

427 West 12800 South Draper, UT 84020

Test Report Certification

FCC ID	SWX-U7PROO
ISED ID	6545A-U7PROO
Equipment Under Test	U7-Pro-Outdoor
Test Report Serial Number	TR9509_04
Date of Tests	23 September; 1-4 October 2024
Report Issue Date	16 December 2024

Test Specification	Applicant
47 CFR FCC Part 15, Subpart E	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 E. 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 16th 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	19 November 2024
02	Updated results for NSS-1 Mode and 30- degree elevation	6 December 2024
03	Added Clarification on Elevation Angle results in Section 5.4.	16 December 2024
04	Removed Section 5.5.1 Amended Sections 2.2, 3.3.1, 5.1, 5.3, 5.4, 5.6	14 February 2025



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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	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(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 \leq 4; For PSD measurements when Nss=1: Array Gain = 10 log(NANT/NSS) dB + Antenna Gain (dBi). Or 3.01 dB + 11 dBi = 14.01 dBi.

For PSD measurements when Nss=1: Array Gain = $10 \log(\text{NANT/NSS}) dB$ + Antenna Gain (dBi). Or 3.01 dB + 7 dBi = 10.01 dBi.

Band	WiFi Mode	Modulation Bandwidth	Modulation Type	Frequency (MHz)
	а	20 MHz	OFDM	5180, 5200, 5210, 5240
LINII 1	ax	20 MHz	HE	5180, 5200, 5210, 5240
UNII-1	ax	40 MHz	HE	5190, 5230
	ax	80 MHz	HE	5210

This report covers the circuitry of the device subject to FCC Part 15, Subpart E. 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.

TR9509_U7-Pro-Outdoor_FCC_15.407_UNII-1_04



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 E, Section 15.407 Limits and methods of measurement of radio interference characteristics of Unlicensed National Information Infrastructure 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 15.407

See test standard for details.

3.3 FCC Part 15, Subpart E

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
15.407(a)	RSS-247 §6.2.2	Bandwidth Requirement	5180 to 5210	Compliant
15.407(a)	RSS-247 §6.2.2, §6.2.3	Peak Output Power	5180 to 5210	Compliant
15.407(b)	RSS-247 §6.2.2, §6.2.3	Antenna Conducted Spurious Emissions	0.009 to 40000	N/A Note ¹
15.209	RSS-247 §6.2.2, §6.2.3	Radiated Spurious Emissions	0.009 to 40000	Compliant
15.407(a)	RSS-247 §6.2.2, §6.2.3	Peak Power Spectral Density	5180 to 5210	Compliant
The testing was p	erformed according to the	procedures in ANSI C63.10-20	013, KDB 789033	3 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 as 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

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

4.1 Conducted Emissions at Mains Ports

 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

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Figure 3: Output Power Measurement

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 4: 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 (<u>+</u> 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 11 dBi and the maximum gain for the external antenna is 8 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.

*Note: The actual antenna Gain is 7dBi however 8dBi was used for worst case representation.

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.	P/F
MU	MHz	dB	dB	dB	Туре	dBµV	dBµV	dBµV	dB	dBµV	dB	P/F
1	534,000kHz	9.49			QPeak	38.71	48.20	56.00	-7.80			
5	498,000kHz	9.49			QPeak	34.90	44.39	56.03	-11.64			
3	750,000kHz	9.51			QPeak	32.59	42.10	56.00	-13.90			
2	537,000kHz	9.49	Ĩ		C_AVG	31.89	41.38			46.00	-4.62	
4	747,000kHz	9.51			C_AVG	31.66	41.17			46.00	-4.83	
6	498,000kHz	9.49			C_AVG	30.59	40.08			46.03	-5.96	



5.2.2 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	Туре	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	

Result

The EUT complied with the specification limit.

5.3 §15.407(a) 26 dB Emissions Bandwidth

All chains were measured under the guidance of KDB 789033 Section II.C. and KDB 662911 D01. Please see associated annex for details on instrument settings.

5.3.1 Internal Antenna

Nominal BW (MHz)	Frequency (MHz)	99% Bandwidth (MHz)	Emissions 26 dB Bandwidth (MHz)
a20	5180	17.0	20.9
a20	5210	17.0	20.0
a20	5240	17.25	20.2
ax20	5180	19.25	22.1
ax20	5210	19.25	22.1
ax20	5240	19.25	22.1
ax40	5190	38.5	43.35
ax40	5230	38.5	43.5
ax80	5210	79.0	88.5

5.3.2 External Antenna

Nominal BW (MHz)	Frequency (MHz)	99% Bandwidth (MHz)	Emissions 26 dB Bandwidth (MHz)
a20	5180	17.25	20.1
a20	5210	17.25	19.9
a20	5240	17.0	20.5
ax20	5180	19.25	22.1
ax20	5210	19.25	21.6
ax20	5240	19.25	22.2
ax40	5190	38.5	42.75
ax40	5230	38.5	43.2
ax80	5210	79.0	87.5

Result

All chains were tested and the highest bandwidth per chain is reported above. Please see Annex for all bandwidth measurements.

5.4 §15.407(a) Maximum Average Output Power

All chains were measured and summed under the guidance of KDB 789033 Section II. E.2. 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 EIRP measured for this device was 20.95 dBm or 124.45 mW. Per 15.407 (a) (1)(i) The limit is 21 dBm, or 125 mW, at any elevation angle above 30 degrees as measured from the horizon.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power*	Measured EIRP
OFDM 20	5180	Mcs0	11	12.84	20.34
OFDM 20	5210	Mcs0	11	12.95	20.45
OFDM 20	5240	Mcs0	11	12.58	20.08
HE 20	5180	Mcs0	11	12.60	20.10
HE 20	5210	Mcs0	11	12.60	20.10
HE 20	5240	Mcs0	11	12.69	20.19
HE 40	5190	Mcs0	12	13.35	20.85
HE 40	5230	Mcs0	11	12.69	20.19
HE 80	5210	Mcs0	11	12.70	20.20

5.4.1 Internal Antenna

Note: See Plot 1 on Page 18 below for Elevation Angle results above 30°. The Max Gain above 30 degrees is ~7.5dBi.

5.4.2 External Antenna

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power*	Measured EIRP
OFDM 20	5180	Mcs0	13	13.38	20.38
OFDM 20	5210	Mcs0	14	13.95	20.95
OFDM 20	5240	Mcs0	14	13.92	20.92
HE 20	5180	Mcs0	13	13.12	20.12
HE 20	5210	Mcs0	14	13.56	20.56
HE 20	5240	Mcs0	14	13.73	20.73
HE 40	5190	Mcs0	14	13.71	20.71
HE 40	5230	Mcs0	14	13.97	20.97
HE 80	5210	Mcs0	14	13.92	20.92



Note: See Plot 2 on Page 19 below for Elevation Angle results above 30° . The Max Gain above 30 degrees is ~7.0dBi, therefore results noted above are worst case and no reduction for elevation angles above 30° is applicable.

Result

In the configuration tested, the maximum summed average RF output power was less than 0.125 watt; therefore, the EUT complied with the requirements of the specification (see spectrum analyzer plots in attached Annex).

Elevation - 0.0°

* Gated EIRP shown in the Annex is the conducted measurement.



Plot 1: Internal Antenna Elevation Angle Gain





Plot 2: External Antenna Elevation Angle Gain



5.5 §15.209 Spurious Emissions

5.5.1 Radiated Spurious Emissions in the Restricted Bands of § 15.205

The EUT uses various power settings based on the channel in use. In order to reduce test time, the radiated spurious emissions at the lowest, middle, and highest channel were measured at the maximum power of TP31, as this setting was found to be worst case for spurious emissions. Power was subsequently reduced during in-band and band edge testing. The band edge at the restricted band ending at 5150 MHz was measured using radiated measurement or conducted at the antenna port methods. All emissions modes were tested, and the worst-case measurement are shown below. For frequencies above 1 GHz, a measurement of 3 meters was used. For frequencies below 1 GHz, a measurement distance of 10 meters was used.

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. All emissions me the limits specified in § 15.407(b). Representative band edge plots are included in this report.



Internal Antenna

Frequency	SR#	Level (dBµV/m)	Limit (dBµV/m)	Margin	Azimuth (°)	Height	Pol.	RBW (Hz)	Correction (dB)
30.547212 MHz	QP	26.111	30	-3.889	117	3.74	Vertical	120 kHz	-3.932
39.82208 MHz	QP	29.987	30	-0.013	58	1.08	Vertical	120 kHz	-10.068
58.07336 MHz	QP	20.844	30	-9.156	40	2.69	Vertical	120 kHz	-16.592
206.390644 MHz	QP	24.724	30	-5.276	239	1	Vertical	120 kHz	-12.769
30.223088 MHz	QP	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)
10.4159483 GHz	Peak	60.053	74	-13.947	313	2.041	Vertical	9.281
10.9758793 GHz	Peak	55.537	74	-18.463	110	2.292	Vertical	11.122
14.9178882 GHz	Peak	58.273	74	-15.727	1	1.713	Vertical	13.701
10.4159483 GHz	Avg	47.535	54	-6.465	313	2.041	Vertical	9.281
10.9758793 GHz	Avg	42.591	54	-11.409	110	2.292	Vertical	11.122
14.9178882 GHz	Avg	44.957	54	-9.043	1	1.713	Vertical	13.701
10.4252886 GHz	Peak	56.598	74	-17.402	258	3.164	Horizontal	9.29
14.3698604 GHz	Peak	58.321	74	-15.679	306	3.729	Horizontal	13.704
15.6165565 GHz	Peak	56.777	74	-17.223	317	3.165	Horizontal	10.749
10.4252886 GHz	Avg	43.282	54	-10.718	258	3.164	Horizontal	9.29
14.3698604 GHz	Avg	45.556	54	-8.444	306	3.729	Horizontal	13.704
15.6165565 GHz	Avg	43.401	54	-10.599	317	3.165	Horizontal	10.749

Table 5: Transmitting on the Middle Frequency 5210 MHz

Frequency	SR #	Level	Limit	Margin	Azimuth (°)	Pol	Correction (dB)
Trequency		(dBµV/m)	(dBµV/m)	(dB)		1 011	correction (ub)
33.4056498 GHz	Peak	58.454	74	-15.546	89	Vertical	9.211
35.9611286 GHz	Peak	58.997	74	-15.003	7	Vertical	10.936
37.3356214 GHz	Peak	61.845	74	-12.155	41	Vertical	13.008
38.8778454 GHz	Peak	58.844	74	-15.156	1	Vertical	11.161
33.4056498 GHz	Avg	45.535	54	-8.465	89	Vertical	9.211
35.9611286 GHz	Avg	45.919	54	-8.081	7	Vertical	10.936
37.3356214 GHz	Avg	47.998	54	-6.002	41	Vertical	13.008
38.8778454 GHz	Avg	46.14	54	-7.86	1	Vertical	11.161
25.5516212 GHz	Peak	61.652	74	-12.348	168	Horizontal	11.215
27.8438416 GHz	Peak	62.405	74	-11.595	232	Horizontal	9.765
31.2887972 GHz	Peak	61.058	74	-12.942	200	Horizontal	10.245
33.5849833 GHz	Peak	62.071	74	-11.929	359	Horizontal	11.72
25.5516212 GHz	Avg	48.923	54	-5.077	168	Horizontal	11.215
27.8438416 GHz	Avg	47.878	54	-6.122	232	Horizontal	9.765
31.2887972 GHz	Avg	48.24	54	-5.76	200	Horizontal	10.245
33.5849833 GHz	Avg	47.765	54	-6.235	359	Horizontal	11.72

Table 6: Radiated Emissions within 17-40GHz





Graph 3: Radiated Lower Band Edge Plot HE20 5180



Graph 4: Radiated Middle Band Edge Plot HE20 5210





Graph 5: Radiated Lower Band Edge Plot HE20 5240



Graph 6: Radiated Lower Band Edge Plot HE40 5190



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Graph 7: Radiated Lower Band Edge Plot HE40 5230



Graph 8: Radiated Lower Band Edge Plot HE80 5210



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)
10.4214161 GHz	Peak	58.599	74	-15.401	309	3.728	Vertical	9.286
14.2263425 GHz	Peak	57.565	74	-16.435	8	2.041	Vertical	13.576
16.9310327 GHz	Peak	56.707	74	-17.293	192	1.714	Vertical	14.115
10.4214161 GHz	Avg	46.557	54	-7.443	309	3.728	Vertical	9.286
14.2263425 GHz	Avg	44.485	54	-9.515	8	2.041	Vertical	13.576
16.9310327 GHz	Avg	43.869	54	-10.131	192	1.714	Vertical	14.115
10.4167071 GHz	Peak	57.437	74	-16.563	272	3.729	Horizontal	9.282
12.3527154 GHz	Peak	53.849	74	-20.151	121	3.164	Horizontal	10.793
14.7935769 GHz	Peak	57.575	74	-16.425	348	3.728	Horizontal	13.917
10.4167071 GHz	Avg	44.24	54	-9.76	272	3.729	Horizontal	9.282
12.3527154 GHz	Avg	40.564	54	-13.436	121	3.164	Horizontal	10.793
14.7935769 GHz	Avg	44.41	54	-9.59	348	3.728	Horizontal	13.917

Table 8: Transmitting on the Middle Frequency 5210 MHz



Frequency	SR#	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
33.3877582 GHz	Peak	58.263	74	-15.737	131	Vertical	9.037
35.7319419 GHz	Peak	58.563	74	-15.437	212	Vertical	10.818
37.4049317 GHz	Peak	62.896	74	-11.104	298	Vertical	13.536
33.3877582 GHz	Avg	45.549	54	-8.451	131	Vertical	9.037
35.7319419 GHz	Avg	46.097	54	-7.903	212	Vertical	10.818
37.4049317 GHz	Avg	48.794	54	-5.206	298	Vertical	13.536
25.5808747 GHz	Peak	62.366	74	-11.634	214	Horizontal	11.619
27.3148461 GHz	Peak	61.094	74	-12.906	181	Horizontal	10.184
33.3588269 GHz	Peak	61.489	74	-12.511	164	Horizontal	11.304
25.5808747 GHz	Avg	49.278	54	-4.722	214	Horizontal	11.619
27.3148461 GHz	Avg	48.104	54	-5.896	181	Horizontal	10.184
33.3588269 GHz	Avg	48.026	54	-5.974	164	Horizontal	11.304

Table 9: Radiated Emissions within 17-40GHz



Graph 9: Radiated Lower Band Edge Plot HE20 5180



L 1 44	PRESIL 150	9 10 1 UNHER 1	UNC 1	iii.	#30H A/10		15:16:45 PH Ort 62.
rt Freq : S	5.10000	0000 GHz	NO: Fast Trig Galactigh #As	: Free Run ten: 0 dB	Avg Type Avg(Hold	Voltage 100/100	Titled I Titled
Brdiv - 1	Ref 130.7	71 dBuVim				Mkr	1 5.150 000 G 52.510 dBµV
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Trace 2	2 Pass						
-	-	No. Add and a lot of the lot of t	- International And	and the same	والالالم ومركز المطاطعات	and the state of the state	Man
	Dec. of the later						
	_						
1 5,1000	00 GHz						Stop 5.15107
BW (CI	SPR) 1 M	1Hz -	#VBW 39	0 Hz		#Sweep	500.0 ms (3001
HODE THE	9CL	x	· · · · · · · · · · · · · · · · · · ·	FUNCTION	FUNCTION WOTH	FUN	CTION VALUE
N 1	1	5.150 000 GHz	52.510 dByVim				
.a	-	0.100 000 0052	TO SOF GEDVIN				

Graph 10: Radiated Middle Band Edge Plot HE20 5210



Graph 11: Radiated Lower Band Edge Plot HE20 5240



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rt Freq 5.1	00000000	GHz MFE PI	KOLFast Trij Jakaztigh #Ad	g: Free Run ten: 0 dB	Avg Type Avg/Hold	Voltage 100/150	The	
Erdiv Ref	130.71 dBi	N/m				M	kr1 5,150 (52,332	dBµV
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Trace 2 Pa								
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					and the second			
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		150 000 GHz	52.332 dByVim	TUNCION	+DBLINH WUTH	1	UNLIGHT (NUTE	
N 7 1	6.1	144 090 GHz	69.594 dBµVim					
	1	-						_

Graph 12: Radiated Lower Band Edge Plot HE40 5190



Graph 13: Radiated Upper Band Edge Plot HE40 5230



Freq 5.1000	00000 GHz	PNO: Fait Trig FGalactigh #At	r: Free Run Iem: 0 dB	Avg Type: 1 Avg/Hold: 1	/oltage 30/150	TRACE DE LA
raiv Ref 130.	71 dBµV/m				Mk	1 5,150 000 G 51,292 dBµV
Trace 1 Pass Trace 2 Pass	Malayun ini tunuh ya	SeetHologica , Notes in A	8-1 ₀₋₁ -10-10	Neekonyyalaada	aige gyfylige gyfyl	ورزومتر العر فاحيز أوجز الم
5.10000 GHz BW (CISPR) 1	MHz	#VBW 39	D Hz FUNCTION	FUNCTION WIDTH	#Sweep Fo	Stop 5.15107 G 500.0 ms (3001 p crokveze
	5.150.000 GHz	67.261 dBµVim				

Graph 14: Radiated Lower Band Edge Plot HE80 5210

5.6 §15.407(a) Maximum Power Spectral Density

All chains were measured and summed under the guidance of KDB 789033 Section II. F. 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 17 dBm in any 1 MHz band during any time interval of continuous transmission.

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

Results of this testing are summarized.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power
OFDM 20	5180	Mcs0	11	0.52
OFDM 20	5210	Mcs0	11	0.79
OFDM 20	5240	Mcs0	11	0.30
HE 20	5180	Mcs0	11	-0.23
HE 20	5210	Mcs0	11	0.09
HE 20	5240	Mcs0	12	0.58
HE 40	5190	Mcs0	11	-2.71
HE 40	5230	Mcs0	11	-3.14
HE 80	5210	Mcs0	12	-5.69

5.6.1 Internal Antenna

5.6.2 External Antenna

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power
OFDM 20	5180	Mcs0	13	1.20
OFDM 20	5210	Mcs0	14	1.74
OFDM 20	5240	Mcs0	14	1.68
HE 20	5180	Mcs0	13	0.39
HE 20	5210	Mcs0	14	1.10
HE 20	5240	Mcs0	14	1.01
HE 40	5190	Mcs0	14	-1.42
HE 40	5230	Mcs0	14	-1.77
HE 80	5210	Mcs0	14	-4.87



Result

The maximum summed average power spectral density was less than the limit of 17dBm; therefore, the EUT complies with the specification.



427 West 12800 South, Draper, UT 84020

-- End of Test Report --