



427 West 12800 South
Draper, UT 84020

Test Report Certification

FCC ID	SWX-UDBP
Equipment Under Test	UDB-Pro
Test Report Serial Number	TR8979_02
Date of Test(s)	14 – 15 February and 4 April 2024
Report Issue Date	29 April 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.

Applicant	Ubiquiti Inc.
Manufacturer	Ubiquiti Inc.
Brand Name	UBIQUITI
Model Number	UDB-Pro
FCC ID	SWX-UDBP

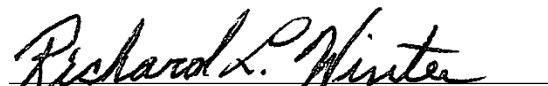
On this 29th day of April 2024, I individually and for Unified Compliance Laboratory certify that the statements made in this engineering report are true, complete, and correct to the best of my knowledge and are made in good faith.

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: Joseph W. Jackson



Reviewed By: Richard L. Winter

Revision History		
Revision	Description	Date
01	Original Report Release	29 April 2024
02	Amended Sections 2.2, 5.3, 5.4, 5.5 and 5.6 to Remove 80 MHz Bandwidth Reference	30 September 2024

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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	UDB-Pro
Serial Number	27E
Dimensions (cm)	19.0 x 19.0 x 6.4

2.2 Description of EUT

The UDB-Pro is a 5 GHz wireless point-to-point bridge for long-range applications. The UDB-Pro is designed for long-range camera back-haul or data-streaming. The UDB-Pro is managed by the UniFi Network application. The UDB-Pro has an Ethernet port for power and data transfer and has a pass-through PoE port. The UDB-Pro is powered by an 802.3at PoE power adapter. The UDB-Pro is designed for outdoor use.

Band	WiFi Mode	Modulation Bandwidth	Modulation Type	Frequency (MHz)
UNII-1	a	20 MHz	OFDM	5180, 5200, 5210, 5240
	ac	20 MHz	VHT	5180, 5200, 5210, 5240
	ac	40 MHz	VHT	5190, 5230

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
BN: UBIQUITI MN: UDB-Pro (Note 1) SN: 27E	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

BN: Dell MN: Latitude SN: N/A	Laptop Personal Computer	Unshielded Cat 5e cable/1 meters
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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	20.9 – 21.2 °C
Humidity	21.6 – 26.9 %
Barometric Pressure	1009 mBar

2.6 Operating Modes

The UDB-Pro was tested using test software in order 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/ac were investigated. All measurements are reported with the worst-case mode (802.11ac) 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

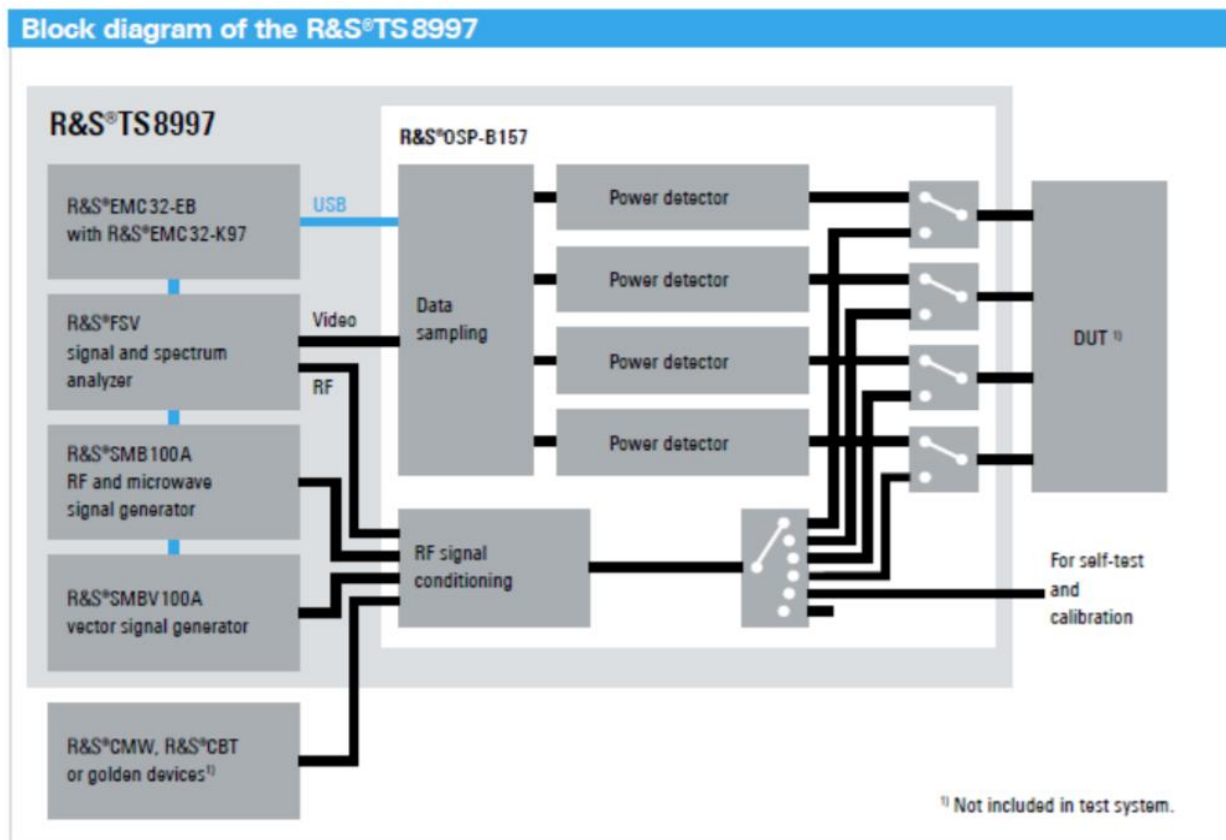


Diagram 1: Test Configuration Block Diagram

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
15.407(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	5180 to 5210	Compliant
15.407(e)	RSS-247 §6.2.2, §6.2.3	Peak Output Power	5180 to 5210	Compliant
15.407(f)	RSS-247 §6.2.2, §6.2.3	Antenna Conducted Spurious Emissions	0.009 to 40000	N/A
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	5180 to 5210	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 2024. 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 2024.

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	7/13/2023	7/13/2024
LISN	AFJ	LS16C/10	UCL-2512	5/26/2023	5/26/2024
ISN	Teseq	ISN T800	UCL-2974	6/27/2023	6/27/2024
LISN	AFJ	LS16C\10	UCL-6749	1/29/2024	1/29/2025
AC Power Source	Laplace Instruments	AC1000A	UCL-2857	N/A	N/A
Test Software	UCL	Revision 1	UCL-3107	N/A	N/A

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

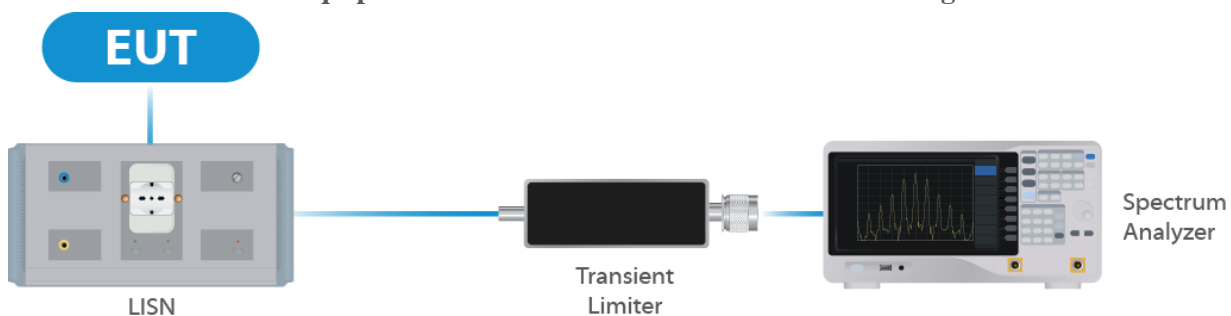


Figure 1: Conducted Emissions Test

4.2 Direct Connect at the Antenna Port Tests

Type of Equipment	Manufacturer	Model Number	Asset Number	Date of Last Calibration	Due Date of Calibration
Spectrum Analyzer	R&S	FSV40	UCL-2861	11/27/2023	11/27/2024
Signal Generator	R&S	SMB100A	UCL-2864	N/A	N/A
Vector Signal Generator	R&S	SMBV100A	UCL-2873	N/A	N/A
Switch Extension	R&S	OSP-B157WX	UCL-2867	4/12/2024	4/19/2025
Switch Extension	R&S	OSP-150W	UCL-2870	4/12/2025	4/19/2025

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

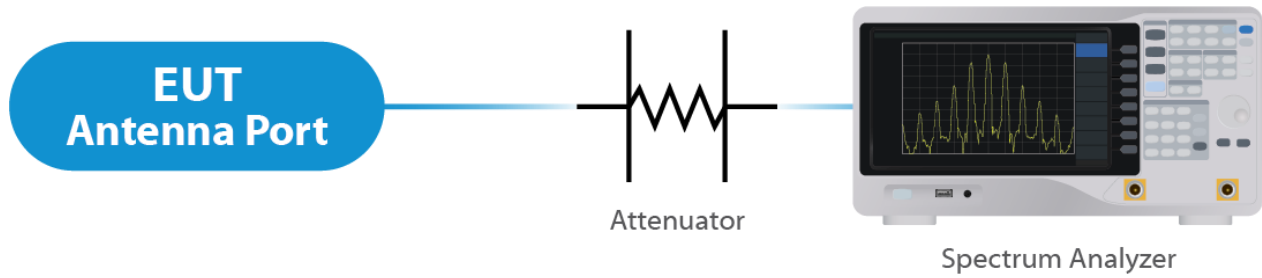


Figure 2: Direct Connect at the Antenna Port Test



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	9/22/2022	9/22/2024
Log Periodic	Scwarzbeck	STLP 9129	UCL-3068	1/27/2023	1/27/2025
15 - 40 GHz Horn Antenna	Scwarzbeck	BBHA 9170	UCL-2487	6/09/2022	6/09/2024
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

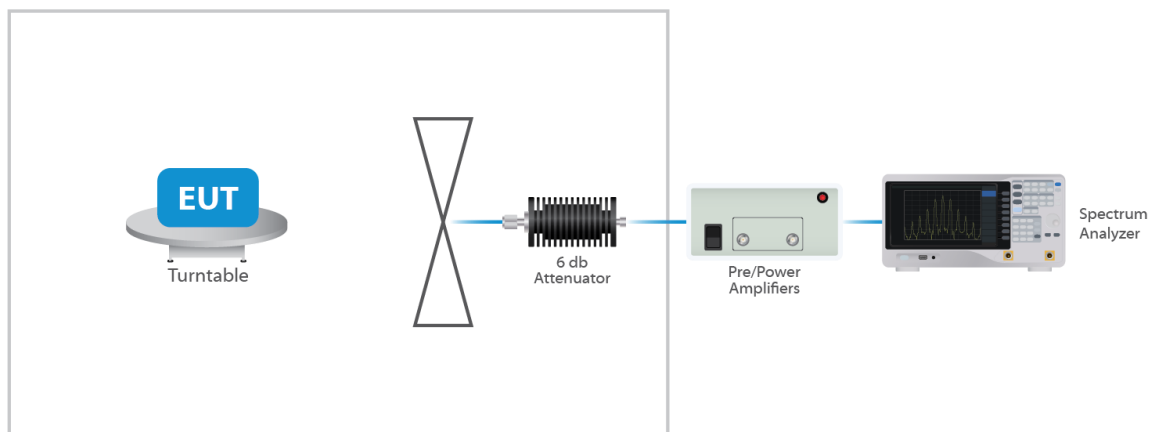


Figure 4: Radiated Emissions Test

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 (\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 antenna per chain is 19 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 $\text{NANT} \leq 4$;

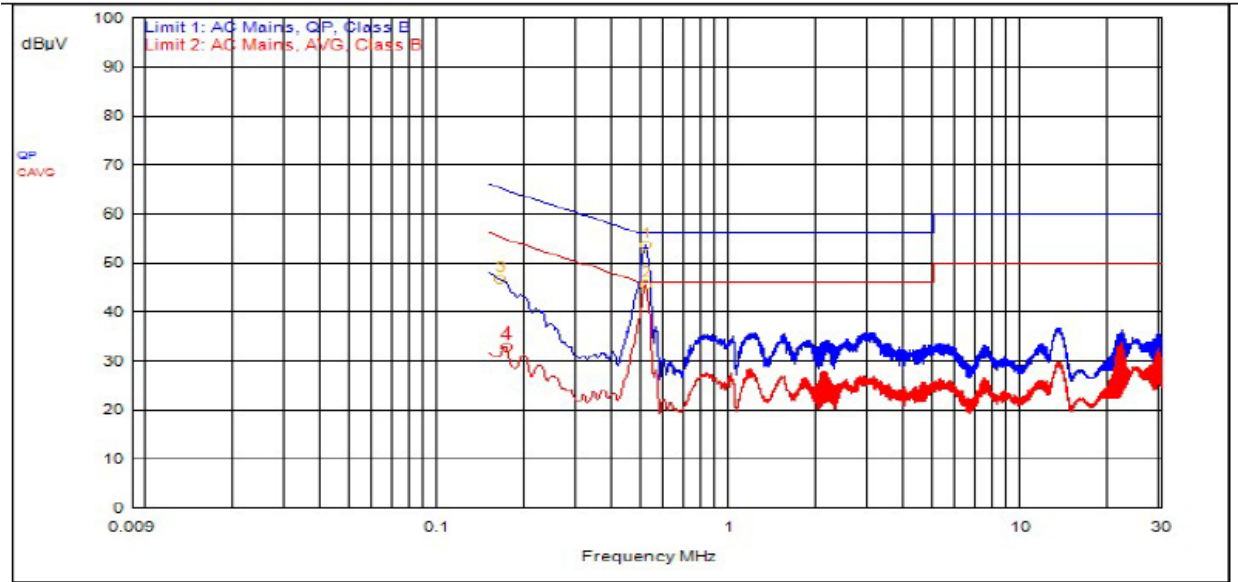
For PSD measurements when $\text{Nss}=1$: Array Gain = $10 \log(\text{NANT}/\text{NSS})$ dB + Antenna Gain (dBi). Or $3.01 \text{ dB} + 19.0 \text{ dBi} = 22.01 \text{ dBi}$.

Results

The EUT complied with the specification

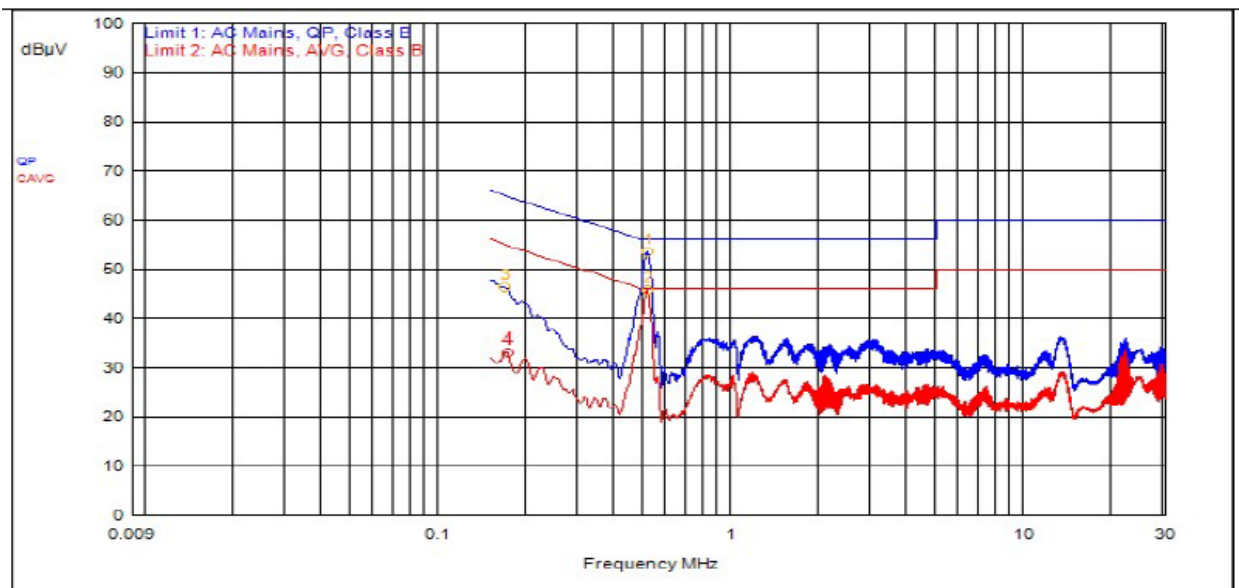
5.2 Conducted Emissions at Mains Ports Data

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	dB μ V	dB μ V	dB μ V	dB	dB μ V	dB	P/F
1	513,000kHz	12.42	0.00		QPeak	41.14	53.56	56.00	-2.44			
3	162,000kHz	12.36	0.00		QPeak	34.24	46.60	65.36	-18.76			
2	510,000kHz	12.43	0.00		C_AVG	33.22	45.65			46.00	-0.35	
4	171,000kHz	12.35	0.00		C_AVG	20.29	32.64			54.91	-22.27	

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	dB μ V	dB μ V	dB μ V	dB	dB μ V	dB	P/F
1	513,000kHz	12.43	0.00		QPeak	41.19	53.62	56.00	-2.38			
3	168,000kHz	12.40	0.00		QPeak	33.95	46.35	65.06	-18.71			
2	513,000kHz	12.43	0.00		C_AVG	33.27	45.70			46.00	-0.30	
4	171,000kHz	12.40	0.00		C_AVG	20.74	33.14			54.91	-21.77	

Result

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)	Emissions 26 dB Bandwidth (MHz)
OFDM 20 MHz	5180	17.3	20.9
OFDM 20 MHz	5210	17.3	20.9
OFDM 20 MHz	5240	17.5	27.4
VHT 20 MHz	5180	18.3	21.7
VHT 20 MHz	5210	18.3	22.2
VHT 20 MHz	5240	18.8	29.0
VHT 40 MHz	5190	37.0	42.0
VHT 40 MHz	5230	36.5	42.6

Result

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 §15.407(a)(2) Maximum Average Output Power

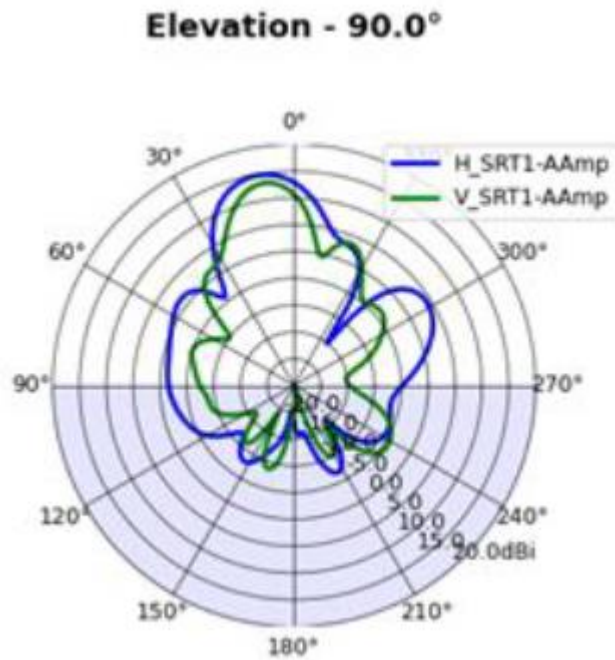
All chains were measured and summed under the guidance of KDB 789033 Section II. E.2. and KDB 66291 D01. Please see associated annex for details on instrument settings.

The maximum average RF conducted output power measured for this device was 24.26 dBm or 266.69 mW. The limit is 30 dBm, or 1 Watt when using an antenna with 23 dBi (Fixed point to point) or less gain. The antenna has a gain of 19.0 dBi.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power	Measured EIRP	Measured PSD
OFDM 20	5180	Mcs0	15	18.12	37.12	2.80
OFDM 20	5210	Mcs0	19	22.46	41.46	7.33
OFDM 20	5240	Mcs0	21	24.26	43.26	8.96
VHT 20	5180	Mcs0	15	17.98	36.98	2.45
VHT 20	5210	Mcs0	19	22.42	41.42	6.77
VHT 20	5240	Mcs0	21	24.12	43.12	8.69
VHT 40	5190	Mcs0	9	11.17	30.17	-6.89
VHT 40	5230	Mcs0	19	21.72	40.72	3.31

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).



Plot 1: Elevation Plot Greater Than 30-Degrees from Horizon

5.5 §15.407(b) 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 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 below are plots with the EUT turned to the upper and lower channels with the antenna gain of 19.0 dBi accounted for. These demonstrate compliance with the provisions of this section at the band edges.

The emissions must be remain below -27 dBm EIRP.

Result

Conducted spurious emissions were below -27 dBm; therefore, the EUT complies with the specification.

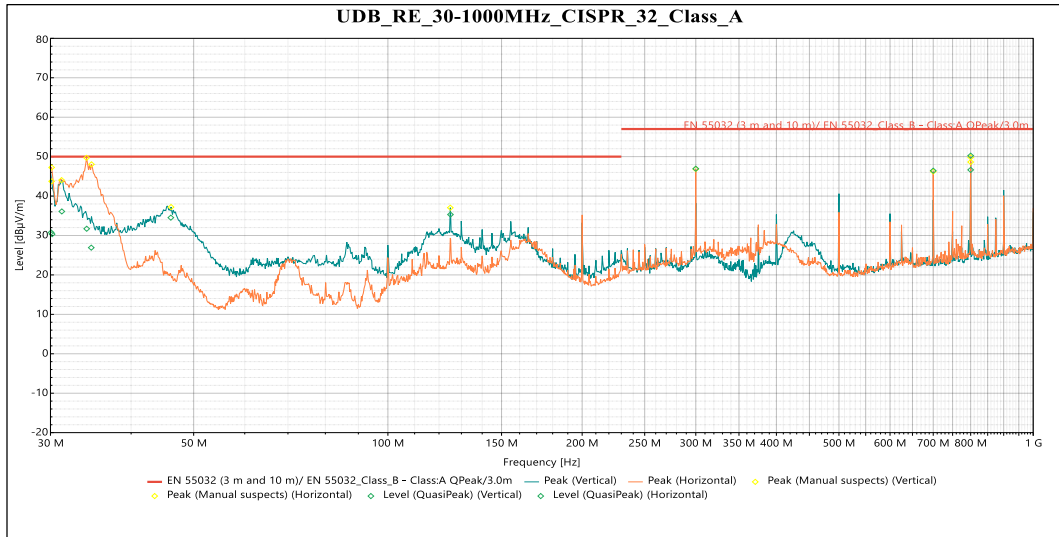
5.5.2 Radiated Spurious Emissions in the Restricted Bands of § 15.205

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 TP21, 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. 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

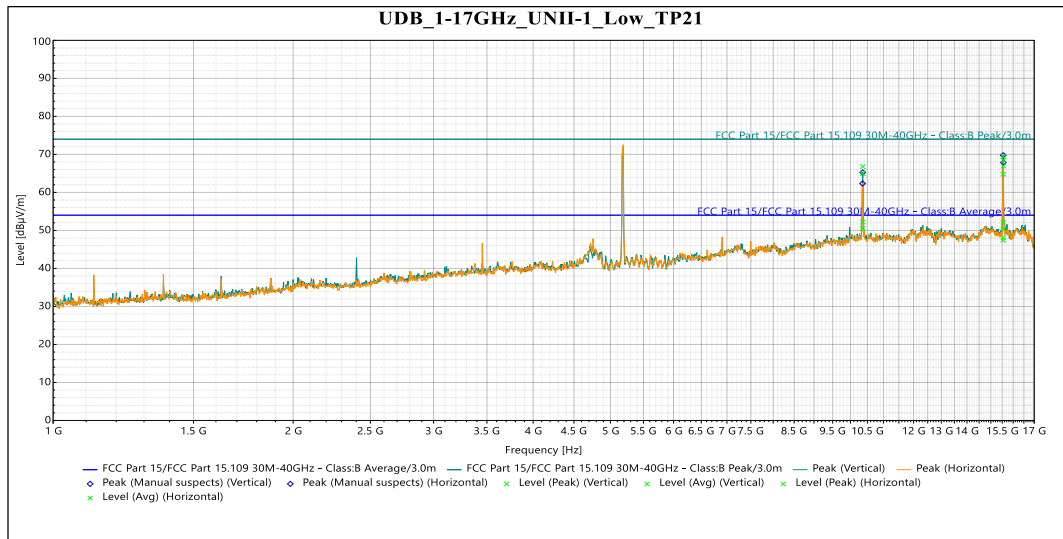
All emissions in the restricted bands of § 15.205 met the limits specified in § 15.209; therefore, the EUT complies with the specification. All emissions me the limits specified in § 15.407(b). Representative band edge plots are included in this report. See Annex for Conducted Band edge plots.



QuasiPeak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
30.17 MHz	30.336	50	-19.664	206	1	Vertical	-7.794
31.24 MHz	36.103	50	-13.897	122	2.233	Vertical	-8.487
46.09 MHz	34.515	50	-15.485	350	1.319	Vertical	-18.705
125.01 MHz	35.311	50	-14.689	18	1	Vertical	-14.349
799.98 MHz	50.244	57	-6.756	229	1.319	Vertical	-4.946
30.06 MHz	30.767	50	-19.233	241	1.681	Horizontal	-7.714
34.14 MHz	31.707	50	-18.293	45	2.41	Horizontal	-10.063
34.70 MHz	26.913	50	-23.087	186	3.139	Horizontal	-10.387
299.99 MHz	46.931	57	-10.069	224	1	Horizontal	-13.969
699.99MHz	46.428	57	-10.572	200	1.142	Horizontal	-6.672
799.99 MHz	46.644	57	-10.356	262	1.142	Horizontal	-4.946

Table 4: Radiated Emissions 30 – 1000 MHz

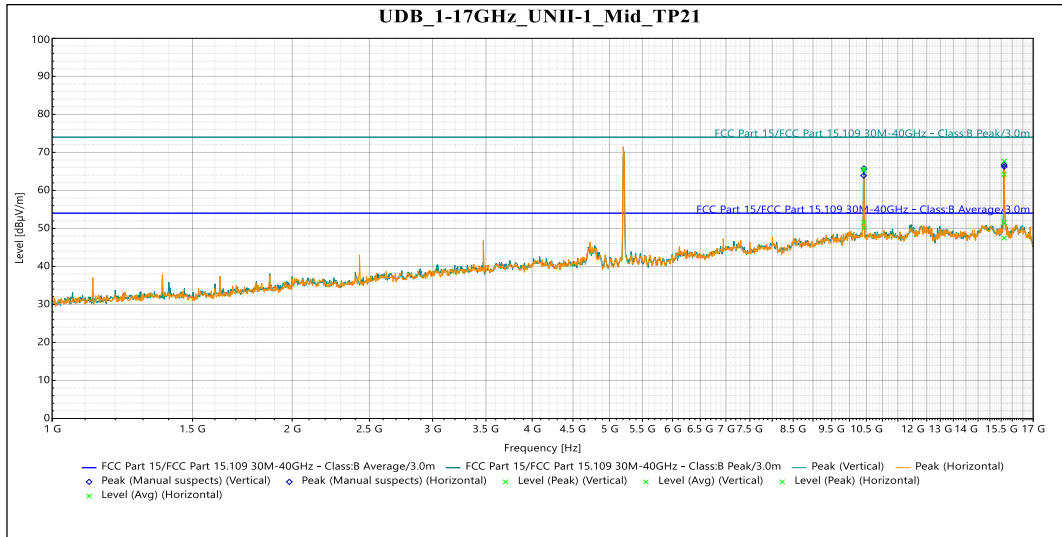

Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.36 GHz	66.784	74	-7.216	74	1.63	Vertical	14.854
15.54 GHz	64.77	74	-9.23	109	1.814	Vertical	15.87
15.54 GHz	68.44	74	-5.56	75	1.809	Vertical	15.868
10.36 GHz	64.921	74	-9.079	125	1.632	Horizontal	14.85
15.55 GHz	66.925	74	-7.075	69	2.544	Horizontal	15.842
15.55 GHz	69.371	74	-4.629	38	1.813	Horizontal	15.84

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.36 GHz	52.204	54	-1.796	74	1.63	Vertical	14.854
15.54 GHz	47.4	54	-6.6	109	1.814	Vertical	15.87
15.54 GHz	52.14	54	-1.86	75	1.809	Vertical	15.868
10.36 GHz	50.531	54	-3.469	125	1.632	Horizontal	14.85
15.55 GHz	48.135	54	-5.865	69	2.544	Horizontal	15.842
15.55 GHz	50.521	54	-3.479	38	1.813	Horizontal	15.84

Table 5: Radiated Emissions 1 – 17 GHz on the Lowest Frequency 5180 MHz

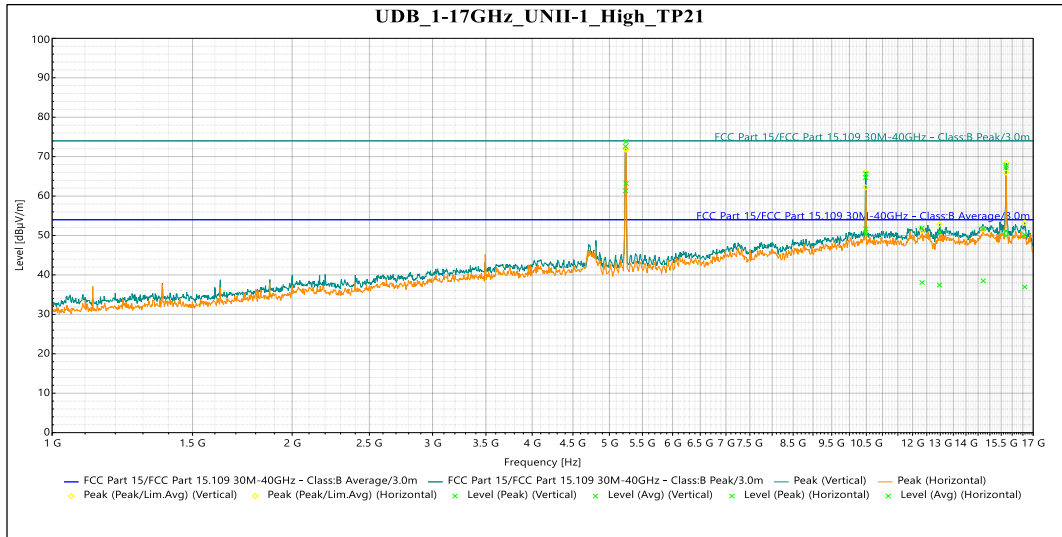

Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.43 GHz	65.281	74	-8.719	95	1.5	Vertical	14.418
15.63 GHz	64.21	74	-9.79	337	1.995	Vertical	15.843
10.42 GHz	65.609	74	-8.391	113	1.63	Horizontal	14.59
15.64 GHz	67.683	74	-6.317	37	2.176	Horizontal	15.873

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.43 GHz	50.111	54	-3.889	95	1.5	Vertical	14.418
15.63 GHz	47.47	54	-6.53	337	1.995	Vertical	15.843
10.42 GHz	51.569	54	-2.431	113	1.63	Horizontal	14.59
15.64 GHz	51.483	54	-2.517	37	2.176	Horizontal	15.873

Table 6: Transmitting on the Middle Frequency 5210 MHz

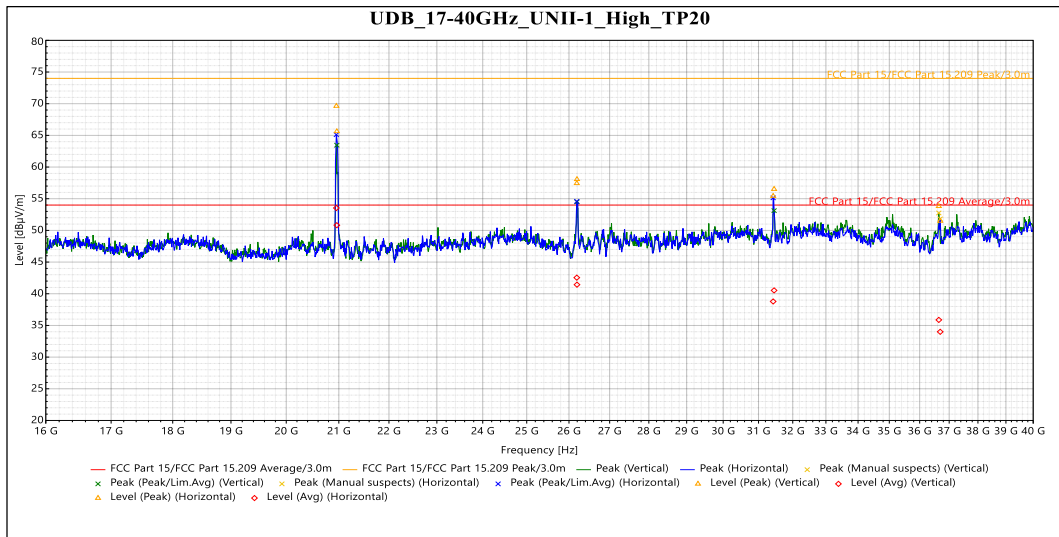

Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
5.254GHz	72.589	74	-1.411	271	2.57	Vertical	6.339
10.48 GHz	65.664	74	-8.336	70	1.632	Vertical	13.922
12.97 GHz	50.912	74	-23.088	209	1.994	Vertical	16.62
15.73 GHz	67.724	74	-6.276	105	2.716	Vertical	15.981
16.59 GHz	50.18	74	-23.82	189	1.5	Vertical	18.39
5.25 GHz	73.818	74	-0.182	256	2.753	Horizontal	6.348
10.48 GHz	64.697	74	-9.303	46	3.282	Horizontal	13.946
12.33 GHz	51.949	74	-22.051	11	3.635	Horizontal	16.628
14.72 GHz	51.789	74	-22.211	158	3.282	Horizontal	17.289
15.72 GHz	67.264	74	-6.736	58	3.277	Horizontal	16.078

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
5.24 GHz	61.329	54	7.329	271	2.57	Vertical	6.339
10.48 GHz	51.674	54	-2.326	70	1.632	Vertical	13.922
12.97 GHz	37.422	54	-16.578	209	1.994	Vertical	16.62
15.73 GHz	49.974	54	-4.026	105	2.716	Vertical	15.981
16.59 GHz	36.94	54	-17.06	189	1.5	Vertical	18.39
5.25 GHz	63.198	54	9.198	256	2.753	Horizontal	6.348
10.48 GHz	50.407	54	-3.593	46	3.282	Horizontal	13.946
12.33 GHz	38.059	54	-15.941	11	3.635	Horizontal	16.628
14.72 GHz	38.509	54	-15.491	158	3.282	Horizontal	17.289
15.72 GHz	51.104	54	-2.896	58	3.277	Horizontal	16.078

Table 7: Transmitting on the Highest Frequency 5240 MHz

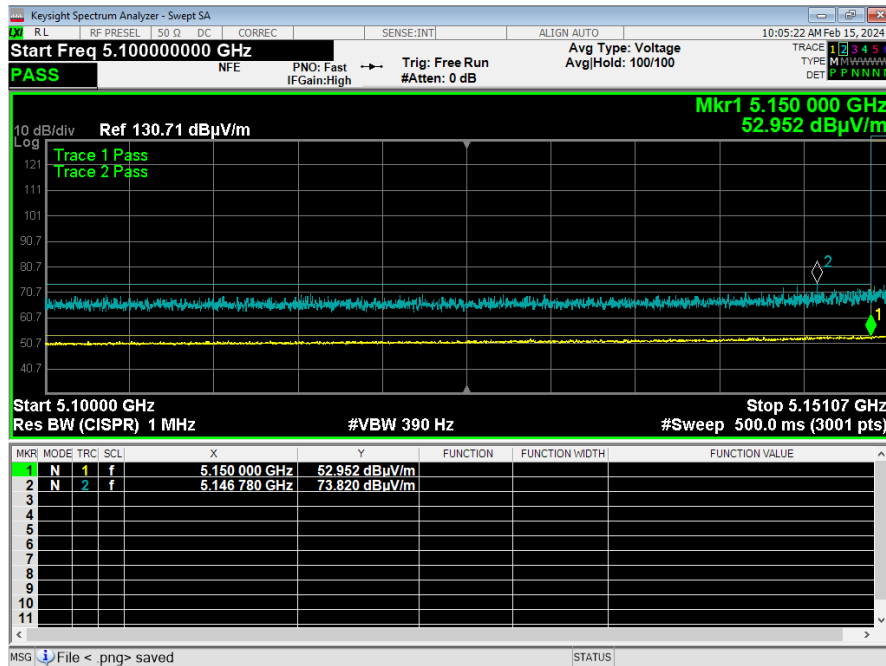

Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
20.961 GHz	65.632	74	-8.368	169	Vertical	0.358
26.194 GHz	58.072	74	-15.928	186	Vertical	0.32
31.451 GHz	56.524	74	-17.476	177	Vertical	1.685
36.646 GHz	53.811	74	-20.189	190	Vertical	4.192
20.952 GHz	69.627	74	-4.373	131	Horizontal	0.212
26.189 GHz	57.434	74	-16.566	214	Horizontal	0.382
31.424 GHz	55.424	74	-18.576	186	Horizontal	1.687
36.693 GHz	51.491	74	-22.509	5	Horizontal	2.626

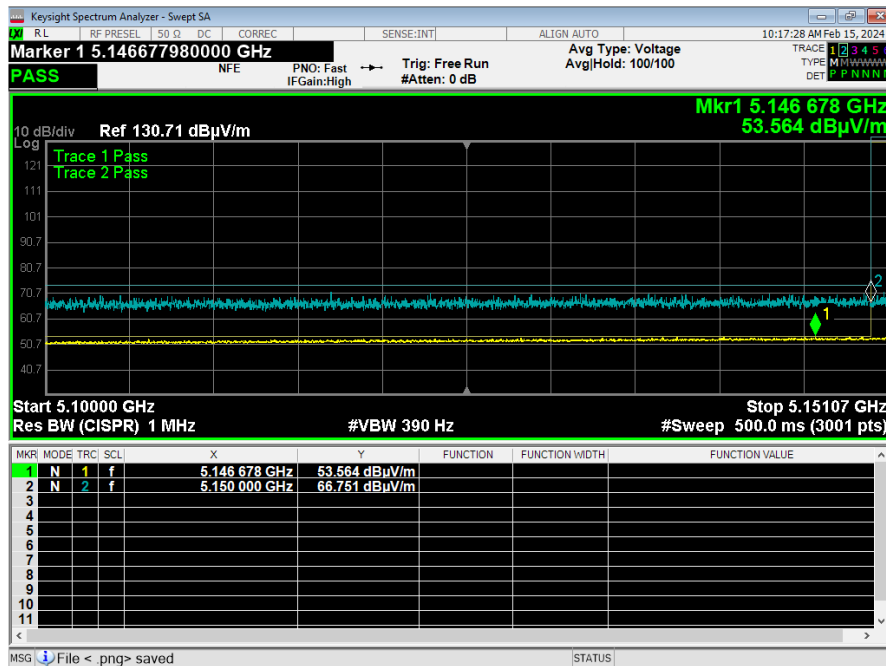
Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
20.961 GHz	50.82	54	-3.18	169	Vertical	0.358
26.194 GHz	41.43	54	-12.57	186	Vertical	0.32
31.451 GHz	40.527	54	-13.473	177	Vertical	1.685
36.646 GHz	35.867	54	-18.133	190	Vertical	4.192
20.952 GHz	53.541	54	-0.459	131	Horizontal	0.212
26.189 GHz	42.541	54	-11.459	214	Horizontal	0.382
31.424 GHz	38.777	54	-15.223	186	Horizontal	1.687
36.693 GHz	33.988	54	-20.012	5	Horizontal	2.626

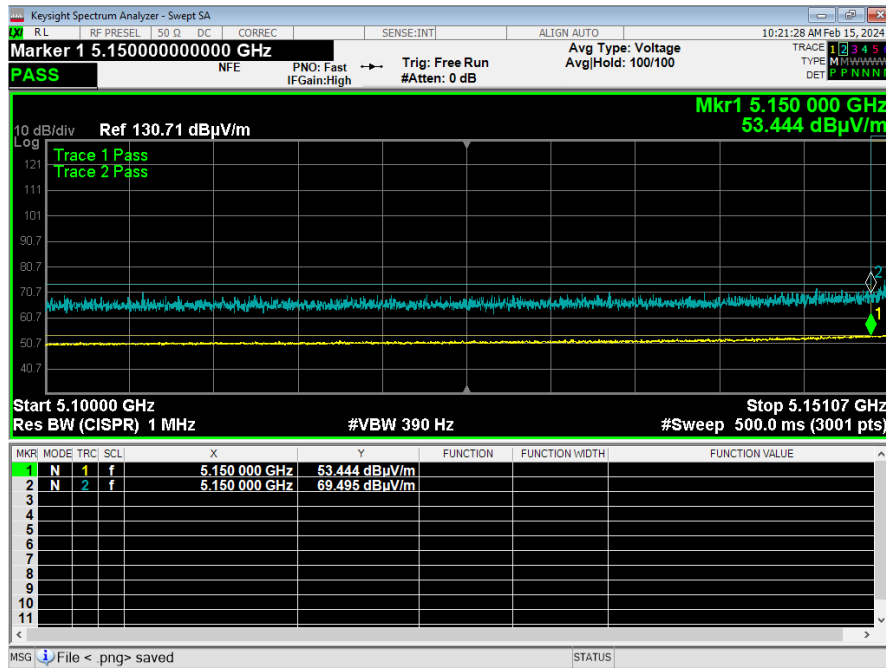
Table 8: Radiated Emissions 17 – 40 GHz on the Highest Frequency 5240 MHz (worse case)



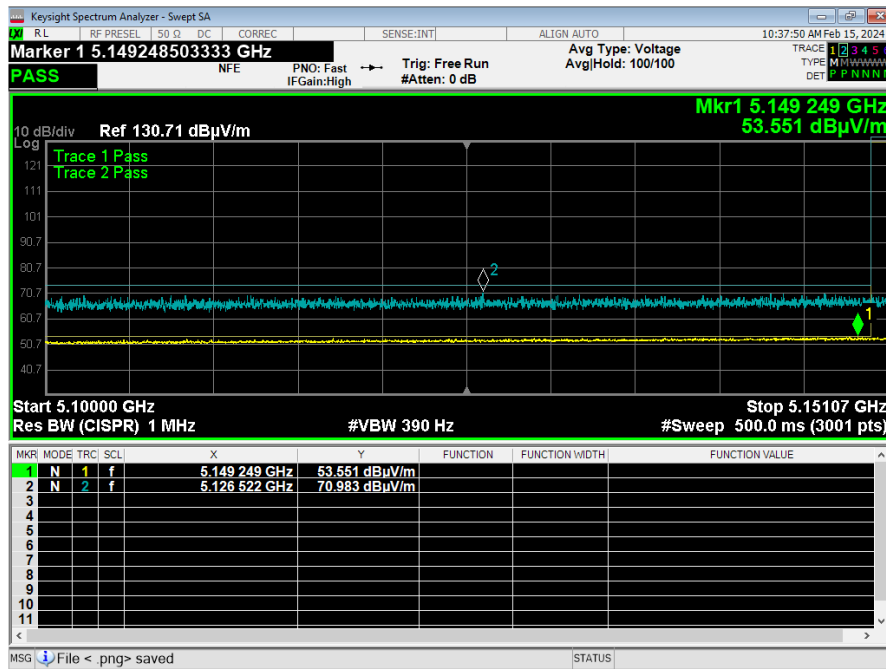
Plot 2: Band Edge a Mode 20 MHz, 5180 MHz



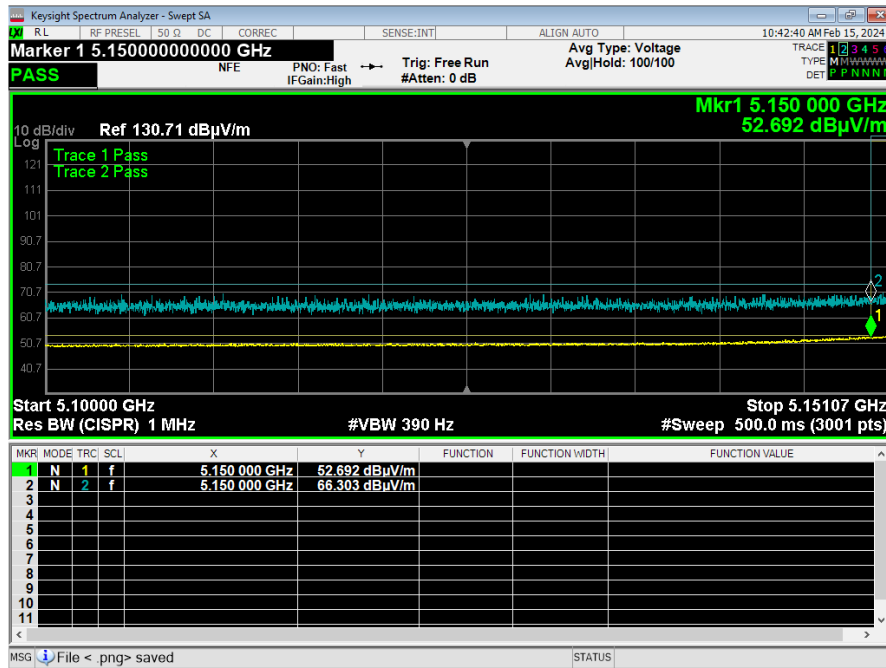
Plot 3: Band Edge a Mode 20 MHz, 5240 MHz



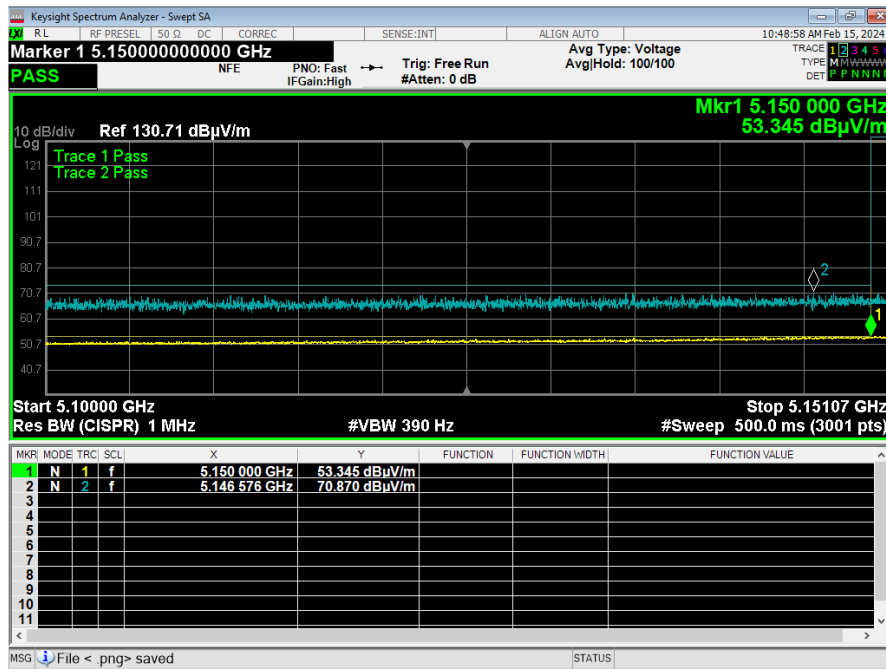
Plot 4: Band Edge ac Mode 20 MHz, 5180 MHz



Plot 5: Band Edge ac Mode 20 MHz, 5240 MHz



Plot 6: Band Edge ac Mode 40 MHz, 5190 MHz



Plot 7: Band Edge ac Mode 40 MHz, 5230 MHz

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 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. When the EUT uses Nss=1 data rates, the antenna gain is 19.0 dBi + Array gain of 3.01dB which is a total of 22.01 dBi.

Results of this testing are summarized.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Measured PSD
OFDM 20	5180	Mcs0	15	2.80
OFDM 20	5210	Mcs0	19	7.33
OFDM 20	5240	Mcs0	21	8.96
VHT 20	5180	Mcs0	15	2.45
VHT 20	5210	Mcs0	19	6.77
VHT 20	5240	Mcs0	21	8.69
VHT 40	5190	Mcs0	9	-6.89
VHT 40	5230	Mcs0	19	3.31

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 --