UNIFIED COMPLIANCE LABORATORY

427 West 12800 South
Draper, UT 84020

Test Report

Certification

FCC ID	SWX-U7PROM
IC ID	6545A-U7PROM
Equipment Under Test	U7-Pro-Max
Test Report Serial Number	TR8755_01
Date of Tests	9 – 12, 18 January; 27 – 28 February; 6 March 2024
Report Issue Date	25 March 2024

Test Specification	Applicant
47 CFR FCC Part 15, Subpart C	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

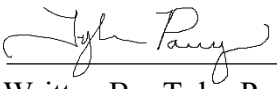
This report has been prepared by Unified Compliance Laboratory (UCL) to document compliance of the device described below with the requirement of Federal Communication Commissions (FCC) Part 15, Subpart C. This report may be reproduced in full. Partial reproduction of this report may only be made with 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	U7-Pro-Max
FCC ID	SWX-U7PROM
IC ID	6545A-U7PROM

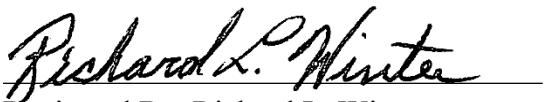
On this 22nd day of January 2024, I individually and for Unified Compliance Laboratory certify that the statements made in this engineering report are true, complete, and correct to the best of my knowledge and are made in good faith.

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: Tyler Parry



Reviewed By: Richard L. Winter

Revision History		
Revision	**Description**	**Date**
01	Original Report Release	25 March 2024

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	U7-Pro-Max
Serial Number	1FB64B
Dimensions (cm)	20.6 x 20.6 x 4.6

2.2 Description of EUT

The U7-Pro-Max is a PoE powered WiFi 7 access point with a 2.5 GbE PoE port. The U7-Pro-Max provides a 12.2 Gbps aggregate throughput rate. The U7-Pro-Max transmits in the 2.4 GHz, 5 GHz, and 6 GHz frequency bands and uses integral antennas and a dedicated spectral scanning radio. The U7-Pro-Max is powered by an 802.3at PoE power adapter. The U7-Pro-Max has a receiver York Scanner Module.

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-Max SN: 1FB64B	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-Max, 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-Max 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 VAC
AC Mains Frequency	60 Hz
Temperature	20.6 – 23.3 °C
Humidity	14.24 – 23.86 %
Barometric Pressure	1024 mBar

2.6 Operating Modes

The U7-Pro-Max was connected to a personal computer laptop and tested using test software in order to enable 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

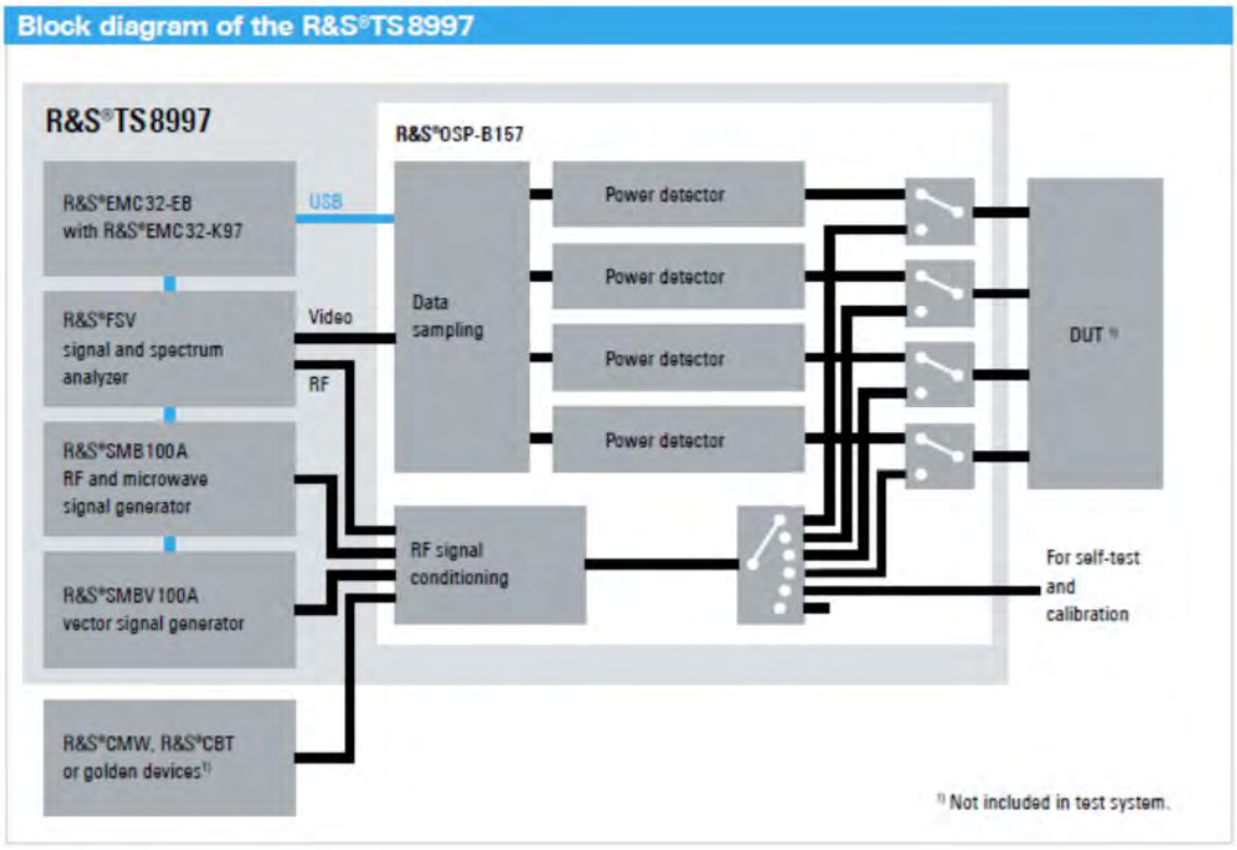


Diagram 1: Test Configuration Block Diagram

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 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 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 2024. 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 2024.

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	6/27/2022	6/272024
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

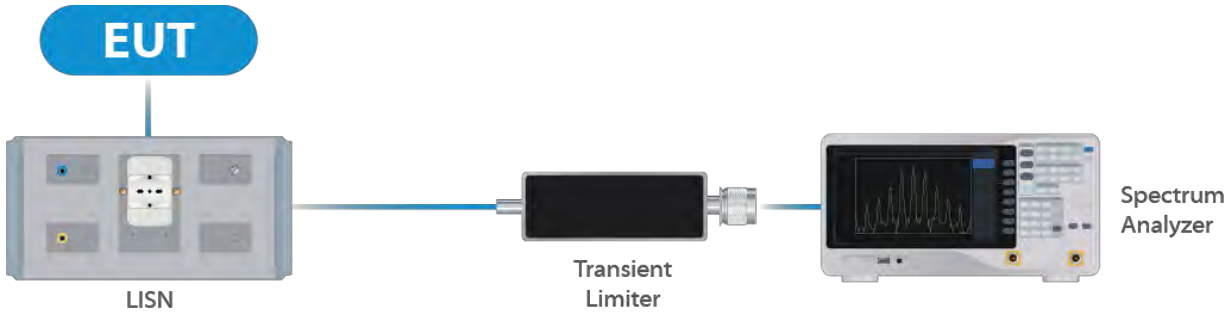


Figure 1: Conducted Emissions Test

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	11/27/2023	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	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

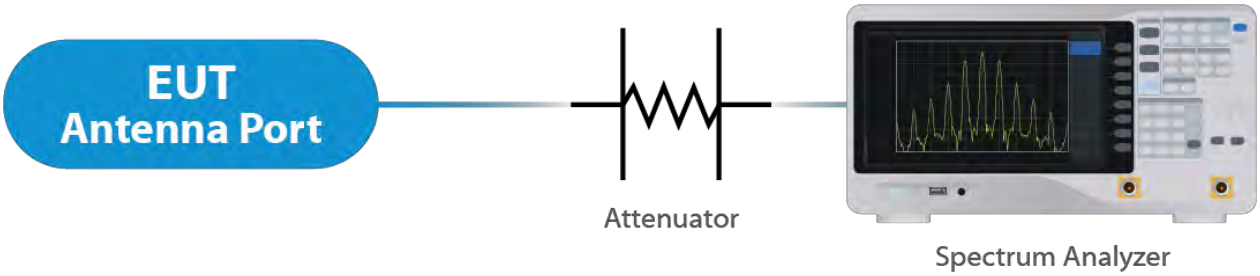


Figure 2: Direct Connect at the Antenna Port Test

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	1/27/2023	1/27/2024
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	6/09/2022	6/09/2024
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

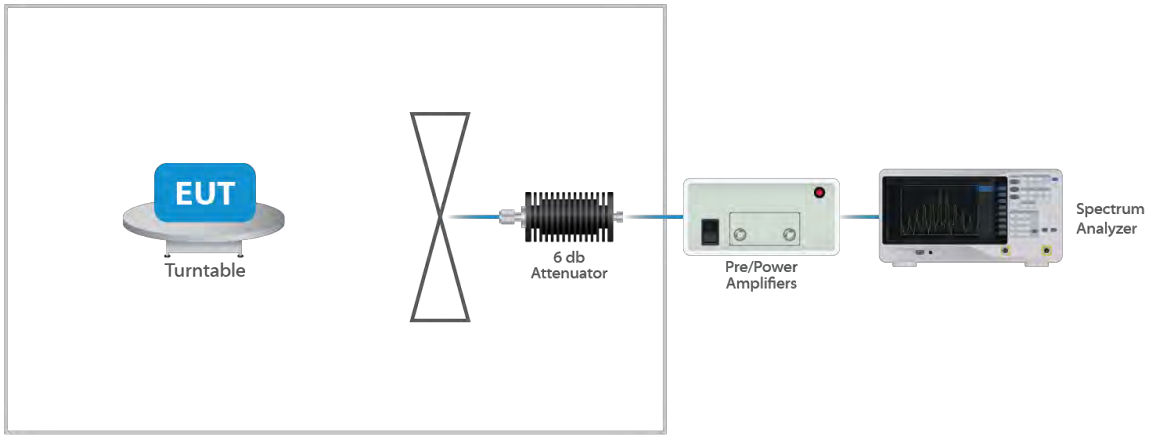


Figure 3: Radiated Emissions Test

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 (± 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 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(NANT/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 NANT ≤ 4;
For PSD measurements when Nss=1: Array Gain = 10 log(NANT/NSS) dB + Antenna Gain (dBi). Or 3.01 dB + 4 dBi = 7.01 dBi.

Results

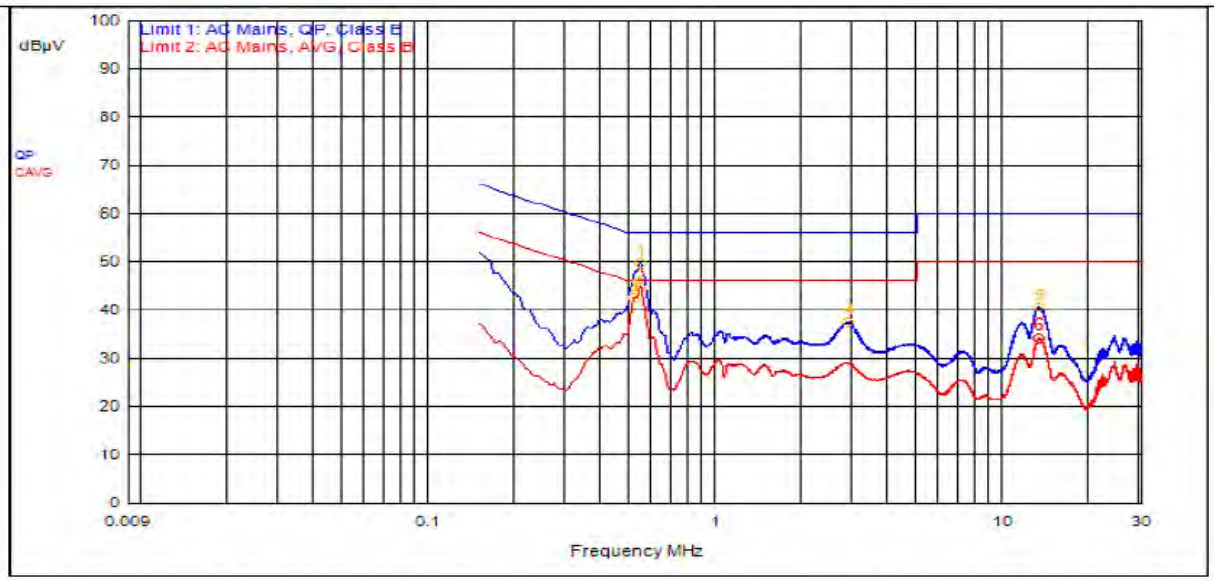
The EUT complied with the specification

5.2 Conducted Emissions at Mains Ports Data

Result

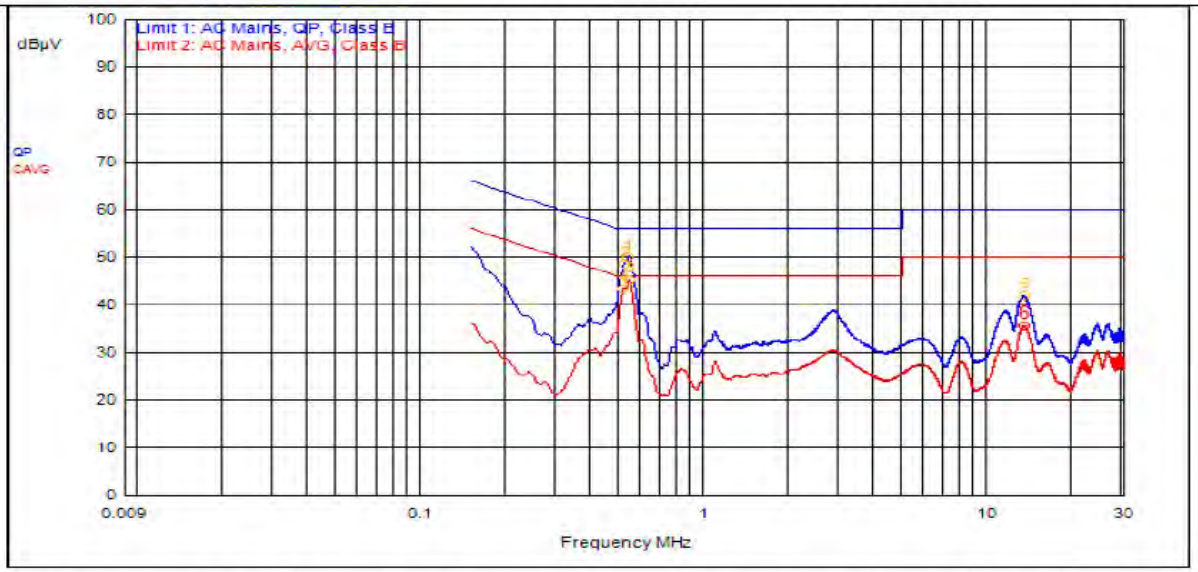
The EUT complied with the specification limit.

5.2.1 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	12.42	0.00		QPeak	37.28	49.70	56.00	-6.30			
4	2.862	12.29	0.10		QPeak	25.08	37.47	56.00	-18.53			
5	13.215	12.43	0.20		QPeak	28.02	40.65	60.00	-19.35			
2	543,000kHz	12.42	0.00		C_AVG	32.44	44.86			46.00	-1.14	
3	516,000kHz	12.43	0.00		C_AVG	30.17	42.60			46.00	-3.40	
6	13.200	12.42	0.20		C_AVG	21.42	34.04			50.00	-15.96	

5.2.2 Conducted Emissions Plot – Line



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	537,000kHz	12.41	0.00		QPeak	37.70	50.11	56.00	-5.89			
2	519,000kHz	12.42	0.00		QPeak	36.28	48.70	56.00	-7.30			
5	13.263	12.40	0.20		QPeak	29.24	41.84	60.00	-18.16			
3	540,000kHz	12.41	0.00		C_AVG	32.82	45.23			46.00	-0.77	
4	516,000kHz	12.42	0.00		C_AVG	30.97	43.39			46.00	-2.61	
6	13.320	12.41	0.20		C_AVG	22.93	35.54			50.00	-14.46	

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	16.0	12.55
	2437	16.8	12.15
	2462	15.9	12.3
g	2412	16.8	16.5
	2437	18.7	16.4
	2462	16.8	16.7
n 20	2412	17.8	17.9
	2437	25.1	17.7
	2462	18.0	17.9
n 40	2422	36.5	36.7
	2437	37.0	36.6
	2452	37.0	36.7
ax 20	2412	19.1	19.2
	2437	19.5	19.3
	2462	19.1	19.2
ax 40	2422	38.0	37.9
	2437	38.0	38.3
	2452	38.3	38.2

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 66291 D01. Please see associated annex for details on instrument settings.

The maximum average RF conducted output power measured for this device was 26.27 dBm or 423.64 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	20	22.2	26.2
	2417	Mcs0	20	22.28	26.28
	2422	Mcs0	23	25.26	29.26
	2427	Mcs0	23	25.26	29.26
	2432	Mcs0	24	26.27	30.27
	2437	Mcs0	24	26.24	30.24
	2442	Mcs0	24	26.24	30.24
	2447	Mcs0	23	25.32	29.32
	2452	Mcs0	22	24.33	28.33
	2457	Mcs0	21	23.23	27.23
	2462	Mcs0	20	22.07	26.07
g 20	2412	Mcs0	20	21.86	25.86
	2417	Mcs0	21	22.84	26.84
	2422	Mcs0	22	23.71	27.71
	2427	Mcs0	23	24.56	28.56
	2432	Mcs0	23	24.51	28.51
	2437	Mcs0	23	24.57	28.57
	2442	Mcs0	23	24.52	28.52
	2447	Mcs0	23	24.57	28.57
	2452	Mcs0	22	23.73	27.73
	2457	Mcs0	21	22.75	26.75
	2462	Mcs0	18	19.81	23.81
n 20	2412	Mcs0	18	20.03	24.03
	2417	Mcs0	21	22.89	26.89
	2422	Mcs0	22	23.69	27.69
	2427	Mcs0	22	23.65	27.65

	2432	Mcs0	23	24.52	28.52
	2437	Mcs0	24	25.43	29.43
	2442	Mcs0	23	24.54	28.54
	2447	Mcs0	23	24.56	28.56
	2452	Mcs0	23	24.63	28.63
	2457	Mcs0	21	22.8	26.8
	2462	Mcs0	17	18.77	22.77
n 40	2422	Mcs0	17	18.92	22.92
	2437	Mcs0	19	21.1	25.1
	2452	Mcs0	17	18.94	22.94
ax 20	2412	Mcs0	17	19.02	23.02
	2417	Mcs0	20	21.93	25.93
	2422	Mcs0	21	22.85	26.85
	2427	Mcs0	21	22.73	26.73
	2432	Mcs0	22	23.69	27.69
	2437	Mcs0	23	24.65	28.65
	2442	Mcs0	22	23.72	27.72
	2447	Mcs0	22	23.77	27.77
	2452	Mcs0	22	23.82	27.82
	2457	Mcs0	19	20.88	24.88
	2462	Mcs0	17	18.87	22.87
ax 40	2422	Mcs0	17	18.97	22.97
	2437	Mcs0	18	20.05	24.05
	2452	Mcs0	17	18.92	22.92

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.

* 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 within the Annex are plots 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

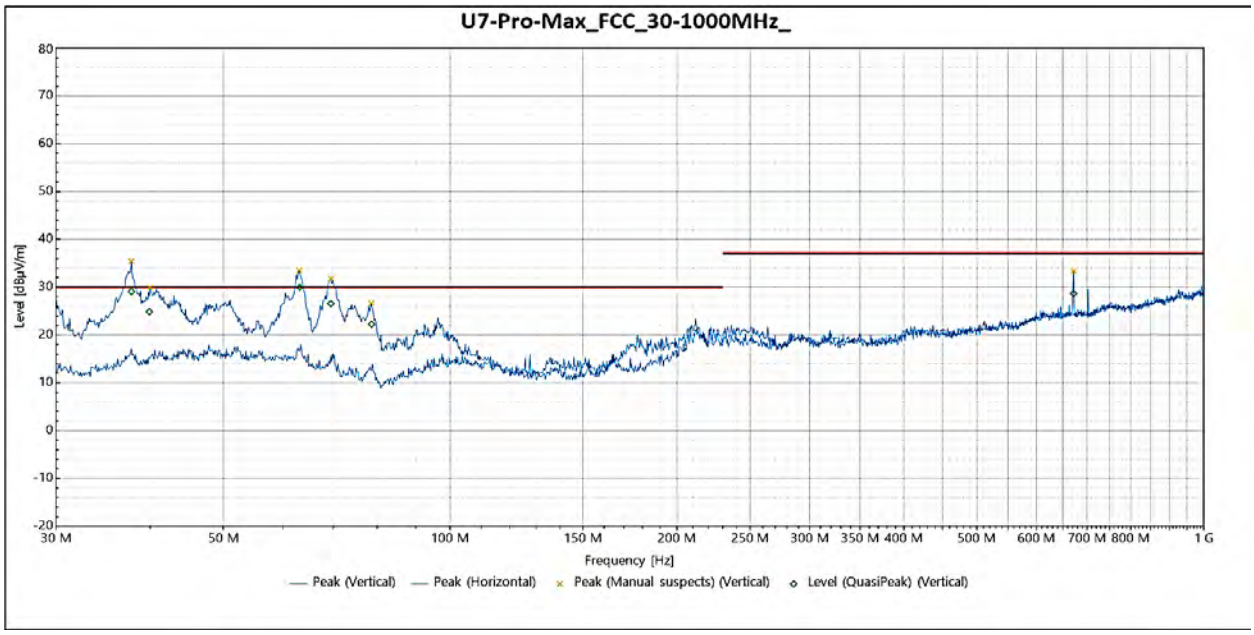
The frequency range from the lowest frequency generated or used in the device to the tenth harmonic of the highest fundamental emissions was investigated to measure any radiated emissions in the restricted bands. The following tables show measurements of any emissions that fell into the restricted bands 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.

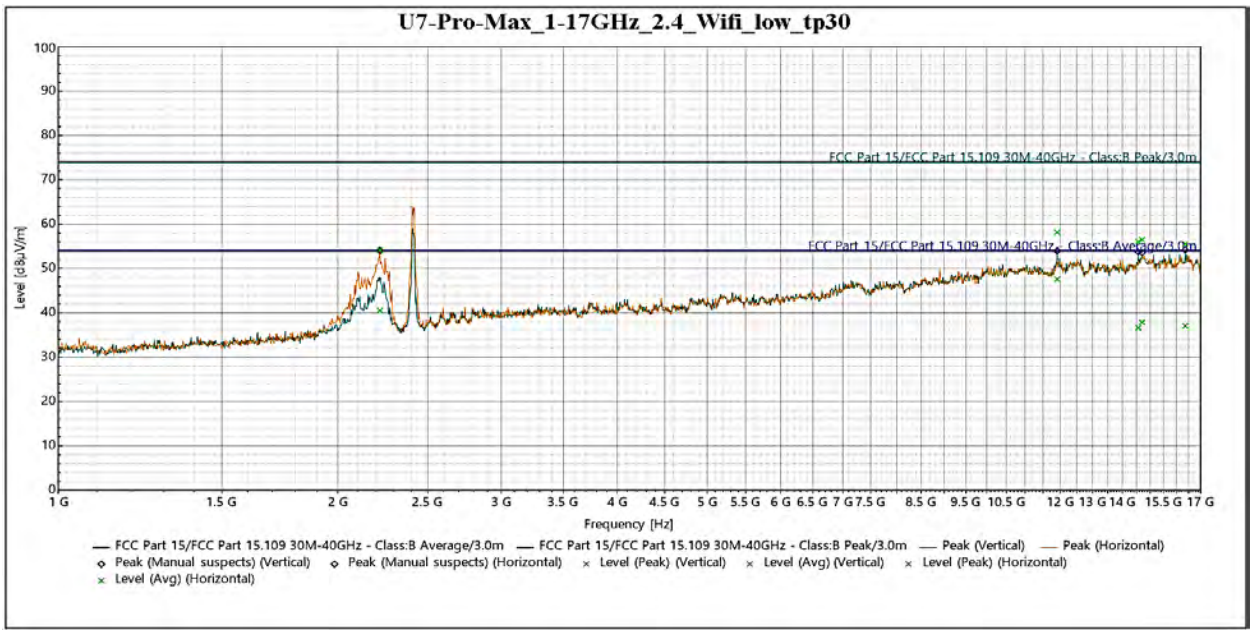
EUT



QuasiPeak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
37.769 MHz	29.054	30	-0.946	215	1.821	Vertical	-14.696
39.89 MHz	24.87	30	-5.13	75	1.108	Vertical	-13.531
63.164 MHz	29.972	30	-0.028	123	3.455	Vertical	-14.834
69.458 MHz	26.573	30	-3.427	99	3.459	Vertical	-16.754
78.66 MHz	22.249	30	-7.751	272	3.715	Vertical	-19.447
671.8 MHz	28.679	37	-8.321	77	2.965	Vertical	-6.121
No significant emissions	-	-	-	-	-	Horizontal	-

Table 4: Spurious Emissions 30-1000 MHz



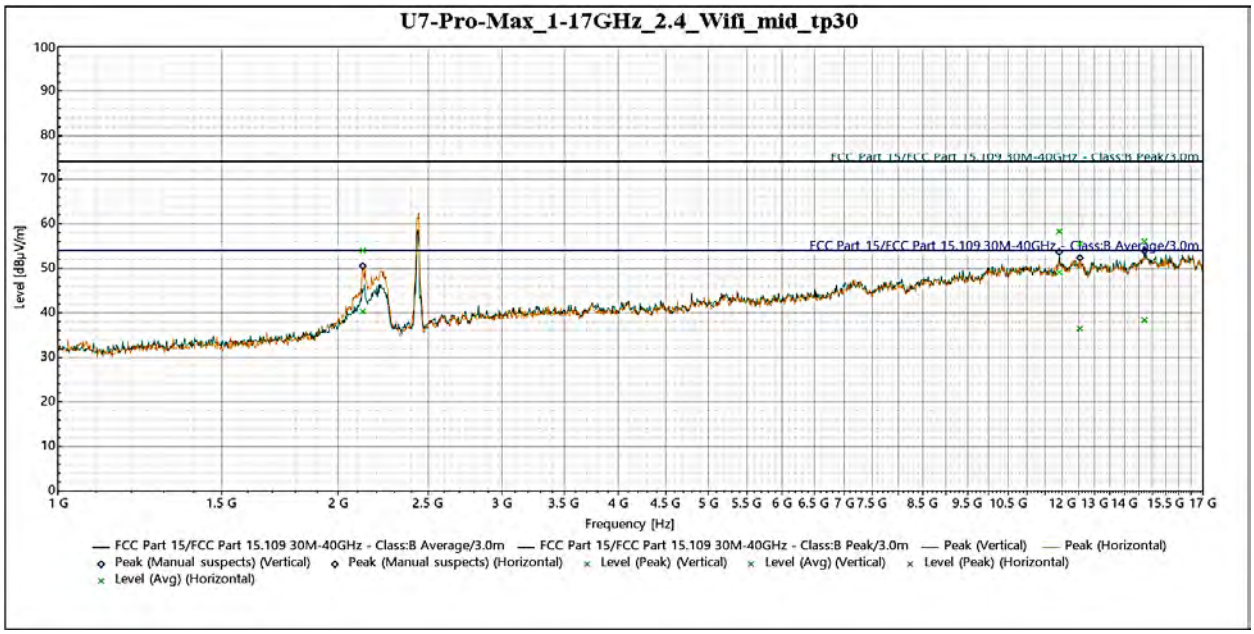
Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
11.91 GHz	58.164	74	-15.836	349	2.358	Vertical	16.544
14.564 GHz	56.071	74	-17.929	169	3.259	Vertical	16.085
16.36 GHz	55.546	74	-18.454	296	1.5	Vertical	17.454
2.2206 GHz	54.126	74	-19.874	314	1.5	Horizontal	-3.76
14.698 GHz	56.469	74	-17.531	211	3.083	Horizontal	17.438

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
11.91 GHz	47.55	54	-6.45	349	2.358	Vertical	16.544
14.564 GHz	36.659	54	-17.341	169	3.259	Vertical	16.085
16.36 GHz	37.055	54	-16.945	296	1.5	Vertical	17.454
2.2206 GHz	40.537	54	-13.463	314	1.5	Horizontal	-3.76
14.698 GHz	37.877	54	-16.123	211	3.083	Horizontal	17.438

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



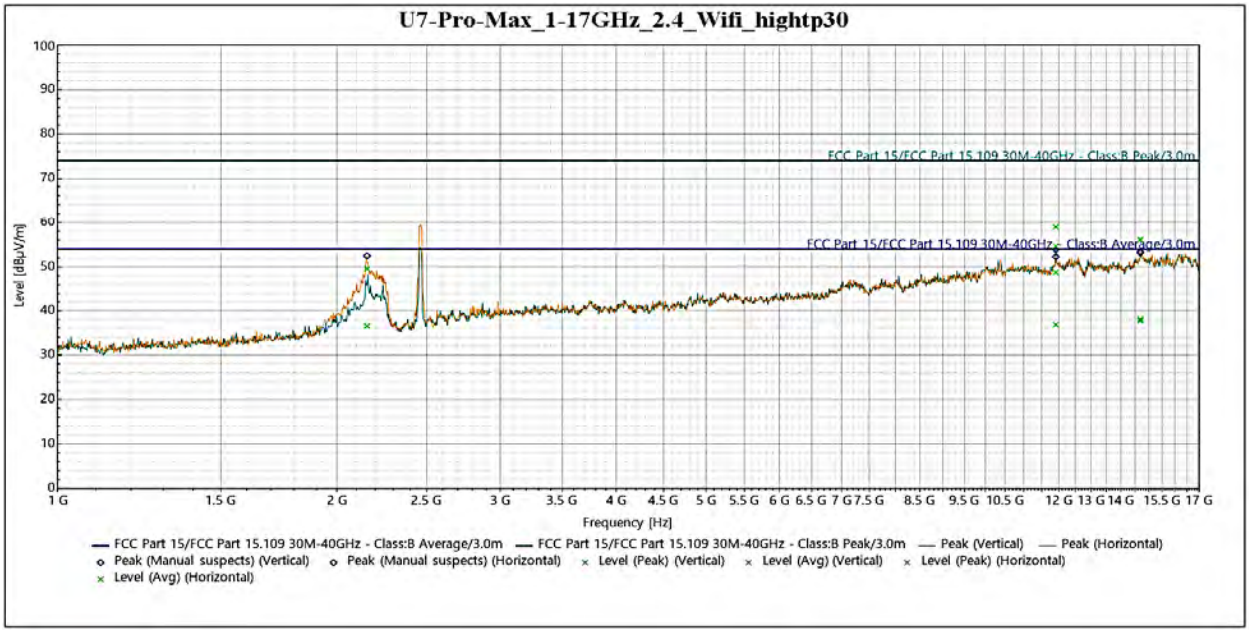
Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
11.91 GHz	58.283	74	-15.717	348	2.178	Vertical	16.544
14.707 GHz	56.077	74	-17.923	221	1.638	Vertical	17.382
2.1261 GHz	53.999	74	-20.001	77	1.82	Horizontal	-3.603
12.537 GHz	55.476	74	-18.524	303	2.725	Horizontal	16.591

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
11.91 GHz	49.145	54	-4.855	348	2.178	Vertical	16.544
14.707 GHz	38.355	54	-15.645	221	1.638	Vertical	17.382
2.1261 GHz	40.353	54	-13.647	77	1.82	Horizontal	-3.603
12.537 GHz	36.516	54	-17.484	303	2.725	Horizontal	16.591

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



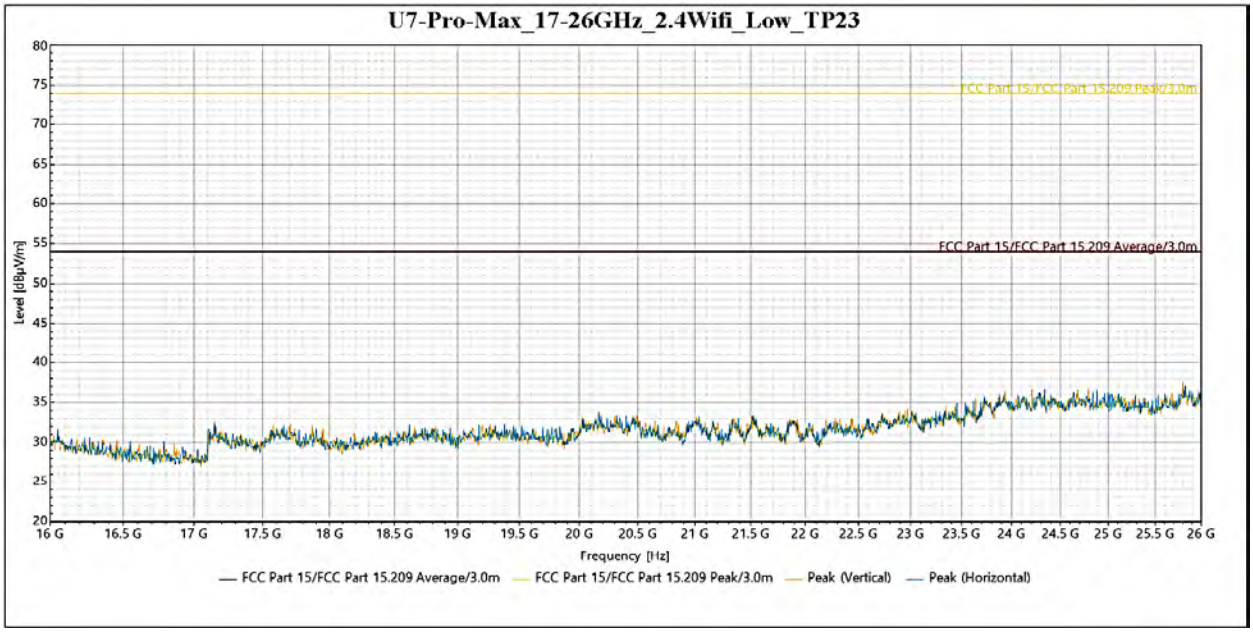
Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
11.91 GHz	58.934	74	-15.066	353	2.182	Vertical	16.544
14.69 GHz	56.024	74	-17.976	169	2.897	Vertical	17.336
2.1558 GHz	49.574	74	-24.426	304	2.742	Horizontal	-3.588
11.911 GHz	54.703	74	-19.297	91	3.079	Horizontal	16.543
14.693 GHz	56.055	74	-17.945	58	1.5	Horizontal	17.374

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
11.91 GHz	48.819	54	-5.181	353	2.182	Vertical	16.544
14.69 GHz	37.699	54	-16.301	169	2.897	Vertical	17.336
2.1558 GHz	36.511	54	-17.489	304	2.742	Horizontal	-3.588
11.911 GHz	36.809	54	-17.191	91	3.079	Horizontal	16.543
14.693 GHz	38.06	54	-15.94	58	1.5	Horizontal	17.374

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



Peak

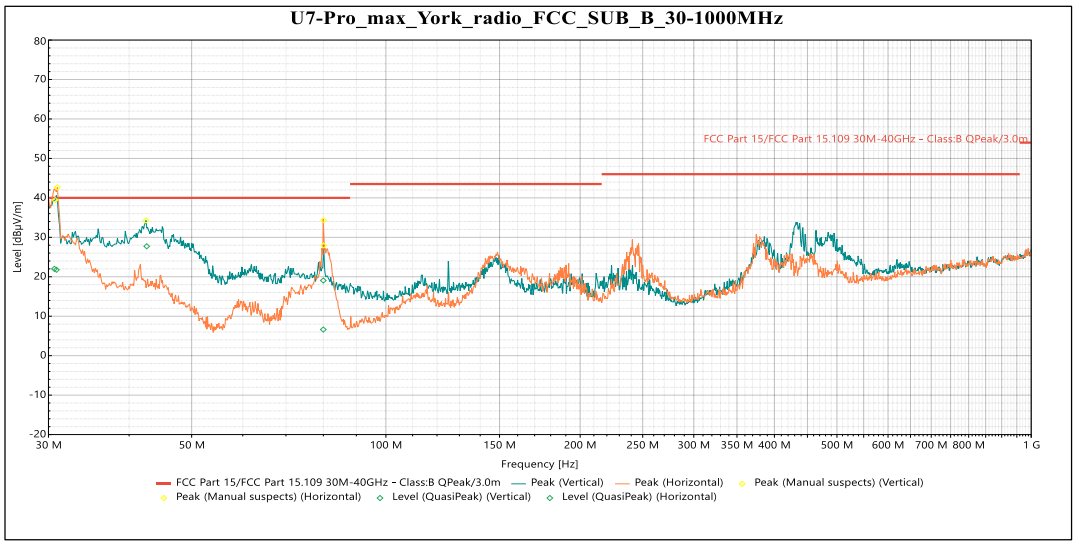
Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
No significant emissions	-	-	-	-	-	Vertical	-
No significant emissions	-	-	-	-	-	Horizontal	-

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
No significant emissions	-	-	-	-	-	Vertical	-
No significant emissions	-	-	-	-	-	Horizontal	-

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

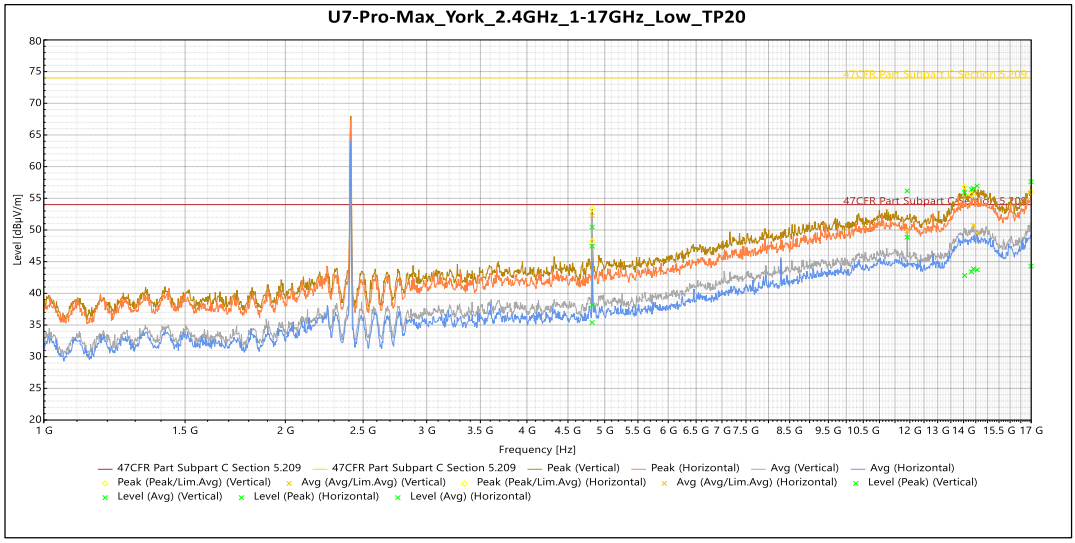
York Module



QuasiPeak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
30.64 MHz	22.014	40	-17.986	307	1.128	Vertical	-8.155
42.595 MHz	27.726	40	-12.274	36	1.132	Vertical	-16.243
79.988 MHz	19.05	40	-20.95	289	2.207	Vertical	-20.517
30.865 MHz	21.773	40	-18.227	265	3.65	Horizontal	-8.335
79.98 MHz	6.624	40	-33.376	296	3.868	Horizontal	-20.517

Table 9: Radiated Emissions 30 – 1000 MHz



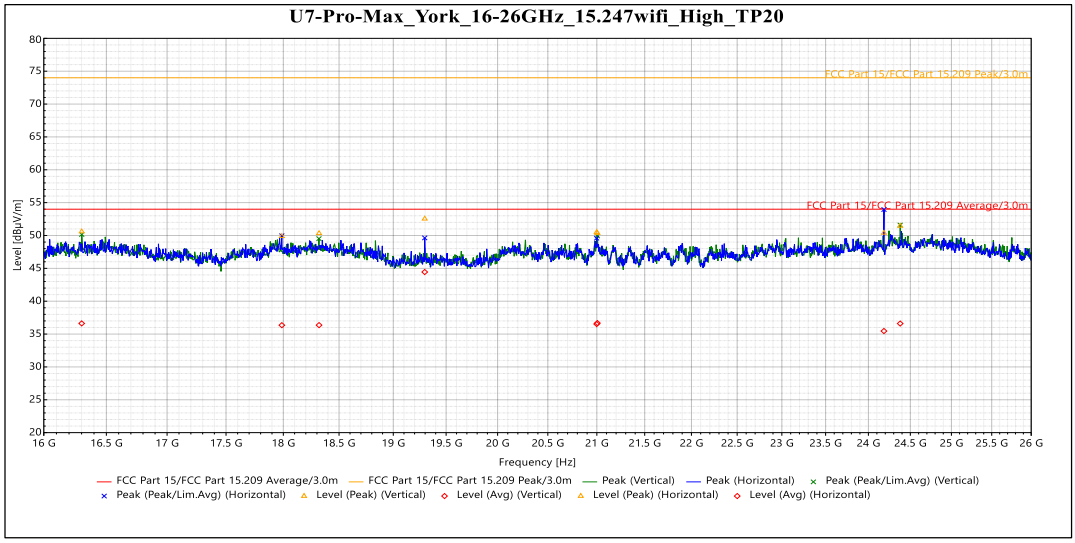
Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
4.824 GHz	50.463	74	-23.537	185	2.637	Vertical	-5.973
11.91 GHz	56.165	74	-17.835	116	2.637	Vertical	8.285
14.044 GHz	55.92	74	-18.08	280	2.637	Vertical	11.035
14.409 GHz	56.553	74	-17.447	252	1.631	Vertical	11.973
4.8231 GHz	47.452	74	-26.548	228	2.827	Horizontal	-5.973
14.323 GHz	56.398	74	-17.602	67	3.808	Horizontal	11.631
14.555 GHz	56.937	74	-17.063	180	1.845	Horizontal	11.799
16.992 GHz	57.606	74	-16.394	354	1.628	Horizontal	13.512

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
4.824 GHz	38.135	54	-15.865	185	2.637	Vertical	-5.973
11.91 GHz	48.852	54	-5.148	116	2.637	Vertical	8.285
14.044 GHz	42.817	54	-11.183	280	2.637	Vertical	11.035
14.409 GHz	43.878	54	-10.122	252	1.631	Vertical	11.973
4.8231 GHz	35.394	54	-18.606	228	2.827	Horizontal	-5.973
14.323 GHz	43.394	54	-10.606	67	3.808	Horizontal	11.631
14.555 GHz	43.714	54	-10.286	180	1.845	Horizontal	11.799
16.992 GHz	44.282	54	-9.718	354	1.628	Horizontal	13.512

Table 10: Radiated Emissions 1 – 17 GHz on the Lowest Frequency (worse case)



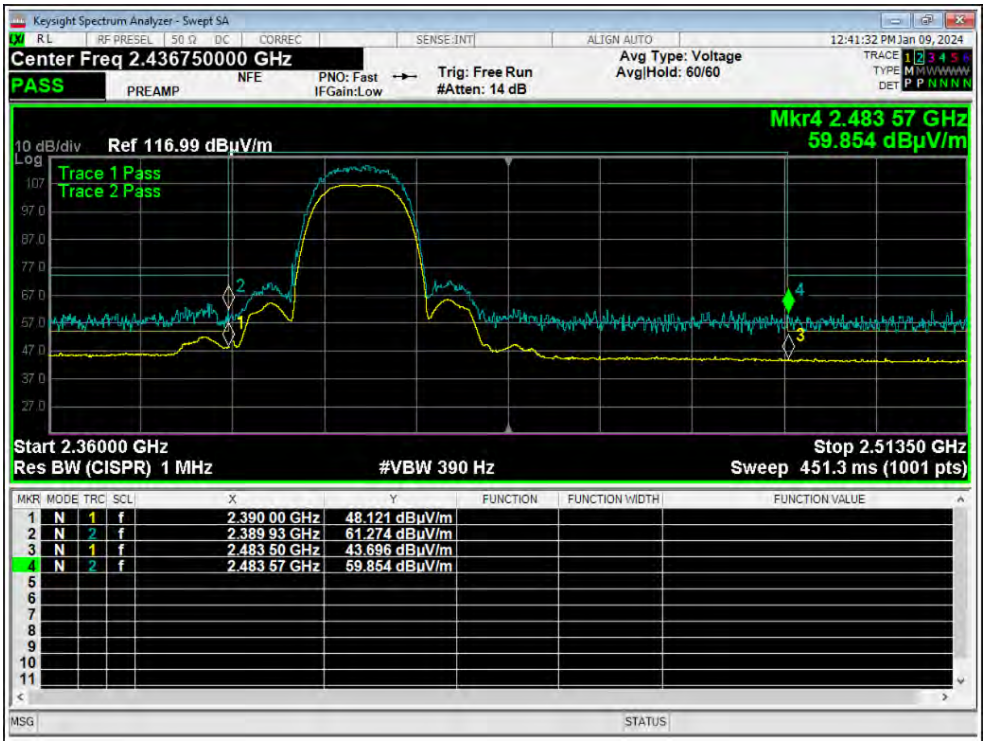
Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
16.301 GHz	50.597	74	-23.403	46	Vertical	0.879
18.319 GHz	50.329	74	-23.671	334	Vertical	-0.429
21.006 GHz	50.363	74	-23.637	221	Vertical	0.865
24.378 GHz	51.447	74	-22.553	192	Vertical	1.264
17.987 GHz	49.886	74	-24.114	322	Horizontal	-0.647
19.296 GHz	52.535	74	-21.465	34	Horizontal	-0.488
20.998 GHz	50.493	74	-23.507	111	Horizontal	0.825
24.184 GHz	50.391	74	-23.609	283	Horizontal	0.534

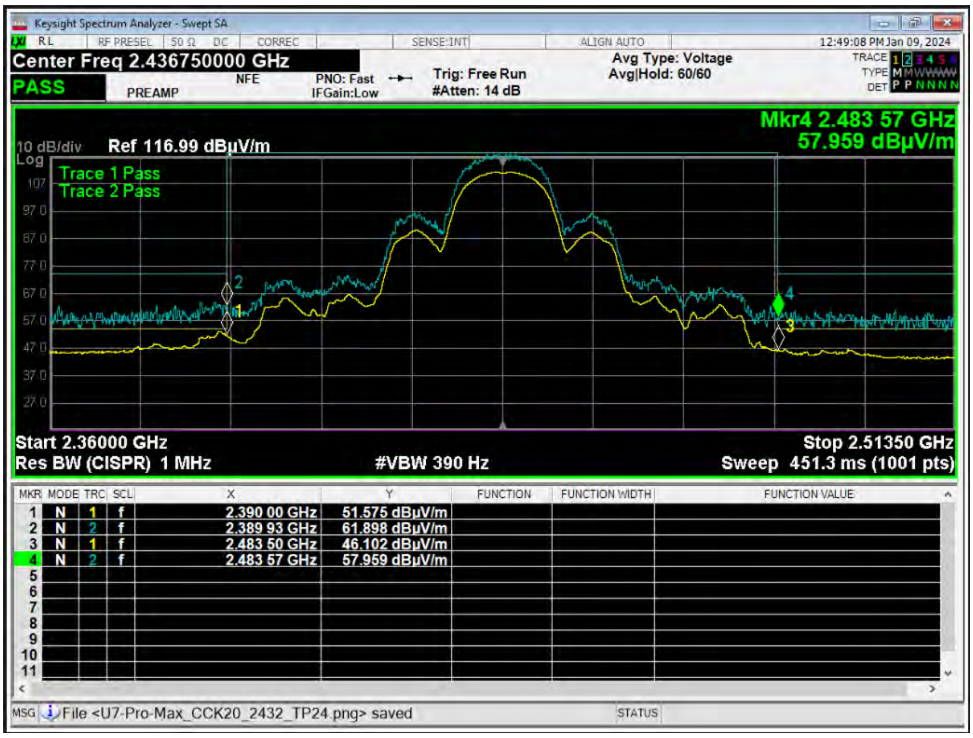
Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
16.301 GHz	36.622	54	-17.378	46	Vertical	0.879
18.319 GHz	36.361	54	-17.639	334	Vertical	-0.429
21.006 GHz	36.673	54	-17.327	221	Vertical	0.865
24.378 GHz	36.602	54	-17.398	192	Vertical	1.264
17.987 GHz	36.349	54	-17.651	322	Horizontal	-0.647
19.296 GHz	44.444	54	-9.556	34	Horizontal	-0.488
20.998 GHz	36.53	54	-17.47	111	Horizontal	0.825
24.184 GHz	35.459	54	-18.541	283	Horizontal	0.534

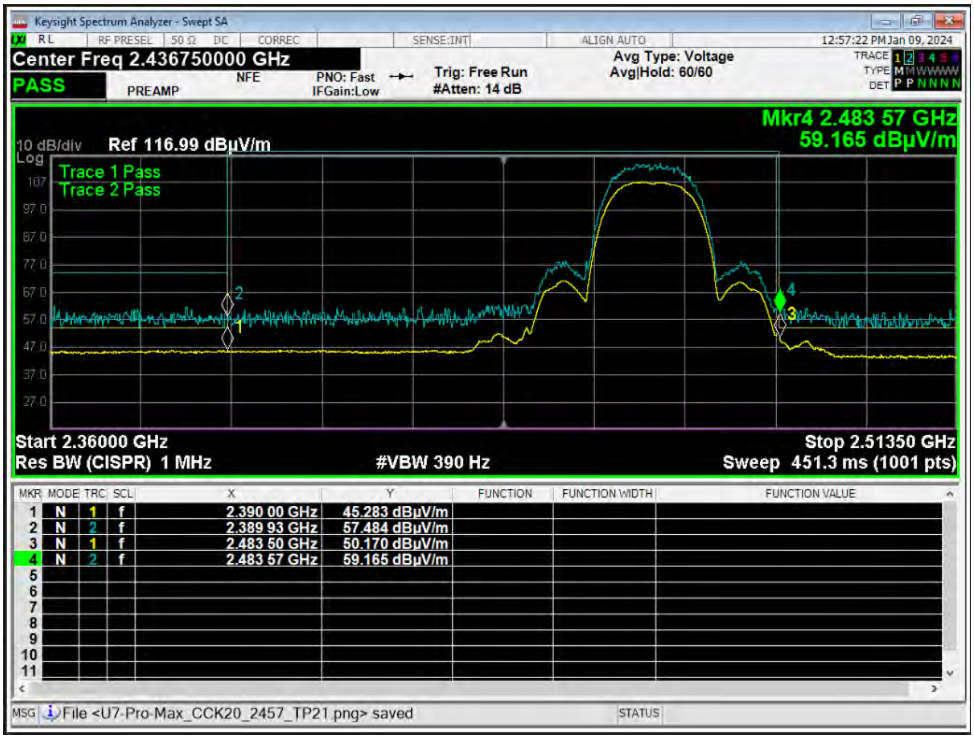
Table 11: Radiated Emissions 17 – 40 GHz on the Highest Frequency (worse case)



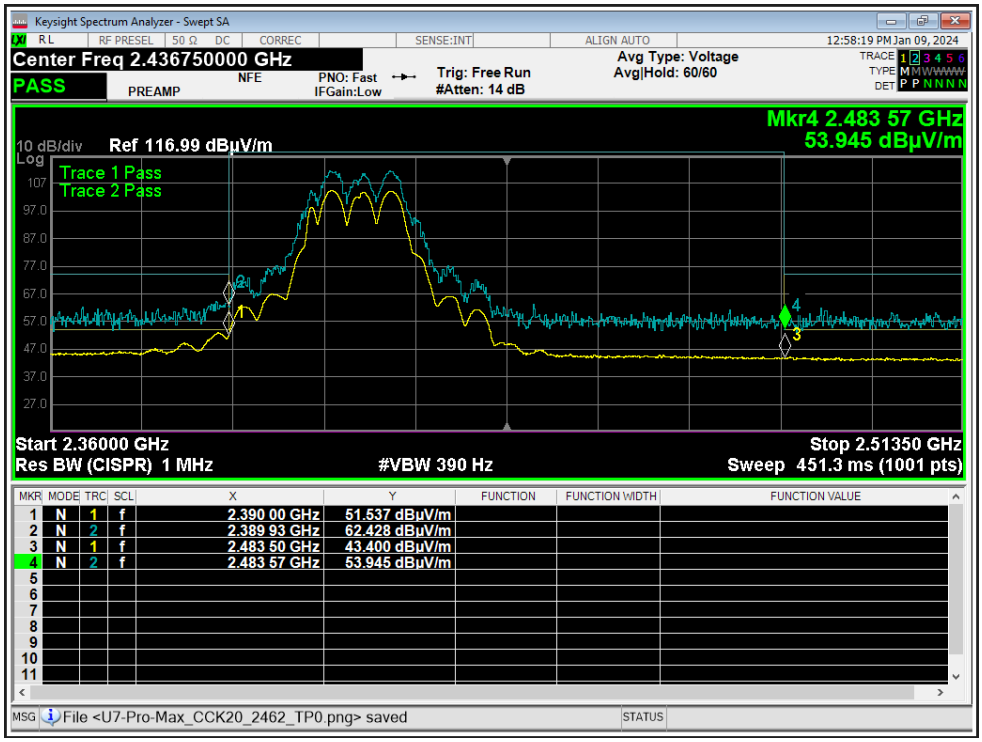
Plot 1: CCK 20 MHz, 2412 MHz



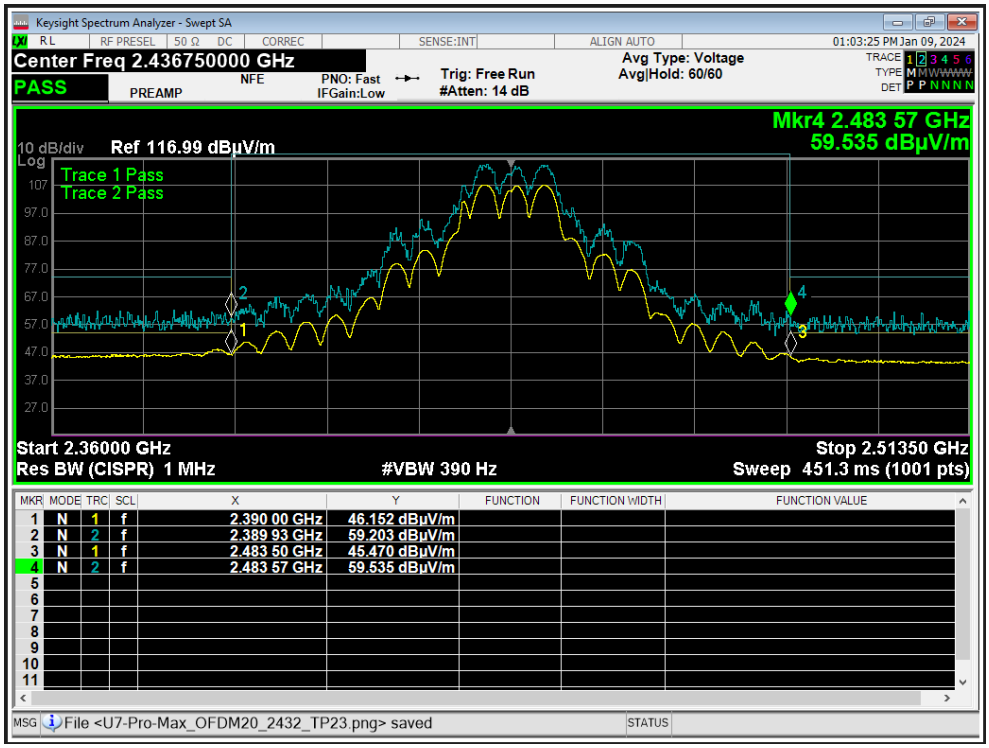
Plot 2: CCK 20 MHz, 2437 MHz



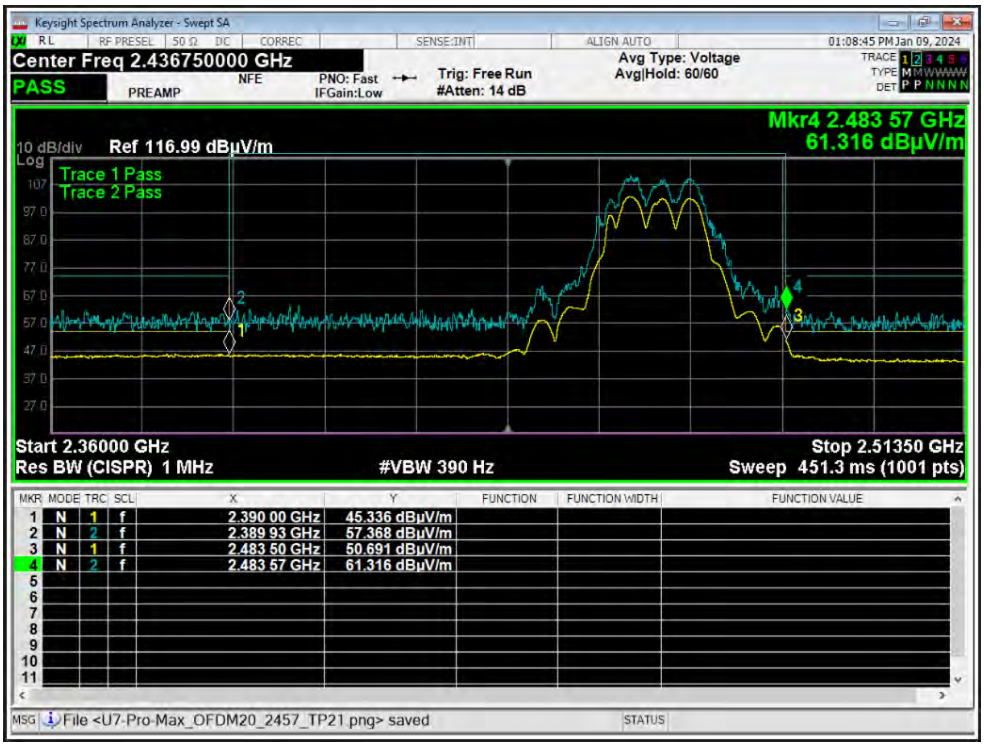
Plot 3: CCK 20 MHz, 2462 MHz



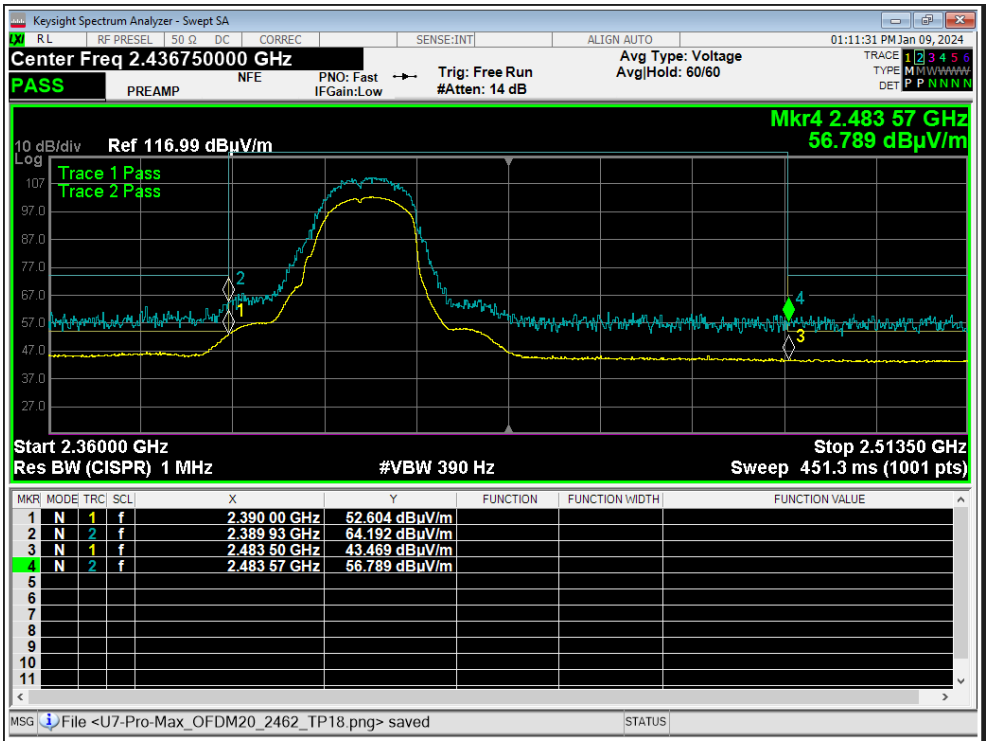
Plot 4: OFDM 20 MHz, 2412 MHz



Plot 5: OFDM 20 MHz, 2437 MHz

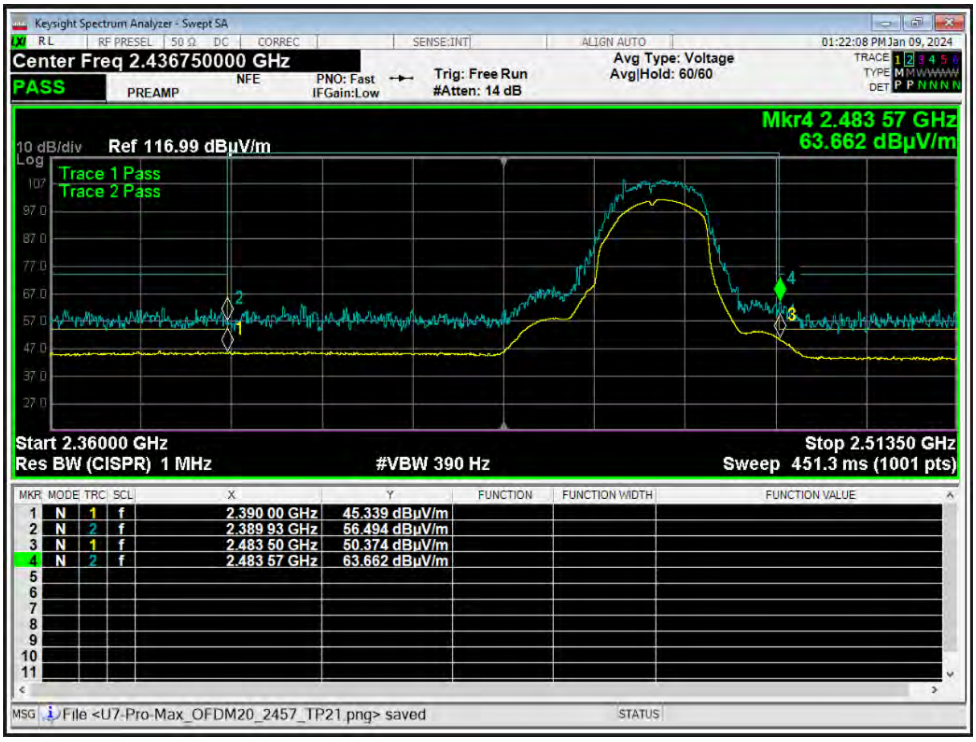


Plot 6: OFDM 20 MHz, 2462 MHz



Plot 7: HT 20 MHz, 2412 MHz

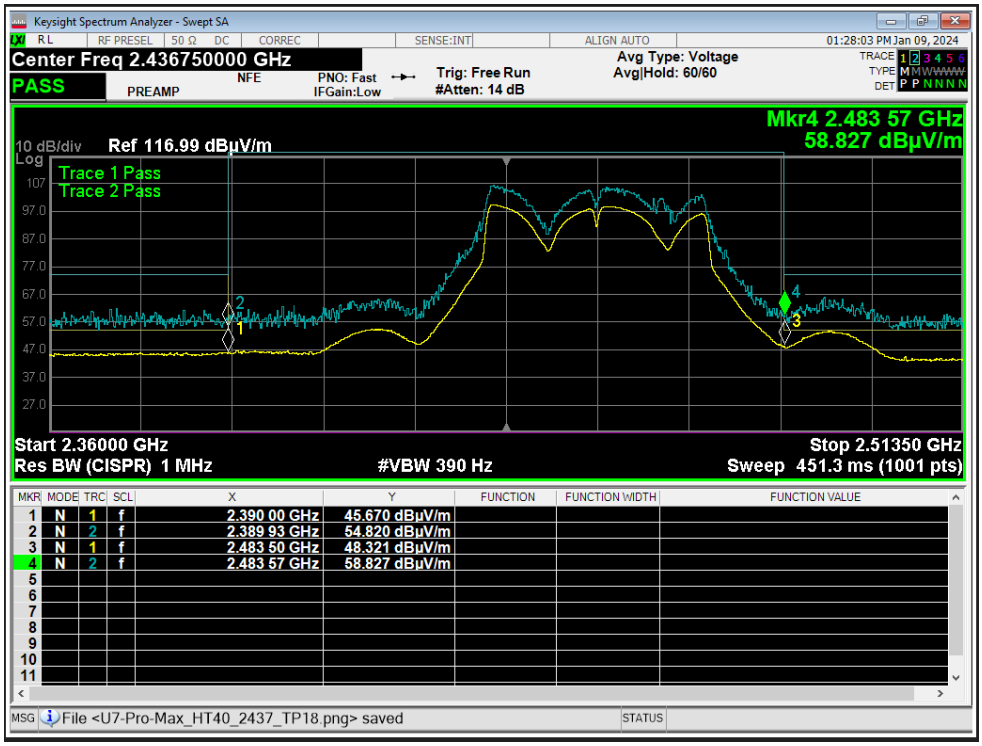
Plot 8: HT 20 MHz, 2437 MHz



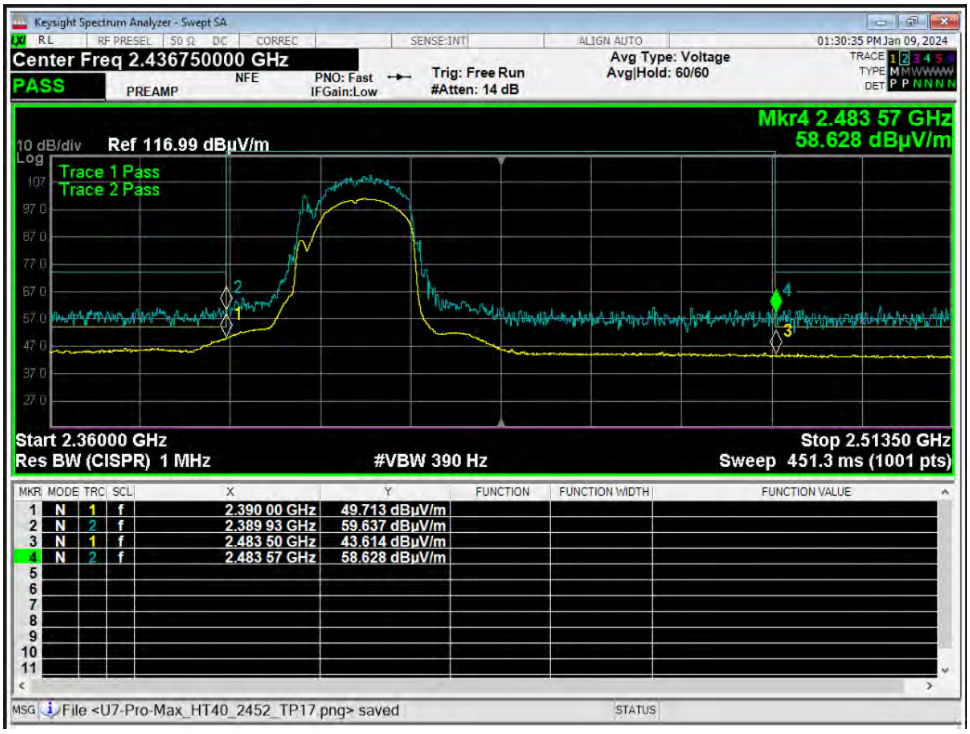
Plot 9: HT 20 MHz, 2462 MHz

Plot 10: HT 40 MHz, 2422 MHz

Plot 11: HT 40 MHz, 2437 MHz

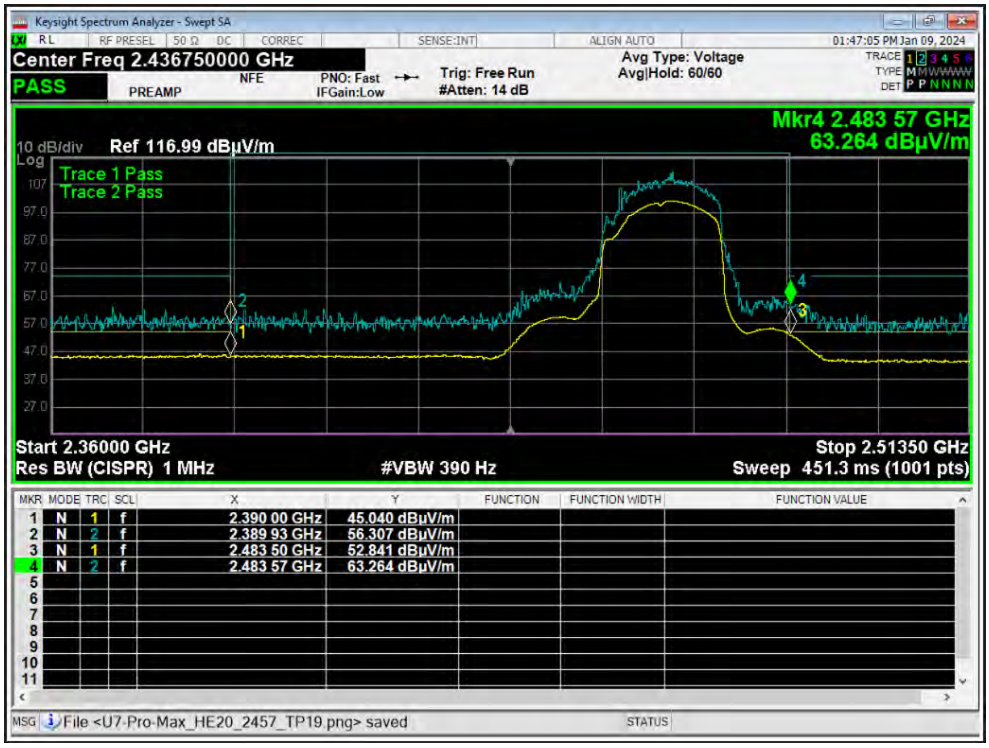


Plot 12: HT 40 MHz, 2452 MHz

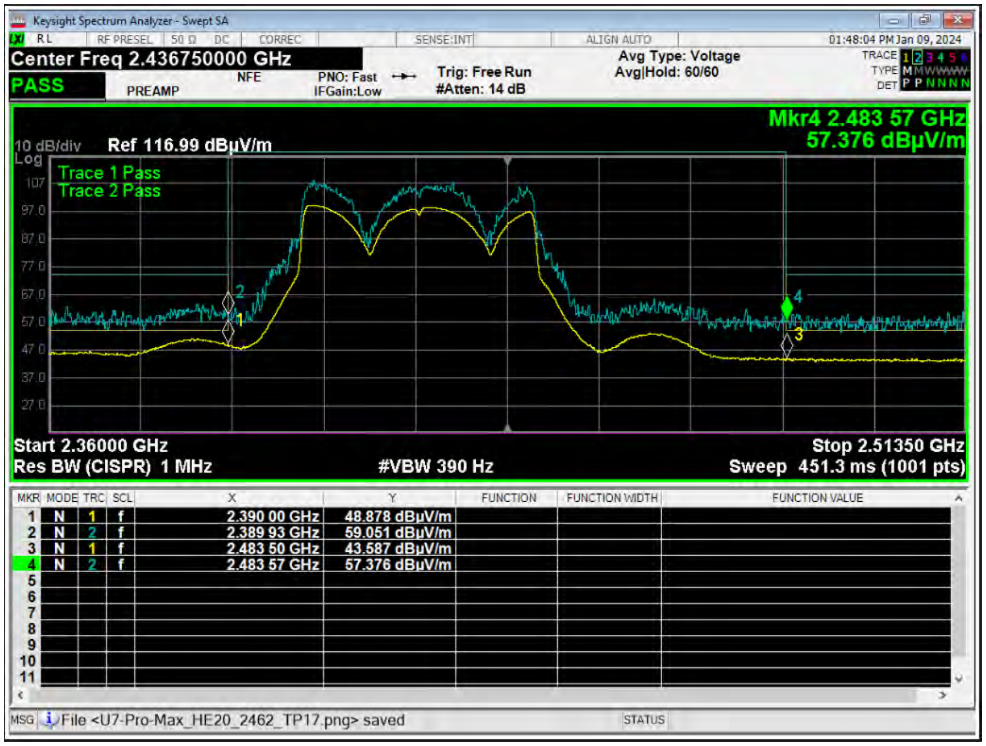


Plot 13: HE 20 MHz, 2412 MHz

Plot 14: HE 20 MHz, 2437 MHz

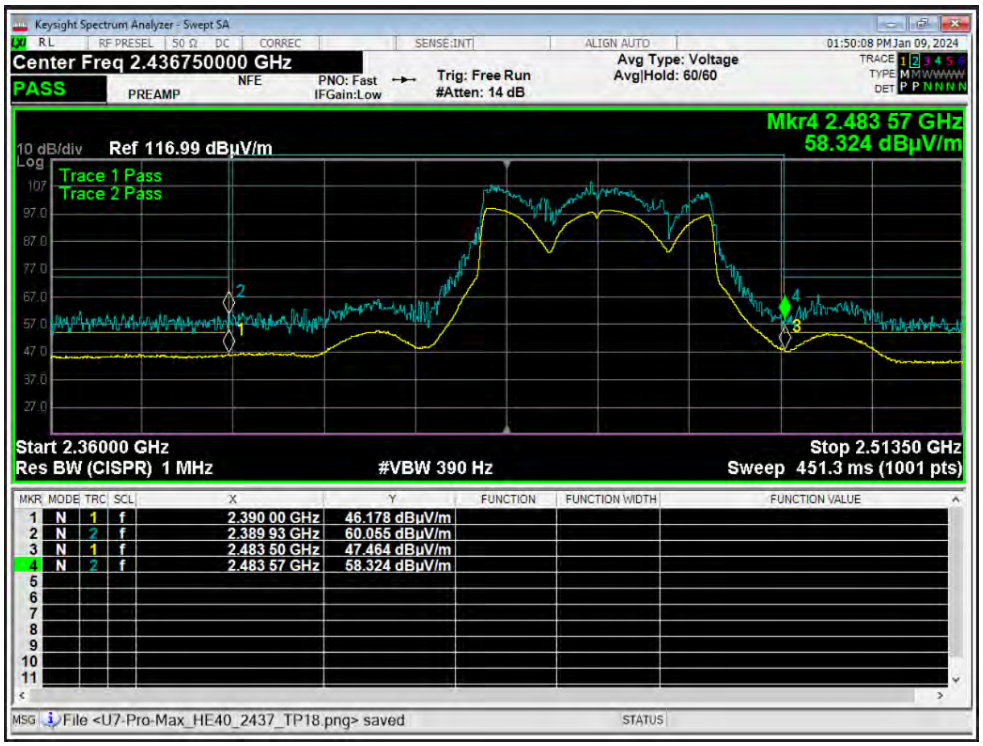


Plot 15: HE 20 MHz, 2462 MHz



Plot 16: HE 40 MHz, 2422 MHz

Plot 17: HE 40 MHz, 2437 MHz



Plot 18: HE 40 MHz, 2452 MHz

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	-6.29	8.0
	2437	-6.29	8.0
	2462	-6.5	8.0
g	2412	-13.44	8.0
	2437	-10.47	8.0
	2462	-15.77	8.0
n 20	2412	-17.33	8.0
	2437	-11.51	8.0
	2462	-18.56	8.0
n 40	2422	-21.27	8.0
	2437	-19.32	8.0
	2452	-20.76	8.0
ax 20	2412	-18.49	8.0
	2437	-12.71	8.0
	2462	-18.61	8.0
ax 40	2422	-21.37	8.0
	2437	-20.12	8.0
	2452	-21.21	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 --