



427 West 12800 South  
Draper, UT 84020

## Test Report Certification

<b>FCC ID</b>	SWX-U6IWR
<b>ISED ID</b>	6545A-U6IWR
<b>Equipment Under Test</b>	U6-IW
<b>Test Report Serial Number</b>	TR6353_01
<b>Date of Tests</b>	9, 16, 27-28 July and 4-5 August 2021
<b>Report Issue Date</b>	30 August 2021

<b>Test Specification</b>	<b>Applicant</b>
47 CFR FCC Part 15, Subpart E	Ubiquiti Inc. 685 Third Avenue New York, NY 10019 U.S.A.



**NVLAP LAB CODE 600241-0**

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## 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.

<b>Applicant</b>	Ubiquiti Inc.
<b>Manufacturer</b>	Ubiquiti Inc.
<b>Brand Name</b>	UniFi
<b>Model Number</b>	U6-IW
<b>FCC ID</b>	SWX-U6IWR
<b>ISED ID</b>	6545A-U6IWR

On this 30<sup>th</sup> day of August 2021, 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: Kimberly Rodriguez



Reviewed By: Alex Macon

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<b>Revision History</b>		
<b>Revision</b>	<b>Description</b>	<b>Date</b>
01	Original Report Release	30 August 2021

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# 1 Client Information

## 1.1 Applicant

<b>Company</b>	Ubiquiti Inc. 685 Third Avenue New York, NY 10017 U.S.A.
<b>Contact Name</b>	Mark Feil
<b>Title</b>	Compliance Manager

## 1.2 Manufacturer

<b>Company</b>	Ubiquiti Inc. 685 Third Avenue New York, NY 10017 U.S.A.
<b>Contact Name</b>	Mark Feil
<b>Title</b>	Compliance Manager

## 2 Equipment Under Test (EUT)

### 2.1 Identification of EUT

<b>Brand Name</b>	UniFi
<b>Model Number</b>	U6-IW
<b>Serial Number</b>	68D79A1F4699
<b>Dimensions (cm)</b>	9.60 x 13.97 x 2.61

### 2.2 Description of EUT

The U6-IW is an in-wall Wi-Fi 6 access point that can be mounted into a standard wall outlet. It includes 4 Gigabit Ethernet ports for wired connectivity, one of which offers PoE passthrough for an 802.3af device. U6-IW delivers an aggregate radio rate of 2.4 Gbps with 5 GHz (4x4 MU-MIMO and OFDMA) and 2.4 GHz (2x2 MIMO) radios. Location tracking is available via Bluetooth. U6-IW seamlessly blends into any room with its refined industrial design. The table below shows the channels used within the different modulation bandwidths.

Band	WiFi Mode	Modulation Bandwidth	Modulation Type	Frequency (MHz)
UNII-3	a	20 MHz	OFDM	5745, 5775, 5825
	n	20 MHz	HT	5745, 5775, 5825
	n	40 MHz	HT	5755, 5775, 5795
	ac	20 MHz	VHT	5745, 5775, 5825
	ac	40 MHz	VHT	5755, 5775, 5795
	ac	80 MHz	VHT	5775
	ax	20 MHz	HE	5745, 5775, 5825
	ax	40 MHz	HE	5755, 5775, 5795
	ax	80 MHz	HE	5775

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.

<b>Brand Name Model Number Serial Number</b>	<b>Description</b>	<b>Name of Interface Ports / Interface Cables</b>
BN: UniFi MN: U6-IW SN: 68D79A1F4699	Wifi Access Point	See section 2.4
BN: Ubiquiti MN: UVC G3 Flex SN: N/A	Video Camera	Shielded or Un-Shielded Cat 5e cable (Note 2)
BN: Ubiquiti MN: U-POE-at SN: N/A	PoE Power Adapter	Shielded or Un-Shielded Cat 5e cable (Note 2)
BN: Dell MN: XPS 13 SN: N/A	Laptop Personal Computer	Shielded or Un-Shielded Cat 5e cable (Note 2)

Notes: (1) EUT

(2) Interface port connected to EUT (See Section 2.4)

The support equipment listed above was not modified in order to achieve compliance with this standard.

## 2.4 Interface Ports on EUT

<b>Name of Ports</b>	<b>No. of Ports Fitted to EUT</b>	<b>Cable Description/Length</b>
PoE	1	Shielded/Un-Shielded Cat 5/< 3 meters
Ethernet Ports	4	Shielded/Un-Shielded Cat 5/< 3 meters

## 2.5 Operating Environment

<b>Power Supply</b>	120 VAC
<b>AC Mains Frequency</b>	60 Hz
<b>Temperature</b>	26.0 – 26.6 °C
<b>Humidity</b>	36.7 – 43.09 %
<b>Barometric Pressure</b>	1017 mBar

## 2.6 Operating Modes

The U6-InWall was tested using testing software to enable a constant transmission. The measurements within this report are corrected to reference a 100% duty cycle. All emission modes of 802.11 a/n/ac/ax were investigated. All measurements are reported with the worst-case mode (802.11ax) unless otherwise stated.

## 2.7 EUT Exercise Software

Ubiquiti testing software Atheros Radio Test (ART) and firmware version 1.0 were utilized for control of the EUT transceivers.

## 2.8 Block Diagram of Test Configuration

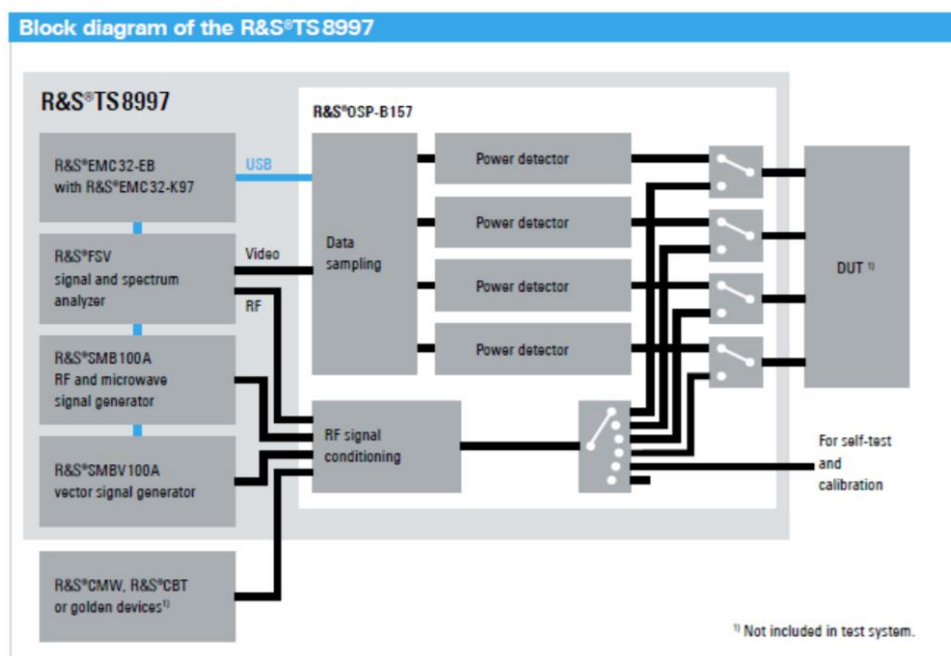


Diagram 1: Test Configuration Block Diagram

## 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

<b>Title</b>	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
<b>Purpose of Test</b>	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
15.407(a)	N/A	Antenna requirements	Structural Requirement	Compliant
15.407(b)	RSS-Gen	Conducted Disturbance at Mains Port	0.15 to 30	Compliant
15.407(c)	RSS-247 §6.2.2, §6.2.3	Bandwidth Requirement	5725 to 5825	Compliant
15.407(e)	RSS-247 §6.2.2, §6.2.3	Peak Output Power	5725 to 5825	Compliant
15.407(f)	RSS-247 §6.2.2, §6.2.3	Antenna Conducted Spurious Emissions	0.009 to 40000	Compliant
15.407(g)	RSS-247 §6.2.2, §6.2.3	Radiated Spurious Emissions	0.009 to 40000	Compliant
15.407(h)	RSS-247 §6.2.2, §6.2.3	Peak Power Spectral Density	5725 to 5825	Compliant

The testing was performed according to the procedures in ANSI C63.10-2013, KDB 789033 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 2022. 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 2022. Unified Compliance Laboratory has been assigned 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	9/18/2020	9/17/2021
LISN	AFJ	LS16C/10	UCL-2512	5/26/2020	5/26/2022
Cat6 ISN	Teseq	ISN T8-Cat6	UCL-2971	5/18/2020	5/18/2022
ISN	Teseq	ISN T800	UCL-2974	6/4/2021	6/4/2022
LISN	Com-Power	LIN-120C	UCL-2612	5/19/2021	5/19/2022
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

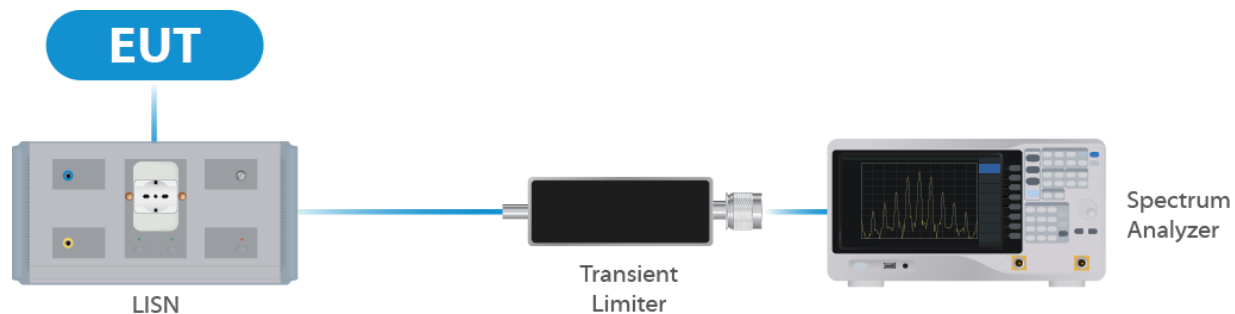
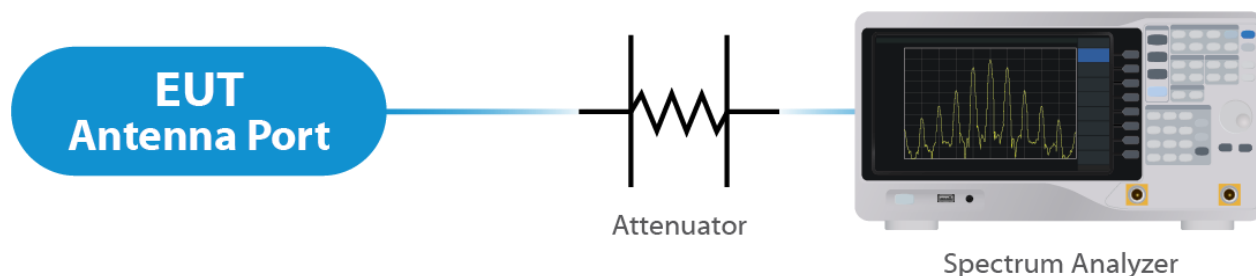


Figure 1: Conducted Emissions Test

### 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	8/24/2020	8/24/2021
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	9/8/2020	9/8/2021
Switch Extension	R&S	OSP-150W	UCL-2870	3/3/2021	3/3/2022

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



**Figure 2: Direct Connect at the Antenna Port Test**

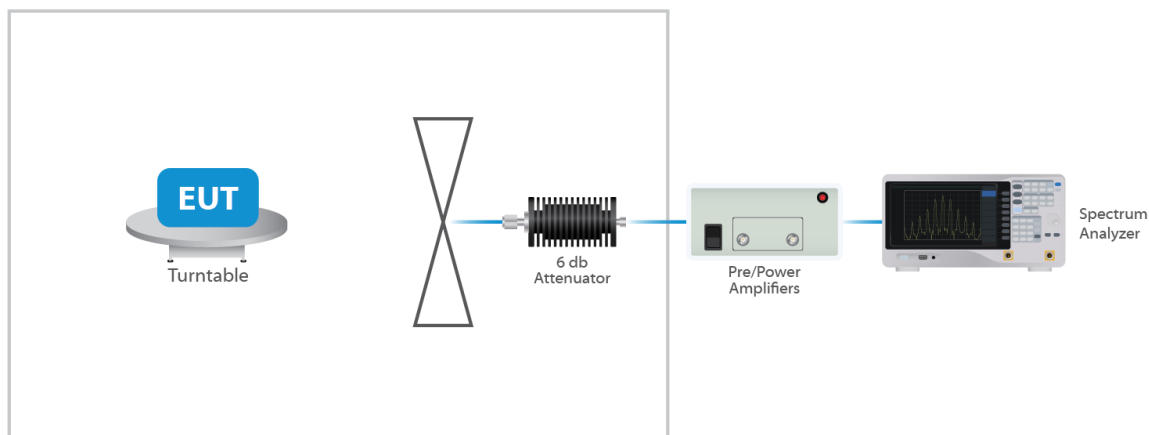


**Figure 3: Output Power Measurement**

### 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	6/21/2021	6/21/2022
Pre-Amplifier 9 kHz – 1 GHz	Sonoma Instruments	310N	UCL-2889	9/10/2020	9/10/2021
Double Ridge Horn Antenna	Scwarzbeck	BBHA 9120D	UCL-3065	7/8/2021	7/8/2022
Log Periodic	Scwarzbeck	STLP 9129	UCL-3068	11/16/2020	11/16/2021
15 - 40 GHz Horn Antenna	Scwarzbeck	BBHA 9170	UCL-2487	5/21/2020	5/21/2022
1 – 18 GHz Amplifier	Com-Power	PAM 118A	UCL-3833	9/29/2020	9/29/2021
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 ( $\pm$ 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
<b>Direct Connect Tests</b>	<b>K Factor</b>	<b>Value</b>
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. The Maximum gain of the antenna per chain is 5.9 dBi. This is an 802.11 device and utilizes CDD as described in KDB 662911 D01. The antenna is not user replaceable.

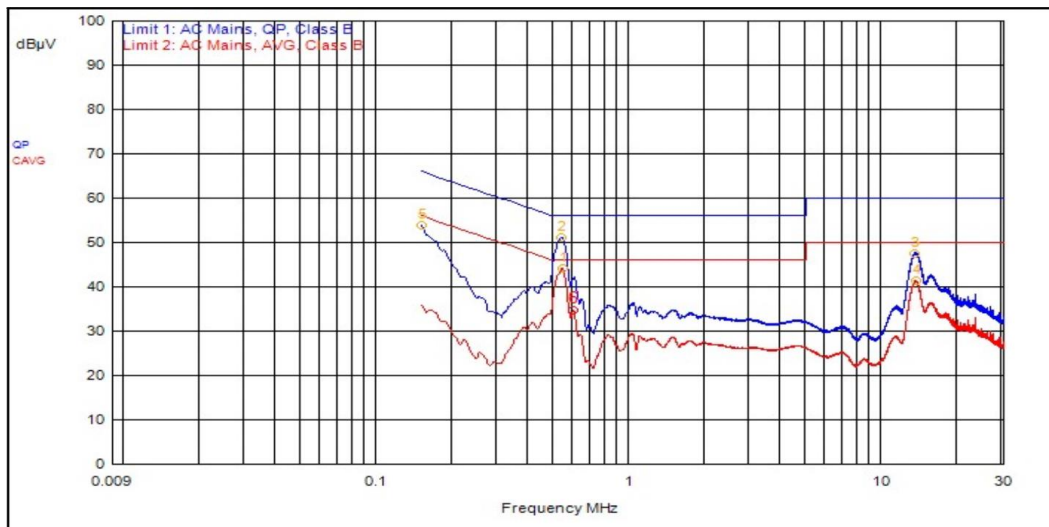
For power measurements on IEEE 802.11 devices, Array Gain = 0 dB for NANT ≤ 4;  
 For PSD measurements when Nss=1: Array Gain = 10 log(NANT/NSS) dB = 6.02dB

#### Results

The EUT complied with the specification

### 5.2 Conducted Emissions at Mains Ports Data

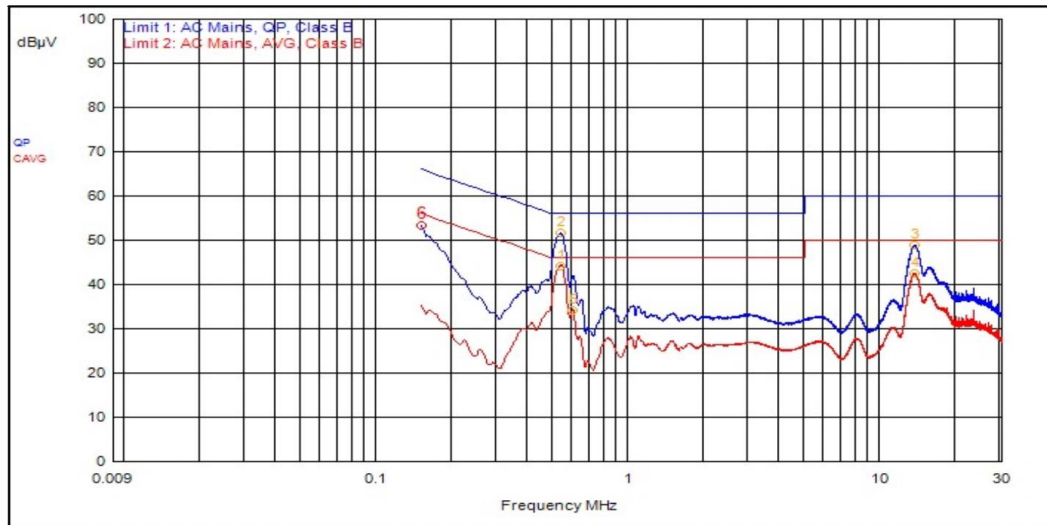
#### 5.2.1 Line



ID	Frequency	Probe	Cable	Atten.	Detector	Meter Read	Meas Level	Limit 1	Limit 1 Dist.	Limit 2	Limit 2 Dist.
2	534,000kHz	12.4	0.0		QPeak	38.6	51.1	56.0	-4.9		
5	150,000kHz	12.4	0.0		QPeak	41.5	53.9	66.0	-12.1		
3	13.398MHz	12.4	0.2		QPeak	35.0	47.6	60.0	-12.4		
1	540,000kHz	12.4	0.0		C_AVG	31.8	44.2			46.0	-1.8
4	13.440MHz	12.4	0.2		C_AVG	28.6	41.3			50.0	-8.7
6	594,000kHz	12.4	0.0		C_AVG	22.2	34.6			46.0	-11.4

Graph 1: Conducted Emissions Plot – Neutral

## 5.2.2 Neutral



ID	Frequency	Probe	Cable	Atten.	Detector	Meter Read	Meas Level	Limit 1	Limit 1 Dist.	Limit 2	Limit 2 Dist.
2	531,000kHz	12.4	0.0		QPeak	39.2	51.6	56.0	-4.4		
3	13.533MHz	12.4	0.2		QPeak	36.2	48.8	60.0	-11.2		
6	150,000kHz	12.4	0.0		QPeak	41.1	53.4	66.0	-12.6		
1	531,000kHz	12.4	0.0		C_AVG	31.8	44.2			46.0	-1.8
4	13.503MHz	12.4	0.2		C_AVG	29.8	42.5			50.0	-7.5
5	591,000kHz	12.4	0.0		C_AVG	21.8	34.2			46.0	-11.8

Graph 2: Conducted Emissions Plot – Line 1

### Results

The EUT complied with the specification limit.

### 5.3 §15.403(i) 26 dB Emissions Bandwidth

All chains were measured under the guidance of KDB 789033 Section II.C. and KDB 66291 D01. Please see associated annex for details on instrument settings.

Nominal BW (MHz)	Frequency (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)
20	5745	19.10	20.70
20	5775	19.10	21.40
20	5825	19.10	21.80
40	5755	37.75	39.77
40	5775	37.75	40.23
40	5795	37.75	40.08
80	5775	77.00	83.00

#### Results

All chains were tested and the highest bandwidth per chain is reported above.

The 26 dB bandwidths are reported for information purposes. Please see Annex for all bandwidth measurements.



## 5.4 §15.403(a)(3) Maximum Average Output Power

All chains were measured and summed under the guidance of KDB 789033 Section II. E.2. and KDB 66291 D01. Please see associated annex for details on instrument settings.

The maximum average RF conducted output power measured for this device was 24.39 dBm or 274.79 mW. The limit is 30 dBm, or 1 Watt when using antennas with 6 dBi or less gain. The antenna has a gain of 5.9 dBi.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power *	Measured EIRP	Measured PSD
OFDM 20	5745	Mcs0	36	22.04	27.94	4.84
OFDM 20	5775	Mcs0	37	22.59	28.49	5.31
OFDM 20	5825	Mcs0	40	24.18	30.08	6.55
HT 20	5745	Mcs0	36	21.74	27.64	3.32
HT 20	5775	Mcs0	37	22.26	28.16	3.77
HT 20	5825	Mcs0	40	23.83	29.73	5.19
HT 40	5755	Mcs0	36	22.05	27.95	0.56
HT 40	5775	Mcs0	37	22.66	28.56	1.12
HT 40	5795	Mcs0	40	24.25	30.15	2.94
VHT 20	5745	Mcs0	36	21.68	27.58	3.34
VHT 20	5775	Mcs0	37	22.26	28.16	3.8
VHT 20	5825	Mcs0	40	23.95	29.85	5.24
VHT 40	5755	Mcs0	36	22.05	27.95	0.61
VHT 40	5775	Mcs0	37	22.60	28.5	1.29
VHT 40	5795	Mcs0	40	24.21	30.11	2.77
VHT 80	5775	Mcs0	40	24.02	29.92	-0.51
HE 20	5745	Mcs0	36	22.22	28.12	3.65
HE 20	5775	Mcs0	37	22.76	28.66	4.12
HE 20	5825	Mcs0	40	24.32	30.22	5.52
HE 40	5755	Mcs0	36	22.24	28.14	0.68
HE 40	5775	Mcs0	37	22.77	27.94	1.18
HE 40	5795	Mcs0	40	24.39	28.49	2.7
HE 80	5775	Mcs0	40	24.30	30.08	-0.23

### Results

In the configuration tested, the maximum average RF outpower was less than 1 watt; therefore, the EUT complied with the requirements of the specification (see spectrum analyzer plot in attached Annex).

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

## **5.5 §15.407(b)(7) Spurious Emissions**

### **5.5.1 Conducted Spurious Emissions**

The frequency ranges from the lowest frequency generated or used in the device to the tenth harmonic of the highest fundamental frequency were investigated to measure any antenna-conducted emissions. The graphs 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 turned to the upper and lower channels with the antenna gain of 5.9 dBi accounted for. These demonstrate compliance with the provisions of this section at the band edges.

All emissions shall be limited to a level of  $-27$  dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

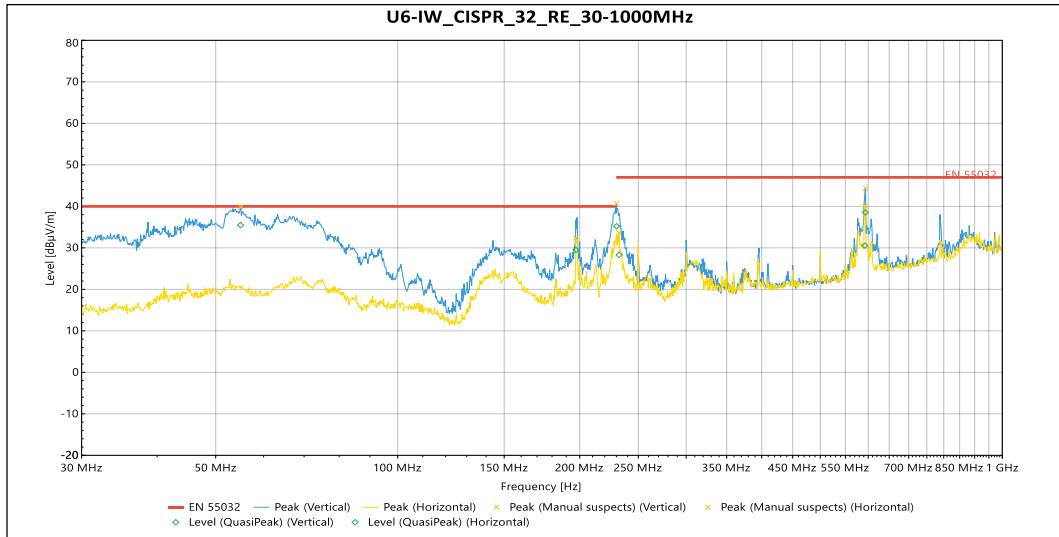
#### **Result**

Conducted spurious emissions were attenuated below the limit; therefore, the EUT complies with the specification.

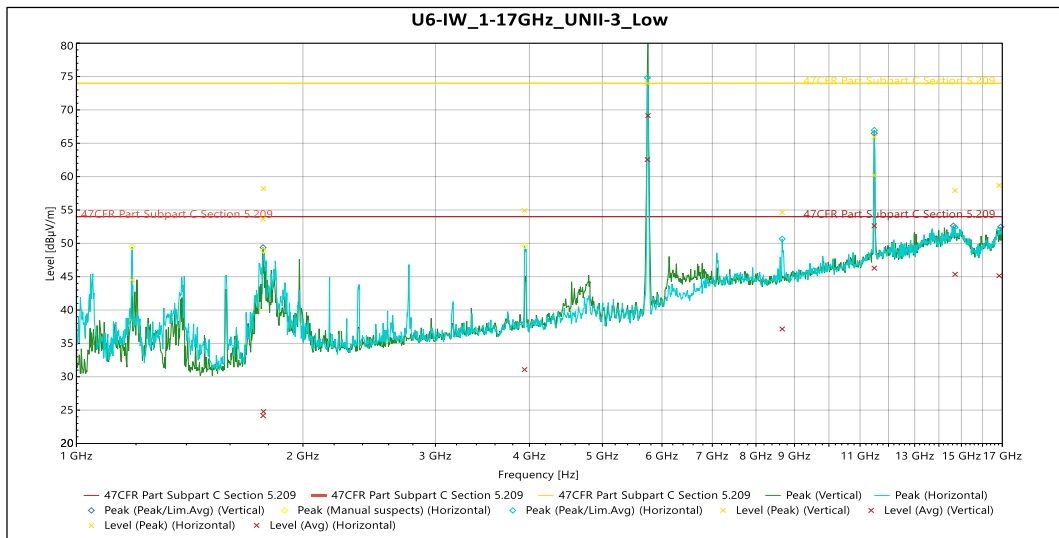
### **5.5.2 Radiated Spurious Emissions in the Restricted Bands of § 15.205**

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 TP40.

Correction Factor = Antenna Factor + Cable Loss - Pre-Amplifier Gain, and is added to the Receiver reading.

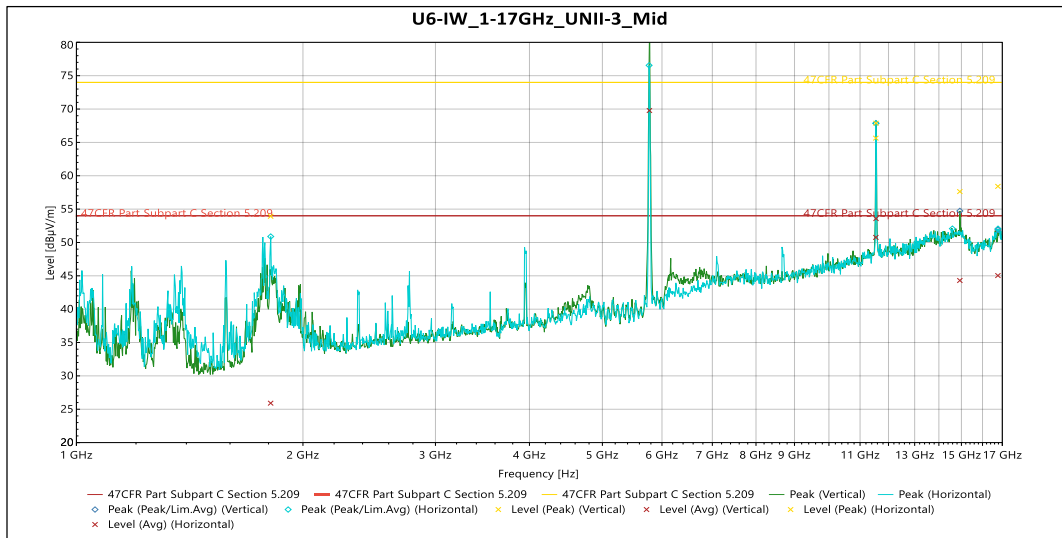


Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin	Azimuth (°)	Height	Pol.	Meas. Time	RBW	Meas.Time	Correction (dB)
QuasiPeak	54.959 MHz	35.471	40	-4.529	259	3.416	Vertical	15	120000	0.001	-12.73
QuasiPeak	230.09 MHz	35.209	47	-11.791	125	1.12	Vertical	15	120000	0.001	-13.498
QuasiPeak	593.54 MHz	38.548	47	-8.452	4	2.957	Vertical	15	120000	0.001	-5.374
QuasiPeak	197.08 MHz	29.5	40	-10.5	225	3.882	Horizontal	15	120000	0.001	-13.826
QuasiPeak	232.32 MHz	28.288	47	-18.712	258	3.921	Horizontal	15	120000	0.001	-13.365
QuasiPeak	592.59 MHz	30.544	47	-16.456	50	3.855	Horizontal	15	120000	0.001	-5.407

**Table 4: Radiated Emissions 30 - 1000 MHz**


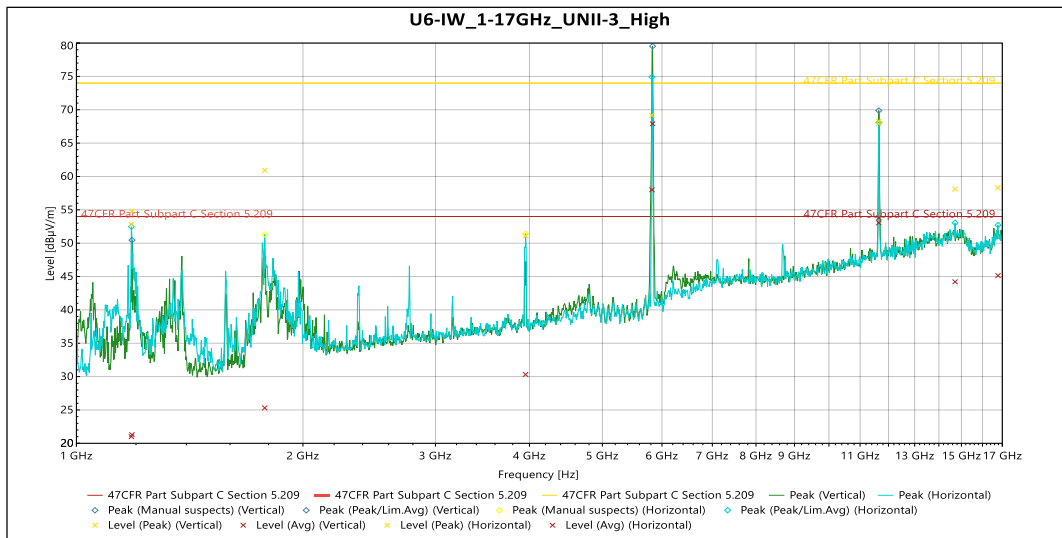
Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Meas. Time (s)	RBW	Meas.Time	Correction (dB)
Peak	1.7704 GHz	53.621	74	-20.379	234	2.39	Vertical	5	1000000	0	-9.648
Peak	11.49 GHz	60.221	74	-13.779	340	3.617	Vertical	5	1000000	0	12.141
Avg	1.7704 GHz	24.168	54	-29.832	234	2.39	Vertical	5	1000000	0	-9.648

Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Meas. Time (s)	RBW	Meas.Time	Correction (dB)
Avg	11.49 GHz	46.28	54	-7.72	340	3.617	Vertical	5	1000000	0	12.141
Peak	1.1861 GHz	44.506	74	-29.494	262	2.566	Horizontal	5	1000000	0	-11.794
Peak	1.7726 GHz	58.206	74	-15.794	252	2.009	Horizontal	5	1000000	0	-9.631
Peak	3.9402 GHz	54.903	74	-19.097	48	1.643	Horizontal	5	1000000	0	-3.084
Peak	8.6683 GHz	54.639	74	-19.361	16	2.574	Horizontal	5	1000000	0	8.547
Peak	11.49 GHz	65.936	74	-8.064	41	1.647	Horizontal	5	1000000	0	12.141
Peak	14.712 GHz	57.918	74	-16.082	20	3.057	Horizontal	5	1000000	0	14.557
Peak	16.838 GHz	58.695	74	-15.305	262	3.785	Horizontal	5	1000000	0	16.876
Avg	1.1861 GHz	19.364	54	-34.636	262	2.566	Horizontal	5	1000000	0	-11.794
Avg	1.7726 GHz	24.785	54	-29.215	252	2.009	Horizontal	5	1000000	0	-9.631
Avg	3.9402 GHz	31.067	54	-22.933	48	1.643	Horizontal	5	1000000	0	-3.084
Avg	8.6683 GHz	37.162	54	-16.838	16	2.574	Horizontal	5	1000000	0	8.547
Avg	11.49 GHz	52.637	54	-1.363	41	1.647	Horizontal	5	1000000	0	12.141
Avg	14.712 GHz	45.364	54	-8.636	20	3.057	Horizontal	5	1000000	0	14.557
Avg	1.1861 GHz	19.364	54	-34.636	262	2.566	Horizontal	5	1000000	0	-11.794

**Table 5: Transmitting on the Lowest Frequency 5745 MHz – 1 - 17 GHz**


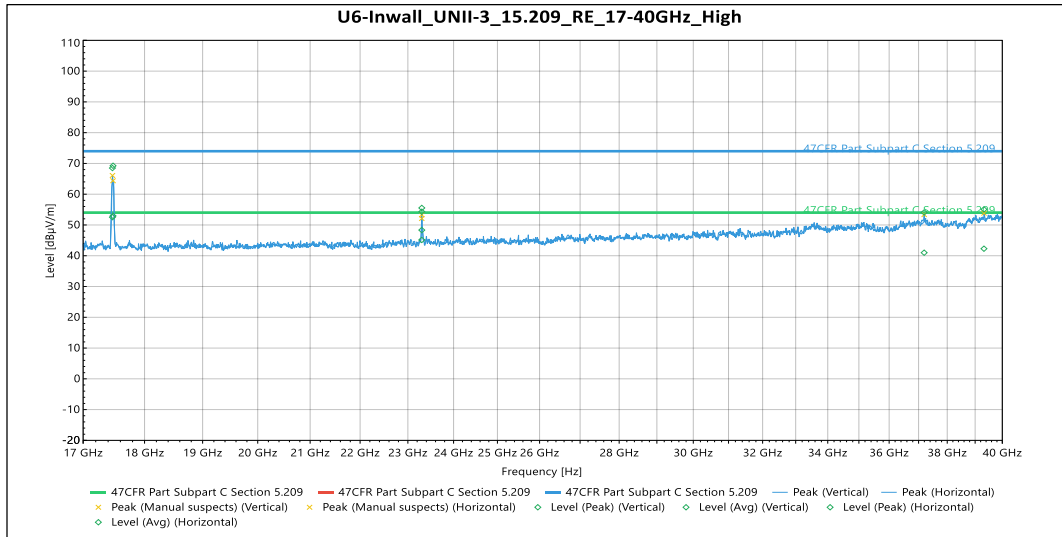
Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Meas. Time (s)	RBW	Meas.Time	Correction (dB)
Peak	11.55 GHz	67.878	74	-6.122	110	2.544	Vertical	5	1000000	0	12.27
Peak	14.928 GHz	57.63	74	-16.37	105	3.776	Vertical	5	1000000	0	15.131
Peak	16.772 GHz	58.411	74	-15.589	342	1.826	Vertical	5	1000000	0	16.649
Avg	11.55 GHz	53.581	54	-0.419	110	2.544	Vertical	5	1000000	0	12.27
Avg	14.928 GHz	44.297	54	-9.703	105	3.776	Vertical	5	1000000	0	15.131
Avg	16.772 GHz	45.037	54	-8.963	342	1.826	Vertical	5	1000000	0	16.649
Peak	1.8118 GHz	53.921	74	-20.079	169	2.004	Horizontal	5	1000000	0	-9.297
Peak	11.544 GHz	65.64	74	-8.36	348	2.185	Horizontal	5	1000000	0	12.241
Avg	1.8118 GHz	25.909	54	-28.091	169	2.004	Horizontal	5	1000000	0	-9.297
Avg	11.544 GHz	50.762	54	-3.238	348	2.185	Horizontal	5	1000000	0	12.241

**Table 6: Transmitting on the Middle Frequency 5775 MHz – 1 - 17 GHz**



Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Meas. Time (s)	RBW	Meas. Time	Correction (dB)
Peak	1.1851 GHz	54.812	74	-19.188	193	2.552	Vertical	5	1000000	0	-11.835
Peak	11.648 GHz	67.896	74	-6.104	47	3.444	Vertical	5	1000000	0	12.468
Avg	1.1851 GHz	21.296	54	-32.704	193	2.552	Vertical	5	1000000	0	-11.835
Avg	11.648 GHz	53.051	54	-0.949	47	3.444	Vertical	5	1000000	0	12.468
Peak	1.1833 GHz	52.827	74	-21.173	256	3.793	Horizontal	5	1000000	0	-11.811
Peak	1.7793 GHz	60.919	74	-13.081	280	2.208	Horizontal	5	1000000	0	-9.579
Peak	3.9527 GHz	51.1	74	-22.9	56	2.91	Horizontal	5	1000000	0	-3.045
Peak	11.649 GHz	68.303	74	-5.697	346	2.919	Horizontal	5	1000000	0	12.473
Peak	14.712 GHz	58.089	74	-15.911	154	2.389	Horizontal	5	1000000	0	14.557
Peak	16.776 GHz	58.316	74	-15.684	152	4	Horizontal	5	1000000	0	16.728
Avg	1.1833 GHz	20.999	54	-33.001	256	3.793	Horizontal	5	1000000	0	-11.811
Avg	1.7793 GHz	25.314	54	-28.686	280	2.208	Horizontal	5	1000000	0	-9.579
Avg	3.9527 GHz	30.32	54	-23.68	56	2.91	Horizontal	5	1000000	0	-3.045
Avg	11.649 GHz	53.798	54	-0.202	346	2.919	Horizontal	5	1000000	0	12.473
Avg	14.712 GHz	44.207	54	-9.793	154	2.389	Horizontal	5	1000000	0	14.557
Avg	16.776 GHz	45.14	54	-8.86	152	4	Horizontal	5	1000000	0	16.728

**Table 7: Transmitting on the Highest Frequency 5825 MHz – 1 - 17 GHz**



Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Meas. Time (s)	RBW	Meas. Time	Correction (dB)
Peak	17.47 GHz	68.497	74	-5.503	57	Vertical	5	1000000	0	-6.041
Peak	23.3 GHz	55.529	74	-18.471	56	Vertical	5	1000000	0	-5.397
Peak	37.193 GHz	54.08	74	-19.92	259	Vertical	5	1000000	0	1.309
Avg	17.47 GHz	52.535	54	-1.465	57	Vertical	5	1000000	0	-6.041
Avg	23.3 GHz	48.336	54	-5.664	56	Vertical	5	1000000	0	-5.397
Avg	37.193 GHz	40.995	54	-13.005	259	Vertical	5	1000000	0	1.309
Peak	17.48 GHz	69.236	74	-4.764	135	Horizontal	5	1000000	0	-6.016
Peak	23.3 GHz	54.31	74	-19.69	134	Horizontal	5	1000000	0	-5.397
Peak	39.322 GHz	55.074	74	-18.926	344	Horizontal	5	1000000	0	3.206
Avg	17.48 GHz	52.942	54	-1.058	135	Horizontal	5	1000000	0	-6.016
Avg	23.3 GHz	45.145	54	-8.855	134	Horizontal	5	1000000	0	-5.397
Avg	39.322 GHz	42.293	54	-11.707	344	Horizontal	5	1000000	0	3.206

**Table 8: Transmitting on the Highest Frequency 5825 MHz – 17 - 40 GHz**

## Results

All emissions in the restricted bands of § 15.205 met the limits specified in § 15.209; therefore, the EUT complies with the specification. See Annex for Conducted Band edge plots.

## 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 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 30 dBm in any 500 kHz band during any time interval of continuous transmission. As per KDB 662911, When the EUT is using spatial-multiplexing in HE modes, there is not additional array gain to accommodate. When the EUT uses Nss=1 data rates, the antenna gain is 5.9 dBi + Array gain of 6.02 dB which is a total of 11.92 dBi. Results of this testing are summarized.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Measured PSD
OFDM 20	5745	Mcs0_Nss4	36	4.84
OFDM 20	5775	Mcs0_Nss4	37	5.31
OFDM 20	5825	Mcs0_Nss4	40	6.55
HT 20	5745	Mcs0_Nss4	36	3.32
HT 20	5775	Mcs0_Nss4	37	3.77
HT 20	5825	Mcs0_Nss4	40	5.19
HT 40	5755	Mcs0_Nss4	36	0.56
HT 40	5775	Mcs0_Nss4	37	1.12
HT 40	5795	Mcs0_Nss4	40	2.94
VHT 20	5745	Mcs0_Nss4	36	3.34
VHT 20	5775	Mcs0_Nss4	37	3.8
VHT 20	5825	Mcs0_Nss4	40	5.24
VHT 40	5755	Mcs0_Nss4	36	0.61
VHT 40	5775	Mcs0_Nss4	37	1.29
VHT 40	5795	Mcs0_Nss4	40	2.77
VHT 80	5775	Mcs0_Nss4	40	-0.51
HE 20	5745	Mcs0_Nss4	36	3.65
HE 20	5775	Mcs0_Nss4	37	4.12
HE 20	5825	Mcs0_Nss4	40	5.52
HE 40	5755	Mcs0_Nss4	36	0.68
HE 40	5775	Mcs0_Nss4	37	1.18
HE 40	5795	Mcs0_Nss4	40	2.7
HE 80	5775	Mcs0_Nss4	40	-0.23

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Measured PSD
OFDM 20	5745	Mcs0_Nss1	36	4.84
OFDM 20	5775	Mcs0_Nss1	37	5.31
OFDM 20	5825	Mcs0_Nss1	40	6.55
HT 20	5745	Mcs0_Nss1	36	3.32
HT 20	5775	Mcs0_Nss1	37	3.77
HT 20	5825	Mcs0_Nss1	40	5.19
HT 40	5755	Mcs0_Nss1	36	0.56
HT 40	5775	Mcs0_Nss1	37	1.12
HT 40	5795	Mcs0_Nss1	40	2.94
VHT 20	5745	Mcs0_Nss1	36	3.34
VHT 20	5775	Mcs0_Nss1	37	3.8
VHT 20	5825	Mcs0_Nss1	40	5.24
VHT 40	5755	Mcs0_Nss1	36	0.61
VHT 40	5775	Mcs0_Nss1	37	1.29
VHT 40	5795	Mcs0_Nss1	40	2.77
VHT 80	5775	Mcs0_Nss1	40	-0.51
HE 20	5745	Mcs0_Nss1	36	3.65
HE 20	5775	Mcs0_Nss1	37	4.12
HE 20	5825	Mcs0_Nss1	40	5.52
HE 40	5755	Mcs0_Nss1	36	0.68
HE 40	5775	Mcs0_Nss1	37	1.18
HE 40	5795	Mcs0_Nss1	40	2.7
HE 80	5775	Mcs0_Nss1	40	-0.23

## Results

The maximum average power spectral density was less than the limit of 30 dBm; therefore, the EUT complies with the specification.



-- End of Test Report --