



# FCC RF Test Report

APPLICANT : Meta Platforms Technologies, LLC.  
EQUIPMENT : VR Headset  
BRAND NAME : META PLATFORMS TECHNOLOGIES, LLC  
MODEL NAME : DK94EC  
FCC ID : 2AG0Z-L31W  
STANDARD : FCC Part 15 Subpart E §15.407  
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure  
TEST DATE(S) : Mar. 04, 2022 ~ Jun. 22, 2022

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

|                                                              |           |
|--------------------------------------------------------------|-----------|
| <b>REVISION HISTORY.....</b>                                 | <b>3</b>  |
| <b>SUMMARY OF TEST RESULT .....</b>                          | <b>4</b>  |
| <b>1 GENERAL DESCRIPTION .....</b>                           | <b>5</b>  |
| 1.1 Applicant .....                                          | 5         |
| 1.2 Product Feature of Equipment Under Test.....             | 5         |
| 1.3 Product Specification of Equipment Under Test.....       | 5         |
| 1.4 Modification of EUT .....                                | 7         |
| 1.5 Testing Location .....                                   | 7         |
| 1.6 Test Software.....                                       | 7         |
| 1.7 Applicable Standards.....                                | 7         |
| <b>2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST .....</b>    | <b>8</b>  |
| 2.1 Carrier Frequency and Channel .....                      | 8         |
| 2.2 Test Mode .....                                          | 10        |
| 2.3 Connection Diagram of Test System.....                   | 12        |
| 2.4 Support Unit used in test configuration and system ..... | 13        |
| 2.5 EUT Operation Test Setup .....                           | 13        |
| 2.6 Measurement Results Explanation Example.....             | 13        |
| <b>3 TEST RESULT.....</b>                                    | <b>14</b> |
| 3.1 26dB & 99% Occupied Bandwidth Measurement .....          | 14        |
| 3.2 Maximum Conducted Output Power Measurement .....         | 15        |
| 3.3 Power Spectral Density Measurement .....                 | 21        |
| 3.4 Unwanted Emissions Measurement .....                     | 23        |
| 3.5 AC Conducted Emission Measurement.....                   | 28        |
| 3.6 Antenna Requirements.....                                | 30        |
| <b>4 LIST OF MEASURING EQUIPMENT .....</b>                   | <b>31</b> |
| <b>5 UNCERTAINTY OF EVALUATION .....</b>                     | <b>33</b> |
| <b>APPENDIX A. CONDUCTED TEST RESULTS</b>                    |           |
| <b>APPENDIX B. AC CONDUCTED EMISSION TEST RESULT</b>         |           |
| <b>APPENDIX C. RADIATED SPURIOUS EMISSION</b>                |           |
| <b>APPENDIX D. DUTY CYCLE PLOTS</b>                          |           |
| <b>APPENDIX E. SETUP PHOTOGRAPHS</b>                         |           |



## REVISION HISTORY

| REPORT NO.   | VERSION | DESCRIPTION             | ISSUED DATE   |
|--------------|---------|-------------------------|---------------|
| FR222304-01E | Rev. 01 | Initial issue of report | Jul. 09, 2022 |
|              |         |                         |               |
|              |         |                         |               |
|              |         |                         |               |
|              |         |                         |               |
|              |         |                         |               |
|              |         |                         |               |
|              |         |                         |               |
|              |         |                         |               |
|              |         |                         |               |
|              |         |                         |               |
|              |         |                         |               |
|              |         |                         |               |
|              |         |                         |               |
|              |         |                         |               |

## SUMMARY OF TEST RESULT

| Report Section | FCC Rule           | Description                    | Limit                                                    | Result      | Remark                             |
|----------------|--------------------|--------------------------------|----------------------------------------------------------|-------------|------------------------------------|
| 3.1            | 2.1049 & 15.403(i) | 26dB & 99% Bandwidth           | -                                                        | Report only | -                                  |
| 3.2            | 15.407(a)          | Maximum Conducted Output Power | $\leq 30$ dBm for UNII-1<br>$\leq 24$ dBm for UNII-2A/2C | Pass        | -                                  |
| 3.3            | 15.407(a)          | Power Spectral Density         | $\leq 17$ dBm for UNII-1<br>$\leq 11$ dBm for UNII-2A/2C | Pass        | -                                  |
| 3.4            | 15.407(b)          | Unwanted Emissions             | 15.407(b) & 15.209(a)                                    | Pass        | Under limit 3.04 dB at 5150.00 MHz |
| 3.5            | 15.207             | AC Conducted Emission          | 15.207(a)                                                | Pass        | Under limit 17.75 dB at 0.675 MHz  |
| 3.6            | 15.203 & 15.407(a) | Antenna Requirement            | 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

Meta Platforms Technologies, LLC.  
1 Hacker Way, Menlo Park, CA 94025, USA

## 1.2 Product Feature of Equipment Under Test

| Product Feature |                                  |
|-----------------|----------------------------------|
| Equipment       | VR Headset                       |
| Brand Name      | META PLATFORMS TECHNOLOGIES, LLC |
| Model Name      | DK94EC                           |
| FCC ID          | 2AG0Z-L31W                       |
| SW Version      | 28151810289300000                |
| 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.

## 1.3 Product Specification of Equipment Under Test

| Standards-related Product Specification |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|-----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Tx/Rx Frequency Range                   | 5180 MHz ~ 5240 MHz<br>5260 MHz ~ 5320 MHz<br>5500 MHz ~ 5720 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Maximum Output Power to Antenna         | <b>&lt;MIMO Ant.1+2&gt;</b><br><b>&lt;5180 MHz ~ 5240 MHz&gt;</b><br>802.11a : 19.51 dBm / 0.0893 W<br>802.11n HT20 : 19.22 dBm / 0.0836 W<br>802.11n HT40 : 19.05 dBm / 0.0804 W<br>802.11ac VHT20 : 19.47 dBm / 0.0885 W<br>802.11ac VHT40 : 19.13 dBm / 0.0818 W<br>802.11ac VHT80 : 11.62 dBm / 0.0145 W<br>802.11ac VHT160 : 11.65 dBm / 0.0146 W<br>802.11ax HE20 : 19.80 dBm / 0.0955 W<br>802.11ax HE40 : 19.25 dBm / 0.0841 W<br>802.11ax HE80 : 11.76 dBm / 0.0150 W<br>802.11ax HE160 : 11.78 dBm / 0.0151 W<br><b>&lt;5260 MHz ~ 5320 MHz&gt;</b><br>802.11a : 19.38 dBm / 0.0867 W<br>802.11n HT20 : 19.38 dBm / 0.0867 W<br>802.11n HT40 : 19.14 dBm / 0.0820 W<br>802.11ac VHT20 : 19.21 dBm / 0.0834 W<br>802.11ac VHT40 : 19.04 dBm / 0.0802 W<br>802.11ac VHT80 : 13.41 dBm / 0.0219 W<br>802.11ax HE20 : 19.44 dBm / 0.0879 W<br>802.11ax HE40 : 19.27 dBm / 0.0845 W<br>802.11ax HE80 : 13.51 dBm / 0.0224 W<br><b>&lt;5500 MHz ~ 5720 MHz &gt;</b><br>802.11a : 19.42 dBm / 0.0875 W<br>802.11n HT20 : 19.43 dBm / 0.0877 W |

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |               |               |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|---------------|
|                                     | 802.11n HT40 : 19.19 dBm / 0.0830 W<br>802.11ac VHT20 : 19.35 dBm / 0.0861 W<br>802.11ac VHT40 : 19.15 dBm / 0.0822 W<br>802.11ac VHT80 : 18.87 dBm / 0.0771 W<br>802.11ac VHT160 : 12.60 dBm / 0.0182 W<br>802.11ax HE20 : 19.54 dBm / 0.0899 W<br>802.11ax HE40 : 19.32 dBm / 0.0855 W<br>802.11ax HE80 : 19.02 dBm / 0.0798 W<br>802.11ax HE160 : 12.75 dBm / 0.0188 W                                                                                                                                                                                             |               |               |
| <b>99% Occupied Bandwidth</b>       | <b>&lt;MIMO Ant. 1+2&gt;</b><br><b>&lt;5180 MHz ~ 5240 MHz&gt;</b><br>802.11a : 17.782 MHz<br>802.11ax HE20 : 19.301 MHz<br>802.11ax HE40 : 37.882 MHz<br>802.11ax HE80 : 77.522 MHz<br>802.11ax HE160 : 157.922 MHz<br><b>&lt;5260 MHz ~ 5320 MHz&gt;</b><br>802.11a : 17.862 MHz<br>802.11ax HE20 : 19.381 MHz<br>802.11ax HE40 : 37.802 MHz<br>802.11ax HE80 : 77.522 MHz<br><b>&lt;5500 MHz ~ 5720 MHz &gt;</b><br>802.11a : 17.822 MHz<br>802.11ax HE20 : 19.341 MHz<br>802.11ax HE40 : 37.882 MHz<br>802.11ax HE80 : 77.682 MHz<br>802.11ax HE160 : 157.922 MHz |               |               |
| <b>Antenna Type / Gain</b>          | <b>&lt;5180 MHz ~ 5240 MHz&gt;</b><br><Ant. 1> : FPC Antenna with gain 4.40 dBi<br><Ant. 2> : FPC Antenna with gain 3.50 dBi<br><b>&lt;5260 MHz ~ 5320 MHz&gt;</b><br><Ant. 1> : FPC Antenna with gain 4.10 dBi<br><Ant. 2> : FPC Antenna with gain 4.20 dBi<br><b>&lt;5500 MHz ~ 5720 MHz&gt;</b><br><Ant. 1> : FPC Antenna with gain 4.70 dBi<br><Ant. 2> : FPC Antenna with gain 4.50 dBi                                                                                                                                                                          |               |               |
| <b>Type of Modulation</b>           | 802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)<br>802.11ac/ax : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM)                                                                                                                                                                                                                                                                                                                                                                                                                                                 |               |               |
| <b>Antenna Function Description</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <b>Ant. 1</b> | <b>Ant. 2</b> |
|                                     | 802.11 a/n/ac/ax MIMO                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | V             | V             |

**Note:**

1. For 802.11n/ac/ax mode, full test 802.11ax mode to cover 11n/ac mode by referring to their maximum output power.
2. The device does not support channel puncturing mode.
3. WIFI MIMO support CDD mode.
4. WIFI Ant. 1 / Ant. 2 corresponding to EUT Photo WIFI Right / Left Antenna.



## 1.4 Modification of EUT

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

## 1.5 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<br>Jiangsu Province 215300 People's Republic of China<br>TEL : +86-512-57900158<br>FAX : +86-512-57900958 |                     |                                |
| Test Site No.      | Sporton Site No.                                                                                                                                                         | FCC Designation No. | FCC Test Firm Registration No. |
|                    | CO01-KS<br>03CH07-KS<br>03CH06-KS<br>TH01-KS                                                                                                                             | CN1257              | 314309                         |

## 1.6 Test Software

| Item | Site      | Manufacturer | Name | Version       |
|------|-----------|--------------|------|---------------|
| 1.   | 03CH07-KS | AUDIX        | E3   | 6.2009-8-24al |
| 2.   | 03CH06-KS | AUDIX        | E3   | 6.2009-8-24al |
| 3.   | CO01-KS   | AUDIX        | E3   | 6.2009-8-24   |

## 1.7 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 (Z plane) were recorded in this report.
- b. AC power line Conducted Emission was tested under maximum output power.

### 2.1 Carrier Frequency and Channel

| Frequency Band                 | Channel          | Freq. (MHz) | Channel           | Freq. (MHz) |
|--------------------------------|------------------|-------------|-------------------|-------------|
| 5180-5240 MHz<br>U-NII-1       | 36               | 5180        | 44                | 5220        |
|                                | 38*              | 5190        | 46*               | 5230        |
|                                | 40               | 5200        | 48                | 5240        |
|                                | 42 <sup>#</sup>  | 5210        | 50 <sup>##</sup>  | 5250        |
| Frequency Band                 | Channel          | Freq. (MHz) | Channel           | Freq. (MHz) |
| 5260-5320 MHz<br>U-NII-2A      | 52               | 5260        | 60                | 5300        |
|                                | 54*              | 5270        | 62*               | 5310        |
|                                | 56               | 5280        | 64                | 5320        |
|                                | 58 <sup>#</sup>  | 5290        |                   |             |
| Frequency Band                 | Channel          | Freq. (MHz) | Channel           | Freq. (MHz) |
| 5500- 5720 MHz MHz<br>U-NII-2C | 100              | 5500        | 114 <sup>##</sup> | 5570        |
|                                | 102*             | 5510        | 116               | 5580        |
|                                | 104              | 5520        | 132               | 5660        |
|                                | 106 <sup>#</sup> | 5530        | 134*              | 5670        |
|                                | 108              | 5540        | 136               | 5680        |
|                                | 110*             | 5550        | 140               | 5700        |
|                                | 112              | 5560        |                   |             |



| Frequency Band | Channel          | Freq.<br>(MHz) | Channel | Freq.<br>(MHz) |
|----------------|------------------|----------------|---------|----------------|
| TDWR Channel   | 118*             | 5590           | 124     | 5620           |
|                | 120              | 5600           | 126*    | 5630           |
|                | 122 <sup>#</sup> | 5610           | 128     | 5640           |

| Frequency Band   | Channel          | Freq.<br>(MHz) | Channel | Freq.<br>(MHz) |
|------------------|------------------|----------------|---------|----------------|
| Straddle Channel | 138 <sup>#</sup> | 5690           | 144     | 5720           |
|                  | 142*             | 5710           |         |                |

**Note:**

1. The above Frequency and Channel in "\*" were 802.11n HT40/11ac VHT40/11ax HE40.
2. The above Frequency and Channel in "<sup>#</sup>" were 802.11ac VHT80/11axHE80.
3. The above Frequency and Channel in "####" were 802.11ac VHT160/11ax HE160.

## 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      |
| 802.11ax HE160 | MCS0      |

### RSE Co-location

|                                                                             |
|-----------------------------------------------------------------------------|
| Bluetooth LE 2Mbps CH39 TX + WLAN 5GHz 802.11a CH36 TX + nRF CH38 TX        |
| WLAN 2.4GHz 802.11ax HE20 CH11 TX + WLAN 5GHz 802.11a CH36 TX + nRF CH38 TX |

### Test Cases

| AC Conducted Emission | Test Cases                                                                   |
|-----------------------|------------------------------------------------------------------------------|
|                       | Mode 1 : Bluetooth Link + WLAN (5G) Link + USB Cable( Charging from Adaptor) |

### Remark:

1. For Radiated Test Cases, The tests were performance with Adapter, USB Cable
2. RSE Co-location modes are combination from the worst WLAN TX mode and nRF TX mode.

| Ch. #    |        | U-NII-1:5180-5240 MHz | U-NII-2A:5260-5320 MHz | U-NII-2C:5500- 5720 MHz |
|----------|--------|-----------------------|------------------------|-------------------------|
|          |        | 802.11a               | 802.11a                | 802.11a                 |
| L        | Low    | 36                    | 52                     | 100                     |
| M        | Middle | 44                    | 60                     | 116                     |
| H        | High   | 48                    | 64                     | 140                     |
| Straddle |        | -                     | -                      | 144                     |

| Ch. #    |        | U-NII-1:5180-5240 MHz | U-NII-2A:5260-5320 MHz | U-NII-2C:5500- 5720 MHz |
|----------|--------|-----------------------|------------------------|-------------------------|
|          |        | 802.11ac VHT20        | 802.11ac VHT20         | 802.11ac VHT20          |
| L        | Low    | 36                    | 52                     | 100                     |
| M        | Middle | 44                    | 60                     | 116                     |
| H        | High   | 48                    | 64                     | 140                     |
| Straddle |        | -                     | -                      | 144                     |

| Ch. #    |        | U-NII-1:5180-5240 MHz | U-NII-2A:5260-5320 MHz | U-NII-2C:5500- 5720 MHz |
|----------|--------|-----------------------|------------------------|-------------------------|
|          |        | 802.11ac VHT40        | 802.11ac VHT40         | 802.11ac VHT40          |
| L        | Low    | 38                    | 54                     | 102                     |
| M        | Middle | -                     | -                      | 110                     |
| H        | High   | 46                    | 62                     | 134                     |
| Straddle |        | -                     | -                      | 142                     |

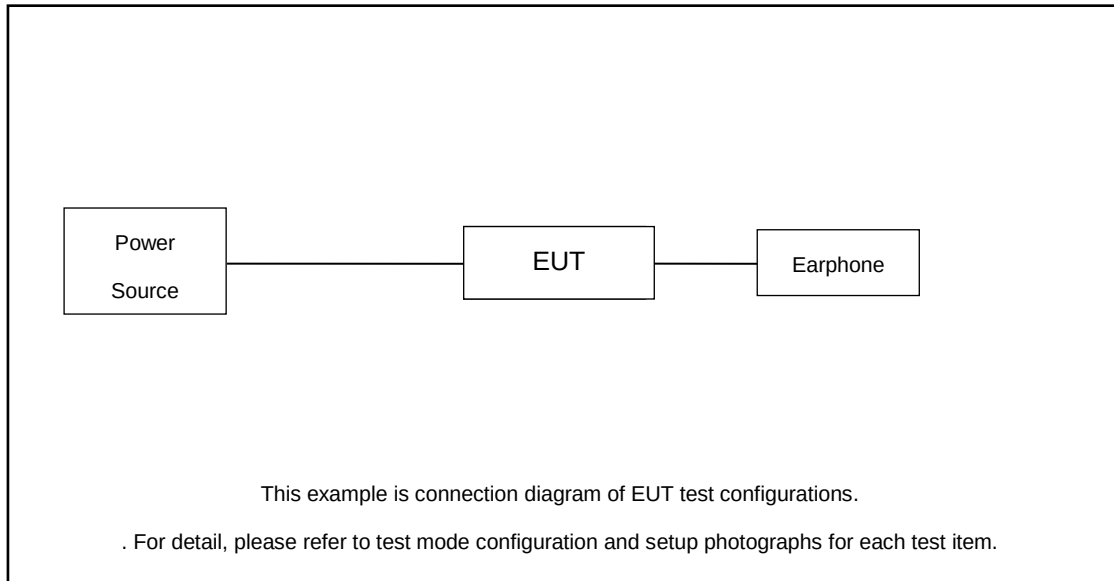
| Ch. #    |        | U-NII-1:5180-5240 MHz | U-NII-2A:5260-5320 MHz | U-NII-2C:5500- 5720 MHz |
|----------|--------|-----------------------|------------------------|-------------------------|
|          |        | 802.11ac VHT80        | 802.11ac VHT80         | 802.11ac VHT80          |
| L        | Low    | -                     | -                      | 106                     |
| M        | Middle | 42                    | 58                     | -                       |
| H        | High   | -                     | -                      | 122                     |
| Straddle |        | -                     | -                      | 138                     |

| Ch. # |        | U-NII-1:5180-5240 MHz | U-NII-2A:5260-5320 MHz | U-NII-2C:5500- 5720 MHz |
|-------|--------|-----------------------|------------------------|-------------------------|
|       |        | 802.11ac VHT160       |                        | 802.11ac VHT160         |
| L     | Low    | -                     | -                      | -                       |
| M     | Middle | 50                    |                        | 114                     |
| H     | High   | -                     | -                      | -                       |

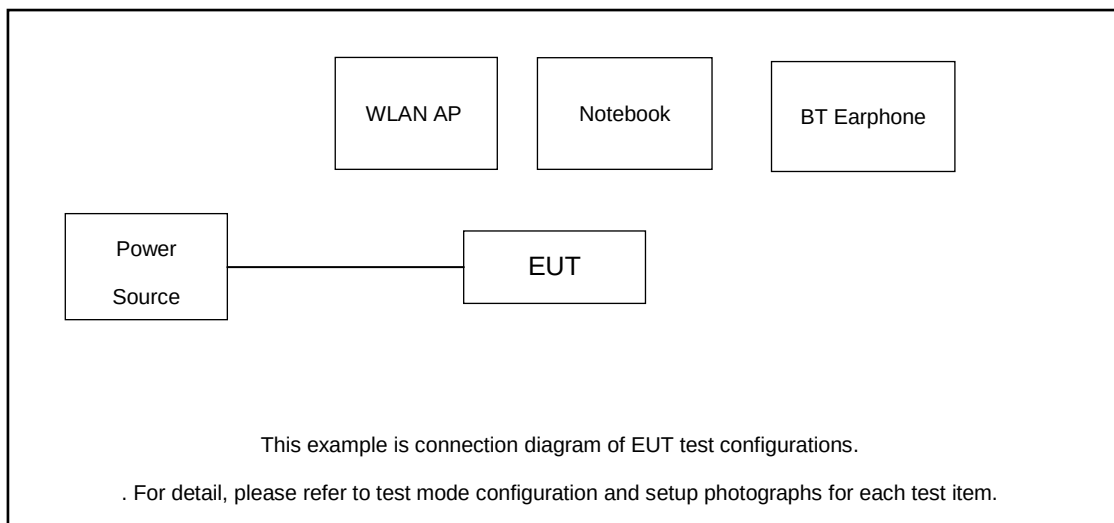
**Note:** 802.11ax supports the same channel as 802.11ac.

## 2.3 Connection Diagram of Test System

For Radiated Emission



For AC Conducted Emission



## 2.4 Support Unit used in test configuration and system

| Item | Equipment          | Trade Name | Model Name    | FCC ID     | Data Cable | Power Cord                                                 |
|------|--------------------|------------|---------------|------------|------------|------------------------------------------------------------|
| 1.   | WLAN AP            | D-link     | DIR-655       | KA21R655B1 | N/A        | Unshielded,1.8m                                            |
| 2.   | Bluetooth Earphone | Lenovo     | LBH308        | N/A        | N/A        | N/A                                                        |
| 3.   | Notebook           | Lenovo     | V130-15IKB005 | N/A        | N/A        | AC I/P:<br>Unshielded, 1.8 m<br>DC O/P:<br>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 continuous transmit.

For AC power line conducted emissions, the EUT was set to connect with the WLAN AP under large package sizes transmission.

## 2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example :

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

*Offset = RF cable loss + attenuator factor.*

Following shows an offset computation example with cable loss 6.7 dB and 10dB attenuator.

$$\begin{aligned}\text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)} \\ &= 6.7 + 10 = 16.7(\text{dB})\end{aligned}$$

### 3 Test Result

#### 3.1 26dB & 99% Occupied Bandwidth Measurement

##### 3.1.1 Description of 26dB & 99% Occupied Bandwidth

This section is for reporting purpose only.

There is no restriction limits for bandwidth.

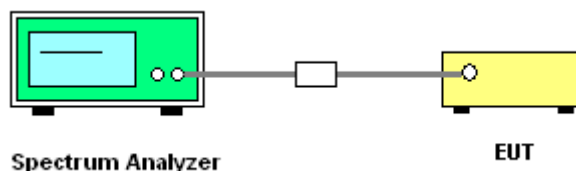
##### 3.1.2 Measuring Instruments

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) Emission bandwidth
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > RBW.
4. Detector = Peak.
5. Trace mode = max hold
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
7. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1% to 5% of the OBW and set the Video bandwidth (VBW)  $\geq 3 * RBW$ .
8. Measure and record the results in the test report.

##### 3.1.4 Test Setup



##### 3.1.5 Test Result of 26dB & 99% Occupied Bandwidth

Please refer to Appendix A.



## **3.2 Maximum Conducted Output Power Measurement**

### **3.2.1 Limit of Maximum Conducted Output Power**

#### **<FCC 14-30 CFR 15.407>**

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

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 Straddle Channel, According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, If the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

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

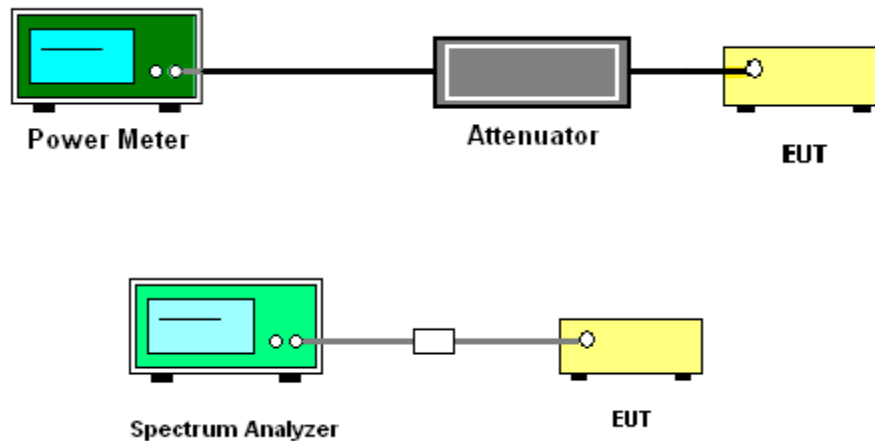
The testing follows Method PM of FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

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.

For Straddle Channel, According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, If the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

### 3.2.4 Test Setup





## 3.2.5 Test Result of Maximum Conducted Output Power

| 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 1                                          | Ant 2 | SUM   | Ant 1                           | Ant 2 | Ant 1    | Ant 2 |           |
| 11a              | 6Mbps     | 2   | 36  | 5180        | 16.73                                          | 16.26 | 19.51 | 30.00                           |       | 4.40     |       | Pass      |
| 11a              | 6Mbps     | 2   | 44  | 5220        | 16.59                                          | 16.15 | 19.39 | 30.00                           |       | 4.40     |       | Pass      |
| 11a              | 6Mbps     | 2   | 48  | 5240        | 16.67                                          | 16.23 | 19.47 | 30.00                           |       | 4.40     |       | Pass      |
| HT20             | MCS0      | 2   | 36  | 5180        | 14.34                                          | 13.83 | 17.10 | 30.00                           |       | 4.40     |       | Pass      |
| HT20             | MCS0      | 2   | 44  | 5220        | 16.38                                          | 16.04 | 19.22 | 30.00                           |       | 4.40     |       | Pass      |
| HT20             | MCS0      | 2   | 48  | 5240        | 16.22                                          | 16.07 | 19.16 | 30.00                           |       | 4.40     |       | Pass      |
| HT40             | MCS0      | 2   | 38  | 5190        | 9.40                                           | 9.44  | 12.43 | 30.00                           |       | 4.40     |       | Pass      |
| HT40             | MCS0      | 2   | 46  | 5230        | 16.19                                          | 15.88 | 19.05 | 30.00                           |       | 4.40     |       | Pass      |
| VHT20            | MCS0      | 2   | 36  | 5180        | 14.50                                          | 13.89 | 17.21 | 30.00                           |       | 4.40     |       | Pass      |
| VHT20            | MCS0      | 2   | 44  | 5220        | 16.59                                          | 16.33 | 19.47 | 30.00                           |       | 4.40     |       | Pass      |
| VHT20            | MCS0      | 2   | 48  | 5240        | 16.36                                          | 16.22 | 19.30 | 30.00                           |       | 4.40     |       | Pass      |
| VHT40            | MCS0      | 2   | 38  | 5190        | 9.47                                           | 9.46  | 12.47 | 30.00                           |       | 4.40     |       | Pass      |
| VHT40            | MCS0      | 2   | 46  | 5230        | 16.32                                          | 15.91 | 19.13 | 30.00                           |       | 4.40     |       | Pass      |
| VHT80            | MCS0      | 2   | 42  | 5210        | 8.52                                           | 8.69  | 11.62 | 30.00                           |       | 4.40     |       | Pass      |
| VHT160           | MCS0      | 2   | 50  | 5250        | 8.53                                           | 8.74  | 11.65 | 30.00                           |       | 4.40     |       | Pass      |

| 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 1                                          | Ant 2 | SUM   | Ant 1                           | Ant 2 | Ant 1    | Ant 2 |           |
| HE20             | MCS0      | 2   | 36  | 5180        | Full       | 14.57                                          | 14.04 | 17.32 | 30.00                           |       | 4.40     |       | Pass      |
| HE20             | MCS0      | 2   | 36  | 5180        | 26/0       | 10.82                                          | 9.98  | 13.43 | 30.00                           |       | 4.40     |       | Pass      |
| HE20             | MCS0      | 2   | 36  | 5180        | 52/37      | 13.58                                          | 12.76 | 16.20 | 30.00                           |       | 4.40     |       | Pass      |
| HE20             | MCS0      | 2   | 36  | 5180        | 106/53     | 16.83                                          | 16.08 | 19.48 | 30.00                           |       | 4.40     |       | Pass      |
| HE20             | MCS0      | 2   | 44  | 5220        | Full       | 16.94                                          | 16.63 | 19.80 | 30.00                           |       | 4.40     |       | Pass      |
| HE20             | MCS0      | 2   | 44  | 5220        | 26/0       | 10.48                                          | 9.96  | 13.24 | 30.00                           |       | 4.40     |       | Pass      |
| HE20             | MCS0      | 2   | 44  | 5220        | 52/37      | 13.64                                          | 12.95 | 16.32 | 30.00                           |       | 4.40     |       | Pass      |
| HE20             | MCS0      | 2   | 44  | 5220        | 106/53     | 16.88                                          | 16.11 | 19.52 | 30.00                           |       | 4.40     |       | Pass      |
| HE20             | MCS0      | 2   | 48  | 5240        | Full       | 16.76                                          | 16.68 | 19.73 | 30.00                           |       | 4.40     |       | Pass      |
| HE20             | MCS0      | 2   | 48  | 5240        | 26/8       | 8.61                                           | 8.57  | 11.60 | 30.00                           |       | 4.40     |       | Pass      |
| HE20             | MCS0      | 2   | 48  | 5240        | 52/40      | 12.76                                          | 11.91 | 15.36 | 30.00                           |       | 4.40     |       | Pass      |
| HE20             | MCS0      | 2   | 48  | 5240        | 106/54     | 15.92                                          | 15.08 | 18.53 | 30.00                           |       | 4.40     |       | Pass      |
| HE40             | MCS0      | 2   | 38  | 5190        | Full       | 9.58                                           | 9.57  | 12.58 | 30.00                           |       | 4.40     |       | Pass      |
| HE40             | MCS0      | 2   | 46  | 5230        | Full       | 16.50                                          | 15.98 | 19.25 | 30.00                           |       | 4.40     |       | Pass      |
| HE80             | MCS0      | 2   | 42  | 5210        | Full       | 8.70                                           | 8.79  | 11.76 | 30.00                           |       | 4.40     |       | Pass      |
| HE160            | MCS0      | 2   | 50  | 5250        | Full       | 8.58                                           | 8.95  | 11.78 | 30.00                           |       | 4.40     |       | Pass      |



| 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 1                                          | Ant 2 | SUM   | Ant 1                           | Ant 2 | Ant 1    | Ant 2 |                        |           |
| 11a               | 6Mbps     | 2   | 52  | 5260        | 16.68                                          | 16.04 | 19.38 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| 11a               | 6Mbps     | 2   | 60  | 5300        | 16.52                                          | 16.06 | 19.31 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| 11a               | 6Mbps     | 2   | 64  | 5320        | 15.51                                          | 15.05 | 18.30 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| HT20              | MCS0      | 2   | 52  | 5260        | 16.47                                          | 16.15 | 19.32 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| HT20              | MCS0      | 2   | 60  | 5300        | 16.57                                          | 16.16 | 19.38 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| HT20              | MCS0      | 2   | 64  | 5320        | 13.96                                          | 14.79 | 17.40 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| HT40              | MCS0      | 2   | 54  | 5270        | 16.27                                          | 15.99 | 19.14 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| HT40              | MCS0      | 2   | 62  | 5310        | 11.69                                          | 11.44 | 14.58 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| VHT20             | MCS0      | 2   | 52  | 5260        | 16.36                                          | 16.03 | 19.21 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| VHT20             | MCS0      | 2   | 60  | 5300        | 16.38                                          | 16.01 | 19.21 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| VHT20             | MCS0      | 2   | 64  | 5320        | 14.00                                          | 14.81 | 17.43 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| VHT40             | MCS0      | 2   | 54  | 5270        | 16.09                                          | 15.96 | 19.04 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| VHT40             | MCS0      | 2   | 62  | 5310        | 11.62                                          | 11.41 | 14.53 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| VHT80             | MCS0      | 2   | 58  | 5290        | 10.53                                          | 10.26 | 13.41 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |

| 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 1                                          | Ant 2 | SUM   | Ant 1                           | Ant 2 | Ant 1    | Ant 2 |                        |           |
| HE20              | MCS0      | 2   | 52  | 5260        | Full       | 16.54                                          | 16.23 | 19.40 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 52  | 5260        | 26/0       | 11.22                                          | 10.12 | 13.72 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 52  | 5260        | 52/37      | 13.47                                          | 12.60 | 16.06 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 52  | 5260        | 106/53     | 16.28                                          | 15.51 | 18.92 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 60  | 5300        | Full       | 16.60                                          | 16.25 | 19.44 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 60  | 5300        | 26/0       | 11.17                                          | 10.01 | 13.64 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 60  | 5300        | 52/37      | 13.52                                          | 12.66 | 16.12 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 60  | 5300        | 106/53     | 16.27                                          | 15.49 | 18.91 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 64  | 5320        | Full       | 14.20                                          | 15.14 | 17.70 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 64  | 5320        | 26/8       | 11.41                                          | 10.57 | 14.02 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 64  | 5320        | 52/40      | 13.61                                          | 12.60 | 16.14 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 64  | 5320        | 106/54     | 16.45                                          | 15.52 | 19.02 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| HE40              | MCS0      | 2   | 54  | 5270        | Full       | 16.41                                          | 16.12 | 19.27 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| HE40              | MCS0      | 2   | 62  | 5310        | Full       | 12.32                                          | 11.58 | 14.97 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| HE80              | MCS0      | 2   | 58  | 5290        | Full       | 10.64                                          | 10.35 | 13.51 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |
| HE160             | MCS0      | 2   | 50  | 5250        | Full       | 8.58                                           | 8.95  | 11.78 | 23.98                           |       | 4.20     |       | 26.99                  | Pass      |



| FCC U-NII-2C 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 1                                          | Ant 2 | SUM   | Ant 1                           | Ant 2 | Ant 1    | Ant 2 |                        |           |
| 11a               | 6Mbps     | 2   | 100 | 5500        | 16.58                                          | 16.23 | 19.42 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| 11a               | 6Mbps     | 2   | 116 | 5580        | 16.62                                          | 16.07 | 19.36 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| 11a               | 6Mbps     | 2   | 140 | 5700        | 15.43                                          | 15.12 | 18.29 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HT20              | MCS0      | 2   | 100 | 5500        | 16.64                                          | 16.20 | 19.43 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HT20              | MCS0      | 2   | 116 | 5580        | 16.54                                          | 16.25 | 19.41 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HT20              | MCS0      | 2   | 140 | 5700        | 14.51                                          | 14.29 | 17.41 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HT40              | MCS0      | 2   | 102 | 5510        | 12.83                                          | 12.49 | 15.67 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HT40              | MCS0      | 2   | 110 | 5550        | 16.24                                          | 16.11 | 19.19 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HT40              | MCS0      | 2   | 134 | 5670        | 16.07                                          | 16.03 | 19.06 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| VHT20             | MCS0      | 2   | 100 | 5500        | 16.37                                          | 16.19 | 19.29 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| VHT20             | MCS0      | 2   | 116 | 5580        | 16.53                                          | 16.10 | 19.33 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| VHT20             | MCS0      | 2   | 140 | 5700        | 14.52                                          | 14.21 | 17.38 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| VHT40             | MCS0      | 2   | 102 | 5510        | 12.58                                          | 12.49 | 15.54 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| VHT40             | MCS0      | 2   | 110 | 5550        | 16.16                                          | 16.04 | 19.11 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| VHT40             | MCS0      | 2   | 134 | 5670        | 16.20                                          | 16.07 | 19.15 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| VHT80             | MCS0      | 2   | 106 | 5530        | 9.61                                           | 8.89  | 12.28 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| VHT80             | MCS0      | 2   | 122 | 5610        | 16.19                                          | 15.50 | 18.87 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| VHT160            | MCS0      | 2   | 114 | 5570        | 9.77                                           | 9.39  | 12.60 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |

| FCC U-NII-2C straddle channel 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 1                                          | Ant 2 | SUM   | Ant 1                           | Ant 2 | Ant 1    | Ant 2 |                        |           |
| 11a                                | 6Mbps     | 2   | 144 | 5720        | 16.58                                          | 16.12 | 19.37 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HT20                               | MCS0      | 2   | 144 | 5720        | 16.45                                          | 16.17 | 19.32 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HT40                               | MCS0      | 2   | 142 | 5710        | 16.14                                          | 15.96 | 19.06 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| VHT20                              | MCS0      | 2   | 144 | 5720        | 16.59                                          | 16.09 | 19.35 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| VHT40                              | MCS0      | 2   | 142 | 5710        | 16.17                                          | 16.12 | 19.15 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| VHT80                              | MCS0      | 2   | 138 | 5690        | 16.07                                          | 15.46 | 18.79 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |



| 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 1                                          | Ant 2 | SUM   | Ant 1                           | Ant 2 | Ant 1    | Ant 2 |                        |           |
| HE20              | MCS0      | 2   | 100 | 5500        | Full       | 16.68                                          | 16.37 | 19.54 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 100 | 5500        | 26/0       | 9.62                                           | 8.62  | 12.16 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 100 | 5500        | 52/37      | 13.41                                          | 12.50 | 15.99 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 100 | 5500        | 106/53     | 15.83                                          | 15.12 | 18.50 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 116 | 5580        | Full       | 16.58                                          | 16.34 | 19.47 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 116 | 5580        | 26/0       | 9.71                                           | 9.00  | 12.38 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 116 | 5580        | 52/37      | 13.13                                          | 12.35 | 15.76 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 116 | 5580        | 106/53     | 16.01                                          | 15.12 | 18.60 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 140 | 5700        | Full       | 14.74                                          | 14.40 | 17.58 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 140 | 5700        | 26/8       | 9.65                                           | 8.67  | 12.20 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 140 | 5700        | 52/40      | 13.31                                          | 12.51 | 15.94 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE20              | MCS0      | 2   | 140 | 5700        | 106/54     | 15.90                                          | 15.33 | 18.63 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE40              | MCS0      | 2   | 102 | 5510        | Full       | 12.95                                          | 12.61 | 15.79 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE40              | MCS0      | 2   | 110 | 5550        | Full       | 16.26                                          | 16.17 | 19.22 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE40              | MCS0      | 2   | 134 | 5670        | Full       | 16.37                                          | 16.26 | 19.32 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE80              | MCS0      | 2   | 106 | 5530        | Full       | 9.71                                           | 8.89  | 12.33 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE80              | MCS0      | 2   | 122 | 5610        | Full       | 16.36                                          | 15.54 | 18.98 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE160             | MCS0      | 2   | 114 | 5570        | Full       | 9.91                                           | 9.57  | 12.75 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |

FCC U-NII-2C straddle channel 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 1                                          | Ant 2 | SUM   | Ant 1                           | Ant 2 | Ant 1    | Ant 2 |                        |           |
| HE20 | MCS0      | 2   | 144 | 5720        | Full       | 16.76                                          | 16.30 | 19.54 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE20 | MCS0      | 2   | 144 | 5720        | 26/8       | 9.87                                           | 8.02  | 12.06 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE20 | MCS0      | 2   | 144 | 5720        | 52/40      | 13.22                                          | 12.34 | 15.81 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE20 | MCS0      | 2   | 144 | 5720        | 106/54     | 16.02                                          | 15.14 | 18.61 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE40 | MCS0      | 2   | 142 | 5710        | Full       | 16.34                                          | 16.19 | 19.27 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |
| HE80 | MCS0      | 2   | 138 | 5690        | Full       | 16.40                                          | 15.57 | 19.02 | 23.98                           |       | 4.70     |       | 26.99                  | Pass      |

### 3.3 Power Spectral Density Measurement

#### 3.3.1 Limit of Power Spectral Density

**<FCC 14-30 CFR 15.407>**

For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm 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 Straddle Channel, According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, If the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

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.

**# 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.

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 (a): Measure and sum the spectra across the outputs.

The total final Power Spectral Density is the bin-by-bin summation to obtain the combined spectrum. For the device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.

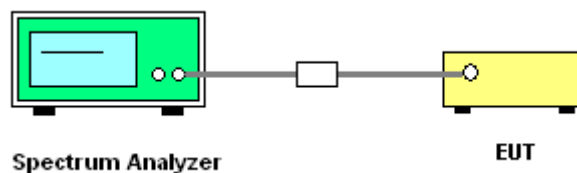
Method (b): Measure and sum spectral maxima across the outputs.

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.

Method (c): Measure and add  $10 \log(N_{\text{ANT}})$  dB, where  $N_{\text{ANT}}$  is the number of outputs.

The measurement on each individual output were performed with the same span and number on each individual output. The quantity  $10 \log(N_{\text{ANT}})$  dB is added to each spectrum value before comparing to the emission limit.

### 3.3.4 Test Setup



### 3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

### 3.4 Unwanted Emissions Measurement

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

#### 3.4.1 Limit of Unwanted Emissions

- (1) 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 5470-5725 MHz band: all emissions outside of the 5470-5725 MHz band shall not exceed an EIRP of -27 dBm/MHz.

- (2) Unwanted spurious emissions fallen in restricted bands shall comply with the general field strength limits as below table,

| Frequency<br>(MHz) | Field Strength<br>(microvolts/meter) | Measurement Distance<br>(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                                |

| EIRP (dBm) | Field Strength at 3m (dB $\mu$ V/m) |
|------------|-------------------------------------|
| - 27       | 68.3                                |

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

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

where

EIRP is the equivalent isotropically radiated power, in dBm

$E_{\text{Meas}}$  is the field strength of the emission at the measurement distance, in dB $\mu$ V/m

$d_{\text{Meas}}$  is the measurement distance, in m

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

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

### 3.4.2 Measuring Instruments

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

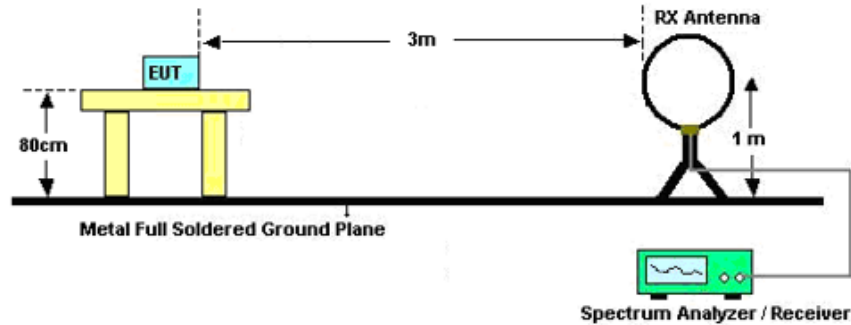


### 3.4.3 Test Procedures

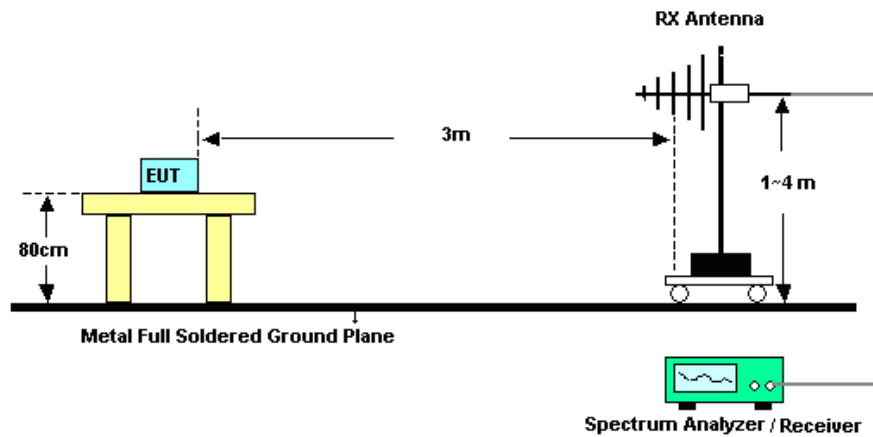
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.  
Section G) Unwanted emissions measurement.  
  - (1) Procedure for Unwanted Emissions Measurements Below 1000MHz
    - RBW = 120 kHz
    - VBW = 300 kHz
    - Detector = Peak
    - Trace mode = max hold
  - (2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
    - RBW = 1 MHz
    - VBW  $\geq$  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 and is transmitting at its maximum power control level for the tested mode of operation.
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than peak limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

### 3.4.4 Test Setup

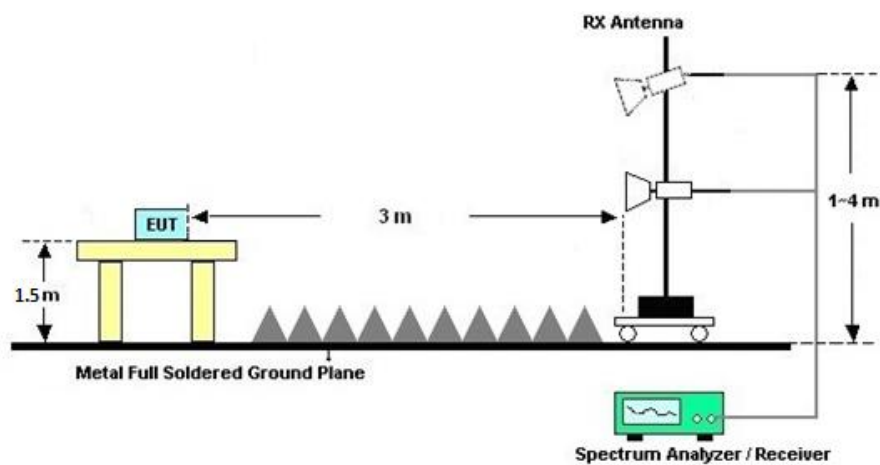
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



**3.4.5 Test Results of Radiated 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 or 40GHz, whichever is lower)**

Please refer to Appendix C.

### 3.5 AC Conducted Emission Measurement

#### 3.5.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

| Frequency of emission (MHz) | Conducted limit (dB $\mu$ V) |           |
|-----------------------------|------------------------------|-----------|
|                             | 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.

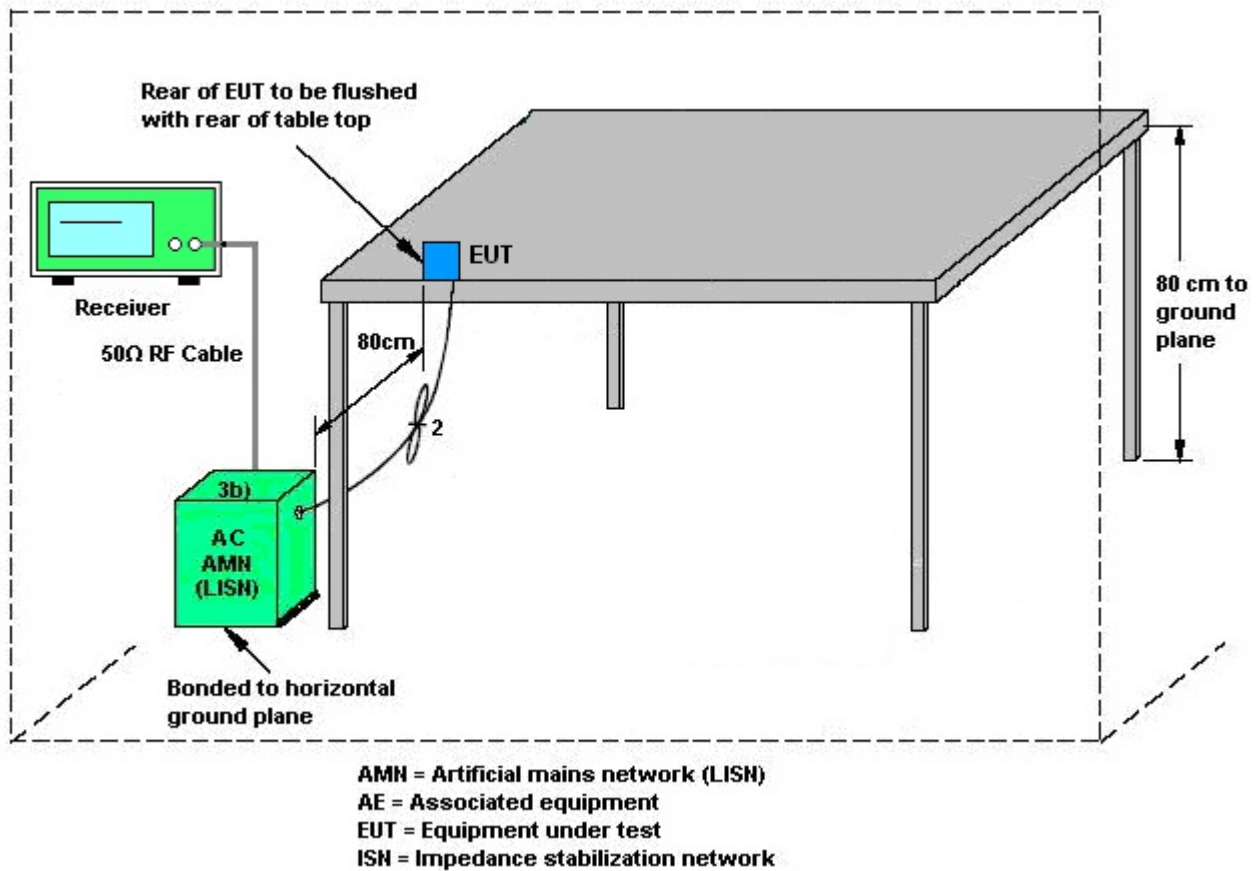
#### 3.5.2 Measuring Instruments

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

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

<CDD Modes >

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

For CDD transmissions, directional gain is calculated as

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

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

Array Gain =  $10 \log(\text{NANT}/\text{NSS}=1)$  dB.

For power measurements on IEEE 802.11 devices,

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

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

The EUT supports CDD mode.

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

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

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

The directional gain "DG" is calculated as following table.

| <CDD Modes> |        |        |              |            |                       |                     |
|-------------|--------|--------|--------------|------------|-----------------------|---------------------|
|             | Ant. 1 | Ant. 2 | DG for Power | DG for PSD | Power Limit Reduction | PSD Limit Reduction |
|             | (dBi)  | (dBi)  | (dBi)        | (dBi)      | (dB)                  | (dB)                |
| Band I      | 4.40   | 3.50   | 4.40         | 6.97       | 0.00                  | 0.97                |
| Band II     | 4.10   | 4.20   | 4.20         | 7.16       | 0.00                  | 1.16                |
| Band III    | 4.70   | 4.50   | 4.70         | 7.61       | 0.00                  | 1.61                |



## 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. 14, 2021    | Mar. 04, 2022~<br>Jun. 22, 2022 | Oct. 13, 2022 | Conducted (TH01-KS)   |
| Pulse Power Sensor        | Anritsu      | MA2411B                    | 0917070          | 300MHz~40GHz         | Jan. 05, 2022    | Mar. 04, 2022~<br>Jun. 22, 2022 | Jan. 04, 2023 | Conducted (TH01-KS)   |
| Power Meter               | Anritsu      | ML2495A                    | 1005002          | 50MHz Bandwidth      | Jan. 05, 2022    | Mar. 04, 2022~<br>Jun. 22, 2022 | Jan. 04, 2023 | Conducted (TH01-KS)   |
| EMI Test Receiver         | R&S          | ESR7                       | 101403           | 9kHz~7GHz;Max 30dBm  | Oct. 16, 2021    | Jun. 16, 2022                   | Oct. 15, 2022 | Radiation (03CH07-KS) |
| EXA Spectrum Analyzer     | Keysight     | N9010A                     | MY55370528       | 10Hz~44G,MAX 30dB    | Oct. 16, 2021    | Jun. 16, 2022                   | Oct. 15, 2022 | Radiation (03CH07-KS) |
| Loop Antenna              | R&S          | HFH2-Z2                    | 100321           | 9kHz~30MHz           | Oct. 30, 2021    | Jun. 16, 2022                   | Oct. 29, 2022 | Radiation (03CH07-KS) |
| Bilog Antenna             | TeseQ        | CBL6111D                   | 44483            | 30MHz~1GHz           | Dec. 22, 2021    | Jun. 16, 2022                   | Dec. 21, 2022 | Radiation (03CH07-KS) |
| Double Ridge Horn Antenna | ETS-Lindgren | 3117                       | 75957            | 1GHz~18GHz           | Oct. 30, 2021    | Jun. 16, 2022                   | Oct. 29, 2022 | Radiation (03CH07-KS) |
| high gain Amplifier       | MITEQ        | AMF-7D-0010<br>1800-30-10P | 2025788          | 1Ghz-18Ghz           | Jul. 30, 2021    | Jun. 16, 2022                   | Jul. 29, 2023 | Radiation (03CH07-KS) |
| SHF-EHF Horn              | Com-power    | AH-840                     | 101070           | 18GHz~40GHz          | Jan. 05, 2022    | Jun. 16, 2022                   | Jan. 04, 2023 | Radiation (03CH07-KS) |
| Amplifier                 | SONOMA       | 310N                       | 413740           | 9KHz-1GHz            | Jan. 05, 2022    | Jun. 16, 2022                   | Jan. 04, 2023 | Radiation (03CH07-KS) |
| Amplifier                 | Keysight     | 83017A                     | MY53270316       | 500MHz~26.5GHz       | Oct. 16, 2021    | Jun. 16, 2022                   | Oct. 15, 2022 | Radiation (03CH07-KS) |
| Amplifier                 | MITEQ        | EM18G40GG<br>A             | 060728           | 18~40GHz             | Jan. 05, 2022    | Jun. 16, 2022                   | Jan. 04, 2023 | Radiation (03CH07-KS) |
| AC Power Source           | Chroma       | 61601                      | 616010002<br>473 | N/A                  | NCR              | Jun. 16, 2022                   | NCR           | Radiation (03CH07-KS) |
| Turn Table                | MF           | MF7802                     | N/A              | 0~360 degree         | NCR              | Jun. 16, 2022                   | NCR           | Radiation (03CH07-KS) |
| Antenna Mast              | MF           | MF7802                     | N/A              | 1 m~4 m              | NCR              | Jun. 16, 2022                   | NCR           | Radiation (03CH07-KS) |
| EMI Test Receiver         | Keysight     | N9038A                     | MY56400004       | 3Hz~8.5GHz;Max 30dBm | Oct. 16, 2021    | Jun. 16, 2022                   | Oct. 15, 2022 | Radiation (03CH06-KS) |
| EXA Spectrum Analyzer     | Keysight     | N9010B                     | MY60242126       | 10Hz~44GHz           | Oct. 26, 2021    | Jun. 16, 2022                   | Oct. 25, 2022 | Radiation (03CH06-KS) |
| Loop Antenna              | R&S          | HFH2-Z2                    | 100321           | 9kHz~30MHz           | Oct. 30, 2021    | Jun. 16, 2022                   | Oct. 29, 2022 | Radiation (03CH06-KS) |
| Bilog Antenna             | TeseQ        | CBL6111D                   | 49921            | 30MHz~1GHz           | May 24, 2022     | Jun. 16, 2022                   | May 23, 2023  | Radiation (03CH06-KS) |
| Double Ridge Horn Antenna | ETS-Lindgren | 3117                       | 00240138         | 1GHz~18GHz           | Jul. 19, 2021    | Jun. 16, 2022                   | Jul. 18, 2022 | Radiation (03CH06-KS) |
| SHF-EHF Horn              | Com-power    | AH-840                     | 101093           | 18GHz~40GHz          | Jan. 05, 2022    | Jun. 16, 2022                   | Jan. 04, 2023 | Radiation (03CH06-KS) |
| Amplifier                 | SONOMA       | 310N                       | 380827           | 9KHz ~1GHZ           | Jul. 30, 2021    | Jun. 16, 2022                   | Jul. 29, 2022 | Radiation (03CH06-KS) |
| Amplifier                 | MITEQ        | EM18G40GG<br>A             | 060728           | 18~40GHz             | Jan. 05, 2022    | Jun. 16, 2022                   | Jan. 04, 2023 | Radiation (03CH06-KS) |
| high gain Amplifier       | MITEQ        | AMF-7D-0010<br>1800-30-10P | 2025788          | 1Ghz-18Ghz           | Jul. 30, 2021    | Jun. 16, 2022                   | Jul. 29, 2022 | Radiation (03CH06-KS) |
| Amplifier                 | Keysight     | 83017A                     | MY53270319       | 500MHz~26.5GHz       | Oct. 14, 2021    | Jun. 16, 2022                   | Oct. 13, 2022 | Radiation (03CH06-KS) |



|                                         |         |           |                  |                            |               |               |               |                          |
|-----------------------------------------|---------|-----------|------------------|----------------------------|---------------|---------------|---------------|--------------------------|
| AC Power Source                         | Chroma  | 61601     | F1040900<br>04   | N/A                        | NCR           | Jun. 16, 2022 | NCR           | Radiation<br>(03CH06-KS) |
| Turn Table                              | ChamPro | EM 1000-T | 060762-T         | 0~360 degree               | NCR           | Jun. 16, 2022 | NCR           | Radiation<br>(03CH06-KS) |
| Antenna Mast                            | ChamPro | EM 1000-A | 060762-A         | 1 m~4 m                    | NCR           | Jun. 16, 2022 | NCR           | Radiation<br>(03CH06-KS) |
| EMI Receiver                            | R&S     | ESCI7     | 100768           | 9kHz~7GHz;                 | Apr. 20, 2022 | Jun. 17, 2022 | Apr. 19, 2023 | Conduction<br>(CO01-KS)  |
| AC LISN<br>(for auxiliary<br>equipment) | MessTec | AN3016    | 060103           | 9kHz~30MHz                 | Oct. 14, 2021 | Jun. 17, 2022 | Oct. 13, 2022 | Conduction<br>(CO01-KS)  |
| AC LISN                                 | R&S     | ENV216    | 100334           | 9kHz~30MHz                 | Oct. 14, 2021 | Jun. 17, 2022 | Oct. 13, 2022 | Conduction<br>(CO01-KS)  |
| AC Power Source                         | Chroma  | 61602     | ABP00000<br>0811 | AC 0V~300V,<br>45Hz~1000Hz | Oct. 14, 2021 | Jun. 17, 2022 | Oct. 13, 2022 | Conduction<br>(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                  | 0.56 dB     |
| Conducted Emissions              | 0.92 dB     |
| Occupied Channel Bandwidth       | 0.03 MHz    |
| Conducted Power Spectral Density | 0.54 dB     |

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

|                                                                         |        |
|-------------------------------------------------------------------------|--------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 2.94dB |
|-------------------------------------------------------------------------|--------|

For 03CH07-KS

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

|                                                                         |       |
|-------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 5.0dB |
|-------------------------------------------------------------------------|-------|

### Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)

|                                                                         |       |
|-------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 5.0dB |
|-------------------------------------------------------------------------|-------|

### Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)

|                                                                         |       |
|-------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ ) | 5.0dB |
|-------------------------------------------------------------------------|-------|



For 03CH06-KS

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

|                                                                            |       |
|----------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a Level of Confidence<br>of 95% ( $U = 2Uc(y)$ ) | 5.0dB |
|----------------------------------------------------------------------------|-------|

**Uncertainty of Radiated Emission Measurement (1000 MHz ~ 18000 MHz)**

|                                                                            |       |
|----------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a Level of Confidence<br>of 95% ( $U = 2Uc(y)$ ) | 5.0dB |
|----------------------------------------------------------------------------|-------|

**Uncertainty of Radiated Emission Measurement (18000 MHz ~ 40000 MHz)**

|                                                                            |       |
|----------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a Level of Confidence<br>of 95% ( $U = 2Uc(y)$ ) | 5.0dB |
|----------------------------------------------------------------------------|-------|

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



## Appendix A. Conducted Test Results

|                 |           |                     |         |
|-----------------|-----------|---------------------|---------|
| Test Engineer : | Jiang Jun | Temperature :       | 21~25°C |
|                 |           | Relative Humidity : | 51~54%  |

### 26DB Emission Bandwidth

#### Test Result

| TestMode   | Antenna | Frequency[MHz] | 26db<br>EBW<br>[MHz] | FL[MHz] | FH[MHz] | Limit[MHz] | Verdict |
|------------|---------|----------------|----------------------|---------|---------|------------|---------|
| 11A-CDD    | Ant1    | 5180           | 21.16                | 5169.36 | 5190.52 | ---        | ---     |
|            | Ant2    | 5180           | 21.20                | 5169.40 | 5190.60 | ---        | ---     |
|            | Ant1    | 5220           | 21.20                | 5209.36 | 5230.56 | ---        | ---     |
|            | Ant2    | 5220           | 21.04                | 5209.48 | 5230.52 | ---        | ---     |
|            | Ant1    | 5240           | 21.04                | 5229.52 | 5250.56 | ---        | ---     |
|            | Ant2    | 5240           | 21.04                | 5229.52 | 5250.56 | ---        | ---     |
|            | Ant1    | 5260           | 21.08                | 5249.40 | 5270.48 | ---        | ---     |
|            | Ant2    | 5260           | 21.08                | 5249.48 | 5270.56 | ---        | ---     |
|            | Ant1    | 5300           | 20.96                | 5289.52 | 5310.48 | ---        | ---     |
|            | Ant2    | 5300           | 21.16                | 5289.40 | 5310.56 | ---        | ---     |
|            | Ant1    | 5320           | 21.16                | 5309.44 | 5330.60 | ---        | ---     |
|            | Ant2    | 5320           | 21.32                | 5309.36 | 5330.68 | ---        | ---     |
|            | Ant1    | 5500           | 21.16                | 5489.32 | 5510.48 | ---        | ---     |
|            | Ant2    | 5500           | 21.00                | 5489.52 | 5510.52 | ---        | ---     |
|            | Ant1    | 5580           | 21.20                | 5569.36 | 5590.56 | ---        | ---     |
|            | Ant2    | 5580           | 21.16                | 5569.44 | 5590.60 | ---        | ---     |
|            | Ant1    | 5700           | 21.08                | 5689.40 | 5710.48 | ---        | ---     |
|            | Ant2    | 5700           | 21.04                | 5689.48 | 5710.52 | ---        | ---     |
|            | Ant1    | 5720           | 21.16                | 5709.32 | 5730.48 | ---        | ---     |
|            | Ant2    | 5720           | 21.16                | 5709.32 | 5730.48 | ---        | ---     |
|            | Ant1    | 5720_UNII-2C   | 15.68                | 5709.32 | 5725    | ---        | ---     |
|            | Ant2    | 5720_UNII-2C   | 15.68                | 5709.32 | 5725    | ---        | ---     |
| 11AX20MIMO | Ant1    | 5180           | 21.68                | 5169.16 | 5190.84 | ---        | ---     |
|            | Ant2    | 5180           | 21.32                | 5169.32 | 5190.64 | ---        | ---     |
|            | Ant1    | 5220           | 21.72                | 5209.12 | 5230.84 | ---        | ---     |
|            | Ant2    | 5220           | 21.32                | 5209.28 | 5230.60 | ---        | ---     |
|            | Ant1    | 5240           | 21.40                | 5229.28 | 5250.68 | ---        | ---     |
|            | Ant2    | 5240           | 21.32                | 5229.24 | 5250.56 | ---        | ---     |



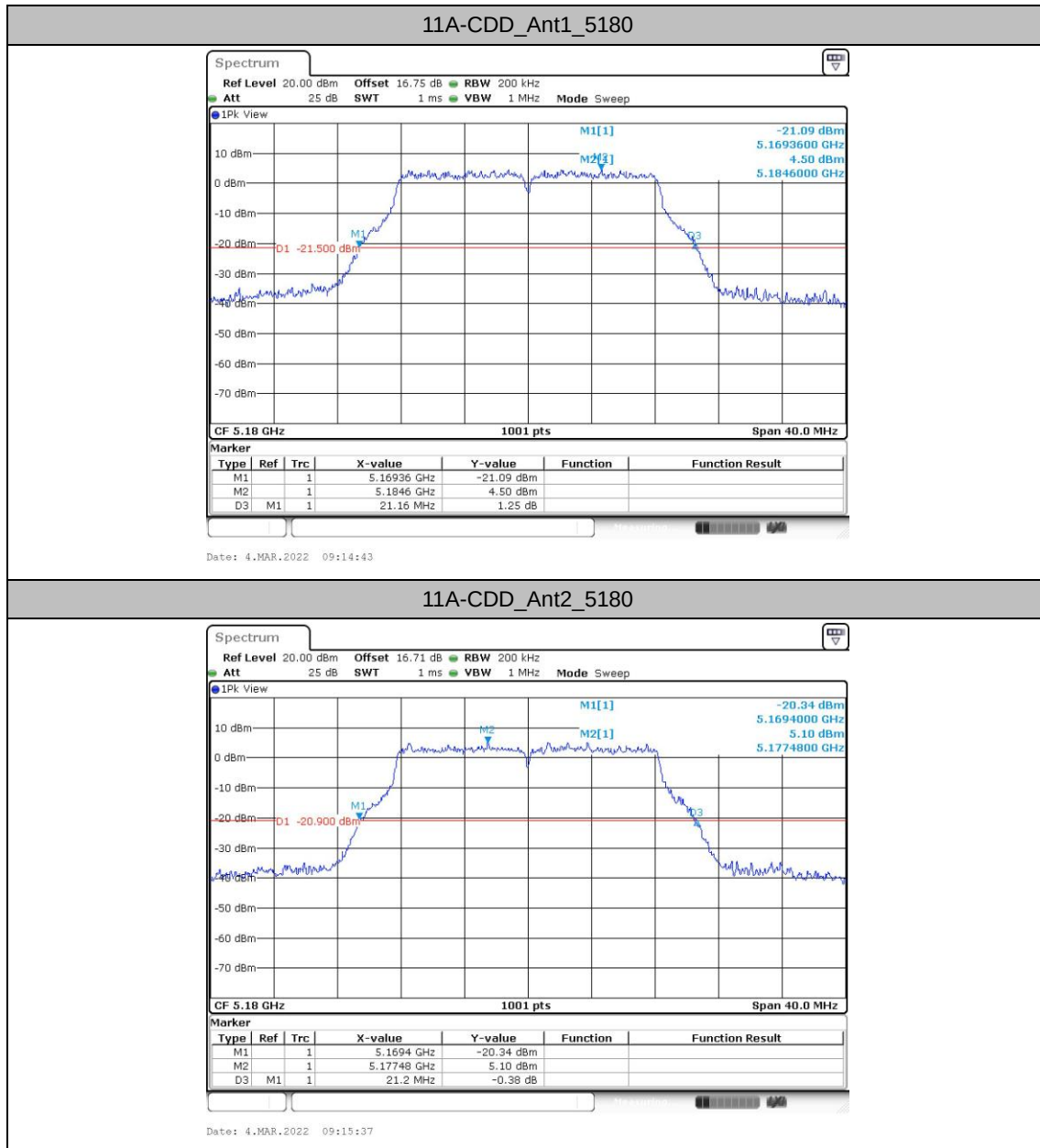
|            |      |              |       |         |         |     |     |
|------------|------|--------------|-------|---------|---------|-----|-----|
|            | Ant1 | 5260         | 21.56 | 5249.20 | 5270.76 | --- | --- |
|            | Ant2 | 5260         | 21.36 | 5249.28 | 5270.64 | --- | --- |
|            | Ant1 | 5300         | 21.44 | 5289.24 | 5310.68 | --- | --- |
|            | Ant2 | 5300         | 21.32 | 5289.36 | 5310.68 | --- | --- |
|            | Ant1 | 5320         | 21.40 | 5309.28 | 5330.68 | --- | --- |
|            | Ant2 | 5320         | 21.44 | 5309.28 | 5330.72 | --- | --- |
|            | Ant1 | 5500         | 21.16 | 5489.32 | 5510.48 | --- | --- |
|            | Ant2 | 5500         | 21.20 | 5489.32 | 5510.52 | --- | --- |
|            | Ant1 | 5580         | 21.20 | 5569.40 | 5590.60 | --- | --- |
|            | Ant2 | 5580         | 21.32 | 5569.32 | 5590.64 | --- | --- |
|            | Ant1 | 5700         | 21.64 | 5689.08 | 5710.72 | --- | --- |
|            | Ant2 | 5700         | 21.40 | 5689.32 | 5710.72 | --- | --- |
|            | Ant1 | 5720         | 21.48 | 5709.20 | 5730.68 | --- | --- |
|            | Ant2 | 5720         | 21.36 | 5709.24 | 5730.60 | --- | --- |
|            | Ant1 | 5720_UNII-2C | 15.8  | 5709.20 | 5725    | --- | --- |
|            | Ant2 | 5720_UNII-2C | 15.76 | 5709.24 | 5725    | --- | --- |
| 11AX40MIMO | Ant1 | 5190         | 40.16 | 5169.92 | 5210.08 | --- | --- |
|            | Ant2 | 5190         | 40.24 | 5169.92 | 5210.16 | --- | --- |
|            | Ant1 | 5230         | 40.40 | 5209.76 | 5250.16 | --- | --- |
|            | Ant2 | 5230         | 40.40 | 5209.76 | 5250.16 | --- | --- |
|            | Ant1 | 5270         | 40.48 | 5249.76 | 5290.24 | --- | --- |
|            | Ant2 | 5270         | 40.24 | 5249.92 | 5290.16 | --- | --- |
|            | Ant1 | 5310         | 40.48 | 5289.76 | 5330.24 | --- | --- |
|            | Ant2 | 5310         | 40.40 | 5289.76 | 5330.16 | --- | --- |
|            | Ant1 | 5510         | 40.40 | 5489.76 | 5530.16 | --- | --- |
|            | Ant2 | 5510         | 40.24 | 5489.84 | 5530.08 | --- | --- |
|            | Ant1 | 5550         | 40.32 | 5529.84 | 5570.16 | --- | --- |
|            | Ant2 | 5550         | 40.08 | 5530.00 | 5570.08 | --- | --- |
|            | Ant1 | 5670         | 40.40 | 5649.68 | 5690.08 | --- | --- |
|            | Ant2 | 5670         | 40.16 | 5650.00 | 5690.16 | --- | --- |
|            | Ant1 | 5710         | 40.48 | 5689.76 | 5730.24 | --- | --- |
|            | Ant2 | 5710         | 40.24 | 5689.92 | 5730.16 | --- | --- |
| 11AX80MIMO | Ant1 | 5210         | 81.60 | 5169.36 | 5250.96 | --- | --- |
|            | Ant2 | 5210         | 81.28 | 5169.52 | 5250.80 | --- | --- |
|            | Ant1 | 5290         | 82.08 | 5249.04 | 5331.12 | --- | --- |
|            | Ant2 | 5290         | 81.76 | 5249.20 | 5330.96 | --- | --- |
|            | Ant1 | 5530         | 82.24 | 5488.88 | 5571.12 | --- | --- |
|            | Ant2 | 5530         | 81.28 | 5489.36 | 5570.64 | --- | --- |
|            | Ant1 | 5610         | 81.92 | 5569.04 | 5650.96 | --- | --- |



|             |      |              |        |         |         |     |     |
|-------------|------|--------------|--------|---------|---------|-----|-----|
|             | Ant2 | 5610         | 81.44  | 5569.36 | 5650.80 | --- | --- |
|             | Ant1 | 5690         | 82.40  | 5648.56 | 5730.96 | --- | --- |
|             | Ant2 | 5690         | 81.76  | 5649.36 | 5731.12 | --- | --- |
|             | Ant1 | 5690_UNII-2C | 76.44  | 5648.56 | 5725    | --- | --- |
|             | Ant2 | 5690_UNII-2C | 75.64  | 5649.36 | 5725    | --- | --- |
| 11AX160MIMO | Ant1 | 5250         | 165.12 | 5167.76 | 5332.88 | --- | --- |
|             | Ant2 | 5250         | 165.12 | 5168.08 | 5333.20 | --- | --- |
|             | Ant1 | 5570         | 165.76 | 5487.12 | 5652.88 | --- | --- |
|             | Ant2 | 5570         | 165.12 | 5487.76 | 5652.88 | --- | --- |

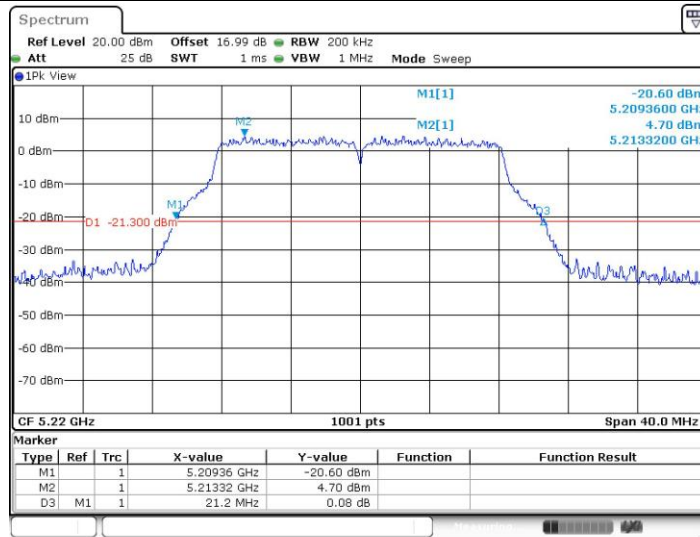


## Test Graphs

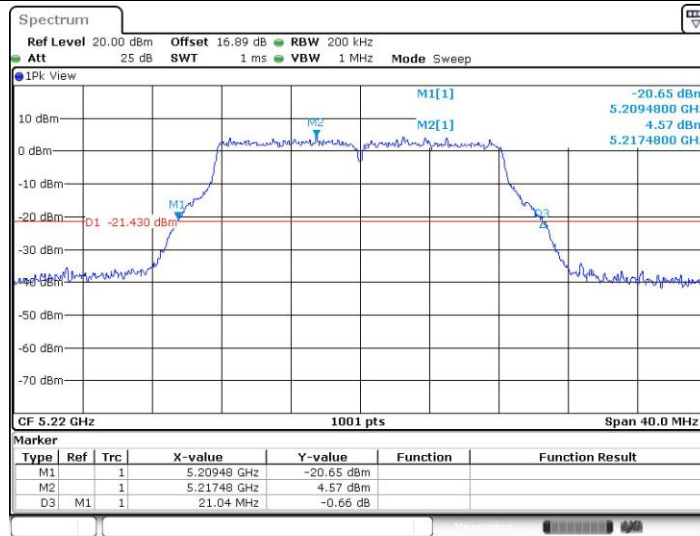


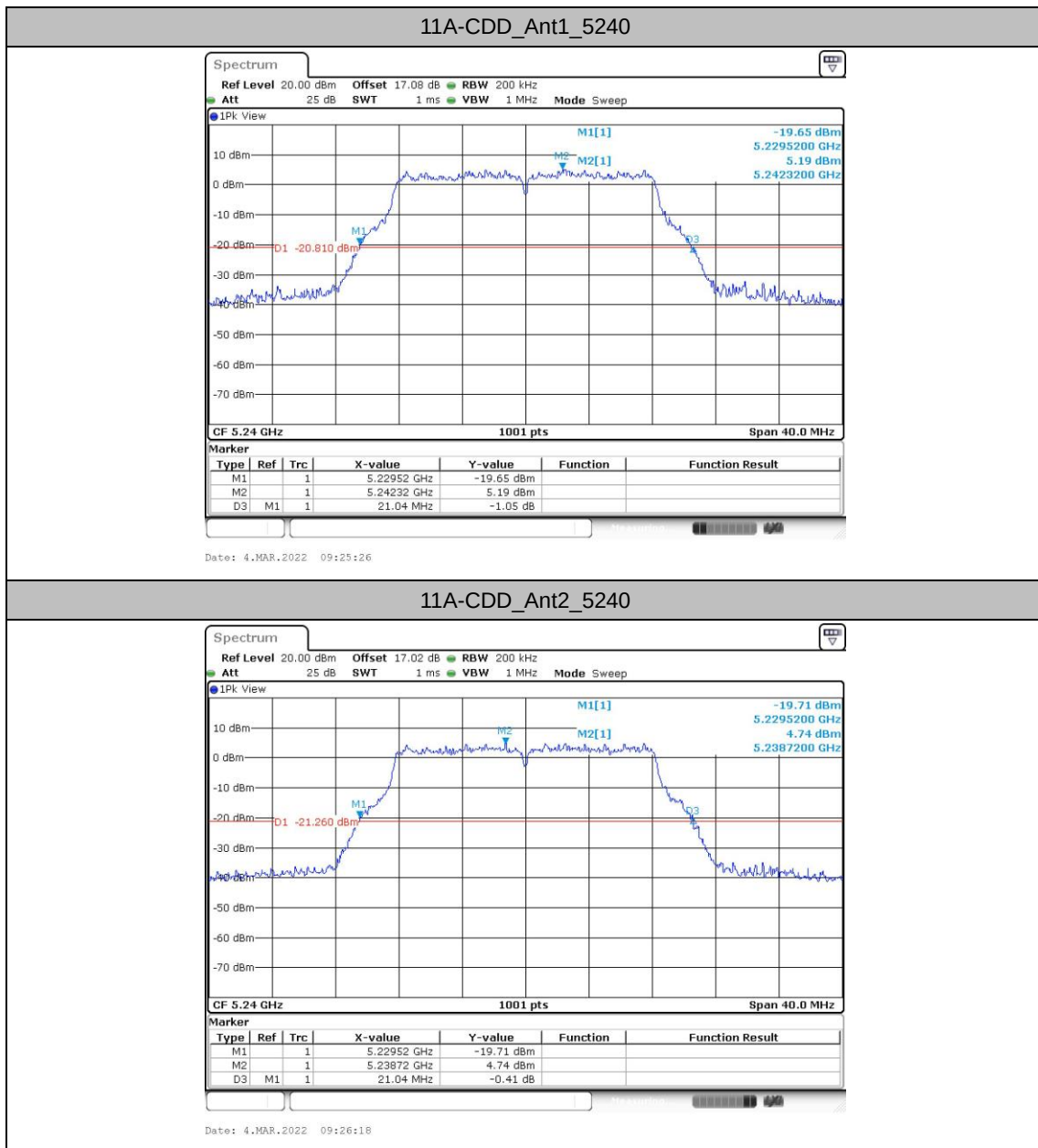


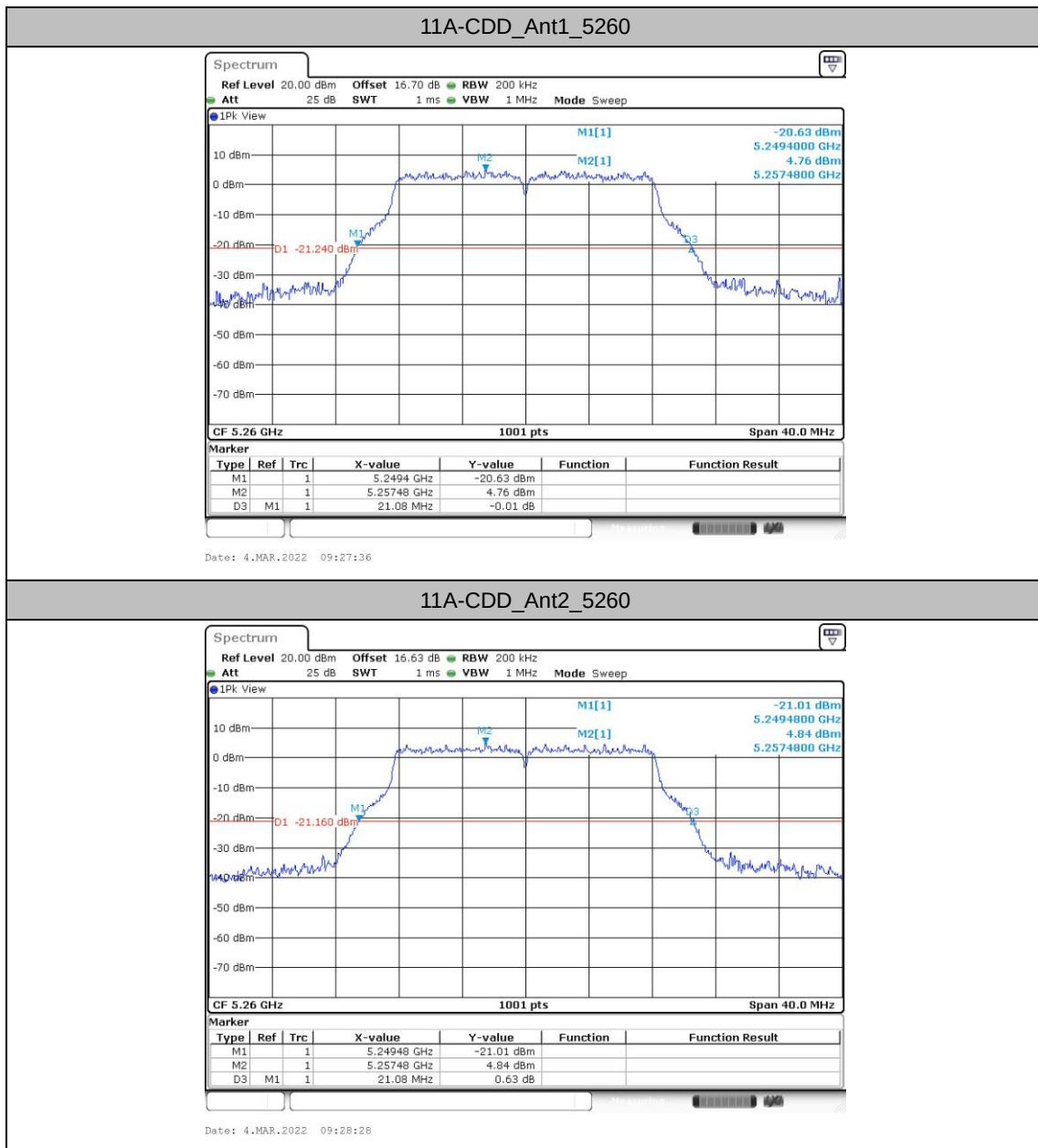
## 11A-CDD\_Ant1\_5220

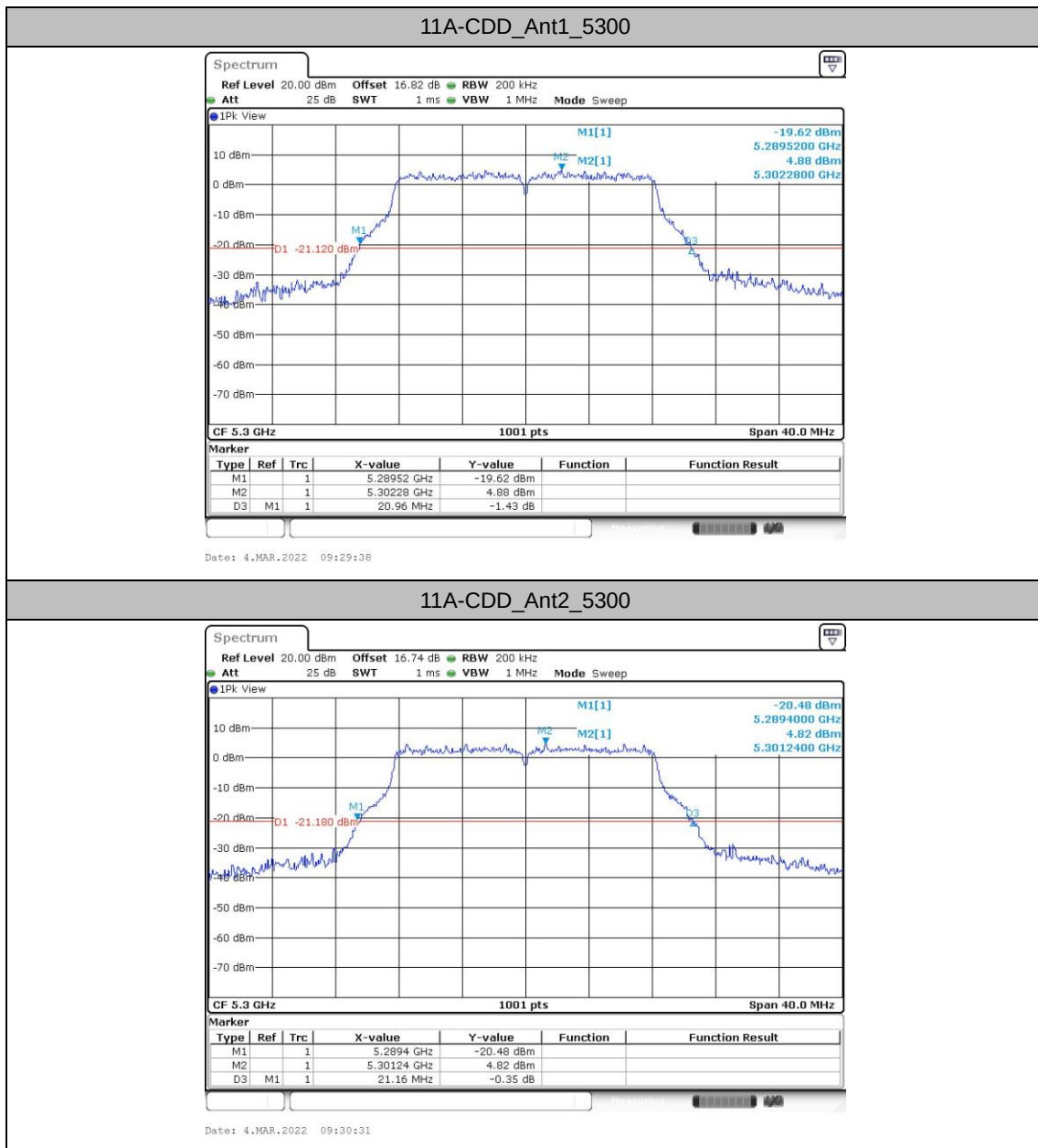


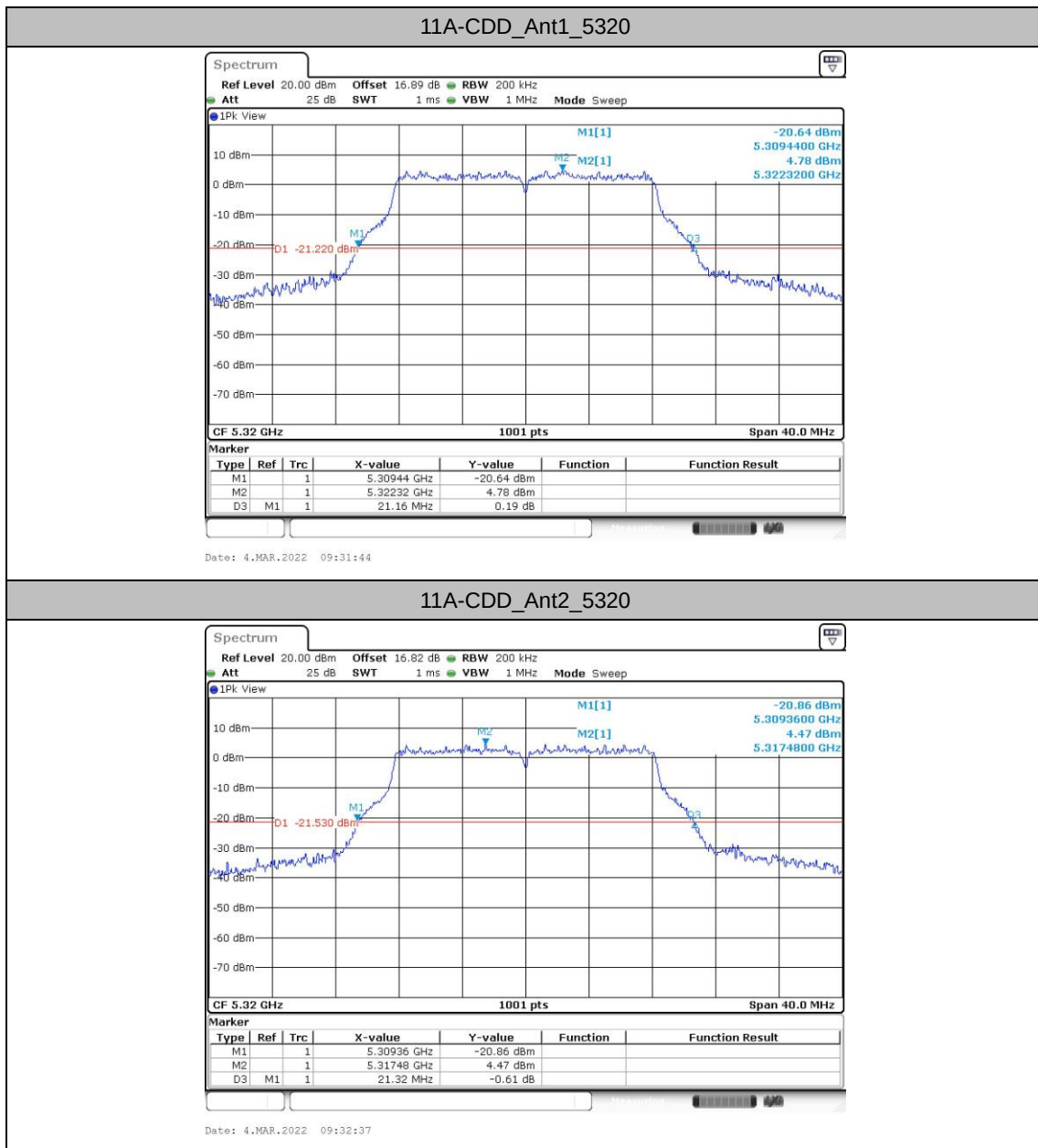
## 11A-CDD\_Ant2\_5220

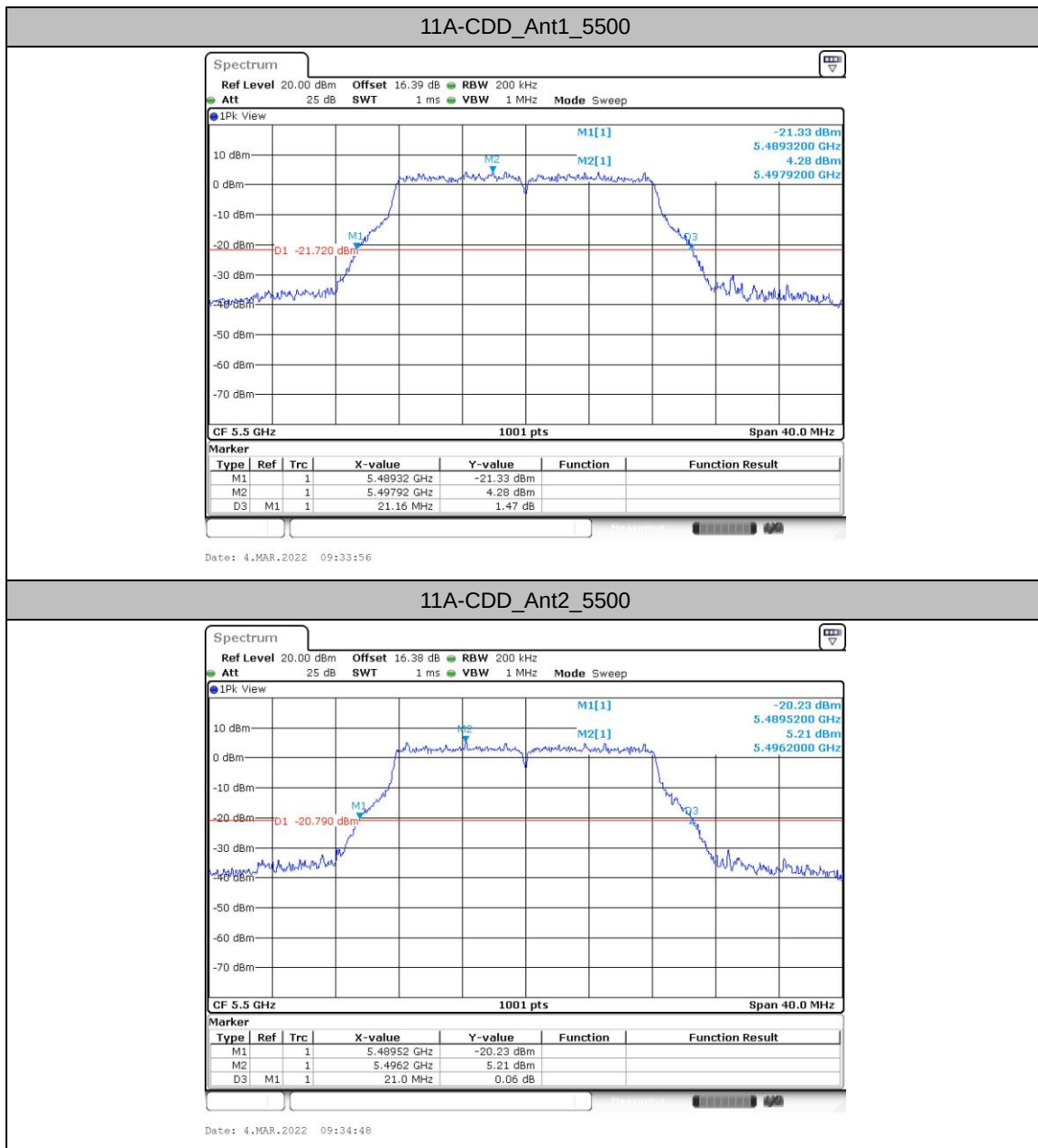


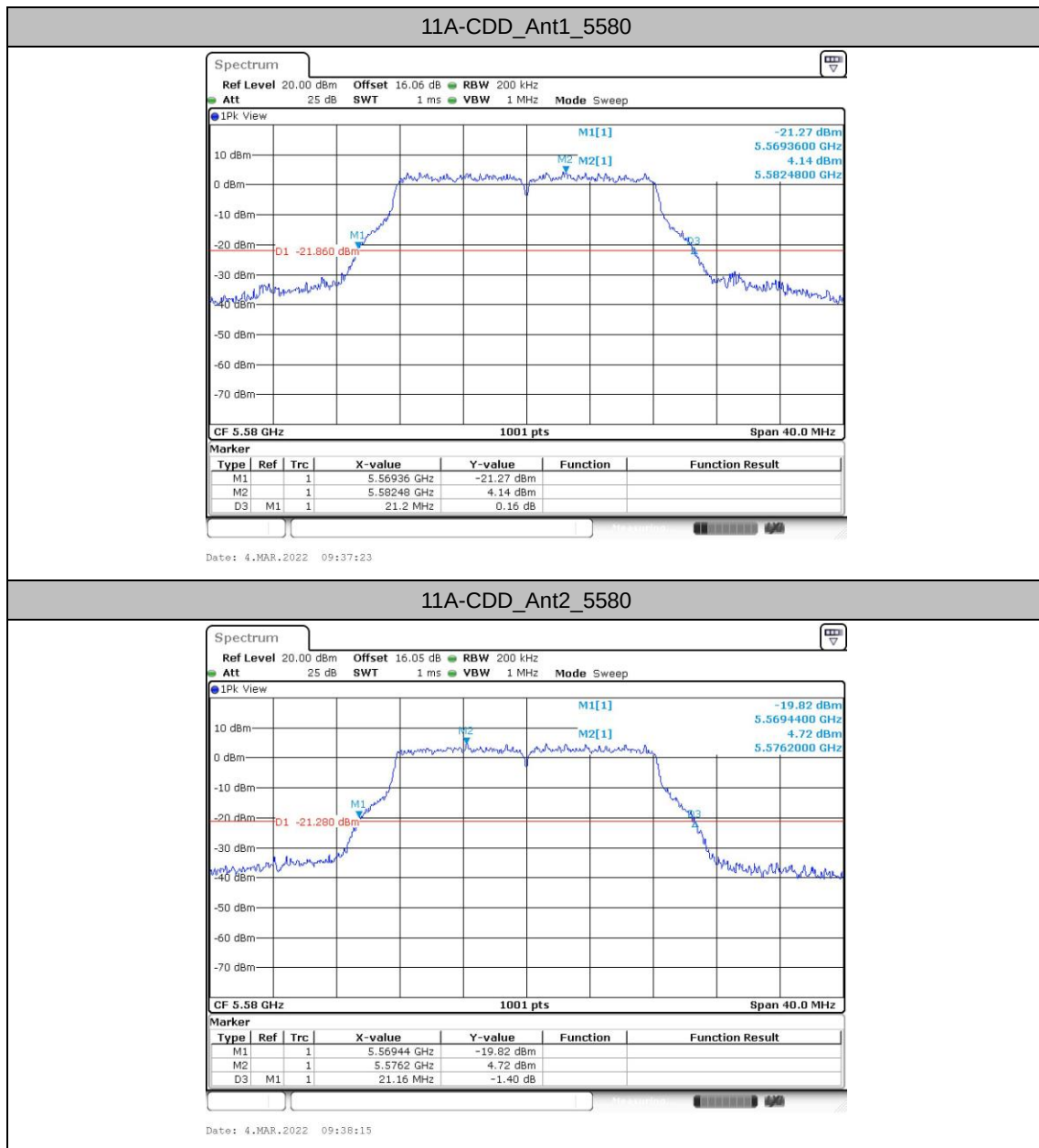


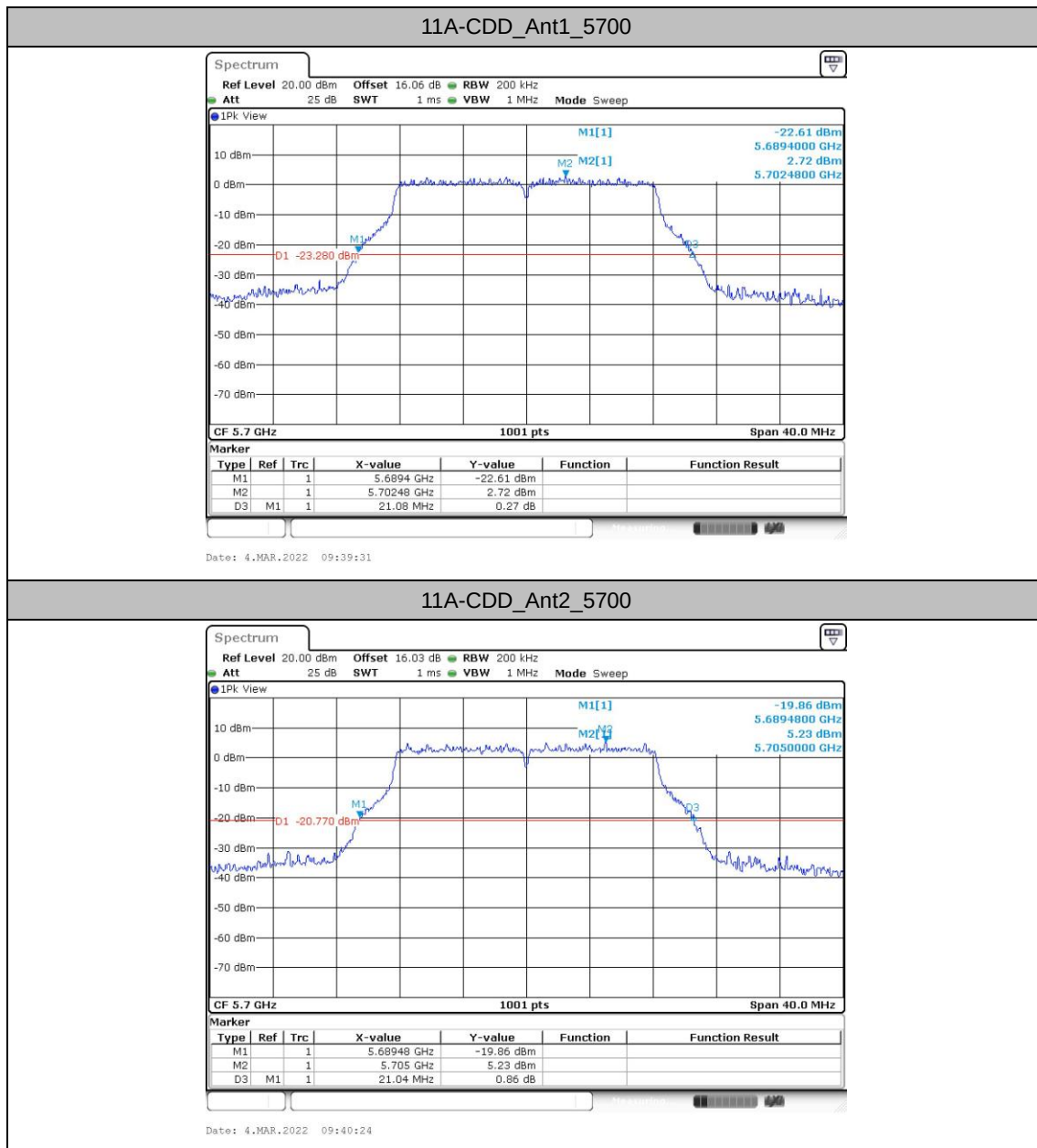


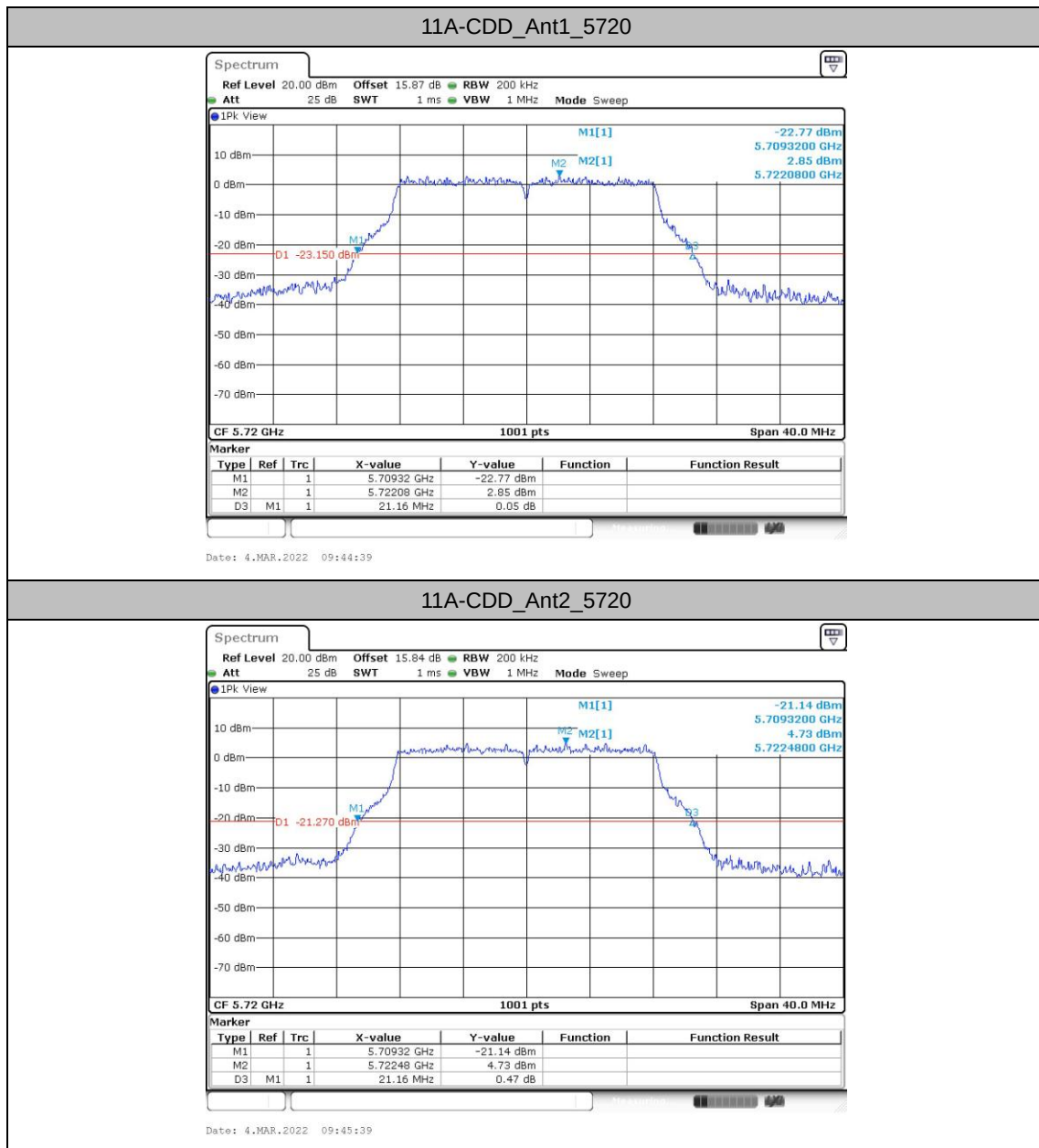






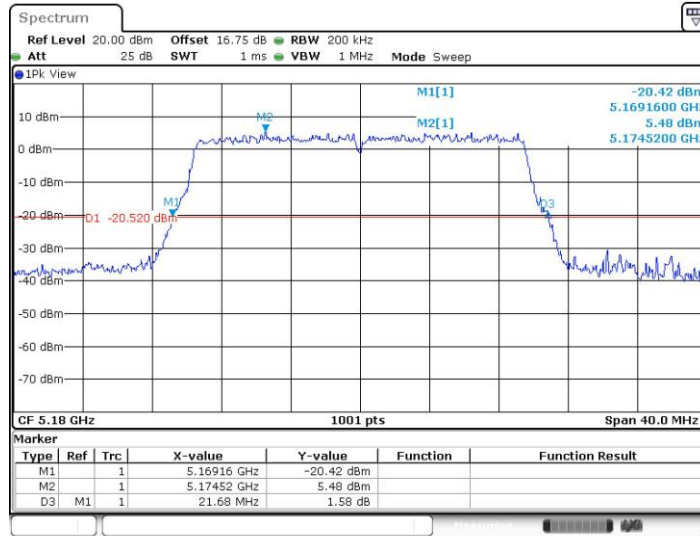






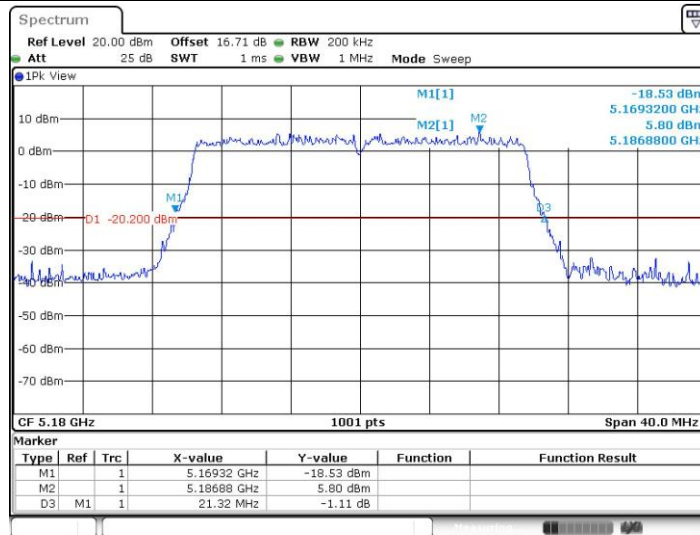


11AX20MIMO\_Ant1\_5180

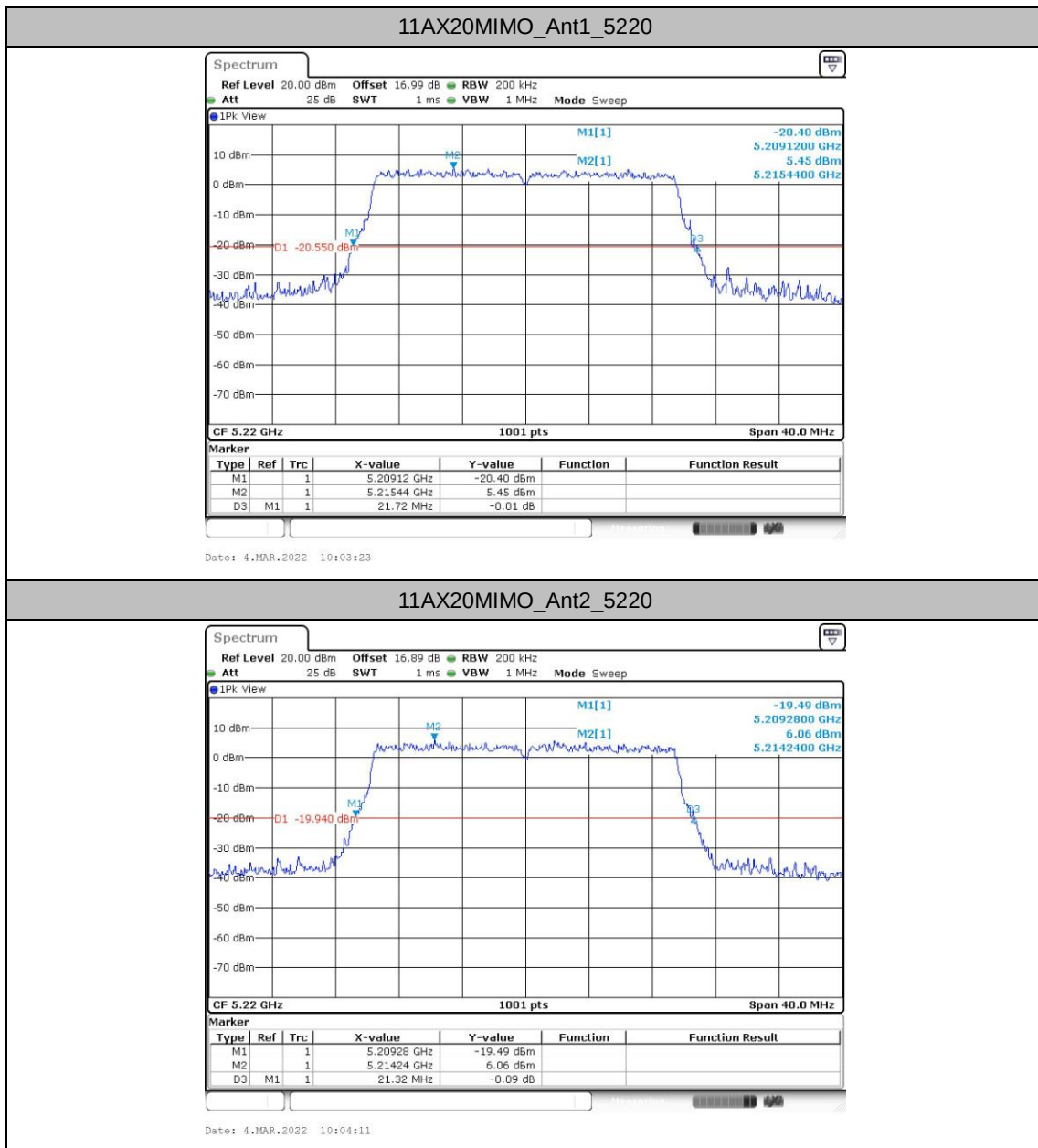


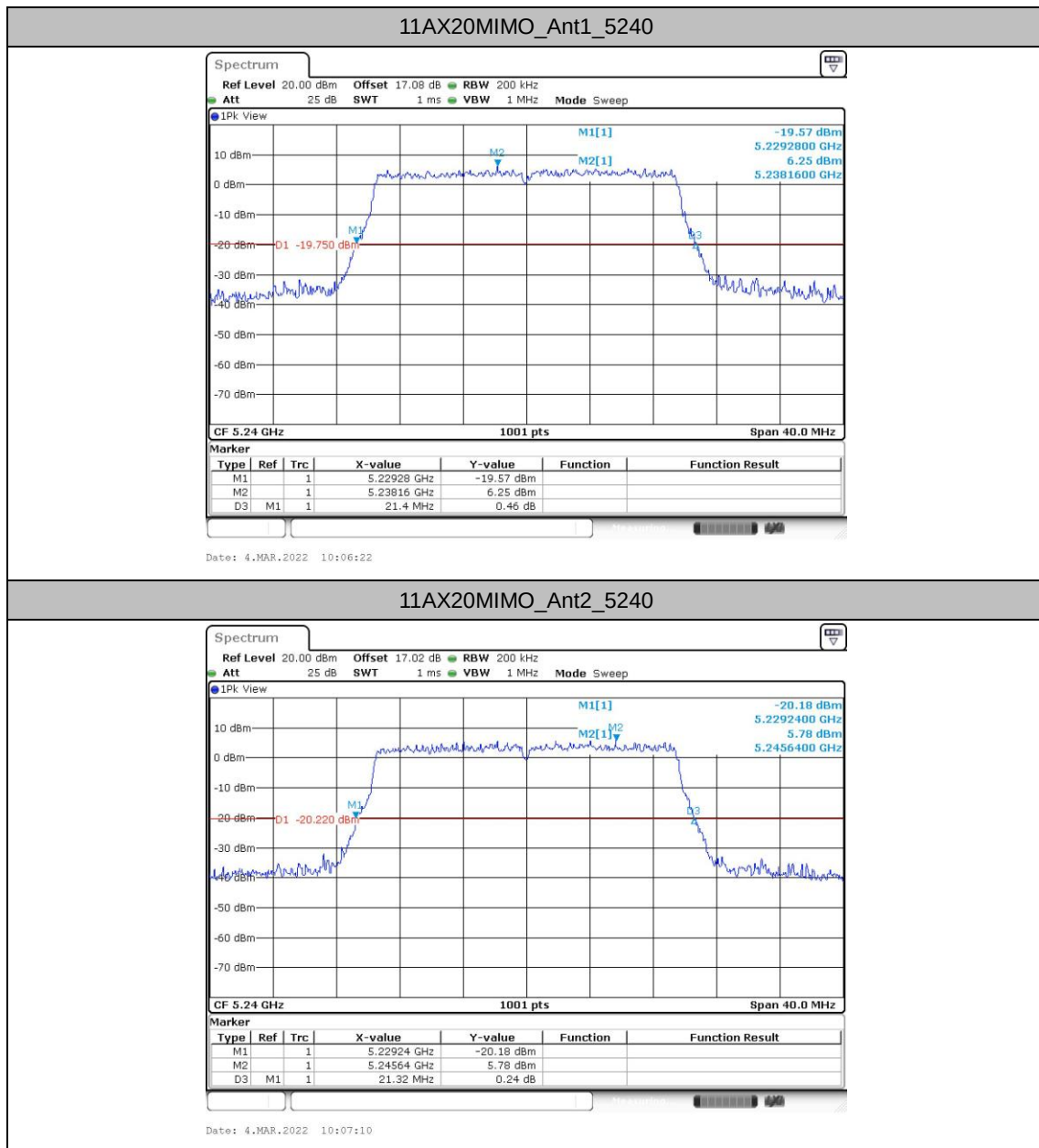
Date: 4.MAR.2022 10:00:57

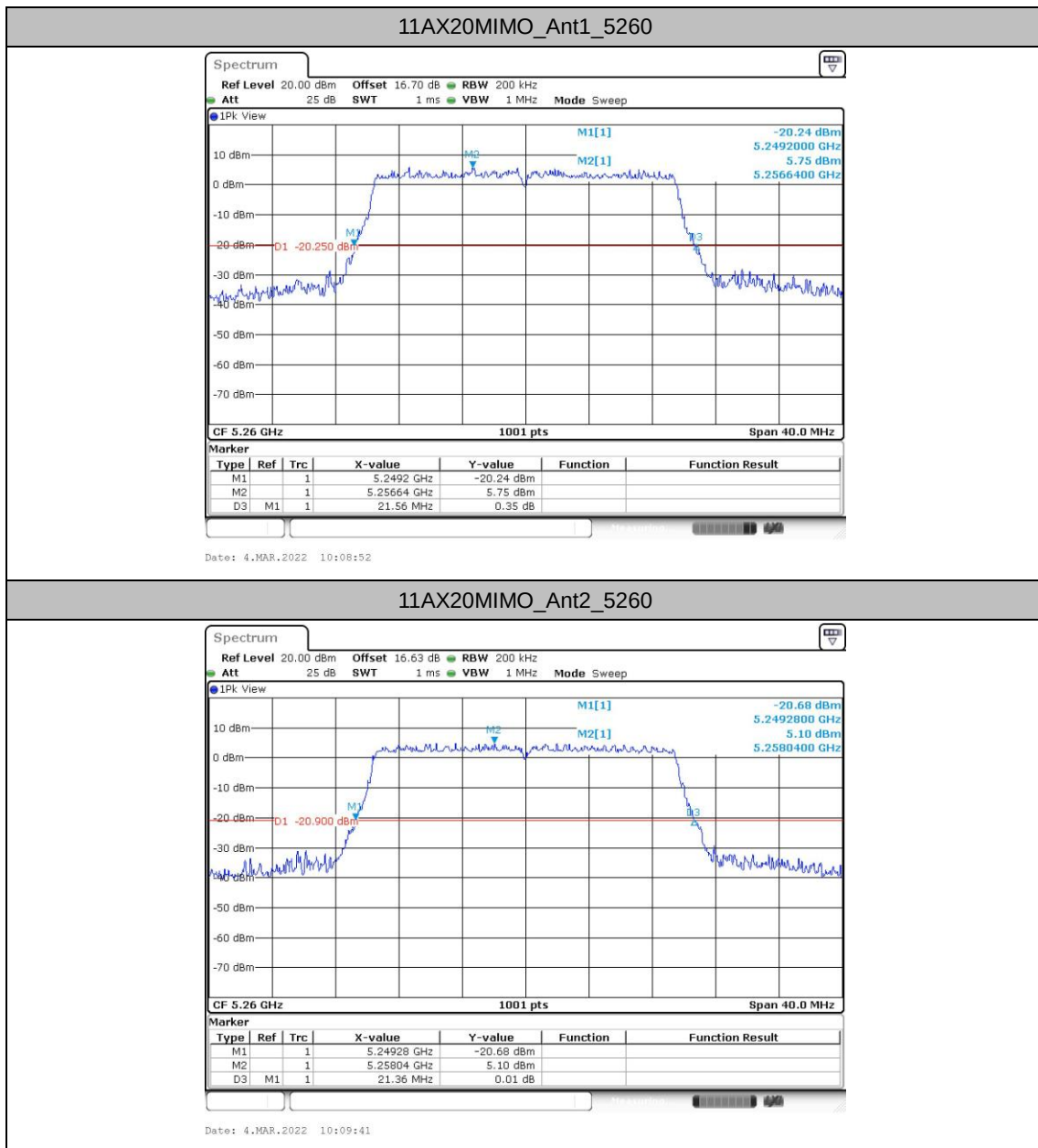
11AX20MIMO\_Ant2\_5180

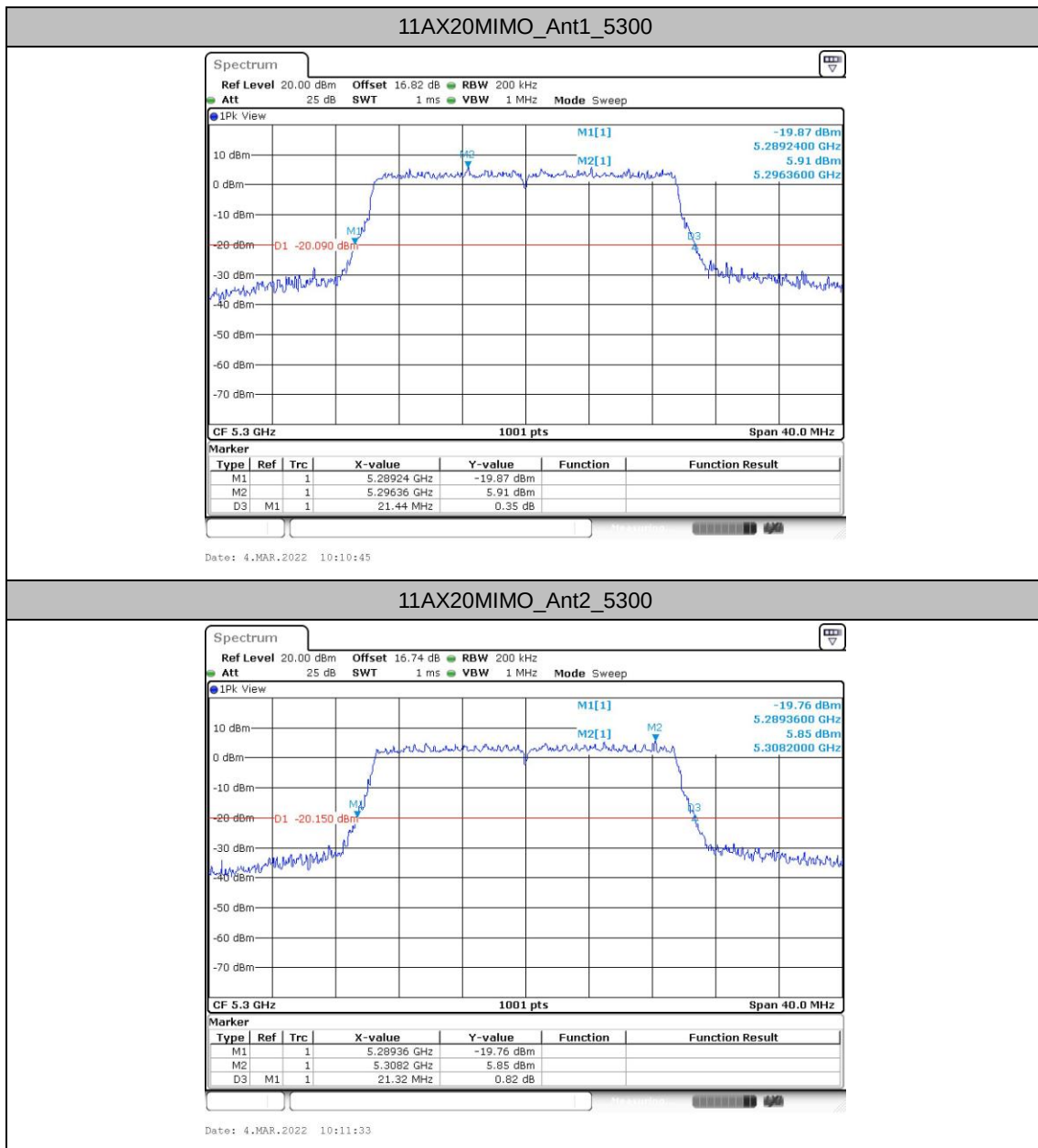


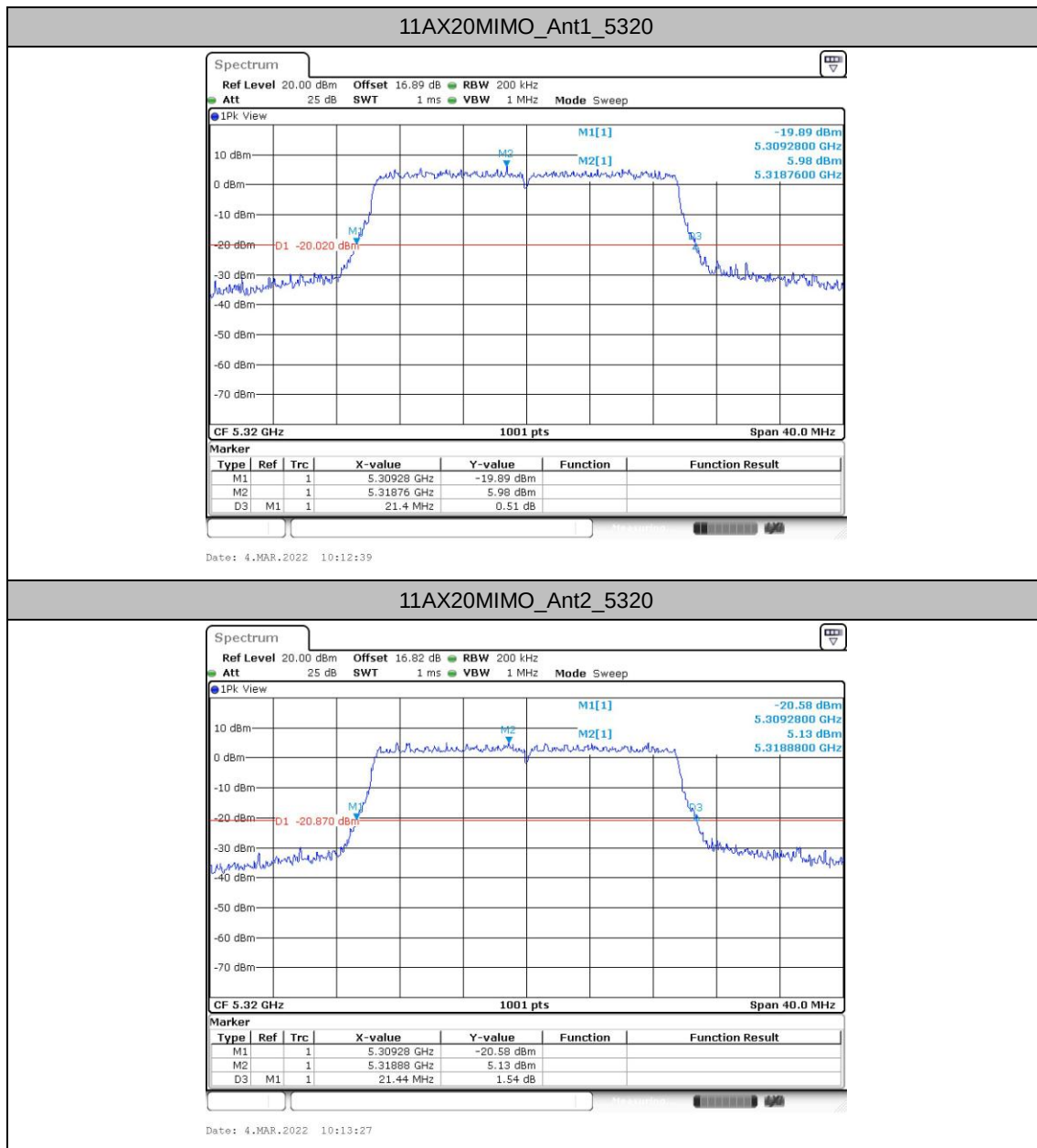
Date: 4.MAR.2022 10:01:48

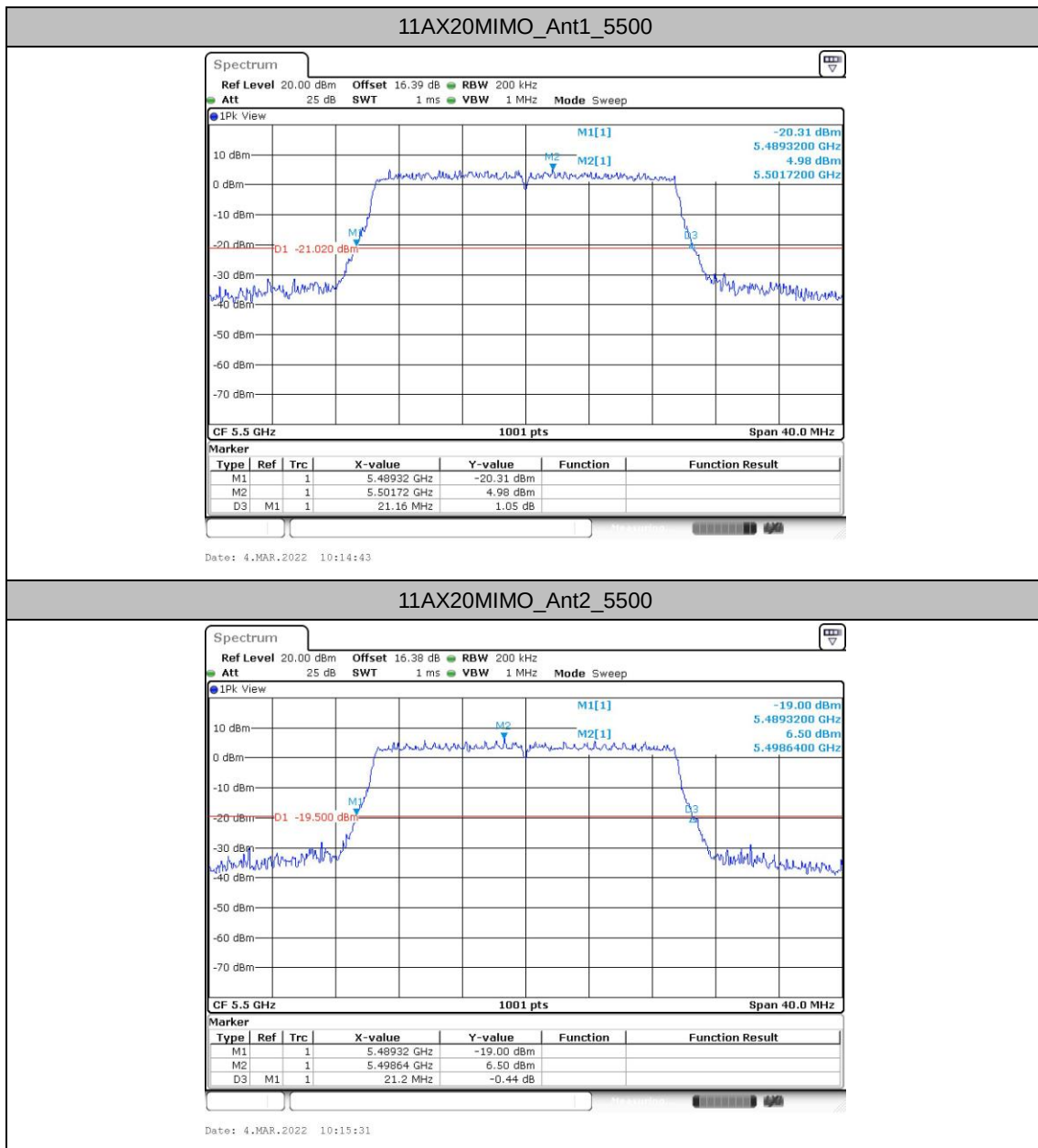


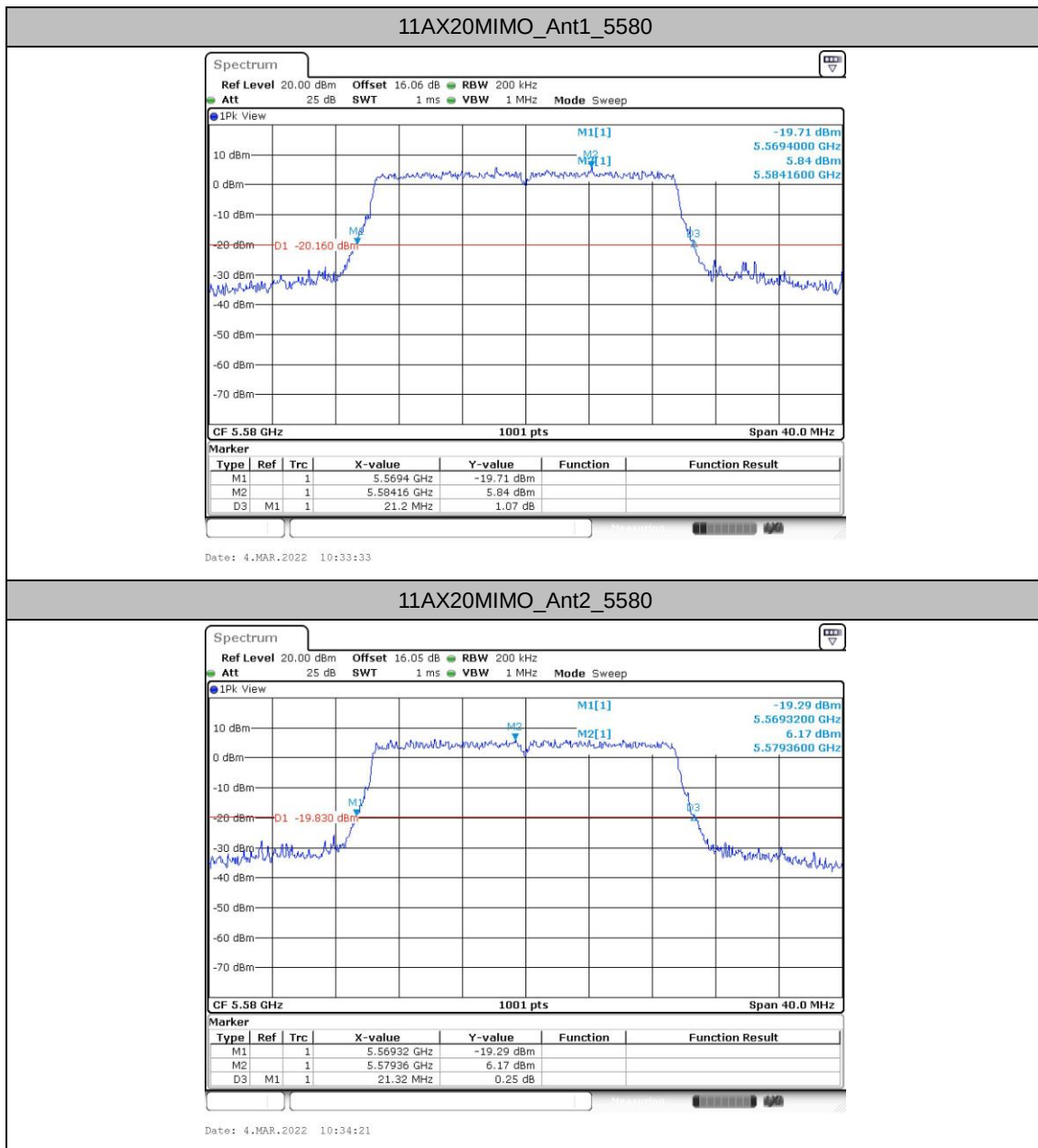


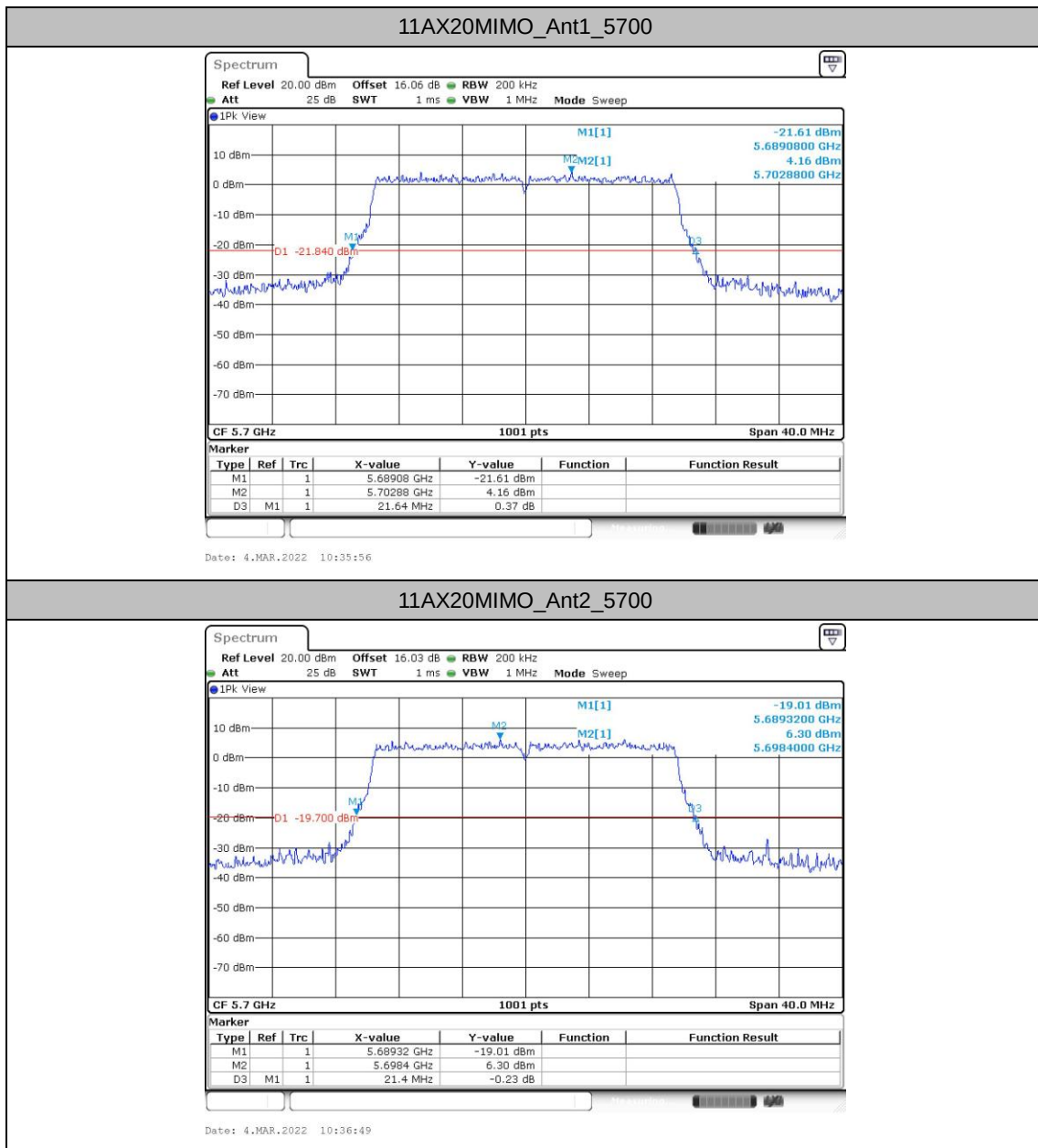


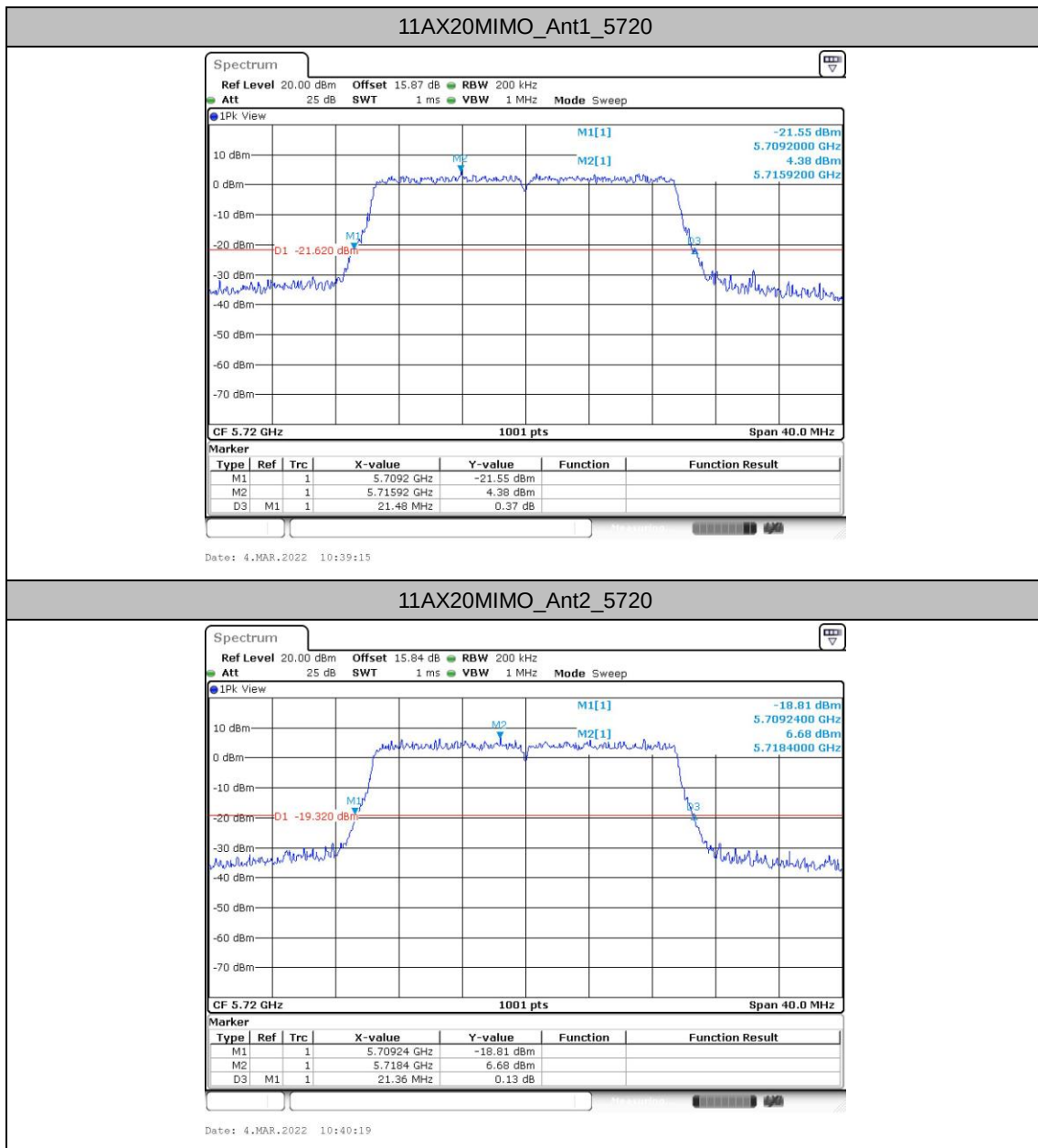


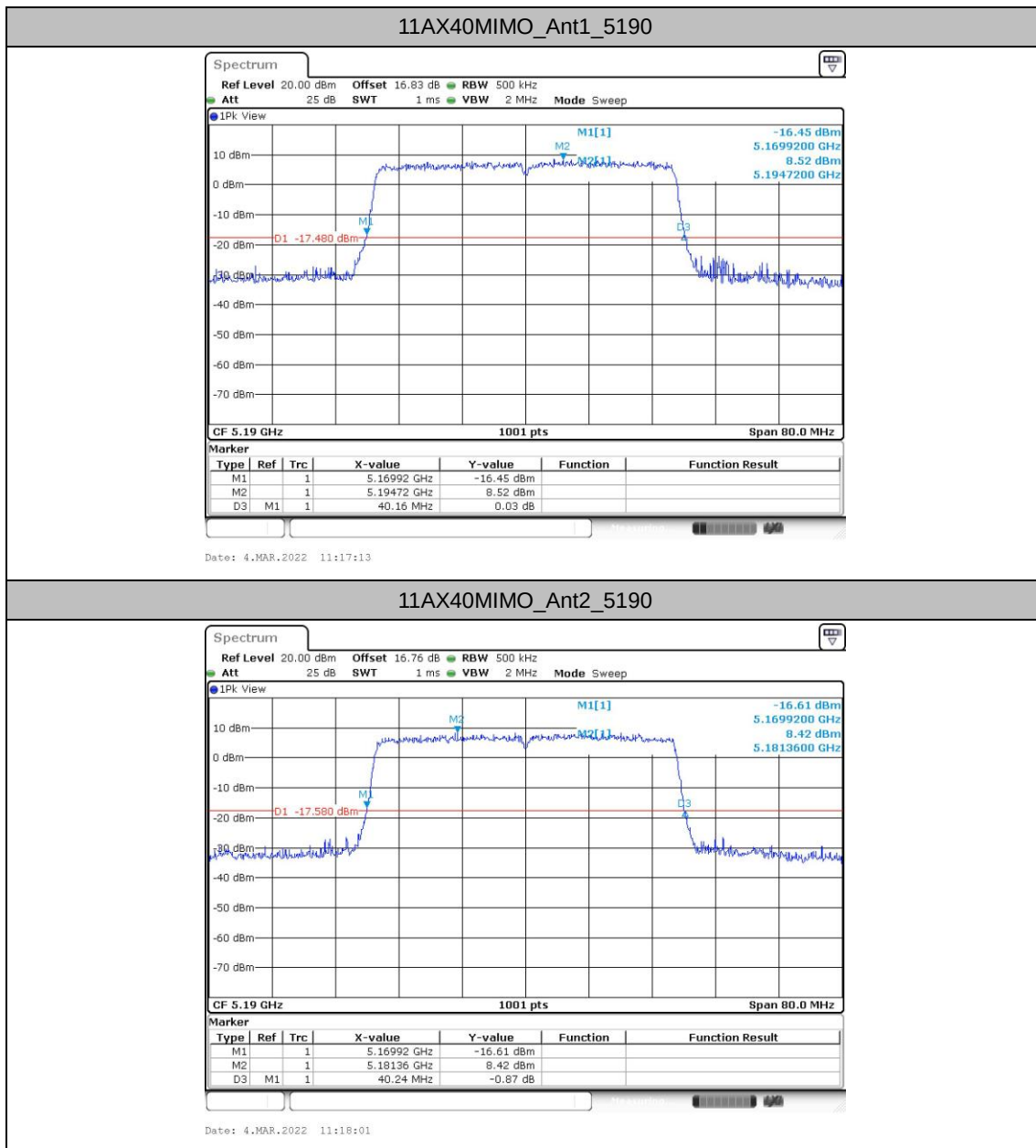


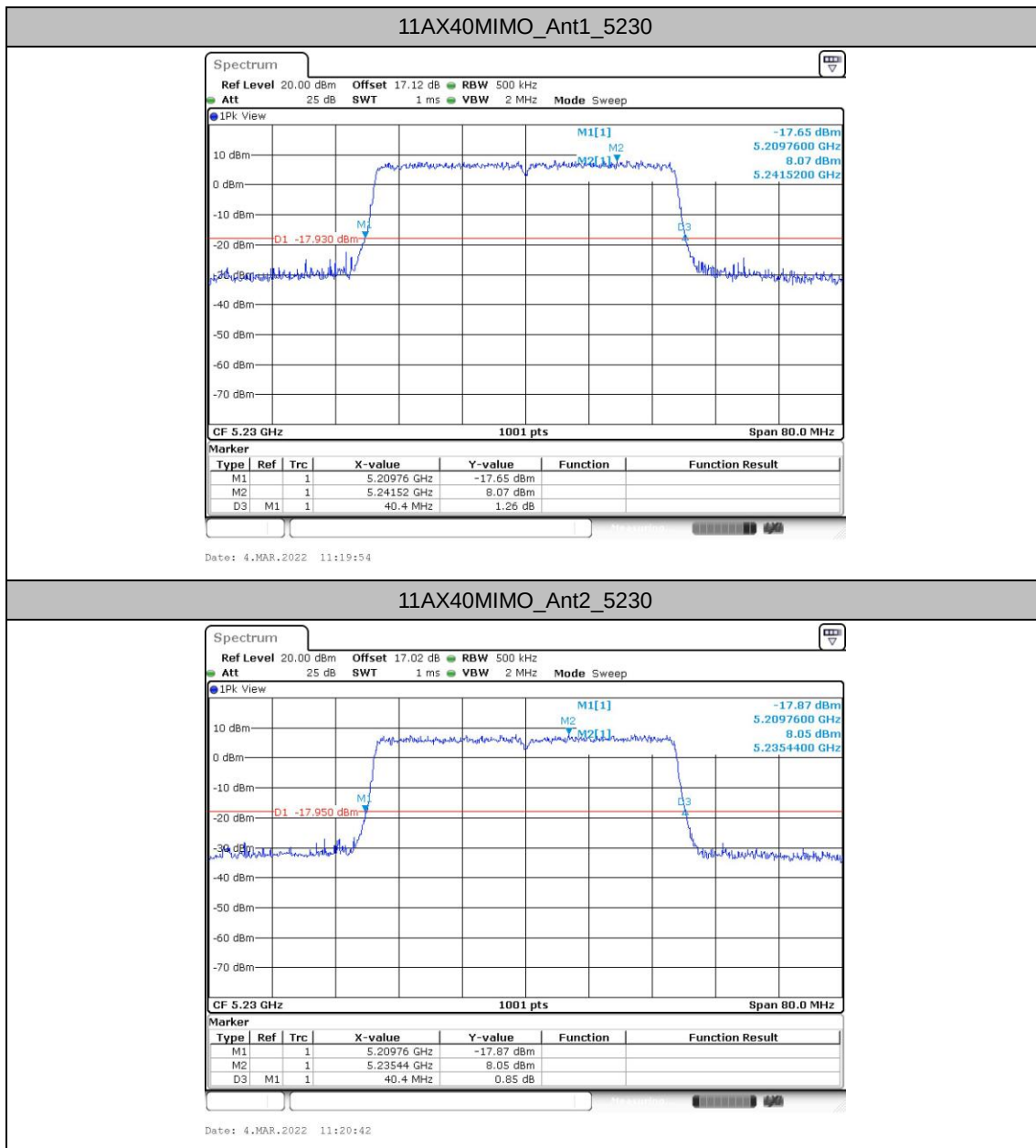


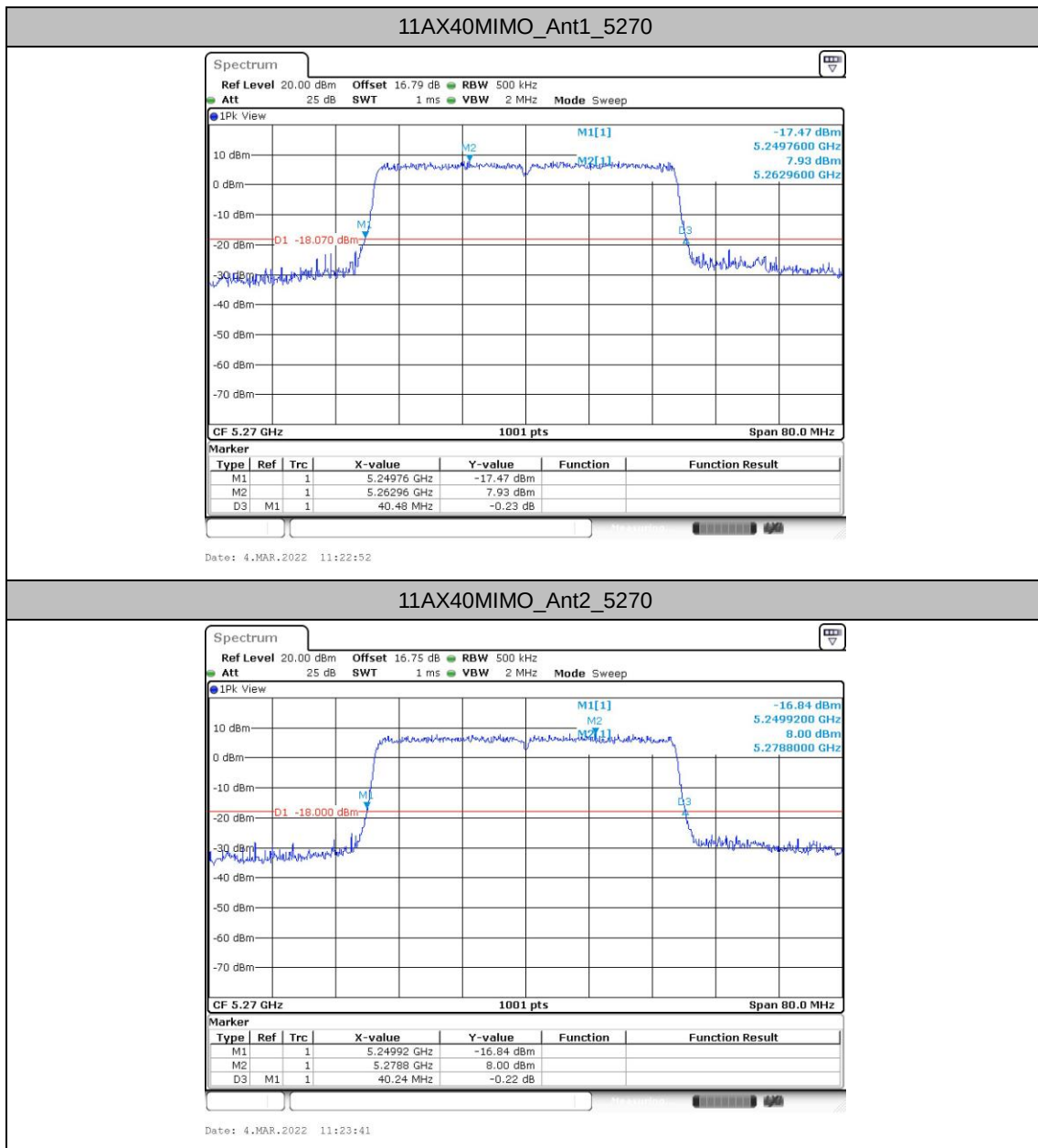


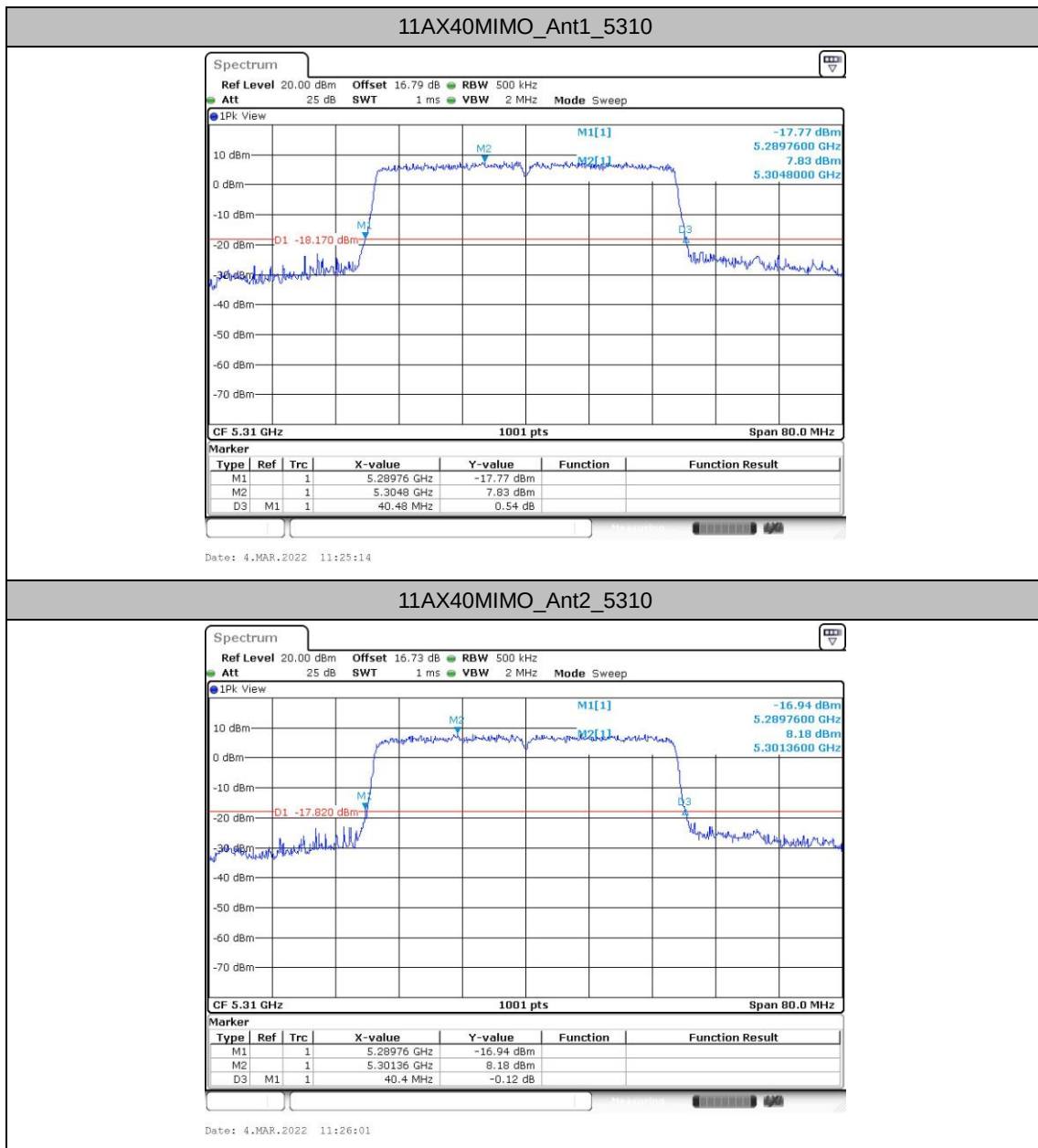


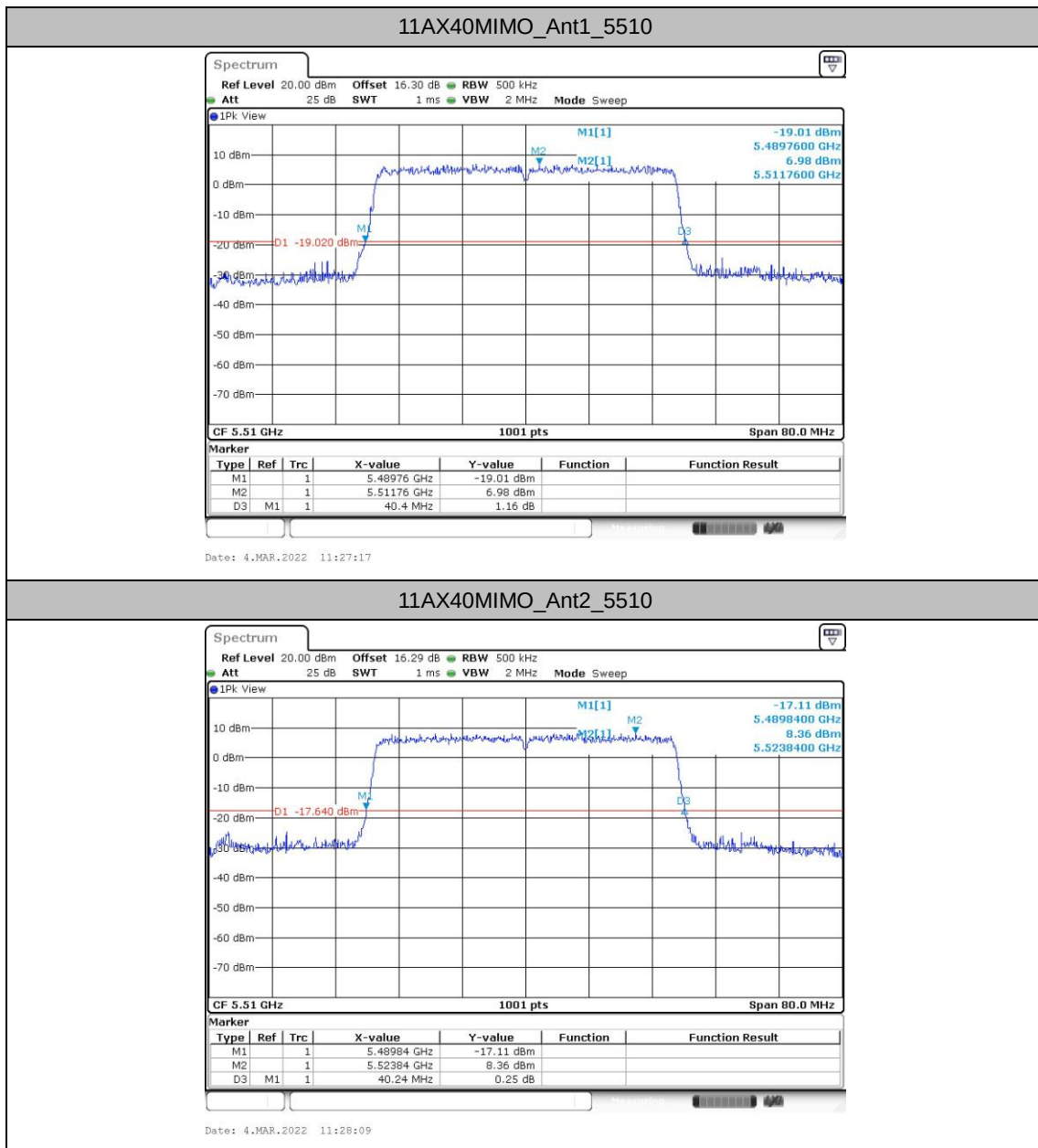


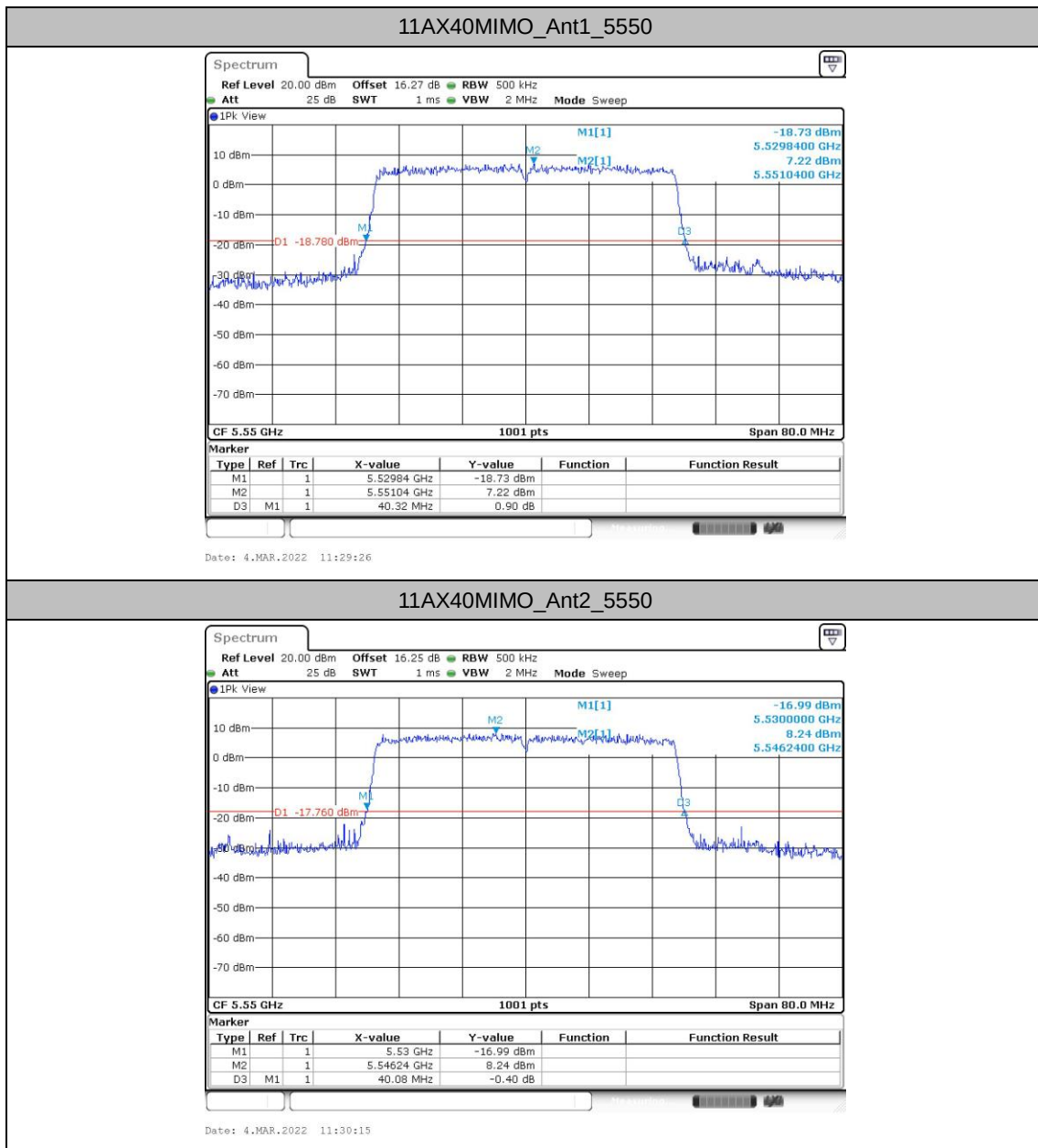


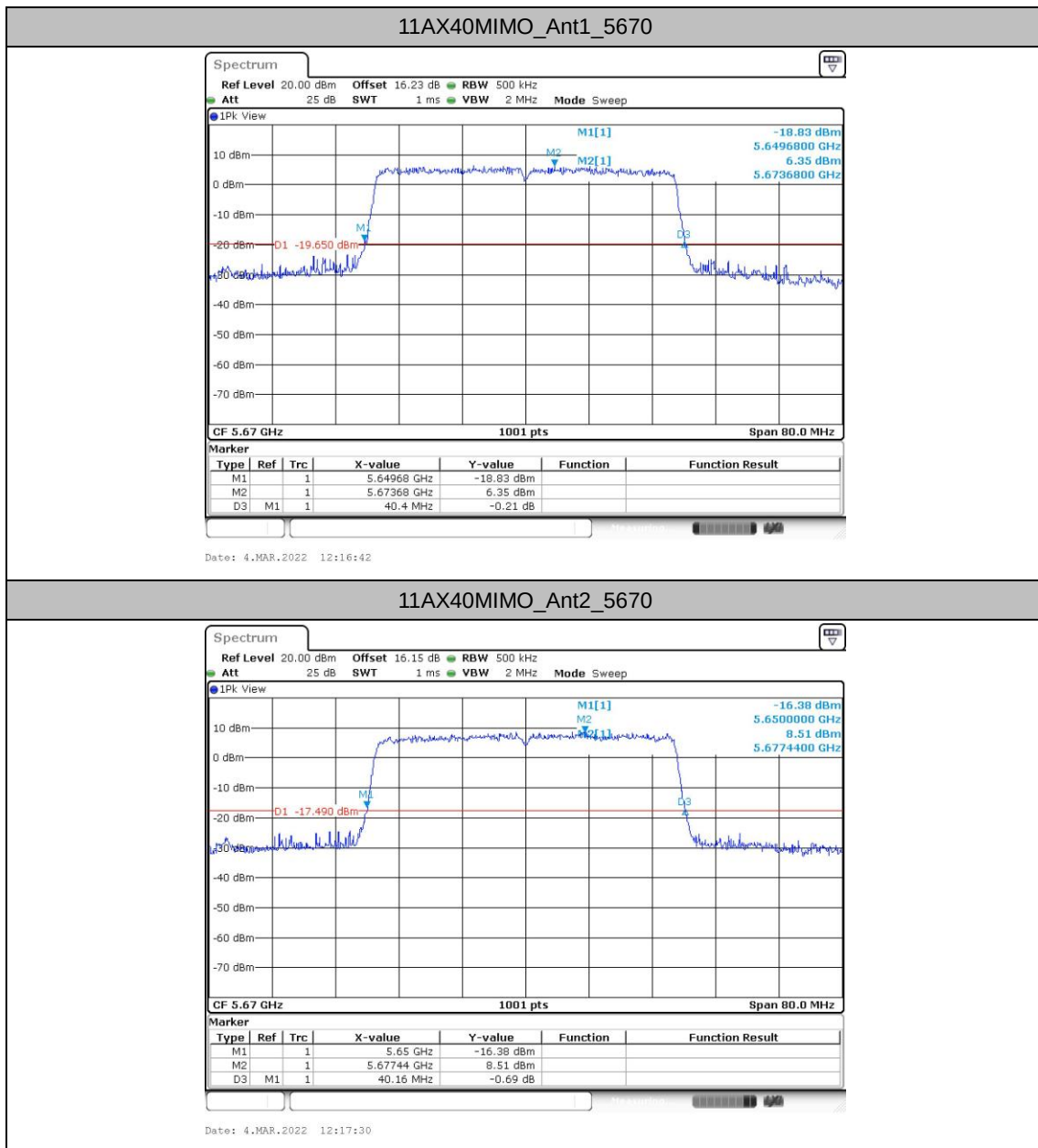


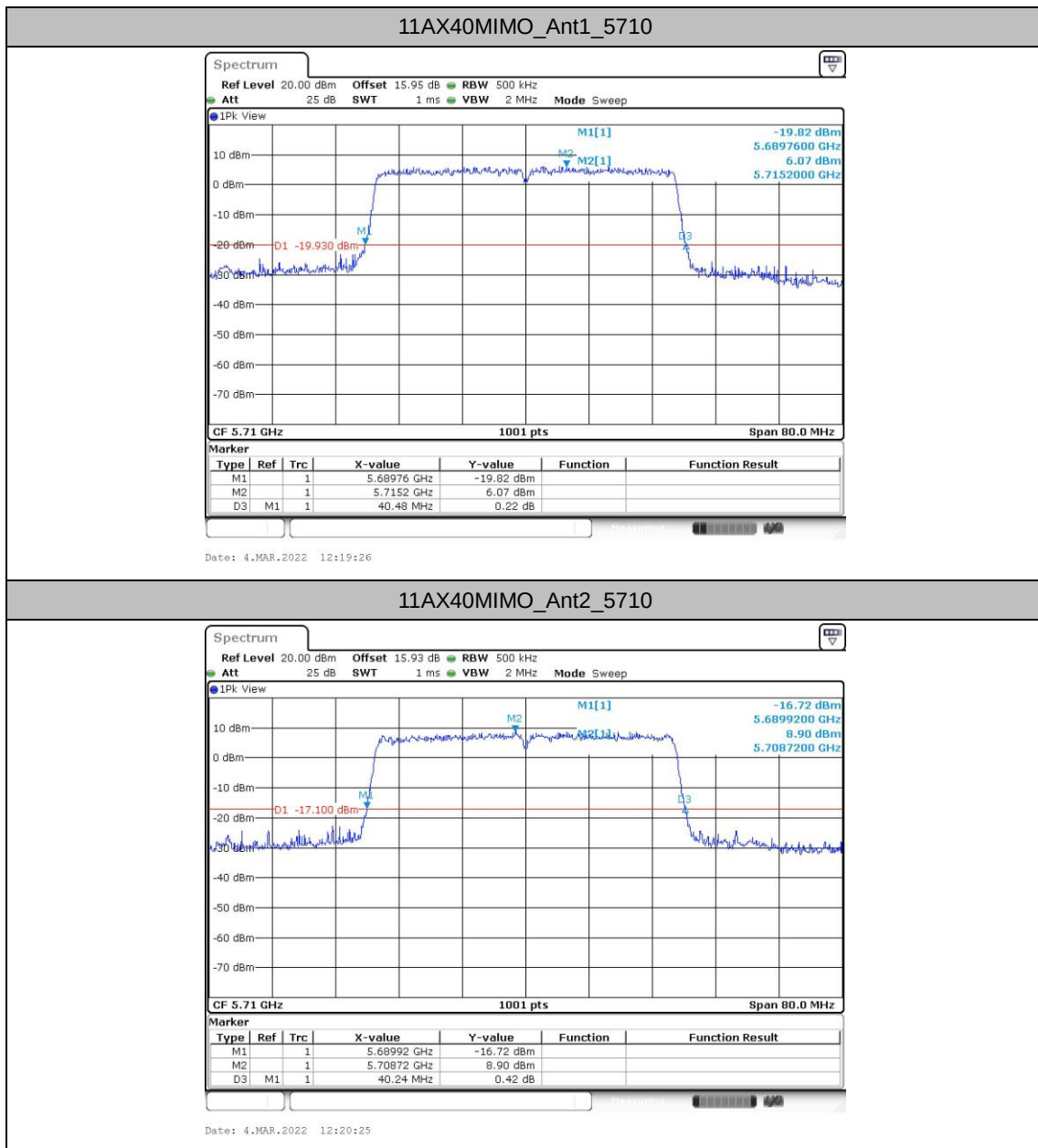






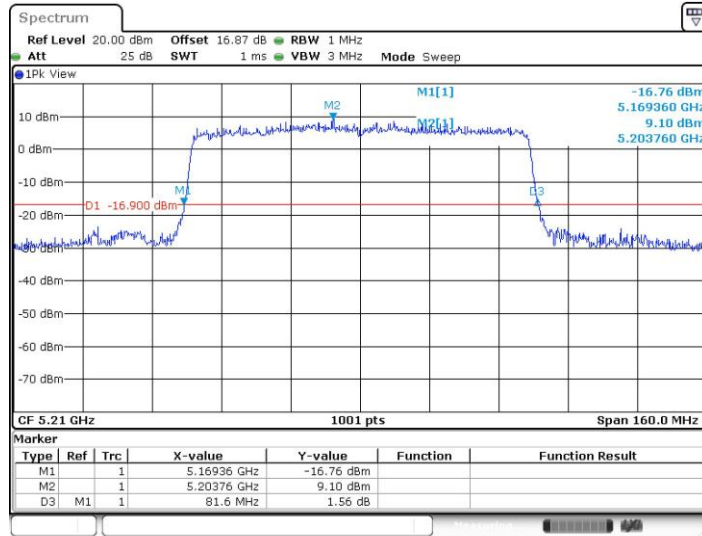






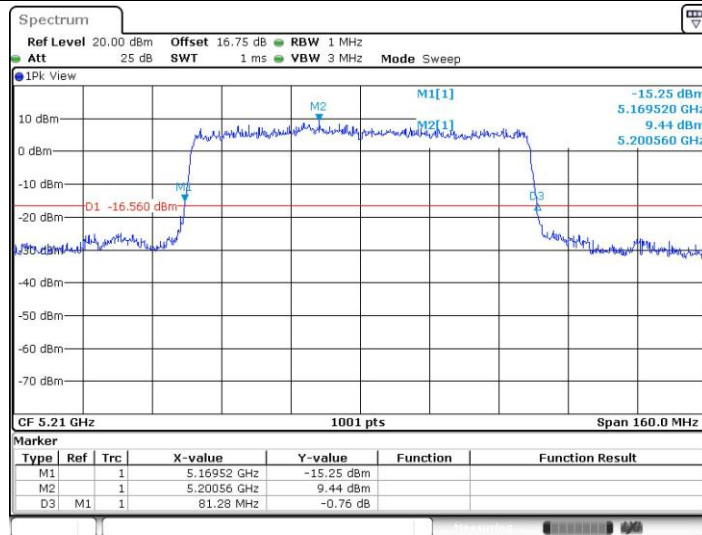


11AX80MIMO\_Ant1\_5210



Date: 4.MAR.2022 11:46:38

11AX80MIMO\_Ant2\_5210



Date: 4.MAR.2022 11:47:26