FCC RF Test Report

APPLICANT	:	Motorola Mobility LLC
EQUIPMENT	:	Mobile Cellular Phone
BRAND NAME	:	Motorola
MODEL NAME	:	XT2421-2
FCC ID	:	IHDT56AR1
STANDARD	:	FCC Part 15 Subpart E §15.407
CLASSIFICATION	:	(NII) Unlicensed National Information Infrastructure
TEST DATE(S)	:	Sep. 21, 2023 ~ Nov. 12, 2023

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

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
FR381717D	Rev. 01	Initial issue of report	Nov. 24, 2023

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit for U-NII-1/2A/2C	Limit for U-NII-3	Result	Remark
3.1	2.1049 & 15.403(i)	6dB, 26dB & 99% Bandwidth	-	6dB Bandwidth > 500kHz	Pass	-
3.2	15.407(a)	Maximum Conducted Output Power	≤ 24 dBm	≤ 30 dBm	Pass	-
3.3	15.407(a)	Power Spectral Density	≤ 11 dBm/MHz	≤ 30 dBm/500kHz	Pass	-
3.4	15.407(b)	Unwanted Emissions	15.407(b) & 15.209(a)	15.407(b)(4)(i) &15.209(a)	Pass	Under limit 3.39 dB at 5149.70 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	15.207(a)	Pass	Under limit 14.07 dB at 0.598 MHz
3.6	15.203 & 15.407(a)	Antenna Requirement	15.203 & 15.407(a)	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

Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.2 Manufacturer

Motorola Mobility LLC
222 W,Merchandise Mart Plaza, Chicago IL 60654 USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	Mobile Cellular Phone
Brand Name	Motorola
Model Name	XT2421-2
FCC ID	IHDT56AR1
IMEI Code	Conducted: 350173910002477/350173910002485 Conduction: 350173910002758/350173910002766 Radiation: 351113350008393
HW Version	DVT2
SW Version	ULA34.53
EUT Stage	Identical Prototype

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

1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Frequency Range	5180 MHz ~ 5240 MHz 5260 MHz ~ 5320 MHz 5500 MHz ~ 5700 MHz 5745 MHz ~ 5825 MHz
Maximum Output Power to Antenna	**<5180 MHz ~ 5240 MHz>** 802.11a : 18.48 dBm / 0.0705 W 802.11n HT20 : 18.45 dBm / 0.0700 W 802.11ac VHT20: 17.49 dBm / 0.0561 W **<5260 MHz ~ 5320 MHz>** 802.11a : 18.17 dBm / 0.0656 W 802.11n HT20 : 18.18 dBm / 0.0658 W 802.11ac VHT20: 17.39 dBm / 0.0548 W **<5500 MHz ~ 5700 MHz >** 802.11a : 18.53 dBm / 0.0713 W 802.11n HT20 : 18.58 dBm / 0.0721 W 802.11ac VHT20: 17.67 dBm / 0.0585 W **<5745 MHz ~ 5825 MHz>** 802.11a : 18.25 dBm / 0.0668 W 802.11n HT20 : 18.39 dBm / 0.0690 W 802.11ac VHT20: 17.53 dBm / 0.0566 W
99% Occupied Bandwidth	**<5180 MHz ~ 5240 MHz>** 802.11a : 17.662 MHz 802.11n HT20 : 18.302 MHz **<5260 MHz ~ 5320 MHz>** 802.11a : 17.702 MHz 802.11n HT20 : 18.222 MHz **<5500 MHz ~ 5700 MHz>** 802.11a : 17.782 MHz 802.11n HT20 : 18.342 MHz **<5745 MHz ~ 5825 MHz>** 802.11a : 17.702 MHz 802.11n HT20 : 18.262 MHz
Antenna Type / Gain	**<5180 MHz ~ 5240 MHz>**: PIFA Antenna with gain -3.5 dBi **<5260 MHz ~ 5320 MHz>**: PIFA Antenna with gain -3.6 dBi **<5500 MHz ~ 5700 MHz>**: PIFA Antenna with gain -3.3 dBi **<5745 MHz ~ 5825 MHz>**: PIFA Antenna with gain -6.0 dBi
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM)

Note: For 802.11n HT20 and 11ac VHT20 modes, full test 802.11n HT20 to cover 11ac VHT20 by referring to the higher output power.

1.5 Modification of EUT

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

1.6 Specification of Accessory

Specification of Accessory				
AC Adapter 1(US)	**Brand Name**	Motorola (Salcomp)	**Model Name**	MC-101
AC Adapter 1(EU)	**Brand Name**	Motorola (Salcomp)	**Model Name**	MC-102
AC Adapter 1(UK)	**Brand Name**	Motorola (Salcomp)	**Model Name**	MC-103
AC Adapter 1(AU)	**Brand Name**	Motorola (Salcomp)	**Model Name**	MC-105
AC Adapter 1(CHILE)	**Brand Name**	Motorola (Salcomp)	**Model Name**	MC-109
AC Adapter 2(US)	**Brand Name**	Motorola (chenyang)	**Model Name**	MC-101
AC Adapter 2(EU)	**Brand Name**	Motorola (chenyang)	**Model Name**	MC-102
AC Adapter 2(UK)	**Brand Name**	Motorola (chenyang)	**Model Name**	MC-103
AC Adapter 2(AU)	**Brand Name**	Motorola (chenyang)	**Model Name**	MC-105
AC Adapter 3(US)	**Brand Name**	Motorola (aohai)	**Model Name**	MC-101
AC Adapter 3(EU)	**Brand Name**	Motorola (aohai)	**Model Name**	MC-102
AC Adapter 3(UK)	**Brand Name**	Motorola (aohai)	**Model Name**	MC-103
AC Adapter 3(AU)	**Brand Name**	Motorola (aohai)	**Model Name**	MC-105
Battery 1	**Brand Name**	Motorola (ATL)	**Model Name**	QF50
Battery 2	**Brand Name**	Motorola (Sunwoda)	**Model Name**	QF50
Battery 3	**Brand Name**	Motorola (SCUD)	**Model Name**	QF50
Earphone 1	**Brand Name**	Motorola (New leader)	**Model Name**	NLD-EM313A-20SF
Earphone 2	**Brand Name**	Motorola (JWELL)	**Model Name**	JWEP1205-L20H
USB Cable 1	**Brand Name**	Motorola (JWELL)	**Model Name**	JWUB1631-L20H
USB Cable 2	**Brand Name**	Motorola (Saibao)	**Model Name**	SLQ-A238A

1.7 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

1.8 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

1.9 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
- FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.
- 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)
5180-5240 MHz U-NII-1	36	5180	44	5220
	40	5200	48	5240

Frequency Band	Channel	Freq.(MHz)	Channel	Freq. (MHz)
5260-5320 MHz U-NII-2A	52	5260	60	5300
	56	5280	64	5320

Frequency Band	Channel	Freq.(MHz)	Channel	Freq. (MHz)
5500-5700MHz U-NII-2C	100	5500	116	5580
	104	5520	132	5660
	108	5540	136	5680
	112	5560	140	5700

Frequency Band	Channel	Freq.(MHz)	Channel	Freq. (MHz)
5745-5825 MHz U-NII-3	149	5745	161	5805
	153	5765	165	5825
	157	5785	-	-

Frequency Band	Channel	Freq.(MHz)	Channel	Freq. (MHz)
TDWR Channel	120	5600	128	5640
	124	5620	-	-

2.2 Test Mode

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

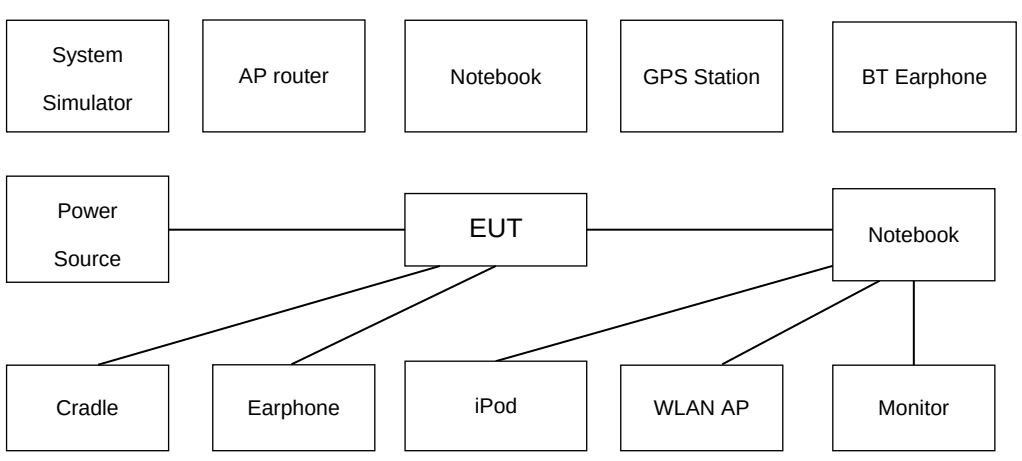
Modulation	Data Rate
802.11a	6 Mbps
802.11n HT20 (Cover 11ac VHT20)	MCS0

AC Conducted Emission	Mode 1 : GSM 850 Idle + Bluetooth Link + WLAN Link(5G) + USB Cable 1(Charging from Adapter1) + Earphone(1) + Battery (1)
Remark: For Radiated Test Cases, The tests were performance with Adapter 1, Battery 1, Earphone 1 and USB Cable 1	

Simultaneous transmission
Wifi 5G_802.11a_CH36_5180MHz + LTE_Band 13_BW 5M_Link

Ch. #		U-NII-1	U-NII-2A	U-NII-2C	U-NII-3
		20M BW	20M BW	20M BW	20M BW
L	Low	36	52	100	149
M	Middle	44	60	116	157
H	High	48	64	140	165

2.3 Connection Diagram of Test System



This example is connection diagram of EUT test configurations.

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

2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	LTE Base Station	Anritus	MT8821C	N/A	N/A	Unshielded,1.8m
2.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
3.	Notebook	Lenovo	G480	QDS-BRCM1050I	N/A	shielded cable DC O/P 1.8m , Unshielded AC I/P cable 1.8m
4.	Bluetooth Earphone	Lenovo	thinkplus-BH3	N/A	N/A	N/A
5.	SD Card	Kingston	8GB	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 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 7.00 dB

Offset(dB) = RF cable loss(dB)

= 7.00 (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

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

26dB and 99% Occupied bandwidth are reporting only.

3.1.2 Measuring Instruments

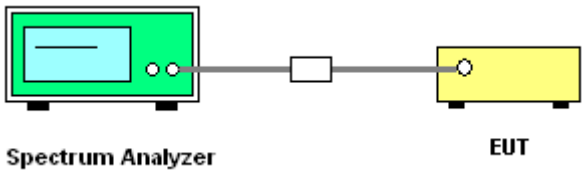
The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

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

☒	Section C) Bandwidth Measurement 1. Emission Bandwidth (EBW) and 99% OBW
	1. Set RBW = approximately 1% of the emission bandwidth. **2.** Set the VBW > RBW. **3.** Detector = Peak. **4.** Trace mode = max hold **5.** Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%. **6.** For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set to 1%~5% of the OBW and set the Video bandwidth (VBW) ≥ 3 * RBW. **7.** Measure and record the results in the test report.
☒	Section C) Bandwidth Measurement 2. Minimum Emission Bandwidth for the band 5.725 - 5.85 GHz
	1. Set RBW = 100kHz. **2.** Set the VBW ≥ 3 x RBW. **3.** Detector = Peak. **4.** Trace mode = max hold **5.** Measure the maximum width of the emission that is 6 dB down from the peak of the emission. **6.** 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 Measurement

3.2.1 Limit of Maximum Conducted Output Power

<FCC 14-30 CFR 15.407>

For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW.

For the 5.25–5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm 10 log B, where B is the 26 dB emission bandwidth in megahertz.

For the band 5.725–5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note that U-NII-2 band, devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

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3.2.2 Measuring Instruments

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

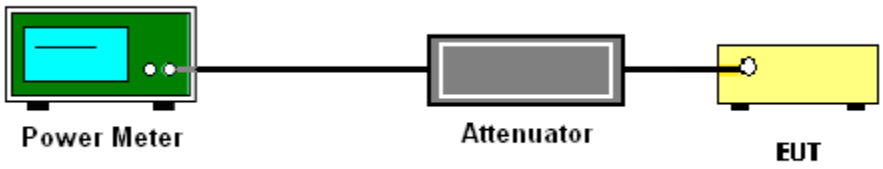
3.2.3 Test Procedures

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

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

1. Measurement is performed using a wideband RF power meter.
2. The EUT is configured to transmit continuously with a consistent duty cycle at its maximum power control level.
3. Measure the average power of the transmitter, and the average power is corrected with duty factor, 10 log(1/x), where x is the duty cycle.

3.2.4 Test Setup



3.2.5 Test Result of Maximum Conducted Output Power

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

<FCC 14-30 CFR 15.407>

For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum power spectral density shall not exceed 11dBm in any 1 megahertz band.

For the 5.25–5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

For the band 5.725–5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.
If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

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 v01r04.
Section F) Maximum power spectral density.

For devices operating in the bands UNII-1/2A/2C

 # Method SA-2 #

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

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

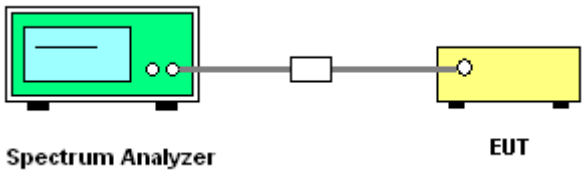
For devices operating in the band UNII-3

 # Method SA-2 #

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

- Measure the duty cycle.
- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 500KHz (or 300 kHz if the SA can't set RBW=500KHz).
- Set VBW ≥ 1 MHz.
- Number of points in sweep ≥ 2 Span / RBW.
- Sweep time = auto.
- Detector = RMS
- Trace average at least 100 traces in power averaging mode.
- If the SA can't set RBW=500KHz, then add 10 log(500kHz/RBW) to the test result.
- Add 10 log(1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add 10 log(1/0.25) = 6 dB if the duty cycle is 25 percent.

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 as specified in FCC Part 15.407(b) is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement. The unwanted emissions shall comply with 15.407(b)(1) to (6), and restricted bands per FCC Part15.205.

3.4.1 Limit of Unwanted Emissions

(1) For transmitters operating in the 5150-5250 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of –27dBm/MHz.

For transmitters operating in the 5250-5350 MHz band: all emissions outside of the 5150-5350 MHz band shall not exceed an EIRP of -27 dBm/MHz. Devices operating in the 5250-5350 MHz band that generate emissions in the 5150-5250 MHz band must meet all applicable technical requirements for operation in the 5150-5250 MHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5150-5250 MHz band.

For transmitters operating in the 5470-5600 MHz and 5650-5725MHz band: all emissions outside of the 5470-5600 MHz and 5650-5725MHz band shall not exceed an EIRP of -27 dBm/MHz.

(2) For transmitters operating in the 5.725-5.85 GHz band:
15.407(b)(4)(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

(3) 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

(4) EIRP (dBm)	Field Strength at 3m (dBμV/m)
- 27	68.2

Note: 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

3.4.2 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 v01r04. 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

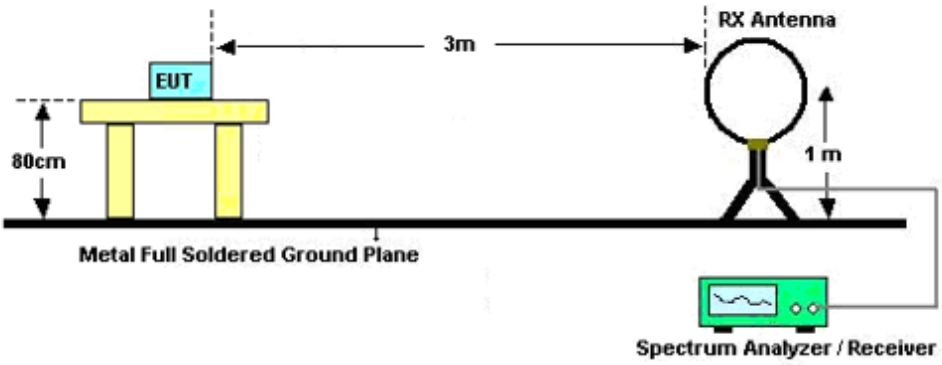
   (3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz

   - 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.

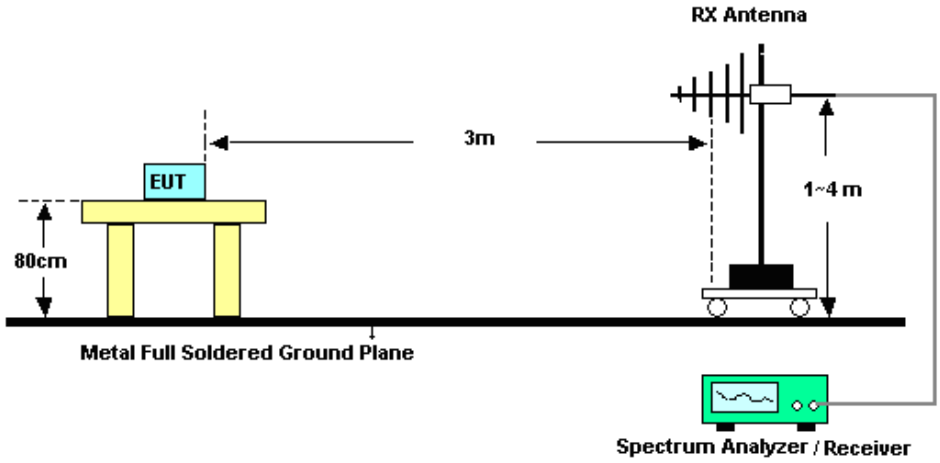
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband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

3.4.4 Test Setup

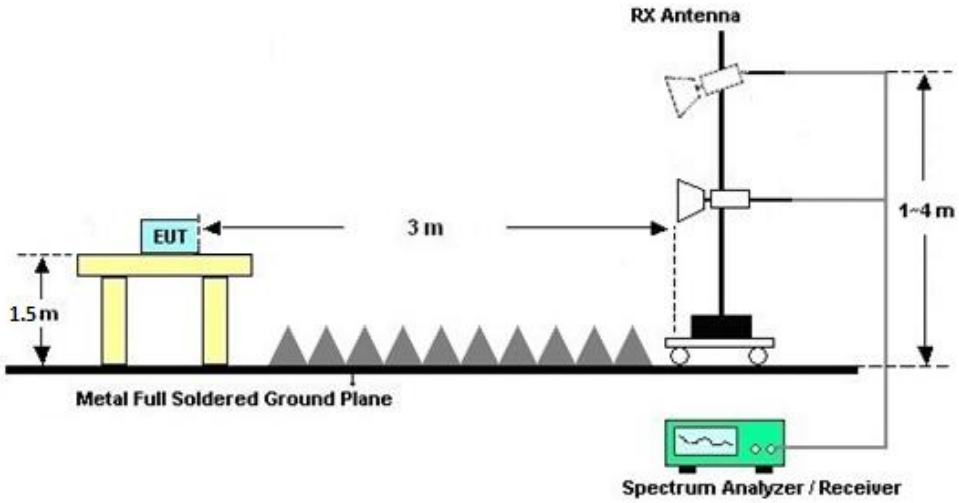
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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

There is 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 Spurious at Band Edges

Please refer to Appendix C.

3.4.7 Duty Cycle

Please refer to Appendix D.

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

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.

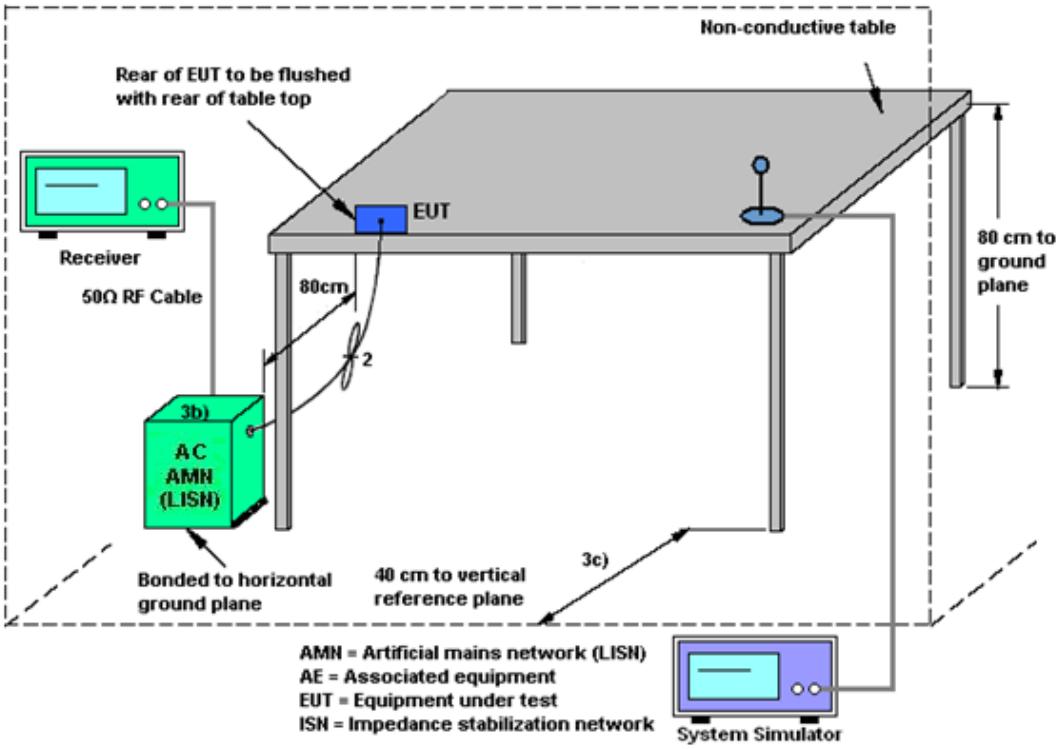
3.5.2 Measuring Instruments

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



3.5.5 Test Result of AC Conducted Emission

Please refer to Appendix B.

3.6 Antenna Requirements

3.6.1 Standard Applicable

According to FCC 47 CFR Section 15.407(a)(1)(2) ,if transmitting antenna directional gain is greater than 6 dBi, both the peak transmit power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.6.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.6.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

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. 12, 2022	Sep. 26, 2023 ~Nov. 03, 2023	Oct. 11, 2023	Conducted (TH01-KS)
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Oct. 11, 2023		Oct. 10, 2024	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 05, 2023	Sep. 26, 2023 ~Nov. 03, 2023	Jan. 04, 2024	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 05, 2023	Sep. 26, 2023 ~Nov. 03, 2023	Jan. 04, 2024	Conducted (TH01-KS)
EMI Test Receiver	Keysight	N9038A	MY56400004	3Hz~8.5GHz;Max 30dBm	Oct. 13, 2022	Sep. 21, 2023 ~Nov. 12, 2023	Oct. 12, 2023	Radiation (03CH05-KS)
EMI Test Receiver	Keysight	N9038A	MY56400004	3Hz~8.5GHz;Max 30dBm	Oct. 10, 2023		Oct. 09, 2024	Radiation (03CH05-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz-44G,MAX 30dB	Mar. 24, 2023	Sep. 21, 2023 ~Nov. 12, 2023	Mar. 23, 2024	Radiation (03CH05-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 16, 2022	Sep. 21, 2023 ~Nov. 12, 2023	Oct. 15, 2023	Radiation (03CH05-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 10, 2023		Oct. 09, 2024	Radiation (03CH05-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz-1GHz	Apr. 09, 2023	Sep. 21, 2023 ~Nov. 12, 2023	Apr. 08, 2024	Radiation (03CH05-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00218642	1GHz~18GHz	Apr. 06, 2023	Sep. 21, 2023 ~Nov. 12, 2023	Apr. 05, 2024	Radiation (03CH05-KS)
SHF-EHF Horn	Com-power	AH-840	101093	18GHz~40GHz	Jan. 08, 2023	Sep. 21, 2023 ~Nov. 12, 2023	Jan. 07, 2024	Radiation (03CH05-KS)
Amplifier	SONOMA	310N	380826	9KHz-1GHz	Jul. 06, 2023	Sep. 21, 2023 ~Nov. 12, 2023	Jul. 05, 2024	Radiation (03CH05-KS)
Amplifier	EM	EM18G40GA	060852	18~40GHz	Jan. 05, 2023	Sep. 21, 2023 ~Nov. 12, 2023	Jan. 04, 2024	Radiation (03CH05-KS)
high gain Amplifier	EM	EM01G18GA	060839	1Ghz-18Ghz	Oct. 12, 2022	Sep. 21, 2023 ~Nov. 12, 2023	Oct. 11, 2023	Radiation (03CH05-KS)
high gain Amplifier	EM	EM01G18GA	060839	1Ghz-18Ghz	Oct. 10, 2023		Oct. 09, 2024	Radiation (03CH05-KS)
Amplifier	EM	EM01G18GA	060833	1Ghz-18Ghz	Jan. 05, 2023	Sep. 21, 2023 ~Nov. 12, 2023	Jan. 04, 2024	Radiation (03CH05-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Sep. 21, 2023 ~Nov. 12, 2023	NCR	Radiation (03CH05-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Sep. 21, 2023 ~Nov. 12, 2023	NCR	Radiation (03CH05-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Sep. 21, 2023 ~Nov. 12, 2023	NCR	Radiation (03CH05-KS)
EMI Receiver	R&S	ESCI7	100768	9kHz~7GHz;	May 16, 2023	Sep. 22, 2023	May 15, 2024	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 13, 2022	Sep. 22, 2023	Oct. 12, 2023	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060105	9kHz~30MHz	May 16, 2023	Sep. 22, 2023	May 15, 2024	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 12, 2022	Sep. 22, 2023	Oct. 11, 2023	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

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))	**2.94dB**

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

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

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

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	**4.88dB**

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

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

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

Appendix A. Conducted Test Results

A1. Conducted Test Results

Test Engineer:	Long Wu	Temperature:	21~25	°C
Test Date:	2023.9.26~2023.11.03	Relative Humidity:	51~54	%

TEST RESULTS DATA
Average Power Table

FCC U-NII-1 single antenna									
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power with duty factor (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)		Pass/Fail
11a	6Mbps	1	36	5180	17.29	24.00	-3.50		Pass
11a	6Mbps	1	44	5220	18.48	24.00	-3.50		Pass
11a	6Mbps	1	48	5240	18.05	24.00	-3.50		Pass
HT20	MCS0	1	36	5180	16.57	24.00	-3.50		Pass
HT20	MCS0	1	44	5220	18.45	24.00	-3.50		Pass
HT20	MCS0	1	48	5240	18.22	24.00	-3.50		Pass
VHT20	MCS0	1	36	5180	16.50	24.00	-3.50		Pass
VHT20	MCS0	1	44	5220	17.49	24.00	-3.50		Pass
VHT20	MCS0	1	48	5240	17.35	24.00	-3.50		Pass

TEST RESULTS DATA
Average Power Table

FCC U-NII-2A single antenna									
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power with duty factor(dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
11a	6Mbps	1	52	5260	17.95	23.98	-3.60	26.99	Pass
11a	6Mbps	1	60	5300	18.17	23.98	-3.60	26.99	Pass
11a	6Mbps	1	64	5320	18.02	23.98	-3.60	26.99	Pass
HT20	MCS0	1	52	5260	18.12	23.98	-3.60	26.99	Pass
HT20	MCS0	1	60	5300	18.10	23.98	-3.60	26.99	Pass
HT20	MCS0	1	64	5320	18.18	23.98	-3.60	26.99	Pass
VHT20	MCS0	1	52	5260	17.33	23.98	-3.60	26.99	Pass
VHT20	MCS0	1	60	5300	17.39	23.98	-3.60	26.99	Pass
VHT20	MCS0	1	64	5320	17.30	23.98	-3.60	26.99	Pass

TEST RESULTS DATA
Average Power Table

FCC U-NII-2C single antenna									
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power with duty factor(dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
11a	6Mbps	1	100	5500	18.01	23.98	-3.30	26.99	Pass
11a	6Mbps	1	116	5580	18.53	23.98	-3.30	26.99	Pass
11a	6Mbps	1	140	5700	17.31	23.98	-3.30	26.99	Pass
HT20	MCS0	1	100	5500	17.15	23.98	-3.30	26.99	Pass
HT20	MCS0	1	116	5580	18.58	23.98	-3.30	26.99	Pass
HT20	MCS0	1	140	5700	16.52	23.98	-3.30	26.99	Pass
VHT20	MCS0	1	100	5500	17.07	23.98	-3.30	26.99	Pass
VHT20	MCS0	1	116	5580	17.67	23.98	-3.30	26.99	Pass
VHT20	MCS0	1	140	5700	16.43	23.98	-3.30	26.99	Pass

TEST RESULTS DATA
Average Power Table

U-NII-3 single antenna								
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power with duty factor(dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	Pass/Fail
11a	6Mbps	1	149	5745	17.86	30.00	-6.00	Pass
11a	6Mbps	1	157	5785	18.25	30.00	-6.00	Pass
11a	6Mbps	1	165	5825	18.03	30.00	-6.00	Pass
HT20	MCS0	1	149	5745	17.96	30.00	-6.00	Pass
HT20	MCS0	1	157	5785	18.39	30.00	-6.00	Pass
HT20	MCS0	1	165	5825	18.20	30.00	-6.00	Pass
VHT20	MCS0	1	149	5745	17.09	30.00	-6.00	Pass
VHT20	MCS0	1	157	5785	17.53	30.00	-6.00	Pass
VHT20	MCS0	1	165	5825	17.34	30.00	-6.00	Pass

Ambient Condition: 25 ℃, 45 %RH	
Test Date: 2023. 9.26~2023.11.03	**Test Engineer:** Long Wu

Emission Bandwidth

Test Result

TestMode	Freq(MHz)	26dB EBW [MHz]	FL[MHz]	FH[MHz]
11A	5180	24.28	5168.28	5192.56
	5220	27.36	5206.84	5234.20
	5240	26.28	5225.96	5252.24
	5260	24.60	5247.28	5271.88
	5300	24.00	5288.20	5312.20
	5320	26.40	5307.76	5334.16
	5500	26.20	5487.28	5513.48
	5580	26.00	5568.04	5594.04
	5700	27.76	5687.16	5714.92
	5745	27.56	5732.80	5760.36
	5785	29.16	5770.88	5800.04
	5825	27.44	5812.52	5839.96
11N20SISO	5180	25.12	5167.20	5192.32
	5220	25.48	5206.88	5232.36
	5240	26.92	5227.12	5254.04
	5260	22.88	5248.92	5271.80
	5300	25.04	5288.48	5313.52
	5320	27.40	5307.92	5335.32
	5500	26.80	5486.48	5513.28
	5580	28.08	5565.72	5593.80
	5700	27.36	5686.20	5713.56
	5745	27.28	5731.28	5758.56
	5785	25.92	5772.20	5798.12
	5825	28.00	5810.52	5838.52

Test Graphs

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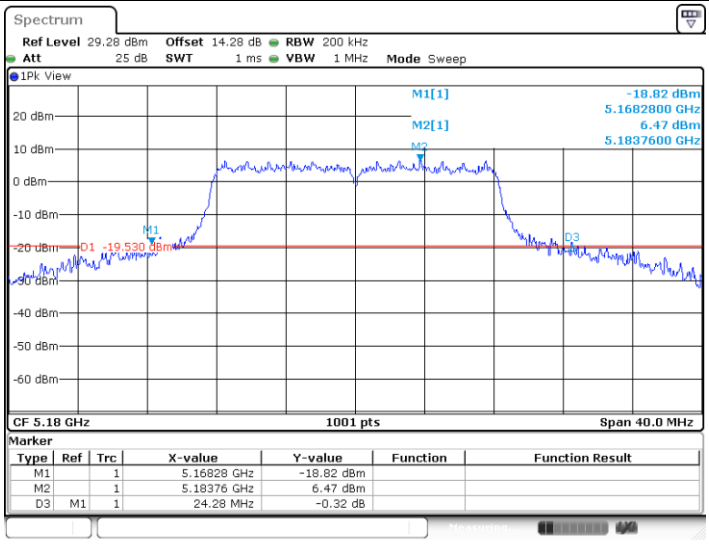

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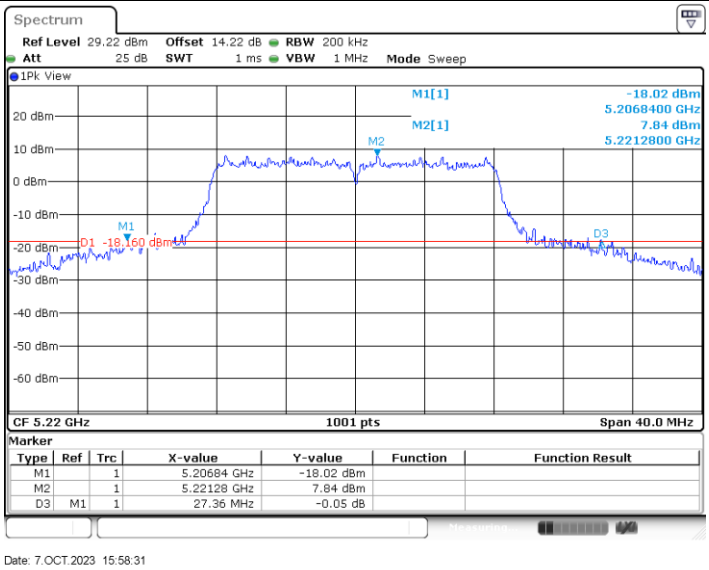

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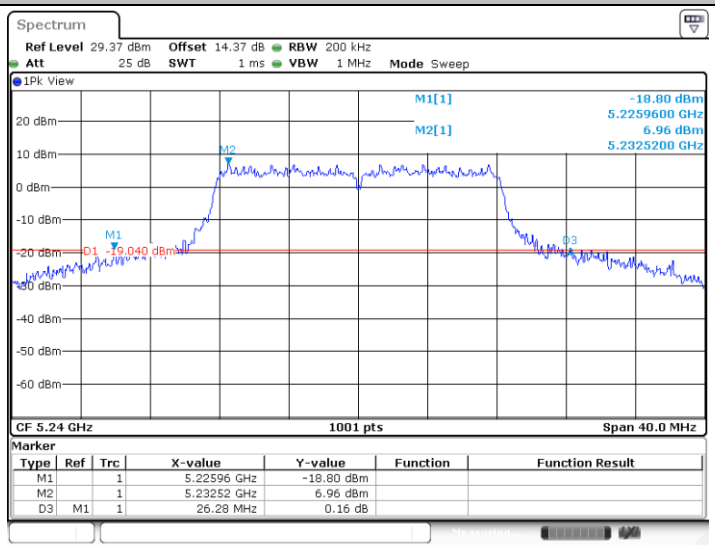

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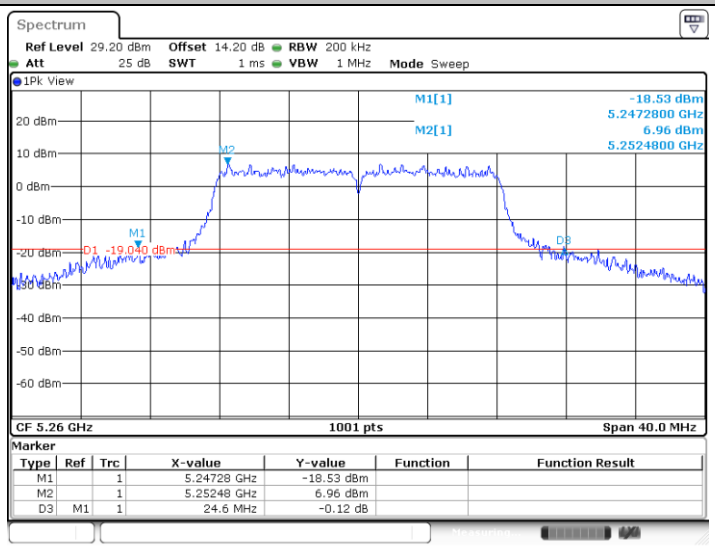

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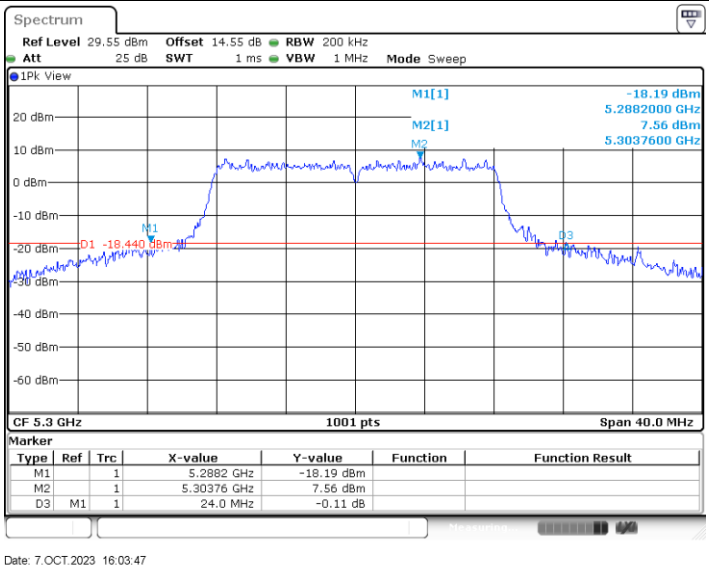

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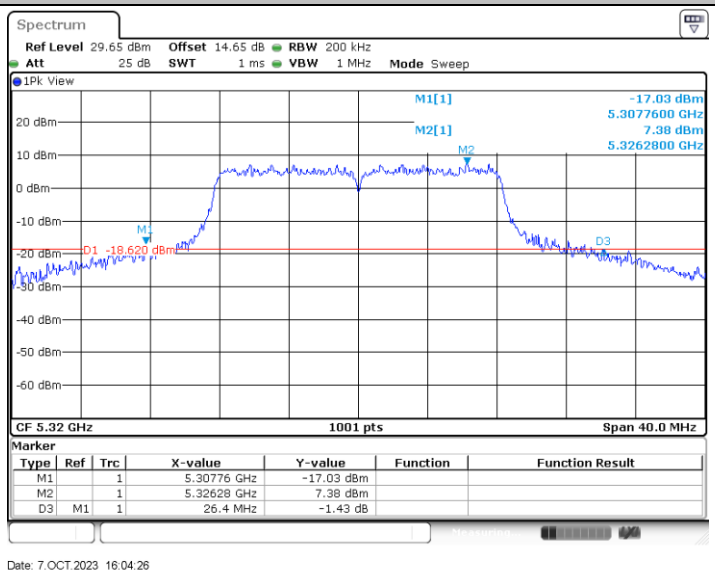

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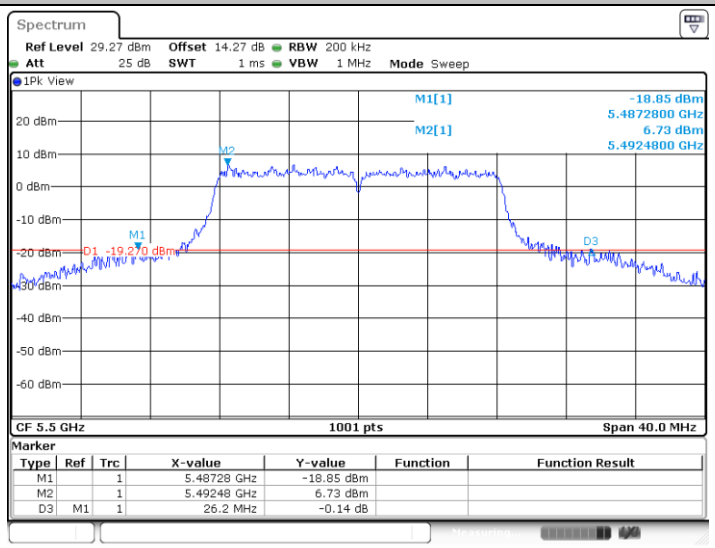

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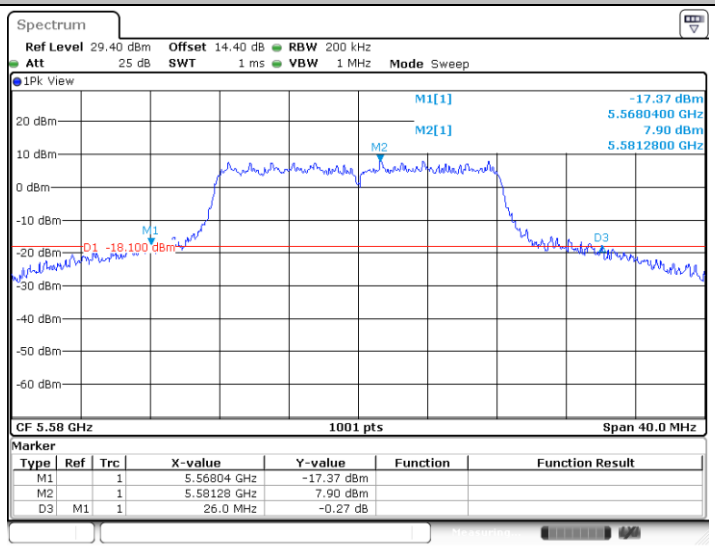

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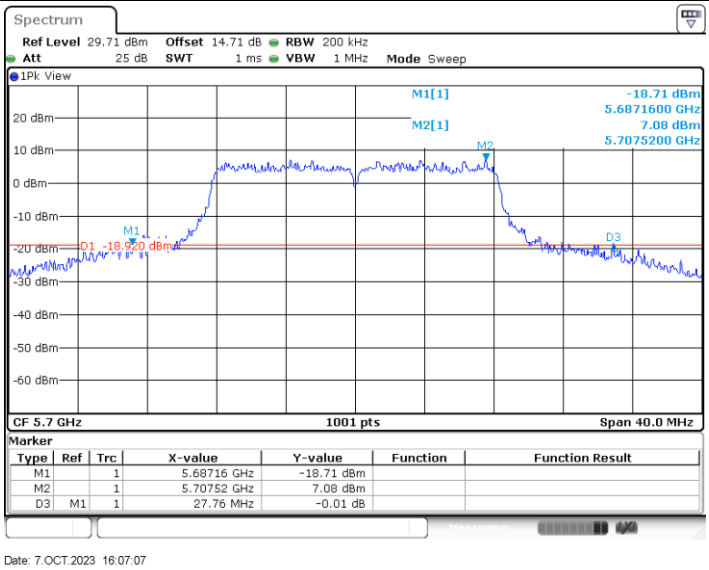

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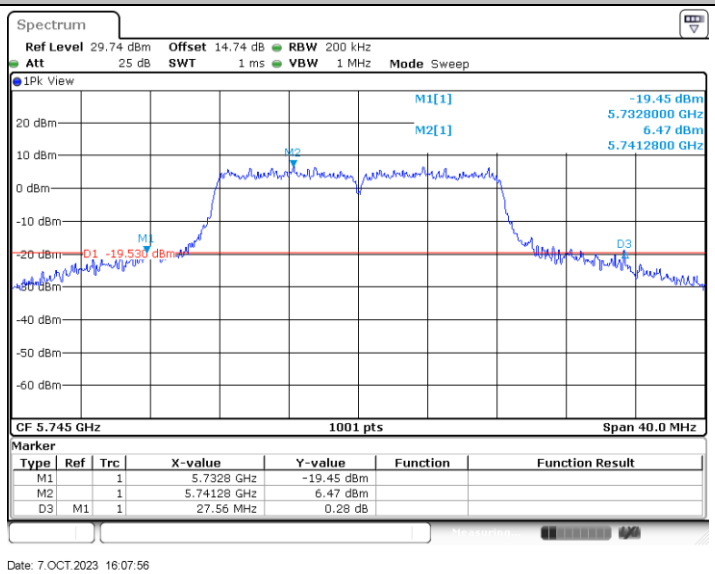

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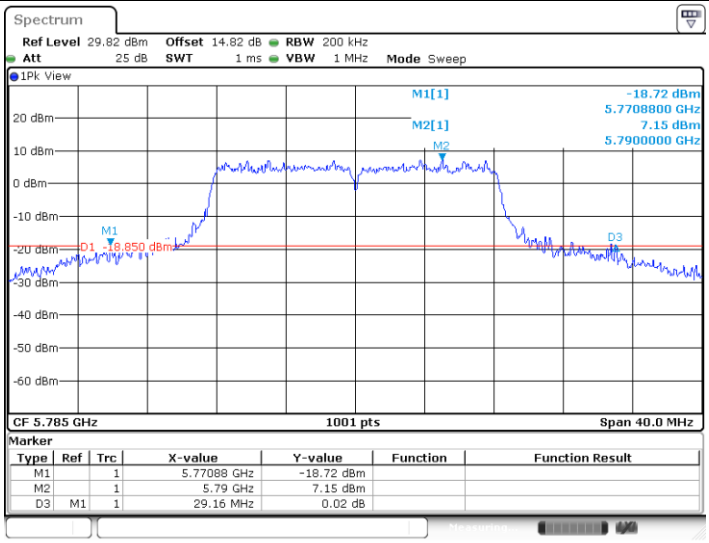

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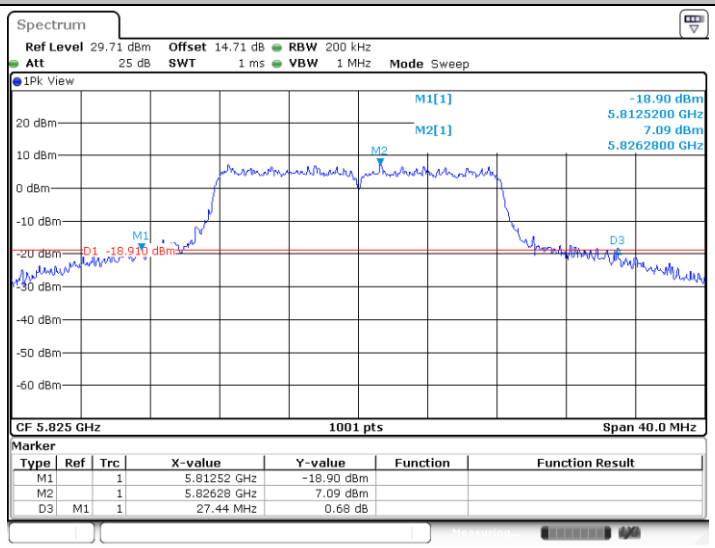

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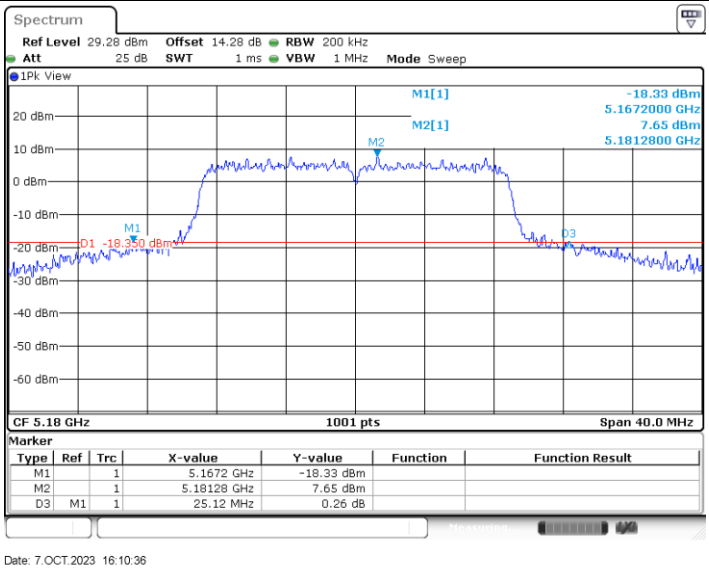

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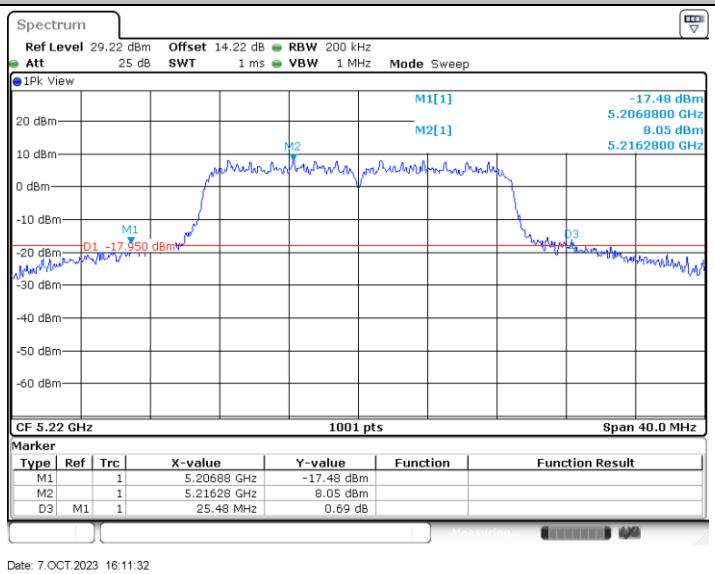

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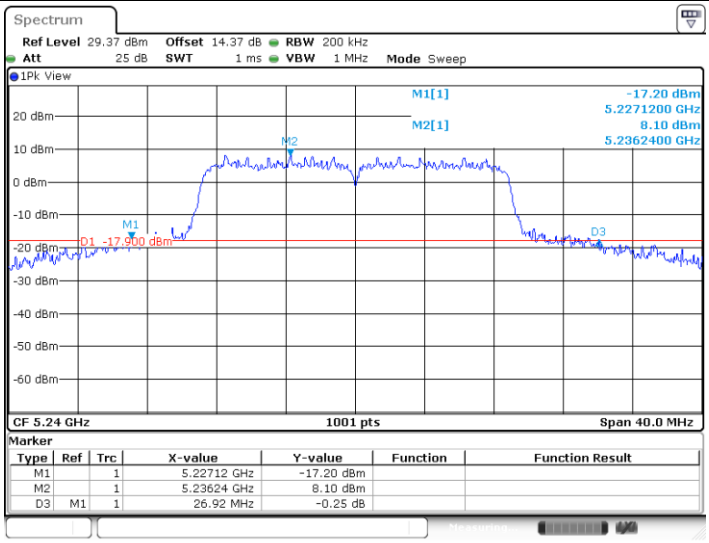

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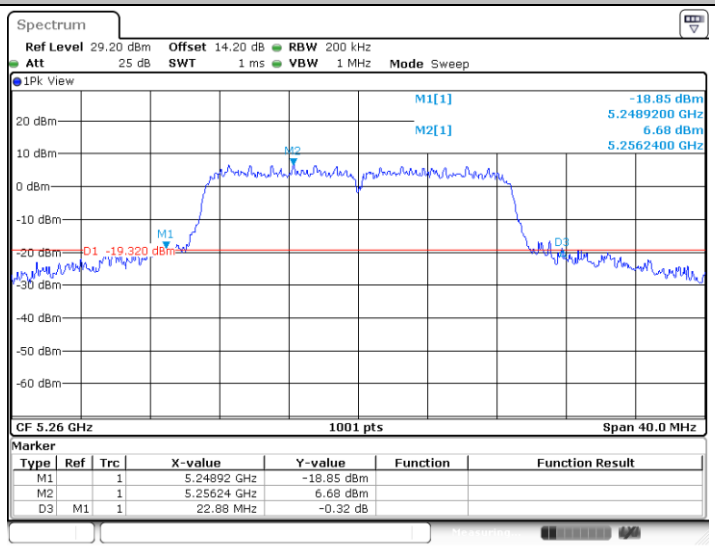

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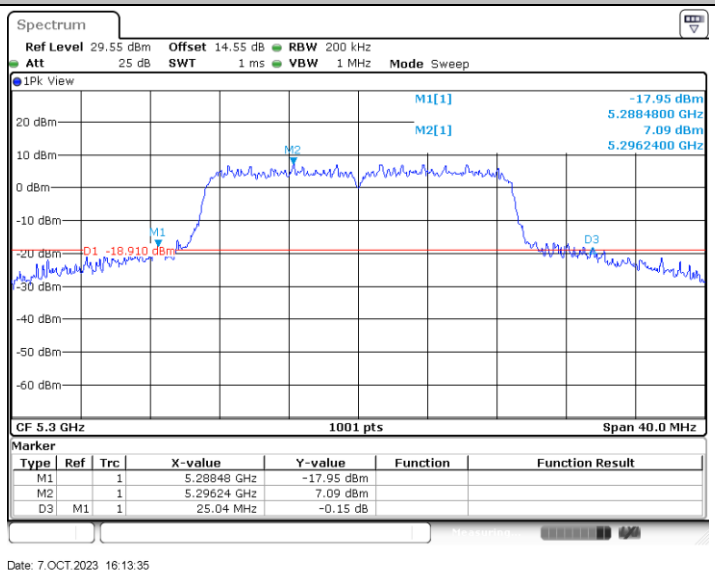

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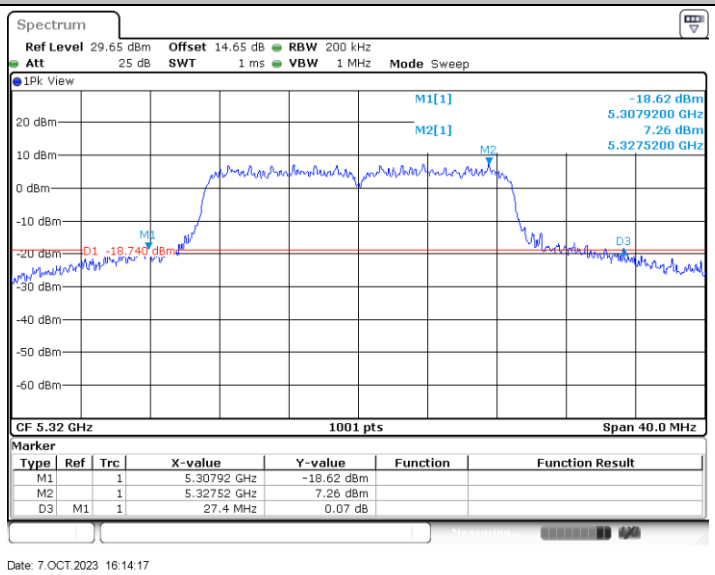

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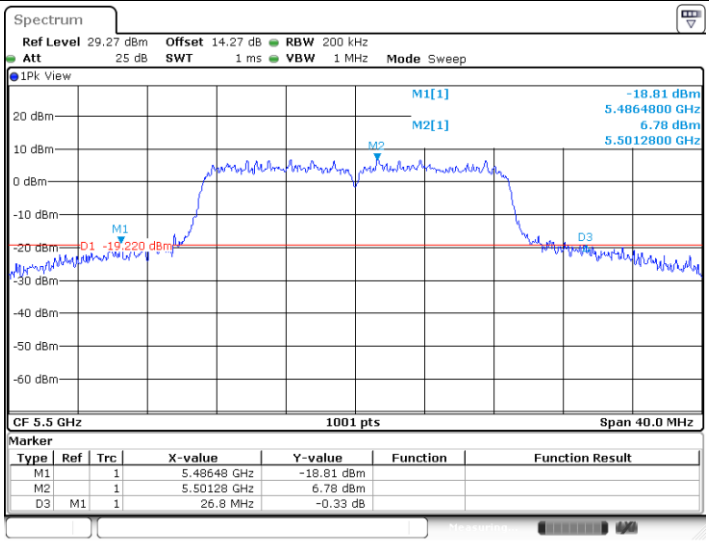

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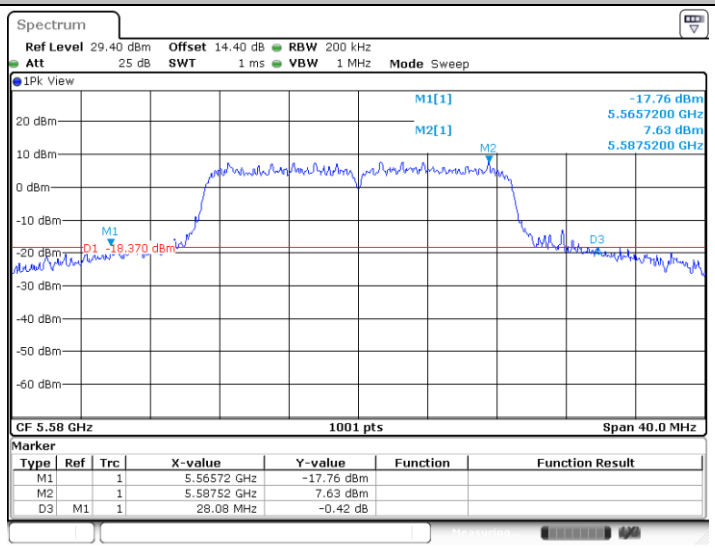

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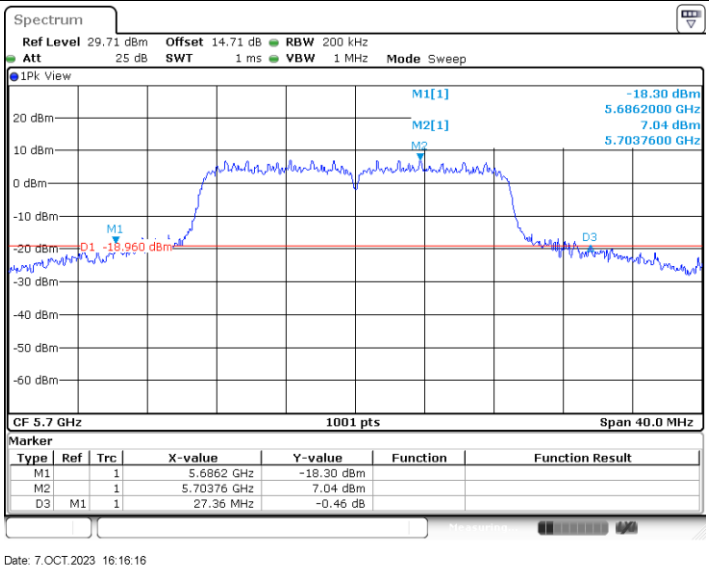

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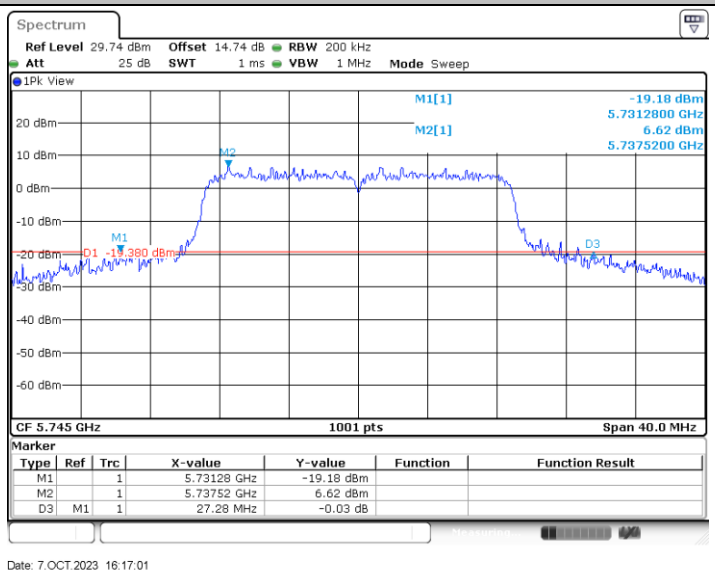

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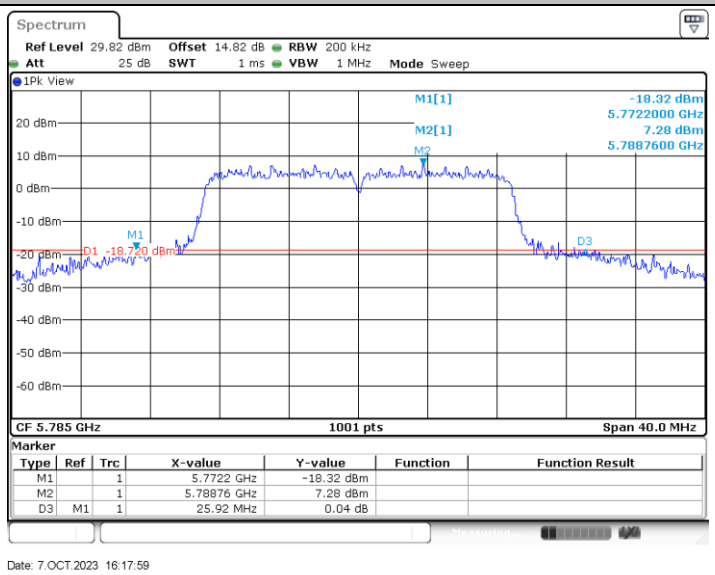

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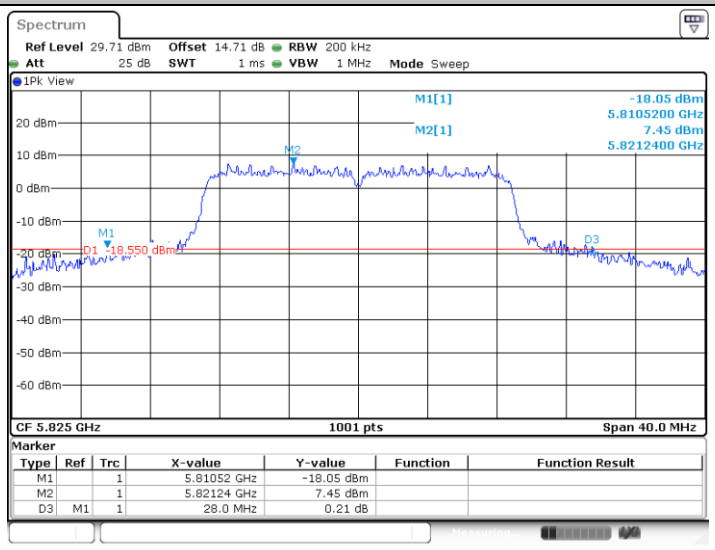

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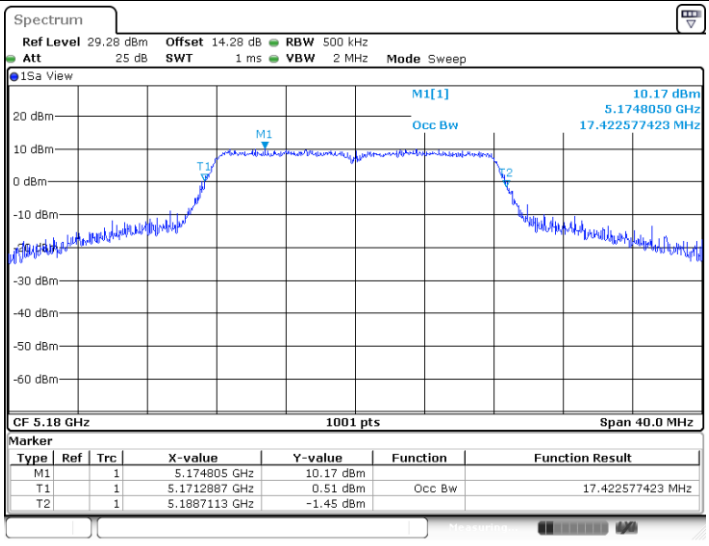
Occupied channel bandwidth

Test Result

TestMode	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]
11A	5180	17.423	5171.2887	5188.7113
	5220	17.582	5211.2088	5228.7912
	5240	17.662	5231.1688	5248.8312
	5260	17.463	5251.2088	5268.6713
	5300	17.542	5291.2488	5308.7912
	5320	17.702	5311.2088	5328.9111
	5500	17.662	5491.1688	5508.8312
	5580	17.782	5571.1289	5588.9111
	5700	17.742	5691.0889	5708.8312
	5745	17.622	5736.1688	5753.7912
	5785	17.702	5776.1289	5793.8312
	5825	17.662	5816.0889	5833.7512
11N20SISO	5180	18.102	5170.9291	5189.0310
	5220	18.222	5210.8891	5229.1109
	5240	18.302	5230.8492	5249.1508
	5260	18.102	5250.8891	5268.9910
	5300	18.142	5290.9291	5309.0709
	5320	18.222	5310.9291	5329.1508
	5500	18.222	5490.8891	5509.1109
	5580	18.342	5570.8492	5589.1908
	5700	18.302	5690.8092	5709.1109
	5745	18.182	5735.8891	5754.0709
	5785	18.262	5775.8492	5794.1109
	5825	18.222	5815.8492	5834.0709

Test Graphs

11A_5180


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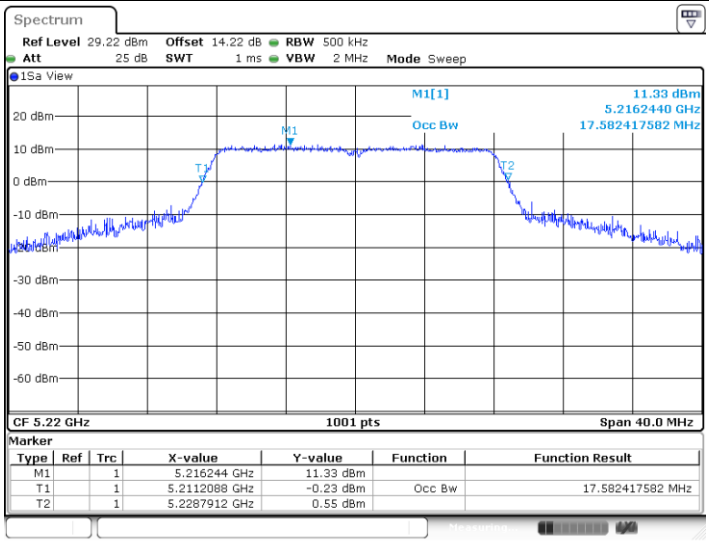
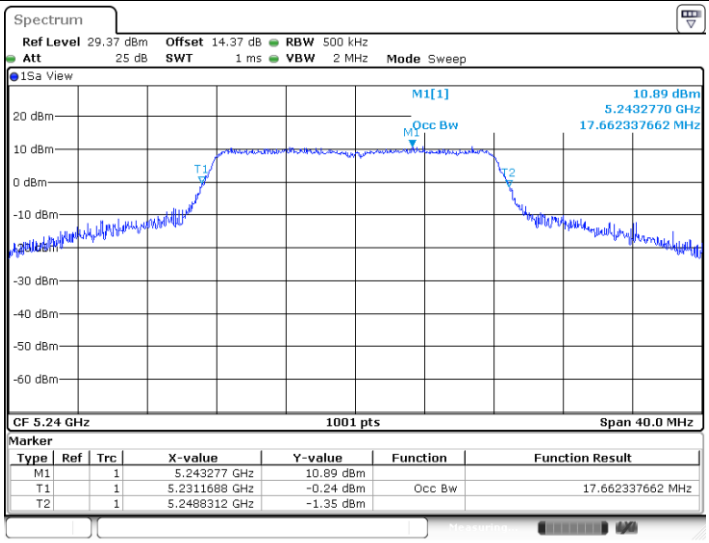


11A_5240



Date: 7.OCT.2023 16:02:25

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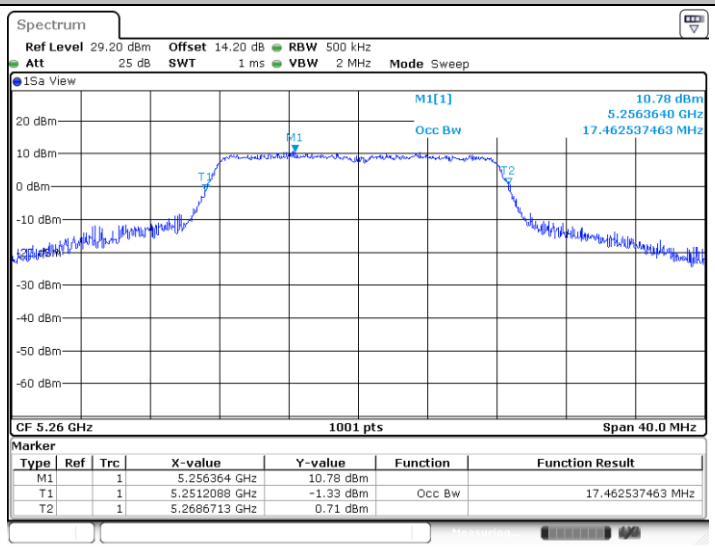

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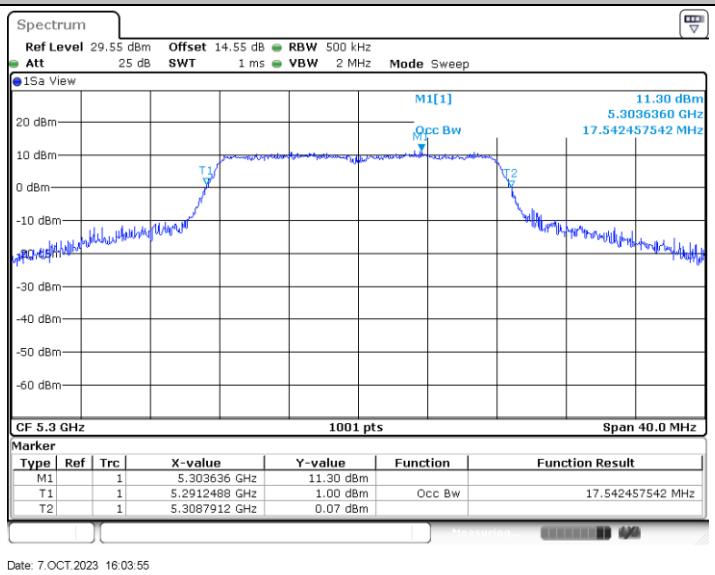

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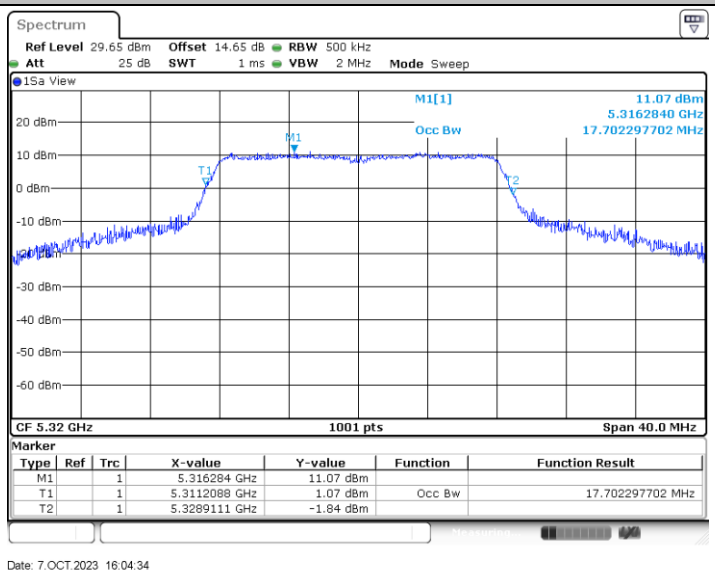

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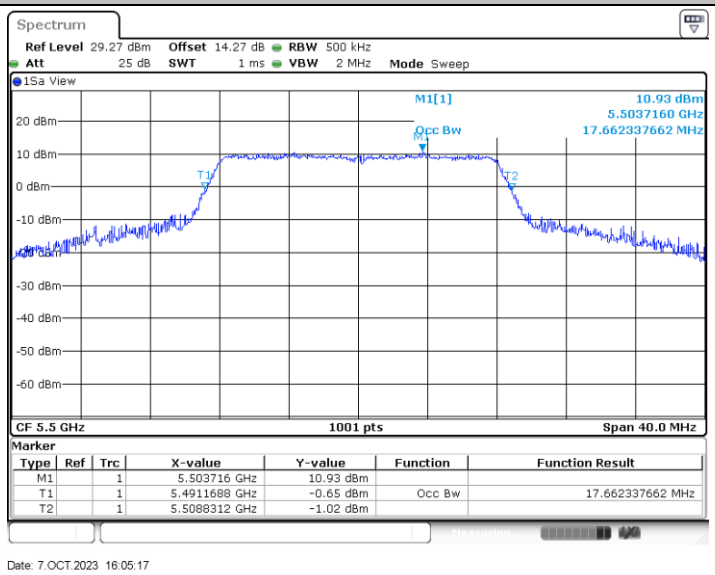

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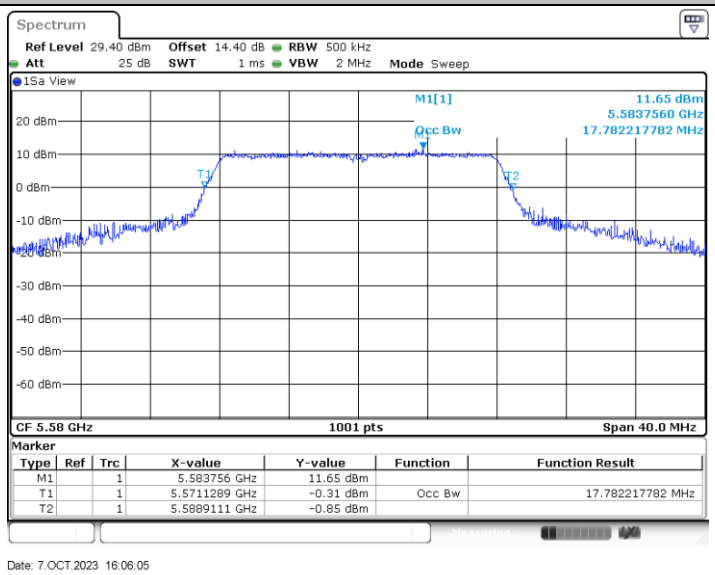
11A_5580



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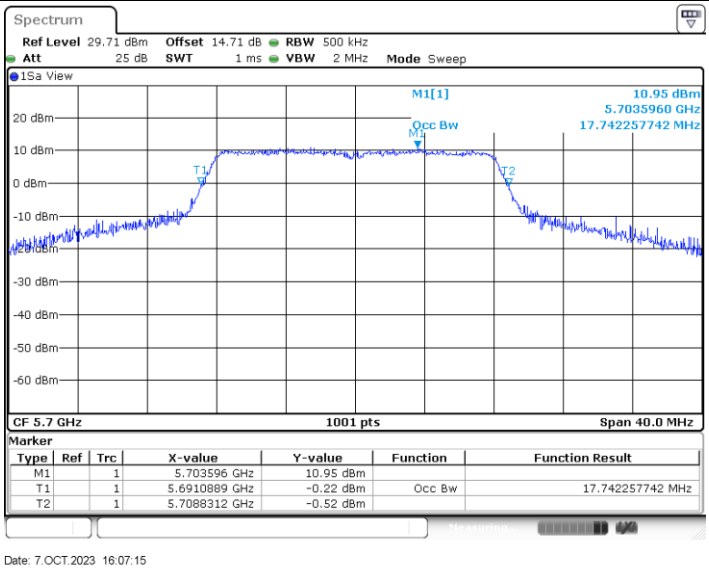

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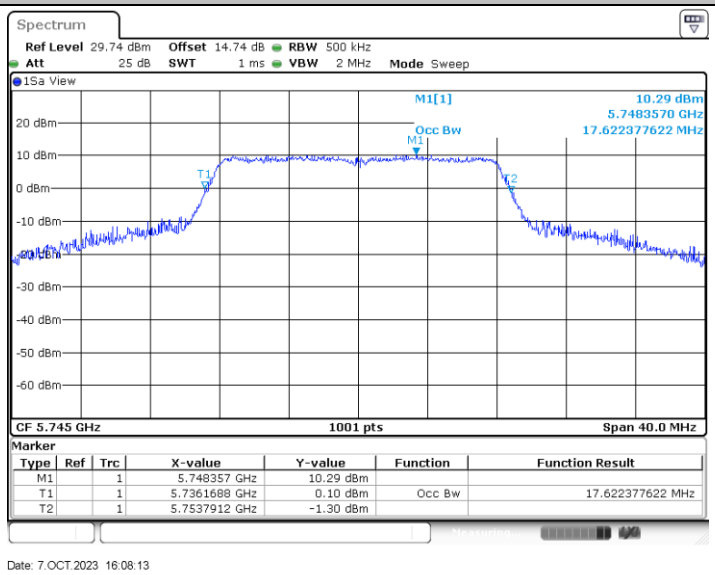

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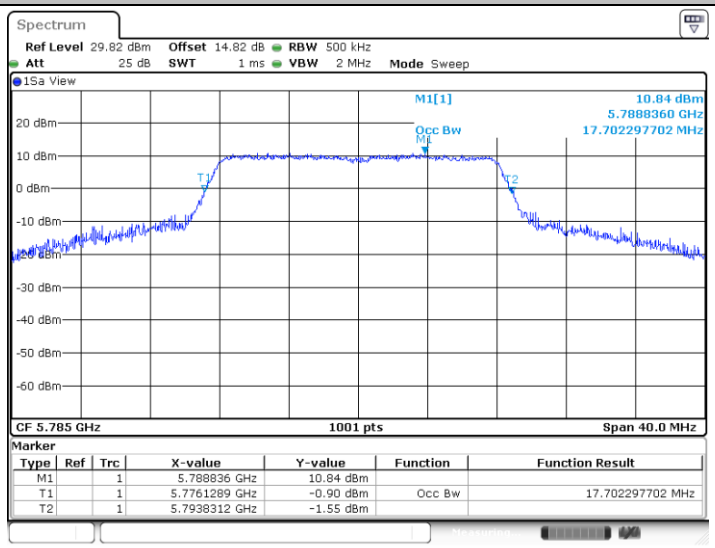

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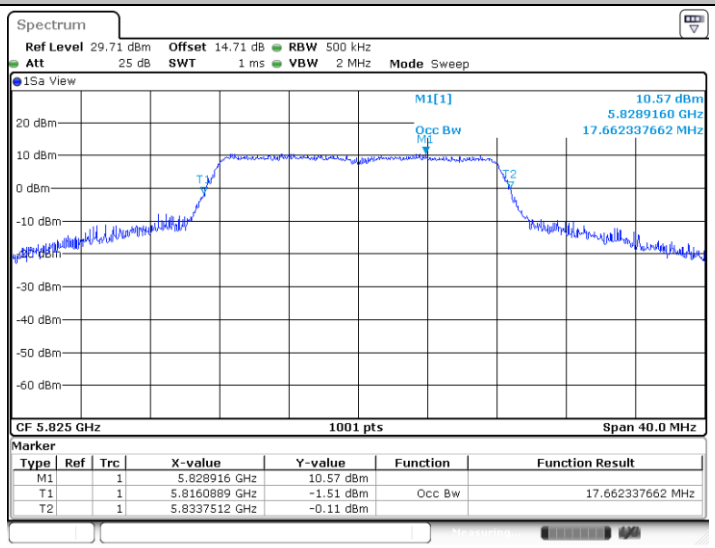

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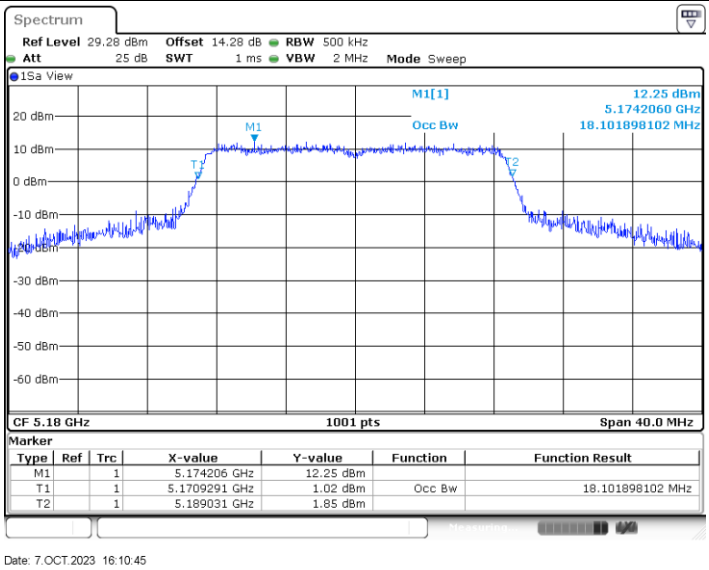

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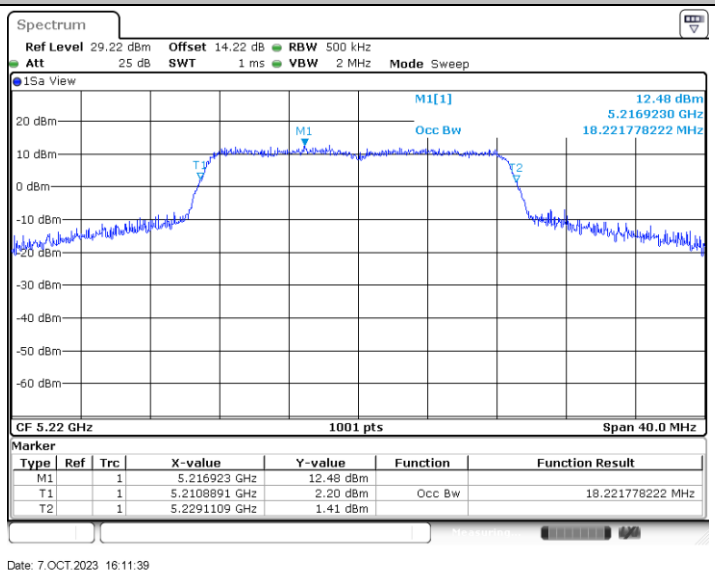

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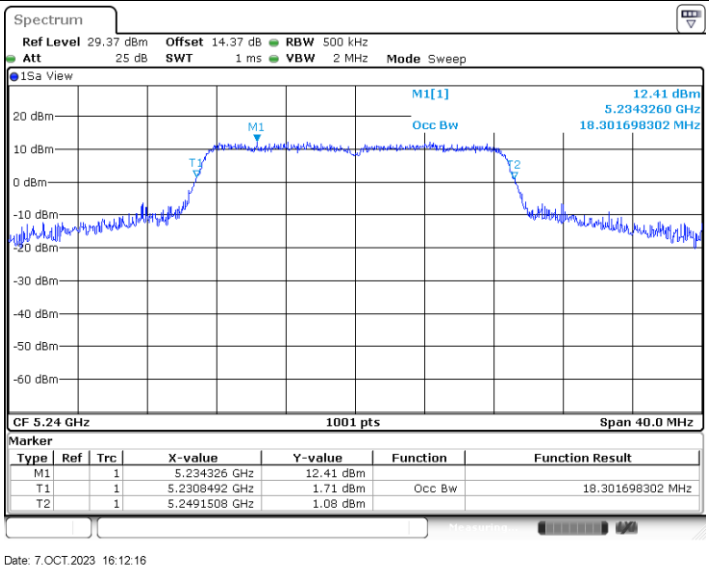

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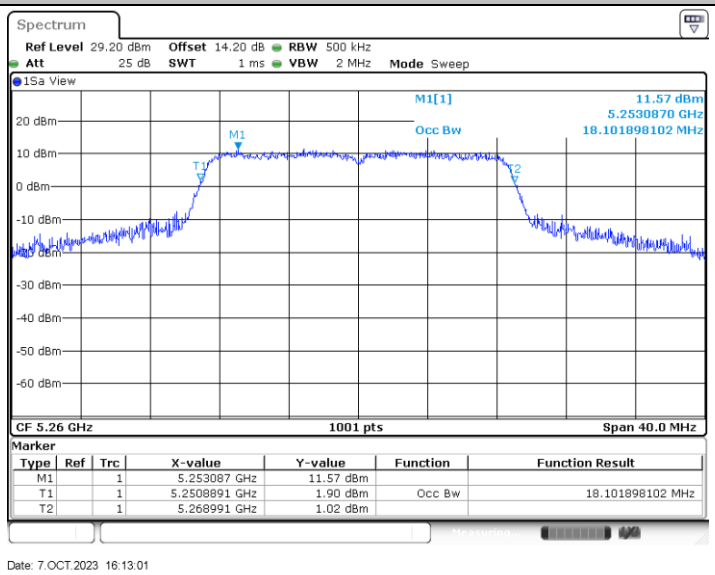

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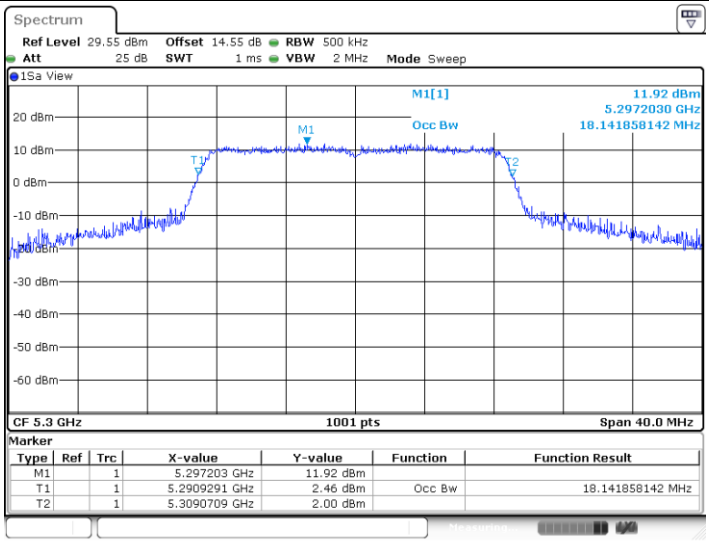

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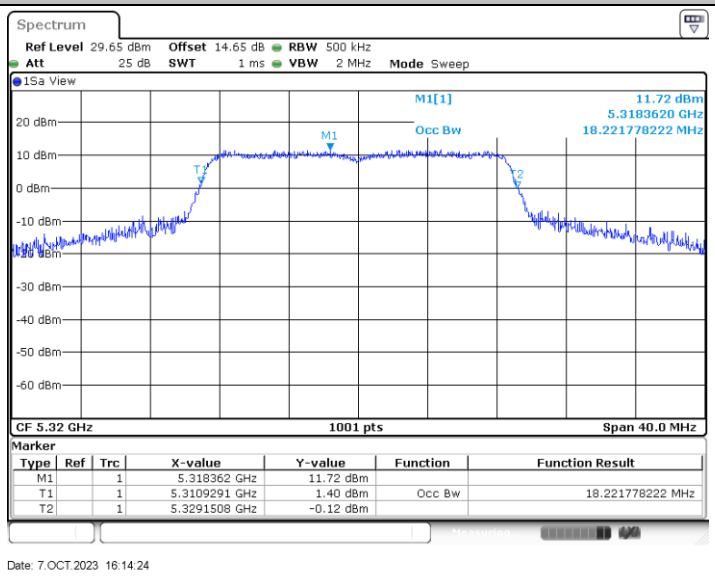

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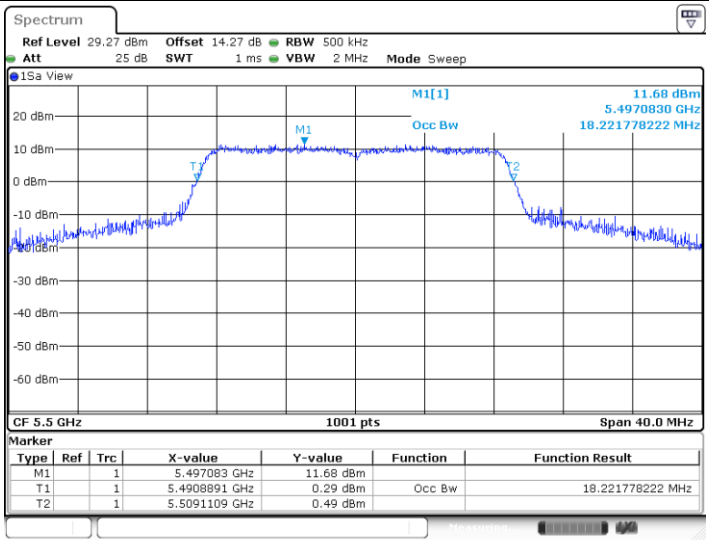

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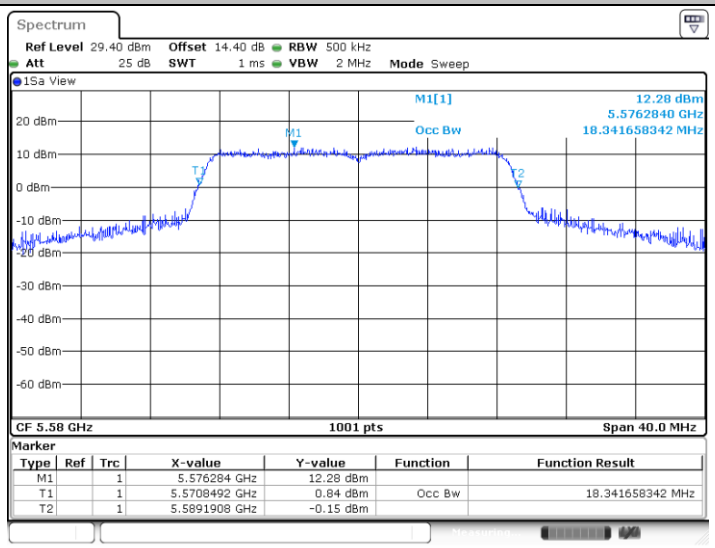

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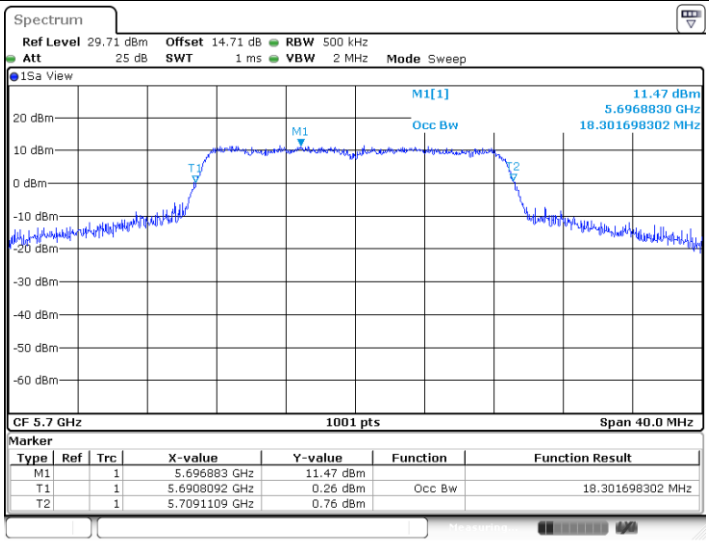

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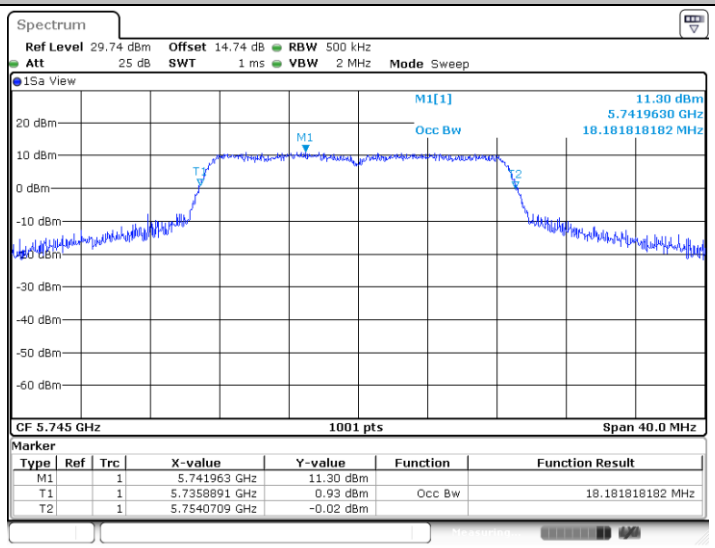

Date: 7.OCT.2023 16:17:17

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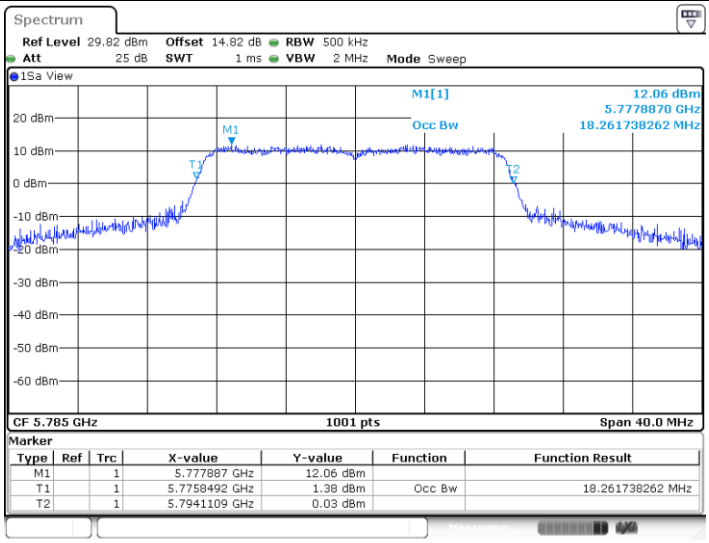
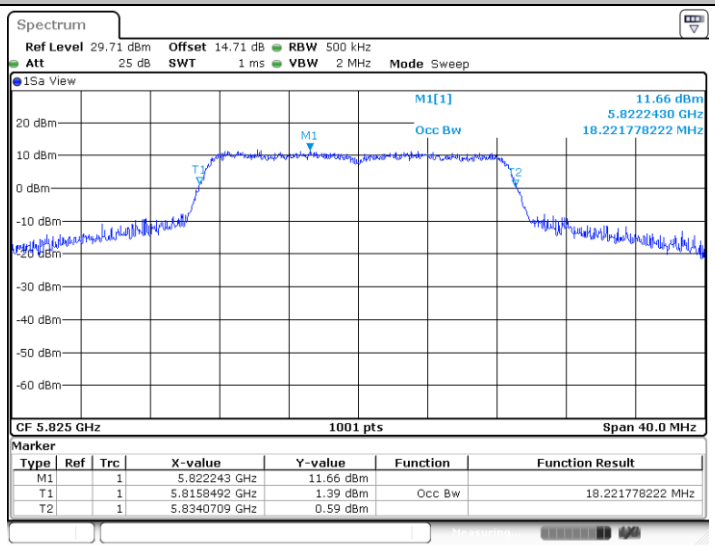


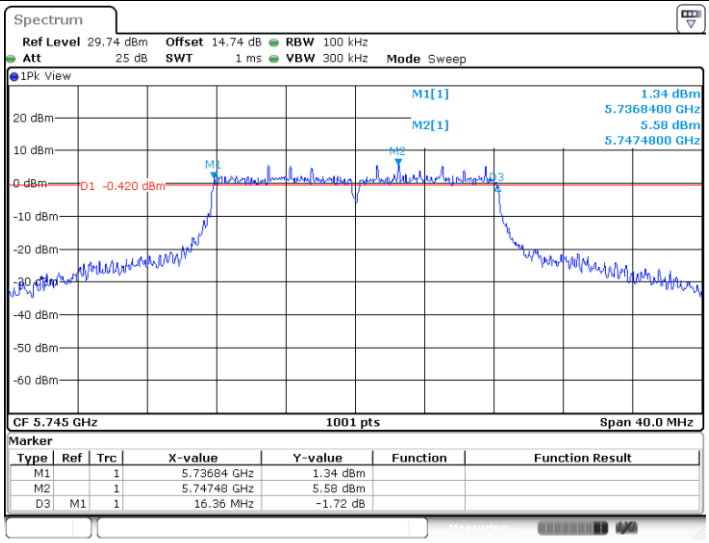
11N20SISO_5825


Min emission bandwidth for UNII-3

Test Result

TestMode	Freq(MHz)	6dB EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	5745	16.36	5736.84	5753.20	0.5	PASS
	5785	16.32	5776.84	5793.16	0.5	PASS
	5825	16.32	5816.84	5833.16	0.5	PASS
11N20SISO	5745	17.12	5736.52	5753.64	0.5	PASS
	5785	17.16	5776.48	5793.64	0.5	PASS
	5825	17.24	5816.40	5833.64	0.5	PASS

Test Graphs

11A_5745


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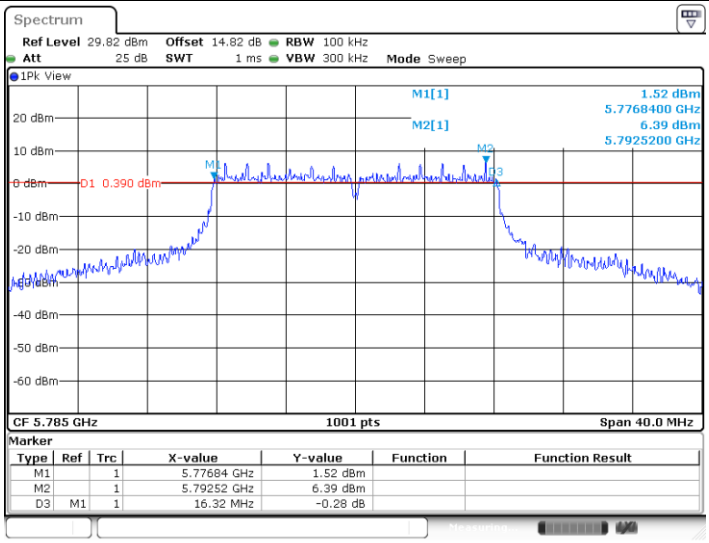

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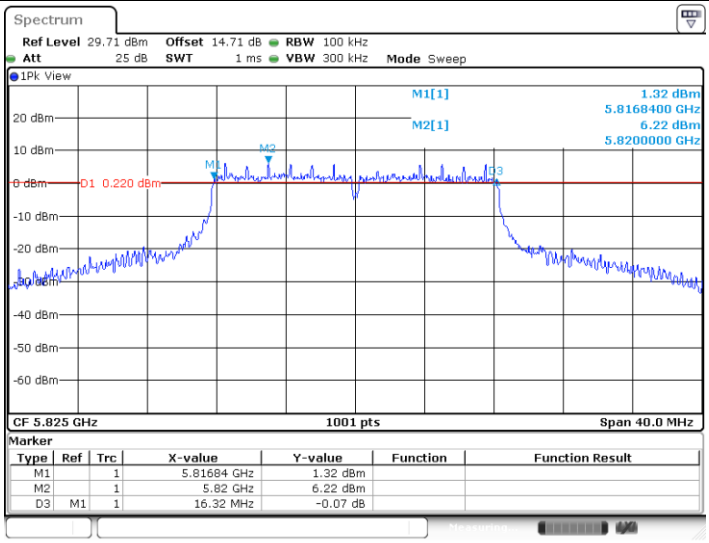

Date: 7.OCT.2023 16:09:42

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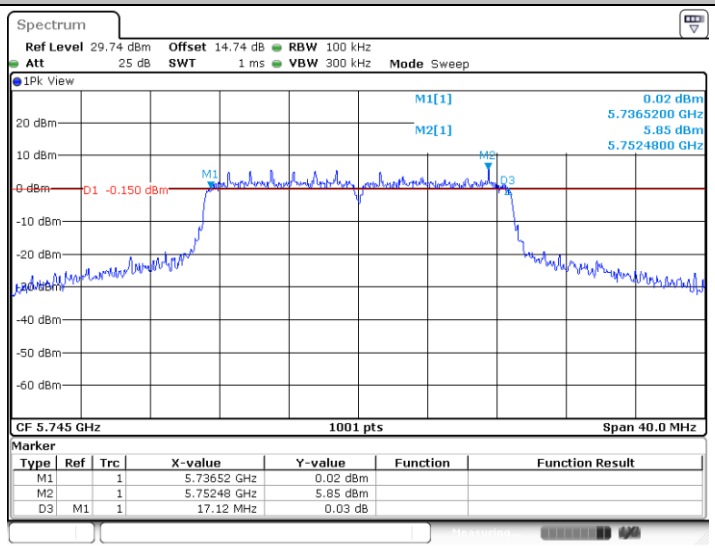

Date: 7.OCT.2023 16:17:10

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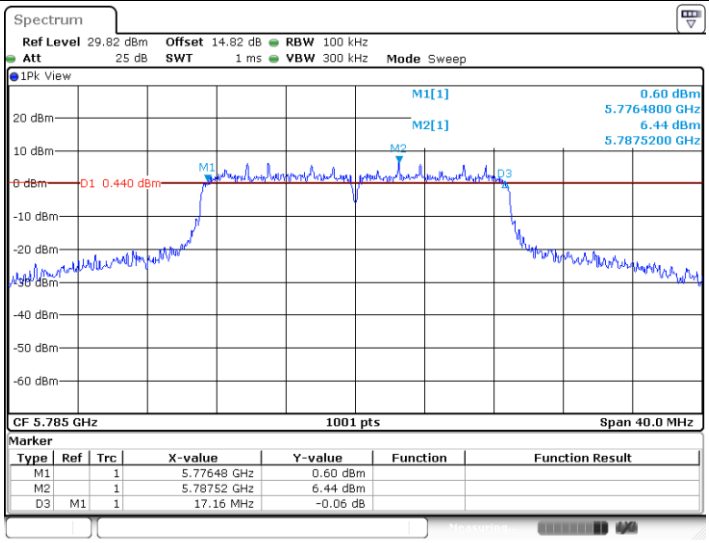

Date: 7.OCT.2023 16:18:08

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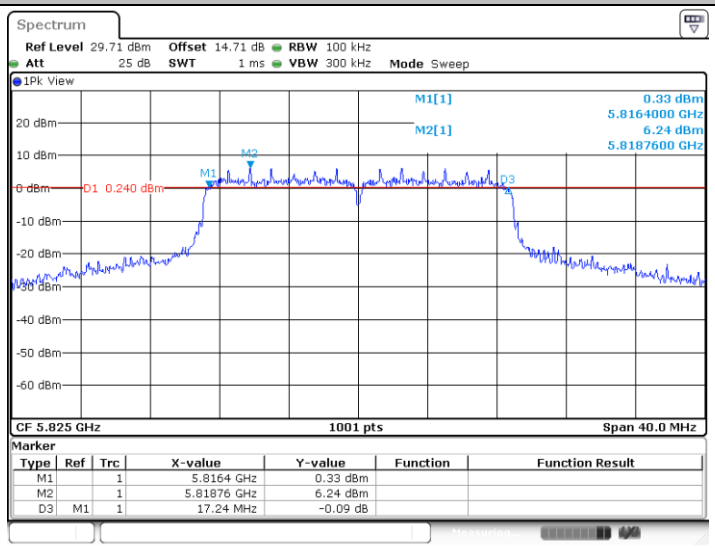


Date: 7.OCT.2023 16:18:53

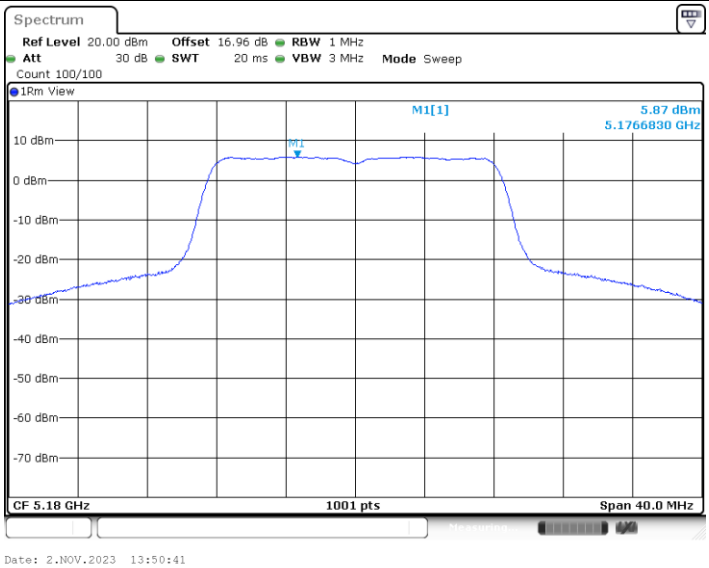
Maximum power spectral density

Test Result

TestMode	Freq(MHz)	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	5180	5.87	≤11.00	PASS
	5220	6.84	≤11.00	PASS
	5240	6.09	≤11.00	PASS
	5260	5.76	≤11.00	PASS
	5300	6.11	≤11.00	PASS
	5320	6.09	≤11.00	PASS
	5500	6.05	≤11.00	PASS
	5580	6.48	≤11.00	PASS
	5700	5.98	≤11.00	PASS
	5745	2.89	≤30.00	PASS
	5785	3.58	≤30.00	PASS
	5825	3.52	≤30.00	PASS
11N20SISO	5180	4.65	≤11.00	PASS
	5220	6.85	≤11.00	PASS
	5240	6.7	≤11.00	PASS
	5260	5.75	≤11.00	PASS
	5300	6.02	≤11.00	PASS
	5320	6.15	≤11.00	PASS
	5500	5.65	≤11.00	PASS
	5580	6.58	≤11.00	PASS
	5700	4.94	≤11.00	PASS
	5745	3.08	≤30.00	PASS
	5785	3.73	≤30.00	PASS
	5825	3.54	≤30.00	PASS

Note：1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.
2.The Duty Cycle Factor and is compensated in the graph.

Test Graphs

11A_5180


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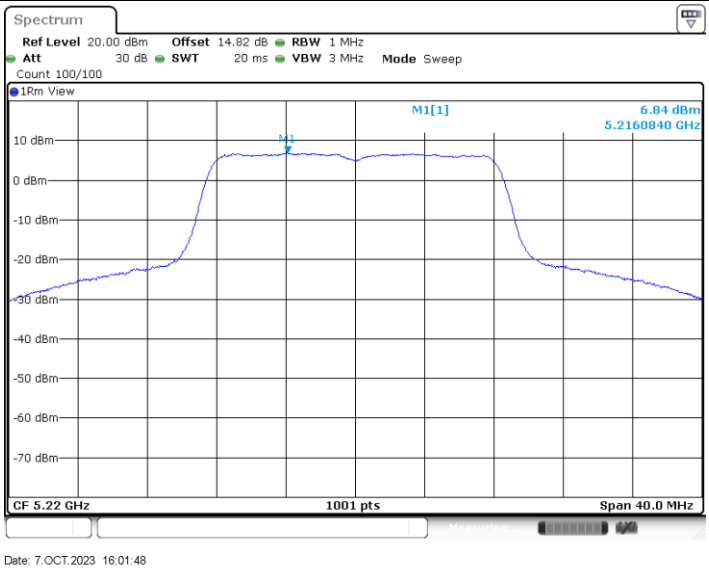

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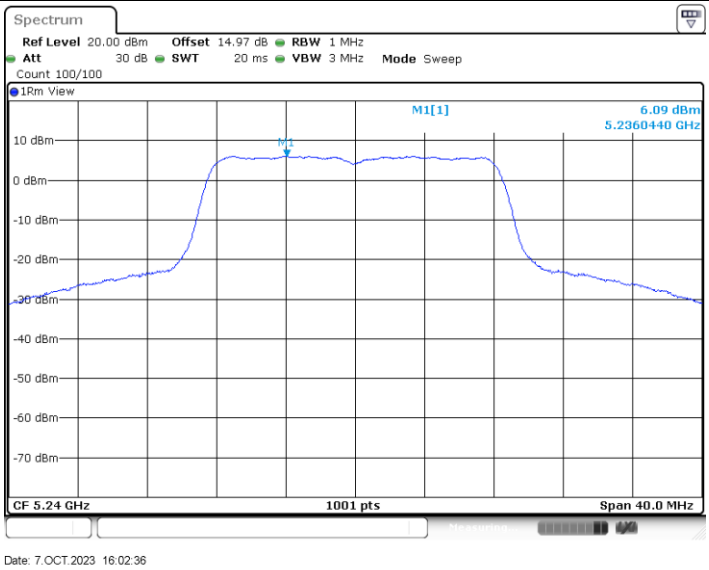
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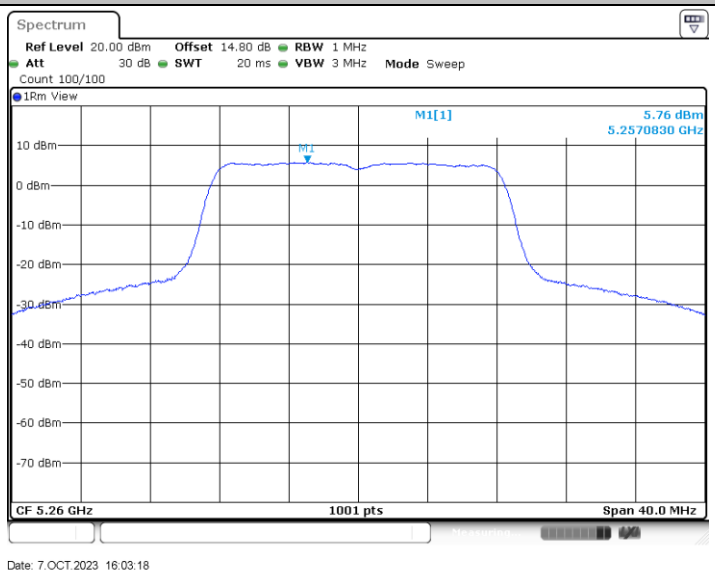

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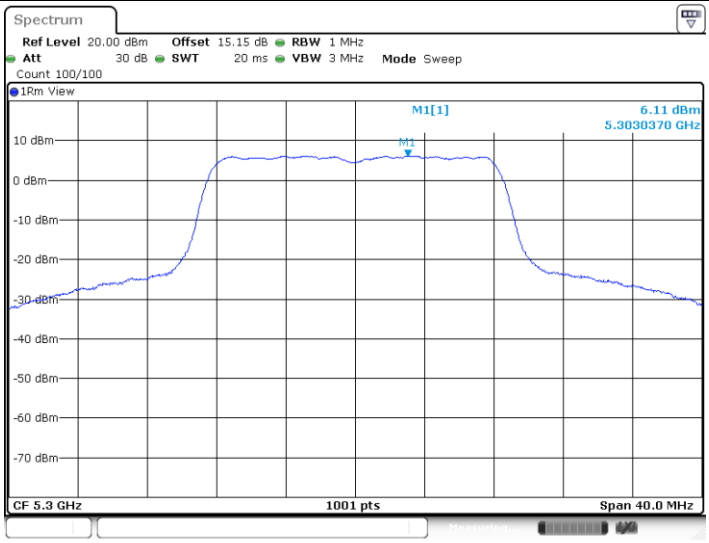

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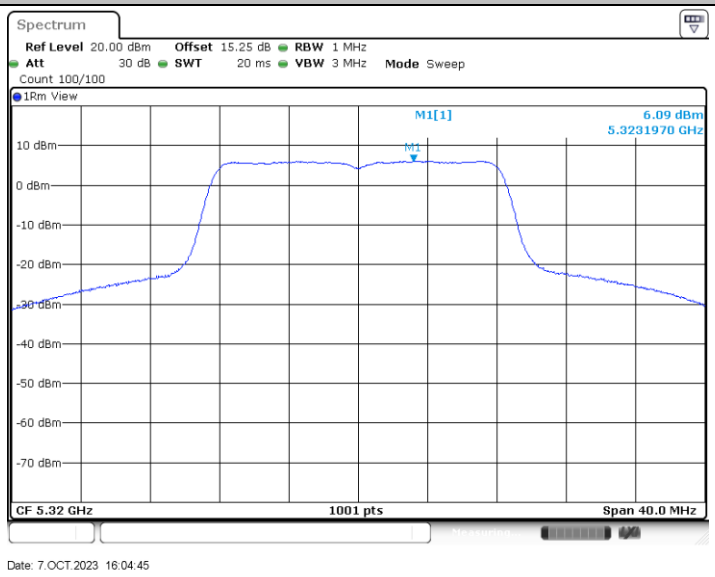

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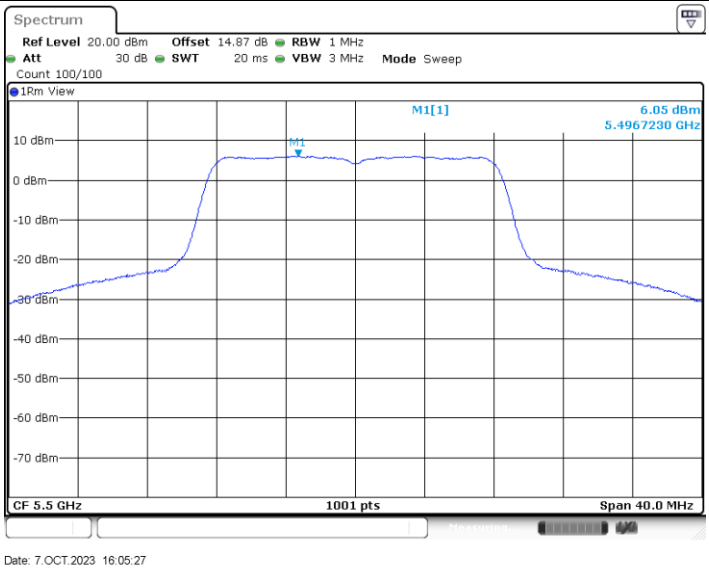

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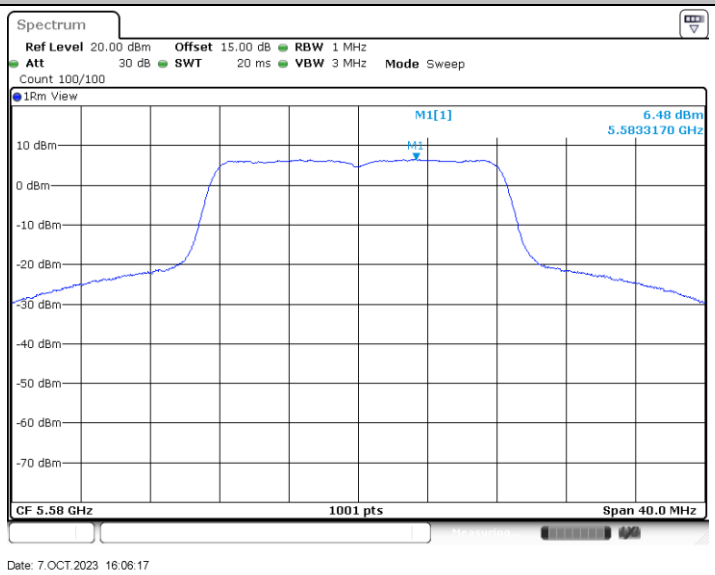

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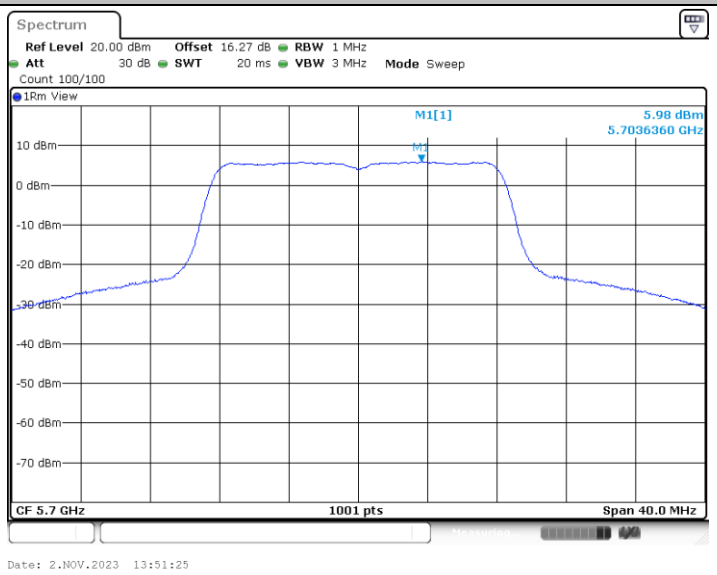

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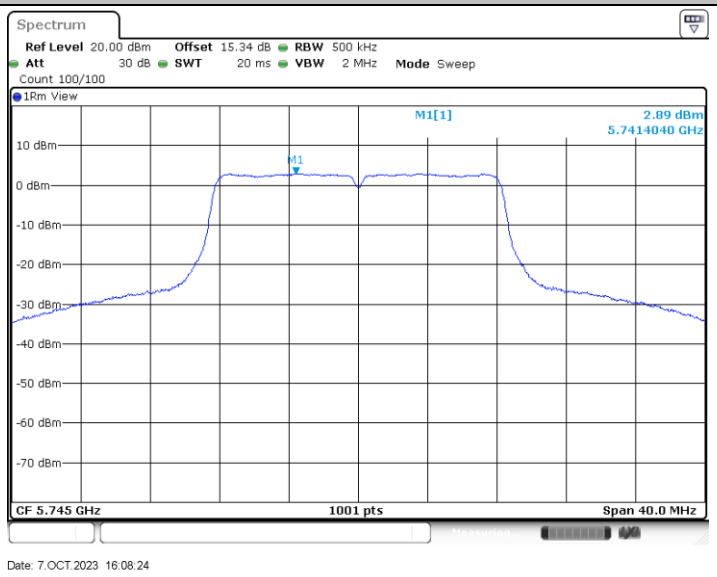

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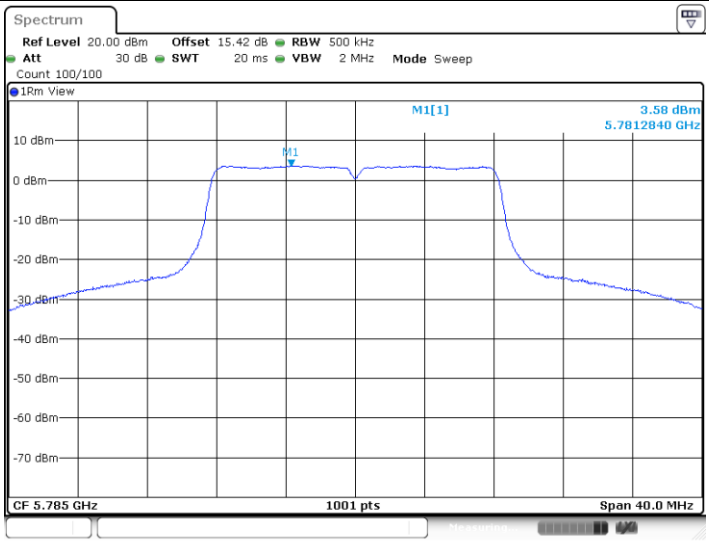 Date: 7.OCT.2023 16:09:15
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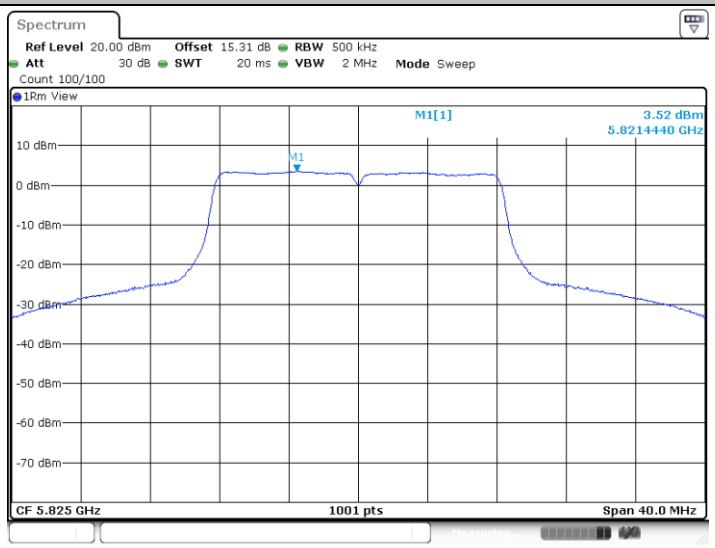 Date: 7.OCT.2023 16:10:01

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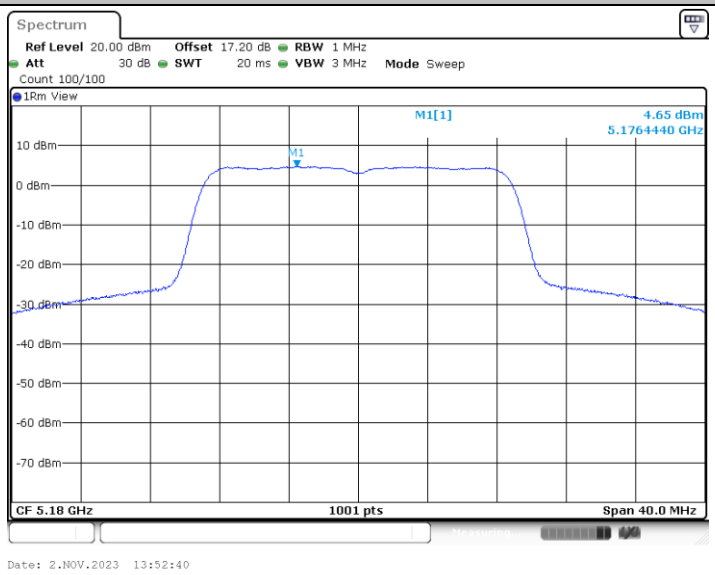

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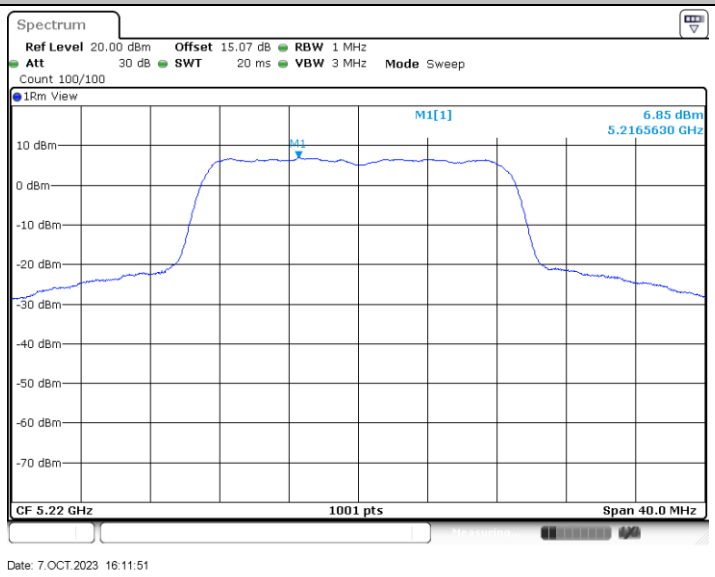

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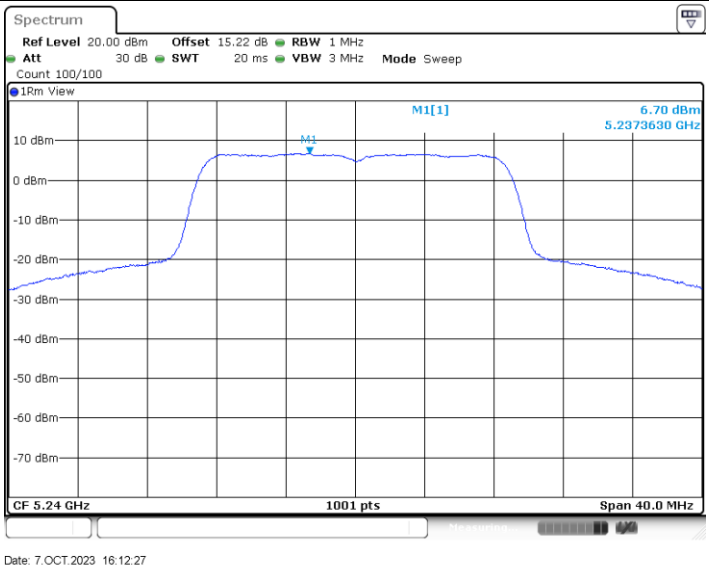

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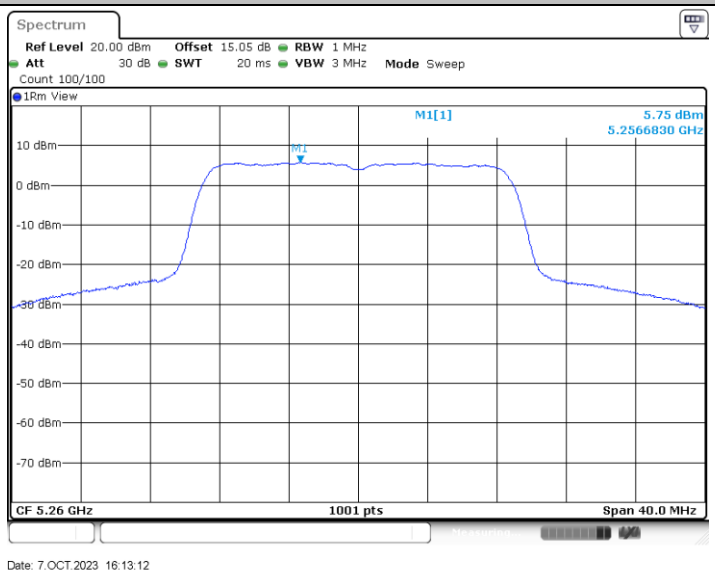

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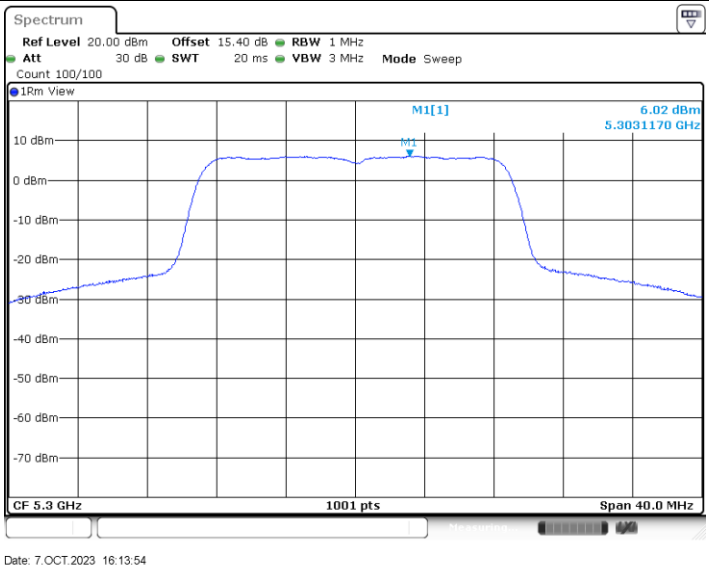
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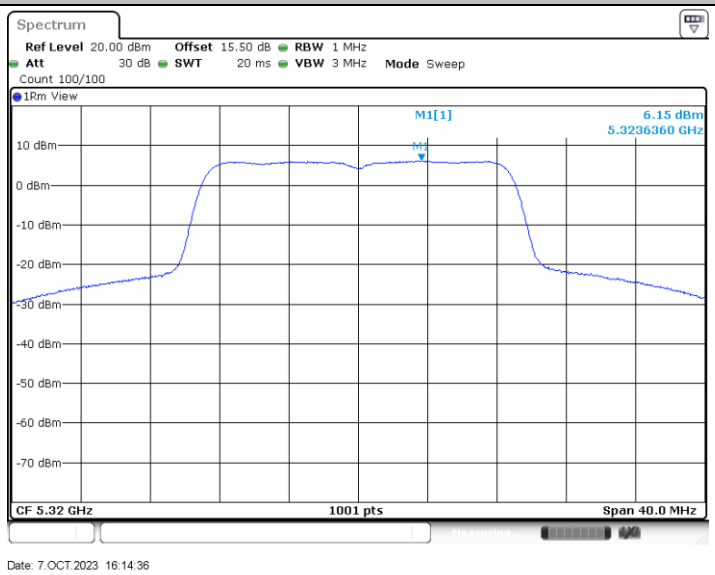

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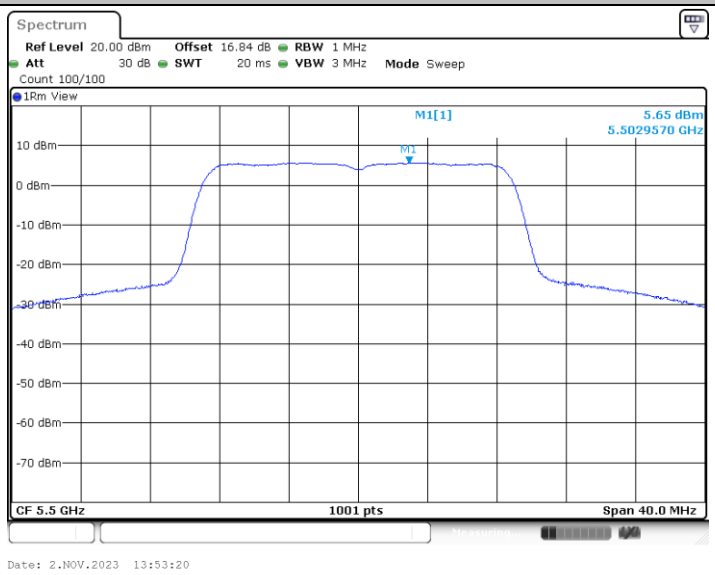

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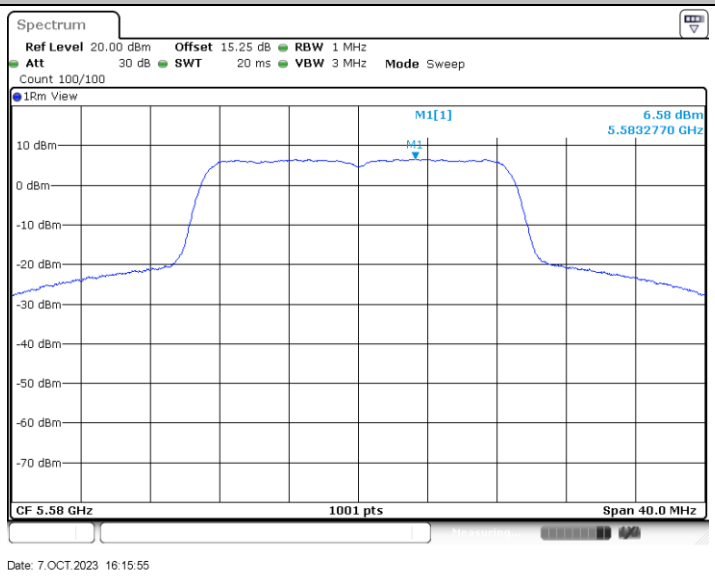
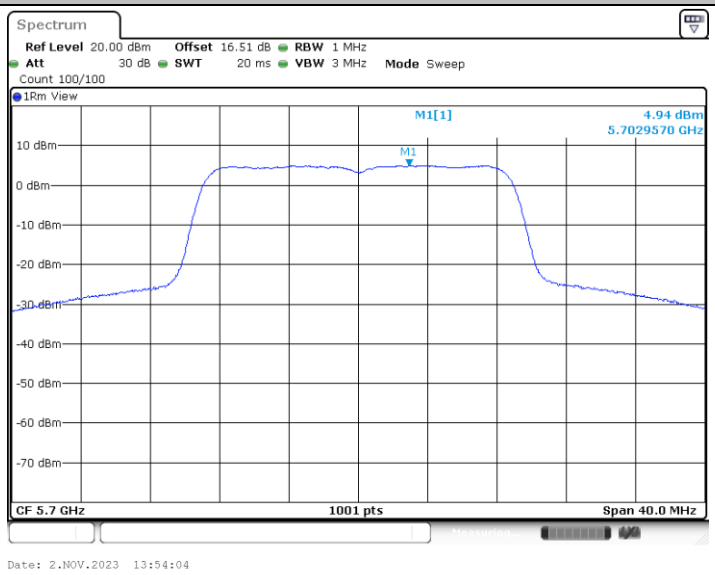


11N20SISO_5700


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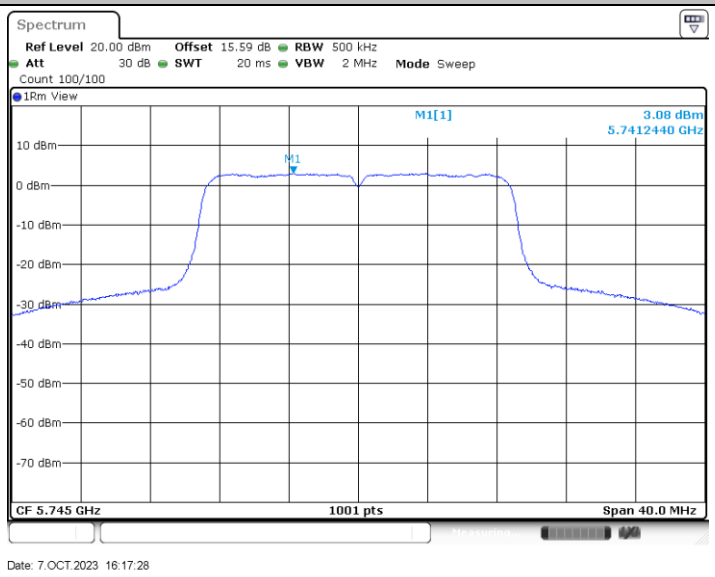

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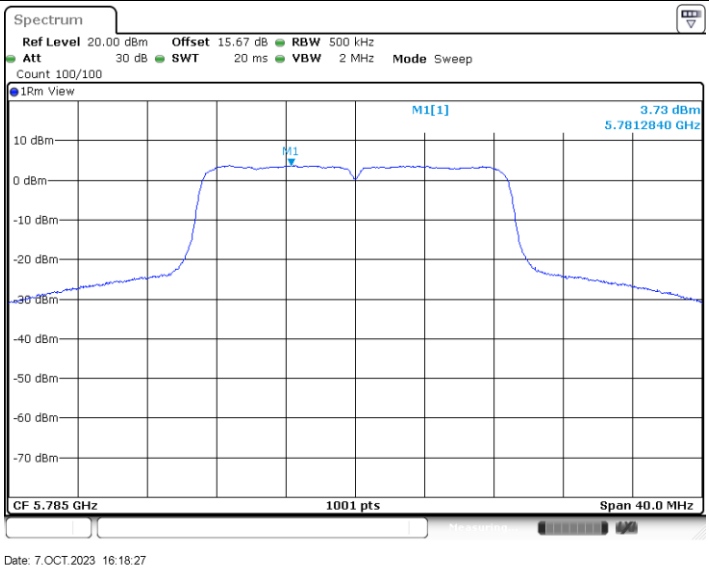
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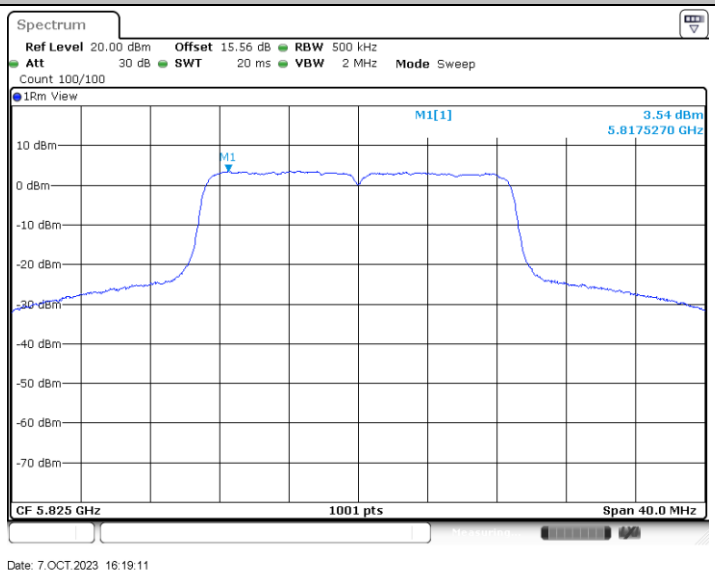
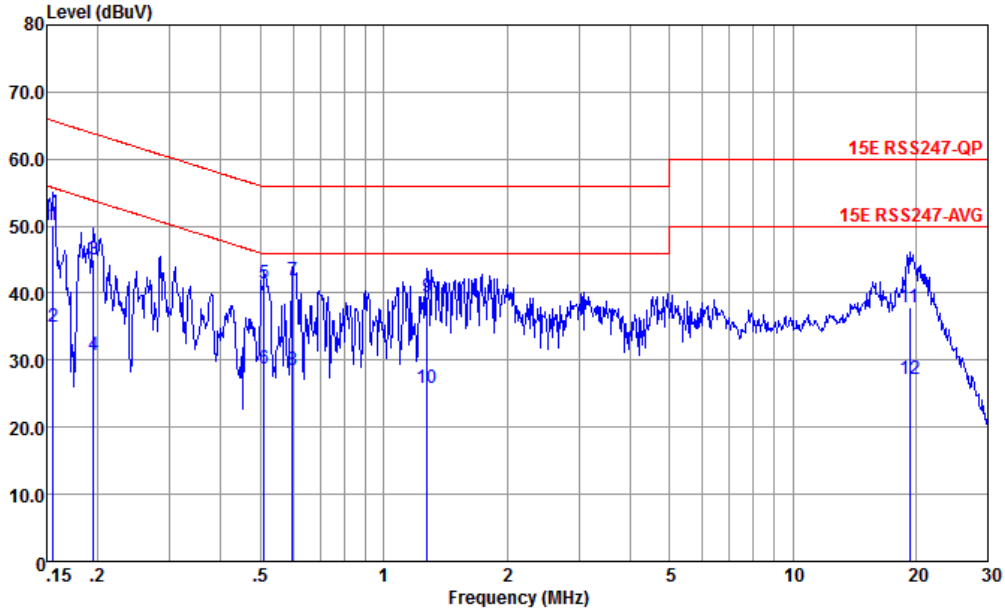


Appendix B. AC Conducted Emission Test Results

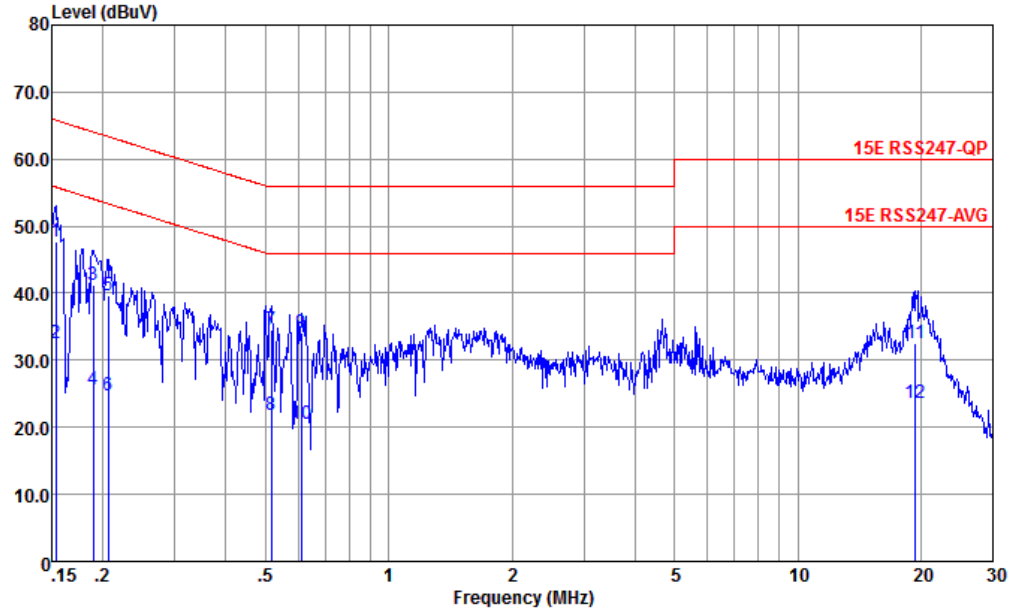
Test Engineer :	Amos Zhang	**Temperature :**	25.3~26.2℃
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Line
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-KS
Condition : 15E RSS247-QP LISN-060105-L 2023 LINE

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1		0.156	50.08	-15.61	65.69	39.60	0.05	10.43	QP
2		0.156	34.98	-20.71	55.69	24.50	0.05	10.43	Average
3		0.195	44.95	-18.85	63.80	34.50	0.03	10.42	QP
4		0.195	30.75	-23.05	53.80	20.30	0.03	10.42	Average
5		0.510	41.37	-14.63	56.00	31.19	-0.03	10.21	QP
6		0.510	28.77	-17.23	46.00	18.59	-0.03	10.21	Average
7	*	0.598	41.93	-14.07	56.00	31.80	-0.05	10.18	QP
8		0.598	28.43	-17.57	46.00	18.30	-0.05	10.18	Average
9		1.276	39.48	-16.52	56.00	29.50	-0.11	10.09	QP
10		1.276	25.88	-20.12	46.00	15.90	-0.11	10.09	Average
11		19.326	37.77	-22.23	60.00	26.79	-0.34	11.32	QP
12		19.326	27.27	-22.73	50.00	16.29	-0.34	11.32	Average

Test Engineer :	Amos Zhang	**Temperature :**	25.3~26.2℃
		Relative Humidity :	38~40%
Test Voltage :	120Vac / 60Hz	**Phase :**	Neutral
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Site : CO01-KS
Condition : 15E RSS247-QP LISN-060105-N 2023 NEUTRAL

		Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
		MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	*	0.153	47.67	-18.15	65.82	37.20	0.04	10.43	QP
2		0.153	32.57	-23.25	55.82	22.10	0.04	10.43	Average
3		0.189	41.27	-22.79	64.06	30.80	0.05	10.42	QP
4		0.189	25.67	-28.39	54.06	15.20	0.05	10.42	Average
5		0.206	39.66	-23.70	63.36	29.21	0.04	10.41	QP
6		0.206	24.66	-28.70	53.36	14.21	0.04	10.41	Average
7		0.516	34.64	-21.36	56.00	24.50	-0.07	10.21	QP
8		0.516	21.74	-24.26	46.00	11.60	-0.07	10.21	Average
9		0.611	34.01	-21.99	56.00	23.90	-0.07	10.18	QP
10		0.611	20.41	-25.59	46.00	10.30	-0.07	10.18	Average
11		19.428	32.57	-27.43	60.00	21.50	-0.25	11.32	QP
12		19.428	23.57	-26.43	50.00	12.50	-0.25	11.32	Average

Note:

1. Level(dBμV) = Read Level(dBμV) + LISN Factor(dB) + Cable Loss(dB)
2. Over Limit(dB) = Level(dBμV) – Limit Line(dBμV)

Appendix C. Radiated Spurious Emission Test Data

Test Engineer :	Zhao hongliang	Relative Humidity :	41 ~ 42 ％
		Temperature :	22 ~ 23 ℃

Radiated Spurious Emission Test Modes

Mode	Band	Band (GHz)	Antenna	Modulation	Channel	Frequency	Data Rate	RU	Remark
Mode 1	U-NII-1	5.15-5.25	1	802.11a	36	5180	6Mbps	-	-
Mode 2	U-NII-1	5.15-5.25	1	802.11a	44	5220	6Mbps	-	-
Mode 3	U-NII-1	5.15-5.25	1	802.11a	48	5240	6Mbps	-	-
Mode 4	U-NII-2A	5.25-5.35	1	802.11a	52	5260	6Mbps	-	-
Mode 5	U-NII-2A	5.25-5.35	1	802.11a	60	5300	6Mbps	-	-
Mode 6	U-NII-2A	5.25-5.35	1	802.11a	64	5320	6Mbps	-	-
Mode 7	U-NII-2C	5.47-5.725	1	802.11a	100	5500	6Mbps	-	-
Mode 8	U-NII-2C	5.47-5.725	1	802.11a	116	5580	6Mbps	-	-
Mode 9	U-NII-2C	5.47-5.725	1	802.11a	140	5700	6Mbps	-	-
Mode 10	U-NII-1	5.15-5.25	1	802.11n HT20	36	5180	MCS0	-	-
Mode 11	U-NII-1	5.15-5.25	1	802.11n HT20	44	5220	MCS0	-	-
Mode 12	U-NII-1	5.15-5.25	1	802.11n HT20	48	5240	MCS0	-	-
Mode 13	U-NII-2A	5.25-5.35	1	802.11n HT20	52	5260	MCS0	-	-
Mode 14	U-NII-2A	5.25-5.35	1	802.11n HT20	60	5300	MCS0	-	-
Mode 15	U-NII-2A	5.25-5.35	1	802.11n HT20	64	5320	MCS0	-	-
Mode 16	U-NII-2C	5.47-5.725	1	802.11n HT20	100	5500	MCS0	-	-
Mode 17	U-NII-2C	5.47-5.725	1	802.11n HT20	116	5580	MCS0	-	-
Mode 18	U-NII-2C	5.47-5.725	1	802.11n HT20	140	5700	MCS0	-	-
Mode 19	U-NII-3	5.725-5.85	1	802.11a	149	5745	6Mbps	-	-
Mode 20	U-NII-3	5.725-5.85	1	802.11a	157	5785	6Mbps	-	-
Mode 21	U-NII-3	5.725-5.85	1	802.11a	165	5825	6Mbps	-	-
Mode 22	U-NII-3	5.725-5.85	1	802.11n HT20	149	5745	MCS0	-	-
Mode 23	U-NII-3	5.725-5.85	1	802.11n HT20	157	5785	MCS0	-	-
Mode 24	U-NII-3	5.725-5.85	1	802.11n HT20	165	5825	MCS0	-	-
Mode 25	U-NII-1	5.15-5.25	1	802.11a	36	5180	6Mbps	-	-
	LTE Band 13 BW=5M								
Mode 26	U-NII-1	5.15-5.25	1	802.11a	36	5180	6Mbps	-	LF

Summary of each worse mode

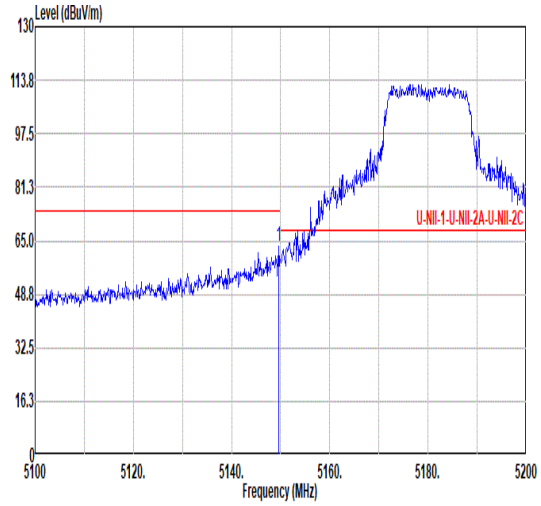
Mode	Modulation	Ch.	Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol.	Peak Avg.	Result	Remark
1	802.11a	36	5149.70	50.61	54.00	-3.39	H	AVERAGE	Pass	Band Edge
	802.11a	36	10360.00	46.01	68.20	-22.19	H	PEAK	Pass	Harmonic
2	802.11a	44	-	-	-	-	-	-	-	Band Edge
	802.11a	44	10440.00	46.02	68.20	-22.18	H	PEAK	Pass	Harmonic
3	802.11a	48	-	-	-	-	-	-	-	Band Edge
	802.11a	48	10480.00	46.42	68.20	-21.78	H	PEAK	Pass	Harmonic
4	802.11a	52	-	-	-	-	-	-	-	Band Edge
	802.11a	52	10520.00	45.92	68.20	-22.28	H	PEAK	Pass	Harmonic
5	802.11a	60	-	-	-	-	-	-	-	Band Edge
	802.11a	60	10600.00	44.72	74.00	-29.28	H	PEAK	Pass	Harmonic
6	802.11a	64	5350.20	47.29	54.00	-6.71	H	AVERAGE	Pass	Band Edge
	802.11a	64	10640.00	44.35	74.00	-29.65	H	PEAK	Pass	Harmonic
7	802.11a	100	5466.48	60.83	68.20	-7.37	H	PEAK	Pass	Band Edge
	802.11a	100	11000.00	46.67	74.00	-27.33	V	PEAK	Pass	Harmonic
8	802.11a	116	-	-	-	-	-	-	-	Band Edge
	802.11a	116	11160.00	46.17	74.00	-27.83	V	PEAK	Pass	Harmonic
9	802.11a	140	5725.56	64.57	68.20	-3.63	H	PEAK	Pass	Band Edge
	802.11a	140	11400.00	44.91	74.00	-29.09	H	PEAK	Pass	Harmonic
10	802.11n HT20	36	5149.90	49.97	54.00	-4.03	H	AVERAGE	Pass	Band Edge
	802.11n HT20	36	10360.00	46.30	68.20	-21.90	H	PEAK	Pass	Harmonic
11	802.11n HT20	44	-	-	-	-	-	-	-	Band Edge
	802.11n HT20	44	10440.00	46.07	68.20	-22.13	H	PEAK	Pass	Harmonic
12	802.11n HT20	48	-	-	-	-	-	-	-	Band Edge
	802.11n HT20	48	10480.00	45.58	68.20	-22.62	H	PEAK	Pass	Harmonic
13	802.11n HT20	52	-	-	-	-	-	-	-	Band Edge
	802.11n HT20	52	10520.00	46.05	68.20	-22.15	V	PEAK	Pass	Harmonic
14	802.11n HT20	60	-	-	-	-	-	-	-	Band Edge
	802.11n HT20	60	10600.00	45.03	74.00	-28.97	H	PEAK	Pass	Harmonic
15	802.11n HT20	64	5350.40	47.17	54.00	-6.83	H	AVERAGE	Pass	Band Edge
	802.11n HT20	64	10640.00	44.32	74.00	-29.68	V	PEAK	Pass	Harmonic
16	802.11n HT20	100	-	-	-	-	-	-	-	Band Edge
	802.11n HT20	100	11000.00	46.55	74.00	-27.45	H	PEAK	Pass	Harmonic
17	802.11n HT20	116	-	-	-	-	-	-	-	Band Edge
	802.11n HT20	116	11162.40	47.64	74.00	-26.36	V	Peak	Pass	Harmonic

Summary of each worse mode

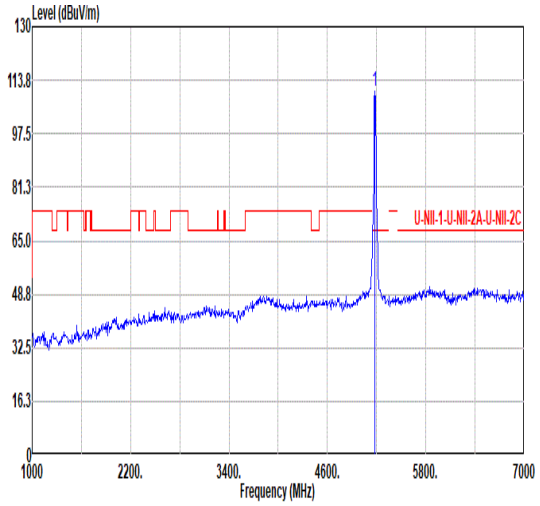
Mode	Modulation	Ch.	Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol.	Peak Avg.	Result	Remark
18	802.11n HT20	140	5727.48	64.31	68.20	-3.89	H	PEAK	Pass	Band Edge
	802.11n HT20	140	11400.00	45.42	74.00	-28.58	H	PEAK	Pass	Harmonic
19	802.11a	149	5644.00	48.98	68.20	-19.22	H	PEAK	Pass	Band Edge
	802.11a	149	11490.00	45.04	74.00	-28.96	H	PEAK	Pass	Harmonic
20	802.11a	157	-	-	-	-	-	-	-	Band Edge
	802.11a	157	11570.00	45.79	74.00	-28.21	V	PEAK	Pass	Harmonic
21	802.11a	165	4660.00	49.69	54.00	-4.31	H	Average	Pass	Band Edge
	802.11a	165	11650.00	45.26	74.00	-28.74	H	PEAK	Pass	Harmonic
22	802.11n HT20	149	4594.00	47.22	54.00	-6.78	H	Average	Pass	Band Edge
	802.11n HT20	149	11490.00	44.83	74.00	-29.17	V	PEAK	Pass	Harmonic
23	802.11n HT20	157	-	-	-	-	-	-	-	Band Edge
	802.11n HT20	157	11570.00	45.17	74.00	-28.83	H	PEAK	Pass	Harmonic
24	802.11n HT20	165	4660.00	49.79	54.00	-4.21	H	Average	Pass	Band Edge
	802.11n HT20	165	11650.00	45.91	74.00	-28.09	H	PEAK	Pass	Harmonic
25	802.11a	36	5150.00	49.33	54.00	-4.67	H	AVERAGE	Pass	Band Edge
	802.11a	36	10360.00	44.73	68.20	-23.47	H	PEAK	Pass	Harmonic
26	802.11a	36	32.91	25.60	40.00	-14.40	V	PEAK	Pass	LF

Mode	1	
	Band Edge	
	U-NII-1_5.15-5.25_802.11a_CH36_5180MHz	
ANT	1	
Pol.	Horizontal	Fundamental

Peak

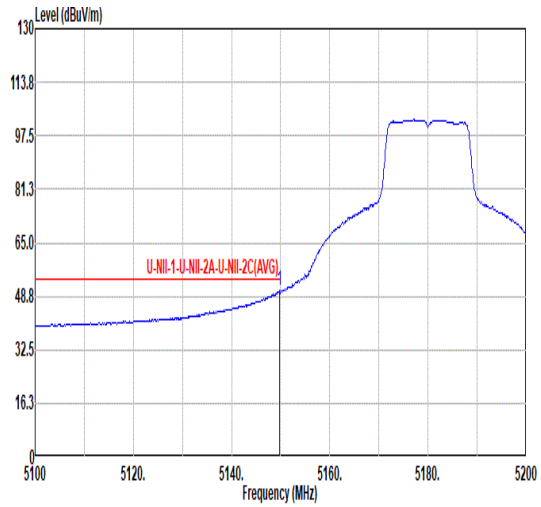


	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	5149.60	63.42	74.00	-10.58	55.15	34.15	10.61	36.49	0.00	203	176	PEAK

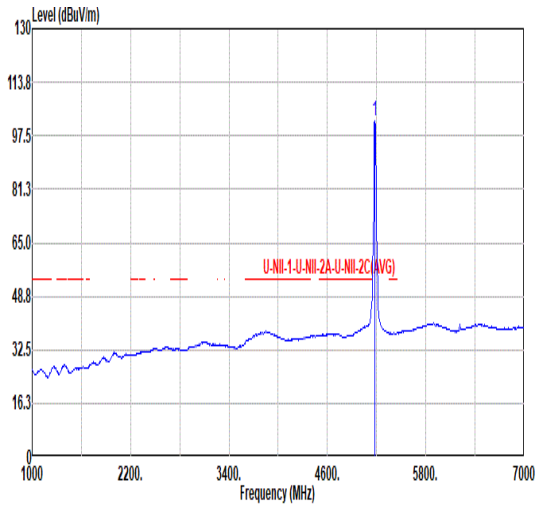


	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	5180.00	110.14	------	------	101.84	34.23	10.64	36.57	0.00	203	176	PEAK

Avg



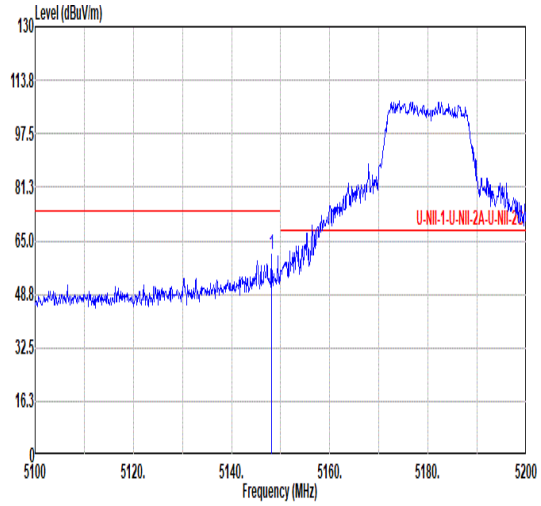
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	5149.70	50.61	54.00	-3.39	42.34	34.15	10.61	36.49	0.00	203	176	AVERAGE



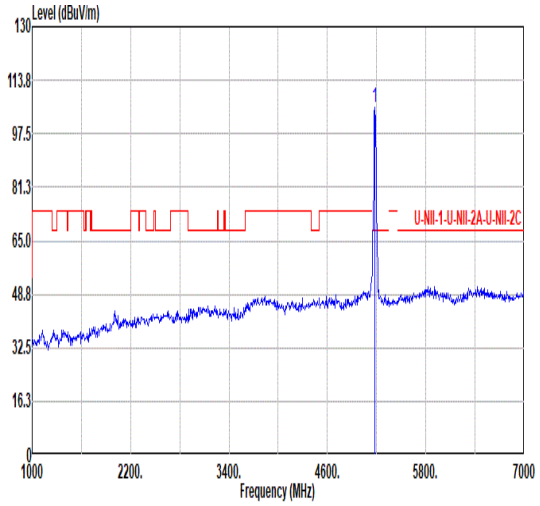
	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	5180.00	102.01	------	------	93.71	34.23	10.64	36.57	0.00	203	176	AVERAGE

Mode	1	
	Band Edge	
	U-NII-1_5.15-5.25_802.11a_CH36_5180MHz	
ANT	1	
Pol.	Vertical	Fundamental

Peak

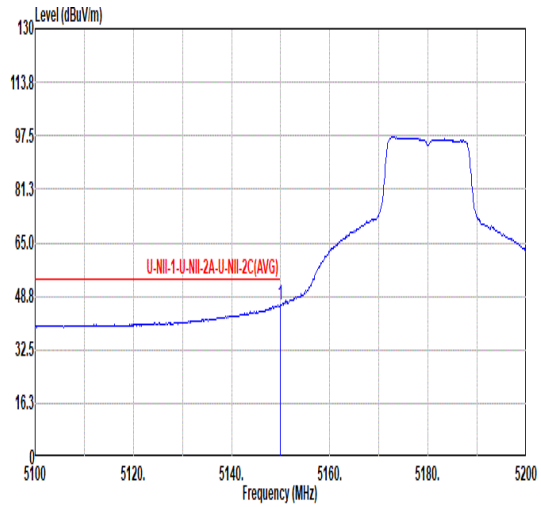


	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	5148.10	60.63	74.00	-13.37	52.37	34.14	10.61	36.49	0.00	111	155	PEAK

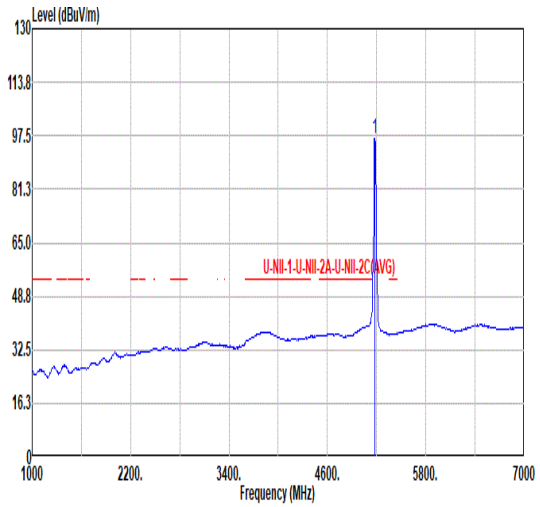


	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	5180.00	105.31	------	------	97.01	34.23	10.64	36.57	0.00	111	155	PEAK

Avg



	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	5150.00	46.00	54.00	-8.00	37.73	34.15	10.61	36.49	0.00	111	155	AVERAGE



	Freq	Level	Limit Line	Margin	Read Level	Ant Factor	Cable Loss	Preamp Factor	Aux Factor	APos	TPos	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB/m	dB	dB	dB	cm	deg	
1	5180.00	96.87	------	------	88.58	34.21	10.63	36.55	0.00	111	155	AVERAGE