



427 West 12800 South
 Draper, UT 84020

Test Report Certification

FCC ID	SWX-U6IWR
ISED ID	6545A-U6IWR
Equipment Under Test	U6-IW
Test Report Serial Number	TR6352_01
Date of Tests	4-5, 10-12, 16 August 2021
Report Issue Date	27 August 2021

Test Specification	Applicant
47 CFR FCC Part 15, Subpart E	Ubiquiti Inc. 685 Third Avenue New York, NY 10019 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	UniFi
Model Number	U6-IW
FCC ID	SWX-U6IWR
ISED ID	6545A-U6IWR

On this 27th day of August 2021, I individually and for Unified Compliance Laboratory certify that the statements made in this engineering report are true, complete, and correct to the best of my knowledge and are made in good faith.

Although NVLAP has accredited the Unified Compliance Laboratory testing facilities, this report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the U.S. federal government.

Unified Compliance Laboratory



Written By: Kimberly Rodriguez



Reviewed By: Joseph W. Jackson

Revision History		
Revision	Description	Date
01	Original Report Release	27 August 2021

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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	Mark Feil
Title	Compliance Manager

1.2 Manufacturer

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

2 Equipment Under Test (EUT)

2.1 Identification of EUT

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

2.2 Description of EUT

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

Band	WiFi Mode	Modulation Bandwidth	Modulation Type	Frequency (MHz)
UNII-1	a	20 MHz	OFDM	5180, 5200, 5210, 5240
	n	20 MHz	HT	5180, 5200, 5210, 5240
	n	40 MHz	HT	5190, 5230
	ac	20 MHz	VHT	5180, 5200, 5210, 5240
	ac	40 MHz	VHT	5190, 5230
	ac	80 MHz	VHT	5210
	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
BN: UniFi MN: U6-IW SN: 68D79A1F4699	Wifi Access Point	See section 2.4
BN: Ubiquiti MN: UVC G3 Flex SN: N/A	Video Camera	Shielded or Un-Shielded Cat 5e cable (Note 2)
BN: Ubiquiti MN: U-POE-at SN: N/A	PoE Power Adapter	Shielded or Un-Shielded Cat 5e cable (Note 2)
BN: Dell MN: XPS 13 SN: N/A	Laptop Personal Computer	Shielded or Un-Shielded Cat 5e cable (Note 2)

Notes: (1) EUT

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

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

2.4 Interface Ports on EUT

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

2.5 Operating Environment

Power Supply	120 Volts AC
AC Mains Frequency	60 Hz
Temperature	24.6 – 26.7 °C
Humidity	36.3 – 43.9 %
Barometric Pressure	1017 mBar

2.6 Operating Modes

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

2.7 EUT Exercise Software

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

2.8 Block Diagram of Test Configuration

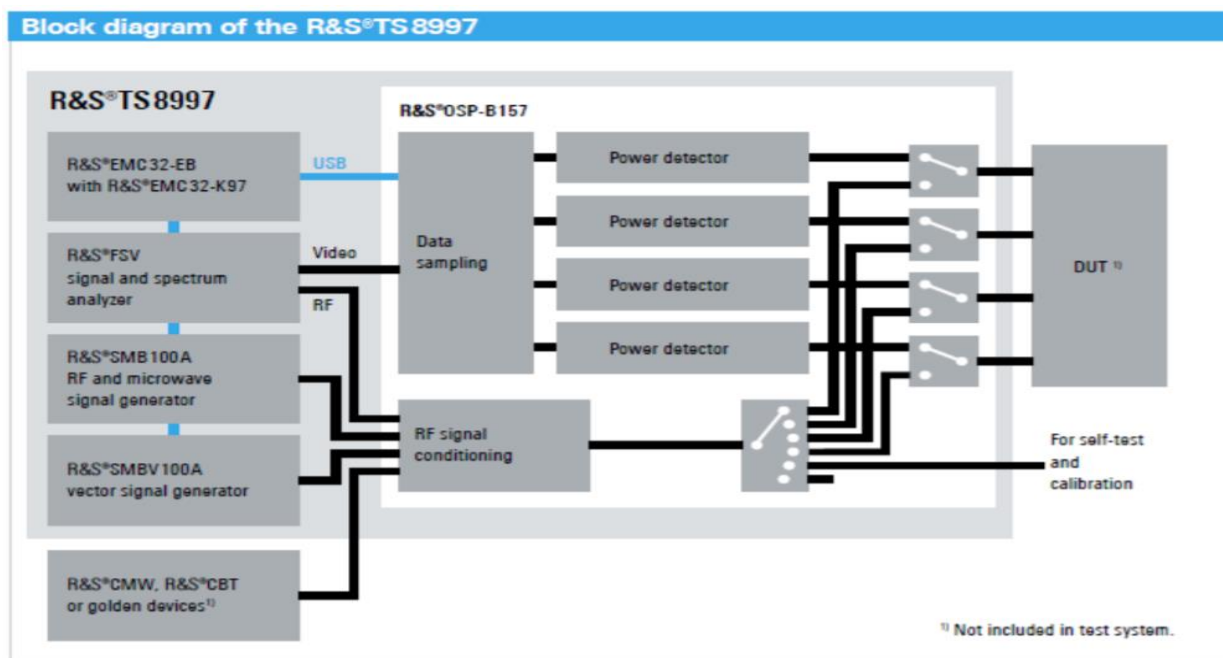


Diagram 1: Test Configuration Block Diagram

2.9 Modification Incorporated/Special Accessories on EUT

There were no modifications made to the EUT during testing to comply with the specification.

2.10 Deviation, Opinions Additional Information or Interpretations from Test Standard

There were no deviations, opinions, additional information or interpretations from the test specification.

3 Test Specification, Method and Procedures

3.1 Test Specification

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 5240	Compliant
15.407(e)	RSS-247 §6.2.2, §6.2.3	Peak Output Power	5180 to 5240	Compliant
15.407(f)	RSS-247 §6.2.2, §6.2.3	Antenna Conducted Spurious Emissions	0.009 to 40000	Compliant
15.407(g)	RSS-247 §6.2.2, §6.2.3	Radiated Spurious Emissions	0.009 to 40000	Compliant
15.407(h)	RSS-247 §6.2.2, §6.2.3	Peak Power Spectral Density	5180 to 5240	Compliant

The testing was performed according to the procedures in ANSI C63.10-2013, KDB 789033 and 47 CFR Part 15. Where applicable, KDB 662911 was followed to sum required measurements.

3.4 Results

In the configuration tested, the EUT complied with the requirements of the specification.

3.5 Test Location

Testing was performed at the Unified Compliance Laboratory 3-meter and 10-meter chambers located at 427 West 12800 South, Draper, UT 84020. Unified Compliance Laboratory is accredited by National Voluntary Laboratory Accreditation Program (NVLAP); NVLAP Code 600241-0 which is effective until 30 June 2022. This site has also been registered with Innovations, Science and Economic Development (ISED) department as was accepted under Appendix B, Phase 1 procedures of the APEC Tel MRA for Canadian recognition. ISED No.: 25346, effective until 30 June 2022. Unified Compliance Laboratory has been assigned Conformity Assessment Number US0223 by ISED.

4 Test Equipment

4.1 Conducted Emissions at Mains Ports

Type of Equipment	Manufacturer	Model Number	Asset Number	Date of Last Calibration	Due Date of Calibration
EMI Receiver	AFJ	FFT3010	UCL-2500	9/18/2020	9/17/2021
LISN	AFJ	LS16C/10	UCL-2512	5/26/2020	5/26/2022
Cat6 ISN	Teseq	ISN T8-Cat6	UCL-2971	5/18/2020	5/18/2022
ISN	Teseq	ISN T800	UCL-2974	6/4/2021	6/4/2022
LISN	Com-Power	LIN-120C	UCL-2612	5/19/2021	5/19/2022
AC Power Source	Laplace Instruments	AC1000A	UCL-2857	N/A	N/A
Test Software	UCL	Revision 1	UCL-3107	N/A	N/A

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

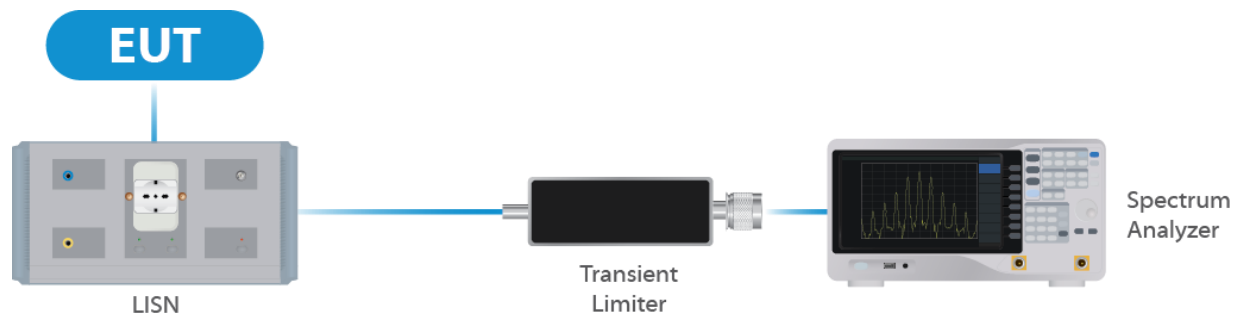


Figure 1: Conducted Emissions Test

4.2 Direct Connect at the Antenna Port Tests

Type of Equipment	Manufacturer	Model Number	Asset Number	Date of Last Calibration	Due Date of Calibration
Spectrum Analyzer	R&S	FSV40	UCL-2861	8/24/2020	8/24/2021
Signal Generator	R&S	SMB100A	UCL-2864	N/A	N/A
Vector Signal Generator	R&S	SMBV100A	UCL-2873	N/A	N/A
Switch Extension	R&S	OSP-B157WX	UCL-2867	9/8/2020	9/8/2021
Switch Extension	R&S	OSP-150W	UCL-2870	3/3/2021	3/3/2022

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

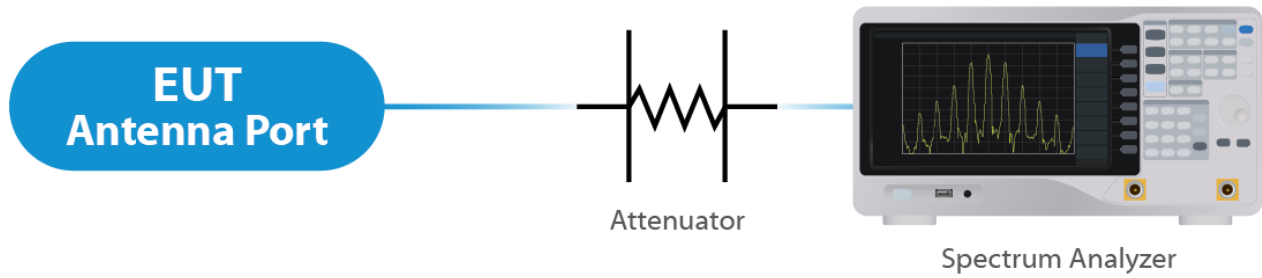


Figure 2: Direct Connect at the Antenna Port Test



Figure 3: Output Power Measurement

4.3 Radiated Emissions

Type of Equipment	Manufacturer	Model Number	Asset Number	Date of Last Calibration	Due Date of Calibration
EMI Receiver	Keysight	N9038A	UCL-2778	6/21/2021	6/21/2022
Pre-Amplifier 9 kHz – 1 GHz	Sonoma Instruments	310N	UCL-2889	9/10/2020	9/10/2021
Double Ridge Horn Antenna	Scwarzbeck	BBHA 9120D	UCL-3065	7/8/2021	7/8/2022
Log Periodic	Scwarzbeck	STLP 9129	UCL-3068	11/16/2020	11/16/2021
15 - 40 GHz Horn Antenna	Scwarzbeck	BBHA 9170	UCL-2487	5/21/2020	5/21/2022
1 – 18 GHz Amplifier	Com-Power	PAM 118A	UCL-3833	9/29/2020	9/29/2021
Test Software	UCL	Revision 1	UCL-3108	N/A	N/A

Table 3: List of equipment used for Radiated Emissions

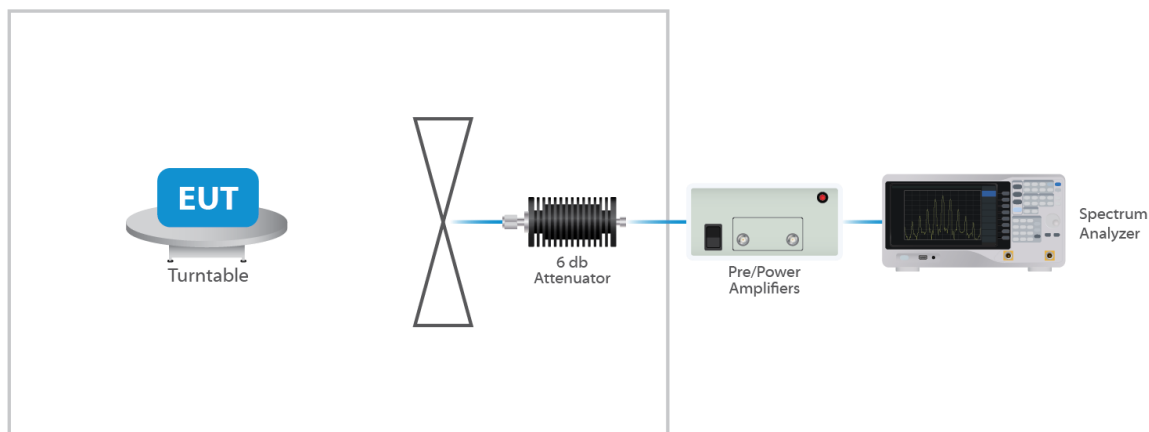


Figure 4: Radiated Emissions Test

4.4 Equipment Calibration

All applicable equipment is calibrated using either an independent calibration laboratory or Unified Compliance Laboratory personnel at intervals defined in ANSI C63.4:2014 following outlined calibration procedures. All measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST). Supporting documentation relative to traceability is on file and is available for examination upon request.

4.5 Measurement Uncertainty

Test	Uncertainty (\pm dB)	Confidence (%)
Conducted Emissions	1.44	95
Radiated Emissions (9 kHz to 30 MHz)	2.50	95
Radiated Emissions (30 MHz to 1 GHz)	4.38	95
Radiated Emissions (1 GHz to 18 GHz)	4.37	95
Radiated Emissions (18 GHz to 40 GHz)	3.93	95
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 integral antenna. The Maximum gain of the antenna per chain is 5.9 dBi. This is an 802.11 device and utilizes CDD as described in KDB 662911 D01. The antenna is not user replaceable.

For power measurements on IEEE 802.11 devices, Array Gain = 0 dB for NANT ≤ 4;

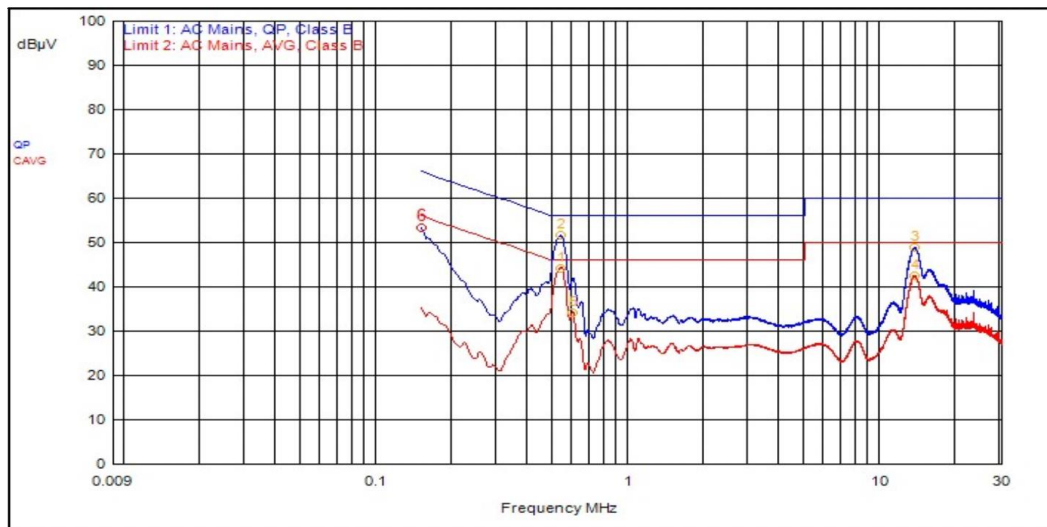
For PSD measurements when Nss=1: Array Gain = 10 log(Nant/Nss) dB = 6.02dB

Results

The EUT complied with the specification

5.2 Conducted Emissions at Mains Ports Data

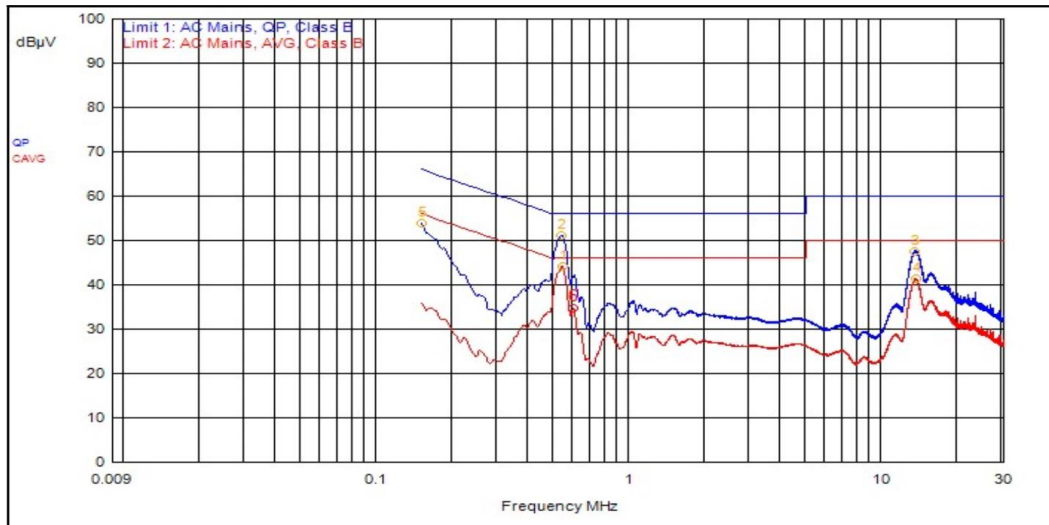
5.2.1 Line



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

Graph 1: Conducted Emissions Plot – Line

5.2.2 Neutral



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

Graph 2: Conducted Emissions Plot – Neutral

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)
a20	5180	16.60	19.40
a20	5210	16.70	20.70
a20	5240	17.00	34.70
n20	5180	17.70	21.00
n20	5210	17.90	25.90
n20	5240	17.90	25.40
n40	5190	36.25	39.00
n40	5230	36.25	39.00
ac20	5180	17.80	20.90
ac20	5210	18.00	22.30
ac20	5240	17.90	24.70
ac40	5190	36.00	39.00
ac40	5230	36.25	39.60
ac80	5210	75.50	82.50
ax20	5180	19.10	21.30
ax20	5210	19.10	22.60
ax20	5240	19.20	25.70
ax40	5190	35.75	39.75
ax40	5230	37.75	40.20
ax80	5210	77.50	81.50

Results

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

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

5.4 §15.403(a)(1) 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 27.16 dBm or 520.00 mW. 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 5.9 dBi.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Conducted Output Power	Measured EIRP	Measured PSD
OFDM 20	5180	Mcs0	37	22.25	28.15	8.08
OFDM 20	5210	Mcs0	44	25.52	31.42	11.4
OFDM 20	5240	Mcs0	47	27.03	32.93	12.81
HT 20	5180	Mcs0	38	22.49	28.39	7.36
HT 20	5210	Mcs0	47	26.81	32.71	11.55
HT 20	5240	Mcs0	47	26.97	32.87	11.66
HT 40	5190	Mcs0	34	20.82	26.72	2.65
HT 40	5230	Mcs0	42	24.87	30.77	6.66
VHT 20	5180	Mcs0	39	23.01	28.91	7.84
VHT 20	5210	Mcs0	47	26.77	32.67	11.58
VHT 20	5240	Mcs0	47	26.94	32.84	11.67
VHT 40	5190	Mcs0	34	20.82	26.72	2.7
VHT 40	5230	Mcs0	42	24.88	30.78	6.62
VHT 80	5210	Mcs0	32	19.55	25.45	-1.88
HE 20	5180	Mcs0	36	22.05	27.95	6.61
HE 20	5210	Mcs0	45	26.14	32.04	10.68
HE 20	5240	Mcs0	47	27.16	33.06	11.69
HE 40	5190	Mcs0	33	20.75	26.65	2.28
HE 40	5230	Mcs0	41	24.5	30.4	6.05
HE 80	5210	Mcs0	31	19.58	25.48	-1.89

Results

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

5.5 §15.407(b) Spurious Emissions

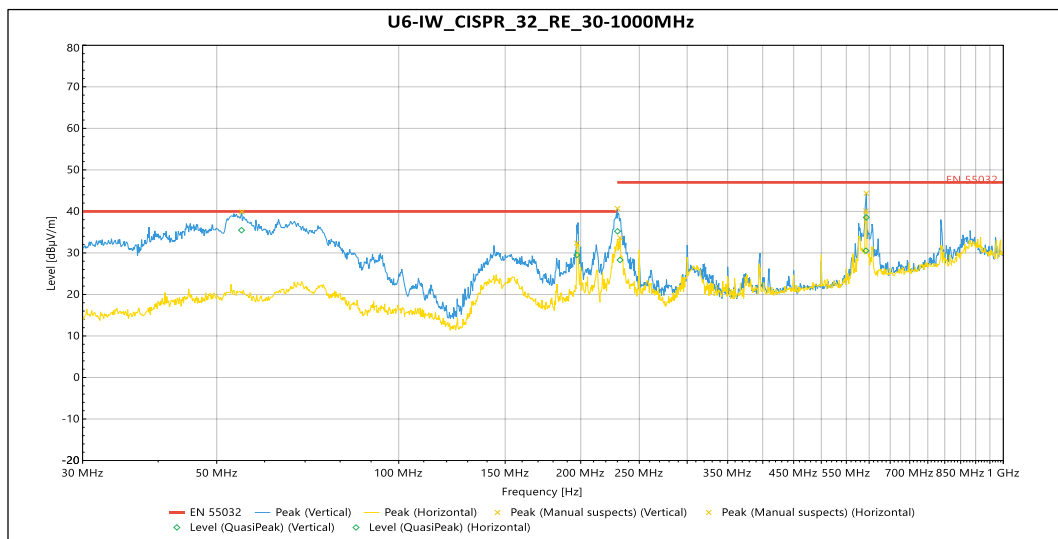
5.5.1 Radiated Spurious Emissions in the Restricted Bands of § 15.205

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 TP 27.16, 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 5240 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-amp Gain, and is added to the Receiver Reading

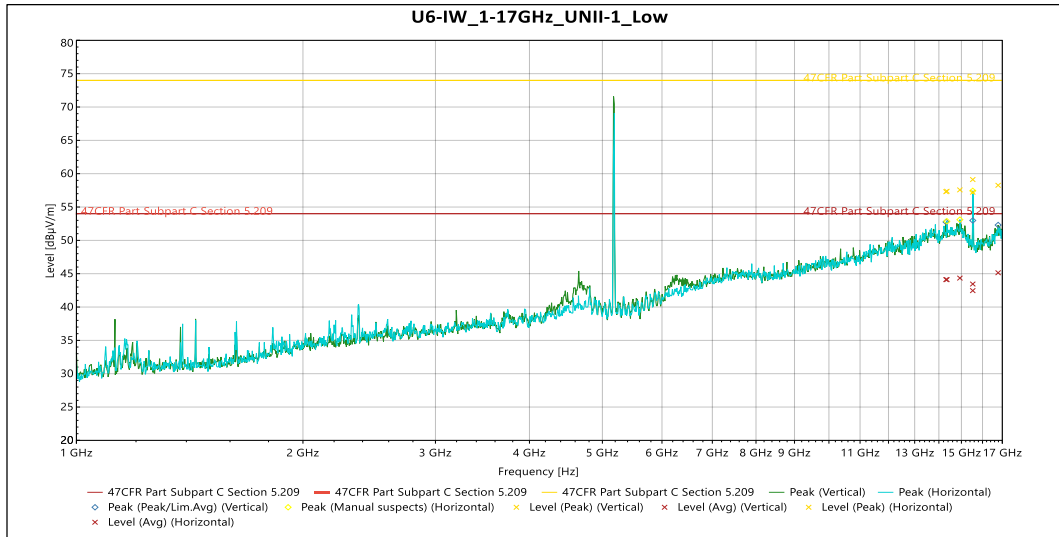
Results

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.

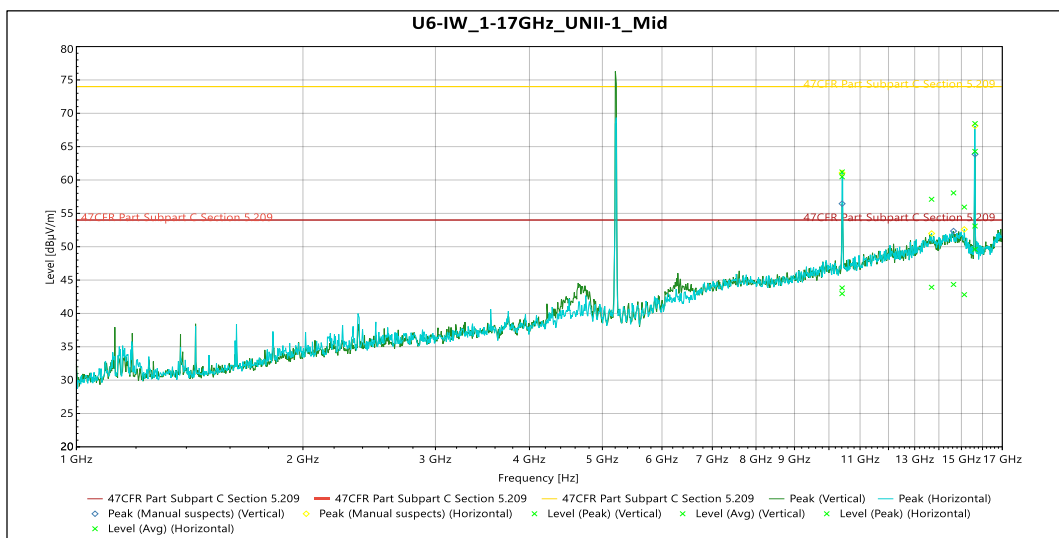


Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin	Azimuth (°)	Height	Pol.	Meas. Time	RBW	Meas. Time	Correction (dB)
QuasiPeak	54.959 MHz	35.471	40	-4.529	259	3.416	Vertical	15	120000	0.001	-12.73
QuasiPeak	230.09 MHz	35.209	47	-11.791	125	1.12	Vertical	15	120000	0.001	-13.498
QuasiPeak	593.54 MHz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

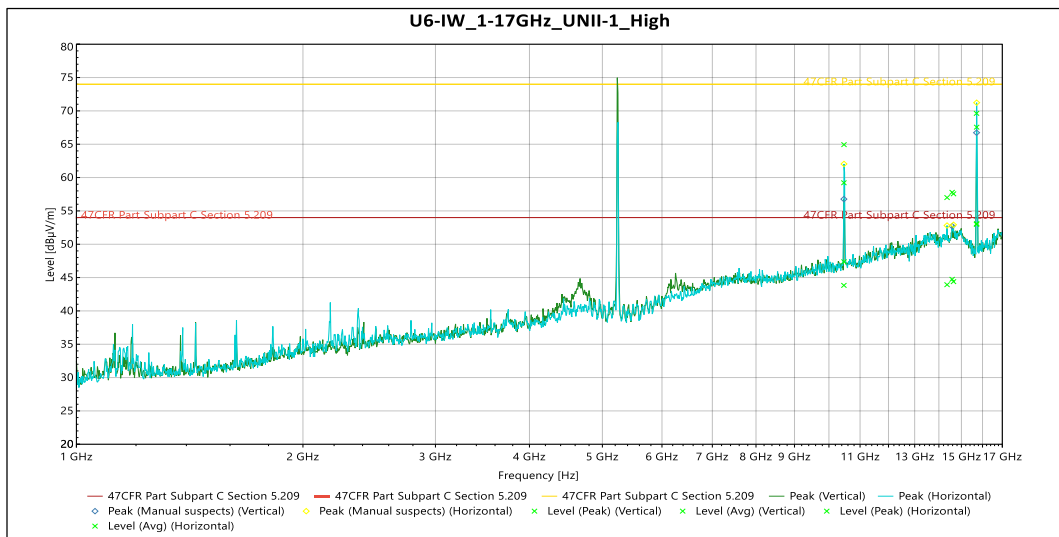
Table 4: Radiated Emissions 30-1000 MHz



Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Meas. Time (s)	RBW	Meas. Time	Correction (dB)
Peak	14.31 GHz	57.298	74	-16.702	2	3.806	Vertical	5	1000000	0	14.951
Peak	15.53 GHz	57.217	74	-16.783	20	3.804	Vertical	5	1000000	0	12.057
Peak	16.783 GHz	58.26	74	-15.74	266	1.5	Vertical	5	1000000	0	16.796
Avg	14.31 GHz	44.108	54	-9.892	2	3.806	Vertical	5	1000000	0	14.951
Avg	15.53 GHz	42.463	54	-11.537	20	3.804	Vertical	5	1000000	0	12.057
Avg	16.783 GHz	45.139	54	-8.861	266	1.5	Vertical	5	1000000	0	16.796
Peak	14.93 GHz	57.568	74	-16.432	173	2.052	Horizontal	5	1000000	0	15.126
Peak	15.53 GHz	59.124	74	-14.876	7	1.995	Horizontal	5	1000000	0	12.057
Avg	14.347 GHz	44.105	54	-9.895	233	2.928	Horizontal	5	1000000	0	14.931
Avg	14.93 GHz	44.337	54	-9.663	173	2.052	Horizontal	5	1000000	0	15.126
Avg	15.53 GHz	43.448	54	-10.552	7	1.995	Horizontal	5	1000000	0	12.057

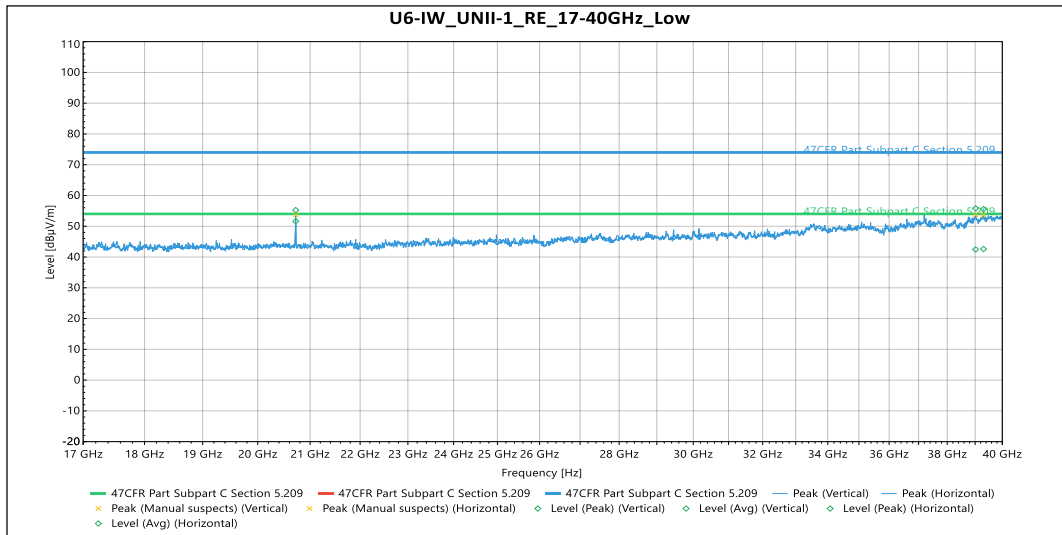
Table 5: Transmitting on the Lower Frequency 5180 MHz – 1 - 17 GHz


Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Meas. Time (s)	RBW	Meas.Time	Correction (dB)
Peak	10.412 GHz	60.479	74	-13.521	5	2.402	Vertical	5	1000000	0	9.97
Peak	14.642 GHz	58.064	74	-15.936	313	3.797	Vertical	5	1000000	0	15.124
Peak	15.638 GHz	68.462	74	-5.538	346	3.277	Vertical	5	1000000	0	11.912
Avg	10.412 GHz	42.961	54	-11.039	5	2.402	Vertical	5	1000000	0	9.97
Avg	14.642 GHz	44.337	54	-9.663	313	3.797	Vertical	5	1000000	0	15.124
Avg	15.638 GHz	53.1	54	-0.9	346	3.277	Vertical	5	1000000	0	11.912
Peak	10.412 GHz	61.215	74	-12.785	68	2.401	Horizontal	5	1000000	0	9.97
Peak	13.692 GHz	57.113	74	-16.887	156	3.073	Horizontal	5	1000000	0	14.679
Peak	15.133 GHz	55.936	74	-18.064	147	3.797	Horizontal	5	1000000	0	13.929
Peak	15.639 GHz	64.276	74	-9.724	45	1.5	Horizontal	5	1000000	0	11.905
Avg	10.412 GHz	43.824	54	-10.176	68	2.401	Horizontal	5	1000000	0	9.97
Avg	13.692 GHz	43.918	54	-10.082	156	3.073	Horizontal	5	1000000	0	14.679
Avg	15.133 GHz	42.812	54	-11.188	147	3.797	Horizontal	5	1000000	0	13.929
Avg	15.639 GHz	49.612	54	-4.388	45	1.5	Horizontal	5	1000000	0	11.905

Table 6: Transmitting on the Middle Frequency 5210 MHz – 1 - 17 GHz


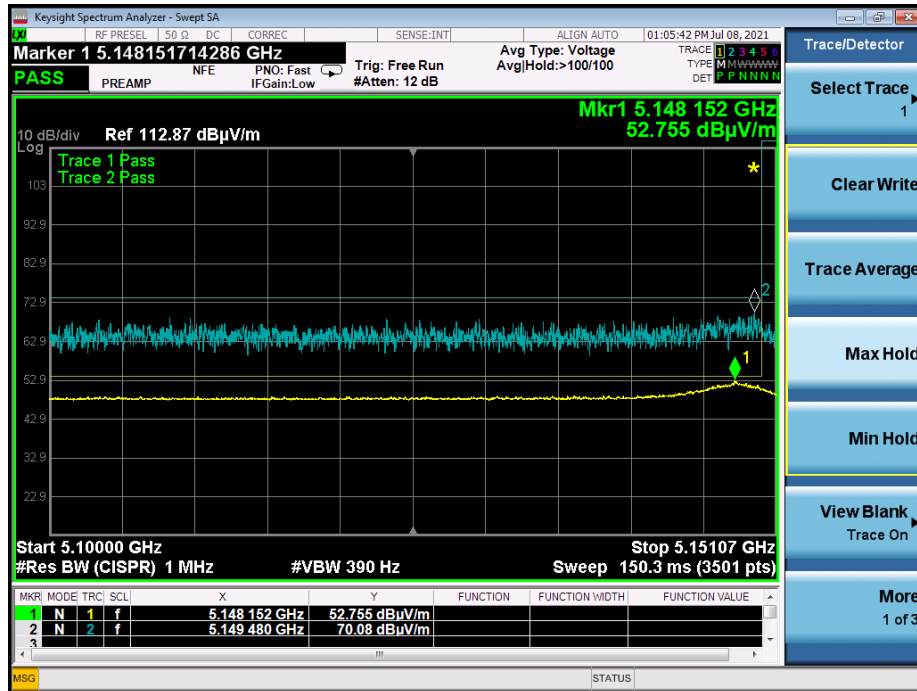
Source	Frequency	Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Meas. Time (s)	RBW	Meas.Time	Correction (dB)
Peak	10.469 GHz	59.222	74	-14.778	1	2.572	Vertical	5	1000000	0	10.097
Peak	14.579 GHz	57.794	74	-16.206	193	3.973	Vertical	5	1000000	0	15.294
Peak	15.71 GHz	69.626	74	-4.374	351	3.281	Vertical	5	1000000	0	12
Avg	10.469 GHz	43.834	54	-10.166	1	2.572	Vertical	5	1000000	0	10.097
Avg	14.579 GHz	44.736	54	-9.264	193	3.973	Vertical	5	1000000	0	15.294
Avg	15.71 GHz	52.984	54	-1.016	351	3.281	Vertical	5	1000000	0	12
Peak	10.472 GHz	64.935	74	-9.065	41	1.638	Horizontal	5	1000000	0	10.084
Peak	14.355 GHz	57.004	74	-16.996	38	4	Horizontal	5	1000000	0	14.703
Peak	14.641 GHz	57.562	74	-16.438	233	1.696	Horizontal	5	1000000	0	15.101
Peak	15.716 GHz	67.565	74	-6.435	3	1.5	Horizontal	5	1000000	0	12.004
Avg	10.472 GHz	47.369	54	-6.631	41	1.638	Horizontal	5	1000000	0	10.084
Avg	14.355 GHz	43.934	54	-10.066	38	4	Horizontal	5	1000000	0	14.703
Avg	14.641 GHz	44.387	54	-9.613	233	1.696	Horizontal	5	1000000	0	15.101

Source	Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Meas. Time (s)	RBW	Meas.Time	Correction (dB)
Avg	15.716 GHz	53.091	54	-0.909	3	1.5	Horizontal	5	1000000	0	12.004

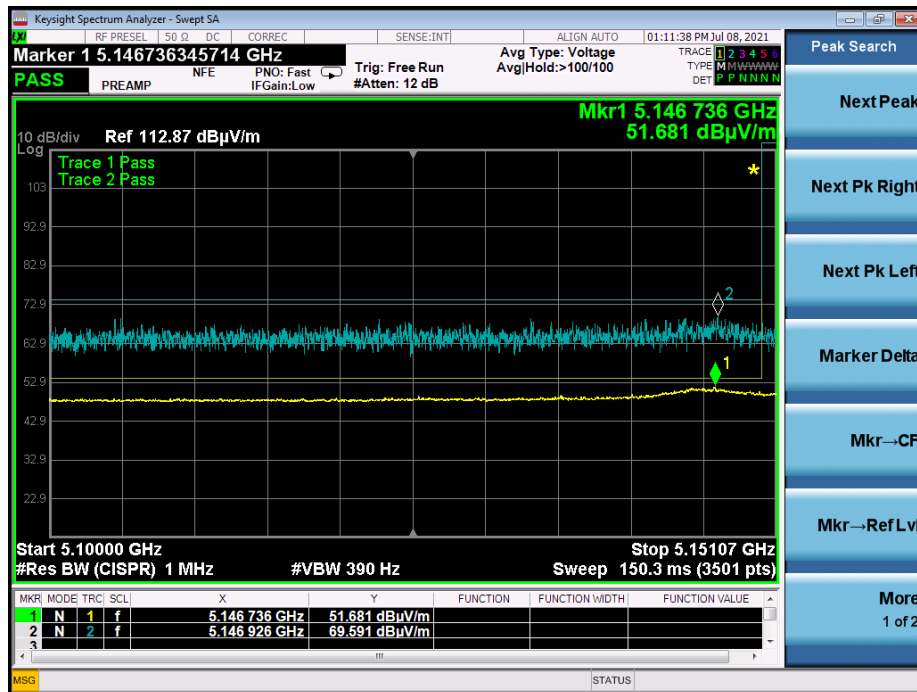
Table 7: Transmitting on the Higher Frequency 5240 MHz – 1 - 17 GHz


Source	Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Pol.	Meas. Time (s)	RBW	Meas.Time	Correction (dB)
Peak	39.308 GHz	55.564	74	-18.436	350	Vertical	5	1000000	0	3.32
Avg	39.308 GHz	42.588	54	-11.412	350	Vertical	5	1000000	0	3.32
Peak	20.72 GHz	55.242	74	-18.758	8	Horizontal	5	1000000	0	-5.439
Peak	39.017 GHz	55.811	74	-18.189	310	Horizontal	5	1000000	0	3.129
Avg	20.72 GHz	51.632	54	-2.368	8	Horizontal	5	1000000	0	-5.439
Avg	39.017 GHz	42.461	54	-11.539	310	Horizontal	5	1000000	0	3.129

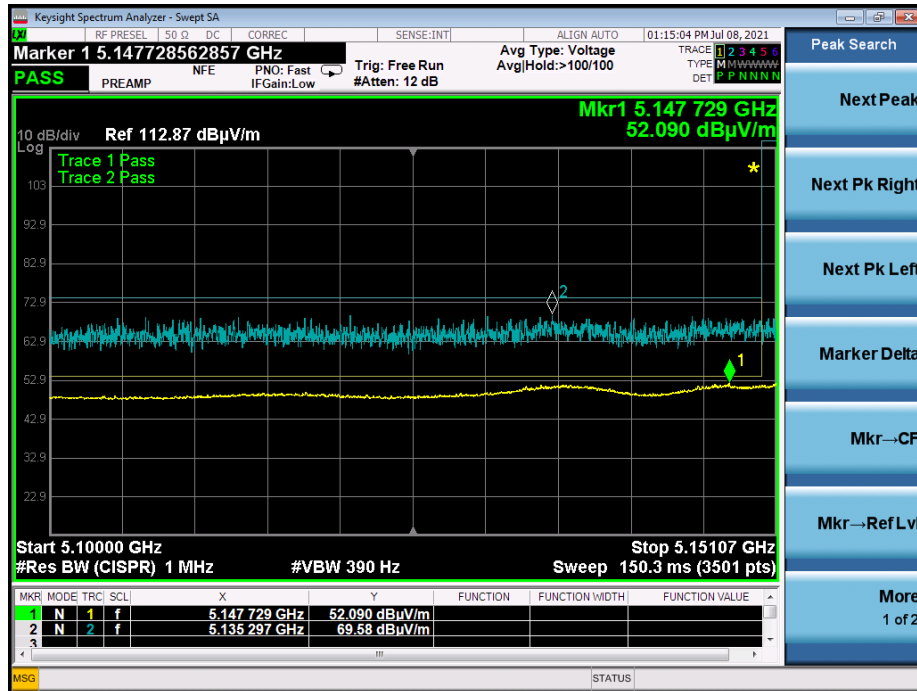
Table 8: Transmitting on the Lower Frequency 5180 MHz – 17 - 40 GHz (worst case)



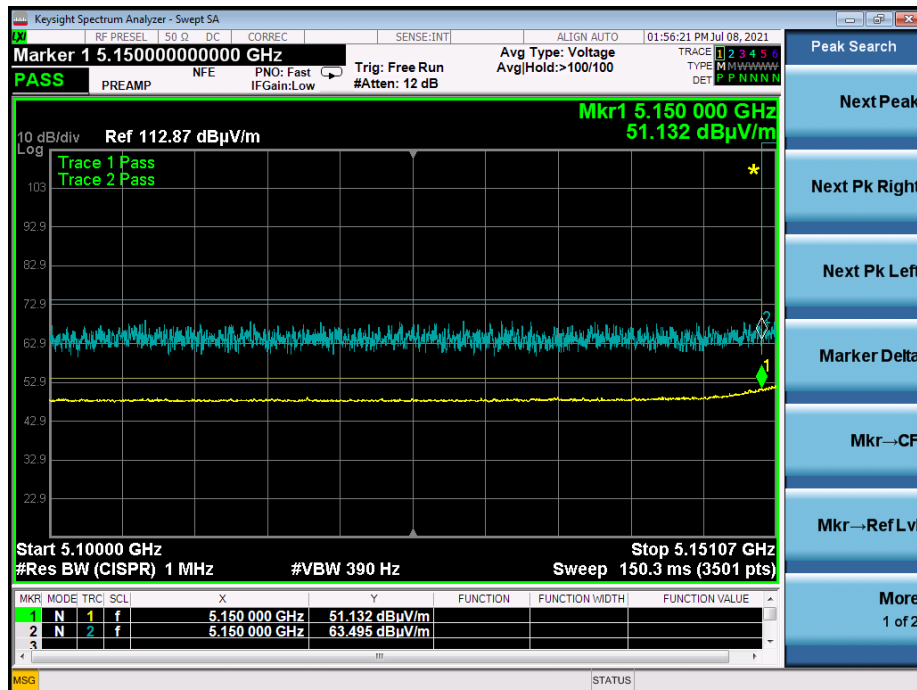
Graph 3: Band Edge a Mode Low - 5180 MHz



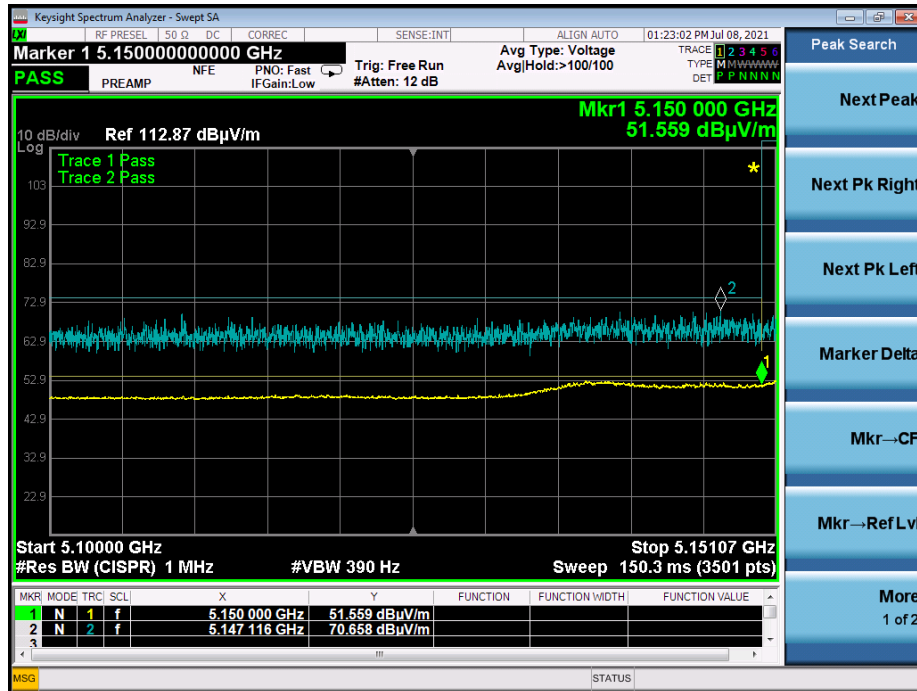
Graph 4: Band Edge a Mode Middle - 5210 MHz



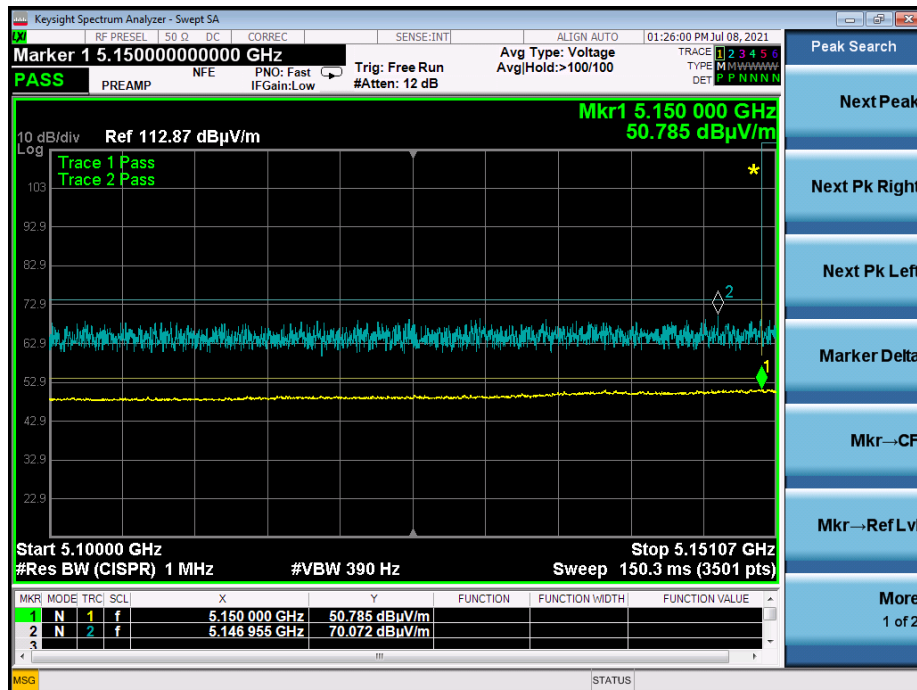
Graph 5: Band Edge a Mode High - 5240 MHz



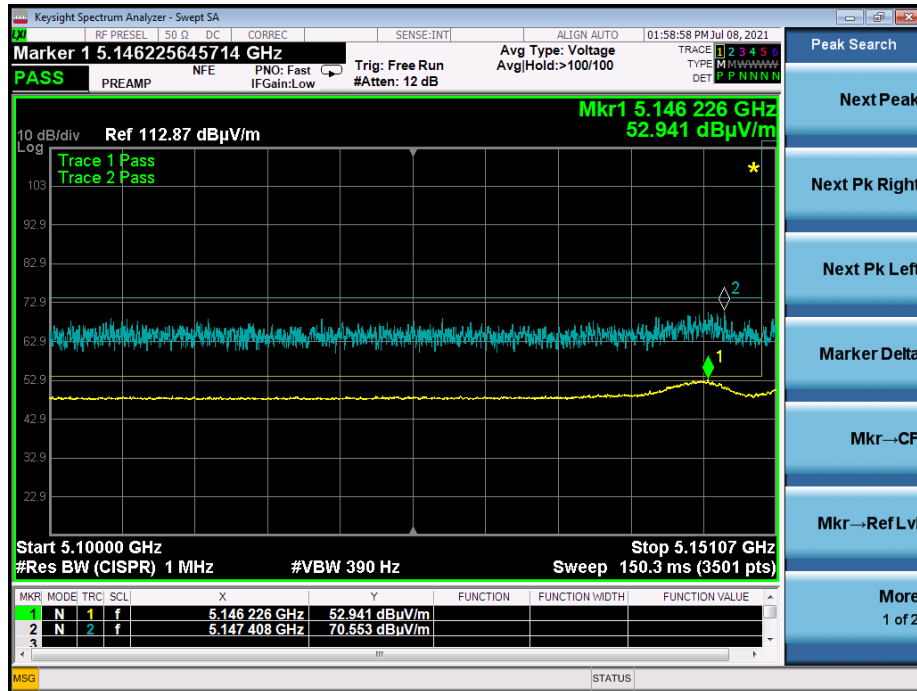
Graph 6: Band Edge n20 Mode Low - 5180 MHz



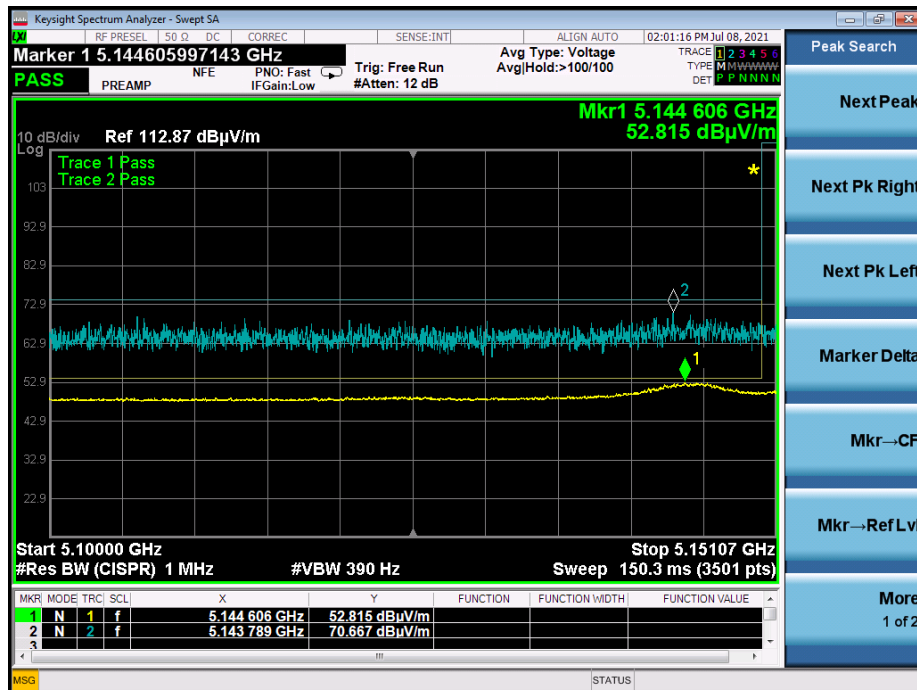
Graph 7: Band Edge n20 Mode Middle - 5210 MHz



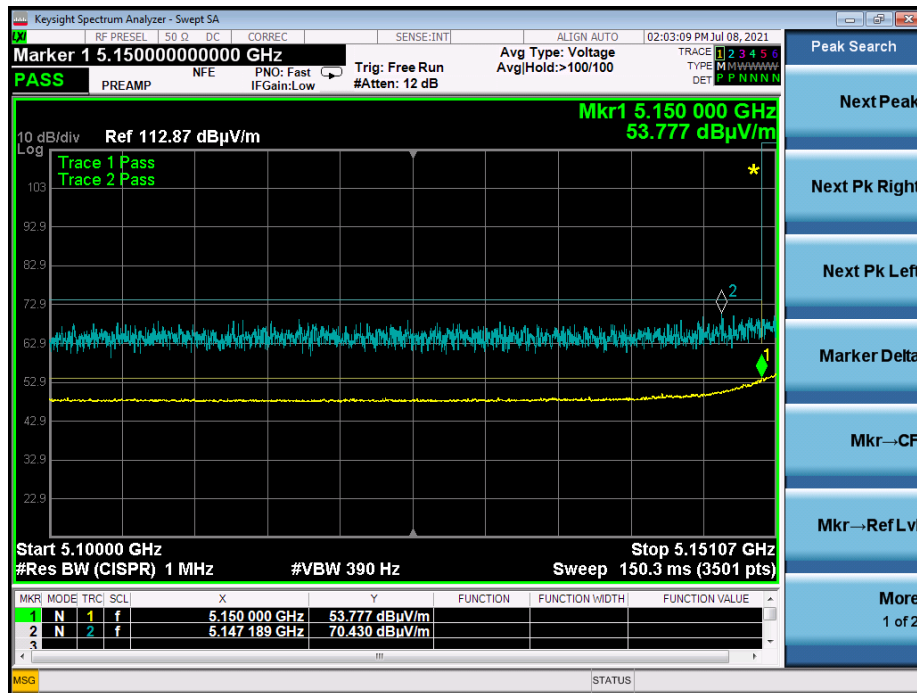
Graph 8: Band Edge n20 Mode High - 5240 MHz



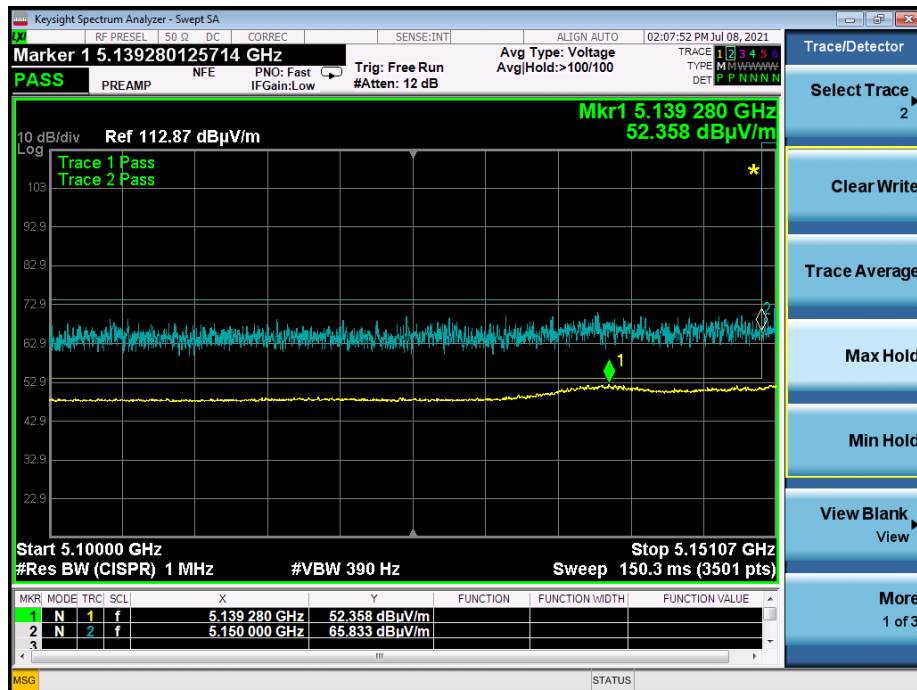
Graph 9: Band Edge n40 Mode Low - 5190 MHz



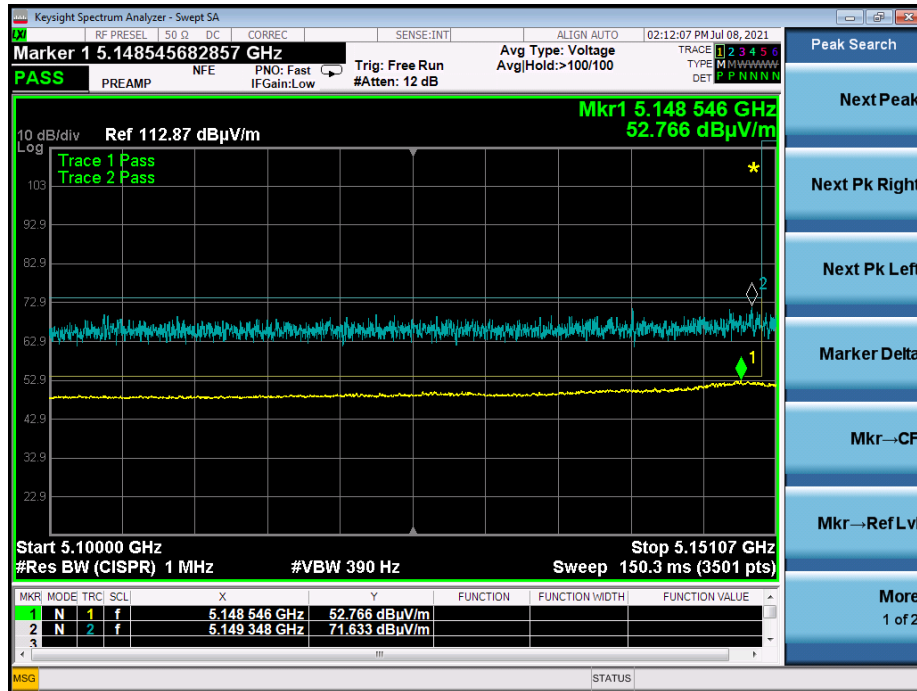
Graph 10: Band Edge n40 Mode High - 5230 MHz



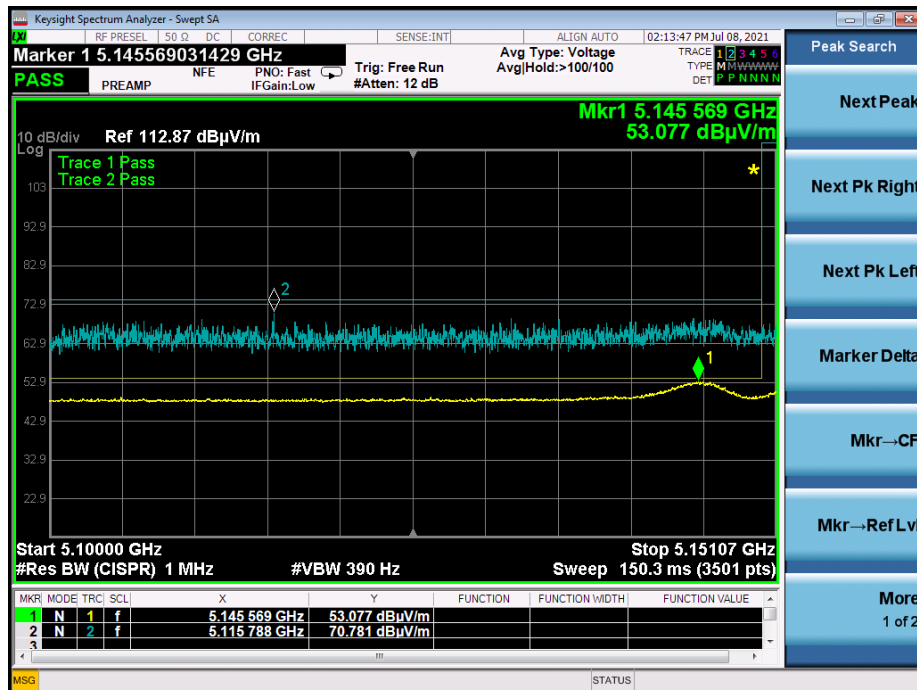
Graph 11: Band Edge ac20 Mode Low - 5180 MHz



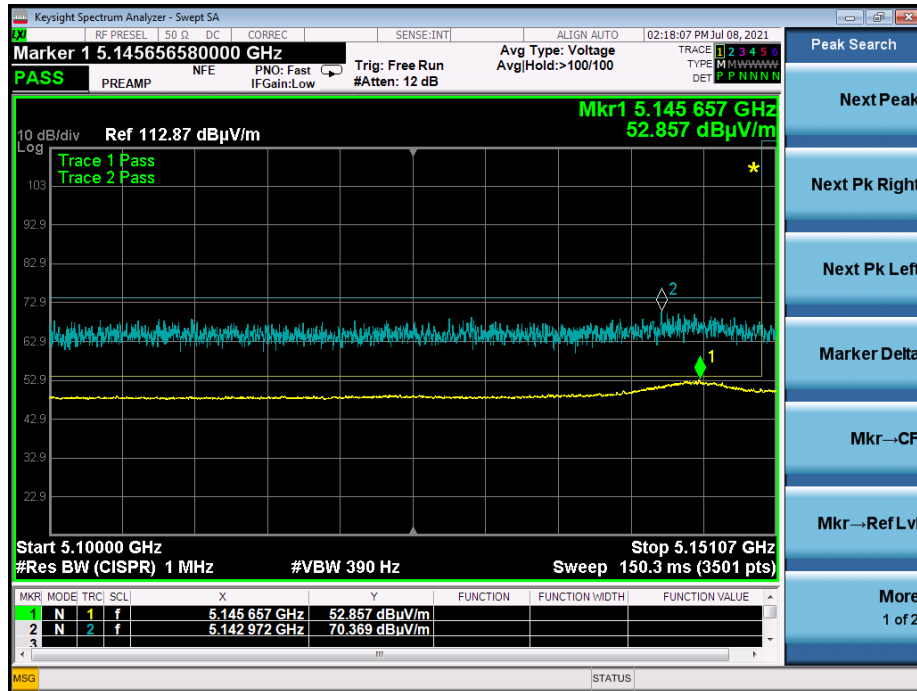
Graph 12: Band Edge ac20 Mode Middle - 5210 MHz



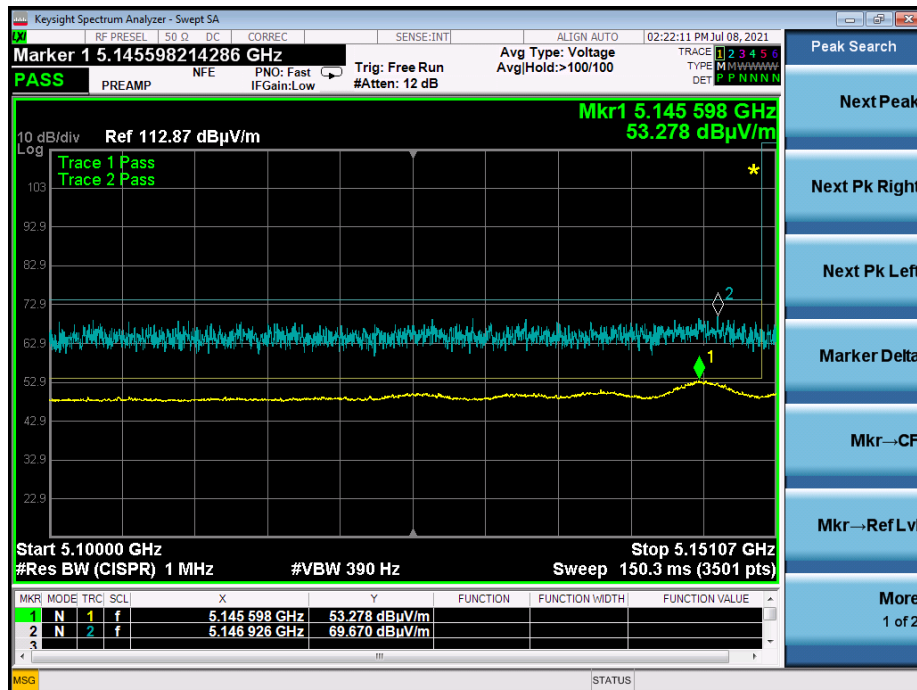
Graph 13: Band Edge ac20 Mode High - 5240 MHz



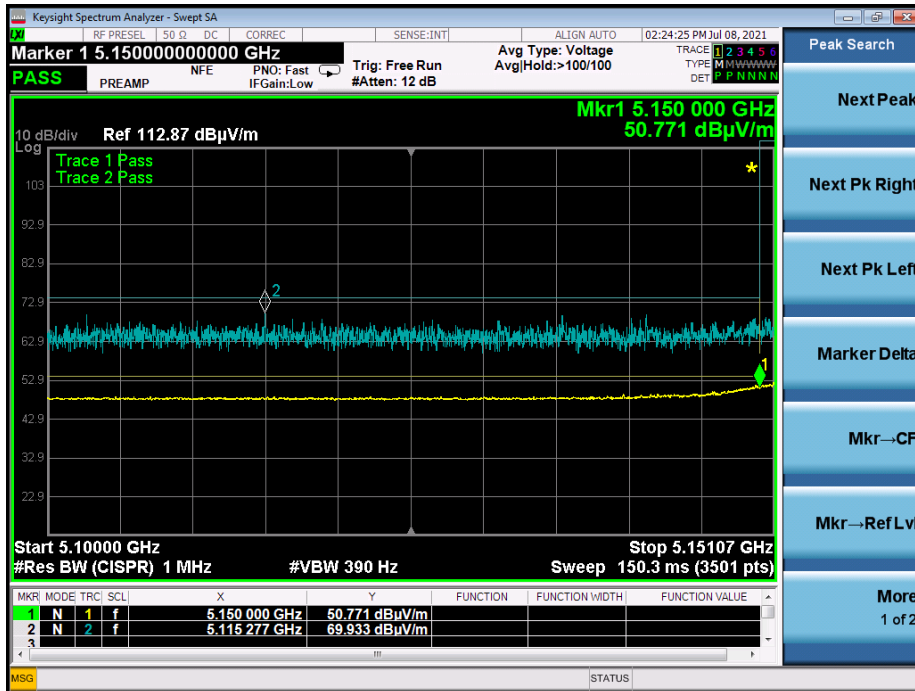
Graph 14: Band Edge ac40 Mode Low - 5190 MHz



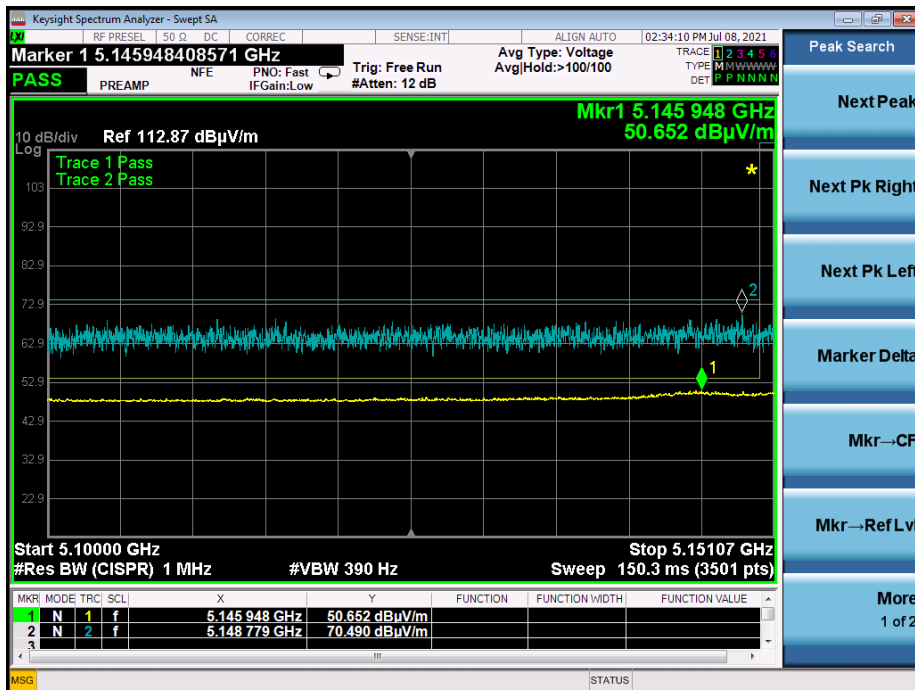
Graph 15: Band Edge ac40 Mode High - 5230 MHz



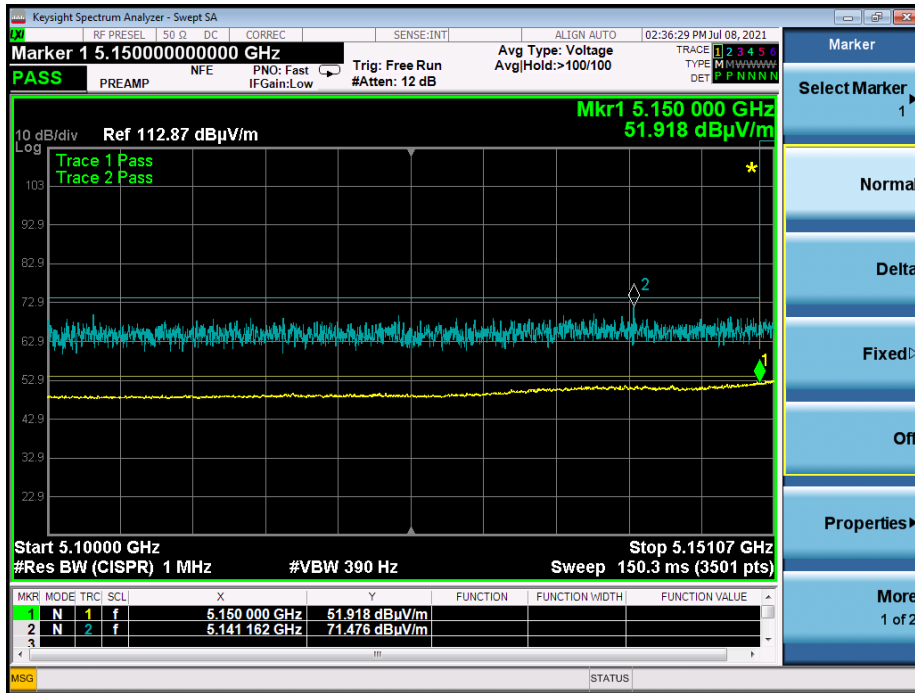
Graph 16: Band Edge ac80 Mode - 5210 MHz



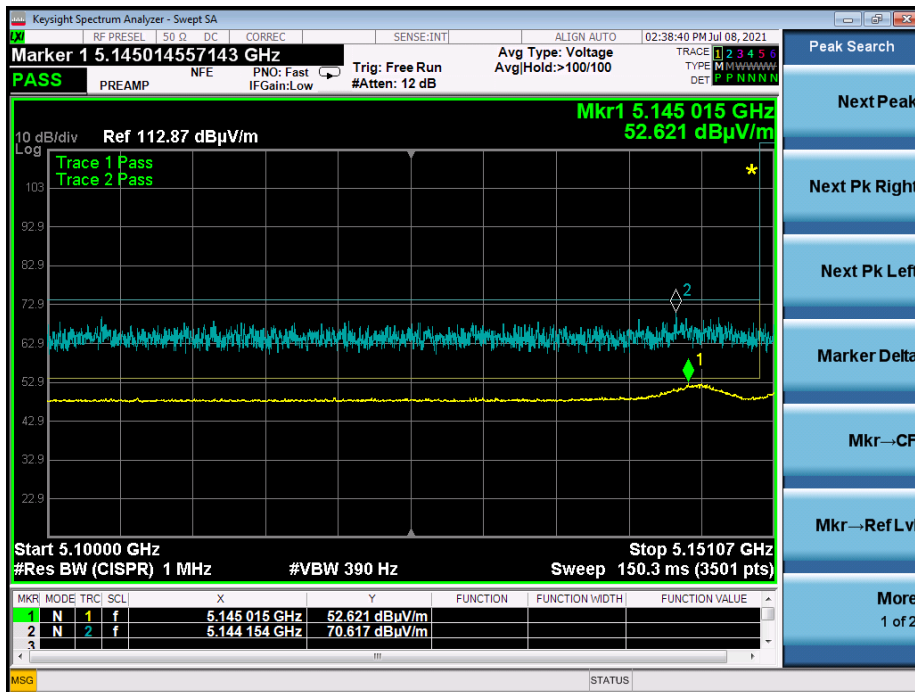
Graph 17: Band Edge ax20 Mode Low - 5180 MHz



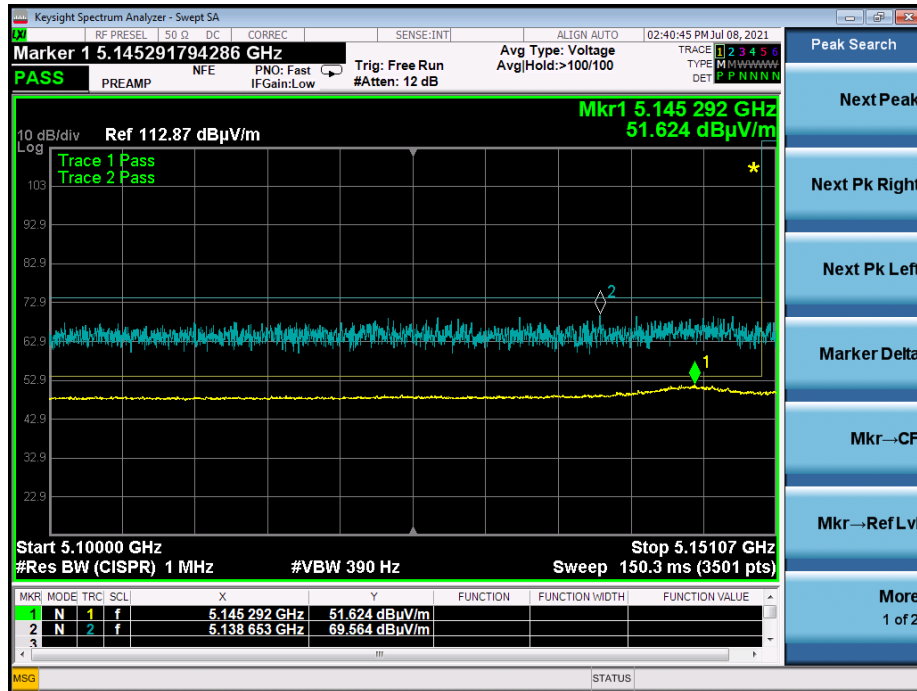
Graph 18: Band Edge ax20 Mode Middle - 5210 MHz



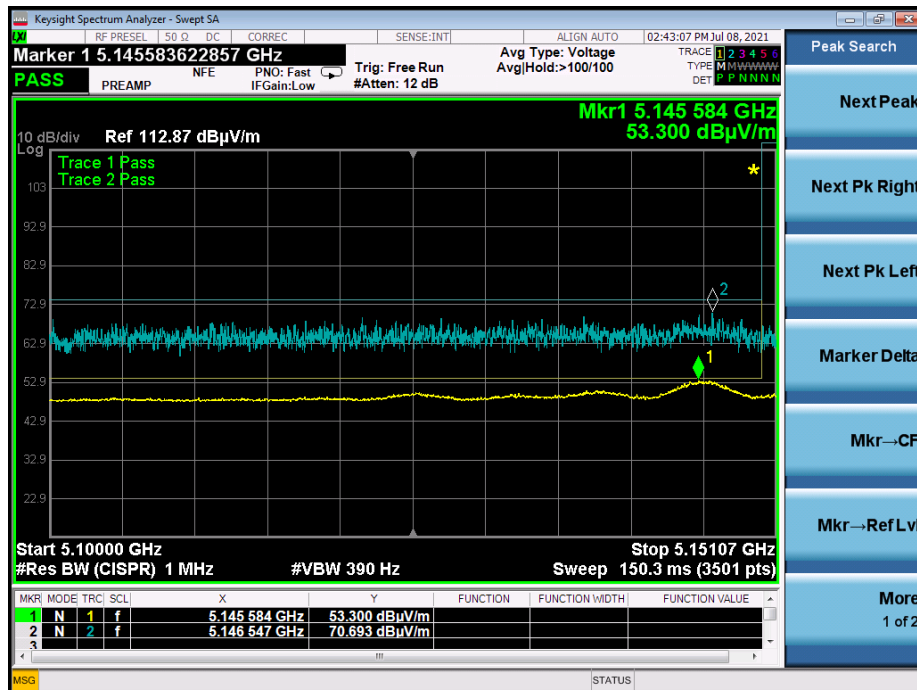
Graph 19: Band Edge ax20 Mode High - 5240 MHz



Graph 20: Band Edge ax40 Mode Low - 5180 MHz



Graph 21: Band Edge ax40 Mode High - 5230 MHz



Graph 22: Band Edge ax80 Mode - 5210 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 5.9 dBi + Array gain of 6.02 dB which is a total of 11.9 dBi

Results of this testing are summarized.

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Measured PSD
OFDM 20	5180	Mcs0_Nss4	37	8.2
OFDM 20	5210	Mcs0_Nss4	45	12.15
OFDM 20	5240	Mcs0_Nss4	46	12.34
HT 20	5180	Mcs0_Nss4	38	7.3
HT 20	5210	Mcs0_Nss4	45	10.9
HT 20	5240	Mcs0_Nss4	46	11.22
HT 40	5190	Mcs0_Nss4	34	2.67
HT 40	5230	Mcs0_Nss4	42	6.81
VHT 20	5180	Mcs0_Nss4	39	7.82
VHT 20	5210	Mcs0_Nss4	45	10.98
VHT 20	5240	Mcs0_Nss4	46	11.21
VHT 40	5190	Mcs0_Nss4	34	2.53
VHT 40	5230	Mcs0_Nss4	42	6.68
VHT 80	5210	Mcs0_Nss4	32	-1.45
HE 20	5180	Mcs0_Nss4	36	6.49
HE 20	5210	Mcs0_Nss4	45	11.02
HE 20	5240	Mcs0_Nss4	46	11.25
HE 40	5190	Mcs0_Nss4	33	2.43
HE 40	5230	Mcs0_Nss4	41	6.11
HE 80	5210	Mcs0_Nss4	31	-1.72

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Measured PSD
OFDM 20	5180	Mcs0_Nss1	37	8.2
OFDM 20	5210	Mcs0_Nss1	43	11.15
OFDM 20	5240	Mcs0_Nss1	44	11.34
HT 20	5180	Mcs0_Nss1	38	7.3
HT 20	5210	Mcs0_Nss1	45	10.9
HT 20	5240	Mcs0_Nss1	46	11.22
HT 40	5190	Mcs0_Nss1	34	2.67
HT 40	5230	Mcs0_Nss1	42	6.81
VHT 20	5180	Mcs0_Nss1	39	7.82
VHT 20	5210	Mcs0_Nss1	45	10.98
VHT 20	5240	Mcs0_Nss1	46	11.21
VHT 40	5190	Mcs0_Nss1	34	2.53
VHT 40	5230	Mcs0_Nss1	42	6.68
VHT 80	5210	Mcs0_Nss1	32	-1.45
HE 20	5180	Mcs0_Nss1	36	6.49
HE 20	5210	Mcs0_Nss1	45	11.02
HE 20	5240	Mcs0_Nss1	46	11.25
HE 40	5190	Mcs0_Nss1	33	2.43
HE 40	5230	Mcs0_Nss1	41	6.11
HE 80	5210	Mcs0_Nss1	31	-1.72

Result

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

-- End of Test Report --