



427 West 12800 South
Draper, UT 84020

Test Report Certification

FCC ID	SWX-U7PROO
IC ID	6545A-U7PROO
Equipment Under Test	U7-Pro-Outdoor
Test Report Serial Number	TR9497_03
Date of Tests	1-4, 7 October & 6 December 2024
Report Issue Date	9 December 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 with the specifications provided by the manufacturer.

Applicant	Ubiquiti Inc.
Manufacturer	Ubiquiti Inc.
Brand Name	UBIQUITI
Model Number	U7-Pro-Outdoor
FCC ID	SWX-U7PROO
IC ID	6545A-U7PROO

On this 9th day of December 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	20 November 2024
02	Updated results for PSD reduction.	9 December 2024
03	Removed Section 5.5.1 Amended Sections 2.2, 3.3.1, 5.1, 5.3, 5.4, 5.6	14 February 2025

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	7
2.5	Operating Environment.....	7
2.6	Operating Modes.....	7
2.7	EUT Exercise Software.....	7
2.8	Block Diagram of Test Configuration	8
2.9	Modification Incorporated/Special Accessories on EUT.....	8
2.10	Deviation, Opinions Additional Information or Interpretations from Test Standard.....	8
3	Test Specification, Method and Procedures.....	9
3.1	Test Specification.....	9
3.2	Methods & Procedures.....	9
3.3	FCC Part 15, Subpart C	9
3.4	Results.....	10
3.5	Test Location	10
4	Test Equipment	11
4.1	Conducted Emissions at Mains Ports.....	11
4.2	Direct Connect at the Antenna Port Tests.....	11
4.3	Radiated Emissions	12
4.4	Equipment Calibration	13
4.5	Measurement Uncertainty	13
5	Test Results.....	14
5.1	§15.203 Antenna Requirements.....	14
5.2	Conducted Emissions at Mains Ports Data	15
5.3	§15.247(a) Emissions Bandwidth	17
5.4	§15.247(b)(c) Maximum Average Output Power	19
5.5	§15.247(d) Spurious Emissions	23
5.6	§15.247(e) Maximum Average Power Spectral Density	31

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-Outdoor
Serial Number	942A6F407A26
Dimensions (cm)	17.0 x 20.8 x 12.18

2.2 Description of EUT

The U7-Pro-Outdoor is a WiFi7 access point with 2.4 GHz, 5GHz and 6GHz 2x2 radios. It has external SMA antenna connectors supporting 2.4/5GHz and internal antennas supporting 2.4/5/6GHz. The U7-Pro-Outdoor has an aggregate throughput rate of 9.3 Gbps and is powered by a 2.5Gbe PoE 802.3at through a single RJ45 port.

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 dB + 8 dBi = 11.01 dBi.

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

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-Wall (Note 1) SN: 05BF1C	WiFi Access Point	See Section 2.4

BN: UBIQUITI MN: U-POE-at SN: N/A	PoE Power Adapter	Unshielded Cat 5e cable/1 meters
BN: Dell MN: XPS 13 SN: N/A	Laptop Personal Computer	Unshielded Cat 5e cable/1 meters

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	3 conductor power cord/80 cm
POE (POE Injector)	1	Unshielded Cat 5e cable/8 meters
LAN (POE Injector)	1	Unshielded Cat 5e cable/1 meters

2.5 Operating Environment

Power Supply	120 Volts AC Mains to 48 Volts PoE
AC Mains Frequency	60 Hz
Temperature	21 - 26 °C
Humidity	17 - 29 %
Barometric Pressure	1013 mBar

2.6 Operating Modes

The U7-Pro-Outdoor 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

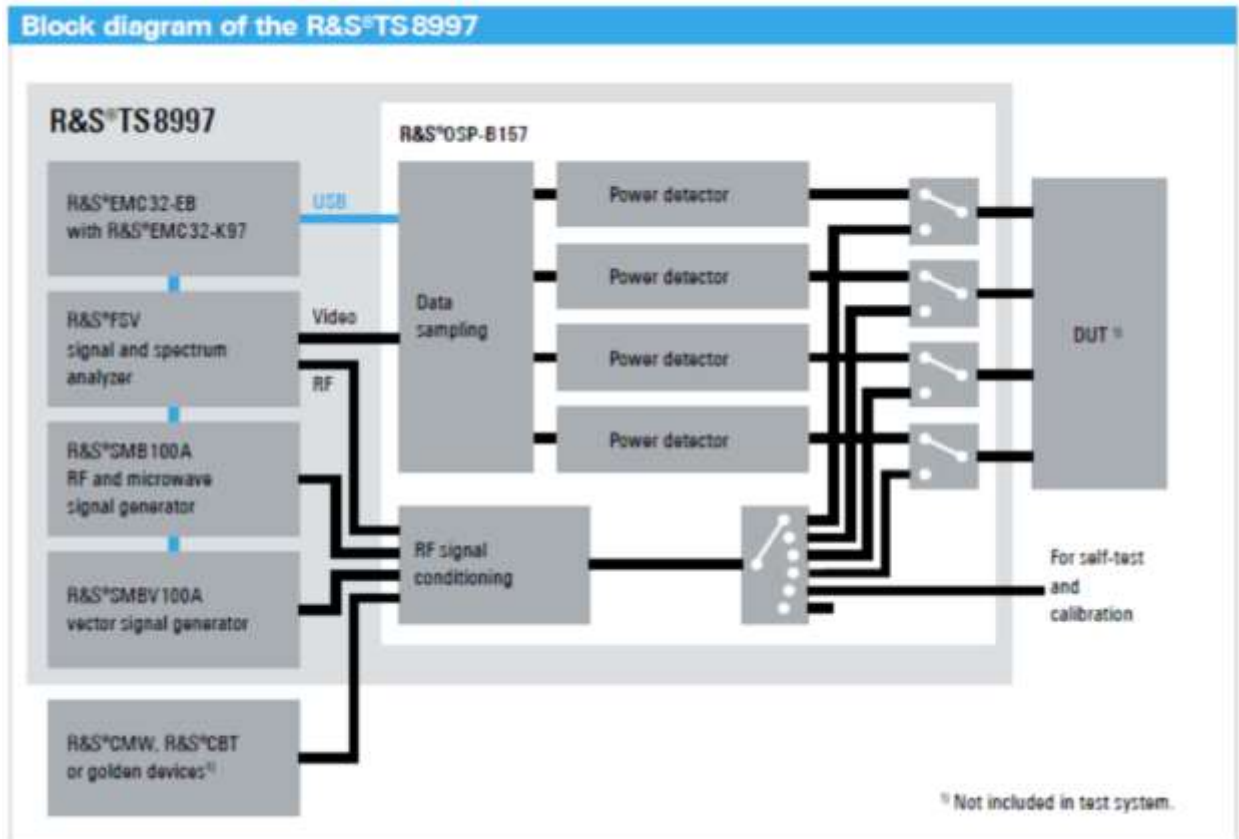


Diagram 1: Test Configuration Block Diagram

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)(c)	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 Note ¹
15.209	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. Note 1: Radiated Spurious was performed per 15.209 with the antenna unterminated.				

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 chamber 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

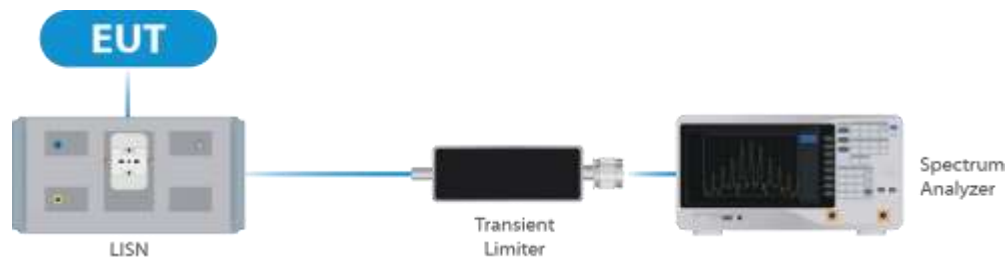


Figure 1: Conducted Emissions Test

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

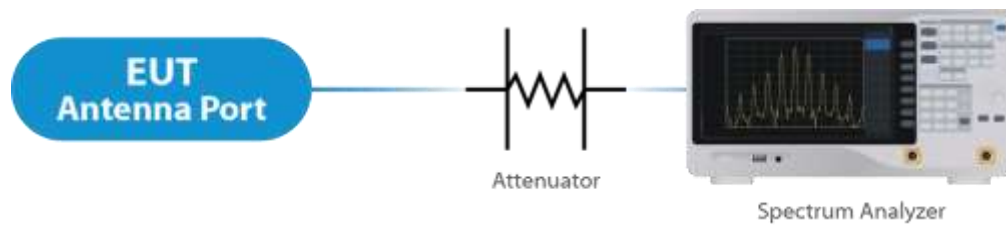


Figure 2: Direct Connect at the Antenna Port Test

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

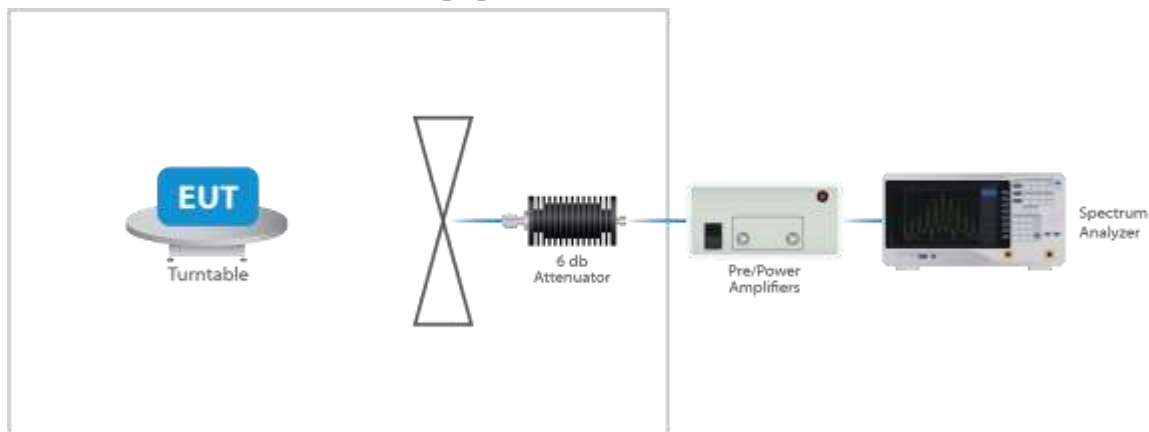


Figure 3: Radiated Emissions Test

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

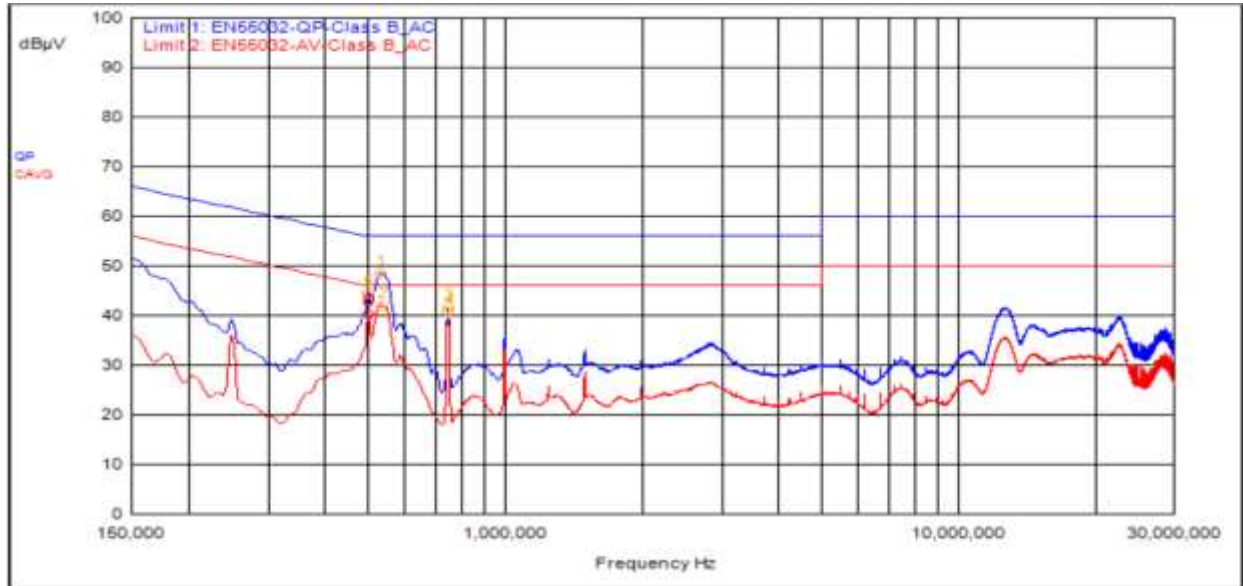
5.1 §15.203 Antenna Requirements

The EUT uses an internal and an external antenna. Per the manufacturer, the maximum gain of the internal antenna per chain is 8 dBi and the maximum gain for the external antenna is 4 dBi. This is an 802.11 device and utilizes CDD as described in KDB 662911 D01. The internal antenna is not user replaceable; the external antenna is removable.

Results

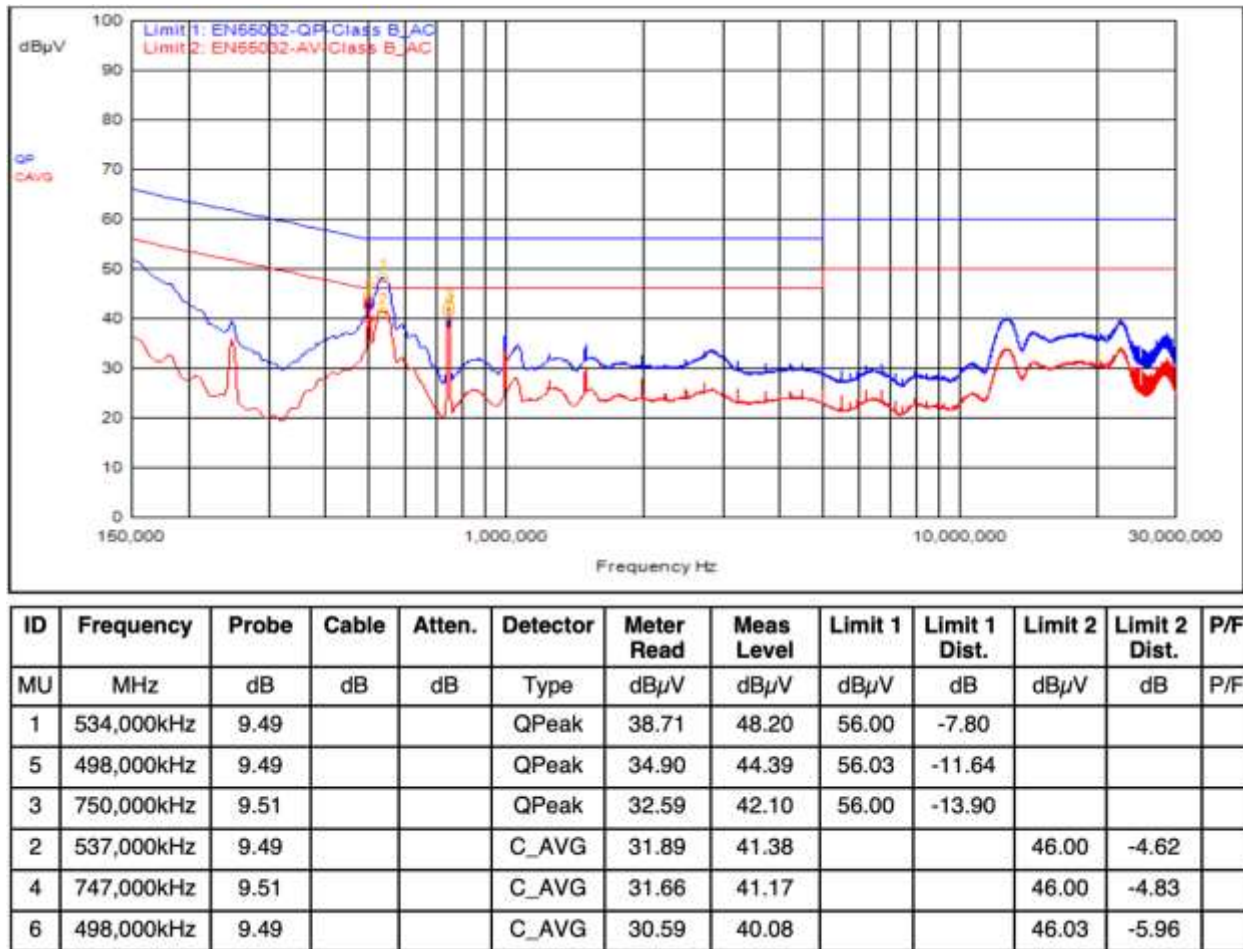
The EUT complied with the specification

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	531,000kHz	9.62			QPeak	38.97	48.59	56.00	-7.41			
5	498,000kHz	9.64			QPeak	34.93	44.57	56.03	-11.46			
3	750,000kHz	9.52			QPeak	32.25	41.77	56.00	-14.23			
2	534,000kHz	9.62			C_AVG	32.45	42.07			46.00	-3.93	
4	747,000kHz	9.52			C_AVG	31.36	40.88			46.00	-5.12	
6	498,000kHz	9.64			C_AVG	30.75	40.39			46.03	-5.64	

Graph 1: Conducted Emissions Plot - Neutral



Graph 2: Conducted Emissions Plot – Line 1

Result

The EUT complied with the specification limit.

5.3 §15.247(a) 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.

5.3.1 Internal Antenna

Mode	Frequency (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth (MHz)
b 20	2412	12.7	8.2
	2437	12.8	8.15
	2462	12.8	6.8
g 20	2412	16.50	16.45
	2437	16.60	16.50
	2462	16.60	16.55
n 20	2412	17.80	17.65
	2437	17.90	17.00
	2462	17.80	17.30
n 40	2422	36.75	35.50
	2437	36.25	29.25
	2452	36.50	36.40
ax 20	2412	18.90	18.55
	2437	18.90	17.40
	2462	19.10	19.05
ax 40	2422	37.75	34.45
	2437	37.75	36.45
	2452	37.75	36.65

5.3.2 External Antenna

Mode	Frequency (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth (MHz)
b 20	2412	12.60	6.55
	2437	27.60	10.05
	2462	29.50	10.00
g 20	2412	16.50	16.35
	2437	16.80	16.45
	2462	16.60	16.50
n 20	2412	17.90	17.65
	2437	26.90	17.70
	2462	17.70	15.10
n 40	2422	36.50	31.75
	2437	36.50	33.90
	2452	36.50	36.40
ax 20	2412	18.90	11.45
	2437	19.10	19.00
	2462	18.90	16.50
ax 40	2422	37.50	36.50
	2437	38.00	21.70
	2452	37.75	36.60

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)(c) 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.

See Section 2.2 of this report for the directional gain calculation.

The maximum average RF conducted output power measured for this device was 29.54 dBm or 899.50 mW. The limit is 30 dBm or 1 Watt when using antennas with 6 dBi or less gain. The external antenna has a gain of 4 dB and an internal antenna gain of 8 dBi.

5.4.1 Internal Antenna

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power *	Measured EIRP
b 20	2412	Mcs0	24	26.62	34.62
	2417	Mcs0	24	26.68	34.68
	2422	Mcs0	24	26.64	34.64
	2427	Mcs0	24	26.61	34.61
	2432	Mcs0	24	26.51	34.51
	2437	Mcs0	24	26.58	34.58
	2442	Mcs0	24	26.58	34.58
	2447	Mcs0	24	26.82	34.82
	2452	Mcs0	24	26.83	34.83
	2457	Mcs0	24	26.82	34.82
g 20	2412	Mcs0	20	22.80	30.80
	2417	Mcs0	23	25.56	33.56
	2422	Mcs0	23	25.44	33.44
	2427	Mcs0	24	26.35	34.35
	2432	Mcs0	24	26.31	34.31
	2437	Mcs0	24	26.37	34.37
	2442	Mcs0	24	26.38	34.38
	2447	Mcs0	23	25.47	33.47
	2452	Mcs0	22	24.58	32.58
	2457	Mcs0	21	23.67	31.67
n 20	2412	Mcs0	19	21.92	29.92
	2412	Mcs0	22	23.97	31.97

	2417	Mcs0	23	25.47	33.47
	2422	Mcs0	24	25.82	33.82
	2427	Mcs0	24	26.39	34.39
	2432	Mcs0	25	26.84	34.84
	2437	Mcs0	26	27.73	35.73
	2442	Mcs0	25	26.89	34.89
	2447	Mcs0	25	27.03	35.03
	2452	Mcs0	23	25.51	33.51
	2457	Mcs0	16	18.51	26.51
	2462	Mcs0	14	16.34	24.34
n 40	2422	Mcs0	17	20.01	28.01
	2437	Mcs0	20	22.73	30.73
	2452	Mcs0	18	20.83	28.83
ax 20	2412	Mcs0	21	22.99	30.99
	2417	Mcs0	23	24.88	32.88
	2422	Mcs0	25	25.82	33.82
	2427	Mcs0	25	25.83	33.83
	2432	Mcs0	25	25.88	33.88
	2437	Mcs0	25	25.92	33.92
	2442	Mcs0	25	25.88	33.88
	2447	Mcs0	24	24.89	32.89
	2452	Mcs0	23	24.23	32.23
	2457	Mcs0	22	23.07	31.07
ax 40	2462	Mcs0	20	21.26	29.26
	2422	Mcs0	17	18.87	26.87
	2437	Mcs0	21	22.65	30.65
	2452	Mcs0	18	19.98	27.98

5.4.2 External Antenna

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power *	Measured EIRP
b 20	2412	Mcs0	25	25.78	31.78
	2417	Mcs0	26	26.83	32.83
	2422	Mcs0	27	29.54	35.54
	2427	Mcs0	27	29.36	35.36
	2432	Mcs0	27	29.25	35.25

	2437	Mcs0	27	29.17	35.17
	2442	Mcs0	27	29.16	35.16
	2447	Mcs0	27	29.22	35.22
	2452	Mcs0	26	27.34	33.34
	2457	Mcs0	26	28.80	34.80
	2462	Mcs0	26	28.73	34.73
g 20	2412	Mcs0	19	20.08	26.08
	2417	Mcs0	21	21.85	27.85
	2422	Mcs0	22	22.81	28.81
	2427	Mcs0	23	23.81	29.81
	2432	Mcs0	24	24.75	30.75
	2437	Mcs0	25	25.73	31.73
	2442	Mcs0	25	25.78	31.78
	2447	Mcs0	24	24.85	30.85
	2452	Mcs0	24	24.89	30.89
	2457	Mcs0	23	24.21	30.21
	2462	Mcs0	20	21.14	27.14
n 20	2412	Mcs0	21	21.74	27.74
	2417	Mcs0	23	23.12	29.12
	2422	Mcs0	24	23.95	29.95
	2427	Mcs0	25	25.66	31.66
	2432	Mcs0	26	26.08	32.08
	2437	Mcs0	26	26.12	32.12
	2442	Mcs0	26	26.36	32.36
	2447	Mcs0	26	27.84	33.84
	2452	Mcs0	26	26.69	32.69
	2457	Mcs0	22	22.44	28.44
	2462	Mcs0	19	20.27	26.27
n 40	2422	Mcs0	19	20.38	26.38
	2437	Mcs0	22	23.02	29.02
	2452	Mcs0	18	19.46	25.46
ax 20	2412	Mcs0	21	21.84	27.84
	2417	Mcs0	23	23.84	29.84
	2422	Mcs0	24	24.75	30.75
	2427	Mcs0	24	24.13	30.13
	2432	Mcs0	25	25.75	31.75

	2437	Mcs0	26	26.28	32.28
	2442	Mcs0	26	26.33	32.33
	2447	Mcs0	26	26.21	32.21
	2452	Mcs0	25	25.43	31.43
	2457	Mcs0	24	24.35	30.35
	2462	Mcs0	20	21.08	27.08
ax 40	2422	Mcs0	20	20.99	26.99
	2437	Mcs0	22	23.26	29.26
	2452	Mcs0	20	21.41	27.41

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 Radiated Spurious Emissions in the Restricted Bands of §15.205

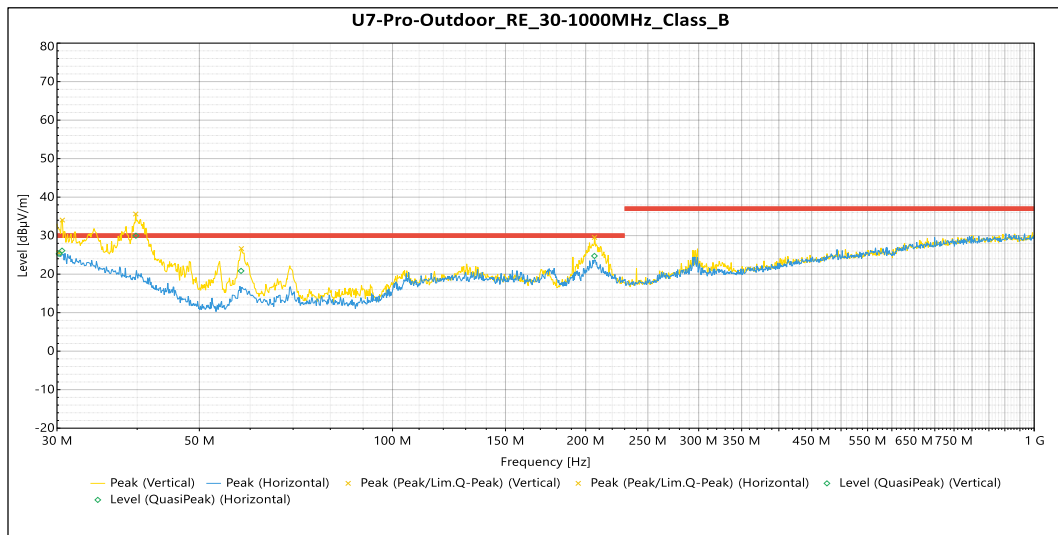
The frequency range from the lowest frequency generated or used in the device to the tenth harmonic of the highest fundamental emissions was investigated to measure any radiated emissions in the restricted bands. The following tables show measurements of any emissions that fell into the restricted bands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

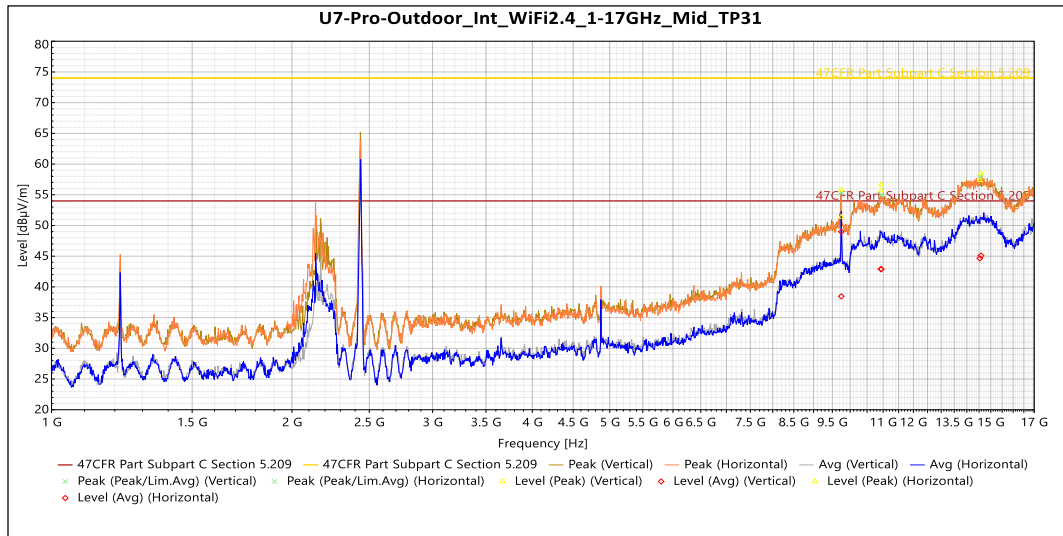
Result

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

Internal Antenna

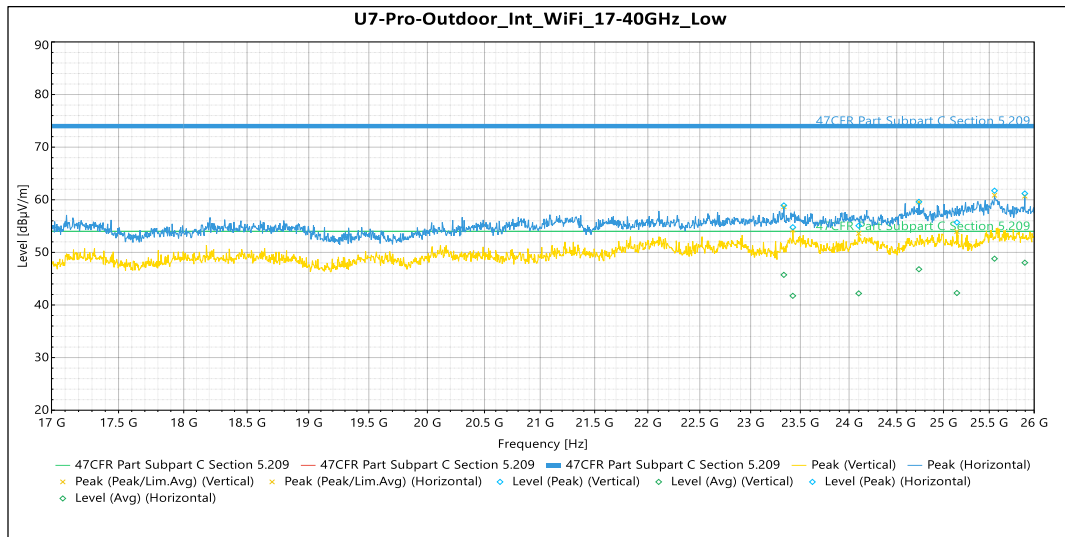


Frequency	SR #	Level (dBμV/m)	Limit (dBμV/m)	Margin	Azimuth (°)	Height	Pol.	RBW (Hz)	Correction (dB)
30.547212 MHz	1	26.111	30	-3.889	117	3.74	Vertical	120 kHz	-3.932
39.82208 MHz	1	29.987	30	-0.013	58	1.08	Vertical	120 kHz	-10.068
58.07336 MHz	1	20.844	30	-9.156	40	2.69	Vertical	120 kHz	-16.592
206.390644 MHz	1	24.724	30	-5.276	239	1	Vertical	120 kHz	-12.769
30.223088 MHz	2	25.276	30	-4.724	243	3.1	Horizontal	120 kHz	-3.678

Table 4: Radiated Emissions within 30MHz-1GHz


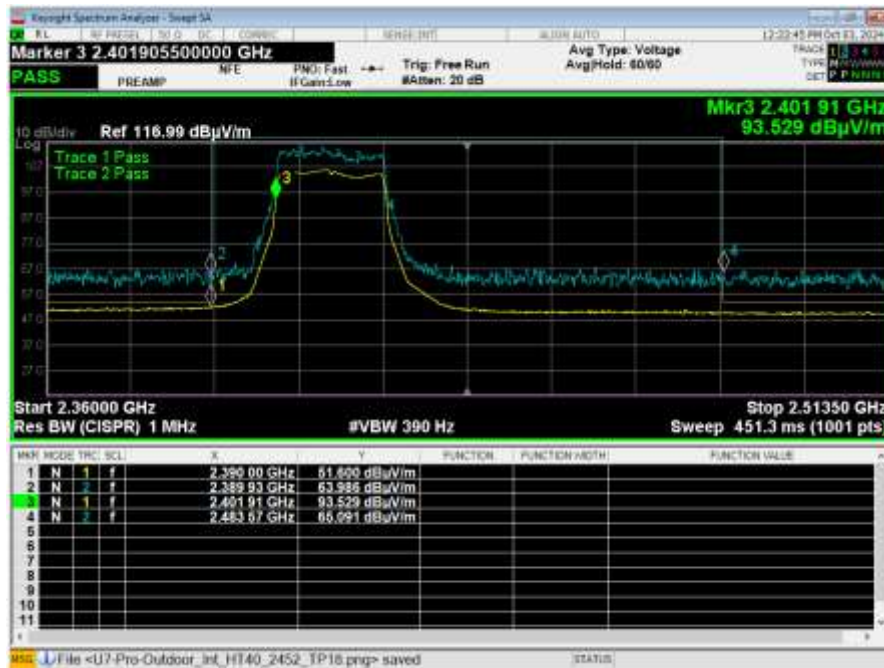
Frequency	SR #	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
9.747835 GHz	Peak	55.806	74	-18.194	313	3.444	Vertical	6.123
10.9360792 GHz	Peak	56.669	74	-17.331	313	3.729	Vertical	11.596
14.5854664 GHz	Peak	58.49	74	-15.51	66	1.5	Vertical	14.025
9.747835 GHz	Avg	48.974	54	-5.026	313	3.444	Vertical	6.123
10.9360792 GHz	Avg	42.855	54	-11.145	313	3.729	Vertical	11.596
14.5854664 GHz	Avg	45.1	54	-8.900	66	1.5	Vertical	14.025
9.7478372 GHz	Peak	51.381	74	-22.619	229	3.165	Horizontal	6.123
10.9331657 GHz	Peak	55.698	74	-18.302	2	3.728	Horizontal	11.632
14.5328186 GHz	Peak	57.356	74	-16.644	199	3.164	Horizontal	13.631
9.7478372 GHz	Avg	38.462	54	-15.538	229	3.165	Horizontal	6.123
10.9331657 GHz	Avg	42.931	54	-11.069	2	3.728	Horizontal	11.632
14.5328186 GHz	Avg	44.65	54	-9.35	199	3.164	Horizontal	13.631

Table 5: Radiated Emissions within 1-17GHz Transmitting at the Middle Frequency

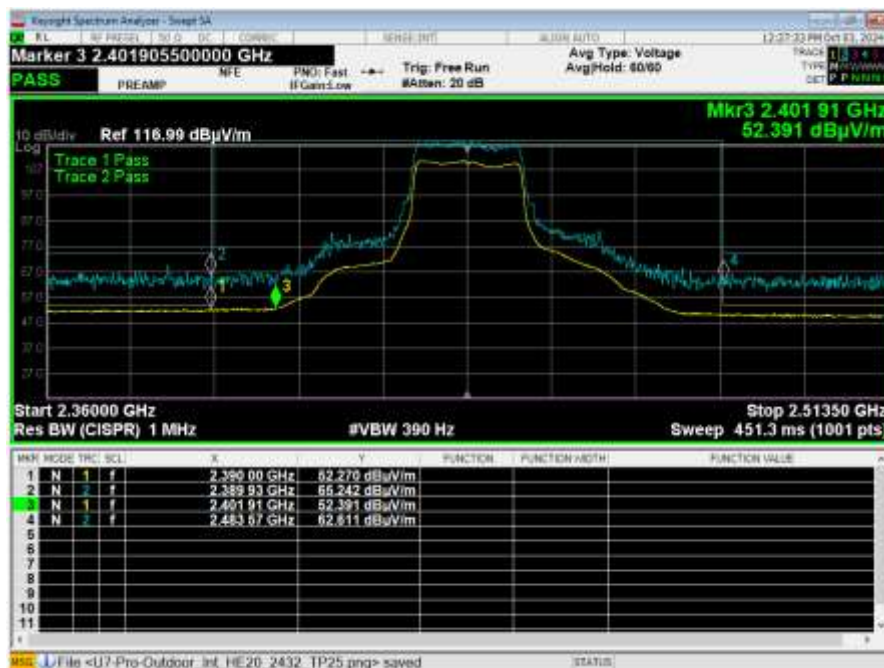


Frequency	SR #	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
23.4234749 GHz	Peak	54.784	74	-19.216	305	Vertical	6.018
24.1001886 GHz	Peak	55.069	74	-18.931	319	Vertical	6.258
25.1455795 GHz	Peak	55.687	74	-18.313	344	Vertical	6.293
23.4234749 GHz	Avg	41.741	54	-12.259	305	Vertical	6.018
24.1001886 GHz	Avg	42.201	54	-11.799	319	Vertical	6.258
25.1455795 GHz	Avg	42.278	54	-11.722	344	Vertical	6.293
23.3327518 GHz	Peak	58.926	74	-15.074	2	Horizontal	8.604
24.7361395 GHz	Peak	59.599	74	-14.401	94	Horizontal	9.205
25.5578603 GHz	Peak	61.726	74	-12.274	156	Horizontal	11.317
25.8947987 GHz	Peak	61.194	74	-12.806	327	Horizontal	10.365
23.3327518 GHz	Avg	45.723	54	-8.277	2	Horizontal	8.604
24.7361395 GHz	Avg	46.796	54	-7.204	94	Horizontal	9.205
25.5578603 GHz	Avg	48.798	54	-5.202	156	Horizontal	11.317
25.8947987 GHz	Avg	48.038	54	-5.962	327	Horizontal	10.365

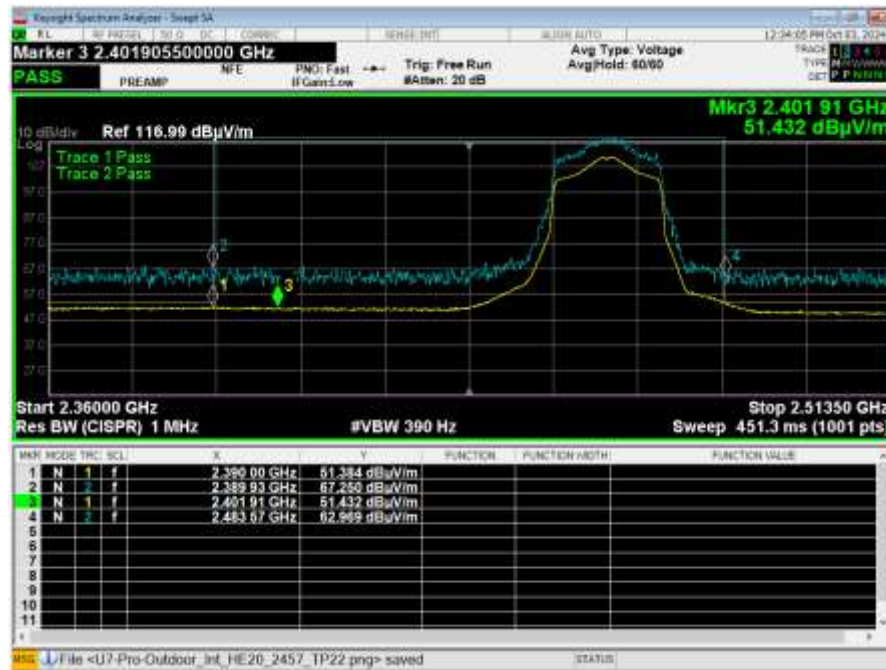
Table 6: Radiated Emissions within 17-40GHz Transmitting at the Lowest Frequency



Graph 3: Radiated Lower Band Edge Plot

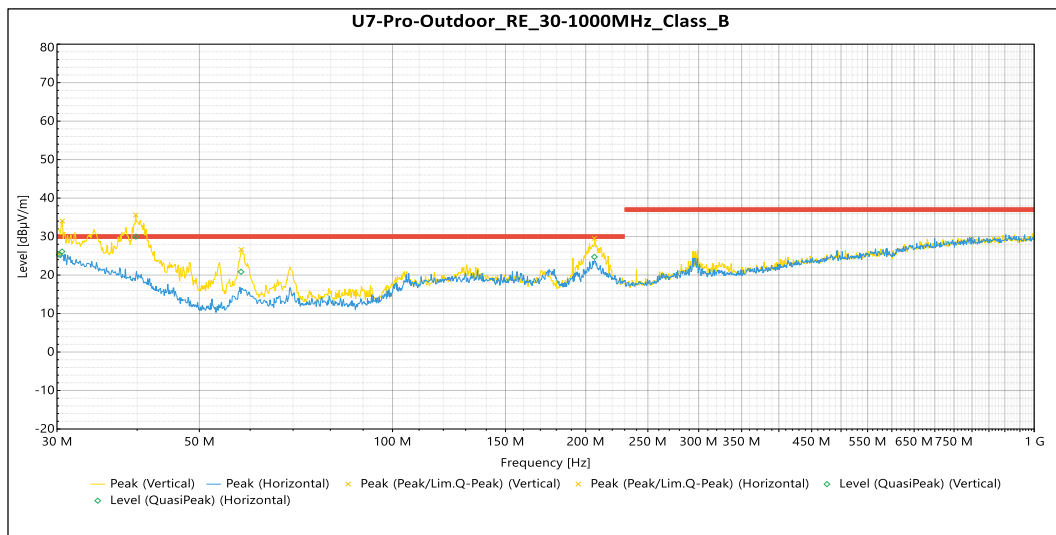


Graph 4: Radiated Middle Band Edge Plot



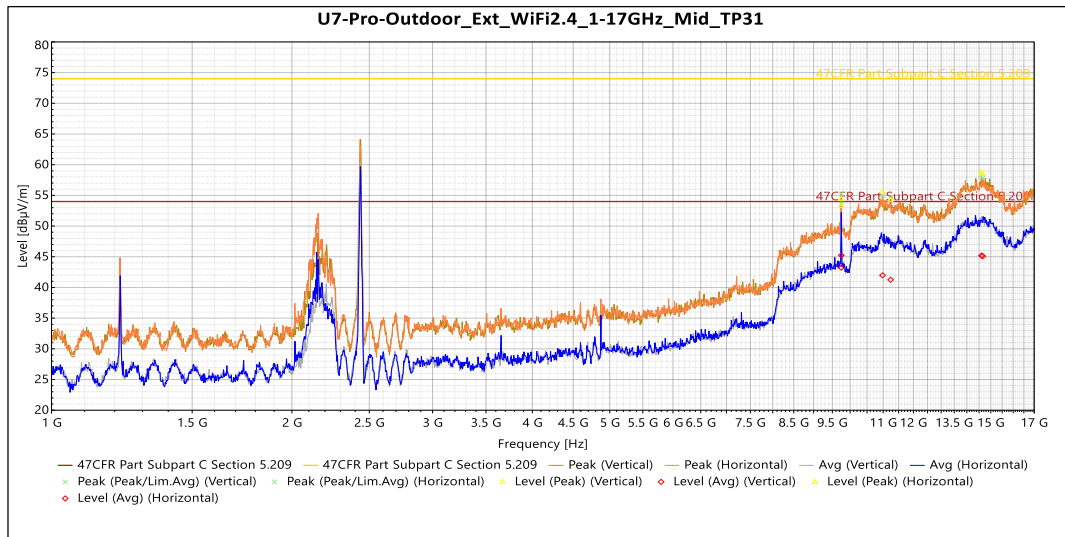
Graph 5: Radiated Upper Band Edge Plot

External Antenna



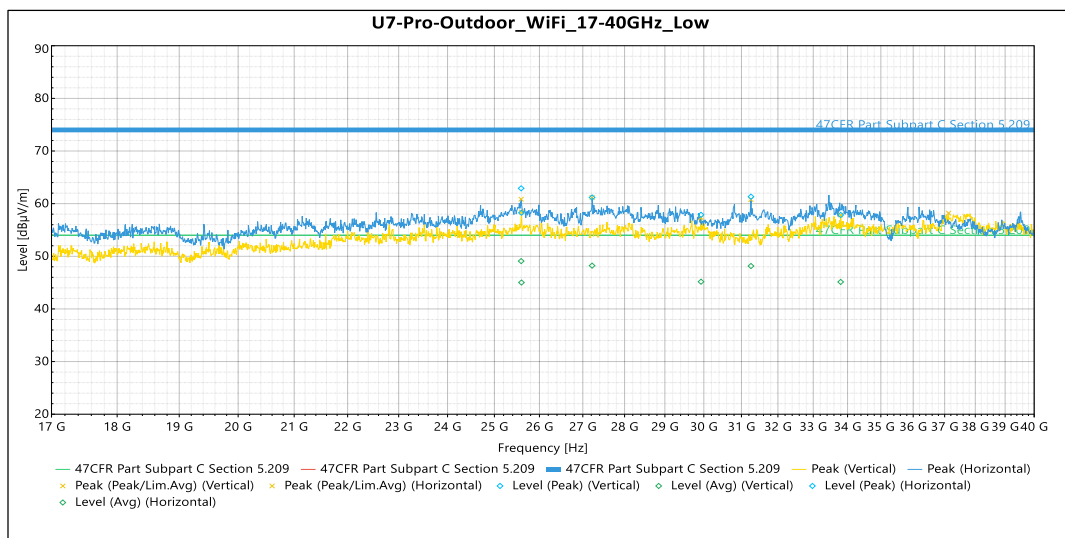
Frequency	SR #	Level (dBμV/m)	Limit (dBμV/m)	Margin	Azimuth (°)	Height	Pol.	RBW (Hz)	Correction (dB)
30.547212 MHz	1	26.111	30	-3.889	117	3.74	Vertical	120 kHz	-3.932
39.82208 MHz	1	29.987	30	-0.013	58	1.08	Vertical	120 kHz	-10.068
58.07336 MHz	1	20.844	30	-9.156	40	2.69	Vertical	120 kHz	-16.592
206.390644 MHz	1	24.724	30	-5.276	239	1	Vertical	120 kHz	-12.769
30.223088 MHz	2	25.276	30	-4.724	243	3.1	Horizontal	120 kHz	-3.678

Table 7: Radiated Emissions within 30MHz-1GHz



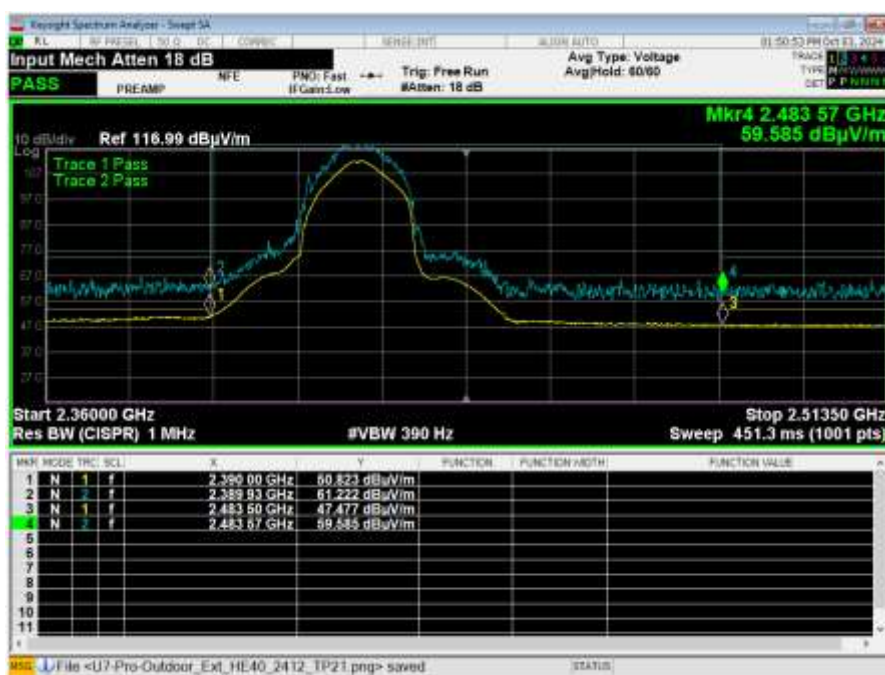
Frequency	SR #	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
9.7479571 GHz	Peak	54.435	74	-19.565	240	3.729	Vertical	6.123
11.2371311 GHz	Peak	54.229	74	-19.771	66	3.728	Vertical	9.933
14.6038843 GHz	Peak	58.7	74	-15.3	358	3.728	Vertical	14.122
9.7479571 GHz	Avg	45.232	54	-8.768	240	3.729	Vertical	6.123
11.2371311 GHz	Avg	41.248	54	-12.752	66	3.728	Vertical	9.933
14.6038843 GHz	Avg	45.199	54	-8.801	358	3.728	Vertical	14.122
9.7478431 GHz	Peak	53.225	74	-20.775	224	3.729	Horizontal	6.123
10.9806599 GHz	Peak	55.55	74	-18.45	277	3.728	Horizontal	11.067
14.6583717 GHz	Peak	58.44	74	-15.56	179	1.5	Horizontal	14.25
9.7478431 GHz	Avg	43.221	54	-10.779	224	3.729	Horizontal	6.123
10.9806599 GHz	Avg	41.98	54	-12.02	277	3.728	Horizontal	11.067
14.6583717 GHz	Avg	45.099	54	-8.901	179	1.5	Horizontal	14.25

Table 8: Radiated Emissions within 1-17GHz Transmitting at the Middle Frequency



Frequency	SR #	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
25.5957919 GHz	Peak	58.272	74	-15.728	191	Vertical	7.281
29.9274637 GHz	Peak	57.88	74	-16.12	286	Vertical	7.25
33.797125 GHz	Peak	57.843	74	-16.157	177	Vertical	9.268
25.5957919 GHz	Avg	45.014	54	-8.986	191	Vertical	7.281
29.9274637 GHz	Avg	45.167	54	-8.833	286	Vertical	7.25
33.797125 GHz	Avg	45.128	54	-8.872	177	Vertical	9.268
25.5890182 GHz	Peak	62.911	74	-11.089	121	Horizontal	11.4
27.2189109 GHz	Peak	61.178	74	-12.822	326	Horizontal	10.218
31.2576072 GHz	Peak	61.32	74	-12.68	44	Horizontal	10.464
25.5890182 GHz	Avg	49.086	54	-4.914	121	Horizontal	11.4
27.2189109 GHz	Avg	48.217	54	-5.783	326	Horizontal	10.218
31.2576072 GHz	Avg	48.151	54	-5.849	44	Horizontal	10.464

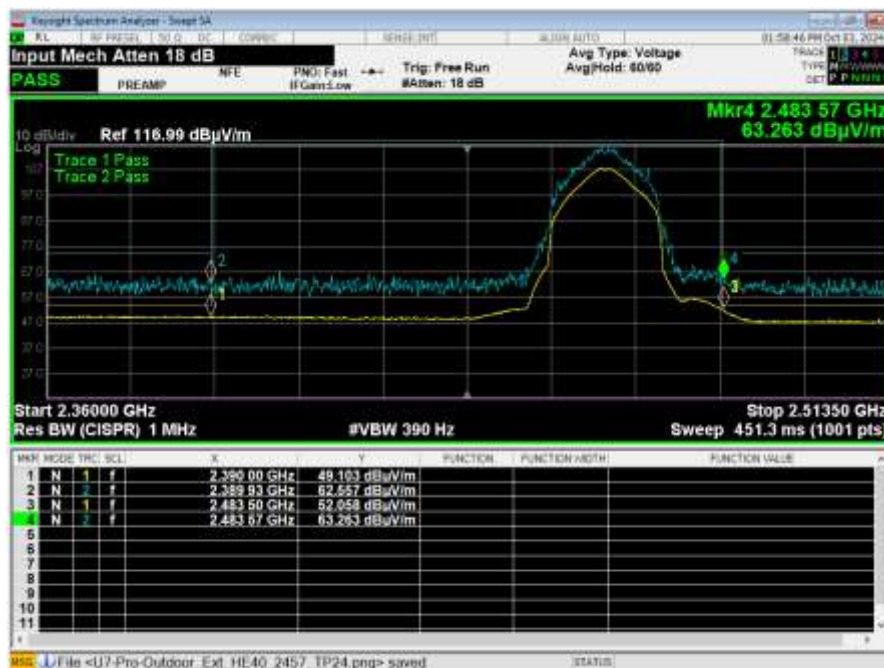
Table 9: Radiated Emissions within 17-40GHz Transmitting at the Lowest Frequency



Graph 6: Radiated Lower Band Edge Plot



Graph 7: Radiated Middle Band Edge Plot



Graph 8: Radiated Upper Band Edge Plot

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.

See Section 2.2 of this report for the directional gain calculation.

5.6.1 Internal Antenna

Mode	Frequency (MHz)	Measurement (dBm)	Criteria (dBm)
b 20	2412	2.68	2.99
	2437	2.33	2.99
	2462	2.58	2.99
g 20	2412	-7.82	2.99
	2437	-3.86	2.99
	2462	-8.53	2.99
n 20	2412	-9.08	2.99
	2437	-5.65	2.99
	2462	-16.64	2.99
n 40	2422	-15.52	2.99
	2437	-13.38	2.99
	2452	-15.30	2.99
ax 20	2412	-10.24	2.99
	2437	-8.09	2.99
	2462	-13.03	2.99
ax 40	2422	-17.33	2.99
	2437	-13.83	2.99
	2452	-16.58	2.99

5.6.2 External Antenna

Mode	Frequency (MHz)	Measurement (dBm)	Criteria (dBm)
b 20	2412	1.40	3.99
	2437	3.41	3.99
	2462	3.40	3.99
g 20	2412	-10.54	3.99
	2437	-4.46	3.99
	2462	-9.54	3.99
n 20	2412	-10.58	3.99
	2437	-5.95	3.99
	2462	-12.49	3.99
n 40	2422	-14.76	3.99
	2437	-13.55	3.99
	2452	-15.80	3.99
ax 20	2412	-11.64	3.99
	2437	-8.41	3.99
	2462	-12.52	3.99
ax 40	2422	-16.31	3.99
	2437	-12.63	3.99
	2452	-14.37	3.99

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 --