



FCC AND ISCED CERTIFICATION TEST REPORT

Applicant	:	Guangzhou Shikun Electronics Co.,Ltd
Address of Applicant	:	NO.6 Liankun Road,Huangpu District,Guangzhou,China
Manufacturer	:	Guangzhou Shikun Electronics Co.,Ltd
Address of Manufacturer	:	NO.6 Liankun Road,Huangpu District,Guangzhou,China
Equipment under Test	:	Module
Model No.	:	SKI.WB921AU.1
FCC ID	:	2AR82-SKIWB921AU1
IC	:	24728-SKIWB921AU1
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-RE24053102-1E04
Issue Date	:	2024/06/24
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	6
2.	General Test Information.....	7
2.1.	Description of EUT.....	7
2.2.	Accessories of EUT	9
2.3.	Block diagram of EUT configuration for test.....	9
2.4.	Decision of final test mode	9
2.5.	Deviations of test standard	12
2.6.	Test environment conditions.....	12
2.7.	Test laboratory	12
2.8.	Measurement uncertainty	13
3.	Equipment Used During Conductive Test	14
4.	26dB Bandwidth.....	15
4.1.	Block diagram of test setup	15
4.2.	Limits.....	15
4.3.	Test procedure.....	15
4.4.	Test result	16
4.5.	Test graphs.....	17
5.	6dB Bandwidth.....	23
5.1.	Block diagram of test setup	23
5.2.	Limits.....	23
5.3.	Test procedure.....	23
5.4.	Test result B4.....	24
5.5.	Test graphs B4.....	25
6.	99% Bandwidth.....	31
6.1.	Block diagram of test setup	31
6.2.	Limits.....	31
6.3.	Test procedure.....	31
6.4.	Test result	32
6.5.	Test graphs.....	33
7.	Duty Cycle.....	40
7.1.	Block diagram of test setup	40
7.2.	Limit.....	40
7.3.	Test procedure.....	40
7.4.	Test result	41
7.5.	Test graphs.....	44
8.	Maximum Output Power	100

8.1.	Block diagram of test setup	100
8.2.	Limits.....	100
8.3.	Test procedure.....	100
8.4.	Test result channel power	101
9.	Antenna Requirements	105
9.1.	Limit.....	105
9.2.	Result.....	105
10.	Radiated Emission.....	106
10.1.	Test equipment	106
10.2.	Block diagram of test setup	107
10.3.	Limits.....	108
10.4.	Assistant equipment used for test	110
10.5.	Test procedure.....	110
10.6.	Test result	111
10.7.	Test data	112
11.	Band Edge Compliance	138
11.1.	Test equipment	138
11.2.	Block diagram of test setup	139
11.3.	Limits.....	139
11.4.	Assistant equipment used for test	139
11.5.	Test procedure.....	139
11.6.	Test result	140
11.7.	Test data	141
12.	Power Line Conducted Emissions.....	267
12.1.	Test equipment	267
12.2.	Block diagram of test setup	267
12.3.	Limits.....	267
12.4.	Assistant equipment used for test	267
12.5.	Test procedure.....	268
12.6.	Test result	268
13.	Test Setup Photograph.....	269
14.	Photos of the EUT	271

Test Report Declare

Applicant	:	Guangzhou Shikun Electronics Co.,Ltd
Address of Applicant	:	NO.6 Liankun Road,Huangpu District,Guangzhou,China
Equipment under Test	:	Module
Model No.	:	SKI.WB921AU.1
Manufacturer	:	Guangzhou Shikun Electronics Co.,Ltd
Address of Manufacturer	:	NO.6 Liankun Road,Huangpu District,Guangzhou,China

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-RE24053102-1E04		
Date of Receipt:	2024/06/03	Date of Test:	2024/06/03~2024/06/24

Prepared By:

Tiger Mo

Tiger Mo/Engineer

Approved By:

Damon Hu

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	2024/06/24	

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	/	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 8.9	/	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 8.9	/	Pass
7	Dynamic Frequency Selection	FCC 15.407 (h); RSS-247 Clause 6.8	/	Pass
8	Power Line Conducted Emissions	FCC Part 15: 15.207(a), RSS-Gen Issue 5 clause 8.8	/	Pass
9	Antenna Requirement	FCC Part 15: 15.203, RSS-Gen Issue 5 clause 6.8	/	Pass

Note1: 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.

Note2: This report reflects the change of Antenna , refer to FCC2022-0033-3/R2 and GJW2022-4539-3/R1. These changes affect the experimental results of the project have been evaluated for testing, this report only shows the worst mode data. Raw data and record references FCC2022-0033-3/R2 and GJW2022-4539-3/R1.

2. General Test Information

2.1. Description of EUT

EUT Name	: Module
Model Number	: SKI.WB921AU.1
EUT Function Description	: Please reference user manual of this device
Power Supply	: DC 3.3V
Hardware Version	: D23073
Software Version	: V1.0

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-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 VHT20: 5180MHz-5240MHz, 5260MHz-5320MHz, 5500MHz-5700MHz, 5745MHz-5825MHz IEEE 802.11ac VHT40: 5190MHz-5230MHz, 5270MHz-5310MHz, 5510MHz-5670MHz, 5755MHz-5795MHz IEEE 802.11ac VHT80: 5210MHz, 5290MHz, 5530MHz, 5610MHz, 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				
Antenna Type	FPC			
		Ant1 Gain	Ant2 Gain	Directional Gain
Max Antenna Gain (dBi)	IEEE 802.11a	5.1	4.8	/
	IEEE 802.11n HT20	5.1	4.8	7.92
	IEEE 802.11n HT40	5.1	4.8	7.92
	IEEE 802.11ac VHT20	5.1	4.8	7.92
	IEEE 802.11ac VHT40	5.1	4.8	7.92

IEEE 802.11ac VHT80	5.1	4.8	7.92
IEEE 802.11ax HE20	5.1	4.8	7.92
IEEE 802.11ax HE40	5.1	4.8	7.92
IEEE 802.11ax HE80	5.1	4.8	7.92

Note: This EUT MIMO 2X2, any transmit signals are correlated with each other. So the Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20})^2/2] = 7.92\text{dBi}$

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	/	/
112	5560	126	5630	/	/
116	5580	134	5670	/	/
120	5600	/	/	/	/
124	5620	/	/	/	/
128	5640	/	/	/	/
132	5660	/	/	/	/
136	5680	/	/	/	/
140	5700	/	/	/	/
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					

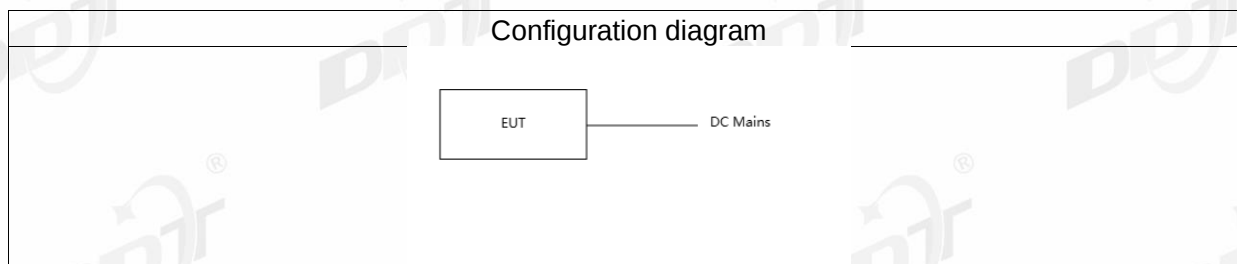
Note : “☑” means to be chosen or applicable; “☐” means don't to be chosen or not applicable; This note applies to entire report.

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.

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: QA Tool.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	8	8	6	Low: CH36	5180
	8	8	6	Middle: CH40	5200
	8	8	6	High: CH48	5240
	8	8	6	Low: CH52	5260
	8	8	6	Middle: CH56	5280
	8	8	6	High: CH64	5320
	8	8	6	Low: CH100	5500
	8	8	6	Middle: CH116	5580
	8	8	6	High: CH140	5700

	11	11	6	Low: CH149	5745
	11	11	6	Middle: CH157	5785
	11	11	6	High: CH165	5825
IEEE 802.11n HT20	8	8	MCS 8	Low: CH36	5180
	8	8	MCS 8	Middle: CH40	5200
	8	8	MCS 8	High: CH48	5240
	8	8	MCS 8	Low: CH52	5260
	8	8	MCS 8	Middle: CH56	5280
	8	8	MCS 8	High: CH64	5320
	8	8	MCS 8	Low: CH100	5500
	8	8	MCS 8	Middle: CH116	5580
	8	8	MCS 8	High: CH140	5700
	11	11	MCS 8	Low: CH149	5745
	11	11	MCS 8	Middle: CH157	5785
	11	11	MCS 8	High: CH165	5825
IEEE 802.11n HT40	8	8	MCS 8	Low: CH38	5190
	8	8	MCS 8	Middle: CH46	5230
	8	8	MCS 8	High: CH54	5270
	8	8	MCS 8	Low: CH62	5310
	8	8	MCS 8	Middle: CH102	5510
	8	8	MCS 8	High: CH110	5550
	8	8	MCS 8	Low: CH134	5670
	11	11	MCS 8	Middle: CH151	5755
	11	11	MCS 8	High: CH159	5795
IEEE 802.11ac VHT20	8	8	MCS 8	Low: CH36	5180
	8	8	MCS 8	Middle: CH40	5200
	8	8	MCS 8	High: CH48	5240
	8	8	MCS 8	Low: CH52	5260
	8	8	MCS 8	Middle: CH56	5280
	8	8	MCS 8	High: CH64	5320
	8	8	MCS 8	Low: CH100	5500
	8	8	MCS 8	Middle: CH116	5580
	8	8	MCS 8	High: CH140	5700
	10	10	MCS 8	Low: CH149	5745
	10	10	MCS 8	Middle: CH157	5785
	10	10	MCS 8	High: CH165	5825
IEEE 802.11 ac VHT40	8	8	MCS 8	Low: CH38	5190
	8	8	MCS 8	Middle: CH46	5230
	8	8	MCS 8	High: CH54	5270
	8	8	MCS 8	Low: CH62	5310

	8	8	MCS 8	Middle: CH102	5510
	8	8	MCS 8	High: CH110	5550
	8	8	MCS 8	Low: CH134	5670
	10	10	MCS 8	Middle: CH151	5755
	10	10	MCS 8	High: CH159	5795
IEEE 802.11ac VHT80	8	8	MCS 0	CH42	5210
	8	8	MCS 0	CH58	5290
	8	8	MCS 0	CH106	5530
	8	8	MCS 0	CH122	5610
	10	10	MCS 0	CH155	5775
IEEE 802.11ax HE20	8	8	MCS 0	Low: CH36	5180
	8	8	MCS 0	Middle: CH40	5200
	8	8	MCS 0	High: CH48	5240
	8	8	MCS 0	Low: CH52	5260
	8	8	MCS 0	Middle: CH56	5280
	8	8	MCS 0	High: CH64	5320
	8	8	MCS 0	Low: CH100	5500
	8	8	MCS 0	Middle: CH116	5580
	8	8	MCS 0	High: CH140	5700
	10	10	MCS 0	Low: CH149	5745
	10	10	MCS 0	Middle: CH157	5785
	10	10	MCS 0	High: CH165	5825
IEEE 802.11ax HE40	8	8	MCS 0	Low: CH38	5190
	8	8	MCS 0	Middle: CH46	5230
	8	8	MCS 0	High: CH54	5270
	8	8	MCS 0	Low: CH62	5310
	8	8	MCS 0	Middle: CH102	5510
	8	8	MCS 0	High: CH110	5550
	8	8	MCS 0	Low: CH134	5670
	10	10	MCS 0	Middle: CH151	5755
	10	10	MCS 0	High: CH159	5795
IEEE 802.11ax HE80	8	8	MCS 0	CH42	5210
	8	8	MCS 0	CH58	5290
	8	8	MCS 0	CH106	5530
	8	8	MCS 0	CH122	5610
	10	10	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

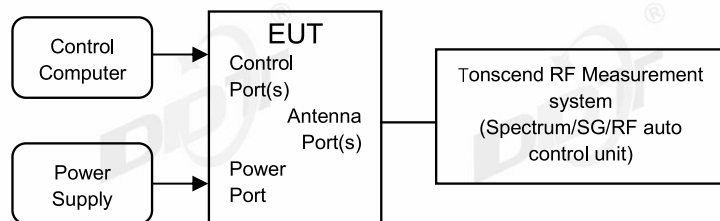
Test Item	Uncertainty
Bandwidth	1.1%
Peak Output Power (Conducted) (Spectrum analyzer)	0.86 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$); 1.38 dB ($3.6 \text{ GHz} \leq f < 8 \text{ GHz}$)
Peak Output Power (Conducted) (Power Sensor)	0.74 dB
Power Spectral Density	0.74 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$); 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	2024/04/22
Wideband Radio Communication Tester	R&S	CMW500	168801	2024/04/26
MXG Vector Signal Generator	Agilent	N5182A	MY48180737	2024/04/26
PSG Vector Signal Generator	Agilent	E8267D	US49060192	2024/09/05
RF Control Unit	Tonsend	JS0806-2	21I8060485	2024/04/26
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

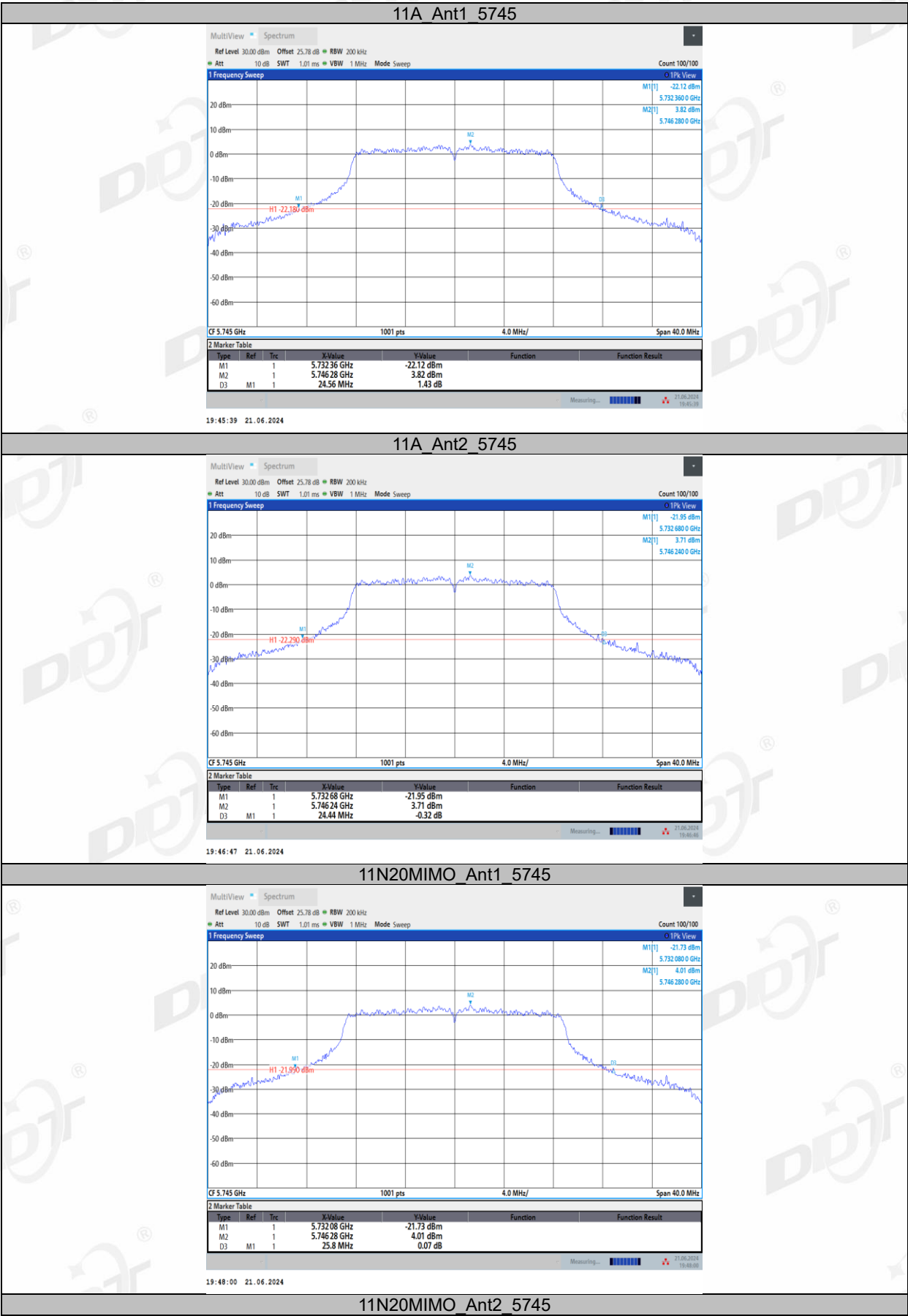
Allow the trace to stabilize, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission.

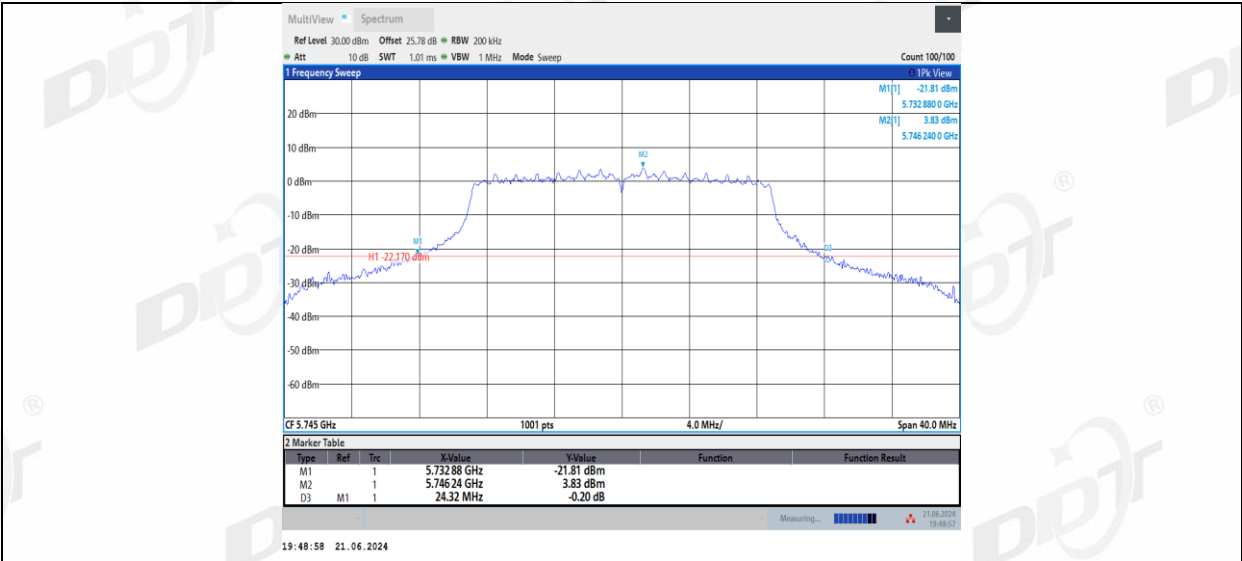
4.4. Test result

Test Engineer:	Haofeng	Test Site:	RF Measurement System 4#
Ambient Condition:	26.1℃,46.5%RH	Test Date:	2024.06.21
Test Power Supply:	DC 3.3V	Sample Number:	S24053102-001-002

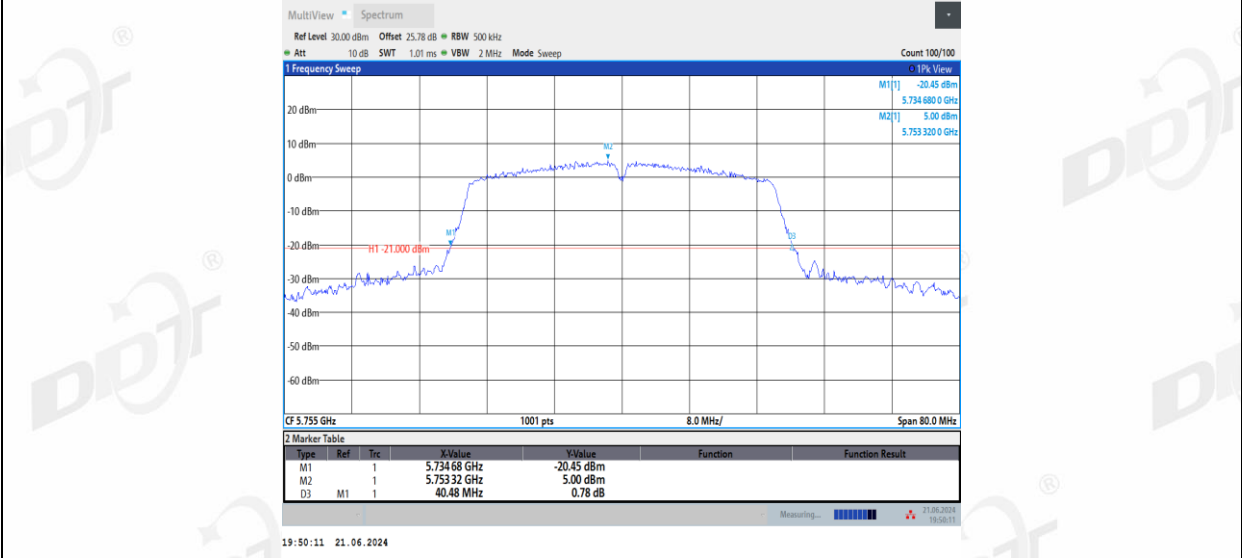
Test Mode	Antenna	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	24.56	5732.36	5756.92	---	---
	Ant2	5745	24.44	5732.68	5757.12	---	---
11N20MI MO	Ant1	5745	25.80	5732.08	5757.88	---	---
	Ant2	5745	24.32	5732.88	5757.20	---	---
11N40MI MO	Ant1	5755	40.48	5734.68	5775.16	---	---
	Ant2	5755	40.24	5734.84	5775.08	---	---
11AC20M IMO	Ant1	5745	25.56	5732.24	5757.80	---	---
	Ant2	5745	24.12	5732.88	5757.00	---	---
11AC40M IMO	Ant1	5755	40.96	5734.28	5775.24	---	---
	Ant2	5755	40.56	5734.84	5775.40	---	---
11AC80M IMO	Ant1	5775	80.16	5735.00	5815.16	---	---
	Ant2	5775	80.00	5735.00	5815.00	---	---
11AX20M IMO	Ant1	5745	29.16	5730.08	5759.24	---	---
	Ant2	5745	25.48	5732.20	5757.68	---	---
11AX40M IMO	Ant1	5795	39.60	5775.16	5814.76	---	---
	Ant2	5795	39.60	5775.16	5814.76	---	---
11AX80M IMO	Ant1	5775	80.32	5734.84	5815.16	---	---
	Ant2	5775	80.32	5734.84	5815.16	---	---

4.5. Test graphs

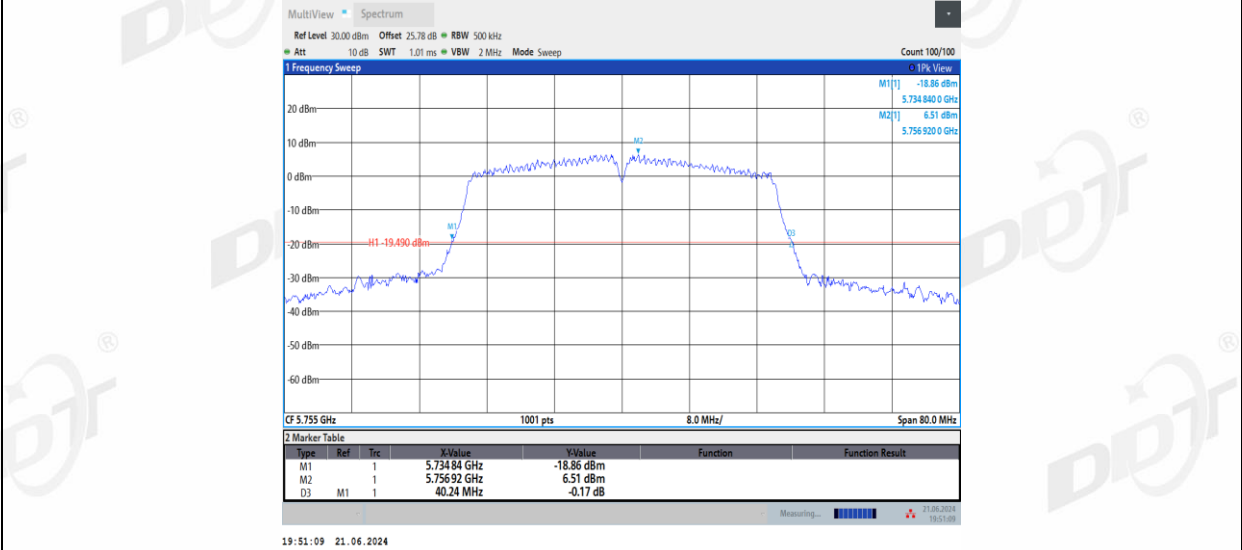




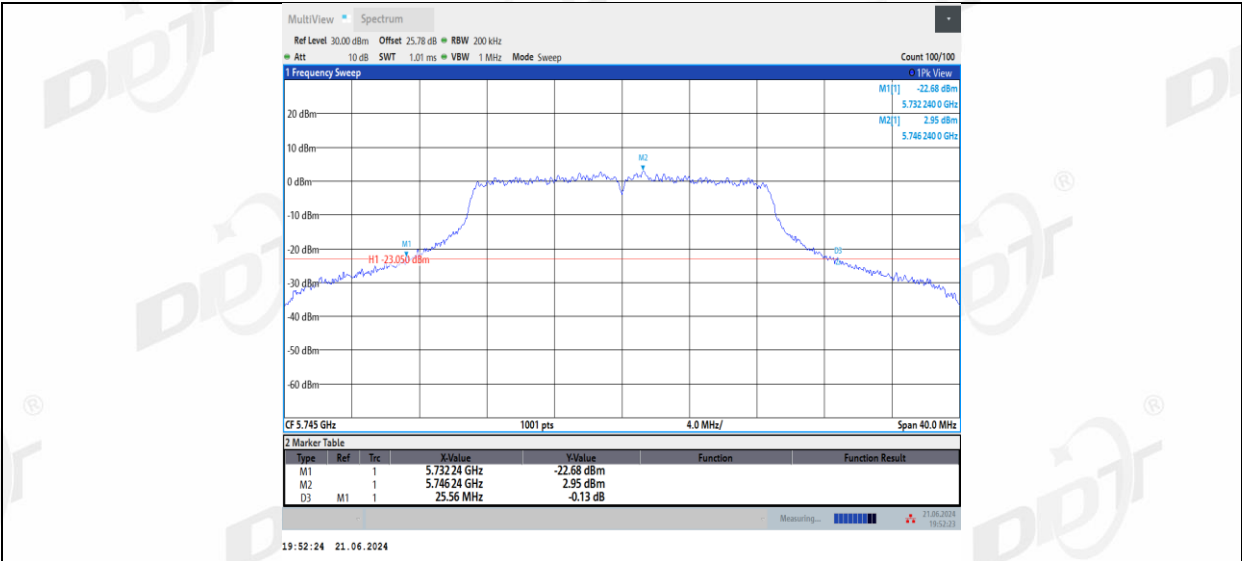
11N40MIMO_Ant1_5755



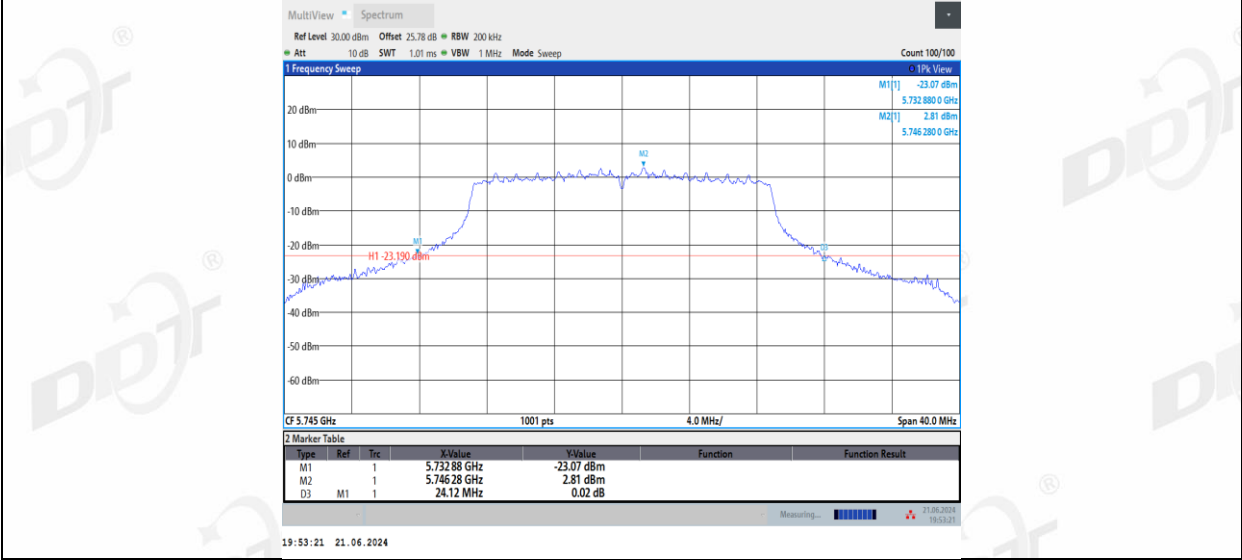
11N40MIMO_Ant2_5755



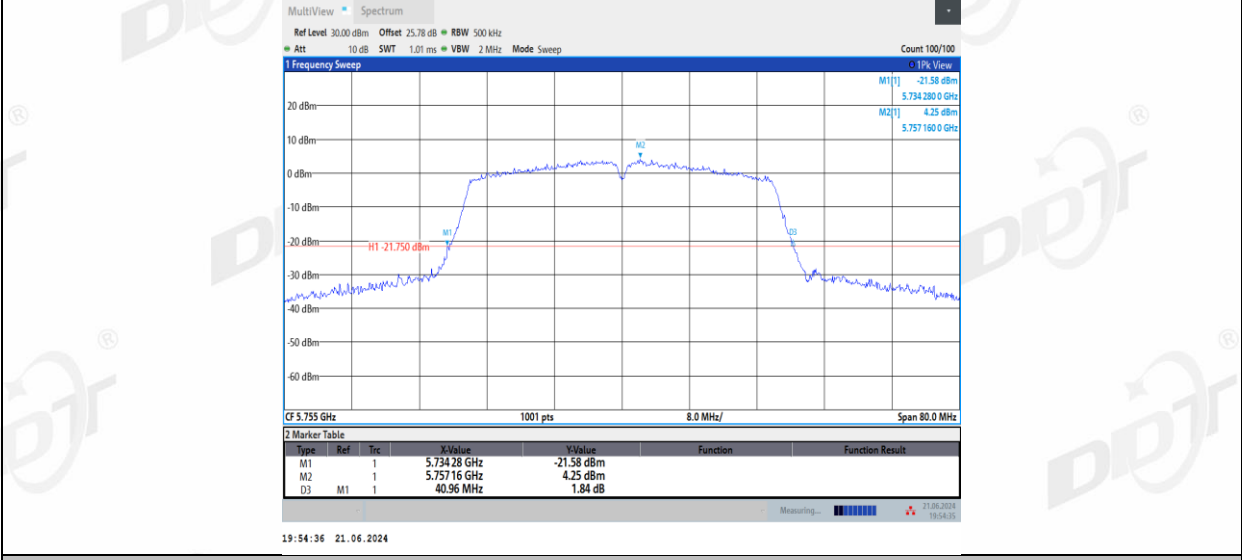
11AC20MIMO_Ant1_5745



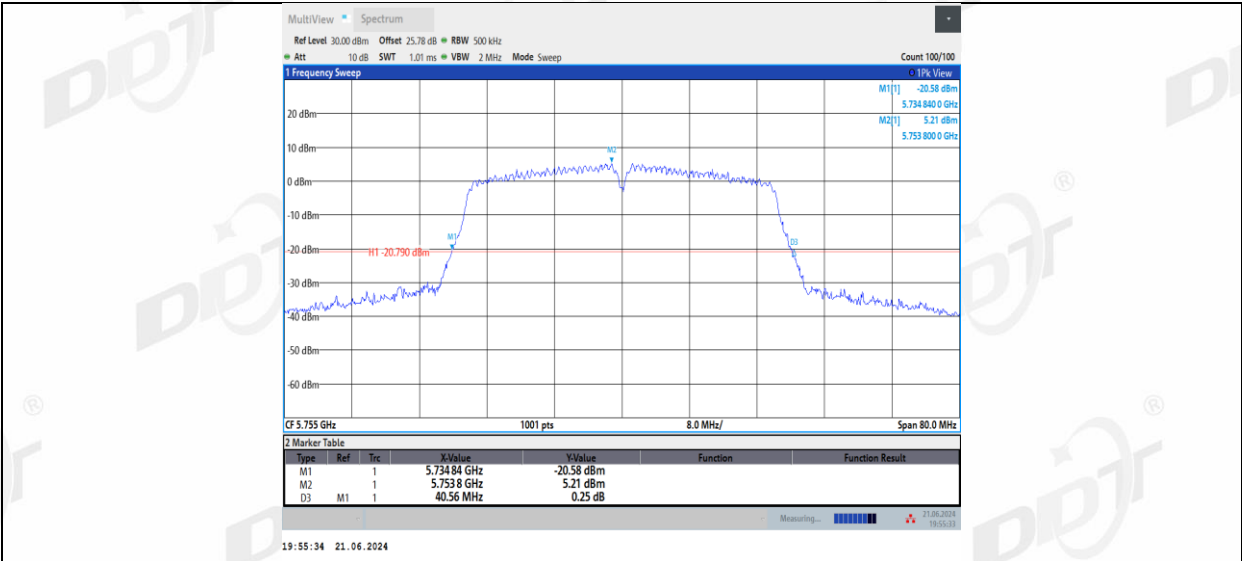
11AC20MIMO_Ant2_5745



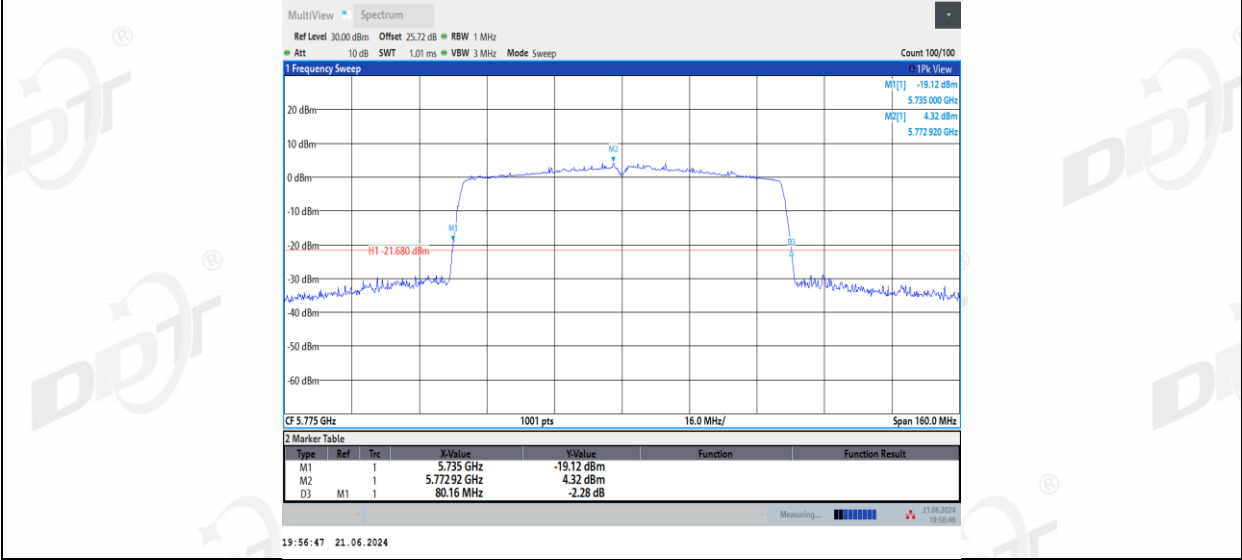
11AC40MIMO_Ant1_5755



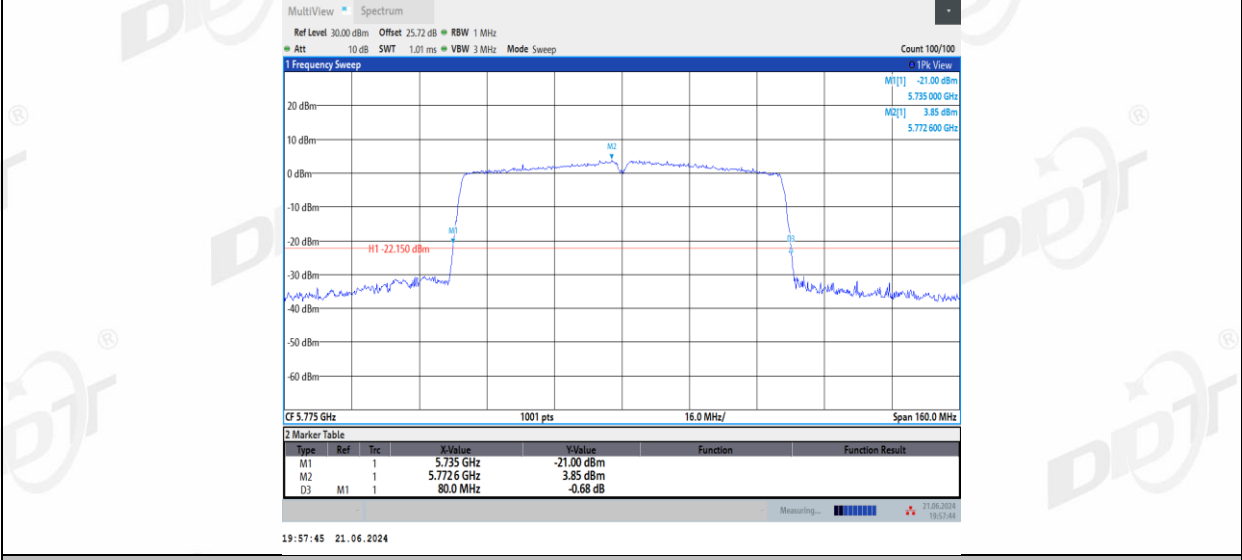
11AC40MIMO_Ant2_5755



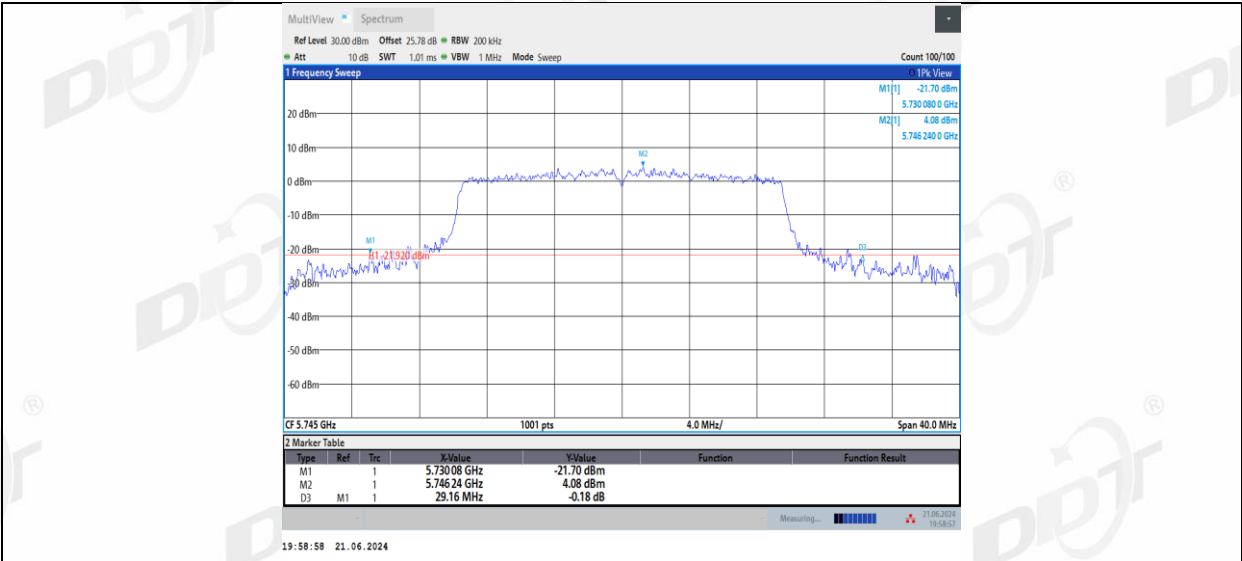
11AC80MIMO_Ant1_5775



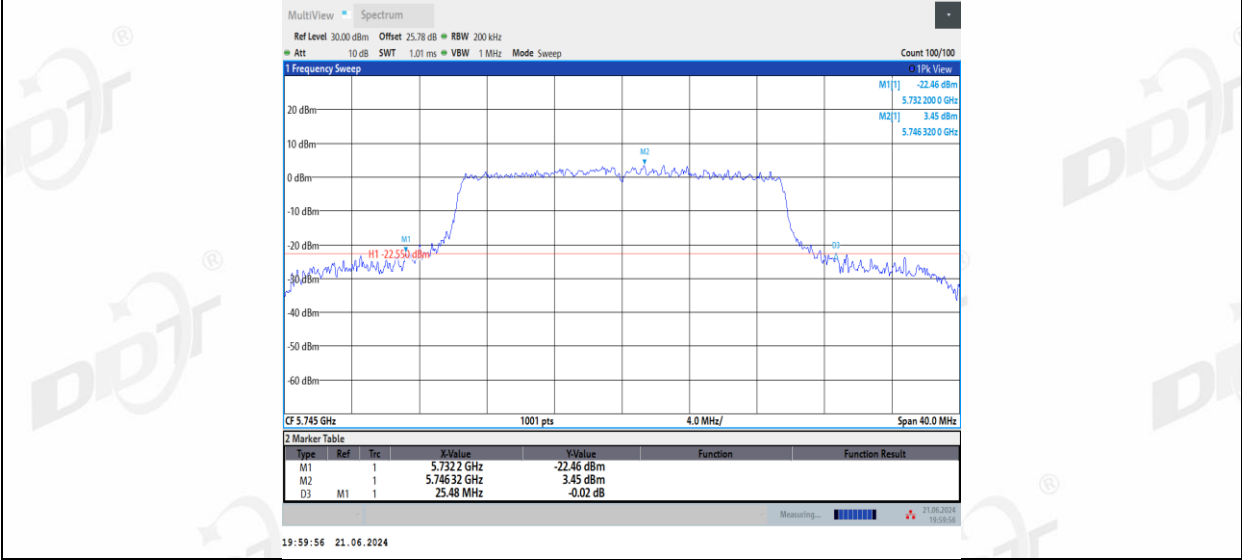
11AC80MIMO_Ant2_5775



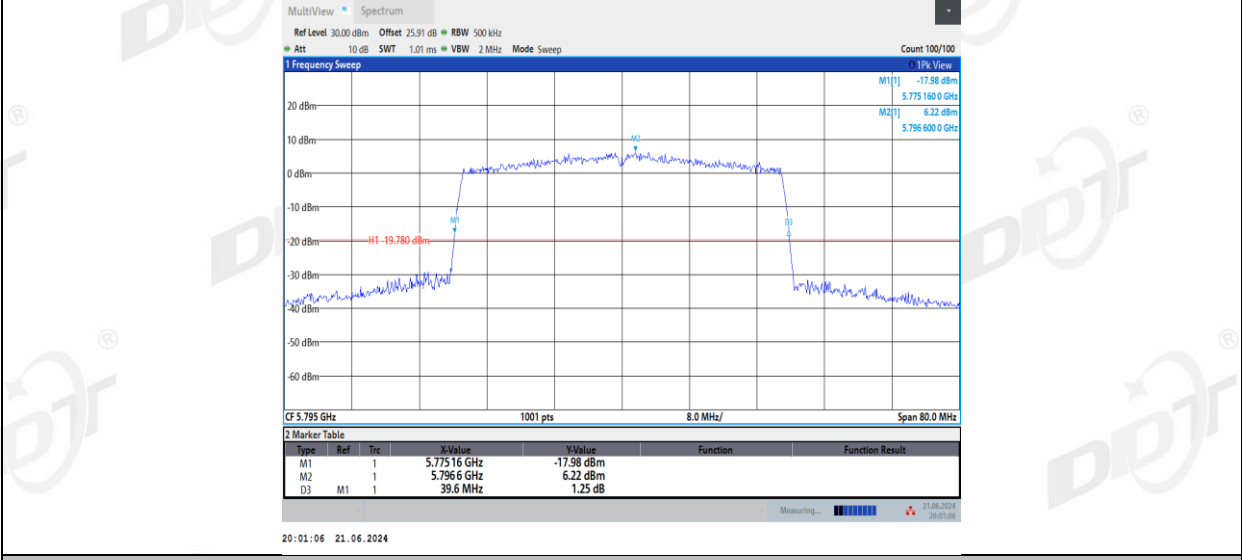
11AX20MIMO_Ant1_5745



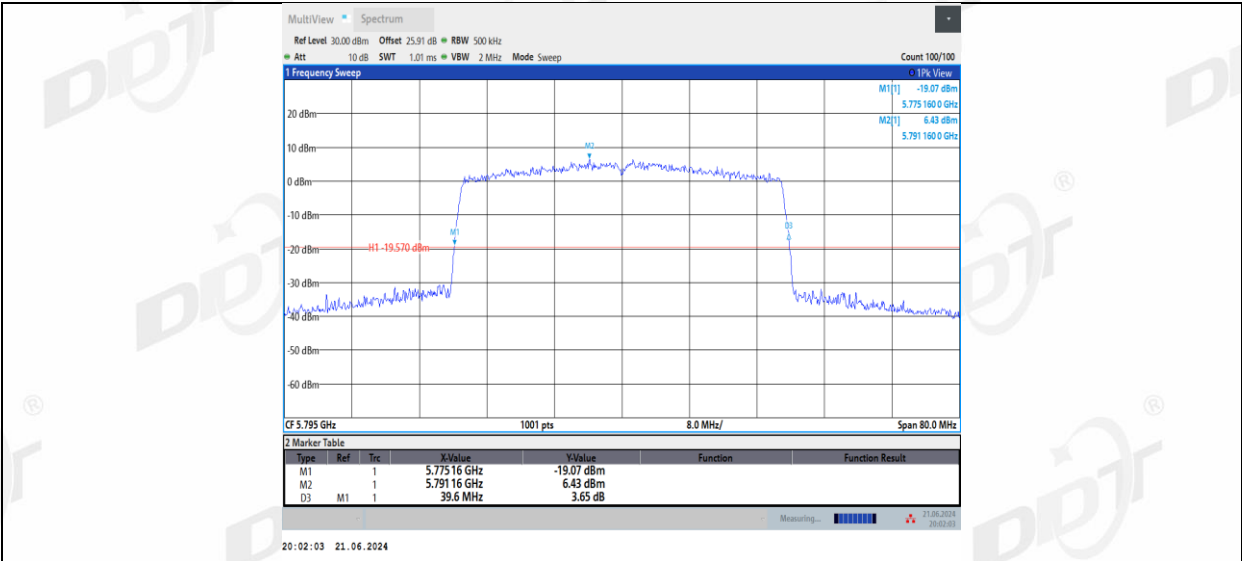
11AX20MIMO_Ant2_5745



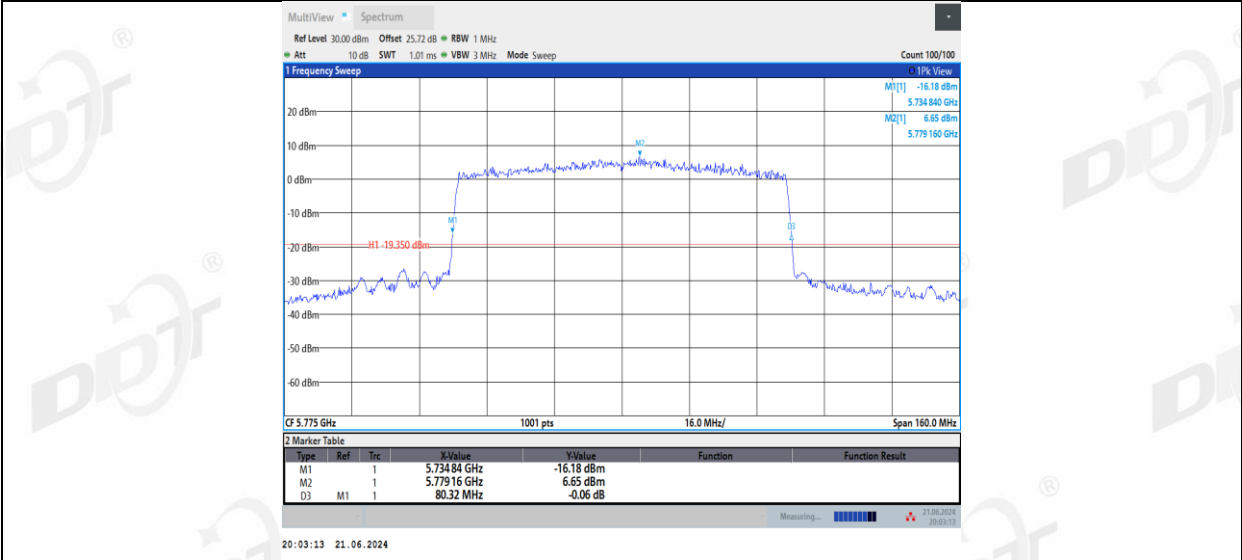
11AX40MIMO_Ant1_5795



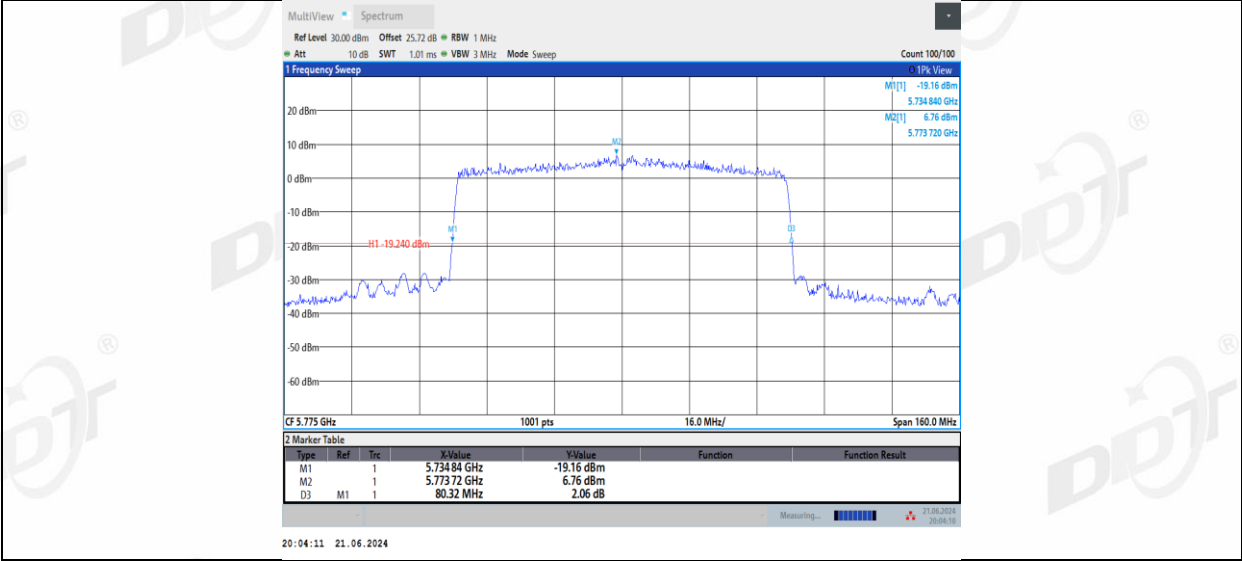
11AX40MIMO_Ant2_5795



11AX80MIMO_Ant1_5775

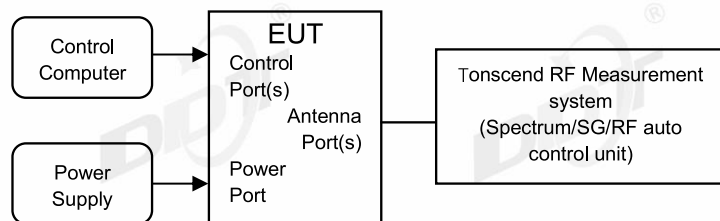


11AX80MIMO_Ant2_5775



5. 6dB Bandwidth

5.1. Block diagram of test setup



5.2. Limits

FCC Part15, Subpart E/ RSS-247		
Test Item	Limit	Frequency Range (MHz)
6 dB Bandwidth	Minimum 500 kHz	5725 - 5850

5.3. 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	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

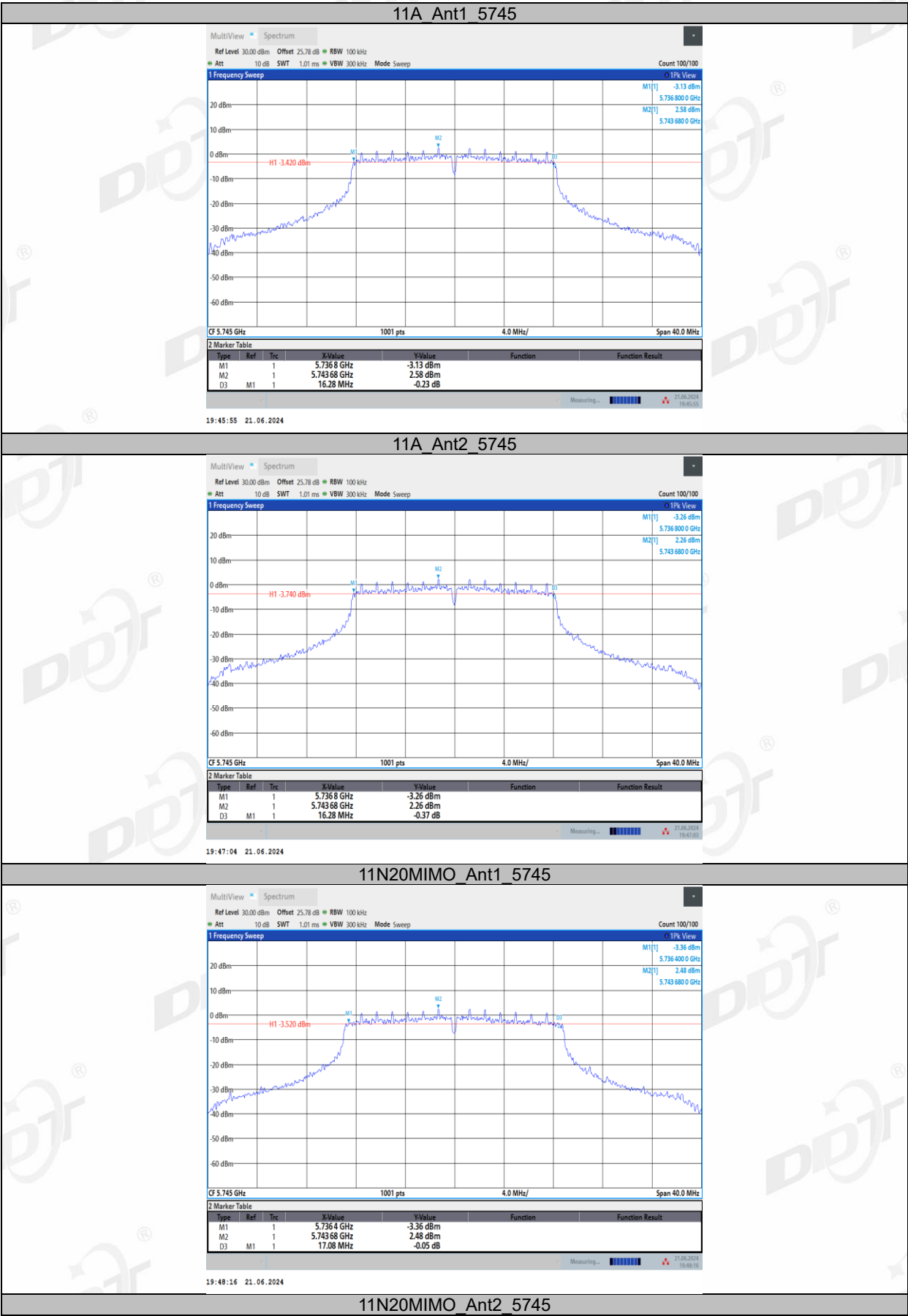
Allow the trace to stabilize, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

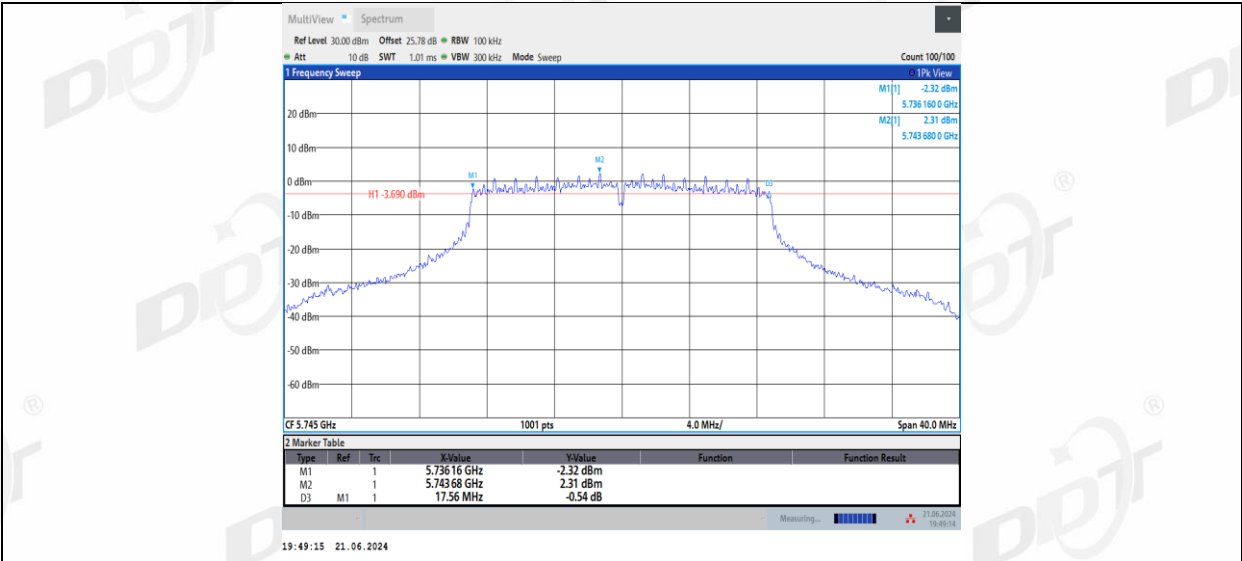
5.4. Test result B4

Test Engineer:	Haofeng	Test Site:	RF Measurement System 4#
Ambient Condition:	26.1℃,46.5%RH	Test Date:	2024.06.21
Test Power Supply:	DC 3.3V	Sample Number:	S24053102-001-002

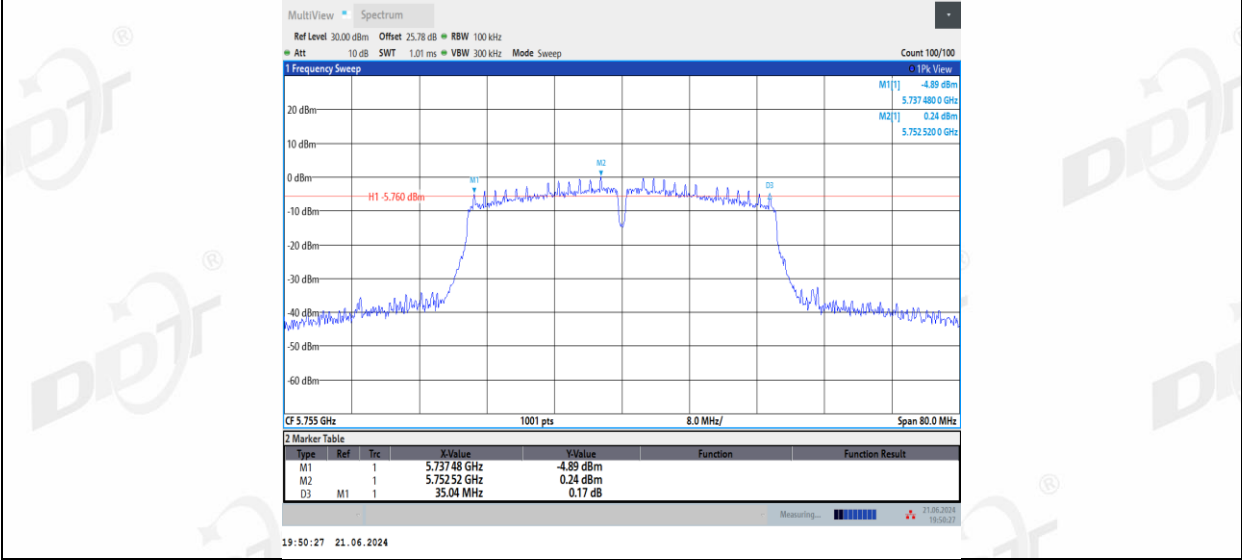
Test Mode	Antenna	Frequenc y[MHz]	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	16.28	5736.80	5753.08	0.5	PASS
	Ant2	5745	16.28	5736.80	5753.08	0.5	PASS
11N20MIM O	Ant1	5745	17.08	5736.40	5753.48	0.5	PASS
	Ant2	5745	17.56	5736.16	5753.72	0.5	PASS
11N40MIM O	Ant1	5755	35.04	5737.48	5772.52	0.5	PASS
	Ant2	5755	35.04	5737.48	5772.52	0.5	PASS
11AC20MI MO	Ant1	5745	17.32	5736.16	5753.48	0.5	PASS
	Ant2	5745	17.60	5736.16	5753.76	0.5	PASS
11AC40MI MO	Ant1	5755	35.12	5737.48	5772.60	0.5	PASS
	Ant2	5755	35.04	5737.48	5772.52	0.5	PASS
11AC80MI MO	Ant1	5775	75.20	5737.40	5812.60	0.5	PASS
	Ant2	5775	75.20	5737.40	5812.60	0.5	PASS
11AX20MI MO	Ant1	5745	18.76	5735.52	5754.28	0.5	PASS
	Ant2	5745	18.96	5735.44	5754.40	0.5	PASS
11AX40MI MO	Ant1	5795	36.16	5776.44	5812.60	0.5	PASS
	Ant2	5795	36.32	5777.00	5813.32	0.5	PASS
11AX80MI MO	Ant1	5775	75.36	5737.24	5812.60	0.5	PASS
	Ant2	5775	75.84	5736.92	5812.76	0.5	PASS

5.5. Test graphs B4

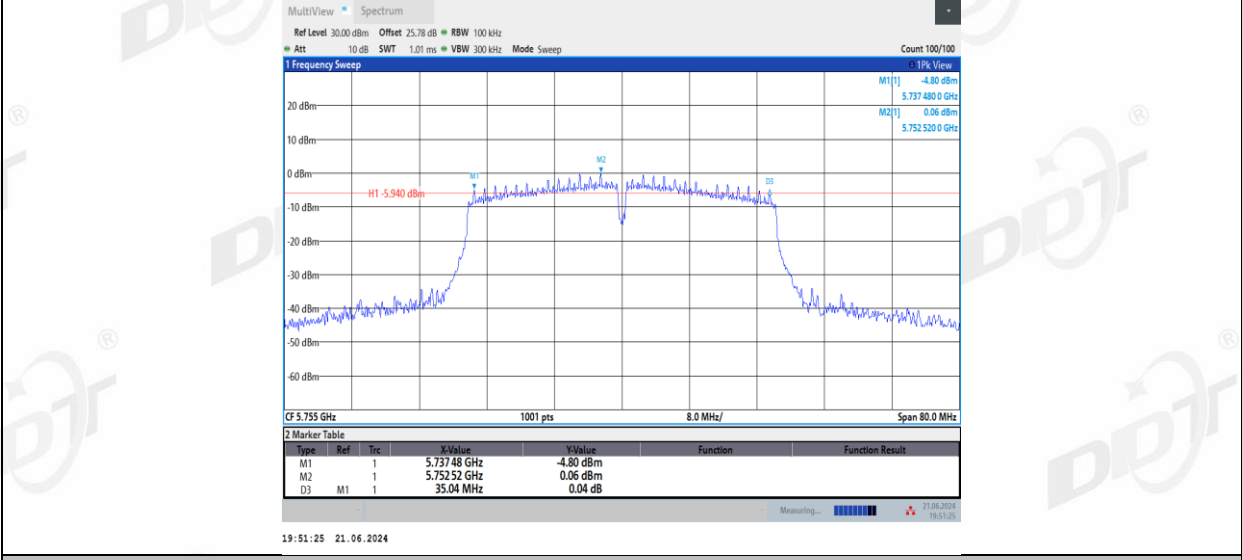




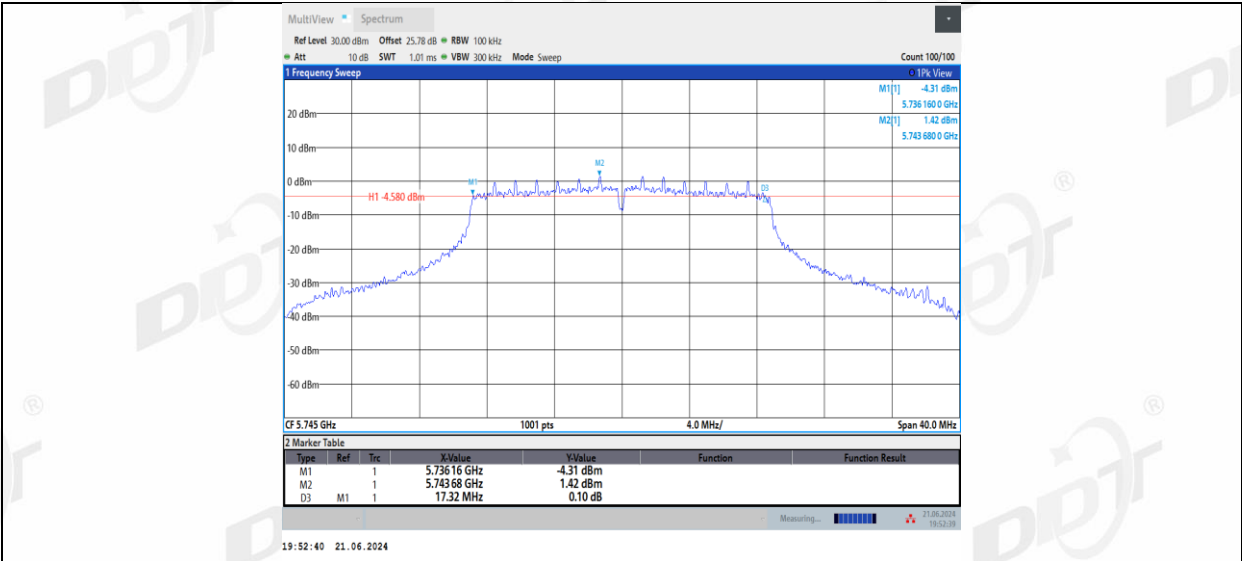
11N40MIMO_Ant1_5755



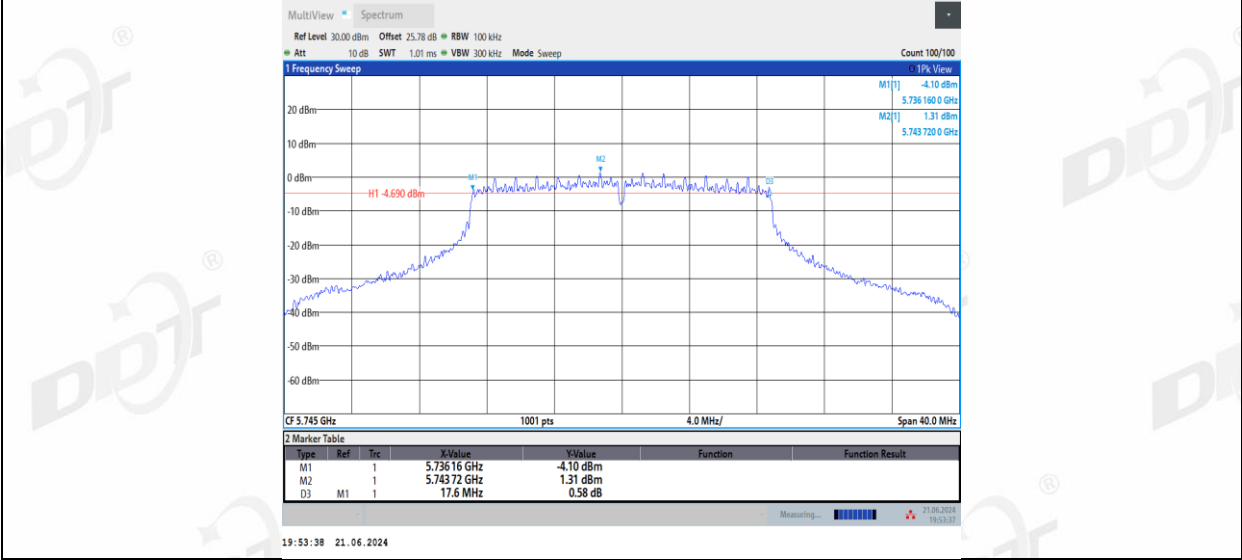
11N40MIMO_Ant2_5755



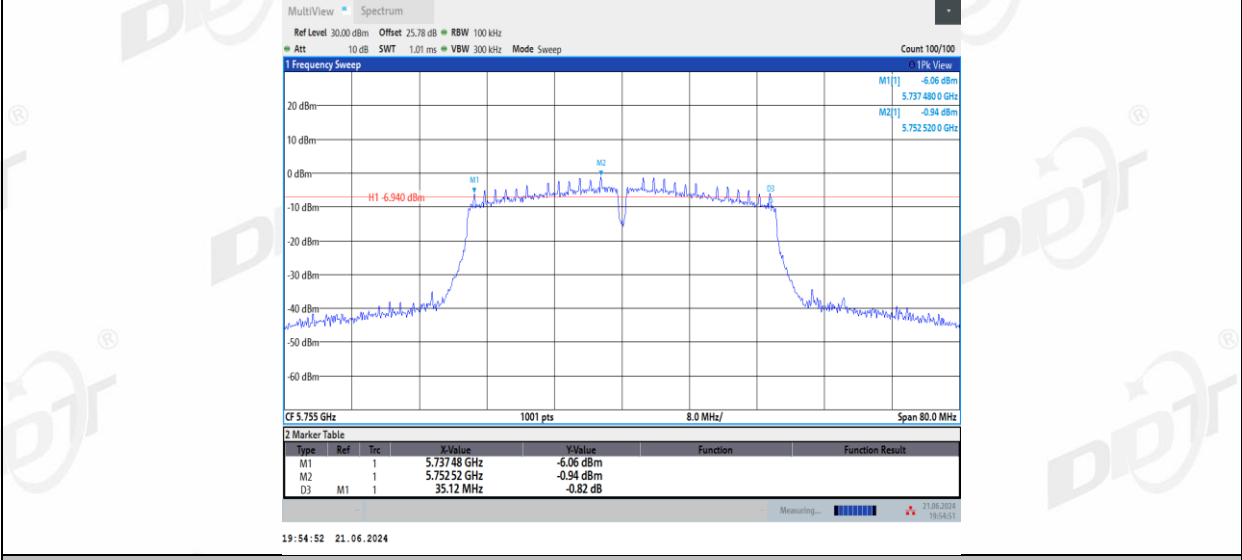
11AC20MIMO_Ant1_5745



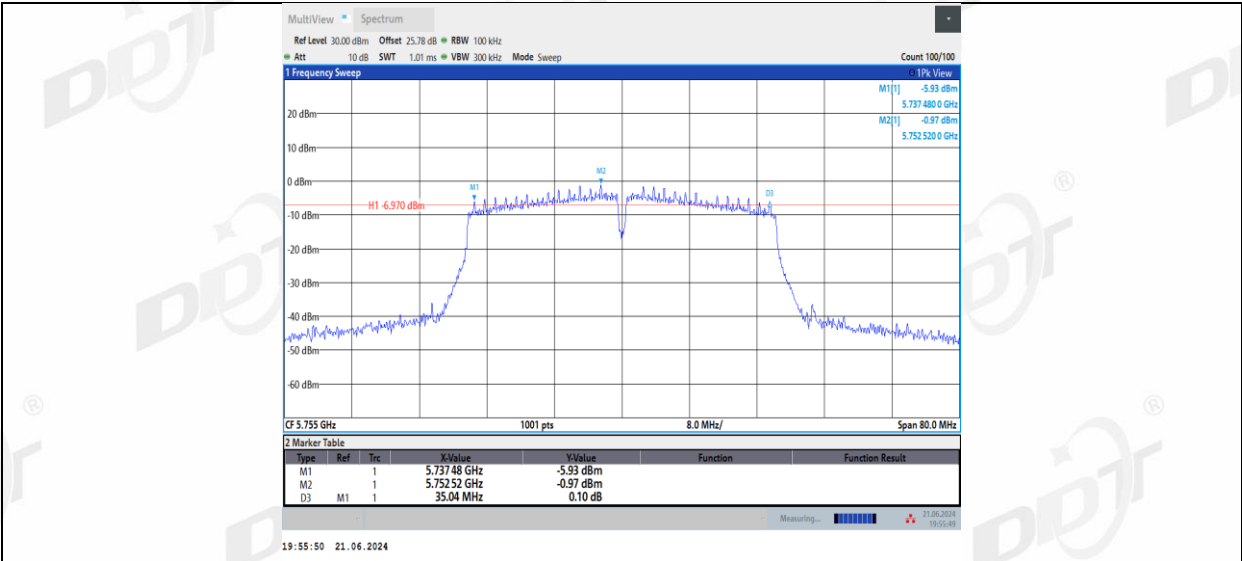
11AC20MIMO_Ant2_5745



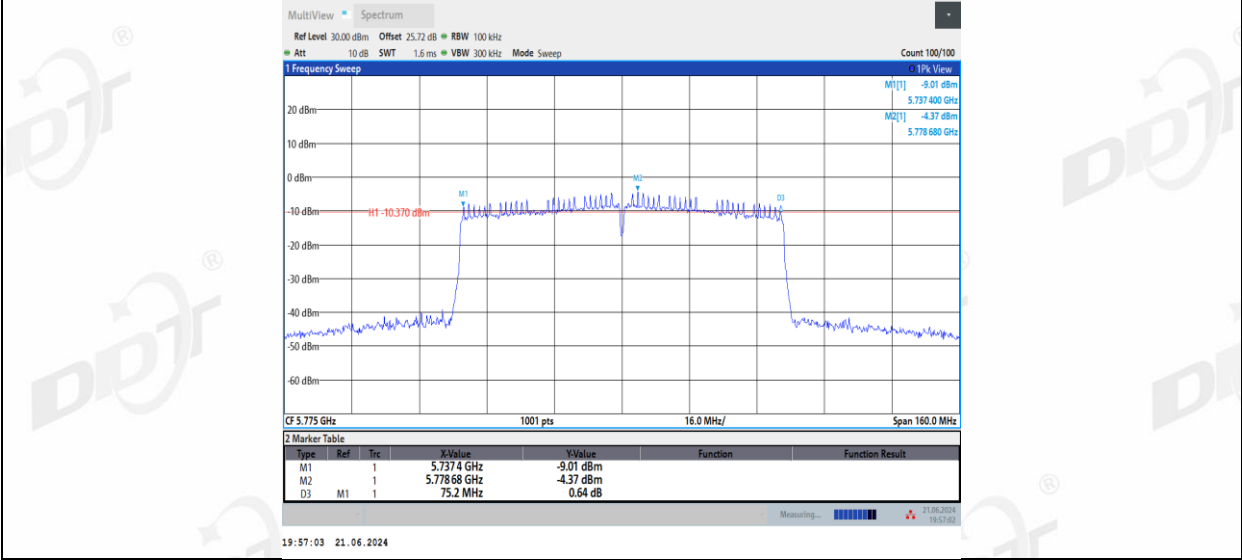
11AC40MIMO_Ant1_5755



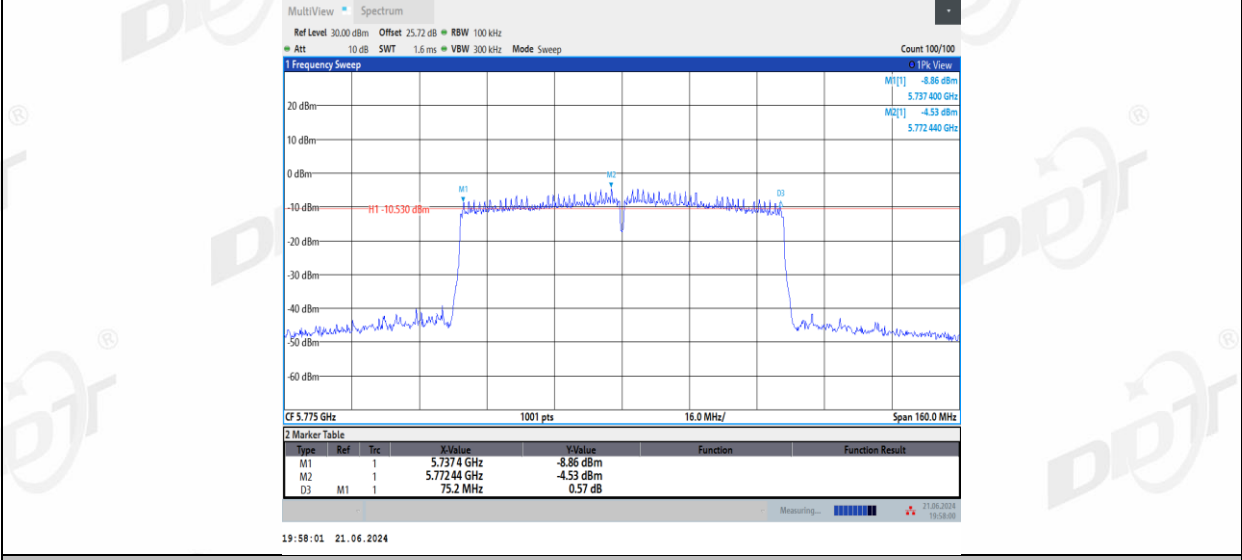
11AC40MIMO_Ant2_5755



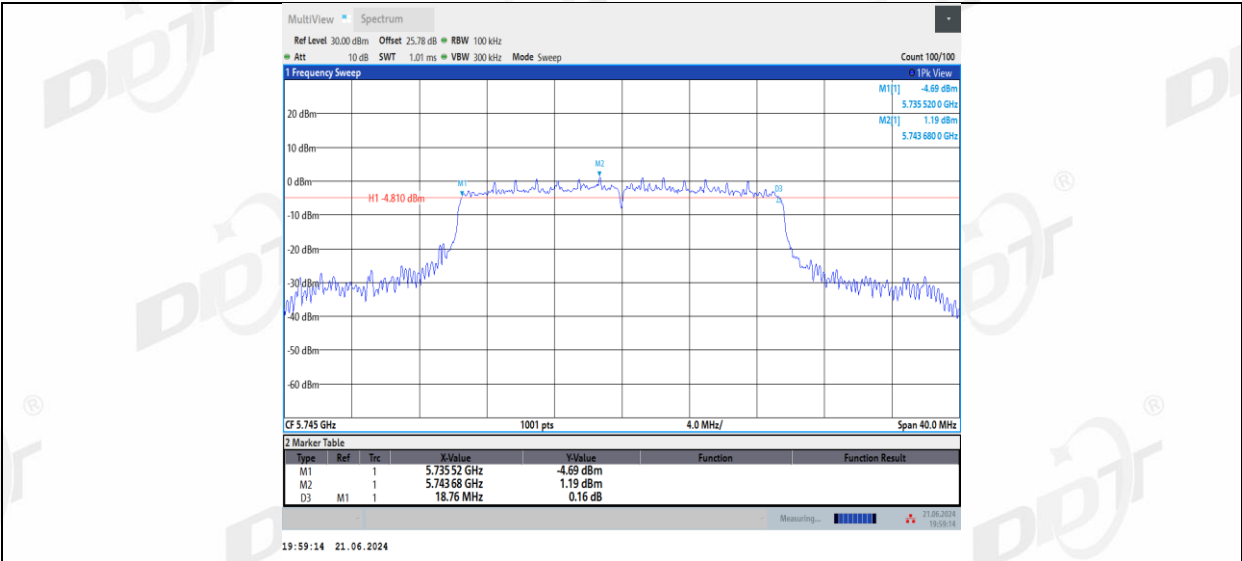
11AC80MIMO_Ant1_5775



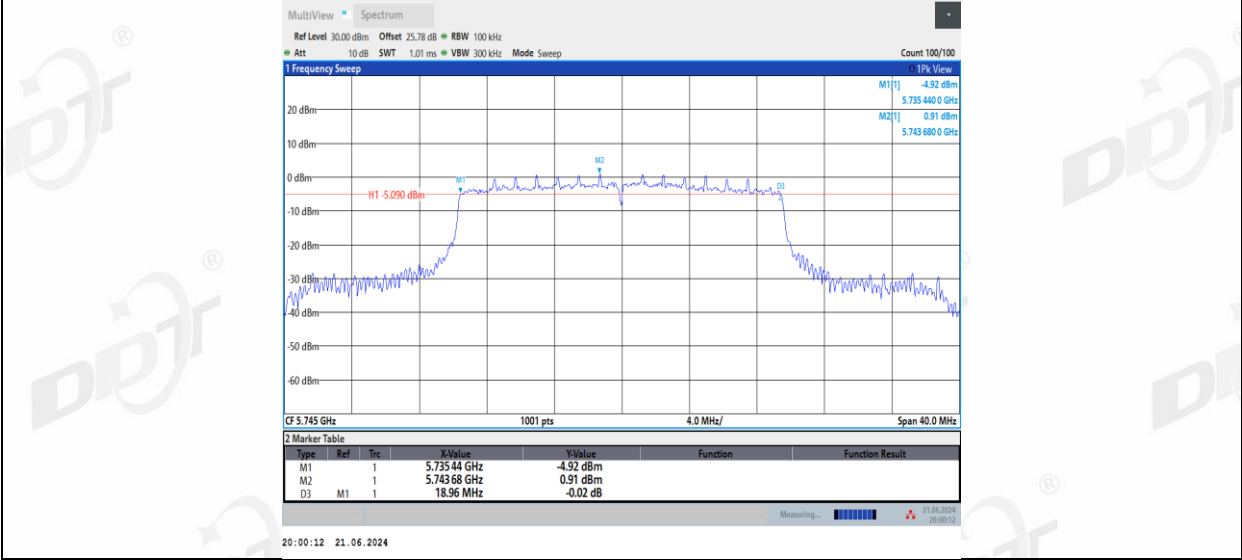
11AC80MIMO_Ant2_5775



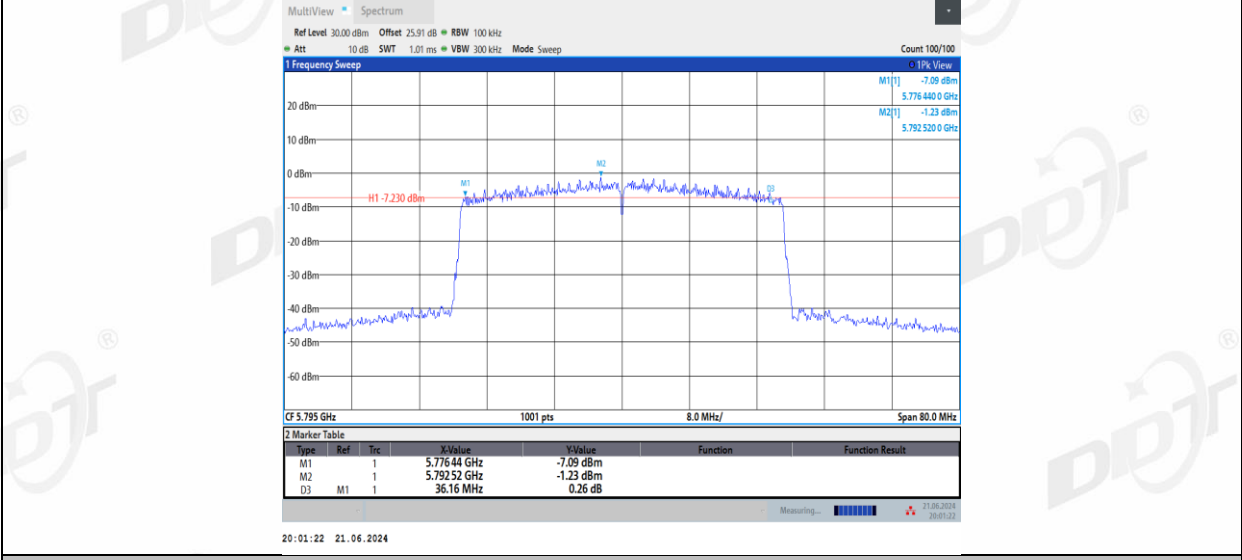
11AX20MIMO_Ant1_5745



11AX20MIMO_Ant2_5745



11AX40MIMO_Ant1_5795

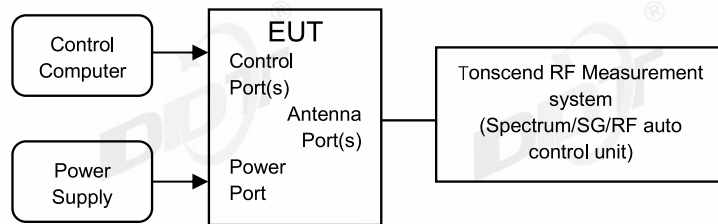


11AX40MIMO_Ant2_5795



6. 99% Bandwidth

6.1. Block diagram of test setup



6.2. Limits

Just for Report.

6.3. 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	1% to 5% of the OBW
VBW	approximately three times the RBW
Trace	Max hold

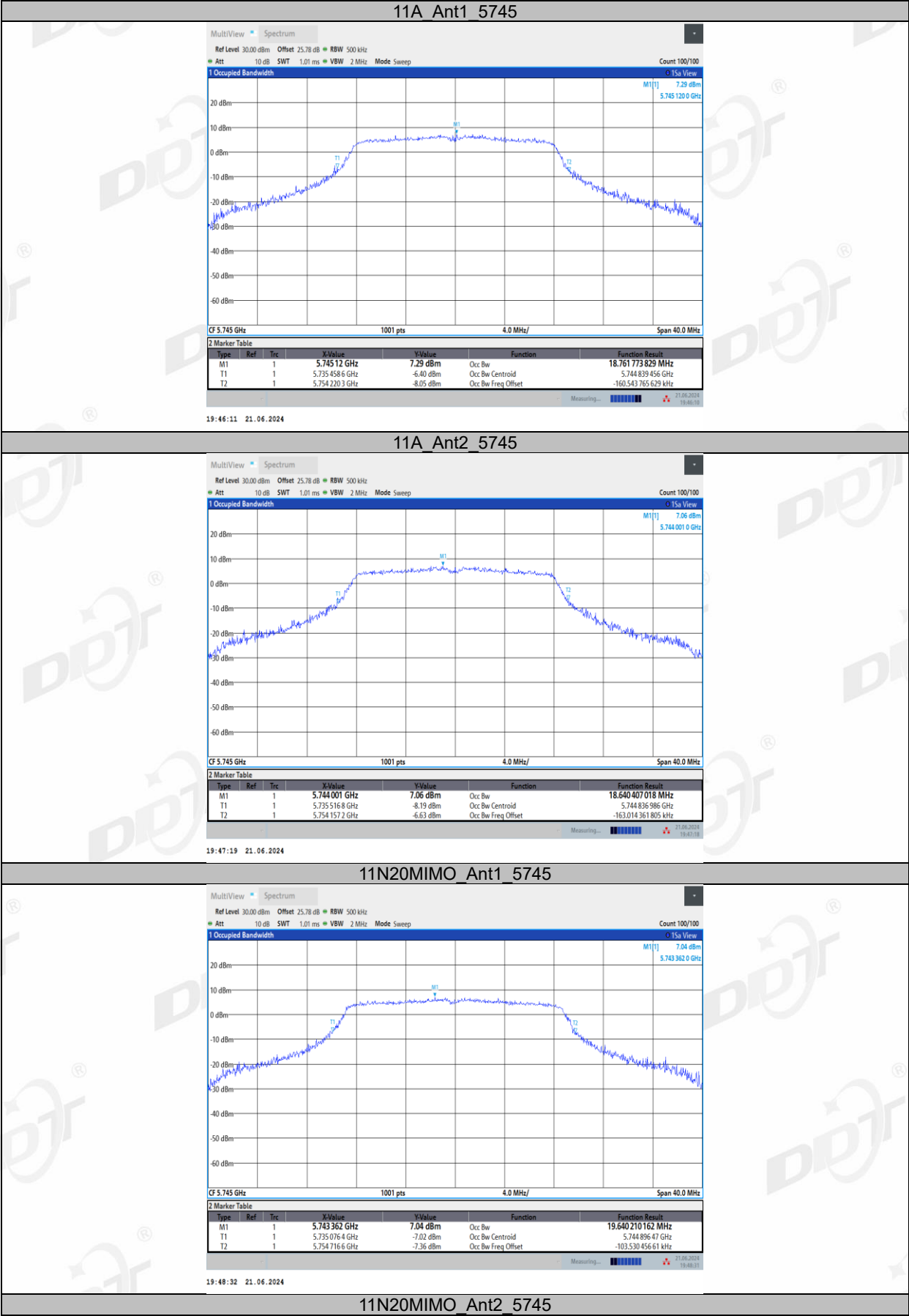
Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.

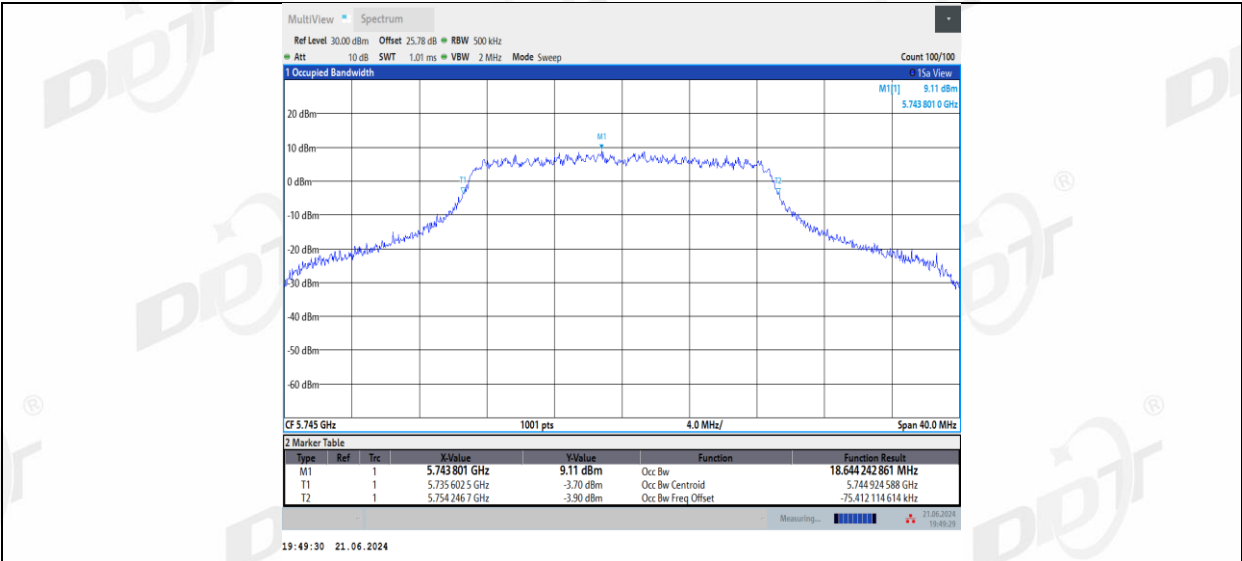
6.4. Test result

Test Engineer:	Haofeng	Test Site:	RF Measurement System 4#
Ambient Condition:	26.1℃,46.5%RH	Test Date:	2024.06.21
Test Power Supply:	DC 3.3V	Sample Number:	S24053102-001-002

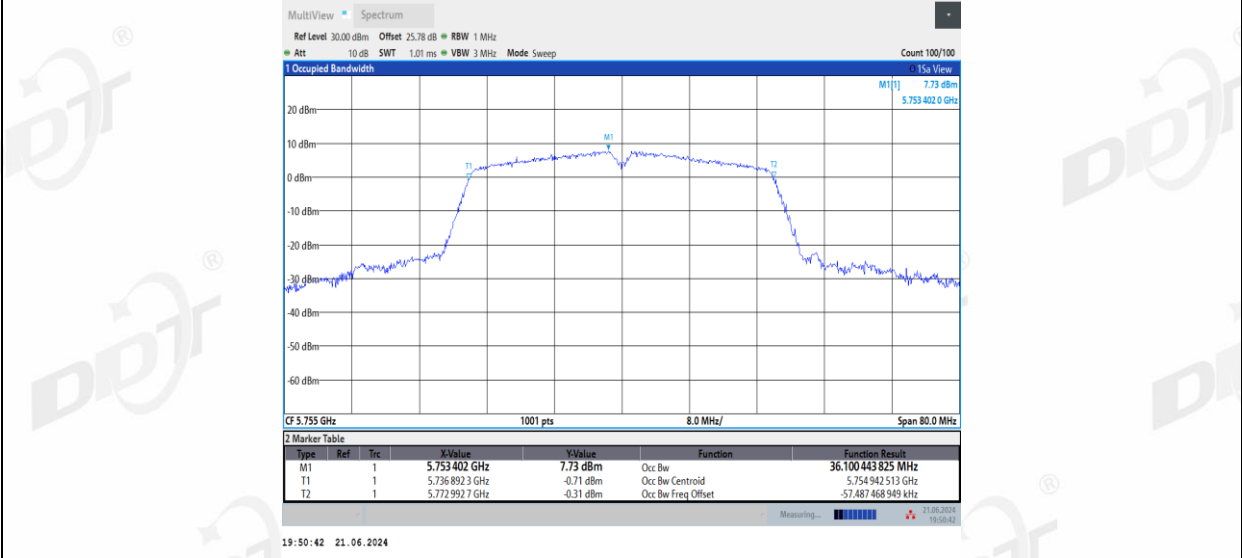
Test Mode	Antenna	Frequency [MHz]	OCB [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
11A	Ant1	5745	18.762	5735.4586	5754.2203	---	---
	Ant2	5745	18.64	5735.5168	5754.1572	---	---
11N20MIMO	Ant1	5745	19.64	5735.0764	5754.7166	---	---
	Ant2	5745	18.644	5735.6025	5754.2467	---	---
11N40MIMO	Ant1	5755	36.1	5736.8923	5772.9927	---	---
	Ant2	5755	36.103	5736.8360	5772.9388	---	---
11AC20MI MO	Ant1	5745	19.715	5735.0490	5754.7644	---	---
	Ant2	5745	18.605	5735.6187	5754.2237	---	---
11AC40MI MO	Ant1	5755	36.127	5736.9018	5773.0289	---	---
	Ant2	5755	36.077	5736.9084	5772.9855	---	---
11AC80MI MO	Ant1	5775	75.314	5737.2183	5812.5320	---	---
	Ant2	5775	75.333	5737.2452	5812.5786	---	---
11AX20MI MO	Ant1	5745	19.337	5735.2810	5754.6176	---	---
	Ant2	5745	19.325	5735.2556	5754.5810	---	---
11AX40MI MO	Ant1	5795	37.549	5776.2120	5813.7614	---	---
	Ant2	5795	37.489	5776.1930	5813.6818	---	---
11AX80MI MO	Ant1	5775	77.164	5736.3303	5813.4940	---	---
	Ant2	5775	77.141	5736.2927	5813.4339	---	---

6.5. Test graphs

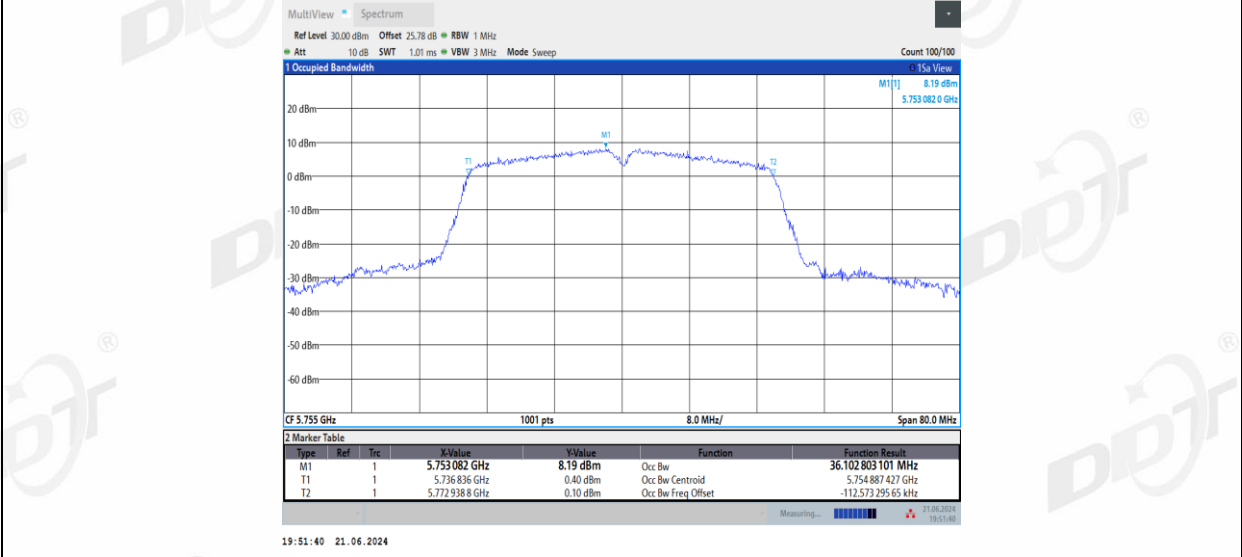




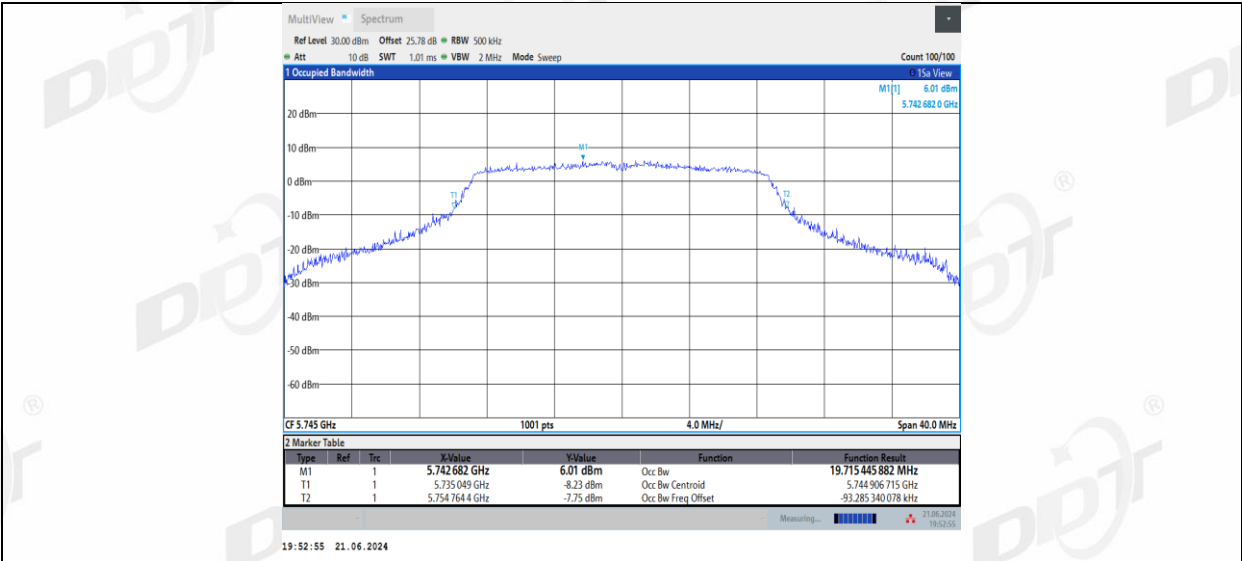
11N40MIMO_Ant1_5755



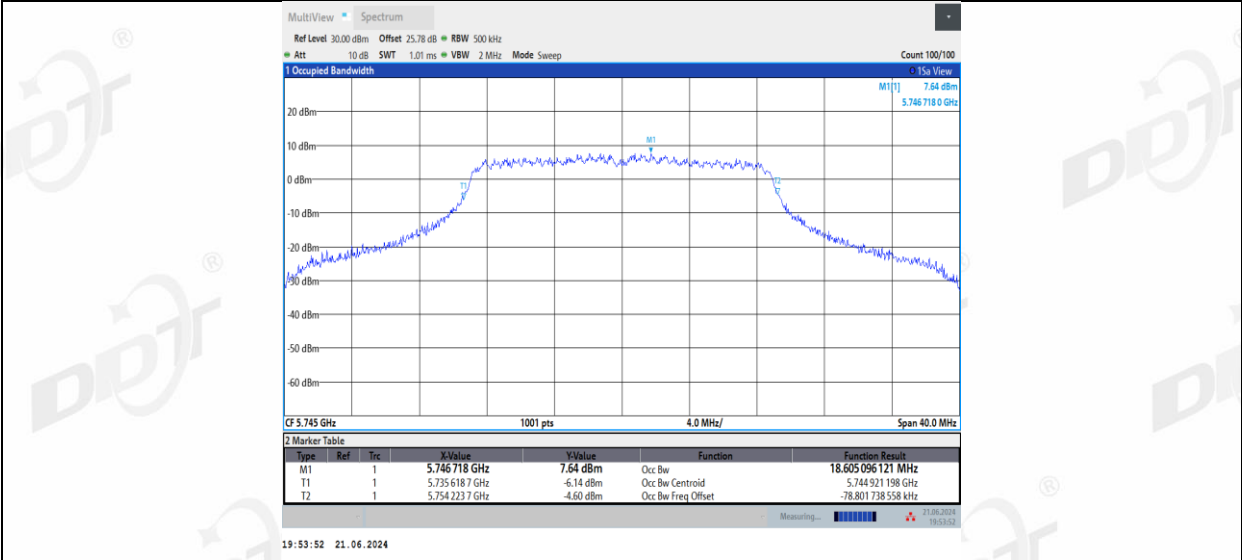
11N40MIMO_Ant2_5755



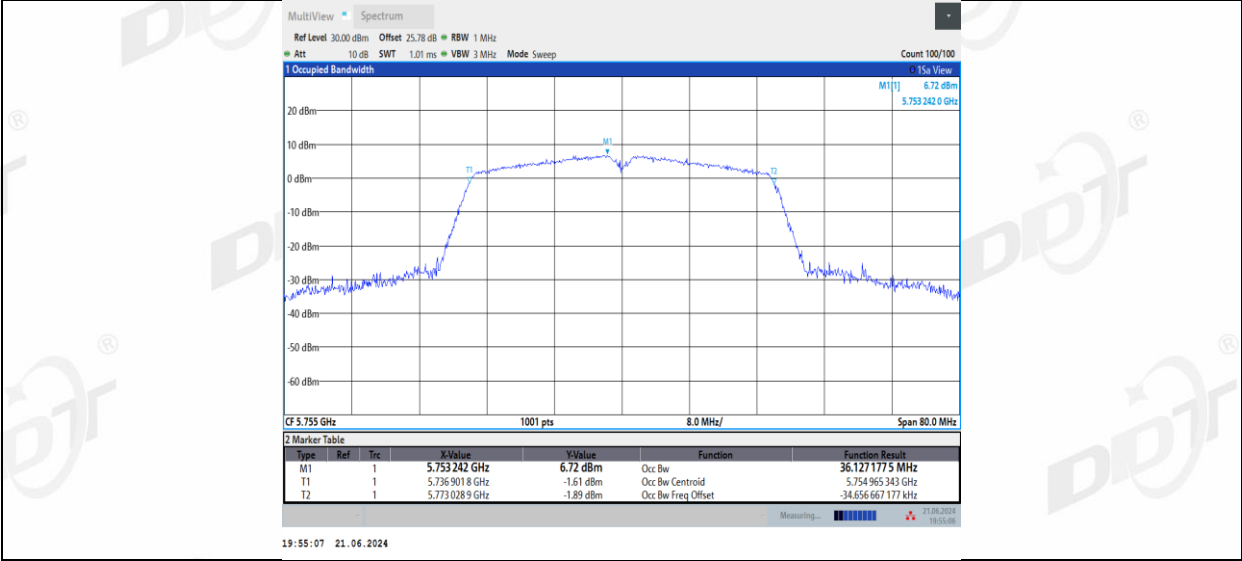
11AC20MIMO_Ant1_5745



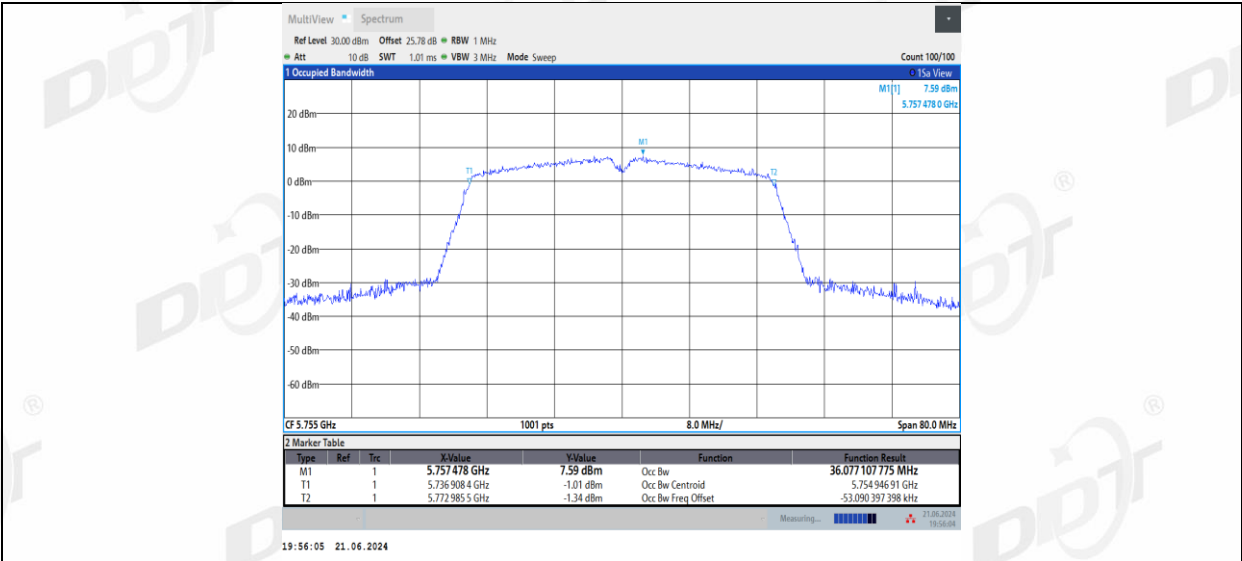
11AC20MIMO_Ant2_5745



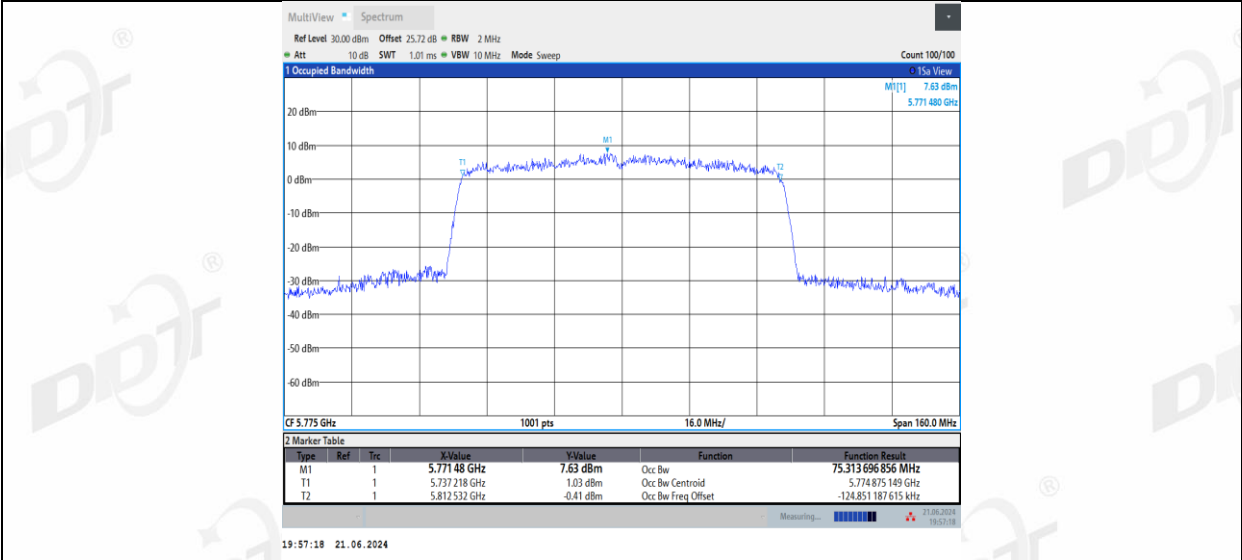
11AC40MIMO_Ant1_5755



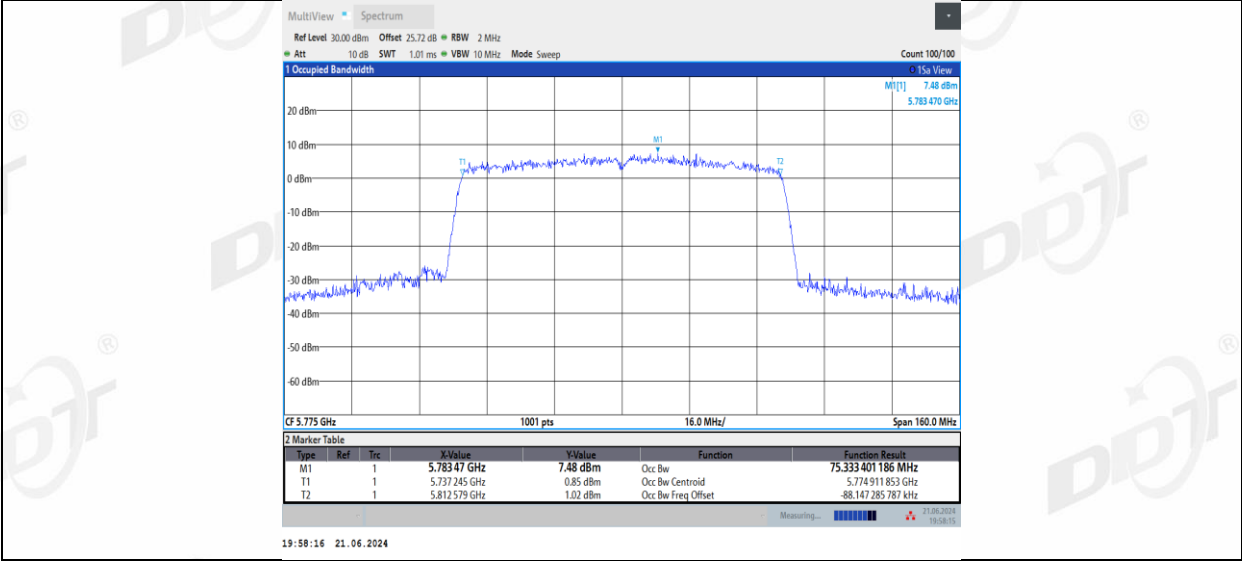
11AC40MIMO_Ant2_5755



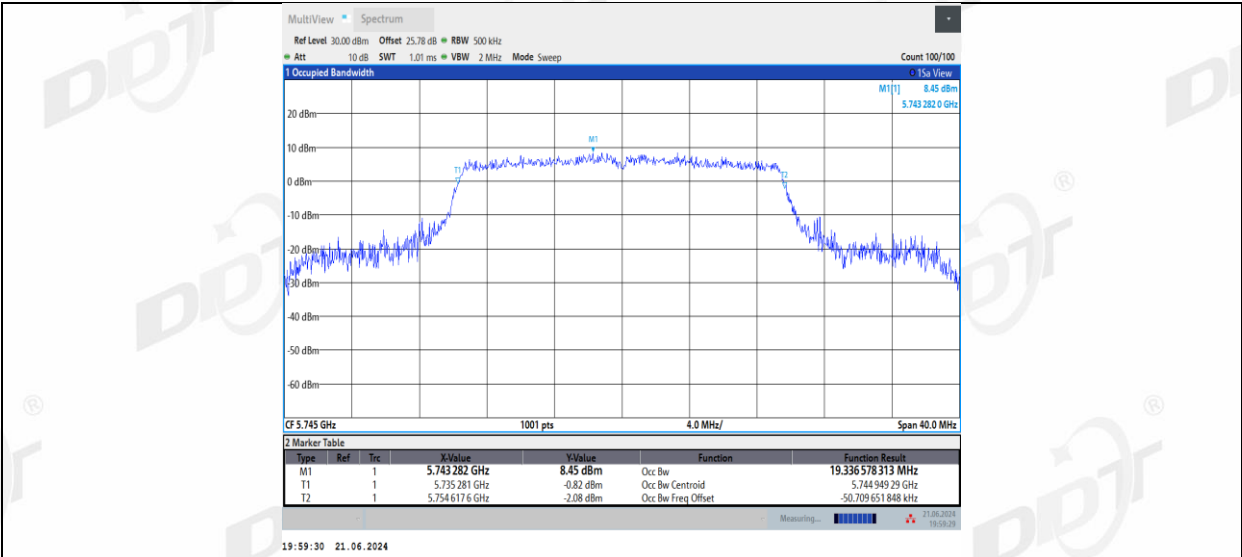
11AC80MIMO_Ant1_5775



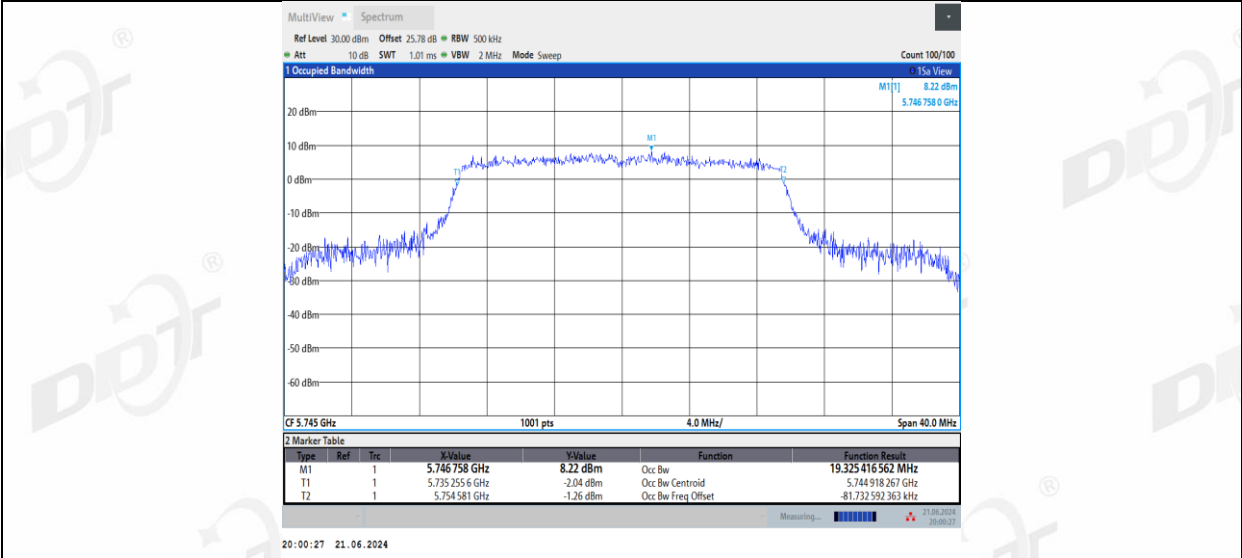
11AC80MIMO_Ant2_5775



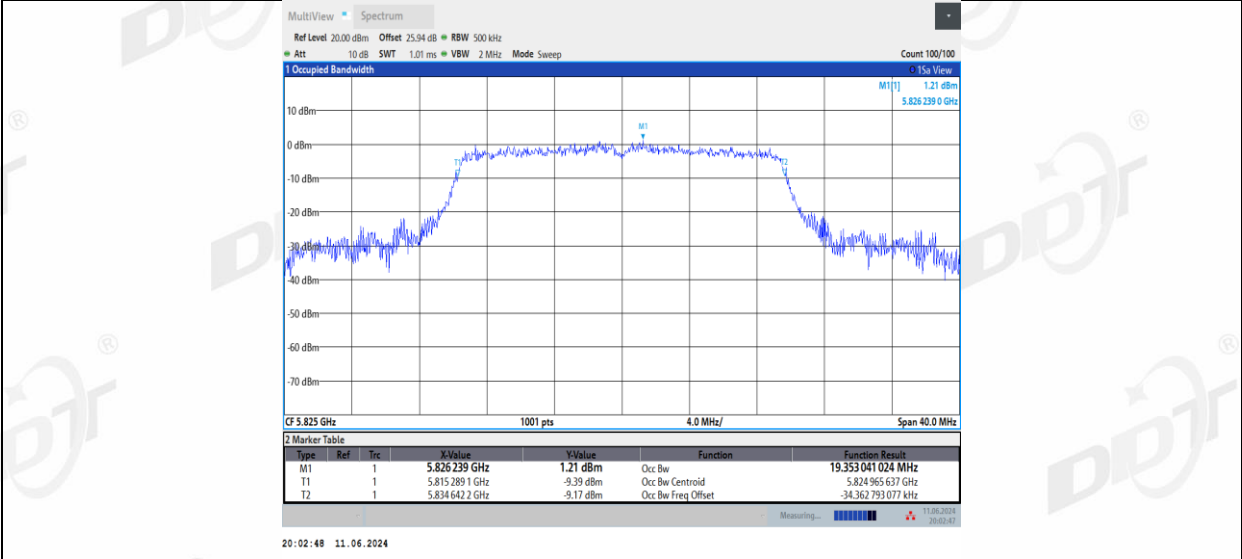
11AX20MIMO_Ant1_5745



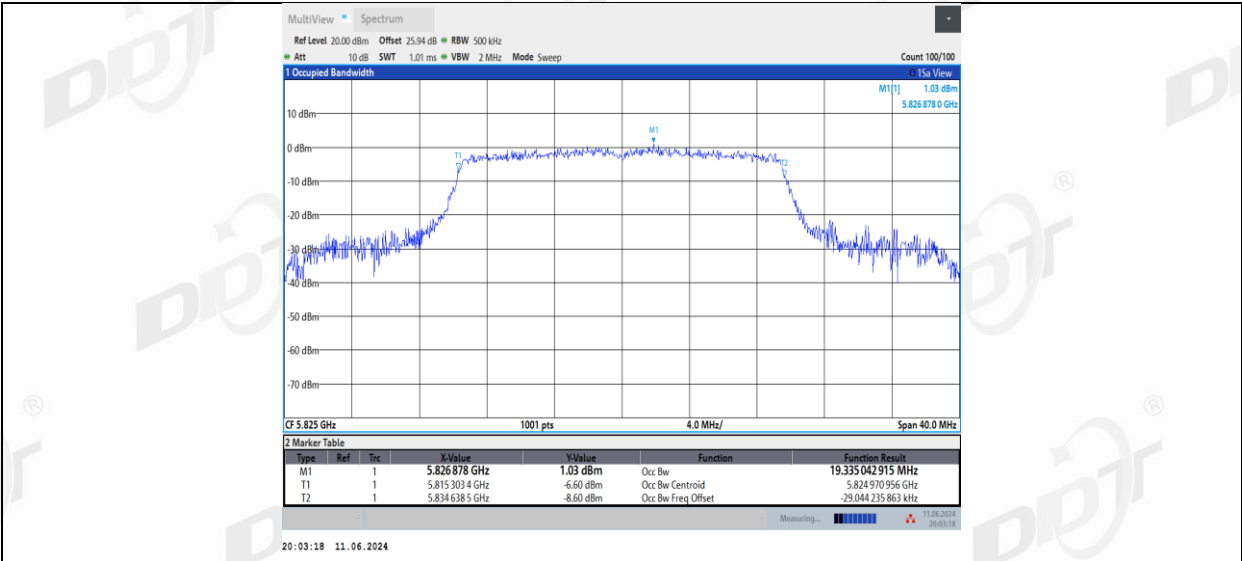
11AX20MIMO_Ant2_5745



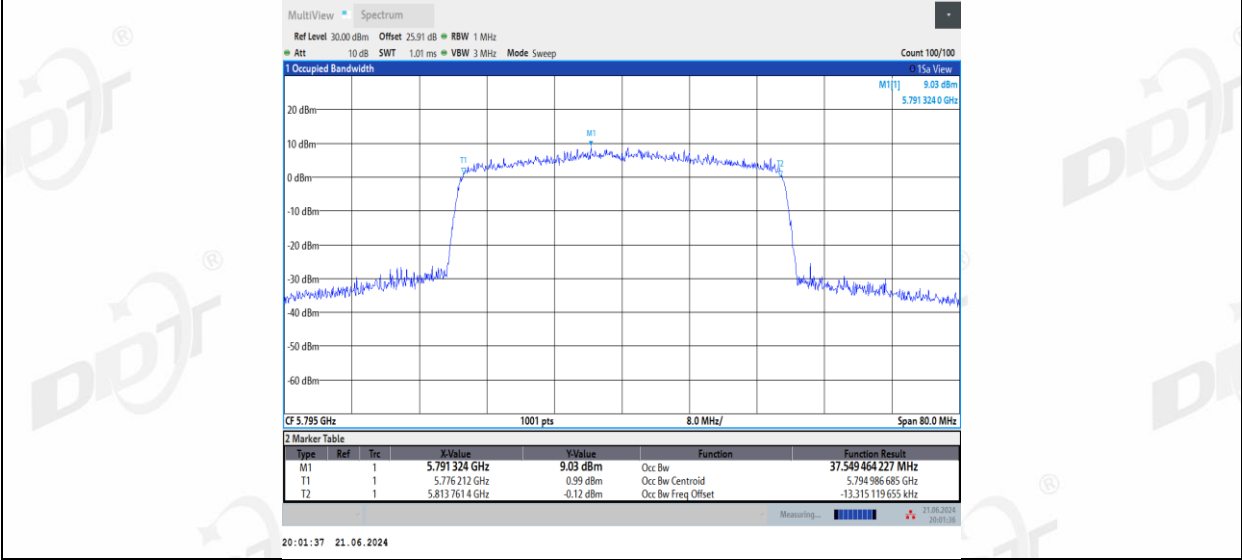
11AX20MIMO_Ant1_5825



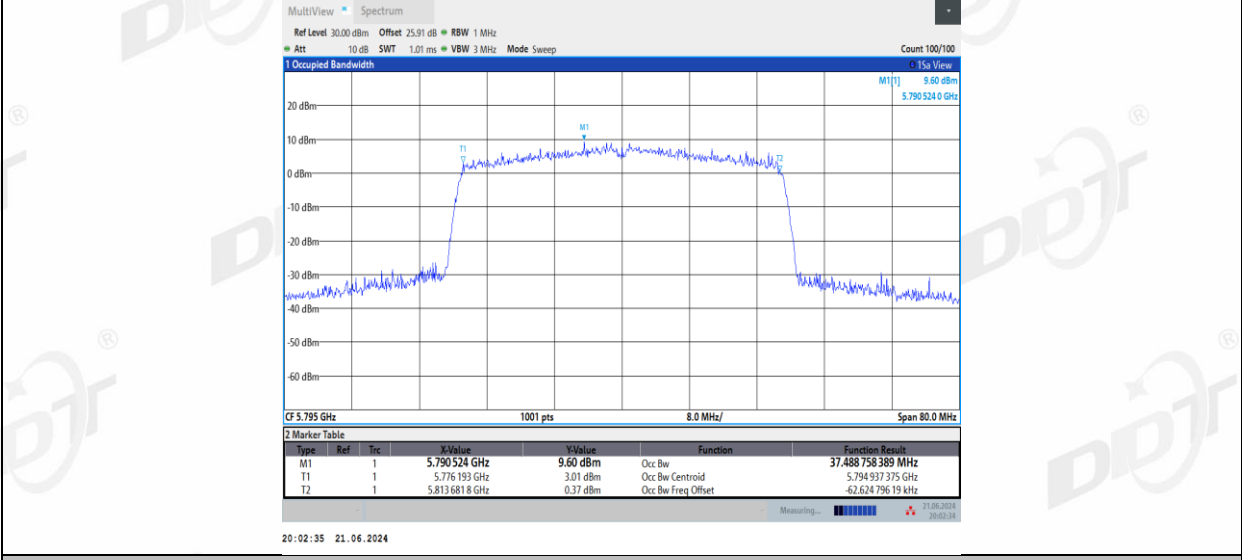
11AX20MIMO_Ant2_5825



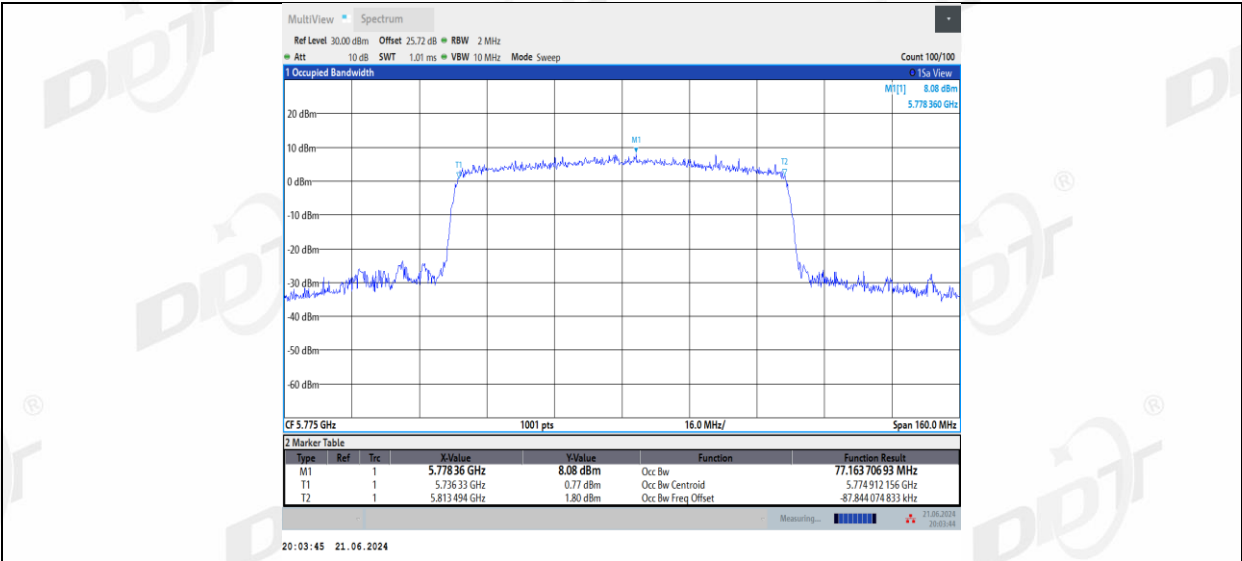
11AX40MIMO_Ant1_5795



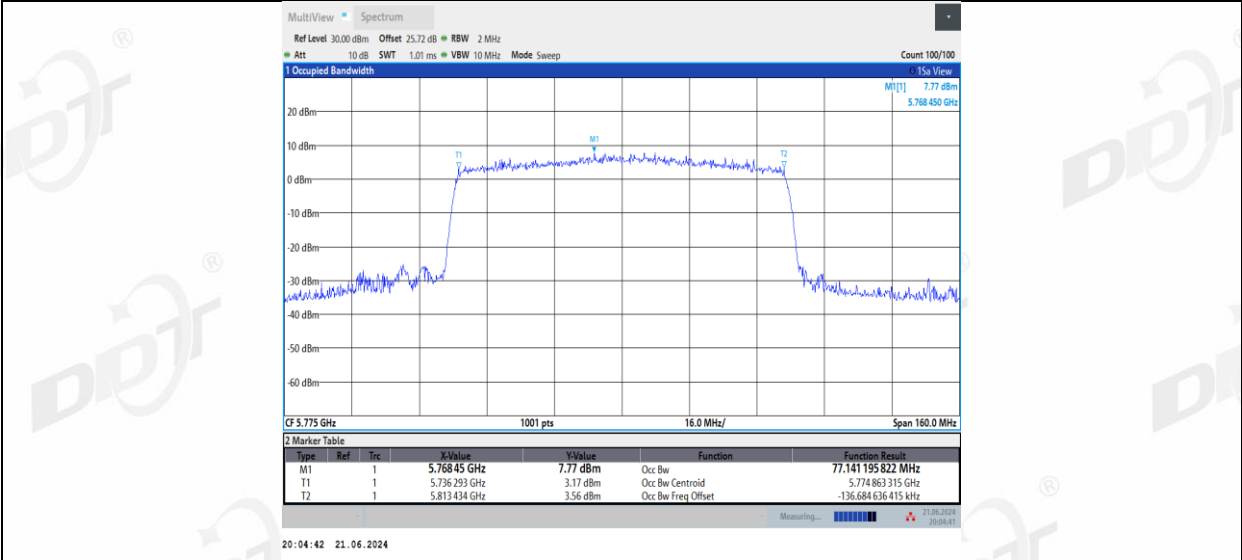
11AX40MIMO_Ant2_5795



11AX80MIMO_Ant1_5775

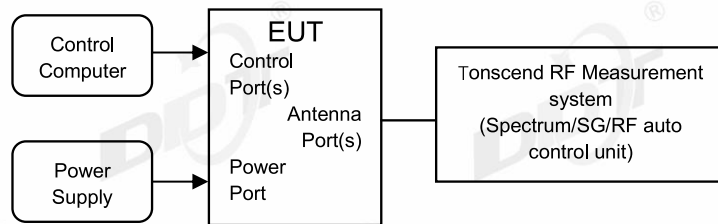


11AX80MIMO_Ant2_5775



7. Duty Cycle

7.1. Block diagram of test setup



7.2. Limit

Just for Report.

7.3. Test procedure

- (1) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, The cable loss and attenuator loss have been put into spectrum analyzer as amplitude offset.
set the Spectrum Analyzer as below:
 Centre Frequency: The centre frequency of the middle hopping channel.
 Resolution BW: 10 MHz.
 Video BW: 10 MHz.
 Span: Zero span.
 Detector: Peak.
 Trace Mode: Clear Write.
 Sweep: Video Trigger
- (2) When the trace is complete, measure the sending time of 1 burst and the duty cycle of 1 burst cycle.
- (3) Calculate dwell time follow below formula:
 Duty cycle= Pulse's on time / Burst cycle