



427 West 12800 South
Draper, UT 84020

Test Report Certification

FCC ID	SWX-U7ID
Equipment Under Test	U7-Industrial
Test Report Serial Number	TR10941_01
Date of Test(s)	8, 21 - 22, 26 May; 4 June; 14, 22, 30 July 2026
Report Issue Date	20 August 2026

Test Specification	Applicant
47 CFR FCC Part 15, Subpart E	Ubiquiti Inc. 685 Third Avenue New York, NY 10017 U.S.A.



Certification of Engineering Report

This report has been prepared by Unified Compliance Laboratory (UCL) to document compliance of the device described below with the requirement of Federal Communication Commissions (FCC) Part 15, Subpart E. This report may be reproduced in full. Partial reproduction of this report may only be made with the written consent of the laboratory. The results in this report apply only to the sample tested with the specifications provided by the manufacturer.

Applicant	Ubiquiti Inc.
Manufacturer	Ubiquiti Inc.
Brand Name	UBIQUITI
Model Number	U7-Industrial
FCC ID	SWX-U7ID

On this 20th day of August 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: Kimberly DeBole

Revision History		
Revision	Description	Date
01	Original Report Release	8/20/2026

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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 Officer

1.2 Manufacturer

Company	Ubiquiti Inc. 685 Third Avenue New York, NY 10017 U.S.A.
Contact Name	Alex Macon
Title	Compliance Officer

2 Equipment Under Test (EUT)

2.1 Identification of EUT

Brand Name	UBIQUITI
Model Number	U7-Industrial
Serial Number	B02601
Dimensions (cm)	17.0 x 15.0 x 3.5

2.2 Description of EUT

The U7-Industrial is an outdoor WiFi 7 access point with a dual band 2.4 GHz and 5 GHz 2x2 transmitter. The U7-Industrial supports 3.6 Gbps aggregate throughput rate. The U7-Industrial contains built-in high-gain antennas with removable reflectors for adjustable beam width, or external omni antennas for 360-degree coverage. The U7-Industrial is powered by a U-POE+ power adapter.

This device does not support channel puncturing.

For CDD transmission, direction 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 $3.01 \text{ dB} + 12 \text{ dBi} = 15.01 \text{ dBi}$ for the internal Patch antenna.

For PSD measurements when $\text{Nss}=1$: Array Gain = $10 \log(\text{NANT}/\text{NSS})$ dB + Antenna Gain (dBi). Or $3.01 \text{ dB} + 10 \text{ dBi} = 13.01 \text{ dBi}$ for the internal Patch antenna.

For PSD measurements when $\text{Nss}=1$: Array Gain = $10 \log(\text{NANT}/\text{NSS})$ dB + Antenna Gain (dBi). Or $3.01 \text{ dB} + 6 \text{ dBi} = 9.01 \text{ dBi}$ for the external Dipole antenna.

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.

Band	WiFi Mode	Modulation Bandwidth	Modulation Type	Frequency (MHz)
UNII-1	a	20 MHz	OFDM	5180, 5200, 5210, 5240
	be	20 MHz	EHT	5180, 5200, 5210, 5240
	be	40 MHz	EHT	5190, 5230
	be	80 MHz	EHT	5210

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: U7-Industrial SN: B02601	Wireless Access Point	See Section 2.4
BN: UBIQUITI MN: U-POE+ SN: N/A	PoE Injector	PoE Output / Shielded Cat 5E/ unshielded Cat 5E to AE
BN: Dell MN: XPS 13 SN: N/A	Laptop Personal Computer (For Testing Only)	LAN Port / 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	3m Unshielded Cat 5E
PoE Output (PoE Injector)	1	3m Unshielded Cat 5E to U7- Pro-XG-Wall PoE Input
LAN (PoE Injector)	1	1m 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 Vac to PoE Power
AC Mains Frequency	60 Hz
Temperature	21.2 - 23.3 °C

Humidity	23.8 - 28.4 %
Barometric Pressure	1018 mBar

2.6 Operating Modes

The U7-Industrial was tested using test 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/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

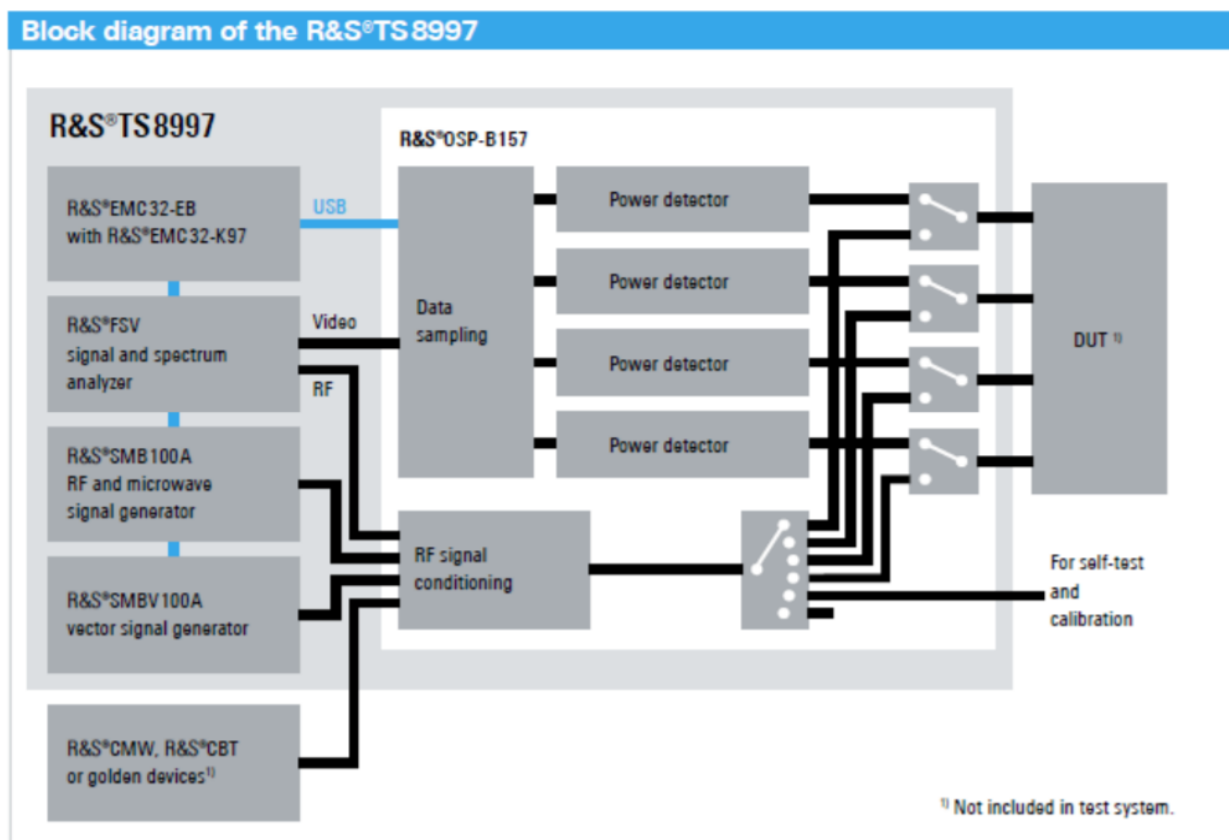


Diagram 1: Test Configuration Block Diagram

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 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 2027. 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 2027.

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

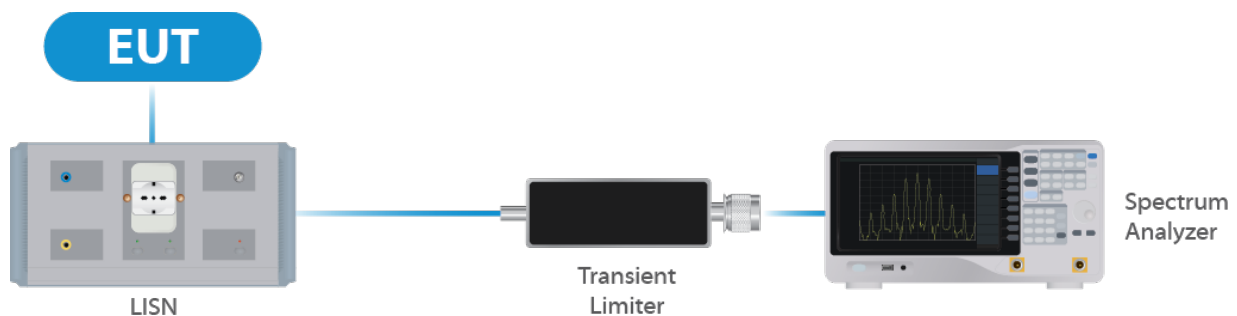


Figure 1: Conducted Emissions Test

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	3/18/2026	3/18/2027
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	4/7/2026	4/7/2027
Switch Extension	R&S	OSP-150W	UCL-2870	4/6/2026	4/6/2027
Test Software	R&S	EMC32	UCL-9442	--	--

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

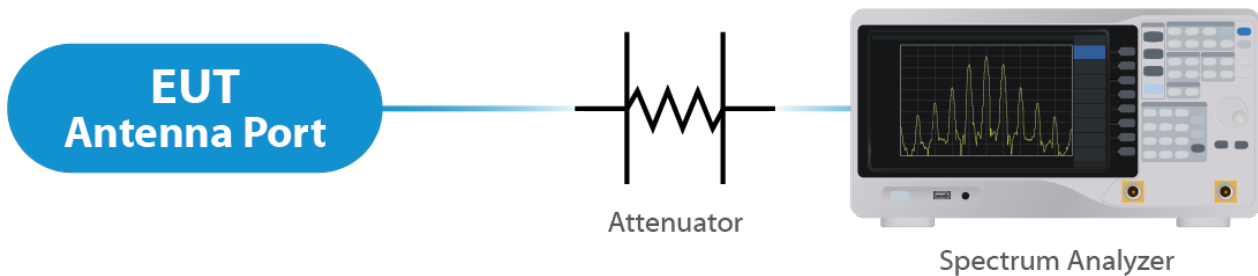


Figure 2: Direct Connect at the Antenna Port Test



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	12/18/2025	12/18/2026
Pre-Amplifier 9 kHz – 1 GHz	Sonoma Instruments	310N	UCL-2889	7/22/2025	7/22/2026
Tri Log Antenna	Scwarzbeck	VULB 9163	UCL-3062	12/16/2025	12/16/2027
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
15 - 40 GHz	Scwarzbeck	BBHA 9170	UCL-2487	4/7/2025	4/7/2027

Horn Antenna					
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

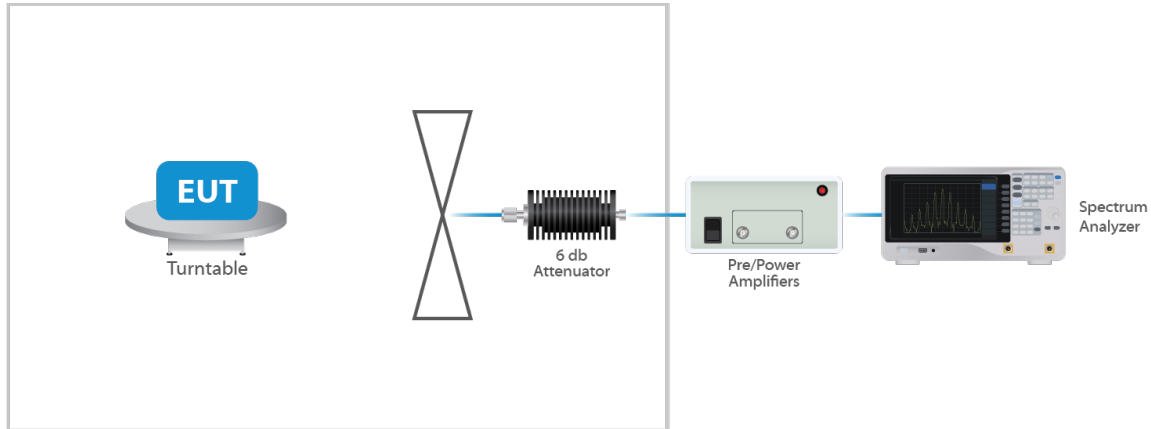


Figure 4: Radiated Emissions Test

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 Patch antenna and an external Dipole antenna.

Per the manufacturer, the Maximum gain of the internal Patch antenna per chain is 12.0 and 10.0 dBi. Per the manufacturer, the Maximum gain of the external Dipole antenna per chain is 6.0 dBi.

This is an 802.11 device and utilizes CDD as described in KDB 662911 D01.

The internal Patch antenna is not user replaceable. The external Dipole antenna is user replaceable.

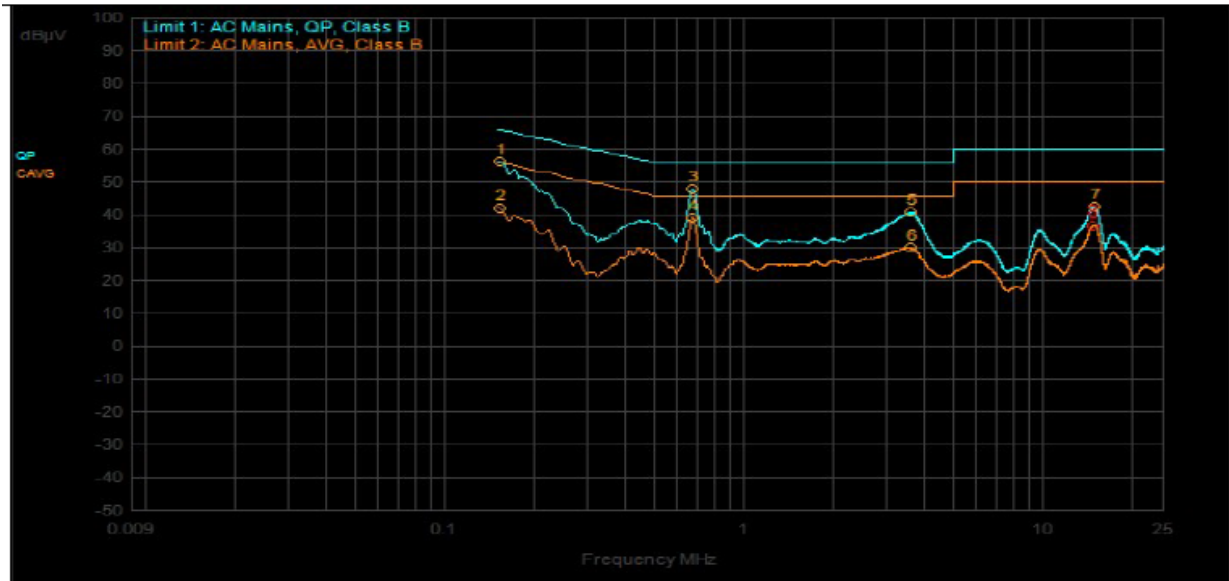
See Section 2.2 for directional gain calculation.

Results

The EUT complied with the specification

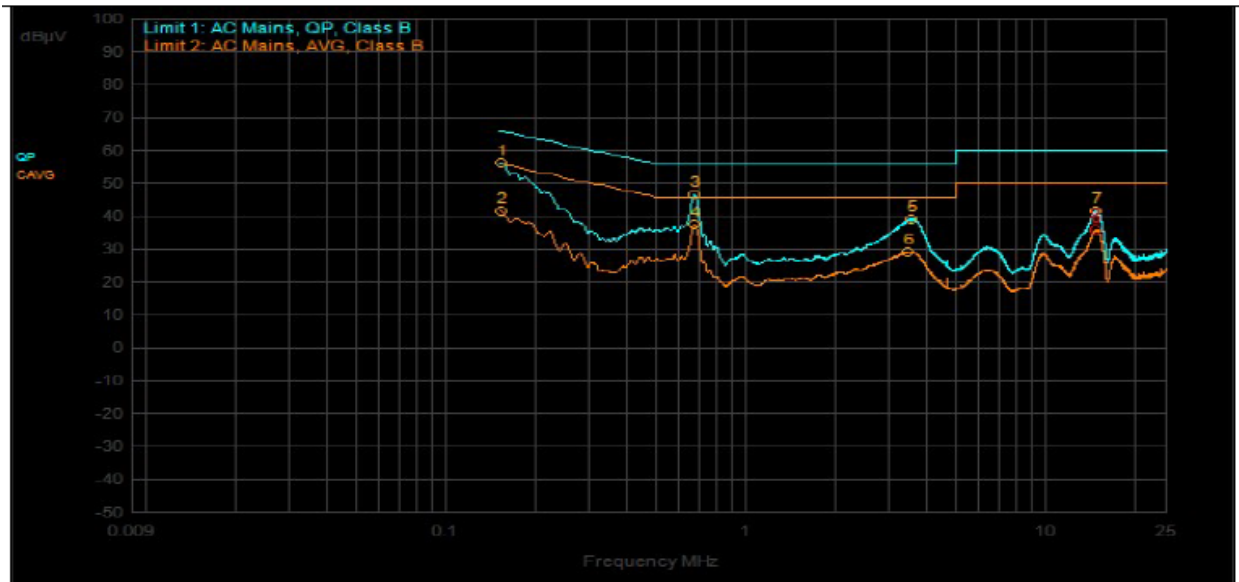
5.2 §15.207 Conducted Emissions at Mains Ports Data

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	672,000kHz	12.33	0.00		QPeak	35.54	47.87	56.00	-8.13			
1	153,000kHz	12.34	0.00		QPeak	44.10	56.44	65.84	-9.39			
5	3.570	12.30	0.00		QPeak	28.38	40.68	56.00	-15.32			
7	14.748	12.38	0.08		QPeak	29.85	42.31	60.00	-17.69			
2	153,000kHz	12.34	0.00		C_AVG	29.61	41.95			55.84	-13.89	
4	672,000kHz	12.33	0.00		C_AVG	26.73	39.06			46.00	-6.94	
6	3.597	12.30	0.00		C_AVG	17.58	29.88			46.00	-16.12	
8	14.610	12.38	0.08		C_AVG	24.18	36.64			50.00	-13.36	

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	672,000kHz	12.33	0.00		QPeak	34.31	46.64	56.00	-9.36			
1	153,000kHz	12.29	0.00		QPeak	43.90	56.19	65.84	-9.64			
5	3.513	12.31	0.00		QPeak	26.76	39.07	56.00	-16.93			
7	14.544	12.23	0.08		QPeak	29.32	41.63	60.00	-18.37			
2	153,000kHz	12.29	0.00		C_AVG	29.33	41.62			55.84	-14.21	
4	669,000kHz	12.33	0.00		C_AVG	25.21	37.54			46.00	-8.46	
6	3.456	12.31	0.00		C_AVG	16.82	29.13			46.00	-16.87	
8	14.514	12.23	0.08		C_AVG	23.54	35.85			50.00	-14.15	

Result

The EUT complied with the specification limit.

5.3 §15.407(a) 26 dB Emissions Bandwidth

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

5.3.1 Internal Antenna

Nominal BW (MHz)	Frequency (MHz)	99% Bandwidth (MHz)	Emissions 26 dB Bandwidth (MHz)
OFDM 20	5180	16.9	22.4
OFDM 20	5210	16.8	22.4
OFDM 20	5240	17.1	21.8
EHT 20	5180	19.2	22.7
EHT 20	5210	19.2	22.1
EHT 20	5240	19.2	23.1
EHT 40	5190	38.3	43.3
EHT 40	5230	38.0	42.3
EHT 80	5210	77.5	85.0

5.3.2 External Antenna

Nominal BW (MHz)	Frequency (MHz)	99% Bandwidth (MHz)	Emissions 26 dB Bandwidth (MHz)
OFDM 20	5180	16.9	23.1
OFDM 20	5210	17.1	22.8
OFDM 20	5240	17.1	23.1
EHT 20	5180	19.2	22.7
EHT 20	5210	19.2	22.2
EHT 20	5240	19.2	22.8
EHT 40	5190	38.3	43.0
EHT 40	5230	38.3	42.5
EHT 80	5210	77.5	85.0

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.

For the internal antenna the maximum average RF conducted output power measured for this device was 23.19 dBm or 208.45 mW. The limit is 30 dBm (adjusted limit 24 dBm), or 1 Watt (adjusted limit 0.251 Watt) when using antennas with 6 dBi (indoor/outdoor access point) or less gain. The antenna has a gain of 12 dBi.

For the external antenna the maximum average RF conducted output power measured for this device was 26.78 dBm or 476.43 mW. The limit is 30 dBm, or 1 Watt when using antennas with 6 dBi or less gain. The antenna has a gain of 6 dBi.

See Section 2.2 for directional gain calculation.

5.4.1 Internal Antenna 12 dBi

Nss>1

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Total Summed Output Power* (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dBm)
OFDM 20	5180	Mcs0_Nss2	18	20.25	12	32.25	36	-3.75
OFDM 20	5210	Mcs0_Nss2	19	21.43	12	33.43	36	-2.57
OFDM 20	5240	Mcs0_Nss2	19	21.02	12	33.02	36	-2.98
EHT 20	5180	Mcs0_Nss2	19	21.46	12	33.46	36	-2.54
EHT 20	5210	Mcs0_Nss2	19	21.53	12	33.53	36	-2.47
EHT 20	5240	Mcs0_Nss2	20	22.20	12	34.20	36	-1.80
EHT 40	5190	Mcs0_Nss2	15	17.42	12	29.42	36	-6.58
EHT 40	5230	Mcs0_Nss2	19	21.48	12	33.48	36	-2.52
VHT 80	5210	Mcs0_Nss2	14	16.30	12	28.30	36	-7.70

Nss=1

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Total Summed Output Power* (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dBm)
OFDM 20	5180	Mcs0_Nss1	10	12.25	12	24.25	36	-11.75
OFDM 20	5210	Mcs0_Nss1	9	11.43	12	23.43	36	-12.57
OFDM 20	5240	Mcs0_Nss1	10	12.02	12	24.02	36	-11.98
EHT 20	5180	Mcs0_Nss1	10	12.46	12	24.46	36	-11.54
EHT 20	5210	Mcs0_Nss1	10	12.53	12	24.53	36	-11.47
EHT 20	5240	Mcs0_Nss1	12	14.20	12	26.20	36	-9.80
EHT 40	5190	Mcs0_Nss1	13	15.42	12	27.42	36	-8.58
EHT 40	5230	Mcs0_Nss1	13	15.48	12	27.48	36	-8.52
VHT 80	5210	Mcs0_Nss1	14	16.30	12	28.30	36	-7.70

5.4.2 Internal Antenna 10 dBi
Nss>1

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Total Summed Output Power* (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dBm)
OFDM 20	5180	Mcs0_Nss2	19	21.61	10	31.61	36	-4.39
OFDM 20	5210	Mcs0_Nss2	21	23.41	10	33.41	36	-2.59
OFDM 20	5240	Mcs0_Nss2	21	23.58	10	33.58	36	-2.42
EHT 20	5180	Mcs0_Nss2	19	21.69	10	31.69	36	-4.31
EHT 20	5210	Mcs0_Nss2	22	24.26	10	34.26	36	-1.74
EHT 20	5240	Mcs0_Nss2	22	24.42	10	34.42	36	-1.58
EHT 40	5190	Mcs0_Nss2	15	17.49	10	27.49	36	-8.51
EHT 40	5230	Mcs0_Nss2	20	22.90	10	32.90	36	-3.10
VHT 80	5210	Mcs0_Nss2	16	18.38	10	28.38	36	-7.62

Nss=1

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Total Summed Output Power* (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dBm)
OFDM 20	5180	Mcs0_Nss1	13	15.61	10	25.61	36	-10.39
OFDM 20	5210	Mcs0_Nss1	14	16.41	10	26.41	36	-9.59
OFDM 20	5240	Mcs0_Nss1	14	19.58	10	26.58	36	-9.42
EHT 20	5180	Mcs0_Nss1	14	16.69	10	26.69	36	-9.31
EHT 20	5210	Mcs0_Nss1	15	17.26	10	27.26	36	-8.74
EHT 20	5240	Mcs0_Nss1	15	17.42	10	27.42	36	-8.58
EHT 40	5190	Mcs0_Nss1	15	17.49	10	27.49	36	-8.51
EHT 40	5230	Mcs0_Nss1	16	18.90	10	28.90	36	-7.1
VHT 80	5210	Mcs0_Nss1	16	18.38	10	28.38	36	-7.62

5.4.3 External Antenna 6 dBi
Nss>1

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Total Summed Output Power* (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dBm)
OFDM 20	5180	Mcs0_Nss2	22	22.91	6	28.91	36	-7.09
OFDM 20	5210	Mcs0_Nss2	26	25.96	6	31.96	36	-4.04
OFDM 20	5240	Mcs0_Nss2	27	26.78	6	32.78	36	-3.22
EHT 20	5180	Mcs0_Nss2	21	22.06	6	28.06	36	-7.94
EHT 20	5210	Mcs0_Nss2	26	25.95	6	31.92	36	-4.08
EHT 20	5240	Mcs0_Nss2	27	26.75	6	32.75	36	-3.25
EHT 40	5190	Mcs0_Nss2	21	21.95	6	27.95	36	-8.05
EHT 40	5230	Mcs0_Nss2	24	24.94	6	30.94	36	-5.06
VHT 80	5210	Mcs0_Nss2	21	21.60	6	27.60	36	-8.40

Nss=1

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Total Summed Output Power* (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dBm)
OFDM 20	5180	Mcs0_Nss1	22	22.91	6	28.91	36	-7.09
OFDM 20	5210	Mcs0_Nss1	24	23.96	6	29.96	36	-6.04
OFDM 20	5240	Mcs0_Nss1	24	23.78	6	29.78	36	-6.22
EHT 20	5180	Mcs0_Nss1	21	22.06	6	28.06	36	-7.94
EHT 20	5210	Mcs0_Nss1	25	24.92	6	30.92	36	-5.08
EHT 20	5240	Mcs0_Nss1	25	24.75	6	30.75	36	-5.25
EHT 40	5190	Mcs0_Nss1	21	21.95	6	27.95	36	-8.05
EHT 40	5230	Mcs0_Nss1	24	24.94	6	30.94	36	-5.06
VHT 80	5210	Mcs0_Nss1	21	21.60	6	27.60	36	-8.40

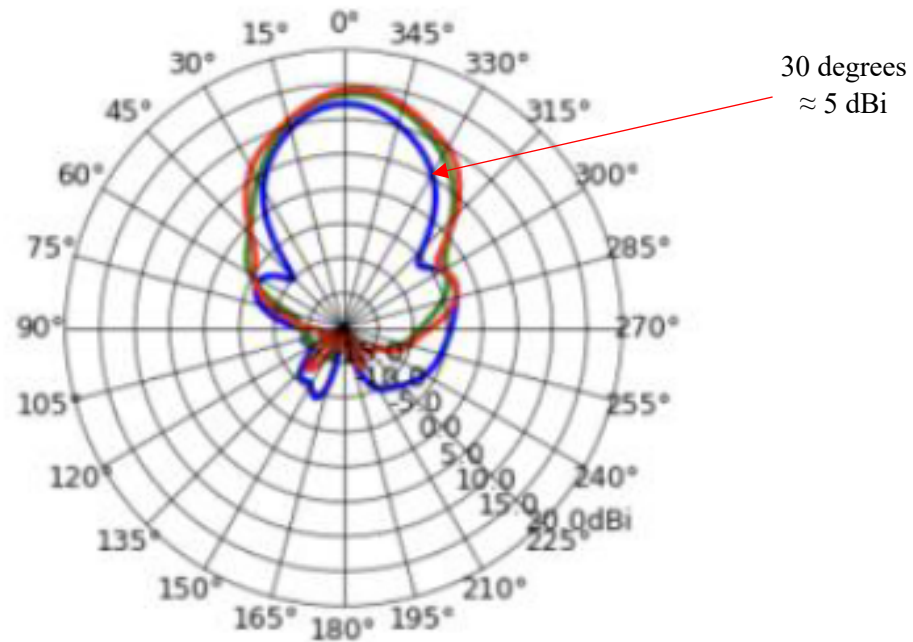
Outdoor Point-to-Multi-Point - 30 Degrees

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Total Summed Output Power* (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dBm)
OFDM 20	5180	Mcs0_Nss2	13	15.64	5	20.64	21	-0.36
OFDM 20	5210	Mcs0_Nss2	13	15.54	5	20.54	21	-0.46
OFDM 20	5240	Mcs0_Nss2	13	15.66	5	20.66	21	-0.34
EHT 20	5180	Mcs0_Nss2	13	15.67	5	20.67	21	-0.33
EHT 20	5210	Mcs0_Nss2	13	15.63	5	20.63	21	-0.37
EHT 20	5240	Mcs0_Nss2	13	15.75	5	20.75	21	-0.25
EHT 40	5190	Mcs0_Nss2	13	15.63	5	20.63	21	-0.37
EHT 40	5230	Mcs0_Nss2	13	15.97	5	20.97	21	-0.03
VHT 80	5210	Mcs0_Nss2	13	15.60	5	20.60	21	-0.40

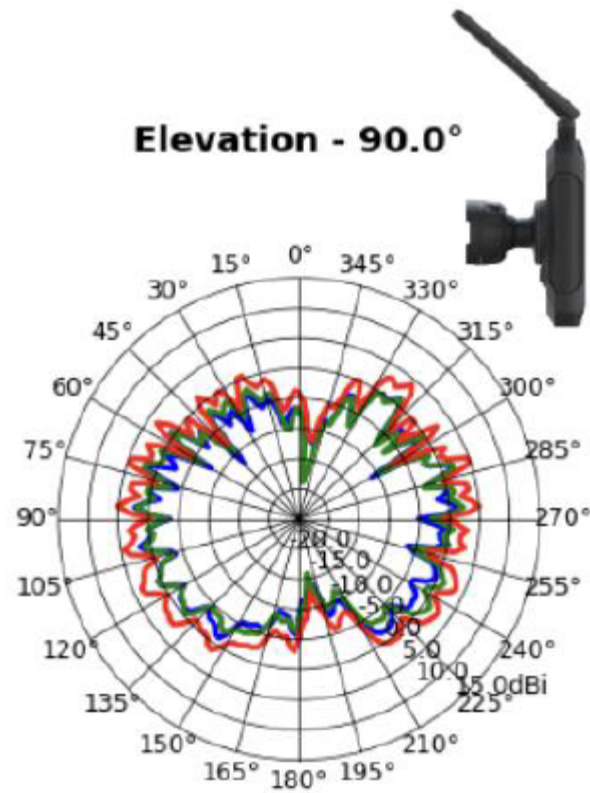
Result

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 - Internal Antenna



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

5.5 §15.209 Spurious Emissions

5.5.1 Radiated Spurious Emissions in the Restricted Bands of § 15.205

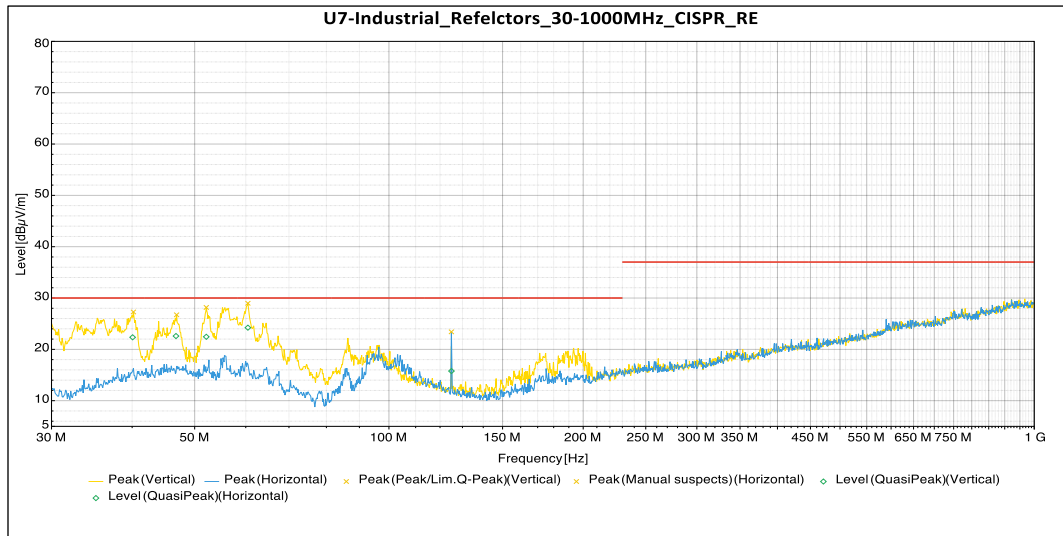
The EUT uses various power settings based on the channel in use. In order to reduce test time, the radiated spurious emissions at the lowest, middle, and highest channel were measured at the maximum power of TP30, as this setting was found to be worst case for spurious emissions. Power was subsequently 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. See Annex for Conducted Band edge plots.

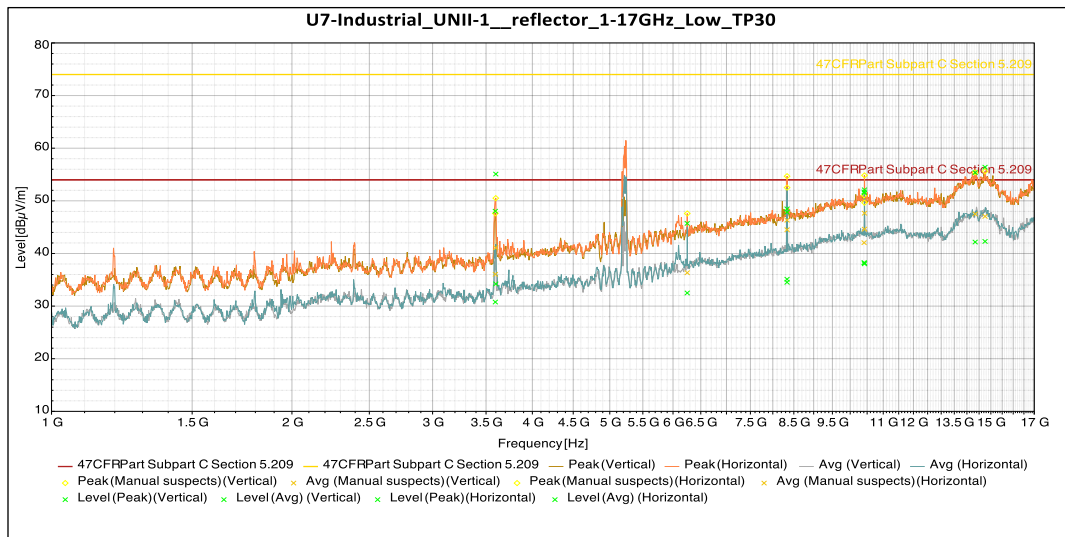
Internal Antenna



QuasiPeak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
40.07 MHz	22.35	30.0	-7.65	4	1.07	Vertical	-13.23
46.78 MHz	22.59	30.0	-7.41	1	2.46	Vertical	-12.03
52.12 MHz	22.44	30.0	-7.56	15	2.11	Vertical	-12.53
60.46 MHz	24.22	30.0	-5.78	9	3.66	Vertical	-14.37
124.99 MHz	15.77	30.0	-14.23	329	2.77	Horizontal	-16.63

Table 4: Radiated Emissions 30 – 1000 MHz



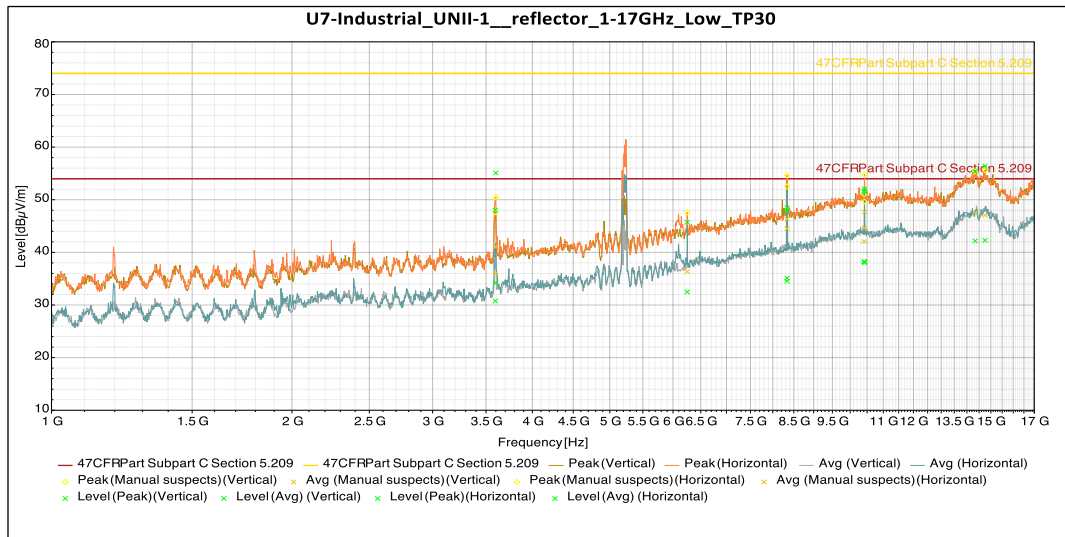
Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
8.34 GHz	48.47	74.0	-25.53	152	4	Vertical	1.27
10.42 GHz	52.09	74.0	-21.91	159	3.307	Vertical	6.74
14.34 GHz	55.36	74.0	-18.64	347	3.311	Vertical	11.11
3.60 GHz	55.08	74.0	-18.92	107	3.307	Horizontal	-10.26
8.34 GHz	47.83	74.0	-26.17	173	3.802	Horizontal	1.27
10.42 GHz	51.50	74.0	-22.50	84	3.802	Horizontal	6.74
14.75 GHz	56.40	74.0	-17.60	303	3.798	Horizontal	11.94

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
8.34 GHz	35.10	54.0	-18.90	152	4	Vertical	1.27
10.42 GHz	38.18	54.0	-15.82	159	3.307	Vertical	6.74
14.34 GHz	42.17	54.0	-11.83	347	3.311	Vertical	11.11
3.60 GHz	34.21	54.0	-19.79	107	3.307	Horizontal	-10.26
8.34 GHz	34.52	54.0	-19.48	173	3.802	Horizontal	1.27
10.42 GHz	38.02	54.0	-15.98	84	3.802	Horizontal	6.74
14.75 GHz	42.29	54.0	-11.71	303	3.798	Horizontal	11.94

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



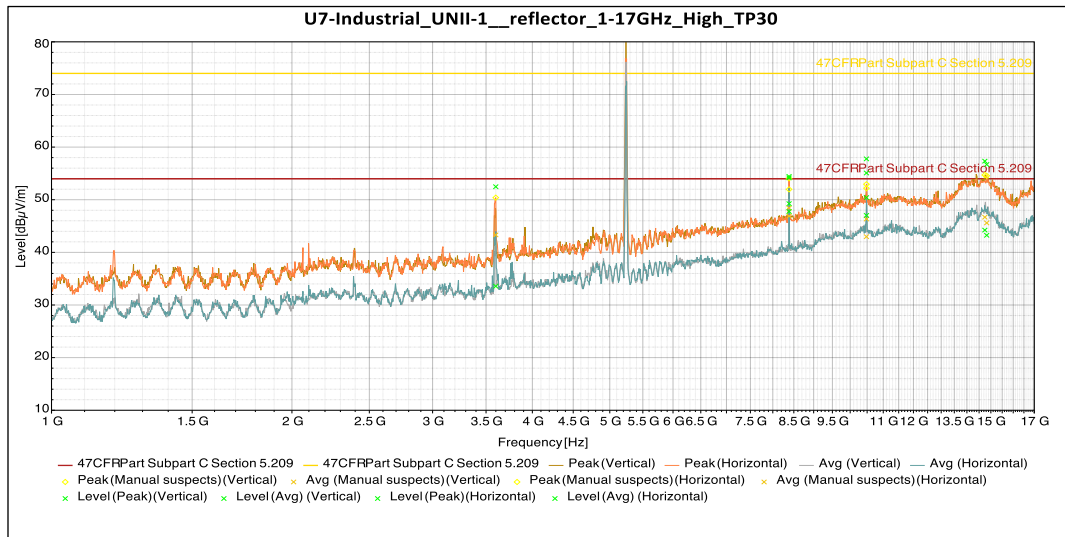
Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
8.34 GHz	48.47	74.0	-25.53	152	4	Vertical	1.27
10.42 GHz	52.09	74.0	-21.91	159	3.307	Vertical	6.74
14.34 GHz	55.36	74.0	-18.64	347	3.311	Vertical	11.11
3.60 GHz	55.08	74.0	-18.92	107	3.307	Horizontal	-10.27
8.34 GHz	47.83	74.0	-26.17	173	3.802	Horizontal	1.27
10.42 GHz	51.50	74.0	-22.50	84	3.802	Horizontal	6.74
14.75 GHz	56.40	74.0	-17.60	303	3.798	Horizontal	11.94

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
8.34 GHz	35.10	54.0	-18.90	152	4	Vertical	1.27
10.42 GHz	38.18	54.0	-15.82	159	3.307	Vertical	6.74
14.34 GHz	42.17	54.0	-11.83	347	3.311	Vertical	11.11
3.60 GHz	34.21	54.0	-19.79	107	3.307	Horizontal	-10.27
8.34 GHz	34.52	54.0	-19.48	173	3.802	Horizontal	1.27
10.42 GHz	38.02	54.0	-15.98	84	3.802	Horizontal	6.74
14.75 GHz	42.29	54.0	-11.70	303	3.798	Horizontal	11.94

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



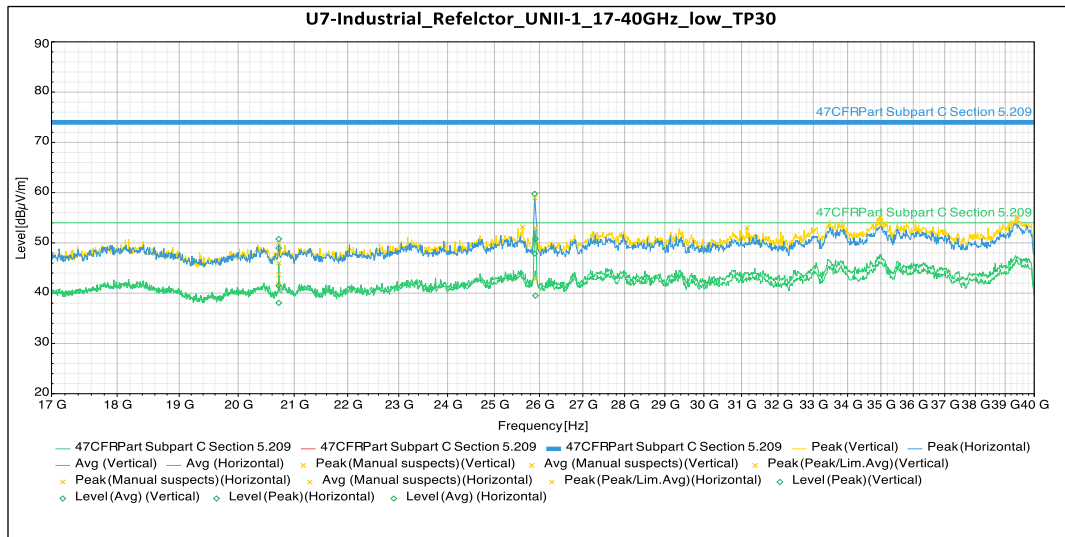
Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
8.38 GHz	54.16	74.0	-19.84	98	2.645	Vertical	1.37
10.48 GHz	55.08	74.0	-18.92	142	2.65	Vertical	6.87
14.74 GHz	57.33	74.0	-16.67	339	4	Vertical	11.91
3.60 GHz	52.47	74.0	-21.53	113	2.816	Horizontal	-10.27
8.38 GHz	54.43	74.0	-19.57	108	2.82	Horizontal	1.73
10.48 GHz	57.76	74.0	-16.24	93	2.82	Horizontal	6.87
14.82 GHz	56.69	74.0	-17.31	267	3.802	Horizontal	11.78

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
8.38 GHz	49.25	54.0	-4.75	98	2.645	Vertical	1.37
10.48 GHz	47.02	54.0	-6.98	142	2.65	Vertical	6.87
14.74 GHz	44.23	54.0	-9.77	339	4	Vertical	11.91
3.60 GHz	33.56	54.0	-20.44	113	2.816	Horizontal	-10.27
8.38 GHz	47.77	54.0	-6.23	108	2.82	Horizontal	1.73
10.48 GHz	50.41	54.0	-3.59	93	2.82	Horizontal	6.87
14.82 GHz	43.25	54.0	-10.75	267	3.802	Horizontal	11.78

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



Peak

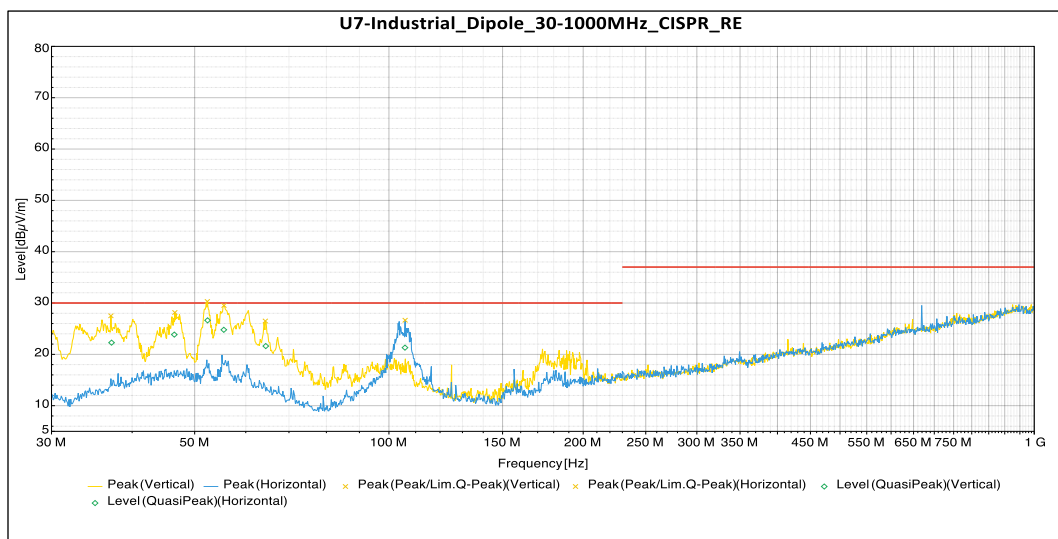
Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
20.72 GHz	48.96	74.0	-25.04	85	Vertical	-0.48
25.91 GHz	50.80	74.0	-23.20	124	Vertical	2.08
20.72 GHz	50.78	74.0	-23.22	105	Horizontal	-0.48
25.89 GHz	59.76	74.0	-14.24	97	Horizontal	2.18

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
20.72 GHz	38.06	54.0	-15.94	85	Vertical	-0.48
25.91 GHz	39.50	54.0	-14.50	124	Vertical	2.08
20.72 GHz	41.50	54.0	-12.50	105	Horizontal	-0.48
25.89 GHz	47.87	54.0	-6.13	97	Horizontal	2.18

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

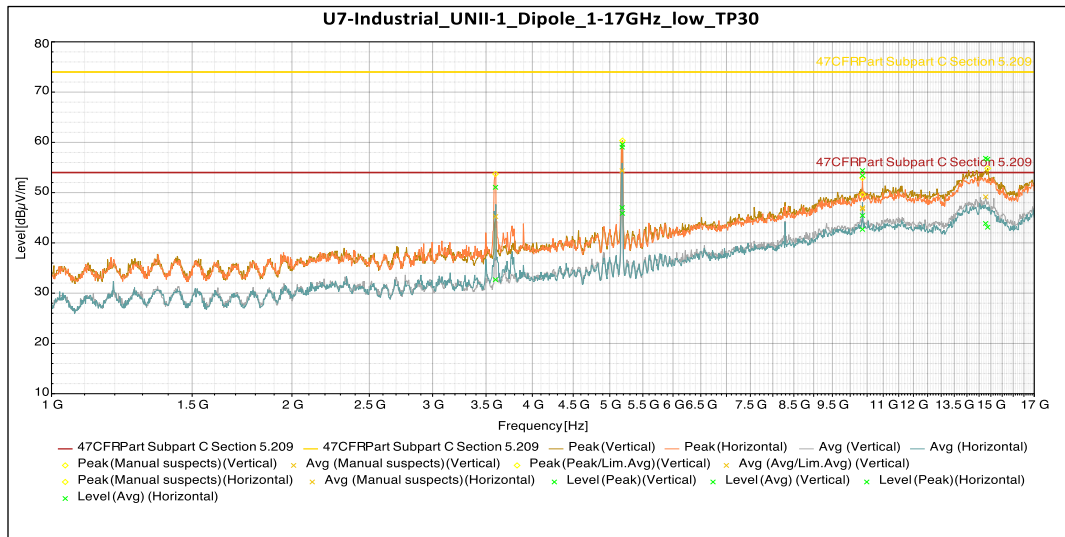
External Antenna



QuasiPeak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
37.17 MHz	22.28	30.0	-7.72	15	1.47	Vertical	-14.48
46.50 MHz	23.85	30.0	-6.15	18	3.35	Vertical	-12.03
52.35 MHz	26.63	30.0	-3.37	71	3.11	Vertical	-12.58
55.48 MHz	24.78	30.0	-5.22	339	3.12	Vertical	-13.19
64.44 MHz	21.61	30.0	-8.39	181	3.64	Vertical	-15.35
105.89 MHz	21.30	30.0	-8.70	330	3.88	Horizontal	-14.19

Table 9: Radiated Emissions 30 – 1000 MHz



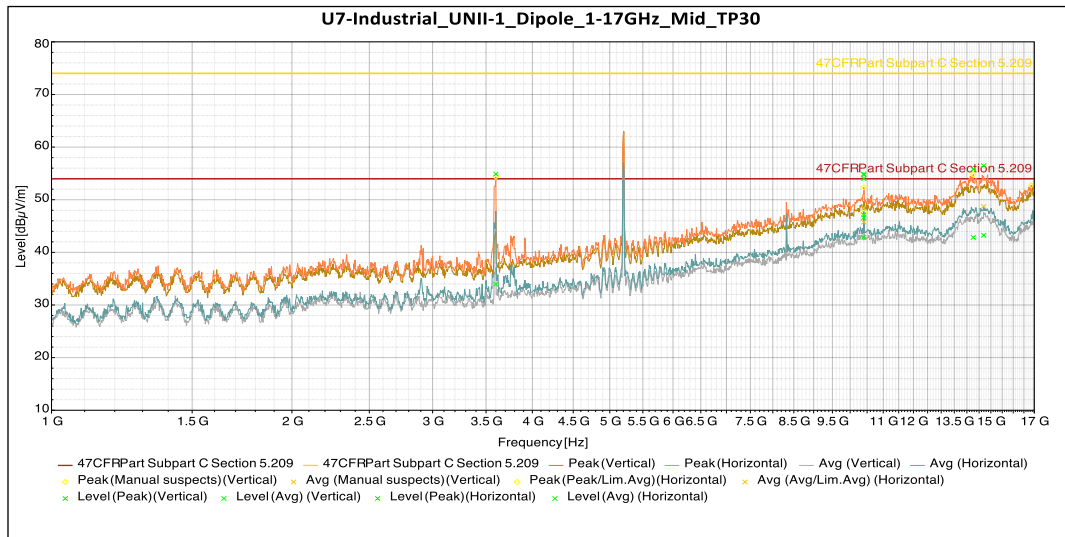
Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.36 GHz	53.38	74.0	-20.62	96	4	Vertical	6.71
14.78 GHz	56.84	74.0	-17.16	23	4	Vertical	11.91
14.86 GHz	56.64	74.0	-17.36	352	3.311	Vertical	11.88
3.60 GHz	51.06	74.0	-22.94	126	3.798	Horizontal	-10.28
10.36 GHz	54.39	74.0	-19.61	161	3.802	Horizontal	6.71

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.36 GHz	42.69	54.0	-11.31	96	4	Vertical	6.71
14.78 GHz	43.87	54.0	-10.13	23	4	Vertical	11.91
14.86 GHz	43.12	54.0	-10.88	352	3.311	Vertical	11.88
3.60 GHz	32.68	54.0	-21.32	126	3.798	Horizontal	-10.28
10.36 GHz	45.44	54.0	-8.56	161	3.802	Horizontal	6.71

Table 10: Radiated Emissions 1 – 17 GHz at the Lowest Frequency



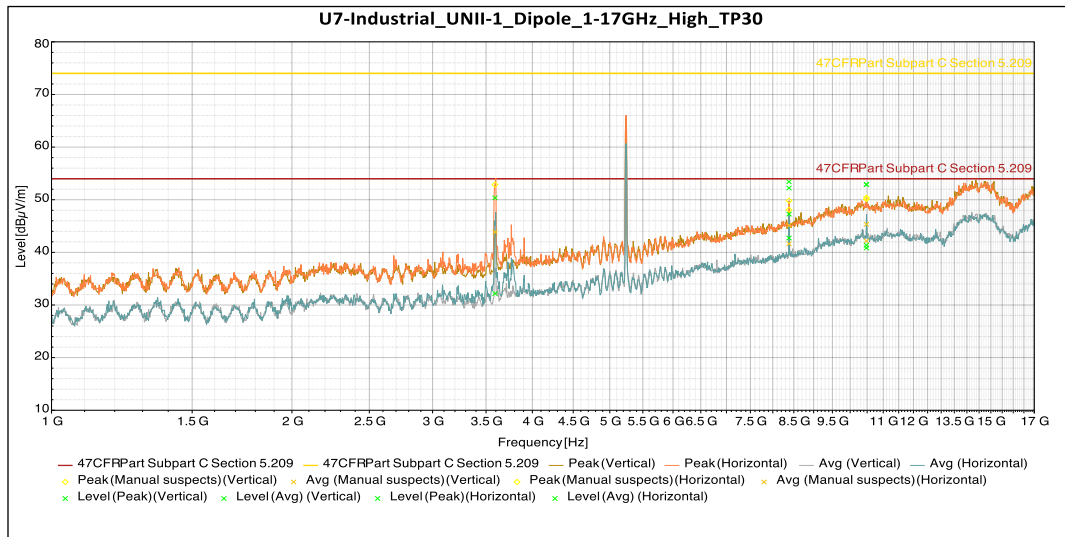
Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.40 GHz	54.00	74.0	-20.00	231	3.311	Vertical	6.67
3.60 GHz	54.89	74.0	-19.11	54	3.307	Horizontal	-10.27
10.40 GHz	54.74	74.0	-19.26	141	1.838	Horizontal	6.67
14.26 GHz	55.83	74.0	-18.17	77	3.657	Horizontal	11.20
14.69 GHz	56.47	74.0	-17.53	119	3.802	Horizontal	11.93

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.40 GHz	42.87	54.0	-11.13	231	3.311	Vertical	6.67
3.60 GHz	33.93	54.0	-20.07	54	3.307	Horizontal	-10.27
10.40 GHz	47.09	54.0	-6.91	141	1.838	Horizontal	6.67
14.26 GHz	42.84	54.0	-11.16	77	3.657	Horizontal	11.20
14.69 GHz	43.25	54.0	-10.75	119	3.802	Horizontal	11.93

Table 11: Radiated Emissions 1 – 17 GHz at the Middle Frequency



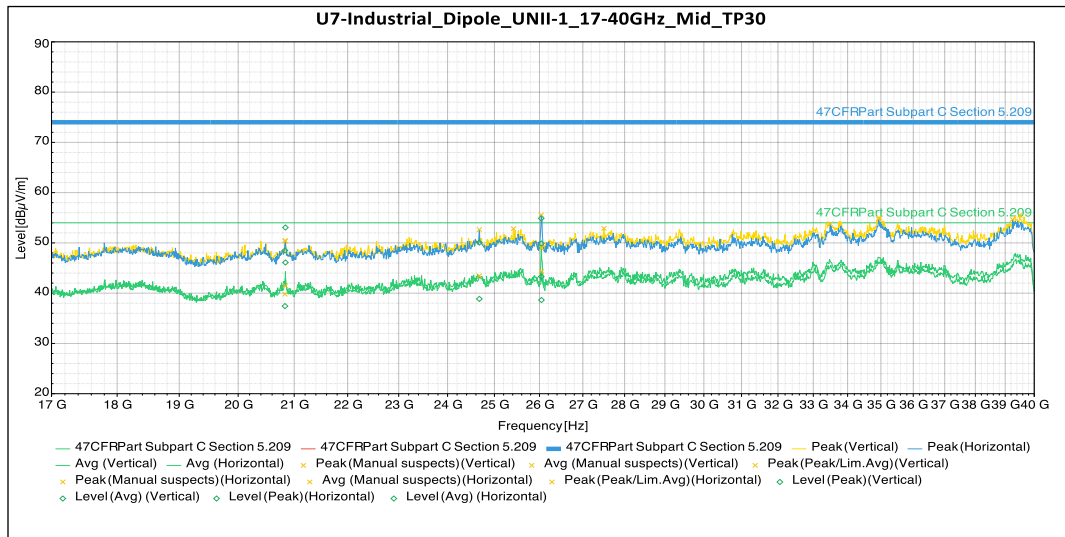
Peak

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
8.38 GHz	52.21	74.0	-21.79	126	4	Vertical	1.37
10.48 GHz	52.87	74.0	-21.13	338	3.802	Vertical	6.87
3.59 GHz	50.37	74.0	-23.63	117	3.802	Horizontal	-10.29
8.38 GHz	53.41	74.0	-20.59	116	3.802	Horizontal	1.37
10.48 GHz	52.91	74.0	-21.09	90	3.802	Horizontal	6.87

Avg

Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
8.38 GHz	42.72	54.0	-11.28	126	4	Vertical	1.37
10.48 GHz	41.36	54.0	-12.64	338	3.802	Vertical	6.87
3.59 GHz	32.16	54.0	-21.84	117	3.802	Horizontal	-10.29
8.38 GHz	47.27	54.0	-6.73	116	3.802	Horizontal	1.37
10.48 GHz	40.84	54.0	-13.16	90	3.802	Horizontal	6.87

Table 12: Radiated Emissions 1 – 17 GHz at the Highest Frequency



Peak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
20.83 GHz	48.49	74.0	-25.51	51	Vertical	0.05
26.04 GHz	49.88	74.0	-24.12	130	Vertical	0.39
20.84 GHz	53.06	74.0	-20.94	148	Horizontal	-0.04
24.67 GHz	50.06	74.0	-23.94	213	Horizontal	1.73
26.04 GHz	54.88	74.0	-19.12	125	Horizontal	0.40

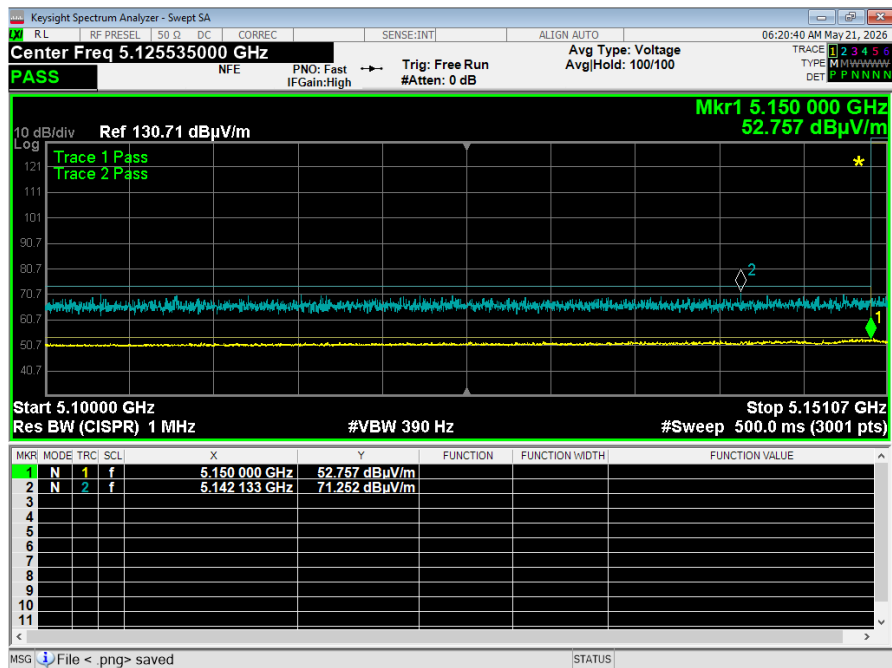
Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
20.83 GHz	37.43	54.0	-16.57	51	Vertical	0.05
26.04 GHz	38.63	54.0	-15.37	130	Vertical	0.39
20.84 GHz	46.10	54.0	-7.90	148	Horizontal	-0.04
24.67 GHz	38.86	54.0	-15.14	213	Horizontal	1.73
26.04 GHz	43.29	54.0	-10.71	125	Horizontal	0.40

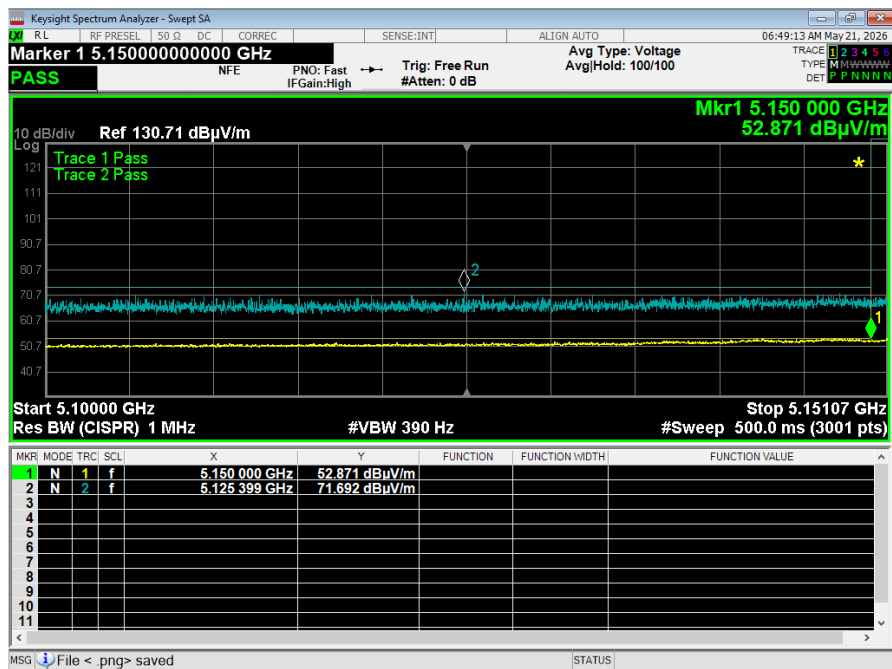
Table 13: Radiated Emissions 17 – 40 GHz at the Middle Frequency (worse case)

5.5.2 Band Edge

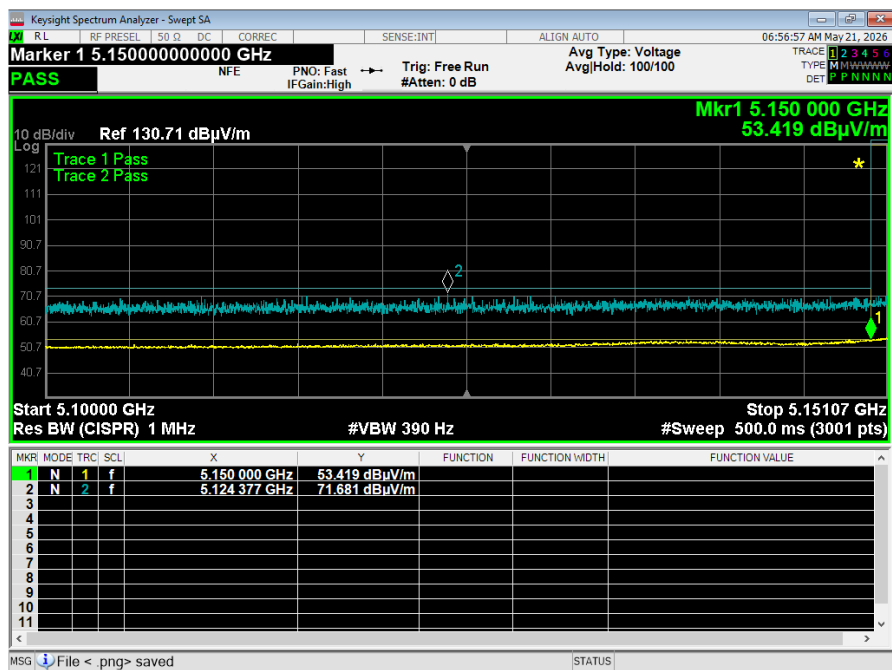
Internal Antenna



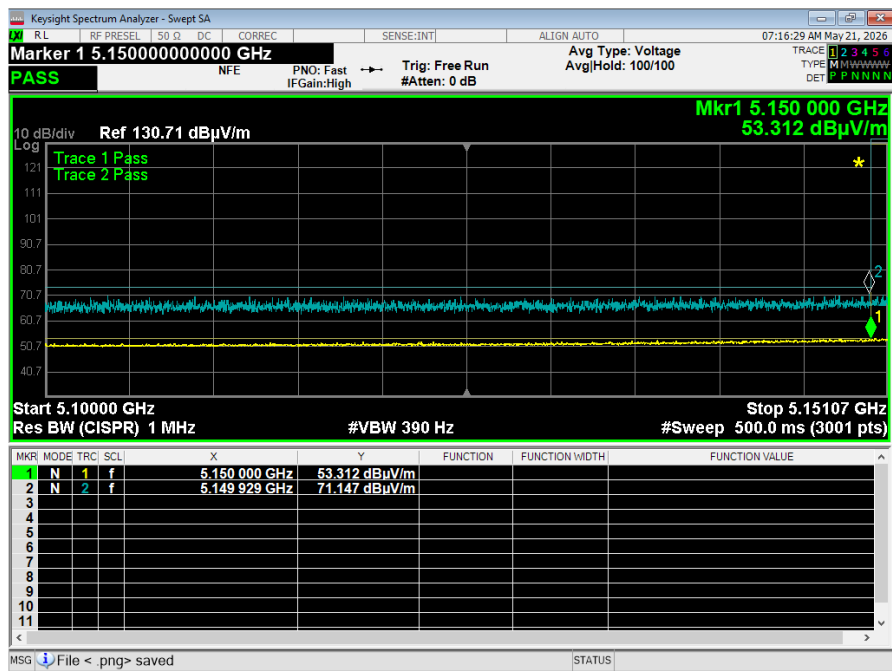
Graph 3: Band Edge Low a Mode 20 MHz



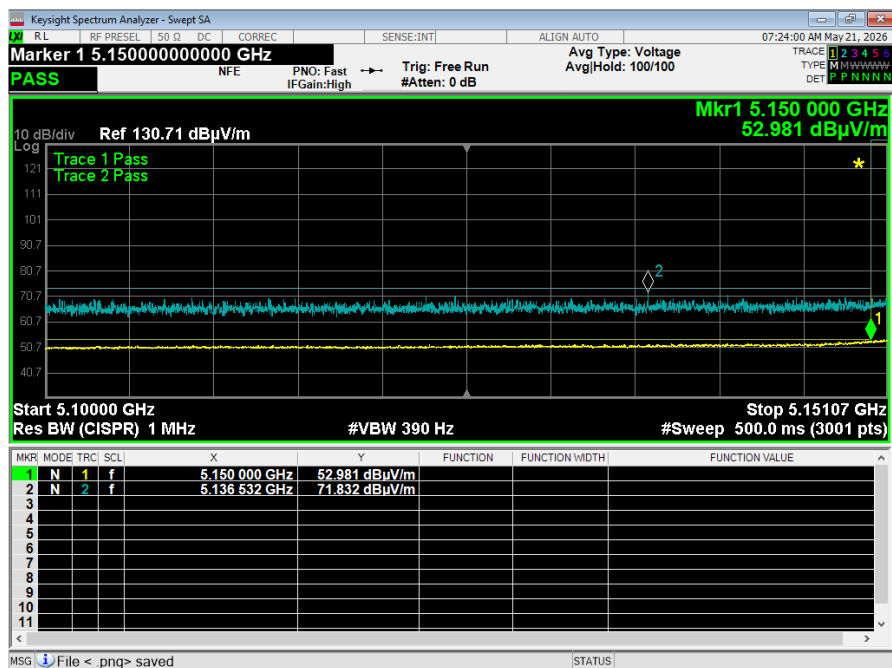
Graph 4: Band Edge High a Mode 20 MHz



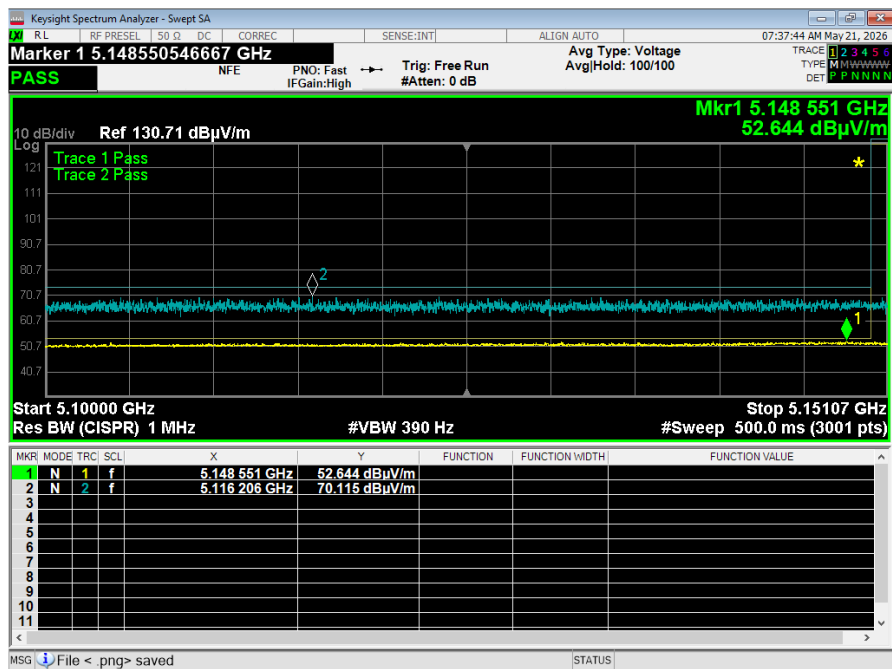
Graph 5: Band Edge Low be Mode 20 MHz



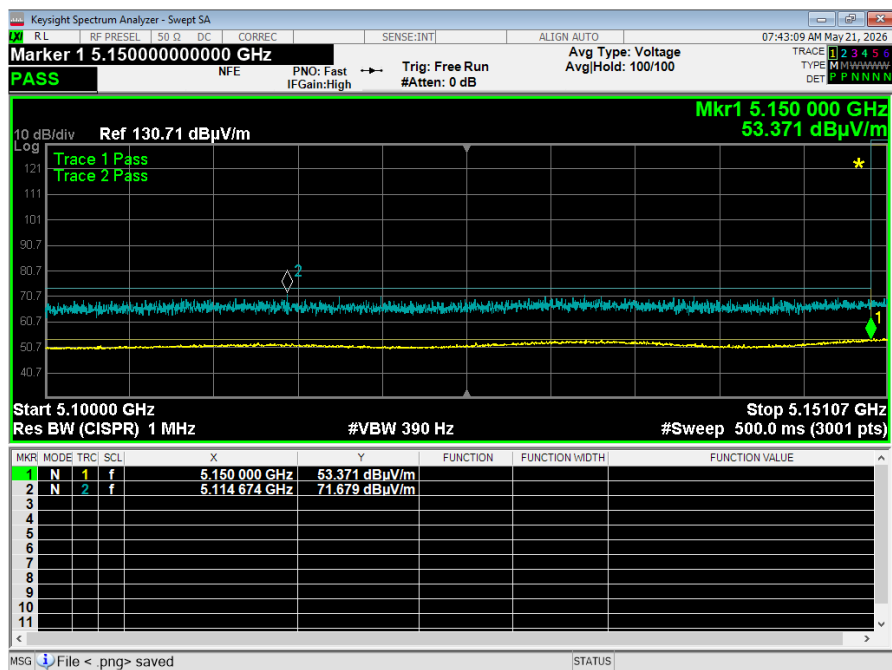
Graph 6: Band Edge High be Mode 20 MHz



Graph 7: Band Edge Low be Mode 40 MHz

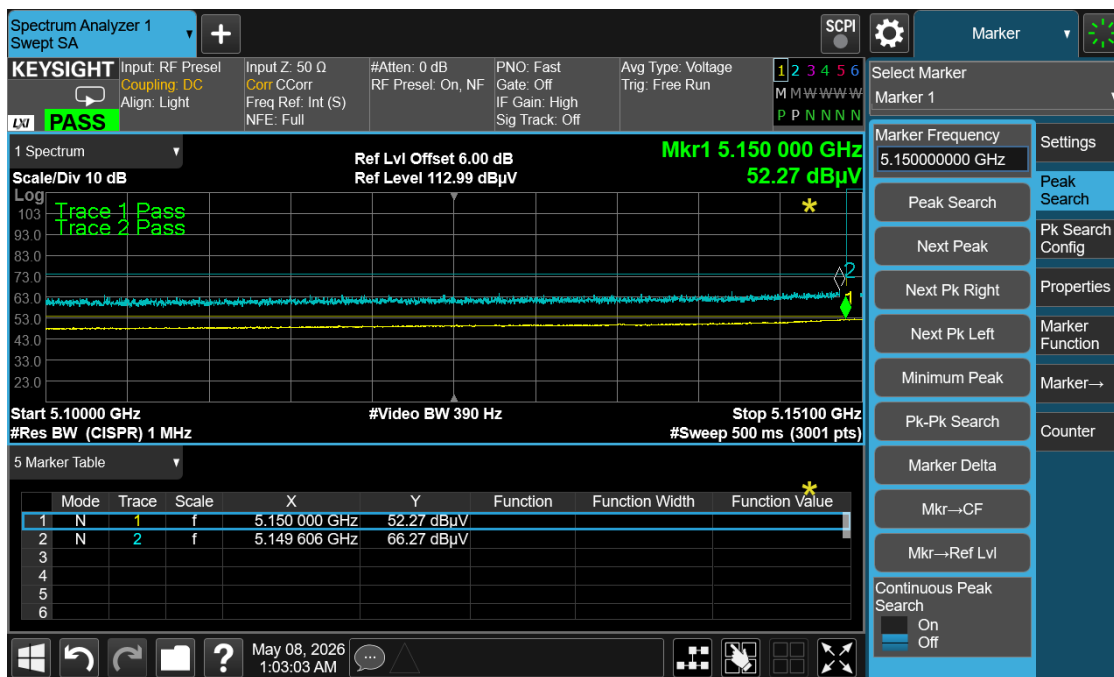


Graph 8: Band Edge High be Mode 40 MHz

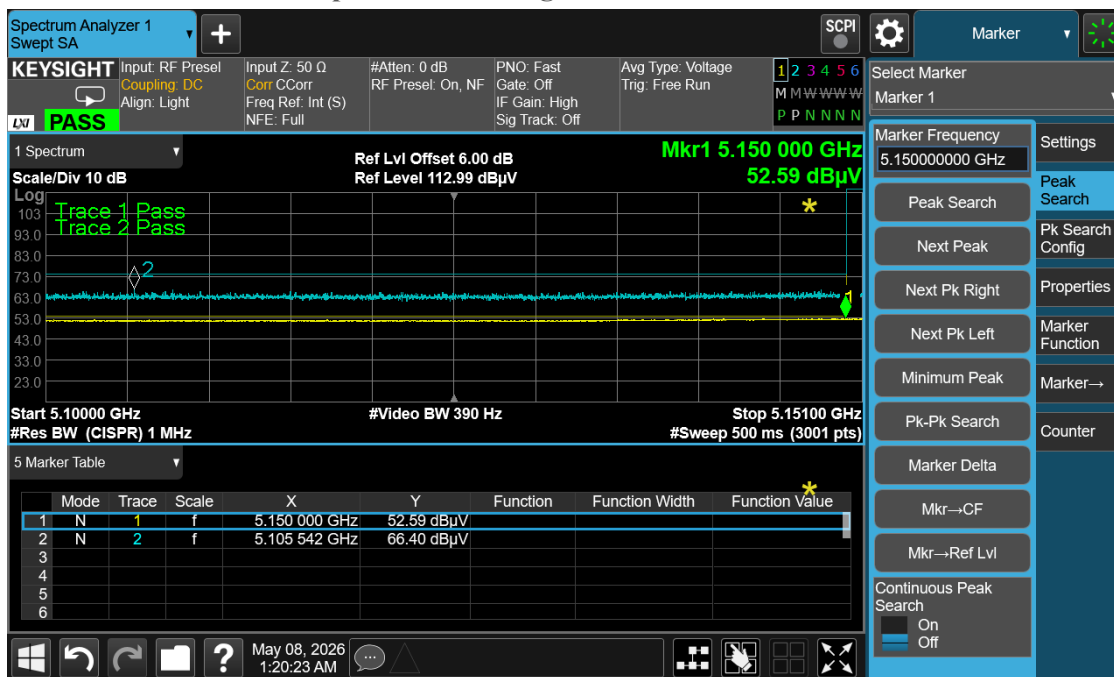


Graph 9: Band Edge be Mode 80 MHz

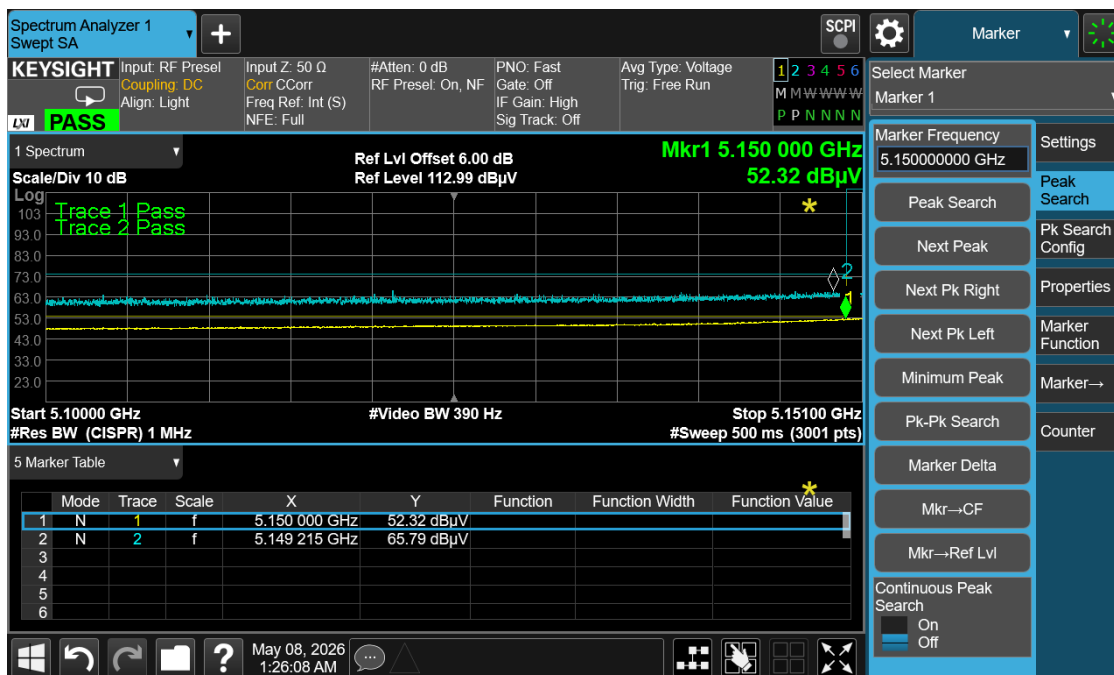
External Antenna



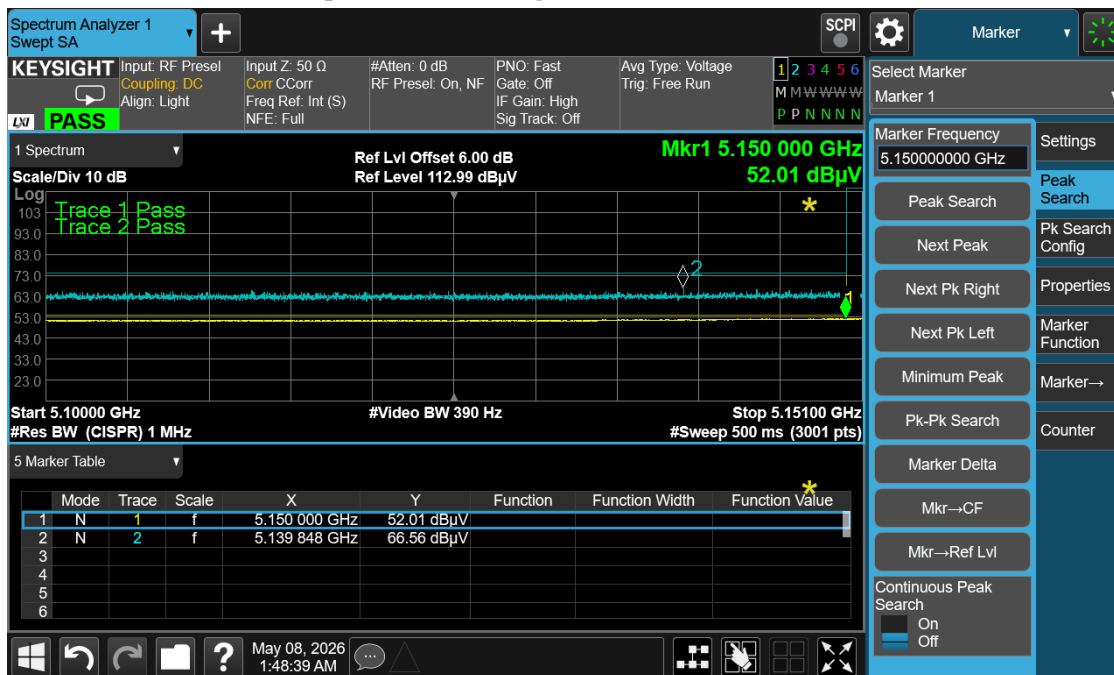
Graph 10: Band Edge Low a Mode 20 MHz



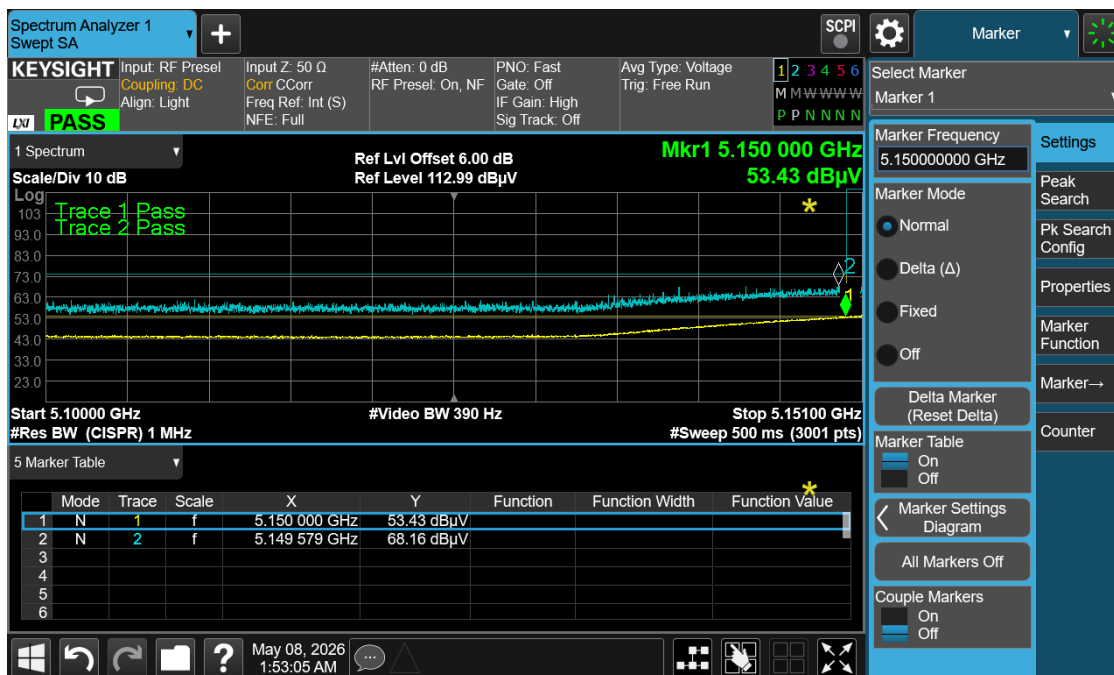
Graph 11: Band Edge High a Mode 20 MHz



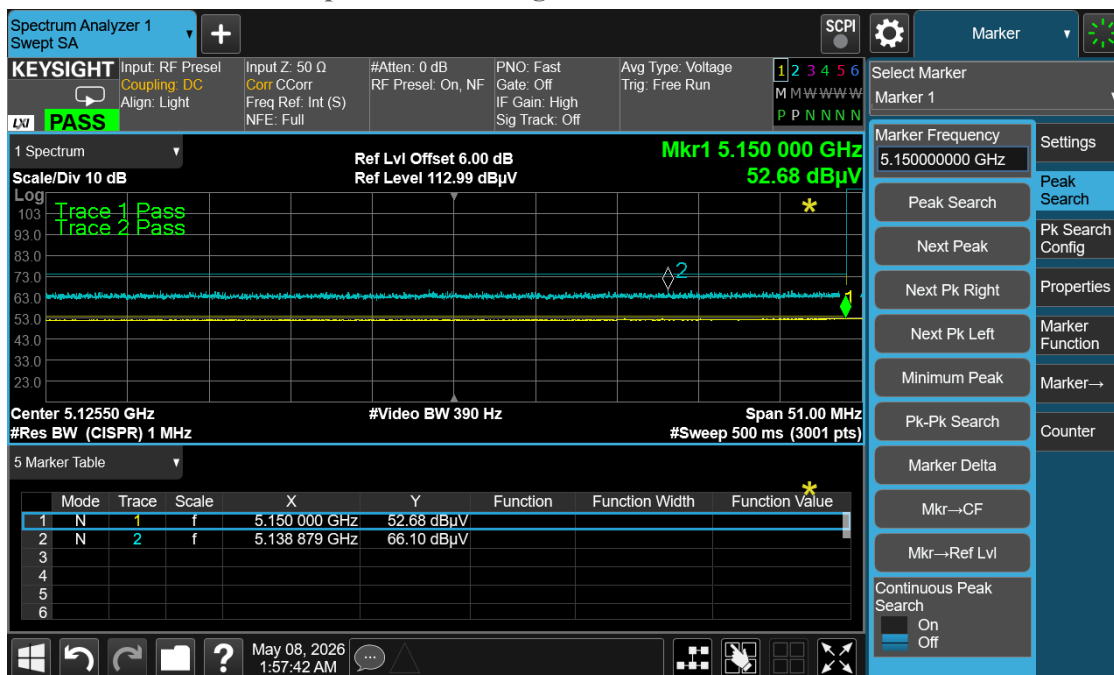
Graph 12: Band Edge Low be Mode 20 MHz



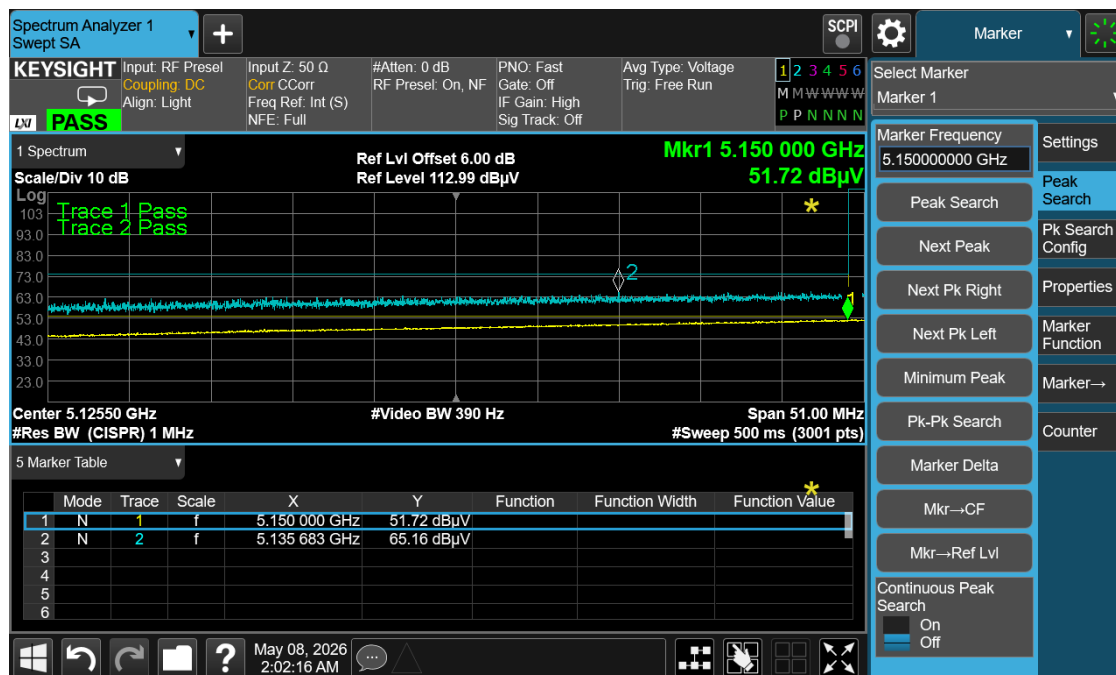
Graph 13: Band Edge High be Mode 20 MHz



Graph 14: Band Edge Low be Mode 40 MHz



Graph 15: Band Edge High be Mode 40 MHz



Graph 16: Band Edge be Mode 80 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 662911 D01. Please see associated annex for details on instrument settings.

The maximum average power spectral density conducted from the intentional radiator of the antenna shall not be greater than 17 dBm in any 1 MHz band during any time interval of continuous transmission.

See Section 2.2 for directional gain calculation.

Results of this testing are summarized.

5.6.1 Internal Antenna 12 dBi

Nss>1

Modulation (BW)	Freq. (MHz)	Data Rate	TP Setting	Total Sum PSD EIRP (dBm)	Antenna Gain (dBi)	Limit (dBm)	Margin (dBm)
OFDM 20	5180	Mcs0_Nss2	18	9.56	12	11	-1.44
OFDM 20	5210	Mcs0_Nss2	19	10.68	12	11	-0.32
OFDM 20	5240	Mcs0_Nss2	19	10.32	12	11	-0.68
EHT 20	5180	Mcs0_Nss2	19	10.08	12	11	-0.92
EHT 20	5210	Mcs0_Nss2	19	10.12	12	11	-0.88
EHT 20	5240	Mcs0_Nss2	20	10.76	12	11	-0.24
EHT 40	5190	Mcs0_Nss2	15	3.12	12	11	-7.88
EHT 40	5230	Mcs0_Nss2	19	7.49	12	11	-3.51
EHT 80	5180	Mcs0_Nss2	14	-0.29	12	11	-11.29

Nss=1

Modulation (BW)	Freq. (MHz)	Data Rate	TP Setting	Total Sum PSD EIRP (dBm)	Antenna Gain (dBi)	Limit (dBm)	Margin (dBm)
OFDM 20	5180	Mcs0_Nss1	10	1.56	12	1.99	-0.43
OFDM 20	5210	Mcs0_Nss1	9	0.68	12	1.99	-1.31
OFDM 20	5240	Mcs0_Nss1	10	1.32	12	1.99	-0.67
EHT 20	5180	Mcs0_Nss1	10	1.08	12	1.99	-0.91
EHT 20	5210	Mcs0_Nss1	10	1.12	12	1.99	-0.87
EHT 20	5240	Mcs0_Nss1	12	2.76	12	1.99	0.77
EHT 40	5190	Mcs0_Nss1	13	1.12	12	1.99	-0.87
EHT 40	5230	Mcs0_Nss1	13	1.49	12	1.99	-0.50
EHT 80	5180	Mcs0_Nss1	14	-0.29	12	1.99	-2.28

5.6.2 Internal Antenna 10 dBi
Nss>1

Modulation (BW)	Freq. (MHz)	Data Rate	TP Setting	Total Sum PSD EIRP (dBm)	Antenna Gain (dBi)	Limit (dBm)	Margin (dBm)
OFDM 20	5180	Mcs0_Nss2	19	11.03	10	13	-1.97
OFDM 20	5210	Mcs0_Nss2	21	12.75	10	13	-0.25
OFDM 20	5240	Mcs0_Nss2	21	12.92	10	13	-0.08
EHT 20	5180	Mcs0_Nss2	19	10.47	10	13	-2.53
EHT 20	5210	Mcs0_Nss2	22	12.90	10	13	-0.10
EHT 20	5240	Mcs0_Nss2	22	12.98	10	13	-0.02
EHT 40	5190	Mcs0_Nss2	15	3.62	10	13	-9.38
EHT 40	5230	Mcs0_Nss2	20	9.00	10	13	-4.00
EHT 80	5180	Mcs0_Nss2	16	1.55	10	13	-11.45

Nss=1

Modulation (BW)	Freq. (MHz)	Data Rate	TP Setting	Total Sum PSD EIRP (dBm)	Antenna Gain (dBi)	Limit (dBm)	Margin (dBm)
OFDM 20	5180	Mcs0_Nss1	13	5.03	10	5.99	-0.96
OFDM 20	5210	Mcs0_Nss1	14	5.75	10	5.99	-0.24
OFDM 20	5240	Mcs0_Nss1	14	5.92	10	5.99	-0.07
EHT 20	5180	Mcs0_Nss1	14	5.47	10	5.99	-0.52
EHT 20	5210	Mcs0_Nss1	15	5.90	10	5.99	-0.09
EHT 20	5240	Mcs0_Nss1	15	5.98	10	5.99	-0.01
EHT 40	5190	Mcs0_Nss1	15	3.62	10	5.99	-2.37
EHT 40	5230	Mcs0_Nss1	16	5.00	10	5.99	-0.99
EHT 80	5180	Mcs0_Nss1	16	1.55	10	5.99	-4.44

5.6.3 External Antenna
Nss>1

Modulation (BW)	Freq. (MHz)	Data Rate	TP Setting	Total Sum PSD EIRP (dBm)	Antenna Gain (dBi)	Limit (dBm)	Margin (dBm)
OFDM 20	5180	Mcs0_Nss2	22	12.31	6	17	-4.69
OFDM 20	5210	Mcs0_Nss2	26	15.33	6	17	-1.67
OFDM 20	5240	Mcs0_Nss2	27	16.20	6	17	-0.80
EHT 20	5180	Mcs0_Nss2	21	10.75	6	17	-6.25
EHT 20	5210	Mcs0_Nss2	26	14.55	6	17	-2.45
EHT 20	5240	Mcs0_Nss2	27	15.21	6	17	-1.79
EHT 40	5190	Mcs0_Nss2	21	8.19	6	17	-8.81
EHT 40	5230	Mcs0_Nss2	24	10.99	6	17	-6.01
EHT 80	5180	Mcs0_Nss2	21	4.63	6	17	-12.37

Nss=1

Modulation (BW)	Freq. (MHz)	Data Rate	TP Setting	Total Sum PSD EIRP (dBm)	Antenna Gain (dBi)	Limit (dBm)	Margin (dBm)
OFDM 20	5180	Mcs0_Nss1	22	12.31	6	13.99	-1.68
OFDM 20	5210	Mcs0_Nss1	24	13.33	6	13.99	-0.66
OFDM 20	5240	Mcs0_Nss1	24	13.20	6	13.99	-0.79
EHT 20	5180	Mcs0_Nss1	21	10.75	6	13.99	-3.24
EHT 20	5210	Mcs0_Nss1	25	13.35	6	13.99	-0.64
EHT 20	5240	Mcs0_Nss1	25	13.21	6	13.99	-0.78
EHT 40	5190	Mcs0_Nss1	21	8.19	6	13.99	-5.80
EHT 40	5230	Mcs0_Nss1	24	10.99	6	13.99	-3.00
EHT 80	5180	Mcs0_Nss1	21	4.63	6	13.99	-9.36

Result

The maximum summed average power spectral density was less than the limit of 17 dBm (adjusted limits of 11 dBm and 13 dBm for the internal antennas and the associated Nss1 limits); therefore, the EUT complies with the specification.

-- End of Test Report --