



FCC RF Test Report

APPLICANT : Nauto
EQUIPMENT : In-vehicle camera
BRAND NAME : Nauto
MODEL NAME : N4
FCC ID : 2AKJ5-N4
STANDARD : FCC Part 15 Subpart E §15.407
CLASSIFICATION : (NII) Unlicensed National Information Infrastructure
TEST DATE(S) : Mar. 28, 2024 ~ Apr. 30, 2024

We, Sporton International Inc. (Kunshan) , would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

Jason Jia

Approved by: Jason Jia



Sporton International Inc. (Kunshan)

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People's Republic of China



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR3D2618D	Rev. 01	Initial issue of report	May 14, 2024

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit for U-NII-1/2A/2C	Limit for U-NII-3	Result	Remark
3.1	2.1049 & 15.403(i)	6dB, 26dB & 99% Bandwidth	-	6dB Bandwidth > 500kHz	Pass	-
3.2	15.407(a)	Maximum Conducted Output Power	≤ 24 dBm	≤ 30 dBm	Pass	-
3.3	15.407(a)	Power Spectral Density	≤ 11 dBm/MHz	≤ 30 dBm/500kHz	Pass	-
3.4	15.407(b)	Unwanted Emissions	15.407(b) & 15.209(a)	15.407(b)(4)(i) & 15.209(a)	Pass	Under limit 3.06 dB at 5455.890 MHz
-	15.207	AC Conducted Emission	15.207(a)	15.207(a)	Not Applicable	-
3.5	15.203 & 15.407(a)	Antenna Requirement	15.203 & 15.407(a)	15.203 & 15.407(a)	Pass	-

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty"

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.



1 General Description

1.1 Applicant

Nauto

1259 Reamwood Ave, Sunnyvale, CA 94089, USA

1.2 Manufacturer

Nauto

1259 Reamwood Ave, Sunnyvale, CA 94089, USA

1.3 Product Feature of Equipment Under Test

Product Feature	
Equipment	In-vehicle camera
Brand Name	Nauto
Model Name	N4
FCC ID	2AKJ5-N4
IMEI Code	Conducted: N40HTV6E1000E5L Radiation: N40HTV6E10011BS
HW Version	V4
SW Version	NautoN4
EUT Stage	Identical Prototype

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



1.4 Product Specification of Equipment Under Test

Standards-related Product Specification	
Tx/Rx Frequency Range	5180 MHz ~ 5240 MHz 5260 MHz ~ 5320 MHz 5500 MHz ~ 5720 MHz 5745 MHz ~ 5825 MHz
Maximum Output Power to Antenna	<5180 MHz ~ 5240 MHz> 802.11a : 12.91 dBm / 0.0195W 802.11n HT20 : 12.99 dBm / 0.0199 W 802.11n HT40 : 13.37 dBm / 0.0217 W 802.11ac VHT20: 13.06 dBm / 0.0202 W 802.11ac VHT40: 13.41 dBm / 0.0219 W 802.11ac VHT80: 13.43 dBm / 0.0220 W 802.11ac VHT160: 12.38 dBm / 0.0173 W 802.11ax HE20: 13.11 dBm / 0.0205 W 802.11ax HE40: 13.46 dBm / 0.0222 W 802.11ax HE80: 13.52 dBm / 0.0225 W 802.11ax HE160: 12.41 dBm / 0.0174 W <5260 MHz ~ 5320 MHz> 802.11a : 13.92 dBm / 0.0247W 802.11n HT20 : 14.15 dBm / 0.0260W 802.11n HT40 : 14.52 dBm / 0.0283W 802.11ac VHT20: 14.17 dBm / 0.0261W 802.11ac VHT40: 14.57 dBm / 0.0286W 802.11ac VHT80: 14.46 dBm / 0.0279W 802.11ax HE20: 14.41 dBm / 0.0276W 802.11ax HE40: 14.61 dBm / 0.0289W 802.11ax HE80: 14.47 dBm / 0.0280W <5500 MHz ~ 5720 MHz > 802.11a : 16.58 dBm / 0.0455 W 802.11n HT20 : 16.07 dBm / 0.0405 W 802.11n HT40 : 15.46 dBm / 0.0352 W 802.11ac VHT20: 16.12 dBm / 0.0409 W 802.11ac VHT40: 15.48 dBm / 0.0353 W 802.11ac VHT80: 14.51 dBm / 0.0282 W 802.11ac VHT160: 11.40 dBm / 0.0138 W 802.11ax HE20: 16.14 dBm / 0.0411 W 802.11ax HE40: 15.49 dBm / 0.0354 W 802.11ax HE80: 14.52 dBm / 0.0283 W 802.11ax HE160: 11.58 dBm / 0.0144 W <5745 MHz ~ 5825 MHz> 802.11a : 16.86 dBm / 0.0485 W 802.11n HT20 : 16.36 dBm / 0.0433 W 802.11n HT40 : 15.88 dBm / 0.0387 W 802.11ac VHT20: 16.41 dBm / 0.0438 W 802.11ac VHT40: 15.90 dBm / 0.0389 W 802.11ac VHT80: 14.70 dBm / 0.0295 W 802.11ax HE20: 16.56 dBm / 0.0453 W 802.11ax HE40: 15.92 dBm / 0.0391 W 802.11ax HE80: 14.72 dBm / 0.0296 W

99% Occupied Bandwidth	<5180 MHz ~ 5240 MHz> 802.11a : 16.464 MHz 802.11ac VHT20 : 17.662 MHz 802.11ac VHT40 : 36.044 MHz 802.11ac VHT80 : 75.125 MHz 802.11ac VHT160 : 154.086 MHz 802.11ax HE20: 18.941 MHz 802.11ax HE40: 37.722 MHz 802.11ax HE80: 76.723 MHz 802.11ax HE160: 155.365 MHz <5260 MHz ~ 5320 MHz> 802.11a : 16.464 MHz 802.11ac VHT20 : 17.662 MHz 802.11ac VHT40 : 36.044 MHz 802.11ac VHT80 : 75.125 MHz 802.11ax HE20: 18.941 MHz 802.11ax HE40: 37.722 MHz 802.11ax HE80: 76.723 MHz <5500 MHz ~ 5720 MHz> 802.11a : 16.503 MHz 802.11ac VHT20 : 17.662 MHz 802.11ac VHT40 : 36.044 MHz 802.11ac VHT80 : 75.445 MHz 802.11ac VHT160 : 154.725 MHz 802.11ax HE20: 18.941 MHz 802.11ax HE40: 37.802 MHz 802.11ax HE80: 77.203 MHz 802.11ax HE160: 156.324 MHz <5745 MHz ~ 5825 MHz> 802.11a : 16.543 MHz 802.11ac VHT20 : 17.662 MHz 802.11ac VHT40 : 36.044 MHz 802.11ac VHT80 : 75.125 MHz 802.11ax HE20: 18.941 MHz 802.11ax HE40: 37.802 MHz 802.11ax HE80: 76.883 MHz
Antenna Type / Gain	<5180 MHz ~ 5240 MHz>: monopole Antenna with gain -0.10 dBi <5260 MHz ~ 5320 MHz>: monopole Antenna with gain -1.00 dBi <5500 MHz ~ 5720 MHz>: monopole Antenna with gain -1.20 dBi <5745 MHz ~ 5825 MHz>: monopole Antenna with gain -1.00 dBi
Type of Modulation	802.11a/n : OFDM (BPSK / QPSK / 16QAM / 64QAM) 802.11ac/ax : OFDM (BPSK / QPSK / 16QAM / 64QAM / 256QAM / 1024QAM)

Note:

1. For 802.11n & 11ac mode, the whole testing have assessed only 802.11ac mode to cover 11n mode by referring to the higher output power.
2. 802.11ax support full RU tone and partial RU tone, both full RU and partial RU-left (for low CH) and partial RU-right (for high CH) are tested for conducted power/PSD/RSE, the full RU power > partial RU, therefore the full RU perform full test and Partial RU verified power/PSD/RSE.



1.5 Modification of EUT

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

1.6 Testing Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)		
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158		
Test Site No.	Sporton Site No.	FCC Designation No.	FCC Test Firm Registration No.
	03CH05-KS TH01-KS	CN1257	314309

1.7 Test Software

Item	Site	Manufacturer	Name	Version
1.	TH01-KS	Tonscend	JS1120-3 test systemChina_210602	3.3.10
2.	03CH05-KS	AUDIX	E3	210616

1.8 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 15 Subpart E
- 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

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:, radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower). For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (X plane) were recorded in this report.

2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq.(MHz)	Channel	Freq. (MHz)
5180-5240 MHz U-NII-1	36	5180	44	5220
	38*	5190	46*	5230
	40	5200	48	5240
	42 [#]	5210	50 ^{##}	5250
Frequency Band	Channel	Freq.(MHz)	Channel	Freq. (MHz)
5260-5320 MHz U-NII-2A	52	5260	60	5300
	54*	5270	62*	5310
	56	5280	64	5320
	58 [#]	5290	-	-
Frequency Band	Channel	Freq.(MHz)	Channel	Freq. (MHz)
5500-5720MHz U-NII-2C	100	5500	112	5560
	102*	5510	116	5580
	104	5520	132	5660
	106 [#]	5530	134*	5670
	108	5540	136	5680
	110*	5550	140	5700
Frequency Band	Channel	Freq.(MHz)	Channel	Freq. (MHz)
5745-5825 MHz U-NII-3	149	5745	157	5785
	151*	5755	159*	5795
	153	5765	161	5805
	155 [#]	5775	165	5825



Frequency Band	Channel	Freq.(MHz)	Channel	Freq. (MHz)
TDWR Channel	118*	5590	124	5620
	120	5600	126*	5630
	122 [#]	5610	128	5640
	-	-	114 ^{##}	5570

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
Straddle Channel	138 [#]	5690	144	5720
	142*	5710	-	-

Note:

1. The above Frequency and Channel in "*" are 40MHz bandwidth.
2. The above Frequency and Channel in "[#]" are 80MHz bandwidth.
3. The above Frequency and Channel in "^{##}" are 160MHz bandwidth.



2.2 Test Mode

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

SISO Mode

Modulation		Data Rate
802.11a		6 Mbps
802.11ac VHT20		MCS0
802.11ac VHT40		MCS0
802.11ac VHT80		MCS0
802.11ac VHT160		MCS0
802.11ax HE20		MCS0
802.11ax HE40		MCS0
802.11ax HE80		MCS0
802.11ax HE160		MCS0

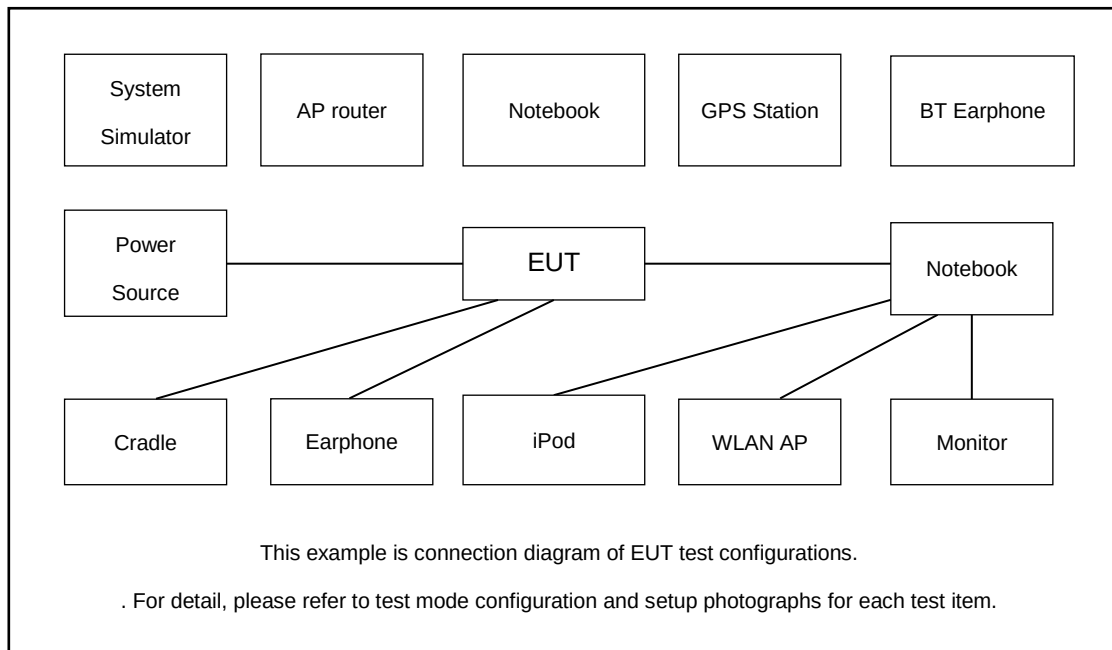
Ch. #		U-NII-1	U-NII-2A	U-NII-2C	U-NII-3
		20M BW	20M BW	20M BW	20M BW
L	Low	36	52	100	149
M	Middle	44	60	116	157
H	High	48	64	140	165
Straddle		-	-	144	-

Ch. #		U-NII-1	U-NII-2A	U-NII-2C	U-NII-3
		40M BW	40M BW	40M BW	40M BW
L	Low	38	54	102	151
M	Middle	-	-	110	-
H	High	46	62	134	159
Straddle		-	-	142	-

Ch. #		U-NII-1	U-NII-2A	U-NII-2C	U-NII-3
		80M BW	80M BW	80M BW	80M BW
L	Low	-	-	106	-
M	Middle	42	58	-	155
H	High	-	-	122	-
Straddle		-	-	138	-

Ch. #		U-NII-1	U-NII-2A	U-NII-2C	U-NII-3
		160M BW		160M BW	160M BW
M	Middle	50		114	-

2.3 Connection Diagram of Test System



2.4 EUT Operation Test Setup

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

2.5 Measurement Results Explanation Example

For all conducted test items:

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

Example :

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

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 1.2 dB and 10dB attenuator.

$$\begin{aligned} \text{Offset(dB)} &= \text{RF cable loss(dB)} + \text{attenuator factor(dB)}. \\ &= 1.2 + 10 = 11.2 \text{ (dB)} \end{aligned}$$



3 Test Result

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

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

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

26dB and 99% Occupied bandwidth are reporting only.

3.1.2 Measuring Instruments

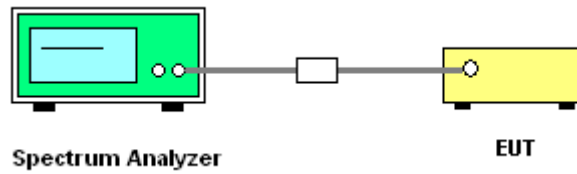
The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

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

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

3.1.4 Test Setup



3.1.5 Test Result

Please refer to Appendix A.

3.2 Maximum Conducted Output Power Measurement

3.2.1 Limit of Maximum Conducted Output Power

<FCC 14-30 CFR 15.407>

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

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

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

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.

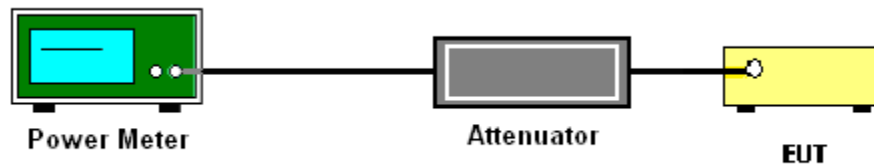
Method PM (Measurement using an RF average power meter):

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.

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

Please refer to Appendix A.



3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

<FCC 14-30 CFR 15.407>

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

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

For the band 5.725–5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

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 v01r04.

Section F) Maximum power spectral density.

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

Method SA-2

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

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

For devices operating in the band UNII-3

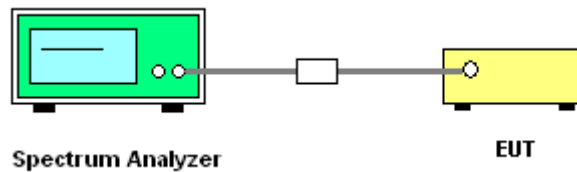
Method SA-2

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

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

1. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
2. Each plot has already offset with cable loss, and attenuator loss. Measure the PPSD and record it.

3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

3.4 Unwanted Emissions Measurement

This section as specified in FCC Part 15.407(b) is to measure unwanted emissions through radiated measurement for band edge spurious emissions and out of band emissions measurement. The unwanted emissions shall comply with 15.407(b)(1) to (6), and restricted bands per FCC Part 15.205.

3.4.1 Limit of Unwanted Emissions

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

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

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

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

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

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

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

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

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

where

EIRP is the equivalent isotropically radiated power, in dBm

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

d_{Meas} is the measurement distance, in m

(4) 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

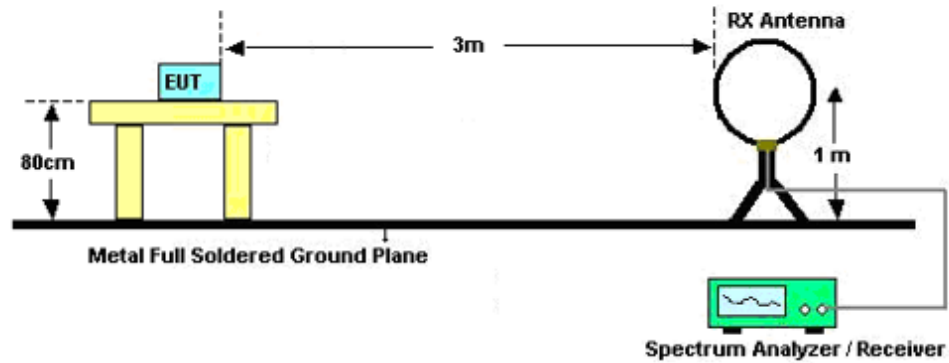
The measuring equipment is listed in the section 4 of this test report.

3.4.3 Test Procedures

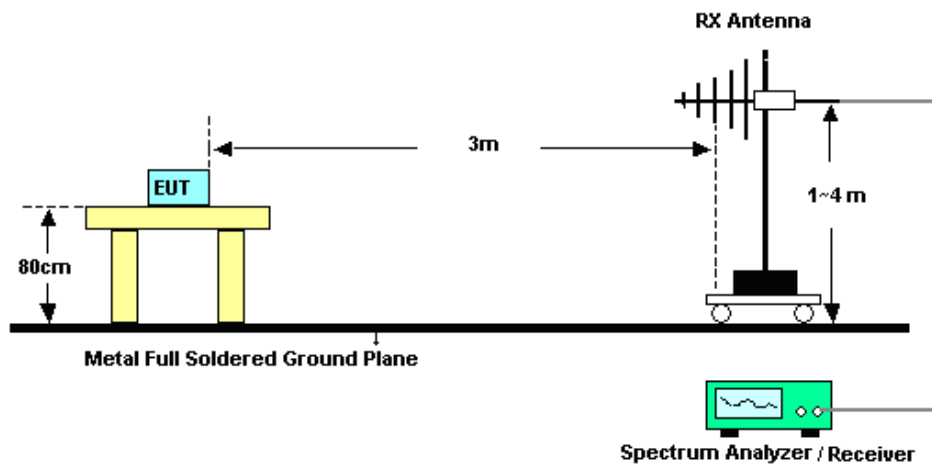
1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04.
Section G) Unwanted emissions measurement.
(1) Procedure for Unwanted Emissions Measurements Below 1000MHz
 - RBW = 120 kHz
 - VBW = 300 kHz
 - Detector = Peak
 - Trace mode = max hold(2) Procedure for Peak Unwanted Emissions Measurements Above 1000 MHz
 - RBW = 1 MHz
 - VBW $\geq$ 3 MHz
 - Detector = Peak
 - Sweep time = auto
 - Trace mode = max hold(3) Procedures for Average Unwanted Emissions Measurements Above 1000MHz
 - RBW = 1 MHz
 - VBW = 10 Hz, when duty cycle is no less than 98 percent.
 - VBW $\geq$ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on.
2. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
3. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
4. The antenna is a broadband antenna and its height is adjusted between one meter and four meters above ground to find the maximum value of the field strength for both horizontal polarization and vertical polarization of the antenna.
5. For each suspected emission, the EUT was arranged to its worst case and then adjust the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading.
6. For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

3.4.4 Test Setup

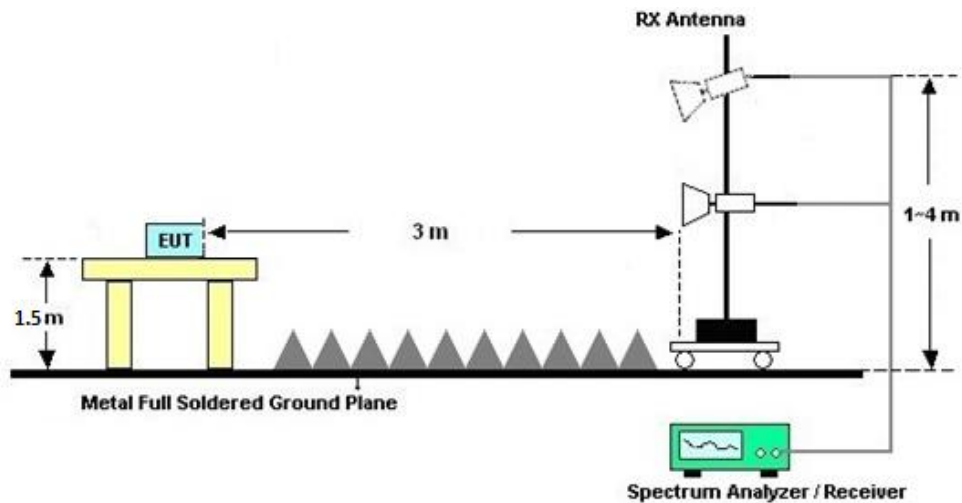
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



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

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

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

3.4.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix B.

3.4.7 Duty Cycle

Please refer to Appendix C.

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

Please refer to Appendix B.



3.5 Antenna Requirements

3.5.1 Standard Applicable

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

3.5.2 Antenna Anti-Replacement Construction

An embedded-in antenna design is used.

3.5.3 Antenna Gain

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



4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	Keysight	N9038A	MY56400004	3Hz~8.5GHz;Max 30dBm	Oct. 10, 2023	Mar. 28, 2024~Apr. 20, 2024	Oct. 09, 2024	Radiation (03CH05-KS)
EXA Spectrum Analyzer	Keysight	N9010A	MY55150244	10Hz~44G,MAX 30dB	Mar. 24, 2024	Mar. 28, 2024~Apr. 20, 2024	Mar. 23, 2025	Radiation (03CH05-KS)
Loop Antenna	R&S	HFH2-Z2	100321	9kHz~30MHz	Oct. 10, 2023	Mar. 28, 2024~Apr. 20, 2024	Oct. 09, 2024	Radiation (03CH05-KS)
Bilog Antenna	TeseQ	CBL6111D	49922	30MHz~1GHz	Oct. 23, 2023	Mar. 28, 2024~Apr. 20, 2024	Oct. 22, 2024	Radiation (03CH05-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00218642	1GHz~18GHz	Jan. 05, 2024	Mar. 28, 2024~Apr. 20, 2024	Jan. 04, 2025	Radiation (03CH05-KS)
SHF-EHF Horn	Com-power	AH-840	101093	18GHz~40GHz	Jan. 05, 2024	Mar. 28, 2024~Apr. 20, 2024	Jan. 04, 2025	Radiation (03CH05-KS)
Amplifier	SONOMA	310N	380826	9KHz~1GHz	Jul. 06, 2023	Mar. 28, 2024~Apr. 20, 2024	Jul. 05, 2024	Radiation (03CH05-KS)
Amplifier	EM	EM18G40GA	060852	18~40GHz	Jan. 05, 2024	Mar. 28, 2024~Apr. 20, 2024	Jan. 04, 2025	Radiation (03CH05-KS)
high gain Amplifier	EM	EM01G18GA	060839	1Ghz~18Ghz	Oct. 10, 2023	Mar. 28, 2024~Apr. 20, 2024	Oct. 09, 2024	Radiation (03CH05-KS)
Amplifier	EM	EM01G18GA	060833	1Ghz~18Ghz	Jan. 03, 2024	Mar. 28, 2024~Apr. 20, 2024	Jan. 02, 2025	Radiation (03CH05-KS)
AC Power Source	Chroma	61601	F104090004	N/A	NCR	Mar. 28, 2024~Apr. 20, 2024	NCR	Radiation (03CH05-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Mar. 28, 2024~Apr. 20, 2024	NCR	Radiation (03CH05-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Mar. 28, 2024~Apr. 20, 2024	NCR	Radiation (03CH05-KS)
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Oct. 11, 2023	Mar. 31, 2024~Apr. 30, 2024	Oct. 10, 2024	Conducted (TH01-KS)
Pulse Power Senor	Anritsu	MA2411B	0917070	300MHz~40GHz	Jan. 02, 2024	Mar. 31, 2024~Apr. 30, 2024	Jan. 01, 2025	Conducted (TH01-KS)
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Jan. 02, 2024	Mar. 31, 2024~Apr. 30, 2024	Jan. 01, 2025	Conducted (TH01-KS)

NCR: No Calibration Required

5 Measurement Uncertainty

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

Uncertainty of Conducted Measurement

Conducted Spurious Emission & Bandedge	± 2.26 dB
Occupied Channel Bandwidth	$\pm 0.1\%$
Conducted Power	± 0.46 dB
Conducted Power Spectral Density	± 0.88 dB
Frequency	± 0.4 Hz

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

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	3.30 dB
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Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ($U = 2Uc(y)$)	6.28 dB
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Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)

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

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

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



Appendix A. Conducted Test Results

A1. Conducted Test Results

Test Engineer:	Jiang Jun	Temperature:	21~25	°C
Test Date:	2024.3.31~2024.4.30	Relative Humidity:	51~54	%

TEST RESULTS DATA
Average Power Table

FCC U-NII-1 single antenna										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power with duty factor (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)		Pass/Fail
					Ant 1			Ant 1		
11a	6Mbps	1	36	5180	0.04	12.68	24.00	-0.10		Pass
11a	6Mbps	1	44	5220	0.04	12.91	24.00	-0.10		Pass
11a	6Mbps	1	48	5240	0.04	12.72	24.00	-0.10		Pass
HT20	MCS0	1	36	5180	0.00	12.88	24.00	-0.10		Pass
HT20	MCS0	1	44	5220	0.00	12.99	24.00	-0.10		Pass
HT20	MCS0	1	48	5240	0.00	12.93	24.00	-0.10		Pass
HT40	MCS0	1	38	5190	0.00	13.22	24.00	-0.10		Pass
HT40	MCS0	1	46	5230	0.00	13.37	24.00	-0.10		Pass
VHT20	MCS0	1	36	5180	0.00	12.95	24.00	-0.10		Pass
VHT20	MCS0	1	44	5220	0.00	13.06	24.00	-0.10		Pass
VHT20	MCS0	1	48	5240	0.00	12.97	24.00	-0.10		Pass
VHT40	MCS0	1	38	5190	0.00	13.25	24.00	-0.10		Pass
VHT40	MCS0	1	46	5230	0.00	13.41	24.00	-0.10		Pass
VHT80	MCS0	1	42	5210	0.00	13.43	24.00	-0.10		Pass
VHT160	MCS0	1	50	5250	0.00	12.38	24.00	-0.10		Pass

TEST RESULTS DATA
Average Power Table

FCC U-NII-2A single antenna										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power with duty factor (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
					Ant 1	Ant 1	Ant 1	Ant 1		
11a	6Mbps	1	52	5260	0.04	13.92	23.65	-1.00	30	Pass
11a	6Mbps	1	60	5300	0.04	13.81	23.65	-1.00	30	Pass
11a	6Mbps	1	64	5320	0.04	13.63	23.67	-1.00	30	Pass
HT20	MCS0	1	52	5260	0.00	14.15	23.97	-1.00	30	Pass
HT20	MCS0	1	60	5300	0.00	14.11	23.97	-1.00	30	Pass
HT20	MCS0	1	64	5320	0.00	14.05	23.98	-1.00	30	Pass
HT40	MCS0	1	54	5270	0.00	14.52	23.98	-1.00	30	Pass
HT40	MCS0	1	62	5310	0.00	14.38	23.98	-1.00	30	Pass
VHT20	MCS0	1	52	5260	0.00	14.17	23.97	-1.00	30	Pass
VHT20	MCS0	1	60	5300	0.00	14.14	23.97	-1.00	30	Pass
VHT20	MCS0	1	64	5320	0.00	14.07	23.98	-1.00	30	Pass
VHT40	MCS0	1	54	5270	0.00	14.57	23.98	-1.00	30	Pass
VHT40	MCS0	1	62	5310	0.00	14.42	23.98	-1.00	30	Pass
VHT80	MCS0	1	58	5290	0.00	14.46	23.98	-1.00	30	Pass
VHT160	MCS0	1	50	5250	0.00	12.38	23.98	-1.00	30	Pass

TEST RESULTS DATA
Average Power Table

FCC U-NII-2C single antenna										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power with duty factor (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
					Ant 1	Ant 1	Ant 1	Ant 1		
11a	6Mbps	1	100	5500	0.04	16.58	23.70	-1.20	30	Pass
11a	6Mbps	1	116	5580	0.04	16.35	23.72	-1.20	30	Pass
11a	6Mbps	1	140	5700	0.04	15.12	23.70	-1.20	30	Pass
HT20	MCS0	1	100	5500	0.00	16.07	23.98	-1.20	30	Pass
HT20	MCS0	1	116	5580	0.00	15.88	23.94	-1.20	30	Pass
HT20	MCS0	1	140	5700	0.00	13.48	23.98	-1.20	30	Pass
HT40	MCS0	1	102	5510	0.00	14.40	23.98	-1.20	30	Pass
HT40	MCS0	1	110	5550	0.00	15.46	23.98	-1.20	30	Pass
HT40	MCS0	1	134	5670	0.00	14.61	23.98	-1.20	30	Pass
VHT20	MCS0	1	100	5500	0.00	16.12	23.98	-1.20	30	Pass
VHT20	MCS0	1	116	5580	0.00	15.91	23.94	-1.20	30	Pass
VHT20	MCS0	1	140	5700	0.00	13.50	23.98	-1.20	30	Pass
VHT40	MCS0	1	102	5510	0.00	14.41	23.98	-1.20	30	Pass
VHT40	MCS0	1	110	5550	0.00	15.48	23.98	-1.20	30	Pass
VHT40	MCS0	1	134	5670	0.00	14.62	23.98	-1.20	30	Pass
VHT80	MCS0	1	106	5530	0.00	14.51	23.98	-1.20	30	Pass
VHT80	MCS0	1	122	5610	0.00	14.15	23.98	-1.20	30	Pass
VHT160	MCS0	1	114	5570	0.00	11.40	23.98	-1.20	30	Pass

FCC U-NII-2C straddle channel single antenna										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power with duty factor (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
					Ant 1	Ant 1	Ant 1	Ant 1		
11a	6Mbps	1	144	5720	0.04	16.38	23.72	-1.20	30	Pass
HT20	MCS0	1	144	5720	0.00	15.93	23.98	-1.20	30	Pass
HT40	MCS0	1	142	5710	0.00	15.03	23.98	-1.20	30	Pass
VHT20	MCS0	1	144	5720	0.00	15.95	23.98	-1.20	30	Pass
VHT40	MCS0	1	142	5710	0.00	15.05	23.98	-1.20	30	Pass
VHT80	MCS0	1	138	5690	0.00	14.01	23.98	-1.20	30	Pass

TEST RESULTS DATA
Average Power Table

FCC U-NII-1 single antenna											
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)	Average Conducted Power with duty factor (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)		Pass/Fail
						Ant 1	Ant 1	Ant 1	Ant 1		
HE20	MCS0	1	36	5180	Full	0.00	13.04	24.00	-0.10		Pass
HE20	MCS0	1	36	5180	26/0	0.00	4.86	24.00	-0.10		Pass
HE20	MCS0	1	36	5180	52/37	0.00	7.71	24.00	-0.10		Pass
HE20	MCS0	1	36	5180	106/53	0.00	10.52	24.00	-0.10		Pass
HE20	MCS0	1	44	5220	Full	0.00	13.11	24.00	-0.10		Pass
HE20	MCS0	1	44	5220	26/0	0.00	4.92	24.00	-0.10		Pass
HE20	MCS0	1	44	5220	52/37	0.00	7.88	24.00	-0.10		Pass
HE20	MCS0	1	44	5220	106/53	0.00	10.74	24.00	-0.10		Pass
HE20	MCS0	1	48	5240	Full	0.00	13.01	24.00	-0.10		Pass
HE20	MCS0	1	48	5240	26/8	0.00	4.73	24.00	-0.10		Pass
HE20	MCS0	1	48	5240	52/40	0.00	7.69	24.00	-0.10		Pass
HE20	MCS0	1	48	5240	106/54	0.00	10.57	24.00	-0.10		Pass
HE40	MCS0	1	38	5190	Full	0.00	13.28	24.00	-0.10		Pass
HE40	MCS0	1	46	5230	Full	0.00	13.46	24.00	-0.10		Pass
HE80	MCS0	1	42	5210	Full	0.00	13.52	24.00	-0.10		Pass
HE160	MCS0	1	50	5250	Full	0.00	12.41	24.00	-0.10		Pass

TEST RESULTS DATA
Average Power Table

FCC U-NII-2A single antenna											
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)	Average Conducted Power with duty factor (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
						Ant 1	Ant 1	Ant 1	Ant 1		
HE20	MCS0	1	52	5260	Full	0.00	14.41	23.98	-1.00	30	Pass
HE20	MCS0	1	52	5260	26/0	0.00	5.75	23.98	-1.00	30	Pass
HE20	MCS0	1	52	5260	52/37	0.00	9.04	23.98	-1.00	30	Pass
HE20	MCS0	1	52	5260	106/53	0.00	12.01	23.98	-1.00	30	Pass
HE20	MCS0	1	60	5300	Full	0.00	14.25	23.98	-1.00	30	Pass
HE20	MCS0	1	60	5300	26/0	0.00	5.63	23.98	-1.00	30	Pass
HE20	MCS0	1	60	5300	52/37	0.00	8.97	23.98	-1.00	30	Pass
HE20	MCS0	1	60	5300	106/53	0.00	11.82	23.98	-1.00	30	Pass
HE20	MCS0	1	64	5320	Full	0.00	14.08	23.98	-1.00	30	Pass
HE20	MCS0	1	64	5320	26/8	0.00	5.39	23.98	-1.00	30	Pass
HE20	MCS0	1	64	5320	52/40	0.00	8.96	23.98	-1.00	30	Pass
HE20	MCS0	1	64	5320	106/54	0.00	11.78	23.98	-1.00	30	Pass
HE40	MCS0	1	54	5270	Full	0.00	14.61	23.98	-1.00	30	Pass
HE40	MCS0	1	62	5310	Full	0.00	14.46	23.98	-1.00	30	Pass
HE80	MCS0	1	58	5290	Full	0.00	14.47	23.98	-1.00	30	Pass
HE160	MCS0	1	50	5250	Full	0.00	12.41	23.98	-1.00	30	Pass

TEST RESULTS DATA
Average Power Table

FCC U-NII-2C single antenna											
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)	Average Conducted Power with duty factor (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
						Ant 1	Ant 1	Ant 1	Ant 1		
HE20	MCS0	1	100	5500	Full	0.00	16.14	23.98	-1.20	30	Pass
HE20	MCS0	1	100	5500	26/0	0.00	8.33	23.98	-1.20	30	Pass
HE20	MCS0	1	100	5500	52/37	0.00	11.09	23.98	-1.20	30	Pass
HE20	MCS0	1	100	5500	106/53	0.00	13.99	23.98	-1.20	30	Pass
HE20	MCS0	1	116	5580	Full	0.00	15.92	23.98	-1.20	30	Pass
HE20	MCS0	1	116	5580	26/0	0.00	8.56	23.98	-1.20	30	Pass
HE20	MCS0	1	116	5580	52/37	0.00	11.15	23.98	-1.20	30	Pass
HE20	MCS0	1	116	5580	106/53	0.00	14.18	23.98	-1.20	30	Pass
HE20	MCS0	1	140	5700	Full	0.00	13.51	23.98	-1.20	30	Pass
HE20	MCS0	1	140	5700	26/8	0.00	6.27	23.98	-1.20	30	Pass
HE20	MCS0	1	140	5700	52/40	0.00	9.28	23.98	-1.20	30	Pass
HE20	MCS0	1	140	5700	106/54	0.00	11.92	23.98	-1.20	30	Pass
HE40	MCS0	1	102	5510	Full	0.00	14.50	23.98	-1.20	30	Pass
HE40	MCS0	1	110	5550	Full	0.00	15.49	23.98	-1.20	30	Pass
HE40	MCS0	1	134	5670	Full	0.00	14.63	23.98	-1.20	30	Pass
HE80	MCS0	1	106	5530	Full	0.00	14.52	23.98	-1.20	30	Pass
HE80	MCS0	1	122	5610	Full	0.00	14.18	23.98	-1.20	30	Pass
HE160	MCS0	1	114	5570	Full	0.00	11.58	23.98	-1.20	30	Pass

FCC U-NII-2C straddle channel single antenna											
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)	Average Conducted Power with duty factor (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	EIRP Power Limit (dBm)	Pass/Fail
						Ant 1	Ant 1	Ant 1	Ant 1		
HE20	MCS0	1	144	5720	Full	0.00	15.98	23.98	-1.20	30	Pass
HE20	MCS0	1	144	5720	26/8	0.00	8.52	23.98	-1.20	30	Pass
HE20	MCS0	1	144	5720	52/40	0.00	11.36	23.98	-1.20	30	Pass
HE20	MCS0	1	144	5720	106/54	0.00	14.27	23.98	-1.20	30	Pass
HE40	MCS0	1	142	5710	Full	0.00	15.07	23.98	-1.20	30	Pass
HE80	MCS0	1	138	5690	Full	0.00	14.03	23.98	-1.20	30	Pass

TEST RESULTS DATA
Average Power Table

U-NII-3 single antenna									
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	Duty Factor (dB)	Average Conducted Power with duty factor (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	Pass/Fail
					Ant 1	Ant 1	Ant 1	Ant 1	
11a	6Mbps	1	149	5745	0.04	16.63	30.00	-1.00	Pass
11a	6Mbps	1	157	5785	0.04	16.78	30.00	-1.00	Pass
11a	6Mbps	1	165	5825	0.04	16.86	30.00	-1.00	Pass
HT20	MCS0	1	149	5745	0.00	16.12	30.00	-1.00	Pass
HT20	MCS0	1	157	5785	0.00	16.32	30.00	-1.00	Pass
HT20	MCS0	1	165	5825	0.00	16.36	30.00	-1.00	Pass
HT40	MCS0	1	151	5755	0.00	15.73	30.00	-1.00	Pass
HT40	MCS0	1	159	5795	0.00	15.88	30.00	-1.00	Pass
VHT20	MCS0	1	149	5745	0.00	16.16	30.00	-1.00	Pass
VHT20	MCS0	1	157	5785	0.00	16.35	30.00	-1.00	Pass
VHT20	MCS0	1	165	5825	0.00	16.41	30.00	-1.00	Pass
VHT40	MCS0	1	151	5755	0.00	15.74	30.00	-1.00	Pass
VHT40	MCS0	1	159	5795	0.00	15.90	30.00	-1.00	Pass
VHT80	MCS0	1	155	5775	0.00	14.70	30.00	-1.00	Pass

TEST RESULTS DATA
Average Power Table

U-NII-3 single antenna										
Mod.	Data Rate	NTX	CH.	Freq. (MHz)	RU Config.	Duty Factor (dB)	Average Conducted Power with duty factor (dBm)	FCC Conducted Power Limit (dBm)	DG (dBi)	Pass/Fail
						Ant 1	Ant 1	Ant 1	Ant 1	
HE20	MCS0	1	149	5745	Full	0.00	16.28	30.00	-1.00	Pass
HE20	MCS0	1	149	5745	26/0	0.00	9.04	30.00	-1.00	Pass
HE20	MCS0	1	149	5745	52/37	0.00	11.82	30.00	-1.00	Pass
HE20	MCS0	1	149	5745	106/53	0.00	14.72	30.00	-1.00	Pass
HE20	MCS0	1	157	5785	Full	0.00	16.53	30.00	-1.00	Pass
HE20	MCS0	1	157	5785	26/0	0.00	9.26	30.00	-1.00	Pass
HE20	MCS0	1	157	5785	52/37	0.00	11.96	30.00	-1.00	Pass
HE20	MCS0	1	157	5785	106/53	0.00	14.86	30.00	-1.00	Pass
HE20	MCS0	1	165	5825	Full	0.00	16.56	30.00	-1.00	Pass
HE20	MCS0	1	165	5825	26/8	0.00	9.38	30.00	-1.00	Pass
HE20	MCS0	1	165	5825	52/40	0.00	12.24	30.00	-1.00	Pass
HE20	MCS0	1	165	5825	106/54	0.00	15.13	30.00	-1.00	Pass
HE40	MCS0	1	151	5755	Full	0.00	15.77	30.00	-1.00	Pass
HE40	MCS0	1	159	5795	Full	0.00	15.92	30.00	-1.00	Pass
HE80	MCS0	1	155	5775	Full	0.00	14.72	30.00	-1.00	Pass



Emission Bandwidth

Test Result

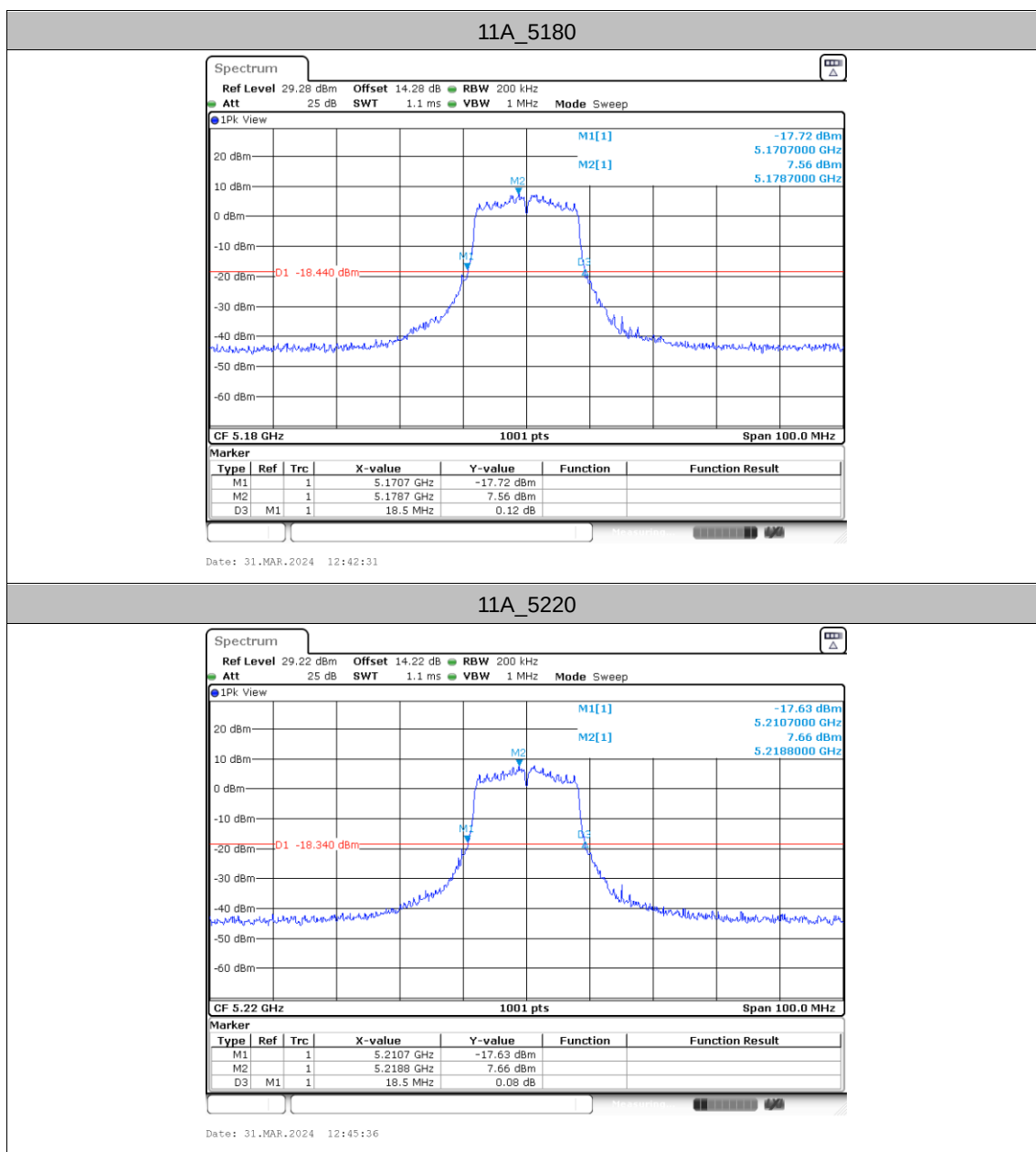
TestMode	Freq(MHz)	26dB EBW [MHz]	FL[MHz]	FH[MHz]
11A	5180	18.50	5170.70	5189.20
	5220	18.50	5210.70	5229.20
	5240	18.30	5230.90	5249.20
	5260	18.40	5250.80	5269.20
	5300	18.40	5290.70	5309.10
	5320	18.50	5310.70	5329.20
	5500	18.60	5490.60	5509.20
	5580	18.70	5570.60	5589.30
	5700	18.60	5690.70	5709.30
	5720	18.70	5710.60	5729.30
	5745	18.70	5735.70	5754.40
	5785	18.70	5775.60	5794.30
	5825	18.60	5815.70	5834.30
11AC20SISO	5180	19.70	5170.20	5189.90
	5220	20.50	5210.00	5230.50
	5240	19.70	5230.20	5249.90
	5260	19.80	5250.10	5269.90
	5300	19.80	5290.00	5309.80
	5320	20.40	5310.10	5330.50
	5500	20.00	5489.90	5509.90
	5580	19.70	5570.10	5589.80
	5700	20.10	5690.00	5710.10
	5720	20.10	5710.20	5730.30
	5745	20.30	5735.10	5755.40
	5785	20.00	5775.10	5795.10
	5825	20.10	5815.10	5835.20
11AC40SISO	5190	39.40	5170.40	5209.80
	5230	39.80	5210.20	5250.00
	5270	39.40	5250.40	5289.80
	5310	39.60	5290.20	5329.80
	5510	40.00	5490.00	5530.00
	5550	39.60	5530.40	5570.00
	5670	39.60	5650.20	5689.80
	5710	39.40	5690.40	5729.80
	5755	40.00	5735.00	5775.00
	5795	39.60	5775.40	5815.00
11AC80SISO	5210	80.40	5170.00	5250.40
	5290	80.40	5250.00	5330.40

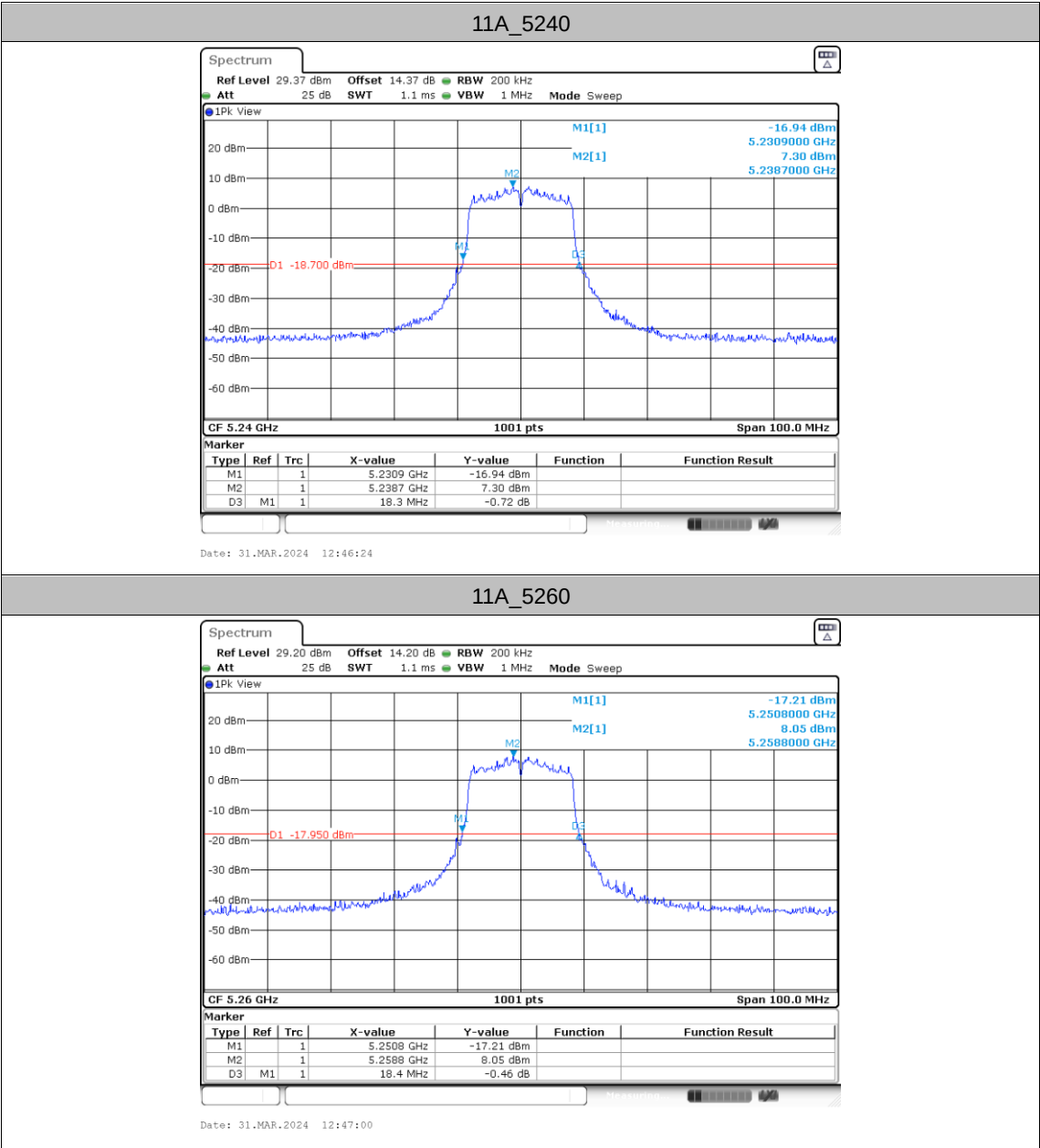


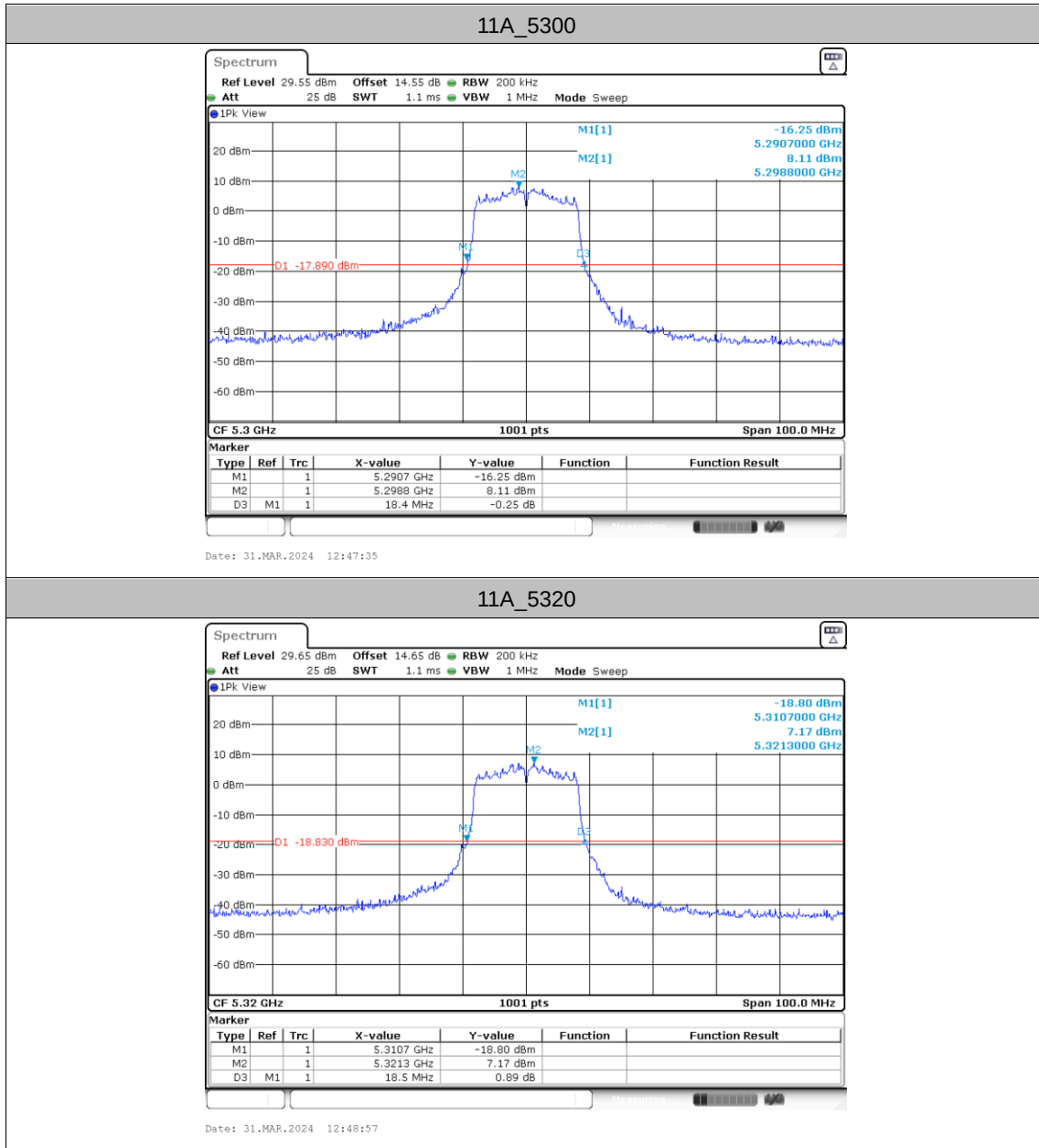
	5530	81.20	5489.20	5570.40
	5610	100.00	5550.80	5650.80
	5690	96.40	5634.00	5730.40
	5775	80.80	5734.60	5815.40
11AC160SISO	5250	163.20	5168.40	5331.60
	5570	162.40	5488.40	5650.80
11AX20SISO	5180	20.70	5169.60	5190.30
	5220	20.30	5209.80	5230.10
	5240	20.50	5229.70	5250.20
	5260	20.60	5249.60	5270.20
	5300	20.80	5289.50	5310.30
	5320	20.60	5309.60	5330.20
	5500	20.90	5489.50	5510.40
	5580	20.80	5569.60	5590.40
	5700	20.80	5689.70	5710.50
	5720	20.50	5709.80	5730.30
	5745	21.10	5734.40	5755.50
	5785	20.80	5774.60	5795.40
	5825	20.80	5814.70	5835.50
11AX40SISO	5190	40.40	5170.00	5210.40
	5230	40.00	5210.00	5250.00
	5270	40.00	5250.20	5290.20
	5310	40.20	5290.00	5330.20
	5510	40.20	5490.00	5530.20
	5550	40.00	5530.00	5570.00
	5670	40.20	5650.00	5690.20
	5710	40.00	5690.00	5730.00
	5755	40.20	5735.00	5775.20
	5795	40.20	5775.00	5815.20
11AX80SISO	5210	81.20	5169.60	5250.80
	5290	81.20	5249.60	5330.80
	5530	81.60	5489.20	5570.80
	5610	81.60	5569.60	5651.20
	5690	82.00	5649.20	5731.20
	5775	81.20	5734.60	5815.80
11AX160SISO	5250	163.20	5168.40	5331.60
	5570	163.20	5488.40	5651.60

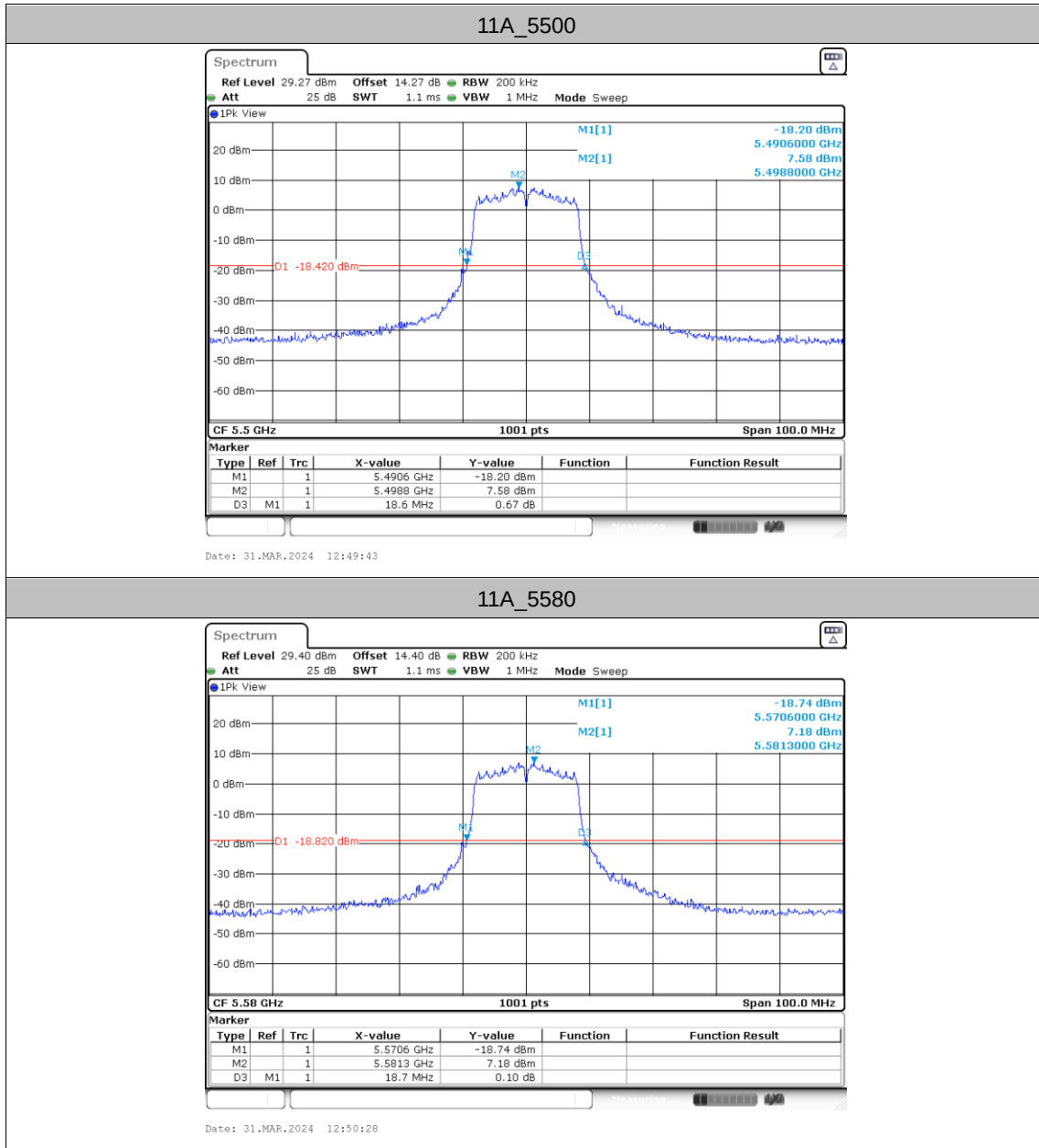


Test Graphs



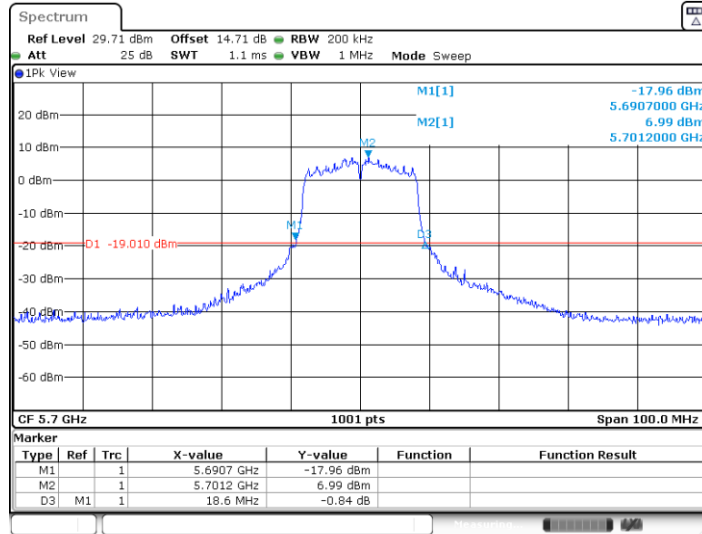






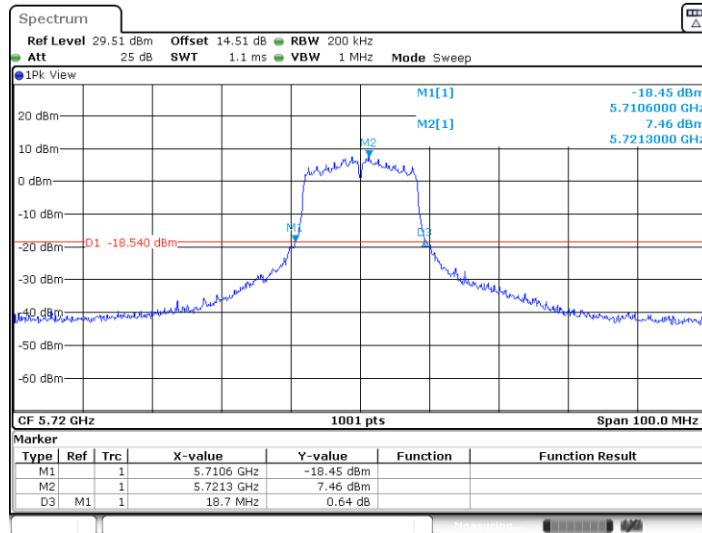


11A_5700

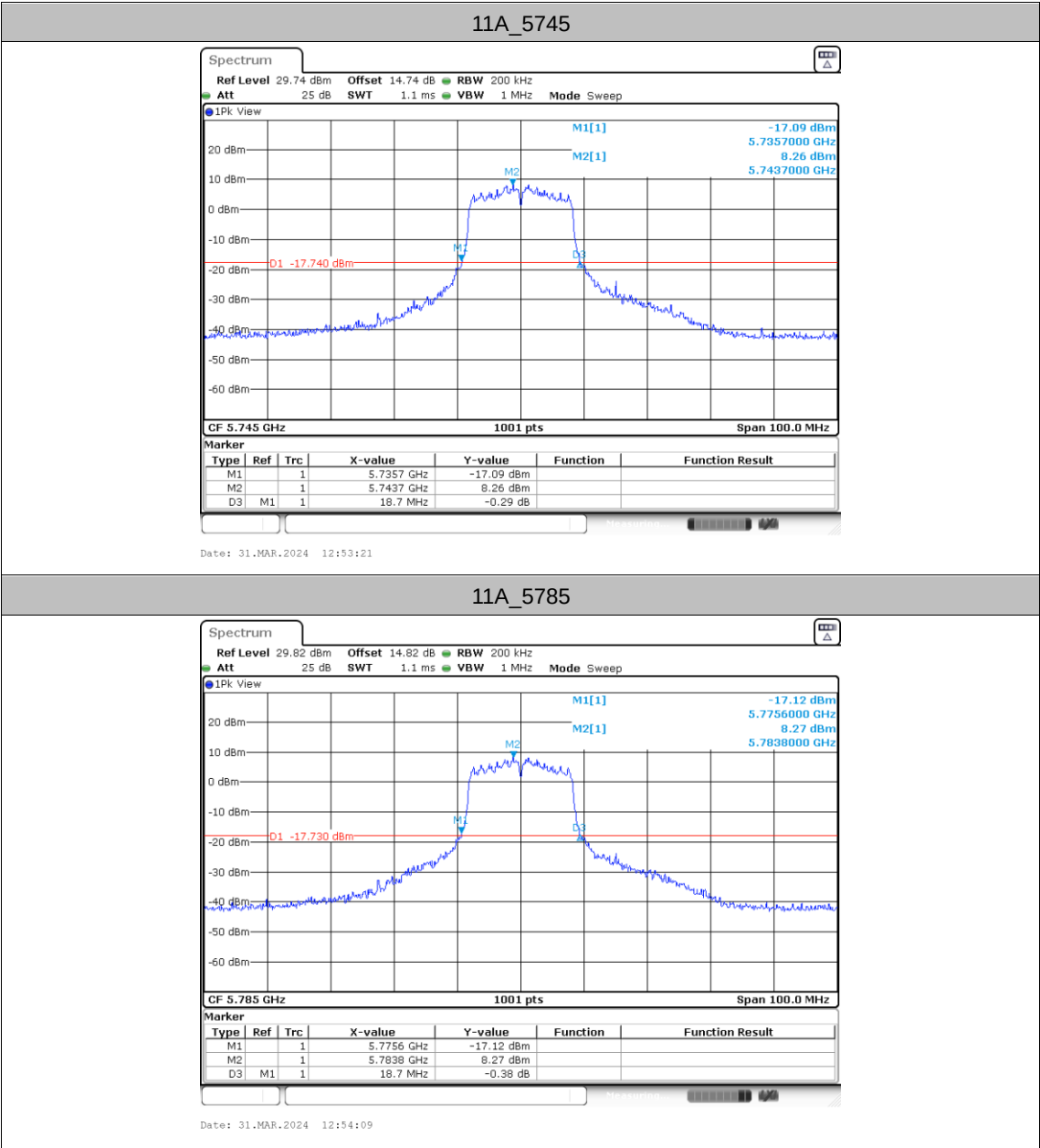


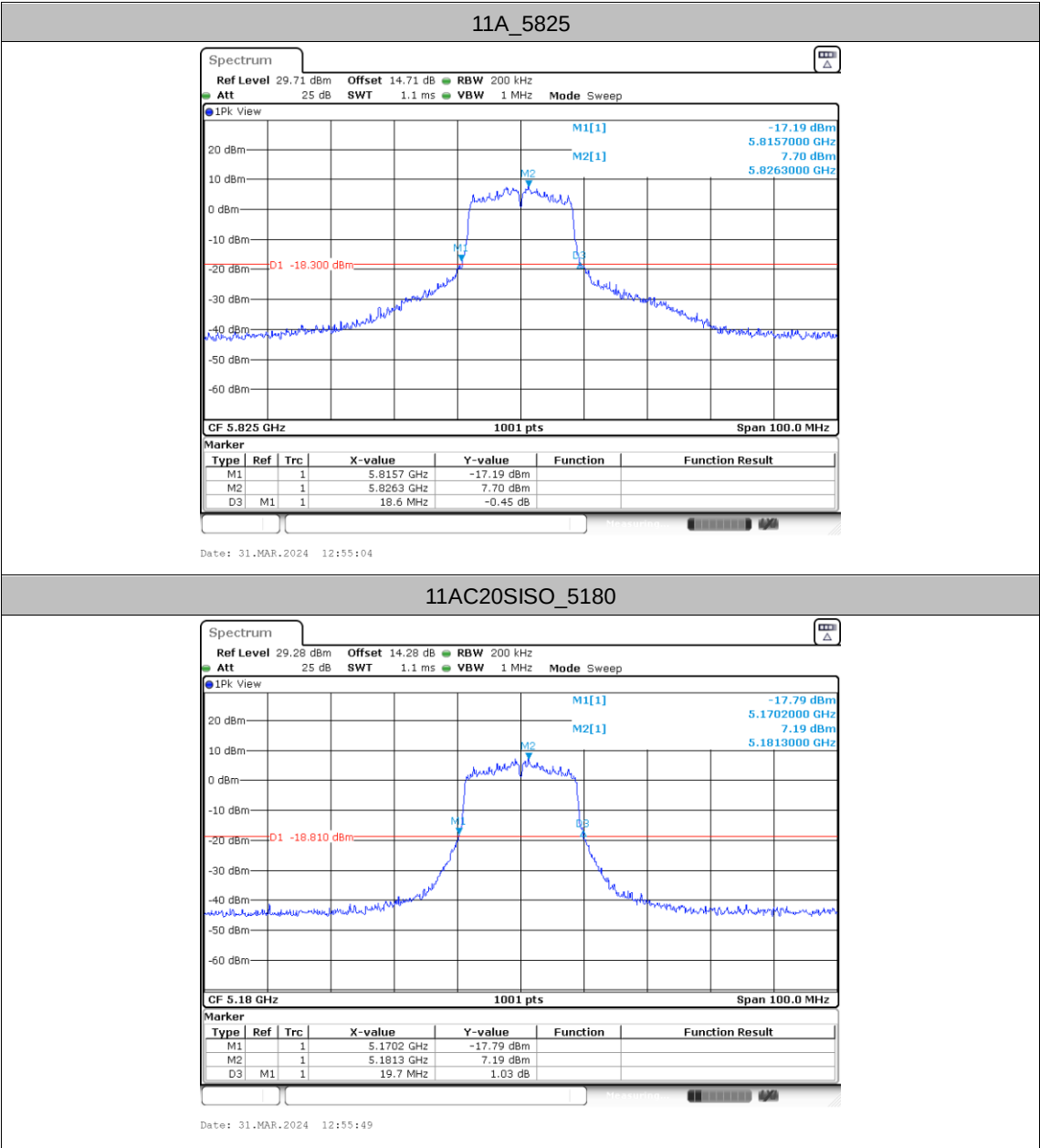
Date: 31.MAR.2024 12:51:15

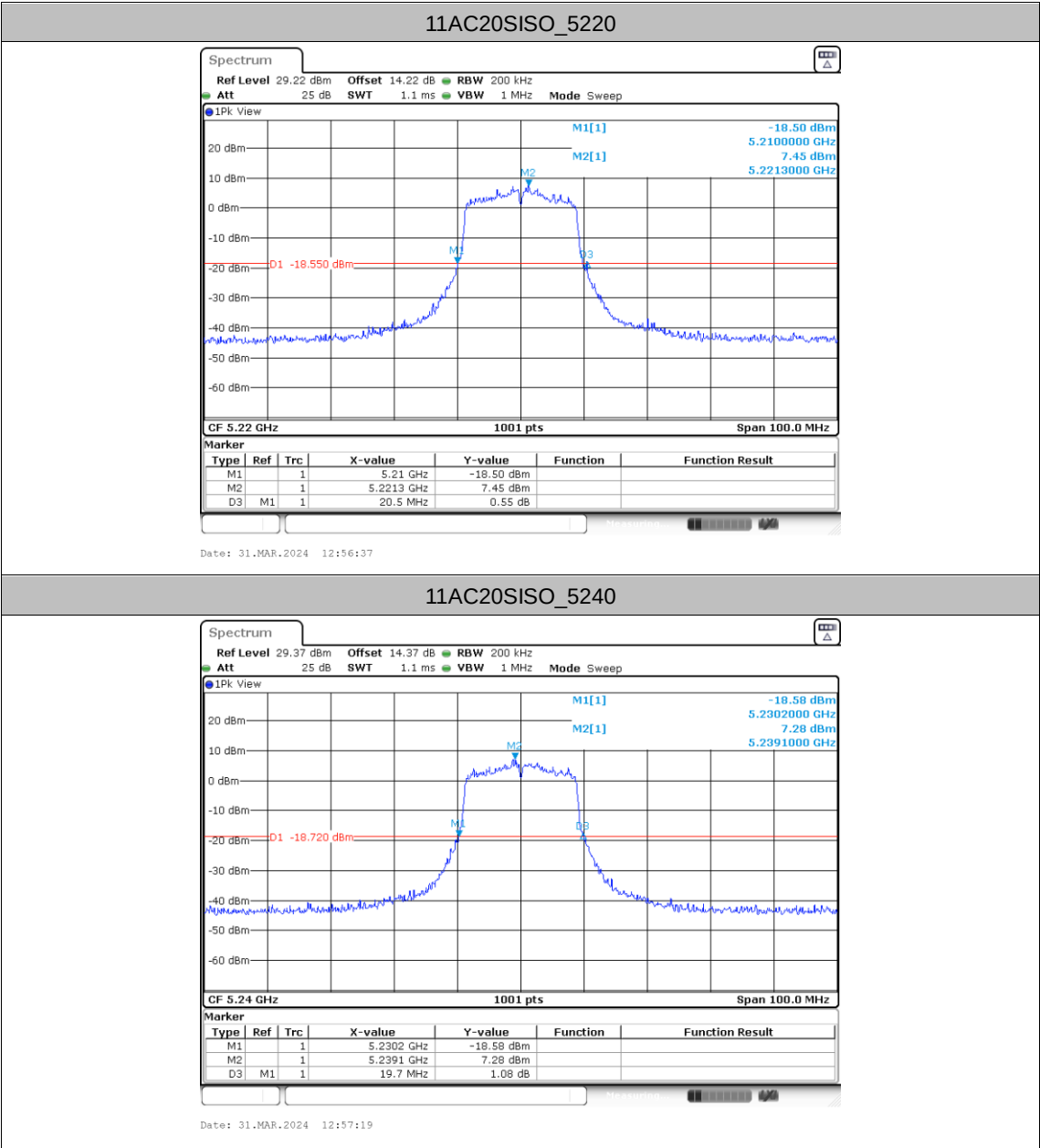
11A_5720



Date: 31.MAR.2024 12:52:13







11AC20SISO_5240

Spectrum

Ref Level 29.37 dBm

Offset 14.37 dB

RBW 200 kHz

Att 25 dB

SWT 1.1 ms

VBW 1 MHz

Mode Sweep

IPk View

20 dBm

10 dBm

0 dBm

-10 dBm

-20 dBm

-30 dBm

-40 dBm

-50 dBm

-60 dBm

M1[1]

M2[1]

M2

M1

D3

-18.58 dBm

5.2302000 GHz

7.28 dBm

5.2391000 GHz

CF 5.24 GHz

1001 pts

Span 100.0 MHz

Marker

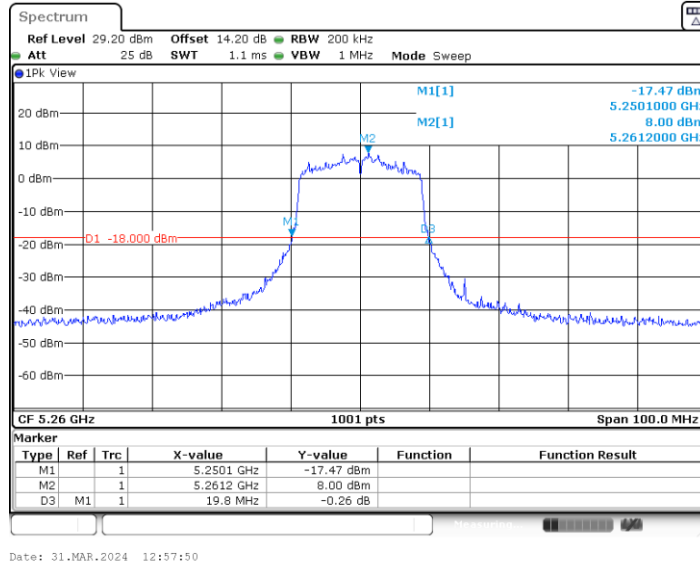
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.2302 GHz	-18.58 dBm		
M2		1	5.2391 GHz	7.28 dBm		
D3	M1	1	19.7 MHz	1.08 dB		

Date: 31.MAR.2024

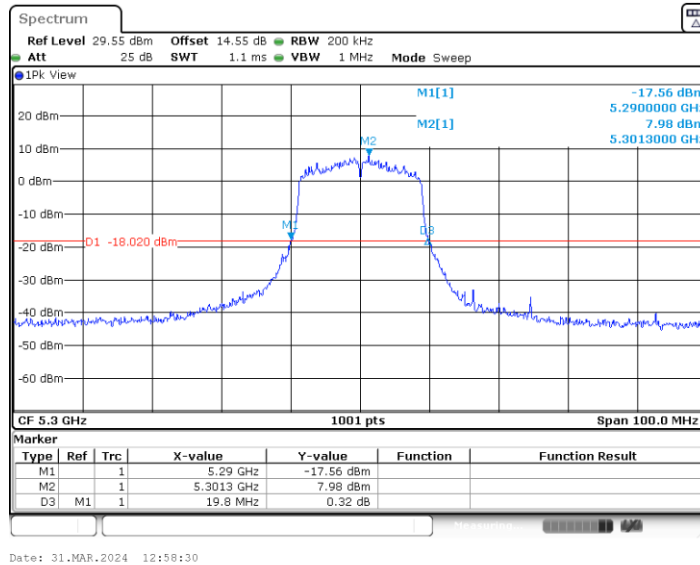
12:57:19



11AC20SISO_5260

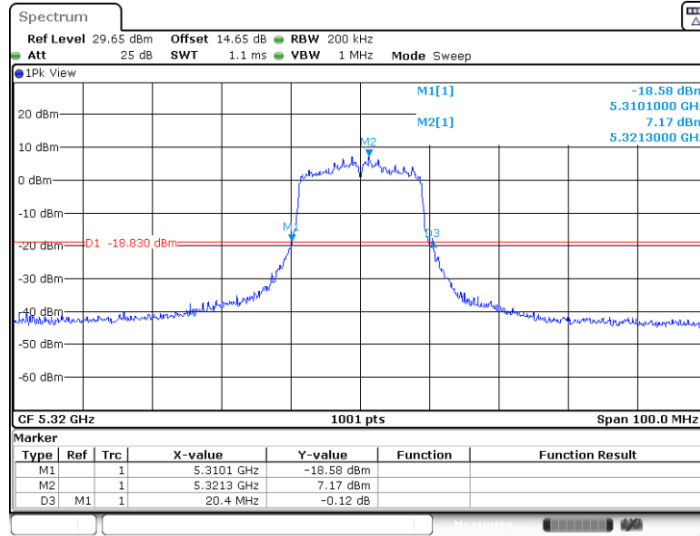


11AC20SISO_5300



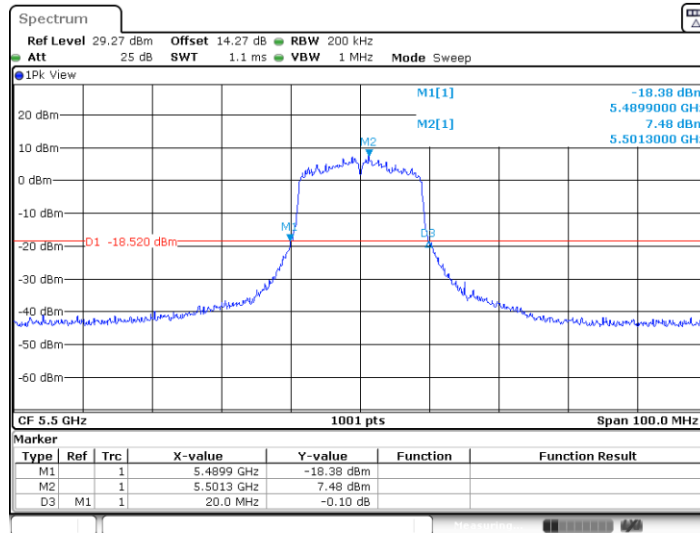


11AC20SISO_5320



Date: 31.MAR.2024 12:59:01

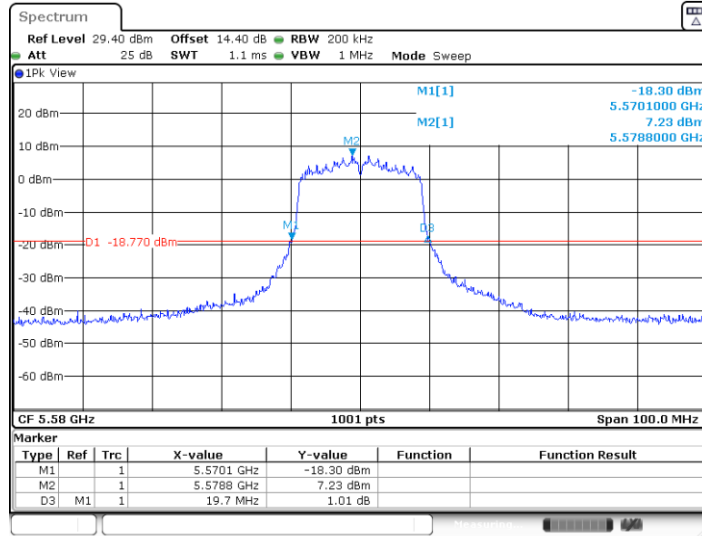
11AC20SISO_5500



Date: 31.MAR.2024 12:59:48

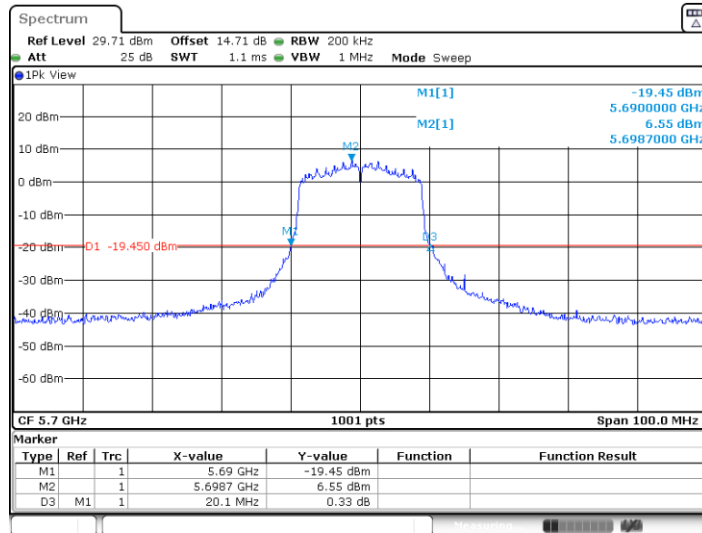


11AC20SISO_5580



Date: 31.MAR.2024 13:00:19

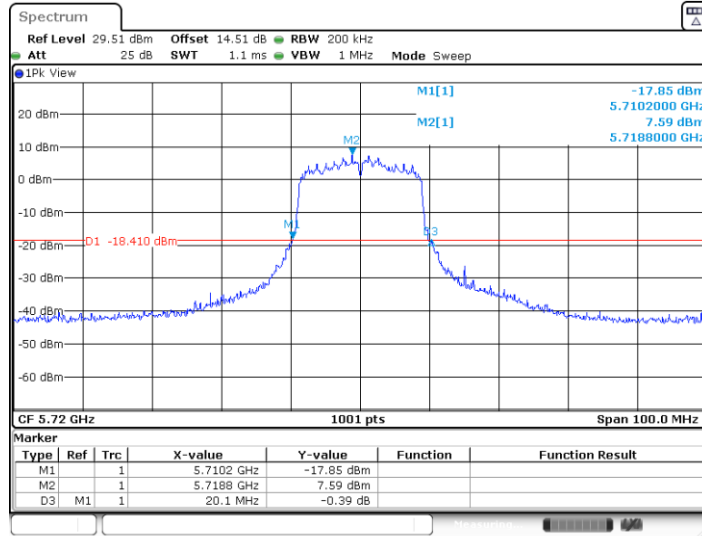
11AC20SISO_5700



Date: 31.MAR.2024 13:00:48

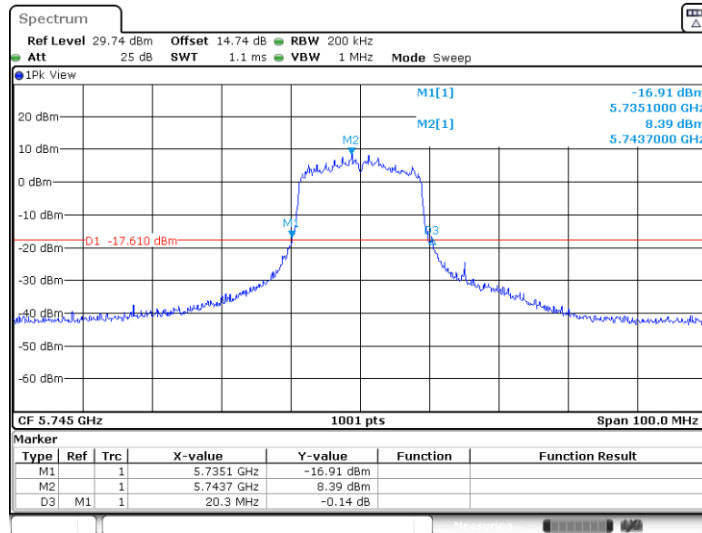


11AC20SISO_5720



Date: 31.MAR.2024 13:01:33

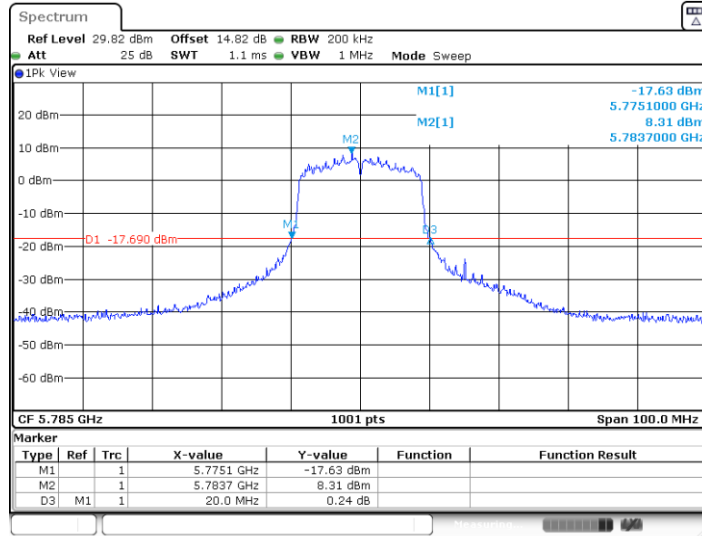
11AC20SISO_5745



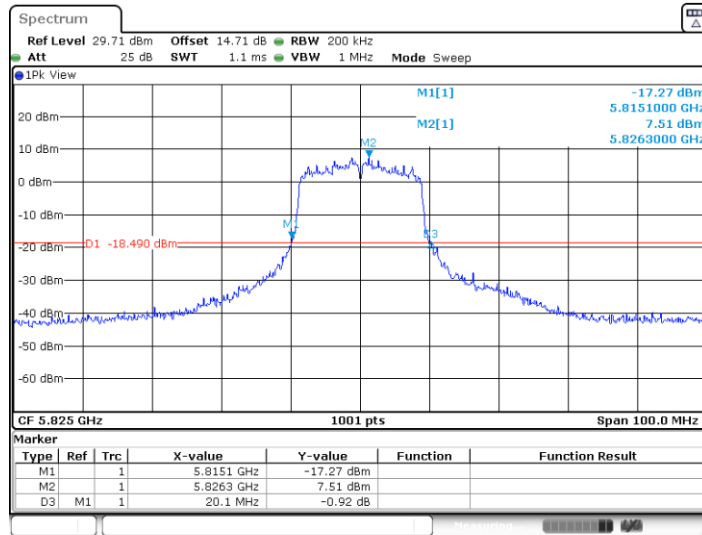
Date: 31.MAR.2024 13:02:14



11AC20SISO_5785

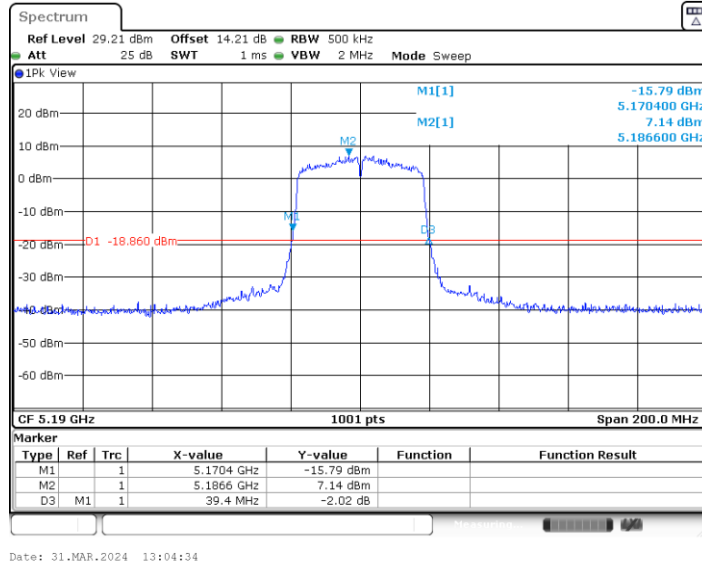


11AC20SISO_5825

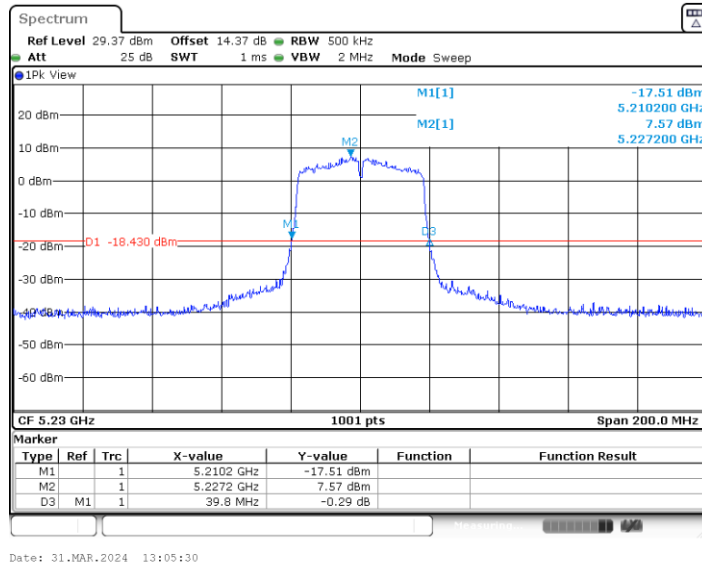




11AC40SISO_5190

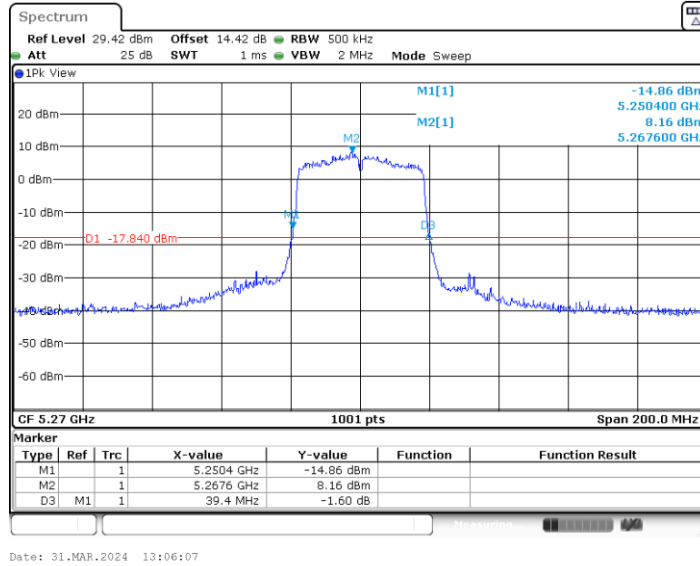


11AC40SISO_5230

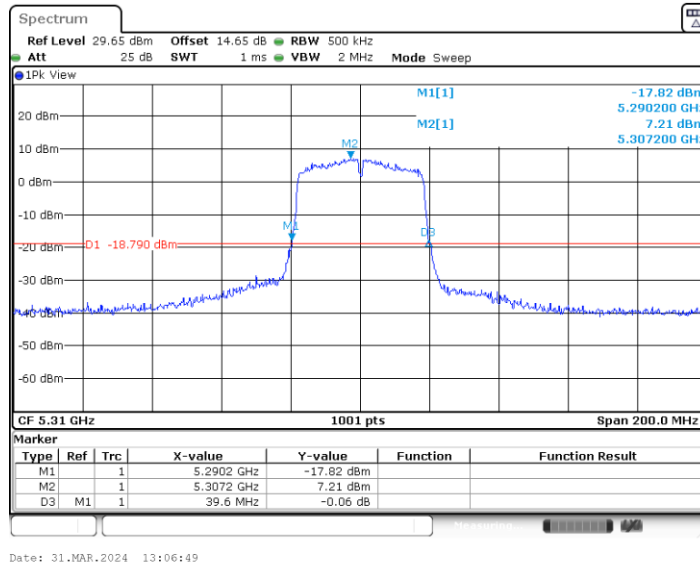




11AC40SISO_5270

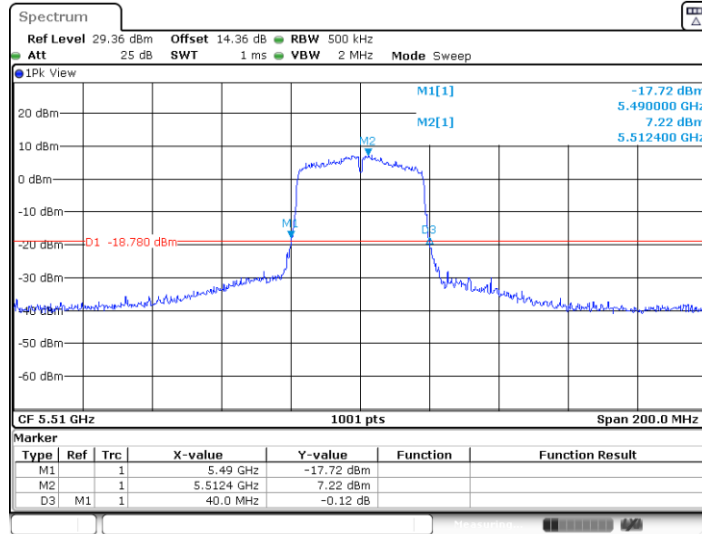


11AC40SISO_5310



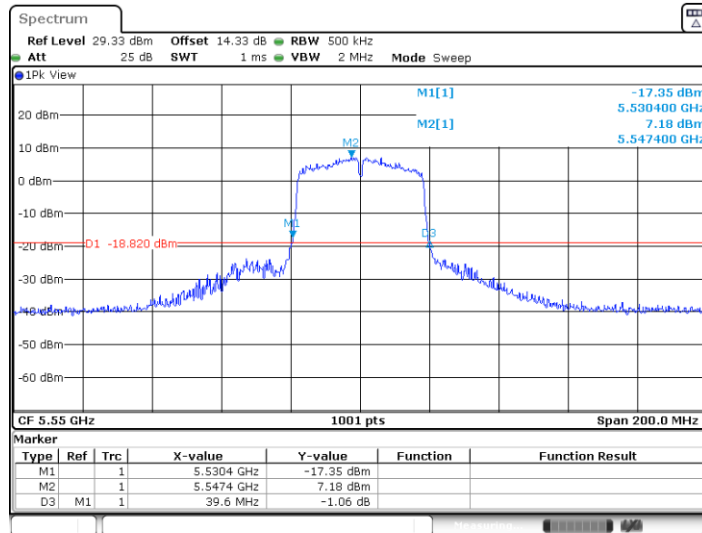


11AC40SISO_5510



Date: 31.MAR.2024 13:07:20

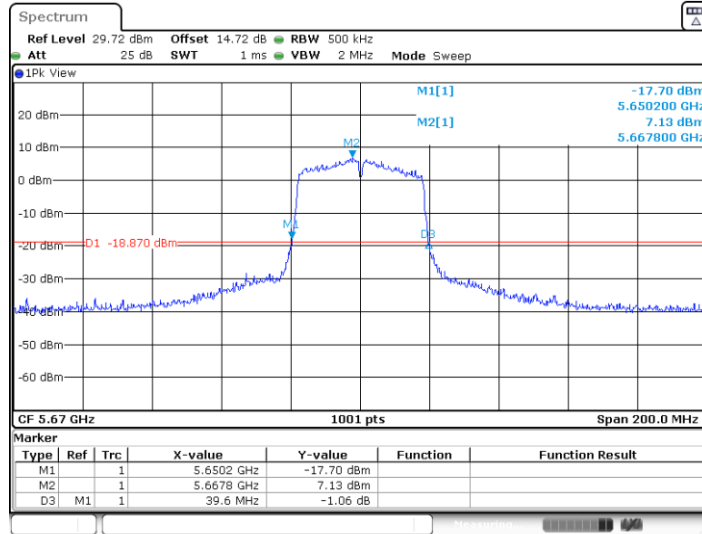
11AC40SISO_5550



Date: 31.MAR.2024 13:07:48

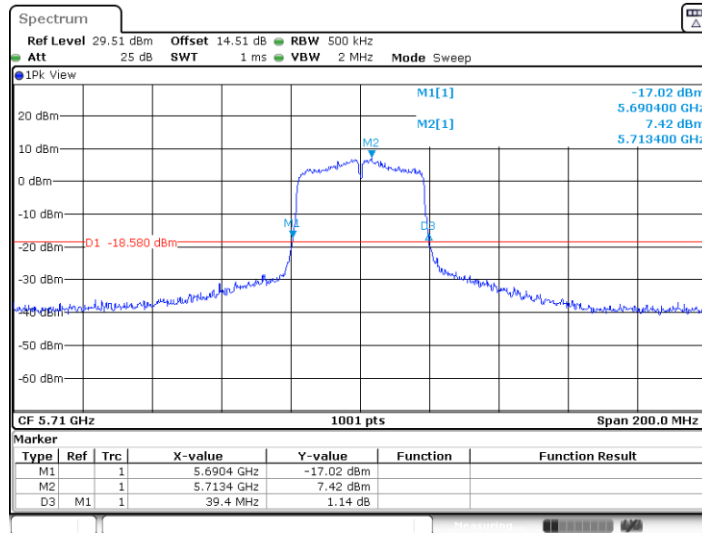


11AC40SISO_5670



Date: 31.MAR.2024 13:08:29

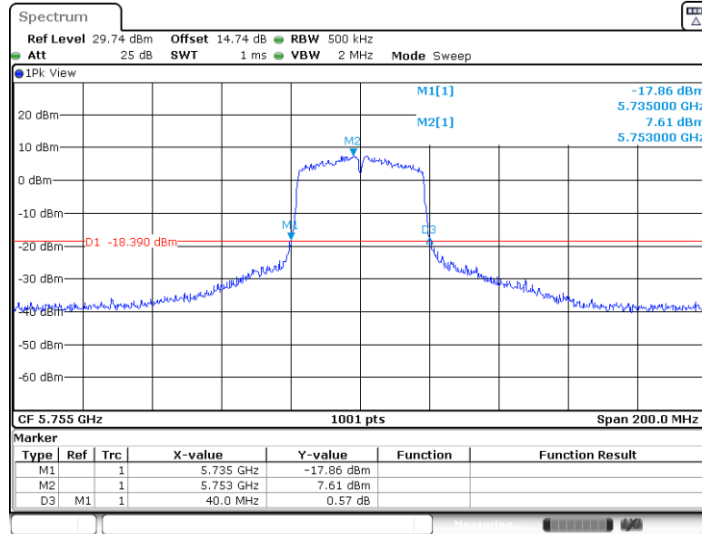
11AC40SISO_5710



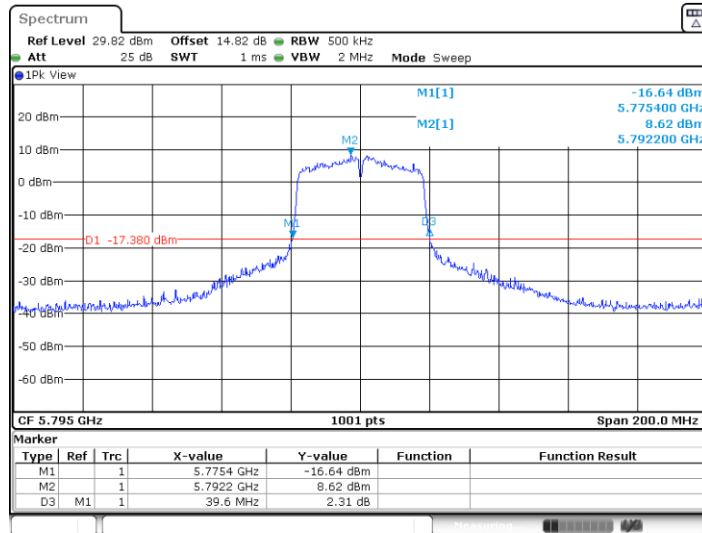
Date: 31.MAR.2024 13:09:01



11AC40SISO_5755

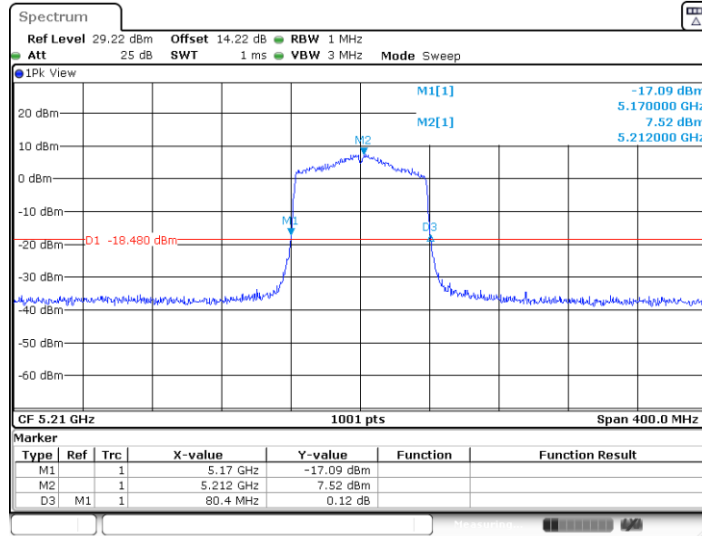


11AC40SISO_5795



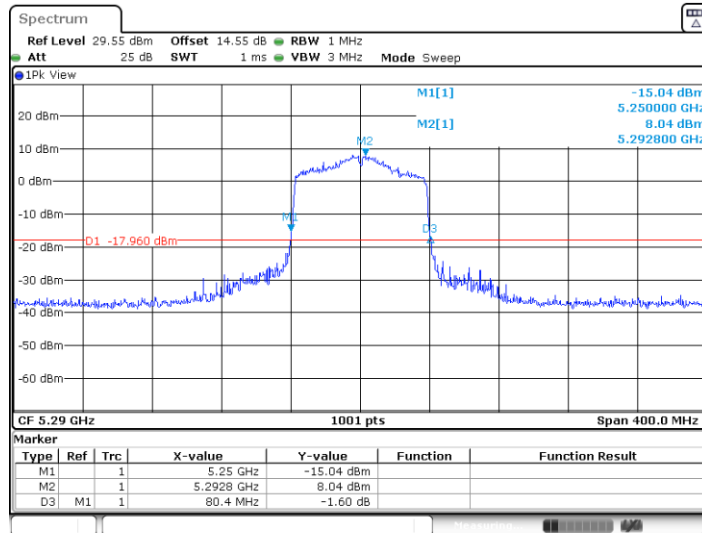


11AC80SISO_5210



Date: 31.MAR.2024 13:11:02

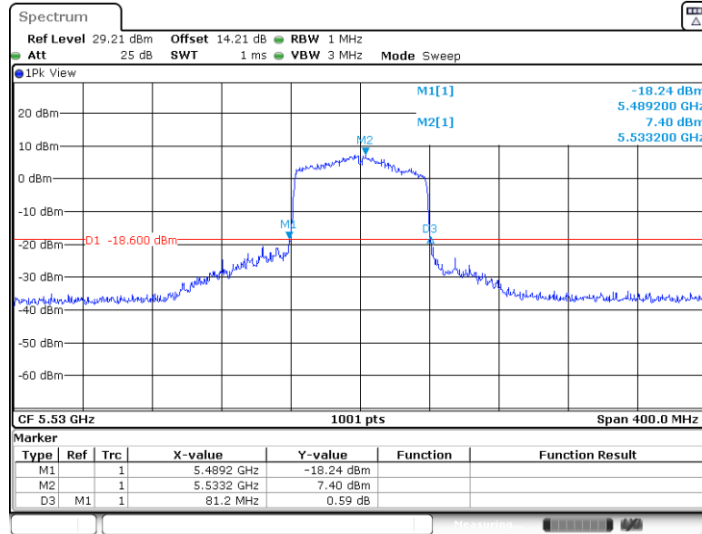
11AC80SISO_5290



Date: 31.MAR.2024 13:11:47

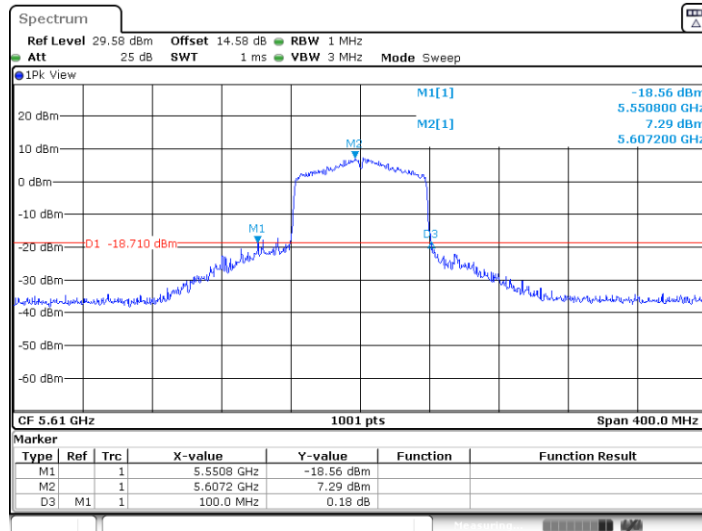


11AC80SISO_5530



Date: 31.MAR.2024 13:12:35

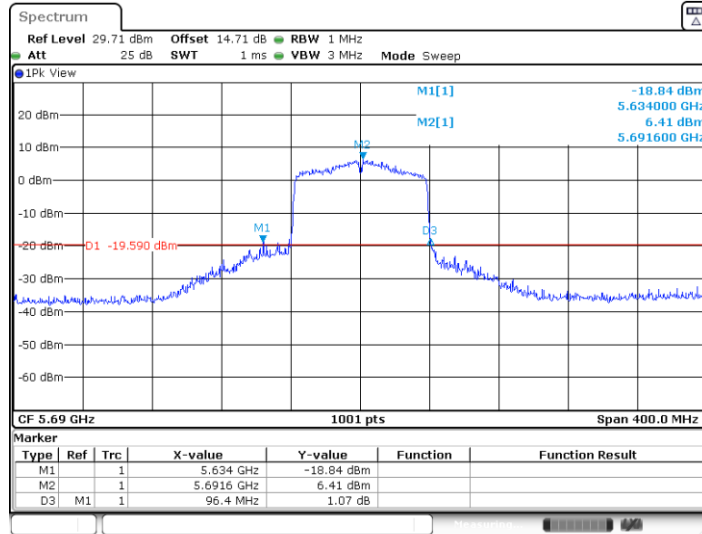
11AC80SISO_5610



Date: 31.MAR.2024 13:13:05

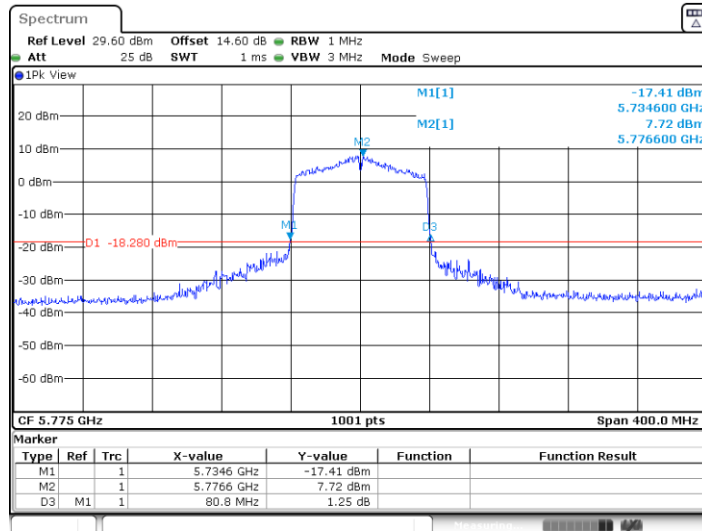


11AC80SISO_5690



Date: 31.MAR.2024 13:13:35

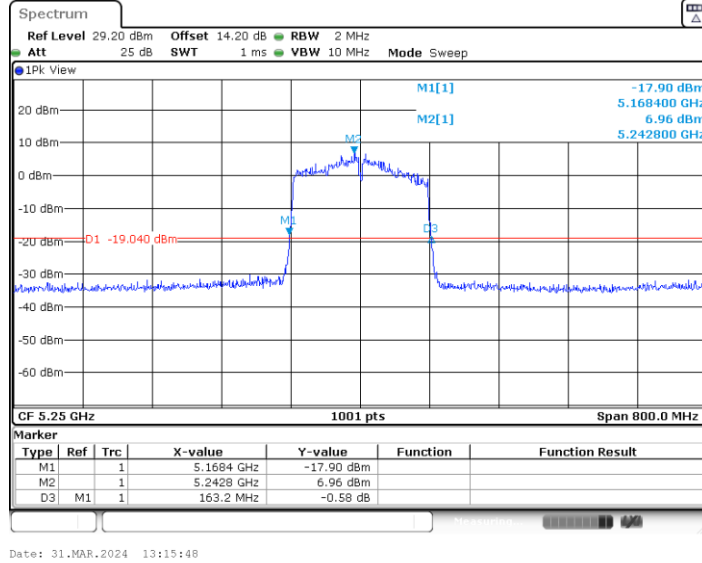
11AC80SISO_5775



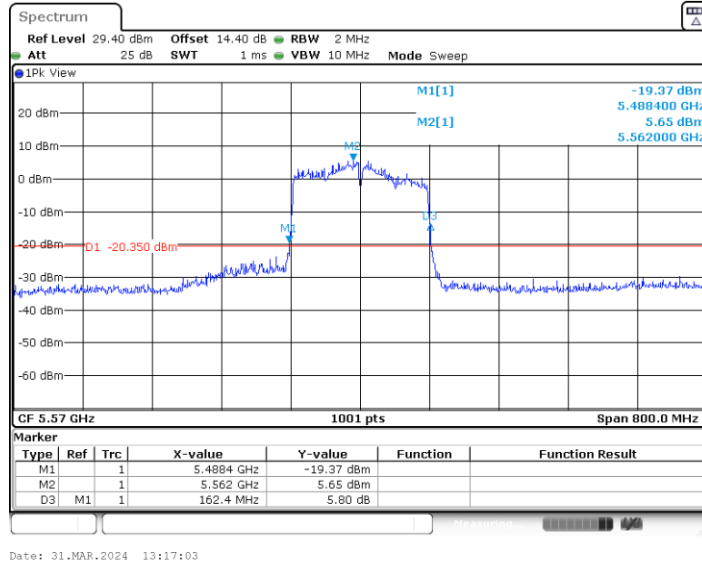
Date: 31.MAR.2024 13:14:29



11AC160SISO_5250

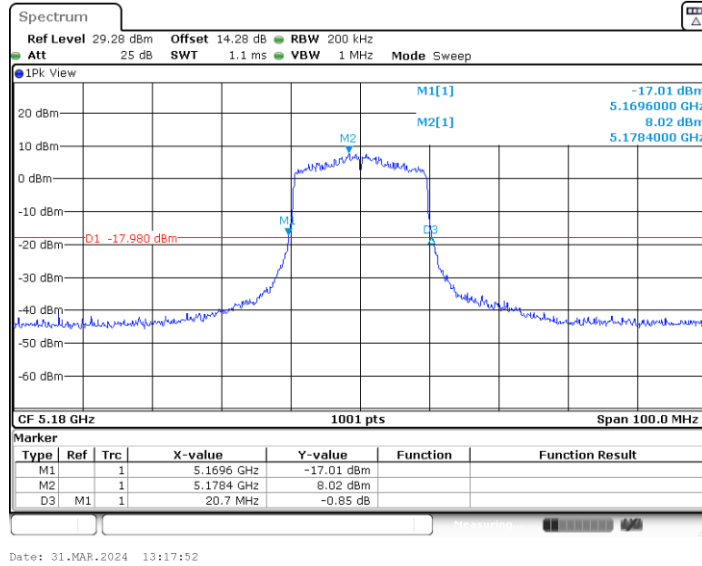


11AC160SISO_5570

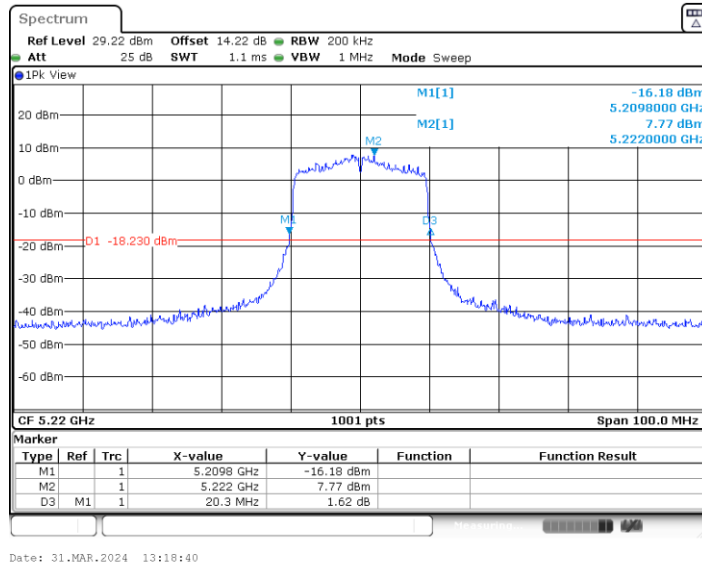




11AX20SISO_5180

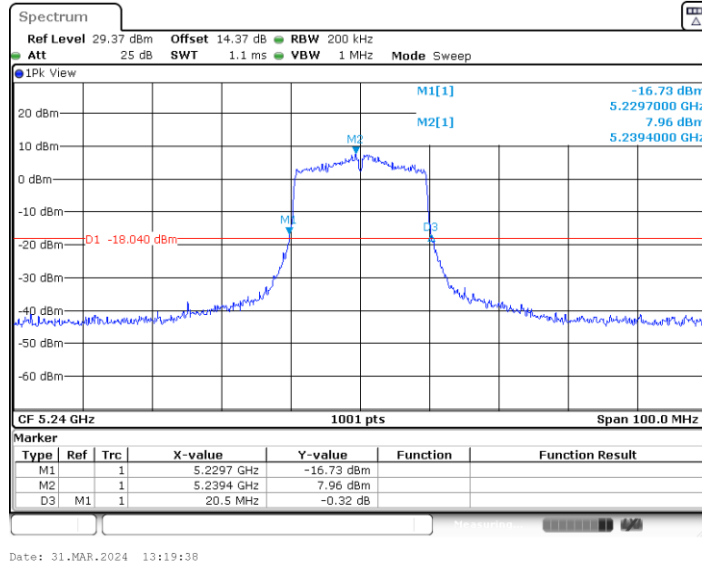


11AX20SISO_5220

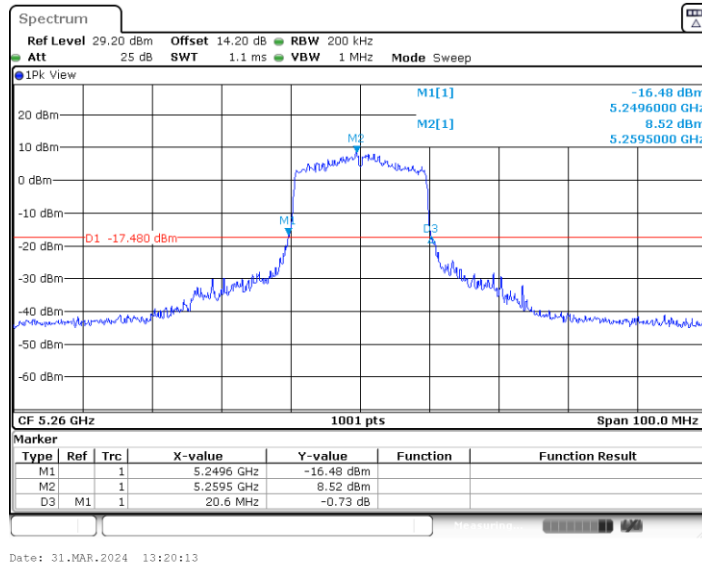




11AX20SISO_5240

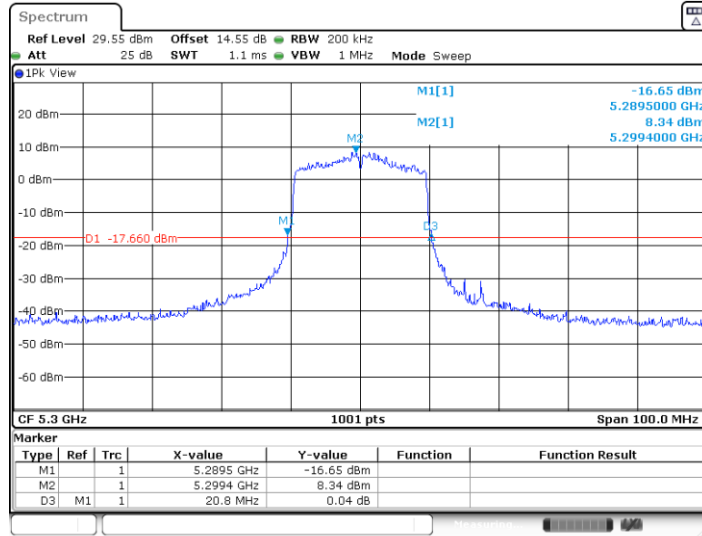


11AX20SISO_5260



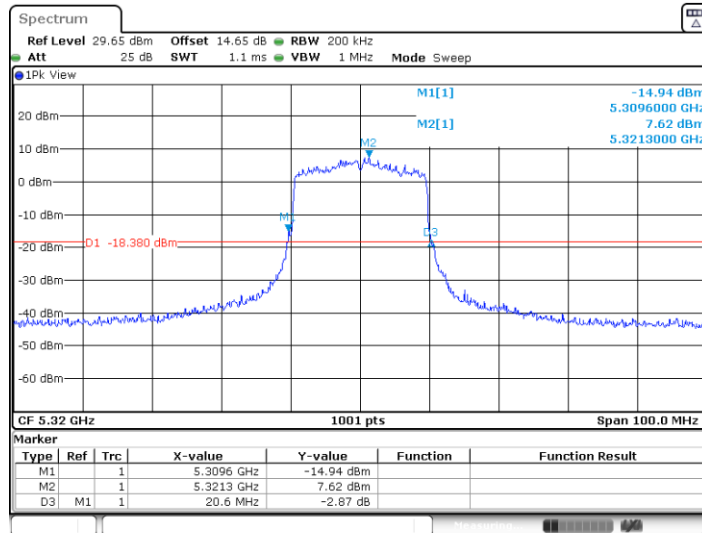


11AX20SISO_5300



Date: 31.MAR.2024 13:20:43

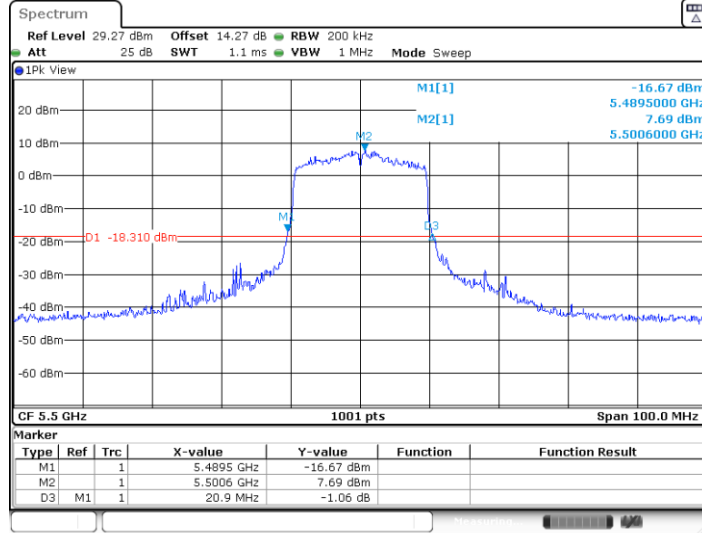
11AX20SISO_5320



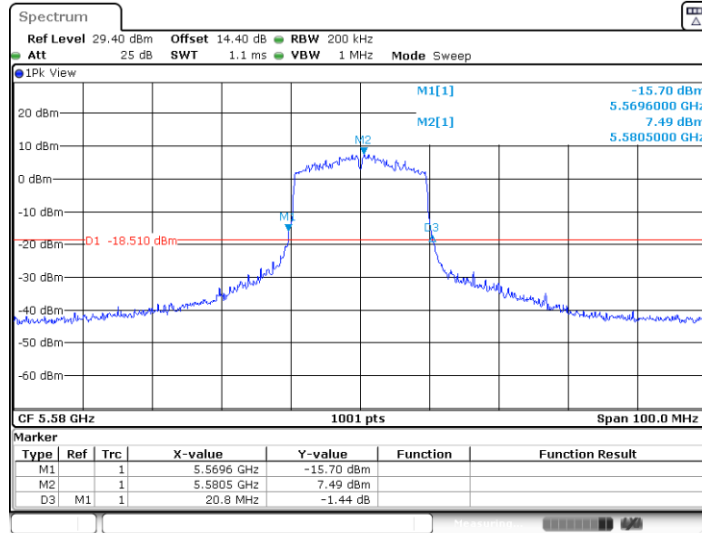
Date: 31.MAR.2024 13:21:22



11AX20SISO_5500

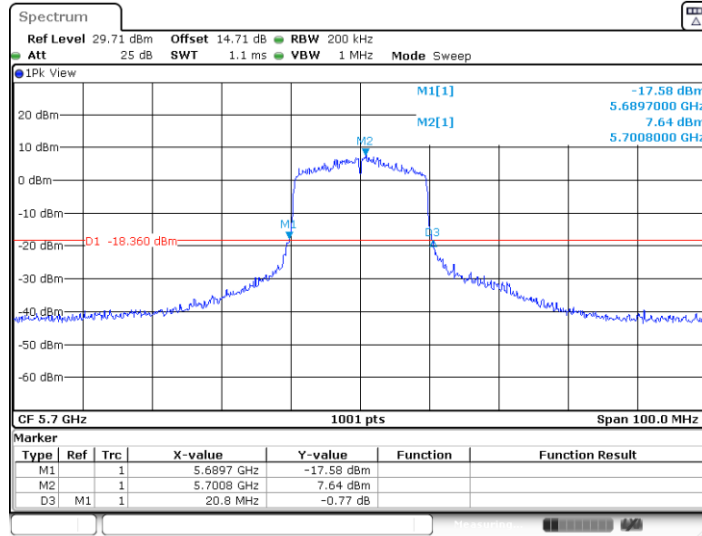


11AX20SISO_5580

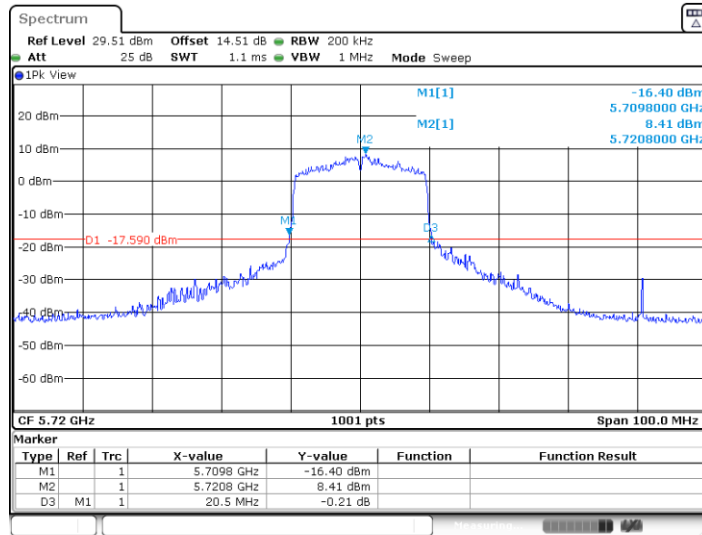


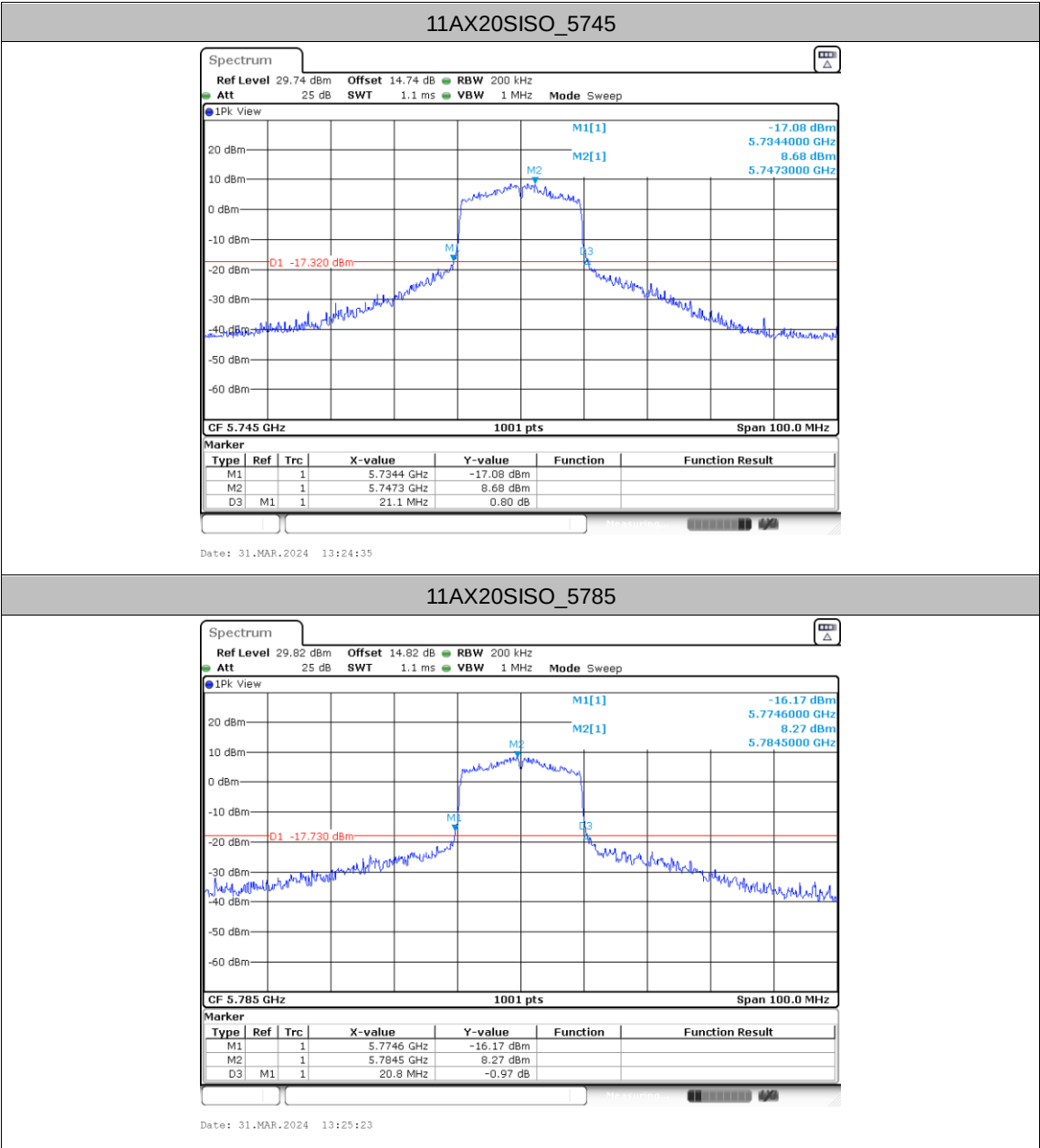


11AX20SISO_5700



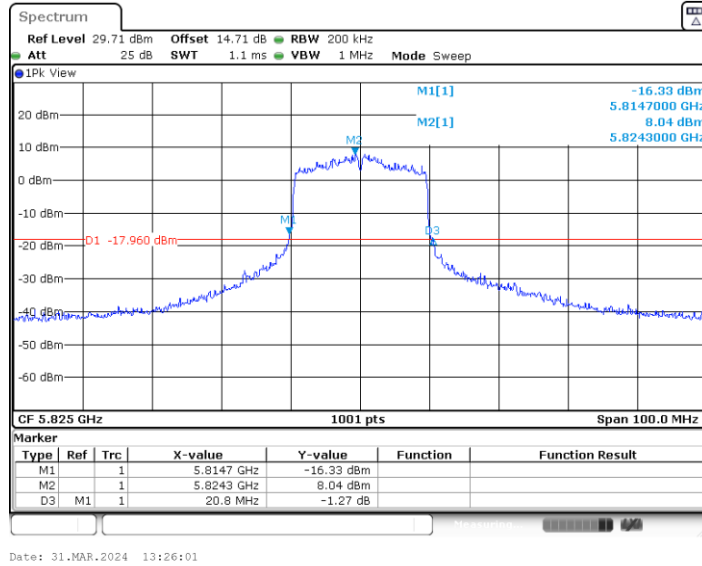
11AX20SISO_5720



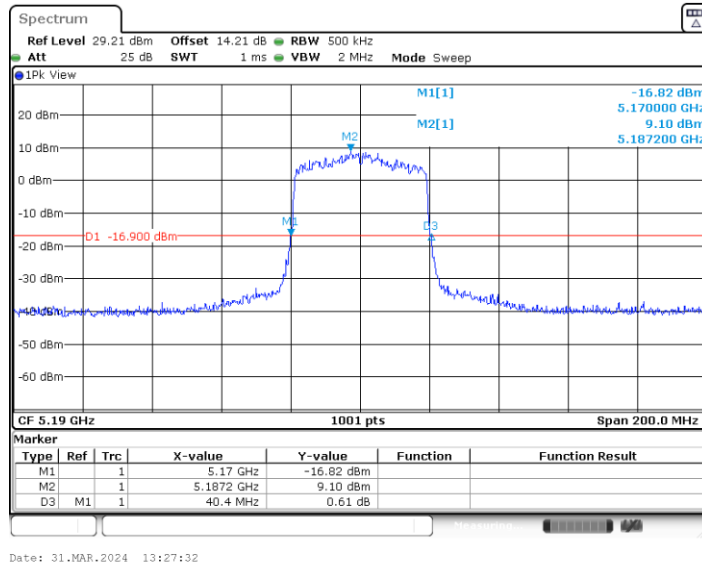


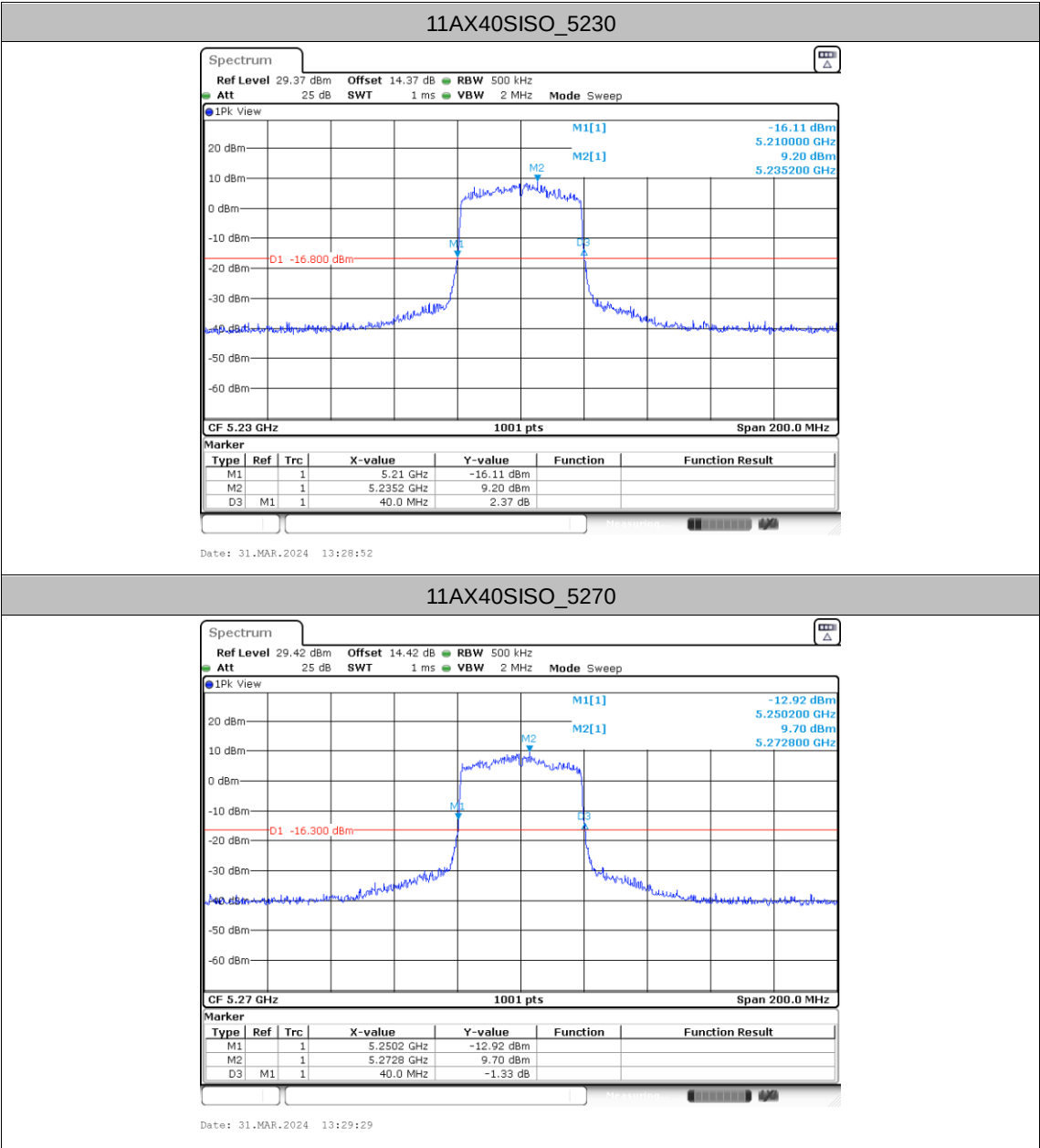


11AX20SISO_5825



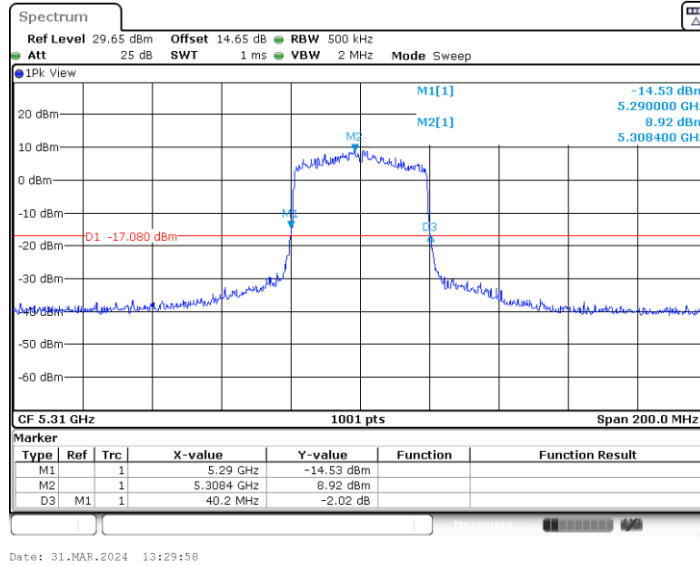
11AX40SISO_5190



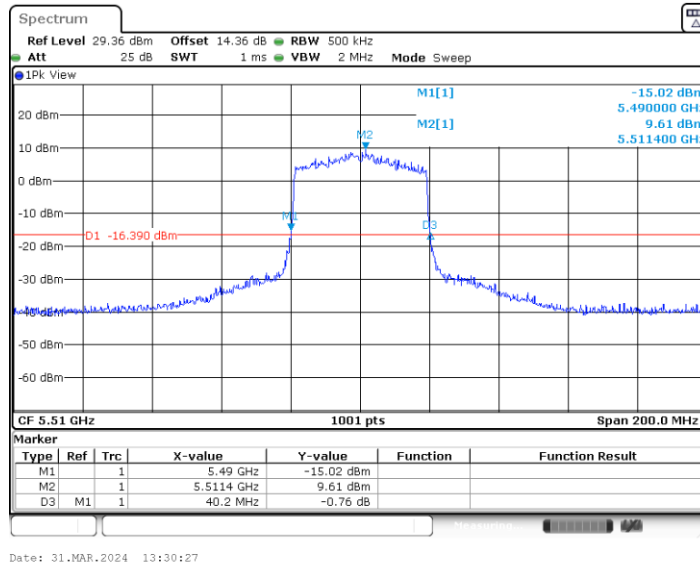


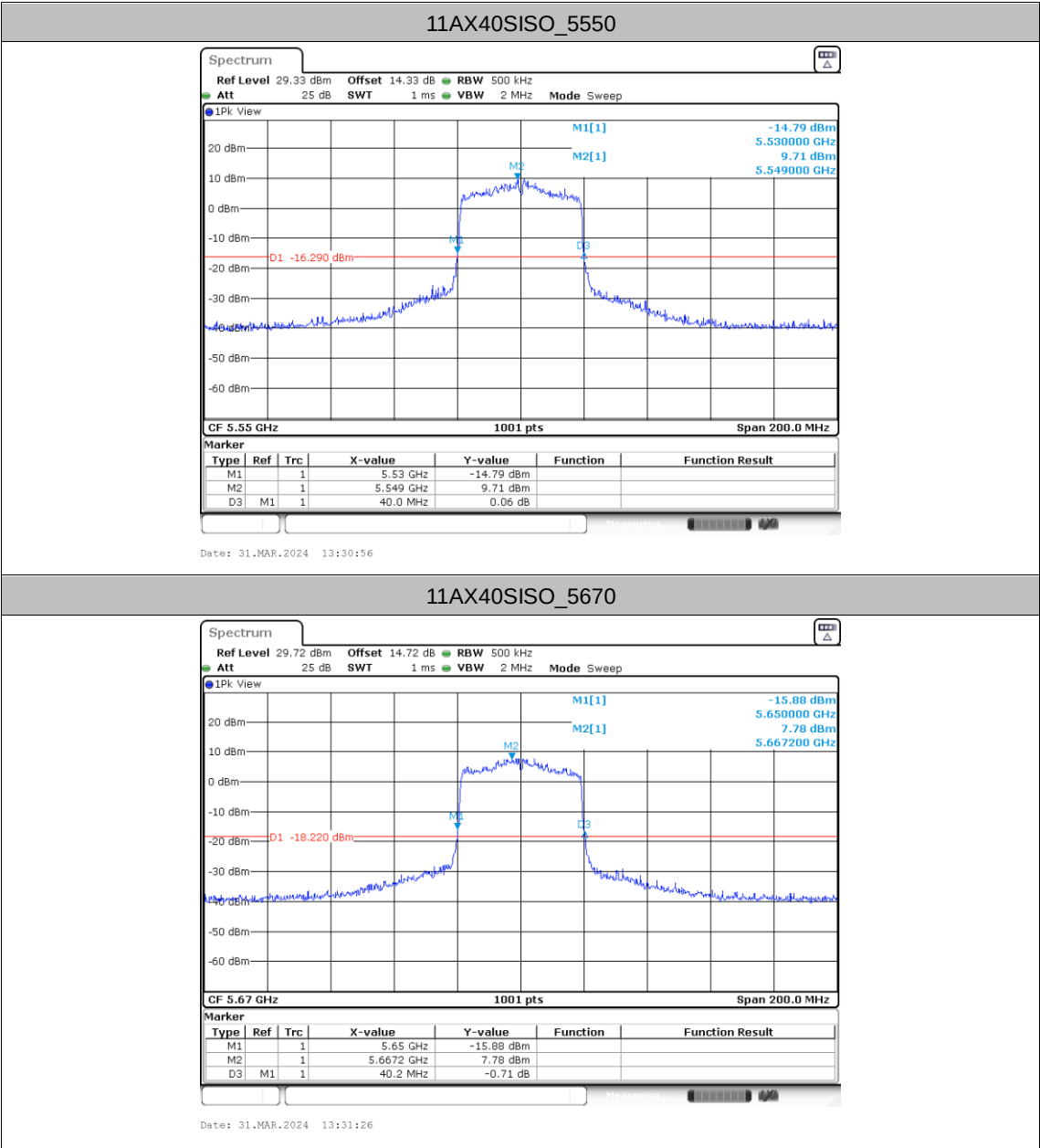


11AX40SISO_5310



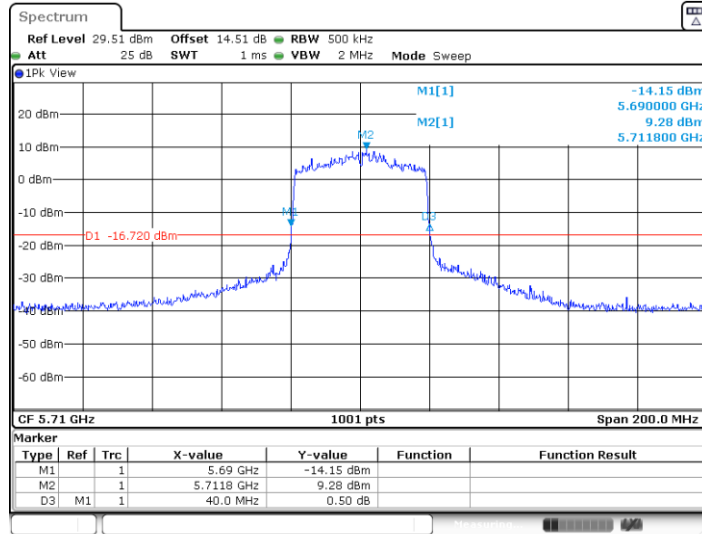
11AX40SISO_5510





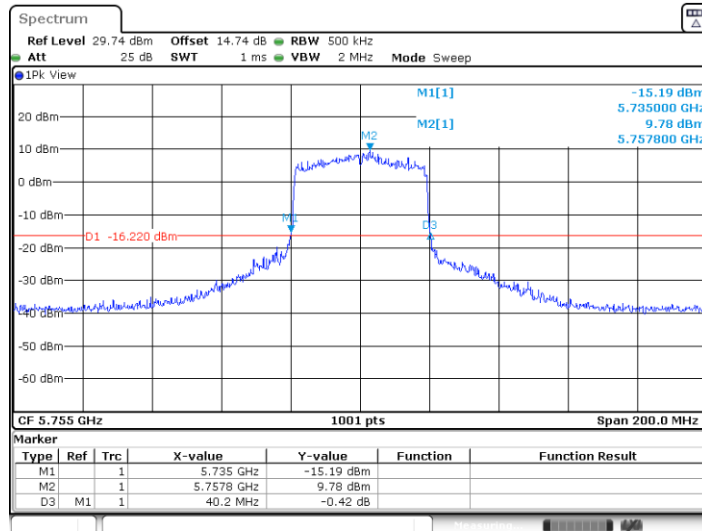


11AX40SISO_5710



Date: 31.MAR.2024 13:31:56

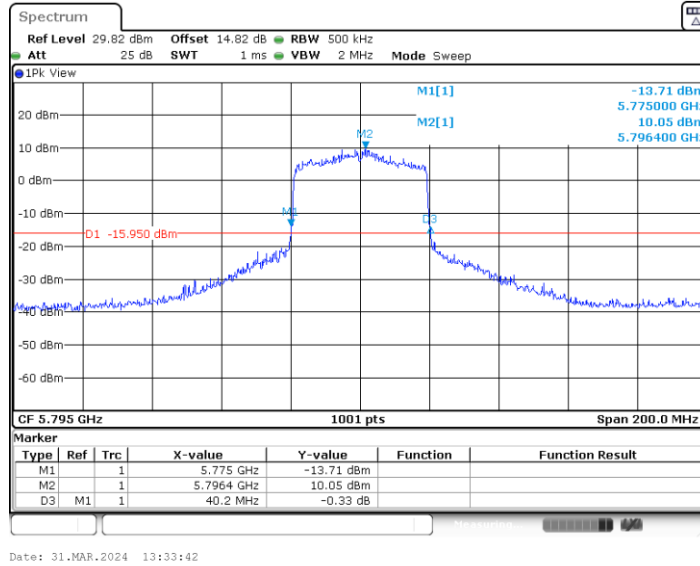
11AX40SISO_5755



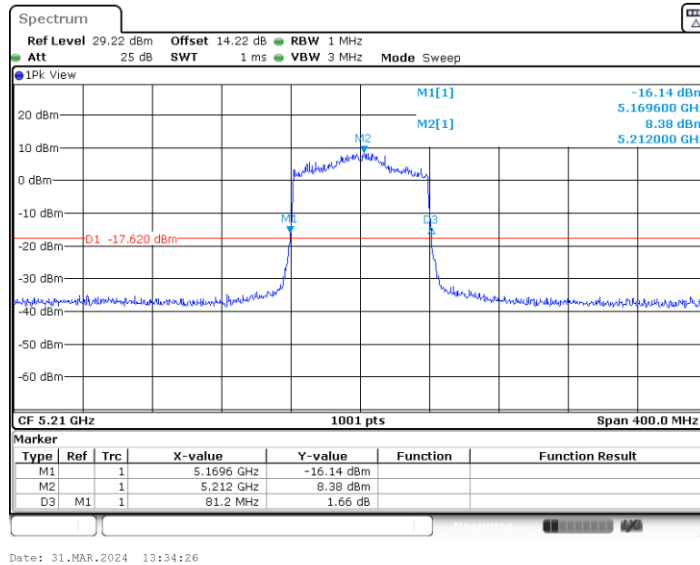
Date: 31.MAR.2024 13:32:55



11AX40SISO_5795

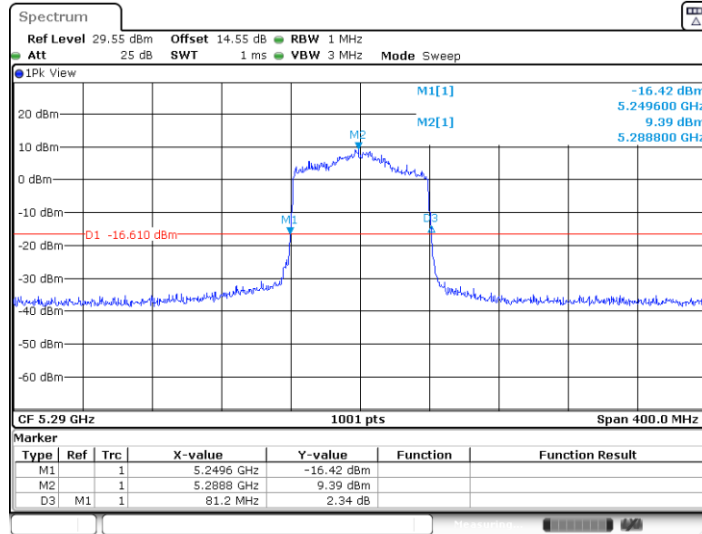


11AX80SISO_5210



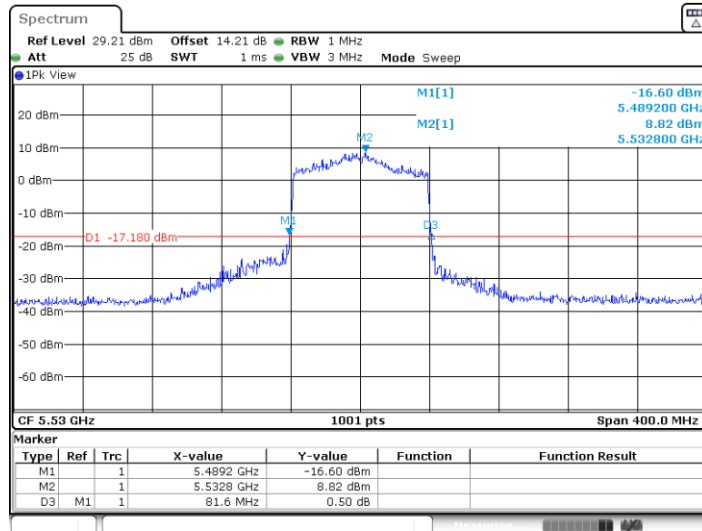


11AX80SISO_5290



Date: 31.MAR.2024 13:35:12

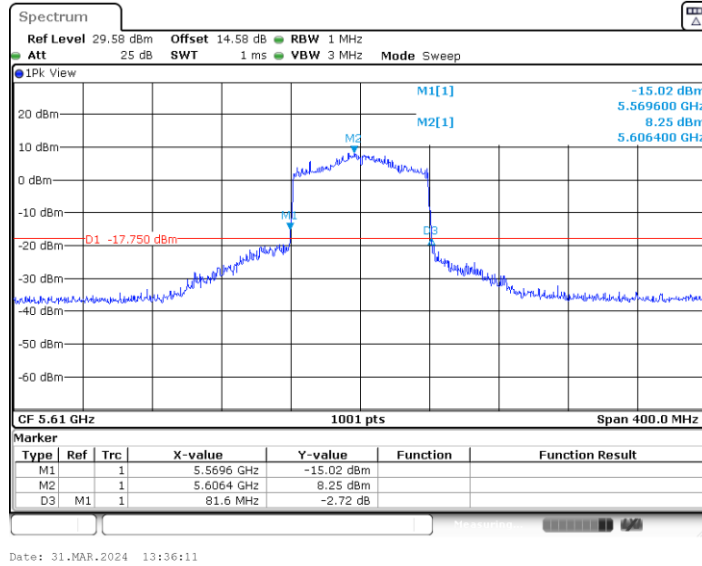
11AX80SISO_5530



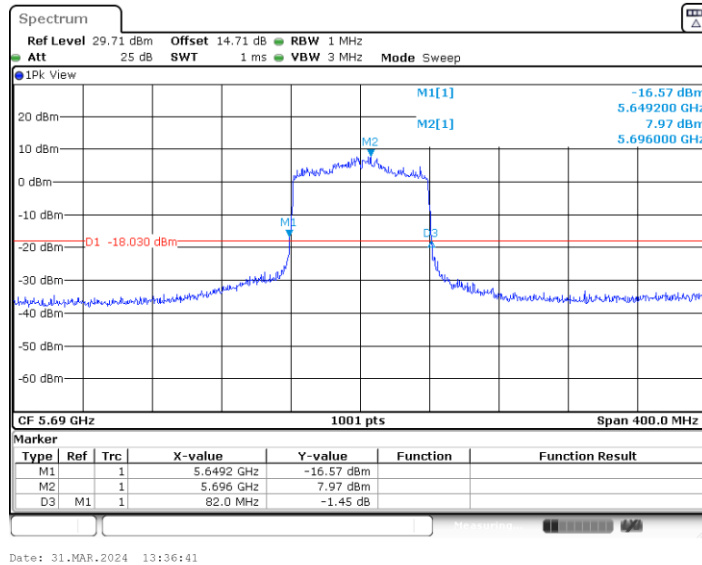
Date: 31.MAR.2024 13:35:42



11AX80SISO_5610

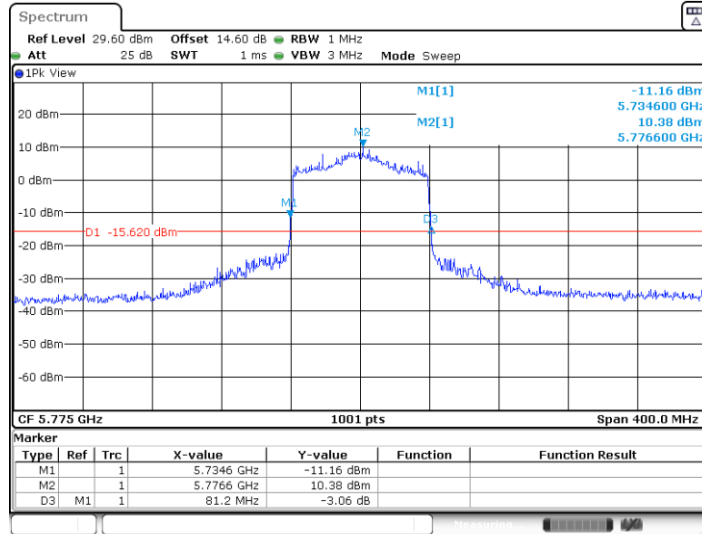


11AX80SISO_5690



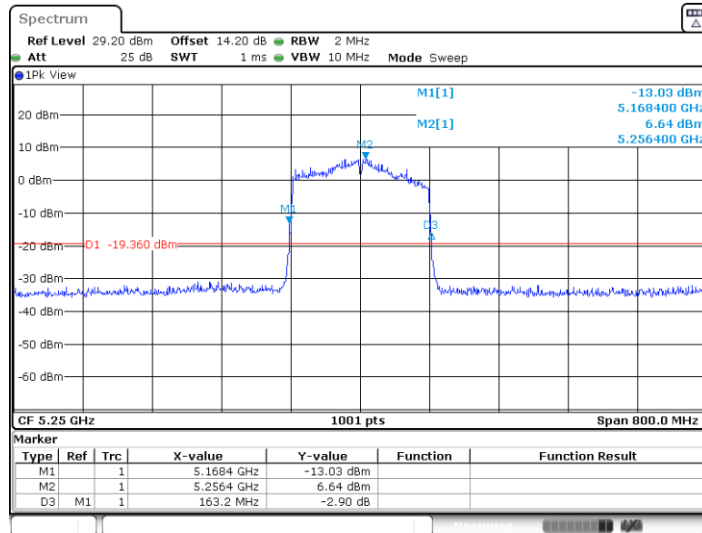


11AX80SISO_5775

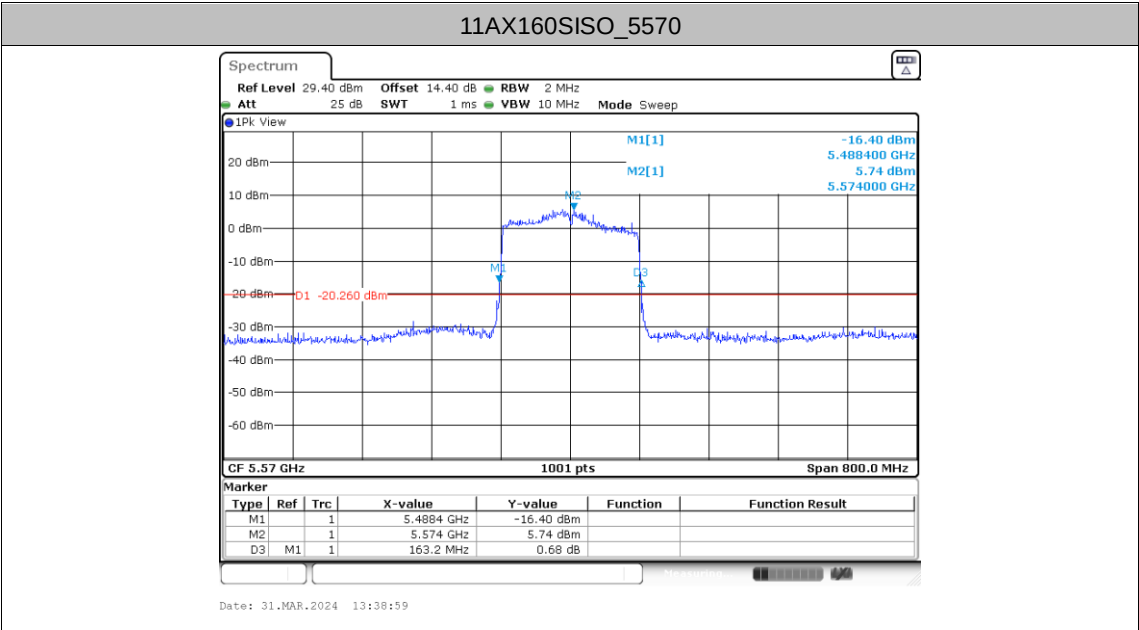


Date: 31.MAR.2024 13:37:26

11AX160SISO_5250



Date: 31.MAR.2024 13:38:04





Occupied channel bandwidth

Test Result

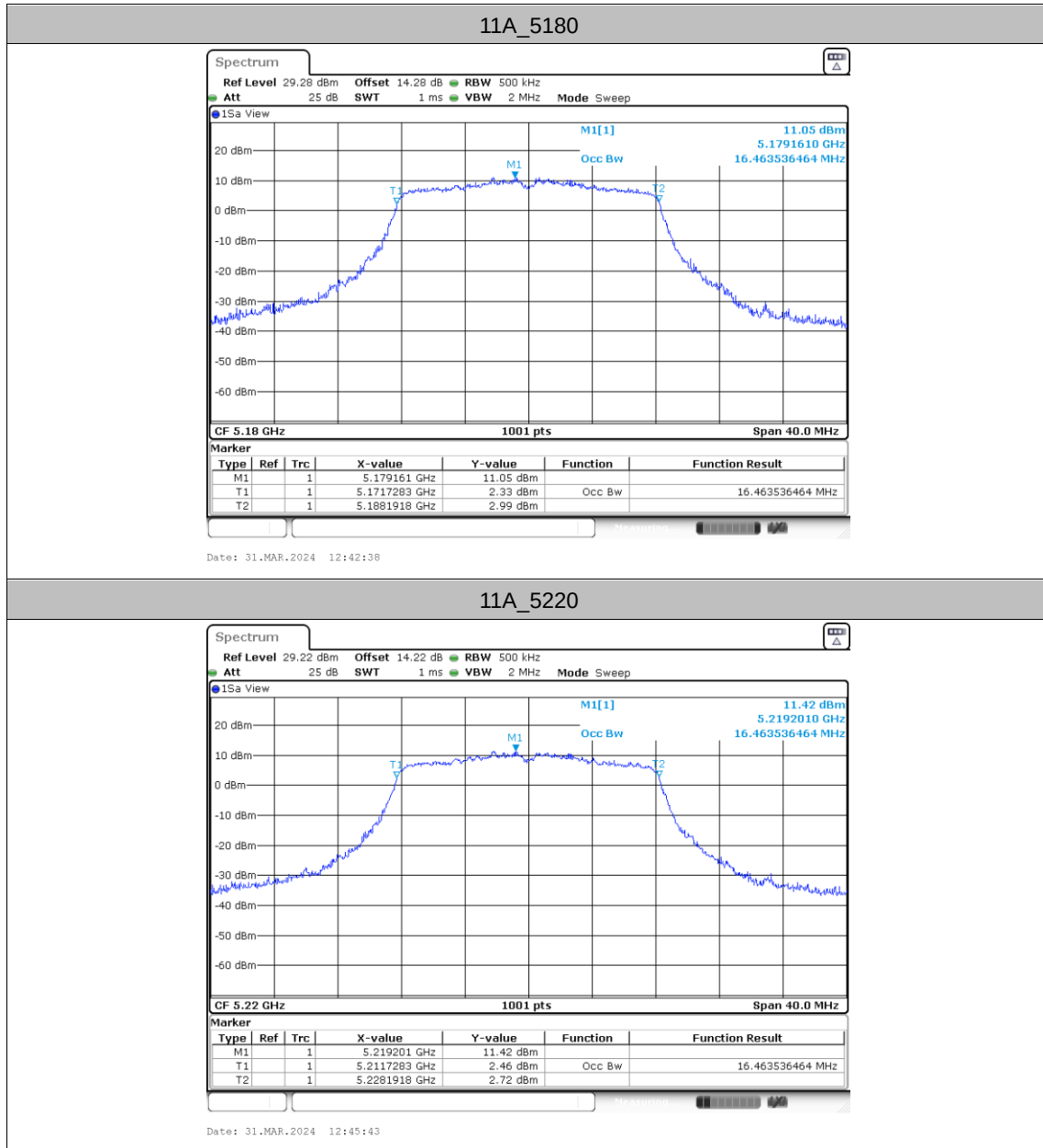
TestMode	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]
11A	5180	16.464	5171.7283	5188.1918
	5220	16.464	5211.7283	5228.1918
	5240	16.464	5231.7283	5248.1918
	5260	16.464	5251.7283	5268.1918
	5300	16.464	5291.7283	5308.1918
	5320	16.464	5311.7283	5328.1918
	5500	16.503	5491.6883	5508.1918
	5580	16.464	5571.7283	5588.1918
	5700	16.503	5691.7283	5708.2318
	5720	16.503	5711.7283	5728.2318
	5745	16.464	5736.7283	5753.1918
	5785	16.543	5776.6883	5793.2318
	5825	16.503	5816.6883	5833.1918
11AC20SISO	5180	17.662	5171.1289	5188.7912
	5220	17.622	5211.1289	5228.7512
	5240	17.662	5231.1289	5248.7912
	5260	17.622	5251.1289	5268.7512
	5300	17.622	5291.1289	5308.7512
	5320	17.662	5311.1289	5328.7912
	5500	17.662	5491.1289	5508.7912
	5580	17.662	5571.1289	5588.7912
	5700	17.622	5691.1688	5708.7912
	5720	17.662	5711.1289	5728.7912
	5745	17.662	5736.1289	5753.7912
	5785	17.662	5776.1289	5793.7912
	5825	17.662	5816.1289	5833.7912
11AC40SISO	5190	36.044	5171.9381	5207.9820
	5230	36.044	5211.9381	5247.9820
	5270	36.044	5251.9381	5287.9820
	5310	35.964	5291.9381	5327.9021
	5510	36.044	5491.9381	5527.9820
	5550	35.964	5531.9381	5567.9021
	5670	36.044	5651.8581	5687.9021
	5710	36.044	5691.9381	5727.9820
	5755	36.044	5736.9381	5772.9820
	5795	36.044	5776.9381	5812.9820
11AC80SISO	5210	75.125	5172.2777	5247.4026
	5290	75.125	5252.2777	5327.4026

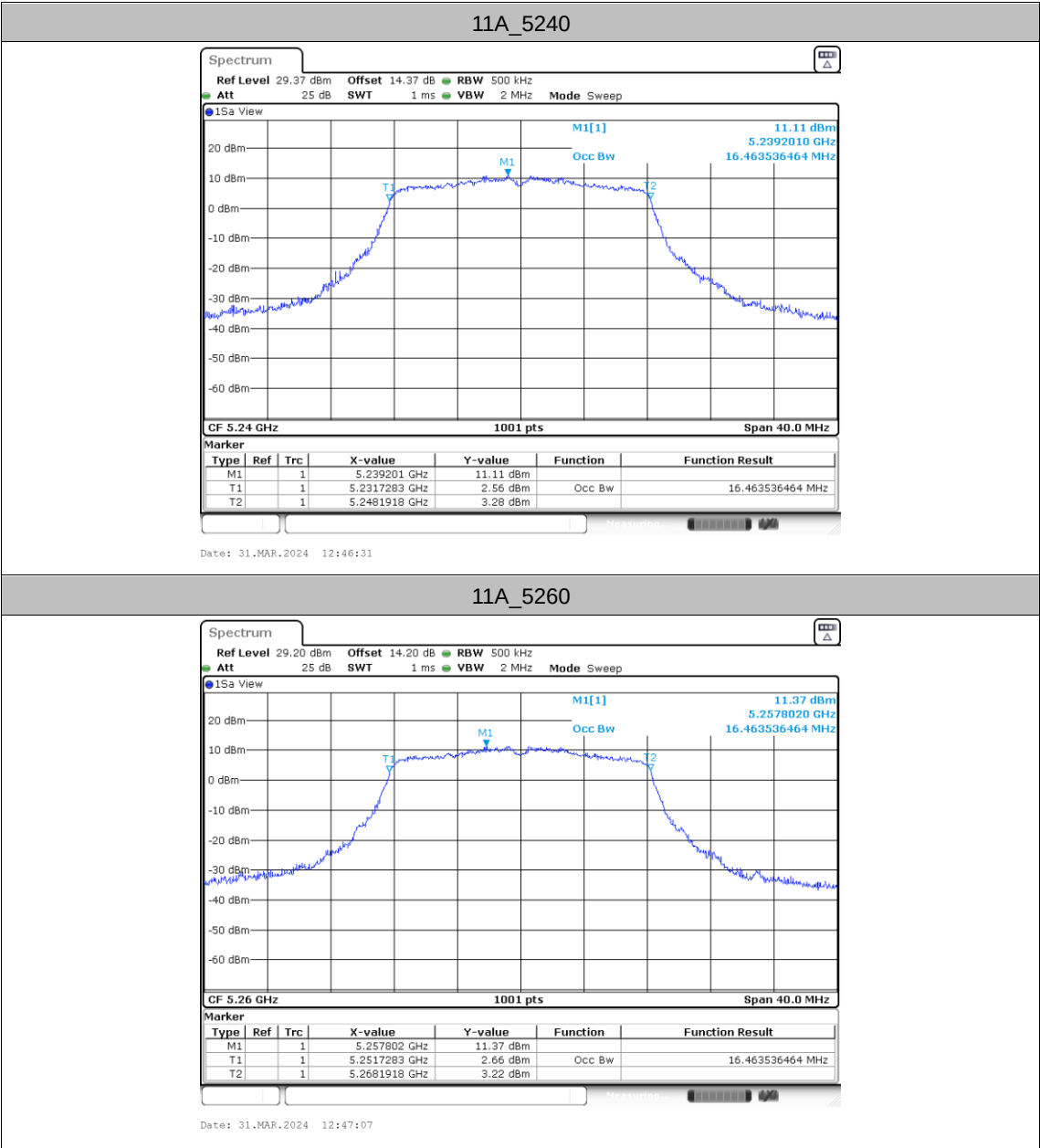


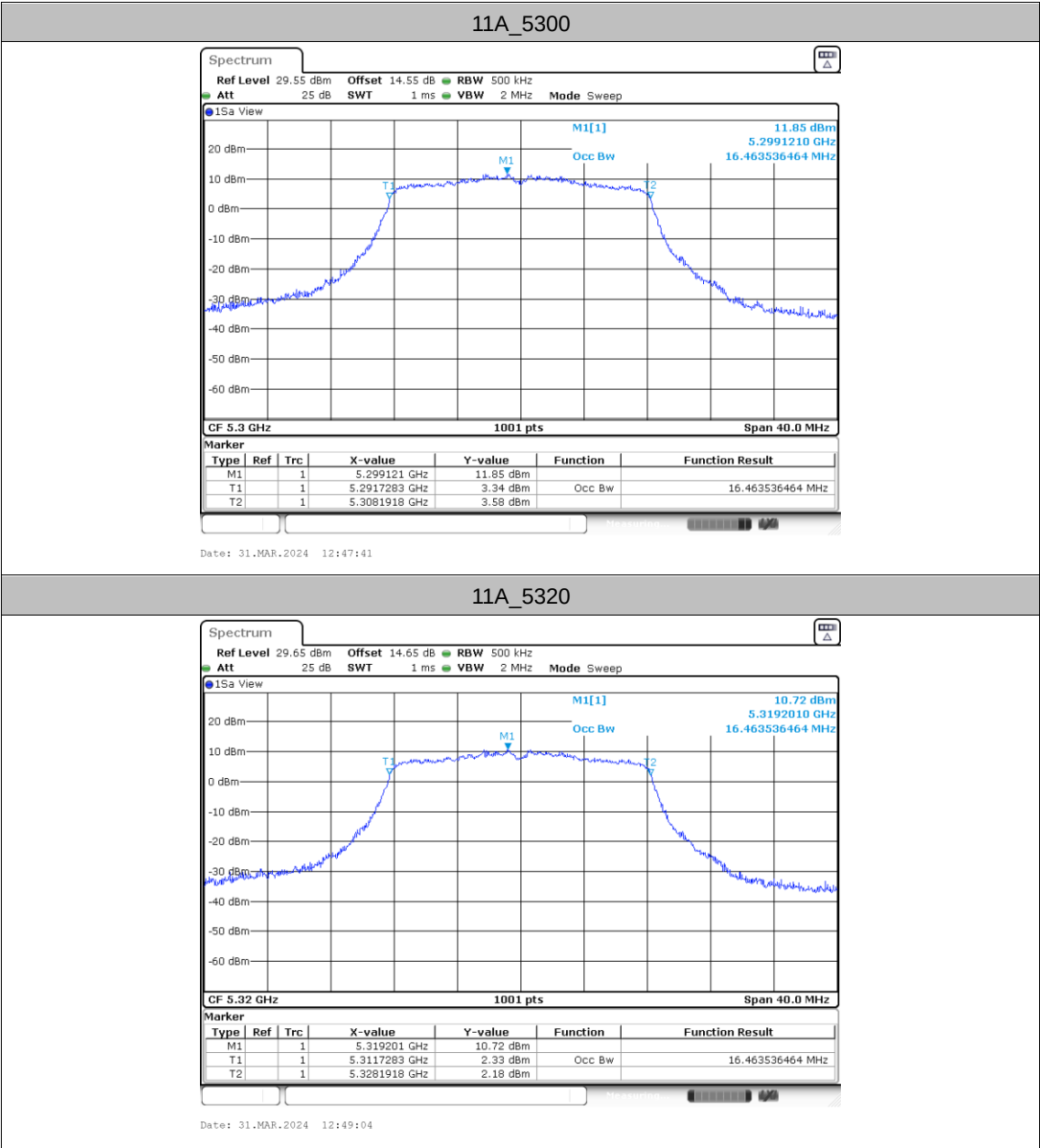
	5530	75.125	5492.1179	5567.2428
	5610	75.285	5572.2777	5647.5624
	5690	75.445	5652.1179	5727.5624
	5775	75.125	5737.2777	5812.4026
11AC160SISO	5250	154.086	5172.3177	5326.4036
	5570	154.725	5491.6783	5646.4036
11AX20SISO	5180	18.941	5170.4895	5189.4306
	5220	18.901	5210.4895	5229.3906
	5240	18.901	5230.5295	5249.4306
	5260	18.861	5250.5295	5269.3906
	5300	18.901	5290.4895	5309.3906
	5320	18.941	5310.4895	5329.4306
	5500	18.941	5490.4895	5509.4306
	5580	18.941	5570.4895	5589.4306
	5700	18.901	5690.5295	5709.4306
	5720	18.941	5710.4895	5729.4306
	5745	18.941	5735.4895	5754.4306
	5785	18.901	5775.4895	5794.3906
	5825	18.901	5815.4895	5834.3906
11AX40SISO	5190	37.722	5171.1389	5208.8611
	5230	37.642	5211.1389	5248.7812
	5270	37.722	5251.0589	5288.7812
	5310	37.722	5291.0589	5328.7812
	5510	37.802	5490.9790	5528.7812
	5550	37.722	5531.0589	5568.7812
	5670	37.722	5650.9790	5688.7013
	5710	37.722	5691.1389	5728.8611
	5755	37.802	5736.0589	5773.8611
	5795	37.802	5776.0589	5813.8611
11AX80SISO	5210	76.723	5171.4785	5248.2018
	5290	76.723	5251.4785	5328.2018
	5530	77.043	5491.1588	5568.2018
	5610	76.883	5571.4785	5648.3616
	5690	77.203	5651.3187	5728.5215
	5775	76.883	5736.4785	5813.3616
11AX160SISO	5250	155.365	5171.6783	5327.0430
	5570	156.324	5491.0390	5647.3626

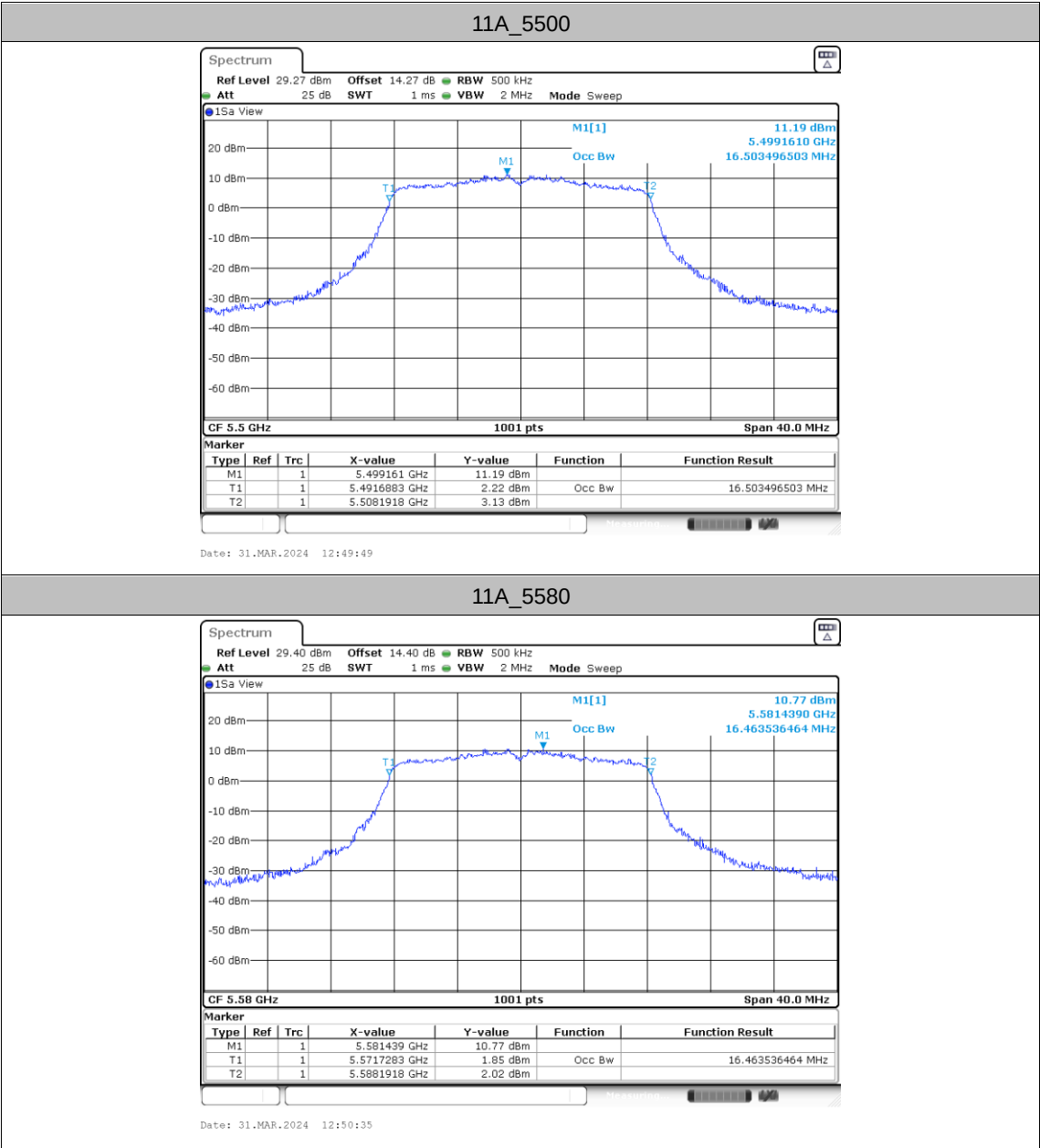


Test Graphs



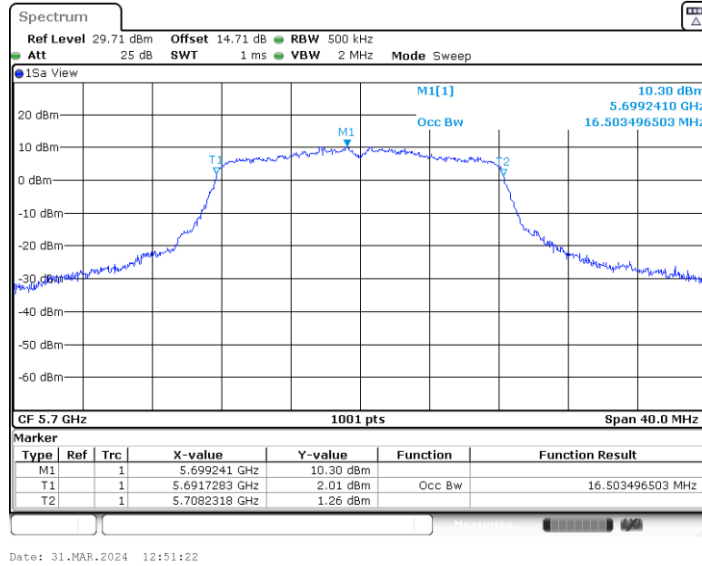








11A_5700



11A_5720

