FCC RF Test Report

APPLICANT	:	Xiaomi Communications Co., Ltd.
EQUIPMENT	:	Mobile Phone
BRAND NAME	:	Xiaomi
MODEL NAME	:	2407FPN8EG
FCC ID	:	2AFZZPN8EG
STANDARD	:	FCC Part 15 Subpart E §15.407
CLASSIFICATION	:	15E 6 GHz Low Power Dual Client (6CD) (Indoor Low Power UNII-5/6/7/8)
TEST DATE(S)	:	Apr. 25, 2024 ~ Jul. 05, 2024

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

This report contains data that were produced under subcontract by Sporton International Inc. (ShenZhen)

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

Jason Jia

Approved by: Jason Jia

ACCREDITED Cert #5145.02

Sporton International Inc. (Kunshan)
No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China

Table of Contents

History of this test report

Report No.	Version	Description	Issued Date
FR441610F	01	Initial issue of report	May 28, 2024
FR441610F	02	1. Increased the number of EBW sweep points lead to re-test 2. Since EBW re-testing will affect test results of the In-Band Emissions which as well as re-testing.	Jul. 05, 2024

Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark
3.1	15.407(a)(11)	26dB Emission Bandwidth	Pass	-
3.1	2.1049	99% Occupied Bandwidth	Pass	-
3.2	15.407(a)(8)	Maximum Conducted Output Power	Reporting only	-
3.2	15.407(a)(8)	Fundamental Maximum EIRP	Pass	-
3.3	15.407(a)(8)	Fundamental Power Spectral Density	Pass	-
3.4	15.407(b)(7)	In-Band Emissions (Channel Mask)	Pass	-
3.5	15.407(d)(6)	Contention Based Protocol	Pass	
3.6	15.407(b)	Unwanted Emissions	Pass	Under limit 3.16 dB at 2484.11 MHz
3.7	15.207	AC Conducted Emission	Pass	Under limit 14.08 dB at 0.600 MHz
3.8	15.203 15.407(a)	Antenna Requirement	Pass	-

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section “Measurement Uncertainty”

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

1 General Description

1.1 Applicant

Xiaomi Communications Co., Ltd.
#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

1.2 Manufacturer

Xiaomi Communications Co., Ltd.
#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Phone
Brand Name	Xiaomi
Model Name	2407FPN8EG
FCC ID	2AFZZPN8EG
IMEI Code	Conducted: 869018070055084/869018070055092 Conduction: 869018070054764/869018070054772 Radiation: 869018070057585/869018070057593 CBP: 869018070055308/869018070055316
HW Version	13520N12
SW Version	Xiaomi HyperOS 1.0
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Frequency Range	U-NII-5: 5925 MHz ~ 6425 MHz U-NII-6: 6425 MHz ~ 6525 MHz U-NII-7: 6525 MHz ~ 6875 MHz U-NII-8: 6875 MHz ~ 7125 MHz
Maximum EIRP	**<MIMO Ant.6+17>** **<5925 MHz ~ 7125 MHz >** 802.11a : 6.19 dBm / 0.0042 W 802.11ax HE20 : 6.40 dBm / 0.0044 W 802.11ax HE40 : 9.24 dBm / 0.0084 W 802.11ax HE80 : 12.03 dBm / 0.0160 W 802.11ax HE160 : 13.86 dBm / 0.0243 W 802.11be EHT20 : 6.48 dBm / 0.0044 W 802.11be EHT40 : 9.31 dBm / 0.0085 W 802.11be EHT80 : 12.13 dBm / 0.0163 W 802.11be EHT160 : 13.92 dBm / 0.0247 W 802.11be EHT320 : 13.65 dBm / 0.0232 W
99% Occupied Bandwidth	802.11a : 16.543 MHz 802.11 be EHT20 : 18.781 MHz 802.11 be EHT40 : 37.642 MHz 802.11 be EHT80 : 77.522 MHz 802.11 be EHT160 : 157.283 MHz 802.11 be EHT320 : 313.926 MHz
Antenna Type / Gain	**<5925 MHz ~ 6425 MHz >** <Ant. 6> : PIFA Antenna with gain -4.11 dBi <Ant. 17> : PIFA Antenna with gain -4.11 dBi **<6425 MHz ~ 6525 MHz >** <Ant. 6> : PIFA Antenna with gain -5.37 dBi <Ant. 17> : PIFA Antenna with gain -5.37 dBi **<6525 MHz ~ 6875 MHz >** <Ant. 6> : PIFA Antenna with gain -3.39 dBi <Ant. 17> : PIFA Antenna with gain -3.39 dBi **<6875 MHz ~ 7125 MHz >** <Ant. 6> : PIFA Antenna with gain -4.20 dBi <Ant. 17> : PIFA Antenna with gain -4.20 dBi
Type of Modulation	802.11a: OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ax: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM) 802.11be: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM / 4096QAM)

Remark:

1. WIFI MIMO support CDD by manufacturer declared.
2. For 802.11ax/be 20/40/80/160MHz mode, the whole testing has assessed only 802.11be EHT20/HET40/HET80/HET160MHz by referring to the higher output power.
3. 802.11ax/be support full RU tone and partial RU tone, both full RU and partial RU-left (for low CH) and partial RU-right (for high CH) are tested for conducted power/PSD/Channel Mask in appendix A, all the other test case were performed with full RU with its maximum power/PSD.

4. The device does not support UNII-8 CH233 (BW=20M, Center Frequency = 7115MHz).
5. CBP test with antenna path of minimum gain (Minimum gain= -5.37 dBi).
6. The channel puncturing mode is for improving network performance and not available for CBP, the CBP will apply channel bandwidth reduction mechanism to protect incumbent operations.
7. 802.11be support small size RU, Large size RU and Puncturing modes as below, which is less than full RU conducted power, therefore have assessed only Power Density/RSE.

<Small size RU >:

a. For Low channel, 52Tone_Index37 + 26Tone_Index0 and 106Tone_Index53 + 26Tone_Index4
b. For High channel, 52Tone_Index40 + 26Tone_Index8 and 106Tone_Index54 + 26Tone_Index4

<Large size RU 484+242 tone> & <80M BW Puncturing 20MHz>:

Bandwidth	Tones		Index		For test modes configure
80MHz	242	484	62	66	1
80MHz	242	484	61	66	2
80MHz	484	242	65	64	3
80MHz	484	242	65	63	4

<Large size RU 996+484 tone> & <160M BW Puncturing 40MHz>:

Bandwidth	Tones		Index		For test modes configure
160MHz	484-Left	996-Right	66-Left	67-Right	1
160MHz	484-Left	996-Right	65-Left	67-Right	2
160MHz	996-Left	484-Right	67-Left	66-Right	3
160MHz	996-Left	484-Right	67-Left	65-Right	4

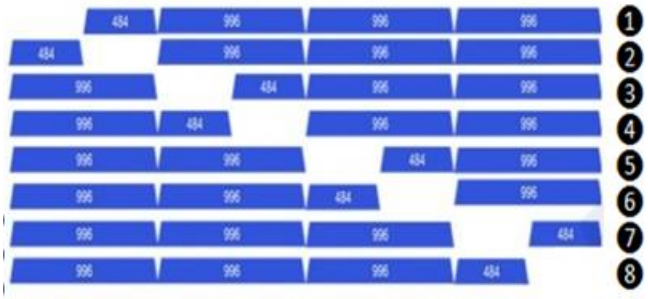
<Large size RU 996+484+242 tone> & <160M BW Puncturing 20MHz>:

Bandwidth	Tones			Index			For test modes configure
160MHz	242-Left	484-Left	996-Right	62-Left	66-Left	67-Right	1
160MHz	242-Left	484-Left	996-Right	61-Left	66-Left	67-Right	2
160MHz	484-Left	242-Left	996-Right	65-Left	64-Left	67-Right	3
160MHz	484-Left	242-Left	996-Right	65-Left	63-Left	67-Right	4
160MHz	996-Left	242-Right	484-Right	67-Left	62-Right	66-Right	5
160MHz	996-Left	242-Right	484-Right	67-Left	61-Right	66-Right	6
160MHz	996-Left	484-Right	242-Right	67-Left	65-Right	64-Right	7
160MHz	996-Left	484-Right	242-Right	67-Left	65-Right	63-Right	8

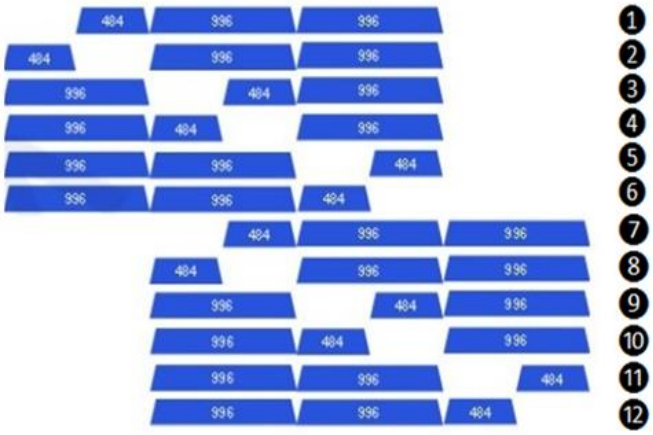
<Large size RU 3*996 tone> & <320M BW Puncturing 80MHz>:

Bandwidth	Tones	Index	For test modes configure
320MHz			1
			2
			3
			4

<Large size RU 3*996+484 tone> & <320M BW Puncturing 40MHz>:

Bandwidth	Tones	Index	For test modes configure
320MHz			1
			2
			3
			4
			5
			6
			7
			8

<Large size RU 2*996+484 tone> & <320M BW Puncturing 80+40MHz>:

Bandwidth	Tones	Index	For test modes configure
320MHz			1
			2
			3
			4
			5
			6
			7
			8
			9
			10
			11
			12

Only the worse cases are shown in this report.

1.5 Modification of EUT

No modifications are made to the EUT during all test items.

1.6 Testing Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	TH01-KS	CN1257	314309

Sporton International Inc. (ShenZhen) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.01.

Test Firm	Sporton International Inc. (ShenZhen)		
Test Site Location	1/F, 2/F, Bldg 5, Shiling Industrial Zone, Xinwei Village, Xili, Nanshan, Shenzhen, 518055 People's Republic of China TEL: +86-755-86379589 FAX: +86-755-86379595		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	CO01-SZ DFS01-SZ	CN1256	421272

Test Firm	Sporton International Inc. (ShenZhen)		
Test Site Location	101, 1st Floor, Block B, Building 1, No. 2, Tengfeng 4th Road, Fenghuang Community, Fuyong Street, Baoan District, Shenzhen City, Guangdong Province 518103 People's Republic of China TEL: +86-755-86066985		
Test Site No.	**Sporton Site No.**	**FCC Designation No.**	**FCC Test Firm Registration No.**
	03CH04-SZ	CN1256	421272

1.7 Test Software

Item	Site	Manufacture	Name	Version
1.	03CH04-SZ	AUDIX	E3	6.2009-8-24
2.	CO01-SZ	AUDIX	E3	6.120613b

1.8 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart E
- FCC KDB 987594 D02 U-NII 6 GHz EMC Measurement v02r01
- FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- FCC KDB 414788 D01 Radiated Test Site v01r01.
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ANSI C63.10-2013

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

2 Test Configuration of Equipment Under Test

a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Z plane) were recorded in this report.

b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

<U-NII-5, 6, 7, 8>

BW 20M	**Channel**	1	5	9	13	17	21	25	29
	Freq. (MHz)	5955	5975	5995	6015	6035	6055	6075	6095
BW 40M	**Channel**	3		11		19		27	
	Freq. (MHz)	5965		6005		6045		6085	
BW 80M	**Channel**	7				23			
	Freq. (MHz)	5985				6065			
BW 160M	**Channel**	15							
	Freq. (MHz)	6025							

BW 20M	**Channel**	33	37	41	45	49	53	57	61
	Freq. (MHz)	6115	6135	6155	6175	6195	6215	6235	6255
BW 40M	**Channel**	35		43		51		59	
	Freq. (MHz)	6125		6165		6205		6245	
BW 80M	**Channel**	39				55			
	Freq. (MHz)	6145				6225			
BW 160M	**Channel**	47							
	Freq. (MHz)	6185							
BW 320M	**Channel**	31				63			
	Freq. (MHz)	6105				6265			

BW 20M	Channel	65	69	73	77	81	85	89	93
	Freq. (MHz)	6275	6295	6315	6335	6355	6375	6395	6415
BW 40M	Channel	67		75		83		91	
	Freq. (MHz)	6285		6325		6365		6405	
BW 80M	Channel	71				87			
	Freq. (MHz)	6305				6385			
BW 160M	Channel	79							
	Freq. (MHz)	6345							
BW 320M	Channel	95							
	Freq. (MHz)	6425							

BW 20M	Channel	97	101	105	109	113	117	121	125
	Freq. (MHz)	6435	6455	6475	6495	6515	6535	6555	6575
BW 40M	Channel	99		107		115		123	
	Freq. (MHz)	6445		6485		6525		6565	
BW 80M	Channel	103				119			
	Freq. (MHz)	6465				6545			
BW 160M	Channel	111							
	Freq. (MHz)	6505							

BW 20M	Channel	129	133	137	141	145	149	153	157
	Freq. (MHz)	6595	6615	6635	6655	6675	6695	6715	6735
BW 40M	Channel	131		139		147		155	
	Freq. (MHz)	6605		6645		6685		6725	
BW 80M	Channel	135				151			
	Freq. (MHz)	6625				6705			
BW 160M	Channel	143							
	Freq. (MHz)	6665							
BW 320M	Channel	127							
	Freq. (MHz)	6585							

BW 20M	Channel	161	165	169	173	177	181	185	189
	Freq. (MHz)	6755	6775	6795	6815	6835	6855	6875	6895
BW 40M	Channel	163		171		179		187	
	Freq. (MHz)	6765		6805		6845		6885	
BW 80M	Channel	167				183			
	Freq. (MHz)	6785				6865			
BW 160M	Channel	175							
	Freq. (MHz)	6825							
BW 320M	Channel	159							
	Freq. (MHz)	6745							

BW 20M	Channel	193	197	201	205	209	213	217	221
	Freq. (MHz)	6915	6935	6955	6975	6995	7015	7035	7055
BW 40M	Channel	195		203		211		219	
	Freq. (MHz)	6925		6965		7005		7045	
BW 80M	Channel	199				215			
	Freq. (MHz)	6945				7025			
BW 160M	Channel	207							
	Freq. (MHz)	6985							
BW 320M	Channel	191							
	Freq. (MHz)	6905							

BW 20M	Channel	225	229
	Freq. (MHz)	7075	7095
BW 40M	Channel	227	
	Freq. (MHz)	7085	

2.2 Test Mode

Final test modes are considering the modulation and worse data rates as below table.

Modulation	Data Rate
802.11a	6 Mbps
802.11be EHT20	MCS0
802.11be EHT40	MCS0
802.11be EHT80	MCS0
802.11be EHT160	MCS0
802.11be EHT320	MCS0

Test Cases	
AC Conducted Emission	Mode 1 : GSM 850 Idle+ BT Link+ WLAN Link(6G)+ USB Cable(Charging From Adapter)
Remark: For Radiated Test Cases, the tests were performed with Adapter, USB Cable	

Co-location
LTE Band 48 Link + WLAN 6G 802.11be EHT160 CH207 TX + WLAN 2.4G 802.11ax HE40 CH09 TX
LTE Band 48 Link + WLAN 6G 802.11be EHT160 CH207 TX + BLE 2Mbps CH01TX

Ch. #		5925-6425 MHz UNII-5	6425-6525 MHz UNII-6	6525-6875 MHz UNII-7	6875-7125 MHz UNII-8
		20M BW	20M BW	20M BW	20M BW
L	Low	001	097	117	189
M	Middle	045	105	149	209
H	High	093	113	181	229
Straddle		-	-	-	185

Ch. #		5925-6425 MHz UNII-5	6425-6525 MHz UNII-6	6525-6875 MHz UNII-7	6875-7125 MHz UNII-8
		40M BW	40M BW	40M BW	40M BW
L	Low	003	099	123	195
M	Middle	043	-	147	203
H	High	091	107	179	227
Straddle		-	115	-	187

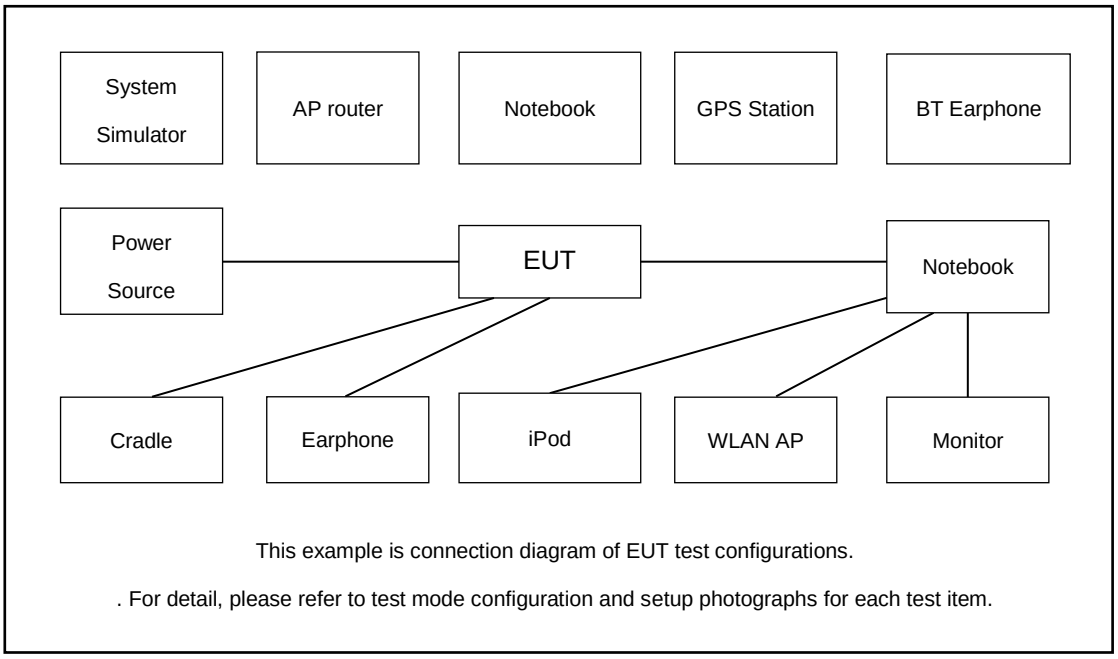
Ch. #		5925-6425 MHz UNII-5	6425-6525 MHz UNII-6	6525-6875 MHz UNII-7	6875-7125 MHz UNII-8
		80M BW	80M BW	80M BW	80M BW
L	Low	007	103	135	199
M	Middle	039		151	-
H	High	087		167	215
Straddle		-	119	183	-

Ch. #		5925-6425 MHz UNII-5	6425-6525 MHz UNII-6	6525-6875 MHz UNII-7	6875-7125 MHz UNII-8
		160M BW	160M BW	160M BW	160M BW
L	Low	015	-	143	207
M	Middle	047			
H	High	079			
Straddle		-	111	175	-

Ch. #		UNII-5	UNII-6	UNII-7	UNII-8
		320M BW	320M BW	320M BW	320M BW
L	Low	-	-	-	-
M	Middle	031			
H	High	063			
Straddle		95	127	159	191

Remark: For radiation spurious emission, the final modulation and the worst data rate was reference the max RF conducted power.

2.3 Connection Diagram of Test System



This example is connection diagram of EUT test configurations.

. For detail, please refer to test mode configuration and setup photographs for each test item.

2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Base Station(LTE)	Anritsu	MT8820C	N/A	N/A	Unshielded, 1.8 m
2.	WLAN AP	Dlink	DIR-820L	KA2IR820LA1	N/A	Unshielded, 1.8 m
3.	Bluetooth Earphone	Samsung	EO-MG900	PYAHS-107W	N/A	Unshielded, 1.8 m

2.5 EUT Operation Test Setup

For WLAN RF test items, an engineering test program (QRCT TX Tool) was provided and enabled to make EUT continuously transmit.

For AC power line conducted emissions, the EUT was set to connect with the WLAN AP under large package sizes transmission.

2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator 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.

Example :

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 5.87 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 5.87 + 10 = 15.87 (dB)

3 Test Result

3.1 26dB & 99% Occupied Bandwidth Measurement

3.1.1 CFR 15.407 (a)(11)

The maximum transmitter channel bandwidth for U-NII devices in the 5.925-7.125 GHz band is 320 megahertz.

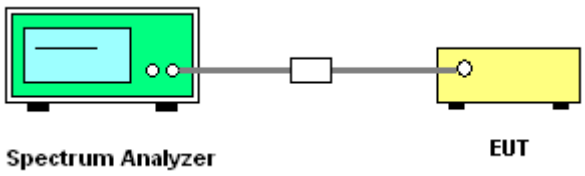
3.1.2 Measuring Instruments

See list of measuring equipment of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section C) Emission bandwidth
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. 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%.
7. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1-5% of the emission bandwidth and set the Video bandwidth (VBW) ≥ 3 * RBW.
8. Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of 26dB & 99% Occupied Bandwidth

Please refer to Appendix A.

3.2 Maximum conducted Output Power and Fundamental Maximum EIRP Measurement

3.2.1 Limit of Fundamental Maximum EIRP

<FCC 14-30 CFR 15.407>

(a)(8) For client devices operating under the control of an indoor access point in the 5.925-7.125 GHz bands, the maximum e.i.r.p. over the frequency band of operation must not exceed 24 dBm.

3.2.2 Measuring Instruments

See list of measuring equipment of this test report.

3.2.3 Test Procedures

The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

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

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
3. Measure the average power of the transmitter, and the average power is corrected with duty factor, 10 log(1/x), where x is the duty cycle.
4. For MIMO mode, the measure-and-sum technique should be used for measuring the in-band transmit power of a device.

3.2.4 Test Setup

3.2.5 Test Result of Fundamental Maximum EIRP

U-NII-5															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Conducted Power with duty factor (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail	Power Setting	
					Ant 6	Ant 17	Ant 6	Ant 17	SUM	Ant 6	Ant 17	SUM			Ant 6	Ant 17
11a	6Mbps	2	001	5955	0.16	0.16	6.63	6.81	9.74	-4.11		5.63	24.00	Pass	6.5	
11a	6Mbps	2	045	6175	0.16	0.16	6.73	7.14	9.95	-4.11		5.84	24.00	Pass	7	
11a	6Mbps	2	093	6415	0.16	0.16	6.33	6.53	9.45	-4.11		5.34	24.00	Pass	6.5	

U-NII-6															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Conducted Power with duty factor (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail	Power Setting	
					Ant 6	Ant 17	Ant 6	Ant 17	SUM	Ant 6	Ant 17	SUM			Ant 6	Ant 17
11a	6Mbps	2	097	6435	0.16	0.16	7.88	7.86	10.88	-5.37		5.51	24.00	Pass	8	
11a	6Mbps	2	105	6475	0.16	0.16	7.81	7.89	10.86	-5.37		5.49	24.00	Pass	8	
11a	6Mbps	2	113	6515	0.16	0.16	7.82	8.21	11.03	-5.37		5.66	24.00	Pass	8	

U-NII-7															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Conducted Power with duty factor (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail	Power Setting	
					Ant 6	Ant 17	Ant 6	Ant 17	SUM	Ant 6	Ant 17	SUM			Ant 6	Ant 17
11a	6Mbps	2	117	6535	0.16	0.16	5.66	6.35	9.03	-3.39		5.64	24.00	Pass	6	
11a	6Mbps	2	149	6695	0.16	0.16	6.05	6.39	9.24	-3.39		5.85	24.00	Pass	6	
11a	6Mbps	2	181	6855	0.16	0.16	6.33	6.78	9.58	-3.39		6.19	24.00	Pass	7	
11a	6Mbps	2	185	6875	0.16	0.16	6.21	6.45	9.35	-3.39		5.96	24.00	Pass	7	

U-NII-8															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Conducted Power with duty factor (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail	Power Setting	
					Ant 6	Ant 17	Ant 6	Ant 17	SUM	Ant 6	Ant 17	SUM			Ant 6	Ant 17
11a	6Mbps	2	189	6895	0.16	0.16	7.17	7.34	10.27	-4.20		6.07	24.00	Pass	8	
11a	6Mbps	2	209	6995	0.16	0.16	6.43	6.88	9.68	-4.20		5.48	24.00	Pass	7	

11a	6Mbps	2	229	7095	0.16	0.16	6.30	7.11	9.74	-4.20	5.54	24.00	Pass	6.5

U-NII-5																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power with duty factor (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail	Power Setting	
						Ant 6	Ant 17	Ant 6	Ant 17	SUM	Ant 6	Ant 17	SUM			Ant 6	Ant 17
HE20	MCS0	2	001	5955	Full	0.20	0.20	6.93	6.55	9.75	-4.11		5.64	24.00	Pass	6.5	
HE20	MCS0	2	001	5955	26/0	0.05	0.05	0.59	-1.43	2.71	-4.11		-1.40	24.00	Pass	-1.5	
HE20	MCS0	2	001	5955	52/37	0.05	0.05	1.52	1.15	4.35	-4.11		0.24	24.00	Pass	1	
HE20	MCS0	2	001	5955	106/53	0.08	0.10	4.48	3.97	7.24	-4.11		3.13	24.00	Pass	4	
HE20	MCS0	2	045	6175	Full	0.20	0.20	7.33	7.58	10.47	-4.11		6.36	24.00	Pass	7.5	
HE20	MCS0	2	093	6415	Full	0.20	0.20	6.81	7.09	9.96	-4.11		5.85	24.00	Pass	7	
HE40	MCS0	2	003	5965	Full	0.41	0.41	9.49	9.52	12.52	-4.11		8.41	24.00	Pass	9	
HE40	MCS0	2	043	6165	Full	0.41	0.41	9.99	10.53	13.28	-4.11		9.17	24.00	Pass	10	
HE40	MCS0	2	091	6405	Full	0.41	0.41	9.89	10.32	13.13	-4.11		9.02	24.00	Pass	10	
HE80	MCS0	2	007	5985	Full	0.19	0.19	12.98	12.44	15.72	-4.11		11.61	24.00	Pass	12.5	
HE80	MCS0	2	039	6145	Full	0.19	0.19	12.64	12.90	15.78	-4.11		11.67	24.00	Pass	12.5	
HE80	MCS0	2	087	6385	Full	0.19	0.19	12.47	12.71	15.60	-4.11		11.49	24.00	Pass	12.5	
HE160	MCS0	2	015	6025	Full	0.35	0.35	14.64	14.07	17.38	-4.11		13.27	24.00	Pass	14	
HE160	MCS0	2	047	6185	Full	0.35	0.35	14.31	14.05	17.19	-4.11		13.08	24.00	Pass	14	
HE160	MCS0	2	079	6345	Full	0.35	0.35	14.11	14.39	17.26	-4.11		13.15	24.00	Pass	14	

U-NII-6																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power with duty factor (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail	Power Setting	
						Ant 6	Ant 17	Ant 6	Ant 17	SUM	Ant 6	Ant 17	SUM			Ant 6	Ant 17
HE20	MCS0	2	097	6435	Full	0.20	0.20	7.89	7.88	10.89	-5.37		5.52	24.00	Pass	8	
HE20	MCS0	2	097	6435	26/0	0.05	0.05	0.74	-0.38	3.23	-5.37		-2.14	24.00	Pass	-0.5	
HE20	MCS0	2	097	6435	52/37	0.05	0.05	2.63	2.70	5.67	-5.37		0.30	24.00	Pass	2.5	
HE20	MCS0	2	097	6435	106/53	0.08	0.10	5.60	5.50	8.56	-5.37		3.19	24.00	Pass	5.5	
HE20	MCS0	2	105	6475	Full	0.20	0.20	8.35	8.58	11.48	-5.37		6.11	24.00	Pass	8.5	
HE20	MCS0	2	113	6515	Full	0.20	0.20	8.36	8.71	11.55	-5.37		6.18	24.00	Pass	8.5	
HE40	MCS0	2	099	6445	Full	0.41	0.41	11.02	11.22	14.14	-5.37		8.77	24.00	Pass	11	
HE40	MCS0	2	107	6485	Full	0.41	0.41	11.30	11.63	14.48	-5.37		9.11	24.00	Pass	11.5	
HE80	MCS0	2	103	6465	Full	0.19	0.19	13.36	13.47	16.42	-5.37		11.05	24.00	Pass	13.5	

U-NII-7																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power with duty factor (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail	Power Setting	
						Ant 6	Ant 17	Ant 6	Ant 17	SUM	Ant 6	Ant 17	SUM			Ant 6	Ant 17
HE20	MCS0	2	117	6535	Full	0.20	0.20	6.35	6.71	9.54	-3.39		6.15	24.00	Pass	6.5	
HE20	MCS0	2	117	6535	26/0	0.05	0.05	-0.46	-1.49	2.06	-3.39		-1.33	24.00	Pass	-2	
HE20	MCS0	2	117	6535	52/37	0.05	0.05	1.04	1.29	4.18	-3.39		0.79	24.00	Pass	1	
HE20	MCS0	2	117	6535	106/53	0.08	0.10	4.20	4.32	7.27	-3.39		3.88	24.00	Pass	4	
HE20	MCS0	2	149	6695	Full	0.20	0.20	6.35	6.81	9.59	-3.39		6.20	24.00	Pass	6.5	
HE20	MCS0	2	181	6855	Full	0.20	0.20	6.22	6.38	9.31	-3.39		5.92	24.00	Pass	7	
HE20	MCS0	2	185	6875	Full	0.20	0.20	6.68	6.88	9.79	-3.39		6.40	24.00	Pass	7.5	
HE40	MCS0	2	115	6525	Full	0.41	0.41	9.19	9.46	12.34	-3.39		8.95	24.00	Pass	9	
HE40	MCS0	2	123	6565	Full	0.41	0.41	9.13	9.39	12.28	-3.39		8.89	24.00	Pass	9	
HE40	MCS0	2	147	6685	Full	0.41	0.41	9.63	9.60	12.63	-3.39		9.24	24.00	Pass	9	
HE40	MCS0	2	179	6845	Full	0.41	0.41	9.49	9.53	12.53	-3.39		9.14	24.00	Pass	9.5	
HE40	MCS0	2	187	6885	Full	0.41	0.41	9.22	9.72	12.49	-3.39		9.10	24.00	Pass	10	
HE80	MCS0	2	119	6545	Full	0.19	0.19	11.40	11.84	14.63	-3.39		11.24	24.00	Pass	11.5	
HE80	MCS0	2	135	6625	Full	0.19	0.19	12.20	12.61	15.42	-3.39		12.03	24.00	Pass	12.5	
HE80	MCS0	2	151	6705	Full	0.19	0.19	11.66	11.76	14.72	-3.39		11.33	24.00	Pass	11.5	
HE80	MCS0	2	167	6785	Full	0.19	0.19	11.83	12.32	15.09	-3.39		11.70	24.00	Pass	12	
HE80	MCS0	2	183	6865	Full	0.19	0.19	11.80	12.40	15.12	-3.39		11.73	24.00	Pass	12.5	
HE160	MCS0	2	111	6505	Full	0.35	0.35	14.07	14.39	17.25	-3.39		13.86	24.00	Pass	14	
HE160	MCS0	2	143	6665	Full	0.35	0.35	14.15	14.32	17.25	-3.39		13.86	24.00	Pass	14	
HE160	MCS0	2	175	6825	Full	0.35	0.35	14.17	14.18	17.19	-3.39		13.80	24.00	Pass	14	

U-NII-8																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power with duty factor (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail	Power Setting	
						Ant 6	Ant 17	Ant 6	Ant 17	SUM	Ant 6	Ant 17	SUM			Ant 6	Ant 17
HE20	MCS0	2	189	6895	Full	0.20	0.20	7.11	7.65	10.40	-4.20		6.20	24.00	Pass	8	
HE20	MCS0	2	209	6995	Full	0.20	0.20	6.55	7.08	9.83	-4.20		5.63	24.00	Pass	7	
HE20	MCS0	2	229	7095	Full	0.20	0.20	6.35	7.05	9.72	-4.20		5.52	24.00	Pass	6.5	
HE20	MCS0	2	229	7095	26/8	0.05	0.05	-0.61	-1.74	1.87	-4.20		-2.33	24.00	Pass	-6	
HE20	MCS0	2	229	7095	52/40	0.05	0.05	0.57	0.47	3.53	-4.20		-0.67	24.00	Pass	0.5	
HE20	MCS0	2	229	7095	106/54	0.08	0.10	3.87	3.59	6.74	-4.20		2.54	24.00	Pass	3.5	
HE40	MCS0	2	195	6925	Full	0.00	0.00	9.38	10.36	12.91	-4.20		8.71	24.00	Pass	10	
HE40	MCS0	2	203	6965	Full	0.41	0.41	9.23	10.19	12.75	-4.20		8.55	24.00	Pass	9.5	
HE40	MCS0	2	227	7085	Full	0.41	0.41	9.69	9.93	12.83	-4.20		8.63	24.00	Pass	9	
HE80	MCS0	2	199	6945	Full	0.19	0.19	11.84	12.77	15.34	-4.20		11.14	24.00	Pass	12.5	
HE80	MCS0	2	215	7025	Full	0.19	0.19	11.78	12.20	15.00	-4.20		10.80	24.00	Pass	12	
HE160	MCS0	2	207	6985	Full	0.35	0.35	13.86	13.88	16.88	-4.20		12.68	24.00	Pass	14	

U-NII-5																		
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power with duty factor (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail	Power Setting	
						Ant 6	Ant 17	Ant 6	Ant 17	SUM	Ant 6	Ant 17	SUM			Ant 6	Ant 17
EHT20	MCS0	2	001	5955	Full	0.21	0.21	6.98	6.63	9.82	-4.11		5.71	24.00	Pass	6.5	
EHT20	MCS0	2	001	5955	26/0	0.06	0.06	0.63	-1.38	2.75	-4.11		-1.36	24.00	Pass	-1.5	
EHT20	MCS0	2	001	5955	52/37	0.06	0.06	1.59	1.19	4.41	-4.11		0.30	24.00	Pass	1	
EHT20	MCS0	2	001	5955	106/53	0.10	0.10	4.55	4.04	7.32	-4.11		3.21	24.00	Pass	4	
EHT20	MCS0	2	001	5955	52ru+26ru	0.05	0.05	3.66	3.22	6.45	-4.11		2.34	24.00	Pass	3	
EHT20	MCS0	2	001	5955	106ru+26ru	0.05	0.05	5.70	5.40	8.56	-4.11		4.45	24.00	Pass	5	
EHT20	MCS0	2	045	6175	Full	0.21	0.21	7.38	7.66	10.53	-4.11		6.42	24.00	Pass	7.5	
EHT20	MCS0	2	093	6415	Full	0.21	0.21	6.87	7.19	10.04	-4.11		5.93	24.00	Pass	7	
EHT40	MCS0	2	003	5965	Full	0.42	0.42	9.57	9.58	12.58	-4.11		8.47	24.00	Pass	9	
EHT40	MCS0	2	043	6165	Full	0.42	0.42	10.06	10.62	13.36	-4.11		9.25	24.00	Pass	10	
EHT40	MCS0	2	091	6405	Full	0.42	0.42	10.03	10.38	13.22	-4.11		9.11	24.00	Pass	10	
EHT80	MCS0	2	007	5985	Full	0.21	0.19	13.06	12.55	15.83	-4.11		11.72	24.00	Pass	12.5	
EHT80	MCS0	2	007	5985	Puncturing 20M ❷	0.11	0.11	10.82	10.28	13.57	-4.11		9.46	24.00	Pass	10	
EHT80	MCS0	2	007	5985	Large RU 484+242 ❹	0.14	0.14	12.77	12.50	15.65	-4.11		11.54	24.00	Pass	12	
EHT80	MCS0	2	039	6145	Full	0.21	0.19	12.75	12.95	15.86	-4.11		11.75	24.00	Pass	12.5	
EHT80	MCS0	2	087	6385	Full	0.21	0.19	12.57	12.74	15.67	-4.11		11.56	24.00	Pass	12.5	
EHT160	MCS0	2	015	6025	Full	0.35	0.35	14.66	14.10	17.40	-4.11		13.29	24.00	Pass	14	
EHT160	MCS0	2	015	6025	Puncturing 20M ❽	0.28	0.28	13.50	13.10	16.31	-4.11		12.20	24.00	Pass	13	
EHT160	MCS0	2	015	6025	Puncturing 40M ❷	0.24	0.24	12.46	12.20	15.34	-4.11		11.23	24.00	Pass	12	
EHT160	MCS0	2	015	6025	Large RU 996+484 ❹	0.14	0.14	13.97	13.63	16.82	-4.11		12.71	24.00	Pass	13.5	
EHT160	MCS0	2	047	6185	Full	0.35	0.35	14.34	14.09	17.23	-4.11		13.12	24.00	Pass	14	
EHT160	MCS0	2	079	6345	Full	0.35	0.35	14.18	14.46	17.33	-4.11		13.22	24.00	Pass	14	
EHT320	MCS0	2	31	6105	Full	0.61	0.61	14.13	13.72	16.94	-4.11		12.83	24.00	Pass	14	
EHT320	MCS0	2	31	6105	Puncturing 40M ❽	0.50	0.50	13.07	12.79	15.94	-4.11		11.83	24.00	Pass	13	
EHT320	MCS0	2	31	6105	Puncturing 80M ❷	0.47	0.44	12.08	11.78	14.94	-4.11		10.83	24.00	Pass	12	
EHT320	MCS0	2	31	6105	Puncturing 80M+40M ❸	0.38	0.38	12.19	12.10	15.15	-4.11		11.04	24.00	Pass	12	
EHT320	MCS0	2	31	6105	Large RU 996*3+484 ❽	0.51	0.51	13.99	13.59	16.81	-4.11		12.70	24.00	Pass	13	
EHT320	MCS0	2	31	6105	Large RU 996*3 ❹	0.46	0.46	13.95	13.52	16.75	-4.11		12.64	24.00	Pass	13.5	
EHT320	MCS0	2	63	6265	Full	0.61	0.61	14.06	13.73	16.91	-4.11		12.80	24.00	Pass	14	
EHT320	MCS0	2	95	6425	Full	0.61	0.61	14.00	14.25	17.14	-4.11		13.03	24.00	Pass	14	

U-NII-6																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power with duty factor (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail	Power Setting	
						Ant 6	Ant 17	Ant 6	Ant 17	SUM	Ant 6	Ant 17	SUM			Ant 6	Ant 17
EHT20	MCS0	2	097	6435	Full	0.21	0.21	7.94	7.95	10.96	-5.37		5.59	24.00	Pass	8	
EHT20	MCS0	2	097	6435	26/0	0.06	0.06	0.77	-0.31	3.28	-5.37		-2.09	24.00	Pass	-0.5	
EHT20	MCS0	2	097	6435	52/37	0.06	0.06	2.69	2.74	5.73	-5.37		0.36	24.00	Pass	2.5	
EHT20	MCS0	2	097	6435	106/53	0.10	0.10	5.67	5.55	8.62	-5.37		3.25	24.00	Pass	5.5	
EHT20	MCS0	2	097	6435	52ru+26ru	0.05	0.05	4.69	4.62	7.66	-5.37		2.29	24.00	Pass	4.5	
EHT20	MCS0	2	097	6435	106ru+26ru	0.05	0.05	6.64	6.50	9.58	-5.37		4.21	24.00	Pass	6.5	
EHT20	MCS0	2	105	6475	Full	0.21	0.21	8.43	8.64	11.55	-5.37		6.18	24.00	Pass	8.5	
EHT20	MCS0	2	113	6515	Full	0.21	0.21	8.40	8.78	11.61	-5.37		6.24	24.00	Pass	8.5	
EHT40	MCS0	2	099	6445	Full	0.42	0.42	11.08	11.29	14.20	-5.37		8.83	24.00	Pass	11	
EHT40	MCS0	2	107	6485	Full	0.42	0.42	11.40	11.70	14.56	-5.37		9.19	24.00	Pass	11.5	
EHT80	MCS0	2	103	6465	Full	0.21	0.19	13.44	13.53	16.50	-5.37		11.13	24.00	Pass	13.5	

U-NII-7																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power with duty factor (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail	Power Setting	
						Ant 6	Ant 17	Ant 6	Ant 17	SUM	Ant 6	Ant 17	SUM			Ant 6	Ant 17
EHT20	MCS0	2	117	6535	Full	0.21	0.21	6.36	6.78	9.59	-3.39		6.20	24.00	Pass	6.5	
EHT20	MCS0	2	117	6535	26/0	0.06	0.06	-0.40	-1.41	2.14	-3.39		-1.25	24.00	Pass	-2	
EHT20	MCS0	2	117	6535	52/37	0.06	0.06	1.11	1.33	4.23	-3.39		0.84	24.00	Pass	1	
EHT20	MCS0	2	117	6535	106/53	0.10	0.10	4.25	4.35	7.31	-3.39		3.92	24.00	Pass	4	
EHT20	MCS0	2	117	6535	52ru+26ru	0.05	0.05	3.20	3.33	6.27	-3.39		2.88	24.00	Pass	3	
EHT20	MCS0	2	117	6535	106ru+26ru	0.05	0.05	5.21	5.40	8.32	-3.39		4.93	24.00	Pass	5	
EHT20	MCS0	2	149	6695	Full	0.21	0.21	6.43	6.93	9.70	-3.39		6.31	24.00	Pass	6.5	
EHT20	MCS0	2	181	6855	Full	0.21	0.21	6.31	6.50	9.42	-3.39		6.03	24.00	Pass	7	
EHT20	MCS0	2	185	6875	Full	0.42	0.42	6.75	6.97	9.87	-3.39		6.48	24.00	Pass	7.5	
EHT40	MCS0	2	115	6525	Full	0.42	0.42	9.27	9.54	12.42	-3.39		9.03	24.00	Pass	9	
EHT40	MCS0	2	123	6565	Full	0.42	0.42	9.20	9.48	12.35	-3.39		8.96	24.00	Pass	9	
EHT40	MCS0	2	147	6685	Full	0.42	0.42	9.71	9.68	12.70	-3.39		9.31	24.00	Pass	9	
EHT40	MCS0	2	179	6845	Full	0.42	0.42	9.58	9.60	12.60	-3.39		9.21	24.00	Pass	9.5	
EHT40	MCS0	2	187	6885	Full	0.42	0.42	9.31	9.81	12.58	-3.39		9.19	24.00	Pass	10	
EHT80	MCS0	2	119	6545	Full	0.21	0.19	11.48	11.90	14.71	-3.39		11.32	24.00	Pass	0	
EHT80	MCS0	2	135	6625	Full	0.21	0.19	12.33	12.68	15.52	-3.39		12.13	24.00	Pass	12.5	
EHT80	MCS0	2	151	6705	Full	0.21	0.19	11.74	11.84	14.80	-3.39		11.41	24.00	Pass	11.5	
EHT80	MCS0	2	167	6785	Full	0.21	0.19	11.95	12.41	15.20	-3.39		11.81	24.00	Pass	12	
EHT80	MCS0	2	183	6865	Full	0.21	0.19	11.87	12.49	15.20	-3.39		11.81	24.00	Pass	12.5	
EHT160	MCS0	2	111	6505	Full	0.35	0.35	14.14	14.44	17.31	-3.39		13.92	24.00	Pass	14	
EHT160	MCS0	2	143	6665	Full	0.35	0.35	14.17	14.34	17.27	-3.39		13.88	24.00	Pass	14	
EHT160	MCS0	2	175	6825	Full	0.35	0.35	14.23	14.20	17.23	-3.39		13.84	24.00	Pass	14	

EHT320	MCS0	2	127	6585	Full	0.61	0.61	13.83	14.22	17.04	-3.39	13.65	24.00	Pass	14
EHT320	MCS0	2	159	6745	Full	0.61	0.61	13.99	13.90	16.96	-3.39	13.57	24.00	Pass	14

U-NII-8																
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Conducted Power with duty factor (dBm)			DG (dBi)		EIRP Power (dBm)	EIRP Power Limit (dBm)	Pass /Fail	Power Setting	
						Ant 6	Ant 17	Ant 6	Ant 17	SUM	Ant 6	Ant 17	SUM			Ant 6	Ant 17
EHT20	MCS0	2	189	6895	Full	0.21	0.21	7.19	7.72	10.47	-4.20		6.27	24.00	Pass	8	
EHT20	MCS0	2	209	6995	Full	0.21	0.21	6.65	7.14	9.91	-4.20		5.71	24.00	Pass	7	
EHT20	MCS0	2	229	7095	Full	0.21	0.21	6.45	7.15	9.83	-4.20		5.63	24.00	Pass	6.5	
EHT20	MCS0	2	229	7095	26/8	0.06	0.06	-0.57	-1.71	1.91	-4.20		-2.29	24.00	Pass	-6	
EHT20	MCS0	2	229	7095	52/40	0.06	0.06	0.63	0.53	3.59	-4.20		-0.61	24.00	Pass	-0.5	
EHT20	MCS0	2	229	7095	106/54	0.10	0.10	3.93	3.66	6.81	-4.20		2.61	24.00	Pass	3.5	
EHT20	MCS0	2	229	7095	52ru+26ru	0.05	0.05	3.08	2.56	5.84	-4.20		1.64	24.00	Pass	2.5	
EHT20	MCS0	2	229	7095	106ru+26ru	0.05	0.05	5.43	4.62	8.05	-4.20		3.85	24.00	Pass	4.5	
EHT40	MCS0	2	195	6925	Full	0.42	0.42	9.47	10.43	12.99	-4.20		8.79	24.00	Pass	10	
EHT40	MCS0	2	203	6965	Full	0.21	0.42	9.30	10.31	12.84	-4.20		8.64	24.00	Pass	9.5	
EHT40	MCS0	2	227	7085	Full	0.21	0.42	9.77	10.00	12.90	-4.20		8.70	24.00	Pass	9	
EHT80	MCS0	2	199	6945	Full	0.21	0.19	11.93	12.90	15.45	-4.20		11.25	24.00	Pass	12.5	
EHT80	MCS0	2	215	7025	Full	0.21	0.19	11.85	12.27	15.08	-4.20		10.88	24.00	Pass	12	
EHT80	MCS0	2	215	7025	Puncturing 20M ❸	0.11	0.11	10.14	10.06	13.11	-4.20		8.91	24.00	Pass	10	
EHT80	MCS0	2	215	7025	Large RU 484+242 ❷	0.14	0.14	11.85	11.62	14.75	-4.20		10.55	24.00	Pass	11.5	
EHT160	MCS0	2	207	6985	Full	0.35	0.35	13.93	13.95	16.95	-4.20		12.75	24.00	Pass	14	
EHT160	MCS0	2	207	6985	Puncturing 20M ❷	0.28	0.28	12.70	12.95	15.83	-4.20		11.63	24.00	Pass	13	
EHT160	MCS0	2	207	6985	Puncturing 40M ❸	0.24	0.24	11.78	12.05	14.93	-4.20		10.73	24.00	Pass	12	
EHT160	MCS0	2	207	6985	Large RU 996+484 ❸	0.14	0.14	13.09	13.33	16.23	-4.20		12.03	24.00	Pass	13.5	
EHT320	MCS0	2	191	6905	Full	0.61	0.61	13.60	13.72	16.67	-4.20		12.47	24.00	Pass	14	
EHT320	MCS0	2	191	6905	Puncturing 40M ❶	0.50	0.50	12.53	12.76	15.66	-4.20		11.46	24.00	Pass	13	
EHT320	MCS0	2	191	6905	Puncturing 80M ❸	0.47	0.44	11.71	11.87	14.80	-4.20		10.60	24.00	Pass	12	
EHT320	MCS0	2	191	6905	Puncturing 80M+40M ❽	0.38	0.38	11.31	11.84	14.59	-4.20		10.39	24.00	Pass	12	
EHT320	MCS0	2	191	6905	Large RU 996*2+484 ❻	0.39	0.39	12.43	12.71	15.58	-4.20		11.38	24.00	Pass	12.5	

3.3 Fundamental Power Spectral Density Measurement

3.3.1 Limit of Fundamental Power Spectral Density

<FCC 14-30 CFR 15.407>

(a)(8) For client devices operating under the control of an indoor access point in the 5.925-7.125 GHz bands, the maximum power spectral density must not exceed −1 dBm e.i.r.p. in any 1-megahertz band.

3.3.2 Measuring Instruments

See list of measuring equipment of this test report.

3.3.3 Test Procedures

The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Section F) Maximum power spectral density.

 # Method SA-2 #

(trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction).

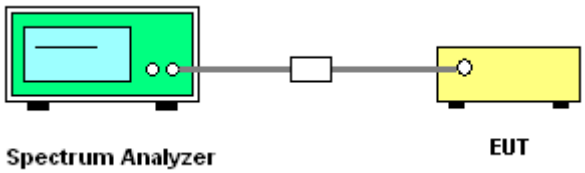
- Measure the duty cycle.
- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz.
- Set VBW ≥ 3 MHz.
- Number of points in sweep ≥ 2 Span / RBW.
- Sweep time = auto.
- Detector = RMS
- Trace average at least 100 traces in power averaging mode.
- Add 10 log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add 10 log(1/0.25) = 6 dB if the duty cycle is 25 percent.

1. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
2. Each plot has already offset with cable loss, attenuator loss and duty factor. Measure the PPSD and record it.
3. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

   Method (b): Measure and sum spectral maxima across the outputs.

   The measurement on each individual output were performed with the same span and number on each individual output. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

3.4 In-Band Emissions (Channel Mask)

3.4.1 Limit of Unwanted Emissions

<FCC 14-30 CFR 15.407>

(b)(7) For transmitters operating within the 5.925-7.125 GHz bands: Power spectral density must be suppressed by 20 dB at 1 MHz outside of channel edge, by 28 dB at one channel bandwidth from the channel center, and by 40 dB at one- and one-half times the channel bandwidth away from channel center. At frequencies between one megahertz outside an unlicensed device's channel edge and one channel bandwidth from the center of the channel, the limits must be linearly interpolated between 20 dB and 28 dB suppression, and at frequencies between one and one- and one-half times an unlicensed device's channel bandwidth, the limits must be linearly interpolated between 28 dB and 40 dB suppression. Emissions removed from the channel center by more than one- and one-half times the channel bandwidth must be suppressed by at least 40 dB.

3.4.2 Measuring Instruments

See list of measuring equipment of this test report.

3.4.3 Test Procedures

The testing follows FCC KDB 987594 D02 U-NII 6GHz EMC Measurement.

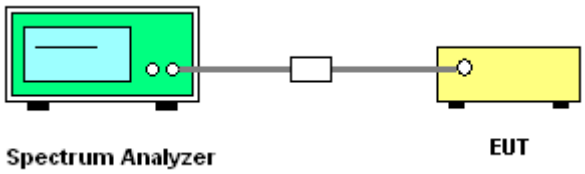
Section J) In-Band Emissions.

1. Take nominal bandwidth as reference channel bandwidth provided that 26 dB emission bandwidth is always larger than nominal bandwidth
2. Measure the power spectral density (which will be used for emissions mask reference) using the following procedure:
   a) Set the span to encompass the entire 26 dB EBW of the signal.
   b) Set RBW = same RBW used for 26 dB EBW measurement.
   c) Set VBW ≥ 3 X RBW
   d) Number of points in sweep ≥ [2 X span / RBW].
   e) Sweep time = auto.
   f) Detector = RMS (i.e., power averaging)
   g) Trace average at least 100 traces in power averaging (rms) mode.
   h) Use the peak search function on the instrument to find the peak of the spectrum.
3. Using the measuring equipment limit line function, develop the emissions mask based on the following requirements. The emissions power spectral density must be reduced below the peak power spectral density (in dB) as follows:
   a. Suppressed by 20 dB at 1 MHz outside of the channel edge.
   b. Suppressed by 28 dB at one channel bandwidth from the channel center.

c. Suppressed by 40 dB at one- and one-half times the channel bandwidth from the channel center.

4. Adjust the span to encompass the entire mask as necessary.
5. Clear trace.
6. Trace average at least 100 traces in power averaging (rms) mode.
7. Adjust the reference level as necessary so that the crest of the channel touches the top of the emission mask.

3.4.4 Test Setup



3.4.5 Test Result

Please refer to Appendix A.

3.5 Contention Based Protocol

3.5.1 Limit of Contention Based Protocol

<FCC 14-30 CFR 15.407>

(d)(6) Indoor access points, subordinate devices and client devices operating in the 5.925-7.125 GHz band must employ a contention-based protocol.

Unlicensed low-power indoor devices must detect co-channel radio frequency power that is at least -62 dBm or lower. Upon detection of energy in the band, unlicensed low power indoor devices must vacate the channel and stay off the channel as long as detected radio frequency power is equal to or greater than the threshold (-62 dBm). The -62 dBm (or lower) threshold is referenced to a 0 dBi antenna gain. To ensure incumbent operations are reliably detected in the band, low power indoor devices must detect RF energy throughout their intended operating channel. For example, an 802.11 device that plans to transmit a 40 MHz- wide signal (on a primary 20 MHz channel and a secondary 20 MHz channel) must detect energy throughout the entire 40 MHz channel. Additionally, low-power indoor devices must detect co-channel energy with 90% or greater certainty.

Table 1. Criteria to determine number of times detection threshold test may be performed

If	Number of Tests	Placement of Incumbent Transmission
$BW_{EUT} \leq BW_{Inc}$	Once	Tune incumbent and EUT transmissions ($f_{c1} = f_{c2}$)
$BW_{Inc} < BW_{EUT} \leq 2BW_{Inc}$	Once	Incumbent transmission is contained within BW_{EUT}
$2BW_{Inc} < BW_{EUT} \leq 4BW_{Inc}$	Twice. Incumbent transmission is contained within BW_{EUT}	Incumbent transmission is located as closely as possible to the lower edge and upper edge, respectively, of the EUT channel
$BW_{EUT} > 4BW_{Inc}$	Three times	Incumbent transmission is located as closely as possible to the lower edge of the EUT channel, in the middle of EUT channel, and as closely as possible to the upper edge of the EUT channel

where:
$BWEUT$: Transmission bandwidth of EUT signal
$BWInc$: Transmission bandwidth of the simulated incumbent signal (10 MHz wide AWGN signal)
$fc1$: Center frequency of EUT transmission
$fc2$: Center frequency of simulated incumbent signal

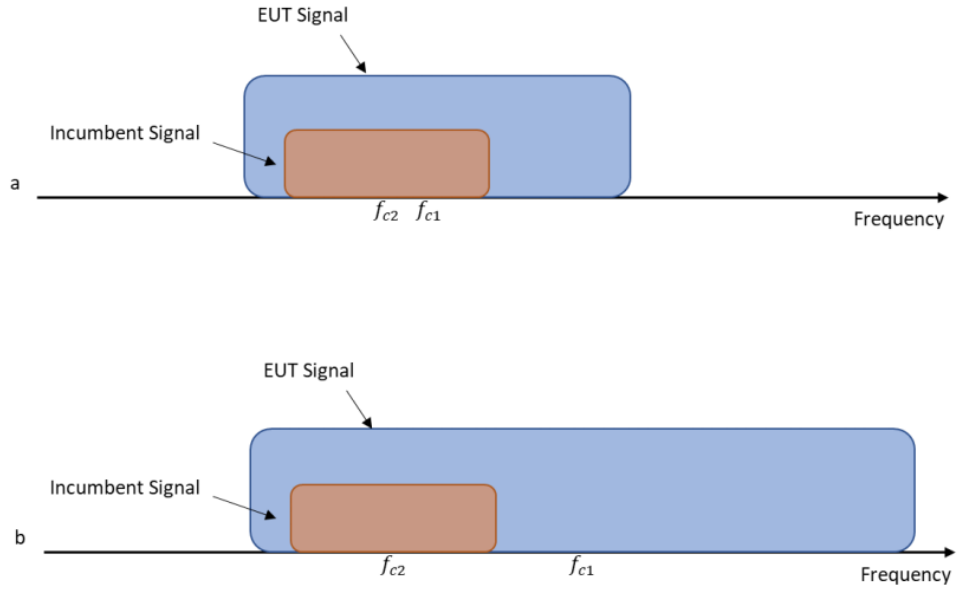


Figure 1. Two possible scenarios where a) center frequency of EUT transmission falls within incumbent's bandwidth, or b) outside of it

3.5.2 Measuring Instruments

See list of measuring equipment of this test report.

3.5.3 Test Procedures

1. To ensure EUT reliably detects an incumbent signal in both scenarios shown in Figure 1, the detection threshold test may be repeated more than once with the incumbent signal (having center frequency $fc2$) tuned to different center frequencies within the UT transmission bandwidth. The criteria specified in Table 1 determines how many times the detection threshold test must be performed
2. Using an AWGN signal source, generate (but do not transmit, i.e., RF OFF) a 10 MHz-wide AWGN signal. Use Table 1 to determine the center frequency of the 10 MHz AWGN signal relative to the EUT's channel bandwidth and center frequency.
3. Monitor the signal analyzer to verify if the AWGN signal has been detected and the EUT has ceased transmission. If the EUT continues to transmit, then incrementally increase the AWGN signal power level until the EUT stops transmitting.
4. (Including all losses in the RF paths) Determine and record the AWGN signal power level (at the EUT's antenna port) at which the EUT ceased transmission. Repeat the procedure at least 10 times to verify the EUT can detect an AWGN signal with 90% (or better) level of certainty.
5. Refer to Table 1 to determine number of times the detection threshold testing needs to be repeated. If testing is required more than once, then go back to step 2, choose a different center

frequency for the AWGN signal and repeat the process.

6. EUT was driven in MIMO mode, the interferer signal was injected to both chains to monitor the performance, while the interferer level is determined according to the lowest antenna gain among both antennas.

3.5.4 Test Setup

Conducted Setup

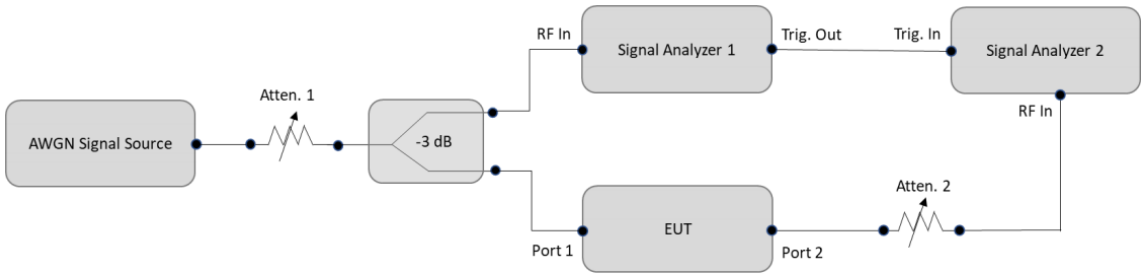


Figure 2. Contention-based protocol test setup, conducted method Step-by-Step Procedure, Conducted Setup

3.5.5 Support Unit used in test configuration and system

Instrument	Brand Name	Model No.	Characteristics
WLAN AP	ASUS	RT-BE96U	Dual Band AP
Notebook	Acer	N15C1	LAN

3.5.6 Test Summary of Contention Based Protocol Test

Band	Channel Freq. (MHz)	Channel BW (MHz)	Incumbent freq. (MHz)	Injected AWGN Level (dBm)	Detection Rate (%)	Regulated Threshold level (dBm)	Adjusted Power (dBm)	Margin (dB)
UNII Band 5	6135	20	6135	-76.34	100	-62	-70.97	8.97
					Result: Stop Transmission			
				-77.34	<90	-62	-71.97	9.97
					Result: Minimal Operation			
				-78.34	=0	-62	-72.97	10.97
					Result: Normal Operation			
	6105	320	6110	-76.25	100	-62	-70.88	8.88
					Result: Stop Transmission			
				-77.25	<90	-62	-71.88	9.88
					Result: Minimal Operation			
				-78.25	=0	-62	-72.88	10.88
					Result: Normal Operation			
			6265	-77.00	100	-62	-71.63	9.63
					Result: Stop Transmission			
				-78.00	<90	-62	-72.63	10.63
					Result: Minimal Operation			
				-79.00	=0	-62	-73.63	11.63
					Result: Normal Operation			
			6420	-77.27	100	-62	-71.90	9.90
					Result: Stop Transmission			
				-78.27	<90	-62	-72.90	10.90
					Result: Minimal Operation			
				-79.27	=0	-62	-73.90	11.90
					Result: Normal Operation			

Note 1: Adjusted Power = Injected AWGN Level - minimum antenna gain (Antenna 6, gain = -5.37dBi)

Note 2: Path Loss between antenna and RF connector is negligible. (0 dB)

Note 3: Margin = Regulated Threshold level - Adjusted Power

Band	Channel Freq. (MHz)	Channel BW (MHz)	Incumbent freq. (MHz)	Injected AWGN Level (dBm)	Detection Rate (%)	Regulated Threshold level (dBm)	Adjusted Power (dBm)	Margin (dB)
UNII Band 6	6455	20	6455	-75.89	100	-62	-70.52	8.52
					Result: Stop Transmission			
				-76.89	<90	-62	-71.52	9.52
					Result: Minimal Operation			
				-77.89	=0	-62	-72.52	10.52
					Result: Normal Operation			
UNII Band 5/6/7	6425	320	6270	-77.99	100	-62	-72.62	10.62
					Result: Stop Transmission			
				-78.99	<90	-62	-73.62	11.62
					Result: Minimal Operation			
				-79.99	=0	-62	-74.62	12.62
					Result: Normal Operation			
			6425	-77.12	100	-62	-71.75	9.75
					Result: Stop Transmission			
				-78.12	<90	-62	-72.75	10.75
					Result: Minimal Operation			
				-79.12	=0	-62	-73.75	11.75
					Result: Normal Operation			
			6580	-75.77	100	-62	-70.40	8.40
					Result: Stop Transmission			
				-76.77	<90	-62	-71.40	9.40
					Result: Minimal Operation			
				-77.77	=0	-62	-72.40	10.40
					Result: Normal Operation			

Note 1: Adjusted Power = Injected AWGN Level - minimum antenna gain (Antenna 6, gain = -5.37dBi)

Note 2: Path Loss between antenna and RF connector is negligible. (0 dB)

Note 3: Margin = Regulated Threshold level - Adjusted Power

Band	Channel Freq. (MHz)	Channel BW (MHz)	Incumbent freq. (MHz)	Injected AWGN Level (dBm)	Detection Rate (%)	Regulated Threshold level (dBm)	Adjusted Power (dBm)	Margin (dB)
UNII Band 7	6695	20	6695	-74.49	100	-62	-69.12	7.12
					Result: Stop Transmission			
				-75.49	<90	-62	-70.12	8.12
					Result: Minimal Operation			
				-76.49	=0	-62	-71.12	9.12
					Result: Normal Operation			
UNII Band 7(8)	6745	320	6590	-75.66	100	-62	-70.29	8.29
					Result: Stop Transmission			
				-76.66	<90	-62	-71.29	9.29
					Result: Minimal Operation			
				-77.66	=0	-62	-72.29	10.29
					Result: Normal Operation			
			6745	-75.02	100	-62	-69.65	7.65
					Result: Stop Transmission			
				-76.02	<90	-62	-70.65	8.65
					Result: Minimal Operation			
				-77.02	=0	-62	-71.65	9.65
					Result: Normal Operation			
			6900	-74.69	100	-62	-69.32	7.32
					Result: Stop Transmission			
				-75.69	<90	-62	-70.32	8.32
					Result: Minimal Operation			
				-76.69	=0	-62	-71.32	9.32
					Result: Normal Operation			

Note 1: Adjusted Power = Injected AWGN Level - minimum antenna gain (Antenna 6, gain = -5.37dBi)

Note 2: Path Loss between antenna and RF connector is negligible. (0 dB)

Note 3: Margin = Regulated Threshold level - Adjusted Power

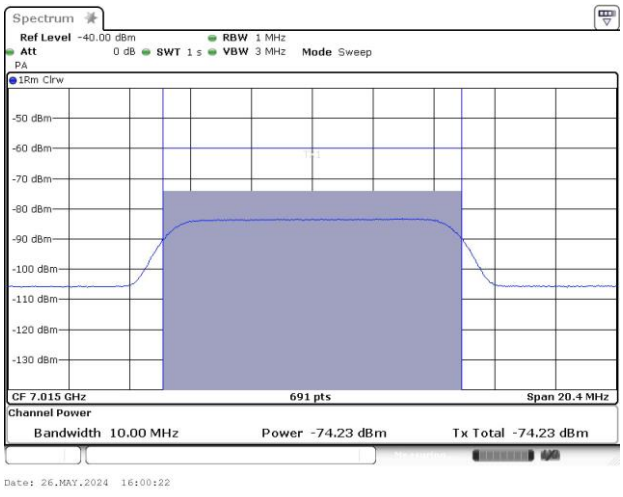
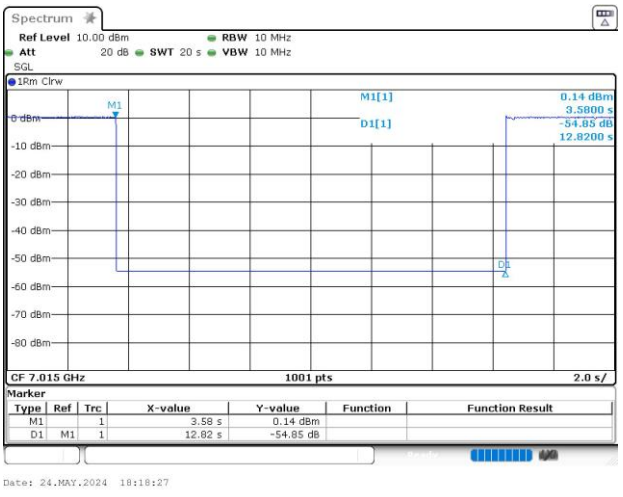
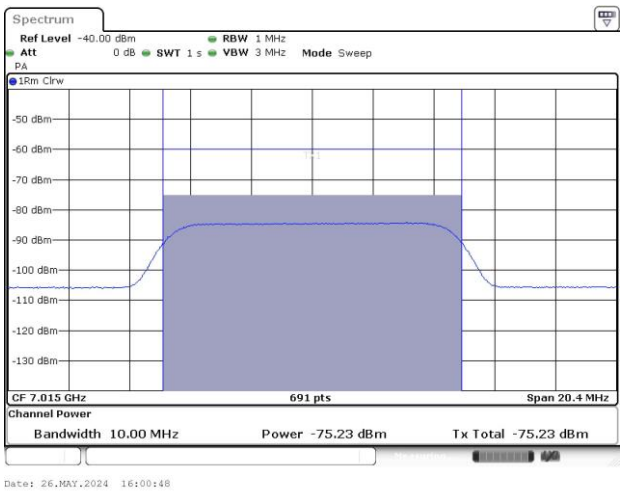
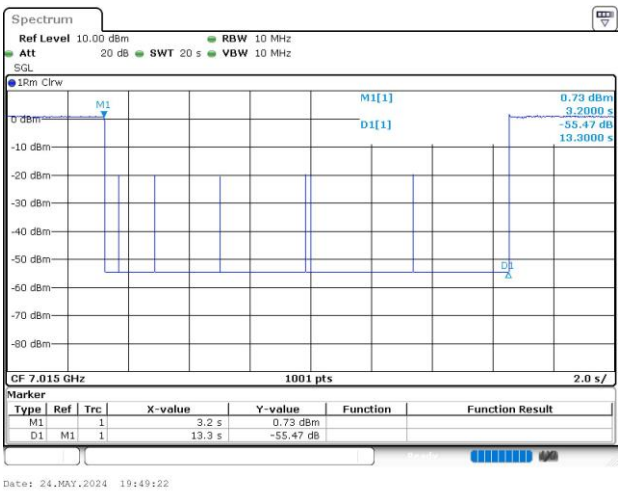
Band	Channel Freq. (MHz)	Channel BW (MHz)	Incumbent freq. (MHz)	Injected AWGN Level (dBm)	Detection Rate (%)	Regulated Threshold level (dBm)	Adjusted Power (dBm)	Margin (dB)
UNII Band 8	7015	20	7015	**-74.23 (worst)**	100	-62	-68.86	**6.86**
					Result: Stop Transmission			
				-75.23	<90	-62	-69.86	7.86
					Result: Minimal Operation			
				-76.23	=0	-62	-70.86	8.86
					Result: Normal Operation			
UNII Band 8(7)	6745	320	6590	-75.66	100	-62.00	-70.29	8.29
					Result: Stop Transmission			
				-76.66	<90	-62.00	-71.29	9.29
					Result: Minimal Operation			
				-77.66	=0	-62.00	-72.29	10.29
					Result: Normal Operation			
			6745	-75.02	100	-62.00	-69.65	7.65
					Result: Stop Transmission			
				-76.02	<90	-62.00	-70.65	8.65
					Result: Minimal Operation			
				-77.02	=0	-62.00	-71.65	9.65
					Result: Normal Operation			
			6900	-74.69	100	-62.00	-69.32	7.32
					Result: Stop Transmission			
				-75.69	<90	-62.00	-70.32	8.32
					Result: Minimal Operation			
				-76.69	=0	-62.00	-71.32	9.32
					Result: Normal Operation			

Note 1: Adjusted Power = Injected AWGN Level - minimum antenna gain (Antenna 6, gain = -5.37dBi)

Note 2: Path Loss between antenna and RF connector is negligible. (0 dB)

Note 3: Margin = Regulated Threshold level - Adjusted Power

3.5.7 Worst Case Plots of Contention Based Protocol

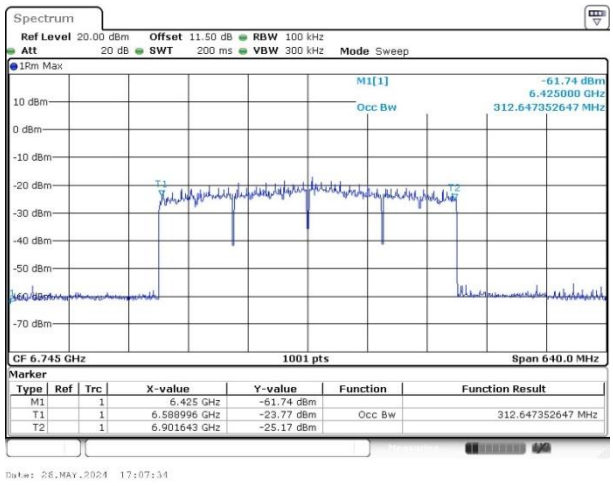
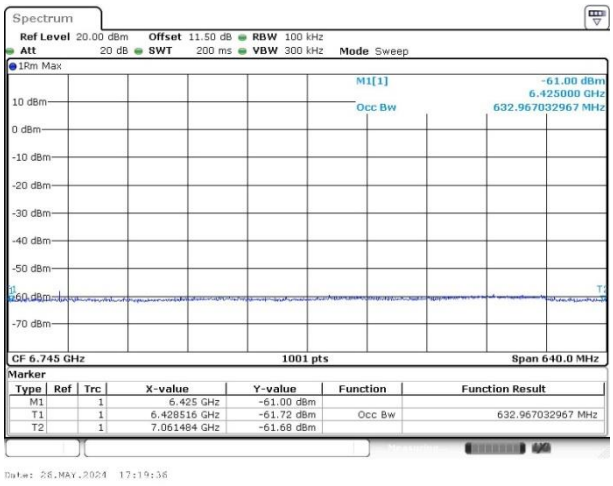
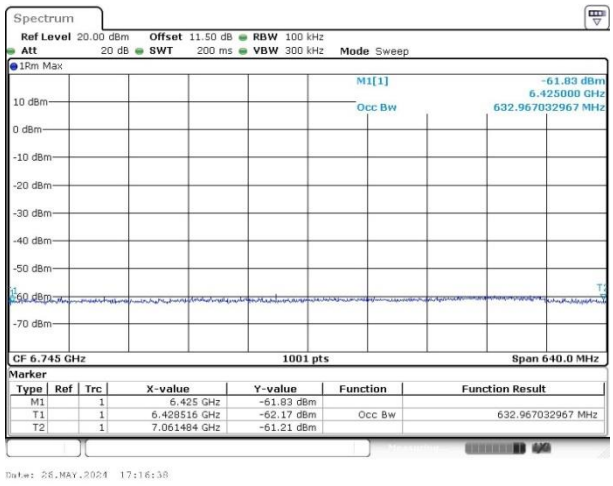
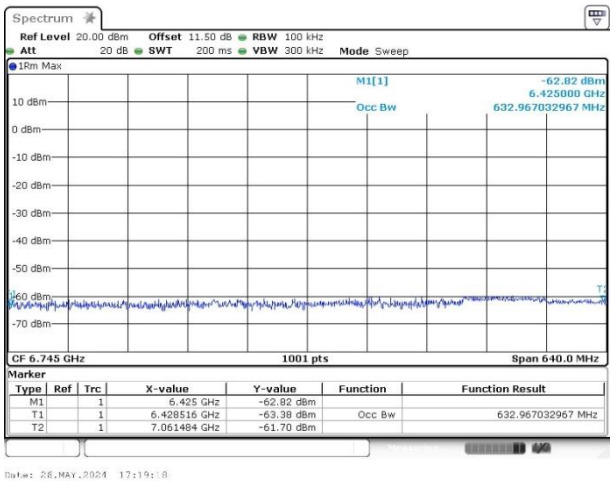
Contention Based Protocol Result Plots on U-NII 8 (AWGN Interference)	
802.11be (EHT20) / 7015MHz Threshold Level (TL) = -74.23dBm	802.11be (EHT20) / 7015MHz Test result is pass due to no transmission occur.
	
802.11be (EHT20) / 7015MHz Threshold Level (TL) = -75.23dBm	802.11be (EHT20) / 7015MHz Transmit when the interferer is 1dB lower.
	

Remark: M1: Injection of AWGN signal, D1: Removal of AWGN signal

3.5.8 Verify Contention Based Protocol Transmission Bandwidth Reduction

Verify transmission absence when Incumbent signal at different frequency (frequency domain plots).

1. When Incumbent Signal inject at lowest frequency, the whole 320MHz bandwidth stop transmission;
2. When Incumbent Signal inject at middle frequency, the whole 320MHz bandwidth stop transmission;
3. When Incumbent Signal inject at highest frequency, the whole 320MHz bandwidth stop transmission;
4. The channel puncturing mode is only for improving network performance and not available for CBP, the CBP apply channel bandwidth reduction mechanism to protect incumbent operations.

<table>
<tr><th colspan="2">UNII 7/8_CH159 (6745MHz / BW=320MHz)</th></tr>
<tr><td>Non-Incumbent Signal</td><td>Incumbent Signal @ Lowest Frequency</td></tr>
<tr><td> 
</td><td> 
</td></tr>
<tr><td>Incumbent Signal @ Middle Frequency</td><td>Incumbent Signal @ Highest Frequency</td></tr>
<tr><td> 
</td><td> 
</td></tr>
</table>

Note: The channel puncturing mode is for improving network performance and not available for CBP, the CBP will apply channel bandwidth reduction mechanism to protect incumbent operations

3.6 Unwanted Emissions Measurement

This section is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement.

3.6.1 Limit of Unwanted Emissions

(1) For transmitters operating within the 5.925-7.125 GHz band: Any emissions outside of the 5.925-7.125 GHz band must not exceed an e.i.r.p. of −27 dBm/MHz.

EIRP (dBm)	Field Strength at 3m (dBμV/m)
- 27 (RMS)	68.3
- 7 (Peak)	88.3

Unwanted emissions outside of restricted bands are measured with a RMS detector.
In addition, 15.35(b) applies where the peak emissions must be limited to no more than 20 dB above the average limit

(2) Unwanted spurious emissions fallen in restricted bands shall comply with the general field strength limits as below table:

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

Note: The following formula is used to convert the EIRP to field strength.

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

3.6.2 Measuring Instruments

See list of measuring equipment of this test report.

3.6.3 Test Procedures

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

   Section G) Unwanted emissions measurement.

   (1) Procedure for Unwanted Emissions Measurements Below 1000MHz

   - RBW = 120 kHz
   - VBW = 300 kHz
   - Detector = Peak
   - Trace mode = max hold

   (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz

   - RBW = 1 MHz
   - VBW ≥ 3 MHz
   - Detector = Peak
   - Sweep time = auto
   - Trace mode = max hold

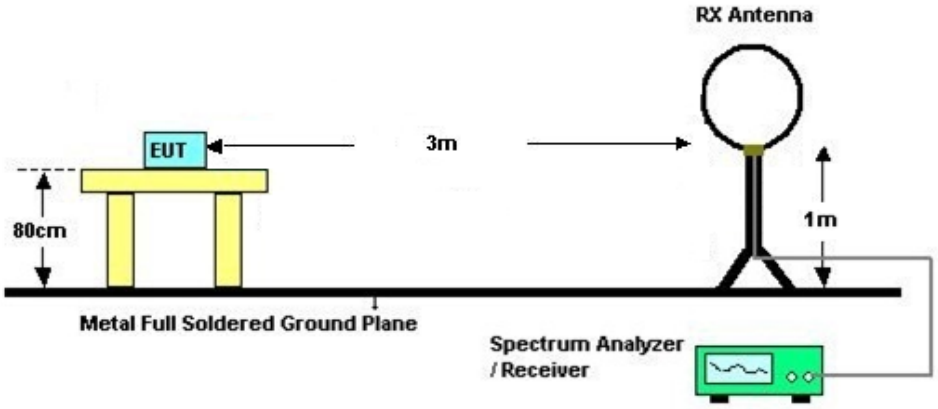
   (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

   - RBW = 1 MHz
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

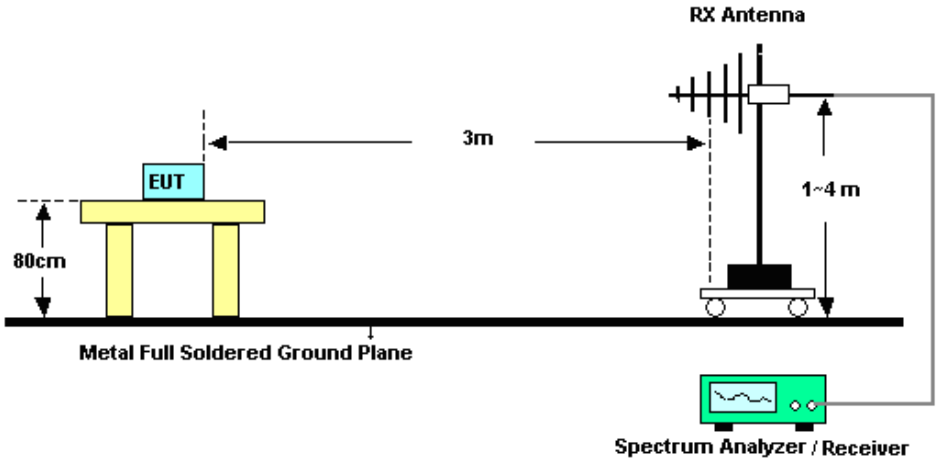
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.6.4 Test Setup

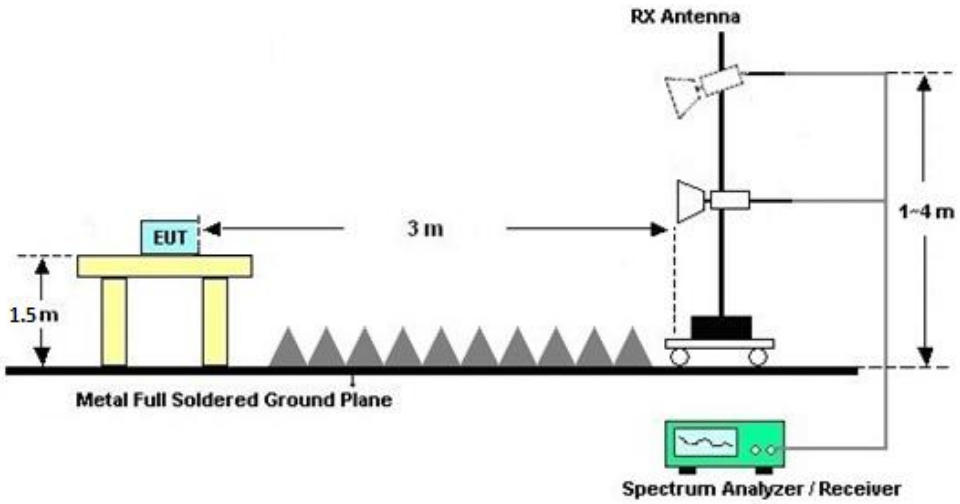
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.6.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

There is adequate comparison measurement of both open-field test site and alternative test site - semi-Anechoic chamber according to 414788 D01 Radiated Test Site v01r01, and the result came out very similar.

3.6.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C

3.6.7 Duty Cycle

Please refer to Appendix D.

3.6.8 Test Result of Radiated Spurious Emissions (30MHz ~ 10th Harmonic)

Please refer to Appendix C.

3.7 AC Conducted Emission Measurement

3.7.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

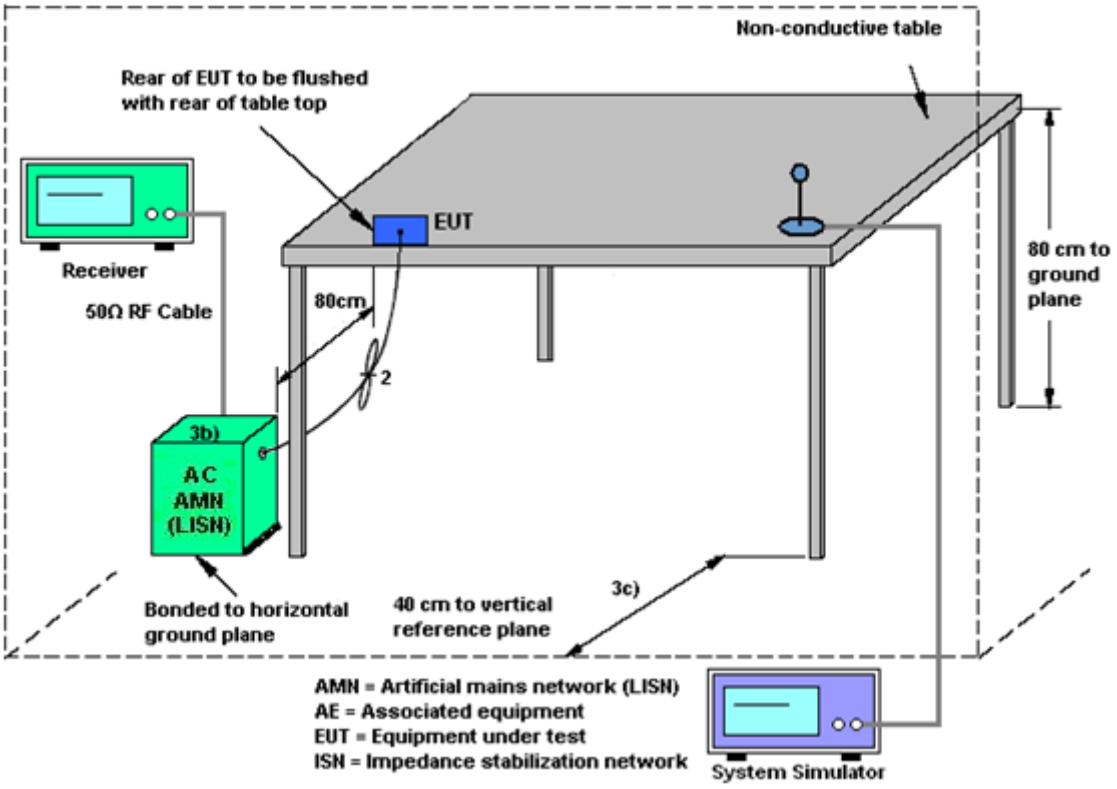
3.7.2 Measuring Instruments

See list of measuring equipment of this test report.

3.7.3 Test Procedures

1. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connecting to the other LISN.
4. The LISN provides 50 ohm coupling impedance for the measuring instrument.
5. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
6. Both sides of AC line were checked for maximum conducted interference.
7. The frequency range from 150 kHz to 30 MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.7.4 Test Setup



3.7.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.8 Antenna Requirements

3.8.1 Standard Applicable

§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.

3.8.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used. The EUT complies with the requirement of 15.203.

3.8.3 Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

For power, the directional gain GANT is set equal to the antenna having the highest gain, i.e.,

Directional gain = $G_{ANT\ MAX}$(Ant.1 Gain, Ant.2 Gain,…) + Array Gain, as following table for Power, where Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4;

For PSD, the directional gain calculation is following,

Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20} + \ldots + 10^{Gn/20})^2 / N_{ANT}$] dBi, as following table for PSD.

N_{ANT} = number of transmit antennas

N_{SS} = number of spatial streams. (The worst case directional gain will occur when NSS = 1)

<CDD Modes>

	Ant. 6 (dBi)	Ant. 17 (dBi)	DG for Power (dBi)	DG for PSD (dBi)
U-NII-5	-4.11	-4.11	-4.11	-1.10
U-NII-6	-5.37	-5.37	-5.37	-2.36
U-NII-7	-3.39	-3.39	-3.39	-0.38
U-NII-8	-4.20	-4.20	-4.20	-1.19

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Oct. 11, 2023	May 02, 2024~ Jul. 05, 2024	Oct. 10, 2024	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 02, 2024	May 02, 2024~ Jul. 05, 2024	Jan. 01, 2025	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 02, 2024	May 02, 2024~ Jul. 05, 2024	Jan. 01, 2025	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESR7	101404	9kHz~7GHz	Oct. 18, 2023	Apr. 25, 2024~ May 24, 2024	Oct. 17, 2024	Radiation (03CH04-SZ)
EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY55150213	10Hz~44GHz	Jul. 07, 2023	Apr. 25, 2024~ May 24, 2024	Jul. 06, 2024	Radiation (03CH04-SZ)
Loop Antenna	R&S	HFH2-Z2	100354	9kHz~30MHz	Jun. 28, 2022	Apr. 25, 2024~ May 24, 2024	Jun. 27, 2024	Radiation (03CH04-SZ)
Bilog Antenna	TeseQ	CBL6111D	41909	30MHz~1GHz	May 14, 2023	Apr. 25, 2024~ May 24, 2024	May 13, 2024	Radiation (03CH04-SZ)
Bilog Antenna	TeseQ	CBL6111D	41909	30MHz~1GHz	May 09, 2024		May 08, 2025	Radiation (03CH04-SZ)
Double Ridge Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-1474	1GHz~18GHz	Jul. 07, 2023	Apr. 25, 2024~ May 24, 2024	Jul. 06, 2024	Radiation (03CH04-SZ)
Horn Antenna	SCHWARZBECK	BBHA9170	9170#679	15GHz~40GHz	Jul. 08, 2023	Apr. 25, 2024~ May 24, 2024	Jul. 07, 2024	Radiation (03CH04-SZ)
Amplifier	Burgeon	BPA-530	102211	0.01Hz ~3000MHz	Oct. 18, 2023	Apr. 25, 2024~ May 24, 2024	Oct. 17, 2024	Radiation (03CH04-SZ)
HF Amplifier	MITEQ	AMF-7D-00101800-30-10P-R	1943528	1GHz~18GHz	Oct. 18, 2023	Apr. 25, 2024~ May 24, 2024	Oct. 17, 2024	Radiation (03CH04-SZ)
HF Amplifier	MITEQ	TTA1840-35-HG	1871923	18GHz~40GHz	Jul. 07, 2023	Apr. 25, 2024~ May 24, 2024	Jul. 06, 2024	Radiation (03CH04-SZ)
Amplifier	Agilent Technologies	83017A	MY57280136	500MHz~26.5GHz	Aug. 21, 2023	Apr. 25, 2024~ May 24, 2024	Aug. 20, 2024	Radiation (03CH04-SZ)
AC Power Source	APC	AFV-S-600B	F119050019	N/A	Oct. 18, 2023	Apr. 25, 2024~ May 24, 2024	Oct. 17, 2024	Radiation (03CH04-SZ)
Turn Table	EM	EM1000	N/A	0~360 degree	NCR	Apr. 25, 2024~ May 24, 2024	NCR	Radiation (03CH04-SZ)
Antenna Mast	EM	EM1000	N/A	1 m~4 m	NCR	Apr. 25, 2024~ May 24, 2024	NCR	Radiation (03CH04-SZ)
EMI Receiver	R&S	ESR7	101630	9kHz~7GHz;	Jul. 06, 2023	May 15, 2024	Jul. 05, 2024	Conduction (CO01-SZ)
AC LISN	R&S	ENV216	100063	9kHz~30MHz	Aug. 21, 2023	May 15, 2024	Aug. 20, 2024	Conduction (CO01-SZ)
AC LISN (for auxiliary equipment)	EMCO	3816/2SH	00103892	9kHz~30MHz	Oct. 16, 2023	May 15, 2024	Oct. 15, 2024	Conduction (CO01-SZ)
AC Power Source	Chroma	61602	616020000891	100Vac~250Vac	Jul. 07, 2023	May 15, 2024	Jul. 06, 2024	Conduction (CO01-SZ)
Signal Analyzer	R&S	FSV7	101473	10Hz~7GHz	Dec. 28, 2023	May 26, 2024	Dec. 27, 2024	Conducted (DFS01-SZ)
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200424	9kHz~6GHz	Apr. 09, 2024	May 26, 2024	Apr. 08, 2025	Conducted (DFS01-SZ)

NCR: No Calibration Required

5 Measurement Uncertainty

Uncertainty of Conducted Measurement

Conducted Spurious Emission & Bandedge	±2.26 dB
Occupied Channel Bandwidth	±0.1%
Conducted Power	±0.46 dB
Conducted Power Spectral Density	±0.88 dB
Frequency	±0.4 Hz
Conducted Generated signal Levels	±0.56 dB
Conducted Time	0.38%

Uncertainty of AC Conducted Emission Measurement (0.15 MHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.5 dB

Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.1 dB

Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.8 dB

Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.1 dB

---------- THE END ----------

Appendix A. Conducted Test Results

Ambient Condition: 25 ℃, 45 %RH	
Test Date: 2024.5.2~2024.7.5	**Test Engineer:** Jiang Jun

Emission Bandwidth

Test Result

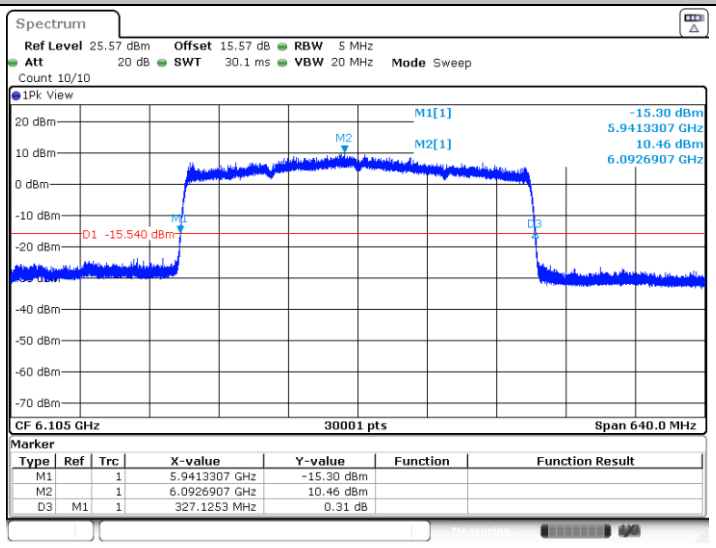
TestMode	Antenna	Freq(MHz)	26dB EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11BE320MIMO	Ant6	6105	327.13	5941.33	6268.46	---	---
	Ant17	6105	327.53	5941.27	6268.80	---	---
	Ant6	6265	327.53	6101.25	6428.78	---	---
	Ant17	6265	327.59	6101.05	6428.65	---	---
	Ant6	6425	327.68	6261.22	6588.90	---	---
	Ant17	6425	328.02	6260.84	6588.86	---	---
	Ant6	6585	327.36	6421.33	6748.69	---	---
	Ant17	6585	327.55	6421.29	6748.84	---	---
	Ant6	6745	327.32	6581.39	6908.71	---	---
	Ant17	6745	327.96	6581.03	6908.99	---	---
	Ant6	6905	328.15	6741.10	7069.25	---	---
	Ant17	6905	327.55	6741.61	7069.16	---	---
11A-CDD	Ant6	5955	18.23	5945.87	5964.09	≤ 320	Pass
	Ant17	5955	18.13	5945.96	5964.08	≤ 320	Pass
	Ant6	6175	18.12	6165.91	6184.03	≤ 320	Pass
	Ant17	6175	18.18	6165.96	6184.14	≤ 320	Pass
	Ant6	6415	18.15	6405.95	6424.09	≤ 320	Pass
	Ant17	6415	18.07	6405.92	6423.99	≤ 320	Pass
	Ant6	6435	18.29	6425.83	6444.12	≤ 320	Pass
	Ant17	6435	18.14	6425.93	6444.07	≤ 320	Pass
	Ant6	6475	18.25	6465.82	6484.07	≤ 320	Pass
	Ant17	6475	18.17	6465.92	6484.09	≤ 320	Pass
	Ant6	6515	18.24	6505.85	6524.10	≤ 320	Pass
	Ant17	6515	18.11	6505.92	6524.03	≤ 320	Pass
	Ant6	6535	18.24	6525.91	6544.15	≤ 320	Pass
	Ant17	6535	18.02	6525.97	6543.98	≤ 320	Pass
	Ant6	6695	18.21	6685.91	6704.12	≤ 320	Pass
	Ant17	6695	18.08	6685.98	6704.05	≤ 320	Pass
	Ant6	6855	18.19	6845.88	6864.07	≤ 320	Pass
	Ant17	6855	18.11	6845.96	6864.07	≤ 320	Pass
	Ant6	6875	18.18	6865.93	6884.11	≤ 320	Pass
	Ant17	6875	17.99	6865.97	6883.96	≤ 320	Pass
	Ant6	6895	18.35	6885.79	6904.13	≤ 320	Pass
	Ant17	6895	18.03	6885.96	6903.99	≤ 320	Pass
	Ant6	6995	18.35	6985.83	7004.18	≤ 320	Pass
	Ant17	6995	18.09	6986.01	7004.10	≤ 320	Pass
	Ant6	7095	18.26	7085.86	7104.12	≤ 320	Pass
	Ant17	7095	18.11	7085.93	7104.04	≤ 320	Pass
11BE20MIMO	Ant6	5955	19.72	5945.14	5964.85	≤ 320	Pass
	Ant17	5955	19.77	5945.14	5964.91	≤ 320	Pass
	Ant6	6175	19.74	6165.12	6184.86	≤ 320	Pass

	Ant17	6175	19.73	6165.14	6184.88	≤ 320	Pass
	Ant6	6415	19.70	6405.14	6424.84	≤ 320	Pass
	Ant17	6415	19.68	6405.14	6424.82	≤ 320	Pass
	Ant6	6435	19.78	6425.11	6444.89	≤ 320	Pass
	Ant17	6435	19.72	6425.12	6444.84	≤ 320	Pass
	Ant6	6475	19.74	6465.09	6484.83	≤ 320	Pass
	Ant17	6475	19.73	6465.12	6484.85	≤ 320	Pass
	Ant6	6515	19.76	6505.09	6524.85	≤ 320	Pass
	Ant17	6515	19.72	6505.13	6524.85	≤ 320	Pass
	Ant6	6535	19.75	6525.12	6544.87	≤ 320	Pass
	Ant17	6535	19.78	6525.09	6544.87	≤ 320	Pass
	Ant6	6695	19.69	6685.12	6704.81	≤ 320	Pass
	Ant17	6695	19.79	6685.05	6704.84	≤ 320	Pass
	Ant6	6855	19.74	6845.11	6864.84	≤ 320	Pass
	Ant17	6855	19.74	6845.12	6864.86	≤ 320	Pass
	Ant6	6875	19.68	6865.16	6884.83	≤ 320	Pass
	Ant17	6875	19.74	6865.11	6884.85	≤ 320	Pass
	Ant6	6895	19.75	6885.13	6904.88	≤ 320	Pass
	Ant17	6895	19.69	6885.12	6904.81	≤ 320	Pass
	Ant6	6995	19.80	6985.13	7004.93	≤ 320	Pass
	Ant17	6995	19.75	6985.13	7004.88	≤ 320	Pass
	Ant6	7095	19.66	7085.16	7104.82	≤ 320	Pass
	Ant17	7095	19.72	7085.13	7104.85	≤ 320	Pass
11BE40MIMO	Ant6	5965	39.45	5945.30	5984.75	≤ 320	Pass
	Ant17	5965	39.49	5945.28	5984.77	≤ 320	Pass
	Ant6	6165	39.44	6145.25	6184.69	≤ 320	Pass
	Ant17	6165	39.49	6145.31	6184.80	≤ 320	Pass
	Ant6	6405	39.35	6385.31	6424.67	≤ 320	Pass
	Ant17	6405	39.47	6385.22	6424.69	≤ 320	Pass
	Ant6	6445	39.47	6425.25	6464.72	≤ 320	Pass
	Ant17	6445	39.50	6425.27	6464.77	≤ 320	Pass
	Ant6	6485	39.52	6465.21	6504.73	≤ 320	Pass
	Ant17	6485	39.51	6465.23	6504.73	≤ 320	Pass
	Ant6	6525	39.45	6505.25	6544.70	≤ 320	Pass
	Ant17	6525	39.44	6505.28	6544.72	≤ 320	Pass
	Ant6	6565	39.39	6545.31	6584.69	≤ 320	Pass
	Ant17	6565	39.41	6545.27	6584.68	≤ 320	Pass
	Ant6	6685	39.57	6665.19	6704.76	≤ 320	Pass
	Ant17	6685	39.55	6665.19	6704.74	≤ 320	Pass
	Ant6	6845	39.47	6825.25	6864.72	≤ 320	Pass
	Ant17	6845	39.54	6825.17	6864.71	≤ 320	Pass
	Ant6	6885	39.37	6865.30	6904.67	≤ 320	Pass
	Ant17	6885	39.31	6865.33	6904.64	≤ 320	Pass
	Ant6	6925	39.45	6905.29	6944.75	≤ 320	Pass
	Ant17	6925	39.35	6905.33	6944.68	≤ 320	Pass
	Ant6	6965	39.42	6945.33	6984.75	≤ 320	Pass
	Ant17	6965	39.33	6945.27	6984.60	≤ 320	Pass
	Ant6	7085	39.47	7065.21	7104.68	≤ 320	Pass
	Ant17	7085	39.37	7065.32	7104.69	≤ 320	Pass
11BE80MIMO	Ant6	5985	79.99	5945.00	6024.99	≤ 320	Pass

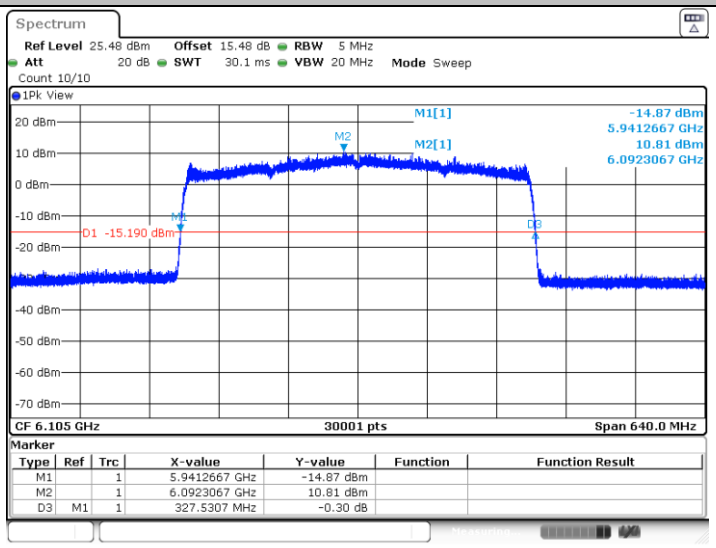
	Ant17	5985	79.91	5945.03	6024.93	≤ 320	Pass
	Ant6	6145	80.03	6104.96	6184.99	≤ 320	Pass
	Ant17	6145	80.03	6104.95	6184.97	≤ 320	Pass
	Ant6	6385	80.03	6344.95	6424.97	≤ 320	Pass
	Ant17	6385	79.91	6344.99	6424.89	≤ 320	Pass
	Ant6	6465	80.16	6424.87	6505.03	≤ 320	Pass
	Ant17	6465	80.09	6424.92	6505.01	≤ 320	Pass
	Ant6	6545	80.09	6504.92	6585.01	≤ 320	Pass
	Ant17	6545	79.96	6504.99	6584.95	≤ 320	Pass
	Ant6	6625	80.08	6584.96	6665.04	≤ 320	Pass
	Ant17	6625	80.05	6584.97	6665.03	≤ 320	Pass
	Ant6	6705	79.95	6665.00	6744.95	≤ 320	Pass
	Ant17	6705	80.01	6664.93	6744.95	≤ 320	Pass
	Ant6	6785	80.03	6744.97	6825.00	≤ 320	Pass
	Ant17	6785	80.01	6745.00	6825.01	≤ 320	Pass
	Ant6	6865	80.08	6824.91	6904.99	≤ 320	Pass
	Ant17	6865	80.07	6824.92	6904.99	≤ 320	Pass
	Ant6	6945	80.05	6904.95	6985.00	≤ 320	Pass
	Ant17	6945	79.79	6905.05	6984.84	≤ 320	Pass
	Ant6	7025	79.97	6985.01	7064.99	≤ 320	Pass
	Ant17	7025	79.88	6985.04	7064.92	≤ 320	Pass
11BE160MIMO	Ant6	6025	161.79	5944.12	6105.91	≤ 320	Pass
	Ant17	6025	161.95	5943.93	6105.88	≤ 320	Pass
	Ant6	6185	161.81	6104.09	6265.91	≤ 320	Pass
	Ant17	6185	161.57	6104.15	6265.72	≤ 320	Pass
	Ant6	6345	161.81	6264.12	6425.93	≤ 320	Pass
	Ant17	6345	161.79	6264.09	6425.88	≤ 320	Pass
	Ant6	6505	161.60	6424.23	6585.83	≤ 320	Pass
	Ant17	6505	161.31	6424.31	6585.61	≤ 320	Pass
	Ant6	6665	161.89	6584.01	6745.91	≤ 320	Pass
	Ant17	6665	161.41	6584.17	6745.59	≤ 320	Pass
	Ant6	6825	161.68	6744.04	6905.72	≤ 320	Pass
	Ant17	6825	161.68	6744.09	6905.77	≤ 320	Pass
	Ant6	6985	161.95	6904.07	7066.01	≤ 320	Pass
	Ant17	6985	161.71	6904.17	7065.88	≤ 320	Pass

Test Graphs

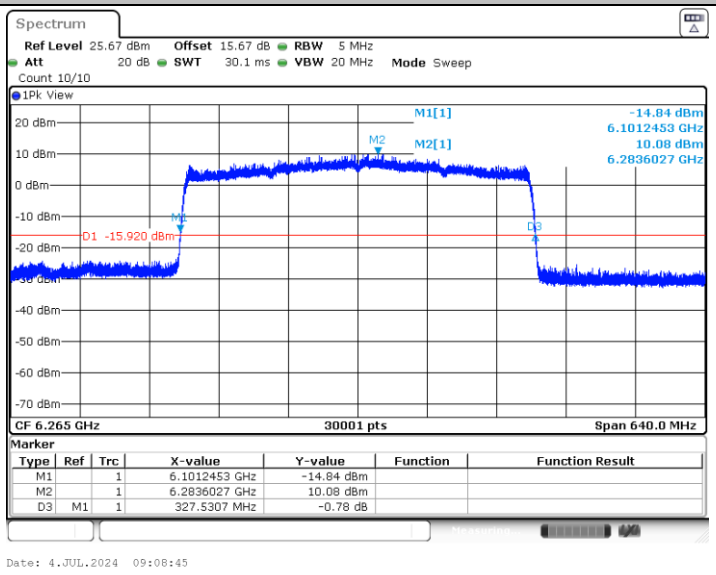
11BE320MIMO_Ant6_6105



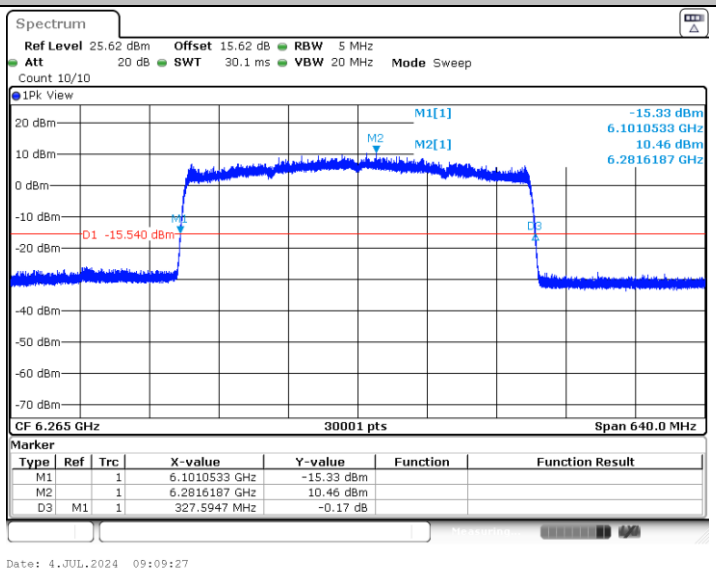
11BE320MIMO_Ant17_6105

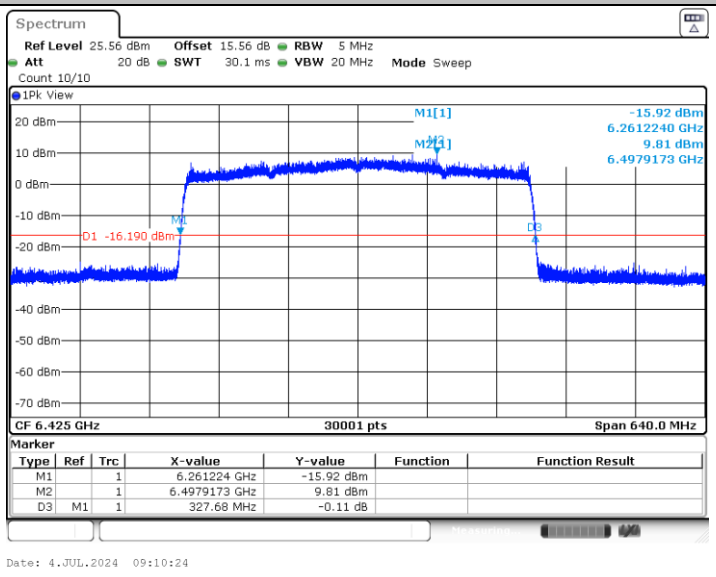


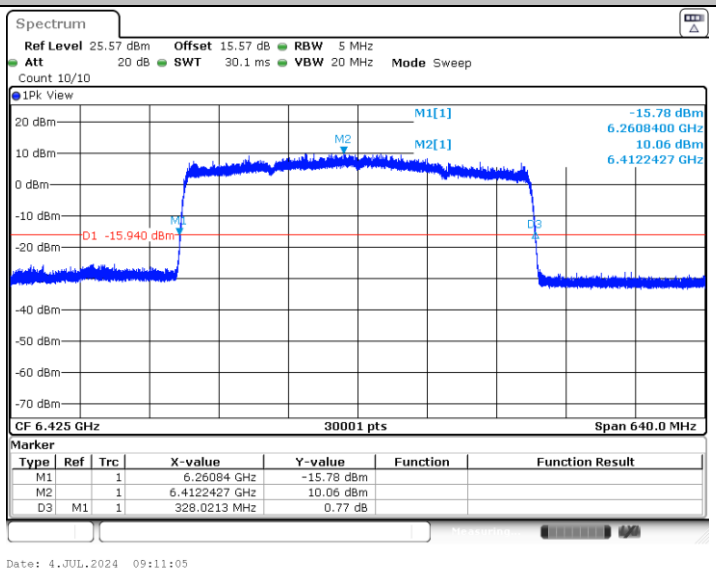
11BE320MIMO_Ant6_6265



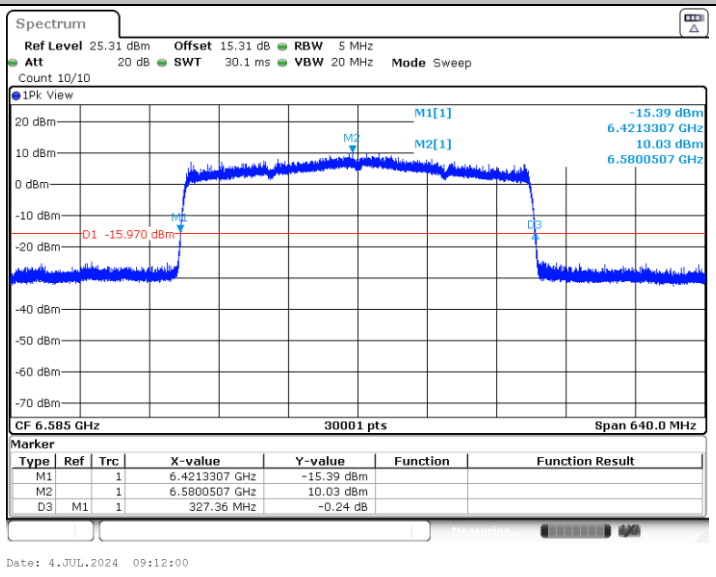
11BE320MIMO_Ant17_6265



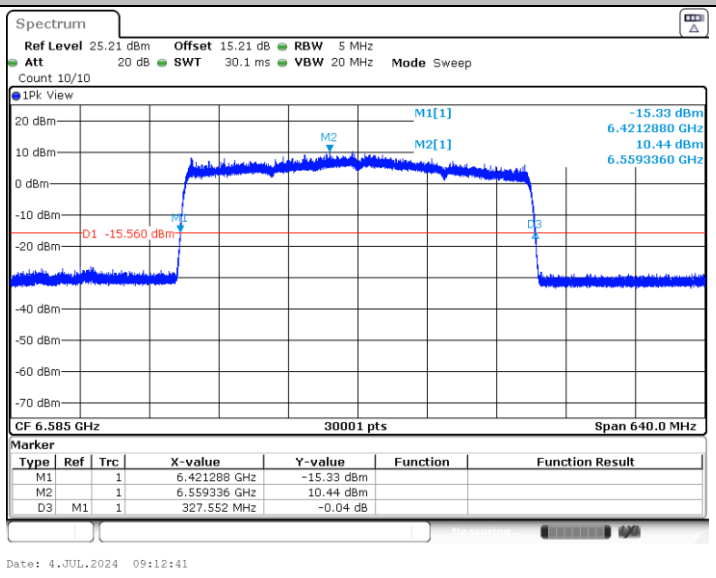
11BE320MIMO_Ant6_6425


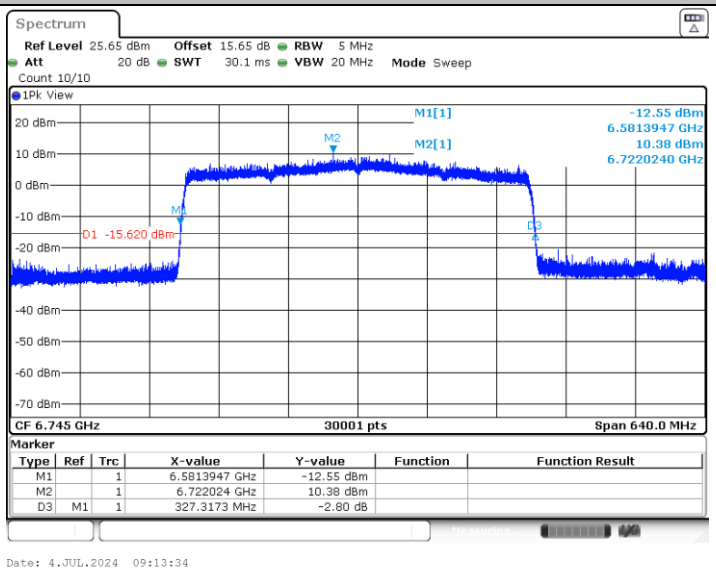
11BE320MIMO_Ant17_6425


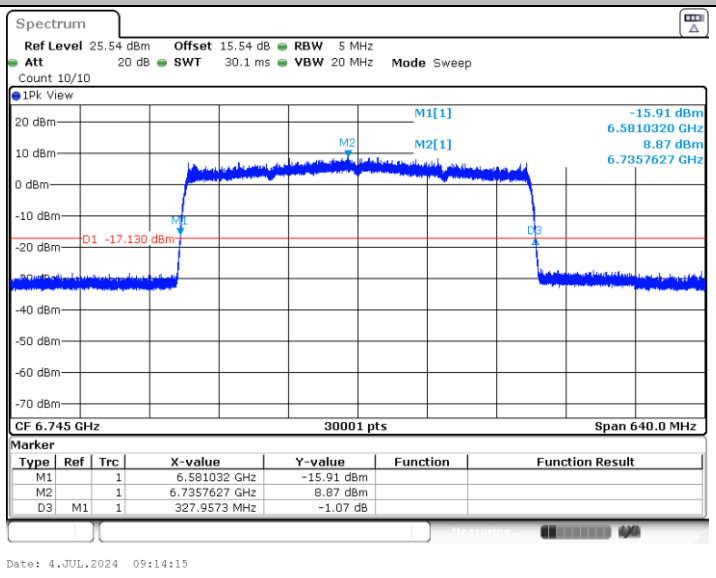
11BE320MIMO_Ant6_6585



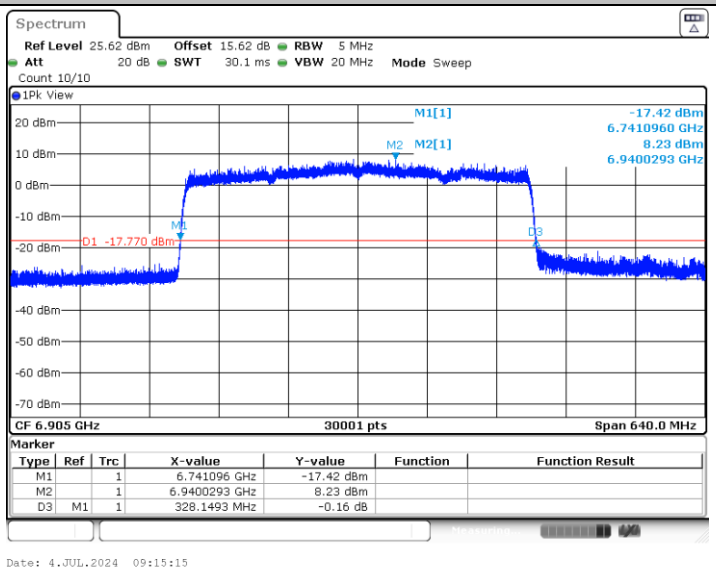
11BE320MIMO_Ant17_6585



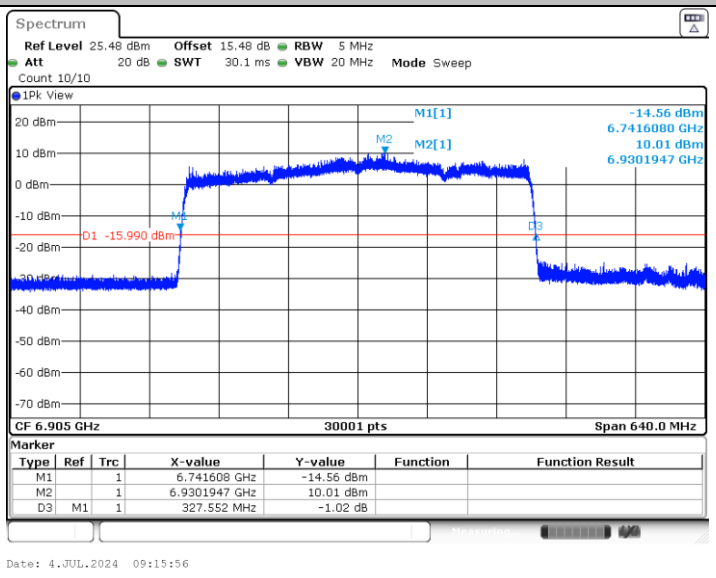
11BE320MIMO_Ant6_6745


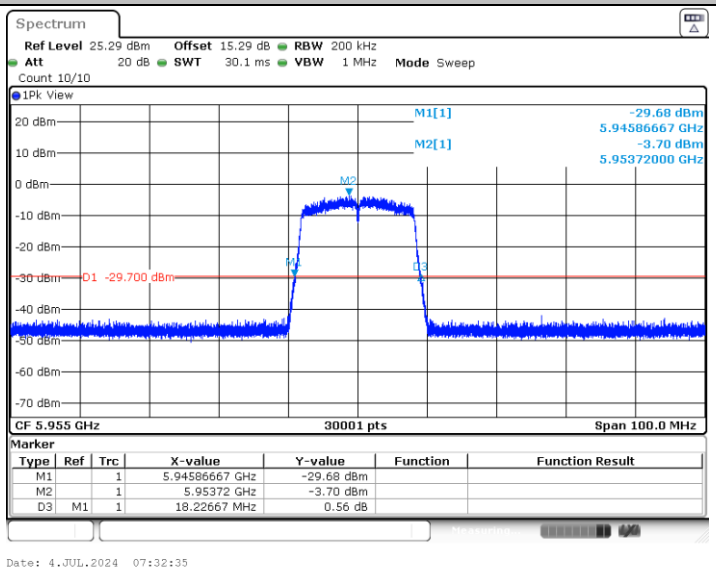
11BE320MIMO_Ant17_6745


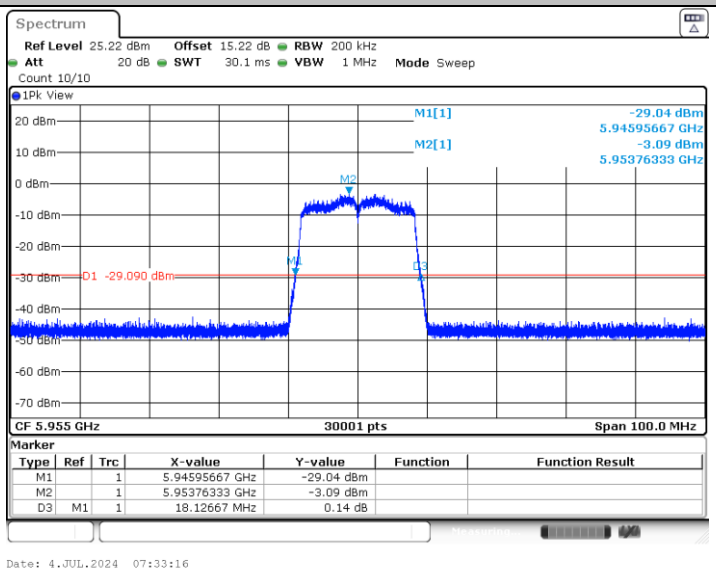
11BE320MIMO_Ant6_6905

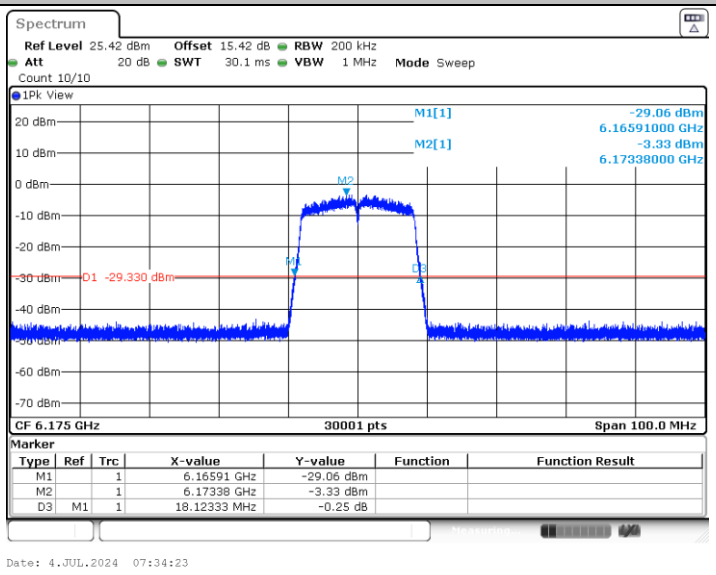


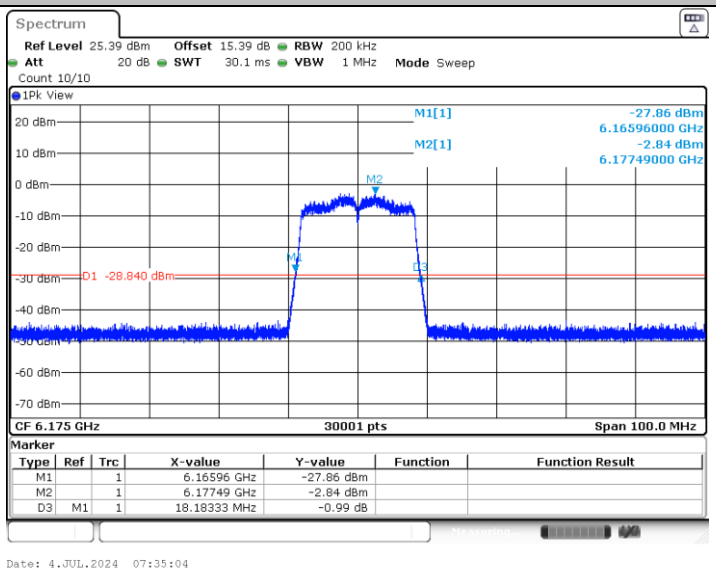
11BE320MIMO_Ant17_6905

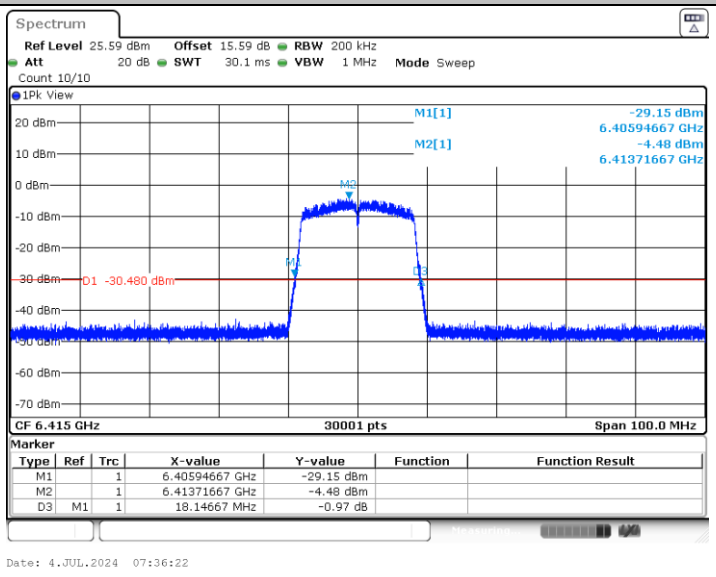


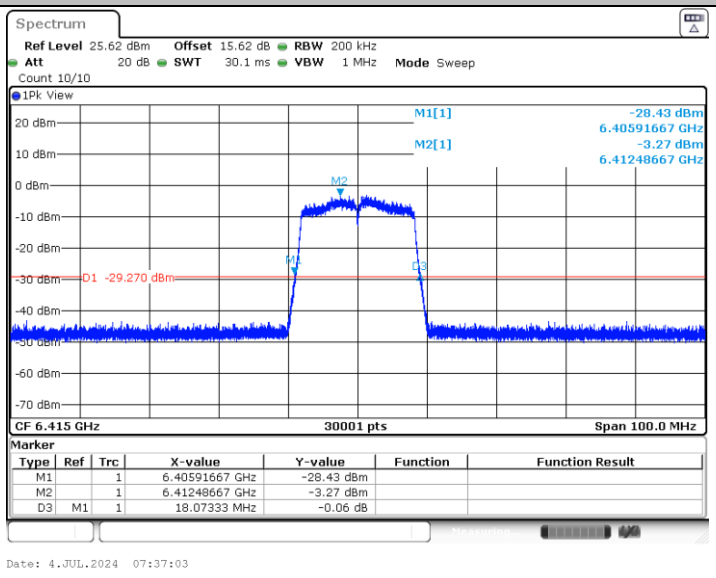
11A-CDD_Ant6_5955


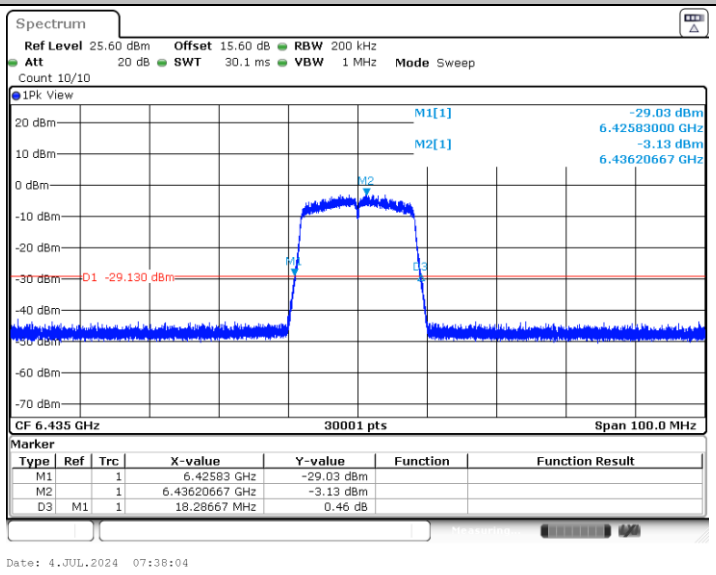
11A-CDD_Ant17_5955


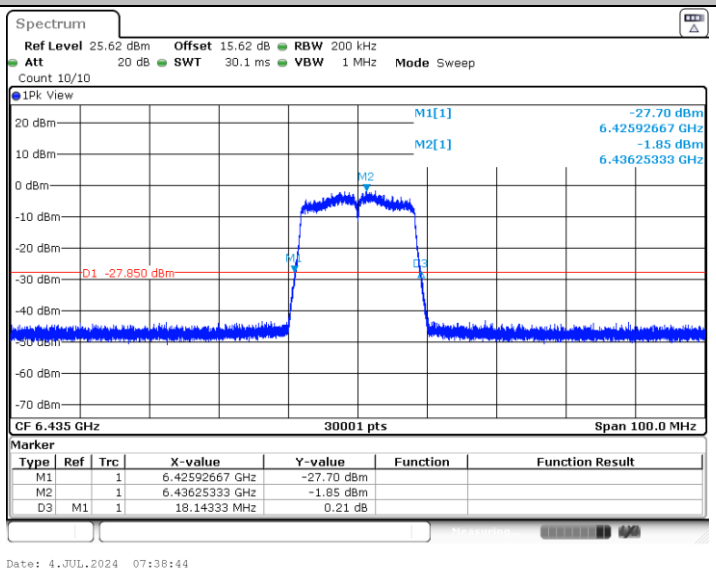
11A-CDD_Ant6_6175


11A-CDD_Ant17_6175


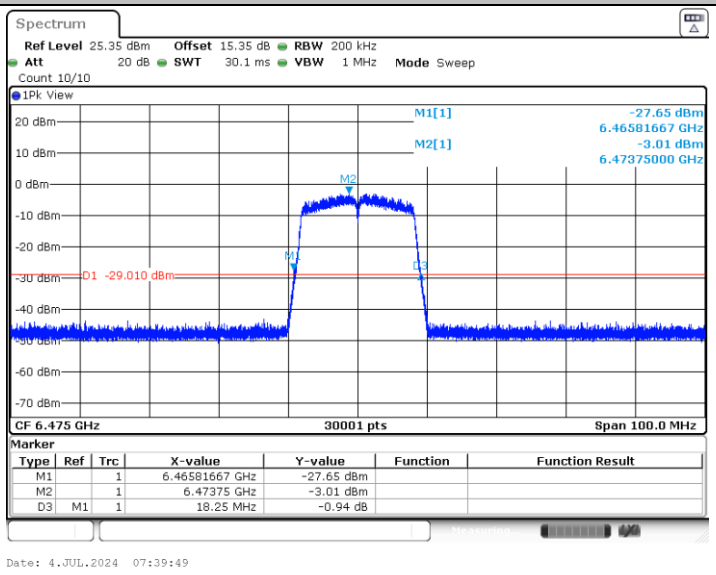
11A-CDD_Ant6_6415


11A-CDD_Ant17_6415


11A-CDD_Ant6_6435


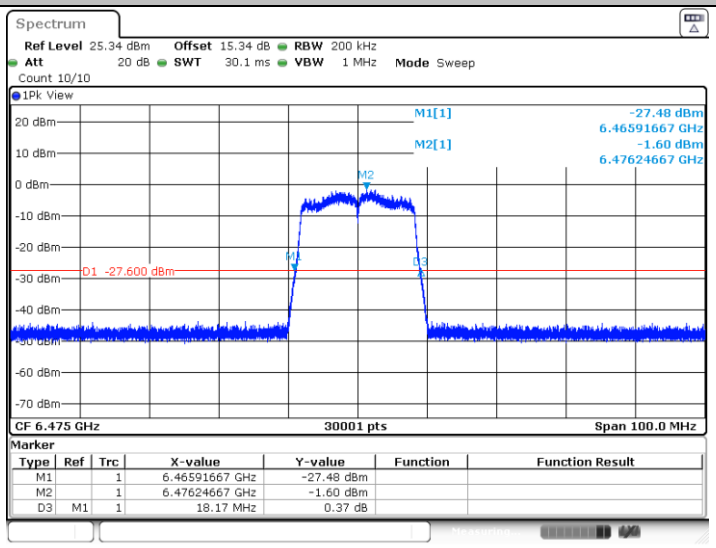
11A-CDD_Ant17_6435


11A-CDD_Ant6_6475

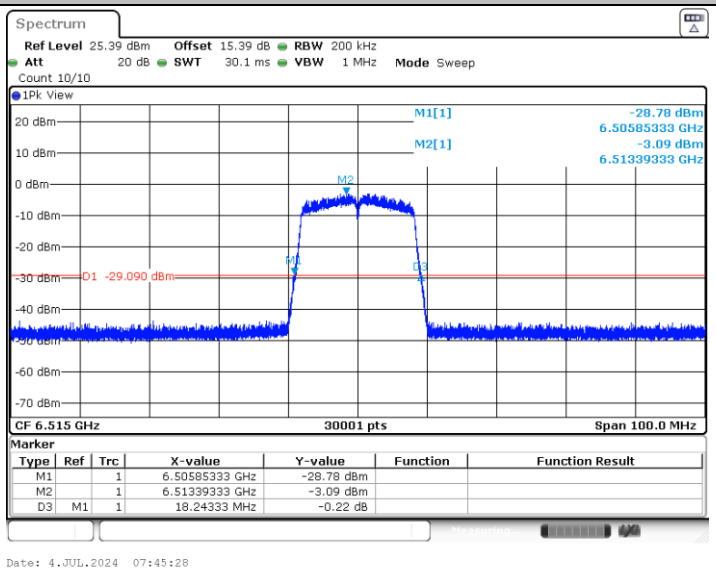


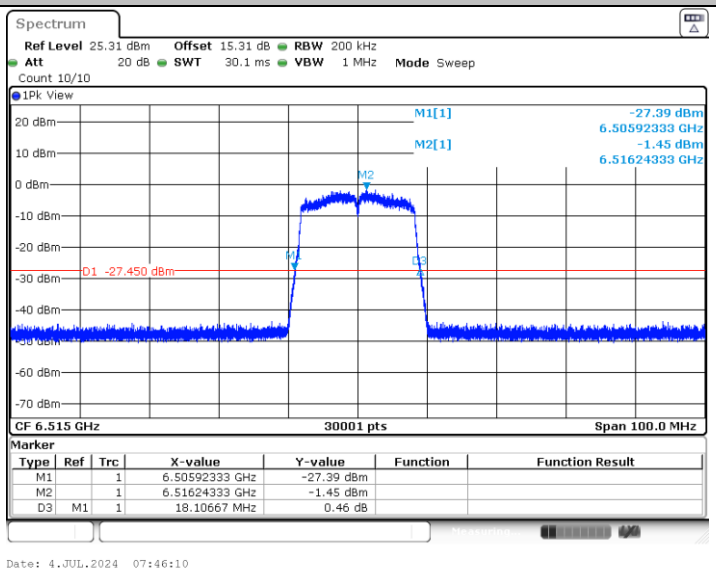
Date: 4.JUL.2024 07:39:49

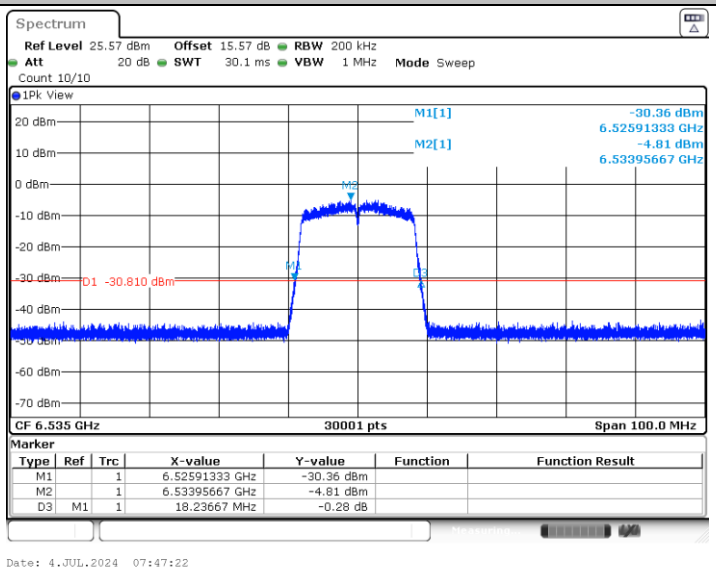
11A-CDD_Ant17_6475

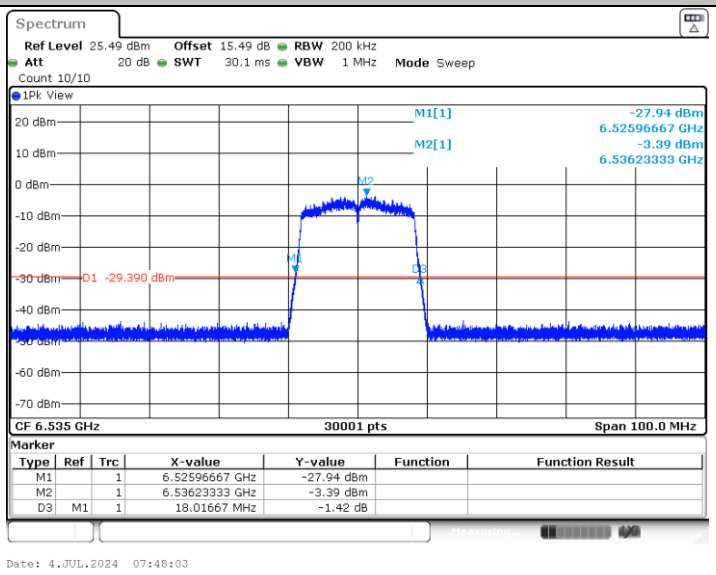


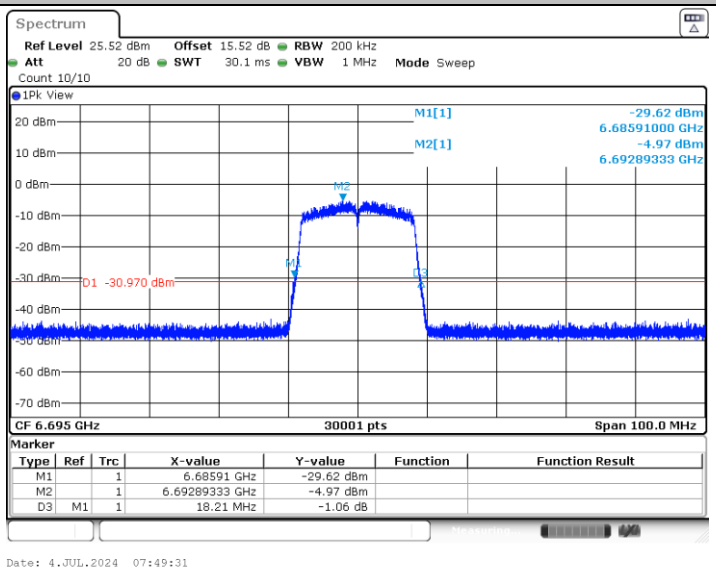
Date: 4.JUL.2024 07:40:30

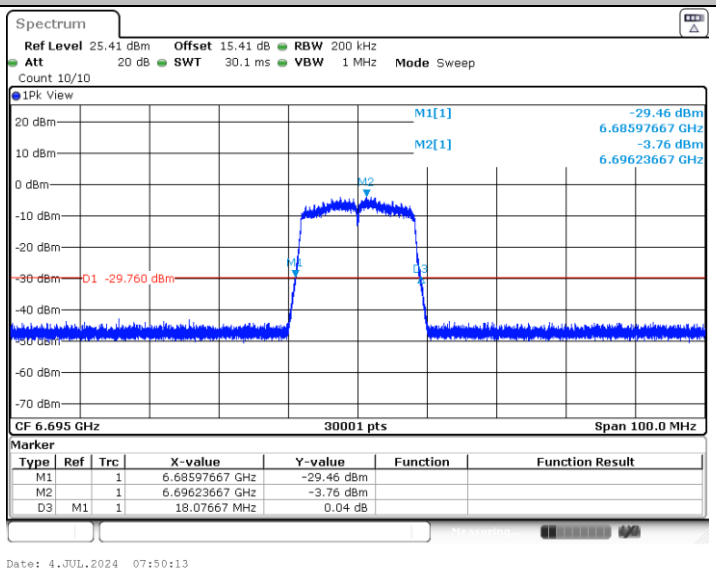
11A-CDD_Ant6_6515


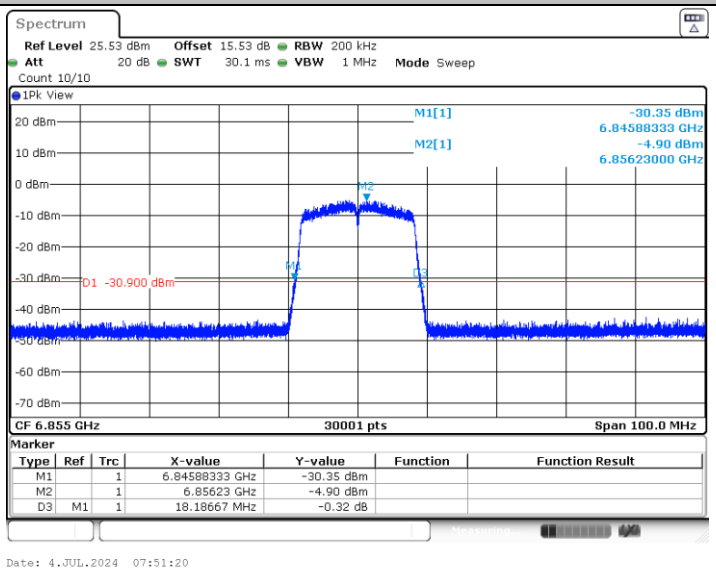
11A-CDD_Ant17_6515


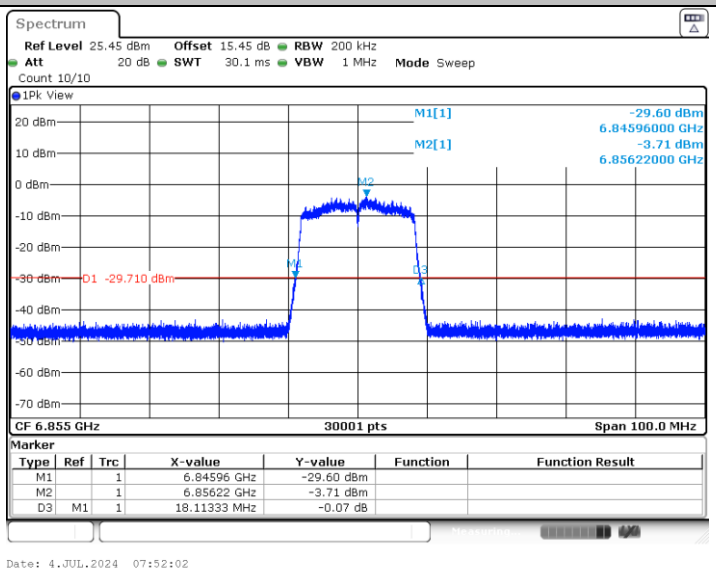
11A-CDD_Ant6_6535


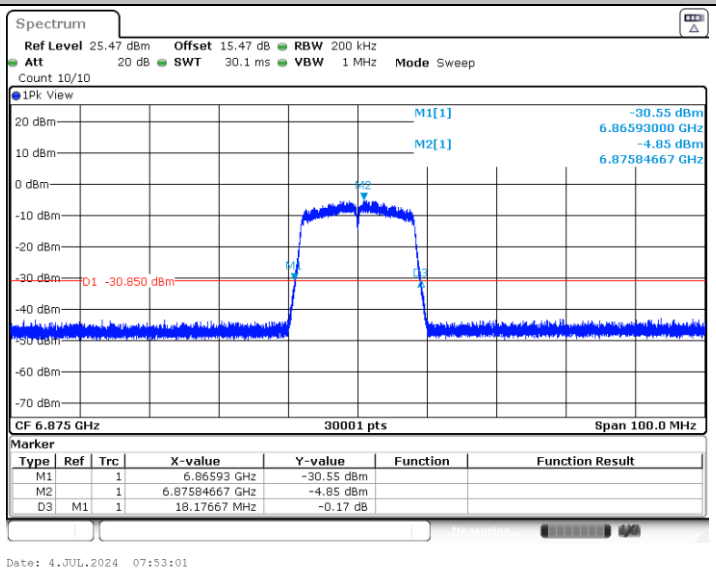
11A-CDD_Ant17_6535


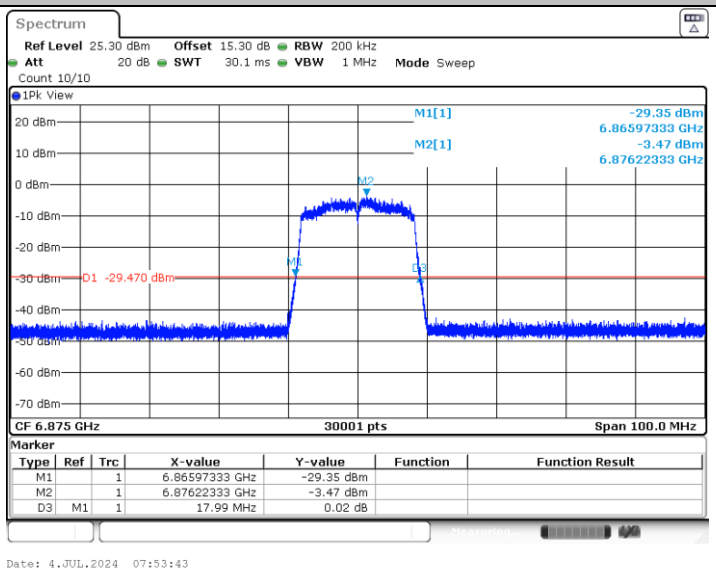
11A-CDD_Ant6_6695


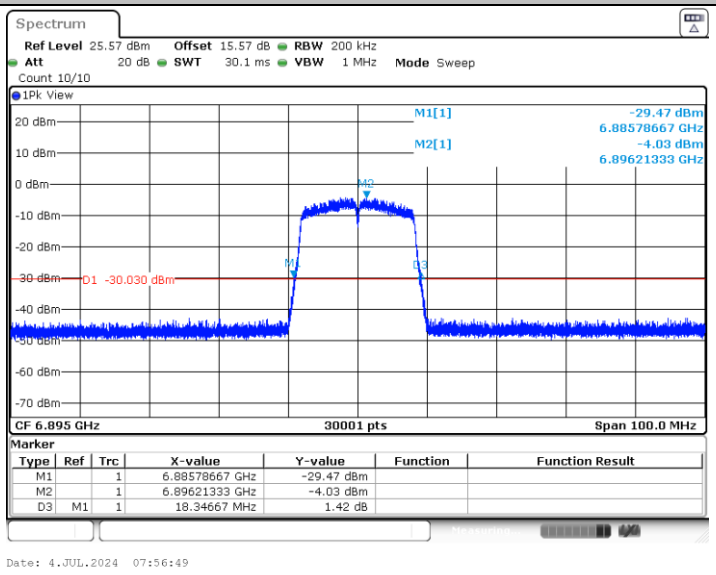
11A-CDD_Ant17_6695


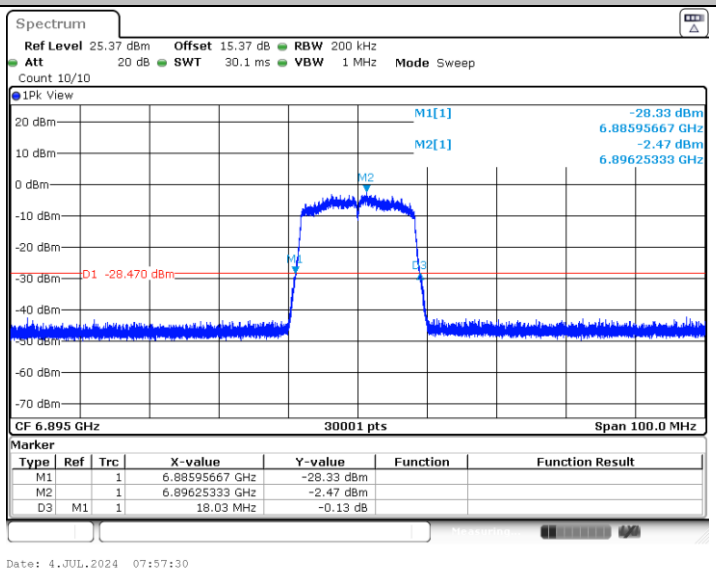
11A-CDD_Ant6_6855


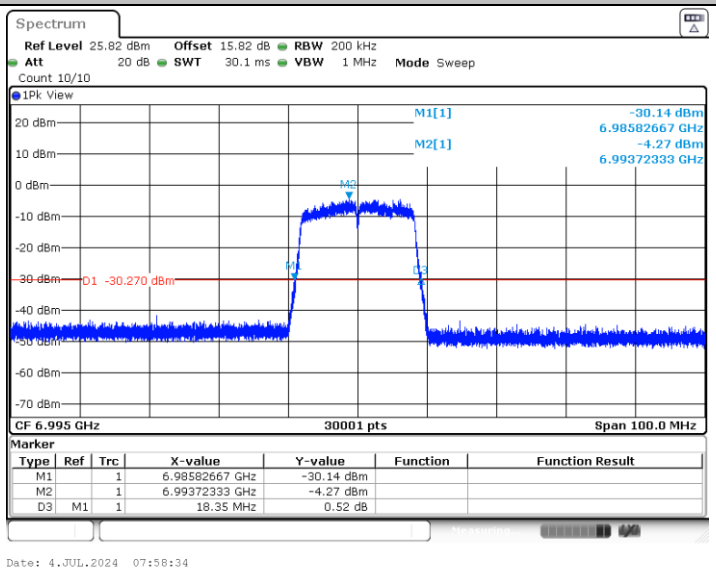
11A-CDD_Ant17_6855


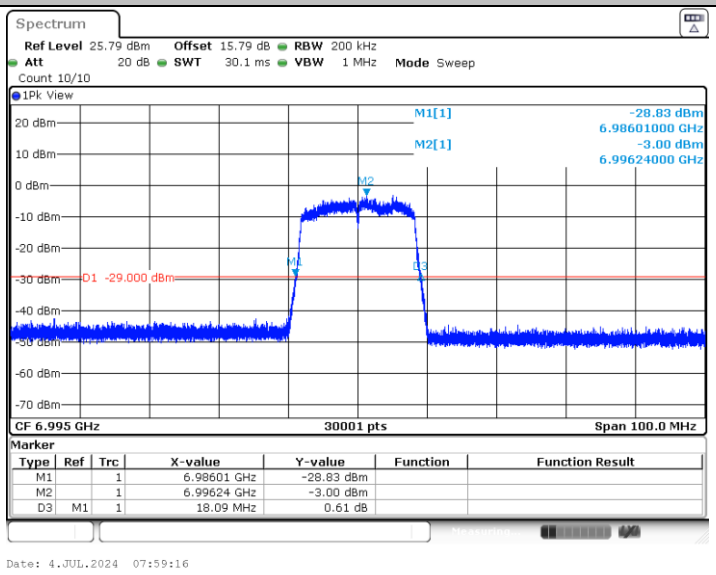
11A-CDD_Ant6_6875


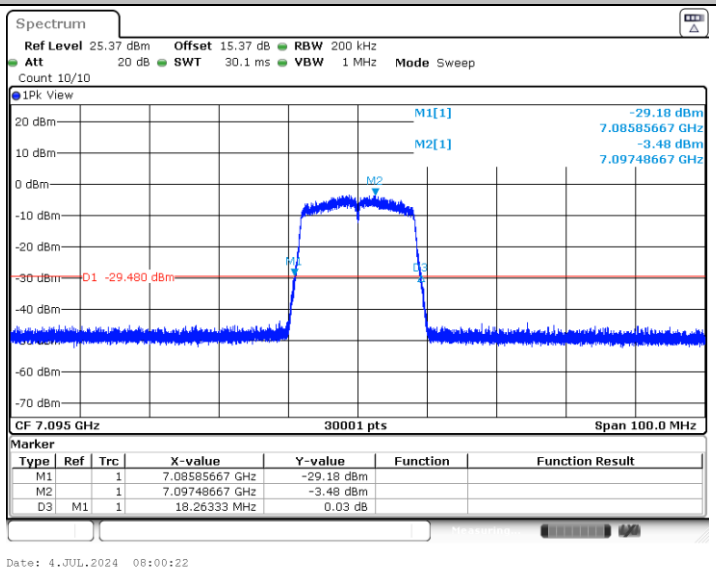
11A-CDD_Ant17_6875


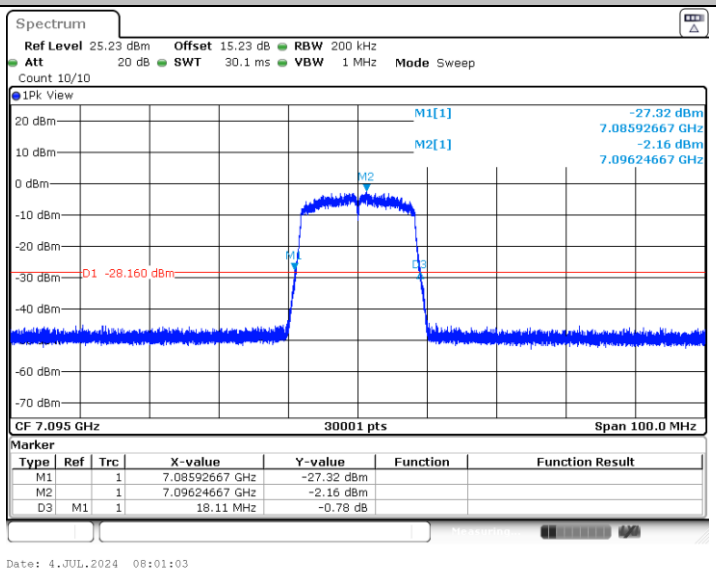
11A-CDD_Ant6_6895


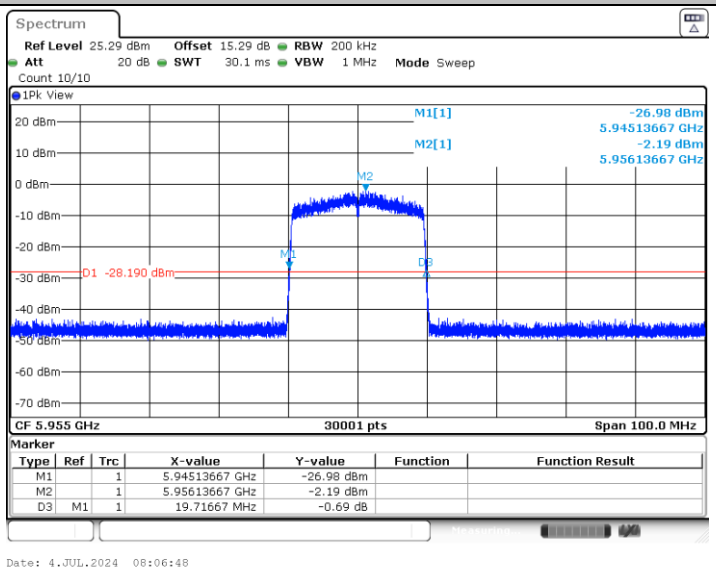
11A-CDD_Ant17_6895


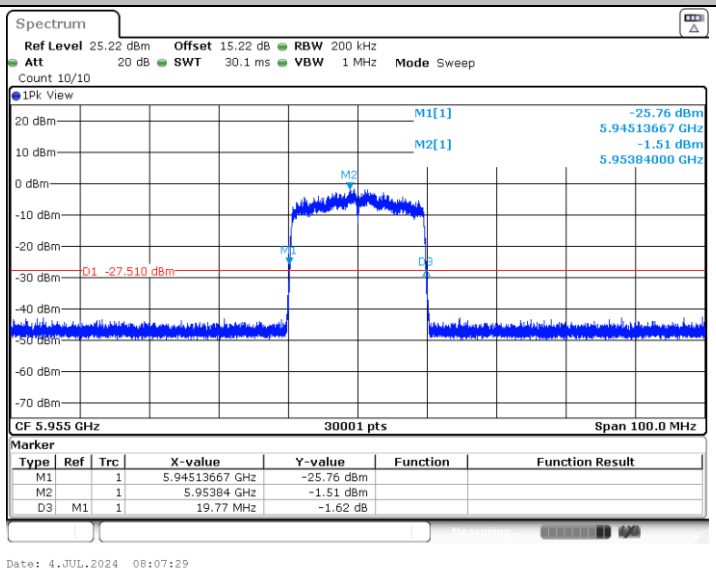
11A-CDD_Ant6_6995


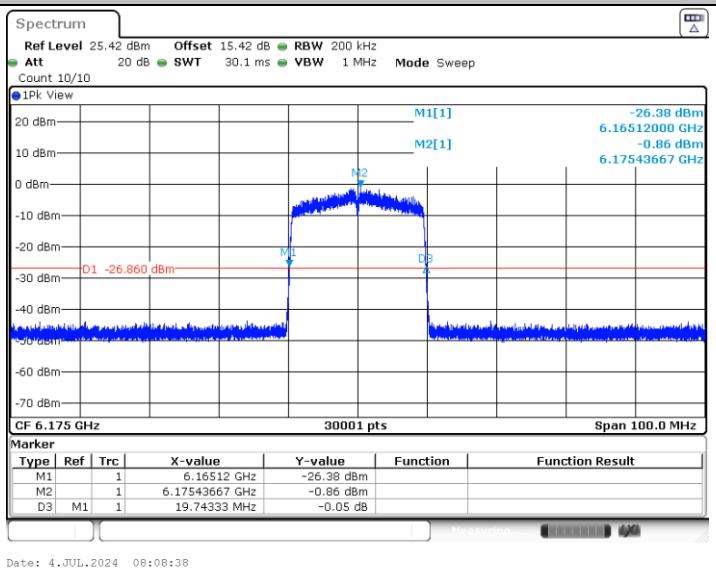
11A-CDD_Ant17_6995


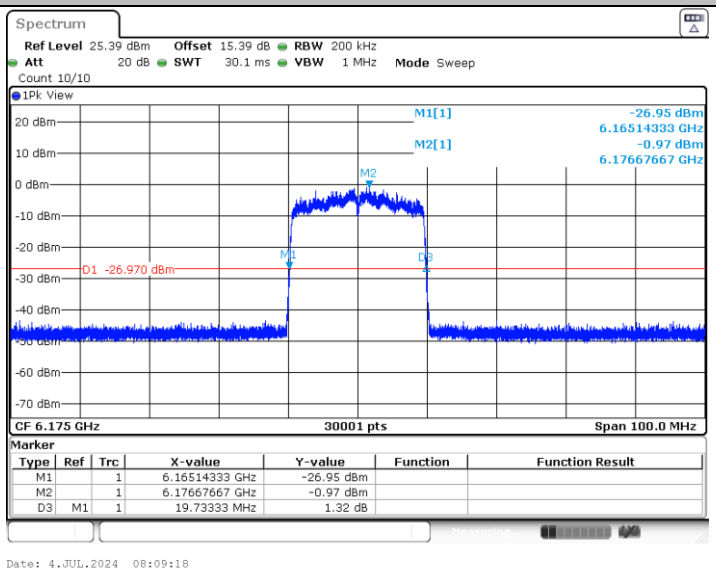
11A-CDD_Ant6_7095


11A-CDD_Ant17_7095


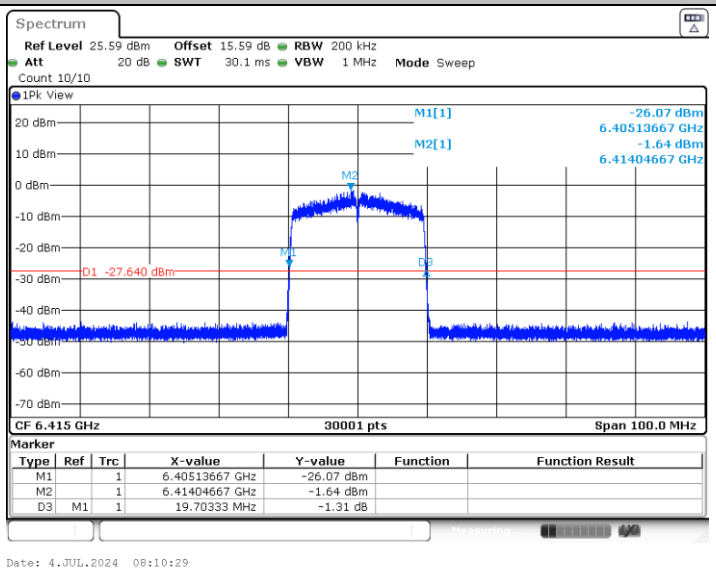
11BE20MIMO_Ant6_5955


11BE20MIMO_Ant17_5955


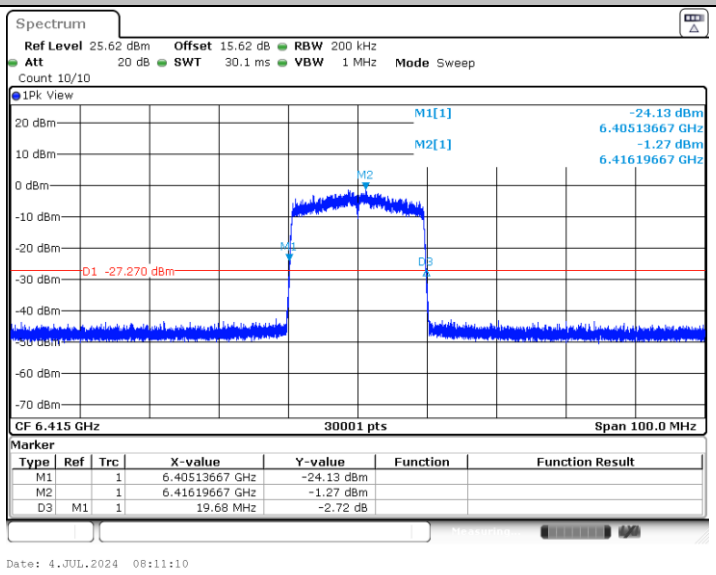
11BE20MIMO_Ant6_6175


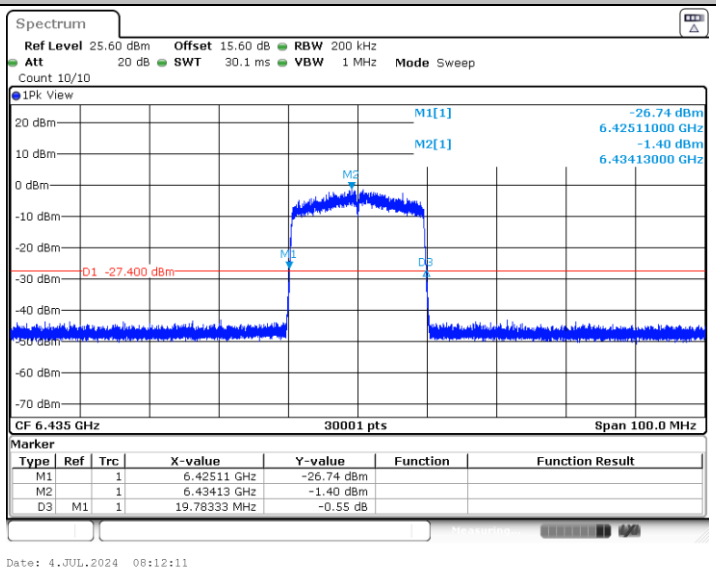
11BE20MIMO_Ant17_6175


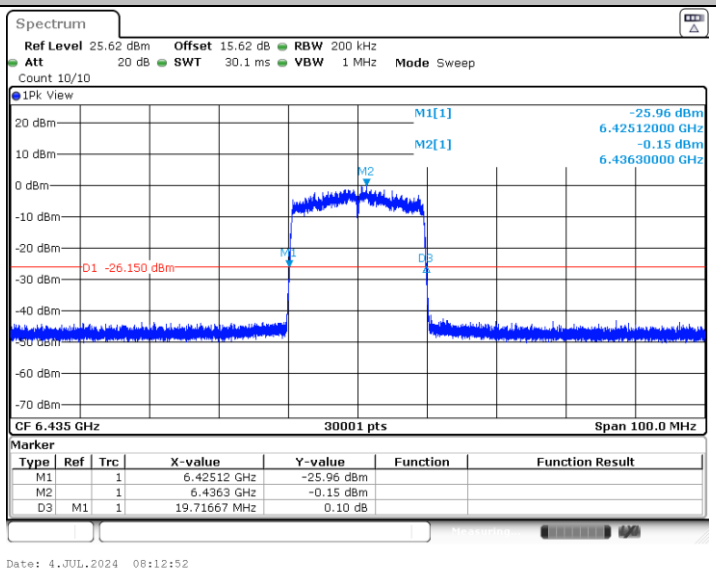
11BE20MIMO_Ant6_6415

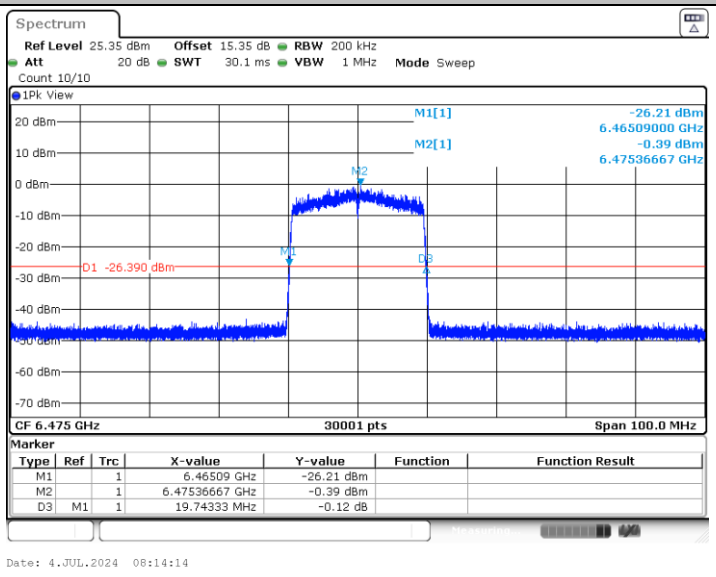


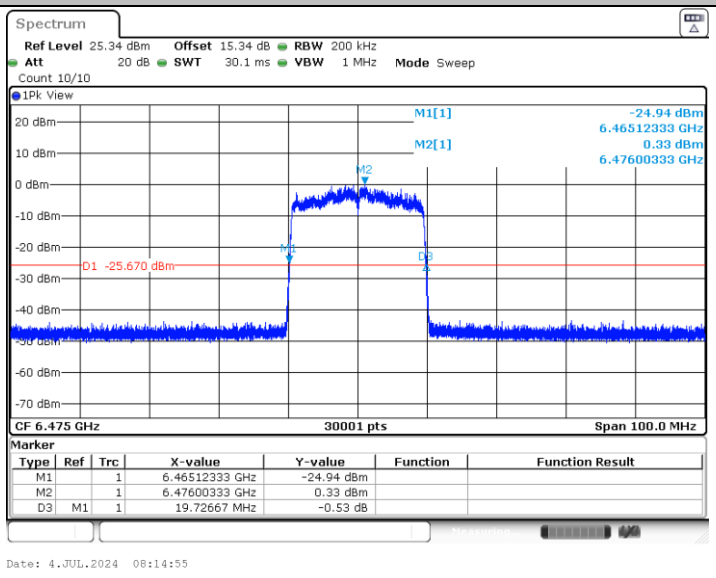
11BE20MIMO_Ant17_6415

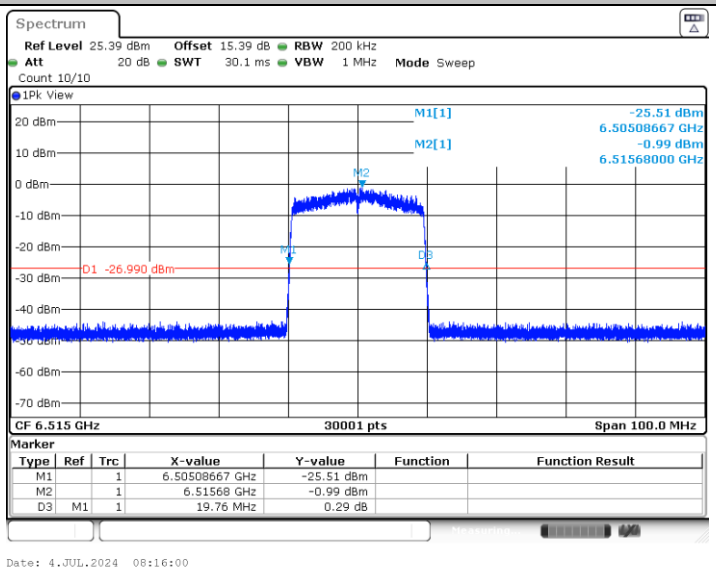


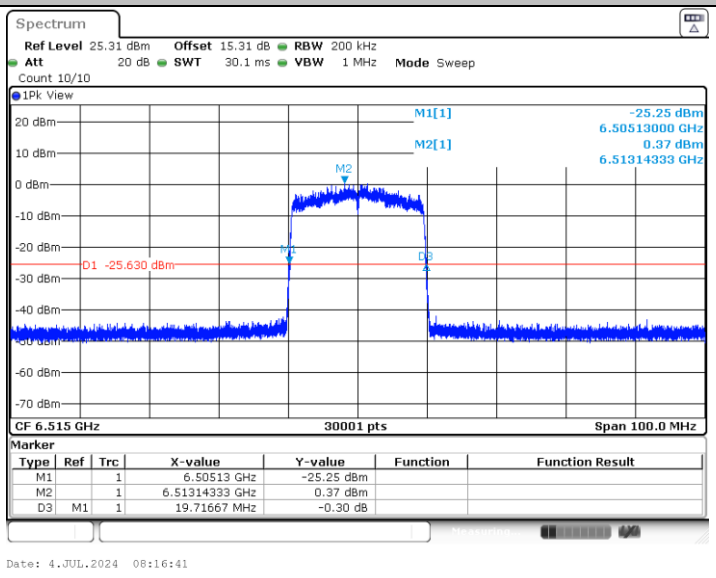
11BE20MIMO_Ant6_6435


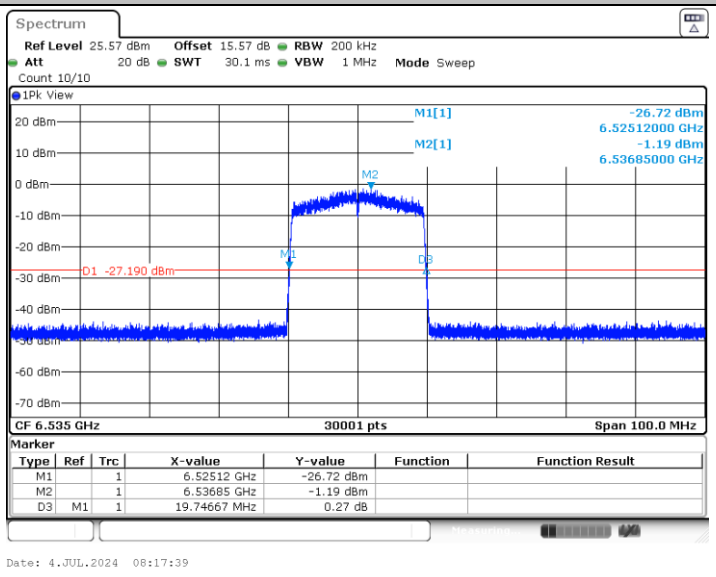
11BE20MIMO_Ant17_6435


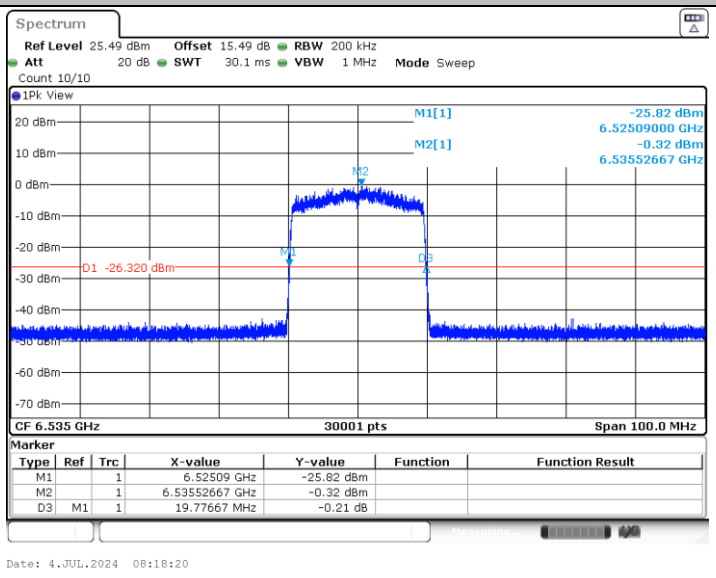
11BE20MIMO_Ant6_6475


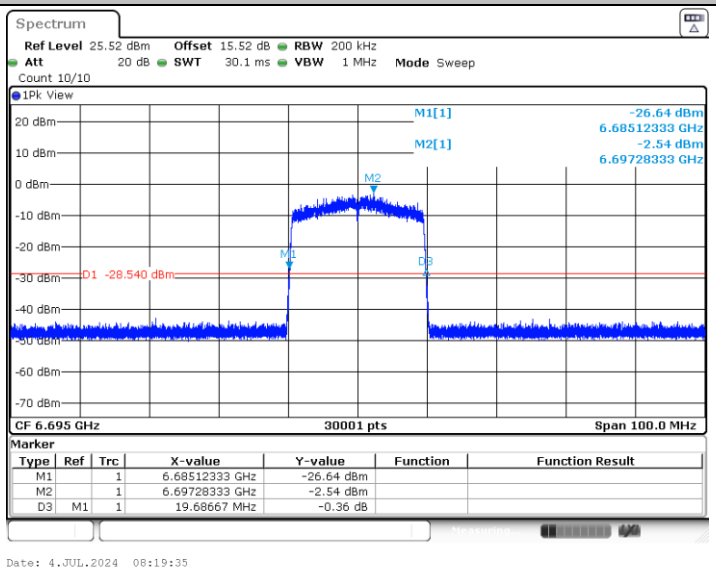
11BE20MIMO_Ant17_6475


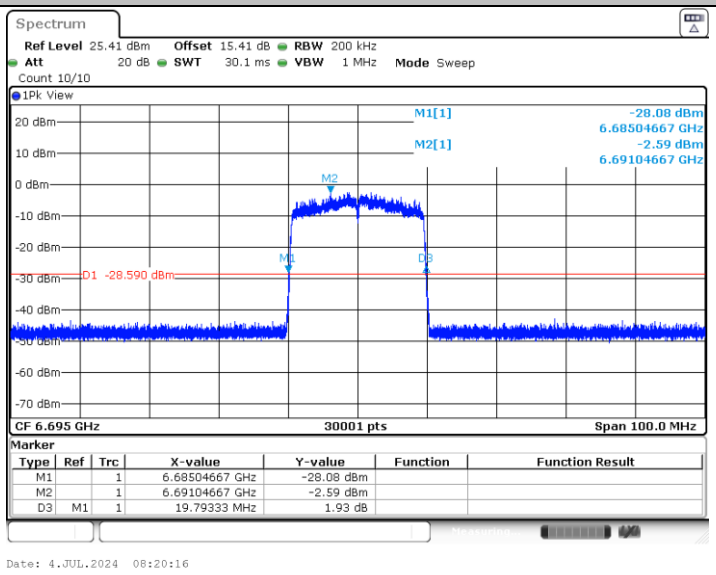
11BE20MIMO_Ant6_6515


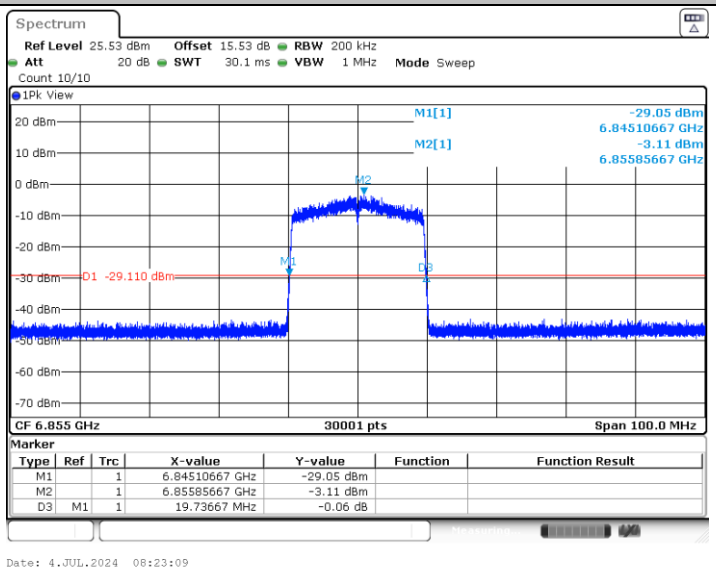
11BE20MIMO_Ant17_6515


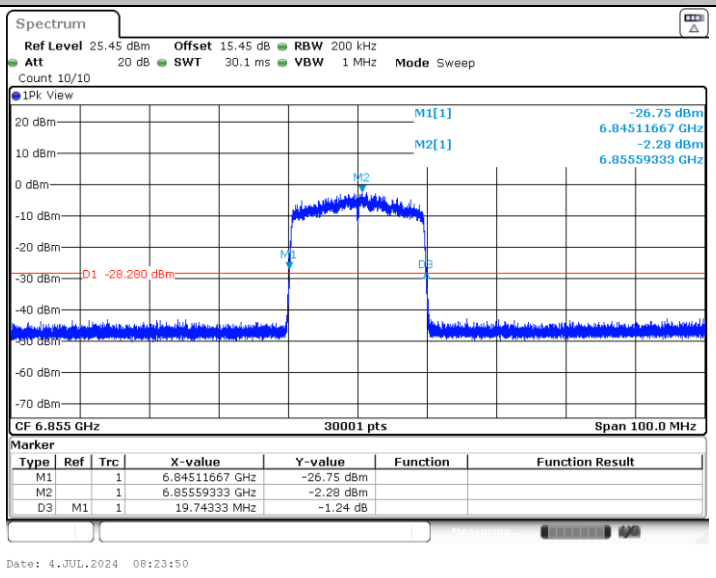
11BE20MIMO_Ant6_6535


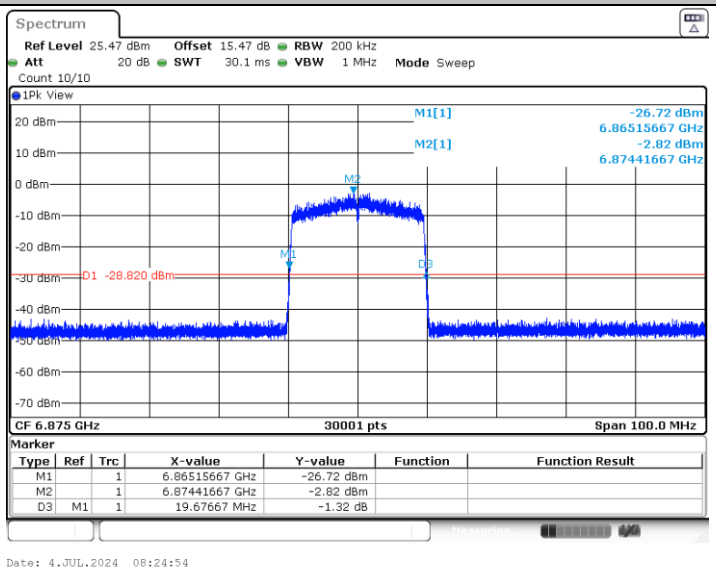
11BE20MIMO_Ant17_6535


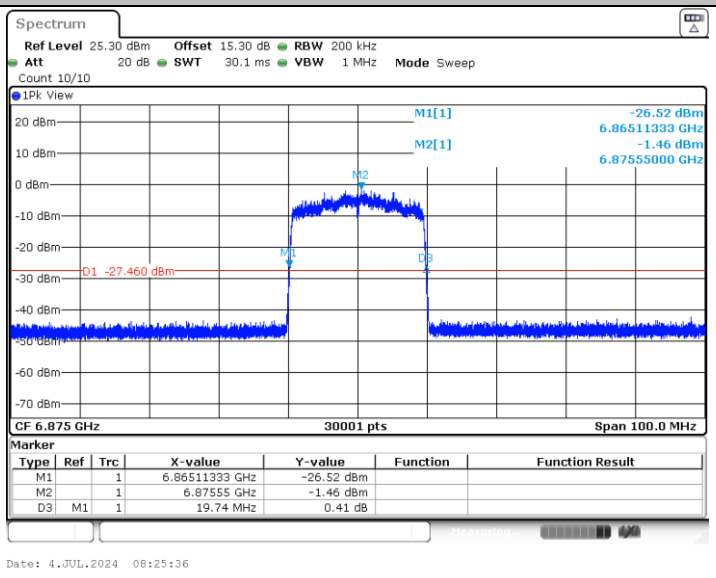
11BE20MIMO_Ant6_6695


11BE20MIMO_Ant17_6695


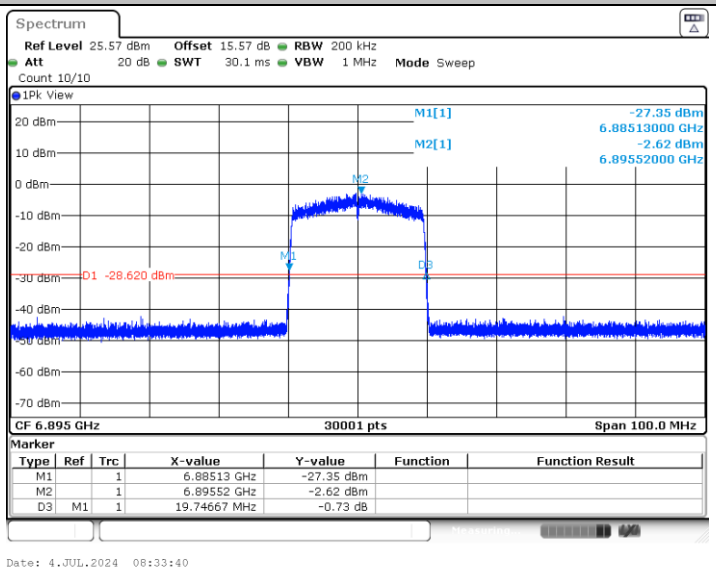
11BE20MIMO_Ant6_6855


11BE20MIMO_Ant17_6855


11BE20MIMO_Ant6_6875


11BE20MIMO_Ant17_6875


11BE20MIMO_Ant6_6895



11BE20MIMO_Ant17_6895