FCC RF Test Report

APPLICANT	:	Xiaomi Communications Co., Ltd.
EQUIPMENT	:	Mobile Phone
BRAND NAME	:	Xiaomi
MODEL NAME	:	24129PN74G
FCC ID	:	2AFZZPN74G
STANDARD	:	FCC Part 15 Subpart E §15.407
CLASSIFICATION	:	15E 6 GHz Low Power Dual Client (6CD) (Standard Power UNII 5/7)
TEST DATE(S)	:	Aug. 03, 2024 ~ Sep. 28, 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.

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

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History of this test report

Report No.	Version	Description	Issued Date
FR482619G	01	Initial issue of report	Oct. 14, 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	For the Bandwidths other than 320M
3.1	2.1049	99% Occupied Bandwidth	Pass	For the 320M Bandwidth
3.2	15.407(a)(7)	Maximum Conducted Output Power	Reporting only	-
3.2	15.407(a)(7)	Fundamental Maximum EIRP	Pass	-
3.3	15.407(a)(7)	Fundamental Power Spectral Density	Pass	-
0	15.407(b)(7)	In-Band Emissions (Channel Mask)	Pass	-
3.5	15.407(d)(6)	Contention Based Protocol	Pass	1
3.5	15.407(b)	Unwanted Emissions	Pass	Under limit 3.23 dB at 5924.99 MHz
3.6	15.207	AC Conducted Emission	Pass	Under limit 12.80 dB at 0.194 MHz
3.7	15.203 15.407(a)	Antenna Requirement	Pass	-

Remark 1: For CBP, receiver circuit is the same when connect to indoor AP and standard AP, the Contention Based Protocol have been demonstrated compliance in the Indoor low power test report which is issued separately (Report No. FR482619F).

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	24129PN74G
FCC ID	2AFZZPN74G
IMEI Code	Conducted: 864868070035782/864868070035790 Conduction: 864868070031088/864868070031096 Radiation: 864868070037200
HW Version	1352000O3
SW Version	Xiaomi HyperOS 2.0
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-7: 6525 MHz ~ 6875 MHz
Maximum EIRP	**<MIMO Ant.16+12>** **<U-NII-5>** 802.11a : 19.50 dBm / 0.0891 W 802.11ax HE20 : 19.43 dBm / 0.0877 W 802.11ax HE40 : 18.48 dBm / 0.0705 W 802.11ax HE80 : 17.70 dBm / 0.0589 W 802.11ax HE160 : 16.68 dBm / 0.0466 W 802.11be EHT20 : 19.49 dBm / 0.0889 W 802.11be EHT40 : 18.54 dBm / 0.0714 W 802.11be EHT80 : 17.77 dBm / 0.0598 W 802.11be EHT160 : 16.72 dBm / 0.0470 W 802.11be EHT320 : 13.07 dBm / 0.0203 W **<U-NII-7>** 802.11a : 20.09 dBm / 0.1021 W 802.11ax HE20 : 20.03 dBm / 0.1007 W 802.11ax HE40 : 19.06 dBm / 0.0805 W 802.11ax HE80 : 18.02 dBm / 0.0634 W 802.11ax HE160 : 17.07 dBm / 0.0509 W 802.11be EHT20 : 20.09 dBm / 0.1021 W 802.11be EHT40 : 19.10 dBm / 0.0813 W 802.11be EHT80 : 18.07 dBm / 0.0641 W 802.11be EHT160 : 17.11 dBm / 0.0514 W
99% Occupied Bandwidth	802.11a : 17.390 MHz 802.11 be EHT20 : 19.124 MHz 802.11 be EHT40 : 38.095 MHz 802.11 be EHT80 : 77.714 MHz 802.11 be EHT160 : 158.476 MHz 802.11 be EHT320 : 315.124 MHz
Antenna Type / Gain	**<5925 MHz ~ 6425 MHz >** <Ant. 16> : PIFA Antenna with gain -2.80 dBi <Ant. 12> : PIFA Antenna with gain -2.80 dBi **<6525 MHz ~ 6875 MHz >** <Ant. 16> : PIFA Antenna with gain -3.50 dBi <Ant. 12> : PIFA Antenna with gain -2.60 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/EHT40/EHT80/EHT160MHz 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. 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 52+26 Tone>:

Bandwidth	Tones		Index		For test modes configure
20MHz	26	52	1	38	1
20MHz	52	26	38	4	2
20MHz	52	26	39	7	3

<Small size RU 106+26 Tone>:

Bandwidth	Tones		Index		For test modes configure
20MHz	106	26	53	4	1
20MHz	26	106	4	54	2

<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

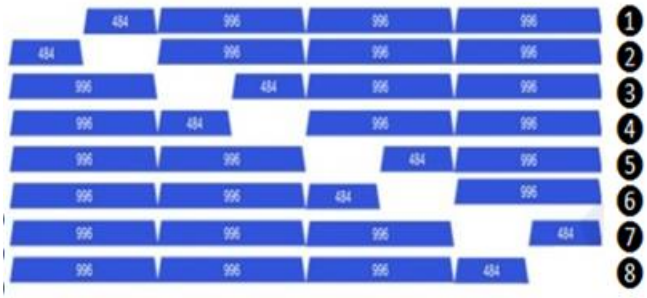
<Large size RU 996+484+242 tone> & <160M BW Puncturing 20MHz>:

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

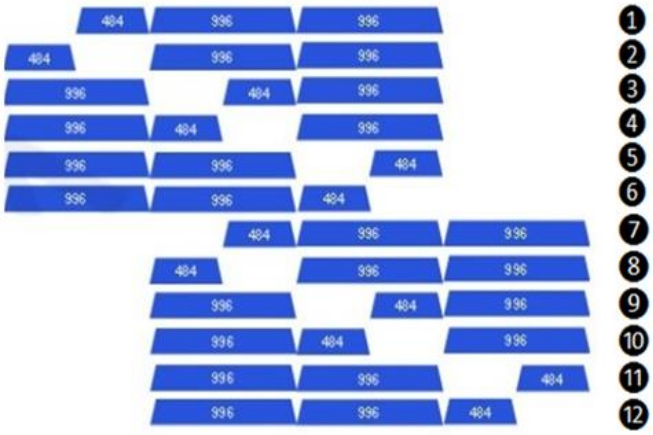
<Large size RU 3*996 tone> & <320M BW Puncturing 80MHz>:

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.

5. The worse cases of RSE for partial RU, Large size RU and small size RU 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.**
	CO01-KS 03CH06-KS TH01-KS	CN1257	314309

1.7 Test Software

Item	Site	Manufacture	Name	Version
1.	TH01-KS	Tonscend	JS1120-3 test system China_210602	3.3.10
2.	03CH06-KS	AUDIX	E3	6.2009-8-24al
3.	CO01-KS	AUDIX	E3	6.2009-8-24

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>

BW 20M	**Channel**	2	1	5	9	13	17	21	25	29
	Freq. (MHz)	5935	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							

<U-NII-7>

BW 20M	**Channel**	-	-	-	-	-	117	121	125
	Freq. (MHz)	-	-	-	-	-	6535	6555	6575
BW 40M	**Channel**	-		-		-		123	
	Freq. (MHz)	-		-		-		6565	

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 20M	**Channel**	161	165	169	173	177	181	-	-
	Freq. (MHz)	6755	6775	6795	6815	6835	6855	-	-
BW 40M	**Channel**	163		171		179		-	
	Freq. (MHz)	6765		6805		6845		-	
BW 80M	**Channel**	167				-			
	Freq. (MHz)	6785				-			

2.2 Test Mode

Radiated Spurious Emission Test Modes

1. For Radiated Test Cases, The tests were performed with Adapter1 and USB Cable1. All radiated test mode refer to Appendix C of this report.
2. For simultaneous transmission test mode, the combination testing was assessed from the worst RSE link mode of WWAN and the worst RSE mode of BT / WLAN (2.4G/6G).
3. For UNII-5/7, since the device is dual client, the UNII-5/7 are tested under standard client power level, thus the 6CD_standard power client could re-use the RSE test results.

Test Cases	
AC Conducted Emission	Mode 1 : GSM 850 Idle+ BT Link+ WLAN Link(6G)+ USB Cable 1(Charging from Adapter 1)

Ch. #		5925-6425 MHz UNII-5	6525-6875 MHz UNII-7	5925-6425 MHz UNII-5	6525-6875 MHz UNII-7
		20M BW	20M BW	40M BW	40M BW
L	Low	001/002	117	003	123
M	Middle	049	149	043	147
H	High	093	181	091	179

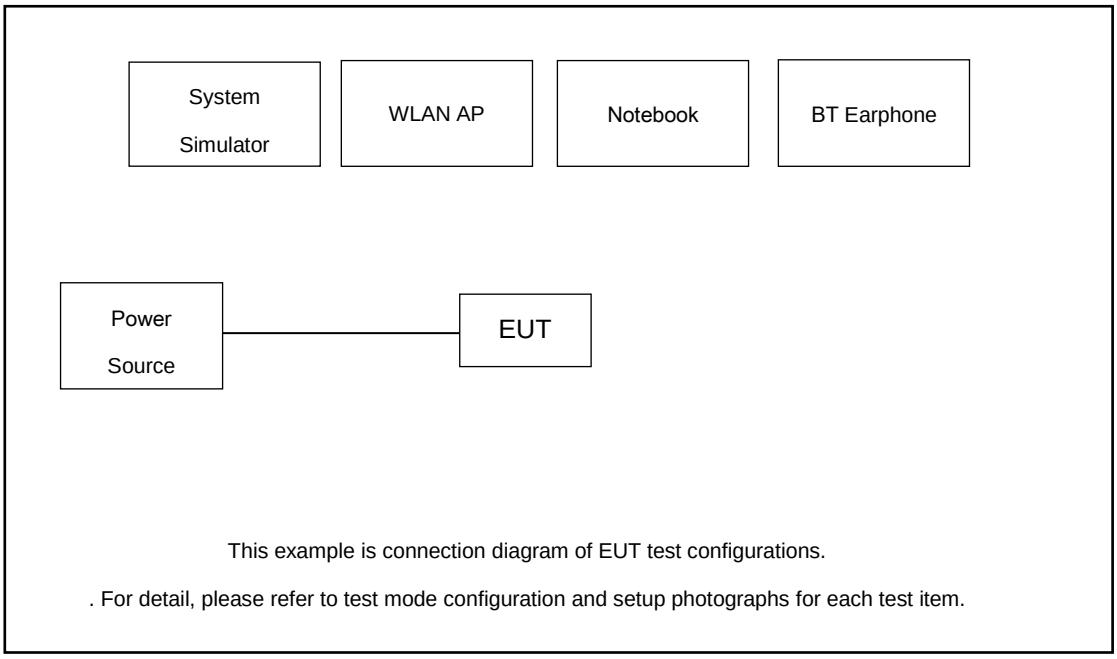
Ch. #		5925-6425 MHz UNII-5	6525-6875 MHz UNII-7	5925-6425 MHz UNII-5	6525-6875 MHz UNII-7
		80M BW	80M BW	160M BW	160M BW
L	Low	007	135	015	143
M	Middle	039	151	047	-
H	High	087	167	079	-

Ch. #		5925-6425 MHz UNII-5
		320M BW
L	Low	-
M	Middle	031
H	High	063

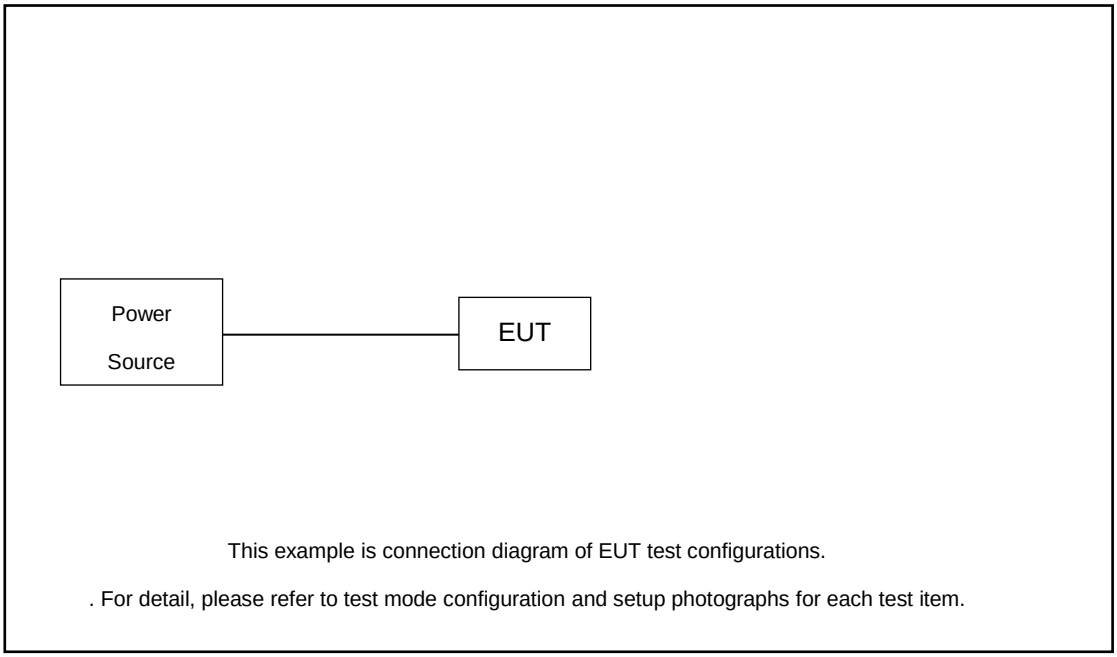
Remark: For radiation spurious emission, the final modulation and the worst data rate was reference the max RF conducted power.

2.3 Connection Diagram of Test System

AC Conducted Emission:



Radiated Emission:



2.4 Support Unit used in test configuration and system

Item	Equipment	Brand Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	Anritus	MT8821C	N/A	N/A	Unshielded,1.8m
2.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
3.	Notebook	Lenovo	G480	QDS-BRCM1050I	N/A	Shielded cable DC O/P 1.8m, Unshielded AC I/P cable 1.8m
4.	Bluetooth Earphone	Xiaomi	LYEJ02LM	N/A	N/A	N/A

2.5 EUT Operation Test Setup

For WLAN RF test items, an engineering test program (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 5.37 dB and 20dB attenuator.

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

= 5.37 + 20 = 25.37 (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.

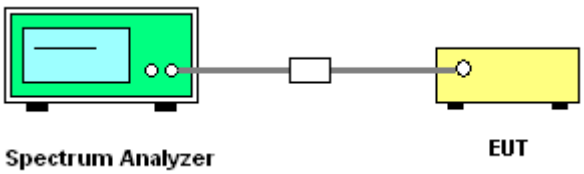
3.1.2 Measuring Instruments

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)(7) For client devices, except for fixed client devices as defined in this subpart, operating under the control of a standard power access point in 5.925-6.425 GHz and 6.525-6.875 GHz bands, the maximum e.i.r.p. over the frequency band of operation must not exceed 30 dBm and the device must limit its power to no more than 6 dB below its associated standard power access point's authorized transmit power.

3.2.2 Measuring Instruments

See list of measuring equipment of this test report.

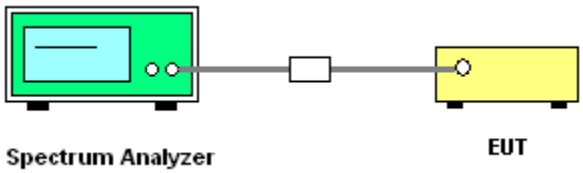
3.2.3 Test Procedures

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 MIMO																
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 16	Ant 12	Ant 16	Ant 12	SUM	Ant 16	Ant 12	SUM			Ant 16	Ant 12
11a	6Mbps	2	001	5955	0.04	0.03	18.94	19.61	22.30	-2.80		19.50	30.00	Pass	19	
11a	6Mbps	2	002	5935	0.04	0.03	2.97	2.26	5.64	-2.80		2.84	30.00	Pass	3.5	
11a	6Mbps	2	045	6175	0.04	0.03	18.92	18.42	21.69	-2.80		18.89	30.00	Pass	19	
11a	6Mbps	2	093	6415	0.04	0.03	19.02	19.19	22.12	-2.80		19.32	30.00	Pass	19	

U-NII-7 MIMO																
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 16	Ant 12	Ant 16	Ant 12	SUM	Ant 16	Ant 12	SUM			Ant 16	Ant 12
11a	6Mbps	2	117	6535	0.04	0.03	19.01	19.17	22.10	-2.60		19.50	30.00	Pass	19	
11a	6Mbps	2	149	6695	0.04	0.03	18.86	20.36	22.69	-2.60		20.09	30.00	Pass	19	
11a	6Mbps	2	181	6855	0.04	0.03	19.00	18.56	21.80	-2.60		19.20	30.00	Pass	19	

U-NII-5 MIMO																	
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 16	Ant 12	Ant 16	Ant 12	SUM	Ant 16	Ant 12	SUM			Ant 16	Ant 12
HE20	MCS0	2	001	5955	Full	0.00	0.00	18.83	19.58	22.23	-2.80		19.43	30.00	Pass	19	
HE20	MCS0	2	001	5955	26/0	0.00	0.00	9.71	9.96	12.85	-2.80		10.05	30.00	Pass	9.5	
HE20	MCS0	2	001	5955	52/37	0.00	0.00	12.23	12.72	15.49	-2.80		12.69	30.00	Pass	11	
HE20	MCS0	2	001	5955	106/53	0.00	0.00	15.02	15.74	18.41	-2.80		15.61	30.00	Pass	14	
HE20	MCS0	2	002	5935	Full	0.00	0.00	-1.03	-1.92	1.56	-2.80		-1.24	30.00	Pass	-2	
HE20	MCS0	2	002	5935	26/0	0.00	0.00	-11.13	-11.27	-8.19	-2.80		-10.99	30.00	Pass	-11	
HE20	MCS0	2	002	5935	52/37	0.00	0.00	-8.38	-8.82	-5.58	-2.80		-8.38	30.00	Pass	-9	
HE20	MCS0	2	002	5935	106/53	0.00	0.00	-4.81	-5.46	-2.11	-2.80		-4.91	30.00	Pass	-6	
HE20	MCS0	2	045	6175	Full	0.00	0.00	18.80	18.31	21.57	-2.80		18.77	30.00	Pass	19	
HE20	MCS0	2	093	6415	Full	0.00	0.00	18.94	19.10	22.03	-2.80		19.23	30.00	Pass	19	
HE40	MCS0	2	003	5965	Full	0.00	0.00	17.90	18.61	21.28	-2.80		18.48	30.00	Pass	18	
HE40	MCS0	2	043	6165	Full	0.00	0.00	17.87	17.57	20.73	-2.80		17.93	30.00	Pass	18	
HE40	MCS0	2	091	6405	Full	0.00	0.00	17.87	18.44	21.17	-2.80		18.37	30.00	Pass	18	
HE80	MCS0	2	007	5985	Full	0.00	0.00	17.07	17.88	20.50	-2.80		17.70	30.00	Pass	17	
HE80	MCS0	2	039	6145	Full	0.00	0.00	16.90	17.26	20.09	-2.80		17.29	30.00	Pass	17	
HE80	MCS0	2	087	6385	Full	0.00	0.00	17.03	17.39	20.22	-2.80		17.42	30.00	Pass	17	
HE160	MCS0	2	015	6025	Full	0.00	0.00	15.75	17.09	19.48	-2.80		16.68	30.00	Pass	16	
HE160	MCS0	2	047	6185	Full	0.00	0.00	15.81	15.62	18.73	-2.80		15.93	30.00	Pass	16	
HE160	MCS0	2	079	6345	Full	0.00	0.00	15.92	16.56	19.26	-2.80		16.46	30.00	Pass	16	

U-NII-7 MIMO																	
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 16	Ant 12	Ant 16	Ant 12	SUM	Ant 16	Ant 12	SUM			Ant 16	Ant 12
HE20	MCS0	2	117	6535	Full	0.00	0.00	18.86	19.13	22.01	-2.60		19.41	30.00	Pass	19	
HE20	MCS0	2	117	6535	26/0	0.00	0.00	9.73	8.96	12.37	-2.60		9.77	30.00	Pass	9.5	
HE20	MCS0	2	117	6535	52/37	0.00	0.00	11.81	11.90	14.87	-2.60		12.27	30.00	Pass	11	
HE20	MCS0	2	117	6535	106/53	0.00	0.00	15.19	15.04	18.13	-2.60		15.53	30.00	Pass	14	
HE20	MCS0	2	149	6695	Full	0.00	0.00	18.82	20.30	22.63	-2.60		20.03	30.00	Pass	19	
HE20	MCS0	2	181	6855	Full	0.00	0.00	18.94	18.49	21.73	-2.60		19.13	30.00	Pass	19	
HE40	MCS0	2	123	6565	Full	0.00	0.00	17.78	19.14	21.52	-2.60		18.92	30.00	Pass	18	
HE40	MCS0	2	147	6685	Full	0.00	0.00	17.91	19.28	21.66	-2.60		19.06	30.00	Pass	18	
HE40	MCS0	2	179	6845	Full	0.00	0.00	17.91	17.60	20.77	-2.60		18.17	30.00	Pass	18	
HE80	MCS0	2	135	6625	Full	0.00	0.00	16.64	18.18	20.49	-2.60		17.89	30.00	Pass	17	
HE80	MCS0	2	151	6705	Full	0.00	0.00	16.78	18.31	20.62	-2.60		18.02	30.00	Pass	17	
HE80	MCS0	2	167	6785	Full	0.00	0.00	17.04	17.86	20.48	-2.60		17.88	30.00	Pass	17	
HE160	MCS0	2	143	6665	Full	0.00	0.00	15.74	17.41	19.67	-2.60		17.07	30.00	Pass	16	

U-NII-5 MIMO																	
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 16	Ant 12	Ant 16	Ant 12	SUM	Ant 16	Ant 12	SUM			Ant 16	Ant 12
EHT20	MCS0	2	001	5955	Full	0.00	0.00	18.89	19.64	22.29	-2.80		19.49	30.00	Pass	19	
EHT20	MCS0	2	001	5955	26/0	0.00	0.00	9.79	10.04	12.93	-2.80		10.13	30.00	Pass	9.5	
EHT20	MCS0	2	001	5955	52/37	0.00	0.00	12.26	12.78	15.54	-2.80		12.74	30.00	Pass	11	
EHT20	MCS0	2	001	5955	106/53	0.00	0.00	15.08	15.81	18.47	-2.80		15.67	30.00	Pass	14	
EHT20	MCS0	2	001	5955	52ru+26ru	0.00	0.00	12.76	13.39	16.10	-2.80		13.30	30.00	Pass	11	
EHT20	MCS0	2	001	5955	106ru+26ru	0.00	0.00	15.11	15.75	18.45	-2.80		15.65	30.00	Pass	14	
EHT20	MCS0	2	002	5935	Full	0.00	0.00	-0.99	-1.88	1.60	-2.80		-1.20	30.00	Pass	-2	
EHT20	MCS0	2	002	5935	26/0	0.00	0.00	-11.05	-11.23	-8.13	-2.80		-10.93	30.00	Pass	-11	
EHT20	MCS0	2	002	5935	52/37	0.00	0.00	-8.32	-8.76	-5.52	-2.80		-8.32	30.00	Pass	-9	
EHT20	MCS0	2	002	5935	106/53	0.00	0.00	-4.73	-5.38	-2.03	-2.80		-4.83	30.00	Pass	-6	
EHT20	MCS0	2	002	5935	52ru+26ru	0.00	0.00	-7.52	-8.15	-4.81	-2.80		-7.61	30.00	Pass	-9	
EHT20	MCS0	2	002	5935	106ru+26ru	0.00	0.00	-4.66	-5.34	-1.98	-2.80		-4.78	30.00	Pass	-6	
EHT20	MCS0	2	045	6175	Full	0.00	0.00	18.88	18.38	21.65	-2.80		18.85	30.00	Pass	19	
EHT20	MCS0	2	093	6415	Full	0.00	0.00	18.98	19.15	22.08	-2.80		19.28	30.00	Pass	19	
EHT40	MCS0	2	003	5965	Full	0.00	0.00	17.97	18.66	21.34	-2.80		18.54	30.00	Pass	18	
EHT40	MCS0	2	043	6165	Full	0.00	0.00	17.93	17.61	20.78	-2.80		17.98	30.00	Pass	18	
EHT40	MCS0	2	091	6405	Full	0.00	0.00	17.91	18.49	21.22	-2.80		18.42	30.00	Pass	18	
EHT80	MCS0	2	007	5985	Full	0.00	0.00	17.10	17.97	20.57	-2.80		17.77	30.00	Pass	17	
EHT80	MCS0	2	007	5985	Puncturing 20M ❷	0.00	0.00	15.65	16.32	19.01	-2.80		16.21	30.00	Pass	15	
EHT80	MCS0	2	007	5985	Large RU 484+242 ❹	0.08	0.08	15.16	16.05	18.64	-2.80		15.84	30.00	Pass	14.5	
EHT80	MCS0	2	039	6145	Full	0.00	0.00	16.98	17.29	20.15	-2.80		17.35	30.00	Pass	17	
EHT80	MCS0	2	087	6385	Full	0.00	0.00	17.12	17.46	20.30	-2.80		17.50	30.00	Pass	17	
EHT160	MCS0	2	015	6025	Full	0.00	0.00	15.78	17.13	19.52	-2.80		16.72	30.00	Pass	16	
EHT160	MCS0	2	015	6025	Puncturing 20M ❽	0.00	0.00	15.06	16.15	18.65	-2.80		15.85	30.00	Pass	15.5	
EHT160	MCS0	2	015	6025	Puncturing 40M ❷	0.00	0.00	14.09	15.23	17.71	-2.80		14.91	30.00	Pass	14.5	
EHT160	MCS0	2	015	6025	Large RU 996+484 ❹	0.10	0.07	15.58	16.60	19.13	-2.80		16.33	30.00	Pass	15	
EHT160	MCS0	2	047	6185	Full	0.00	0.00	15.88	15.66	18.78	-2.80		15.98	30.00	Pass	16	
EHT160	MCS0	2	079	6345	Full	0.00	0.00	15.96	16.61	19.31	-2.80		16.51	30.00	Pass	16	
EHT320	MCS0	2	31	6105	Full	0.00	0.00	12.69	13.03	15.87	-2.80		13.07	30.00	Pass	13	
EHT320	MCS0	2	31	6105	Puncturing 40M ❽	0.00	0.00	11.83	12.28	15.07	-2.80		12.27	30.00	Pass	12.5	
EHT320	MCS0	2	31	6105	Puncturing 80M ❷	0.00	0.00	10.77	10.69	13.74	-2.80		10.94	30.00	Pass	11	
EHT320	MCS0	2	31	6105	Puncturing 80M+40M ❸	0.00	0.00	9.66	10.65	13.19	-2.80		10.39	30.00	Pass	10.5	
EHT320	MCS0	2	31	6105	Large RU 996*3+484 ❽	0.17	0.20	9.70	10.79	13.29	-2.80		10.49	30.00	Pass	10.5	
EHT320	MCS0	2	31	6105	Large RU 996*3 ❹	0.15	0.15	9.61	10.76	13.24	-2.80		10.44	30.00	Pass	10.5	
EHT320	MCS0	2	31	6105	Large RU 996*2+484 ❻	0.13	0.13	9.79	10.92	13.40	-2.80		10.60	30.00	Pass	10.5	
EHT320	MCS0	2	63	6265	Full	0.00	0.00	12.44	12.69	15.58	-2.80		12.78	30.00	Pass	13	

U-NII-7 MIMO																	
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 16	Ant 12	Ant 16	Ant 12	SUM	Ant 16	Ant 12	SUM			Ant 16	Ant 12
EHT20	MCS0	2	117	6535	Full	0.00	0.00	18.92	19.16	22.05	-2.60		19.45	30.00	Pass	19	
EHT20	MCS0	2	117	6535	26/0	0.00	0.00	9.76	9.01	12.41	-2.60		9.81	30.00	Pass	9.5	
EHT20	MCS0	2	117	6535	52/37	0.00	0.00	11.88	11.96	14.93	-2.60		12.33	30.00	Pass	11	
EHT20	MCS0	2	117	6535	106/53	0.00	0.00	15.23	15.12	18.19	-2.60		15.59	30.00	Pass	14	
EHT20	MCS0	2	117	6535	52ru+26ru	0.00	0.00	12.61	12.58	15.61	-2.60		13.01	30.00	Pass	11	
EHT20	MCS0	2	117	6535	106ru+26ru	0.00	0.00	15.26	15.22	18.25	-2.60		15.65	30.00	Pass	14	
EHT20	MCS0	2	149	6695	Full	0.00	0.00	18.88	20.35	22.69	-2.60		20.09	30.00	Pass	19	
EHT20	MCS0	2	181	6855	Full	0.00	0.00	19.02	18.54	21.80	-2.60		19.20	30.00	Pass	19	
EHT40	MCS0	2	123	6565	Full	0.00	0.00	17.84	19.17	21.57	-2.60		18.97	30.00	Pass	18	
EHT40	MCS0	2	147	6685	Full	0.00	0.00	17.95	19.32	21.70	-2.60		19.10	30.00	Pass	18	
EHT40	MCS0	2	179	6845	Full	0.00	0.00	17.94	17.63	20.80	-2.60		18.20	30.00	Pass	18	
EHT80	MCS0	2	135	6625	Full	0.00	0.00	16.67	18.26	20.55	-2.60		17.95	30.00	Pass	17	
EHT80	MCS0	2	151	6705	Full	0.00	0.00	16.86	18.33	20.67	-2.60		18.07	30.00	Pass	17	
EHT80	MCS0	2	167	6785	Full	0.00	0.00	17.08	17.89	20.51	-2.60		17.91	30.00	Pass	17	
EHT160	MCS0	2	143	6665	Full	0.00	0.00	15.78	17.46	19.71	-2.60		17.11	30.00	Pass	16	

3.3 Fundamental Power Spectral Density Measurement

3.3.1 Limit of Fundamental Power Spectral Density

<FCC 14-30 CFR 15.407>

(a)(7) For client devices, except for fixed client devices as defined in this subpart, operating under the control of a standard power access point in 5.925-6.425 GHz and 6.525-6.875 GHz bands, the maximum power spectral density must not exceed 17 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).

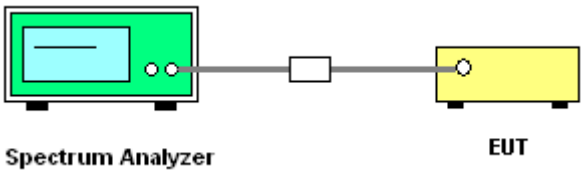
- Measure the duty cycle.
- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 1 MHz.
- Set VBW ≥ 3 MHz.
- Number of points in sweep ≥ 2 Span / RBW.
- Sweep time = auto.
- Detector = RMS
- Trace average at least 100 traces in power averaging mode.
- Add 10 log(1/x), 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.

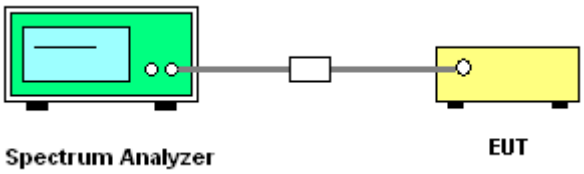
Section J) In-Band Emissions.

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 Unwanted Emissions Measurement

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

3.5.1 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)	68.2
- 7 (Peak)	88.2

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)

3.5.2 Measuring Instruments

See list of measuring equipment of this test report.

3.5.3 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

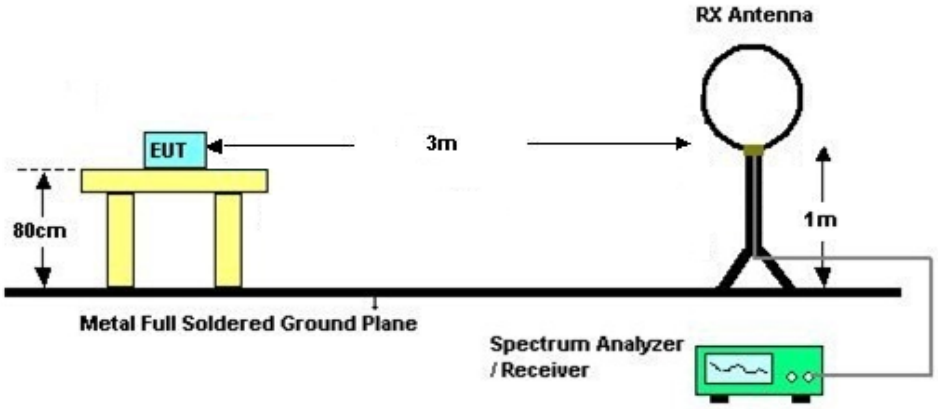
   (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

   - 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.

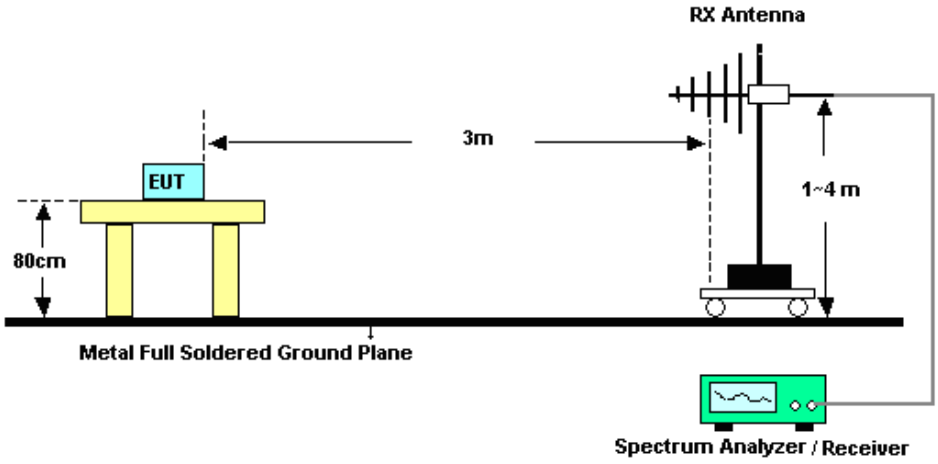
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband 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.

3.5.4 Test Setup

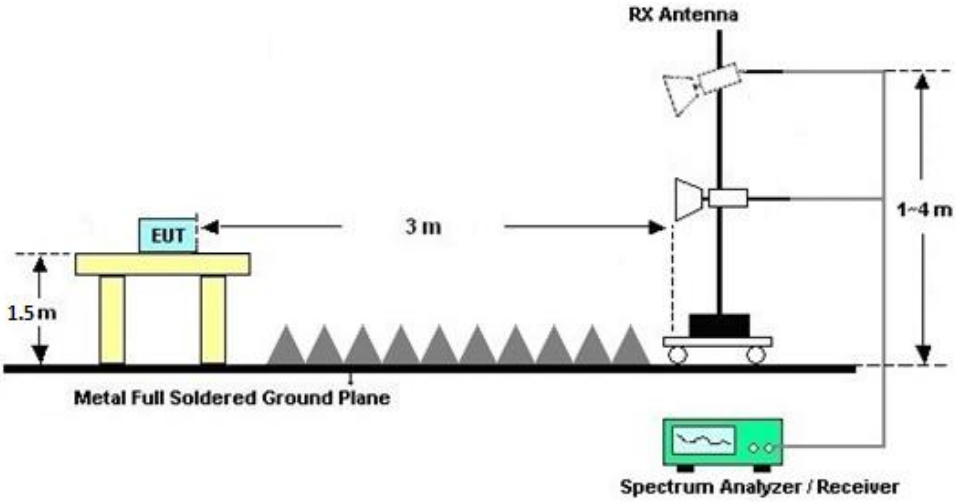
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.5.5 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.

3.5.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix C

3.5.7 Duty Cycle

Please refer to Appendix D.

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

Please refer to Appendix C.

3.6 AC Conducted Emission Measurement

3.6.1 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.

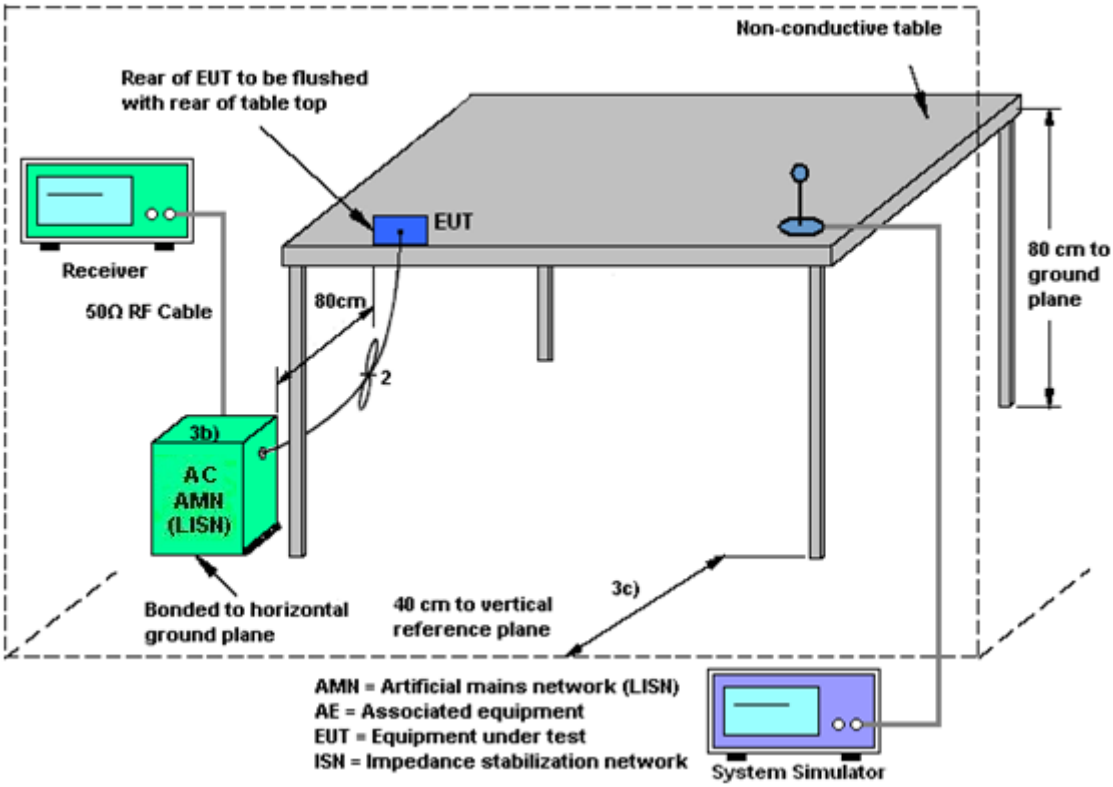
3.6.2 Measuring Instruments

See list of measuring equipment of this test report.

3.6.3 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.

3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.7 Antenna Requirements

3.7.1 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.

3.7.2 Antenna Anti-Replacement Construction

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

3.7.3 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>				
			DG for Power (dBi)	**DG for PSD (dBi)**
	Ant. 16 (dBi)	**Ant. 12 (dBi)**		
U-NII-5	-2.80	-2.80	-2.80	0.21
U-NII-7	-3.50	-2.60	-2.60	-0.03

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	Aug. 09, 2024~ Sep. 19, 2024	Oct. 10, 2024	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 02, 2024	Aug. 09, 2024~ Sep. 19, 2024	Jan. 01, 2025	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 02, 2024	Aug. 09, 2024~ Sep. 19, 2024	Jan. 01, 2025	Conducted (TH01-KS)
EMI Test Receiver	Keysight	N9038A	MY56400023	3Hz~8.5GHz;Max 30dBm	Jan. 02, 2024	Aug. 03, 2024~ Sep. 28, 2024	Jan. 01, 2025	Radiation (03CH06-KS)
EXA Spectrum Analyzer	Keysight	N9010B	MY60242126	10Hz-44GHz	Oct. 11, 2023	Aug. 03, 2024~ Sep. 28, 2024	Oct. 10, 2024	Radiation (03CH06-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 10, 2023	Aug. 03, 2024~ Sep. 28, 2024	Oct. 09, 2024	Radiation (03CH06-KS)
Loop Antenna	R&S	HFH2-Z2E	101125	9kHz~30MHz	Sep. 08, 2024		Sep. 07, 2025	Radiation (03CH06-KS)
Bilog Antenna	TeseQ	CBL6111D	44483	30MHz-1GHz	Dec. 06, 2023	Aug. 03, 2024~ Sep. 28, 2024	Dec. 05, 2024	Radiation (03CH06-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00218652	1GHz~18GHz	Apr. 11, 2024	Aug. 03, 2024~ Sep. 28, 2024	Apr. 10, 2025	Radiation (03CH06-KS)
SHF-EHF Horn	Com-power	AH-840	101093	18GHz~40GHz	Jan. 06, 2024	Aug. 03, 2024~ Sep. 28, 2024	Jan. 05, 2025	Radiation (03CH06-KS)
Amplifier	SONOMA	310N	372171	9KHz ~1GHZ	Jan. 02, 2024	Aug. 03, 2024~ Sep. 28, 2024	Jan. 01, 2025	Radiation (03CH06-KS)
Amplifier	EM	EM18G40GA	060728	18~40GHz	Jan. 02, 2024	Aug. 03, 2024~ Sep. 28, 2024	Jan. 01, 2025	Radiation (03CH06-KS)
high gain Amplifier	MITEQ	AMF-7D-00101800-30-10P	2082395	1Ghz-18Ghz	Jan. 02, 2024	Aug. 03, 2024~ Sep. 28, 2024	Jan. 01, 2025	Radiation (03CH06-KS)
Amplifier	Keysight	83017A	MY53270319	500MHz~26.5GHz	Oct. 11, 2023	Aug. 03, 2024~ Sep. 28, 2024	Oct. 10, 2024	Radiation (03CH06-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Aug. 03, 2024~ Sep. 28, 2024	NCR	Radiation (03CH06-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Aug. 03, 2024~ Sep. 28, 2024	NCR	Radiation (03CH06-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Aug. 03, 2024~ Sep. 28, 2024	NCR	Radiation (03CH06-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	Apr. 18, 2024	Sep. 16, 2024	Apr. 17, 2025	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 11, 2023	Sep. 16, 2024	Oct. 10, 2024	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060105	9kHz~30MHz	Apr. 18, 2024	Sep. 16, 2024	Apr. 17, 2025	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 11, 2023	Sep. 16, 2024	Oct. 10, 2024	Conduction (CO01-KS)

NCR: No Calibration Required

5 Measurement Uncertainty

Uncertainty of Conducted Measurement

Conducted Spurious Emission & Bandedge	±2.22 dB
Occupied Channel Bandwidth	±0.1%
Conducted Power	±0.50 dB
Conducted Power Spectral Density	±0.90 dB
Frequency	±0.04 Hz
Conducted Generated signal Levels	±0.56 dB
Conducted Time	0.54%

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.84dB

Uncertainty of Radiated Emission Measurement (9 KHz ~ 30 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.30dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	6.06dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.18dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.38dB

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

Appendix A. Conducted Test Results

Ambient Condition: 25 ℃, 45 %RH	
Test Date: 2024.8.9~2024.9.19	**Test Engineer:** Jiang Jun

26dB Emission Bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	26dB EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11BE320MIMO	Ant16	6105	348.36	5929.30	6277.65	---	---
	Ant12	6105	346.07	5931.58	6277.65	---	---
	Ant16	6265	347.59	6093.11	6440.70	---	---
	Ant12	6265	348.36	6090.06	6438.42	---	---
11A-CDD	Ant16	5935	21.20	5924.30	5945.51	≤320	PASS
	Ant12	5935	21.44	5924.26	5945.70	≤320	PASS
	Ant16	5955	21.77	5943.88	5965.65	≤320	PASS
	Ant12	5955	21.44	5944.16	5965.60	≤320	PASS
	Ant16	6175	21.30	6164.21	6185.51	≤320	PASS
	Ant12	6175	21.44	6164.21	6185.65	≤320	PASS
	Ant16	6415	21.39	6404.16	6425.55	≤320	PASS
	Ant12	6415	21.49	6404.21	6425.70	≤320	PASS
	Ant16	6535	21.25	6524.16	6545.41	≤320	PASS
	Ant12	6535	21.53	6524.16	6545.70	≤320	PASS
	Ant16	6695	21.30	6684.26	6705.55	≤320	PASS
	Ant12	6695	21.53	6684.16	6705.70	≤320	PASS
	Ant16	6855	21.25	6844.21	6865.46	≤320	PASS
	Ant12	6855	21.58	6844.11	6865.70	≤320	PASS
11BE20MIMO	Ant16	5935	22.11	5923.88	5945.98	≤320	PASS
	Ant12	5935	22.34	5923.69	5946.03	≤320	PASS
	Ant16	5955	22.11	5943.92	5966.03	≤320	PASS
	Ant12	5955	21.72	5944.11	5965.84	≤320	PASS
	Ant16	6175	21.87	6163.92	6185.79	≤320	PASS
	Ant12	6175	22.15	6163.92	6186.08	≤320	PASS
	Ant16	6415	21.92	6404.11	6426.03	≤320	PASS
	Ant12	6415	21.92	6404.07	6425.98	≤320	PASS
	Ant16	6535	21.58	6524.11	6545.70	≤320	PASS
	Ant12	6535	22.30	6523.83	6546.12	≤320	PASS
	Ant16	6695	22.25	6683.88	6706.12	≤320	PASS
	Ant12	6695	21.63	6684.11	6705.74	≤320	PASS
	Ant16	6855	22.20	6843.83	6866.03	≤320	PASS
	Ant12	6855	21.87	6844.11	6865.98	≤320	PASS
11BE40MIMO	Ant16	5965	43.07	5943.23	5986.30	≤320	PASS
	Ant12	5965	42.21	5943.99	5986.20	≤320	PASS
	Ant16	6165	42.50	6143.80	6186.30	≤320	PASS
	Ant12	6165	42.40	6143.99	6186.39	≤320	PASS

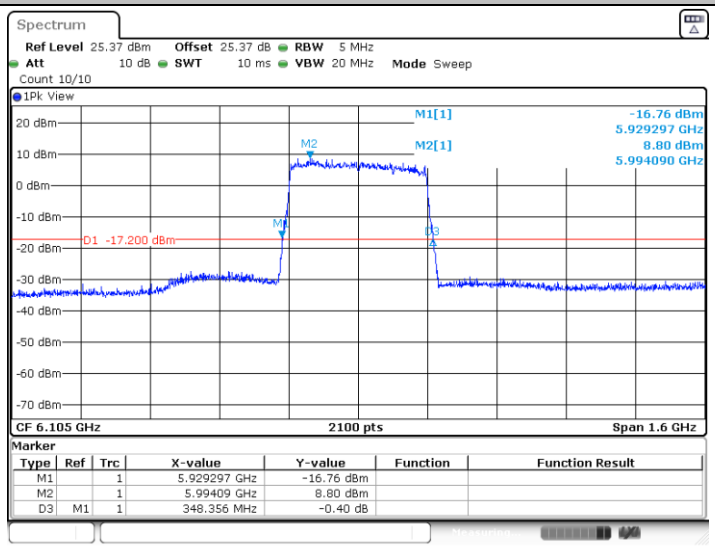
	Ant16	6405	42.88	6383.61	6426.49	≤320	PASS
	Ant12	6405	42.21	6383.70	6425.91	≤320	PASS
	Ant16	6565	42.69	6543.80	6586.49	≤320	PASS
	Ant12	6565	42.78	6543.42	6586.20	≤320	PASS
	Ant16	6685	42.69	6663.42	6706.11	≤320	PASS
	Ant12	6685	42.69	6663.99	6706.68	≤320	PASS
	Ant16	6845	42.02	6823.89	6865.91	≤320	PASS
	Ant12	6845	42.12	6823.99	6866.11	≤320	PASS
11BE80MIMO	Ant16	5985	85.18	5942.22	6027.40	≤320	PASS
	Ant12	5985	85.37	5942.03	6027.40	≤320	PASS
	Ant16	6145	85.56	6102.03	6187.59	≤320	PASS
	Ant12	6145	86.33	6101.46	6187.78	≤320	PASS
	Ant16	6385	88.23	6341.65	6429.88	≤320	PASS
	Ant12	6385	86.71	6341.65	6428.35	≤320	PASS
	Ant16	6625	84.80	6582.03	6666.83	≤320	PASS
	Ant12	6625	85.18	6582.79	6667.97	≤320	PASS
	Ant16	6705	86.33	6662.22	6748.54	≤320	PASS
	Ant12	6705	85.37	6662.22	6747.59	≤320	PASS
	Ant16	6785	85.95	6741.46	6827.40	≤320	PASS
	Ant12	6785	85.76	6741.84	6827.59	≤320	PASS
11BE160MIMO	Ant16	6025	173.80	5939.05	6112.85	≤320	PASS
	Ant12	6025	173.42	5937.91	6111.33	≤320	PASS
	Ant16	6185	175.32	6098.29	6273.61	≤320	PASS
	Ant12	6185	174.18	6097.91	6272.09	≤320	PASS
	Ant16	6345	174.56	6257.91	6432.47	≤320	PASS
	Ant12	6345	172.27	6258.29	6430.56	≤320	PASS
	Ant16	6505	175.32	6416.39	6591.71	≤320	PASS
	Ant12	6505	172.65	6418.67	6591.33	≤320	PASS
	Ant16	6665	172.27	6577.91	6750.18	≤320	PASS
	Ant12	6665	174.18	6578.67	6752.85	≤320	PASS

Note1: For channels with a nominal bandwidth of 320MHz, compliance is demonstrated by way of the 99%BW.

Note2: For channels with a nominal bandwidth less than 320MHz(e.g 20,40,80,160MHz), compliance is demonstrated by way of the 26dB EBW.

Test Graphs

11BE320MIMO_Ant16_6105



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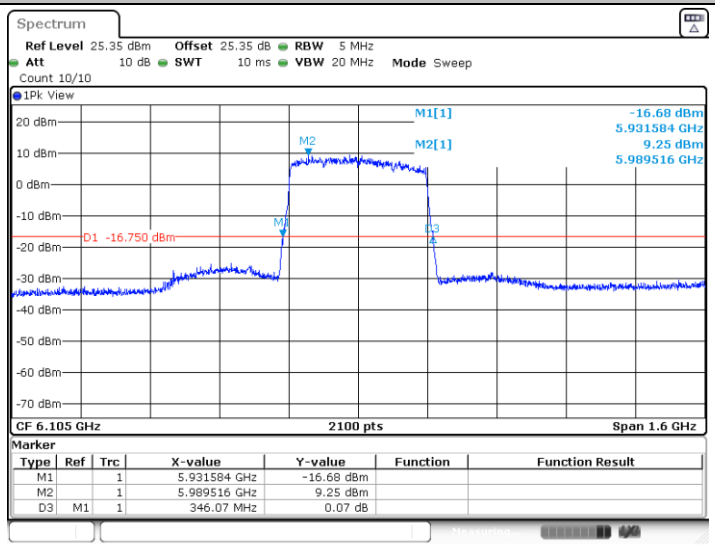

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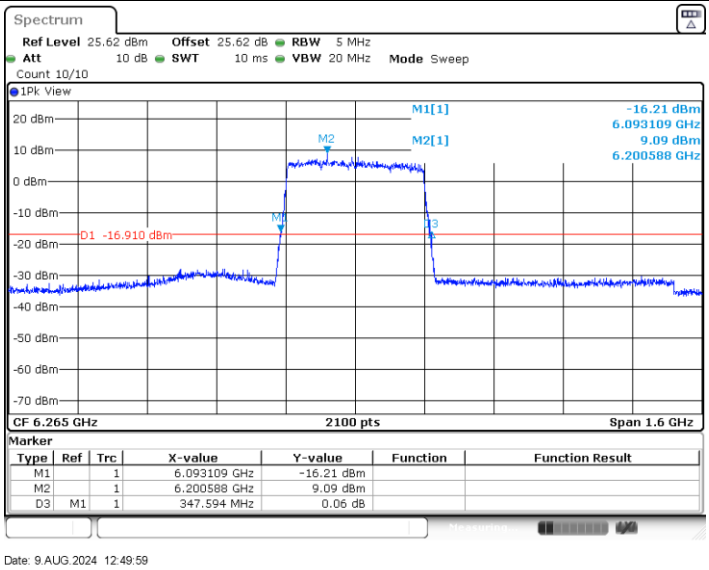

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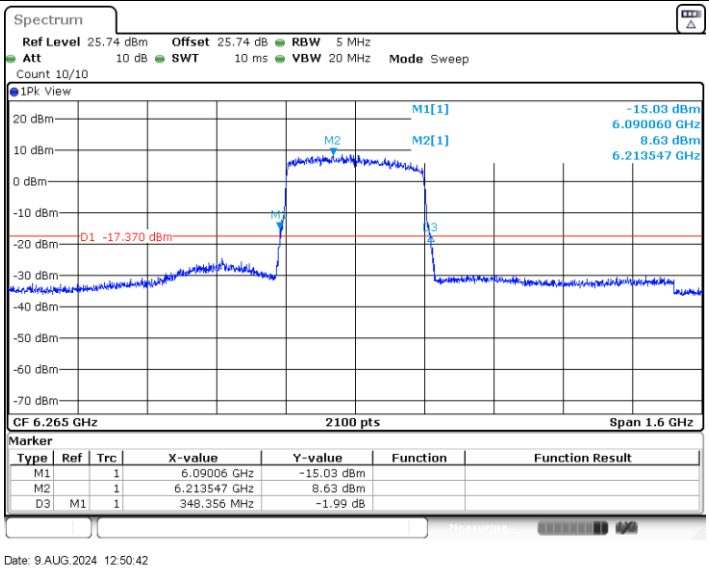

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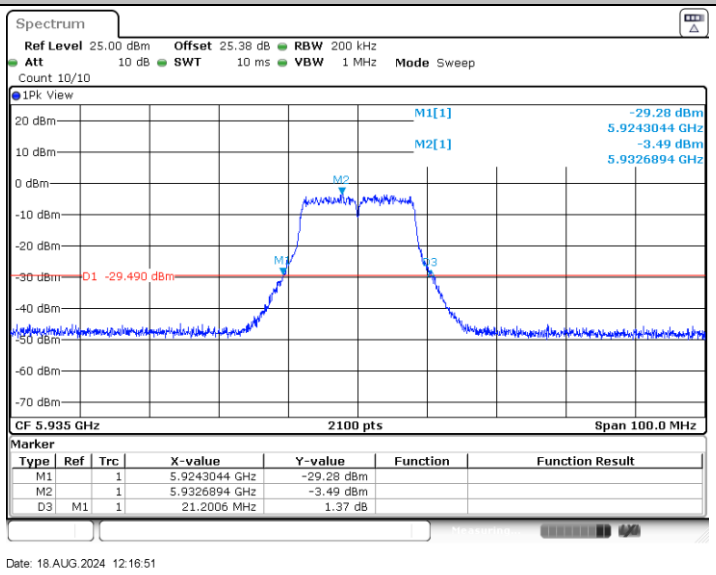

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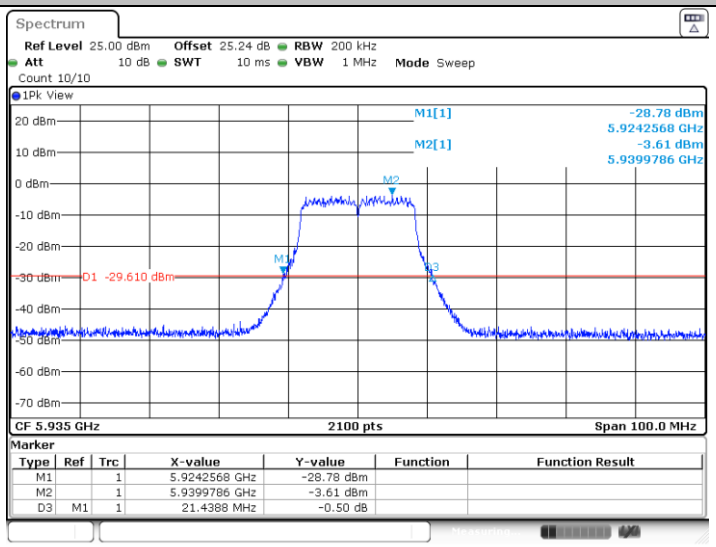

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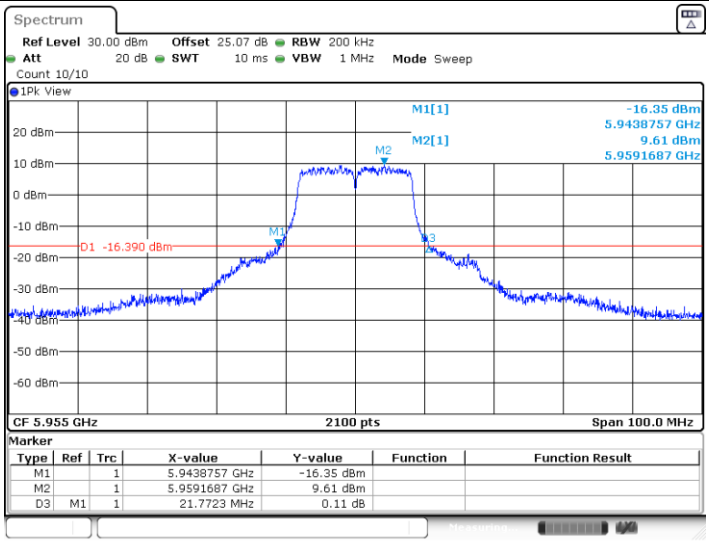

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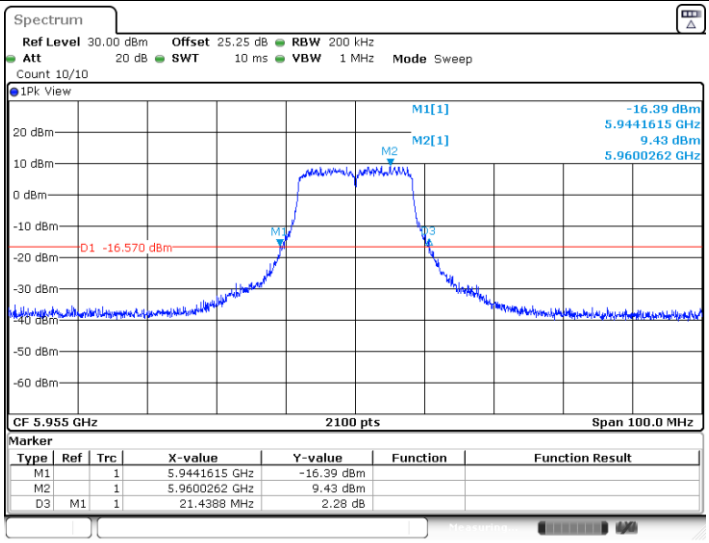

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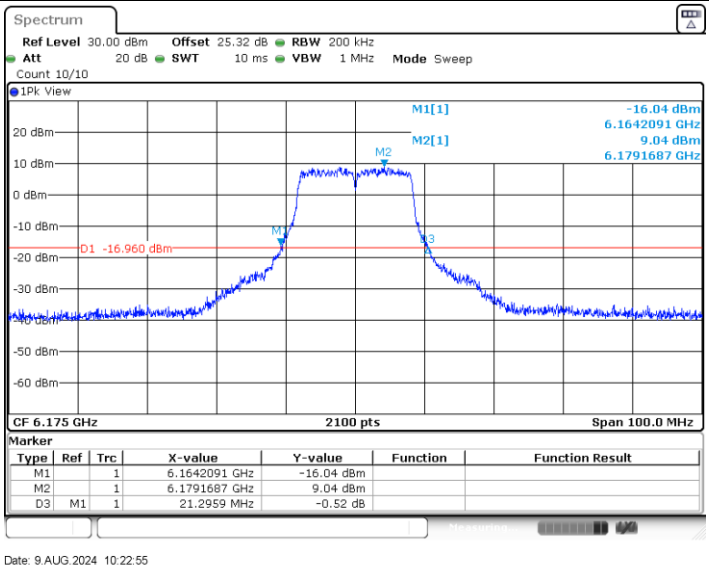

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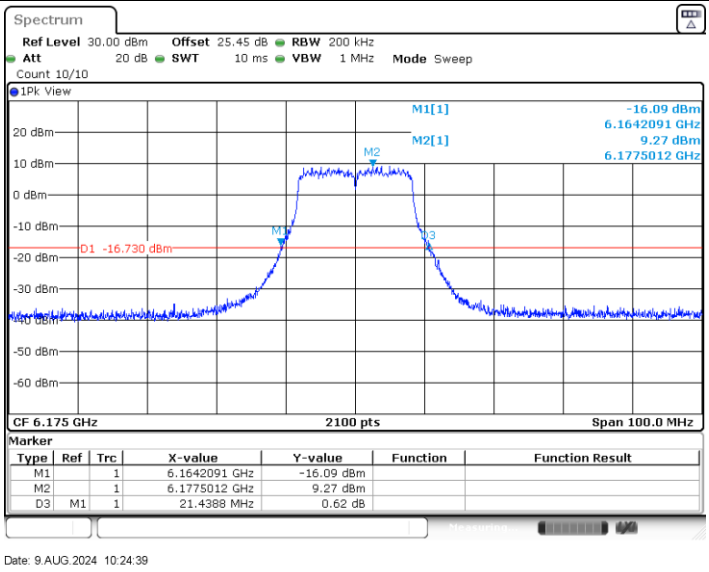

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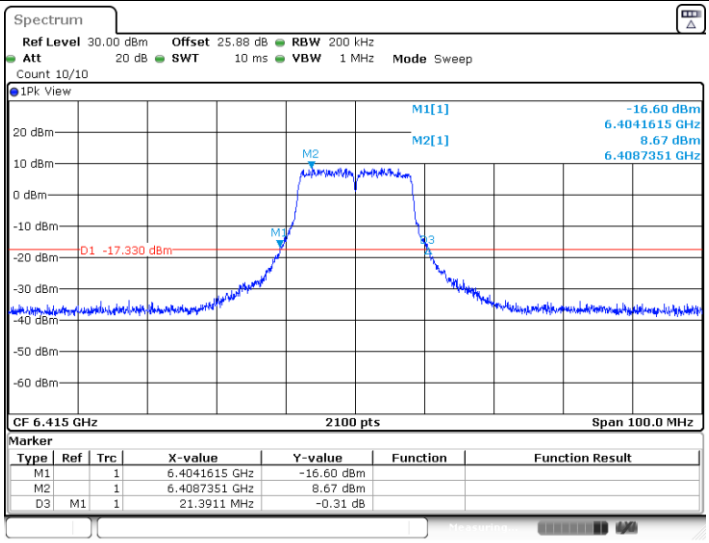

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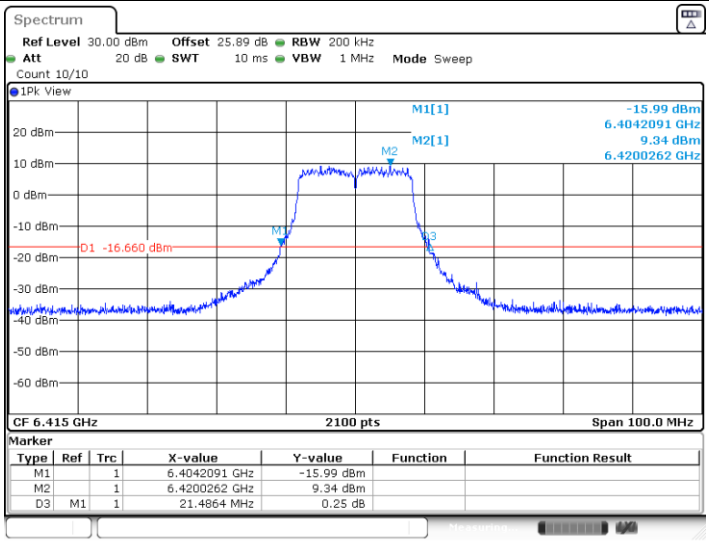

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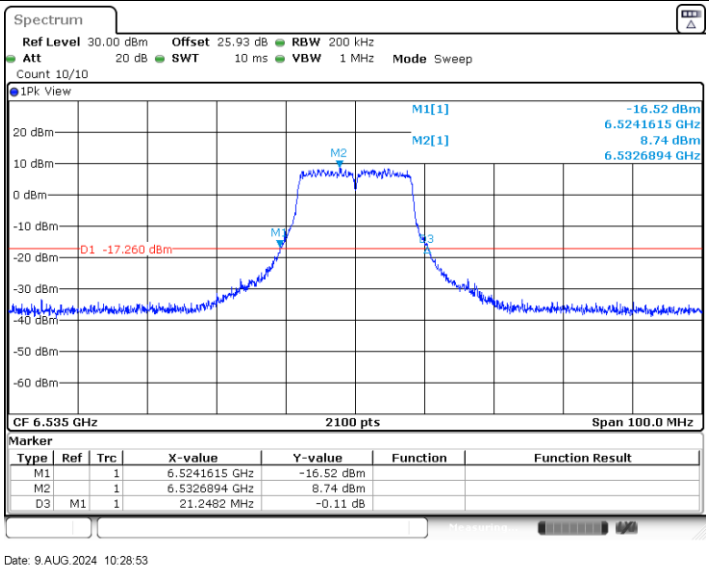

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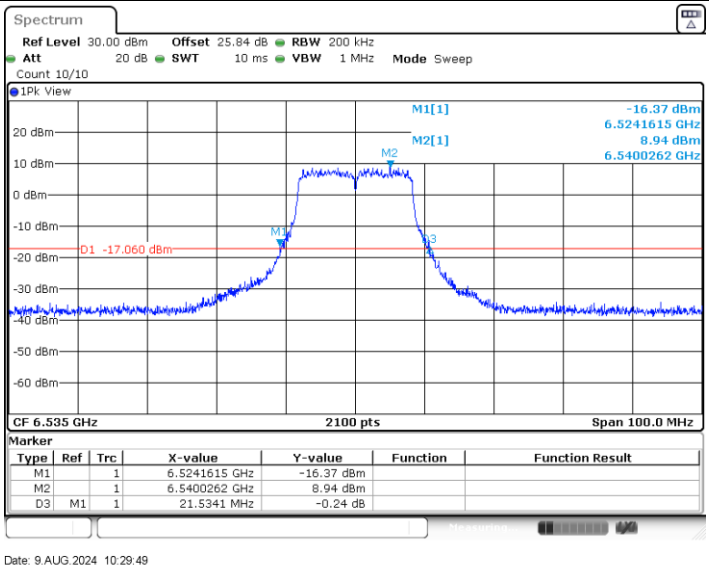

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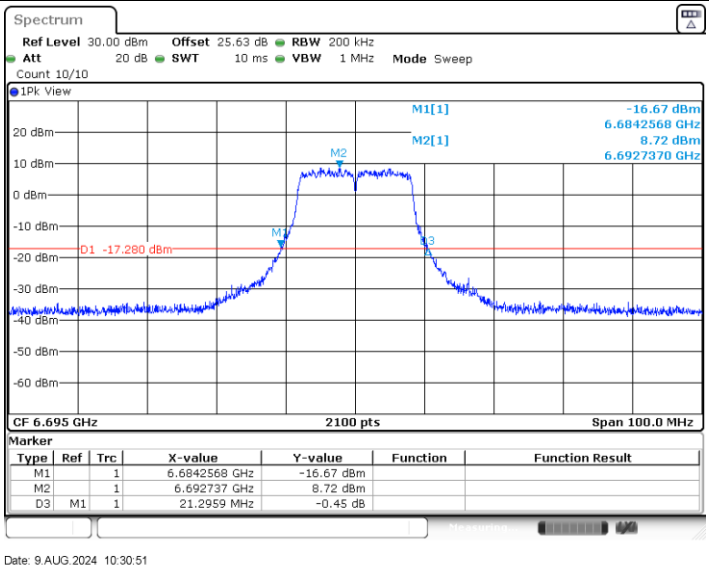

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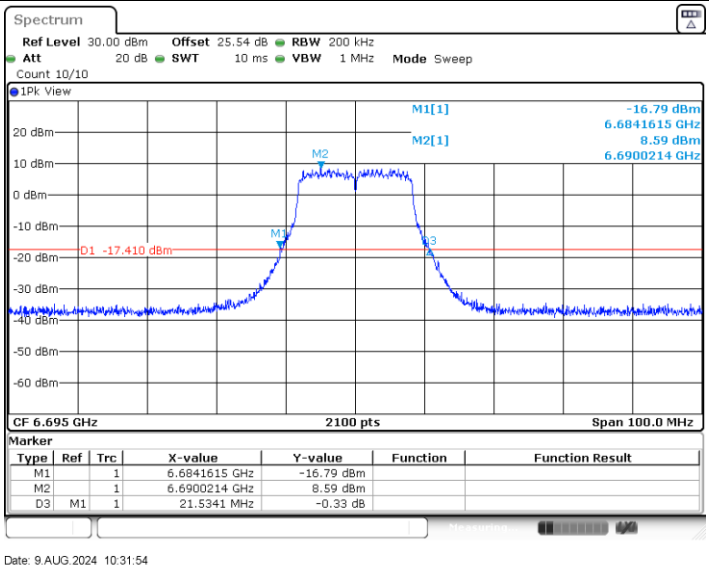

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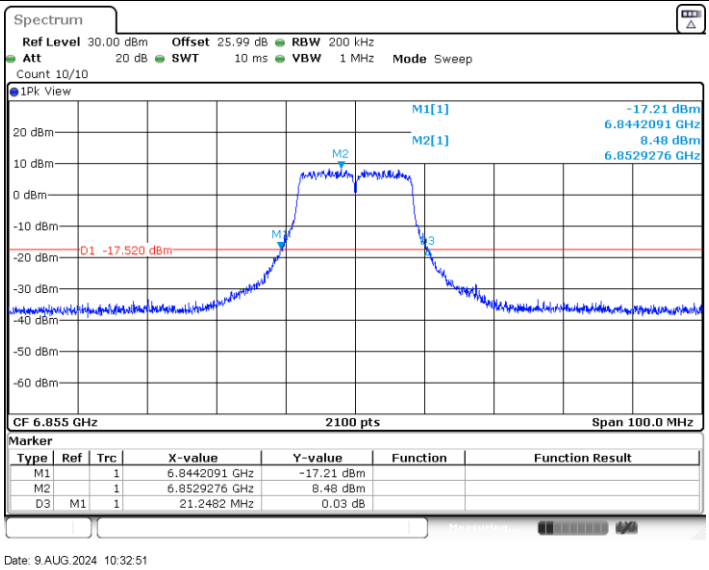

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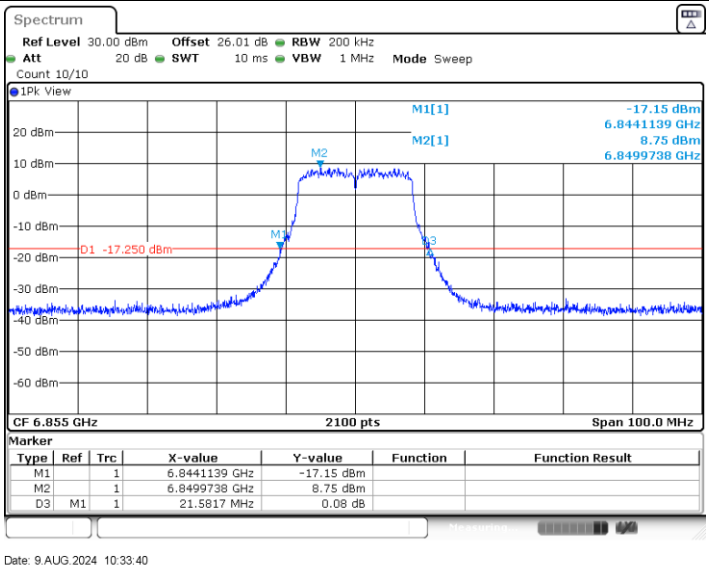

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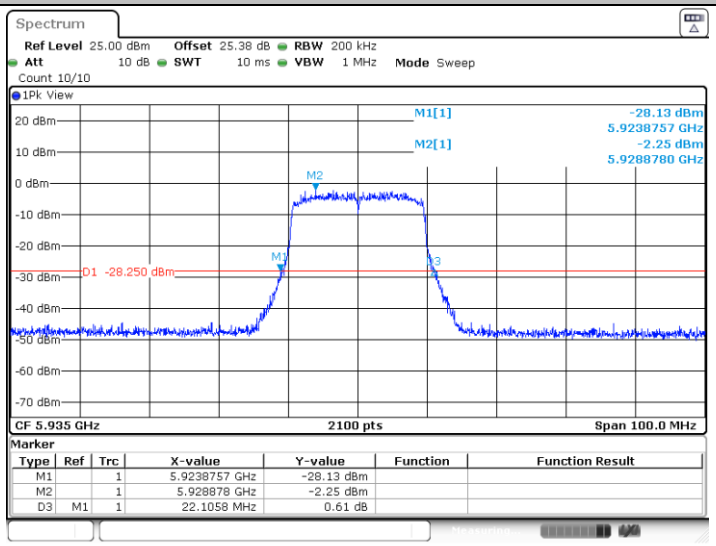

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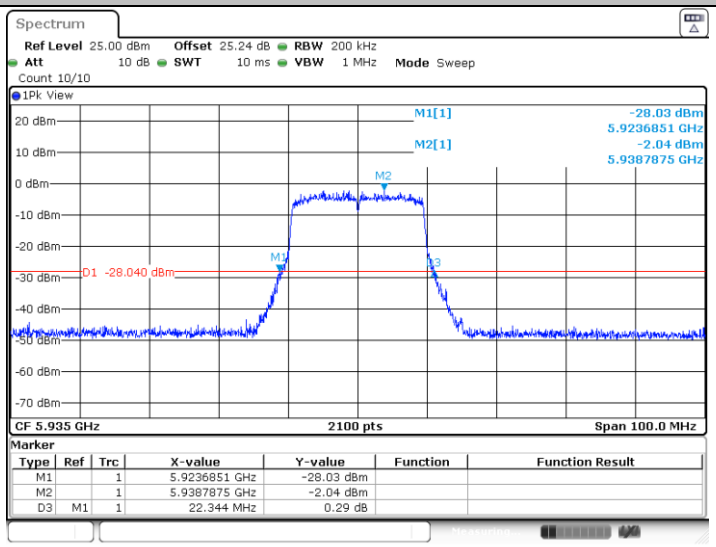
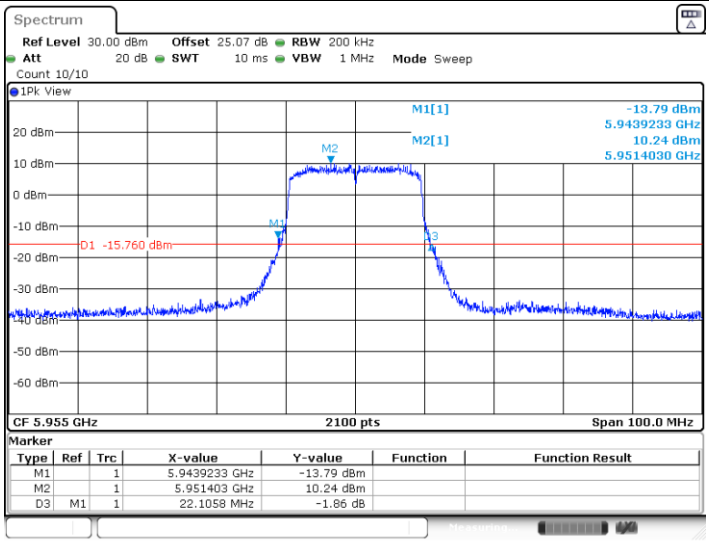


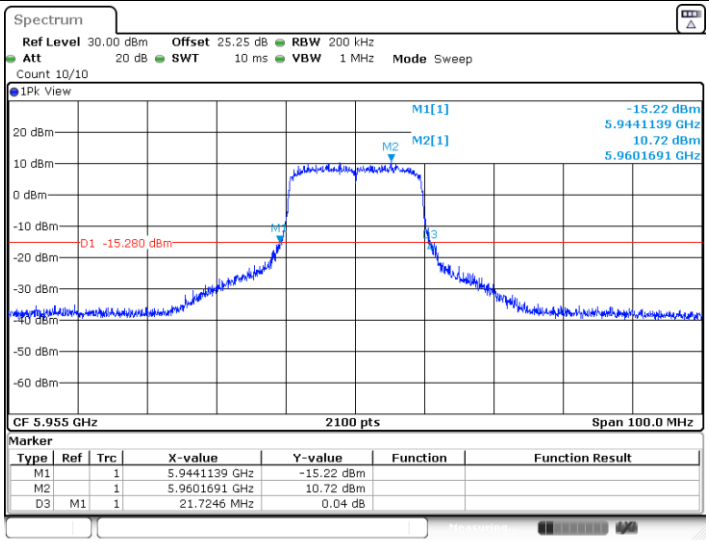
Date: 18.AUG.2024 12:55:40

11BE20MIMO_Ant16_5955



Date: 9.AUG.2024 10:34:40

11BE20MIMO_Ant12_5955



Date: 9.AUG.2024 10:35:30

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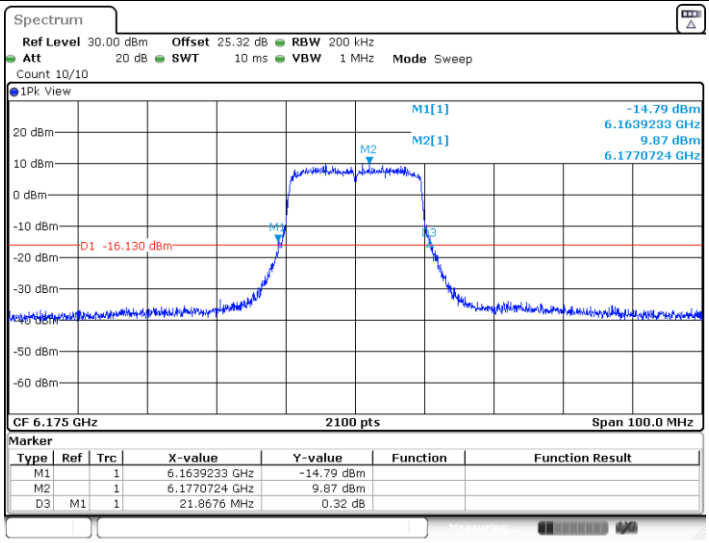
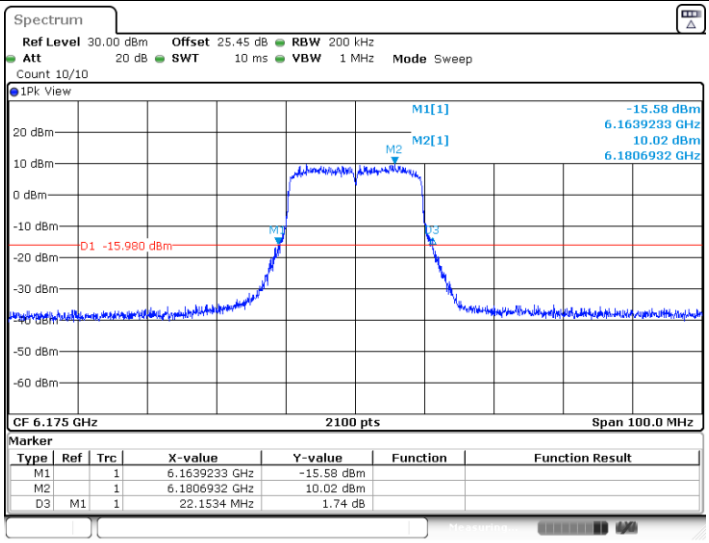


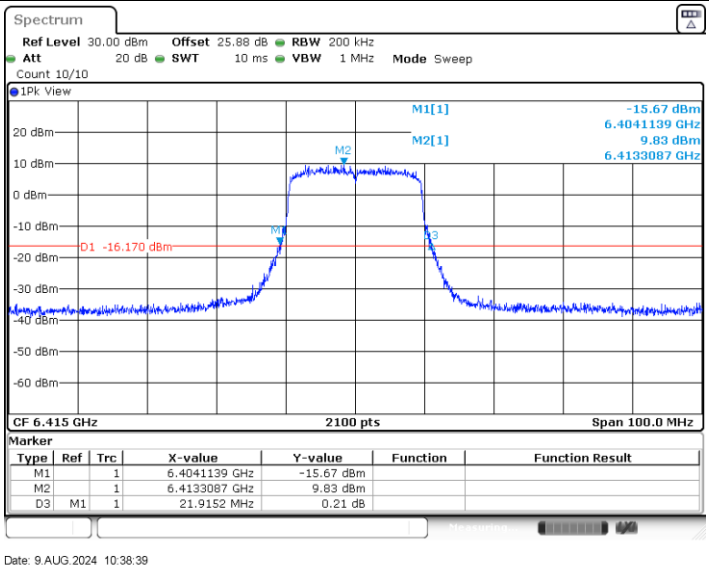
Date: 9.AUG.2024 10:36:45

11BE20MIMO_Ant12_6175



Date: 9.AUG.2024 10:37:42

11BE20MIMO_Ant16_6415



Date: 9.AUG.2024 10:38:39

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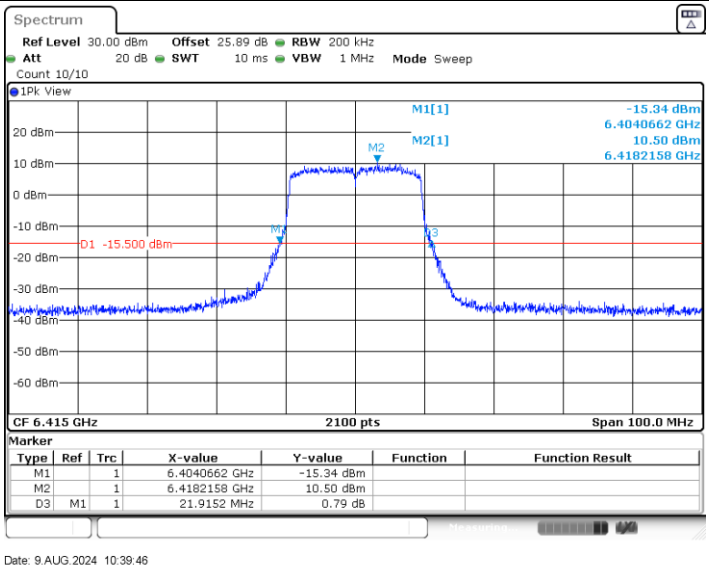
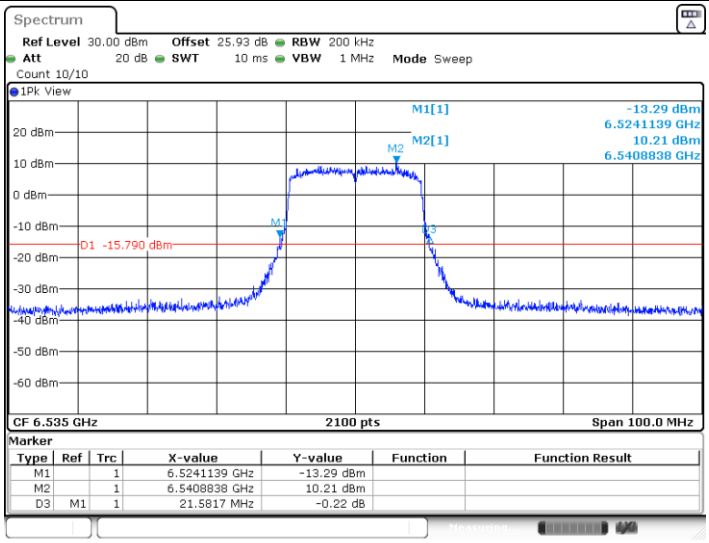


Date: 9.AUG.2024 10:39:46

11BE20MIMO_Ant16_6535



Date: 9.AUG.2024 10:40:42

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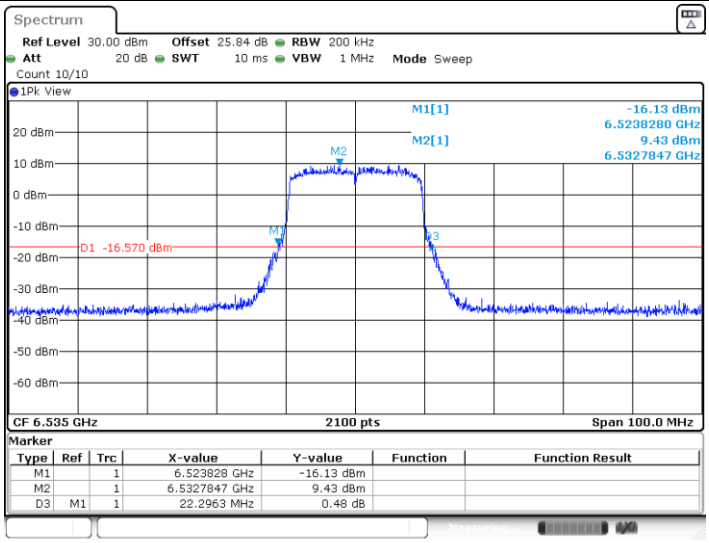
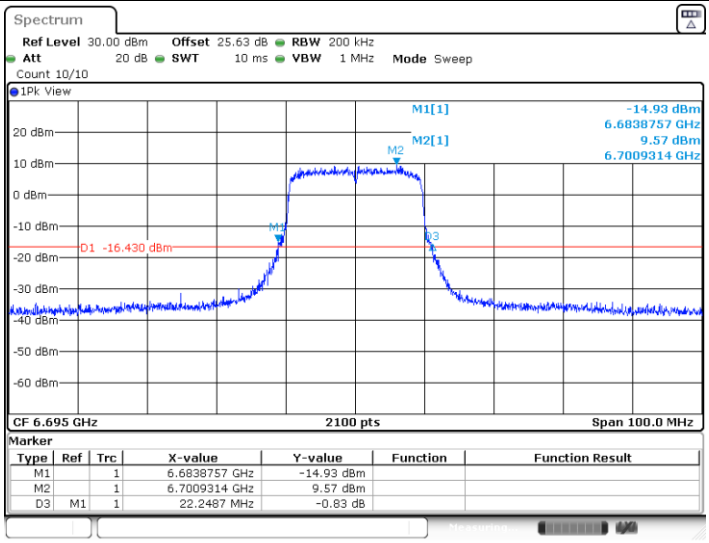


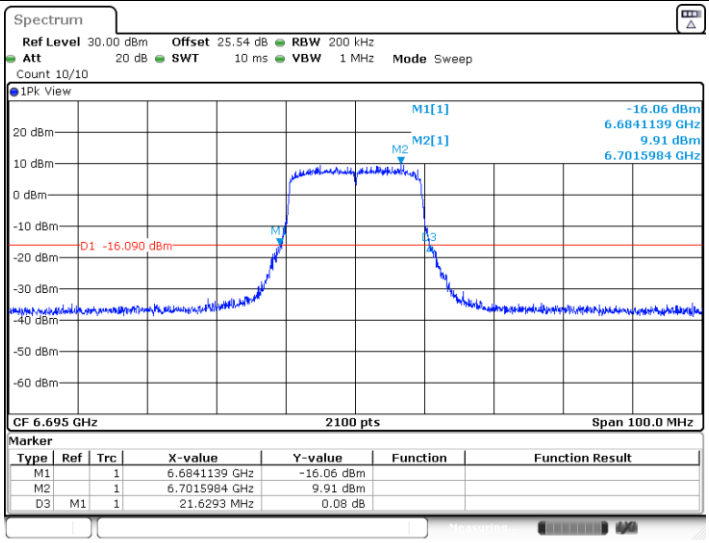
Date: 9.AUG.2024 10:41:41

11BE20MIMO_Ant16_6695



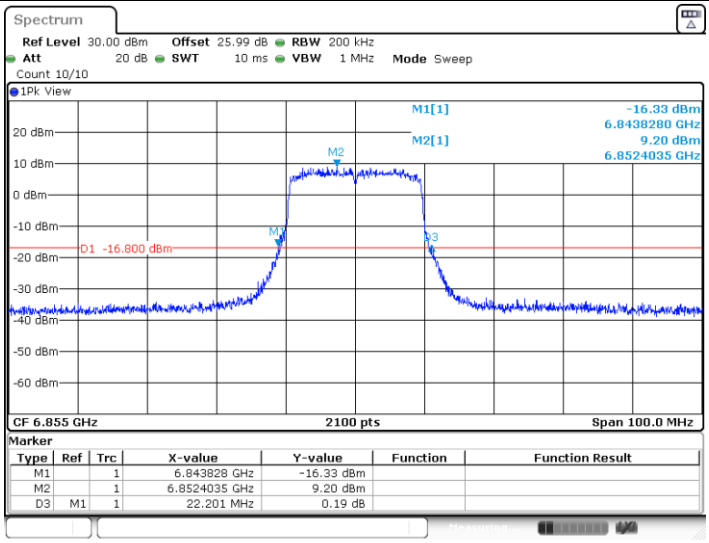
Date: 9.AUG.2024 10:42:41

11BE20MIMO_Ant12_6695



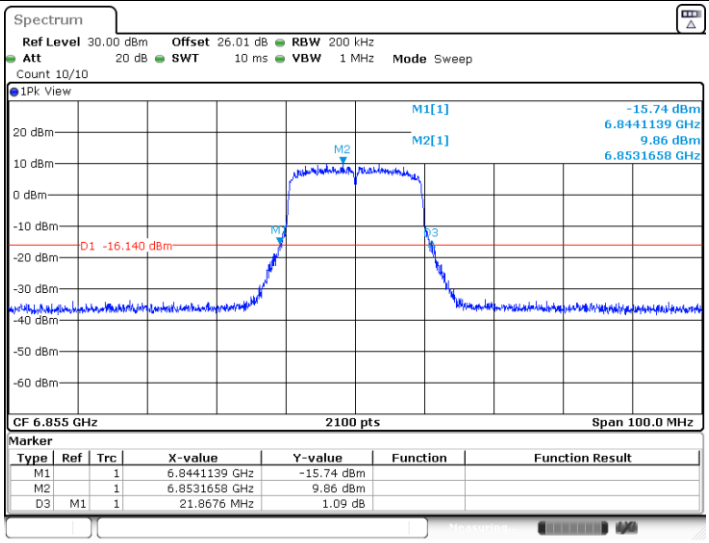
Date: 9.AUG.2024 10:43:32

11BE20MIMO_Ant16_6855



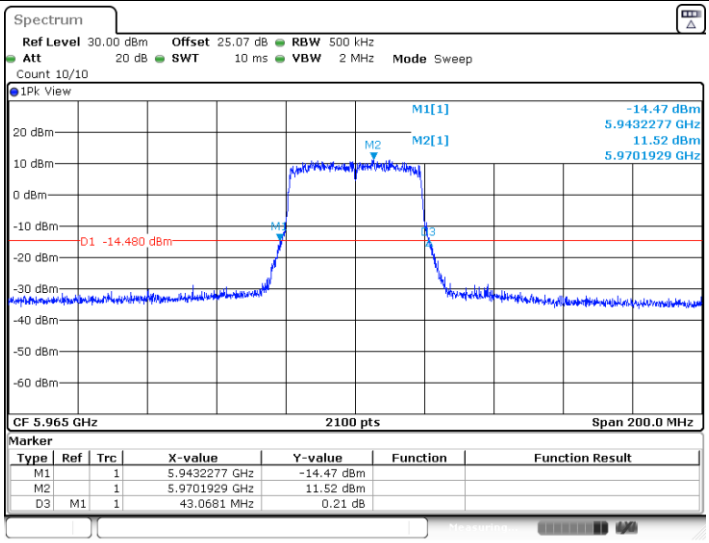
Date: 9.AUG.2024 10:44:50

11BE20MIMO_Ant12_6855



Date: 9.AUG.2024 10:45:40

11BE40MIMO_Ant16_5965



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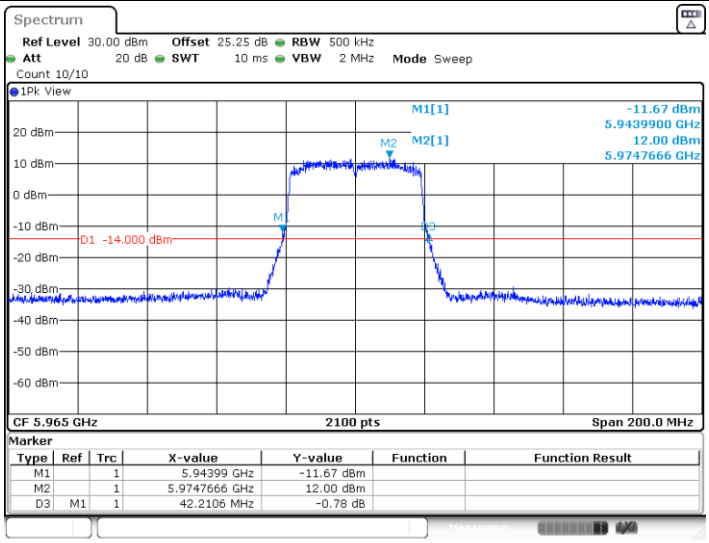
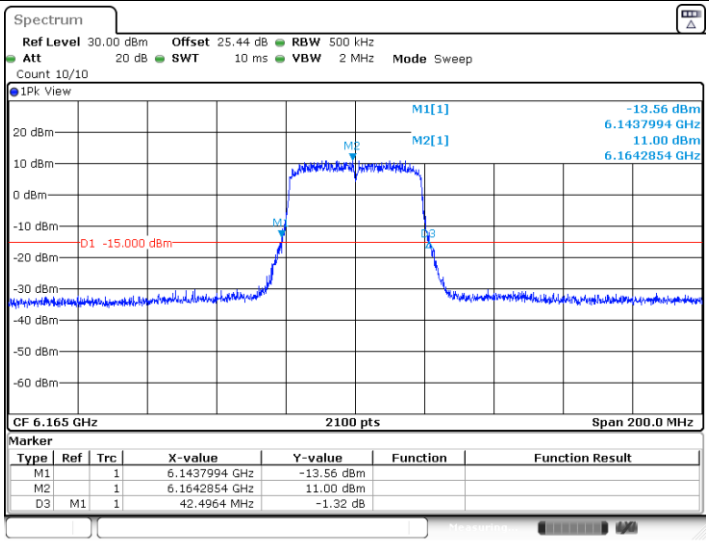


Date: 9.AUG.2024 10:48:05

11BE40MIMO_Ant16_6165



Date: 9.AUG.2024 10:49:10

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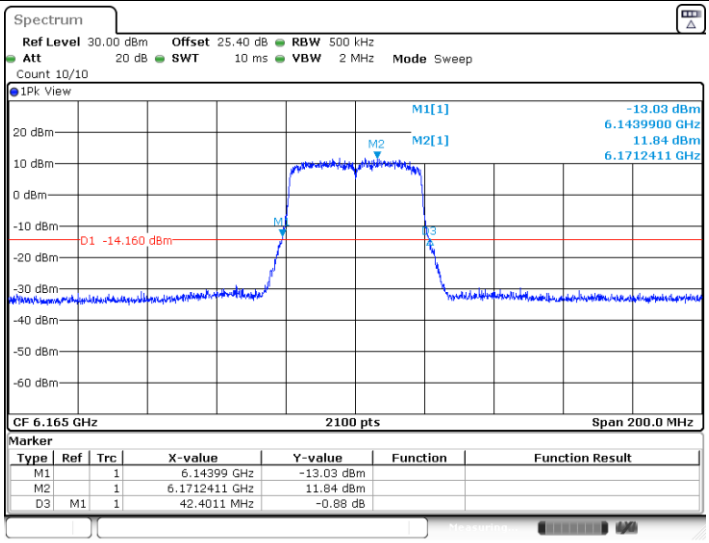
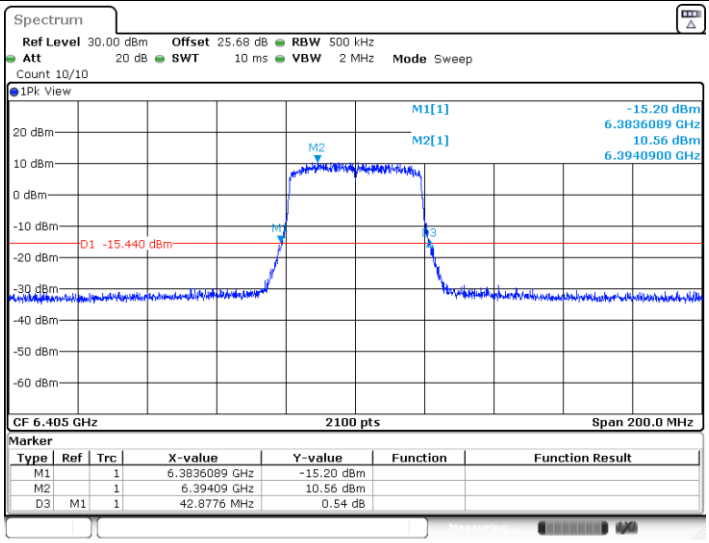


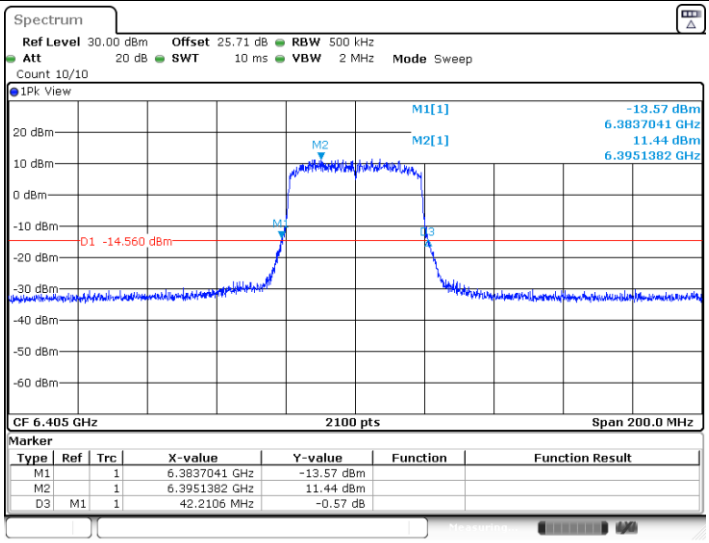
Date: 9.AUG.2024 10:50:04

11BE40MIMO_Ant16_6405



Date: 9.AUG.2024 10:50:57

11BE40MIMO_Ant12_6405



Date: 9.AUG.2024 10:52:04

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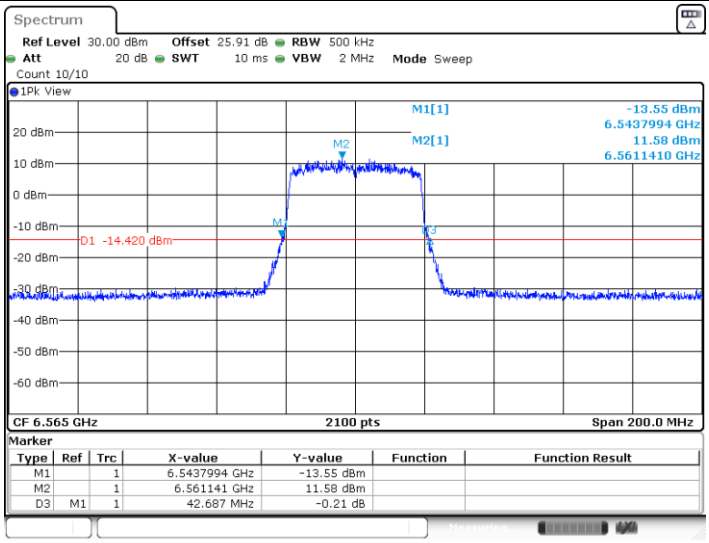

Date: 9.AUG.2024 10:53:15

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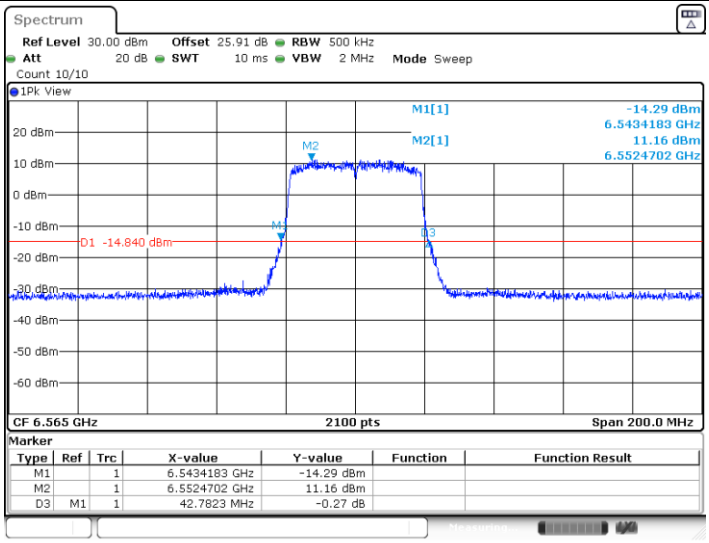
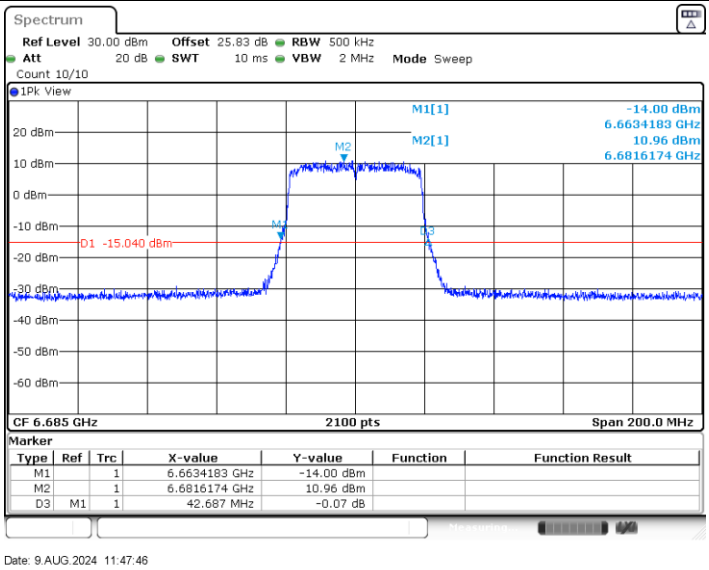


Date: 9.AUG.2024 10:54:04

11BE40MIMO_Ant16_6685



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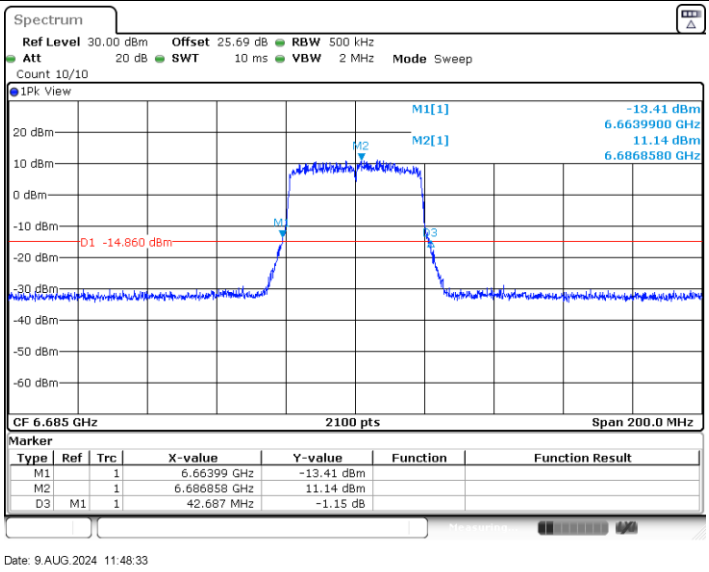

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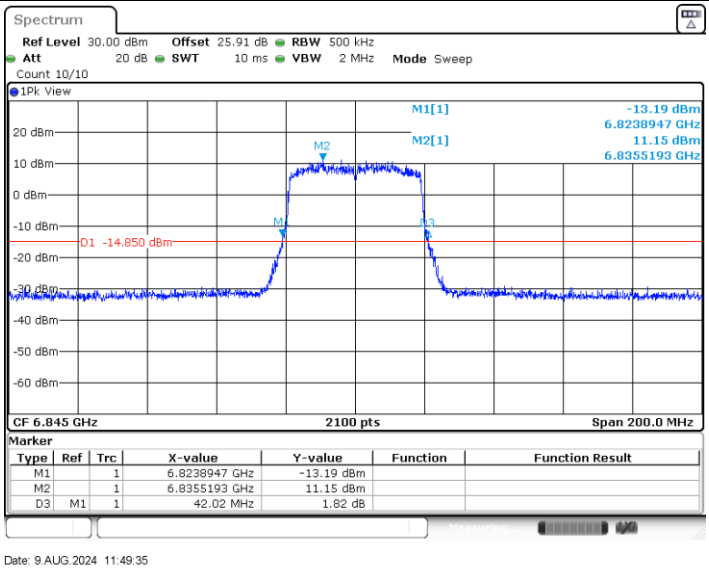

Date: 9.AUG.2024 11:49:35

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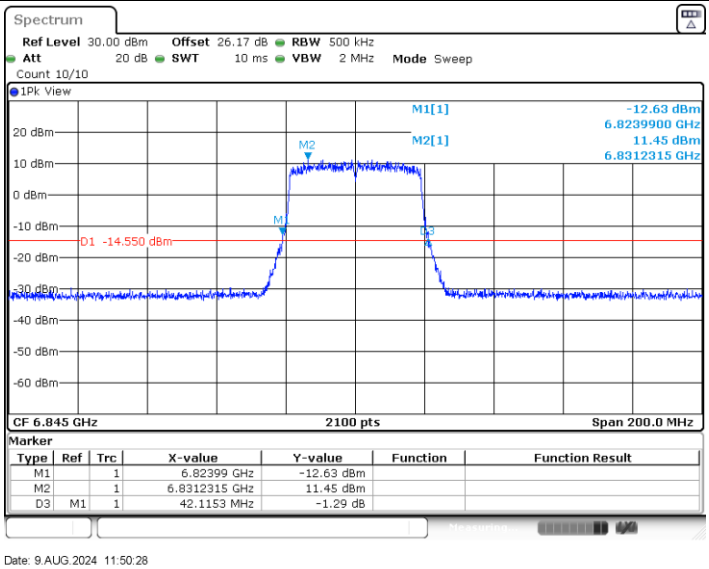
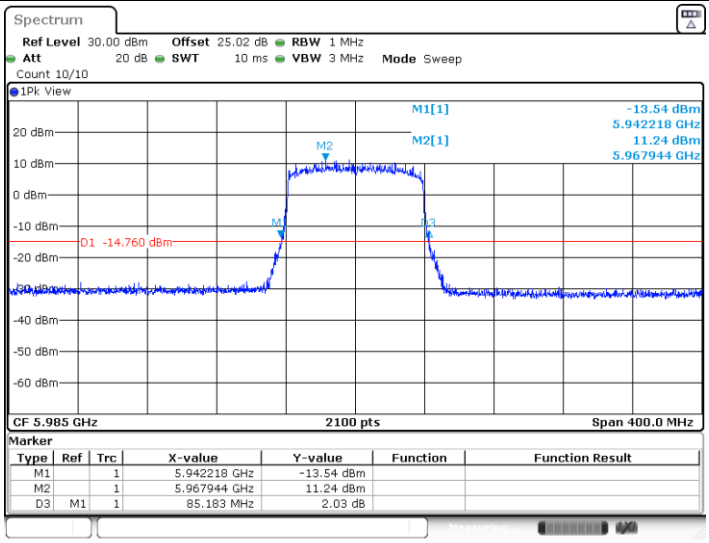


Date: 9.AUG.2024 11:50:28

11BE80MIMO_Ant16_5985



Date: 9.AUG.2024 12:24:38

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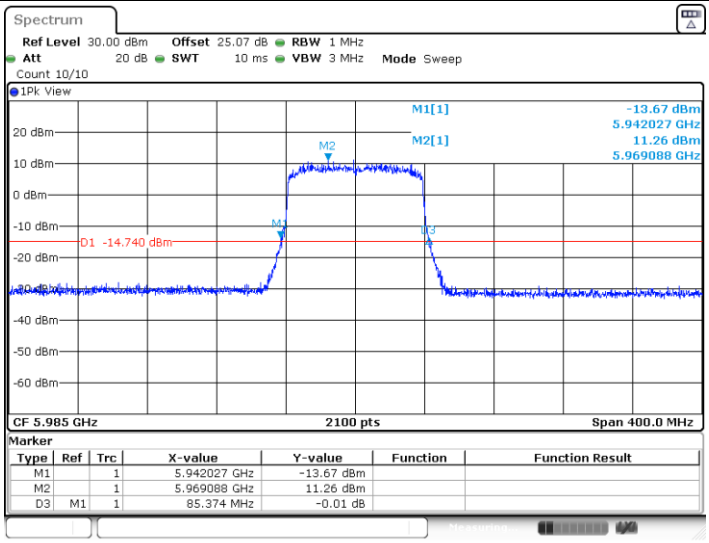
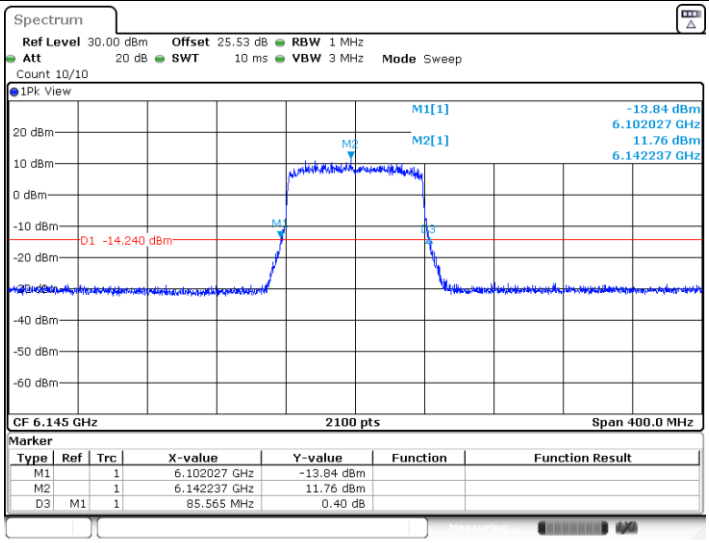


Date: 9.AUG.2024 12:26:15

11BE80MIMO_Ant16_6145



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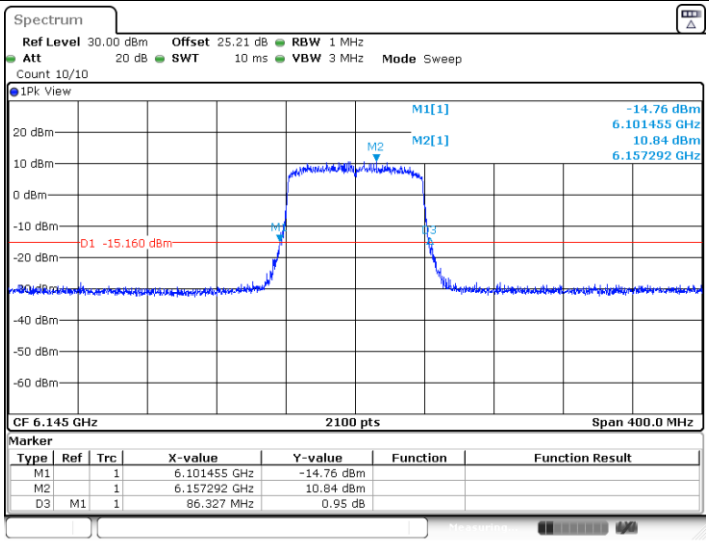

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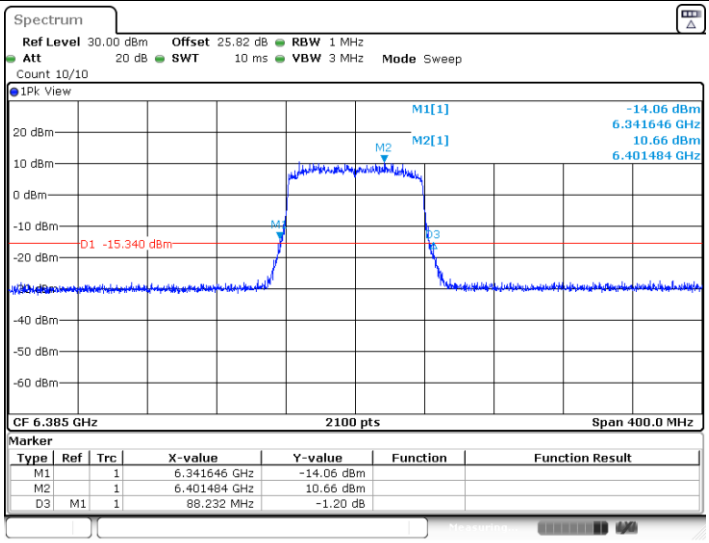

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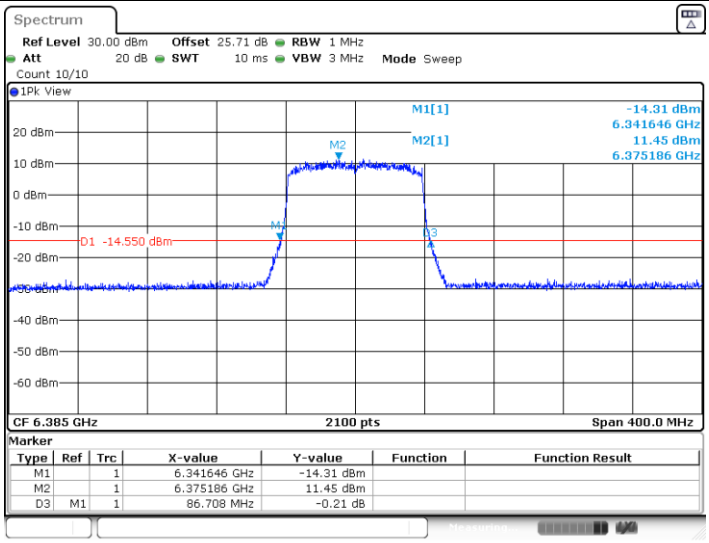

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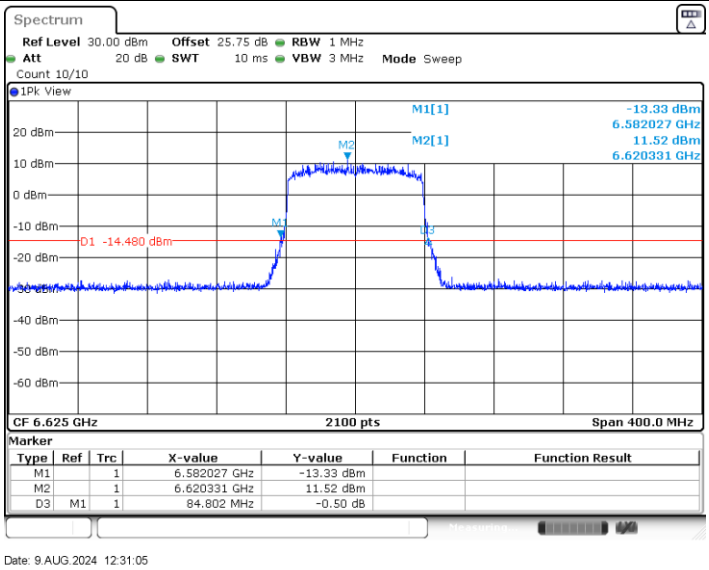

Date: 9.AUG.2024 12:31:05

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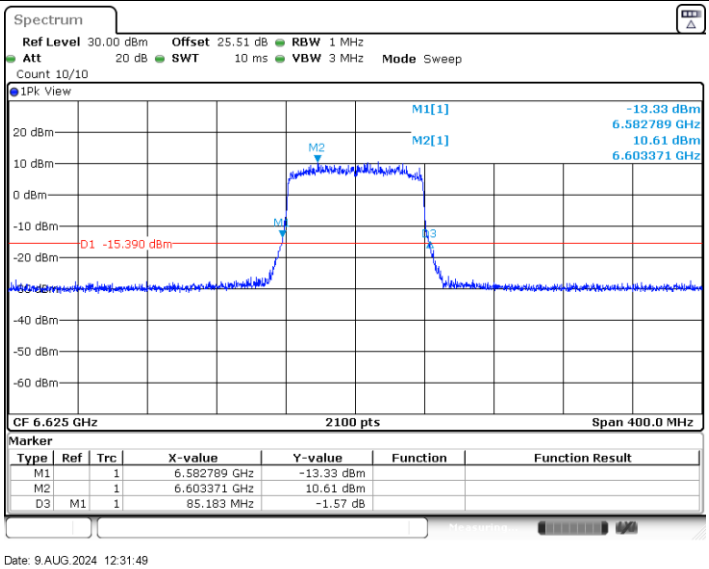

Date: 9.AUG.2024 12:31:49

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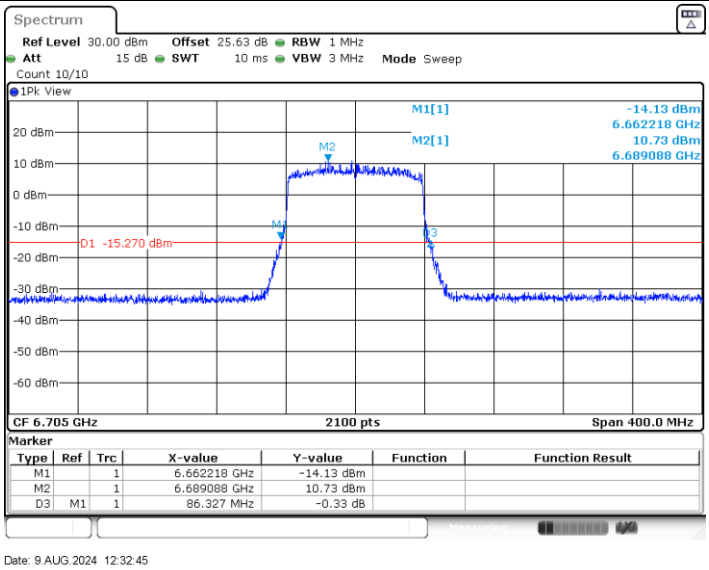

Date: 9.AUG.2024 12:32:45

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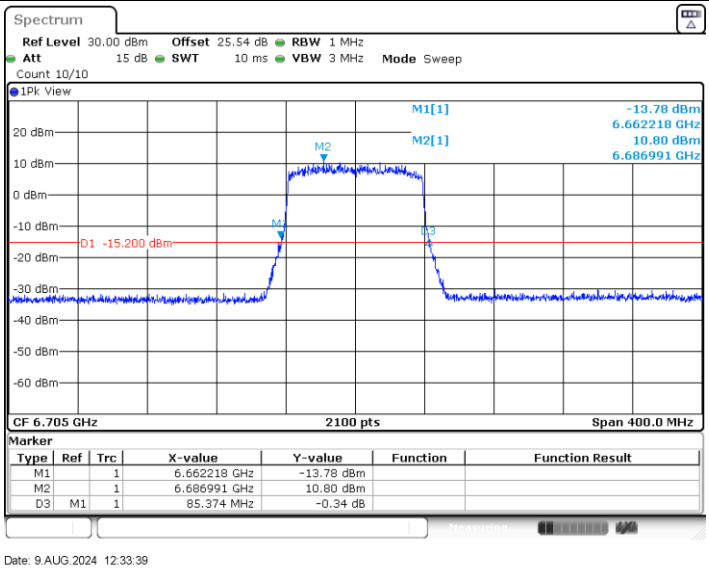

Date: 9.AUG.2024 12:33:39

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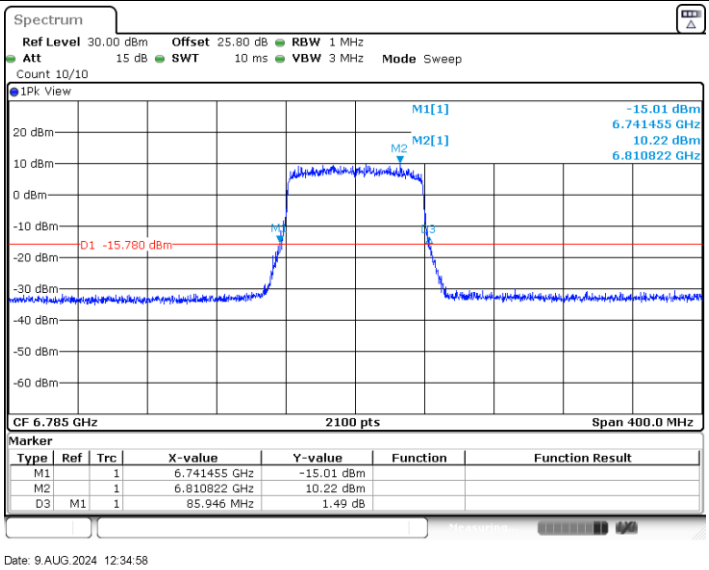

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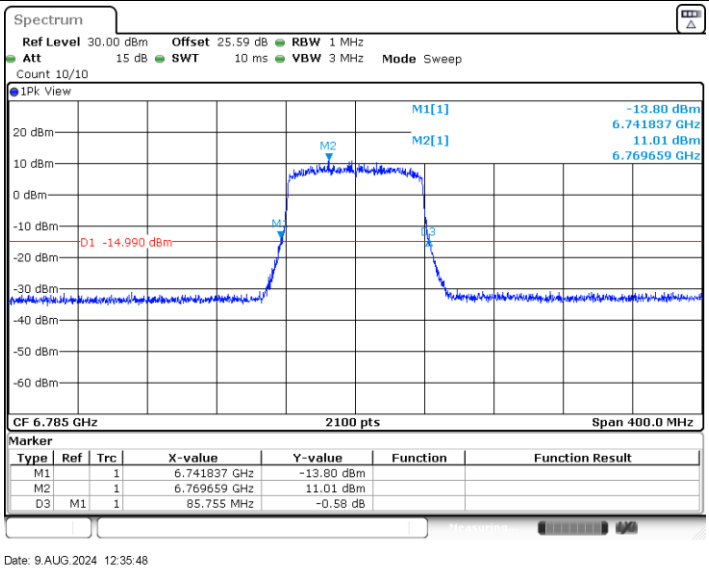

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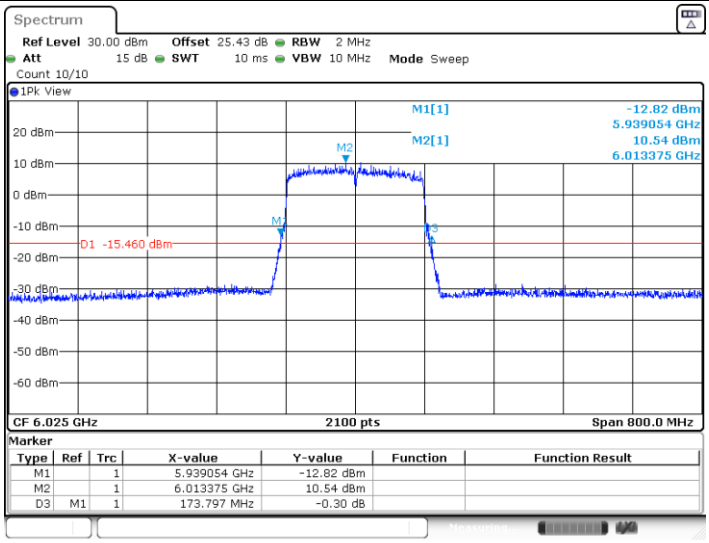

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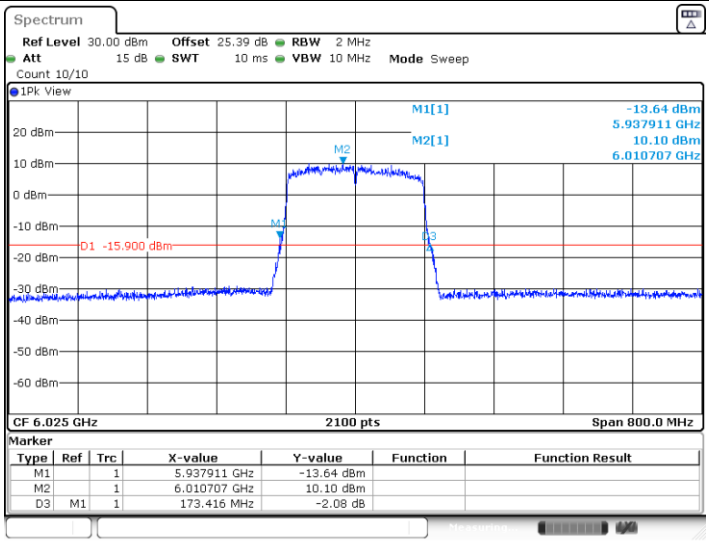
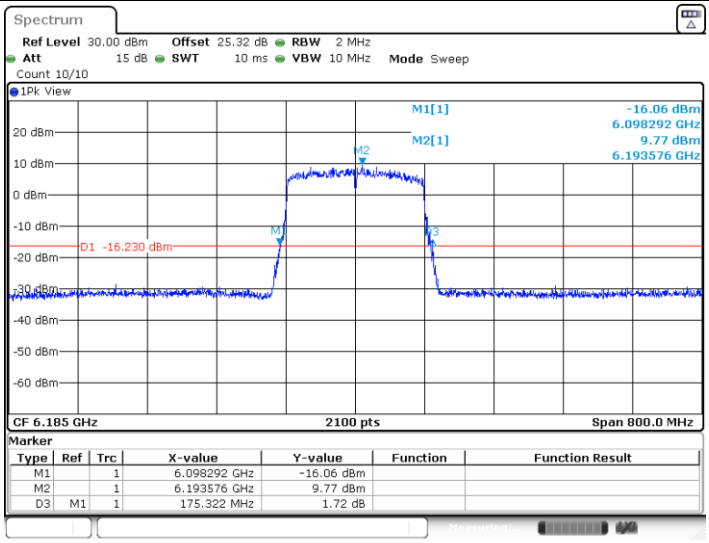
11BE160MIMO_Ant12_6025



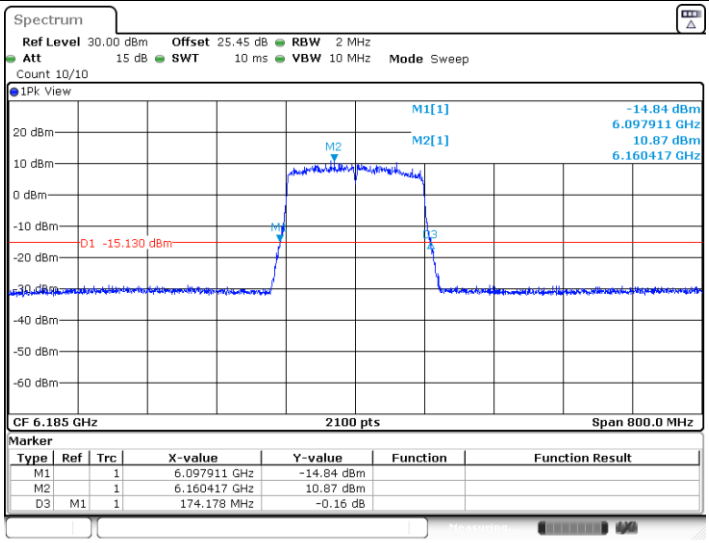
Date: 9.AUG.2024 12:38:00

11BE160MIMO_Ant16_6185



Date: 9.AUG.2024 12:39:02

11BE160MIMO_Ant12_6185



Date: 9.AUG.2024 12:40:01

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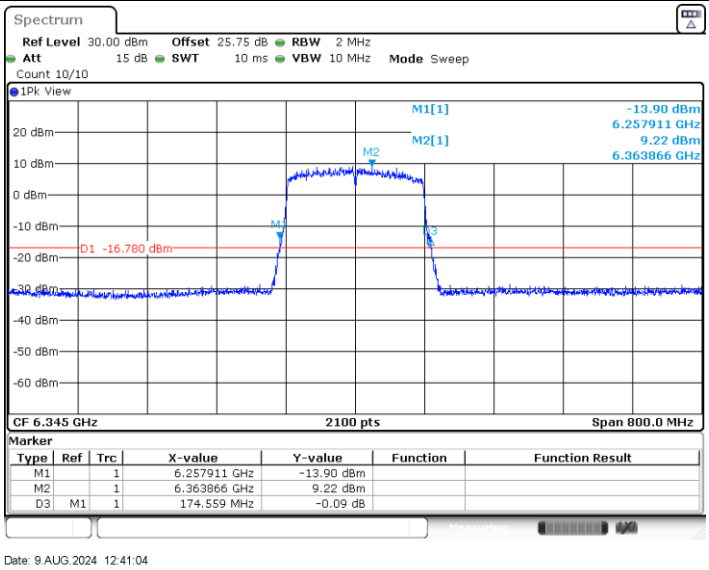

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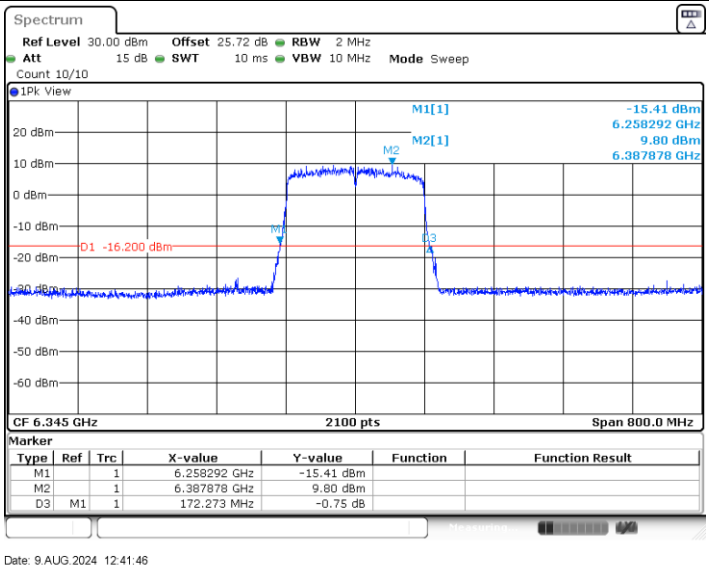

Date: 9.AUG.2024 12:41:46

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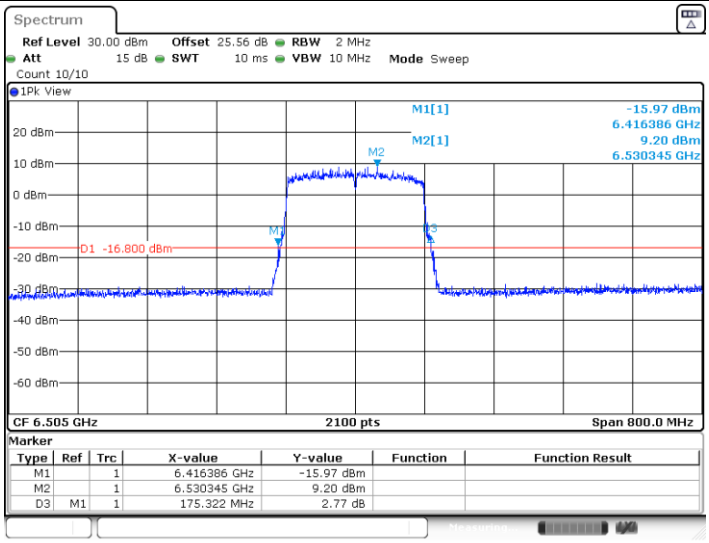

Date: 9.AUG.2024 12:42:40

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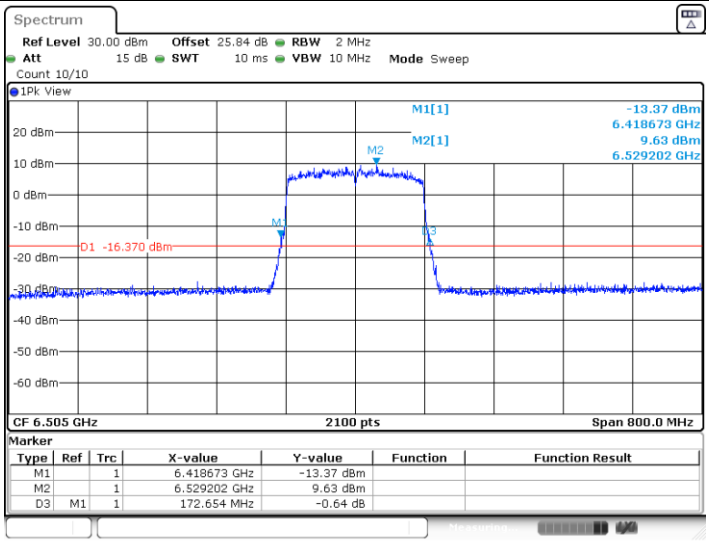
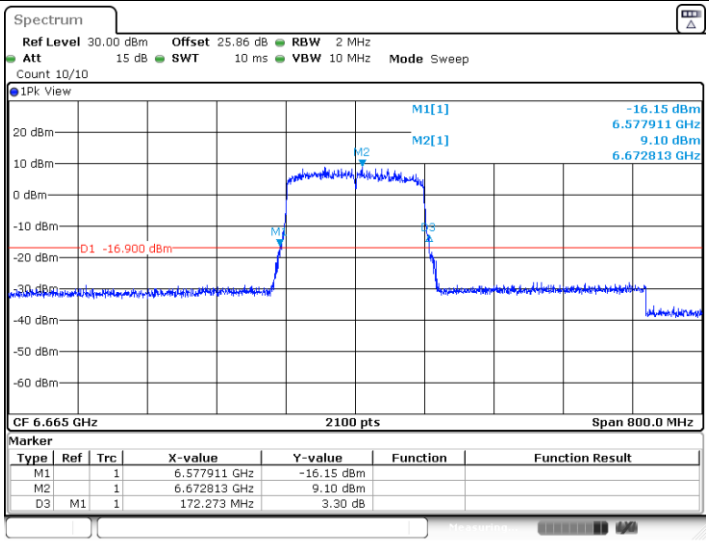


Date: 9.AUG.2024 12:43:22

11BE160MIMO_Ant16_6665



Date: 9.AUG.2024 12:44:41

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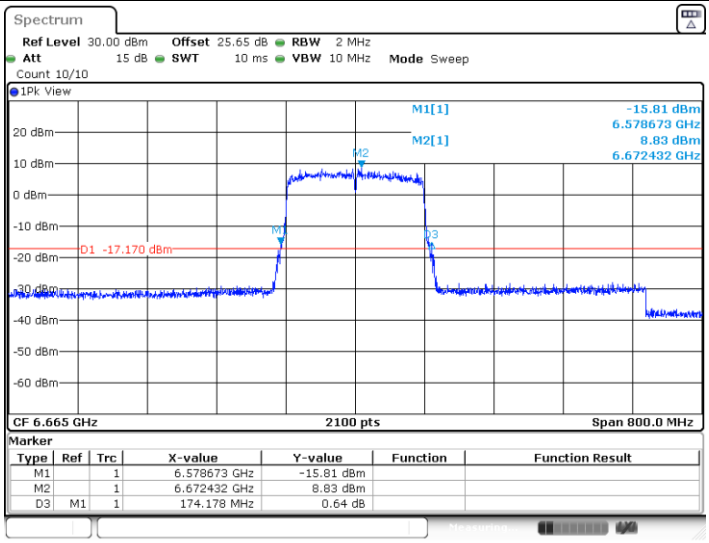


Date: 9.AUG.2024 12:45:27

Occupied channel bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11BE320MIMO	Ant16	6105	313.905	5947.5905	6261.4952	≤320	PASS
	Ant12	6105	314.514	5946.9810	6261.4952	≤320	PASS
	Ant16	6265	315.124	6106.9810	6422.1048	≤320	PASS
	Ant12	6265	314.21	6106.9810	6421.1905	≤320	PASS
11A-CDD	Ant16	5935	17.276	5926.2667	5943.5429	---	---
	Ant12	5935	17.01	5926.4762	5943.4857	---	---
	Ant16	5955	17.352	5946.1905	5963.5429	---	---
	Ant12	5955	17.105	5946.4381	5963.5429	---	---
	Ant16	6175	17.390	6166.1905	6183.5810	---	---
	Ant12	6175	17.219	6166.4000	6183.6190	---	---
	Ant16	6415	17.295	6406.2095	6423.5048	---	---
	Ant12	6415	17.010	6406.4571	6423.4667	---	---
	Ant16	6535	17.314	6526.1905	6543.5048	---	---
	Ant12	6535	17.010	6526.4571	6543.4667	---	---
	Ant16	6695	17.314	6686.2095	6703.5238	---	---
	Ant12	6695	16.952	6686.4952	6703.4476	---	---
	Ant16	6855	17.295	6846.2095	6863.5048	---	---
	Ant12	6855	16.971	6846.4762	6863.4476	---	---
11BE20MIMO	Ant16	5935	19.124	5925.4476	5944.5714	---	---
	Ant12	5935	19.086	5925.4667	5944.5524	---	---
	Ant16	5955	19.086	5945.4667	5964.5524	---	---
	Ant12	5955	19.086	5945.4476	5964.5333	---	---
	Ant16	6175	19.105	6165.4476	6184.5524	---	---
	Ant12	6175	19.124	6165.4476	6184.5714	---	---
	Ant16	6415	19.086	6405.4476	6424.5333	---	---
	Ant12	6415	19.124	6405.4286	6424.5524	---	---
	Ant16	6535	19.067	6525.4476	6544.5143	---	---
	Ant12	6535	19.105	6525.4286	6544.5333	---	---
	Ant16	6695	19.105	6685.4476	6704.5524	---	---
	Ant12	6695	19.086	6685.4667	6704.5524	---	---
	Ant16	6855	19.067	6845.4667	6864.5333	---	---
	Ant12	6855	19.048	6845.4667	6864.5143	---	---
11BE40MIMO	Ant16	5965	37.943	5946.0476	5983.9905	---	---
	Ant12	5965	37.943	5946.0476	5983.9905	---	---
	Ant16	6165	38.019	6146.0095	6184.0286	---	---
	Ant12	6165	37.905	6146.0476	6183.9524	---	---
	Ant16	6405	38.019	6385.9714	6423.9905	---	---
	Ant12	6405	37.981	6386.0095	6423.9905	---	---
	Ant16	6565	37.981	6545.9714	6583.9524	---	---
	Ant12	6565	37.981	6546.0095	6583.9905	---	---
	Ant16	6685	38.095	6665.9333	6704.0286	---	---
	Ant12	6685	38.057	6666.0095	6704.0667	---	---
	Ant16	6845	38.019	6825.9714	6863.9905	---	---
	Ant12	6845	38.019	6826.0095	6864.0286	---	---

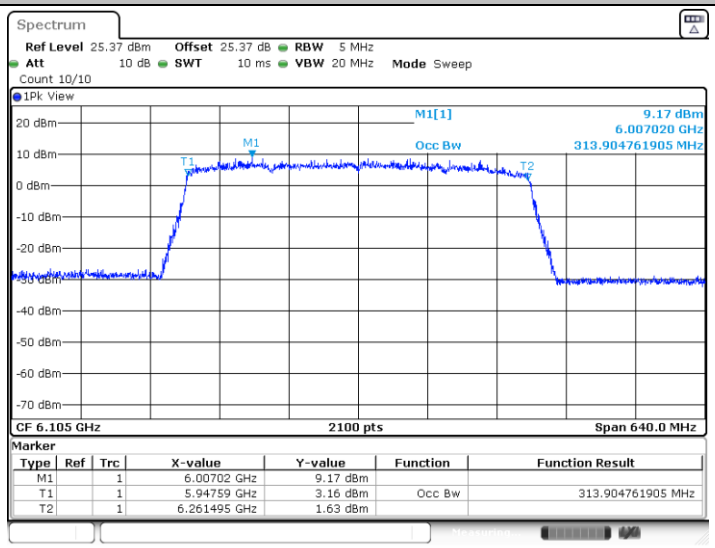
11BE80MIMO	Ant16	5985	77.562	5946.1810	6023.7429	---	---
	Ant12	5985	77.486	5946.3333	6023.8190	---	---
	Ant16	6145	77.714	6106.1048	6183.8190	---	---
	Ant12	6145	77.638	6106.1048	6183.7429	---	---
	Ant16	6385	77.562	6346.1810	6423.7429	---	---
	Ant12	6385	77.41	6346.2571	6423.6667	---	---
	Ant16	6625	77.638	6586.1048	6663.7429	---	---
	Ant12	6625	77.562	6586.1810	6663.7429	---	---
	Ant16	6705	77.638	6666.1048	6743.7429	---	---
	Ant12	6705	77.562	6666.1810	6743.7429	---	---
	Ant16	6785	77.562	6746.1048	6823.6667	---	---
	Ant12	6785	77.562	6746.1810	6823.7429	---	---
11BE160MIMO	Ant16	6025	158.324	5945.5333	6103.8571	---	---
	Ant12	6025	157.562	5945.9905	6103.5524	---	---
	Ant16	6185	158.476	6105.6857	6264.1619	---	---
	Ant12	6185	157.867	6105.9905	6263.8571	---	---
	Ant16	6345	158.171	6265.6857	6423.8571	---	---
	Ant12	6345	157.714	6265.8381	6423.5524	---	---
	Ant16	6505	158.019	6425.8381	6583.8571	---	---
	Ant12	6505	157.714	6425.9905	6583.7048	---	---
	Ant16	6665	158.171	6585.6857	6743.8571	---	---
	Ant12	6665	157.714	6585.9905	6743.7048	---	---

Note1: For channels with a nominal bandwidth of 320MHz, compliance is demonstrated by way of the 99%BW.

Note2: For channels with a nominal bandwidth less than 320MHz(e.g 20,40,80,160MHz), compliance is demonstrated by way of the 26dB EBW.

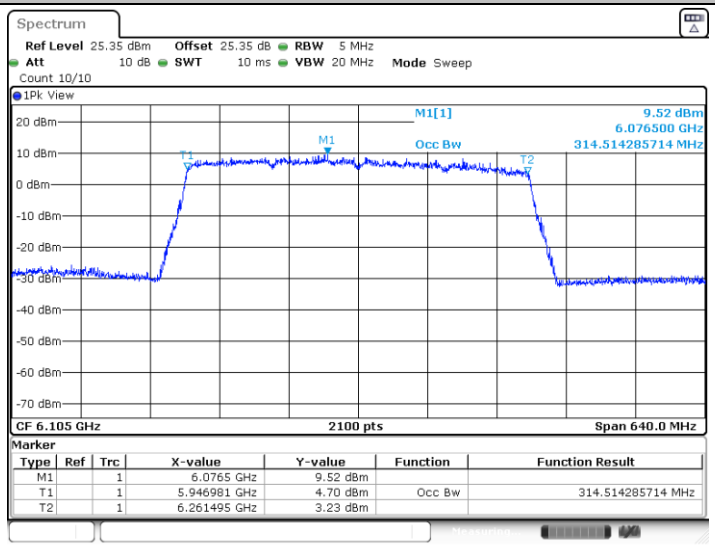
Test Graphs

11BE320MIMO_Ant16_6105



Date: 9.AUG.2024 12:54:54

11BE320MIMO_Ant12_6105



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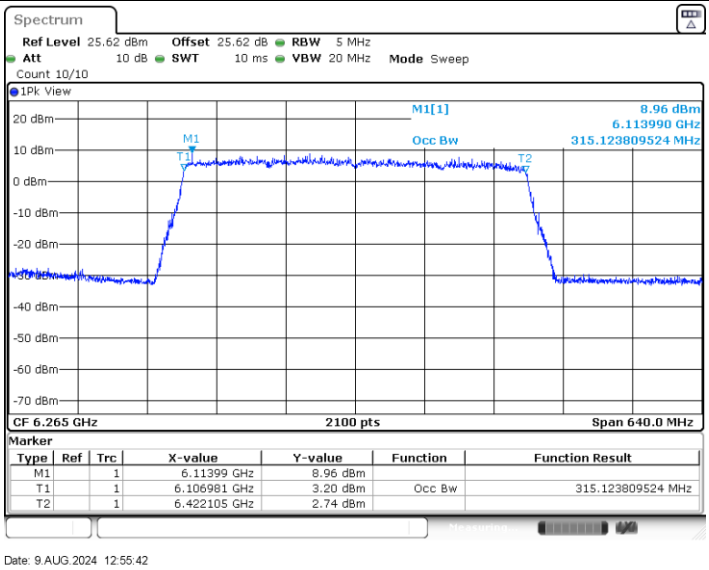
11BE320MIMO_Ant16_6265



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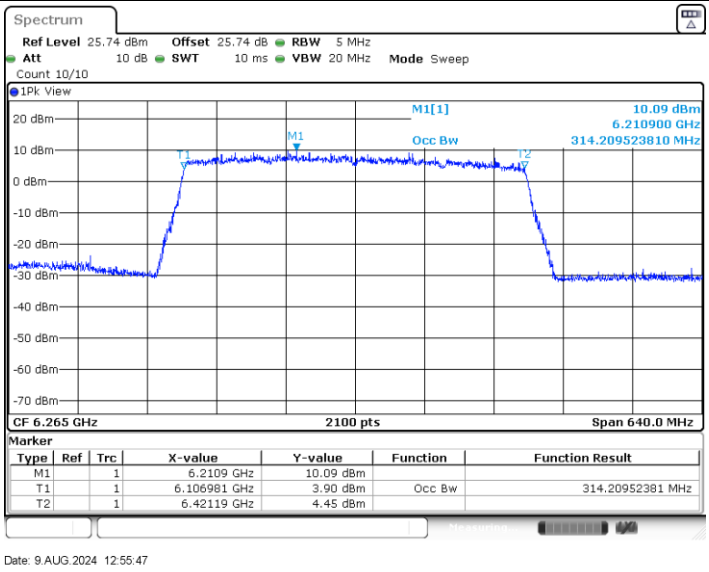
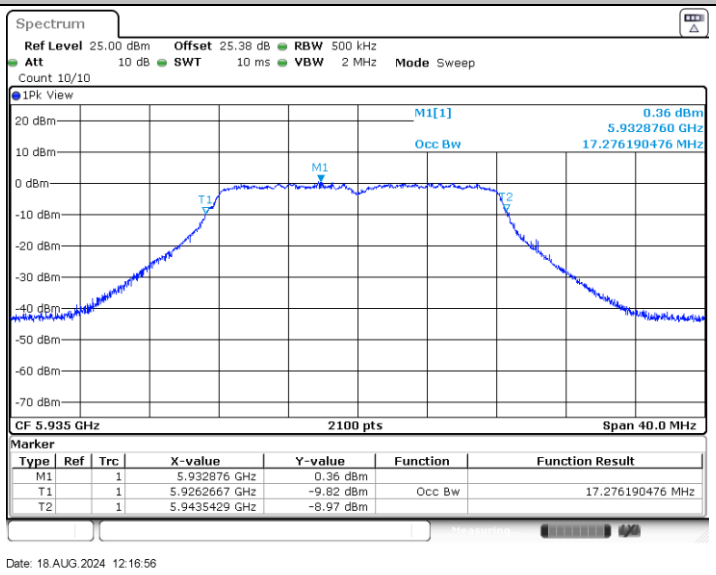


11A-CDD_Ant16_5935



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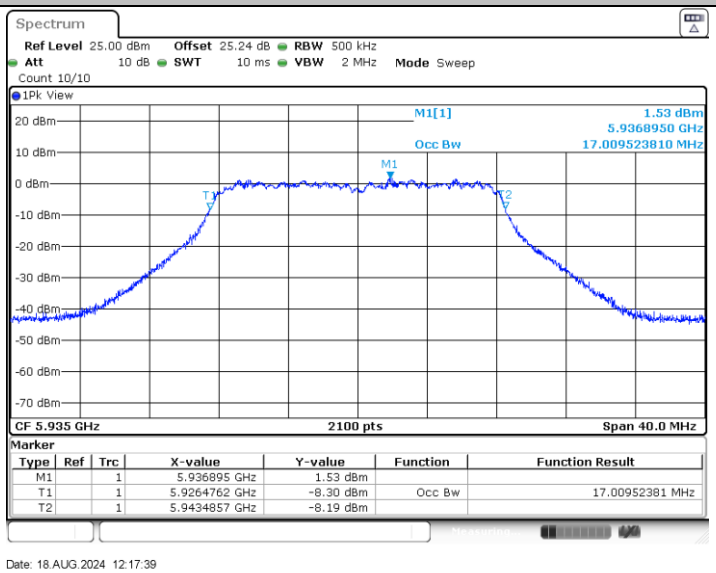

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