



427 West 12800 South
Draper, UT 84020

Test Report Certification

FCC ID	SWX-E7AD
Equipment Under Test	E7-Audience
Test Report Serial Number	TR9801_01
Date of Test(s)	16 - 18, 30 July; 1, 28 - 29 August; 24 - 25 September 2024
Report Issue Date	24 February 2025

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

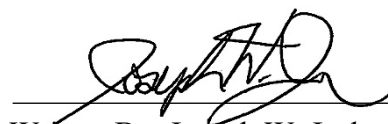
This report has been prepared by Unified Compliance Laboratory (UCL) to document compliance of the device described below with the requirement of Federal Communication Commissions (FCC) Part 15, Subpart E. This report may be reproduced in full. Partial reproduction of this report may only be made with 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	E7-Audience
FCC ID	SWX-E7AD

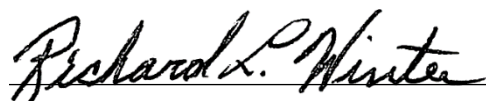
On this 24th day of February 2025, I individually and for Unified Compliance Laboratory certify that the statements made in this engineering report are true, complete, and correct to the best of my knowledge and are made in good faith. Unified Compliance laboratory is not responsible for incorrect information 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: Richard L. Winter

Revision History		
Revision	Description	Date
01	Original Report Release	24 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	E7-Audience
Serial Number	FE60A0
Dimensions (cm)	47.4 x 26.5 x 9.4

2.2 Description of EUT

The E7-Audience is a WiFi 7 access point designed for high-density environments with (1) 10GbE PoE port and (1) 1GbE PoE port. The E7-Audience transmits in the 5 GHz, and 6 GHz frequency bands using integral antennas and is powered by an 802.3at PoE power adapter.

The E7-Audience has a low gain mode with the antenna gain of 11 dBm and a high gain mode with the antenna gain of 15 dBm. For Output Power (Section 5.4) and PSD (Section 5.6) both low gain and high gain antenna modes are documented. For the remaining test, the high gain mode is characterized as worst case scenario.

The E7-Audience uses Transmit Power (TP) Control protocol and is included in the power tables of Section 5.4.

The table below show the channels used within the different modulation bandwidths.

Band	WiFi Mode	Modulation Bandwidth	Modulation Type	Frequency (MHz)
UNII-1	a	20 MHz	OFDM	5180, 5200, 5210, 5240
	ax	20 MHz	HE	5180, 5200, 5210, 5240
	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.

Brand Name Model Number Serial Number	Description	Name of Interface Ports / Interface Cables
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BN: UBIQUITI MN: E7-Audience (Note 1) SN: FE60A0	Wireless Access Point	See Section 2.4
BN: UBIQUITI MN: U-POE-at SN: N/A	PoE Injector Power Supply	Shielded or Un-shielded Cat 5e cable (Note 2)
BN: Dell MN: XPS 13 SN: N/A	Laptop 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

Name of Ports	No. of Ports Fitted to EUT	Cable Description/Length
PoE Input	1	7m Shielded Cat 5E
PoE Output (PoE Injector)	1	7m Shielded Cat 5E to E7-Audience PoE Input
LAN (PoE Injector)	1	unshielded Cat 5E to Laptop PC
AC (PoE Injector)	1	3 Conductor power cord to AC mains/80cm

2.5 Operating Environment

Power Supply	120 Volts AC Mains to 48 Volts PoE
AC Mains Frequency	60 Hz
Temperature	21.3 – 23.9 °C
Humidity	21.4 – 29.8 %
Barometric Pressure	1012 mBar

2.6 Operating Modes

The E7-Audience was tested using test software in order to enable to constant transmission. The measurements within this report are corrected to reference a 100% duty cycle. All emission modes of 802.11 a/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

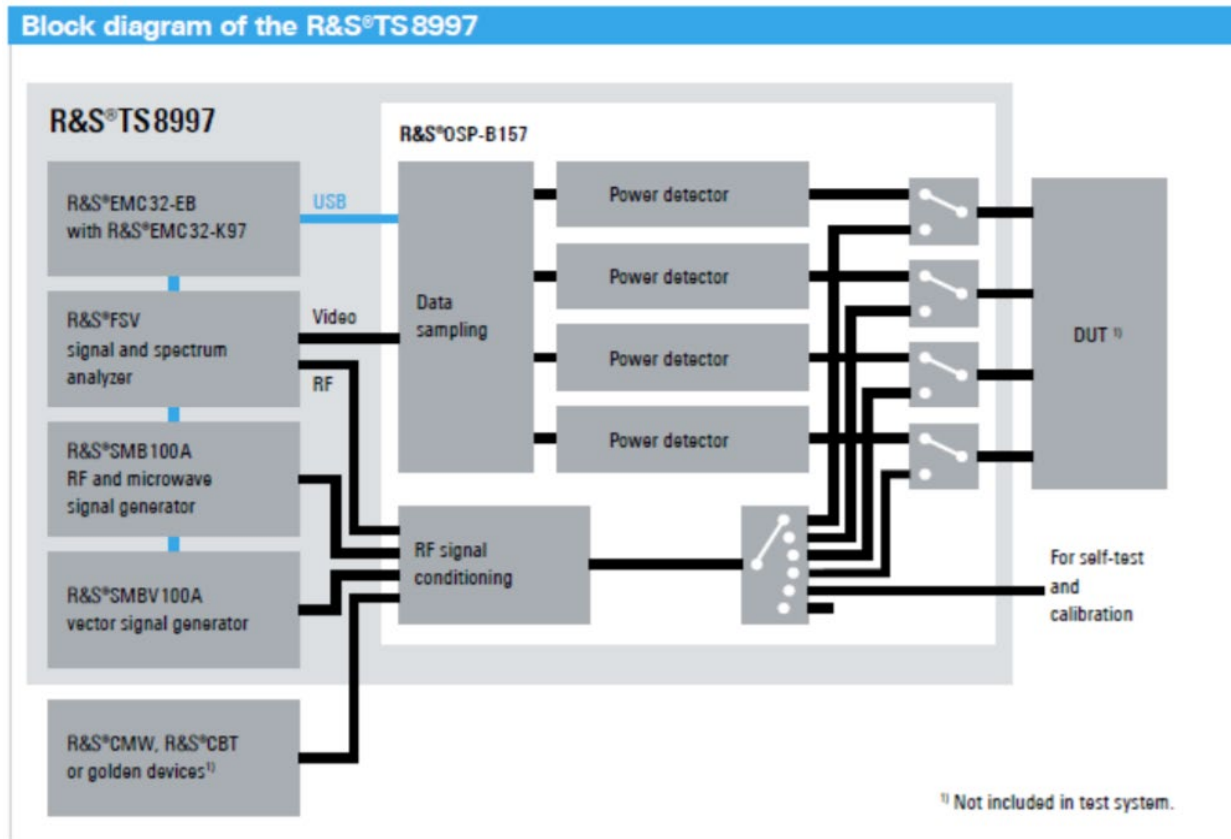


Diagram 1: Test Configuration Block Diagram

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	Environmental Phenomena	Frequency Range (MHZ)	Result
15.203	Antenna requirements	Structural Requirement	Compliant
15.207	Conducted Disturbance at Mains Port	0.15 to 30	Compliant
15.407(a)	Bandwidth Requirement	5180 to 5210	Compliant
15.407(a)	Peak Output Power	5180 to 5210	Compliant
15.407(b)	Antenna Conducted Spurious Emissions	0.009 to 40000	N/A Note ¹
15.209	Radiated Spurious Emissions	0.009 to 40000	Compliant
15.407(a)	Peak Power Spectral Density	5180 to 5210	Compliant

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 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

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	8/27/2024	8/27/2025
LISN	AFJ	LS16C/10	UCL-2512	7/08/2024	7/08/2025
ISN	Teseq	ISN T800	UCL-2974	7/09/2024	7/09/2025
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

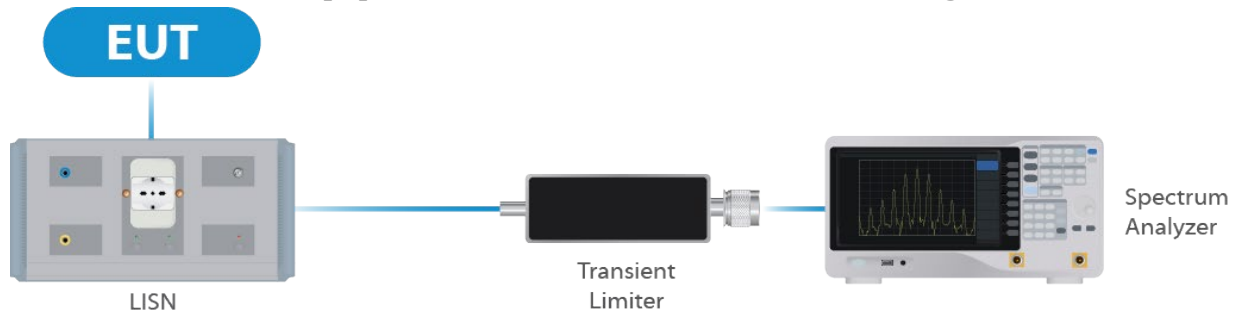


Figure 1: Conducted Emissions Test

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	1/16/2026
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	4/12/2024	4/19/2025
Switch Extension	R&S	OSP-150W	UCL-2870	4/12/2024	4/19/2025
Test Software	R&S	EMC32	UCL-9442	-	-

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

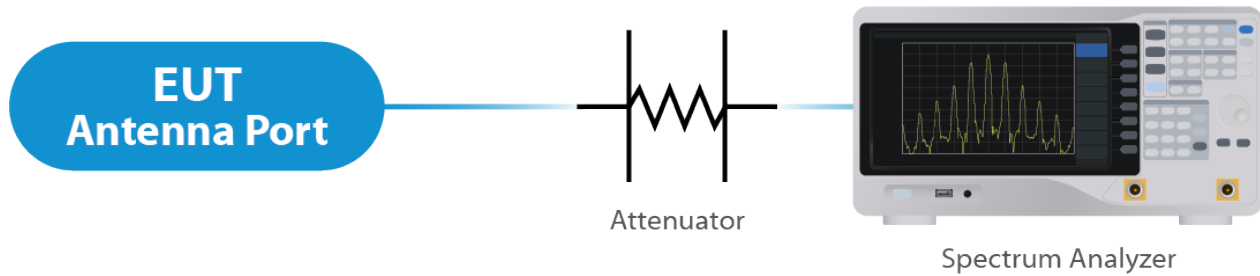


Figure 2: Direct Connect at the Antenna Port Test

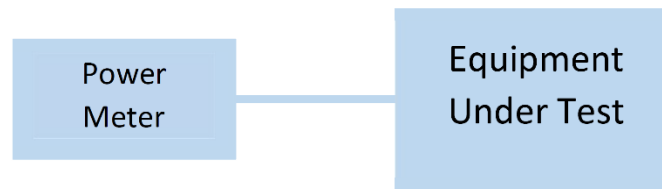


Figure 3: Output Power Measurement

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	12/27/2024	12/27/2025
Pre-Amplifier 9 kHz – 1 GHz	Sonoma Instruments	310N	UCL-2889	1/19/2024	1/19/2026
Broadband Antenna	ETS-Lindgren	3142E	UCL-9782	2/6/2025	2/6/2026
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	Nexio	BatEMC	UCL-5253 & UCL- 5249	N/A	N/A

Table 3: List of equipment used for Radiated Emissions

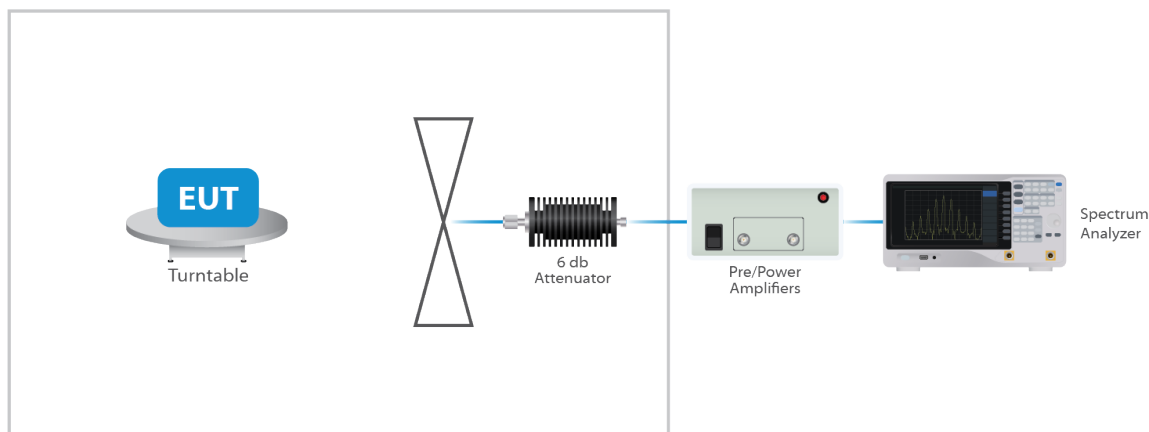


Figure 4: Radiated Emissions Test

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
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 integrated antenna. Per the manufacturer, the Maximum gain of the antenna per chain is 15 dBi. This is an 802.11 device and utilizes CDD as described in KDB 662911 D01. The antenna is not user replaceable. For CDD transmissions, directional gain is calculated as follows.

Array Gain = $10 \log(\text{NANT}/\text{NSS})$ 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 $\text{NANT} \leq 4$;

Low Gain Mode

For PSD measurements when $\text{Nss}=1$: Array Gain = $10 \log(\text{NANT}/\text{NSS})$ dB + Antenna Gain (dBi). Or $6.02 \text{ dB} + 11 \text{ dBi} = 17.02 \text{ dBi}$.

High Gain Mode

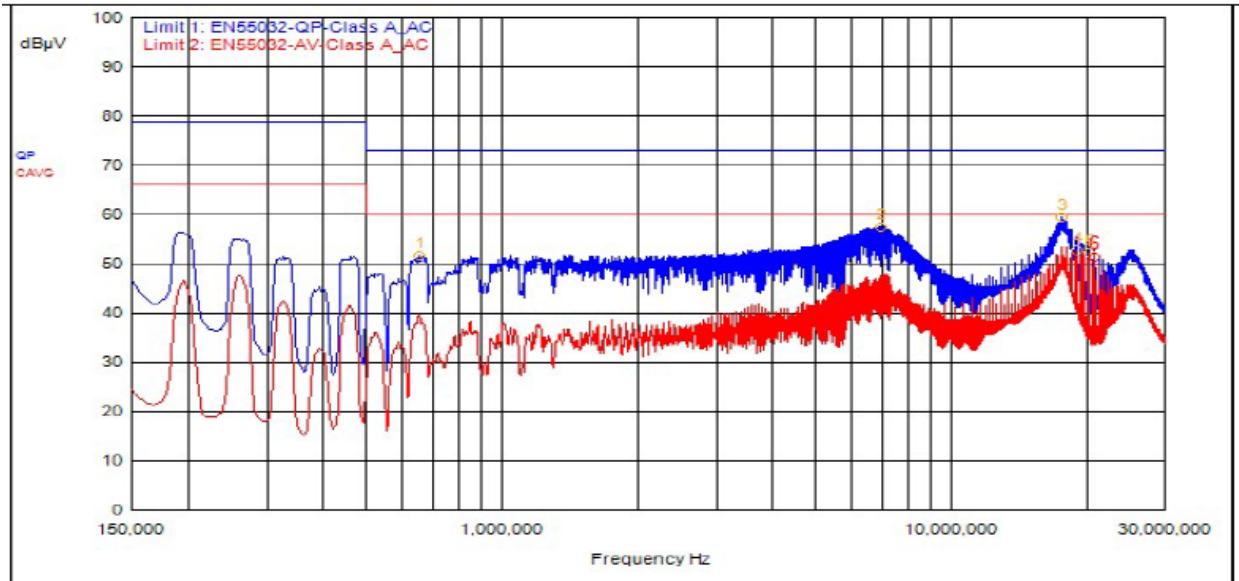
For PSD measurements when $\text{Nss}=1$: Array Gain = $10 \log(\text{NANT}/\text{NSS})$ dB + Antenna Gain (dBi). Or $6.02 \text{ dB} + 15 \text{ dBi} = 21.02 \text{ dBi}$.

Results

The EUT complied with the specification

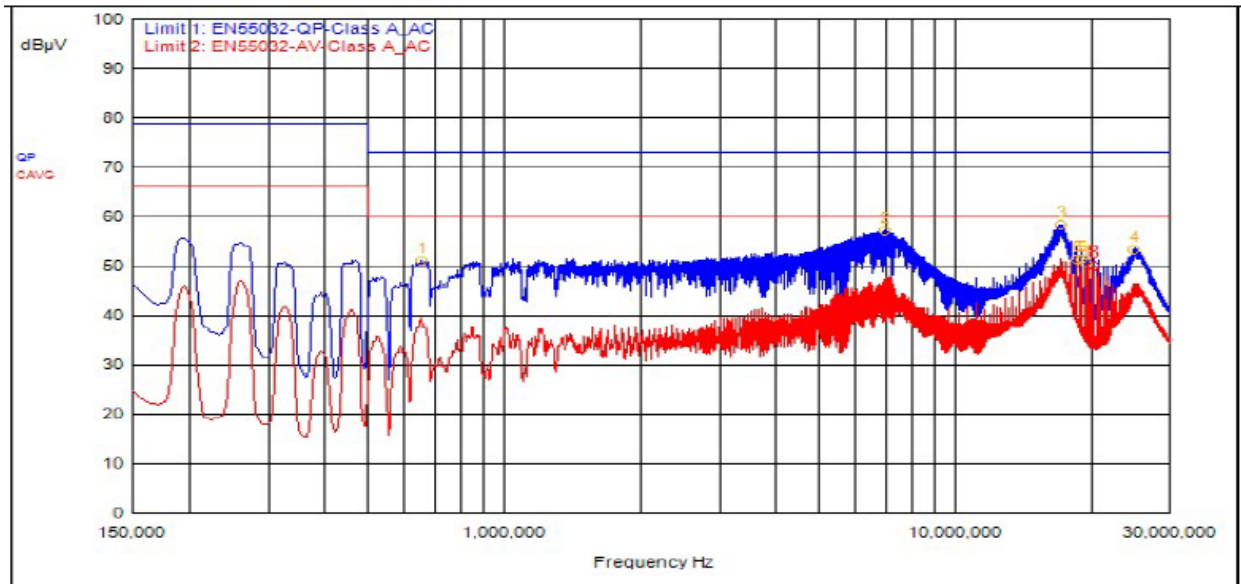
5.2 Conducted Emissions at Mains Ports Data

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	Type	dBμV	dBμV	dBμV	dB	dBμV	dB	P/F
3	17.646	9.68			QPeak	49.79	59.47	73.00	-13.53			
2	6.999	9.63			QPeak	47.91	57.54	73.00	-15.46			
1	654,000kHz	9.50			QPeak	42.07	51.57	73.00	-21.43			
4	19.137	9.67			C_AVG	43.24	52.91			60.00	-7.09	
5	20.379	9.69			C_AVG	42.58	52.27			60.00	-7.73	
6	20.877	9.71			C_AVG	41.75	51.46			60.00	-8.54	

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	Type	dBμV	dBμV	dBμV	dB	dBμV	dB	P/F
3	17.160	9.78			QPeak	48.53	58.31	73.00	-14.69			
2	6.999	9.63			QPeak	47.56	57.19	73.00	-15.81			
4	24.990	10.19			QPeak	43.15	53.34	73.00	-19.66			
1	654,000kHz	9.56			QPeak	41.62	51.18	73.00	-21.82			
5	19.146	9.82			C_AVG	41.58	51.40			60.00	-8.60	
6	18.648	9.81			C_AVG	41.56	51.37			60.00	-8.63	
7	19.644	9.82			C_AVG	40.85	50.67			60.00	-9.33	
8	20.391	9.86			C_AVG	40.15	50.01			60.00	-9.99	

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 Low Gain Mode

Nominal BW (MHz)	Frequency (MHz)	99% Bandwidth (MHz)	Emissions 26 dB Bandwidth (MHz)
OFDM 20	5180	17.5	22.5
HE 20	5210	17.5	21.9
HE 20	5240	17.3	22.2
HE 20	5180	19.3	23.3
HE 20	5210	19.3	22.5
HE 20	5240	19.3	21.8
HE 40	5190	38.5	43.7
HE 40	5230	38.5	43.5
HE 80	5210	79.0	86.0

5.3.2 High Gain Mode

Nominal BW (MHz)	Frequency (MHz)	99% Bandwidth (MHz)	Emissions 26 dB Bandwidth (MHz)
OFDM 20	5180	17.5	22.6
HE 20	5210	17.8	22.3
HE 20	5240	17.5	22.1
HE 20	5180	19.5	22.5
HE 20	5210	19.3	22.5
HE 20	5240	19.3	22.3
HE 40	5190	38.5	43.2
HE 40	5230	38.5	42.9
HE 80	5210	79.0	90.0

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.

Low Gain Mode

For PSD measurements when Nss=1: Array Gain = $10 \log(\text{NANT}/\text{NSS})$ dB + Antenna Gain (dBi). Or 6.02 dB + 11 dBi = 17.02 dBi.

High Gain Mode

For PSD measurements when Nss=1: Array Gain = $10 \log(\text{NANT}/\text{NSS})$ dB + Antenna Gain (dBi). Or 6.02 dB + 15 dBi = 21.02 dBi.

The maximum average RF conducted output power measured for this device was 24.86 dBm or 306.20 mW (Low Gain Mode). The limit is 30 dBm, or 1 Watt when using an antenna with 6 dBi (indoor/outdoor access point) or less gain. The antenna has a gain of 11 dBi (Low Gain Mode) and 15 dBi (High Gain Mode).

5.4.1 Low Gain Mode

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power*	Measured EIRP	Measured PSD
OFDM 20	5180	Mcs0_Nss4	16	19.36	30.36	7.01
OFDM 20	5210	Mcs0_Nss4	21	24.62	35.62	12.14
OFDM 20	5240	Mcs0_Nss4	21	24.63	35.63	12.63
HE 20	5180	Mcs0_Nss4	14	17.60	28.60	4.85
HE 20	5210	Mcs0_Nss4	21	24.69	35.69	11.81
HE 20	5240	Mcs0_Nss4	23	24.86	35.86	12.10
HE 40	5190	Mcs0_Nss4	11	14.59	25.59	-1.00
HE 40	5230	Mcs0_Nss4	19	22.63	33.63	6.98
HE 80	5210	Mcs0_Nss4	11	14.60	25.60	-3.79

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power*	Measured EIRP	Measured PSD
OFDM 20	5180	Mcs0_Nss1	14	17.36	28.36	5.01
OFDM 20	5210	Mcs0_Nss1	14	17.62	28.62	5.14
OFDM 20	5240	Mcs0_Nss1	14	17.63	28.63	5.25

HE 20	5180	Mcs0_Nss1	14	17.60	28.60	4.85
HE 20	5210	Mcs0_Nss1	15	18.69	29.69	5.81
HE 20	5240	Mcs0_Nss1	16	17.86	28.86	5.10
HE 40	5190	Mcs0_Nss1	11	14.59	25.59	-1.00
HE 40	5230	Mcs0_Nss1	18	21.63	32.63	5.98
HE 80	5210	Mcs0_Nss1	11	14.60	25.60	-3.79

5.4.2 High Gain Mode

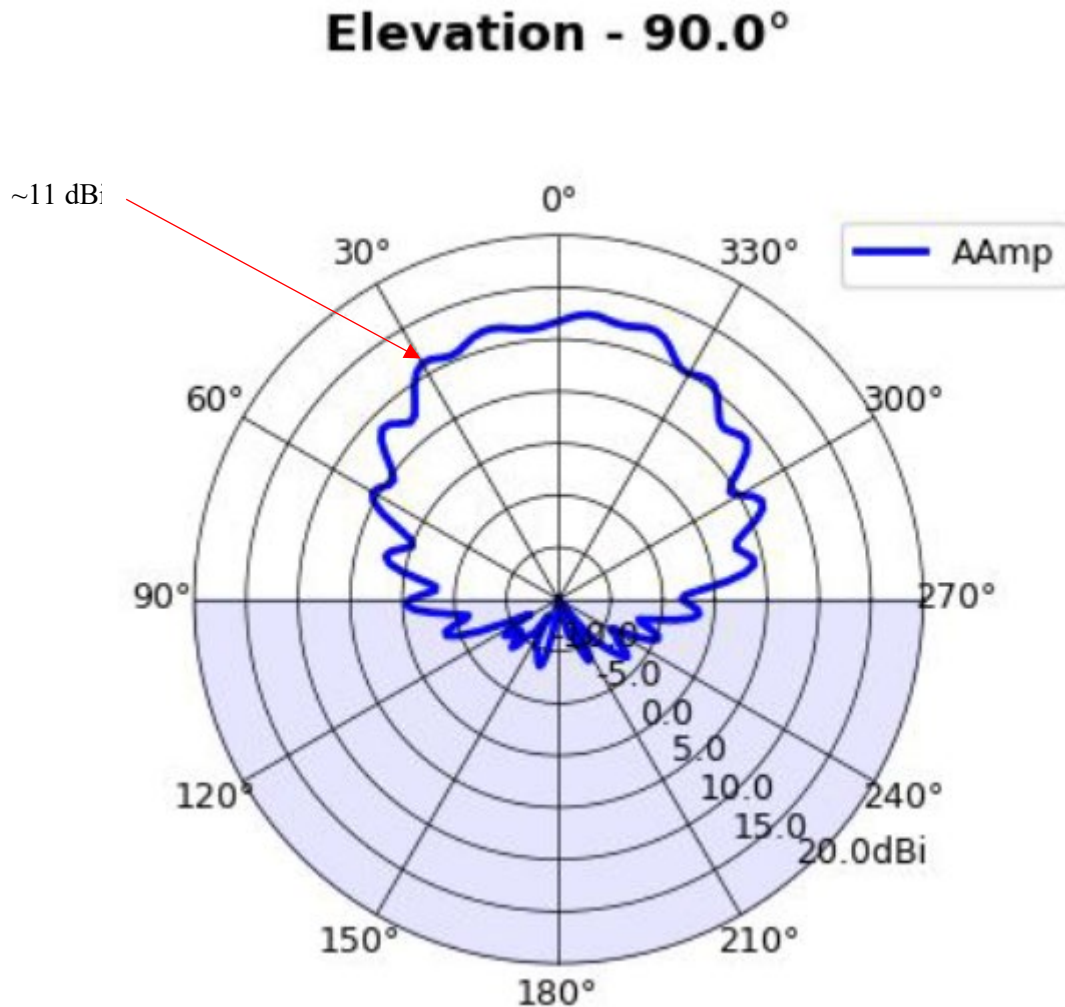
Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power*	Measured EIRP	Measured PSD
OFDM 20	5180	Mcs0_Nss4	15	18.18	33.18	5.96
OFDM 20	5210	Mcs0_Nss4	17	20.54	35.54	8.30
OFDM 20	5240	Mcs0_Nss4	17	20.33	35.33	8.07
HE 20	5180	Mcs0_Nss4	13	16.41	31.41	3.71
HE 20	5210	Mcs0_Nss4	17	20.65	35.65	7.87
HE 20	5240	Mcs0_Nss4	17	20.47	35.47	7.70
HE 40	5190	Mcs0_Nss4	9	12.13	27.13	-3.25
HE 40	5230	Mcs0_Nss4	16	19.21	34.21	3.63
HE 80	5210	Mcs0_Nss4	8	11.19	26.19	-7.06

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power*	Measured EIRP	Measured PSD
OFDM 20	5180	Mcs0_Nss1	11	14.18	29.18	1.96
OFDM 20	5210	Mcs0_Nss1	10	13.54	28.54	1.30
OFDM 20	5240	Mcs0_Nss1	10	13.33	28.33	1.07
HE 20	5180	Mcs0_Nss1	11	14.41	29.41	1.71
HE 20	5210	Mcs0_Nss1	11	14.65	29.65	1.87
HE 20	5240	Mcs0_Nss1	11	14.47	29.47	1.70
HE 40	5190	Mcs0_Nss1	9	12.13	27.13	-3.25
HE 40	5230	Mcs0_Nss1	16	19.21	34.21	3.63
HE 80	5210	Mcs0_Nss1	8	11.19	26.19	-7.06

Result

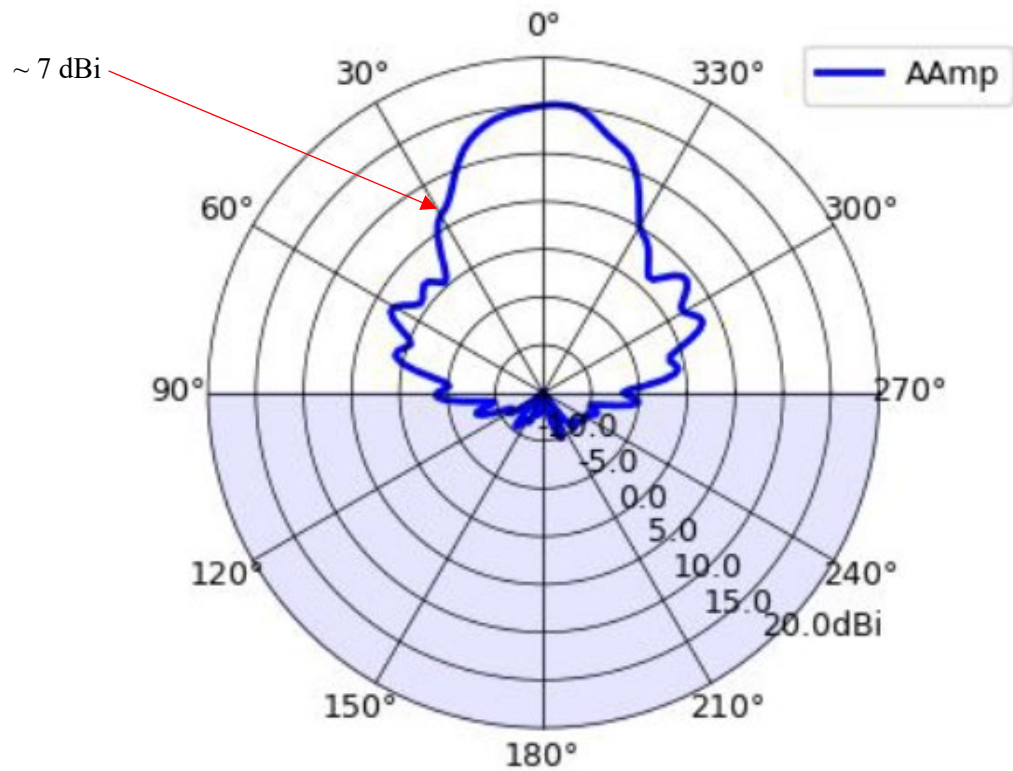
In the configuration tested, the maximum summed average RF output power was less than 1 watt; therefore, the EUT complied with the requirements of the specification (see spectrum analyzer plots in attached Annex).

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



Plot 1: Elevation Plot Greater Than 30-Degrees From Horizon 11 dBi Antenna

Elevation - 90.0°



Plot 2: Elevation Plot Greater Than 30-Degrees From Horizon 15 dBi Antenna

5.5 §15.209 Spurious Emissions

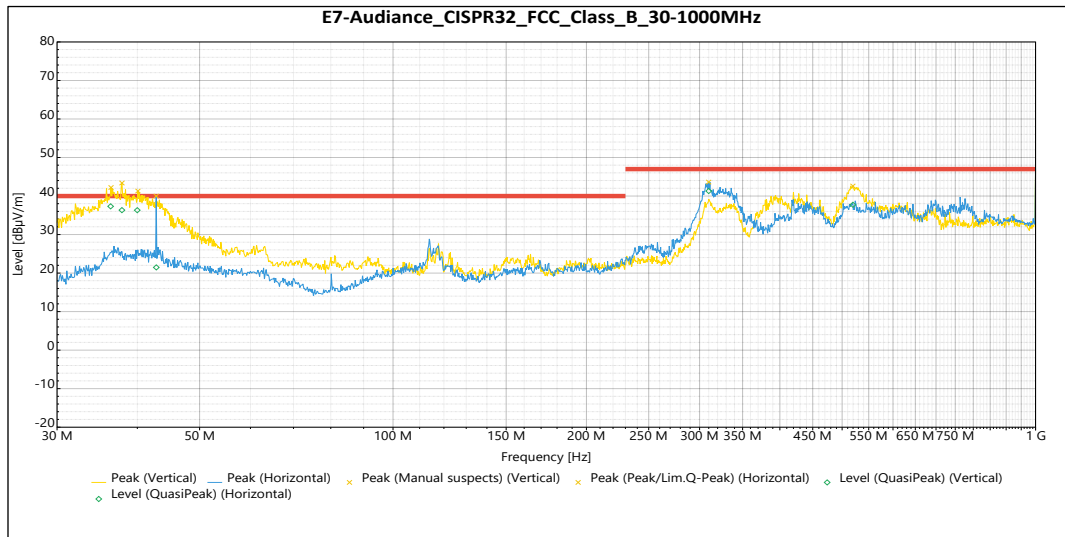
5.5.1 Radiated Spurious Emissions in the Restricted Bands of § 15.205

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 5180 MHz was measured using radiated measurement or conducted at the antenna port methods. [For radiated] 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 (dBi) + Cable Loss (dB) - Pre-Amplifier Gain (dB), and is added to the Receiver reading.

Result

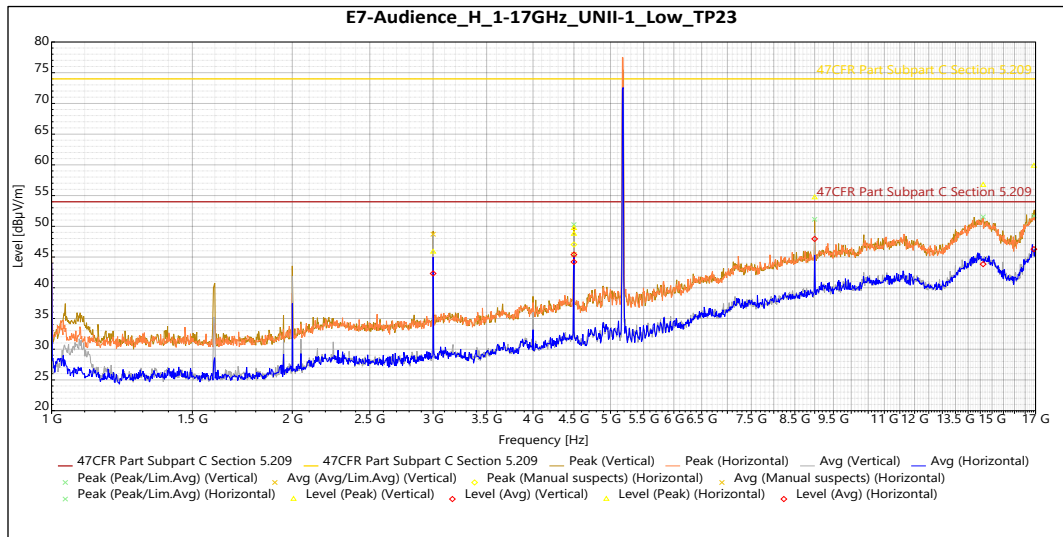
All emissions in the restricted bands of § 15.205 met the limits specified in § 15.209; therefore, the EUT complies with the specification. All emissions met the limits specified in § 15.407(b). Representative band edge plots are included in this report.



QuasiPeak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
36.35 MHz	37.33	30	-2.67	43	1.129	Vertical	-9.91
37.85 MHz	36.35	30	-3.65	88	1.306	Vertical	-9.42
39.99 MHz	36.33	30	-3.67	80	1.126	Vertical	-8.84
519.77 MHz	37.74	30	-9.26	117	1.489	Vertical	-2.52
42.81 MHz	21.48	30	-18.52	143	1.897	Horizontal	-8.30
310.01 MHz	41.31	30	-5.69	334	1.131	Horizontal	-7.04

Table 4: Radiated Emissions 30 – 1000 MHz



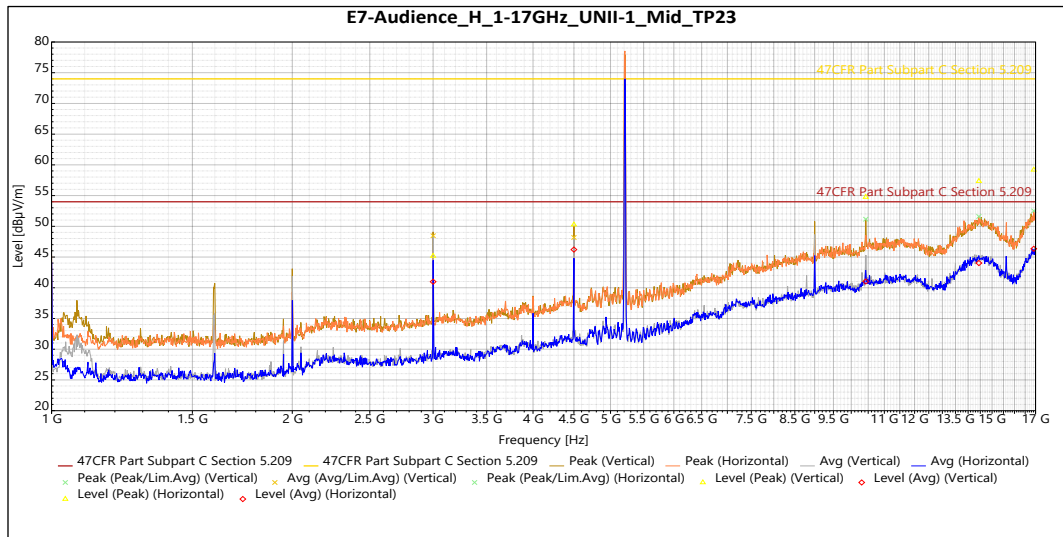
Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
3.00 GHz	45.85	74.0	-28.15	325	3.802	Vertical	-5.43
4.50 GHz	49.71	74.0	-24.29	2	1.5	Vertical	-1.30
9.00 GHz	54.69	74.0	-19.31	334	1.638	Vertical	9.91
4.50 GHz	48.76	74.0	-25.24	299	3.625	Horizontal	-1.30
14.62 GHz	56.72	74.0	-17.28	112	2.752	Horizontal	15.51
16.82 GHz	59.83	74.0	-14.17	230	3.277	Horizontal	19.32

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
3.00 GHz	42.33	54.0	-11.67	325	3.802	Vertical	-5.43
4.50 GHz	45.40	54.0	-8.60	2	1.5	Vertical	-1.30
9.00 GHz	47.96	54.0	-6.04	334	1.638	Vertical	9.91
4.50 GHz	44.21	54.0	-9.79	299	3.625	Horizontal	-1.30
14.62 GHz	43.85	54.0	-10.15	112	2.752	Horizontal	15.51
16.82 GHz	46.29	54.0	-7.71	230	3.277	Horizontal	19.32

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



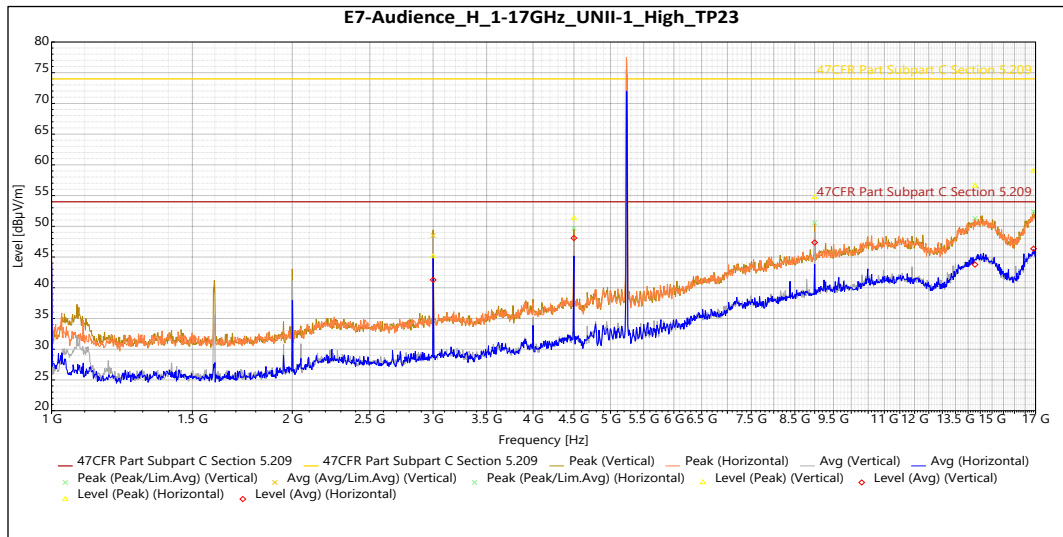
Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
3.00 GHz	45.18	74.0	-28.82	323	3.802	Vertical	-5.43
4.50 GHz	50.28	74.0	-23.72	3	1.5	Vertical	-1.30
10.43 GHz	54.77	74.0	-19.23	315	1.638	Vertical	11.59
14.44 GHz	57.36	74.0	-16.64	315	2.053	Horizontal	15.62
16.91 GHz	59.20	74.0	-14.80	79	3.974	Horizontal	19.33

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
3.00 GHz	40.99	54.0	-13.01	323	3.802	Vertical	-5.43
4.50 GHz	46.22	54.0	-7.78	3	1.5	Vertical	-1.30
10.43 GHz	41.03	54.0	-12.97	315	1.638	Vertical	11.59
14.44 GHz	44.03	54.0	-9.97	315	2.053	Horizontal	15.62
16.91 GHz	46.35	54.0	-7.65	79	3.974	Horizontal	19.33

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



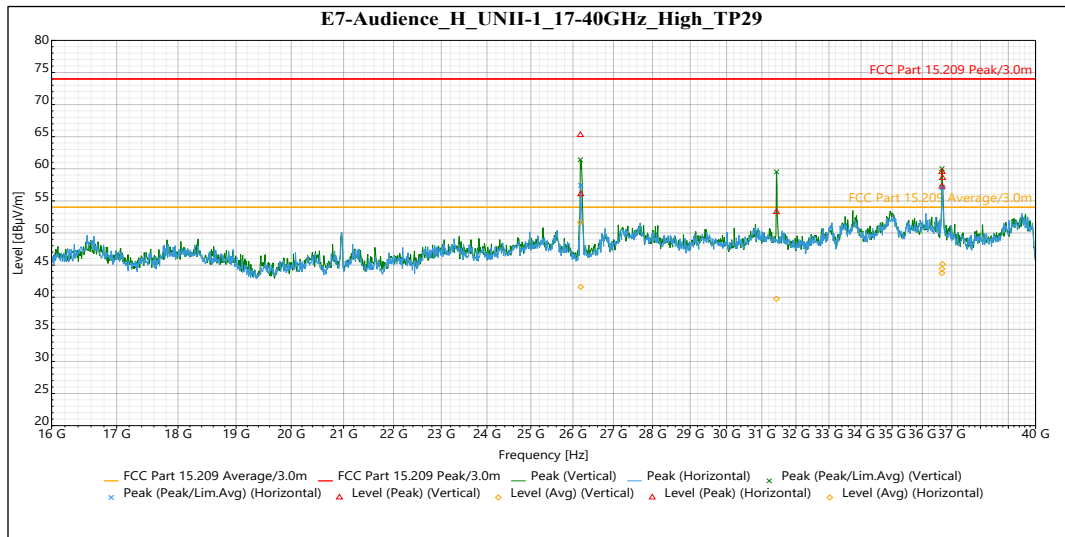
Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
3.00 GHz	45.11	74.0	-28.89	323	3.802	Vertical	-5.43
4.50 GHz	51.30	74.0	-22.70	1	1.5	Vertical	-1.30
9.00 GHz	54.71	74.0	-19.29	340	1.638	Vertical	-9.91
14.28 GHz	56.59	74.0	-17.41	310	3.977	Horizontal	15.59
16.90 GHz	59.04	74.0	-14.96	6	3.802	Horizontal	19.26

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
3.00 GHz	41.28	54.0	-12.72	323	3.802	Vertical	-5.43
4.50 GHz	48.10	54.0	-5.90	1	1.5	Vertical	-1.30
9.00 GHz	47.37	54.0	-6.63	340	1.638	Vertical	-9.91
14.28 GHz	43.77	54.0	-10.23	310	3.977	Horizontal	15.59
16.90 GHz	46.35	54.0	-7.65	6	3.802	Horizontal	19.26

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



Peak

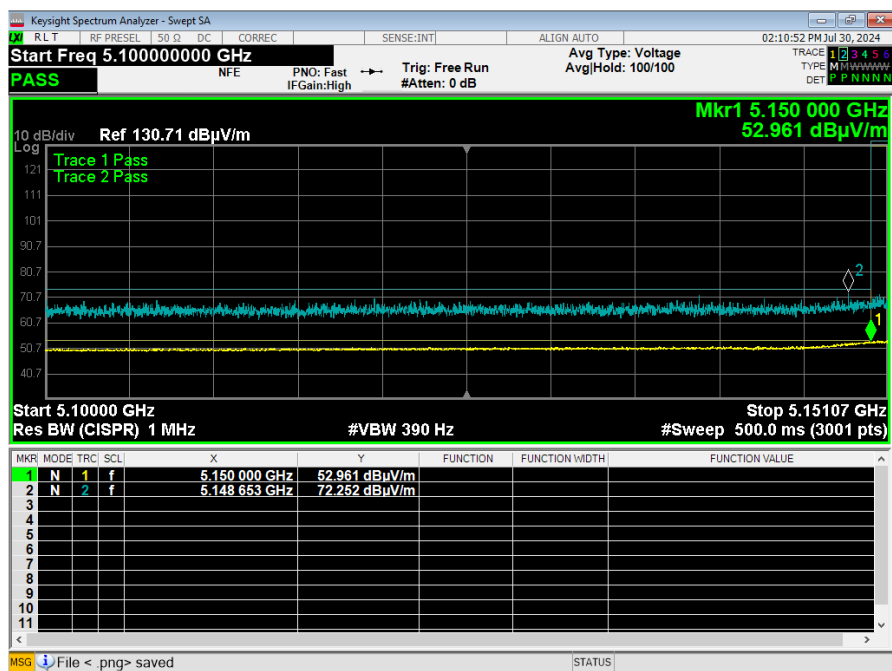
Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
26.18 GHz	65.28	74.0	-8.72	343	Vertical	2.10
31.43 GHz	53.27	74.0	-20.73	224	Vertical	1.81
36.66 GHz	57.27	74.0	-16.73	337	Vertical	5.32
26.19 GHz	56.05	74.0	-17.95	27	Horizontal	2.20
36.66 GHz	59.53	74.0	-14.47	3	Horizontal	5.31
36.68 GHz	58.59	74.0	-15.41	25	Horizontal	5.29

Avg

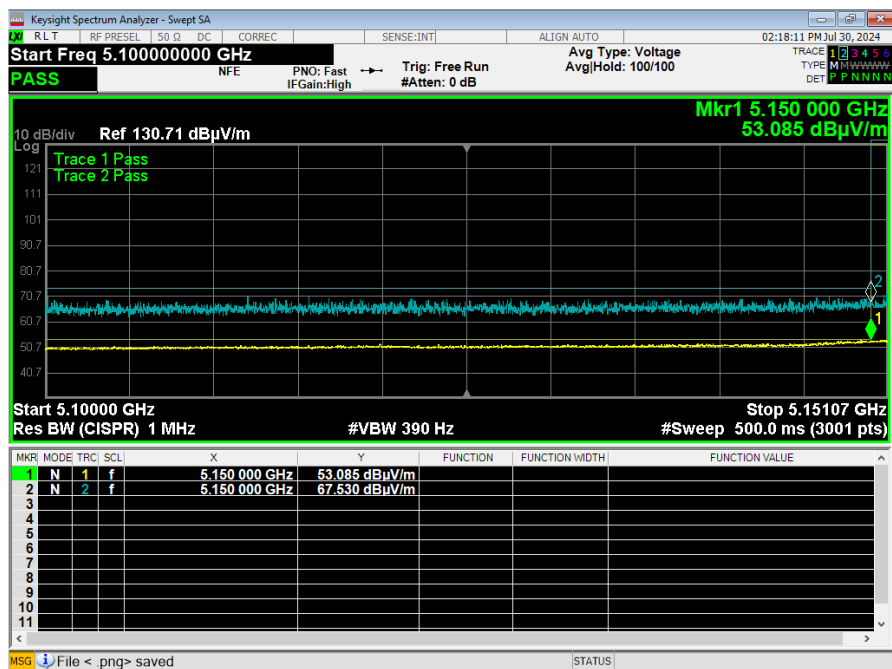
Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
26.18 GHz	51.68	54.0	-2.32	343	Vertical	2.10
31.43 GHz	39.76	54.0	-14.24	224	Vertical	1.81
36.66 GHz	43.76	54.0	-10.24	337	Vertical	5.32
26.19 GHz	41.62	54.0	-12.38	27	Horizontal	2.20
36.66 GHz	44.41	54.0	-9.59	3	Horizontal	5.31
36.68 GHz	45.16	54.0	-8.84	25	Horizontal	5.29

Table 8: Radiated Emissions 17 – 40 GHz at the Highest Frequency (worse case)

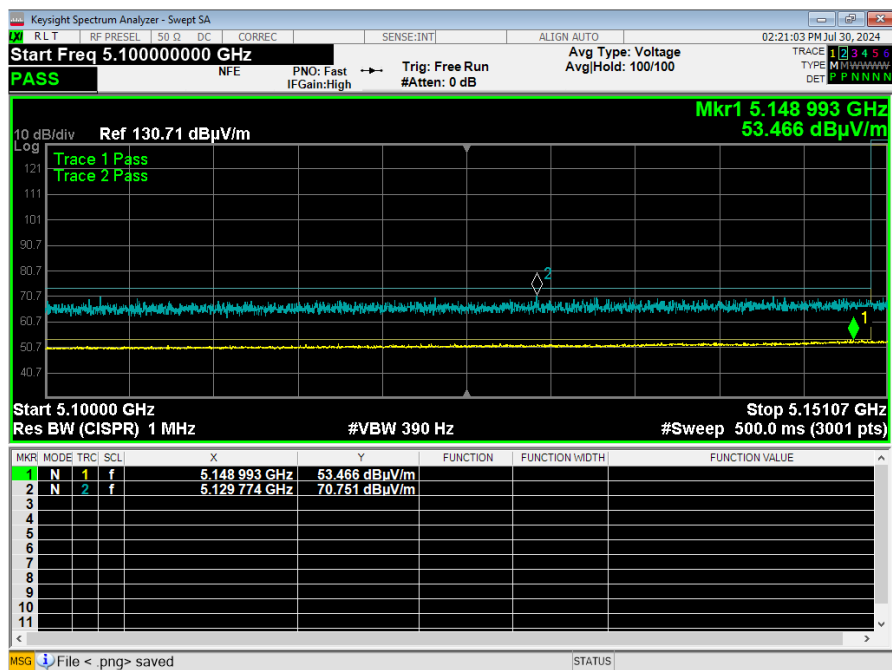
5.5.2 Low Gain Mode



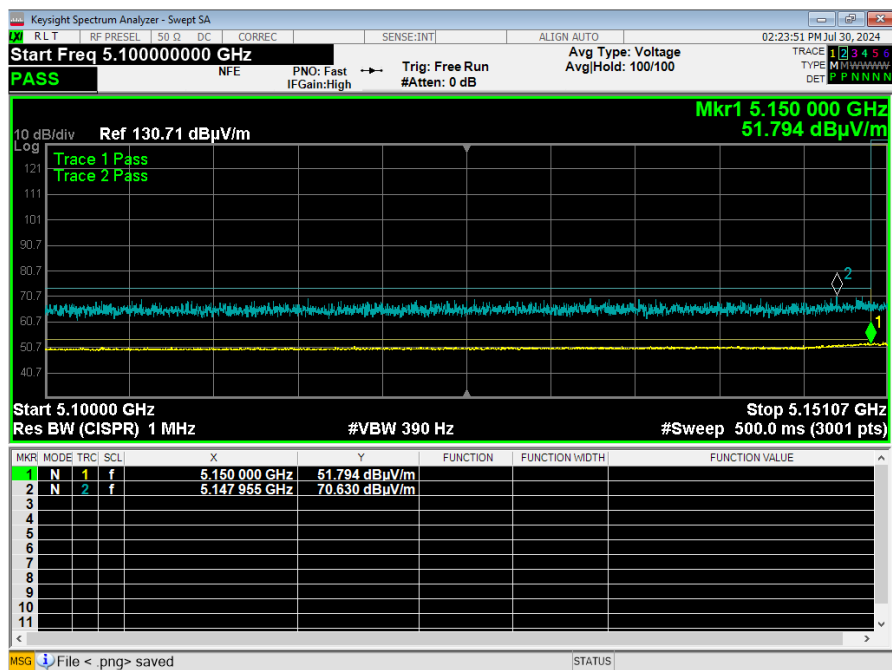
Plot 1: Band Edge OFDM 20 5180MHz



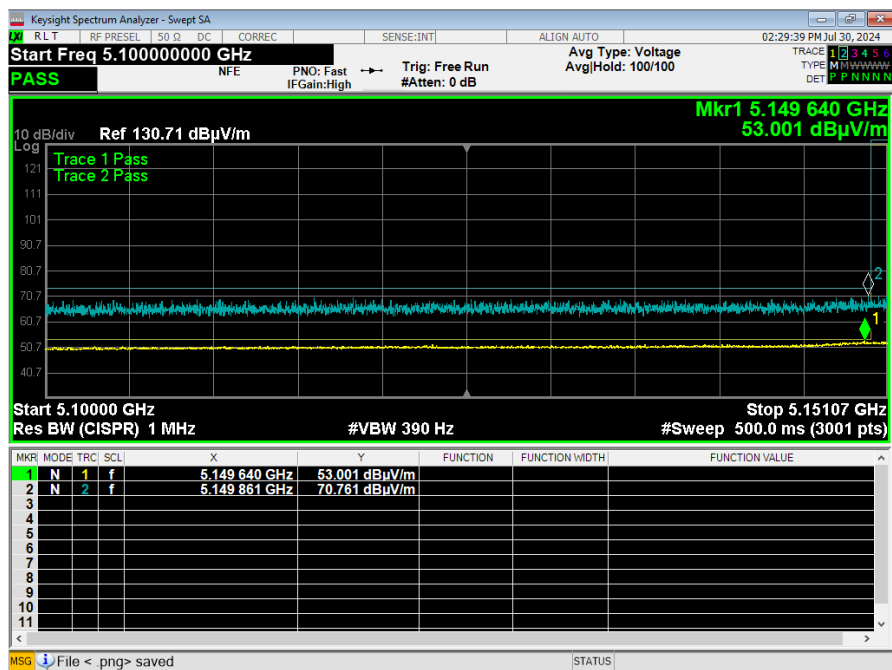
Plot 2: Band Edge OFDM 20 5210MHz



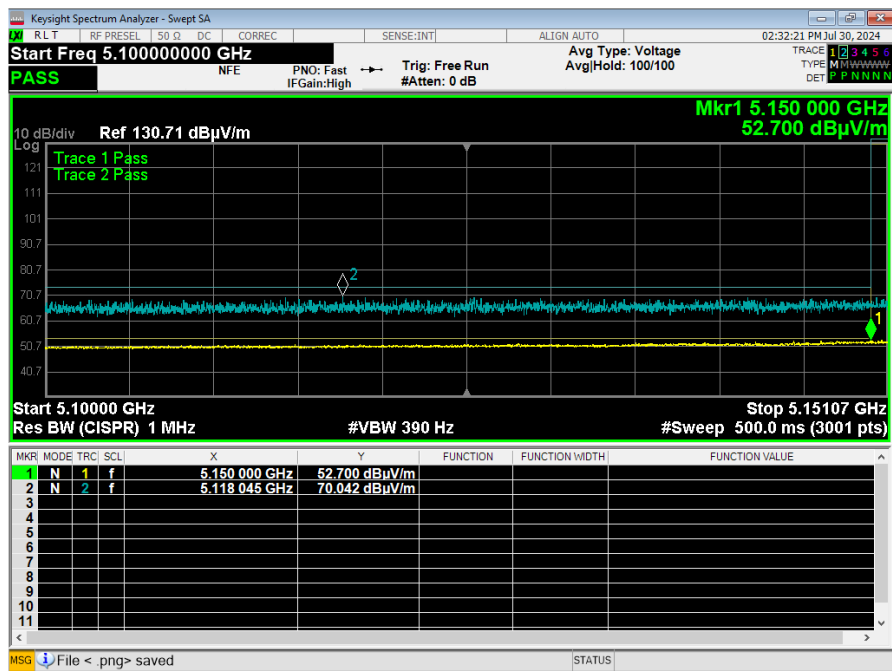
Plot 3: Band Edge OFDM 20 5240MHz



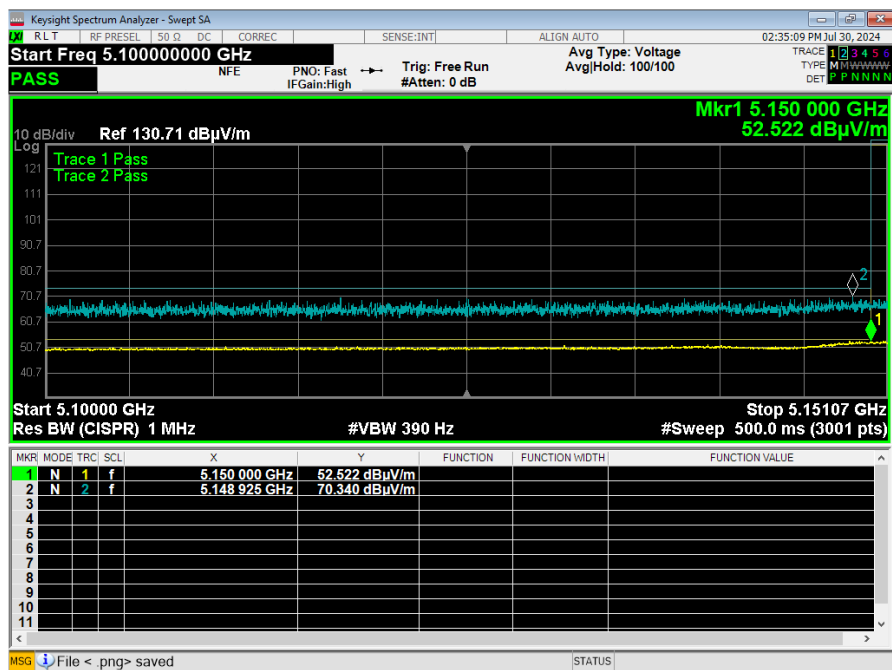
Plot 4: Band Edge HE 20 5180MHz



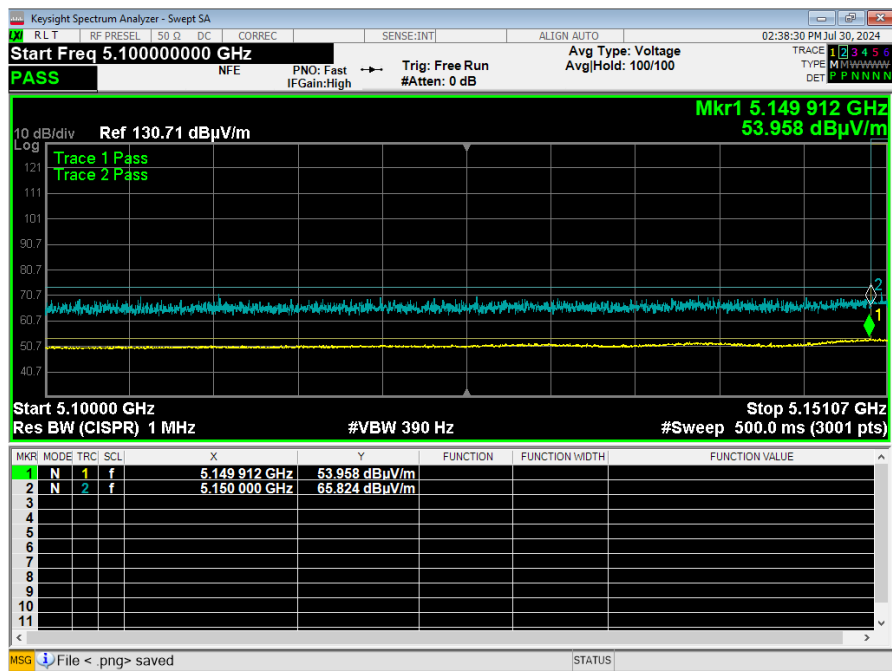
Plot 5: Band Edge HE 20 5210MHz



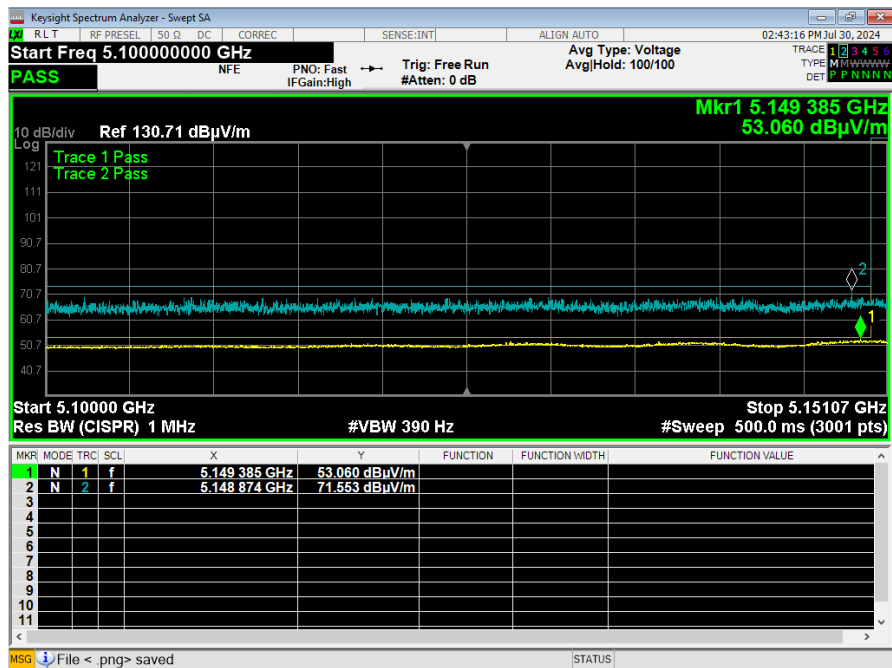
Plot 6: Band Edge HE 20 5240MHz



Plot 7: Band Edge HE 40 5190MHz

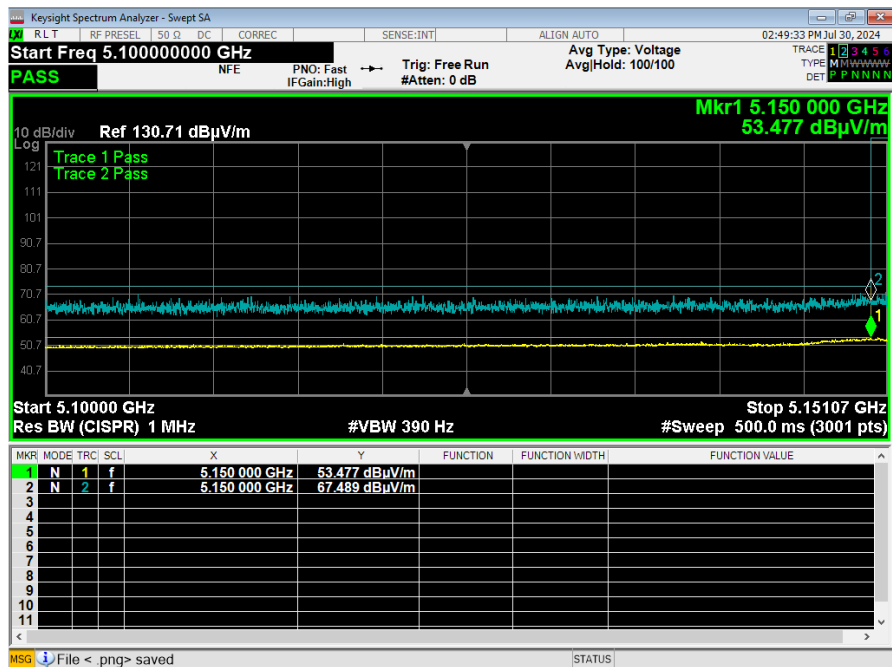


Plot 8: Band Edge HE 40 5230MHz

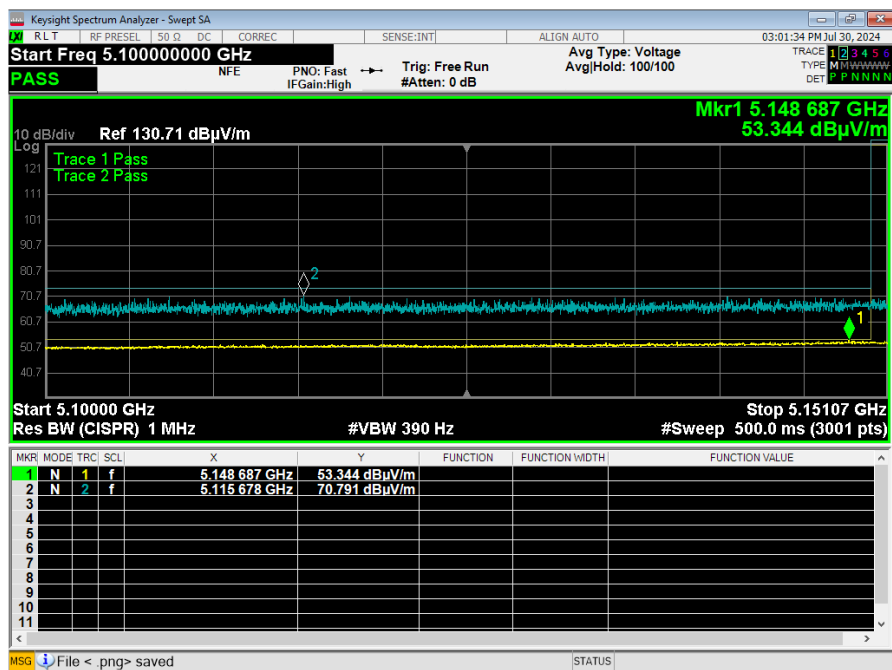


Plot 9: Band Edge HE 80 5210MHz

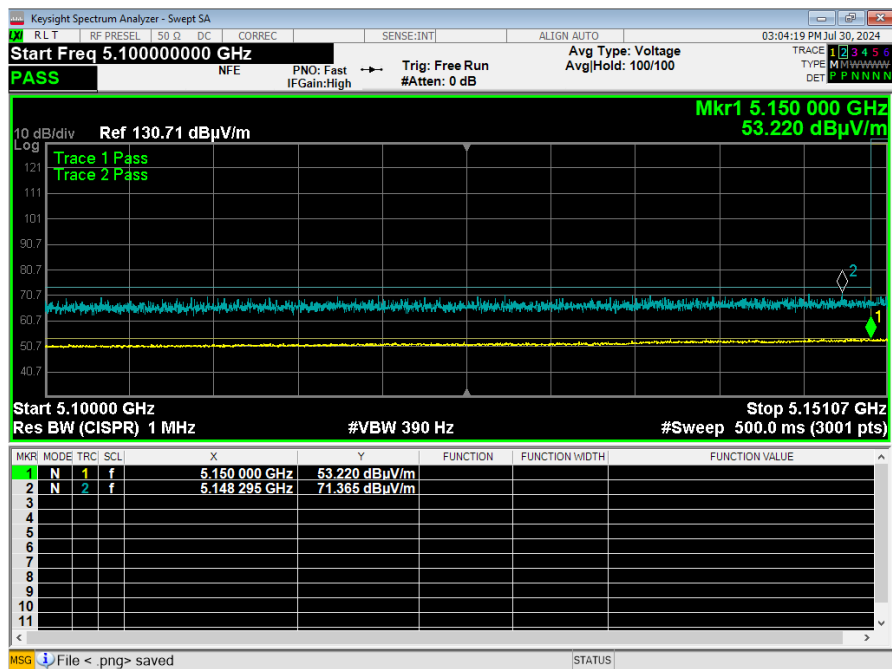
5.5.3 High Gain Mode



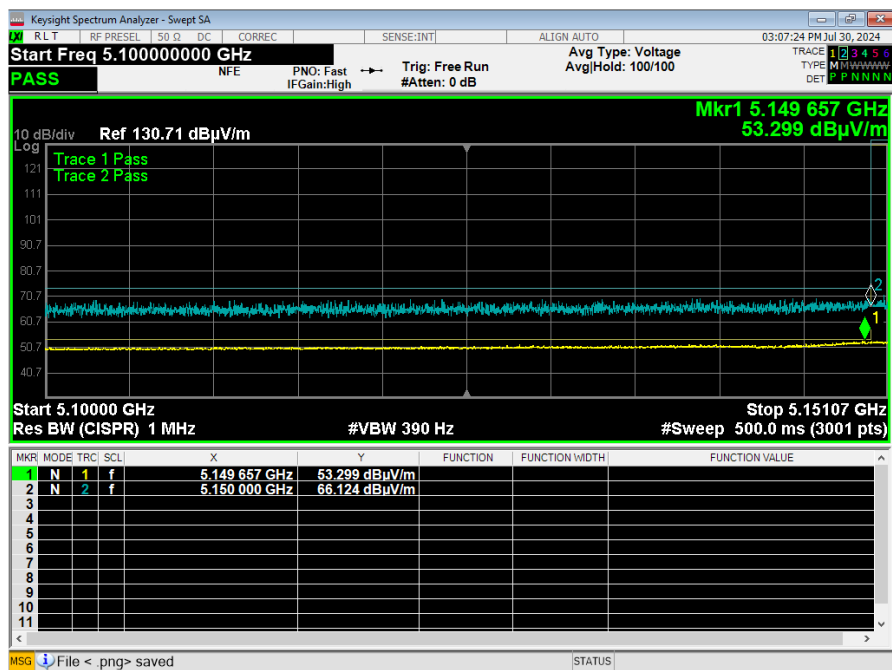
Plot 10: Band Edge OFDM 20 5180MHz



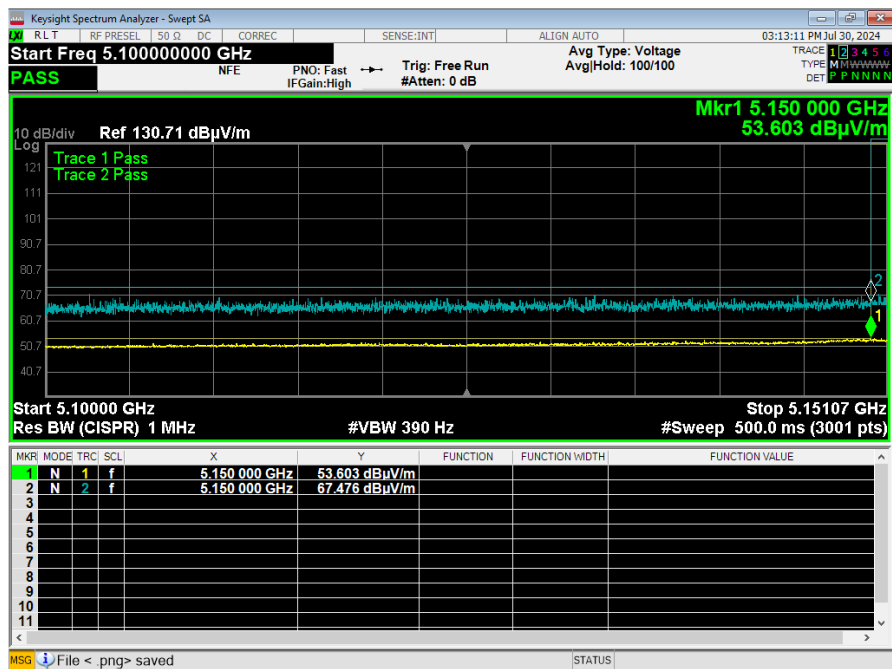
Plot 11: Band Edge OFDM 20 5210MHz



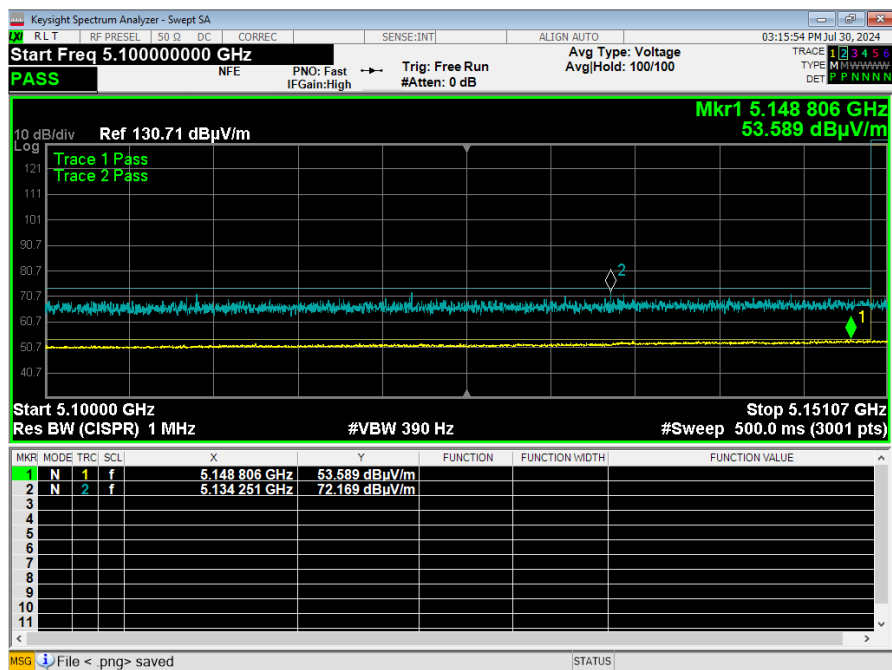
Plot 12: Band Edge OFDM 20 5240MHz



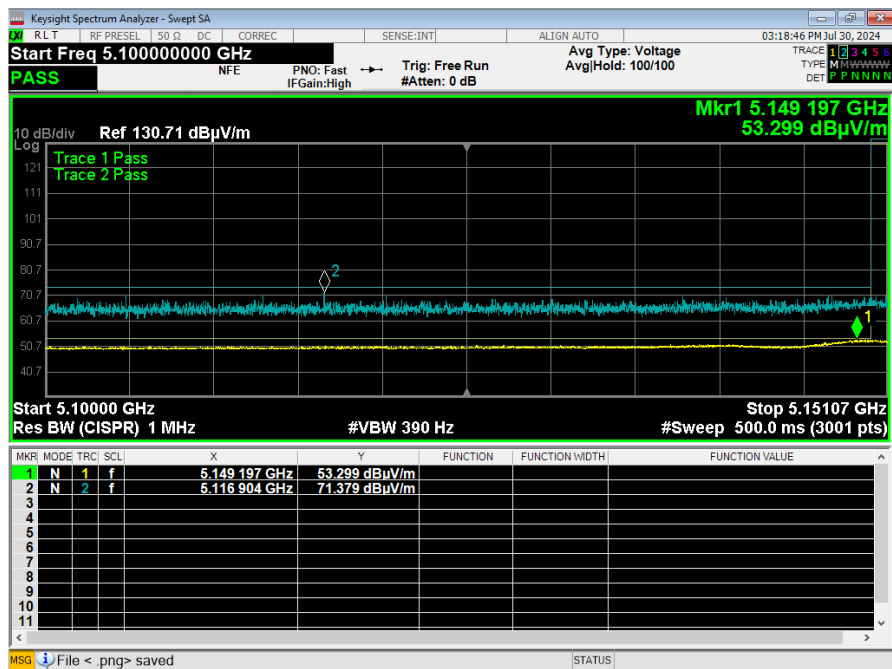
Plot 13: Band Edge HE 20 5180MHz



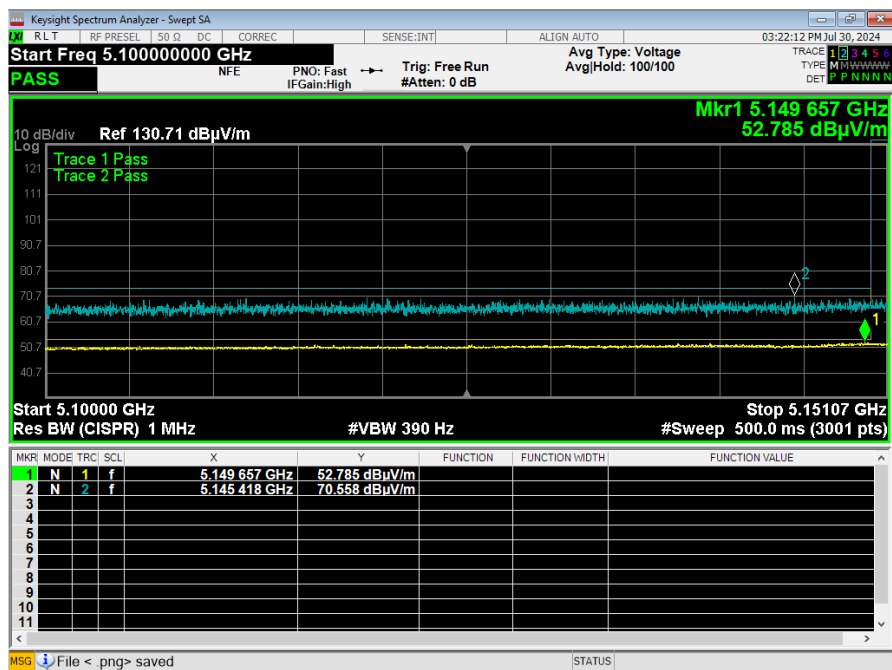
Plot 14: Band Edge HE 20 5210MHz



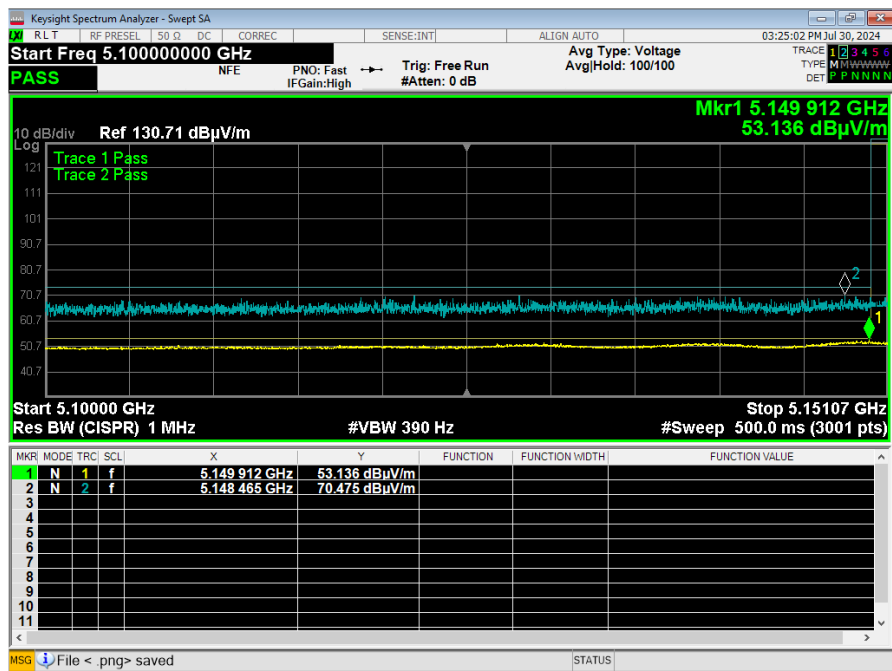
Plot 15: Band Edge HE 20 5240MHz



Plot 16: Band Edge HE 40 5190MHz



Plot 17: Band Edge HE 40 5230MHz



Plot 18: Band Edge HE 80 5210MHz

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.

As per KDB 662911, when the EUT is using spatial-multiplexing in HT to HE modes, there is not additional array gain to accommodate.

Low Gain Mode

For PSD measurements when Nss=1: Array Gain = $10 \log(\text{NANT}/\text{NSS})$ dB + Antenna Gain (dBi). Or 6.02 dB + 11 dBi = 17.02 dBi.

High Gain Mode

For PSD measurements when Nss=1: Array Gain = $10 \log(\text{NANT}/\text{NSS})$ dB + Antenna Gain (dBi). Or 6.02 dB + 15 dBi = 21.02 dBi.

Results of this testing are summarized.

5.6.1 Low Gain Mode

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power	Measured PSD
OFDM 20	5180	Mcs0_Nss4	16	19.36	7.01
OFDM 20	5210	Mcs0_Nss4	21	24.62	12.14
OFDM 20	5240	Mcs0_Nss4	21	24.63	12.63
HE 20	5180	Mcs0_Nss4	14	17.60	4.85
HE 20	5210	Mcs0_Nss4	21	24.69	11.81
HE 20	5240	Mcs0_Nss4	23	24.86	12.10
HE 40	5190	Mcs0_Nss4	11	14.59	-1.00
HE 40	5230	Mcs0_Nss4	19	22.63	6.98
HE 80	5210	Mcs0_Nss4	11	14.60	-3.79

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power	Measured PSD
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OFDM 20	5180	Mcs0_Nss1	14	17.36	5.01
OFDM 20	5210	Mcs0_Nss1	14	17.62	5.14
OFDM 20	5240	Mcs0_Nss1	14	17.63	5.25
HE 20	5180	Mcs0_Nss1	14	17.60	4.85
HE 20	5210	Mcs0_Nss1	15	18.69	5.81
HE 20	5240	Mcs0_Nss1	16	17.86	5.10
HE 40	5190	Mcs0_Nss1	11	14.59	-1.00
HE 40	5230	Mcs0_Nss1	18	21.63	5.98
HE 80	5210	Mcs0_Nss1	11	14.60	-3.79

5.6.2 High Gain Mode

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power	Measured PSD
OFDM 20	5180	Mcs0_Nss4	15	18.18	5.96
OFDM 20	5210	Mcs0_Nss4	17	20.54	8.30
OFDM 20	5240	Mcs0_Nss4	17	20.33	8.07
HE 20	5180	Mcs0_Nss4	13	16.41	3.71
HE 20	5210	Mcs0_Nss4	17	20.65	7.87
HE 20	5240	Mcs0_Nss4	17	20.47	7.70
HE 40	5190	Mcs0_Nss4	9	12.13	-3.25
HE 40	5230	Mcs0_Nss4	16	19.21	3.63
HE 80	5210	Mcs0_Nss4	8	11.19	-7.06

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power	Measured PSD
OFDM 20	5180	Mcs0_Nss1	11	14.18	1.96
OFDM 20	5210	Mcs0_Nss1	10	13.54	1.30
OFDM 20	5240	Mcs0_Nss1	10	13.33	1.07
HE 20	5180	Mcs0_Nss1	11	14.41	1.71
HE 20	5210	Mcs0_Nss1	11	14.65	1.87
HE 20	5240	Mcs0_Nss1	11	14.47	1.70
HE 40	5190	Mcs0_Nss1	9	12.13	-3.25
HE 40	5230	Mcs0_Nss1	16	19.21	3.63
HE 80	5210	Mcs0_Nss1	8	11.19	-7.06

Result

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

-- End of Test Report --