FCC RF Test Report

APPLICANT	:	Quectel Wireless Solutions Co., Ltd.
EQUIPMENT	:	Smart Module
BRAND NAME	:	Quectel
MODEL NAME	:	SG885G-WF
FCC ID	:	XMR2023SG885GWF
STANDARD	:	FCC Part 15 Subpart E §15.407
CLASSIFICATION	:	(NII) Unlicensed National Information Infrastructure
TEST DATE(S)	:	Dec. 13, 2023 ~ Jul. 03, 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

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

TABLE OF CONTENTS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR3N0102F	Rev. 01	Initial issue of report	Mar. 18, 2024
FR3N0102F	Rev. 02	1. Modified limit of out of band emissions mask for Unwanted Emissions above 5.925GHz 2. Added test results of average measurements for the upper band edge.	Jul. 03, 2024

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.407(e)	6dB, 26dB and 99% Occupied Bandwidth	6dB Bandwidth > 500kHz	Pass	-
3.2	15.407(a)	the maximum e.i.r.p.	≤ 36 dBm	Pass	-
3.3	15.407(a)	Power Spectral Density e.i.r.p.	≤ 20 dBm/1MHz	Pass	-
3.4	15.407(b)	Unwanted Emissions	15.407(b)(5)(i)(iii) &15.209(a)	Pass	Under limit 0.94 dB at 2483.50 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 15.72 dB at 0.297 MHz
3.6	15.203 & 15.407(a)	Antenna Requirement	15.203 & 15.407(a)	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

Quectel Wireless Solutions Co., Ltd.
Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, 200233, China

1.2 Manufacturer

Quectel Wireless Solutions Co., Ltd.
Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai, 200233, China

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Smart Module
Brand Name	Quectel
Model Name	SG885G-WF
FCC ID	XMR2023SG885GWF
SN Code	Conducted: E1Y23IA0Y000008/E1Y23IB25000010 Conduction: E1Y23IA0Y0000021 Radiation: E1Y23IB250000114
HW Version	R1.0
SW Version	SG885GWFNAR01A03
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 Channel Frequency Range	5850 MHz ~ 5895 MHz
Maximum EIRP Output Power	802.11a : 19.14 dBm / 0.0820 W 802.11n HT20 : 19.13 dBm / 0.0818 W 802.11n HT40 : 19.58 dBm / 0.0908 W 802.11ac VHT20: 19.18 dBm / 0.0828 W 802.11ac VHT40: 19.64 dBm / 0.0920 W 802.11ac VHT80: 19.38 dBm / 0.0867 W 802.11ac VHT160: 17.55 dBm / 0.0569 W 802.11ax HE20: 19.31 dBm / 0.0853 W 802.11ax HE40: 20.10 dBm / 0.1023 W 802.11ax HE80: 20.04 dBm / 0.1009 W 802.11ax HE160: 18.71 dBm / 0.0743 W 802.11be EHT20: 18.27 dBm / 0.0671 W 802.11be EHT40: 18.43 dBm / 0.0697 W 802.11be EHT80: 18.56 dBm / 0.0718 W 802.11be EHT160: 18.07 dBm / 0.0641 W
99% Occupied Bandwidth	802.11a : 17.782 MHz 802.11ac VHT20 : 18.302 MHz 802.11ac VHT40 : 37.003 MHz 802.11ac VHT80 : 76.723 MHz 802.11ac VHT160: 155.684 MHz 802.11ax HE20: 19.301 MHz 802.11ax HE40: 38.122 MHz 802.11ax HE80: 78.002 MHz 802.11ax HE160: 157.602 MHz 802.11be EHT20: 19.301 MHz 802.11be EHT40: 38.202 MHz 802.11be EHT80: 78.002 MHz 802.11be EHT160: 156.963 MHz
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM) 802.11ax: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM) 802.11be: OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM / 4096QAM)
Antenna Type / Gain	<Ant. 1> : Dipole Antenna with gain 1.16 dBi <Ant. 2> : Dipole Antenna with gain 1.16 dBi

Note:

1. The device supports WLAN MIMO CDD mode and TXBF mode, the Power setting between them is the same, the whole testing has assessed only MIMO CDD mode by referring to their higher conducted power.
2. For WLAN SISO & MIMO mode, the whole testing has assessed only MIMO mode by referring to the higher normal output power.
3. For 802.11n HT20 / ac VHT20 and 802.11n HT40 / ac VHT40 mode, the whole testing have assessed only 802.11ac VHT20/ VHT40 by referring to their maximum conducted power.

4. 802.11ax/be support OFDMA full RU tone and partial RU tone, both full RU and partial RU-left (for low CH) and partial RU-right (for high CH) test output power, the full RU power > partial RU, therefore the full RU perform full, and partial RU verify Power Density, band edge/spurious.
5. 802.11be support small size RU, Large size RU and Puncturing modes as below, and these partial RU Power/PSD less than full RU, therefore these partial RU only assess Power Density/RSE.

<Small size RU >:

a. For Low channel, 52Tone_Index37 + 26Tone_Index2 and 106Tone_Index53 + 26Tone_Index4
b. For High channel, 52Tone_Index40 + 26Tone_Index6 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

Only the worse cases are shown in this report.

6. 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 03CH08-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.**
	TH01-SZ	CN1256	421272

Note: Test data subcontracted: conducted test case in section 3.1~3.3 of this report

1.7 Test Software

Item	Site	Manufacturer	Name	Version
1.	TH01-SZ	Tonscend	JS1120-3 test system China_210602	3.3.10
2.	03CH08-KS	AUDIX	E3	210616
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:

- 47 CFR Part 15 Subpart E
- ANSI C63.10-2013
- FCC KDB 291074 D01 General Requirements v01
- FCC KDB 291074 D02 EMC Measurement v01.
- FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

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 (X plane) were recorded in this report.

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

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5850-5895 MHz	173	5865	175*	5875
	177	5885	-	-

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
Straddle Channels	163##	5815	167*	5835
	169	5845	171#	5855

Note:

1. The above Frequency and Channel in "*" were 802.11n/ac/ax/be HT40/VHT40/HE40/EHT40.
2. The above Frequency and Channel in "#" were 802.11ac/ax/be VHT80/HE80/EHT80.
3. The above Frequency and Channel in "##" were 802.11ac/ax/be HE160/EHT160.

2.2 Test Mode

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

MIMO Mode

Modulation	Data Rate
802.11a	6 Mbps
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0
802.11ac VHT80	MCS0
802.11ac VHT160	MCS0
802.11ax HE20	MCS0
802.11ax HE40	MCS0
802.11ax HE80	MCS0
802.11ax HE160	MCS0
802.11be EHT20	MCS0
802.11be EHT40	MCS0
802.11be EHT80	MCS0
802.11be EHT160	MCS0

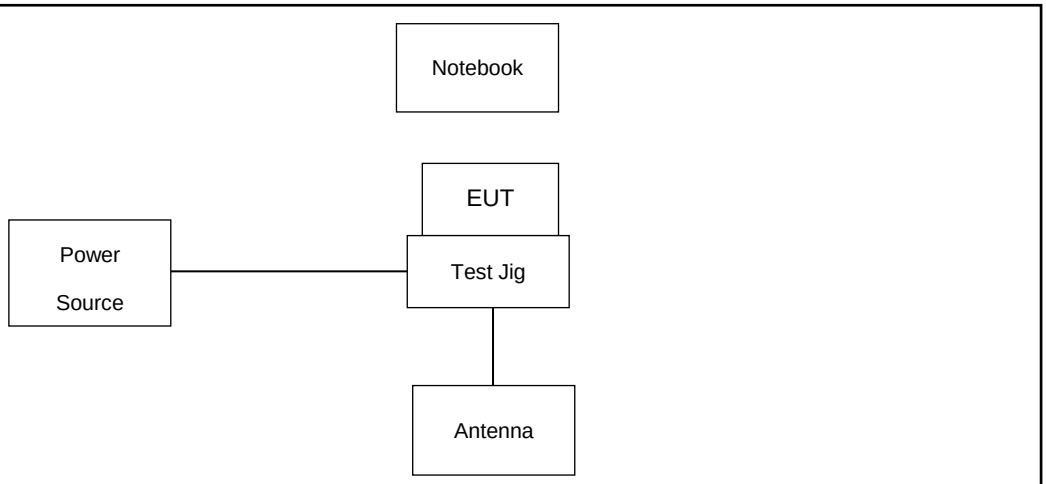
AC Conducted Emission	Mode 1 : BT Link+ WLAN Link(5G)+Charging from Test Jig
Remark: For Radiated Test Cases, The tests were performed with Adapter.	

Co-location
WLAN 2.4G 802.11ax HE40 CH09 2452 MHz +
WLAN 5.9G 802.11be EHT160 CH163 5815 MHz Large RU 996+484 Link

Ch. #		U-NII-4			
		20M BW	40M BW	80M BW	160M BW
L	Low	169	167	-	-
M	Middle	173	-	171	163
H	High	177	175	-	-

2.3 Connection Diagram of Test System

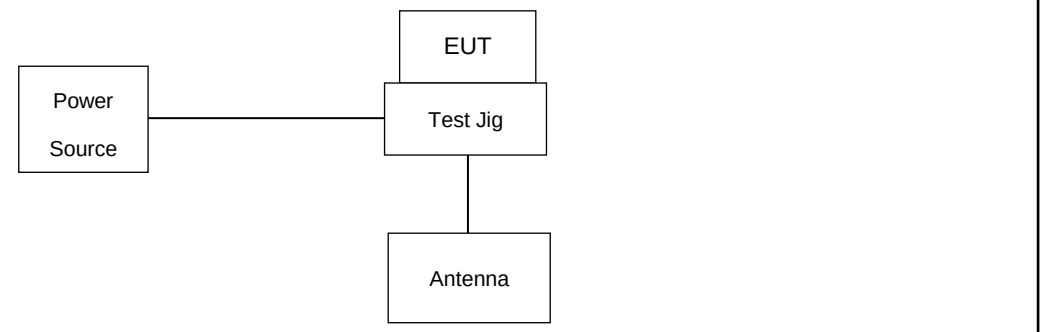
AC Conducted Emission:



This example is connection diagram of EUT test configurations.

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

Radiated Emission:



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	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Notebook	Lenovo	V130-15IKB005	N/A	N/A	shielded cable DC O/P 1.8m , Unshielded AC I/P cable 1.8m
2.	Adapter	N/A	N/A	N/A	N/A	N/A
3.	Antenna	N/A	N/A	N/A	N/A	N/A
4.	Test Jig	N/A	N/A	N/A	N/A	N/A

2.5 EUT Operation Test Setup

For WLAN RF test items, an engineering test program was provided and enabled to make EUT continuously transmit.

For AC power line conducted emissions, the EUT was set to connect with the notebook 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 4.31 dB and 10dB attenuator.

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

= 4.31 + 10 = 14.31 (dB)

3 Test Result

3.1 6dB and 26dB and 99% Occupied Bandwidth Measurement

3.1.1 Description of 6dB and 26dB and 99% Occupied Bandwidth

5.725-5.850GHz and 5.850-5.895 GHz bands:

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

26dB and 99% Occupied bandwidth are reporting only.

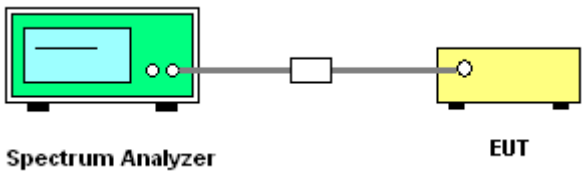
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 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 II C for Emission Bandwidth and Section II D for 99% Occupied Bandwidth
2. For 6dB BW, Set RBW = 100kHz.
   For 26dB BW, Set RBW = approximately 1% of the emission bandwidth.
   For 99% OBW, Set RBW = 1% to 5% of the OBW.
3. For 26dB BW, Set the VBW > RBW.
   For 6dB BW & 99% OBW, Set the VBW ≥ 3 x RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 6 dB down from the peak of the emission.
7. Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of 6dB Bandwidth

Please refer to Appendix A.

3.2 Maximum Conducted Output Power E.I.R.P Measurement

3.2.1 Limit of Maximum Conducted Output Power E.I.R.P

For the 5.85-5.895 GHz band:

Device Category		Limit (dBm) (Maximum EIRP Average power)
Applied	Indoor access point	< 36
☐	Subordinate device	< 36
☐	Client device	< 30

3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.2.3 Test Procedures

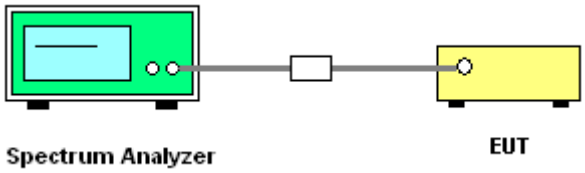
The testing follows Section II E of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Method SA-2 (Measurement spectral trace averaging with duty factor) for straddle channel

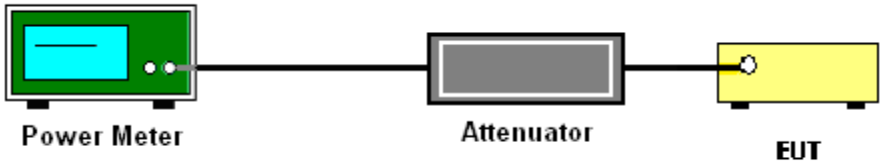
Method PM (Measurement using an RF average power meter) for other channel

3.2.4 Test Setup

For straddle channel



For Other channel



3.2.5 Test Result of Maximum Conducted Output Power E.I.R.P

Please refer to Appendix A.

3.3 Power Spectral Density E.I.R.P Measurement

3.3.1 Limit of Power Spectral Density E.I.R.P

For the 5.85-5.895 GHz band:

Device Category		Limit (dBm/MHz) (Maximum EIRP PSD)
Applied	**Indoor access point**	< 20
☐	**Subordinate device**	< 20
☐	**Client device**	< 14

Note: For all U-NII-4 and U-NII-3 & -4 span channels shall met above EIRP values.

3.3.2 Measuring Instruments

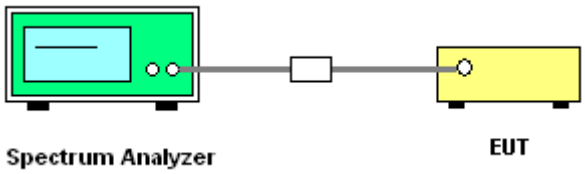
The measuring equipment is listed in the section 4 of this test report.

3.3.3 Test Procedures

The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section F) Method SA-2 Maximum power spectral density. (trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction)

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, and attenuator loss. 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.
   With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value 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 Unwanted Emissions Measurement

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

3.4.1 Limit of Unwanted Emissions

(1) 15.407(b)(5)(i) For an indoor access point or subordinate device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of 15 dBm/MHz and shall decrease linearly to an e.i.r.p. of - 7 dBm/MHz at or above 5.925 GHz.

(ii) For a client device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of -5 dBm/MHz and shall decrease linearly to an e.i.r.p. of -27 dBm/MHz at or above 5.925 GHz.

(iii) For a client device or indoor access point or subordinate device, all emissions below 5.725 GHz shall not exceed an e.i.r.p. of -27 dBm/MHz at 5.65 GHz increasing linearly to 10 dBm/ MHz at 5.7 GHz, and from 5.7 GHz increasing linearly to a level of 15.6 dBm/MHz at 5.72 GHz, and from 5.72 GHz increasing linearly to a level of 27 dBm/MHz at 5.725 GHz.

(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

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

$$EIRP = E_{Meas} + 20\log(d_{Meas}) - 104.7$$

where

EIRP is the equivalent isotropically radiated power, in dBm

E_{Meas} is the field strength of the emission at the measurement distance, in dBμV/m

d_{Meas} is the measurement distance, in m

(3) ANSI C63.10-2013 clause 12.7.3 note 97

As specified by regulatory requirements, emissions above 1000 MHz that are outside of the restricted bands are subject to a peak emission limit. However, an out-of-band emission that complies with both the average and peak general regulatory limits is not required to satisfy the peak emission limit.

3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.4.3 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

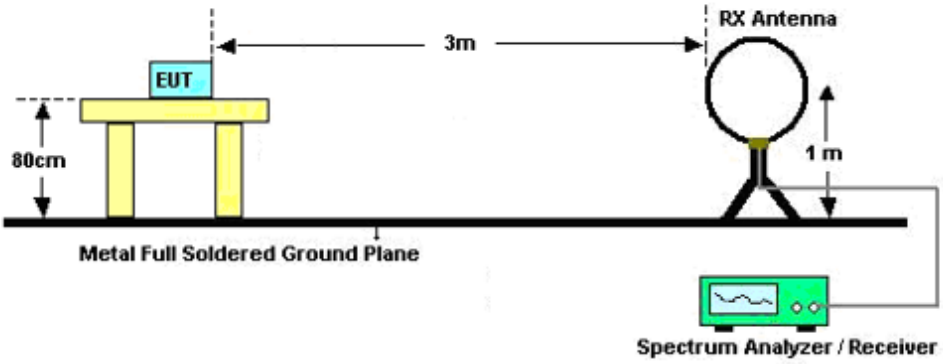
   - RBW = 1 MHz
   - VBW = 10 Hz, when duty cycle is no less than 98 percent.
   - VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on.

2. Unwanted band-edge emissions below 5725 MHz should be measured using peak-detection while emission above 5895 MHz should be measured using average. If the EIRP limit is met with a Peak detector retesting with an RMS detector is not required.
3. 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.
4. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
5. 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.
6. 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.
7. 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.
8. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than peak limit (that means the emission level in average mode also complies with the limit in average

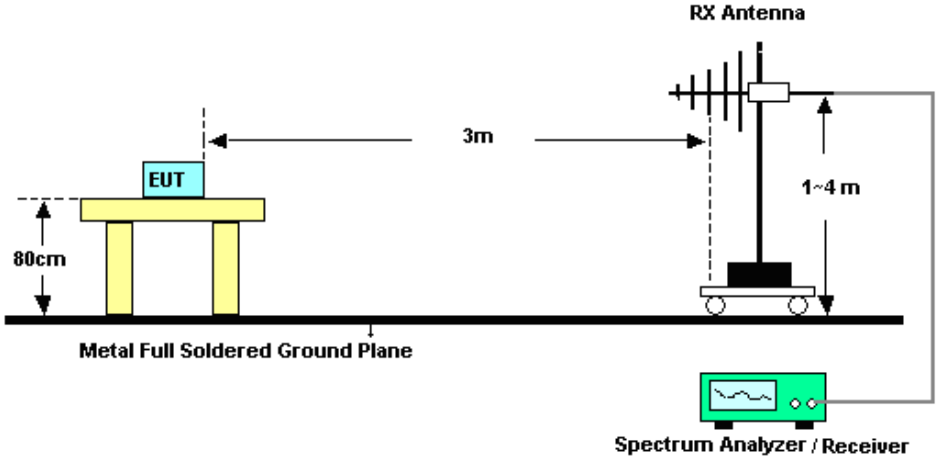
mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.4.4 Test Setup

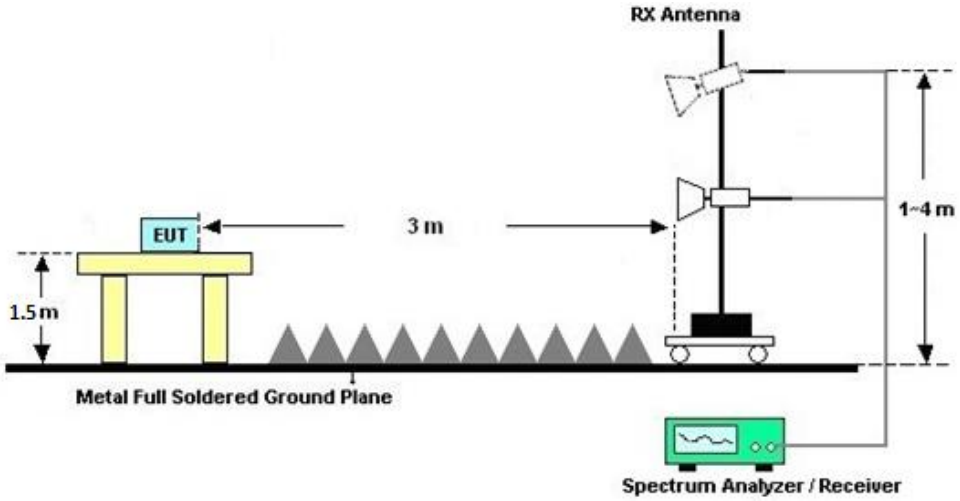
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



3.4.5 Test Results of Radiated 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 a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

3.4.6 Test Result of Radiated Band Edges

Please refer to Appendix C.

3.4.7 Duty Cycle

Please refer to Appendix D.

3.4.8 Test Result of Unwanted Radiated Emission (30MHz ~ 10th Harmonic or 40GHz, whichever is lower)

Please refer to Appendix C.

3.5 AC Conducted Emission Measurement

3.5.1 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.

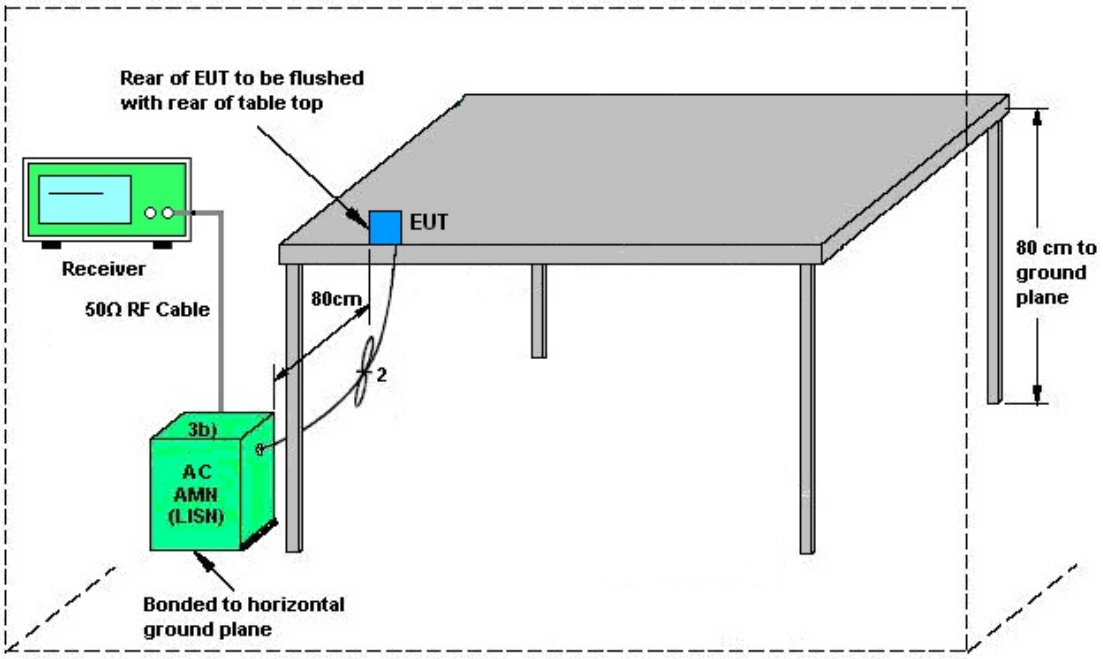
3.5.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.5.3 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.

3.5.4 Test Setup



AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

3.5.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.6 Antenna Requirements

3.6.1 Standard Applicable

Section 15.203 & 15.407(a)

3.6.2 Antenna Anti-Replacement Construction

Non-standard antenna connector is used.

3.6.3 Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain = GANT + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain = 10 log(NANT/NSS=1) dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4.

Directional gain may be calculated by using the formulas applicable to equal gain antennas with GANT set equal to the gain of the antenna having the highest gain;

The EUT supports CDD mode.

For power, the directional gain G_{ANT} is set equal to the antenna having the highest gain, i.e., F)2)f)i).

For PSD, the directional gain calculation is following F)2)f)ii) of KDB 662911 D01 v02r01.

The power and PSD limit should be modified if the directional gain of EUT is over 6 dBi,

The directional gain “DG” is calculated as following table.

<CDD Modes>

	Ant. 1 (dBi)	Ant. 2 (dBi)	DG for Power (dBi)	DG for PSD (dBi)
UNII-4	1.16	1.16	1.16	4.17

TXBF modes

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

$$DirectionalGain = 10 \cdot \log \left[\frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream;

N_{SS} = the number of independent spatial streams of data;

N_{ANT} = the total number of antennas

$g_{j,k} = 10^{G_k / 20}$ if the kth antenna is being fed by spatial stream j, or zero if it is not;

G_k is the gain in dBi of the kth antenna.

The EUT supports beamforming for 802.11a/an/ac/ax modes.

The directional gain calculation is following F)2)e)ii) of KDB 662911 D01 v02r01.

The directional gain “DG” is calculated as following table.

	Ant 1 (dBi)	Ant 2 (dBi)	DG for Power (dBi)	DG for PSD (dBi)
UNII-4	1.16	1.16	4.17	4.17

4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSV40	101078	10Hz~40GHz	Apr. 06, 2023	Feb. 27, 2024~ Feb. 28, 2024	Apr. 05, 2024	Conducted (TH01-SZ)
Pulse Power Senor	Anritsu	MA2411B	1339473	30MHz~40GHz	Dec. 26, 2023	Feb. 27, 2024~ Feb. 28, 2024	Dec. 25, 2024	Conducted (TH01-SZ)
Power Meter	Anritsu	ML2495A	1218010	50MHz Bandwidth	Aug. 21, 2023	Feb. 27, 2024~ Feb. 28, 2024	Aug. 20, 2024	Conducted (TH01-SZ)
EMI Test Receiver	Keysight	N9038A	MY56400023	3Hz~8.5GHz;Max 30dBm	Jan. 04, 2024	Mar. 02, 2024~ Jul. 03, 2024	Jan. 03, 2025	Radiation (03CH08-KS)
Spectrum Analyzer	R&S	FSV40	101932	10kHz~40GHz; Max 30dBm	Oct. 10, 2023	Mar. 02, 2024~ Jul. 03, 2024	Oct. 09, 2024	Radiation (03CH08-KS)
Loop Antenna	R&S	HFH2-Z2E	101125	9kHz~30MHz	Oct. 10, 2023	Mar. 02, 2024~ Jul. 03, 2024	Oct. 09, 2024	Radiation (03CH08-KS)
Bilog Antenna	TESEQ& VGT	CBL 61110	59915	30MHz-1GHz	Aug. 12, 2023	Mar. 02, 2024~ Jul. 03, 2024	Aug. 11, 2024	Radiation (03CH08-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75959	1GHz~18GHz	Mar. 18, 2023	Mar. 02, 2024~ Jul. 03, 2024	Mar. 17, 2024	Radiation (03CH08-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75959	1GHz~18GHz	Mar. 17, 2024		Mar. 16, 2025	Radiation (03CH08-KS)
high gain Amplifier	EM	EM01G18GA	060845	1Ghz-18Ghz	Jan. 05, 2024	Mar. 02, 2024~ Jul. 03, 2024	Jan. 04, 2025	Radiation (03CH08-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 05, 2024	Mar. 02, 2024~ Jul. 03, 2024	Jan. 04, 2025	Radiation (03CH08-KS)
Amplifier	SONOMA	310N	413741	9KHz-1GHz	Jan. 05, 2024	Mar. 02, 2024~ Jul. 03, 2024	Jan. 04, 2025	Radiation (03CH08-KS)
Amplifier	EM	EM01G18GA	060834	1Ghz-18Ghz	Oct. 10, 2023	Mar. 02, 2024~ Jul. 03, 2024	Oct. 09, 2024	Radiation (03CH08-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 04, 2024	Mar. 02, 2024~ Jul. 03, 2024	Jan. 03, 2025	Radiation (03CH08-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	Mar. 02, 2024~ Jul. 03, 2024	NCR	Radiation (03CH08-KS)
Turn Table	EM	EM 1000-T	N/A	0~360 degree	NCR	Mar. 02, 2024~ Jul. 03, 2024	NCR	Radiation (03CH08-KS)
Antenna Mast	EM	EM 1000-A	N/A	1 m~4 m	NCR	Mar. 02, 2024~ Jul. 03, 2024	NCR	Radiation (03CH08-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	May 16, 2023	Dec. 13, 2023	May 15, 2024	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 11, 2023	Dec. 13, 2023	Oct. 10, 2024	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060105	9kHz~30MHz	May 16, 2023	Dec. 13, 2023	May 15, 2024	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 11, 2023	Dec. 13, 2023	Oct. 10, 2024	Conduction (CO01-KS)

NCR: No Calibration Required

5 Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.10-2013. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

Uncertainty of Conducted Measurement

Test Item	Uncertainty
Conducted Spurious Emission & Bandedge	±1.34 dB
Occupied Channel Bandwidth	±0.1%
Conducted Power	±1.34 dB
Conducted Power Spectral Density	±1.32 dB
Frequency	±1.3 Hz

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

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

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	3.32 dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	6.28 dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.90 dB

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.26 dB

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

Appendix A. Conducted Test Results

A1. Conducted Test Results

Test Engineer:	Zhang Xue Yi	Temperature:	21~25	°C
Test Date:	2024/02/27~2024/02/28	Relative Humidity:	51~54	%

TEST RESULTS DATA
Average Power Table

U-NII-4 MIMO																		
Mod.	Data Rate	NTX	CH.	RU Config	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power with duty factor (dBm)			EIRP power	EIRP Power Limit (dBm)		DG (dBi)		Pass/Fail	Power Setting	
						Ant 1	Ant 2	Ant 1	Ant 2	SUM		Ant 1	Ant 2	Ant 1	Ant 2		Ant 1	Ant 2
11a	6Mbps	2	169	Full	5845	0.04	0.04	14.59	15.12	17.87	19.03	36.00		1.16		Pass	16	
11a	6Mbps	2	173	Full	5865	0.04	0.04	14.47	15.26	17.89	19.05	36.00		1.16		Pass	16	
11a	6Mbps	2	177	Full	5885	0.04	0.04	14.48	15.40	17.98	19.14	36.00		1.16		Pass	16	
HT20	MCS0	2	169	Full	5845	0.02	0.02	14.53	15.19	17.88	19.04	36.00		1.16		Pass	16	
HT20	MCS0	2	173	Full	5865	0.02	0.02	14.44	15.17	17.83	18.99	36.00		1.16		Pass	16	
HT20	MCS0	2	177	Full	5885	0.02	0.02	14.50	15.39	17.97	19.13	36.00		1.16		Pass	16	
HT40	MCS0	2	167	Full	5835	0.02	0.01	14.80	15.64	18.25	19.41	36.00		1.16		Pass	16	
HT40	MCS0	2	175	Full	5875	0.02	0.01	14.97	15.81	18.42	19.58	36.00		1.16		Pass	16	
VHT20	MCS0	2	169	Full	5845	0.02	0.02	14.58	15.24	17.93	19.09	36.00		1.16		Pass	16	
VHT20	MCS0	2	173	Full	5865	0.02	0.02	14.49	15.22	17.88	19.04	36.00		1.16		Pass	16	
VHT20	MCS0	2	177	Full	5885	0.02	0.02	14.55	15.44	18.02	19.18	36.00		1.16		Pass	16	
VHT40	MCS0	2	167	Full	5835	0.02	0.02	14.86	15.71	18.31	19.47	36.00		1.16		Pass	16	
VHT40	MCS0	2	175	Full	5875	0.02	0.02	15.03	15.88	18.48	19.64	36.00		1.16		Pass	16	
VHT80	MCS0	2	171	Full	5855	0.03	0.03	14.84	15.55	18.22	19.38	36.00		1.16		Pass	16	
VHT160	MCS0	2	163	Full	5815	0.06	0.06	13.13	13.63	16.39	17.55	36.00		1.16		Pass	14	
HE20	MCS0	2	169	Full	5845	0.02	0.02	14.62	15.24	17.95	19.11	36.00		1.16		Pass	16	
				26/0		0.02	0.02	4.24	4.92	7.60	8.76	36.00		1.16		Pass	6	
				52/37		0.02	0.02	7.69	7.93	10.82	11.98	36.00		1.16		Pass	9	
				106/53		0.02	0.02	10.58	11.20	13.91	15.07	36.00		1.16		Pass	12	
HE20	MCS0	2	173	Full	5865	0.02	0.02	14.60	15.31	17.98	19.14	36.00		1.16		Pass	16	
HE20	MCS0	2	177	Full	5885	0.02	0.02	14.64	15.59	18.15	19.31	36.00		1.16		Pass	16	
				26/8		0.02	0.02	4.17	5.01	7.62	8.78	36.00		1.16		Pass	6	
				52/40		0.02	0.02	7.47	8.20	10.86	12.02	36.00		1.16		Pass	9	
				106/54		0.02	0.02	10.56	11.43	14.03	15.19	36.00		1.16		Pass	12	
HE40	MCS0	2	167	Full	5835	0.02	0.02	15.29	16.25	18.81	19.97	36.00		1.16		Pass	16.5	
HE40	MCS0	2	175	Full	5875	0.02	0.02	15.52	16.31	18.94	20.10	36.00		1.16		Pass	16.5	
HE80	MCS0	2	171	Full	5855	0.02	0.02	15.41	16.29	18.88	20.04	36.00		1.16		Pass	16.5	
HE160	MCS0	2	163	Full	5815	0.02	0.02	14.17	14.89	17.55	18.71	36.00		1.16		Pass	15	
EHT20	MCS0	2	169	Full	5845	0.02	0.01	13.58	14.27	16.95	18.11	36.00		1.16		Pass	15	
				26/0		0.02	0.01	3.31	3.64	6.49	7.65	36.00		1.16		Pass	5	
				52/37		0.02	0.01	6.11	6.53	9.34	10.50	36.00		1.16		Pass	7.5	
				106/53		0.02	0.01	9.14	9.70	12.44	13.60	36.00		1.16		Pass	10.5	
EHT20	MCS0	2	173	Full	5865	0.02	0.01	13.54	14.22	16.90	18.06	36.00		1.16		Pass	15	
EHT20	MCS0	2	177	Full	5885	0.02	0.01	13.69	14.48	17.11	18.27	36.00		1.16		Pass	15	
				26/8		0.02	0.01	2.99	3.73	6.39	7.55	36.00		1.16		Pass	5	
				52/40		0.02	0.01	5.84	6.67	9.29	10.45	36.00		1.16		Pass	7.5	
				106/54		0.02	0.01	8.99	9.93	12.50	13.66	36.00		1.16		Pass	10.5	
EHT40	MCS0	2	167	Full	5835	0.02	0.01	13.70	14.46	17.10	18.26	36.00		1.16		Pass	15	
EHT40	MCS0	2	175	Full	5875	0.02	0.01	13.79	14.68	17.27	18.43	36.00		1.16		Pass	15	
EHT80	MCS0	2	171	Full	5855	0.02	0.02	13.98	14.77	17.40	18.56	36.00		1.16		Pass	15	
EHT160	MCS0	2	163	Full	5815	0.02	0.01	13.50	14.27	16.91	18.07	36.00		1.16		Pass	15	

Emission Bandwidth

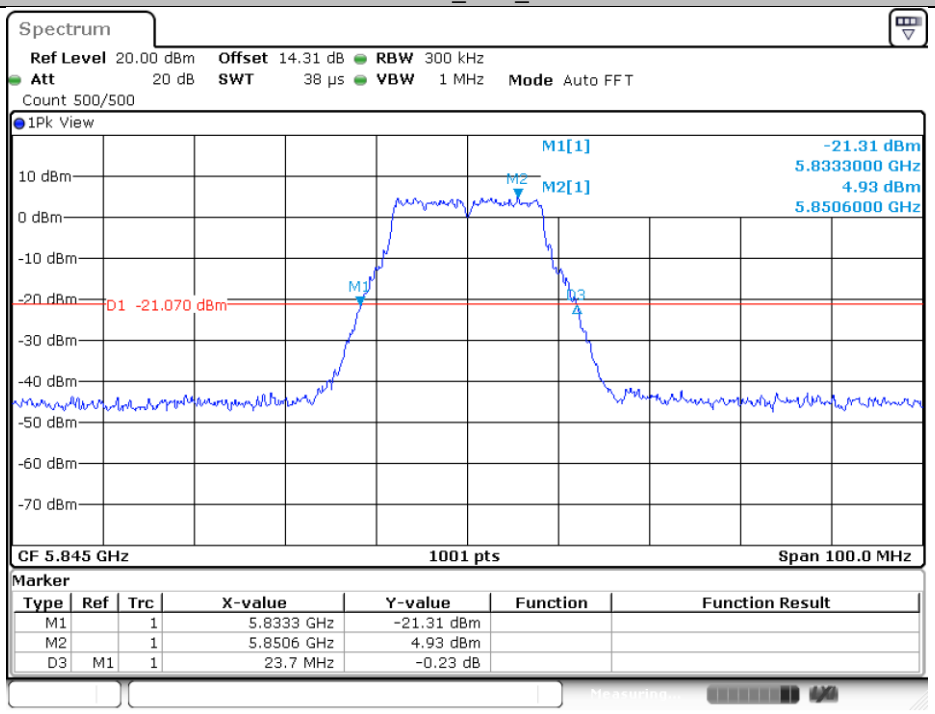
Test Result

TestMode	Antenna	Freq(MHz)	26dB EBW [MHz]	FL[MHz]	FH[MHz]
11A-CDD	Ant1	5845	23.70	5833.30	5857.00
	Ant2	5845	23.40	5833.20	5856.60
	Ant1	5865	23.30	5853.40	5876.70
	Ant2	5865	23.90	5853.20	5877.10
	Ant1	5885	23.10	5873.40	5896.50
	Ant2	5885	23.40	5873.30	5896.70
11AC20MIMO	Ant1	5845	23.70	5833.20	5856.90
	Ant2	5845	23.20	5833.30	5856.50
	Ant1	5865	24.10	5852.70	5876.80
	Ant2	5865	23.70	5853.10	5876.80
	Ant1	5885	23.90	5873.10	5897.00
	Ant2	5885	24.00	5872.90	5896.90
11AC40MIMO	Ant1	5835	44.60	5812.80	5857.40
	Ant2	5835	45.00	5812.40	5857.40
	Ant1	5875	45.00	5852.20	5897.20
	Ant2	5875	45.40	5852.40	5897.80
11AC80MIMO	Ant1	5855	90.80	5810.20	5901.00
	Ant2	5855	92.00	5808.20	5900.20
11AC160MIMO	Ant1	5815	174.40	5729.40	5903.80
	Ant2	5815	173.60	5729.40	5903.00
11AX20MIMO	Ant1	5845	23.60	5833.10	5856.70
	Ant2	5845	23.30	5833.50	5856.80
	Ant1	5865	23.60	5853.10	5876.70
	Ant2	5865	23.20	5853.40	5876.60
	Ant1	5885	23.60	5873.50	5897.10
	Ant2	5885	23.10	5873.30	5896.40
11AX40MIMO	Ant1	5835	44.20	5813.40	5857.60
	Ant2	5835	43.20	5813.20	5856.40
	Ant1	5875	44.40	5852.80	5897.20
	Ant2	5875	43.80	5852.60	5896.40
11AX80MIMO	Ant1	5855	85.60	5812.60	5898.20
	Ant2	5855	86.80	5812.20	5899.00
11AX160MIMO	Ant1	5815	172.80	5729.40	5902.20
	Ant2	5815	172.80	5728.60	5901.40
11BE20MIMO	Ant1	5845	23.60	5833.30	5856.90
	Ant2	5845	23.50	5833.20	5856.70
	Ant1	5865	23.20	5853.50	5876.70
	Ant2	5865	24.00	5853.20	5877.20

	Ant1	5885	23.80	5873.20	5897.00
	Ant2	5885	24.00	5873.20	5897.20
11BE40MIMO	Ant1	5835	44.40	5813.00	5857.40
	Ant2	5835	44.00	5813.40	5857.40
	Ant1	5875	45.00	5852.40	5897.40
	Ant2	5875	43.60	5853.20	5896.80
11BE80MIMO	Ant1	5855	86.40	5810.60	5897.00
	Ant2	5855	89.20	5811.00	5900.20
11BE160MIMO	Ant1	5815	172.80	5730.20	5903.00
	Ant2	5815	174.40	5728.60	5903.00

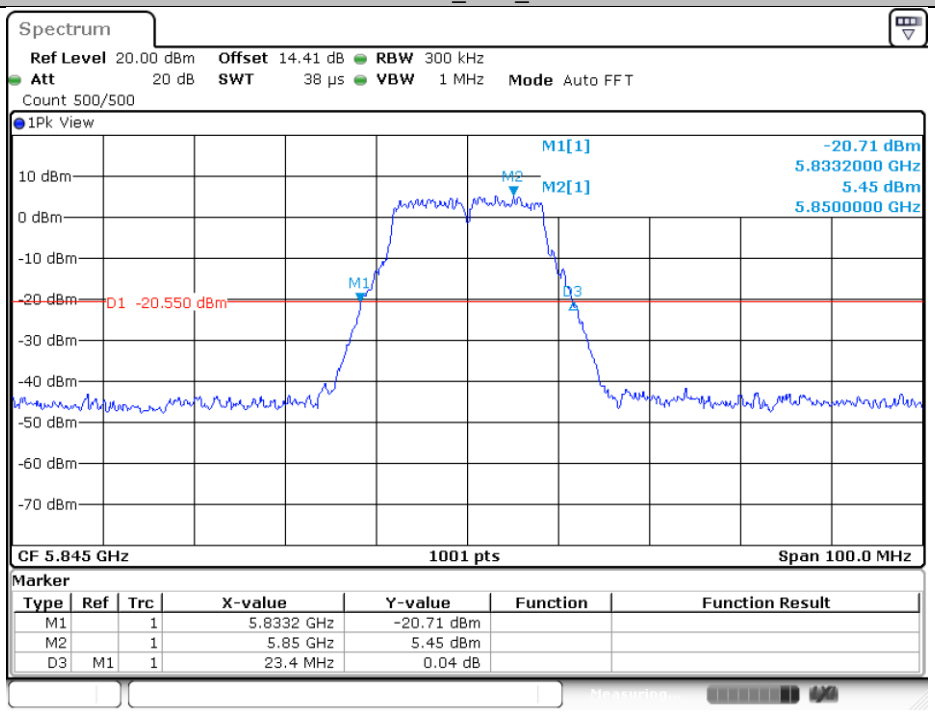
Test Graphs

11A-CDD_Ant1_5845



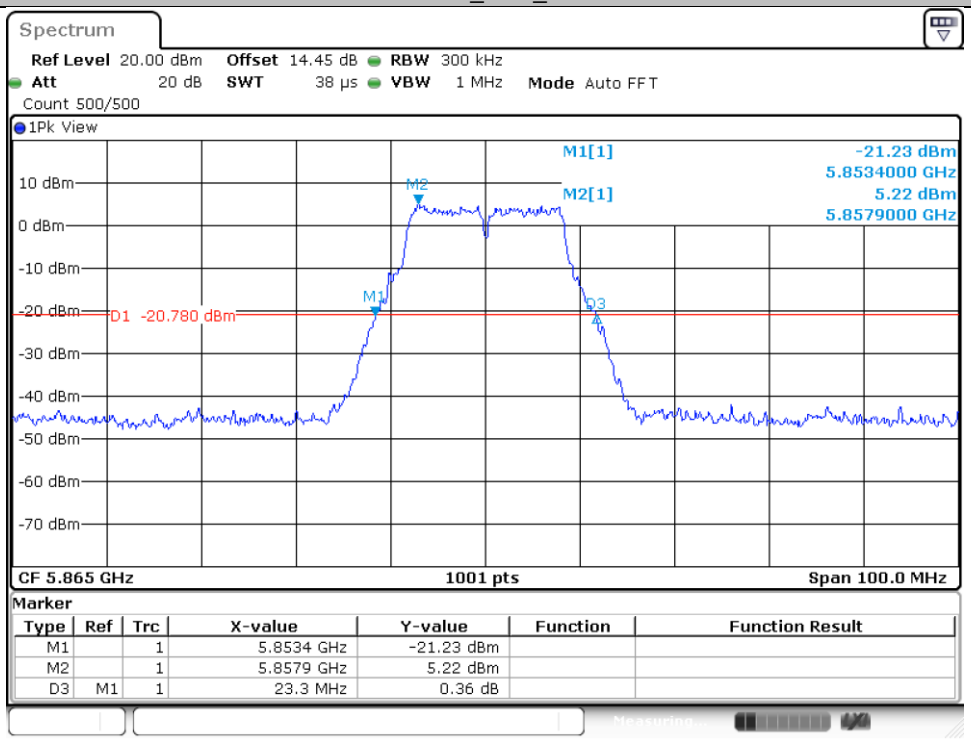
Date: 27.FEB.2024 15:09:23

11A-CDD_Ant2_5845



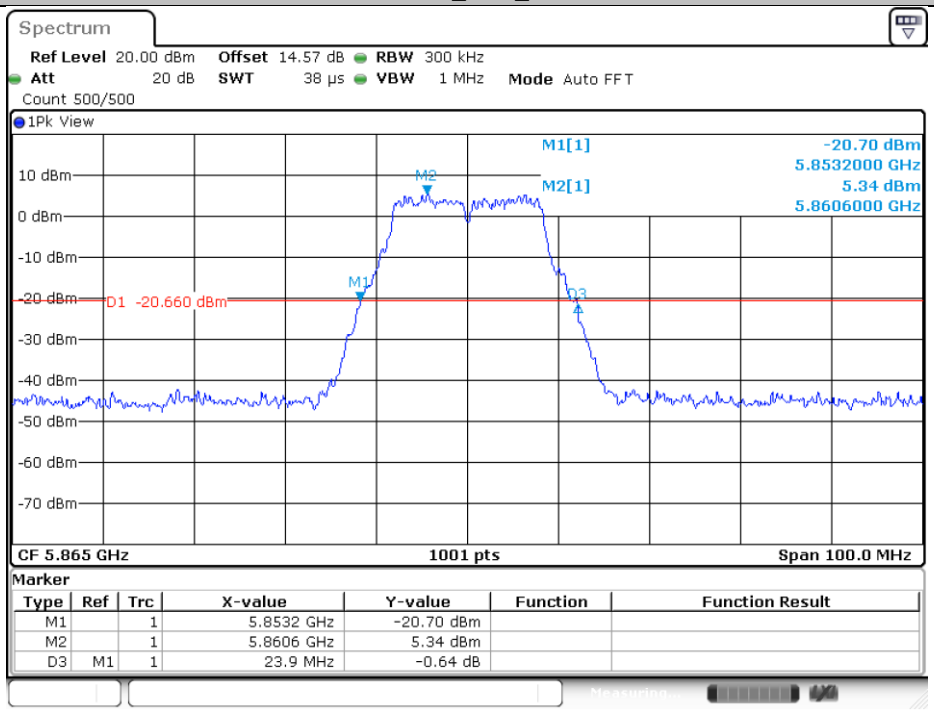
Date: 27.FEB.2024 15:10:14

11A-CDD_Ant1_5865



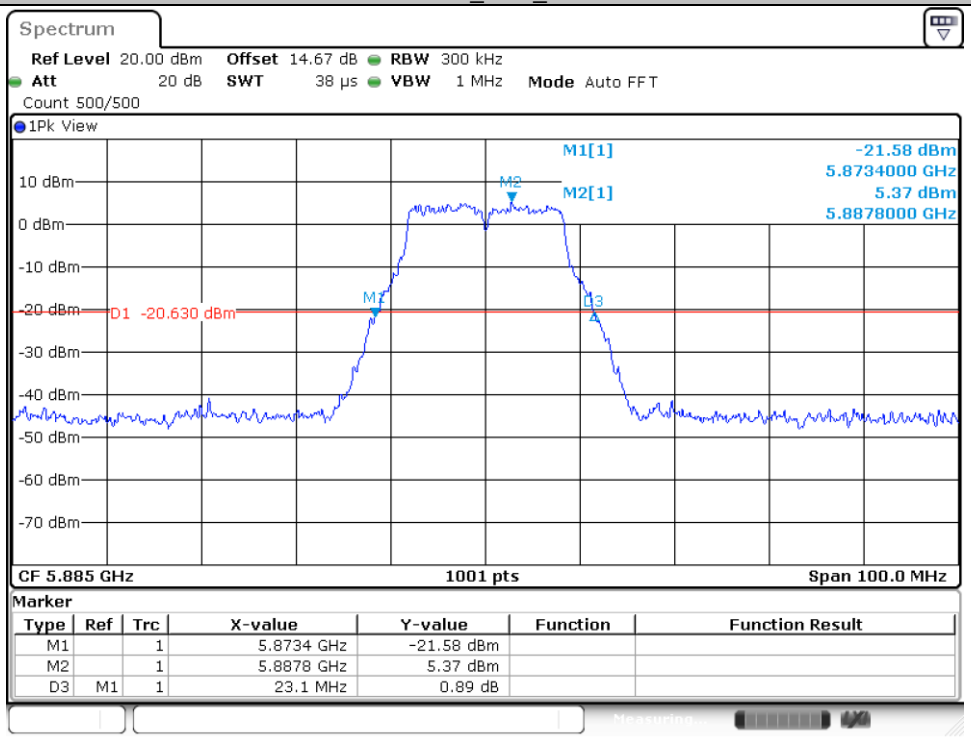
Date: 27.FEB.2024 15:11:10

11A-CDD_Ant2_5865



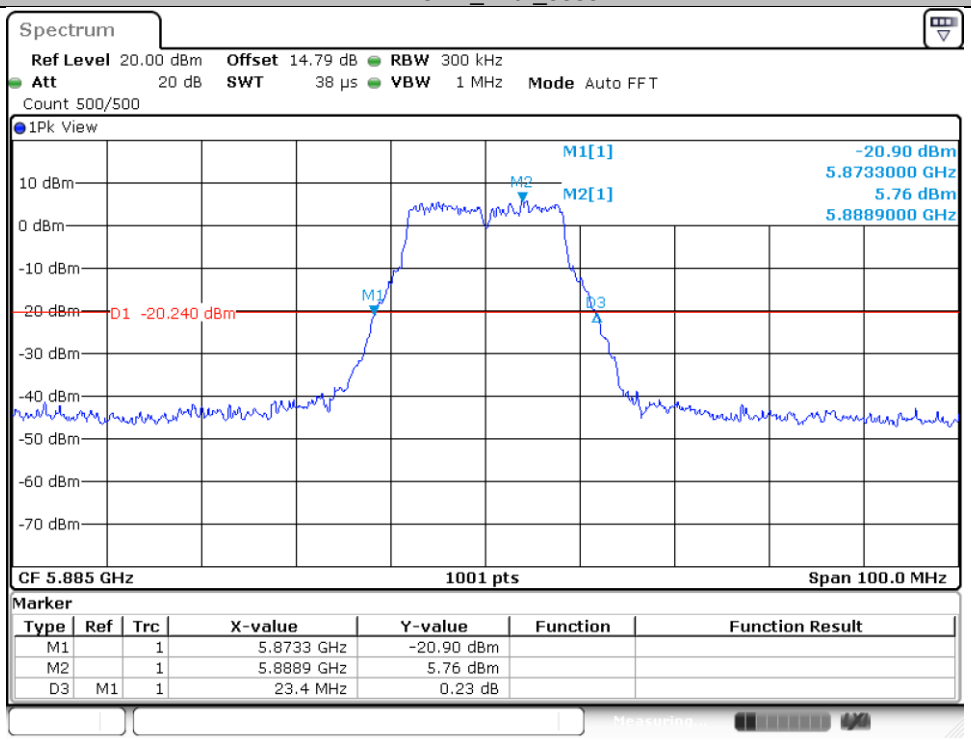
Date: 27.FEB.2024 15:11:58

11A-CDD_Ant1_5885



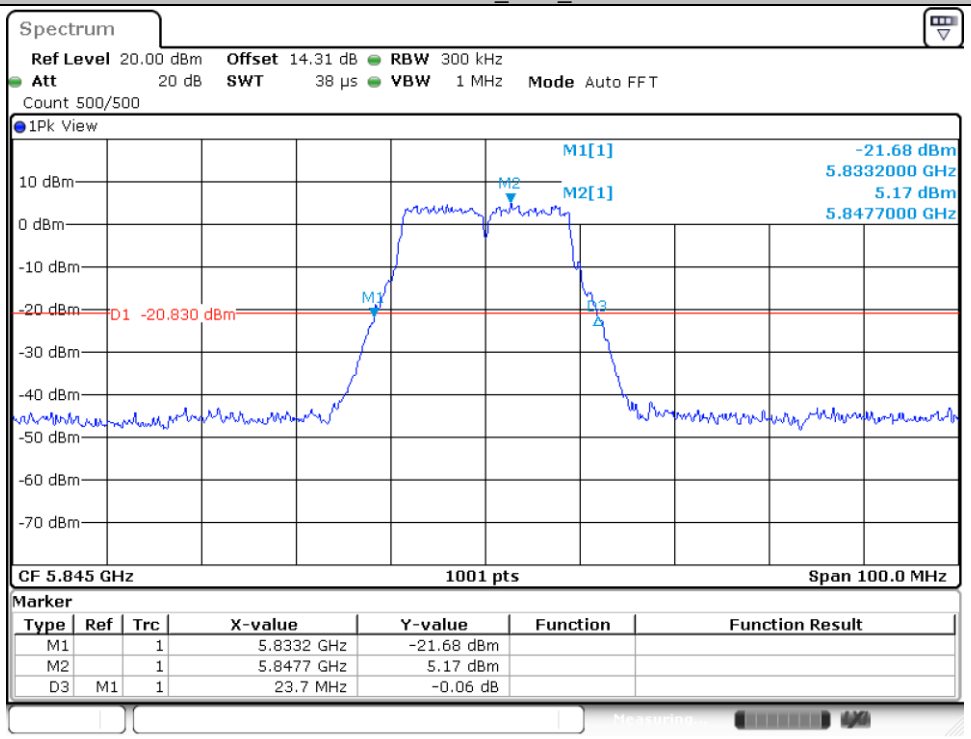
Date: 27.FEB.2024 15:12:50

11A-CDD_Ant2_5885



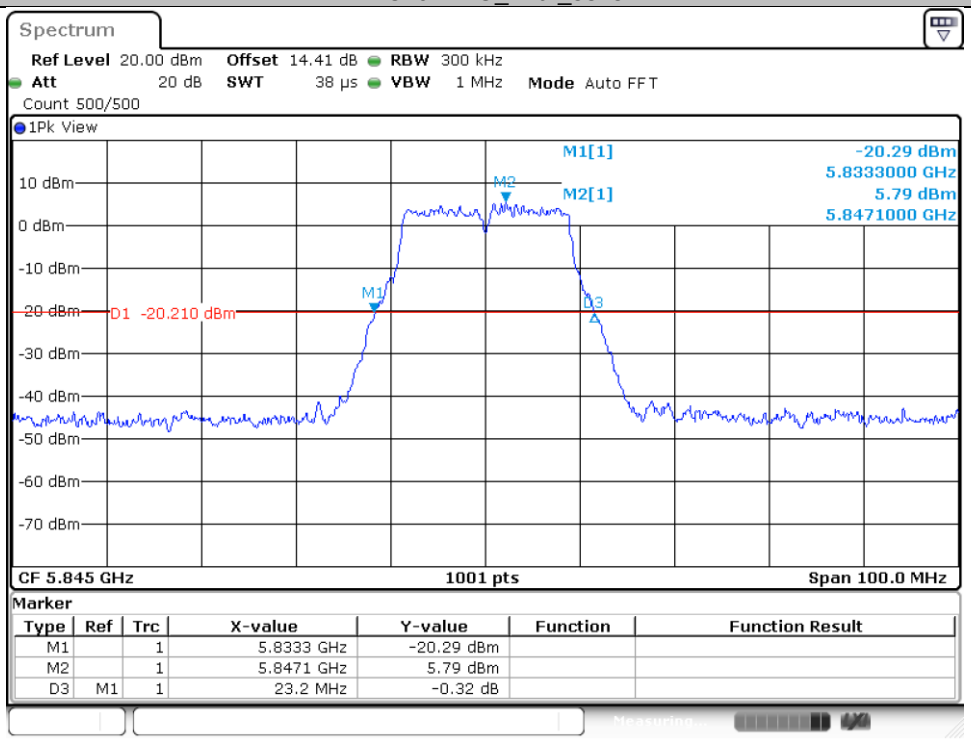
Date: 27.FEB.2024 15:13:38

11AC20MIMO_Ant1_5845



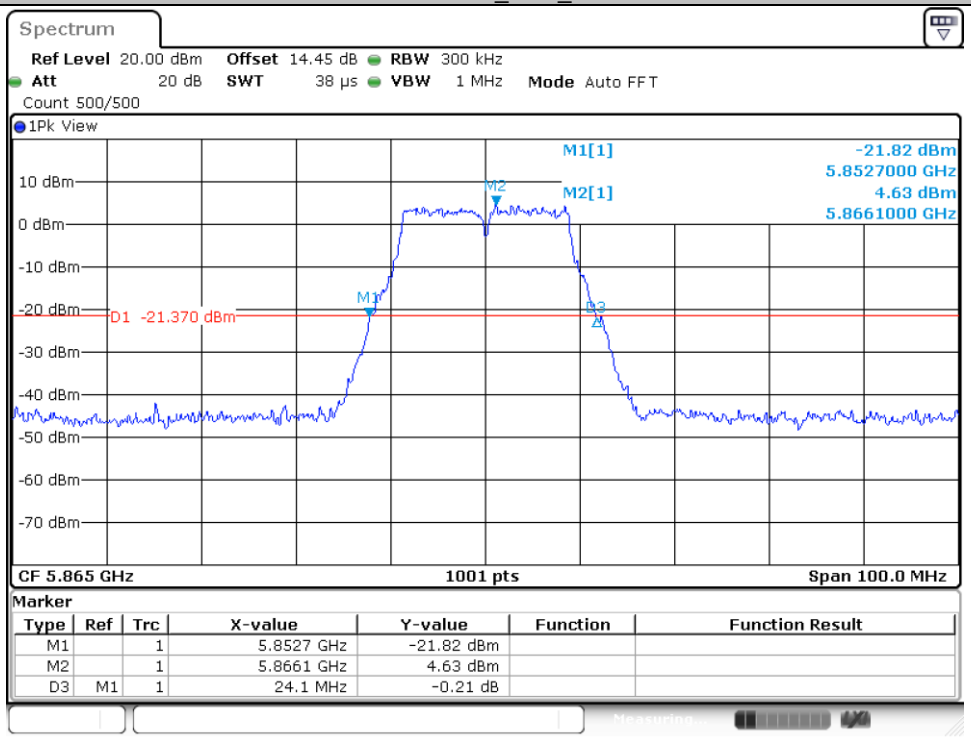
Date: 27.FEB.2024 15:14:30

11AC20MIMO_Ant2_5845



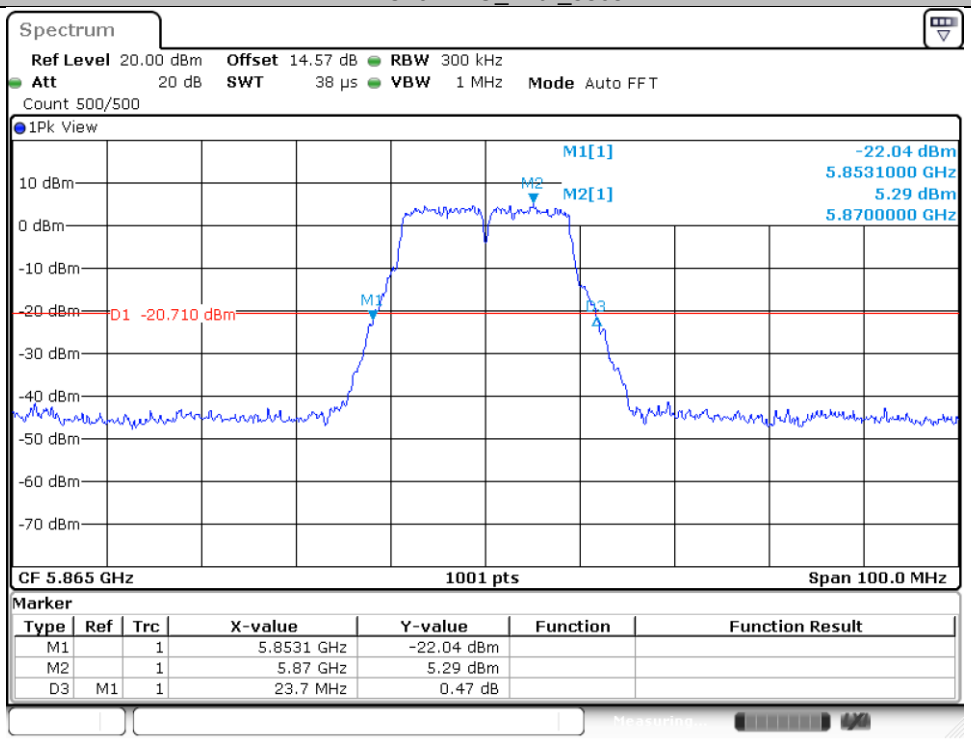
Date: 27.FEB.2024 15:15:22

11AC20MIMO_Ant1_5865



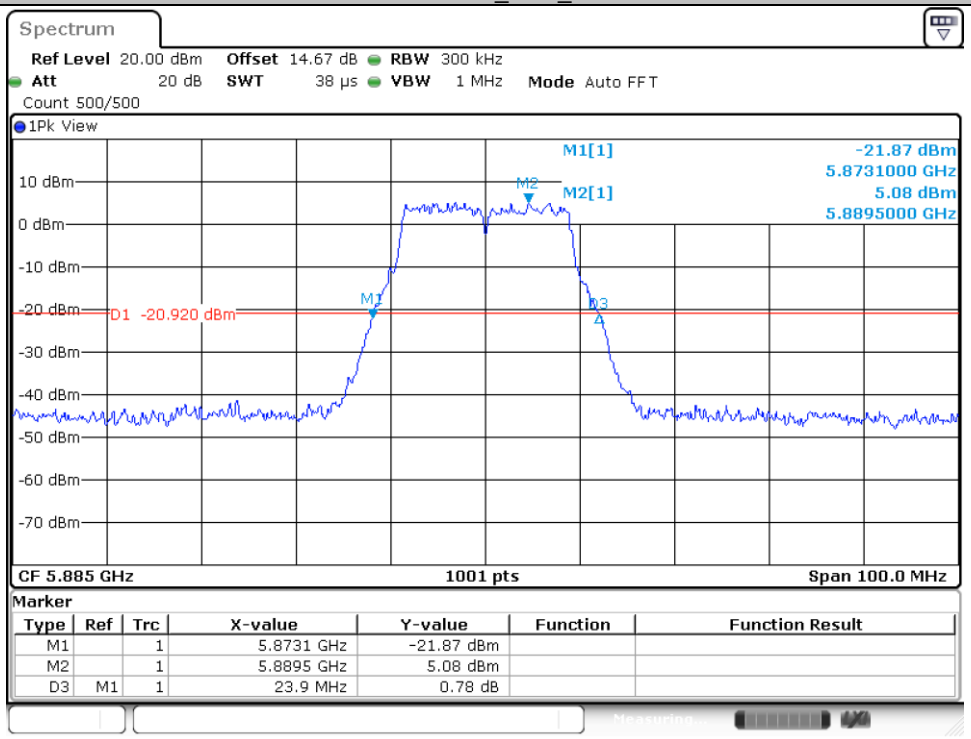
Date: 27.FEB.2024 15:16:17

11AC20MIMO_Ant2_5865



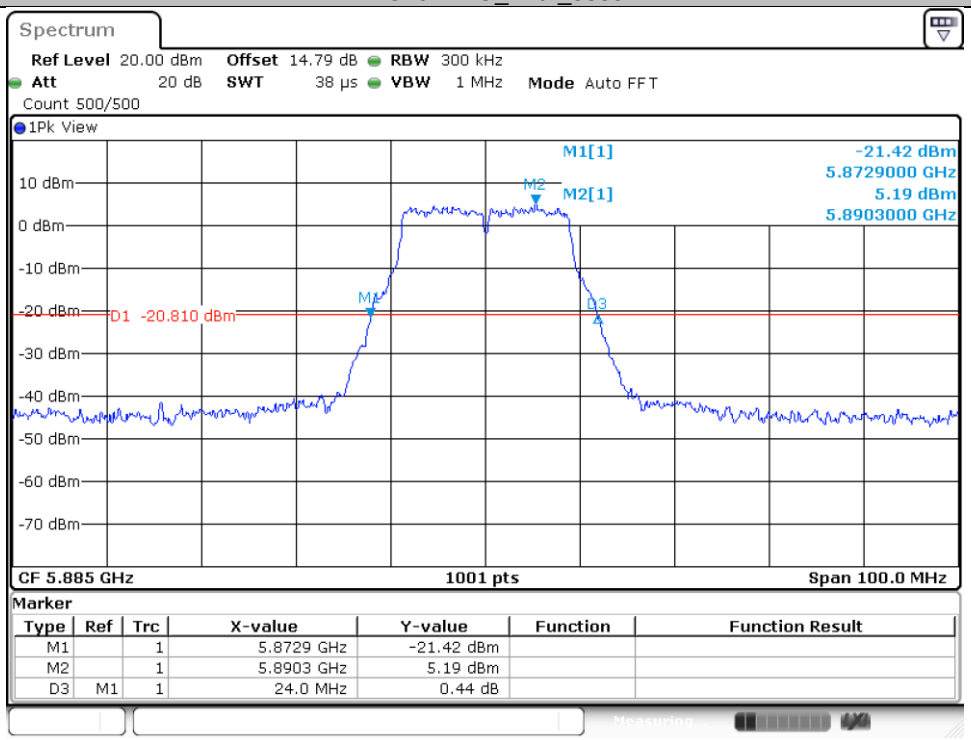
Date: 27.FEB.2024 15:17:05

11AC20MIMO_Ant1_5885



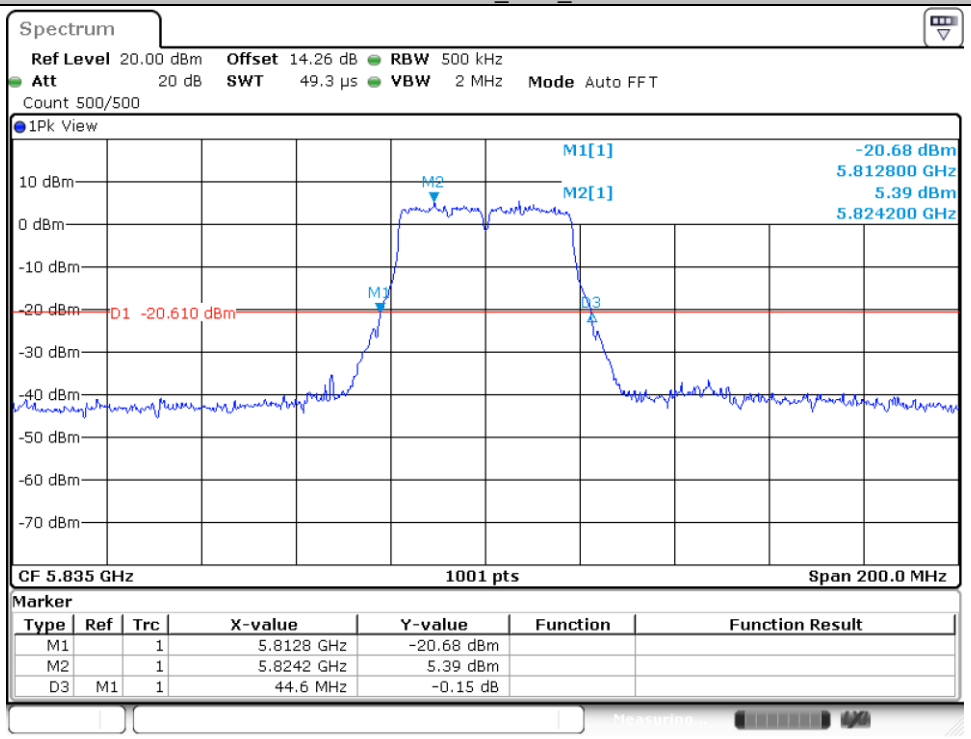
Date: 27.FEB.2024 15:17:57

11AC20MIMO_Ant2_5885



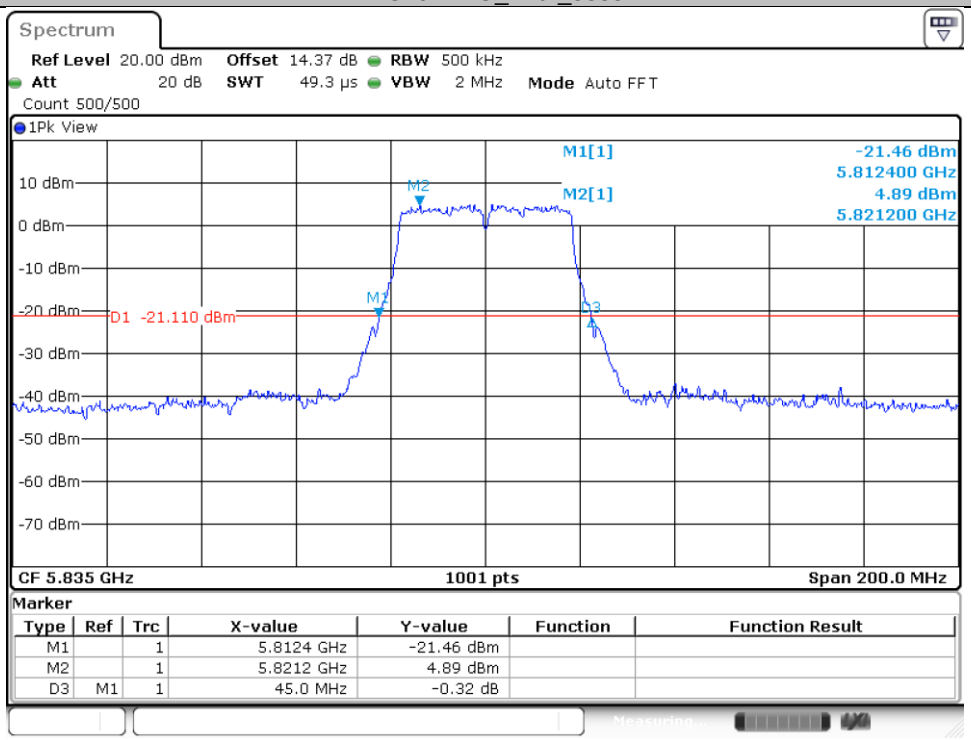
Date: 27.FEB.2024 15:18:46

11AC40MIMO_Ant1_5835



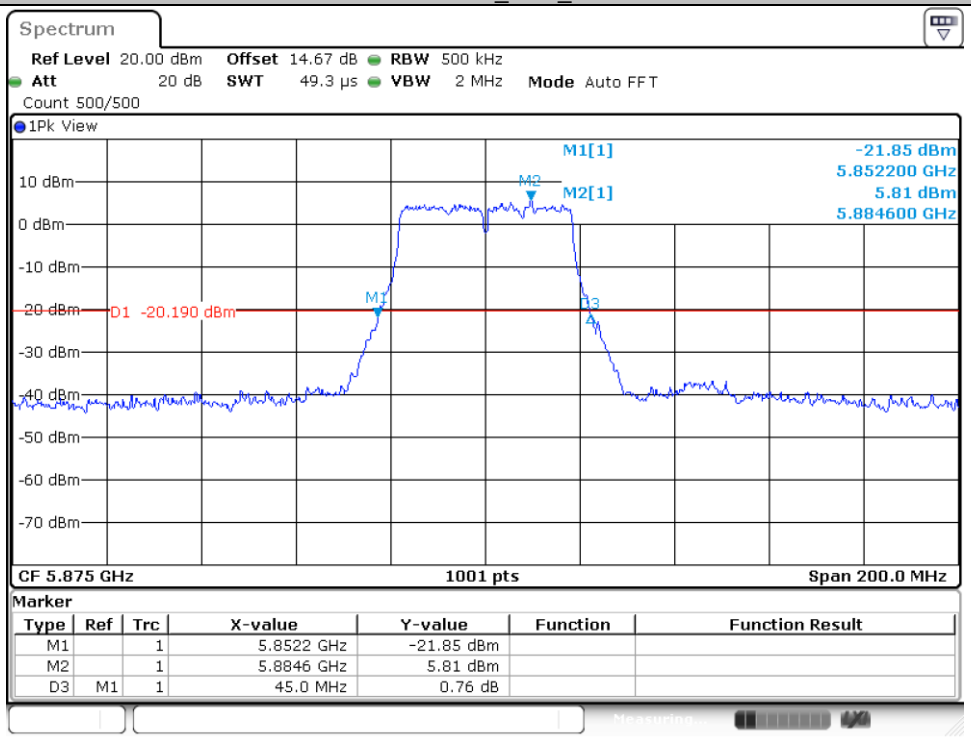
Date: 27.FEB.2024 15:38:24

11AC40MIMO_Ant2_5835



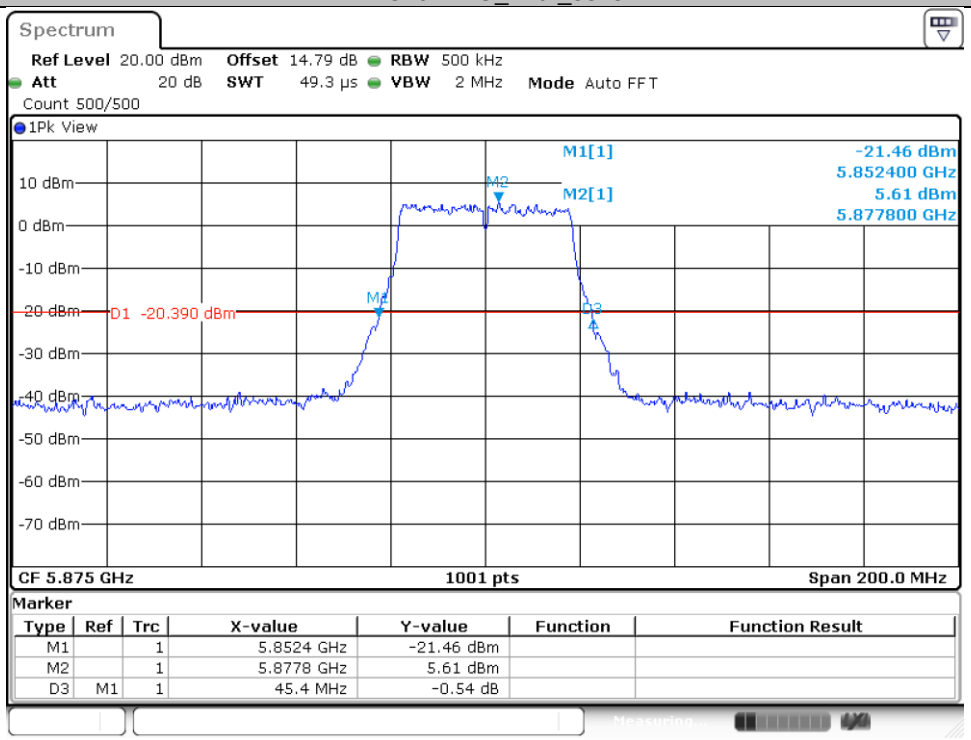
Date: 27.FEB.2024 15:39:37

11AC40MIMO_Ant1_5875



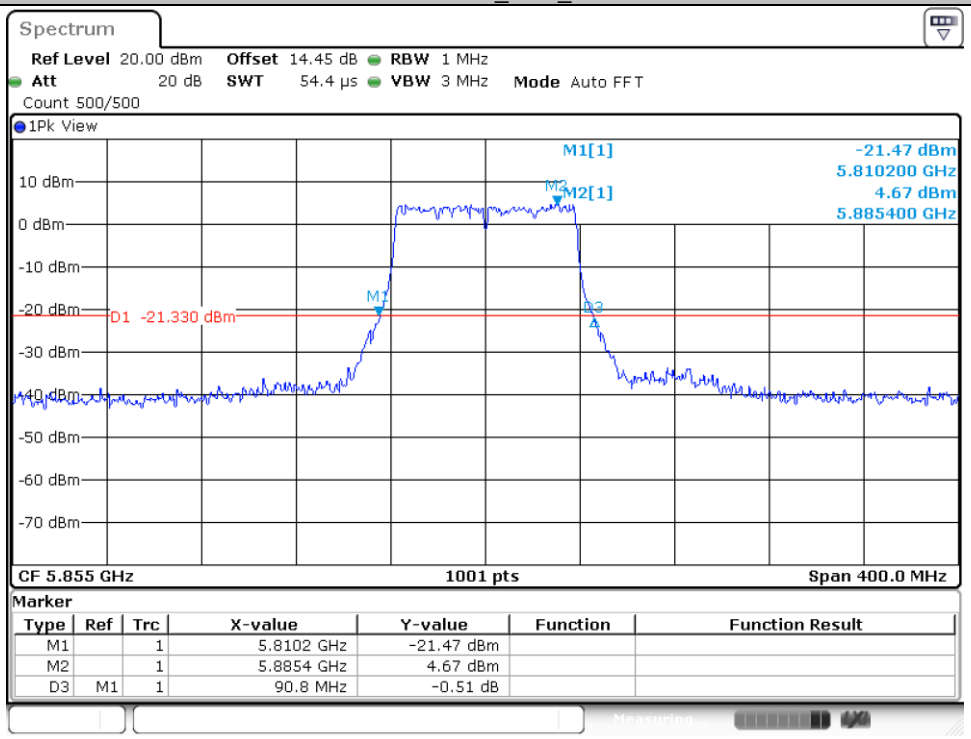
Date: 27.FEB.2024 15:40:52

11AC40MIMO_Ant2_5875



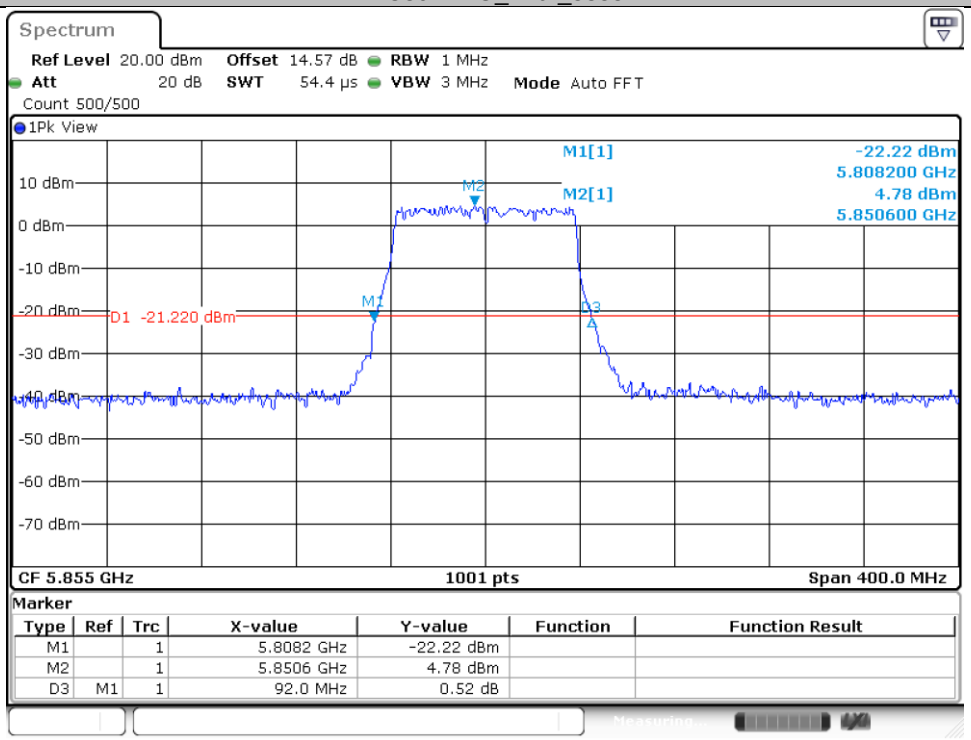
Date: 27.FEB.2024 15:42:03

11AC80MIMO_Ant1_5855



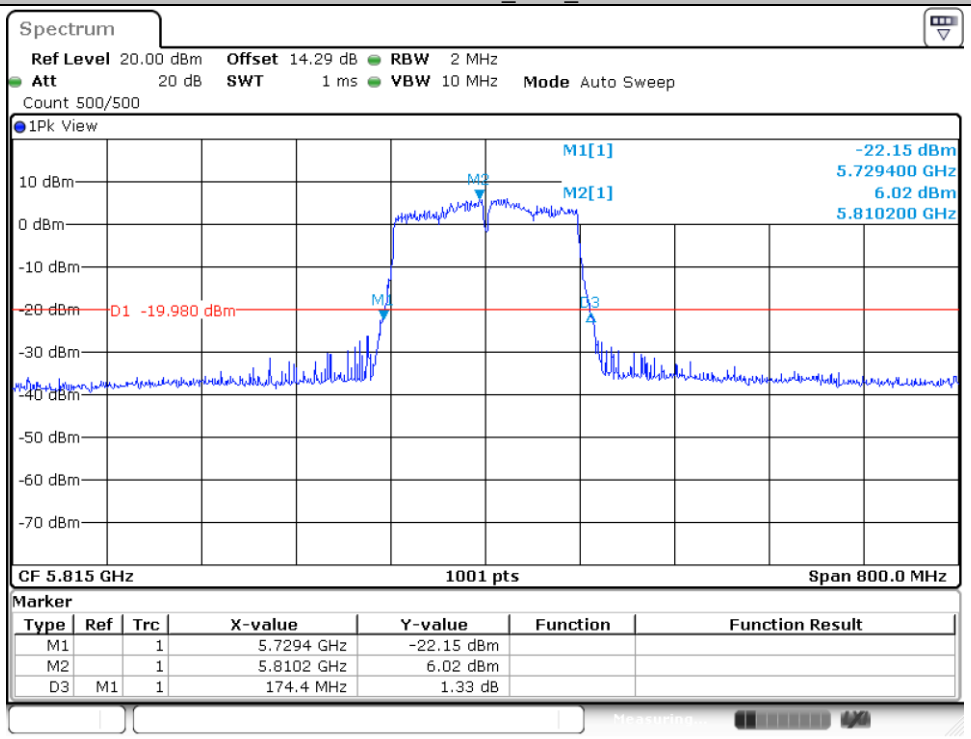
Date: 27.FEB.2024 15:43:18

11AC80MIMO_Ant2_5855



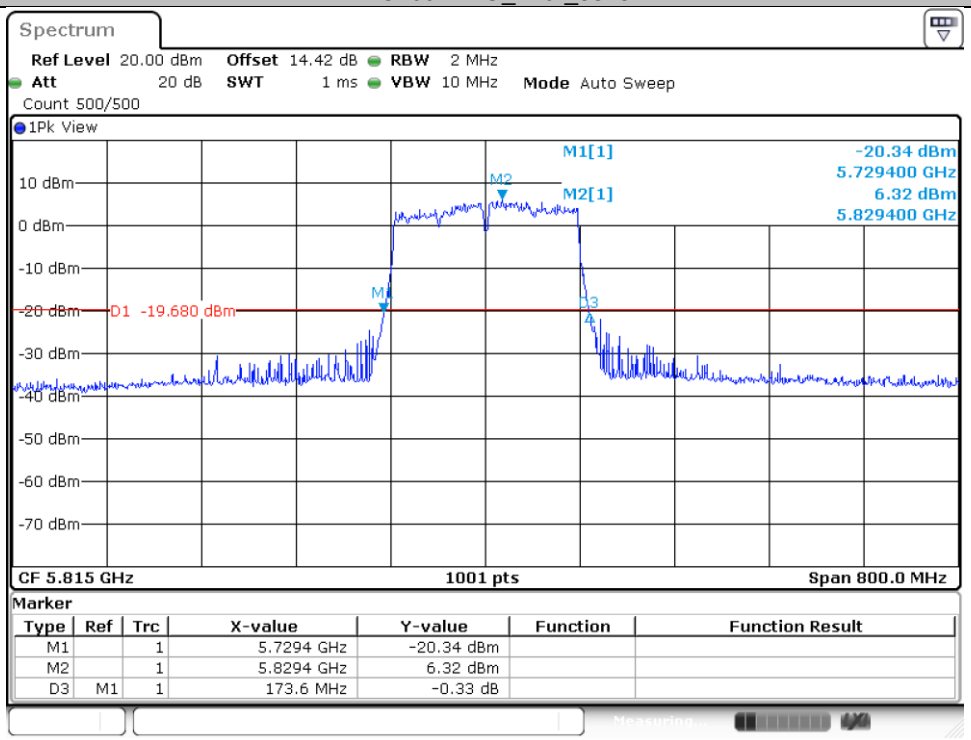
Date: 27.FEB.2024 15:44:40

11AC160MIMO_Ant1_5815



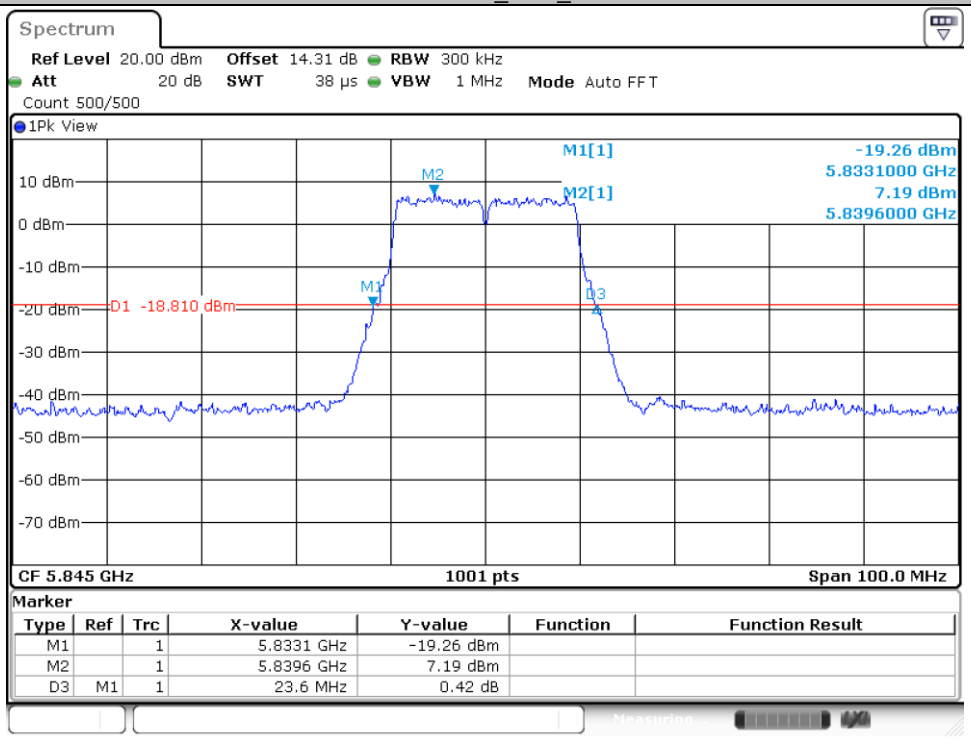
Date: 27.FEB.2024 15:46:06

11AC160MIMO_Ant2_5815



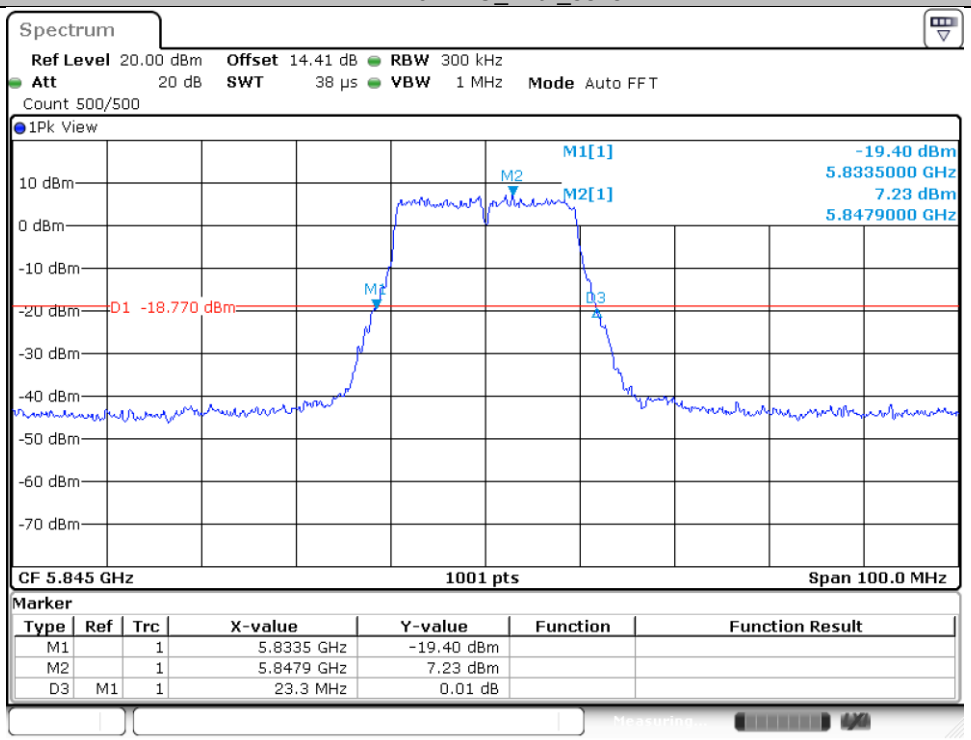
Date: 27.FEB.2024 15:47:36

11AX20MIMO_Ant1_5845



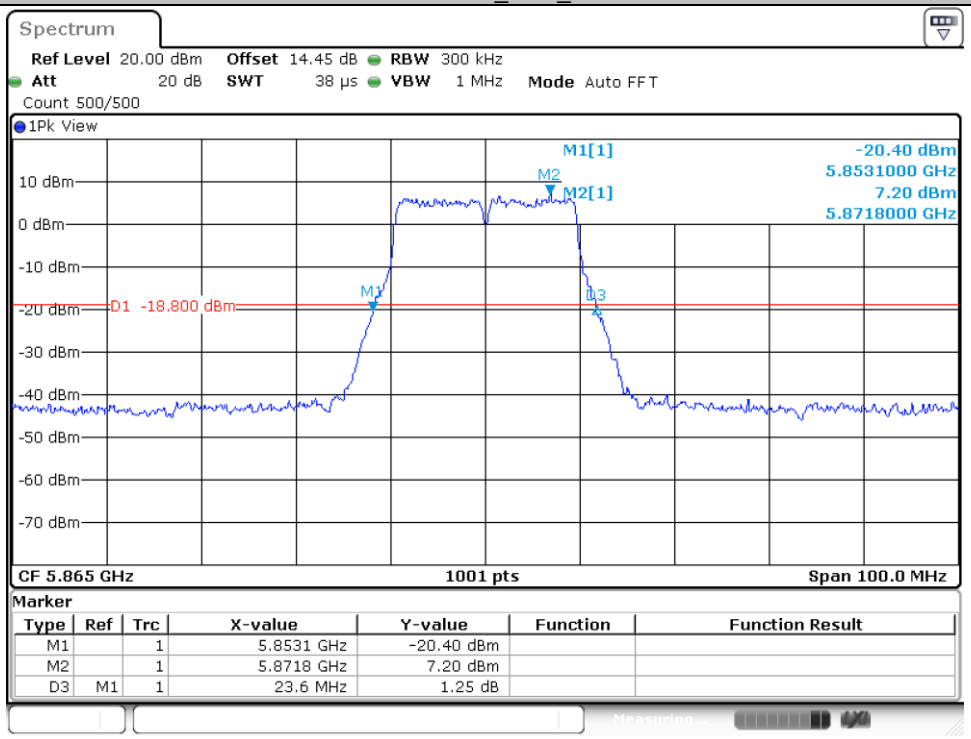
Date: 27.FEB.2024 15:49:09

11AX20MIMO_Ant2_5845



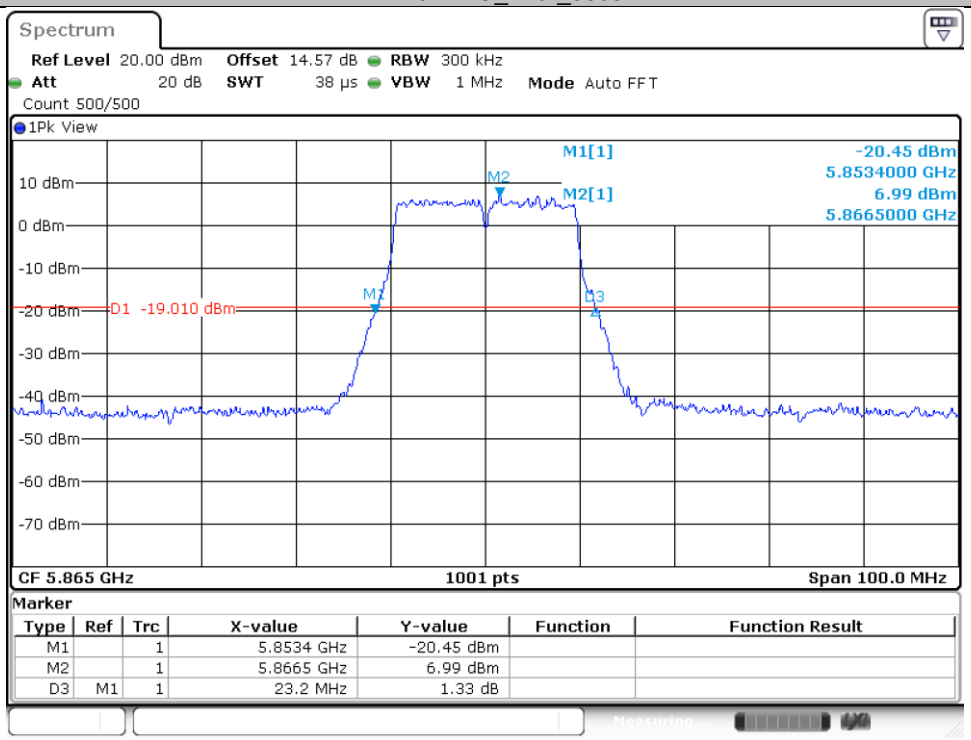
Date: 27.FEB.2024 15:50:39

11AX20MIMO_Ant1_5865



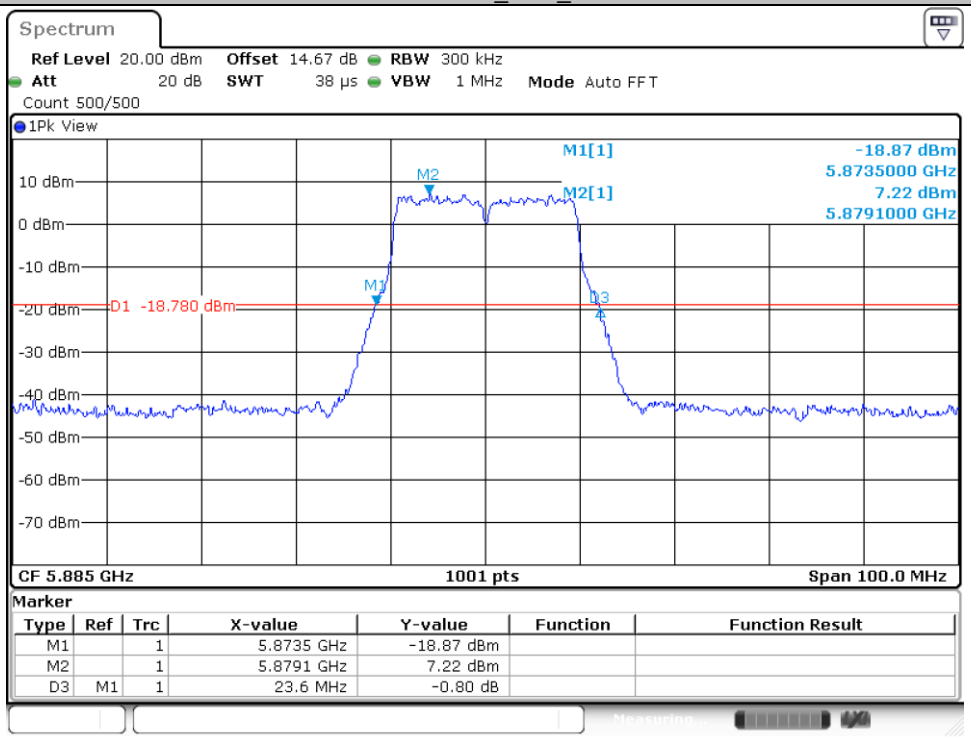
Date: 27.FEB.2024 15:52:13

11AX20MIMO_Ant2_5865



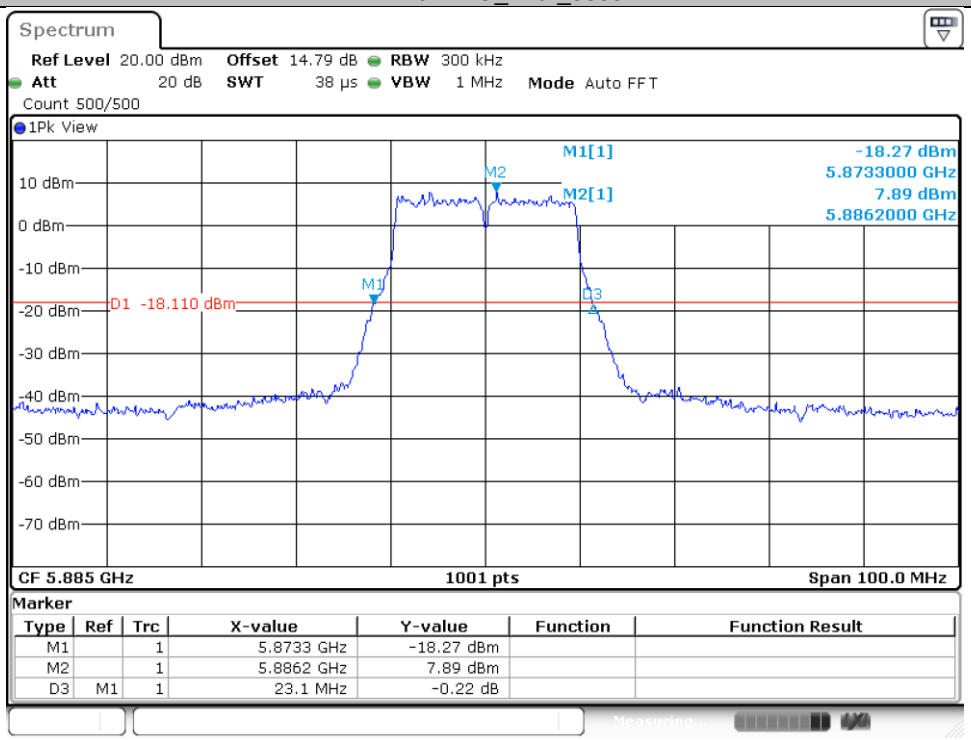
Date: 27.FEB.2024 15:53:41

11AX20MIMO_Ant1_5885



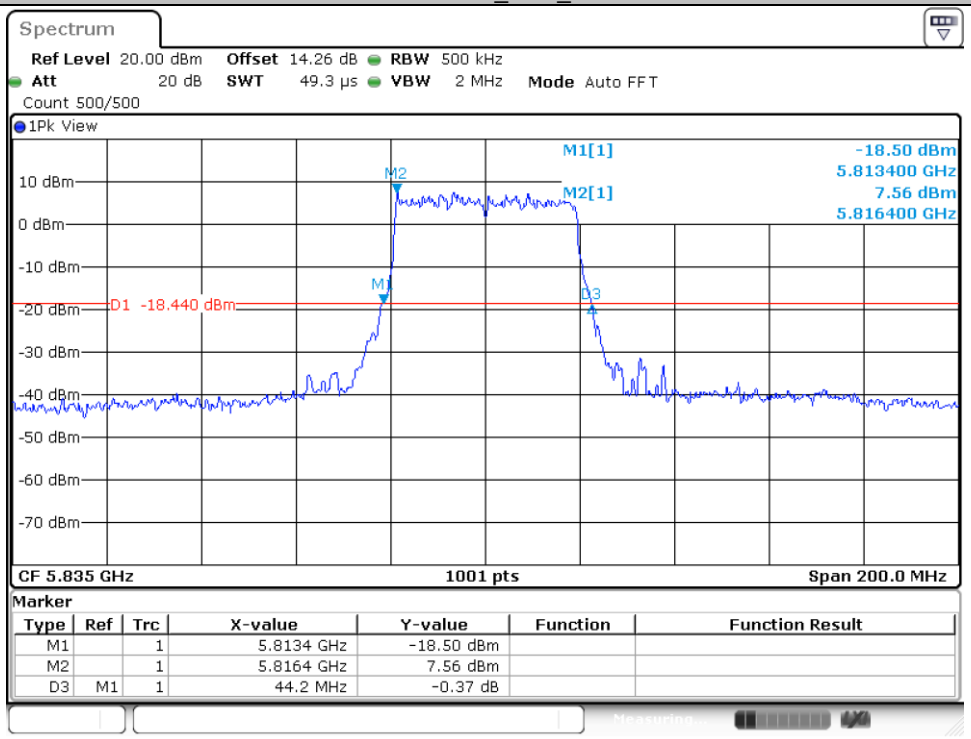
Date: 27.FEB.2024 15:55:12

11AX20MIMO_Ant2_5885



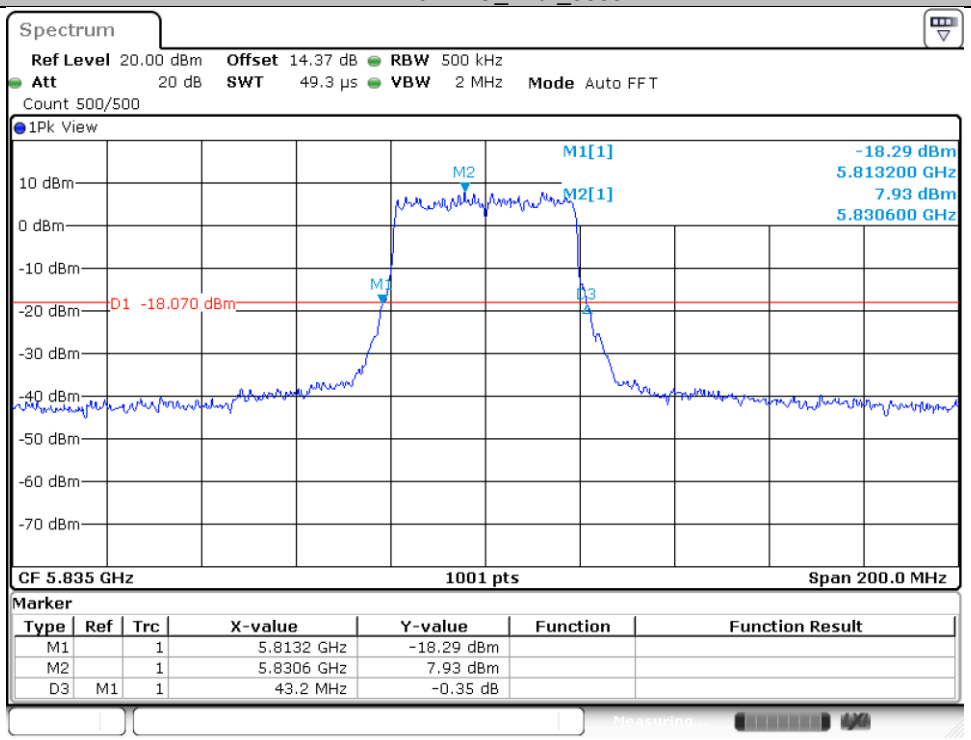
Date: 27.FEB.2024 15:56:40

11AX40MIMO_Ant1_5835



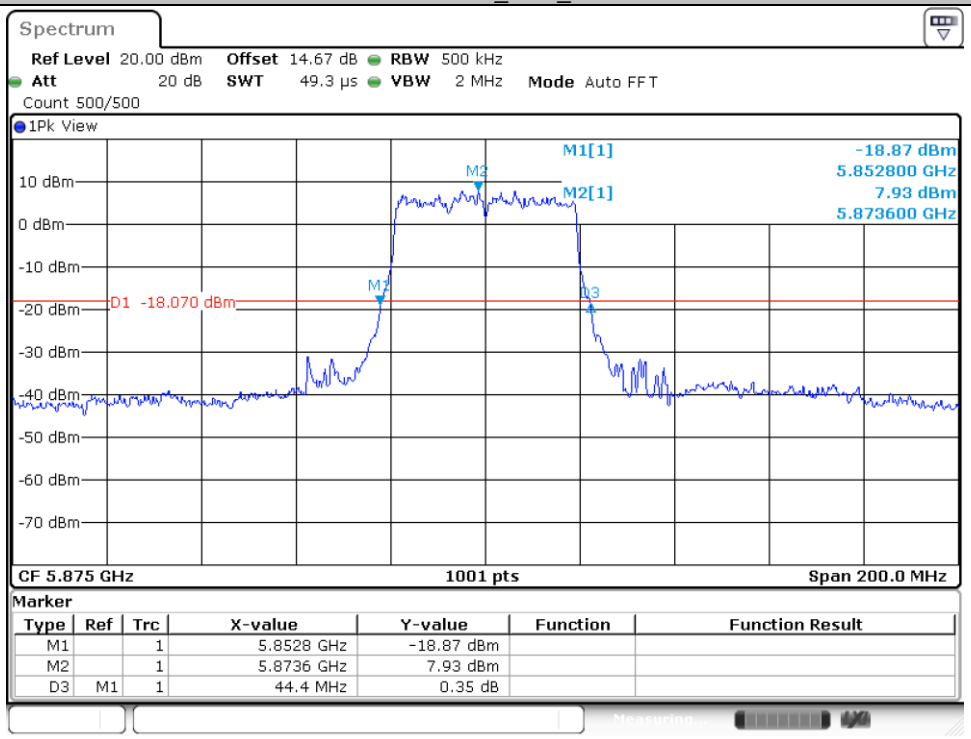
Date: 27.FEB.2024 15:58:11

11AX40MIMO_Ant2_5835



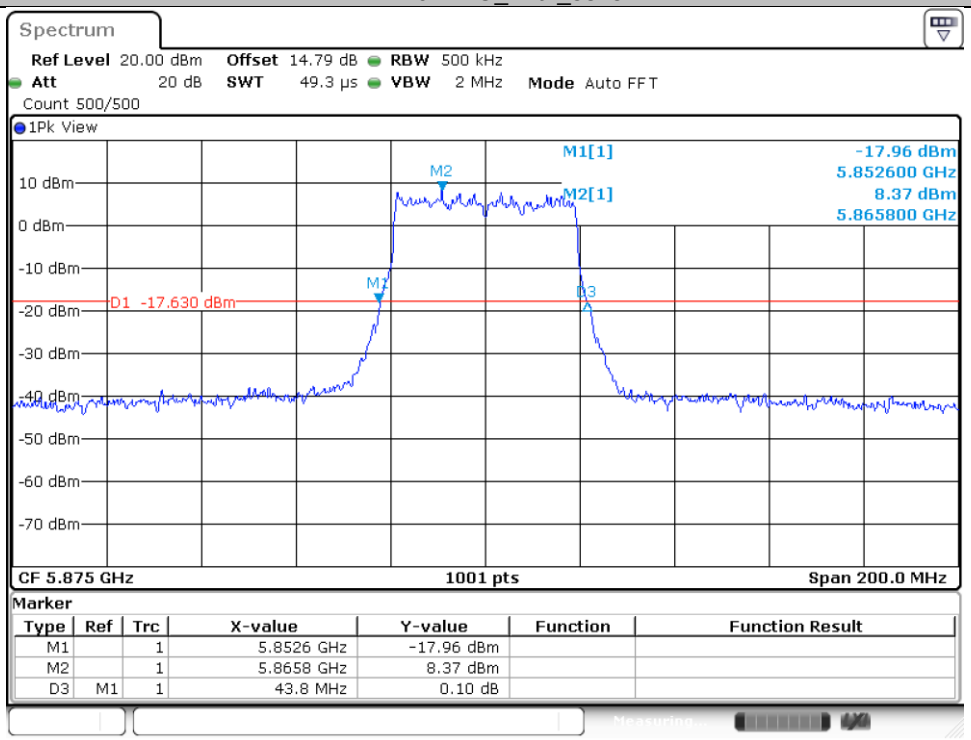
Date: 27.FEB.2024 15:59:41

11AX40MIMO_Ant1_5875



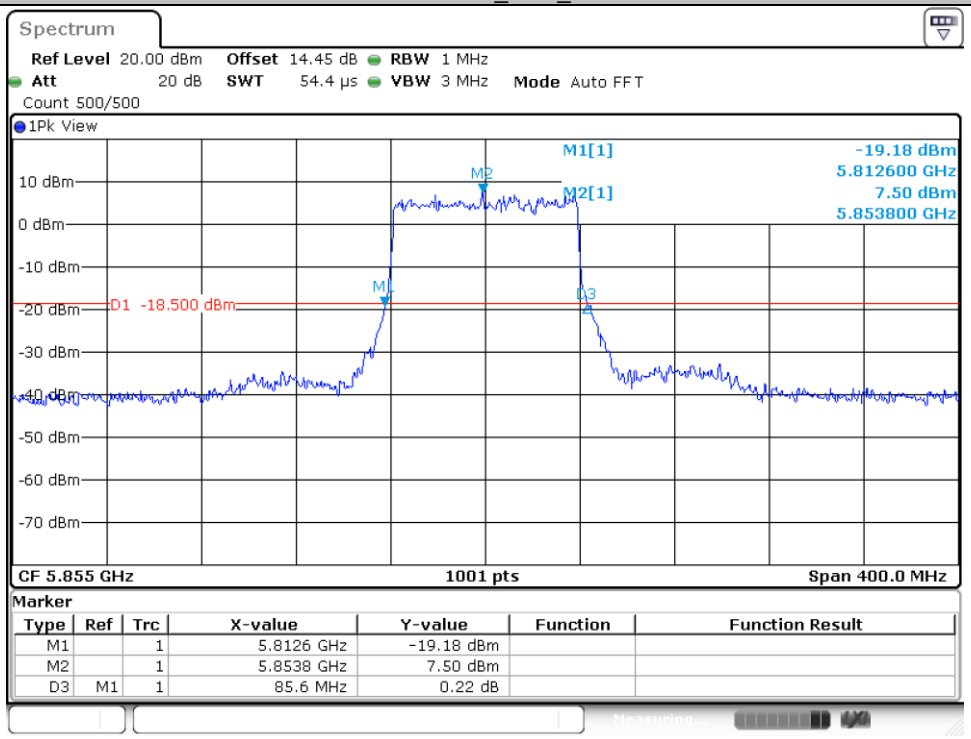
Date: 27.FEB.2024 16:01:16

11AX40MIMO_Ant2_5875



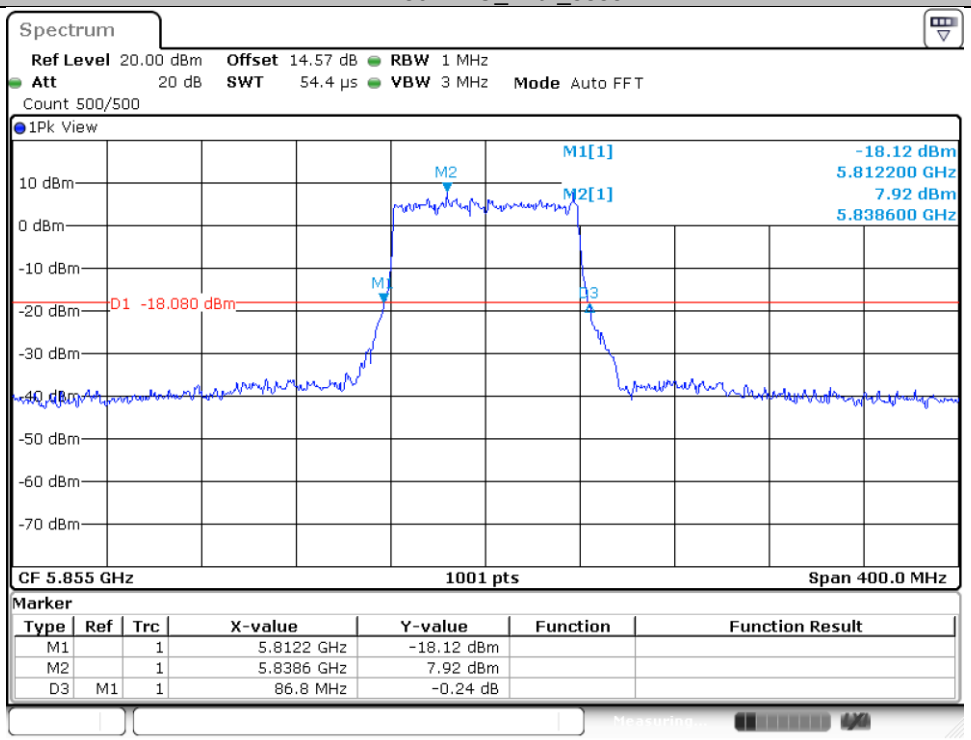
Date: 27.FEB.2024 16:02:44

11AX80MIMO_Ant1_5855



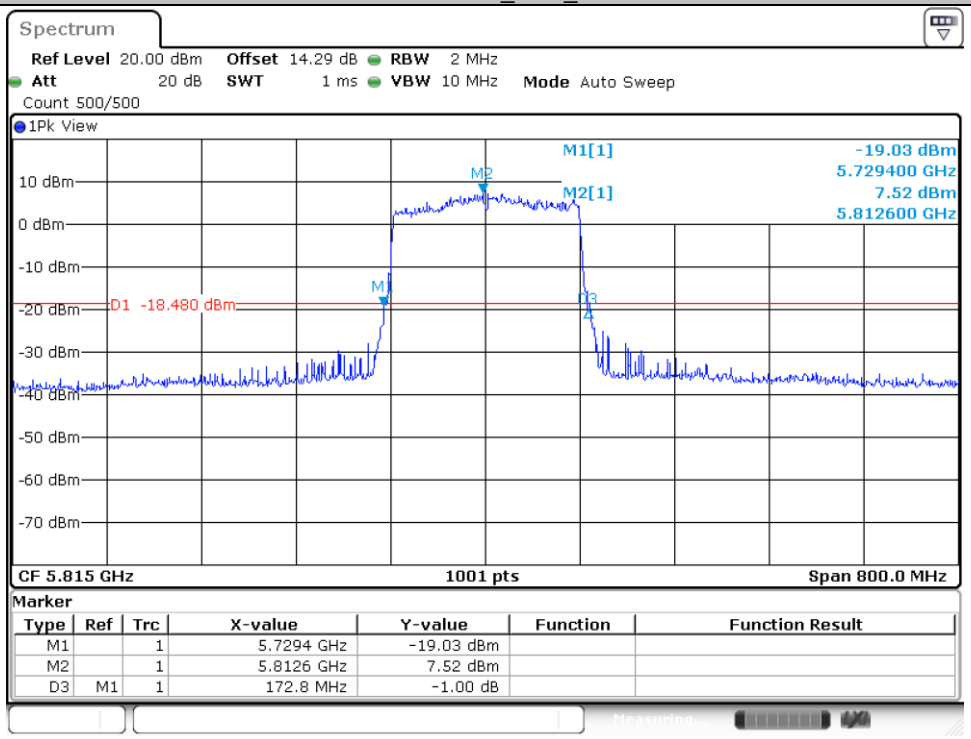
Date: 27.FEB.2024 16:04:15

11AX80MIMO_Ant2_5855



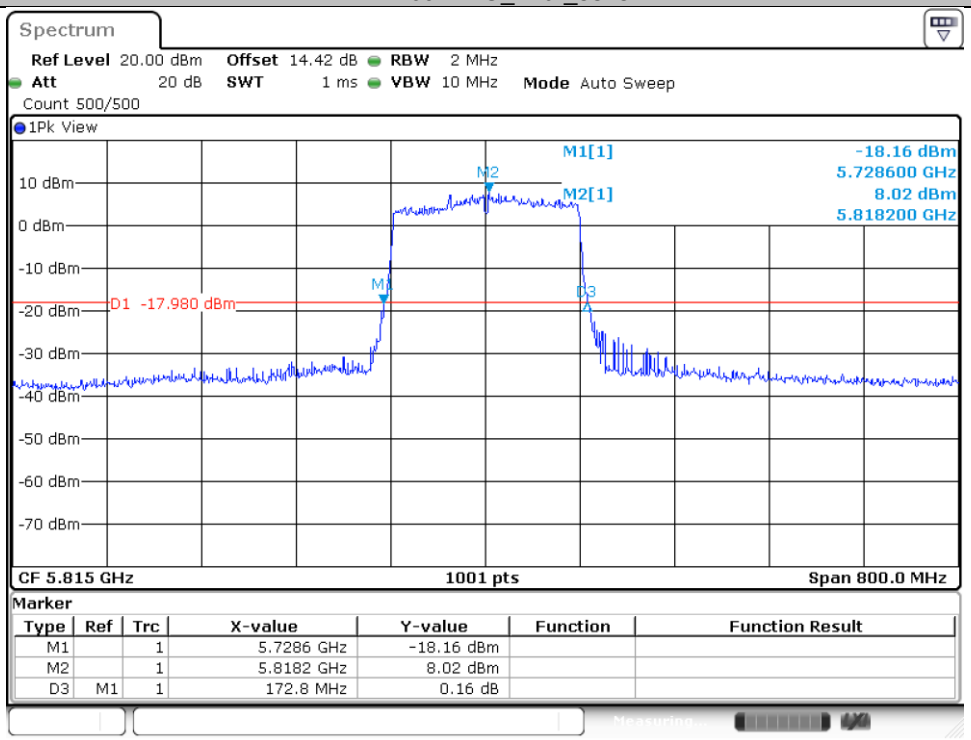
Date: 27.FEB.2024 16:05:37

11AX160MIMO_Ant1_5815



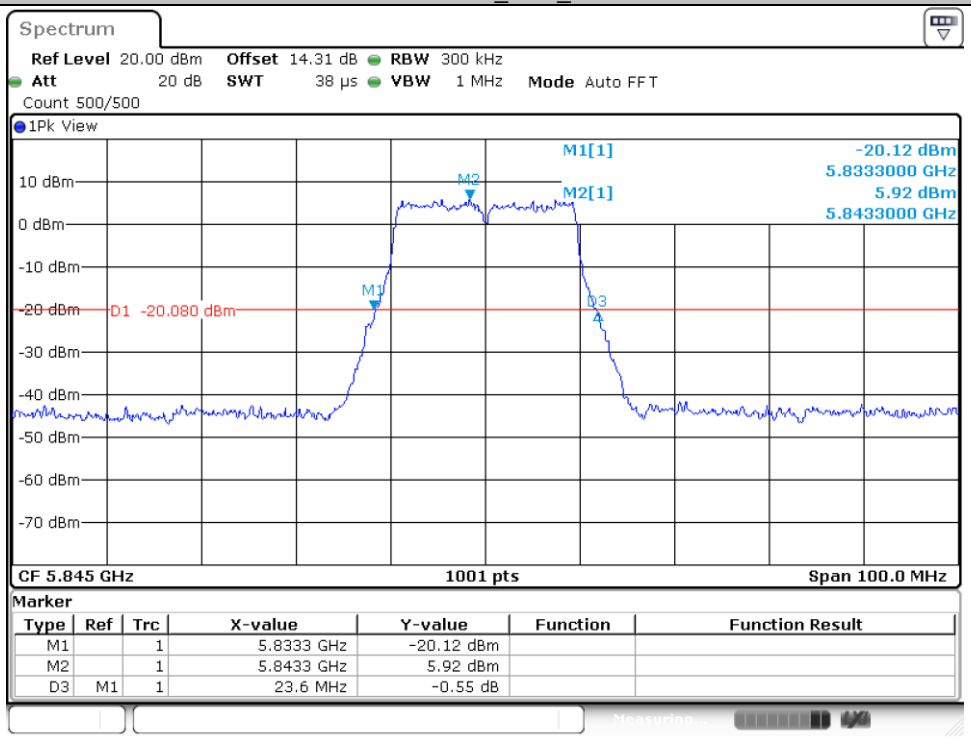
Date: 27.FEB.2024 16:59:09

11AX160MIMO_Ant2_5815



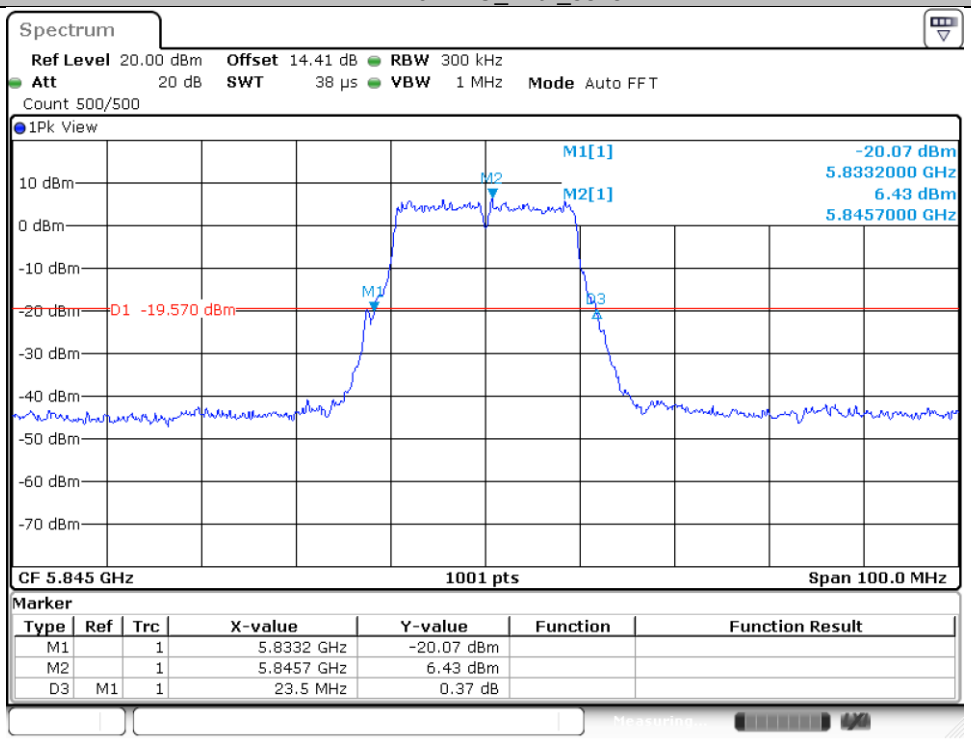
Date: 27.FEB.2024 17:00:45

11BE20MIMO_Ant1_5845



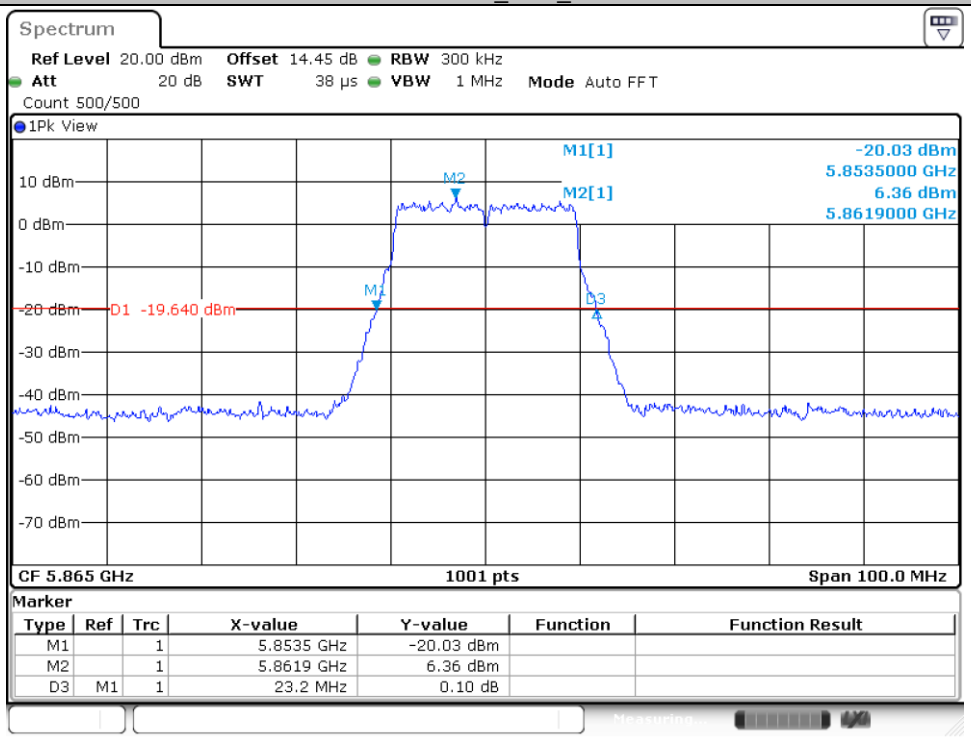
Date: 27.FEB.2024 17:02:24

11BE20MIMO_Ant2_5845



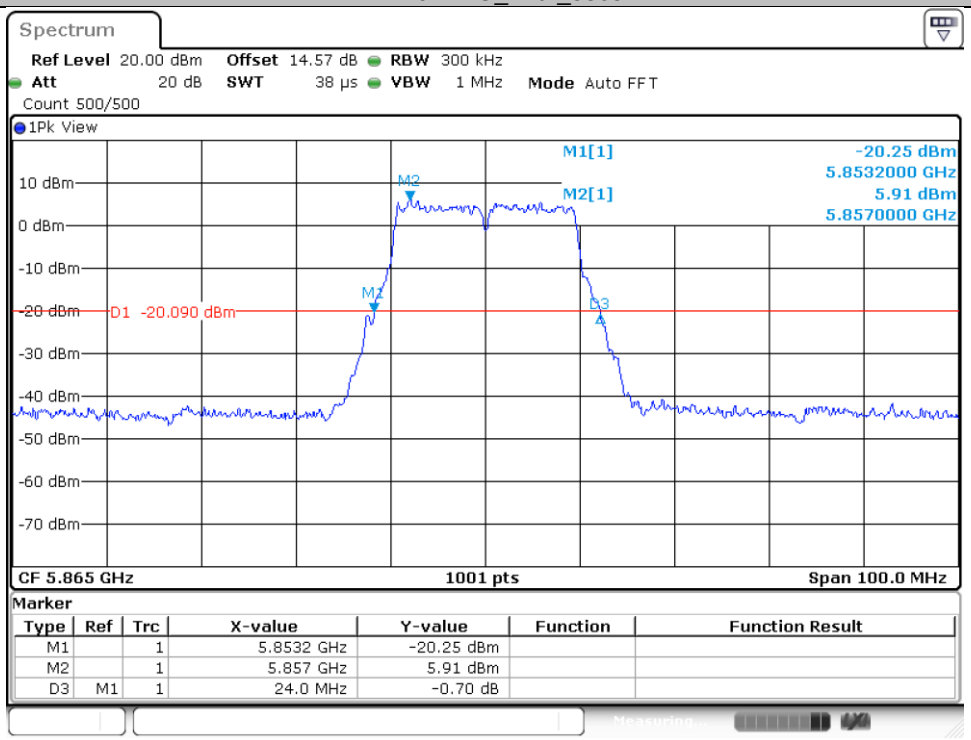
Date: 27.FEB.2024 17:03:55

11BE20MIMO_Ant1_5865



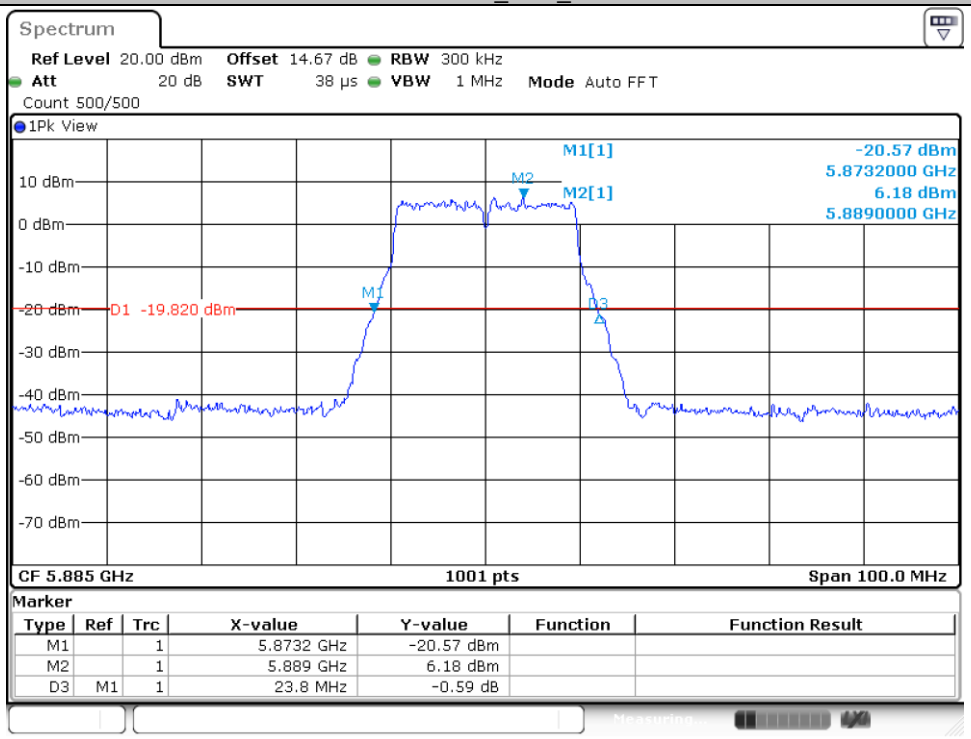
Date: 27.FEB.2024 17:05:29

11BE20MIMO_Ant2_5865



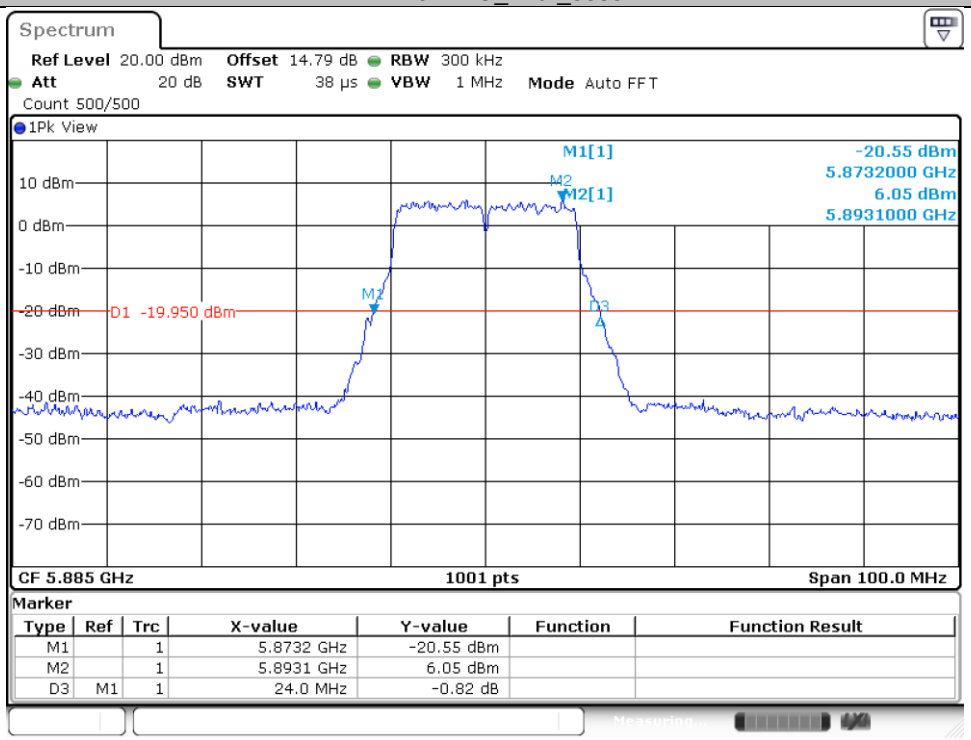
Date: 27.FEB.2024 17:06:57

11BE20MIMO_Ant1_5885



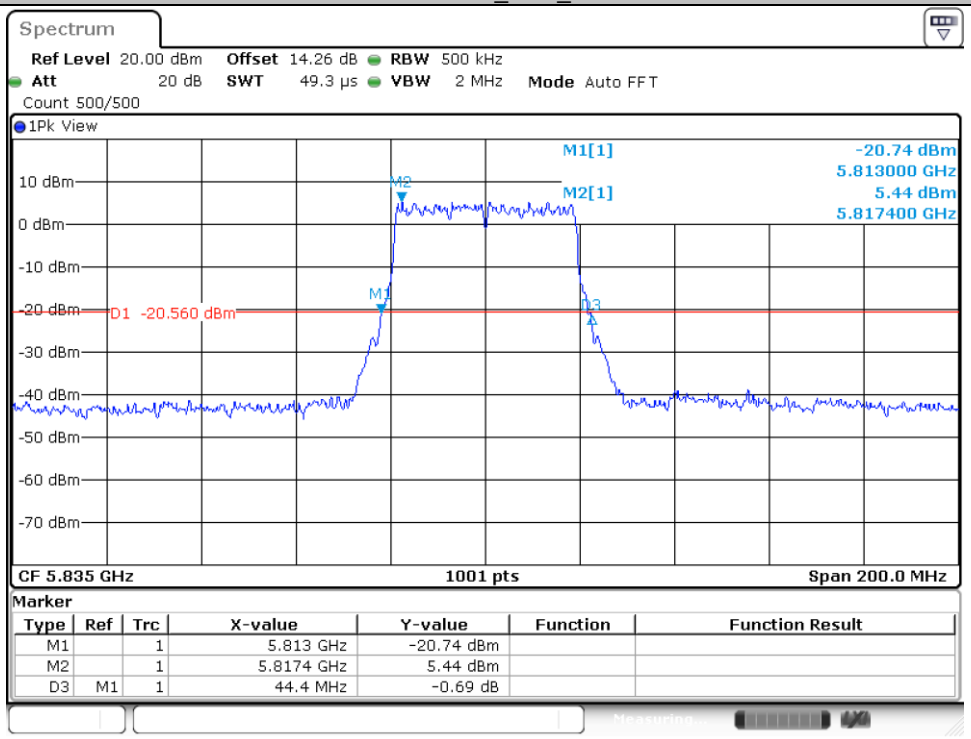
Date: 27.FEB.2024 17:08:28

11BE20MIMO_Ant2_5885



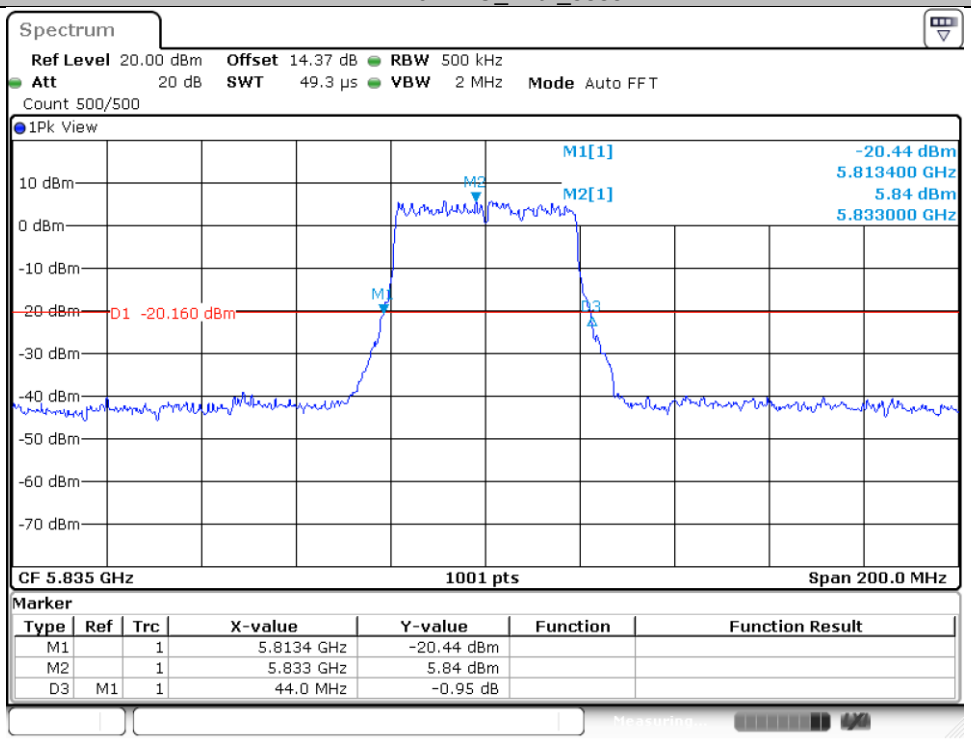
Date: 27.FEB.2024 17:09:55

11BE40MIMO_Ant1_5835



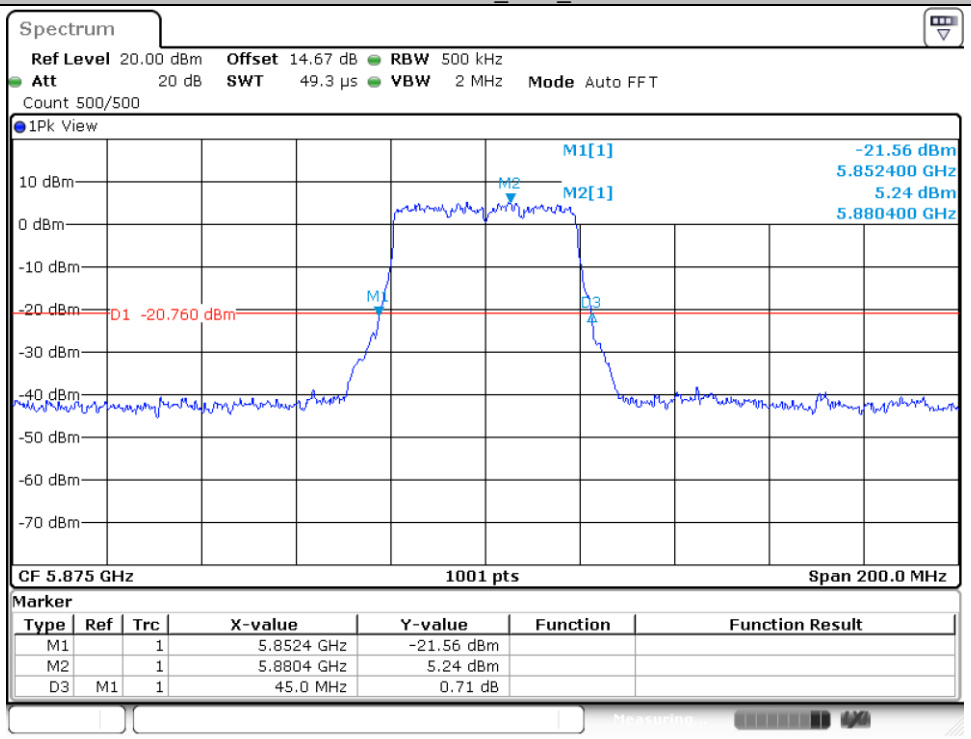
Date: 27.FEB.2024 17:11:27

11BE40MIMO_Ant2_5835



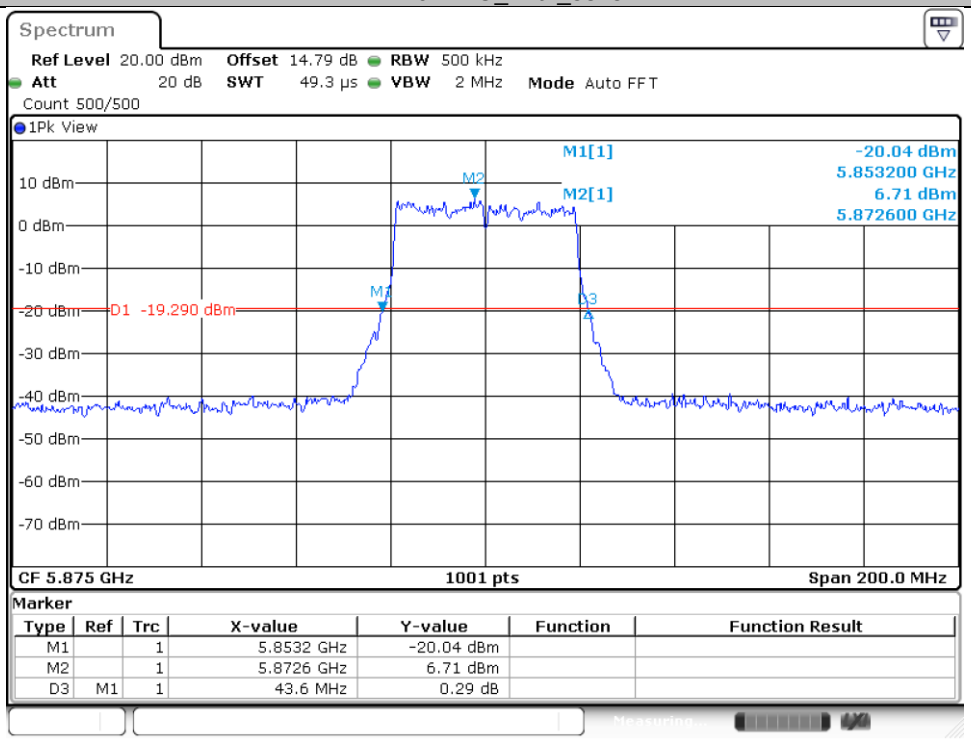
Date: 27.FEB.2024 17:12:57

11BE40MIMO_Ant1_5875



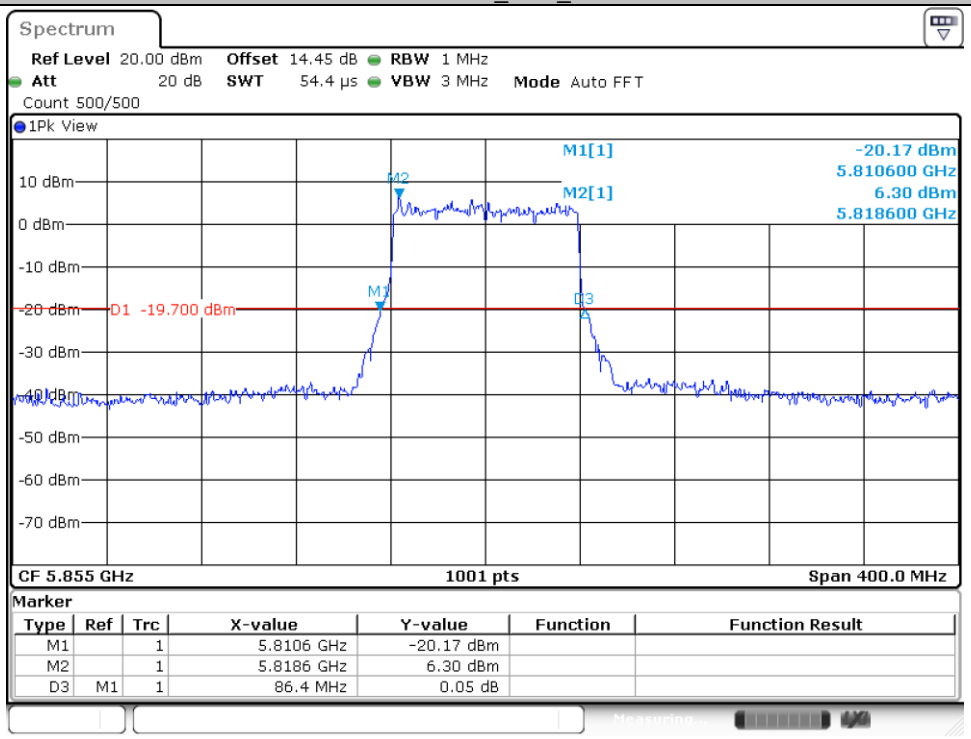
Date: 27.FEB.2024 17:14:32

11BE40MIMO_Ant2_5875



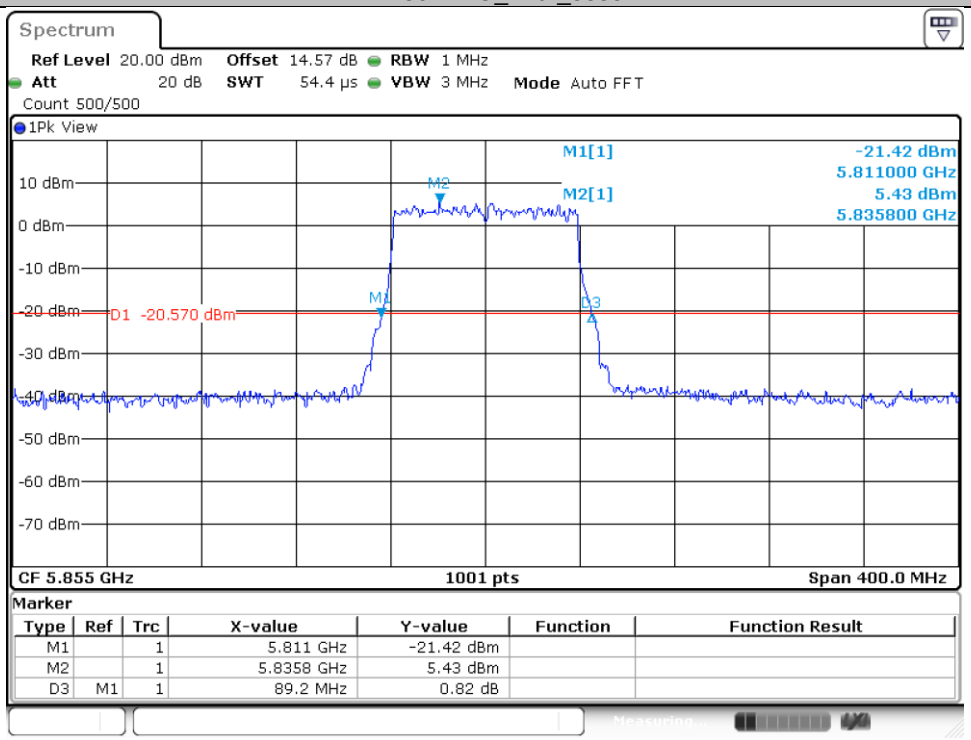
Date: 27.FEB.2024 17:16:00

11BE80MIMO_Ant1_5855



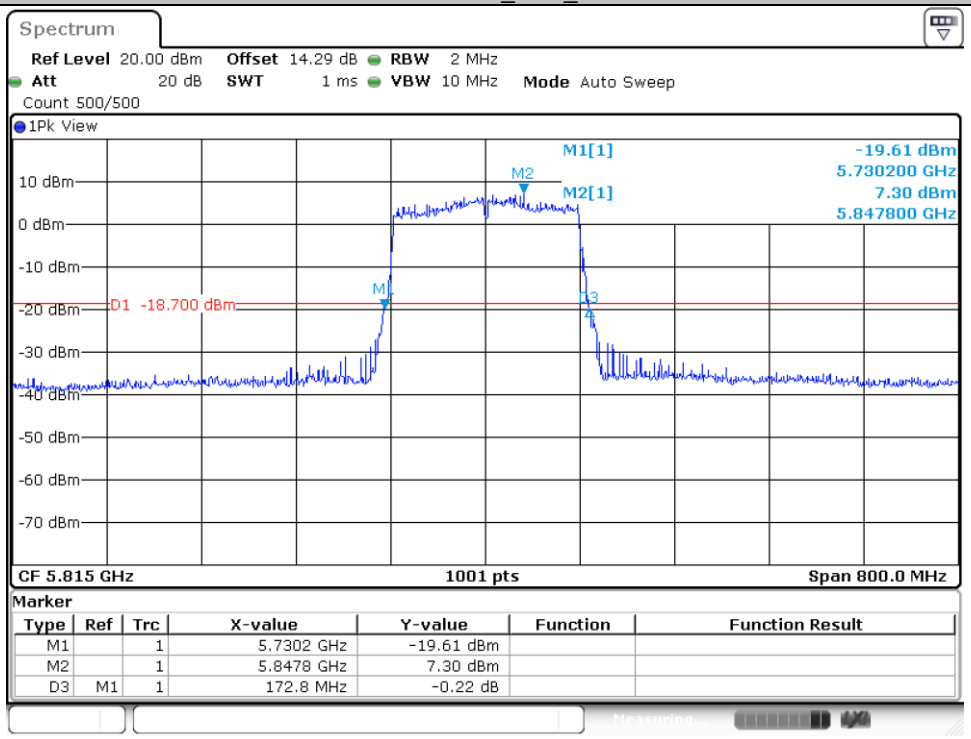
Date: 27.FEB.2024 17:17:31

11BE80MIMO_Ant2_5855



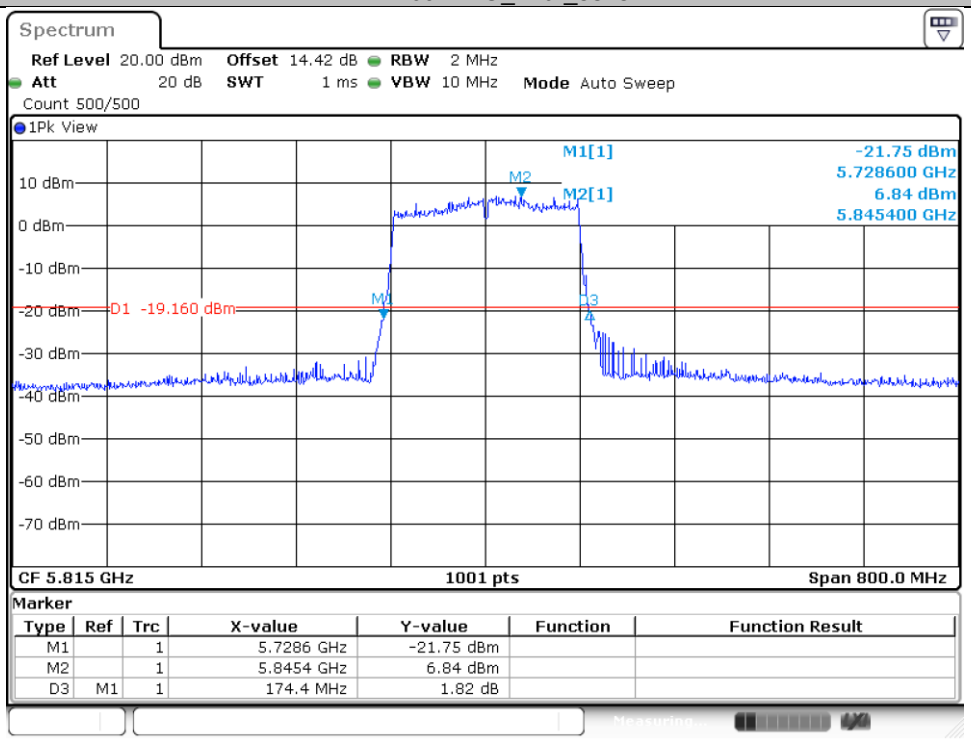
Date: 27.FEB.2024 17:18:59

11BE160MIMO_Ant1_5815



Date: 27.FEB.2024 17:20:30

11BE160MIMO_Ant2_5815



Date: 27.FEB.2024 17:22:05

Occupied channel bandwidth

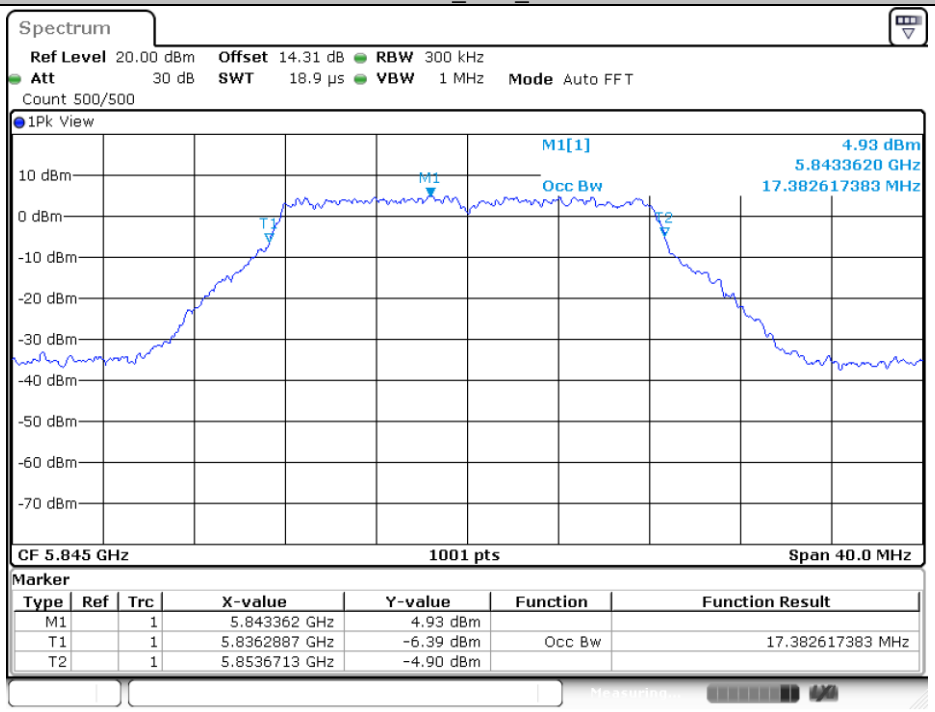
Test Result

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]
11A-CDD	Ant1	5845	17.383	5836.2887	5853.6713
	Ant2	5845	17.782	5836.1289	5853.9111
	Ant1	5865	17.463	5856.4086	5873.8711
	Ant2	5865	17.702	5856.2088	5873.9111
	Ant1	5885	17.223	5876.4885	5893.7113
	Ant2	5885	17.343	5876.2488	5893.5914
11AC20MIMO	Ant1	5845	18.222	5835.9291	5854.1508
	Ant2	5845	18.142	5835.9690	5854.1109
	Ant1	5865	18.142	5855.9690	5874.1109
	Ant2	5865	18.302	5855.8492	5874.1508
	Ant1	5885	18.182	5875.9291	5894.1109
	Ant2	5885	18.182	5875.8891	5894.0709
11AC40MIMO	Ant1	5835	36.843	5816.6184	5853.4615
	Ant2	5835	36.763	5816.6184	5853.3816
	Ant1	5875	37.003	5856.5385	5893.5415
	Ant2	5875	36.923	5856.6184	5893.5415
11AC80MIMO	Ant1	5855	76.723	5816.6384	5893.3616
	Ant2	5855	76.563	5816.6384	5893.2018
11AC160MIMO	Ant1	5815	155.045	5737.9570	5893.0020
	Ant2	5815	155.684	5737.3177	5893.0020
11AX20MIMO	Ant1	5845	19.301	5835.3696	5854.6703
	Ant2	5845	19.261	5835.3696	5854.6304
	Ant1	5865	19.301	5855.3297	5874.6304
	Ant2	5865	19.141	5855.4496	5874.5904
	Ant1	5885	19.301	5875.3696	5894.6703
	Ant2	5885	19.261	5875.4096	5894.6703
11AX40MIMO	Ant1	5835	38.122	5815.9790	5854.1009
	Ant2	5835	38.042	5815.9790	5854.0210
	Ant1	5875	38.042	5855.9790	5894.0210
	Ant2	5875	38.042	5855.9790	5894.0210
11AX80MIMO	Ant1	5855	78.002	5815.9990	5894.0010
	Ant2	5855	77.842	5816.1588	5894.0010
11AX160MIMO	Ant1	5815	156.643	5736.9980	5893.6414
	Ant2	5815	157.602	5736.6783	5894.2807
11BE20MIMO	Ant1	5845	19.261	5835.3696	5854.6304

	Ant2	5845	19.301	5835.3696	5854.6703
	Ant1	5865	19.221	5855.4096	5874.6304
	Ant2	5865	19.261	5855.4096	5874.6703
	Ant1	5885	19.301	5875.3696	5894.6703
	Ant2	5885	19.301	5875.3297	5894.6304
11BE40MIMO	Ant1	5835	38.042	5815.9790	5854.0210
	Ant2	5835	38.202	5816.0589	5854.2607
	Ant1	5875	38.122	5855.9790	5894.1009
	Ant2	5875	38.202	5855.8991	5894.1009
11BE80MIMO	Ant1	5855	77.842	5816.1588	5894.0010
	Ant2	5855	78.002	5815.9990	5894.0010
11BE160MIMO	Ant1	5815	156.963	5736.9980	5893.9610
	Ant2	5815	156.643	5736.9980	5893.6414

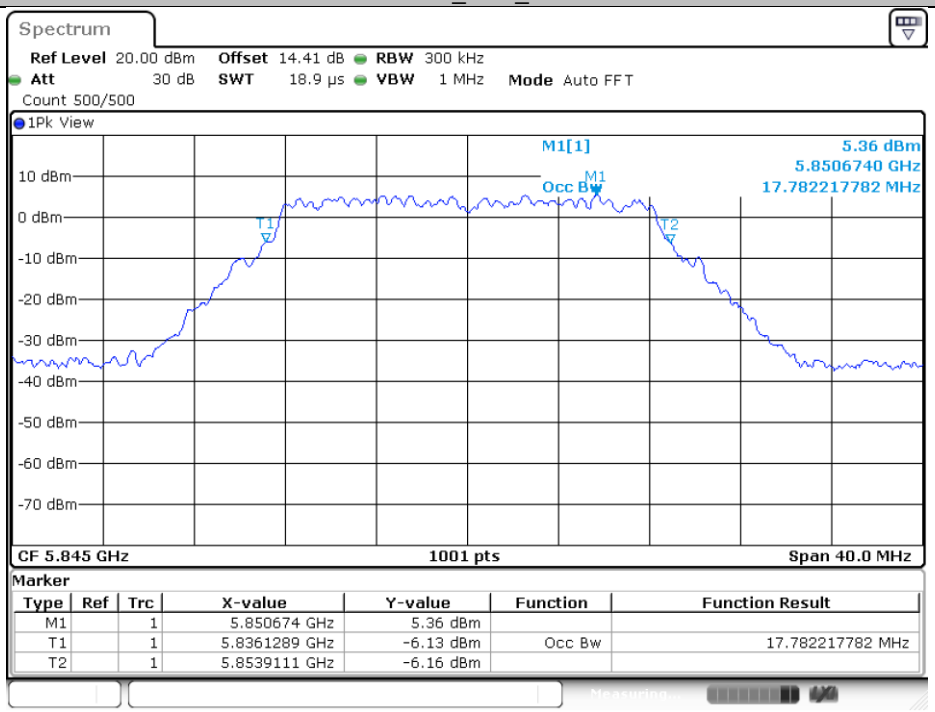
Test Graphs

11A-CDD_Ant1_5845



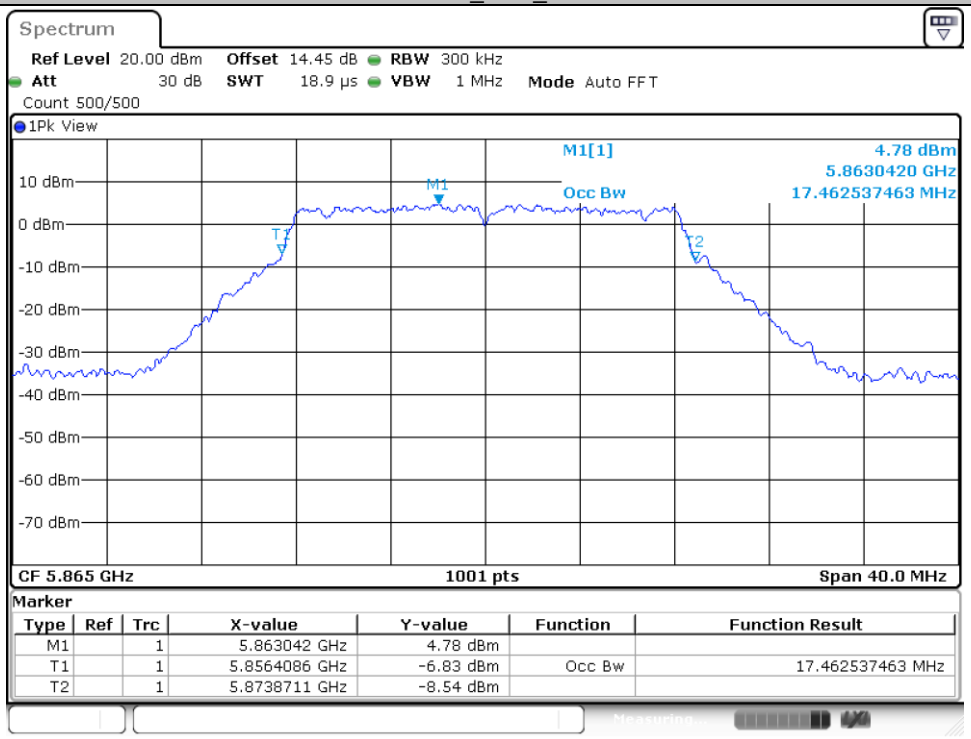
Date: 27.FEB.2024 15:09:45

11A-CDD_Ant2_5845



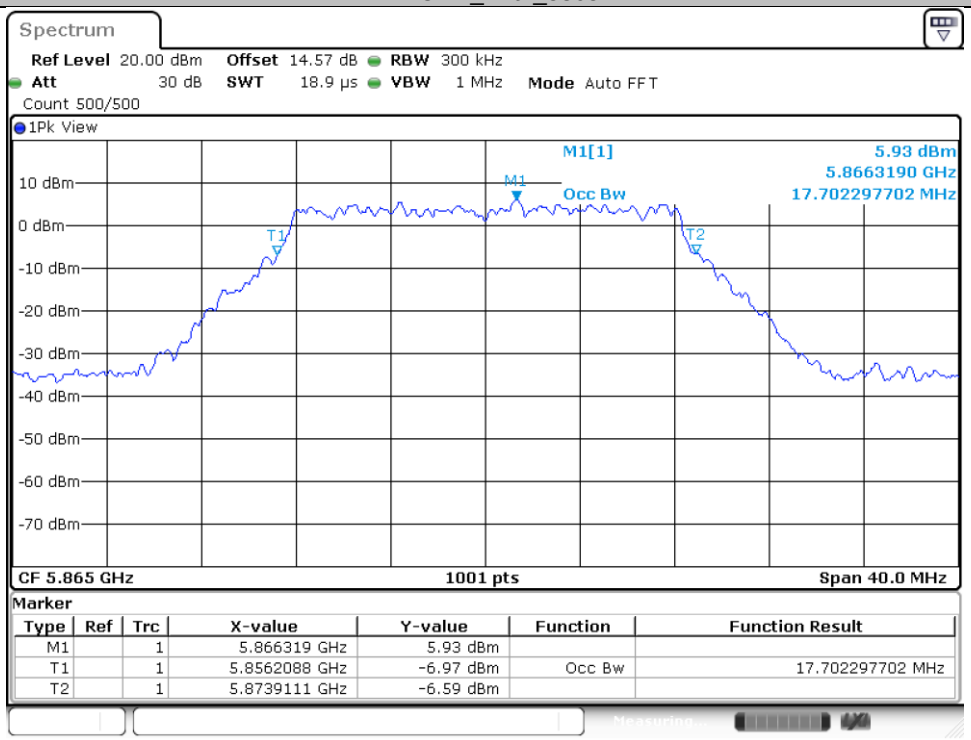
Date: 27.FEB.2024 15:10:36

11A-CDD_Ant1_5865



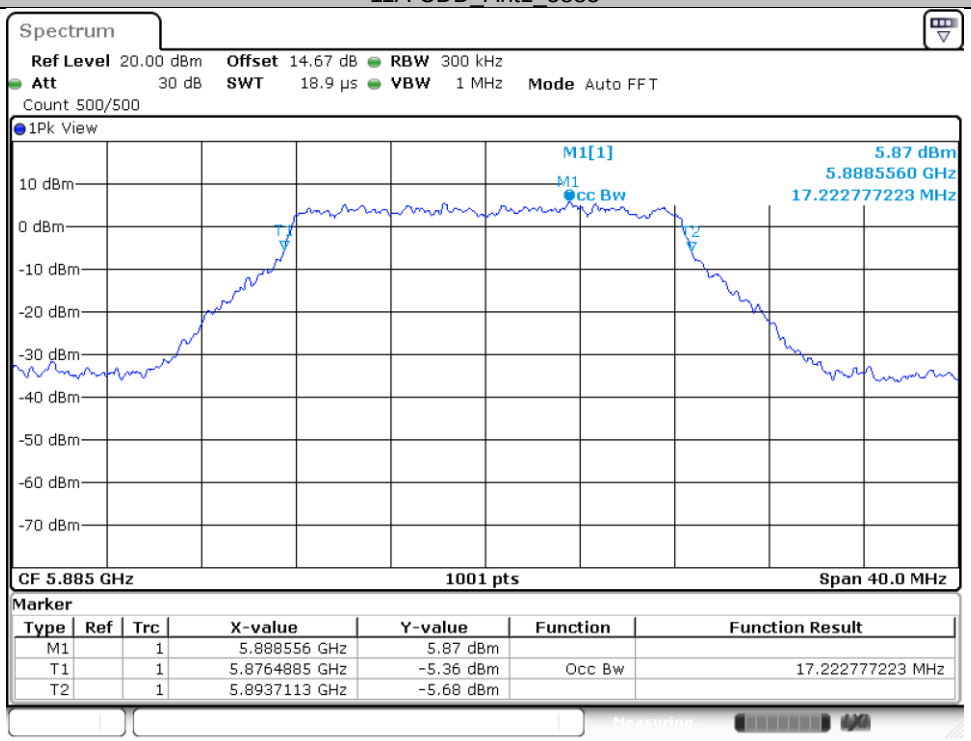
Date: 27.FEB.2024 15:11:31

11A-CDD_Ant2_5865

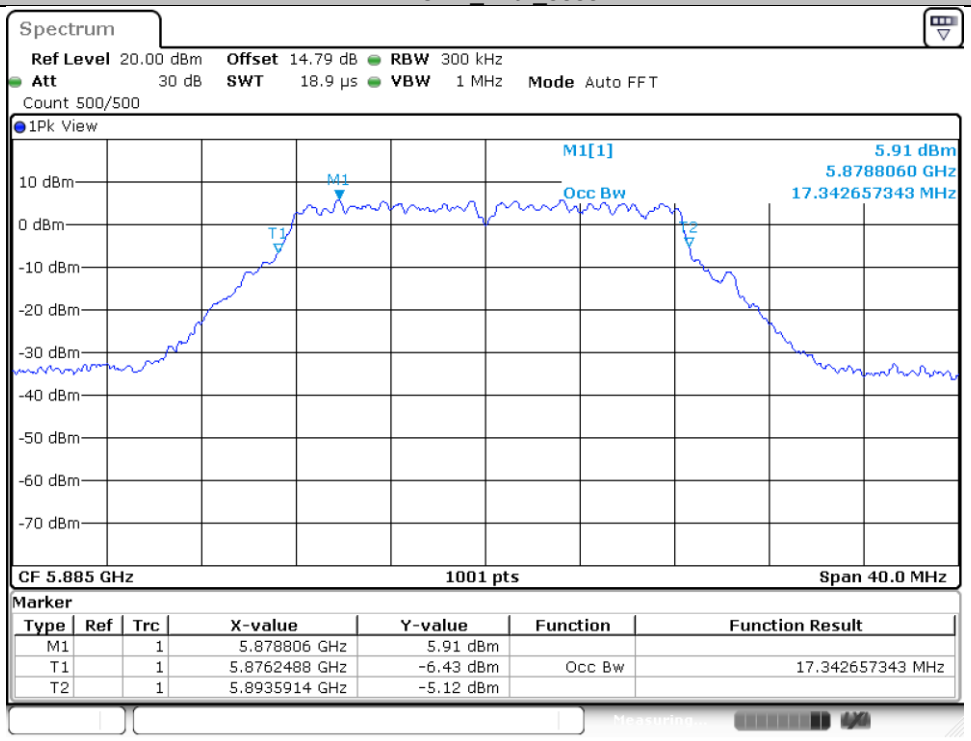


Date: 27.FEB.2024 15:12:19

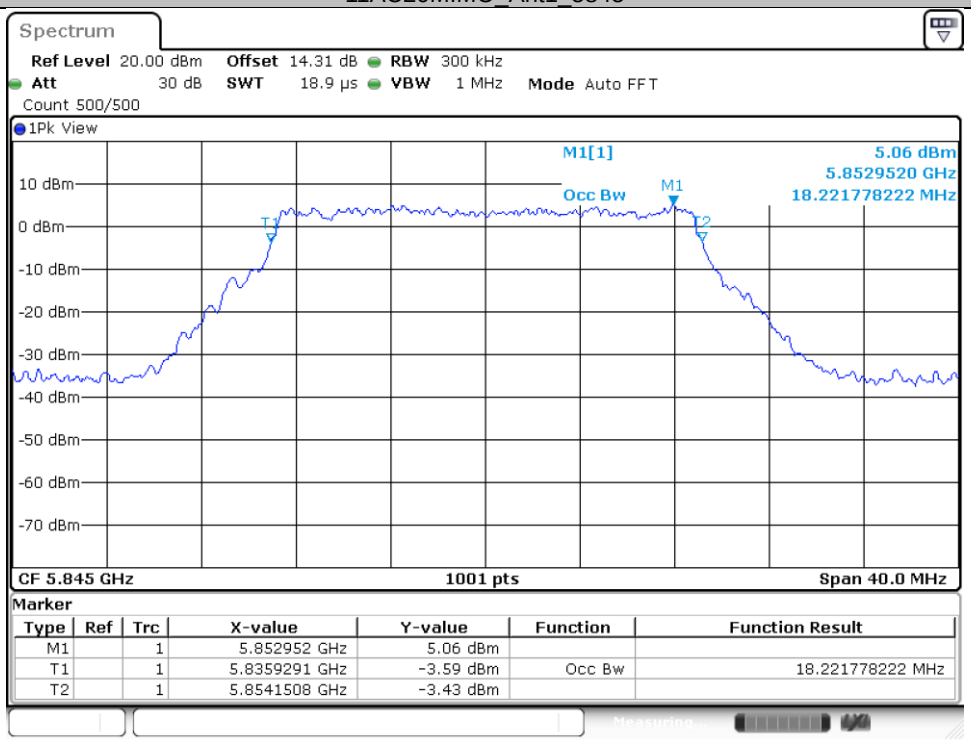
11A-CDD_Ant1_5885



11A-CDD_Ant2_5885

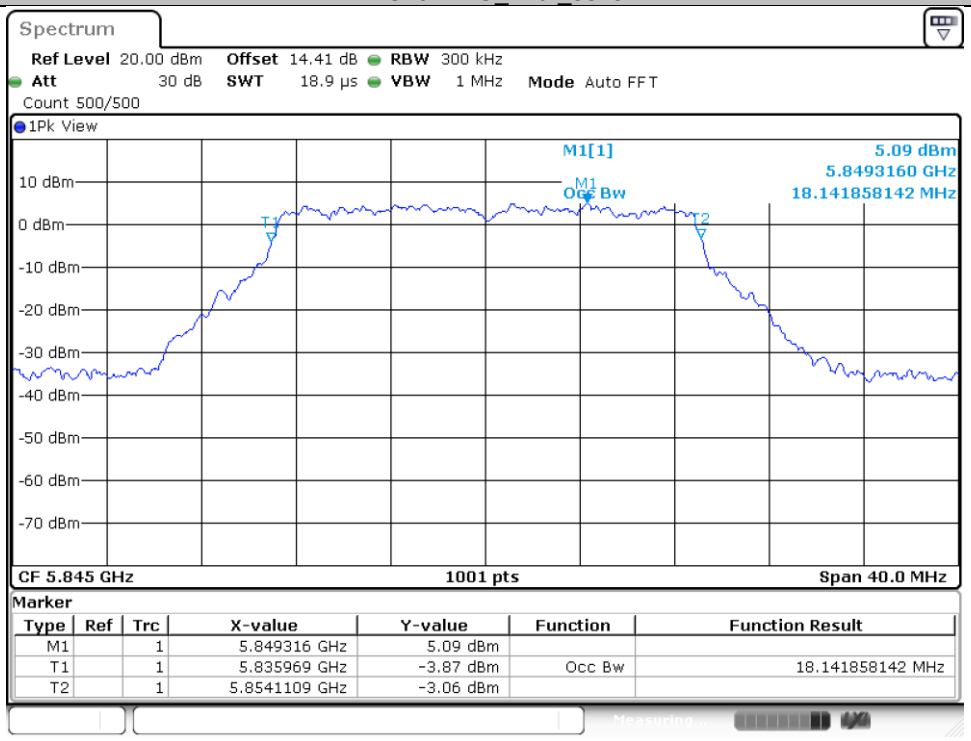


11AC20MIMO_Ant1_5845



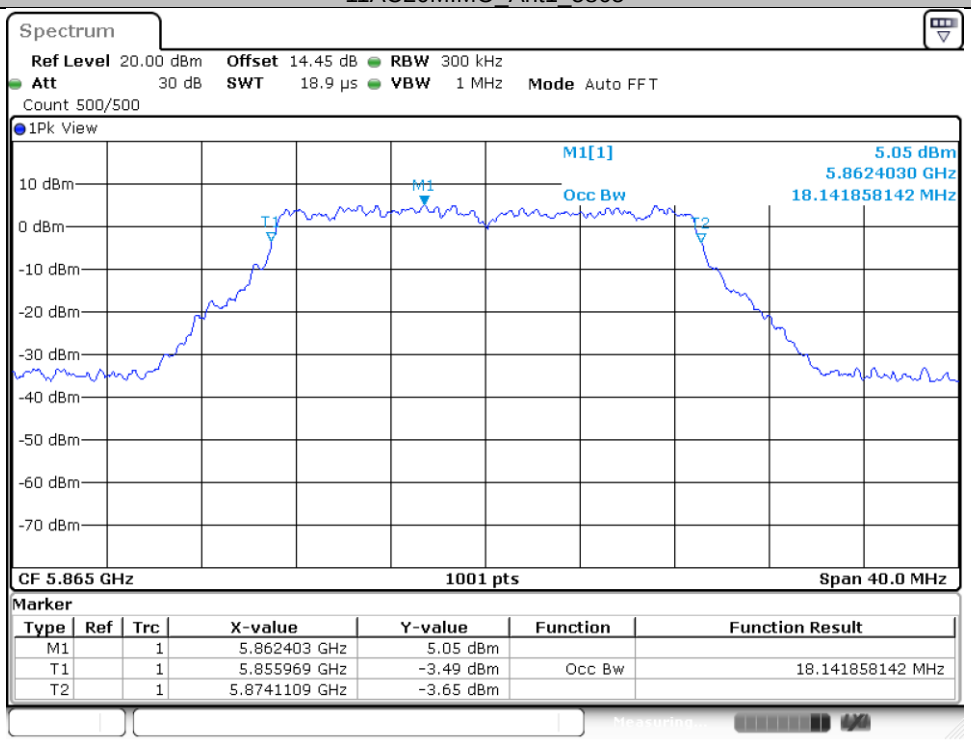
Date: 27.FEB.2024 15:14:53

11AC20MIMO_Ant2_5845



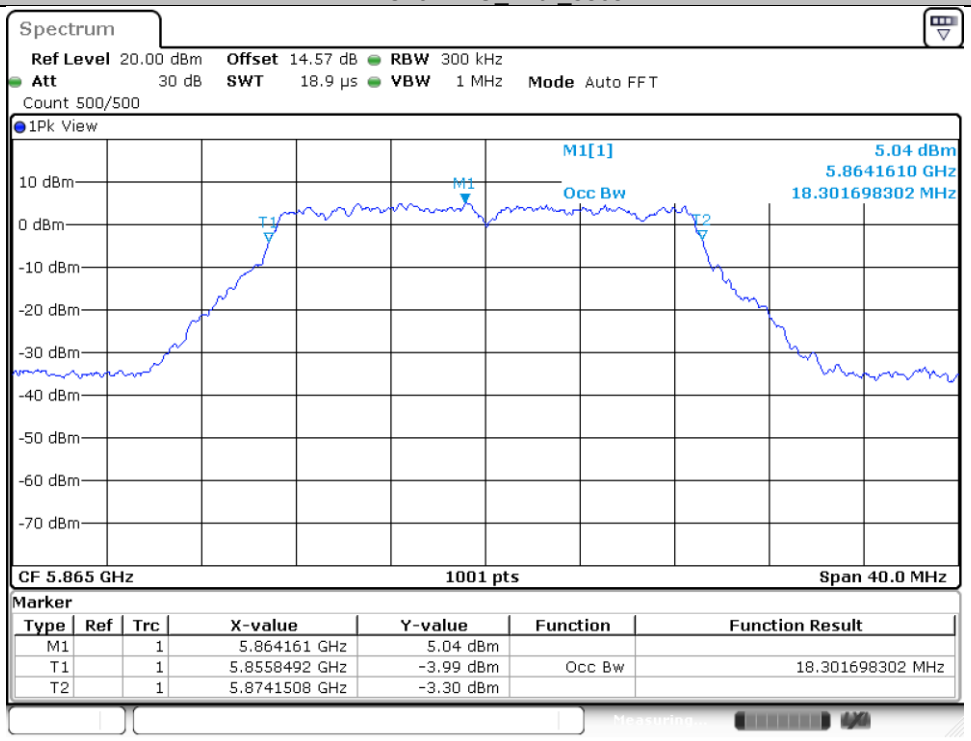
Date: 27.FEB.2024 15:15:44

11AC20MIMO_Ant1_5865



Date: 27.FEB.2024 15:16:38

11AC20MIMO_Ant2_5865



Date: 27.FEB.2024 15:17:26