

FCC CERTIFICATION TEST REPORT

FOR

Applicant	:	Guoguang Electric Co.,Ltd
Address	:	No. 8 Jinghu Rd, Xinya Street, Huadu Region, Guangzhou P. R. China 510800
Equipment under Test	:	ACTIVE WIRELESS SPEAKER
Model No.	:	VIFA013
Trade Mark	:	
FCC ID	:	2AAP8-VIFA013
Manufacturer	:	Vifa Denmark A/S
Address	:	Smedeland 7, Smedeland, 2600, Glostrup, Denmark

Issued By: Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park,
Dongguan City, Guangdong Province, China, 523808

Tel.: +86-0769-38826678, **E-mail:** ddt@dgddt.com, <http://www.dgddt.com>

REPORT

Table of Contents

	Test report declares.....	4
1.	Summary of Test Results	6
2.	General test information	7
2.1.	Description of EUT	7
2.2.	Accessories of EUT	9
2.3.	Assistant equipment used for test.....	9
2.4.	Block diagram of EUT configuration for test.....	9
2.5.	Deviations of test standard.....	10
2.6.	Test environment conditions	10
2.7.	Test laboratory	10
2.8.	Measurement uncertainty	11
3.	Equipment Used During Test.....	12
4.	26dB Bandwidth, 6dB Bandwidth.....	13
4.1.	Block diagram of test setup.....	13
4.2.	Limits	13
4.3.	Test Procedure.....	13
4.4.	Test Result.....	14
4.5.	Original test data.....	15
5.	Maximum Output Power	29
5.1.	Block diagram of test setup.....	29
5.2.	Limits	29
5.3.	Test Procedure.....	29
5.4.	Test Result.....	30
6.	Power Spectral Density	32
6.1.	Block diagram of test setup.....	32
6.2.	Limits	32
6.3.	Test Procedure.....	32
6.4.	Test Result.....	33
6.5.	Original test data.....	34
7.	Frequency Stability Measurement.....	47
7.1.	Limit of Frequency Stability	47
7.2.	Measuring Instruments	47
7.3.	Test Procedures.....	47
7.4.	Test Setup.....	47
7.5.	Test Result.....	47
8.	Emissions in restricted frequency bands	57
8.1.	Block diagram of test setup.....	57

8.2.	Limit	58
8.3.	Test Procedure.....	59
8.4.	Test result	61
9.	Band Edge Compliance	112
9.1.	Block diagram of test setup.....	112
9.2.	Limit	112
9.3.	Test Procedure.....	112
9.4.	Test result	112
10.	Power Line Conducted Emission	164
10.1.	Block diagram of test setup.....	164
10.2.	Power Line Conducted Emission Limits (Class B)	164
10.3.	Test Procedure.....	164
10.4.	Test Result.....	165
11.	Dynamic Frequency Selection	168
11.1.	Applicability of DFS requirements.....	168
11.2.	Limit	169
11.3.	Parameters of radar test waveforms.....	169
11.4.	Calibration of radar waveform.....	170
11.5.	Channel closing transmission time, channel move time and non-occupancy period.....	177
11.6.	Test setup	178
11.7.	Test result	178
12.	Antenna Requirements	182
12.1.	Limit	182
12.2.	Result.....	182
13.	Photos of the EUT	182

Test Report Declare

Applicant	:	Guoguang Electric Co.,Ltd
Address	:	No. 8 Jinghu Rd, Xinya Street, Huadu Region, Guangzhou P. R. China 510800
Equipment under Test	:	ACTIVE WIRELESS SPEAKER
Model No.	:	VIFA013
Trade Mark	:	
Manufacturer	:	Vifa Denmark A/S
Address	:	Smedeland 7, Smedeland, 2600, Glostrup, Denmark

Test Standard Used:

FCC Rules and Regulations Part 15 Subpart E

Test procedure used: ANSI C63.10:2013, 789033 D02 General U-NII Test Procedures New Rules v02r01, KDB 905462 D03 Client Without DFS New Rules v01r02, KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02

We Declare:

The equipment described above is tested by Dongguan Dongdian Testing Service Co., Ltd. and in the configuration tested the equipment complied with the standards specified above. The test results are contained in this test report and Dongguan Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After test and evaluation, our opinion is that the equipment provided for test compliance with the requirement of the above FCC standards.

Report No:	DDT-R22072104-2E04		
Date of Receipt:	Jul. 25, 2022	Date of Test:	Jul. 25, 2022~ Dec. 14, 2022

Prepared By:

Bobo Chen

Bobo Chen/Engineer

Approved By:



Damon Hu/EMC Manager

Note: This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Dongguan Dongdian Testing Service Co., Ltd.

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	Dec. 14, 2022	

1. Summary of Test Results

The EUT have been tested according to the applicable standards as referenced below.		
Description of Test Item	Standard	Results
6/26db Bandwidth	FCC 15.407(a) FCC 15.407 (e)	Pass
Maximum Conducted Output Power	FCC 15.407 (a)	Pass
Power Spectral Density	FCC 15.407 (a)	Pass
Frequency Stability Measurement	FCC 15.407 (g)	Pass
Emissions in restricted frequency bands	FCC 15.407 (a) FCC 15.209 FCC 15.205	Pass
Band Edge Compliance	FCC 15.407 (a) FCC 15.209 FCC 15.205	Pass
Power Line Conducted Emission	FCC 15.207	Pass
Antenna requirement	FCC 15.203	Pass
Dynamic Frequency Selection	FCC 15.407 (h)	Pass

2. General test information

2.1. Description of EUT

EUT* Name	: ACTIVE WIRELESS SPEAKER
Model Number	: VIFA013
EUT function description	: Please reference user manual of this device
Power Supply	: AC 100-240V-50/60Hz 150W : DC 7.2V Polymer Li-ion built-in battery
Radio Technology	: IEEE 802.11a/n/ac
Operation frequency	: IEEE 802.11a: 5180MHz-5240MHz, 5260MHz-5320MHz, 5500MHz-5700MHz, 5745MHz-5825MHz : IEEE 802.11n HT20: 5180MHz-5240MHz, 5260MHz-5320MHz, 5500MHz-5700MHz, 5745MHz-5825MHz : IEEE 802.11n HT40: 5190MHz-5230MHz, 5270MHz-5310MHz, 5510MHz-5670MHz, 5755MHz-5795MHz : IEEE 802.11ac HT20: 5180MHz-5240MHz, 5260MHz-5320MHz, 5500MHz-5700MHz, 5745MHz-5825MHz : IEEE 802.11ac HT40: 5190MHz-5230MHz, 5270MHz-5310MHz, 5510MHz-5670MHz, 5755MHz-5795MHz : IEEE 802.11ac HT80: 5210MHz, 5290MHz, 5530MHz, 5610MHz, 5775MHz
Modulation	: IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) : IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) : IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)
Transmitter rate	: IEEE 802.11a: up to 54 Mbps : IEEE 802.11n HT20: up to 72.2 Mbps : IEEE 802.11n HT40: up to 150 Mbps : IEEE 802.11ac VHT20: up to 86.7 Mbps : IEEE 802.11ac VHT40: up to 200 Mbps : IEEE 802.11ac VHT80: up to 433.3 Mbps
Antenna Type	: FPC antenna, maximum PK gain: 4.6 dBi
Sample Type	: Series production
Sample Number	: S22072104-12 for conductive : S22072104-13 for radiation

Note 1: EUT is the ab. of equipment under test.

Note 2: EUT does not support TPC.

Note 3: According exploratory explorer test, The 802.11n HT20/n HT40 mode are the same attribute with the 802.11ac VHT20/ac VHT40 mode, so choose the 802.11n HT20/n HT40 mode to test and report.

Channel information					
IEEE 802.11a		IEEE 802.11n (HT40)		IEEE 802.11ac (VHT80)	
IEEE 802.11n (HT20)		IEEE 802.11ac (VHT40)			
IEEE 802.11ac (VHT20)					
UNII-1					
CH	Frequency (MHz)	CH	Frequency (MHz)	CH	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230	/	/
44	5220	/	/	/	/
48	5240	/	/	/	/
UNII-2A					
52	5260	54	5270	58	5290
56	5280	62	5310	/	/
60	5300	/	/	/	/
64	5320	/	/	/	/
UNII-2C					
100	5500	102	5510	106	5530
104	5520	110	5550	122	5610
108	5540	118	5590	/	/
112	5560	126	5630	/	/
116	5580	134	5670	/	/
120	5600	/	/	/	/
124	5620	/	/	/	/
128	5640	/	/	/	/
132	5660	/	/	/	/
134	5680	/	/	/	/
140	5700	/	/	/	/
UNII-3					
149	5745	151	5755	155	5775
153	5765	159	5795	/	/
157	5785	/	/	/	/
161	5805	/	/	/	/
165	5825	/	/	/	/

2.2. Accessories of EUT

Description of Accessories	Manufacturer	Model number	Description	Other
AC cable	Vifa	N/A	N/A	N/A

2.3. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	EMC Compliance	SN
Wireless Router	ASUS	GT-AXE11000	FCC ID: MSQ-RTAXJF00	N/A

2.4. Block diagram of EUT configuration for test



Test software: adb.exe

The test software was used to control EUT work in Continuous Tx mode, and select test channel, wireless mode as below table.

The pathloss of external cable: 0.5dB (According to the manufacturer's claims)

Tested mode, channel, and data rate information

Mode	Setting Tx Power	data rate (Mbps) (see Note)	Channel	Frequency (MHz)
IEEE 802.11a	/	6	Low: CH36	5180
	/	6	Middle: CH40	5200
	/	6	High: CH48	5240
	/	6	Low: CH52	5260
	/	6	Middle: CH56	5280
	/	6	High: CH64	5320
	/	6	Low: CH100	5500
	/	6	Middle: CH116	5580
	/	6	High: CH140	5700
	/	6	Low: CH149	5745
	/	6	Middle: CH157	5785
IEEE 802.11n HT20	/	MCS 0	Low: CH36	5180
	/	MCS 0	Middle: CH40	5200
	/	MCS 0	High: CH48	5240
	/	MCS 0	Low: CH52	5260
	/	MCS 0	Middle: CH56	5280
	/	MCS 0	High: CH64	5320
	/	MCS 0	Low: CH100	5500
	/	MCS 0	Middle: CH116	5580
	/	MCS 0	High: CH140	5700
	/	MCS 0	Low: CH149	5745
	/	MCS 0	Middle: CH157	5785

	/	MCS 0	High: CH165	5825
IEEE 802.11n HT40	/	MCS 0	Low: CH38	5190
	/	MCS 0	Middle: CH46	5230
	/	MCS 0	High: CH54	5270
	/	MCS 0	Low: CH62	5310
	/	MCS 0	Middle: CH102	5510
	/	MCS 0	High: CH110	5550
	/	MCS 0	Low: CH134	5670
	/	MCS 0	Middle: CH151	5755
	/	MCS 0	High: CH159	5795
IEEE 802.11ac HT80	/	MCS 0	CH42	5210
	/	MCS 0	CH58	5290
	/	MCS 0	CH106	5530
	/	MCS 0	CH122	5610
	/	MCS 0	CH155	5775

Note: According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.

2.5. Deviations of test standard

No Deviation.

2.6. Test environment conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature range:	21-25°C
Humidity range:	40-75%
Pressure range:	86-106 kPa

2.7. Test laboratory

Dongguan Dongdian Testing Service Co., Ltd.

Add.: No. 17, Zongbu Road 2, Songshan Lake Sci&Tech, Industry Park, Dongguan City,
Guangdong Province, China, 523808

Tel.: +86-0769-38826678, <http://www.dgddt.com>, Email: ddt@dgddt.com

CNAS Accreditation No. L6451; A2LA Accreditation Number: 3870.01

FCC Designation Number: CN1182, Test Firm Registration Number: 540522

Innovation, Science and Economic Development Canada Site Registration Number: 10288A

Conformity Assessment Body identifier: CN0048

VCCI facility registration number: C-20087, T-20088, R-20123, R-20155, G-20118

2.8. Measurement uncertainty

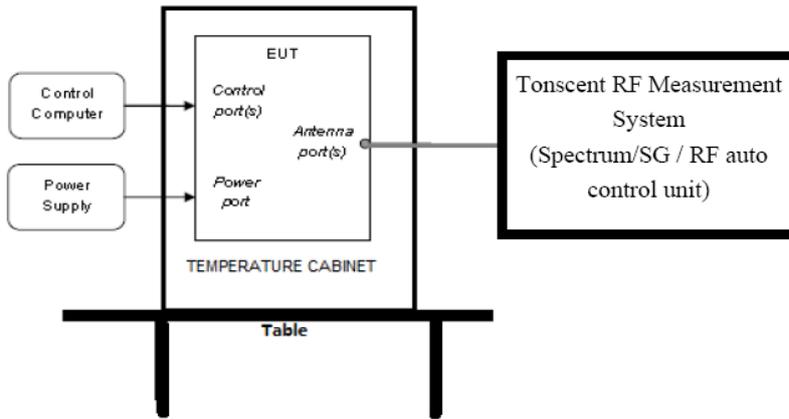
Test Item	Uncertainty
Bandwidth	1.1%
Peak Output Power (Conducted) (Spectrum analyzer)	0.86 dB (10 MHz ≤ f < 3.6 GHz);
	1.38 dB (3.6 GHz ≤ f < 8 GHz)
Peak Output Power (Conducted) (Power Sensor)	0.74 dB
Power Spectral Density	0.74 dB (10 MHz ≤ f < 3.6 GHz);
	1.38 dB (3.6 GHz ≤ f < 8 GHz)
Frequencies Stability	6.7 × 10 ⁻⁸ (Antenna couple method)
	5.5 × 10 ⁻⁸ (Conducted method)
Conducted spurious emissions	0.86 dB (10 MHz ≤ f < 3.6 GHz);
	1.40 dB (3.6 GHz ≤ f < 8 GHz)
	1.66 dB (8 GHz ≤ f < 22 GHz)
Uncertainty for radio frequency (RBW < 20 kHz)	3×10 ⁻⁸
Temperature	0.4 °C
Humidity	2 %
Uncertainty for Radiation Emission test (9 kHz – 30 MHz)	3.44 dB
Uncertainty for Radiation Emission test (30 MHz - 1 GHz)	4.70 dB (Antenna Polarize: V)
	4.84 dB (Antenna Polarize: H)
Uncertainty for Radiation Emission test (1 GHz - 40 GHz)	4.10 dB (1 - 6 GHz)
	4.40 dB (6 GHz - 18 GHz)
	3.54 dB (18 GHz - 26 GHz)
	4.30 dB (26 GHz - 40 GHz)
Uncertainty for Power line conduction emission test	3.34dB (150KHz-30MHz)
	3.72dB (9KHz-150KHz)
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

3. Equipment Used During Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
☑RF Connected Test (Tonscend RF Measurement System 3#)					
MXA Signal Analyzer	Agilent	N9020A	MY49100362	Aug. 26, 2022	1 Year
SPECTRUM ANALYZER	R&S	FSV40	101407	Jul. 21, 2022	1 Year
Wideband Radio Communication tester	R&S	CMW500	117491	May 18, 2022	1 Year
Vector Signal Generator	Agilent	N5182A	MY19060405	May 18, 2022	1 Year
Vector Signal Generator	Agilent	N5182A	MY48180912	May 18, 2022	1 Year
RF Control Unit	Tonsend	JS0806-2	DDT-ZC01449	May 18, 2022	1 Year
Temp&Humi Programmable	ZHIXIANG	ZXGDJS-150L	ZX170110-A	May 26, 2022	1 Year
Test Software	JS Tonscend	JS1120-3	Ver.2.6.77.0518	N/A	N/A
☑Radiation 3#chamber					
EMI Test Receiver	R&S	ESU	100472	May 18, 2022	1 Year
Spectrum analyzer	Agilent	E4447A	MY50180031	May 18, 2022	1 Year
Active Loop antenna	Schwarzbeck	FMZB-1519	1519-038	Sep. 19, 2021	1 Year
Trilog Broadband Antenna	Schwarzbeck	VULB 9163	01429	Jul. 22, 2022	1 Year
Double Ridged Horn Antenna	Schwarzbeck	BBHA 9120 D	02468	Nov. 29, 2021	1 Year
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	790	May 06, 2022	1 Year
Pre-amplifier	COM-POWER	PAM-118A	18040084	Aug. 27, 2022	1 Year
Pre-amplifier	COM-POWER	PAM-840A	461369	Apr. 11, 2022	1 Year
Test software	Audix	E3	V 6.1.1.1	N/A	N/A
☑Power Line Conducted Emissions Test 1#					
Test Receiver	R&S	ESCI	100551	Sep. 02, 2021	1 Year
LISN 1	R&S	ENV216	101109	Sep. 07, 2021	1 Year
LISN 2	R&S	ESH2-Z5	100309	Sep. 07, 2021	1 Year
Pulse Limiter	R&S	ESH3-Z2	101242	Sep. 02, 2021	1 Year
CE Cable 1	HUBSER	N/A	W10.01	Sep. 02, 2021	1 Year
LISN 3	SCHWARZBECK	NSLK 8163	00017	Sep. 02, 2021	1 Year
Test software	Audix	E3	V 6.11111b	N/A	N/A

4. 26dB Bandwidth, 6dB Bandwidth

4.1. Block diagram of test setup



4.2. Limits

FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Bandwidth	26 dB Bandwidth	5150 - 5250
	26 dB Bandwidth	5250 - 5350
	26 dB Bandwidth	For FCC: 5470 - 5725 For IC: 5470 - 5600 5650 - 5725
	Minimum 500 kHz 6 dB Bandwidth	5725 - 5850

4.3. Test Procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	For 6 dB Bandwidth: RBW=100 kHz For 26 dB Bandwidth: approximately 1% of the emission bandwidth.
VBW	For 6 dB Bandwidth: VBW=300 kHz For 26 dB Bandwidth: >3 RBW
Trace	Max hold
Sweep	Auto couple

(2) 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 26 dB and 6 dB relative to the maximum level measured in the fundamental emission.

4.4. Test Result

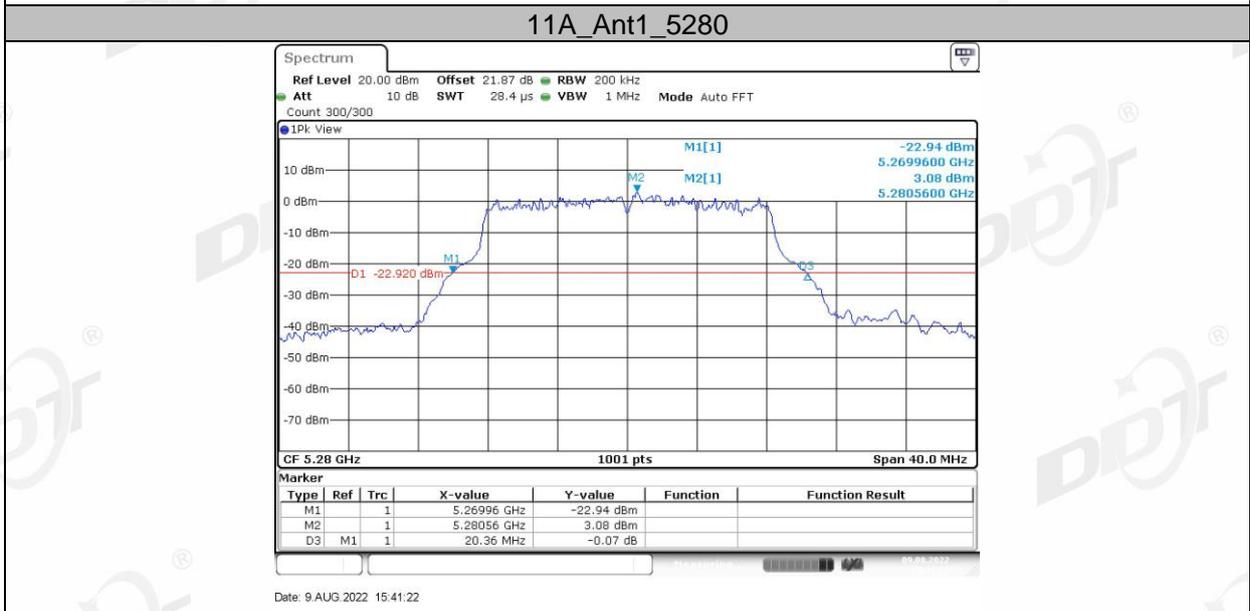
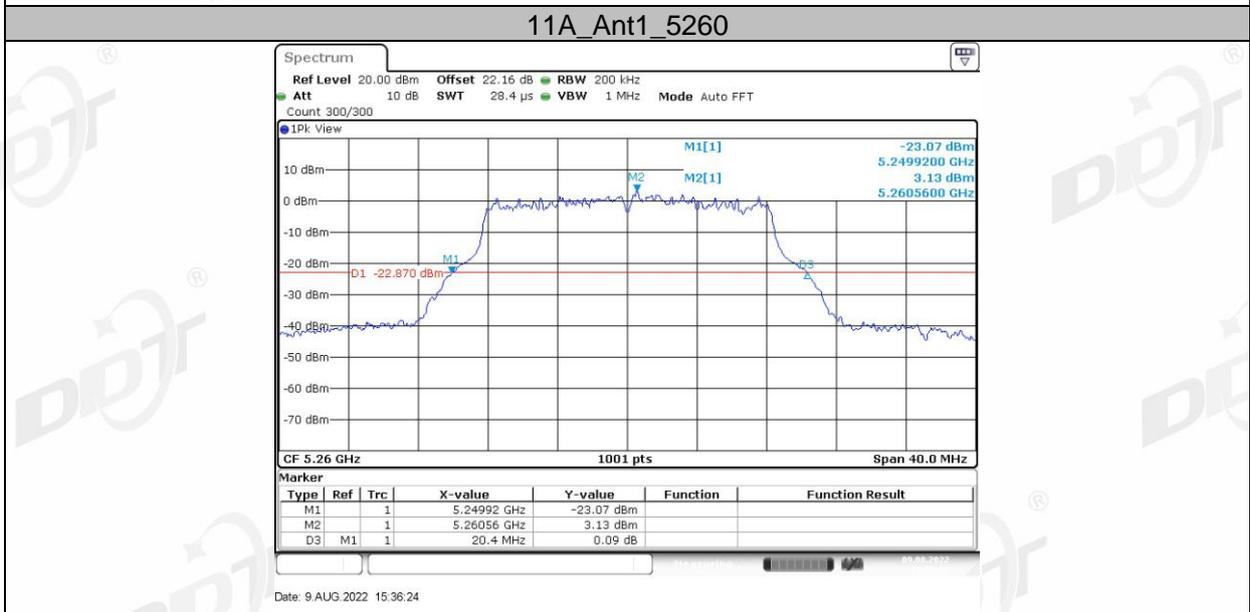
Test Mode	Antenna	Channel	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	20.36	5169.88	5190.24	---	PASS
		5200	20.36	5189.88	5210.24	---	PASS
		5240	20.36	5229.92	5250.28	---	PASS
		5260	20.40	5249.92	5270.32	---	PASS
		5280	20.36	5269.96	5290.32	---	PASS
		5320	20.44	5309.88	5330.32	---	PASS
		5500	20.32	5489.96	5510.28	---	PASS
		5580	20.40	5569.88	5590.28	---	PASS
		5700	20.32	5689.92	5710.24	---	PASS
11N20SISO	Ant1	5180	21.16	5169.48	5190.64	---	PASS
		5200	21.36	5189.32	5210.68	---	PASS
		5240	21.16	5229.52	5250.68	---	PASS
		5260	21.04	5249.56	5270.60	---	PASS
		5280	21.20	5269.60	5290.80	---	PASS
		5320	21.08	5309.40	5330.48	---	PASS
		5500	21.16	5489.56	5510.72	---	PASS
		5580	21.24	5569.48	5590.72	---	PASS
		5700	21.28	5689.36	5710.64	---	PASS
11N40SISO	Ant1	5190	40.56	5169.68	5210.24	---	PASS
		5230	40.56	5209.76	5250.32	---	PASS
		5270	40.56	5249.76	5290.32	---	PASS
		5310	40.96	5289.52	5330.48	---	PASS
		5510	40.64	5489.76	5530.40	---	PASS
		5550	40.56	5529.76	5570.32	---	PASS
		5670	40.64	5649.68	5690.32	---	PASS
11AC80SISO	Ant1	5210	80.00	5170.00	5250.00	---	PASS
		5290	80.64	5250.16	5330.80	---	PASS
		5530	80.64	5490.16	5570.80	---	PASS
		5610	80.96	5570.00	5650.96	---	PASS

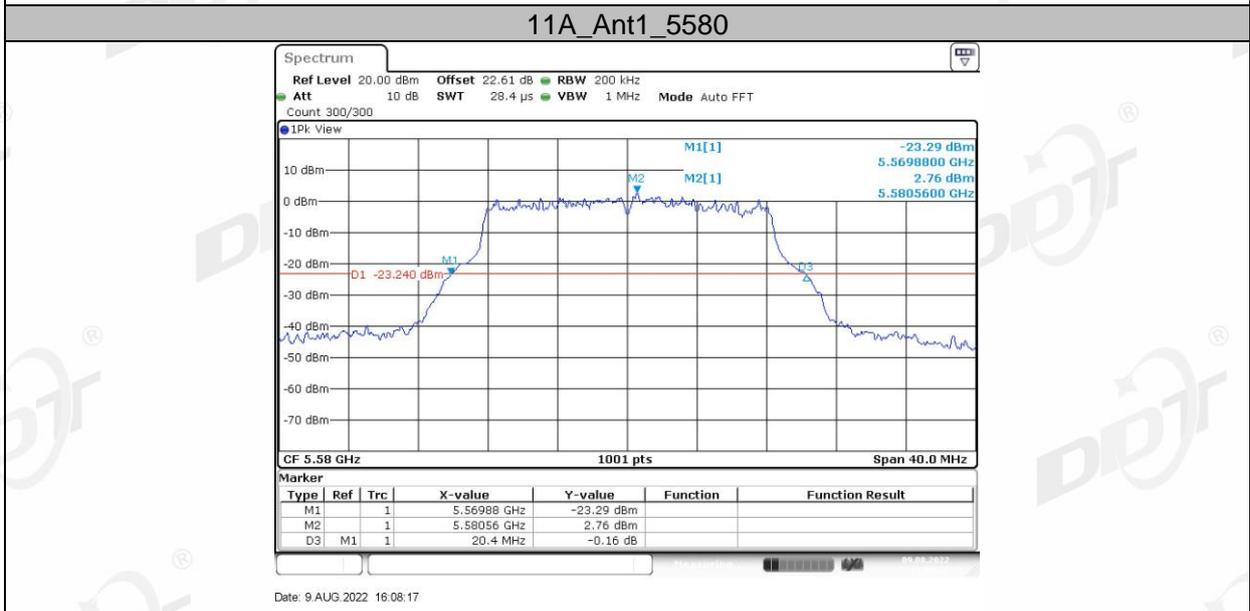
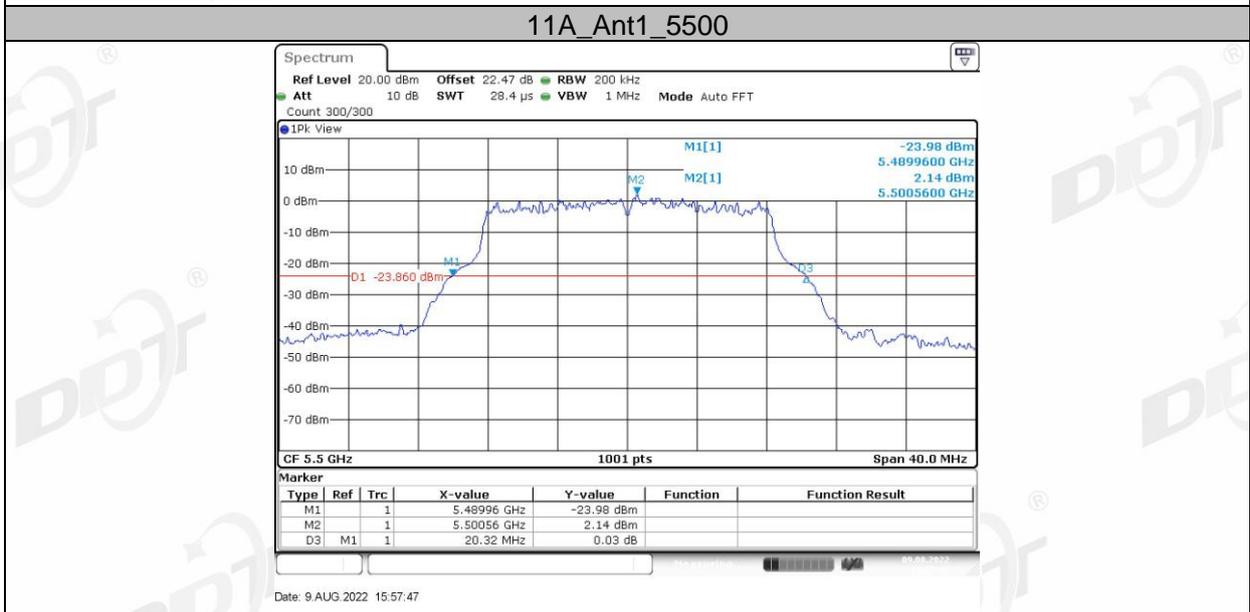
Test Mode	Antenna	Channel	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	16.32	5736.88	5753.20	---	PASS
		5785	16.24	5776.88	5793.12	---	PASS
		5825	16.28	5816.84	5833.12	---	PASS
11N20SISO	Ant1	5745	17.68	5736.20	5753.88	---	PASS
		5785	17.68	5776.20	5793.88	---	PASS
		5825	17.68	5816.20	5833.88	---	PASS
11N40SISO	Ant1	5755	36.40	5736.84	5773.24	---	PASS
		5795	36.40	5776.84	5813.24	---	PASS
11AC80SISO	Ant1	5775	75.20	5737.40	5812.60	---	PASS

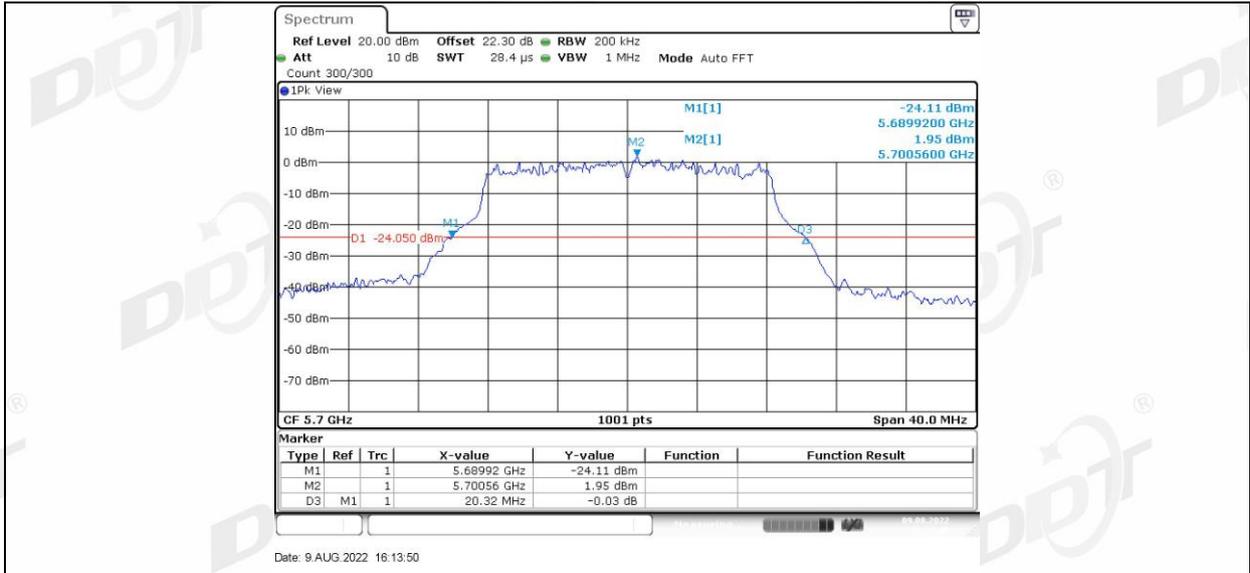
4.5. Original test data

26db EBW:





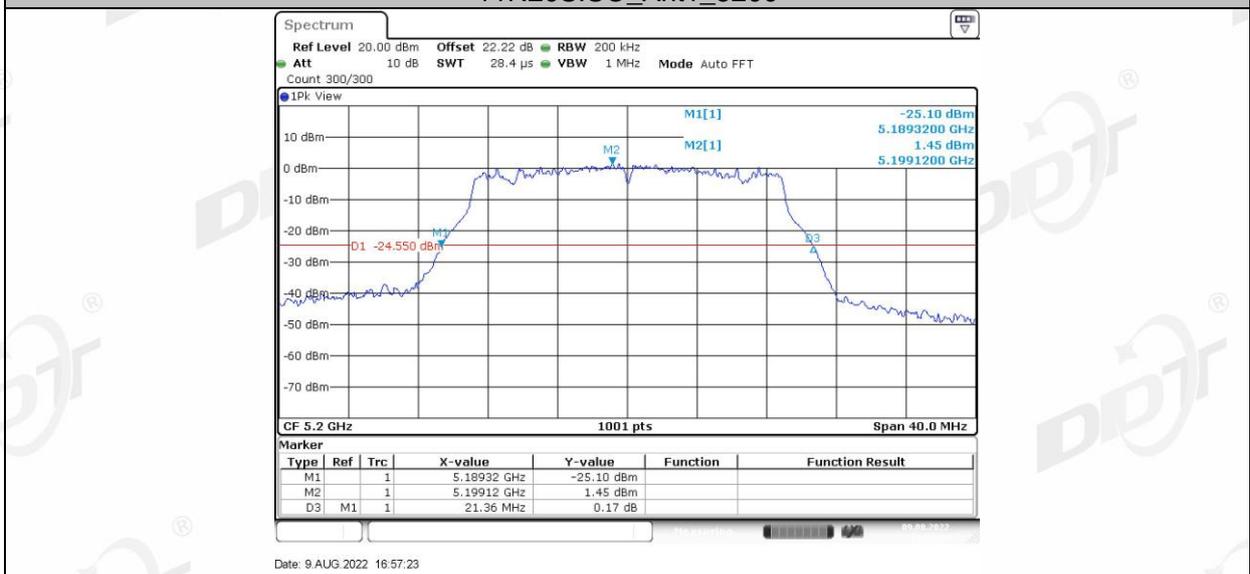




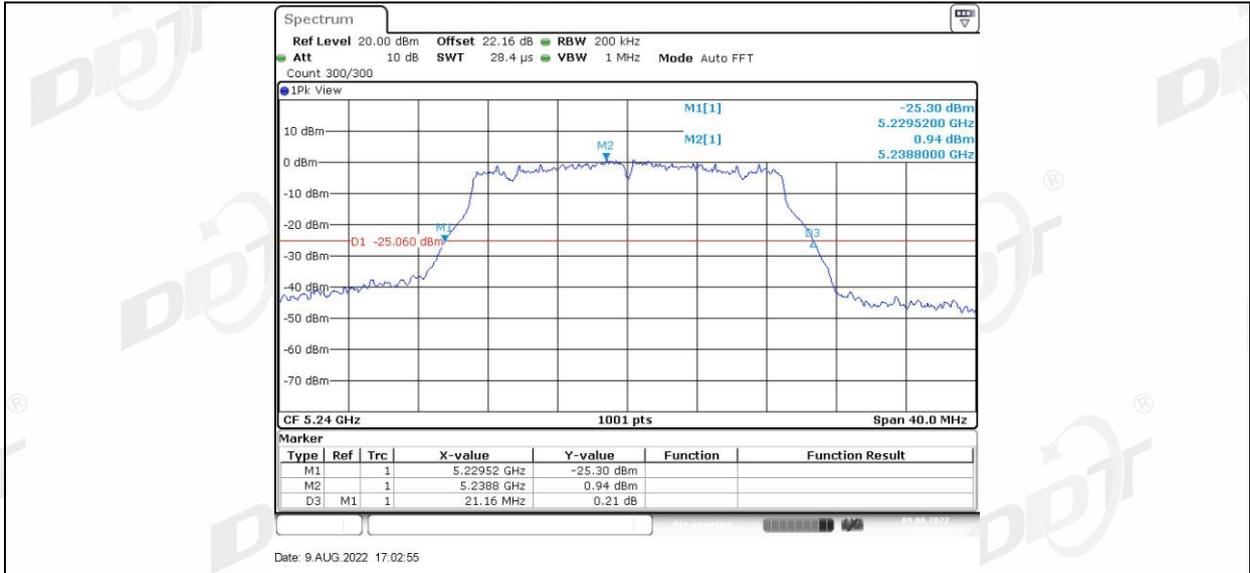
11N20SISO_Ant1_5180



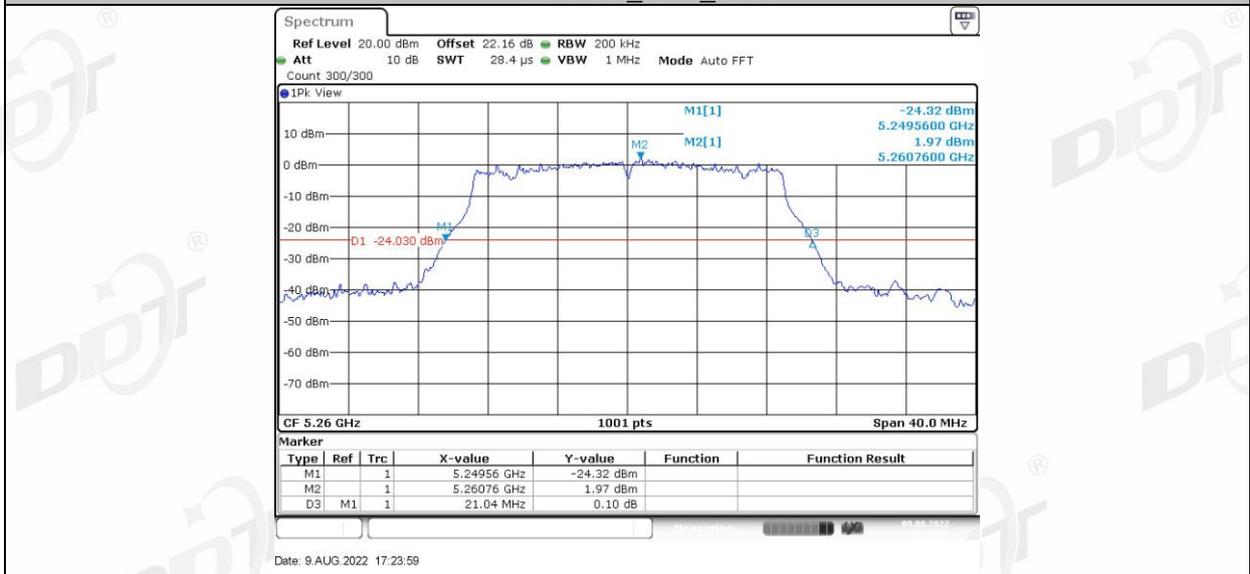
11N20SISO_Ant1_5200



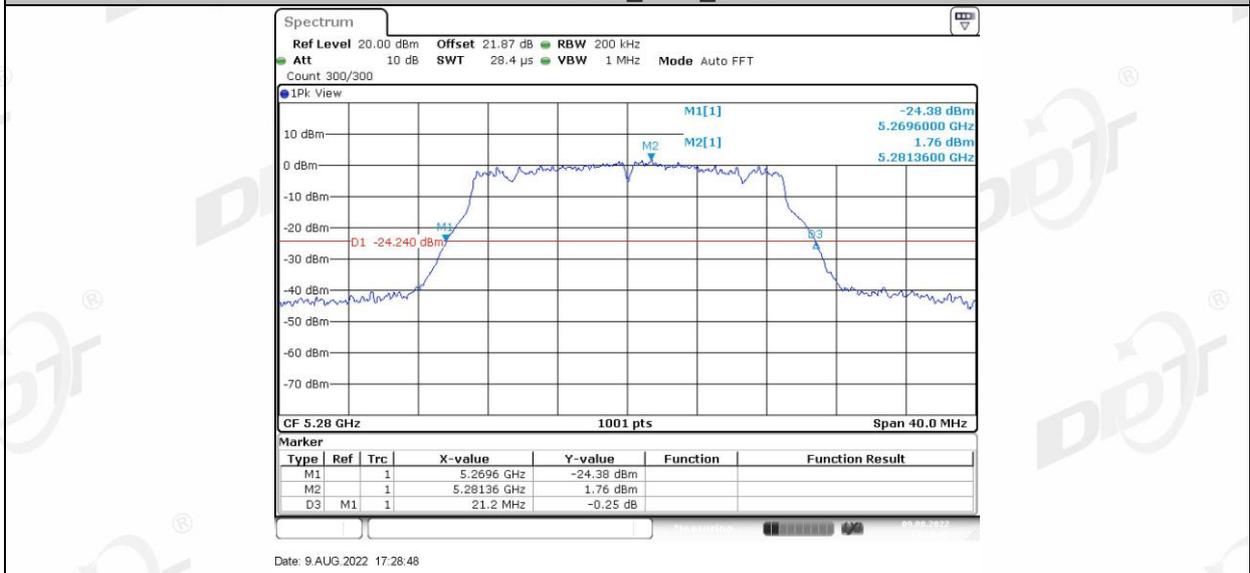
11N20SISO_Ant1_5240



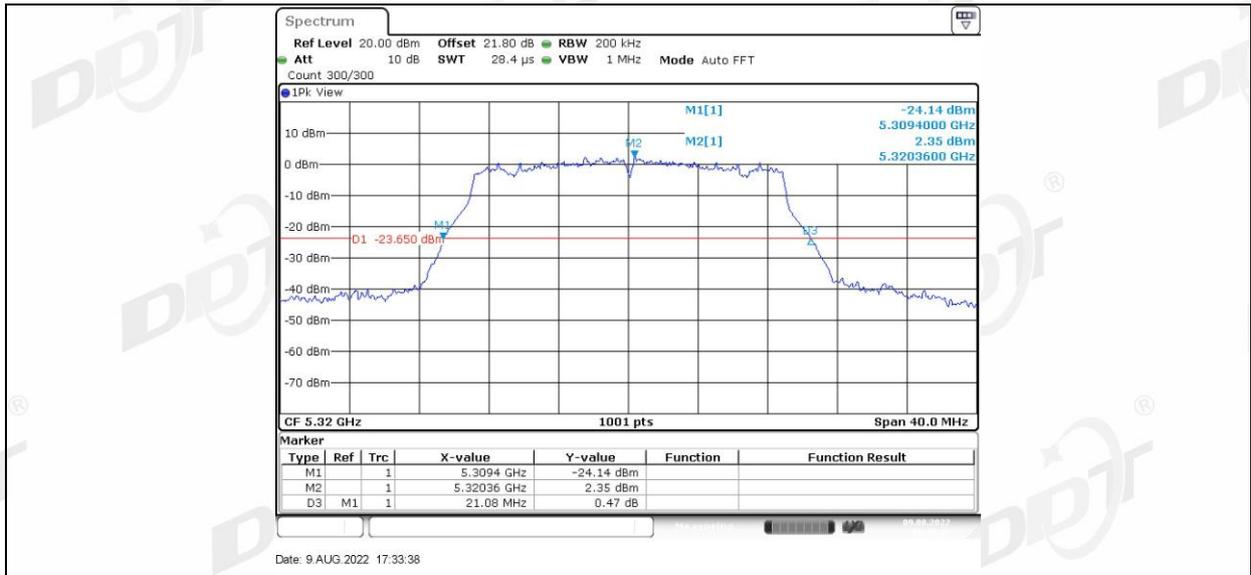
11N20SISO_Ant1_5260



11N20SISO_Ant1_5280

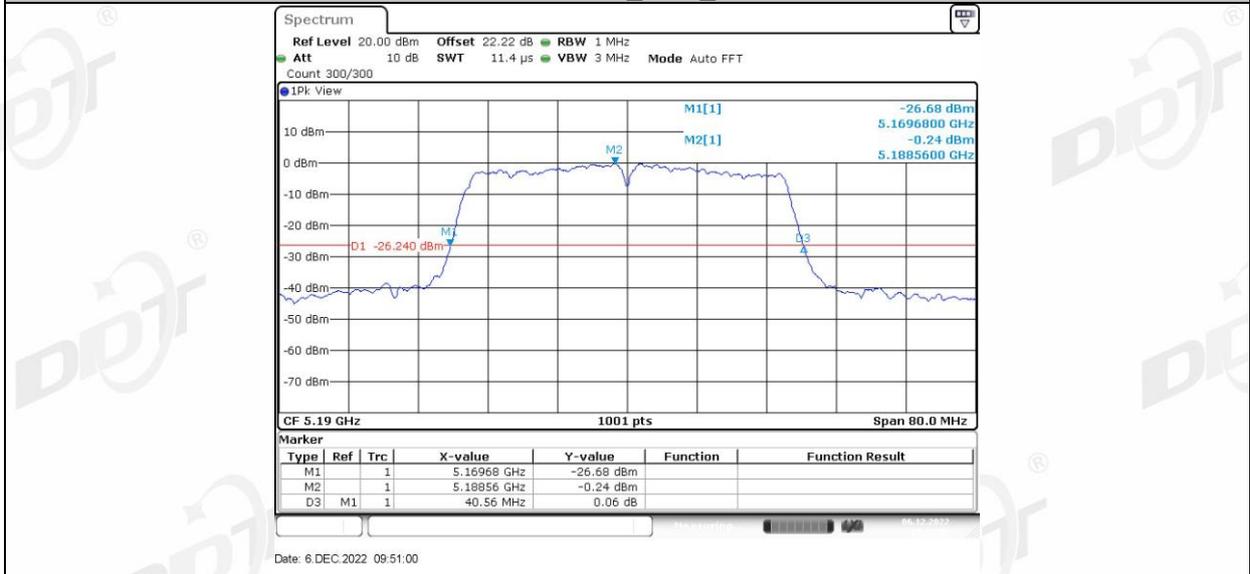


11N20SISO_Ant1_5320

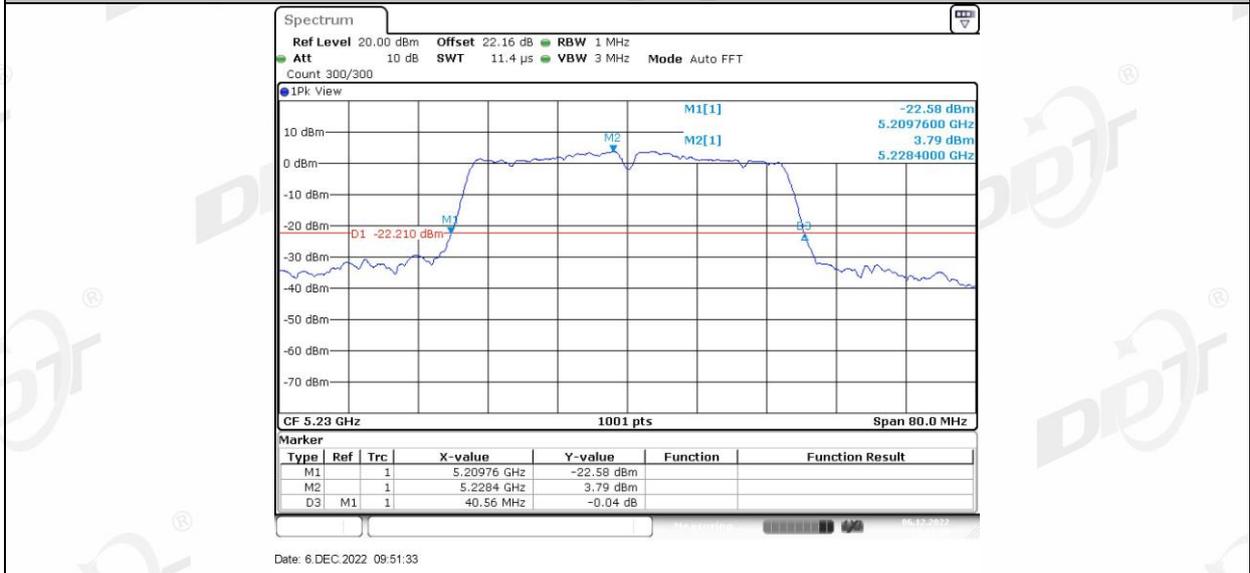




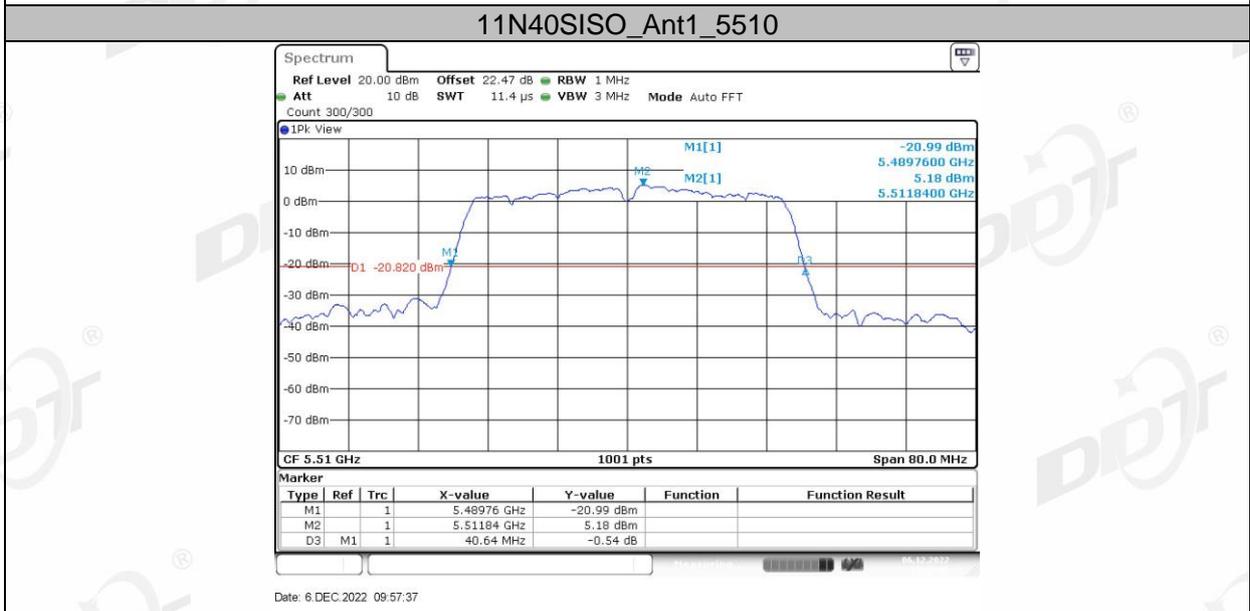
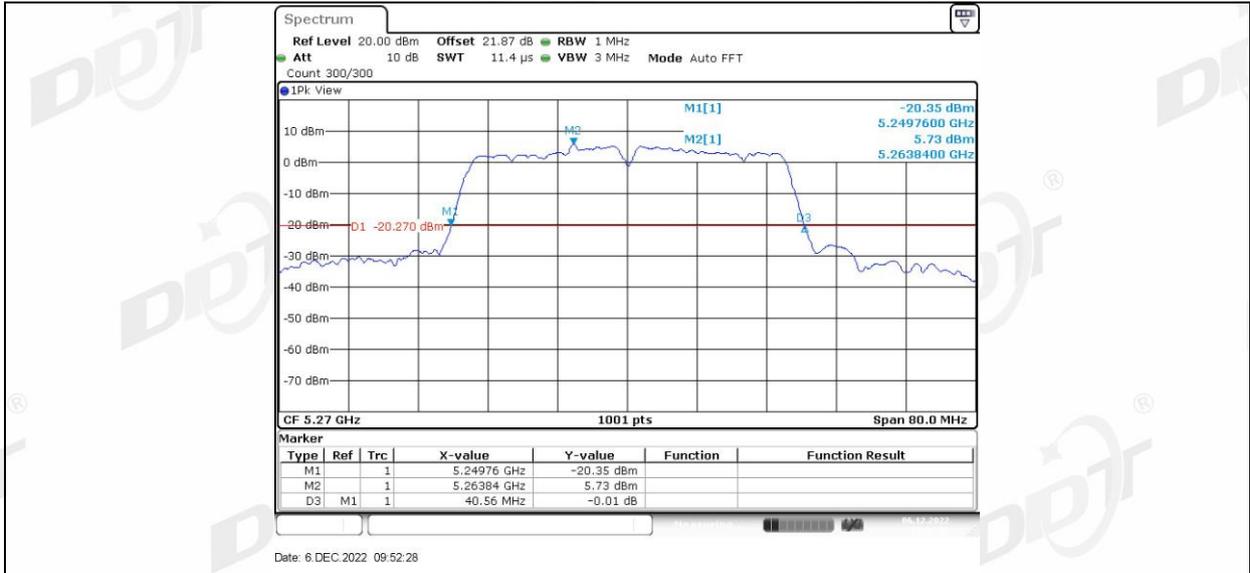
11N40SISO_Ant1_5190

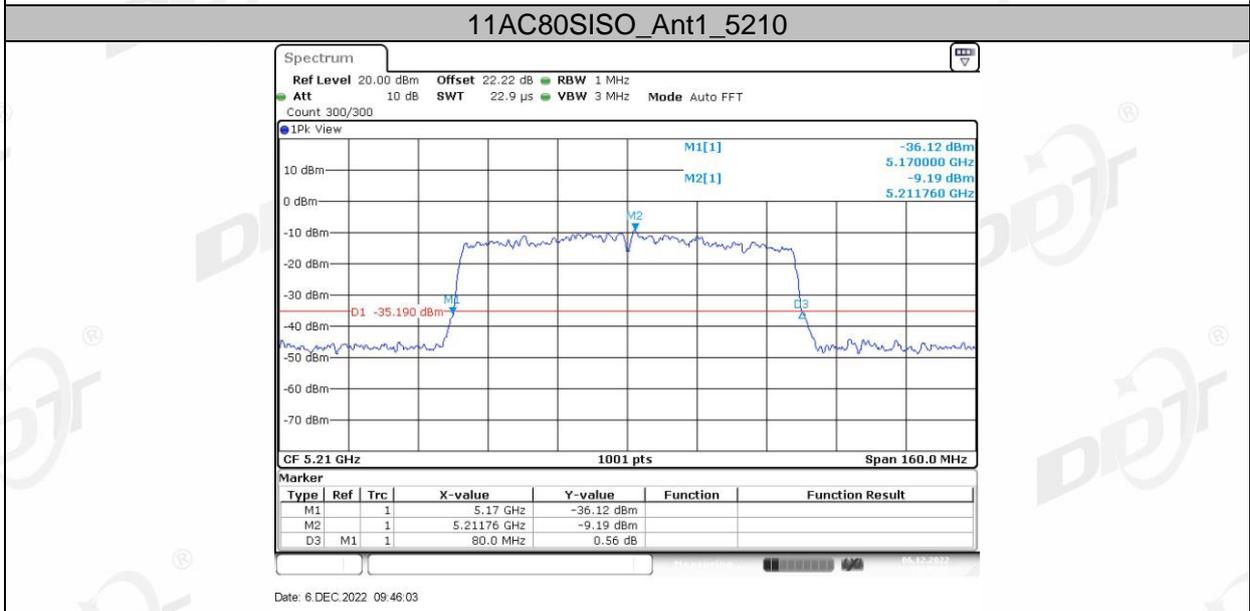
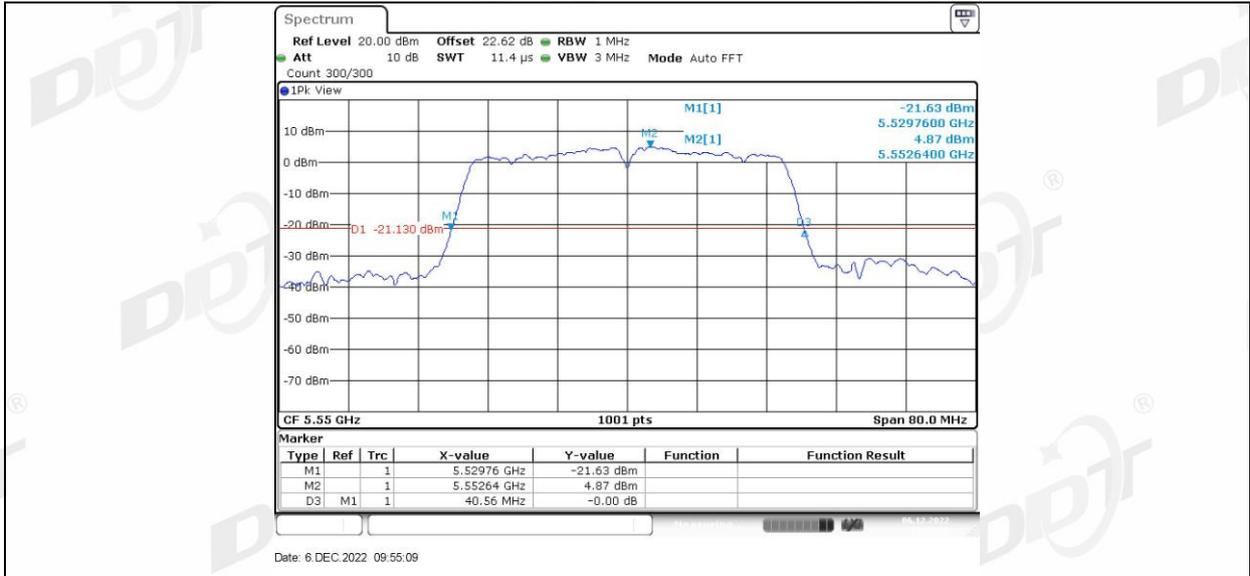


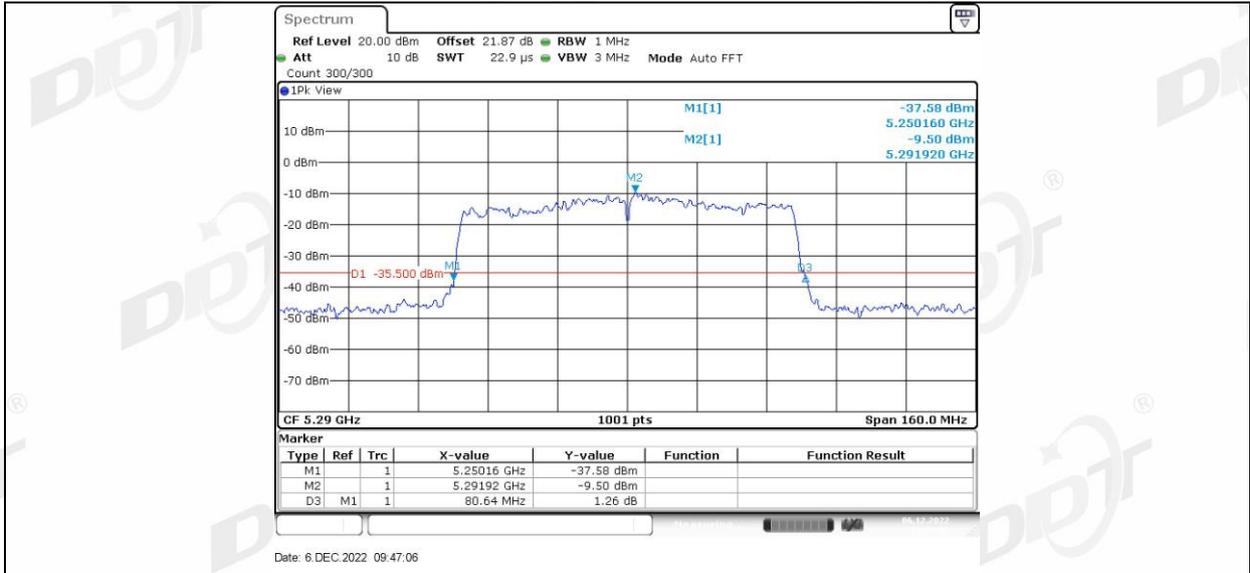
11N40SISO_Ant1_5230



11N40SISO_Ant1_5270



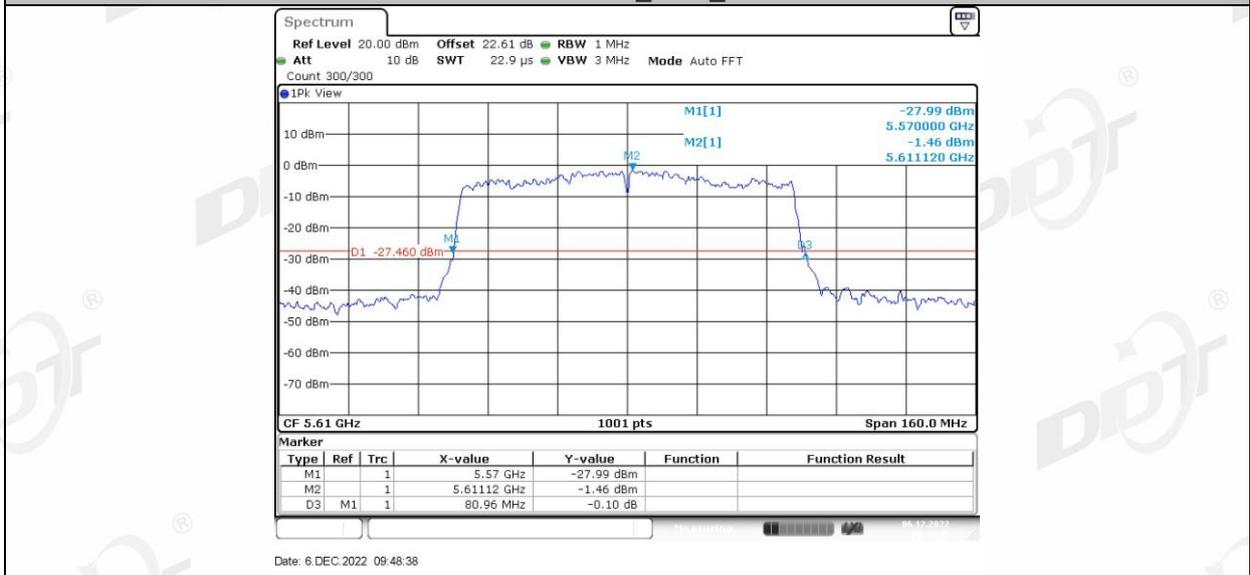




11AC80SISO_Ant1_5530

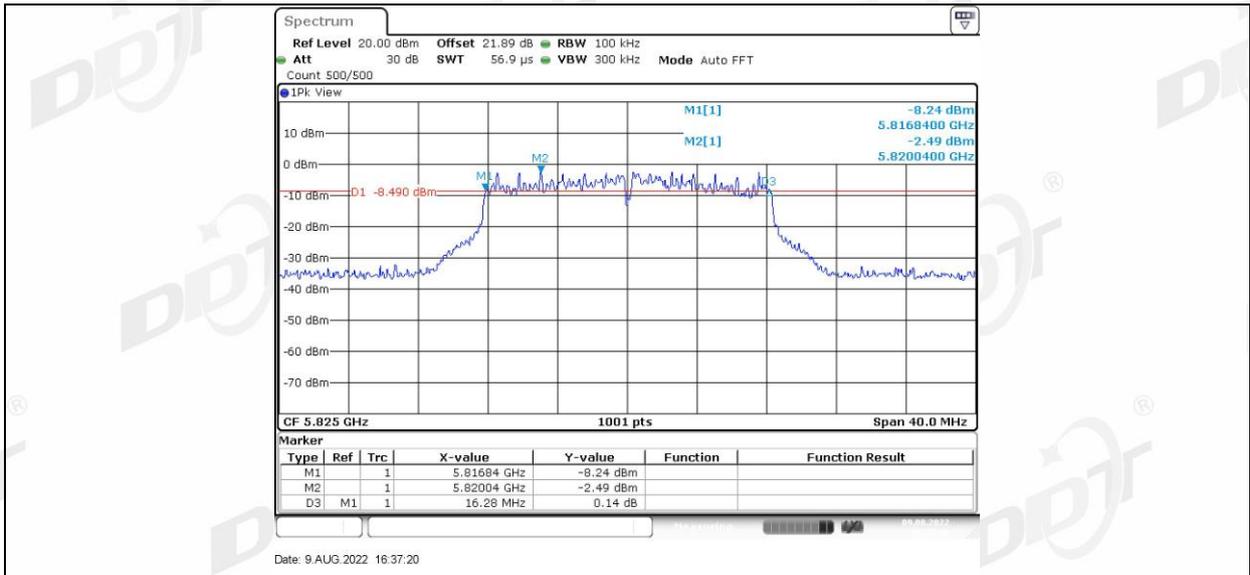


11AC80SISO_Ant1_5610

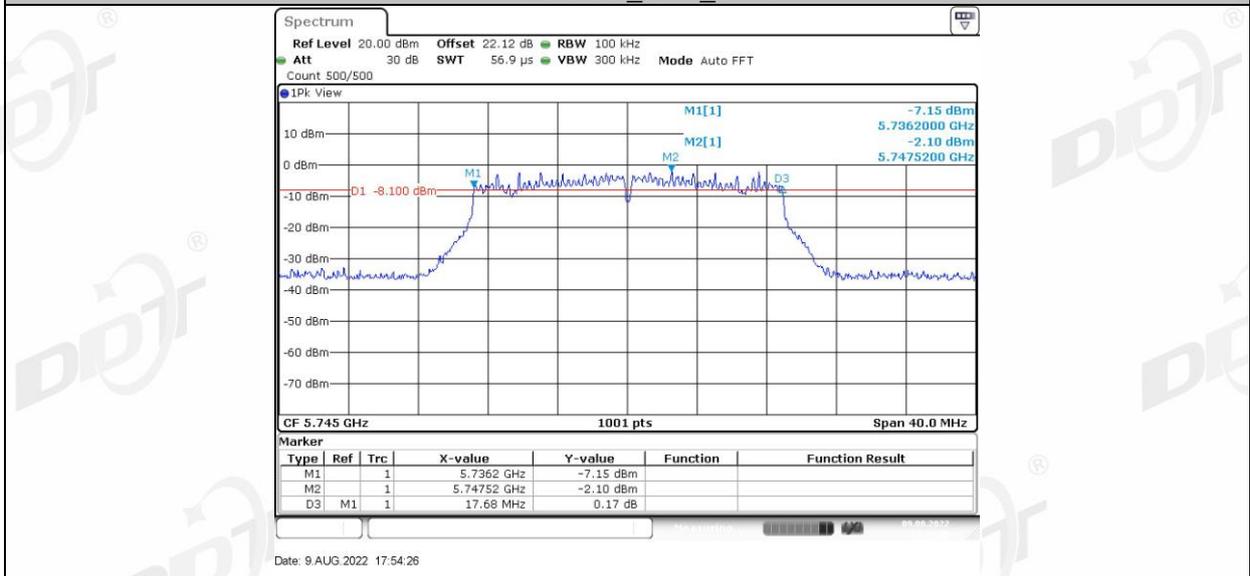


6db EBW:

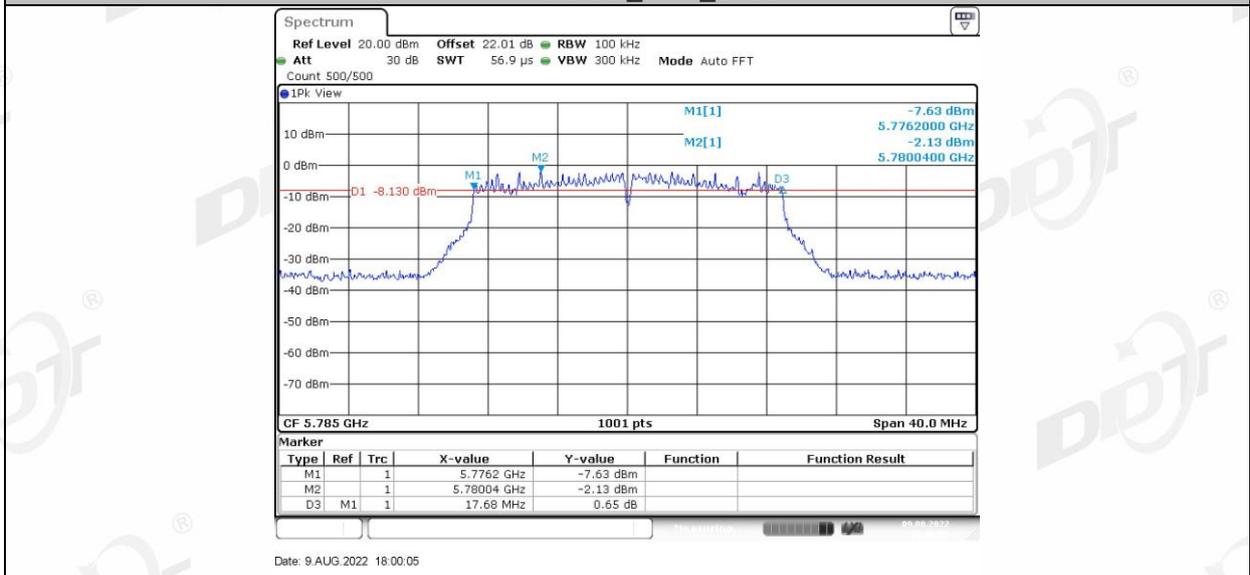




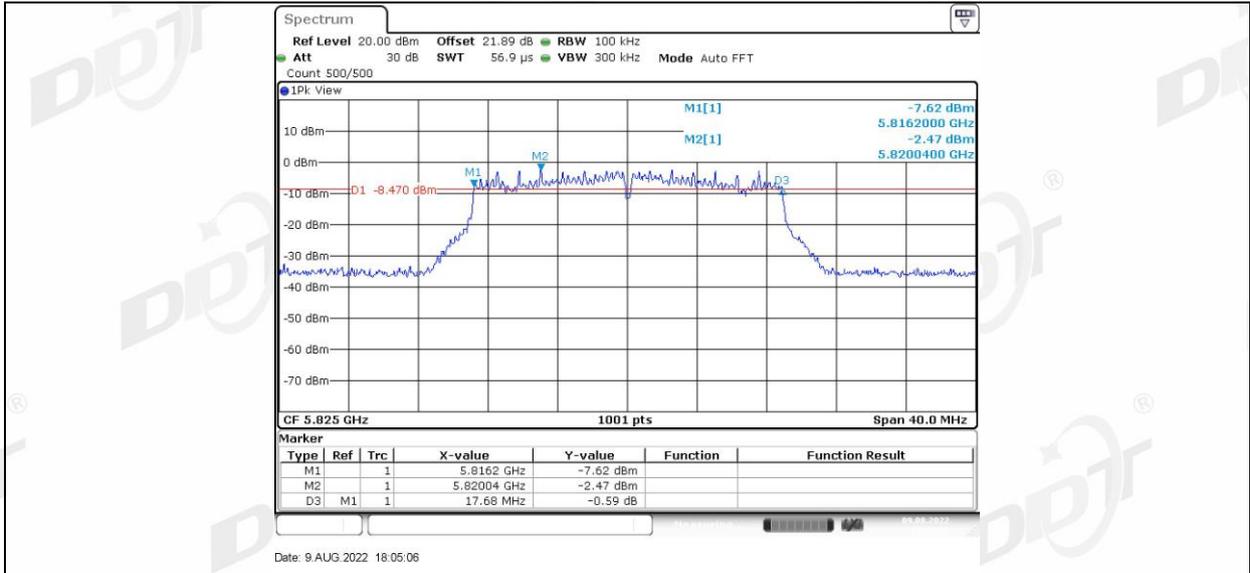
11N20SISO_Ant1_5745



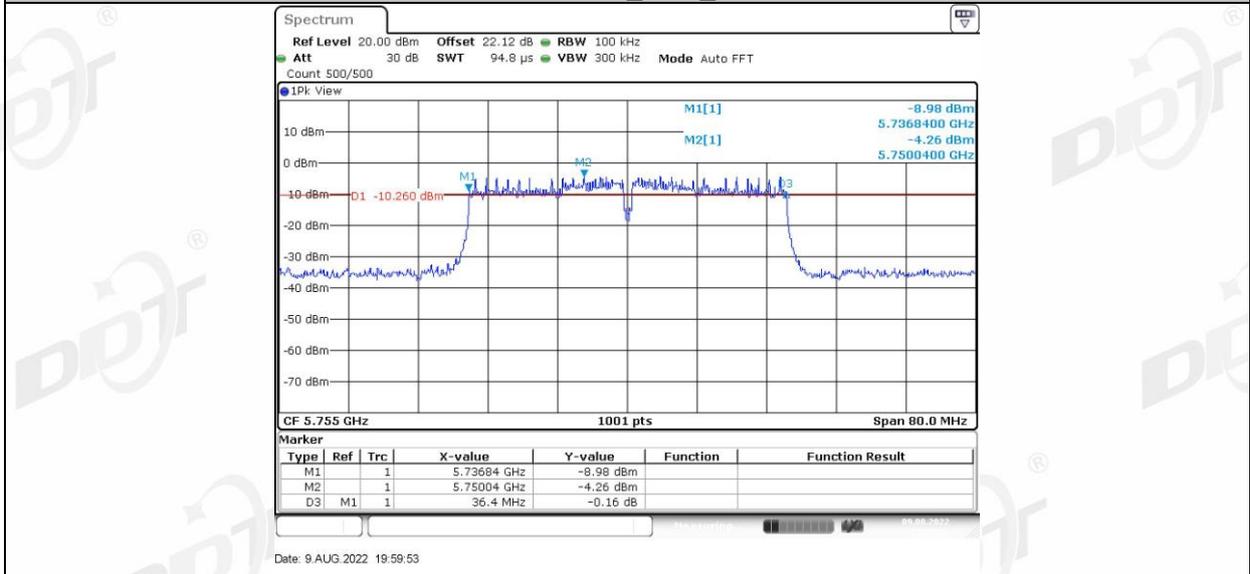
11N20SISO_Ant1_5785



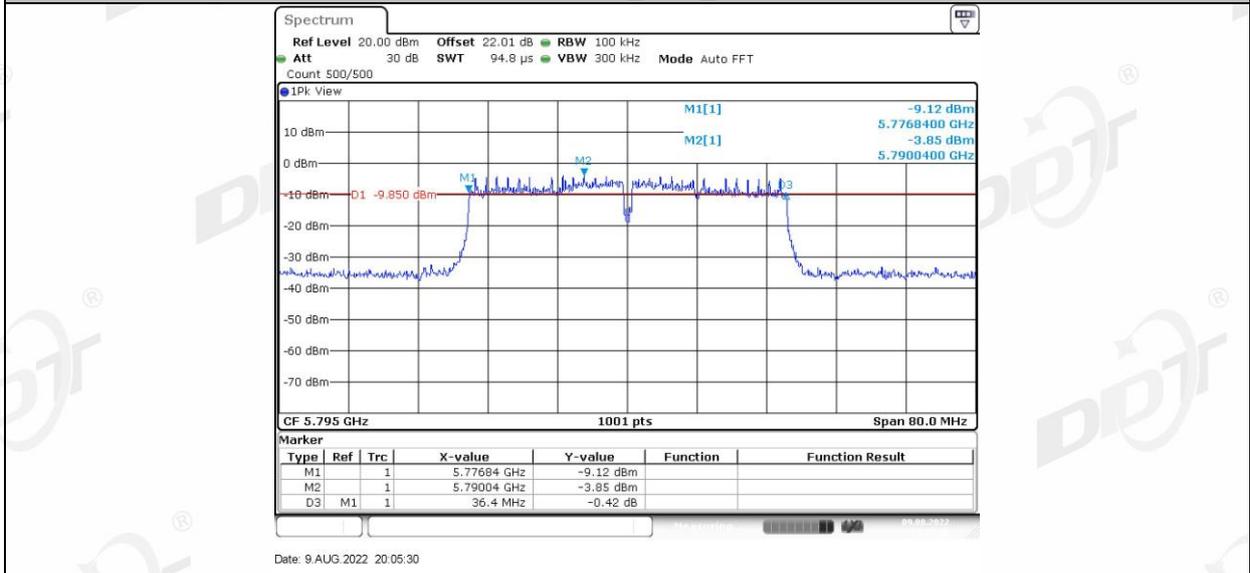
11N20SISO_Ant1_5825



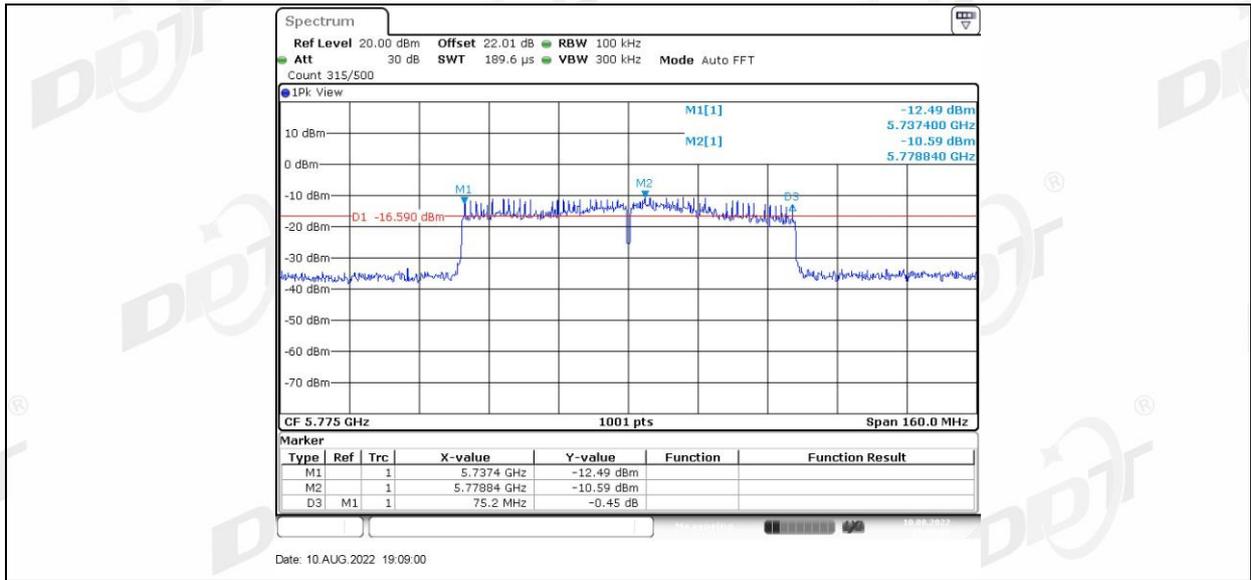
11N40SISO_Ant1_5755



11N40SISO_Ant1_5795



11AC80SISO_Ant1_5775



5. Maximum Output Power

5.1. Block diagram of test setup

Same as section 4.1

5.2. Limits

FCC Part15, Subpart E		
Test Item	Limit	Frequency Range (MHz)
Maximum Output Power	For FCC client devices: 250 mW (24 dBm)	5150-5250
	For FCC: 250 mW (24 dBm) or $11 + 10 \log_{10} B$	5250-5350
	For FCC: 250 mW (24 dBm) or $11 + 10 \log_{10} B$	5470- 5725
	1 Watt (30 dBm)	5725-5850

Note: B=26 bandwidth.

5.3. Test Procedure

Connect each EUT's antenna output to power sensor by RF cable and attenuator

Measure the output power of each antenna port by power sensor.

5.4. Test Result

Test Mode	Antenna	Channel	Channel Power [dBm]	Duty Cycle [%]	DC Factor [dBm]	Conducted Output Power Result [dBm]	Limit [dBm]	Verdict
11A	Ant1	5180	8.86	85.71	0.67	9.53	24	Pass
		5200	10.72	85.71	0.67	11.39	24	Pass
		5240	10.01	89.29	0.49	10.50	24	Pass
		5260	10.61	85.71	0.67	11.28	24	Pass
		5280	10.91	85.71	0.67	11.58	24	Pass
		5320	10.79	89.29	0.49	11.28	24	Pass
		5500	9.64	89.29	0.49	10.13	24	Pass
		5580	9.86	88.89	0.51	10.37	24	Pass
		5700	8.94	89.29	0.49	9.43	24	Pass
		5745	8.40	89.29	0.49	8.89	30	Pass
		5785	8.33	85.71	0.67	9.00	30	Pass
5825	8.13	88.89	0.51	8.64	30	Pass		
11N20SISO	Ant1	5180	7.36	88.46	0.53	7.89	24	Pass
		5200	9.40	88.46	0.53	9.93	24	Pass
		5240	8.76	84.62	0.73	9.49	24	Pass
		5260	9.75	88.46	0.53	10.28	24	Pass
		5280	9.60	88.46	0.53	10.13	24	Pass
		5320	10.12	88.46	0.53	10.65	24	Pass
		5500	8.95	88.46	0.53	9.48	24	Pass
		5580	9.26	88.46	0.53	9.79	24	Pass
		5700	8.59	88.46	0.53	9.12	24	Pass
		5745	8.00	88.46	0.53	8.53	30	Pass
		5785	8.19	88.46	0.53	8.72	30	Pass
5825	7.90	88.46	0.53	8.43	30	Pass		
11N40SISO	Ant1	5190	5.08	86.67	0.62	5.70	24	Pass
		5230	8.12	86.67	0.62	8.74	24	Pass
		5270	9.64	86.67	0.62	10.26	24	Pass
		5310	10.04	80.00	0.97	11.01	24	Pass
		5510	9.42	80.00	0.97	10.39	24	Pass
		5550	9.64	86.67	0.62	10.26	24	Pass
		5670	9.70	86.67	0.62	10.32	24	Pass
		5755	8.67	80.00	0.97	9.64	30	Pass
5795	8.95	80.00	0.97	9.92	30	Pass		
11AC20SISO	Ant1	5180	7.04	86.96	0.61	7.65	24	Pass
		5200	9.25	86.96	0.61	9.86	24	Pass
		5240	8.35	82.61	0.83	9.18	24	Pass
		5260	9.31	86.96	0.61	9.92	24	Pass
		5280	8.92	83.12	0.80	9.72	24	Pass
		5320	9.62	83.12	0.80	10.42	24	Pass
		5500	8.44	84.42	0.74	9.18	24	Pass
		5580	8.86	84.42	0.74	9.60	24	Pass
		5700	8.28	84.42	0.74	9.02	24	Pass
		5745	7.69	83.33	0.79	8.48	30	Pass
5785	7.33	83.12	0.80	8.13	30	Pass		

		5825	7.37	84.42	0.74	8.11	30	Pass
11AC40SISO	Ant1	5190	4.60	80.77	0.93	5.53	24	Pass
		5230	7.80	82.35	0.84	8.64	24	Pass
		5270	8.59	80.77	0.93	9.52	24	Pass
		5310	9.88	80.77	0.93	10.81	24	Pass
		5510	8.78	82.35	0.84	9.62	24	Pass
		5550	8.30	82.35	0.84	9.14	24	Pass
		5670	8.75	80.39	0.95	9.70	24	Pass
		5755	8.57	82.35	0.84	9.41	30	Pass
		5795	8.26	82.35	0.84	9.10	30	Pass
11AC80SISO	Ant1	5210	4.87	81.82	0.87	1.34	24	Pass
		5290	4.20	83.33	0.79	4.90	24	Pass
		5530	9.10	83.33	0.79	9.87	24	Pass
		5610	9.52	81.82	0.87	9.96	24	Pass
		5775	9.87	83.33	0.79	10.76	30	Pass

6. Power Spectral Density

6.1. Block diagram of test setup

Same with 4.1

6.2. Limits

FCC Part15, Subpart E/ RSS-247		
Test Item	Limit	Frequency Range (MHz)
Power Spectral Density	For FCC: Other than Mobile and portable:17 dBm/MHz Mobile and portable client devices:11 dBm/MHz	5150-5250
	11 dBm/MHz	5250-5350
	11 dBm/MHz	5470 - 5725
	30 dBm/500 kHz	5725-5850

6.3. Test Procedure

The transmitter output was connected to a spectrum analyzer. Power density was measured by spectrum analyzer with 1MHz RBW and 3MHz VBW.

Connect the UUT to the spectrum analyser and use the following settings:

5150 MHz~5250 MHz, 5250 MHz~5350 MHz, 5470 MHz~5725 MHz

Center Frequency	The centre frequency of the channel under test
Detector	RMS
RBW	1MHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

5725 MHz-5850 MHz

Center Frequency	The centre frequency of the channel under test
Detector	RMS
RBW	500 kHz
VBW	$\geq 3 \times \text{RBW}$
Span	Encompass the entire emissions bandwidth (EBW) of the signal
Trace	Max hold
Sweep time	Auto

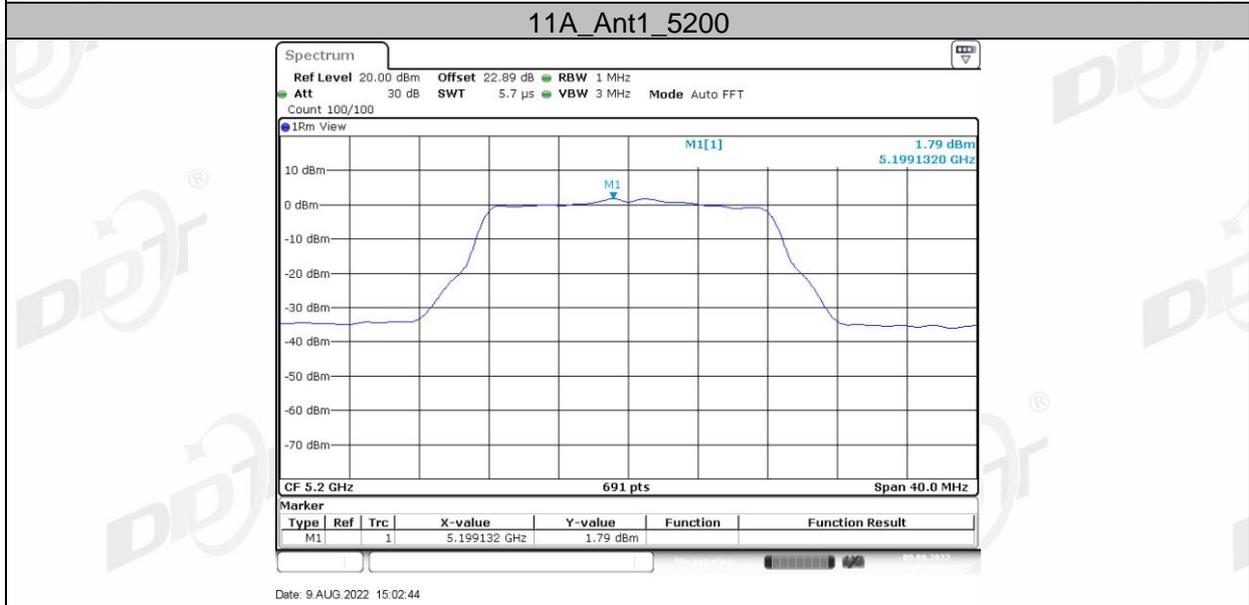
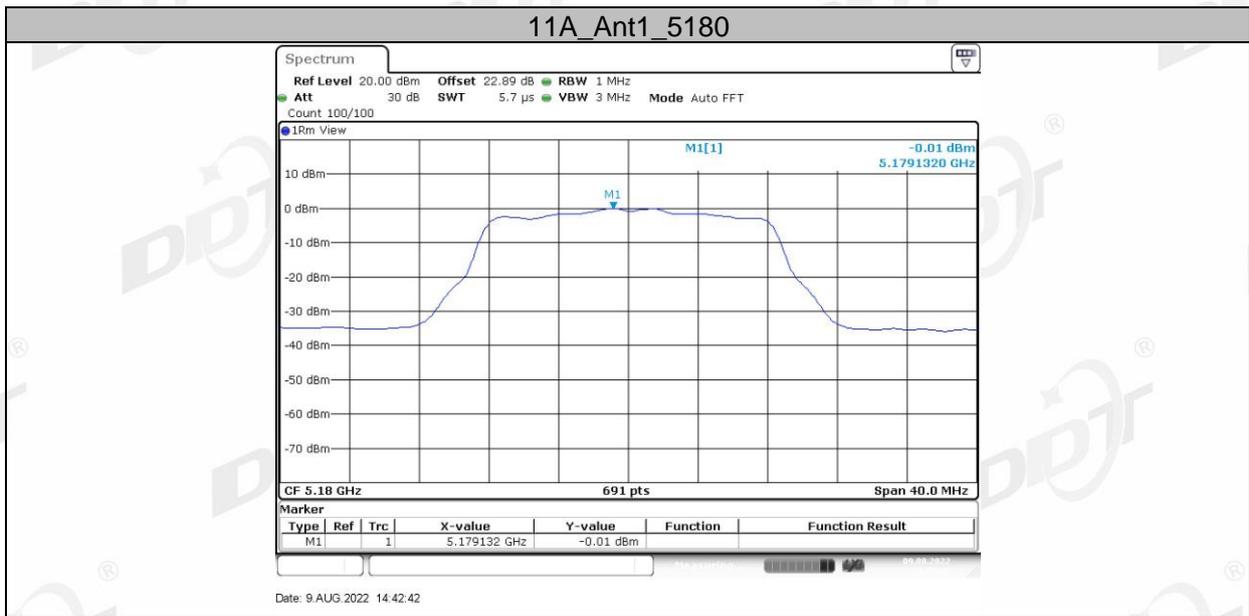
6.4. Test Result

Test Mode	Antenna	Channel	Duty Cycle [%]	DC Factor [dBm]	Conducted Result [dBm/MHz]	Limit [dBm/MHz]	Verdict
11A	Ant1	5180	85.71	0.67	-0.01	11	PASS
		5200	85.71	0.67	1.79	11	PASS
		5240	89.29	0.49	0.83	11	PASS
		5260	85.71	0.67	2.05	11	PASS
		5280	85.71	0.67	1.81	11	PASS
		5320	89.29	0.49	1.44	11	PASS
		5500	89.29	0.49	0.59	11	PASS
		5580	88.89	0.51	0.84	11	PASS
		5700	89.29	0.49	-0.40	11	PASS
		5745	89.29	0.49	-2.51	30	PASS
		5785	85.71	0.67	-2.21	30	PASS
		5825	88.89	0.51	-2.81	30	PASS
11N20SISO	Ant1	5180	88.46	0.53	-2.14	11	PASS
		5200	88.46	0.53	-0.12	11	PASS
		5240	84.62	0.73	-0.54	11	PASS
		5260	88.46	0.53	0.39	11	PASS
		5280	88.46	0.53	0.23	11	PASS
		5320	88.46	0.53	0.68	11	PASS
		5500	88.46	0.53	-0.31	11	PASS
		5580	88.46	0.53	0.07	11	PASS
		5700	88.46	0.53	-0.62	11	PASS
		5745	88.46	0.53	-3.73	30	PASS
		5785	88.46	0.53	-4.21	30	PASS
		5825	88.46	0.53	-4.82	30	PASS
11N40SISO	Ant1	5190	86.67	0.62	-7.39	11	PASS
		5230	86.67	0.62	-3.88	11	PASS
		5270	86.67	0.62	-2.68	11	PASS
		5310	80.00	0.97	-1.63	11	PASS
		5510	80.00	0.97	-2.60	11	PASS
		5550	86.67	0.62	-2.08	11	PASS
		5670	86.67	0.62	-2.65	11	PASS
		5755	80.00	0.97	-6.12	30	PASS
		5795	80.00	0.97	-6.08	30	PASS
11AC80SISO	Ant1	5210	81.82	0.87	-14.48	11	PASS
		5290	83.33	0.79	-11.36	11	PASS
		5530	83.33	0.79	-5.60	11	PASS
		5610	81.82	0.87	-6.53	11	PASS
		5775	83.33	0.79	-7.96	30	PASS

Note 1: The units of the Result and Limit for band 5725-5850 MHz is dBm/500kHz

Note 2: The Duty Cycle Factor and RBW Factor is compensated in the graph.

6.5. Original test data



11A_Ant1_5240



11A_Ant1_5260



11A_Ant1_5280



11A_Ant1_5320



11A_Ant1_5500



11A_Ant1_5580



11A_Ant1_5700



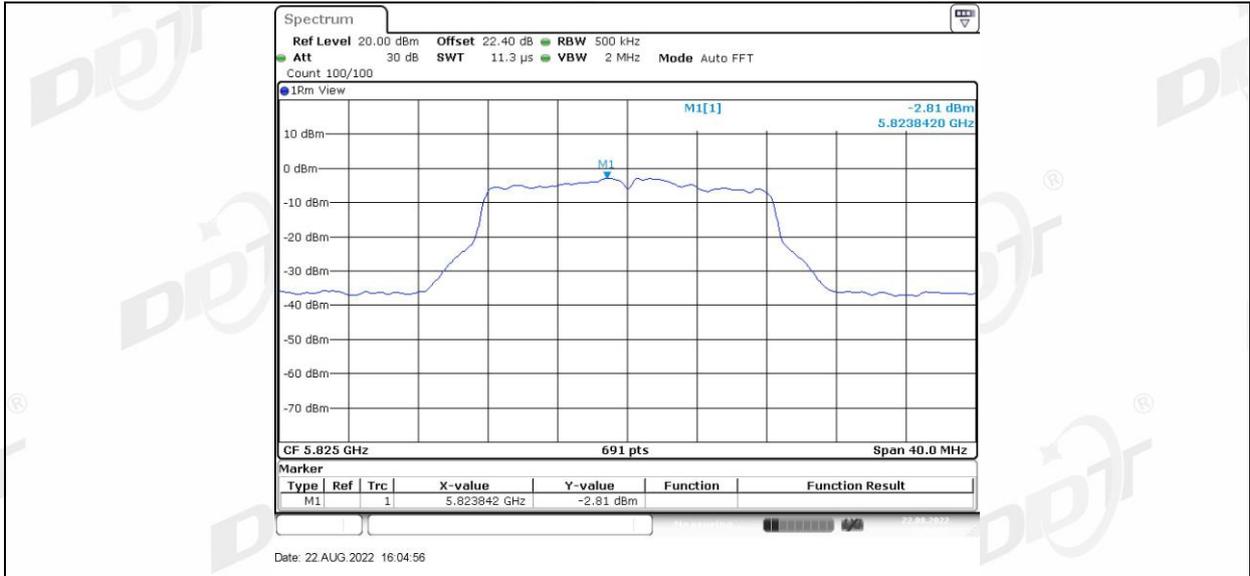
11A_Ant1_5745



11A_Ant1_5785



11A_Ant1_5825



11N20SISO_Ant1_5180



11N20SISO_Ant1_5200



11N20SISO_Ant1_5240



11N20SISO_Ant1_5260



11N20SISO_Ant1_5280



11N20SISO_Ant1_5320



11N20SISO_Ant1_5500



11N20SISO_Ant1_5580



11N20SISO_Ant1_5700