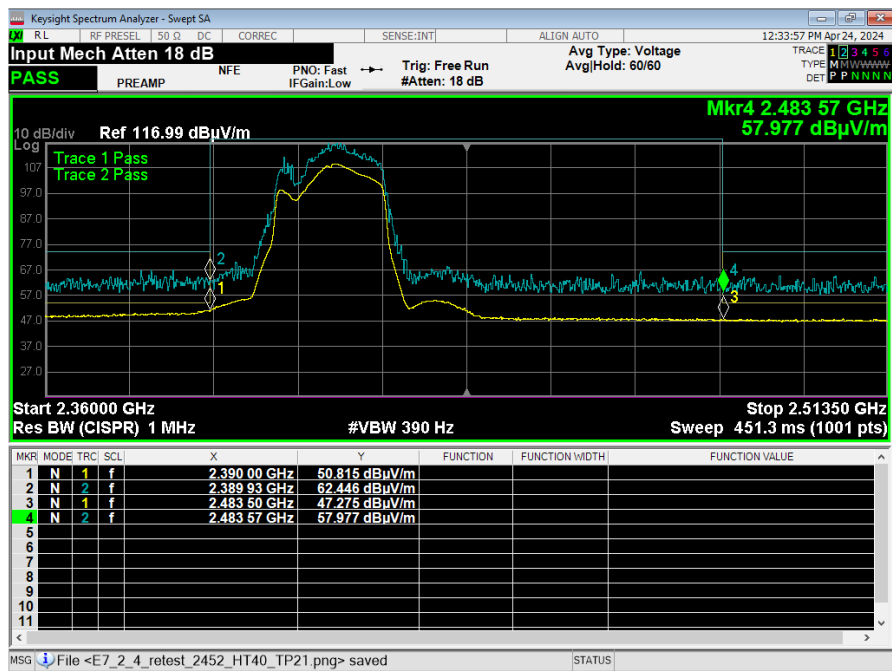
Graph 8: Upper Band Edge Plot n Mode 20 MHz



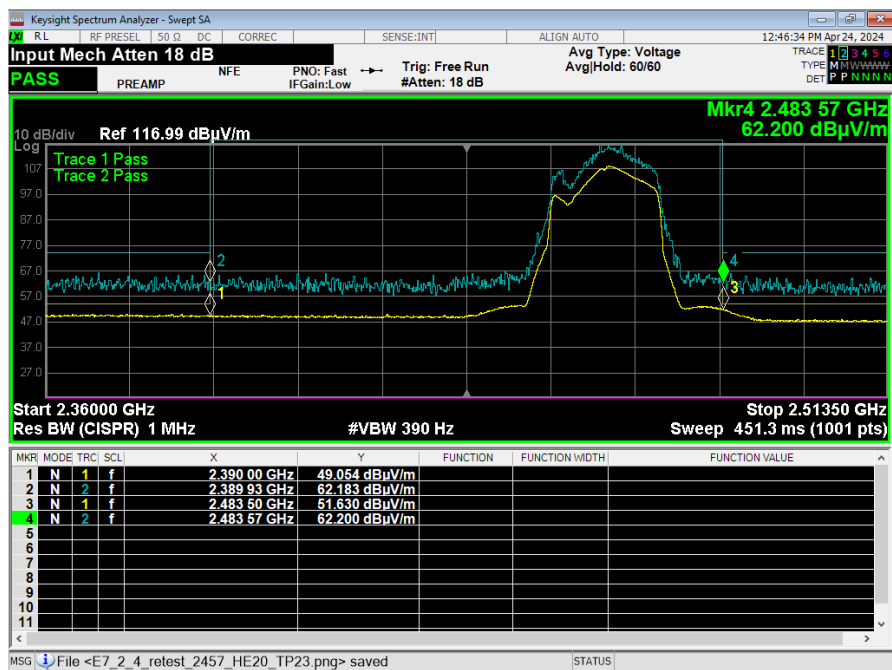
Graph 9: Lower Band Edge Plot n Mode 40 MHz



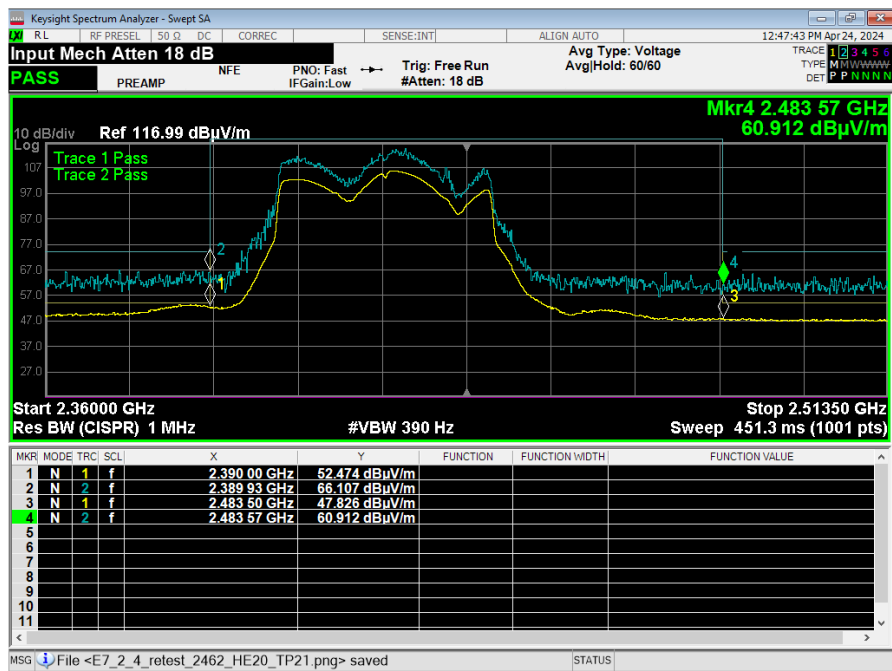
Graph 10: Upper Band Edge Plot n Mode 40 MHz



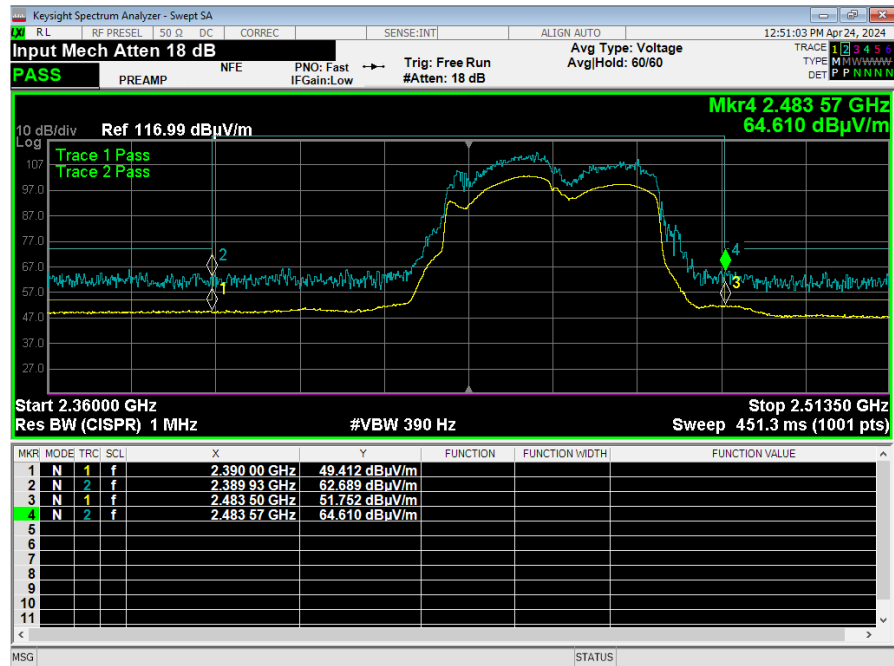
Graph 11: Lower Band Edge Plot ax Mode 20 MHz



Graph 12: Upper Band Edge Plot ax Mode 20 MHz



Graph 13: Lower Band Edge Plot ax Mode 40 MHz



Graph 14: Upper Band Edge Plot ax Mode 40 MHz

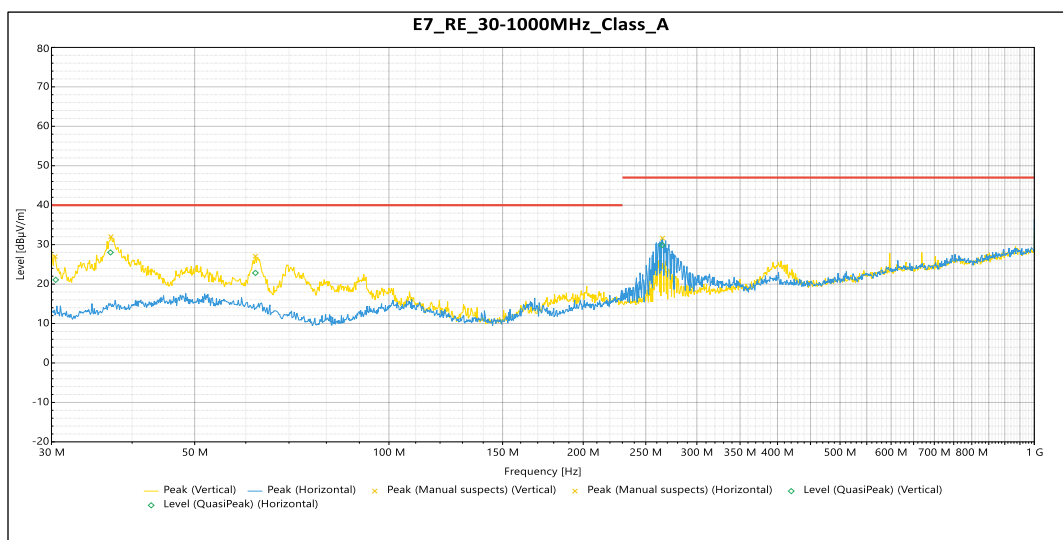
5.5.2 Radiated Spurious Emissions in the Restricted Bands of §15.205

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

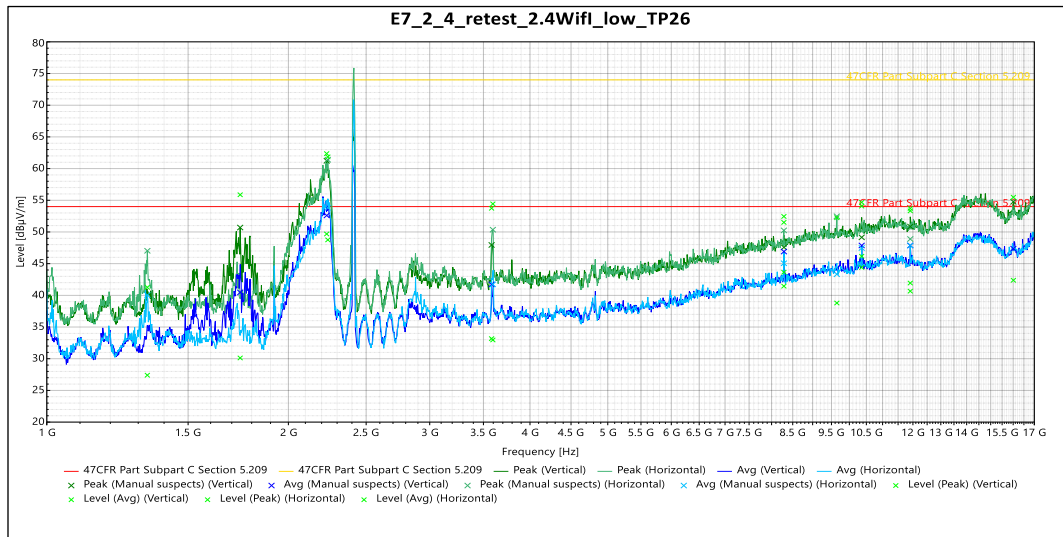
All emissions in the restricted bands of §15.205 met the limits specified in §15.209; therefore, the EUT complies with the specification.



QuasiPeak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
30.455 MHz	21.073	40	-18.927	106	0.999	Vertical	-16.07
37.03 MHz	28.019	40	-11.981	238	1.132	Vertical	-14.769
62.105 MHz	22.817	40	-17.183	331	3.17	Vertical	-14.457
265.26 MHz	29.89	47	-17.11	95	3.35	Horizontal	-13.638

Table 4: Radiated Emissions 30 – 1000 MHz



Peak

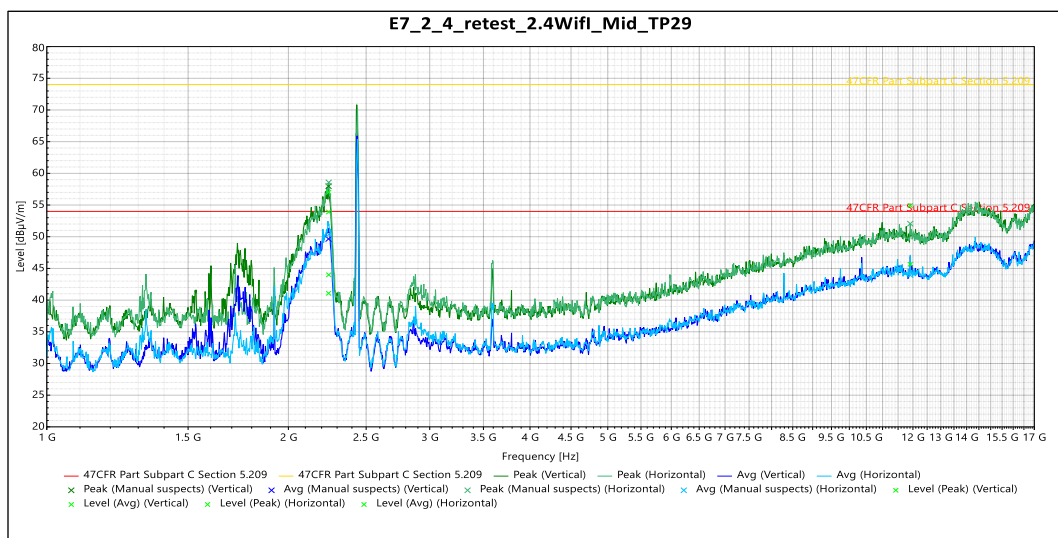
Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
1.7416 GHz	55.868	74	-18.132	1	1.639	Vertical	-13.472
2.2322 GHz	62.363	74	-11.637	49	1.639	Vertical	-9.8
3.5828 GHz	53.744	74	-20.256	1	1.639	Vertical	-7.072
8.2881 GHz	52.455	74	-21.545	5	1.639	Vertical	2.122
10.36 GHz	54.667	74	-19.333	34	3.143	Vertical	6.569
11.91 GHz	53.721	74	-20.279	25	3.325	Vertical	8.285
16.01 GHz	55.478	74	-18.522	111	3.325	Vertical	10.532
1.3344 GHz	41.273	74	-32.727	212	3.803	Horizontal	-13.077
2.2398 GHz	61.855	74	-12.145	13	1.835	Horizontal	-9.806
3.596 GHz	54.434	74	-19.566	291	1.643	Horizontal	-7.047
8.288 GHz	51.508	74	-22.492	309	1.639	Horizontal	2.122
9.6473 GHz	52.254	74	-21.746	318	1.643	Horizontal	5.556
10.36 GHz	54.075	74	-19.925	348	1.643	Horizontal	6.569
11.91 GHz	53.334	74	-20.666	322	3.143	Horizontal	8.285

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
1.7416 GHz	30.125	54	-23.875	1	1.639	Vertical	-13.472
2.2322 GHz	49.681	54	-4.319	49	1.639	Vertical	-9.8
3.5828 GHz	33.172	54	-20.828	1	1.639	Vertical	-7.072
8.2881 GHz	43.644	54	-10.356	5	1.639	Vertical	2.122
10.36 GHz	46.166	54	-7.834	34	3.143	Vertical	6.569

Frequency	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
11.91 GHz	41.94	54	-12.06	25	3.325	Vertical	8.285
16.01 GHz	42.379	54	-11.621	111	3.325	Vertical	10.532
1.3344 GHz	27.398	54	-26.602	212	3.803	Horizontal	-13.077
2.2398 GHz	48.752	54	-5.248	13	1.835	Horizontal	-9.806
3.596 GHz	32.956	54	-21.044	291	1.643	Horizontal	-7.047
8.288 GHz	41.454	54	-12.546	309	1.639	Horizontal	2.122
9.6473 GHz	38.79	54	-15.21	318	1.643	Horizontal	5.556
10.36 GHz	44.401	54	-9.599	348	1.643	Horizontal	6.569
11.91 GHz	40.66	54	-13.34	322	3.143	Horizontal	8.285

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



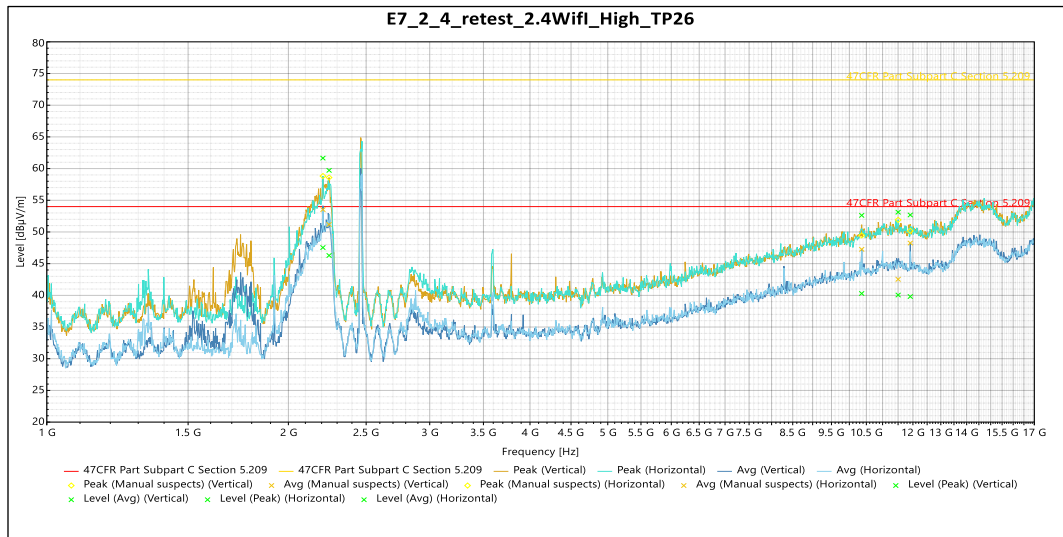
Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
2.2446 GHz	53.899	74	-20.101	47	3.143	Vertical	-9.81
2.2454 GHz	57.013	74	-16.987	73	3.329	Horizontal	-9.811
11.91 GHz	54.905	74	-19.095	303	3.307	Horizontal	8.285

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
2.2446 GHz	41.072	54	-12.928	47	3.143	Vertical	-9.81
2.2454 GHz	43.99	54	-10.01	73	3.329	Horizontal	-9.811
11.91 GHz	45.651	54	-8.349	303	3.307	Horizontal	8.285

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



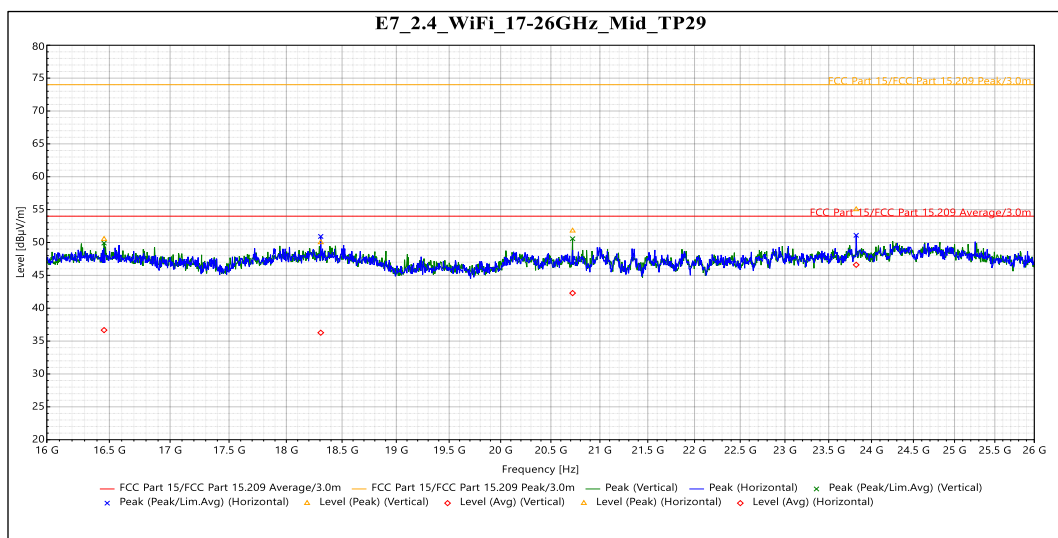
Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
2.2478 GHz	59.718	74	-14.282	37	1.639	Vertical	-9.813
10.36 GHz	52.624	74	-21.376	34	3.657	Vertical	6.569
11.91 GHz	52.682	74	-21.318	55	3.307	Vertical	8.285
2.2083 GHz	61.653	74	-12.347	353	1.835	Horizontal	-9.78
11.503 GHz	53.119	74	-20.881	232	1.639	Horizontal	8.08

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
2.2478 GHz	46.291	54	-7.709	37	1.639	Vertical	-9.813
10.36 GHz	40.289	54	-13.711	34	3.657	Vertical	6.569
11.91 GHz	39.814	54	-14.186	55	3.307	Vertical	8.285
2.2083 GHz	47.54	54	-6.46	353	1.835	Horizontal	-9.78
11.503 GHz	40.052	54	-13.948	232	1.639	Horizontal	8.08

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



Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
16.457 GHz	50.51	74	-23.49	150	Vertical	0.391
20.72 GHz	51.781	74	-22.219	359	Vertical	-0.745
18.307 GHz	50.005	74	-23.995	355	Horizontal	-0.449
23.82 GHz	55.03	74	-18.97	51	Horizontal	0.799

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
16.457 GHz	36.668	54	-17.332	150	Vertical	0.391
20.72 GHz	42.304	54	-11.696	359	Vertical	-0.745
18.307 GHz	36.27	54	-17.73	355	Horizontal	-0.449
23.82 GHz	46.6	54	-7.4	51	Horizontal	0.799

Table 8: Radiated Emissions 17 – 40 GHz at the Middle 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 5.0 dBi + Array gain of 3.01 dB which is a total of 8.01 dBi. The Limit was adjusted to 5.99 dBm to account for the direction gain exceeding 6dBi. (6dBi – directional gain = x) (6-8.01 = -2.01), (8.0 -2.01 = 5.99)

Mode	Frequency (MHz)	Measurement (dBm)	Criteria (dBm)
b	2412	4.30	5.99
	2437	4.44	5.99
	2462	4.47	5.99
g	2412	-5.51	5.99
	2437	-2.36	5.99
	2462	-7.58	5.99
n 20	2412	-7.67	5.99
	2437	-4.11	5.99
	2462	-7.56	5.99
n 40	2422	-12.91	5.99
	2437	-11.44	5.99
	2452	-12.32	5.99
ax 20	2412	-7.92	5.99
	2437	-5.73	5.99
	2462	-8.48	5.99
ax 40	2422	-11.02	5.99
	2437	-10.14	5.99
	2452	-12.07	5.99

Result

The maximum average power spectral density was less than the limit of 5.99 dBm; therefore, the EUT complies with the specification.

-- End of Test Report --