FCC RF Test Report

APPLICANT	:	Relay, Inc.
EQUIPMENT	:	Relay
BRAND NAME	:	Relay
MODEL NAME	:	RY2268
FCC ID	:	2AMBHRY2268
STANDARD	:	FCC Part 15 Subpart C §15.247
CLASSIFICATION	:	(DTS) Digital Transmission System
TEST DATE(S)	:	Feb. 23, 2024 ~ May 13, 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

TABLE OF CONTENTS

REVISION HISTORY **3**
SUMMARY OF TEST RESULT **4**
1 GENERAL DESCRIPTION **5**
1.1 Applicant 5
1.2 Manufacturer 5
1.3 Product Feature of Equipment Under Test 5
1.4 Product Specification of Equipment Under Test 6
1.5 Modification of EUT 6
1.6 Testing Location 7
1.7 Test Software 7
1.8 Applicable Standards 7
2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST **8**
2.1 Carrier Frequency and Channel 8
2.2 Test Mode 8
2.3 Connection Diagram of Test System 9
2.4 Support Unit used in test configuration and system 10
2.5 EUT Operation Test Setup 10
2.6 Measurement Results Explanation Example 11
3 TEST RESULT **12**
3.1 6dB and 99% Bandwidth Measurement 12
3.2 Output Power Measurement 13
3.3 Power Spectral Density Measurement 14
3.4 Conducted Band Edges and Spurious Emission Measurement 16
3.5 Radiated Band Edges and Spurious Emission Measurement 17
3.6 AC Conducted Emission Measurement 21
3.7 Antenna Requirements 23
4 LIST OF MEASURING EQUIPMENT **25**
5 MEASUREMENT UNCERTAINTY **26**
APPENDIX A. CONDUCTED TEST RESULTS
APPENDIX B. AC CONDUCTED EMISSION TEST RESULT
APPENDIX C. RADIATED SPURIOUS EMISSION
APPENDIX D. DUTY CYCLE PLOTS
APPENDIX E. SETUP PHOTOGRAPHS

REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR250507C	Rev. 01	Initial issue of report	May 30, 2024

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	≥ 0.5MHz	Pass	-
3.1	-	99% Bandwidth	-	Report Only	-
3.2	15.247(b)	Power Output Measurement	≤ 30dBm	Pass	-
3.3	15.247(e)	Power Spectral Density	≤ 8dBm/3kHz	Pass	-
3.4	15.247(d)	Conducted Band Edges	≤ 20dBc	Pass	-
		Conducted Spurious Emission		Pass	-
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 2.23 dB at 2483.56 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 19.06 dB at 0.449 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	15.203 & 15.247(b)	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

Relay, Inc.
4200 Six Forks Rd, Suite 1800, Raleigh, NC 27609, USA

1.2 Manufacturer

Relay, Inc.
4200 Six Forks Rd, Suite 1800, Raleigh, NC 27609, USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Relay
Brand Name	Relay
Model Name	RY2268
FCC ID	2AMBHRY2268
IMEI Code	Conducted: 990007570009446 Conduction: 990007570009446/990007570009453 Radiation: 990007570009388
HW Version	v01
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

<table>
<tr><th colspan="2">Standards-related Product Specification</th></tr>
<tr><td>Tx/Rx Channel Frequency Range</td><td>2412 MHz ~ 2462 MHz</td></tr>
<tr><td>Maximum (Peak) Output Power to antenna</td><td><MIMO Ant.3+4>
802.11b : 17.89 dBm (0.0615 W)
802.11g : 19.60 dBm (0.0912 W)
802.11n HT20 : 19.34 dBm (0.0859 W)
802.11n HT40 : 20.31 dBm (0.1074 W)
802.11ax HE20 : 20.97 dBm (0.1250 W)
802.11ax HE40 : 19.59 dBm (0.0910 W)</td></tr>
<tr><td>99% Occupied Bandwidth</td><td>802.11b : 12.787 MHz
802.11g : 16.543 MHz
802.11n HT20 : 17.742 MHz
802.11n HT40 : 36.364 MHz
802.11ax HE20 : 18.941 MHz
802.11ax HE40 : 37.962 MHz</td></tr>
<tr><td>Antenna Type / Gain</td><td><Ant.3>: PIFA Antenna with gain -1.09 dBi
<Ant.4>: PIFA Antenna with gain 0.10 dBi</td></tr>
<tr><td>Type of Modulation</td><td>802.11b : DSSS (DBPSK / DQPSK / CCK)
802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)
802.11ax : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM)</td></tr>
<tr><td>Antenna Function Description</td><td><table><tr><th></th><th>Ant. 3</th><th>Ant. 4</th></tr><tr><td>802.11b/g/n/ax SISO/MIMO</td><td>V</td><td>V</td></tr><tr><td>802.11n/ax TXBF</td><td>V</td><td>V</td></tr></table></td></tr>
</table>

Note:

1. For WLAN SISO & MIMO mode, the whole testing has assessed only MIMO mode by referring to the higher normal output power.
2. The device supports WLAN MIMO CDD mode & Tx beamforming mode, the Maximum EIRP of TXBF mode will be set less than CDD mode, thus we only evaluate CDD mode to perform full test by referring to their maximum output power, the TXBF mode only verify conducted power.
3. 802.11ax 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/PSD > partial RU, therefore the full RU perform full test, and partial RU verify bandedge/spurious.

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 03CH05-KS TH01-KS	CN1257	314309

1.7 Test Software

Item	Site	Manufacturer	Name	Version
1.	TH01-KS	Tonscend	JS1120-3 test system China_210602	3.3.10
2.	03CH05-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 C §15.247
- FCC KDB 558074 D01 15.247 Meas Guidance v05r02
- 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 (Y 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)
2400-2483.5 MHz	1	2412	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437	-	-

2.2 Test Mode

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

MIMO Antenna

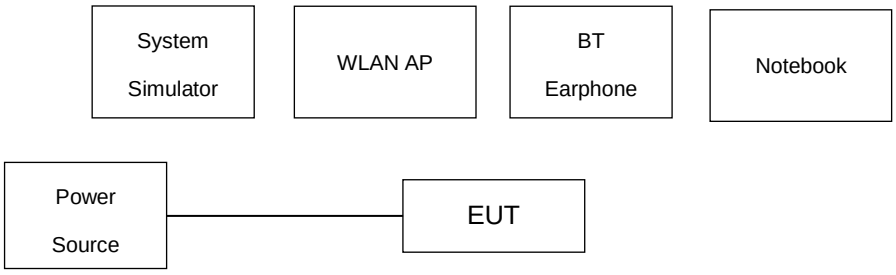
Modulation	Data Rate
802.11b	**1 Mbps**
802.11g	**6 Mbps**
802.11n HT20	**MCS0**
802.11n HT40	**MCS0**
802.11ax HE20	**MCS0**
802.11ax HE40	**MCS0**

Co-location mode
LTE Band 48 + BLE 2M CH39 + WLAN 802.11ax HE40 CH09 Tx
LTE Band 48 + WLAN 802.11ax HE40 CH09 Tx + UWB CH05 Tx

Test Cases	
AC Conducted Emission	Mode 1 :LTE Band 13 Link + BT Link + WLAN Link(2.4G) + Adapter + USB cable
Remark: For Radiated Test Cases, The tests were performance with Adapter and USB Cable.	

2.3 Connection Diagram of Test System

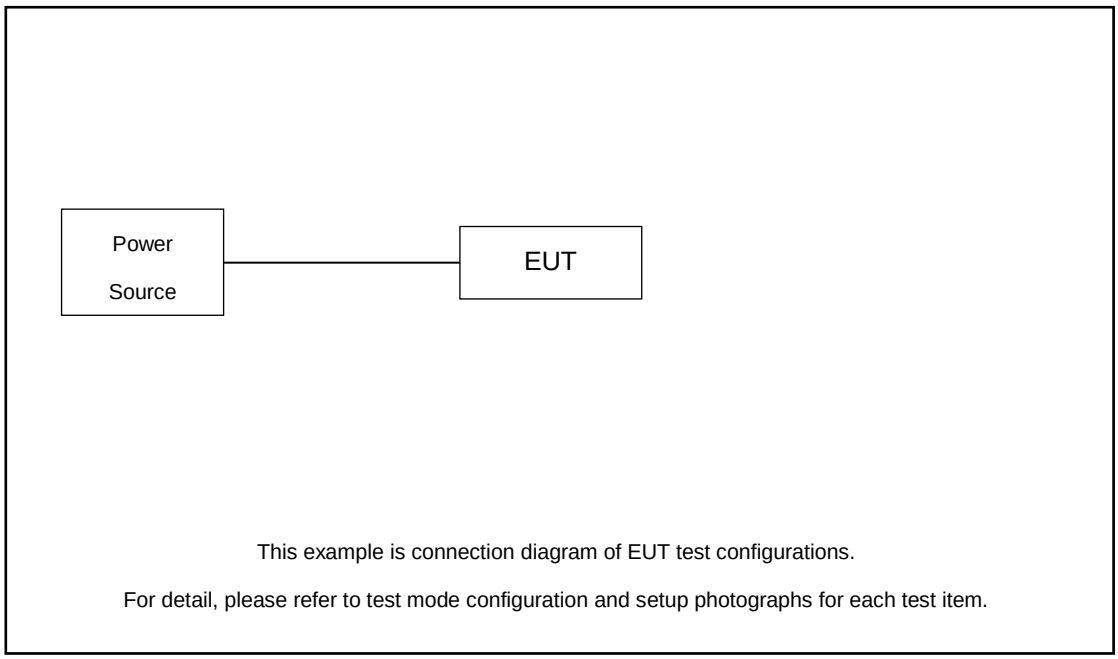
AC Conducted Emission:



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:



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	Bluetooth Earphone	Lenovo	thinkplus-BH3	N/A	N/A	N/A
2.	LTE Base Station	Anritus	MT8821C	N/A	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.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
5.	Adapter	N/A	N/A	N/A	N/A	N/A
6.	USB Cable	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 continuous 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 1.57 dB and 10dB attenuator.

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

= 1.57 + 10 = 11.57 (dB)

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB and 99% Bandwidth

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

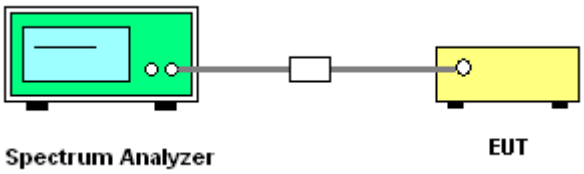
3.1.2 Measuring Instruments

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

3.1.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 11.8
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) = 1%~5% of OBW and set the Video bandwidth (VBW) = 2MHz.
6. Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Please refer to Appendix A.

3.2 Output Power Measurement

3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. If transmitting antenna with directional gain greater than 6dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

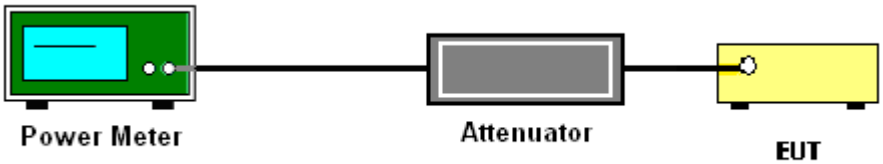
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure of ANSI C63.10-2013 clause 11.9.1.3 PKPM1 Peak power meter or ANSI C63.10-2013 clause 11.9.2.3.1 Method AVGPM method.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.
5. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Please refer to Appendix A.

3.2.6 Test Result of Average Output Power (Reporting Only)

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.

3.3.2 Measuring Instruments

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

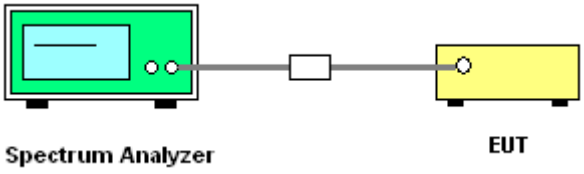
3.3.3 Test Procedures

1. The testing follows Measurement Procedure of ANSI C63.10-2013 clause 11.10.2 Method PKPSD.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
6. Measure and record the results in the test report.
7. 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 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB relative to the maximum PSD level in 100 kHz by RF conducted measurement.

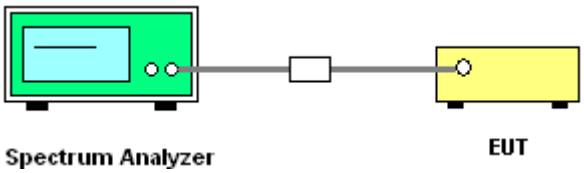
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

1. The testing follows ANSI C63.10-2013 clause 11.11
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.4.4 Test Setup



3.4.5 Test Result of Conducted Band Edges and Spurious Emission

Please refer to Appendix A.

3.5 Radiated Band Edges and Spurious Emission Measurement

3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

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

3.5.2 Measuring Instruments

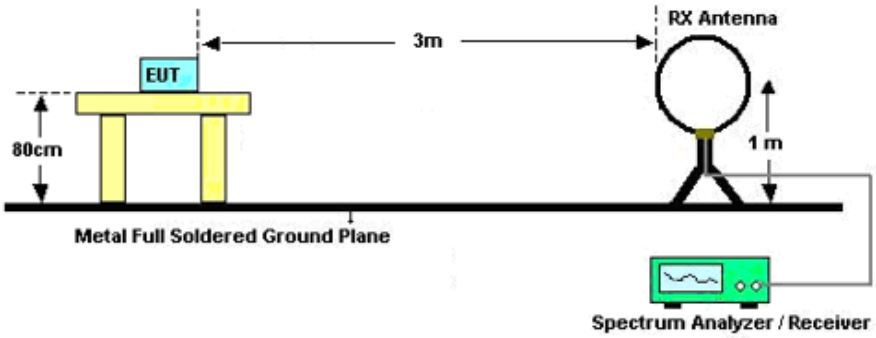
The measuring equipment is listed in the section 4 of this test report.

3.5.3 Test Procedures

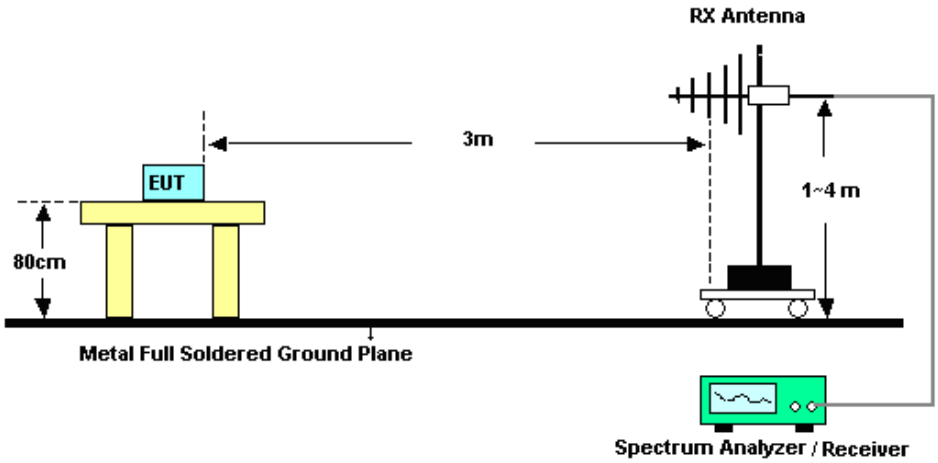
1. The testing follows ANSI C63.10-2013 clause 11.11 & 11.12
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
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. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
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 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.
8. Use the following spectrum analyzer settings:
   (1) Span shall wide enough to fully capture the emission being measured;
   (2) Set RBW=100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
   (3) Set RBW = 1 MHz, VBW= 3MHz for f ≥ 1 GHz for peak measurement.
   For average measurement:
   - 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.

3.5.4 Test Setup

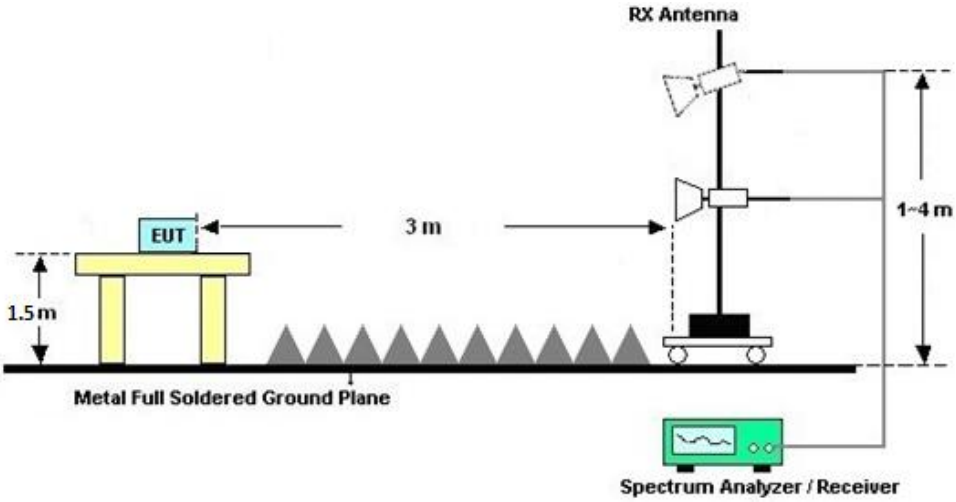
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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.

3.5.6 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 Emission (30MHz ~ 10th Harmonic or 40GHz, whichever is lower)

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.

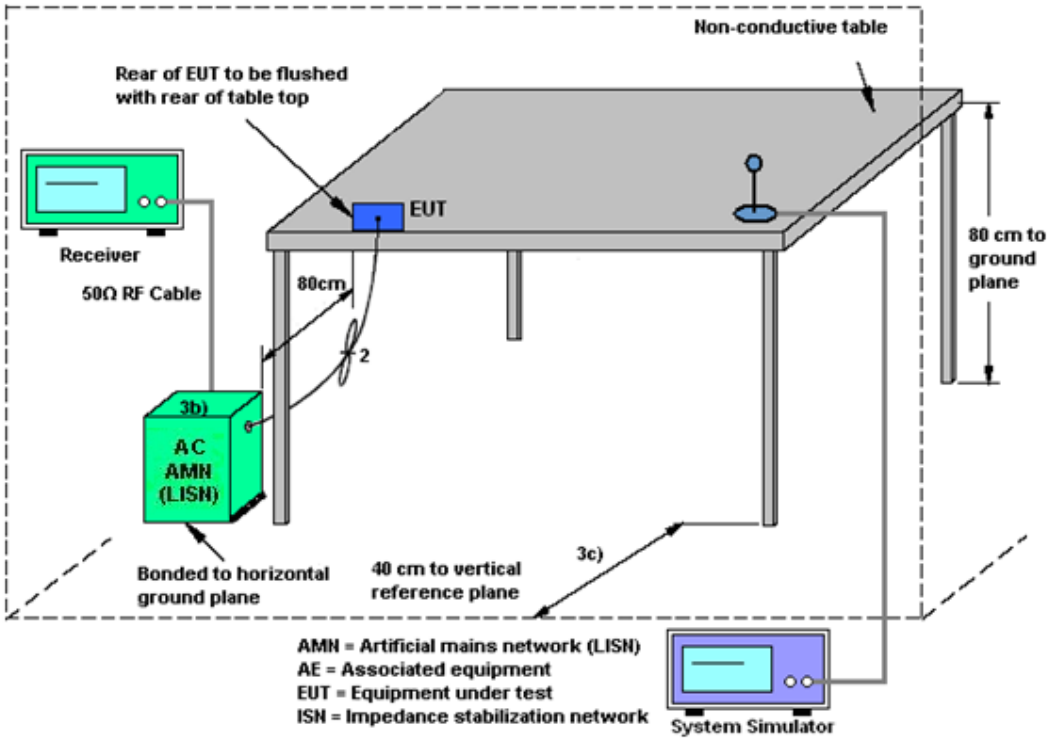
3.6.2 Measuring Instruments

The measuring equipment is listed in the section 4 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, and it 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 (IF bandwidth = 9kHz) 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

If directional gain of transmitting Antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. 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 rule.

3.7.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.7.3 Antenna Gain

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

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

Array Gain = 10 log(N_{ANT}/N_{SS}=1) dB.

For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$.

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

The EUT supports CDD mode for 802.11b/g/n/ax.

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. 3 (dBi)	Ant. 4 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
2.4 GHz	-1.09	0.10	0.10	2.54	0.00	0.00

Power Limit Reduction = DG(Power) – 6dBi, (min = 0)

PSD Limit Reduction = DG(PSD) – 6dBi, (min = 0)

<TXBF modes>

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

The EUT supports TXBF mode for 802.11n/ax.

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.

	Ant. 3 (dBi)	Ant. 4 (dBi)	DG for Power (dBi)	DG for PSD (dBi)	Power Limit Reduction (dB)	PSD Limit Reduction (dB)
2.4 GHz	-1.09	0.10	2.54	2.54	0.00	0.00

Power Limit Reduction = DG(Power) – 6dBi, (min = 0)

PSD Limit Reduction = DG(PSD) – 6dBi, (min = 0)

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	Feb. 23, 2024~ May 13, 2024	Oct. 10, 2024	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 02, 2024	Feb. 23, 2024~ May 13, 2024	Jan. 01, 2025	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 02, 2024	Feb. 23, 2024~ May 13, 2024	Jan. 01, 2025	Conducted (TH01-KS)
EMI Test Receiver	Keysight	N9038A	MY56400004	3Hz~8.5GHz;Max 30dBm	Oct. 10, 2023	Mar. 30, 2024	Oct. 09, 2024	Radiation (03CH05-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44G,MAX 30dB	Oct. 10, 2023	Mar. 30, 2024	Oct. 09, 2024	Radiation (03CH05-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 10, 2023	Mar. 30, 2024	Oct. 09, 2024	Radiation (03CH05-KS)
Bilog Antenna	TeseQ	CBL6111D	59913	30MHz-1GHz	Aug. 19, 2023	Mar. 30, 2024	Aug. 18, 2024	Radiation (03CH05-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	75957	1GHz~18GHz	Oct. 23, 2023	Mar. 30, 2024	Oct. 22, 2024	Radiation (03CH05-KS)
SHF-EHF Horn	Com-power	AH-840	101093	18GHz~40GHz	Jan. 05, 2024	Mar. 30, 2024	Jan. 04, 2025	Radiation (03CH05-KS)
Amplifier	SONOMA	310N	380826	9KHz-1GHz	Jul. 06, 2023	Mar. 30, 2024	Jul. 05, 2024	Radiation (03CH05-KS)
Amplifier	EM	EM18G40GA	060852	18~40GHz	Jan. 05, 2024	Mar. 30, 2024	Jan. 04, 2025	Radiation (03CH05-KS)
high gain Amplifier	EM	EM01G18GA	060839	1Ghz-18Ghz	Oct. 10, 2023	Mar. 30, 2024	Oct. 09, 2024	Radiation (03CH05-KS)
Amplifier	EM	EM01G18GA	060833	1Ghz-18Ghz	Jan. 03, 2024	Mar. 30, 2024	Jan. 02, 2025	Radiation (03CH05-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Mar. 30, 2024	NCR	Radiation (03CH05-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Mar. 30, 2024	NCR	Radiation (03CH05-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Mar. 30, 2024	NCR	Radiation (03CH05-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	May 16, 2023	Mar. 27, 2024	May 15, 2024	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 11, 2023	Mar. 27, 2024	Oct. 10, 2024	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060105	9kHz~30MHz	May 16, 2023	Mar. 27, 2024	May 15, 2024	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 11, 2023	Mar. 27, 2024	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	±2.26 dB
Occupied Channel Bandwidth	±0.1%
Conducted Power	±0.46 dB
Conducted Power Spectral Density	±0.88 dB
Frequency	±0.4 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))	3.30 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))	4.88 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

For CDD mode:

Report Number : FR250507C

TEST RESULTS DATA
Peak Output Power

2.4GHz Band MIMO																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
					Ant3	Ant4	SUM	Ant3	Ant4	Ant3	Ant4	Ant3	Ant4	Ant3	Ant4	
11b	1Mbps	2	1	2412	14.02	15.34	17.74	30.00		0.10		17.84		36.00		Pass
11b	1Mbps	2	6	2437	14.57	15.16	17.89	30.00		0.10		17.99		36.00		Pass
11b	1Mbps	2	11	2462	14.23	15.02	17.65	30.00		0.10		17.75		36.00		Pass
11g	6Mbps	2	1	2412	15.67	17.34	19.60	30.00		0.10		19.70		36.00		Pass
11g	6Mbps	2	6	2437	16.11	16.91	19.54	30.00		0.10		19.64		36.00		Pass
11g	6Mbps	2	11	2462	15.95	16.99	19.51	30.00		0.10		19.61		36.00		Pass
HT20	MCS0	2	1	2412	15.44	17.07	19.34	30.00		0.10		19.44		36.00		Pass
HT20	MCS0	2	6	2437	15.86	16.67	19.29	30.00		0.10		19.39		36.00		Pass
HT20	MCS0	2	11	2462	15.52	16.62	19.12	30.00		0.10		19.22		36.00		Pass
HT40	MCS0	2	3	2422	14.72	15.82	18.32	30.00		0.10		18.42		36.00		Pass
HT40	MCS0	2	6	2437	16.93	17.64	20.31	30.00		0.10		20.41		36.00		Pass
HT40	MCS0	2	9	2452	14.41	15.13	17.80	30.00		0.10		17.90		36.00		Pass

Note: Measured power (dBm) has offset with cable loss.

TEST RESULTS DATA
Peak Output Power

2.4GHz Band MIMO																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Peak Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
						Ant3	Ant4	SUM	Ant3	Ant4	Ant3	Ant4	Ant3	Ant4	Ant3	Ant4	
HE20	MCS0	2	1	2412	Full	17.04	18.71	20.97	30.00		0.10		21.07		36.00		Pass
HE20	MCS0	2	1	2412	26/0	13.31	14.41	16.91	30.00		0.10		17.01		36.00		Pass
HE20	MCS0	2	1	2412	52/37	15.57	17.06	19.39	30.00		0.10		19.49		36.00		Pass
HE20	MCS0	2	1	2412	106/53	16.98	18.51	20.82	30.00		0.10		20.92		36.00		Pass
HE20	MCS0	2	6	2437	Full	17.61	18.25	20.95	30.00		0.10		21.05		36.00		Pass
HE20	MCS0	2	6	2437	26/0	13.62	14.86	17.29	30.00		0.10		17.39		36.00		Pass
HE20	MCS0	2	6	2437	52/37	16.01	16.84	19.46	30.00		0.10		19.56		36.00		Pass
HE20	MCS0	2	6	2437	106/53	17.52	18.06	20.81	30.00		0.10		20.91		36.00		Pass
HE20	MCS0	2	11	2462	Full	17.09	17.99	20.57	30.00		0.10		20.67		36.00		Pass
HE20	MCS0	2	11	2462	26/8	13.38	13.99	16.71	30.00		0.10		16.81		36.00		Pass
HE20	MCS0	2	11	2462	52/40	15.53	16.37	18.98	30.00		0.10		19.08		36.00		Pass
HE20	MCS0	2	11	2462	106/54	17.01	17.83	20.45	30.00		0.10		20.55		36.00		Pass
HE40	MCS0	2	3	2422	Full	14.75	16.05	18.46	30.00		0.10		18.56		36.00		Pass
HE40	MCS0	2	6	2437	Full	16.05	17.05	19.59	30.00		0.10		19.69		36.00		Pass
HE40	MCS0	2	9	2452	Full	14.89	15.24	18.08	30.00		0.10		18.18		36.00		Pass

Note: Measured power (dBm) has offset with cable loss.

Report Number : FR250507C

TEST RESULTS DATA
Average Output Power

2.4GHz Band MIMO																					
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power with duty factor (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail	Setting	
					Ant 3	Ant 4	Ant3	Ant4	SUM	Ant3	Ant4	Ant3	Ant4	Ant3	Ant4	Ant3	Ant4		Ant 3	Ant 4
11b	1Mbps	2	1	2412	0.08	0.08	11.32	12.77	15.12	30.00		0.10		15.22		36.00		Pass	18.00	
11b	1Mbps	2	6	2437	0.08	0.08	12.01	12.63	15.34	30.00		0.10		15.44		36.00		Pass	18.00	
11b	1Mbps	2	11	2462	0.08	0.08	11.68	12.40	15.02	30.00		0.10		15.12		36.00		Pass	18.00	
11g	6Mbps	2	1	2412	0.02	0.02	8.79	10.41	12.69	30.00		0.10		12.79		36.00		Pass	15.00	
11g	6Mbps	2	6	2437	0.02	0.02	9.28	10.19	12.77	30.00		0.10		12.87		36.00		Pass	15.00	
11g	6Mbps	2	11	2462	0.02	0.02	9.00	10.17	12.63	30.00		0.10		12.73		36.00		Pass	15.00	
HT20	MCS0	2	1	2412	0.00	0.00	8.26	10.06	12.26	30.00		0.10		12.36		36.00		Pass	15.00	
HT20	MCS0	2	6	2437	0.00	0.00	8.79	9.74	12.30	30.00		0.10		12.40		36.00		Pass	15.00	
HT20	MCS0	2	11	2462	0.00	0.00	8.57	9.66	12.16	30.00		0.10		12.26		36.00		Pass	15.00	
HT40	MCS0	2	3	2422	0.10	0.06	6.82	7.32	10.09	30.00		0.10		10.19		36.00		Pass	12.50	
HT40	MCS0	2	6	2437	0.10	0.06	10.02	10.88	13.48	30.00		0.10		13.58		36.00		Pass	15.00	
HT40	MCS0	2	9	2452	0.10	0.06	7.23	8.04	10.66	30.00		0.10		10.76		36.00		Pass	12.00	

Note: Measured power (dBm) has offset with cable loss.

Report Number : FR250507C

TEST RESULTS DATA
Average Output Power

2.4GHz Band MIMO																						
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Average Conducted Power with duty factor (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail	Setting	
						Ant3	Ant4	Ant3	Ant4	SUM	Ant3	Ant4	Ant3	Ant4	Ant3	Ant4	Ant3	Ant4		Ant 3	Ant 4
HE20	MCS0	2	1	2412	Full	0.00	0.00	8.70	10.26	12.56	30.00		0.10		12.66		36.00		Pass	15.00	
HE20	MCS0	2	1	2412	26/0	0.00	0.00	2.53	3.51	6.06	30.00		0.10		6.16		36.00		Pass	7.00	
HE20	MCS0	2	1	2412	52/37	0.00	0.00	4.34	5.45	7.94	30.00		0.10		8.04		36.00		Pass	9.00	
HE20	MCS0	2	1	2412	106/53	0.00	0.00	6.53	7.85	10.25	30.00		0.10		10.35		36.00		Pass	11.00	
HE20	MCS0	2	6	2437	Full	0.00	0.00	9.15	10.09	12.66	30.00		0.10		12.76		36.00		Pass	15.00	
HE20	MCS0	2	6	2437	26/0	0.00	0.00	2.08	3.07	5.61	30.00		0.10		5.71		36.00		Pass	7.00	
HE20	MCS0	2	6	2437	52/37	0.00	0.00	4.18	4.93	7.58	30.00		0.10		7.68		36.00		Pass	9.00	
HE20	MCS0	2	6	2437	106/53	0.00	0.00	6.48	7.31	9.93	30.00		0.10		10.03		36.00		Pass	11.00	
HE20	MCS0	2	11	2462	Full	0.00	0.00	8.88	9.90	12.43	30.00		0.10		12.53		36.00		Pass	15.00	
HE20	MCS0	2	11	2462	26/8	0.00	0.00	1.57	2.68	5.17	30.00		0.10		5.27		36.00		Pass	7.00	
HE20	MCS0	2	11	2462	52/40	0.00	0.00	3.95	4.81	7.41	30.00		0.10		7.51		36.00		Pass	9.00	
HE20	MCS0	2	11	2462	106/54	0.00	0.00	6.37	7.18	9.80	30.00		0.10		9.90		36.00		Pass	11.00	
HE40	MCS0	2	3	2422	Full	0.00	0.00	6.88	7.37	10.14	30.00		0.10		10.24		36.00		Pass	12.50	
HE40	MCS0	2	6	2437	Full	0.00	0.00	8.53	9.36	11.98	30.00		0.10		12.08		36.00		Pass	14.00	
HE40	MCS0	2	9	2452	Full	0.00	0.00	7.25	8.07	10.69	30.00		0.10		10.79		36.00		Pass	12.00	

Note: Measured power (dBm) has offset with cable loss.

For TXBF mode:

Report Number : FR250507C

TEST RESULTS DATA
Peak Output Power

2.4GHz Band MIMO																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Peak Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
					Ant3	Ant4	SUM	Ant3	Ant4	Ant3	Ant4	Ant3	Ant4	Ant3	Ant4	
HT20	MCS0	2	1	2412	13.07	14.50	16.85	30.00		2.54		19.39		36.00		Pass
HT20	MCS0	2	6	2437	13.36	14.02	16.71	30.00		2.54		19.25		36.00		Pass
HT20	MCS0	2	11	2462	13.38	13.75	16.58	30.00		2.54		19.11		36.00		Pass
HT40	MCS0	2	3	2422	11.81	12.74	15.31	30.00		2.54		17.85		36.00		Pass
HT40	MCS0	2	6	2437	12.95	13.82	16.42	30.00		2.54		18.95		36.00		Pass
HT40	MCS0	2	9	2452	11.85	12.06	14.97	30.00		2.54		17.50		36.00		Pass

Note: Measured power (dBm) has offset with cable loss.

TEST RESULTS DATA
Peak Output Power

2.4GHz Band MIMO																	
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Peak Conducted Power (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail
						Ant3	Ant4	SUM	Ant3	Ant4	Ant3	Ant4	Ant3	Ant4	Ant3	Ant4	
HE20	MCS0	2	1	2412	Full	14.46	15.87	18.23	30.00		2.54		20.77		36.00		Pass
HE20	MCS0	2	6	2437	Full	14.92	15.64	18.31	30.00		2.54		20.84		36.00		Pass
HE20	MCS0	2	11	2462	Full	14.52	15.06	17.81	30.00		2.54		20.34		36.00		Pass
HE40	MCS0	2	3	2422	Full	11.86	12.83	15.38	30.00		2.54		17.92		36.00		Pass
HE40	MCS0	2	6	2437	Full	13.04	13.94	16.52	30.00		2.54		19.06		36.00		Pass
HE40	MCS0	2	9	2452	Full	11.97	12.18	15.09	30.00		2.54		17.62		36.00		Pass

Note: Measured power (dBm) has offset with cable loss.

Report Number : FR250507C

TEST RESULTS DATA
Average Output Power

2.4GHz Band MIMO																						
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power with duty factor (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail	Setting	
					Ant 3	Ant 4	Ant3	Ant4	SUM	Ant3	Ant4	Ant3	Ant4	Ant3	Ant4	Ant3	Ant4		Ant 3	Ant 4
HT20	MCS0	2	1	2412	0.00	0.00	6.01	7.32	9.72	30.00		2.54		12.26		36.00		Pass	11.50	
HT20	MCS0	2	6	2437	0.00	0.00	6.24	7.16	9.73	30.00		2.54		12.27		36.00		Pass	11.50	
HT20	MCS0	2	11	2462	0.00	0.00	6.20	6.71	9.47	30.00		2.54		12.01		36.00		Pass	11.50	
HT40	MCS0	2	3	2422	0.10	0.06	4.02	4.74	7.41	30.00		2.54		9.94		36.00		Pass	9.00	
HT40	MCS0	2	6	2437	0.10	0.06	5.60	6.27	8.96	30.00		2.54		11.49		36.00		Pass	10.00	
HT40	MCS0	2	9	2452	0.10	0.06	4.51	4.89	7.71	30.00		2.54		10.25		36.00		Pass	9.00	

Note: Measured power (dBm) has offset with cable loss.

Report Number : FR250507C

TEST RESULTS DATA
Average Output Power

2.4GHz Band MIMO																						
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)		Average Conducted Power with duty factor (dBm)			Conducted Power Limit (dBm)		DG (dBi)		EIRP Power (dBm)		EIRP Power Limit (dBm)		Pass /Fail	Setting	
						Ant3	Ant4	Ant3	Ant4	SUM	Ant3	Ant4	Ant3	Ant4	Ant3	Ant4	Ant3	Ant4		Ant 3	Ant 4
HE20	MCS0	2	1	2412	Full	0.00	0.00	6.05	7.39	9.78	30.00		2.54		12.32		36.00		Pass	11.50	
HE20	MCS0	2	6	2437	Full	0.00	0.00	6.35	7.25	9.83	30.00		2.54		12.37		36.00		Pass	11.50	
HE20	MCS0	2	11	2462	Full	0.00	0.00	6.29	6.82	9.57	30.00		2.54		12.11		36.00		Pass	11.50	
HE40	MCS0	2	3	2422	Full	0.00	0.00	4.07	4.82	7.47	30.00		2.54		10.01		36.00		Pass	9.00	
HE40	MCS0	2	6	2437	Full	0.00	0.00	5.68	6.35	9.04	30.00		2.54		11.57		36.00		Pass	10.00	
HE40	MCS0	2	9	2452	Full	0.00	0.00	4.62	4.95	7.80	30.00		2.54		10.33		36.00		Pass	9.00	

Note: Measured power (dBm) has offset with cable loss.

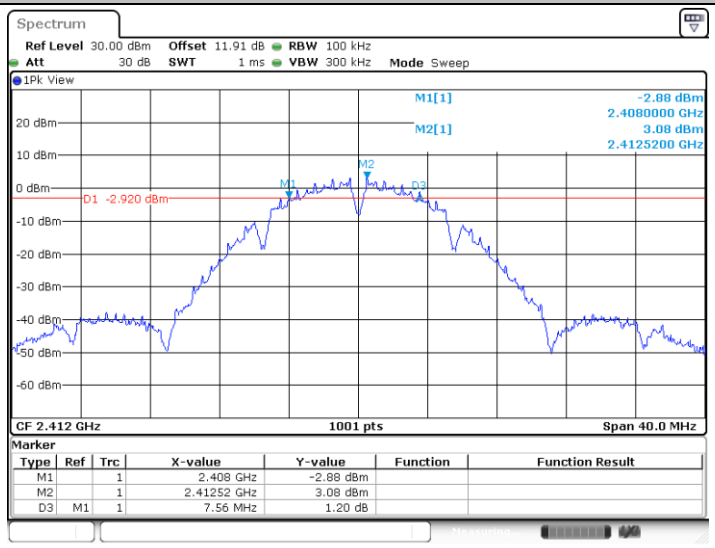
6 dB Bandwidth

Test Result

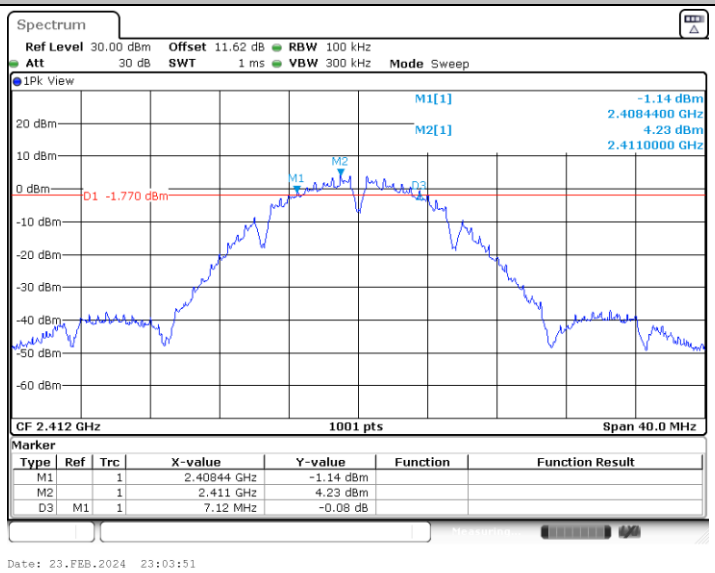
TestMode	Antenna	Freq(MHz)	6dB BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B-CDD	Ant3	2412	7.56	2408.00	2415.56	0.5	PASS
	Ant4	2412	7.12	2408.44	2415.56	0.5	PASS
	Ant3	2437	8.04	2433.00	2441.04	0.5	PASS
	Ant4	2437	8.04	2433.00	2441.04	0.5	PASS
	Ant3	2462	8.04	2458.00	2466.04	0.5	PASS
	Ant4	2462	7.12	2458.44	2465.56	0.5	PASS
11G-CDD	Ant3	2412	15.36	2404.20	2419.56	0.5	PASS
	Ant4	2412	15.32	2404.24	2419.56	0.5	PASS
	Ant3	2437	14.44	2430.12	2444.56	0.5	PASS
	Ant4	2437	13.80	2430.72	2444.52	0.5	PASS
	Ant3	2462	15.28	2454.28	2469.56	0.5	PASS
	Ant4	2462	14.44	2455.12	2469.56	0.5	PASS
11N20MIMO	Ant3	2412	15.40	2404.08	2419.48	0.5	PASS
	Ant4	2412	13.80	2405.72	2419.52	0.5	PASS
	Ant3	2437	15.12	2429.44	2444.56	0.5	PASS
	Ant4	2437	15.12	2429.44	2444.56	0.5	PASS
	Ant3	2462	13.96	2455.48	2469.44	0.5	PASS
	Ant4	2462	13.80	2455.76	2469.56	0.5	PASS
11N40MIMO	Ant3	2422	35.36	2404.24	2439.60	0.5	PASS
	Ant4	2422	35.04	2404.48	2439.52	0.5	PASS
	Ant3	2437	35.12	2419.48	2454.60	0.5	PASS
	Ant4	2437	35.68	2419.48	2455.16	0.5	PASS
	Ant3	2452	35.12	2434.48	2469.60	0.5	PASS
	Ant4	2452	35.12	2434.48	2469.60	0.5	PASS
11AX20MIMO	Ant3	2412	18.44	2402.64	2421.08	0.5	PASS
	Ant4	2412	17.12	2402.56	2419.68	0.5	PASS
	Ant3	2437	16.68	2429.52	2446.20	0.5	PASS
	Ant4	2437	18.76	2427.64	2446.40	0.5	PASS
	Ant3	2462	15.56	2453.96	2469.52	0.5	PASS
	Ant4	2462	13.88	2454.44	2468.32	0.5	PASS
11AX40MIMO	Ant3	2422	37.36	2403.12	2440.48	0.5	PASS
	Ant4	2422	36.40	2403.20	2439.60	0.5	PASS
	Ant3	2437	36.40	2419.48	2455.88	0.5	PASS
	Ant4	2437	37.28	2418.52	2455.80	0.5	PASS
	Ant3	2452	36.00	2434.48	2470.48	0.5	PASS
	Ant4	2452	35.04	2434.56	2469.60	0.5	PASS

Test Graphs

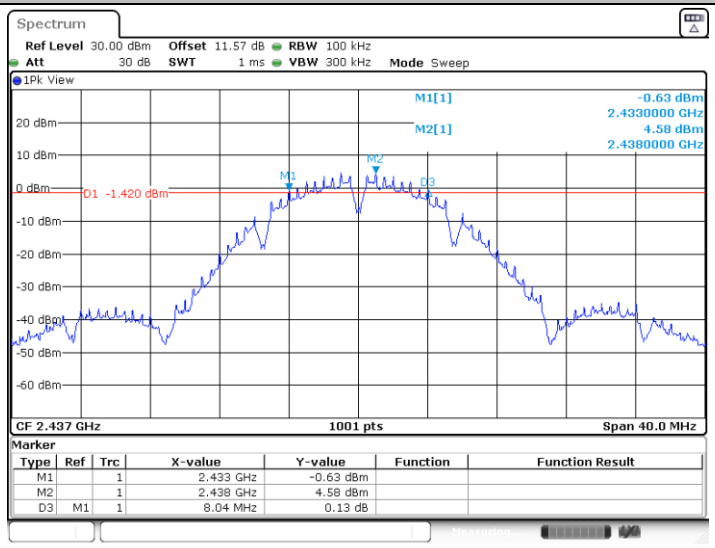
11B-CDD_Ant3_2412



11B-CDD_Ant4_2412

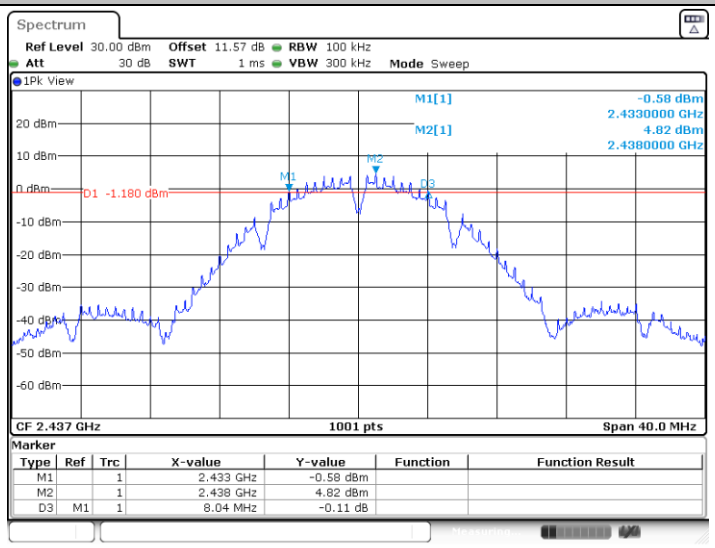


11B-CDD_Ant3_2437



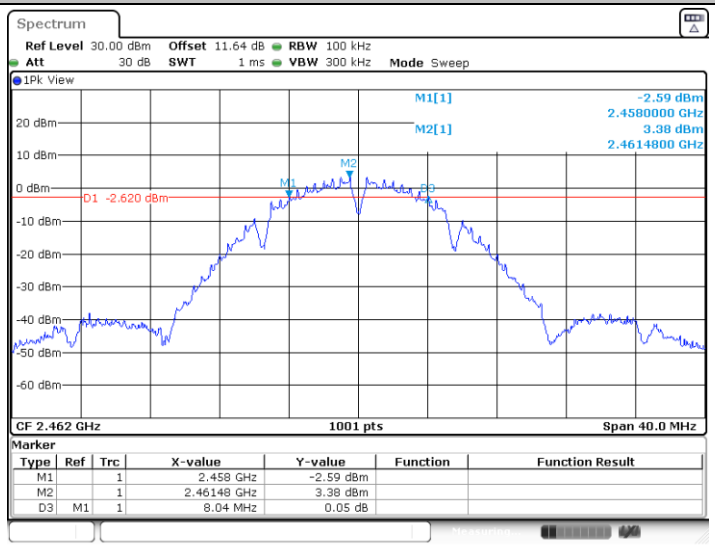
Date: 23.FEB.2024 23:05:20

11B-CDD_Ant4_2437

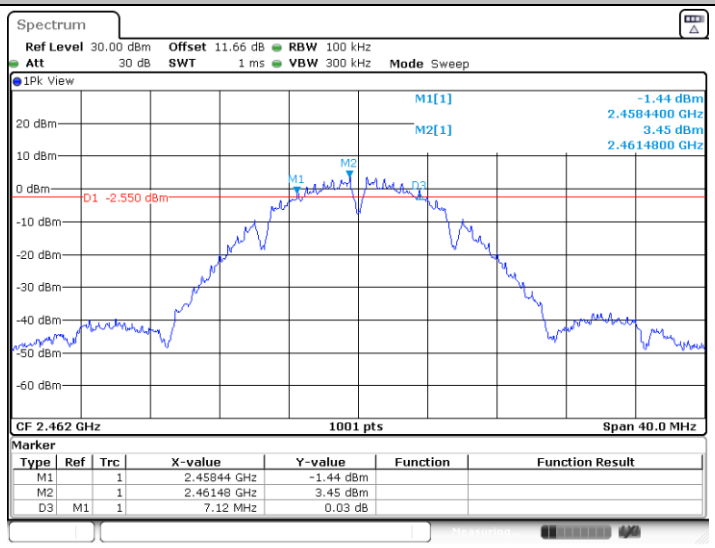


Date: 23.FEB.2024 23:06:15

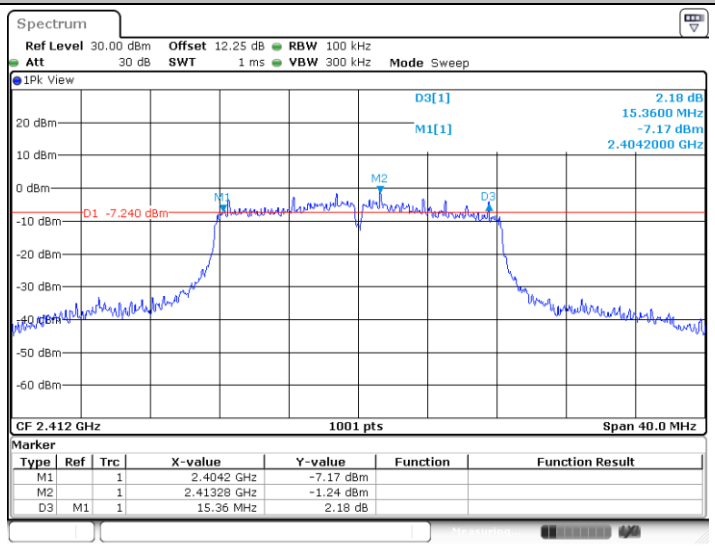
11B-CDD_Ant3_2462



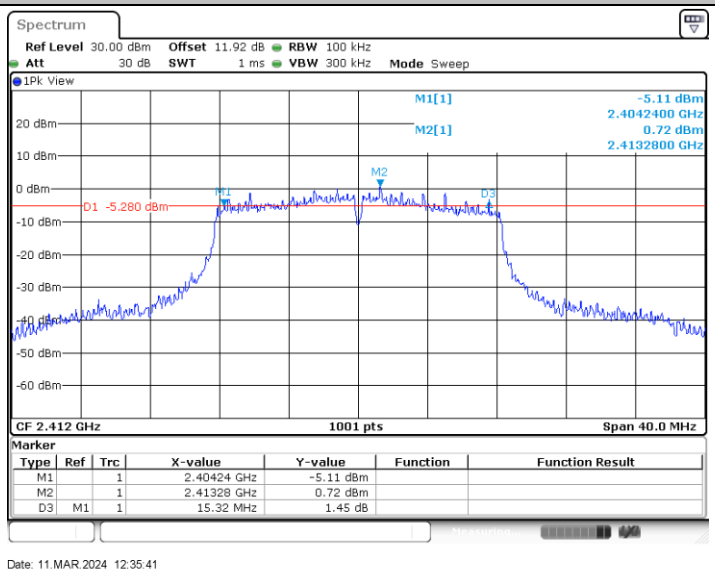
11B-CDD_Ant4_2462



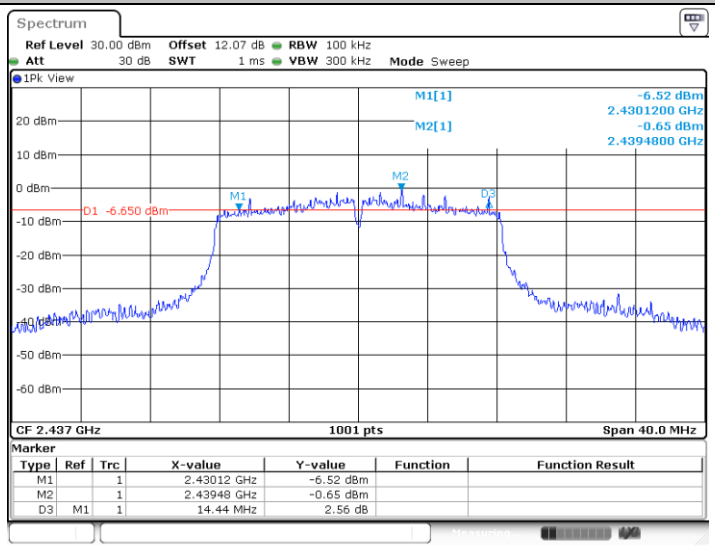
11G-CDD_Ant3_2412



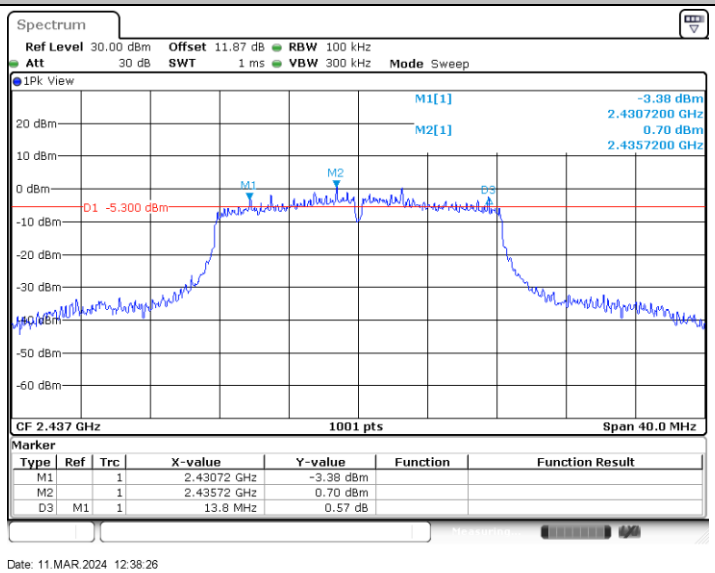
11G-CDD_Ant4_2412



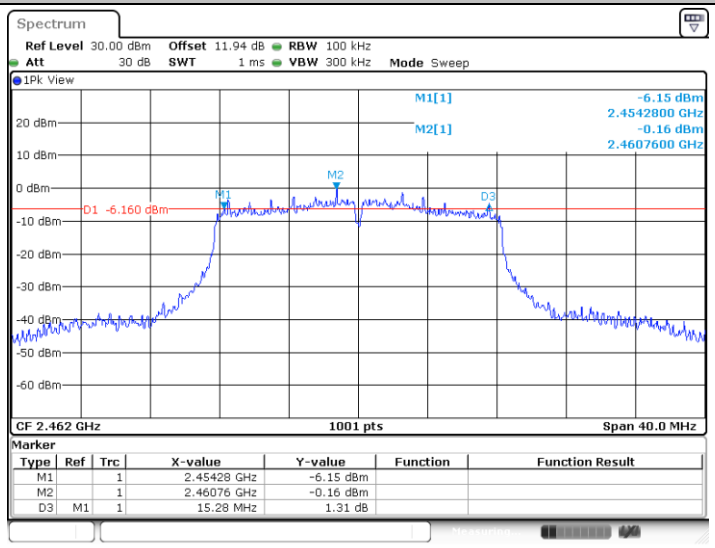
11G-CDD_Ant3_2437



11G-CDD_Ant4_2437

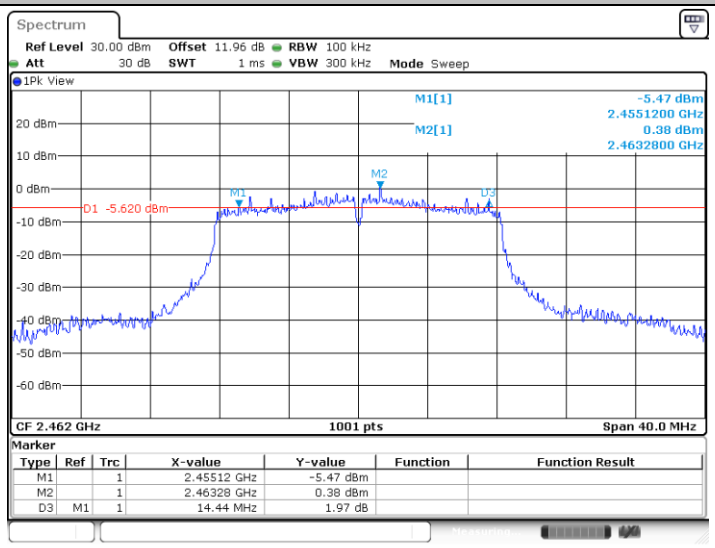


11G-CDD_Ant3_2462



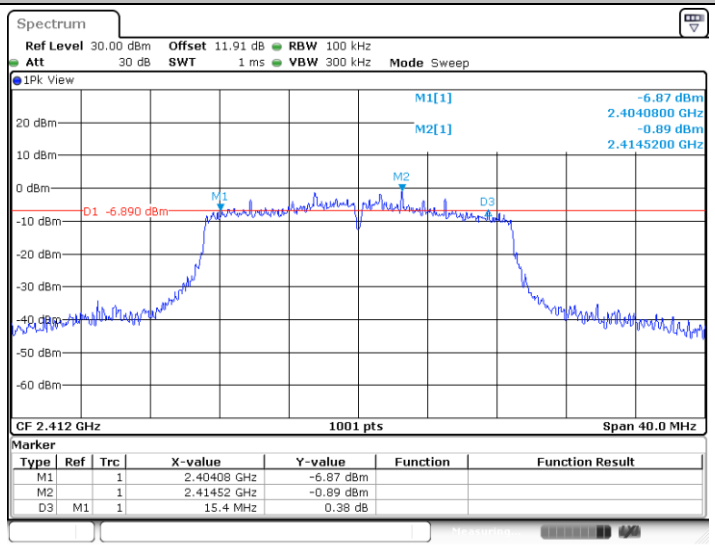
Date: 11.MAR.2024 12:42:30

11G-CDD_Ant4_2462



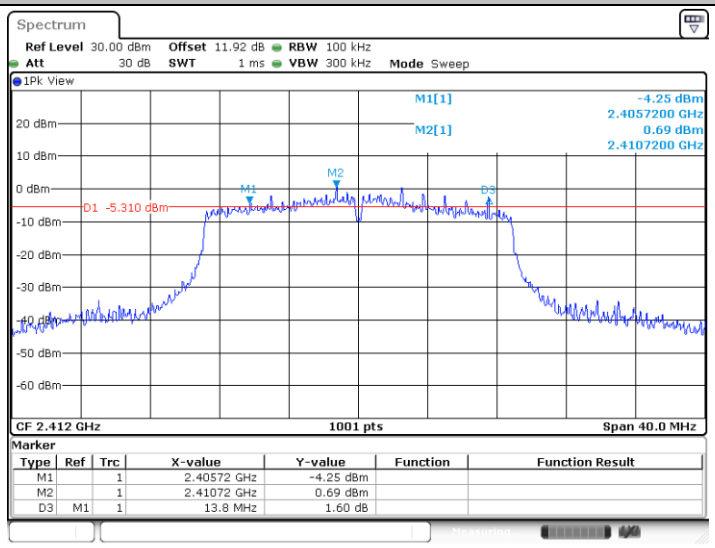
Date: 11.MAR.2024 12:43:36

11N20MIMO_Ant3_2412



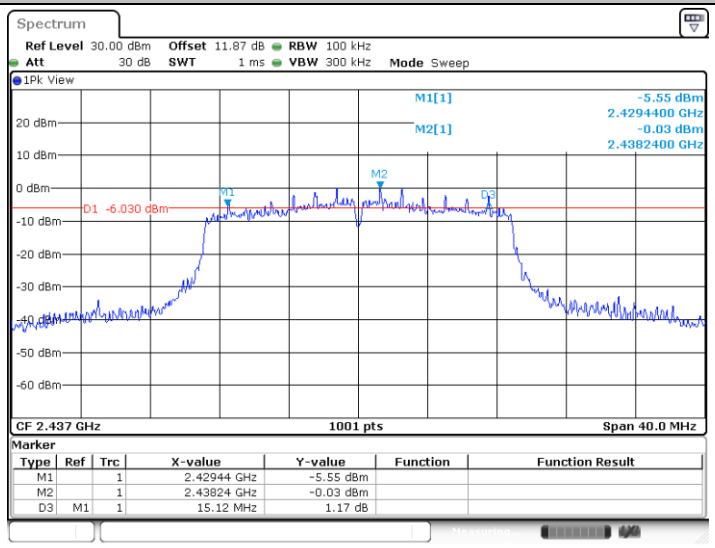
Date: 11.MAR.2024 12:46:17

11N20MIMO_Ant4_2412



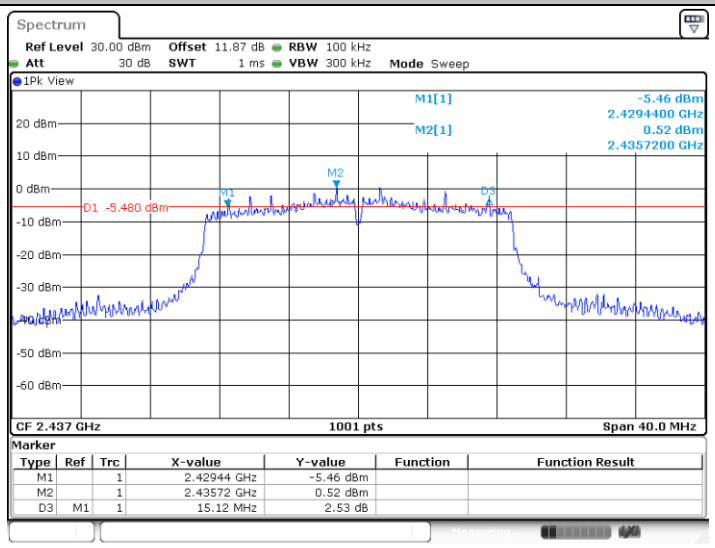
Date: 11.MAR.2024 12:47:23

11N20MIMO_Ant3_2437



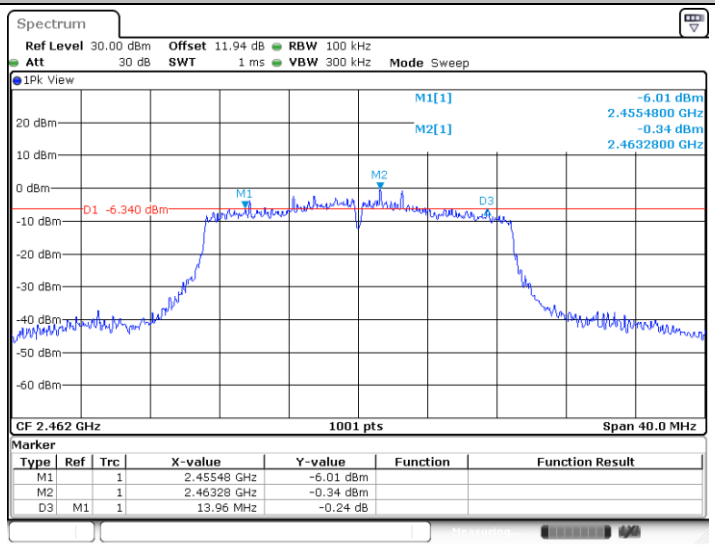
Date: 11.MAR.2024 12:48:57

11N20MIMO_Ant4_2437



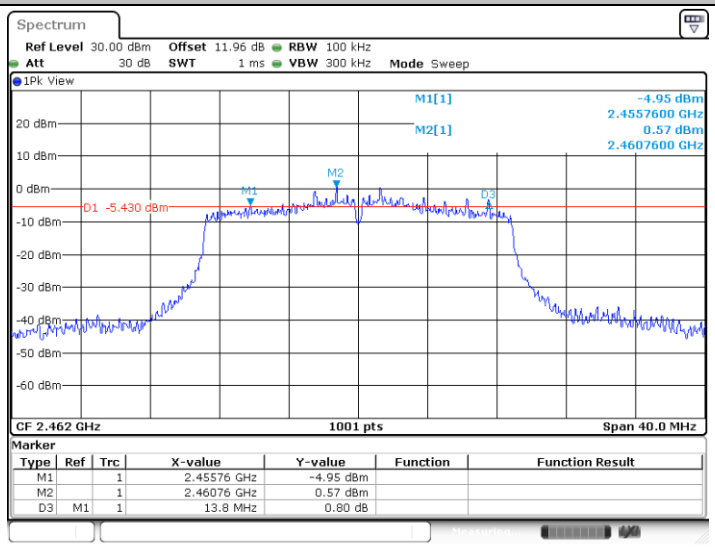
Date: 11.MAR.2024 12:50:24

11N20MIMO_Ant3_2462



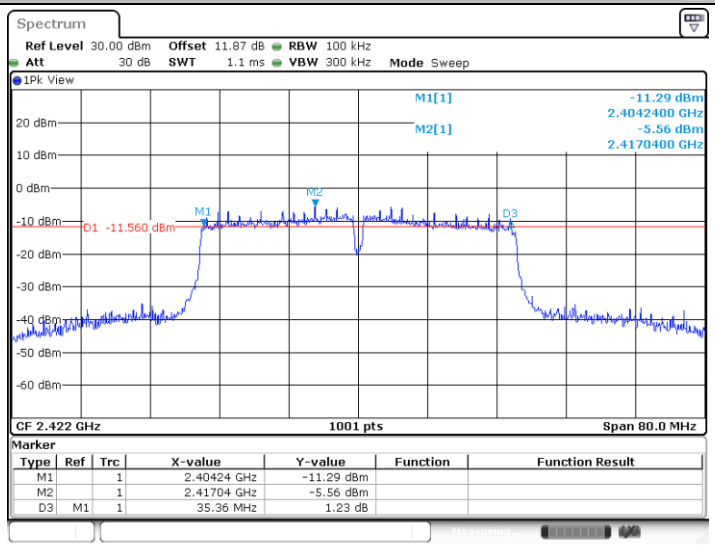
Date: 11.MAR.2024 12:53:22

11N20MIMO_Ant4_2462



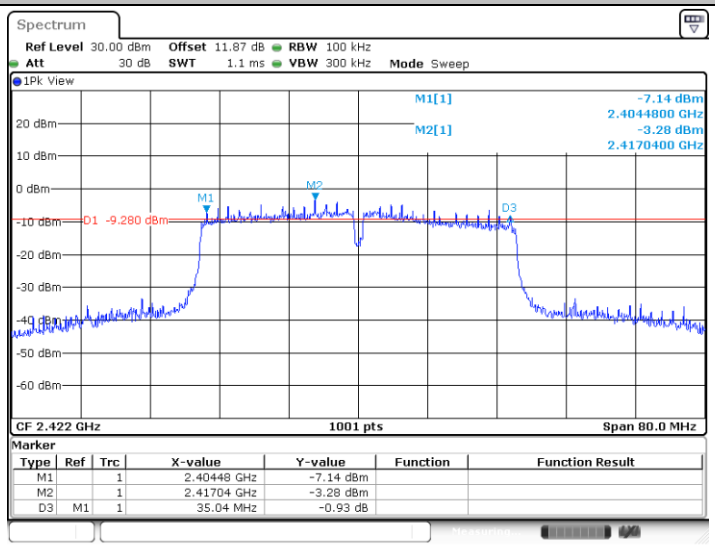
Date: 11.MAR.2024 12:54:46

11N40MIMO_Ant3_2422



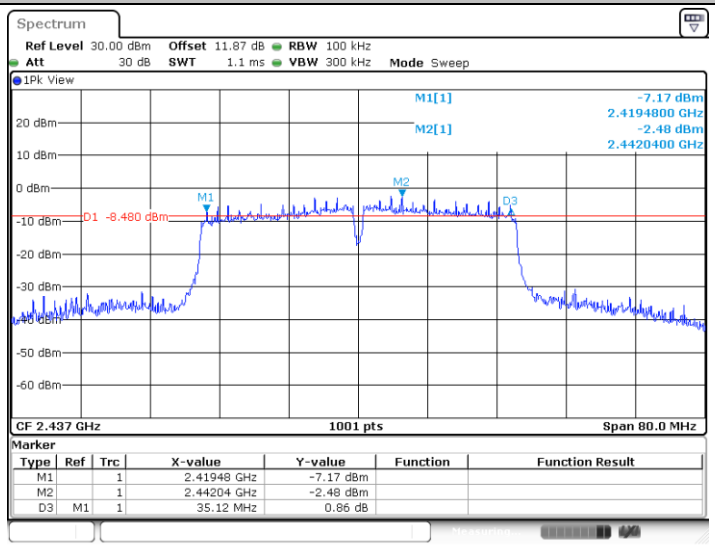
Date: 11.MAR.2024 12:57:48

11N40MIMO_Ant4_2422



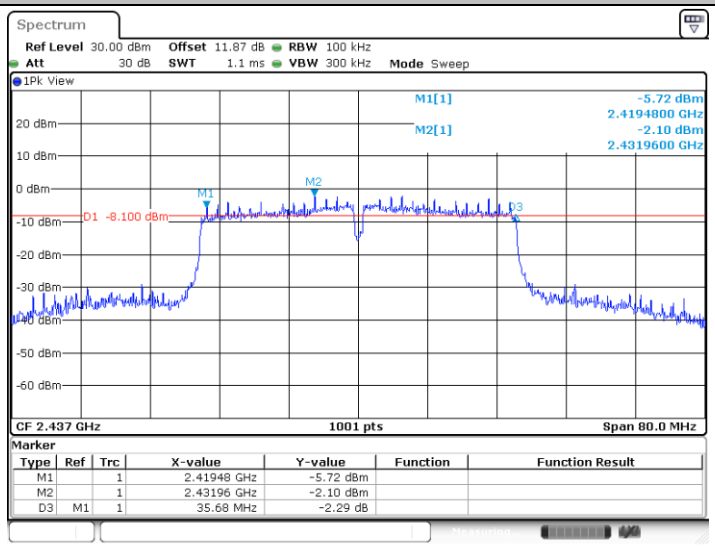
Date: 11.MAR.2024 12:58:55

11N40MIMO_Ant3_2437



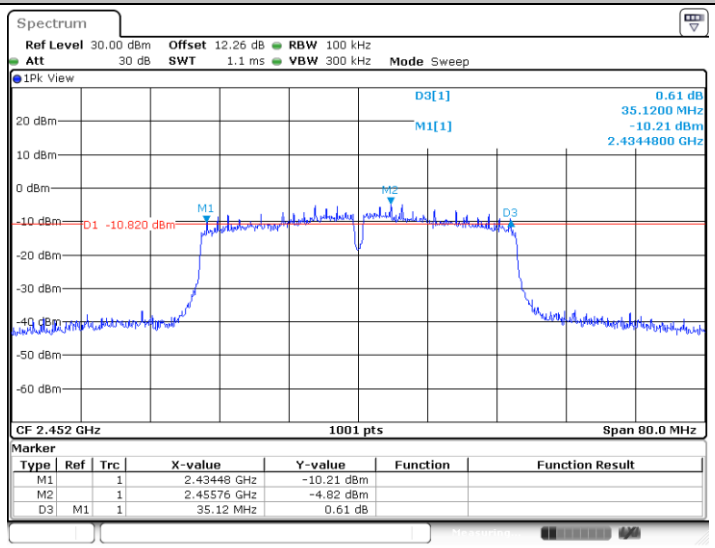
Date: 11.MAR.2024 13:00:50

11N40MIMO_Ant4_2437

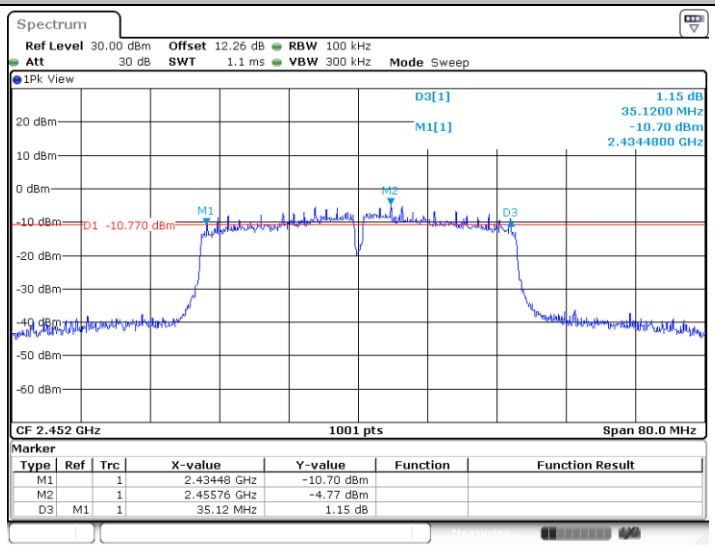


Date: 11.MAR.2024 13:02:01

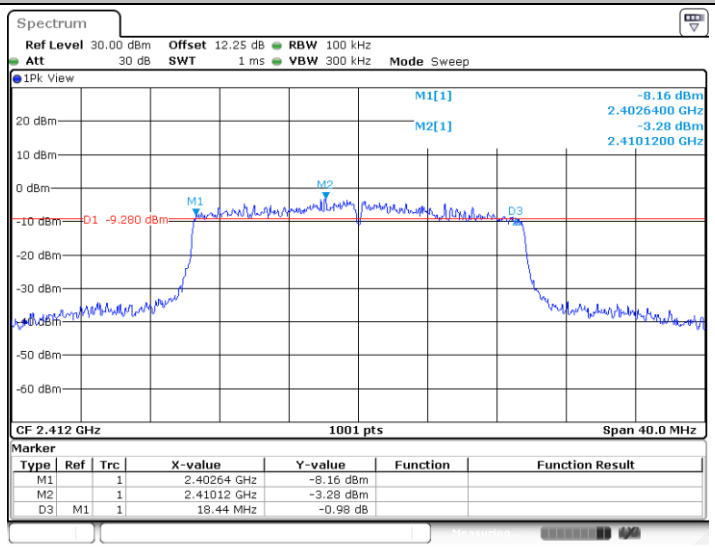
11N40MIMO_Ant3_2452



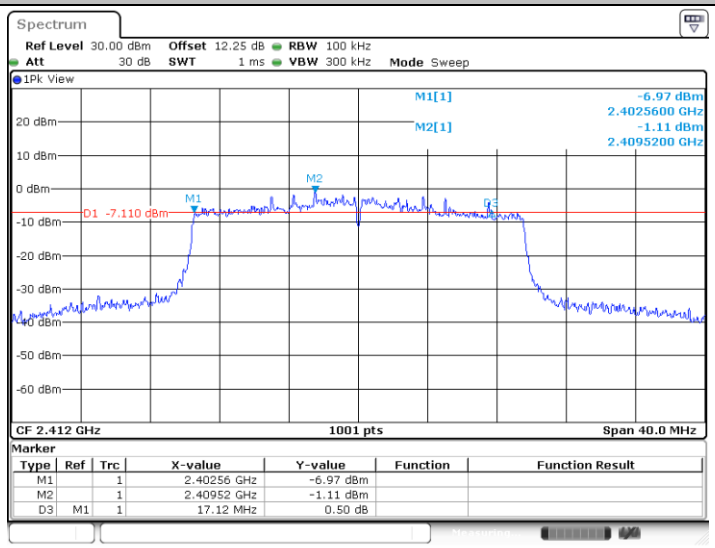
11N40MIMO_Ant4_2452



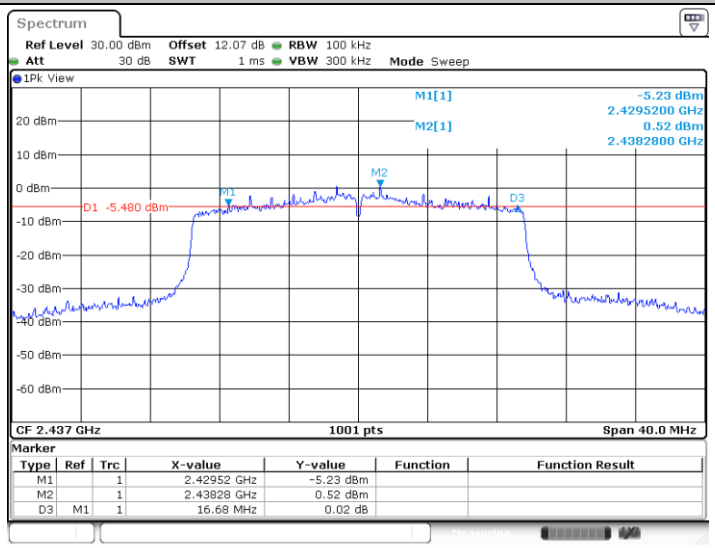
11AX20MIMO_Ant3_2412



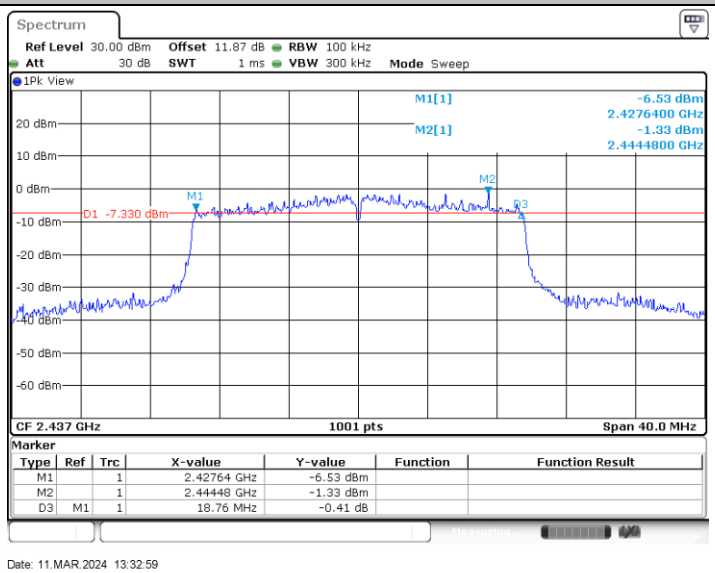
11AX20MIMO_Ant4_2412



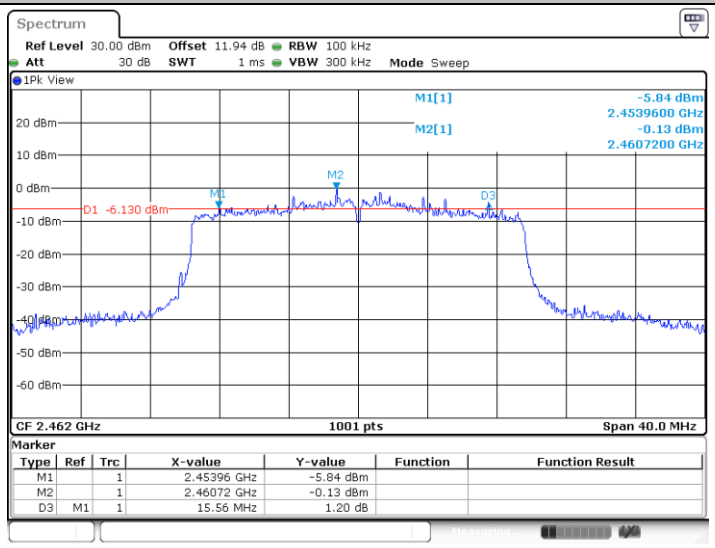
11AX20MIMO_Ant3_2437



11AX20MIMO_Ant4_2437

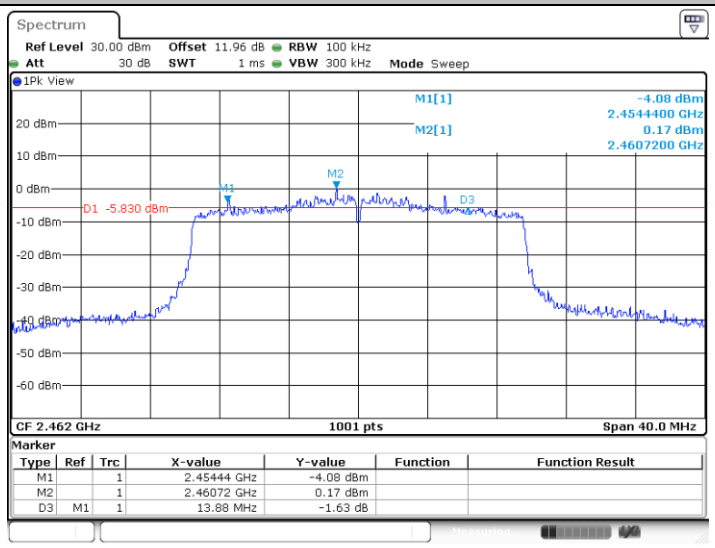


11AX20MIMO_Ant3_2462



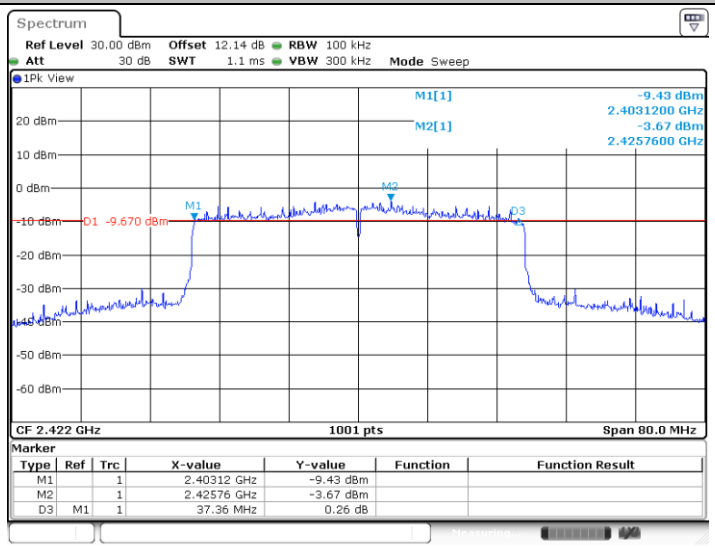
Date: 11.MAR.2024 13:35:14

11AX20MIMO_Ant4_2462

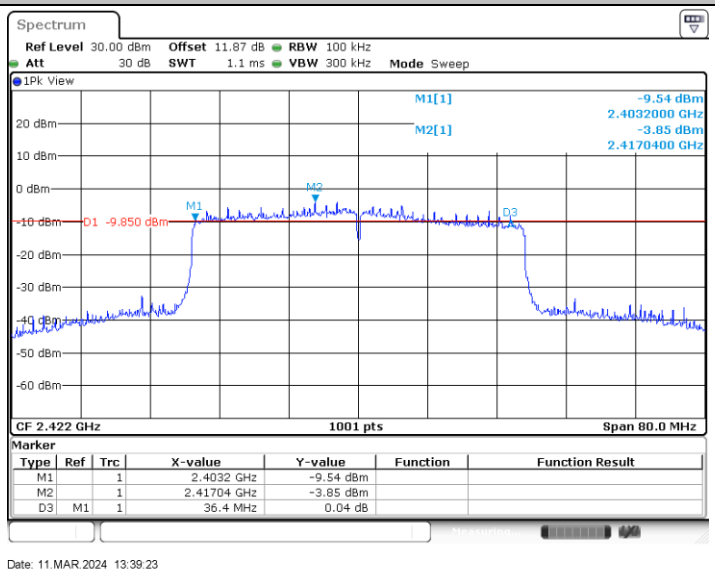


Date: 11.MAR.2024 13:36:24

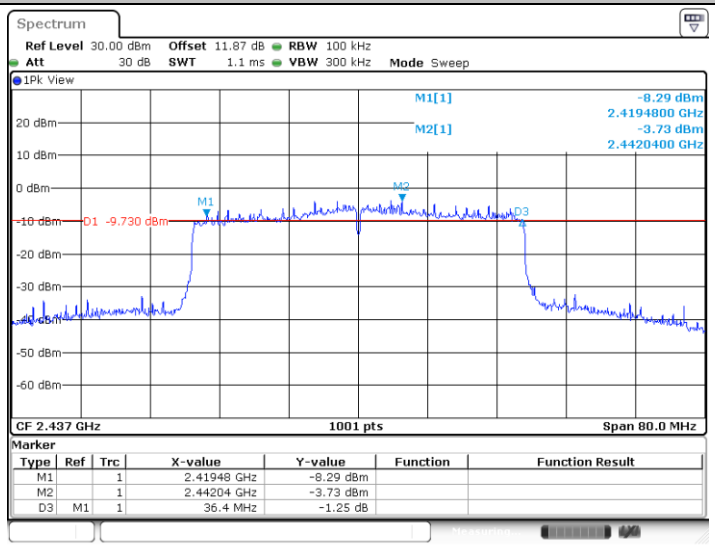
11AX40MIMO_Ant3_2422



11AX40MIMO_Ant4_2422

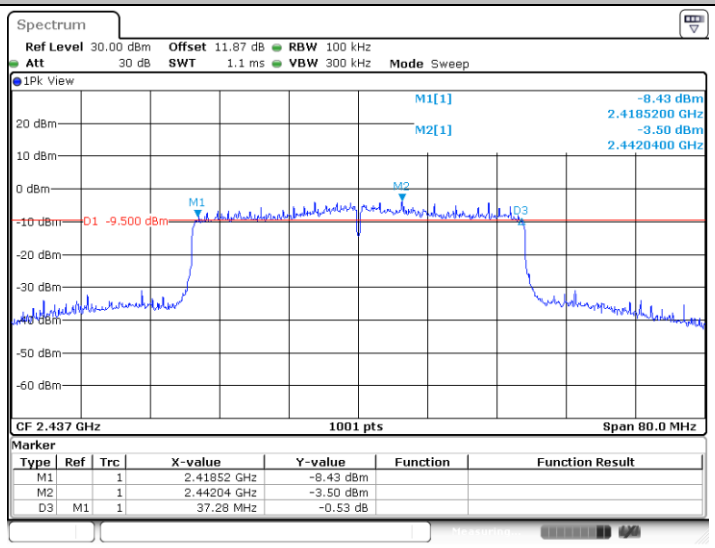


11AX40MIMO_Ant3_2437



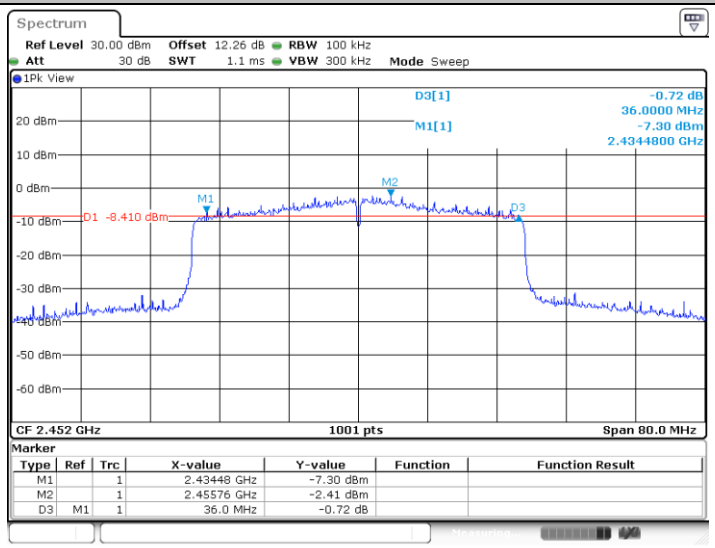
Date: 11.MAR.2024 13:42:40

11AX40MIMO_Ant4_2437

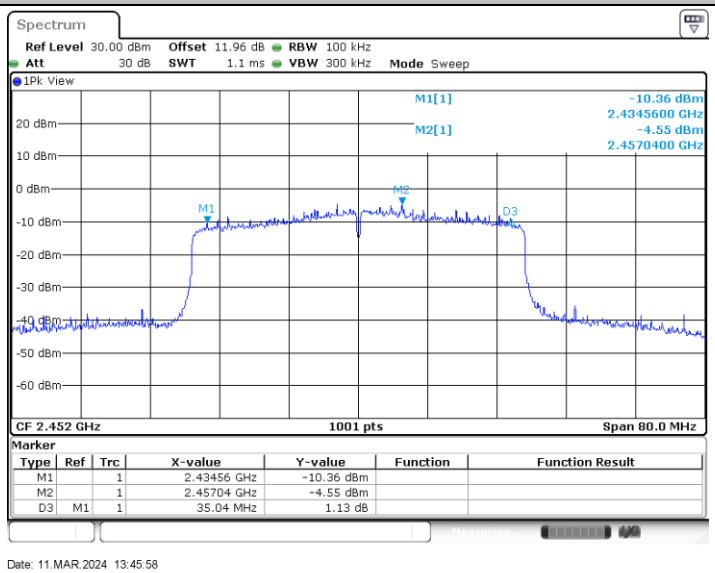


Date: 11.MAR.2024 13:43:36

11AX40MIMO_Ant3_2452



11AX40MIMO_Ant4_2452



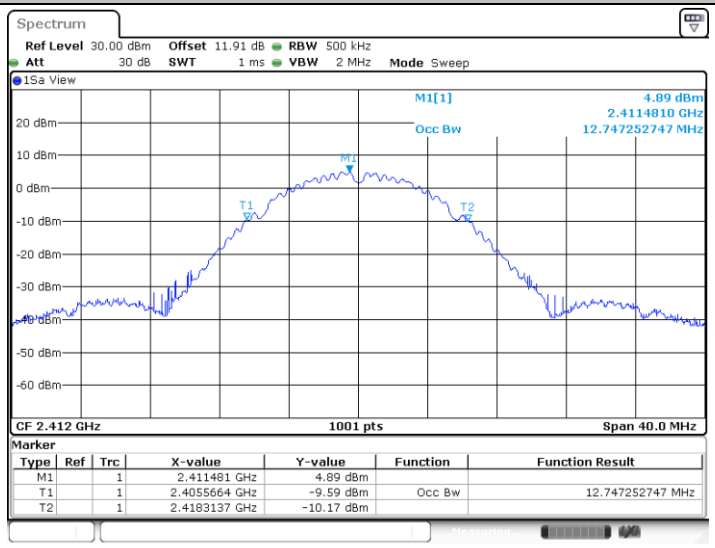
Occupied Channel Bandwidth

Test Result

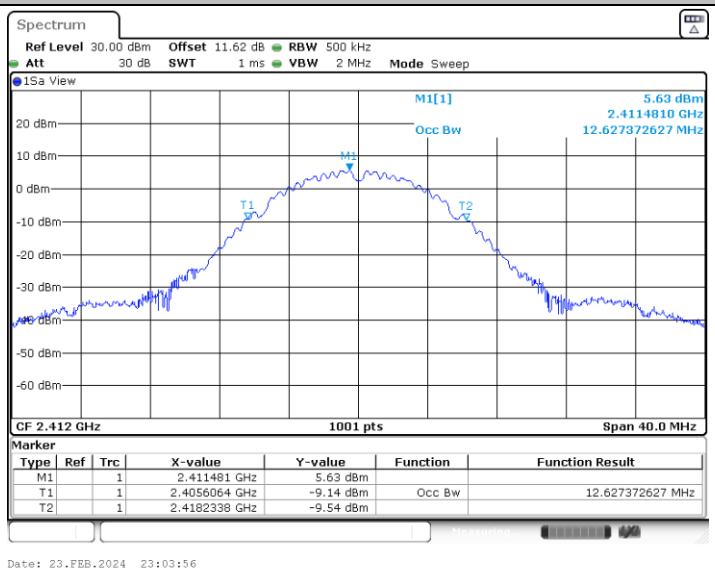
TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]
11B-CDD	Ant3	2412	12.747	2405.5664	2418.3137
	Ant4	2412	12.627	2405.6064	2418.2338
	Ant3	2437	12.747	2430.7263	2443.4735
	Ant4	2437	12.747	2430.7263	2443.4735
	Ant3	2462	12.787	2455.5664	2468.3536
	Ant4	2462	12.787	2455.6464	2468.4336
11G-CDD	Ant3	2412	16.543	2403.6484	2420.1918
	Ant4	2412	16.464	2403.7283	2420.1918
	Ant3	2437	16.543	2428.7283	2445.2717
	Ant4	2437	16.543	2428.7682	2445.3117
	Ant3	2462	16.503	2453.6883	2470.1918
	Ant4	2462	16.464	2453.7682	2470.2318
11N20MIMO	Ant3	2412	17.702	2403.0889	2420.7912
	Ant4	2412	17.582	2403.1688	2420.7512
	Ant3	2437	17.742	2428.1688	2445.9111
	Ant4	2437	17.662	2428.2088	2445.8711
	Ant3	2462	17.622	2453.1688	2470.7912
	Ant4	2462	17.582	2453.2088	2470.7912
11N40MIMO	Ant3	2422	36.364	2403.8581	2440.2218
	Ant4	2422	36.044	2403.9381	2439.9820
	Ant3	2437	36.124	2419.0180	2455.1419
	Ant4	2437	36.284	2418.9381	2455.2218
	Ant3	2452	35.884	2434.0979	2469.9820
	Ant4	2452	36.044	2434.0979	2470.1419
11AX20MIMO	Ant3	2412	18.861	2402.5295	2421.3906
	Ant4	2412	18.821	2402.5295	2421.3506
	Ant3	2437	18.941	2427.5694	2446.5105
	Ant4	2437	18.941	2427.5694	2446.5105
	Ant3	2462	18.861	2452.5295	2471.3906
	Ant4	2462	18.861	2452.5694	2471.4306
11AX40MIMO	Ant3	2422	37.962	2402.9790	2440.9411
	Ant4	2422	37.722	2403.0589	2440.7812
	Ant3	2437	37.802	2418.1389	2455.9411
	Ant4	2437	37.962	2418.0589	2456.0210
	Ant3	2452	37.642	2433.2188	2470.8611
	Ant4	2452	37.562	2433.2987	2470.8611

Test Graphs

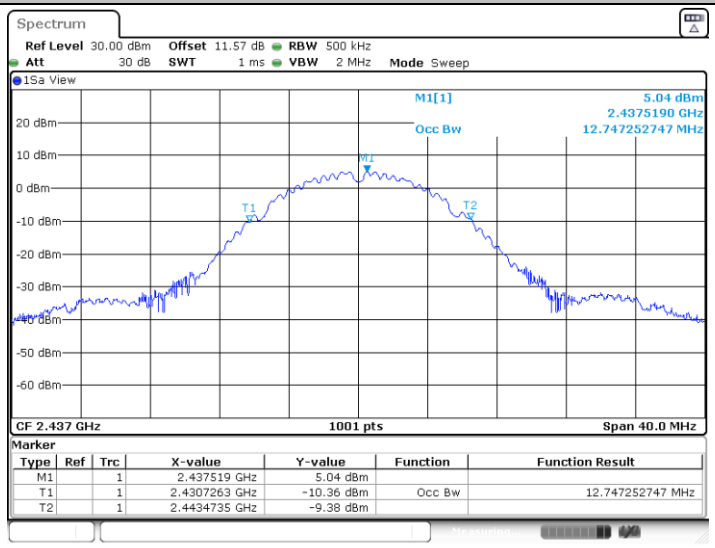
11B-CDD_Ant3_2412



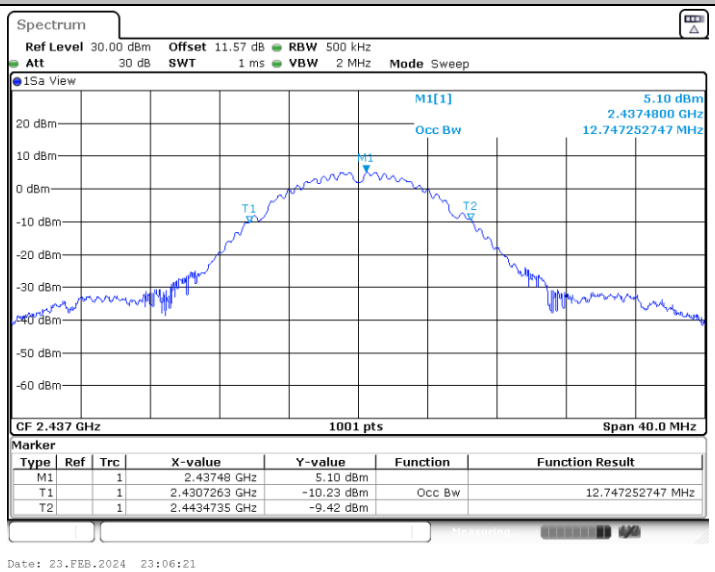
11B-CDD_Ant4_2412



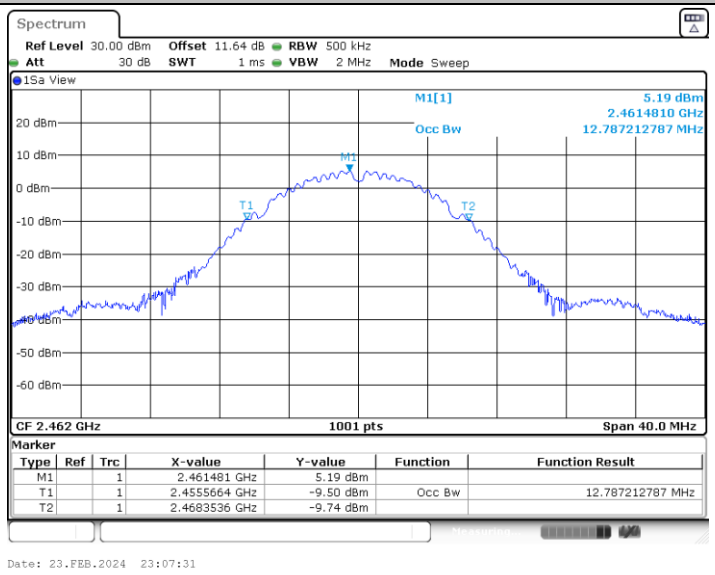
11B-CDD_Ant3_2437



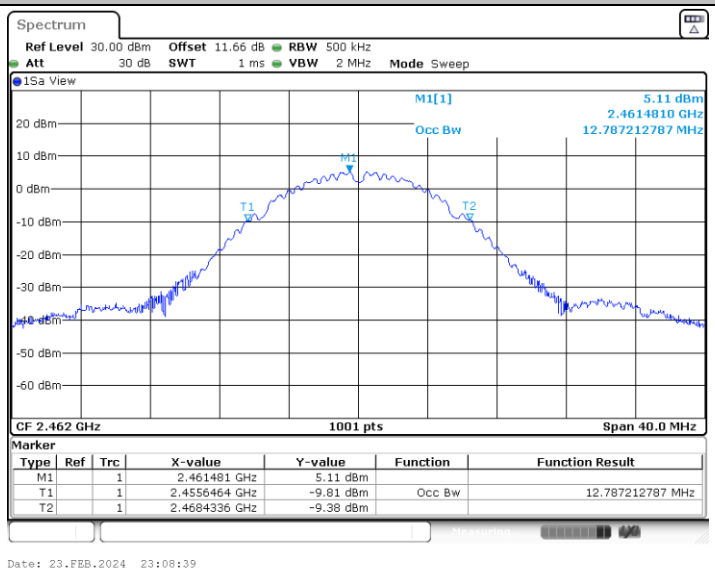
11B-CDD_Ant4_2437



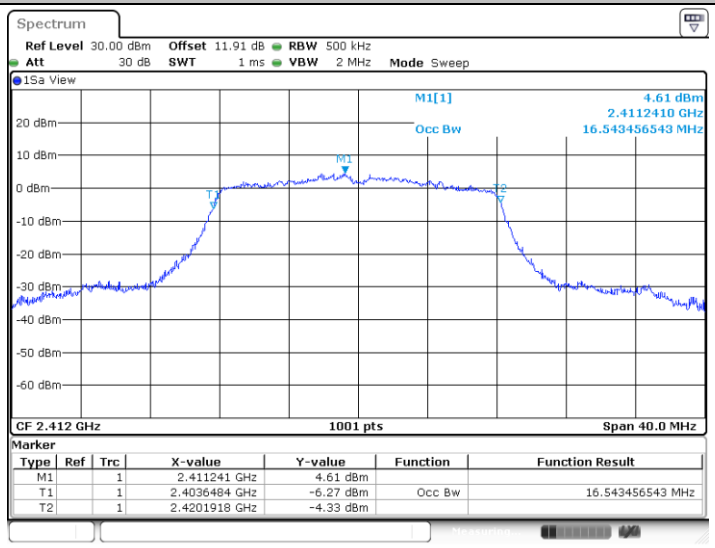
11B-CDD_Ant3_2462



11B-CDD_Ant4_2462

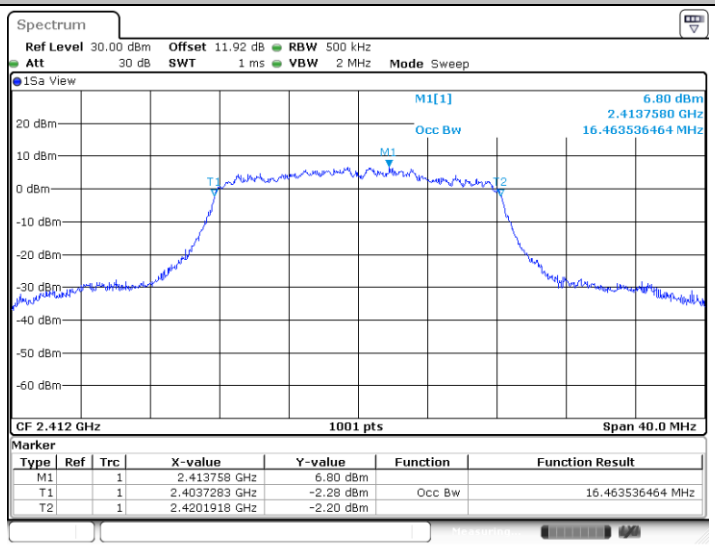


11G-CDD_Ant3_2412



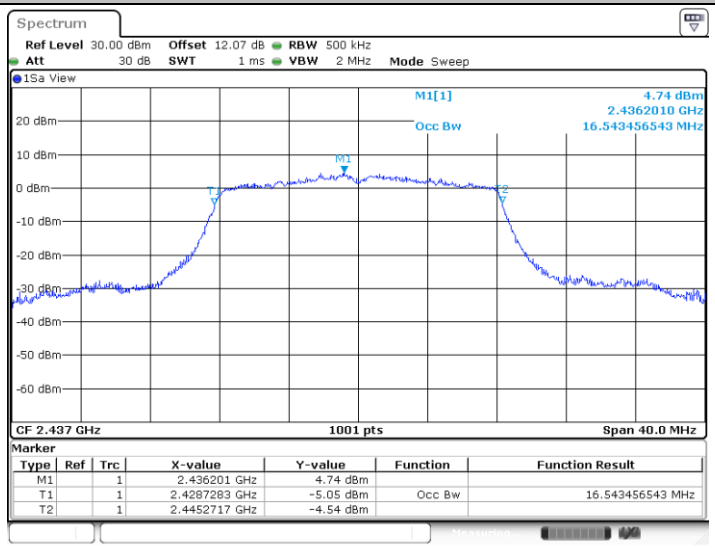
Date: 11.MAR.2024 13:14:27

11G-CDD_Ant4_2412

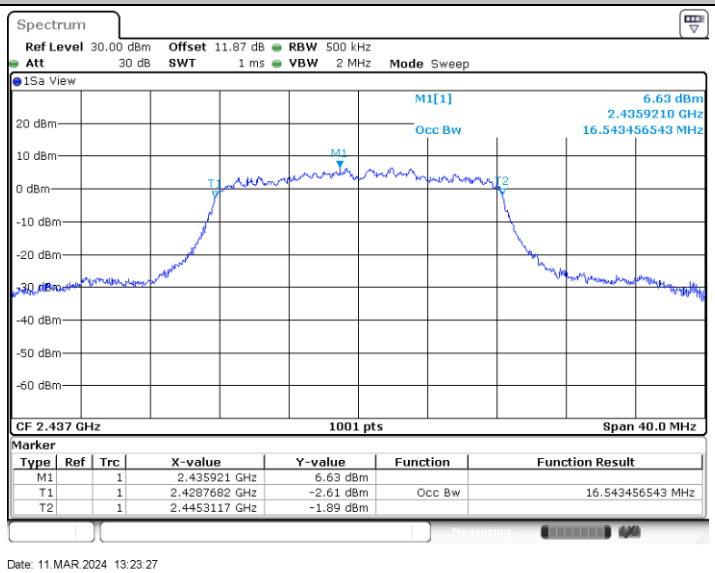


Date: 11.MAR.2024 13:22:26

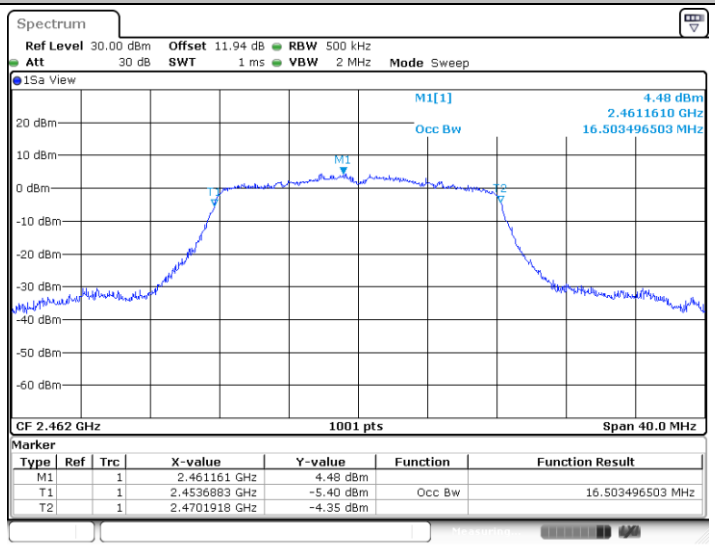
11G-CDD_Ant3_2437



11G-CDD_Ant4_2437

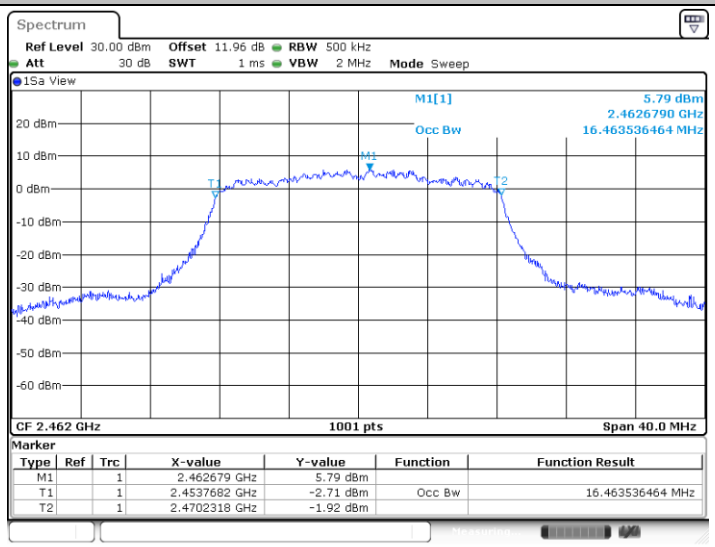


11G-CDD_Ant3_2462



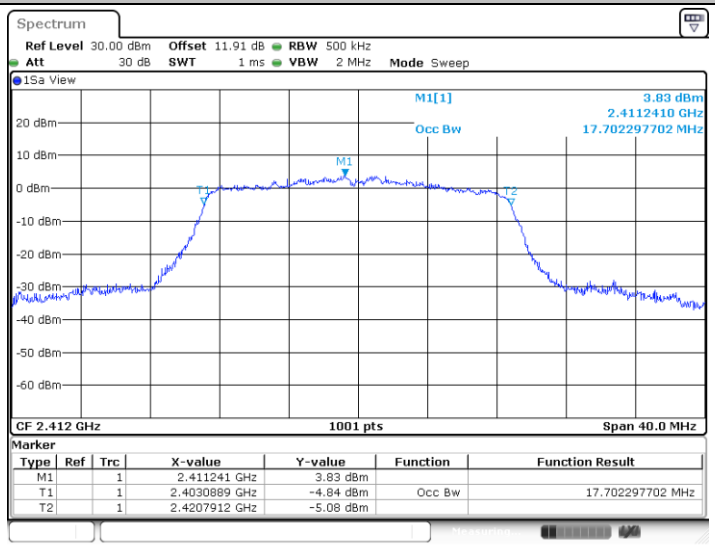
Date: 11.MAR.2024 12:42:35

11G-CDD_Ant4_2462



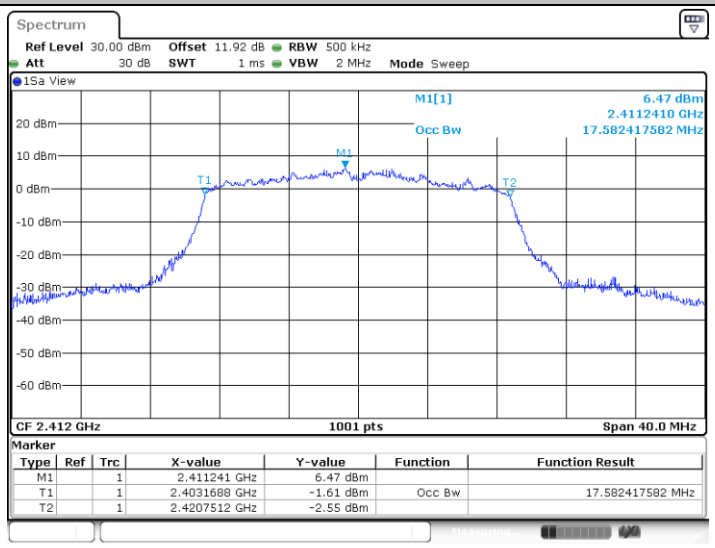
Date: 11.MAR.2024 12:43:41

11N20MIMO_Ant3_2412



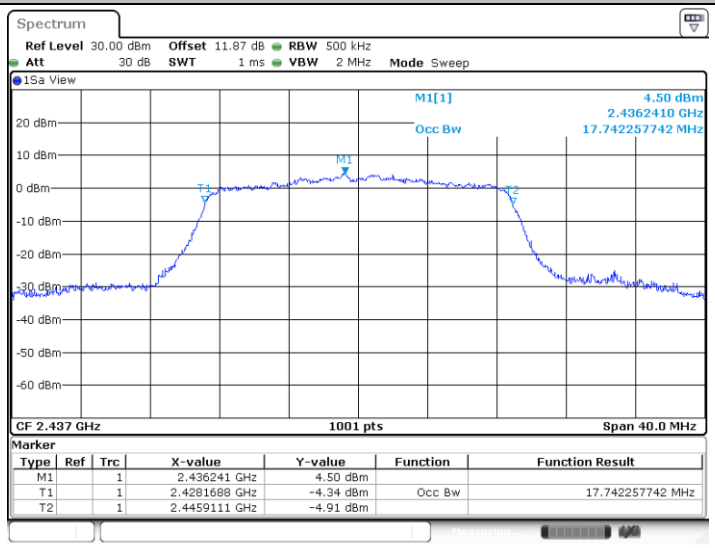
Date: 11.MAR.2024 12:46:22

11N20MIMO_Ant4_2412



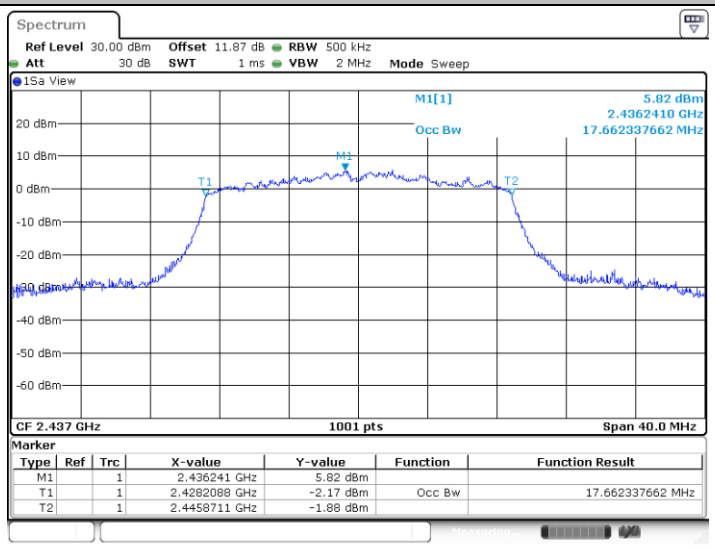
Date: 11.MAR.2024 12:47:45

11N20MIMO_Ant3_2437



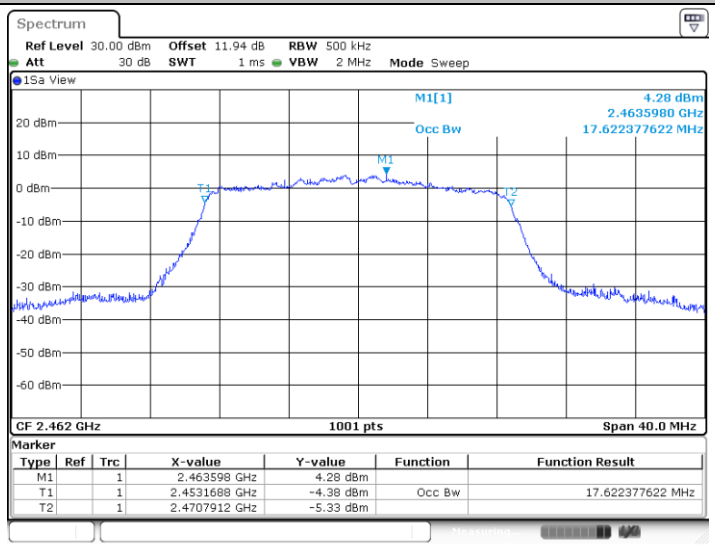
Date: 11.MAR.2024 13:25:04

11N20MIMO_Ant4_2437



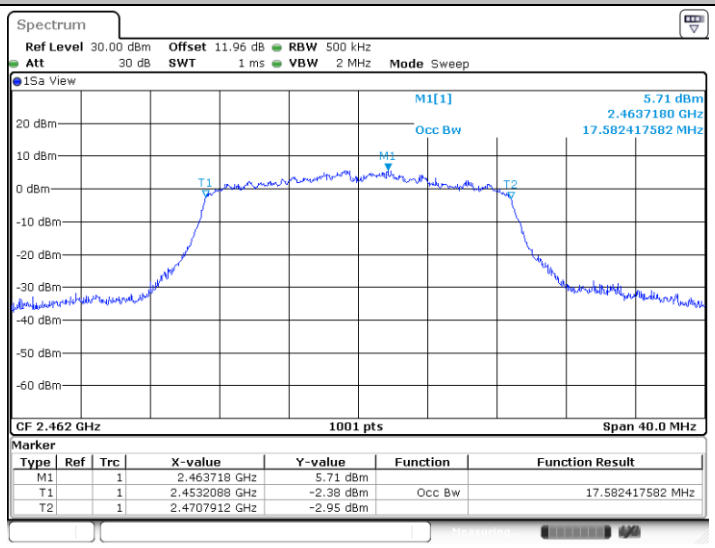
Date: 11.MAR.2024 13:24:25

11N20MIMO_Ant3_2462



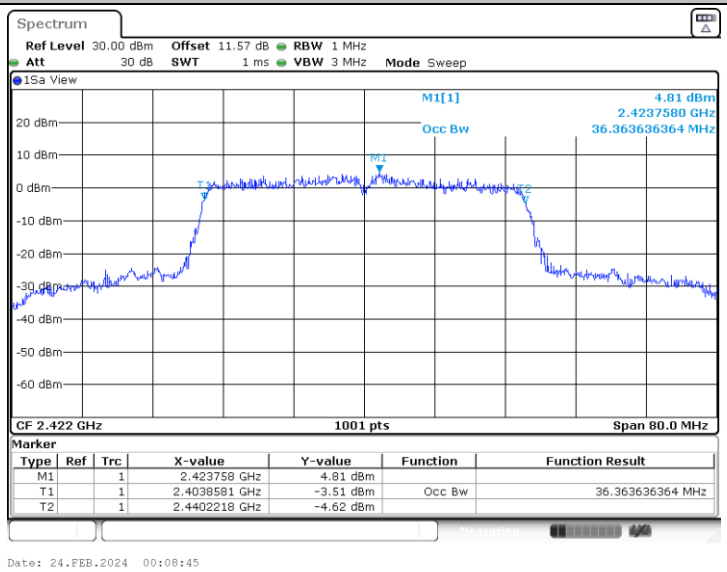
Date: 11.MAR.2024 13:25:43

11N20MIMO_Ant4_2462

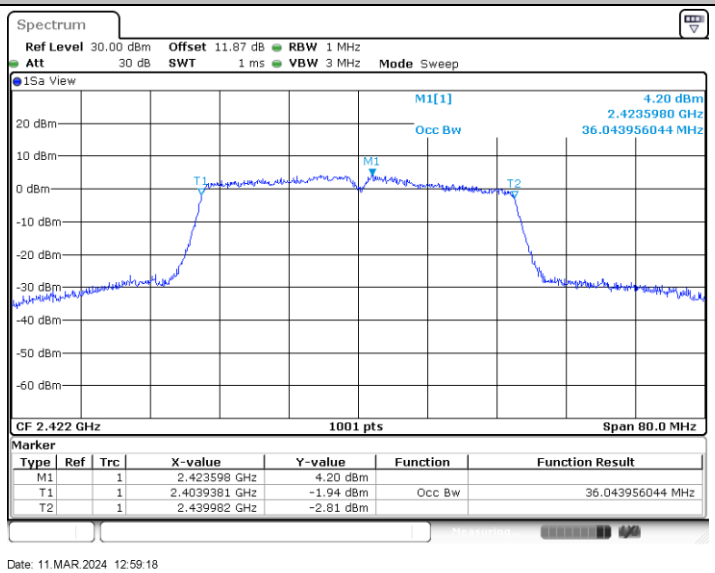


Date: 11.MAR.2024 13:25:49

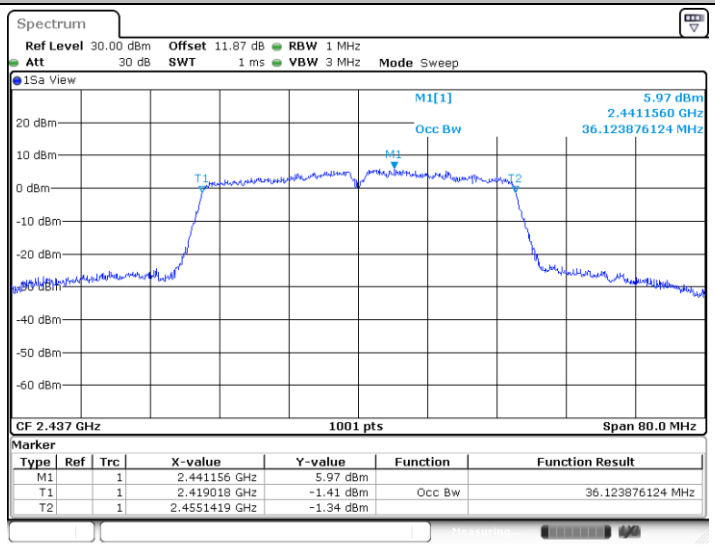
11N40MIMO_Ant3_2422



11N40MIMO_Ant4_2422

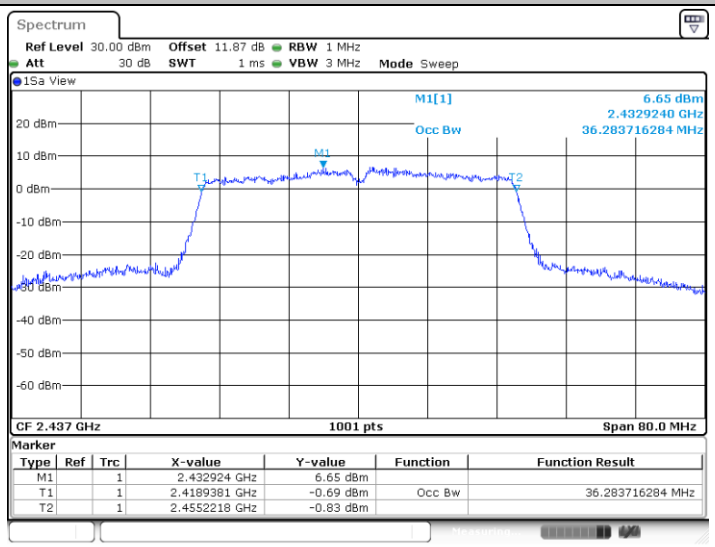


11N40MIMO_Ant3_2437



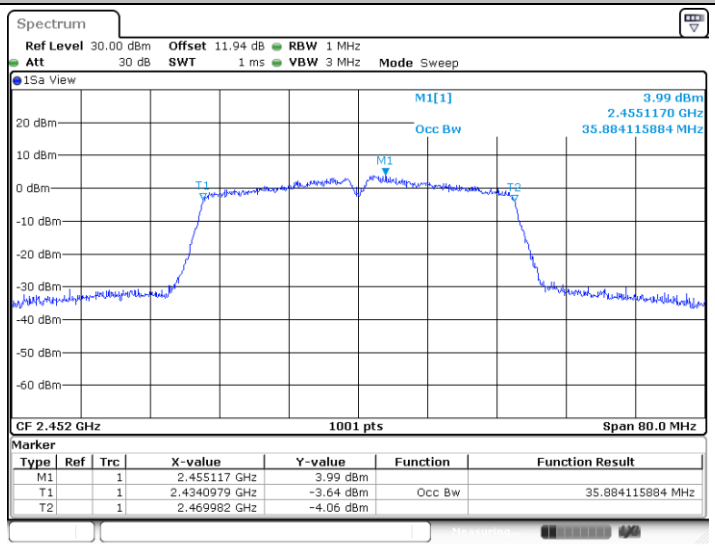
Date: 11.MAR.2024 13:01:13

11N40MIMO_Ant4_2437

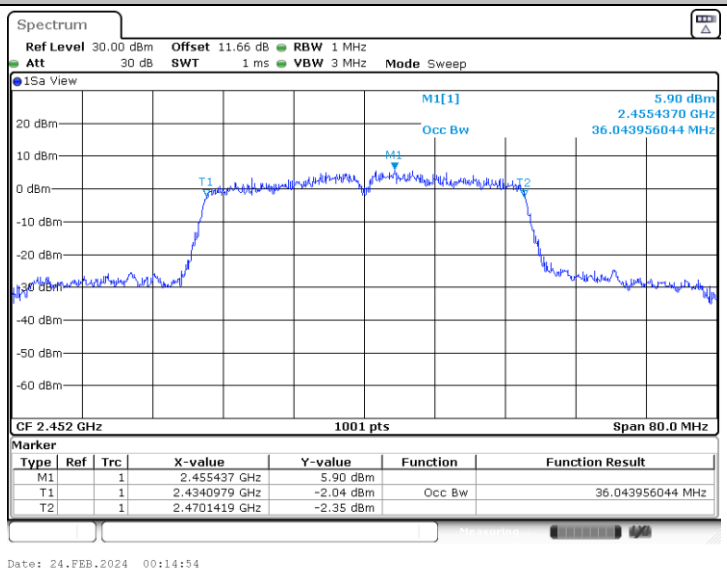


Date: 11.MAR.2024 13:02:23

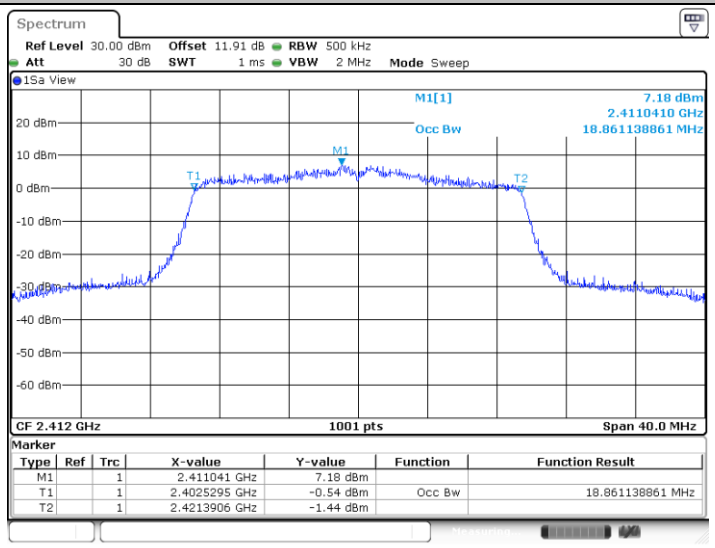
11N40MIMO_Ant3_2452



11N40MIMO_Ant4_2452

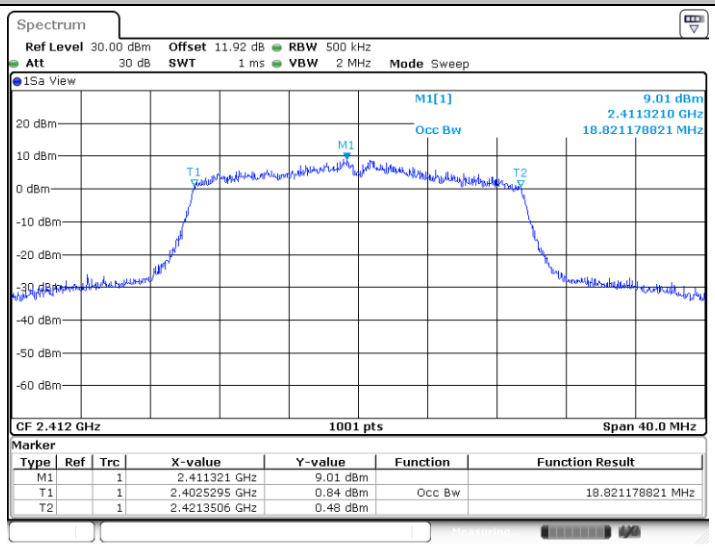


11AX20MIMO_Ant3_2412



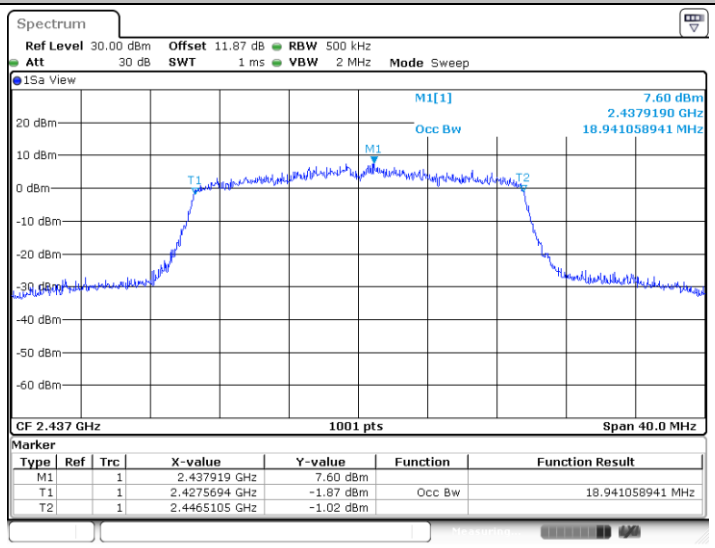
Date: 11.MAR.2024 13:34:15

11AX20MIMO_Ant4_2412



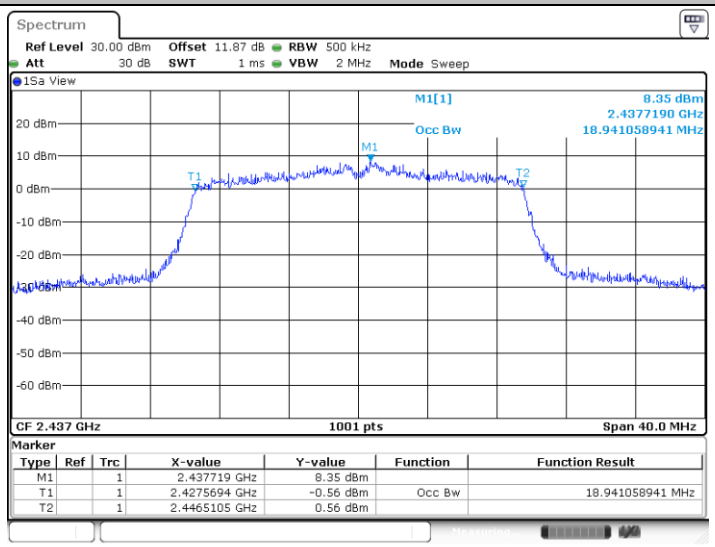
Date: 11.MAR.2024 13:30:29

11AX20MIMO_Ant3_2437



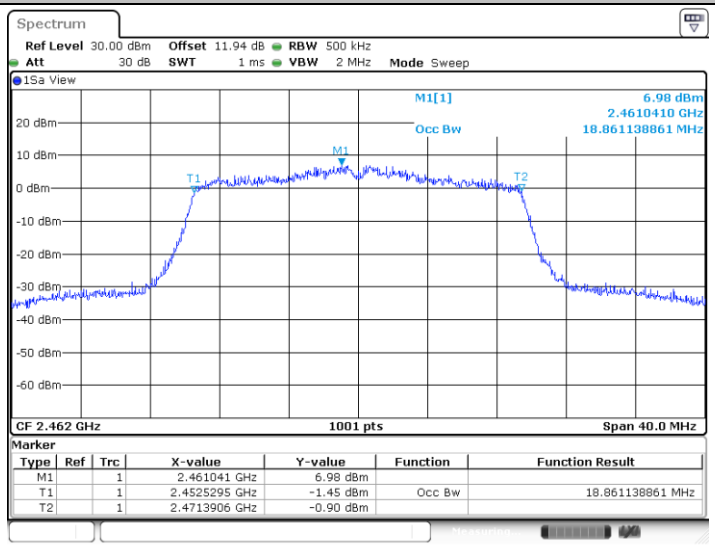
Date: 11.MAR.2024 13:34:51

11AX20MIMO_Ant4_2437



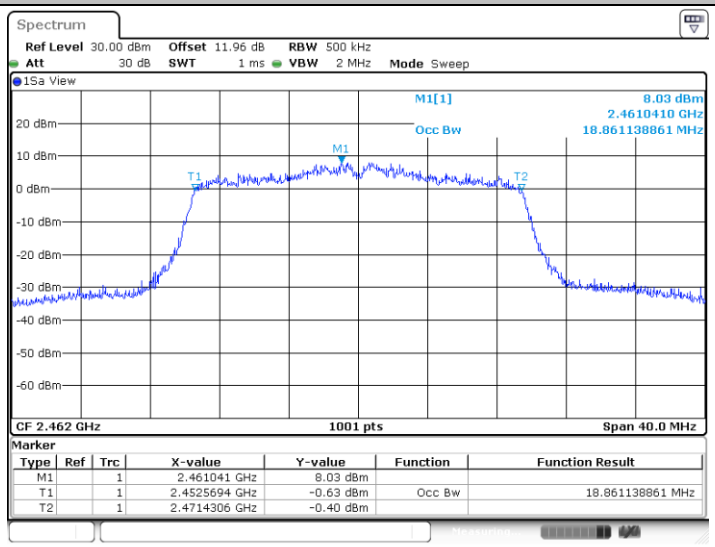
Date: 11.MAR.2024 13:33:04

11AX20MIMO_Ant3_2462



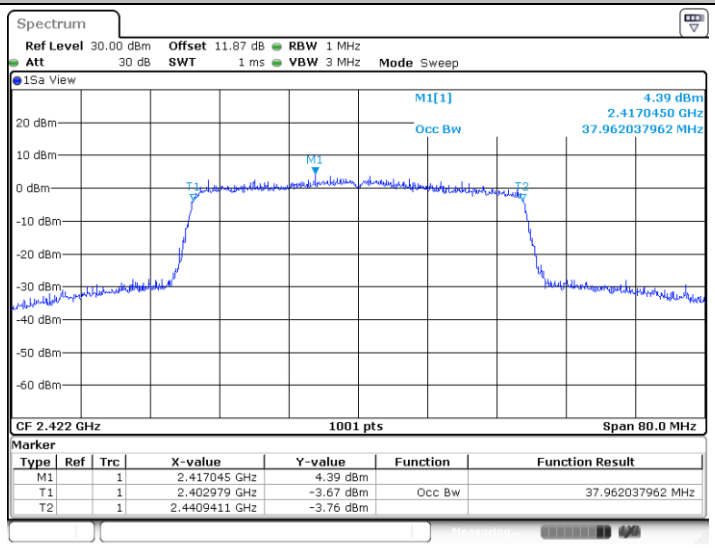
Date: 11.MAR.2024 13:35:23

11AX20MIMO_Ant4_2462

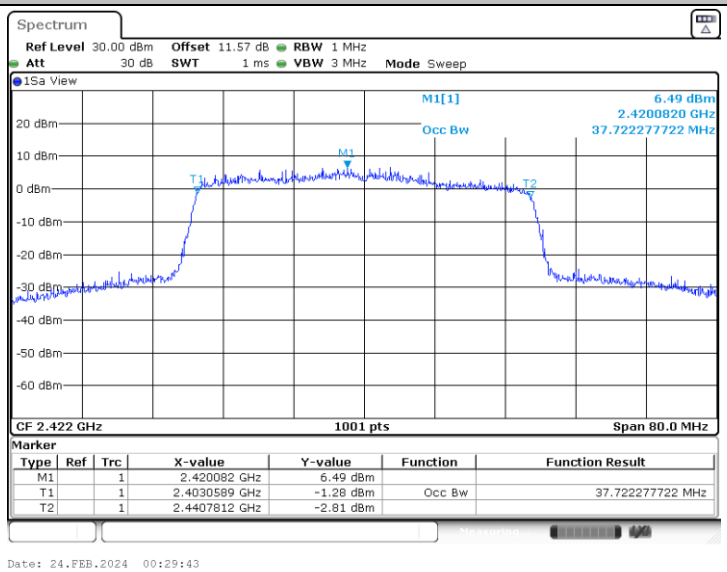


Date: 11.MAR.2024 13:36:30

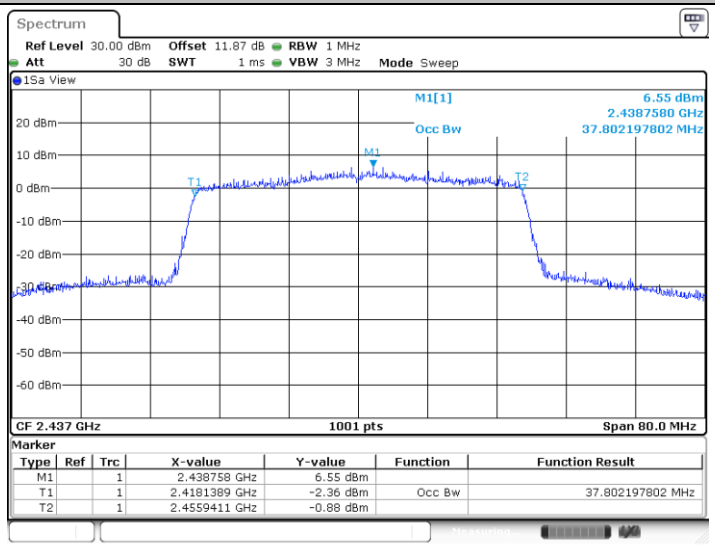
11AX40MIMO_Ant3_2422



11AX40MIMO_Ant4_2422

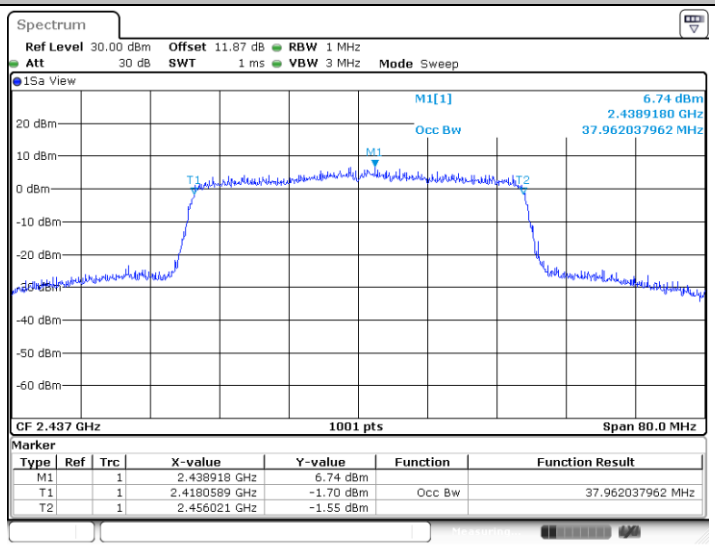


11AX40MIMO_Ant3_2437



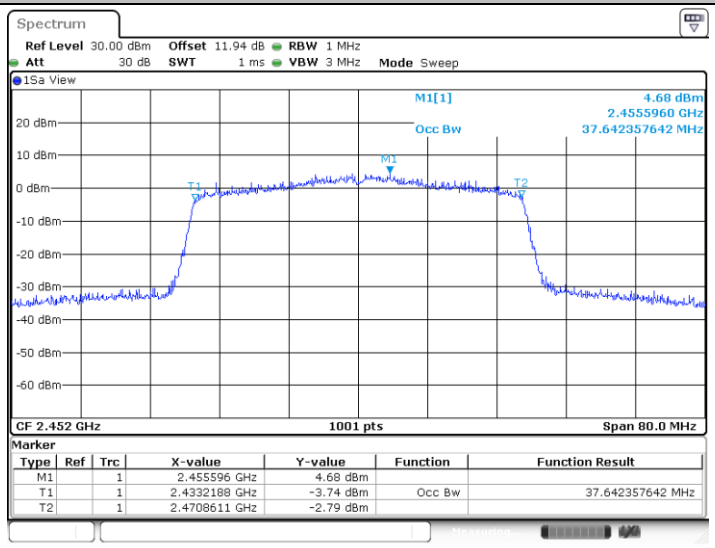
Date: 11.MAR.2024 13:42:46

11AX40MIMO_Ant4_2437



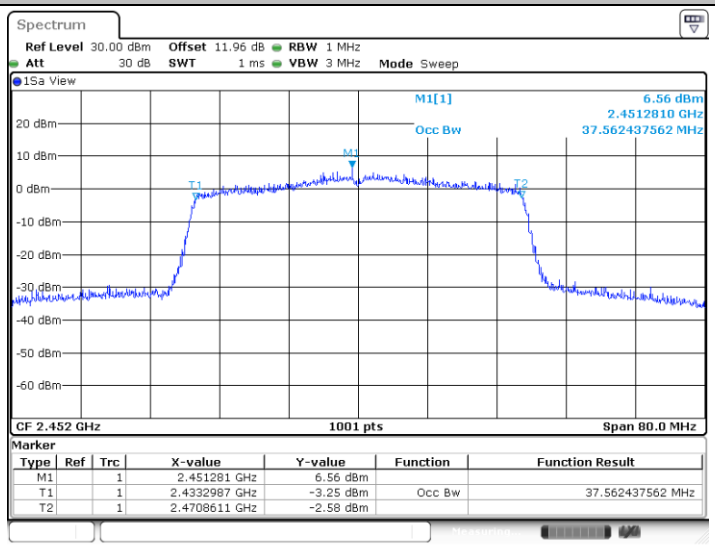
Date: 11.MAR.2024 13:43:42

11AX40MIMO_Ant3_2452



Date: 11.MAR.2024 13:44:53

11AX40MIMO_Ant4_2452



Date: 11.MAR.2024 13:46:03

Maximum power spectral density

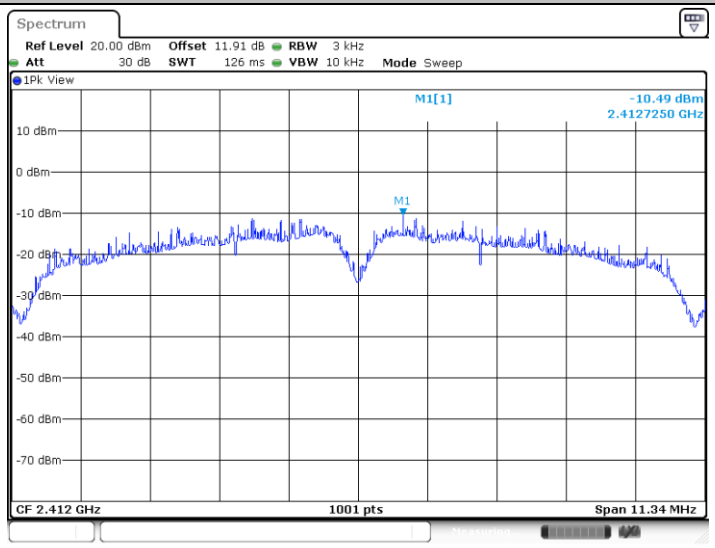
Test Result

TestMode	Antenna	Freq(MHz)	Result [dBm/3kHz]	Limit [dBm/3kHz]	Verdict
11B-CDD	Ant3	2412	-10.49	≤8.00	PASS
	Ant4	2412	-9.31	≤8.00	PASS
	total	2412	-6.85	≤8.00	PASS
	Ant3	2437	-10.18	≤8.00	PASS
	Ant4	2437	-10.58	≤8.00	PASS
	total	2437	-7.37	≤8.00	PASS
	Ant3	2462	-9.22	≤8.00	PASS
	Ant4	2462	-9.25	≤8.00	PASS
	total	2462	-6.22	≤8.00	PASS
11G-CDD	Ant3	2412	-15.61	≤8.00	PASS
	Ant4	2412	-12.56	≤8.00	PASS
	total	2412	-10.81	≤8.00	PASS
	Ant3	2437	-15.25	≤8.00	PASS
	Ant4	2437	-14.48	≤8.00	PASS
	total	2437	-11.84	≤8.00	PASS
	Ant3	2462	-15.32	≤8.00	PASS
	Ant4	2462	-14.1	≤8.00	PASS
	total	2462	-11.66	≤8.00	PASS
11N20MIMO	Ant3	2412	-16.16	≤8.00	PASS
	Ant4	2412	-13.75	≤8.00	PASS
	total	2412	-11.78	≤8.00	PASS
	Ant3	2437	-14.44	≤8.00	PASS
	Ant4	2437	-15.42	≤8.00	PASS
	total	2437	-11.89	≤8.00	PASS
	Ant3	2462	-16.27	≤8.00	PASS
	Ant4	2462	-14.2	≤8.00	PASS
	total	2462	-12.10	≤8.00	PASS
11N40MIMO	Ant3	2422	-19.01	≤8.00	PASS
	Ant4	2422	-17.61	≤8.00	PASS
	total	2422	-15.24	≤8.00	PASS
	Ant3	2437	-17.72	≤8.00	PASS
	Ant4	2437	-15.74	≤8.00	PASS
	total	2437	-13.61	≤8.00	PASS
	Ant3	2452	-18.72	≤8.00	PASS
	Ant4	2452	-18.44	≤8.00	PASS
	total	2452	-15.57	≤8.00	PASS
11AX20MIMO	Ant3	2412	-15.78	≤8.00	PASS
	Ant4	2412	-14.27	≤8.00	PASS
	total	2412	-11.95	≤8.00	PASS
	Ant3	2437	-15.79	≤8.00	PASS
	Ant4	2437	-14.6	≤8.00	PASS
	total	2437	-12.14	≤8.00	PASS

	Ant3	2462	-16.09	≤8.00	PASS
	Ant4	2462	-14.61	≤8.00	PASS
	total	2462	-12.28	≤8.00	PASS
11AX40MIMO	Ant3	2422	-19.26	≤8.00	PASS
	Ant4	2422	-18.46	≤8.00	PASS
	total	2422	-15.83	≤8.00	PASS
	Ant3	2437	-18.56	≤8.00	PASS
	Ant4	2437	-17.82	≤8.00	PASS
	total	2437	-15.16	≤8.00	PASS
	Ant3	2452	-19.58	≤8.00	PASS
	Ant4	2452	-18.67	≤8.00	PASS
	total	2452	-16.09	≤8.00	PASS

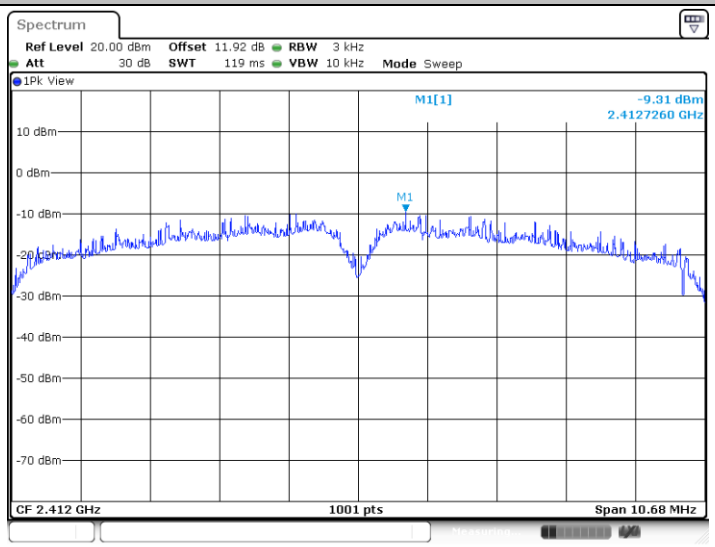
Test Graphs

11B-CDD_Ant3_2412



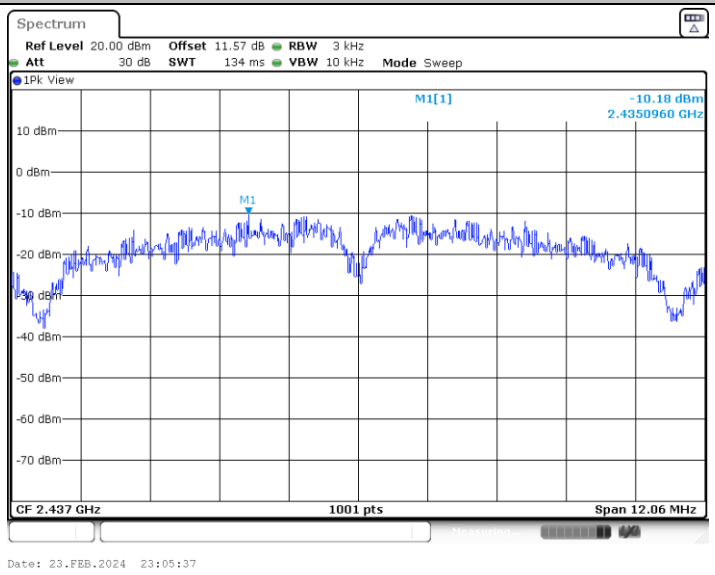
Date: 11.MAR.2024 12:30:37

11B-CDD_Ant4_2412

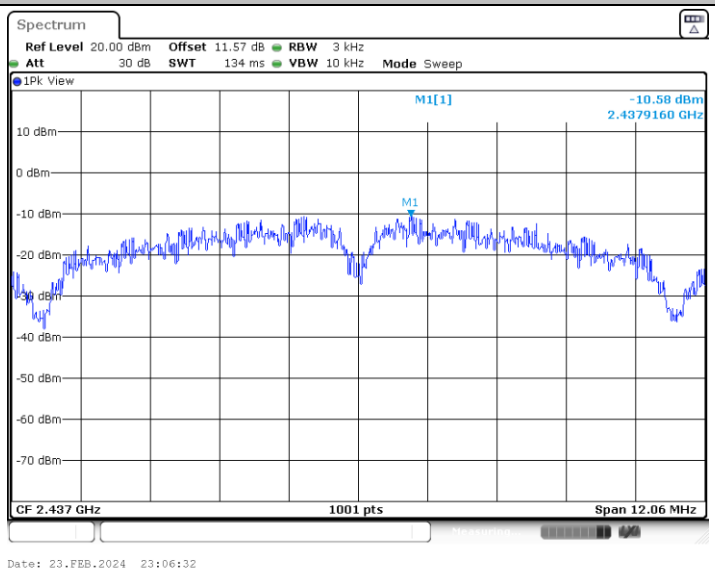


Date: 11.MAR.2024 12:31:49

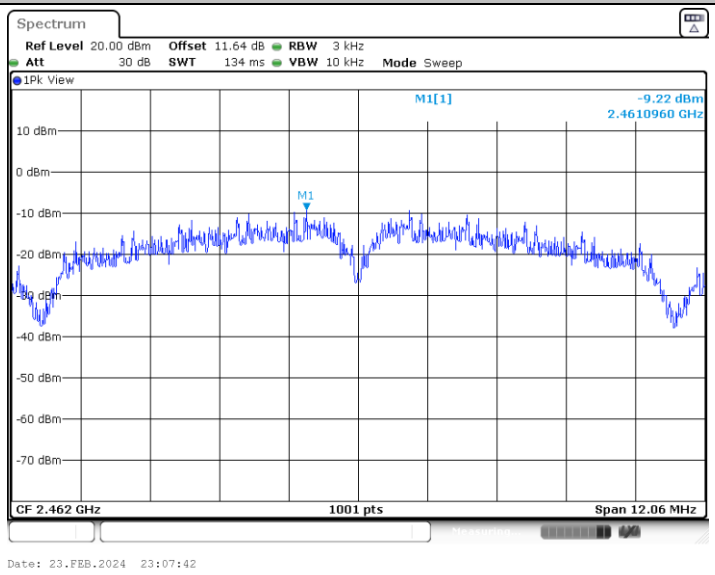
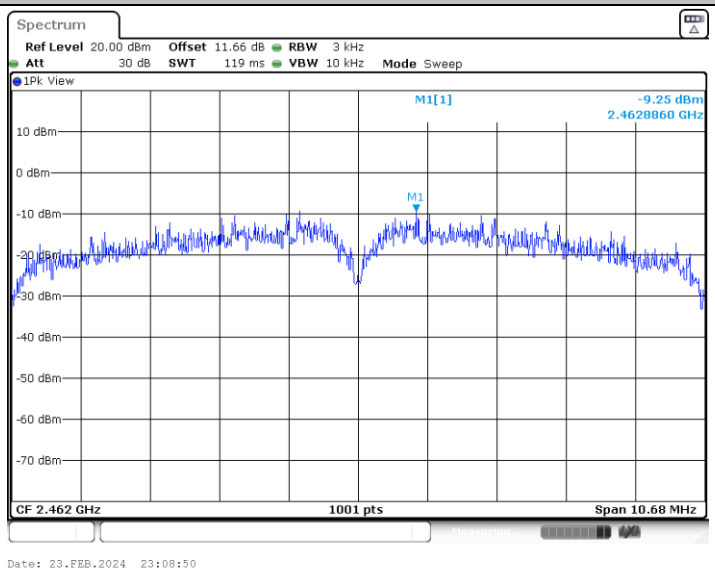
11B-CDD_Ant3_2437



11B-CDD_Ant4_2437



11B-CDD_Ant3_2462



11B-CDD_Ant4_2462