



TEST REPORT

Eurofins KCTL Co.,Ltd. 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea TEL: 82-70-5008-1021 FAX: 82-505-299-8311 www.kctl.co.kr	Report No.: KR25-SRF0005 Page (1) of (139)	
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1. Applicant

◦ Name : Samsung Electronics Co., Ltd.

◦ Address : 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea

2. Use of Report : Certification

3. Type of Equipment / Model : Wi-Fi/BT Transceiver / WCF930M

4. Manufacturer / Country of Origin : Samsung Electronics Co., Ltd. / Korea, Vietnam, China

5. FCC ID : A3LWCF930M

6. IC Certificate No. : 649E-WCF930M

7. Date of Test : 2024-11-22 to 2025-01-14

Date of Issuing : 2025-01-16

8. Test Standard(method) used : FCC Part 15 Subpart E, 15.407
RSS-248 Issue 3 October 2024
RSS-Gen Issue 5 February 2021

9. Test Result : Refer to the test result in the test report

Affirmation	Tested by Name : Sunghyun Yoon (Signature)	Technical Manager Name : Harim Lee (Signature)
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2025-01-16

Eurofins KCTL Co.,Ltd.

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REPORT REVISION HISTORY

Date	Revision	Page No
2025-01-16	Originally issued	-

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General remarks for test reports

Statement concerning the uncertainty of the measurement systems used for the tests

(may be required by the product standard or client)

☐ Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:

Procedure number, issue date and title:

Calculations leading to the reported values are on file with the testing laboratory that conducted the testing.

☒ Statement not required by the standard or client used for type testing

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1. General information

Applicant	: Samsung Electronics Co., Ltd.
Address	: 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Manufacturer	: Samsung Electronics Co., Ltd.
Address	: 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Factory 1	: CHEMTRONICS CO., LTD.
Address 1	: 35, Buk-ri, Namsa-myeon, Cheoin-gu, Yongin-si, Gyeonggi-do, Korea
Factory 2	: CHEMTROVINA COMPANY LIMITED
Address 2	: Nhon Trach 2-Loc Khang IZ, Hiep Phuoc Town, Nhon Trach District,, Dong Nai Province, Vietnam
Factory 3	: SJIT CO., LTD.
Address 3	: #54-11, Dongtanhana 1gil, Hwaseong-si, Gyeonggi-do, Korea
Factory 4	: SJIT VINA Co., Ltd
Address 4	: Lot X2, Ho Nai Industrial Zone, Ho Nai 3 Commune, Trang Bom District, Dong Nai Province, Vietnam
Factory 5	: Chengdu Xuguang Technology Co., Ltd.
Address 5	: No.86 2nd Section, Park Road, Longquanyi District, Chengdu City, Sichuan Province, P.R.China
Factory 6	: XUGUANG TECHNOLOGY (VIETNAM) COMPANY LIMITED
Address 6	: Factory No.4, Lot CN1, An Duong Industrial Park, Hong Phong Commune, An Duong District, Hai Phong City, Vietnam
Laboratory	: Eurofins KCTL Co.,Ltd.
Address	: 65, Sinwon-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Korea
Accreditations	: FCC Site Designation No: KR0040, FCC Site Registration No: 687132 VCCI Registration No. : R-20080, G-20078, C-20059, T-20056 CAB Identifier: KR0040, ISED Number: 8035A KOLAS No.: KT231

2. Device information

Equipment under test	: Wi-Fi/BT Transceiver			
Model	: WCF930M			
Modulation technique	: WIFI(802.11a/ax/be) : OFDM, OFDMA			
Number of channels	: UNII 5	: 24 ch (20 MHz), 12 ch (40 MHz), 6 ch (80 MHz), 3 ch (160 MHz)		
	: UNII 6	: 5 ch (20 MHz), 3 ch (40 MHz), 1 ch (80 MHz), 1 ch (160 MHz)		
	: UNII 7	: 18 ch (20 MHz), 8 ch (40 MHz), 5 ch (80 MHz), 2 ch (160 MHz)		
	: UNII 8	: 12 ch (20 MHz), 6 ch (40 MHz), 2 ch (80 MHz), 1 ch (160 MHz)		
Power source	: DC 5 V			
Antenna specification	: Antenna 1	: Metal Antenna		
	: Antenna 2	: Metal Antenna		
Antenna gain	: Antenna 1		: Antenna 2	
	: UNII 5	: 0.04 dBi	: UNII 5	: -0.80 dBi
	: UNII 6	: 0.64 dBi	: UNII 6	: -1.96 dBi
	: UNII 7	: 0.64 dBi	: UNII 7	: -0.20 dBi
	: UNII 8	: -0.92 dBi	: UNII 8	: -0.48 dBi
Frequency range	: UNII 5	: 5 975 MHz ~ 6 375 MHz		(802.11a)
	: UNII 5	: 5 955 MHz ~ 6 415 MHz		(802.11ax/be_HE20/EHT20)
	: UNII 5	: 5 965 MHz ~ 6 405 MHz		(802.11ax/be_HE40/EHT40)
	: UNII 5	: 5 985 MHz ~ 6 385 MHz		(802.11ax/be_HE80/EHT80)
	: UNII 5	: 6 025 MHz ~ 6 345 MHz		(802.11ax/be_HE160/EHT160)
	: UNII 6	: 6 455 MHz		(802.11a)
	: UNII 6	: 6 435 MHz ~ 6 515 MHz		(802.11ax/be_HE20/EHT20)
	: UNII 6	: 6 445 MHz ~ 6 525 MHz		(802.11ax/be_HE40/EHT40)
	: UNII 6	: 6 465 MHz		(802.11ax/be_HE80/EHT80)
	: UNII 6	: 6 505 MHz		(802.11ax/be_HE160/EHT160)
	: UNII 7	: 6 535 MHz ~ 6 855 MHz		(802.11a)
	: UNII 7	: 6 535 MHz ~ 6 875 MHz		(802.11ax/be_HE20/EHT20)
	: UNII 7	: 6 565 MHz ~ 6 845 MHz		(802.11ax/be_HE40/EHT40)
	: UNII 7	: 6 545 MHz ~ 6 865 MHz		(802.11ax/be_HE80/EHT80)
	: UNII 7	: 6 665 MHz ~ 6 825 MHz		(802.11ax/be_HE160/EHT160)
	: UNII 8	: 6 935 MHz ~ 7 095 MHz		(802.11a)
	: UNII 8	: 6 895 MHz ~ 7 115 MHz		(802.11ax/be_HE20/EHT20)

UNII 8 : 6 885 MHz ~ 7 085 MHz (802.11ax/be_HE40/EHT40)
 UNII 8 : 6 945 MHz ~ 7 025 MHz (802.11ax/be_HE80/EHT80)
 UNII 8 : 6 985 MHz (802.11ax/be_HE160/EHT160)
 Software version : FC 1.*
 Hardware version : WCF930M
 Test device serial No. : Conducted : 2015DE586639
 : Radiated : 2015DE5865F7
 Operation temperature : -10 °C ~ 50 °C

2.1. Frequency/channel operations

This device contains the following capabilities:

WLAN (11a/ax_HE20/40/80/160/be_EHT20/40/80/160)

UNII-5

Ch.	Frequency (MHz)
5	5 975
37	6 135
85	6 375

UNII-6

Ch.	Frequency (MHz)
101	6 455

UNII-7

Ch.	Frequency (MHz)
117	6 535
149	6 695
181	6 855

UNII-8

Ch.	Frequency (MHz)
197	6 935
213	7 015
229	7 095

Table 2.1-1. 802.11a mode

UNII-5

Ch.	Frequency (MHz)
1	5 955
45	6 175
93	6 415

UNII-6

Ch.	Frequency (MHz)
97	6 435
105	6 475
113	6 515

UNII-7

Ch.	Frequency (MHz)
117	6 535
149	6 695
185	6 875

UNII-8

Ch.	Frequency (MHz)
189	6 895
209	6 995
233	7 115

Table 2.1-2. 802.11ax/be_HE20/EHT20 mode

UNII-5

Ch.	Frequency (MHz)
3	5 965
43	6 165
91	6 405

UNII-6

Ch.	Frequency (MHz)
99	6 445
107	6 485
115	6 525

UNII-7

Ch.	Frequency (MHz)
123	6 565
147	6 685
179	6 845

UNII-8

Ch.	Frequency (MHz)
187	6 885
211	7 005
227	7 085

Table 2.1-3. 802.11ax/be_HE40/EHT40 mode

UNII-5

Ch.	Frequency (MHz)
7	5 985
39	6 145
87	6 385

UNII-6

Ch.	Frequency (MHz)
103	6 465

UNII-7

Ch.	Frequency (MHz)
119	6 545
151	6 705
183	6 865

UNII-8

Ch.	Frequency (MHz)
199	6 945
215	7 025

Table 2.1-4. 802.11ax/be_HE80/EHT80 mode

UNII-5		UNII-6		UNII-7		UNII-8	
Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)	Ch.	Frequency (MHz)
15	6 025	111	6 505	143	6 665	207	6 985
47	6 185			175	6 825		
79	6 345						

Table 2.1-5. 802.11ax/be_HE160/EHT160 mode



2.2. RF power setting in TEST SW

Test Program	Test mode
QATool	802.11a/ax_HE20/40/80/160/be_EHT20/40/80/160

Band	Mode	RU Type	Frequency [MHz]	RF Power setting value		
				SISO ANT2	MIMO ANT1 ANT2	
802.11a	UNII 5	-	5 975	12.00	-	-
		-	6 135	12.00	-	-
		-	6 375	12.00	-	-
	UNII 6	-	6 455	12.00	-	-
		-	6 535	12.00	-	-
		-	6 695	12.00	-	-
	UNII 7	-	6 855	11.00	-	-
		-	6 935	12.00	-	-
		-	7 015	12.00	-	-
		-	7 095	12.00	-	-
802.11ax_HE20 & 802.11be_EHT20	UNII 5	SU	5 955	12.00	5.00	5.00
		SU	6 175	12.00	5.00	5.00
		SU	6 415	12.00	5.00	5.00
	UNII 6	SU	6 435	12.00	5.00	5.00
		SU	6 475	12.00	5.00	5.00
		SU	6 515	12.00	5.00	5.00
	UNII 7	SU	6 535	12.00	5.00	5.00
		SU	6 695	12.00	5.00	5.00
		SU	6 875	12.00	5.00	5.00
	UNII 8	SU	6 895	12.00	5.00	5.00
		SU	6 995	12.00	5.00	5.00
		SU	7 115	12.00	5.00	5.00
		SU	5 965	14.00	9.00	9.00
	UNII 5	SU	6 165	14.00	9.00	9.00
		SU	6 405	14.00	9.00	9.00
802.11ax_HE40 & 802.11be_EHT40	UNII 6	SU	6 445	14.00	9.00	9.00
		SU	6 485	14.00	9.00	9.00
		SU	6 525	14.00	9.00	9.00
	UNII 7	SU	6 565	14.00	9.00	9.00
		SU	6 685	14.00	9.00	9.00
		SU	6 845	14.00	9.00	9.00
	UNII 8	SU	6 885	14.00	9.00	9.00
		SU	7 005	14.00	9.00	9.00
		SU	7 085	14.00	9.00	9.00
		SU	5 985	14.00	13.00	13.00
	UNII 5	SU	6 145	14.00	13.00	13.00
		SU	6 385	14.00	13.00	13.00
	UNII 6	SU	6 465	14.00	13.00	13.00
		SU	6 545	14.00	13.00	13.00
802.11ax_HE80 & 802.11be_EHT80	UNII 7	SU	6 705	14.00	13.00	13.00
		SU	6 865	14.00	12.00	12.00
		SU	6 945	14.00	13.00	13.00
	UNII 8	SU	7 025	14.00	13.00	13.00
		SU	6 025	16.00	16.00	16.00
		SU	6 185	16.00	16.00	16.00
		SU	6 345	15.00	15.00	15.00
	UNII 6	SU	6 505	16.00	16.00	16.00
		SU	6 665	15.00	15.00	15.00
		SU	6 825	14.00	14.00	14.00
802.11ax_HE160 & 802.11be_EHT160	UNII 7	SU	6 985	16.00	16.00	16.00
		SU	6 025	16.00	16.00	16.00
		SU	6 185	16.00	16.00	16.00
	UNII 8	SU	6 345	15.00	15.00	15.00

2.3. Maximum RF Output power

Band	Mode	RU Type	Maximum RF output Power	
			[dBm]	
			SISO ANT2	MIMO ANT1+ANT2
802.11a	UNII 5	-	15.87	N/A
	UNII 6	-	14.02	
	UNII 7	-	15.20	
	UNII 8	-	15.04	
802.11ax_HE20	UNII 5	SU	14.74	10.41
	UNII 6	SU	14.93	10.25
	UNII 7	SU	15.41	10.43
	UNII 8	SU	15.15	10.31
802.11ax_HE40	UNII 5	SU	16.10	13.85
	UNII 6	SU	16.01	13.21
	UNII 7	SU	16.54	14.60
	UNII 8	SU	16.51	13.59
802.11ax_HE80	UNII 5	SU	16.08	18.23
	UNII 6	SU	14.31	16.41
	UNII 7	SU	16.22	17.54
	UNII 8	SU	14.70	16.91
802.11ax_HE160	UNII 5	SU	17.46	20.42
	UNII 6	SU	16.73	20.11
	UNII 7	SU	16.20	19.77
	UNII 8	SU	15.76	18.75
802.11be_EHT20	UNII 5	SU	14.77	10.48
	UNII 6	SU	14.98	10.28
	UNII 7	SU	15.43	10.49
	UNII 8	SU	15.21	10.38
802.11be_EHT40	UNII 5	SU	16.13	13.89
	UNII 6	SU	16.04	13.32
	UNII 7	SU	16.55	14.64
	UNII 8	SU	16.53	13.64
802.11be_EHT80	UNII 5	SU	16.13	18.24
	UNII 6	SU	14.36	16.46
	UNII 7	SU	16.25	17.57
	UNII 8	SU	14.75	16.95
802.11be_ETH160	UNII 5	SU	17.50	20.45
	UNII 6	SU	16.77	20.17
	UNII 7	SU	16.25	19.82
	UNII 8	SU	15.78	18.76

Notes.

1. Since 802.11ax and 802.11be mode has the same power setting, and the power in 802.11be mode is higher than 802.11ax mode. So 802.11be was tested representative as worst case.

2.4 Simultaneous Tx Condition

The device supports simultaneous transmission operation, which allows for three channels to operate independent of one another in the Bluetooth, 5 GHz, or 6 GHz bands simultaneously on each antenna.

Simultaneous Tx condition

Mode	# of TX	WLAN 5 GHz	WLAN 6 GHz	Bluetooth	Report
		SISO_ANT 1	SISO_ANT 2	ANT 0	
Bluetooth + 5 GHz WLAN + 6 GHz WLAN	3	O	O	O	√

Notes.

Simultaneous condition was performed as a worst case which is configured as a combination of highest output power for each mode.

2.5. Duty Cycle Factor

SISO_ANT2

Test mode	Tone	Period (ms)	T _{on} time (ms)	Duty cycle		Duty cycle factor (dB)
				(Linear)	(%)	
802.11a	-	1.811	1.383	0.763 7	76.37	1.17
802.11be_EHT20	SU	0.794	0.363	0.457 2	45.72	3.40
802.11be_EHT40	SU	0.794	0.364	0.458 4	45.84	3.39
802.11be_EHT80	SU	0.778	0.348	0.447 3	44.73	3.49
802.11be_EHT160	SU	0.782	0.352	0.450 1	45.01	3.47

MIMO

Test mode	Tone	Period (ms)	T _{on} time (ms)	Duty cycle		Duty cycle factor (dB)
				(Linear)	(%)	
802.11be_EHT20	SU	0.666	0.236	0.354 4	35.44	4.51
802.11be_EHT40	SU	0.670	0.240	0.358 2	35.82	4.46
802.11be_EHT80	SU	0.659	0.227	0.344 5	34.45	4.63
802.11be_EHT160	SU	0.662	0.232	0.350 5	35.05	4.55

Notes.

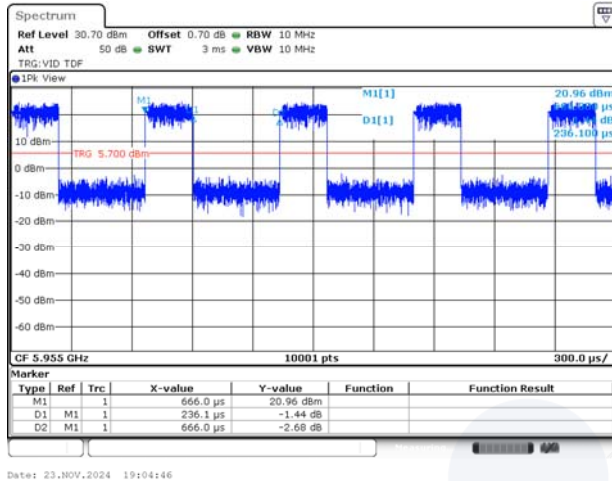
1. Duty cycle (Linear) = T_{on} time / Period
2. DCF(Duty cycle factor) = 10log(1/duty cycle)
3. DCF is not compensated to average result if duty cycle is more than 98%

SISO_ANT2

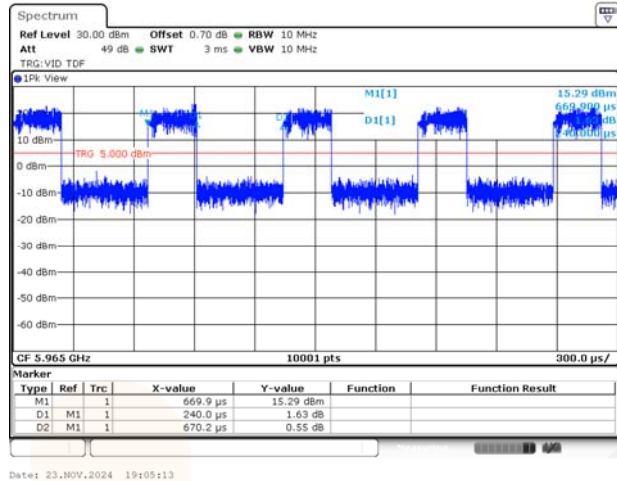


MIMO

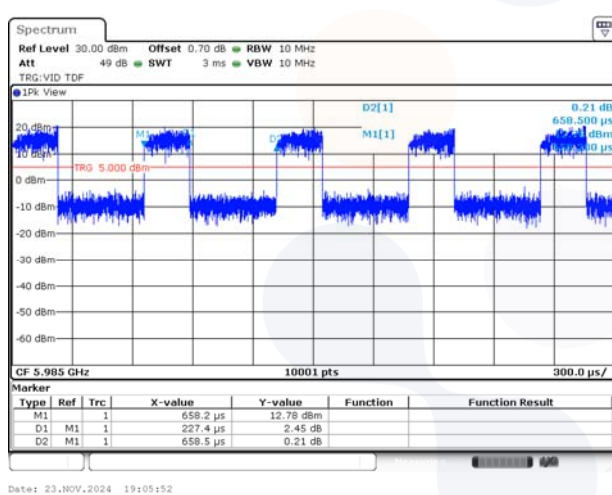
802.11be_EHT20 / SU



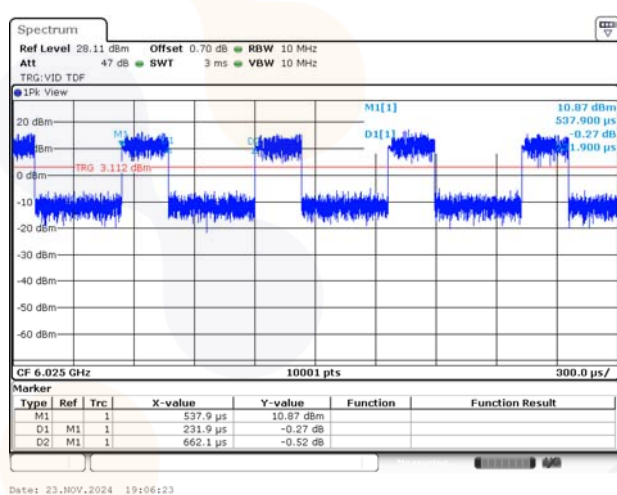
802.11be_EHT40 / SU



802.11be_EHT80 / SU



802.11be_EHT160 / SU



3. Antenna requirement

Requirement of FCC part section 15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

- The transmitter has permanently attached Metal Antenna (Internal antenna) on board.
- The E.U.T Complies with the requirement of §15.203, §15.407.

3.1 Antenna information

Mode	SISO		MIMO (CDD)
	ANT 1	ANT 2	ANT 1 + 2
802.11a	X	√	X
802.11ax/be HE/EHT20	X	√	√
802.11ax/be HE/EHT40	X	√	√
802.11ax/be HE/EHT80	X	√	√
802.11ax/be HE/EHT160	X	√	√

√ = Support, X = Not support

3.2 Directional Gain Calculations

According to clause F), 2), d), (i) of KDB 662911 D01 Multiple Transmitter Output, Directional gain may be calculated by using the formulas as below.

Directional Antenna Gain

Band	ANT 1 Gain (dBi)	ANT 2 Gain (dBi)	Directional Gain (dBi)
UNII 5	0.04	-0.80	2.64
UNII 6	0.64	-1.96	2.45
UNII 7	0.64	-0.20	3.24
UNII 8	-0.92	-0.48	2.31

Note.

Unequal antenna gains, with equal transmit powers. For antenna gains given by $G_1, G_2, \dots, G_N$ dBi
Directional gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}]$ dBi

Sample calculation

In case of UNII 5, directional gain = $10 \log[(10^{0.04/20} + 10^{-0.80/20})^2 / 2] = 2.64$ dBi

4. Summary of tests

FCC Part section(s)	IC Rule Reference	Parameter	Test Condition	Test results
15.407(a)(5)	RSS-248 4.5.2 b	Maximum e.i.r.p.	Conducted	Pass
15.407(a)(5)	RSS-248 4.5.2 a	Maximum e.i.r.p. spectral density		Pass
15.407(a)(11)	RSS-248 4.4	26 dB Bandwidth & 99% Occupied Bandwidth		Pass
15.407(b)(7)	RSS-248 4.6.2 b	In-Band Emissions		Pass
15.407(d)(6)	RSS-248 4.7	Contention Based Protocol		Pass ^(Note1)
15.407(g)	RSS-Gen 6.11	Frequency Stability		Pass
15.407(b)(9)	RSS-Gen 8.8	AC Conducted Emissions		Pass
15.407(b)(6)	RSS-248 4.6.2 a	Undesirable Emissions	Radiated	Pass
15.205(a), 15.209(a)	RSS-Gen 8.9 RSS-Gen 8.10	General Field Strength Limits (Restricted Bands and Radiated Emission Limits)		Pass

Notes:

- For this test items, please refer to below test report
 - Report No.EM-F250026 & EM-F250027. issued on January 15, 2025 by Audix Technology Corp.
- All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- According to exploratory test no any obvious emission were detected from 9 kHz to 30 MHz. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30 m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.
- EUT was investigated in three orthogonal orientations X, Y and Z. it was determined that **X** orientation was worst-case orientation. Therefore, all final radiated testing was performed with the EUT in **X** orientation.
- The test procedure(s) in this report were performed in accordance as following.
 - ANSI C63.10-2013
 - KDB 662911 D01 v02r01
 - KDB 789033 D02 v02r01
 - KDB 987594 D02 v03
- For 802.11ax/be mode, only SU mode are supported.
- Based on the baseline scan, the worst-case data rates were:
 - 802.11a mode: 6Mbps
 - 802.11be EHT20 mode: MCS0
 - 802.11be EHT40 mode: MCS0
 - 802.11be EHT80 mode: MCS0
 - 802.11be EHT160 mode: MCS0
- The equipment classes of the device is Low-power indoor access points.

5. Measurement uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013.

All measurement uncertainty values are shown with a coverage factor of $k=2$ to indicated a 95 % level of confidence. The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded uncertainty ($\pm$)	
Maximum Peak Output Power	0.9 dB	
Peak Power Spectral Density	1.0 dB	
6 dB Channel Bandwidth	0.1 %	
Occupied Bandwidth	0.1 %	
Conducted spurious emission	1.9 dB	
Radiated spurious Emissions (Bandedge, restricted band)	Below 30 MHz	2.3 dB
	30 MHz to 1 000 MHz	2.5 dB
	1 000 MHz to 18 000 MHz	4.7 dB
	Above 18 000 MHz	4.8 dB
Conducted Emissions	150 kHz to 30 MHz	2.8 dB

6. Measurement results explanation example

The offset level is set in the spectrum analyzer to compensate the RF cable loss factor between EUT conducted output port and spectrum analyzer.

With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Frequency (MHz)	Factor(dB)	Frequency (MHz)	Factor(dB)
30	9.99	9 000	12.53
50	10.33	10 000	12.92
100	10.64	11 000	12.62
200	10.72	12 000	12.90
300	10.84	13 000	13.38
400	10.95	14 000	13.60
500	11.18	15 000	13.08
600	11.27	16 000	13.70
700	11.31	17 000	13.47
800	11.35	18 000	13.51
900	11.42	19 000	13.85
1 000	11.37	20 000	13.52
2 000	12.10	21 000	14.26
3 000	12.49	22 000	14.30
4 000	12.75	23 000	13.83
5 000	13.37	24 000	14.27
6 000	13.77	25 000	14.01
7 000	13.15	26 000	14.98
8 000	13.17	26 500	15.00

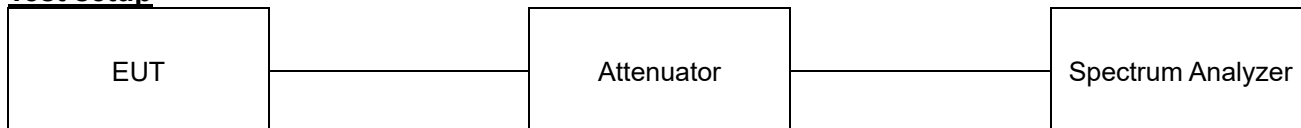
Notes:

Offset(dB) = RF cable loss(dB) + Attenuator(dB)

7. Test results

7.1. Maximum e.i.r.p.

Test setup



Limit

According to §15.407(a)(5), RSS-248 (4.5.2)(b)

Band	Maximum e.i.r.p. limit
UNII-5, 6, 7, 8	< 30 dBm

Test procedure

ANSI C63.10-2013-Section 12.3.2.4 or 12.3.3.1

KDB 789033 D02 v02r01 - Section E.3.a)

KDB 662911 D01 v02r01 – Section E.1) and Section F)

Test settings

Used test method is Section E.3.a).

◆ KDB 789033 D02 v02r01

Section E.3.a)

Method PM (Measurement using an RF average power meter):

- (i) Measurements may be performed using a wideband RF power meter with a thermocouple detector or equivalent if all of the conditions listed below are satisfied.
 - The EUT is configured to transmit continuously or to transmit with a constant duty cycle.
 - At all times when the EUT is transmitting, it must be transmitting at its maximum power control level.
 - The integration period of the power meter exceeds the repetition period of the transmitted signal by at least a factor of five
- (ii) If the transmitter does not transmit continuously, measure the duty cycle, x, of the transmitter output signal as described in II
- (iii) Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
- (iv) Adjust the measurement in dBm by adding $10 \log (1/x)$ where x is the duty cycle (e.g., $10 \log (1/0.25)$ if the duty cycle is 25%).

Test results

SISO_ANT2

802.11a

Band	Frequency (MHz)	Reading power (dBm)	DCF (dB)	Measured power (dBm)	ANT gain (dBi)	MAX e.i.r.p (dBm)	Limit (dBm)
UNII 5	5 975	13.78	1.17	14.95	-0.80	14.15	30
	6 135	13.75	1.17	14.92	-0.80	14.12	
	6 375	14.70	1.17	15.87	-0.80	15.07	
UNII 6	6 455	12.85	1.17	14.02	-1.96	12.06	30
UNII 7	6 535	13.86	1.17	15.03	-0.20	14.83	30
	6 695	13.89	1.17	15.06	-0.20	14.86	
	6 855	14.03	1.17	15.20	-0.20	15.00	
UNII 8	6 935	12.80	1.17	13.97	-0.48	13.49	30
	7 015	13.64	1.17	14.81	-0.48	14.33	
	7 095	13.87	1.17	15.04	-0.48	14.56	

802.11be EHT20

Band	Frequency (MHz)	Tone	Reading power (dBm)	DCF (dB)	Measured power (dBm)	ANT gain (dBi)	MAX e.i.r.p (dBm)	Limit (dBm)
UNII 5	5 955	SU	11.37	3.40	14.77	-0.80	13.97	30
	6 175	SU	11.20	3.40	14.60	-0.80	13.80	
	6 415	SU	10.79	3.40	14.19	-0.80	13.39	
UNII 6	6 435	SU	10.50	3.40	13.90	-1.96	11.94	30
	6 475	SU	11.04	3.40	14.44	-1.96	12.48	
	6 515	SU	11.58	3.40	14.98	-1.96	13.02	
UNII 7	6 535	SU	11.54	3.40	14.94	-0.20	14.74	30
	6 695	SU	11.34	3.40	14.74	-0.20	14.54	
	6 875	SU	12.03	3.40	15.43	-0.20	15.23	
UNII 8	6 895	SU	11.65	3.40	15.05	-0.48	14.57	30
	6 995	SU	9.78	3.40	13.18	-0.48	12.70	
	7 115	SU	11.81	3.40	15.21	-0.48	14.73	

802.11be EHT40

Band	Frequency (MHz)	Tone	Reading power (dBm)	DCF (dB)	Measured power (dBm)	ANT gain (dBi)	MAX e.i.r.p (dBm)	Limit (dBm)
UNII 5	5 965	SU	12.74	3.39	16.13	-0.80	15.33	30
	6 165	SU	11.94	3.39	15.33	-0.80	14.53	
	6 405	SU	11.85	3.39	15.24	-0.80	14.44	
UNII 6	6 445	SU	11.59	3.39	14.98	-1.96	13.02	30
	6 485	SU	12.26	3.39	15.65	-1.96	13.69	
	6 525	SU	12.65	3.39	16.04	-1.96	14.08	
UNII 7	6 565	SU	13.16	3.39	16.55	-0.20	16.35	30
	6 685	SU	12.49	3.39	15.88	-0.20	15.68	
	6 845	SU	13.16	3.39	16.55	-0.20	16.35	
UNII 8	6 885	SU	13.14	3.39	16.53	-0.48	16.05	30
	7 005	SU	11.55	3.39	14.94	-0.48	14.46	
	7 085	SU	12.68	3.39	16.07	-0.48	15.59	

802.11be EHT80

Band	Frequency (MHz)	Tone	Reading power (dBm)	DCF (dB)	Measured power (dBm)	ANT gain (dBi)	MAX e.i.r.p (dBm)	Limit (dBm)
UNII 5	5 985	SU	11.85	3.49	15.34	-0.80	14.54	30
	6 145	SU	11.90	3.49	15.39	-0.80	14.59	
	6 385	SU	12.64	3.49	16.13	-0.80	15.33	
UNII 6	6 465	SU	10.87	3.49	14.36	-1.96	12.40	30
UNII 7	6 545	SU	11.56	3.49	15.05	-0.20	14.85	30
	6 705	SU	11.83	3.49	15.32	-0.20	15.12	
	6 865	SU	12.76	3.49	16.25	-0.20	16.05	
UNII 8	6 945	SU	10.98	3.49	14.47	-0.48	13.99	30
	7 025	SU	11.26	3.49	14.75	-0.48	14.27	
	5 985	SU	11.85	3.49	15.34	-0.80	14.54	

802.11be EHT160

Band	Frequency (MHz)	Tone	Reading power (dBm)	DCF (dB)	Measured power (dBm)	ANT gain (dBi)	MAX e.i.r.p (dBm)	Limit (dBm)
UNII 5	6 025	SU	13.43	3.47	16.90	-0.80	16.10	30
	6 185	SU	14.03	3.47	17.50	-0.80	16.70	
	6 345	SU	13.52	3.47	16.99	-0.80	16.19	
UNII 6	6 505	SU	13.30	3.47	16.77	-1.96	14.81	30
UNII 7	6 665	SU	12.78	3.47	16.25	-0.20	16.05	30
	6 825	SU	12.52	3.47	15.99	-0.20	15.79	
UNII 8	6 985	SU	12.31	3.47	15.78	-0.48	15.30	30

Notes:

1. e.i.r.p. (dBm) = Reading power (dBm) + DCF(dB) + Antenna gain (dBi)

MIMO
802.11be EHT20

Band	Frequency (MHz)	Tones	Reading power ANT 1 (dBm)	Reading power ANT 2 (dBm)	DCF (dB)	Measured power MIMO (dBm)	ANT gain (dBi)	Max e.i.r.p. (dBm)	Limit (dBm)
UNII-5	5 955	SU	2.68	3.22	4.51	10.48	2.64	13.12	30
	6 175	SU	2.13	3.17	4.51	10.20	2.64	12.84	
	6 415	SU	1.01	2.56	4.51	9.37	2.64	12.01	
UNII-6	6 435	SU	0.60	2.16	4.51	8.97	2.45	11.42	30
	6 475	SU	1.55	2.76	4.51	9.72	2.45	12.16	
	6 515	SU	2.35	3.14	4.51	10.28	2.45	12.73	
UNII-7	6 535	SU	2.37	3.10	4.51	10.27	3.24	13.51	30
	6 695	SU	2.32	3.54	4.51	10.49	3.24	13.73	
	6 875	SU	1.88	3.42	4.51	10.24	3.24	13.48	
UNII-8	6 895	SU	1.67	3.24	4.51	10.05	2.31	12.36	30
	6 995	SU	1.62	1.84	4.51	9.25	2.31	11.56	
	7 115	SU	1.78	3.72	4.51	10.38	2.31	12.69	

802.11be EHT40

Band	Frequency (MHz)	Tones	Reading power ANT 1 (dBm)	Reading power ANT 2 (dBm)	DCF (dB)	Measured power MIMO (dBm)	ANT gain (dBi)	Max e.i.r.p. (dBm)	Limit (dBm)
UNII-5	5 965	SU	6.03	6.77	4.46	13.89	2.64	16.53	30
	6 165	SU	5.35	6.38	4.46	13.37	2.64	16.01	
	6 405	SU	4.14	5.71	4.46	12.47	2.64	15.11	
UNII-6	6 445	SU	3.80	5.38	4.46	12.13	2.45	14.58	30
	6 485	SU	4.86	5.87	4.46	12.86	2.45	15.31	
	6 525	SU	5.40	6.25	4.46	13.32	2.45	15.76	
UNII-7	6 565	SU	6.87	7.45	4.46	14.64	3.24	17.88	30
	6 685	SU	5.42	6.67	4.46	13.56	3.24	16.80	
	6 845	SU	6.65	6.77	4.46	14.18	3.24	17.42	
UNII-8	6 885	SU	5.07	6.53	4.46	13.33	2.31	15.64	30
	7 005	SU	5.45	5.56	4.46	12.98	2.31	15.29	
	7 085	SU	5.51	6.75	4.46	13.64	2.31	15.96	

802.11be EHT80

Band	Frequency (MHz)	Tones	Reading power ANT 1 (dBm)	Reading power ANT 2 (dBm)	DCF (dB)	Measured power MIMO (dBm)	ANT gain (dBi)	Max e.i.r.p. (dBm)	Limit (dBm)
UNII-5	5 985	SU	9.97	10.43	4.63	17.85	2.64	20.49	30
	6 145	SU	9.55	10.31	4.63	17.59	2.64	20.23	
	6 385	SU	10.30	10.88	4.63	18.24	2.64	20.88	
UNII-6	6 465	SU	7.83	9.63	4.63	16.46	2.45	18.91	30
UNII-7	6 545	SU	9.48	10.34	4.63	17.57	3.24	20.81	30
	6 705	SU	8.82	10.30	4.63	17.26	3.24	20.50	
	6 865	SU	9.93	9.50	4.63	17.36	3.24	20.60	
UNII-8	6 945	SU	6.87	9.12	4.63	15.78	2.31	18.09	30
	7 025	SU	9.17	9.45	4.63	16.95	2.31	19.27	

802.11be EHT160

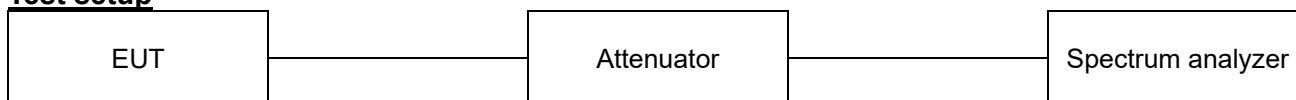
Band	Frequency (MHz)	Tones	Reading power ANT 1 (dBm)	Reading power ANT 2 (dBm)	DCF (dB)	Measured power MIMO (dBm)	ANT gain (dBi)	Max e.i.r.p. (dBm)	Limit (dBm)
UNII-5	6 025	SU	11.89	12.51	4.55	19.77	2.64	22.41	30
	6 185	SU	12.27	13.44	4.55	20.45	2.64	23.10	
	6 345	SU	12.54	12.24	4.55	19.95	2.64	22.59	
UNII-6	6 505	SU	12.23	12.95	4.55	20.17	2.45	22.61	30
UNII-7	6 665	SU	11.22	12.78	4.55	19.63	3.24	22.87	30
	6 825	SU	12.12	12.39	4.55	19.82	3.24	23.06	
UNII-8	6 985	SU	11.04	11.36	4.55	18.76	2.31	21.08	30

Notes:

1. Measured Output power MIMO (dBm) = $10\log(10(\text{ANT 1}/10) + 10(\text{ANT 2}/10))$ (dBm) + DCF(dB)
2. e.i.r.p. (dBm) = Measured Output power MIMO (dBm) + Antenna gain (dBi)

7.2. Maximum e.i.r.p. Spectral Density

Test setup



Limit

According to §15.407(a)(5), RSS-248(4.5.2)(a)

Band	Maximum e.i.r.p. Spectral Density limit
UNII-5, 6, 7, 8	< 5 dBm/MHz

Test procedure

ANSI C63.10-2013 Section 12.3.2.2, 14.3.2.2

KDB 789033 D02 v02r01 - Section E and F

KDB 662911 D01 v02r01 - Section E). 2) and Section F)

Test settings

Section F

The rules requires “maximum power spectral density” measurements where the intent is to measure the maximum value of the time average of the power spectral density measured during a period of continuous transmission. Refer to III.A for additional guidance for devices that use channel aggregation.

1. Create an average power spectrum for the EUT operating mode being tested by following the instructions in II.E.2. for measuring maximum conducted output power using a spectrum analyzer or EMI receiver: select the appropriate test method (SA-1, SA-2, SA-3, or alternatives to each) and apply it up to, but not including, the step labeled, “Compute power....” (This procedure is required even if the maximum conducted output power measurement was performed using a power meter, method PM.)
2. Search function on the instrument to find the peak of the spectrum and record its value.
3. Adjustments to the peak value of the spectrum, if applicable:
 - a) If Method SA-2 or SA-2 Alternative was used, add $10 \log(1/x)$, where x is the duty cycle, to the peak of the spectrum.
 - b) If Method SA-3 Alternative was used and the linear mode was used in II.E.2.g) (viii), add 1 dB to the final result to compensate for the difference between linear averaging and power averaging.
4. The result is the Maximum PSD over 1 MHz reference bandwidth
5. For devices operating in the bands 5.15-5.25 GHz, 5.25-5.35 GHz, and 5.47-5.725 GHz, the preceding procedures make use of 1 MHz RBW to satisfy directly the 1 MHz reference bandwidth specified in Section 15.407(a)(5). For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of RBWs less than 1 MHz, or 500 kHz, “provided that the measured power is integrated over the full reference bandwidth” to show the total power over the specified measurement bandwidth(i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 kHz bandwidth, the following adjustments to the procedures apply:

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- a) Set $RBW \geq 1/T$, where T is defined in II.B.I.a).
- b) Set $VBW \geq 3 RBW$.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10 \log (500 \text{ kHz} / RBW)$ to the measured result, whereas $RBW (< 500 \text{ kHz})$ is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10 \log (1 \text{ MHz} / RBW)$ to the measured result, whereas $RBW (< 1 \text{ MHz})$ is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note.

- As a practical matter, it is recommended to use reduced RBW of 100 kHz for the II.F.5.c) and II.F.5.d), since $RBW = 100 \text{ kHz}$ is available on nearly all spectrum analyzers.
- Method SA-2 is used.

Test results

SISO_ANT2 802.11a

Band	Frequency (MHz)	Average Reading PSD (dBm/MHz)	DCF (dB)	PSD (dBm/MHz)	ANT gain (dBi)	PSD e.i.r.p. (dBm/MHz)	Limit (dBm/MHz)
UNII-5	5 975	3.40	1.17	4.57	-0.80	3.77	5
	6 135	3.49	1.17	4.66	-0.80	3.86	
	6 375	4.35	1.17	5.52	-0.80	4.72	
UNII-6	6 455	2.68	1.17	3.85	-1.96	1.89	5
UNII-7	6 535	3.79	1.17	4.96	-0.20	4.76	5
	6 695	3.95	1.17	5.12	-0.20	4.92	
	6 855	3.83	1.17	5.00	-0.20	4.80	
UNII-8	6 935	2.60	1.17	3.77	-0.48	3.29	5
	7 015	3.14	1.17	4.31	-0.48	3.83	
	7 095	3.45	1.17	4.62	-0.48	4.14	

802.11be EHT20

Band	Frequency (MHz)	Tones	Average Reading PSD (dBm/MHz)	DCF (dB)	PSD (dBm/MHz)	ANT gain (dBi)	PSD e.i.r.p. (dBm/MHz)	Limit (dBm/MHz)
UNII-5	5 955	SU	1.06	3.40	4.46	-0.80	3.66	5
	6 175	SU	0.82	3.40	4.22	-0.80	3.42	
	6 415	SU	0.56	3.40	3.96	-0.80	3.16	
UNII-6	6 435	SU	-0.03	3.40	3.37	-1.96	1.41	5
	6 475	SU	0.65	3.40	4.05	-1.96	2.09	
	6 515	SU	1.49	3.40	4.89	-1.96	2.93	
UNII-7	6 535	SU	1.39	3.40	4.79	-0.20	4.59	5
	6 695	SU	1.20	3.40	4.60	-0.20	4.40	
	6 875	SU	1.64	3.40	5.04	-0.20	4.84	
UNII-8	6 895	SU	1.46	3.40	4.86	-0.48	4.38	5
	6 995	SU	0.36	3.40	3.76	-0.48	3.28	
	7 115	SU	1.38	3.40	4.78	-0.48	4.30	

802.11be EHT40

Band	Frequency (MHz)	Tones	Average Reading PSD (dBm/MHz)	DCF (dB)	PSD (dBm/MHz)	ANT gain (dBi)	PSD e.i.r.p. (dBm/MHz)	Limit (dBm/MHz)
UNII-5	5 965	SU	-0.88	3.39	2.51	-0.80	1.71	5
	6 165	SU	-0.84	3.39	2.55	-0.80	1.75	
	6 405	SU	-1.53	3.39	1.86	-0.80	1.06	
UNII-6	6 445	SU	-1.94	3.39	1.45	-1.96	-0.51	5
	6 485	SU	-1.24	3.39	2.15	-1.96	0.19	
	6 525	SU	-0.70	3.39	2.69	-1.96	0.73	
UNII-7	6 565	SU	0.15	3.39	3.54	-0.20	3.34	5
	6 685	SU	-1.13	3.39	2.26	-0.20	2.06	
	6 845	SU	0.01	3.39	3.40	-0.20	3.20	
UNII-8	6 885	SU	-0.64	3.39	2.75	-0.48	2.27	5
	7 005	SU	-1.03	3.39	2.36	-0.48	1.88	
	7 085	SU	-1.06	3.39	2.33	-0.48	1.85	

802.11be EHT80

Band	Frequency (MHz)	Tones	Average Reading PSD (dBm/MHz)	DCF (dB)	PSD (dBm/MHz)	ANT gain (dBi)	PSD e.i.r.p. (dBm/MHz)	Limit (dBm/MHz)
UNII-5	5 985	SU	-4.44	3.49	-0.95	-0.80	-1.75	5
	6 145	SU	-4.49	3.49	-1.00	-0.80	-1.80	
	6 385	SU	-4.36	3.49	-0.87	-0.80	-1.67	
UNII-6	6 465	SU	-5.47	3.49	-1.98	-1.96	-3.94	5
UNII-7	6 545	SU	-4.50	3.49	-1.01	-0.20	-1.21	5
	6 705	SU	-4.58	3.49	-1.09	-0.20	-1.29	
	6 865	SU	-3.67	3.49	-0.18	-0.20	-0.38	
UNII-8	6 945	SU	-5.17	3.49	-1.68	-0.48	-2.16	5
	7 025	SU	-4.64	3.49	-1.15	-0.48	-1.63	

802.11be EHT160

Band	Frequency (MHz)	Tones	Average Reading PSD (dBm/MHz)	DCF (dB)	PSD (dBm/MHz)	ANT gain (dBi)	PSD e.i.r.p. (dBm/MHz)	Limit (dBm/MHz)
UNII-5	6 025	SU	-5.39	3.47	-1.92	-0.80	-2.72	5
	6 185	SU	-4.92	3.47	-1.45	-0.80	-2.25	
	6 345	SU	-5.35	3.47	-1.88	-0.80	-2.68	
UNII-6	6 505	SU	-5.83	3.47	-2.36	-1.96	-4.32	5
UNII-7	6 665	SU	-6.43	3.47	-2.96	-0.20	-3.16	5
	6 825	SU	-6.37	3.47	-2.90	-0.20	-3.10	
UNII-8	6 985	SU	-6.62	3.47	-3.15	-0.48	-3.63	5

Notes:

1. $\text{PSD e.i.r.p. (dBm/MHz)} = \text{Average Reading PSD (dBm/MHz)} + \text{DCF(dB)} + \text{Antenna gain (dBi)}$

MIMO

802.11be EHT20

Band	Frequency (MHz)	Tones	Measured PSD ANT 1 (dBm/MHz)	Measured PSD ANT 2 (dBm/MHz)	DCF (dB)	PSD MIMO (dBm/MHz)	ANT gain (dBi)	PSD e.i.r.p. (dBm/MHz)	Limit (dBm/MHz)
UNII-5	5 955	SU	-7.60	-6.86	4.51	0.31	2.64	2.95	5
	6 175	SU	-7.85	-7.51	4.51	-0.16	2.64	2.48	
	6 415	SU	-9.41	-7.75	4.51	-0.98	2.64	1.66	
UNII-6	6 435	SU	-9.76	-7.79	4.51	-1.14	2.45	1.30	5
	6 475	SU	-8.78	-7.76	4.51	-0.72	2.45	1.73	
	6 515	SU	-7.72	-7.25	4.51	0.04	2.45	2.49	
UNII-7	6 535	SU	-7.96	-7.07	4.51	0.03	3.24	3.27	5
	6 695	SU	-8.29	-6.89	4.51	-0.01	3.24	3.23	
	6 875	SU	-8.41	-6.56	4.51	0.13	3.24	3.37	
UNII-8	6 895	SU	-8.83	-7.33	4.51	-0.50	2.31	1.82	5
	6 995	SU	-8.06	-7.46	4.51	-0.23	2.31	2.08	
	7 115	SU	-8.51	-6.83	4.51	-0.07	2.31	2.24	

802.11be EHT40

Band	Frequency (MHz)	Tones	Measured PSD ANT 1 (dBm/MHz)	Measured PSD ANT 2 (dBm/MHz)	DCF (dB)	PSD MIMO (dBm/MHz)	ANT gain (dBi)	PSD e.i.r.p. (dBm/MHz)	Limit (dBm/MHz)
UNII-5	5 965	SU	-7.85	-6.82	4.46	0.17	2.64	2.81	5
	6 165	SU	-8.50	-6.70	4.46	-0.04	2.64	2.60	
	6 405	SU	-9.01	-7.32	4.46	-0.61	2.64	2.03	
UNII-6	6 445	SU	-9.29	-7.81	4.46	-1.02	2.45	1.43	5
	6 485	SU	-8.33	-7.27	4.46	-0.30	2.45	2.15	
	6 525	SU	-7.65	-6.85	4.46	0.24	2.45	2.69	
UNII-7	6 565	SU	-6.24	-5.73	4.46	1.49	3.24	4.73	5
	6 685	SU	-7.48	-6.53	4.46	0.49	3.24	3.73	
	6 845	SU	-6.54	-6.94	4.46	0.73	3.24	3.98	
UNII-8	6 885	SU	-8.18	-6.41	4.46	0.26	2.31	2.58	5
	7 005	SU	-6.78	-6.62	4.46	0.77	2.31	3.08	
	7 085	SU	-7.85	-6.97	4.46	0.08	2.31	2.40	

802.11be EHT80

Band	Frequency (MHz)	Tones	Measured PSD ANT 1 (dBm/MHz)	Measured PSD ANT 2 (dBm/MHz)	DCF (dB)	PSD MIMO (dBm/MHz)	ANT gain (dBi)	PSD e.i.r.p. (dBm/MHz)	Limit (dBm/MHz)
UNII-5	5 985	SU	-6.39	-5.49	4.63	1.72	2.64	4.36	5
	6 145	SU	-6.33	-5.48	4.63	1.76	2.64	4.40	
	6 385	SU	-5.81	-5.30	4.63	2.09	2.64	4.73	
UNII-6	6 465	SU	-8.18	-6.47	4.63	0.40	2.45	2.85	5
UNII-7	6 545	SU	-7.03	-5.94	4.63	1.19	3.24	4.43	5
	6 705	SU	-7.25	-5.80	4.63	1.18	3.24	4.42	
	6 865	SU	-6.25	-5.96	4.63	1.54	3.24	4.78	
UNII-8	6 945	SU	-9.50	-6.57	4.63	-0.15	2.31	2.16	5
	7 025	SU	-6.89	-6.01	4.63	1.21	2.31	3.53	

802.11be EHT160

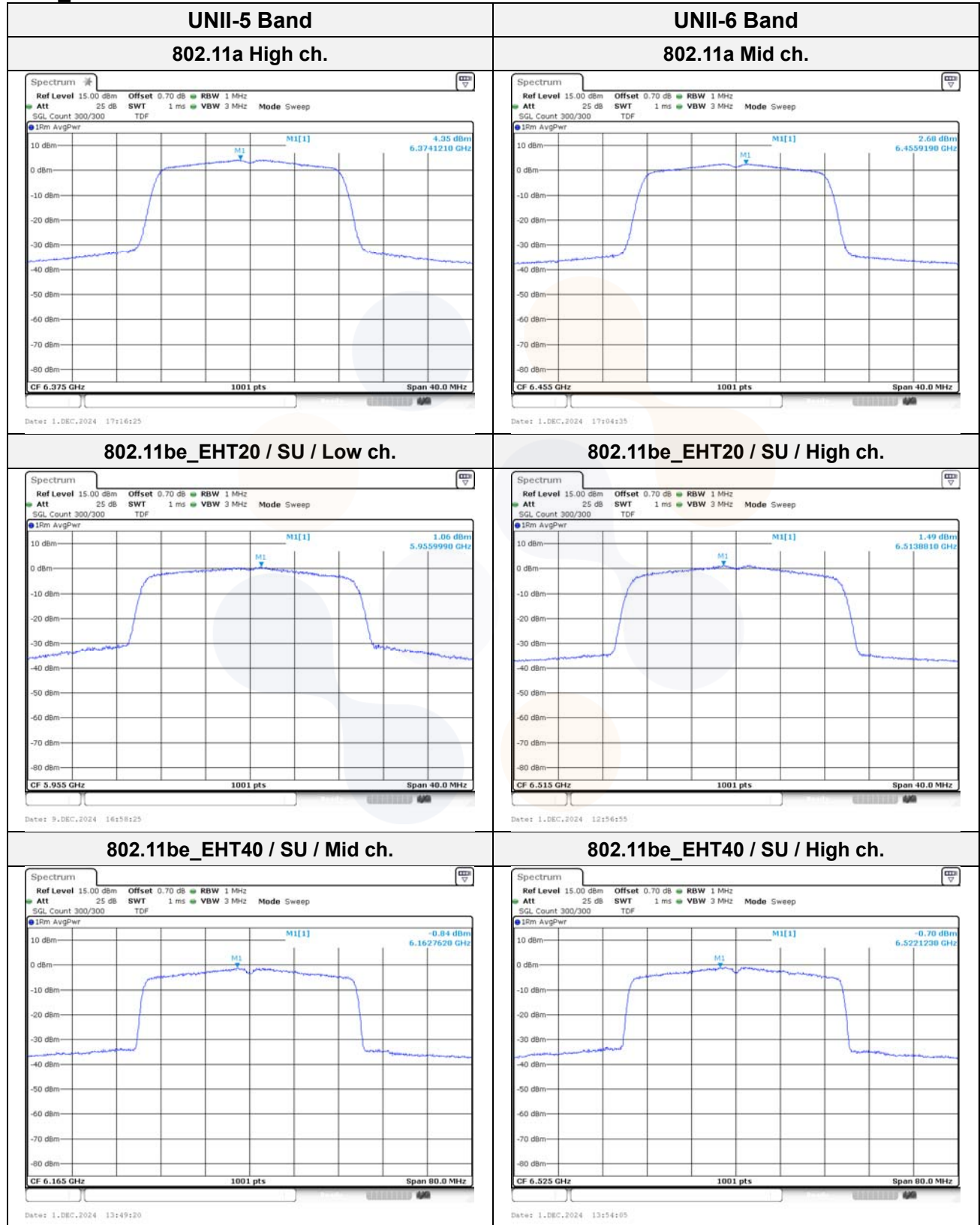
Band	Frequency (MHz)	Tones	Measured PSD ANT 1 (dBm/MHz)	Measured PSD ANT 2 (dBm/MHz)	DCF (dB)	PSD MIMO (dBm/MHz)	ANT gain (dBi)	PSD e.i.r.p. (dBm/MHz)	Limit (dBm/MHz)
UNII-5	6 025	SU	-7.20	-6.12	4.55	0.93	2.64	3.57	5
	6 185	SU	-6.24	-5.02	4.55	1.97	2.64	4.61	
	6 345	SU	-7.39	-6.73	4.55	0.51	2.64	3.15	
UNII-6	6 505	SU	-6.34	-4.62	4.55	2.16	2.45	4.61	5
UNII-7	6 665	SU	-7.00	-6.34	4.55	0.90	3.24	4.14	5
	6 825	SU	-5.91	-6.17	4.55	1.52	3.24	4.76	
UNII-8	6 985	SU	-7.86	-7.23	4.55	0.03	2.31	2.34	5

Notes:

1. PSD MIMO (dBm/MHz) = $10\log(10(\text{ANT 1}/10) + 10(\text{ANT 2}/10))$ (dBm) + DCF(dB)
2. PSD e.i.r.p. (dBm/MHz) = PSD MIMO (dBm/MHz) + Antenna gain (dBi)

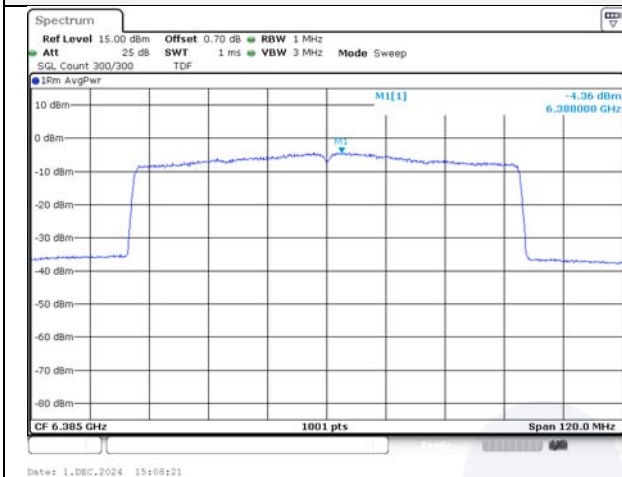
In order to simplify the report, attached plots were the worst case per bandwidth

SISO_ANT2



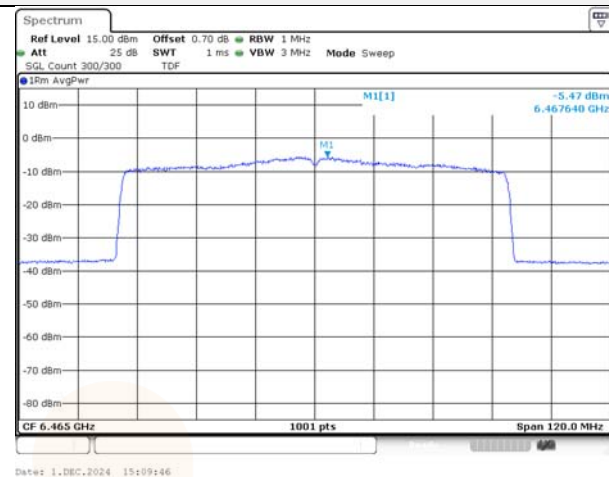
UNII-5 Band

802.11be_EHT80 / SU / High ch.

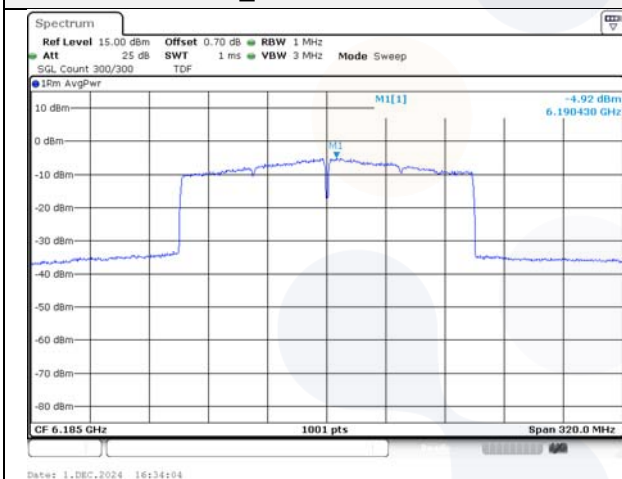


UNII-6 Band

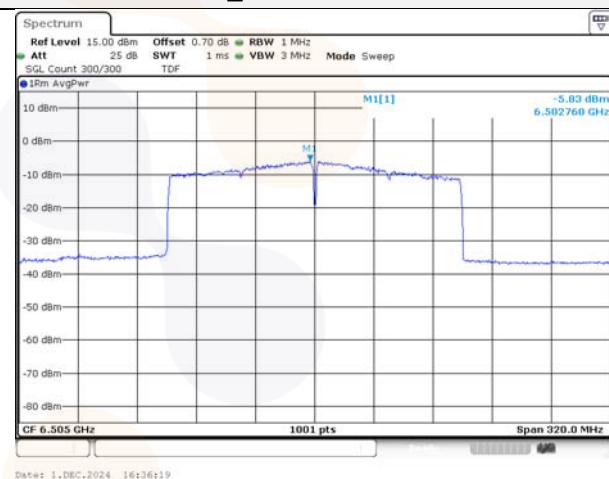
802.11be_EHT80 / SU / Mid ch.



802.11be_EHT160 / SU / Mid ch.

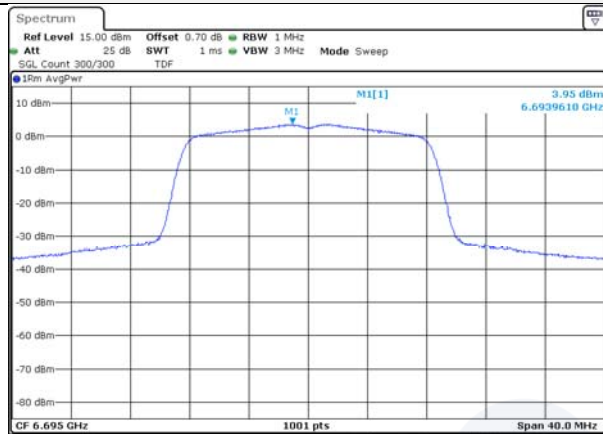


802.11be_EHT160 / SU / Mid ch.



UNII-7 Band

802.11a Mid ch.



Date: 1.DEC.2024 17:06:31

UNII-8 Band

802.11a High ch.



Date: 1.DEC.2024 17:11:28

802.11be_EHT20 / SU / High ch.



Date: 1.DEC.2024 13:00:00

802.11be_EHT20 / SU / Low ch.



Date: 1.DEC.2024 13:01:03

802.11be_EHT40 / SU / Low ch.



Date: 1.DEC.2024 13:55:59

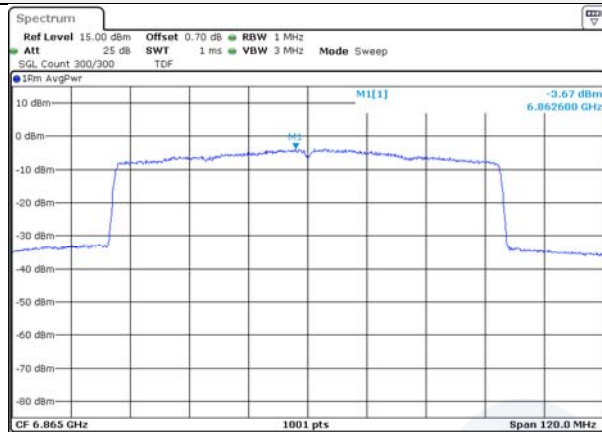
802.11be_EHT40 / SU / Low ch.



Date: 1.DEC.2024 14:05:36

UNII-7 Band

802.11be_EHT80 / SU / High ch.



UNII-8 Band

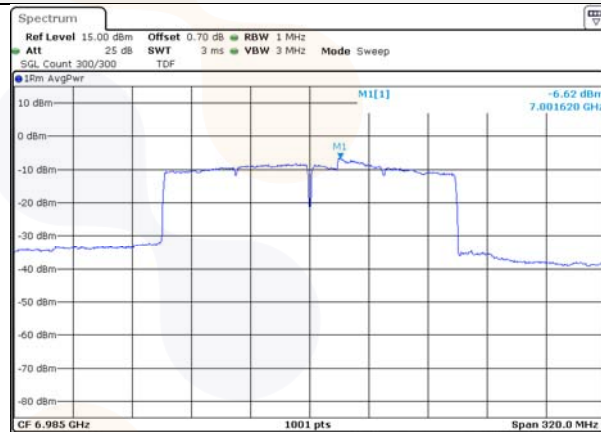
802.11be_EHT80 / SU / High ch.



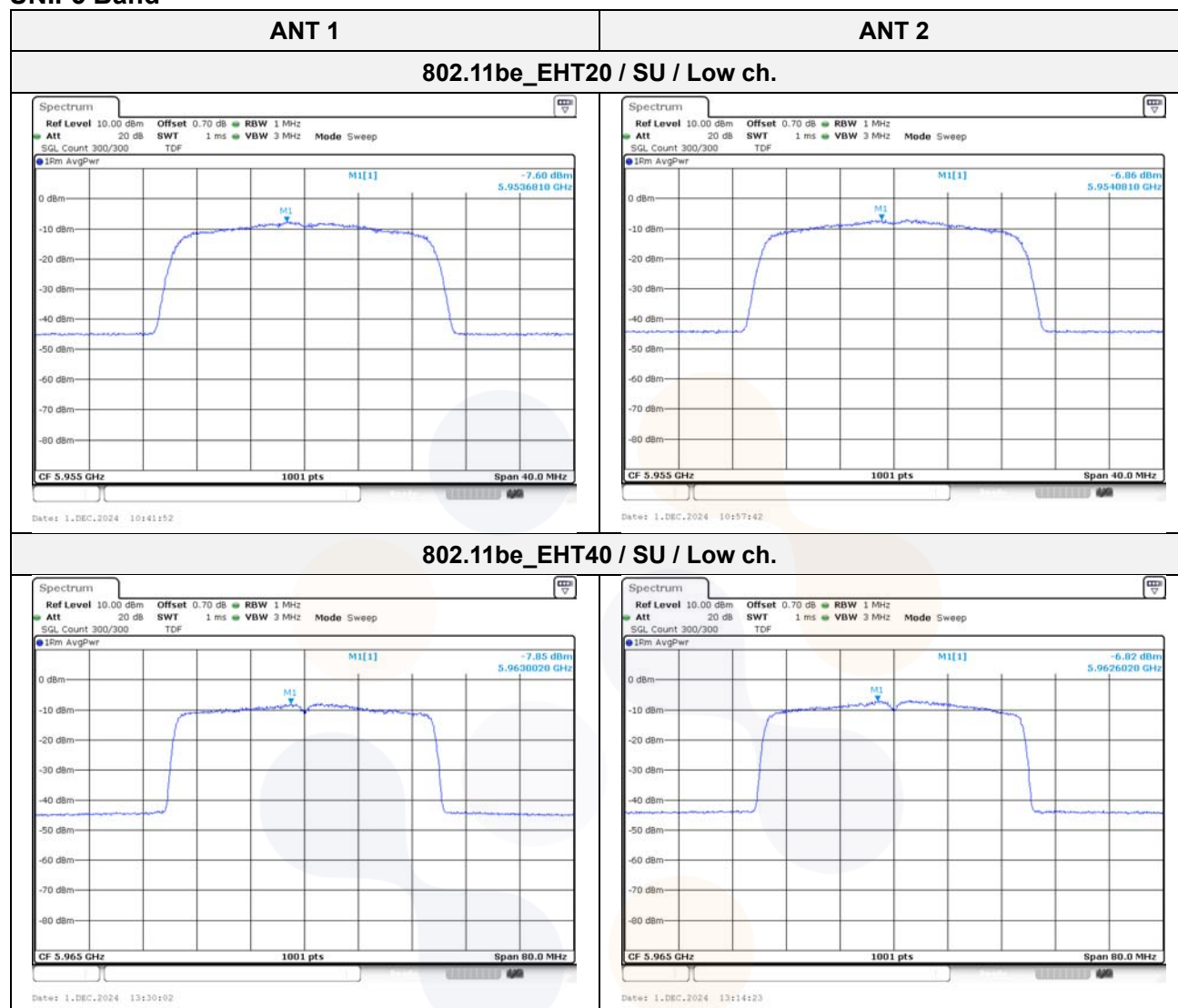
802.11be_EHT160 / SU / High ch.



802.11be_EHT160 / SU / Mid ch.



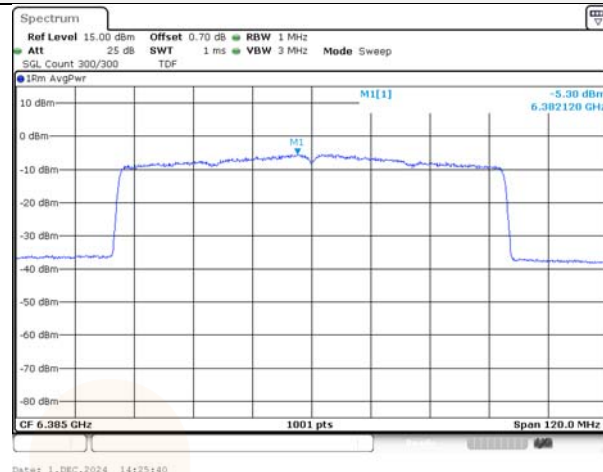
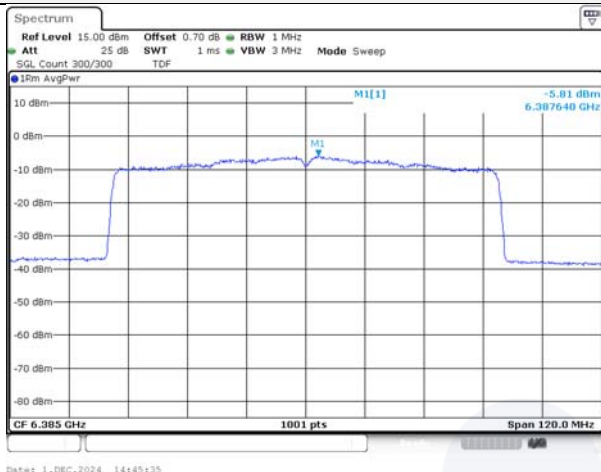
MIMO
UNII-5 Band



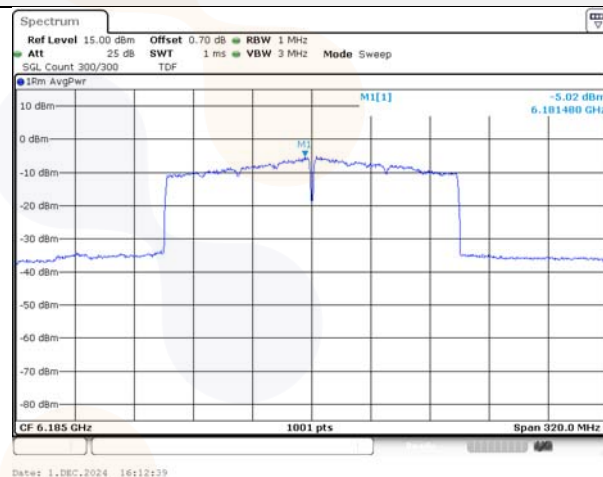
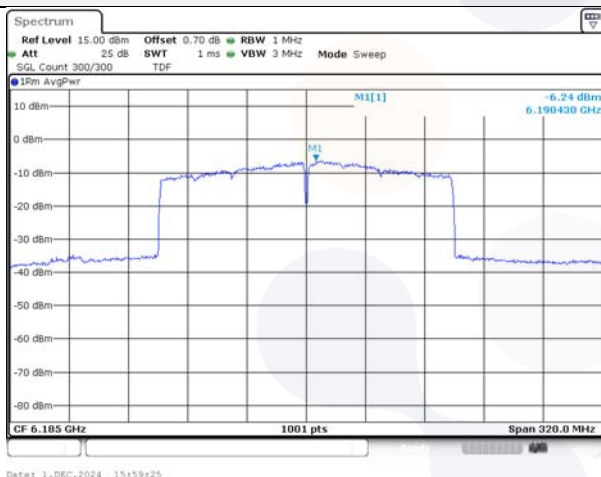
ANT 1

ANT 2

802.11be_EHT80 / SU / High ch.



802.11be_EHT160 / SU / Mid ch.

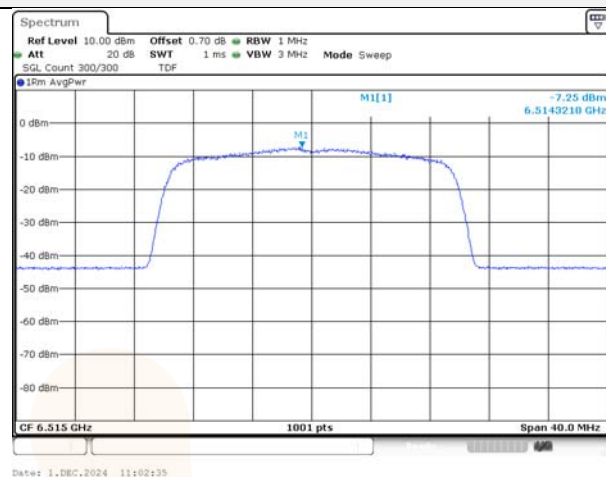
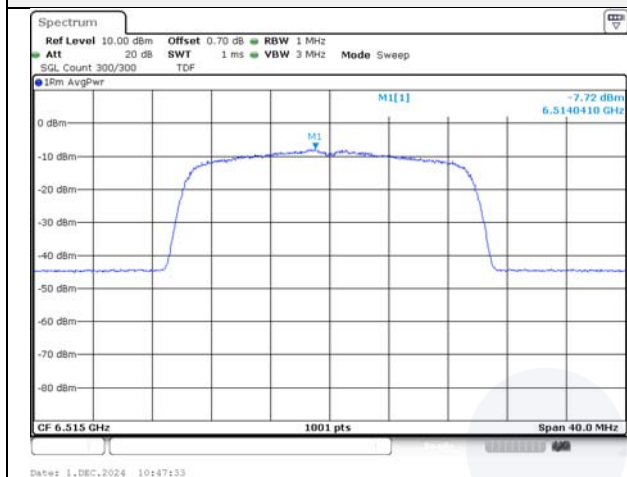


UNII-6 Band

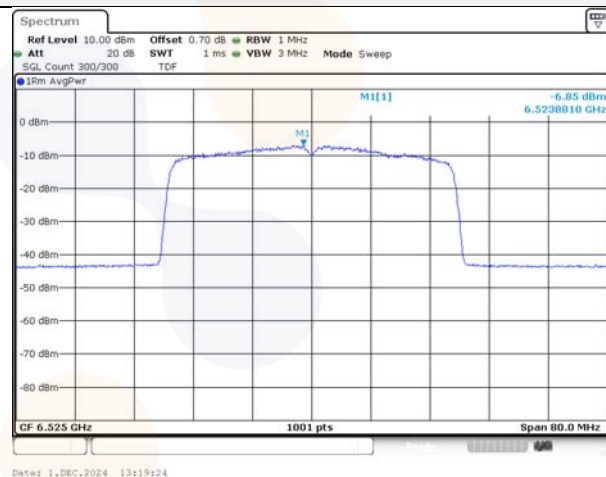
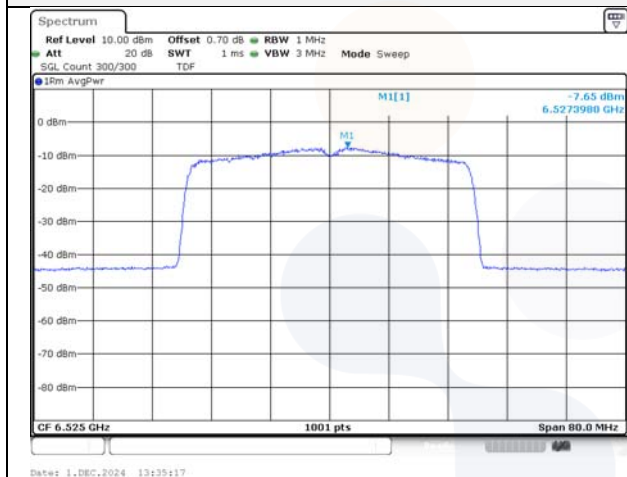
ANT 1

ANT 2

802.11be_EHT20 / SU / High ch.



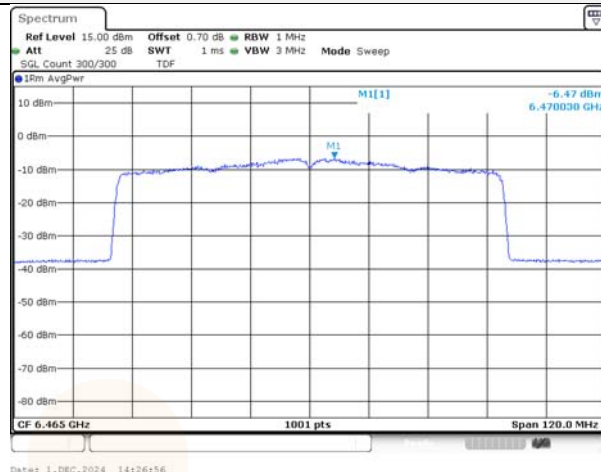
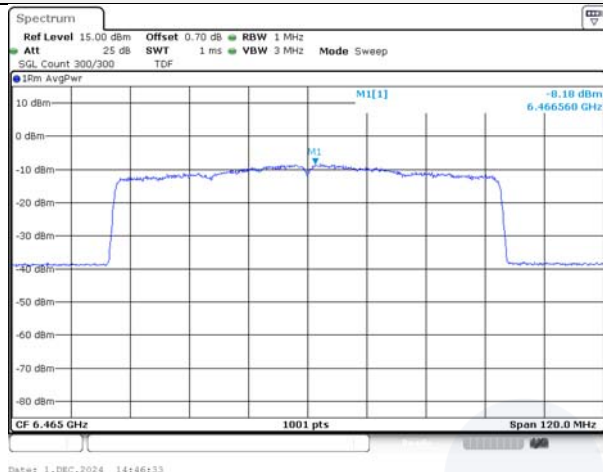
802.11be_EHT40 / SU / High ch.



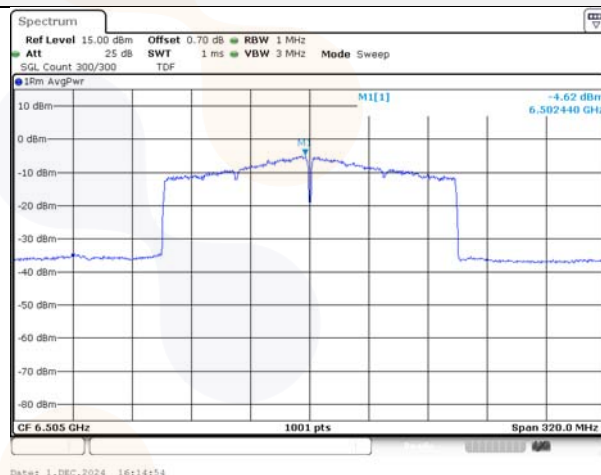
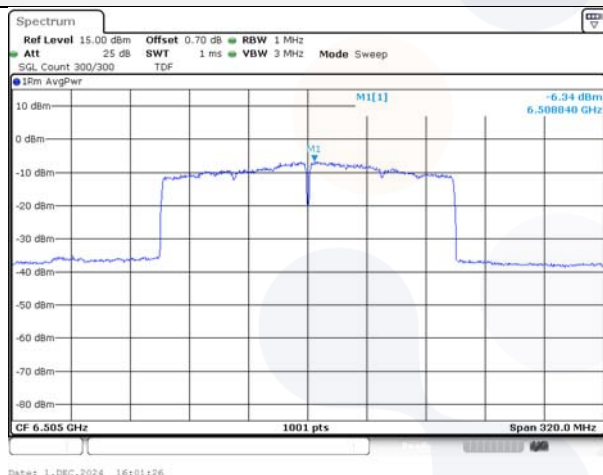
ANT 1

ANT 2

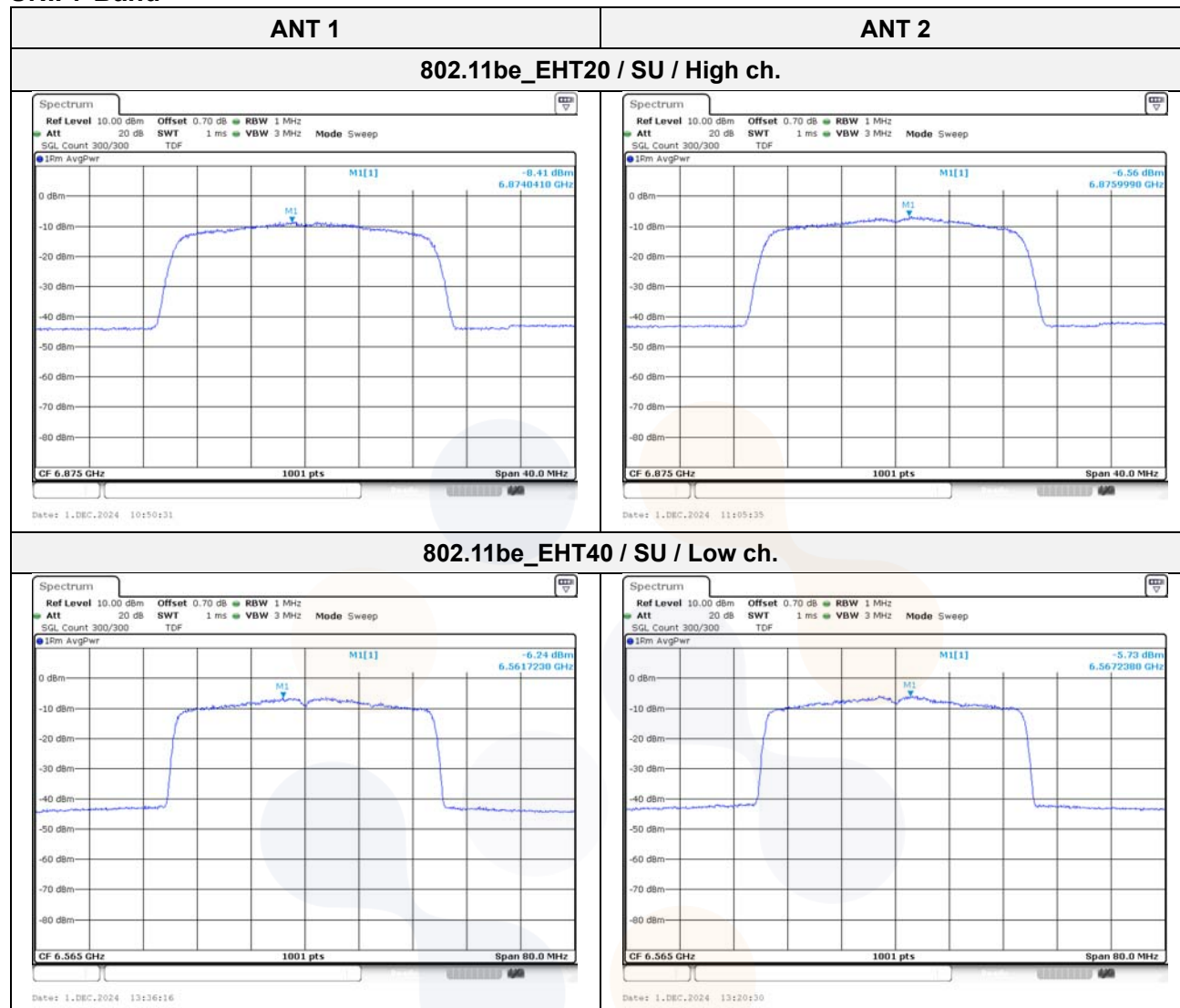
802.11be_EHT80 / SU / Mid ch.



802.11be_EHT160 / SU / Mid ch.



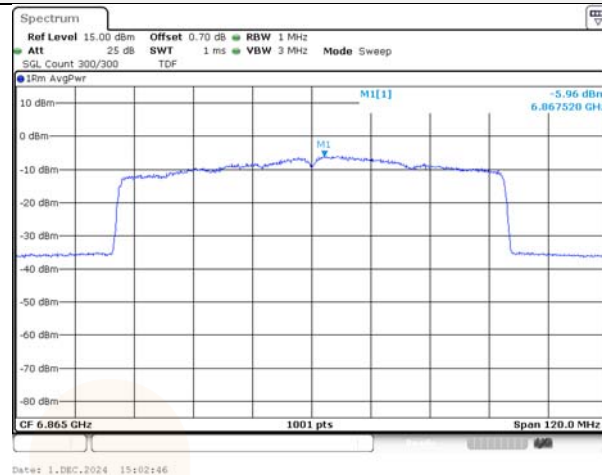
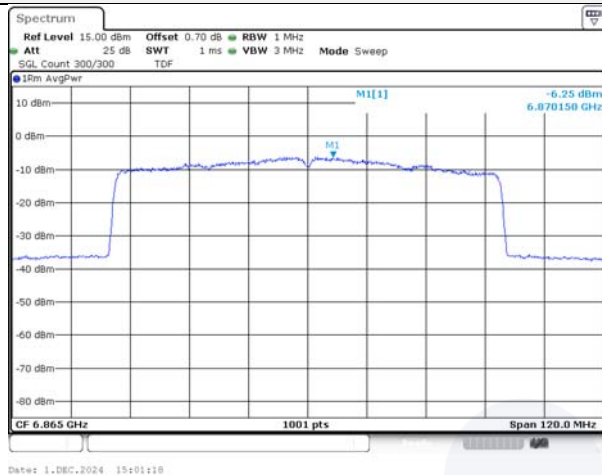
UNII-7 Band



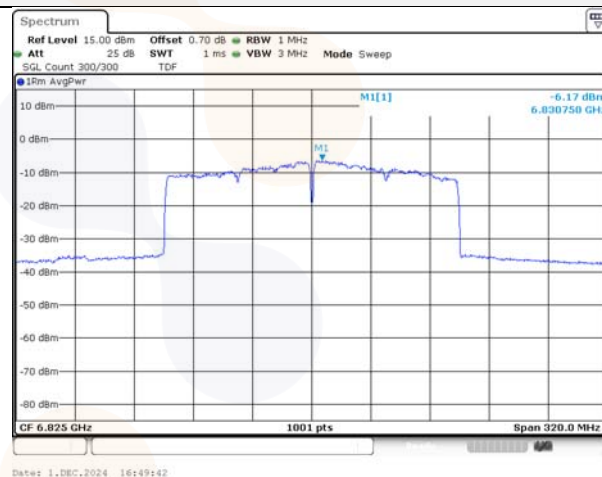
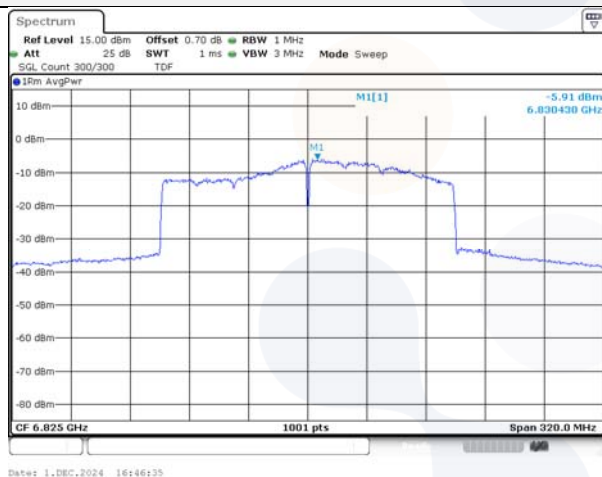
ANT 1

ANT 2

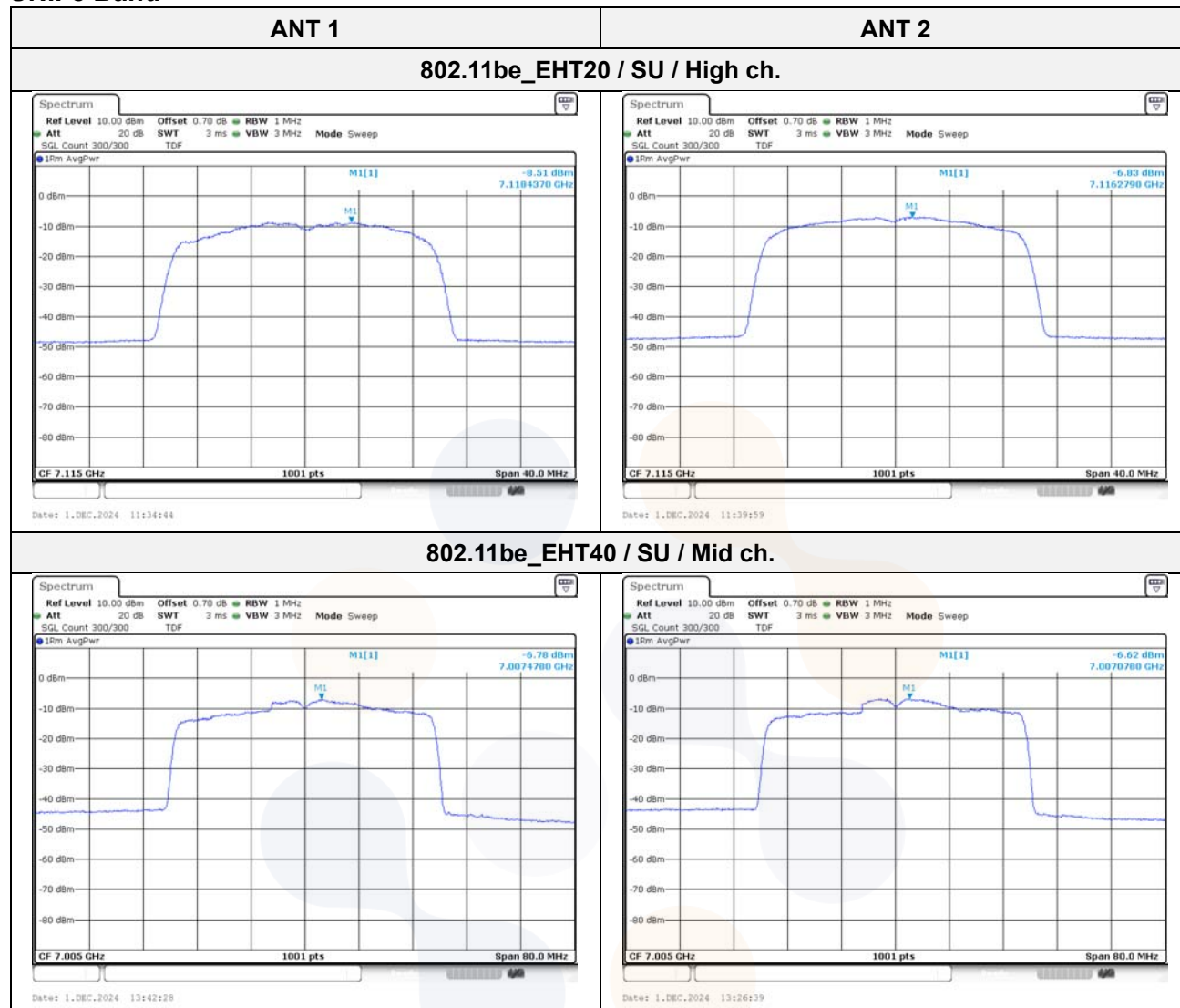
802.11be_EHT80 / SU / High ch.



802.11be_EHT160 / SU / High ch.



UNII-8 Band



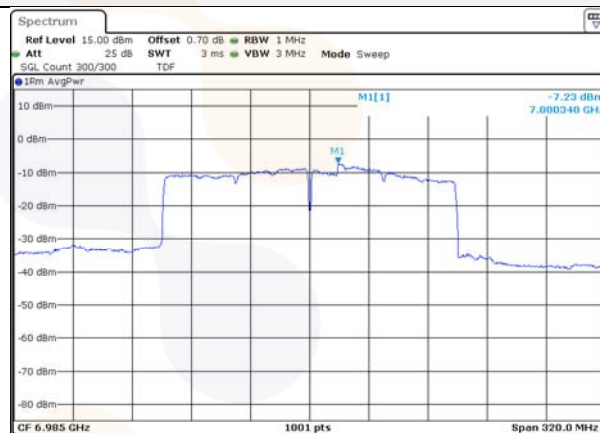
ANT 1

ANT 2

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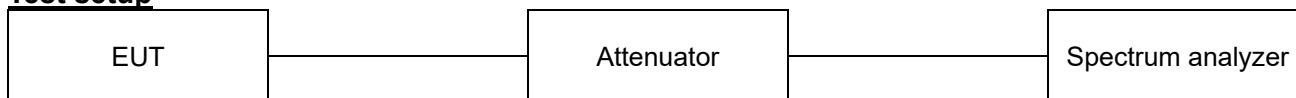


802.11be_EHT160 / SU / Mid ch.



7.3. 26 dB Bandwidth & 99% Bandwidth

Test setup



Limit

According to §15.407(a)(11), RSS-248(4.4)

Band	26 dB Bandwidth & 99% Occupied Bandwidth
UNII-5, 6, 7, 8	< 320 MHz

Test procedure

ANSI C63.10-2013 Section 12.4

KDB 789033 D02 v02r01 - Section C.1 (26dB bandwidth)

KDB 789033 D02 v02r01 - Section D (99% bandwidth)

Test settings

1. 26 dB Bandwidth

- 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 maximum 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%.

2. 99% Occupied Bandwidth

- 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.

Test results **SISO_ANT2**

Band	Mode	Frequency (MHz)	26 dB bandwidth (MHz)	99% bandwidth (MHz)
			ANT2	ANT 2
UNII-5	11a	5 975	18.53	16.43
		6 135	18.53	16.48
		6 375	18.53	16.43
UNII-6		6 455	18.68	16.53
UNII-7		6 535	18.53	16.48
		6 695	18.63	16.48
		6 855	18.58	16.53
UNII-8		6 935	18.78	16.63
		7 015	18.58	16.38
		7 095	18.58	16.38

Band	Mode	Frequency (MHz)	Tones	26 dB bandwidth (MHz)	99% bandwidth (MHz)
				ANT2	ANT 2
UNII-5	11be EHT20	5 955	SU	19.98	18.98
		6 175	SU	19.93	19.03
		6 415	SU	19.98	19.03
UNII-6		6 435	SU	19.98	19.08
		6 475	SU	19.98	19.03
		6 515	SU	20.03	19.03
UNII-7		6 535	SU	20.03	19.03
		6 695	SU	19.98	19.03
		6 875	SU	20.03	19.08
UNII-8		6 895	SU	20.08	19.13
		6 995	SU	19.88	19.13
		7 115	SU	20.03	18.83

Band	Mode	Frequency (MHz)	Tones	26 dB bandwidth (MHz)	99% bandwidth (MHz)
				ANT2	ANT 2
UNII-5	11be EHT40	5 965	SU	39.66	38.16
		6 165	SU	39.66	38.26
		6 405	SU	39.46	38.26
UNII-6		6 445	SU	39.76	38.46
		6 485	SU	39.76	38.36
		6 525	SU	39.76	38.26
UNII-7		6 565	SU	39.66	38.16
		6 685	SU	39.56	38.26
		6 845	SU	39.66	38.36
UNII-8		6 885	SU	39.66	37.96
		7 005	SU	39.36	38.26
		7 085	SU	39.76	37.86

Band	Mode	Frequency (MHz)	Tones	26 dB bandwidth (MHz)	99% bandwidth (MHz)
				ANT2	ANT 2
UNII-5	11be EHT80	5 985	SU	80.24	77.36
		6 145	SU	80.40	77.68
		6 385	SU	80.40	77.68
UNII-6		6 465	SU	80.56	77.68
UNII-7		6 545	SU	80.40	77.68
		6 705	SU	80.40	77.68
		6 865	SU	80.56	77.68
UNII-8		6 945	SU	80.40	77.68
		7 025	SU	80.40	77.36

Band	Mode	Frequency (MHz)	Tones	26 dB bandwidth (MHz)	99% bandwidth (MHz)
				ANT2	ANT 2
UNII-5	11be EHT160	6 025	SU	248.07	156.00
		6 185	SU	248.07	156.32
		6 345	SU	237.84	156.32
UNII-6		6 505	SU	238.16	156.00
UNII-7		6 665	SU	252.87	156.64
		6 825	SU	251.91	156.00
UNII-8		6 985	SU	256.38	157.28

MIMO

Band	Mode	Frequency (MHz)	Tones	26 dB bandwidth (MHz)		99% bandwidth (MHz)	
				ANT 1	ANT 2	ANT 1	ANT 2
UNII-5	11be EHT20	5 955	SU	19.93	20.03	18.88	18.88
		6 175	SU	19.93	19.93	18.93	18.88
		6 415	SU	19.98	19.93	18.93	18.88
UNII-6		6 435	SU	20.03	20.03	18.93	18.93
		9 475	SU	19.98	20.03	18.93	18.93
		6 515	SU	19.98	19.98	18.93	18.93
UNII-7		6 535	SU	19.98	19.98	18.83	18.88
		6 695	SU	19.98	20.03	18.88	18.83
		6 875	SU	19.93	19.98	18.98	18.88
UNII-8		6 895	SU	19.93	19.93	18.93	18.98
		6 995	SU	19.93	19.93	18.98	18.98
		7 115	SU	19.88	19.93	18.78	18.83

Band	Mode	Frequency (MHz)	Tones	26 dB bandwidth (MHz)		99% bandwidth (MHz)	
				ANT 1	ANT 2	ANT 1	ANT 2
UNII-5	11be EHT40	5 965	SU	39.66	39.56	37.66	37.76
		6 165	SU	39.66	39.66	37.76	37.76
		6 405	SU	39.76	39.66	37.66	37.76
UNII-6		6 445	SU	39.56	39.56	37.86	37.66
		6 485	SU	39.56	39.76	37.76	37.76
		6 525	SU	39.56	39.76	37.76	37.66
UNII-7		6 565	SU	39.56	39.66	37.76	37.56
		6 685	SU	39.66	39.86	37.76	37.76
		6 845	SU	39.56	39.76	37.76	37.76
UNII-8		6 885	SU	39.66	39.76	37.86	37.76
		7 005	SU	39.36	39.16	37.46	37.56
		7 085	SU	39.56	39.56	37.66	37.56

Band	Mode	Frequency (MHz)	Tones	26 dB bandwidth (MHz)		99% bandwidth (MHz)	
				ANT 1	ANT 2	ANT 1	ANT 2
UNII-5	11be EHT80	5 985	SU	80.24	80.56	77.36	77.52
		6 145	SU	80.40	80.56	77.68	77.68
		6 385	SU	80.40	80.40	77.36	77.68
UNII-6		6 465	SU	80.40	80.40	78.16	77.84
UNII-7		6 545	SU	80.56	80.56	77.68	77.68
		6 705	SU	80.56	80.56	77.84	77.84
		6 865	SU	80.56	80.40	78.00	78.64
UNII-8		6 945	SU	80.40	98.14	77.20	77.04
		7 025	SU	80.24	80.40	77.36	77.36

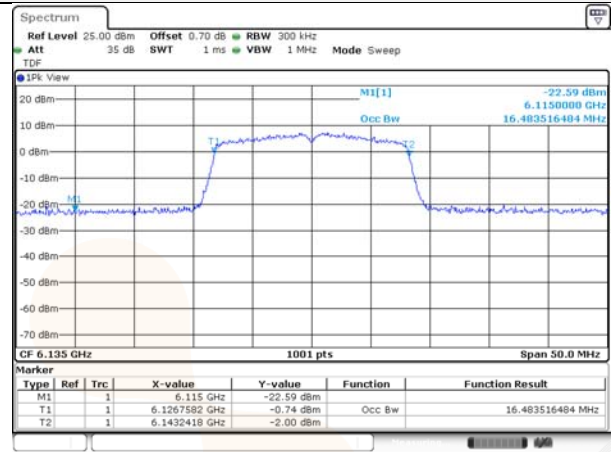
Band	Mode	Frequency (MHz)	Tones	26 dB bandwidth (MHz)		99% bandwidth (MHz)	
				ANT 1	ANT 2	ANT 1	ANT 2
UNII-5	11be EHT160	6 025	SU	162.72	162.72	156.00	155.68
		6 185	SU	163.04	162.40	156.32	155.68
		6 345	SU	219.30	162.72	156.96	155.68
UNII-6		6 505	SU	163.04	162.40	155.68	155.68
UNII-7		6 665	SU	173.27	210.03	156.32	156.64
		6 825	SU	176.78	162.40	155.36	156.00
UNII-8		6 985	SU	227.93	253.83	157.28	157.28

In order to simplify the report, attached plots were the worst case of ANT2 per bandwidth.
For 99% Bandwidth, It was also based on 26 dB Bandwidth's worst scenario
SISO_ANT2
UNII-5 Band

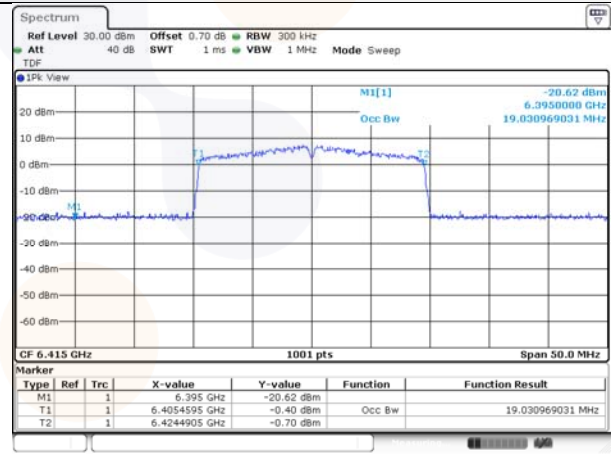
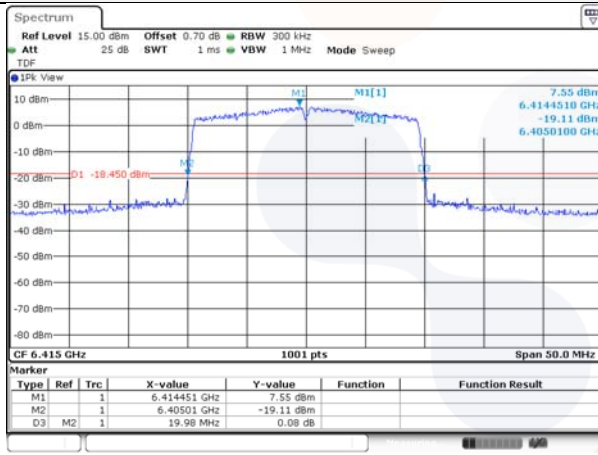
26 dB Bandwidth

99% Bandwidth

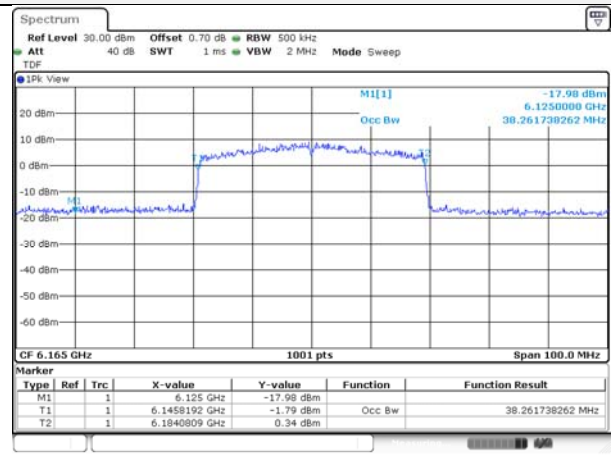
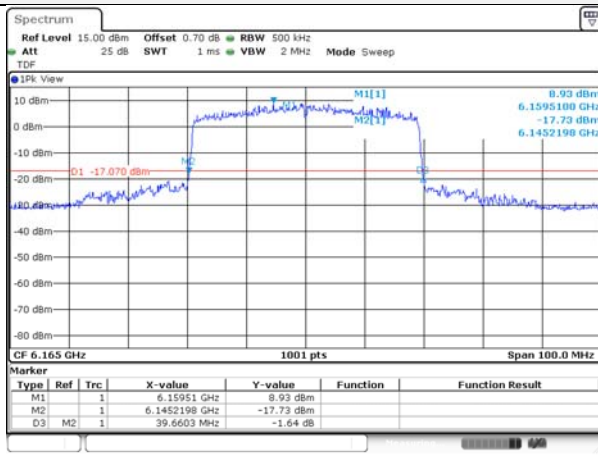
802.11a / Mid ch.



802.11be_EHT20 / SU / High ch.



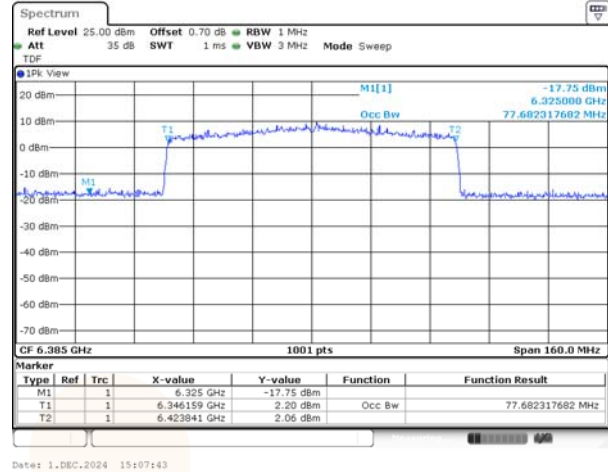
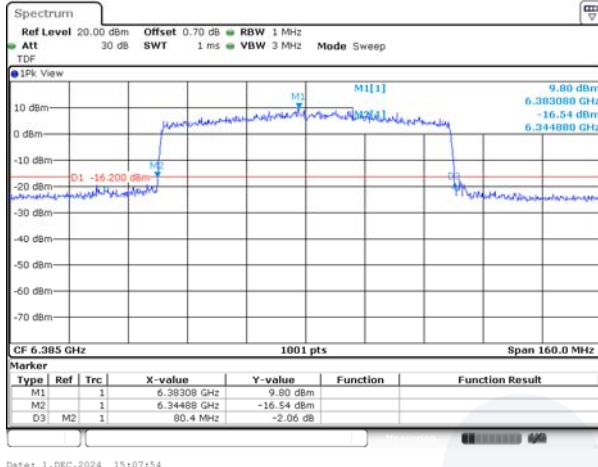
802.11be_EHT40 / SU / Mid ch.



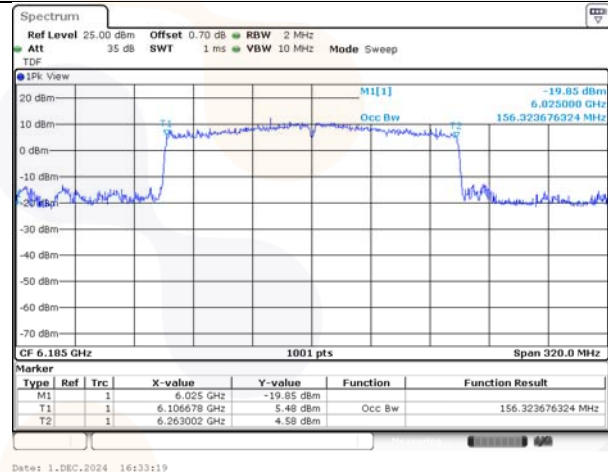
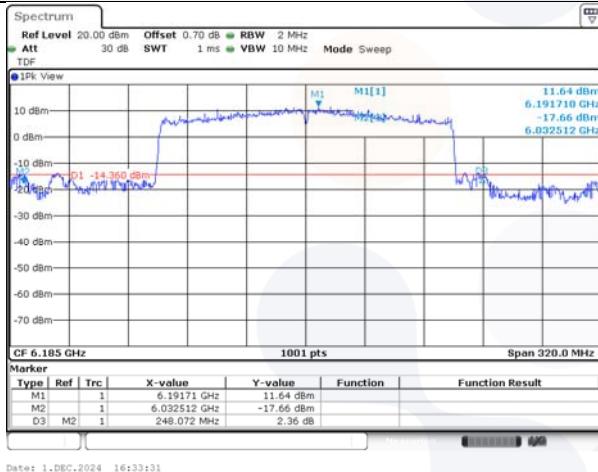
26 dB Bandwidth

99% Bandwidth

802.11be_EHT80 / SU / High ch.



802.11be_EHT160 / SU / Mid ch.

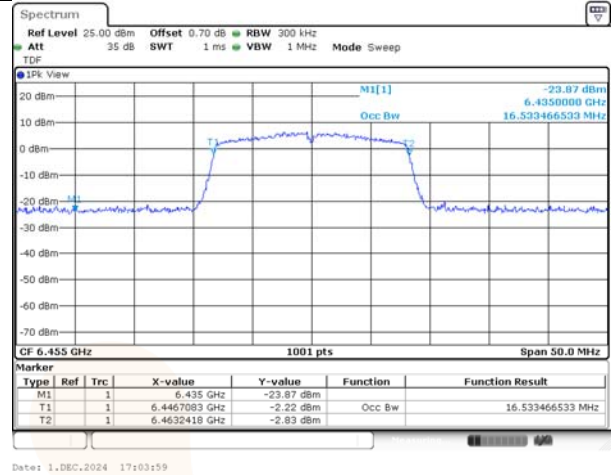
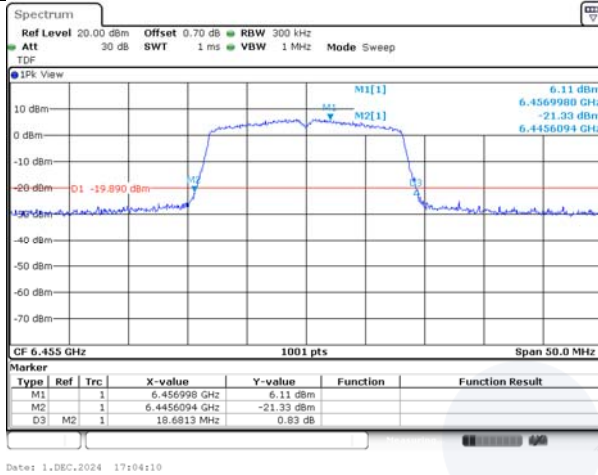


UNII-6 Band

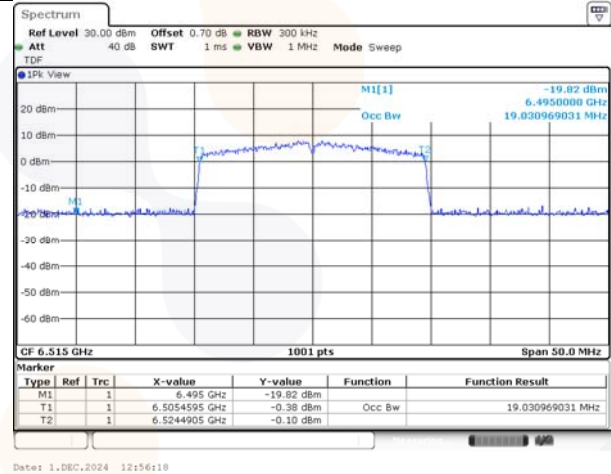
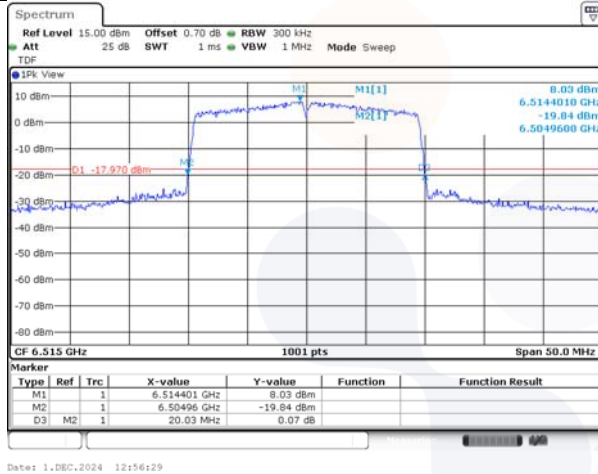
26 dB Bandwidth

99% Bandwidth

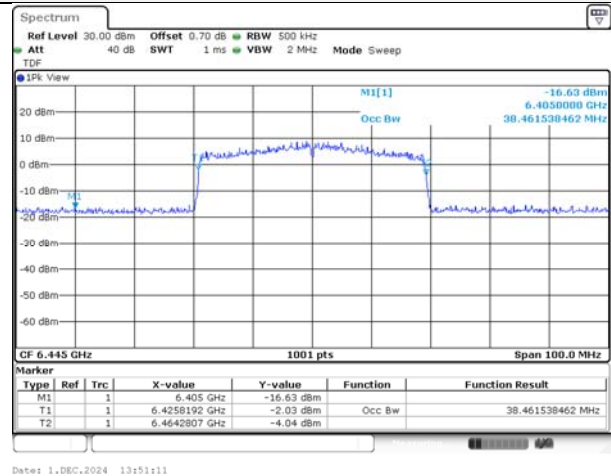
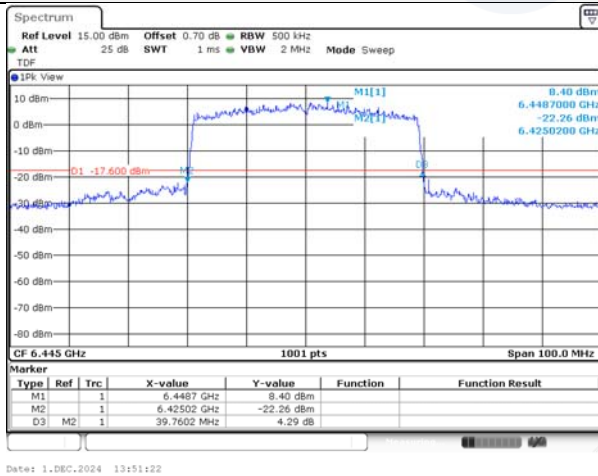
802.11a / Mid ch.



802.11be_EHT20 / SU / High ch.



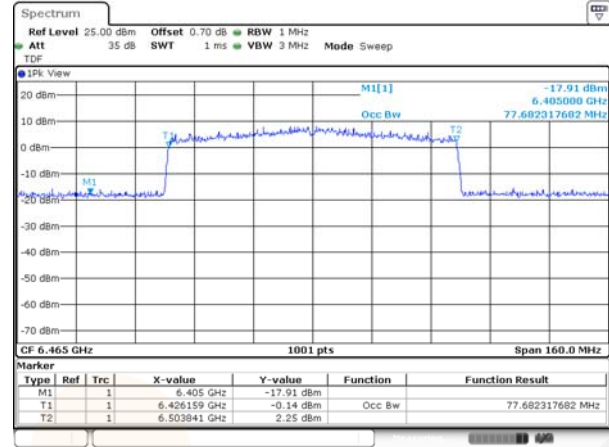
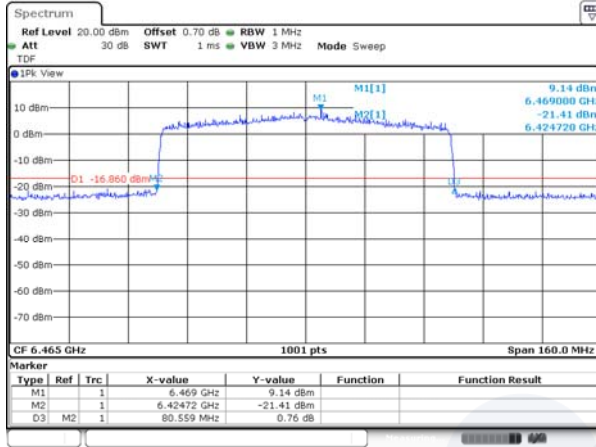
802.11be_EHT40 / SU / Low ch.



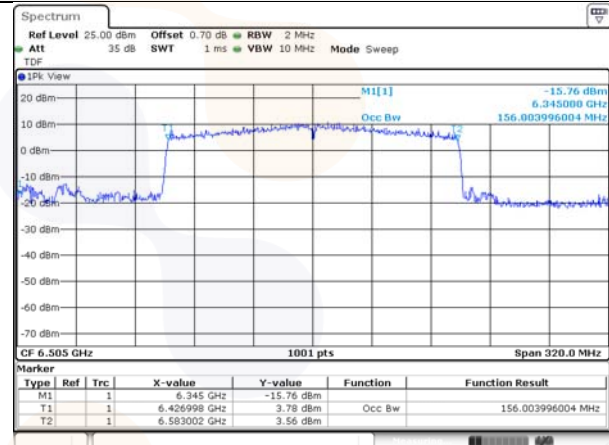
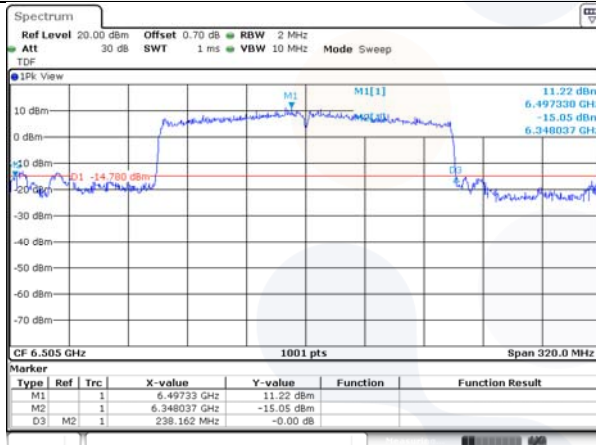
26 dB Bandwidth

99% Bandwidth

802.11be_EHT80 / SU / Low ch.



802.11be_EHT160 / SU / Mid ch.

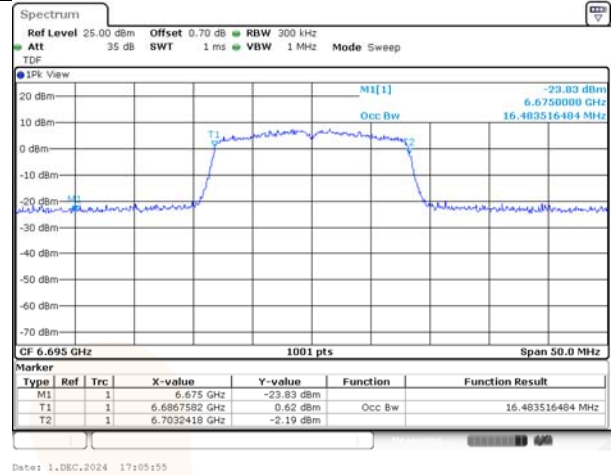
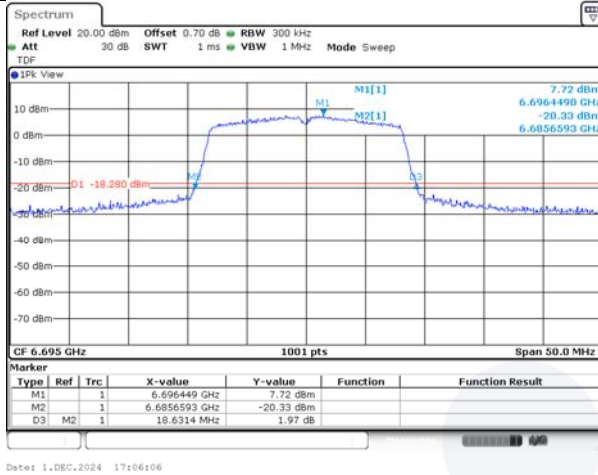


UNII-7 Band

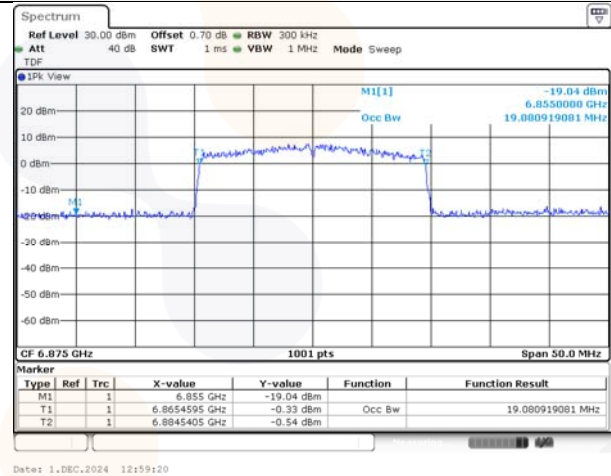
26 dB Bandwidth

99% Bandwidth

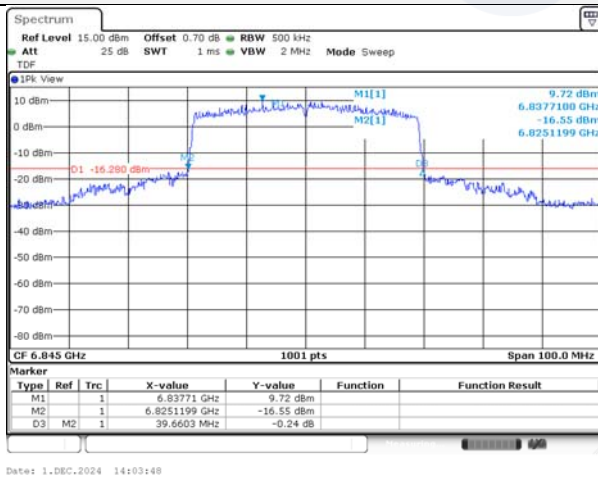
802.11a / Mid ch.



802.11be_EHT20 / SU / High ch.



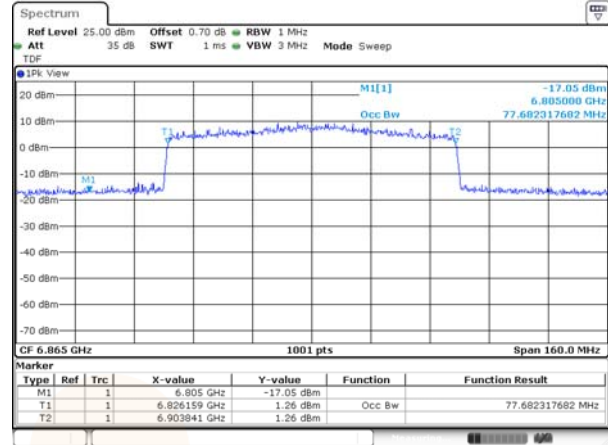
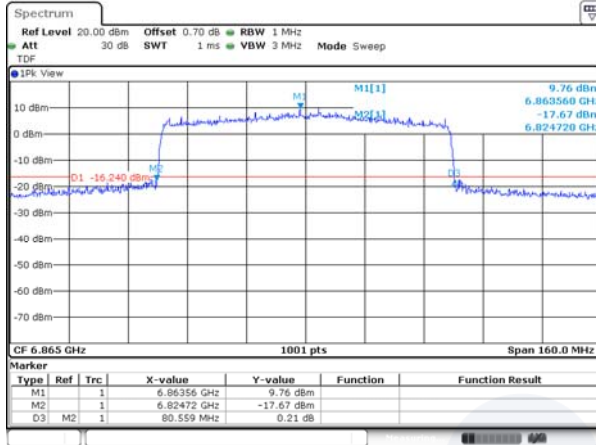
802.11be_EHT40 / SU / High ch.



26 dB Bandwidth

99% Bandwidth

802.11be_EHT80 / SU / High ch.



802.11be_EHT160 / SU / Low ch.

