



FCC RF Test Report

APPLICANT : Motorola Mobility LLC
EQUIPMENT : Mobile Cellular Phone
BRAND NAME : Motorola
MODEL NAME : XT2305-1
FCC ID : IHDT56AL5
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure
TEST DATE(S) : Mar. 13, 2023 ~ Apr. 07, 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**



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR322305F	Rev. 01	Initial issue of report	Apr. 21, 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 3.12 dB at 5350.74 MHz
3.5	15.207	AC Conducted Emission	15.207(a)	15.207(a)	Pass	Under limit 4.74 dB at 0.163 MHz
3.6	15.203 & 15.407(a)	Antenna Requirement	15.203 & 15.407(a)	15.203 & 15.407(a)	Pass	-

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.



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	XT2305-1
FCC ID	IHDT56AL5
IMEI Code	Conducted: 351048560017737/351048560017745 Conduction: 351048560019972/351048560019980 Radiation: 351048560020053
HW Version	DVT2
SW Version	TTT33.46
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	<p>MIMO <Ant. 3 + 8></p> <p><5180 MHz ~ 5240 MHz> 802.11a : 20.90 dBm / 0.1230 W 802.11n HT20 : 20.71 dBm / 0.1178 W 802.11n HT40 : 21.04 dBm / 0.1271 W 802.11ac VHT20: 20.81 dBm / 0.1205 W 802.11ac VHT40: 21.06 dBm / 0.1276 W 802.11ac VHT80: 15.74 dBm / 0.0375 W 802.11ax HE20: 20.94 dBm / 0.1242 W 802.11ax HE40: 21.14 dBm / 0.1300 W 802.11ax HE80: 15.88 dBm / 0.0387 W</p> <p><5260 MHz ~ 5320 MHz> 802.11a : 20.53 dBm / 0.1130 W 802.11n HT20 : 20.45 dBm / 0.1109 W 802.11n HT40 : 21.22 dBm / 0.1324 W 802.11ac VHT20: 20.50 dBm / 0.1122 W 802.11ac VHT40: 21.24 dBm / 0.1330 W 802.11ac VHT80: 16.76 dBm / 0.0474 W 802.11ax HE20: 20.59 dBm / 0.1146 W 802.11ax HE40: 21.33 dBm / 0.1358 W 802.11ax HE80: 16.91 dBm / 0.0491 W</p> <p><5500 MHz ~ 5700 MHz > 802.11a : 20.53 dBm / 0.1130 W 802.11n HT20 : 20.46 dBm / 0.1112 W 802.11n HT40 : 21.24 dBm / 0.1330 W 802.11ac VHT20: 20.49 dBm / 0.1119 W 802.11ac VHT40: 21.27 dBm / 0.1340 W 802.11ac VHT80: 15.82 dBm / 0.0382 W 802.11ax HE20: 20.61 dBm / 0.1151 W 802.11ax HE40: 21.37 dBm / 0.1371 W 802.11ax HE80: 15.93 dBm / 0.0392 W</p> <p><5745 MHz ~ 5825 MHz> 802.11a : 21.32 dBm / 0.1355 W 802.11n HT20 : 21.09 dBm / 0.1285 W 802.11n HT40 : 21.06 dBm / 0.1276 W 802.11ac VHT20: 21.14 dBm / 0.1300 W 802.11ac VHT40: 21.08 dBm / 0.1282 W 802.11ac VHT80: 21.26 dBm / 0.1337 W 802.11ax HE20: 21.34 dBm / 0.1361 W 802.11ax HE40: 21.18 dBm / 0.1312 W 802.11ax HE80: 21.38 dBm / 0.1374 W</p>



<p>99% Occupied Bandwidth</p>	<p><5180 MHz ~ 5240 MHz> 802.11a : 17.14 MHz 802.11ax HE20: 19.10 MHz 802.11ax HE40: 37.88 MHz 802.11ax HE80: 78.48 MHz <5260 MHz ~ 5320 MHz> 802.11a : 17.10 MHz 802.11ax HE20: 19.18 MHz 802.11ax HE40: 38.04 MHz 802.11ax HE80: 78.48 MHz <5500 MHz ~ 5700 MHz> 802.11a : 17.14 MHz 802.11ax HE20: 19.10 MHz 802.11ax HE40: 37.88 MHz 802.11ax HE80: 77.84 MHz <5745 MHz ~ 5825 MHz> 802.11a : 17.18 MHz 802.11ax HE20: 19.10 MHz 802.11ax HE40: 37.88 MHz 802.11ax HE80: 78.16 MHz</p>
<p>Antenna Type / Gain</p>	<p><5180 MHz ~ 5240 MHz> <Ant. 3> : IFA Antenna with gain -7.00 dBi <Ant. 8> : Loop Antenna with gain -5.00 dBi <5260 MHz ~ 5320 MHz> <Ant. 3> : IFA Antenna with gain -6.50 dBi <Ant. 8> : Loop Antenna with gain -5.30 dBi <5500 MHz ~ 5700 MHz> <Ant. 3> : IFA Antenna with gain -7.00 dBi <Ant. 8> : Loop Antenna with gain -5.50 dBi <5745 MHz ~ 5825 MHz> <Ant. 3> : IFA Antenna with gain -8.00 dBi <Ant. 8> : Loop Antenna with gain -6.00 dBi</p>
<p>Type of Modulation</p>	<p>802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM) 802.11ax : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM)</p>

Note:

1. WLAN MIMO only support STBC mode, for WLAN SISO & MIMO (STBC) mode, the whole testing has assessed only MIMO mode to cover SISO mode.
2. For 802.11n/ac/ax mode, the whole testing has assessed only 802.11ax HE20/HE40/HE80MHz by referring to the higher output 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 Power/PSD/RSE, the full RU power > partial RU, therefore the full RU perform full test and Partial RU verified power/PSD/RSE.
4. The device does not support 802.11ax channel puncture mode.



1.5 Specification of Accessory

Specification of Accessory				
AC Adapter 1	Brand Name	Motorola (Chenyang)	Model Name	MC-681N
AC Adapter 2	Brand Name	Motorola (Acbel)	Model Name	MC-681N
Battery	Brand Name	Motorola (Amperex)	Model Name	PG44
USB Cable 1	Brand Name	Motorola (Saibao)	Model Name	SC18D86731
USB Cable 2	Brand Name	Motorola (Saibao)	Model Name	SC18D71644

1.6 Modification of EUT

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

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 03CH08-KS TH01-KS	CN1257	314309

1.8 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH08-KS	AUDIX	E3	6.2009-8-24
2.	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 (X plane) were recorded in this report.
- b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5180-5240 MHz U-NII-1	36	5180	44	5220
	38*	5190	46*	5230
	40	5200	48	5240
	42 [#]	5210	-	-

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5260-5320 MHz U-NII-2A	52	5260	60	5300
	54*	5270	62*	5310
	56	5280	64	5320
	58 [#]	5290	-	-

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5500-5720MHz U-NII-2C	100	5500	112	5560
	102*	5510	116	5580
	104	5520	132	5660
	106 [#]	5530	134*	5670
	108	5540	136	5680
	110*	5550	140	5700



Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
5745-5825 MHz U-NII-3	149	5745	157	5785
	151*	5755	159*	5795
	153	5765	161	5805
	155 [#]	5775	165	5825

Note:

1. The above Frequency and Channel in "*" were 802.11n HT40 and 802.11ac VHT40 and 802.11ax HE40.
2. The above Frequency and Channel in "[#]" were 802.11ac VHT80 and 802.11ax HE80.



2.2 Test Mode

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

MIMO Mode

Modulation	Data Rate
802.11a	6 Mbps
802.11ax HE20	MCS0
802.11ax HE40	MCS0
802.11ax HE80	MCS0

RSE Co-location

5G NR-n48 Link + 802.11a CH64 MIMO Tx + Bluetooth LE CH39 Tx

AC Conducted Emission	Mode 1 : GSM850 Idle + Bluetooth Link + WLAN Link(5G) + USB Cable (Charging from Adapter 1)
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Remark:

1. The AC Conduction and RSE are tested with accessories from the worst case of Part 15B report.
2. The RSE Co-location mode is assessed from the worst WWAN Link + WLAN TX + BT Tx mode.



Ch. #		U-NII-1	U-NII-2A	U-NII-2C	U-NII-3
		802.11a	802.11a	802.11a	802.11a
L	Low	36	52	100	149
M	Middle	44	60	116	157
H	High	48	64	140	165

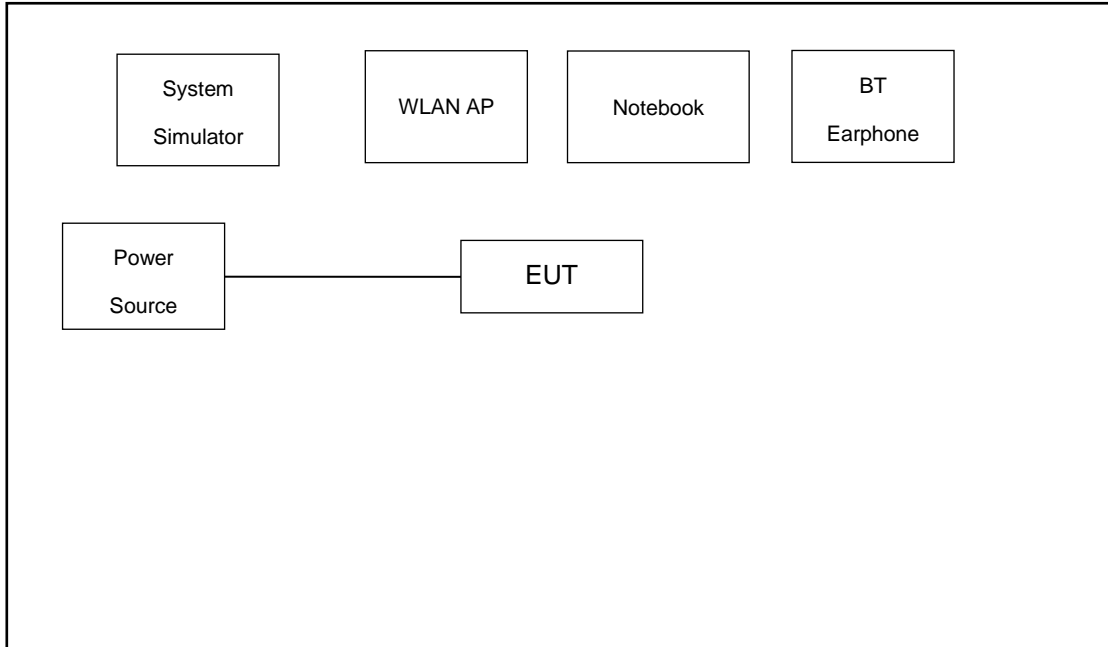
Ch. #		U-NII-1	U-NII-2A	U-NII-2C	U-NII-3
		802.11ax HE20	802.11ax HE20	802.11ax HE20	802.11ax HE20
L	Low	36	52	100	149
M	Middle	44	60	116	157
H	High	48	64	140	165

Ch. #		U-NII-1	U-NII-2A	U-NII-2C	U-NII-3
		802.11ax HE40	802.11ax HE40	802.11ax HE40	802.11ax HE40
L	Low	38	54	102	151
M	Middle	-	-	110	-
H	High	46	62	134	159

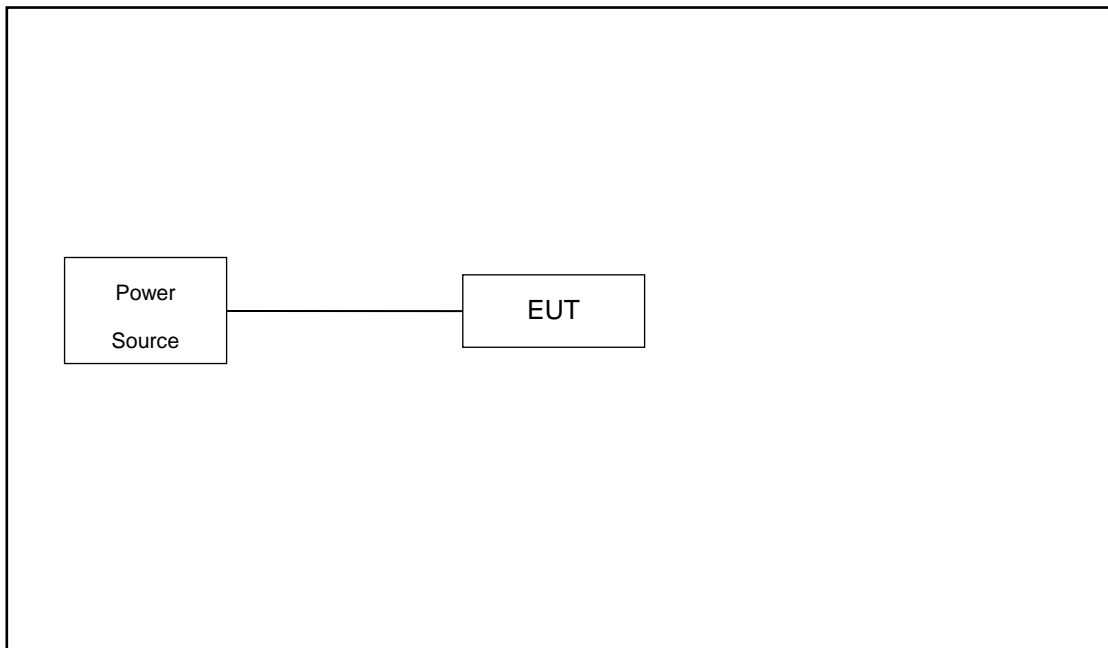
Ch. #		U-NII-1	U-NII-2A	U-NII-2C	U-NII-3
		802.11ax HE80	802.11ax HE80	802.11ax HE80	802.11ax HE80
L	Low	-	-	106	-
M	Middle	42	58	-	155
H	High	-	-	-	-

2.3 Connection Diagram of Test System

For Conducted Emission:



For 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.	LTE Base Station	Anritus	MT8821C	N/A	N/A	Unshielded,1.8m
2.	Bluetooth Earphone	Lenovo	LBH308	N/A	N/A	N/A
3.	WLAN AP	D-link	DIR-655	KA21R655B1	N/A	Unshielded,1.8m
4.	Notebook	Lenovo	V130-15IKB005	N/A	N/A	AC I/P: Unshielded, 1.8 m DC O/P: Shielded, 1.8 m

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.

$$\text{Offset} = \text{RF cable loss} + \text{attenuator factor}.$$

Following shows an offset computation example with cable loss 6.09 dB and 10dB attenuator.

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\ &= 6.09 + 10 = 16.09 \text{ (dB)} \end{aligned}$$



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

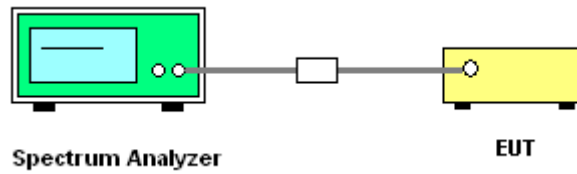
The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

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

<input checked="" type="checkbox"/>	Section C) Bandwidth Measurement 1. Emission Bandwidth (EBW) and 99% OBW
	<ol style="list-style-type: none"> Set RBW = approximately 1% of the emission bandwidth. Set the VBW > RBW. Detector = Peak. Trace mode = max hold 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%. 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. Measure and record the results in the test report.
<input checked="" type="checkbox"/>	Section C) Bandwidth Measurement 2. Minimum Emission Bandwidth for the band 5.725 - 5.85 GHz
	<ol style="list-style-type: none"> Set RBW = 100kHz. Set the VBW ≥ 3 x RBW. Detector = Peak. Trace mode = max hold Measure the maximum width of the emission that is 6 dB down from the peak of the emission. Measure and record the results in the test report.

3.1.4 Test Setup



3.1.5 Test Result of 6dB and 26dB and 99% 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 $11 \text{ dBm} + 10 \log B$, 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.

3.2.2 Measuring Instruments

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

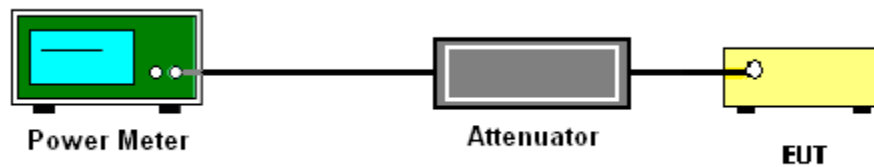
3.2.3 Test Procedures

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.
4. For MIMO mode, the measure-and-sum technique should be used for measuring the in-band transmit power of a device.

3.2.4 Test Setup



3.2.5 Test Result of 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 v02r01. Section F) Maximum power spectral density.

For devices operating in the bands 5.15 - 5.25 GHz, 5.25 - 5.35 GHz, and 5.47 - 5.725 GHz

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 \geq 3 MHz.
- Number of points in sweep \geq 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 5.725 - 5.85 GHz

Method SA-2

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

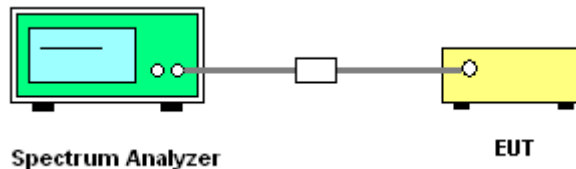
- Measure the duty cycle.
- Set span to encompass the entire emission bandwidth (EBW) of the signal.
- Set RBW = 500KHz (or 300 kHz if the SA can't set RBW=500KHz).
- Set VBW \geq 1 MHz.
- Number of points in sweep \geq 2 Span / RBW.
- Sweep time = auto.
- Detector = RMS
- Trace average at least 100 traces in power averaging mode.
- If the SA can't set RBW=500KHz, then add $10 \log(500\text{kHz}/\text{RBW})$ 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.

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

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

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 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 Part 15.205.

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 -27 dBm/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 5650-5725 MHz band: all emissions outside of the 5470-5600 MHz and 5650-5725 MHz 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	68.3

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

$$EIRP = E_{Meas} + 20\log (d_{Meas}) - 104.77$$

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.

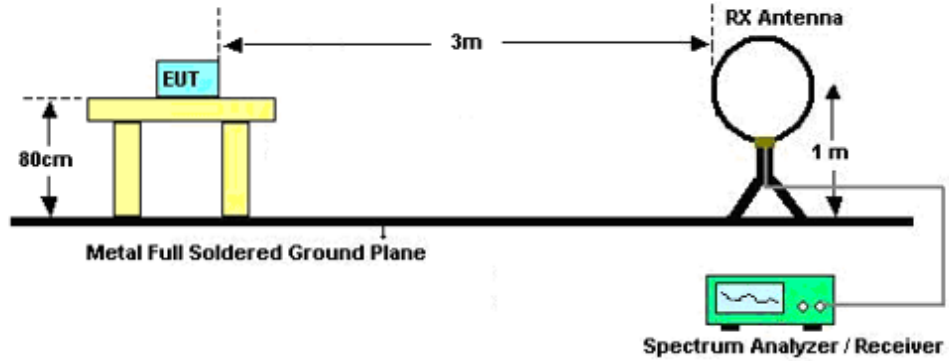


3.4.3 Test Procedures

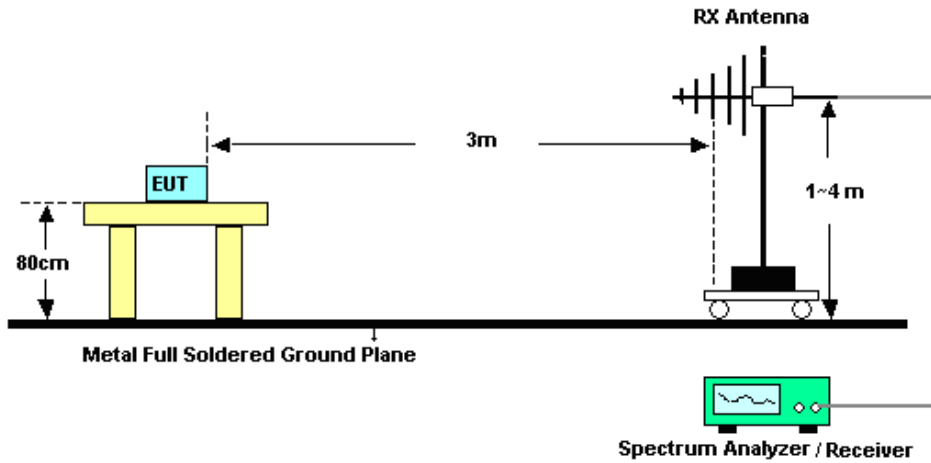
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section G) Unwanted emissions measurement.
 - (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
 - RBW = 120 kHz
 - VBW = 300 kHz
 - Detector = Peak
 - Trace mode = max hold
 - (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
 - RBW = 1 MHz
 - VBW \geq 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 \geq 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

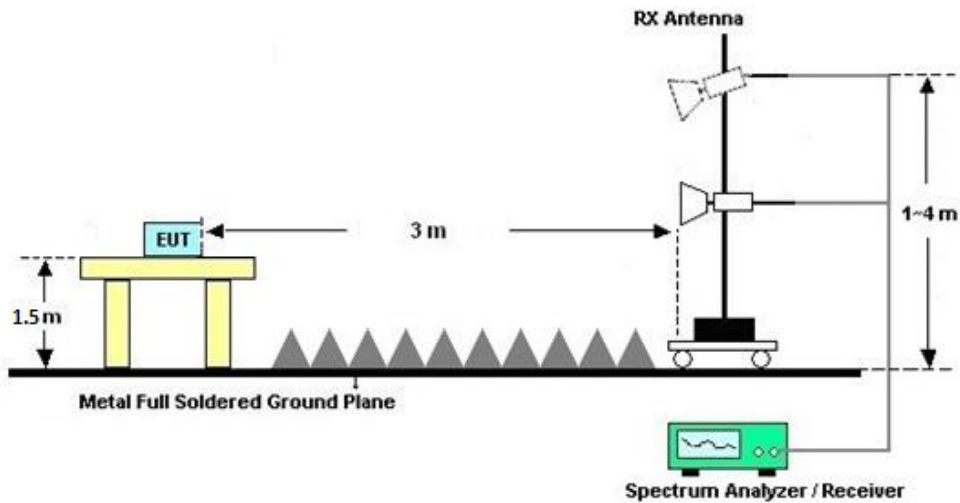
For radiated emissions below 30MHz



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.

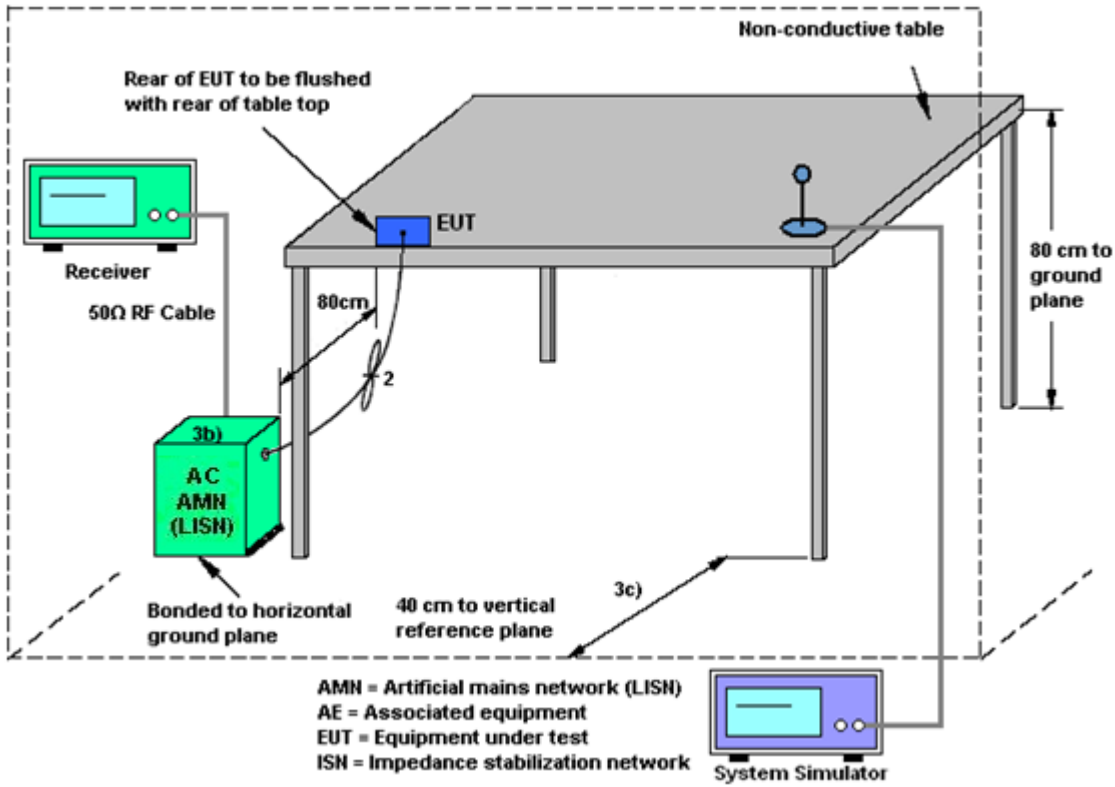
3.5.2 Measuring Instruments

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

<STBC Modes>

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

Basic methodology with NANT transmit antennas, each with the same directional gain GANT dBi, being driven by NANT transmitter outputs of equal power, and If all transmit signals are completely uncorrelated with each other,

Directional gain = GANT Max

<STBC Modes>						
			DG	DG	Power	PSD
			for	for	Limit	Limit
	Ant. 3	Ant. 8	Power	PSD	Reduction	Reduction
	(dBi)	(dBi)	(dBi)	(dBi)	(dB)	(dB)
Band I	-7.00	-5.00	-5.00	-5.00	0.00	0.00
Band II	-6.50	-5.30	-5.30	-5.30	0.00	0.00
Band III	-7.00	-5.50	-5.50	-5.50	0.00	0.00
Band IV	-8.00	-6.00	-6.00	-6.00	0.00	0.00

Power limit reduction = Composite gain – 6dBi, (min = 0)

PSD limit reduction = Composite gain + PSD Array gain – 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. 12, 2022	Mar. 13, 2023~ Mar. 22, 2023	Oct. 11, 2023	Conducted (TH01-KS)
Pulse Power Sensor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 04, 2023	Mar. 13, 2023~ Mar. 22, 2023	Jan. 03, 2024	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 04, 2023	Mar. 13, 2023~ Mar. 22, 2023	Jan. 03, 2024	Conducted (TH01-KS)
EMI Test Receiver	Keysight	N9038A	MY57290151	3Hz~8.5GHz; Max x 30dBm	Jul. 11, 2022	Apr. 03, 2023~ Apr. 07, 2023	Jul. 10, 2023	Radiation (03CH08-KS)
Spectrum Analyzer	R&S	FSV40	101932	10kHz~40GHz; Max 30dBm	Oct. 12, 2022	Apr. 03, 2023~ Apr. 07, 2023	Oct. 11, 2023	Radiation (03CH08-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 16, 2022	Apr. 03, 2023~ Apr. 07, 2023	Oct. 15, 2023	Radiation (03CH08-KS)
Bilog Antenna	TESEQ& VGT	CBL 61110	59915	30MHz-1GHz	Aug. 26, 2022	Apr. 03, 2023~ Apr. 07, 2023	Aug. 25, 2023	Radiation (03CH08-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00240138	1GHz~18GHz	Jul. 08, 2022	Apr. 03, 2023~ Apr. 07, 2023	Jul. 07, 2023	Radiation (03CH08-KS)
SHF-EHF Horn	Com-power	AH-840	101070	18GHz~40GHz	Jan. 08, 2023	Apr. 03, 2023~ Apr. 07, 2023	Jan. 07, 2024	Radiation (03CH08-KS)
Amplifier	SONOMA	310N	413741	9KHz-1GHz	Jan. 05, 2023	Apr. 03, 2023~ Apr. 07, 2023	Jan. 04, 2024	Radiation (03CH08-KS)
Amplifier	EM	EM01G18GA	060834	1Ghz-18Ghz	Oct. 12, 2022	Apr. 03, 2023~ Apr. 07, 2023	Oct. 11, 2023	Radiation (03CH08-KS)
Amplifier	MITEQ	EM18G40GGA	060728	18~40GHz	Jan. 05, 2023	Apr. 03, 2023~ Apr. 07, 2023	Jan. 04, 2024	Radiation (03CH08-KS)
AC Power Source	Chroma	61601	616010002473	N/A	NCR	Apr. 03, 2023~ Apr. 07, 2023	NCR	Radiation (03CH08-KS)
Turn Table	EM	EM 1000-T	N/A	0~360 degree	NCR	Apr. 03, 2023~ Apr. 07, 2023	NCR	Radiation (03CH08-KS)
Antenna Mast	EM	EM 1000-A	N/A	1 m~4 m	NCR	Apr. 03, 2023~ Apr. 07, 2023	NCR	Radiation (03CH08-KS)
EMI Receiver	R&S	ESC17	100768	9kHz~7GHz;	May 24, 2022	Mar. 29, 2023	May 23, 2023	Conduction (CO01-KS)
AC LISN (for auxiliary equipment)	MessTec	AN3016	060103	9kHz~30MHz	Oct. 13, 2022	Mar. 29, 2023	Oct. 12, 2023	Conduction (CO01-KS)
AC LISN	MessTec	AN3016	060105	9kHz~30MHz	May 24, 2022	Mar. 29, 2023	May 23, 2023	Conduction (CO01-KS)
AC Power Source	Chroma	61602	ABP000000811	AC 0V~300V, 45Hz~1000Hz	Oct. 12, 2022	Mar. 29, 2023	Oct. 11, 2023	Conduction (CO01-KS)

NCR: No Calibration Required



5 Uncertainty of Evaluation

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 Power	±0.46 dB
Conducted Emissions	±0.48 dB
Occupied Channel Bandwidth	±0.1 %
Conducted Power Spectral Density	±0.40 dB

Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.78dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.0dB
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Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.0dB
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Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	5.0dB
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Appendix A. Conducted Test Results

Report Number : FR322305F

Test Engineer:	Jiang Jun	Temperature:	21~25	°C
Test Date:	2023/3/12~2023/3/22	Relative Humidity:	51~54	%

TEST RESULTS DATA
Average Power Table

FCC U-NII-1 MIMO												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
					Ant 3	Ant 8	SUM	Ant 3	Ant 8	Ant 3	Ant 8	
11a	6Mbps	2	36	5180	16.42	17.16	19.82	24.00		-5.00		Pass
11a	6Mbps	2	44	5220	17.66	18.10	20.90	24.00		-5.00		Pass
11a	6Mbps	2	48	5240	17.16	17.67	20.44	24.00		-5.00		Pass
HT20	MCS0	2	36	5180	17.42	17.97	20.71	24.00		-5.00		Pass
HT20	MCS0	2	44	5220	17.35	17.73	20.55	24.00		-5.00		Pass
HT20	MCS0	2	48	5240	17.08	17.36	20.23	24.00		-5.00		Pass
HT40	MCS0	2	38	5190	12.71	13.23	15.99	24.00		-5.00		Pass
HT40	MCS0	2	46	5230	17.94	18.12	21.04	24.00		-5.00		Pass
VHT20	MCS0	2	36	5180	17.48	18.03	20.78	24.00		-5.00		Pass
VHT20	MCS0	2	44	5220	17.60	17.98	20.81	24.00		-5.00		Pass
VHT20	MCS0	2	48	5240	17.11	17.40	20.27	24.00		-5.00		Pass
VHT40	MCS0	2	38	5190	12.72	13.29	16.03	24.00		-5.00		Pass
VHT40	MCS0	2	46	5230	17.95	18.14	21.06	24.00		-5.00		Pass
VHT80	MCS0	2	42	5210	12.48	12.97	15.74	24.00		-5.00		Pass

TEST RESULTS DATA
Average Power Table

FCC U-NII-2A MIMO													
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
					Ant 3	Ant 8	SUM	Ant 3	Ant 8	Ant 3	Ant 8		
11a	6Mbps	2	52	5260	17.23	17.78	20.53	23.98		-5.30		26.99	Pass
11a	6Mbps	2	60	5300	16.98	17.27	20.14	23.98		-5.30		26.99	Pass
11a	6Mbps	2	64	5320	17.03	17.26	20.16	23.98		-5.30		26.99	Pass
HT20	MCS0	2	52	5260	17.13	17.55	20.36	23.98		-5.30		26.99	Pass
HT20	MCS0	2	60	5300	17.38	17.49	20.45	23.98		-5.30		26.99	Pass
HT20	MCS0	2	64	5320	16.36	16.39	19.39	23.98		-5.30		26.99	Pass
HT40	MCS0	2	54	5270	18.09	18.33	21.22	23.98		-5.30		26.99	Pass
HT40	MCS0	2	62	5310	13.88	13.94	16.92	23.98		-5.30		26.99	Pass
VHT20	MCS0	2	52	5260	17.18	17.60	20.41	23.98		-5.30		26.99	Pass
VHT20	MCS0	2	60	5300	17.45	17.53	20.50	23.98		-5.30		26.99	Pass
VHT20	MCS0	2	64	5320	16.40	16.45	19.44	23.98		-5.30		26.99	Pass
VHT40	MCS0	2	54	5270	18.09	18.36	21.24	23.98		-5.30		26.99	Pass
VHT40	MCS0	2	62	5310	13.89	14.00	16.96	23.98		-5.30		26.99	Pass
VHT80	MCS0	2	58	5290	13.57	13.93	16.76	23.98		-5.30		26.99	Pass

TEST RESULTS DATA
Average Power Table

FCC U-NII-2C MIMO															
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)		Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail
					Ant 3	Ant 8	Ant 3	Ant 8	SUM	Ant 3	Ant 8	Ant 3	Ant 8		
11a	6Mbps	2	100	5500	0.13	0.13	17.40	17.47	20.45	23.98		-5.50	26.99	Pass	
11a	6Mbps	2	116	5580	0.13	0.13	17.26	17.08	20.18	23.98		-5.50	26.99	Pass	
11a	6Mbps	2	140	5700	0.13	0.13	17.49	17.55	20.53	23.98		-5.50	26.99	Pass	
HT20	MCS0	2	100	5500	0.14	0.14	17.26	17.32	20.30	23.98		-5.50	26.99	Pass	
HT20	MCS0	2	116	5580	0.14	0.14	17.56	17.34	20.46	23.98		-5.50	26.99	Pass	
HT20	MCS0	2	140	5700	0.14	0.14	17.42	17.44	20.44	23.98		-5.50	26.99	Pass	
HT40	MCS0	2	102	5510	0.30	0.27	13.01	12.98	16.01	23.98		-5.50	26.99	Pass	
HT40	MCS0	2	110	5550	0.30	0.27	18.17	18.29	21.24	23.98		-5.50	26.99	Pass	
HT40	MCS0	2	134	5670	0.30	0.27	17.71	17.64	20.69	23.98		-5.50	26.99	Pass	
VHT20	MCS0	2	100	5500	0.14	0.14	17.30	17.35	20.34	23.98		-5.50	26.99	Pass	
VHT20	MCS0	2	116	5580	0.14	0.14	17.58	17.38	20.49	23.98		-5.50	26.99	Pass	
VHT20	MCS0	2	140	5700	0.14	0.14	17.46	17.49	20.49	23.98		-5.50	26.99	Pass	
VHT40	MCS0	2	102	5510	0.28	0.27	13.01	13.02	16.03	23.98		-5.50	26.99	Pass	
VHT40	MCS0	2	110	5550	0.28	0.27	18.18	18.34	21.27	23.98		-5.50	26.99	Pass	
VHT40	MCS0	2	134	5670	0.28	0.27	17.71	17.70	20.72	23.98		-5.50	26.99	Pass	
VHT80	MCS0	2	106	5530	0.55	0.52	12.79	12.84	15.82	23.98		-5.50	26.99	Pass	

TEST RESULTS DATA
Average Power Table

FCC U-NII-1 MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
						Ant 3	Ant 8	SUM	Ant 3	Ant 8	Ant 3	Ant 8	
HE20	MCS0	2	36	5180	Full	17.63	18.17	20.92	24.00		-5.00		Pass
HE20	MCS0	2	36	5180	26/0	8.86	9.75	12.34	24.00		-5.00		Pass
HE20	MCS0	2	36	5180	52/37	11.69	12.29	15.01	24.00		-5.00		Pass
HE20	MCS0	2	36	5180	106/53	14.63	15.22	17.95	24.00		-5.00		Pass
HE20	MCS0	2	44	5220	Full	17.70	18.14	20.94	24.00		-5.00		Pass
HE20	MCS0	2	44	5220	26/0	8.88	9.69	12.32	24.00		-5.00		Pass
HE20	MCS0	2	44	5220	52/37	11.88	12.47	15.20	24.00		-5.00		Pass
HE20	MCS0	2	44	5220	106/53	15.50	16.09	18.82	24.00		-5.00		Pass
HE20	MCS0	2	48	5240	Full	17.20	17.50	20.37	24.00		-5.00		Pass
HE20	MCS0	2	48	5240	26/8	9.13	9.57	12.37	24.00		-5.00		Pass
HE20	MCS0	2	48	5240	52/40	11.94	12.31	15.14	24.00		-5.00		Pass
HE20	MCS0	2	48	5240	106/54	14.86	15.32	18.11	24.00		-5.00		Pass
HE40	MCS0	2	38	5190	Full	12.80	13.38	16.11	24.00		-5.00		Pass
HE40	MCS0	2	46	5230	Full	18.02	18.23	21.14	24.00		-5.00		Pass
HE80	MCS0	2	42	5210	Full	12.58	13.14	15.88	24.00		-5.00		Pass

TEST RESULTS DATA
Average Power Table

FCC U-NII-2A MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config	Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail
						Ant 3	Ant 8	SUM	Ant 3	Ant 8	Ant 3	Ant 8		
HE20	MCS0	2	52	5260	Full	17.30	17.70	20.52	23.98	23.98	-5.30	26.99	Pass	
HE20	MCS0	2	52	5260	26/0	8.83	9.28	12.07	23.98	23.98	-5.30	26.99	Pass	
HE20	MCS0	2	52	5260	52/37	11.55	12.22	14.91	23.98	23.98	-5.30	26.99	Pass	
HE20	MCS0	2	52	5260	106/53	14.53	15.06	17.81	23.98	23.98	-5.30	26.99	Pass	
HE20	MCS0	2	60	5300	Full	17.52	17.63	20.59	23.98	23.98	-5.30	26.99	Pass	
HE20	MCS0	2	60	5300	26/0	9.11	9.56	12.35	23.98	23.98	-5.30	26.99	Pass	
HE20	MCS0	2	60	5300	52/37	12.08	12.44	15.28	23.98	23.98	-5.30	26.99	Pass	
HE20	MCS0	2	60	5300	106/53	14.74	14.99	17.88	23.98	23.98	-5.30	26.99	Pass	
HE20	MCS0	2	64	5320	Full	16.49	16.53	19.52	23.98	23.98	-5.30	26.99	Pass	
HE20	MCS0	2	64	5320	26/8	8.30	8.13	11.23	23.98	23.98	-5.30	26.99	Pass	
HE20	MCS0	2	64	5320	52/40	10.97	10.68	13.84	23.98	23.98	-5.30	26.99	Pass	
HE20	MCS0	2	64	5320	106/54	13.82	13.49	16.67	23.98	23.98	-5.30	26.99	Pass	
HE40	MCS0	2	54	5270	Full	18.17	18.46	21.33	23.98	23.98	-5.30	26.99	Pass	
HE40	MCS0	2	62	5310	Full	13.97	14.11	17.05	23.98	23.98	-5.30	26.99	Pass	
HE80	MCS0	2	58	5290	Full	13.72	14.06	16.91	23.98	23.98	-5.30	26.99	Pass	

TEST RESULTS DATA
Average Power Table

FCC U-NII-2C MIMO														
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config	Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		EIRP Power Limit (dBm)	Pass/Fail
						Ant 3	Ant 8	SUM	Ant 3	Ant 8	Ant 3	Ant 8		
HE20	MCS0	2	100	5500	Full	17.38	17.42	20.41	23.98	23.98	-5.50	26.99	Pass	
HE20	MCS0	2	100	5500	26/0	9.33	9.36	12.36	23.98	23.98	-5.50	26.99	Pass	
HE20	MCS0	2	100	5500	52/37	12.07	12.15	15.12	23.98	23.98	-5.50	26.99	Pass	
HE20	MCS0	2	100	5500	106/53	14.98	15.27	18.14	23.98	23.98	-5.50	26.99	Pass	
HE20	MCS0	2	116	5580	Full	17.72	17.48	20.61	23.98	23.98	-5.50	26.99	Pass	
HE20	MCS0	2	116	5580	26/0	9.42	8.89	12.17	23.98	23.98	-5.50	26.99	Pass	
HE20	MCS0	2	116	5580	52/37	12.30	11.91	15.12	23.98	23.98	-5.50	26.99	Pass	
HE20	MCS0	2	116	5580	106/53	15.19	14.73	17.98	23.98	23.98	-5.50	26.99	Pass	
HE20	MCS0	2	140	5700	Full	17.54	17.56	20.56	23.98	23.98	-5.50	26.99	Pass	
HE20	MCS0	2	140	5700	26/8	9.45	9.18	12.33	23.98	23.98	-5.50	26.99	Pass	
HE20	MCS0	2	140	5700	52/40	12.18	12.21	15.21	23.98	23.98	-5.50	26.99	Pass	
HE20	MCS0	2	140	5700	106/54	15.13	15.19	18.17	23.98	23.98	-5.50	26.99	Pass	
HE40	MCS0	2	102	5510	Full	13.10	13.15	16.14	23.98	23.98	-5.50	26.99	Pass	
HE40	MCS0	2	110	5550	Full	18.30	18.42	21.37	23.98	23.98	-5.50	26.99	Pass	
HE40	MCS0	2	134	5670	Full	17.83	17.80	20.83	23.98	23.98	-5.50	26.99	Pass	
HE80	MCS0	2	106	5530	Full	12.89	12.95	15.93	23.98	23.98	-5.50	26.99	Pass	

TEST RESULTS DATA
Average Power Table

U-NII-3 MIMO												
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
					Ant 3	Ant 8	SUM	Ant 3	Ant 8	Ant 3	Ant 8	
11a	6Mbps	2	149	5745	18.06	18.36	21.23	30.00	30.00	-6.00	-6.00	Pass
11a	6Mbps	2	157	5785	18.14	18.47	21.32	30.00	30.00	-6.00	-6.00	Pass
11a	6Mbps	2	165	5825	17.56	18.09	20.85	30.00	30.00	-6.00	-6.00	Pass
HT20	MCS0	2	149	5745	17.90	18.07	21.00	30.00	30.00	-6.00	-6.00	Pass
HT20	MCS0	2	157	5785	18.02	18.14	21.09	30.00	30.00	-6.00	-6.00	Pass
HT20	MCS0	2	165	5825	17.46	17.91	20.70	30.00	30.00	-6.00	-6.00	Pass
HT40	MCS0	2	151	5755	17.89	18.19	21.06	30.00	30.00	-6.00	-6.00	Pass
HT40	MCS0	2	159	5795	17.76	18.08	20.94	30.00	30.00	-6.00	-6.00	Pass
VHT20	MCS0	2	149	5745	17.98	18.15	21.08	30.00	30.00	-6.00	-6.00	Pass
VHT20	MCS0	2	157	5785	18.07	18.19	21.14	30.00	30.00	-6.00	-6.00	Pass
VHT20	MCS0	2	165	5825	17.49	17.94	20.73	30.00	30.00	-6.00	-6.00	Pass
VHT40	MCS0	2	151	5755	17.92	18.21	21.08	30.00	30.00	-6.00	-6.00	Pass
VHT40	MCS0	2	159	5795	17.76	18.09	20.94	30.00	30.00	-6.00	-6.00	Pass
VHT80	MCS0	2	155	5775	18.19	18.32	21.26	30.00	30.00	-6.00	-6.00	Pass

TEST RESULTS DATA
Average Power Table

U-NII-3 MIMO													
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config	Average Conducted Power with duty factor (dBm)			FCC Conducted Power Limit (dBm)		DG (dBi)		Pass/Fail
						Ant 3	Ant 8	SUM	Ant 3	Ant 8	Ant 3	Ant 8	
HE20	MCS0	2	149	5745	Full	18.10	18.39	21.26	30.00		-6.00		Pass
HE20	MCS0	2	149	5745	26/0	9.97	10.22	13.11	30.00		-6.00		Pass
HE20	MCS0	2	149	5745	52/37	12.85	13.00	15.94	30.00		-6.00		Pass
HE20	MCS0	2	149	5745	106/53	15.72	15.89	18.82	30.00		-6.00		Pass
HE20	MCS0	2	157	5785	Full	18.16	18.49	21.34	30.00		-6.00		Pass
HE20	MCS0	2	157	5785	26/4	9.99	10.33	13.17	30.00		-6.00		Pass
HE20	MCS0	2	157	5785	52/38	12.88	13.02	15.96	30.00		-6.00		Pass
HE20	MCS0	2	157	5785	106/53	15.74	15.94	18.85	30.00		-6.00		Pass
HE20	MCS0	2	165	5825	Full	17.60	18.12	20.88	30.00		-6.00		Pass
HE20	MCS0	2	165	5825	26/8	9.18	9.80	12.51	30.00		-6.00		Pass
HE20	MCS0	2	165	5825	52/40	12.09	12.57	15.35	30.00		-6.00		Pass
HE20	MCS0	2	165	5825	106/54	14.92	15.43	18.19	30.00		-6.00		Pass
HE40	MCS0	2	151	5755	Full	18.01	18.32	21.18	30.00		-6.00		Pass
HE40	MCS0	2	159	5795	Full	17.89	18.19	21.05	30.00		-6.00		Pass
HE80	MCS0	2	155	5775	Full	18.29	18.44	21.38	30.00		-6.00		Pass



26dB Emission Bandwidth

Test Result

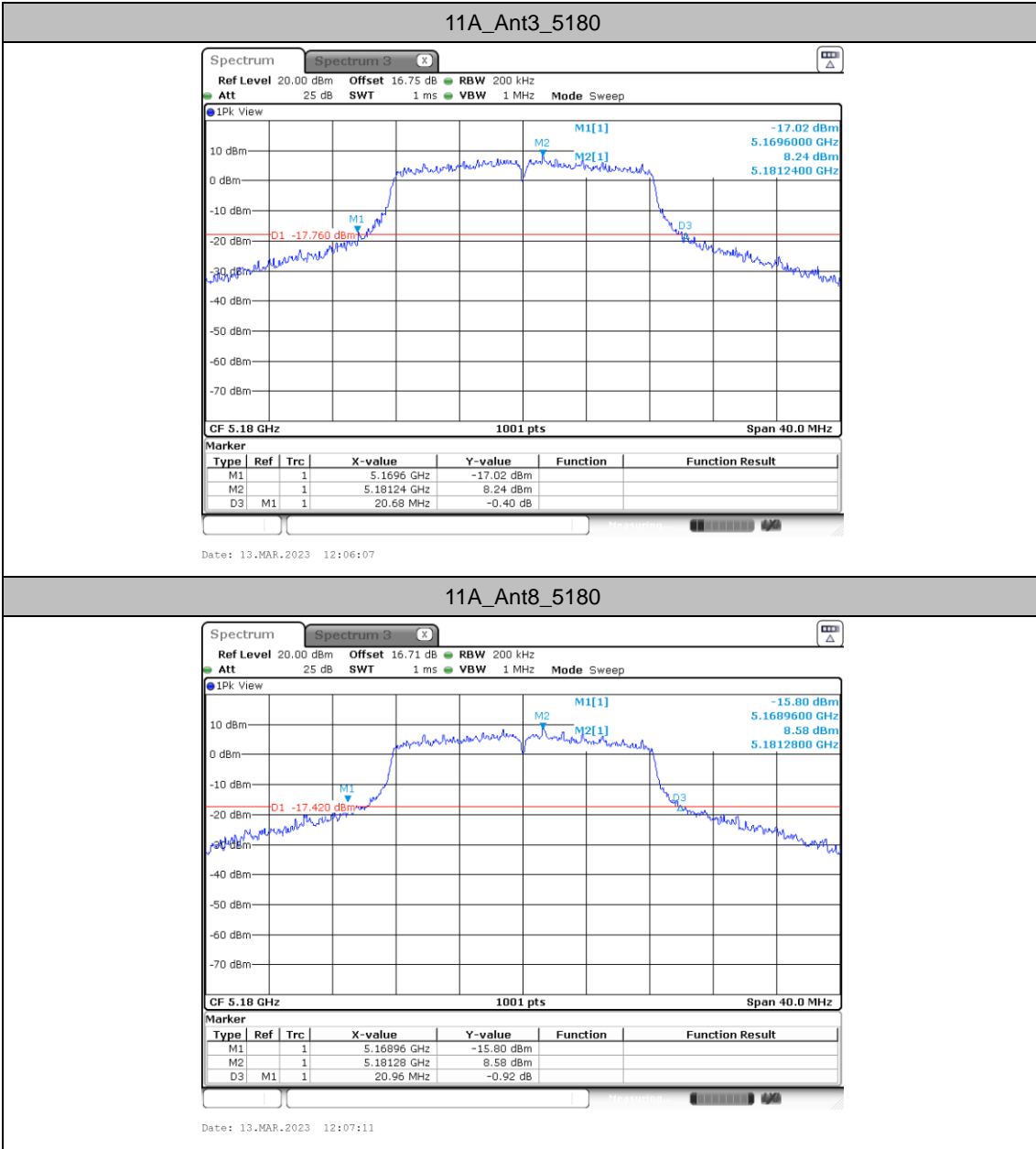
TestMode	Antenna	Freq(MHz)	26dB EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant3	5180	20.68	5169.60	5190.28	---	---
	Ant8	5180	20.96	5168.96	5189.92	---	---
	Ant3	5220	19.72	5210.20	5229.92	---	---
	Ant8	5220	20.08	5209.96	5230.04	---	---
	Ant3	5240	21.08	5229.92	5251.00	---	---
	Ant8	5240	20.68	5229.88	5250.56	---	---
	Ant3	5260	20.88	5249.52	5270.40	---	---
	Ant8	5260	21.88	5249.00	5270.88	---	---
	Ant3	5300	20.08	5289.92	5310.00	---	---
	Ant8	5300	20.96	5289.08	5310.04	---	---
	Ant3	5320	20.80	5309.56	5330.36	---	---
	Ant8	5320	21.72	5309.56	5331.28	---	---
	Ant3	5500	19.80	5490.08	5509.88	---	---
	Ant8	5500	20.04	5490.00	5510.04	---	---
	Ant3	5580	20.48	5569.64	5590.12	---	---
	Ant8	5580	19.52	5570.36	5589.88	---	---
	Ant3	5700	19.76	5690.12	5709.88	---	---
	Ant8	5700	20.88	5689.40	5710.28	---	---
	Ant3	5745	21.60	5734.48	5756.08	---	---
	Ant8	5745	20.48	5734.36	5754.84	---	---
	Ant3	5785	20.24	5775.20	5795.44	---	---
	Ant8	5785	20.44	5775.20	5795.64	---	---
	Ant3	5825	20.44	5814.64	5835.08	---	---
	Ant8	5825	21.04	5814.20	5835.24	---	---
11AX20MIMO	Ant3	5180	21.60	5169.32	5190.92	---	---
	Ant8	5180	20.92	5169.40	5190.32	---	---
	Ant3	5220	21.44	5209.12	5230.56	---	---
	Ant8	5220	21.44	5209.08	5230.52	---	---
	Ant3	5240	21.28	5229.28	5250.56	---	---
	Ant8	5240	22.36	5229.36	5251.72	---	---
	Ant3	5260	21.84	5249.00	5270.84	---	---
	Ant8	5260	21.88	5248.96	5270.84	---	---
	Ant3	5300	22.00	5289.16	5311.16	---	---
	Ant8	5300	22.68	5287.76	5310.44	---	---
	Ant3	5320	21.36	5309.32	5330.68	---	---
	Ant8	5320	24.32	5308.56	5332.88	---	---
	Ant3	5500	22.84	5488.92	5511.76	---	---

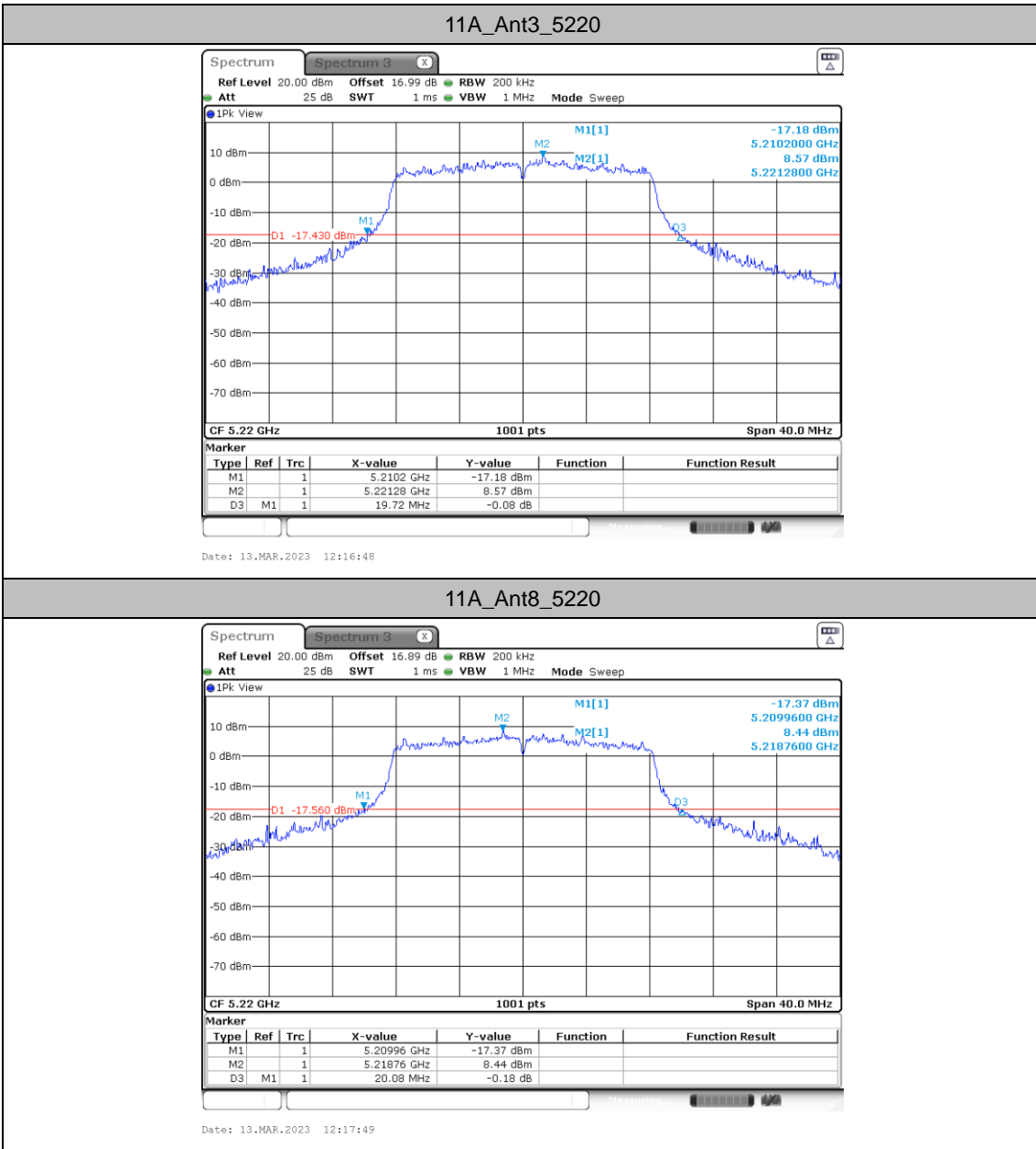


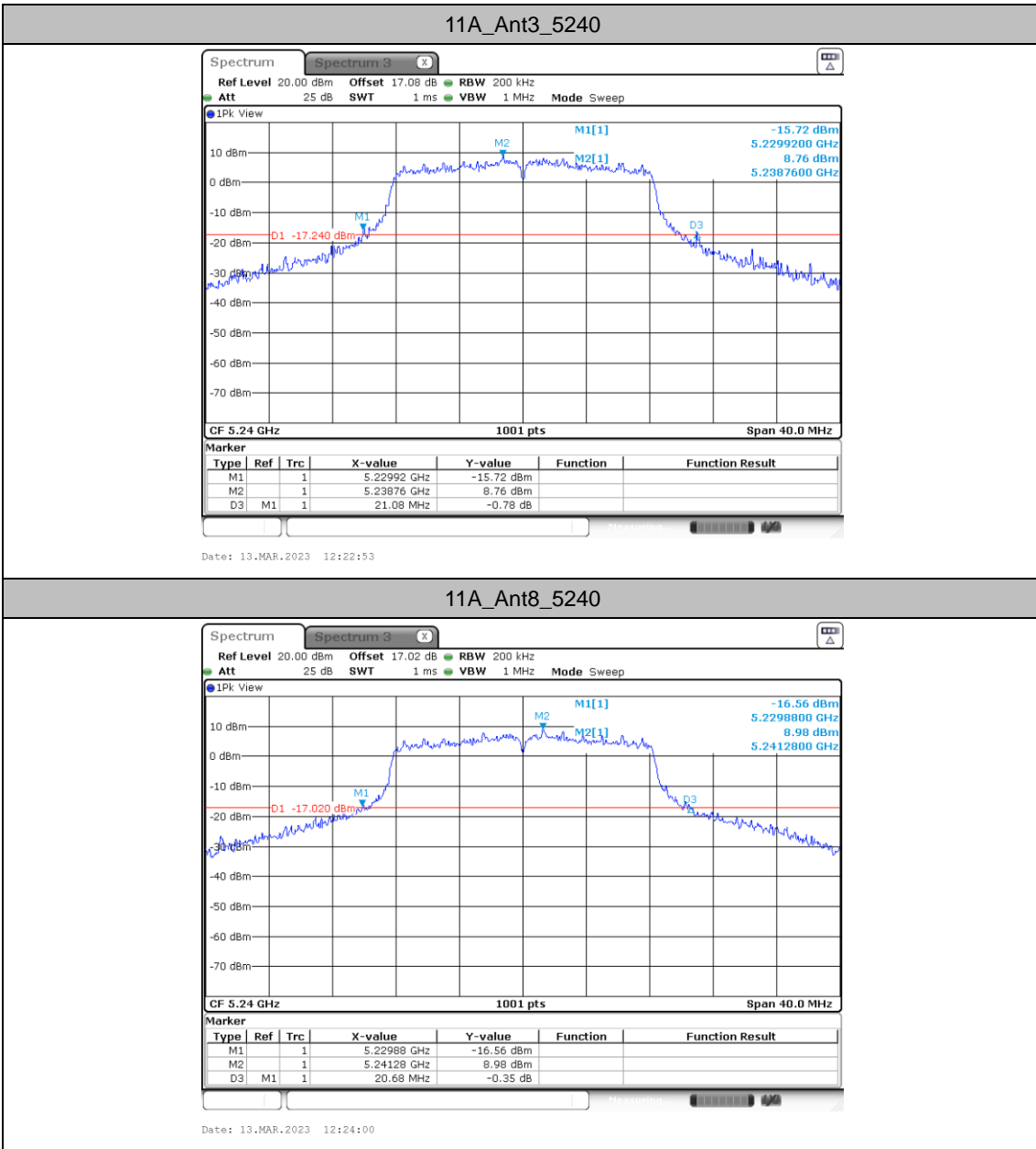
	Ant8	5500	21.84	5489.24	5511.08	---	---
	Ant3	5580	21.60	5569.20	5590.80	---	---
	Ant8	5580	21.08	5569.60	5590.68	---	---
	Ant3	5700	21.24	5689.44	5710.68	---	---
	Ant8	5700	21.32	5689.48	5710.80	---	---
	Ant3	5745	21.24	5734.40	5755.64	---	---
	Ant8	5745	21.20	5734.24	5755.44	---	---
	Ant3	5785	21.16	5774.44	5795.60	---	---
	Ant8	5785	21.72	5774.32	5796.04	---	---
	Ant3	5825	21.56	5814.24	5835.80	---	---
	Ant8	5825	21.80	5813.76	5835.56	---	---
11AX40MIMO	Ant3	5190	41.52	5170.16	5211.68	---	---
	Ant8	5190	39.68	5170.16	5209.84	---	---
	Ant3	5230	39.76	5210.16	5249.92	---	---
	Ant8	5230	41.04	5210.24	5251.28	---	---
	Ant3	5270	44.00	5245.92	5289.92	---	---
	Ant8	5270	45.12	5245.20	5290.32	---	---
	Ant3	5310	40.16	5290.24	5330.40	---	---
	Ant8	5310	45.36	5290.08	5335.44	---	---
	Ant3	5510	39.84	5490.08	5529.92	---	---
	Ant8	5510	41.60	5490.00	5531.60	---	---
	Ant3	5550	39.68	5530.24	5569.92	---	---
	Ant8	5550	39.68	5530.16	5569.84	---	---
	Ant3	5670	39.68	5650.24	5689.92	---	---
	Ant8	5670	39.76	5650.16	5689.92	---	---
	Ant3	5755	39.68	5735.16	5774.84	---	---
	Ant8	5755	39.76	5735.16	5774.92	---	---
	Ant3	5795	39.84	5775.16	5815.00	---	---
	Ant8	5795	39.68	5775.24	5814.92	---	---
11AX80MIMO	Ant3	5210	80.48	5169.84	5250.32	---	---
	Ant8	5210	80.80	5169.68	5250.48	---	---
	Ant3	5290	80.80	5249.68	5330.48	---	---
	Ant8	5290	90.72	5239.76	5330.48	---	---
	Ant3	5530	80.48	5489.84	5570.32	---	---
	Ant8	5530	80.48	5489.84	5570.32	---	---
	Ant3	5775	80.96	5734.68	5815.64	---	---
	Ant8	5775	80.80	5734.68	5815.48	---	---

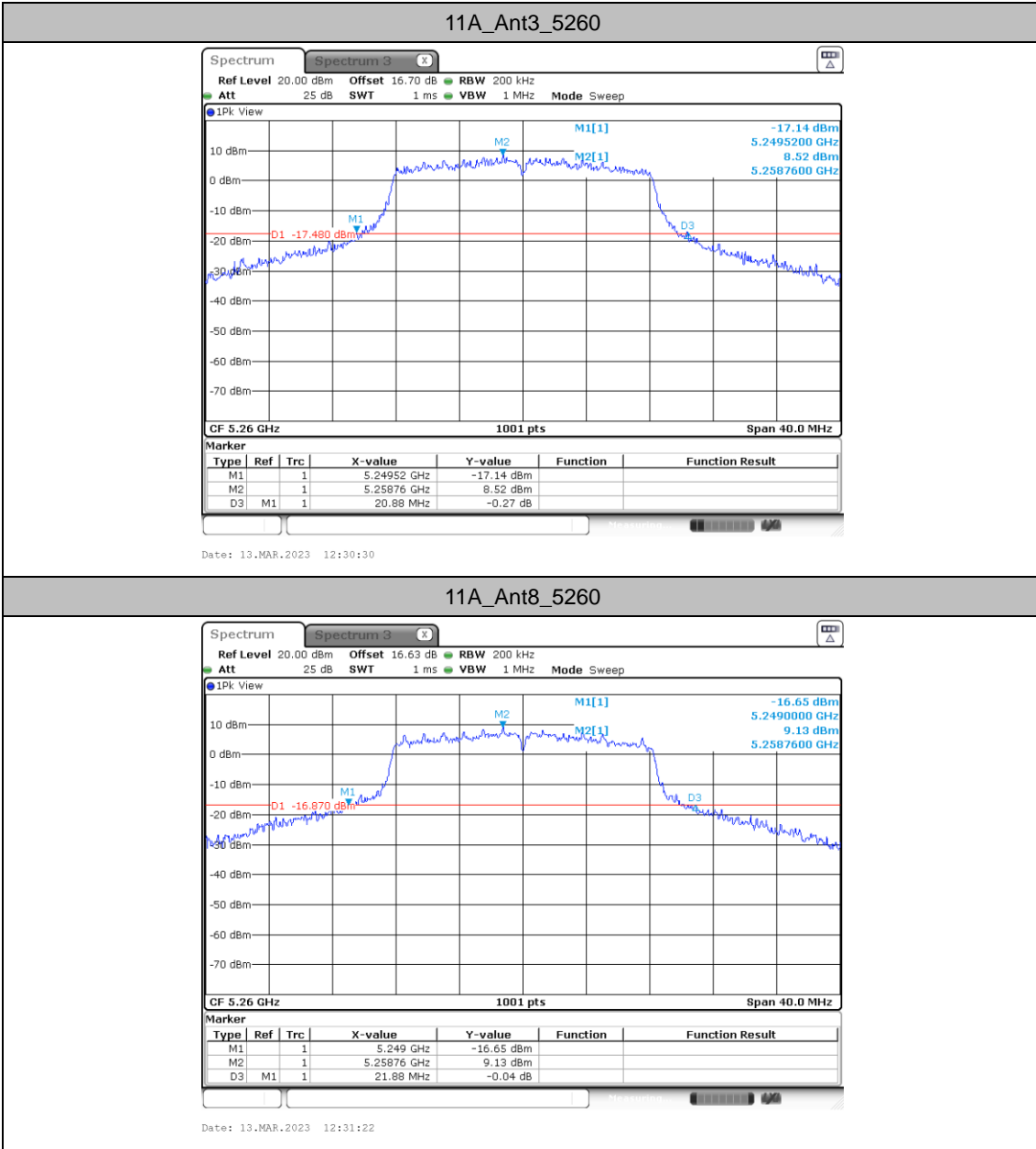


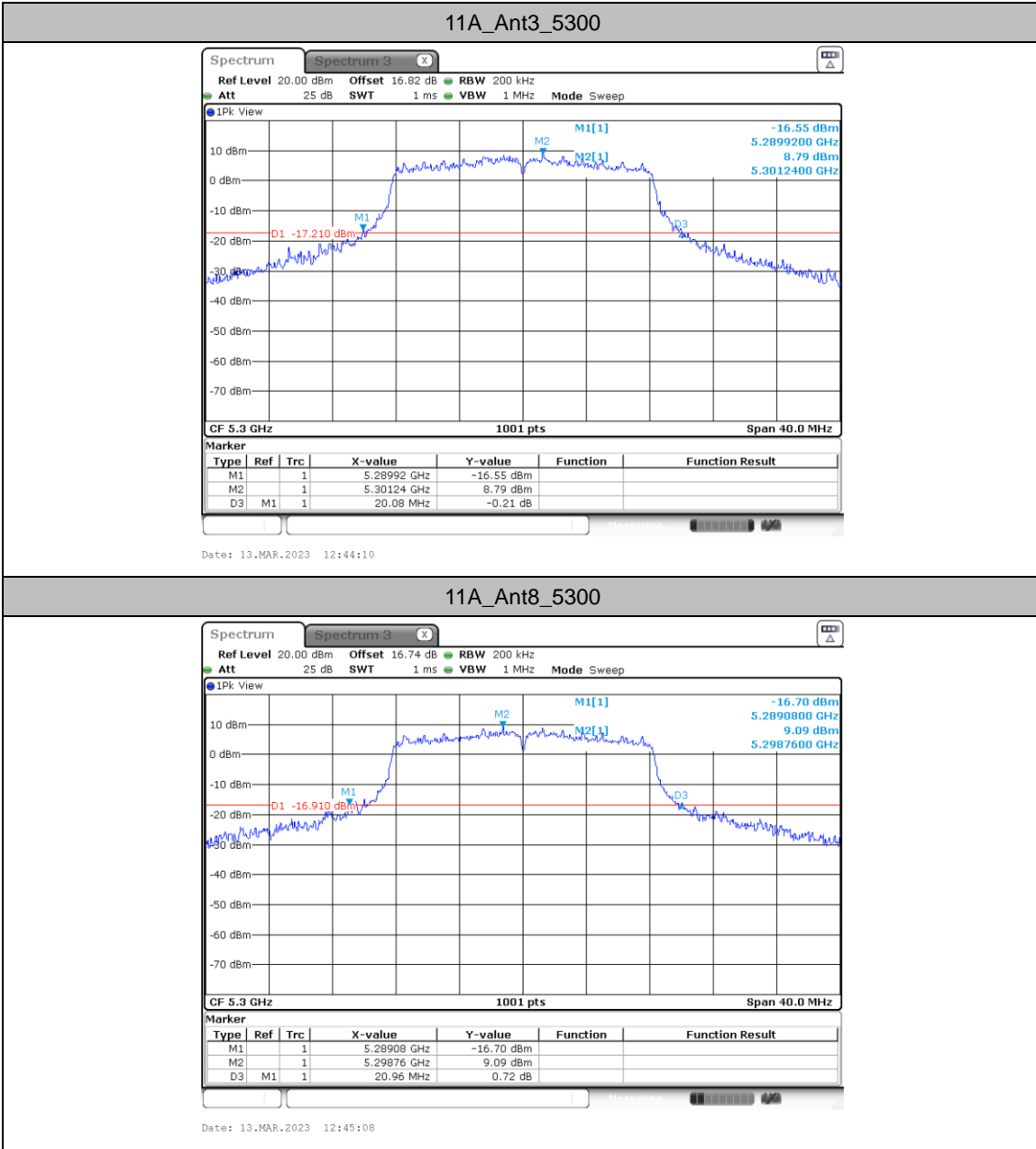
Test Graphs

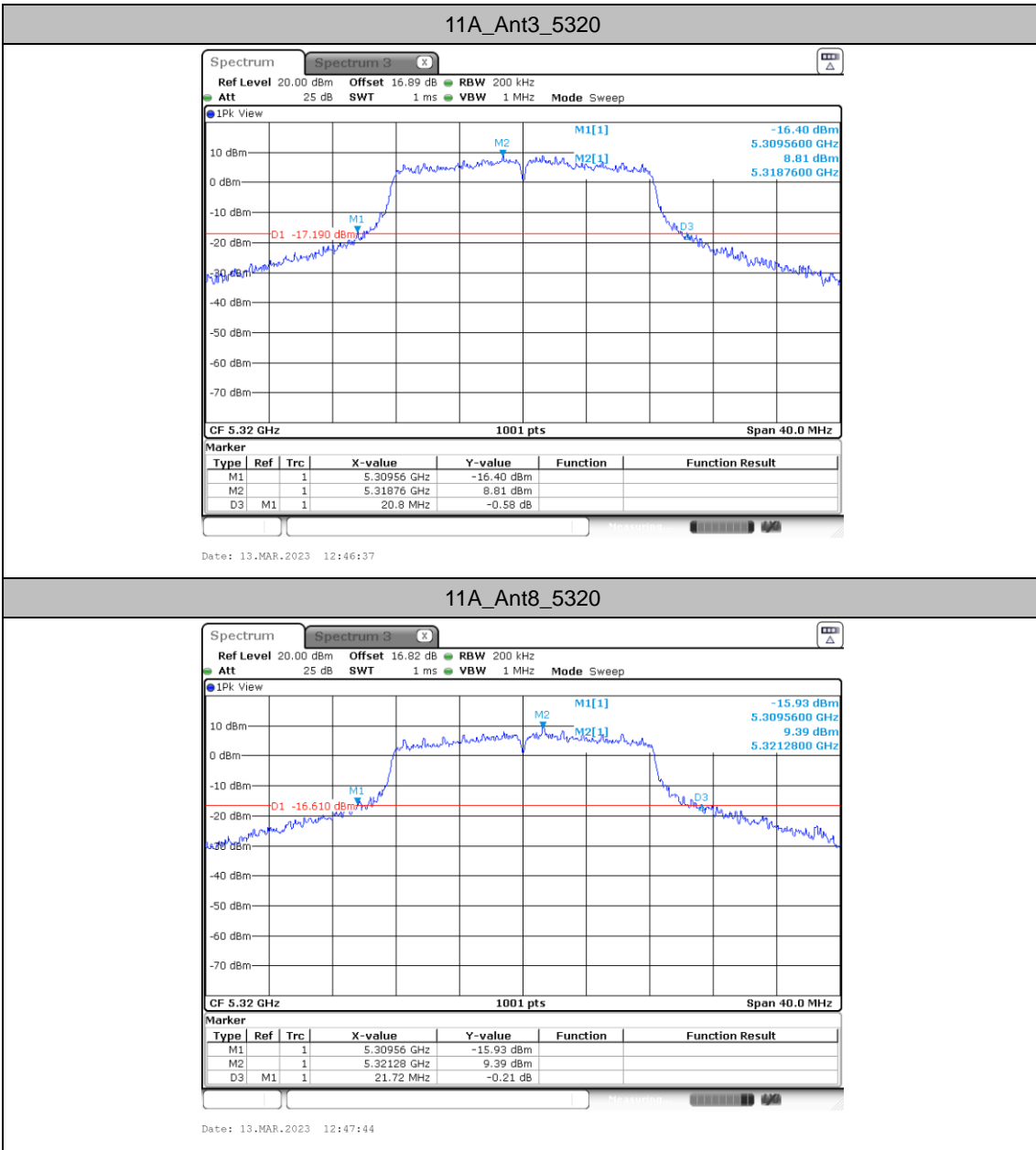


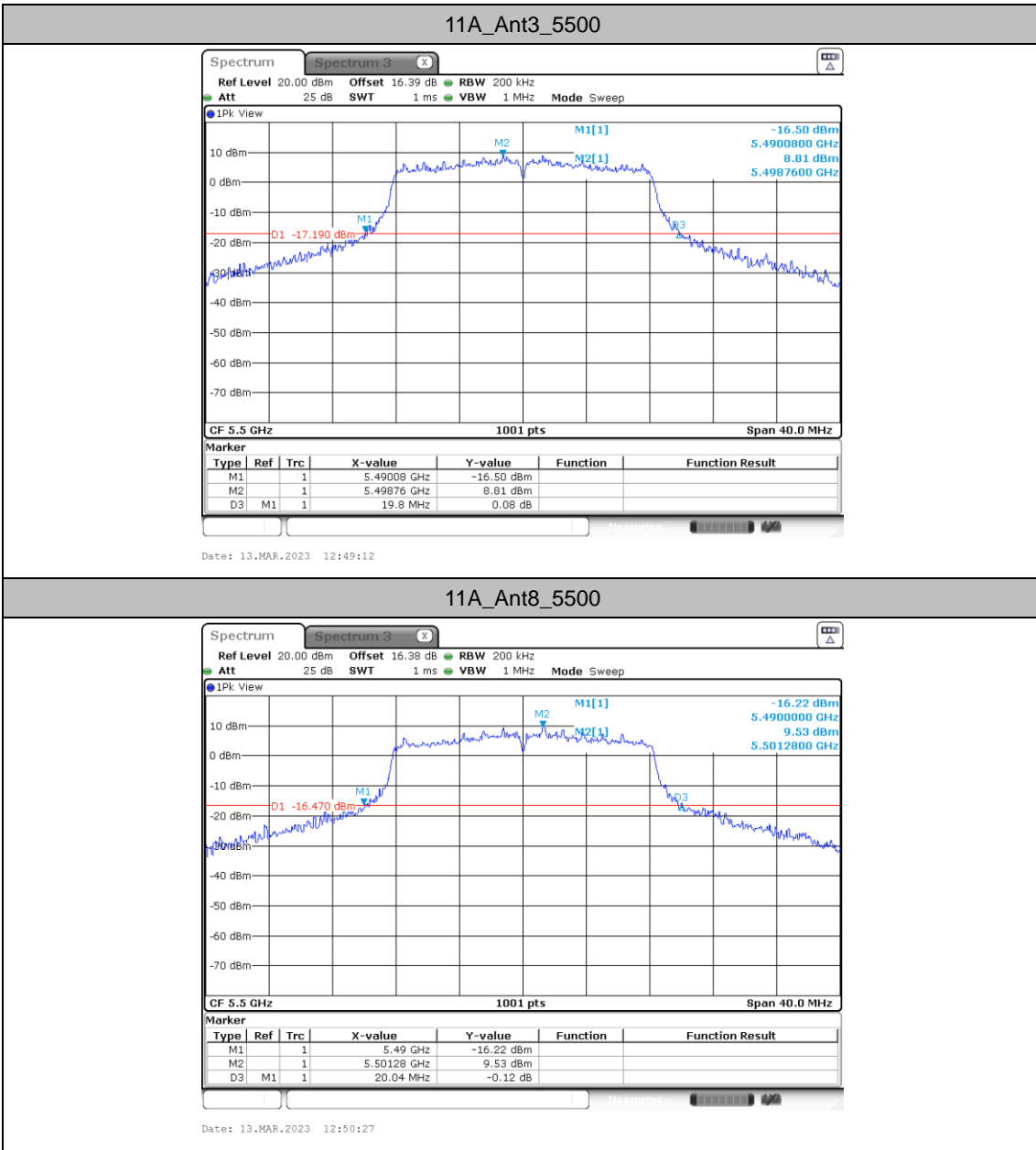


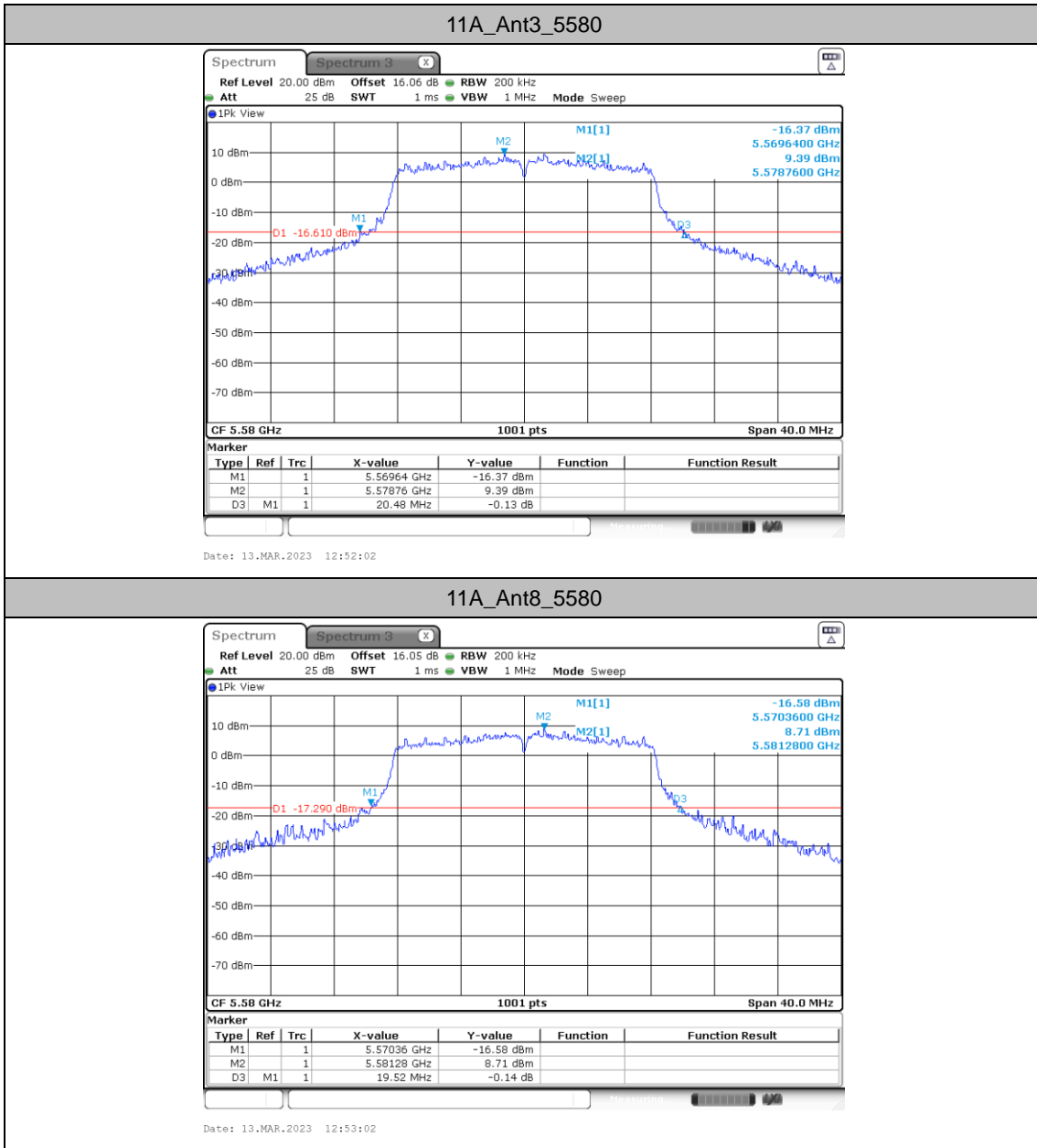


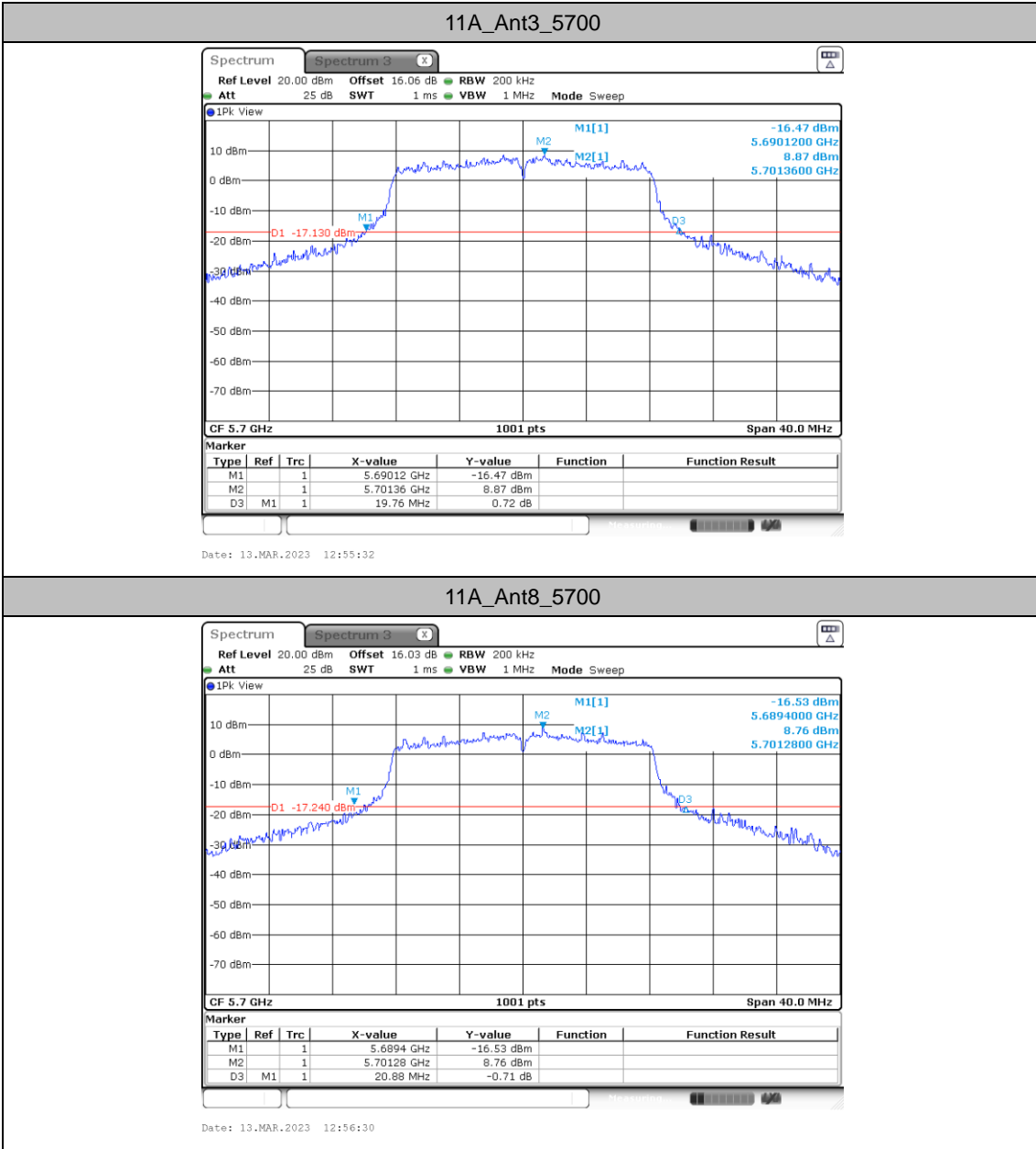


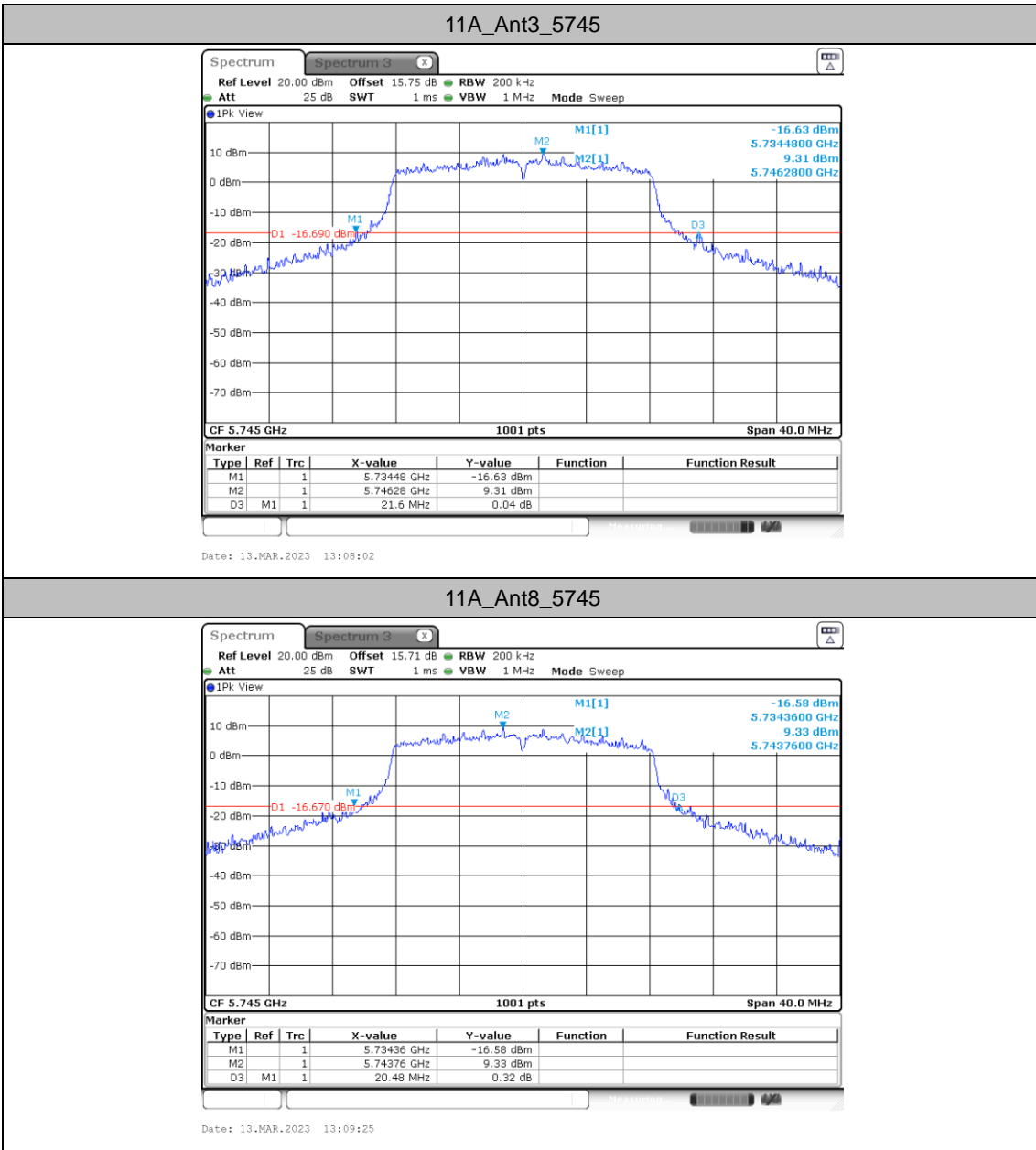


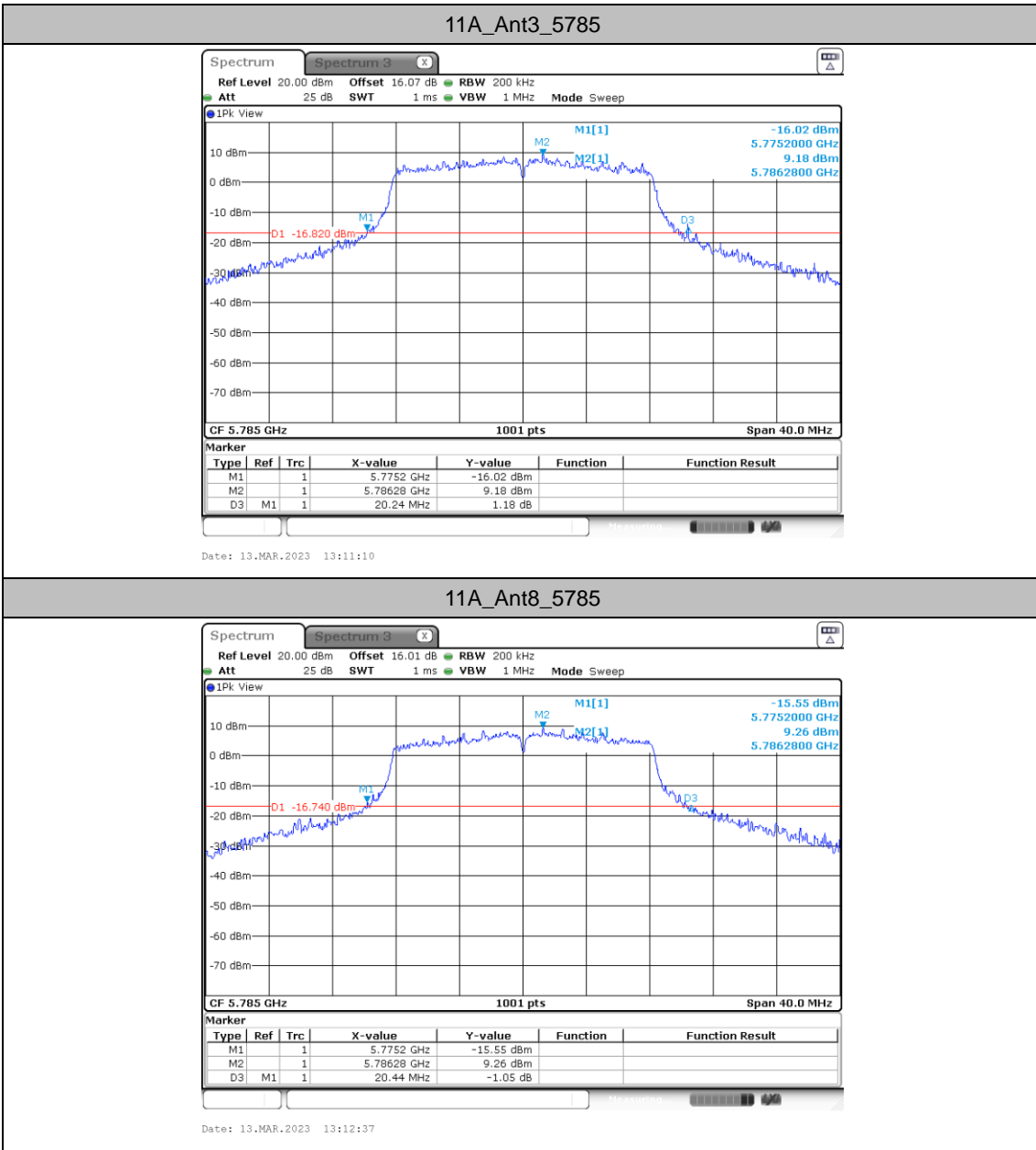


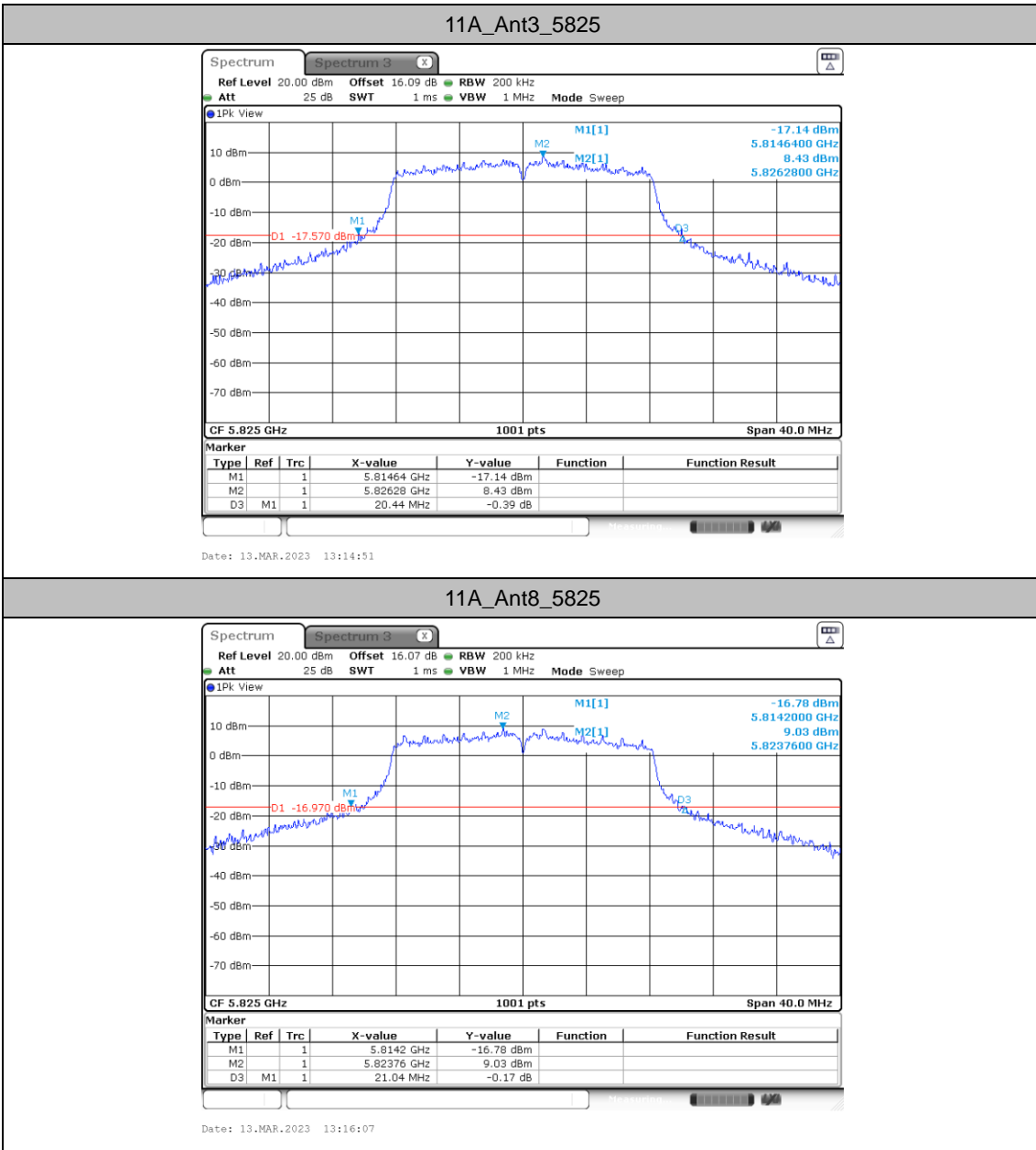


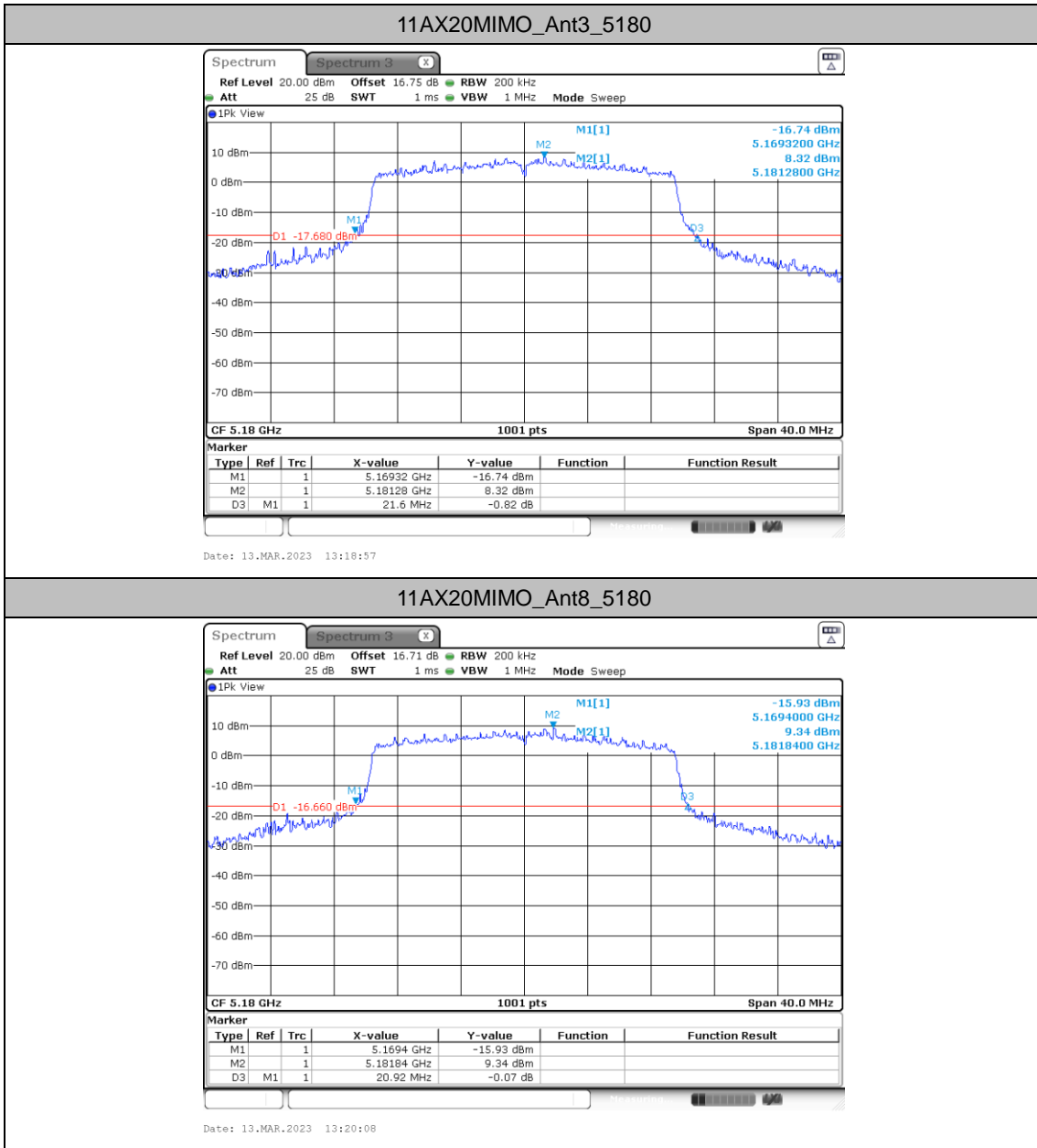


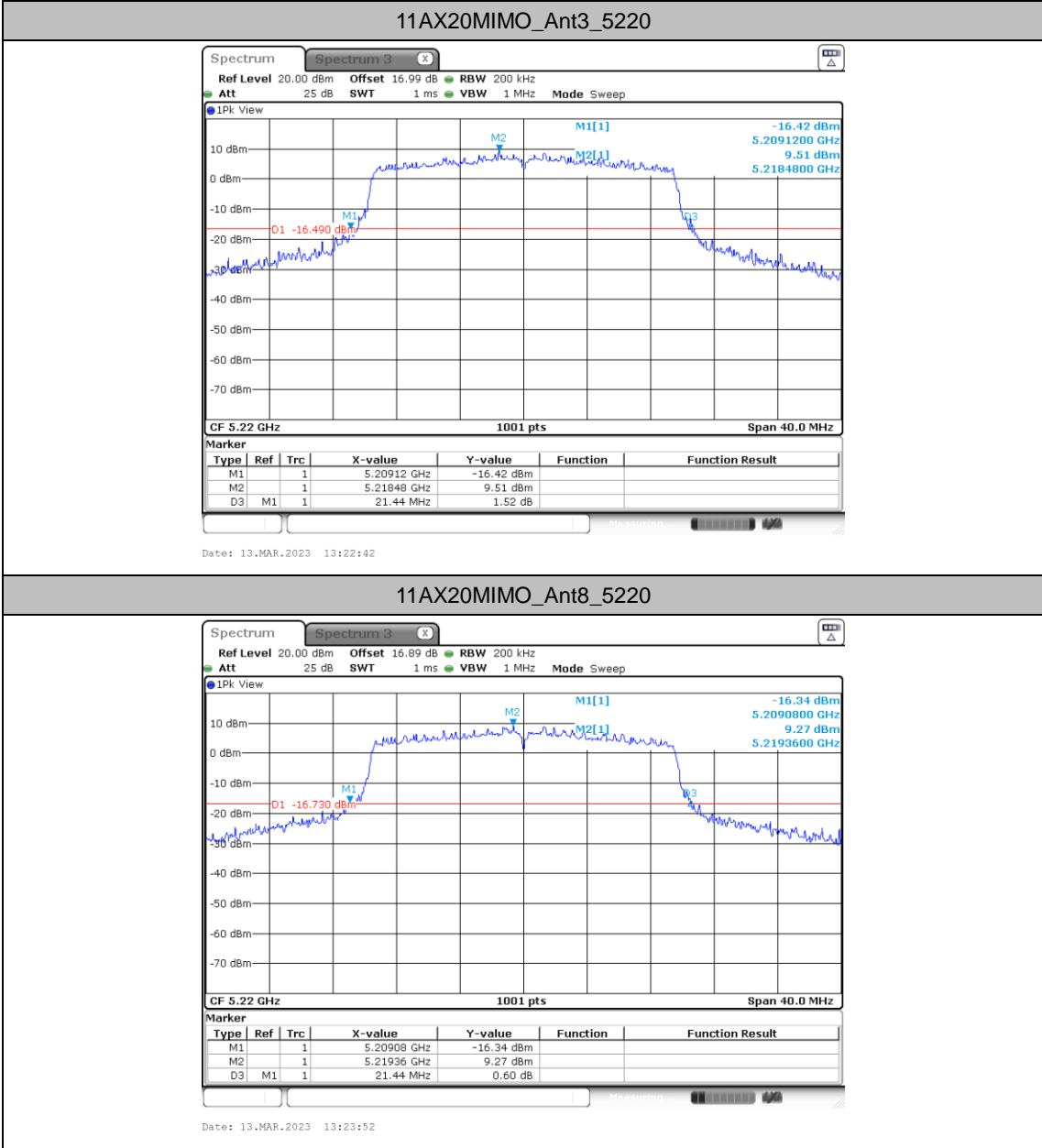


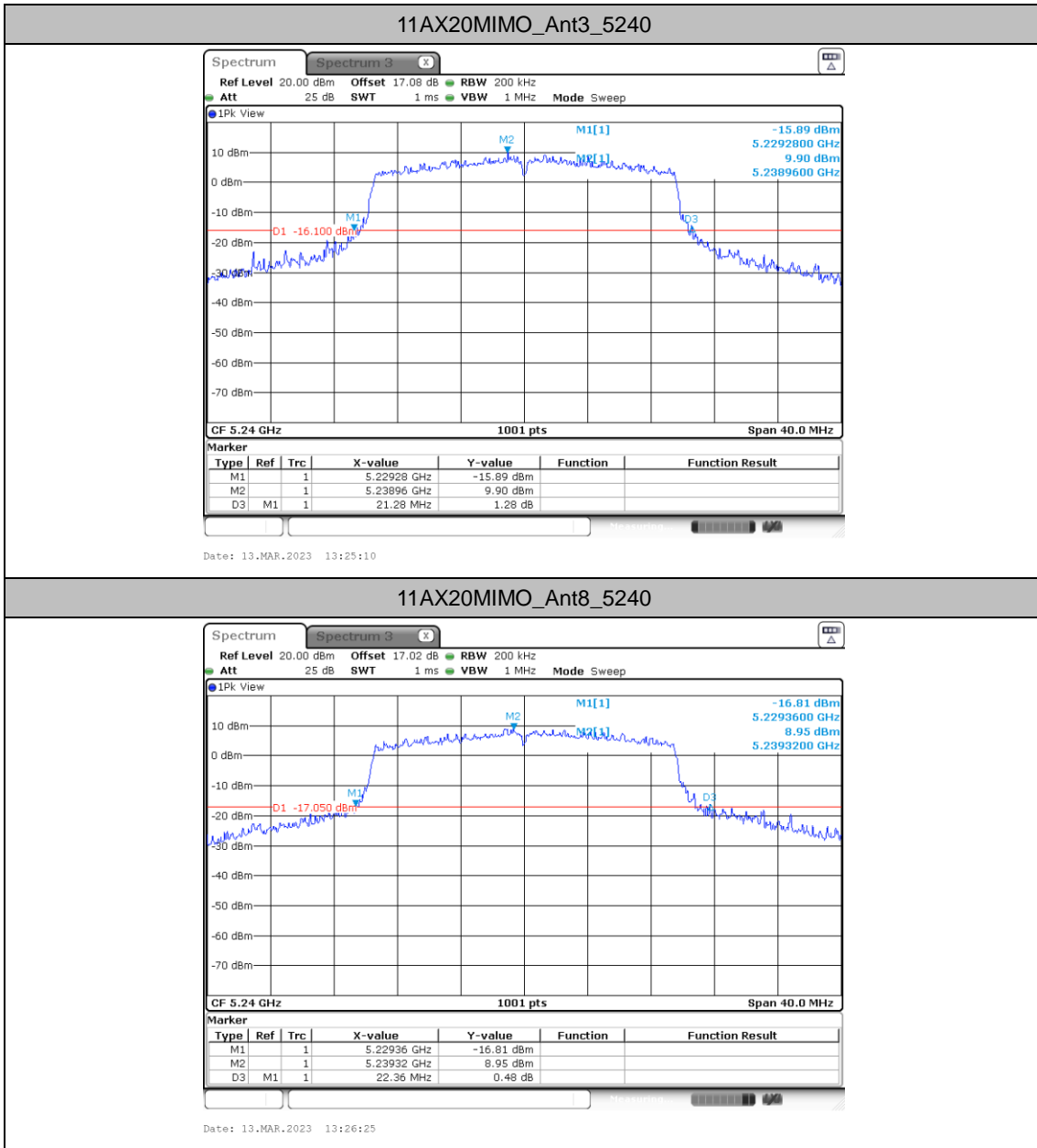


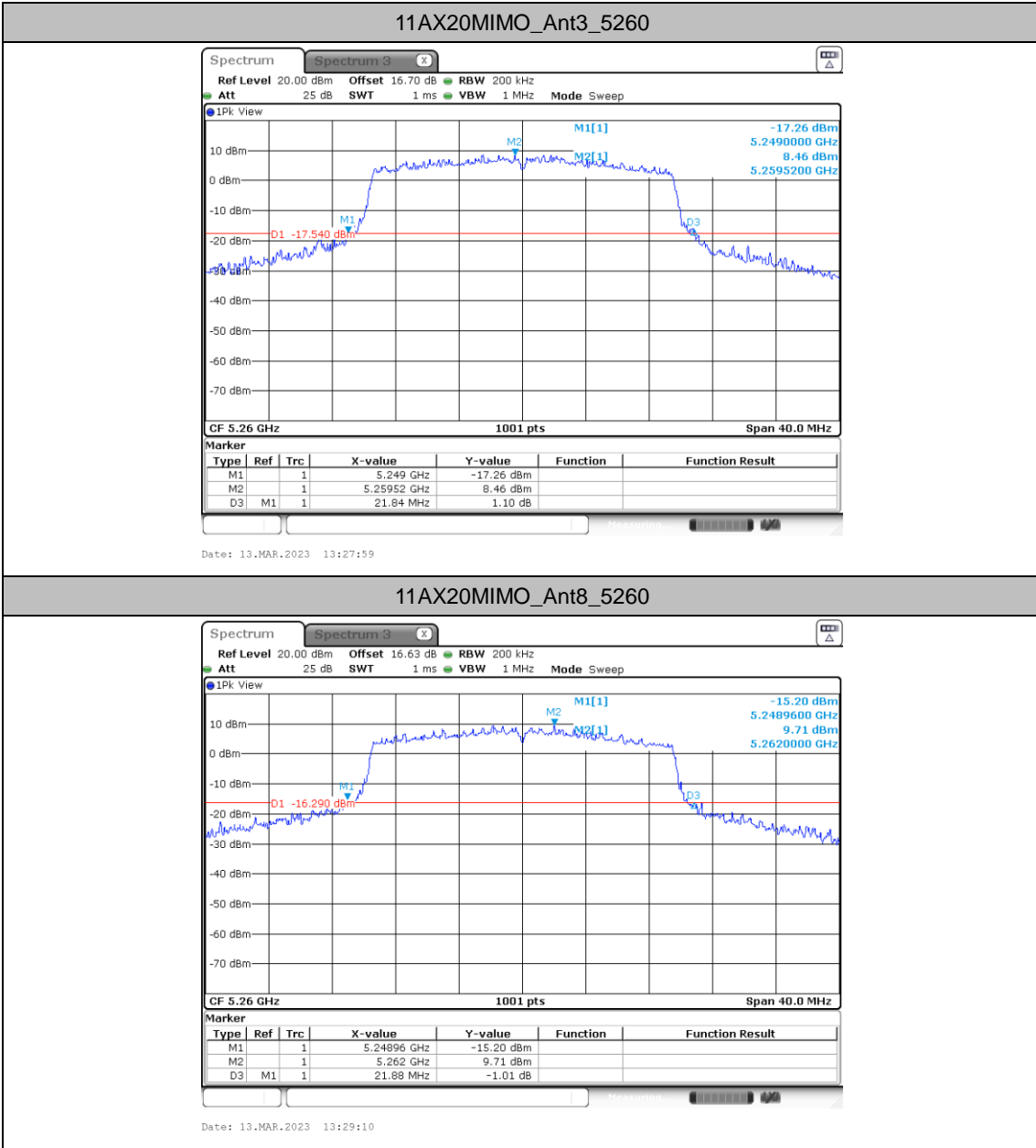


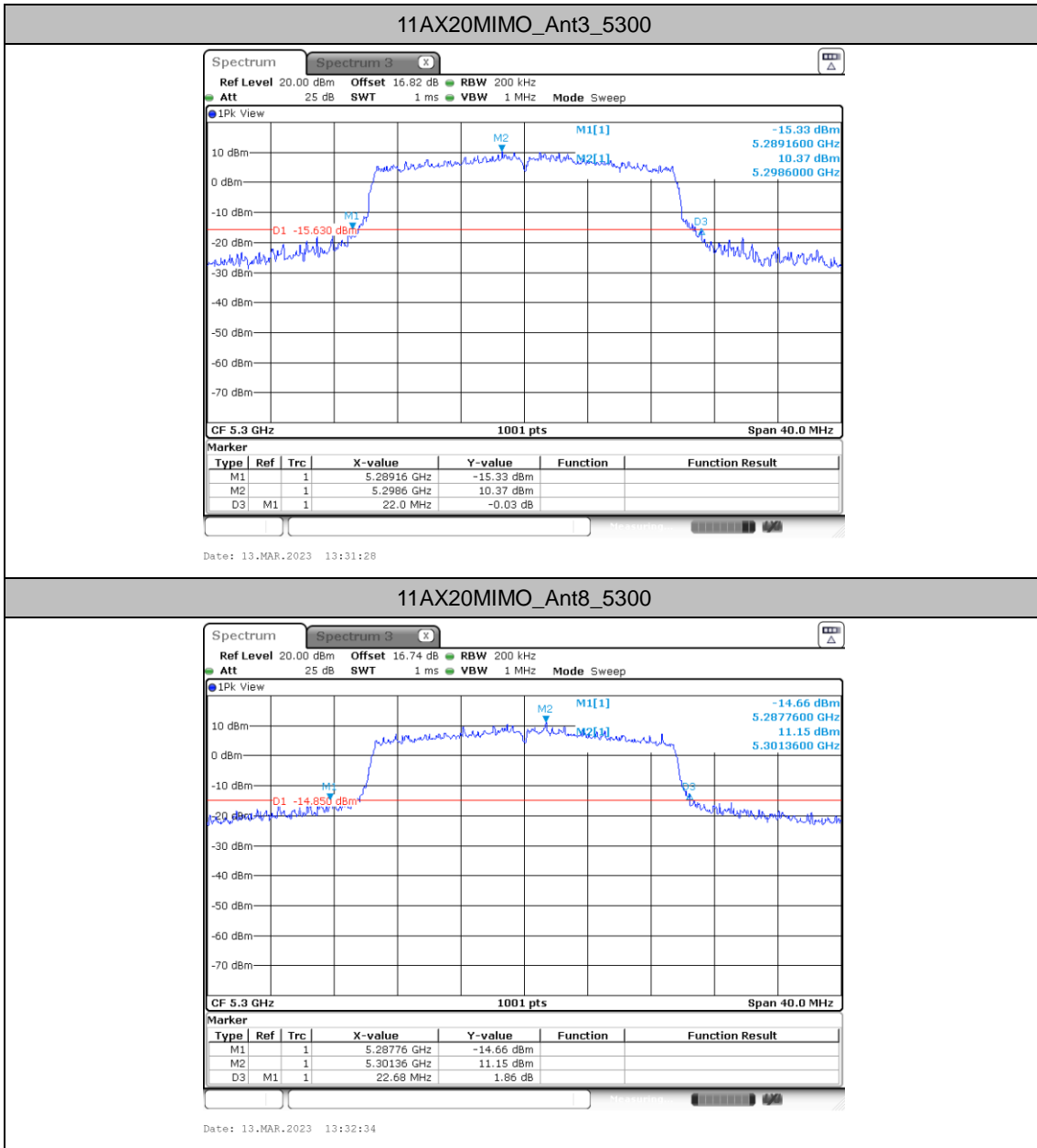


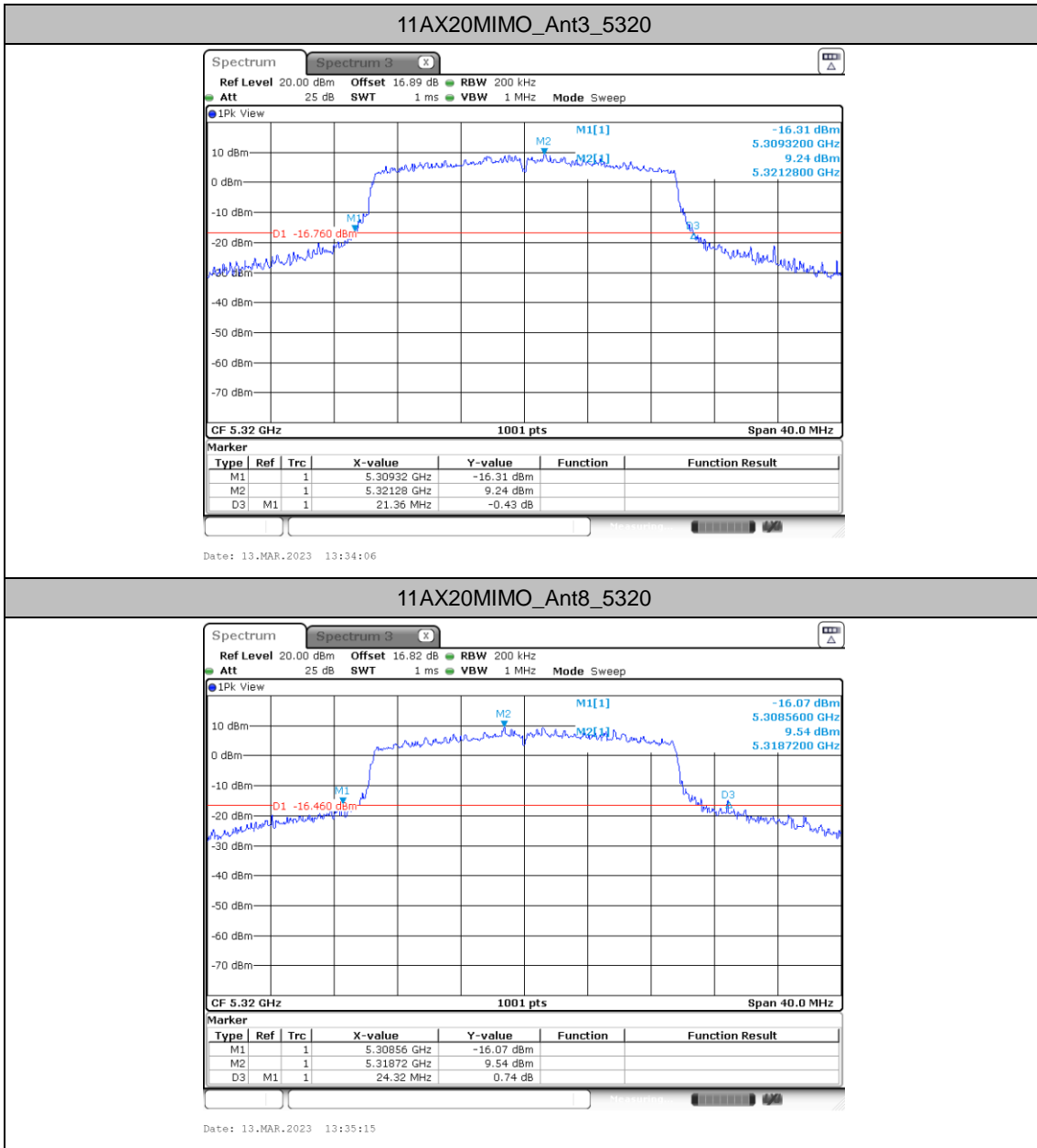


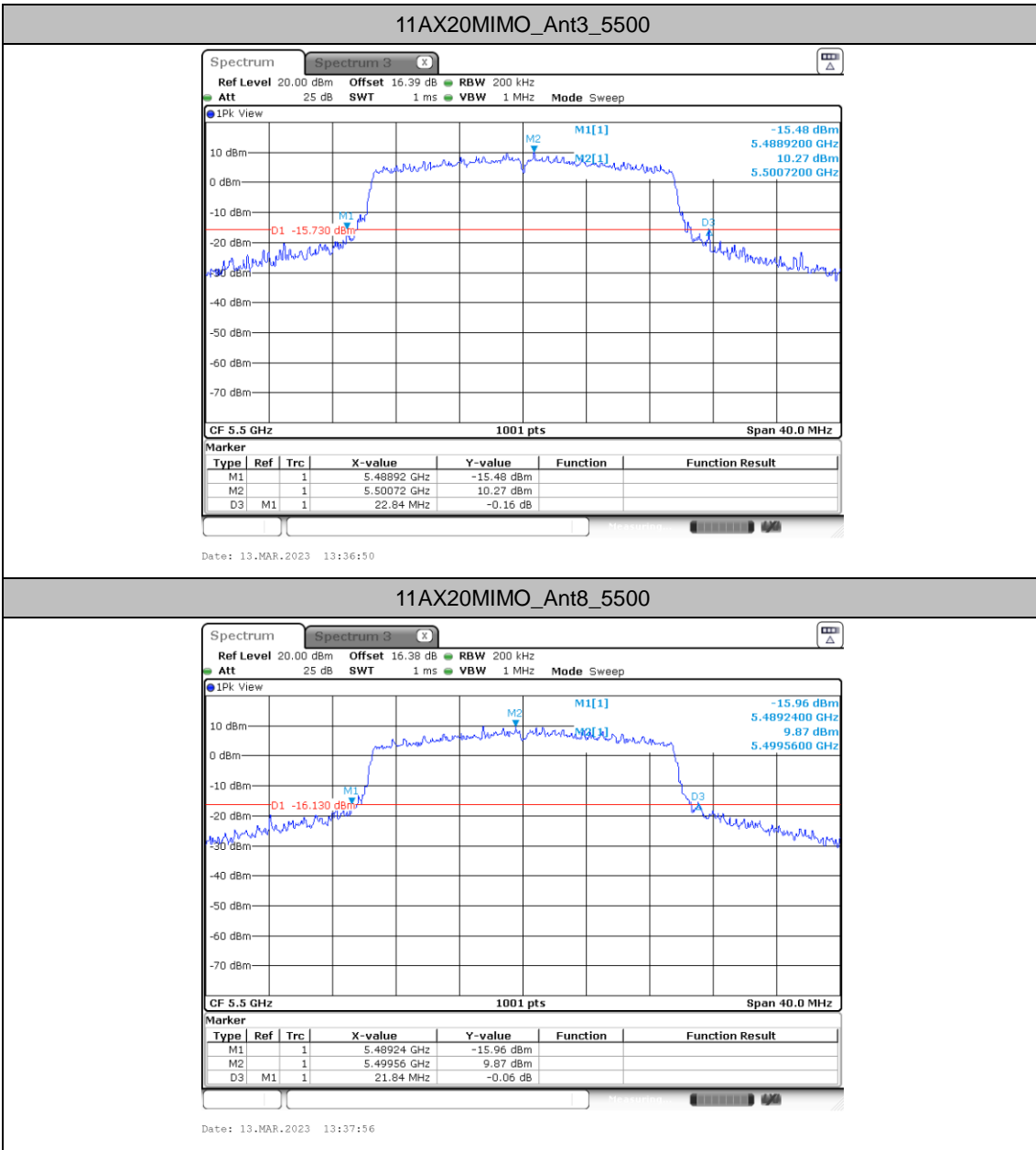


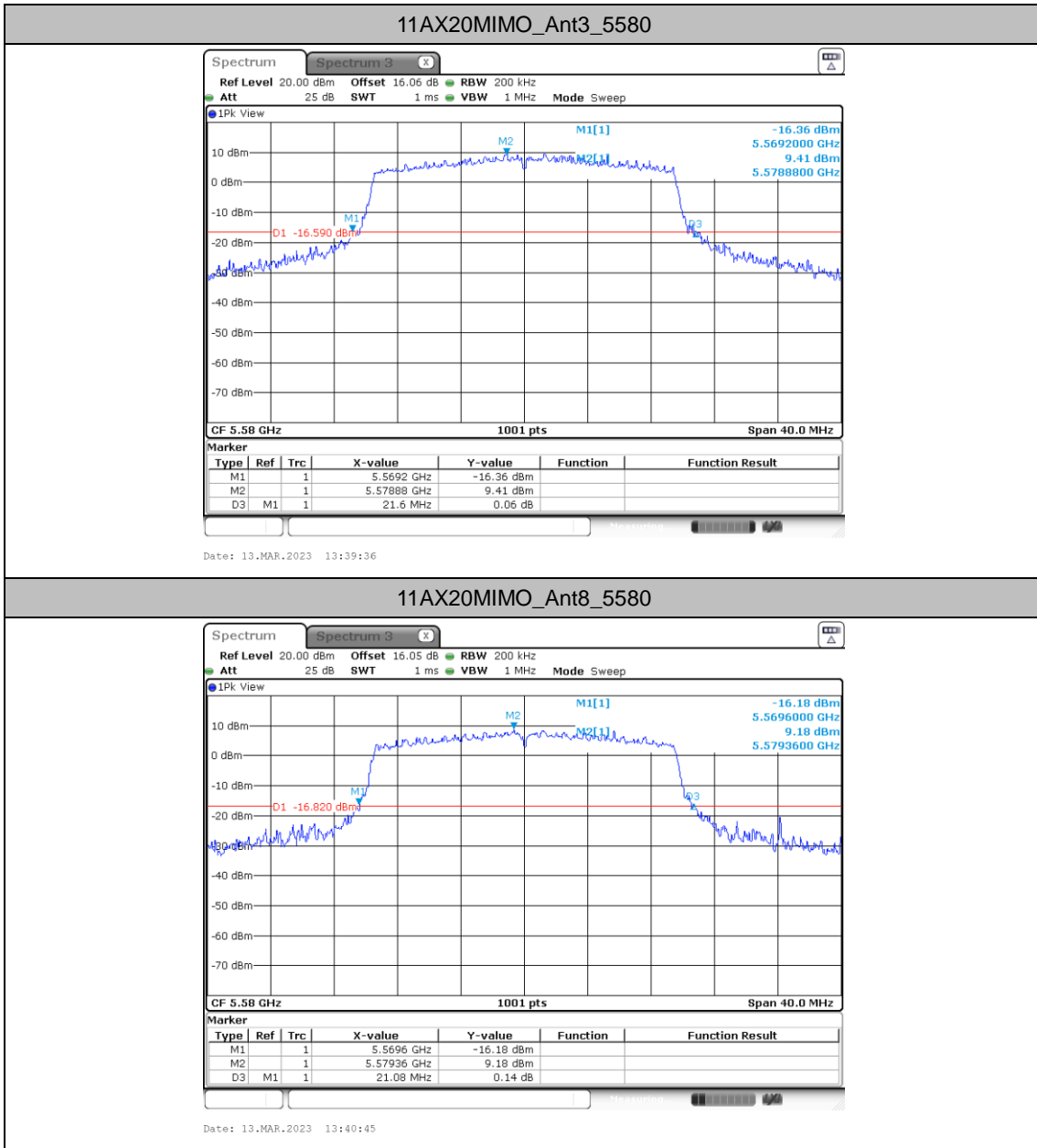


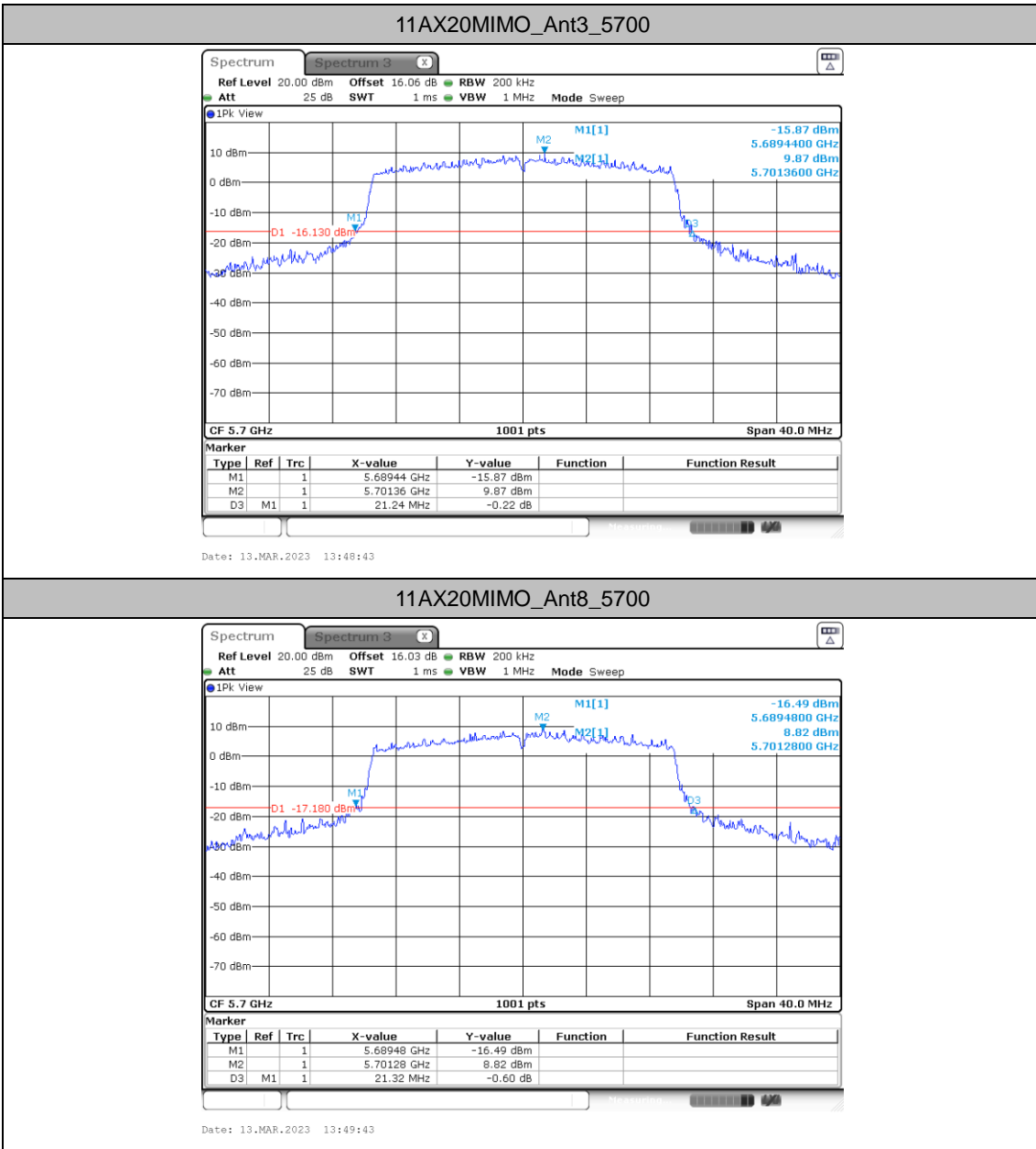


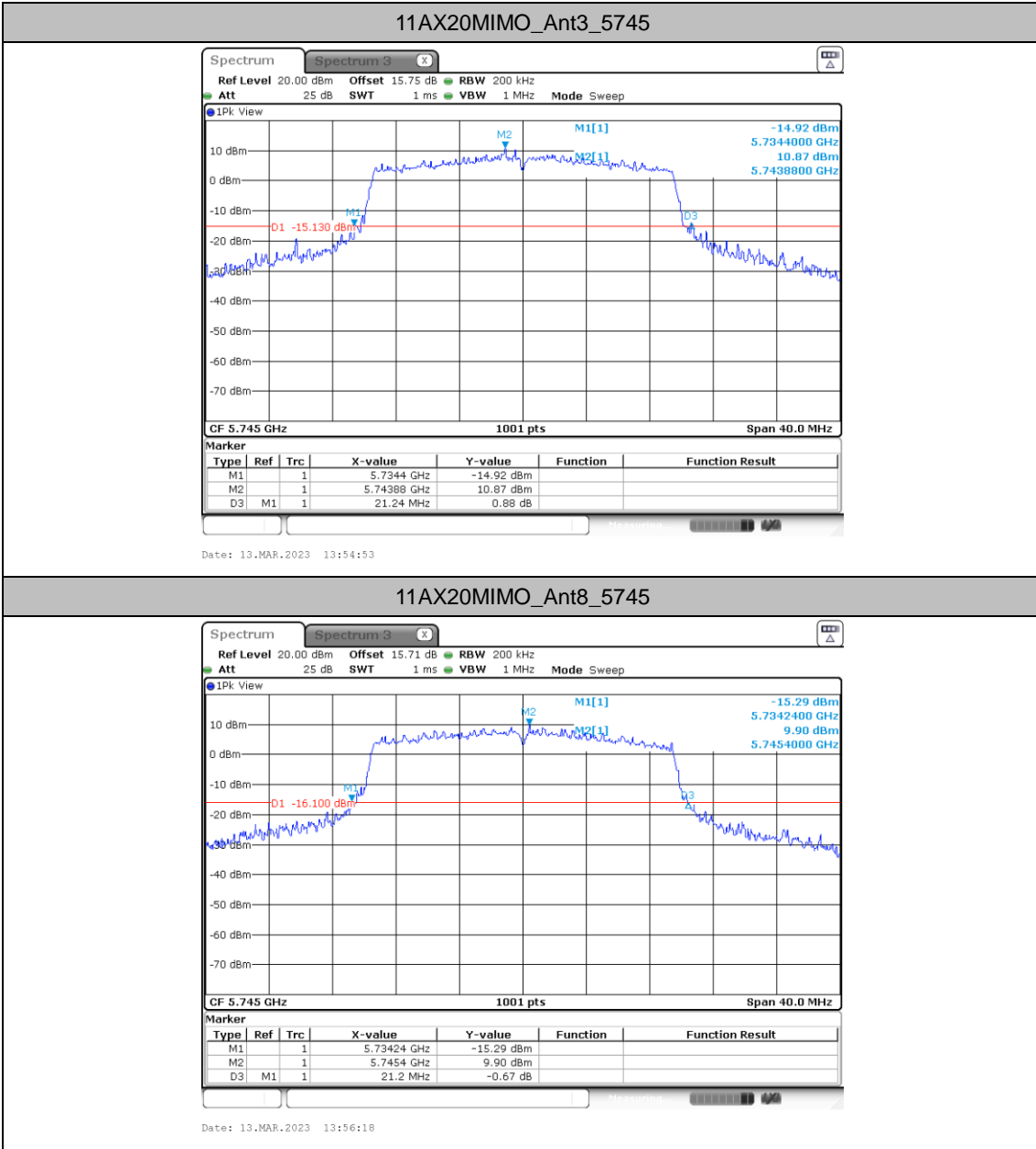


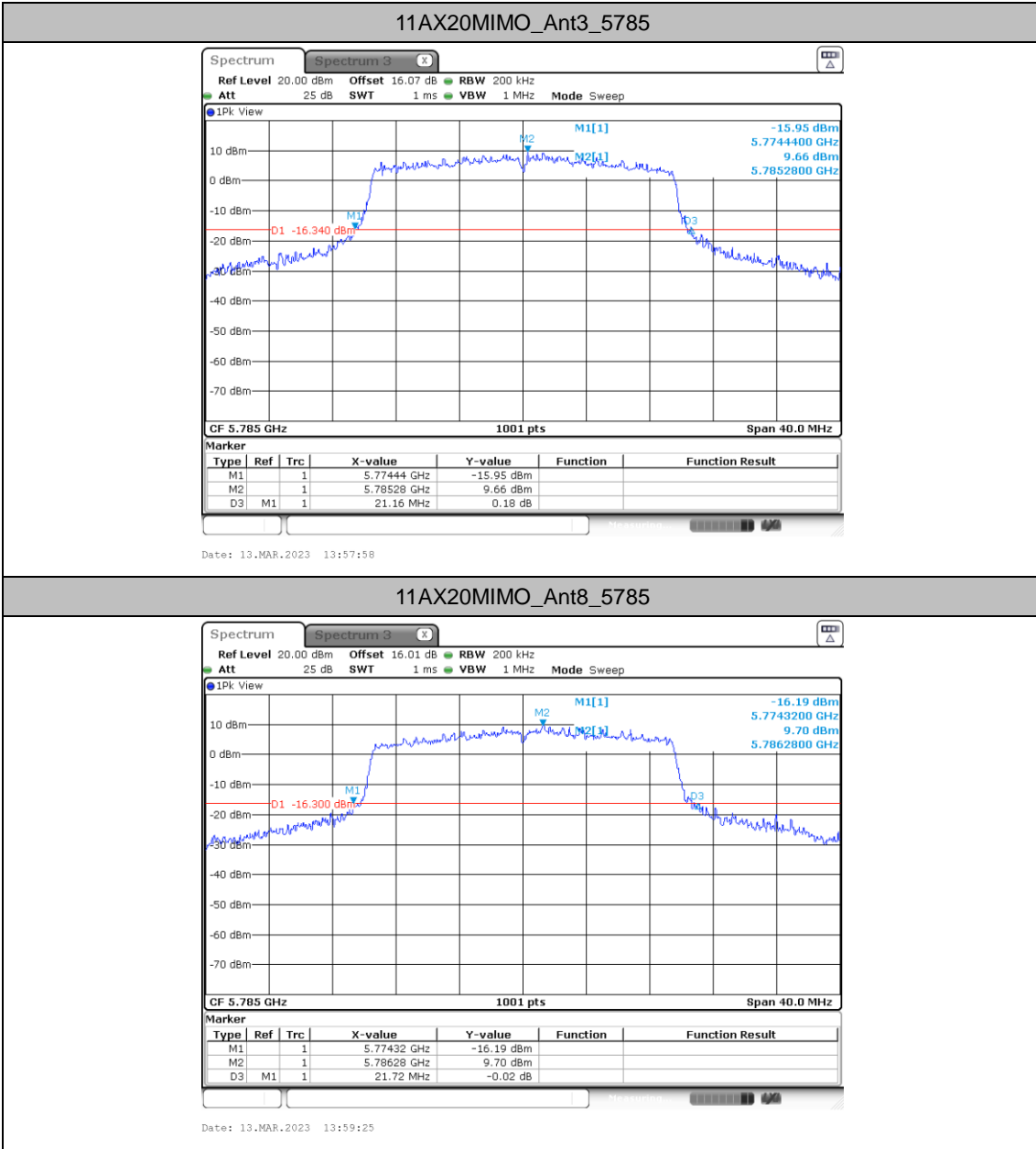


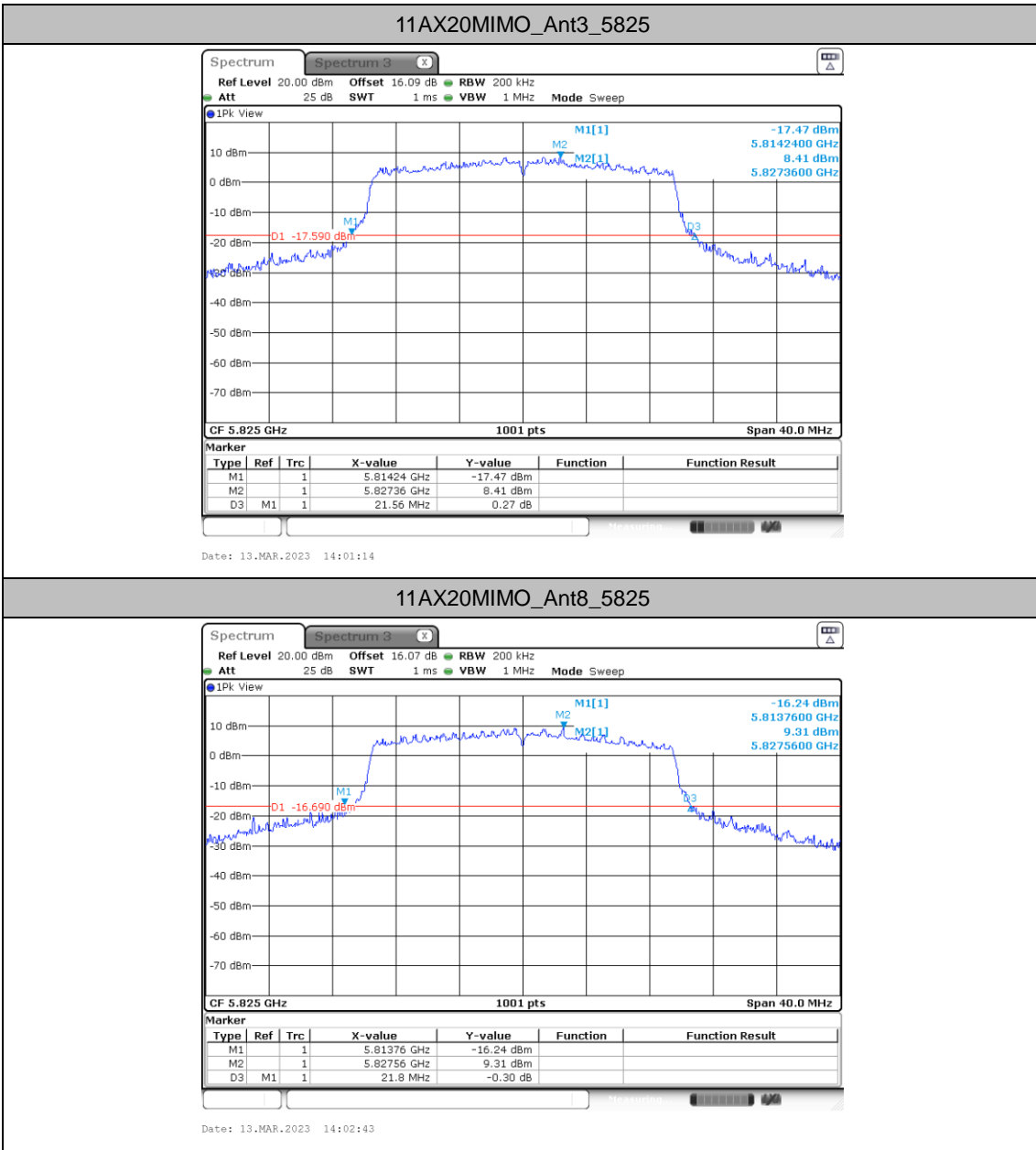


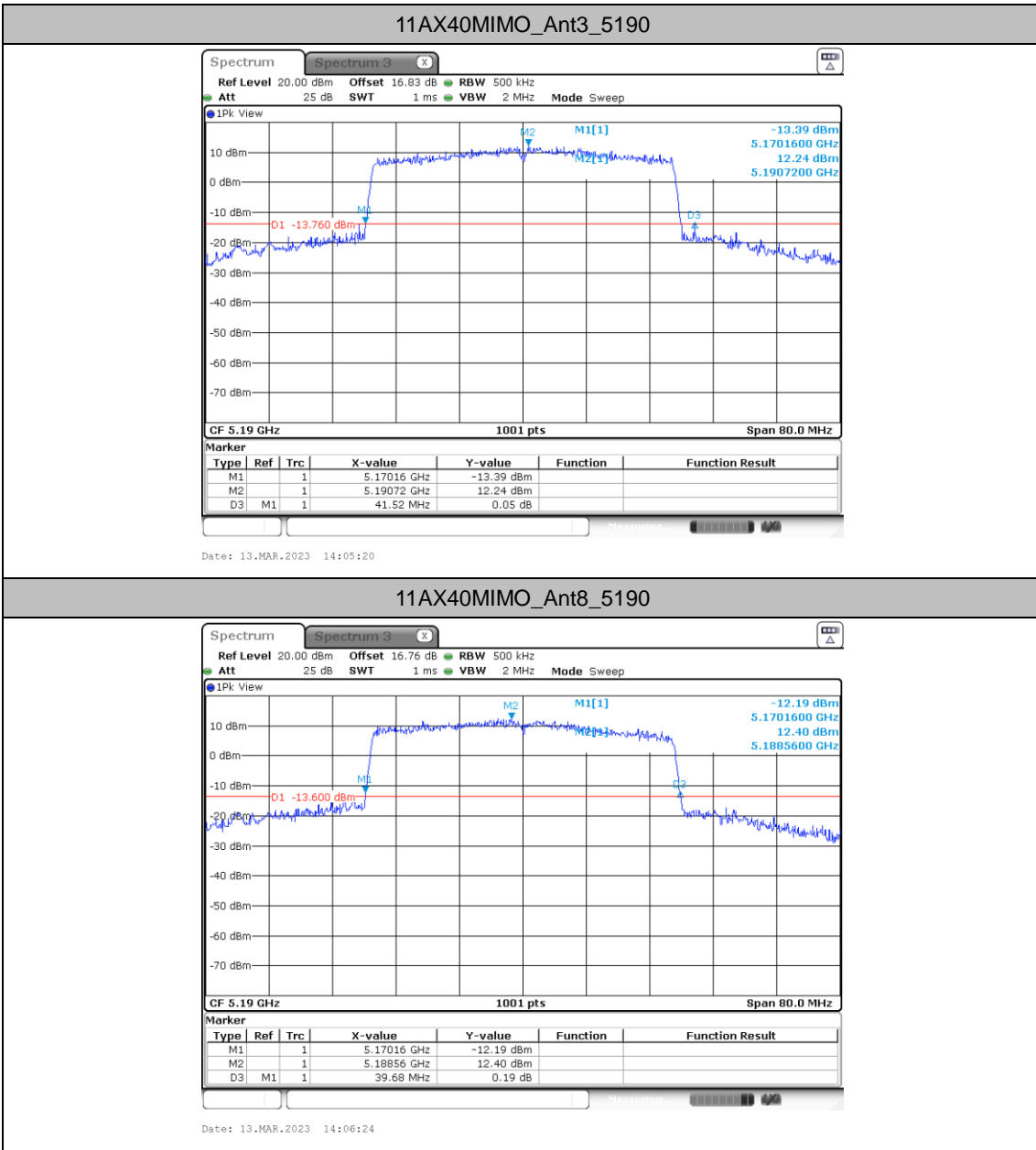


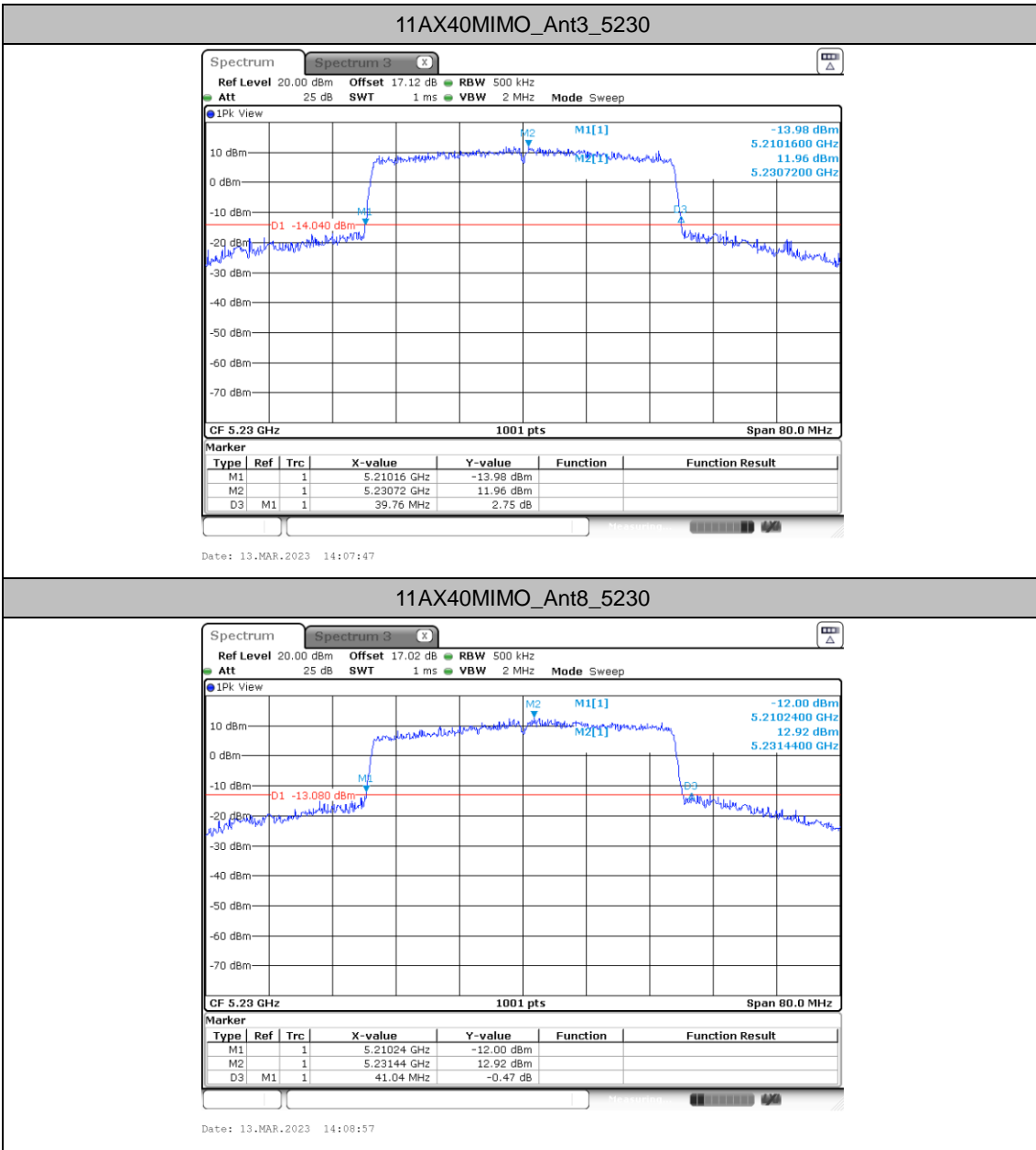


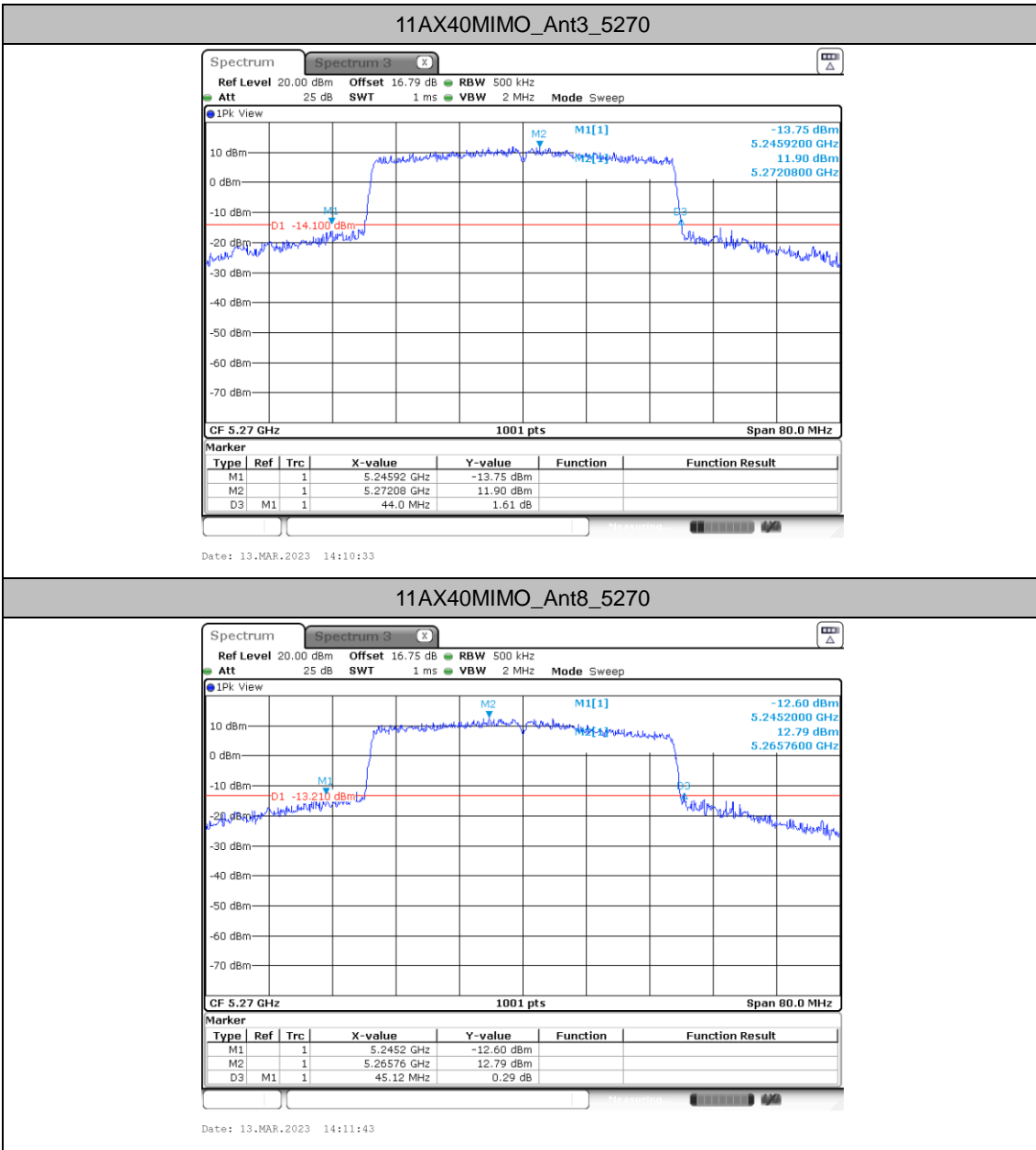


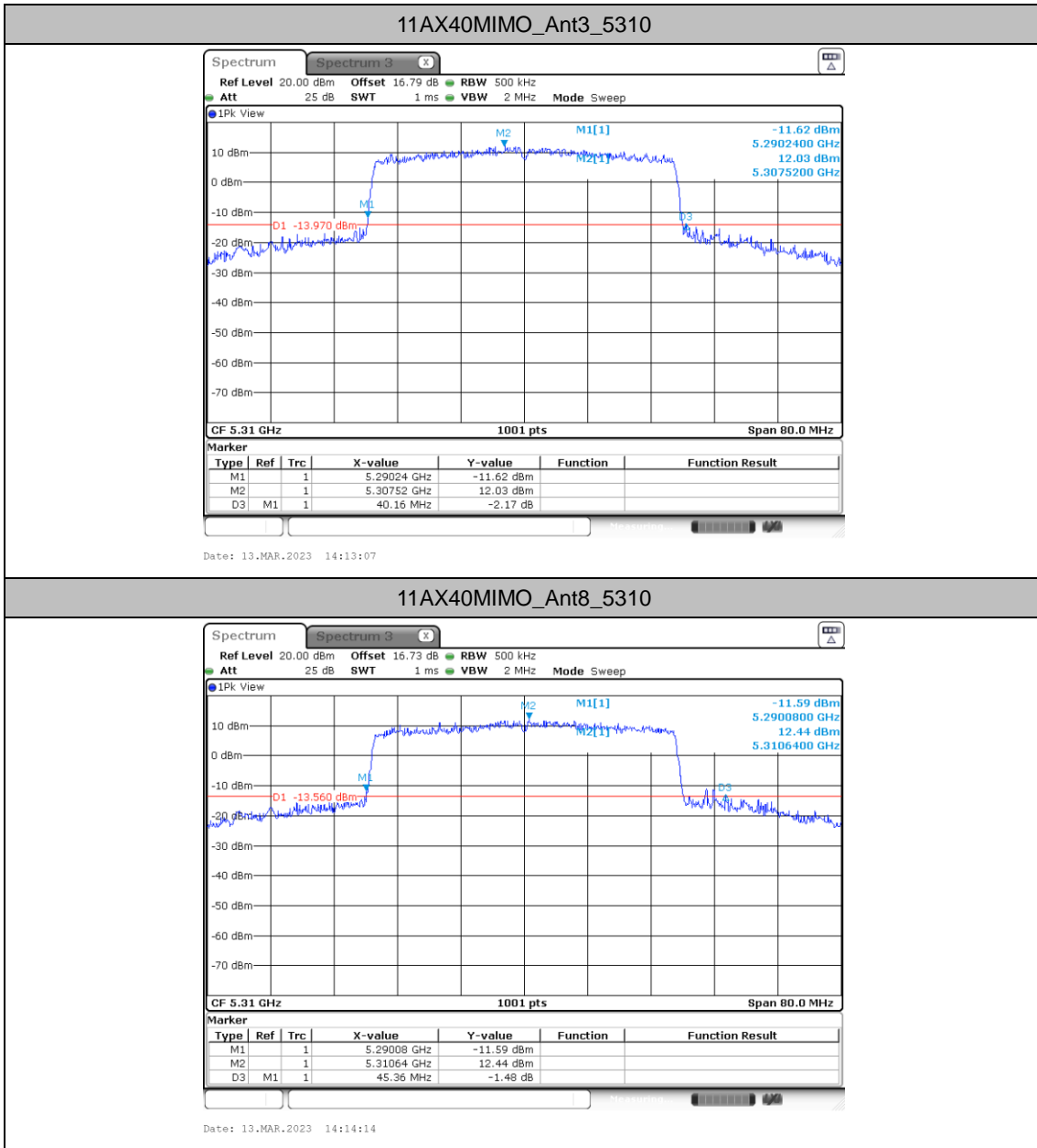


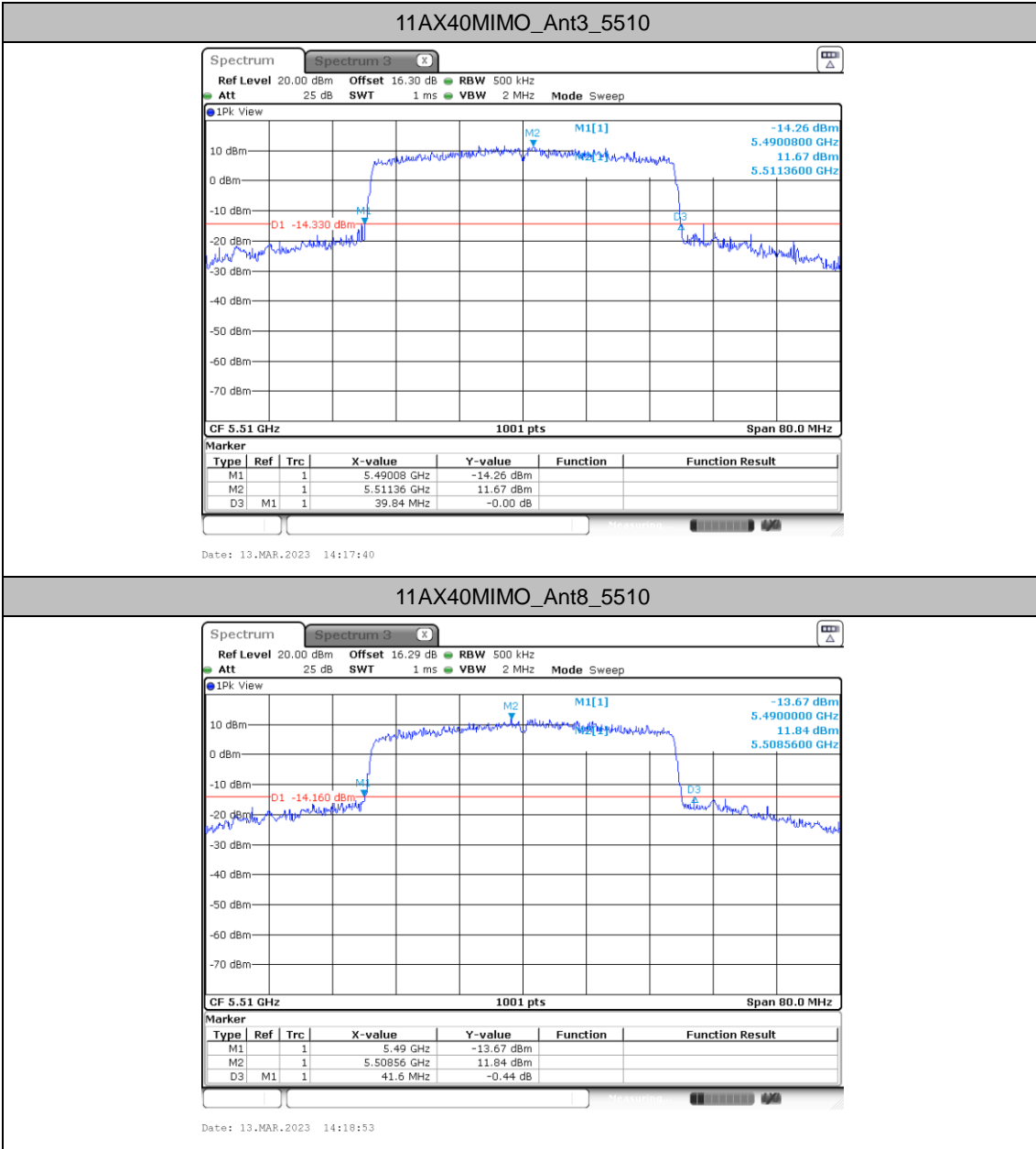


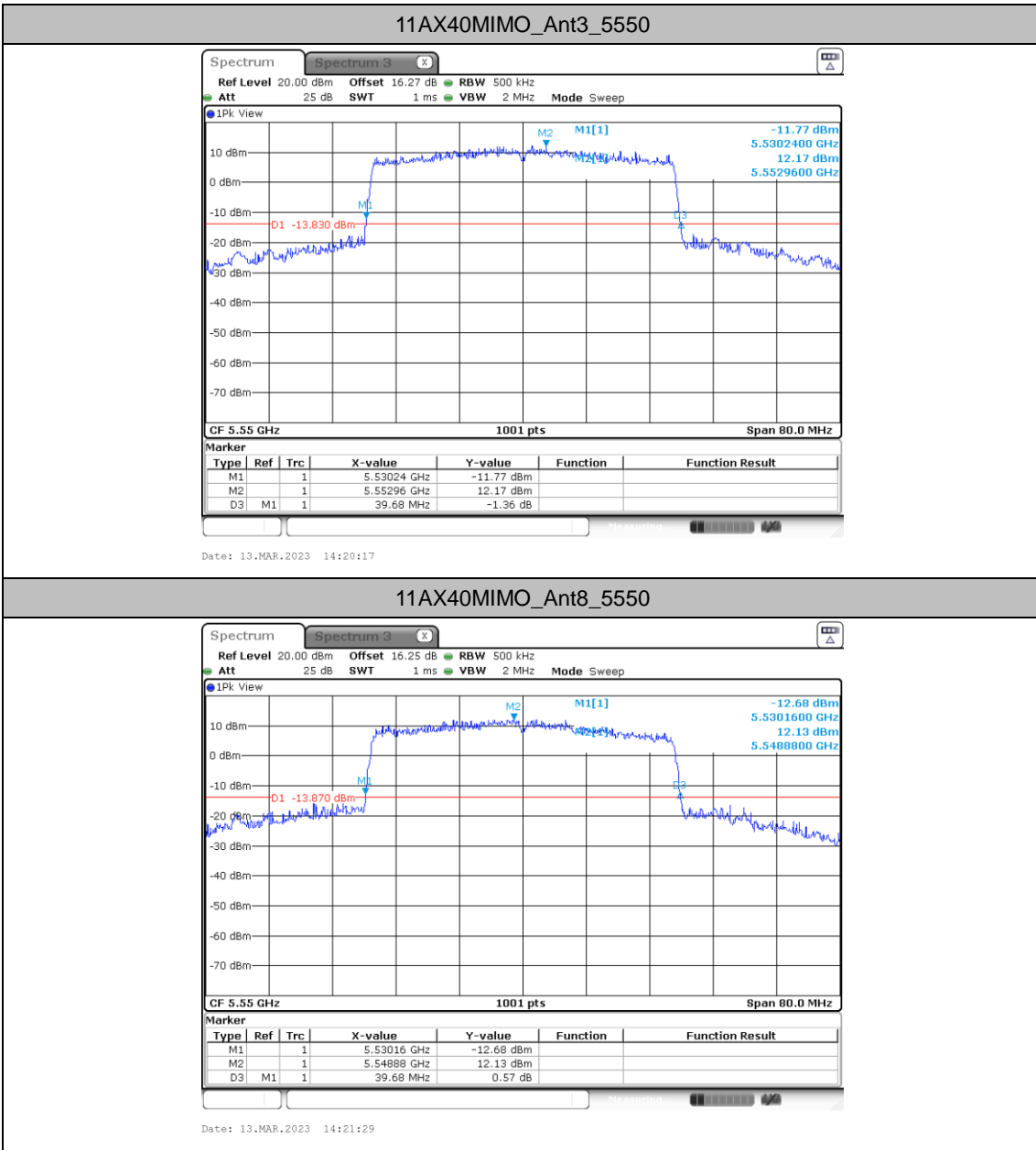


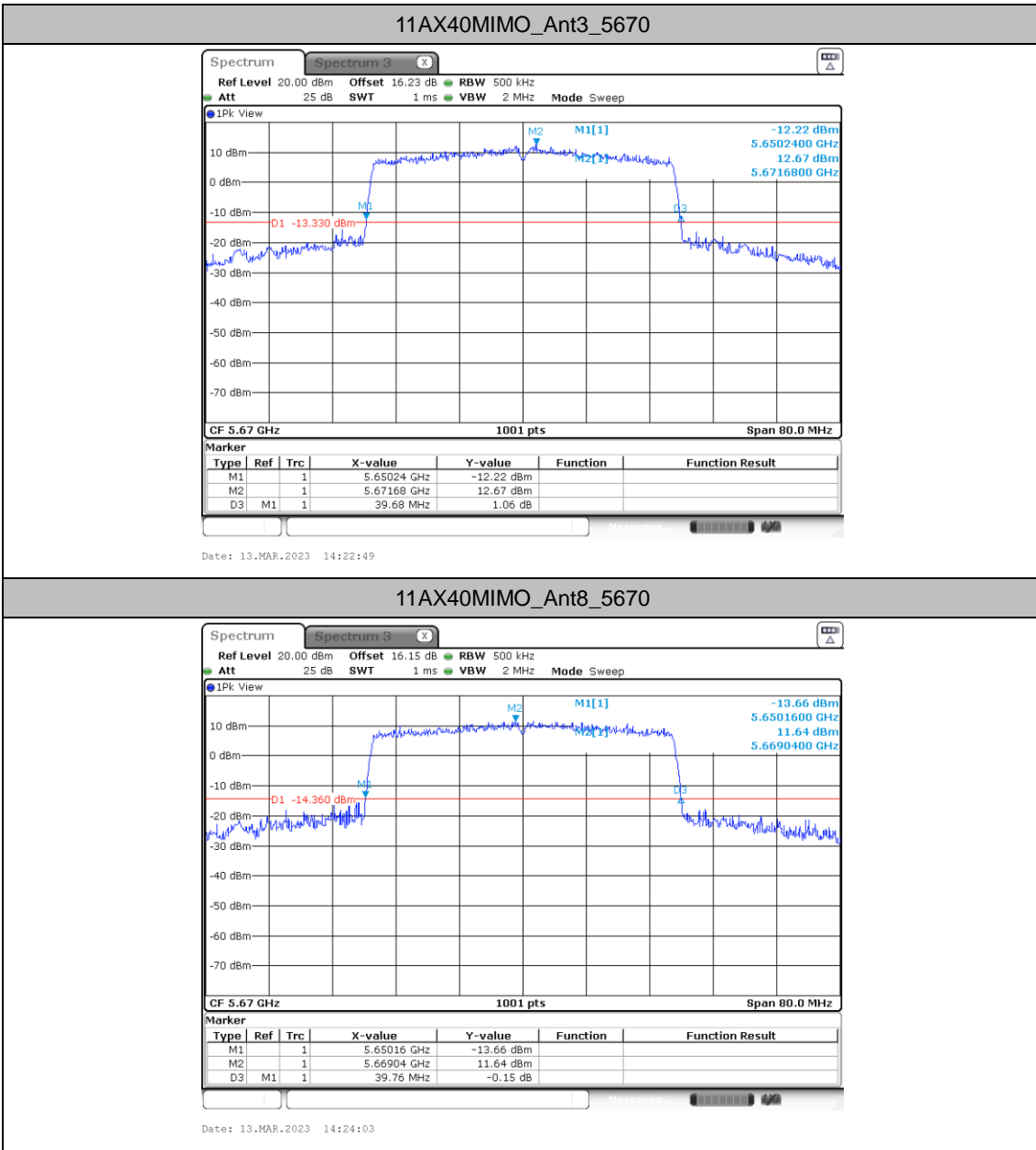


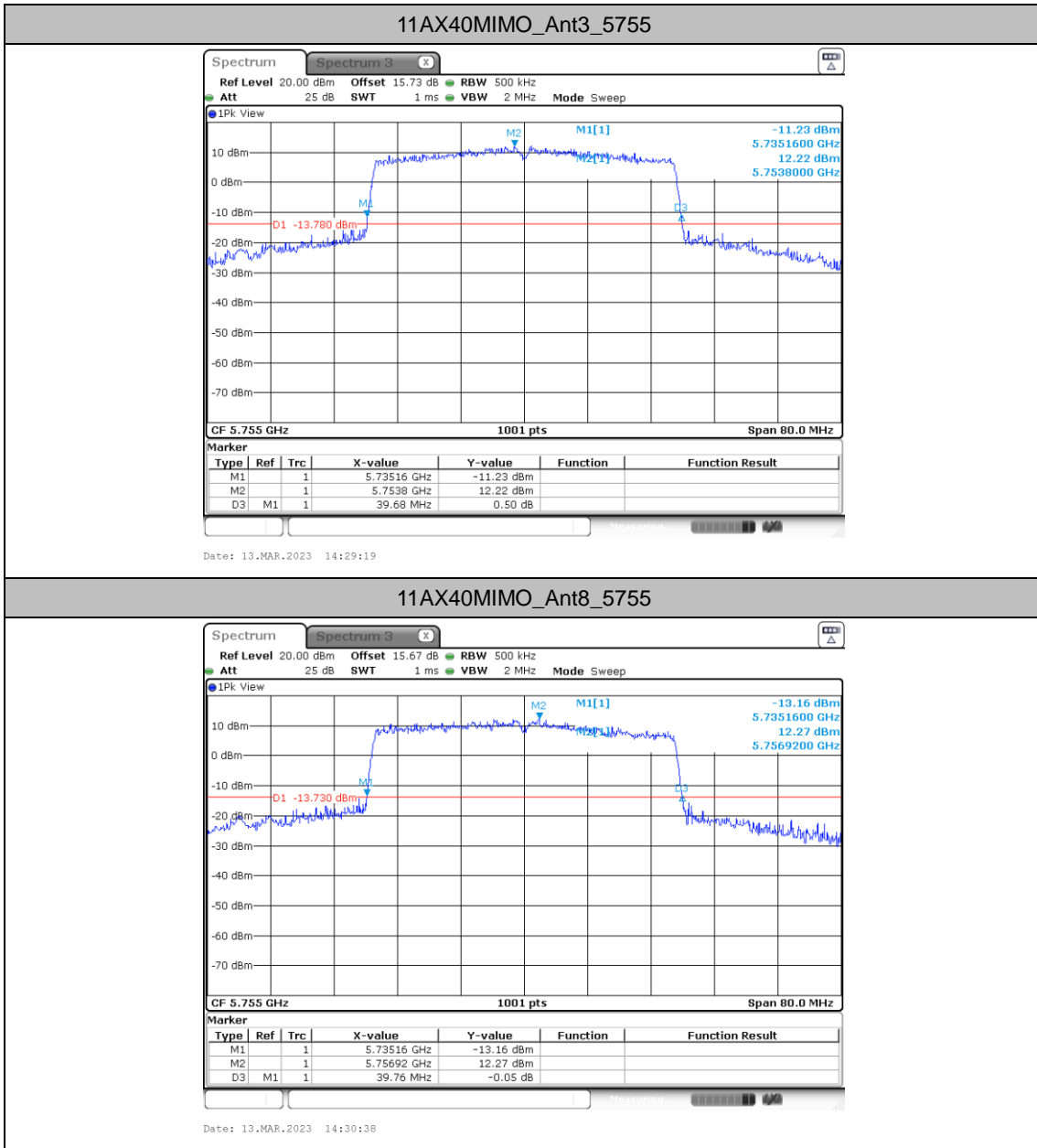


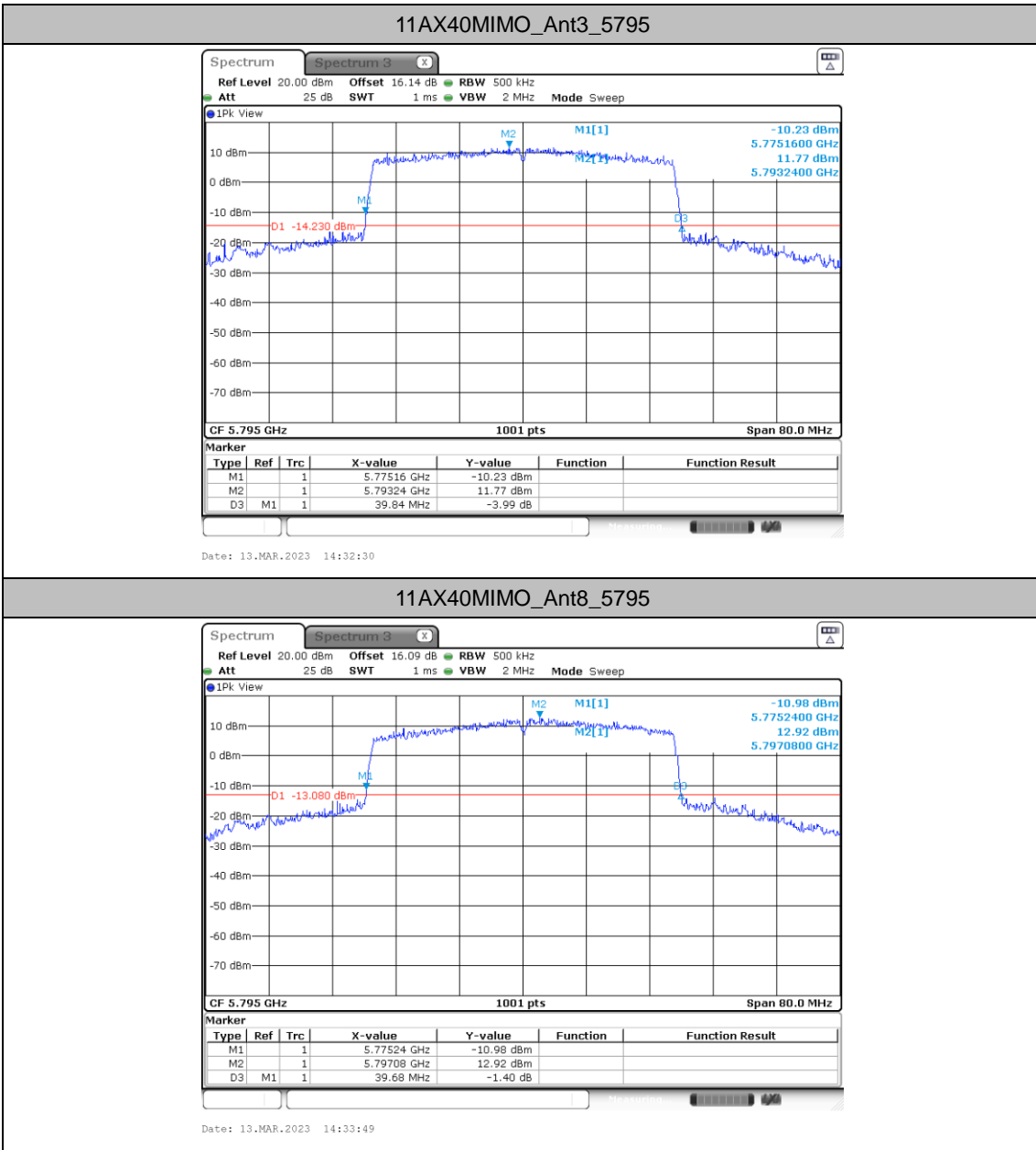


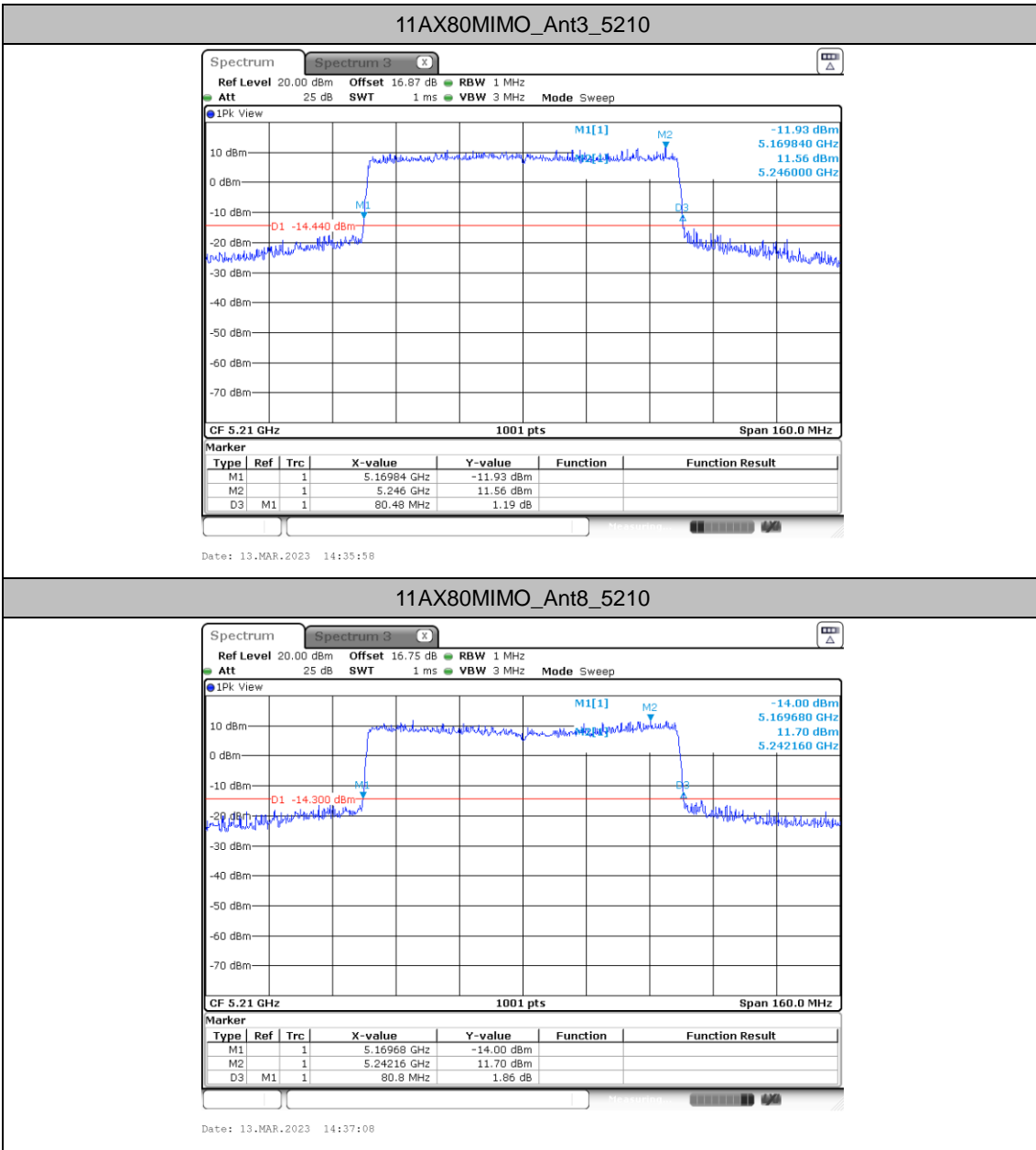


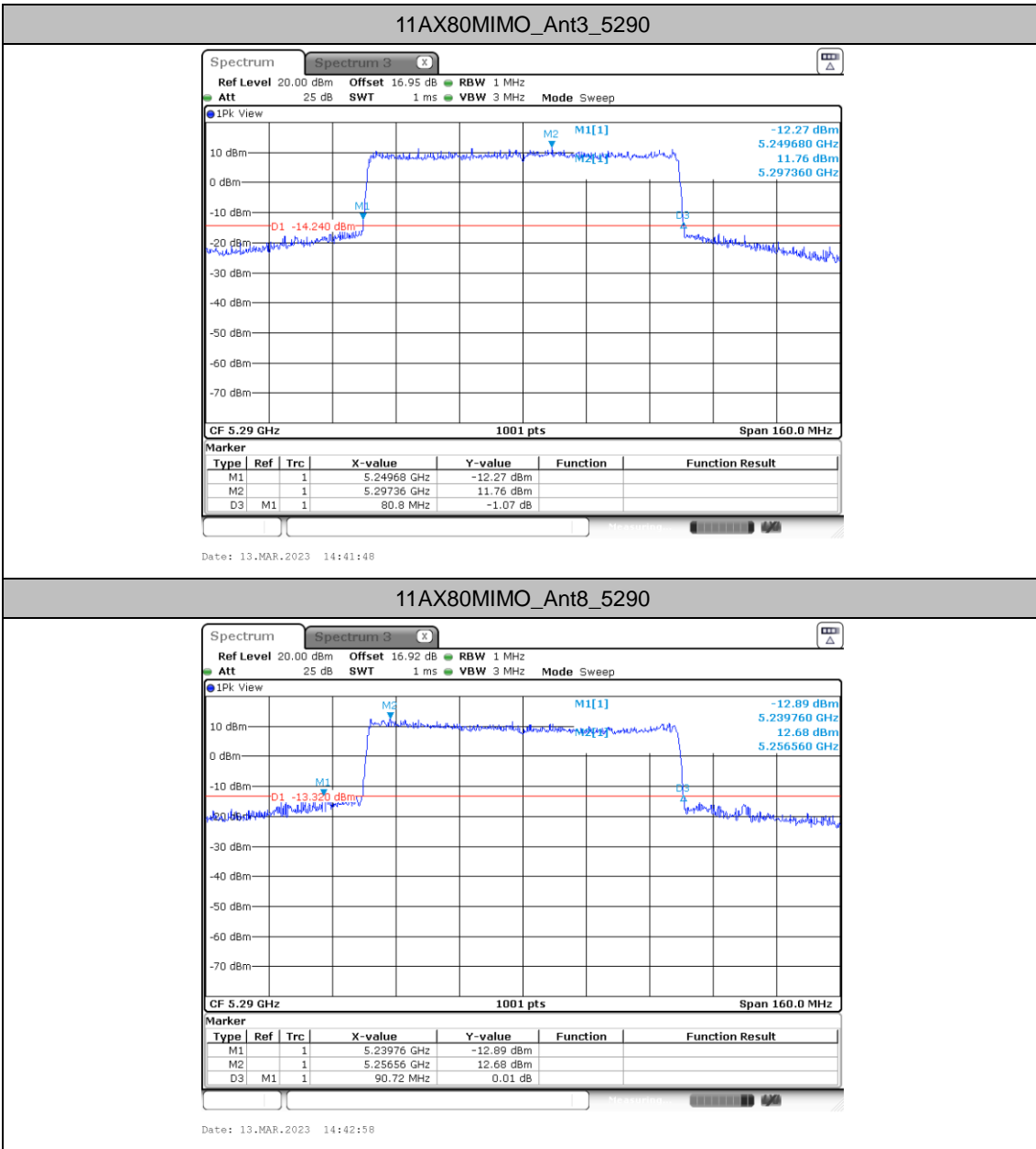


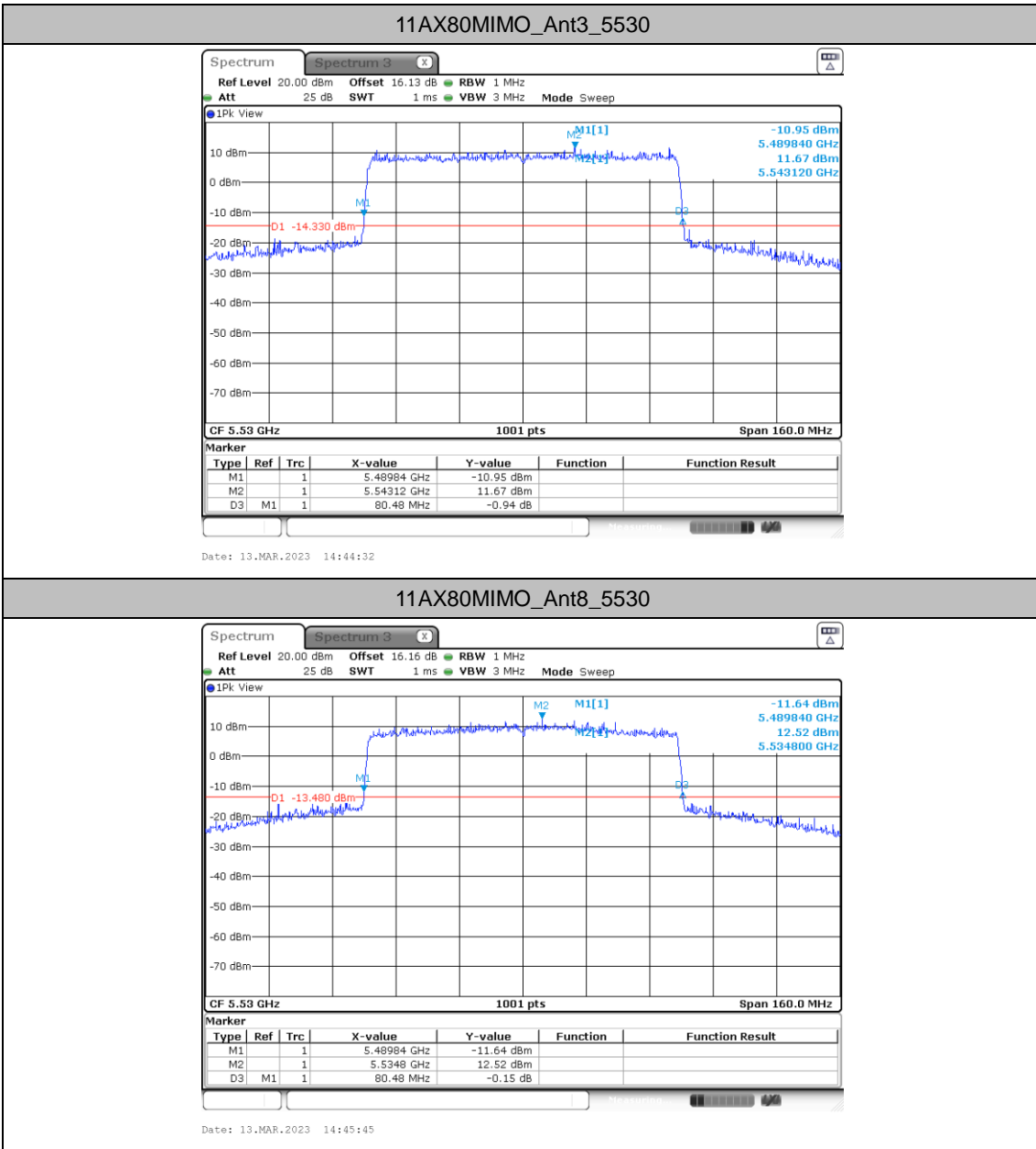


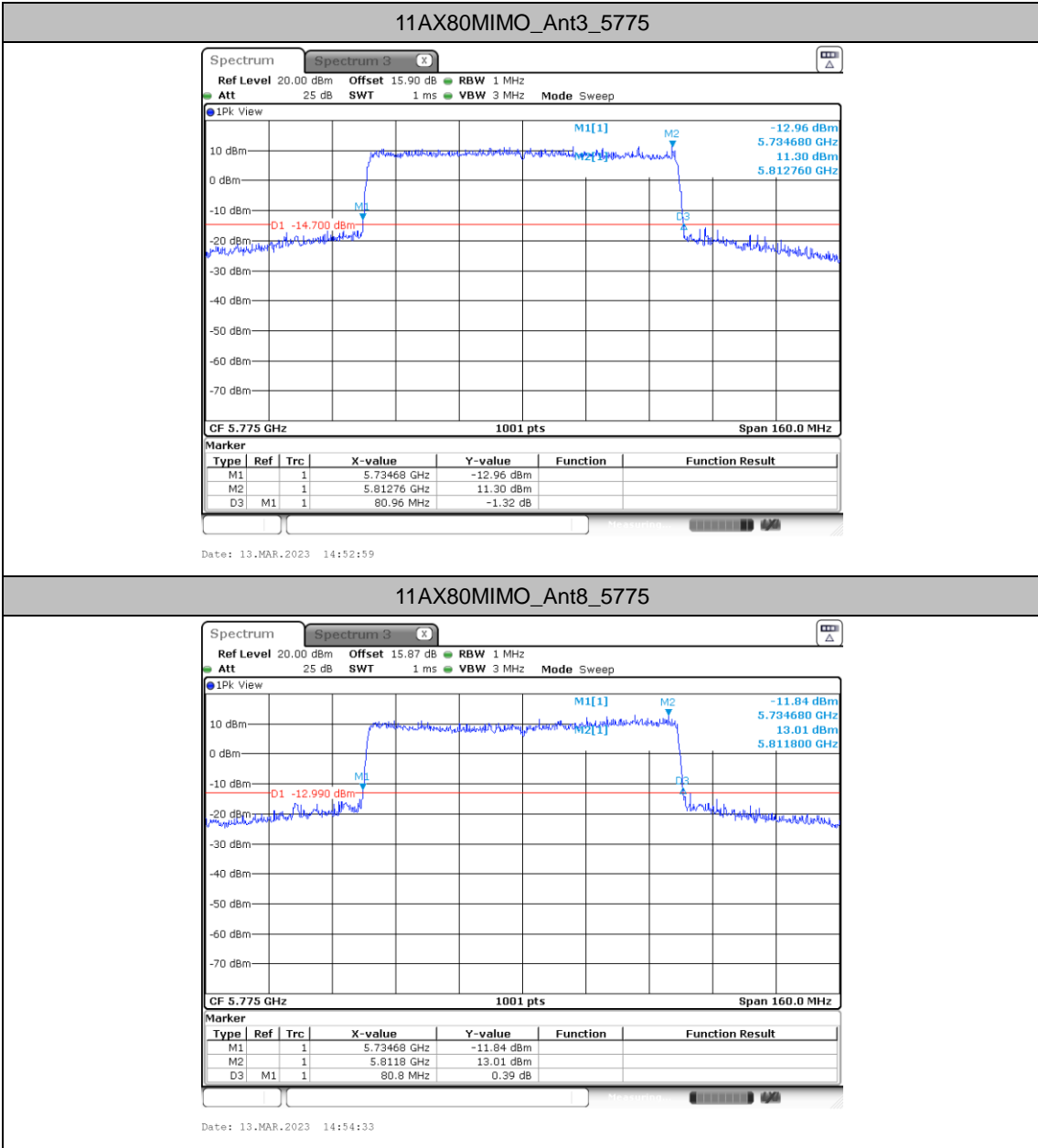














Occupied channel bandwidth

Test Result

TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant3	5180	17.143	5171.4486	5188.5914	---	---
	Ant8	5180	16.943	5171.4885	5188.4316	---	---
	Ant3	5220	17.143	5211.4885	5228.6314	---	---
	Ant8	5220	16.823	5211.5684	5228.3916	---	---
	Ant3	5240	17.063	5231.4885	5248.5514	---	---
	Ant8	5240	16.863	5231.6484	5248.5115	---	---
	Ant3	5260	17.103	5251.4086	5268.5115	---	---
	Ant8	5260	16.903	5251.4885	5268.3916	---	---
	Ant3	5300	17.063	5291.4486	5308.5115	---	---
	Ant8	5300	16.903	5291.5285	5308.4316	---	---
	Ant3	5320	17.103	5311.4486	5328.5514	---	---
	Ant8	5320	16.983	5311.6084	5328.5914	---	---
	Ant3	5500	17.143	5491.4086	5508.5514	---	---
	Ant8	5500	16.863	5491.6084	5508.4715	---	---
	Ant3	5580	17.063	5571.4885	5588.5514	---	---
	Ant8	5580	16.783	5571.6484	5588.4316	---	---
	Ant3	5700	17.103	5691.4486	5708.5514	---	---
	Ant8	5700	16.863	5691.6484	5708.5115	---	---
	Ant3	5745	17.183	5736.4086	5753.5914	---	---
	Ant8	5745	16.783	5736.5285	5753.3117	---	---
	Ant3	5785	17.103	5776.4086	5793.5115	---	---
	Ant8	5785	16.903	5776.6484	5793.5514	---	---
	Ant3	5825	17.103	5816.4486	5833.5514	---	---
	Ant8	5825	16.783	5816.5285	5833.3117	---	---
11AX20MIMO	Ant3	5180	19.061	5170.4895	5189.5504	---	---
	Ant8	5180	19.101	5170.4096	5189.5105	---	---
	Ant3	5220	19.061	5210.4496	5229.5105	---	---
	Ant8	5220	19.061	5210.4496	5229.5105	---	---
	Ant3	5240	19.061	5230.4895	5249.5504	---	---
	Ant8	5240	19.101	5230.4895	5249.5904	---	---
	Ant3	5260	19.061	5250.4496	5269.5105	---	---
	Ant8	5260	19.061	5250.4096	5269.4705	---	---
	Ant3	5300	19.061	5290.4895	5309.5504	---	---
	Ant8	5300	19.181	5290.3696	5309.5504	---	---
	Ant3	5320	19.061	5310.4496	5329.5105	---	---
	Ant8	5320	19.181	5310.4496	5329.6304	---	---
Ant3	5500	19.061	5490.4496	5509.5105	---	---	



	Ant8	5500	19.061	5490.4895	5509.5504	---	---
	Ant3	5580	19.101	5570.4496	5589.5504	---	---
	Ant8	5580	19.021	5570.4895	5589.5105	---	---
	Ant3	5700	19.061	5690.4895	5709.5504	---	---
	Ant8	5700	19.021	5690.5295	5709.5504	---	---
	Ant3	5745	19.061	5735.4496	5754.5105	---	---
	Ant8	5745	19.021	5735.4096	5754.4306	---	---
	Ant3	5785	19.061	5775.4496	5794.5105	---	---
	Ant8	5785	19.061	5775.5295	5794.5904	---	---
	Ant3	5825	19.101	5815.4096	5834.5105	---	---
	Ant8	5825	19.101	5815.3696	5834.4705	---	---
11AX40MIMO	Ant3	5190	37.802	5171.1389	5208.9411	---	---
	Ant8	5190	37.802	5170.9790	5208.7812	---	---
	Ant3	5230	37.882	5211.0589	5248.9411	---	---
	Ant8	5230	37.882	5211.2188	5249.1009	---	---
	Ant3	5270	37.882	5251.0589	5288.9411	---	---
	Ant8	5270	37.882	5250.8991	5288.7812	---	---
	Ant3	5310	37.882	5291.0589	5328.9411	---	---
	Ant8	5310	38.042	5291.0589	5329.1009	---	---
	Ant3	5510	37.802	5491.0589	5528.8611	---	---
	Ant8	5510	37.882	5491.1389	5529.0210	---	---
	Ant3	5550	37.802	5531.0589	5568.8611	---	---
	Ant8	5550	37.802	5530.9790	5568.7812	---	---
	Ant3	5670	37.802	5651.0589	5688.8611	---	---
	Ant8	5670	37.882	5651.0589	5688.9411	---	---
	Ant3	5755	37.802	5736.1389	5773.9411	---	---
	Ant8	5755	37.802	5735.9790	5773.7812	---	---
	Ant3	5795	37.882	5776.0589	5813.9411	---	---
	Ant8	5795	37.802	5776.2188	5814.0210	---	---
11AX80MIMO	Ant3	5210	77.842	5171.1588	5249.0010	---	---
	Ant8	5210	78.482	5170.6793	5249.1608	---	---
	Ant3	5290	78.002	5250.9990	5329.0010	---	---
	Ant8	5290	78.482	5250.5195	5329.0010	---	---
	Ant3	5530	77.842	5491.1588	5569.0010	---	---
	Ant8	5530	77.682	5491.1588	5568.8412	---	---
	Ant3	5775	78.002	5735.9990	5814.0010	---	---
	Ant8	5775	78.162	5735.9990	5814.1608	---	---