RADIO TEST REPORT

Product	:	IEEE 802.11ax/ac/a/b/g/n WiFi6E with BT5.2 Module
Model Name	:	ACB-QCA206x
Series Model	:	ACB-QCA2066-0WI1, ACB-QCA2066-0WX1, ACB-QCA2066-5WI1, ACB-QCA2066-5WX1, ACB-QCA2066-0WI4, ACB-QCA2066-0WX4, ACB-QCA2066-5WI4, ACB-QCA2066-5WX4
FCC ID	:	2AE3B-ACB-QCA206X
Test Regulation	:	FCC 47 CFR Part 15 Subpart E (Section 15.407)
Received Date	:	2023/6/26
Test Date	:	2023/7/1 ~ 2023/8/11
Issued Date	:	2023/9/6
Applicant	:	VOXMICRO LTD 20955 Pathfinder Rd., STE 100, Diamond Bar, California 91765, USA
Issued By	:	Underwriters Laboratories Taiwan Co., Ltd. Building A, B and E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Testing Laboratory
3398

REVISION HISTORY

Original Test Report No.: 4790836594-US-R2-V0

Revision	Test report No.	Date	Page revised	Contents
Original	4790836594-US-R2-V0	2023/9/6	-	Initial issue

Table of Contents

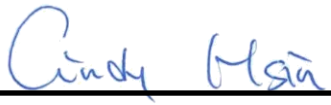
1. Attestation of Test Results

APPLICANT:	VOXMICRO LTD 20955 Pathfinder Rd., STE 100, Diamond Bar, California 91765, USA
MANUFACTURER:	VOXMICRO LTD 8F.-3, No.5, Aly. 22, Ln. 513, Rueiguang Rd., Neihu Dist., Taipei City 114, Taiwan
EUT DESCRIPTION:	IEEE 802.11ax/ac/a/b/g/n WiFi6E with BT5.2 Module
BRAND:	AIRETOS
MODEL:	ACB-QCA206x
SERIES MODEL:	ACB-QCA2066-0WI1, ACB-QCA2066-0WX1, ACB-QCA2066-5WI1, ACB-QCA2066-5WX1, ACB-QCA2066-0WI4, ACB-QCA2066-0WX4, ACB-QCA2066-5WI4, ACB-QCA2066-5WX4
SAMPLE STAGE:	Engineering Verification Test sample
DATE of TESTED:	2023/7/1 ~ 2023/8/11

APPLICABLE STANDARDS	
STANDARD	**Test Results**
FCC 47 CFR PART 15 Subpart E (Section 15.407)	PASS

Underwriters Laboratories Taiwan Co., Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by Underwriters Laboratories Taiwan Co., Ltd. based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Underwriters Laboratories Taiwan Co., Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Underwriters Laboratories Taiwan Co., Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Prepared By:



Cindy Hsin Date : 2023/9/6
Project Handler

Approved and Authorized By:

Kent Liu Date : 2023/9/6
Senior Laboratory Engineer

2. Summary of Test Results

Summary of Test Results		
FCC Clause	**Test Items**	**Result**
15.407(b)(8)	AC Power Conducted Emissions	PASS
15.407(b)(5)(8)	Radiated Emissions	PASS
15.407(b)(6)	In-Band Emission (Mask)	PASS
15.407(a)(4/5/6/7/8)	Max Average Transmit Power	PASS
15.407(a)(10)	Emission Bandwidth Measurement	PASS
15.407(a)(4/5/6/7/8)	Peak Power Spectral Density	PASS
15.407 (d)(6)	Contention-based Protocol.	PASS
15.407(g)	Frequency Stability	PASS
15.407(a)(7)(8)	Dual Client- Proper Power Adjustment	PASS
15.407(d)(5)	Operational restrictions for 6 GHz U-NII devices	PASS
15.203	Antenna Requirement	PASS

3. Test Methodology and Reference Procedures

The tests documented in this report were performed in accordance with 47 CFR FCC Part 2, KDB 789033 D02 General UNII Test Procedure New Rules v02r01, KDB414788 D01 Radiated Test Site v01r01, ANSI C63.10-2013, KDB 987594 D02 U-NII 6 GHz EMC Measurement v02r01 and KDB 662911 D01 Multiple Transmitter Output v02r01.

4. Facilities and Accreditation

Test Location	Underwriters Laboratories Taiwan Co., Ltd.
Address	Building A, B and E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Accreditation Certificate	Underwriters Laboratories Taiwan Co., Ltd. is accredited by TAF, Laboratory Code 3398.

5. Measurement Uncertainty

For statement of conformity, Simple acceptance (Section 4.3.4 of ISO Guide 115) was applied as decision rule for measurement in this test report.

The following uncertainties have been calculated to provide a confidence level of 95 % using a coverage factor k=2.

Determining compliance based on the results of the compliance measurement, not considering measurement instrumentation uncertainty.

Measurement	Frequency	Uncertainty
Conducted disturbance at mains terminals ports	150kHz ~ 30MHz	±3.1 dB
RF Conducted	9 kHz - 40GHz	±2.3 dB
Radiated disturbance below 30MHz	9 kHz - 30 MHz	±3.2 dB
Radiated disturbance below 1 GHz	30MHz ~ 1GHz	±6.1 dB
Radiated disturbance above 1 GHz	1GHz ~ 40GHz	±5.1 dB

6. Equipment under Test

6.1. Description of EUT

Product	IEEE 802.11ax/ac/a/b/g/n WiFi6E with BT5.2 Module	
Brand Name	AIRETOS	
Model Name	ACB-QCA206x	
Series Model	ACB-QCA2066-0WI1, ACB-QCA2066-0WX1, ACB-QCA2066-5WI1, ACB-QCA2066-5WX1, ACB-QCA2066-0WI4, ACB-QCA2066-0WX4, ACB-QCA2066-5WI4, ACB-QCA2066-5WX4	
Operating Frequency	5.955 ~ 6.415GHz, 6.435 ~ 6.515GHz, 6.535 ~ 6.855GHz, 6.875 ~ 7.115GHz	
Modulation	1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK	
Transfer Rate	802.11a: up to 54 Mbps 802.11n: up to MCS15 802.11ac: up to MCS9 802.11ax: up to MCS11	
Number of Channel	5925 ~ 6425MHz	25 for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20)
		12 for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40)
		6 for 802.11ac (VHT80), 802.11ax (HE80)
		3 for 802.11ac (VHT160), 802.11ax (HE160)
	6425 ~ 6525MHz	5 for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20)
		3 for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40)
		2 for 802.11ac (VHT80), 802.11ax (HE80)
		1 for 802.11ac (VHT160), 802.11ax (HE160)
	6525 ~ 6875MHz	17 for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20)
		8 for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40)
		3 for 802.11ac (VHT80), 802.11ax (HE80)
		1 for 802.11ac (VHT160), 802.11ax (HE160)

Number of Channel	6875 ~ 7125MHz	13 for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20)
		6 for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40)
		3 for 802.11ac (VHT80), 802.11ax (HE80)
		2 for 802.11ac (VHT160), 802.11ax (HE160)
Maximum Output Power	5925 ~ 6425MHz: 14.14 dBm 6425 ~ 6525MHz: 14.12 dBm 6525 ~ 6875MHz: 13.96 dBm 6875 ~ 7125MHz: 14.07 dBm	
Normal Voltage	3.3 Vdc from host system	
Sample ID	6199534	

Note:

1. The models difference table as below:

Model	Difference
ACB-QCA206x	Market assignment classification for application and grade finish
ACB-QCA2066-0WI1	
ACB-QCA2066-0WX1	
ACB-QCA2066-5WI1	
ACB-QCA2066-5WX1	
ACB-QCA2066-0WI4	
ACB-QCA2066-0WX4	
ACB-QCA2066-5WI4	
ACB-QCA2066-5WX4	

2. The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and two receivers.

Modulation Mode	Tx,Rx Function
802.11a	2TX,2RX
802.11n (HT20)	2TX,2RX
802.11n (HT40)	2TX,2RX
802.11ac (VHT20)	2TX,2RX
802.11ac (VHT40)	2TX,2RX
802.11ac (VHT80)	2TX,2RX
802.11ac (VHT160)	2TX,2RX
802.11ax (HE20)	2TX,2RX
802.11ax (HE 40)	2TX,2RX
802.11ax (HE 80)	2TX,2RX
802.11ax (HE 160)	2TX,2RX

* The modulation and bandwidth are similar for 802.11n mode for HT20 / HT40 and 802.11ac mode for VHT20 / VHT40 / VHT80 / VHT160 and 802.11ax mode for HE20 / HE40 / HE80 / HE160, therefore investigated worst case to representative mode in test report.

3. The EUT contains following accessory devices.

Product	Brand	Model	Description
Antenna	OXFORDTEC	WANT-4DBI-SMA	-

4. The above EUT information is declared by manufacturer and for more detailed features description, please refer the manufacturer's or user's manual, the laboratory shall not be held responsible.

6.2. Channel List

FOR 5925 ~ 6425MHz (U-NII-5 band)

25 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
2	5935 MHz	25	6075 MHz	49	6195 MHz	73	6315 MHz
1	5955 MHz	29	6095 MHz	53	6215 MHz	77	6335 MHz
5	5975 MHz	33	6115 MHz	57	6235 MHz	81	6355 MHz
9	5995 MHz	37	6135 MHz	61	6255 MHz	85	6375 MHz
13	6015 MHz	41	6155 MHz	65	6275 MHz	89	6395 MHz
17	6035 MHz	45	6175 MHz	69	6295 MHz	93	6415 MHz
21	6055 MHz	-	-	-	-	-	-

12 channels are provided for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
3	5965 MHz	27	6085 MHz	51	6205 MHz	75	6325 MHz
11	6005 MHz	35	6125 MHz	59	6245 MHz	83	6365 MHz
19	6045 MHz	43	6165 MHz	67	6285 MHz	91	6405 MHz

6 channels are provided for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency	Channel	Frequency	Channel	Frequency
7	5985 MHz	39	6145 MHz	71	6305 MHz
23	6065 MHz	55	6225 MHz	87	6385 MHz

3 channels are provided for 802.11ac (VHT160), 802.11ax (HE160):

Channel	Frequency	Channel	Frequency	Channel	Frequency
15	6025 MHz	47	6185 MHz	79	6345 MHz

FOR 6425 ~ 6525MHz (U-NII-6 band)

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Channel	Frequency	Channel	Frequency	Channel	Frequency
97	6435 MHz	105	6475 MHz	113	6515 MHz
101	6455 MHz	109	6495 MHz	-	-

3 channels are provided for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Channel	Frequency	Channel	Frequency	Channel	Frequency
99	6445 MHz	107	6485 MHz	*115	6525 MHz

2 channels are provided for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency	Channel	Frequency
103	6465 MHz	*119	6545 MHz

1 channel is provided for 802.11ac (VHT160), 802.11ax (HE160):

Channel	Frequency
*111	6505 MHz

FOR 6525 ~ 6875MHz (U-NII-7 band)

17 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
117	6535 MHz	137	6635 MHz	153	6715 MHz	169	6795 MHz
121	6555 MHz	141	6655 MHz	157	6735 MHz	173	6815 MHz
125	6575 MHz	145	6675 MHz	161	6755 MHz	177	6835 MHz
129	6595 MHz	149	6695 MHz	165	6775 MHz	181	6855 MHz
133	6615 MHz	-	-	-	-	-	-

8 channels are provided for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
123	6565 MHz	139	6645 MHz	155	6725 MHz	171	6805 MHz
131	6605 MHz	147	6685 MHz	163	6765 MHz	179	6845 MHz

3 channels are provided for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency	Channel	Frequency	Channel	Frequency
135	6625 MHz	151	6705 MHz	167	6785 MHz

1 channel is provided for 802.11ac (VHT160), 802.11ax (HE160):

Channel	Frequency
143	6665 MHz

FOR 6875 ~ 7125MHz (U-NII-8 band):

13 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20):

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
185	6875 MHz	201	6955 MHz	213	7015 MHz	225	7075 MHz
189	6895 MHz	205	6975 MHz	217	7035 MHz	229	7095 MHz
193	6915 MHz	209	6995 MHz	221	7055 MHz	233	7115 MHz
197	6935 MHz	-	-	-	-	-	-

6 channels are provided for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40):

Channel	Frequency	Channel	Frequency	Channel	Frequency
*187	6885 MHz	203	6965 MHz	219	7045 MHz
195	6925 MHz	211	7005 MHz	227	7085 MHz

3 channels are provided for 802.11ac (VHT80), 802.11ax (HE80):

Channel	Frequency	Channel	Frequency	Channel	Frequency
*183	6865 MHz	199	6945 MHz	215	7025 MHz

2 channels are provided for 802.11ac (VHT160), 802.11ax (HE160):

Channel	Frequency	Channel	Frequency
*175	6825 MHz	207	6985 MHz

Note: * mean this's straddle channel.

6.3. Test Condition

Test Item	Test Site No.	Environmental Condition	Input Power	Test Date	Tested by
Antenna Port Conducted Measurement	SR4	21~28°C/ 51~69%RH	3.3 Vdc from host system	2023/07/18~ 2023/08/11	Rex Chen
Radiated Spurious Emission	966-2	21~28°C/ 51~69%RH	3.3 Vdc from host system	2023/07/01~ 2023/08/11	Rex Chen
AC power Line Conducted Emission	SR1	21~28°C/ 51~69%RH	3.3 Vdc from host system	2023/08/07~ 2023/08/11	Rex Chen

FCC Test Firm Registration Number: 498077

Sample Calculation:

Antenna Port Conducted Measurement:

- Where relevant, the follow sample calculation is provided:
  Result Value (dBm) = Reading Value (dBm) +Attenuator Factor (dB) + Cable Loss (dB).
  Example: Result Value (10dBm) = Reading Value (-2dBm) +Attenuator Factor (10dB) + Cable Loss(2dB).
  *Test plot only shown the “Result Value”.

Radiated Spurious Emission:

- Where relevant, the follow sample calculation is provided:
  Result Value (dBuV/m) = Reading Value (dBuV) + Correction Factor (dB/m).
  Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - Preamp Factor (dB).
  Example: Result Value (34.5dBuV/m) = Reading Value (40.1dBuV) + Antenna Factor (18.7dB/m) + Cable Loss (4.2dB) - Preamp Factor (28.5dB).

AC power Line Conducted Emission:

- Where relevant, the follow sample calculation is provided:
  Result Value (dBuV) = Reading Value (dBuV) + Correction Factor (dB).
  Correction Factor (dB) = Insertion loss(dB) + Cable loss(dB).
  Example: Result Value (53.7dBuV) = Reading Value (35.1dBuV) + Insertion loss(18.1dB) + Cable loss(0.5dB).

6.4. Description of Available Antennas

Ant. No.	Transmitter Circuit	Brand Name	Model Name	Ant. Type	Maximum Gain (dBi)
1	Chain (0+1)	OXFORDTEC	WANT-4DBI-SMA	Omni	3.8

Note: The above antenna information was provided from customer and for more detailed features description, please refer the manufacturer's specification or user's manual, the laboratory shall not be held responsible.

6.5. Test Mode Applicability and Tested Channel Detail

- The fundamental of the omni antenna was investigated in two orthogonal (lay and stand), it was determined that stand mode was worst-case. Therefore, all final radiated testing was performed with the dipole antenna in stand mode.
- The EUT has nine types for model: ACB-QCA206x, ACB-QCA2066-0WI1, ACB-QCA2066-0WX1, ACB-QCA2066-5WI1, ACB-QCA2066-5WX1, ACB-QCA2066-0WI4, ACB-QCA2066-0WX4, ACB-QCA2066-5WI4 and ACB-QCA2066-5WX4. The worst case was ACB-QCA206x by pretest. Therefore the test data of the ACB-QCA206x was recorded in this report only.
- For Antenna Port Conducted Measurement, this item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel), parallel and perpendicular are the worst orientations, therefore testing was performed on these two orientations only.
- For below 1 GHz radiated emission and AC power line conducted emission have performed all modes of operation were investigated and the worst-case emissions are reported.
- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Test Item	Mode	Modulation Technology	Modulation Type	Available Channel	Test Channel	Data Rate
Radiated Emissions (Above 1GHz)	802.11a	5955-6415	OFDM	2 to 93	2, 1, 45, 93	6Mbps
	802.11ax20		OFDM	2 to 93	2, 1, 45, 93	HE0
	802.11ax40			3 to 91	3, 43, 91	HE0
	802.11ax80			7 to 87	7, 39, 87	HE0
	802.11ax160			15 to 79	15,47,79	HE0
	802.11a	6435-6515	OFDM	97 to 113	97, 105, 113	6Mbps
	802.11ax20		OFDM	97 to 113	97, 105, 113	HE0
	802.11ax40			99 to 115	99, 107, 115	HE0
	802.11ax80			103 to 119	103, 119	HE0
	802.11ax160			111	111	HE0
	802.11a	6535-6875	OFDM	117 to 181	117, 149, 181	6Mbps
	802.11ax20		OFDM	117 to 181	117, 149, 181	HE0
	802.11ax40			123 to 179	123, 155, 179	HE0
	802.11ax80			135 to 167	135, 151, 167	HE0
	802.11ax160			143	143	HE0
	802.11a	6875-7115	OFDM	185 to 233	185, 209, 229, 233	6Mbps
	802.11ax20		OFDMA	185 to 233	185, 209, 229, 233	HE0
	802.11ax40			187 to 227	187, 211, 227	HE0
	802.11ax80			183 to 215	183, 199, 215	HE0
	802.11ax160			175 to 207	175, 207	HE0

Test Item	Mode	Modulation Technology	Modulation Type	Available Channel	Test Channel	Data Rate
Radiated Emissions (Below 1GHz)	802.11ax160	5955-6415	OFDMA	15 to 79	15	MCS0 Nss1
AC Power Line Conducted Emission	802.11ax160	5955-6415	OFDMA	15 to 79	15	MCS0 Nss1
Antenna Port Conducted Measurement	802.11a	5955-6415	OFDM	2 to 93	2, 1, 45, 93	6Mbps
	802.11ax20		OFDMA	2 to 93	2, 1, 45, 93	HE0
	802.11ax40			3 to 91	3, 43, 91	HE0
	802.11ax80			7 to 87	7, 39, 87	HE0
	802.11ax160			15 to 79	15,47,79	HE0
	802.11a	6435-6515	OFDM	97 to 113	97, 105, 113	6Mbps
	802.11ax20		OFDMA	97 to 113	97, 105, 113	HE0
	802.11ax40			99 to 115	99, 107, 115	HE0
	802.11ax80			103 to 119	103, 119	HE0
	802.11ax160			111	111	HE0
	802.11a	6535-6875	OFDM	117 to 181	117, 149, 181	6Mbps
	802.11ax20		OFDMA	117 to 181	117, 149, 181	HE0
	802.11ax40			123 to 179	123, 155, 179	HE0
	802.11ax80			135 to 167	135, 151, 167	HE0
	802.11ax160			143	143	HE0
	802.11a	6875-7115	OFDM	185 to 233	185, 209, 229, 233	6Mbps
	802.11ax20		OFDMA	185 to 233	185, 209, 229, 233	HE0
	802.11ax40			187 to 227	187, 211, 227	HE0
	802.11ax80			183 to 215	183, 199, 215	HE0
	802.11ax160			175 to 207	175, 207	HE0
Contention Based Protocol Measurement	802.11ax20	5955-6415	OFDMA	1 to 93	1	HE0
	802.11ax160			15	15	HE0
	802.11ax20	6435-6515	OFDMA	97 to 113	97	HE0
	802.11ax160			111	111	HE0
	802.11ax20	6535-6875	OFDMA	117 to 181	153	HE0
	802.11ax160			143	143	HE0
	802.11ax20	6875-7115	OFDMA	185 to 233	213	HE0
	802.11ax160			207	207	HE0

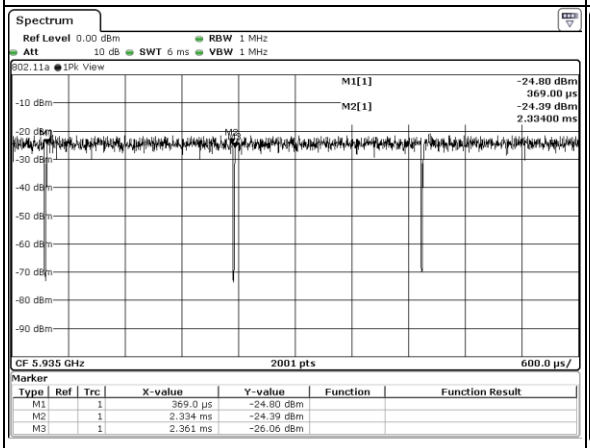
Simultaneously transmission condition:

Condition	Technology	
1	BT-EDR	WLAN (6GHz)
2	WLAN (2.4GHz)	WLAN (6GHz)
Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.		

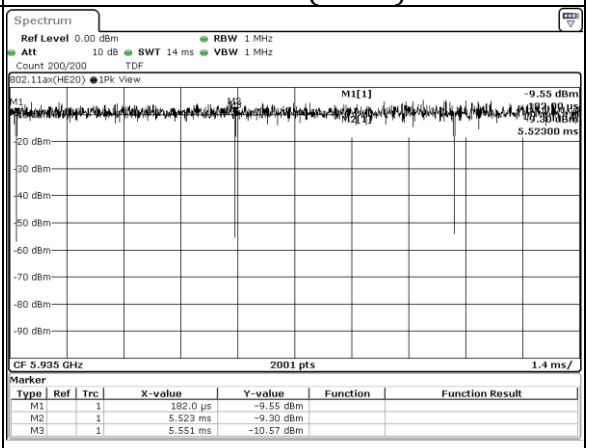
6.6. Duty cycle

Mode	On Time(ms)	On+Off Time(ms)	Duty Cycle	Duty Factor(dB)	VBW(for AV at Freq above 1GHz)
802.11a	1.965	1.992	0.9864	N/A	510Hz
802.11ax(HE20)	5.341	5.369	0.9948	N/A	200Hz
802.11ax(HE40)	4.782	4.836	0.9888	N/A	300Hz
802.11ax(HE80)	2.514	2.568	0.9790	0.09	510Hz
802.11ax(HE160)	2.202	2.226	0.9892	N/A	510Hz

802.11a



802.11ax(HE20)



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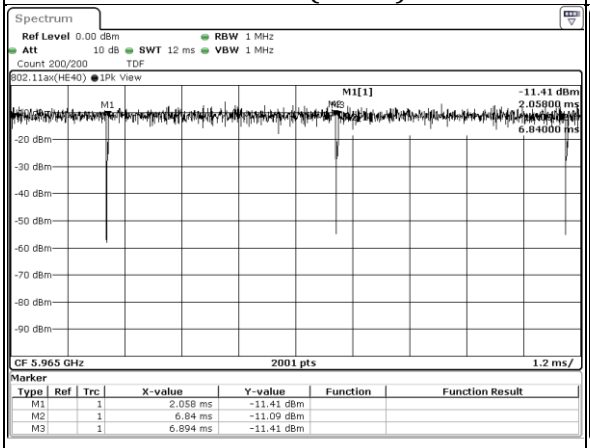

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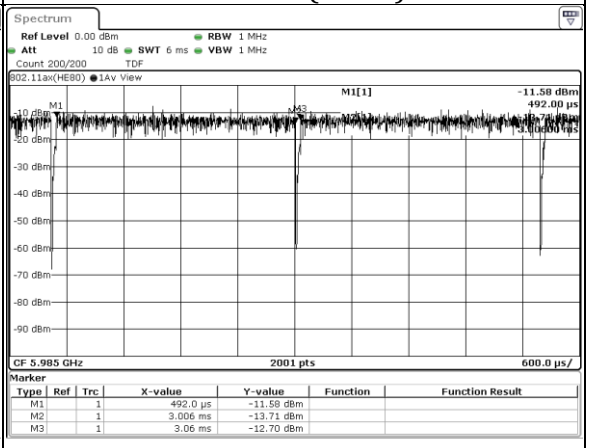
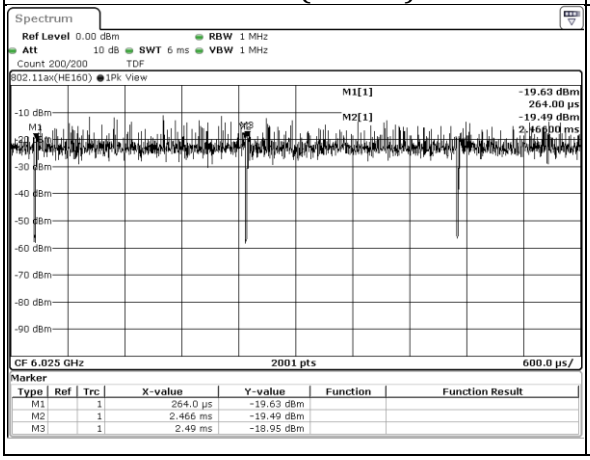


802.11ax(HE160)



7. Test Equipment

Test Equipment List					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date**	**Expired date**
Radiated Spurious Emission					
Spectrum Analyzer	Keysight	N9010A	MY56070827	2023/4/7	2024/4/6
EMI Test Receiver	Rohde & Schwarz	ESR7	101754	2022/12/13	2023/12/12
Loop Antenna	ETS lindgren	6502	00213440	2023/1/4	2024/1/3
Trilog-Broadband Antenna with 5dB Attenuator	Schwarzbeck & EMCI	VULB 9168 & N-6-05	774 & AT-N0538	2023/2/13	2024/2/12
Horn Antenna (1-18 GHz)	Schwarzbeck	BBHA 9120 D	01690	2022/12/21	2023/12/20
Horn Antenna (18-40 GHz)	Schwarzbeck	BBHA 9170	781	2022/12/30	2023/12/29
Preamplifier (30-1000 MHz)	EMCI	EMC330E	980405	2023/6/7	2024/6/6
Preamplifier (1-18 GHz)	EMCI	EMC051835BE	980406	2023/2/17	2024/2/16
Preamplifier (18-40GHz)	EMCI	EMC184040SEE	980426	2023/5/9	2024/5/8
Cables	Hanyitek	K1K50-UP0264-K1K50-2500	170214-4 & 170425-2	2022/12/1	2023/11/30
Cables	Hanyitek	K1K50-UP0264-K1K50-2500	170214-1 & 170214-2	2022/12/1	2023/11/30

Test Equipment List					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Cal. Date**	**Expired date**
Antenna Port Conducted Measurement					
Spectrum Analyzer	Keysight	N9010A	MY56070834	2022/10/24	2023/10/23
Attenuator	EMCI	EMC-40ATK2W10	17002	2022/12/9	2023/12/8
USB Power Sensor	Anritsu	MA24408A	12031	2023/7/12	2024/7/11
Temperature &Humidity Test Chamber	GIANT FORCE	GTH-150-40-CP-AR	MAA1701-010	2023/3/8	2024/3/7
AC power Line Conducted Emission					
EMI Test Receiver	Rohde & Schwarz	ESR7	101753	2022/11/10	2023/11/9
Two-Line V-Network	Rohde & Schwarz	ENV216	102136	2023/5/24	2024/5/23
Impuls-Begrenzer Pulse Limiter	Rohde & Schwarz	ESH3-Z2	102219-Qt	2022/8/30	2023/8/29
Cables	TITAN	CFD200	T0732ACFD200 20A300-2	2023/5/23	2024/5/22
Contention Based Protocol Measurement					
Spectrum Analyzer	Keysight	N9010A	MY56070834	2022/10/24	2023/10/23
Signal Generator	Keysight	N5182B	MY57300028	2022/11/15	2023/11/14

UL Software		
Description	**Name**	**Version**
Radiated measurement	e3	6.191211 (V6)
Conducted measurement	RF-Conducted-WiFi6e	ver 1.1
AC power Line Conducted Emission	EZ_EMC	UL-3A1.2

8. Description of Test Setup

Support Equipment

ID	Equipment	Brand Name	Model Name	S/N	Remark
A	Test Tool	NA	NA	NA	Supplied by client
B	Monitor	Dell	SE2417HG	NA	Provide by lab
C	Computer	Intel	Intel(R) Core(TW) i7-4790 CPU @ 3.60GHz	NA	Supplied by client
D	Keyboard	Dell	KB216t	NA	Provide by lab
E	Mouse	Dell	MS116p	NA	Provide by lab

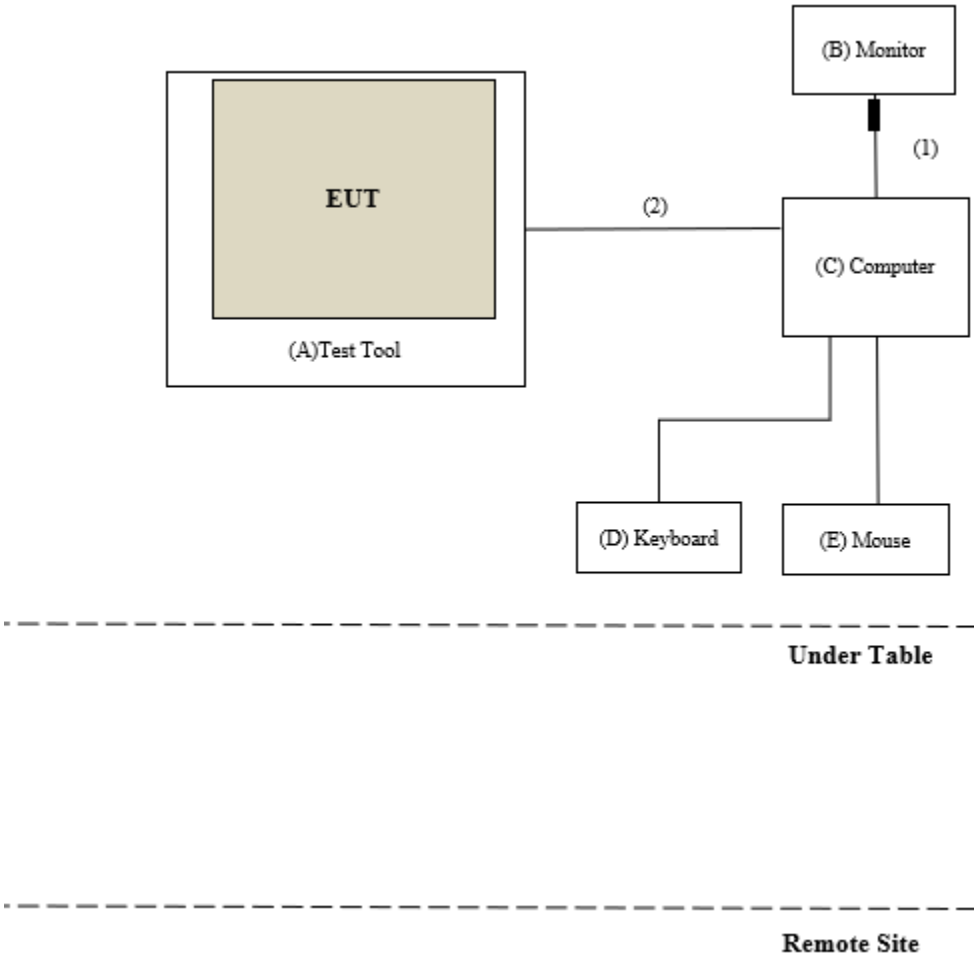
I/O Cables

ID	Equipment	Brand Name	Model Name	Length (m)	Remark
1	HDMI Cable	EATON	P568010	1.44	Provide by lab with one core
2	Fiber Cable	NA	NA	0.5	Supplied by client

Test Setup

Controlled using a bespoke application (QSPR Version 5.0-00202) on a test Notebook. The application was used to enable a continuous transmission mode and to select the test channels, data rates, modulation schemes and power setting as required.

Setup Diagram for Test



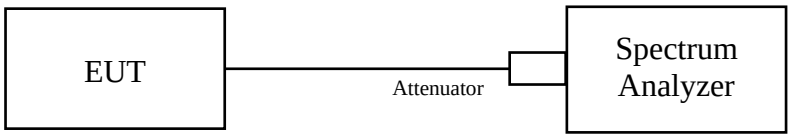
9. Test Results

9.1. 26dB Bandwidth

Test procedure

a. Set RBW = approximately 1% of the emission bandwidth.
b. Set the VBW > RBW.
c. Detector = Peak.
d. Trace mode = max hold.
e. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
f. The test spectrum plot only presents the worst-case value.

Test Setup

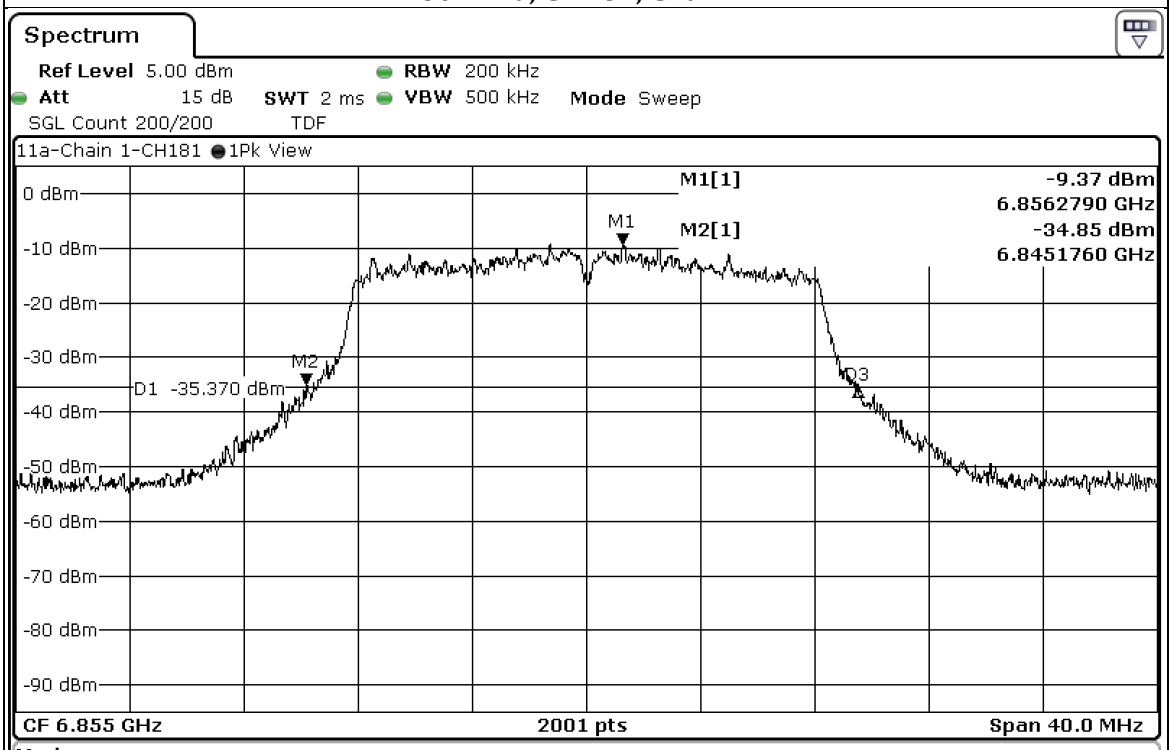


The loss between RF output port of the EUT and the input port of the Spectrum Analyzer has been taken into consideration.

Test Data

Mode	CH	Freq (MHz)	26dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11a	2	5935	18.638	18.783	320	PASS
	1	5955	18.608	18.74	320	PASS
	45	6175	18.535	18.653	320	PASS
	93	6415	18.756	18.745	320	PASS
	97	6435	18.963	18.679	320	PASS
	105	6475	18.66	18.995	320	PASS
	113	6515	18.361	18.632	320	PASS
	117	6535	18.662	18.952	320	PASS
	149	6695	18.538	18.881	320	PASS
	181	6855	18.264	19.34	320	PASS
	185	6875	18.374	18.86	320	PASS
	209	6995	18.843	18.843	320	PASS
	229	7095	18.51	18.67	320	PASS
	233	7115	18.453	19.146	320	PASS

802.11a, CH181, Chain 1

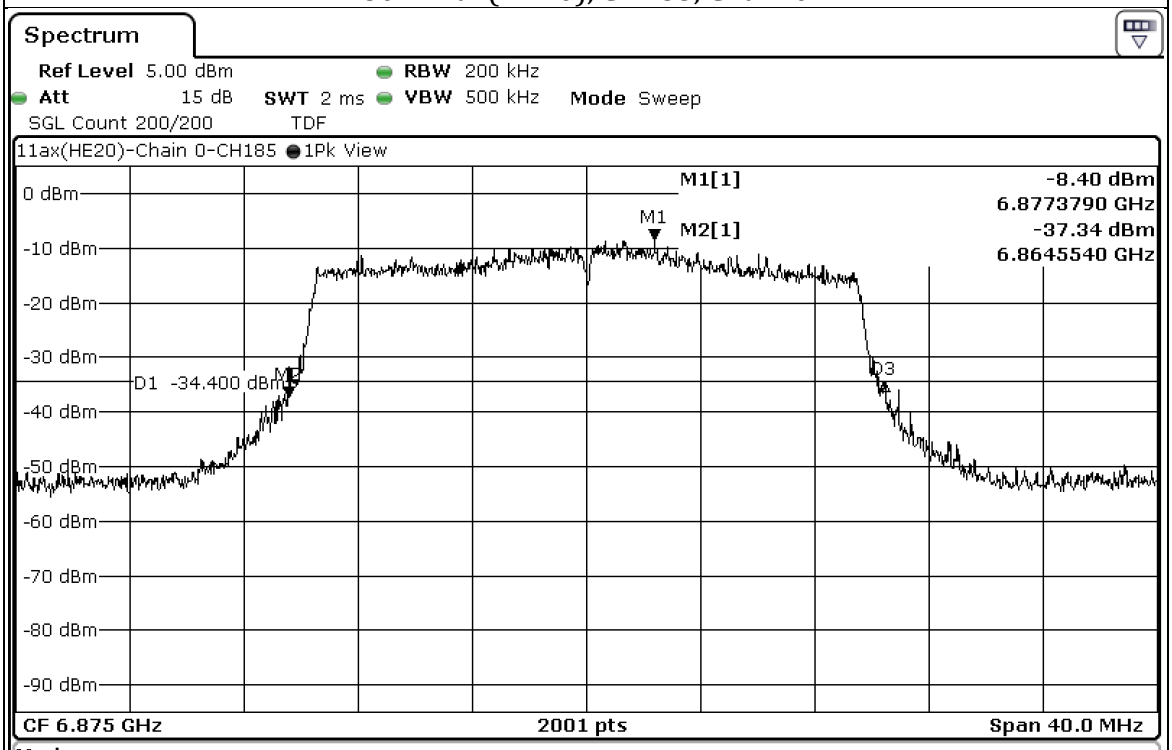


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	6.856279 GHz	-9.37 dBm		
M2		1	6.845176 GHz	-34.85 dBm		
D3	M2	1	19.34 MHz	-0.62 dB		

Mode	CH	Freq (MHz)	26dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11ax(HE20)	2	5935	20.593	20.428	320	PASS
	1	5955	20.858	20.571	320	PASS
	45	6175	19.992	20.696	320	PASS
	93	6415	20.543	20.616	320	PASS
	97	6435	20.744	20.556	320	PASS
	105	6475	20.414	20.391	320	PASS
	113	6515	20.592	20.697	320	PASS
	117	6535	20.615	20.32	320	PASS
	149	6695	20.526	20.748	320	PASS
	181	6855	20.5	20.52	320	PASS
	185	6875	20.888	20.629	320	PASS
	209	6995	20.642	20.557	320	PASS
	229	7095	20.835	20.784	320	PASS
	233	7115	20.684	20.868	320	PASS
	185	6875	20.888	20.629	320	PASS
	209	6995	20.642	20.557	320	PASS
	229	7095	20.835	20.784	320	PASS
	233	7115	20.684	20.868	320	PASS

802.11ax(HE20), CH185, Chain 0

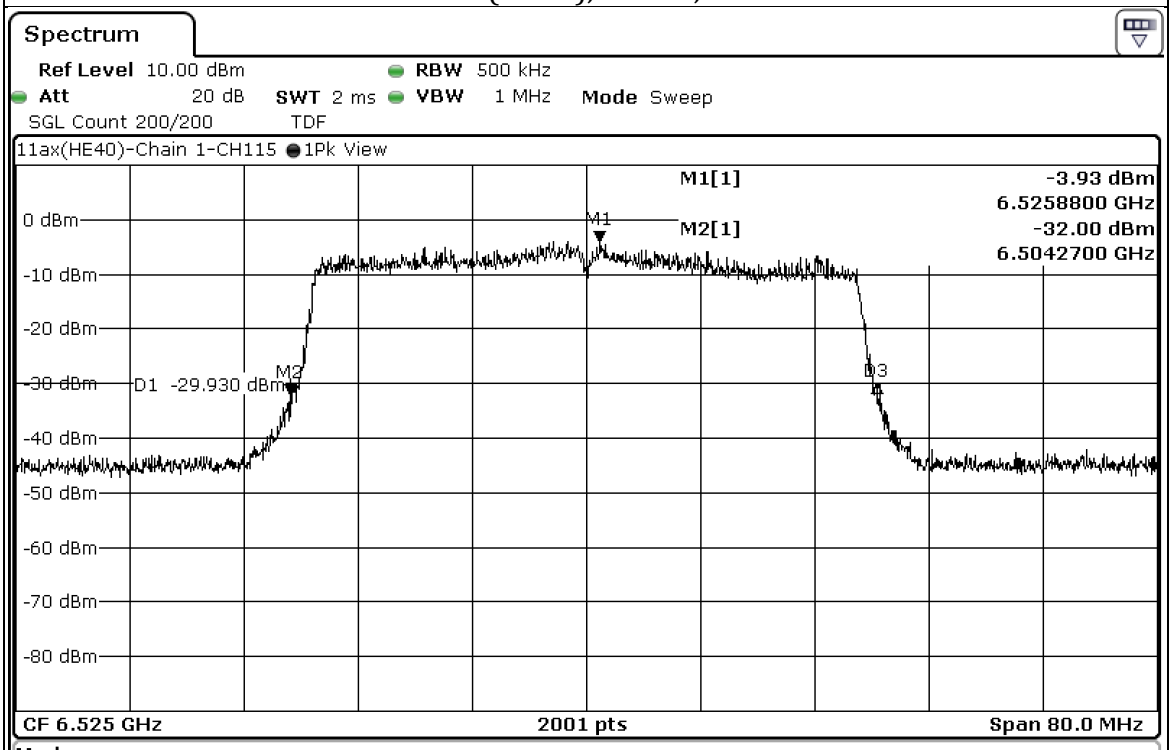


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	6.877379 GHz	-8.40 dBm		
M2		1	6.864554 GHz	-37.34 dBm		
D3	M2	1	20.887 MHz	2.99 dB		

Mode	CH	Freq (MHz)	26dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11ax(HE40)	3	5965	40.322	39.872	320	PASS
	43	6165	40.299	40.252	320	PASS
	91	6405	39.882	40.006	320	PASS
	99	6445	40.034	40.031	320	PASS
	107	6485	40.37	40.387	320	PASS
	115	6525	40.044	41.051	320	PASS
	123	6565	40.125	40.151	320	PASS
	155	6725	40.539	39.92	320	PASS
	179	6845	40.217	40.407	320	PASS
	187	6885	39.971	40.179	320	PASS
	211	7005	40.141	40.144	320	PASS
	227	7085	40.13	40.062	320	PASS

802.11ax(HE40), CH115, Chain 1

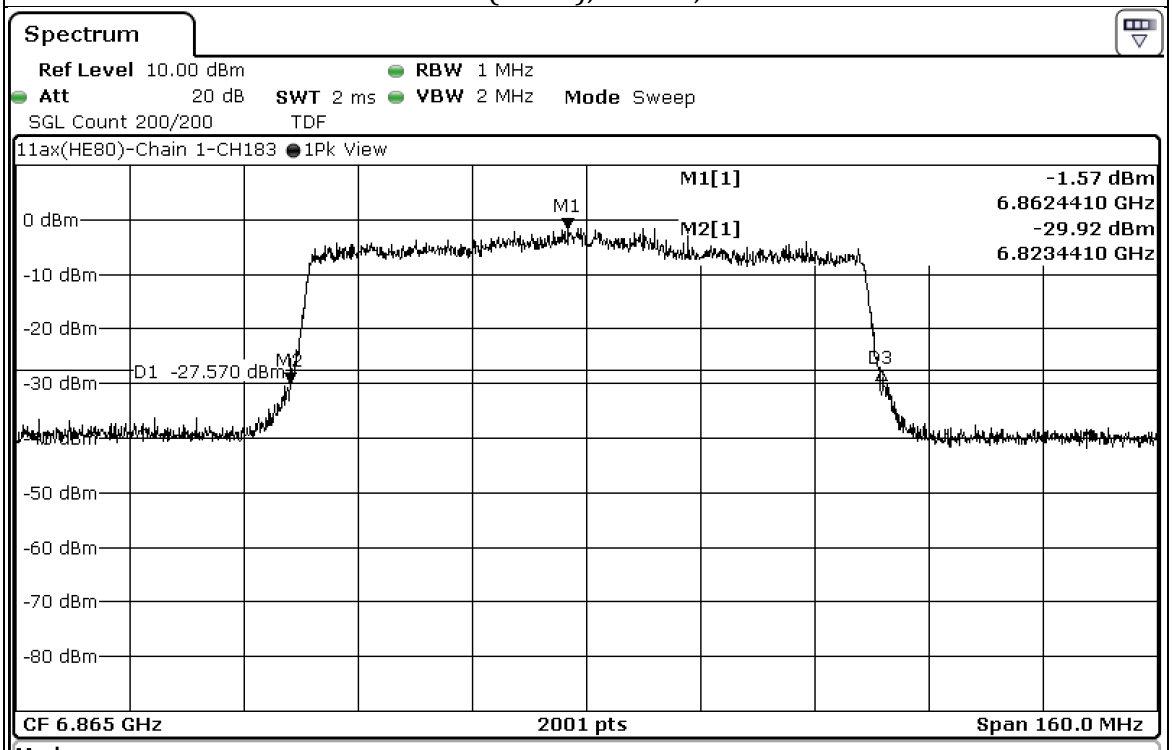


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	6.52588 GHz	-3.93 dBm		
M2		1	6.50427 GHz	-32.00 dBm		
D3	M2	1	41.051 MHz	2.17 dB		

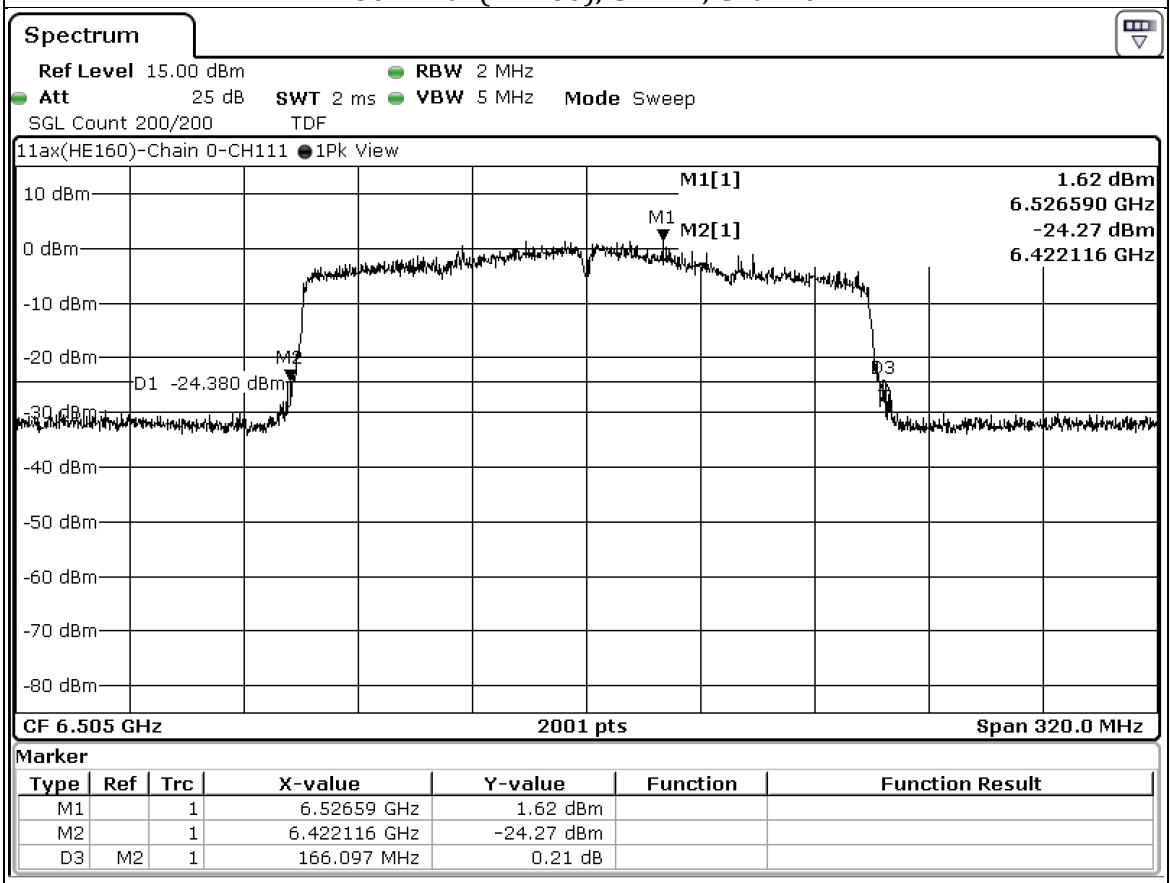
Mode	CH	Freq (MHz)	26dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11ax(HE80)	7	5985	81.983	81.071	320	PASS
	39	6145	80.384	80.877	320	PASS
	87	6385	81.688	82.425	320	PASS
	103	6465	81.004	81.145	320	PASS
	119	6545	81.473	82.65	320	PASS
	135	6625	81.413	81.043	320	PASS
	151	6705	81.933	81.459	320	PASS
	167	6785	81.356	81.344	320	PASS
	183	6865	81.376	82.761	320	PASS
	199	6945	81.551	81.33	320	PASS
	215	7025	81.514	81.386	320	PASS

802.11ax(HE80), CH183, Chain 1



Mode	CH	Freq (MHz)	26dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11ax(HE160)	15	6025	163.765	163.165	320	PASS
	47	6185	164.444	163.65	320	PASS
	79	6345	163.306	164.905	320	PASS
	111	6505	166.097	163.497	320	PASS
	143	6665	163.192	164.023	320	PASS
	175	6825	163.97	163.352	320	PASS
	207	6985	163.189	163.209	320	PASS

802.11ax(HE160), CH111, Chain 0

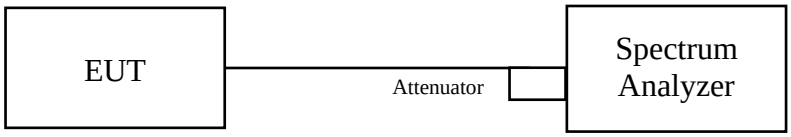


9.2. Occupied Bandwidth

Test procedure

a. Set center frequency to the nominal EUT channel center frequency.
b. Set span = 1.5 times to 5.0 times the OBW.
c. Set RBW = 1% to 5% of the OBW
d. Set VBW ≥ 3 x RBW
e. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
f. Use the 99% power bandwidth function of the instrument (if available).
g. If the instrument does not have a 99% power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.
h. The test spectrum plot only presents the worst-case value.

Test Setup

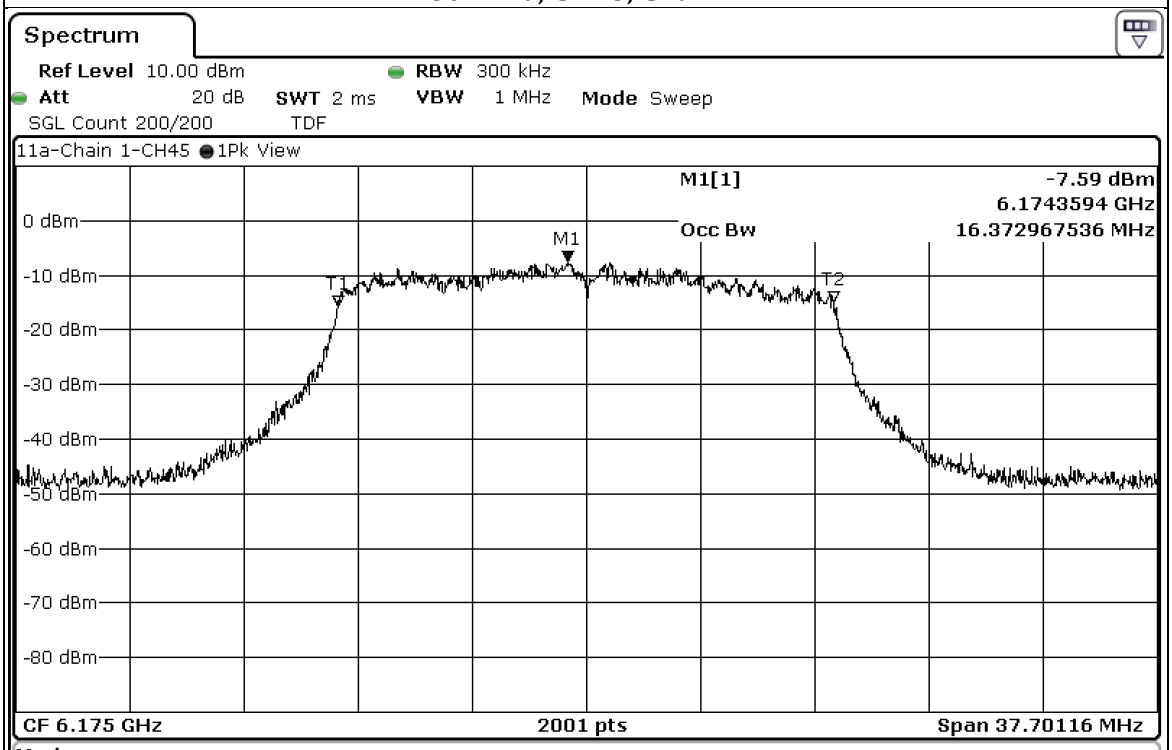


The loss between RF output port of the EUT and the input port of the Spectrum Analyzer has been taken into consideration.

Test Data

Mode	CH	Freq (MHz)	OBW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11a	2	5935	16.331	16.348	320	PASS
	1	5955	16.332	16.37	320	PASS
	45	6175	16.279	16.373	320	PASS
	93	6415	16.363	16.351	320	PASS
	97	6435	16.348	16.365	320	PASS
	105	6475	16.346	16.353	320	PASS
	113	6515	16.327	16.368	320	PASS
	117	6535	16.363	16.365	320	PASS
	149	6695	16.315	16.318	320	PASS
	181	6855	16.316	16.353	320	PASS
	185	6875	16.348	16.37	320	PASS
	209	6995	16.308	16.346	320	PASS
	229	7095	16.298	16.318	320	PASS
	233	7115	16.318	16.356	320	PASS

802.11a, CH45, Chain 1

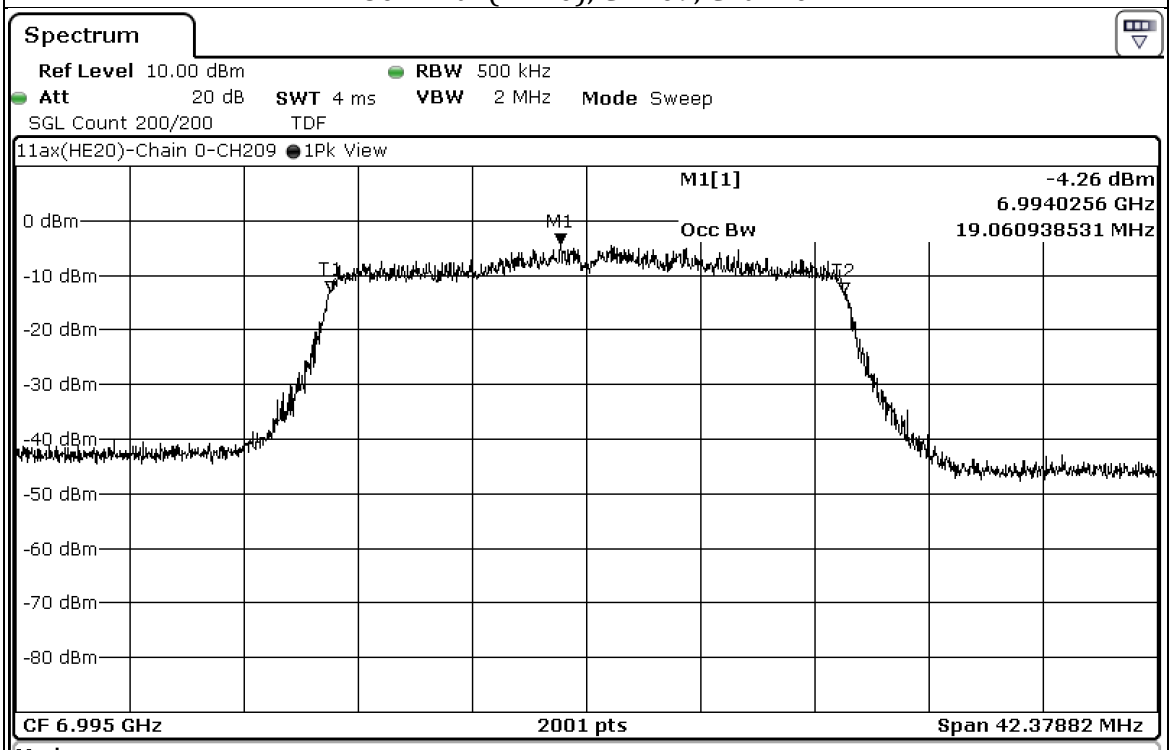


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	6.1743594 GHz	-7.59 dBm		
T1		1	6.1667853 GHz	-15.65 dBm	Occ Bw	16.372967536 MHz
T2		1	6.1831582 GHz	-14.79 dBm		

Mode	CH	Freq (MHz)	OBW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11ax(HE20)	2	5935	18.971	18.887	320	PASS
	1	5955	18.929	18.857	320	PASS
	45	6175	18.986	19.012	320	PASS
	93	6415	18.908	18.944	320	PASS
	97	6435	18.941	18.938	320	PASS
	105	6475	18.917	18.92	320	PASS
	113	6515	18.959	18.944	320	PASS
	117	6535	18.959	18.965	320	PASS
	149	6695	18.971	19.019	320	PASS
	181	6855	18.986	18.962	320	PASS
	185	6875	18.992	18.991	320	PASS
	209	6995	19.061	18.994	320	PASS
	229	7095	18.941	18.92	320	PASS
	233	7115	19.007	18.974	320	PASS
	185	6875	18.992	18.991	320	PASS
	209	6995	19.061	18.994	320	PASS
	229	7095	18.941	18.92	320	PASS
	233	7115	19.007	18.974	320	PASS

802.11ax(HE20), CH209, Chain 0

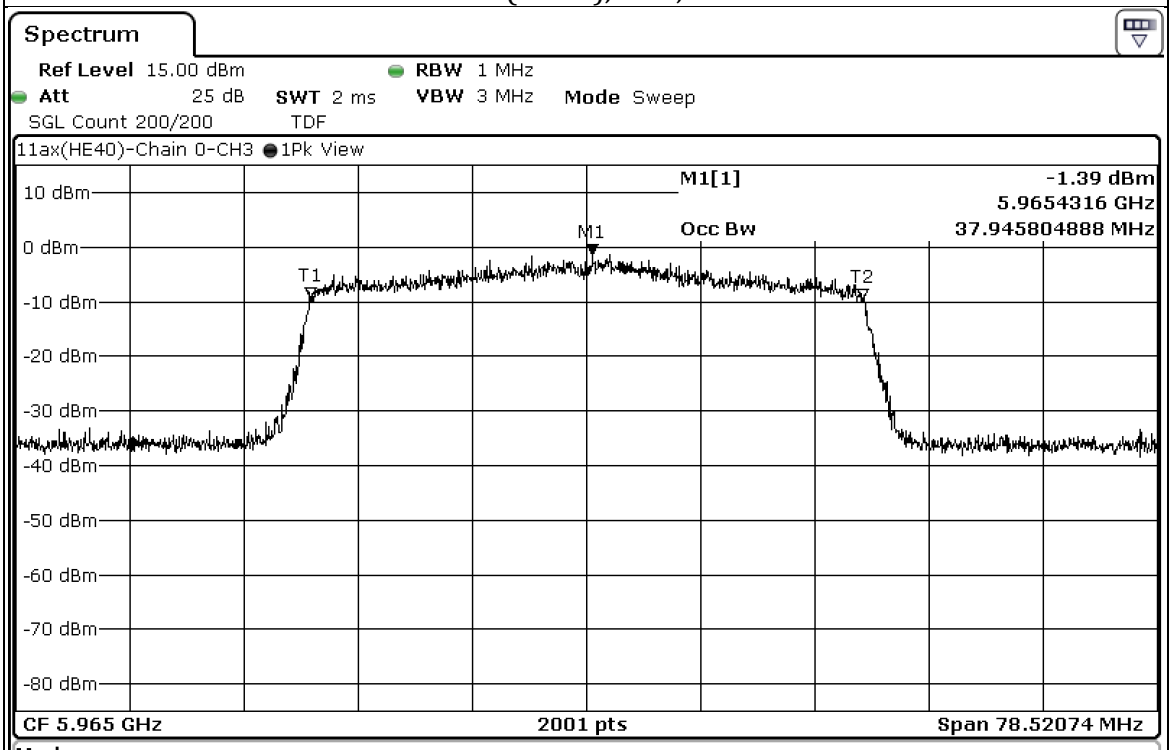


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	6.9940256 GHz	-4.26 dBm		
T1		1	6.9854907 GHz	-13.12 dBm	Occ Bw	19.060938531 MHz
T2		1	7.0045516 GHz	-13.27 dBm		

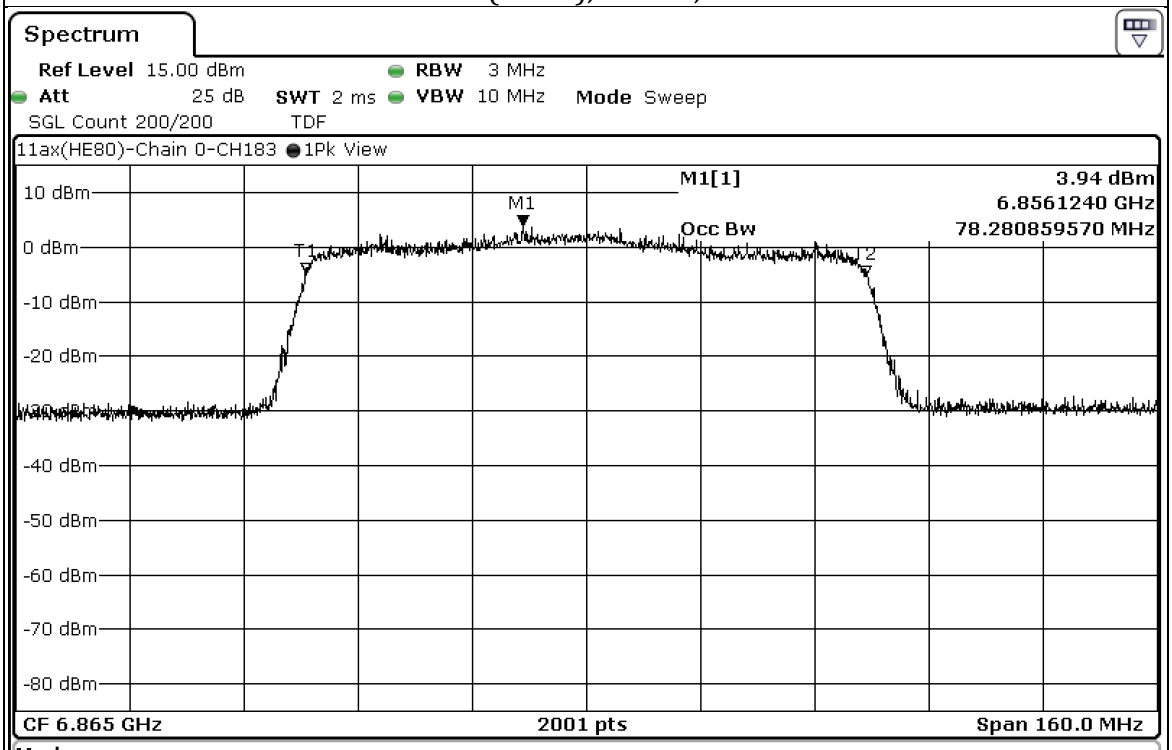
Mode	CH	Freq (MHz)	OBW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11ax(HE40)	3	5965	37.946	37.521	320	PASS
	43	6165	37.752	37.83	320	PASS
	91	6405	37.636	37.753	320	PASS
	99	6445	37.792	37.675	320	PASS
	107	6485	37.675	37.636	320	PASS
	115	6525	37.753	37.944	320	PASS
	123	6565	37.676	37.676	320	PASS
	155	6725	37.675	37.715	320	PASS
	179	6845	37.869	37.828	320	PASS
	187	6885	37.79	37.79	320	PASS
	211	7005	37.715	37.713	320	PASS
	227	7085	37.713	37.676	320	PASS

802.11ax(HE40), CH3, Chain 0



Mode	CH	Freq (MHz)	OBW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11ax(HE80)	7	5985	77.641	76.282	320	PASS
	39	6145	75.402	76.122	320	PASS
	87	6385	77.561	77.481	320	PASS
	103	6465	77.321	76.762	320	PASS
	119	6545	77.481	77.721	320	PASS
	135	6625	77.481	77.081	320	PASS
	151	6705	77.401	78.041	320	PASS
	167	6785	77.321	77.321	320	PASS
	183	6865	78.281	78.121	320	PASS
	199	6945	77.001	77.241	320	PASS
	215	7025	77.001	77.081	320	PASS

802.11ax(HE80), CH183, Chain 0

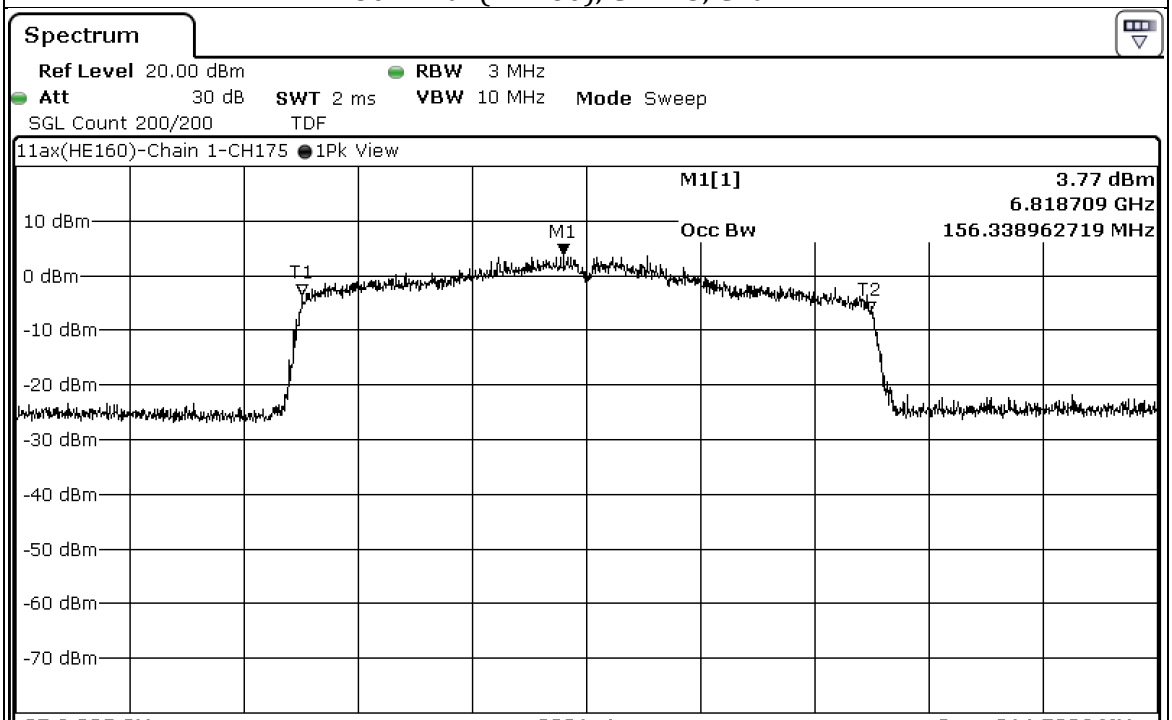


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	6.856124 GHz	3.94 dBm		
T1		1	6.8258196 GHz	-4.97 dBm	Occ Bw	78.28085957 MHz
T2		1	6.9041004 GHz	-5.39 dBm		

Mode	CH	Freq (MHz)	OBW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11ax(HE160)	15	6025	155.386	155.39	320	PASS
	47	6185	155.224	155.377	320	PASS
	79	6345	155.547	155.703	320	PASS
	111	6505	156.023	155.862	320	PASS
	143	6665	155.864	155.706	320	PASS
	175	6825	156.18	156.339	320	PASS
	207	6985	155.542	155.549	320	PASS

802.11ax(HE160), CH175, Chain 1



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	6.818709 GHz	3.77 dBm		
T1		1	6.746673 GHz	-3.52 dBm	Occ Bw	156.338962719 MHz
T2		1	6.903012 GHz	-6.78 dBm		

9.3. Transmit Power Measurement

Requirements

EUT Category		Operation Band	Limit
			Max Average Power
	Standard Power AP (6SD)	U-NII-5 U-NII-7	EIRP ≤ 36 dBm
			Outdoor device and any elevation angle above 30 degrees: EIRP ≤ 21 dBm
	Fixed Client (6FC)	U-NII-5 U-NII-7	EIRP ≤ 36 dBm
			Any elevation angle above 30 degrees: EIRP ≤ 21 dBm
	Standard Client (6FX)	U-NII-5 U-NII-7	EIRP ≤ 30 dBm
	Indoor AP (6ID)	U-NII-5, U-NII-6 U-NII-7, U-NII-8	EIRP ≤ 30 dBm
	Subordinate (6PP)	U-NII-5, U-NII-6 U-NII-7, U-NII-8	EIRP ≤ 30 dBm
√	Indoor Client (6XD)	U-NII-5, U-NII-6 U-NII-7, U-NII-8	EIRP ≤ 24 dBm
	Dual Client (6CD)	Control of a low power indoor AP: U-NII-5, U-NII-6 U-NII-7, U-NII-8	EIRP ≤ 24 dBm
		Control of a standard power AP: U-NII-5 U-NII-7	EIRP ≤ 30 dBm

Note:

1. P_{Out} = maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi, B is the 26 dB emission bandwidth in megahertz
2. Directional Gain = 10 log[($10^{G1/20}$ + $10^{G2/20}$ +...+$10^{Gn/20}$)^2 / Nant] dBi.
   N*a*nt: Number of Transmit Antennas
   G1, G2,..., Gn: Gain of Individual Antennas
   Example: two antenna and gain 5 dBi / 3dBi, so if it was used for TxBF power measurement
   Directional Gain = 10 log[($10^{5/20}$ + $10^{3/20}$)^2 / 2] dBi = 7.07 dBi
3. Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices, CDD
   Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
   Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
   Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.
   Example: Maximum antenna gain = 5 dBi and $N_{ANT} \leq 4$, so if it was used for CDD power measurement
   Directional Gain = 5 dBi + Array Gain = 5 dBi + 0 dB = 5 dBi
4. For power measurement of KDB 662911 is used with multiple transmitter output. Total conducted power is the sum of the conducted power levels measured at the various output ports.
5. Straddle Channel Power in each band = Straddle Channel Total Power * (Each band EBW / Straddle Channel Total EBW).
   Example: if CH144 OBW (Total) = 20MHz, within UNII-2C Band is 15MHz, within UNII-3 Band is 5MHz, Total Power = 20dBm.
   Calculation for UNII-2C Band Power= 20dBm * (5/20) = 13.97 dBm
   Calculation for UNII-3 Band Power= 20dBm * (15/20) = 18.75 dBm.

Test Procedure

For Average Power Measurement

Test method PM

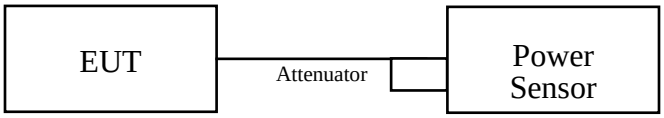
Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst and set the detector to average. Duty factor is not added to measured value.

* If transmit duty cycle < 98%, use a video trigger with the trigger level set to enable triggering only on full power pulses. Transmitter must operate at maximum power control level for the entire duration of every sweep. If the EUT transmits continuously (i.e., with no off intervals) or at duty cycle ≥ 98%, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to "free run."

EIRP = Maximum Conducted Power + Directional Gain

Test Setup

For Average Power Measurement



The loss between RF output port of the EUT and the input port of the Spectrum Analyzer has been taken into consideration.

Test Data

802.11a

Channel	Channel Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (dBm)	Directional Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Pass/Fail
		Chain 0	Chain 1					
2	5935	-1.83	-0.31	2.01	3.80	5.81	24	PASS
1	5955	-1.78	-0.70	1.80	3.80	5.60	24	PASS
45	6175	-1.53	-0.83	1.84	3.80	5.64	24	PASS
93	6415	-0.96	-0.39	2.34	3.80	6.14	24	PASS
97	6435	-1.41	-0.95	1.84	3.80	5.64	24	PASS
105	6475	-0.90	-0.37	2.38	3.80	6.18	24	PASS
113	6515	-1.32	-0.35	2.20	3.80	6.00	24	PASS
117	6535	-0.79	0.03	2.65	3.80	6.45	24	PASS
149	6695	-0.49	-0.59	2.47	3.80	6.27	24	PASS
181	6855	0.09	0.62	3.37	3.80	7.17	24	PASS
185	6875	0.55	0.68	3.63	3.80	7.43	24	PASS
209	6995	0.50	0.67	3.60	3.80	7.40	24	PASS
229	7095	-0.40	-0.19	2.72	3.80	6.52	24	PASS
233	7115	-10.11	-9.93	-7.01	3.80	-3.21	24	PASS

802.11ax (HE20)

Channel	Channel Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (dBm)	Directional Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Pass/Fail
		Chain 0	Chain 1					
2	5935	-8.62	-9.51	-6.03	3.80	-2.23	24	PASS
1	5955	-0.55	0.06	2.78	3.80	6.58	24	PASS
45	6175	-0.78	-0.32	2.47	3.80	6.27	24	PASS
93	6415	-0.20	0.33	3.08	3.80	6.88	24	PASS
97	6435	-0.08	0.07	3.01	3.80	6.81	24	PASS
105	6475	-0.68	-0.04	2.66	3.80	6.46	24	PASS
113	6515	-0.49	0.38	2.98	3.80	6.78	24	PASS
117	6535	0.68	0.04	3.38	3.80	7.18	24	PASS
149	6695	-0.27	0.38	3.08	3.80	6.88	24	PASS
181	6855	-0.34	0.37	3.04	3.80	6.84	24	PASS
185	6875	0.73	0.91	3.83	3.80	7.63	24	PASS
209	6995	-0.89	-0.50	2.32	3.80	6.12	24	PASS
229	7095	-0.95	-0.64	2.22	3.80	6.02	24	PASS
233	7115	-15.95	-15.78	-12.85	3.80	-9.05	24	PASS

802.11ax (HE40)

Channel	Channel Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (dBm)	Directional Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Pass/Fail
		Chain 0	Chain 1					
3	5965	1.58	1.99	4.80	3.80	8.60	24	PASS
43	6165	2.87	2.35	5.63	3.80	9.43	24	PASS
91	6405	2.65	2.84	5.76	3.80	9.56	24	PASS
99	6445	2.42	2.82	5.63	3.80	9.43	24	PASS
107	6485	2.80	3.18	6.00	3.80	9.80	24	PASS
115	6525	2.79	3.54	6.19	3.80	9.99	24	PASS
123	6565	2.66	3.02	5.85	3.80	9.65	24	PASS
155	6725	3.02	2.77	5.91	3.80	9.71	24	PASS
179	6845	2.87	3.07	5.98	3.80	9.78	24	PASS
187	6885	3.52	3.64	6.59	3.80	10.39	24	PASS
211	7005	1.32	2.02	4.69	3.80	8.49	24	PASS
227	7085	1.62	2.17	4.91	3.80	8.71	24	PASS

802.11ax (HE80)

Channel	Channel Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (dBm)	Directional Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Pass/Fail
		Chain 0	Chain 1					
7	5985	4.68	5.52	8.13	3.80	11.93	24	PASS
39	6145	4.43	4.76	7.61	3.80	11.41	24	PASS
87	6385	4.81	5.15	7.99	3.80	11.79	24	PASS
103	6465	4.08	4.64	7.38	3.80	11.18	24	PASS
119	6545	4.87	5.81	8.38	3.80	12.18	24	PASS
135	6625	4.82	5.39	8.12	3.80	11.92	24	PASS
151	6705	5.28	5.74	8.53	3.80	12.33	24	PASS
167	6785	4.62	5.47	8.08	3.80	11.88	24	PASS
183	6865	5.64	5.93	8.80	3.80	12.60	24	PASS
199	6945	5.09	5.06	8.09	3.80	11.89	24	PASS
215	7025	4.32	4.90	7.63	3.80	11.43	24	PASS

802.11ax (HE160)

Channel	Channel Frequency (MHz)	Maximum Conducted Power (dBm)		Total Power (dBm)	Directional Gain (dBi)	EIRP (dBm)	EIRP Limit (dBm)	Pass/Fail
		Chain 0	Chain 1					
15	6025	7.25	7.40	10.34	3.80	14.14	24	PASS
47	6185	7.07	7.46	10.28	3.80	14.08	24	PASS
79	6345	7.01	7.25	10.14	3.80	13.94	24	PASS
111	6505	7.00	7.59	10.32	3.80	14.12	24	PASS
143	6665	7.18	7.12	10.16	3.80	13.96	24	PASS
175	6825	7.16	7.29	10.24	3.80	14.04	24	PASS
207	6985	7.10	7.42	10.27	3.80	14.07	24	PASS

9.4. Power Spectral Density

Requirements

EUT Category		Operation Band	Limit
			Max Average Power Density
	Standard Power AP (6SD)	U-NII-5 U-NII-7	EIRP ≤ 23 dBm/MHz
	Fixed Client (6FC)	U-NII-5 U-NII-7	EIRP ≤ 23 dBm/MHz
	Standard Client (6FX)	U-NII-5 U-NII-7	EIRP ≤ 17 dBm/MHz
	Indoor AP (6ID)	U-NII-5, U-NII-6 U-NII-7, U-NII-8	EIRP ≤ 5 dBm/MHz
	Subordinate (6PP)	U-NII-5, U-NII-6 U-NII-7, U-NII-8	EIRP ≤ 5 dBm/MHz
√	Indoor Client (6XD)	U-NII-5, U-NII-6 U-NII-7, U-NII-8	EIRP ≤ -1 dBm/MHz
	Dual Client (6CD)	Control of a low power indoor AP: U-NII-5, U-NII-6 U-NII-7, U-NII-8	EIRP ≤ -1 dBm/MHz
		Control of a standard power AP: U-NII-5 U-NII-7	EIRP ≤ 17 dBm/MHz

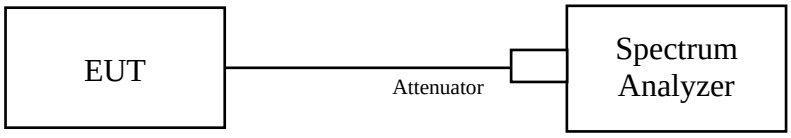
Note:
1. PSD = power spectral density that he same method as used to determine the conducted output power shall be used to determine the power spectral density. And power spectral density in dBm/MHz
2. G_{TX} = the maximum transmitting antenna directional gain in dBi.
3. Directional Gain = 10 log[$(10^{G1/20} + 10^{G2/20} + ... + 10^{Gn/20})^2$ / Nant] dBi.
   Nant: Number of Transmit Antennas
   G1, G2,..., Gn: Gain of Individual Antennas
   Example: two antenna and gain 5 dBi / 3dBi, so if it was used for power density measurement
   Directional Gain = 10 log[$(10^{5/20} + 10^{3/20})^2$ / 2] dBi = 7.07 dBi
4. "PSD per chain" of the report shown is maximum value for each chain, at the "Total PSD" is summing entire spectra across corresponding frequency bins on the various outputs by computer, refer KDB 662911 Method a) for calculating total power density.
5. Method a) of power density measurement of KDB 662911 is used for calculating total power density with multiple transmitter output. Total power density is summing entire spectra across corresponding frequency bins on the various outputs by computer.
6. EIRP Power Density = Sum of the conducted power density levels + Directional Gain
7. Refer to section 6.6 for duty cycle spectrum plot. (If duty cycle<98%)

Test procedure

Using method:

a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
b. Set RBW = 1 MHz, Set VBW ≥ 3 RBW, Detector = RMS
c. Sweep time = auto, trigger set to “free run”.
d. Trace average at least 100 traces in power averaging mode.
e. Record the max value and add 10 log (1/duty cycle) *If duty cycle<98%
f. EIRP PSD = Maximum Conducted PSD + Directional Gain
g. The test spectrum plot only presents the worst-case value.

Test Setup

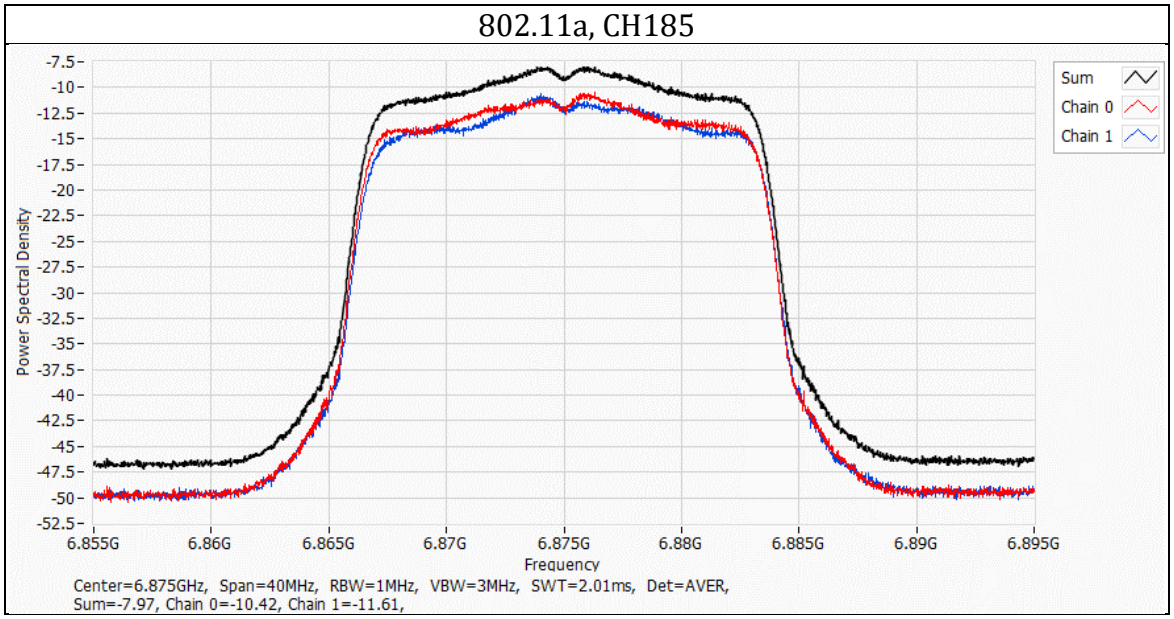


The loss between RF output port of the EUT and the input port of the Spectrum Analyzer has been taken into consideration.

Test Data

Mode	CH	Freq (MHz)	Directional Gain (dBi)	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
802.11a	2	5935	6.81	-1.613	-1	PASS
	1	5955	6.81	-1.543	-1	PASS
	45	6175	6.81	-1.649	-1	PASS
	93	6415	6.81	-1.348	-1	PASS
	97	6435	6.81	-1.559	-1	PASS
	105	6475	6.81	-1.169	-1	PASS
	113	6515	6.81	-1.483	-1	PASS
	117	6535	6.81	-1.493	-1	PASS
	149	6695	6.81	-1.561	-1	PASS
	181	6855	6.81	-1.185	-1	PASS
	185	6875	6.81	-1.156	-1	PASS
	209	6995	6.81	-1.307	-1	PASS
	229	7095	6.81	-1.43	-1	PASS
	233	7115	6.81	-4.065	-1	PASS

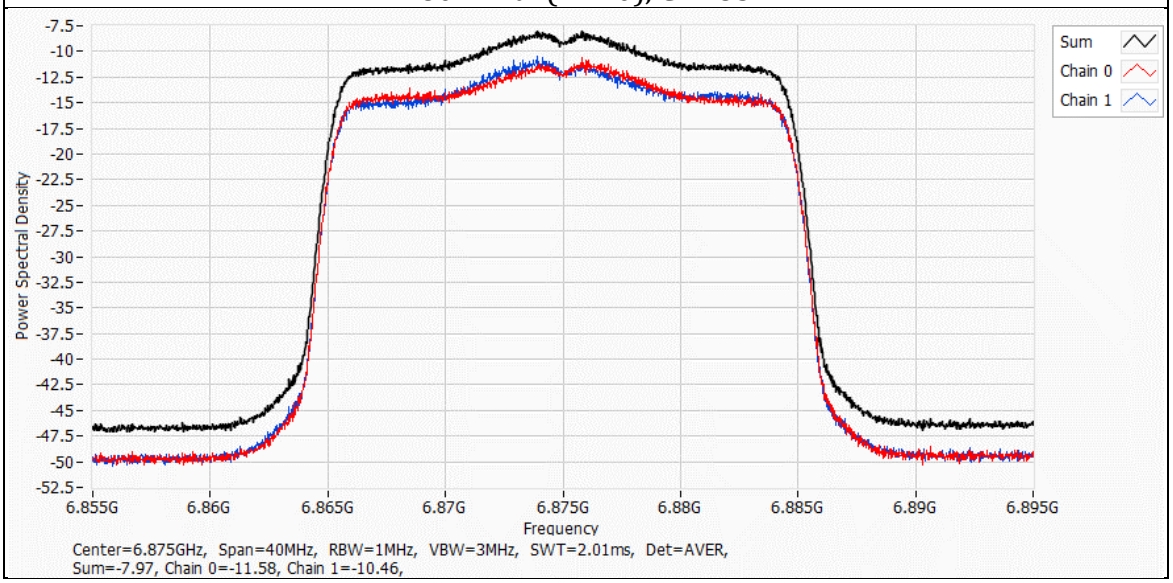
Mode	CH	Freq (MHz)	PSD per Chain (dBm/MHz)	
			Chain 0	Chain 1
802.11a	2	5935	-11.621	-10.457
	1	5955	-11.658	-10.852
	45	6175	-10.972	-10.873
	93	6415	-11.496	-10.682
	97	6435	-11.463	-10.895
	105	6475	-11.115	-10.715
	113	6515	-11.307	-10.882
	117	6535	-11.408	-10.805
	149	6695	-11.213	-11.162
	181	6855	-10.69	-10.631
	185	6875	-10.422	-10.614
	209	6995	-10.487	-11.582
	229	7095	-10.998	-11.08
	233	7115	-20.089	-11.326


802.11a, CH185
Power Spectral Density
-7.5
-10
-12.5
-15
-17.5
-20
-22.5
-25
-27.5
-30
-32.5
-35
-37.5
-40
-42.5
-45
-47.5
-50
-52.5
6.855G
6.86G
6.865G
6.87G
6.875G
6.88G
6.885G
6.89G
6.895G
Frequency
Sum
Chain 0
Chain 1
Center=6.875GHz, Span=40MHz, RBW=1MHz, VBW=3MHz, SWT=2.01ms, Det=AVER,
Sum=-7.97, Chain 0=-10.42, Chain 1=-11.61,

Mode	CH	Freq (MHz)	Directional Gain (dBi)	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
802.11ax(HE20)	2	5935	6.81	-10.087	-1	PASS
	1	5955	6.81	-1.185	-1	PASS
	45	6175	6.81	-1.37	-1	PASS
	93	6415	6.81	-1.456	-1	PASS
	97	6435	6.81	-1.258	-1	PASS
	105	6475	6.81	-1.537	-1	PASS
	113	6515	6.81	-1.406	-1	PASS
	117	6535	6.81	-1.492	-1	PASS
	149	6695	6.81	-1.274	-1	PASS
	181	6855	6.81	-1.539	-1	PASS
	185	6875	6.81	-1.163	-1	PASS
	209	6995	6.81	-1.448	-1	PASS
	229	7095	6.81	-1.625	-1	PASS
	233	7115	6.81	-17.217	-1	PASS
	185	6875	6.81	-1.163	-1	PASS
	209	6995	6.81	-1.448	-1	PASS
	229	7095	6.81	-1.625	-1	PASS
	233	7115	6.81	-17.217	-1	PASS

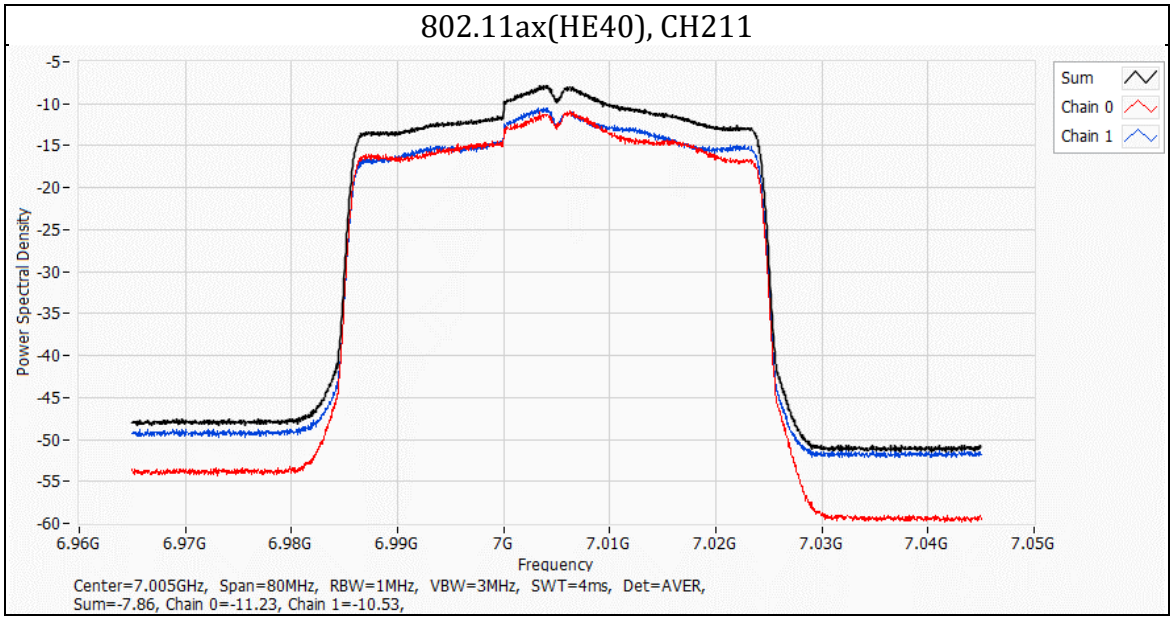
Mode	CH	Freq (MHz)	PSD per Chain (dBm/MHz)	
			Chain 0	Chain 1
802.11ax(HE20)	2	5935	-19.095	-20.145
	1	5955	-10.967	-10.687
	45	6175	-10.995	-10.731
	93	6415	-11.724	-10.763
	97	6435	-11.182	-10.763
	105	6475	-11.697	-11.043
	113	6515	-11.641	-10.56
	117	6535	-11.467	-10.515
	149	6695	-11.127	-10.601
	181	6855	-11.592	-11.005
	185	6875	-10.591	-10.457
	209	6995	-10.915	-11.643
	229	7095	-11.237	-11.195
	233	7115	-26.85	-26.711
	185	6875	-10.591	-10.457
	209	6995	-10.915	-11.643
	229	7095	-11.237	-11.195
	233	7115	-26.85	-26.711

802.11ax(HE20), CH185



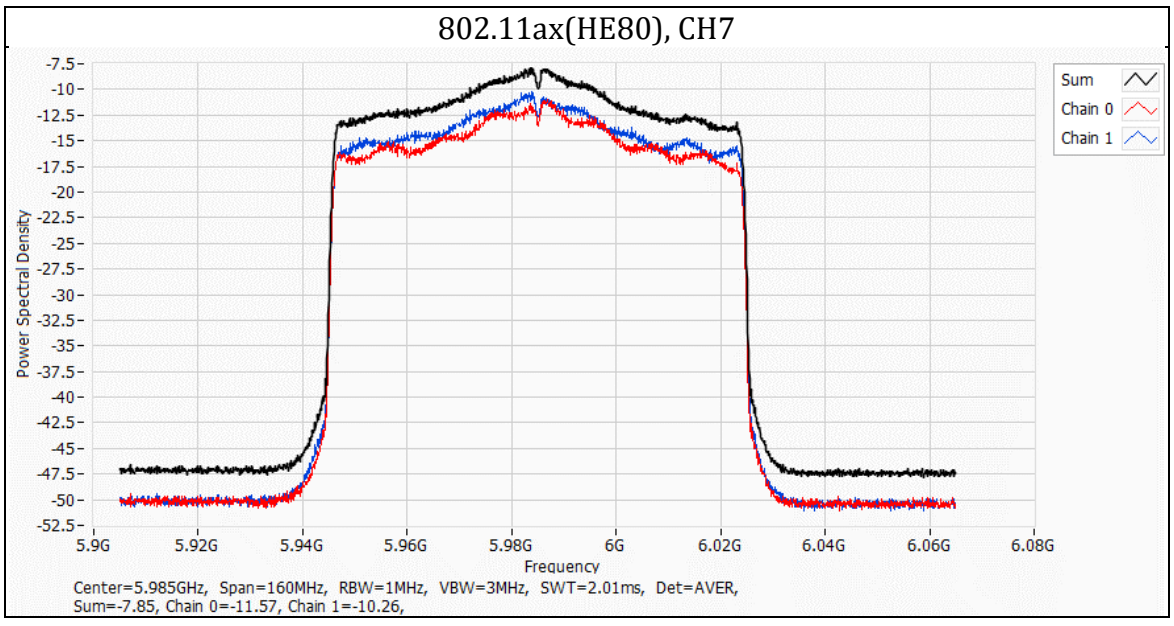
Mode	CH	Freq (MHz)	Directional Gain (dBi)	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
802.11ax(HE40)	3	5965	6.81	-1.753	-1	PASS
	43	6165	6.81	-1.222	-1	PASS
	91	6405	6.81	-1.356	-1	PASS
	99	6445	6.81	-1.447	-1	PASS
	107	6485	6.81	-1.273	-1	PASS
	115	6525	6.81	-1.116	-1	PASS
	123	6565	6.81	-1.501	-1	PASS
	155	6725	6.81	-1.487	-1	PASS
	179	6845	6.81	-1.416	-1	PASS
	187	6885	6.81	-1.08	-1	PASS
	211	7005	6.81	-1.047	-1	PASS
	227	7085	6.81	-1.437	-1	PASS

Mode	CH	Freq (MHz)	PSD per Chain (dBm/MHz)	
			Chain 0	Chain 1
802.11ax(HE40)	3	5965	-11.357	-11.335
	43	6165	-11.354	-10.39
	91	6405	-11.161	-10.762
	99	6445	-11.183	-10.802
	107	6485	-11.268	-10.854
	115	6525	-11.12	-10.314
	123	6565	-10.999	-10.894
	155	6725	-10.954	-11.028
	179	6845	-10.986	-11.058
	187	6885	-10.815	-10.391
	211	7005	-10.905	-10.466
	227	7085	-11.165	-10.92



Mode	CH	Freq (MHz)	Directional Gain (dBi)	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
802.11ax(HE80)	7	5985	6.81	-1.042	-1	PASS
	39	6145	6.81	-1.322	-1	PASS
	87	6385	6.81	-1.553	-1	PASS
	103	6465	6.81	-1.622	-1	PASS
	119	6545	6.81	-1.546	-1	PASS
	135	6625	6.81	-1.279	-1	PASS
	151	6705	6.81	-1.147	-1	PASS
	167	6785	6.81	-1.409	-1	PASS
	183	6865	6.81	-1.261	-1	PASS
	199	6945	6.81	-1.308	-1	PASS
	215	7025	6.81	-1.094	-1	PASS

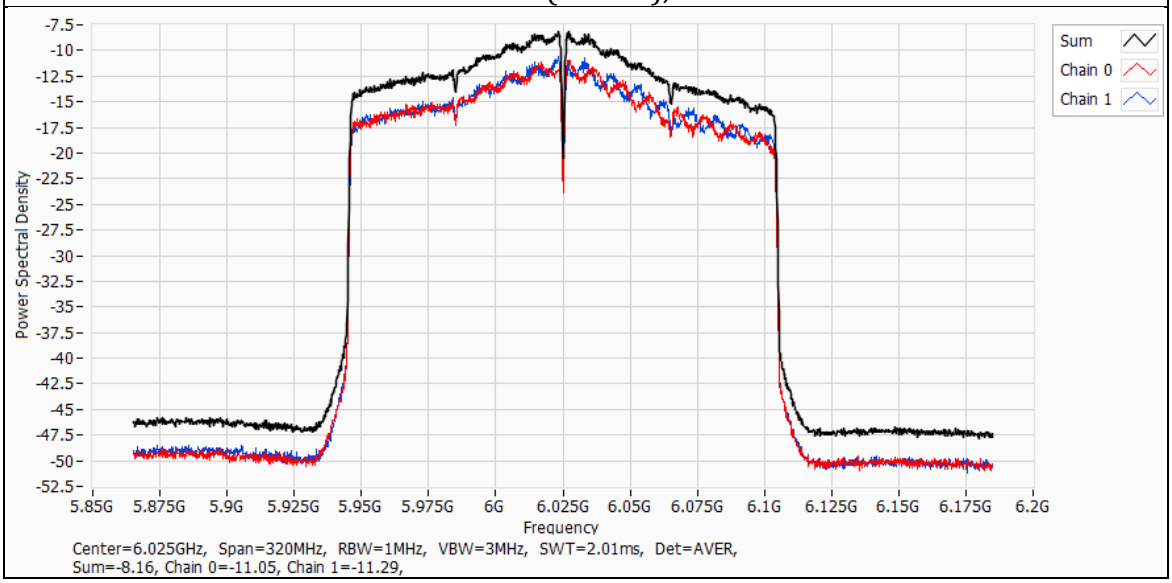
Mode	CH	Freq (MHz)	PSD per Chain (dBm/MHz)	
			Chain 0	Chain 1
802.11ax(HE80)	7	5985	-10.994	-10.257
	39	6145	-10.935	-11.084
	87	6385	-11.489	-10.843
	103	6465	-11.613	-11.008
	119	6545	-12.381	-10.022
	135	6625	-11.607	-10.473
	151	6705	-10.813	-10.506
	167	6785	-11.621	-10.485
	183	6865	-11.385	-10.554
	199	6945	-11.235	-10.75
	215	7025	-10.692	-10.31



Mode	CH	Freq (MHz)	Directional Gain (dBi)	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
802.11ax(HE160)	15	6025	6.81	-1.351	-1	PASS
	47	6185	6.81	-1.547	-1	PASS
	79	6345	6.81	-2.159	-1	PASS
	111	6505	6.81	-2.286	-1	PASS
	143	6665	6.81	-1.971	-1	PASS
	175	6825	6.81	-1.87	-1	PASS
	207	6985	6.81	-2.469	-1	PASS

Mode	CH	Freq (MHz)	PSD per Chain (dBm/MHz)	
			Chain 0	Chain 1
802.11ax(HE160)	15	6025	-10.917	-10.627
	47	6185	-10.957	-10.522
	79	6345	-11.51	-11.525
	111	6505	-11.85	-11.676
	143	6665	-11.686	-11.473
	175	6825	-11.791	-11.323
	207	6985	-12.266	-11.883

802.11ax(HE160), CH15



9.5. Frequency Stability

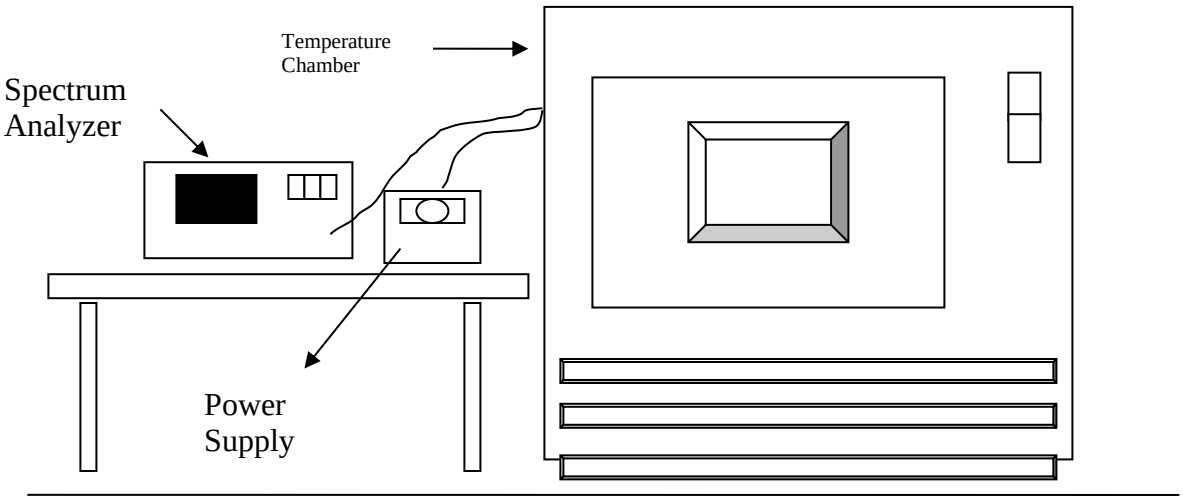
Requirements

The frequency of the carrier signal shall be maintained within band of operation.

Test procedure

a. The EUT was placed inside the environmental test chamber and powered by nominal voltage.
b. Turn the EUT on and couple its output to a spectrum analyzer.
c. Turn the EUT off and set the chamber to the highest temperature specified.
d. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 Minutes.
e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 Minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

Test Setup



Test Data

Frequency Stability Versus Temp.									
Operating Frequency: 5955 MHz									
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Freq. Drift (ppm)	Measured Frequency (MHz)	Freq. Drift (ppm)	Measured Frequency (MHz)	Freq. Drift (ppm)	Measured Frequency (MHz)	Freq. Drift (ppm)
85	3.3	5955.0191	3.21	5955.0195	3.27	5955.0212	3.56	5955.0175	2.94
80	3.3	5954.9789	-3.54	5954.9781	-3.68	5954.9769	-3.88	5954.9787	-3.58
70	3.3	5954.9724	-4.63	5954.9708	-4.90	5954.9752	-4.16	5954.9708	-4.90
60	3.3	5954.9855	-2.43	5954.9821	-3.01	5954.9838	-2.72	5954.9829	-2.87
50	3.3	5954.9799	-3.38	5954.9787	-3.58	5954.9766	-3.93	5954.9806	-3.26
40	3.3	5955.0157	2.64	5955.0162	2.72	5955.0137	2.30	5955.0121	2.03
30	3.3	5954.9988	-0.20	5955.002	0.34	5955.0001	0.02	5955.0013	0.22
20	3.3	5955.0158	2.65	5955.0197	3.31	5955.0214	3.59	5955.0206	3.46
10	3.3	5955.0152	2.55	5955.0172	2.89	5955.0172	2.89	5955.0155	2.60
0	3.3	5955.0235	3.95	5955.0247	4.15	5955.0252	4.23	5955.0227	3.81
-10	3.3	5954.9904	-1.61	5954.991	-1.51	5954.9951	-0.82	5954.9954	-0.77
-20	3.3	5955.0247	4.15	5955.0256	4.30	5955.0274	4.60	5955.0288	4.84
-30	3.3	5955.0053	0.89	5955.0069	1.16	5955.003	0.50	5955.0043	0.72
-40	3.3	5955.0239	4.01	5955.0262	4.40	5955.0241	4.05	5955.0215	3.61
TEMP. (°C)	Power Supply (Vdc)	0 Minute		2 Minute		5 Minute		10 Minute	
		Measured Frequency (MHz)	Freq. Drift (ppm)	Measured Frequency (MHz)	Freq. Drift (ppm)	Measured Frequency (MHz)	Freq. Drift (ppm)	Measured Frequency (MHz)	Freq. Drift (ppm)
20	3.8	5955.0146	2.45	5955.0208	3.49	5955.0213	3.58	5955.0199	3.34
20	3.3	5955.0158	2.65	5955.0197	3.31	5955.0214	3.59	5955.0206	3.46
20	2.8	5955.0156	2.62	5955.0188	3.16	5955.0212	3.56	5955.021	3.53

9.6. Radiated Spurious Emission

Requirements

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

Frequency(MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:
1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

Limits of unwanted emission out of the restricted bands

Frequencies (MHz)	EIRP Limit	Equivalent Field Strength at 3m
5925MHz > F > 7125MHz	Peak:-7 (dBm/MHz)	88.2(dBµV/m)
	Average: -27 (dBm/MHz)	68.2(dBµV/m)

Note:
The following formula is used to convert the effective isotropic radiated power (eirp) to field strength:

$E = \frac{1000000\sqrt{30P}}{3}$ µV/m, where P is the eirp (Watts).

Test Procedures

[For 9 kHz ~ 30 MHz]

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. For measurement below 30MHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

NOTE:
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

[For above 30 MHz]

a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. For measurement below 1GHz, the initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured. If the emission level of the EUT measured by the peak detector is lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
f. The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

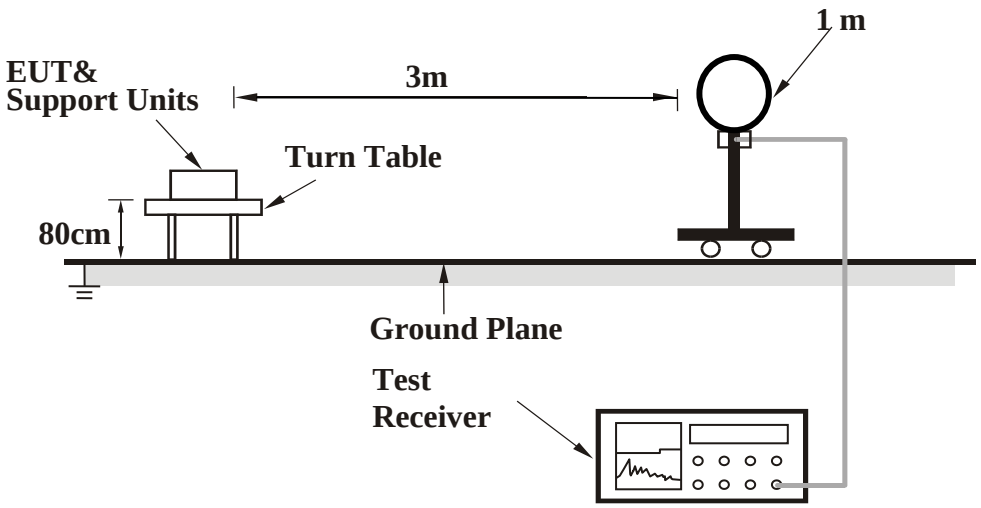
a. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
b. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
c. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is ≥ 1/T (Duty cycle < 98%) or 10Hz (Duty cycle ≥ 98%) for Average detection (AV) at frequency above 1GHz.

Configuration	Average	
	RBW	VBW
802.11a	1MHz	Refer to section 6.6 for duty cycle
802.11ax (HE20)		
802.11ax (HE40)		
802.11ax (HE80)		
802.11ax (HE160)		

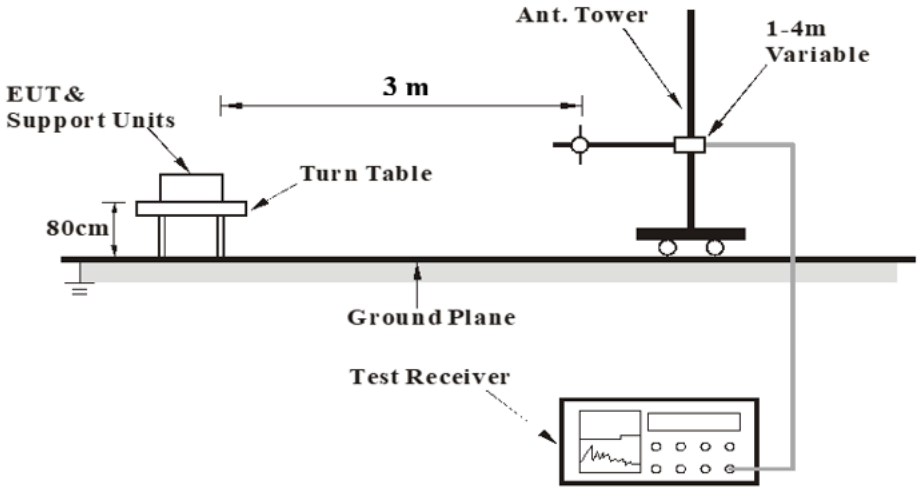
d. All modes of operation were investigated (includes all external accessories) and the worst-case emissions are reported, the other emission levels were low against the limit.
e. Test data of Result value (dBuV/m) = Reading value (dBuV/m) + Correction Factor (dB/m).
f. Test data of Margin(dB) = Result value (dBuV/m) - Limit value (dBuV/m).
g. Test data of Correction Factor (dB/m) = Antenna Factor (dBuV/m) + Cable Loss (dB) - Preamp Factor (dB).
h. Test data of Notation "@" = Fundamental Frequency
i. Test data of Notation " * " = The peak result under 20 dB above and complies with AVG limit, AVG result is deemed to comply with AVG limit.

Test Setup

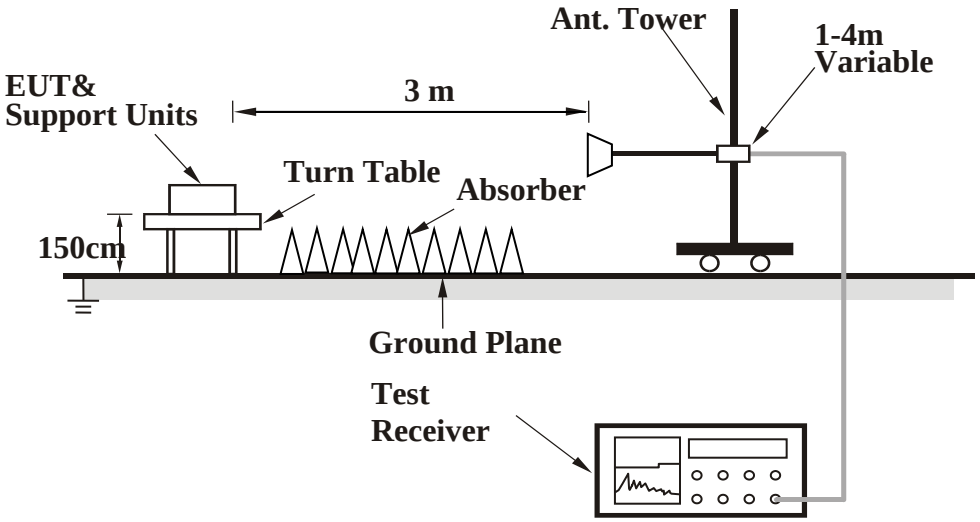
<Frequency Range 9 kHz ~ 30 MHz>



<Frequency Range 30 MHz ~ 1 GHz >



<Frequency Range above 1 GHz> 1 GHz ~ 40 GHz



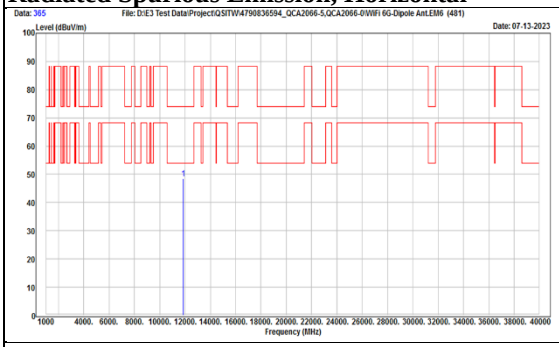
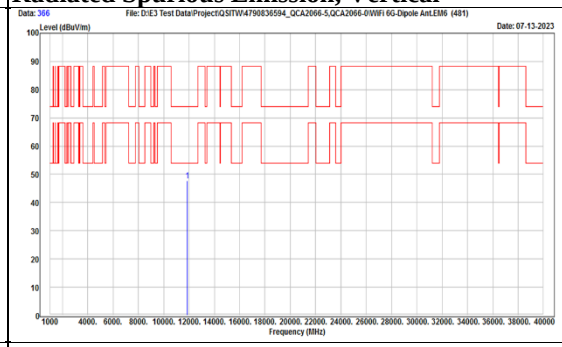
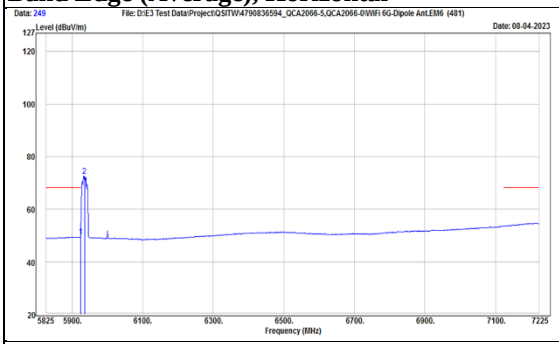
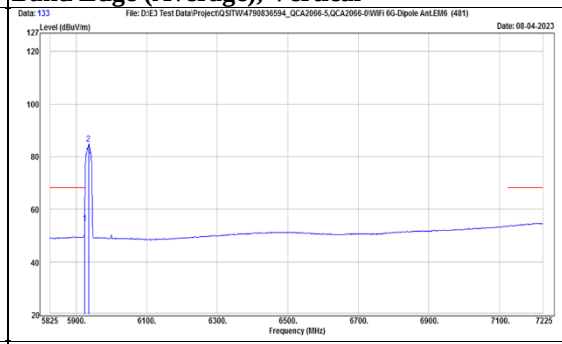
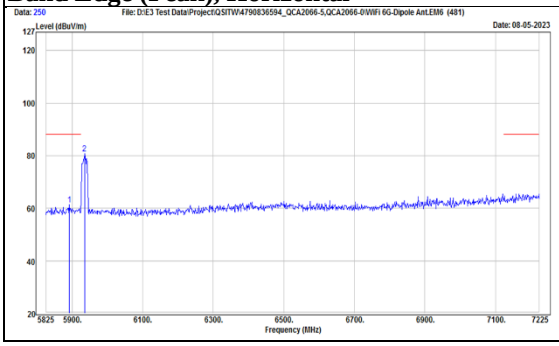
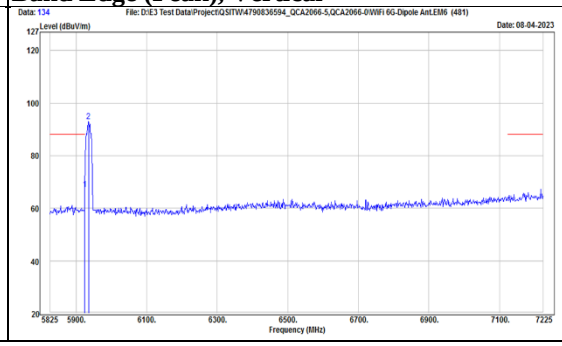
For the actual test configuration, please refer to the Setup Configurations.

Test Data

Above 1 GHz

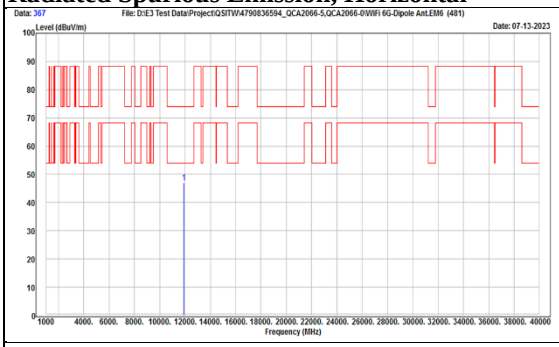
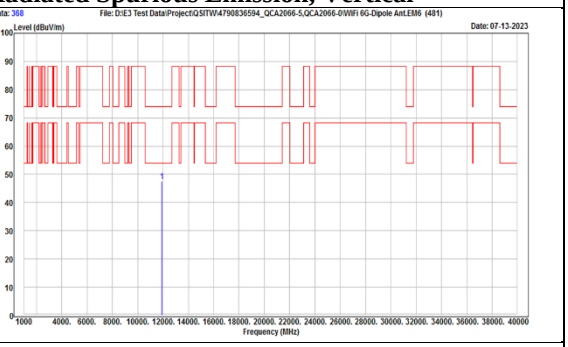
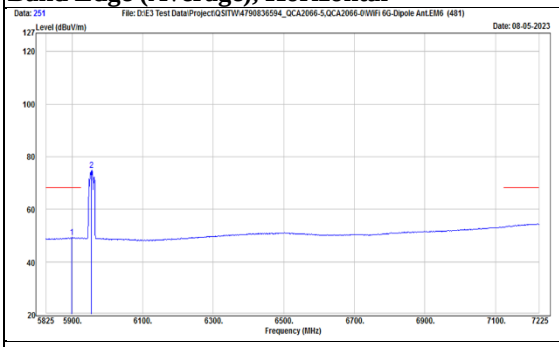
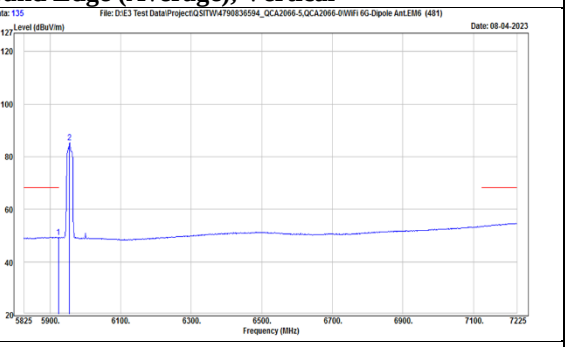
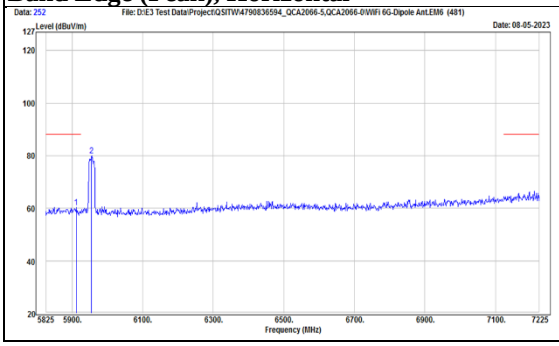
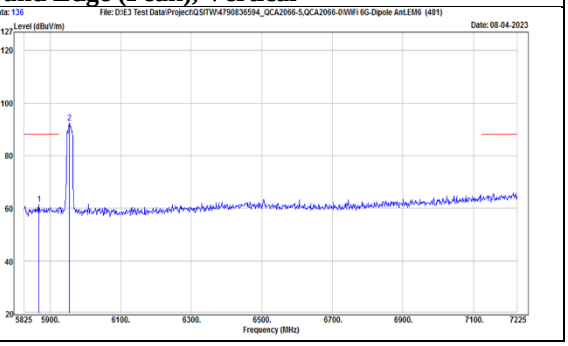
Mode	802.11a	Channel	2

Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		5892.2	40.71	20.7	61.41	88.2	-26.79	PK
		5924.4	28.82	20.73	49.55	68.2	-18.65	AVG
	@	5935	60.13	20.74	80.87	N/A	N/A	PK
	@	5935	51.93	20.74	72.67	N/A	N/A	AVG
	*	11870	30.36	18.18	48.54	74	-25.46	PK
Vertical		5924.4	46.55	20.73	67.28	88.2	-20.92	PK
		5924.4	34.04	20.73	54.77	68.2	-13.43	AVG
	@	5935	72.26	20.74	93	N/A	N/A	PK
	@	5935	64.21	20.74	84.95	N/A	N/A	AVG
	*	11870	29.53	18.18	47.71	74	-26.29	PK

TX, 802.11a (Ch 2) **Radiated Spurious Emission, Horizontal**	**TX, 802.11a (Ch 2)** **Radiated Spurious Emission, Vertical**
	
TX, 802.11a (Ch 2) **Band Edge (Average), Horizontal**	**TX, 802.11a (Ch 2)** **Band Edge (Average), Vertical**
	
TX, 802.11a (Ch 2) **Band Edge (Peak), Horizontal**	**TX, 802.11a (Ch 2)** **Band Edge (Peak), Vertical**
	

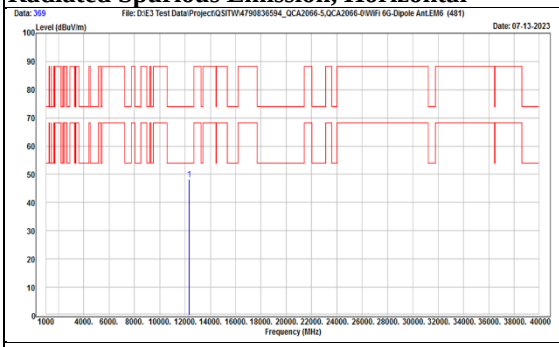
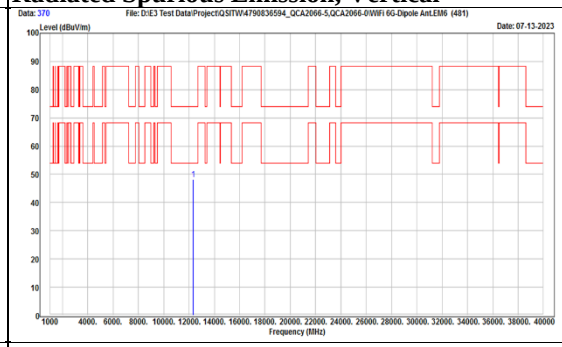
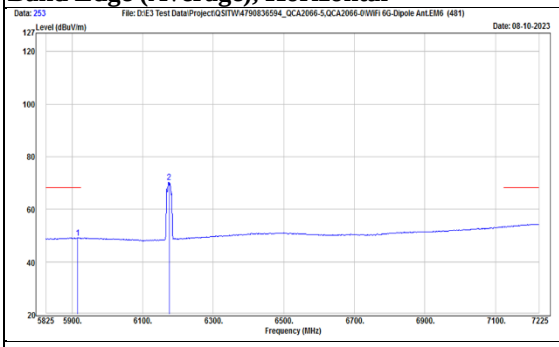
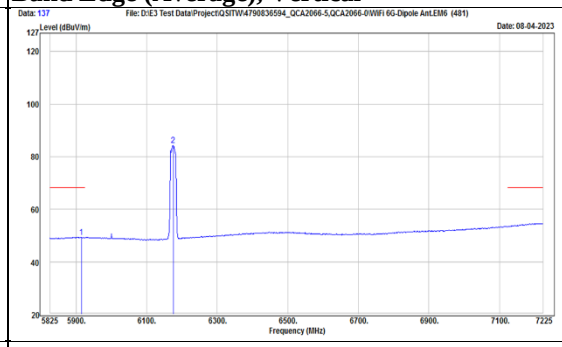
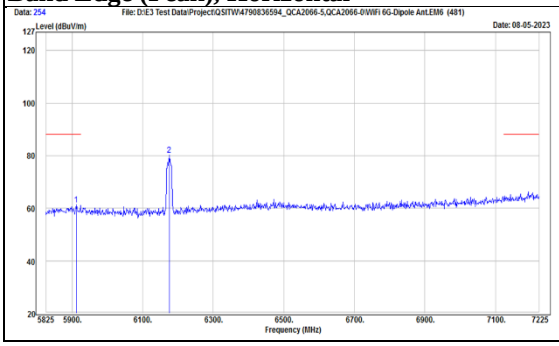
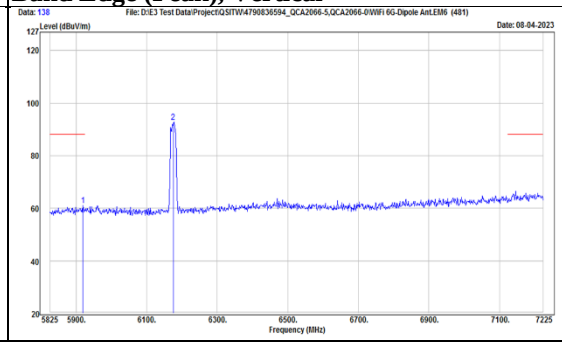
Mode	802.11a	Channel	1

Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		5899.2	28.62	20.7	49.32	68.2	-18.88	AVG
		5911.8	39.73	20.71	60.44	88.2	-27.76	PK
	@	5955	59.13	20.76	79.89	N/A	N/A	PK
	@	5955	54.18	20.76	74.94	N/A	N/A	AVG
	*	11910	28.78	18.24	47.02	74	-26.98	PK
Vertical		5868.4	40.89	20.67	61.56	88.2	-26.64	PK
		5923	28.65	20.72	49.37	68.2	-18.83	AVG
	@	5955	71.88	20.76	92.64	N/A	N/A	PK
	@	5955	64.64	20.76	85.4	N/A	N/A	AVG
	*	11910	29.3	18.24	47.54	74	-26.46	PK

TX, 802.11a (Ch 1) **Radiated Spurious Emission, Horizontal**	**TX, 802.11a (Ch 1)** **Radiated Spurious Emission, Vertical**
	
TX, 802.11a (Ch 1) **Band Edge (Average), Horizontal**	**TX, 802.11a (Ch 1)** **Band Edge (Average), Vertical**
	
TX, 802.11a (Ch 1) **Band Edge (Peak), Horizontal**	**TX, 802.11a (Ch 1)** **Band Edge (Peak), Vertical**
	

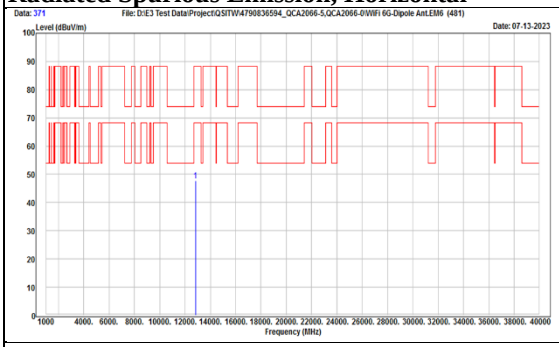
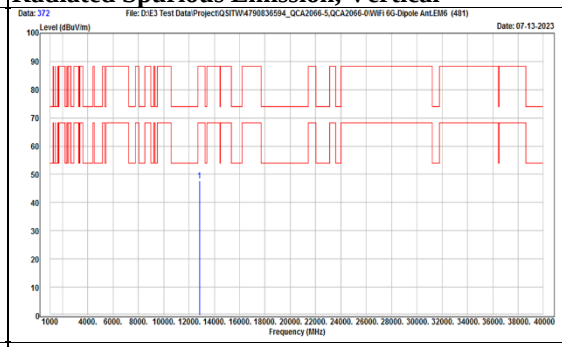
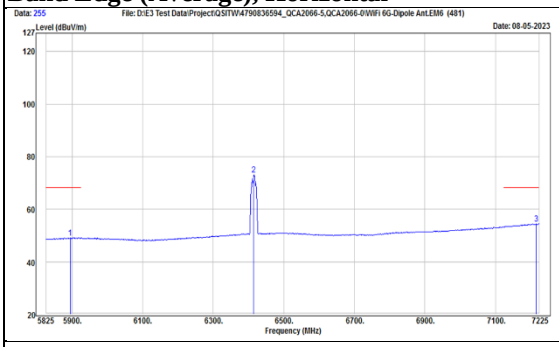
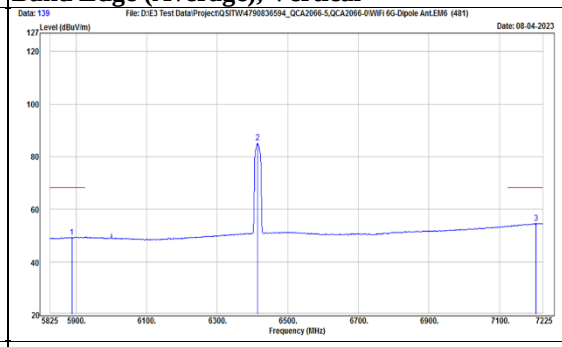
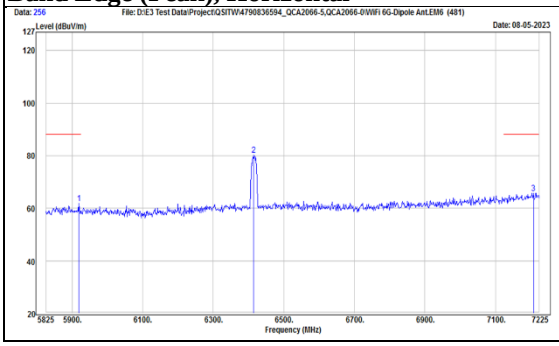
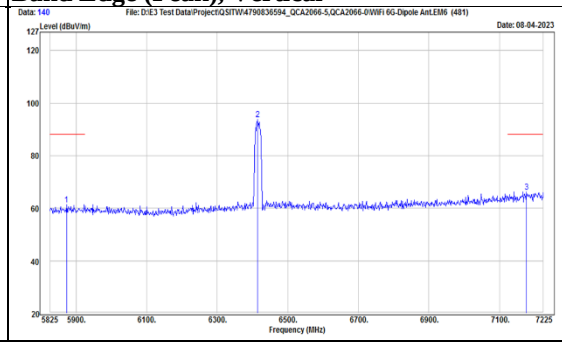
Mode	802.11a	Channel	45

Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		5911.8	40.65	20.71	61.36	88.2	-26.84	PK
		5916	28.37	20.72	49.09	68.2	-19.11	AVG
	@	6175	58.72	21.52	80.24	N/A	N/A	PK
	@	6175	48.86	21.52	70.38	N/A	N/A	AVG
	*	12350	29.32	18.82	48.14	74	-25.86	PK
Vertical		5914.6	28.66	20.71	49.37	68.2	-18.83	AVG
		5918.8	40.32	20.72	61.04	88.2	-27.16	PK
	@	6175	71.37	21.52	92.89	N/A	N/A	PK
	@	6175	62.93	21.52	84.45	N/A	N/A	AVG
	*	12350	29.38	18.82	48.2	74	-25.8	PK

TX, 802.11a (Ch 45) **Radiated Spurious Emission, Horizontal**	**TX, 802.11a (Ch 45)** **Radiated Spurious Emission, Vertical**
	
TX, 802.11a (Ch 45) **Band Edge (Average), Horizontal**	**TX, 802.11a (Ch 45)** **Band Edge (Average), Vertical**
	
TX, 802.11a (Ch 45) **Band Edge (Peak), Horizontal**	**TX, 802.11a (Ch 45)** **Band Edge (Peak), Vertical**
	

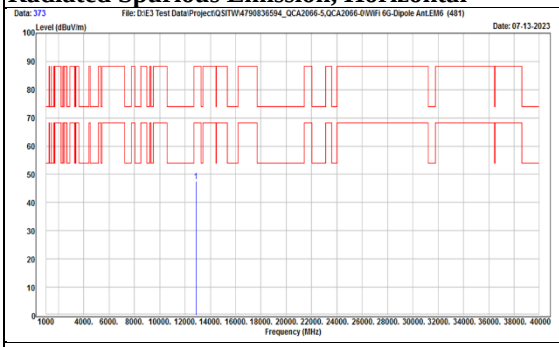
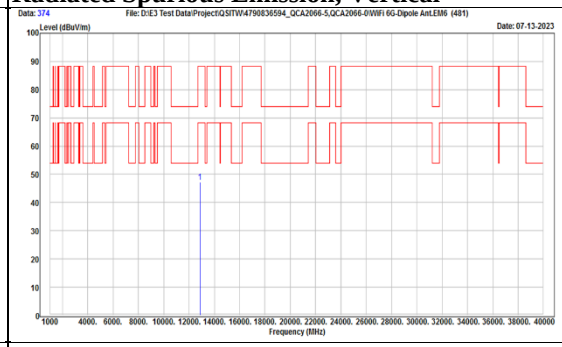
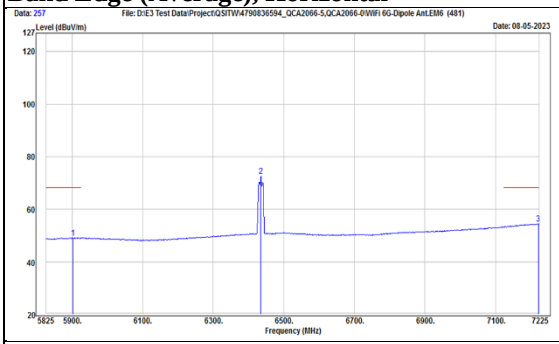
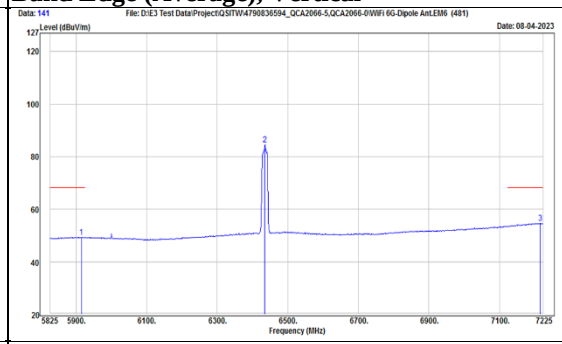
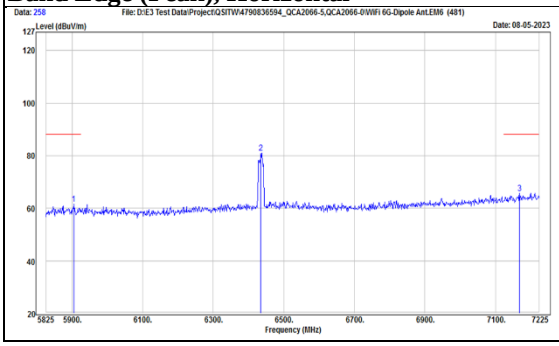
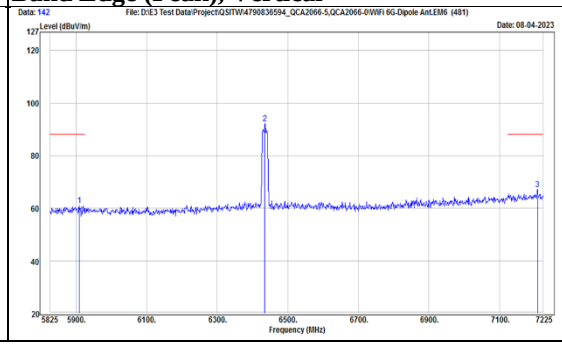
Mode	802.11a	Channel	93

Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		5895	28.48	20.69	49.17	68.2	-19.03	AVG
		5918.8	41.26	20.72	61.98	88.2	-26.22	PK
	@	6415	57.55	22.68	80.23	N/A	N/A	PK
	@	6415	50.48	22.68	73.16	N/A	N/A	AVG
		7208.2	39.46	26.34	65.8	88.2	-22.4	PK
		7216.6	28.07	26.36	54.43	68.2	-13.77	AVG
	*	12830	27.65	20.01	47.66	88.2	-40.54	PK
Vertical		5872.6	40.68	20.68	61.36	88.2	-26.84	PK
		5888	28.7	20.69	49.39	68.2	-18.81	AVG
	@	6415	71.24	22.68	93.92	N/A	N/A	PK
	@	6415	62.59	22.68	85.27	N/A	N/A	AVG
		7177.4	40.17	26.17	66.34	88.2	-21.86	PK
		7204	28.28	26.34	54.62	68.2	-13.58	AVG
	*	12830	27.72	20.01	47.73	88.2	-40.47	PK

TX, 802.11a (Ch 93) **Radiated Spurious Emission, Horizontal**	**TX, 802.11a (Ch 93)** **Radiated Spurious Emission, Vertical**
	
TX, 802.11a (Ch 93) **Band Edge (Average), Horizontal**	**TX, 802.11a (Ch 93)** **Band Edge (Average), Vertical**
	
TX, 802.11a (Ch 93) **Band Edge (Peak), Horizontal**	**TX, 802.11a (Ch 93)** **Band Edge (Peak), Vertical**
	

Mode	802.11a	Channel	97

Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		5902	28.51	20.7	49.21	68.2	-18.99	AVG
		5904.8	40.83	20.7	61.53	88.2	-26.67	PK
	@	6435	58.31	22.79	81.1	N/A	N/A	PK
	@	6435	49.7	22.79	72.49	N/A	N/A	AVG
		7169	39.57	26.11	65.68	88.2	-22.52	PK
		7222.2	28.05	26.36	54.41	68.2	-13.79	AVG
	*	12870	27.41	20.07	47.48	88.2	-40.72	PK
Vertical		5909	40.3	20.71	61.01	88.2	-27.19	PK
		5914.6	28.66	20.71	49.37	68.2	-18.83	AVG
	@	6435	69.39	22.79	92.18	N/A	N/A	PK
	@	6435	61.72	22.79	84.51	N/A	N/A	AVG
		7208.2	40.83	26.34	67.17	88.2	-21.03	PK
		7216.6	28.26	26.36	54.62	68.2	-13.58	AVG
	*	12870	27.08	20.07	47.15	88.2	-41.05	PK

TX, 802.11a (Ch 97) **Radiated Spurious Emission, Horizontal**	**TX, 802.11a (Ch 97)** **Radiated Spurious Emission, Vertical**
	
TX, 802.11a (Ch 97) **Band Edge (Average), Horizontal**	**TX, 802.11a (Ch 97)** **Band Edge (Average), Vertical**
	
TX, 802.11a (Ch 97) **Band Edge (Peak), Horizontal**	**TX, 802.11a (Ch 97)** **Band Edge (Peak), Vertical**
	

Mode	802.11a	Channel	105

Polarization	Notation	Frequency (MHz)	Reading (dBuV)	Correct (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Horizontal		5888	41.43	20.69	62.12	88.2	-26.08	PK
		5900.6	28.47	20.7	49.17	68.2	-19.03	AVG
	@	6475	59.26	23.1	82.36	N/A	N/A	PK
	@	6475	50.57	23.1	73.67	N/A	N/A	AVG
		7164.8	40.51	26.08	66.59	88.2	-21.61	PK
		7206.8	28.14	26.34	54.48	68.2	-13.72	AVG
	*	12950	27.53	20.32	47.85	88.2	-40.35	PK
Vertical		5846	39.76	20.64	60.4	88.2	-27.8	PK
		5904.8	28.73	20.7	49.43	68.2	-18.77	AVG
	@	6475	68.43	23.1	91.53	N/A	N/A	PK
	@	6475	61.7	23.1	84.8	N/A	N/A	AVG
		7194.2	39.28	26.3	65.58	88.2	-22.62	PK
		7219.4	28.24	26.36	54.6	68.2	-13.6	AVG
	*	12950	26.72	20.32	47.04	88.2	-41.16	PK