

RADIO TEST REPORT

Product : Wi-Fi/BT Transceiver

Model Name : WCHA42M

FCC ID : A3LWCHA42M

Test Regulation : FCC 47 CFR Part 15 Subpart E (Section 15.407)

Received Date : 2025/10/01

Test Date : 2025/10/04 ~ 2025/11/20

Issued Date : 2025/12/11

Applicant : Samsung Electronics Co Ltd
19 Chapin Rd., Building D, Pine Brook New Jersey, 07058
United States

Issued By : Underwriters Laboratories Taiwan Co., Ltd.
Building A, B and E, No. 372-7, Sec. 4, Zhongxing Rd.,
Zhudong Township, Hsinchu County, Taiwan



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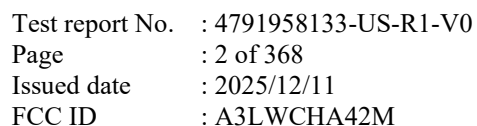
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Doc No: Form-ULID-004739 (DCS:17-EM-F0878) / 6.1



Original Test Report No.: 4791958133-US-R1-V0

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1. Attestation of Test Results

APPLICANT

COMPANY NAME: Samsung Electronics Co Ltd
ADDRESS: 19 Chapin Rd., Building D, Pine Brook New Jersey, 07058 United States

MANUFACTURER

COMPANY NAME: Samsung Electronics Co., Ltd.
ADDRESS: 129 Samsung-ro, Yeongtong-gu, Suwon-Si Gyeonggi-do 16677 Korea (Republic Of Korea)

FACTORY

COMPANY NAME 1: CHEMTRONICS Co., Ltd
ADDRESS: 35, Hyeongjero, Namsa-myeon, Cheoin-gu, Yongin-si, Gyeonggi-do, Republic of Korea

COMPANY NAME 2: CHEMTROVINA COMPANY LIMITED
ADDRESS: Nhon Trach 2-Loc Khang IZ, Hiep Phuoc Town, Nhon Trach District, Dong Nai Province, Vietnam

COMPANY NAME 3: SJIT CO., LTD.
ADDRESS: #54-11, Dongtanhana 1gil, Hwaseong-si, Gyeonggi-Do, Korea

COMPANY NAME 4: SJIT VINA Co., Ltd.
ADDRESS: Lot X2, Ho Nai Industrial Zone, Ho Nai 3 commune, Trang Bom District, Dong Nai Province, Vietnam

COMPANY NAME 5: Chengdu Xuguang Technology Co., Ltd.
ADDRESS: Building 1, Floors 1-2 and Building 2, Wenbai Avenue No.998, Baihe Street, Economic and Technological Development Zone (Longquanyi District), Chengdu City, Sichuan Province, P.R.China

COMPANY NAME 6: XUGUANG TECHNOLOGY (VIENAM) COMPANY LIMITED
ADDRESS: Factory No. 4, Lot CN1, An Duong Industrial Park, Hong Phong Commune, An Duon District, Hai Phong City, Vietnam

EUT DESCRIPTION: Wi-Fi/BT Transceiver

BRAND: Samsung

MODEL: WCHA42M

SAMPLE STAGE: Mass-Production Test Sample

DATE of TESTED: 2025/10/04 ~ 2025/11/20

APPLICABLE STANDARDS**STANDARD**

FCC 47 CFR PART 15 Subpart E (Section 15.407)

Test Results

PASS

Underwriters Laboratories Taiwan Co., Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by Underwriters Laboratories Taiwan Co., Ltd. based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Underwriters Laboratories Taiwan Co., Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Underwriters Laboratories Taiwan Co., Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Prepared By:

Cindy Hsin
Project Handler

Date : 2025/12/11

Approved and Authorized By:

Eric Lee
Senior Laboratory Engineer

Date : 2025/12/11

2. Summary of Test Results

Summary of Test Results		
FCC Clause	Test Items	Result
15.407(e)	6dB Bandwidth	PASS
15.403(i)	26dB Bandwidth	PASS
2.1049	Occupied Bandwidth	See Note1
15.407(a)(1/2/3)	Conducted Output Power	PASS
15.407(a)(1/2/3)	Power Spectral Density	PASS
15.407(g)	Frequency Stability	PASS
15.407(b) (1/2/3/4/5/9)	Radiated Emissions and Band Edge Measurement	PASS
15.407(b)(9)	AC Power Conducted Emission	PASS
15.203	Antenna Requirement	PASS
15.407(h)	Dynamic Frequency Selection & Transmit power control	See Note 2

Note:

1. The Occupied Bandwidth was reference only.
2. The “Dynamic Frequency Selection & Transmit power control measurement” was recorded in Report No.: 4791958133-US-R2-V0

3. Test Methodology and Reference Procedures

The tests documented in this report were performed in accordance with 47 CFR FCC Part 2, KDB 789033 D02 General UNII Test Procedure New Rules v02r01, KDB414788 D01 Radiated Test Site v01r01, ANSI C63.10-2020+Cor.1-2023+C63.10a-2024+Errata to C63.10a-2024 and KDB 662911 D01 Multiple Transmitter Output v02r01.

4. Facilities and Accreditation

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

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5. Measurement Uncertainty

For statement of conformity, Simple acceptance (Section 3.1.4 of IEC Guide 115) was applied as decision rule for measurement in this test report.

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

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

Measurement	Frequency	Uncertainty
Conducted disturbance at mains terminals ports	150kHz ~ 30MHz	3.0 dB
RF Conducted	9 kHz - 40GHz	2.4 dB
Radiated disturbance below 30MHz	9 kHz - 30 MHz	1.9 dB
Radiated disturbance below 1 GHz	30MHz ~ 1GHz	5.6 dB
Radiated disturbance above 1 GHz	1GHz ~ 40GHz	4.6 dB

6. Equipment under Test

6.1. Description of EUT

Product	Wi-Fi/BT Transceiver
Brand Name	Samsung
Model Name	WCHA42M
Normal Voltage	5Vdc from Host

Operating Frequency	5180 ~ 5240MHz, 5260 ~ 5320MHz, 5500 ~ 5720MHz, 5745 ~ 5825MHz
Modulation	4096QAM, 1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM / OFDMA
Transfer Rate	802.11a: up to 54 Mbps
	802.11n: up to MCS15
	802.11ac: up to MCS9
	802.11ax: up to MCS11
	802.11be: up to MCS13
Resource Unit (RU)	Single RU: 26-tone, 52-tone, 106-tone, 242-tone, 484-tone, 996-tone, Multi-RU (Small RU): 52-tone + 26-tone, 106-tone + 26-tone Multi-RU (Large RU): 484-tone+ 242-tone
Puncturing Mode	Support (Only for 802.11be 80MHz Bandwidth)
Maximum Output Power	5180 ~ 5240 MHz: 19.2 dBm
	5260 ~ 5320 MHz: 21.3 dBm
	5500 ~ 5720 MHz: 21.16 dBm
	5745 ~ 5825 MHz: 22.31 dBm
Sample ID	Conducted Test:8975534
	Radiated Test:8975527

Note:

1. EUT provides a complete 2Tx port and 2Rx port. Please refer to the following working transmission conditions:

Modulation Mode	Tx Function	Rx Function
802.11a	1Tx Diversity	2Rx
802.11n(HT20)	2Tx / 1Tx Diversity	2Rx
802.11n(HT40)	2Tx / 1Tx Diversity	2Rx
802.11ac(VHT20)	2Tx / 1Tx Diversity	2Rx
802.11ac(VHT40)	2Tx / 1Tx Diversity	2Rx
802.11ac(VHT80)	2Tx / 1Tx Diversity	2Rx
802.11ax(HE20)	2Tx / 1Tx Diversity	2Rx
802.11ax(HE40)	2Tx / 1Tx Diversity	2Rx
802.11ax(HE80)	2Tx / 1Tx Diversity	2Rx
802.11ax (RU26/52/106/242/484/996)	2Tx / 1Tx Diversity	2Rx
802.11be(EHT20)	2Tx / 1Tx Diversity	2Rx
802.11be(EHT40)	2Tx / 1Tx Diversity	2Rx
802.11be(EHT80)	2Tx / 1Tx Diversity	2Rx
802.11be (RU26/52/106/242/484/996) (MRU52+26/106+26/484+242) (20MHz Puncture)	2Tx / 1Tx Diversity	2Rx

*The power index setting for the 1Tx SISO mode is configured the same as for the 2Tx MIMO mode; Verify that the total power in 2Tx MIMO mode is 3 dB higher than in SISO mode, therefore, the test results only present the MIMO mode (except for 11a).

*The modulation and bandwidth are similar for 802.11n mode, 802.11ac mode, for 20MHz, 40MHz bandwidth system, therefore investigated one worst case to representative mode in test report.

*The modulation and bandwidth are similar for 802.11ax mode, 802.11be mode, for 20MHz, 40MHz, 80MHz bandwidth system, therefore investigated one worst case to representative mode in test report.

2. The EUT support OFDMA and Partial RU(Single RU/Multi-RU) mode, therefore all partial RU combinations were investigated and the worst-case scenario was identified.
3. The WCHA42M comes in two versions, V1.0 and V2.0. The only difference between these two versions is the acceleration sensor and related R/C parts. Version V2.0 includes the acceleration sensor and related R/C parts but V1.0 does not. Therefore, only the worst case of fully configured version V2.0 was tested.
4. The EUT support Puncturing, therefore Puncturing all combinations were investigated and the worst-case scenario was identified.

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5. The EUT OFDMA RU mode index refers as below.

Tones offset	#RU Index																																						
26 Subcarrier	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36		
52 Subcarrier	37	38			39		40		41		42		43		44		45		46		47		48		49		50		51		52								
106 Subcarrier	53					54					55					56					57					58					59					60			
242 Subcarrier	61									62									63									64											
484 Subcarrier	65																	66																					
996 Subcarrier	67																																						

6. The EUT OFDMA MRU mode index refers as below.

Small RU		Segment 1 (80MHz Bandwidth)																																					
MRU Tone	Tones No.	00	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	
	52+26 (78-tone)			70*				72					73				75*										78					79							
	106+26 (132-tone)					71								74													77						80						
							82											85									86										89		
									83*					84*																									

*Only in BW20 and BW40 mode

Large RU		Segment 1(80MHz Bandwidth)					
MRU Tone	Tones No.	0~8	9~17	18	19~27	28~36	
	484+242 (726-tone)		90				
		91					
		92					
		93					

7. The EUT Puncturing index refers as below.

80MHz Band Puncturing	Subchannel Switch			
Puncture Value 0	1	1	1	1
Puncture Value 1	0	1	1	1
Puncture Value 2	1	0	1	1
Puncture Value 3	1	1	0	1
Puncture Value 4	1	1	1	0

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

6.2. Channel List

FOR 5180 ~ 5240MHz

4 channels are provided for 5G WLAN 20MHz bandwidth system:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
40	5200	48	5240

2 channels are provided for 5G WLAN 40MHz bandwidth system:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230

1 channel are provided for 5G WLAN 80MHz bandwidth system:

Channel	Frequency (MHz)
42	5210

FOR 5260 ~ 5320MHz

4 channels are provided for 5G WLAN 20MHz bandwidth system:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	60	5300
56	5280	64	5320

2 channels are provided for 5G WLAN 40MHz bandwidth system:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
54	5270	62	5310

1 channel is provided for 5G WLAN 80MHz bandwidth system:

Channel	Frequency (MHz)
58	5290

FOR 5500 ~ 5720MHz

12 channels are provided for 5G WLAN 20MHz bandwidth system:

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

6 channels are provided for 5G WLAN 40MHz bandwidth system:

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

3 channel are provided for 5G WLAN 80MHz bandwidth system:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
106	5530	138	5690
122	5610	-	-

FOR 5745 ~ 5825MHz:

5 channels are provided for 5G WLAN 20MHz bandwidth system:

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

2 channels are provided for 5G WLAN 40MHz bandwidth system:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795

1 channel is provided for 5G WLAN 80MHz bandwidth system:

Channel	Frequency (MHz)
155	5775

6.3. Test Condition

Test Item	Test Site No.	Environmental	Input Power	Test Date	Tested by
Antenna Port Conducted Measurement	SR4	22~26°C/ 62~68%RH	5Vdc	2025/10/04~ 2025/11/20	WaterNil Guan
Radiated Spurious Emission	966-2	22~26°C/ 62~68%RH	5Vdc	2025/10/04~ 2025/11/07	Rex Chen
AC power Line Conducted Emission	SR1	24°C/ 62%RH	120Vac/ 60Hz	2025/11/04	Rex Chen

Sample Calculation:

Antenna Port Conducted Measurement:

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

Radiated Spurious Emission:

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

AC power Line Conducted Emission:

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

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6.4. Description of Available Antennas

Ant. No.	Transmitter Circuit	Frequency Range	Brand Name	Model Name	Max. Gain (dBi)	Ant. Type	Connector Type
ANT0	Chain0	2400 ~ 2480MHz 5150 ~ 5925MHz 5925 ~ 6525MHz 6525 ~ 7125MHz	HANYANG ANTENNA	WCHA42M	0.21 1.71 1.79 -0.64	Chip	None
ANT1	Chain1	2400 ~ 2480MHz 5150 ~ 5925MHz 5925 ~ 6525MHz 6525 ~ 7125MHz	HANYANG ANTENNA	WCHA42M	-2.33 0.5 1.8 1.41	Chip	None

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

6.5. Test Mode Applicability and Tested Channel Detail

Test Item	Mode	Frequency Range(MHz)	Modulation Type	Tx Function	Test Channel	RU/MRU/Puncturing Index	Data Rate
Radiated Bandedge	802.11a	5180-5240 5260-5320 5500-5720 5745-5825	OFDM	1Tx	36, 44, 48 52, 60, 64 100, 116, 140, 144 149, 157, 165	-	6 Mbps
	802.11ac (VHT20)		OFDM	2Tx	36, 44, 48 52, 60, 64 100, 116, 140, 144 149, 157, 165	-	MCS0 Nss1
	802.11ac (VHT40)				38, 46 54, 62 102, 110, 134, 142 151, 159	-	MCS0 Nss1
	802.11ac (VHT80)				42 58 106, 122, 138 155	-	MCS0 Nss1
	802.11be (EHT20)		OFDM/OFDMA	2Tx	36, 44, 48 52, 60, 64 100, 116, 140, 144 149, 157, 165	-	MCS0 Nss1
	802.11be (EHT40)				38, 46 54, 62 102, 110, 134, 142 151, 159	-	MCS0 Nss1
	802.11be (EHT80)				42 58 106, 122, 138 155	-	MCS0 Nss1
	802.11be (EHT20) 26-tone RU		OFDMA	2Tx	36, 44, 48 52, 60, 64 100, 116, 140, 144 149, 157, 165	0,0,8, 0,0,8, 0,0,8,8, 0,0,8	MCS0 Nss1
	802.11be (EHT20) 52-tone RU				36, 44, 48 52, 60, 64 100, 116, 140, 144 149, 157, 165	37,37,40, 37,37,40, 37,37,40,40 37,37,40	MCS0 Nss1
	802.11be (EHT20) 106-tone RU				36, 44, 48 52, 60, 64 100, 116, 140, 144 149, 157, 165	53,53,54, 53,53,54 53,53,54,54 53,53,54	MCS0 Nss1

Test Item	Mode	Frequency Range(MHz)	Modulation Type	Tx Function	Test Channel	RU/MRU/ Puncturing Index	Data Rate
Radiated Bandedge	802.11be (EHT20) 52+26-tone MRU	5180-5240 5260-5320 5500-5720 5745-5825	OFDMA	2Tx	36, 44, 48 52, 60, 64 100, 116, 140, 144 149, 157, 165	70,70,72, 70,70,72, 70,70,72,72, 70,70,72	MCS0 Nss1
	802.11be (EHT20) 106+26-tone MRU				36, 44, 48 52, 60, 64 100, 116, 140, 144 149, 157, 165	82,82,83, 82,82,83, 82,82,83,83, 82,82,83	MCS0 Nss1
	802.11be (EHT80) 484+242-tone MRU				42 58 106, 122, 138 155	92, 92, 92,92,92, 92	MCS0 Nss1
	802.11be (EHT80) Puncturing				42 58 106, 122, 138 155	2, 2, 2,2,2 2,	MCS0 Nss1
Radiated Emissions (Above 1GHz)	802.11a	5180-5240 5260-5320 5500-5720 5745-5825	OFDM	1Tx	36, 44, 48 52, 60, 64 100, 116, 140, 144 149, 157, 165	-	6 Mbps
	802.11be (EHT20)	5180-5240 5260-5320 5500-5720 5745-5825	OFDM/OFDMA	2Tx	36, 44, 48 52, 60, 64 100, 116, 140, 144 149, 157, 165	-	MCS0 Nss1
	802.11be (EHT20) 26-tone RU	5180-5240 5260-5320 5500-5720 5745-5825	OFDMA	2Tx	36, 44, 48 52, 60, 64 100, 116, 140, 144 149, 157, 165	0,0,8, 0,0,8, 0,0,8,8, 0,0,8	MCS0 Nss1
	802.11be (EHT20) 52-tone RU	5180-5240 5260-5320 5500-5720 5745-5825	OFDMA	2Tx	36, 44, 48 52, 60, 64 100, 116, 140, 144 149, 157, 165	37,37,40, 37,37,40, 37,37,40,40 37,37,40	MCS0 Nss1
	802.11be (EHT20) 52+26-tone MRU	5180-5240 5260-5320 5500-5720 5745-5825	OFDMA	2Tx	36, 44, 48 52, 60, 64 100, 116, 140, 144 149, 157, 165	70,70,72, 70,70,72, 70,70,72,72, 70,70,72	MCS0 Nss1

Test Item	Mode	Frequency Range(MHz)	Modulation Type	Tx Function	Test Channel	RU/MRU/Puncturing Index	Data Rate
Radiated Emissions (Below 1GHz)	802.11a	5180-5240 5260-5320 5500-5720 5745-5825	OFDM	1Tx	157	-	6 Mbps
	802.11be (EHT20)	5180-5240 5260-5320 5500-5720 5745-5825	OFDM/OFDMA	2Tx	157	-	MCS0 Nss1
	802.11be (EHT20) 26-tone RU	5180-5240 5260-5320 5500-5720 5745-5825	OFDMA	2Tx	157	0	MCS0 Nss1
AC Power Line Conducted Emission	802.11a	5180-5240 5260-5320 5500-5720 5745-5825	OFDM	1Tx	140	-	6 Mbps
	802.11be (EHT20) 26-tone RU	5180-5240 5260-5320 5500-5720 5745-5825	OFDMA	2Tx	149	0	MCS0 Nss1
Antenna Port Conducted Measurement	802.11a	5180-5240 5260-5320 5500-5720 5745-5825	OFDM	1Tx	36, 44, 48 52, 60, 64 100, 116, 140, 144 149, 157, 165	-	6 Mbps
	1Tx / 2Tx			36, 44, 48 52, 60, 64 100, 116, 140, 144 149, 157, 165	-	MCS0 Nss1	
				38, 46 54, 62 102, 110, 134,142 151, 159	-	MCS0 Nss1	
			42 58 106, 122, 138 155	-	MCS0 Nss1		
			36, 44, 48 52, 60, 64 100, 116, 140, 144 149, 157, 165	-	MCS0 Nss1		
			38, 46 54, 62 102, 110, 134,142 151, 159	-	MCS0 Nss1		
802.11ac (VHT20)	OFDM/OFDMA						
802.11ac (VHT40)							
802.11ac (VHT80)							
802.11be (EHT20)							
802.11be (EHT40)							

Test Item	Mode	Frequency Range(MHz)	Modulation Type	Tx Function	Test Channel	RU/MRU/ Puncturing Index	Data Rate
Antenna Port Conducted Measurement	802.11be (EHT80)	5180-5240 5260-5320 5500-5720 5745-5825	OFDM/ OFDMA	1Tx / 2Tx	42 58 106, 122, 138 155	-	MCS0 Nss1
	802.11be (EHT20) 26-tone RU		OFDMA		36, 44, 48 52, 60, 64 100, 116, 140, 144 149, 157, 165	0,0,8, 0,0,8, 0,0,8,8, 0,0,8	MCS0 Nss1
	802.11be (EHT20) 52-tone RU				36, 44, 48 52, 60, 64 100, 116, 140, 144 149, 157, 165	37,37,40, 37,37,40, 37,37,40,40 37,37,40	MCS0 Nss1
	802.11be (EHT20) 106-tone RU				36, 44, 48 52, 60, 64 100, 116, 140, 144 149, 157, 165	53,53,54, 53,53,54, 53,53,54,54 53,53,54	MCS0 Nss1
	802.11be (EHT20) 52+26-tone MRU				36, 44, 48 52, 60, 64 100, 116, 140, 144 149, 157, 165	70,70,72, 70,70,72, 70,70,72,72, 70,70,72	MCS0 Nss1
	802.11be (EHT20) 106+26-tone MRU				36, 44, 48 52, 60, 64 100, 116, 140, 144 149, 157, 165	82,82,83, 82,82,83, 82,82,83,83, 82,82,83	MCS0 Nss1
	802.11be (EHT80) 484+242-tone MRU				42 58 106, 122, 138 155	92, 92, 92,92,92, 92	MCS0 Nss1
	802.11be (EHT80) Puncturing				42 58 106, 122, 138 155	2, 2, 2,2,2 2,	MCS0 Nss1

- Full RU (Resource Unit) 242/484/996-tone RU mode and SU (Single Unit) mode have no difference in physical waveform. This report has been reported the SU mode with highest output power.
- Both 1Tx SISO and 2Tx MIMO have been investigated and confirmed MIMO was the worst case set for radiated band edge, spurious emission and conducted emission tests except 802.11a.
- The fundamental of the EUT was investigated in three orthogonal axes X-Y/Y-Z/X-Z, it was determined that X-Y plane was worst-case. Therefore, all final radiated testing was performed with the EUT in X-Y plane.
- 802.11a 1Tx has transmitter port Chain 0 and Chain 1, The worst case of conducted output power was found in Chain 0, and therefore only the test data of the was recorded in this report.
- The radiated spurious emission test was performed in all test modes. The worst case was 802.11a, and therefore, only the worst-case data is shown in this report to represent all test modes.

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- In the transmit mode, 802.11a channel 140 and 802.11be(EHT20) 26-tone RU channel 149 has the highest RF output power. Therefore, the AC conduction were performed using this worst-case mode."
- In the transmit mode, 802.11a channel 157 and 802.11be(EHT20) / RU26 channel 157 has the worst case of Tx spurious emission (above 1GHz). Therefore, all final tests for the spurious emission (below 1GHz) were performed using this worst-case mode.
- For Antenna Port Conducted Measurement, this item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel), parallel and perpendicular are the worst orientations, therefore testing was performed on these two orientations only.
- 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).

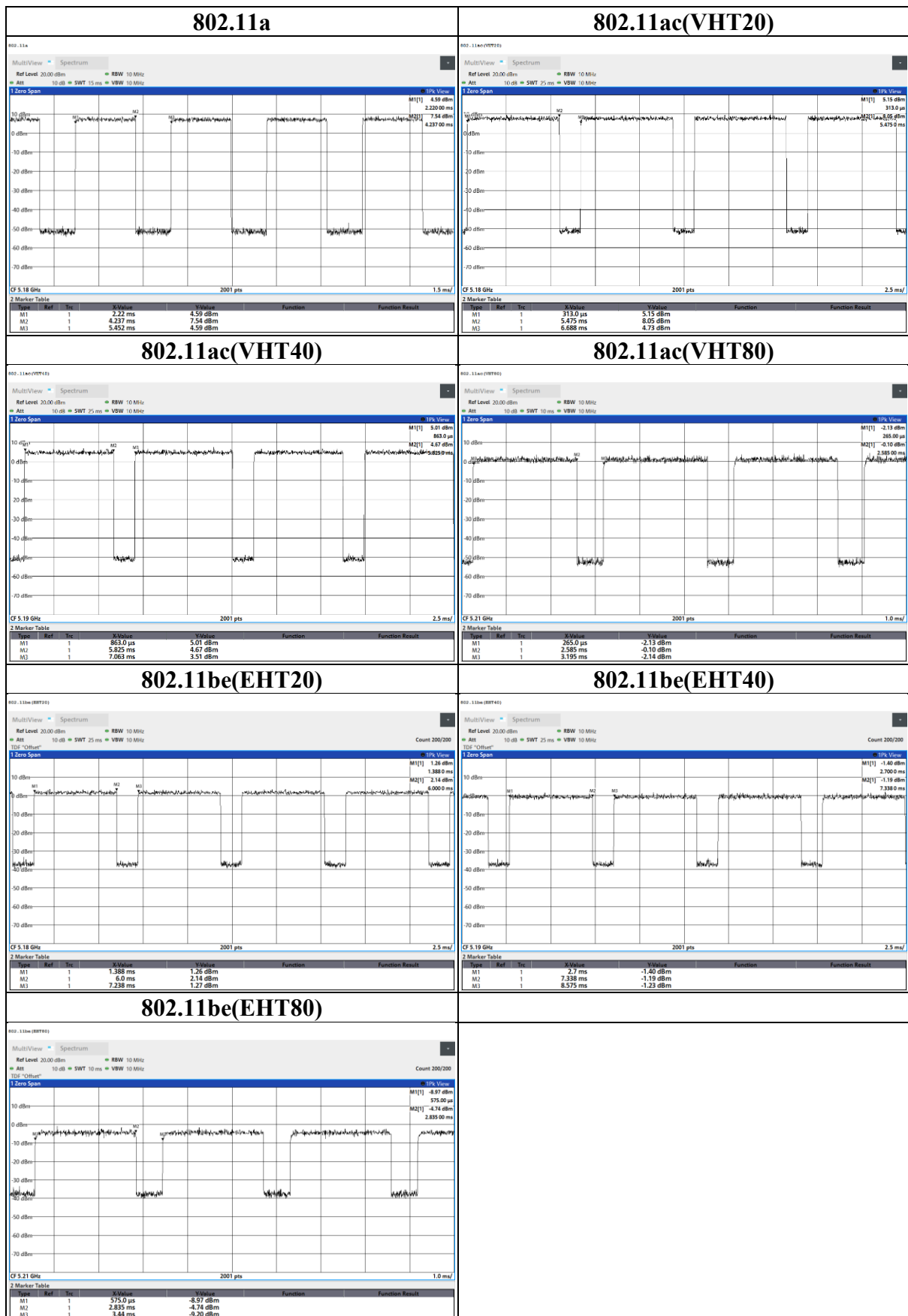
Simultaneously transmission condition:

Condition	Technology	Technology	Technology
1	BT EDR	WLAN (2.4GHz) 1Tx	WLAN (5GHz) 1Tx
2	BT EDR	WLAN (2.4GHz) 1Tx	WLAN (6GHz) 1Tx
3	BT EDR	WLAN (2.4GHz) 2Tx	-
4	BT EDR	WLAN (5GHz) 2Tx	-
5	BT EDR	WLAN (6GHz) 2Tx	-

Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.

6.6. Duty cycle

Mode	On Time (ms)	On+Off Time (ms)	Duty Cycle	Duty Factor (dB)	VBW Set (above 1GHz)
802.11a	2.017	3.232	0.6241	2.05	510Hz
802.11ac(VHT20)	5.162	6.375	0.8097	0.92	200Hz
802.11ac(VHT40)	4.962	6.200	0.8003	0.97	300Hz
802.11ac(VHT80)	2.320	2.930	0.7918	1.01	510Hz
802.11be(EHT20)	4.612	5.850	0.7884	1.03	300Hz
802.11be(EHT40)	4.638	5.875	0.7894	1.03	300Hz
802.11be(EHT80)	2.260	2.865	0.7888	1.03	510Hz
802.11be(EHT20)RU26	1.625	2.830	0.5742	2.41	1kHz
802.11be(EHT20)RU52	1.535	2.740	0.5602	2.52	1kHz
802.11be(EHT20)RU106	1.405	2.620	0.5363	2.71	1kHz
802.11be(EHT20)MRU52+26	1.510	2.725	0.5541	2.56	1kHz
802.11be(EHT20)MRU106+26	1.680	2.885	0.5823	2.35	1kHz
802.11be(EHT80)MRU484+242	1.205	1.820	0.6621	1.79	1kHz
802.11be(EHT80)Puncturing	3.112	3.735	0.8332	0.79	510Hz





7. Test Equipment

Test Equipment List					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Expired date
Radiated Spurious Emission					
Spectrum Analyzer	Keysight	N9010A	MY56070818	2025/3/12	2026/3/11
EMI Test Receiver	Rohde & Schwarz	ESR7	101754	2024/12/24	2025/12/23
Loop Antenna	ETS lindgren	6502	00213440	2024/12/11	2025/12/10
Trilog-Broadband Antenna with 5dB Attenuator	Schwarzbeck & EMCI	VULB 9168 & N-6-05	774 & AT-N0538	2024/12/30	2025/12/29
Horn Antenna (1-18 GHz)	Schwarzbeck	BBHA 9120 D	01690	2024/11/27	2025/11/26
Horn Antenna (18-40 GHz)	Schwarzbeck	BBHA 9170	781	2024/12/18	2025/12/17
Preamplifier (30-1000 MHz)	EMCI	EMC330E	980405	2025/5/12	2026/5/11
Preamplifier (1-18 GHz)	EMCI	EMC051835BE	980406	2025/1/13	2026/1/12
Preamplifier (18-40GHz)	EMCI	EMC184040SEE	980426	2025/4/7	2026/4/6
Cables (9k-18 GHz)	Hanyitek	K1K50-UP0264-K1K50-2500	170214-4 & 170425-2	2024/11/22	2025/11/21
Cables (18-40GHz)	Hanyitek	K1K50-UP0264-K1K50-2500	170214-1 & 170214-2	2024/11/22	2025/11/21

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Test Equipment List					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Expired date
Antenna Port Conducted Measurement					
Signal Analyzer	Rohde & Schwarz	FSVA3044	101281	2025/3/5	2026/3/4
Signal Analyzer	Rohde & Schwarz	FSV40	101490	2025/6/17	2026/6/16
Attenuator	EMCI	EMC-40ATK2W10	17002	2024/11/13	2025/11/12
				2025/10/28	2026/10/27
USB Power Sensor	Anritsu	MA24408A	12031	2025/6/24	2026/6/23
Temperature & Humidity Test Chamber	GIANT FORCE	GTH-150- 40-CP-AR	MAA1701-010	2025/2/25	2026/2/24
AC power Line Conducted Emission					
EMI Test Receiver	Rohde & Schwarz	ESR7	101753	2025/9/18	2026/9/17
Two-Line V-Network	Rohde & Schwarz	ENV216	102136	2025/5/27	2026/5/26
Impuls-Begrenzer Pulse Limiter	Rohde & Schwarz	ESH3-Z2	102219-Qt	2025/8/27	2026/8/26
Cables	TITAN	CFD200	T0732ACFD 20020A300-2	2025/4/21	2026/4/20

UL Software		
Description	Name	Version
Radiated measurement	e3	6.191211 (V6)
Conducted measurement	RF-Conducted-FCC 15407	ver 1.1
AC power Line Conducted Emission	EZ_EMG	UL-3A1.2

8. Description of Test Setup

Tx Mode

Support Equipment

ID	Equipment	Brand Name	Model Name	S/N	Remark
A	Laptop	MSI	MS-13Q2	K2402N0015485	Provide by Lab
B	Test Tool	N/A	N/A	N/A	Supplied by Client

I/O Cables

ID	Equipment	Brand Name	Model Name	Length (m)	Remark
1	Flexible Cable	N/A	N/A	0.95	Supplied by Client

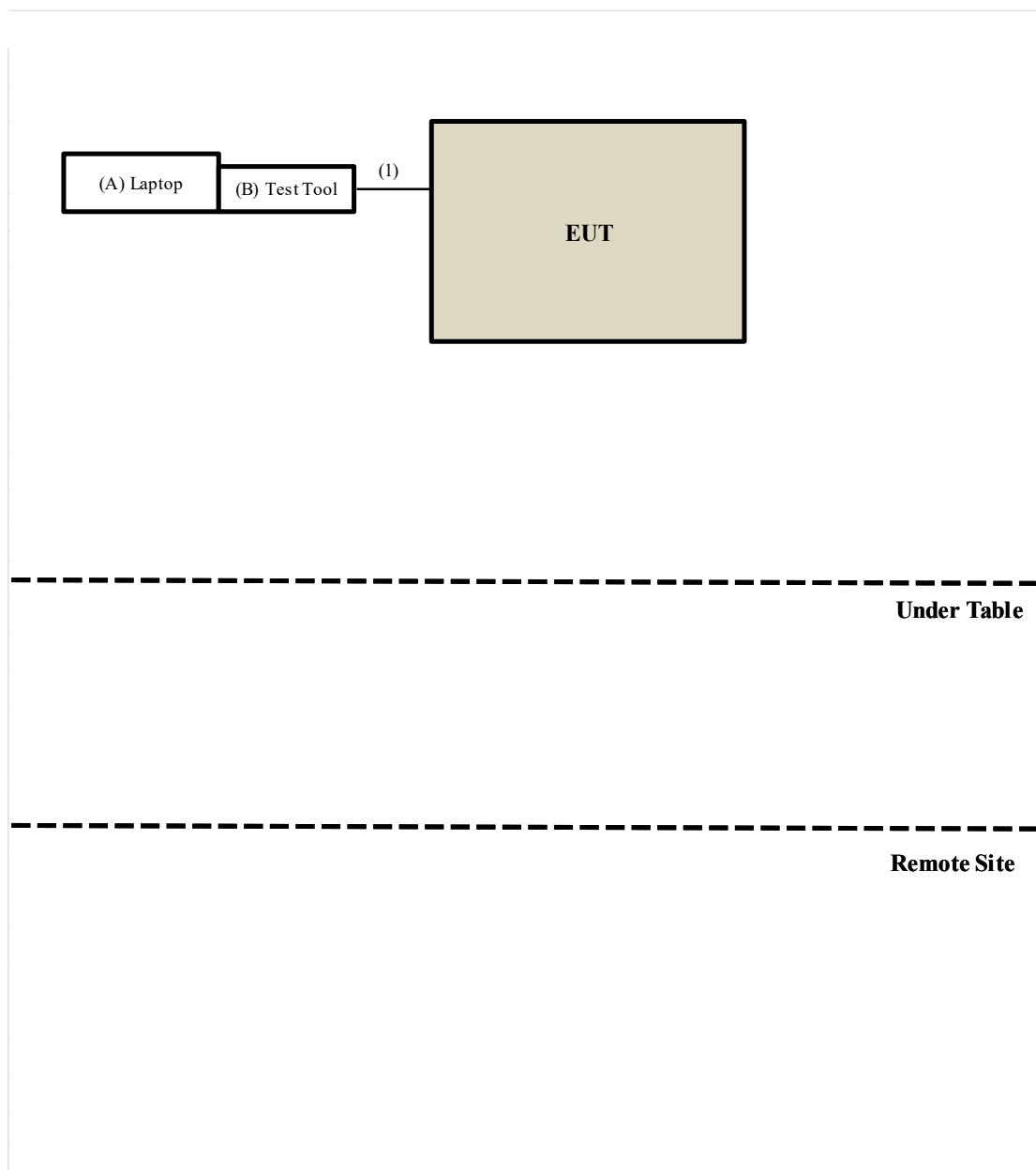
Test Setup

The EUT was worked in engineering mode to transmit signal.

Controlled using a bespoke application (MT7925 QA 0.0.2.104) on a test Notebook. The application was used to enable a continuous transmission mode and to select the test channels, data rates, modulation schemes and power setting as required.

Setup Diagram for Test

Tx Mode



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9. Test Results

9.1. 6dB Bandwidth

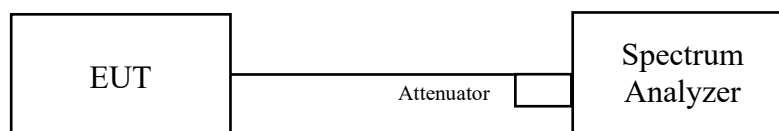
Requirements

The minimum 6 dB bandwidth shall be at least 500 kHz.

Test procedure

- Set resolution bandwidth (RBW) = 1 Range of 1% to 5% of the OBW but not less than 100 kHz.
* Since using 100kHz yields the smallest bandwidth, 100kHz was selected for this evaluation.
- Set the video bandwidth (VBW) $\geq 3 \times$ 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.
- The plot of the test result only shows the worst case of channels as a representative.

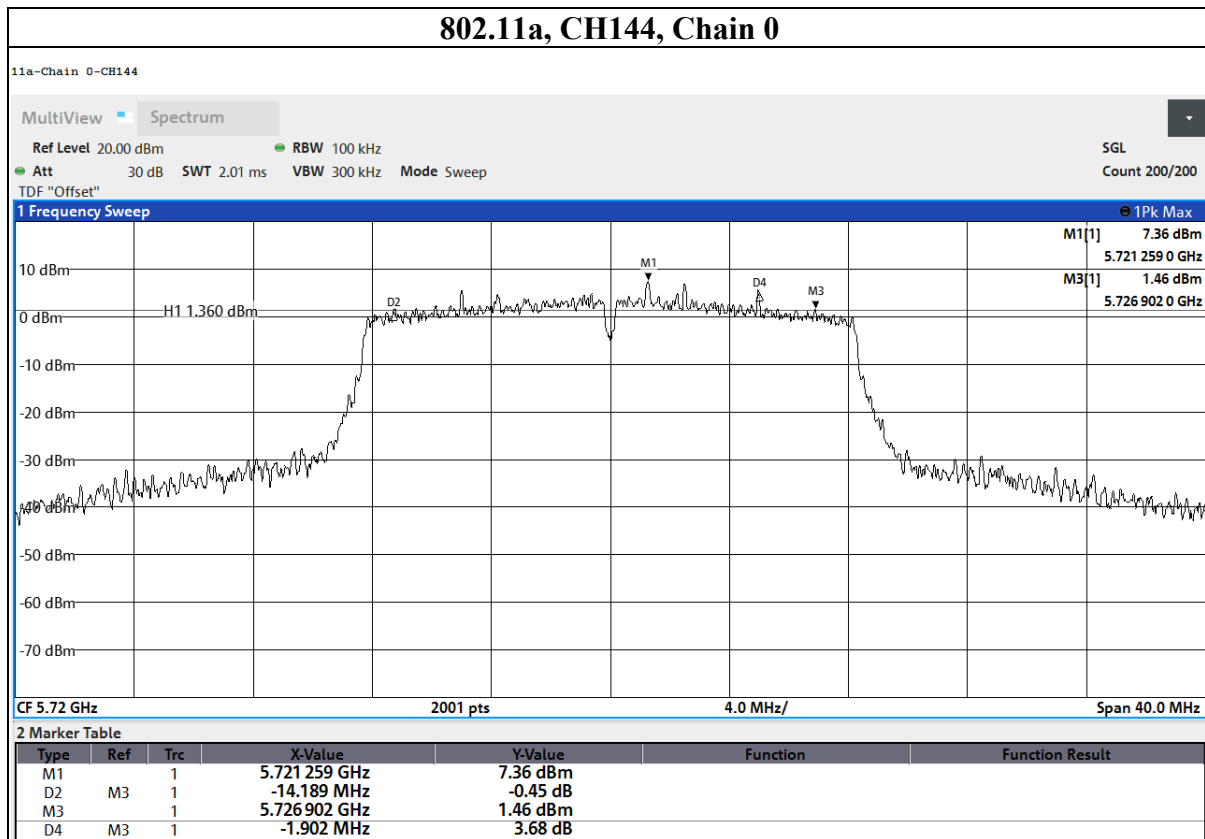
Test Setup



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

Test Data

Mode	CH	Freq (MHz)	6dB BW (MHz)	Limit (MHz)	Result
			Chain 0		
802.11a	144 (U-NII-2C)	5720	12.287	0.5	PASS
	144 (U-NII-2C+U-NII-3)	5720	14.189	0.5	PASS
	144 (U-NII-3)	5720	1.902	0.5	PASS
	149	5745	15.012	0.5	PASS
	157	5785	14.472	0.5	PASS
	165	5825	14.42	0.5	PASS



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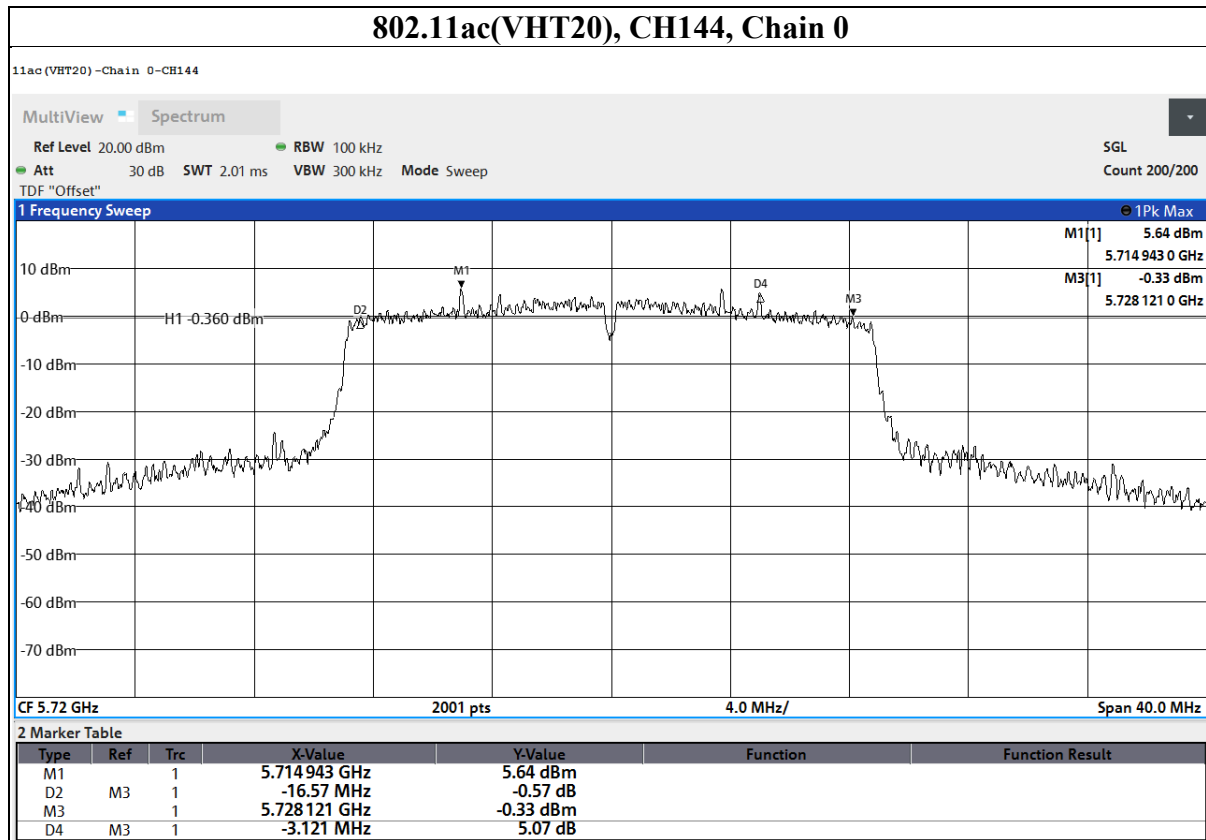
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Telephone : +886-2-7737-3000

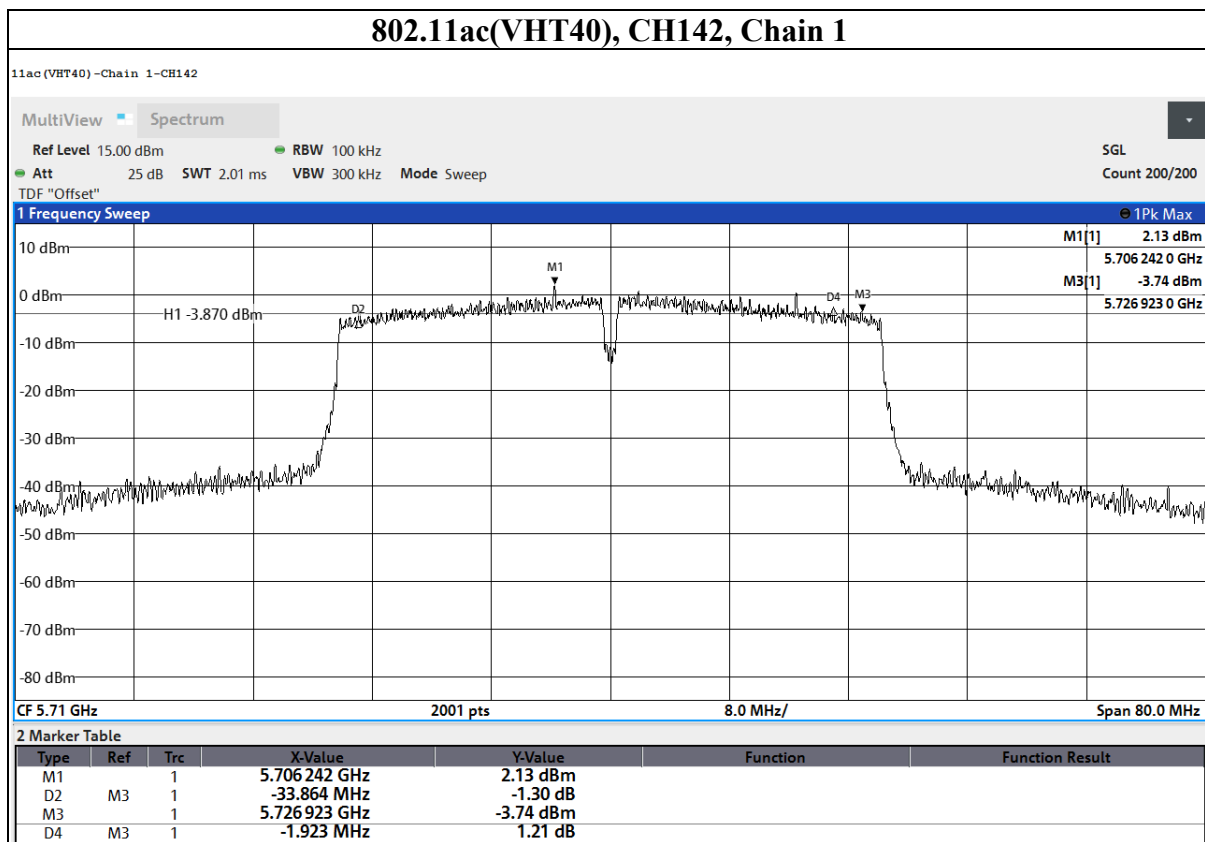
Facsimile (FAX) : +886-3-583-7948

Doc No: Form-ULID-004739 (DCS:17-EM-F0878) / 6.1

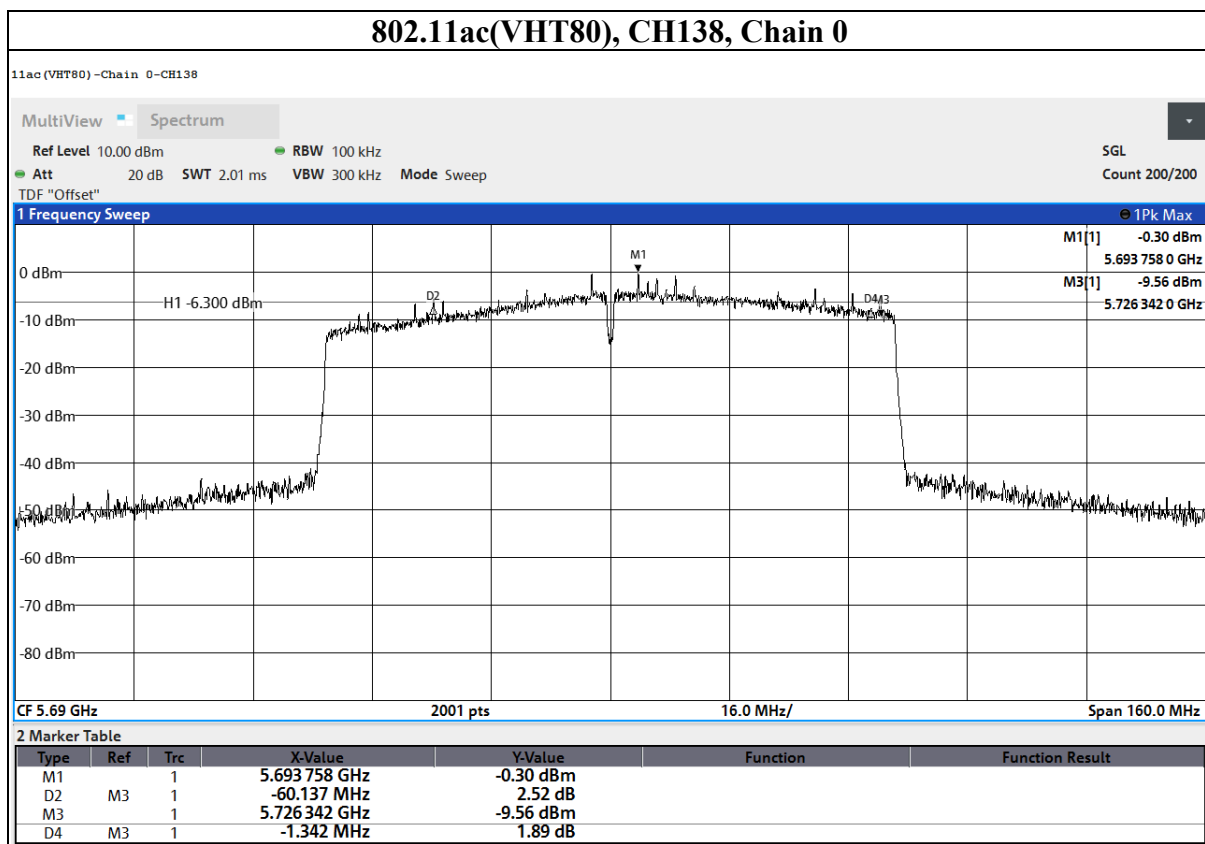
Mode	CH	Freq (MHz)	6dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11ac(VHT20)	144 (U-NII-2C)	5720	13.449	12.785	0.5	PASS
	144 (U-NII-2C+U-NII-3)	5720	16.57	15.907	0.5	PASS
	144 (U-NII-3)	5720	3.121	3.122	0.5	PASS
	149	5745	12.237	16.817	0.5	PASS
	157	5785	16.051	16.922	0.5	PASS
	165	5825	16.819	17.568	0.5	PASS



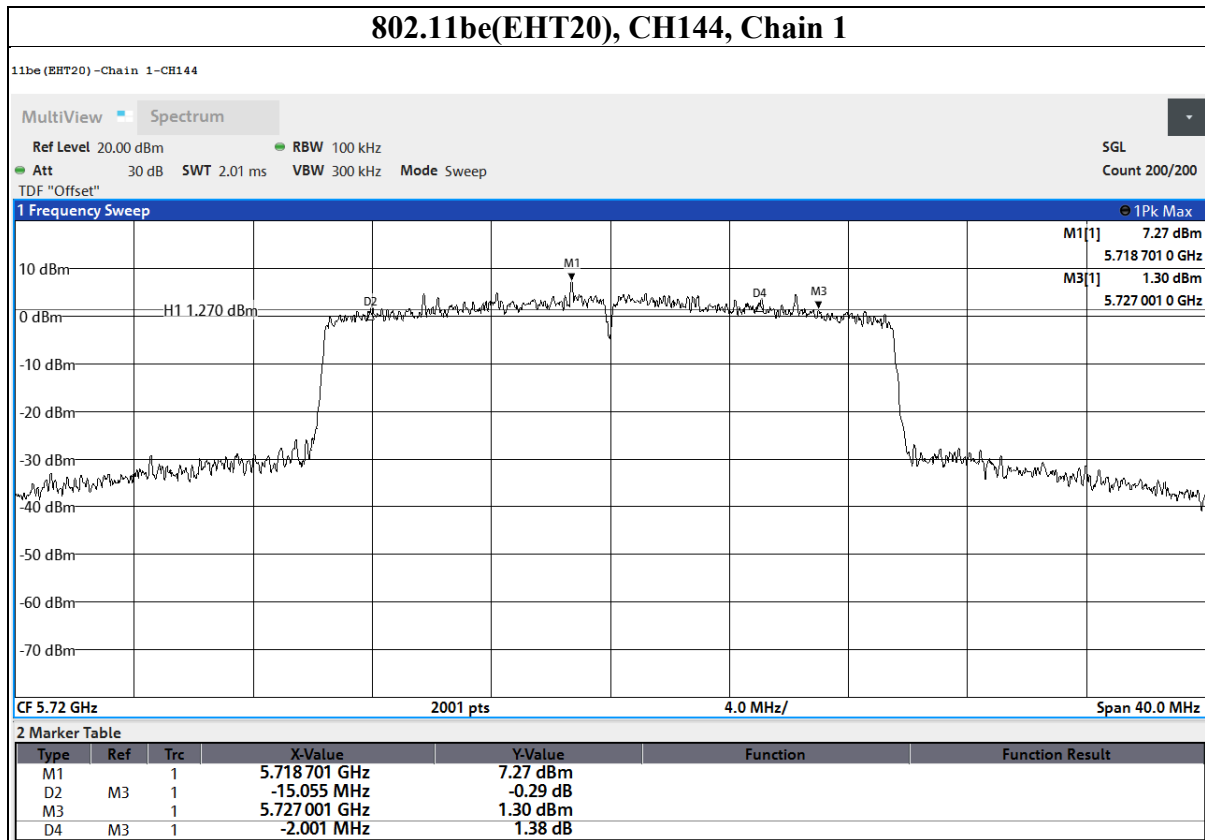
Mode	CH	Freq (MHz)	6dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11ac(VHT40)	142 (U-NII-2C)	5710	27.283	31.941	0.5	PASS
	142 (U-NII-2C+U-NII-3)	5710	29.766	33.864	0.5	PASS
	142 (U-NII-3)	5710	2.483	1.923	0.5	PASS
	151	5755	35.7	34.45	0.5	PASS
	159	5795	27.813	35.355	0.5	PASS



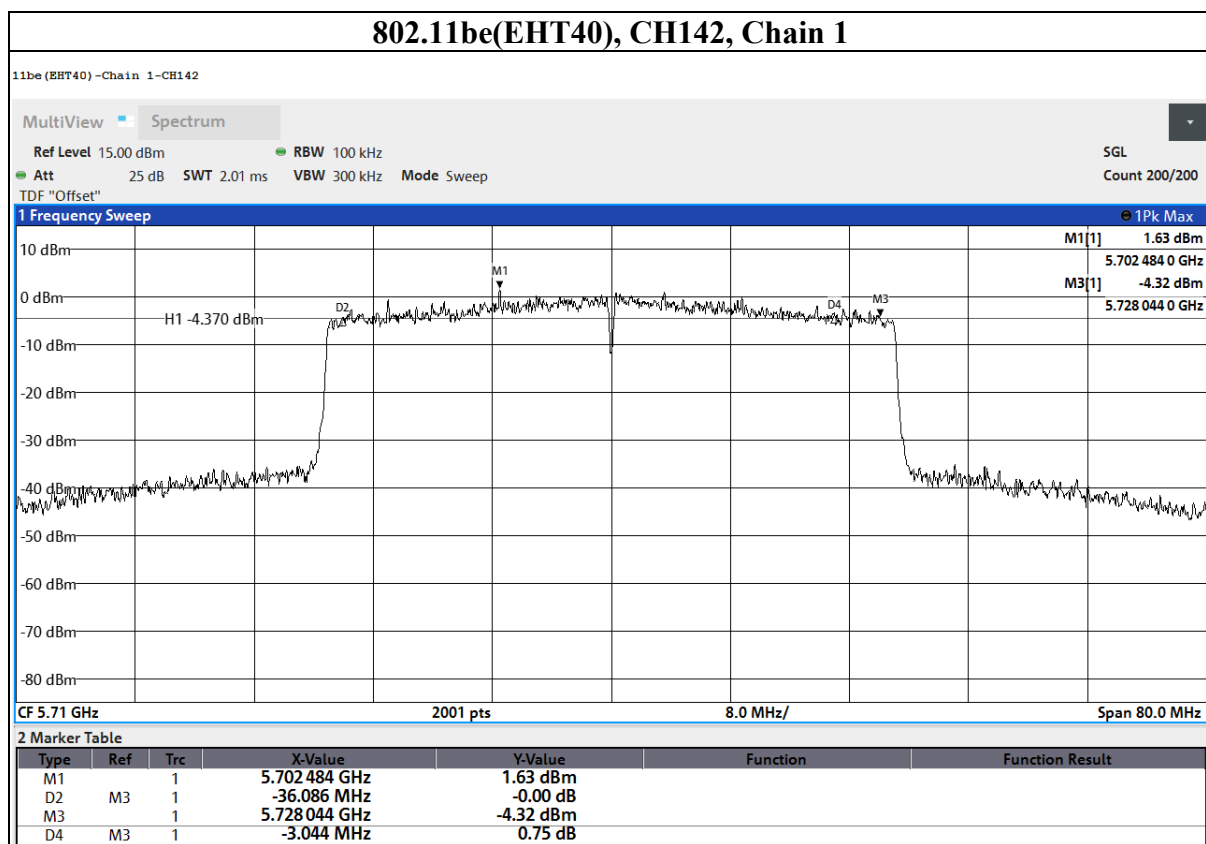
Mode	CH	Freq (MHz)	6dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11ac(VHT80)	138 (U-NII-2C)	5690	58.795	72.572	0.5	PASS
	138 (U-NII-2C+U-NII-3)	5690	60.137	68.218	0.5	PASS
	138 (U-NII-3)	5690	1.342	4.354	0.5	PASS
	155	5775	76.347	72.682	0.5	PASS



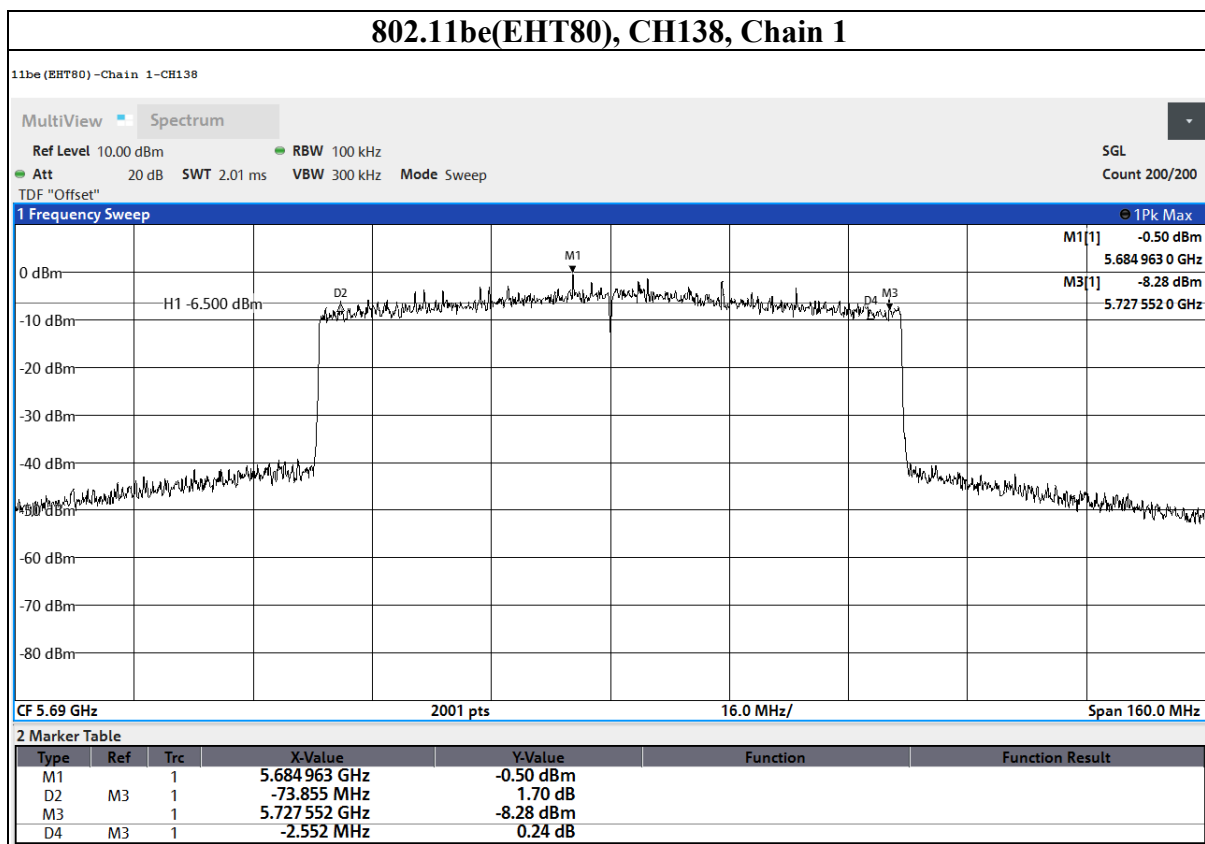
Mode	CH	Freq (MHz)	6dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT20)	144 (U-NII-2C)	5720	13.1	13.054	0.5	PASS
	144 (U-NII-2C+U-NII-3)	5720	15.631	15.055	0.5	PASS
	144 (U-NII-3)	5720	2.531	2.001	0.5	PASS
	149	5745	17.023	18.313	0.5	PASS
	157	5785	16.818	18.211	0.5	PASS
	165	5825	17.187	15.222	0.5	PASS



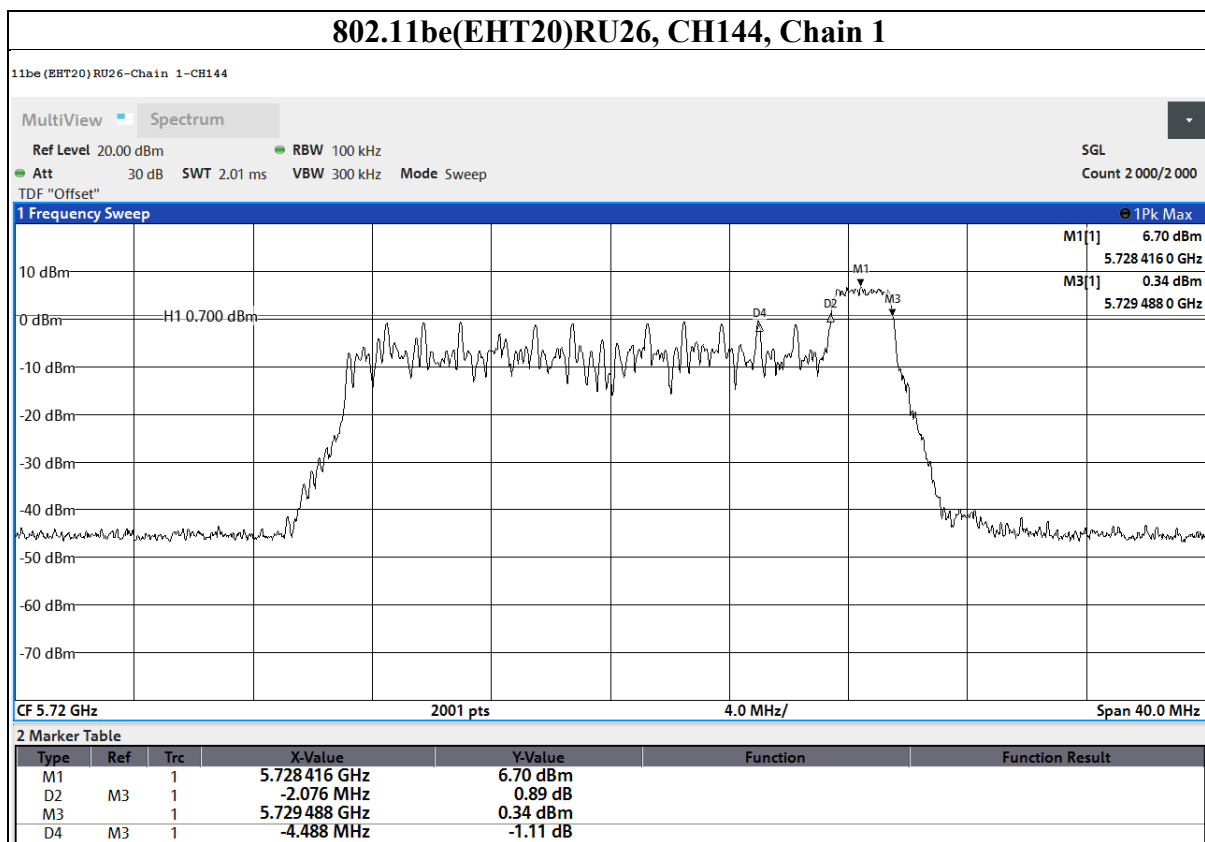
Mode	CH	Freq (MHz)	6dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT40)	142 (U-NII-2C)	5710	33.483	33.042	0.5	PASS
	142 (U-NII-2C+U-NII-3)	5710	36.771	36.086	0.5	PASS
	142 (U-NII-3)	5710	3.288	3.044	0.5	PASS
	151	5755	35.627	37.587	0.5	PASS
	159	5795	34.708	32.909	0.5	PASS



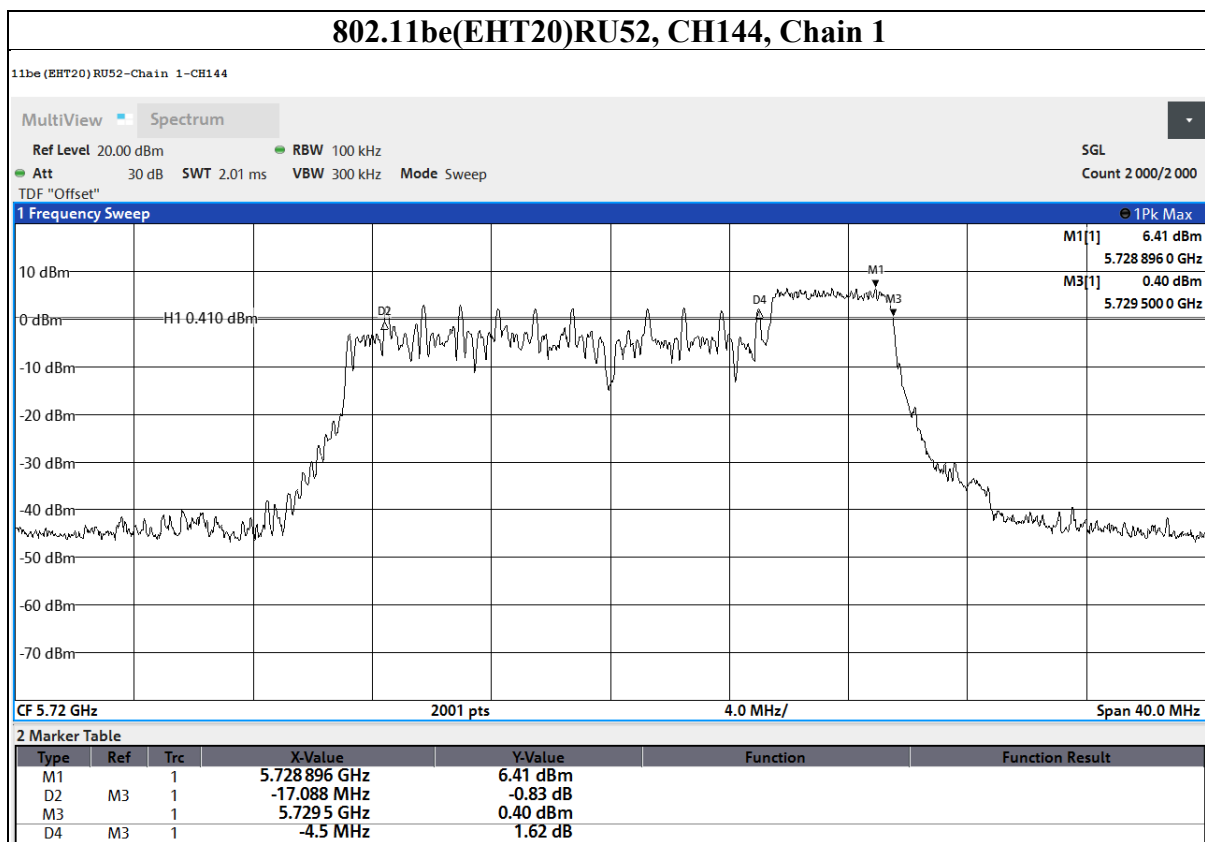
Mode	CH	Freq (MHz)	6dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT80)	138 (U-NII-2C)	5690	60.065	71.303	0.5	PASS
	138 (U-NII-2C+U-NII-3)	5690	62.662	73.855	0.5	PASS
	138 (U-NII-3)	5690	2.597	2.552	0.5	PASS
	155	5775	78.032	75.15	0.5	PASS



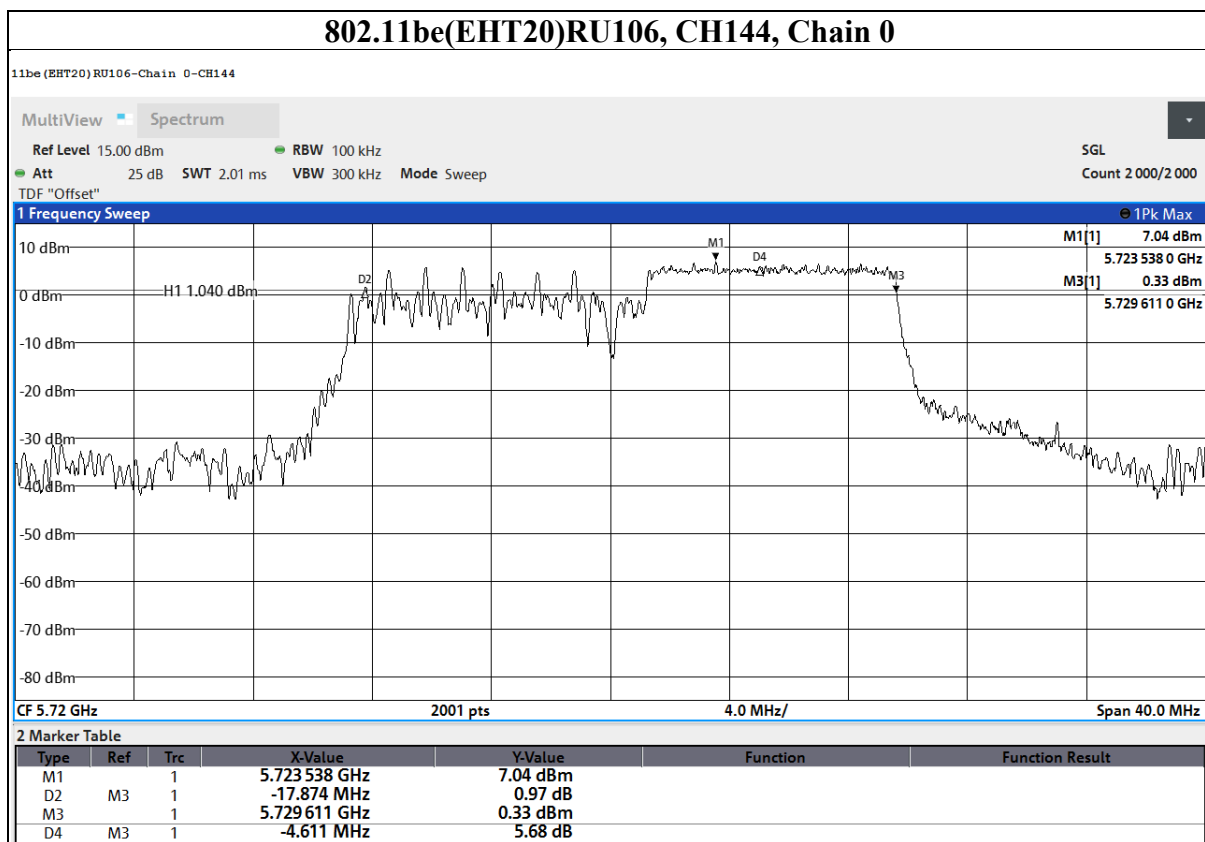
Mode	CH	Freq (MHz)	6dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT20) RU26	144 (U-NII-2C)	5720	-	-	-	-
	144 (U-NII-2C+U-NII-3)	5720	-	-	-	-
	144 (U-NII-3)	5720	2.099	2.076	0.5	PASS
	149	5745	2.08	2.108	0.5	PASS
	157	5785	2.1	2.111	0.5	PASS
	165	5825	2.099	2.085	0.5	PASS



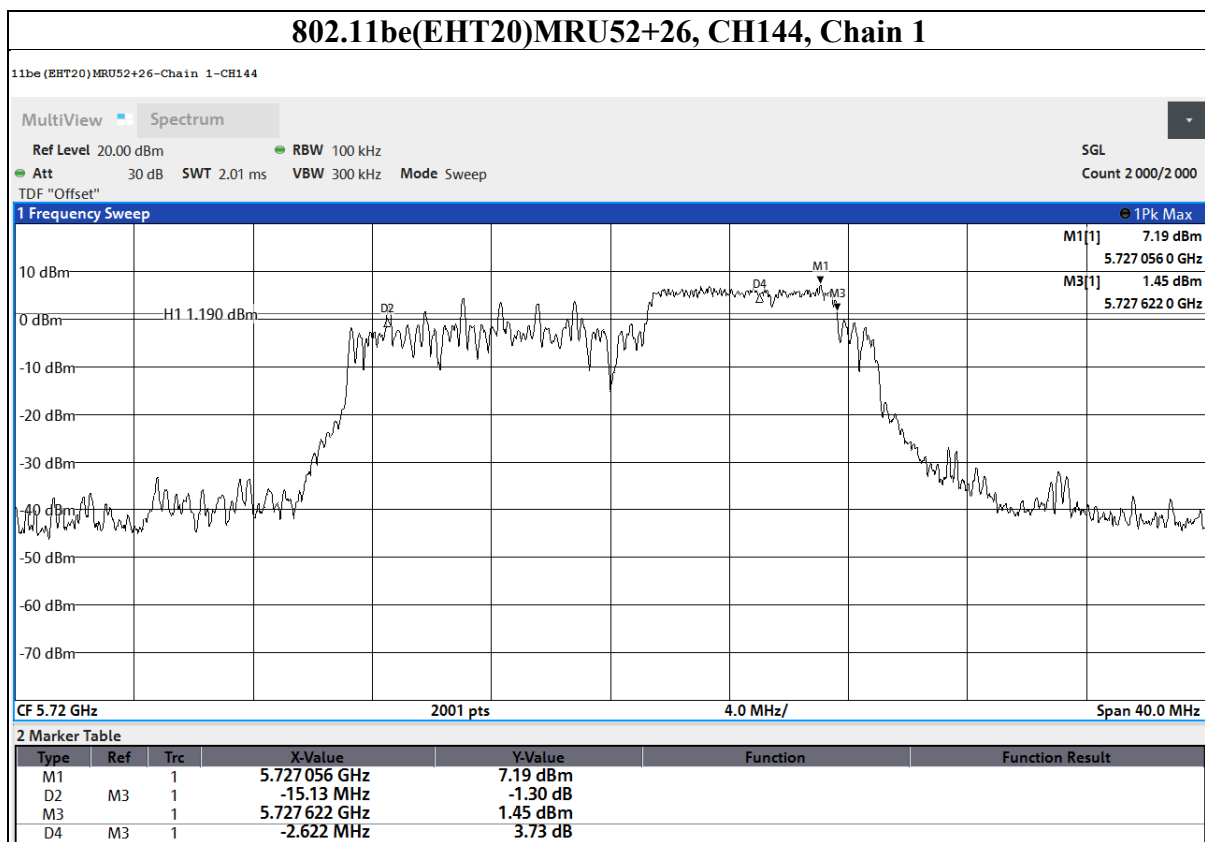
Mode	CH	Freq (MHz)	6dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT20) RU52	144 (U-NII-2C)	5720	12.564	12.588	0.5	PASS
	144 (U-NII-2C+U-NII-3)	5720	17.072	17.088	0.5	PASS
	144 (U-NII-3)	5720	4.508	4.5	0.5	PASS
	149	5745	17.05	17.057	0.5	PASS
	157	5785	17.114	17.075	0.5	PASS
	165	5825	17.014	17.039	0.5	PASS



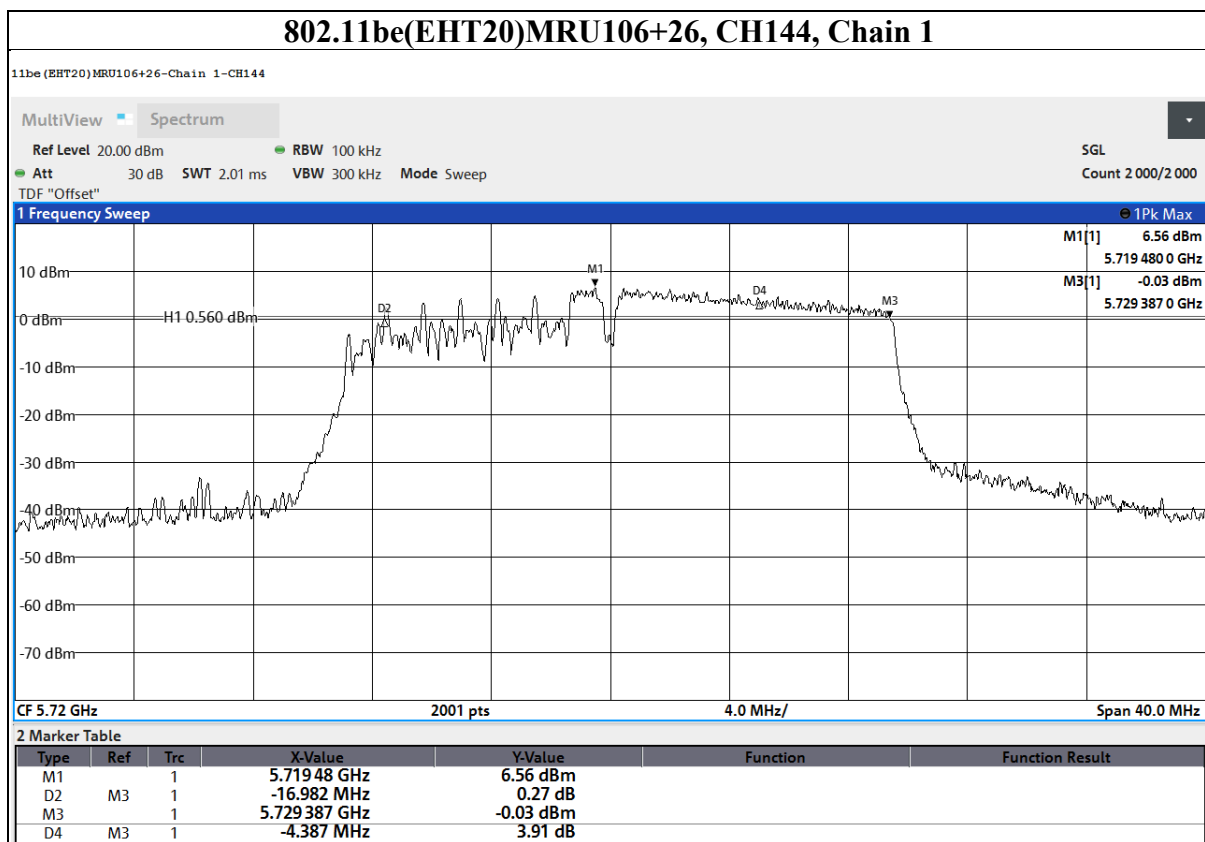
Mode	CH	Freq (MHz)	6dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT20)RU106	144 (U-NII-2C)	5720	13.263	12.722	0.5	PASS
	144 (U-NII-2C+U-NII-3)	5720	17.874	17.349	0.5	PASS
	144 (U-NII-3)	5720	4.611	4.627	0.5	PASS
	149	5745	17.13	17.14	0.5	PASS
	157	5785	17.133	17.148	0.5	PASS
	165	5825	17.874	17.142	0.5	PASS



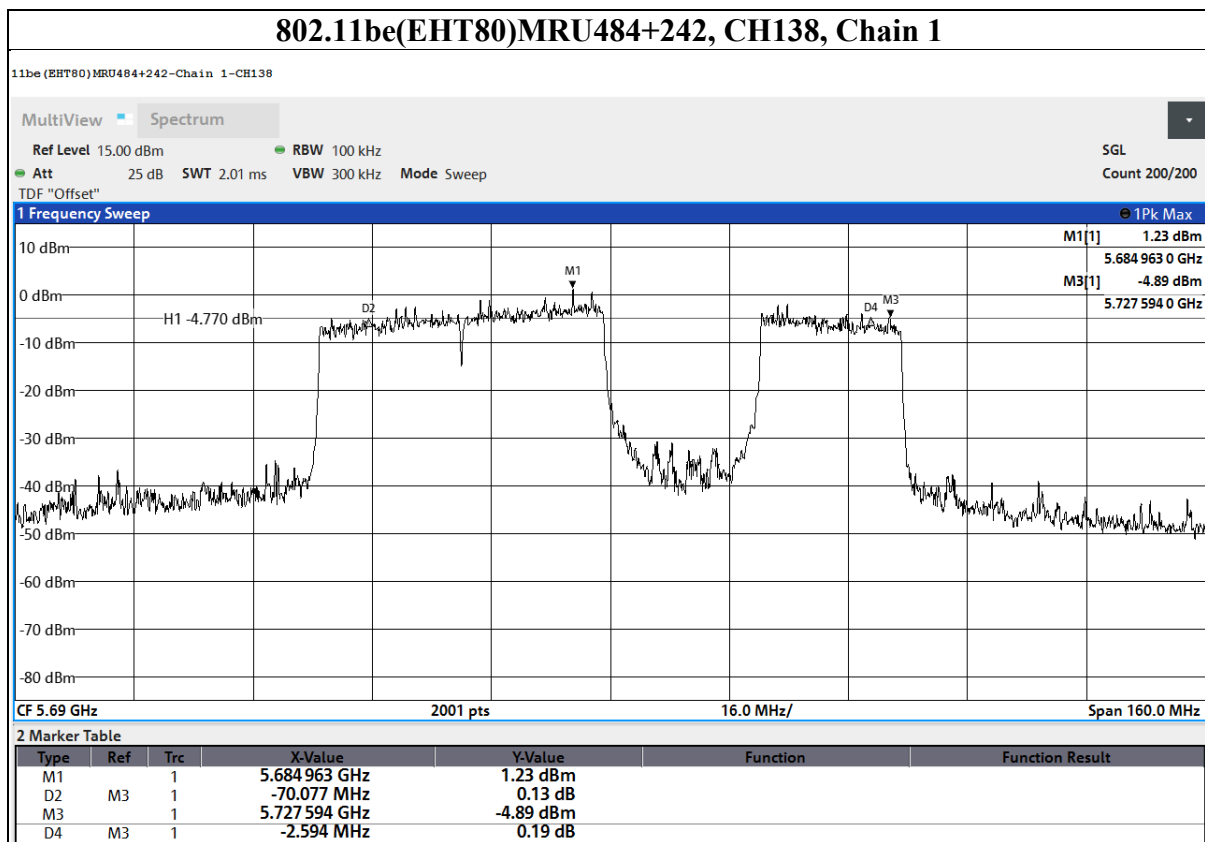
Mode	CH	Freq (MHz)	6dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT20) MRU52+26	144 (U-NII-2C)	5720	12.518	12.508	0.5	PASS
	144 (U-NII-2C+U-NII-3)	5720	15.145	15.13	0.5	PASS
	144 (U-NII-3)	5720	2.627	2.622	0.5	PASS
	149	5745	15.129	15.121	0.5	PASS
	157	5785	15.128	15.072	0.5	PASS
	165	5825	15.114	15.104	0.5	PASS



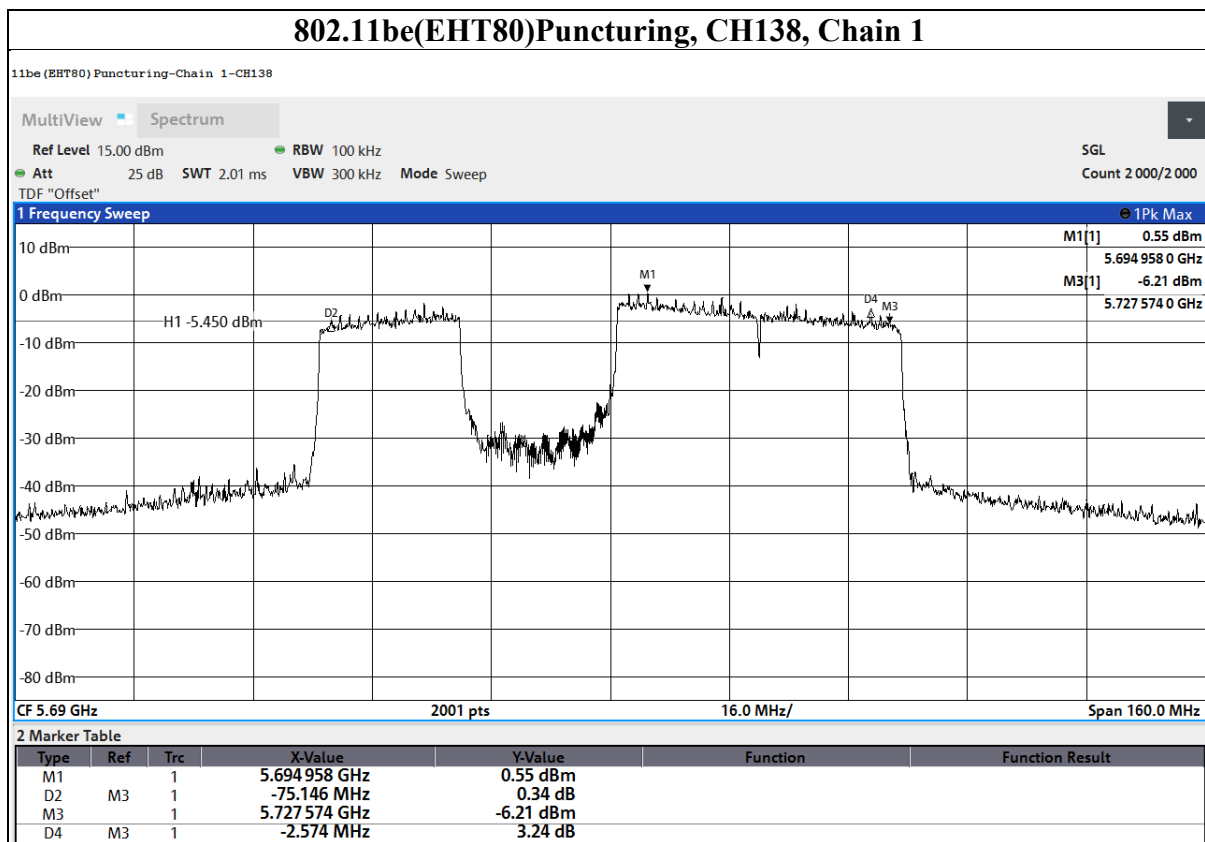
Mode	CH	Freq (MHz)	6dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT20) MRU106+26	144 (U-NII-2C)	5720	12.602	12.595	0.5	PASS
	144 (U-NII-2C+U-NII-3)	5720	17.003	16.982	0.5	PASS
	144 (U-NII-3)	5720	4.401	4.387	0.5	PASS
	149	5745	17.104	16.989	0.5	PASS
	157	5785	16.896	16.971	0.5	PASS
	165	5825	16.832	16.967	0.5	PASS



Mode	CH	Freq (MHz)	6dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT80) MRU484+242	138 (U-NII-2C)	5690	72.301	67.483	0.5	PASS
	138 (U-NII-2C+U-NII-3)	5690	74.95	70.077	0.5	PASS
	138 (U-NII-3)	5690	2.649	2.594	0.5	PASS
	155	5775	73.891	76.148	0.5	PASS



Mode	CH	Freq (MHz)	6dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT80) Puncturing	138 (U-NII-2C)	5690	59.974	72.572	0.5	PASS
	138 (U-NII-2C+U-NII-3)	5690	62.643	75.146	0.5	PASS
	138 (U-NII-3)	5690	2.669	2.574	0.5	PASS
	155	5775	78.035	76.918	0.5	PASS

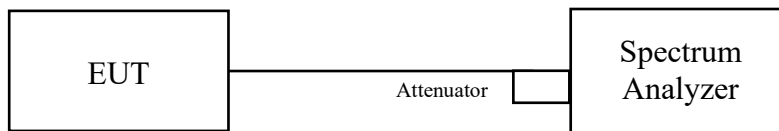


9.2. 26dB Bandwidth

Test procedure

- Set RBW = approximately 1% of the emission bandwidth.
- Set the VBW > RBW.
- Detector = Peak.
- Trace mode = max hold.
- 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%.
- The plot of the test result only shows the worst case of channels as a representative.

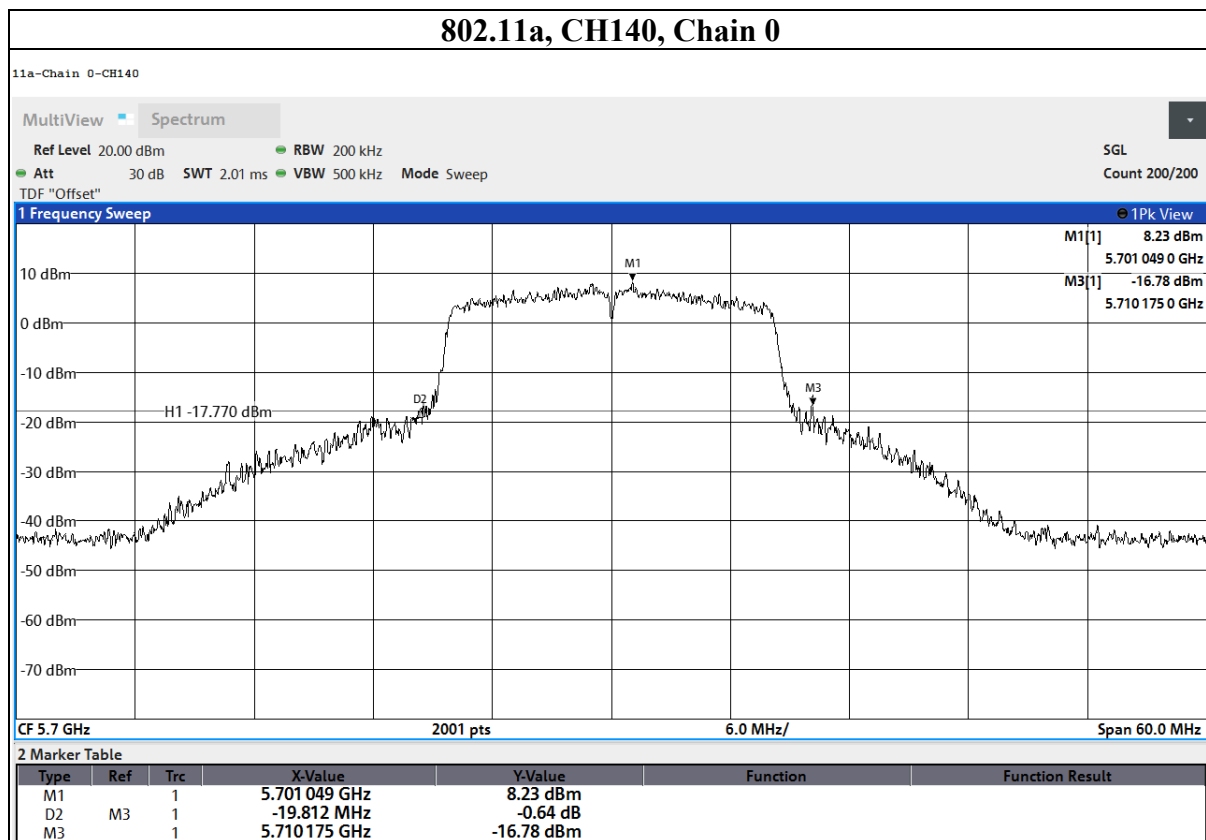
Test Setup



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

Test Data

Mode	CH	Freq (MHz)	26dB BW (MHz)	Limit (MHz)	Result
			Chain 0		
802.11a	36	5180	19.807	N/A	PASS
	44	5220	17.97	N/A	PASS
	48	5240	18.082	N/A	PASS
	52	5260	18.138	N/A	PASS
	60	5300	19.333	N/A	PASS
	64	5320	19.332	N/A	PASS
	100	5500	19.775	N/A	PASS
	116	5580	18.112	N/A	PASS
	140	5700	19.812	N/A	PASS
	144 (U-NII-2C)	5720	13.93	N/A	PASS
	144 (U-NII-2C+U-NII-3)	5720	17.93	N/A	PASS
	144 (U-NII-3)	5720	4	N/A	PASS



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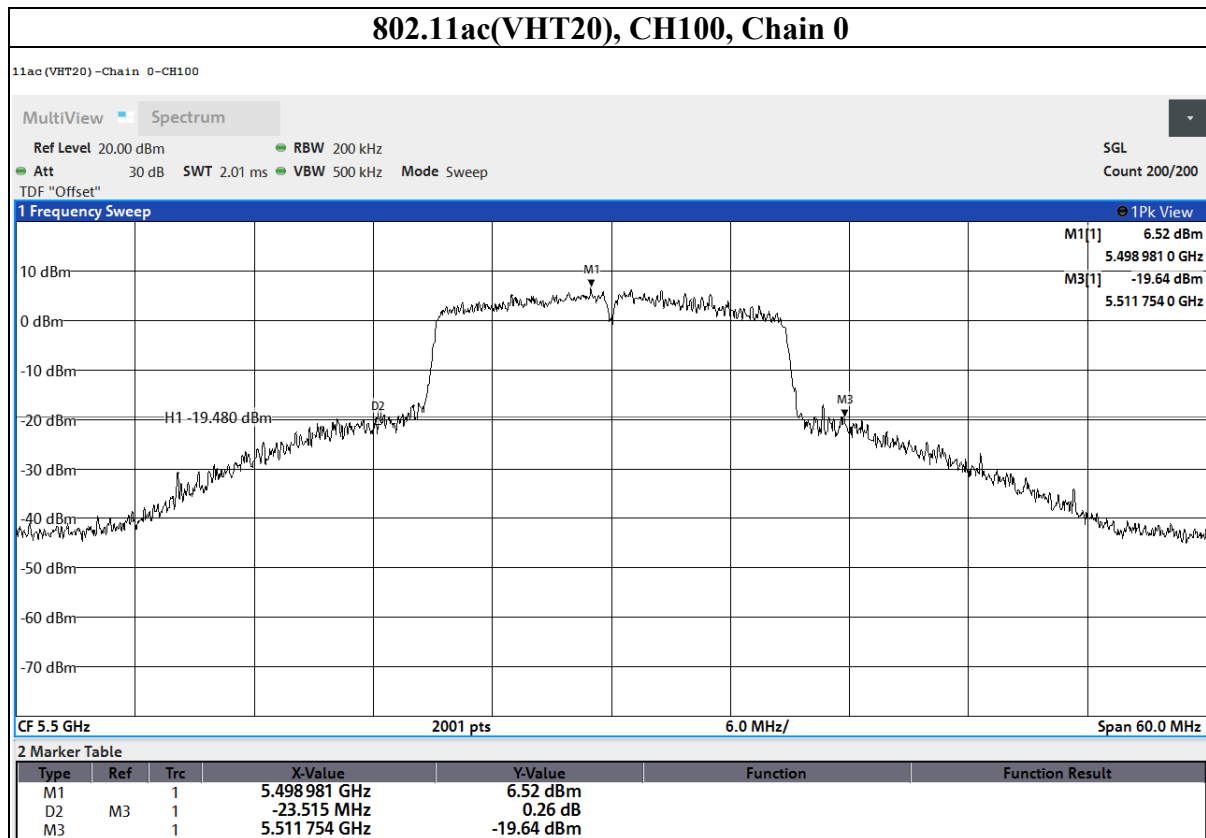
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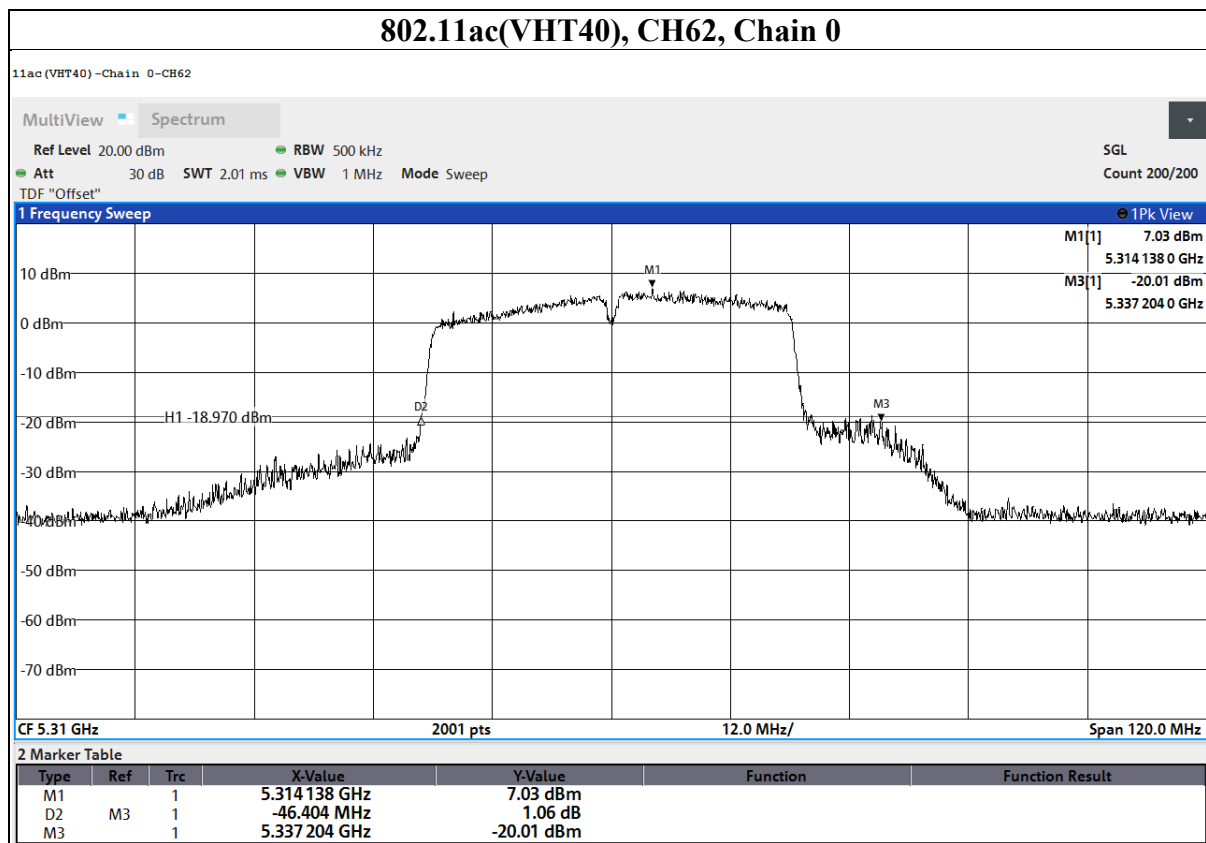
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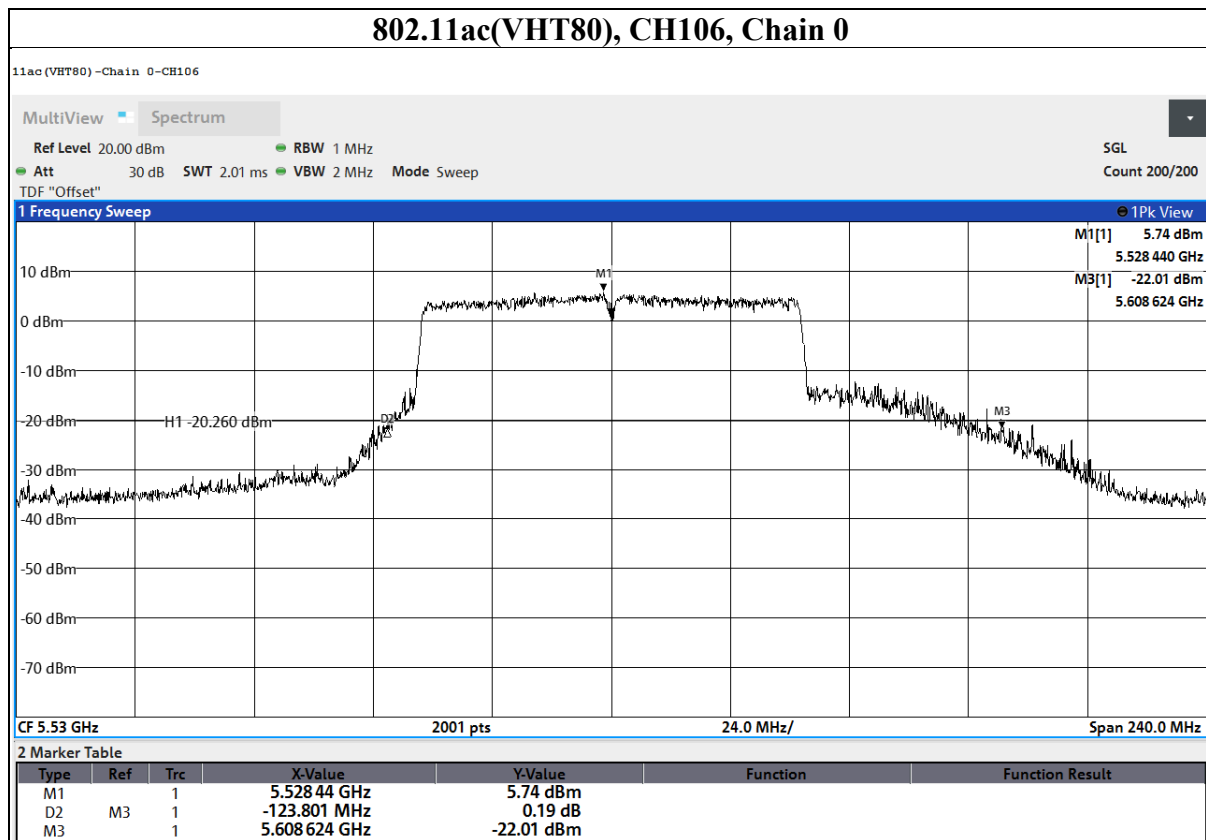
Mode	CH	Freq (MHz)	26dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11ac(VHT20)	36	5180	19.73	19.832	N/A	PASS
	44	5220	18.729	18.827	N/A	PASS
	48	5240	18.721	18.818	N/A	PASS
	52	5260	22.057	18.875	N/A	PASS
	60	5300	18.761	21.74	N/A	PASS
	64	5320	19.778	20.131	N/A	PASS
	100	5500	23.515	19.144	N/A	PASS
	116	5580	18.706	18.795	N/A	PASS
	140	5700	18.916	19.569	N/A	PASS
	144 (U-NII-2C)	5720	14.422	14.344	N/A	PASS
	144 (U-NII-2C+U-NII-3)	5720	18.752	18.682	N/A	PASS
	144 (U-NII-3)	5720	4.33	4.338	N/A	PASS



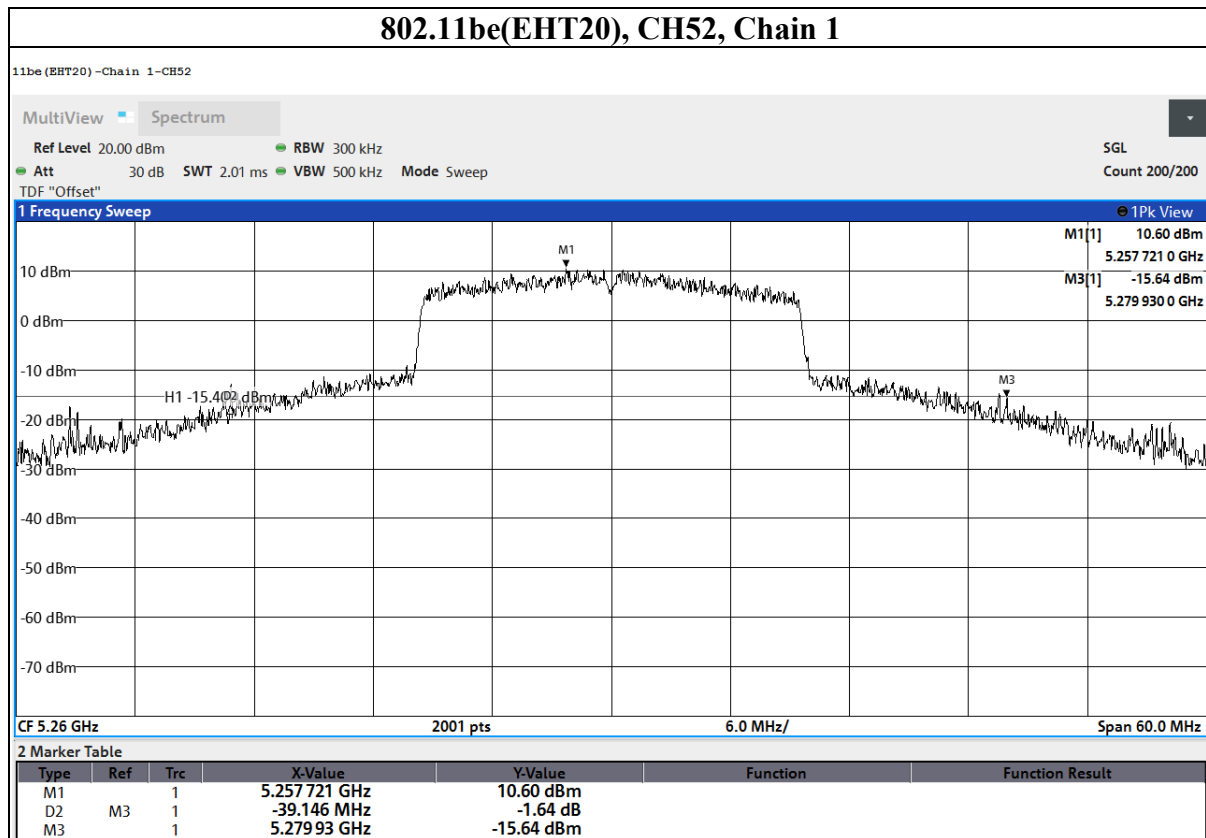
Mode	CH	Freq (MHz)	26dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11ac(VHT40)	38	5190	42.968	38.355	N/A	PASS
	46	5230	38.506	38.299	N/A	PASS
	54	5270	41.901	38.106	N/A	PASS
	62	5310	46.404	39.636	N/A	PASS
	102	5510	45.851	38.617	N/A	PASS
	110	5550	38.499	38.303	N/A	PASS
	134	5670	38.473	38.245	N/A	PASS
	142 (U-NII-2C)	5710	34.244	34.125	N/A	PASS
	142 (U-NII-2C+U-NII-3)	5710	38.52	38.29	N/A	PASS
	142 (U-NII-3)	5710	4.276	4.165	N/A	PASS



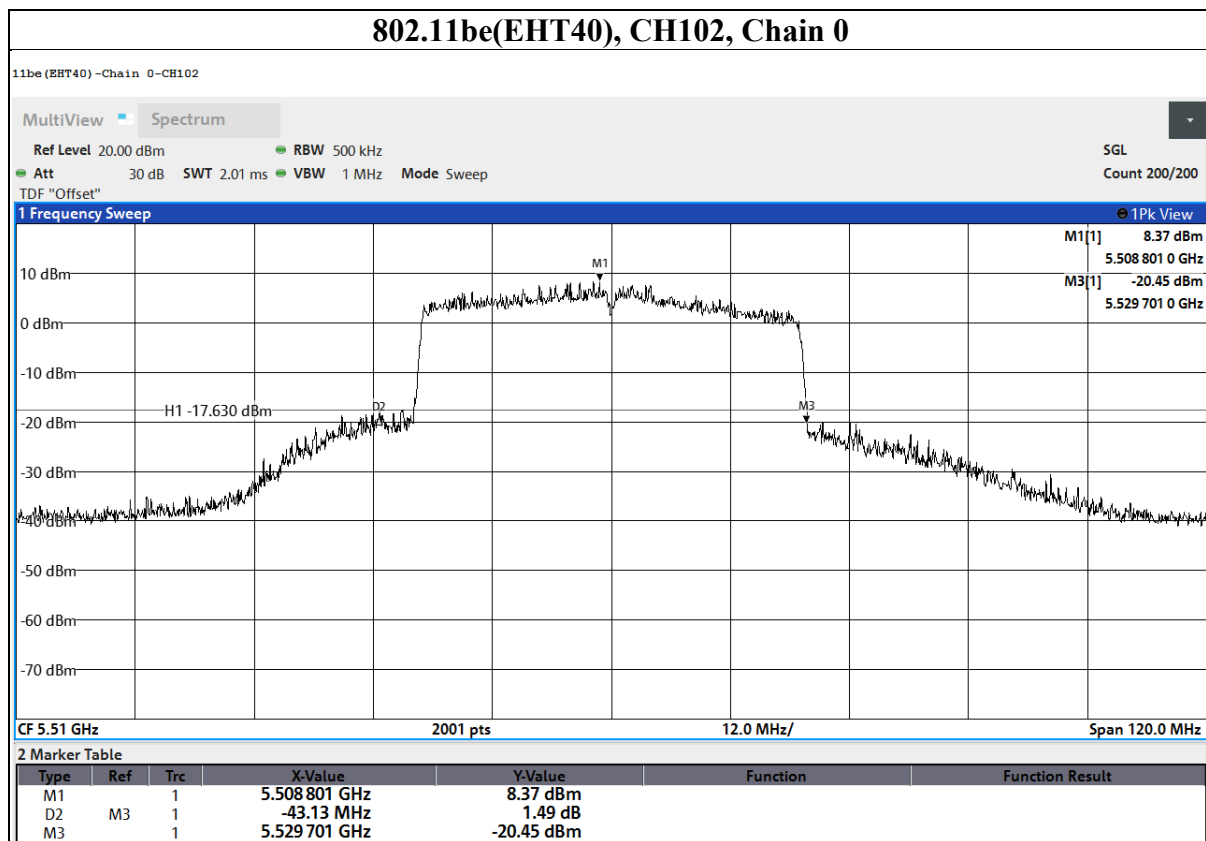
Mode	CH	Freq (MHz)	26dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11ac(VHT80)	42	5210	92.807	90.762	N/A	PASS
	58	5290	123.228	110.586	N/A	PASS
	106	5530	123.801	107.688	N/A	PASS
	122	5610	78.995	79.023	N/A	PASS
	138 (U-NII-2C)	5690	74.187	74.522	N/A	PASS
	138 (U-NII-2C+U-NII-3)	5690	78.69	79.086	N/A	PASS
	138 (U-NII-3)	5690	4.503	4.564	N/A	PASS



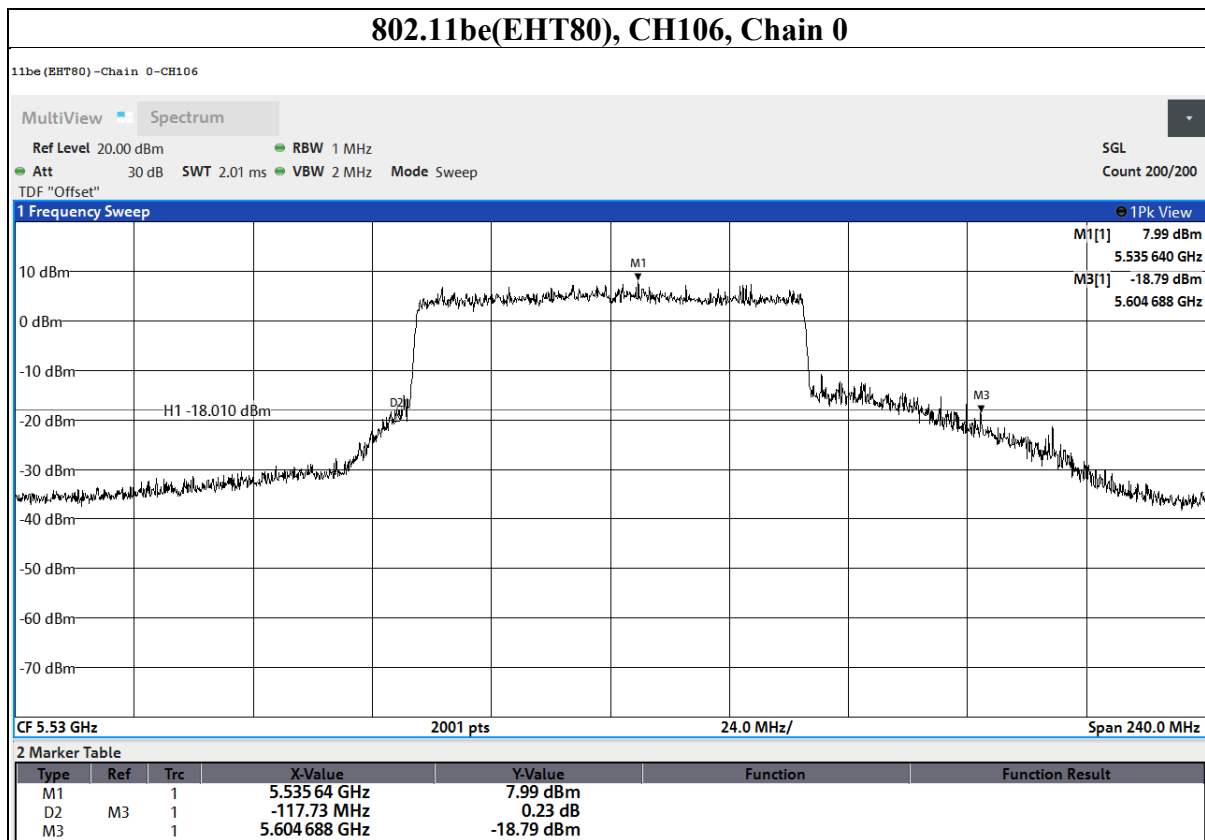
Mode	CH	Freq (MHz)	26dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT20)	36	5180	23.242	21.185	N/A	PASS
	44	5220	19.751	19.737	N/A	PASS
	48	5240	19.777	19.773	N/A	PASS
	52	5260	19.832	39.146	N/A	PASS
	60	5300	19.833	19.837	N/A	PASS
	64	5320	19.78	19.784	N/A	PASS
	100	5500	21.394	19.776	N/A	PASS
	116	5580	19.803	19.737	N/A	PASS
	140	5700	21.03	19.891	N/A	PASS
	144 (U-NII-2C)	5720	14.945	14.864	N/A	PASS
	144 (U-NII-2C+U-NII-3)	5720	19.805	19.716	N/A	PASS
	144 (U-NII-3)	5720	4.86	4.852	N/A	PASS



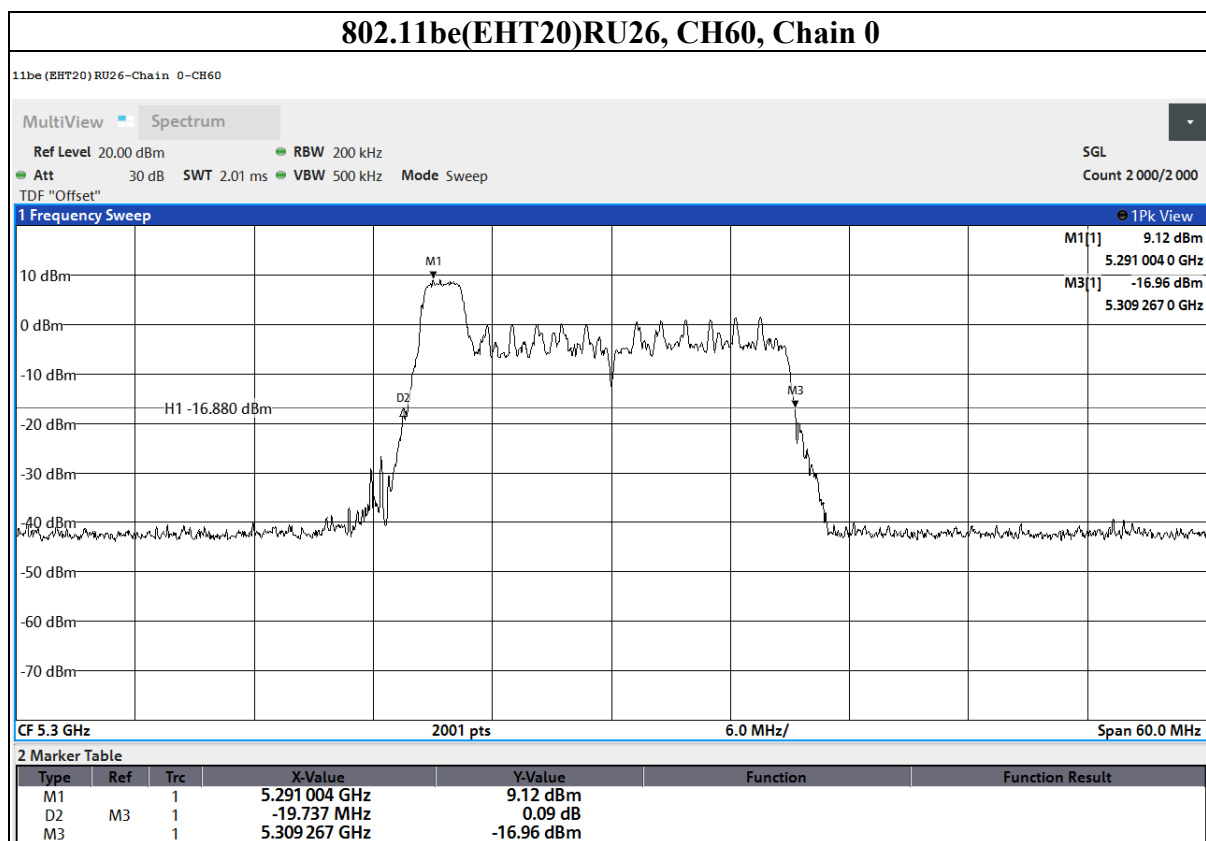
Mode	CH	Freq (MHz)	26dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT40)	38	5190	39.508	41.072	N/A	PASS
	46	5230	39.393	39.425	N/A	PASS
	54	5270	41.713	39.457	N/A	PASS
	62	5310	39.469	39.569	N/A	PASS
	102	5510	43.13	39.775	N/A	PASS
	110	5550	39.547	39.357	N/A	PASS
	134	5670	39.433	39.542	N/A	PASS
	142 (U-NII-2C)	5710	34.935	34.686	N/A	PASS
	142 (U-NII-2C+U-NII-3)	5710	39.692	39.405	N/A	PASS
	142 (U-NII-3)	5710	4.757	4.719	N/A	PASS



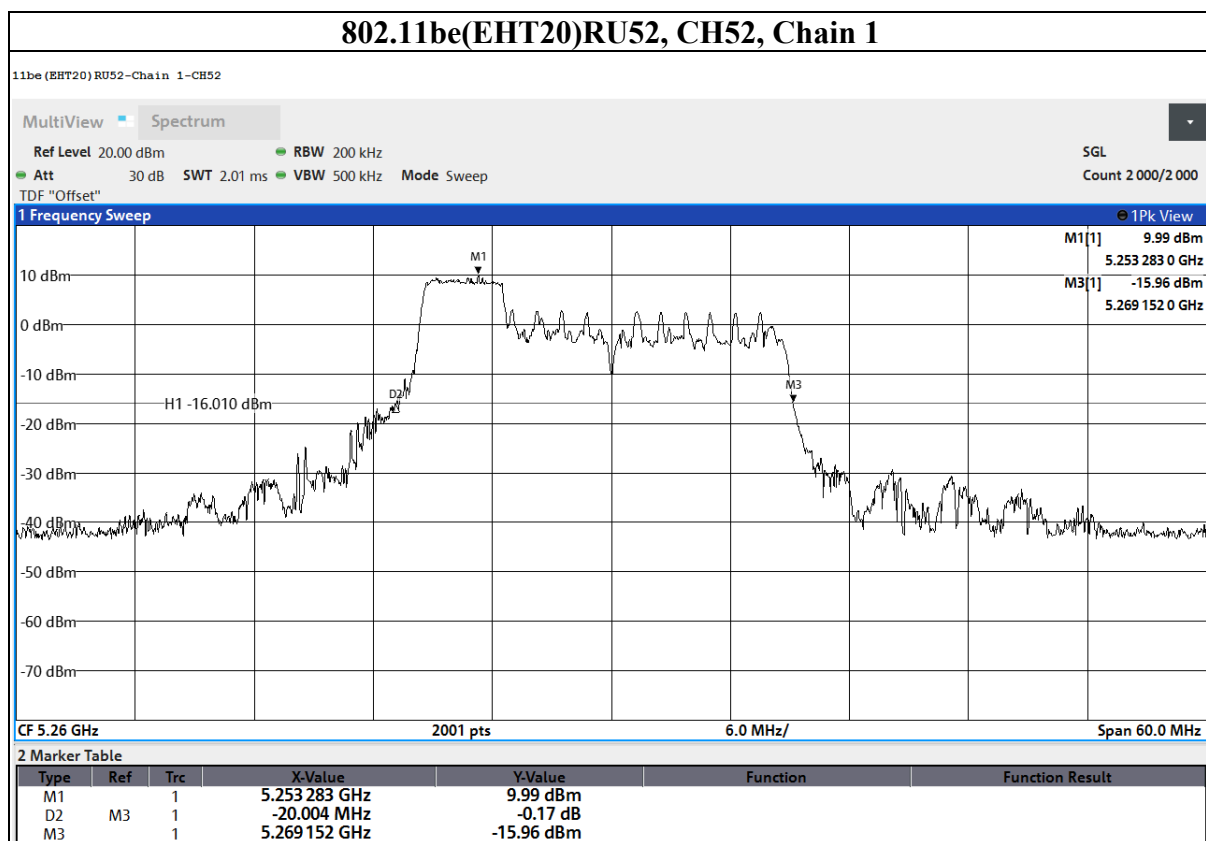
Mode	CH	Freq (MHz)	26dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT80)	42	5210	86.511	98.408	N/A	PASS
	58	5290	110.454	97.905	N/A	PASS
	106	5530	117.73	103.728	N/A	PASS
	122	5610	80.008	80.167	N/A	PASS
	138 (U-NII-2C)	5690	74.968	75.118	N/A	PASS
	138 (U-NII-2C+U-NII-3)	5690	80.046	80.266	N/A	PASS
	138 (U-NII-3)	5690	5.078	5.148	N/A	PASS



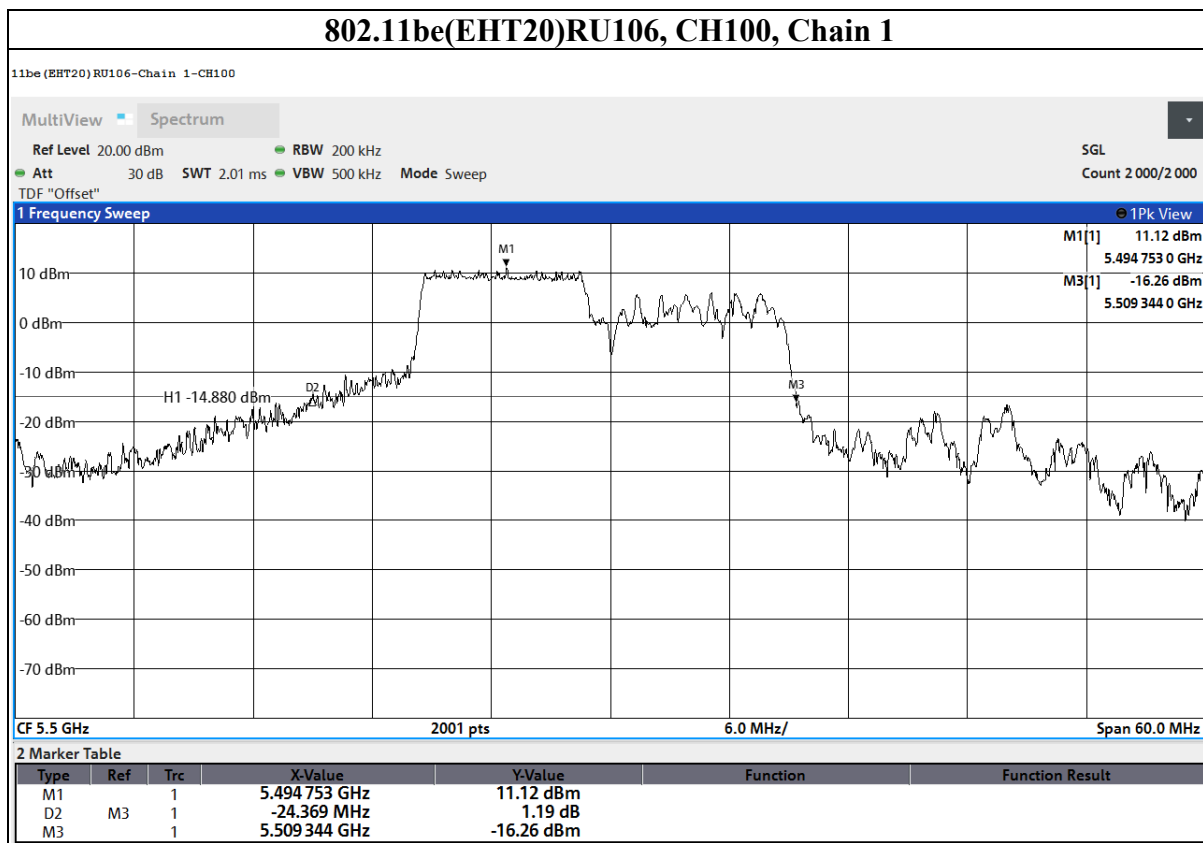
Mode	CH	Freq (MHz)	26dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT20) RU26	36	5180	19.607	19.301	N/A	PASS
	44	5220	19.268	19.322	N/A	PASS
	48	5240	19.346	19.281	N/A	PASS
	52	5260	19.469	19.31	N/A	PASS
	60	5300	19.737	19.308	N/A	PASS
	64	5320	19.464	19.223	N/A	PASS
	100	5500	19.589	19.256	N/A	PASS
	116	5580	19.493	19.366	N/A	PASS
	140	5700	19.432	19.355	N/A	PASS
	144 (U-NII-2C)	5720	14.105	14.012	N/A	PASS
	144 (U-NII-2C+U-NII-3)	5720	19.387	19.269	N/A	PASS
	144 (U-NII-3)	5720	5.282	5.257	N/A	PASS



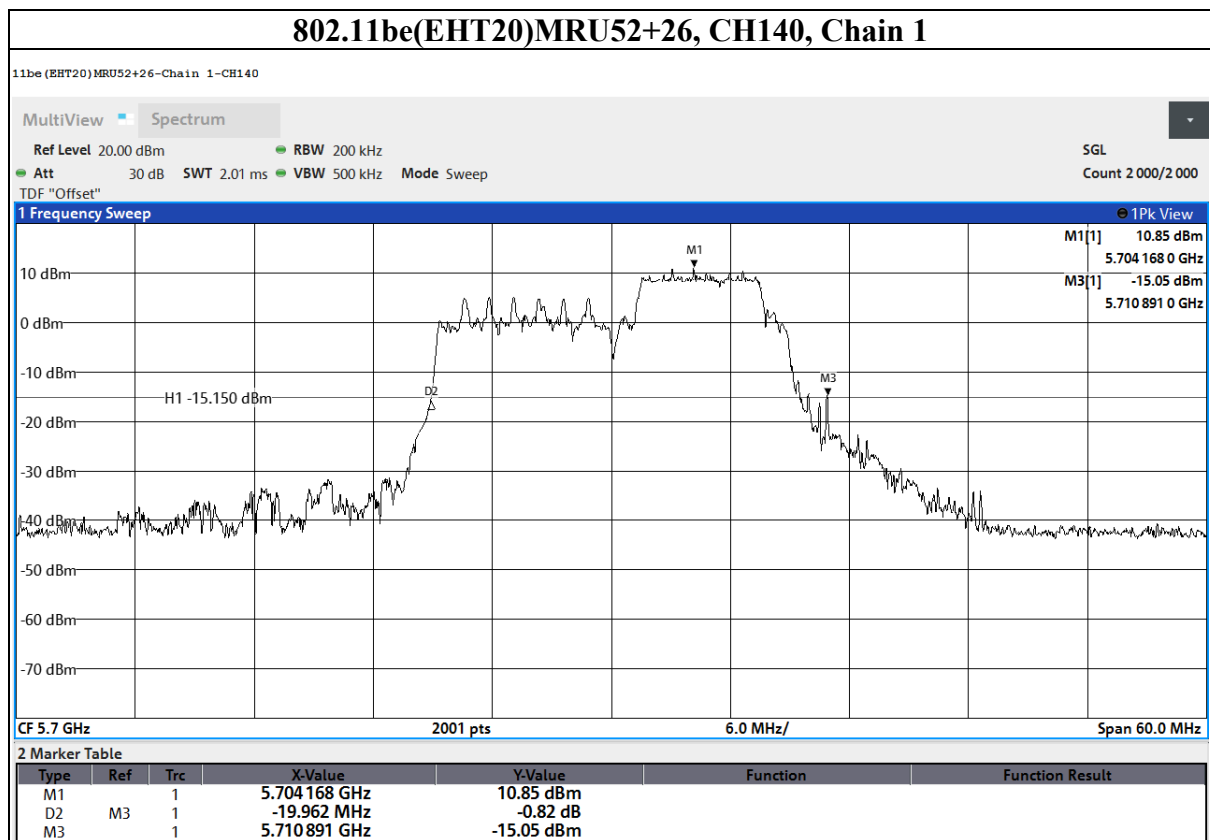
Mode	CH	Freq (MHz)	26dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT20) RU52	36	5180	19.627	19.305	N/A	PASS
	44	5220	19.635	19.462	N/A	PASS
	48	5240	19.612	19.319	N/A	PASS
	52	5260	19.728	20.004	N/A	PASS
	60	5300	19.802	19.965	N/A	PASS
	64	5320	19.528	19.806	N/A	PASS
	100	5500	19.609	19.539	N/A	PASS
	116	5580	19.601	19.428	N/A	PASS
	140	5700	19.474	19.22	N/A	PASS
	144 (U-NII-2C)	5720	14.207	14.059	N/A	PASS
	144 (U-NII-2C+U-NII-3)	5720	19.479	19.394	N/A	PASS
	144 (U-NII-3)	5720	5.272	5.335	N/A	PASS



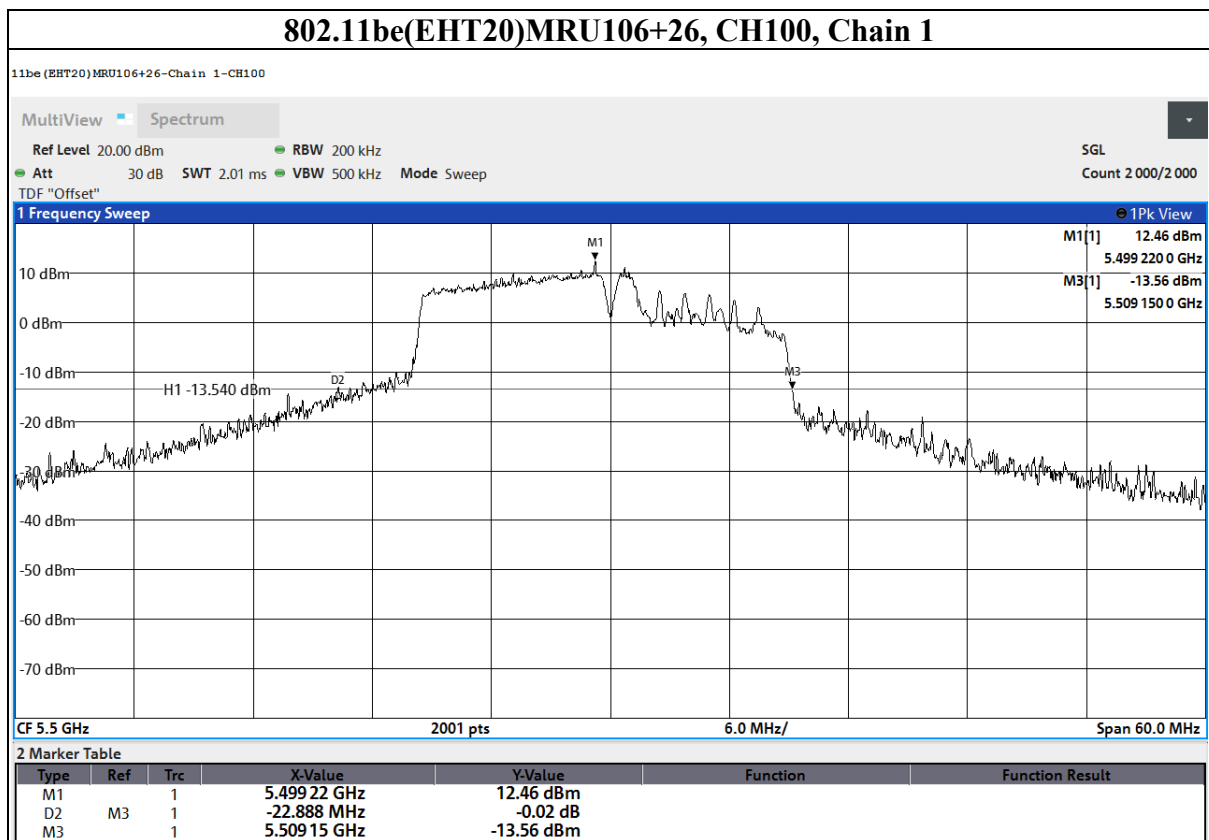
Mode	CH	Freq (MHz)	26dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT20) RU106	36	5180	19.82	19.622	N/A	PASS
	44	5220	19.902	19.391	N/A	PASS
	48	5240	19.901	19.337	N/A	PASS
	52	5260	22.75	19.577	N/A	PASS
	60	5300	20.158	19.84	N/A	PASS
	64	5320	19.797	19.543	N/A	PASS
	100	5500	19.742	24.369	N/A	PASS
	116	5580	19.853	19.612	N/A	PASS
	140	5700	19.707	19.521	N/A	PASS
	144 (U-NII-2C)	5720	14.543	14.001	N/A	PASS
	144 (U-NII-2C+U-NII-3)	5720	19.978	19.567	N/A	PASS
	144 (U-NII-3)	5720	5.435	5.566	N/A	PASS



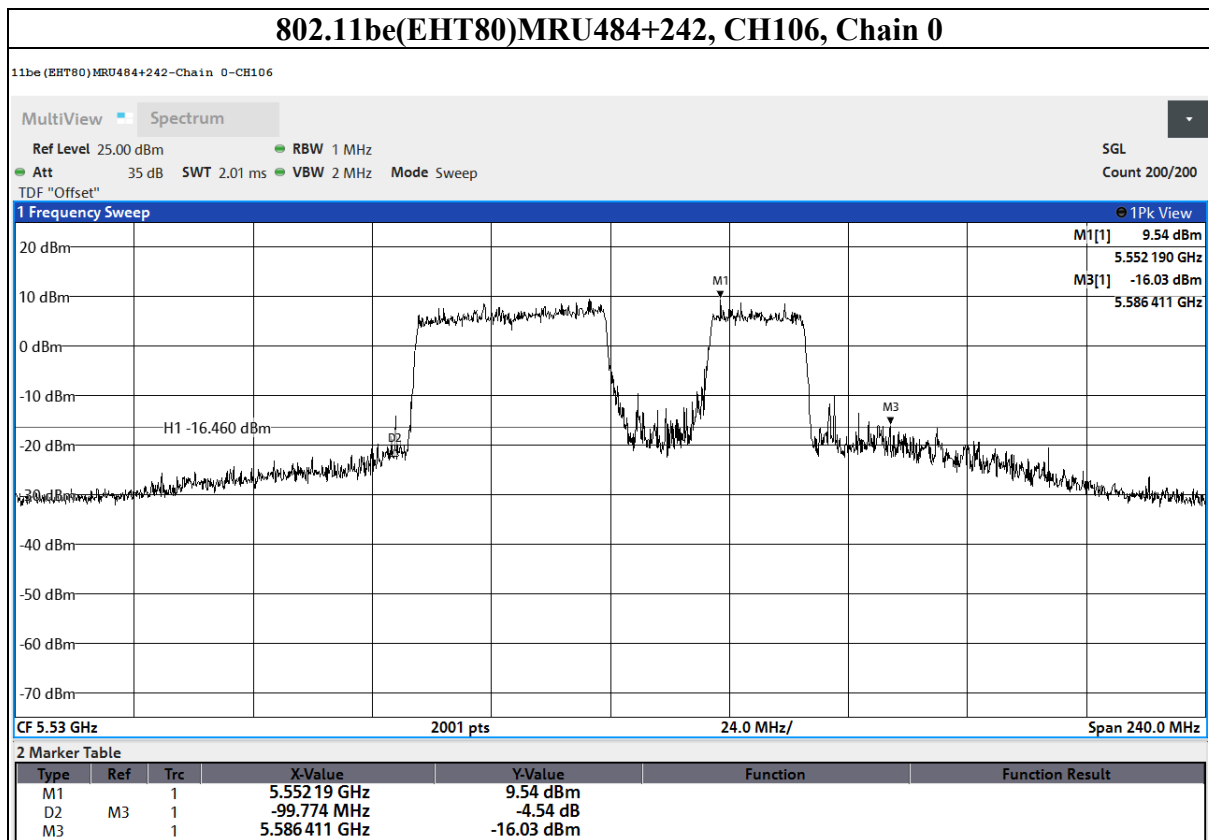
Mode	CH	Freq (MHz)	26dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT20) MRU52+26	36	5180	18.889	19.334	N/A	PASS
	44	5220	19.115	18.512	N/A	PASS
	48	5240	18.738	18.478	N/A	PASS
	52	5260	19.168	18.755	N/A	PASS
	60	5300	19.418	18.452	N/A	PASS
	64	5320	18.869	18.621	N/A	PASS
	100	5500	19.55	18.761	N/A	PASS
	116	5580	18.931	18.537	N/A	PASS
	140	5700	19.265	19.962	N/A	PASS
	144 (U-NII-2C)	5720	14.085	14.091	N/A	PASS
	144 (U-NII-2C+U-NII-3)	5720	18.748	18.561	N/A	PASS
	144 (U-NII-3)	5720	4.663	4.47	N/A	PASS



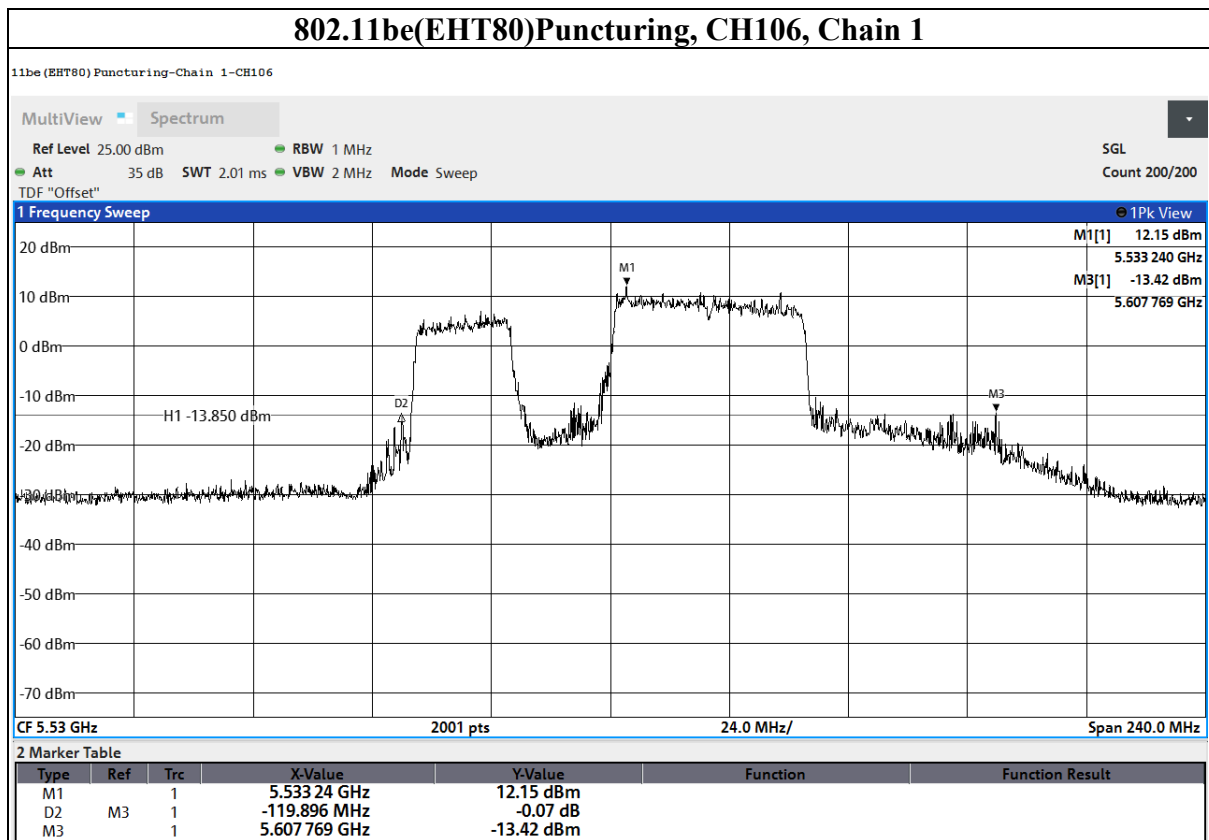
Mode	CH	Freq (MHz)	26dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT20) MRU106+26	36	5180	19.699	19.833	N/A	PASS
	44	5220	19.448	19.405	N/A	PASS
	48	5240	19.349	19.482	N/A	PASS
	52	5260	19.476	19.353	N/A	PASS
	60	5300	19.423	19.365	N/A	PASS
	64	5320	19.32	19.373	N/A	PASS
	100	5500	19.7	22.888	N/A	PASS
	116	5580	19.581	19.448	N/A	PASS
	140	5700	19.35	19.503	N/A	PASS
	144 (U-NII-2C)	5720	14.113	14.387	N/A	PASS
	144 (U-NII-2C+U-NII-3)	5720	19.246	19.598	N/A	PASS
	144 (U-NII-3)	5720	5.133	5.211	N/A	PASS



Mode	CH	Freq (MHz)	26dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT80) MRU484+242	42	5210	84.602	95.059	N/A	PASS
	58	5290	96.269	96.17	N/A	PASS
	106	5530	99.774	90.36	N/A	PASS
	122	5610	80.203	80.217	N/A	PASS
	138 (U-NII-2C)	5690	75.183	75.072	N/A	PASS
	138 (U-NII-2C+U-NII-3)	5690	80.246	80.343	N/A	PASS
	138 (U-NII-3)	5690	5.063	5.271	N/A	PASS



Mode	CH	Freq (MHz)	26dB BW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT80) Puncturing	42	5210	96.633	83.197	N/A	PASS
	58	5290	98.883	97.016	N/A	PASS
	106	5530	91.336	119.896	N/A	PASS
	122	5610	80.35	83.247	N/A	PASS
	138 (U-NII-2C)	5690	74.912	75.069	N/A	PASS
	138 (U-NII-2C+U-NII-3)	5690	80.04	80.161	N/A	PASS
	138 (U-NII-3)	5690	5.128	5.092	N/A	PASS

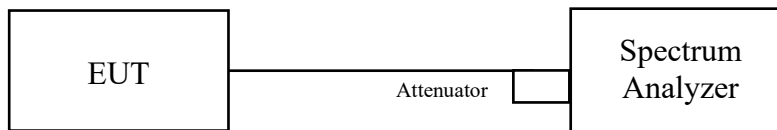


9.3. Occupied Bandwidth

Test procedure

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

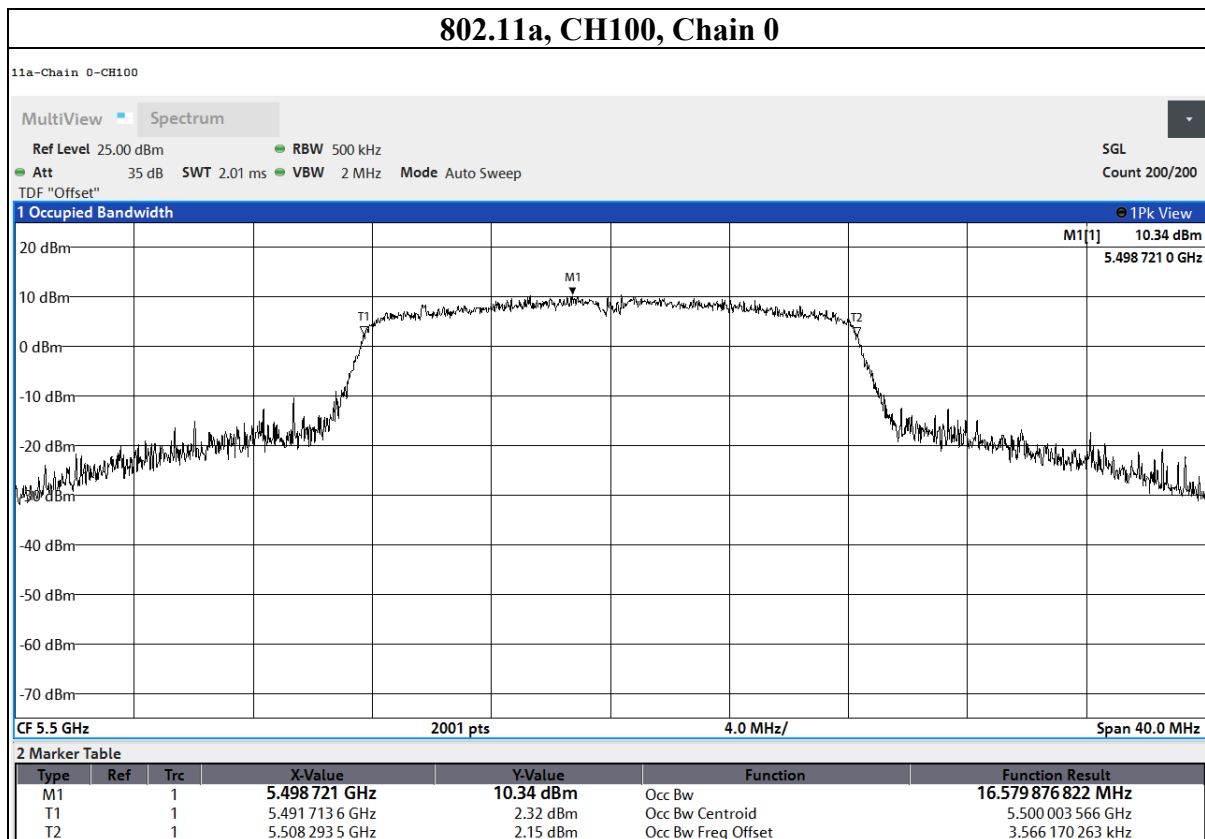
Test Setup



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

Test Data

Mode	CH	Freq (MHz)	OBW (MHz)	Limit (MHz)	Result
			Chain 0		
802.11a	36	5180	16.561	N/A	PASS
	44	5220	16.47	N/A	PASS
	48	5240	16.461	N/A	PASS
	52	5260	16.461	N/A	PASS
	60	5300	16.569	N/A	PASS
	64	5320	16.567	N/A	PASS
	100	5500	16.58	N/A	PASS
	116	5580	16.479	N/A	PASS
	140	5700	16.555	N/A	PASS
	144 (U-NII-2C)	5720	13.242	N/A	PASS
	144 (U-NII-2C+U-NII-3)	5720	16.475	N/A	PASS
	144 (U-NII-3)	5720	3.232	N/A	PASS
	149	5745	16.552	N/A	PASS
	157	5785	16.45	N/A	PASS
	165	5825	16.579	N/A	PASS



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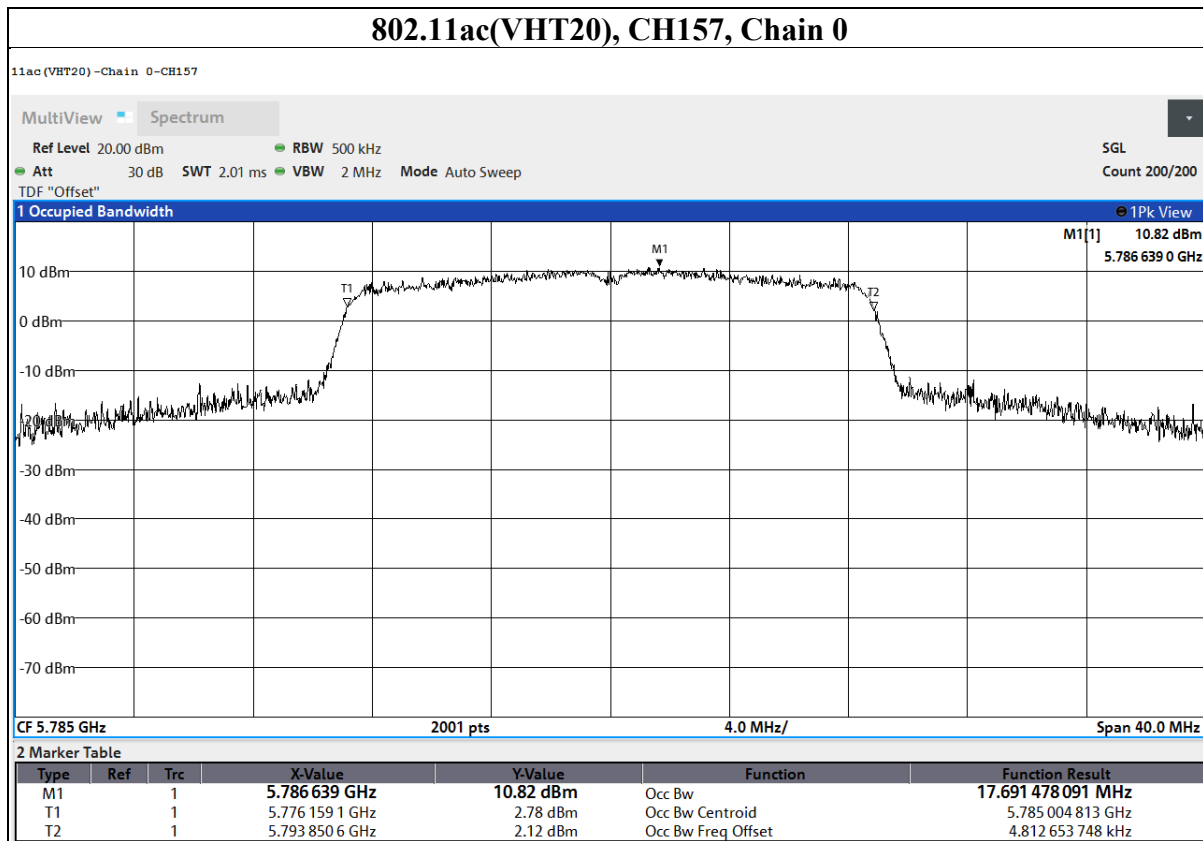
Building A, B and E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone : +886-2-7737-3000

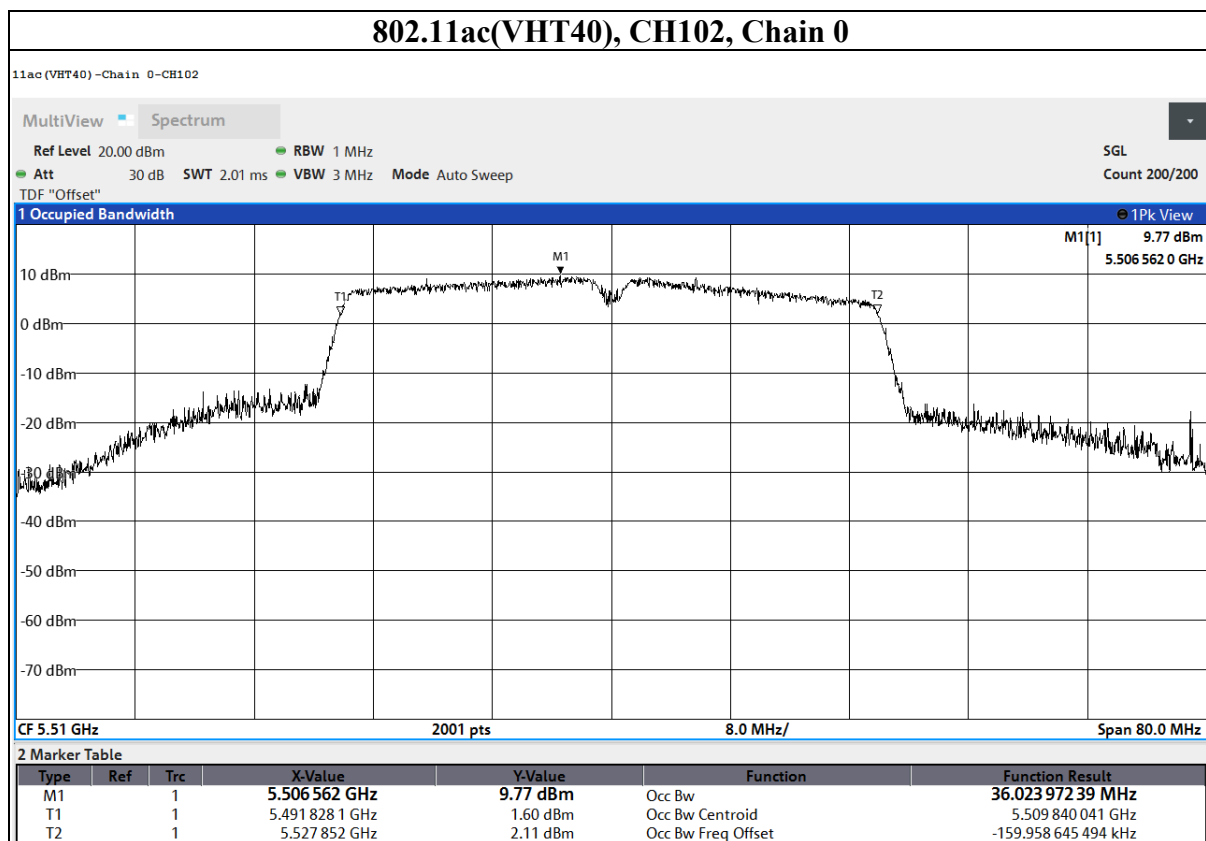
Facsimile (FAX) : +886-3-583-7948

Doc No: Form-ULID-004739 (DCS:17-EM-F0878) / 6.1

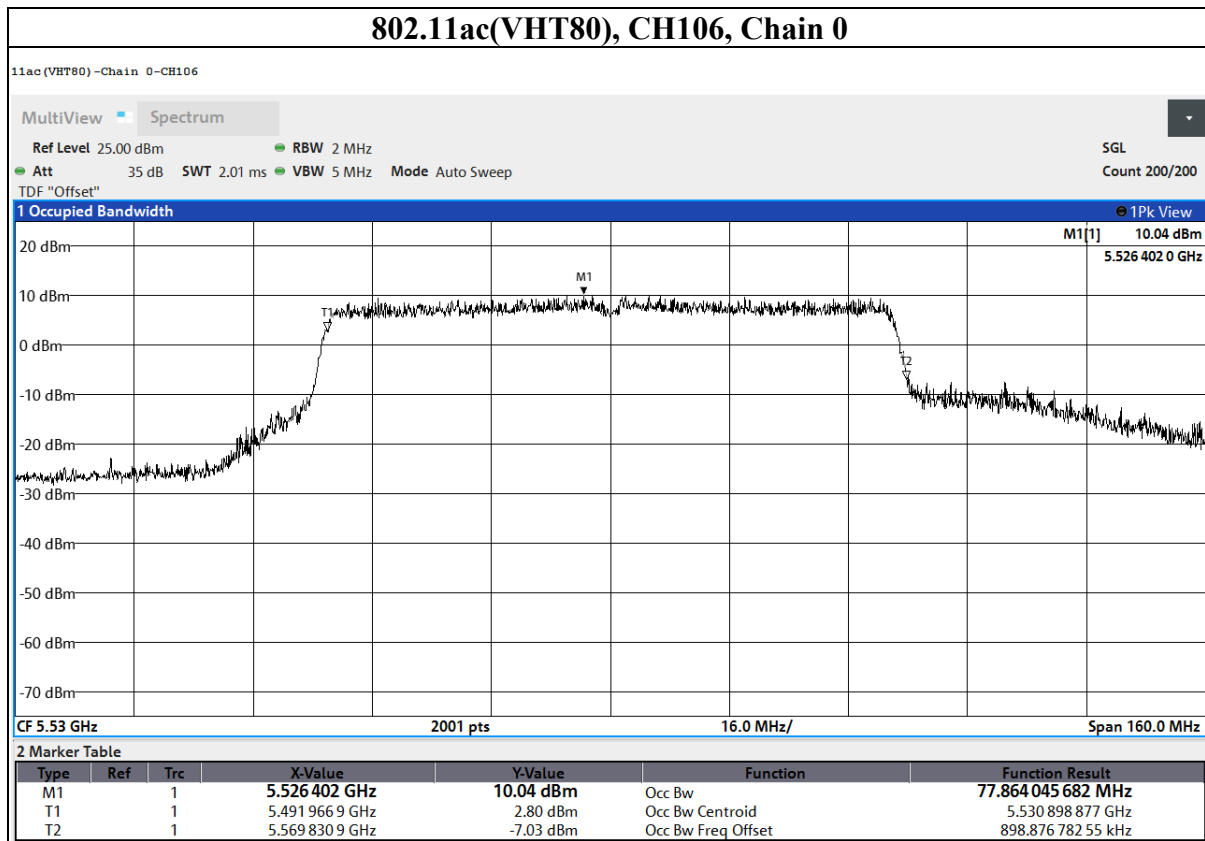
Mode	CH	Freq (MHz)	OBW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11ac(VHT20)	36	5180	17.609	17.535	N/A	PASS
	44	5220	17.47	17.442	N/A	PASS
	48	5240	17.488	17.429	N/A	PASS
	52	5260	17.618	17.492	N/A	PASS
	60	5300	17.539	17.561	N/A	PASS
	64	5320	17.617	17.565	N/A	PASS
	100	5500	17.662	17.533	N/A	PASS
	116	5580	17.497	17.456	N/A	PASS
	140	5700	17.6	17.542	N/A	PASS
	144 (U-NII-2C)	5720	13.818	13.757	N/A	PASS
	144 (U-NII-2C+U-NII-3)	5720	17.536	17.488	N/A	PASS
	144 (U-NII-3)	5720	3.718	3.731	N/A	PASS
	149	5745	17.563	17.533	N/A	PASS
	157	5785	17.691	17.461	N/A	PASS
	165	5825	17.608	17.546	N/A	PASS



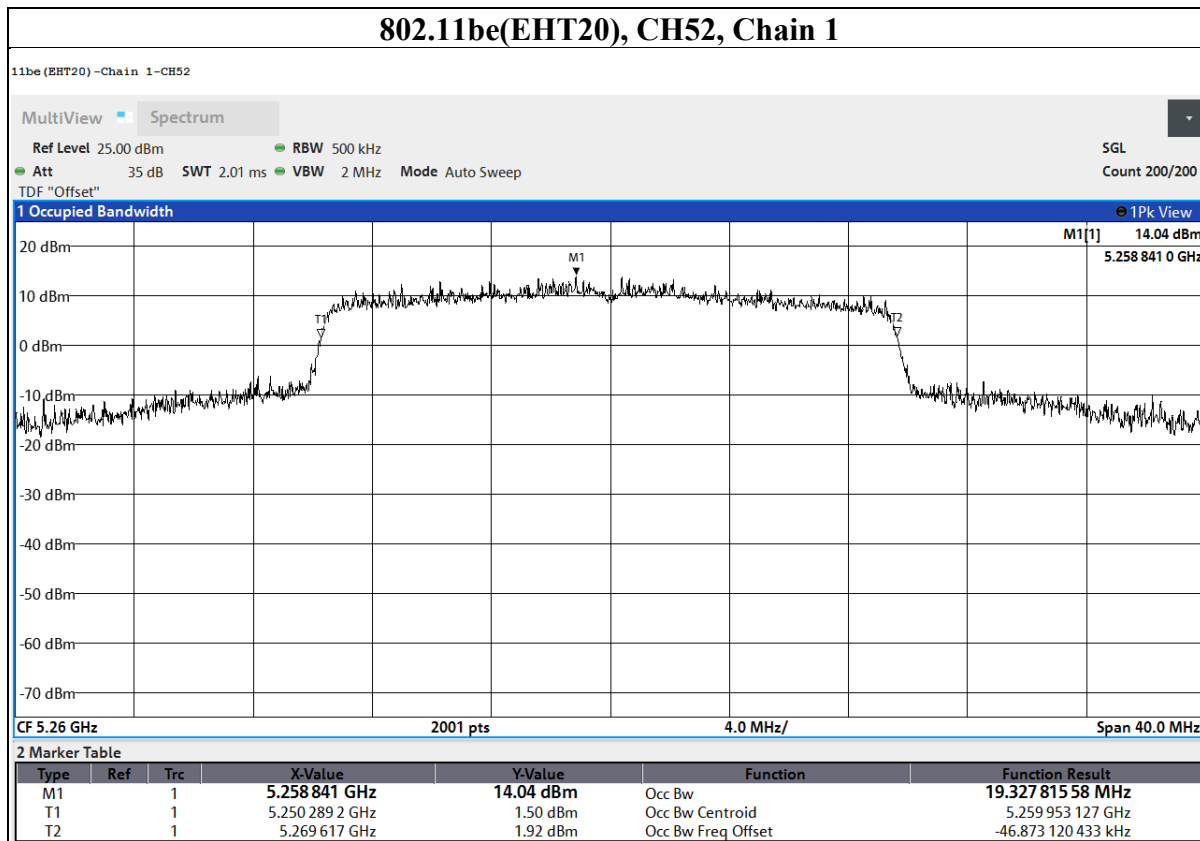
Mode	CH	Freq (MHz)	OBW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11ac(VHT40)	38	5190	35.869	35.934	N/A	PASS
	46	5230	35.746	35.77	N/A	PASS
	54	5270	35.996	35.777	N/A	PASS
	62	5310	35.84	35.913	N/A	PASS
	102	5510	36.024	35.912	N/A	PASS
	110	5550	35.844	35.791	N/A	PASS
	134	5670	35.879	35.96	N/A	PASS
	142 (U-NII-2C)	5710	32.9	32.897	N/A	PASS
	142 (U-NII-2C+U-NII-3)	5710	35.739	35.763	N/A	PASS
	142 (U-NII-3)	5710	2.839	2.866	N/A	PASS
	151	5755	35.926	35.911	N/A	PASS
	159	5795	35.86	35.735	N/A	PASS



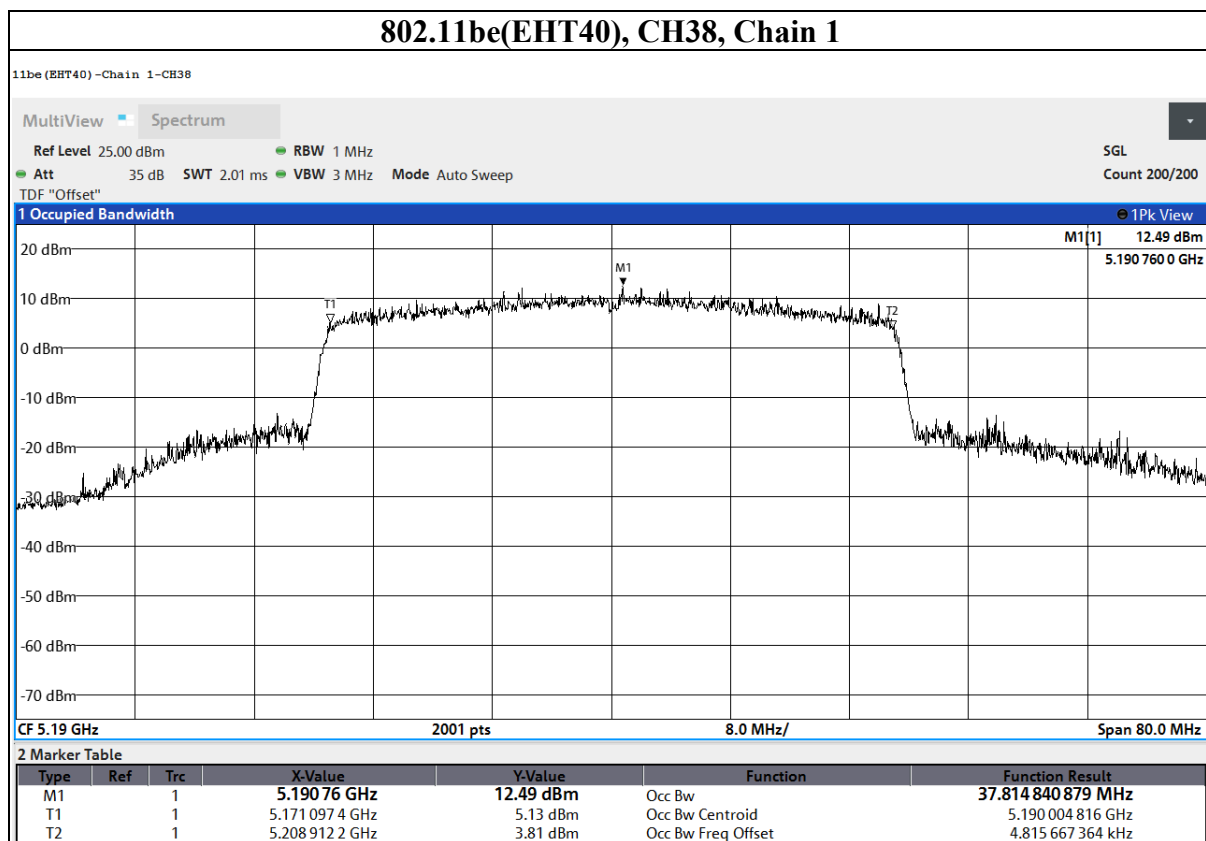
Mode	CH	Freq (MHz)	OBW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11ac(VHT80)	42	5210	75.149	75.314	N/A	PASS
	58	5290	76.981	76.167	N/A	PASS
	106	5530	77.864	76.039	N/A	PASS
	122	5610	74.725	75.257	N/A	PASS
	138 (U-NII-2C)	5690	71.807	72.643	N/A	PASS
	138 (U-NII-2C+U-NII-3)	5690	74.541	75.267	N/A	PASS
	138 (U-NII-3)	5690	2.734	2.625	N/A	PASS
	155	5775	76.105	75.234	N/A	PASS



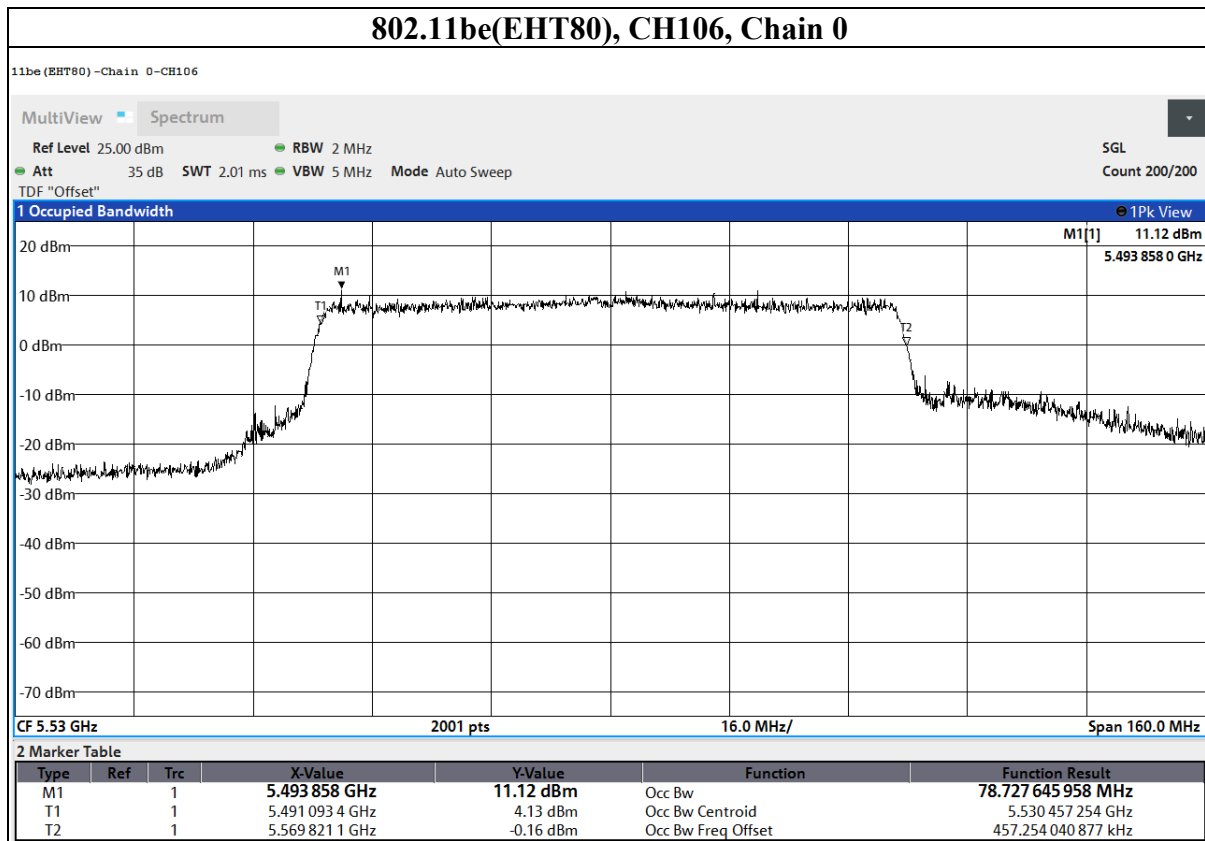
Mode	CH	Freq (MHz)	OBW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT20)	36	5180	18.861	18.874	N/A	PASS
	44	5220	18.817	18.774	N/A	PASS
	48	5240	18.801	18.803	N/A	PASS
	52	5260	18.783	19.328	N/A	PASS
	60	5300	18.833	18.883	N/A	PASS
	64	5320	18.866	18.879	N/A	PASS
	100	5500	18.892	18.857	N/A	PASS
	116	5580	18.831	18.803	N/A	PASS
	140	5700	18.887	18.873	N/A	PASS
	144 (U-NII-2C)	5720	14.466	14.426	N/A	PASS
	144 (U-NII-2C+U-NII-3)	5720	18.848	18.818	N/A	PASS
	144 (U-NII-3)	5720	4.382	4.392	N/A	PASS
	149	5745	18.871	18.829	N/A	PASS
	157	5785	18.937	18.801	N/A	PASS
	165	5825	18.91	18.876	N/A	PASS



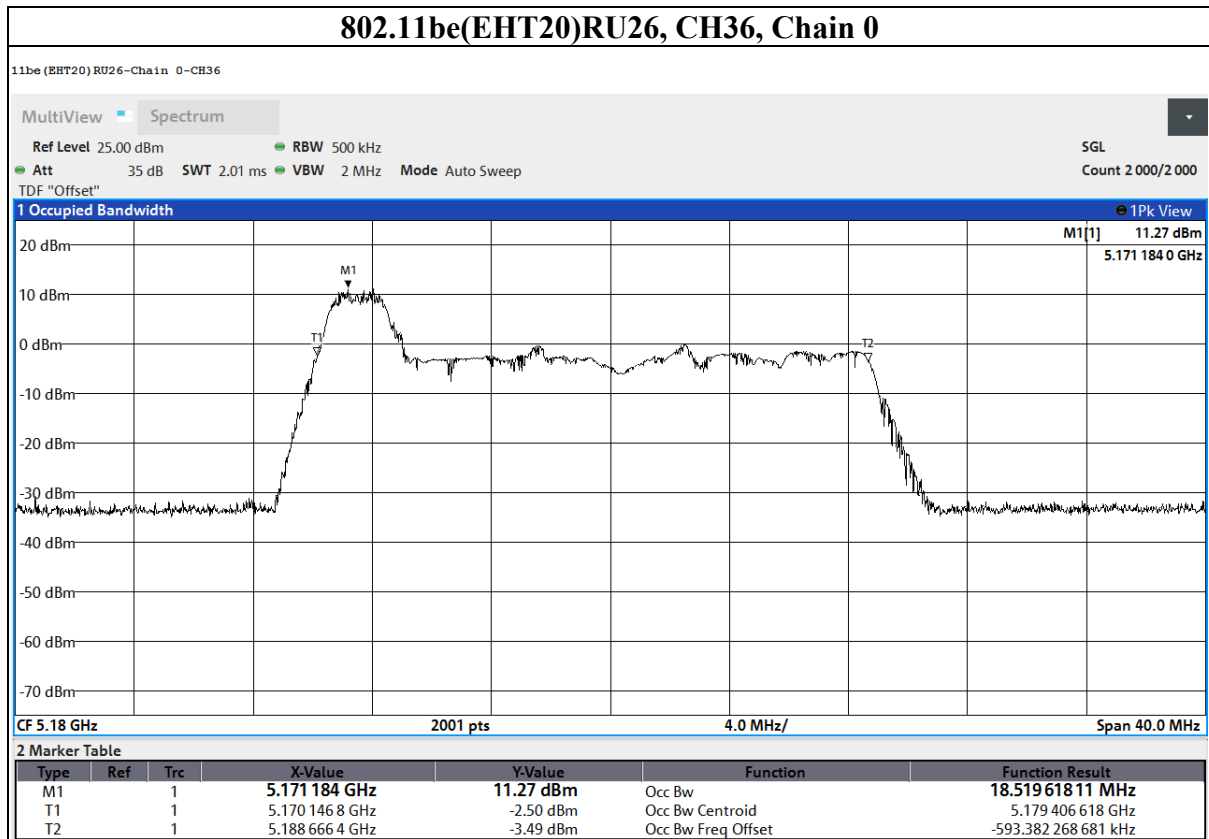
Mode	CH	Freq (MHz)	OBW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT40)	38	5190	37.562	37.815	N/A	PASS
	46	5230	37.562	37.567	N/A	PASS
	54	5270	37.783	37.639	N/A	PASS
	62	5310	37.578	37.677	N/A	PASS
	102	5510	37.73	37.739	N/A	PASS
	110	5550	37.656	37.525	N/A	PASS
	134	5670	37.629	37.761	N/A	PASS
	142 (U-NII-2C)	5710	33.755	33.793	N/A	PASS
	142 (U-NII-2C+U-NII-3)	5710	37.477	37.578	N/A	PASS
	142 (U-NII-3)	5710	3.722	3.785	N/A	PASS
	151	5755	37.661	37.668	N/A	PASS
	159	5795	37.571	37.565	N/A	PASS



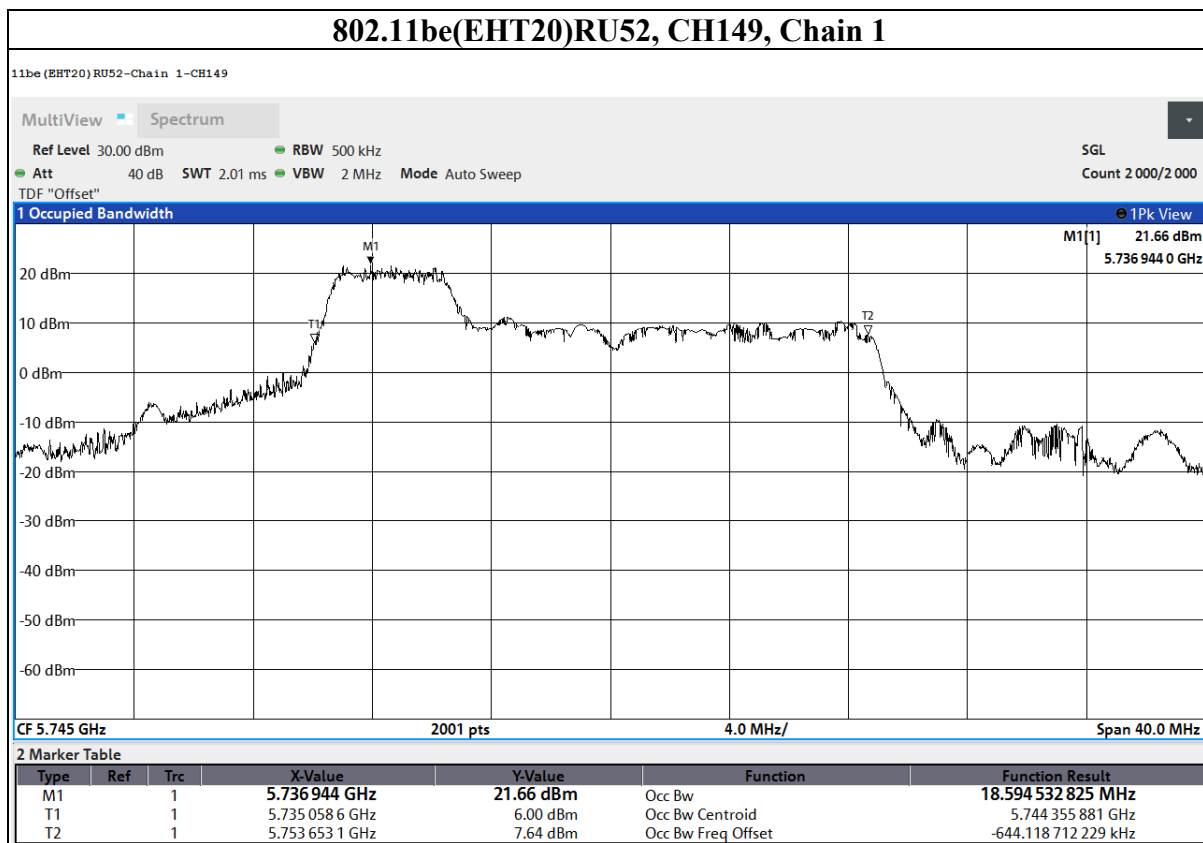
Mode	CH	Freq (MHz)	OBW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT80)	42	5210	76.672	77.632	N/A	PASS
	58	5290	78.351	77.726	N/A	PASS
	106	5530	78.728	77.733	N/A	PASS
	122	5610	76.285	77.052	N/A	PASS
	138 (U-NII-2C)	5690	72.654	73.516	N/A	PASS
	138 (U-NII-2C+U-NII-3)	5690	76.253	77.223	N/A	PASS
	138 (U-NII-3)	5690	3.599	3.706	N/A	PASS
	155	5775	77.855	77.088	N/A	PASS



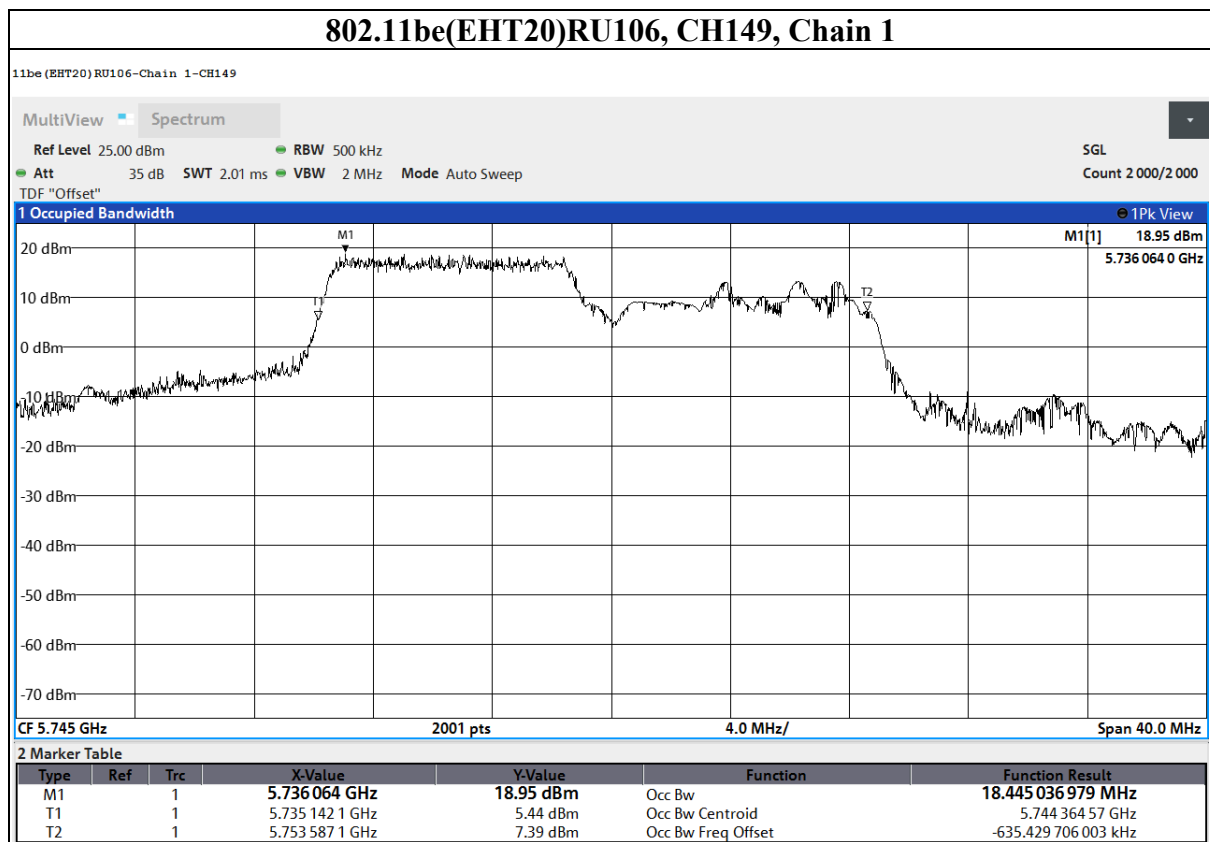
Mode	CH	Freq (MHz)	OBW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT20) RU26	36	5180	18.52	18.416	N/A	PASS
	44	5220	18.428	18.409	N/A	PASS
	48	5240	18.455	18.342	N/A	PASS
	52	5260	18.449	18.391	N/A	PASS
	60	5300	18.512	18.401	N/A	PASS
	64	5320	18.42	18.339	N/A	PASS
	100	5500	18.434	18.36	N/A	PASS
	116	5580	18.472	18.413	N/A	PASS
	140	5700	18.412	18.372	N/A	PASS
	144 (U-NII-2C)	5720	13.562	13.49	N/A	PASS
	144 (U-NII-2C+U-NII-3)	5720	18.425	18.351	N/A	PASS
	144 (U-NII-3)	5720	4.863	4.861	N/A	PASS
	149	5745	18.407	18.487	N/A	PASS
	157	5785	18.504	18.361	N/A	PASS
	165	5825	18.451	18.351	N/A	PASS



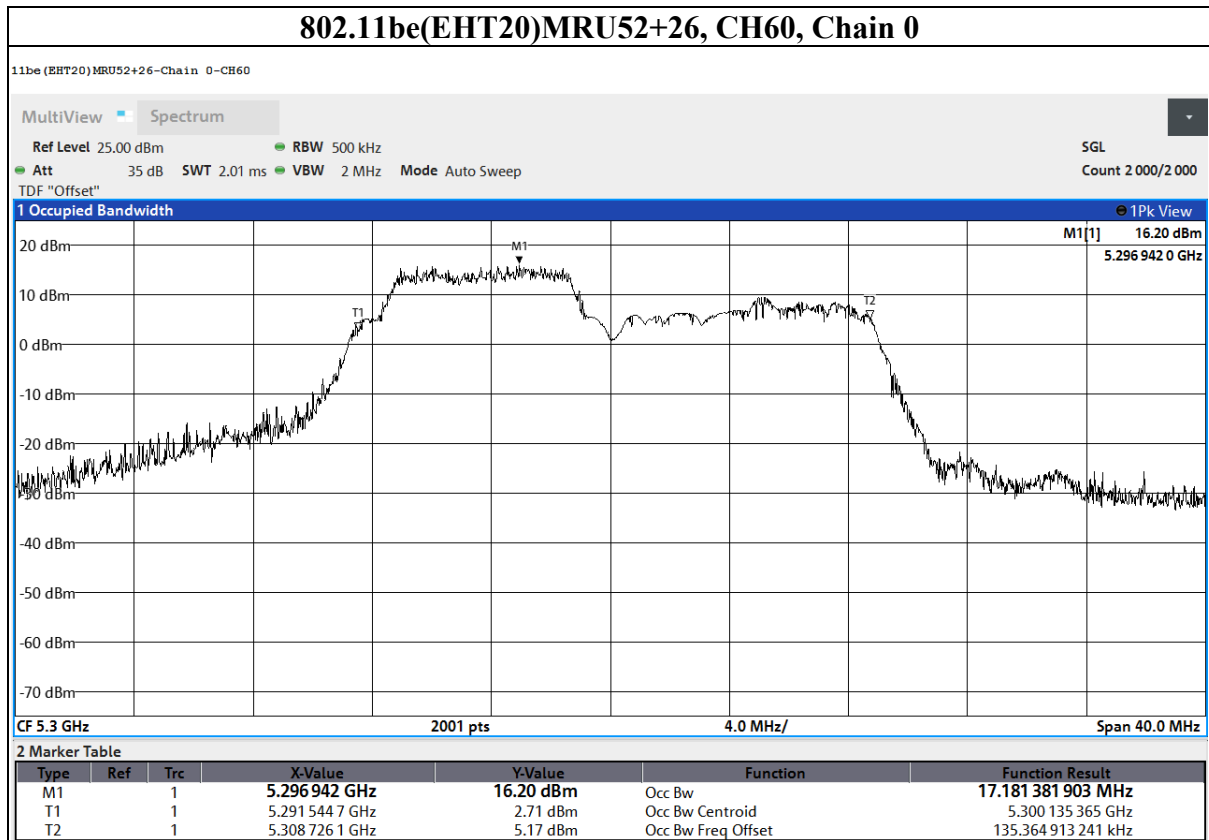
Mode	CH	Freq (MHz)	OBW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT20) RU52	36	5180	18.365	18.209	N/A	PASS
	44	5220	18.231	18.195	N/A	PASS
	48	5240	18.306	18.194	N/A	PASS
	52	5260	18.247	18.231	N/A	PASS
	60	5300	18.377	18.241	N/A	PASS
	64	5320	18.258	18.259	N/A	PASS
	100	5500	18.157	18.248	N/A	PASS
	116	5580	18.238	18.149	N/A	PASS
	140	5700	18.277	18.25	N/A	PASS
	144 (U-NII-2C)	5720	13.531	13.592	N/A	PASS
	144 (U-NII-2C+U-NII-3)	5720	18.266	18.318	N/A	PASS
	144 (U-NII-3)	5720	4.736	4.726	N/A	PASS
	149	5745	18.247	18.595	N/A	PASS
	157	5785	18.361	18.271	N/A	PASS
	165	5825	18.266	18.234	N/A	PASS



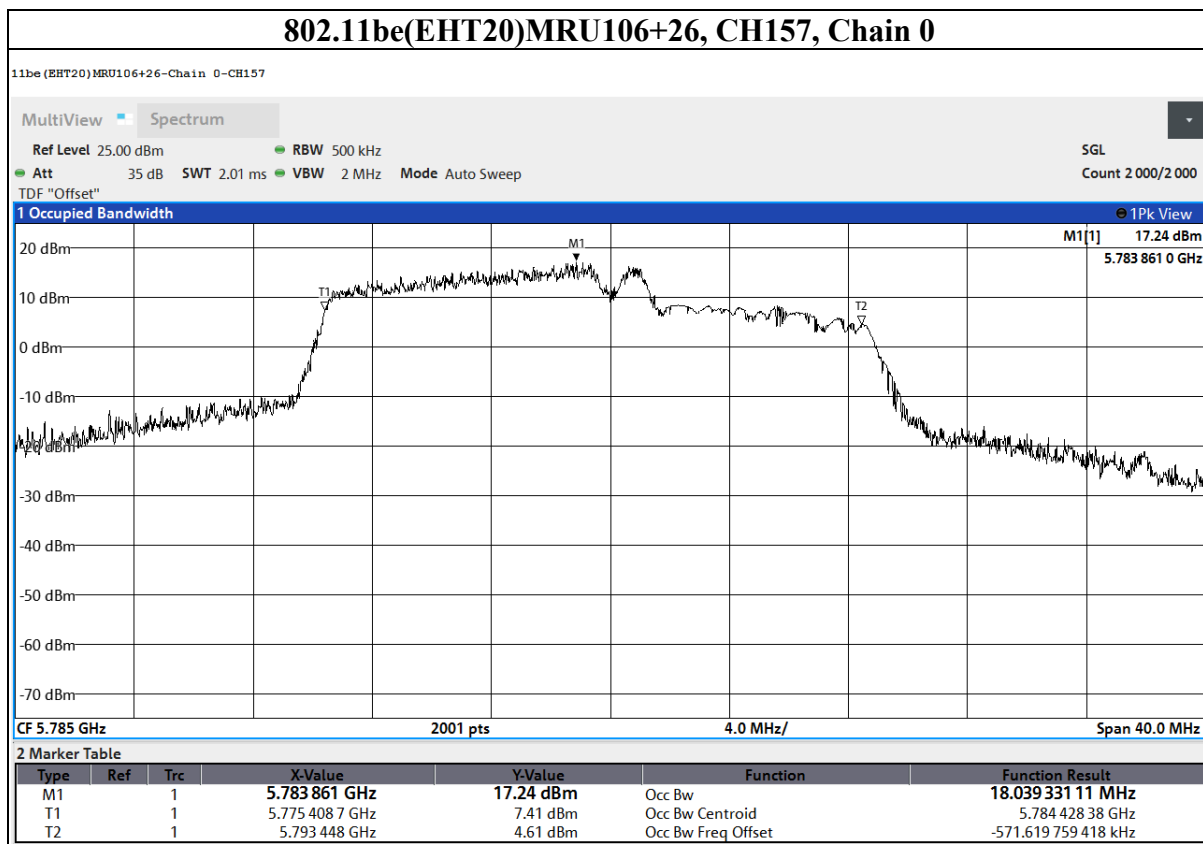
Mode	CH	Freq (MHz)	OBW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT20) RU106	36	5180	18.242	18.229	N/A	PASS
	44	5220	18.182	18.166	N/A	PASS
	48	5240	18.294	18.169	N/A	PASS
	52	5260	18.273	18.141	N/A	PASS
	60	5300	18.337	18.141	N/A	PASS
	64	5320	18.286	18.258	N/A	PASS
	100	5500	18.228	18.329	N/A	PASS
	116	5580	18.262	18.149	N/A	PASS
	140	5700	18.276	18.226	N/A	PASS
	144 (U-NII-2C)	5720	13.569	13.436	N/A	PASS
	144 (U-NII-2C+U-NII-3)	5720	18.305	18.182	N/A	PASS
	144 (U-NII-3)	5720	4.736	4.746	N/A	PASS
	149	5745	18.192	18.445	N/A	PASS
	157	5785	18.333	18.208	N/A	PASS
	165	5825	18.342	18.225	N/A	PASS



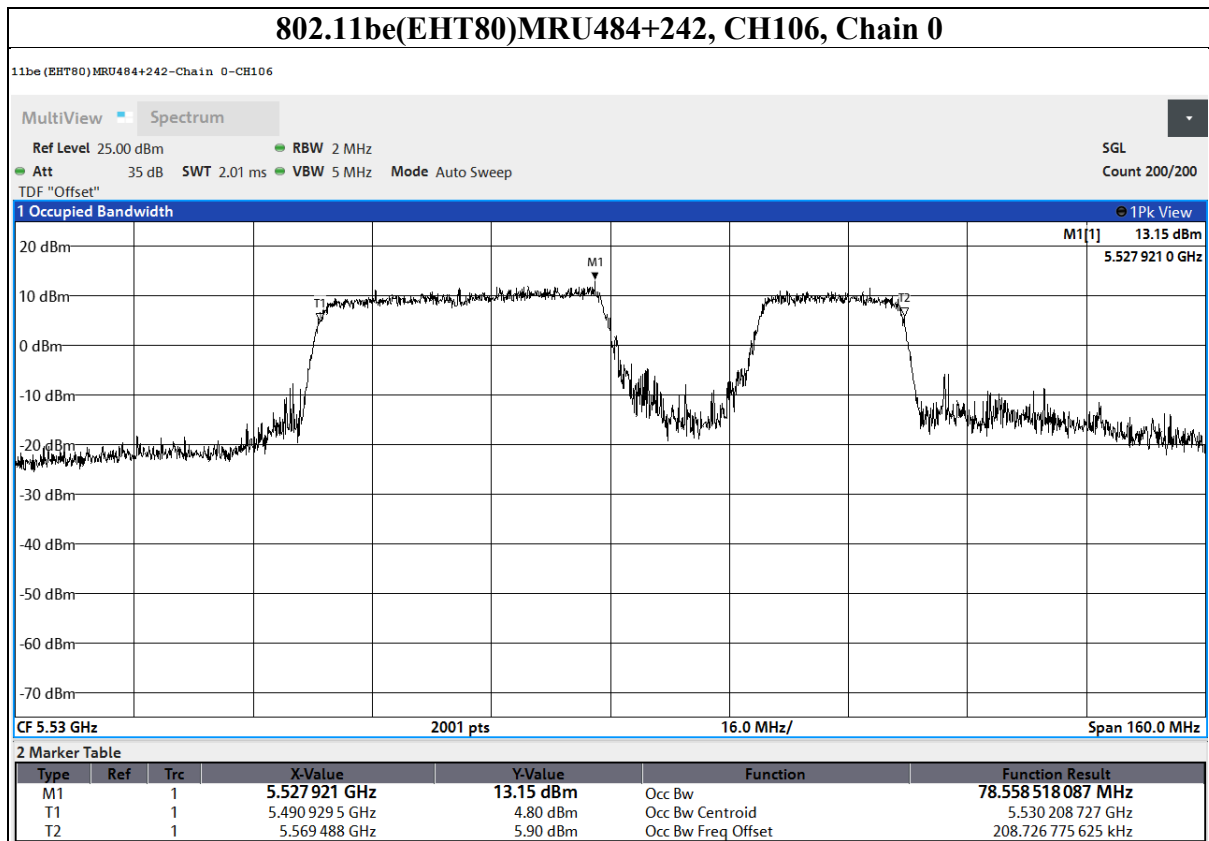
Mode	CH	Freq (MHz)	OBW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT20) MRU52+26	36	5180	17.169	17.072	N/A	PASS
	44	5220	17.064	17.046	N/A	PASS
	48	5240	17.109	17.036	N/A	PASS
	52	5260	17.036	17.062	N/A	PASS
	60	5300	17.181	17.052	N/A	PASS
	64	5320	17.071	17.106	N/A	PASS
	100	5500	17.047	17.074	N/A	PASS
	116	5580	17.104	17.036	N/A	PASS
	140	5700	17.086	17.082	N/A	PASS
	144 (U-NII-2C)	5720	13.491	13.45	N/A	PASS
	144 (U-NII-2C+U-NII-3)	5720	17.093	17.045	N/A	PASS
	144 (U-NII-3)	5720	3.601	3.595	N/A	PASS
	149	5745	17.043	17.023	N/A	PASS
	157	5785	17.105	17.033	N/A	PASS
	165	5825	17.098	17.08	N/A	PASS



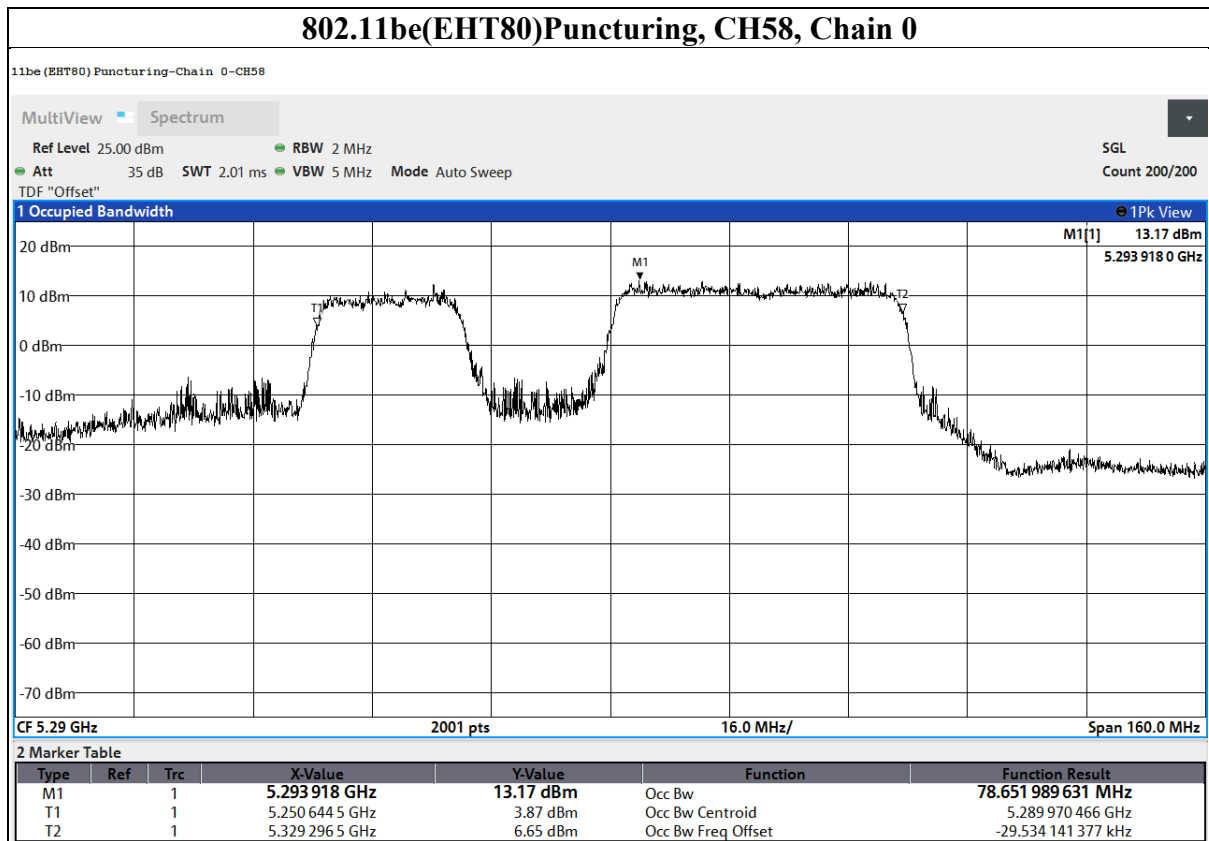
Mode	CH	Freq (MHz)	OBW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT20) MRU106+26	36	5180	18.035	17.881	N/A	PASS
	44	5220	17.916	17.778	N/A	PASS
	48	5240	17.912	17.901	N/A	PASS
	52	5260	17.694	17.746	N/A	PASS
	60	5300	17.872	17.692	N/A	PASS
	64	5320	17.9	17.911	N/A	PASS
	100	5500	17.929	18.011	N/A	PASS
	116	5580	17.972	17.842	N/A	PASS
	140	5700	17.845	17.908	N/A	PASS
	144 (U-NII-2C)	5720	13.417	13.357	N/A	PASS
	144 (U-NII-2C+U-NII-3)	5720	17.91	17.868	N/A	PASS
	144 (U-NII-3)	5720	4.492	4.511	N/A	PASS
	149	5745	17.793	17.844	N/A	PASS
	157	5785	18.039	17.847	N/A	PASS
	165	5825	17.868	17.912	N/A	PASS



Mode	CH	Freq (MHz)	OBW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT80) MRU484+242	42	5210	77.174	77.917	N/A	PASS
	58	5290	78.031	78.006	N/A	PASS
	106	5530	78.559	77.885	N/A	PASS
	122	5610	76.994	77.708	N/A	PASS
	138 (U-NII-2C)	5690	73.85	73.824	N/A	PASS
	138 (U-NII-2C+U-NII-3)	5690	77.583	77.551	N/A	PASS
	138 (U-NII-3)	5690	3.734	3.726	N/A	PASS
	155	5775	77.653	77.574	N/A	PASS



Mode	CH	Freq (MHz)	OBW (MHz)		Limit (MHz)	Result
			Chain 0	Chain 1		
802.11be(EHT80) Puncturing	42	5210	78.314	77.593	N/A	PASS
	58	5290	78.652	78.068	N/A	PASS
	106	5530	78.212	78.206	N/A	PASS
	122	5610	77.6	78.054	N/A	PASS
	138 (U-NII-2C)	5690	73.135	73.819	N/A	PASS
	138 (U-NII-2C+U-NII-3)	5690	76.972	77.617	N/A	PASS
	138 (U-NII-3)	5690	3.838	3.797	N/A	PASS
	155	5775	78.295	77.589	N/A	PASS



9.4. Conducted Output Power

Requirements

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) Max. e.i.r.p $\leq 125\text{mW}$ (21 dBm) at any elevation angle above 30 degrees as measured from the horizon If $G_{\text{TX}} > 6 \text{ dBi}$, then $P_{\text{Out}} = 30 - (G_{\text{TX}} - 6)$
		Fixed point-to-point Access Point	1 Watt (30 dBm) If $G_{\text{TX}} > 23 \text{ dBi}$, then $P_{\text{Out}} = 30 - (G_{\text{TX}} - 23)$
		Indoor Access Point	1 Watt (30 dBm) If $G_{\text{TX}} > 6 \text{ dBi}$, then $P_{\text{Out}} = 30 - (G_{\text{TX}} - 6)$
	√	Client device	250mW (24 dBm) If $G_{\text{TX}} > 6 \text{ dBi}$, then $P_{\text{Out}} = 23.98 - (G_{\text{TX}} - 6)$
U-NII-2A	√		250mW (24 dBm) or 11 dBm+10 log B* If $G_{\text{TX}} > 6 \text{ dBi}$, then $P_{\text{Out}} = 23.98 - (G_{\text{TX}} - 6)$
U-NII-2C	√		250mW (24 dBm) or 11 dBm+10 log B* If $G_{\text{TX}} > 6 \text{ dBi}$, then $P_{\text{Out}} = 23.98 - (G_{\text{TX}} - 6)$
U-NII-3	√		For Point-to-multipoint systems (P2M): 1 Watt (30 dBm). If $G_{\text{TX}} > 6 \text{ dBi}$, then $P_{\text{Out}} = 30 - (G_{\text{TX}} - 6)$ For Point-to-point systems (P2P): 1 Watt (30 dBm)
U-NII-4		Indoor Access Point	Maximum e.i.r.p. 4 W
		Subordinate Device	Maximum e.i.r.p. 4 W
	-	Client Device	Maximum e.i.r.p. 1 W

Note:

1. P_{Out} = maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi, B is the 26 dB emission bandwidth in megahertz
2. If EUT with Multiple Transmitter Output:
 - a. Directional Gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{Gn/20})^2 / N_{\text{ant}}]$ dBi.
 N_{ant} : Number of Transmit Antennas
 $G1, G2, \dots, Gn$: Gain of Individual Antennas
Example: two antenna and gain 5 dBi / 3dBi, so if it was used for TxBF power measurement
Directional Gain = $10 \log[(105/20 + 103/20)^2 / 2]$ dBi = 7.07 dBi
 - b. Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices, CDD
Array Gain = 0 dB (i.e., no array gain) for $N_{\text{ANT}} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT} ;
Array Gain = $5 \log(N_{\text{ANT}}/N_{\text{SS}})$ dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{\text{ANT}} \geq 5$.
Example: Maximum antenna gain = 5 dBi and $N_{\text{ANT}} \leq 4$, so if it was used for CDD power measurement
Directional Gain = 5 dBi + Array Gain = 5 dBi + 0 dB = 5 dBi
 - c. For power measurement of KDB 662911 is used with multiple transmitter output. Total conducted power is the sum of the conducted power levels measured at the various output ports.
3. Straddle Channel Power in each band = Straddle Channel Total Power * (Each band EBW / Straddle Channel Total EBW).
Example: if CH144 EBW (Total) = 20MHz, within UNII-2C Band is 15MHz, within UNII-3 Band is 5MHz,
Total Power = 20dBm.
Calculation for UNII-2C Band Power= 20dBm * (5/20) = 13.97 dBm
Calculation for UNII-3 Band Power= 20dBm * (15/20) = 18.75 dBm.

Test Procedure

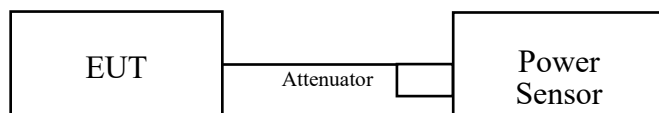
For Average Power Measurement

Test method PM

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

Test Setup

For Average Power Measurement



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

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Doc No: Form-ULID-004739 (DCS:17-EM-F0878) / 6.1

Test Data

Mode	CH	Freq. (MHz)	AVG Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Result
			Chain0	Chain1						
802.11a	36	5180	17.4	-	54.954	17.4	23.98	19.11	30	Pass
	44	5220	17.7	-	58.884	17.7	23.98	19.41	30	Pass
	48	5240	17.71	-	59.02	17.71	23.98	19.42	30	Pass
	52	5260	17.76	-	59.704	17.76	23.58	19.47	26.99	Pass
	60	5300	17.77	-	59.841	17.77	23.86	19.48	26.99	Pass
	64	5320	17.79	-	60.117	17.79	23.86	19.5	26.99	Pass
	100	5500	17.21	-	52.602	17.21	23.96	18.92	26.99	Pass
	116	5580	17.32	-	53.951	17.32	23.57	19.03	26.99	Pass
	140	5700	18.62	-	72.778	18.62	23.96	20.33	26.99	Pass
	144	5720	18.37	-	68.707	18.37	23.53	20.08	26.99	Pass
	2c-144	5720	17.27	-	53.333	17.27	22.43	18.98	26.99	Pass
	3-144	5720	11.85	-	15.311	11.85	30	13.56	36.02	Pass
	149	5745	17.78	-	59.979	17.78	30	19.49	36.02	Pass
	157	5785	17.08	-	51.05	17.08	30	18.79	36.02	Pass
	165	5825	17.6	-	57.544	17.6	30	19.31	36.02	Pass
802.11ac(VHT20)	36	5180	14.61	14.37	56.234	17.5	23.98	19.21	30	Pass
	44	5220	14.95	14.97	62.661	17.97	23.98	19.68	30	Pass
	48	5240	14.45	14.51	56.105	17.49	23.98	19.2	30	Pass
	52	5260	18.13	18.32	133.045	21.24	23.75	22.95	26.99	Pass
	60	5300	18.32	17.98	130.617	21.16	23.73	22.87	26.99	Pass
	64	5320	18.16	18.14	130.617	21.16	23.96	22.87	26.99	Pass
	100	5500	17.4	18.13	119.95	20.79	23.82	22.5	26.99	Pass
	116	5580	17.55	17.68	115.611	20.63	23.71	22.34	26.99	Pass
	140	5700	17.69	17.97	121.339	20.84	23.76	22.55	26.99	Pass
	144	5720	17.96	18.13	127.644	21.06	23.71	22.77	26.99	Pass
	2c-144	5720	16.82	16.98	97.949	19.91	22.56	21.62	26.99	Pass
	3-144	5720	11.59	11.79	29.512	14.7	30	16.41	36.02	Pass
	149	5745	17.9	18.35	130.017	21.14	30	22.85	36.02	Pass
	157	5785	17.54	17.21	109.396	20.39	30	22.1	36.02	Pass
	165	5825	17.7	17.47	114.815	20.6	30	22.31	36.02	Pass
802.11ac(VHT40)	38	5190	15.81	15.68	75.162	18.76	23.98	20.47	30	Pass
	46	5230	16	16.11	80.724	19.07	23.98	20.78	30	Pass
	54	5270	16.13	16.29	83.56	19.22	23.98	20.93	26.99	Pass
	62	5310	16.21	16.12	82.794	19.18	23.98	20.89	26.99	Pass
	102	5510	15.48	16.22	77.268	18.88	23.98	20.59	26.99	Pass
	110	5550	15.56	15.58	72.111	18.58	23.98	20.29	26.99	Pass
	134	5670	16.76	16.7	94.189	19.74	23.98	21.45	26.99	Pass
	142	5710	16.56	16.64	91.411	19.61	23.98	21.32	26.99	Pass
	2c-142	5710	16.05	16.14	81.47	19.11	23.98	20.82	26.99	Pass
	3-142	5710	7.01	7.01	10.046	10.02	30	11.73	36.02	Pass
	151	5755	16.02	16.48	84.528	19.27	30	20.98	36.02	Pass
	159	5795	15.29	15.22	67.143	18.27	30	19.98	36.02	Pass
802.11ac(VHT80)	42	5210	15.44	15.24	68.391	18.35	23.98	20.06	30	Pass
	58	5290	15.64	15.85	75.162	18.76	23.98	20.47	26.99	Pass
	106	5530	15.14	15.83	70.958	18.51	23.98	20.22	26.99	Pass
	122	5610	15.27	15.45	68.707	18.37	23.98	20.08	26.99	Pass
	138	5690	15.33	15.36	68.549	18.36	23.98	20.07	26.99	Pass
	2c-138	5690	15.07	15.1	64.565	18.1	23.98	19.81	26.99	Pass
	3-138	5690	2.91	2.97	3.936	5.95	30	7.66	36.02	Pass
	155	5775	15.77	16.25	79.983	19.03	30	20.74	36.02	Pass

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Mode	CH	Freq. (MHz)	AVG Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Result
			Chain0	Chain1						
802.11be(EHT20)	36	5180	14.26	14.07	52.24	17.18	23.98	18.89	30	Pass
	44	5220	14.56	14.68	57.943	17.63	23.98	19.34	30	Pass
	48	5240	14.57	14.67	57.943	17.63	23.98	19.34	30	Pass
	52	5260	17.77	18.1	124.451	20.95	23.97	22.66	26.99	Pass
	60	5300	18.02	17.71	122.462	20.88	23.97	22.59	26.99	Pass
	64	5320	18.26	18.32	134.896	21.3	23.96	23.01	26.99	Pass
	100	5500	17.56	18.24	123.595	20.92	23.96	22.63	26.99	Pass
	116	5580	17.65	17.87	119.399	20.77	23.95	22.48	26.99	Pass
	140	5700	18.07	18.23	130.617	21.16	23.98	22.87	26.99	Pass
	144	5720	18.01	18.27	130.317	21.15	23.94	22.86	26.99	Pass
	2c-144	5720	16.79	17.04	98.401	19.93	22.72	21.64	26.99	Pass
	3-144	5720	11.91	12.18	32.063	15.06	30	16.77	36.02	Pass
	149	5745	18.03	18.58	135.519	21.32	30	23.03	36.02	Pass
	157	5785	17.82	17.41	115.611	20.63	30	22.34	36.02	Pass
	165	5825	17.75	17.66	118.032	20.72	30	22.43	36.02	Pass
802.11be(EHT40)	38	5190	15.96	15.85	77.983	18.92	23.98	20.63	30	Pass
	46	5230	16.13	16.25	83.176	19.2	23.98	20.91	30	Pass
	54	5270	16.3	16.46	86.896	19.39	23.98	21.1	26.99	Pass
	62	5310	16.42	16.3	86.497	19.37	23.98	21.08	26.99	Pass
	102	5510	15.72	16.42	81.096	19.09	23.98	20.8	26.99	Pass
	110	5550	15.78	15.67	74.817	18.74	23.98	20.45	26.99	Pass
	134	5670	16.97	16.82	97.949	19.91	23.98	21.62	26.99	Pass
	142	5710	16.72	16.75	94.406	19.75	23.98	21.46	26.99	Pass
	2c-142	5710	16.17	16.2	83.176	19.2	23.98	20.91	26.99	Pass
	3-142	5710	7.51	7.53	11.298	10.53	30	12.24	36.02	Pass
	151	5755	16.19	16.72	88.512	19.47	30	21.18	36.02	Pass
	159	5795	15.61	15.5	71.945	18.57	30	20.28	36.02	Pass
802.11be(EHT80)	42	5210	15.88	15.6	74.989	18.75	23.98	20.46	30	Pass
	58	5290	16.12	16.23	82.985	19.19	23.98	20.9	26.99	Pass
	106	5530	15.51	16.16	76.913	18.86	23.98	20.57	26.99	Pass
	122	5610	15.71	15.82	75.509	18.78	23.98	20.49	26.99	Pass
	138	5690	15.83	15.79	76.208	18.82	23.98	20.53	26.99	Pass
	2c-138	5690	15.55	15.5	71.45	18.54	23.98	20.25	26.99	Pass
	3-138	5690	3.85	3.86	4.864	6.87	30	8.58	36.02	Pass
	155	5775	16.21	16.69	88.512	19.47	30	21.18	36.02	Pass
802.11be(EHT20)RU26	36	5180	6.91	6.63	9.506	9.78	23.98	11.49	30	Pass
	44	5220	6.55	7.35	9.954	9.98	23.98	11.69	30	Pass
	48	5240	6.16	8.13	10.641	10.27	23.98	11.98	30	Pass
	52	5260	11.68	12.53	32.659	15.14	N/A	16.85	26.99	Pass
	60	5300	11.42	12.25	30.69	14.87	N/A	16.58	26.99	Pass
	64	5320	11.91	11.81	30.69	14.87	N/A	16.58	26.99	Pass
	100	5500	11.32	12.47	31.189	14.94	N/A	16.65	26.99	Pass
	116	5580	11.45	11.97	29.717	14.73	N/A	16.44	26.99	Pass
	140	5700	11.82	11.86	30.549	14.85	N/A	16.56	26.99	Pass
	144	5720	11.43	11.91	29.444	14.69	N/A	16.4	26.99	Pass
	2c-144	5720	10.05	10.53	21.429	13.31	N/A	15.02	26.99	Pass
	3-144	5720	5.78	6.27	8.017	9.04	30	10.75	36.02	Pass
	149	5745	18.56	19.93	170.216	22.31	30	24.02	36.02	Pass
	157	5785	17.63	17.37	112.46	20.51	30	22.22	36.02	Pass
	165	5825	17.94	17.84	123.027	20.9	30	22.61	36.02	Pass

Mode	CH	Freq. (MHz)	AVG Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Result
			Chain0	Chain1						
802.11be(EHT20)RU52	36	5180	10.01	9.82	19.634	12.93	23.98	14.64	30	Pass
	44	5220	9.79	10.02	19.588	12.92	23.98	14.63	30	Pass
	48	5240	10.07	10.03	20.23	13.06	23.98	14.77	30	Pass
	52	5260	14.21	14.91	57.28	17.58	N/A	19.29	26.99	Pass
	60	5300	14.14	14.79	56.105	17.49	N/A	19.2	26.99	Pass
	64	5320	15	14.81	61.944	17.92	N/A	19.63	26.99	Pass
	100	5500	14.38	14.51	55.719	17.46	N/A	19.17	26.99	Pass
	116	5580	14.29	14.79	57.016	17.56	N/A	19.27	26.99	Pass
	140	5700	14.33	14.32	54.2	17.34	N/A	19.05	26.99	Pass
	144	5720	14.76	14.21	56.234	17.5	N/A	19.21	26.99	Pass
	2c-144	5720	13.39	12.81	40.926	16.12	N/A	17.83	26.99	Pass
	3-144	5720	9.08	8.6	15.346	11.86	30	13.57	36.02	Pass
	149	5745	18.39	19.51	158.489	22	30	23.71	36.02	Pass
	157	5785	17.72	17.61	116.95	20.68	30	22.39	36.02	Pass
802.11be(EHT20)RU106	165	5825	18.57	18.31	139.637	21.45	30	23.16	36.02	Pass
	36	5180	13.44	12.72	40.832	16.11	23.98	17.82	30	Pass
	44	5220	12.76	12.67	37.411	15.73	23.98	17.44	30	Pass
	48	5240	12.79	13.16	39.719	15.99	23.98	17.7	30	Pass
	52	5260	17.56	17.34	111.173	20.46	N/A	22.17	26.99	Pass
	60	5300	17.04	17.19	103.039	20.13	N/A	21.84	26.99	Pass
	64	5320	17.39	17.09	105.925	20.25	N/A	21.96	26.99	Pass
	100	5500	17.05	18.21	116.95	20.68	N/A	22.39	26.99	Pass
	116	5580	17.46	17.82	116.145	20.65	N/A	22.36	26.99	Pass
	140	5700	16.97	16.89	98.628	19.94	N/A	21.65	26.99	Pass
	144	5720	17.05	17.38	105.439	20.23	N/A	21.94	26.99	Pass
	2c-144	5720	15.67	15.93	76.033	18.81	N/A	20.52	26.99	Pass
	3-144	5720	11.4	11.92	29.376	14.68	30	16.39	36.02	Pass
	149	5745	18.69	19.81	169.824	22.3	30	24.01	36.02	Pass
	157	5785	17.91	17.79	121.899	20.86	30	22.57	36.02	Pass
802.11be(EHT20)MRU52+26	165	5825	18.47	18.34	138.676	21.42	30	23.13	36.02	Pass
	36	5180	11.15	11.5	27.164	14.34	23.98	16.05	30	Pass
	44	5220	11.78	11.86	30.409	14.83	23.98	16.54	30	Pass
	48	5240	11.32	11.7	28.314	14.52	23.98	16.23	30	Pass
	52	5260	16.38	16.36	86.696	19.38	N/A	21.09	26.99	Pass
	60	5300	16.05	16.19	81.846	19.13	N/A	20.84	26.99	Pass
	64	5320	16.29	15.87	81.283	19.1	N/A	20.81	26.99	Pass
	100	5500	16.25	16.62	88.105	19.45	N/A	21.16	26.99	Pass
	116	5580	16.08	16.32	83.368	19.21	N/A	20.92	26.99	Pass
	140	5700	15.96	15.92	78.524	18.95	N/A	20.66	26.99	Pass
	144	5720	15.75	15.9	76.56	18.84	N/A	20.55	26.99	Pass
	2c-144	5720	14.51	14.7	57.81	17.62	N/A	19.33	26.99	Pass
	3-144	5720	9.71	9.72	18.75	12.73	30	14.44	36.02	Pass
	149	5745	18.98	19.12	160.694	22.06	30	23.77	36.02	Pass
	157	5785	17.95	17.46	118.032	20.72	30	22.43	36.02	Pass
	165	5825	18.66	18.48	143.88	21.58	30	23.29	36.02	Pass

Mode	CH	Freq. (MHz)	AVG Power (dBm)		Total Power (mW)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Result
			Chain0	Chain1						
802.11be(EHT20)MRU106+26	36	5180	12.25	12.43	34.277	15.35	23.98	17.06	30	Pass
	44	5220	12.76	13.07	39.174	15.93	23.98	17.64	30	Pass
	48	5240	12.57	12.9	37.584	15.75	23.98	17.46	30	Pass
	52	5260	17.71	17.63	116.95	20.68	N/A	22.39	26.99	Pass
	60	5300	16.97	17.01	100	20	N/A	21.71	26.99	Pass
	64	5320	17.14	16.99	101.859	20.08	N/A	21.79	26.99	Pass
	100	5500	17.07	18.26	118.032	20.72	N/A	22.43	26.99	Pass
	116	5580	17.22	17.56	109.648	20.4	N/A	22.11	26.99	Pass
	140	5700	16.93	16.88	98.175	19.92	N/A	21.63	26.99	Pass
	144	5720	16.74	16.89	96.161	19.83	N/A	21.54	26.99	Pass
	2c-144	5720	15.39	15.55	70.469	18.48	N/A	20.19	26.99	Pass
	3-144	5720	11	11.14	25.586	14.08	30	15.79	36.02	Pass
	149	5745	18.75	19.01	154.525	21.89	30	23.6	36.02	Pass
	157	5785	17.94	17.53	118.85	20.75	30	22.46	36.02	Pass
	165	5825	18.27	18.03	130.617	21.16	30	22.87	36.02	Pass
802.11be(EHT80)MRU484+242	42	5210	16.13	15.95	80.353	19.05	23.98	20.76	30	Pass
	58	5290	16.33	16.53	87.902	19.44	N/A	21.15	26.99	Pass
	106	5530	15.85	16.53	83.368	19.21	N/A	20.92	26.99	Pass
	122	5610	15.89	16.01	78.705	18.96	N/A	20.67	26.99	Pass
	138	5690	15.91	15.95	78.343	18.94	N/A	20.65	26.99	Pass
	2c-138	5690	15.63	15.66	73.451	18.66	N/A	20.37	26.99	Pass
	3-138	5690	3.91	4.12	5.047	7.03	30	8.74	36.02	Pass
	155	5775	16.35	16.73	90.157	19.55	30	21.26	36.02	Pass
802.11be(EHT80)Puncturing	42	5210	16.17	16.04	81.658	19.12	23.98	20.83	30	Pass
	58	5290	16.38	16.55	88.716	19.48	N/A	21.19	26.99	Pass
	106	5530	15.97	16.63	85.507	19.32	N/A	21.03	26.99	Pass
	122	5610	15.9	16.07	79.433	19	N/A	20.71	26.99	Pass
	138	5690	15.94	16.01	79.25	18.99	N/A	20.7	26.99	Pass
	2c-138	5690	15.65	15.72	74.131	18.7	N/A	20.41	26.99	Pass
	3-138	5690	4.01	4.04	5.058	7.04	30	8.75	36.02	Pass
	155	5775	16.48	16.86	92.897	19.68	30	21.39	36.02	Pass

9.5. Power Spectral Density

Requirements

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	17dBm/ MHz If $G_{TX} > 6$ dBi, then $PSD = 17 - (G_{TX} - 6)$
		Fixed point-to-point Access Point	17dBm/ MHz If $G_{TX} > 23$ dBi, then $PSD = 17 - (G_{TX} - 23)$
		Indoor Access Point	17dBm/ MHz If $G_{TX} > 6$ dBi, then $PSD = 17 - (G_{TX} - 6)$
	√	Client device	11dBm/ MHz If $G_{TX} > 6$ dBi, then $PSD = 11 - (G_{TX} - 6)$
U-NII-2A	√		11dBm/ MHz If $G_{TX} > 6$ dBi, then $PSD = 11 - (G_{TX} - 6)$
U-NII-2C	√		11dBm/ MHz If $G_{TX} > 6$ dBi, then $PSD = 11 - (G_{TX} - 6)$
U-NII-3	√		For Point-to-multipoint systems (P2M): 30dBm/ 500kHz. If $G_{TX} > 6$ dBi, then $PSD = 30 - (G_{TX} - 6)$ For Point-to-point systems (P2P): 30dBm/ 500kHz
U-NII-4		Indoor Access Point	Maximum e.i.r.p. PSD 20 dBm/MHz
		Subordinate Device	Maximum e.i.r.p. PSD 20 dBm/MHz
	-	Client Device	Maximum e.i.r.p. PSD 14 dBm/MHz

Note:

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

Test procedure**For U-NII-1, U-NII-2A, U-NII-2C band:****Using method as below:**

- a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
- b. Set RBW = 1 MHz, Set VBW $\geq$ 3 RBW, Detector = RMS
- c. Sweep time = auto, trigger set to "free run".
- d. Trace average at least 100 traces in power averaging mode.
- e. Record the max value. (if Duty cycle <98 %, add $10 \log (1/\text{duty cycle})$)
- f. The plot of the test result only shows the worst case of channels as a representative.

For U-NII-3 band:**Using method as below:**

- a. Set span to encompass the entire emission bandwidth (EBW) of the signal.
- b. Set RBW = 300 kHz, Set VBW $\geq$ 1 MHz, Detector = RMS
- c. Use the peak marker function to determine the maximum power level in any 300 kHz band segment within the fundamental EBW.
- d. Scale the observed power level to an equivalent value in 500 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where $BWCF = 10 \log (500 \text{ kHz}/300\text{kHz})$
- e. Sweep time = auto, trigger set to "free run".
- f. Trace average at least 100 traces in power averaging mode.
- g. Record the max value. (if Duty cycle <98 %, add $10 \log (1/\text{duty cycle})$)
- h. The plot of the test result only shows the worst case of channels as a representative.

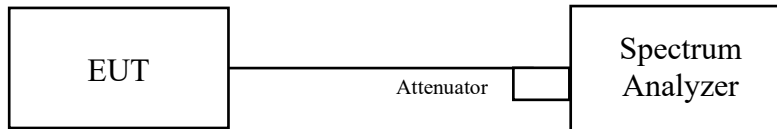
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Doc No: Form-ULID-004739 (DCS:17-EM-F0878) / 6.1

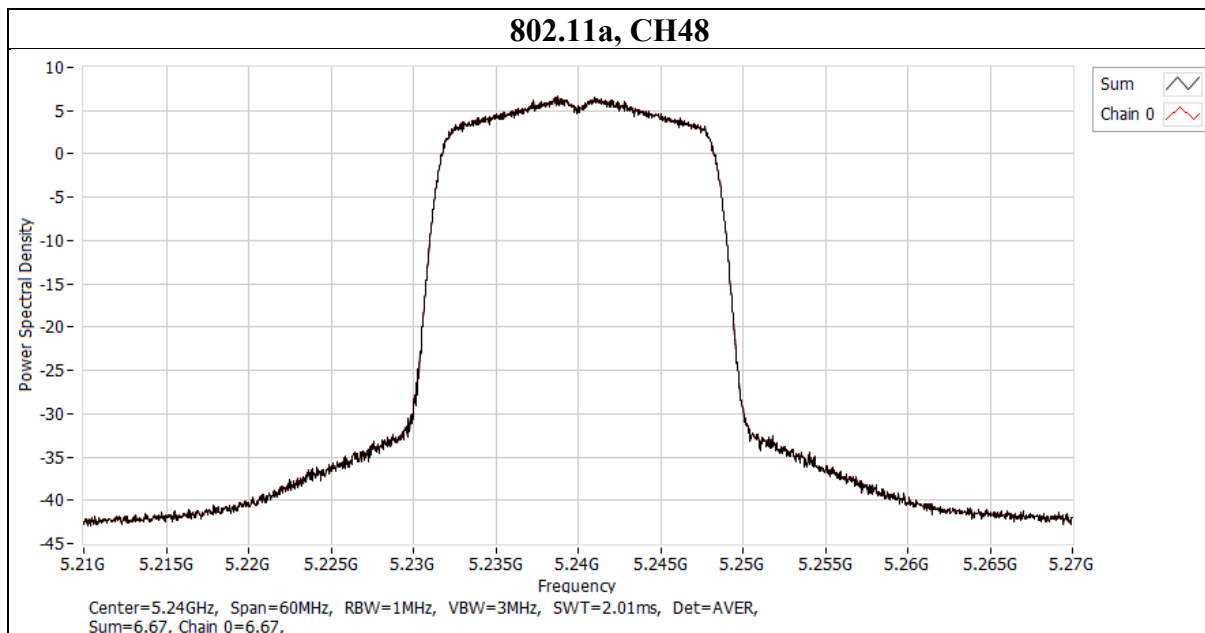
Test Setup

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

Test Data

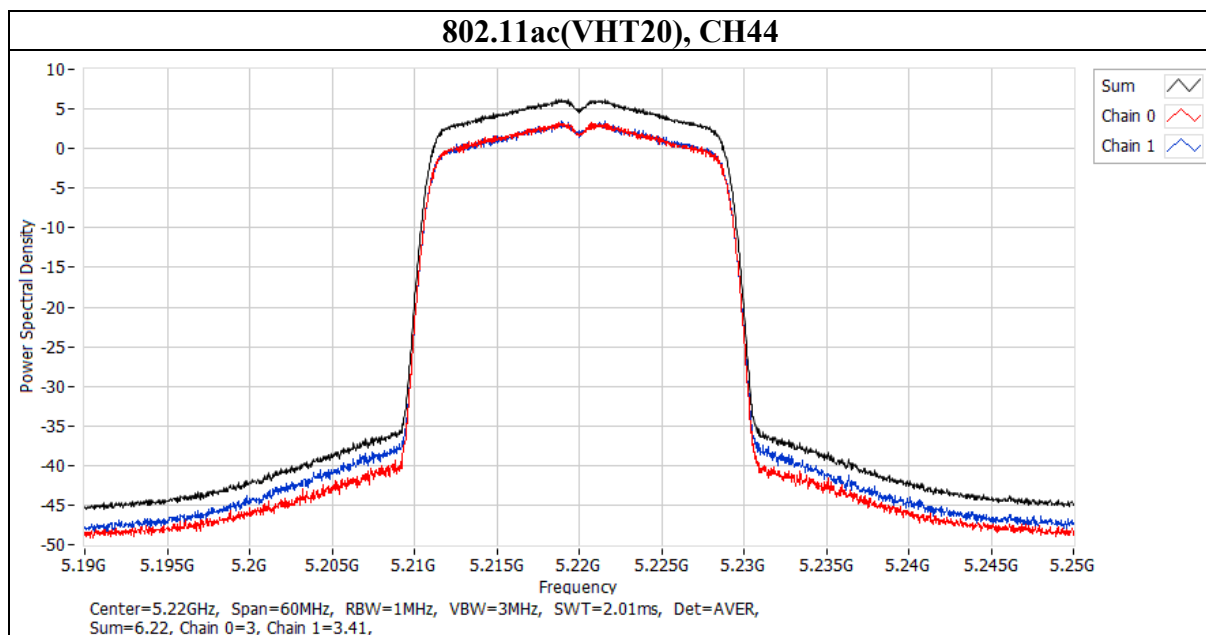
Mode (U-NII-1)	CH	Freq (MHz)	Directional Gain (dBi)	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
802.11a	36	5180	1.71	6.47	11	PASS
	44	5220	1.71	6.49	11	PASS
	48	5240	1.71	6.67	11	PASS

Mode (U-NII-1)	CH	Freq (MHz)	PSD per Chain (dBm/MHz)
			Chain 0
802.11a	36	5180	6.47
	44	5220	6.49
	48	5240	6.67



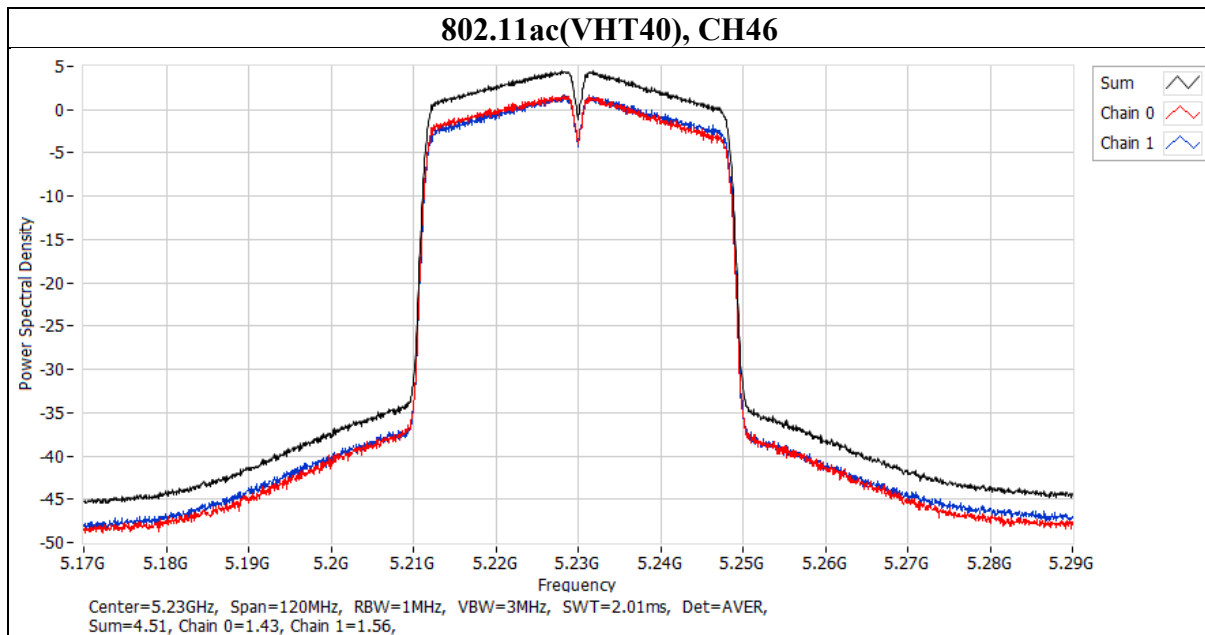
Mode (U-NII-1)	CH	Freq (MHz)	Directional Gain (dBi)	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
802.11ac(VHT20)	36	5180	4.14	5.99	11	PASS
	44	5220	4.14	6.22	11	PASS
	48	5240	4.14	5.67	11	PASS

Mode (U-NII-1)	CH	Freq (MHz)	PSD per Chain (dBm/MHz)	
			Chain 0	Chain 1
802.11ac(VHT20)	36	5180	3.06	3.05
	44	5220	3.36	3.41
	48	5240	2.74	2.89



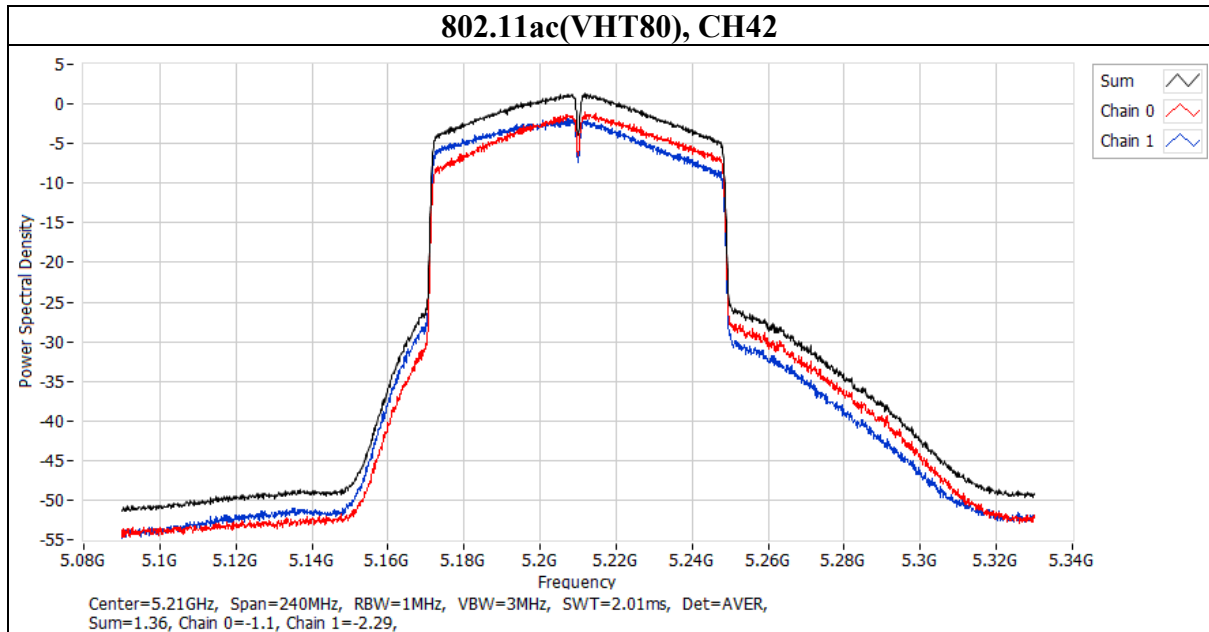
Mode (U-NII-1)	CH	Freq (MHz)	Directional Gain (dBi)	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
802.11ac(VHT40)	38	5190	4.14	4.23	11	PASS
	46	5230	4.14	4.51	11	PASS

Mode (U-NII-1)	CH	Freq (MHz)	PSD per Chain (dBm/MHz)	
			Chain 0	Chain 1
802.11ac(VHT40)	38	5190	1.42	1.48
	46	5230	1.77	1.64



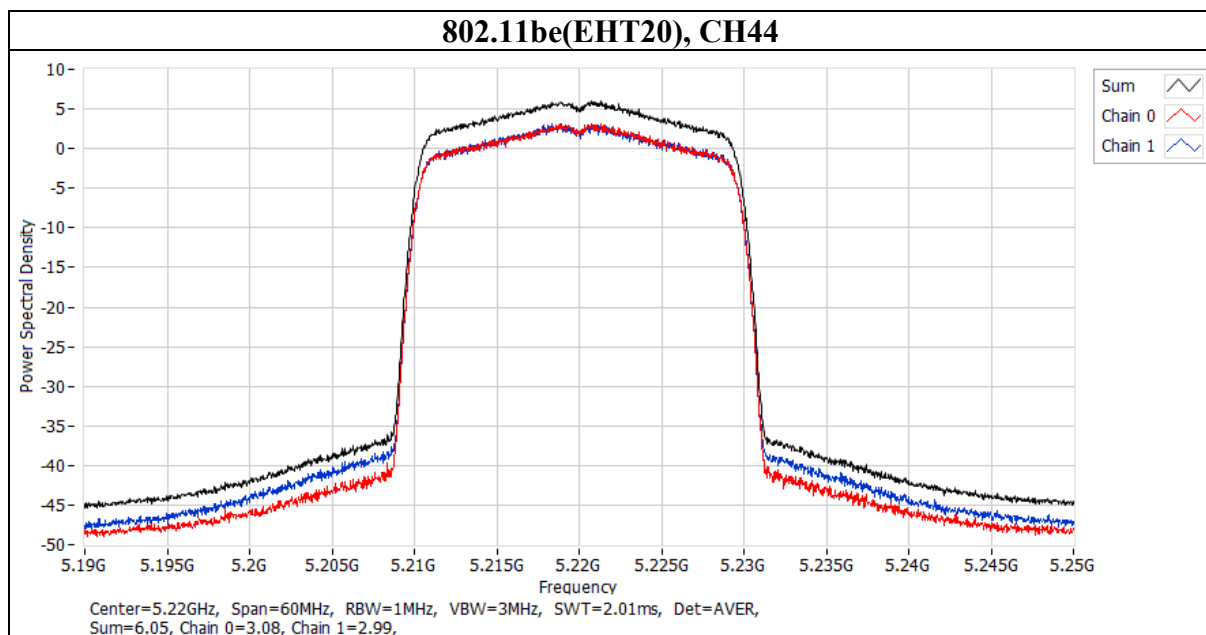
Mode (U-NII-1)	CH	Freq (MHz)	Directional Gain (dBi)	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
802.11ac(VHT80)	42	5210	4.14	1.36	11	PASS

Mode (U-NII-1)	CH	Freq (MHz)	PSD per Chain (dBm/MHz)	
			Chain 0	Chain 1
802.11ac(VHT80)	42	5210	-1.1	-1.89



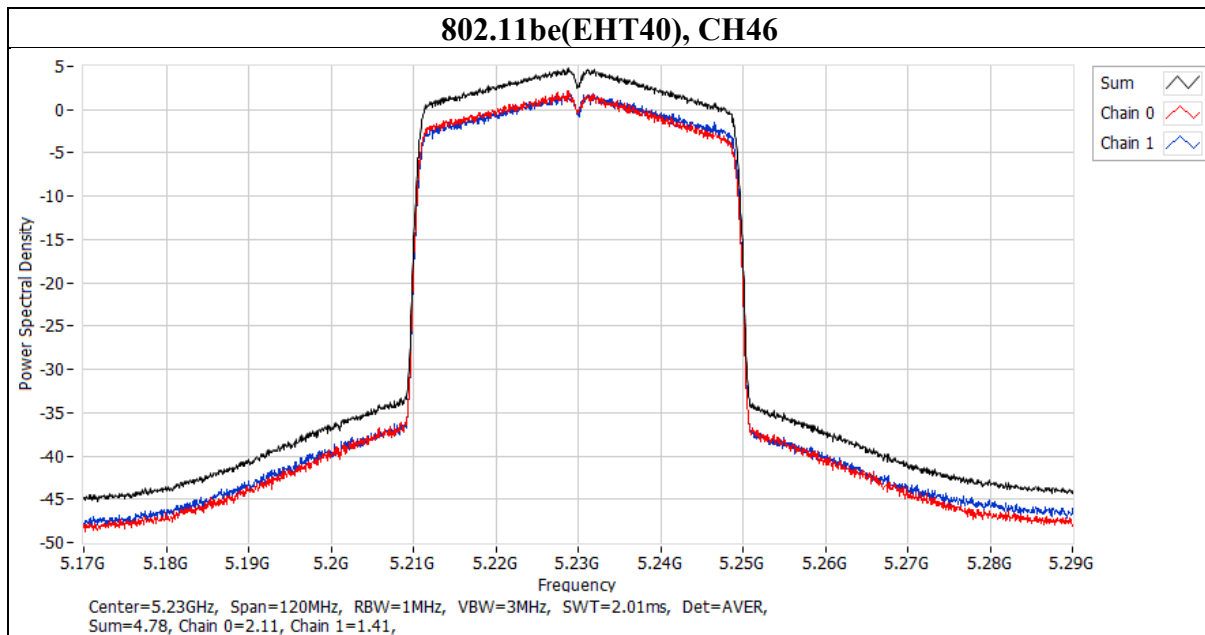
Mode (U-NII-1)	CH	Freq (MHz)	Directional Gain (dBi)	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
802.11be(EHT20)	36	5180	4.14	5.9	11	PASS
	44	5220	4.14	6.05	11	PASS
	48	5240	4.14	6.03	11	PASS

Mode (U-NII-1)	CH	Freq (MHz)	PSD per Chain (dBm/MHz)	
			Chain 0	Chain 1
802.11be(EHT20)	36	5180	3.19	2.64
	44	5220	3.08	3.15
	48	5240	3.08	3.26



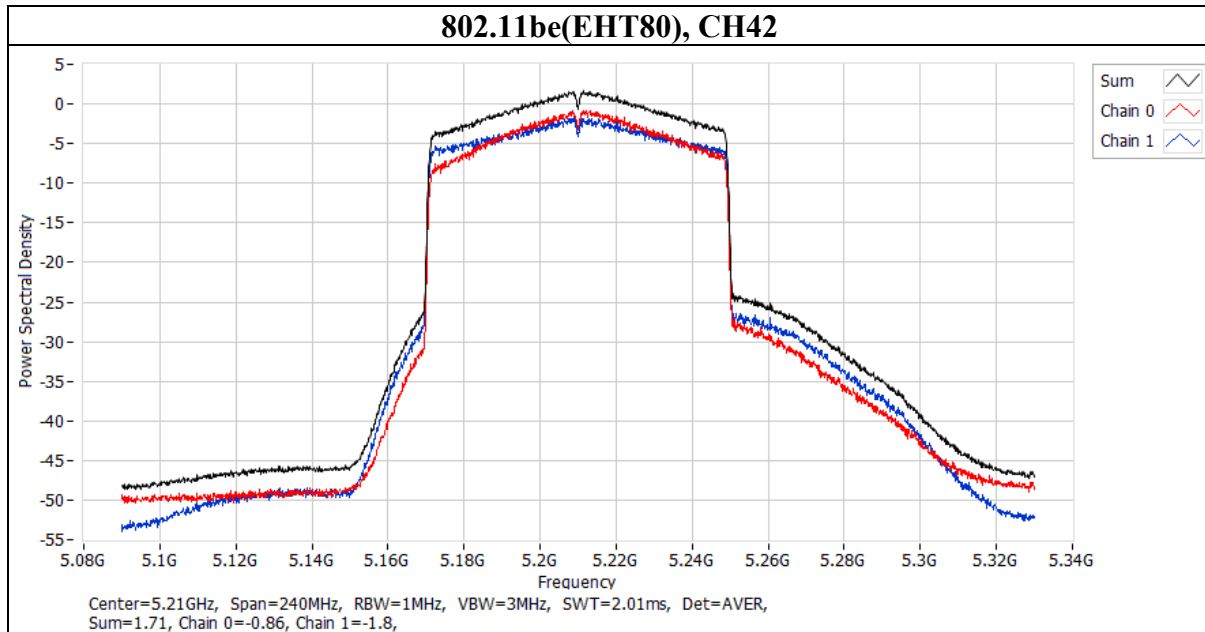
Mode (U-NII-1)	CH	Freq (MHz)	Directional Gain (dBi)	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
802.11be(EHT40)	38	5190	4.14	4.73	11	PASS
	46	5230	4.14	4.78	11	PASS

Mode (U-NII-1)	CH	Freq (MHz)	PSD per Chain (dBm/MHz)	
			Chain 0	Chain 1
802.11be(EHT40)	38	5190	2.11	1.9
	46	5230	2.12	1.83



Mode (U-NII-1)	CH	Freq (MHz)	Directional Gain (dBi)	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
802.11be(EHT80)	42	5210	4.14	1.71	11	PASS

Mode (U-NII-1)	CH	Freq (MHz)	PSD per Chain (dBm/MHz)	
			Chain 0	Chain 1
802.11be(EHT80)	42	5210	-0.8	-1.64



Mode (U-NII-2A)	CH	Freq (MHz)	Directional Gain (dBi)	Total PSD (dBm/MHz)	Limit (dBm/MHz)	Result
802.11a	52	5260	1.71	6.65	11	PASS
	60	5300	1.71	6.55	11	PASS
	64	5320	1.71	6.55	11	PASS

Mode (U-NII-2A)	CH	Freq (MHz)	PSD per Chain (dBm/MHz)
			Chain 0
802.11a	52	5260	6.65
	60	5300	6.55
	64	5320	6.55

