



FCC AND ISED CERTIFICATION TEST REPORT

Applicant	:	Harman International Industries, Inc.
Address of Applicant	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES
Manufacturer	:	Harman International Industries, Inc.
Address of Manufacturer	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES
Equipment under Test	:	Wireless Speaker
Model No.	:	CHARGE 5 Wi-Fi SE
HVIN	:	JBLC5WIFISE
FCC ID	:	APIJBLC5WIFISE
IC	:	6132A-JBLC5WIFISE
Test Standard(s)	:	FCC Rules and Regulations Part 15 Subpart E, RSS-247 Issue 3 August 2023, ANSI C63.10:2013, 789033 D02 General U-NII Test Procedures New Rules v02r01, 662911 D01 Multiple Transmitter Output v02r01, RSS-Gen Issue 5 April 2018
Report No.	:	DDT-RE24121719-1E04
Issue Date	:	2025/02/14
Issue By	:	Guangdong Dongdian Testing Service Co., Ltd. Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China, 523808

REPORT

Table of Contents

1.	Summary of Test Results	7
2.	General Test Information.....	8
2.1.	Description of EUT.....	8
2.2.	Accessories of EUT	11
2.3.	Block diagram of EUT configuration for test.....	12
2.4.	Decision of final test mode	12
2.5.	Deviations of test standard	14
2.6.	Test environment conditions.....	15
2.7.	Test laboratory	15
2.8.	Measurement uncertainty	16
3.	Equipment Used During Conductive Test	17
4.	26dB Bandwidth.....	18
4.1.	Block diagram of test setup	18
4.2.	Limits.....	18
4.3.	Test procedure.....	18
4.4.	Test result	19
4.5.	Test graphs.....	23
5.	6dB Bandwidth.....	86
5.1.	Block diagram of test setup	86
5.2.	Limits.....	86
5.3.	Test procedure.....	86
5.4.	Test result B4.....	87
5.5.	Test graphs B4.....	88
6.	99% Bandwidth.....	102
6.1.	Block diagram of test setup	102
6.2.	Limits.....	102
6.3.	Test procedure.....	102
6.4.	Test result	103
6.5.	Test graphs.....	107
7.	Duty Cycle.....	170
7.1.	Block diagram of test setup	170
7.2.	Limit.....	170
7.3.	Test procedure.....	170
7.4.	Test result	171
7.5.	Test graphs.....	181
8.	Maximum Output Power	365

8.1.	Block diagram of test setup	365
8.2.	Limits.....	365
8.3.	Test procedure.....	365
8.4.	Test result channel power	366
9.	Power Spectral Density	377
9.1.	Block diagram of test setup	377
9.2.	Limits.....	377
9.3.	Test procedure.....	377
9.4.	Test result	379
9.5.	Test graphs.....	392
10.	Frequency Stability Measurement.....	593
10.1.	Limit of Frequency Stability	593
10.2.	Measuring Instruments	593
10.3.	Test procedures.....	593
10.4.	Test setup	593
10.5.	Test result	594
11.	Dynamic Frequency Selection.....	603
11.1.	Applicability of DFS requirements	603
11.2.	Limit.....	604
11.3.	Parameters of radar test waveforms	604
11.4.	Calibration of radar waveform	605
11.5.	Channel closing transmission time, channel move time and non-occupancy period.....	612
11.6.	Test setup	612
11.7.	Test result	614
12.	Antenna Requirements	616
12.1.	Limit.....	616
12.2.	Result.....	616
13.	Radiated Emission.....	617
13.1.	Test equipment	617
13.2.	Block diagram of test setup	618
13.3.	Limits.....	619
13.4.	Assistant equipment used for test	621
13.5.	Test procedure.....	621
13.6.	Test result	622
13.7.	Test data	623
14.	Band Edge Compliance	651
14.1.	Test equipment	651
14.2.	Block diagram of test setup	652

14.3.	Limits.....	652
14.4.	Assistant equipment used for test	652
14.5.	Test procedure.....	652
14.6.	Test result	653
14.7.	Test data	654
15.	Power Line Conducted Emissions.....	812
15.1.	Test equipment.....	812
15.2.	Block diagram of test setup	812
15.3.	Limits.....	812
15.4.	Assistant equipment used for test	812
15.5.	Test procedure.....	813
15.6.	Test result	813
15.7.	Test data	814
16.	Test Setup Photograph.....	816
17.	Photos of the EUT	819

Test Report Declare

Applicant	:	Harman International Industries, Inc.
Address of Applicant	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES
Equipment under Test	:	Wireless Speaker
Model No.	:	CHARGE 5 Wi-Fi SE
Manufacturer	:	Harman International Industries, Inc.
Address of Manufacturer	:	8500 Balboa Boulevard, Northridge, CA 91329, UNITED STATES

Test Standard Used:

FCC Rules and Regulations Part 15 Subpart E,
RSS-247 Issue 3 August 2023,
ANSI C63.10:2013,
789033 D02 General U-NII Test Procedures New Rules v02r01,
662911 D01 Multiple Transmitter Output v02r01,
RSS-Gen Issue 5 April 2018

We Declare:

The equipment described above is tested by Guangdong 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 Guangdong Dongdian Testing Service Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

Report No.:	DDT-RE24121719-1E04		
Date of Receipt:	2024/10/19	Date of Test:	2024/10/19 - 2025/02/14

Prepared By:**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 Guangdong Dongdian Testing Service Co., Ltd.

Revision History

Rev.	Revisions	Issue Date	Revised By
---	Initial issue	2025/02/14	

1. Summary of Test Results

No.	Test Parameter	Clause No.	Condition	Result
1	6/26db Bandwidth and 99% Bandwidth	FCC 15.407 (e), RSS-247 Clause 6.2, RSS-GEN Clause 6.7	/	Pass
2	Output Power	FCC 15.407 (a) ; RSS-247 Clause 6.2	/	Pass
3	Power Spectral Density	FCC 15.407 (a) ; RSS-247 Clause 6.2	/	Pass
4	Frequency Stability Measurement	FCC 15.407 (g); RSS-247 Clause 6.2; RSS-GEN Clause 8.11	/	Pass
5	Radiated Emission	FCC 15.407 (b); FCC 15.209; FCC 15.205; RSS-247 Clause 6.2; RSS-GEN Clause 8.9	/	Pass
6	Band Edge Compliance	FCC 15.407 (b); FCC 15.209; FCC 15.205; RSS-247 Clause 6.2; RSS-GEN Clause 8.10	/	Pass
7	Antenna Requirement	FCC Part 15: 15.203, RSS-Gen Issue 5 clause 6.8	/	Pass
8	Power Line Conducted Emissions	FCC Part 15: 15.207(a), RSS-Gen Issue 5 clause 8.8	/	Pass
9	Dynamic Frequency Selection	FCC 15.407 (h); RSS-247 Clause 6.8	/	Pass
Note: N/A is an abbreviation for Not Applicable, and means this item is not applicable for this device or no need to test according to standard.				

2. General Test Information

2.1. Description of EUT

EUT Name	: Wireless Speaker
Model Number	: CHARGE 5 Wi-Fi SE
EUT Function Description	: Please reference user manual of this device
Power Supply	: DC 5V from external adapter DC 3.69V built-in battery, 14100mAh, 52Wh

Note: This EUT support Bluetooth BR/EDR/LE, 2.4 GHz WLAN, 5 GHz WLAN, this report only for 5 GHz WLAN.

Radio Technology	: IEEE 802.11a/n/ac/ax
Operation frequency	: IEEE 802.11a: 5180MHz-5240MHz, 5260MHz-5320MHz, 5500MHz-5720MHz, 5745MHz-5825MHz IEEE 802.11n HT20: 5180MHz-5240MHz, 5260MHz-5320MHz, 5500MHz-5720MHz, 5745MHz-5825MHz IEEE 802.11n HT40: 5190MHz-5230MHz, 5270MHz-5310MHz, 5510MHz-5710MHz, 5755MHz-5795MHz IEEE 802.11ac VHT20: 5180MHz-5240MHz, 5260MHz-5320MHz, 5500MHz-5720MHz, 5745MHz-5825MHz IEEE 802.11ac VHT40: 5190MHz-5230MHz, 5270MHz-5310MHz, 5510MHz-5710MHz, 5755MHz-5795MHz IEEE 802.11ac VHT80: 5210MHz, 5290MHz, 5530MHz, 5610MHz, 5690MHz, 5775MHz IEEE 802.11ax HE20: 5180MHz-5240MHz, 5260MHz-5320MHz, 5500MHz-5700MHz, 5745MHz-5825MHz IEEE 802.11ax HE40: 5190MHz-5230MHz, 5270MHz-5310MHz, 5510MHz-5670MHz, 5755MHz-5795MHz IEEE 802.11ax HE80: 5210MHz, 5290MHz, 5530MHz, 5610MHz, 5775MHz
Modulation	: IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20, HT40: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ax: OFDM (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)

Antenna information			
	Ant1 gain	Ant2 gain	Directional gain
IEEE 802.11a	2.99	4.59	/
IEEE 802.11n HT20	2.99	4.59	3.86
IEEE 802.11n HT40	2.99	4.59	3.86
IEEE 802.11ac VHT20	2.99	4.59	3.86
IEEE 802.11ac VHT40	2.99	4.59	3.86
IEEE 802.11ac VHT80	2.99	4.59	3.86
IEEE 802.11ax HE20	2.99	4.59	3.86
IEEE 802.11ax HE40	2.99	4.59	3.86
IEEE 802.11ax HE80	2.99	4.59	3.86

Channel information					
IEEE 802.11a IEEE 802.11n (HT20) IEEE 802.11ac (VHT20) IEEE 802.11ax (HE20)		IEEE 802.11n (HT40) IEEE 802.11ac (VHT40) IEEE 802.11ax (HE40)		IEEE 802.11ac (VHT80) IEEE 802.11ax (HE80)	
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	138	5690
112	5560	126	5630	/	/
116	5580	134	5670	/	/
120	5600	142	5710	/	/
124	5620	/	/	/	/
128	5640	/	/	/	/
132	5660	/	/	/	/
136	5680	/	/	/	/
140	5700	/	/	/	/
144	5720				
UNII-3					
149	5745	151	5755	155	5775
153	5765	159	5795	/	/
157	5785	/	/	/	/
161	5805	/	/	/	/
165	5825	/	/	/	/
Note: Band 5600-5650MHz will be disabled when shipped to Canada					

Operating Mode	Resource Unit	26 Tone(2M)	
IEEE 802.11ax(HE20)	Specific Resource Unit	0	
		1	
		2	
		3	
		4	
		5	
		6	
		7	
		8	
		9	
	Resource Unit	52 Tone(4M)	
	Specific Resource Unit	37	
		38	
		39	
		40	
	Resource Unit	106 Tone(8M)	
	Specific Resource Unit	53	
		54	
	Resource Unit	242 Tone(20M)	
	Specific Resource Unit	61	
Operating Mode	Resource Unit	26 Tone(2M)	
IEEE 802.11ax(HE40)	Specific Resource Unit	0	9
		1	10
		2	11
		3	12
		4	13
		5	14
		6	15
		7	16
		8	17
	Resource Unit	52 Tone(4M)	
	Specific Resource Unit	37	41
		38	42
		39	43
		40	44
	Resource Unit	106 Tone(8M)	
	Specific Resource Unit	53	55
		54	56
	Resource Unit	242 Tone(20M)	
	Specific Resource Unit	61	62
	Resource Unit	484 Tone(40M)	
	Specific Resource Unit	65	
Operating Mode	Resource Unit	26 Tone(2M)	
IEEE 802.11ax(HE80)	Specific Resource Unit	0	19
		1	20
		2	21
		3	22
		4	23
		5	24
		6	25

		7	26
		8	27
		9	28
		10	29
		11	30
		12	31
		13	32
		14	33
		15	34
		16	35
		17	36
		18	
	Resource Unit	52 Tone(4M)	
	Specific Resource Unit	37	45
		38	46
		39	47
		40	48
		41	49
		42	50
		43	51
		44	52
	Resource Unit	106 Tone(8M)	
	Specific Resource Unit	53	57
		54	58
		55	59
		56	60
	Resource Unit	242 Tone(20M)	
	Specific Resource Unit	61	62
		63	64
	Resource Unit	484 Tone(40M)	
	Specific Resource Unit	65	66
	Resource Unit	996 Tone(80M)	
	Specific Resource Unit	67	

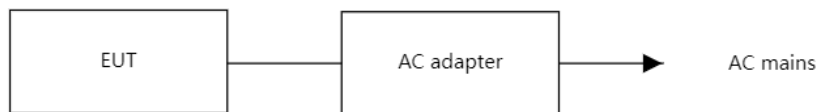
Note: The above EUT information is declared by manufacturer and for more detailed features description please refer to the manufacturer's specifications or User's Manual. The above Antenna information is declared by manufacturer and for more detailed features description please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

“☑” means to be chosen or applicable; “☐” means don't to be chosen or not applicable; This note applies to entire report.

2.2. Accessories of EUT

Accessories	Manufacturer	Model number	Description
/	/	/	/

2.3. Block diagram of EUT configuration for test



2.4. Decision of final test mode

According pre-test, the worst test modes were reported as below:

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: 2 dB (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)
	ANT1	ANT2			
IEEE 802.11a	15	15	6	Low: CH36	5180
	15	15	6	Middle: CH40	5200
	15	15	6	High: CH48	5240
	15	15	6	Low: CH52	5260
	15	15	6	Middle: CH56	5280
	15	15	6	High: CH64	5320
	15	15	6	Low: CH100	5500
	15	15	6	Middle: CH116	5580
	15	15	6	High: CH140	5700
	15	15	6	Straddle:CH144	5720
	15	15	6	Low: CH149	5745
	15	15	6	Middle: CH157	5785
	15	15	6	High: CH165	5825
IEEE 802.11n HT20	13	13	MCS 8	Low: CH36	5180
	13	13	MCS 8	Middle: CH40	5200
	13	13	MCS 8	High: CH48	5240
	13	13	MCS 8	Low: CH52	5260
	13	13	MCS 8	Middle: CH56	5280
	13	13	MCS 8	High: CH64	5320
	13	13	MCS 8	Low: CH100	5500
	13	13	MCS 8	Middle: CH116	5580
	13	13	MCS 8	High: CH140	5700
	13	13	MCS 8	Straddle:CH144	5720
	13	13	MCS 8	Low: CH149	5745
	13	13	MCS 8		

	13	13	MCS 8	Middle: CH157	5785
	13	13	MCS 8	High: CH165	5825
IEEE 802.11n HT40	12	12	MCS 8	Low: CH38	5190
	12	12	MCS 8	Middle: CH46	5230
	12	12	MCS 8	High: CH54	5270
	12	12	MCS 8	Low: CH62	5310
	12	12	MCS 8	Middle: CH102	5510
	12	12	MCS 8	High: CH110	5550
	12	12	MCS 8	Low: CH134	5670
	12	12	MCS 8	Middle: CH151	5755
	12	12	MCS 8	High: CH159	5795
	12	12	MCS 8	Low: CH165	5825
IEEE 802.11ac VHT20	13	13	MCS 0	Low: CH36	5180
	13	13	MCS 0	Middle: CH40	5200
	13	13	MCS 0	High: CH48	5240
	13	13	MCS 0	Low: CH52	5260
	13	13	MCS 0	Middle: CH56	5280
	13	13	MCS 0	High: CH64	5320
	13	13	MCS 0	Low: CH100	5500
	13	13	MCS 0	Middle: CH116	5580
	13	13	MCS 0	High: CH140	5700
	13	13	MCS 0	Straddle:CH144	5720
	13	13	MCS 0	Low: CH149	5745
	13	13	MCS 0	Middle: CH157	5785
	13	13	MCS 0	High: CH165	5825
IEEE 802.11 ac VHT40	12	12	MCS 0	Low: CH38	5190
	12	12	MCS 0	Middle: CH46	5230
	12	12	MCS 0	High: CH54	5270
	12	12	MCS 0	Low: CH62	5310
	12	12	MCS 0	Middle: CH102	5510
	12	12	MCS 0	High: CH110	5550
	12	12	MCS 0	Low: CH134	5670
	12	12	MCS 0	Straddle: CH142	5710
	12	12	MCS 0	Middle: CH151	5755
	12	12	MCS 0	High: CH159	5795
IEEE 802.11ac VHT80	12	12	MCS 0	CH42	5210
	12	12	MCS 0	CH58	5290
	12	12	MCS 0	CH106	5530
	12	12	MCS 0	CH122	5610
	12	12	MCS 0	CH138	5690
	12	12	MCS 0	CH155	5775

IEEE 802.11ax HE20	SU: 13 RU: 5	SU: 13 RU: 5	MCS 0	Low: CH36	5180
	SU: 13 RU: 5	SU: 13 RU: 5	MCS 0	Middle: CH40	5200
	SU: 13 RU: 5	SU: 13 RU: 5	MCS 0	High: CH48	5240
	SU: 13 RU: 5	SU: 13 RU: 5	MCS 0	Low: CH52	5260
	SU: 13 RU: 5	SU: 13 RU: 5	MCS 0	Middle: CH56	5280
	SU: 13 RU: 5	SU: 13 RU: 5	MCS 0	High: CH64	5320
	SU: 13 RU: 5	SU: 13 RU: 5	MCS 0	Low: CH100	5500
	SU: 13 RU: 5	SU: 13 RU: 5	MCS 0	Middle: CH116	5580
	SU: 13 RU: 5	SU: 13 RU: 5	MCS 0	High: CH140	5700
	SU: 13 RU: 5	SU: 13 RU: 5	MCS 0	Straddle:CH144	5720
	SU: 13 RU: 5	SU: 13 RU: 5	MCS 0	Low: CH149	5745
	SU: 13 RU: 5	SU: 13 RU: 5	MCS 0	Middle: CH157	5785
	SU: 13 RU: 5	SU: 13 RU: 5	MCS 0	High: CH165	5825
IEEE 802.11ax HE40	SU: 12 RU: 5	SU: 12 RU: 5	MCS 0	Low: CH38	5190
	SU: 12 RU: 5	SU: 12 RU: 5	MCS 0	Middle: CH46	5230
	SU: 12 RU: 5	SU: 12 RU: 5	MCS 0	High: CH54	5270
	SU: 12 RU: 5	SU: 12 RU: 5	MCS 0	Low: CH62	5310
	SU: 12 RU: 5	SU: 12 RU: 5	MCS 0	Middle: CH102	5510
	SU: 12 RU: 5	SU: 12 RU: 5	MCS 0	High: CH110	5550
	SU: 12 RU: 5	SU: 12 RU: 5	MCS 0	Low: CH134	5670
	SU: 12 RU: 5	SU: 12 RU: 5	MCS 0	Straddle: CH142	5710
	SU: 12 RU: 5	SU: 12 RU: 5	MCS 0	Middle: CH151	5755
IEEE 802.11ax HE80	SU: 12 RU: 6	SU: 12 RU: 6	MCS 0	CH42	5210
	SU: 12 RU: 6	SU: 12 RU: 6	MCS 0	CH58	5290
	SU: 12 RU: 6	SU: 12 RU: 6	MCS 0	CH106	5530
	SU: 12 RU: 6	SU: 12 RU: 6	MCS 0	CH122	5610
	SU: 12 RU: 6	SU: 12 RU: 6	MCS 0	CH138	5690
	SU: 12 RU: 6	SU: 12 RU: 6	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:	+15°C to +35 °C
Humidity range:	20% to 75%
Pressure range:	86 kPa to 106 kPa

Note: The specific temperature and humidity information of each test item refers to the temperature and humidity record in the corresponding test data.

2.7. Test laboratory

Guangdong Dongdian Testing Service Co., Ltd.

Add.: Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, 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

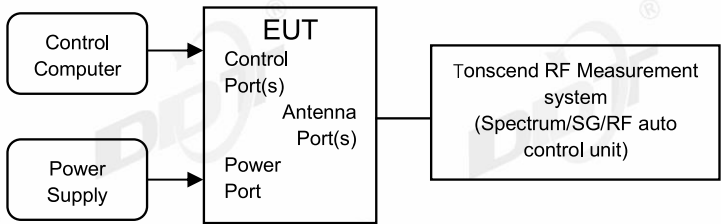
Test Item	Uncertainty
Bandwidth	1.1%
Peak Output Power (Conducted) (Spectrum analyzer)	0.86 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$); 1.38 dB ($3.6 \text{ GHz} \leq f < 8 \text{ GHz}$)
Peak Output Power (Conducted) (Power Sensor)	0.74 dB
Power Spectral Density	0.74 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$); 1.38 dB ($3.6 \text{ GHz} \leq f < 8 \text{ GHz}$)
Frequencies Stability	6.7×10^{-8} (Antenna couple method) 5.5×10^{-8} (Conducted method)
Conducted spurious emissions	0.86 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$); 1.40 dB ($3.6 \text{ GHz} \leq f < 8 \text{ GHz}$) 1.66 dB ($8 \text{ GHz} \leq f < 26.5 \text{ GHz}$)
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 Conductive Test

Equipment	Manufacturer	Model No.	Serial Number	Due Date
☑RF Connected Test (RF Measurement System 4#)				
Signal & Spectrum Analyzer	R&S	FSV3044	101173	2025/03/31
Wideband Radio Communication Tester	R&S	CMW500	168801	2025/03/31
MXG Vector Signal Generator	Agilent	N5182A	MY48180737	2025/03/31
PSG Vector Signal Generator	Agilent	E8267D	US49060192	2025/08/25
RF Control Unit	Tonsend	JS0806-2	2118060485	2025/03/31
TEMP&HUMI Programmable Chamber	ZHIXIANG	ZXGDJS-150L	ZX170110-A	2025/04/22
Test Software	Tonscend	JS1120-3	Ver.3.2.22	N/A

4. 26dB Bandwidth

4.1. Block diagram of test setup



4.2. Limits

FCC Part15, Subpart E/ RSS-247		
Test Item	Limit	Frequency Range (MHz)
26 dB Bandwidth	---	5150 - 5250
	---	5250 - 5350
	---	For FCC: 5470 - 5725
	---	For IC: 5470 - 5600 5650 - 5725

4.3. Test procedure

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

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	approximately 1% of the emission bandwidth.
VBW	> RBW
Trace	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 26 dB relative to the maximum level measured in the fundamental emission.

4.4. Test result

Test Engineer:	Haofeng	Test Site:	RF Measurement System 4#
Ambient Condition:	24.4℃,47.1%RH	Test Date:	2024.11.14-2024.11.16
Test Power Supply:	Battery	Sample Number:	S24121719-005

Test Mode	Antenna	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	25.04	5166.48	5191.52	---	---
	Ant2	5180	25.04	5166.68	5191.72	---	---
	Ant1	5200	25.12	5186.64	5211.76	---	---
	Ant2	5200	24.04	5187.64	5211.68	---	---
	Ant1	5240	19.56	5230.16	5249.72	---	---
	Ant2	5240	19.72	5230.16	5249.88	---	---
	Ant1	5260	23.88	5248.12	5272.00	---	---
	Ant2	5260	23.84	5248.12	5271.96	---	---
	Ant1	5280	23.44	5268.04	5291.48	---	---
	Ant2	5280	23.44	5268.08	5291.52	---	---
	Ant1	5320	24.08	5307.64	5331.72	---	---
	Ant2	5320	25.20	5307.60	5332.80	---	---
	Ant1	5500	24.48	5487.64	5512.12	---	---
	Ant2	5500	24.12	5487.64	5511.76	---	---
	Ant1	5580	24.40	5567.60	5592.00	---	---
	Ant2	5580	23.92	5568.08	5592.00	---	---
	Ant1	5700	24.28	5687.64	5711.92	---	---
	Ant2	5700	25.00	5686.68	5711.68	---	---
	Ant1	5720	23.76	5708.16	5731.92	---	---
	Ant2	5720	23.44	5708.08	5731.52	---	---
	Ant1	5720 UNII-2C	16.84	5708.16	5725	---	---
	Ant2	5720 UNII-2C	16.92	5708.08	5725	---	---
	Ant1	5720 UNII-3	6.92	5725	5731.92	---	---
	Ant2	5720 UNII-3	6.52	5725	5731.52	---	---
	Ant1	5745	23.44	5733.12	5756.56	---	---
	Ant2	5745	23.64	5732.88	5756.52	---	---
	Ant1	5785	24.36	5772.68	5797.04	---	---
	Ant2	5785	23.44	5773.12	5796.56	---	---
	Ant1	5825	24.32	5812.60	5836.92	---	---
	Ant2	5825	23.44	5813.08	5836.52	---	---
11N20MI MO	Ant1	5180	24.40	5167.68	5192.08	---	---
	Ant2	5180	25.12	5166.40	5191.52	---	---
	Ant1	5200	24.44	5187.88	5212.32	---	---
	Ant2	5200	23.64	5188.16	5211.80	---	---
	Ant1	5240	20.04	5229.96	5250.00	---	---
	Ant2	5240	19.96	5229.96	5249.92	---	---
	Ant1	5260	24.52	5247.72	5272.24	---	---
	Ant2	5260	23.72	5248.24	5271.96	---	---
	Ant1	5280	24.32	5267.84	5292.16	---	---
	Ant2	5280	23.12	5268.36	5291.48	---	---
	Ant1	5320	24.40	5307.60	5332.00	---	---
	Ant2	5320	23.40	5308.12	5331.52	---	---
	Ant1	5500	24.80	5487.64	5512.44	---	---
	Ant2	5500	25.20	5486.52	5511.72	---	---
	Ant1	5580	24.56	5567.68	5592.24	---	---
	Ant2	5580	23.60	5568.20	5591.80	---	---
	Ant1	5700	24.64	5687.68	5712.32	---	---
	Ant2	5700	25.68	5685.84	5711.52	---	---
	Ant1	5720	24.68	5707.60	5732.28	---	---
	Ant2	5720	23.36	5708.24	5731.60	---	---
	Ant1	5720 UNII-2C	17.4	5707.60	5725	---	---
	Ant2	5720 UNII-2C	16.76	5708.24	5725	---	---
	Ant1	5720 UNII-3	7.28	5725	5732.28	---	---
	Ant2	5720 UNII-3	6.6	5725	5731.60	---	---
	Ant1	5745	24.36	5732.68	5757.04	---	---

	Ant2	5745	23.16	5733.16	5756.32	---	---
	Ant1	5785	24.48	5772.72	5797.20	---	---
	Ant2	5785	23.60	5773.20	5796.80	---	---
	Ant1	5825	24.56	5812.72	5837.28	---	---
	Ant2	5825	23.32	5813.12	5836.44	---	---
11N40MI MO	Ant1	5190	40.96	5169.60	5210.56	---	---
	Ant2	5190	40.08	5170.00	5210.08	---	---
	Ant1	5230	40.88	5209.52	5250.40	---	---
	Ant2	5230	40.00	5210.08	5250.08	---	---
	Ant1	5270	40.96	5249.60	5290.56	---	---
	Ant2	5270	39.76	5250.16	5289.92	---	---
	Ant1	5310	40.88	5289.52	5330.40	---	---
	Ant2	5310	39.84	5290.08	5329.92	---	---
	Ant1	5510	40.72	5489.68	5530.40	---	---
	Ant2	5510	39.76	5490.16	5529.92	---	---
	Ant1	5550	40.88	5529.52	5570.40	---	---
	Ant2	5550	39.84	5530.08	5569.92	---	---
	Ant1	5670	40.80	5649.68	5690.48	---	---
	Ant2	5670	39.76	5650.16	5689.92	---	---
	Ant1	5710	40.80	5689.60	5730.40	---	---
	Ant2	5710	40.00	5690.00	5730.00	---	---
	Ant1	5710 UNII-2C	35.4	5689.60	5725	---	---
	Ant2	5710 UNII-2C	35	5690.00	5725	---	---
	Ant1	5710 UNII-3	5.4	5725	5730.40	---	---
	Ant2	5710 UNII-3	5	5725	5730.00	---	---
	Ant1	5755	40.80	5734.52	5775.32	---	---
	Ant2	5755	39.76	5735.08	5774.84	---	---
	Ant1	5795	40.72	5774.60	5815.32	---	---
	Ant2	5795	39.68	5775.16	5814.84	---	---
11AC20M IMO	Ant1	5180	25.00	5167.76	5192.76	---	---
	Ant2	5180	24.20	5167.60	5191.80	---	---
	Ant1	5200	25.00	5187.84	5212.84	---	---
	Ant2	5200	23.00	5188.80	5211.80	---	---
	Ant1	5240	20.04	5229.92	5249.96	---	---
	Ant2	5240	20.04	5229.92	5249.96	---	---
	Ant1	5260	24.08	5248.04	5272.12	---	---
	Ant2	5260	23.32	5248.68	5272.00	---	---
	Ant1	5280	24.00	5268.12	5292.12	---	---
	Ant2	5280	23.12	5268.40	5291.52	---	---
	Ant1	5320	25.28	5307.04	5332.32	---	---
	Ant2	5320	23.12	5308.40	5331.52	---	---
	Ant1	5500	24.08	5488.20	5512.28	---	---
	Ant2	5500	22.88	5488.84	5511.72	---	---
	Ant1	5580	25.24	5566.96	5592.20	---	---
	Ant2	5580	22.92	5568.68	5591.60	---	---
	Ant1	5700	24.76	5687.96	5712.72	---	---
	Ant2	5700	23.88	5687.52	5711.40	---	---
	Ant1	5720	24.08	5708.04	5732.12	---	---
	Ant2	5720	22.88	5708.68	5731.56	---	---
	Ant1	5720 UNII-2C	16.96	5708.04	5725	---	---
	Ant2	5720 UNII-2C	16.32	5708.68	5725	---	---
	Ant1	5720 UNII-3	7.12	5725	5732.12	---	---
	Ant2	5720 UNII-3	6.56	5725	5731.56	---	---
	Ant1	5745	24.04	5732.88	5756.92	---	---
	Ant2	5745	22.96	5733.52	5756.48	---	---
	Ant1	5785	24.32	5772.76	5797.08	---	---
	Ant2	5785	22.96	5773.68	5796.64	---	---
	Ant1	5825	25.04	5813.00	5838.04	---	---
	Ant2	5825	23.80	5812.64	5836.44	---	---
11AC40M IMO	Ant1	5190	40.40	5169.76	5210.16	---	---
	Ant2	5190	39.84	5170.08	5209.92	---	---
	Ant1	5230	40.48	5209.76	5250.24	---	---
	Ant2	5230	39.92	5209.92	5249.84	---	---
	Ant1	5270	40.24	5249.92	5290.16	---	---

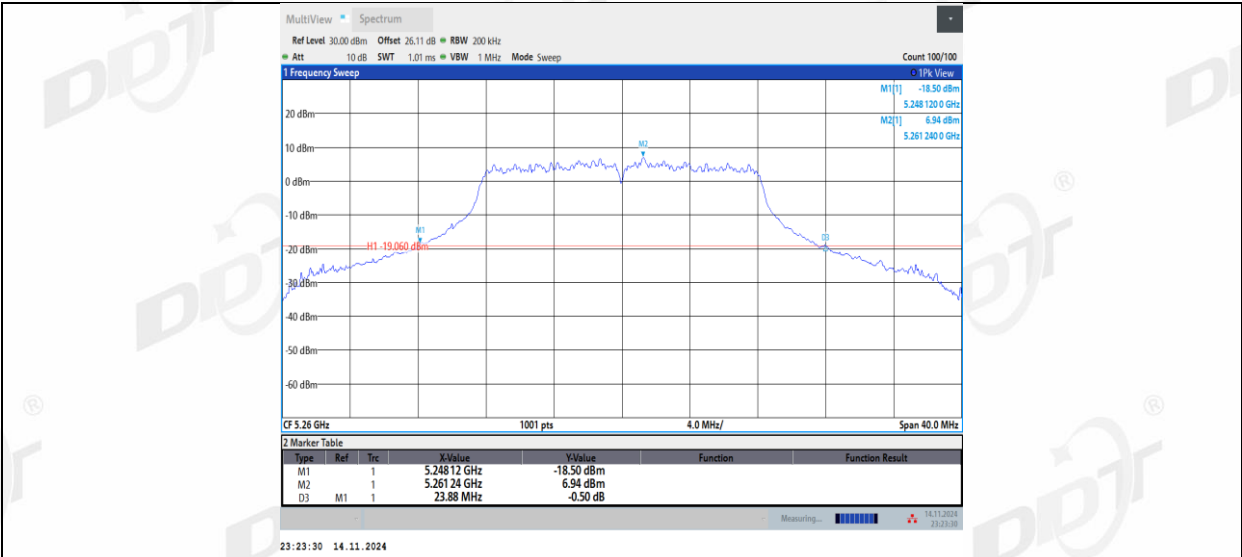
	Ant2	5270	39.68	5250.16	5289.84	---	---
	Ant1	5310	40.24	5289.92	5330.16	---	---
	Ant2	5310	39.84	5290.00	5329.84	---	---
	Ant1	5510	40.40	5489.84	5530.24	---	---
	Ant2	5510	39.76	5490.08	5529.84	---	---
	Ant1	5550	40.32	5529.84	5570.16	---	---
	Ant2	5550	39.76	5530.08	5569.84	---	---
	Ant1	5670	40.16	5649.92	5690.08	---	---
	Ant2	5670	39.68	5650.16	5689.84	---	---
	Ant1	5710	40.40	5689.68	5730.08	---	---
	Ant2	5710	39.76	5690.08	5729.84	---	---
	Ant1	5710 UNII-2C	35.32	5689.68	5725	---	---
	Ant2	5710 UNII-2C	34.92	5690.08	5725	---	---
	Ant1	5710 UNII-3	5.08	5725	5730.08	---	---
	Ant2	5710 UNII-3	4.84	5725	5729.84	---	---
	Ant1	5755	40.32	5734.84	5775.16	---	---
	Ant2	5755	39.68	5735.08	5774.76	---	---
	Ant1	5795	40.08	5774.92	5815.00	---	---
	Ant2	5795	39.76	5775.08	5814.84	---	---
11AC80M IMO	Ant1	5210	80.32	5169.84	5250.16	---	---
	Ant2	5210	79.20	5170.48	5249.68	---	---
	Ant1	5290	80.32	5249.84	5330.16	---	---
	Ant2	5290	79.20	5250.48	5329.68	---	---
	Ant1	5530	80.48	5489.84	5570.32	---	---
	Ant2	5530	79.36	5490.32	5569.68	---	---
	Ant1	5610	80.48	5569.84	5650.32	---	---
	Ant2	5610	79.20	5570.48	5649.68	---	---
	Ant1	5690	80.32	5649.84	5730.16	---	---
	Ant2	5690	79.36	5650.32	5729.68	---	---
	Ant1	5690 UNII-2C	75.16	5649.84	5725	---	---
	Ant2	5690 UNII-2C	74.68	5650.32	5725	---	---
	Ant1	5690 UNII-3	5.16	5725	5730.16	---	---
	Ant2	5690 UNII-3	4.68	5725	5729.68	---	---
	Ant1	5775	80.48	5734.68	5815.16	---	---
	Ant2	5775	79.52	5735.16	5814.68	---	---
11AX20M IMO	Ant1	5180	27.96	5164.64	5192.60	---	---
	Ant2	5180	22.64	5168.56	5191.20	---	---
	Ant1	5200	25.36	5188.28	5213.64	---	---
	Ant2	5200	23.04	5188.16	5211.20	---	---
	Ant1	5240	19.88	5230.00	5249.88	---	---
	Ant2	5240	19.92	5230.00	5249.92	---	---
	Ant1	5260	29.20	5244.80	5274.00	---	---
	Ant2	5260	23.92	5248.12	5272.04	---	---
	Ant1	5280	28.24	5268.80	5297.04	---	---
	Ant2	5280	24.08	5267.76	5291.84	---	---
	Ant1	5320	24.44	5307.84	5332.28	---	---
	Ant2	5320	24.16	5308.92	5333.08	---	---
	Ant1	5500	23.96	5487.40	5511.36	---	---
	Ant2	5500	24.08	5488.32	5512.40	---	---
	Ant1	5580	28.72	5566.40	5595.12	---	---
	Ant2	5580	24.00	5568.12	5592.12	---	---
	Ant1	5700	24.40	5686.92	5711.32	---	---
	Ant2	5700	26.96	5687.88	5714.84	---	---
	Ant1	5720	26.16	5706.08	5732.24	---	---
	Ant2	5720	23.32	5708.60	5731.92	---	---
	Ant1	5720 UNII-2C	18.92	5706.08	5725	---	---
	Ant2	5720 UNII-2C	16.4	5708.60	5725	---	---
	Ant1	5720 UNII-3	7.24	5725	5732.24	---	---
	Ant2	5720 UNII-3	6.92	5725	5731.92	---	---
	Ant1	5745	25.68	5731.36	5757.04	---	---
	Ant2	5745	24.84	5731.72	5756.56	---	---
	Ant1	5785	30.40	5767.16	5797.56	---	---
	Ant2	5785	22.96	5773.44	5796.40	---	---
	Ant1	5825	26.36	5810.36	5836.72	---	---

11AX40M IMO	Ant2	5825	23.52	5812.88	5836.40	---	---
	Ant1	5190	39.76	5170.08	5209.84	---	---
	Ant2	5190	39.60	5170.24	5209.84	---	---
	Ant1	5230	39.60	5210.16	5249.76	---	---
	Ant2	5230	39.76	5210.08	5249.84	---	---
	Ant1	5270	39.76	5250.08	5289.84	---	---
	Ant2	5270	39.60	5250.16	5289.76	---	---
	Ant1	5310	39.60	5290.16	5329.76	---	---
	Ant2	5310	39.76	5290.16	5329.92	---	---
	Ant1	5510	39.68	5490.16	5529.84	---	---
	Ant2	5510	39.76	5490.08	5529.84	---	---
	Ant1	5550	39.68	5530.16	5569.84	---	---
	Ant2	5550	39.68	5530.08	5569.76	---	---
	Ant1	5670	39.68	5650.08	5689.76	---	---
	Ant2	5670	39.68	5650.16	5689.84	---	---
	Ant1	5710	39.60	5690.16	5729.76	---	---
	Ant2	5710	39.76	5690.08	5729.84	---	---
	Ant1	5710_UNII-2C	34.84	5690.16	5725	---	---
	Ant2	5710_UNII-2C	34.92	5690.08	5725	---	---
	Ant1	5710_UNII-3	4.76	5725	5729.76	---	---
	Ant2	5710_UNII-3	4.84	5725	5729.84	---	---
	Ant1	5755	39.76	5735.08	5774.84	---	---
	Ant2	5755	39.68	5735.16	5774.84	---	---
	Ant1	5795	39.76	5775.08	5814.84	---	---
	Ant2	5795	39.68	5775.08	5814.76	---	---
11AX80M IMO	Ant1	5210	80.64	5169.68	5250.32	---	---
	Ant2	5210	80.32	5169.84	5250.16	---	---
	Ant1	5290	80.48	5249.68	5330.16	---	---
	Ant2	5290	80.48	5249.84	5330.32	---	---
	Ant1	5530	80.32	5489.84	5570.16	---	---
	Ant2	5530	80.32	5489.84	5570.16	---	---
	Ant1	5610	80.48	5569.84	5650.32	---	---
	Ant2	5610	80.48	5569.84	5650.32	---	---
	Ant1	5690	80.48	5649.84	5730.32	---	---
	Ant2	5690	80.32	5649.84	5730.16	---	---
	Ant1	5690_UNII-2C	75.16	5649.84	5725	---	---
	Ant2	5690_UNII-2C	75.16	5649.84	5725	---	---
	Ant1	5690_UNII-3	5.32	5725	5730.32	---	---
	Ant2	5690_UNII-3	5.16	5725	5730.16	---	---
	Ant1	5775	80.48	5734.68	5815.16	---	---
	Ant2	5775	80.48	5734.84	5815.32	---	---

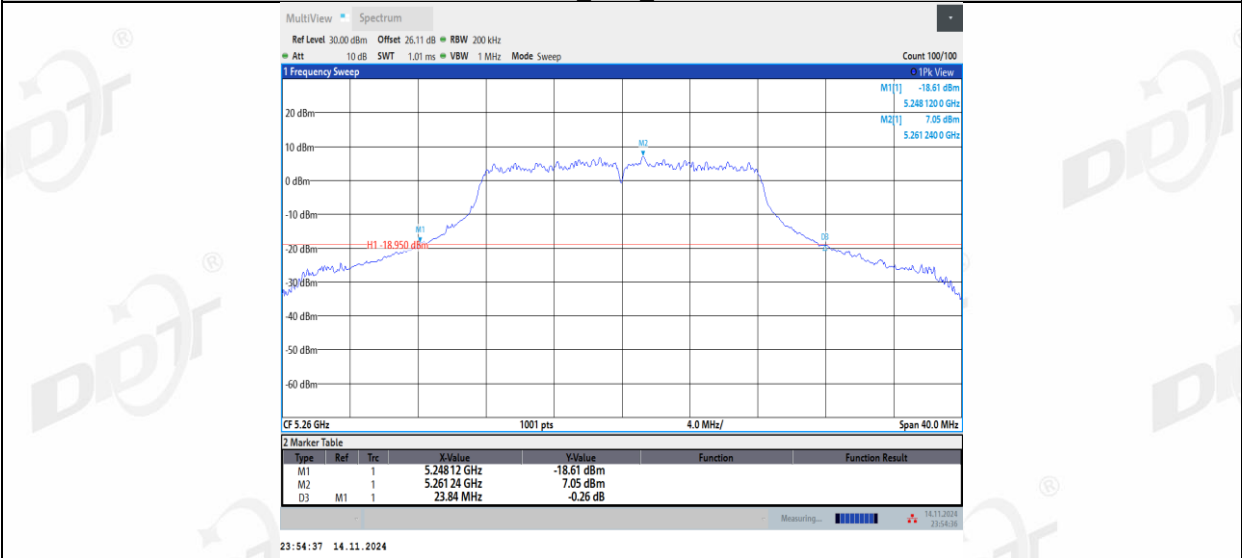
4.5. Test graphs



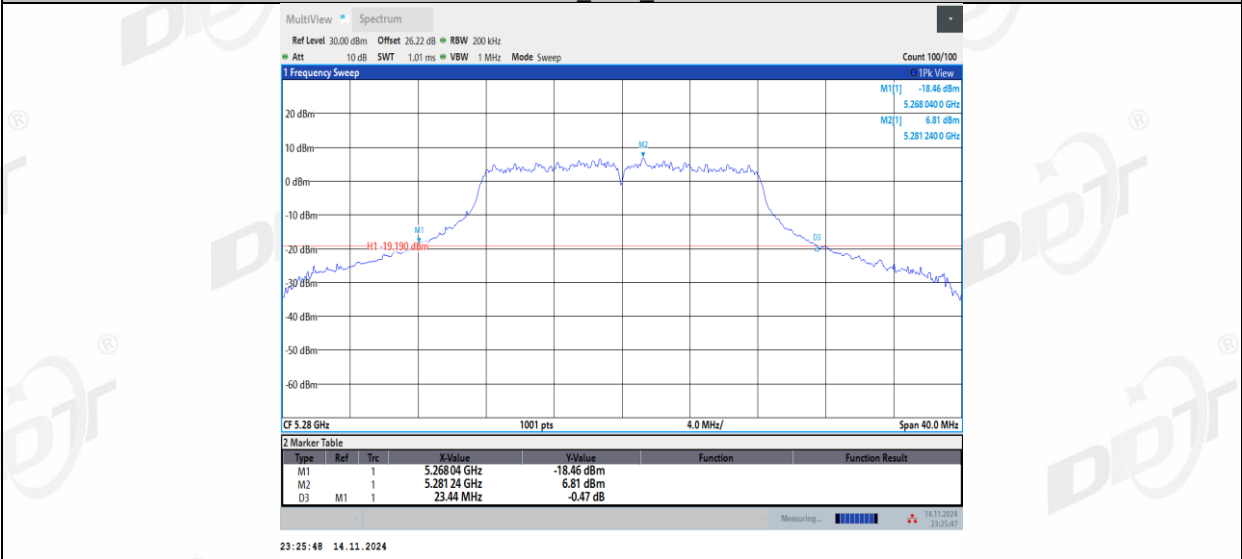




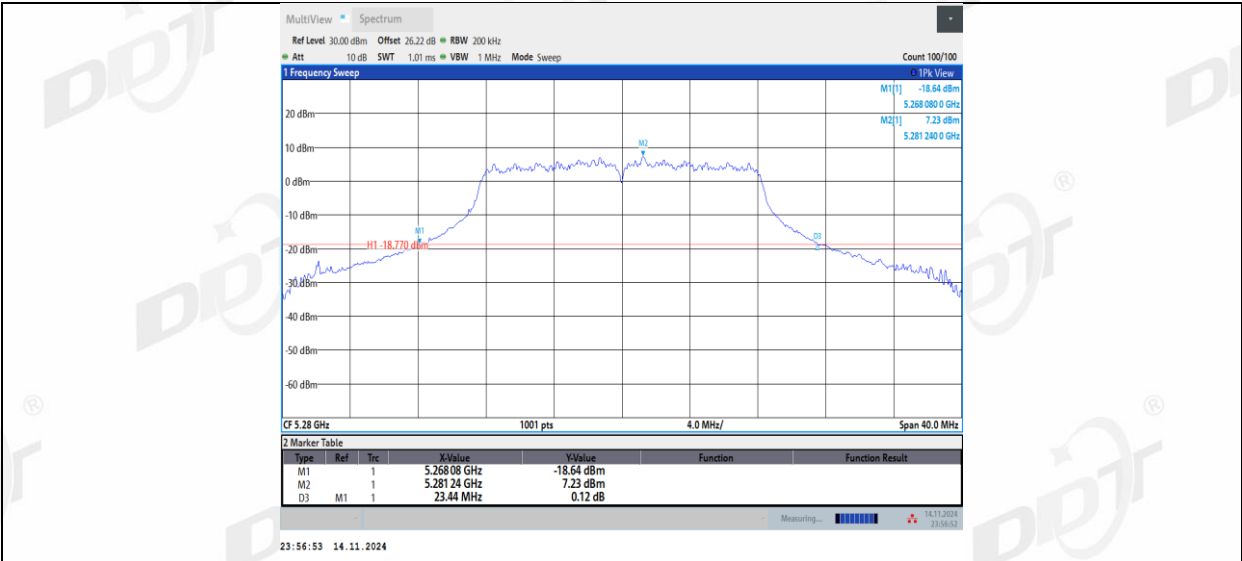
11A_Ant2_5260



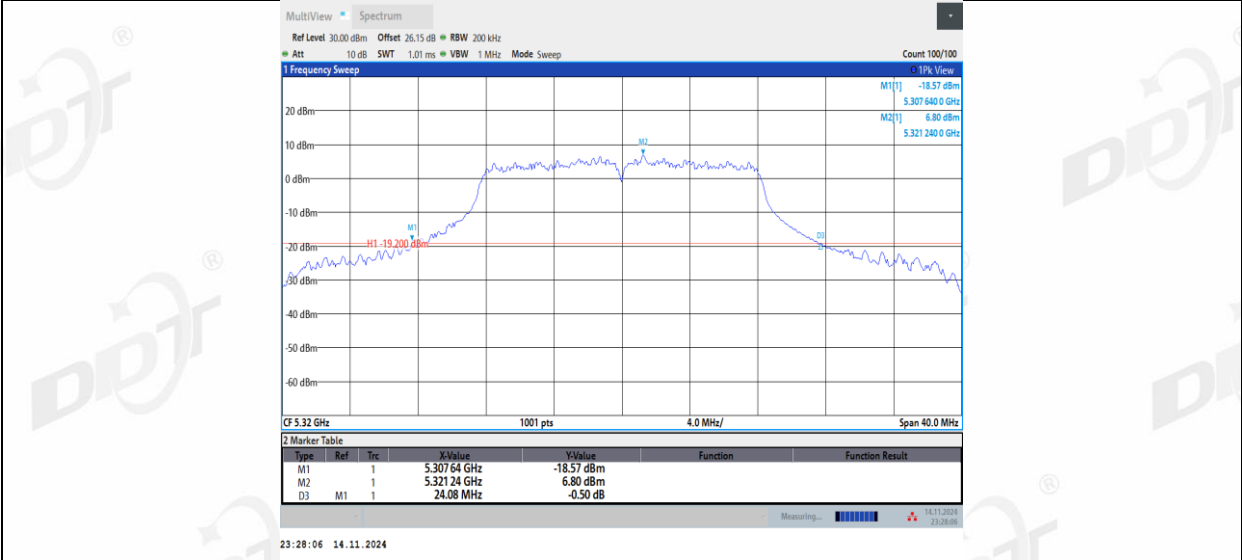
11A_Ant1_5280



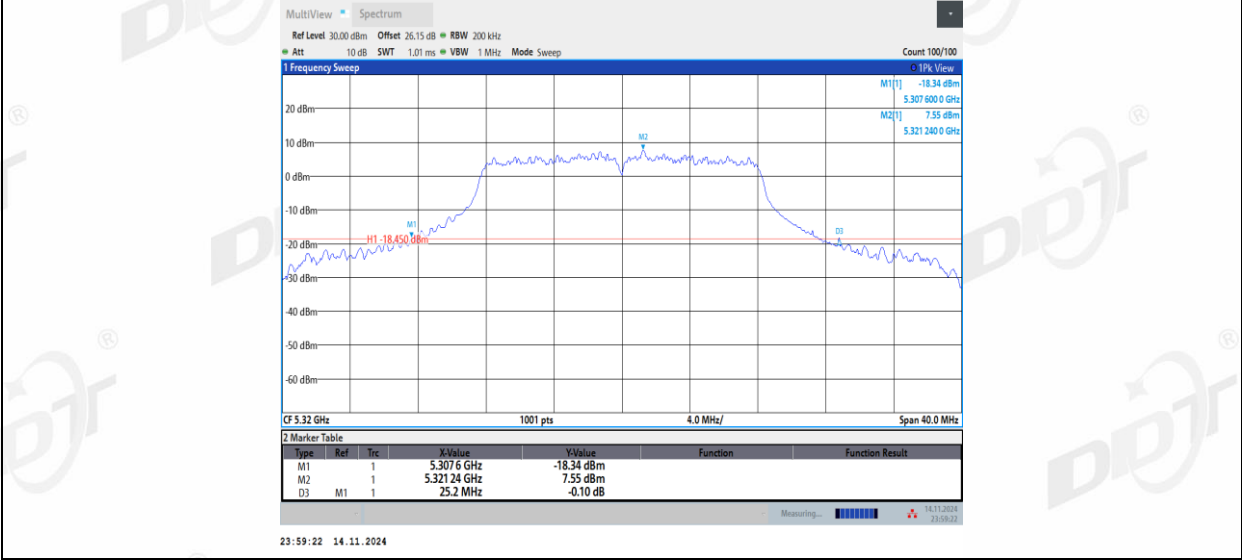
11A_Ant2_5280



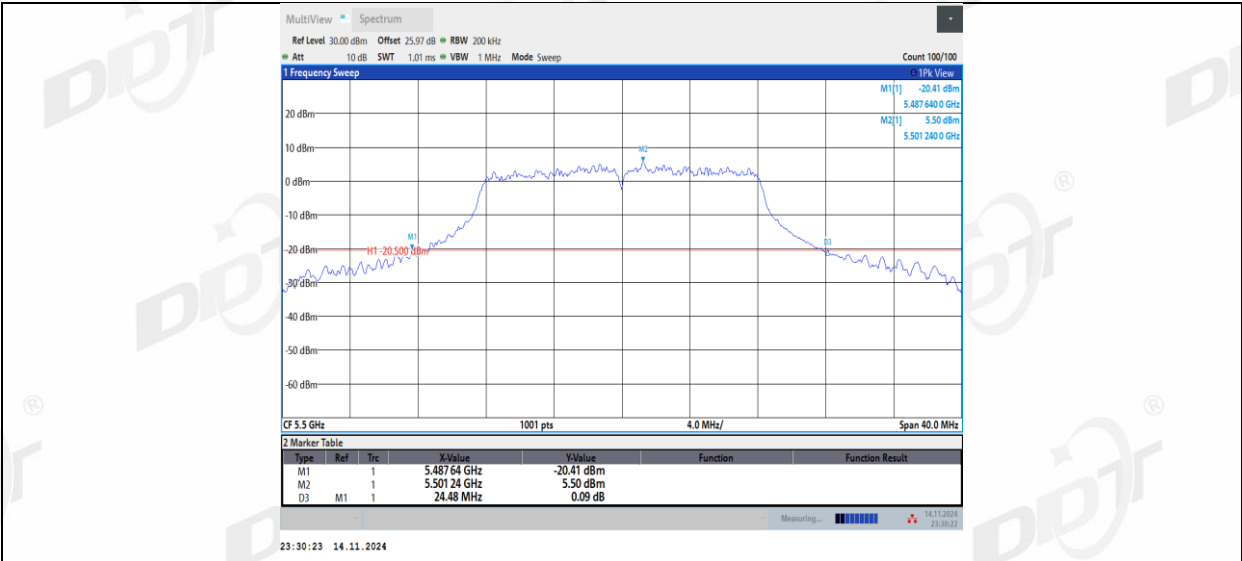
11A_Ant1_5320



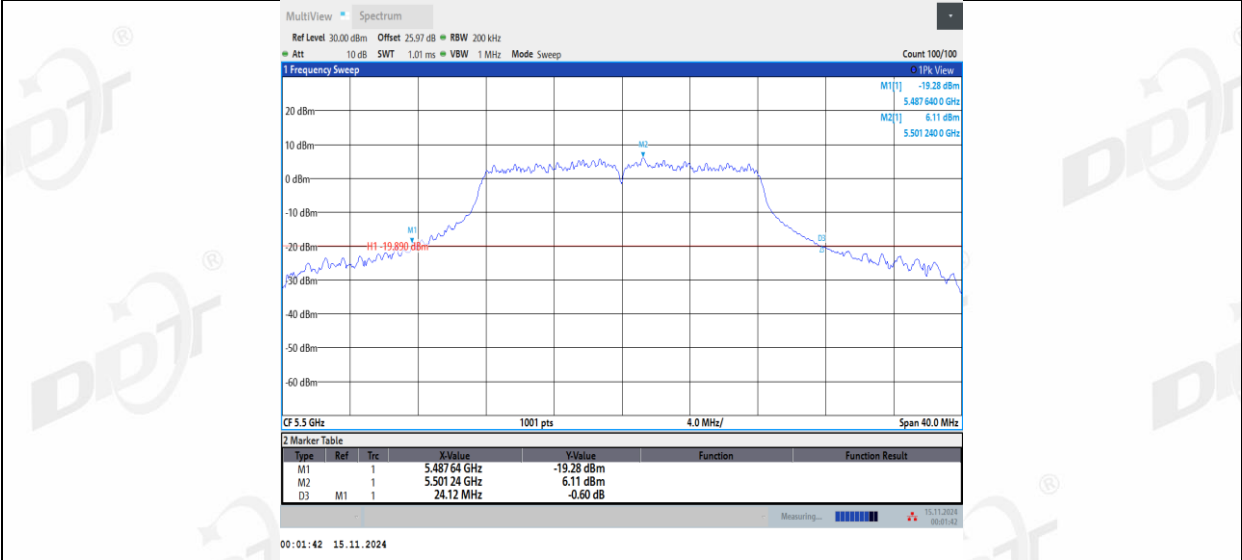
11A_Ant2_5320



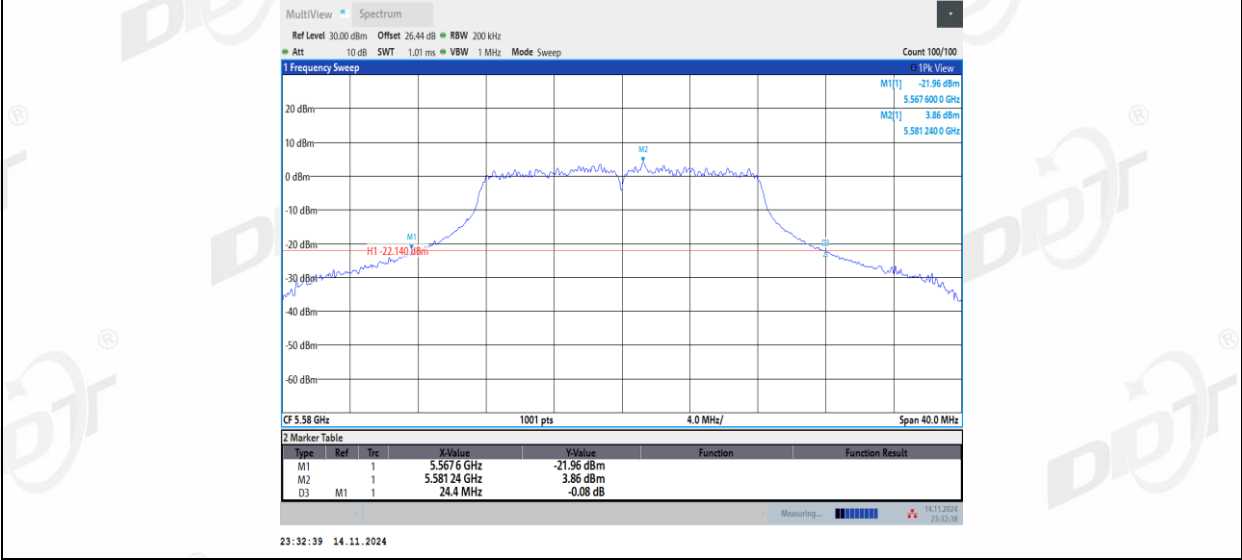
11A_Ant1_5500



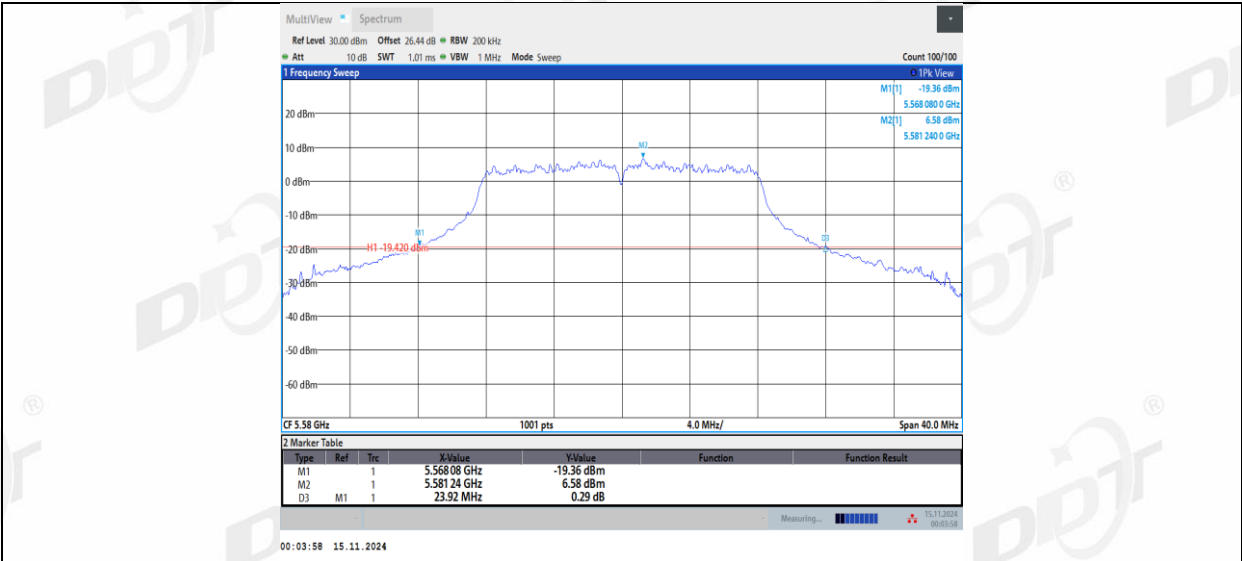
11A_Ant2_5500



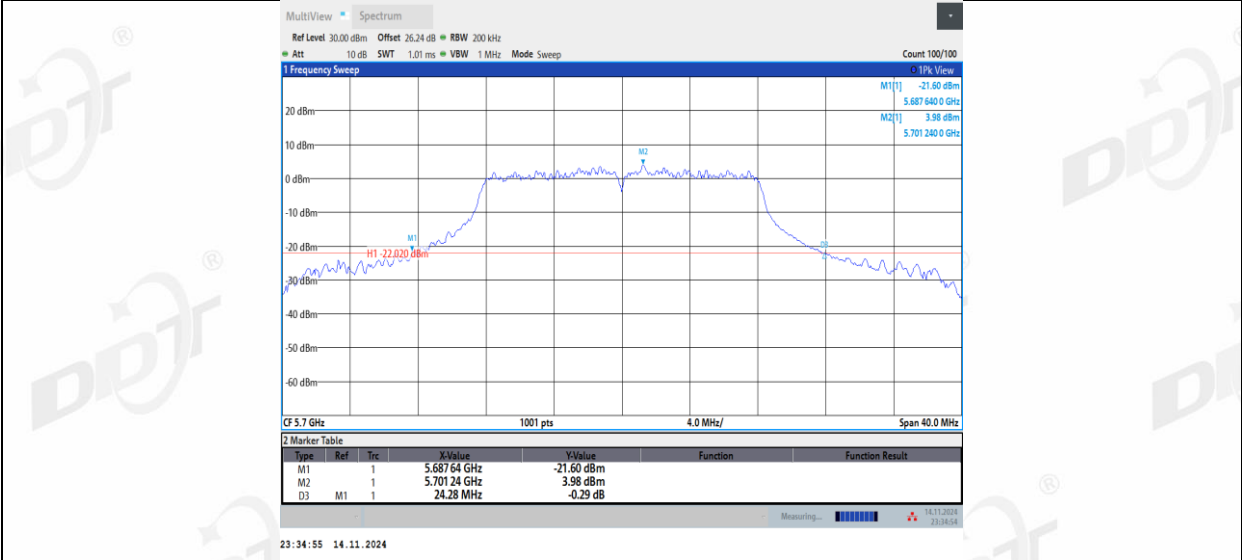
11A_Ant1_5580



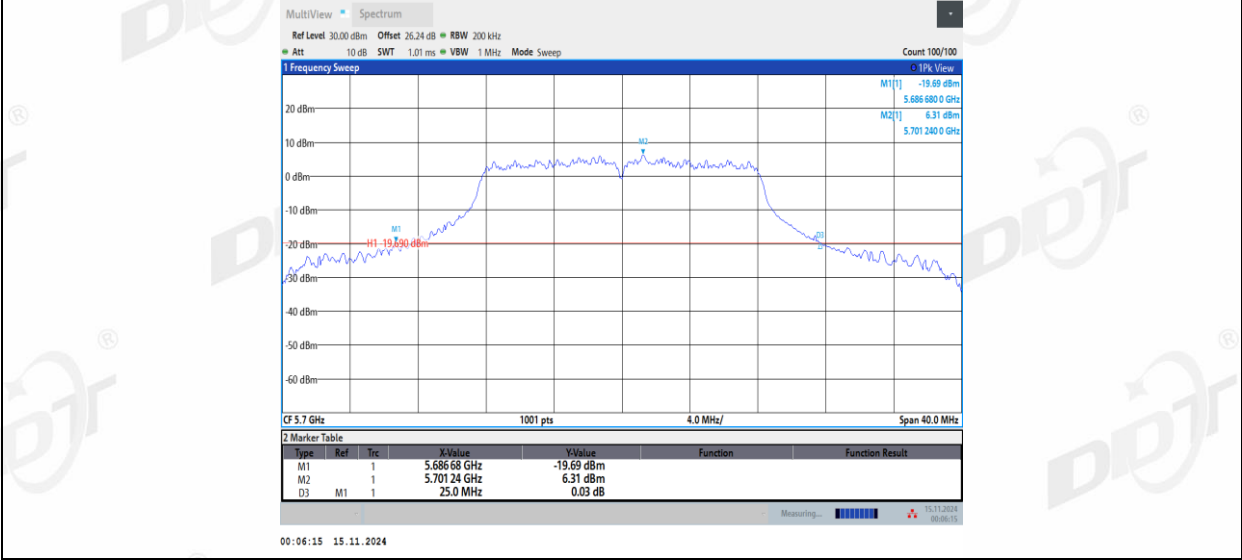
11A_Ant2_5580



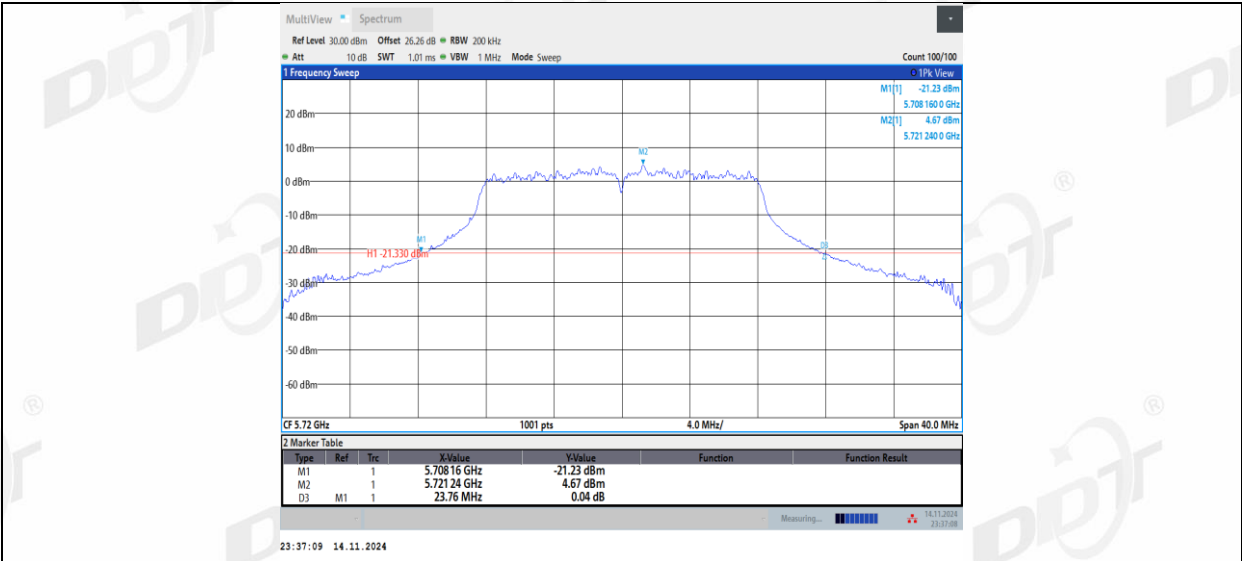
11A_Ant1_5700



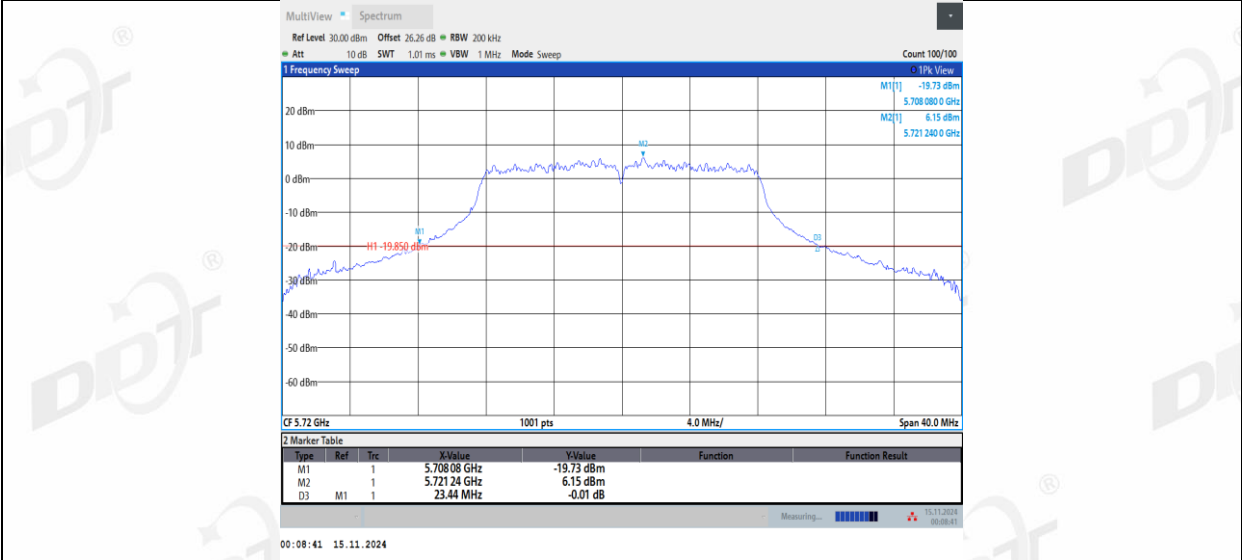
11A_Ant2_5700



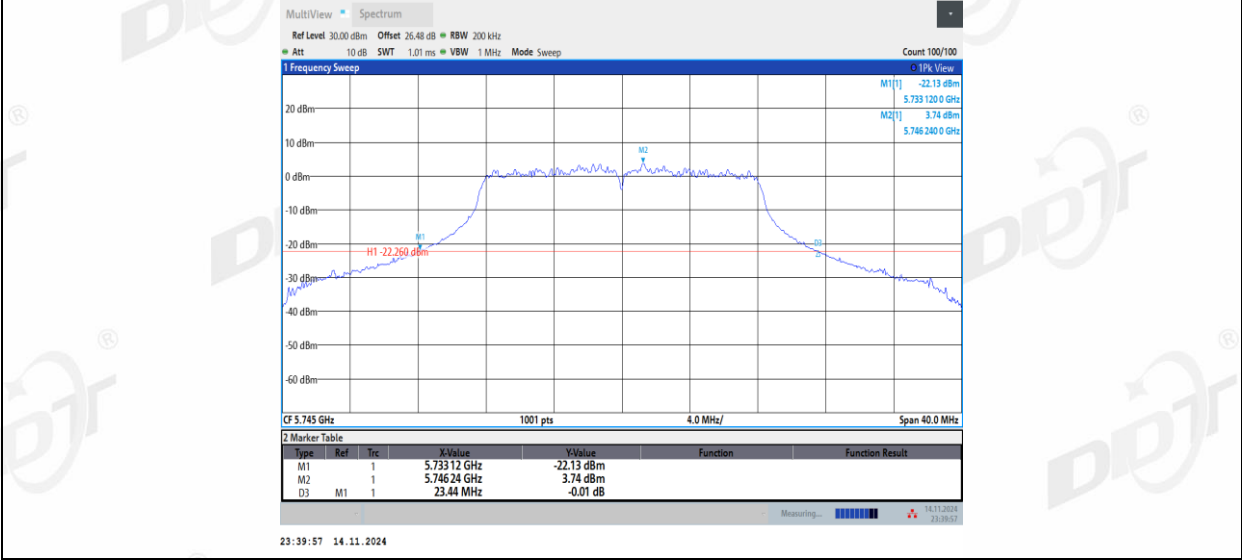
11A_Ant1_5720



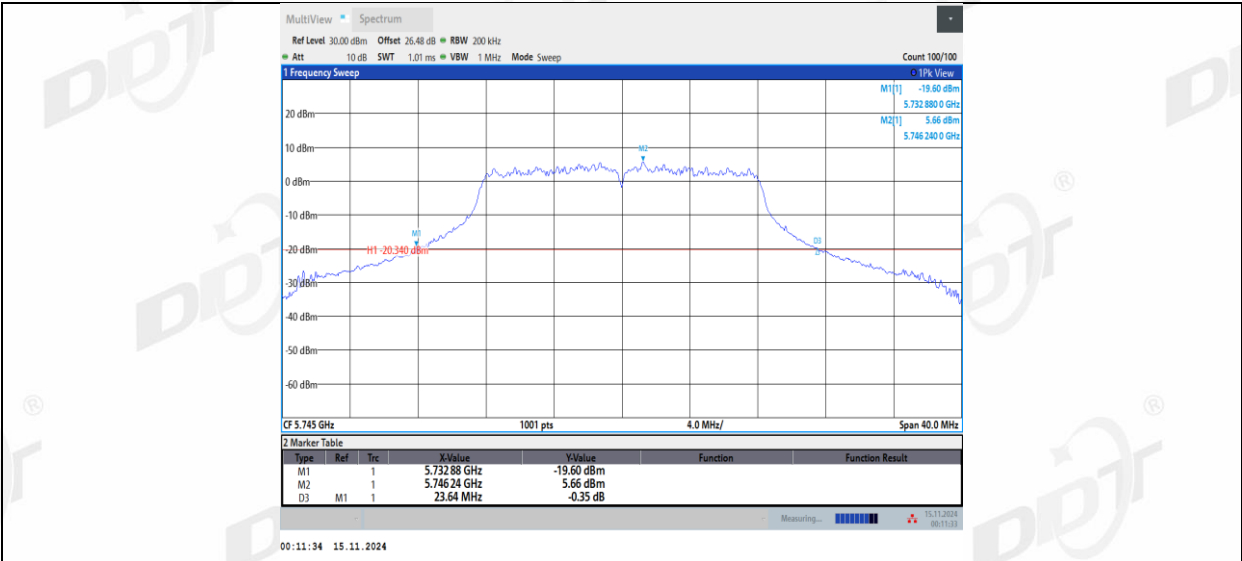
11A_Ant2_5720



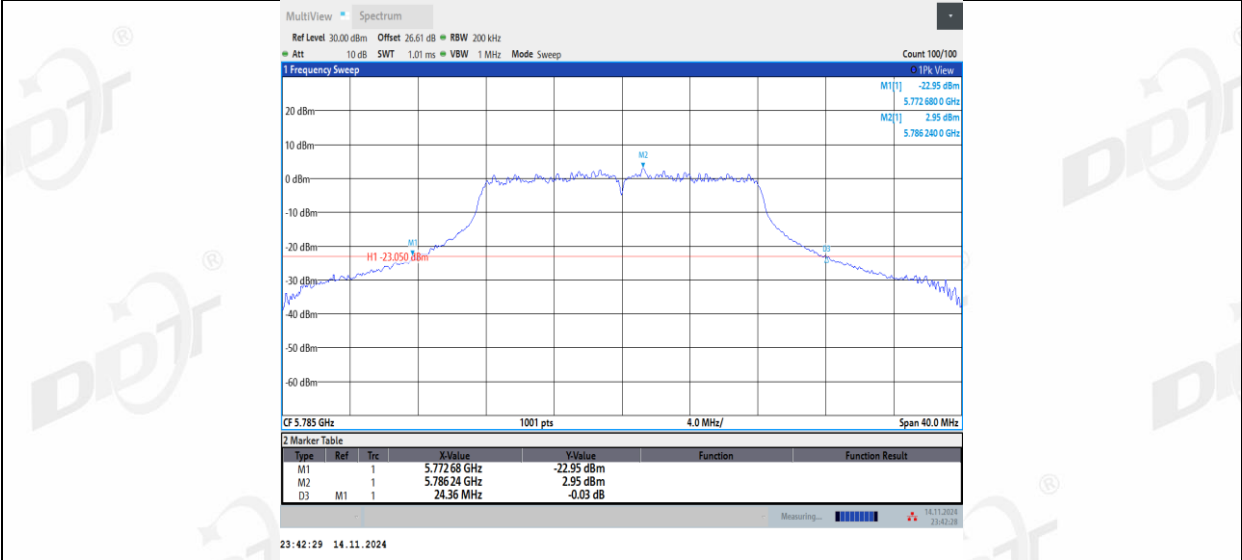
11A_Ant1_5745



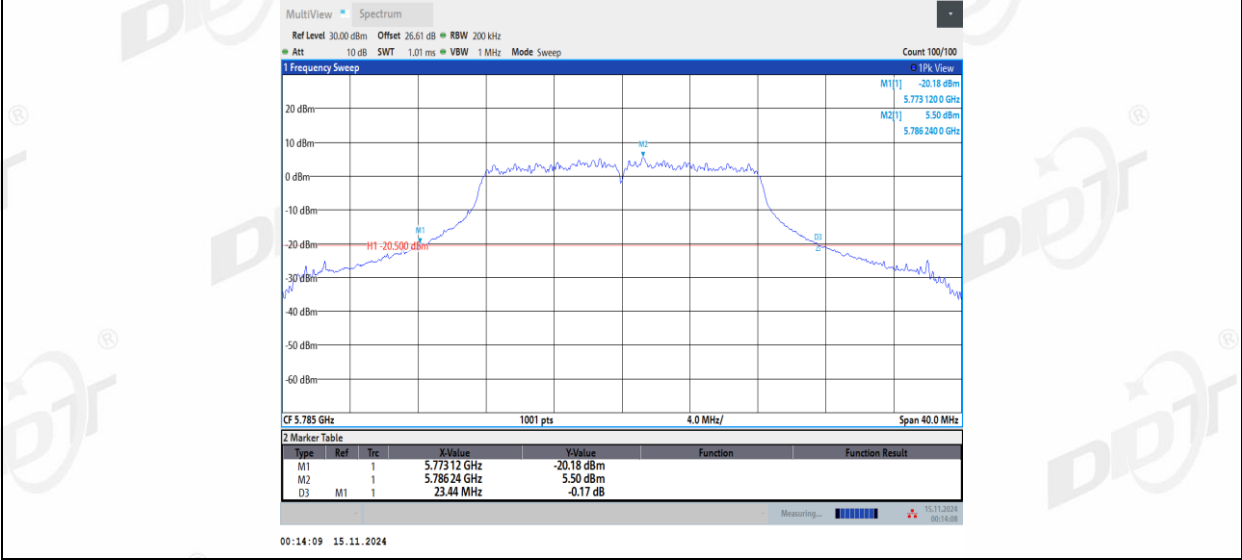
11A_Ant2_5745



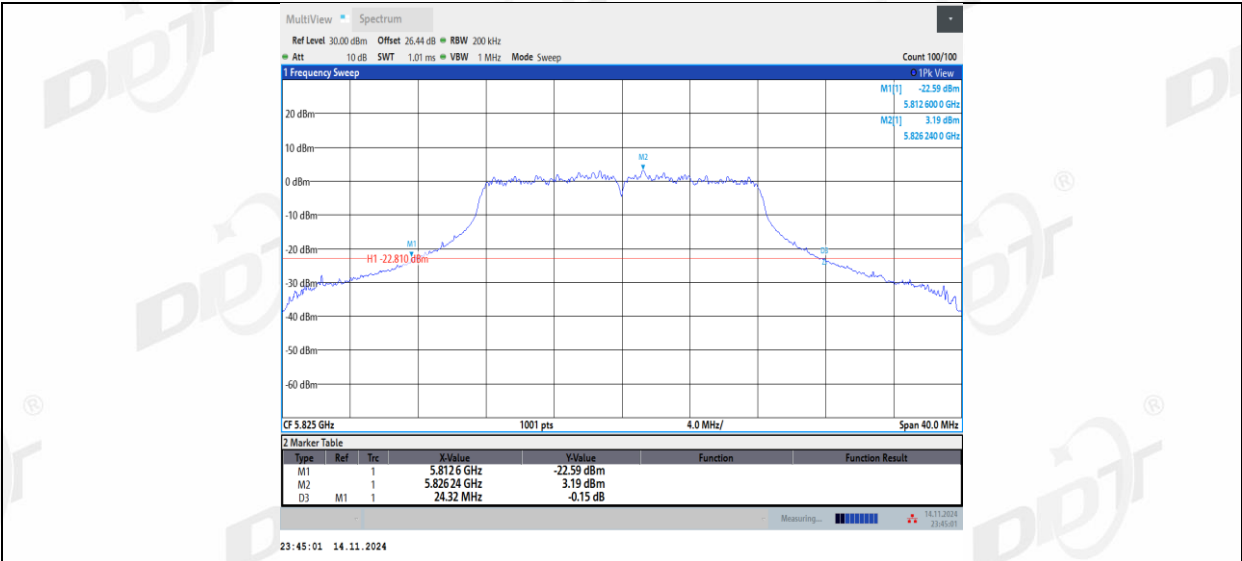
11A_Ant1_5785



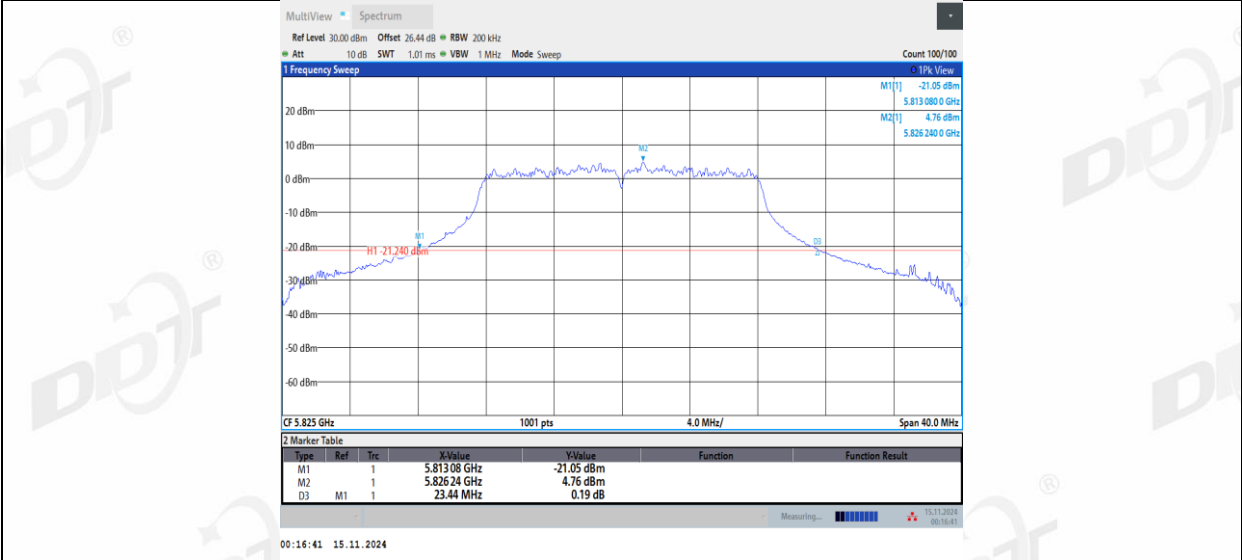
11A_Ant2_5785



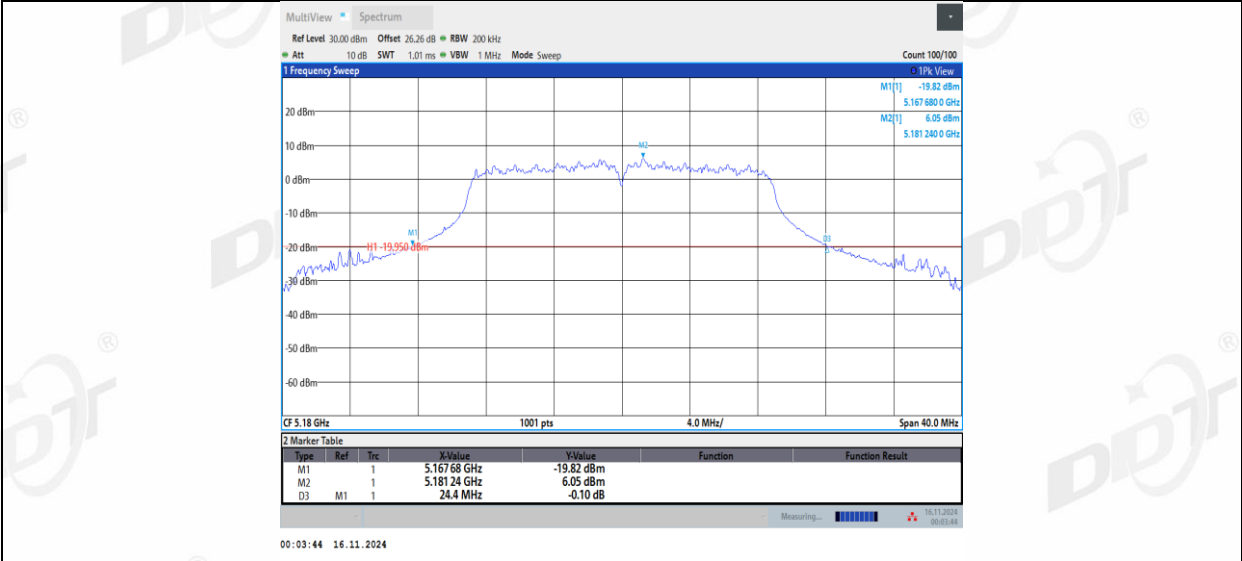
11A_Ant1_5825



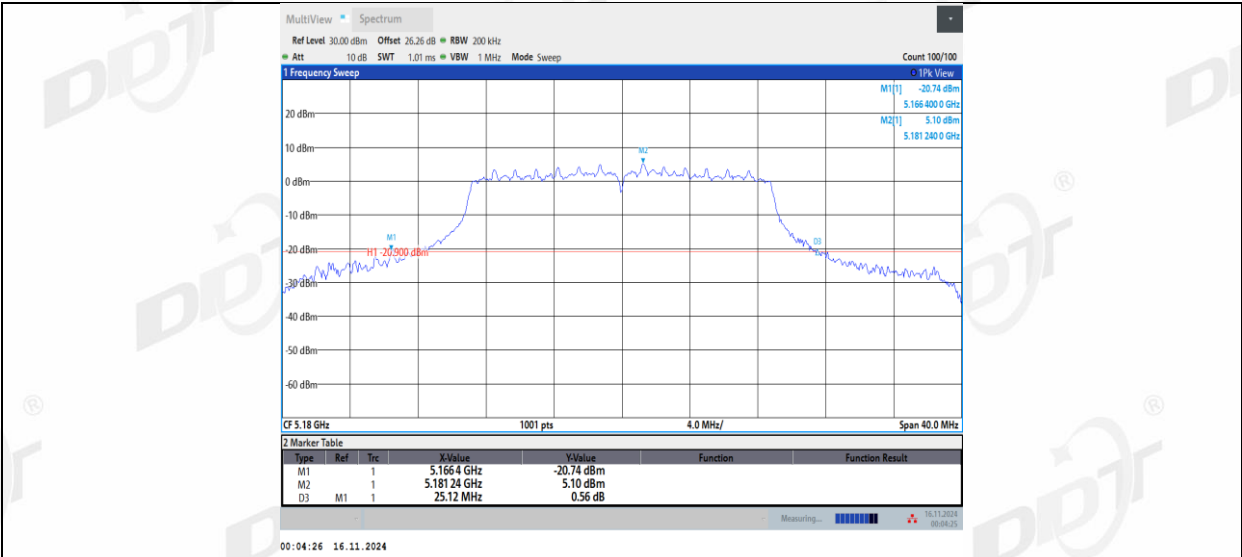
11A_Ant2_5825



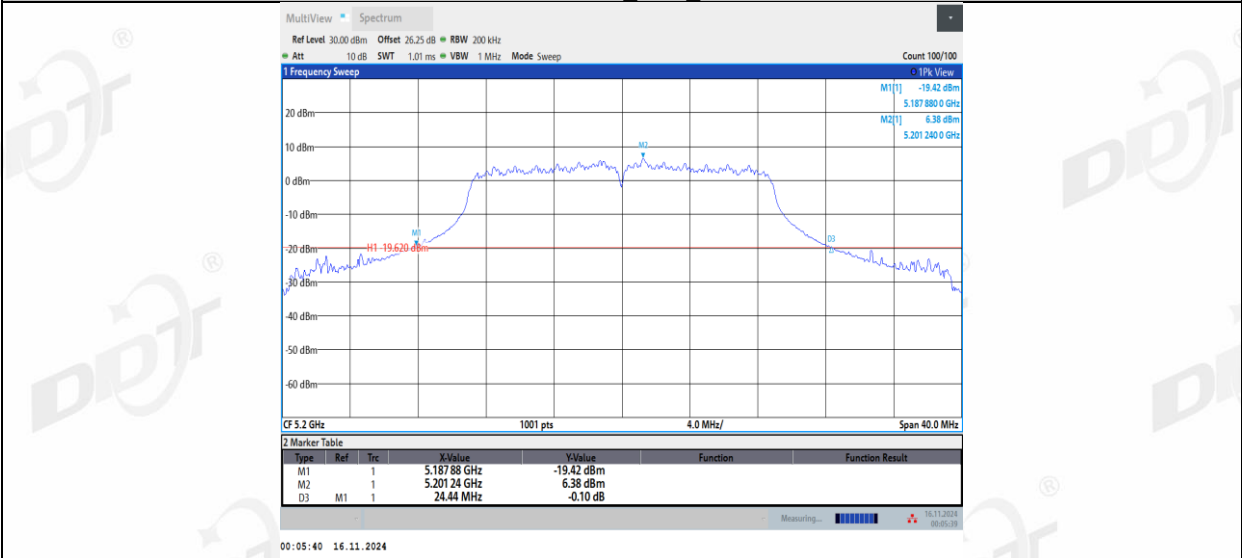
11N20MIMO_Ant1_5180



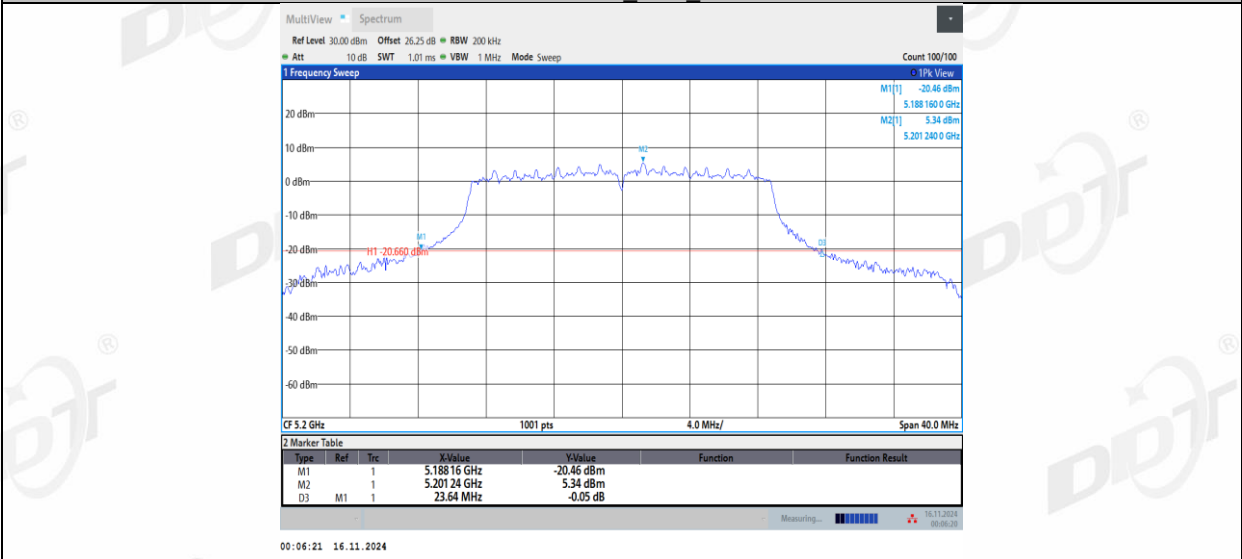
11N20MIMO_Ant2_5180



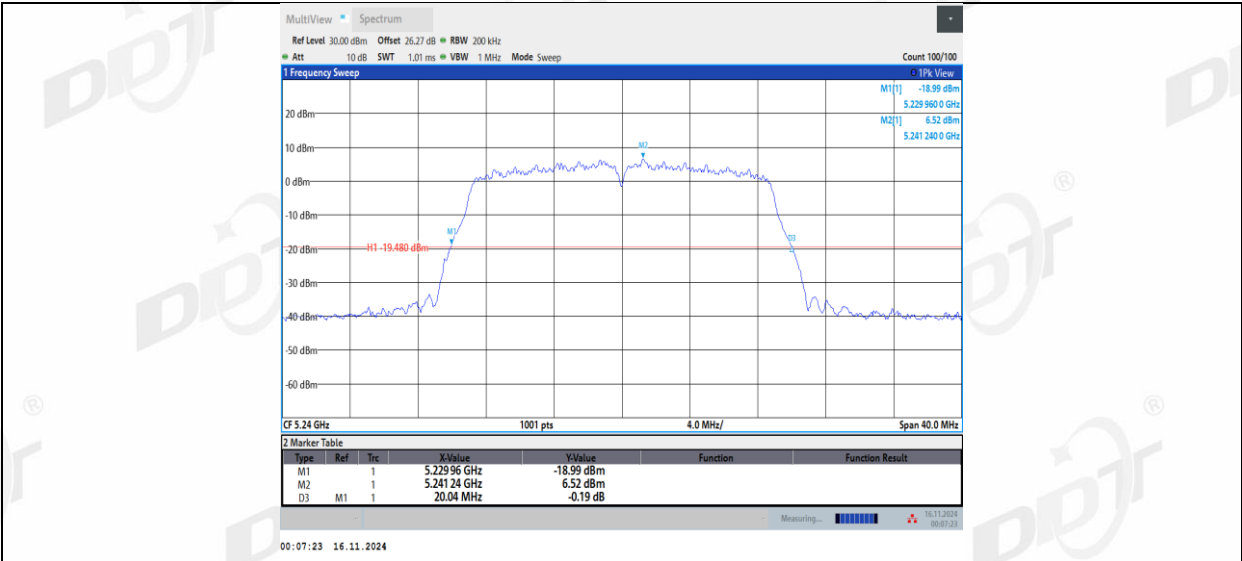
11N20MIMO_Ant1_5200



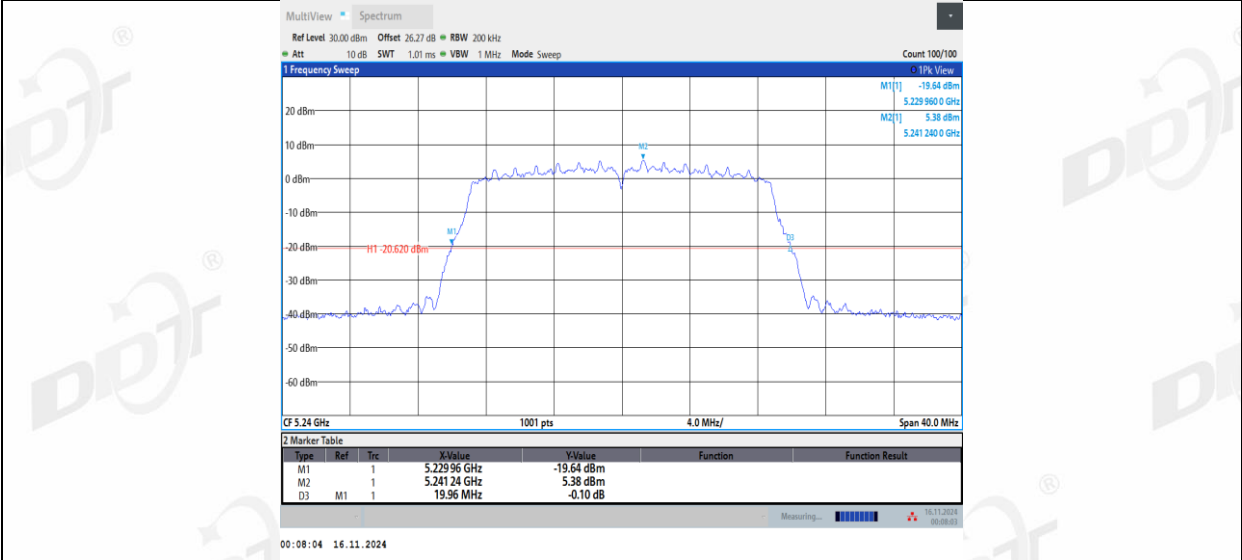
11N20MIMO_Ant2_5200



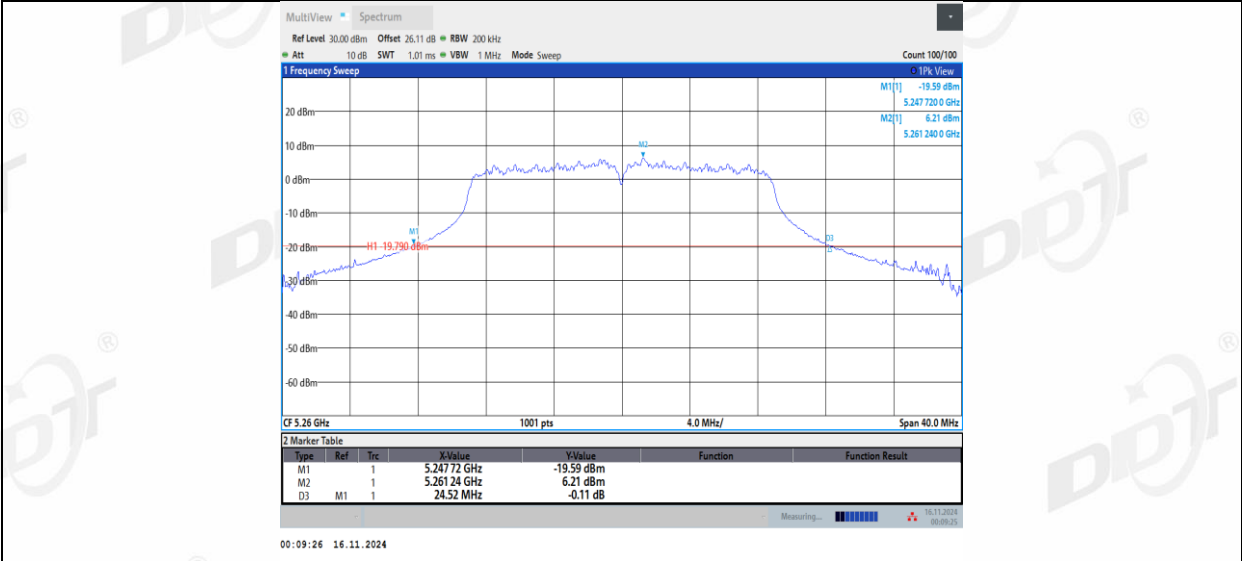
11N20MIMO_Ant1_5240



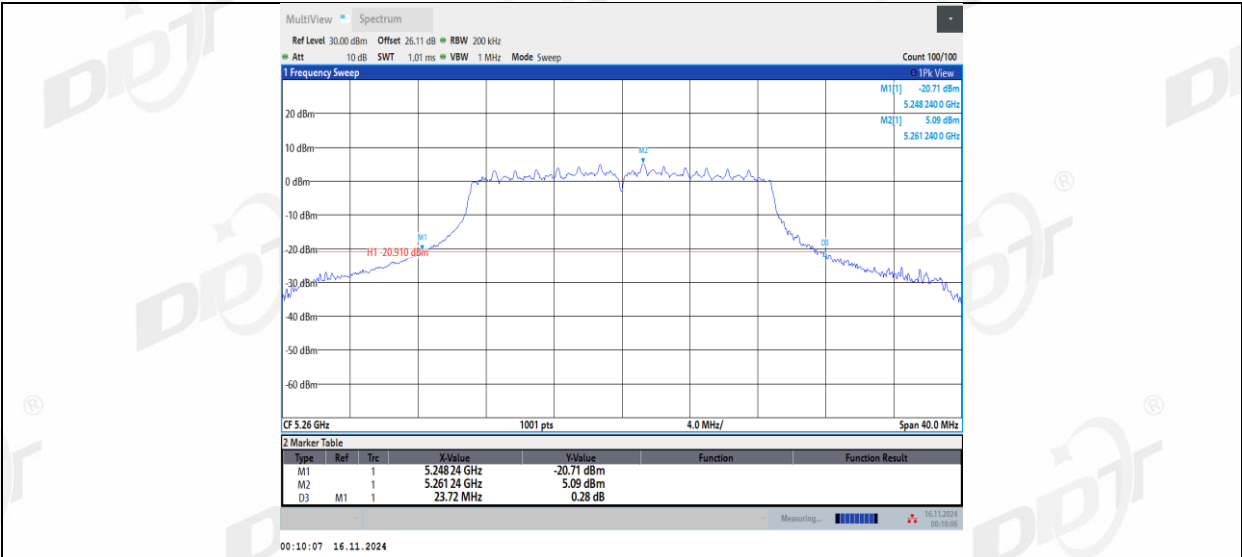
11N20MIMO_Ant2_5240



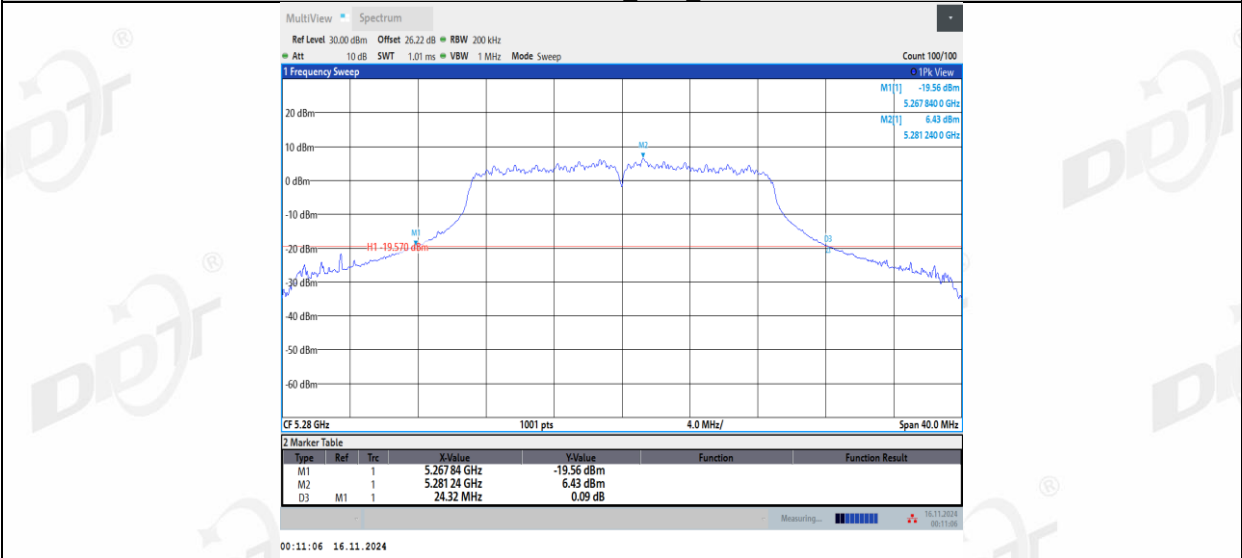
11N20MIMO_Ant1_5260



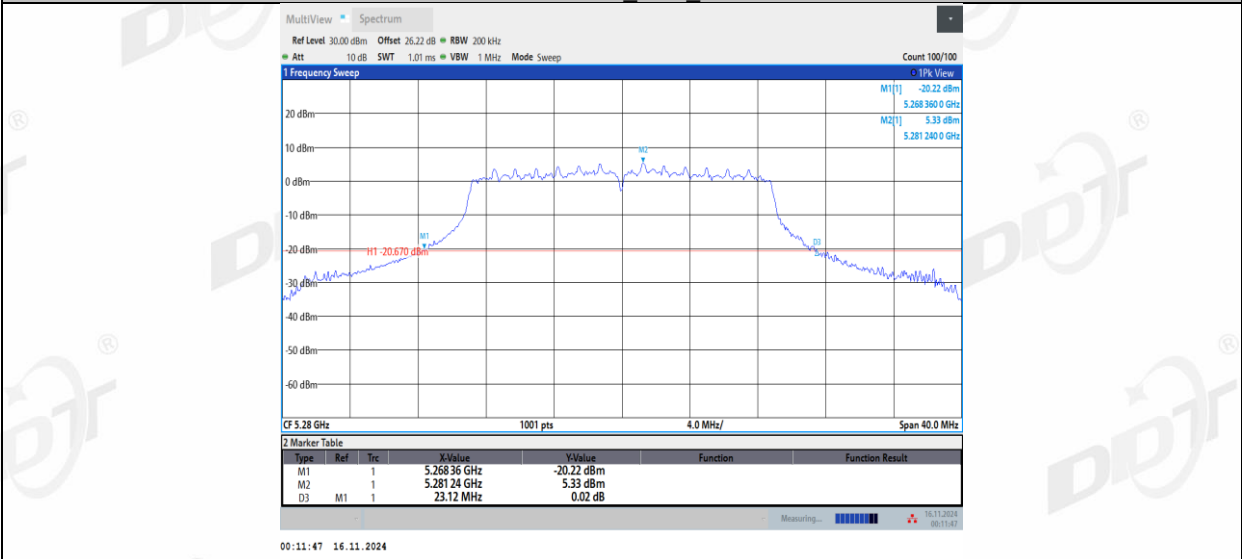
11N20MIMO_Ant2_5260



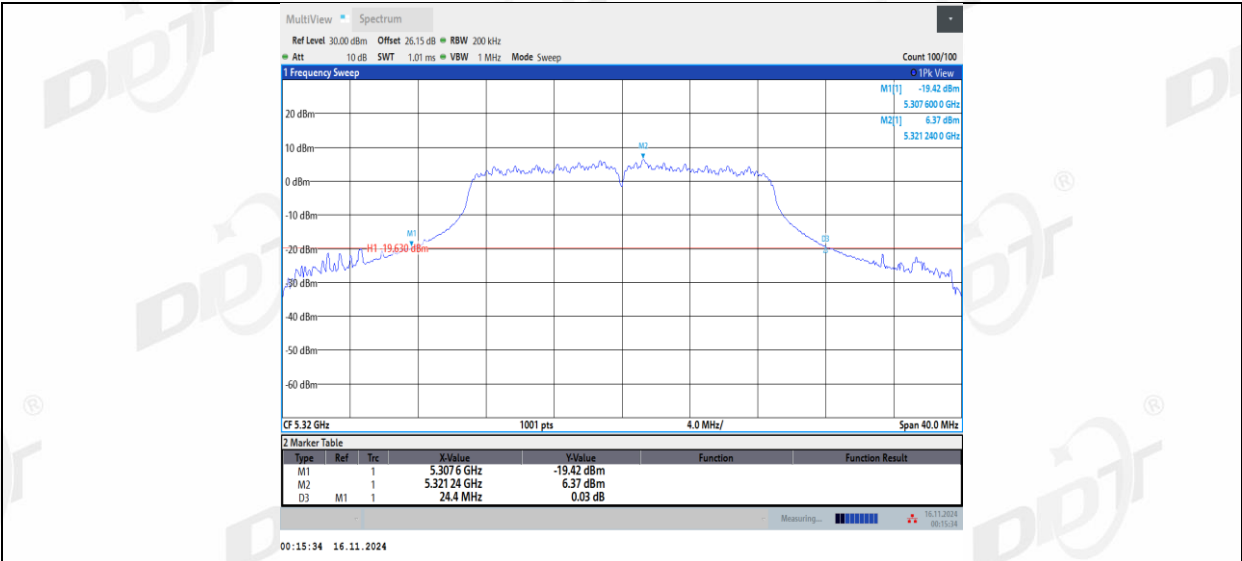
11N20MIMO_Ant1_5280



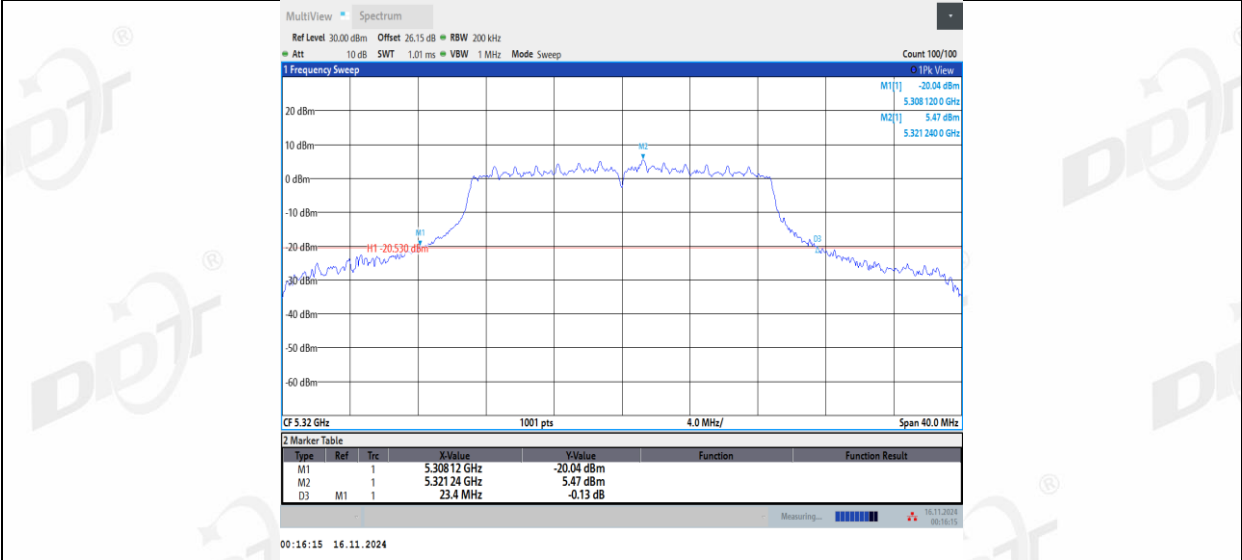
11N20MIMO_Ant2_5280



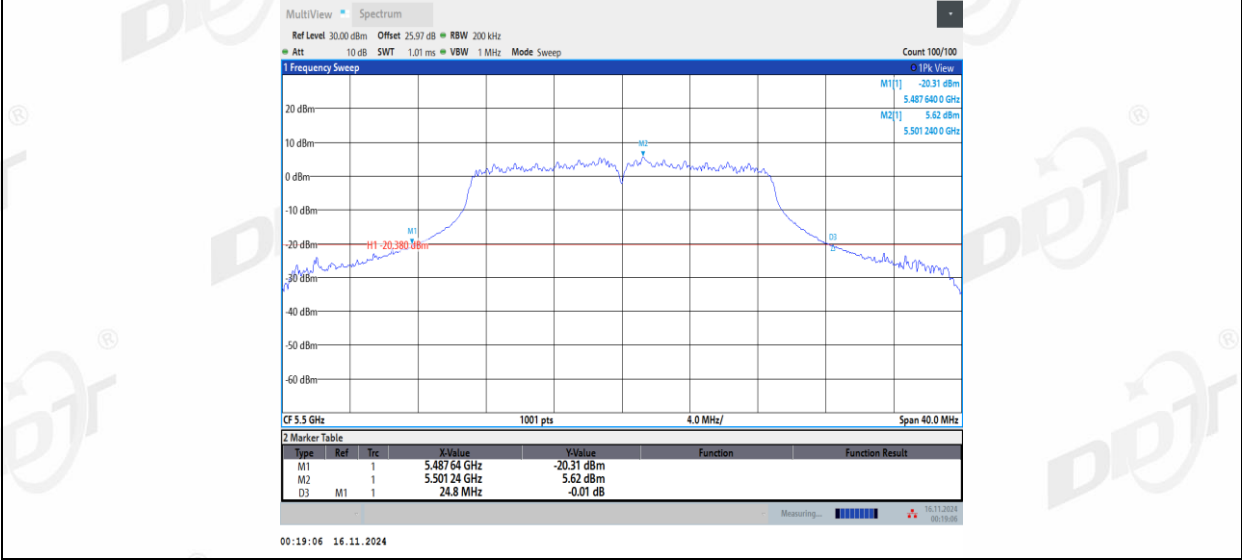
11N20MIMO_Ant1_5320



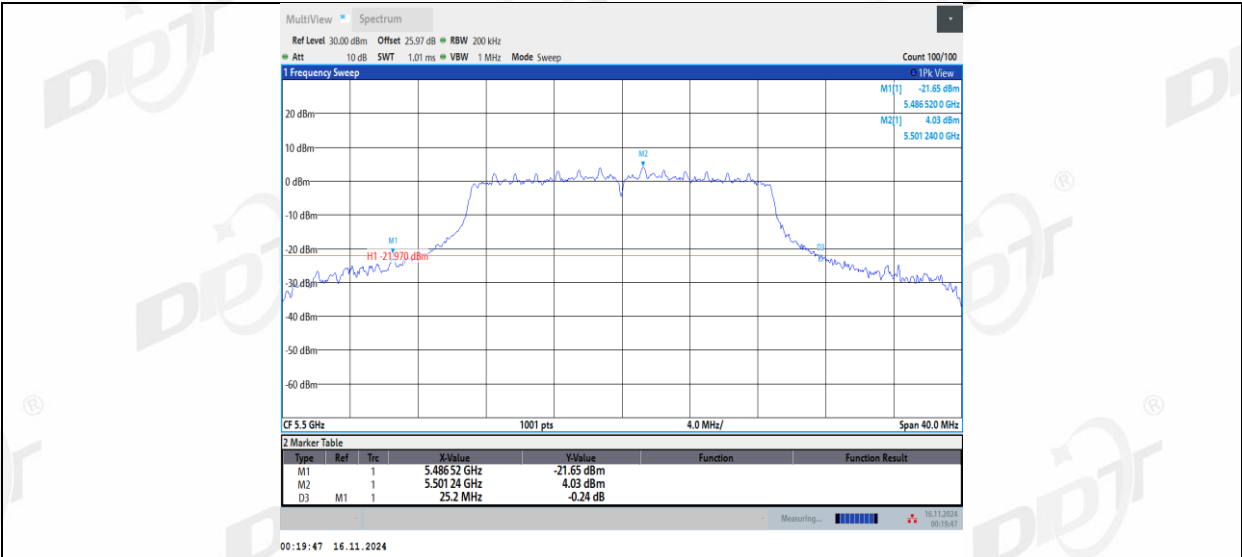
11N20MIMO_Ant2_5320



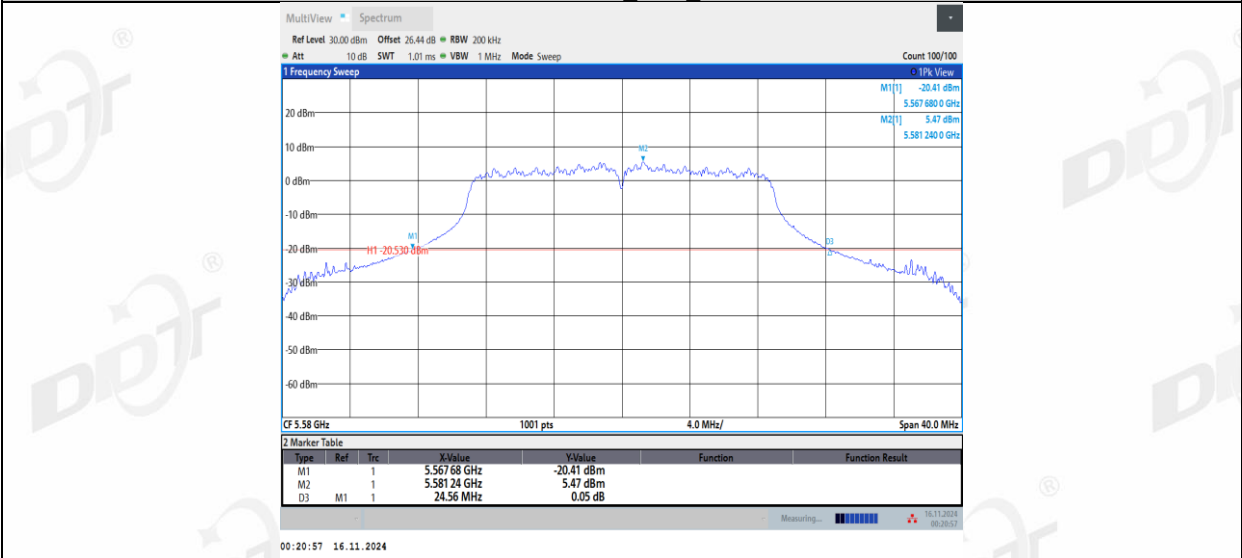
11N20MIMO_Ant1_5500



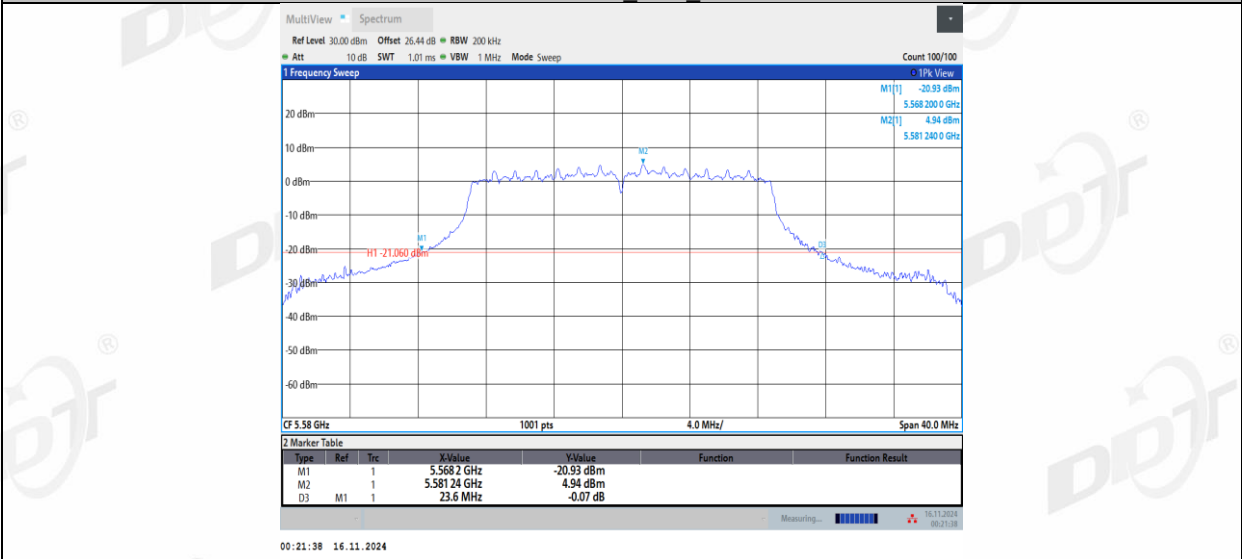
11N20MIMO_Ant2_5500



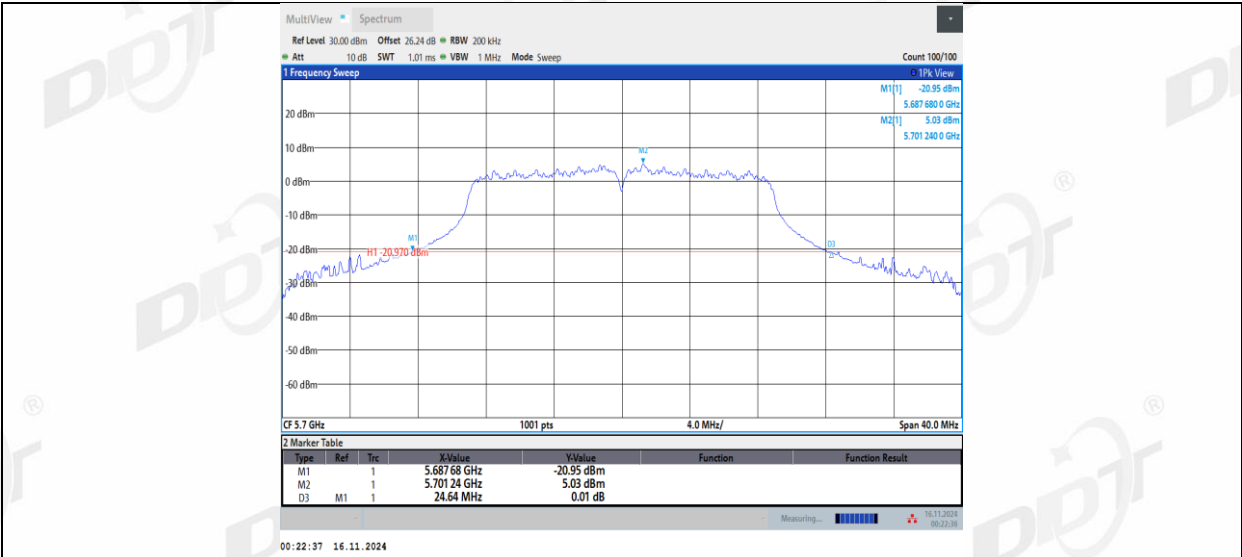
11N20MIMO_Ant1_5580



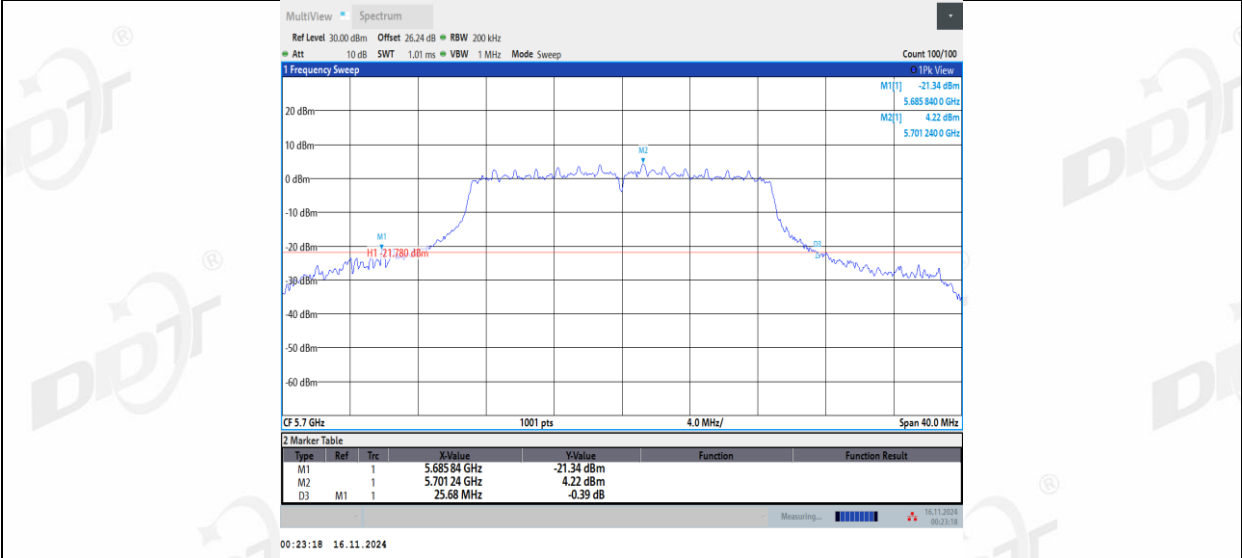
11N20MIMO_Ant2_5580



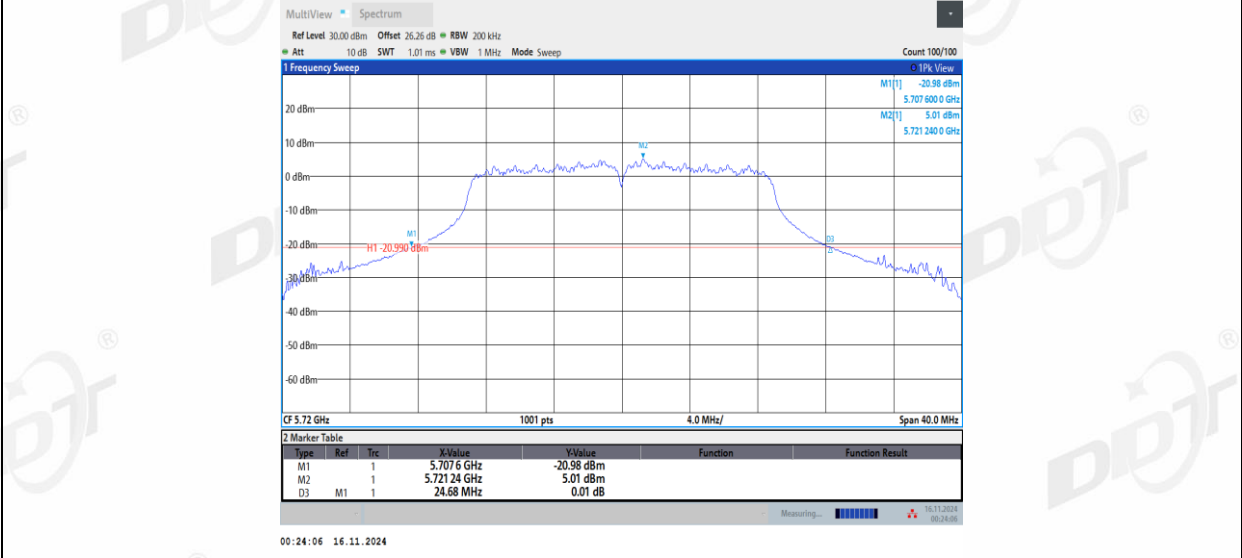
11N20MIMO_Ant1_5700



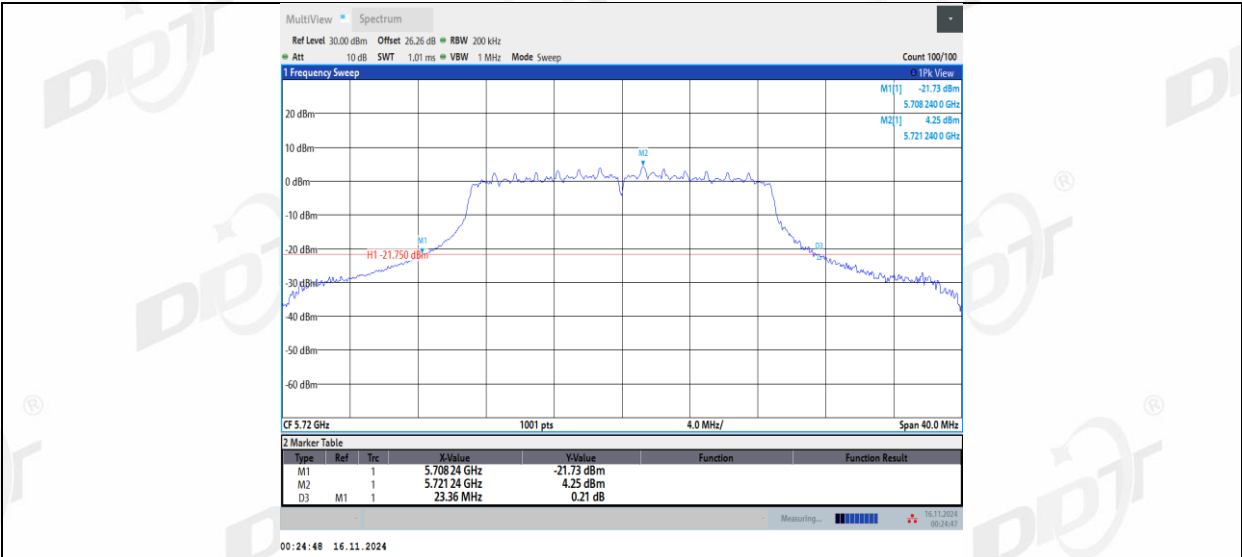
11N20MIMO_Ant2_5700



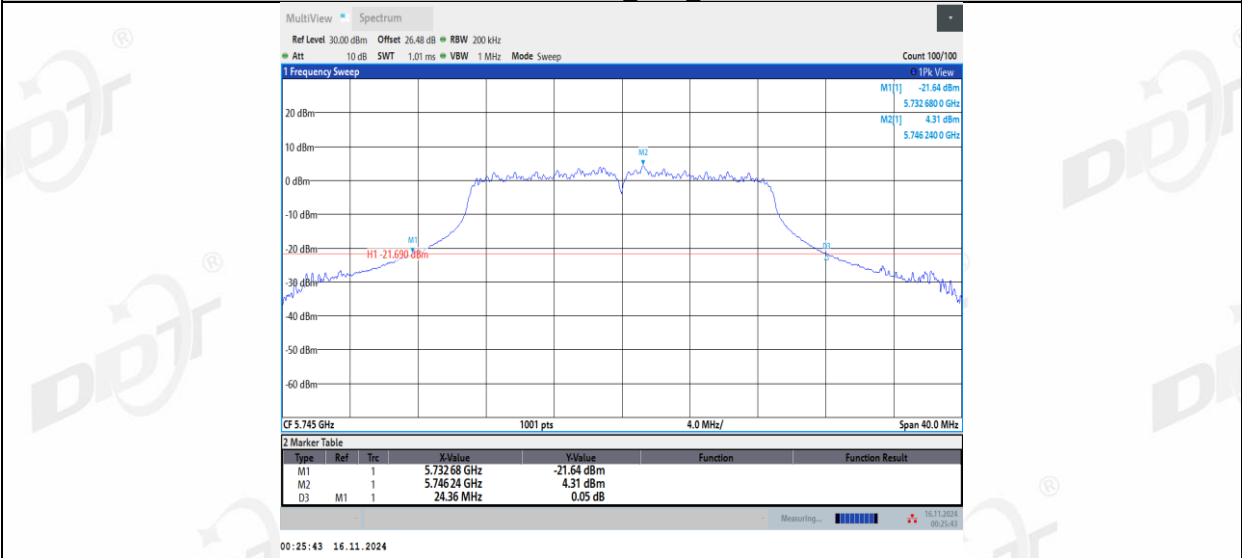
11N20MIMO_Ant1_5720



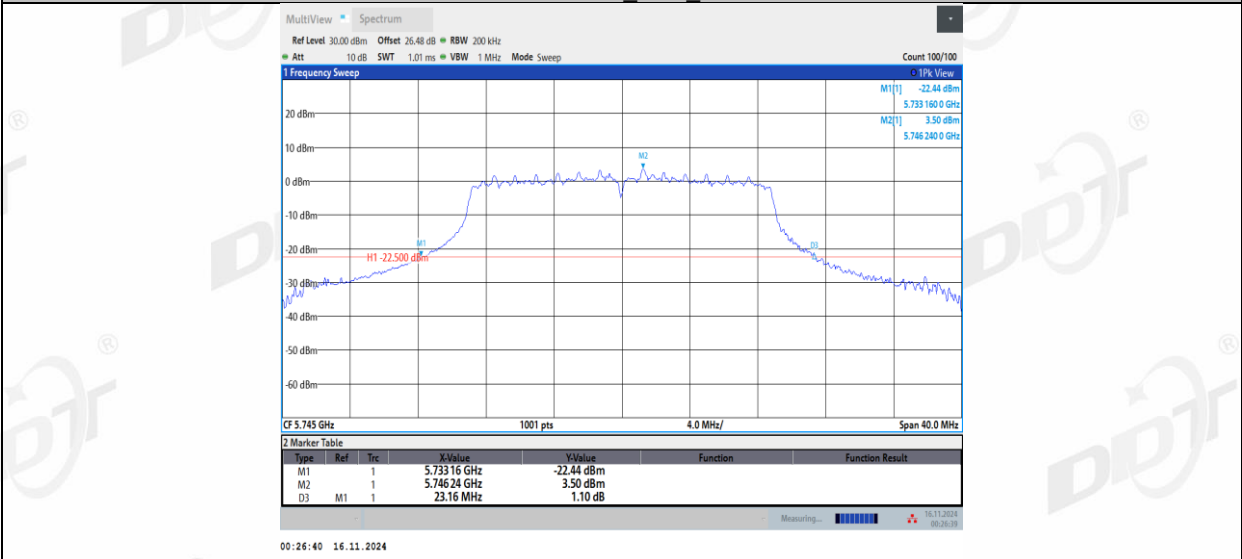
11N20MIMO_Ant2_5720



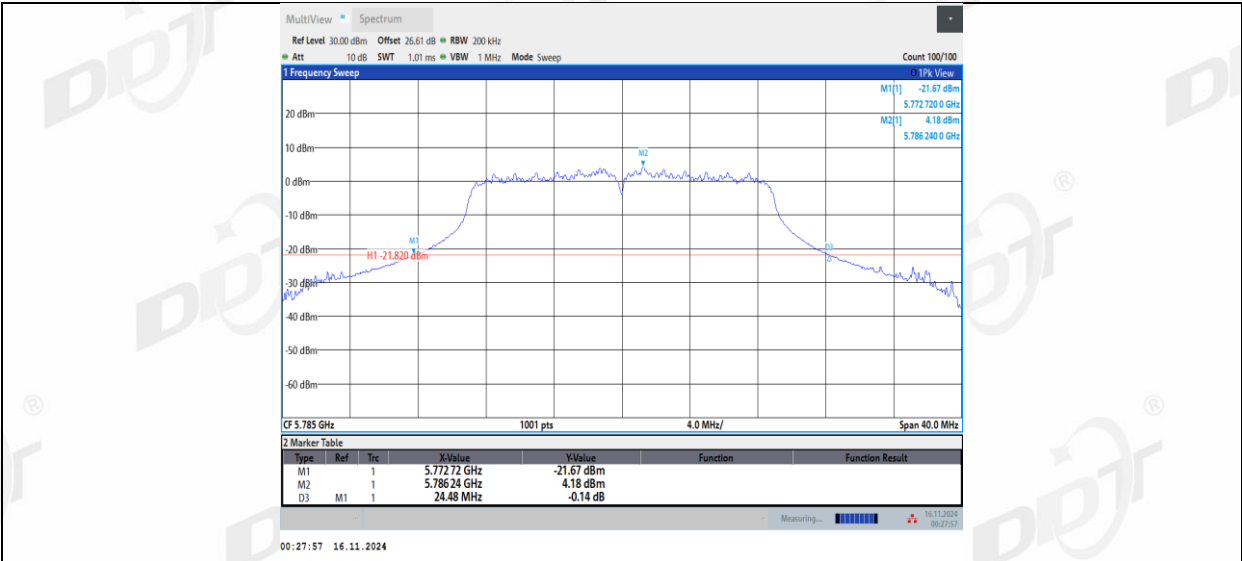
11N20MIMO_Ant1_5745



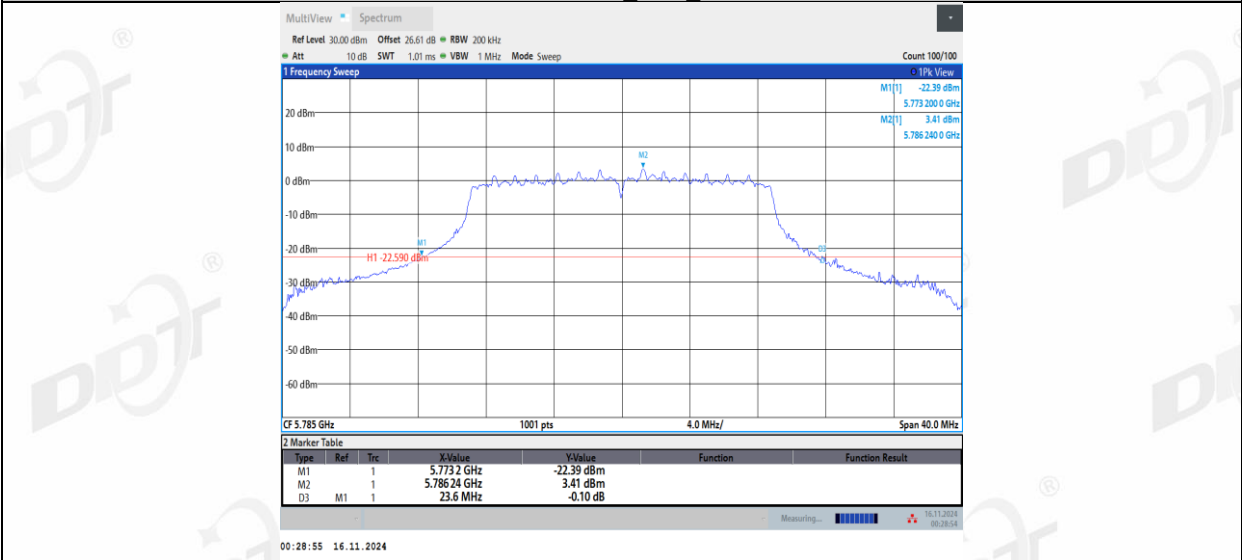
11N20MIMO_Ant2_5745



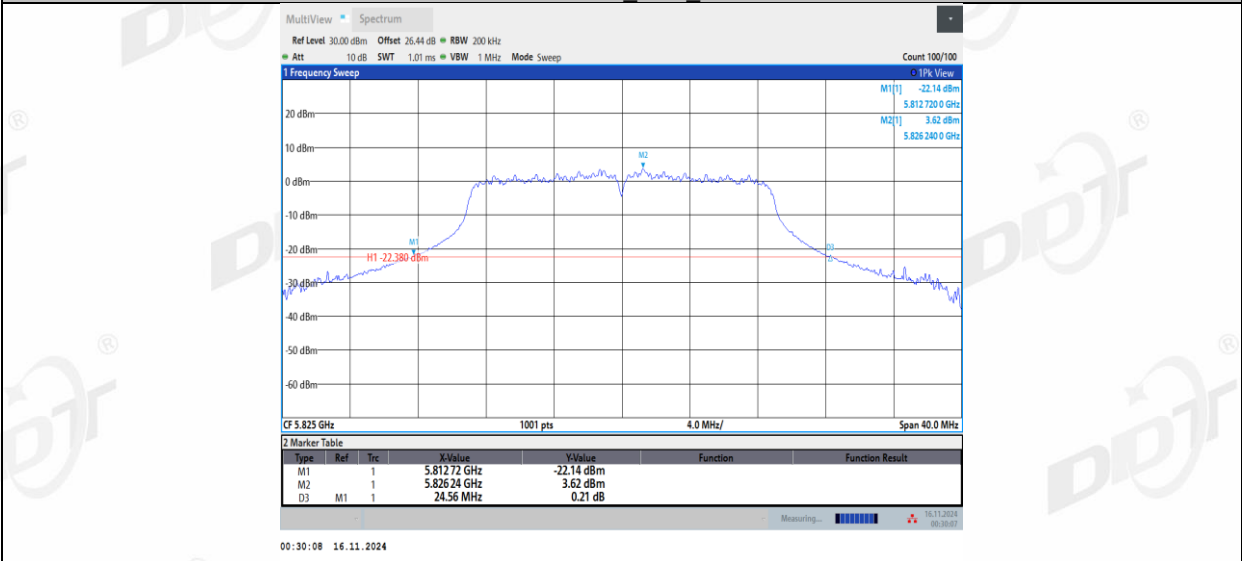
11N20MIMO_Ant1_5785



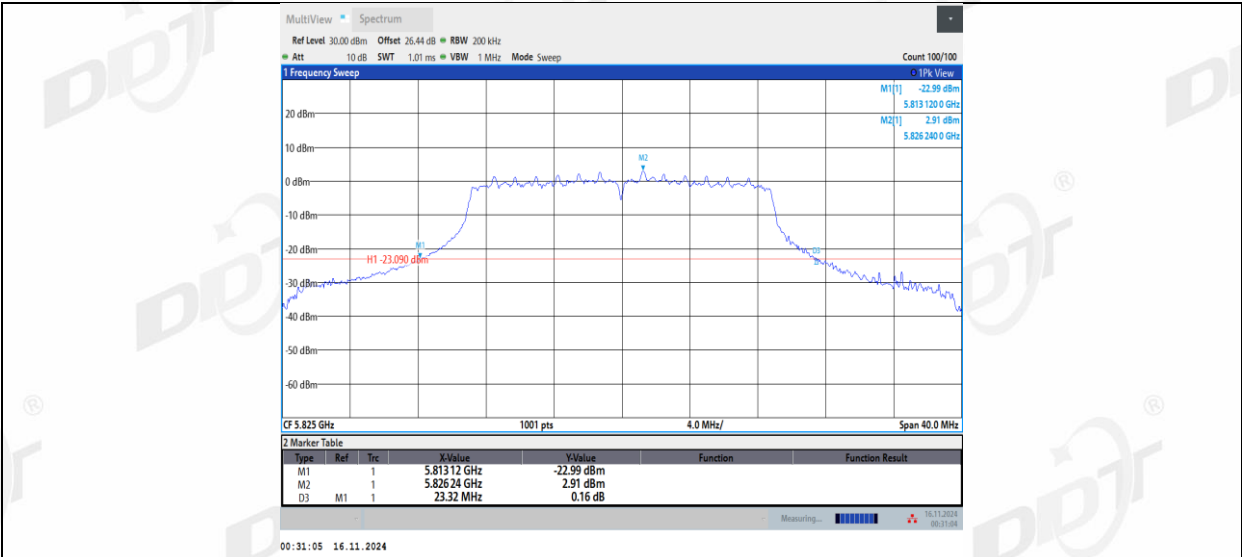
11N20MIMO_Ant2_5785



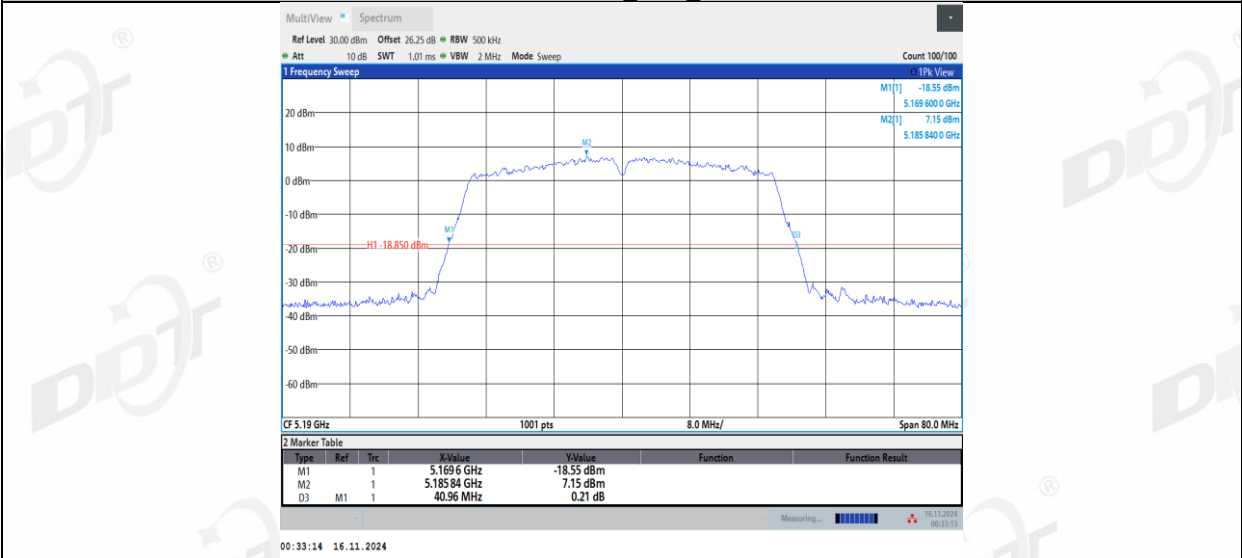
11N20MIMO_Ant1_5825



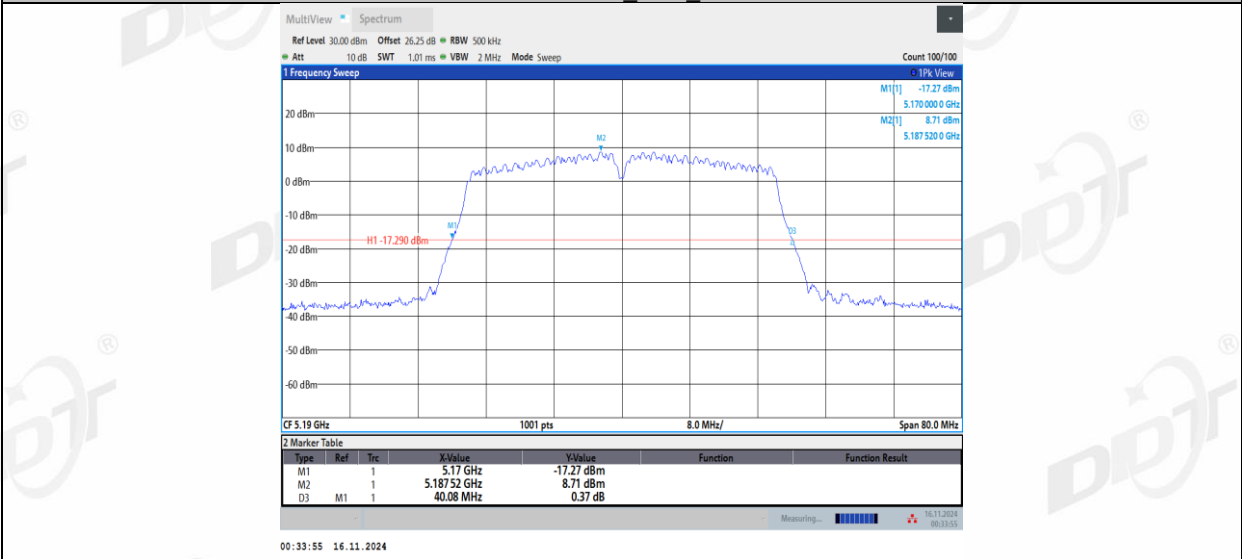
11N20MIMO_Ant2_5825



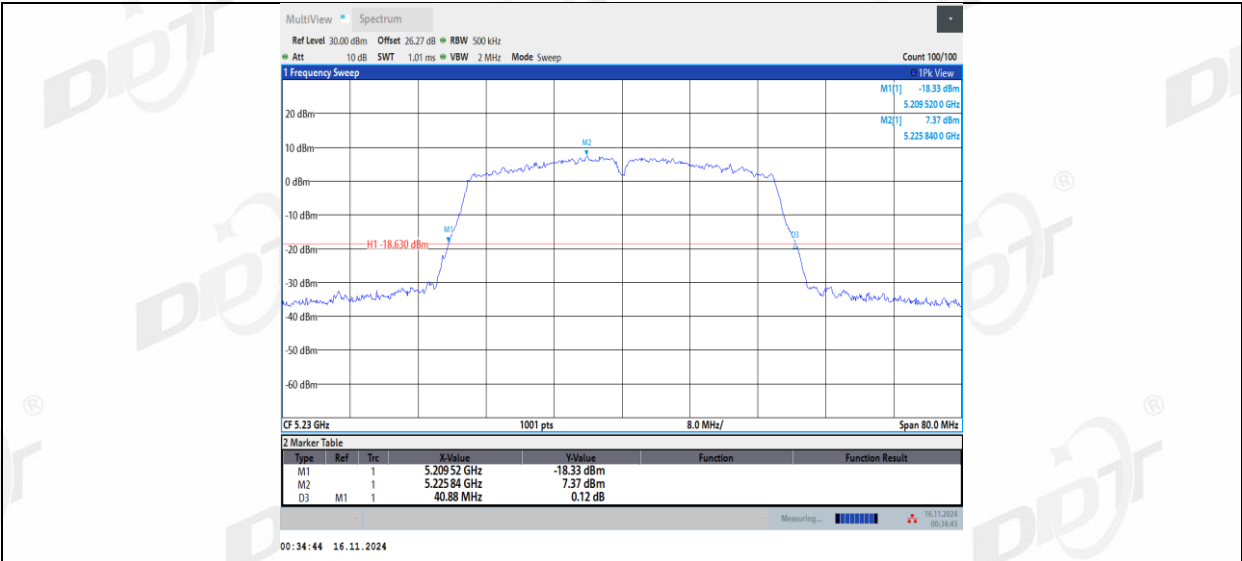
11N40MIMO_Ant1_5190



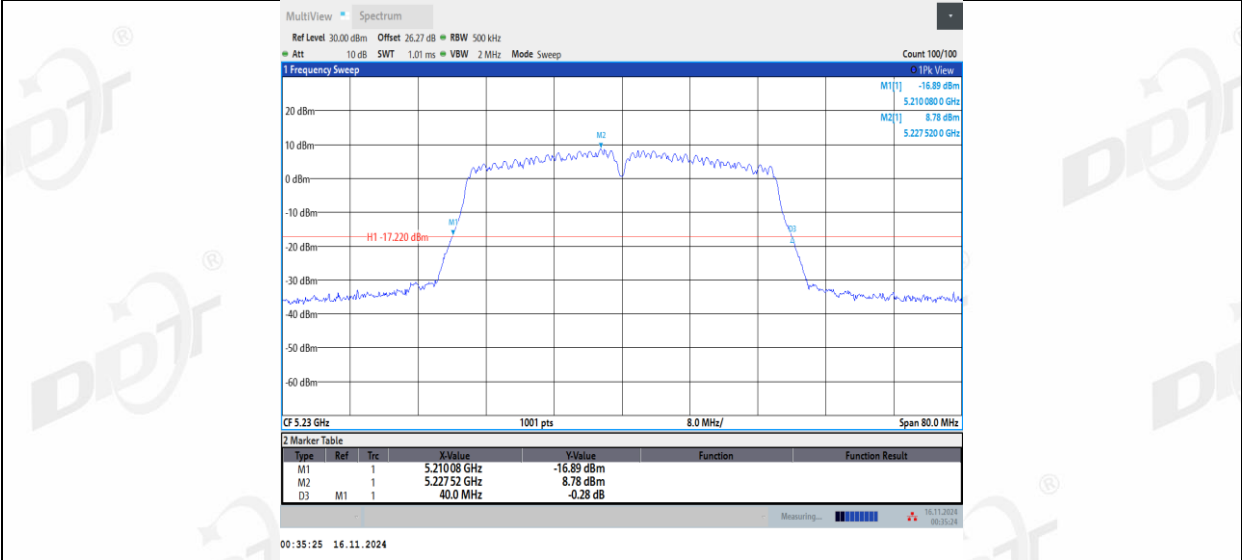
11N40MIMO_Ant2_5190



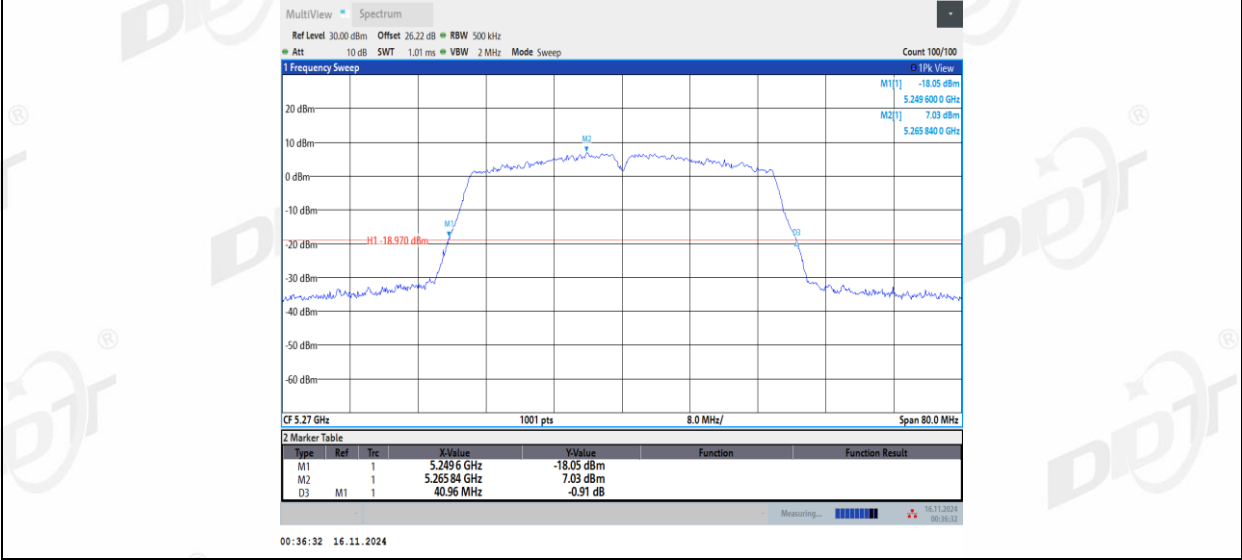
11N40MIMO_Ant1_5230



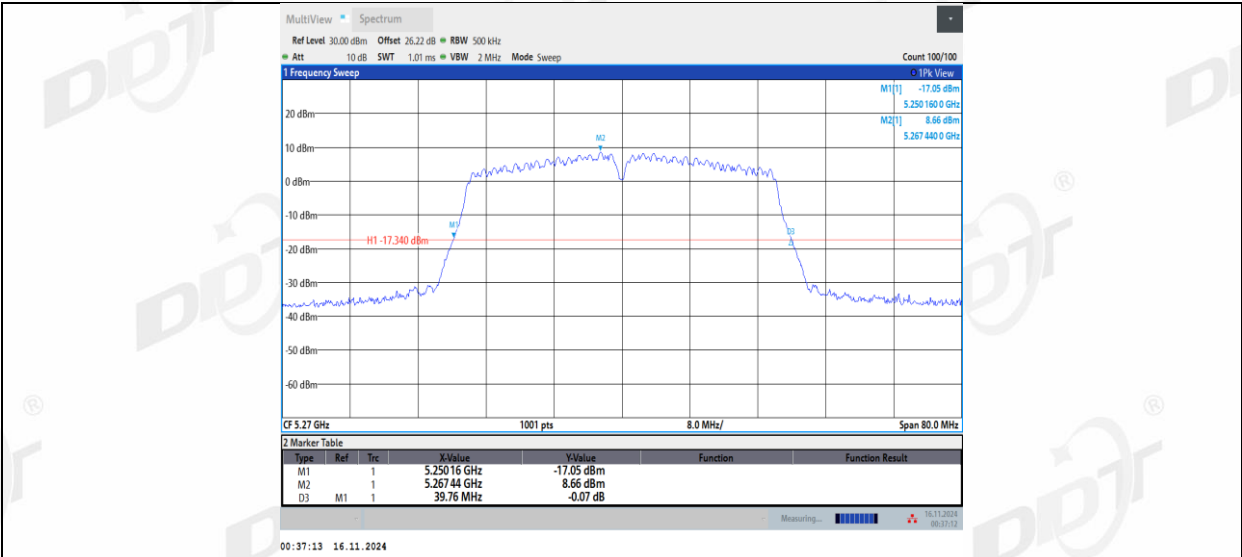
11N40MIMO_Ant2_5230



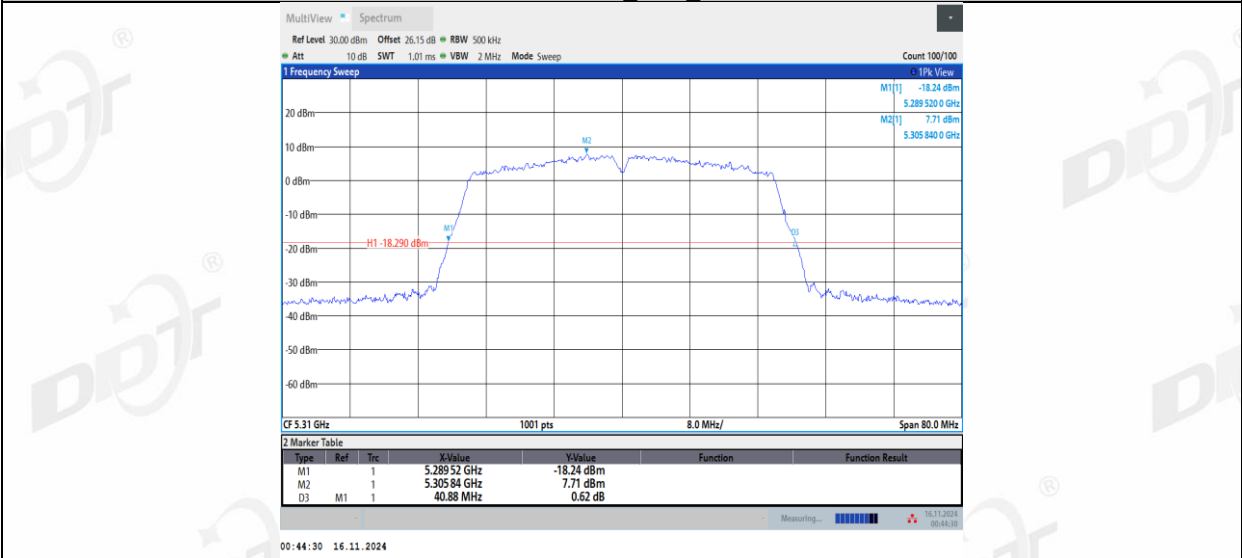
11N40MIMO_Ant1_5270



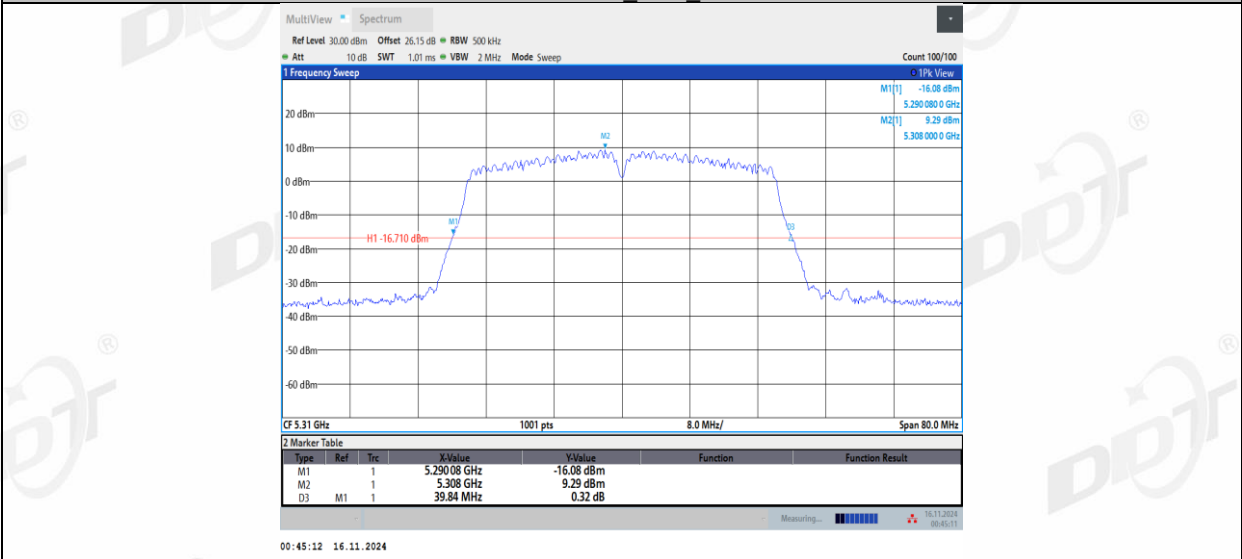
11N40MIMO_Ant2_5270



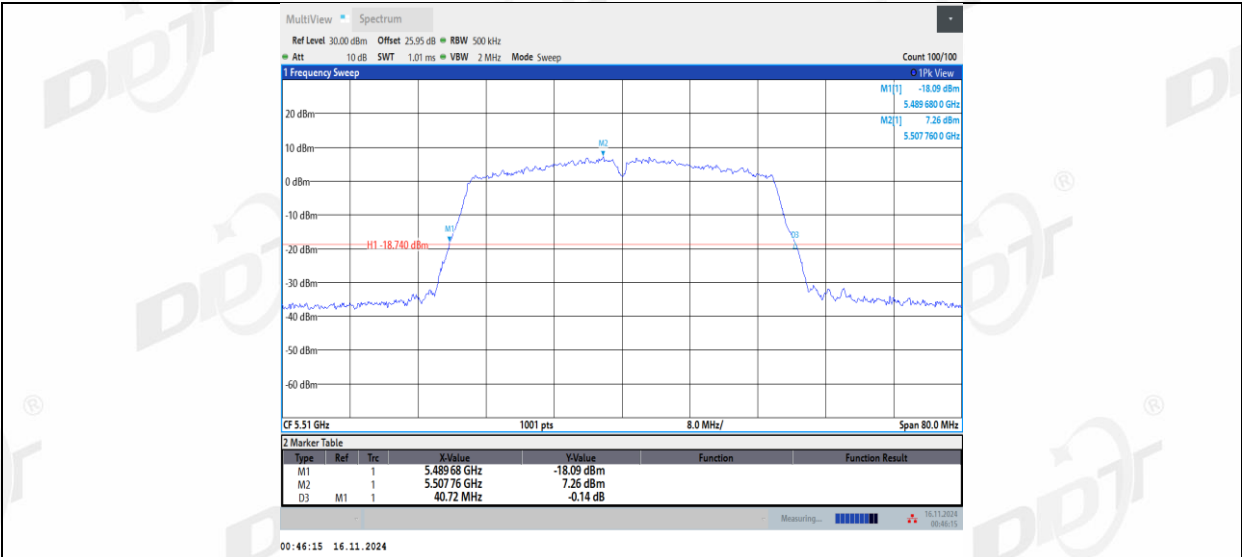
11N40MIMO_Ant1_5310



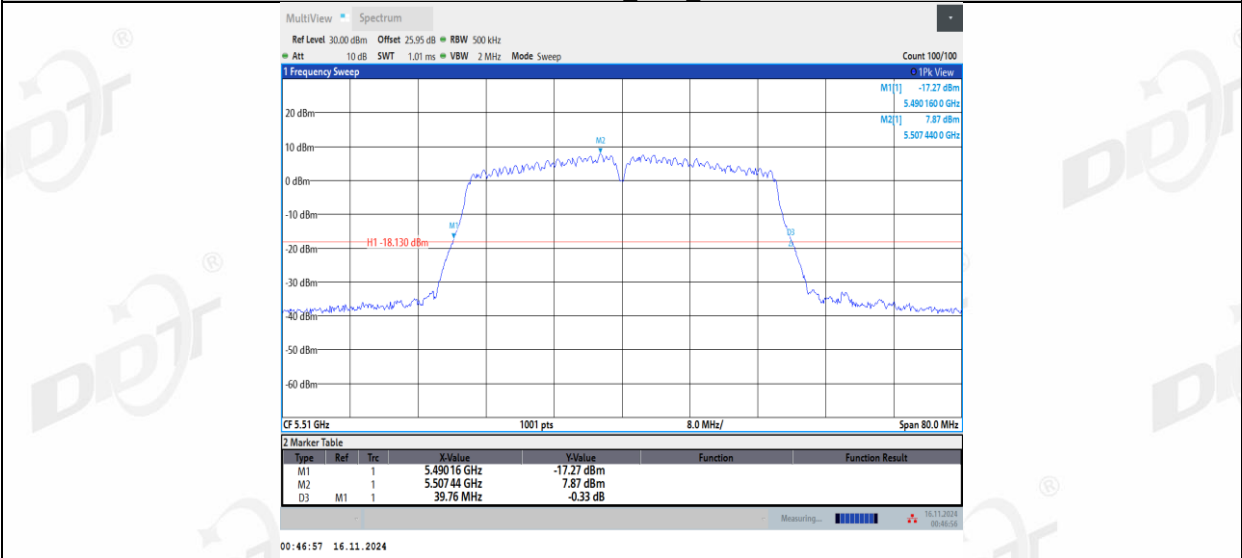
11N40MIMO_Ant2_5310



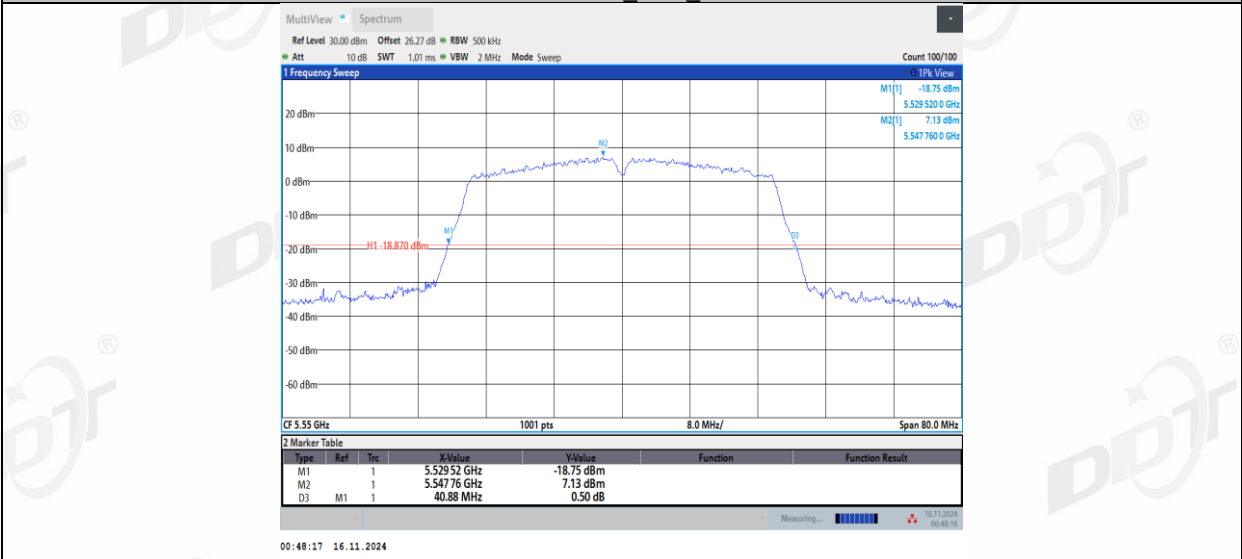
11N40MIMO_Ant1_5510



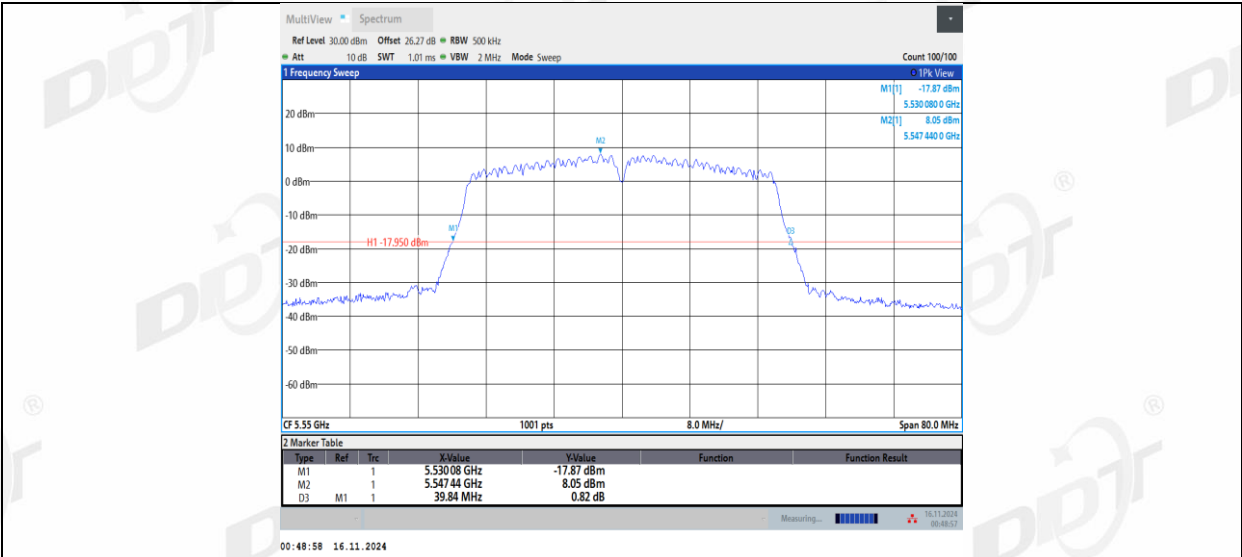
11N40MIMO_Ant2_5510



11N40MIMO_Ant1_5550



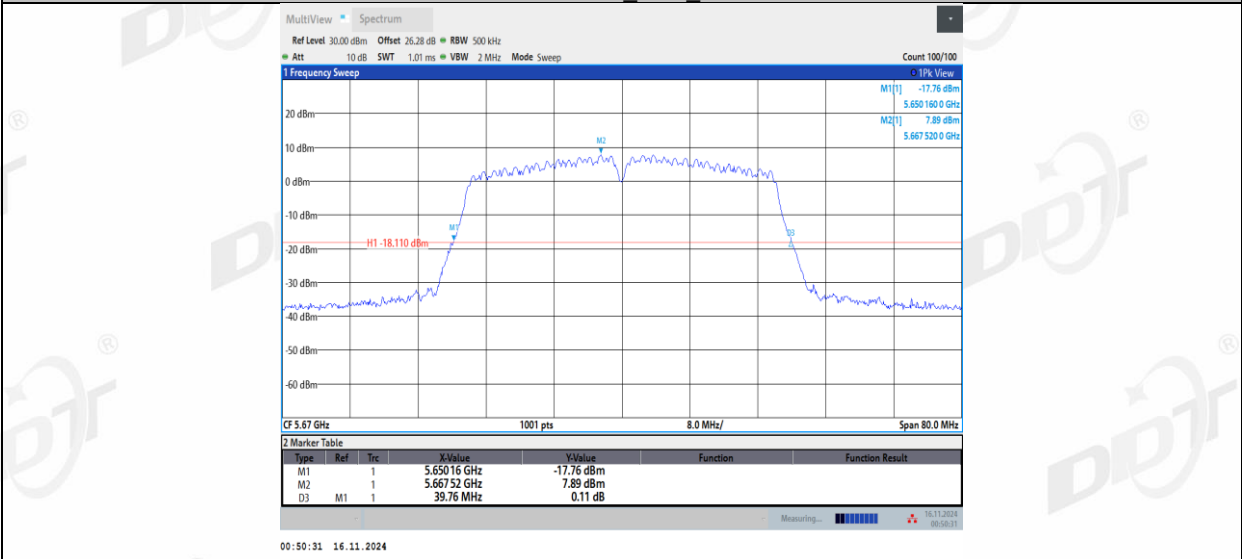
11N40MIMO_Ant2_5550



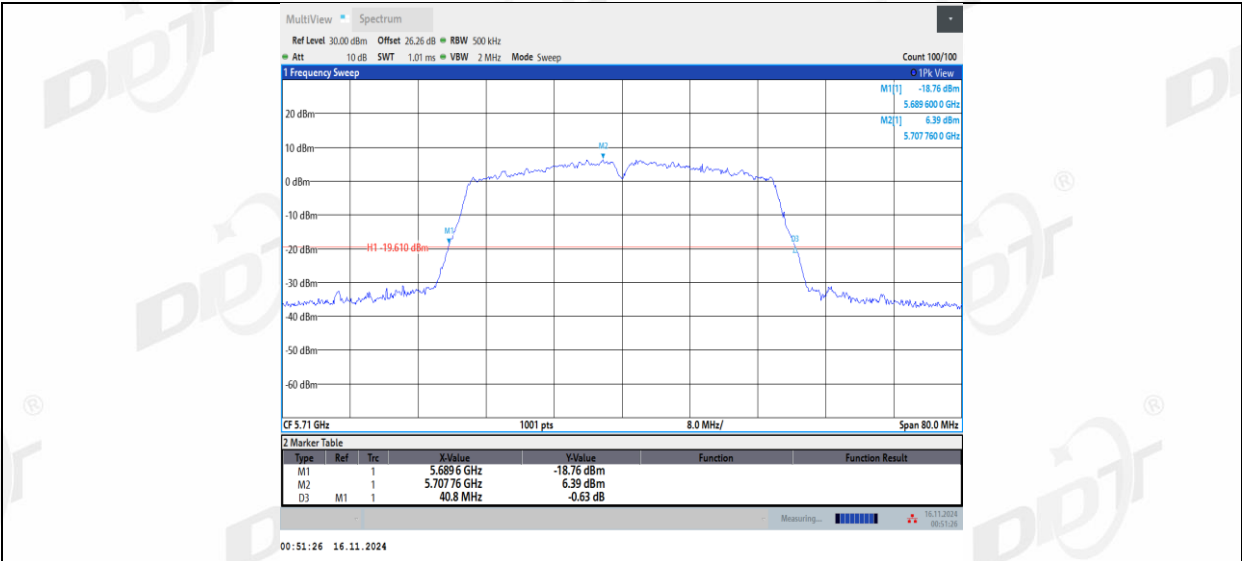
11N40MIMO_Ant1_5670



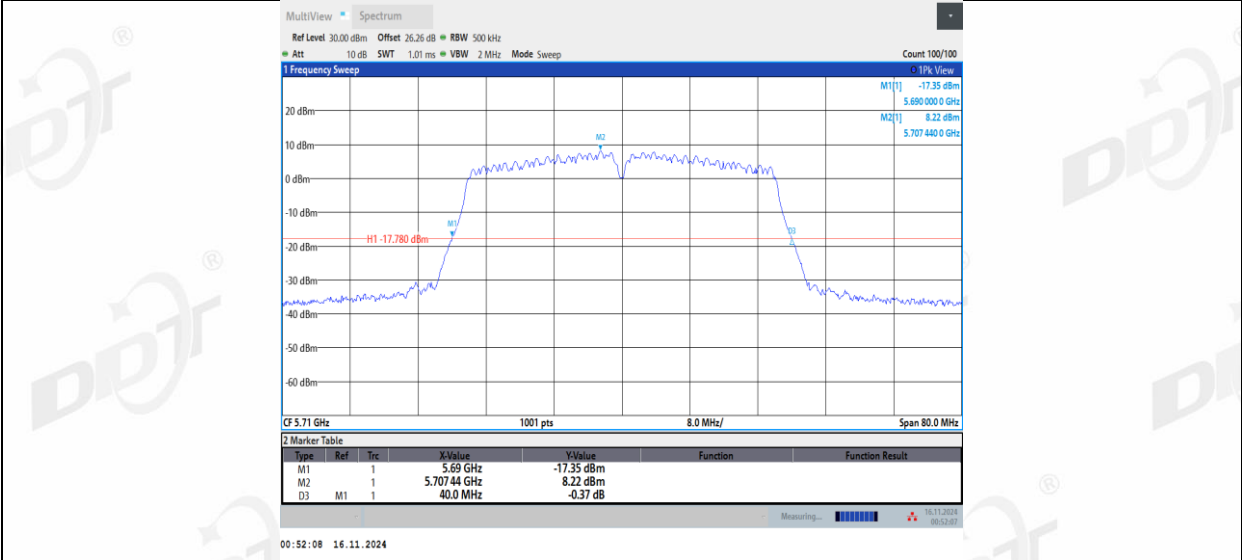
11N40MIMO_Ant2_5670



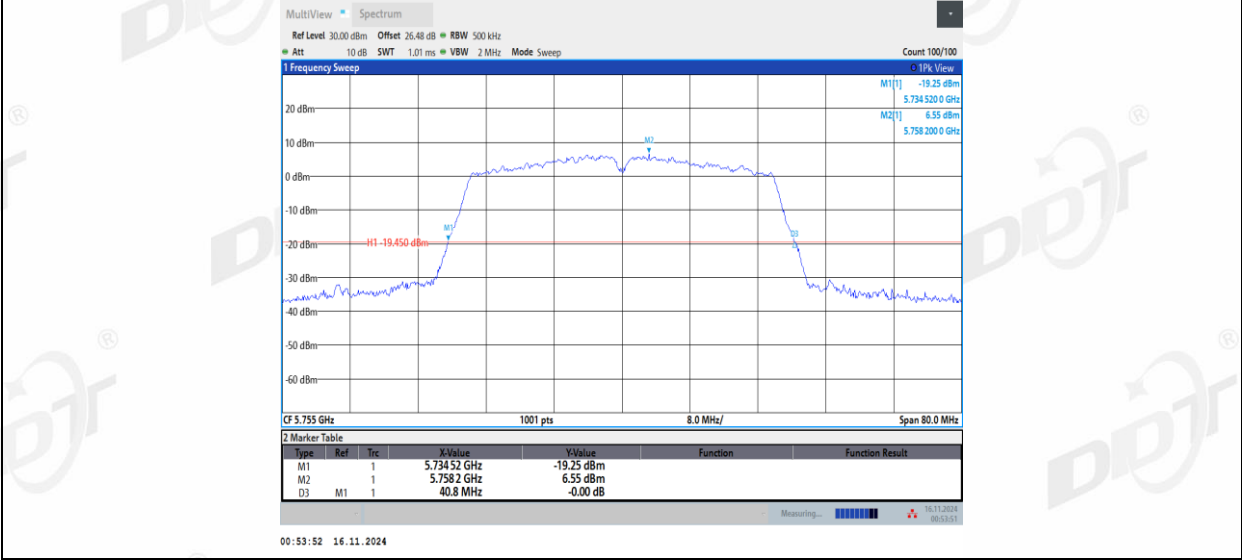
11N40MIMO_Ant1_5710



11N40MIMO_Ant2_5710



11N40MIMO_Ant1_5755



11N40MIMO_Ant2_5755