



427 West 12800 South
Draper, UT 84020

Test Report Certification

FCC ID	SWX-E7CPI
ISED ID	6545A-E7CPI
Equipment Under Test	E7-Campus-Indoor
Test Report Serial Number	TR10494_02
Date of Test(s)	8, 17, 20, 23 May 2024; 5, 9 June; 9 - 10 September; 24 October 2025
Report Issue Date	5 November 2025

Test Specification	Applicant
47 CFR FCC Part 15, Subpart E RSS-248, Issue 3 (October 2024)	Ubiquiti Inc. 685 Third Avenue New York, NY 10017 U.S.A.



Certification of Engineering Report

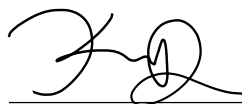
This report has been prepared by Unified Compliance Laboratory (UCL) to document compliance of the device described below with the requirement of Federal Communication Commissions (FCC) Part 15, Subpart E and RSS-248, Issue 3 (October 2024). This report may be reproduced in full. Partial reproduction of this report may only be made with the written consent of the laboratory. The results in this report apply only to the sample tested with the specifications provided by the manufacturer.

Applicant	Ubiquiti Inc.
Manufacturer	Ubiquiti Inc.
Brand Name	UBIQUITI
Model Number	E7-Campus-Indoor
FCC ID	SWX-E7CPI
ISED ID	6545A-E7CPI

On this 5th day of November 2025, I individually and for Unified Compliance Laboratory certify that the statements made in this engineering report are true, complete, and correct to the best of my knowledge and are made in good faith. Unified Compliance laboratory is not responsible for incorrect information provided by the manufacturer.

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

Unified Compliance Laboratory


Written By: Joseph W. Jackson
Reviewed By: Kimberly DeBole

Revision History		
Revision	Description	Date
01	Original Report Release	11/5/2025
02	Modified Section 2.6 and CBP Trail Table	11/11/2025

Table of Contents

1	Client Information.....	5
1.1	Applicant.....	5
1.2	Manufacturer.....	5
2	Equipment Under Test (EUT).....	6
2.1	Identification of EUT	6
2.2	Description of EUT	6
2.3	EUT and Support Equipment	7
2.4	Interface Ports on EUT	7
2.5	Operating Environment.....	8
2.6	Operating Modes.....	8
2.7	EUT Exercise Software.....	8
2.8	Block Diagram of Test Configuration	9
2.9	Modification Incorporated/Special Accessories on EUT.....	9
2.10	Deviation, Opinions Additional Information or Interpretations from Test Standard.....	9
3	Test Specification, Method and Procedures.....	10
3.1	Test Specification.....	10
3.2	Methods & Procedures.....	10
3.3	FCC Part 15, Subpart E.....	10
3.4	Results.....	10
3.5	Test Location	11
4	Test Equipment	12
4.1	Conducted Emissions at Mains Ports.....	12
4.2	Direct Connect at the Antenna Port Tests.....	12
4.3	Radiated Emissions	13
4.4	Contention Base Protocol Tests	14
4.5	Equipment Calibration	15
4.6	Measurement Uncertainty	15
5	Test Results	16
5.1	§15.203 Antenna Requirements.....	16
5.2	Conducted Emissions at Mains Ports Data	17
5.3	§15.407(a) 26 dB Emissions Bandwidth.....	19
5.4	§15.407(a)(3) Maximum Average Output Power	20
5.5	§15.407(b)(7) Spurious Emissions.....	23
5.6	§15.407(a) Maximum Power Spectral Density	28
5.7	§15.407(d) Contention Based Protocol.....	35

1 Client Information

1.1 Applicant

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

1.2 Manufacturer

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

2 Equipment Under Test (EUT)

2.1 Identification of EUT

Brand Name	UBIQUITI
Model Number	E7-Campus-Indoor
Serial Number	1FFB30
Dimensions (cm)	25.0 x 25.0 x 4.6

2.2 Description of EUT

The E7-Campus-Indoor is a WiFi 7 access point with (1) 10GbE PoE port and (1) 1GbE PoE port. The E7-Campus-Indoor transmits in the 2.4 GHz, 5 GHz, and 6 GHz frequency bands using integral antennas and is powered by an 802.3++ PoE power adapter.

This device does not support channel puncturing.

For CDD transmission, 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 NANT ≤ 4;

For PSD measurements when Nss=1: Array Gain = $10 \log(\text{NANT}/\text{NSS})$ dB + Antenna Gain (dBi). Or 6.02 dB + 12 dBi = 18.02 dBi.

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.

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

Band	Modulation Bandwidth	Frequency (MHz)	Maximum Power Setting
UNII-5	be (HE20)	5955, 5975, 5995, 6015, 6035, 6055, 6075, 6095, 6115, 6135, 6155, 6175	TP0
		6195, 6215, 6235, 6255, 6275, 6295, 6315, 6335, 6355, 6375, 6395, 6415	TP1
	be (HE40)	5965, 6005, 6045, 6085, 6125, 6165	TP3
		6205, 6245, 6285, 6325, 6365, 6405	TP4

	be (HE80)	5965, 6065, 6145	TP6
		6225, 6305	TP7
		6385	TP8
	be (HE160)	6025	TP8
		6185	TP9
		6325	TP10
	be (HE320)	6265	TP12

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: E7-Campus-Indoor (Note 1) SN: 1FFB30	Access Point	PoE Input / Shielded Cat 5E cable
BN: UBIQUITI MN: U-POE++ SN: N/A	PoE Injector	PoE Output / Shielded Cat 5E to E7-Campus-Indoor, and Ethernet / unshielded Cat 5E to PC
BN: DELL MN: XPS 13 SN: N/A	Laptop PC	Ethernet / un-shielded Cat 5E

Notes: (1) EUT

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

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

2.4 Interface Ports on EUT

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

2.5 Operating Environment

Power Supply	120 Volts AC to PoE 48 Volts
AC Mains Frequency	60 Hz
Temperature	21.1 – 23.3 °C
Humidity	20.8 – 27.6 %
Barometric Pressure	1012 mBar

2.6 Operating Modes

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

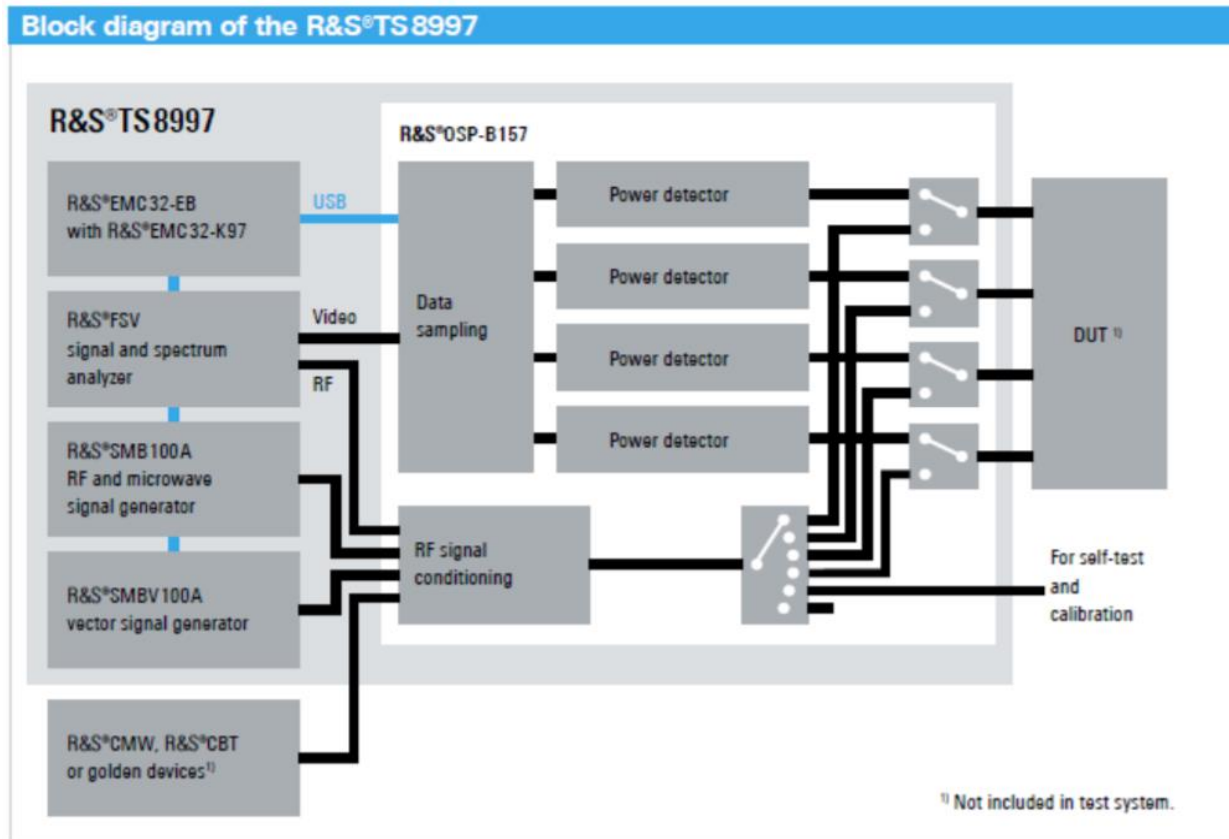


Diagram 1: Test Configuration Block Diagram

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	ISED Section	Environmental Phenomena	Frequency Range (MHZ)	Result
15.203	N/A	Antenna requirements	Structural Requirement	Compliant
15.207	RSS-Gen	Conducted Disturbance at Mains Port	0.15 to 30	Compliant
15.407(a)	RSS-248 §4.4	Bandwidth Requirement	5955 to 6415	Compliant
15.407(a)	RSS-248 §4.5	Peak Output Power ¹	5955 to 6415	Compliant
15.407(b)	RSS-248 §4.6	Antenna Conducted Spurious Emissions ¹	0.009 to 40000	N/A Note ²
15.209	RSS-248 §4.6	Radiated Spurious Emissions	0.009 to 40000	Compliant
15.407(a)	RSS-248 §4.5	Peak Power Spectral Density ¹	5955 to 6415	Compliant
15.407(d)	RSS-248 §4.7	Contention Based Protocol	5955 to 6415	Compliant

The testing was performed according to the procedures in ANSI C63.10-2013, KDB 789033, KDB 987594 and 47 CFR Part 15. Where applicable, KDB 662911 was followed to sum required measurements.

Note ¹: Various RU modes were considered for RF Power, PSD, and Spurious Emissions, and the "single client" RU mode is the worst case - the results herein are "single client" RU mode.

Note ²: Radiated Spurious was performed per 15.209 with the antenna unterminated.

3.4 Results

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

3.5 Test Location

Testing was performed at the Unified Compliance Laboratory 3-Meter and 10-Meter chambers located at 427 West 12800 South, Draper, UT 84020. Unified Compliance Laboratory is accredited by National Voluntary Laboratory Accreditation Program (NVLAP); NVLAP Code 600241-0 which is effective until 30 June 2026. This site has also been registered with Innovations, Science and Economic Development (ISED) department as was accepted under Appendix B, Phase 1 procedures of the APEC Tel MRA for Canadian recognition. ISED No.: 25346, effective until 30 June 2026.

Unified Compliance Laboratory has been assigned 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-6754	2/27/2025	2/27/2026
LISN	AFJ	LS16C/10	UCL-6749	3/3/2025	3/3/2026
ISN	Teseq	ISN T800	UCL-2971	3/31/2025	3/31/2026
AC Power Source	Laplace Instruments	AC1000A	UCL-2857	N/A	N/A
Test Software	AFJ	AFJ FFT3010	UCL-3107	N/A	N/A

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

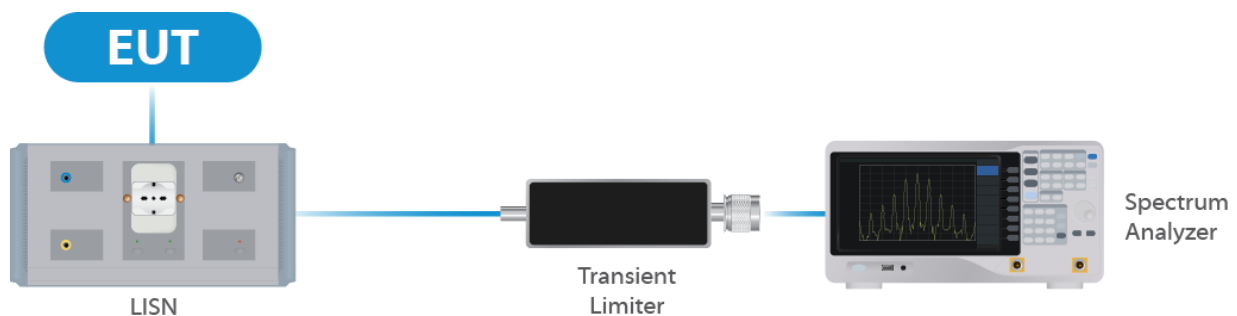


Figure 1: Conducted Emissions Test

4.2 Direct Connect at the Antenna Port Tests

Type of Equipment	Manufacturer	Model Number	Asset Number	Date of Last Calibration	Due Date of Calibration
Spectrum Analyzer	R&S	FSV40	UCL-2861	1/16/2025	1/16/2026
Signal Generator	R&S	SMB100A	UCL-2864	N/A	N/A
Vector Signal Generator	R&S	SMBV100A	UCL-2873	N/A	N/A
Switch Extension	R&S	OSP-B157WX	UCL-2867	4/28/2025	1/16/2026
Switch Extension	R&S	OSP-150W	UCL-2870	4/28/2025	1/16/2026
Test Software	R&S	EMC32	UCL-9442	--	--

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

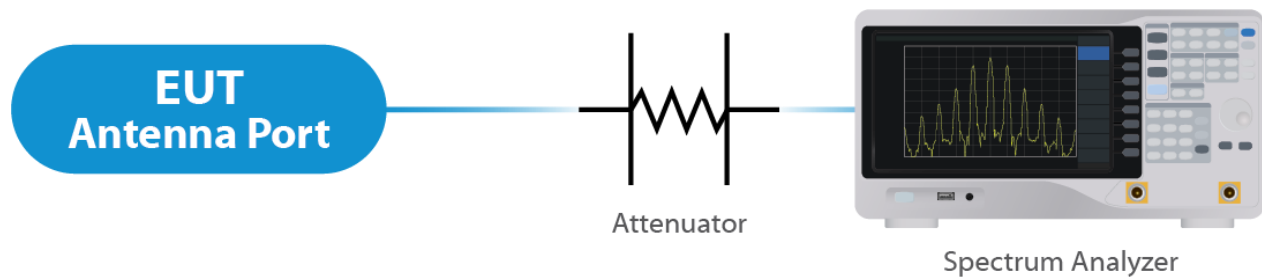


Figure 2: Direct Connect at the Antenna Port Test

4.3 Radiated Emissions

Type of Equipment	Manufacturer	Model Number	Asset Number	Date of Last Calibration	Due Date of Calibration
EMI Receiver	Keysight	N9038A	UCL-2778	12/27/2024	12/27/2025
Pre-Amplifier 9 kHz – 1 GHz	Sonoma Instruments	310N	UCL-2889	1/19/2024	1/19/2026
Broadband Antenna	ETS-Lindgren	3142E	UCL-9782	2/6/2025	2/6/2026
Double Ridge Horn Antenna	Scwarzbeck	BBHA 9120D	UCL-3065	4/2/2025	4/2/2027
Log Periodic	Scwarzbeck	STLP 9129	UCL-3068	2/11/2025	2/4/2027
10 - 40 GHz Horn Antenna	ETS-Lindgren	3116C	UCL-7209	6/6/2024	6/6/2026
1 – 18 GHz Amplifier	Com-Power	PAM 118A	UCL-3833	7/22/2025	7/22/2026
Test Software	Nexio	BatEMC	UCL-5253 & UCL-5249	N/A	N/A

Table 3: List of equipment used for Radiated Emissions

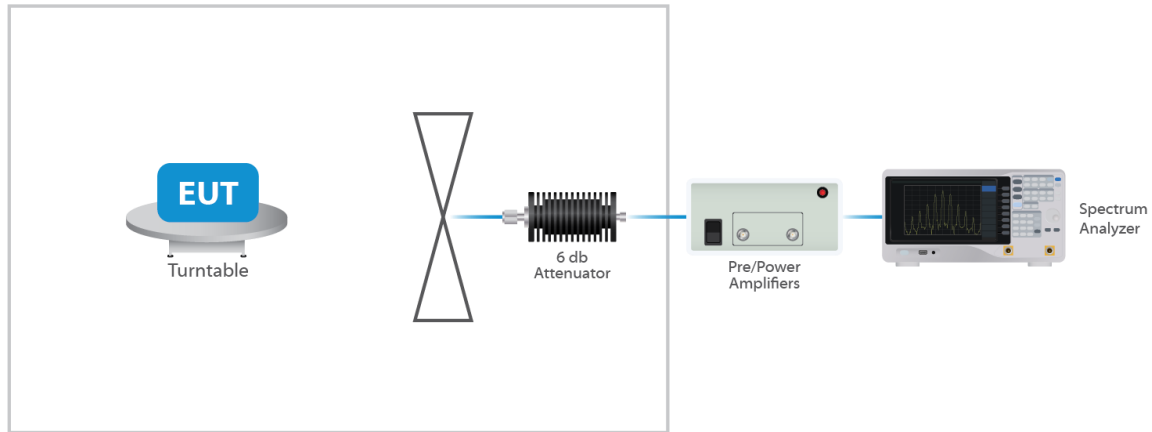


Figure 3: Radiated Emissions Test

4.4 Contention Base Protocol Tests

Type of Equipment	Manufacturer	Model Number	Asset Number	Date of Last Calibration	Due Date of Calibration
Spectrum Analyzer	Keysight	N9010B EXA	UCL-7069	5/20/2025	5/20/2026
Signal Generator	Keysight	MXG-B	UCL-6291	6/28/2024	6/22/2026
MIMO Test Set	Keysight	X8750A	UCL-7372	9/24/2024	10/07/2025

Table 4: List of equipment used for Direct Connect at the Antenna Port

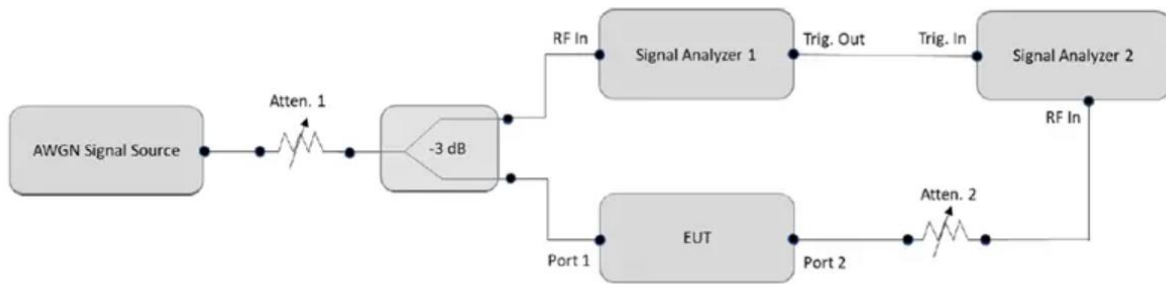


Figure 1. CBP conducted test setup diagram. Source: KDB 987594 D02 V01r01

Figure 4: Contention Base Protocol Test

4.5 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.

4.6 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 integral antenna. Per the manufacturer, the Maximum gain of the antenna per chain is 12 dBi. This is an 802.11 device and utilizes CDD as described in KDB 662911 D01. The antenna is not user replaceable.

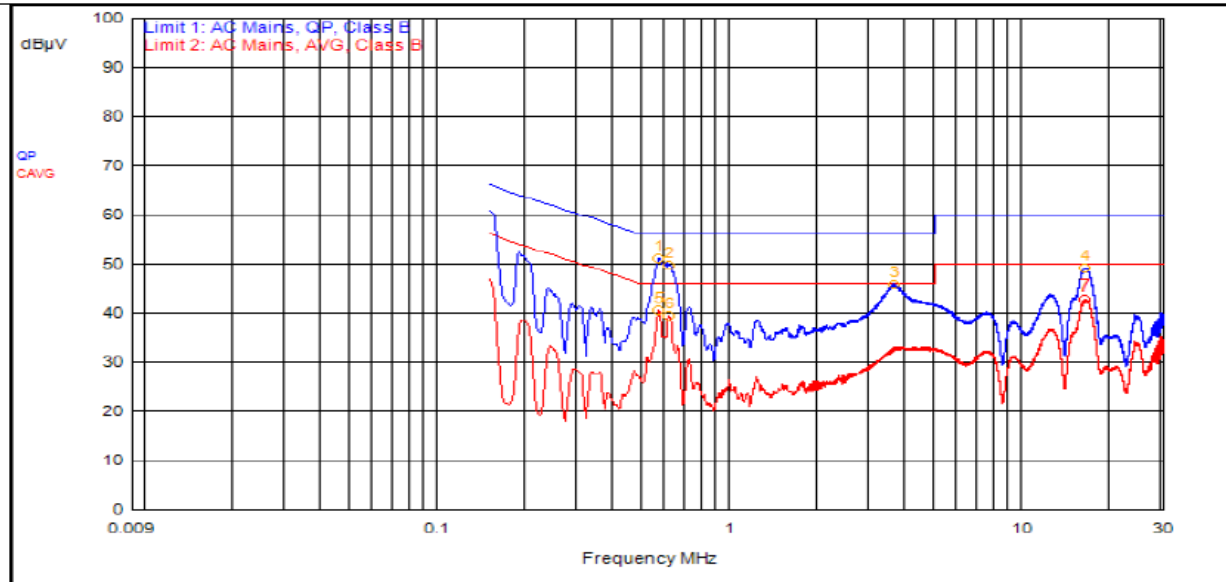
See Section 2.2 for directional gain calculation.

Results

The EUT complied with the specification

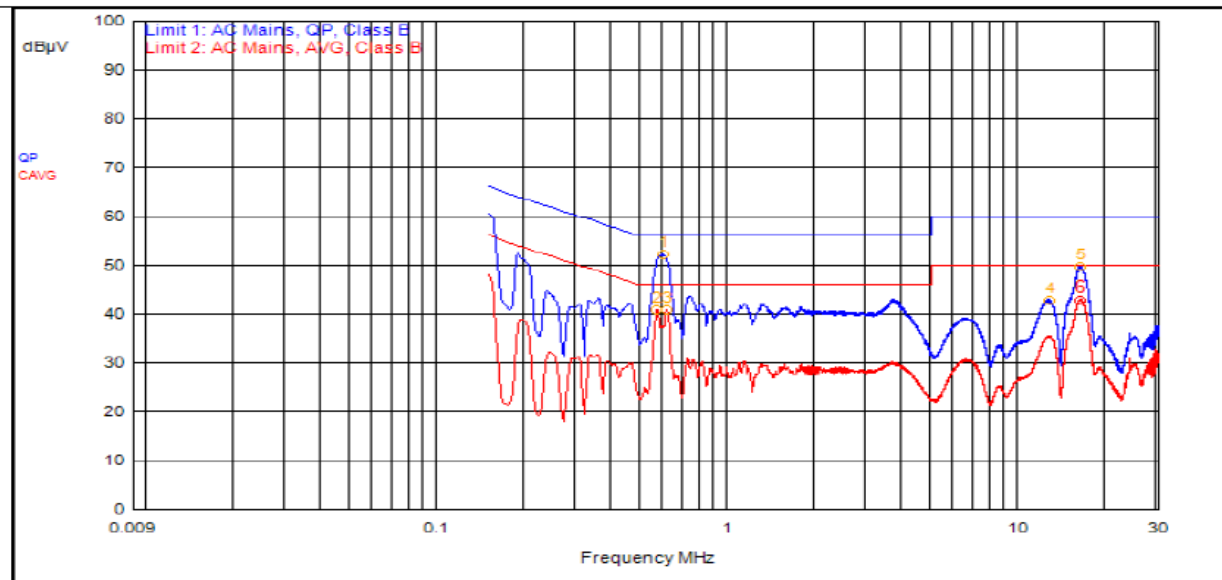
5.2 Conducted Emissions at Mains Ports Data

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
1	567,000kHz	12.40	0.00		QPeak	38.61	51.01	56.00	-4.99			
2	615,000kHz	12.38	0.00		QPeak	37.44	49.82	56.00	-6.18			
3	3.594	12.29	0.10		QPeak	33.37	45.76	56.00	-10.24			
4	16.206	12.40	0.20		QPeak	36.61	49.21	60.00	-10.79			
5	567,000kHz	12.40	0.00		C_AVG	28.23	40.63			46.00	-5.37	
6	609,000kHz	12.38	0.00		C_AVG	27.16	39.54			46.00	-6.46	
7	16.206	12.40	0.20		C_AVG	30.08	42.68			50.00	-7.32	

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
1	591,000kHz	12.40	0.00		QPeak	39.70	52.10	56.00	-3.90			
5	16.143	12.43	0.20		QPeak	37.04	49.67	60.00	-10.33			
4	12.678	12.40	0.20		QPeak	30.24	42.84	60.00	-17.16			
2	567,000kHz	12.41	0.00		C_AVG	28.53	40.94			46.00	-5.06	
3	612,000kHz	12.40	0.00		C_AVG	28.43	40.83			46.00	-5.17	
6	16.155	12.43	0.20		C_AVG	30.17	42.80			50.00	-7.20	

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.

Nominal BW (MHz)	Frequency (MHz)	99% Bandwidth (MHz)	26 dB Bandwidth (MHz)
20	5955	19.2	22.1
20	6195	19.2	23.0
20	6415	19.2	23.0
40	5965	38.3	43.3
40	6205	38.3	42.5
40	6405	38.3	41.8
80	5985	77.5	84.5
80	6225	78.0	85.0
80	6385	78.0	89.0
160	6025	159.0	173.0
160	6185	157.0	171.0
160	6325	157.0	174.0
320	5265	317.5	345.0

Result

All chains were tested and the highest bandwidth per chain is reported above. For the 320 MHz emissions bandwidth the 99% bandwidth was used. Please see Annex for all bandwidth measurements.

5.4 §15.407(a)(3) 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.

See Section 2.2 for directional gain calculation.

The maximum average RF EIRP output power measured for this device was 29.23 dBm or 837.53 mW. The limit is 30 dBm EIRP, or 1 watt EIRP. The antenna has a gain of 12 dBi.

5.4.1 Output Power Per Chain

Modulation (BW)	Frequency (MHz)	Chain0 (dBm)	Chain1 (dBm)	Chain2 (dBm)	Chain3 (dBm)	Total Output Power* EIRP (dBm)
EHT 20	5955	-1.09	-0.25	-0.91	-0.45	17.36
EHT 20	6195	-0.18	-0.39	-0.03	-0.54	18.02
EHT 20	6415	-0.56	-0.88	-0.05	0.28	17.74
EHT 40	5965	2.22	3.04	2.60	2.79	20.69
EHT 40	6205	3.25	3.00	3.44	3.75	21.39
EHT 40	6405	2.27	1.97	3.36	3.31	20.79
EHT 80	5985	4.98	5.38	5.14	5.46	23.26
EHT 80	6225	6.49	6.28	6.19	6.91	24.50
EHT 80	6385	5.94	5.84	6.59	6.72	24.31
EHT 160	6025	7.92	7.78	8.06	7.75	25.90
EHT 160	6185	8.28	8.17	8.41	8.62	26.40
EHT 160	6325	8.54	8.44	8.66	9.21	26.74
EHT 320	6265	11.05	10.82	11.19	11.73	29.23

Nss>1

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Total Summed Output Power* (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dBm)
EHT 20	5955	Mcs0_Nss4	0	5.36	12	17.36	30	-12.64
EHT 20	6195	Mcs0_Nss4	1	6.02	12	18.02	30	-11.98
EHT 20	6415	Mcs0_Nss4	1	5.74	12	17.74	30	-12.26
EHT 40	5965	Mcs0_Nss4	3	8.69	12	20.69	30	-9.31
EHT 40	6205	Mcs0_Nss4	4	9.39	12	21.39	30	-8.61
EHT 40	6405	Mcs0_Nss4	4	8.79	12	20.79	30	-9.21
EHT 80	5985	Mcs0_Nss4	6	11.26	12	23.26	30	-6.64
EHT 80	6225	Mcs0_Nss4	7	12.50	12	24.50	30	-5.50
EHT 80	6385	Mcs0_Nss4	8	12.31	12	24.31	30	-5.69
EHT 160	6025	Mcs0_Nss4	8	13.90	12	25.90	30	-4.10
EHT 160	6185	Mcs0_Nss4	9	14.40	12	26.40	30	-3.60
EHT 160	6325	Mcs0_Nss4	10	14.74	12	26.74	30	-3.26
EHT 320	6265	Mcs0_Nss4	12	17.23	12	29.23	30	-0.77

Nss=1

Modulation (BW)	Frequency (MHz)	Data Rate	TP Setting	Total Summed Output Power* (dBm)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dBm)
EHT 20	5955	Mcs0_Nss1	-6	-0.60	12	11.40	30	-18.60
EHT 20	6195	Mcs0_Nss1	-5	0.01	12	12.01	30	-17.99
EHT 20	6415	Mcs0_Nss1	-5	-0.31	12	11.69	30	-18.31
EHT 40	5965	Mcs0_Nss1	-3	2.51	12	14.51	30	-15.49
EHT 40	6205	Mcs0_Nss1	-2	3.28	12	15.28	30	-14.72
EHT 40	6405	Mcs0_Nss1	-2	2.62	12	14.62	30	-15.38
EHT 80	5985	Mcs0_Nss1	0	5.68	12	17.68	30	-12.32
EHT 80	6225	Mcs0_Nss1	1	6.24	12	18.24	30	-11.76
EHT 80	6385	Mcs0_Nss1	1	5.59	12	17.59	30	-12.41
EHT 160	6025	Mcs0_Nss1	3	8.14	12	20.14	30	-9.86
EHT 160	6185	Mcs0_Nss1	4	8.83	12	20.83	30	-9.17
EHT 160	6325	Mcs0_Nss1	4	8.49	12	20.49	30	-9.51
EHT 320	6265	Mcs0_Nss1	6	11.03	12	23.03	30	-6.97

Result

In the configuration tested, the maximum average RF outpower was less than 1 watt EIRP; 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.

5.5 §15.407(b)(7) Spurious Emissions

5.5.1 Radiated Spurious Emissions in the Restricted Bands of § 15.205

The EUT uses various power settings based on the channel in use. In order to reduce test time, the radiated spurious emissions at the lowest, middle, and highest channel were measured at the maximum power of TP31.

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. See Annex for Conducted Band edge plots.

QuasiPeak

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin	Azimuth (°)	Height	Pol.	Correction (dB)
No Significant Emissions were Observed in this Orientation of the Antenna						Vertical	--
No Significant Emissions were Observed in this Orientation of the Antenna						Horizontal	--

Table 5: Radiated Emissions 30 - 1000 MHz

Peak

Frequency	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.31 GHz	54.95	74.0	-19.05	69	2.358	Vertical	14.62
11.91 GHz	57.51	74.0	-16.49	255	2.181	Vertical	16.54
9.65 GHz	53.50	74.0	-20.50	18	3.621	Horizontal	12.56
12.59 GHz	55.16	74.0	-19.84	93	2.045	Horizontal	16.73
14.66 GHz	55.48	74.0	-18.52	338	3.974	Horizontal	16.94

Avg

Frequency	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
10.31 GHz	40.51	54.0	-13.49	69	2.358	Vertical	14.62
11.91 GHz	38.59	54.0	-15.41	255	2.181	Vertical	16.54
9.65 GHz	41.22	54.0	-12.78	18	3.621	Horizontal	12.56
12.59 GHz	38.00	54.0	-16.00	93	2.045	Horizontal	16.73
14.66 GHz	37.99	54.0	-16.01	338	3.974	Horizontal	16.94

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

Peak

Frequency	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
12.52 GHz	55.48	74.0	-18.52	143	1.5	Vertical	16.55
16.50 GHz	56.19	74.0	-17.81	68	3.444	Vertical	18.28
12.39 GHz	54.78	74.0	-19.22	343	1.5	Horizontal	16.34
15.07 GHz	55.55	74.0	-18.45	302	3.797	Horizontal	16.49
16.42 GHz	56.74	74.0	-17.26	1	3.272	Horizontal	18.14

Avg

Frequency	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
12.52 GHz	36.81	54.0	-17.19	143	1.5	Vertical	16.55
16.50 GHz	38.00	54.0	-16.00	68	3.444	Vertical	18.28
12.39 GHz	37.52	54.0	-16.48	343	1.5	Horizontal	16.34
15.07 GHz	37.82	54.0	-16.18	302	3.797	Horizontal	16.49
16.42 GHz	38.63	54.0	-15.37	1	3.272	Horizontal	18.14

Table 7: 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)
12.60 GHz	55.57	74.0	-18.43	208	3.625	Vertical	16.76
16.57 GHz	56.18	74.0	-17.82	78	2.923	Vertical	18.39
11.87 GHz	55.53	74.0	-18.47	327	2.393	Horizontal	16.19
16.44 GHz	56.28	74.0	-17.72	223	3.798	Horizontal	18.22

Avg

Frequency	Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Azimuth (°)	Height (m)	Pol.	Correction (dB)
12.60 GHz	38.17	54.0	-15.83	208	3.625	Vertical	16.76
16.57 GHz	37.73	54.0	-16.27	78	2.923	Vertical	18.39
11.87 GHz	36.97	54.0	-17.03	327	2.393	Horizontal	16.19
16.44 GHz	38.28	54.0	-15.72	223	3.798	Horizontal	18.22

Table 8: Radiated Emissions 1 – 17 GHz at the Highest Frequency

Peak

Frequency	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
18.58 GHz	57.36	74.0	-16.64	347	Vertical	-0.32
24.78 GHz	56.87	74.0	-17.13	349	Vertical	1.45
37.88 GHz	53.24	74.0	-20.76	208	Vertical	3.71
39.70 GHz	53.61	74.0	-20.39	129	Vertical	2.85
18.59 GHz	54.30	74.0	-19.70	333	Horizontal	-0.37
24.78 GHz	53.30	74.0	-20.70	310	Horizontal	1.45
33.62 GHz	51.55	74.0	-22.45	142	Horizontal	2.16
37.26 GHz	53.62	74.0	-20.38	72	Horizontal	4.26

Avg

Frequency	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Azimuth (°)	Pol.	Correction (dB)
18.58 GHz	42.82	54.0	-11.18	347	Vertical	-0.32
24.78 GHz	49.30	54.0	-4.70	349	Vertical	1.45
37.88 GHz	37.09	54.0	-16.91	208	Vertical	3.71
39.70 GHz	36.83	54.0	-17.17	129	Vertical	2.85
18.59 GHz	40.34	54.0	-13.66	333	Horizontal	-0.37
24.78 GHz	40.89	54.0	-13.11	310	Horizontal	1.45
33.62 GHz	36.45	54.0	-17.22	142	Horizontal	2.16
37.26 GHz	36.42	54.0	-17.58	72	Horizontal	4.26

Table 9: Radiated Emissions 17 – 40 GHz at the Middle Frequency (worse case)

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 5 dBm EIRP in any 1 MHz band during any time interval of continuous transmission. Results of this testing are summarized.

See Section 2.2 for directional gain calculation.

Nss>1

Modulation (BW)	Freq. (MHz)	Data Rate	TP Setting	Total Sum PSD EIRP (dBm)	Antenna Gain (dBi)	Limit (dBm)	Margin (dBm)
EHT20	5955	Mcs0_Nss4	0	-7.41	12	-7	-0.41
EHT20	6195	Mcs0_Nss4	1	-7.46	12	-7	-0.46
EHT20	6415	Mcs0_Nss4	1	-7.91	12	-7	-0.91
EHT40	5965	Mcs0_Nss4	3	-7.28	12	-7	-0.28
EHT40	6205	Mcs0_Nss4	4	-7.32	12	-7	-0.32
EHT40	6405	Mcs0_Nss4	4	-7.71	12	-7	-0.71
EHT80	5985	Mcs0_Nss4	6	-7.64	12	-7	-0.64
EHT80	6225	Mcs0_Nss4	7	-7.26	12	-7	-0.26
EHT80	6385	Mcs0_Nss4	8	-7.17	12	-7	-0.17
EHT160	6025	Mcs0_Nss4	8	-7.26	12	-7	-0.26
EHT160	6185	Mcs0_Nss4	9	-7.75	12	-7	-0.75
EHT160	6325	Mcs0_Nss4	10	-7.54	12	-7	-0.54
EHT 320	6265	Mcs0_Nss4	12	-7.70	12	-7	-0.70

Nss=1

Modulation (BW)	Freq. (MHz)	Data Rate	TP Setting	Total Sum PSD EIRP (dBm)	Antenna Gain (dBi)	Limit (dBm)	Margin (dBm)
EHT20	5955	Mcs0_Nss1	-6	-13.59	12	-13.02	-0.57
EHT20	6195	Mcs0_Nss1	-5	-13.65	12	-13.02	-0.63
EHT20	6415	Mcs0_Nss1	-5	-13.87	12	-13.02	-0.85
EHT40	5965	Mcs0_Nss1	-3	-13.53	12	-13.02	-0.51
EHT40	6205	Mcs0_Nss1	-2	-13.65	12	-13.02	-0.63
EHT40	6405	Mcs0_Nss1	-2	-13.99	12	-13.02	-0.97
EHT80	5985	Mcs0_Nss1	0	-13.31	12	-13.02	-0.29
EHT80	6225	Mcs0_Nss1	1	-13.57	12	-13.02	-0.55
EHT80	6385	Mcs0_Nss1	1	-13.97	12	-13.02	-0.95
EHT160	6025	Mcs0_Nss1	3	-13.23	12	-13.02	-0.21
EHT160	6185	Mcs0_Nss1	4	-13.39	12	-13.02	-0.37
EHT160	6325	Mcs0_Nss1	4	-13.75	12	-13.02	-0.73
EHT 320	6265	Mcs0_Nss1	6	-13.98	12	-13.02	-0.96

RU PSD

Modulation (BW)	Freq. (MHz)	TP Setting	RU PSD Edge EIRP (dBm)	RU PSD Center EIRP (dBm)	Antenna Gain (dBi)	Limit (dBm)	Margin Edge (dBm)	Margin Center (dBm)
EHT20	6195	-4	-7.99	-7.49	12	-7	-0.99	-0.49
EHT40	6205	1	-7.83	-7.13	12	-7	-0.83	-0.13
EHT80	6225	5	-8.31	-7.10	12	-7	-1.31	-0.10
EHT160	6185	0	-9.06	-7.90	12	-7	-2.06	-0.90
EHT 320	6265	1	-8.95	-7.53	12	-7	-1.95	-0.53

Result

The maximum average power spectral density was less than the adjusted limit of -7 dBm EIRP (adjusted limit of -7 Nss>1 and -13.02 Nss=1); therefore, the EUT complies with the specification.

5.6.1 OFDMA RU Check

If EUT supports OFDMA multiple partial Resource Unit (RU) configurations were verified and the worst case mode was tested.

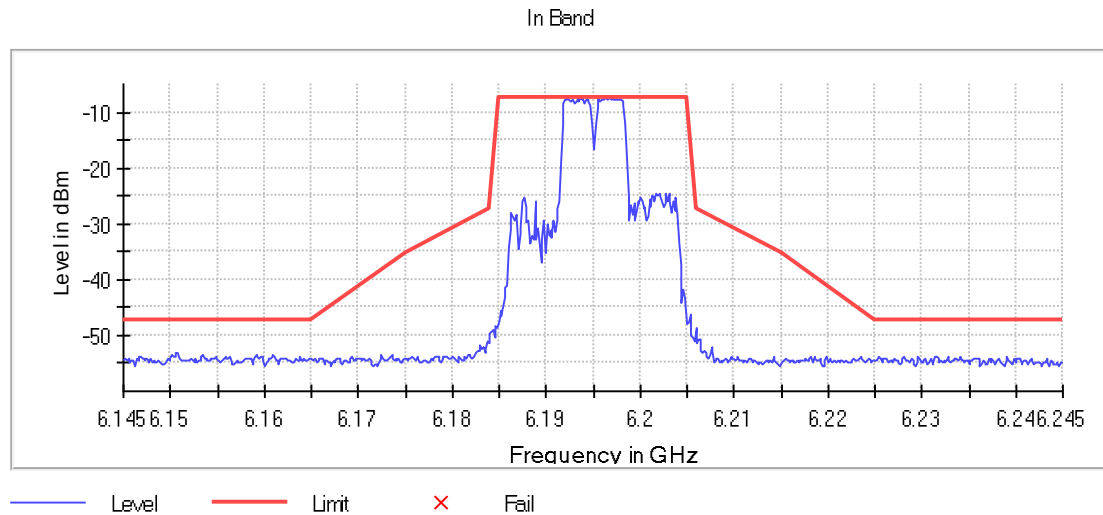


Figure 5: 6195 20MHz RU Vérification - Center

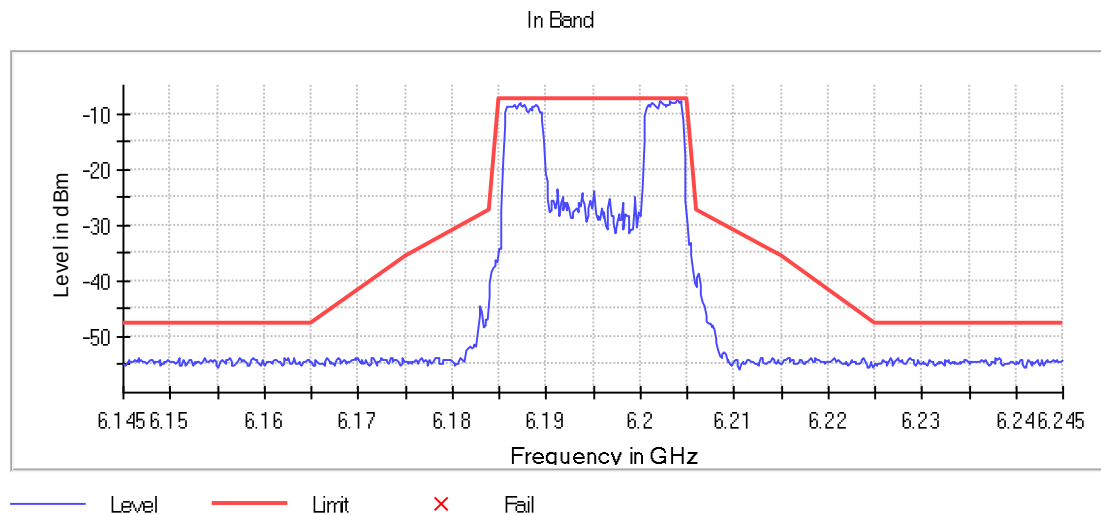


Figure 6: 6195 20MHz RU Vérification - Edge

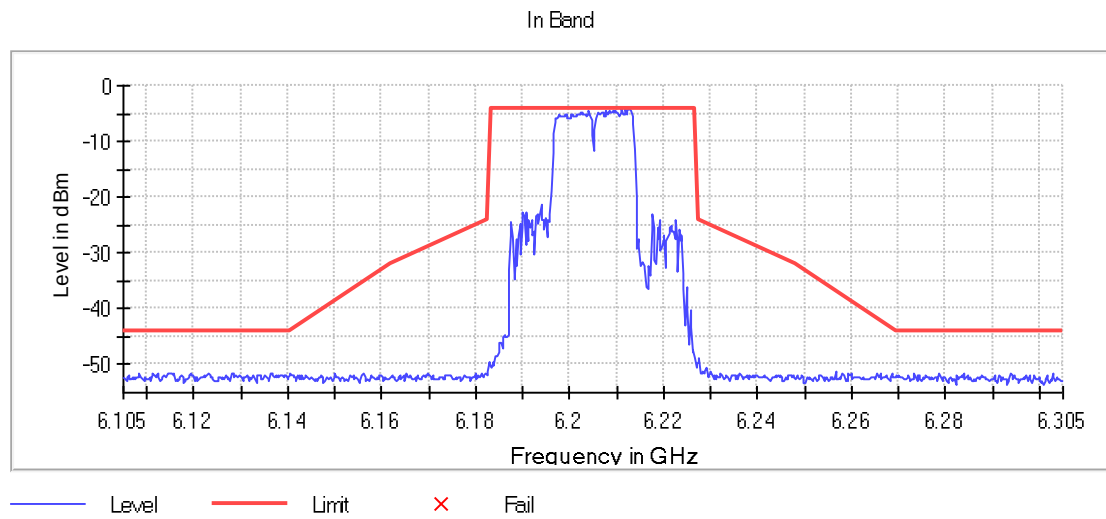


Figure 7: 6205 40MHz RU Vérification - Center

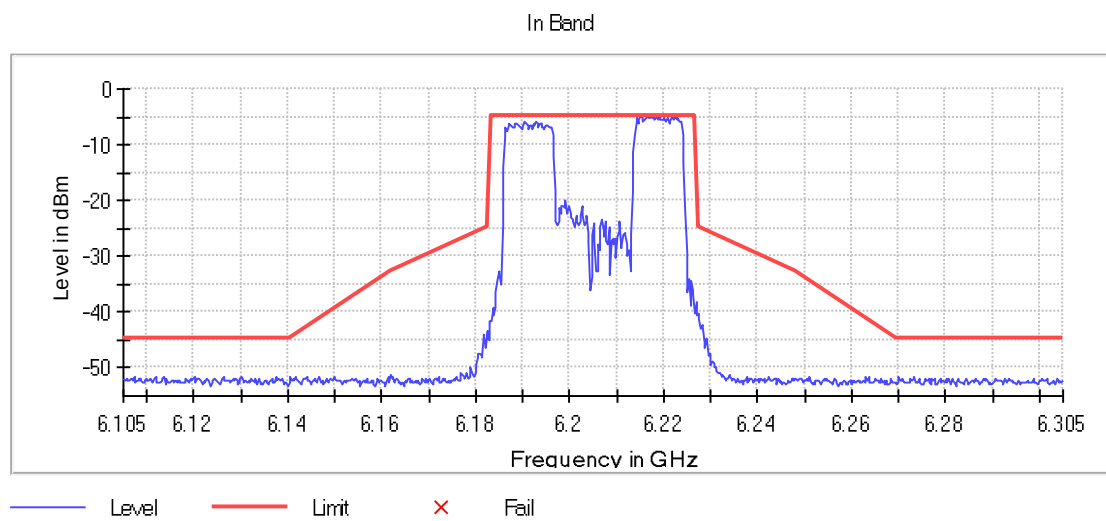


Figure 8: 6205 40MHz RU Vérification - Edge

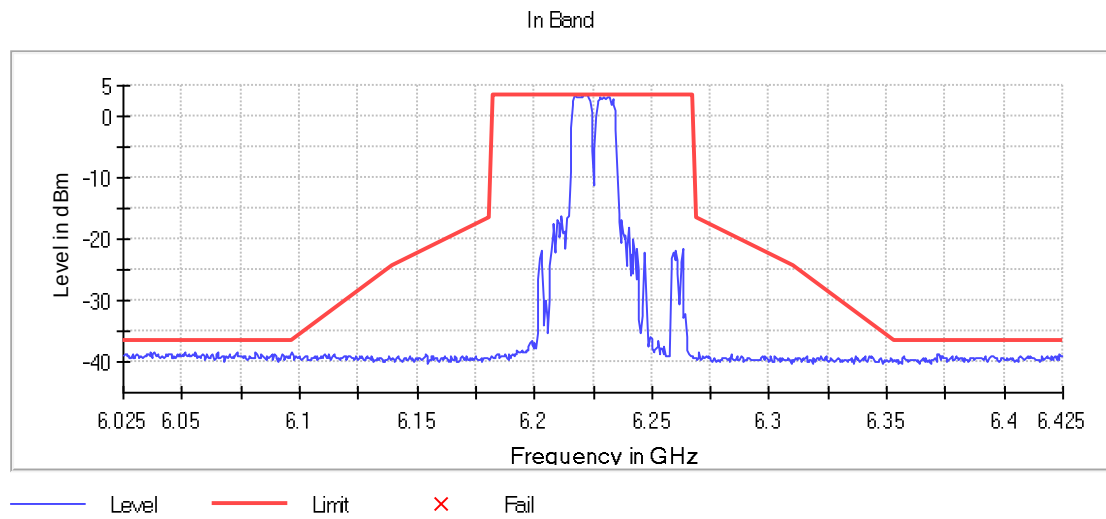


Figure 9: 6225 80MHz RU Vérification - Center

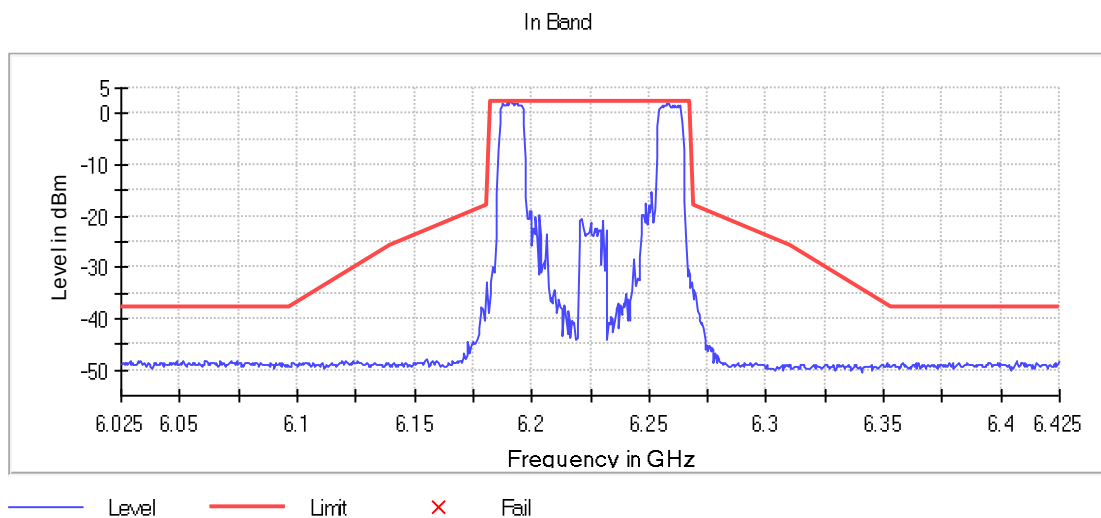


Figure 10: 6225 80MHz RU Vérification – Edge

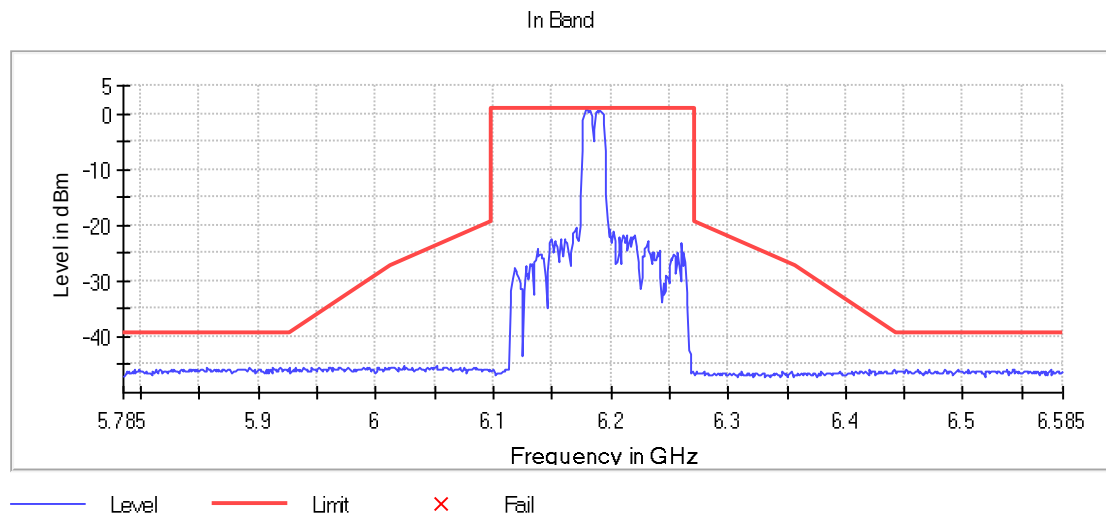


Figure 11: 6185 160MHz RU Vérification - Center

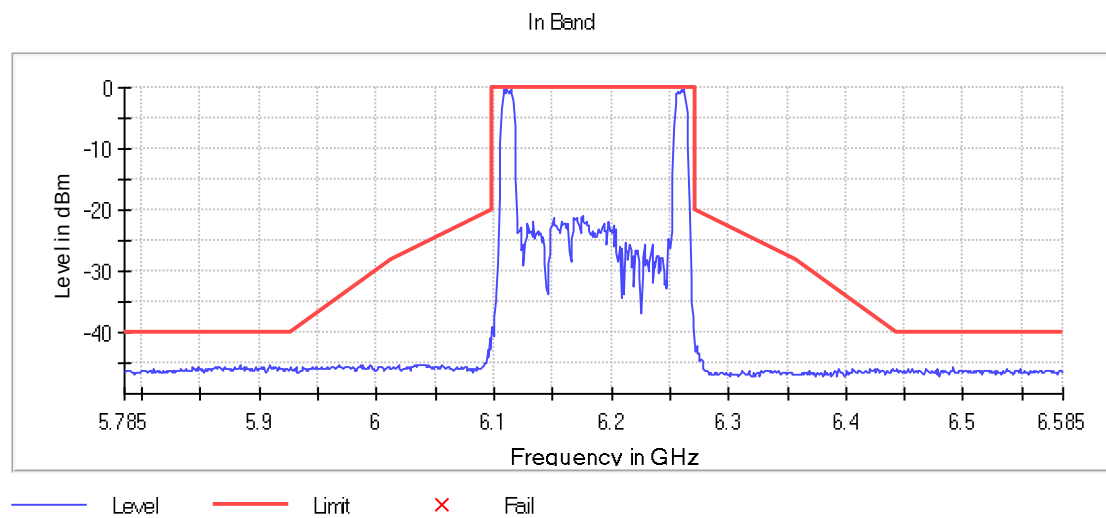


Figure 12: 6185 160MHz RU Vérification - Edge

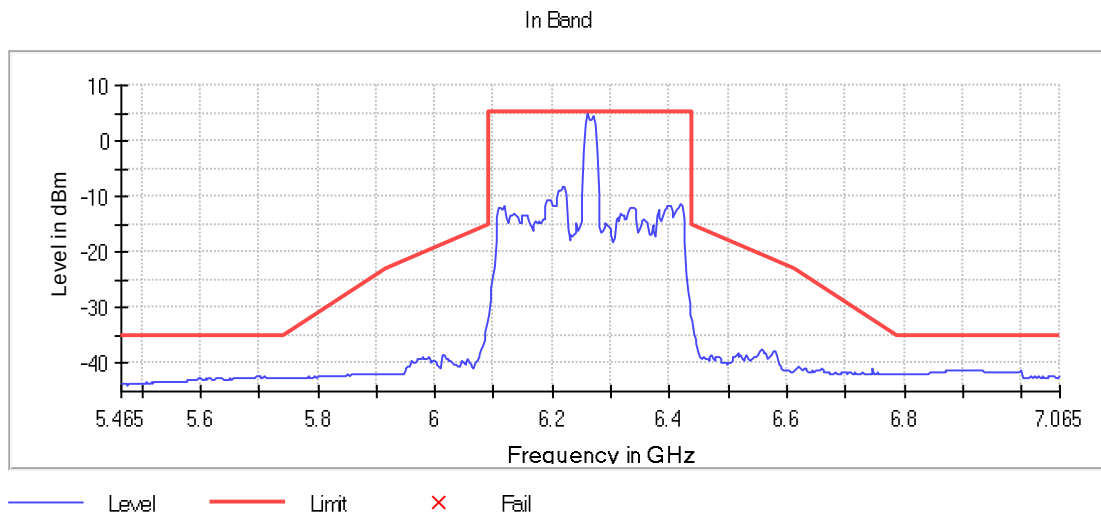


Figure 13: 6265 320MHz RU Vérification - Center

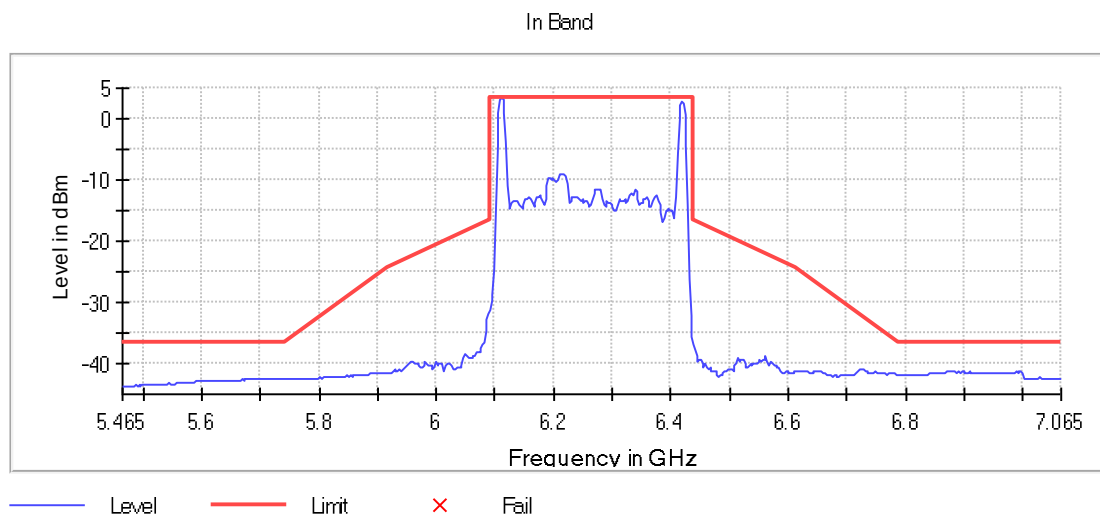


Figure 14: 3265 320MHz RU Vérification - Edge

5.7 §15.407(d) Contention Based Protocol

This product was tested and found to be compliant with the requirements of Contention-based Protocol as specified in FCC Part 15.407 and KDB 987594 D02.

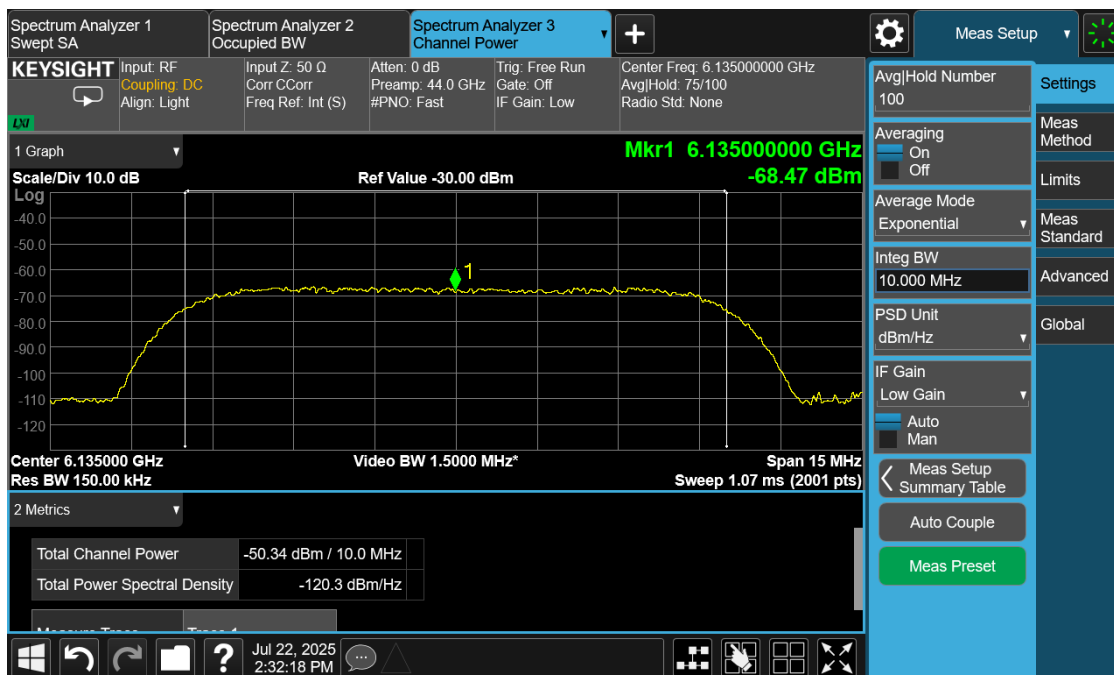
Initially the test setup was connected directly to the signal source with all splitters (splitters terminated with a 50-ohm loads on unused ports) and cables in place to verify the AWGN signal is 10MHz wide at a signal level of less than or equal to -62dBm and for conducted measurements the threshold was adjusted for an antenna gain of 12 dBi. The level at the signal generator required to achieve the required signal level at the DUT was recorded for use during testing.

The DUT was connected as shown in figure 4 above and set to transmit at a constant duty cycle at each frequency and bandwidth noted in the table below and verified to be communicating with the companion device as intended.

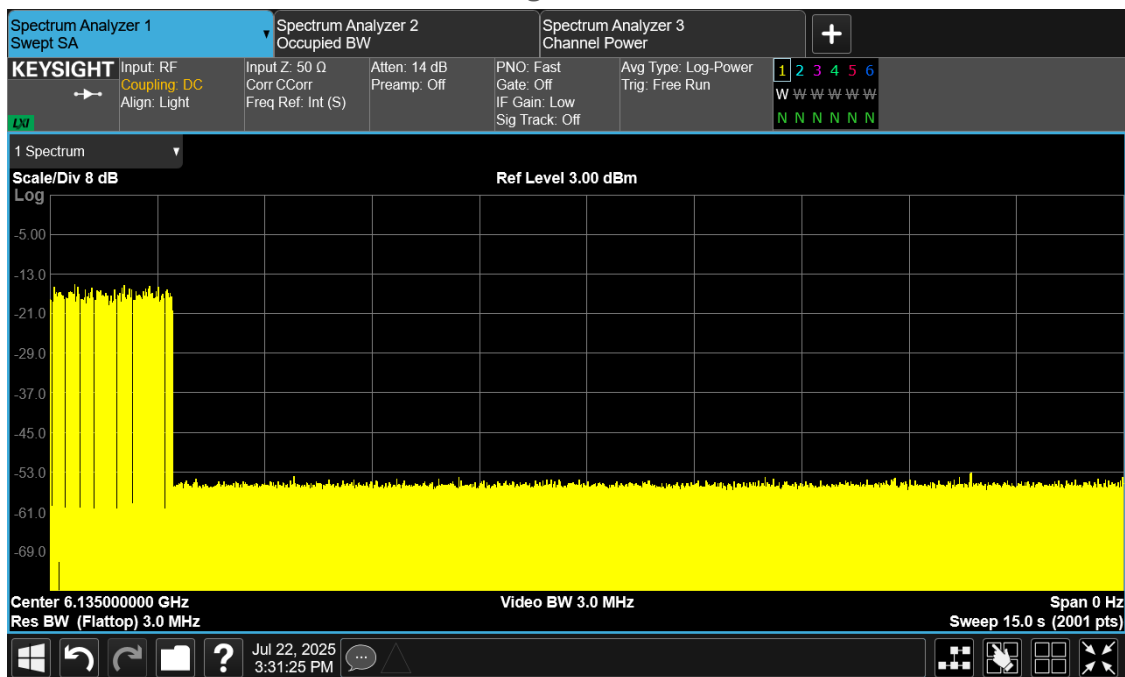
Starting at the levels established above, the AWGN signal was introduced to the DUT and increased to determine a threshold level at where the DUT will terminate with at least a 90% detection rate. The level at the DUT, which the 90% detection rate was achieved was recorded as the “Sensitivity Level” below.

Any measurement below the sensitivity level will result in the Tx minimal and any further measurement below the sensitivity level will result in Tx on.

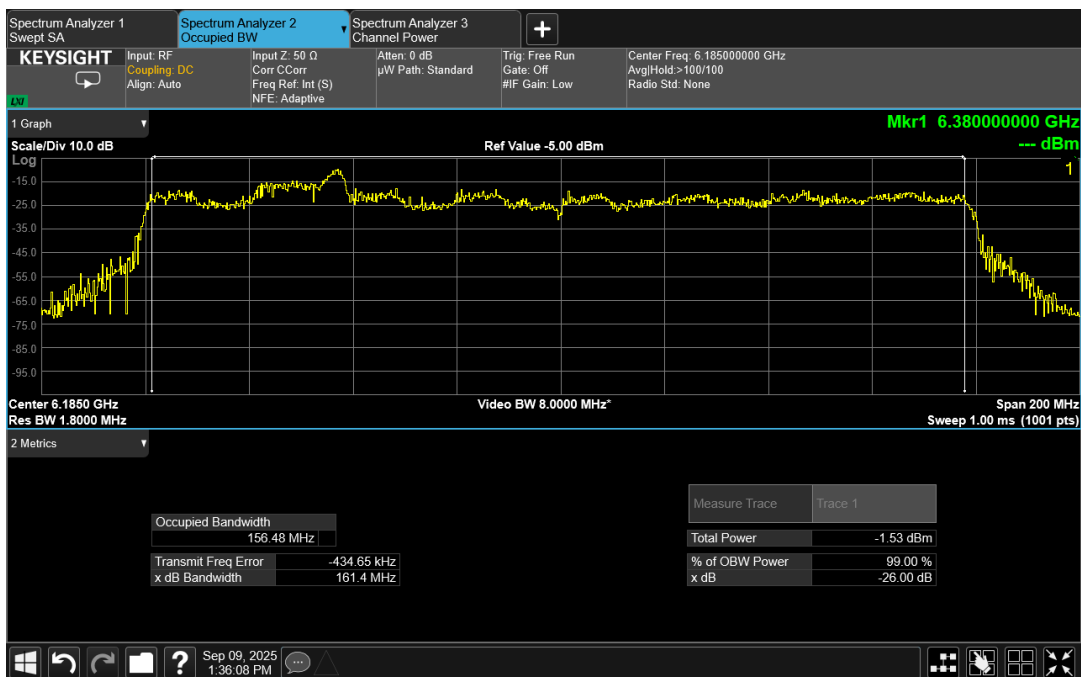
Testing shall be repeated at each applicable channel and bandwidth as noted in Table 1 of KDB 987594 D02.



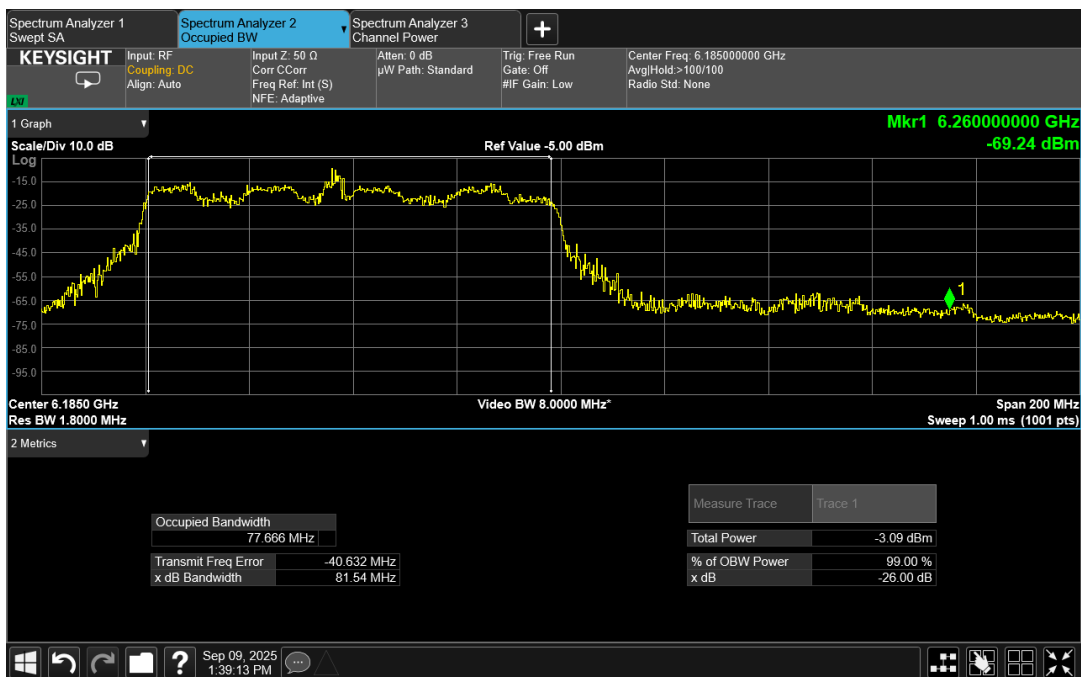
Plot 1: AWGN Signal BW/Power Details



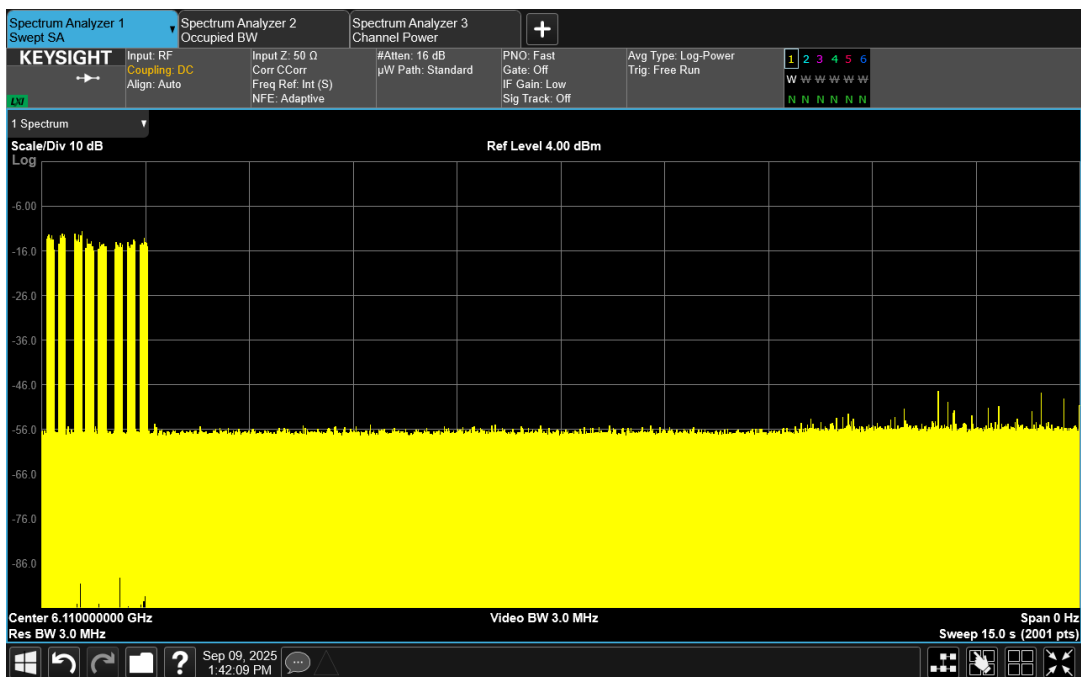
Plot 2: AWGN Signal Detection 20MHz



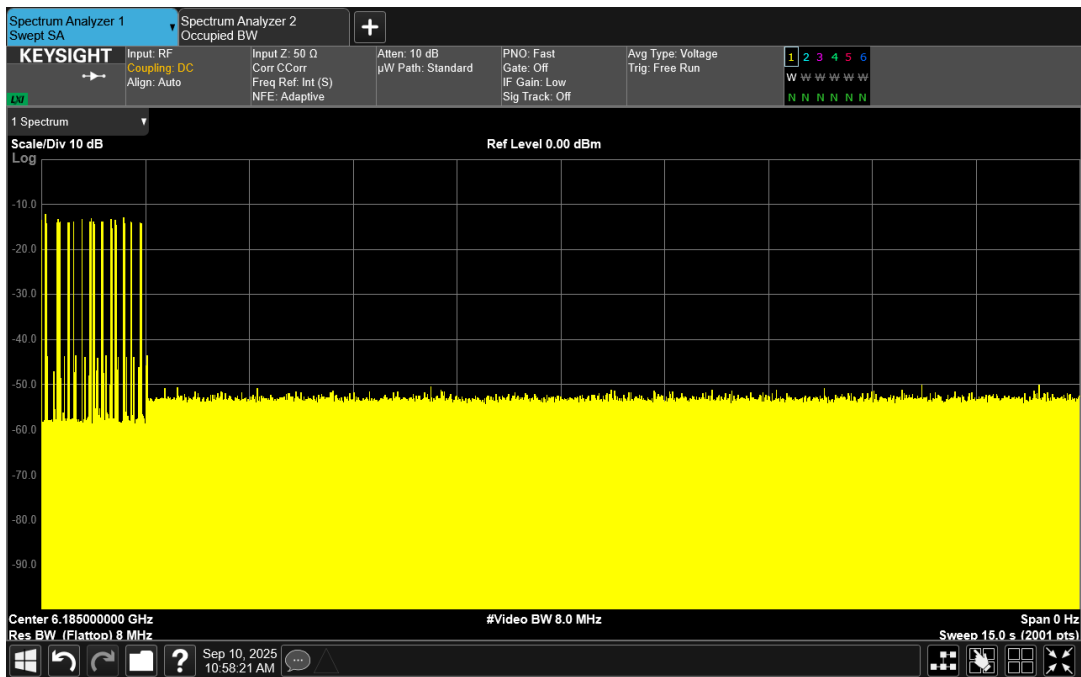
Plot 3: EUT 160MHz Bandwidth



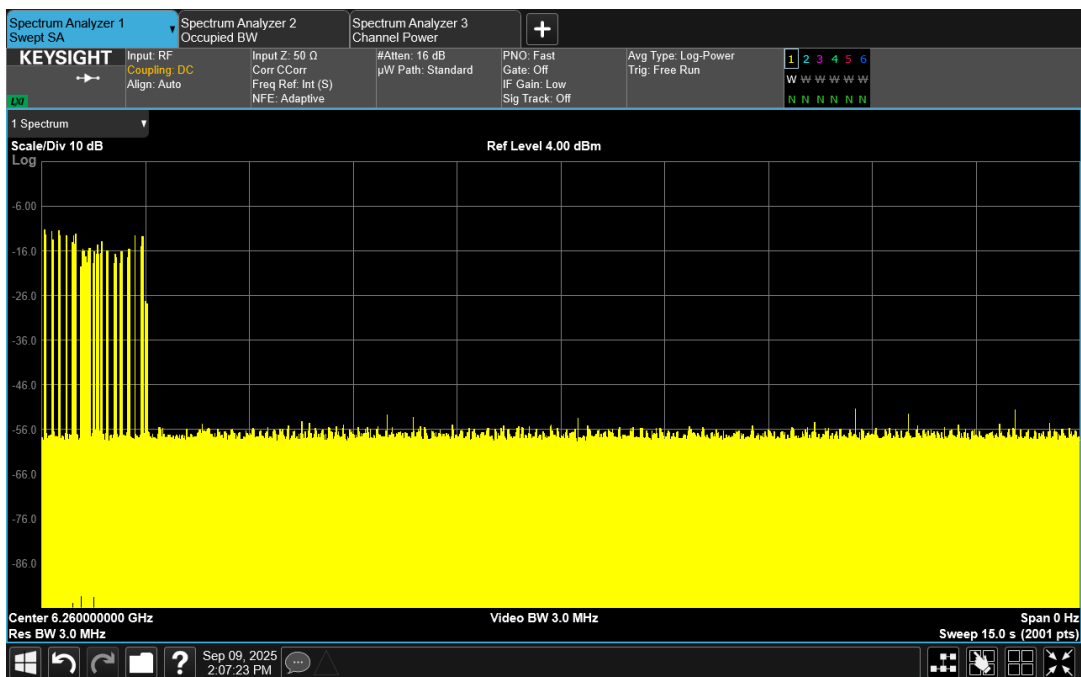
Plot 4: EUT 160MHz Bandwidth Reduction



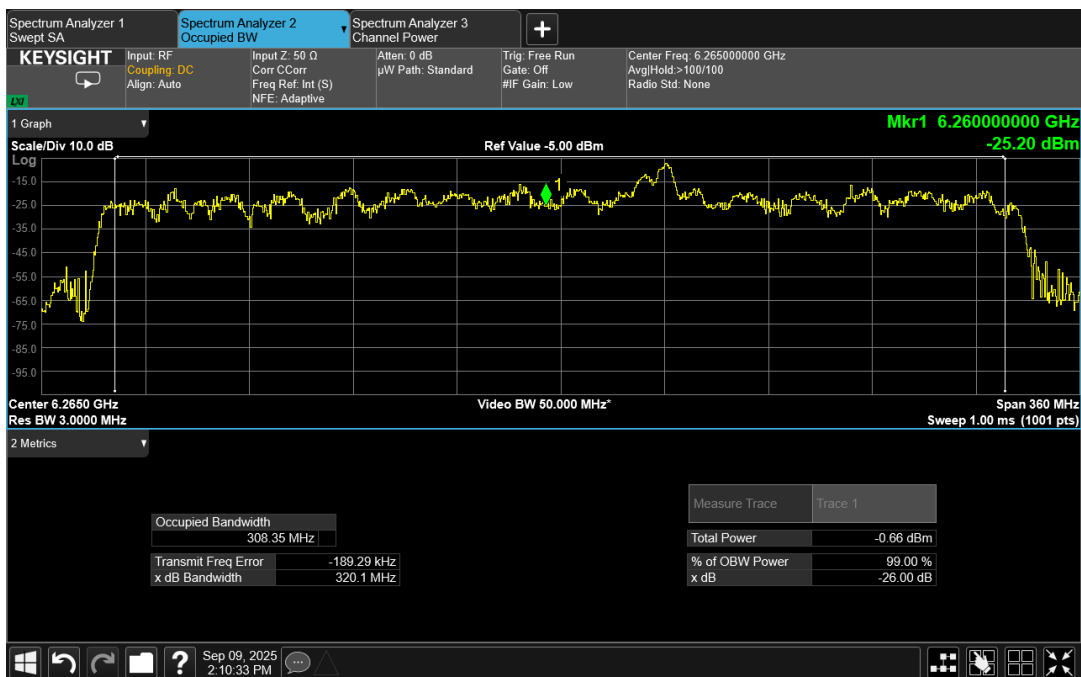
Plot 5: AWGN Signal Detection 160MHz



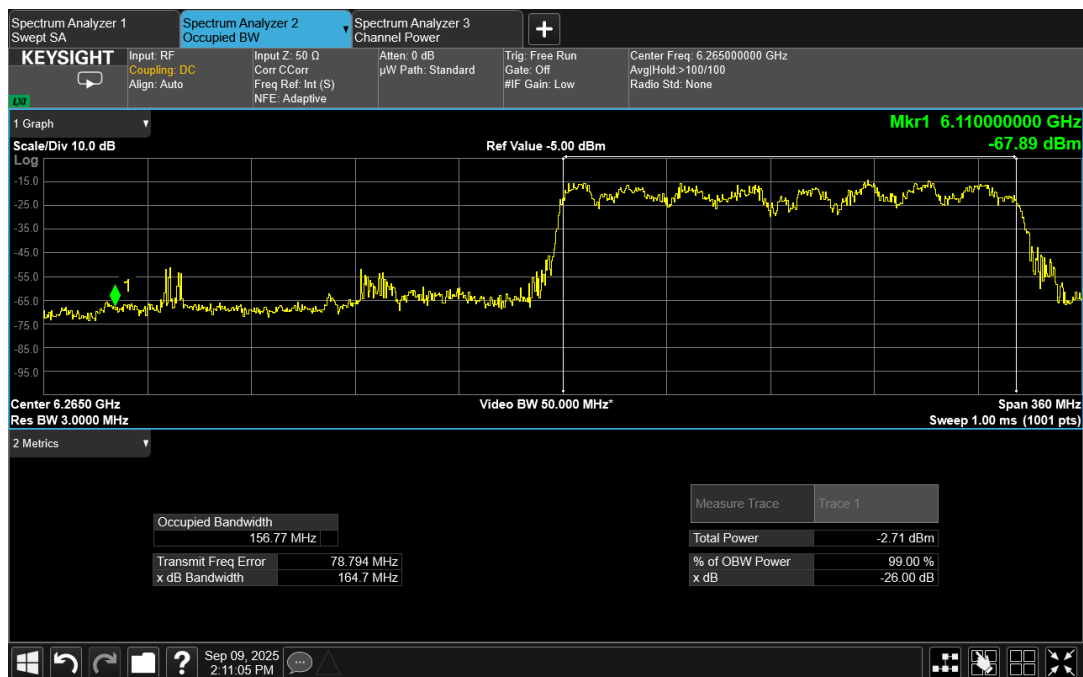
Plot 6: AWGN Signal Detection 160MHz



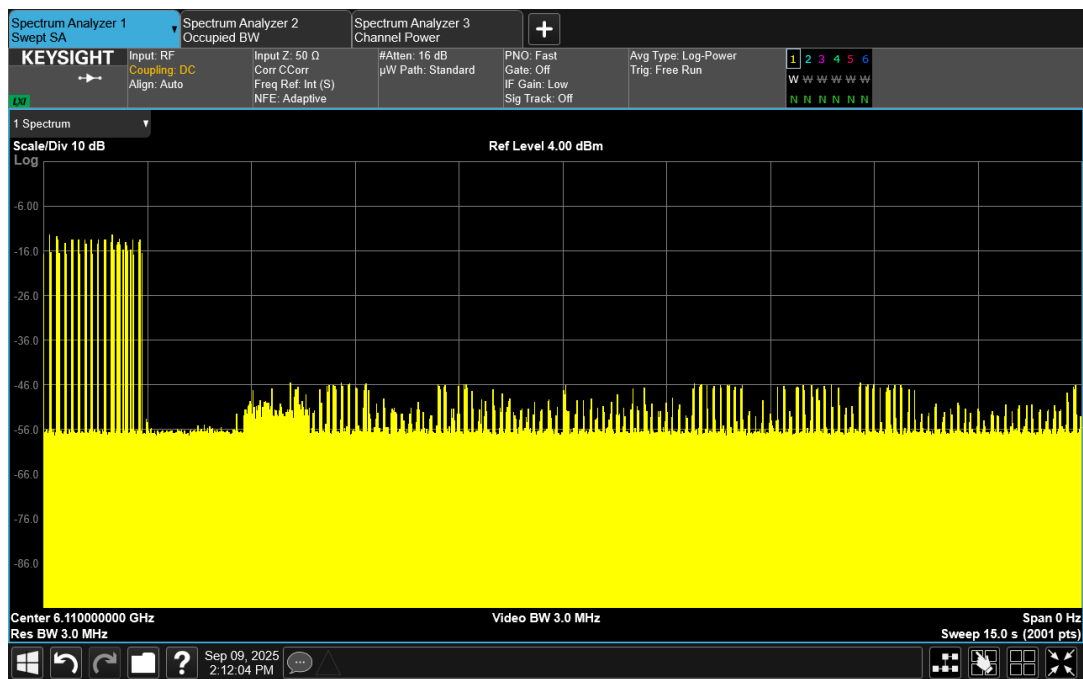
Plot 7: AWGN Signal Detection 160MHz



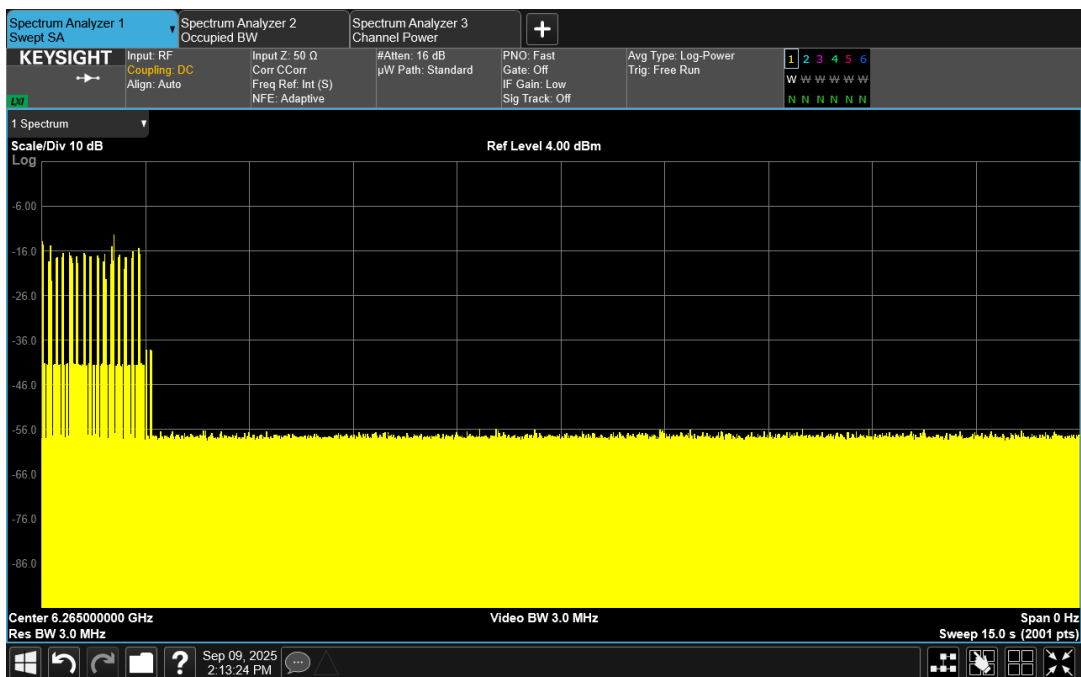
Plot 8: EUT 320MHz Bandwidth



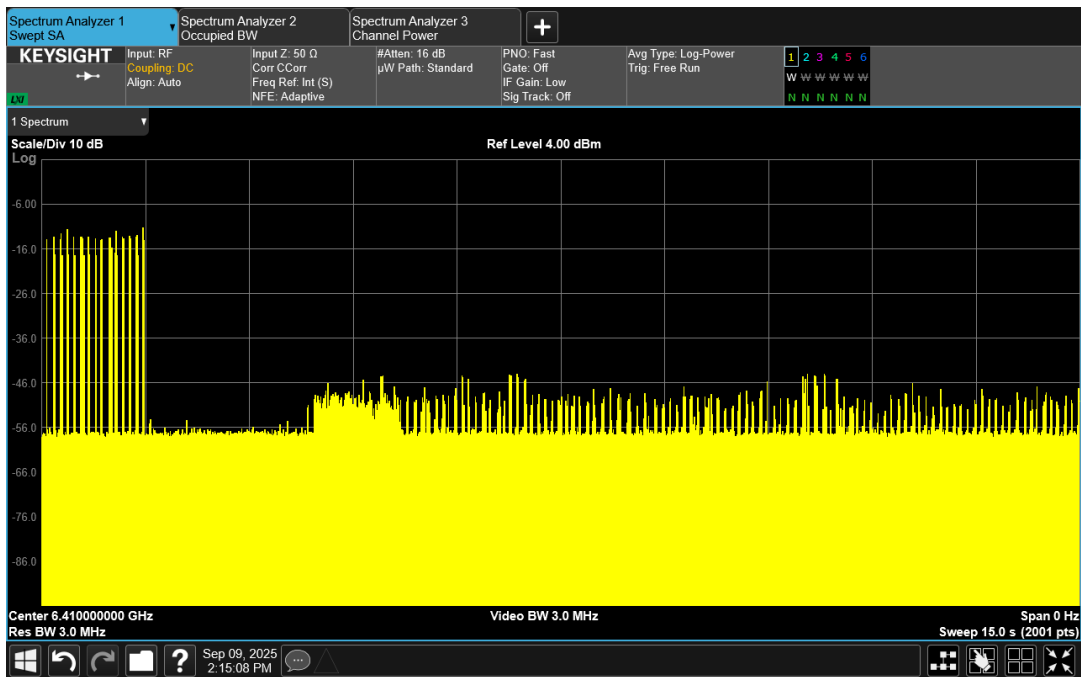
Plot 9: EUT 320MHz Bandwidth Reduction



Plot 10: AWGN Signal Detection 320MHz



Plot 11: AWGN Signal Detection 320MHz



Plot 12: AWGN Signal Detection 320MHz

Contention Based Protocol 987594 D02 U-NNI 6 GHz EMC Measurement

Band	BW _{EUT}	F _{c1}	F _{c2}	Reduce Transmission (dBm)	Stop Tx AWGN Power (dBm)	Adjusted Power (dBm)	Limit (dBm)	Margin (dB)	Result Detection >90%
UNII-5 5.925 - 6.425GHz	20	6135	6135	-46	-44	-62.8	-50	-12.8	Pass
	160	6185	6110	-46	-44	-62.8	-50	-12.8	Pass
			6185	-45	-33	-51.8	-50	-1.8	Pass
			6260	-53	-51	-69.8	-50	-19.8	Pass
	320	6265	6110	-51	-49	-67.8	-50	-17.8	Pass
			6265	-46	-42	-60.8	-50	-10.8	Pass
			6410	-51	-42	-60.8	-50	-10.8	Pass
UNII-6 6.425 - 6.525GHz	20	6455	6455	-48	-44	-62.8	-50	-12.8	Pass
	160	6505	6430	-48	-42	-60.8	-50	-10.8	Pass
			6505	-46	-42	-60.8	-50	-10.8	Pass
			6580	-47	-43	-61.8	-50	-11.8	Pass
UNII-7 6.525 - 6.875GHz	20	6695	6695	-51	-48	-66.8	-50	-16.8	Pass
	160	6665	6595	-51	-48	-66.8	-50	-16.8	Pass
			6665	-45	-33	-51.8	-50	-1.8	Pass
			6740	-51	-47	-65.8	-50	-15.8	Pass
	320	6745	6590	-51	-46	-64.8	-50	-14.8	Pass
			6745	-46	-42	-60.8	-50	-10.8	Pass
			6890	-46	-42	-60.8	-50	-10.8	Pass
UNII-8 6.875 - 7.125GHz	20	7015	7015	-46	-42	-60.8	-50	-10.8	Pass
	160	6985	6910	-49	-47	-65.8	-50	-15.8	Pass
			6985	-53	-32	-50.8	-50	-0.8	Pass
			7060	-47	-44	-62.8	-50	-12.8	Pass

Min. Antenna Gain (dBi)	12	Ports	Path Loss (dBm)	AWGN BW (Clock)	
Max Threshold Level (TL)	-50	6G0 - 6G4	-18.8	23MHz	

Table 10: Trial Table

CBP Path Loss is – 22 dB

Detection Level = Injected AWGN Power (dBm) – Antenna Gain (dBi) + Path Loss (dB)

Result

The EUT complies with the specification.

-- End of Test Report --