

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 15, Subpart E (Section 15.407)

Report No.: RFBWIN-WTW-P23020421-1

FCC ID: J9C-QCNCM825

Product: Qualcomm WiFi 7/BT Combo module

Brand: Qualcomm

Model No.: QCNCM825

Received Date: 2023/2/2

Test Date: 2023/2/10 ~ 2023/5/11

Issued Date: 2023/7/5

Applicant: Qualcomm Technologies, Inc.

Address: 5775 Morehouse Drive, San Diego, CA 92121-1714

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Hsin Chu Laboratory

Lab Address: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan

Test Location: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan

FCC Registration / 723255 / TW2022

Designation Number:

Approved by: _____



May Chen / Manager

Date: _____

2023/7/5

This test report consists of 760 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The test results in the report only apply to the tested sample. The test results in this report are traceable to the national or international standards.

Prepared by : Vito Lung / Specialist



This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at <http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/> and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty into account, unless otherwise requested in writing. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.

Table of Contents

Release Control Record	4
1 Certificate	5
2 Summary of Test Results	6
2.1 Measurement Uncertainty	6
2.2 Supplementary Information	6
3 General Information	7
3.1 General Description of EUT	7
3.2 Antenna Description of EUT	8
3.3 Channel List	9
3.4 Test Mode Applicability and Tested Channel Detail	11
3.5 Duty Cycle of Test Signal	23
3.6 Test Program Used and Operation Descriptions	27
3.7 Connection Diagram of EUT and Peripheral Devices	27
3.8 Configuration of Peripheral Devices and Cable Connections	29
4 Test Instruments	30
4.1 26 dB Bandwidth	30
4.2 RF Output Power	30
4.3 Power Spectral Density	30
4.4 6 dB Bandwidth	30
4.5 Occupied Bandwidth	30
4.6 Frequency Stability	31
4.7 AC Power Conducted Emissions	31
4.8 Unwanted Emissions below 1 GHz	32
4.9 Unwanted Emissions above 1 GHz	33
5 Limits of Test Items	34
5.1 26 dB Bandwidth	34
5.2 RF Output Power	34
5.3 Power Spectral Density	34
5.4 6 dB Bandwidth	34
5.5 Occupied Bandwidth	34
5.6 Frequency Stability	35
5.7 AC Power Conducted Emissions	35
5.8 Unwanted Emissions below 1 GHz	35
5.9 Unwanted Emissions above 1 GHz	36
6 Test Arrangements	37
6.1 26 dB Bandwidth	37
6.1.1 Test Setup	37
6.1.2 Test Procedure	37
6.2 RF Output Power	38
6.2.1 Test Setup	38
6.2.2 Test Procedure	38
6.3 Power Spectral Density	39
6.3.1 Test Setup	39
6.3.2 Test Procedure	39
6.4 6 dB Bandwidth	39
6.4.1 Test Setup	39
6.4.2 Test Procedure	39
6.5 Occupied Bandwidth	40
6.5.1 Test Setup	40
6.5.2 Test Procedure	40
6.6 Frequency Stability	40
6.6.1 Test Setup	40
6.6.2 Test Procedure	40
6.7 AC Power Conducted Emissions	41



6.7.1	Test Setup	41
6.7.2	Test Procedure	41
6.8	Unwanted Emissions below 1 GHz	42
6.8.1	Test Setup	42
6.8.2	Test Procedure	43
6.9	Unwanted Emissions above 1 GHz	44
6.9.1	Test Setup	44
6.9.2	Test Procedure	45
7	Test Results of Test Item	46
7.1	26 dB Bandwidth	46
7.2	RF Output Power	61
7.3	Power Spectral Density	94
7.4	6 dB Bandwidth	117
7.5	Occupied Bandwidth	122
7.6	Frequency Stability	135
7.7	AC Power Conducted Emissions	136
7.8	Unwanted Emissions below 1 GHz	138
7.9	Unwanted Emissions above 1 GHz	142
8	Pictures of Test Arrangements	726
9	Appendix A – Information of the Testing Laboratories	727
10	Appendix B – Radiated Emission Measurement	728
10.1.1	Limits of Radiated Emission and Bandedge Measurement	728
10.1.2	Test Instruments	729
10.1.3	Test Procedure	729
10.1.4	Deviation from Test Standard	729
10.1.5	Test Setup	730
10.1.6	EUT Operating Condition	730
10.1.7	Test Results	731



Release Control Record

Issue No.	Description	Date Issued
RFBWIN-WTW-P23020421-1	Original release.	2023/7/5

1 Certificate

Product: Qualcomm WiFi 7/BT Combo module

Brand: Qualcomm

Test Model: QCNCM825

Sample Status: Engineering sample

Applicant: Qualcomm Technologies, Inc.

Test Date: 2023/2/10 ~ 2023/5/11

Standard: 47 CFR FCC Part 15, Subpart E (Section 15.407)

Measurement ANSI C63.10-2013

procedure: KDB 789033 D02 General UNII Test Procedure New Rules v02r01
KDB 662911 D01 Multiple Transmitter Output v02r01

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)			
Clause	Test Item	Result	Remark
15.407(a)(2)	26 dB Bandwidth	-	For U-NII-2A U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.
15.407(a)(1) 15.407(a)(2) 15.407(a)(3)	RF Output Power	Pass	Meet the requirement of limit.
15.407(a)(1) 15.407(a)(2) 15.407(a)(3)	Power Spectral Density	Pass	Meet the requirement of limit.
15.407(e)	6 dB Bandwidth	Pass	Meet the requirement of limit. (U-NII-3 Band only)
---	Occupied Bandwidth	-	Reference only.
15.407(g)	Frequency Stability	Pass	Meet the requirement of limit.
15.407(b)(9)	AC Power Conducted Emissions	Pass	Minimum passing margin is -9.36 dB at 0.56917 MHz
15.407(b)(9)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -3.2 dB at 118.42 MHz
15.407(b) (1/10) 15.407(b) (2/10) 15.407(b) (3/10) 15.407(b) (4(i)/10)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -1.4 dB at 5350.00, 5555.70 MHz
15.203	Antenna Requirement	Pass	Antenna connector is MHF 4L not a standard connector.

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Parameter	Specification	Expanded Uncertainty (k=2) (±)
AC Power Conducted Emissions	150 kHz ~ 30 MHz	1.9 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3.1 dB
	30 MHz ~ 1 GHz	5.1 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	5.1 dB
	18 GHz ~ 40 GHz	5.3 dB

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Qualcomm WiFi 7/BT Combo module
Brand	Qualcomm
Test Model	QCNCM825
Status of EUT	Engineering sample
Power Supply Rating	3.3 Vdc from host equipment
Modulation Type	64QAM, 16QAM, QPSK, BPSK for OFDM 1024QAM for OFDM in 11ac mode 4096QAM for OFDMA in 11ax mode 4096QAM for OFDMA in 11be mode
Modulation Technology	OFDM, OFDMA
Transfer Rate	802.11a: up to 54 Mbps 802.11n: up to 300 Mbps 802.11ac: up to 2166.7 Mbps 802.11ax: up to 2969.7 Mbps 802.11be: up to 2882.4 Mbps
Operating Frequency	5.18 GHz ~ 5.25 GHz 5.26 GHz ~ 5.32 GHz 5.5 GHz ~ 5.72 GHz 5.745 GHz ~ 5.825 GHz
Number of Channel	802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20), 802.11be (EHT20): 25 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40), 802.11be (EHT40): 12 802.11ac (VHT80), 802.11ax (HE80), 802.11be (EHT80): 6 802.11ac (VHT160), 802.11ax (HE160), 802.11be (EHT160): 2
Resource Unit (RU)	Single RU: 26-tone, 52-tone, 106-tone, 242-tone, 484-tone, 996-tone, 2 * 996-tone Multi-RU(Small RU): 52-tone + 26-tone, 106-tone + 26-tone Multi-RU (Large RU): 484-tone + 242-tone, 996-tone + 484-tone
Channel Puncturing (Large RU)	80 MHz punctured by 20 MHz ; 160 MHz punctured by 20 MHz 160 MHz punctured by 40 MHz
Output Power	5.18 GHz ~ 5.25 GHz : 157.591 mW (21.98 dBm) 5.26 GHz ~ 5.32 GHz : 145.332 mW (21.62 dBm) 5.5 GHz ~ 5.72 GHz : 176.189 mW (22.46 dBm) 5.745 GHz ~ 5.825 GHz : 146.327 mW (21.65 dBm)
EUT Category	Client device

Note:

1. There are Bluetooth and WLAN (2.4 GHz & 5 GHz & 6 GHz) technology used for the EUT.
2. Simultaneously transmission condition.

Condition	Technology	
1	WLAN(2.4 GHz)_Ant 0+1	WLAN(5 GHz)_Ant 0+1
2	WLAN(2.4 GHz)_Ant 0+1	WLAN(6 GHz)_Ant 0+1
3	WLAN(5 GHz)_Ant 0+1	Bluetooth_Ant 0
4	WLAN(5 GHz)_Ant 0+1	Bluetooth_Ant 1
5	WLAN(5 GHz)_Ant 0+1	Bluetooth_Ant 0+1
6	WLAN(6 GHz)_Ant 0+1	Bluetooth_Ant 0
7	WLAN(6 GHz)_Ant 0+1	Bluetooth_Ant 1
8	WLAN(6 GHz)_Ant 0+1	Bluetooth_Ant 0+1
9	WLAN(2.4 GHz)_Ant 0	Bluetooth_Ant 1
10	WLAN(2.4 GHz)_Ant 1	Bluetooth_Ant 0

3. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 Antenna Description of EUT

4. The antenna information is listed as below.

Antenna Set	RF Chain No.	Brand	Model	Antenna Net Gain (dBi)	Frequency Range	Cable Loss (dB)	Antenna Type	Connector Type	Cable Length (mm)
1	Chain0/1	Hong-Bo	260-25094	3.53	2.4~2.4835 GHz	0.74	PIFA	MHF 4L	300
				3.06	5.15~5.25 GHz	1.16			
				3.07	5.25~5.35 GHz	1.18			
				4.81	5.47~5.725 GHz	1.26			
				4.2	5.725~5.850 GHz	1.28			
2	Chain0/1	Hong-Bo	260-25083	5.09	5.850~5.895 GHz	1.29	PIFA	MHF 4L	300
				5.14	5.925~6.425 GHz	1.35			
				5.09	6.425~6.525 GHz	1.38			
				5.16	6.525~6.875 GHz	1.45			
				5.12	6.875~7.125 GHz	1.50			
3	Chain0/1	Hong-Bo	260-25084	3.22	2.4~2.4835 GHz	0.49	Monopole	MHF 4L	200
				3.35	5.150~5.250 GHz	0.76			
				3.42	5.250~5.350 GHz	0.77			
				4.77	5.470~5.725 GHz	0.80			
				4.72	5.725~5.850 GHz	0.84			
				4.71	5.850~5.895 GHz	0.84			
				4.75	5.925~6.425 GHz	0.86			
				4.29	6.425~6.525 GHz	0.91			
				4.81	6.525~6.875 GHz	0.96			
				4.74	6.875~7.125 GHz	0.98			

* Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

5. The EUT incorporates a MIMO function:

5 GHz Band		
Modulation Mode	TX & RX Configuration	
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 (HE40)	2TX	2RX
802.11ax (HE80)	2TX	2RX
802.11ax (HE160)	2TX	2RX
802.11be (EHT20)	2TX	2RX
802.11be (EHT40)	2TX	2RX
802.11be (EHT80)	2TX	2RX
802.11be (EHT160)	2TX	2RX
802.11ax (RU26/52/106/242/484/996/2x996)	2TX	2RX
802.11be (RU26/52/106/242/484/996/2x996 MRU52+26/106+26/ 484+242/996+484)	2TX	2RX

Note:

- The modulation and bandwidth are similar for 802.11n mode for 20MHz (40MHz), 802.11ac mode for 20MHz (40MHz, 80MHz, 160MHz), 802.11ax mode for 20MHz (40MHz, 80MHz, 160MHz) and 802.11be mode for 20MHz (40MHz, 80MHz, 160MHz) therefore the manufacturer will control the power for 802.11n/ac/ax mode is same as the 802.11be mode or more lower than it and investigated worst case to representative mode in test report.

3.3 Channel List

FOR 5180 ~ 5320 MHz

8 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20), 802.11be (EHT20):

Channel	Frequency	Channel	Frequency
36	5180 MHz	52	5260 MHz
40	5200 MHz	56	5280 MHz
44	5220 MHz	60	5300 MHz
48	5240 MHz	64	5320 MHz

4 channels are provided for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40), 802.11be (EHT40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	54	5270 MHz
46	5230 MHz	62	5310 MHz

2 channels are provided for 802.11ac (VHT80), 802.11ax (HE80), 802.11be (EHT80):

Channel	Frequency	Channel	Frequency
42	5210 MHz	58	5290 MHz

1 straddle channel is provided for 802.11ac (VHT160), 802.11ax (HE160), 802.11be (EHT160):

Channel	Frequency
50	5250 MHz

FOR 5500 ~ 5720 MHz

12 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20), 802.11be (EHT20):

Channel	Frequency	Channel	Frequency
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz	144	5720 MHz

6 channels are provided for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40), 802.11be (EHT40):

Channel	Frequency	Channel	Frequency
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5590 MHz	142	5710 MHz

3 channels are provided for 802.11ac (VHT80), 802.11ax (HE80), 802.11be (EHT80):

Channel	Frequency	Channel	Frequency
106	5530 MHz	138	5690 MHz
122	5610 MHz		

1 channels are provided for 802.11ac (VHT160), 802.11ax (HE160), 802.11be (EHT160):

Channel	Frequency
114	5570 MHz

FOR 5745 ~ 5825 MHz:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20), 802.11ax (HE20), 802.11be (EHT20):

Channel	Frequency	Channel	Frequency
149	5745 MHz	161	5805 MHz
153	5765 MHz	165	5825 MHz
157	5785 MHz		

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40), 802.11ax (HE40), 802.11be (EHT40):

Channel	Frequency	Channel	Frequency
151	5755 MHz	159	5795 MHz

1 channel is provided for 802.11ac (VHT80), 802.11ax (HE80), 802.11be (EHT80):

Channel	Frequency
155	5775 MHz

3.4 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	1. 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).
-----------	--

Following channel(s) was (were) selected for the final test as listed below:

Test Item	EUT Configure Mode	Mode	Tested Channel	Modulation	Data Rate Parameter	RU/MRU Index
26 dB Bandwidth	A	802.11a	52, 60, 64	BPSK	6Mb/s	NA
			100, 116, 140, 144			
		802.11be (EHT20)	52, 60, 64	BPSK	MCS0	NA
			100, 116, 140, 144			
		802.11be (EHT40)	54, 62,	BPSK	MCS0	NA
			102, 110, 134, 142			
		802.11be (EHT80)	58	BPSK	MCS0	NA
			106, 122, 138			
		802.11be (EHT160)	50	BPSK	MCS0	NA
			114			
		802.11be (EHT20) 26-tone RU	52, 60, 64	BPSK	MCS0	0, 0, 8
			100, 116, 140, 144			0, 0, 8, 8
		802.11be (EHT20) 52-tone RU	52, 60, 64	BPSK	MCS0	37, 37, 40
			100, 116, 140, 144			37, 37, 40, 40
802.11be (EHT20) 106-tone RU	52, 60, 64	BPSK	MCS0	53, 53, 54		
	100, 116, 140, 144			53, 53, 54, 54		
802.11be (EHT20) 242-tone RU	144	BPSK	MCS0	61		
802.11be (EHT40) 484-tone RU	142	BPSK	MCS0	66		
802.11be (EHT80) 996-tone RU	138	BPSK	MCS0	67		
802.11be (EHT160) 2x996-tone RU	50	BPSK	MCS0	68		

Test Item	EUT Configure Mode	Mode	Tested Channel	Modulation	Data Rate Parameter	RU/MRU Index
26 dB Bandwidth	A	802.11be (EHT20) 106+26-tone MRU	60	BPSK	MCS0	UL_RU106+26_High_8_3_MCS0
		802.11be (EHT80) 484+242-tone MRU	138	BPSK	MCS0	UL_RU484+242_Punc20_91_MCS0
		802.11be (EHT160) 996+484-tone MRU	50	BPSK	MCS0	UL_RU996+484_Punc40_MCS0
		802.11be (EHT80) Punctured by 20 MHz	58	BPSK	MCS0	EHT80_SU_Punct20_Mid2
			138			
		802.11be (EHT160) Punctured by 20 MHz	50	BPSK	MCS0	EHT160_SU_Punct20_Mid3
		802.11be (EHT160) Punctured by 40 MHz	50	BPSK	MCS0	EHT160_SU_Punct40_Mid2
	C	802.11be (EHT20)	144	BPSK	MCS0	NA
		802.11be (EHT20) 26-tone RU	144	BPSK	MCS0	8
		802.11be (EHT20) 52-tone RU	144	BPSK	MCS0	40
		802.11be (EHT20) 106-tone RU	144	BPSK	MCS0	54
		802.11be (EHT20) 242-tone RU	144	BPSK	MCS0	61

Test Item	EUT Configure Mode	Mode	Tested Channel	Modulation	Data Rate Parameter	RU/MRU Index
RF Output Power	A	802.11a	36, 40, 48	BPSK	6Mb/s	NA
			52, 60, 64			
			100, 116, 140, 144			
			149, 157, 165			
		802.11be (EHT20)	36, 40, 48	BPSK	MCS0	NA
			52, 60, 64			
			100, 116, 140, 144			
			149, 157, 165			
		802.11be (EHT40)	38, 46	BPSK	MCS0	NA
			54, 62			
			102, 110, 134, 142			
			151, 159			
		802.11be (EHT80)	42	BPSK	MCS0	NA
			58			
			106, 122, 138			
			155			
		802.11be (EHT160)	50	BPSK	MCS0	NA
			114			
		802.11be (EHT20) 26-tone) -tone RU	36, 40, 48	BPSK	MCS0	0, 0, 8
			52, 60, 64			0, 0, 8
			100, 116, 140, 144			0, 0, 8, 8
			149, 157, 165			0, 0, 8
		802.11be (EHT20) 52-tone) -tone RU	36, 40, 48	BPSK	MCS0	37, 37, 40
			52, 60, 64			37, 37, 40
			100, 116, 140, 144			37, 37, 40, 40
			149, 157, 165			37, 37, 40
		802.11be (EHT20) 106-tone) -tone RU	36, 40, 48	BPSK	MCS0	53, 53, 54
			52, 60, 64			53, 53, 54
			100, 116, 140, 144			53, 53, 54, 54
			149, 157, 165			53, 53, 54
		802.11be (EHT20) 242-tone) -tone RU	36, 40, 48	BPSK	MCS0	61, 40, 61
			52, 60, 64			61, 61, 61
100, 116, 140, 144	61, 61, 61, 61					
149, 157, 165	61, 61, 61					

Test Item	EUT Configure Mode	Mode	Tested Channel	Modulation	Data Rate Parameter	RU/MRU Index
RF Output Power	A	802.11be (EHT40) 484-tone RU	38, 46	BPSK	MCS0	65, 66
			54, 62			65, 66
			102, 110, 134, 142			65, 66, 66, 66
			151, 159			65, 66
		802.11be (EHT80) 996-tone RU	42	BPSK	MCS0	67
			58			67
			106, 122, 138			67, 67, 67
			155			67
		802.11be (EHT160) 2x996-tone RU)	50	BPSK	MCS0	68
			114			68
		802.11be (EHT20) 52+26-tone MRU	40	BPSK	MCS0	UL_RU52+26_Low_70_MCS0
			60			UL_RU52+26_High_72_MCS0
			116			UL_RU52+26_Low_70_MCS0
			165			UL_RU52+26_High_72_MCS0
		802.11be (EHT20) 106+26-tone MRU	40	BPSK	MCS0	UL_RU106+26_Low_8 2_MCS0
			60			UL_RU106+26_High_8 3_MCS0
			116			UL_RU106+26_Low_8 2_MCS0
			165			UL_RU106+26_High_8 3_MCS0
		802.11be (EHT80) 484+242-tone MRU	42	BPSK	MCS0	UL_RU484+242_Punc 20_91_MCS0
			58			
			138			
			155			
		802.11be (EHT160) 996+484-tone MRU	50	BPSK	MCS0	UL_RU996+484_Punc 40_MCS0 UL_RU996+484_Low_MCS0
			114			
		802.11be (EHT80) Punctured by 20 MHz	42	BPSK	MCS0	EHT80_SU_Punct20_Mid2
			58			
			138			
			155			
		802.11be (EHT160) Punctured by 20 MHz	50	BPSK	MCS0	EHT160_SU_Punct20_Mid3
			114			EHT160_SU_Punct20_High
		802.11be (EHT160) Punctured by 40 MHz	50	BPSK	MCS0	EHT160_SU_Punct40_Mid2
			114			EHT160_SU_Punct40_High



Test Item	EUT Configure Mode	Mode	Tested Channel	Modulation	Data Rate Parameter	RU/MRU Index		
RF Output Power	C	802.11be (EHT20)	36	BPSK	MCS0	NA		
			64					
			100, 116, 140, 144					
		802.11be (EHT20) 26-tone) -tone RU	36, 40, 48	BPSK	MCS0	0, 0, 8		
			52, 60, 64			0, 0, 8		
			100, 116, 140, 144			0, 0, 8, 8		
		802.11be (EHT20) 52-tone) -tone RU	36, 40, 48	BPSK	MCS0	37, 37, 40		
			52, 60, 64			37, 37, 40		
			100, 116, 140, 144			37, 37, 40, 40		
		802.11be (EHT20) 106-tone) -tone RU	36, 40, 48	BPSK	MCS0	53, 53, 54		
			52, 60, 64			53, 53, 54		
			100, 116, 140, 144			53, 53, 54, 54		
		802.11be (EHT20) 242-tone) -tone RU	36	BPSK	MCS0	61		
			64			61		
			100, 116, 140, 144			61, 61, 61, 61		
		802.11be (EHT20) 52+26-tone MRU	40	BPSK	MCS0	UL_RU52+26_Low_70_MCS0		
			60			UL_RU52+26_High_72_MCS0		
			116			UL_RU52+26_Low_70_MCS0		
		802.11be (EHT20) 106+26-tone MRU	40	BPSK	MCS0	UL_RU106+26_Low_8 2_MCS0		
			60			UL_RU106+26_High_8 3_MCS0		
			116			UL_RU106+26_Low_8 2_MCS0		
		Power Spectral Density	A	802.11a	36, 40, 48	BPSK	6Mb/s	NA
					52, 60, 64			
					100, 116, 140, 144			
149, 157, 165								
802.11be (EHT20)	36, 40, 48			BPSK	MCS0	NA		
	52, 60, 64							
	100, 116, 140, 144							
	149, 157, 165							
802.11be (EHT40)	38, 46			BPSK	MCS0	NA		
	54, 62							
	102, 110, 134, 142							
	151, 159							

Test Item	EUT Configure Mode	Mode	Tested Channel	Modulation	Data Rate Parameter	RU/MRU Index
Power Spectral Density	A	802.11be (EHT80)	42	BPSK	MCS0	NA
			58			
			106, 122, 138			
			155			
		802.11be (EHT160)	50	BPSK	MCS0	NA
			114			
		802.11be (EHT20) 26-tone) -tone RU	36, 40, 48	BPSK	MCS0	0, 0, 8
			52, 60, 64			0, 0, 8
			100, 116, 140, 144			0, 0, 8, 8
			149, 157, 165			0, 0, 8
		802.11be (EHT20) 52-tone) -tone RU	36, 40, 48	BPSK	MCS0	37, 37, 40
			52, 60, 64			37, 37, 40
			100, 116, 140, 144			37, 37, 40, 40
			149, 157, 165			37, 37, 40
		802.11be (EHT20) 106-tone) -tone RU	36, 40, 48	BPSK	MCS0	53, 53, 54
			52, 60, 64			53, 53, 54
			100, 116, 140, 144			53, 53, 54, 54
			149, 157, 165			53, 53, 54
		802.11be (EHT20) 242-tone) -tone RU	40	BPSK	MCS0	61
			64			
			116			
			165			
		802.11be (EHT40) 484-tone) -tone RU	46	BPSK	MCS0	66
			62			
110						
159						
802.11be (EHT80) 996-tone) -tone RU	42	BPSK	MCS0	67		
	58					
	138					
	155					
802.11be (EHT160) 2x996-tone RU)	50	BPSK	MCS0	68		
	114					

Test Item	EUT Configure Mode	Mode	Tested Channel	Modulation	Data Rate Parameter	RU/MRU Index
Power Spectral Density	A	802.11be (EHT20) 52+26-tone MRU	40	BPSK	MCS0	UL_RU52+26_Low_70_MCS0
			60			UL_RU52+26_High_72_MCS0
			116			UL_RU52+26_Low_70_MCS0
			165			UL_RU52+26_High_72_MCS0
		802.11be (EHT20) 106+26-tone MRU	40	BPSK	MCS0	UL_RU106+26_Low_8 2_MCS0
			60			UL_RU106+26_High_8 3_MCS0
			116			UL_RU106+26_Low_8 2_MCS0
			165			UL_RU106+26_High_8 3_MCS0
		802.11be (EHT80) 484+242-tone MRU	42	BPSK	MCS0	UL_RU484+242_Punc 20_91_MCS0
			58			
			138			
			155			
		802.11be (EHT160) 996+484-tone MRU	50	BPSK	MCS0	UL_RU996+484_Punc 40_MCS0 UL_RU996+484_Low_MCS0
			114			
		802.11be (EHT80) Punctured by 20 MHz	42	BPSK	MCS0	EHT80_SU_Punct20_Mid2
			58			
			138			
			155			
		802.11be (EHT160) Punctured by 20 MHz	50	BPSK	MCS0	EHT160_SU_Punct20_Mid3
			114			EHT160_SU_Punct20_High
		802.11be (EHT160) Punctured by 40 MHz	50	BPSK	MCS0	EHT160_SU_Punct40_Mid2
			114			EHT160_SU_Punct40_High

Test Item	EUT Configure Mode	Mode	Tested Channel	Modulation	Data Rate Parameter	RU/MRU Index	
6 dB Bandwidth	A	802.11a	144	BPSK	6Mb/s	NA	
			149, 157, 165				
		802.11be (EHT20)	144	BPSK	MCS0		
			149, 157, 165				
		802.11be (EHT40)	142	BPSK	MCS0		
			151, 159				
		802.11be (EHT80)	138	BPSK	MCS0		
			155				
		802.11be (EHT20) 26-tone) -tone RU	149, 157, 165	BPSK	MCS0		0, 0, 8
		802.11be (EHT20) 52-tone) -tone RU					37, 37, 40
		802.11be (EHT20) 106-tone) -tone RU					53, 53, 54
		802.11be (EHT40) 484-tone) -tone RU	159	BPSK	MCS0		66
		802.11be (EHT20) 52+26-tone MRU	165				UL_RU52+26_Low_70_MCS0
		802.11be (EHT20) 106+26-tone MRU					UL_RU106+26_High_8 3_MCS0
802.11be (EHT80) 484+242-tone MRU	UL_RU484+242_Punc 20_91_MCS0						
802.11be (EHT80) Punctured by 20 MHz	155	EHT80_SU_Punct20_Mid2					

Test Item	EUT Configure Mode	Mode	Tested Channel	Modulation	Data Rate Parameter	RU/MRU Index
Occupied Bandwidth	A	802.11a	36, 40, 48	BPSK	6Mb/s	NA
			52, 60, 64			
			100, 116, 140, 144			
			149, 157, 165			
		802.11be (EHT20)	36, 40, 48	BPSK	MCS0	NA
			52, 60, 64			
			100, 116, 140, 144			
			149, 157, 165			
		802.11be (EHT40)	38, 46,	BPSK	MCS0	NA
			54, 62,			
			102, 110, 134, 142,			
			151, 159			
		802.11be (EHT80)	42,	BPSK	MCS0	NA
			58,			
			106, 122, 138,			
			155			
		802.11be (EHT160)	50,	BPSK	MCS0	NA
			114			
		802.11be (EHT20) 26-tone) -tone RU	36, 40, 48,	BPSK	MCS0	0, 0, 8
			52, 60, 64,			0, 0, 8
			100, 116, 140, 144,			0, 0, 8, 8
			149, 157, 165			0, 0, 8
		802.11be (EHT20) 52-tone) -tone RU	36, 40, 48,	BPSK	MCS0	37, 37, 40
			52, 60, 64,			37, 37, 40
100, 116, 140, 144,	37, 37, 40, 40					
149, 157, 165	37, 37, 40					
802.11be (EHT20) 106-tone) -tone RU	36, 40, 48,	BPSK	MCS0	53, 53, 54		
	52, 60, 64,			53, 53, 54		
	100, 116, 140, 144,			53, 53, 54, 54		
	149, 157, 165			53, 53, 54		

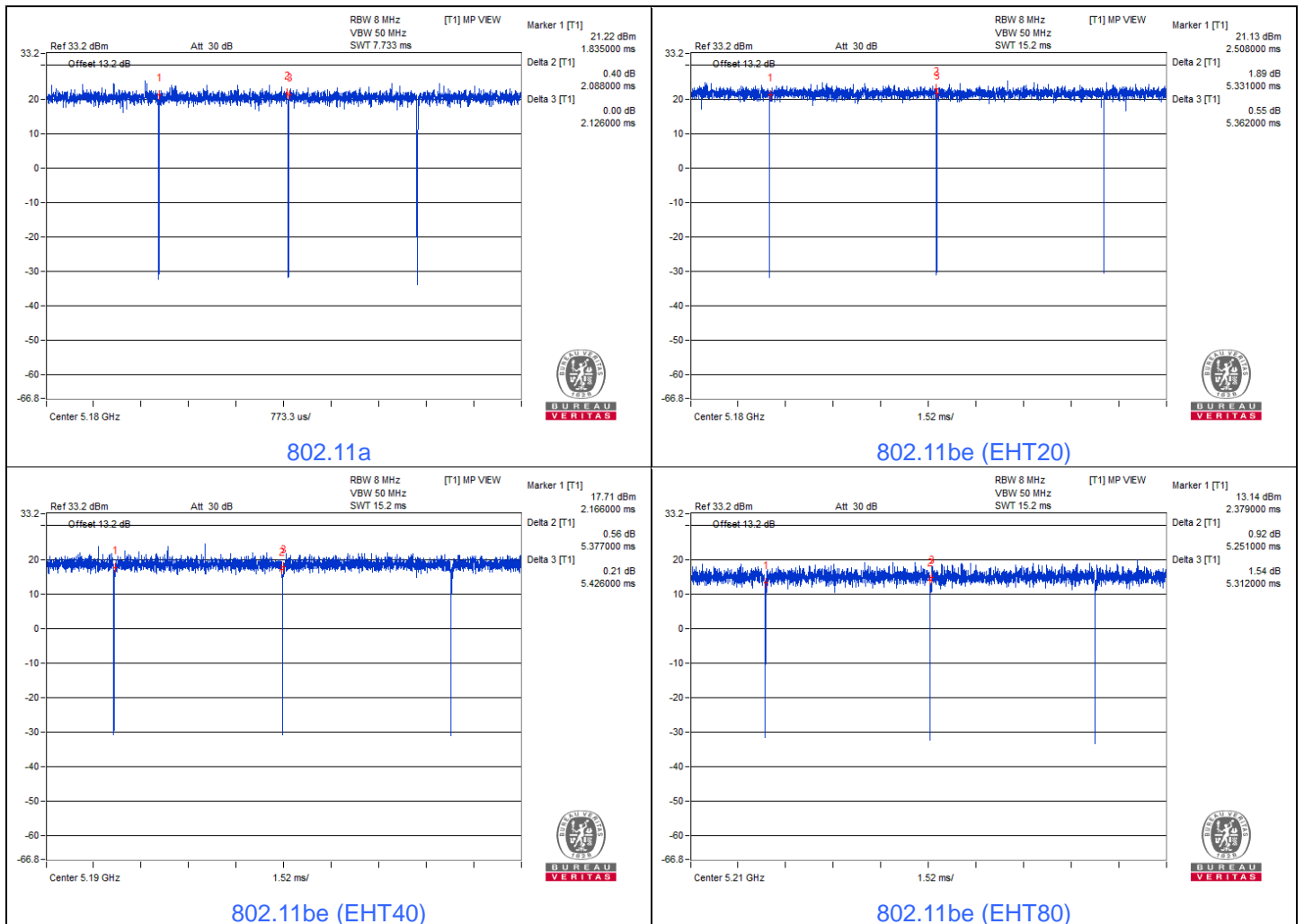
Test Item	EUT Configure Mode	Mode	Tested Channel	Modulation	Data Rate Parameter	RU/MRU Index
Occupied Bandwidth	A	802.11be (EHT40) 484-tone -tone RU	159	BPSK	MCS0	66
		802.11be (EHT20) 52+26-tone MRU	165		MCS0	UL_RU52+26_Low_70_MCS0
		802.11be (EHT20) 106+26-tone MRU	40	BPSK	MCS0	UL_RU106+26_Low_8 2_MCS0
			60			UL_RU106+26_High_8 3_MCS0
			165			UL_RU106+26_High_8 3_MCS0
		802.11be (EHT80) 484+242-tone MRU	42	BPSK	MCS0	UL_RU484+242_Punc 20_91_MCS0
			138			
			155			
		802.11be (EHT80) Punctured by 20 MHz	58	BPSK	MCS0	EHT80_SU_Punct20_Mid2
			138			
			155			
		Frequency Stability	A	802.11a	36	BPSK
AC Power Conducted Emissions	B	802.11be (EHT20)	100	BPSK	MCS0	NA
Unwanted Emissions below 1 GHz	A,B	802.11be (EHT20)	100	BPSK	MCS0	NA

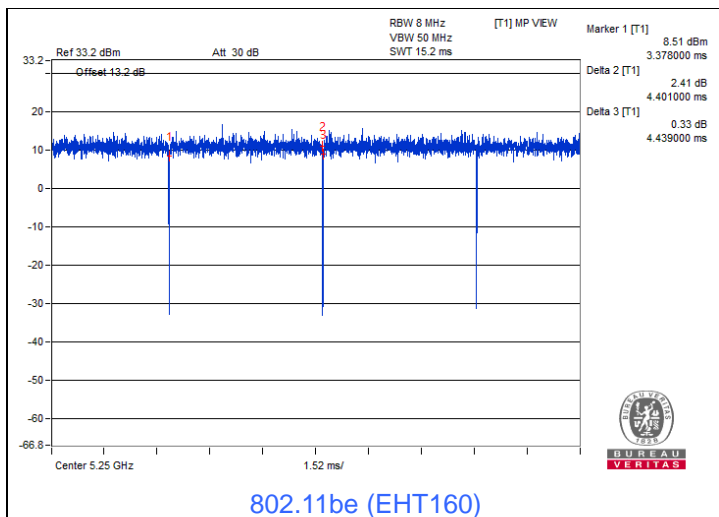
Test Item	EUT Configure Mode	Mode	Tested Channel	Modulation	Data Rate Parameter	RU/MRU Index
Unwanted Emissions above 1 GHz	A, B	802.11a	36, 40, 48	BPSK	6Mb/s	NA
			52, 60, 64			
			100, 116, 140, 144			
			149, 157, 165			
		802.11be (EHT20)	36, 40, 48	BPSK	MCS0	NA
			52, 60, 64			
			100, 116, 140, 144			
			149, 157, 165			
		802.11be (EHT40)	38, 46	BPSK	MCS0	NA
			54, 62			
			102, 110, 134, 142			
			151, 159			
		802.11be (EHT80)	42	BPSK	MCS0	NA
			58			
			106, 122, 138			
			155			
		802.11be (EHT160)	50	BPSK	MCS0	NA
			114			
		802.11be (EHT20) 26-tone) -tone RU	36, 40, 48	BPSK	MCS0	0, 0, 8
			52, 60, 64			0, 0, 8
			100, 116, 140, 144			0, 0, 8, 8
			149, 157, 165			0, 0, 8
		802.11be (EHT20) 52-tone) -tone RU	36, 40, 48	BPSK	MCS0	37, 37, 40
			52, 60, 64			37, 37, 40
			100, 116, 140, 144			37, 37, 40, 40
			149, 157, 165			37, 37, 40
		802.11be (EHT20) 106-tone) -tone RU	36, 40, 48	BPSK	MCS0	53, 53, 54
			52, 60, 64			53, 53, 54
100, 116, 140, 144	53, 53, 54, 54					
149, 157, 165	53, 53, 54					

Test Item	EUT Configure Mode	Mode	Tested Channel	Modulation	Data Rate Parameter	RU/MRU Index
Unwanted Emissions above 1 GHz	A, B	802.11be (EHT40) 484-tone) -tone RU	159	BPSK	MCS0	66
		802.11be (EHT20) 52+26-tone MRU	165	BPSK	MCS0	UL_RU52+26_Hight_72_MCS0
		802.11be (EHT20) 106+26-tone MRU	40	BPSK	MCS0	UL_RU106+26_Low_8 2_MCS0
			60			UL_RU106+26_High_8 3_MCS0
			165			UL_RU106+26_High_8 3_MCS0
		802.11be (EHT80) 484+242-tone MRU	42	BPSK	MCS0	UL_RU484+242_Punc 20_91_MCS0
			138			
			155			
		802.11be (EHT80) Punctured by 20 MHz	58	BPSK	MCS0	EHT80_SU_Punct20_Mid2
			138			
			155			
		EUT Configure Mode:	A	EUT only (w/o antenna)_Nss 1 with CDD		
B	EUT with 50 ohm terminator Nss 1 with CDD					
C	EUT only (w/o antenna) Nss 2 with MIMO (SDM)					

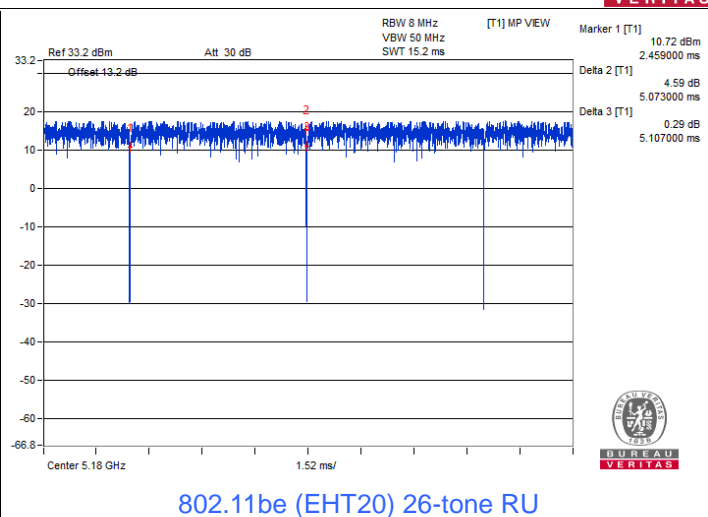
3.5 Duty Cycle of Test Signal

- 802.11a: Duty cycle = 2.088 ms / 2.126 ms x 100% = 98.2%
- 802.11be (EHT20): Duty cycle = 5.331 ms / 5.362 ms x 100% = 99.4%
- 802.11be (EHT40): Duty cycle = 5.377 ms / 5.426 ms x 100% = 99.1%
- 802.11be (EHT80): Duty cycle = 5.251 ms / 5.312 ms x 100% = 98.9%
- 802.11be (EHT160): Duty cycle = 4.401 ms / 4.439 ms x 100% = 99.1%
- 802.11be (EHT20) 26-tone RU: Duty cycle = 5.073 ms / 5.107 ms x 100% = 99.3%
- 802.11be (EHT20) 52-tone RU: Duty cycle = 5.073 ms / 5.107 ms x 100% = 99.3%
- 802.11be (EHT20) 106-tone RU: Duty cycle = 5.073 ms / 5.107 ms x 100% = 99.3%
- 802.11be (EHT20) 242-tone RU: Duty cycle = 5.073 ms / 5.107 ms x 100% = 99.3%
- 802.11be (EHT40) 484-tone RU: Duty cycle = 3.311 ms / 3.352 ms x 100% = 98.8%
- 802.11be (EHT80) 996-tone RU: Duty cycle = 1.622 ms / 1.65 ms x 100% = 98.3%
- 802.11be (EHT160) 2x996-tone RU: Duty cycle = 2.154 ms / 2.179 ms x 100% = 98.9%
- 802.11be (EHT20) 52+26-tone MRU: Duty cycle = 4.545 ms / 4.587 ms x 100% = 99.1%
- 802.11be (EHT20) 106+26-tone MRU: Duty cycle = 4.545 ms / 4.587 ms x 100% = 99.1%
- 802.11be (EHT80) 484+242-tone MRU: Duty cycle = 1.114 ms / 1.128 ms x 100% = 98.8%
- 802.11be (EHT160) 996+484-tone MRU: Duty cycle = 0.924 ms / 0.94 ms x 100% = 98.3%
- 802.11be (EHT80) Punctured by 20 MHz: Duty cycle = 5.251 ms / 5.312 ms x 100% = 98.9%
- 802.11be (EHT160) Punctured by 20 MHz: Duty cycle = 4.401 ms / 4.439 ms x 100% = 99.1%
- 802.11be (EHT160) Punctured by 40 MHz: Duty cycle = 4.401 ms / 4.439 ms x 100% = 99.1%

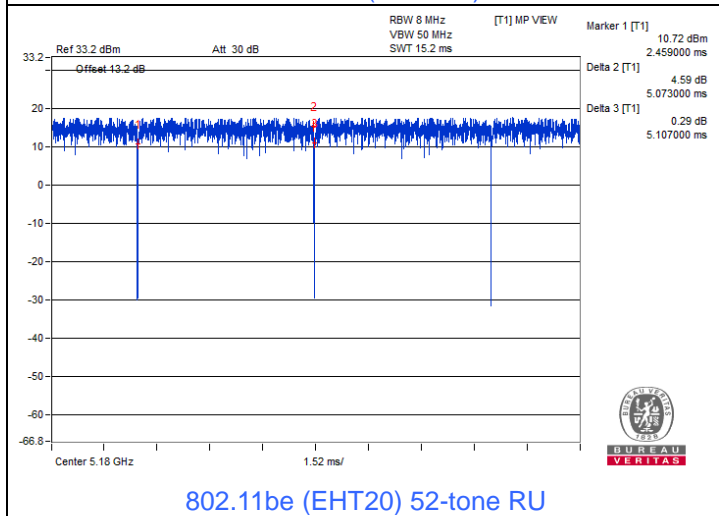




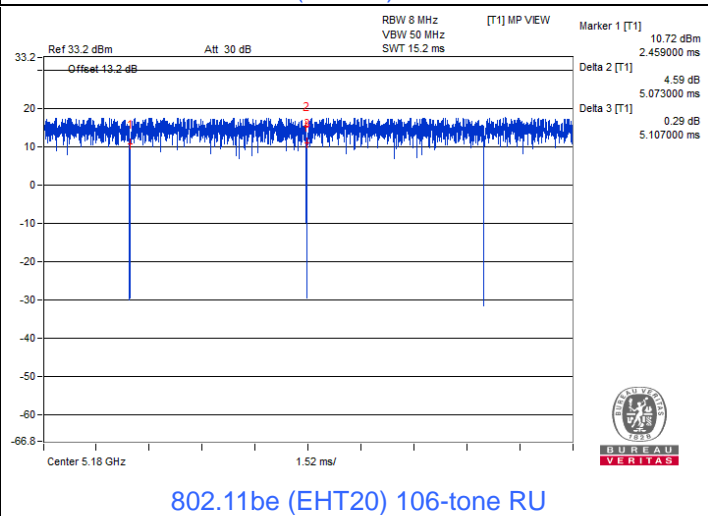
802.11be (EHT160)



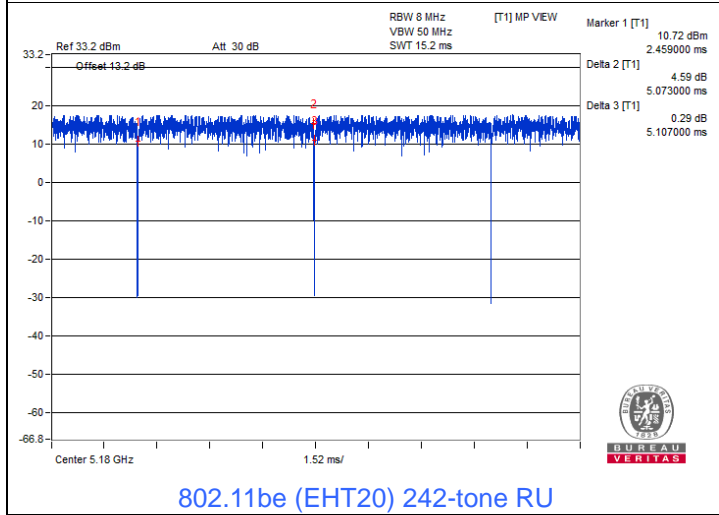
802.11be (EHT20) 26-tone RU



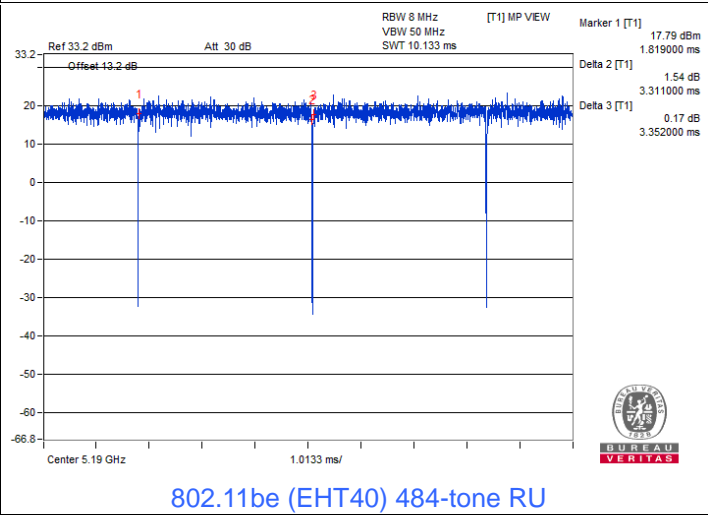
802.11be (EHT20) 52-tone RU



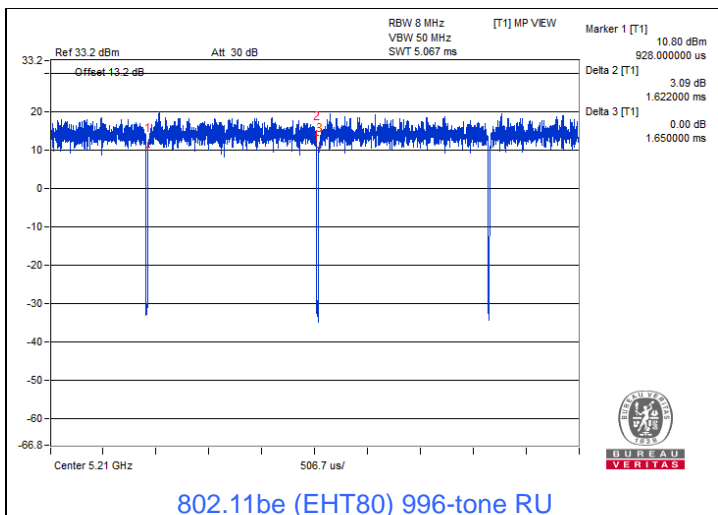
802.11be (EHT20) 106-tone RU



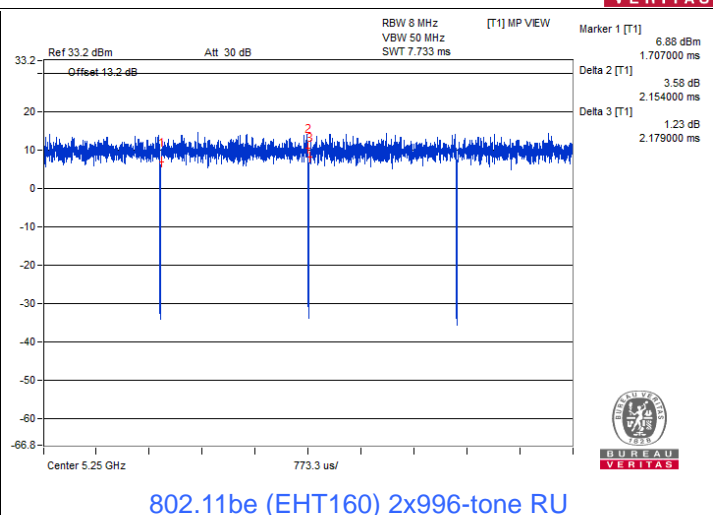
802.11be (EHT20) 242-tone RU



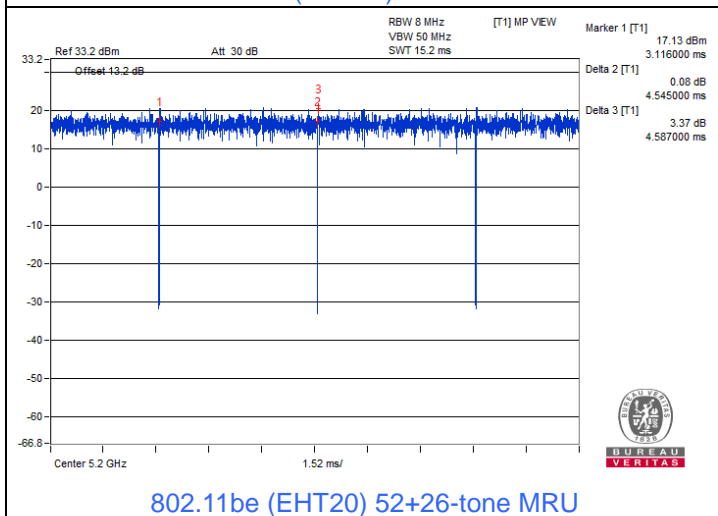
802.11be (EHT40) 484-tone RU



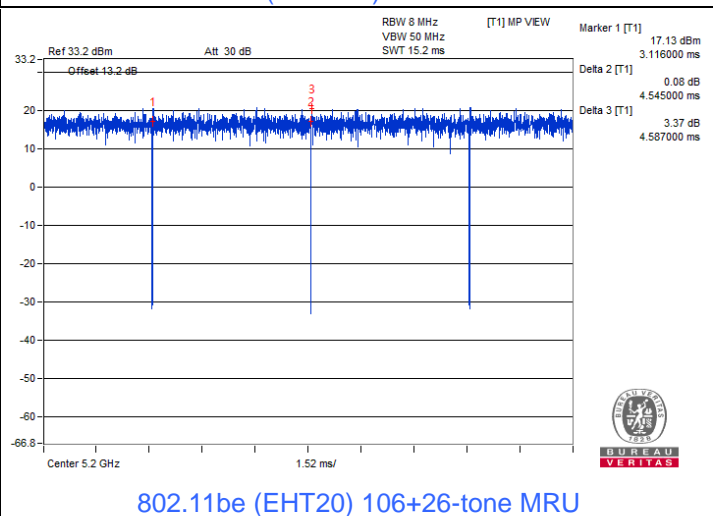
802.11be (EHT80) 996-tone RU



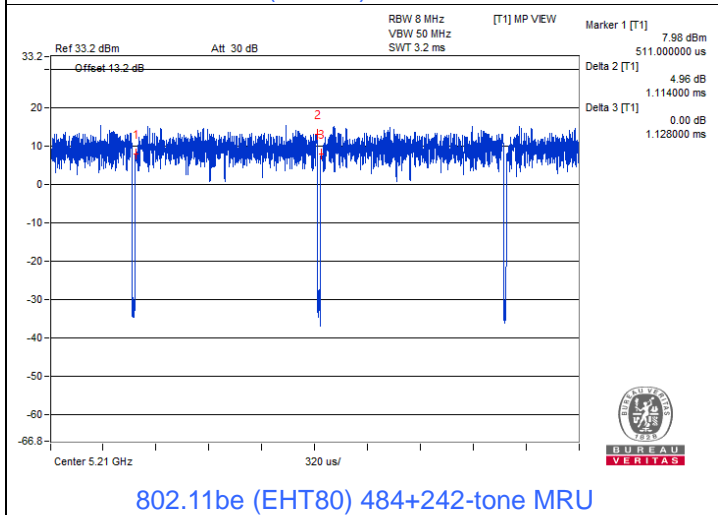
802.11be (EHT160) 2x996-tone RU



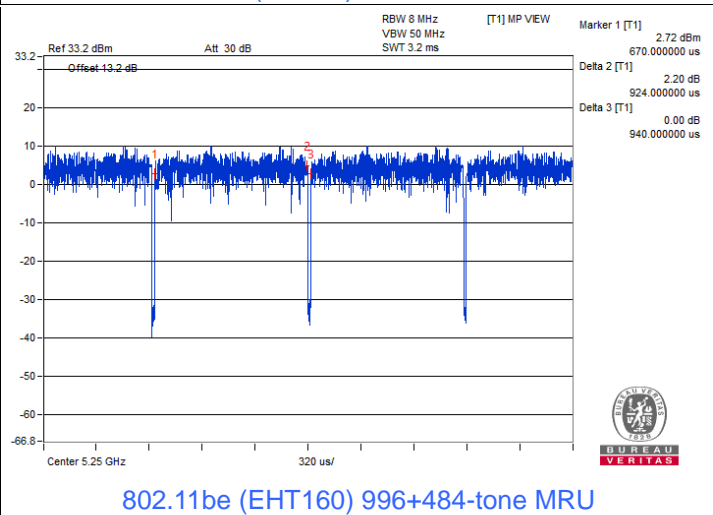
802.11be (EHT20) 52+26-tone MRU



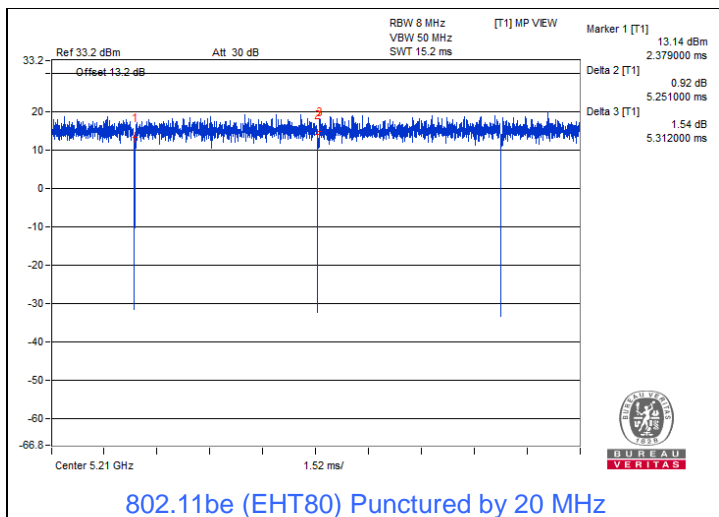
802.11be (EHT20) 106+26-tone MRU



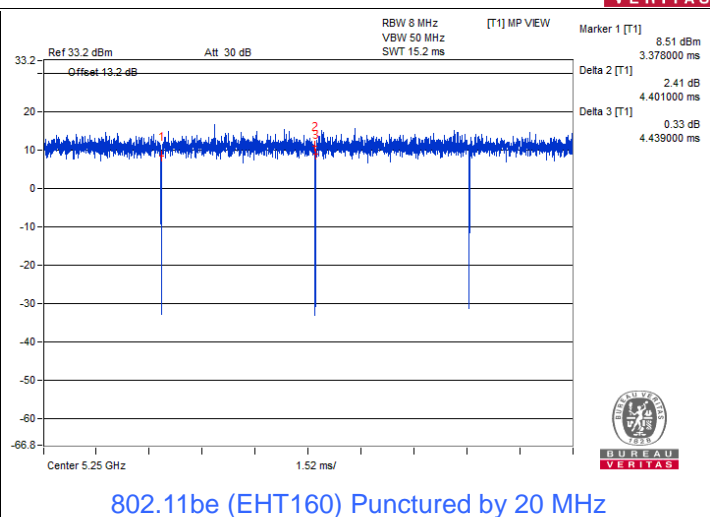
802.11be (EHT80) 484+242-tone MRU



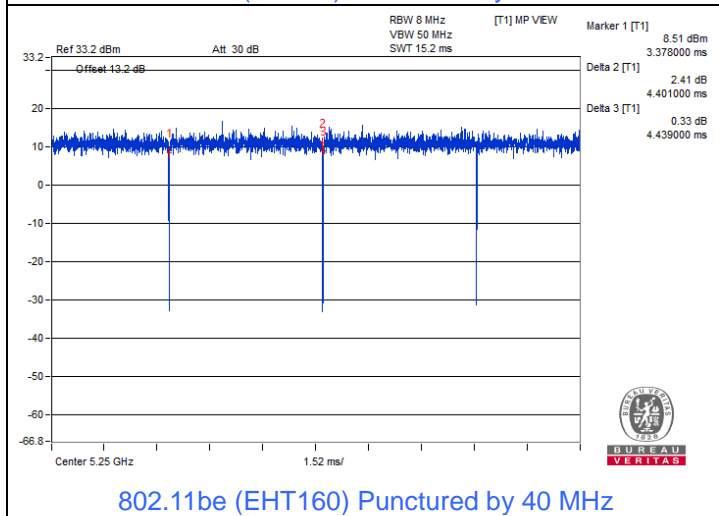
802.11be (EHT160) 996+484-tone MRU



802.11be (EHT80) Punctured by 20 MHz



802.11be (EHT160) Punctured by 20 MHz



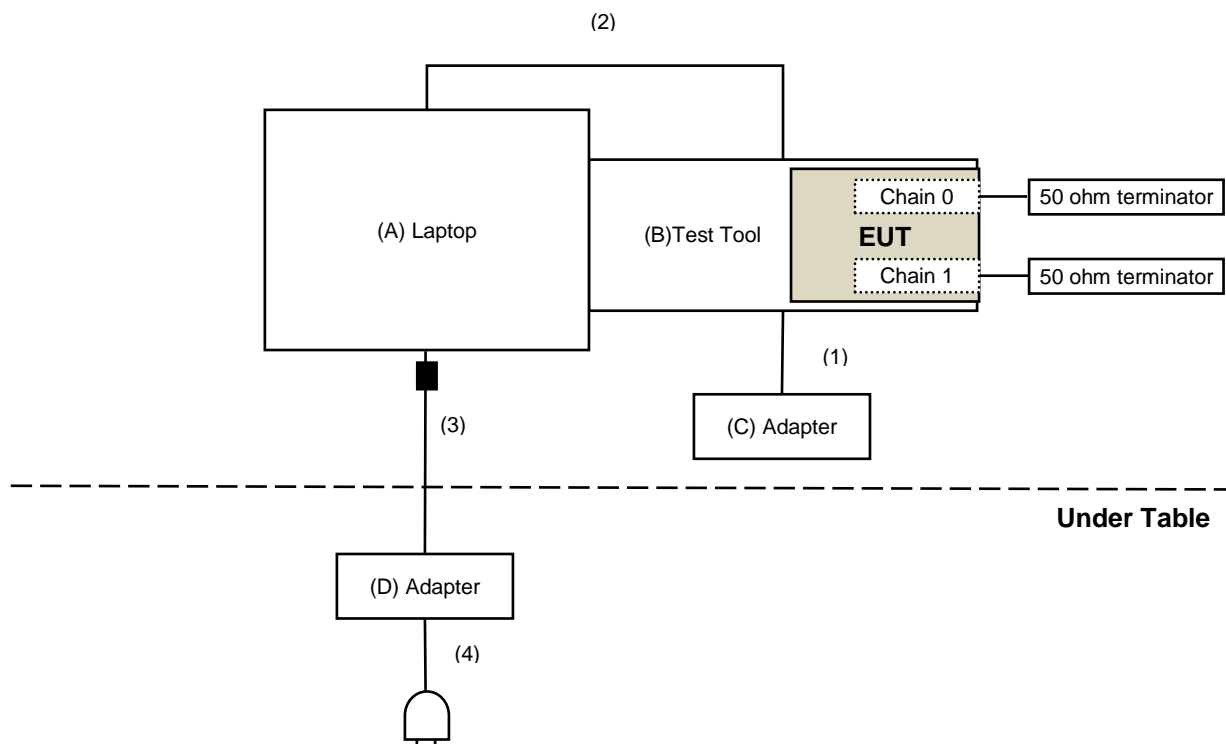
802.11be (EHT160) Punctured by 40 MHz

3.6 Test Program Used and Operation Descriptions

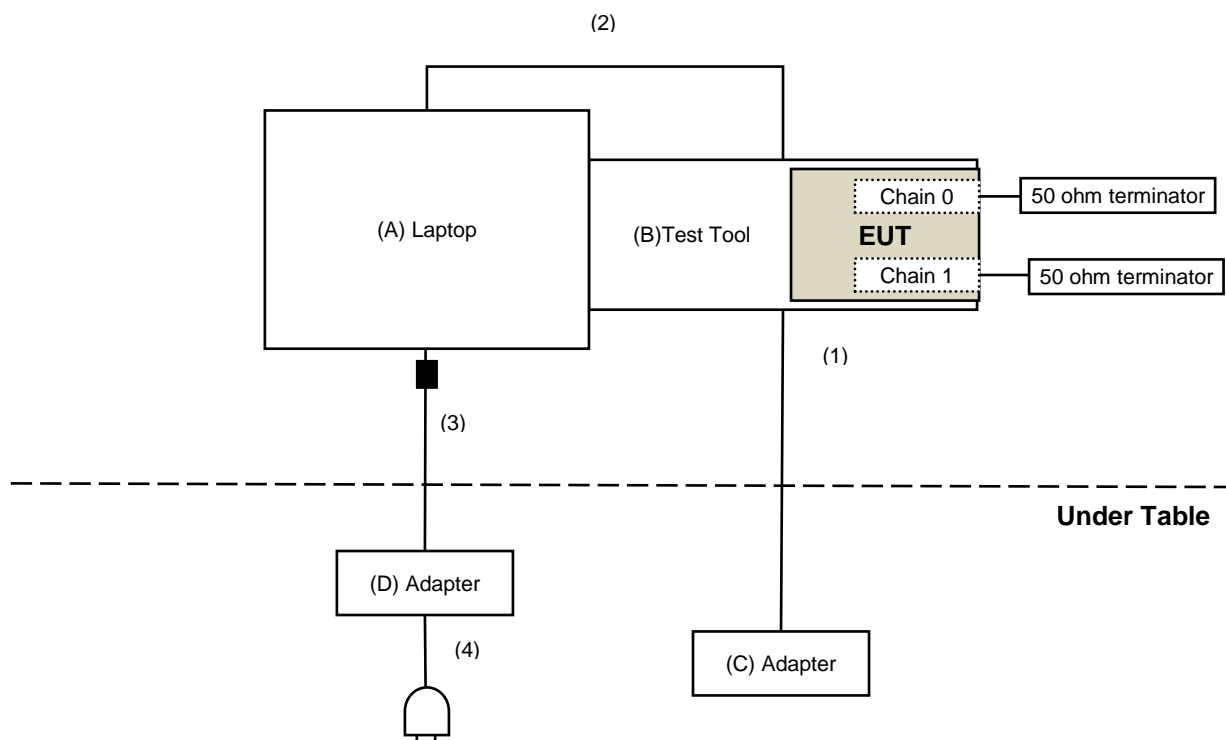
Controlling software (WiFi/BT:QRCT 4.0.00159.1) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices

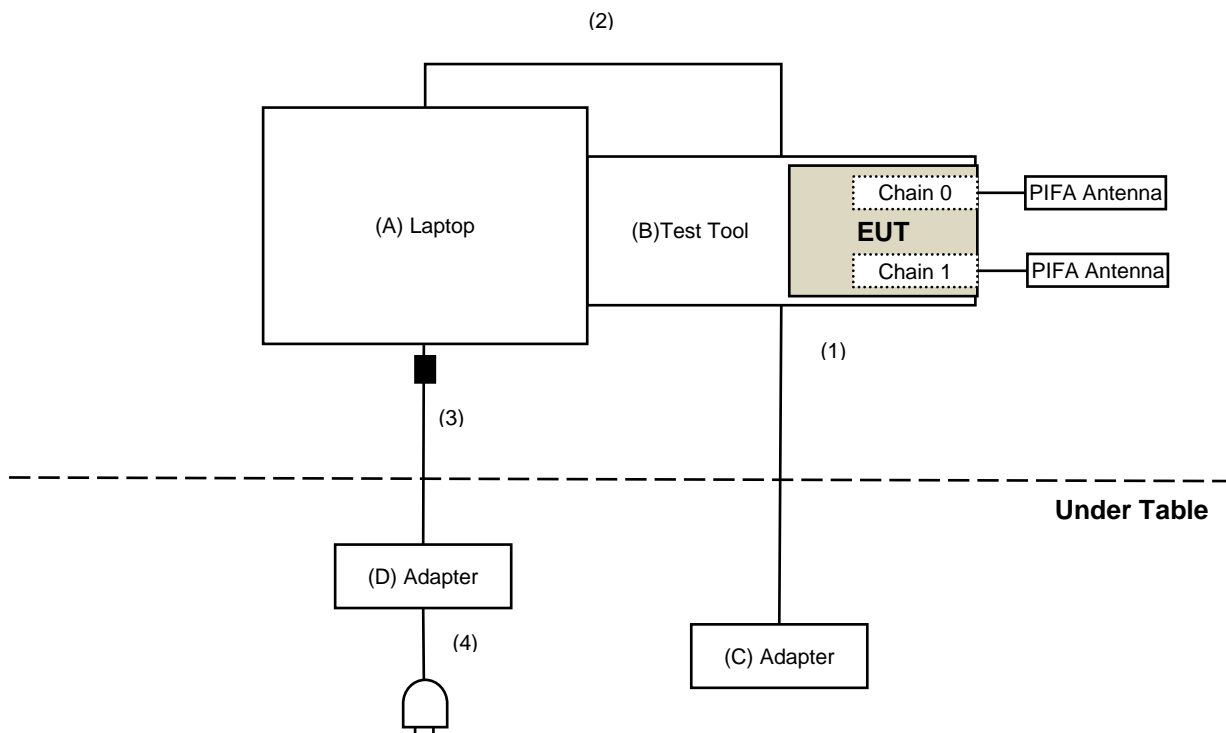
For AC Power Conducted Emission test



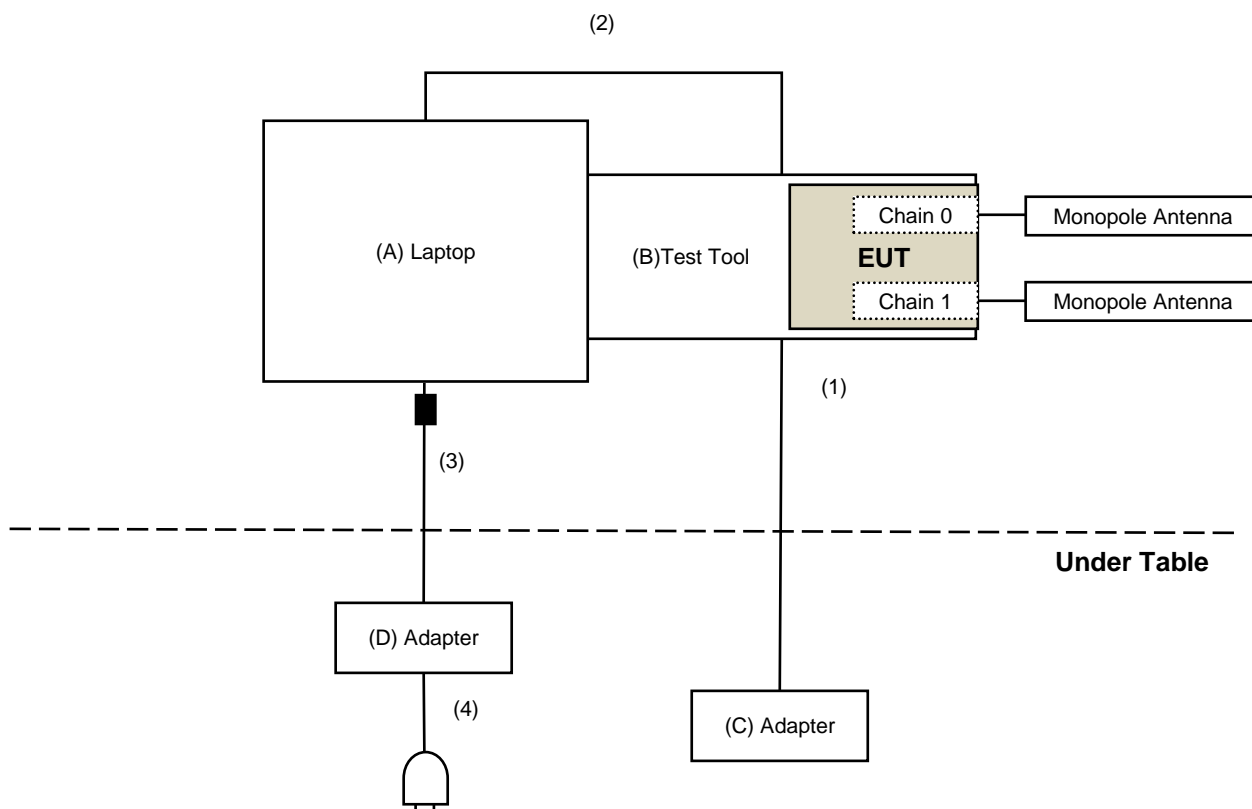
For Unwanted Emission test



For Unwanted Emission Above 1GHz with Antenna 1 test



For Unwanted Emission Above 1GHz with Antenna 3 test



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Laptop	Dell	E5420	6FGHKV1	N/A	Provided by Lab
B	Test Tool	Qualcomm	N/A	N/A	N/A	Supplied by applicant
C	Adapter	PHIHONG	PSAA12A-120L6	N/A	N/A	Supplied by applicant
D	Adapter	Dell	LLA65NS2-01	N/A	N/A	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	DC Cable	1	1.2	NO	0	Supplied by applicant
2	Micro USB Cable	1	0.6	Yes	0	Provided by Lab
3	DC Cable	1	1.8	NO	1	Provided by Lab
4	AC Cable	1	1.5	NO	0	Provided by Lab

4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1 26 dB Bandwidth

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Attenuator WOKEN	MDCS18N-10	MDCS18N-10-01	2022/4/5	2023/4/4
Software	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
Spectrum Analyzer Keysight	N9020B	MY60112409	2022/3/11	2023/3/10

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2023/2/10

4.2 RF Output Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Attenuator WOKEN	MDCS18N-10	MDCS18N-10-01	2022/4/5	2023/4/4
Power Meter Anritsu	ML2495A	1529002	2022/6/22	2023/6/21
Pulse Power Sensor Anritsu	MA2411B	1726434	2022/6/22	2023/6/21
Software	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
Spectrum Analyzer Keysight	N9020B	MY60112409	2022/3/11	2023/3/10

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2023/2/10

4.3 Power Spectral Density

Refer to section 4.1 to get information of the instruments.

4.4 6 dB Bandwidth

Refer to section 4.1 to get information of the instruments.

4.5 Occupied Bandwidth

Refer to section 4.1 to get information of the instruments.

4.6 Frequency Stability

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Attenuator WOKEN	MDCS18N-10	MDCS18N-10-01	2022/4/5	2023/4/4
DC POWER SUPPLY Topward	6603D	795558	N/A	N/A
Software	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
Spectrum Analyzer Keysight	N9020B	MY60112409	2022/3/11	2023/3/10
Temperature & Humidity Chamber Giant Force	GTH-150-40-SP-AR	MAA0812-008	2022/12/26	2023/12/25
True RMS Clamp Meter Fluke	325	31130711WS	2022/6/9	2023/6/8

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2023/2/10

4.7 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
50 ohm terminal resistance	N/A	EMC-01	2022/9/27	2023/9/26
Fixed attenuator STI	STI02-2200-10	005	2022/8/24	2023/8/23
LISN R&S	ESH3-Z5	848773/004	2022/10/18	2023/10/17
RF Coaxial Cable JYEBO	5D-FB	COCCAB-001	2022/8/24	2023/8/23
Software BVADT	BVADT_Cond_V7.3.7.4	N/A	N/A	N/A
TEST RECEIVER R&S	ESCS 30	847124/029	2022/10/14	2023/10/13

Notes:

1. The test was performed in Conduction 1
2. Tested Date: 2023/5/10

4.8 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Bilog Antenna Schwarzbeck	VULB 9168	9168-0842	2022/10/24	2023/10/23
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	N/A	N/A
Fixed attenuator Mini-Circuits	UNAT-5+	PAD-ATT5-02	2022/12/28	2023/12/27
LOOP ANTENNA Electro-Metrics	EM-6879	264	2023/2/21	2024/2/20
Pre_Amplifier Agilent	8447D	2944A10636	2023/3/12	2024/3/11
Pre_Amplifier EMCI	EMC330N	980538	2023/4/6	2024/4/5
RF Coaxial Cable COMMATE/PEWC	8D	966-5-1	2023/4/6	2024/4/5
		966-5-2	2023/4/6	2024/4/5
		966-5-3	2023/4/6	2024/4/5
RF Coaxial Cable JYEBO	5D-FB	LOOPCAB-001	2022/12/19	2023/12/18
		LOOPCAB-002	2022/12/19	2023/12/18
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A
Spectrum Analyzer Keysight	N9020B	MY60112410	2023/3/6	2024/3/5
Spectrum Analyzer KEYSIGHT	N9030B	MY57141948	2022/5/13	2023/5/12
Test Receiver R&S	ESR3	102528	2023/2/10	2024/2/9

Notes:

1. The test was performed in 966 Chamber No. 5.
2. Tested Date: 2023/5/11

4.9 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Attenuator WOKEN	MDCS18N-10	MDCS18N-10-01	2023/3/27	2024/3/26
Attenuator WOKEN	MDCS18N-10	MDCS18N-10-02	2023/3/27	2024/3/26
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	N/A	N/A
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-1819	2022/11/13	2023/11/12
	BBHA 9170	9170-739	2022/11/13	2023/11/12
Pre_Amplifier EMCI	EMC12630SE	980509	2023/4/7	2024/4/6
	EMC184045SE	980387	2022/12/28	2023/12/27
RF Cable-Frequency range: 1- 40GHz EMCI	EMC102-KM-KM-1200	160924	2022/12/28	2023/12/27
RF Coaxial Cable EMCI	EMC-KM-KM-4000	200214	2023/2/20	2024/2/19
	EMC104-SM-SM-1500	180503	2023/4/7	2024/4/6
	EMC104-SM-SM-2000	180501	2023/4/7	2024/4/6
	EMC104-SM-SM-6000	180506	2023/4/7	2024/4/6
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A
Spectrum Analyzer Keysight	N9020B	MY60112410	2023/3/6	2024/3/5
Test Receiver R&S	ESR3	102528	2023/2/10	2024/2/9

Notes:

1. The test was performed in 966 Chamber No. 5.
2. Tested Date: 2023/5/9 ~ 2023/5/10

5 Limits of Test Items

5.1 26 dB Bandwidth

The results are for reference only.

5.2 RF Output Power

Operation Band	EUT Category	Limit
U-NII-1	Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p \leq 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
	Fixed point-to-point Access Point	1 Watt (30 dBm)
	Indoor Access Point	1 Watt (30 dBm)
	Mobile and Portable client device	250mW (24 dBm)

Operation Band	Limit
U-NII-2A	250 mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	250 mW (24 dBm) or 11 dBm+10 log B*
U-NII-3	1 Watt (30 dBm)

*B is the 26 dB emission bandwidth in megahertz

Per KDB 662911 D01 Multiple Transmitter Output Method of conducted output power measurement on IEEE 802.11 devices,

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 $N_{ANT} \geq 5$.

For power measurements on all other devices: Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

5.3 Power Spectral Density

Operation Band	EUT Category	Limit
U-NII-1	Outdoor Access Point	17 dBm/MHz
	Fixed point-to-point Access Point	
	Indoor Access Point	
	Mobile and Portable client device	11 dBm/MHz

Operation Band	Limit
U-NII-2A	11 dBm/MHz
U-NII-2C	11 dBm/MHz
U-NII-3	30 dBm/500 kHz

5.4 6 dB Bandwidth

Within the 5.725-5.850 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

5.5 Occupied Bandwidth

The results are for reference only.

5.6 Frequency Stability

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

5.7 AC Power Conducted Emissions

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Notes:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

5.8 Unwanted Emissions below 1 GHz

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

Frequencies (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

Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).

5.9 Unwanted Emissions above 1 GHz

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

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
Above 960	500	3

Notes:

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 1000 MHz, 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 20 dB under any condition of modulation.

Limits of unwanted emission out of the restricted bands

Applicable To	Limit	
789033 D02 General UNII Test Procedure New Rules v02r01	Field Strength at 3 m	
	PK: 74 (dBμV/m)	AV: 54 (dBμV/m)

For transmitters operating in the 5.15-5.25 GHz band:

Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
15.407(b)(1)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)

For transmitters operating in the 5.25-5.35 GHz band:

Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
15.407(b)(2)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)

For transmitters operating in the 5.47-5.725 GHz band:

Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
15.407(b)(3)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)

For transmitters operating in the 5.725-5.850 GHz band:

Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
15.407(b)(4)(i)	PK: -27 (dBm/MHz) ^{*1}	PK: 68.2 (dBμV/m) ^{*1}
	PK: 10 (dBm/MHz) ^{*2}	PK: 105.2 (dBμV/m) ^{*2}
	PK: 15.6 (dBm/MHz) ^{*3}	PK: 110.8 (dBμV/m) ^{*3}
	PK: 27 (dBm/MHz) ^{*4}	PK: 122.2 (dBμV/m) ^{*4}

^{*1} beyond 75 MHz or more above of the band edge.

^{*2} below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.

^{*3} below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.

^{*4} from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

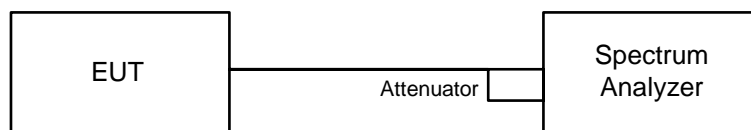
Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

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

6 Test Arrangements

6.1 26 dB Bandwidth

6.1.1 Test Setup

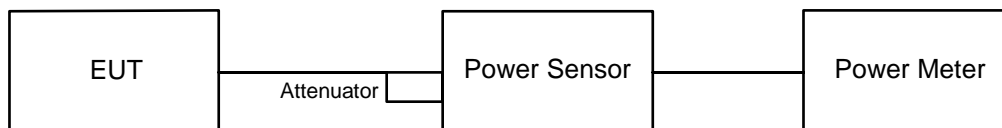


6.1.2 Test Procedure

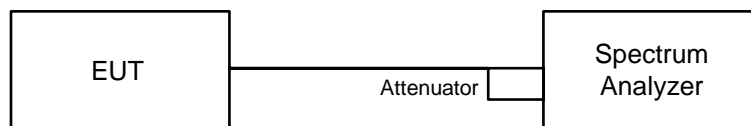
- a. Set RBW = approximately 1% of the emission bandwidth.
- b. Set the VBW > RBW.
- c. Detector = Peak.
- d. Trace mode = max hold.
- e. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat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

6.2 RF Output Power

6.2.1 Test Setup



For channel straddling:



6.2.2 Test Procedure

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.

For channel straddling:

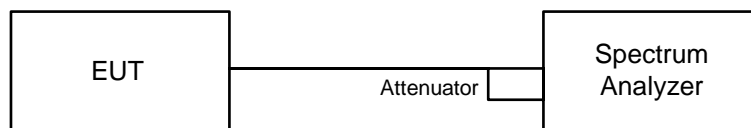
Method SA-1

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz, Set VBW \geq 3 MHz, Detector = RMS
- Sweep points \geq $[2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing \leq RBW / 2, so that narrowband signals are not lost between frequency bins.)
- Sweep time = auto, trigger set to "free run".
- Trace average at least 100 traces in power averaging mode.
- Record the max value

Note: When measuring straddle channel power, use compute power by integrating the spectrum across the 26 dB EBW or 99% OBW of the signal using the instrument's band power measurement function, with band limits set equal to the EBW or OBW band edges. If the instrument does not have a band power function, then sum the spectrum levels (in power units) at 1 MHz intervals extending across the 26 dB EBW or 99% OBW of the spectrum.

6.3 Power Spectral Density

6.3.1 Test Setup



6.3.2 Test Procedure

For specified measurement bandwidth 1 MHz:

Method SA-1

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz, Set VBW \geq 3 MHz, Detector = RMS
- Sweep points \geq $[2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing \leq RBW / 2, so that narrowband signals are not lost between frequency bins.)
- Sweep time = auto, trigger set to "free run".
- Trace average at least 100 traces in power averaging mode.
- Record the max value

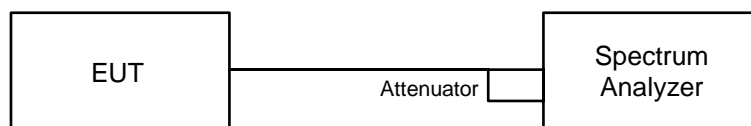
For specified measurement bandwidth 500 kHz:

Method SA-1

- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 300 kHz, Set VBW \geq 1 MHz, Detector = RMS
- Scale the observed power level to an equivalent value in 500 kHz by adjusting (increasing) the measured power by a bandwidth correction factor (BWCF) where $\text{BWCF} = 10\log(500 \text{ kHz}/300 \text{ kHz})$
- Sweep points \geq $[2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing \leq RBW / 2, so that narrowband signals are not lost between frequency bins.)
- Sweep time = auto, trigger set to "free run".
- Trace average at least 100 traces in power averaging mode.
- Record the max value

6.4 6 dB Bandwidth

6.4.1 Test Setup

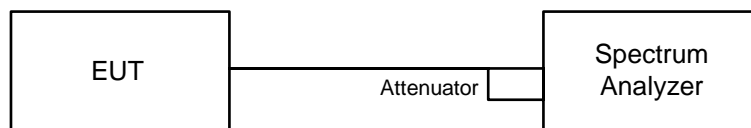


6.4.2 Test Procedure

- Set resolution bandwidth (RBW) = 100 kHz.
- Set the video bandwidth (VBW) \geq 3 x RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.5 Occupied Bandwidth

6.5.1 Test Setup

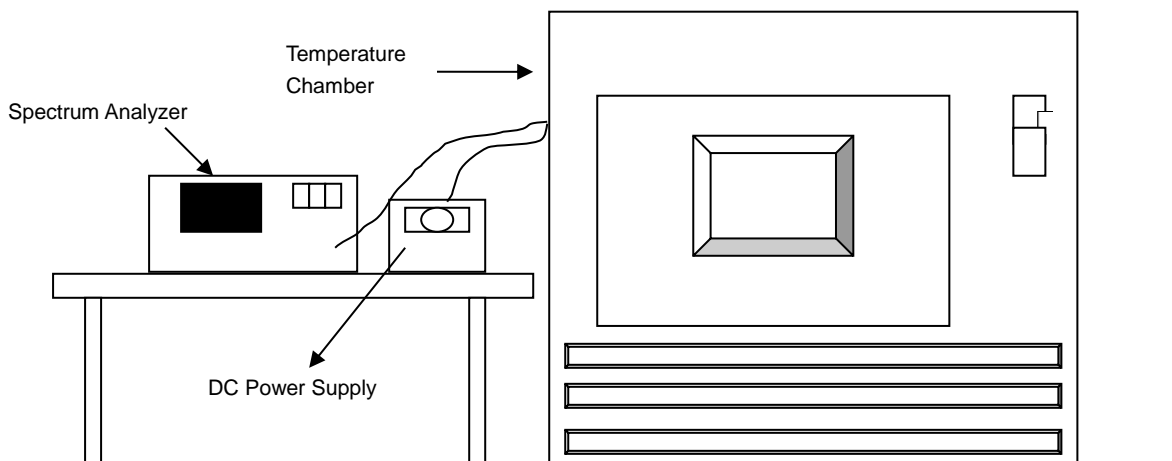


6.5.2 Test Procedure

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with resolution bandwidth in the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth and set the detector to Sampling. The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean power of a given emission.

6.6 Frequency Stability

6.6.1 Test Setup

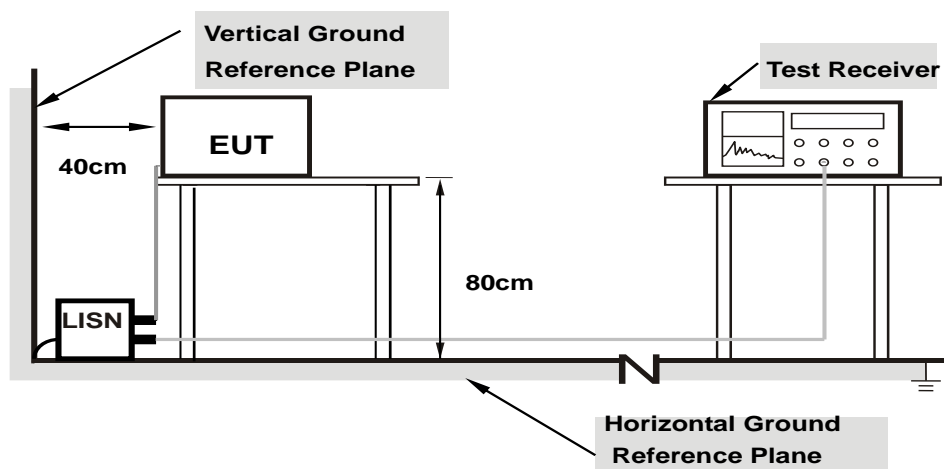


6.6.2 Test Procedure

- The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- 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.
- Repeat step (d) with the temperature chamber set to the next desired temperature until measurements down to the lowest specified temperature have been completed.
- 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.

6.7 AC Power Conducted Emissions

6.7.1 Test Setup



Note: 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.7.2 Test Procedure

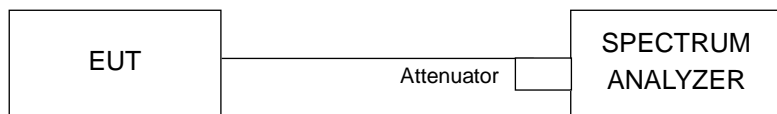
- The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50 uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15 MHz-30 MHz.

6.8 Unwanted Emissions below 1 GHz

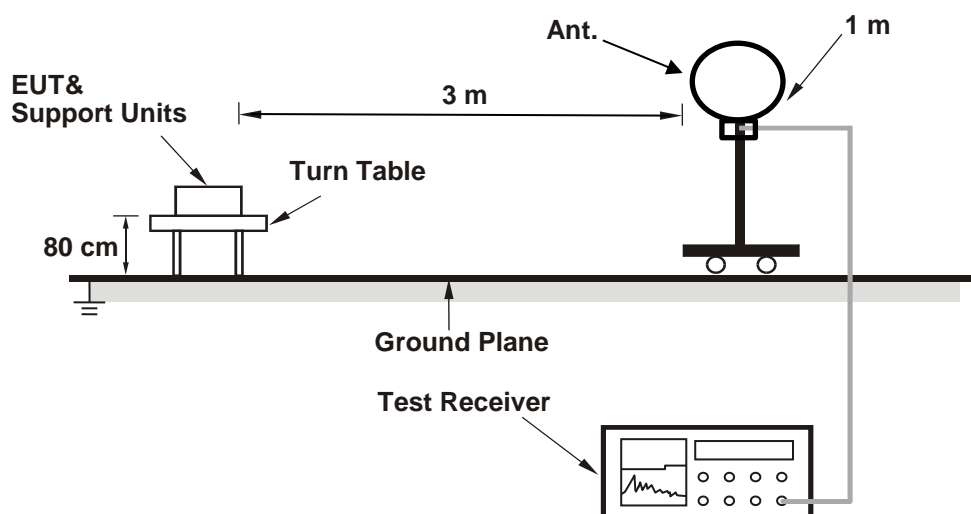
6.8.1 Test Setup

For Conducted Configuration:

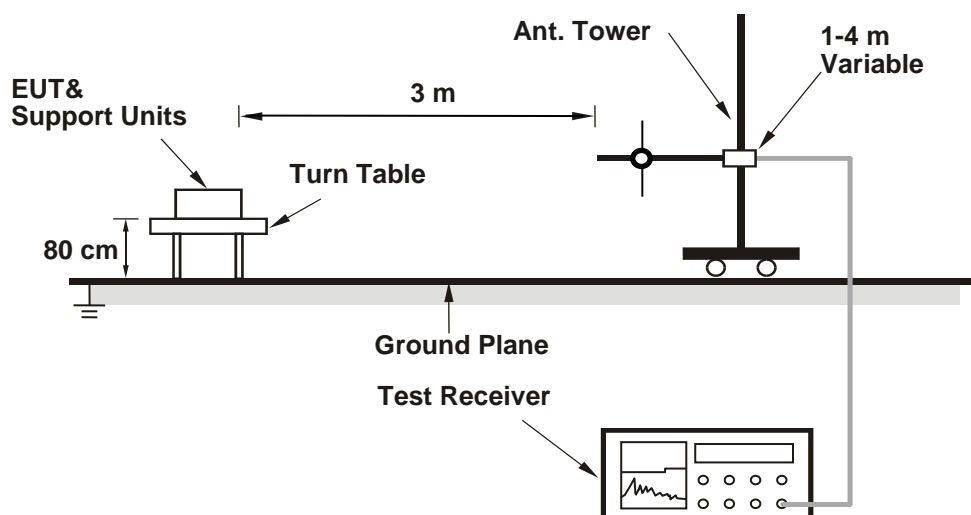


For Radiated Configuration:

For Radiated emission below 30 MHz



For Radiated emission above 30 MHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.8.2 Test Procedure

Following FCC KDB 789033 D02 General UNII Test Procedures:

Radiated versus Conducted Measurements.

The unwanted emission limits in both the restricted and non-restricted bands are based on antenna-port conducted measurements in conjunction with cabinet emissions tests are permitted to demonstrate compliance.

The following steps was performed:

- a. Cabinet emissions measurements. Radiated measurement was performed to ensure that cabinet emissions are below the emission limits. For the cabinet-emission measurements the antenna was replaced by a termination matching the nominal impedance of the antenna.
- b. Conducted tests was performed using equipment that matches the nominal impedance of the antenna assembly used with the EUT.
- c. EIRP calculation. A value representative of an upper bound on out-of-band antenna gain (in dBi) shall be added to the measured antenna-port conducted emission power to compute EIRP within the specified measurement bandwidth. (For emissions in the restricted bands, additional calculations are required to convert EIRP to field strength at the specified distance.) The upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands or 2 dBi, whichever is greater.
- d. EIRP adjustments for multiple outputs. (Follow the procedures specified in FCC KDB Publication 662911)
- e. For all of Radiation emission test

For Radiated emission below 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters 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. 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. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode, except for the frequency band (9 kHz to 90 kHz and 110 kHz to 490 kHz) set to average detect function and peak detect function.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 200 Hz at frequency below 150 kHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz or 10 kHz at frequency (150 kHz to 30 MHz).
3. All modes of operation were investigated and the worst-case emissions are reported.

For Radiated emission above 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters 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. The test-receiver system was set to Quasi-peak(QP) detect function, Average(AV) detect function, Peak(PK) detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

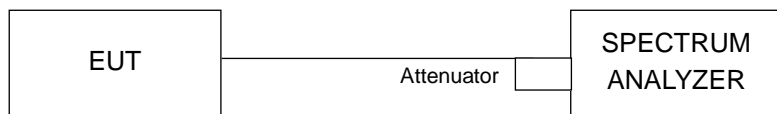
Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP), Average detection (AV), Peak detection (PK) at frequency (30MHz to 1 GHz).
2. All modes of operation were investigated and the worst-case emissions are reported.

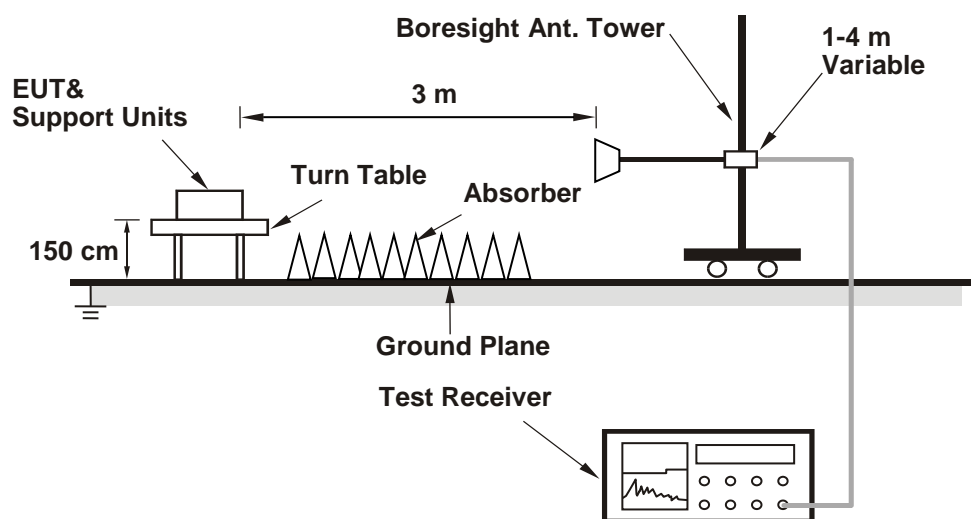
6.9 Unwanted Emissions above 1 GHz

6.9.1 Test Setup

For Conducted Configuration:



For Radiated Configuration:



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.9.2 Test Procedure

Following FCC KDB 789033 D02 General UNII Test Procedures:

Radiated versus Conducted Measurements.

The unwanted emission limits in both the restricted and non-restricted bands are based on antenna-port conducted measurements in conjunction with cabinet emissions tests are permitted to demonstrate compliance.

The following steps was performed:

- a. Cabinet emissions measurements. Radiated measurement was performed to ensure that cabinet emissions are below the emission limits. For the cabinet-emission measurements the antenna was replaced by a termination matching the nominal impedance of the antenna.
- b. Conducted tests was performed using equipment that matches the nominal impedance of the antenna assembly used with the EUT.
- c. EIRP calculation. A value representative of an upper bound on out-of-band antenna gain (in dBi) shall be added to the measured antenna-port conducted emission power to compute EIRP within the specified measurement bandwidth. (For emissions in the restricted bands, additional calculations are required to convert EIRP to field strength at the specified distance.) The upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands or 2 dBi, whichever is greater.
- d. EIRP adjustments for multiple outputs. (Follow the procedures specified in FCC KDB Publication 662911)
- e. For all of Radiation emission test

For Radiated emission above 1 GHz

- a. The EUT was placed on the top of a rotating table 1.5 meters 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. 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.

Notes:

1. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) and Average detection (AV) at frequency above 1 GHz.
2. For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10 Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1 GHz.
3. All modes of operation were investigated and the worst-case emissions are reported.

7 Test Results of Test Item

7.1 26 dB Bandwidth

Mode A

Input Power:	3.3 Vdc	Environmental Conditions:	24°C, 61% RH	Tested By:	Eric Peng
--------------	---------	---------------------------	--------------	------------	-----------

Mode A

802.11a

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	22.23	22.38
60	5300	22.29	22.39
64	5320	22.12	22.31
100	5500	22.37	22.39
116	5580	22.46	22.32
140	5700	22.40	22.61
144 (U-NII-2C)	5720	16.03	16.33
144 (U-NII-3)	5720	6.06	6.15

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	22.23	24.46 > 24
60	5300	22.29	24.48 > 24
64	5320	22.12	24.44 > 24
100	5500	22.37	24.49 > 24
116	5580	22.32	24.48 > 24
140	5700	22.40	24.5 > 24
144 (U-NII-2C)	5720	16.03	23.04 < 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11be (EHT20)

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	22.72	22.76
60	5300	23.06	22.56
64	5320	22.57	22.37
100	5500	22.35	22.64
116	5580	22.73	22.74
140	5700	22.70	22.90
144 (U-NII-2C)	5720	16.23	16.40
144 (U-NII-3)	5720	6.12	6.33

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	22.72	24.56 > 24
60	5300	22.56	24.53 > 24
64	5320	22.37	24.49 > 24
100	5500	22.35	24.49 > 24
116	5580	22.73	24.56 > 24
140	5700	22.70	24.56 > 24
144 (U-NII-2C)	5720	16.23	23.1 < 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11be (EHT40)

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
54	5270	44.68	43.50
62	5310	43.83	43.82
102	5510	44.52	43.11
110	5550	45.24	44.52
134	5670	43.85	44.59
142 (U-NII-2C)	5710	37.15	37.13
142 (U-NII-3)	5710	6.32	6.86

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
54	5270	43.50	27.38 > 24
62	5310	43.82	27.41 > 24
102	5510	43.11	27.34 > 24
110	5550	44.52	27.48 > 24
134	5670	43.85	27.41 > 24
142 (U-NII-2C)	5710	37.13	26.69 > 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11be (EHT80)

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	84.27	83.06
106	5530	84.69	85.04
122	5610	83.89	83.40
138 (U-NII-2C)	5690	76.96	76.48
138 (U-NII-3)	5690	6.13	7.14

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
58	5290	83.06	30.19 > 24
106	5530	84.69	30.27 > 24
122	5610	83.40	30.21 > 24
138 (U-NII-2C)	5690	76.48	29.83 > 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11be (EHT160)

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
50 (U-NII-1)	5250	87.76	87.12
50 (U-NII-2A)	5250	87.06	88.37
114	5570	177.29	174.53

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
50 (U-NII-2A)	5250	87.06	30.39 > 24
114	5570	174.53	33.41 > 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11be (EHT20) 26-tone RU

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	20.23	20.22
60	5300	20.26	20.21
64	5320	20.62	20.13
100	5500	20.27	20.33
116	5580	20.37	20.45
140	5700	20.51	20.17
144 (U-NII-2C)	5720	14.37	14.19
144 (U-NII-3)	5720	6.05	6.30

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	20.22	24.05 > 24
60	5300	20.21	24.05 > 24
64	5320	20.13	24.03 > 24
100	5500	20.27	24.06 > 24
116	5580	20.37	24.08 > 24
140	5700	20.17	24.04 > 24
144 (U-NII-2C)	5720	14.19	22.51 < 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11be (EHT20) 52-tone RU

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	20.47	20.44
60	5300	20.23	20.71
64	5320	20.90	20.41
100	5500	20.39	20.40
116	5580	20.31	20.55
140	5700	20.79	20.33
144 (U-NII-2C)	5720	14.76	14.35
144 (U-NII-3)	5720	6.06	6.18

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
52	5260	20.44	24.1 > 24
60	5300	20.23	24.05 > 24
64	5320	20.41	24.09 > 24
100	5500	20.39	24.09 > 24
116	5580	20.31	24.07 > 24
140	5700	20.33	24.08 > 24
144 (U-NII-2C)	5720	14.35	22.56 < 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11be (EHT20) 106-tone RU

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
52	5260	20.07	20.52
60	5300	20.21	20.59
64	5320	20.96	20.36
100	5500	20.16	20.61
116	5580	20.15	20.60
140	5700	20.75	20.19
144 (U-NII-2C)	5720	14.89	14.30
144 (U-NII-3)	5720	6.10	6.04

Determined Output Power Limit					
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)		
52	5260	20.07	24.02	>	24
60	5300	20.21	24.05	>	24
64	5320	20.36	24.08	>	24
100	5500	20.16	24.04	>	24
116	5580	20.15	24.04	>	24
140	5700	20.19	24.05	>	24
144 (U-NII-2C)	5720	14.30	22.55	<	24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11be (EHT20) 242-tone RU

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
144 (U-NII-2C)	5720	15.94	15.83
144 (U-NII-3)	5720	5.72	5.82

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
144 (U-NII-2C)	5720	15.83	22.99 < 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11be (EHT40) 484-tone RU

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
142 (U-NII-2C)	5710	36.86	37.08
142 (U-NII-3)	5710	6.41	6.35

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
142 (U-NII-2C)	5710	36.86	26.66 > 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11be (EHT80) 996-tone RU

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
138 (U-NII-2C)	5690	76.57	76.92
138 (U-NII-3)	5690	6.07	6.48

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
138 (U-NII-2C)	5690	76.57	29.84 > 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11be (EHT160) 2x996-tone RU

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
50 (U-NII-1)	5250	132.06	135.37
50 (U-NII-2A)	5250	144.49	149.35

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
50 (U-NII-2A)	5250	144.49	32.59 > 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11be (EHT20) 106+26-tone MRU

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
60	5300	20.20	20.64

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
60	5300	20.20	24.05 > 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11be (EHT80) 484+242-tone MRU

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
138 (U-NII-2C)	5690	76.42	76.19
138 (U-NII-3)	5690	6.92	6.26

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
138 (U-NII-2C)	5690	76.19	29.81 > 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11be (EHT160) 996+484-tone MRU

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
50 (U-NII-1)	5250	87.52	87.85
50 (U-NII-2A)	5250	88.25	87.38

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
50 (U-NII-2A)	5250	87.38	30.41 > 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11be (EHT80) Punctured by 20 MHz

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
58	5290	84.31	82.90
138 (U-NII-2C)	5690	78.86	76.92
138 (U-NII-3)	5690	6.81	6.75

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
58	5290	82.90	30.18 > 24
138 (U-NII-2C)	5690	76.92	29.86 > 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11be (EHT160) Punctured by 20 MHz

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
50 (U-NII-1)	5250	86.99	87.49
50 (U-NII-2A)	5250	86.66	86.67

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
50 (U-NII-2A)	5250	86.66	30.37 > 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11be (EHT160) Punctured by 40 MHz

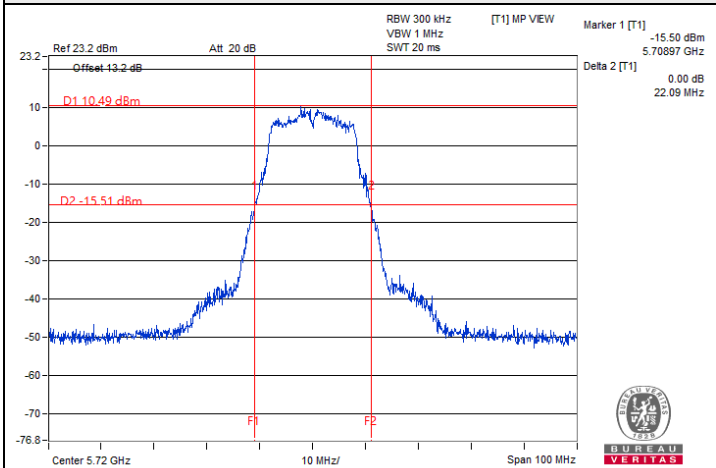
Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
50 (U-NII-1)	5250	87.46	87.63
50 (U-NII-2A)	5250	89.23	88.08

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
50 (U-NII-2A)	5250	88.08	30.44 > 24

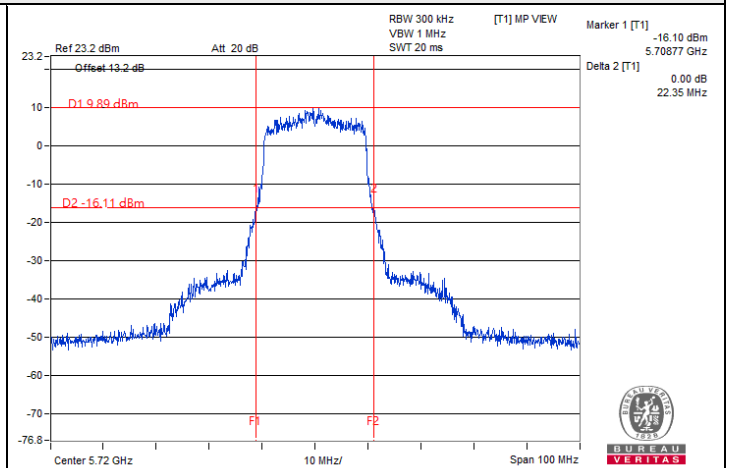
Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.



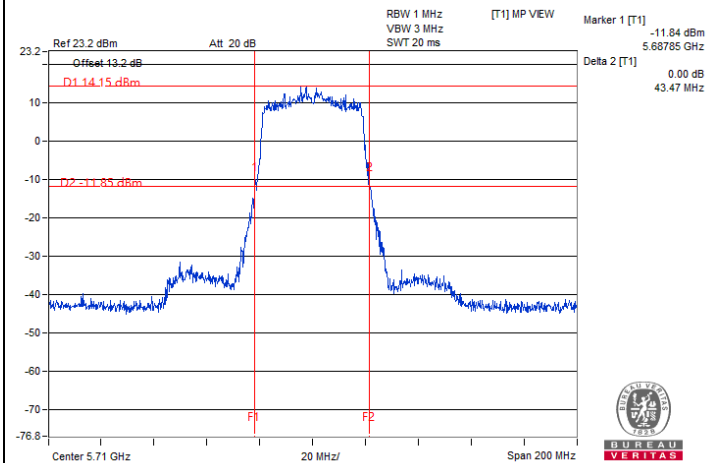
Spectrum Plot of Minimum Value



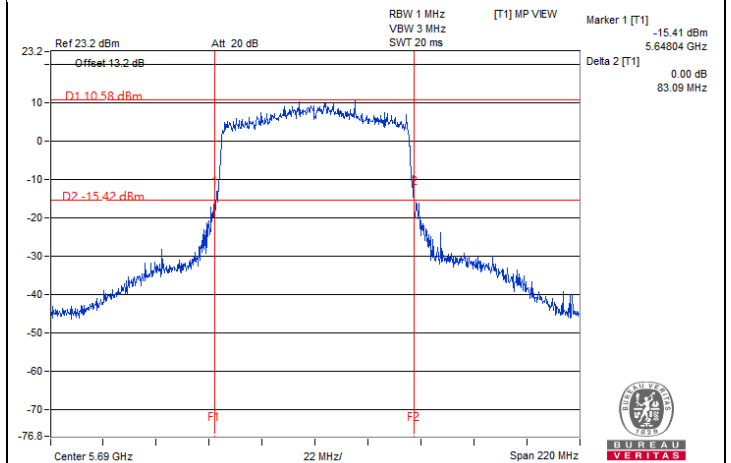
802.11a / Chain 0 : CH 144 (U-NII-3)



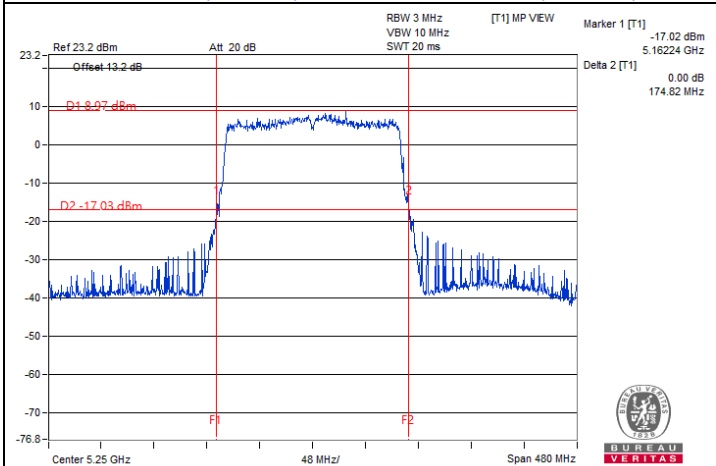
802.11be (EHT20) / Chain 0 : CH 144 (U-NII-3)



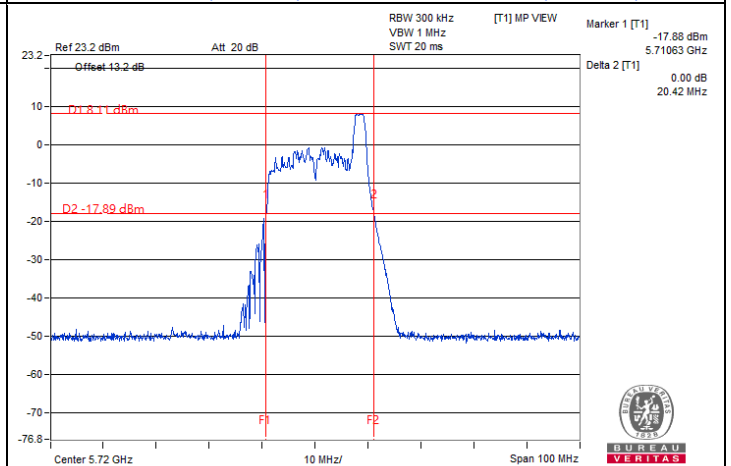
802.11be (EHT40) / Chain 0 : CH 142 (U-NII-3)



802.11be (EHT80) / Chain 0 : CH 138 (U-NII-3)



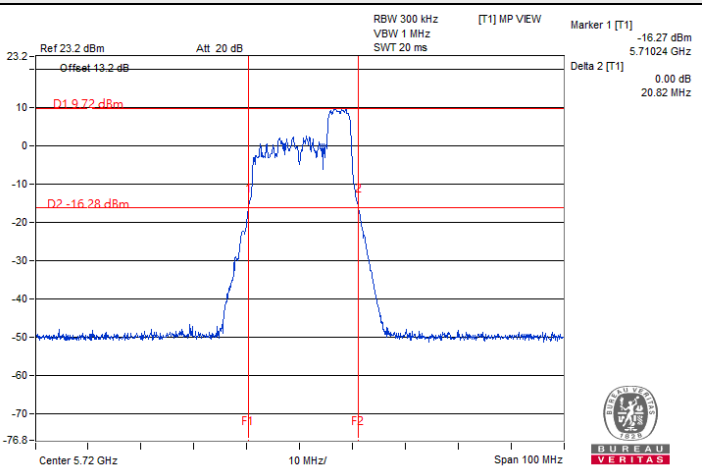
802.11be (EHT160) / Chain 0 : CH 50 (U-NII-2A)



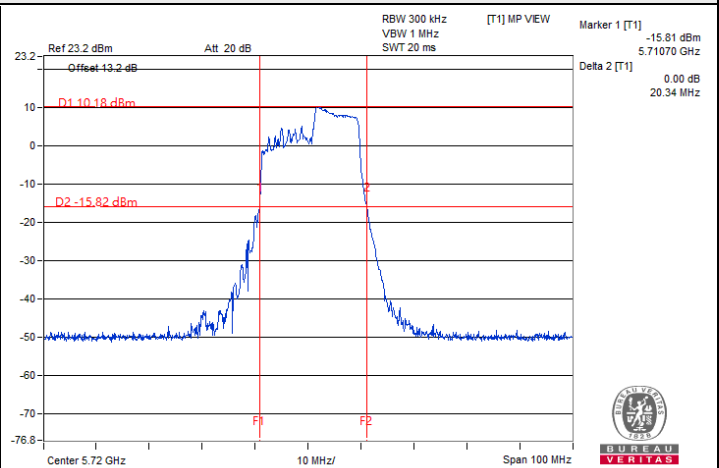
802.11be (EHT20) 26-tone RU / Chain 0 : CH 144@8 (U-NII-3)



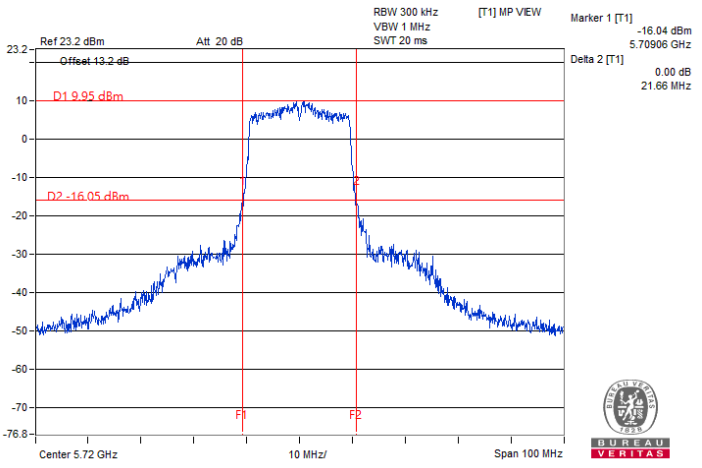
Spectrum Plot of Minimum Value



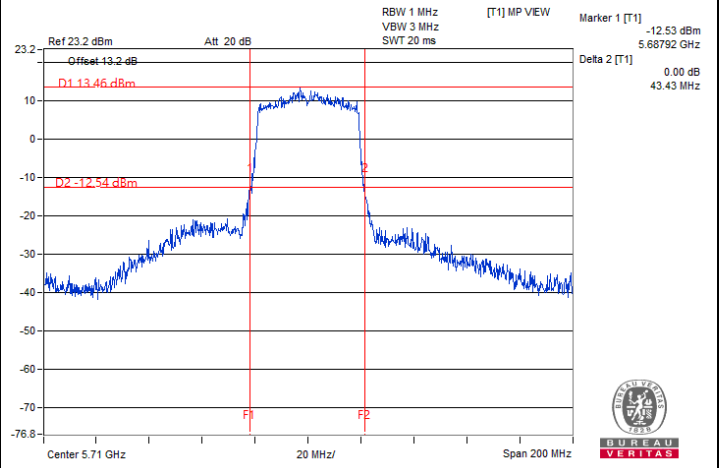
802.11be (EHT20) 52-tone RU / Chain 0 : CH 144@40 (U-NII-3)



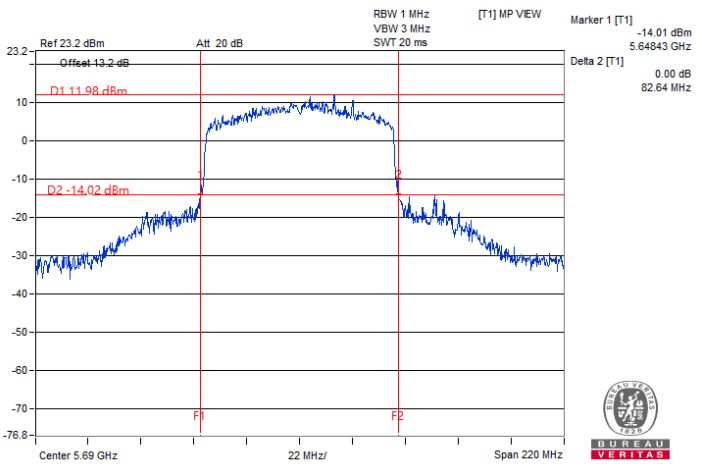
802.11be (EHT20) 106-tone RU / Chain 1 : CH 144@54 (U-NII-3)



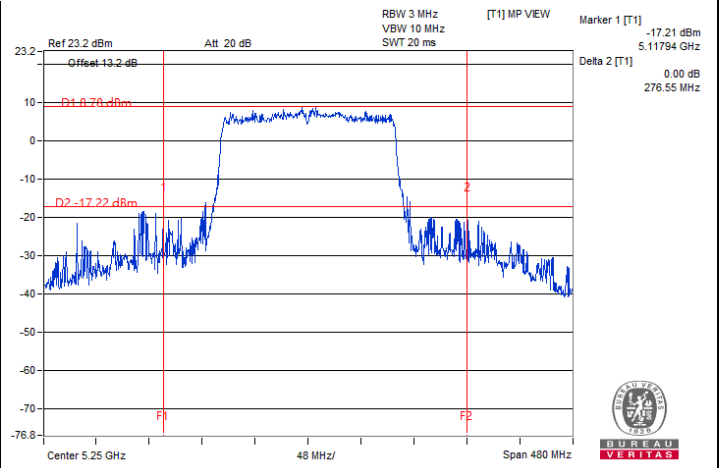
802.11be (EHT20) 242-tone RU / Chain 0 : CH 144@61 (U-NII-3)



802.11be (EHT40) 484-tone RU / Chain 1 : CH 142@66 (U-NII-3)



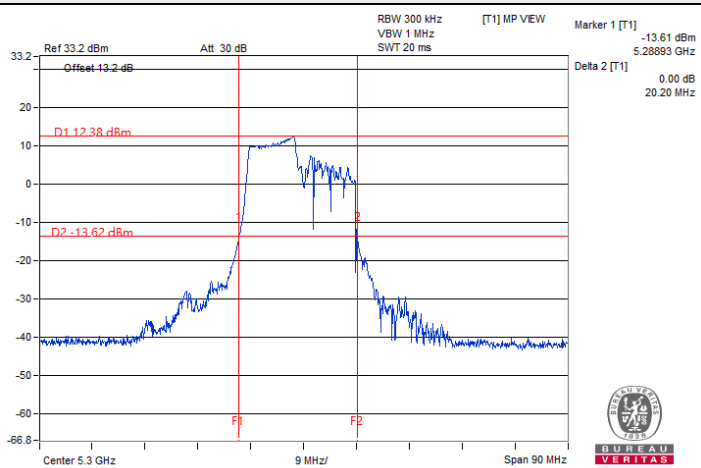
802.11be (EHT80) 996-tone RU / Chain 0 : CH 138@67 (U-NII-3)



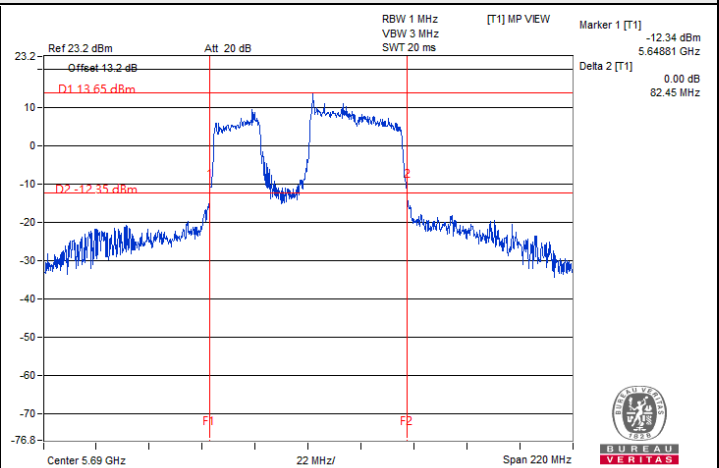
802.11be (EHT160) 2x996-tone RU / Chain 0 : CH 50@68 (U-NII-1)



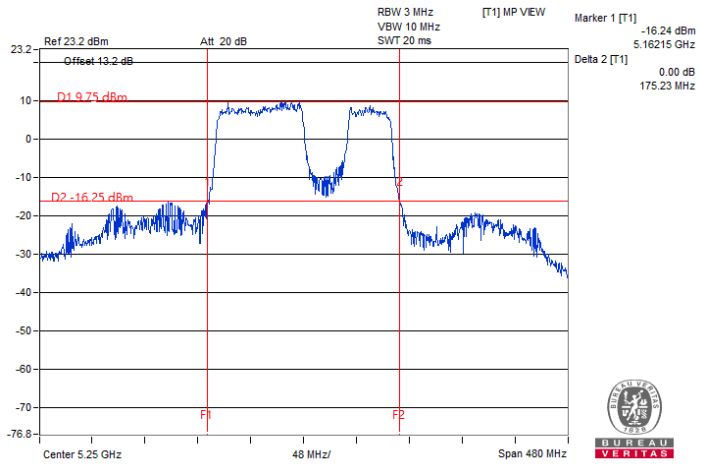
Spectrum Plot of Minimum Value



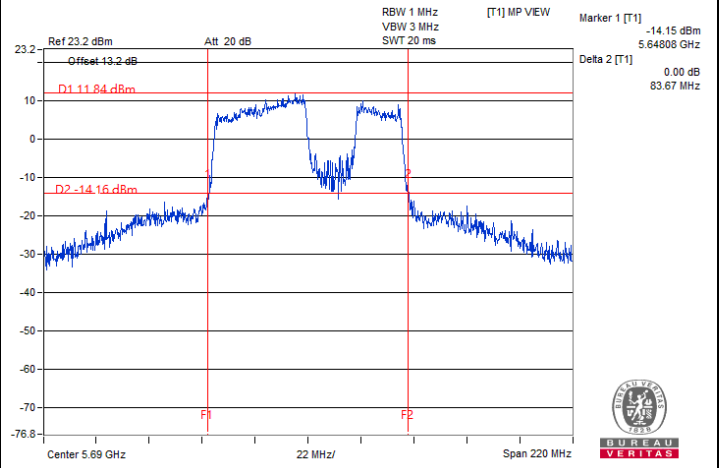
802.11be (EHT20) 106+26-tone MRU / Chain 0 : CH 60@1



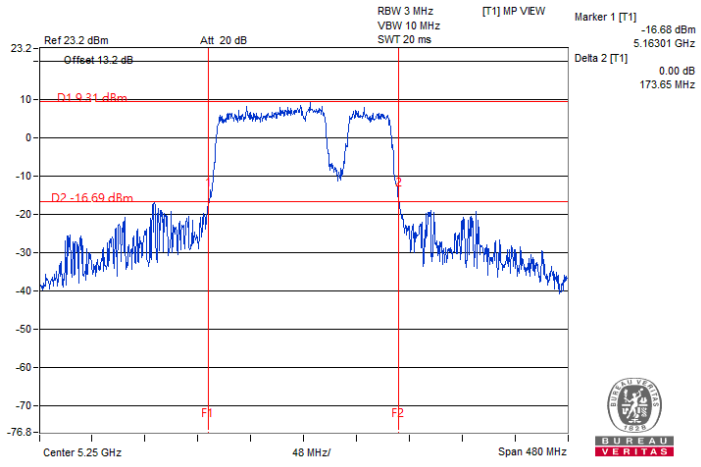
802.11be (EHT80) 484+242-tone MRU / Chain 1 : CH 138@2 (U-NII-3)



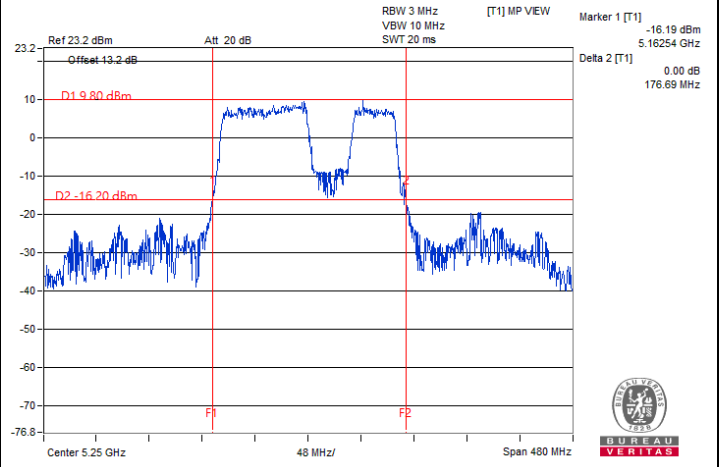
802.11be (EHT160) 996+484-tone MRU / Chain 1 : CH 50@2 (U-NII-2A)



802.11be (EHT80) Punctured by 20 MHz / Chain 1 : CH 138@2 (U-NII-3)



802.11be (EHT160) Punctured by 20 MHz / Chain 0 : CH 50@4 (U-NII-2A)



802.11be (EHT160) Punctured by 40 MHz / Chain 0 : CH 50@10 (U-NII-1)

Notes:

1. For U-NII-2C straddle channel = 5725 MHz - Marker 1
2. For U-NII-3 straddle channel = Marker 1 + Delta 2 - 5725 MHz
3. For U-NII-1 straddle channel = 5250 MHz - Marker 1
4. For U-NII-2A straddle channel = Marker 1 + Delta 2 - 5250 MHz

Mode C

Input Power:	3.3 Vdc	Environmental Conditions:	24°C, 61% RH	Tested By:	Eric Peng
--------------	---------	---------------------------	--------------	------------	-----------

802.11be (EHT20)

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
144 (U-NII-2C)	5720	16.26	16.30
144 (U-NII-3)	5720	6.12	6.07

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
144 (U-NII-2C)	5720	16.26	23.11 < 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11be (EHT20) 26-tone RU

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
144 (U-NII-2C)	5720	14.52	14.17
144 (U-NII-3)	5720	6.20	6.02

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
144 (U-NII-2C)	5720	14.17	22.51 < 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11be (EHT20) 52-tone RU

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
144 (U-NII-2C)	5720	14.73	14.30
144 (U-NII-3)	5720	6.24	6.10

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
144 (U-NII-2C)	5720	14.30	22.55 < 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

802.11be (EHT20) 106-tone RU

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
144 (U-NII-2C)	5720	14.84	14.28
144 (U-NII-3)	5720	6.04	5.95

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
144 (U-NII-2C)	5720	14.28	22.54 < 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

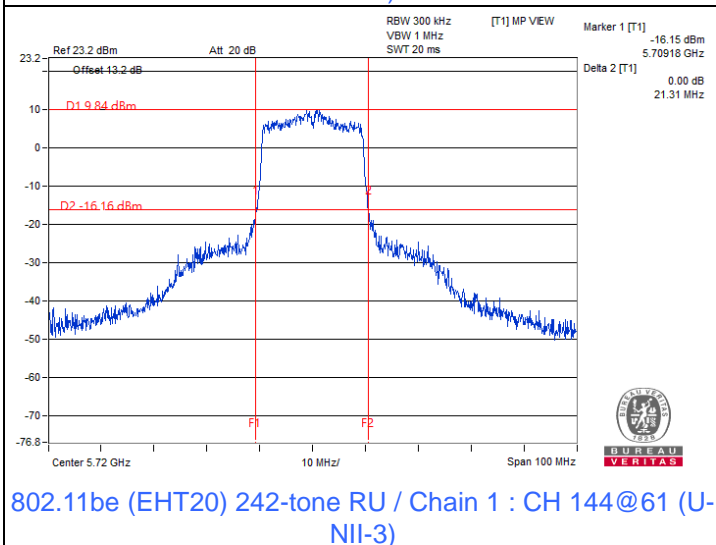
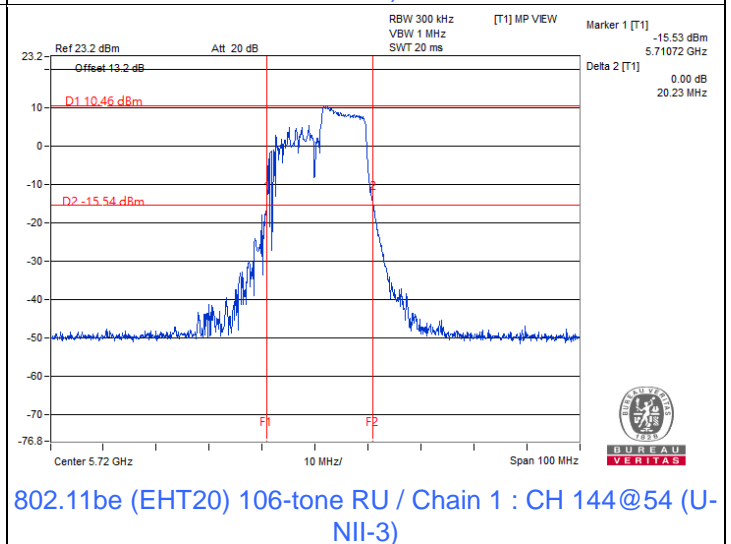
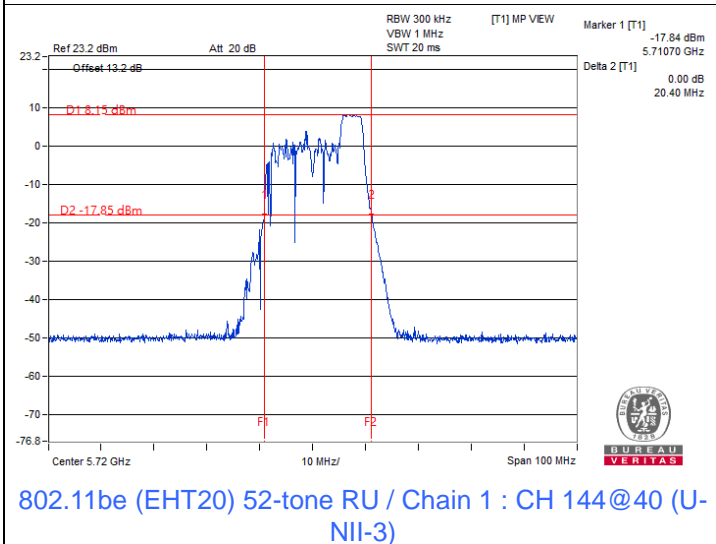
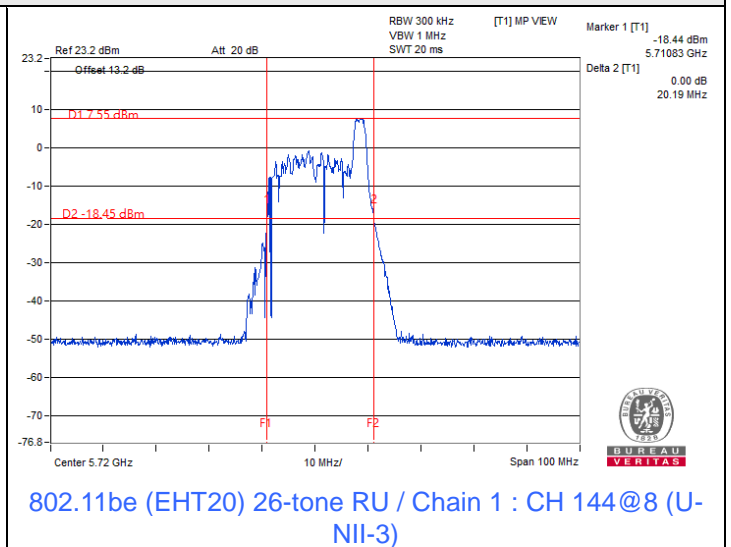
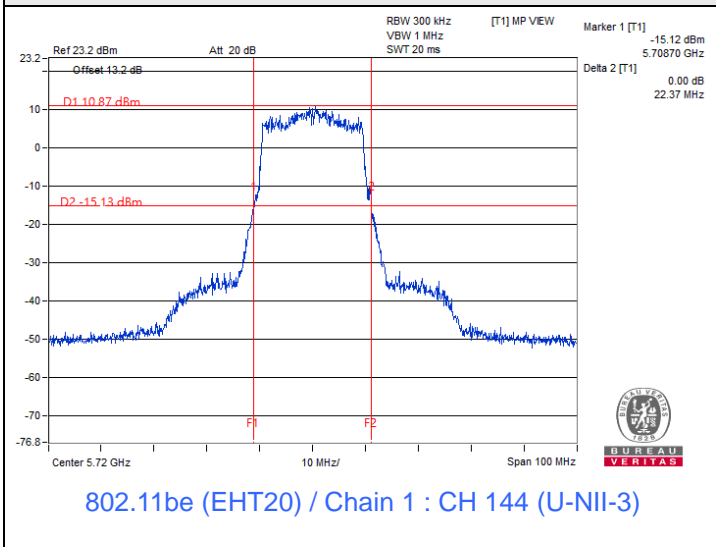
802.11be (EHT20) 242-tone RU

Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	
		Chain 0	Chain 1
144 (U-NII-2C)	5720	15.76	15.82
144 (U-NII-3)	5720	5.92	5.49

Determined Output Power Limit			
Channel Number	Freq.(MHz)	Min. B(MHz)	Determined Conducted Power Limit (dBm)
144 (U-NII-2C)	5720	15.76	22.97 < 24

Note: For U-NII-2A, U-NII-2C Band output power limitation is determined based on 26dBc bandwidth.

Spectrum Plot of Minimum Value



Notes:

1. For U-NII-2C straddle channel = 5725 MHz - Marker 1
2. For U-NII-3 straddle channel = Marker 1 + Delta 2 - 5725 MHz

7.2 RF Output Power

Mode A

Input Power:	3.3 Vdc	Environmental Conditions:	24°C, 61% RH	Tested By:	Eric Peng
--------------	---------	---------------------------	--------------	------------	-----------

802.11a

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
36	5180	17.37	17.33	108.651	20.36	24	Pass
40	5200	18.19	18.26	132.906	21.24	24	Pass
48	5240	17.72	17.86	120.25	20.80	24	Pass
52	5260	17.70	18.04	122.564	20.88	24	Pass
60	5300	17.81	17.97	123.056	20.90	24	Pass
64	5320	16.91	17.15	100.971	20.04	24	Pass
100	5500	16.65	17.47	102.085	20.09	24	Pass
116	5580	17.05	17.39	105.527	20.23	24	Pass
140	5700	16.80	17.26	101.074	20.05	24	Pass
*144 (U-NII-2C)	5720	16.16	16.71	88.186	19.45	23.04	Pass
*144 (U-NII-3)	5720	8.54	8.92	14.943	11.74	30	Pass
149	5745	17.08	17.43	106.386	20.27	30	Pass
157	5785	16.81	17.21	100.575	20.02	30	Pass
165	5825	17.01	17.81	110.629	20.44	30	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-1, the maximum gain is 3.35 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the maximum gain is 3.42 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the maximum gain is 4.72 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT20)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
36	5180	17.42	16.32	98.063	19.92	24	Pass
40	5200	18.95	18.98	157.591	21.98	24	Pass
48	5240	18.44	18.66	143.275	21.56	24	Pass
52	5260	18.41	18.69	143.303	21.56	24	Pass
60	5300	18.44	18.78	145.332	21.62	24	Pass
64	5320	17.59	16.69	104.078	20.17	24	Pass
100	5500	17.28	16.64	99.588	19.98	24	Pass
116	5580	17.18	17.69	110.989	20.45	24	Pass
140	5700	15.19	14.66	62.278	17.94	24	Pass
*144 (U-NII-2C)	5720	16.43	16.91	93.045	19.69	23.1	Pass
*144 (U-NII-3)	5720	9.77	10.15	19.836	12.97	30	Pass
149	5745	17.71	18.08	123.289	20.91	30	Pass
157	5785	17.50	17.99	119.185	20.76	30	Pass
165	5825	17.78	18.20	126.048	21.01	30	Pass

Notes:

1. * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
2. Directional gain is the maximum gain of antennas.
3. For U-NII-1, the maximum gain is 3.35 dBi < 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-2A, the maximum gain is 3.42 dBi < 6 dBi, so the output power limit shall not be reduced.
5. For U-NII-2C, the maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.
6. For U-NII-3, the maximum gain is 4.72 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT40)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
38	5190	16.41	15.29	77.559	18.90	24	Pass
46	5230	17.35	17.72	113.481	20.55	24	Pass
54	5270	17.52	18.01	119.735	20.78	24	Pass
62	5310	16.11	15.04	72.747	18.62	24	Pass
102	5510	15.80	15.10	70.378	18.47	24	Pass
110	5550	17.99	18.31	130.715	21.16	24	Pass
134	5670	17.24	17.56	109.983	20.41	24	Pass
*142 (U-NII-2C)	5710	17.13	17.51	108.005	20.33	24	Pass
*142 (U-NII-3)	5710	6.32	6.63	8.888	9.49	30	Pass
151	5755	17.08	17.56	108.067	20.34	30	Pass
159	5795	17.06	17.82	111.35	20.47	30	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-1, the maximum gain is 3.35 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the maximum gain is 3.42 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the maximum gain is 4.72 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT80)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
42	5210	15.25	14.32	60.536	17.82	24	Pass
58	5290	14.75	13.72	53.404	17.28	24	Pass
106	5530	15.01	14.22	58.12	17.64	24	Pass
122	5610	16.91	17.40	104.045	20.17	24	Pass
*138 (U-NII-2C)	5690	16.44	16.73	91.153	19.60	24	Pass
*138 (U-NII-3)	5690	1.52	1.62	2.871	4.58	30	Pass
155	5775	16.18	16.72	88.485	19.47	30	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-1, the maximum gain is 3.35 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the maximum gain is 3.42 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the maximum gain is 4.72 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT160)

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
*50 (U-NII-1)	5250	9.87	9.00	17.648	12.47	24	Pass
*50 (U-NII-2A)	5250	10.10	9.06	18.287	12.62	24	Pass
114	5570	12.79	12.13	35.341	15.48	24	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-1, the maximum gain is 3.35 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the maximum gain is 3.42 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT20) 26-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
36	5180	10.03	8.81	17.673	12.47	24	Pass
40	5200	9.89	8.86	17.441	12.42	24	Pass
48	5240	9.64	8.45	16.203	12.10	24	Pass
52	5260	9.39	8.58	15.901	12.01	24	Pass
60	5300	9.67	8.68	16.647	12.21	24	Pass
64	5320	9.90	8.77	17.306	12.38	24	Pass
100	5500	7.78	7.17	11.21	10.50	24	Pass
116	5580	7.75	7.39	11.439	10.58	24	Pass
140	5700	7.37	6.86	10.31	10.13	24	Pass
*144 (U-NII-2C)	5720	-23.61	-25.53	0.007154	-21.45	22.51	Pass
*144 (U-NII-3)	5720	7.05	6.41	9.445	9.75	30	Pass
149	5745	17.16	16.95	101.545	20.07	30	Pass
157	5785	16.97	16.73	96.871	19.86	30	Pass
165	5825	17.63	17.27	111.276	20.46	30	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-1, the maximum gain is 3.35 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the maximum gain is 3.42 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the maximum gain is 4.72 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT20) 52-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
36	5180	13.19	11.88	36.262	15.59	24	Pass
40	5200	13.09	11.97	36.11	15.58	24	Pass
48	5240	13.16	12.21	37.336	15.72	24	Pass
52	5260	12.71	11.95	34.331	15.36	24	Pass
60	5300	12.79	11.97	34.751	15.41	24	Pass
64	5320	13.50	12.59	40.542	16.08	24	Pass
100	5500	10.99	10.43	23.601	13.73	24	Pass
116	5580	11.09	10.69	24.575	13.90	24	Pass
140	5700	11.20	10.46	24.3	13.86	24	Pass
*144 (U-NII-2C)	5720	-8.48	-7.96	0.3019	-5.20	22.56	Pass
*144 (U-NII-3)	5720	10.64	10.22	22.107	13.45	30	Pass
149	5745	17.32	16.96	103.61	20.15	30	Pass
157	5785	17.17	16.91	101.21	20.05	30	Pass
165	5825	17.77	17.30	113.544	20.55	30	Pass

Notes:

1. * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
2. Directional gain is the maximum gain of antennas.
3. For U-NII-1, the maximum gain is 3.35 dBi < 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-2A, the maximum gain is 3.42 dBi < 6 dBi, so the output power limit shall not be reduced.
5. For U-NII-2C, the maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.
6. For U-NII-3, the maximum gain is 4.72 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT20) 106-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
36	5180	16.69	15.84	85.037	19.30	24	Pass
40	5200	16.86	15.91	87.523	19.42	24	Pass
48	5240	16.54	15.63	81.641	19.12	24	Pass
52	5260	15.97	15.16	72.346	18.59	24	Pass
60	5300	16.11	15.12	73.341	18.65	24	Pass
64	5320	16.32	15.47	78.092	18.93	24	Pass
100	5500	14.96	14.39	58.812	17.69	24	Pass
116	5580	14.94	14.51	59.438	17.74	24	Pass
140	5700	14.45	13.89	52.352	17.19	24	Pass
*144 (U-NII-2C)	5720	12.34	11.76	32.136	15.07	22.55	Pass
*144 (U-NII-3)	5720	11.49	11.03	26.769	14.28	30	Pass
149	5745	18.17	17.68	124.228	20.94	30	Pass
157	5785	18.08	17.58	121.548	20.85	30	Pass
165	5825	18.57	18.18	137.711	21.39	30	Pass

Notes:

1. * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
2. Directional gain is the maximum gain of antennas.
3. For U-NII-1, the maximum gain is 3.35 dBi < 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-2A, the maximum gain is 3.42 dBi < 6 dBi, so the output power limit shall not be reduced.
5. For U-NII-2C, the maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.
6. For U-NII-3, the maximum gain is 4.72 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT20) 242-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
36	5180	16.60	15.60	82.017	19.14	24	Pass
40	5200	18.26	17.23	119.833	20.79	24	Pass
48	5240	17.93	17.04	112.669	20.52	24	Pass
52	5260	18.04	17.07	114.613	20.59	24	Pass
60	5300	18.16	17.28	118.92	20.75	24	Pass
64	5320	16.47	15.52	80.006	19.03	24	Pass
100	5500	15.42	14.74	64.619	18.10	24	Pass
116	5580	17.93	17.46	117.805	20.71	24	Pass
140	5700	14.65	14.03	54.467	17.36	24	Pass
*144 (U-NII-2C)	5720	17.18	16.47	96.6	19.85	22.99	Pass
*144 (U-NII-3)	5720	10.59	9.99	21.432	13.31	30	Pass
149	5745	18.55	17.91	133.416	21.25	30	Pass
157	5785	18.54	18.04	135.129	21.31	30	Pass
165	5825	18.80	18.48	146.327	21.65	30	Pass

Notes:

1. * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
2. Directional gain is the maximum gain of antennas.
3. For U-NII-1, the maximum gain is 3.35 dBi < 6 dBi, so the output power limit shall not be reduced.
4. For U-NII-2A, the maximum gain is 3.42 dBi < 6 dBi, so the output power limit shall not be reduced.
5. For U-NII-2C, the maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.
6. For U-NII-3, the maximum gain is 4.72 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT40) 484-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
38	5190	14.86	13.63	53.687	17.30	24	Pass
46	5230	17.68	16.69	105.28	20.22	24	Pass
54	5270	12.24	11.33	30.333	14.82	24	Pass
62	5310	15.03	13.93	56.559	17.53	24	Pass
102	5510	14.14	13.50	48.329	16.84	24	Pass
110	5550	17.48	16.96	105.635	20.24	24	Pass
134	5670	15.62	15.04	68.391	18.35	24	Pass
*142 (U-NII-2C)	5710	16.69	16.20	88.353	19.46	24	Pass
*142 (U-NII-3)	5710	5.93	5.51	7.474	8.74	30	Pass
151	5755	16.20	15.47	76.924	18.86	30	Pass
159	5795	18.09	18.08	128.686	21.10	30	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-1, the maximum gain is 3.35 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the maximum gain is 3.42 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the maximum gain is 4.72 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT80) 996-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
42	5210	14.29	13.51	49.292	16.93	24	Pass
58	5290	13.46	12.44	39.721	15.99	24	Pass
106	5530	10.97	10.26	23.12	13.64	24	Pass
122	5610	15.28	14.71	63.309	18.01	24	Pass
*138 (U-NII-2C)	5690	16.29	15.82	80.754	19.07	24	Pass
*138 (U-NII-3)	5690	1.24	0.82	2.538	4.04	30	Pass
155	5775	11.28	11.91	28.952	14.62	30	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-1, the maximum gain is 3.35 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the maximum gain is 3.42 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the maximum gain is 4.72 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT160) 2x996-tone RU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
*50 (U-NII-1)	5250	10.33	9.58	19.868	12.98	24	Pass
*50 (U-NII-2A)	5250	10.71	9.55	20.792	13.18	24	Pass
114	5570	12.28	11.59	31.326	14.96	24	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-1, the maximum gain is 3.35 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the maximum gain is 3.42 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT20) 52+26-tone MRU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
40	5200	14.56	13.46	50.758	17.06	24	Pass
60	5300	14.26	13.31	48.097	16.82	24	Pass
116	5580	12.27	11.76	31.862	15.03	24	Pass
165	5825	18.40	18.44	139.006	21.43	30	Pass

Notes:

- Directional gain is the maximum gain of antennas.
- For U-NII-1, the maximum gain is 3.35 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the maximum gain is 3.42 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the maximum gain is 4.72 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT20) 106+26-tone MRU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
40	5200	17.52	16.69	103.16	20.14	24	Pass
60	5300	16.91	15.92	88.175	19.45	24	Pass
116	5580	15.54	15.05	67.799	18.31	24	Pass
165	5825	18.64	17.13	124.756	20.96	30	Pass

Notes:

- Directional gain is the maximum gain of antennas.
- For U-NII-1, the maximum gain is 3.35 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the maximum gain is 3.42 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the maximum gain is 4.72 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT80) 484+242-tone MRU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
42	5210	15.17	14.28	59.677	17.76	24	Pass
58	5290	13.34	12.35	38.757	15.88	24	Pass
*138 (U-NII-2C)	5690	16.34	15.82	81.247	19.10	24	Pass
*138 (U-NII-3)	5690	3.32	2.64	3.984	6.00	30	Pass
155	5775	17.54	16.91	105.845	20.25	30	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-1, the maximum gain is 3.35 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the maximum gain is 3.42 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the maximum gain is 4.72 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT160) 996+484-tone MRU

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
*50 (U-NII-1)	5250	12.65	11.96	34.111	15.33	24	Pass
*50 (U-NII-2A)	5250	9.49	8.42	15.842	12.00	24	Pass
114	5570	12.05	11.38	29.773	14.74	24	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-1, the maximum gain is 3.35 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the maximum gain is 3.42 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT80) Punctured by 20 MHz

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
42	5210	14.30	13.36	48.592	16.87	24	Pass
58	5290	13.56	12.78	41.666	16.20	24	Pass
*138 (U-NII-2C)	5690	16.74	16.18	88.702	19.48	24	Pass
*138 (U-NII-3)	5690	3.32	2.75	4.031	6.05	30	Pass
155	5775	17.23	16.54	97.926	19.91	30	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-1, the maximum gain is 3.35 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the maximum gain is 3.42 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-3, the maximum gain is 4.72 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT160) Punctured by 20 MHz

Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
*50 (U-NII-1)	5250	10.02	9.25	18.46	12.66	24	Pass
*50 (U-NII-2A)	5250	9.06	7.50	13.677	11.36	24	Pass
114	5570	12.01	11.33	29.469	14.69	24	Pass

Notes:

- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-1, the maximum gain is 3.35 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the maximum gain is 3.42 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2C, the maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.

802.11be (EHT160) Punctured by 40 MHz

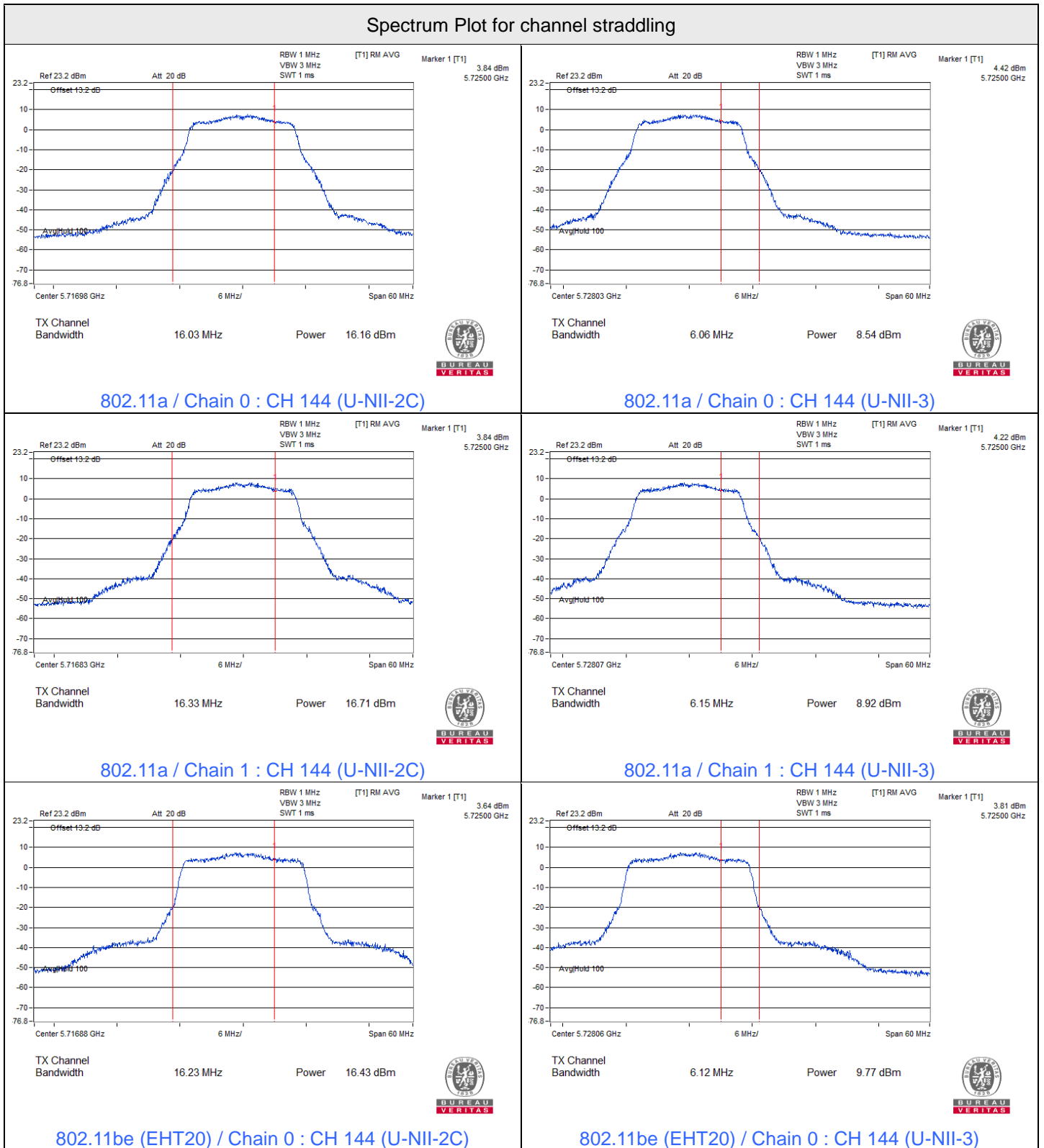
Chan.	Chan. Freq. (MHz)	Average Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	Test Result
		Chain 0	Chain 1				
*50 (U-NII-1)	5250	11.08	9.96	22.732	13.57	24	Pass
*50 (U-NII-2A)	5250	7.95	6.51	10.714	10.30	24	Pass
114	5570	12.54	11.94	33.579	15.26	24	Pass

Notes:

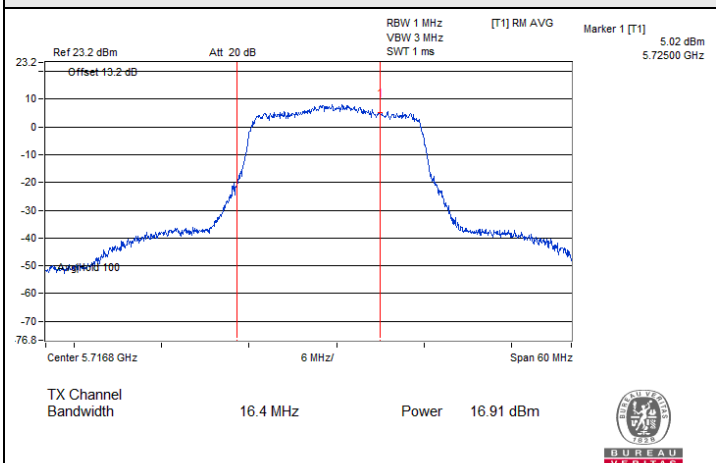
- * : Test was performed in accordance with measurement follow FCC KDB 789033 UNII test procedure Method SA-1 and use spectrum analyzer test.
- Directional gain is the maximum gain of antennas.
- For U-NII-1, the maximum gain is 3.35 dBi < 6 dBi, so the output power limit shall not be reduced.
- For U-NII-2A, the maximum gain is 3.42 dBi < 6 dBi, so the output power limit shall not be reduced.



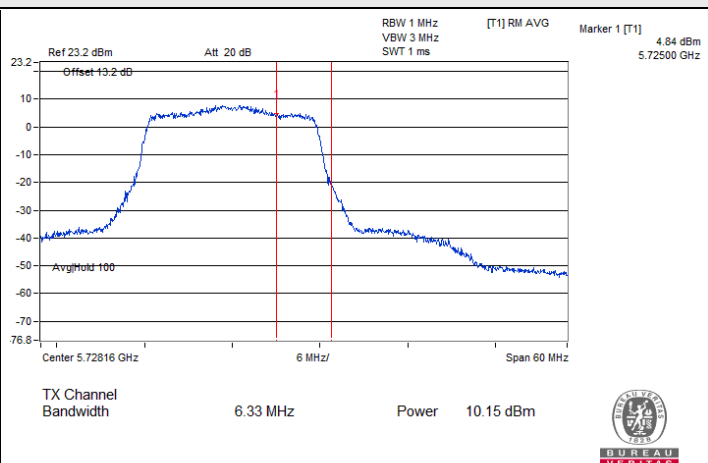
5. For U-NII-2C, the maximum gain is 4.81 dBi < 6 dBi, so the output power limit shall not be reduced.



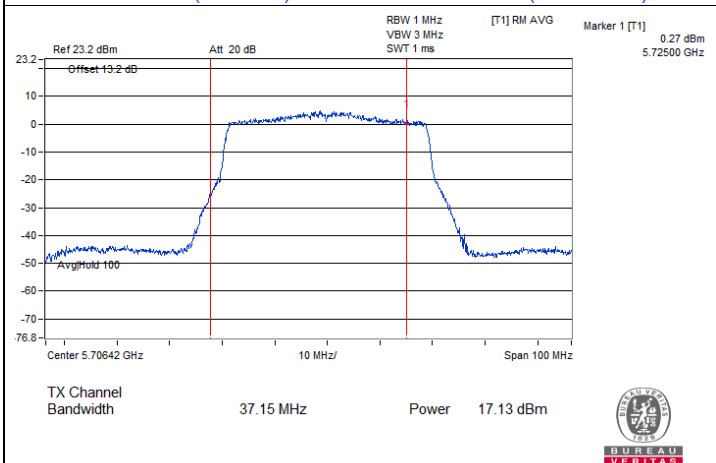
Spectrum Plot for channel straddling



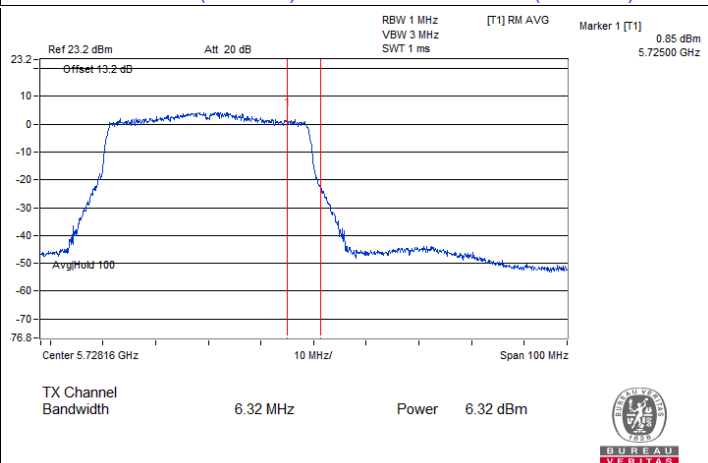
802.11be (EHT20) / Chain 1 : CH 144 (U-NII-2C)



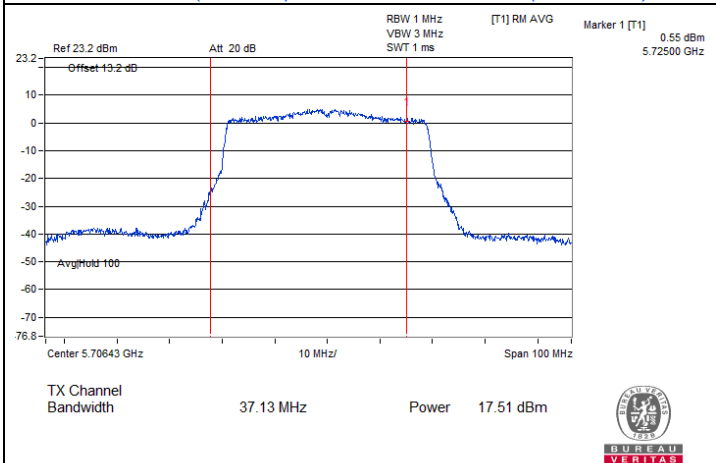
802.11be (EHT20) / Chain 1 : CH 144 (U-NII-3)



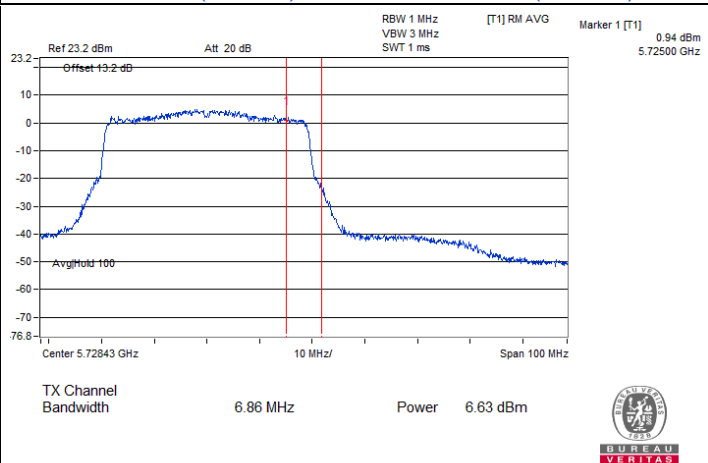
802.11be (EHT40) / Chain 0 : CH 142 (U-NII-2C)



802.11be (EHT40) / Chain 0 : CH 142 (U-NII-3)

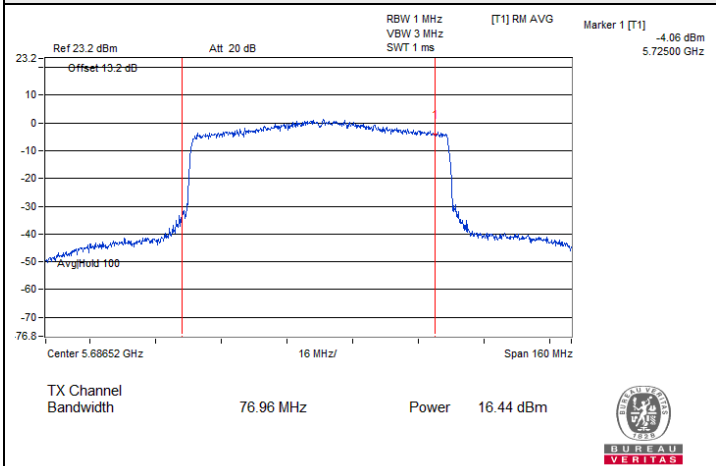


802.11be (EHT40) / Chain 1 : CH 142 (U-NII-2C)

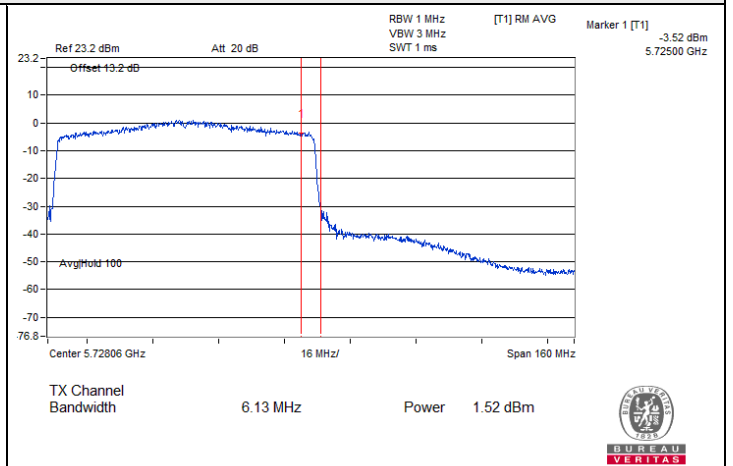


802.11be (EHT40) / Chain 1 : CH 142 (U-NII-3)

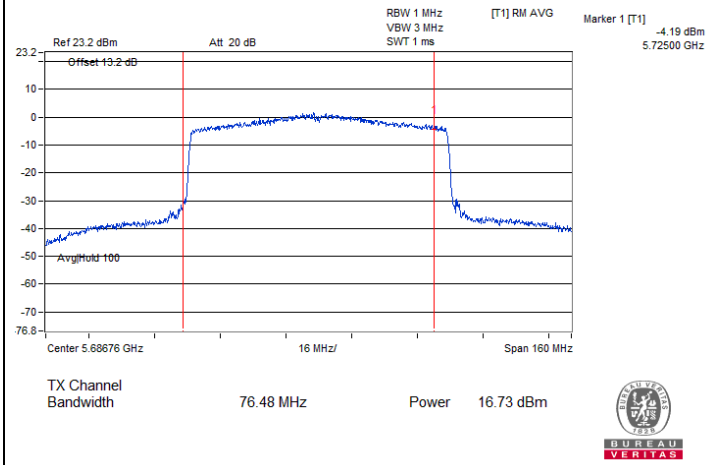
Spectrum Plot for channel straddling



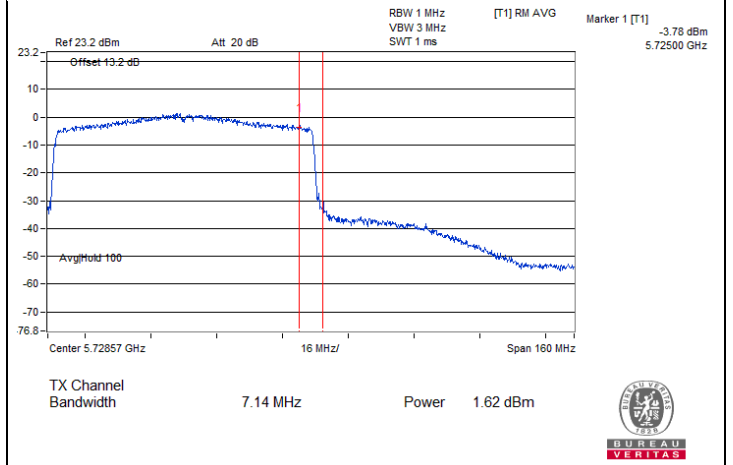
802.11be (EHT80) / Chain 0 : CH 138 (U-NII-2C)



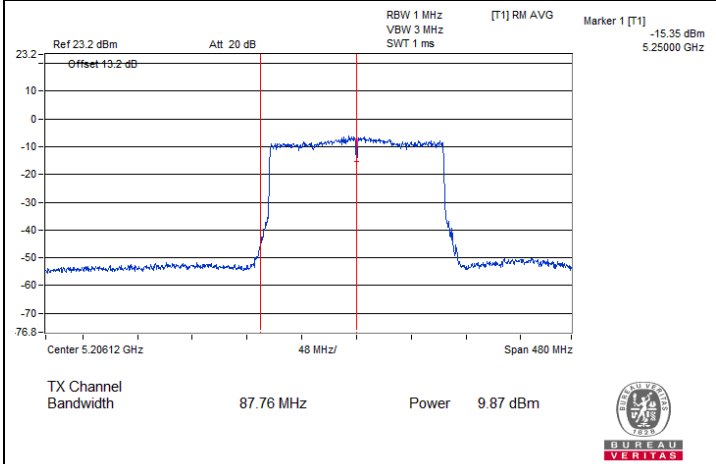
802.11be (EHT80) / Chain 0 : CH 138 (U-NII-3)



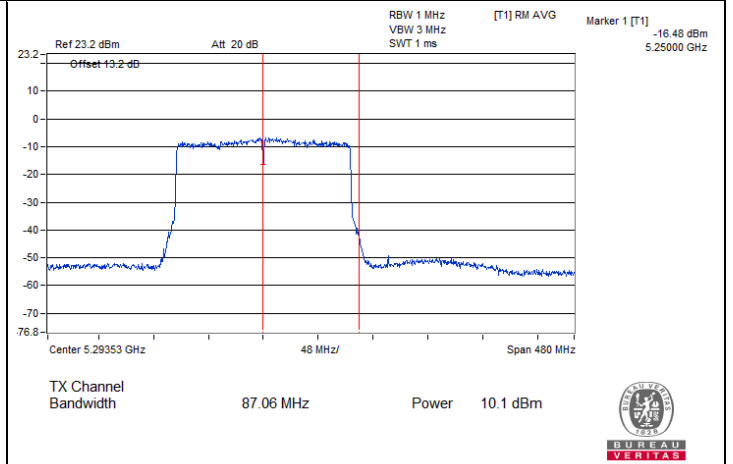
802.11be (EHT80) / Chain 1 : CH 138 (U-NII-2C)



802.11be (EHT80) / Chain 1 : CH 138 (U-NII-3)



802.11be (EHT160) / Chain 0 : CH 50 (U-NII-1)



802.11be (EHT160) / Chain 0 : CH 50 (U-NII-2A)