



427 West 12800 South
Draper, UT 84020

Test Report Certification

FCC ID	SWX-UCGT
IC ID	6545A-UCGT
Equipment Under Test	UCG-Industrial
Test Report Serial Number	TR10650_01
Date of Test(s)	11 - 15 November 2025
Report Issue Date	24 January 2026

Test Specification	Applicant
47 CFR FCC Part 15, Subpart C RSS-247, Issue 4 (July 2025)	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	UCG-Industrial
FCC ID	SWX-UCGT
IC ID	6545A-UCGT

On this 24th day of January 2026, 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. Unified Compliance laboratory is not responsible for incorrect information provided by the manufacturer.

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: Joseph W. Jackson
Reviewed By: Clay Allred

Revision History		
Revision	Description	Date
01	Original Report Release	24 January 2026

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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	UCG-Industrial
Serial Number	C4E
Dimensions (cm)	30.8 x 20.0 x 4.4

2.2 Description of EUT

The UCG-Industrial is a rugged UniFi Console Gateway. The UCG-Industrial transmits in the 2.4 GHz and 5 GHz frequency bands using external antennas. The UCG-Industrial has one 10GbE SFP+ port, one 10GbE WAN port, and four 2.5 GbE LAN ports. The UCG-Industrial has two 64GB micro SD cards for extended storage. The UCG-Industrial has a Bluetooth transmitter for system management. The UCG-Industrial is powered from 110 - 240 AC Mains to 54.5 volts DC power.

The UCG-Industrial has two antenna options. A Monopole Antenna Model 117-05793 and a Dipole Antenna Model 117-06408. The Monopole Antenna has a gain of 3 dBi in the 2.4 GHz range and 5 dBi in the 5 GHz band. The Dipole Antenna has a gain of 6 dBi in both the 2.4 GHz and 5 GHz bands. For reporting purposes, the higher Dipole Antenna is reported unless otherwise stated.

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 + 6 dBi = 9.01 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
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BN: UBIQUITI MN: UCG-Industrial (Note 1) SN: C4E	WiFi Switch	See Section 2.4
BN: UBIQUITI MN: ADS-350WAY-54-1540350E SN: N/A	Power Adapter	3 Conductor power cord to AC mains/80cm
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
54 VDC Power Port	1	2 conductor power cable from power adapter/150 cm
10 GbE SFP+	1	Shielded cat 5E/7m
2.5 GbE LAN	4	Unshielded Cat 5E/7m
10 GbE WAN	1	Unshielded Cat 5E/7m

2.5 Operating Environment

Power Supply	120 Volts AC Mains to 54.5 Volts Output
AC Mains Frequency	60 Hz
Temperature	21.1 - 23.2 °C
Humidity	21.5 - 29.9 %
Barometric Pressure	1013 mBar

2.6 Operating Modes

The UCG-Industrial 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/be were investigated. All measurements are reported with the worst-case mode (802.11be maximum conducted output power and maximum power spectral density) 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

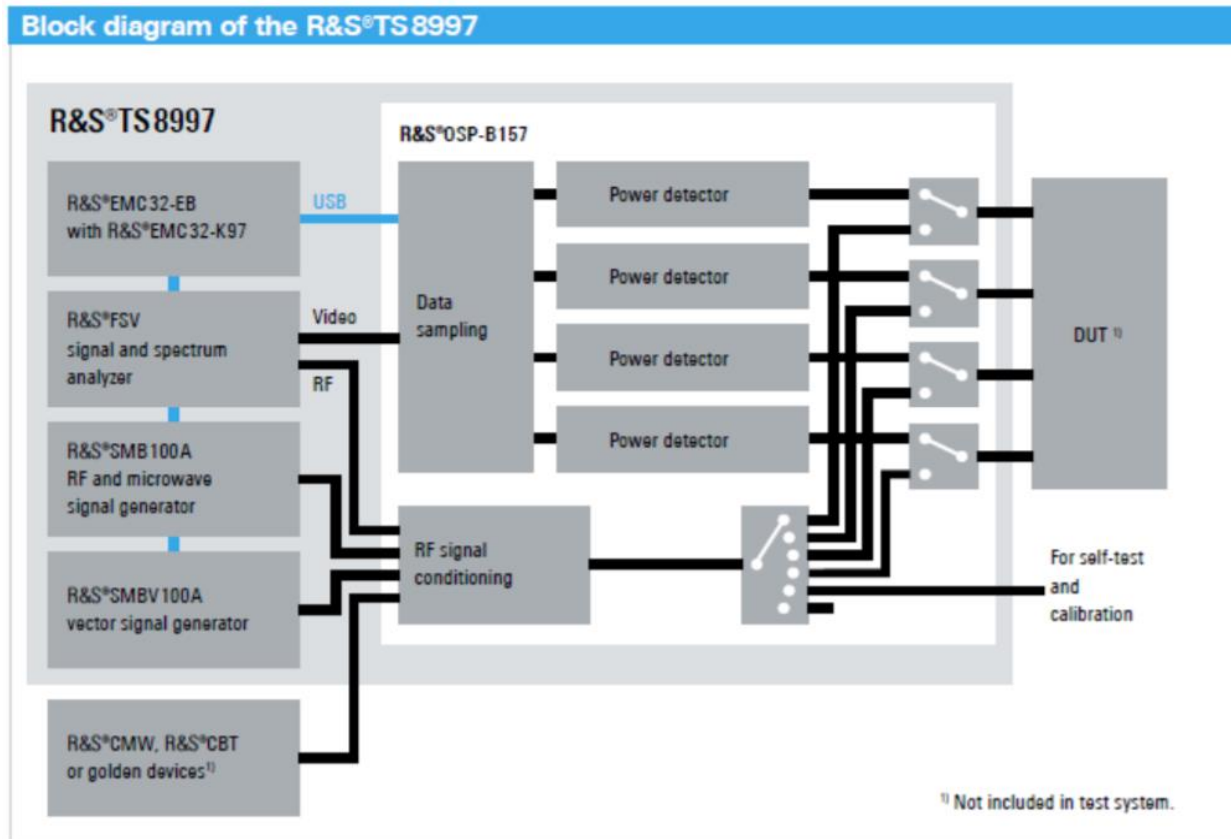


Diagram 1: Test Configuration Block Diagram

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 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 2026. 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 2026.

Unified Compliance Laboratory has been assigned Registration Number 376708 by the FCC, MRA Designation Number US5037 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	11/18/2025	11/18/2026
LISN	AFJ	LS16C/10	UCL-2512	8/12/2025	8/12/2026
ISN	Teseq	ISN T800	UCL-2971	3/31/2025	3/31/2026
AC Power Source	Laplace Instruments	AC1000A	UCL-2857	N/A	N/A
Test Software	AFJ	AFJ FFT3010	UCL-3107	N/A	N/A

Table 1: List of equipment used for Conducted Emissions Testing at Mains Port

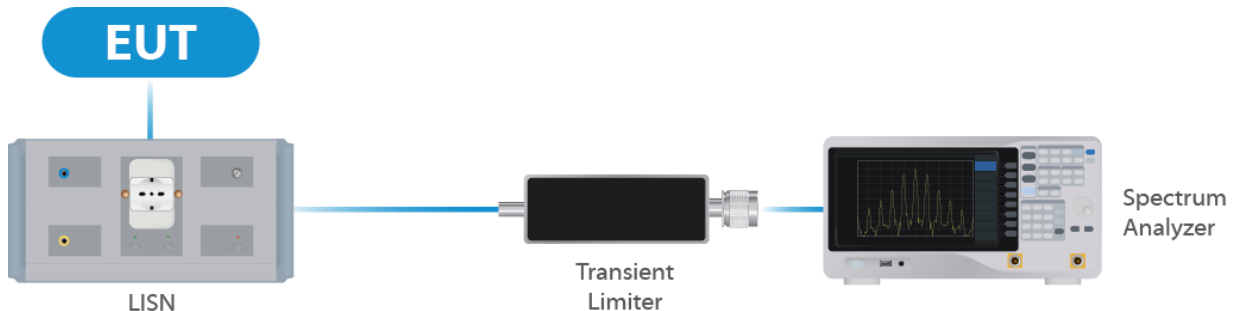


Figure 1: Conducted Emissions Test

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	1/16/2025	4/16/2026
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	4/28/2025	4/16/2026
Switch Extension	R&S	OSP-150W	UCL-2870	4/28/2025	4/16/2026
Test Software	R&S	EMC32	UCL-9442	--	--

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

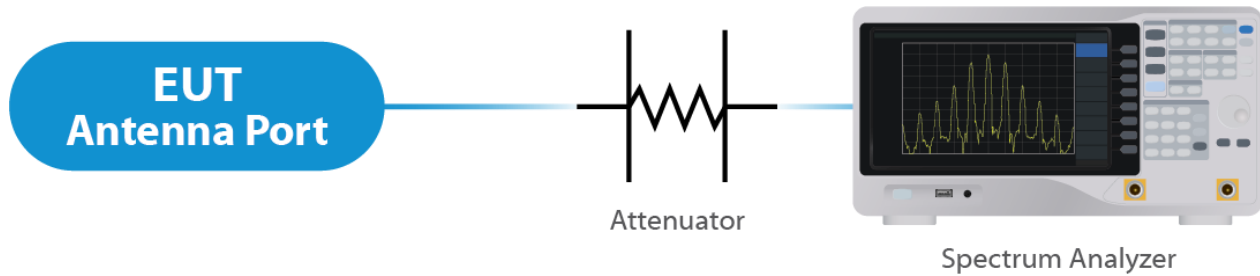


Figure 2: Direct Connect at the Antenna Port Test

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	12/18/2025	12/18/2026
Pre-Amplifier 9 kHz – 1 GHz	Sonoma Instruments	310N	UCL-2889	7/22/2025	7/22/2026
Broadband Antenna	ETS-Lindgren	3142E	UCL-9782	2/6/2025	2/6/2026
Double Ridge Horn Antenna	Scwarzbeck	BBHA 9120D	UCL-3065	4/2/2025	4/2/2027
Log Periodic	Scwarzbeck	STLP 9129	UCL-3068	2/11/2025	2/4/2027
10 - 40 GHz Horn Antenna	ETS-Lindgren	3116C	UCL-7209	6/6/2024	6/6/2026
1 – 18 GHz Amplifier	Com-Power	PAM 118A	UCL-3833	7/22/2025	7/22/2026
Test Software	Nexio	BatEMC	UCL-5253 & UCL-5249	N/A	N/A

Table 3: List of equipment used for Radiated Emissions

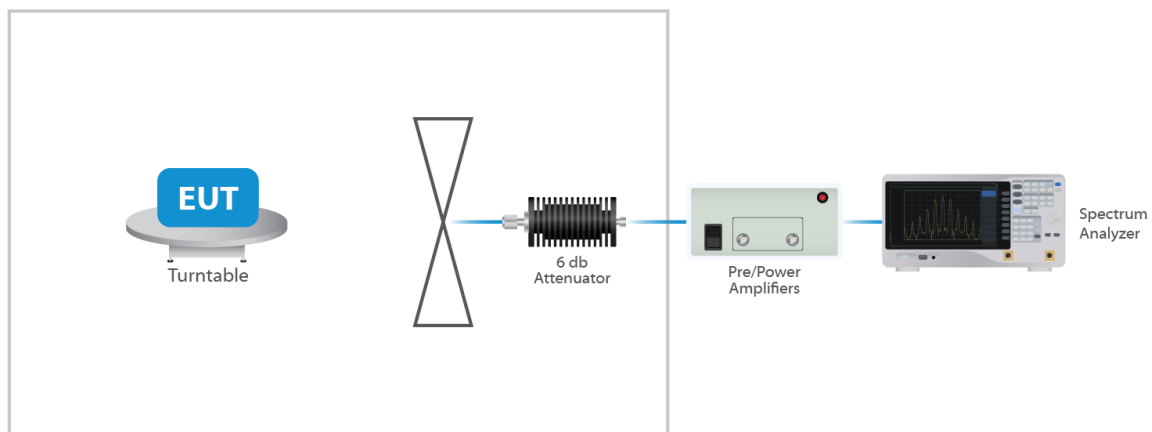


Figure 3: Radiated Emissions Test

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

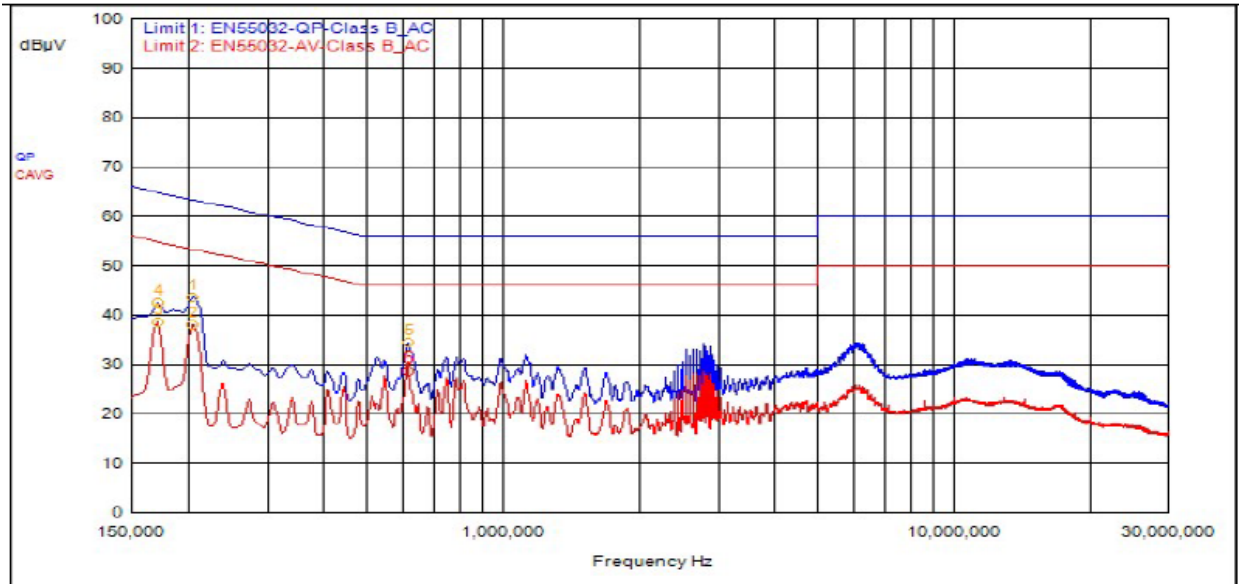
The EUT uses an integrated internal antenna. Per the manufacturer, the Maximum gain of the Dipole Antenna per chain is 6 dBi. Per the manufacturer, the Maximum gain of the Monopole Antenna per chain is 3 dBi in the 2.4 GHz band and 5 dBi in the 5 GHz band. This is an 802.11 device and utilizes CDD as described in KDB 662911 D01. The antenna is not user replaceable.

See Section 2.2 for directional gain calculation.

Results

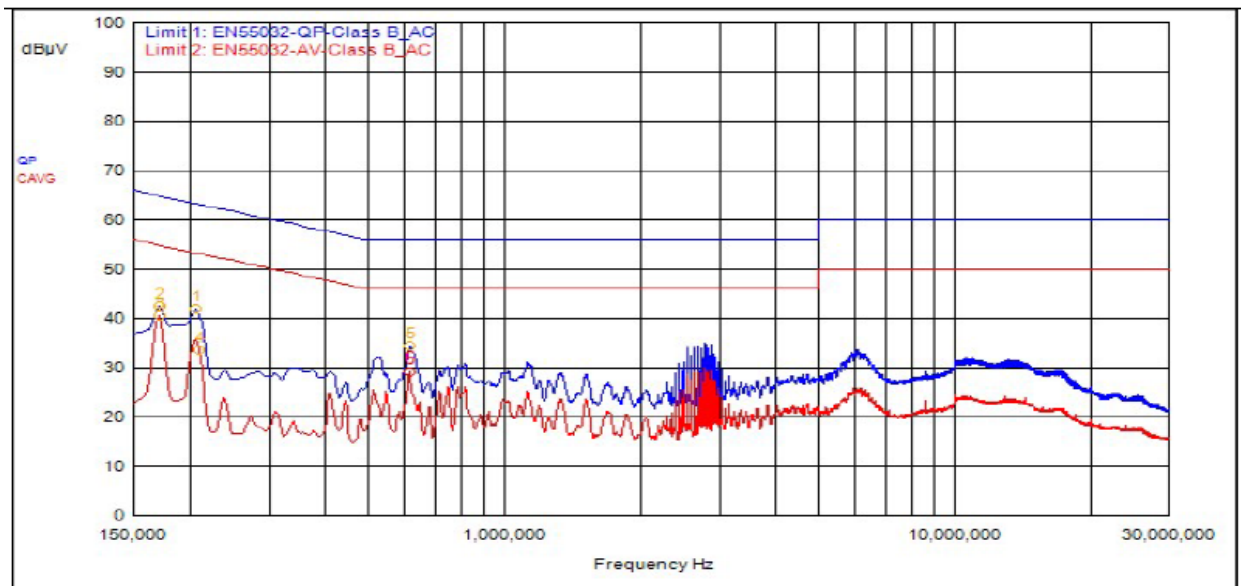
The EUT complied with the specification

5.2 §15.207 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	204,000kHz	9.62			QPeak	34.07	43.69	63.45	-19.76			
5	615,000kHz	9.58			QPeak	24.75	34.33	56.00	-21.67			
4	171,000kHz	9.62			QPeak	32.85	42.47	64.91	-22.44			
2	204,000kHz	9.62			C_AVG	28.55	38.17			53.45	-15.28	
3	171,000kHz	9.62			C_AVG	29.07	38.69			54.91	-16.22	
6	618,000kHz	9.58			C_AVG	19.02	28.60			46.00	-17.40	

Graph 1: Conducted Emissions Plot - Neutral



ID	Frequency	Probe	Cable	Atten.	Detector	Meter Read	Meas Level	Limit 1	Limit 1 Dist.	Limit 2	Limit 2 Dist.	P/F
MU	MHz	dB	dB	dB	Type	dBμV	dBμV	dBμV	dB	dBμV	dB	P/F
1	207,000kHz	9.49			QPeak	32.41	41.90	63.32	-21.43			
5	618,000kHz	9.50			QPeak	24.81	34.31	56.00	-21.69			
2	171,000kHz	9.49			QPeak	33.14	42.63	64.91	-22.28			
3	171,000kHz	9.49			C_AVG	31.10	40.59			54.91	-14.32	
4	210,000kHz	9.49			C_AVG	24.22	33.71			53.21	-19.49	
6	615,000kHz	9.50			C_AVG	19.79	29.29			46.00	-16.71	

Graph 2: Conducted Emissions Plot – Line 1

Result

The EUT complied with the specification limit.

5.3 §15.247(a)(2) Emissions Bandwidth

All chains were measured under the guidance of KDB 558074 Section 8.2. and KDB 662911 D01. Please see associated annex for details on instrument settings.

Mode	Frequency (MHz)	99% Bandwidth (MHz)	6 dB Bandwidth (MHz)
b	2412	13.0	8.4
	2437	13.3	6.3
	2462	13.5	7.9
g	2412	17.3	16.4
	2437	17.3	16.2
	2462	19.8	16.6
n 20	2412	18.5	17.7
	2437	18.5	17.7
	2462	20.0	17.9
n 40	2422	37.0	36.6
	2437	37.5	36.5
	2452	37.5	36.4
be 20	2412	19.3	19.2
	2437	19.3	19.2
	2462	19.8	19.3
be 40	2422	39.0	38.3
	2437	38.5	38.1
	2452	38.5	38.3

Result

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

In the configuration tested, the 6 dB bandwidth was greater than 500 kHz; therefore, the EUT complied with the requirements of the specification (see spectrum analyzer plot within the Annex).

5.4 §15.247(b)(3) Maximum Average Output Power

All chains were measured and summed under the guidance of KDB 558074 Section 8.3.2.3. and KDB 662911 D01. Please see associated annex for details on instrument settings.

See Section 2.2 for directional gain calculation.

The maximum average RF conducted output power measured for this device was 29.95 dBm or 988055 mW. The limit is 30 dBm or 1 Watt when using antennas with 6 dBi or less gain. The Monopole Antenna has a gain of 3 dBi. The Dipole Antenna has a gain of 6 dBi.

5.4.1 Dipole Antenna

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Total Summed Output Power * (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dBm)
b 20	2412	Mcs0_Nss2	26	29.13	6	35.13	36	-0.87
	2417	Mcs0_Nss2	26	29.23	6	35.23	36	-0.77
	2422	Mcs0_Nss2	26	29.24	6	35.24	36	-0.76
	2427	Mcs0_Nss2	26	29.43	6	35.43	36	-0.57
	2432	Mcs0_Nss2	26	29.68	6	35.68	36	-0.32
	2437	Mcs0_Nss2	26	28.74	6	34.74	36	-1.26
	2442	Mcs0_Nss2	27	29.53	6	35.53	36	-0.47
	2447	Mcs0_Nss2	27	29.45	6	35.45	36	-0.55
	2452	Mcs0_Nss2	26	29.10	6	35.10	36	-0.90
	2457	Mcs0_Nss2	26	29.13	6	35.13	36	-0.87
	2462	Mcs0_Nss2	26	29.22	6	35.22	36	-0.78
g 20	2412	Mcs0_Nss2	25	27.47	6	33.47	36	-2.53
	2417	Mcs0_Nss2	26	28.37	6	34.37	36	-1.63
	2422	Mcs0_Nss2	27	29.43	6	35.43	36	-0.57
	2427	Mcs0_Nss2	27	29.64	6	35.64	36	-0.36
	2432	Mcs0_Nss2	27	29.94	6	35.94	36	-0.06
	2437	Mcs0_Nss2	28	29.47	6	35.47	36	-0.53
	2442	Mcs0_Nss2	28	29.19	6	35.19	36	-0.81
	2447	Mcs0_Nss2	28	29.11	6	35.11	36	-0.89
	2452	Mcs0_Nss2	27	29.13	6	35.13	36	-0.87
	2457	Mcs0_Nss2	27	29.16	6	35.16	36	-0.84
	2462	Mcs0_Nss2	27	29.19	6	35.19	36	-0.81
n 20	2412	Mcs0_Nss2	25	27.55	6	33.55	36	-2.45

	2417	Mcs0_Nss2	26	28.45	6	34.45	36	-1.55
	2422	Mcs0_Nss2	27	29.41	6	35.41	36	-0.59
	2427	Mcs0_Nss2	27	29.59	6	35.59	36	-0.41
	2432	Mcs0_Nss2	27	29.95	6	35.95	36	-0.05
	2437	Mcs0_Nss2	28	29.53	6	35.53	36	-0.47
	2442	Mcs0_Nss2	28	29.20	6	35.20	36	-0.80
	2447	Mcs0_Nss2	28	29.14	6	35.14	36	-0.86
	2452	Mcs0_Nss2	27	29.20	6	35.20	36	-0.80
	2457	Mcs0_Nss2	27	29.16	6	35.16	36	-0.84
	2462	Mcs0_Nss2	27	29.23	6	35.23	36	-0.77
n 40	2422	Mcs0_Nss2	18	20.73	6	26.73	36	-9.27
	2437	Mcs0_Nss2	24	27.32	6	33.32	36	-2.68
	2452	Mcs0_Nss2	24	26.78	6	32.78	36	-3.22
ax 20	2412	Mcs0_Nss2	24	26.62	6	32.62	36	-3.38
	2417	Mcs0_Nss2	25	27.56	6	33.56	36	-2.44
	2422	Mcs0_Nss2	26	28.45	6	34.45	36	-1.55
	2427	Mcs0_Nss2	27	29.58	6	35.58	36	-0.42
	2432	Mcs0_Nss2	27	29.94	6	35.94	36	-0.06
	2437	Mcs0_Nss2	28	29.50	6	35.50	36	-0.50
	2442	Mcs0_Nss2	28	29.09	6	35.09	36	-0.91
	2447	Mcs0_Nss2	28	28.98	6	34.98	36	-1.02
	2452	Mcs0_Nss2	27	29.06	6	35.06	36	-0.94
	2457	Mcs0_Nss2	27	29.09	6	35.09	36	-0.91
ax 40	2462	Mcs0_Nss2	26	28.22	6	34.22	36	-1.78
	2422	Mcs0_Nss2	16	18.36	6	24.36	36	-11.64
	2437	Mcs0_Nss2	24	27.08	6	33.08	36	-2.92
	2452	Mcs0_Nss2	24	27.50	6	33.50	36	-2.50

5.4.2 Monopole Antenna

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Total Summed Output Power * (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dBm)
b 20	2412	Mcs0_Nss2	26	29.13	3	32.13	36	-3.47
	2417	Mcs0_Nss2	26	29.23	3	32.23	36	-3.55
	2422	Mcs0_Nss2	26	29.24	3	32.24	36	-3.90
	2427	Mcs0_Nss2	26	29.43	3	32.43	36	-3.87
	2432	Mcs0_Nss2	26	29.68	3	32.68	36	-3.78
	2437	Mcs0_Nss2	26	28.74	3	31.74	36	-5.53
	2442	Mcs0_Nss2	27	29.53	3	32.53	36	-4.63
	2447	Mcs0_Nss2	27	29.45	3	32.45	36	-3.57
	2452	Mcs0_Nss2	26	29.10	3	32.10	36	-3.36
	2457	Mcs0_Nss2	26	29.13	3	32.13	36	-3.06
	2462	Mcs0_Nss2	26	29.22	3	32.22	36	-3.53
g 20	2412	Mcs0_Nss2	25	27.47	3	30.47	36	-3.81
	2417	Mcs0_Nss2	26	28.37	3	31.37	36	-3.89
	2422	Mcs0_Nss2	27	29.43	3	32.43	36	-3.87
	2427	Mcs0_Nss2	27	29.64	3	32.64	36	-3.84
	2432	Mcs0_Nss2	27	29.94	3	32.94	36	-3.81
	2437	Mcs0_Nss2	28	29.47	3	32.47	36	-5.45
	2442	Mcs0_Nss2	28	29.19	3	32.19	36	-4.55
	2447	Mcs0_Nss2	28	29.11	3	32.11	36	-3.59
	2452	Mcs0_Nss2	27	29.13	3	32.13	36	-3.41
	2457	Mcs0_Nss2	27	29.16	3	32.16	36	-3.05
	2462	Mcs0_Nss2	27	29.19	3	32.19	36	-3.47
n 20	2412	Mcs0_Nss2	25	27.55	3	30.55	36	-3.80
	2417	Mcs0_Nss2	26	28.45	3	31.45	36	-3.86
	2422	Mcs0_Nss2	27	29.41	3	32.41	36	-3.8
	2427	Mcs0_Nss2	27	29.59	3	32.59	36	-3.84
	2432	Mcs0_Nss2	27	29.95	3	32.95	36	-3.77
	2437	Mcs0_Nss2	28	29.53	3	32.53	36	-12.27
	2442	Mcs0_Nss2	28	29.20	3	32.20	36	-5.68
	2447	Mcs0_Nss2	28	29.14	3	32.14	36	-6.22
	2452	Mcs0_Nss2	27	29.20	3	32.20	36	-6.38
	2457	Mcs0_Nss2	27	29.16	3	32.16	36	-5.44

	2462	Mcs0_Nss2	27	29.23	3	32.23	36	-4.55
n 40	2422	Mcs0_Nss2	18	20.73	3	23.73	36	-3.42
	2437	Mcs0_Nss2	24	27.32	3	30.32	36	-3.06
	2452	Mcs0_Nss2	24	26.78	3	29.78	36	-3.50
ax 20	2412	Mcs0_Nss2	24	26.62	3	29.62	36	-3.91
	2417	Mcs0_Nss2	25	27.56	3	30.56	36	-4.02
	2422	Mcs0_Nss2	26	28.45	3	31.45	36	-3.94
	2427	Mcs0_Nss2	27	29.58	3	32.58	36	-3.91
	2432	Mcs0_Nss2	27	29.94	3	32.94	36	-4.78
	2437	Mcs0_Nss2	28	29.50	3	32.50	36	-14.64
	2442	Mcs0_Nss2	28	29.09	3	32.09	36	-5.92
	2447	Mcs0_Nss2	28	28.98	3	31.98	36	-5.50
	2452	Mcs0_Nss2	27	29.06	3	32.06	36	-3.47
	2457	Mcs0_Nss2	27	29.09	3	32.09	36	-3.55
ax 40	2462	Mcs0_Nss2	26	28.22	3	31.22	36	-3.90
	2422	Mcs0_Nss2	16	18.36	3	21.36	36	-3.87
	2437	Mcs0_Nss2	24	27.08	3	30.08	36	-3.78
	2452	Mcs0_Nss2	24	27.50	3	30.50	36	-5.53

Result

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

* Gated EIRP shown in the Annex is the conducted measurement

5.5 §15.247(d) Spurious Emissions

5.5.1 Conducted Spurious Emissions

The frequency range from the lowest frequency generated or used in the device to the tenth harmonic of the highest fundamental frequency was investigated to measure any antenna-conducted emissions. The table show the measurement data from spurious emissions noted across the frequency range when transmitting at the lowest frequency, middle frequency and upper frequency. Shown within the Annex are plot(s) with the EUT tuned to the upper and lower channels. These demonstrate compliance with the provisions of this section at the band edges.

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

Result

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

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 (dBi) + Cable Loss (dB) - Pre-Amplifier Gain (dB), and is added to the Receiver reading.

Result

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

QuasiPeak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
50.39 MHz	24.72	30.0	-5.28	118	2.99	Vertical	-11.52
56.86 MHz	29.95	30.0	-0.05	136	3.24	Vertical	-12.38
74.94 MHz	12.90	30.0	-17.10	22	2.48	Vertical	-18.00
108.96 MHz	27.50	30.0	-2.50	163	1.02	Vertical	-13.89
480.87 MHz	27.27	37.0	-9.73	253	1.02	Vertical	-8.13
483.49 MHz	25.37	37.0	-11.63	258	1.16	Vertical	-8.02
484.43 MHz	22.17	37.0	-14.83	258	1.13	Horizontal	-7.99
488.24 MHz	26.34	37.0	-10.66	190	2.22	Horizontal	-7.83
490.73 MHz	29.44	37.0	-7.56	297	1.81	Horizontal	-7.74
491.79 MHz	30.46	37.0	-6.54	282	2.14	Horizontal	-7.72
506.92 MHz	29.39	37.0	-7.61	202	1.51	Horizontal	-7.43

Table 4: Radiated Emissions 30 – 1000 MHz

Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
No significant emissions were observed from 1 – 17 GHz in the Low mode in both the Vertical and Horizontal orientations of the antenna.							

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
No significant emissions were observed from 1 – 17 GHz in the Low mode in both the Vertical and Horizontal orientations of the antenna.							

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

Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
2.84 GHz	54.26	74.0	-19.74	230	1.633	Vertical	-12.78
2.90 GHz	48.78	74.0	-25.22	231	1.63	Vertical	-12.71
29.1 GHz	49.09	74.0	-24.91	229	2.133	Vertical	-12.70
10.31 GHz	52.43	74.0	-21.57	87	2.137	Vertical	4.05
14.07 GHz	53.45	74.0	-20.55	135	1.63	Vertical	8.81
2.23 GHz	56.93	74.0	-17.07	89	1.5	Horizontal	-13.81
2.23 GHz	56.79	74.0	-17.21	87	1.631	Horizontal	-13.79
11.43 GHz	49.47	74.0	-24.53	8	1.628	Horizontal	5.40
14.10 GHz	53.27	74.0	-20.73	323	1.632	Horizontal	8.85
16.92 GHz	52.87	74.0	-21.13	328	2.136	Horizontal	10.19

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
2.84 GHz	25.80	54.0	-28.20	230	1.633	Vertical	-12.78
2.90 GHz	22.79	54.0	-31.21	231	1.63	Vertical	-12.71
29.1 GHz	24.28	54.0	-29.72	229	2.133	Vertical	-12.70
10.31 GHz	43.94	54.0	-10.06	87	2.137	Vertical	4.05
14.07 GHz	39.94	54.0	-14.06	135	1.63	Vertical	8.81
2.23 GHz	43.45	54.0	-10.55	89	1.5	Horizontal	-13.81
2.23 GHz	43.20	54.0	-10.80	87	1.631	Horizontal	-13.79
11.43 GHz	36.51	54.0	-17.49	8	1.628	Horizontal	5.40
14.10 GHz	40.01	54.0	-13.99	323	1.632	Horizontal	8.85
16.92 GHz	39.73	54.0	-14.27	328	2.136	Horizontal	10.19

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

Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
2.86 GHz	53.90	74.0	-10.10	232	1.63	Vertical	-12.71
10.31 GHz	51.25	74.0	-22.75	230	2.133	Vertical	4.05
2.25 GHz	54.31	74.0	-19.69	97	1.6312	Horizontal	-13.81
10.31 GHz	50.56	74.0	-23.44	80	1.628	Horizontal	4.05

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
2.86 GHz	24.50	54.0	-29.50	232	1.63	Vertical	-12.71
10.31 GHz	40.67	54.0	-13.33	230	2.133	Vertical	4.05
2.25 GHz	40.81	54.0	-13.19	97	1.6312	Horizontal	-13.81
10.31 GHz	40.96	54.0	-13.04	80	1.628	Horizontal	4.05

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

Peak

Frequency	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
16.44 GHz	53.86	74.0	-20.14	270	Vertical	2.44
18.25 GHz	53.12	74.0	-20.88	39	Vertical	1.41
19.30 GHz	54.58	74.0	-19.42	25	Vertical	0.06
20.63 GHz	52.40	74.0	-21.60	10	Vertical	0.24
25.62 GHz	54.67	74.0	-19.33	326	Vertical	3.91
16.57 GHz	54.39	74.0	-19.61	280	Horizontal	3.29
17.74 GHz	53.47	74.0	-20.53	330	Horizontal	1.70
19.30 GHz	53.39	74.0	-20.61	51	Horizontal	0.06
25.22 GHz	54.95	74.0	-19.05	3	Horizontal	3.43

Avg

Frequency	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
16.44 GHz	39.91	54.0	-14.09	270	Vertical	2.44
18.25 GHz	39.68	54.0	-14.32	39	Vertical	1.41
19.30 GHz	47.54	54.0	-6.46	25	Vertical	0.06
20.63 GHz	41.38	54.0	-12.62	10	Vertical	0.24
25.62 GHz	40.13	54.0	-13.87	326	Vertical	3.91
16.57 GHz	40.44	54.0	-13.56	280	Horizontal	3.29
17.74 GHz	39.36	54.0	-14.64	330	Horizontal	1.70
19.30 GHz	44.98	54.0	-9.02	51	Horizontal	0.06
25.22 GHz	40.19	54.0	-13.81	3	Horizontal	3.43

Table 8: Radiated Emissions 17 – 26 GHz at the Lowest Frequency (worse case)

5.6 §15.247(e) Maximum Average Power Spectral Density

All chains were measured and summed under the guidance of KDB 558074 Section 8.4. and KDB 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 for directional gain calculation.

5.6.1 Dipole Antenna

Mode	Frequency (MHz)	Data Rate	TP Setting	Total Sum PSD EIRP (dBm)	Antenna Gain (dBi)	Limit (dBm)	Margin (dBm)
b	2412	Msc0_Nss2	26	4.61	6	8.0	-3.39
	2437	Msc0_Nss2	26	4.23	6	8.0	-3.77
	2462	Msc0_Nss2	26	4.58	6	8.0	-3.42
g	2412	Msc0_Nss2	25	-6.30	6	8.0	-14.3
	2437	Msc0_Nss2	28	-4.09	6	8.0	-12.09
	2462	Msc0_Nss2	27	-4.29	6	8.0	-12.29
n 20	2412	Msc0_Nss2	25	-4.87	6	8.0	-12.87
	2437	Msc0_Nss2	28	-5.96	6	8.0	-13.96
	2462	Msc0_Nss2	27	-6.40	6	8.0	-14.4
n 40	2422	Msc0_Nss2	18	-18.01	6	8.0	-26.01
	2437	Msc0_Nss2	24	-11.17	6	8.0	-19.17
	2452	Msc0_Nss2	24	-10.85	6	8.0	-18.85
be 20	2412	Msc0_Nss2	24	-9.28	6	8.0	-17.28
	2437	Msc0_Nss2	28	-6.44	6	8.0	-14.44
	2462	Msc0_Nss2	26	-7.46	6	8.0	-15.46
be 40	2422	Msc0_Nss2	16	-20.03	6	8.0	-28.03
	2437	Msc0_Nss2	24	-11.13	6	8.0	-19.13
	2452	Msc0_Nss2	24	-10.58	6	8.0	-18.58

5.6.2 Monopole Antenna

Mode	Frequency (MHz)	Data Rate	TP Setting	Total Sum PSD EIRP (dBm)	Antenna Gain (dBi)	Limit (dBm)	Margin (dBm)
b	2412	Msc0_Nss2	26	1.61	3	8.0	-6.39
	2437	Msc0_Nss2	26	1.23	3	8.0	-6.77
	2462	Msc0_Nss2	26	1.58	3	8.0	-6.42
g	2412	Msc0_Nss2	25	-9.30	3	8.0	-17.3
	2437	Msc0_Nss2	28	-7.09	3	8.0	-15.09
	2462	Msc0_Nss2	27	-7.29	3	8.0	-15.29
n 20	2412	Msc0_Nss2	25	-7.87	3	8.0	-15.87
	2437	Msc0_Nss2	28	-8.96	3	8.0	-16.96
	2462	Msc0_Nss2	27	-9.40	3	8.0	-17.4
n 40	2422	Msc0_Nss2	18	-21.01	3	8.0	-29.01
	2437	Msc0_Nss2	24	-14.17	3	8.0	-22.17
	2452	Msc0_Nss2	24	-13.85	3	8.0	-21.85
be 20	2412	Msc0_Nss2	24	-12.28	3	8.0	-20.28
	2437	Msc0_Nss2	28	-9.44	3	8.0	-17.44
	2462	Msc0_Nss2	26	-10.46	3	8.0	-18.46
be 40	2422	Msc0_Nss2	16	-23.03	3	8.0	-31.03
	2437	Msc0_Nss2	24	-14.13	3	8.0	-22.13
	2452	Msc0_Nss2	24	-13.58	3	8.0	-21.58

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 --