



TEST REPORT

Applicant Name : AudioCodes Ltd.
Address : 1 Hayarden Street, Airport City, Lod, Israel
Report Number: RA230419-20411E-RF-00C
FCC ID: XAK-RXPANEL

Test Standard (s)

FCC PART 15.407

Sample Description

Product Type: Touch panel control device
Model No.: RX-PANEL
Multiple Model(s) No.: N/A
Trade Mark:  audiocodes
Date Received: 2023/04/19
Report Date: 2023/05/18

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

Roger Ling

Roger Ling
EMC Engineer

Approved By:

Candy Li

Candy Li
EMC Engineer

Note: This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "★".

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	RA230419-20411E-RF-00C	Original Report	2023/05/18

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Frequency Range	5G Wi-Fi: 5150-5350MHz ; 5470-5725MHz; 5725-5850 MHz
Mode	802.11a/n20/n40/ac20/ac40/ac80
Maximum Conducted Average Output Power	5150-5250MHz: 15.22dBm 5250-5350MHz: 14.79dBm 5470-5725MHz: 14.14dBm 5725-5850MHz: 15.76dBm
Modulation Technique	OFDM
Antenna Specification*	5.66dBi(provided by the applicant)
Voltage Range	DC12V from adapter or DC 48V from PoE
Test Sample serial number	24UE-1t (Assigned by ATC)
Sample/EUT Status	Good condition

Objective

This test report is in accordance with Part 2-Subpart J, Part 15-Subparts A and E of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart E, section 15.203, 15.205, 15.207, 15.209 and 15.407 rules.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices. And KDB789033 D02 General U-NII Test Procedures New Rules v02r01.

All emissions measurement was performed at Shenzhen Accurate Technology Co., Ltd. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Each test item follows test standards and with no deviation.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		5%
RF Frequency		0.082×10^{-7}
RF output power, conducted		0.71dB
Unwanted Emission, conducted		1.6dB
AC Power Lines Conducted Emissions		2.72dB
Emissions, Radiated	9kHz - 30MHz	2.06dB
	30MHz - 1GHz	5.08dB
	1GHz - 18GHz	4.96dB
	18GHz -26.5GHz	5.16dB
	26.5GHz -40GHz	4.64dB
Temperature		1℃
Humidity		6%
Supply voltages		0.4%

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the Floor 1, KuMaKe Building, Dongzhou Community, Guangming Street, Guangming District, Shenzhen, Guangdong, China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 708358, the FCC Designation No.: CN1189. Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 429 7.01.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0016. The Registration Number is 30241.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in an engineering mode, which was provided by manufacturer.

The device support 802.11a/n20/n40/ac20/ac40/ac80 mode, the 802.11n20/n40 mode was reduce test as identical parameter as 802.11 ac20/ac40 mode.

For 5150-5250MHz Band, 7 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
38	5190	46	5230
40	5200	48	5240
42	5210	/	/

For 802.11a/ac20 mode: channel 36, 40, 48 were tested; For 802.11ac40 mode: channel 38, 46 were tested. For 802.11ac80 mode, channel 42 was tested.

For 5250-5350MHz Band, 7 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
52	5260	60	5300
54	5270	62	5310
56	5280	64	5320
58	5290	/	/

For 802.11a/ac20 mode: channel 52, 56, 64 were tested; For 802.11ac40 mode: channel 54, 62 were tested. For 802.11ac80 mode, channel 58 was tested.

For 5470-5725MHz Band, 18 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
100	5500	120	5600
102	5510	122	5610
104	5520	124	5620
106	5530	126	5630
108	5540	128	5640
110	5550	132	5660
112	5560	134	5670
116	5580	136	5680
118	5590	140	5700

For 802.11a/ac20 mode: channel 100, 116, 140 were tested.
For 802.11ac40 mode: channel 102, 110, 134 were tested.
For 802.11ac80 mode, channel 106, 122 was tested.

For 5725-5850MHz Band, 8 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	157	5785
151	5755	159	5795
153	5765	161	5805
155	5775	165	5825

For 802.11a/ac20 mode: channel 149, 157, 165 were tested; For 802.11ac40 mode: channel 151, 159 were tested. For 802.11ac80 mode, channel 155 was tested.

EUT Exercise Software

“Secure CRT*” software was used.

The device was tested with the worst case was performed as below:

U-NII	Mode	Data rate	Power Level
5150 – 5250MHz	802.11a	6Mbps	16
	802.11ac20	MCS0	16
	802.11ac40	MCS0	15
	802.11ac80	MCS0	14
5250 – 5350MHz	802.11a	6Mbps	15
	802.11ac20	MCS0	15
	802.11ac40	MCS0	13
	802.11ac80	MCS0	12
5470 – 5725MHz	802.11a	6Mbps	14
	802.11ac20	MCS0	14
	802.11ac40	MCS0	14
	802.11ac80	MCS0	13
5725 – 5850MHz	802.11a	6Mbps	16
	802.11ac20	MCS0	16
	802.11ac40	MCS0	16
	802.11ac80	MCS0	16

The worse-case data rates are determined to be as follows for each mode based upon investigations by measuring the output power and PSD across all data rated bandwidths, and modulations.

The software and power level was provided by the applicant.

Duty cycle

Test Result: Compliant. Please refer to the Appendix Wi-Fi.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

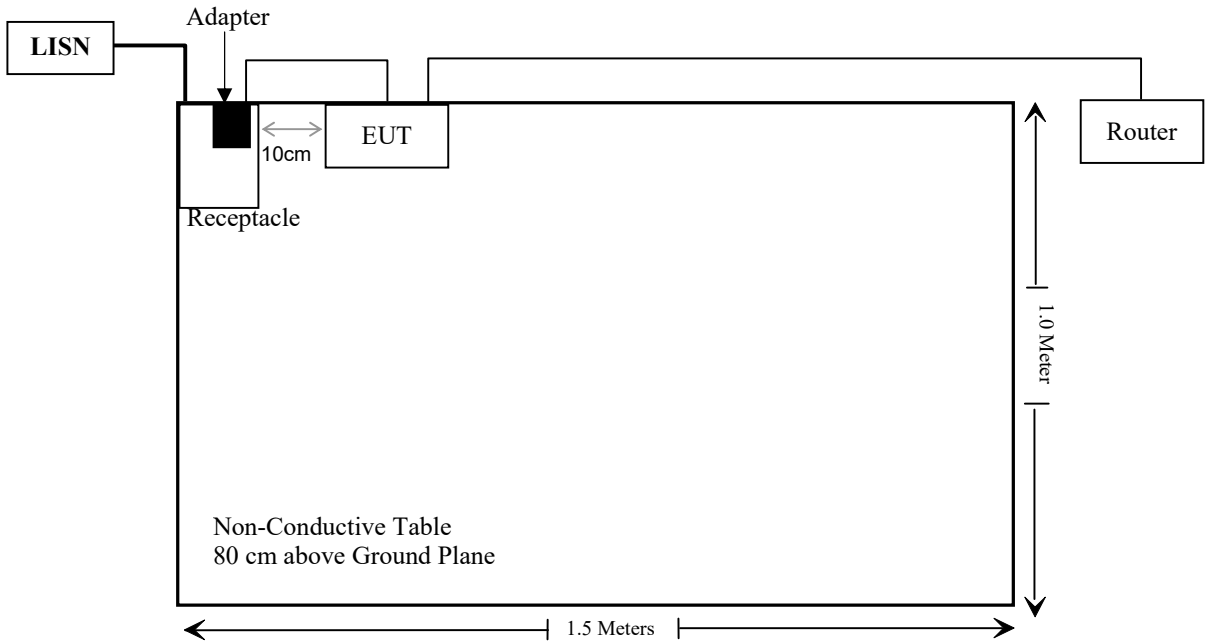
Manufacturer	Description	Model	Serial Number
Tenda	Router	F3	171263330120212106
Kuantech	Adapter	KSASB0241200200D5	KSASB0241200200D5NSK
NETGEAR	PoE	FS108P	Unknown

External I/O Cable

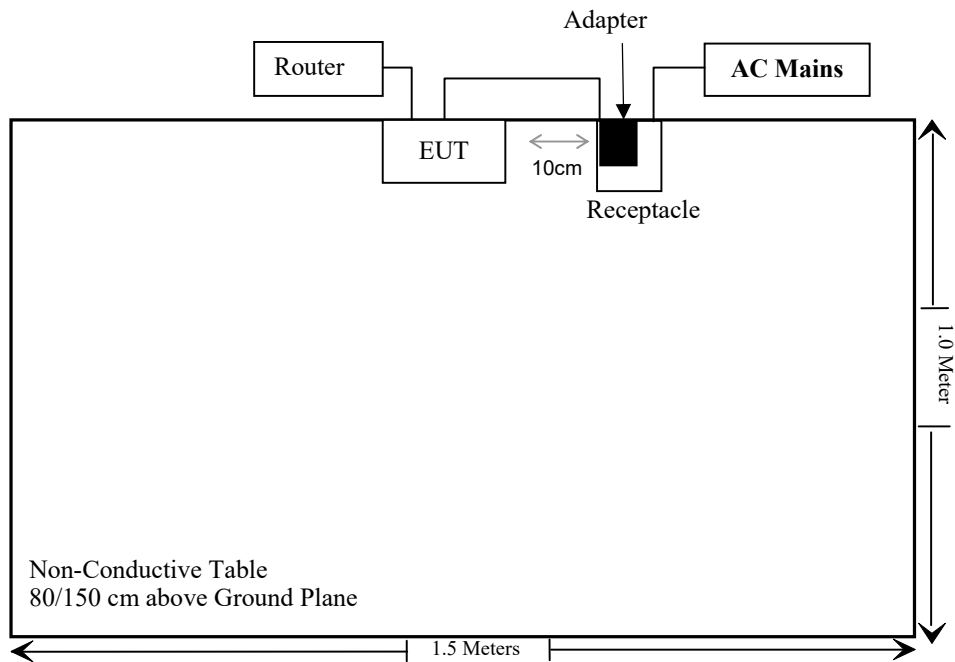
Cable Description	Length (m)	From Port	To
Un-shielding Undetachable DC Cable	1.0	EUT	Adapter
Un-shielding Detachable RJ45 Cable	1.0	EUT	PoE
Un-shielding Detachable AC Cable	1.0	PoE	LISN
Un-shielding Detachable RJ45 Cable	6.0	EUT	Router

Block Diagram of Test Setup

Powered by Adapter:
For conducted emission

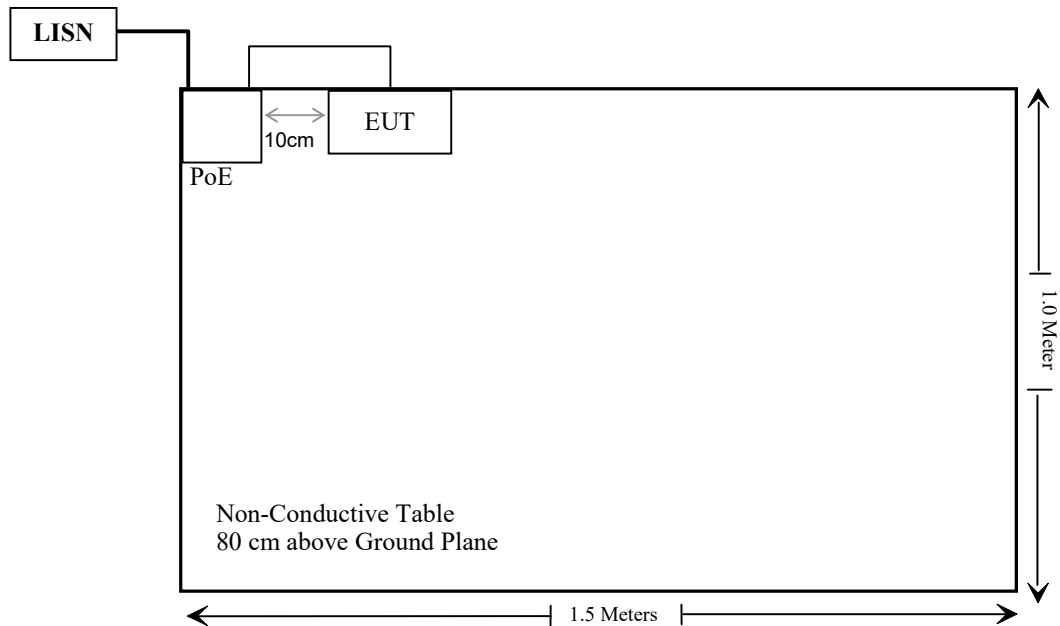


For Radiated Emissions:

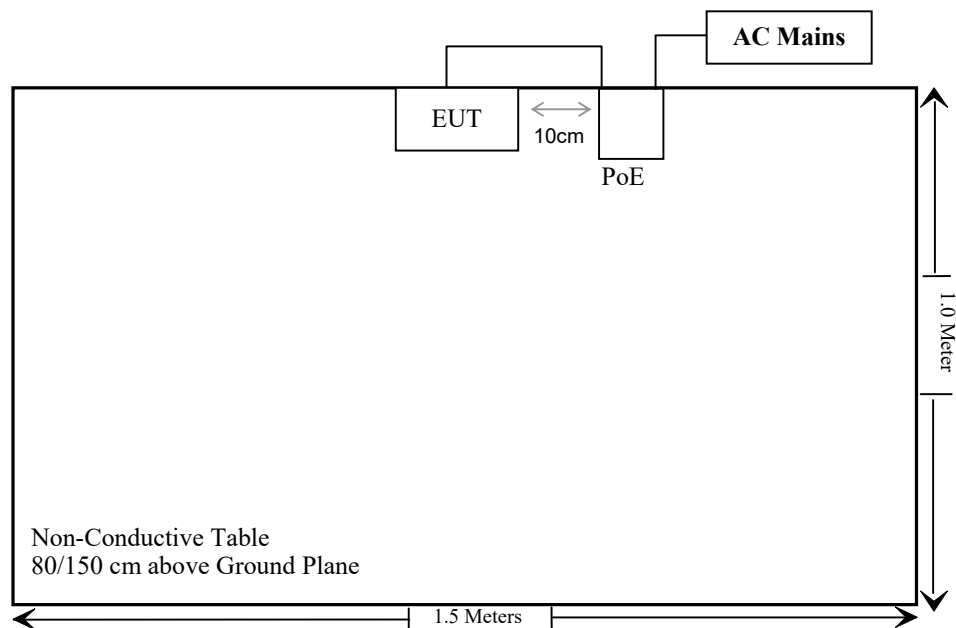


Note: the support table edge was flush with center of turntable

Powered by PoE:
For conducted emission



For Radiated Emissions:



Note: the support table edge was flush with center of turntable

SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307 (b) (3) & §2.1091	MPE-BASED EXEMPTION	Compliant
§15.203	Antenna Requirement	Compliant
§15.407(b)(9)& §15.207(a)	Conducted Emissions	Compliant
§15.205& §15.209 &§15.407(b)	Undesirable Emission& Restricted Bands	Compliant
§15.407(a) (e)	26 dB Emission Bandwidth& 6dB Bandwidth	Compliant
§15.407(a)	Conducted Transmitter Output Power	Compliant
§15.407 (a)	Power Spectral Density	Compliant
§15.407 (h)	Transmit Power Control (TPC)	Not Applicable
§15.407 (h)	Dynamic Frequency Selection (DFS)	Compliant*

Not Applicable: the EUT has no TPC function which was declared by the applicant.

Compliant*: Please refer to the report: RA230419-20411E-RF-00D

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted Emissions Test					
Rohde& Schwarz	EMI Test Receiver	ESCI	100784	2022/11/25	2023/11/24
Rohde & Schwarz	L.I.S.N.	ENV216	101314	2022/11/25	2023/11/24
Anritsu Corp	50 Coaxial Switch	MP59B	6100237248	2022/12/07	2023/12/06
Unknown	RF Coaxial Cable	No.17	N0350	2022/11/25	2023/11/24
Conducted Emission Test Software: e3 19821b (V9)					
Radiated Emissions Test					
Rohde& Schwarz	Test Receiver	ESR	102725	2022/11/25	2023/11/24
Rohde&Schwarz	Spectrum Analyzer	FSV40	101949	2022/11/25	2023/11/24
SONOMA INSTRUMENT	Amplifier	310 N	186131	2022/11/08	2023/11/07
A.H. Systems, inc.	Preamplifier	PAM-0118P	135	2022/11/08	2023/11/07
Quinstar	Amplifier	QLW-18405536-J0	15964001002	2022/11/08	2023/11/07
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2021/07/06	2024/07/05
Schwarzbeck	Horn Antenna	BBHA9120D	837	2023/02/22	2026/02/21
Schwarzbeck	HORN ANTENNA	BBHA9170	9170-359	2022/12/26	2025/12/25
Radiated Emission Test Software: e3 19821b (V9)					
Unknown	RF Coaxial Cable	No.10	N050	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.11	N1000	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.12	N040	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.13	N300	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.14	N800	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.15	N600	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.16	N650	2022/11/25	2023/11/24
CD	Band Reject Filter	BRM-5.15/5.35g-45	075	2022/11/25	2023/11/24
CD	Band Reject Filter	BRM-5.47/5.725G-45	055	2022/11/25	2023/11/24
CD	Band Reject Filter	BRM-5.725/5.875G-45	065	2022/11/25	2023/11/24
RF Conducted Test					
Rohde&Schwarz	Spectrum Analyzer	FSV-40	101590	2022/11/25	2023/11/24
Tonscend	RF Control Unit	JS0806-2	19G8060182	2022/10/24	2023/10/23
HP	20dB Attenuator	8491A	53857	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.31	RF-01	Each time	

*** Statement of Traceability:** Shenzhen Accurate Technology Co., Ltd. attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC§1.1307 (B) (3) & §2.1091- MPE-BASED EXEMPTION

Applicable Standard

According to subpart 1.1307 (b) (3) and subpart 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

According to KDB 447498 D04 Interim General RF Exposure Guidance

MPE-Based Exemption:

General frequency and separation-distance dependent MPE-based effective radiated power(ERP) thresholds are in Table B.1 [Table 1 of § 1.1307(b)(1)(i)(C)] to support an exemption from further evaluation from 300 kHz through 100 GHz.

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	$1,920 R^2$.
1.34-30	$3,450 R^2/f^2$.
30-300	$3.83 R^2$.
300-1,500	$0.0128 R^2 f$.
1,500-100,000	$19.2 R^2$.

R is the minimum separation distance in meters

f = frequency in MHz

Result

Mode	Frequency (MHz)	Tune up conducted power	Antenna Gain		ERP		Evaluation Distance (m)	ERP Limit (W)
		(dBm)	(dBi)	(dBd)	(dBm)	(W)		
Bluetooth	2402-2480	4.0	1.96	-0.19	3.81	0.002	0.2	0.768
BLE	2402-2480	2.0	1.96	-0.19	1.81	0.002	0.2	0.768
2.4G Wi-Fi	2412-2462	21.0	1.96	-0.19	20.81	0.121	0.2	0.768
5G Wi-Fi	5150-5250	16.0	5.66	3.51	19.51	0.089	0.2	0.768
	5250-5350	15.0	5.66	3.51	18.51	0.071	0.2	0.768
	5470-5725	15.0	5.66	3.51	18.51	0.071	0.2	0.768
	5725-5850	16.0	5.66	3.51	19.51	0.089	0.2	0.768

Note: 1. The tune up conducted power and antenna gain was declared by the applicant.

2. The Bluetooth/BLE/Wi-Fi can't Simultaneous transmitting

3. 0dBd=2.15dBi

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

Result: Compliant.

FCC §15.203 – ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

- a. Antenna must be permanently attached to the unit.
- b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.407 (a), if the transmitting antennas of directional gain greater than 6dBi are used, the transmit power and power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The EUT has one internal antenna arrangement, which was permanently attached, the antenna gain for is 5.66dBi, fulfill the requirement of this section. Please refer to the EUT photos.

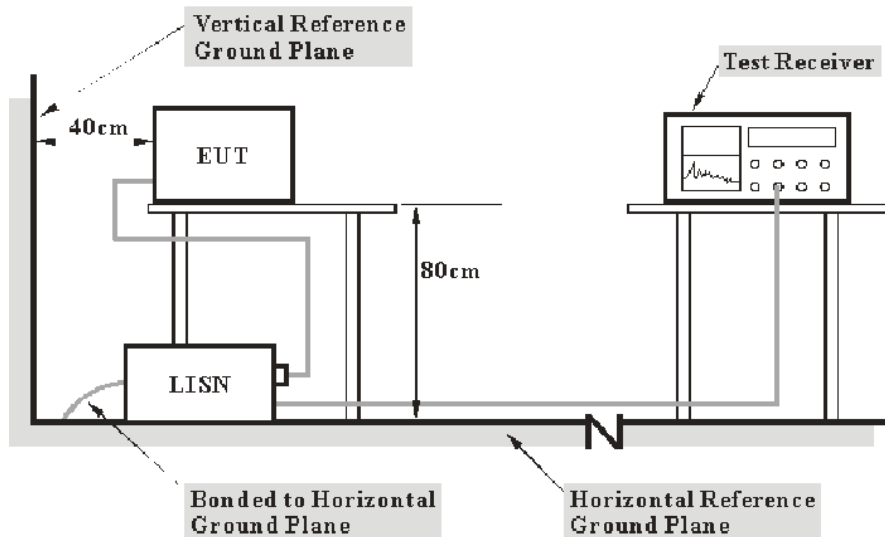
Result: Compliant.

FCC §15.407 (b) (6) §15.207 (a) – CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207, §15.407(b) (6)

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the adapter was connected to the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and Average detection mode.

Corrected Factor & Margin Calculation

The Transd factor is calculated by adding LISN VDF (Voltage Division Factor) and Cable Loss. The basic equation is as follows:

$$\text{Transd Factor} = \text{LISN VDF} + \text{Cable Loss}$$

The “**Over limit**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over limit of -7 dB means the emission is 7 dB below the limit. The equation for calculation is as follows:

$$\begin{aligned}\text{Over Limit} &= \text{Level} - \text{Limit} \\ \text{Level} &= \text{Read Level} + \text{Factor}\end{aligned}$$

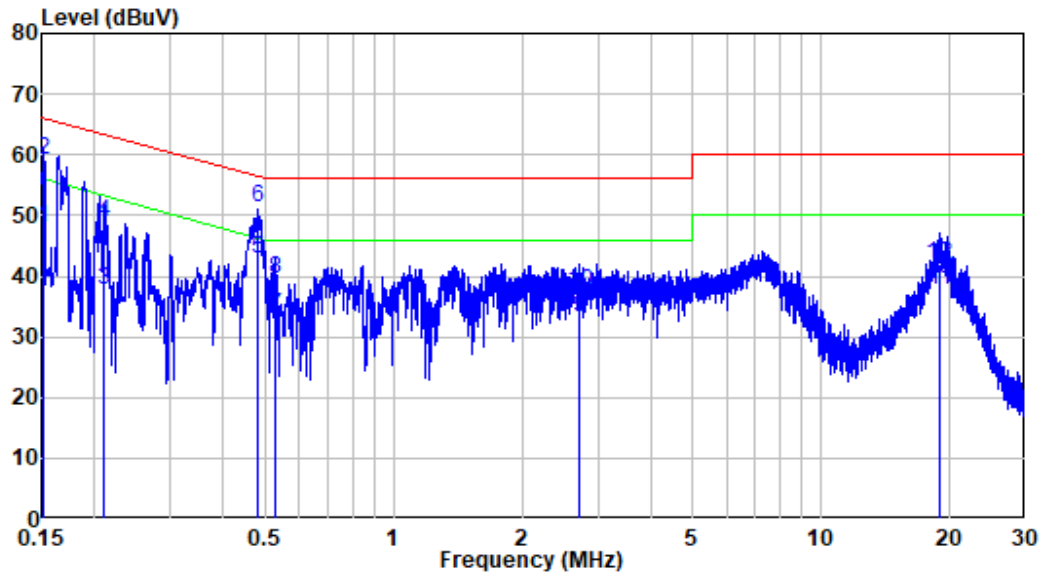
Test Data

Environmental Conditions

Temperature:	23 °C
Relative Humidity:	49 %
ATM Pressure:	101.0 kPa

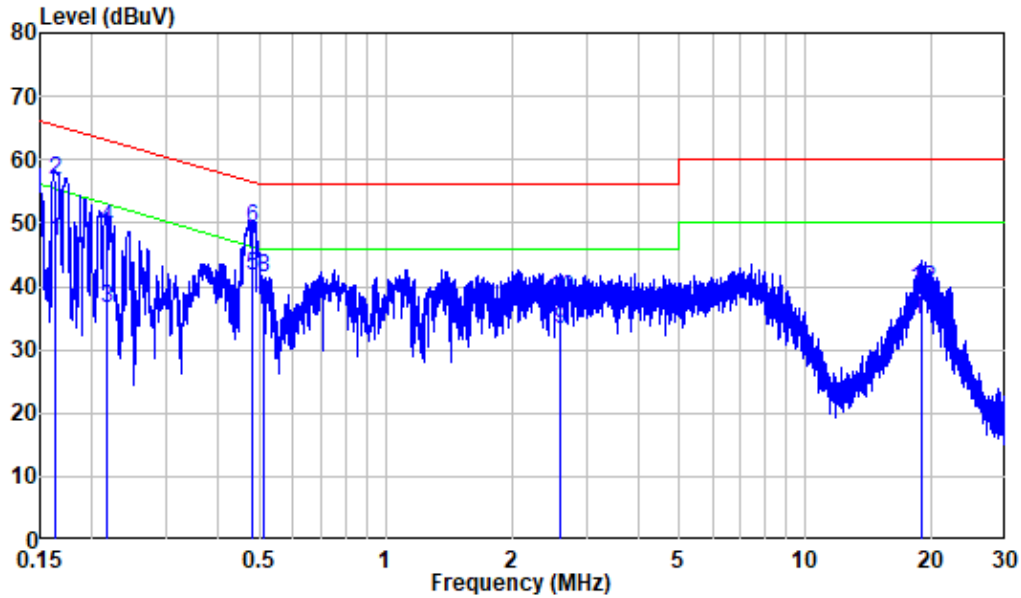
The testing was performed by Jerry Wu on 2023-05-12.

EUT operation mode: Transmitting (worst case is 802.11a, 5200MHz)

*Powered by PoE***AC 120V/60 Hz, Line:**

Site : Shielding Room
Condition: Line
Job No. : RA230419-20411E-RF
Mode : 5G WIFI Transmitting
Note : POE
Power : AC 120V 60Hz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.152	10.27	37.79	48.06	55.89	-7.83	Average
2	0.152	10.27	48.78	59.05	65.89	-6.84	QP
3	0.211	10.29	27.53	37.82	53.18	-15.36	Average
4	0.211	10.29	38.67	48.96	63.18	-14.22	QP
5	0.482	10.37	32.49	42.86	46.30	-3.44	Average
6	0.482	10.37	40.83	51.20	56.30	-5.10	QP
7	0.526	10.40	23.15	33.55	46.00	-12.45	Average
8	0.526	10.40	29.22	39.62	56.00	-16.38	QP
9	2.725	10.46	22.63	33.09	46.00	-12.91	Average
10	2.725	10.46	27.00	37.46	56.00	-18.54	QP
11	18.820	10.27	27.59	37.86	50.00	-12.14	Average
12	18.820	10.27	31.65	41.92	60.00	-18.08	QP

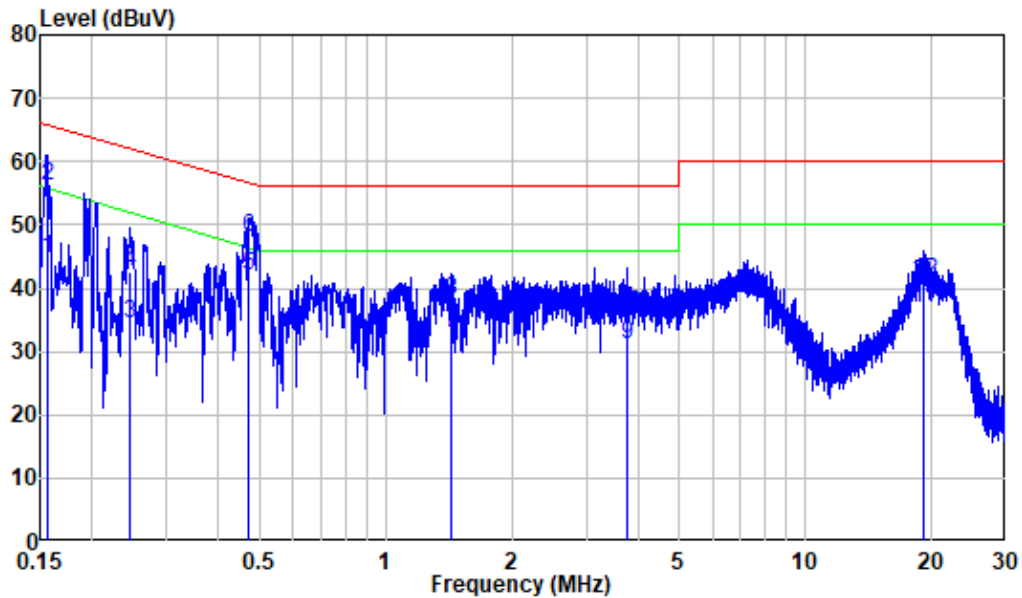
AC 120V/60 Hz, Neutral:

Site : Shielding Room
 Condition: Neutral
 Job No. : RA230419-20411E-RF
 Mode : 5G WIFI Transmitting
 Note : POE
 Power : AC 120V 60Hz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.163	10.31	36.65	46.96	55.30	-8.34	Average
2	0.163	10.31	46.50	56.81	65.30	-8.49	QP
3	0.216	10.38	26.29	36.67	52.96	-16.29	Average
4	0.216	10.38	38.83	49.21	62.96	-13.75	QP
5	0.481	10.36	31.37	41.73	46.32	-4.59	Average
6	0.481	10.36	38.99	49.35	56.32	-6.97	QP
7	0.510	10.38	25.73	36.11	46.00	-9.89	Average
8	0.510	10.38	31.10	41.48	56.00	-14.52	QP
9	2.598	10.54	22.58	33.12	46.00	-12.88	Average
10	2.598	10.54	27.56	38.10	56.00	-17.90	QP
11	18.958	10.37	24.40	34.77	50.00	-15.23	Average
12	18.958	10.37	29.08	39.45	60.00	-20.55	QP

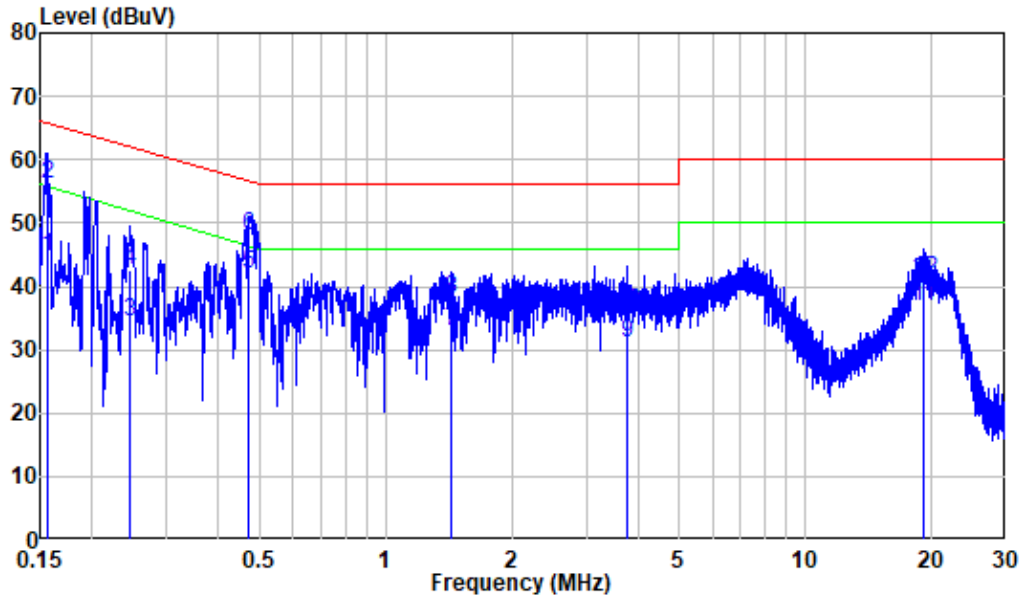
Powered by Adapter

AC 120V/60 Hz, Line:



Site : Shielding Room
 Condition: Line
 Job No. : RA230419-20411E-RF
 Mode : 5G WIFI Transmitting
 Power : AC 120V 60Hz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.156	10.40	34.26	44.66	55.68	-11.02	Average
2	0.156	10.40	45.68	56.08	65.68	-9.60	QP
3	0.246	10.40	23.97	34.37	51.89	-17.52	Average
4	0.246	10.40	32.20	42.60	61.89	-19.29	QP
5	0.473	10.40	31.70	42.10	46.47	-4.37	Average
6	0.473	10.40	37.64	48.04	56.47	-8.43	QP
7	1.438	10.41	22.40	32.81	46.00	-13.19	Average
8	1.438	10.41	27.69	38.10	56.00	-17.90	QP
9	3.754	10.53	20.55	31.08	46.00	-14.92	Average
10	3.754	10.53	25.31	35.84	56.00	-20.16	QP
11	19.084	10.16	26.68	36.84	50.00	-13.16	Average
12	19.084	10.16	30.89	41.05	60.00	-18.95	QP

AC 120V/60 Hz, Neutral:

Site : Shielding Room
 Condition: Line
 Job No. : RA230419-20411E-RF
 Mode : 5G WIFI Transmitting
 Power : AC 120V 60Hz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.156	10.40	34.26	44.66	55.68	-11.02	Average
2	0.156	10.40	45.68	56.08	65.68	-9.60	QP
3	0.246	10.40	23.97	34.37	51.89	-17.52	Average
4	0.246	10.40	32.20	42.60	61.89	-19.29	QP
5	0.473	10.40	31.70	42.10	46.47	-4.37	Average
6	0.473	10.40	37.64	48.04	56.47	-8.43	QP
7	1.438	10.41	22.40	32.81	46.00	-13.19	Average
8	1.438	10.41	27.69	38.10	56.00	-17.90	QP
9	3.754	10.53	20.55	31.08	46.00	-14.92	Average
10	3.754	10.53	25.31	35.84	56.00	-20.16	QP
11	19.084	10.16	26.68	36.84	50.00	-13.16	Average
12	19.084	10.16	30.89	41.05	60.00	-18.95	QP

§15.205 & §15.209 & §15.407(B)– UNDESIRABLE EMISSION

Applicable Standard

FCC §15.407 (b); §15.209; §15.205;

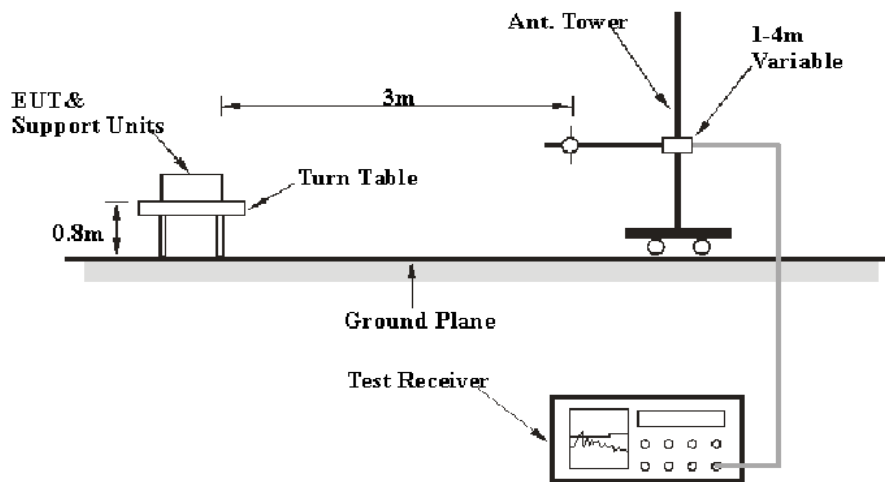
(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

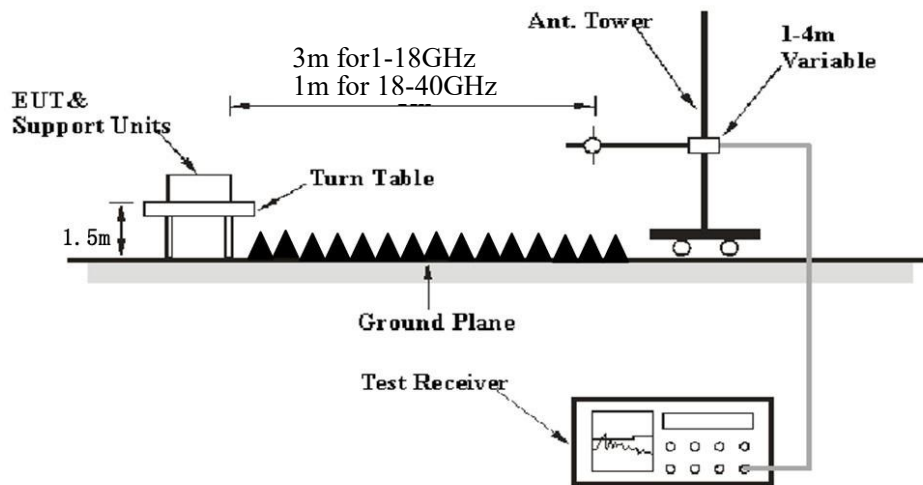
- (1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.
- (4) For transmitters operating in the 5.725-5.85 GHz band:
 - (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.

Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in §15.209.

EUT Setup

Below 1 GHz:



Above 1 GHz:

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC 15.209 and FCC 15.407 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 40 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30 MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	PK
	1MHz	10 Hz ^{Note 1}	/	Average
	1MHz	> 1/T ^{Note 2}	/	Average

Note 1: when duty cycle is no less than 98%

Note 2: when duty cycle is less than 98%

Test Procedure**Radiated Spurious Emission**

During the radiated emission test, the adapter was connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all the installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1GHz, peak and Average detection modes for frequencies above 1GHz.

According to ANSI C63.10-2013,9.4: For field strength measurements made at other than the distance at which the applicable limit is specified, extrapolate the measured field strength to the field strength at the distance specified by the limit using an inverse distance correction factor (20 dB/decade of distance). In some cases, a different distance correction factor may be required;

$$E_{\text{SpecLimit}} = E_{\text{Meas}} + 20 \log \left(\frac{d_{\text{Meas}}}{d_{\text{SpecLimit}}} \right)$$

where

$E_{\text{SpecLimit}}$	is the field strength of the emission at the distance specified by the limit, in dBμV/m
E_{Meas}	is the field strength of the emission at the measurement distance, in dBμV/m
d_{Meas}	is the measurement distance, in m
$d_{\text{SpecLimit}}$	is the distance specified by the limit, in m

So the extrapolation factor of 1m is $20 \cdot \log(1/3) = -9.5$ dB, for 18-40GHz range, the limit of 1m distance was added by 9.5dB from limit of 3m to compared with the result measurement at 1m distance.

Factor & Margin Calculation

The Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain. The basic equation is as follows:

$$\text{Factor} = \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Over Limit/Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over Limit/margin of -7dB means the emission is 7dB below the limit. The equation for calculation is as follows:

$$\begin{aligned} \text{Over Limit/Margin} &= \text{Level / Corrected Amplitude} - \text{Limit} \\ \text{Level / Corrected Amplitude} &= \text{Read Level} + \text{Factor} \end{aligned}$$

Test Data

Environmental Conditions

Temperature:	24 ~25.5℃
Relative Humidity:	52~56 %
ATM Pressure:	101.0 kPa

The testing was performed by Jimi Zheng on 2023-05-04 for below 1GHz, and Jimi Zheng on 2023-05-05 for above 1GHz.

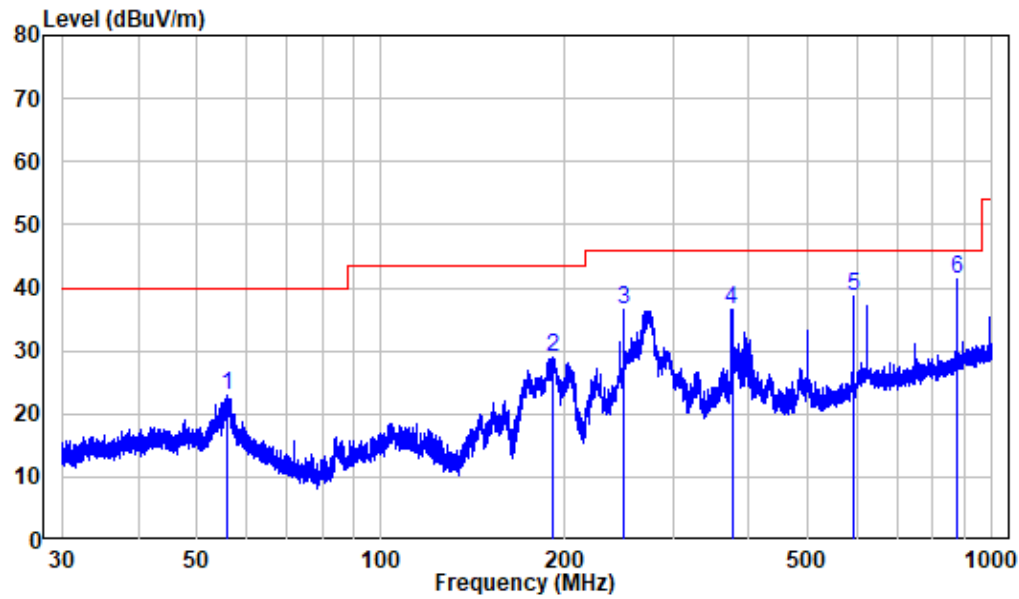
EUT operation mode: Transmitting (Pre-scan in the X,Y and Z axes of orientation, the worst case of X-axes orientation was recorded)

30 MHz – 1 GHz: (worst case is 802.11a, 5200MHz)

Note: When the test result of Peak was more than 6dB below the limit of QP, just the Peak value was recorded.

Powered by PoE:

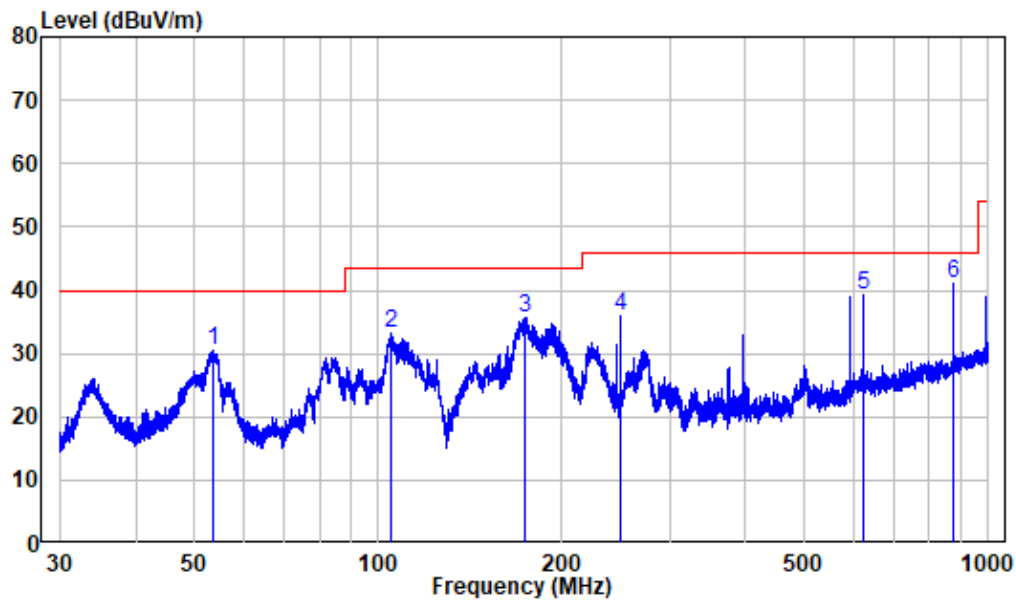
Horizontal



Site : chamber
Condition: 3m HORIZONTAL
Job No. : RA230419-20411E-RF
Test Mode: 5G WIFI Transmitting
Note : POE

	Freq	Factor	Read Level	Level	Limit	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	55.952	-10.19	33.07	22.88	40.00	-17.12	Peak
2	190.990	-11.41	40.51	29.10	43.50	-14.40	Peak
3	250.082	-10.75	47.16	36.41	46.00	-9.59	Peak
4	375.116	-7.28	43.80	36.52	46.00	-9.48	Peak
5	594.090	-2.70	41.25	38.55	46.00	-7.45	Peak
6	875.247	1.18	40.11	41.29	46.00	-4.71	QP

Vertical

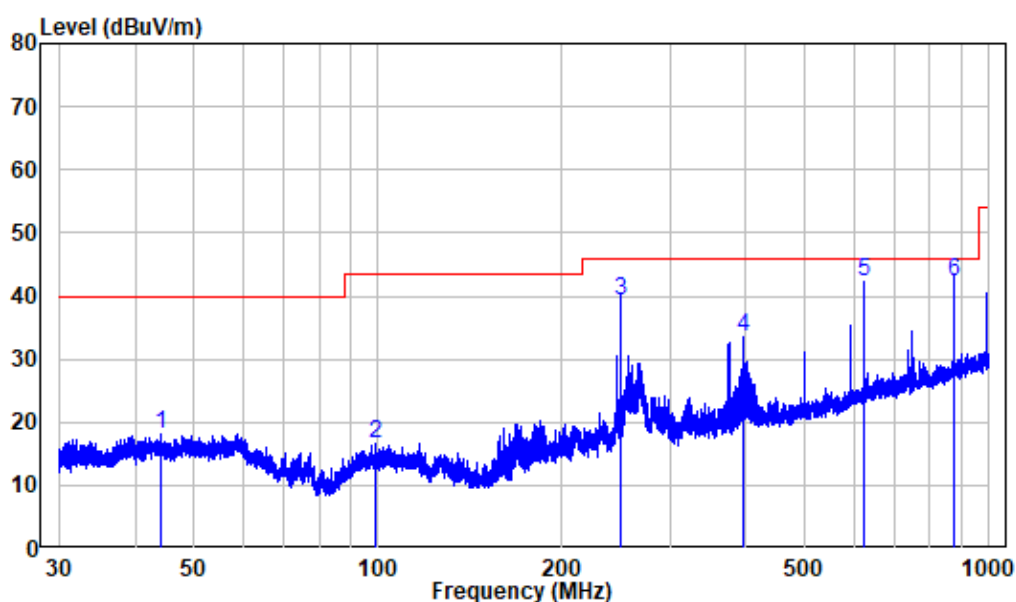


Site : chamber
Condition: 3m VERTICAL
Job No. : RA230419-20411E-RF
Test Mode: 5G WIFI Transmitting
Note : POE

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	53.505	-10.26	40.66	30.40	40.00	-9.60	Peak
2	104.903	-11.82	44.90	33.08	43.50	-10.42	Peak
3	174.195	-13.17	48.87	35.70	43.50	-7.80	Peak
4	249.972	-10.74	46.72	35.98	46.00	-10.02	Peak
5	625.078	-2.35	41.51	39.16	46.00	-6.84	Peak
6	875.247	1.18	39.80	40.98	46.00	-5.02	QP

Powered by Adapter:

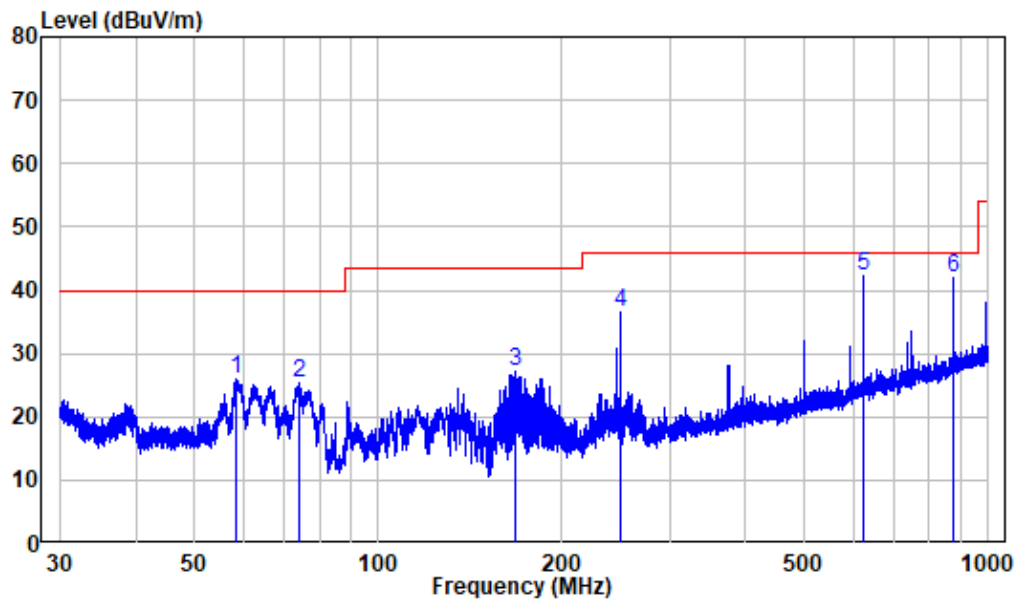
Horizontal



Site : chamber
Condition: 3m HORIZONTAL
Job No. : RA230419-20411E-RF
Test Mode: 5G WIFI Transmitting
Note : Adapter

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	44.024	-9.90	28.16	18.26	40.00	-21.74	Peak
2	98.919	-12.05	28.69	16.64	43.50	-26.86	Peak
3	249.972	-10.74	49.96	39.22	46.00	-6.78	QP
4	396.068	-6.79	40.32	33.53	46.00	-12.47	Peak
5	625.078	-2.35	44.60	42.25	46.00	-3.75	QP
6	875.247	1.18	41.18	42.36	46.00	-3.64	QP

Vertical



Site : chamber
Condition: 3m VERTICAL
Job No. : RA230419-20411E-RF
Test Mode: 5G WIFI Transmitting
Note : Adapter

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	58.561	-10.10	36.15	26.05	40.00	-13.95	Peak
2	74.298	-16.11	41.61	25.50	40.00	-14.50	Peak
3	167.971	-13.78	41.06	27.28	43.50	-16.22	Peak
4	249.972	-10.74	47.32	36.58	46.00	-9.42	Peak
5	625.078	-2.35	44.52	42.17	46.00	-3.83	QP
6	875.247	1.18	40.70	41.88	46.00	-4.12	QP

Above 1GHz: (worst case powered by adapter)**5150-5250 MHz:**

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave.		Height (m)	Polar (H/V)				
802.11a									
5180MHz									
4500	66.64	PK	21	1.2	H	-6.44	60.20	74	-13.80
4500	54.17	AV	21	1.2	H	-6.44	47.73	54	-6.27
4500	66.75	PK	316	2	V	-6.44	60.31	74	-13.69
4500	54.28	AV	316	2	V	-6.44	47.84	54	-6.16
5150	72.04	PK	205	1.3	H	-4.91	67.13	74	-6.87
5150	55.48	AV	205	1.3	H	-4.91	50.57	54	-3.43
5150	72.55	PK	150	1.2	V	-4.91	67.64	74	-6.36
5150	55.67	AV	150	1.2	V	-4.91	50.76	54	-3.24
10360	54.73	PK	61	2.4	H	5.36	60.09	68.2	-8.11
10360	54.97	PK	154	2.4	V	5.36	60.33	68.2	-7.87
5200MHz									
10400	54.59	PK	219	2.1	H	5.66	60.25	68.2	-7.95
10400	54.82	PK	29	2.1	V	5.66	60.48	68.2	-7.72
5240MHz									
5350	66.56	PK	334	1.3	H	-3.89	62.67	74	-11.33
5350	51.65	AV	334	1.3	H	-3.89	47.76	54	-6.24
5350	66.67	PK	105	1.4	V	-3.89	62.78	74	-11.22
5350	51.78	AV	105	1.4	V	-3.89	47.89	54	-6.11
5460	63.39	PK	218	1.2	H	-3.24	60.15	74	-13.85
5460	50.16	AV	218	1.2	H	-3.24	46.92	54	-7.08
5460	63.51	PK	322	1.5	V	-3.24	60.27	74	-13.73
5460	50.27	AV	322	1.5	V	-3.24	47.03	54	-6.97
10480	55.09	PK	223	1.8	H	5.52	60.61	68.2	-7.59
10480	55.32	PK	49	1.8	V	5.52	60.84	68.2	-7.36

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave.		Height (m)	Polar (H/V)				
802.11ac20									
5180MHz									
4500	66.63	PK	334	2.2	H	-6.44	60.19	74	-13.81
4500	54.10	AV	334	2.2	H	-6.44	47.66	54	-6.34
4500	66.74	PK	134	1.5	V	-6.44	60.30	74	-13.70
4500	54.22	AV	134	1.5	V	-6.44	47.78	54	-6.22
5150	69.47	PK	204	1.7	H	-4.91	64.56	74	-9.44
5150	55.23	AV	204	1.7	H	-4.91	50.32	54	-3.68
5150	69.89	PK	233	1.5	V	-4.91	64.98	74	-9.02
5150	55.40	AV	233	1.5	V	-4.91	50.49	54	-3.51
10360	54.86	PK	206	1.2	H	5.36	60.22	68.2	-7.98
10360	55.09	PK	176	1.2	V	5.36	60.45	68.2	-7.75
5200MHz									
10400	54.80	PK	334	1.6	H	5.66	60.46	68.2	-7.74
10400	55.01	PK	67	1.6	V	5.66	60.67	68.2	-7.53
5240MHz									
5350	66.37	PK	351	1.2	H	-3.89	62.48	74	-11.52
5350	51.44	AV	351	1.2	H	-3.89	47.55	54	-6.45
5350	66.51	PK	117	1.6	V	-3.89	62.62	74	-11.38
5350	51.55	AV	117	1.6	V	-3.89	47.66	54	-6.34
5460	63.25	PK	114	1.1	H	-3.24	60.01	74	-13.99
5460	50.08	AV	114	1.1	H	-3.24	46.84	54	-7.16
5460	63.37	PK	332	2.1	V	-3.24	60.13	74	-13.87
5460	50.19	AV	332	2.1	V	-3.24	46.95	54	-7.05
10480	55.29	PK	173	1.3	H	5.52	60.81	68.2	-7.39
10480	55.52	PK	283	1.3	V	5.52	61.04	68.2	-7.16

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave.		Height (m)	Polar (H/V)				
802.11ac40									
5190MHz									
4500	66.69	PK	235	1.7	H	-6.44	60.25	74	-13.75
4500	54.53	AV	235	1.7	H	-6.44	48.09	54	-5.91
4500	66.80	PK	359	1.6	V	-6.44	60.36	74	-13.64
4500	54.64	AV	359	1.6	V	-6.44	48.20	54	-5.80
5150	70.80	PK	308	1.2	H	-4.91	65.89	74	-8.11
5150	55.57	AV	308	1.2	H	-4.91	50.66	54	-3.34
5150	70.99	PK	51	1.8	V	-4.91	66.08	74	-7.92
5150	55.75	AV	51	1.8	V	-4.91	50.84	54	-3.16
10380	54.61	PK	232	2.5	H	5.51	60.12	68.2	-8.08
10380	54.86	PK	38	2.5	V	5.51	60.37	68.2	-7.83
5230MHz									
5350	66.26	PK	192	2.3	H	-3.89	62.37	74	-11.63
5350	52.00	AV	192	2.3	H	-3.89	48.11	54	-5.89
5350	66.37	PK	320	1.7	V	-3.89	62.48	74	-11.52
5350	52.12	AV	320	1.7	V	-3.89	48.23	54	-5.77
5460	63.52	PK	51	1.4	H	-3.24	60.28	74	-13.72
5460	50.45	AV	51	1.4	H	-3.24	47.21	54	-6.79
5460	63.63	PK	306	1.2	V	-3.24	60.39	74	-13.61
5460	50.54	AV	306	1.2	V	-3.24	47.30	54	-6.70
10460	55.07	PK	148	2.1	H	5.51	60.58	68.2	-7.62
10460	55.29	PK	33	2.1	V	5.51	60.80	68.2	-7.40

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave.		Height (m)	Polar (H/V)				
802.11ac80									
5210MHz									
4500	66.75	PK	10	1	H	-6.44	60.31	74	-13.69
4500	54.63	AV	10	1	H	-6.44	48.19	54	-5.81
4500	66.86	PK	238	1.1	V	-6.44	60.42	74	-13.58
4500	54.74	AV	238	1.1	V	-6.44	48.30	54	-5.70
5150	70.42	PK	198	2.4	H	-4.91	65.51	74	-8.49
5150	55.69	AV	198	2.4	H	-4.91	50.78	54	-3.22
5150	70.73	PK	22	1.9	V	-4.91	65.82	74	-8.18
5150	55.90	AV	22	1.9	V	-4.91	50.99	54	-3.01
5350	66.93	PK	59	1.8	H	-3.89	63.04	74	-10.96
5350	53.57	AV	59	1.8	H	-3.89	49.68	54	-4.32
5350	67.05	PK	145	2	V	-3.89	63.16	74	-10.84
5350	53.69	AV	145	2	V	-3.89	49.80	54	-4.20
5460	63.96	PK	318	2.4	H	-3.24	60.72	74	-13.28
5460	50.90	AV	318	2.4	H	-3.24	47.66	54	-6.34
5460	64.07	PK	315	2.2	V	-3.24	60.83	74	-13.17
5460	51.01	AV	315	2.2	V	-3.24	47.77	54	-6.23
10420	54.55	PK	264	2.3	H	5.60	60.15	68.2	-8.05
10420	54.78	PK	206	2.3	V	5.60	60.38	68.2	-7.82

5250-5350 MHz:

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11a									
5260MHz									
4500	66.65	PK	242	1.2	H	-6.44	60.21	74	-13.79
4500	54.13	AV	242	1.2	H	-6.44	47.69	54	-6.31
4500	66.78	PK	250	1.3	V	-6.44	60.34	74	-13.66
4500	54.24	AV	250	1.3	V	-6.44	47.80	54	-6.20
5150	69.08	PK	119	2	H	-4.91	64.17	74	-9.83
5150	55.32	AV	119	2	H	-4.91	50.41	54	-3.59
5150	69.19	PK	6	2	V	-4.91	64.28	74	-9.72
5150	55.44	AV	6	2	V	-4.91	50.53	54	-3.47
10520	54.91	PK	302	1.2	H	5.45	60.36	68.2	-7.84
10520	55.14	PK	326	1.2	V	5.45	60.59	68.2	-7.61
5280MHz									
10560	55.72	PK	250	1.7	H	5.43	61.15	68.2	-7.05
10560	55.96	PK	109	1.7	V	5.43	61.39	68.2	-6.81
5320MHz									
5350	73.62	PK	267	1.7	H	-3.89	69.73	74	-4.27
5350	54.77	AV	267	1.7	H	-3.89	50.88	54	-3.12
5350	74.10	PK	202	2.2	V	-3.89	70.21	74	-3.79
5350	54.89	AV	202	2.2	V	-3.89	51.00	54	-3.00
5460	65.87	PK	10	1.9	H	-3.24	62.63	74	-11.37
5460	50.16	AV	10	1.9	H	-3.24	46.92	54	-7.08
5460	66.00	PK	76	1.3	V	-3.24	62.76	74	-11.24
5460	50.27	AV	76	1.3	V	-3.24	47.03	54	-6.97
10640	56.05	PK	115	1.8	H	5.38	61.43	74	-12.57
10640	42.61	AV	189	1.8	H	5.38	47.99	54	-6.01
10640	56.28	PK	223	1.9	V	5.38	61.66	74	-12.34
10640	42.84	AV	215	1.9	V	5.38	48.22	54	-5.78

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11ac20									
5260MHz									
4500	66.53	PK	187	1	H	-6.44	60.09	74	-13.91
4500	54.08	AV	187	1	H	-6.44	47.64	54	-6.36
4500	66.64	PK	164	2	V	-6.44	60.20	74	-13.80
4500	54.17	AV	164	2	V	-6.44	47.73	54	-6.27
5150	68.97	PK	186	1.8	H	-4.91	64.06	74	-9.94
5150	55.23	AV	186	1.8	H	-4.91	50.32	54	-3.68
5150	69.10	PK	111	1.9	V	-4.91	64.19	74	-9.81
5150	55.35	AV	111	1.9	V	-4.91	50.44	54	-3.56
10520	55.00	PK	194	1.8	H	5.45	60.45	68.2	-7.75
10520	55.21	PK	127	1.8	V	5.45	60.66	68.2	-7.54
5280MHz									
10560	55.80	PK	322	2.1	H	5.43	61.23	68.2	-6.97
10560	56.01	PK	32	2.1	V	5.43	61.44	68.2	-6.76
5320MHz									
5350	73.27	PK	45	2.5	H	-3.89	69.38	74	-4.62
5350	54.65	AV	45	2.5	H	-3.89	50.76	54	-3.24
5350	73.69	PK	54	1.3	V	-3.89	69.80	74	-4.20
5350	54.76	AV	54	1.3	V	-3.89	50.87	54	-3.13
5460	65.73	PK	16	1.5	H	-3.24	62.49	74	-11.51
5460	50.09	AV	16	1.5	H	-3.24	46.85	54	-7.15
5460	65.85	PK	300	2	V	-3.24	62.61	74	-11.39
5460	50.21	AV	300	2	V	-3.24	46.97	54	-7.03
10640	56.17	PK	308	1.2	H	5.38	61.55	74	-12.45
10640	42.75	AV	115	1.2	H	5.38	48.13	54	-5.87
10640	56.39	PK	174	1.2	V	5.38	61.77	74	-12.23
10640	42.98	AV	340	1.2	V	5.38	48.36	54	-5.64

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11ac40									
5270MHz									
4500	66.56	PK	33	1.3	H	-6.44	60.12	74	-13.88
4500	54.41	AV	33	1.3	H	-6.44	47.97	54	-6.03
4500	66.67	PK	101	1.5	V	-6.44	60.23	74	-13.77
4500	54.50	AV	101	1.5	V	-6.44	48.06	54	-5.94
5150	69.08	PK	312	1.2	H	-4.91	64.17	74	-9.83
5150	55.56	AV	312	1.2	H	-4.91	50.65	54	-3.35
5150	69.20	PK	43	1.2	V	-4.91	64.29	74	-9.71
5150	55.67	AV	43	1.2	V	-4.91	50.76	54	-3.24
10540	54.92	PK	103	1.8	H	5.43	60.35	68.2	-7.85
10540	55.15	PK	27	1.8	V	5.43	60.58	68.2	-7.62
5310MHz									
5350	71.69	PK	301	1.5	H	-3.89	67.80	74	-6.20
5350	54.97	AV	301	1.5	H	-3.89	51.08	54	-2.92
5350	72.41	PK	53	1.8	V	-3.89	68.52	74	-5.48
5350	55.18	AV	53	1.8	V	-3.89	51.29	54	-2.71
5460	65.09	PK	149	1.8	H	-3.24	61.85	74	-12.15
5460	50.45	AV	149	1.8	H	-3.24	47.21	54	-6.79
5460	65.21	PK	52	1.9	V	-3.24	61.97	74	-12.03
5460	50.56	AV	52	1.9	V	-3.24	47.32	54	-6.68
10620	55.60	PK	261	1.7	H	5.63	61.23	74	-12.77
10620	42.67	AV	67	1.7	H	5.63	48.30	54	-5.70
10620	55.82	PK	342	1.2	V	5.63	61.45	74	-12.55
10620	42.88	AV	349	1.2	V	5.63	48.51	54	-5.49

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11ac80									
5290MHz									
4500	66.41	PK	217	1.5	H	-6.44	59.97	74	-14.03
4500	54.64	AV	217	1.5	H	-6.44	48.20	54	-5.80
4500	66.53	PK	223	2.1	V	-6.44	60.09	74	-13.91
4500	54.75	AV	223	2.1	V	-6.44	48.31	54	-5.69
5150	69.10	PK	220	2.4	H	-4.91	64.19	74	-9.81
5150	55.52	AV	220	2.4	H	-4.91	50.61	54	-3.39
5150	69.24	PK	225	1.2	V	-4.91	64.33	74	-9.67
5150	55.69	AV	225	1.2	V	-4.91	50.78	54	-3.22
5350	70.42	PK	155	2.4	H	-3.89	66.53	74	-7.47
5350	55.57	AV	155	2.4	H	-3.89	51.68	54	-2.32
5350	70.88	PK	251	2	V	-3.89	66.99	74	-7.01
5350	55.80	AV	251	2	V	-3.89	51.91	54	-2.09
5460	65.18	PK	207	1.8	H	-3.24	61.94	74	-12.06
5460	50.95	AV	207	1.8	H	-3.24	47.71	54	-6.29
5460	65.30	PK	196	2.4	V	-3.24	62.06	74	-11.94
5460	51.06	AV	196	2.4	V	-3.24	47.82	54	-6.18
10580	55.24	PK	88	1.5	H	5.66	60.9	68.2	-7.30
10580	55.45	PK	231	1.5	V	5.66	61.11	68.2	-7.09

5470-5725MHz:

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11a									
5500MHz									
5460	64.50	PK	221	2	H	-3.24	61.26	74	-12.74
5460	50.14	AV	221	2	H	-3.24	46.90	54	-7.10
5460	64.71	PK	0	1.7	V	-3.24	61.47	74	-12.53
5460	50.33	AV	0	1.7	V	-3.24	47.09	54	-6.91
5470	68.73	PK	173	1	H	-3.20	65.53	68.2	-2.67
5470	69.14	PK	322	1.8	V	-3.20	65.94	68.2	-2.26
11000	54.13	PK	189	1.1	H	6.60	60.73	74	-13.27
11000	40.22	AV	331	1.1	H	6.60	46.82	54	-7.18
11000	54.31	PK	120	1.4	V	6.60	60.91	74	-13.09
11000	40.40	AV	348	1.4	V	6.60	47.00	54	-7.00
5580MHz									
11160	54.38	PK	159	2	H	6.40	60.78	74	-13.22
11160	40.54	AV	317	2	H	6.40	46.94	54	-7.06
11160	54.61	PK	212	1.7	V	6.40	61.01	74	-12.99
11160	40.75	AV	337	1.7	V	6.40	47.15	54	-6.85
5700MHz									
5725	66.56	PK	160	1.6	H	-2.73	63.83	68.2	-4.37
5725	66.35	PK	351	1.7	V	-2.73	63.62	68.2	-4.58
5745	64.17	PK	168	1.9	H	-3.07	61.10	68.2	-7.10
5745	63.96	PK	201	1.8	V	-3.07	60.89	68.2	-7.31
11400	54.15	PK	188	2.5	H	6.91	61.06	74	-12.94
11400	40.48	AV	132	2.5	H	6.91	47.39	54	-6.61
11400	54.36	PK	328	2.3	V	6.91	61.27	74	-12.73
11400	40.70	AV	313	2.3	V	6.91	47.61	54	-6.39

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11ac20									
5500MHz									
5460	64.73	PK	178	1.4	H	-3.24	61.49	74	-12.51
5460	50.39	AV	178	1.4	H	-3.24	47.15	54	-6.85
5460	64.94	PK	320	2	V	-3.24	61.70	74	-12.30
5460	50.60	AV	320	2	V	-3.24	47.36	54	-6.64
5470	69.01	PK	257	1.8	H	-3.20	65.81	68.2	-2.39
5470	69.32	PK	57	2.2	V	-3.20	66.12	68.2	-2.08
11000	54.25	PK	97	2.4	H	6.60	60.85	74	-13.15
11000	40.34	AV	217	2.4	H	6.60	46.94	54	-7.06
11000	54.43	PK	247	1.4	V	6.60	61.03	74	-12.97
11000	40.51	AV	140	1.4	V	6.60	47.11	54	-6.89
5580MHz									
11160	54.50	PK	106	1.7	H	6.40	60.90	74	-13.10
11160	40.61	AV	52	1.7	H	6.40	47.01	54	-6.99
11160	54.73	PK	273	1.1	V	6.40	61.13	74	-12.87
11160	40.82	AV	86	1.1	V	6.40	47.22	54	-6.78
5700MHz									
5725	66.95	PK	234	2.1	H	-2.73	64.22	68.2	-3.98
5725	66.77	PK	30	1	V	-2.73	64.04	68.2	-4.16
5745	64.36	PK	335	2.2	H	-3.07	61.29	68.2	-6.91
5745	64.20	PK	135	2	V	-3.07	61.13	68.2	-7.07
11400	54.27	PK	339	1.3	H	6.91	61.18	74	-12.82
11400	40.60	AV	219	1.3	H	6.91	47.51	54	-6.49
11400	54.51	PK	289	1.5	V	6.91	61.42	74	-12.58
11400	40.83	AV	186	1.5	V	6.91	47.74	54	-6.26

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11ac40									
5510MHz									
5460	64.46	PK	173	2.2	H	-3.24	61.22	74	-12.78
5460	51.39	AV	173	2.2	H	-3.24	48.15	54	-5.85
5460	64.65	PK	137	2.4	V	-3.24	61.41	74	-12.59
5460	51.60	AV	137	2.4	V	-3.24	48.36	54	-5.64
5470	68.99	PK	93	2.1	H	-3.20	65.79	68.2	-2.41
5470	69.23	PK	243	1.9	V	-3.20	66.03	68.2	-2.17
11020	54.34	PK	9	2.3	H	6.44	60.78	74	-13.22
11020	40.78	AV	358	2.3	H	6.44	47.22	54	-6.78
11020	54.56	PK	230	1.1	V	6.44	61.00	74	-13.00
11020	40.99	AV	129	1.1	V	6.44	47.43	54	-6.57
5550MHz									
11100	54.93	PK	186	1.5	H	5.95	60.88	74	-13.12
11100	41.10	AV	287	1.5	H	5.95	47.05	54	-6.95
11100	55.15	PK	235	2.5	V	5.95	61.10	74	-12.90
11100	41.32	AV	60	2.5	V	5.95	47.27	54	-6.73
5670MHz									
5725	65.79	PK	310	1.5	H	-2.73	63.06	68.2	-5.14
5725	65.95	PK	234	2.3	V	-2.73	63.22	68.2	-4.98
5745	63.90	PK	129	1.2	H	-3.07	60.83	68.2	-7.37
5745	64.11	PK	89	2.2	V	-3.07	61.04	68.2	-7.16
11340	54.45	PK	102	2	H	6.84	61.29	74	-12.71
11340	40.74	AV	314	2	H	6.84	47.58	54	-6.42
11340	54.67	PK	16	1.4	V	6.84	61.51	74	-12.49
11340	40.93	AV	141	1.4	V	6.84	47.77	54	-6.23

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11ac80									
5530MHz									
5460	65.98	PK	343	1.2	H	-3.24	62.74	74	-11.26
5460	53.09	AV	343	1.2	H	-3.24	49.85	54	-4.15
5460	66.17	PK	57	2.3	V	-3.24	62.93	74	-11.07
5460	53.30	AV	57	2.3	V	-3.24	50.06	54	-3.94
5470	69.10	PK	183	1.3	H	-3.20	65.90	68.2	-2.30
5470	69.39	PK	165	2	V	-3.20	66.19	68.2	-2.01
11060	54.22	PK	317	1.4	H	6.16	60.38	74	-13.62
11060	41.27	AV	74	1.4	H	6.16	47.43	54	-6.57
11060	54.45	PK	306	1.7	V	6.16	60.61	74	-13.39
11060	41.50	AV	6	1.7	V	6.16	47.66	54	-6.34
5610MHz									
5725	65.10	PK	204	1.7	H	-2.73	62.37	68.2	-5.83
5725	65.33	PK	66	1.9	V	-2.73	62.60	68.2	-5.60
5745	63.71	PK	317	2	H	-3.07	60.64	68.2	-7.56
5745	63.90	PK	20	2.3	V	-3.07	60.83	68.2	-7.37
11220	54.97	PK	47	2.4	H	6.53	61.50	74	-12.50
11220	42.08	AV	172	2.4	H	6.53	48.61	54	-5.39
11220	55.22	PK	226	1.1	V	6.53	61.75	74	-12.25
11220	42.29	AV	99	1.1	V	6.53	48.82	54	-5.18

5725-5850 MHz:

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11a									
5745MHz									
5650	66.01	PK	173	2.5	H	-3.64	62.37	68.2	-5.83
5700	67.24	PK	318	1.7	H	-2.30	64.94	105.2	-40.26
5720	72.86	PK	90	1.9	H	-2.64	70.22	110.8	-40.58
5725	79.04	PK	314	1.4	H	-2.73	76.31	122.2	-45.89
5650	66.16	PK	279	1.5	V	-3.64	62.52	68.2	-5.68
5700	67.73	PK	77	2.1	V	-2.30	65.43	105.2	-39.77
5720	74.93	PK	309	2	V	-2.64	72.29	110.8	-38.51
5725	80.94	PK	292	1.6	V	-2.73	78.21	122.2	-43.99
11490	53.94	PK	52	2.1	H	7.00	60.94	74	-13.06
11490	40.41	AV	114	2.1	H	7.00	47.41	54	-6.59
11490	54.13	PK	353	1.2	V	7.00	61.13	74	-12.87
11490	40.62	AV	79	1.2	V	7.00	47.62	54	-6.38
5785MHz									
11570	54.82	PK	283	2.1	H	6.60	61.42	74	-12.58
11570	41.25	AV	305	2.1	H	6.60	47.85	54	-6.15
11570	55.01	PK	169	1	V	6.60	61.61	74	-12.39
11570	41.46	AV	218	1	V	6.60	48.06	54	-5.94
5825MHz									
5850	71.05	PK	37	2	H	-1.37	69.68	122.2	-52.52
5855	68.70	PK	322	2.5	H	-1.25	67.45	110.8	-43.35
5875	66.44	PK	128	2.1	H	-0.75	65.69	105.2	-39.51
5925	63.96	PK	89	1.5	H	-0.46	63.50	68.2	-4.70
5850	72.72	PK	330	1.9	V	-1.37	71.35	122.2	-50.85
5855	70.21	PK	142	1.8	V	-1.25	68.96	110.8	-41.84
5875	67.35	PK	223	2.3	V	-0.75	66.60	105.2	-38.60
5925	64.09	PK	272	2	V	-0.46	63.63	68.2	-4.57
11650	55.87	PK	94	2.4	H	5.55	61.42	74	-12.58
11650	42.22	AV	34	2.4	H	5.55	47.77	54	-6.23
11650	56.09	PK	332	1.6	V	5.55	61.64	74	-12.36
11650	42.43	AV	5	1.6	V	5.55	47.98	54	-6.02

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11ac20									
5745MHz									
5650	66.21	PK	211	1.6	H	-3.64	62.57	68.2	-5.63
5700	67.62	PK	167	1.4	H	-2.30	65.32	105.2	-39.88
5720	74.14	PK	64	1.8	H	-2.64	71.50	110.8	-39.30
5725	80.32	PK	139	2.3	H	-2.73	77.59	122.2	-44.61
5650	66.37	PK	239	1.6	V	-3.64	62.73	68.2	-5.47
5700	68.44	PK	140	1.3	V	-2.30	66.14	105.2	-39.06
5720	76.31	PK	123	1.3	V	-2.64	73.67	110.8	-37.13
5725	82.62	PK	270	2	V	-2.73	79.89	122.2	-42.31
11490	54.02	PK	168	1.5	H	7.00	61.02	74	-12.98
11490	40.53	AV	148	1.5	H	7.00	47.53	54	-6.47
11490	54.21	PK	108	1.9	V	7.00	61.21	74	-12.79
11490	40.74	AV	205	1.9	V	7.00	47.74	54	-6.26
5785MHz									
11570	54.94	PK	158	2	H	6.60	61.54	74	-12.46
11570	41.33	AV	273	2	H	6.60	47.93	54	-6.07
11570	55.17	PK	190	2.1	V	6.60	61.77	74	-12.23
11570	41.56	AV	333	2.1	V	6.60	48.16	54	-5.84
5825MHz									
5850	71.86	PK	106	2.4	H	-1.37	70.49	122.2	-51.71
5855	69.81	PK	142	1.1	H	-1.25	68.56	110.8	-42.24
5875	67.57	PK	24	2.2	H	-0.75	66.82	105.2	-38.38
5925	64.19	PK	318	2.3	H	-0.46	63.73	68.2	-4.47
5850	74.14	PK	39	1.9	V	-1.37	72.77	122.2	-49.43
5855	71.81	PK	239	1.5	V	-1.25	70.56	110.8	-40.24
5875	68.50	PK	56	1.9	V	-0.75	67.75	105.2	-37.45
5925	64.30	PK	338	1.1	V	-0.46	63.84	68.2	-4.36
11650	55.99	PK	245	1.7	H	5.55	61.54	74	-12.46
11650	42.28	AV	200	1.7	H	5.55	47.83	54	-6.17
11650	56.21	PK	322	2	V	5.55	61.76	74	-12.24
11650	42.54	AV	352	2	V	5.55	48.09	54	-5.91

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11ac40									
5755MHz									
5650	66.61	PK	248	1.4	H	-3.64	62.97	68.2	-5.23
5700	70.22	PK	272	2.5	H	-2.30	67.92	105.2	-37.28
5720	79.18	PK	314	1.1	H	-2.64	76.54	110.8	-34.26
5725	82.86	PK	281	1.6	H	-2.73	80.13	122.2	-42.07
5650	66.78	PK	13	2.3	V	-3.64	63.14	68.2	-5.06
5700	71.91	PK	333	2.5	V	-2.30	69.61	105.2	-35.59
5720	80.94	PK	292	1.6	V	-2.64	78.30	110.8	-32.50
5725	84.76	PK	159	1.4	V	-2.73	82.03	122.2	-40.17
11510	54.08	PK	219	2.3	H	7.06	61.14	74	-12.86
11510	40.97	AV	346	2.3	H	7.06	48.03	54	-5.97
11510	54.30	PK	191	2.3	V	7.06	61.36	74	-12.64
11510	41.19	AV	192	2.3	V	7.06	48.25	54	-5.75
5795MHz									
5850	68.96	PK	315	2.4	H	-1.37	67.59	122.2	-54.61
5855	67.95	PK	267	1.5	H	-1.25	66.70	110.8	-44.10
5875	65.93	PK	236	2.2	H	-0.75	65.18	105.2	-40.02
5925	64.31	PK	239	2.4	H	-0.46	63.85	68.2	-4.35
5850	70.04	PK	345	1.6	V	-1.37	68.67	122.2	-53.53
5855	68.75	PK	107	1.3	V	-1.25	67.50	110.8	-43.30
5875	66.53	PK	169	2.1	V	-0.75	65.78	105.2	-39.42
5925	64.52	PK	359	1.5	V	-0.46	64.06	68.2	-4.14
11590	55.30	PK	272	1	H	6.43	61.73	74	-12.27
11590	42.11	AV	136	1	H	6.43	48.54	54	-5.46
11590	55.55	PK	254	2.2	V	6.43	61.98	74	-12.02
11590	42.34	AV	188	2.2	V	6.43	48.77	54	-5.23

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11ac80									
5775MHz									
5650	68.32	PK	117	1.5	H	-3.64	64.68	68.2	-3.52
5700	77.67	PK	104	2	H	-2.30	75.37	105.2	-29.83
5720	80.63	PK	7	1.9	H	-2.64	77.99	110.8	-32.81
5725	82.65	PK	69	2.1	H	-2.73	79.92	122.2	-42.28
5650	68.57	PK	84	1.5	V	-3.64	64.93	68.2	-3.27
5700	78.94	PK	121	1.8	V	-2.30	76.64	105.2	-28.56
5720	82.44	PK	244	1.8	V	-2.64	79.80	110.8	-31.00
5725	84.62	PK	99	1.5	V	-2.73	81.89	122.2	-40.31
5850	72.05	PK	8	2.3	H	-1.37	70.68	122.2	-51.52
5855	69.81	PK	149	2.1	H	-1.25	68.56	110.8	-42.24
5875	67.60	PK	343	1.9	H	-0.75	66.85	105.2	-38.35
5925	65.00	PK	66	2.3	H	-0.46	64.54	68.2	-3.66
5850	73.87	PK	10	1.6	V	-1.37	72.50	122.2	-49.70
5855	72.00	PK	97	2.5	V	-1.25	70.75	110.8	-40.05
5875	68.44	PK	69	1.3	V	-0.75	67.69	105.2	-37.51
5925	65.22	PK	274	2	V	-0.46	64.76	68.2	-3.44
11550	55.10	PK	153	1.1	H	6.77	61.87	74	-12.13
11550	42.58	AV	209	1.1	H	6.77	49.35	54	-4.65
11550	55.31	PK	133	1.1	V	6.77	62.08	74	-11.92
11550	42.77	AV	62	1.1	V	6.77	49.54	54	-4.46

Note:

Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor

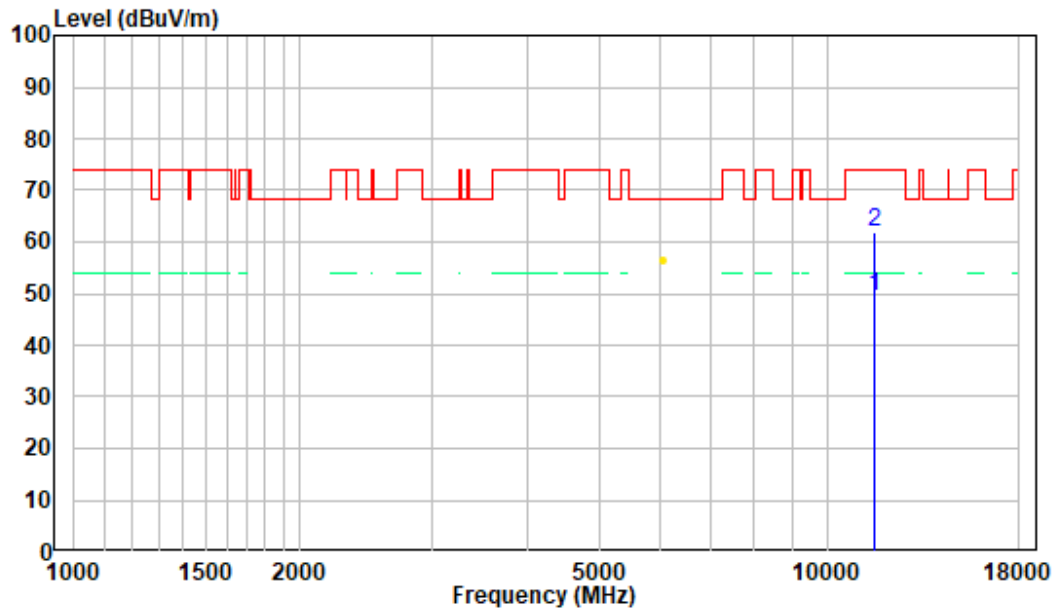
Corrected Amplitude = Corrected Factor + Reading

Margin = Corrected. Amplitude - Limit

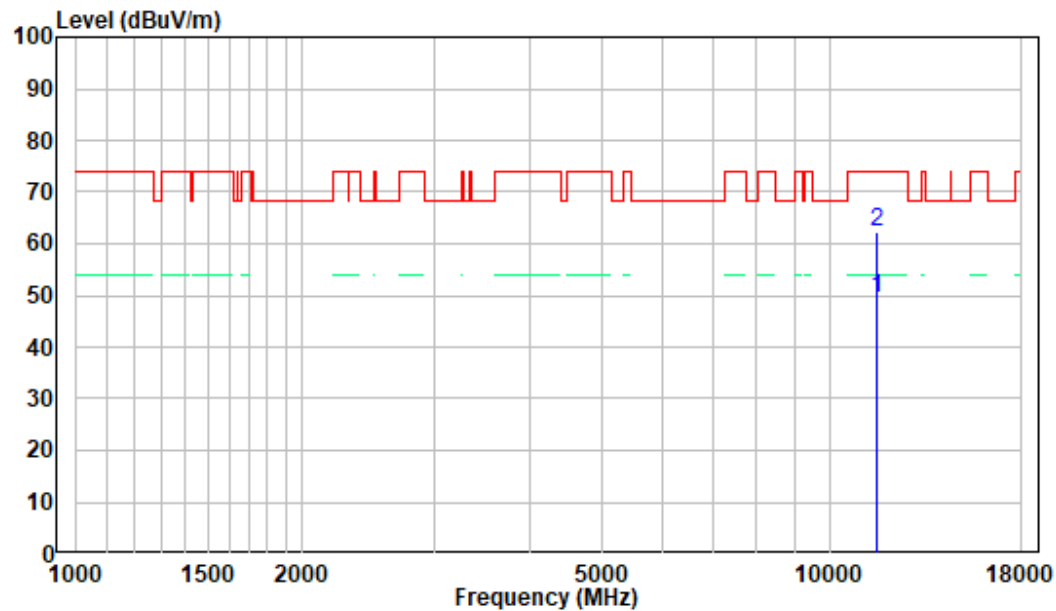
The other spurious emission which is in the noise floor level was not recorded.

1 GHz - 18 GHz: (Pre-Scan plots)

802.11 ac80, 5775MHz
Horizontal

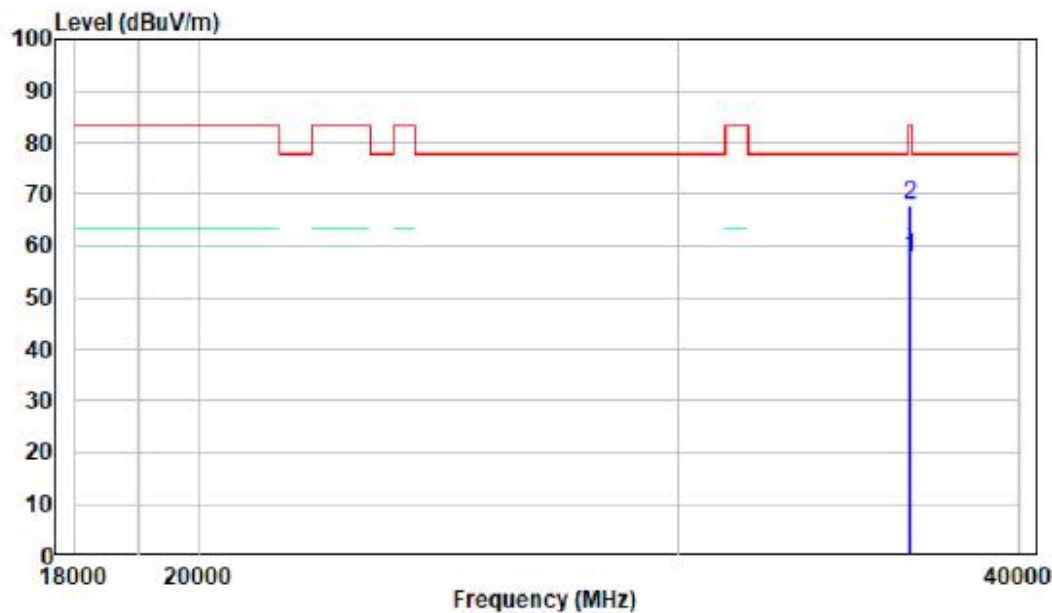


Vertical

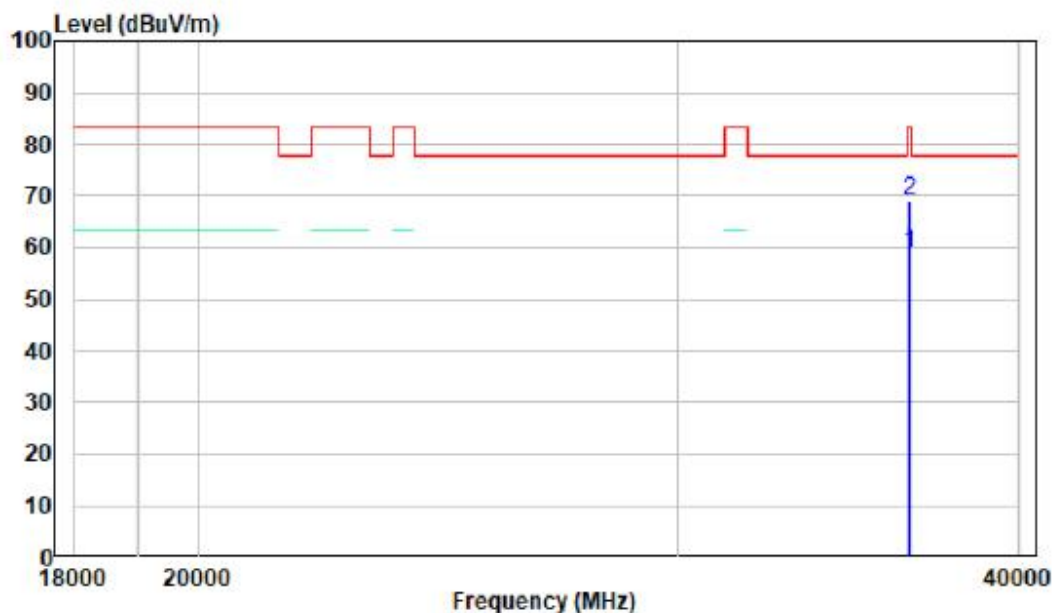


18-40GHz: (Pre-Scan plots)

802.11 ac80, 5775MHz
Horizontal



Vertical



FCC §15.407(a),(e) – 26 dB & 6dB EMISSION BANDWIDTH

Applicable Standard

The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power is integrated over the full reference bandwidth.

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

Test Procedure

According to KDB789033 D02 section II.C and section II.D

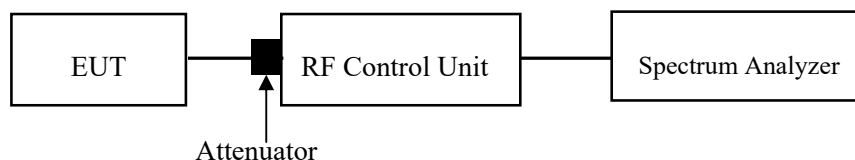
1. Emission Bandwidth (EBW)

- Set RBW = approximately 1% of the emission bandwidth.
- Set the VBW > RBW.
- Detector = Peak.
- Trace mode = max hold.
- Measure the maximum width of the emission that is 26 dB down from the maximum 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%.

2. Minimum Emission Bandwidth for the band 5.725-5.85 GHz

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.725-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

- Set RBW = 100 kHz.
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Allow the trace to stabilize.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.



Test Data**Environmental Conditions**

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	101.0 kPa

The testing was performed by Jacob Huang on 2023-05-10.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the Appendix.

FCC §15.407(a) – CONDUCTED TRANSMITTER OUTPUT POWER

Applicable Standard

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 provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For 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 provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

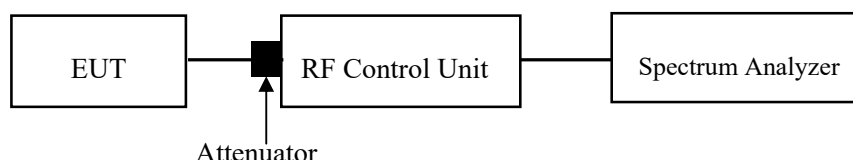
For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Method SA-2 should be applied

- 1: Place the EUT on a bench and set it in transmitting mode.
- 2: Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to one test equipment.



Test Data**Environmental Conditions**

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	101.0 kPa

The testing was performed by Jacob Huang on 2023-05-10.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the Appendix.

FCC §15.407(a) - POWER SPECTRAL DENSITY

For 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 provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or $11 \text{ dBm} + 10 \log B$, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

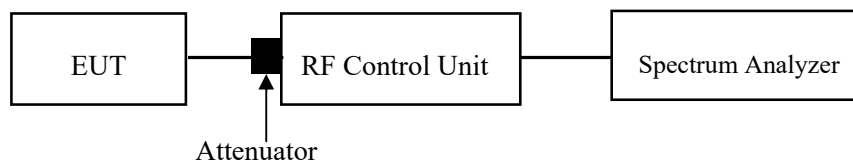
Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Method SA-2 should be applied

- Set RBW=1MHz or 500 kHz. $VBW > 3 \text{ RBW}$
- If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10 \log(500 \text{ kHz RBW})$ to the measured result. Whereas RBW (<500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10 \log(1\text{MHz}/\text{RBW})$ to the measured result, whereas RBW (<1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement. f) Detector=power averaging(1ms)
- Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 kHz for the II.F.5.c) and ILF 5.d. since RBW=100 kHz is available on nearly all spectrum analyzers.

- Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.



Test Data**Environmental Conditions**

Temperature:	26.8 °C
Relative Humidity:	56 %
ATM Pressure:	101.0 kPa

The testing was performed by Jacob Huang on 2023-05-10.

EUT operation mode: Transmitting

Test Result: Pass

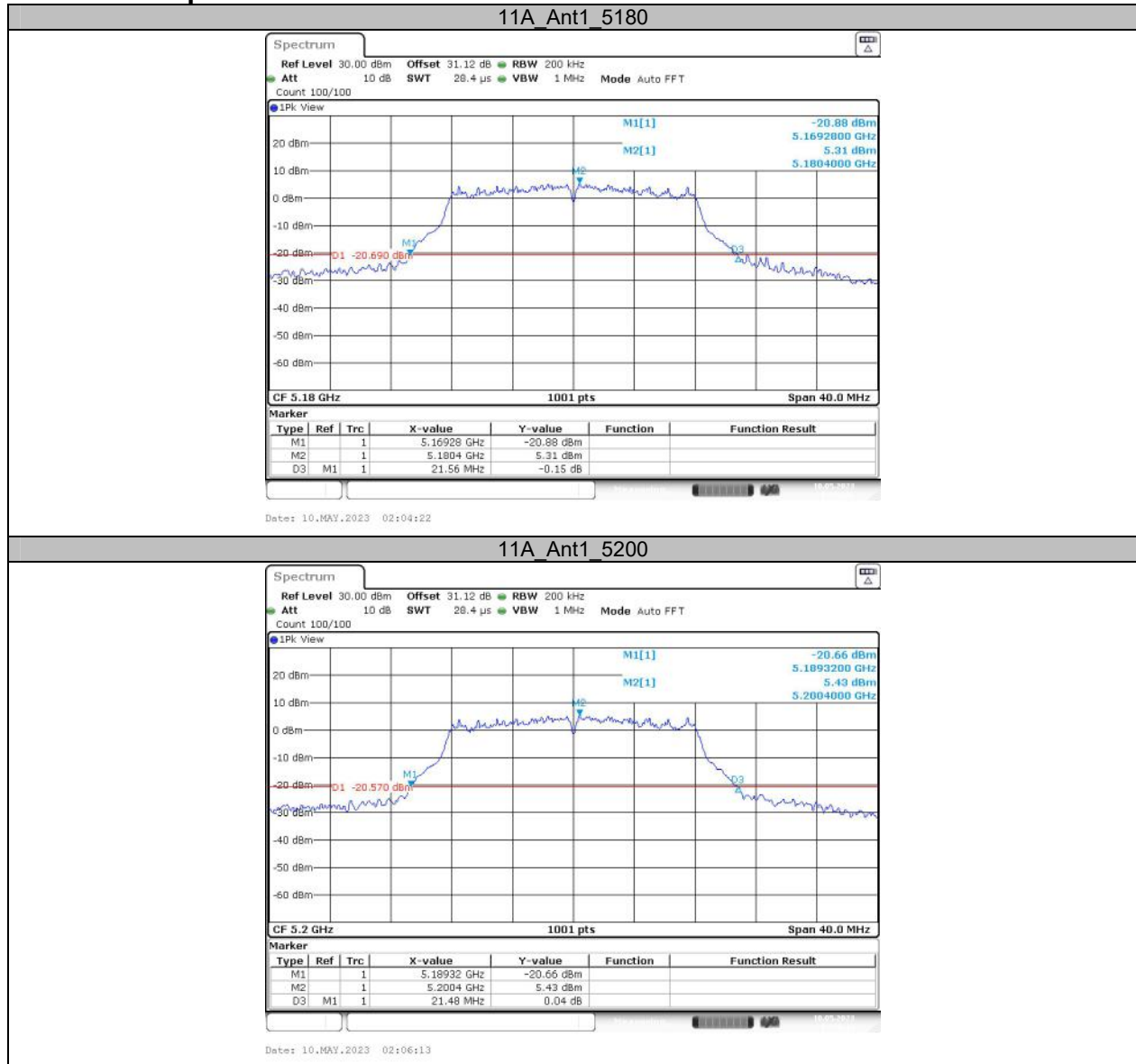
Please refer to the Appendix.

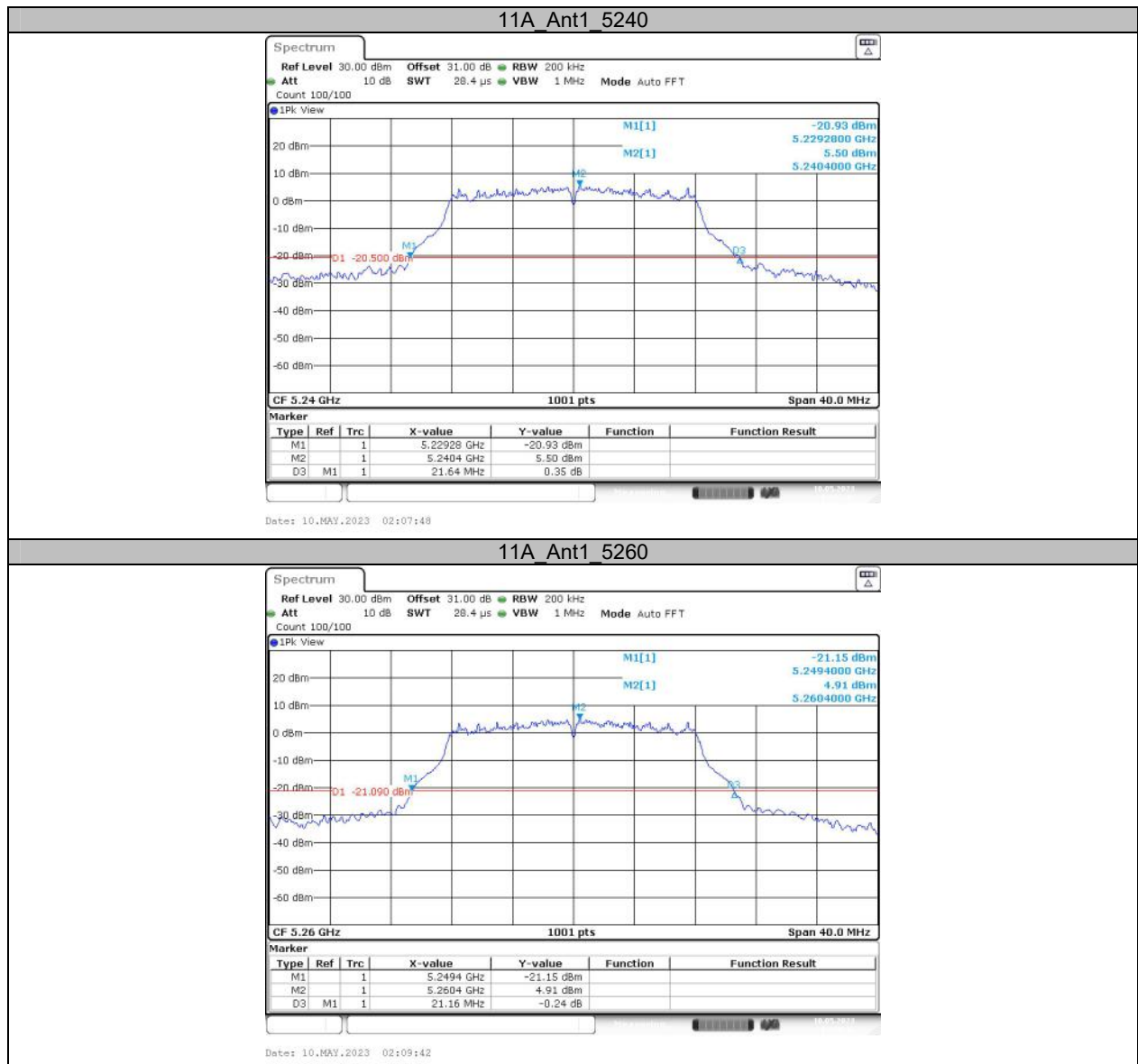
APPENDIX

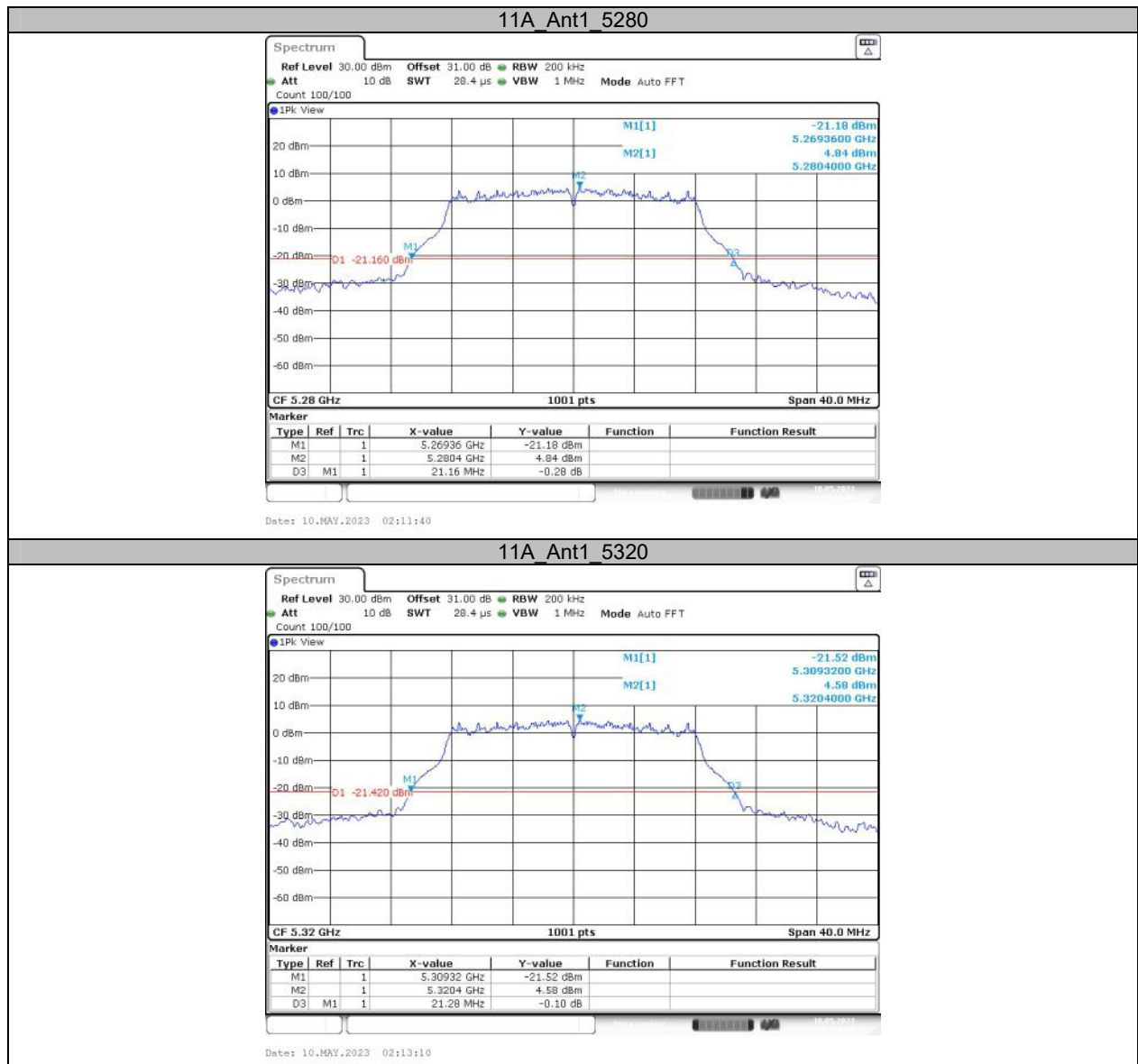
Appendix A1: Emission Bandwidth Test Result

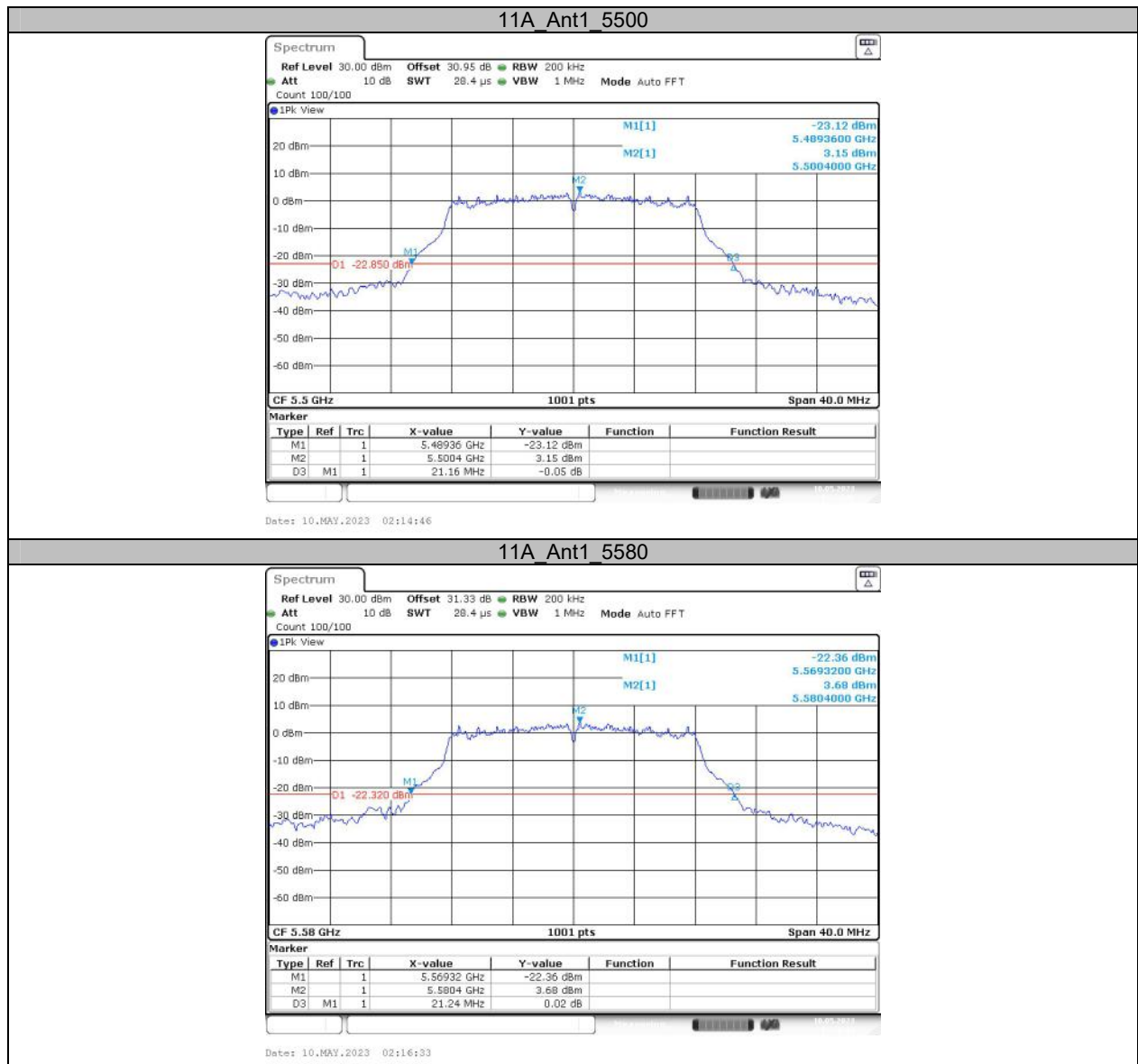
Test Mode	Antenna	Frequency [MHz]	26db EBW [MHz]
11A	Ant1	5180	21.56
		5200	21.48
		5240	21.64
		5260	21.16
		5280	21.16
		5320	21.28
		5500	21.16
		5580	21.24
		5700	21.40
		5745	22.32
		5785	22.36
		5825	22.32
11AC20SISO	Ant1	5180	22.44
		5200	21.88
		5240	22.16
		5260	21.60
		5280	21.60
		5320	21.56
		5500	21.72
		5580	21.60
		5700	22.40
		5745	22.08
		5785	22.04
		5825	22.56
11AC40SISO	Ant1	5190	47.20
		5230	40.48
		5270	40.00
		5310	40.16
		5510	40.40
		5550	40.00
		5670	40.08
		5755	49.84
		5795	49.76
11AC80SISO	Ant1	5210	82.88
		5290	81.76
		5530	81.76
		5610	82.40
		5775	82.56

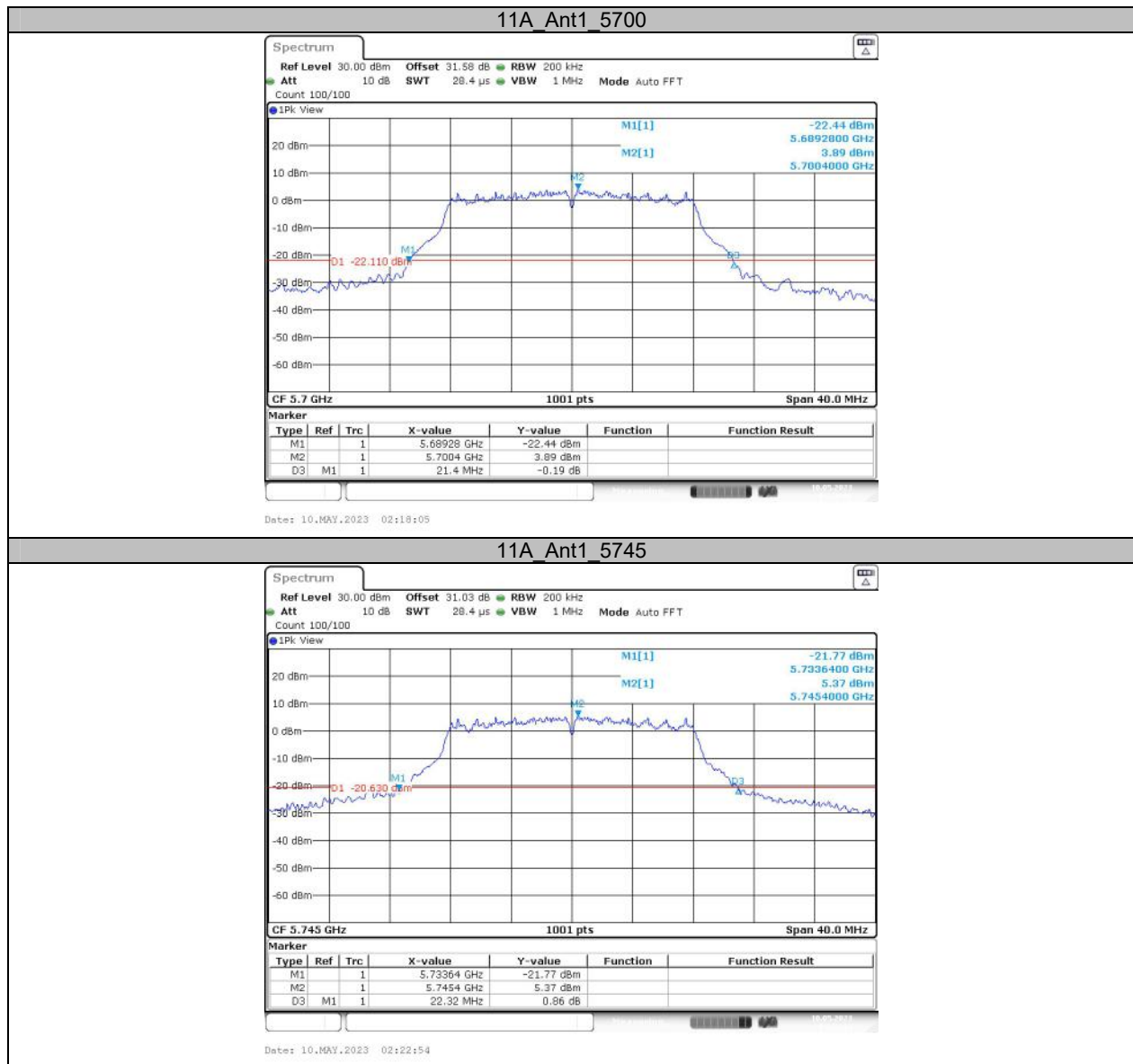
Test Graphs

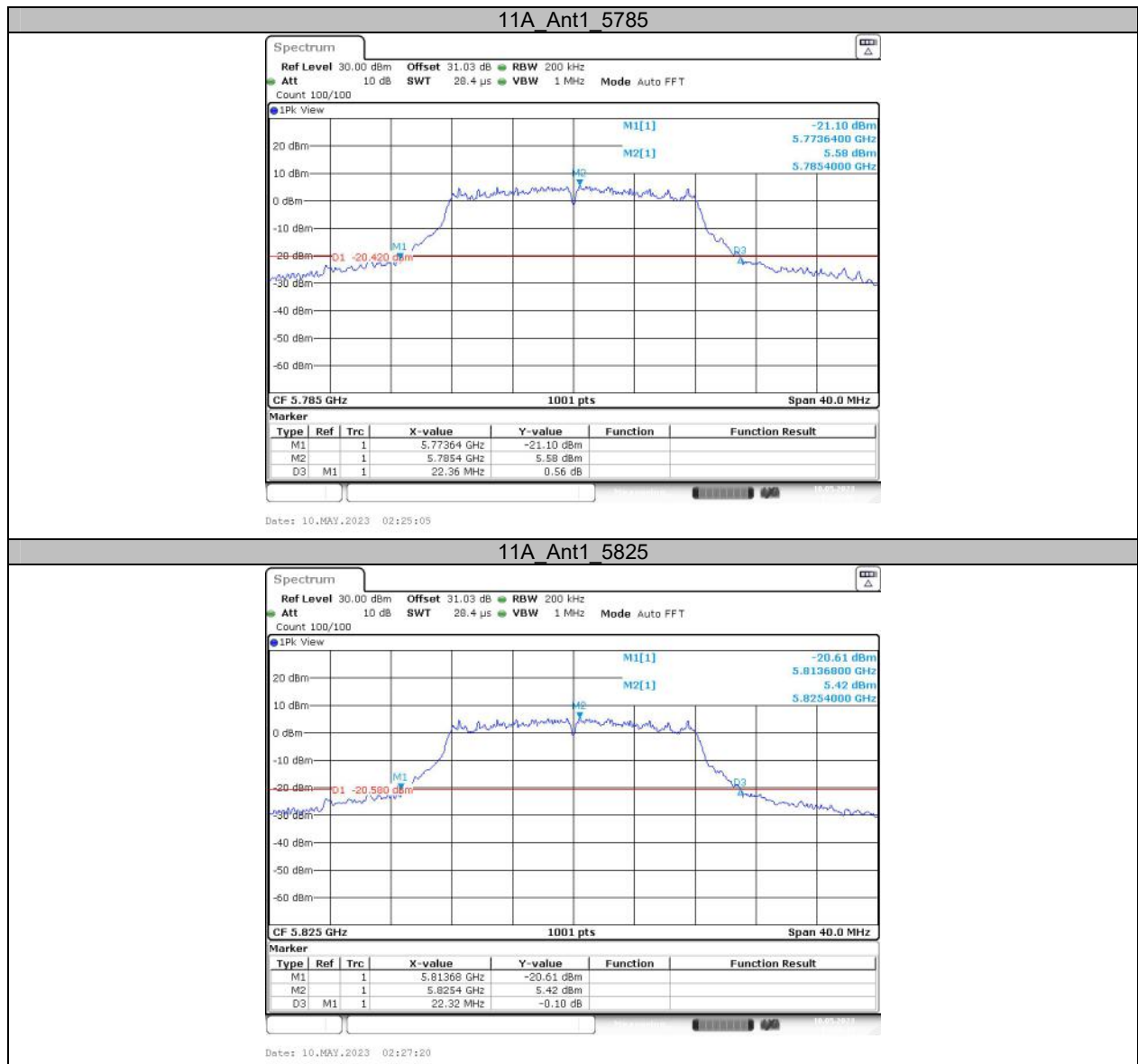


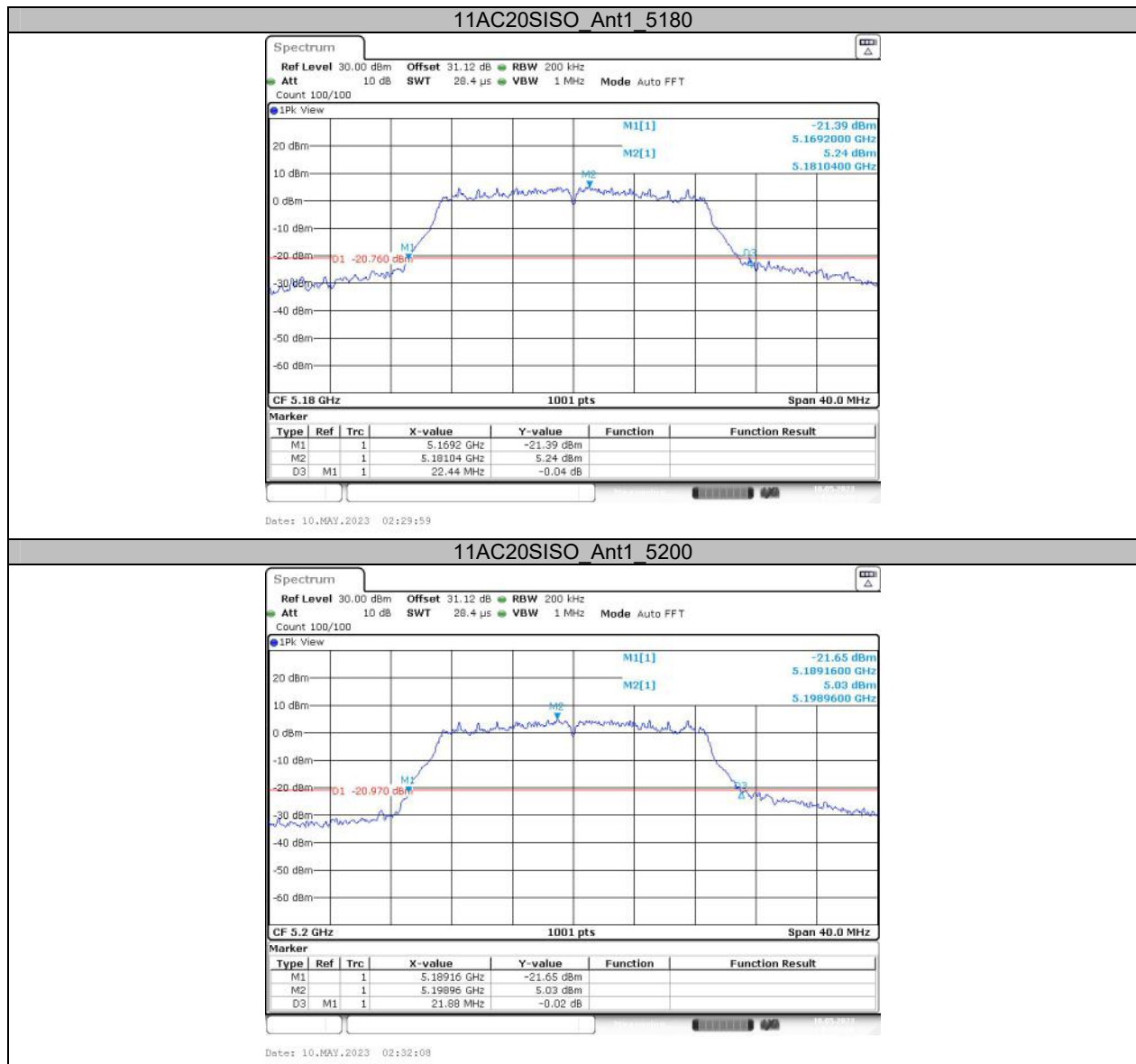


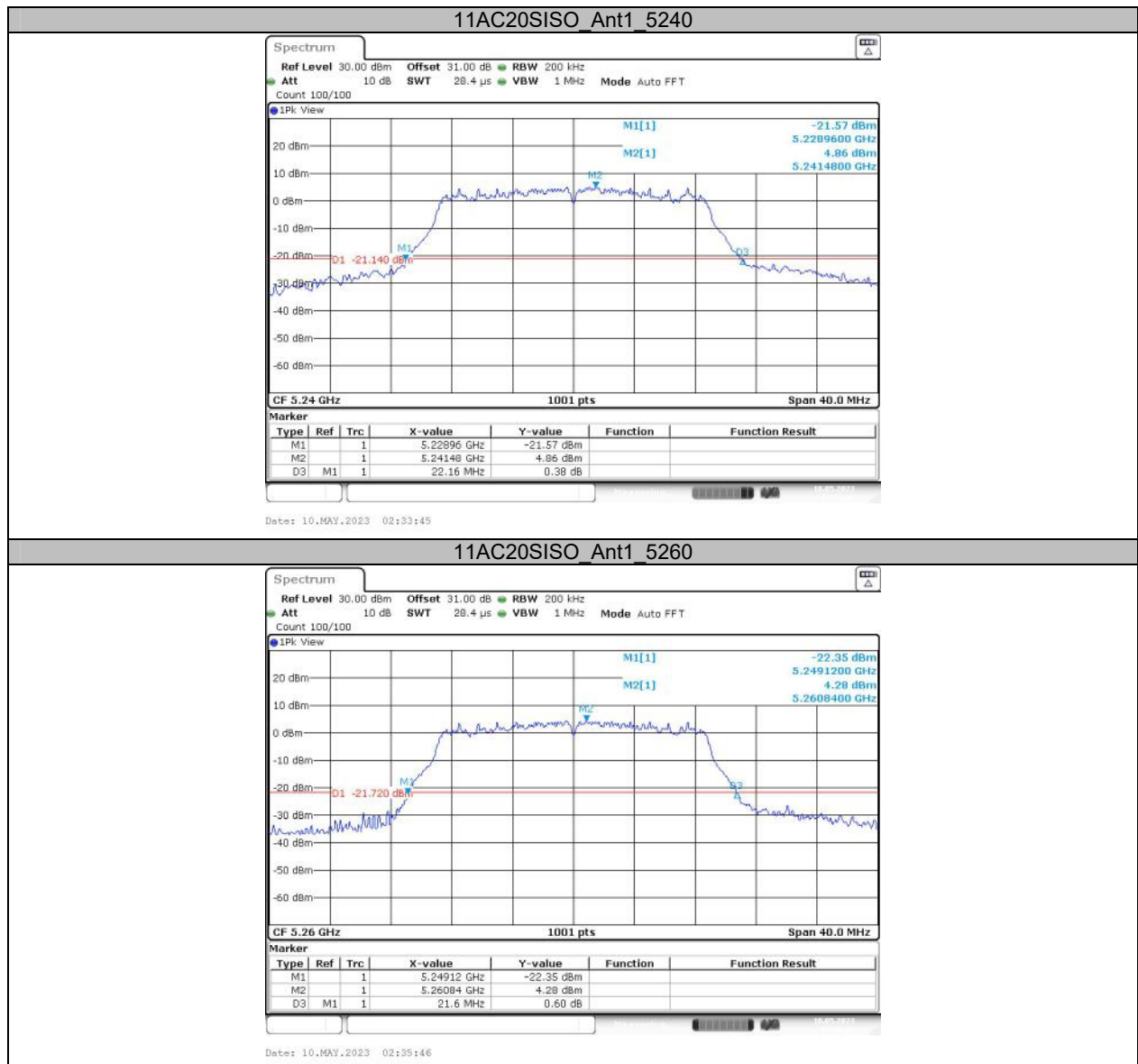


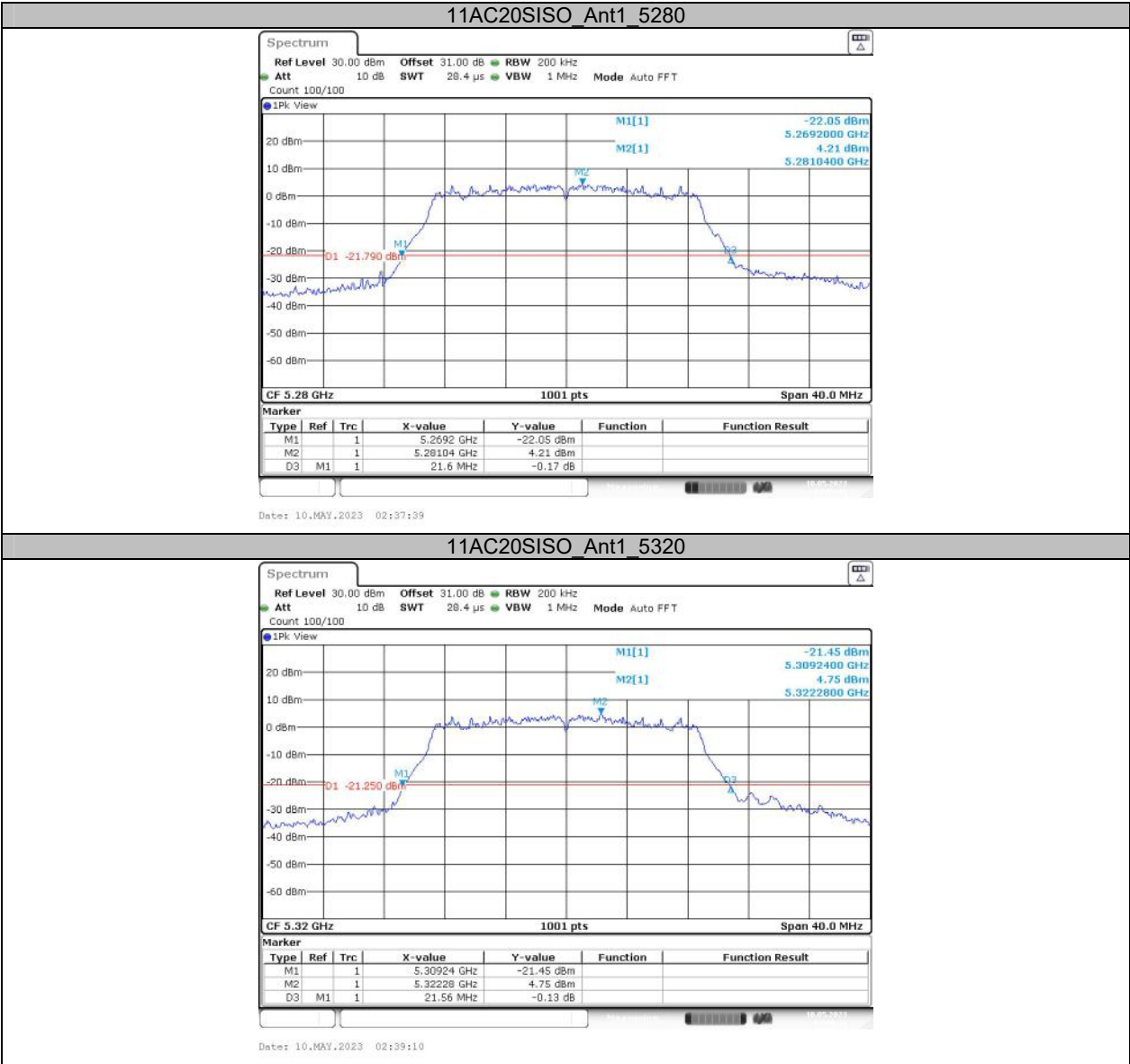


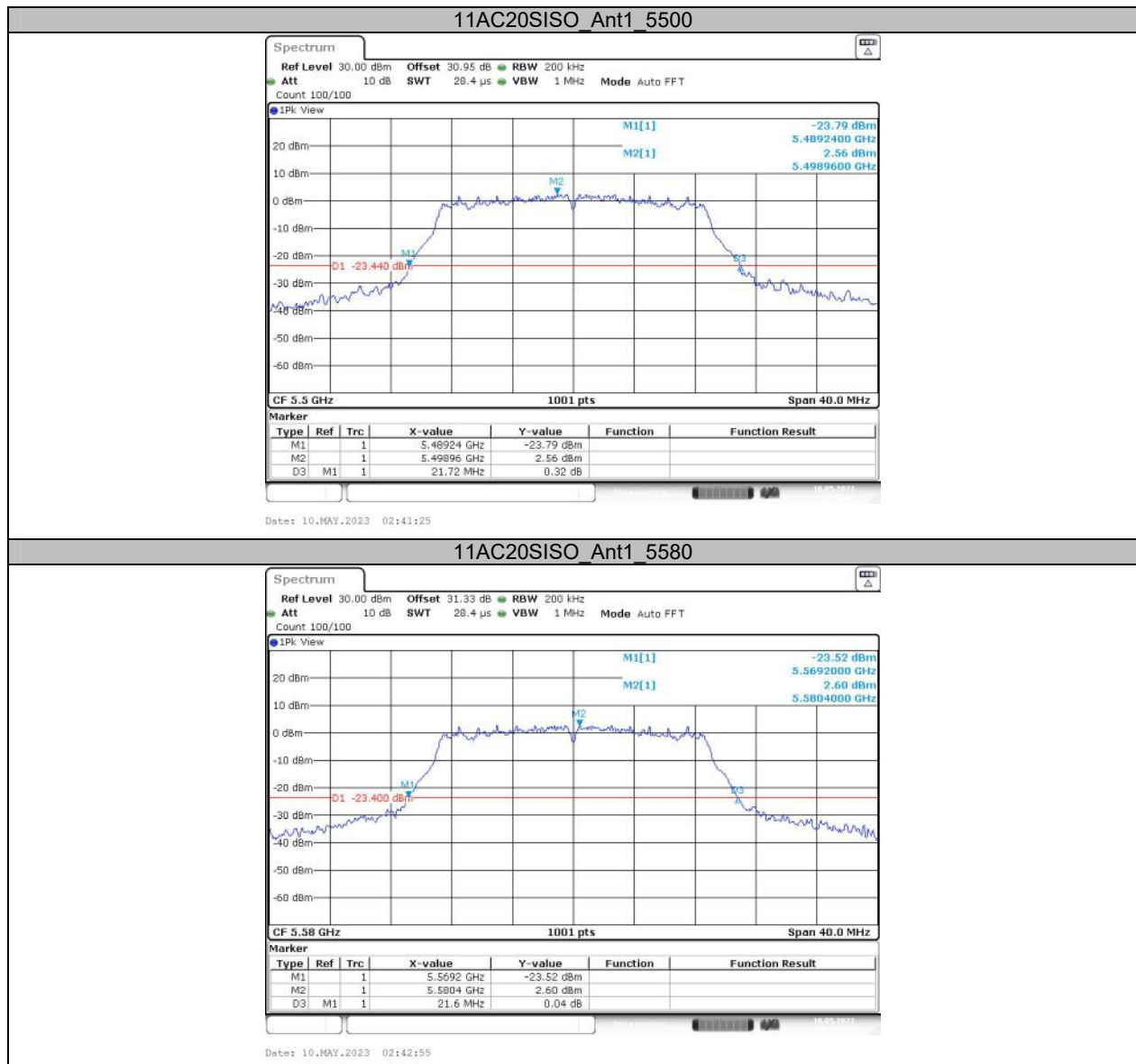


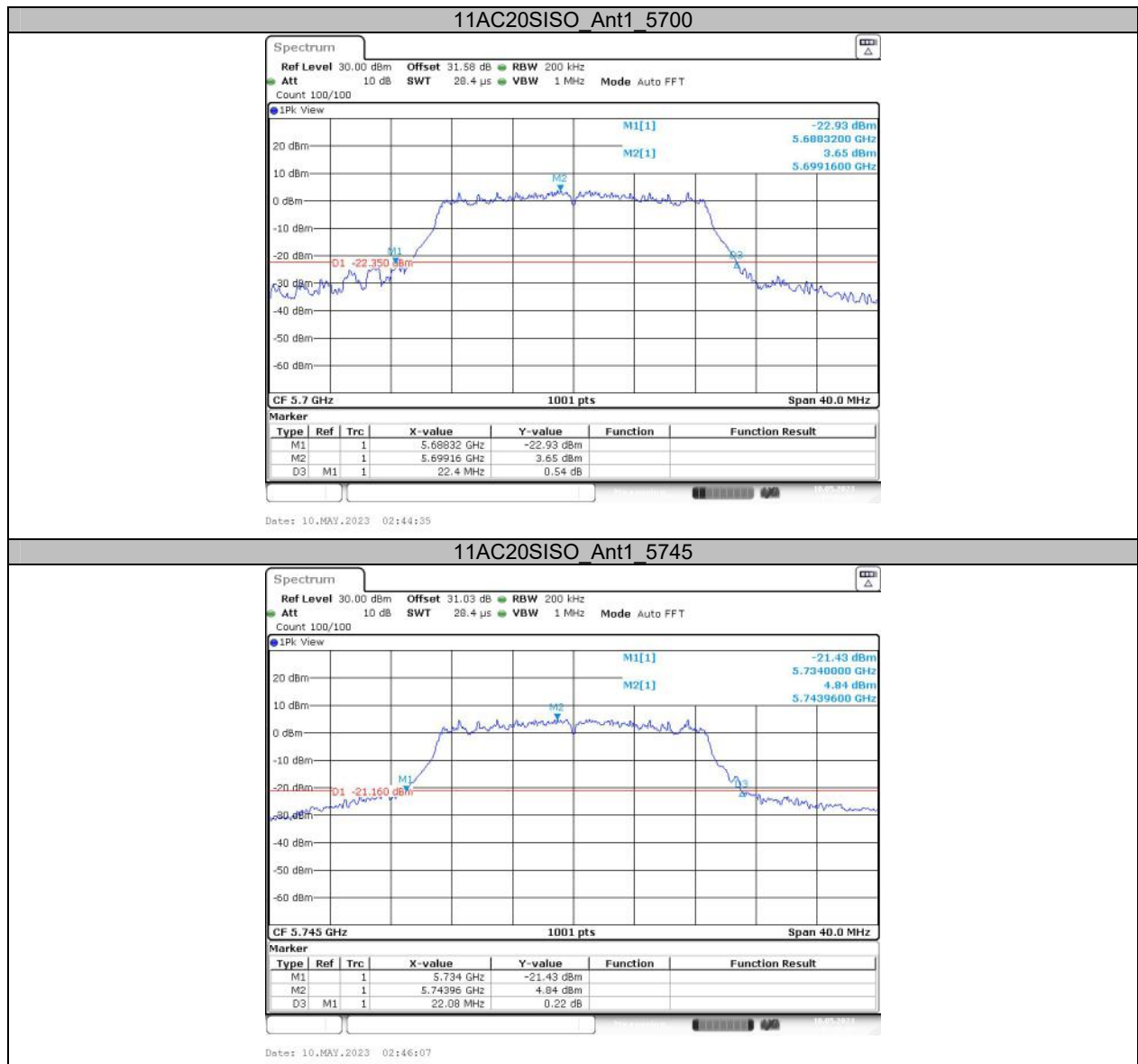


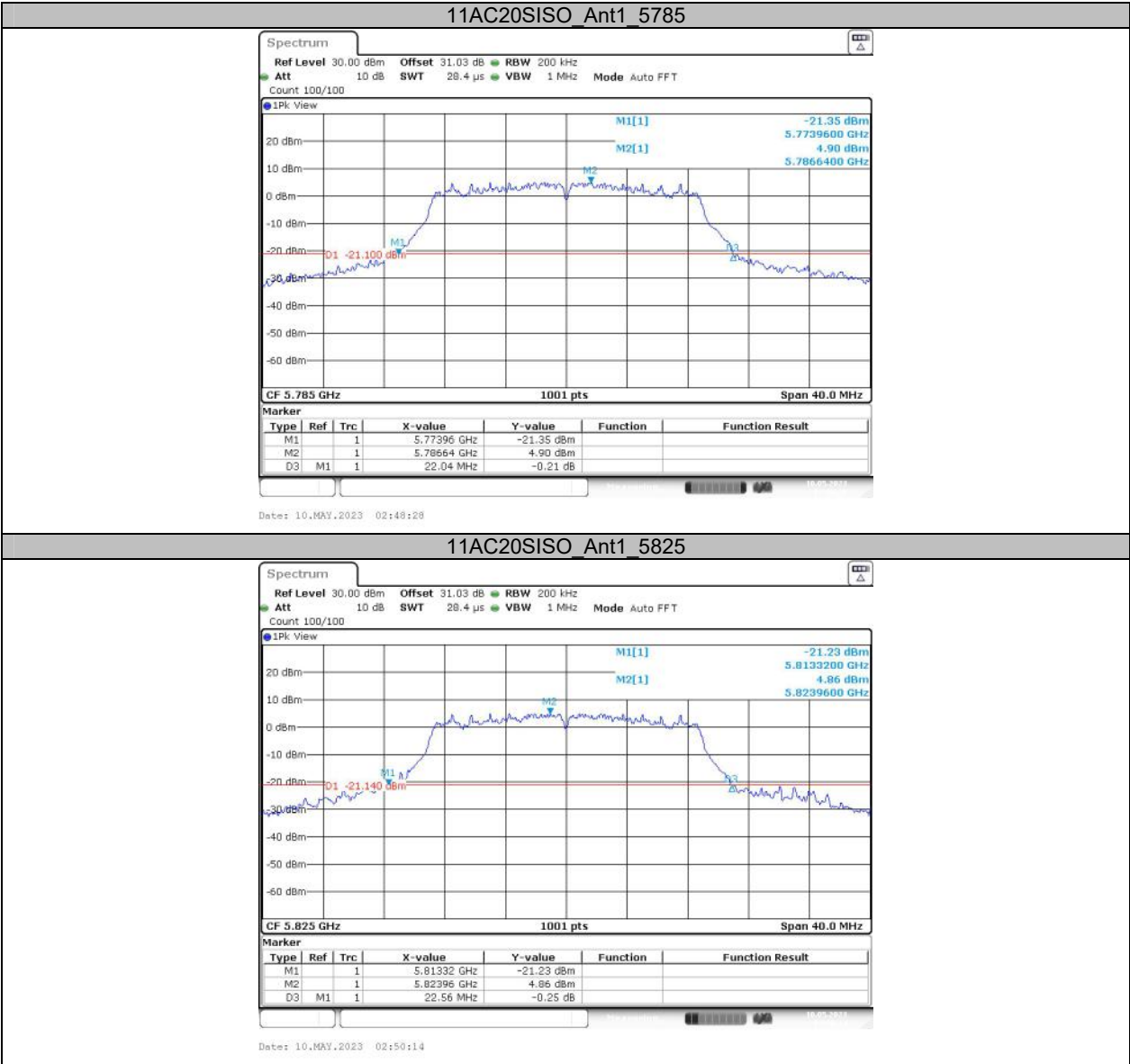


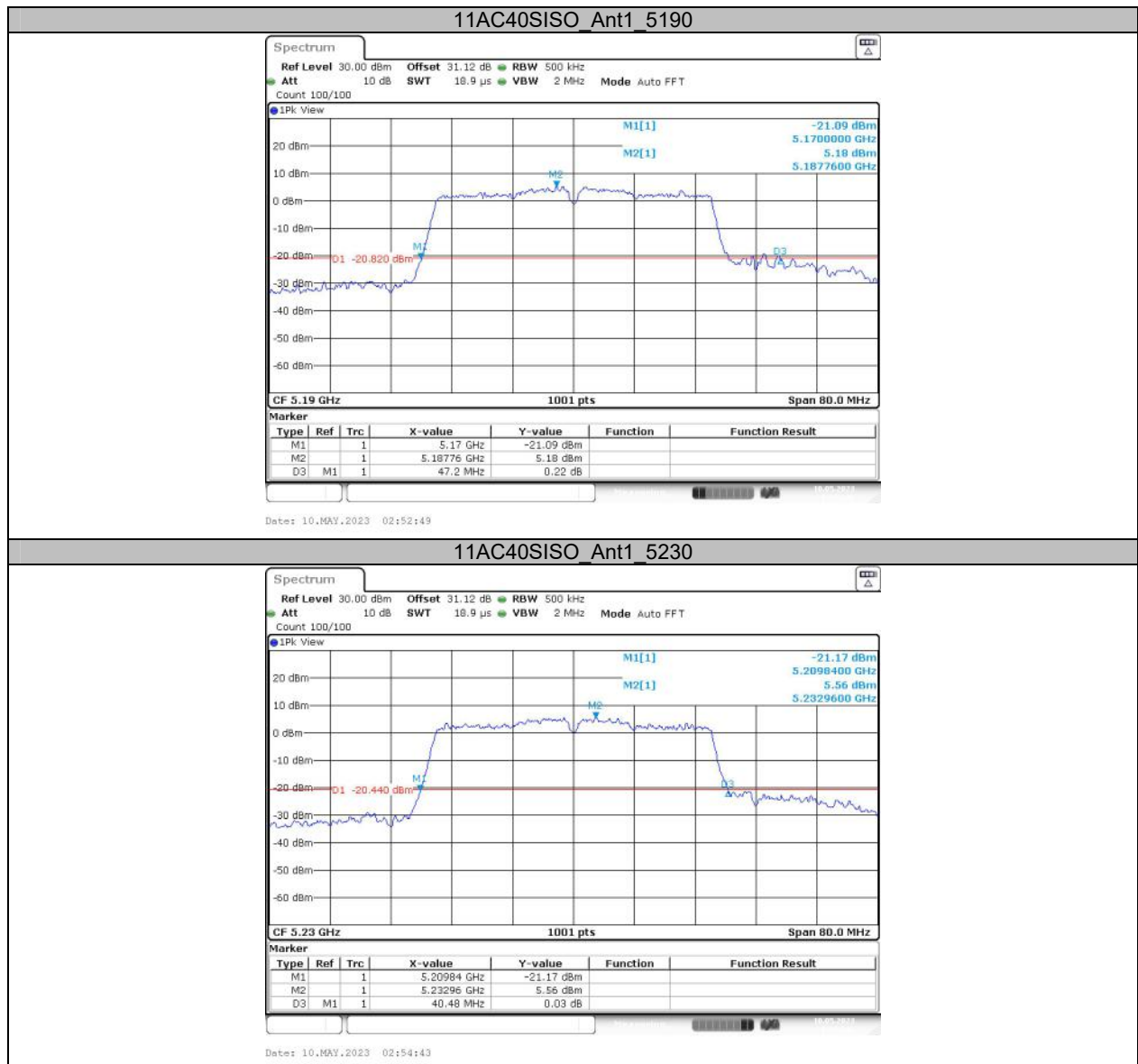


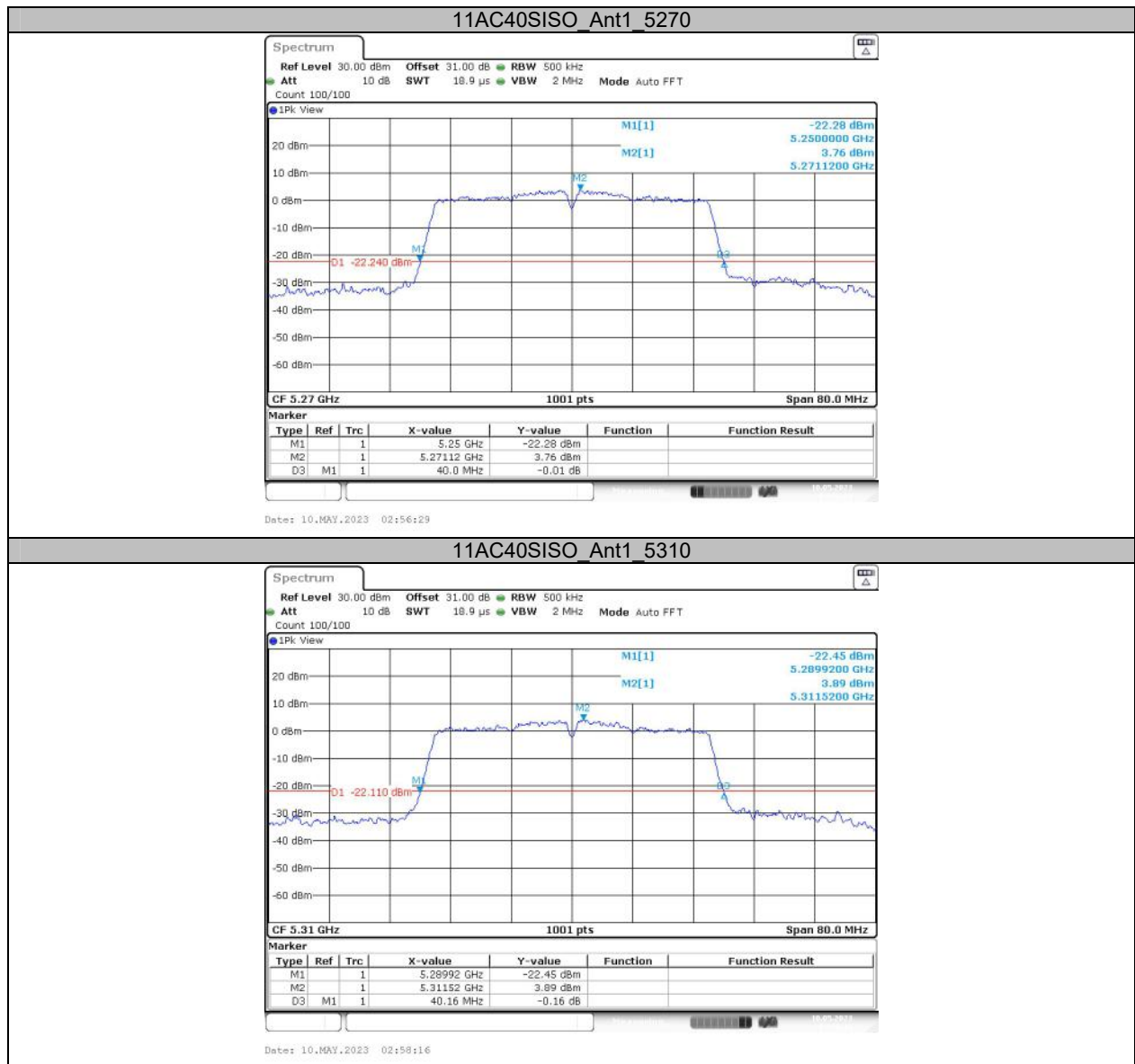


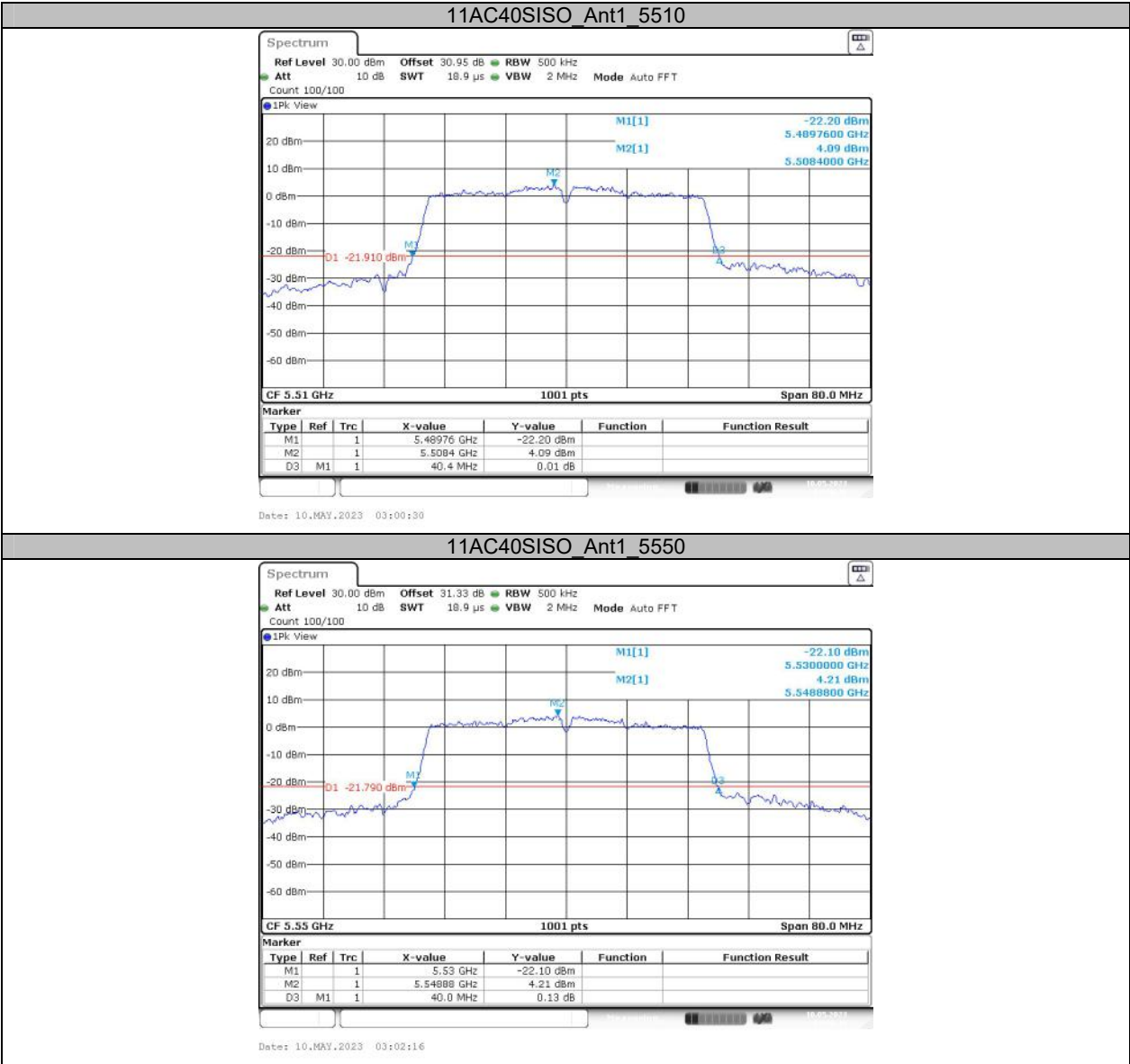


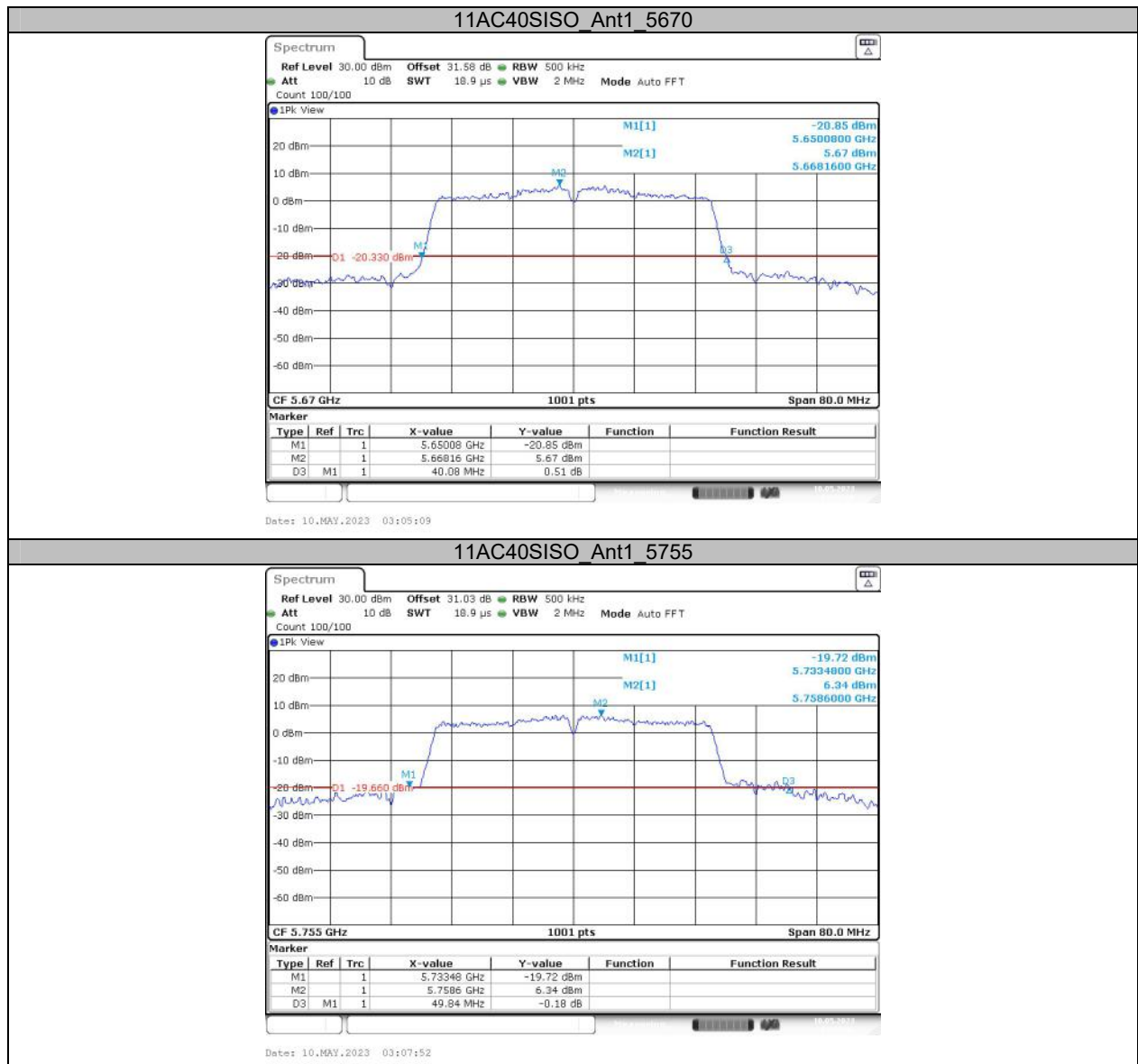


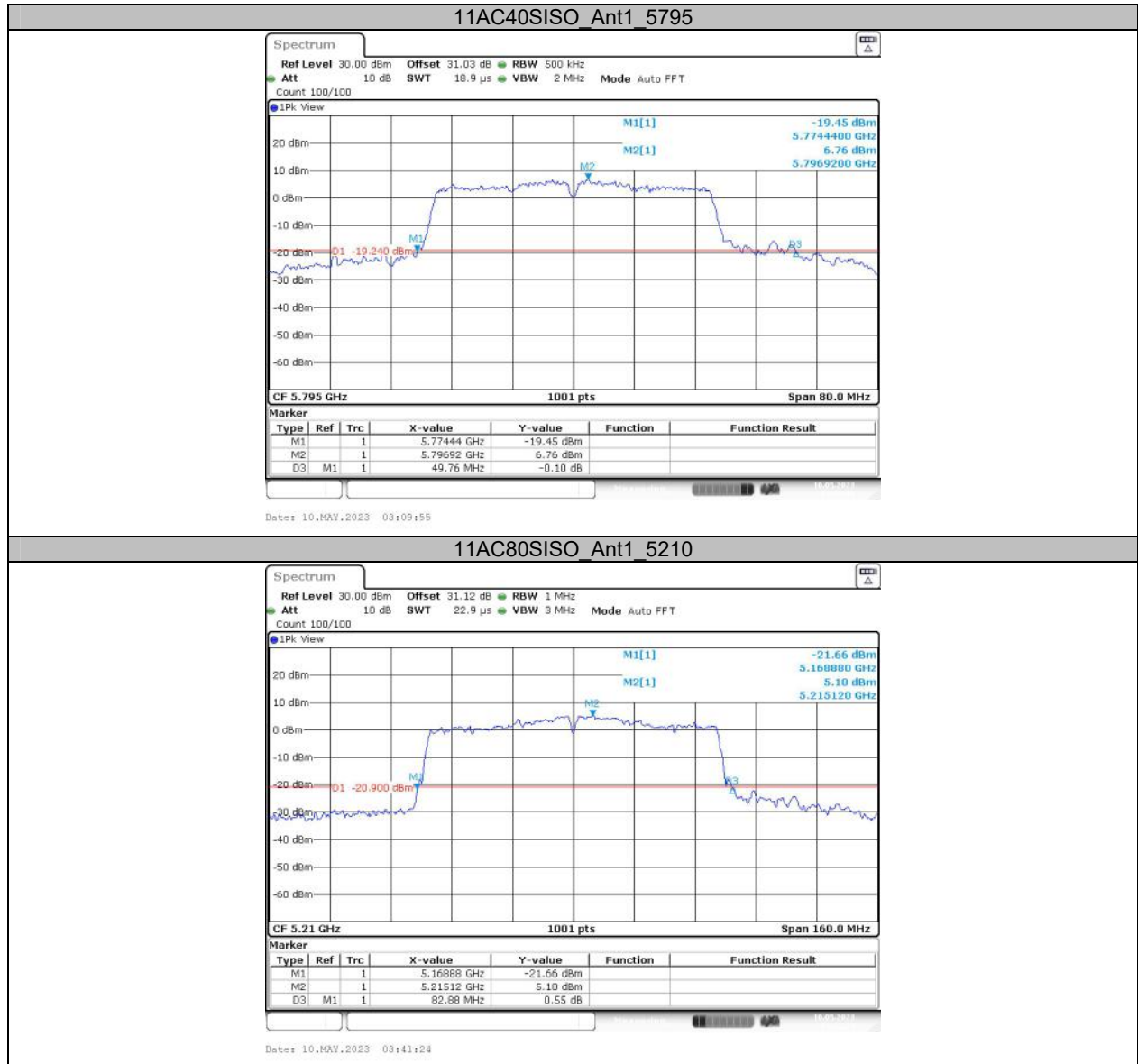


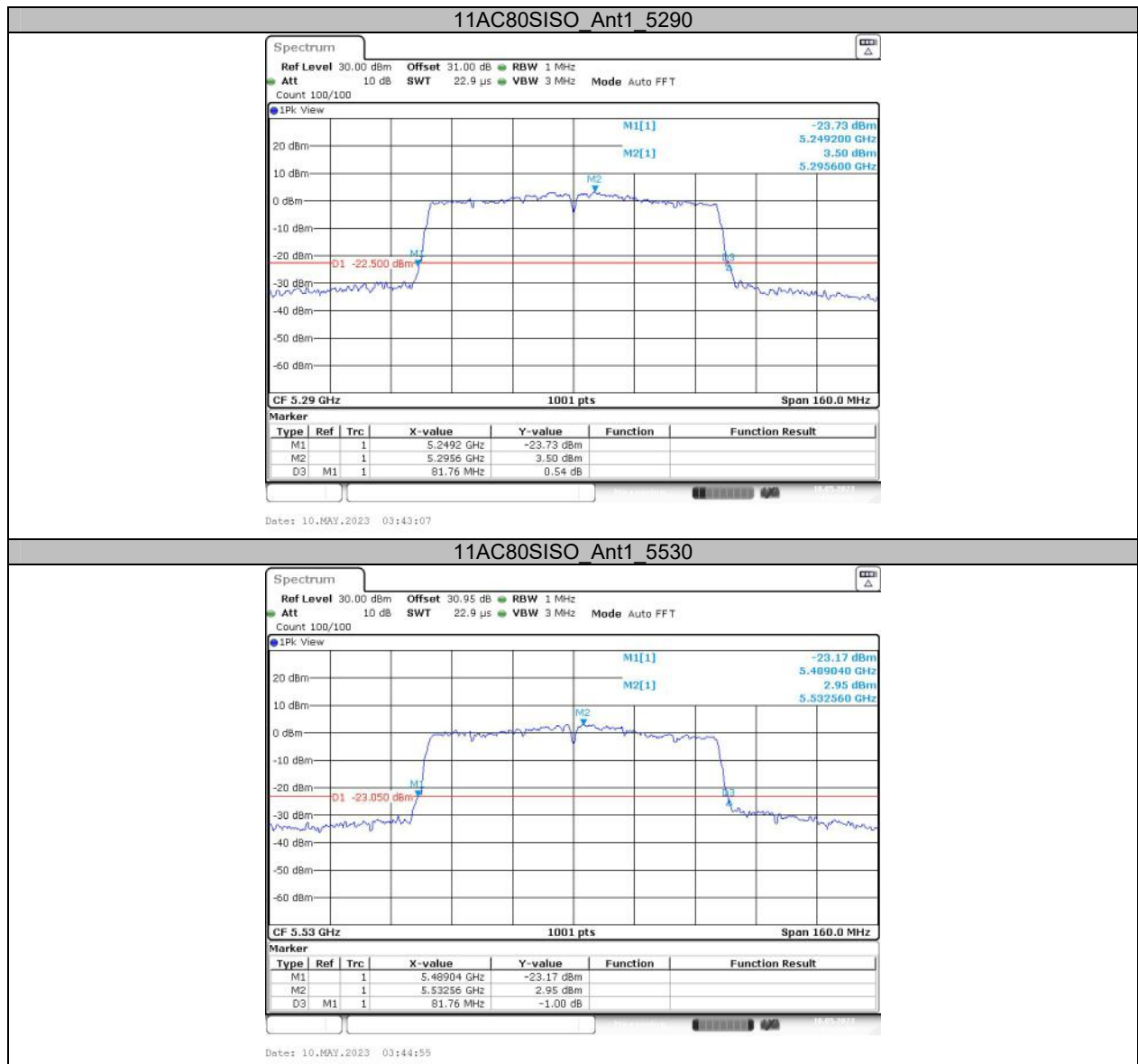


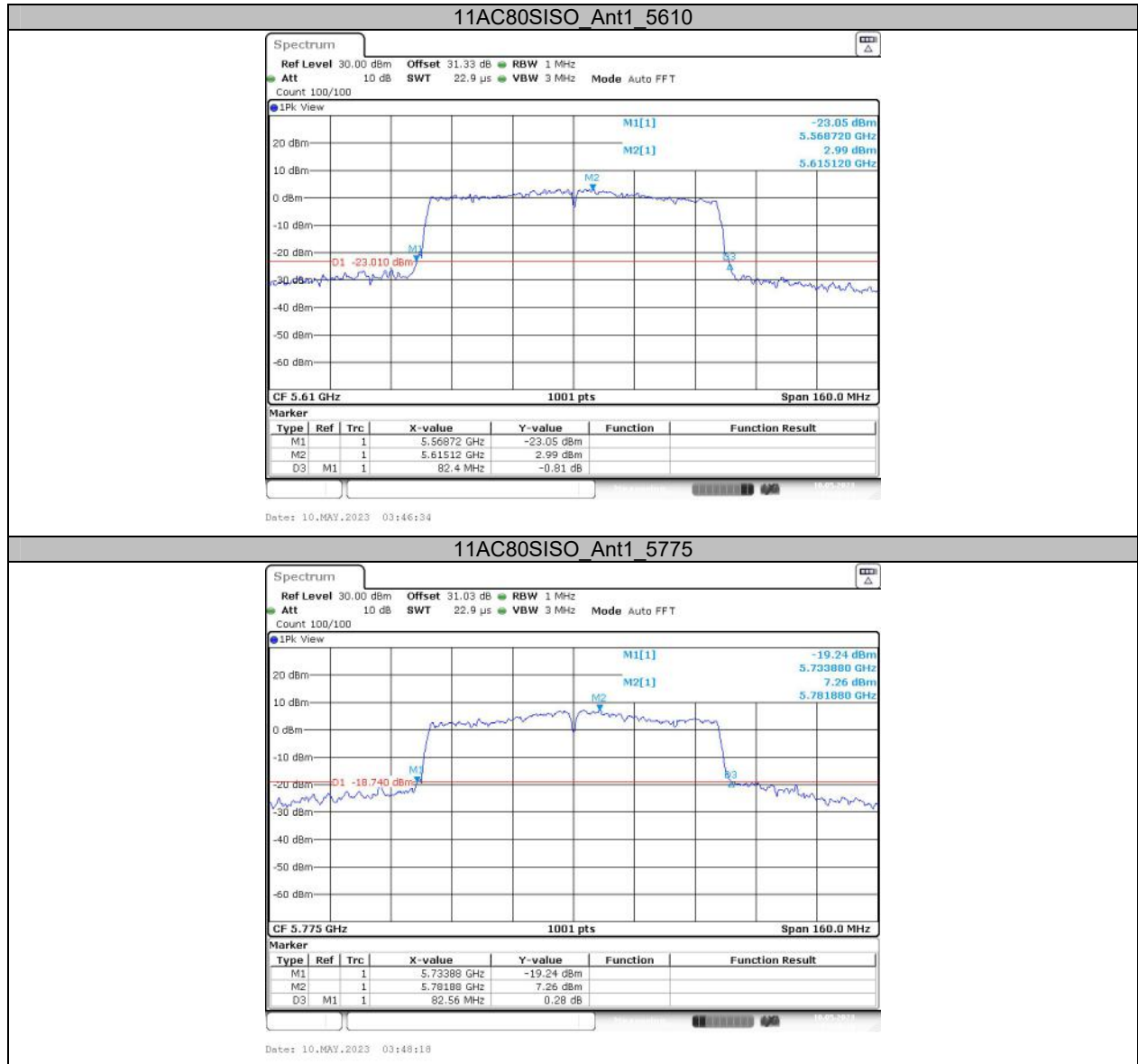












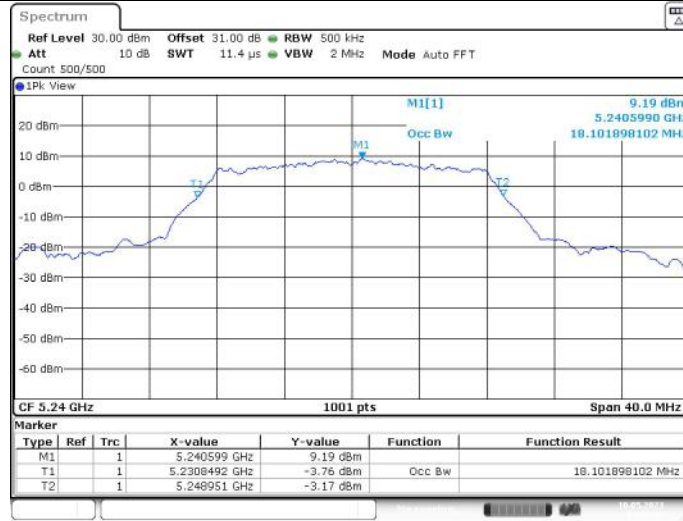
Appendix A2: Occupied channel bandwidth Test Result

Test Mode	Antenna	Frequency [MHz]	OCB [MHz]
11A	Ant1	5180	18.022
		5200	17.982
		5240	18.102
		5260	17.742
		5280	17.423
		5320	17.622
		5500	17.582
		5580	17.622
		5700	17.942
		5745	18.022
		5785	17.782
		5825	17.862
11AC20SISO	Ant1	5180	18.701
		5200	18.661
		5240	18.581
		5260	18.701
		5280	18.541
		5320	18.621
		5500	18.821
		5580	18.501
		5700	18.581
		5745	18.781
		5785	18.501
		5825	18.661
11AC40SISO	Ant1	5190	36.603
		5230	36.444
		5270	36.763
		5310	36.284
		5510	36.523
		5550	36.444
		5670	36.444
		5755	36.763
		5795	36.843
11AC80SISO	Ant1	5210	76.084
		5290	75.764
		5530	75.604
		5610	75.924
		5775	76.244

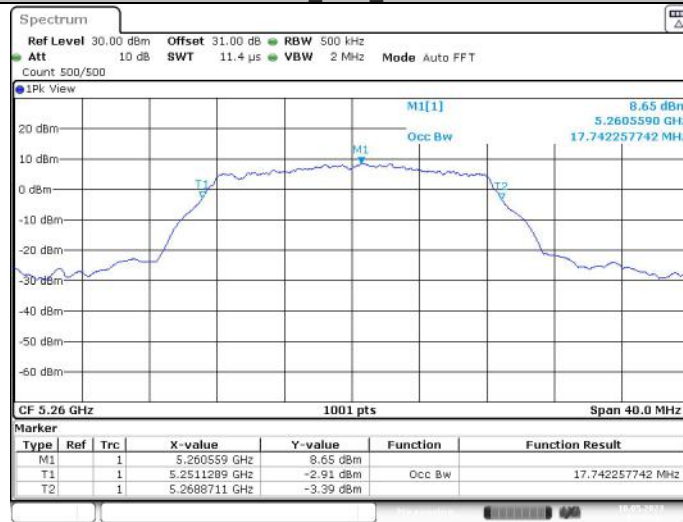
Test Graphs



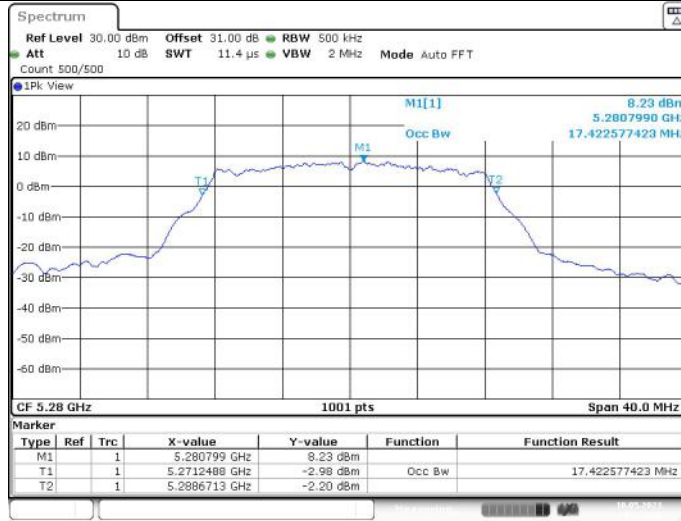
11A_Ant1_5240



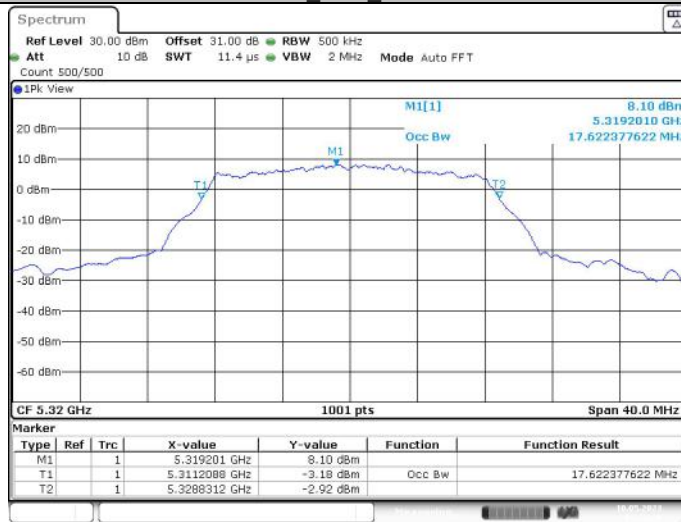
11A_Ant1_5260

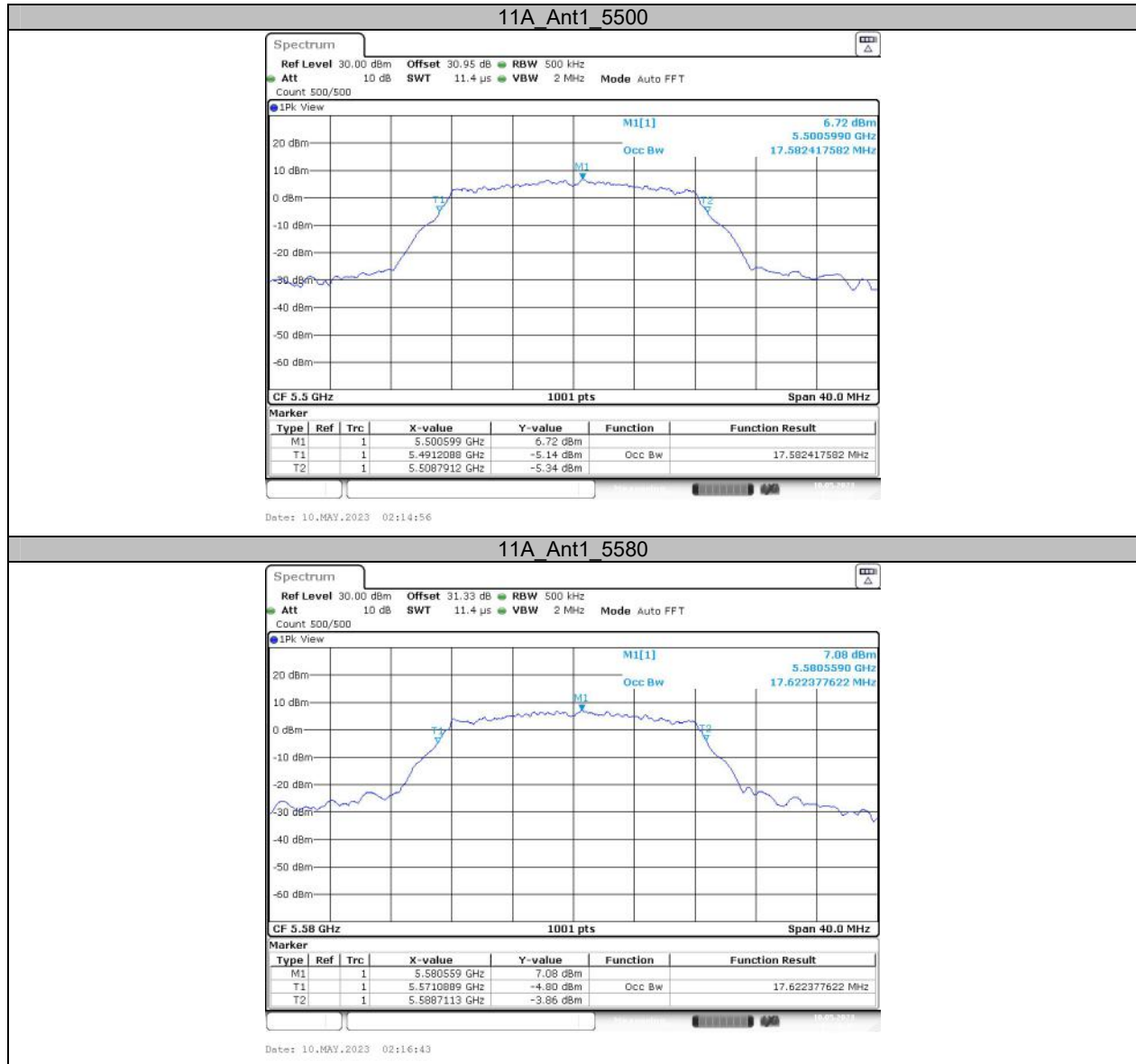


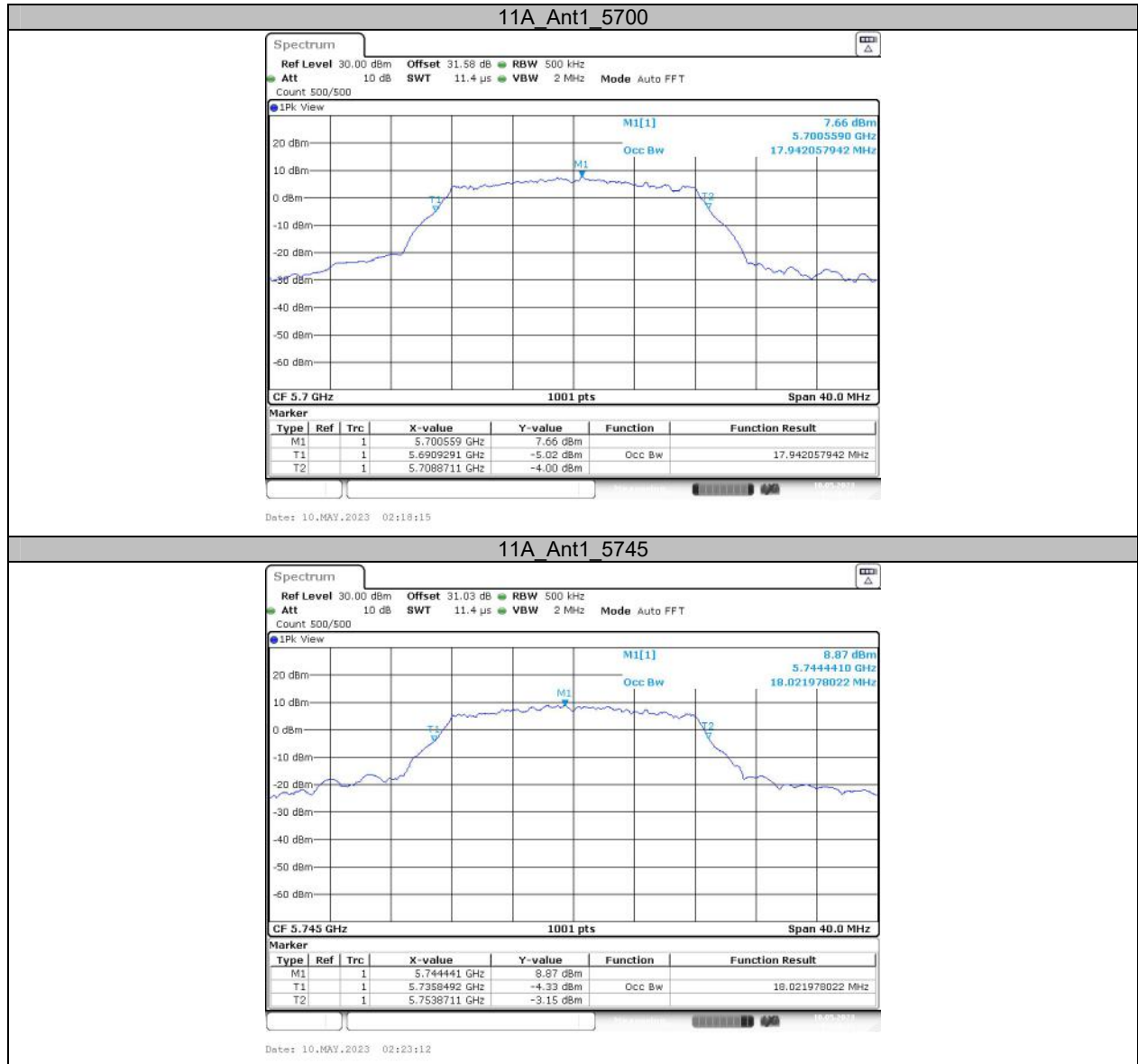
11A_Ant1_5280



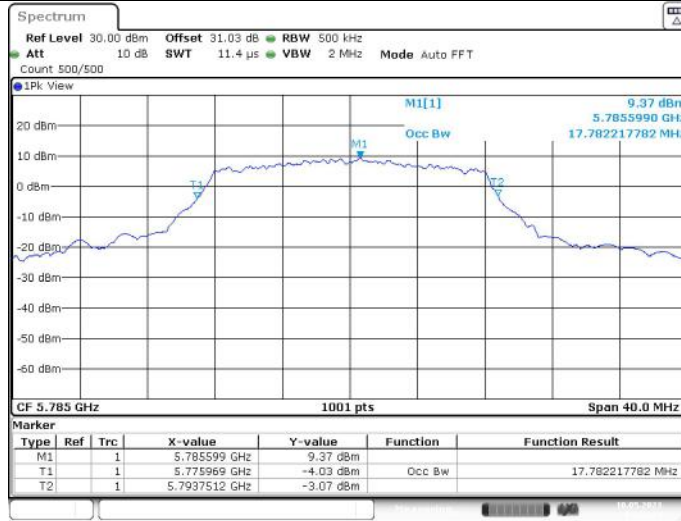
11A_Ant1_5320





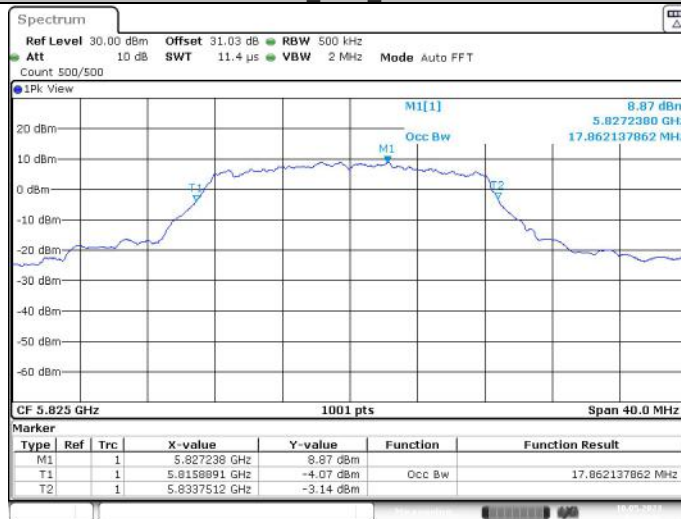


11A_Ant1_5785



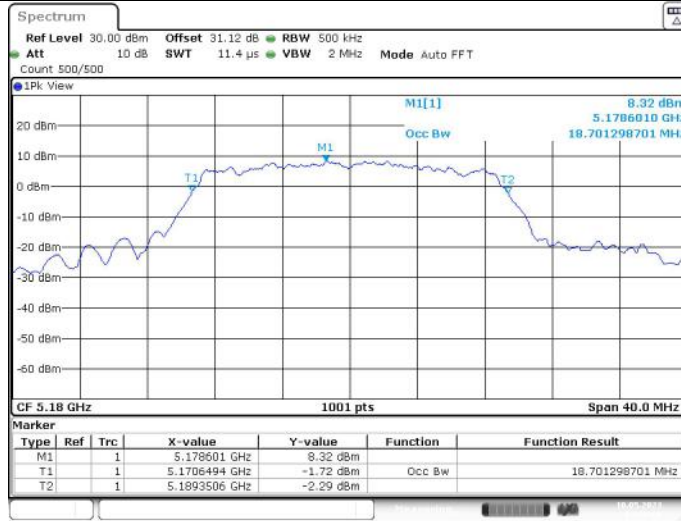
Date: 10.MAY.2023 02:25:24

11A_Ant1_5825

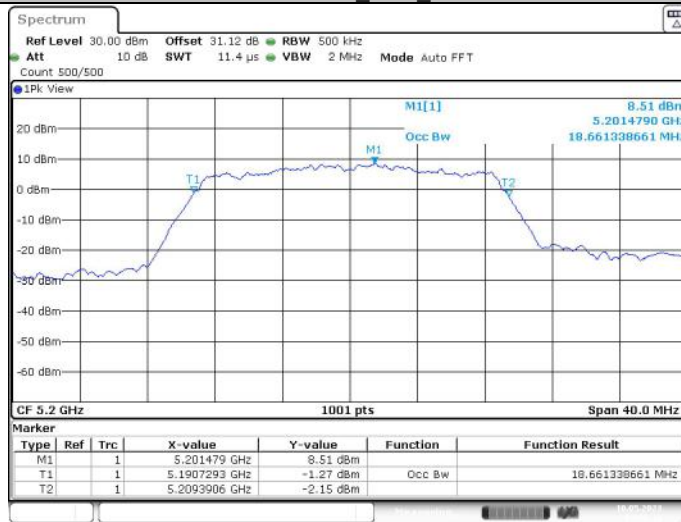


Date: 10.MAY.2023 02:27:38

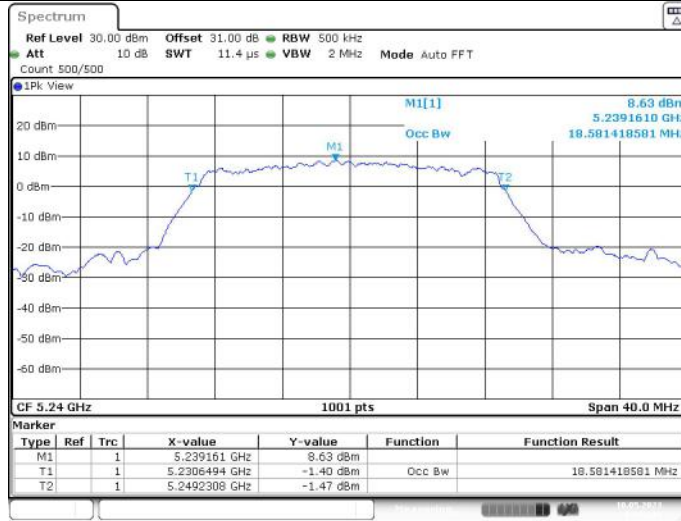
11AC20SISO_Ant1_5180



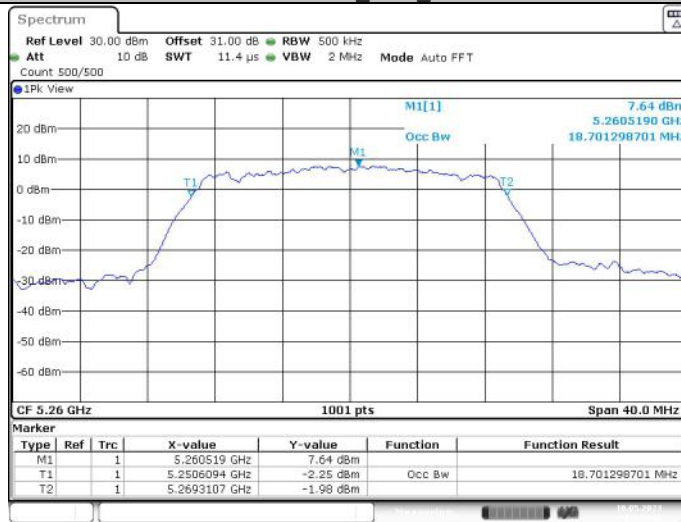
11AC20SISO_Ant1_5200

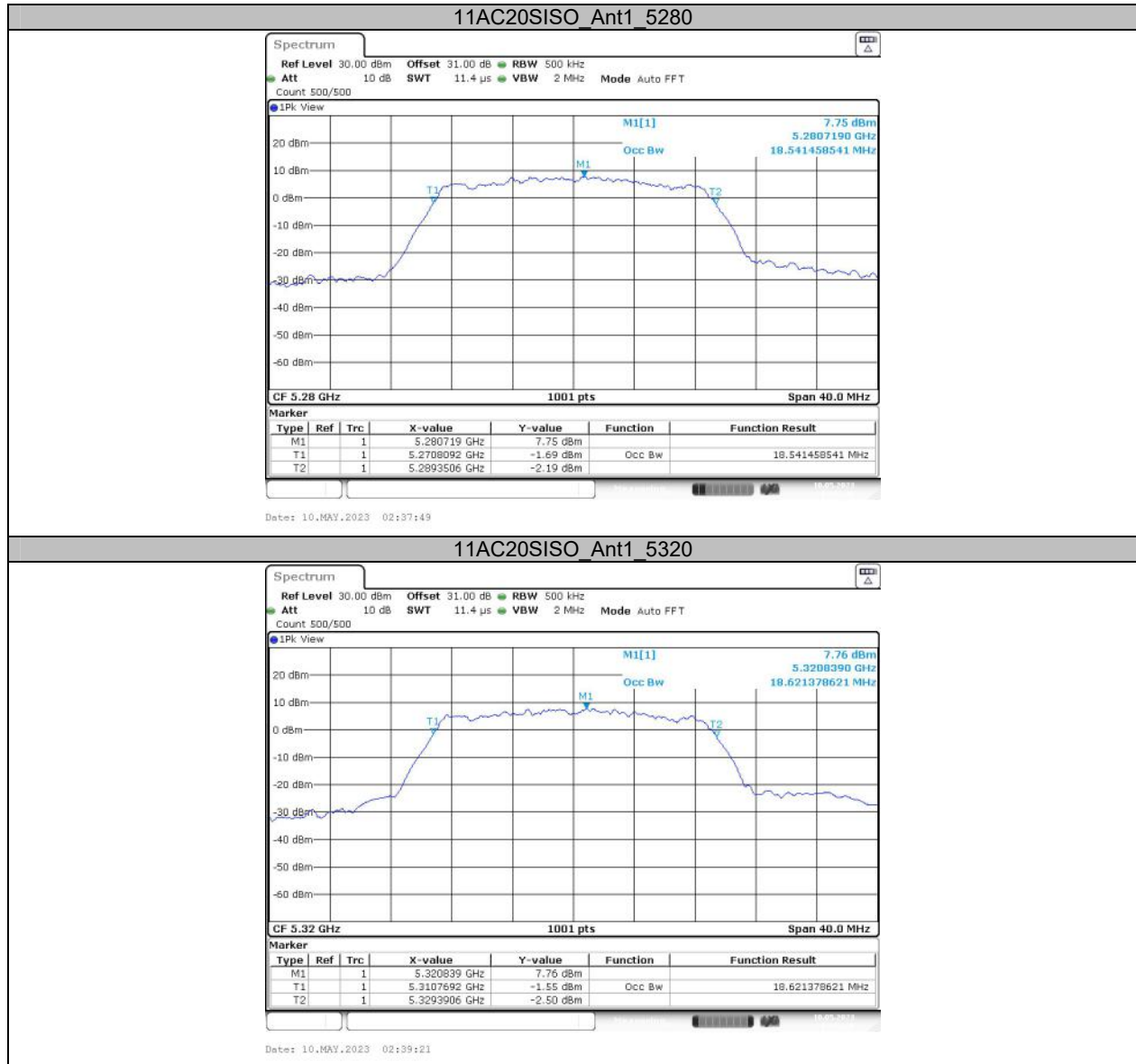


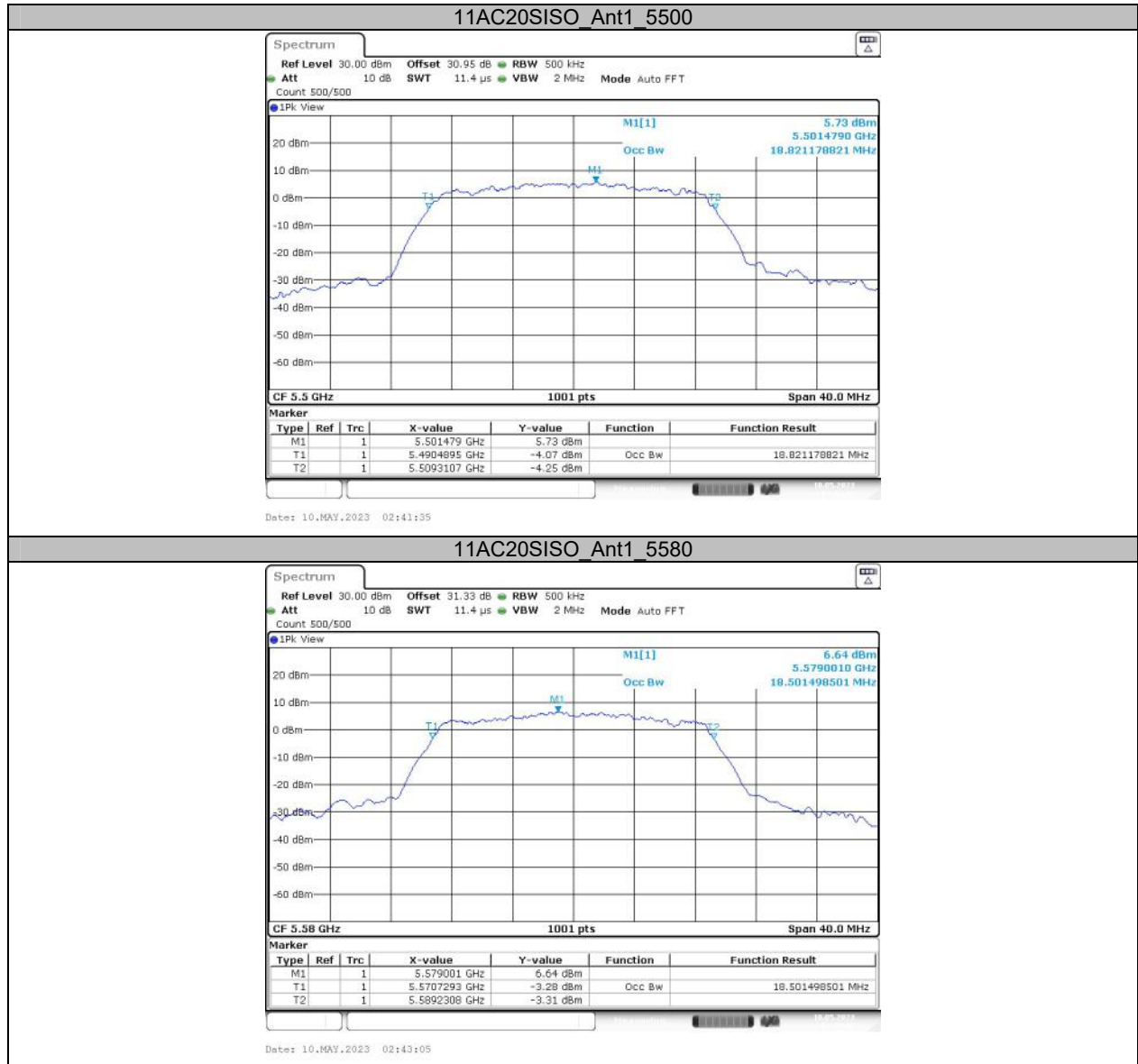
11AC20SISO_Ant1_5240

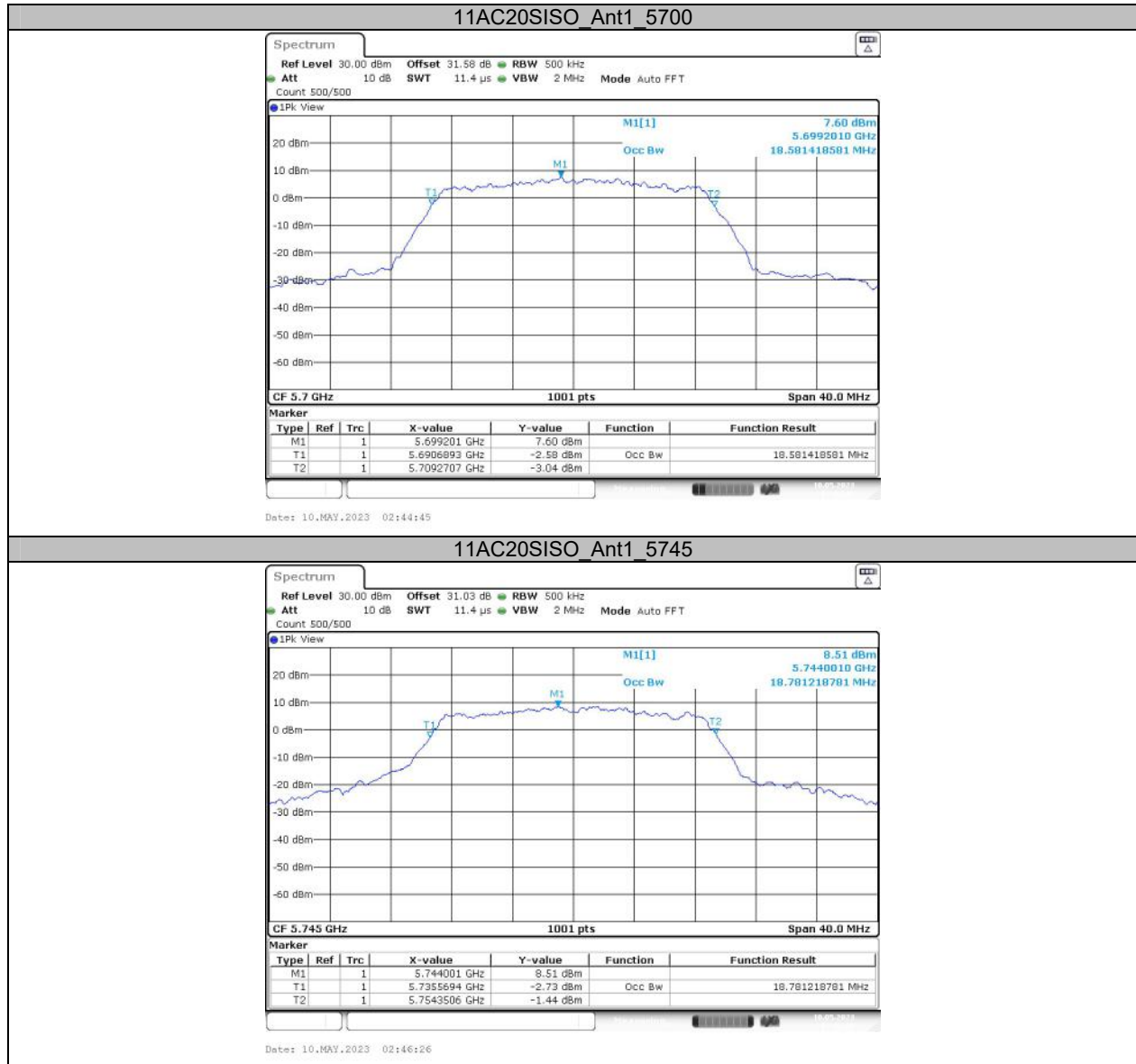


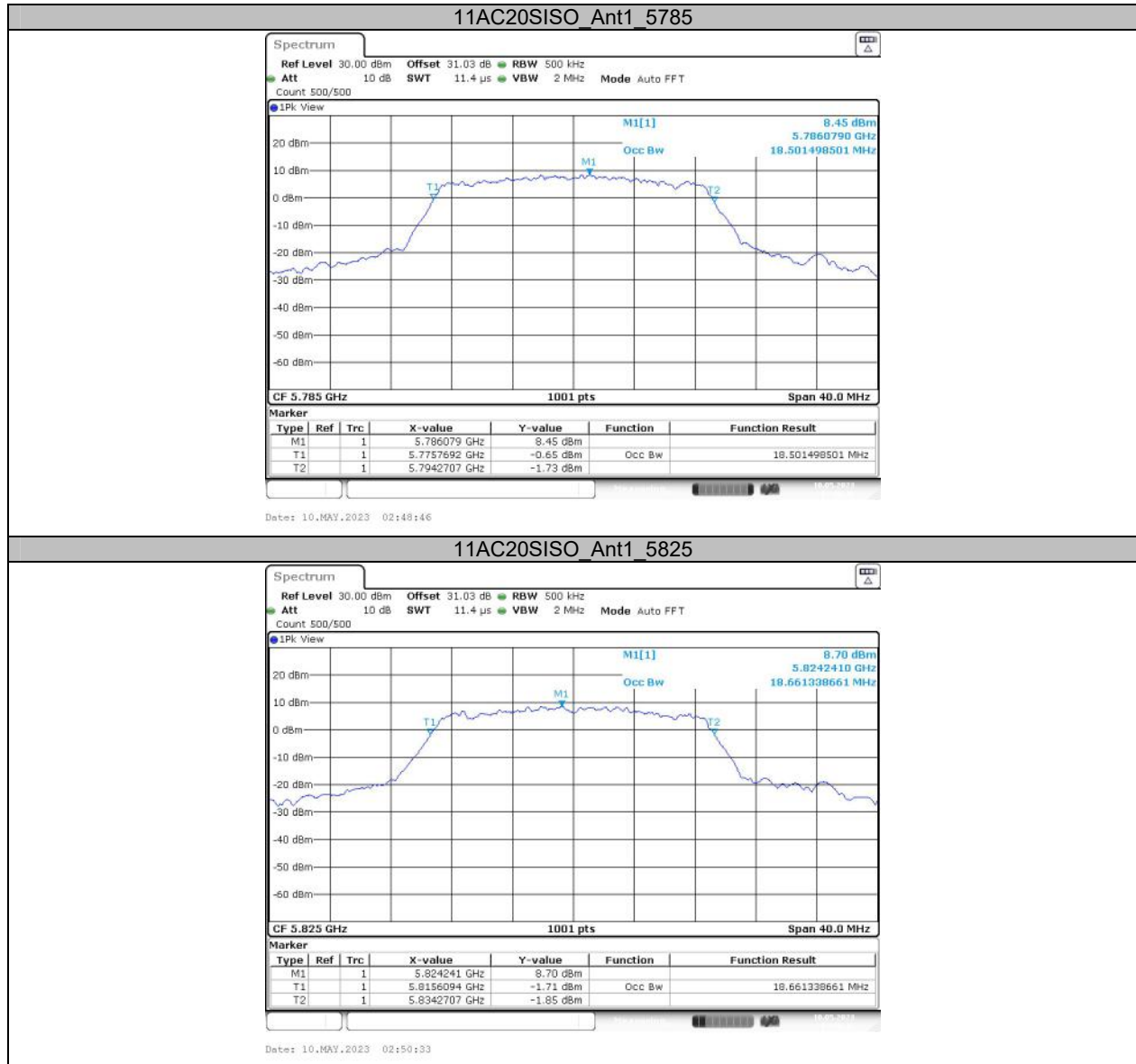
11AC20SISO_Ant1_5260

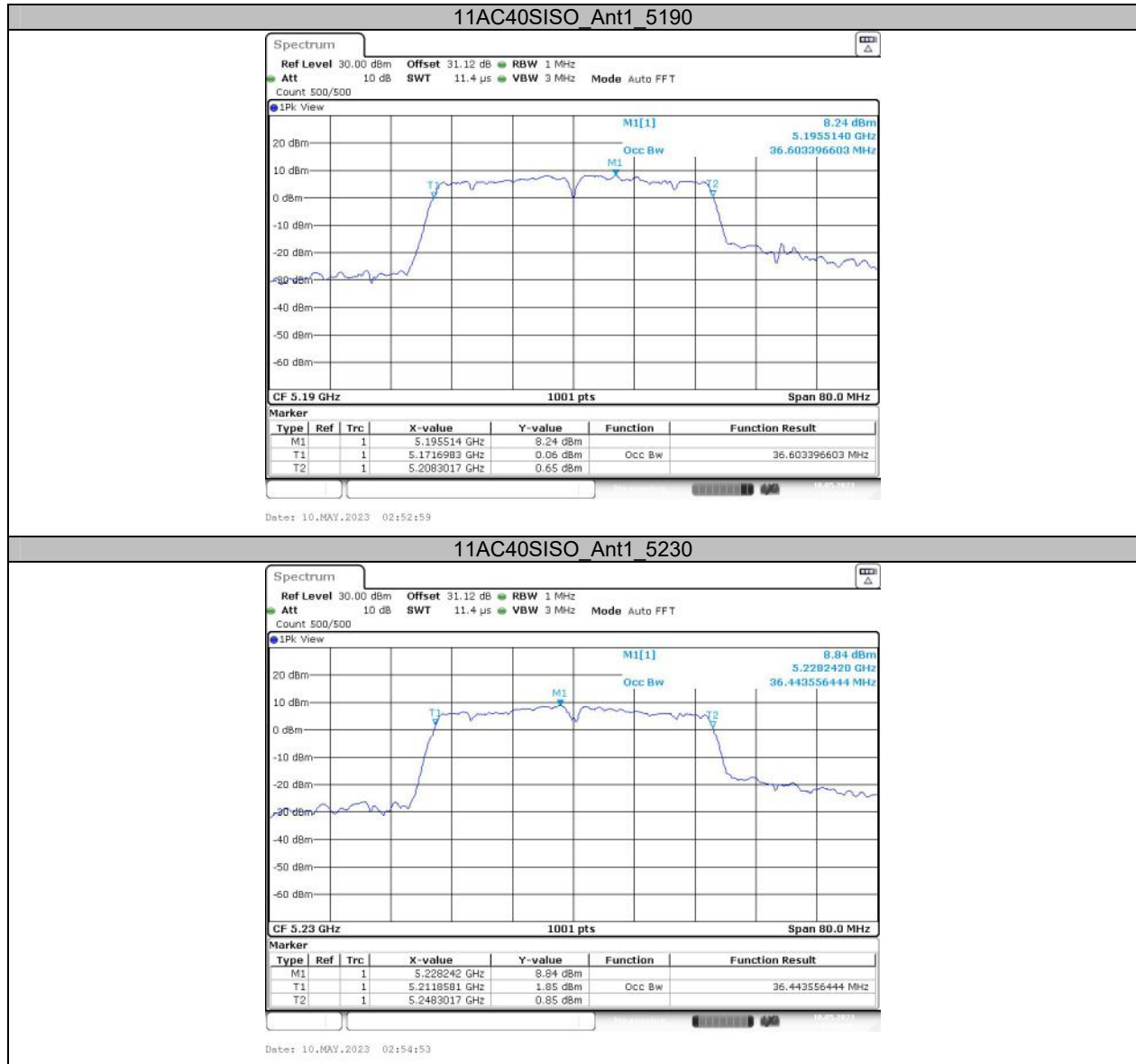


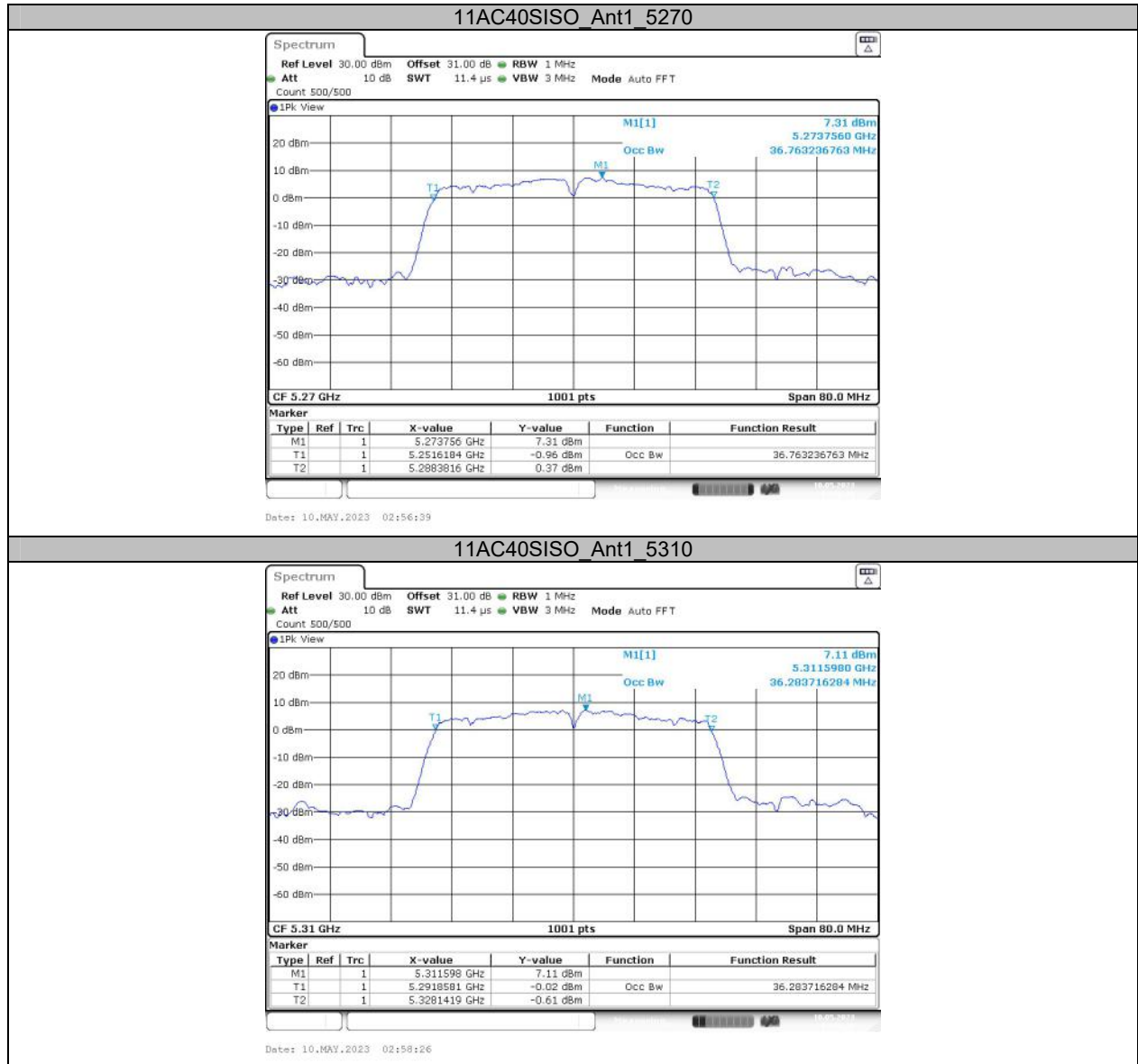


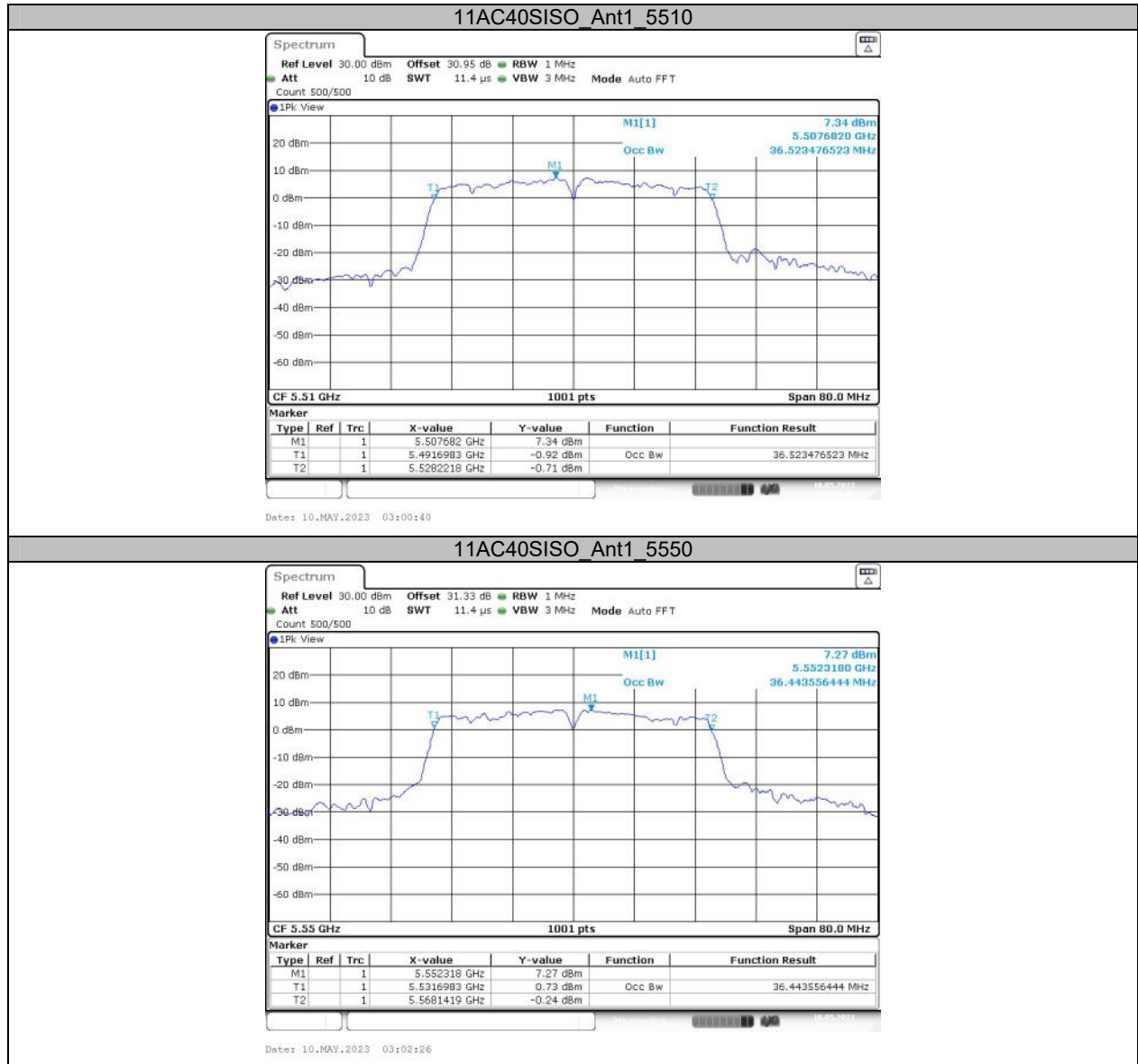




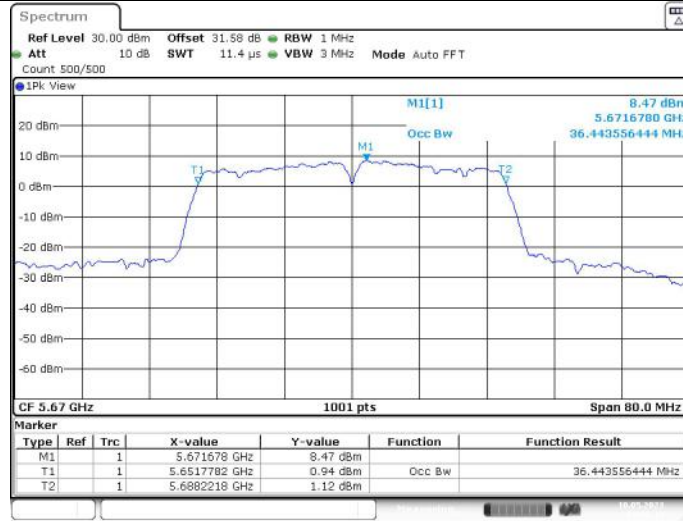




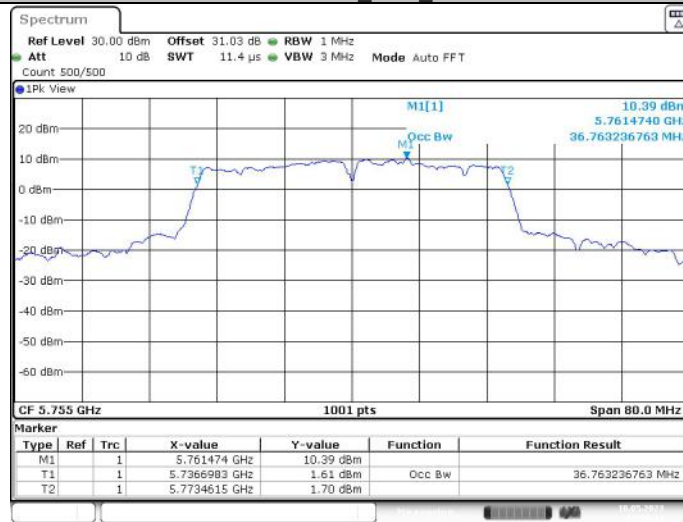




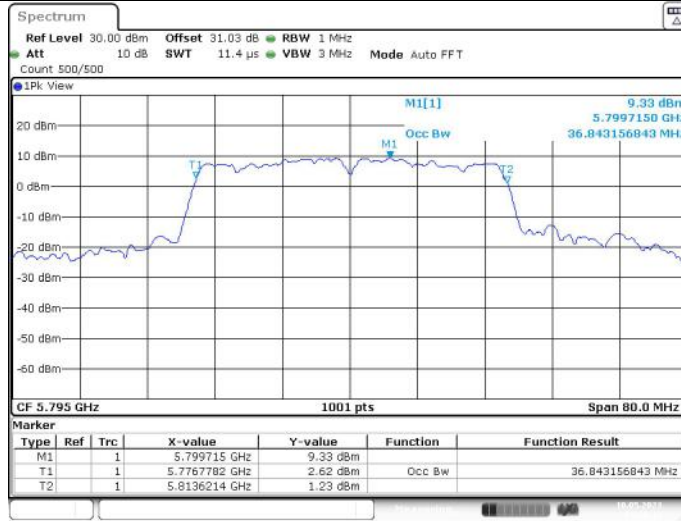
11AC40SISO_Ant1_5670



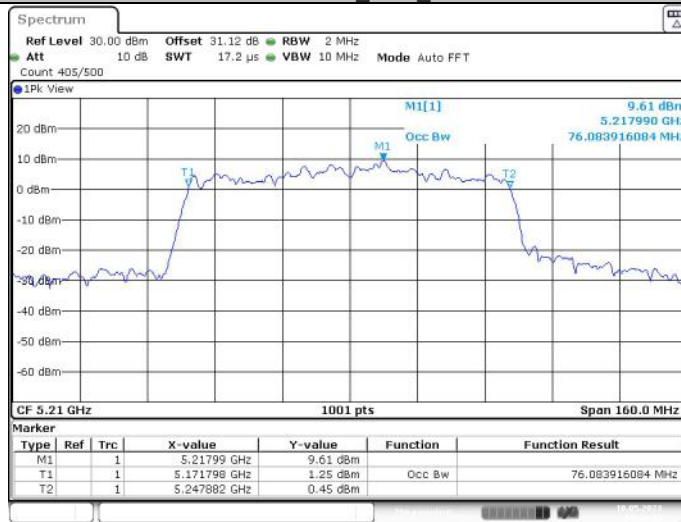
11AC40SISO_Ant1_5755

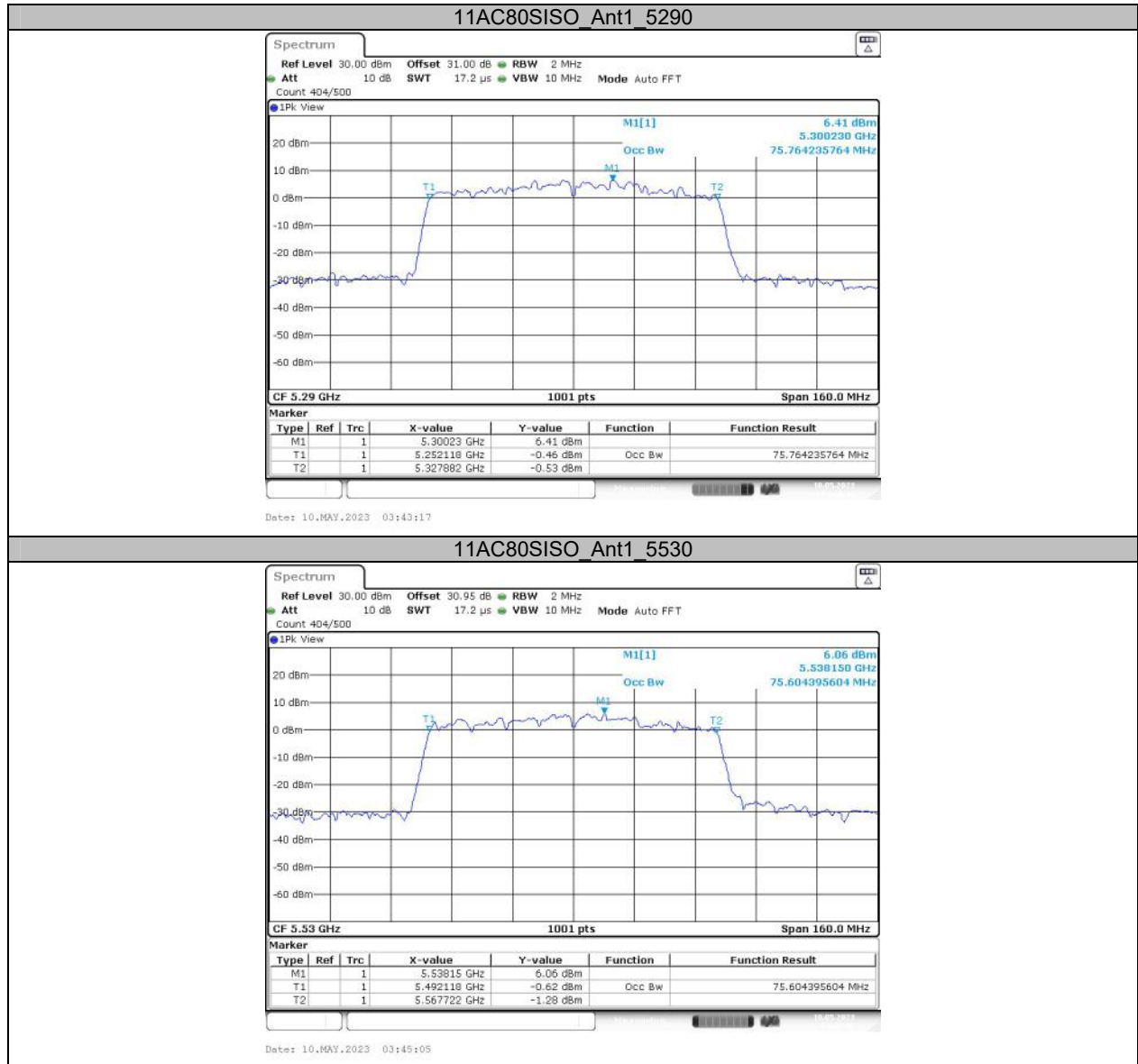


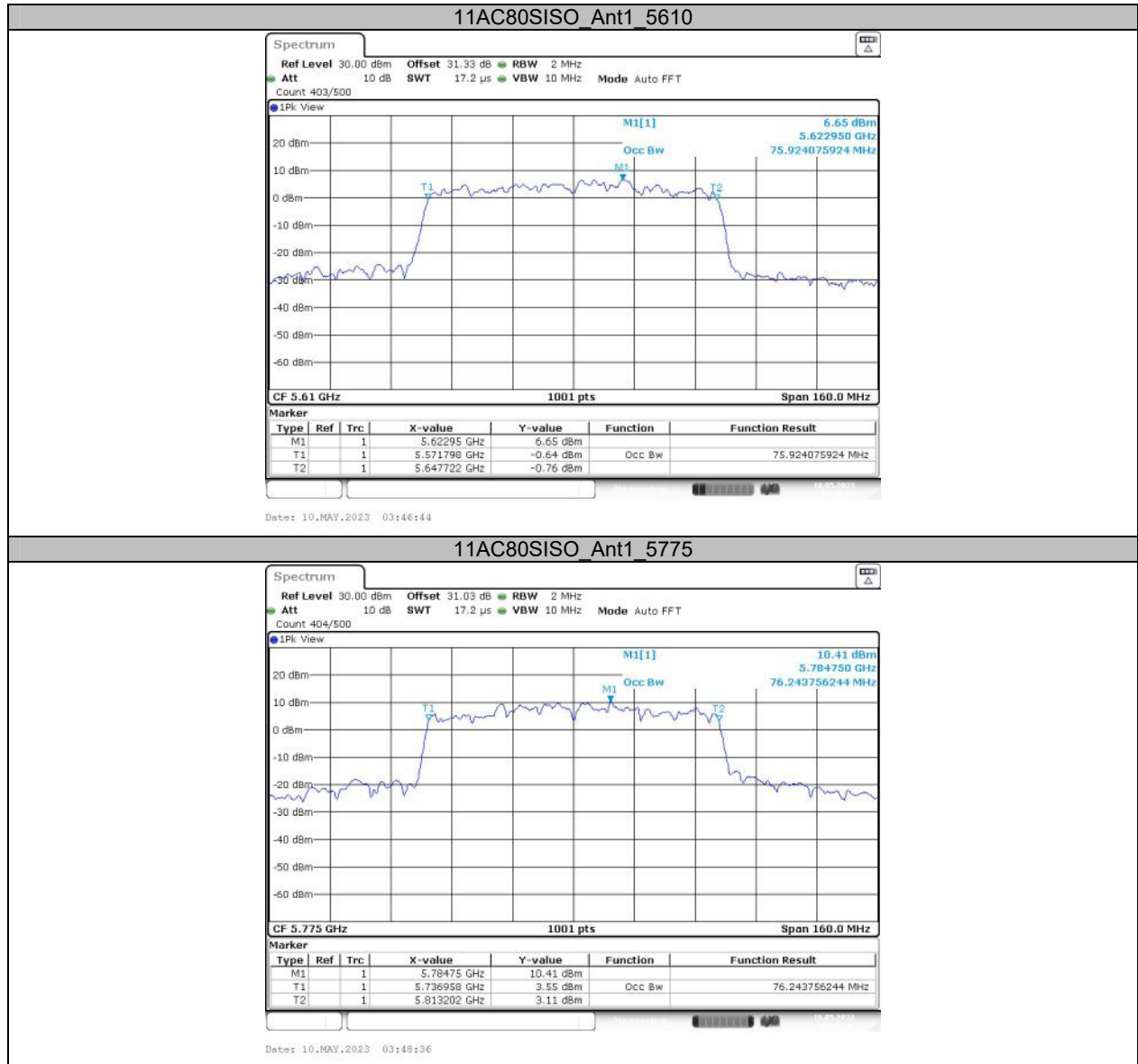
11AC40SISO_Ant1_5795



11AC80SISO_Ant1_5210



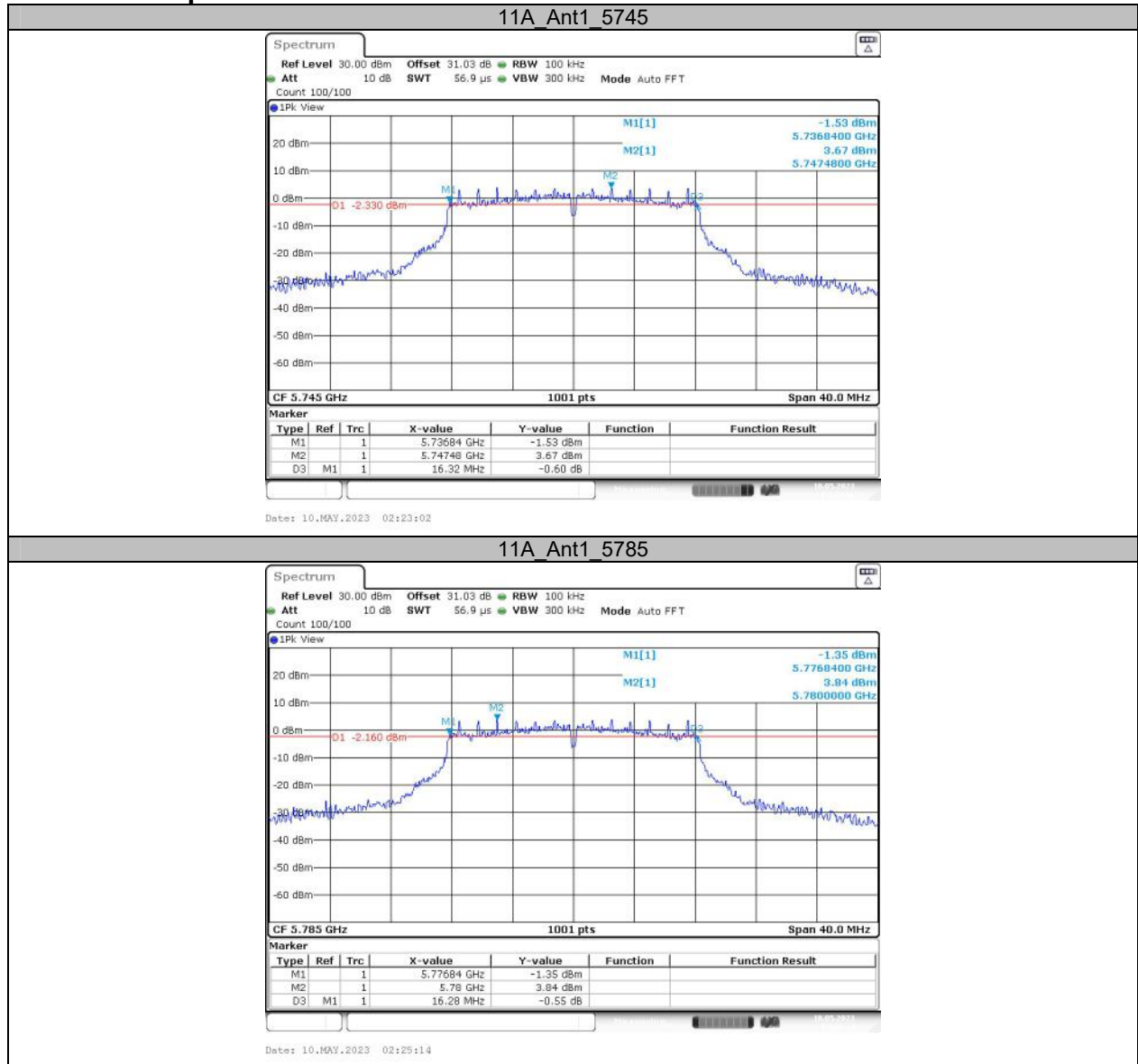


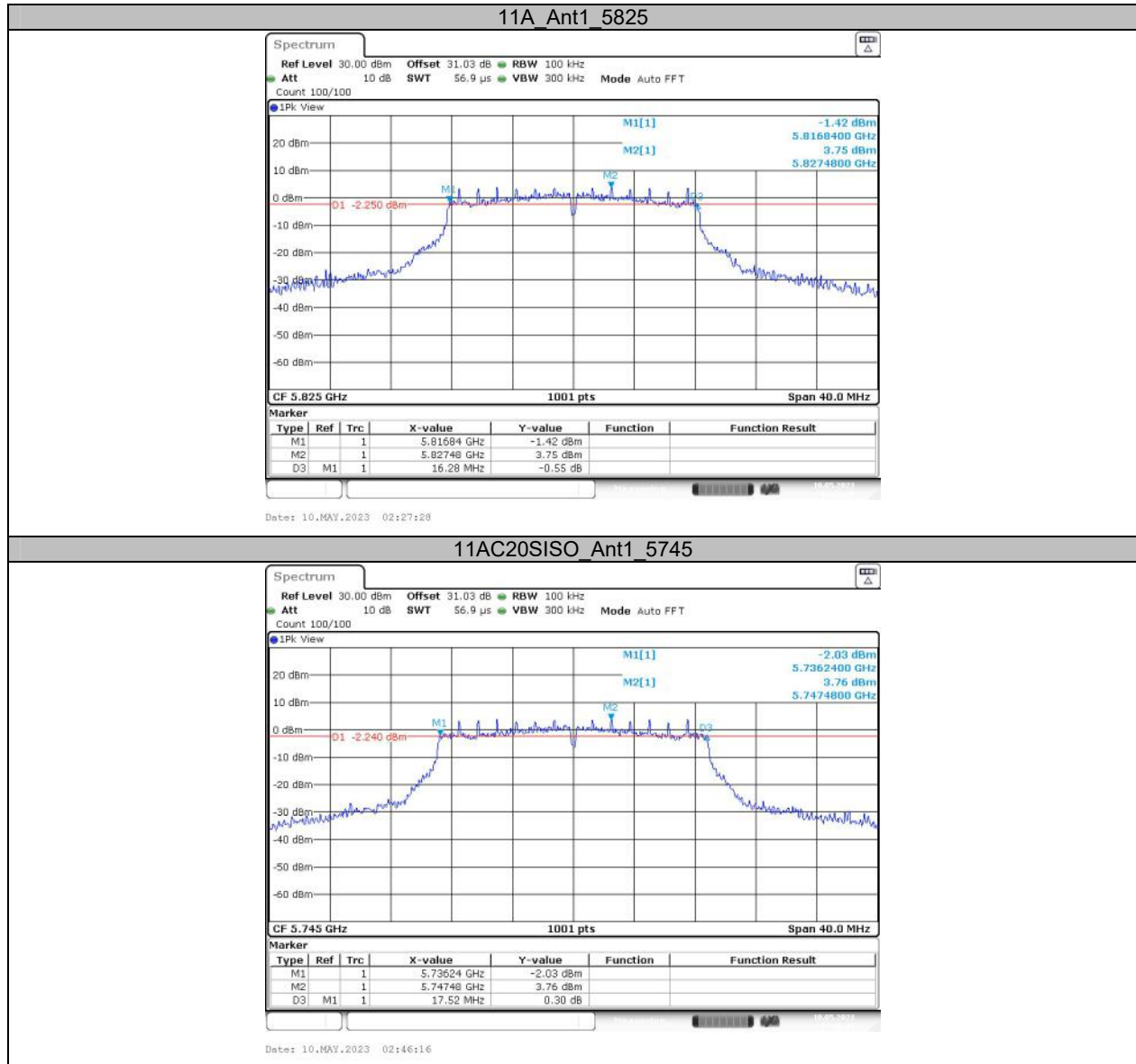


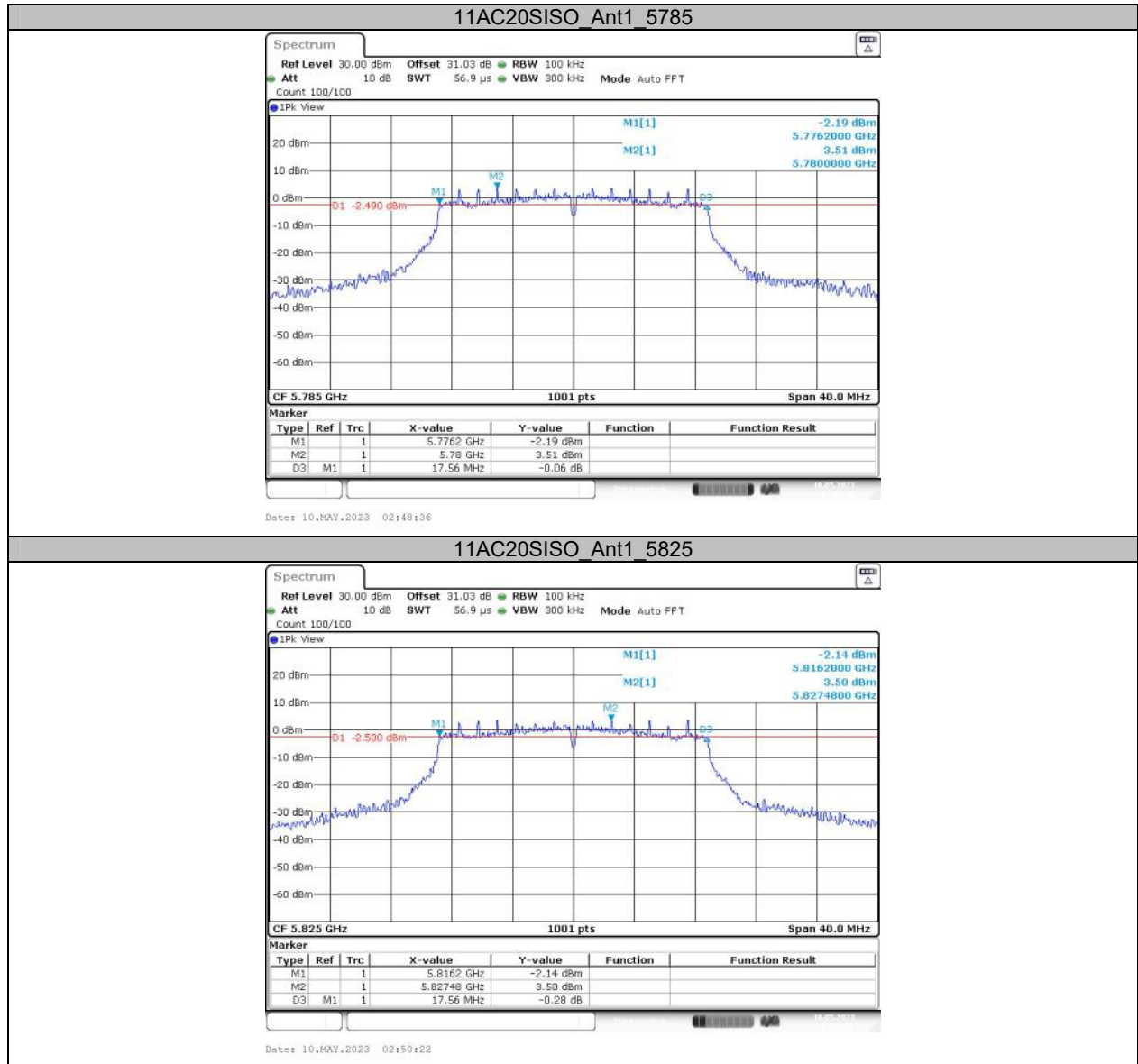
**Appendix A3: Min emission bandwidth
Test Result B4**

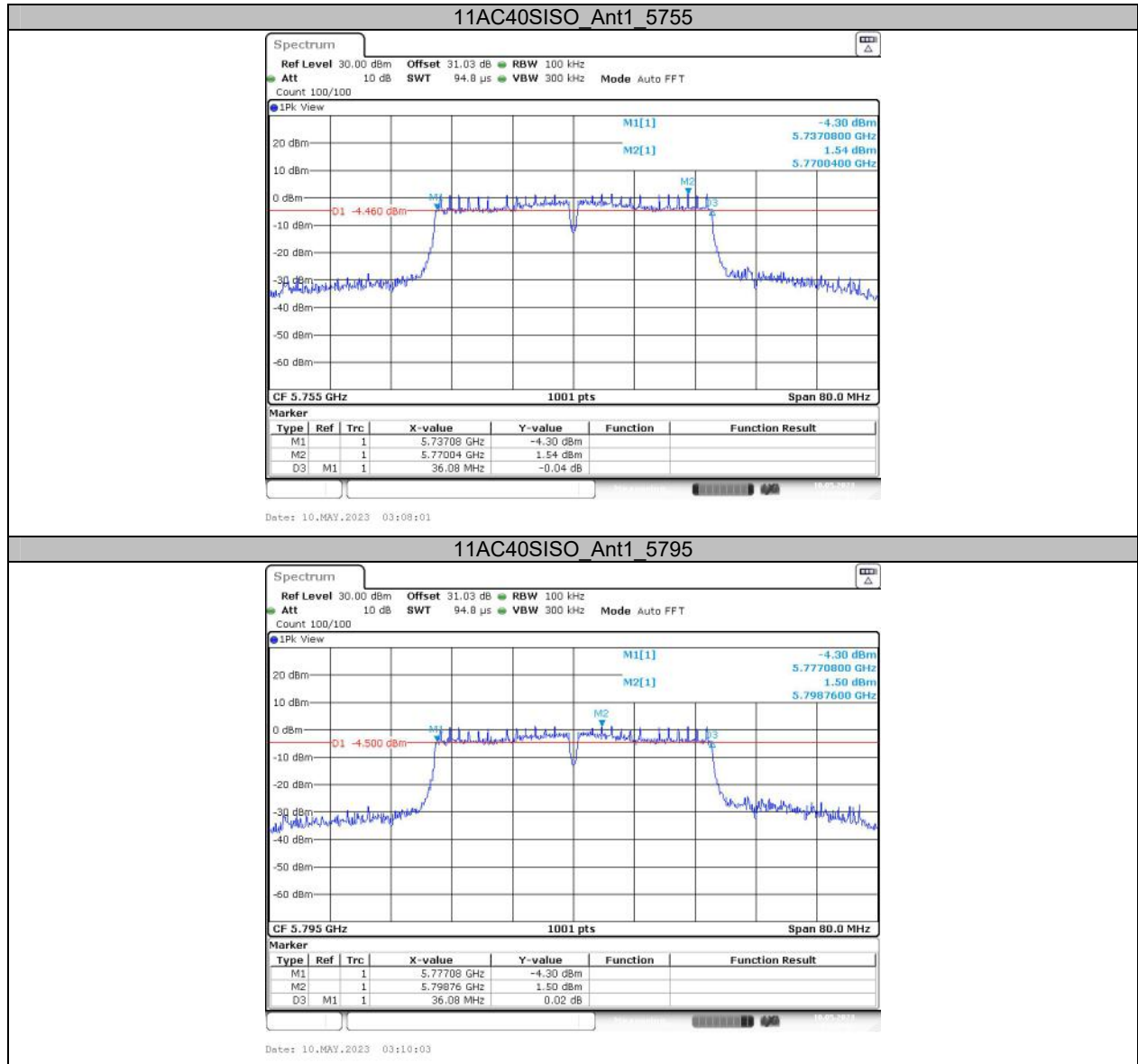
Test Mode	Antenna	Frequency[MHz]	6db EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	16.32	5736.84	5753.16	0.5	PASS
		5785	16.28	5776.84	5793.12	0.5	PASS
		5825	16.28	5816.84	5833.12	0.5	PASS
11AC20SISO	Ant1	5745	17.52	5736.24	5753.76	0.5	PASS
		5785	17.56	5776.20	5793.76	0.5	PASS
		5825	17.56	5816.20	5833.76	0.5	PASS
11AC40SISO	Ant1	5755	36.08	5737.08	5773.16	0.5	PASS
		5795	36.08	5777.08	5813.16	0.5	PASS
11AC80SISO	Ant1	5775	75.20	5737.40	5812.60	0.5	PASS

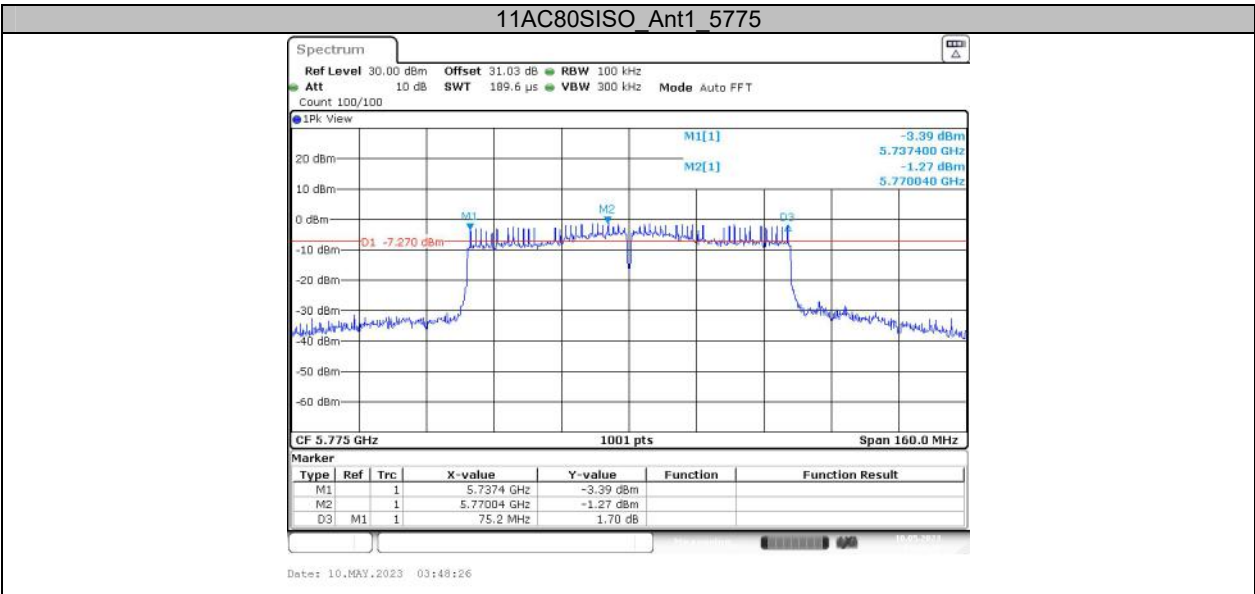
Test Graphs B4











**Appendix B: Duty Cycle
Test Result**

Test Mode	Antenna	Frequency [MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Duty Cycle Factor [dB]	1/T [kHz]
11A	Ant1	5180	1.42	1.53	92.81	0.32	0.704
11AC20SISO	Ant1	5180	1.34	1.44	93.06	0.31	0.746
11AC40SISO	Ant1	5190	0.67	0.77	87.01	0.60	1.493
11AC80SISO	Ant1	5210	0.33	0.43	76.74	1.15	3.030

Test Graphs

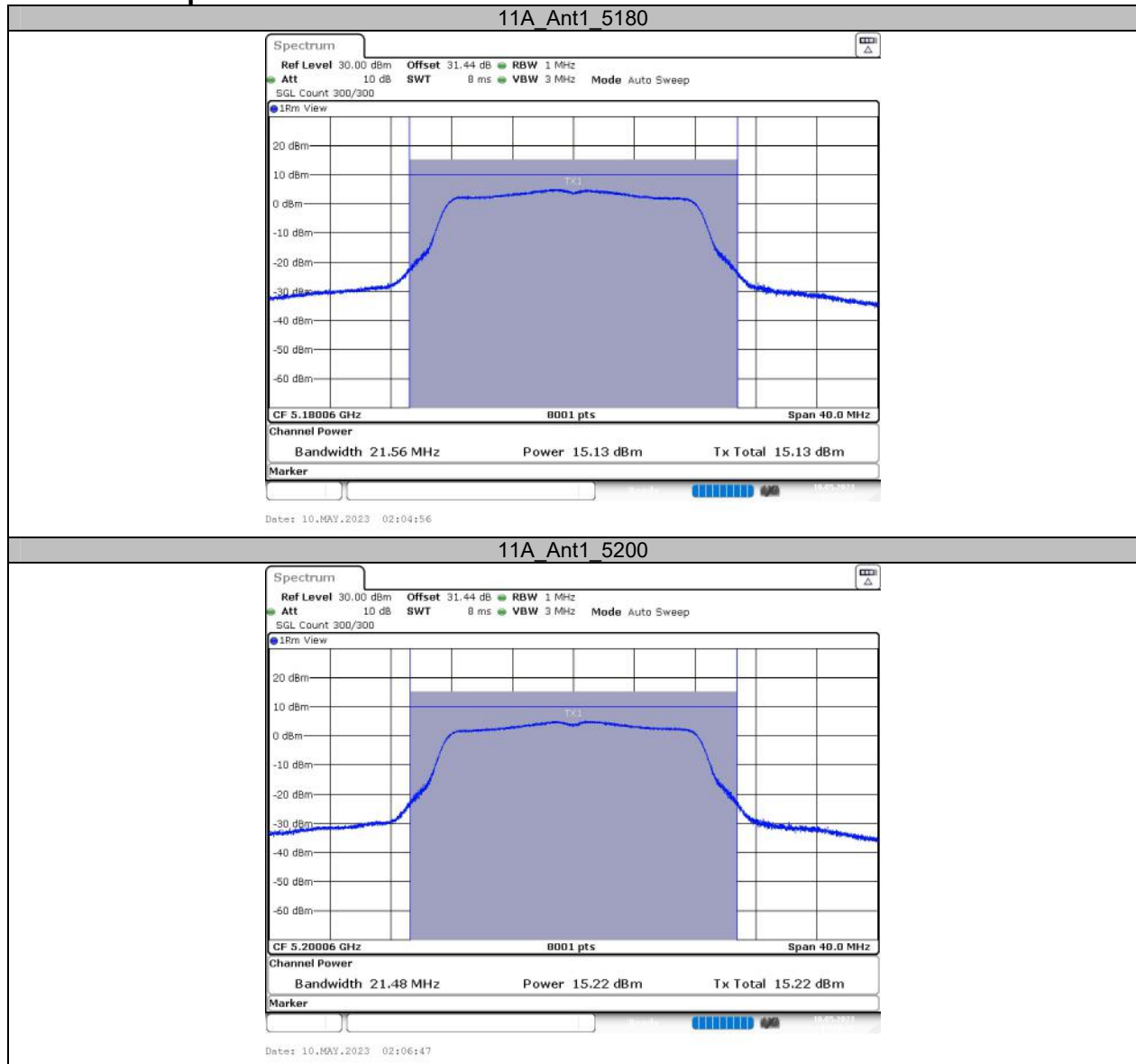




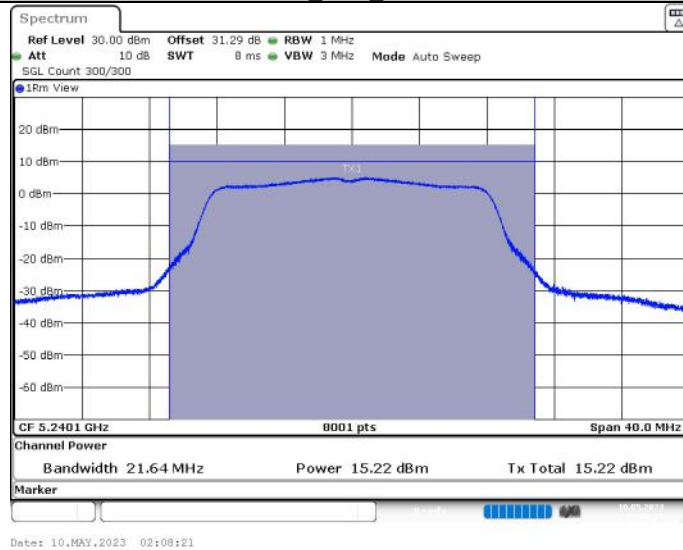
Appendix C: Maximum conducted output power**Test Result**

Test Mode	Antenna	Frequency[MHz]	Result [dBm]	Limit [dBm]	Verdict
11A	Ant1	5180	15.13	≤23.98	PASS
		5200	15.22	≤23.98	PASS
		5240	15.22	≤23.98	PASS
		5260	14.79	≤23.98	PASS
		5280	14.64	≤23.98	PASS
		5320	14.54	≤23.98	PASS
		5500	12.60	≤23.98	PASS
		5580	13.07	≤23.98	PASS
		5700	13.68	≤23.98	PASS
		5745	15.30	≤30.00	PASS
		5785	15.37	≤30.00	PASS
11AC20SISO	Ant1	5825	15.32	≤30.00	PASS
		5180	14.70	≤23.98	PASS
		5200	14.74	≤23.98	PASS
		5240	14.89	≤23.98	PASS
		5260	14.47	≤23.98	PASS
		5280	14.22	≤23.98	PASS
		5320	14.12	≤23.98	PASS
		5500	12.35	≤23.98	PASS
		5580	12.76	≤23.98	PASS
		5700	13.44	≤23.98	PASS
		5745	14.98	≤30.00	PASS
11AC40SISO	Ant1	5785	14.95	≤30.00	PASS
		5825	15.05	≤30.00	PASS
		5190	14.15	≤23.98	PASS
		5230	14.58	≤23.98	PASS
		5270	12.93	≤23.98	PASS
		5310	12.98	≤23.98	PASS
		5510	12.73	≤23.98	PASS
		5550	13.11	≤23.98	PASS
11AC80SISO	Ant1	5670	14.14	≤23.98	PASS
		5755	15.76	≤30.00	PASS
		5795	15.61	≤30.00	PASS
		5210	13.48	≤23.98	PASS
		5290	11.94	≤23.98	PASS
		5530	11.55	≤23.98	PASS
		5610	12.11	≤23.98	PASS
		5775	15.40	≤30.00	PASS

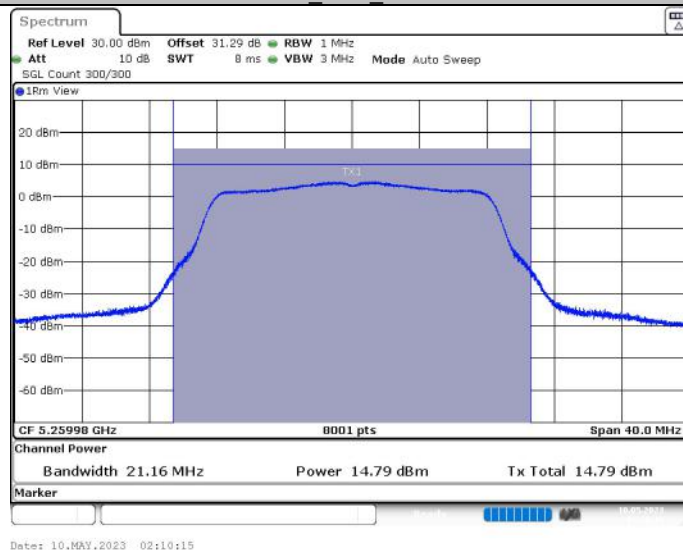
Note: The Duty Cycle Factor is compensated in the graph.

Test Graphs Channel Power

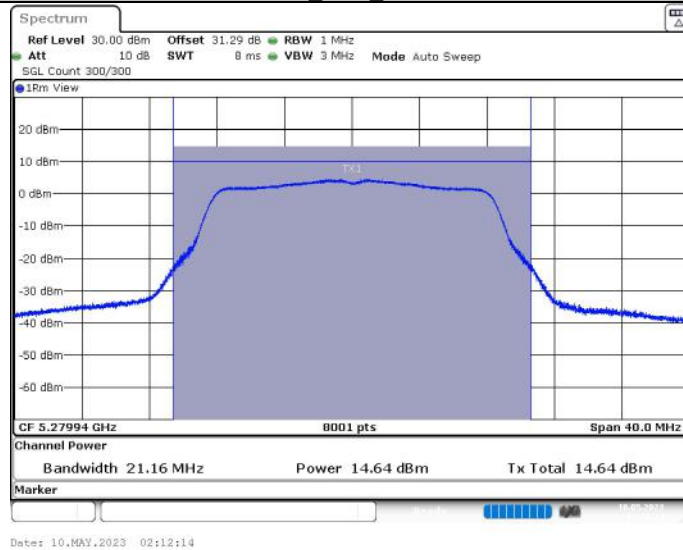
11A_Ant1_5240



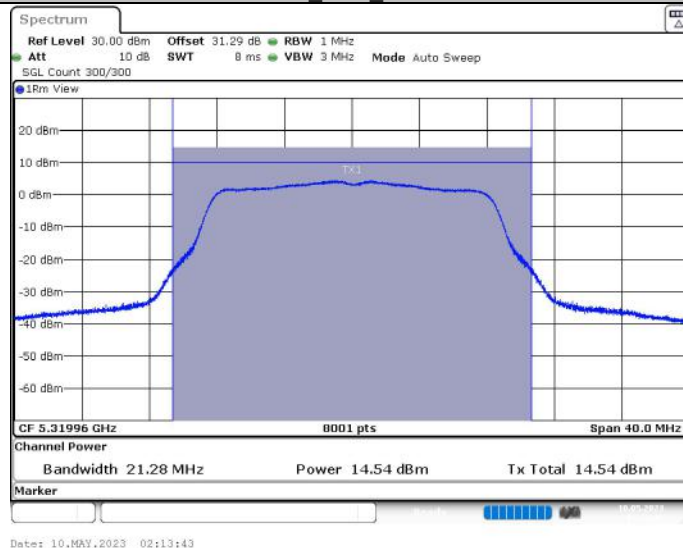
11A_Ant1_5260

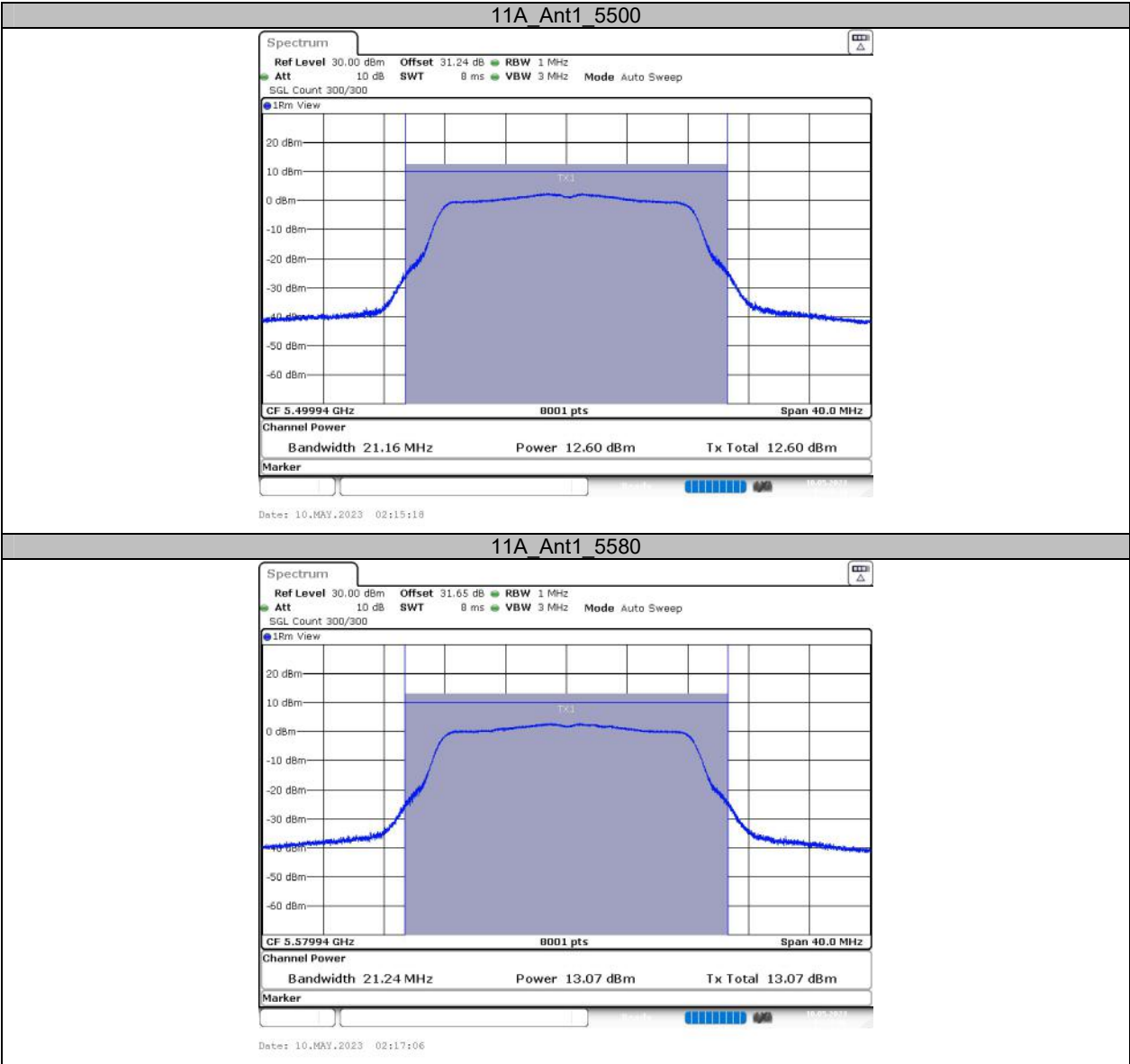


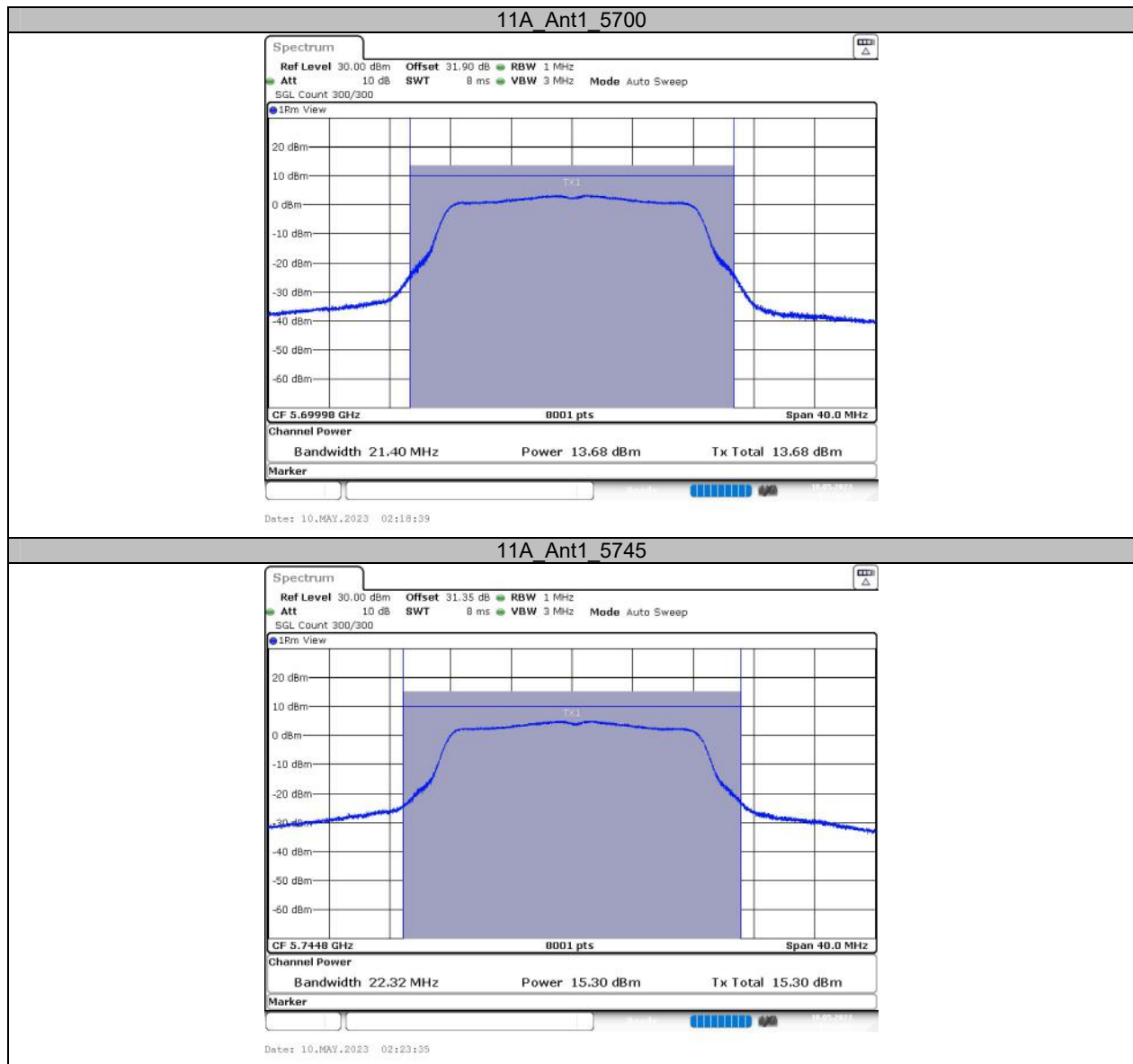
11A_Ant1_5280

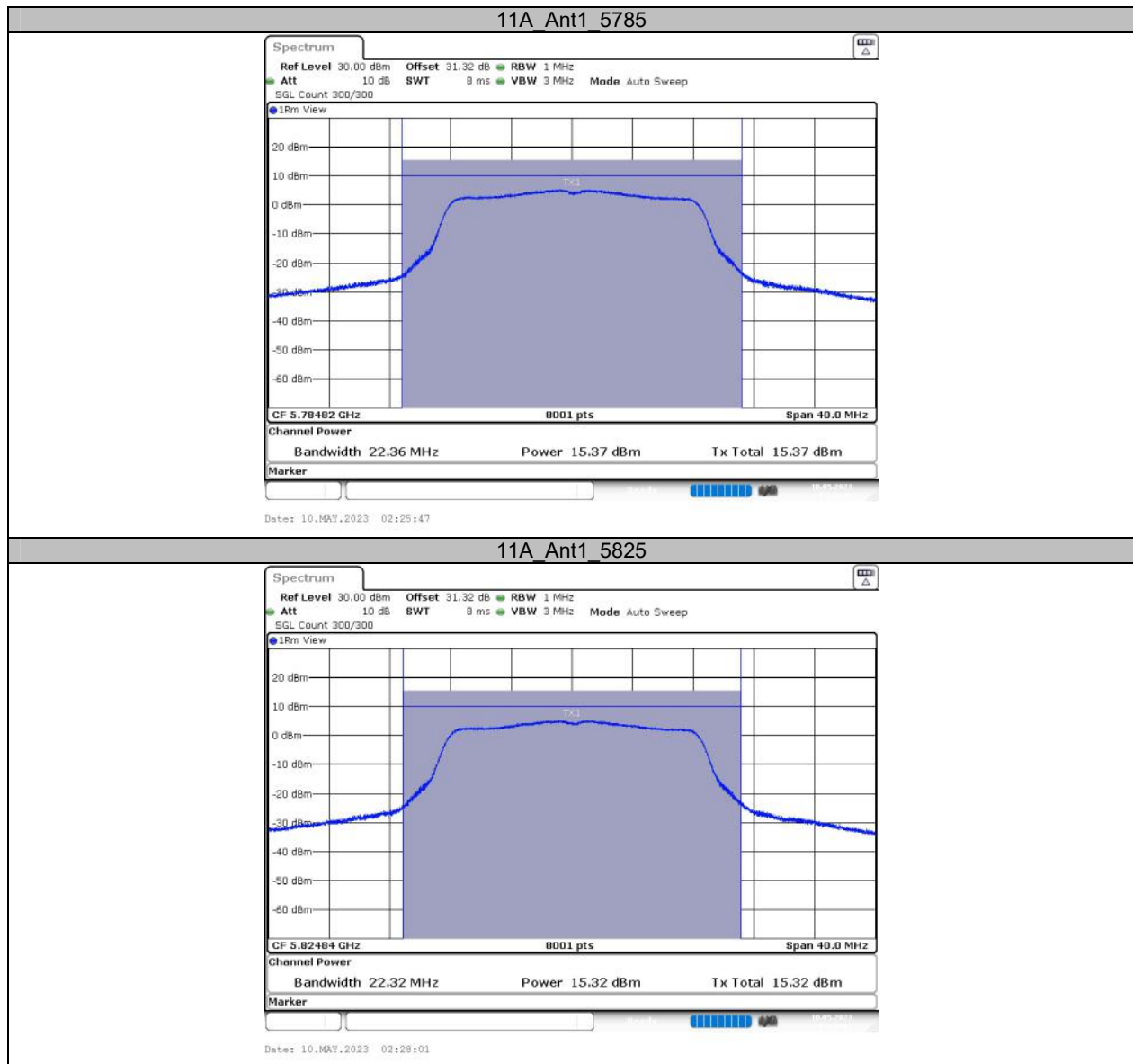


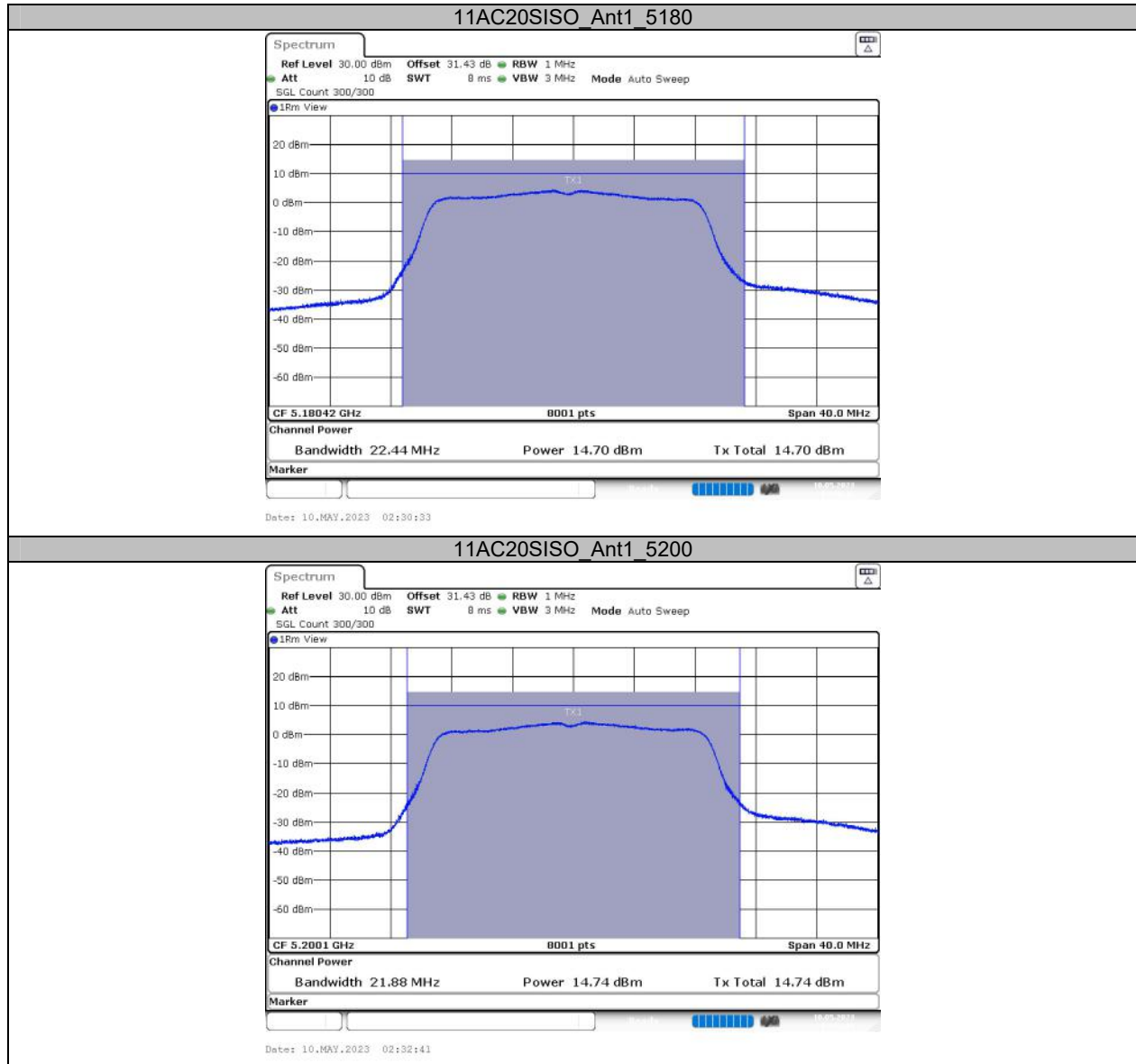
11A_Ant1_5320

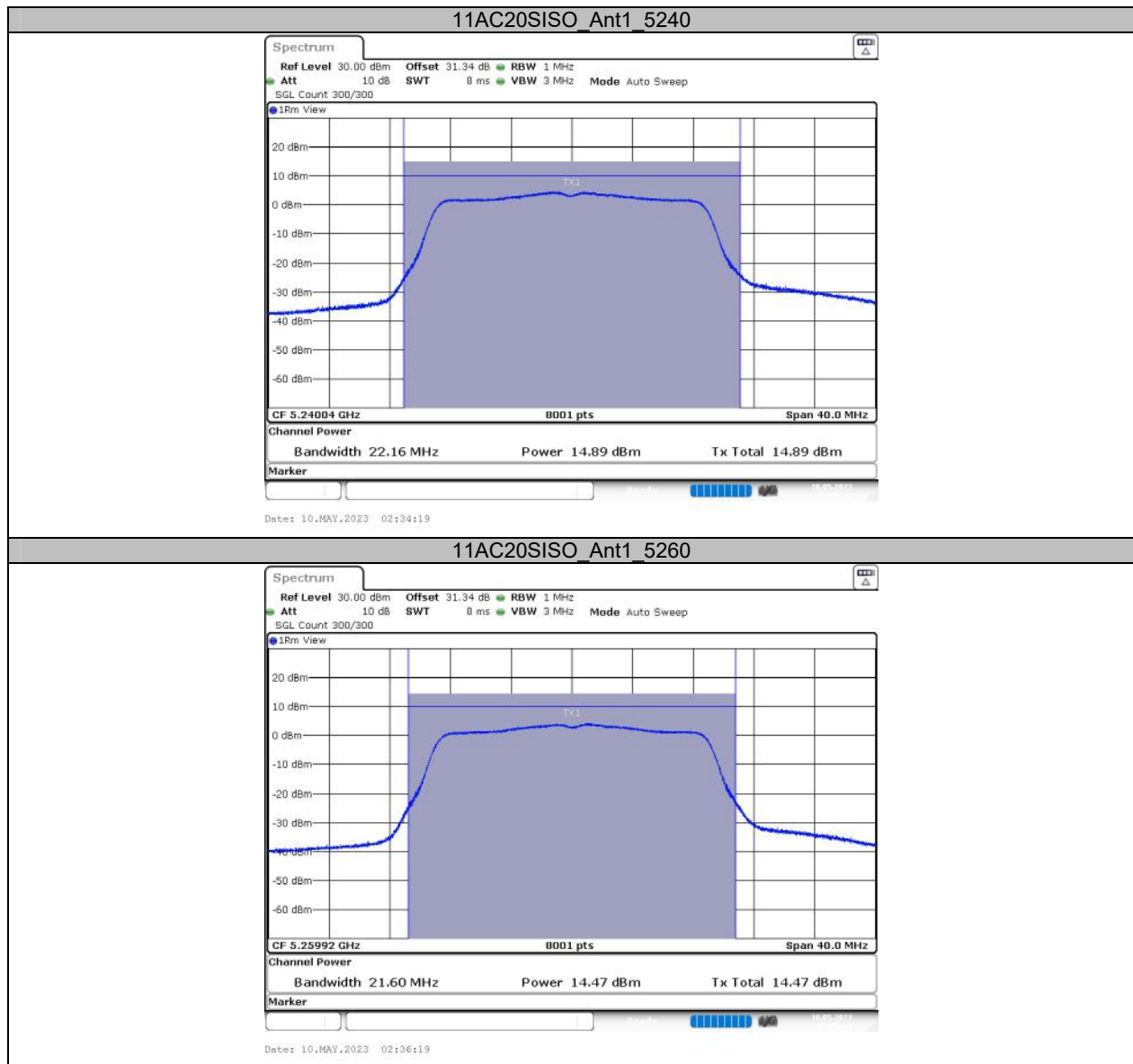


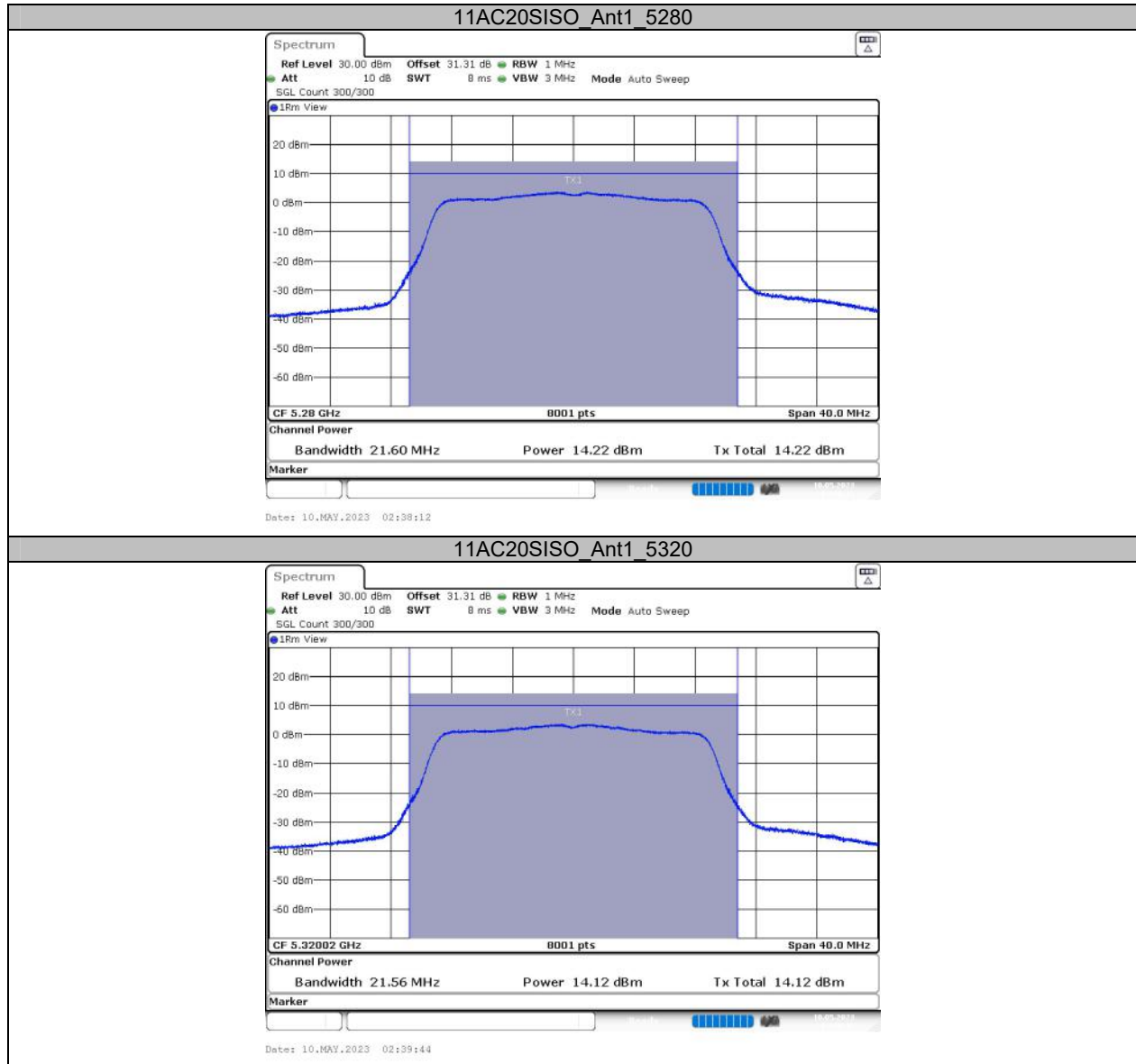


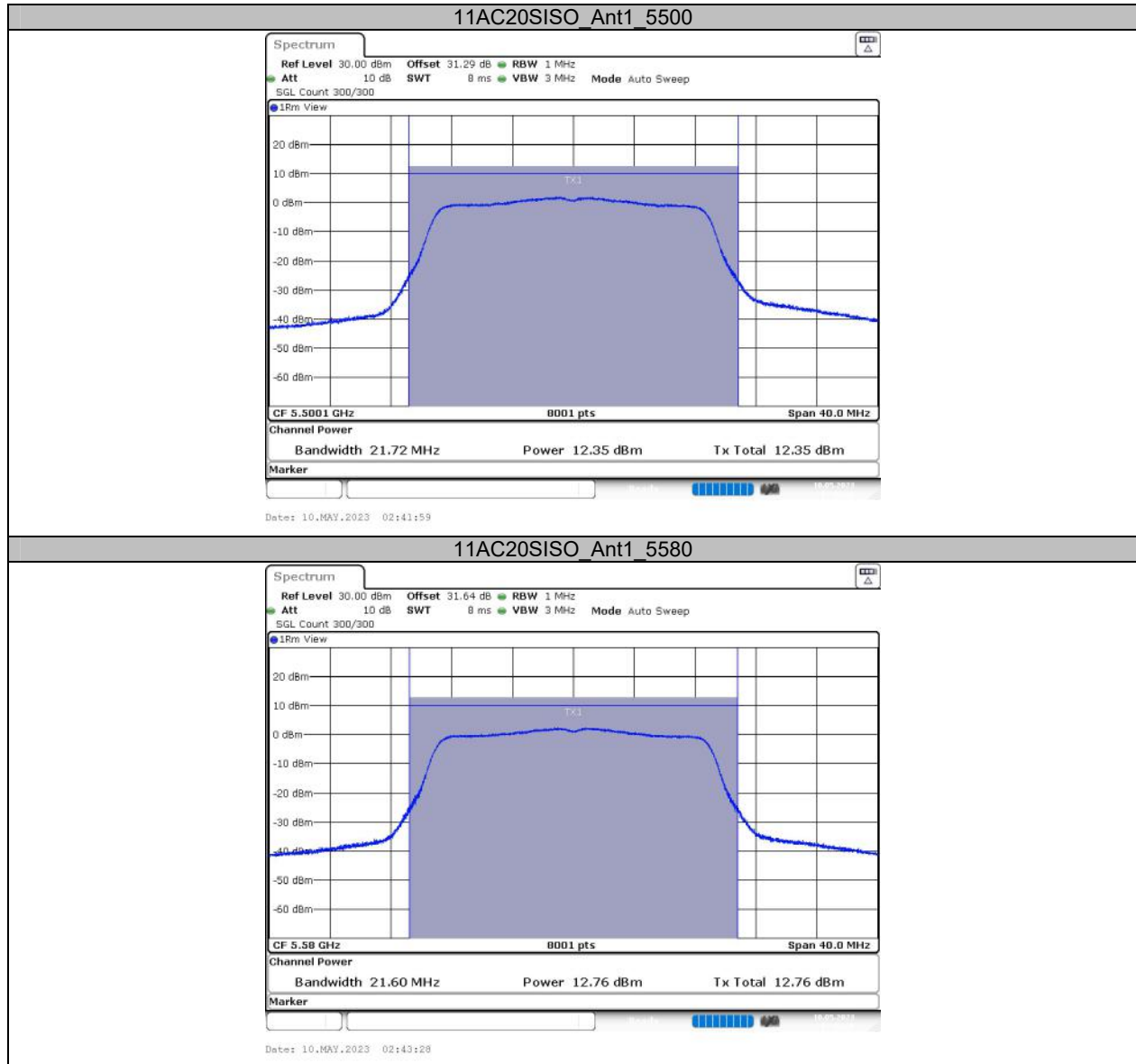


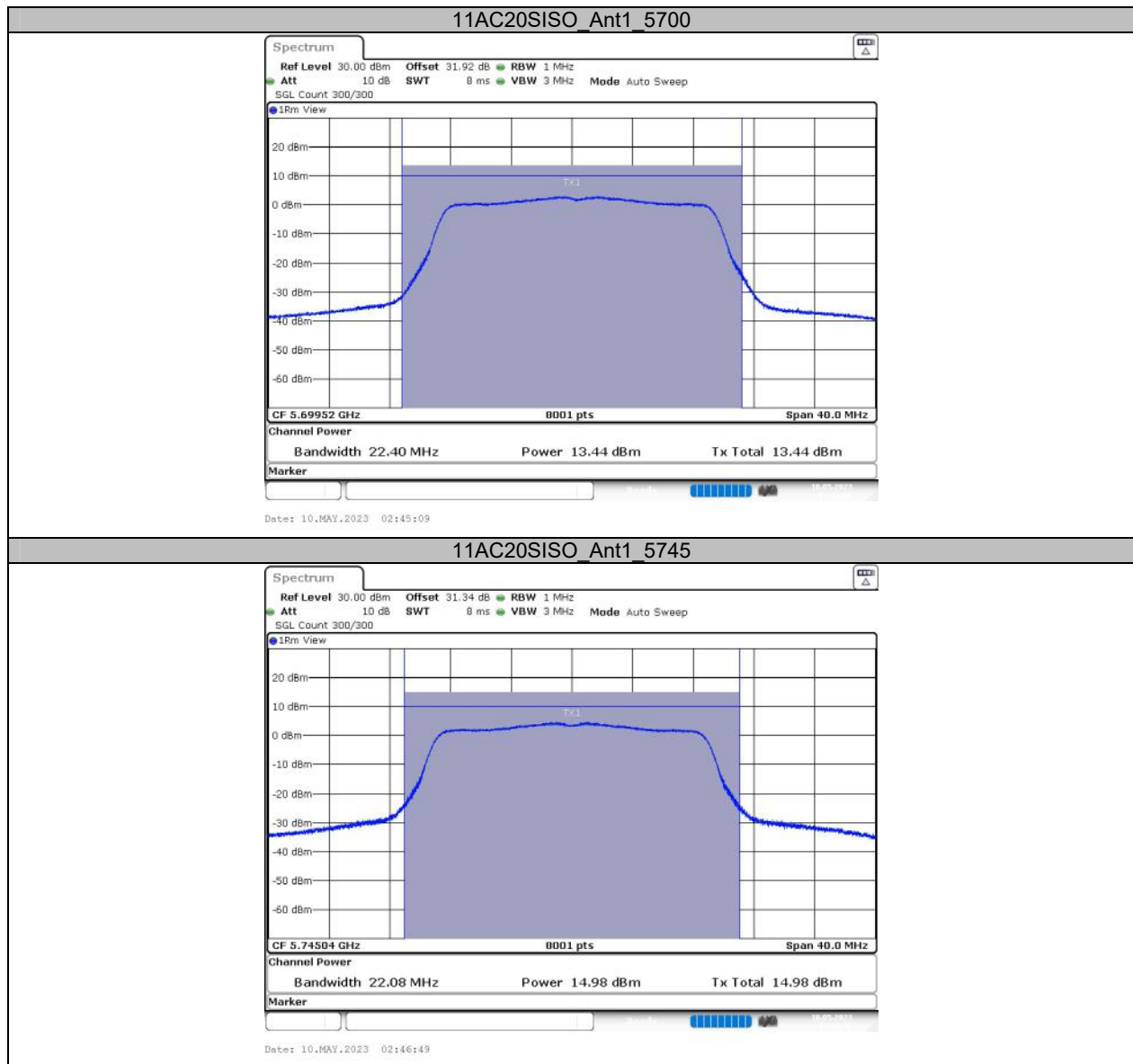


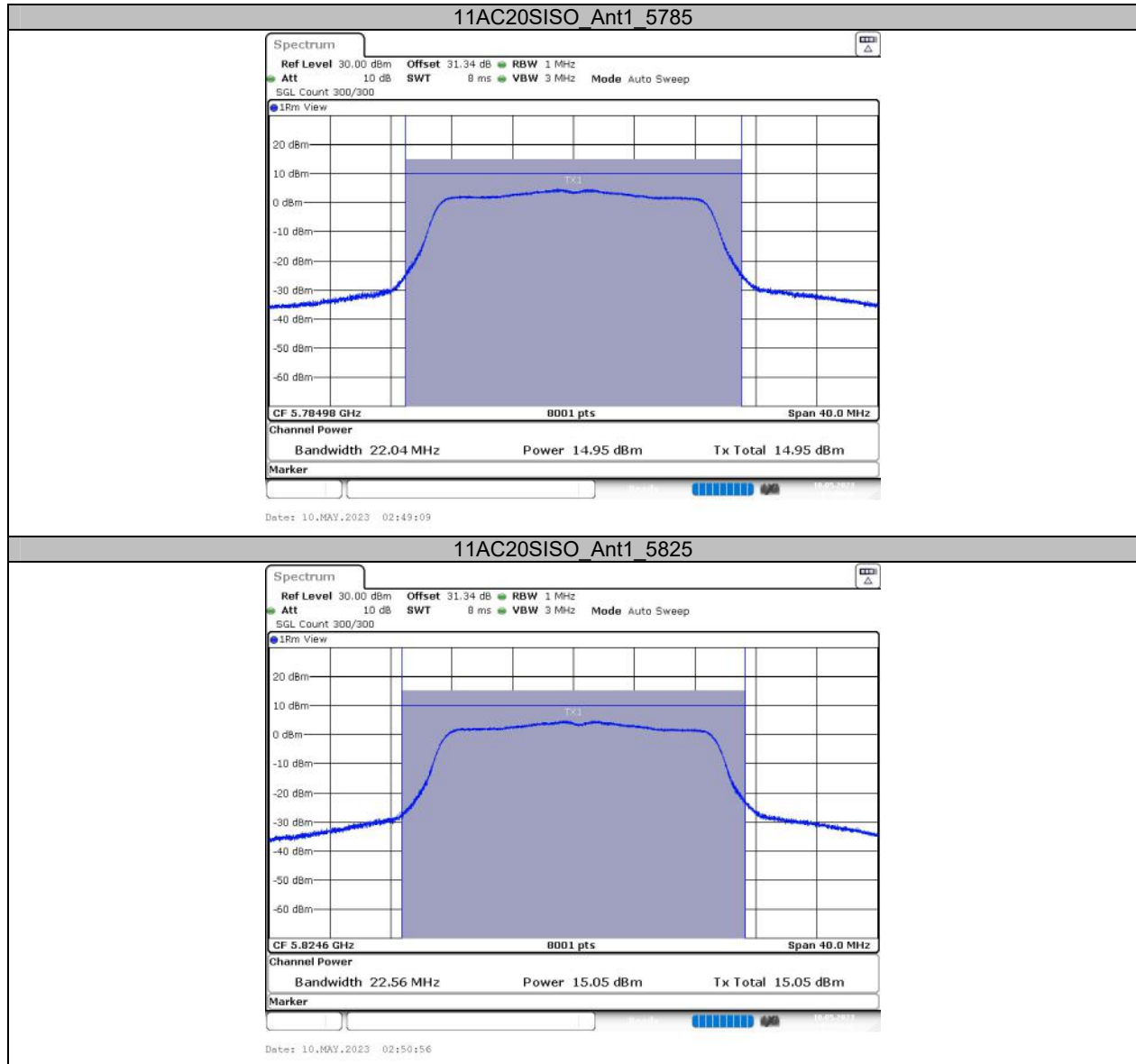


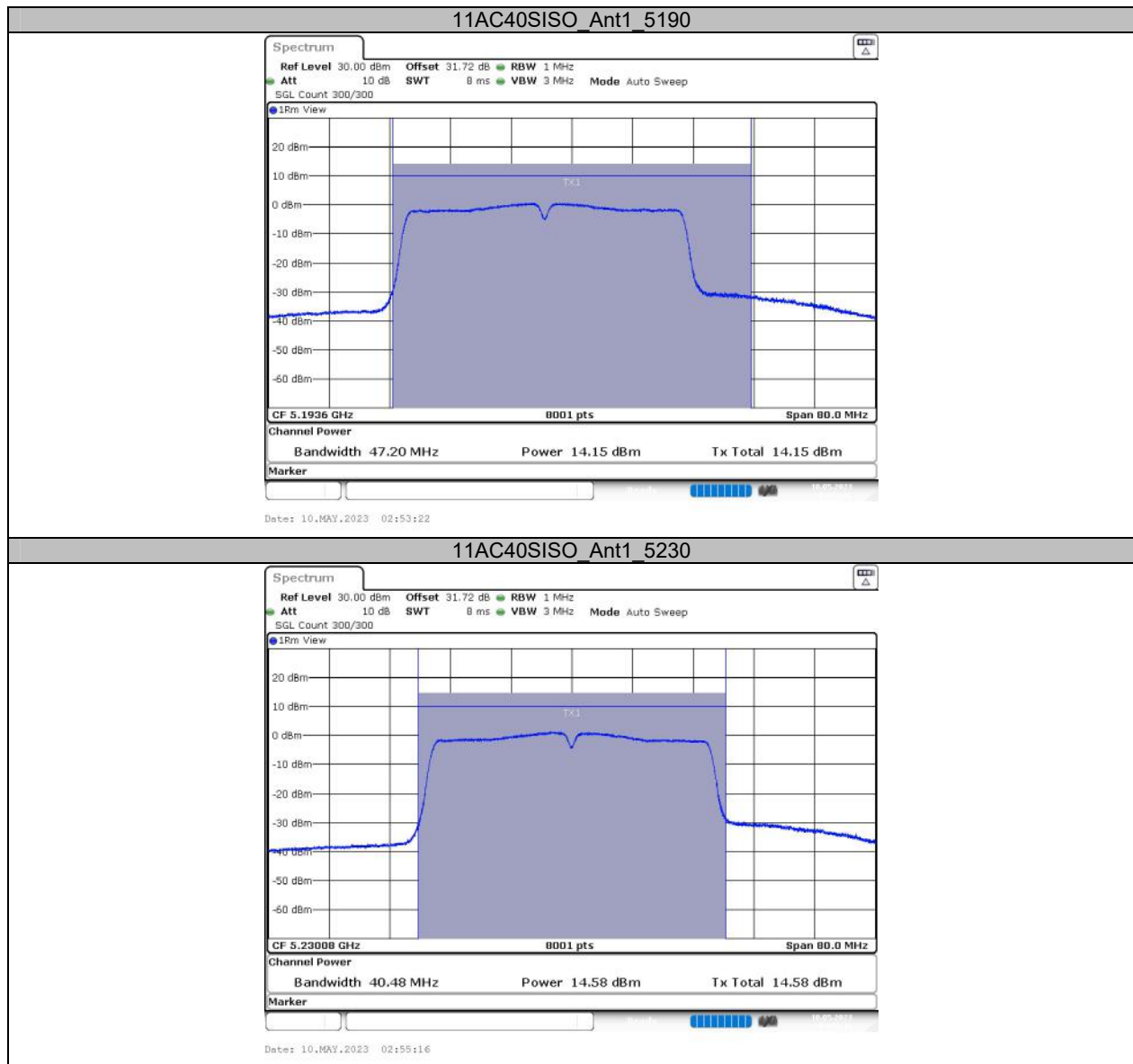


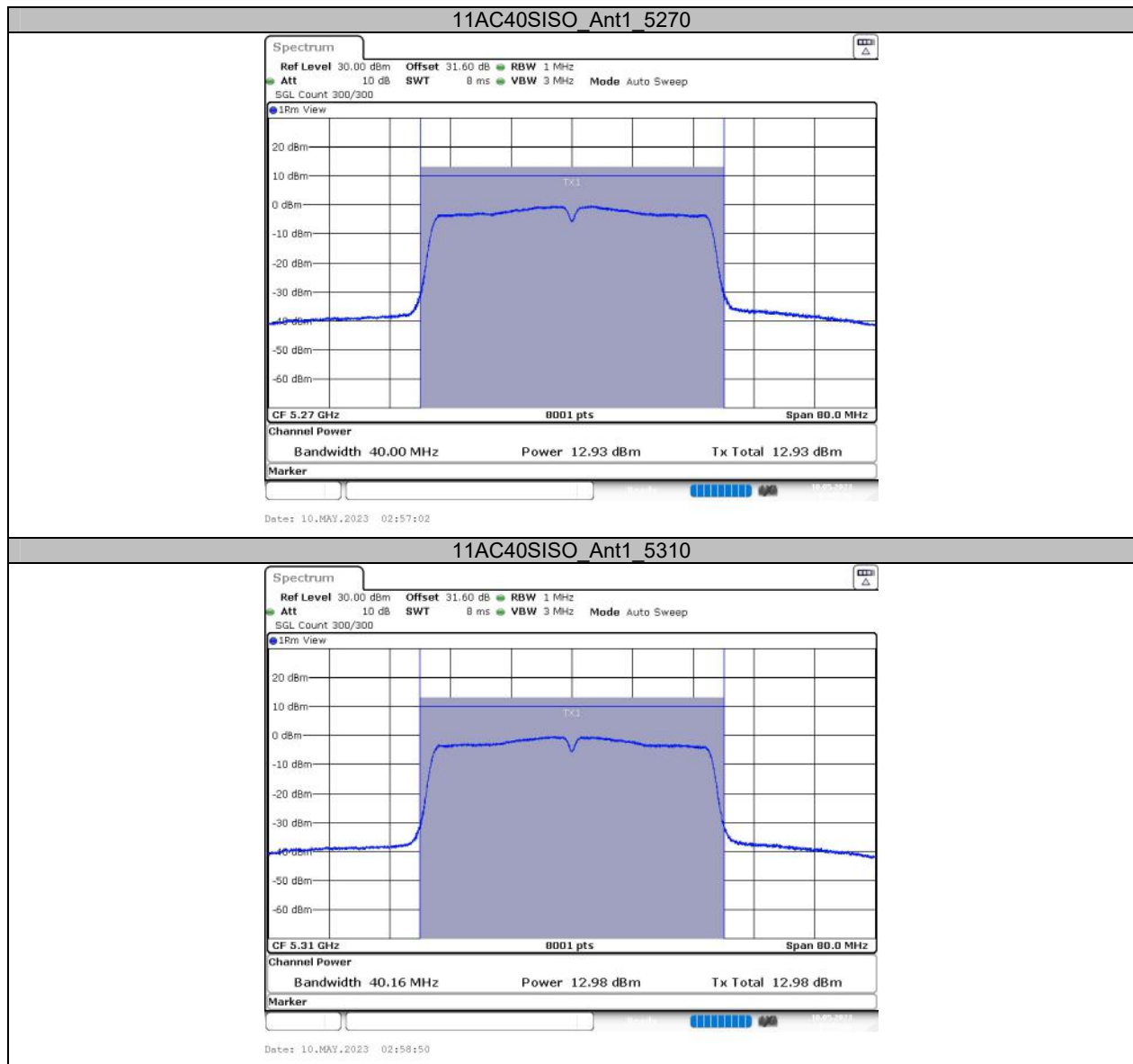


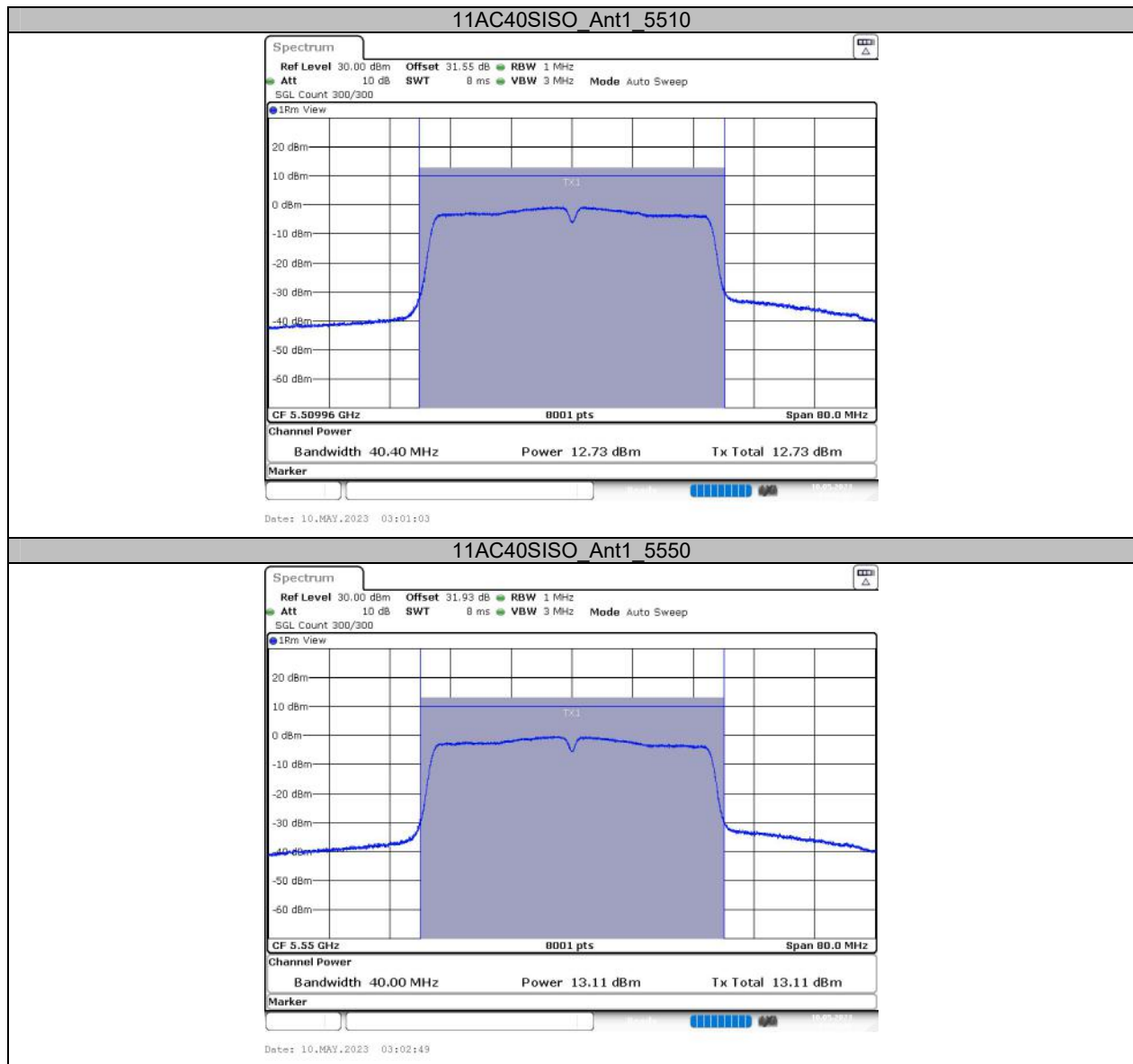


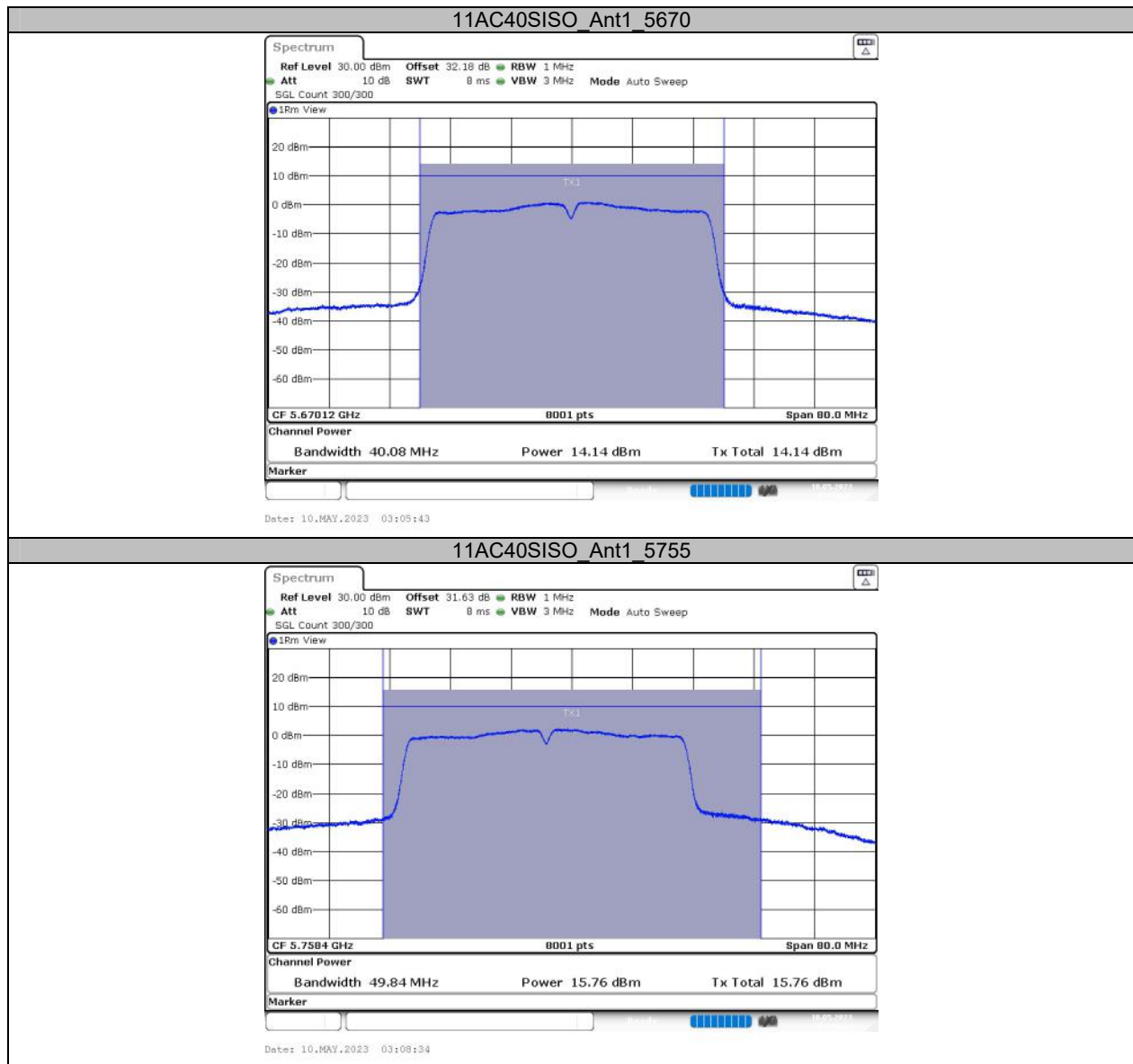


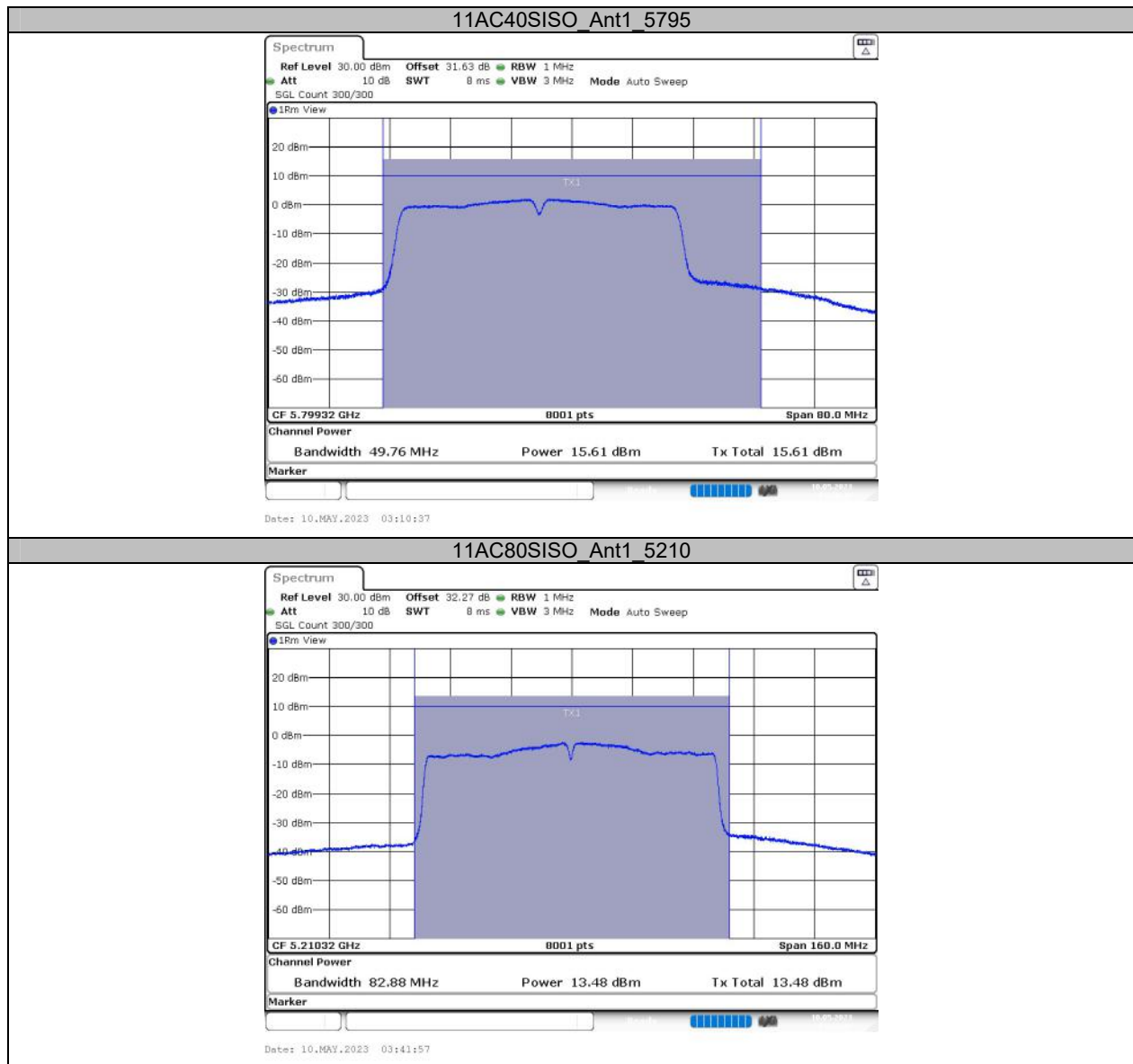


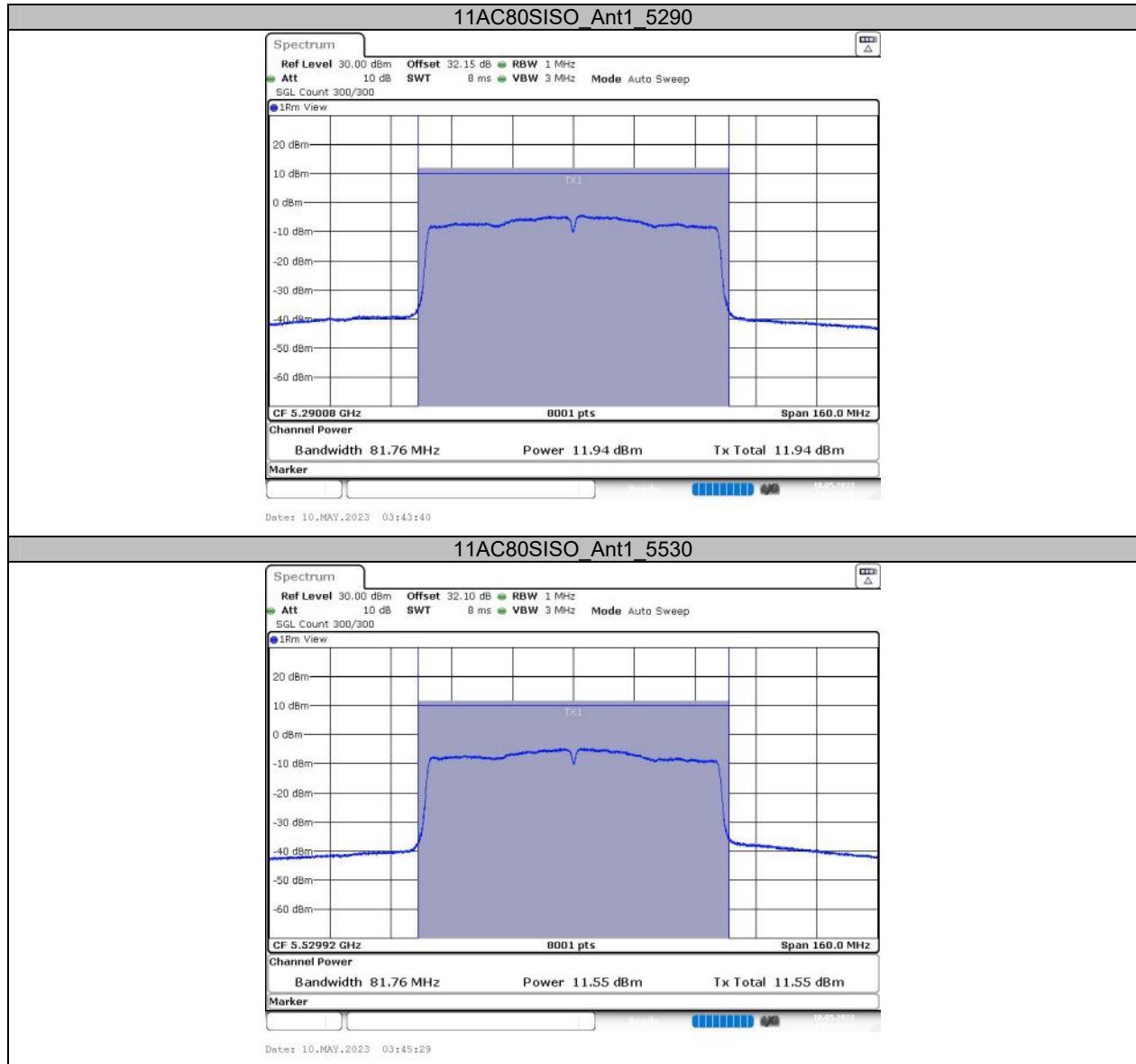


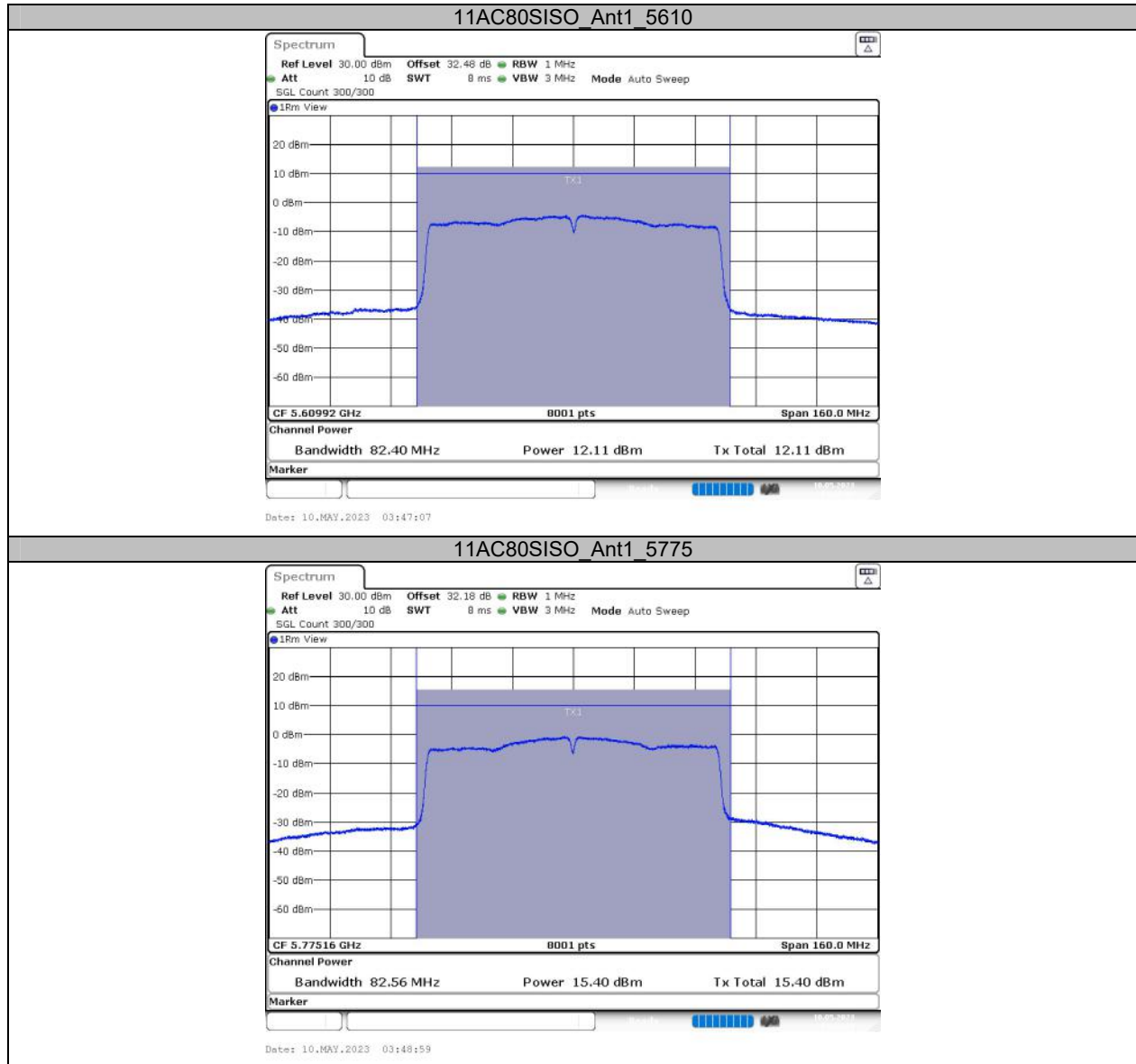












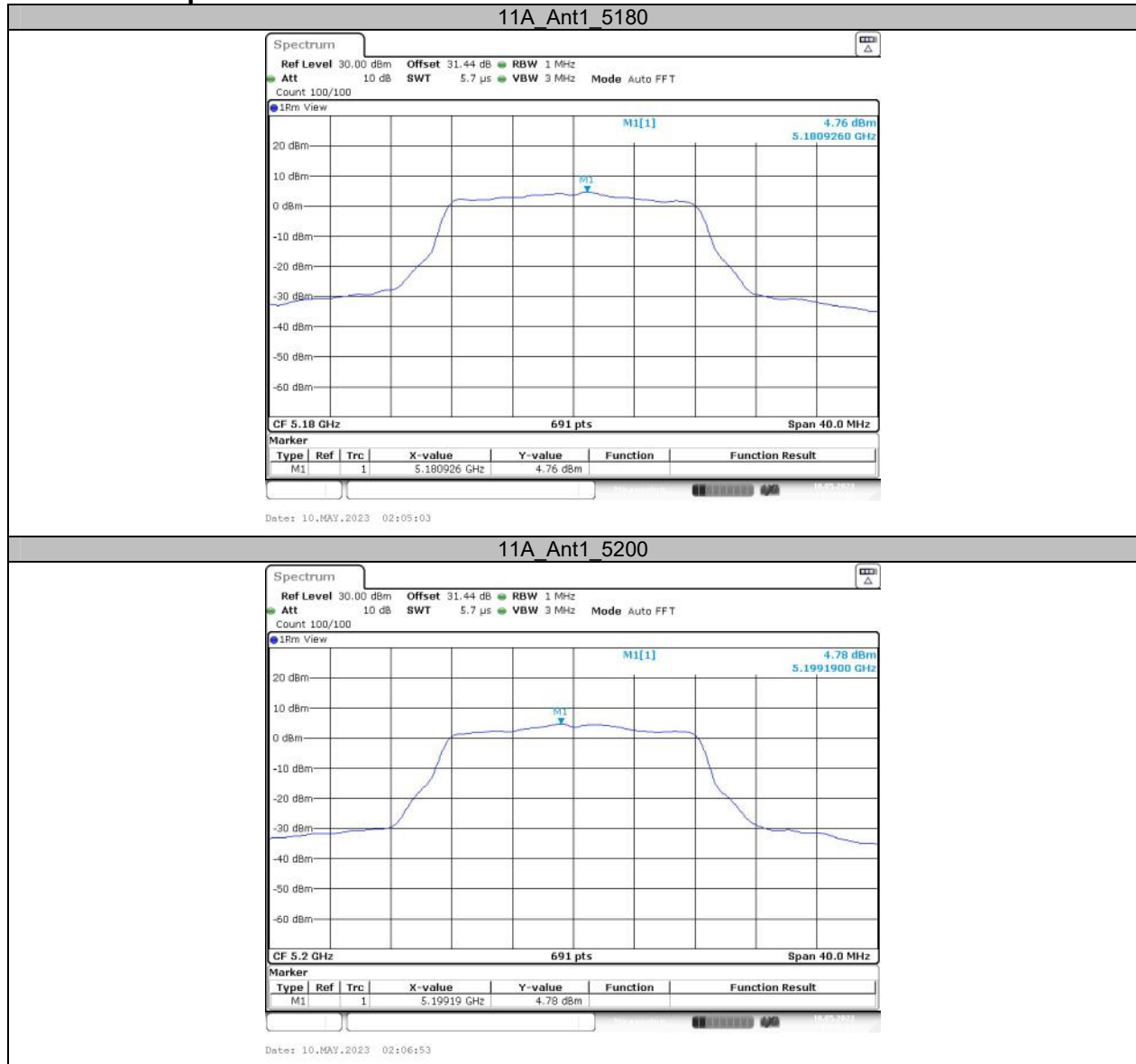
Appendix D: Maximum power spectral density Test Result

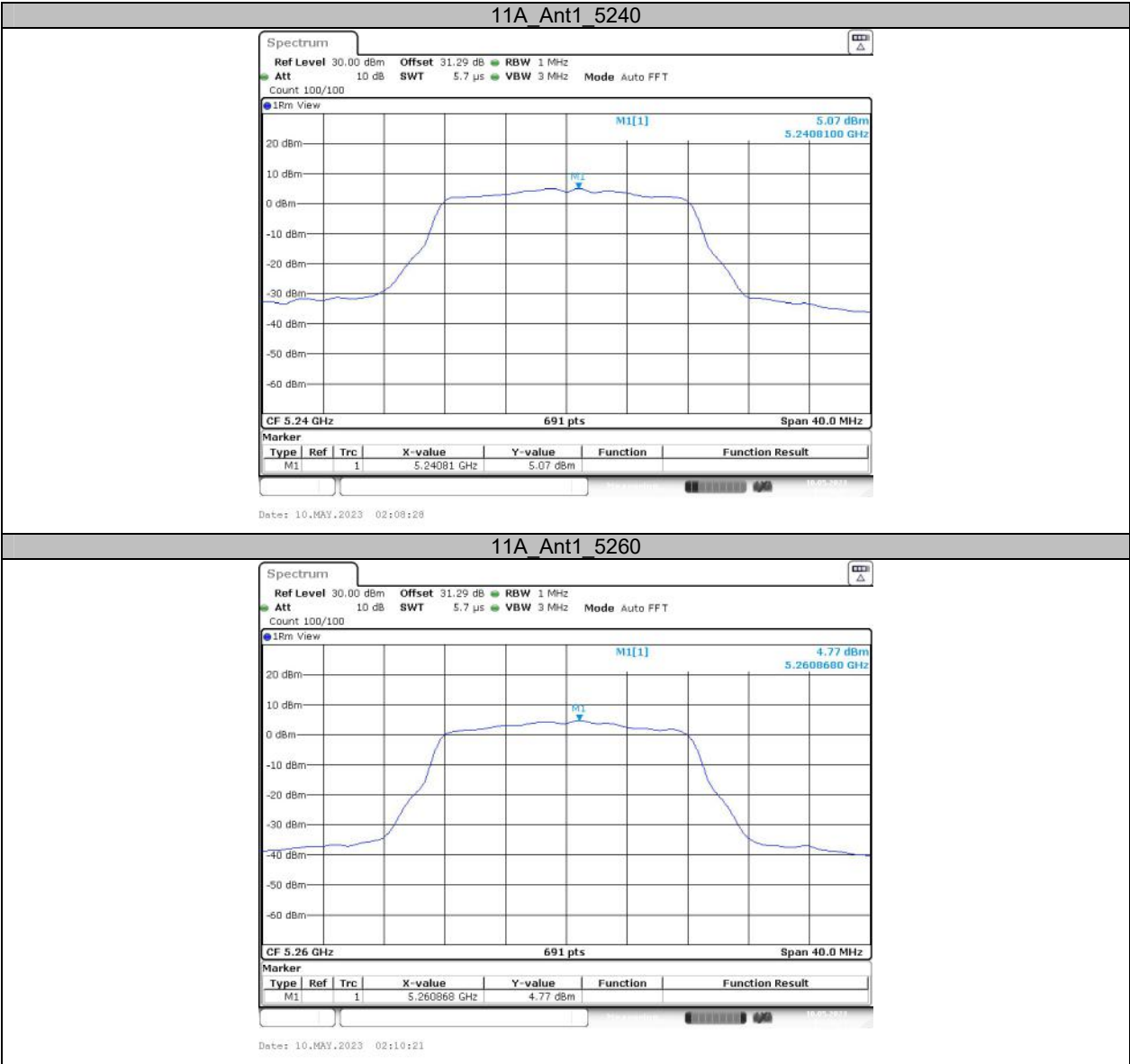
Test Mode	Antenna	Frequency[MHz]	Result [dBm/MHz]	Limit[dBm/MHz]	Verdict
11A	Ant1	5180	4.76	≤11.00	PASS
		5200	4.78	≤11.00	PASS
		5240	5.07	≤11.00	PASS
		5260	4.77	≤11.00	PASS
		5280	4.13	≤11.00	PASS
		5320	4.16	≤11.00	PASS
		5500	2.00	≤11.00	PASS
		5580	2.64	≤11.00	PASS
		5700	3.00	≤11.00	PASS
		5745	2.20	≤30.00	PASS
		5785	2.13	≤30.00	PASS
		5825	2.00	≤30.00	PASS
11AC20SISO	Ant1	5180	4.15	≤11.00	PASS
		5200	4.02	≤11.00	PASS
		5240	4.07	≤11.00	PASS
		5260	3.88	≤11.00	PASS
		5280	3.94	≤11.00	PASS
		5320	3.14	≤11.00	PASS
		5500	1.86	≤11.00	PASS
		5580	1.89	≤11.00	PASS
		5700	2.60	≤11.00	PASS
		5745	1.11	≤30.00	PASS
		5785	1.31	≤30.00	PASS
		5825	1.56	≤30.00	PASS
11AC40SISO	Ant1	5190	0.36	≤11.00	PASS
		5230	1.34	≤11.00	PASS
		5270	-0.33	≤11.00	PASS
		5310	-0.44	≤11.00	PASS
		5510	-1.06	≤11.00	PASS
		5550	0.05	≤11.00	PASS
		5670	0.51	≤11.00	PASS
		5755	-0.57	≤30.00	PASS
11AC80SISO	Ant1	5795	-0.54	≤30.00	PASS
		5210	-2.22	≤11.00	PASS
		5290	-4.50	≤11.00	PASS
		5530	-4.39	≤11.00	PASS
		5610	-4.29	≤11.00	PASS
		5775	-3.22	≤30.00	PASS

Note: 1.The Result and Limit Unit is dBm/500 kHz in the band 5.725–5.85 GHz.

2.The Duty Cycle Factor is compensated in the graph.

Test Graphs





11A_Ant1_5280

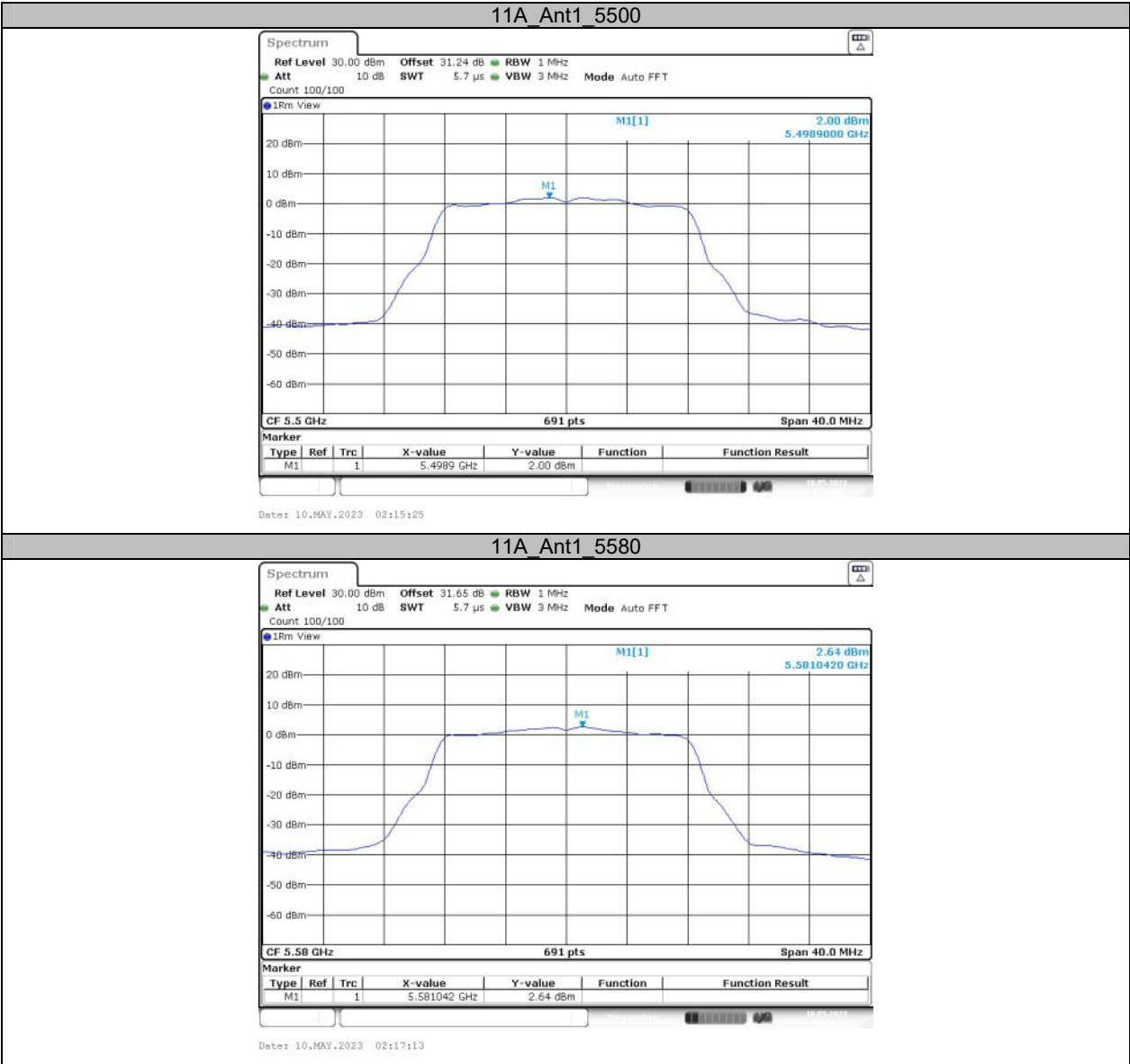


Date: 10.MAY.2023 02:12:21

11A_Ant1_5320



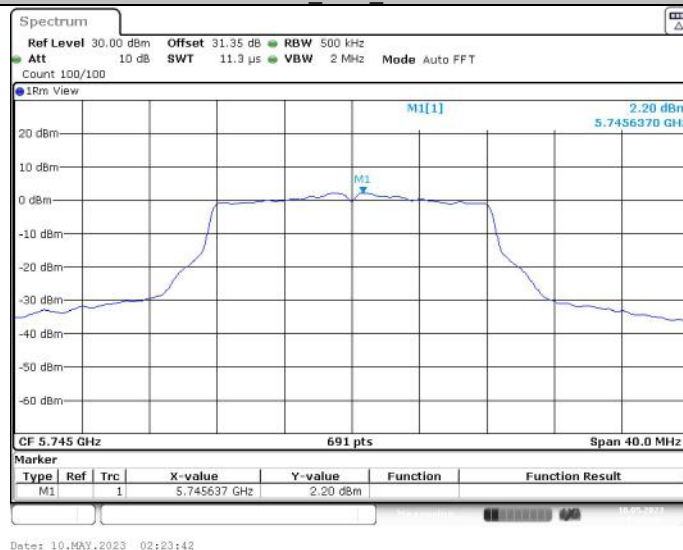
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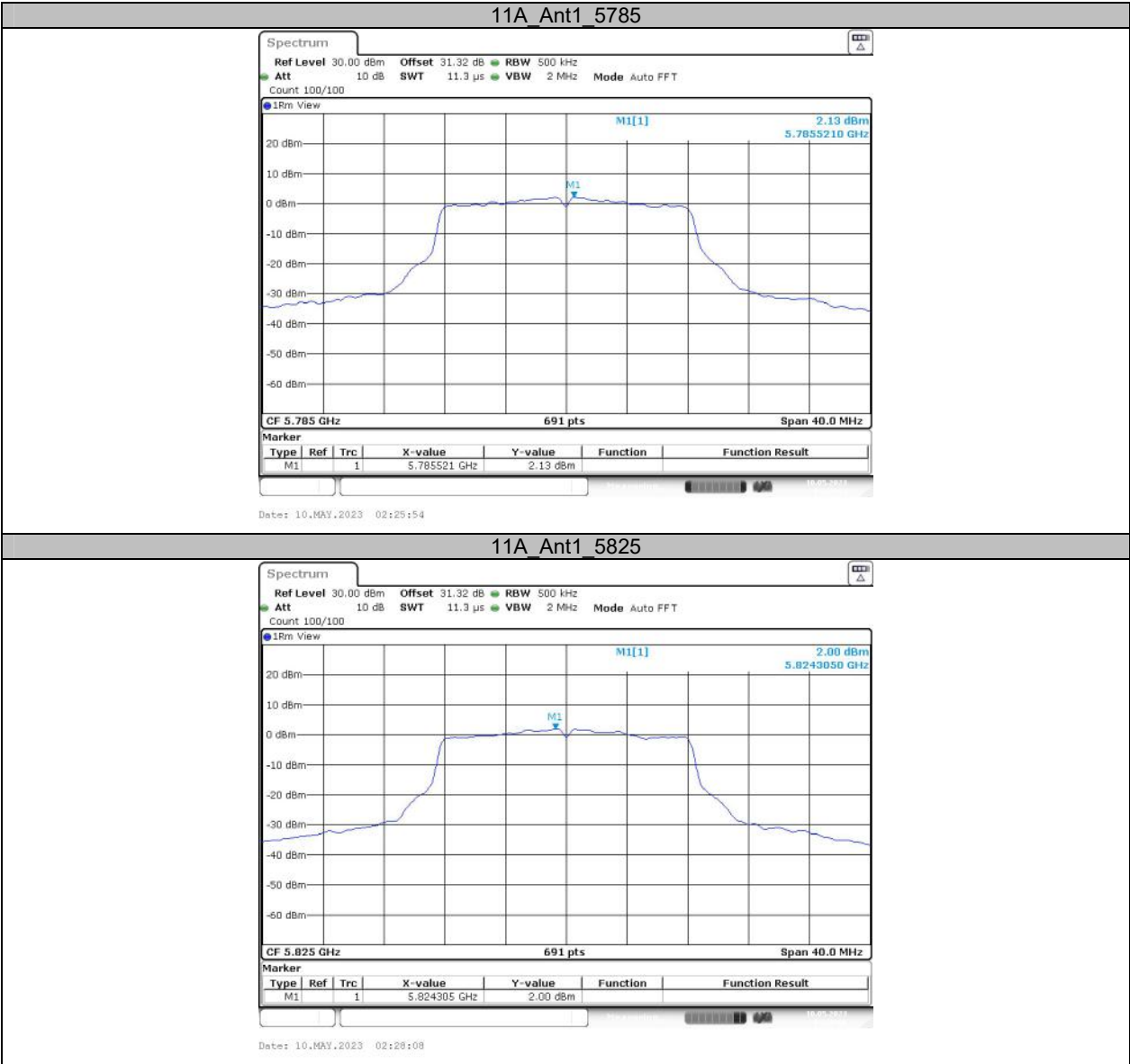


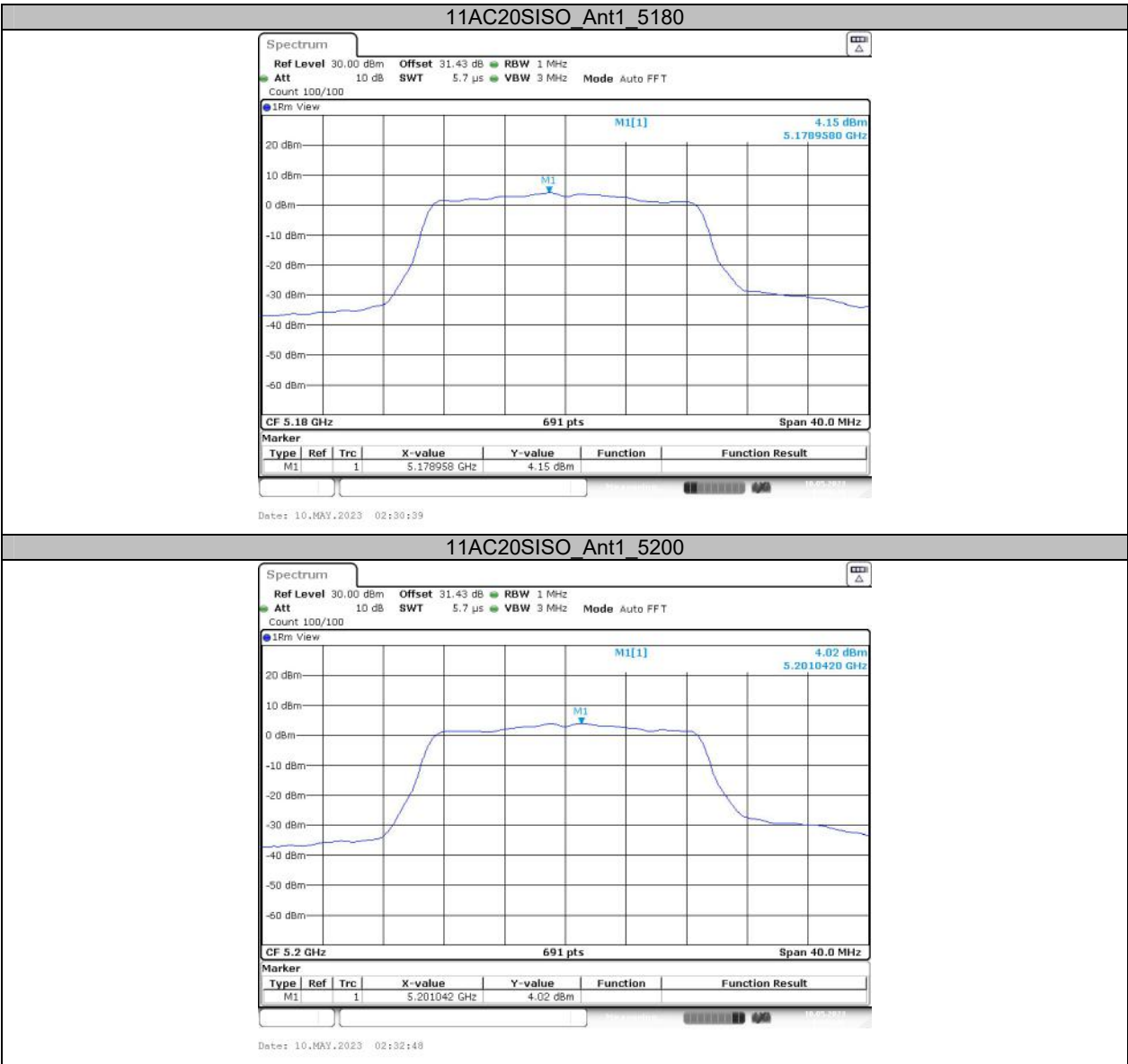
11A_Ant1_5700

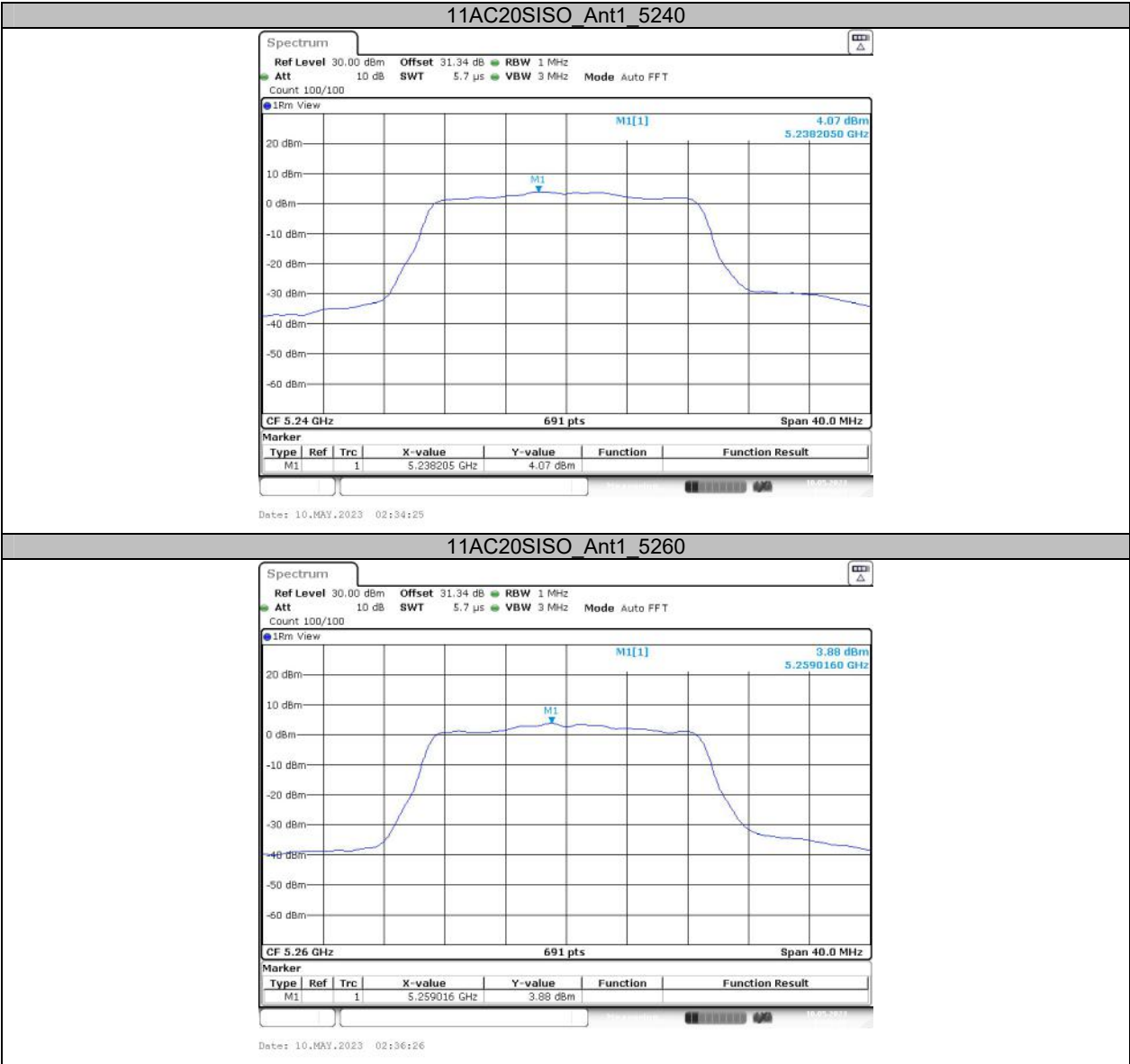


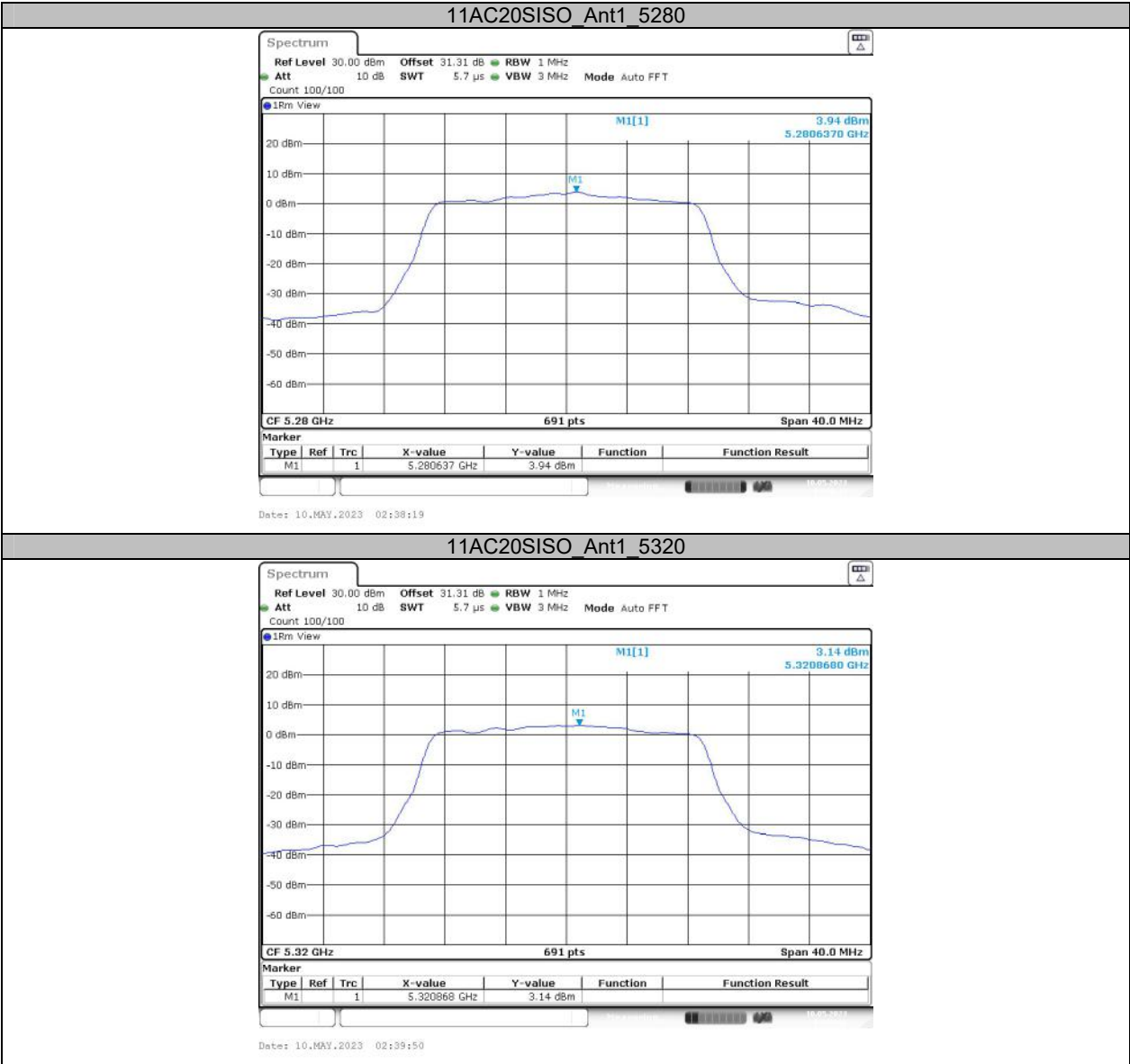
11A_Ant1_5745

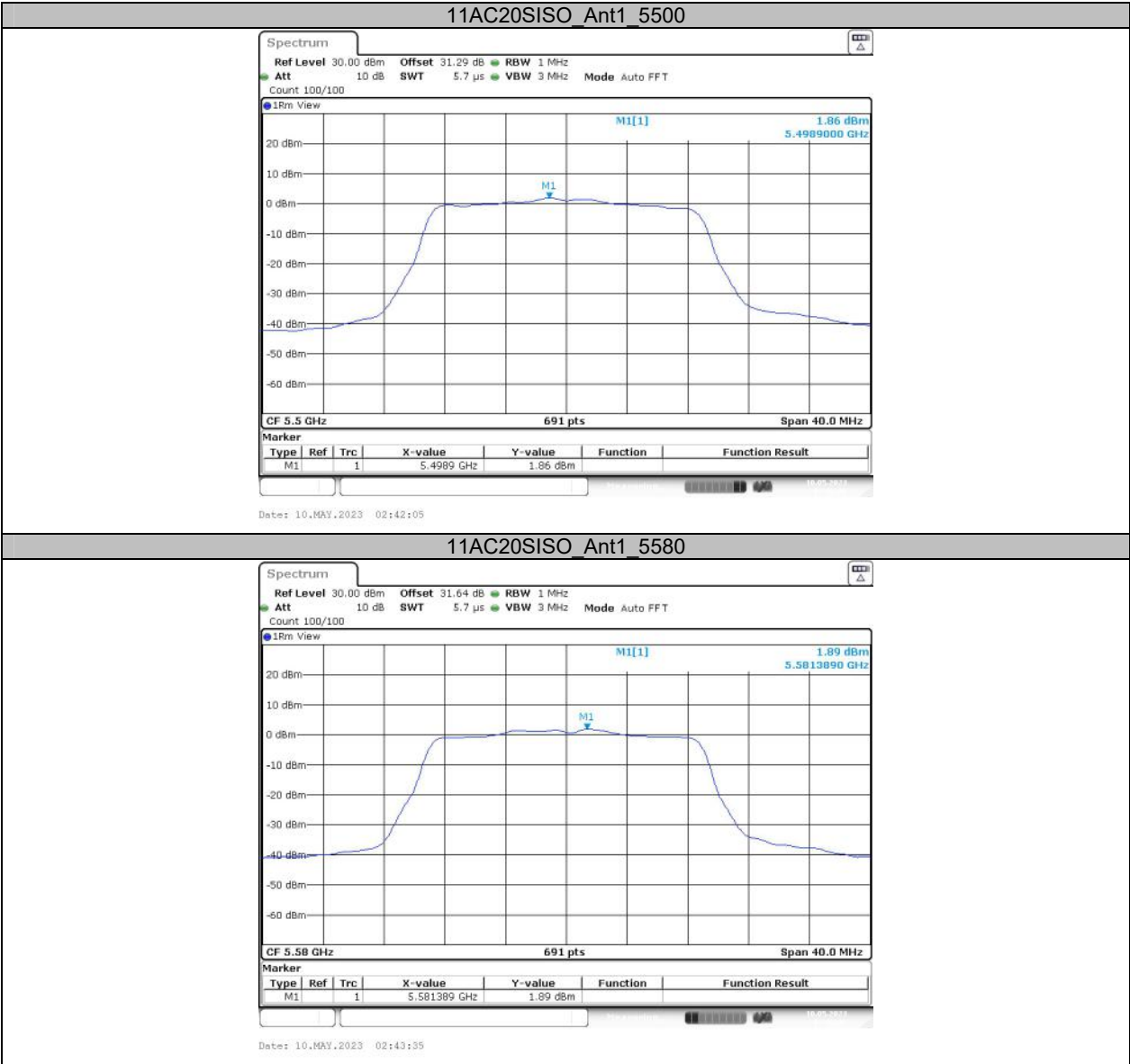


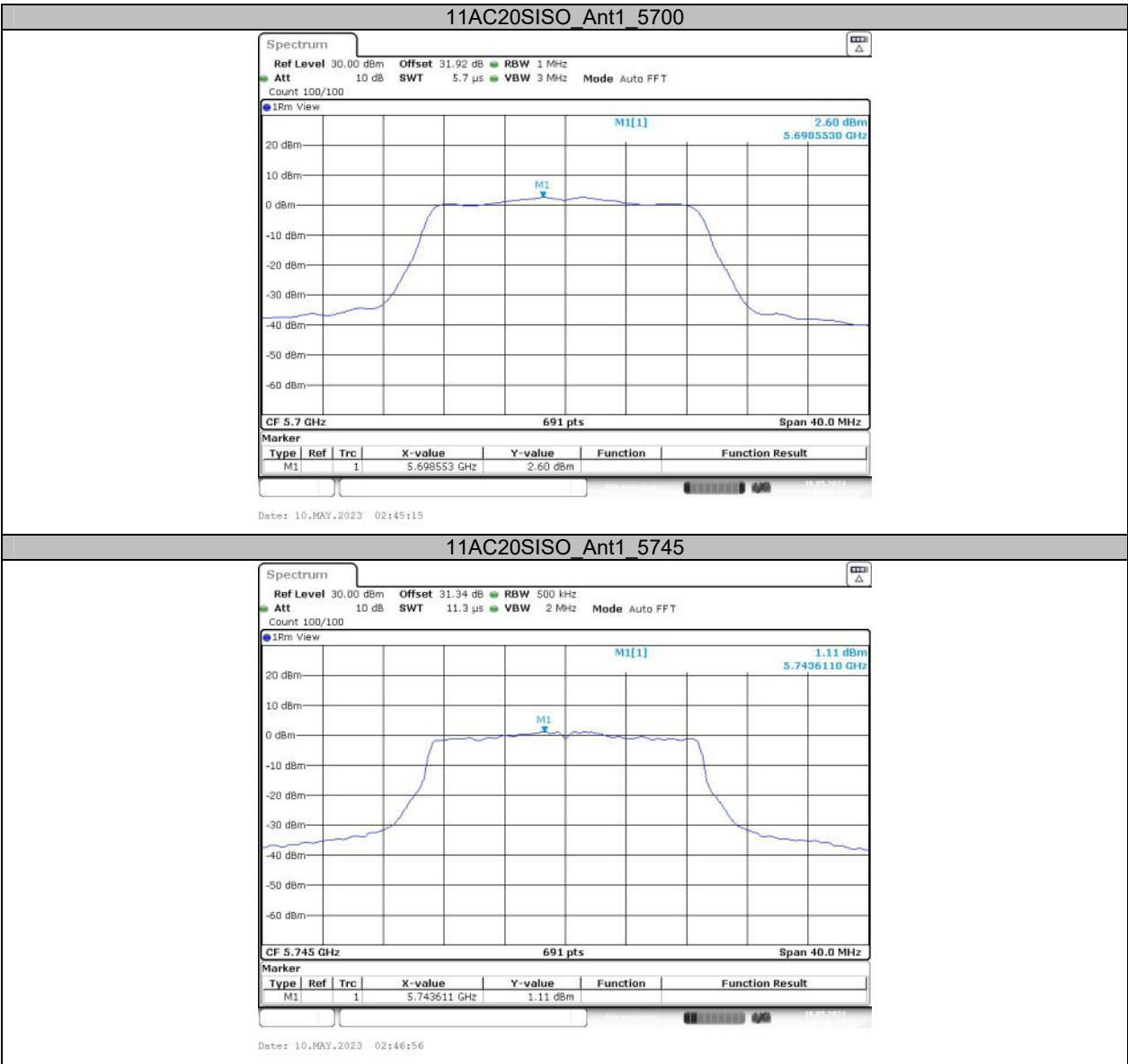


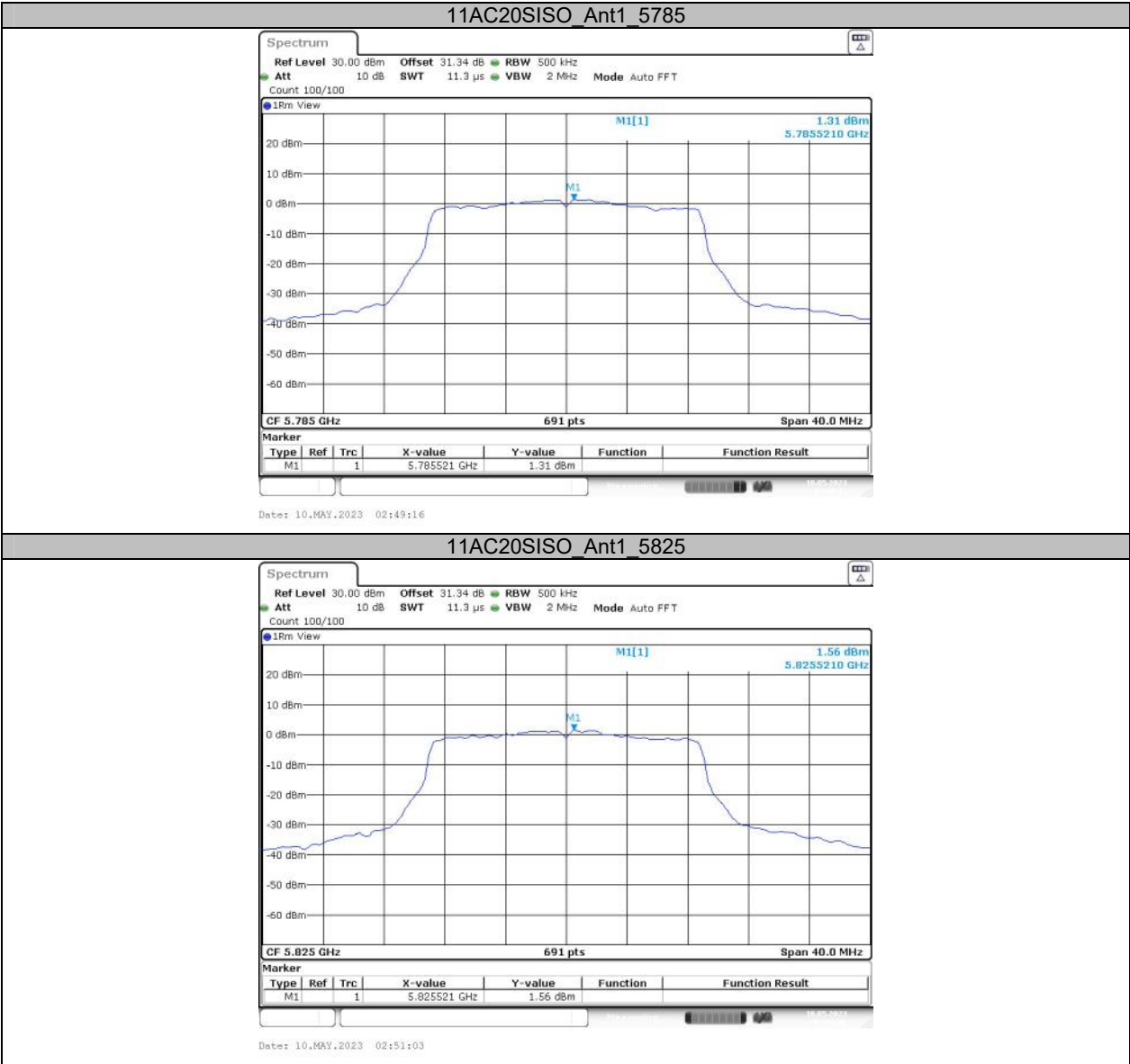


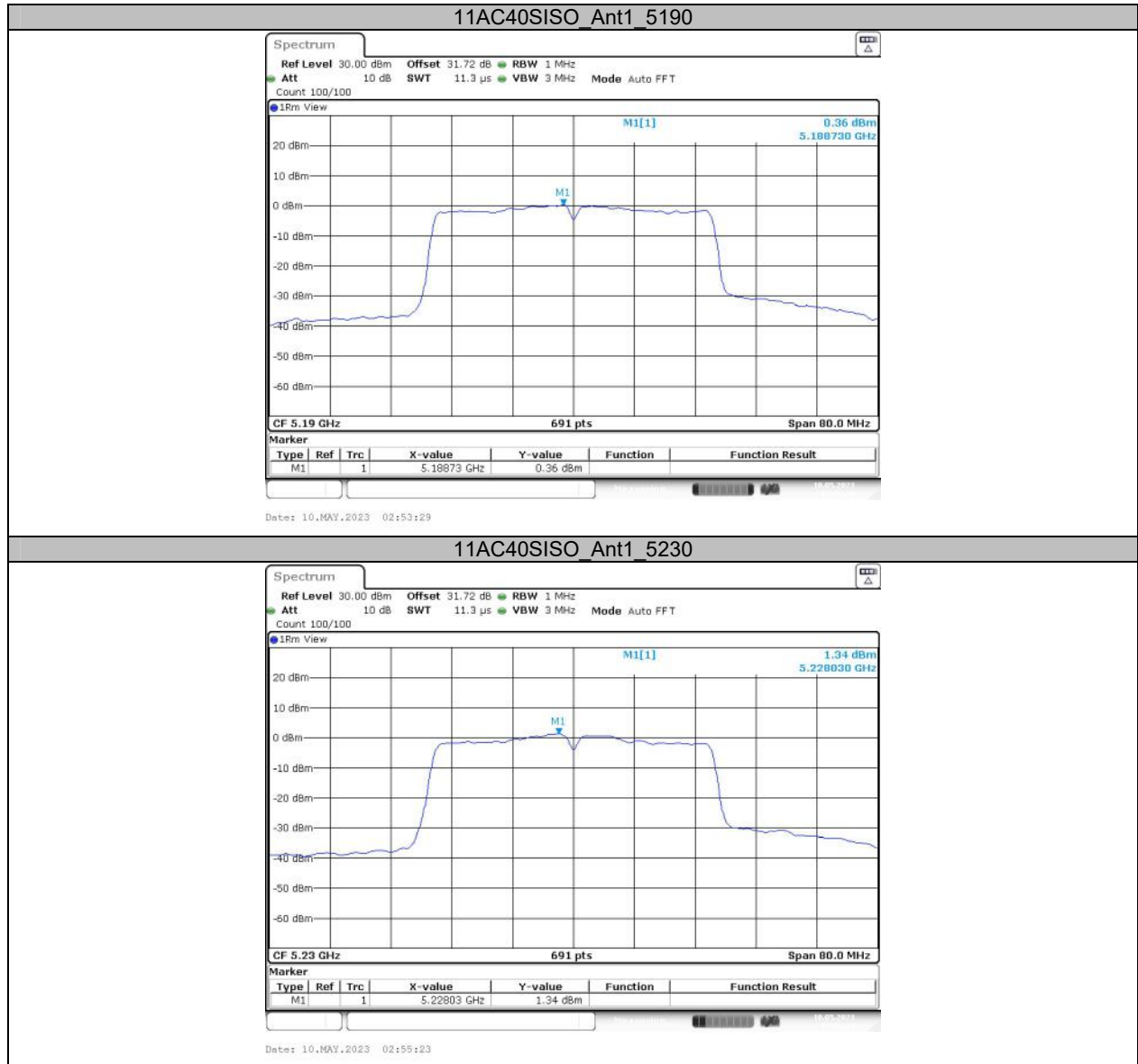


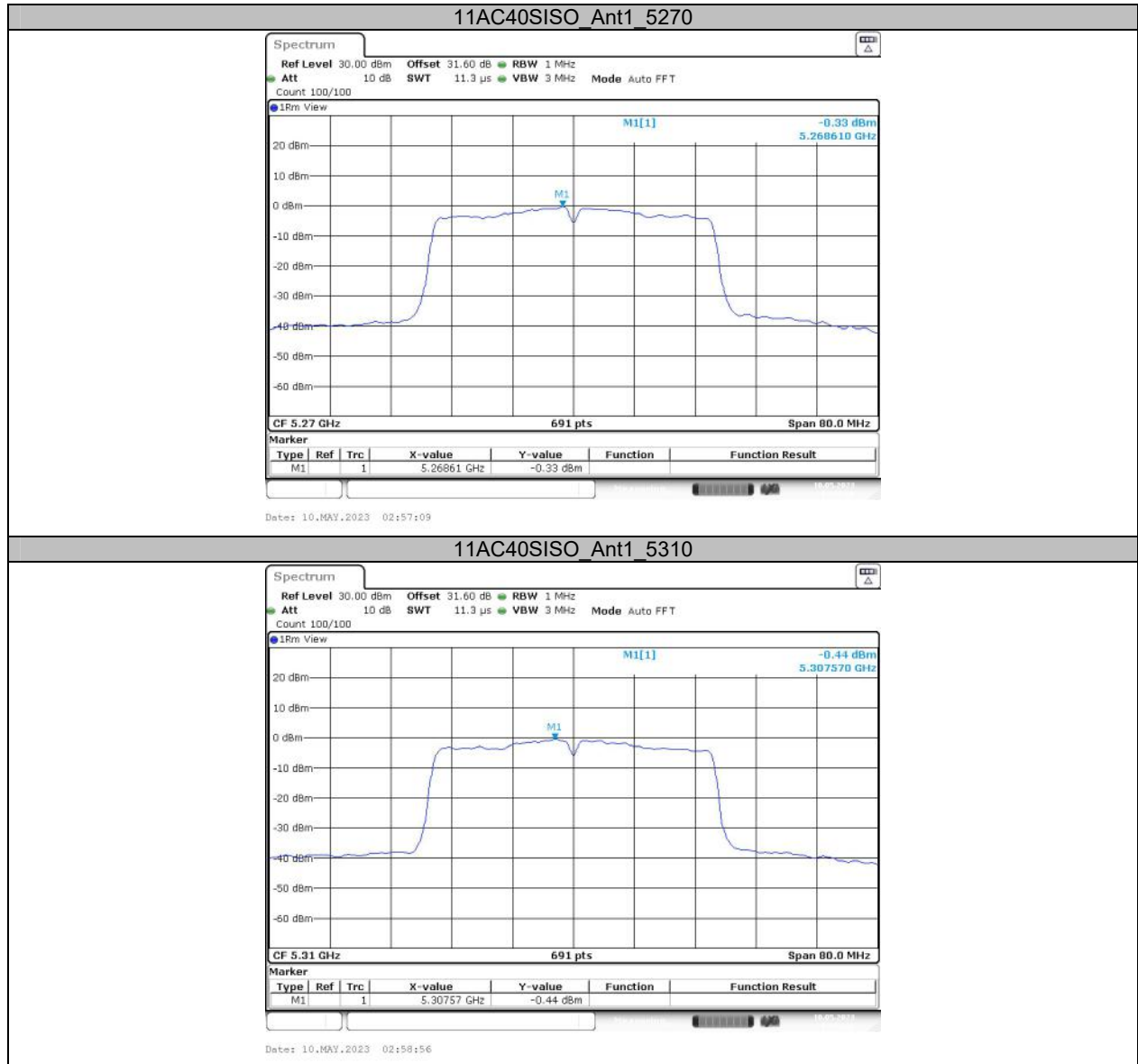


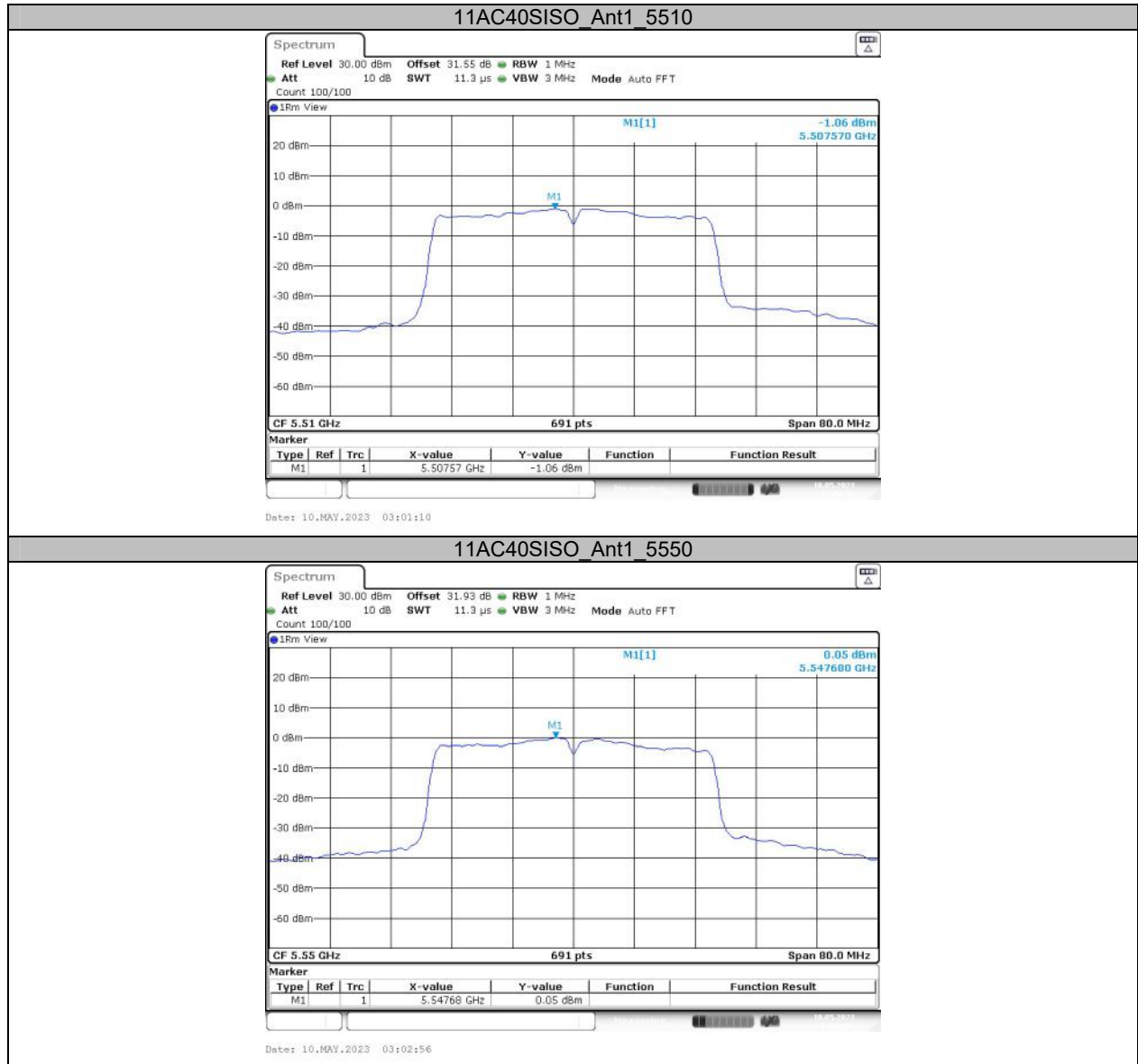


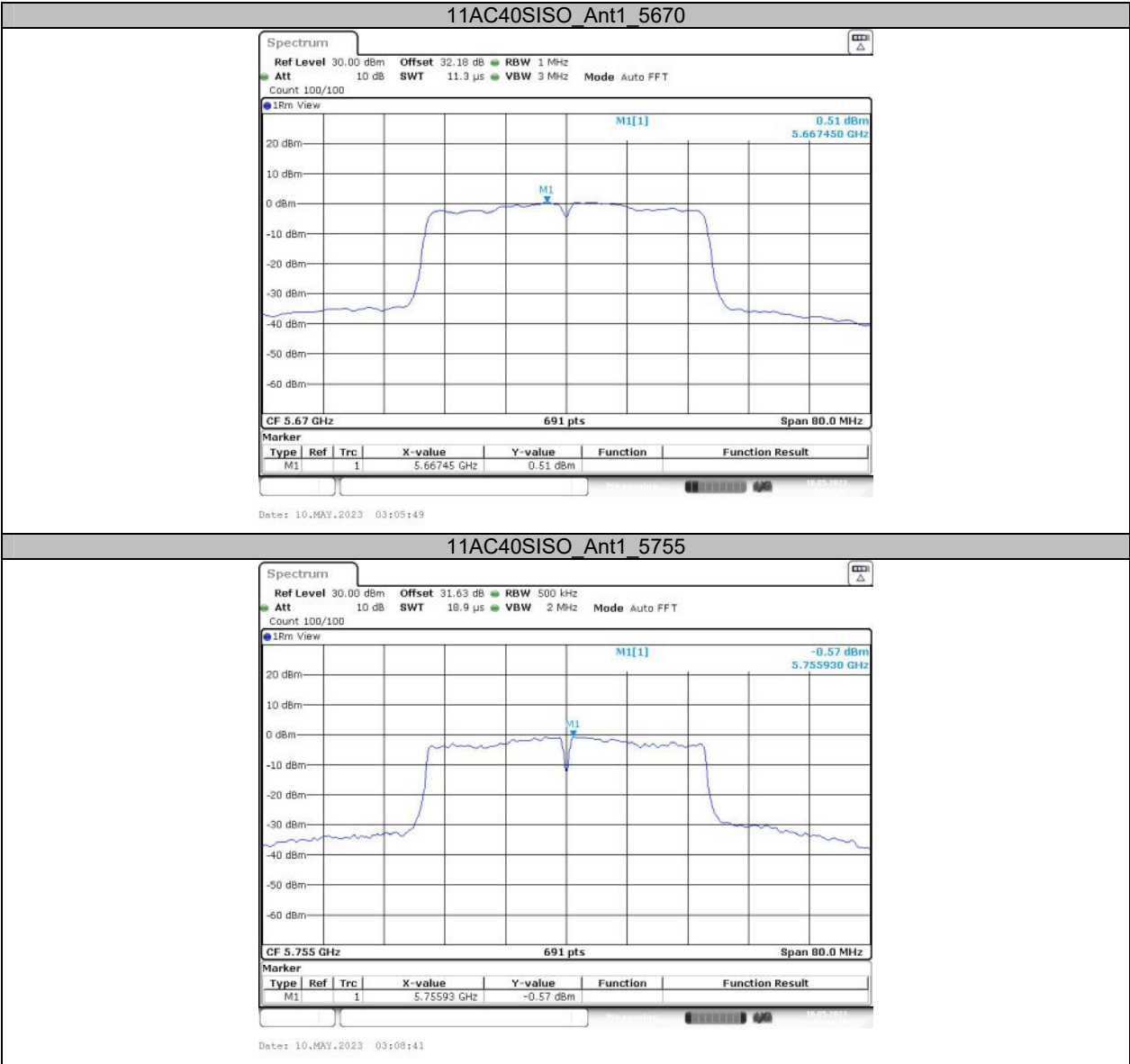


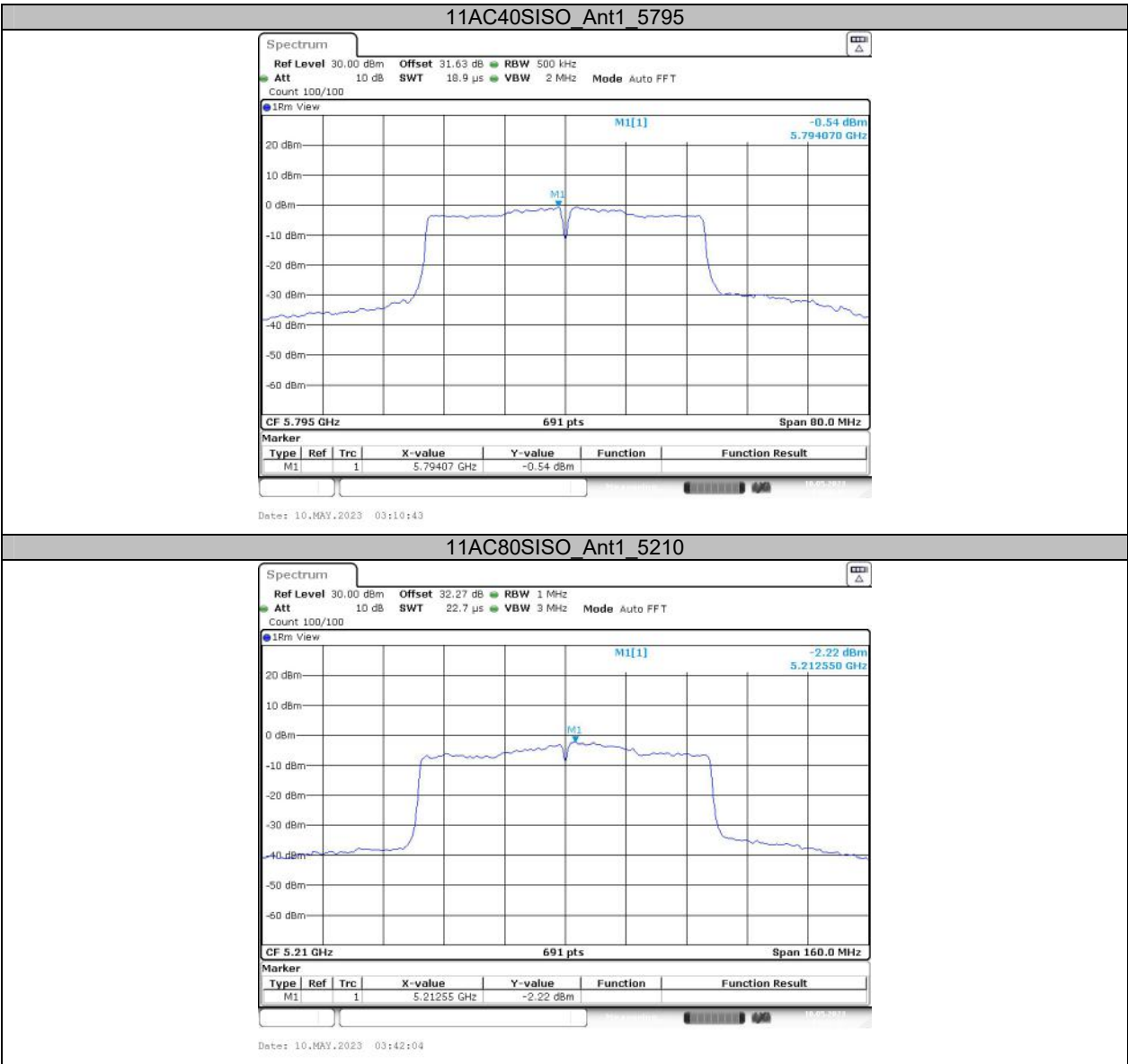


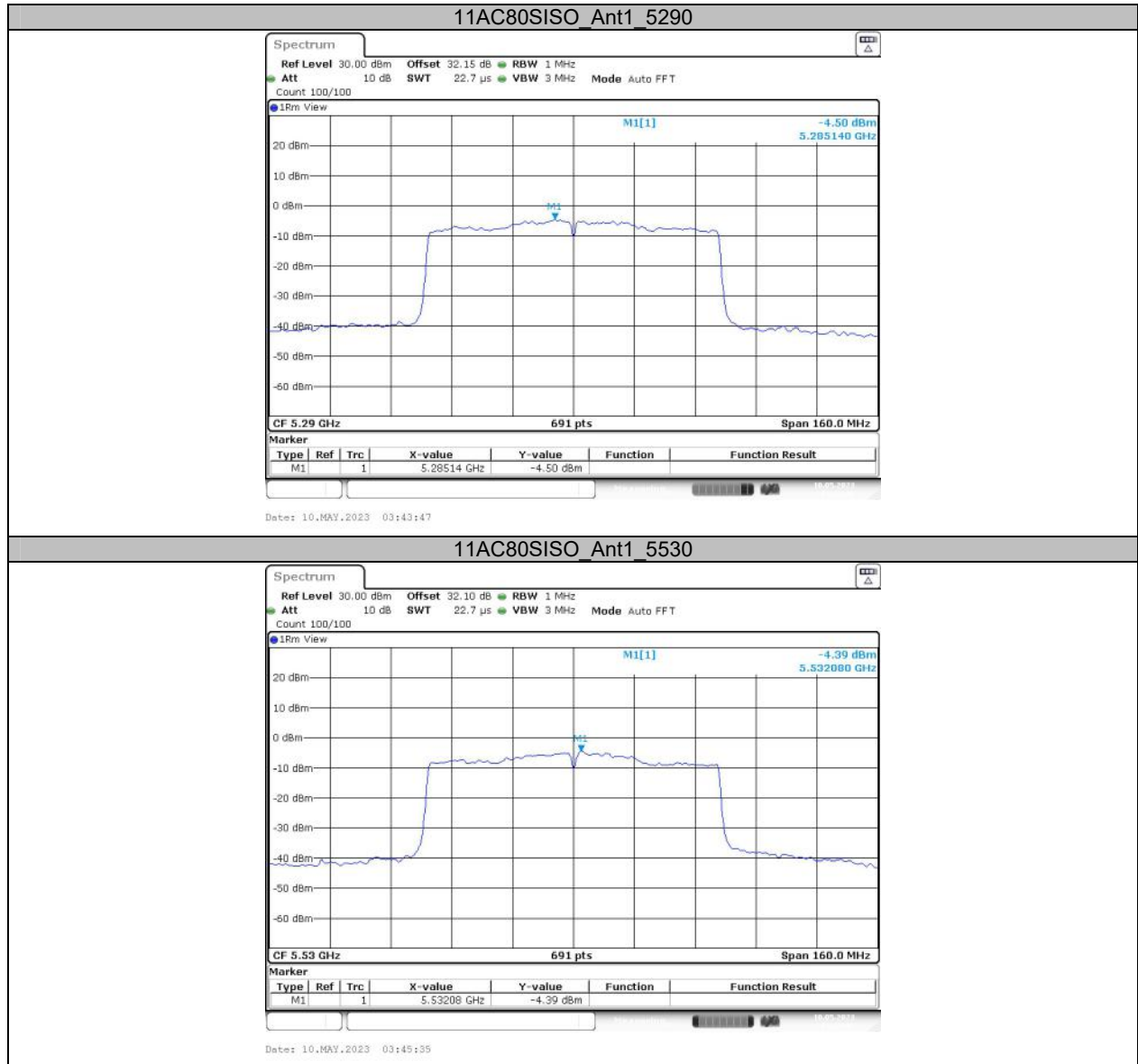


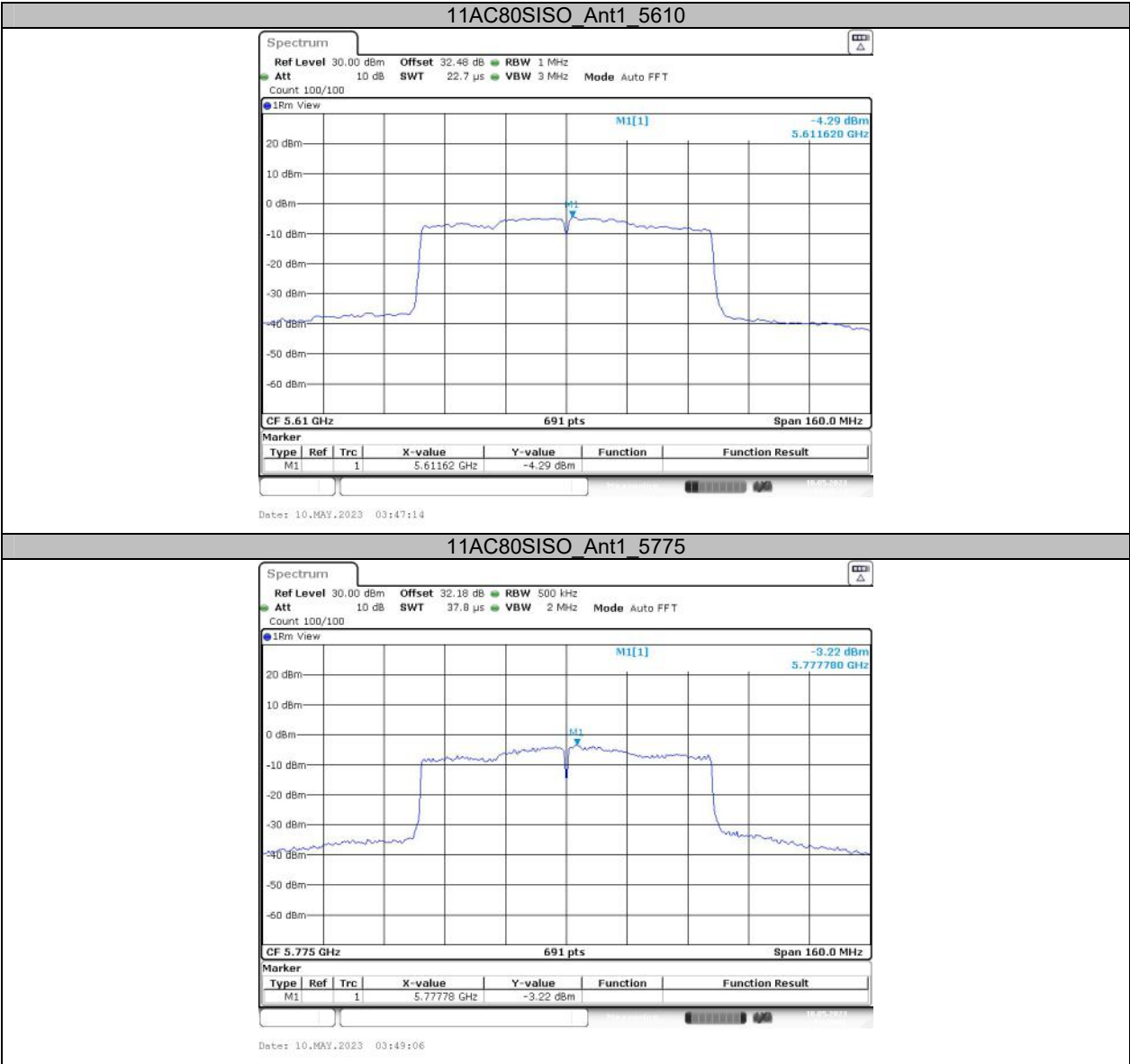












***** END OF REPORT *****