



FCC AND ISCED 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 C, RSS-247 Issue 3 August 2023, ANSI C63.10:2013, RSS-Gen Issue 5, Apr. 2018, Amendment 2 (February 2021)
Report No.	:	DDT-RE24121719-1E03
Issue Date	:	2024/12/25
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

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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 C,
RSS-247 Issue 3 August 2023,
ANSI C63.10:2013,
RSS-Gen Issue 5, Apr. 2018, Amendment 2 (February 2021)

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-RE24121719-1E03		
Date of Receipt:	2024/10/19	Date of Test:	2024/10/19 - 2024/12/25

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	2024/12/25	

1. Summary of Test Results

No.	Test Parameter	Clause No.	Condition	Result
1	6 dB Bandwidth and 99% Bandwidth	FCC Part 15: 15.247(a)(2), RSS-247 Issue 3 clause 5.2(a), RSS-Gen Issue 5 clause 6.7	/	Pass
2	Peak Output Power	FCC Part 15: 15.247(b)(3), RSS-247 Issue 3 clause 5.4(d)	/	Pass
3	Power Spectral Density	FCC Part 15:15.247(e), RSS-247 Issue 3 clause 5.2(b)	/	Pass
4	RF Conducted Spurious Emissions	FCC Part 15: 15.247(d), RSS-247 Issue 3 clause 5.5	/	Pass
5	Radiated Emission	FCC Part 15: 15.205, FCC Part 15: 15.209, FCC Part 15: 15.247(d), RSS-247 Issue 3 clause 5.5, RSS-Gen Issue 5 clause 8.9, RSS-Gen Issue 5 clause 8.10	/	Pass
6	Band Edge Compliance	FCC Part 15: 15.205, FCC Part 15: 15.209, FCC Part 15: 15.247(d), RSS-247 Issue 3 clause 5.5, RSS-Gen Issue 5 clause 8.9, RSS-Gen Issue 5 clause 8.10	/	Pass
7	Power Line Conducted Emissions	FCC Part 15: 15.207(a), RSS-Gen Issue 5 clause 8.8	/	Pass
8	Antenna Requirement	FCC Part 15: 15.203, RSS-Gen Issue 5 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 2.4 GHz WLAN.

Radio Technology	: IEEE 802.11b/g/n/ax
Operation frequency	: IEEE 802.11b: 2412MHz-2462MHz IEEE 802.11g: 2412MHz-2462MHz IEEE 802.11n HT20: 2412MHz-2462MHz IEEE 802.11n HT40: 2422MHz-2452MHz IEEE 802.11ax HE20: 2412MHz-2462MHz IEEE 802.11ax HE40: 2422MHz-2452MHz
Modulation	: IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ax: OFDM, OFDMA (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)

Antenna information			
	Ant1 gain	Ant2 gain	Directional gain
IEEE 802.11b	2.59	2.36	/
IEEE 802.11g	2.59	2.36	/
IEEE 802.11n HT20	2.59	2.36	2.48
IEEE 802.11n HT40	2.59	2.36	2.48
IEEE 802.11ax HE20	2.59	2.36	2.48
IEEE 802.11ax HE40	2.59	2.36	2.48

Channel information					
CH	Frequency (MHz)	CH	Frequency (MHz)	CH	Frequency (MHz)
1	2412	5	2432	9	2452
2	2417	6	2437	10	2457
3	2422	7	2442	11	2462
4	2427	8	2447	/	/

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	

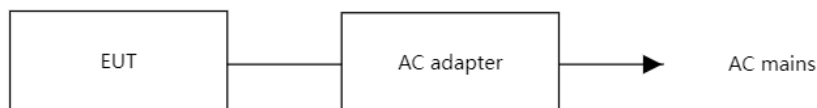
Note: The above EUT information is declared by manufacturer and for more detailed features description please refer to the manufacturer's specifications or User's Manual. The above Antenna information is declared by manufacturer and for more detailed features description please refer to the manufacturer's 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: 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)
	ANT1	ANT2			
IEEE 802.11b	15	15	1	LCH: CH1	2412
	15	15	1	MCH: CH6	2437
	15	15	1	HCH: CH11	2462
IEEE 802.11g	13	13	6	LCH: CH1	2412
	13	13	6	MCH: CH6	2437
	13	13	6	HCH: CH11	2462
IEEE 802.11n HT20	13	13	MCS 8	LCH: CH1	2412
	13	13	MCS 8	MCH: CH6	2437
	13	13	MCS 8	HCH: CH11	2462
IEEE 802.11n HT40	11	11	MCS 8	LCH: CH3	2422
	11	11	MCS 8	MCH: CH6	2437
	11	11	MCS 8	HCH: CH9	2452
IEEE 802.11ax HE20	13	13	MCS 0	LCH: CH1	2412
	13	13	MCS 0	MCH: CH6	2437
	13	13	MCS 0	HCH: CH11	2462
IEEE 802.11ax HE40	11	11	MCS 0	LCH: CH3	2422
	11	11	MCS 0	MCH: CH6	2437
	11	11	MCS 0	HCH: CH9	2452

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

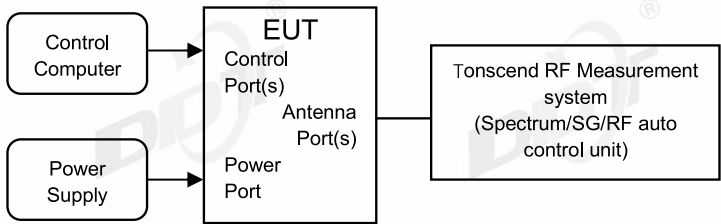
Test Item	Uncertainty
Bandwidth	1.1%
Peak Output Power (Conducted) (Spectrum analyzer)	0.86 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$); 1.38 dB ($3.6 \text{ GHz} \leq f < 8 \text{ GHz}$)
Peak Output Power (Conducted) (Power Sensor)	0.74 dB
Power Spectral Density	0.74 dB ($10 \text{ MHz} \leq f < 3.6 \text{ GHz}$); 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. 6dB Bandwidth

4.1. Block diagram of test setup



4.2. Limits

For direct sequence systems, the minimum 6 dB bandwidth shall be at least 500 kHz

4.3. Test procedure

- (1) The test according to ANSI C63.10-2013 clause 11.8.
- (2) Connect EUT's antenna output to spectrum analyzer by RF cable, the path loss was compensated to the results
- (3) Set the EUT as maximum power setting and enable the EUT transmit continuously
- (4) Use the following spectrum analyzer settings for 6 dB Bandwidth:
 - RBW: 100 kHz
 - VBW: $\geq [3 \times \text{RBW}]$
 - Detector Mode: peak
 - Sweep time: auto
 - Trace mode max hold

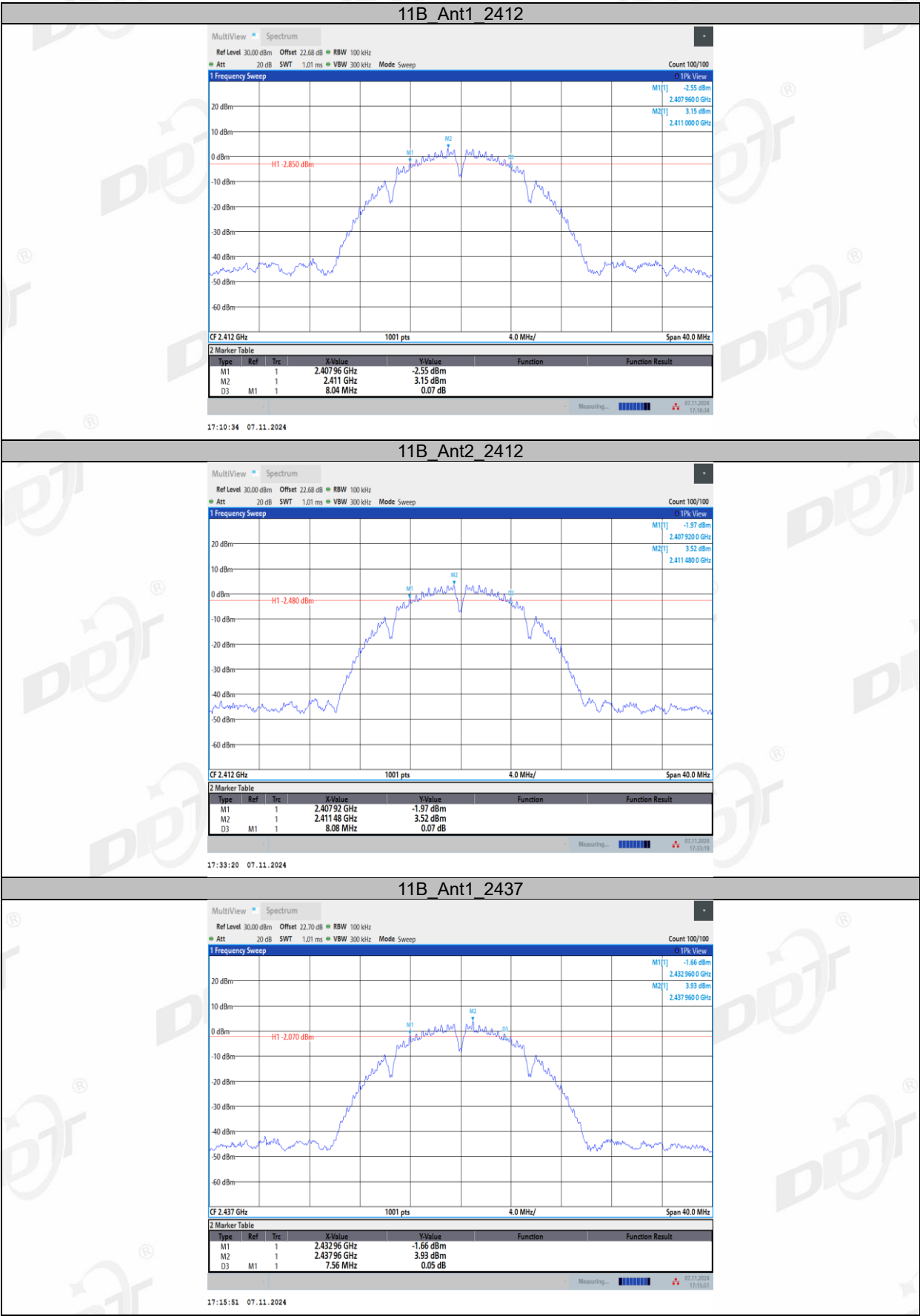
Allow the trace to stabilize, measure the 6 dB bandwidth of signal, and record the results in the report

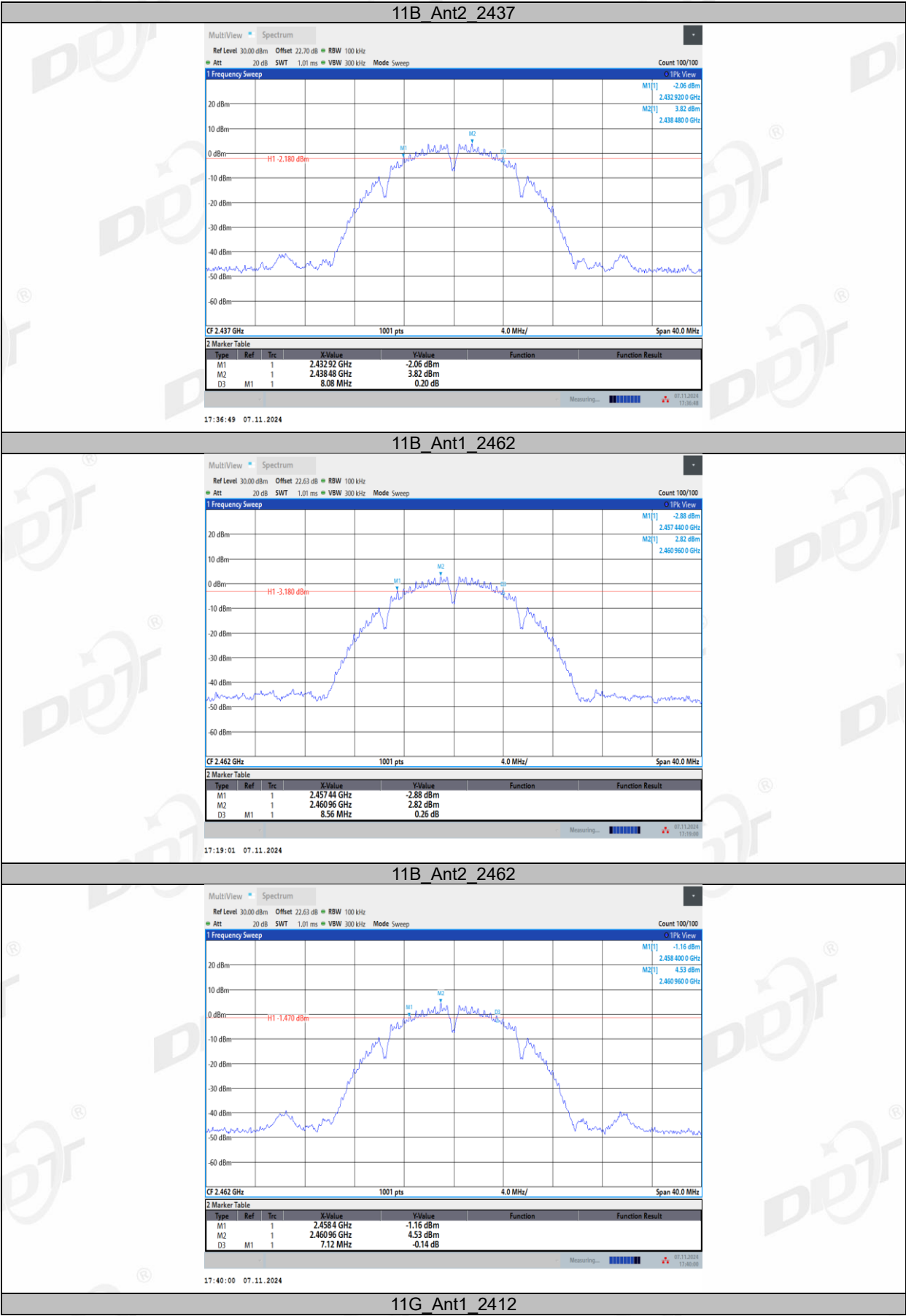
4.4. Test result

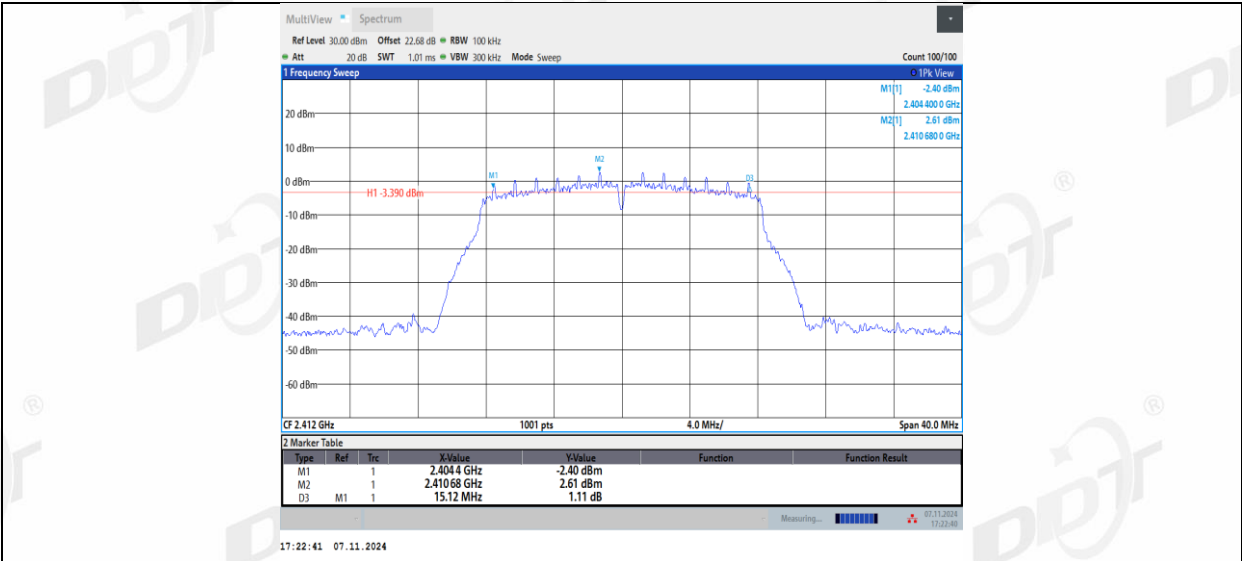
Test Engineer:	Haofeng	Test Site:	RF Measurement System 4#
Ambient Condition:	24.3℃,46.1%RH	Test Date:	2024.11.07
Test Power Supply:	Battery	Sample Number:	S24121719-005

Test Mode	Antenna	Frequency [MHz]	DTS BW [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
11B	Ant1	2412	8.04	2407.96	2416.00	0.5	PASS
	Ant2	2412	8.08	2407.92	2416.00	0.5	PASS
	Ant1	2437	7.56	2432.96	2440.52	0.5	PASS
	Ant2	2437	8.08	2432.92	2441.00	0.5	PASS
	Ant1	2462	8.56	2457.44	2466.00	0.5	PASS
	Ant2	2462	7.12	2458.40	2465.52	0.5	PASS
11G	Ant1	2412	15.12	2404.40	2419.52	0.5	PASS
	Ant2	2412	15.12	2404.40	2419.52	0.5	PASS
	Ant1	2437	15.48	2429.04	2444.52	0.5	PASS
	Ant2	2437	15.64	2429.20	2444.84	0.5	PASS
	Ant1	2462	15.48	2454.04	2469.52	0.5	PASS
	Ant2	2462	15.48	2454.04	2469.52	0.5	PASS
11N20MI MO	Ant1	2412	15.12	2404.40	2419.52	0.5	PASS
	Ant2	2412	16.32	2403.80	2420.12	0.5	PASS
	Ant1	2437	15.80	2429.04	2444.84	0.5	PASS
	Ant2	2437	17.16	2428.56	2445.72	0.5	PASS
	Ant1	2462	15.48	2454.36	2469.84	0.5	PASS
	Ant2	2462	17.52	2453.20	2470.72	0.5	PASS
11N40MI MO	Ant1	2422	35.12	2404.48	2439.60	0.5	PASS
	Ant2	2422	35.12	2404.48	2439.60	0.5	PASS
	Ant1	2437	35.12	2419.48	2454.60	0.5	PASS
	Ant2	2437	35.12	2419.48	2454.60	0.5	PASS
	Ant1	2452	35.12	2434.48	2469.60	0.5	PASS
	Ant2	2452	35.04	2434.48	2469.52	0.5	PASS
11AX20M IMO	Ant1	2412	18.52	2402.76	2421.28	0.5	PASS
	Ant2	2412	18.08	2402.92	2421.00	0.5	PASS
	Ant1	2437	18.68	2427.60	2446.28	0.5	PASS
	Ant2	2437	18.72	2427.76	2446.48	0.5	PASS
	Ant1	2462	18.64	2452.60	2471.24	0.5	PASS
	Ant2	2462	18.76	2452.52	2471.28	0.5	PASS
11AX40M IMO	Ant1	2422	37.36	2403.12	2440.48	0.5	PASS
	Ant2	2422	37.36	2403.52	2440.88	0.5	PASS
	Ant1	2437	37.28	2418.28	2455.56	0.5	PASS
	Ant2	2437	36.24	2419.40	2455.64	0.5	PASS
	Ant1	2452	37.36	2433.36	2470.72	0.5	PASS
	Ant2	2452	35.52	2434.08	2469.60	0.5	PASS

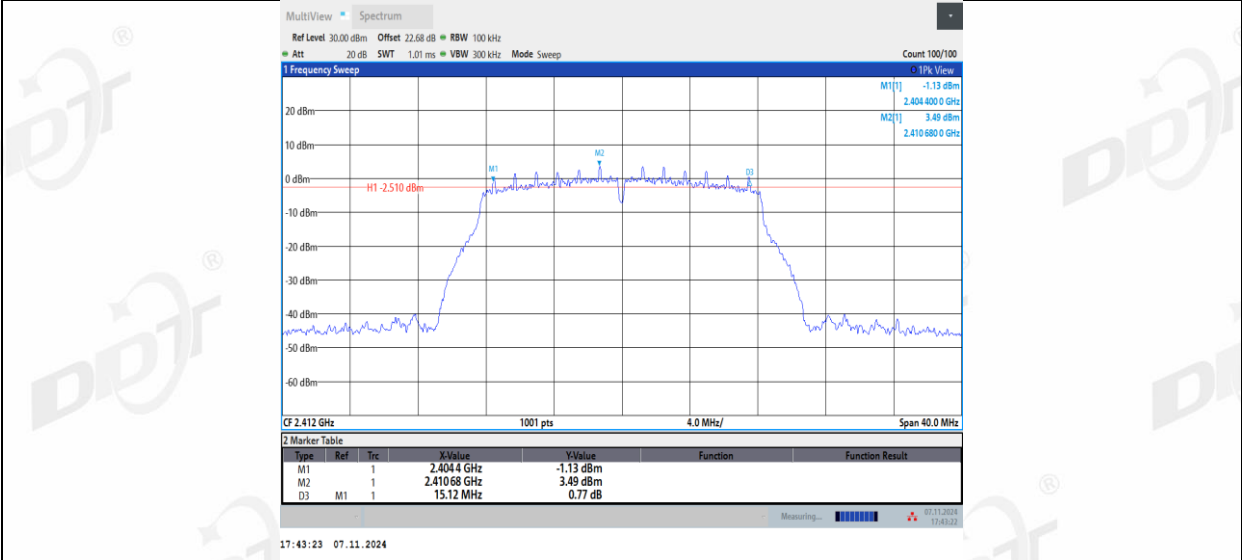
4.5. Test graphs



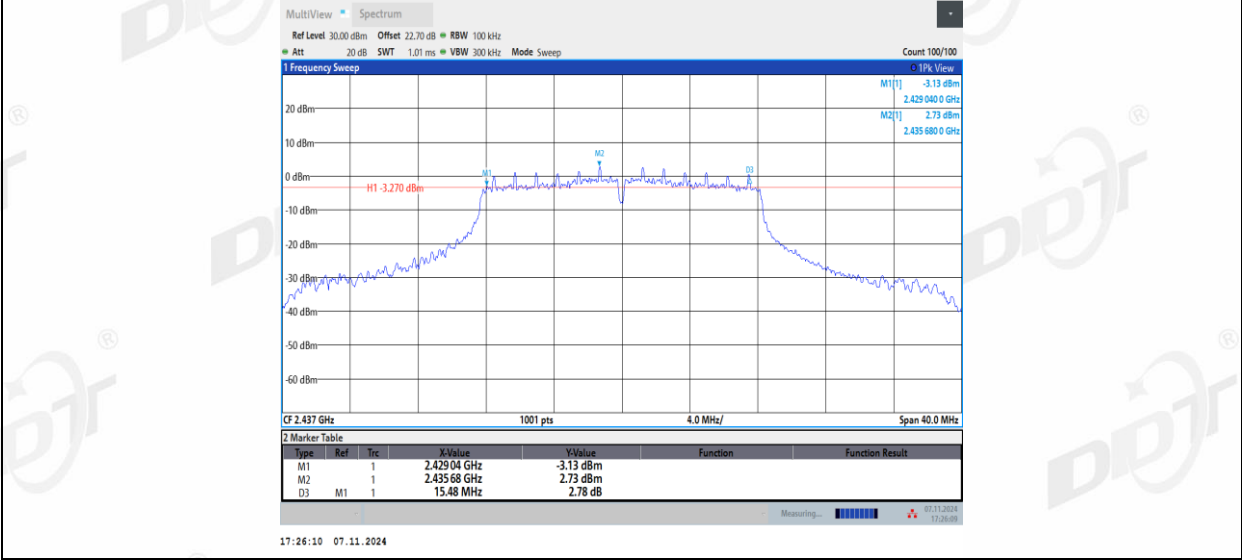




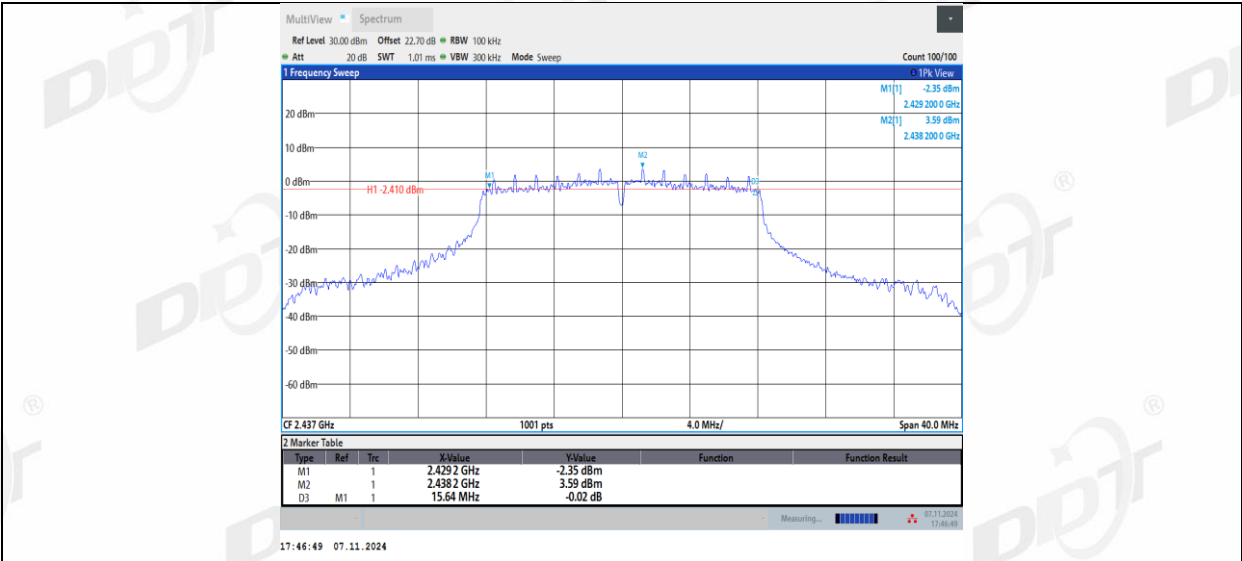
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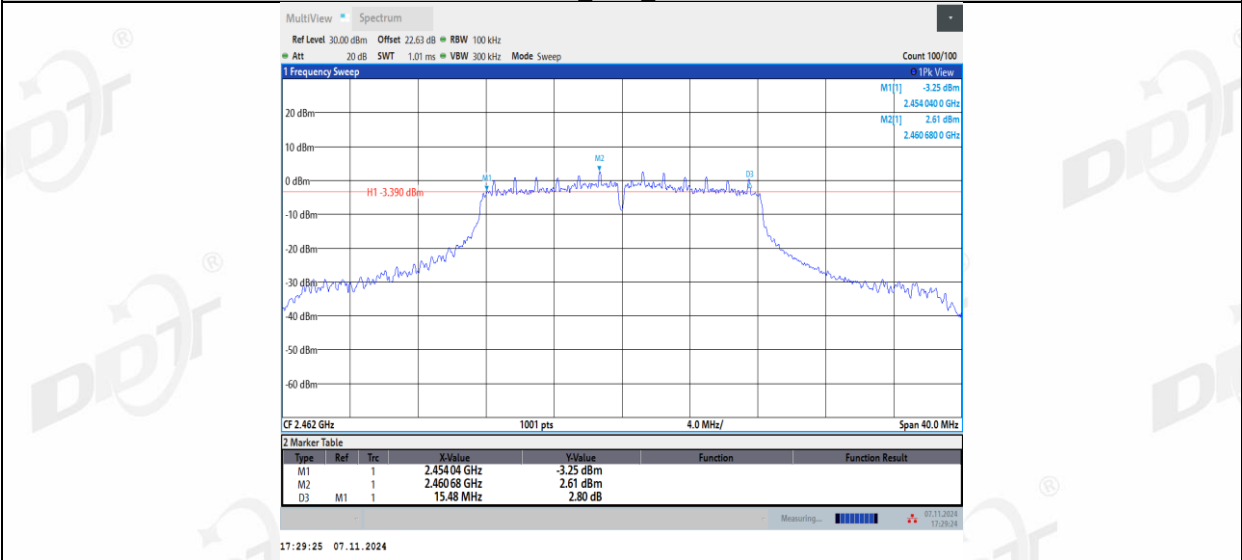
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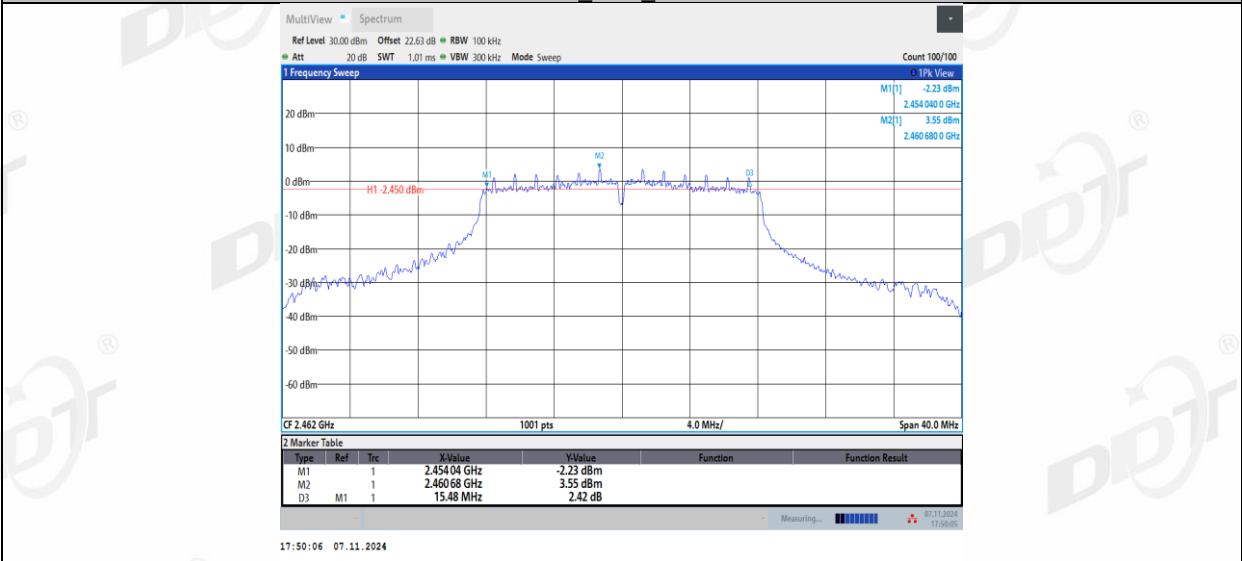
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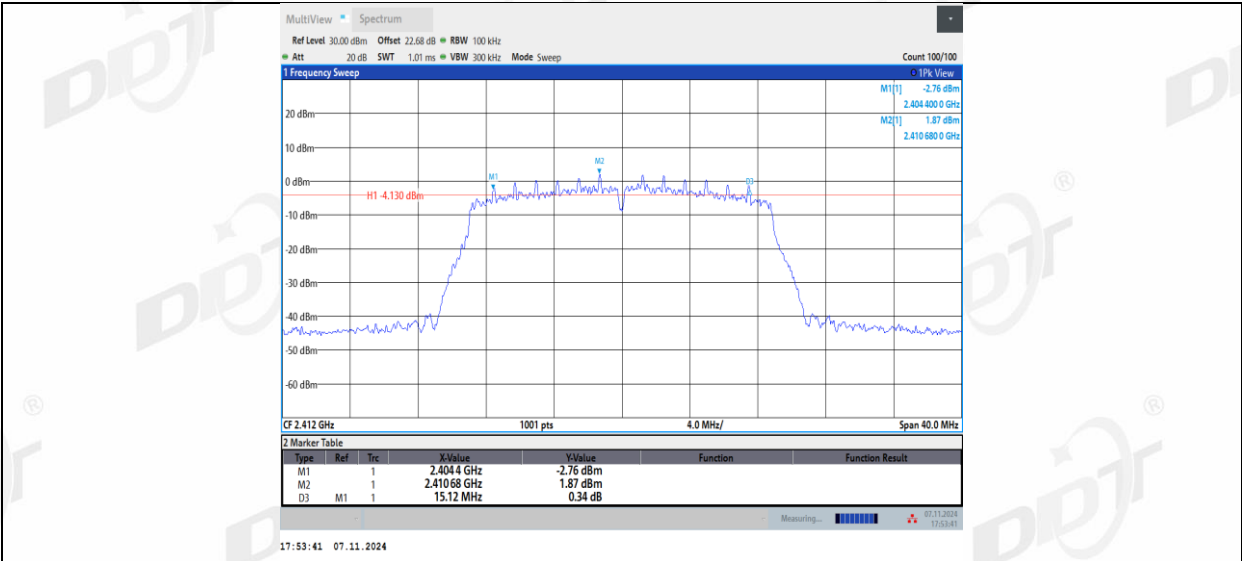
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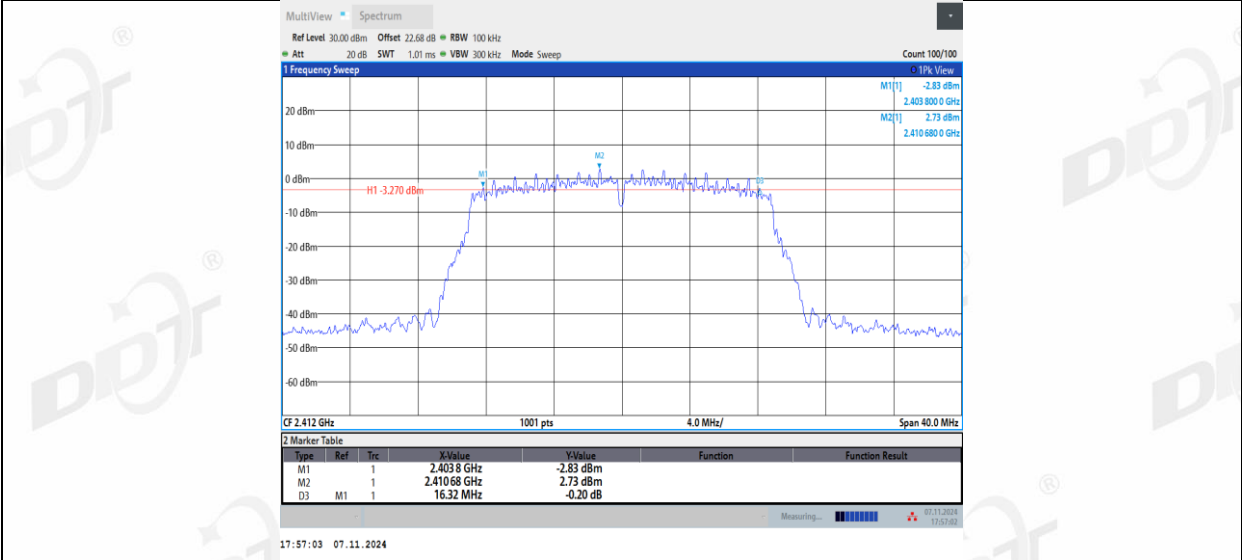
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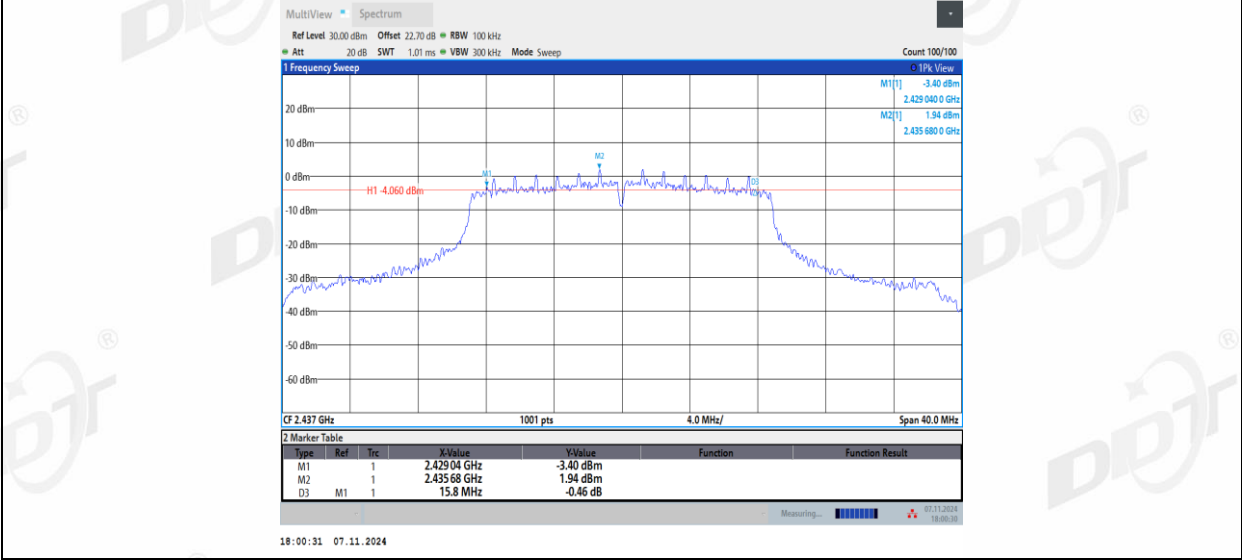
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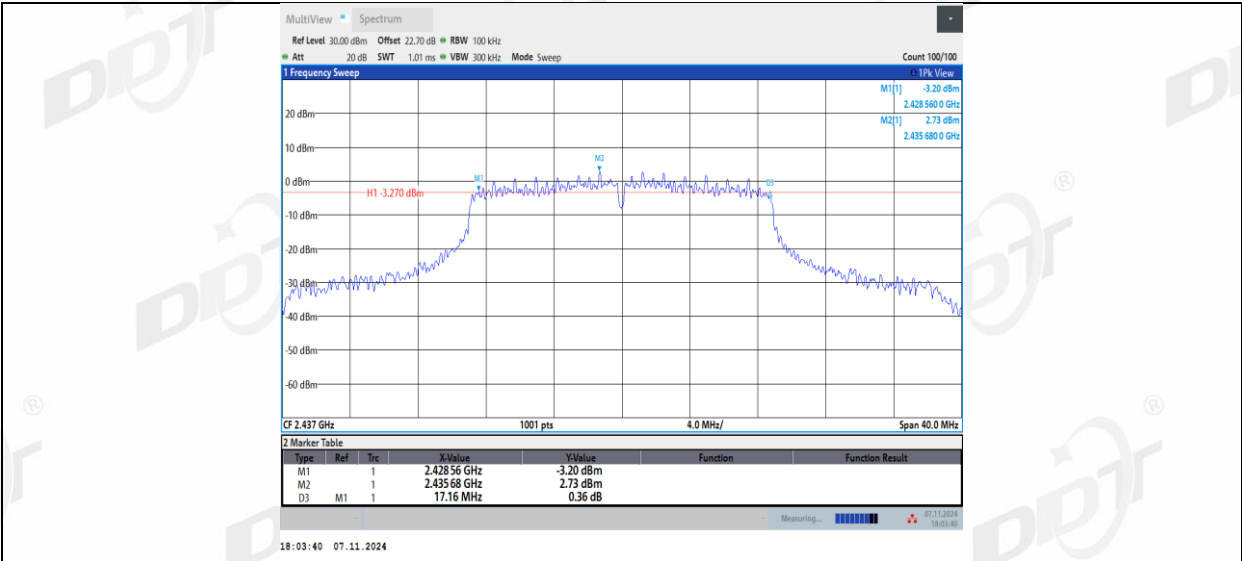
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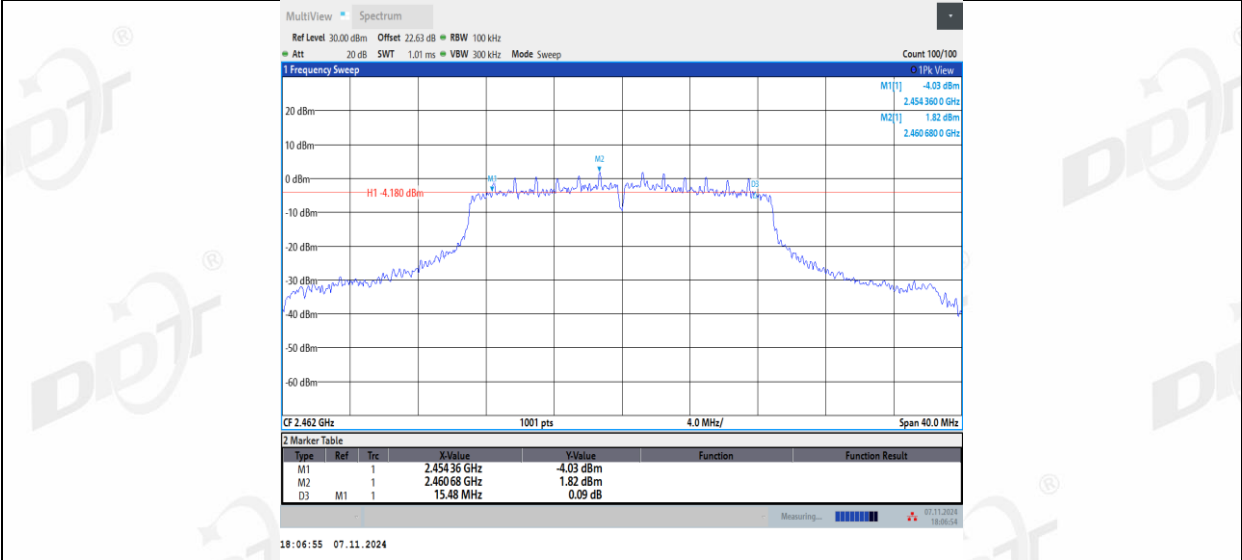
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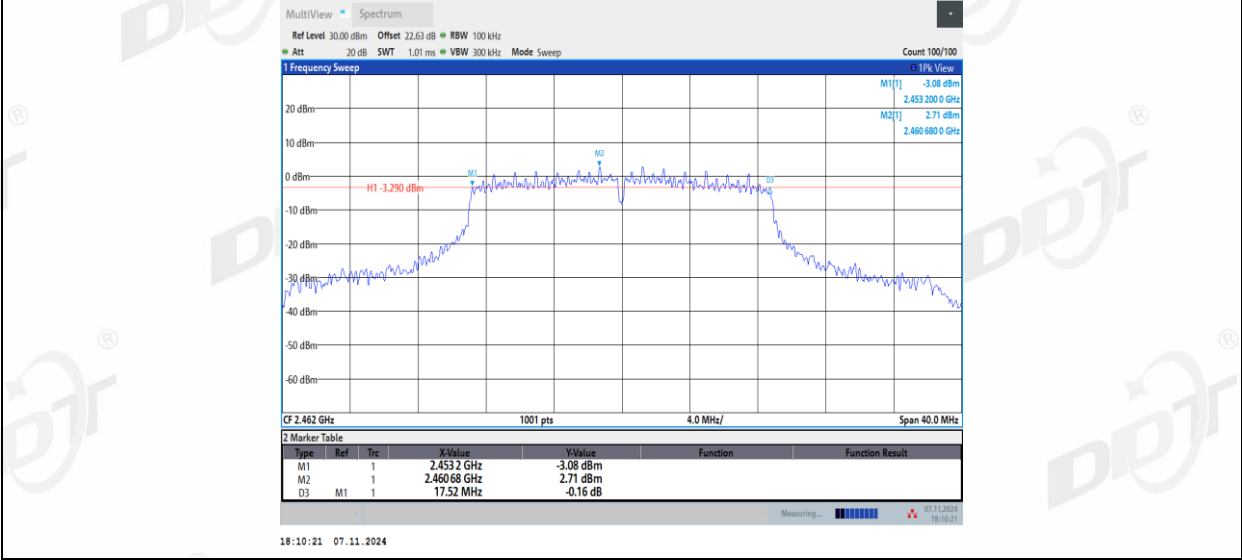
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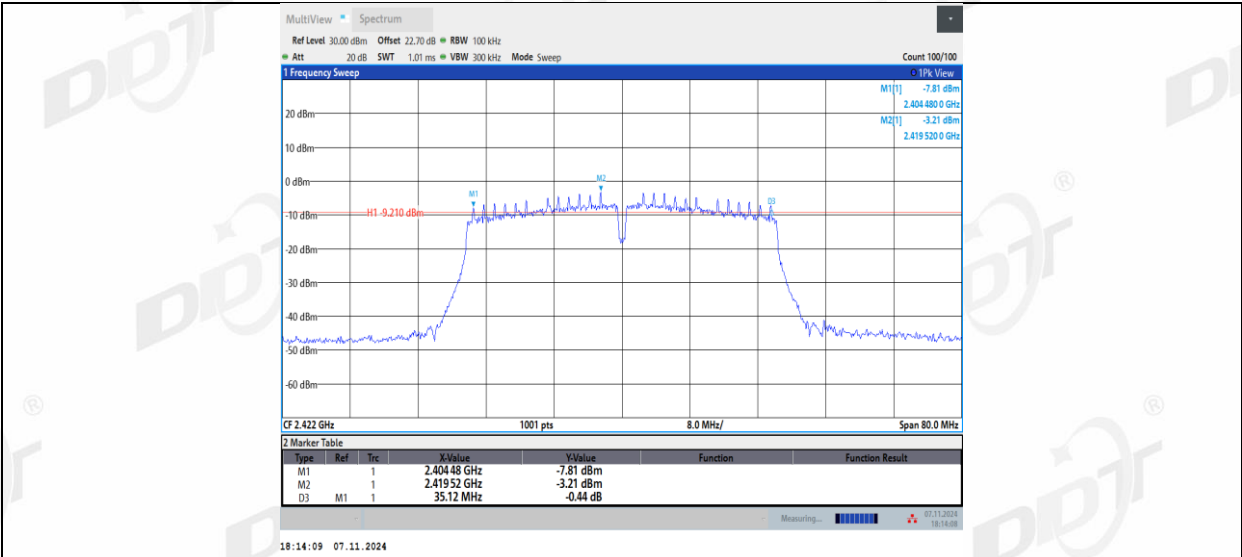
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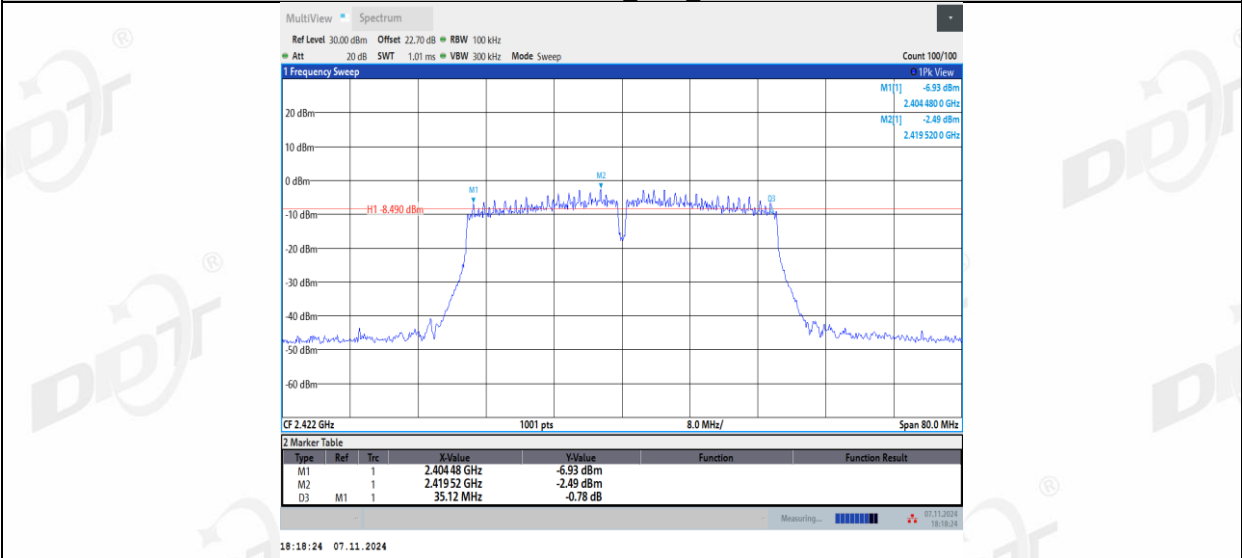
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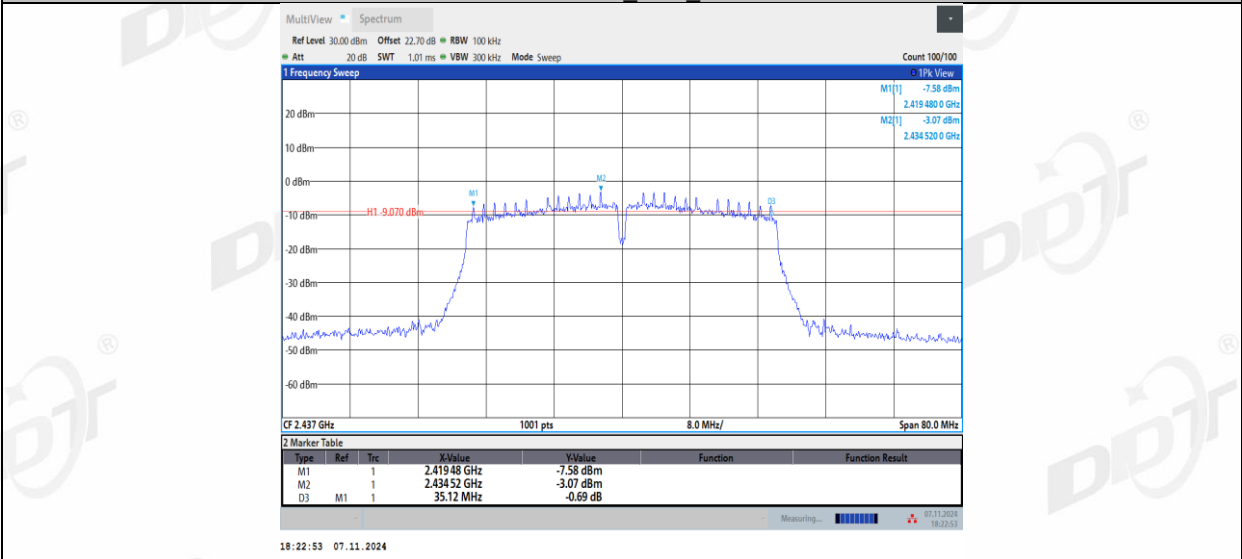
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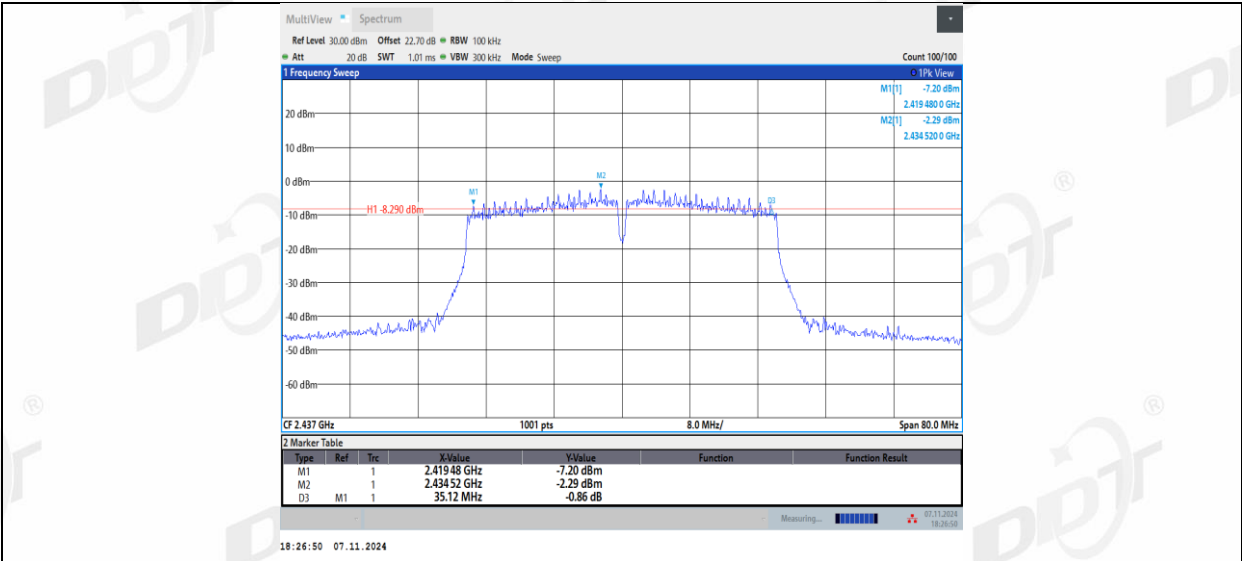
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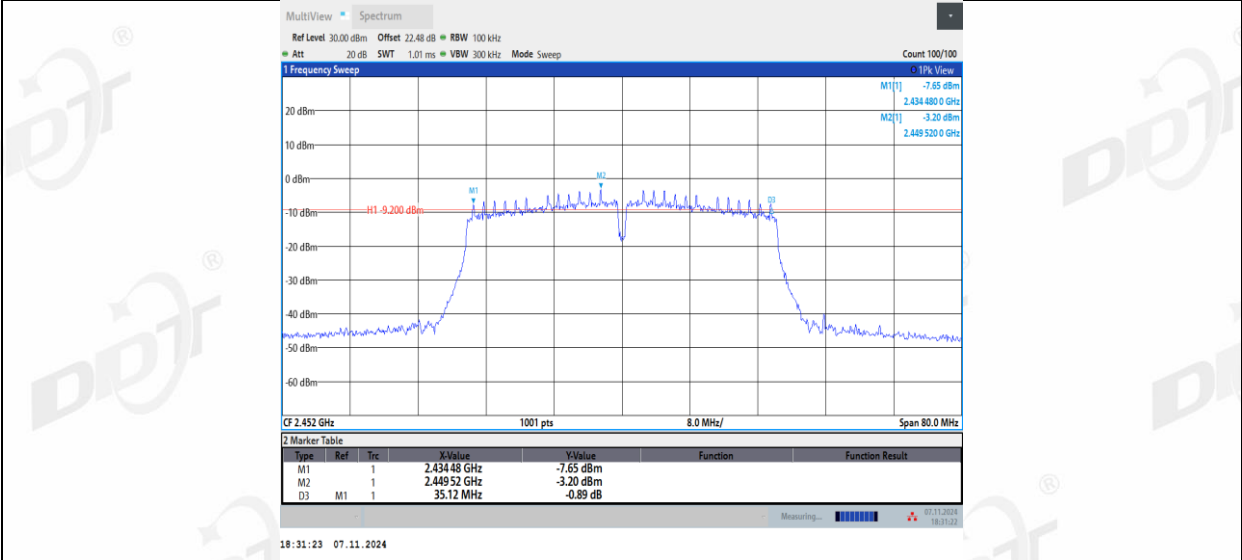
11N40MIMO_Ant1_2437



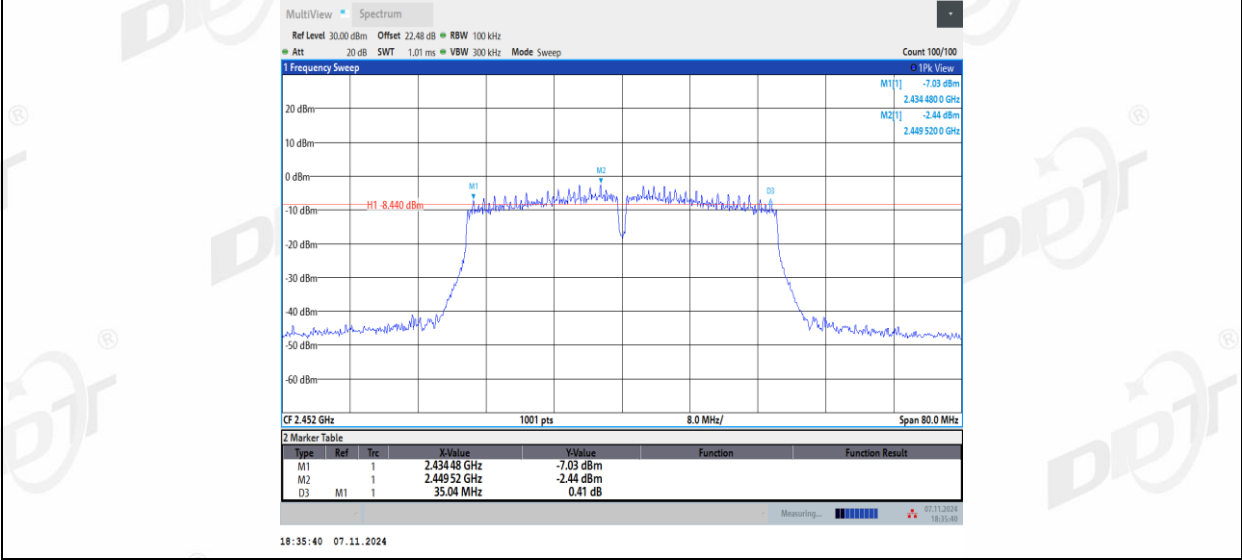
11N40MIMO_Ant2_2437



11N40MIMO_Ant1_2452



11N40MIMO_Ant2_2452



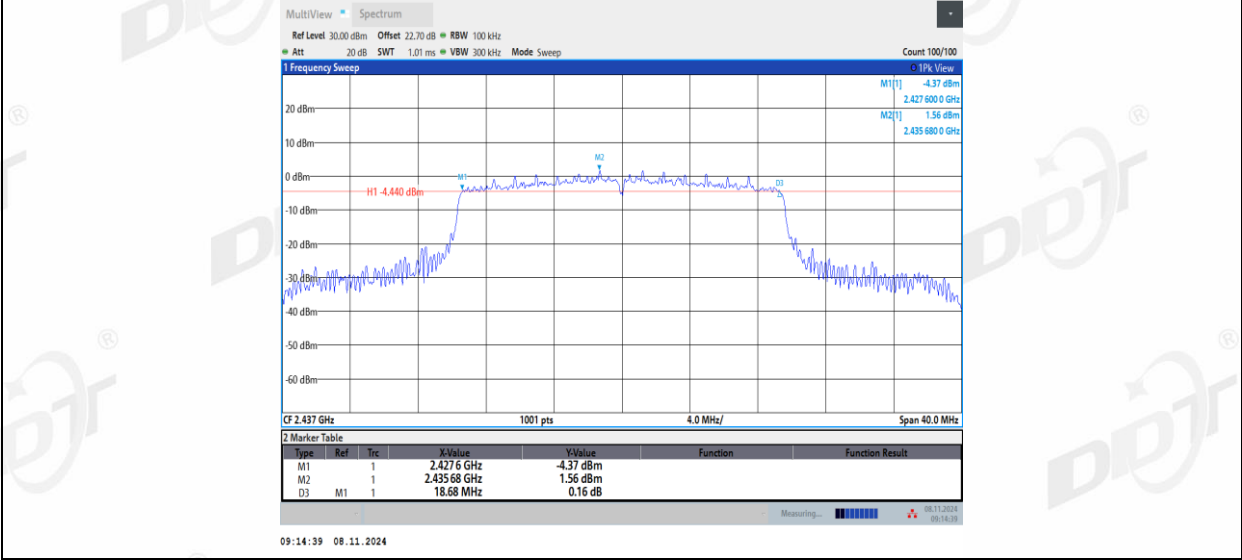
11AX20MIMO_Ant1_2412



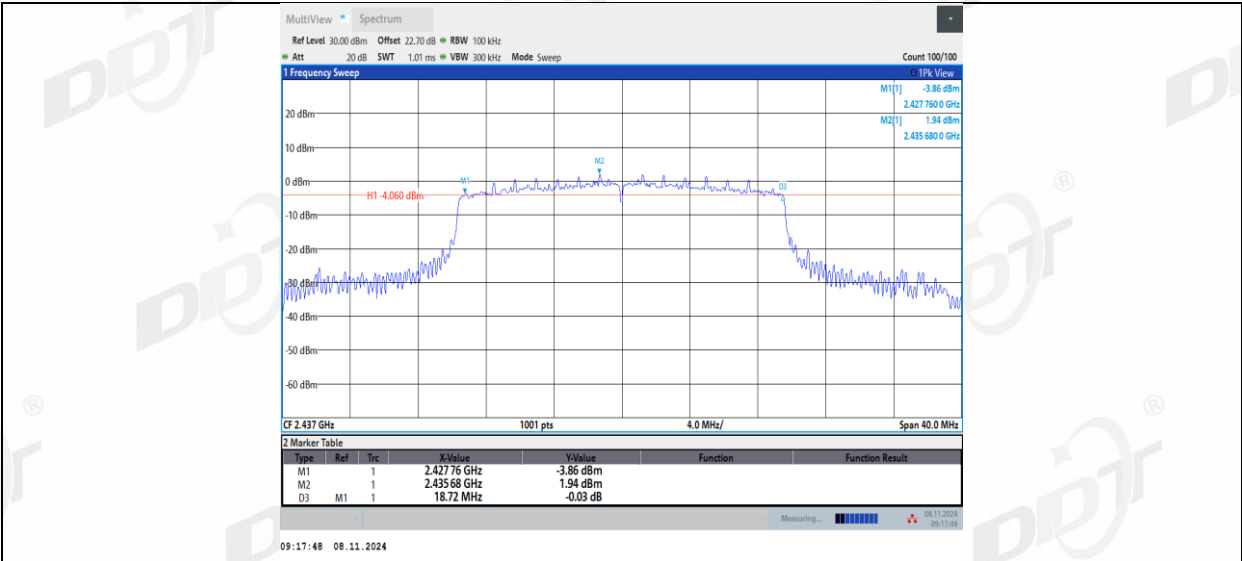
11AX20MIMO_Ant2_2412



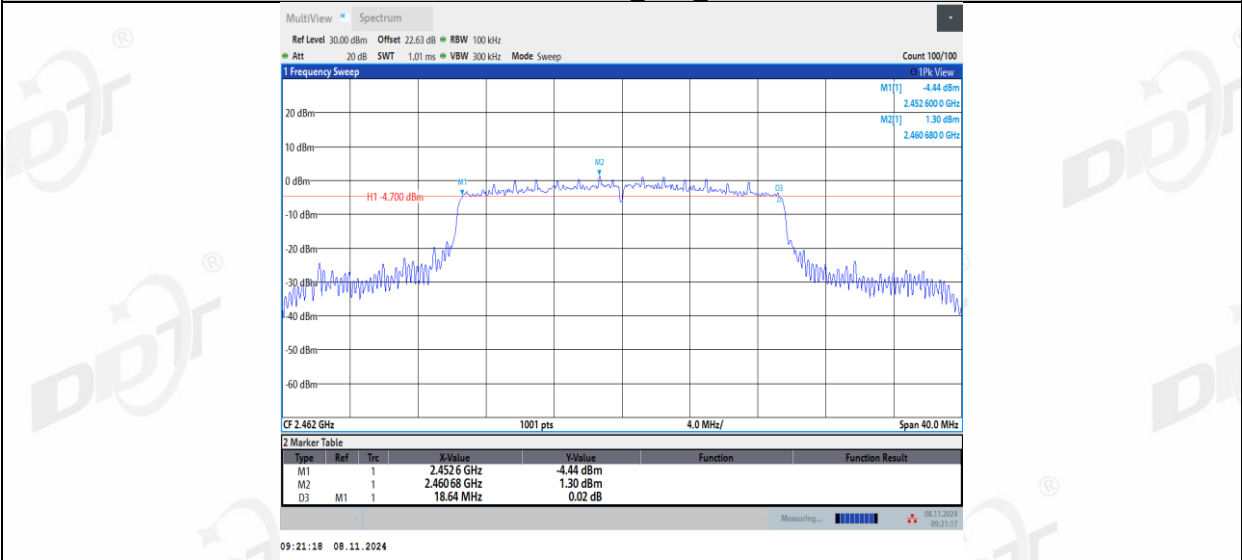
11AX20MIMO_Ant1_2437



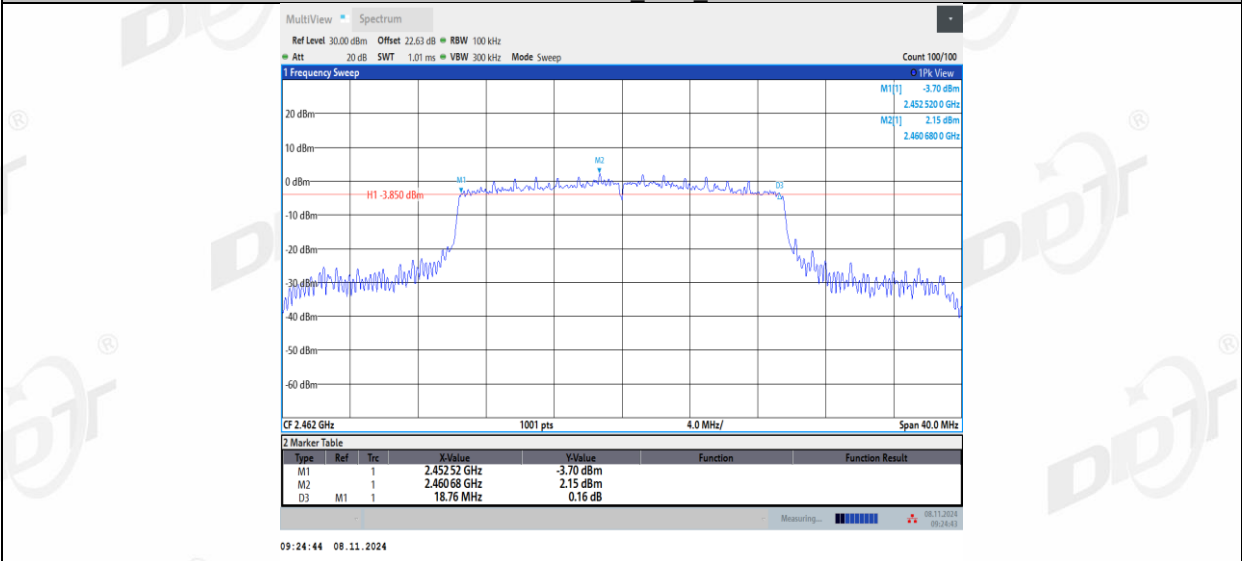
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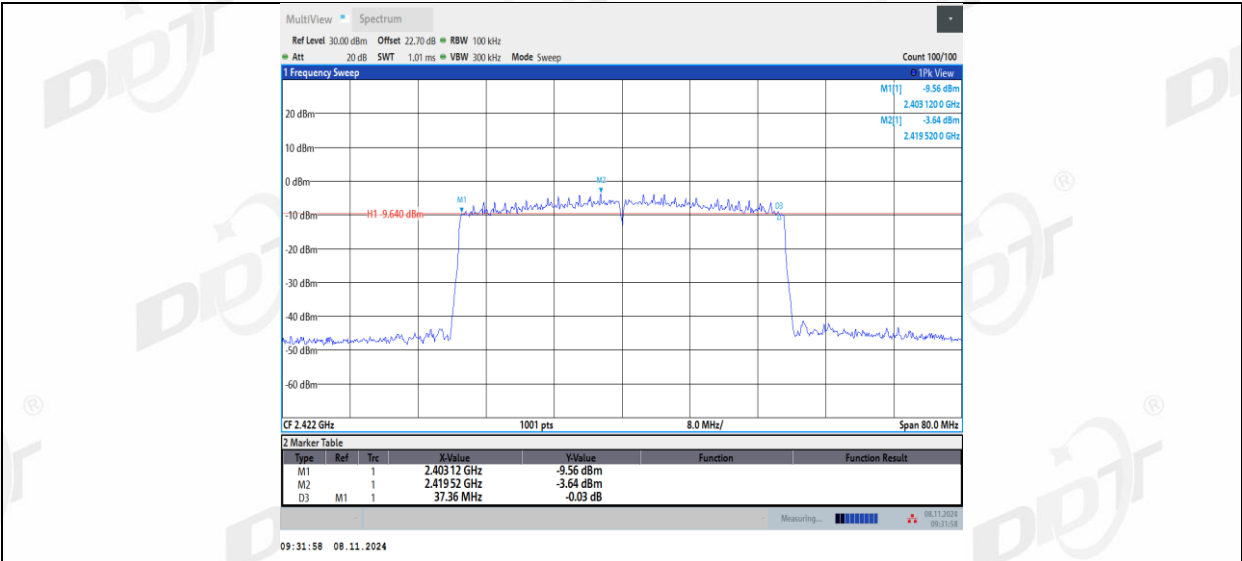
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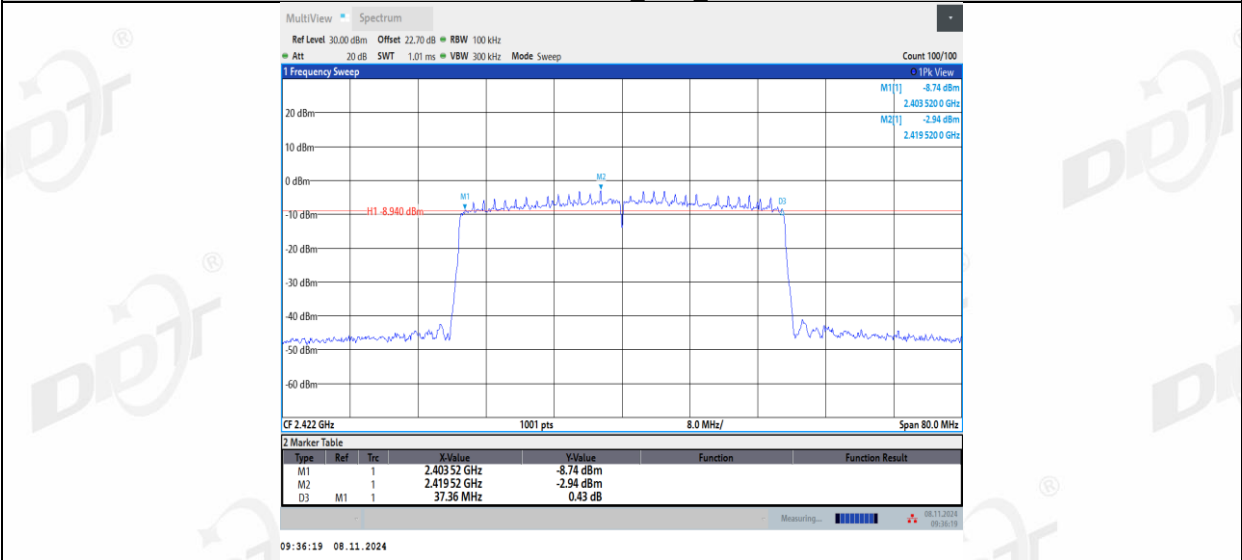
11AX20MIMO_Ant2_2462



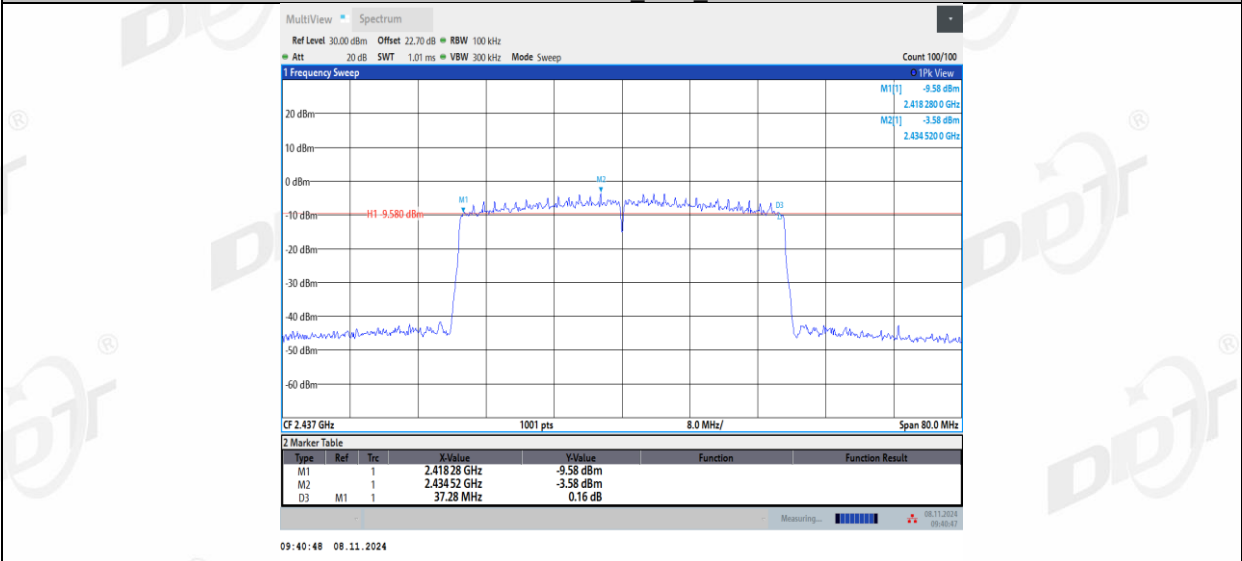
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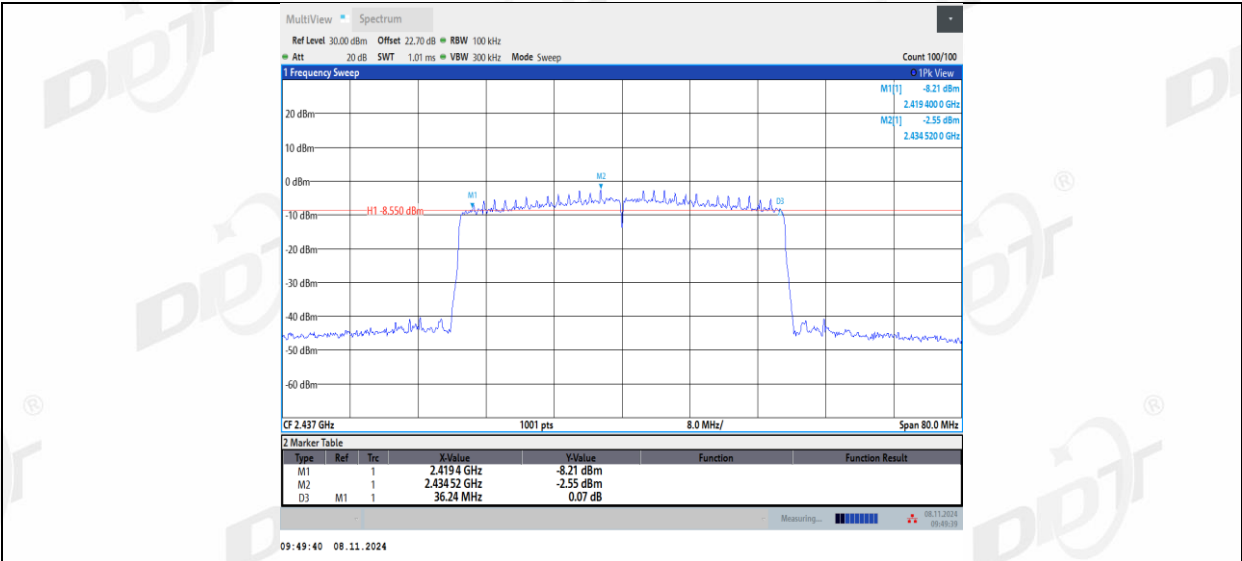
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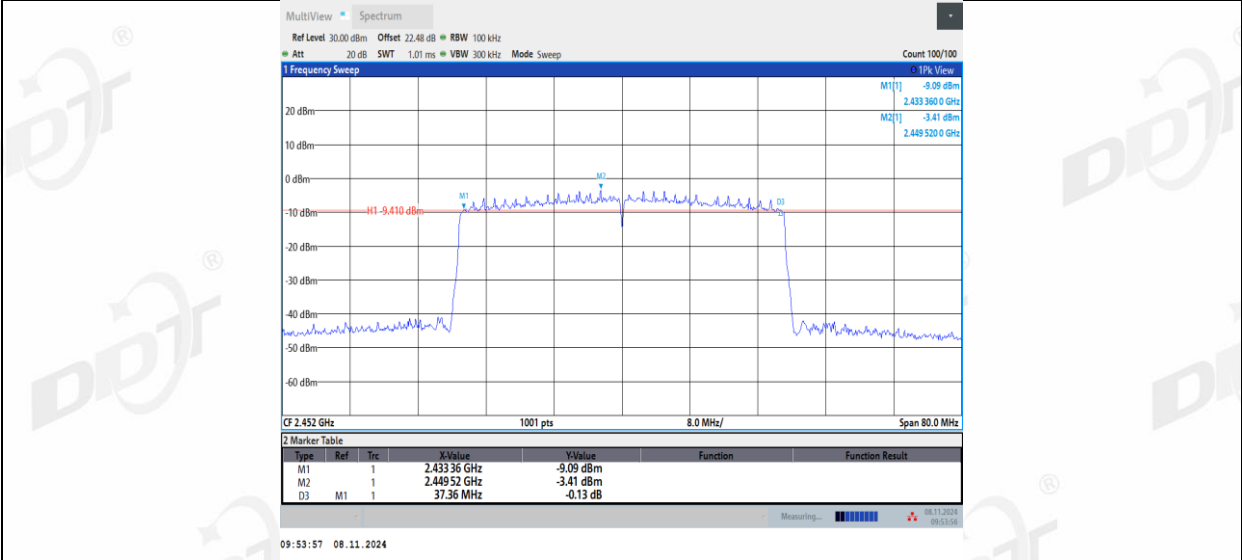
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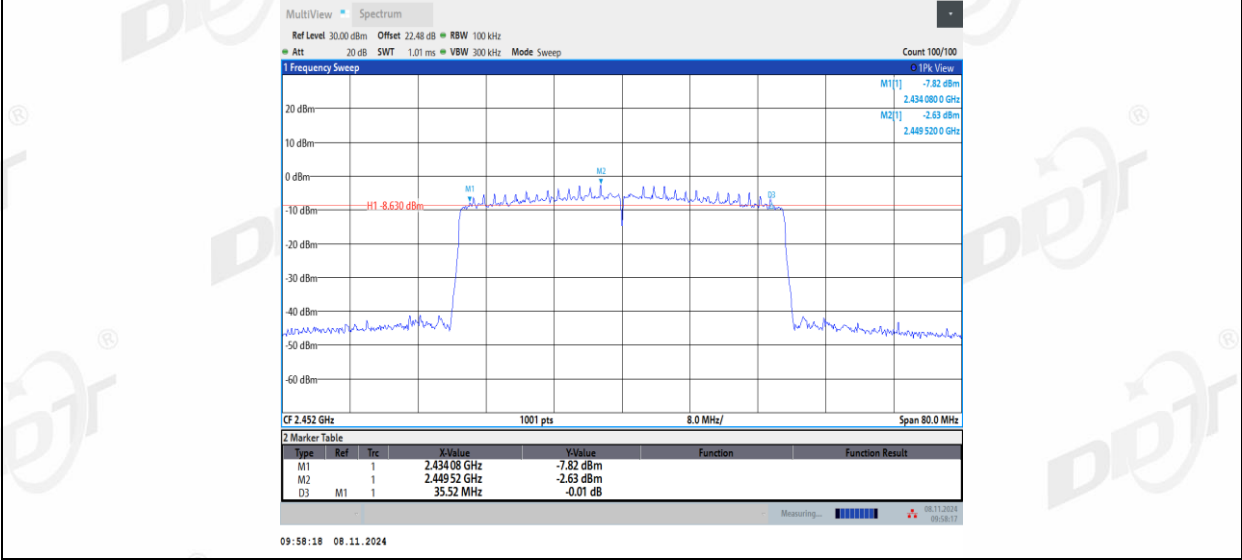
11AX40MIMO_Ant2_2437



11AX40MIMO_Ant1_2452

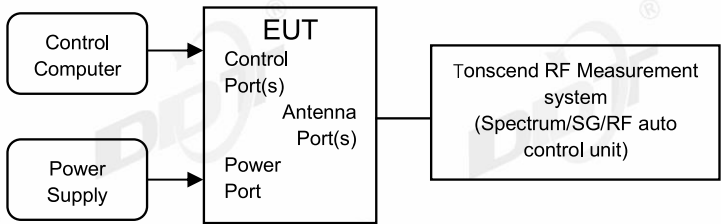


11AX40MIMO_Ant2_2452



5. 99% Bandwidth

5.1. Block diagram of test setup



5.2. Limits

Just for Report.

5.3. Test procedure

- (1) The test according to ANSI C63.10-2013 clause 6.9.3.
- (2) Connect EUT's antenna output to spectrum analyzer by RF cable, the path loss was compensated to the results
- (3) Set the EUT as maximum power setting and enable the EUT transmit continuously
- (4) Use the following spectrum analyzer settings for the 99% Bandwidth:

RBW:	1% to 5% of the OBW
VBW:	approximately three times RBW
Span:	between 1.5 times and 5.0 times the OBW
Detector Mode:	peak
Sweep time:	auto
Trace mode	max hold

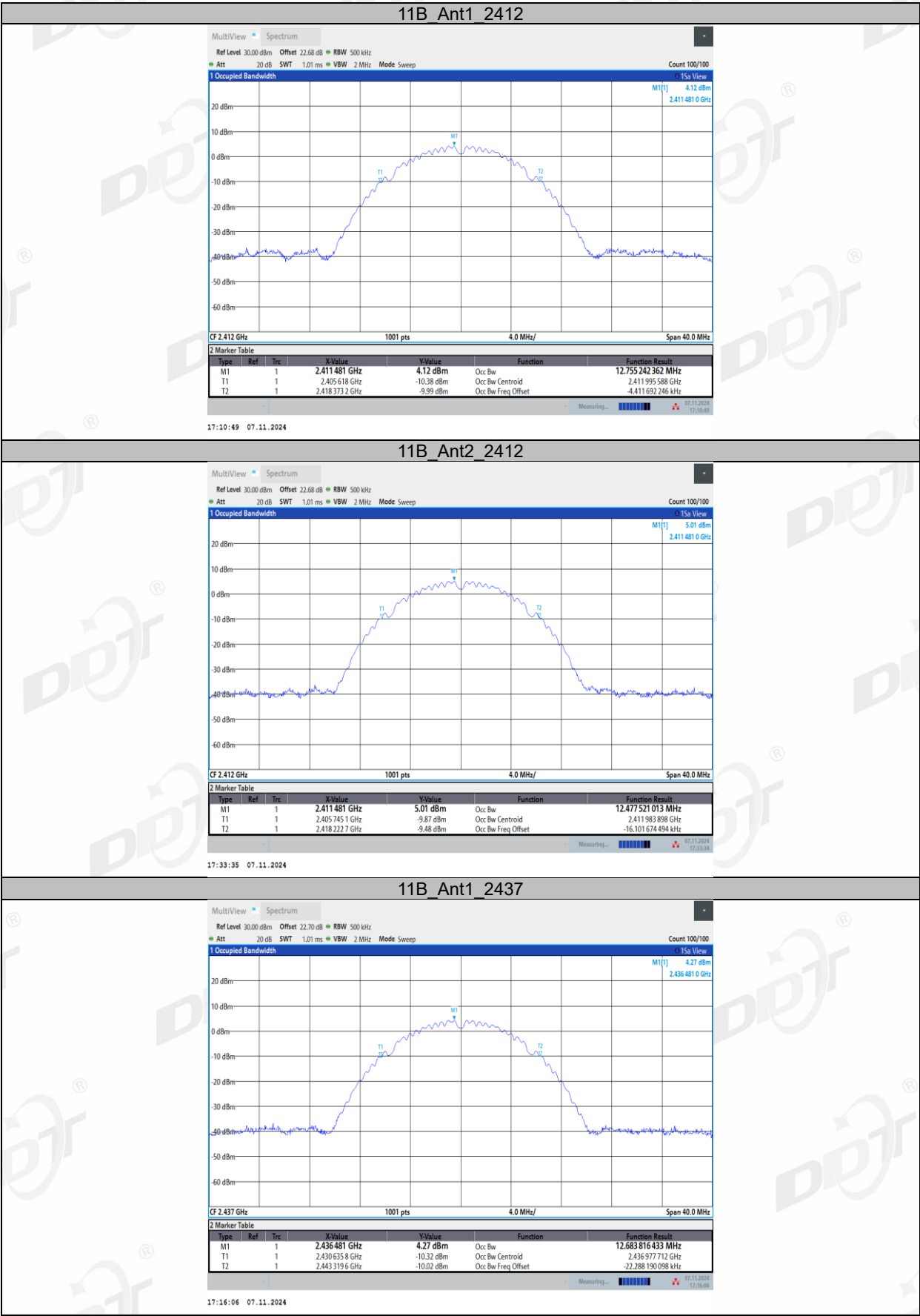
Allow the trace to stabilize, measure the 99% bandwidth of signal, and record the results in the report.

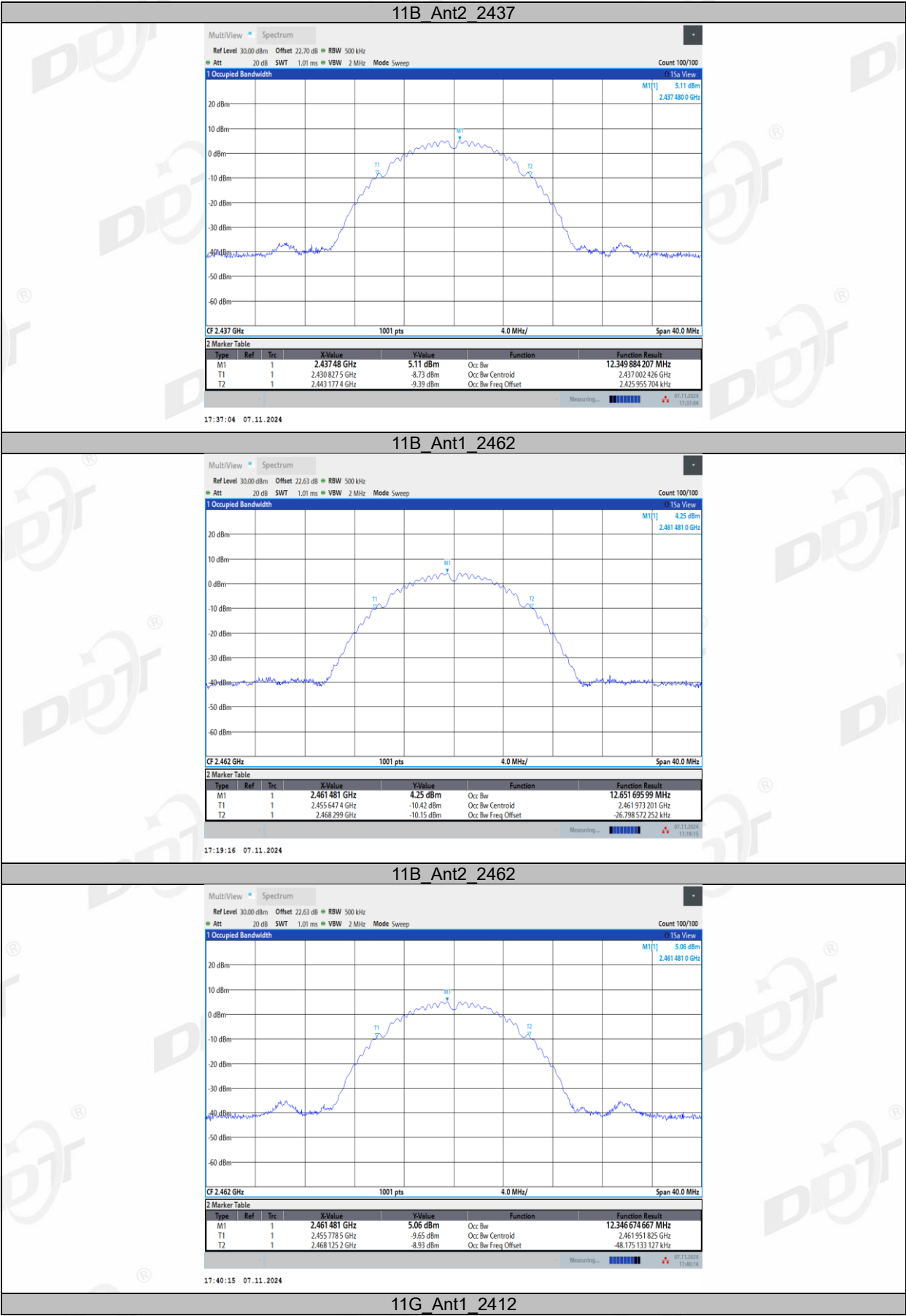
5.4. Test result

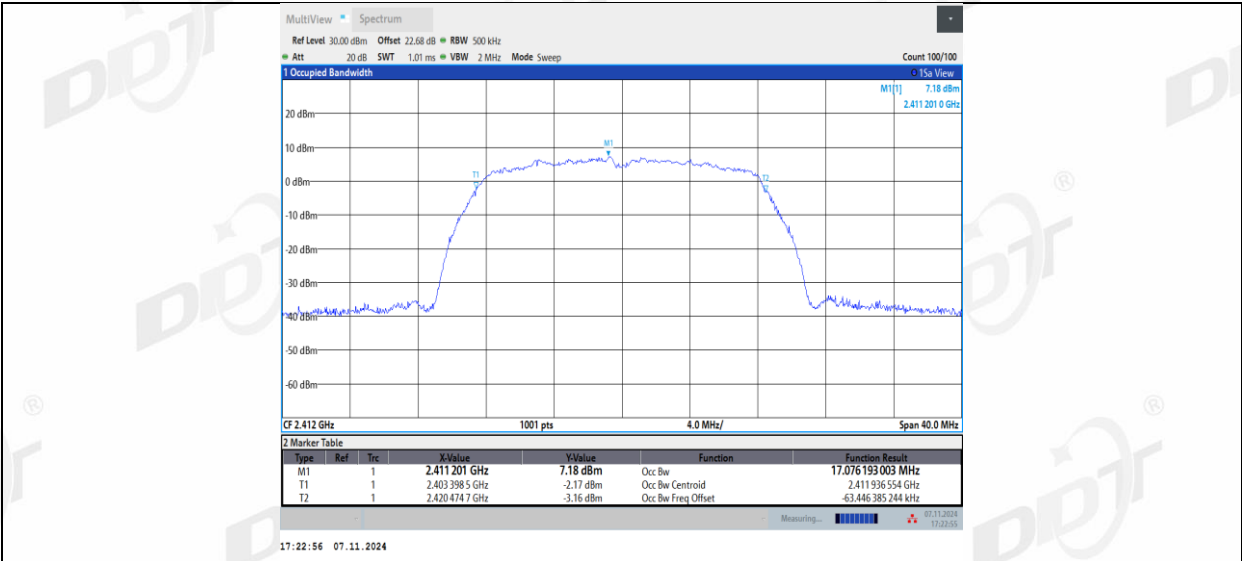
Test Engineer:	Haofeng	Test Site:	RF Measurement System 4#
Ambient Condition:	24.3℃,46.1%RH	Test Date:	2024.11.07
Test Power Supply:	Battery	Sample Number:	S24121719-005

Test Mode	Antenna	Channel Frequency [MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	12.755	2405.6180	2418.3732	---	---
	Ant2	2412	12.478	2405.7451	2418.2227	---	---
	Ant1	2437	12.684	2430.6358	2443.3196	---	---
	Ant2	2437	12.35	2430.8275	2443.1774	---	---
	Ant1	2462	12.652	2455.6474	2468.2990	---	---
	Ant2	2462	12.347	2455.7785	2468.1252	---	---
11G	Ant1	2412	17.076	2403.3985	2420.4747	---	---
	Ant2	2412	17.103	2403.3791	2420.4821	---	---
	Ant1	2437	19.025	2427.3532	2446.3779	---	---
	Ant2	2437	18.968	2427.4470	2446.4146	---	---
	Ant1	2462	18.998	2452.3641	2471.3617	---	---
	Ant2	2462	19.056	2452.2649	2471.3207	---	---
11N20MIMO	Ant1	2412	17.847	2403.0347	2420.8818	---	---
	Ant2	2412	17.563	2403.1817	2420.7447	---	---
	Ant1	2437	19.6	2427.1760	2446.7756	---	---
	Ant2	2437	18.229	2427.9110	2446.1403	---	---
	Ant1	2462	19.558	2452.1851	2471.7431	---	---
	Ant2	2462	18.282	2452.8246	2471.1062	---	---
11N40MIMO	Ant1	2422	36.087	2403.9285	2440.0150	---	---
	Ant2	2422	36.374	2403.8485	2440.2229	---	---
	Ant1	2437	36.066	2418.9388	2455.0051	---	---
	Ant2	2437	36.319	2418.8658	2455.1843	---	---
	Ant1	2452	36.056	2433.9214	2469.9777	---	---
	Ant2	2452	36.291	2433.8264	2470.1177	---	---
11AX20MIMO	Ant1	2412	18.849	2402.5619	2421.4113	---	---
	Ant2	2412	18.845	2402.5651	2421.4103	---	---
	Ant1	2437	19.311	2427.2798	2446.5909	---	---
	Ant2	2437	19.245	2427.3655	2446.6107	---	---
	Ant1	2462	19.311	2452.3156	2471.6262	---	---
	Ant2	2462	19.236	2452.3394	2471.5749	---	---
11AX40MIMO	Ant1	2422	37.775	2403.0927	2440.8678	---	---
	Ant2	2422	37.817	2403.0804	2440.8977	---	---
	Ant1	2437	37.758	2418.0671	2455.8253	---	---
	Ant2	2437	37.763	2418.1129	2455.8757	---	---
	Ant1	2452	37.794	2433.0566	2470.8508	---	---
	Ant2	2452	37.757	2433.0790	2470.8364	---	---

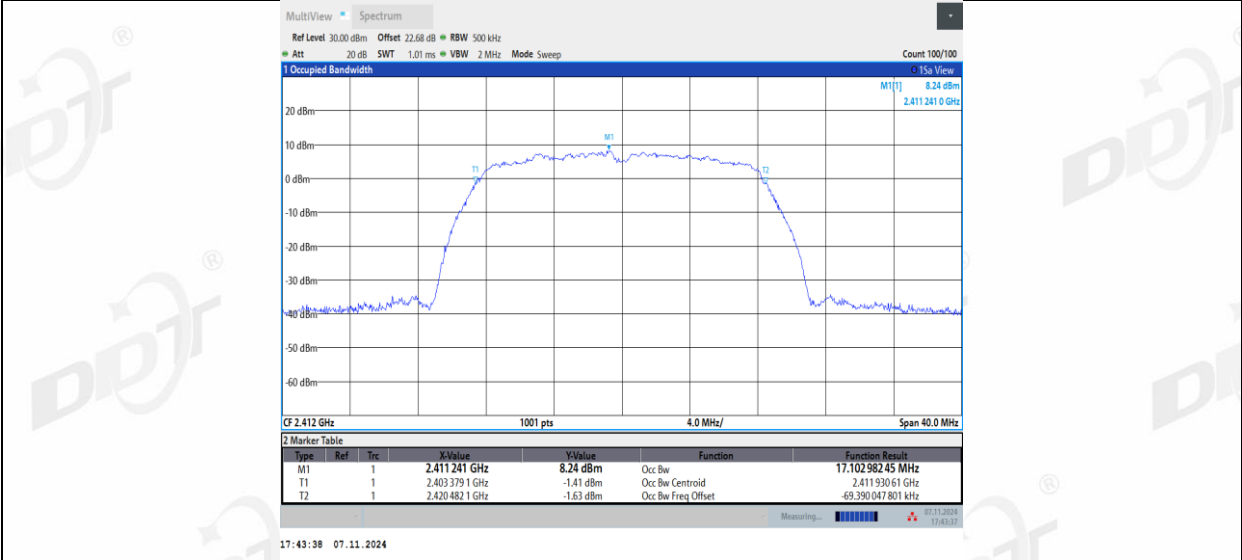
5.5. Test graphs



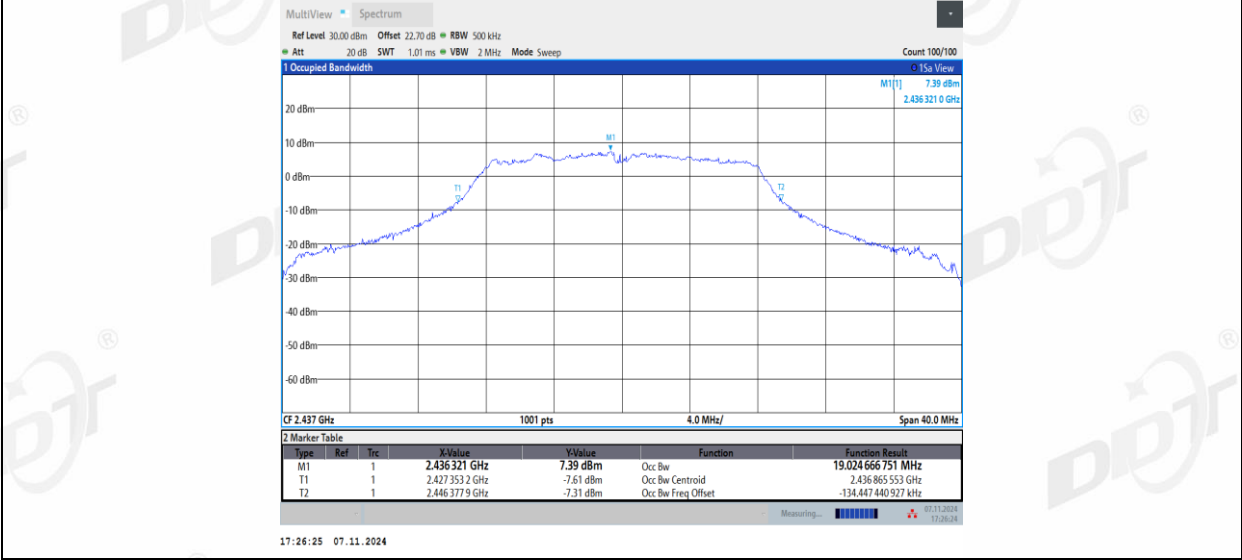




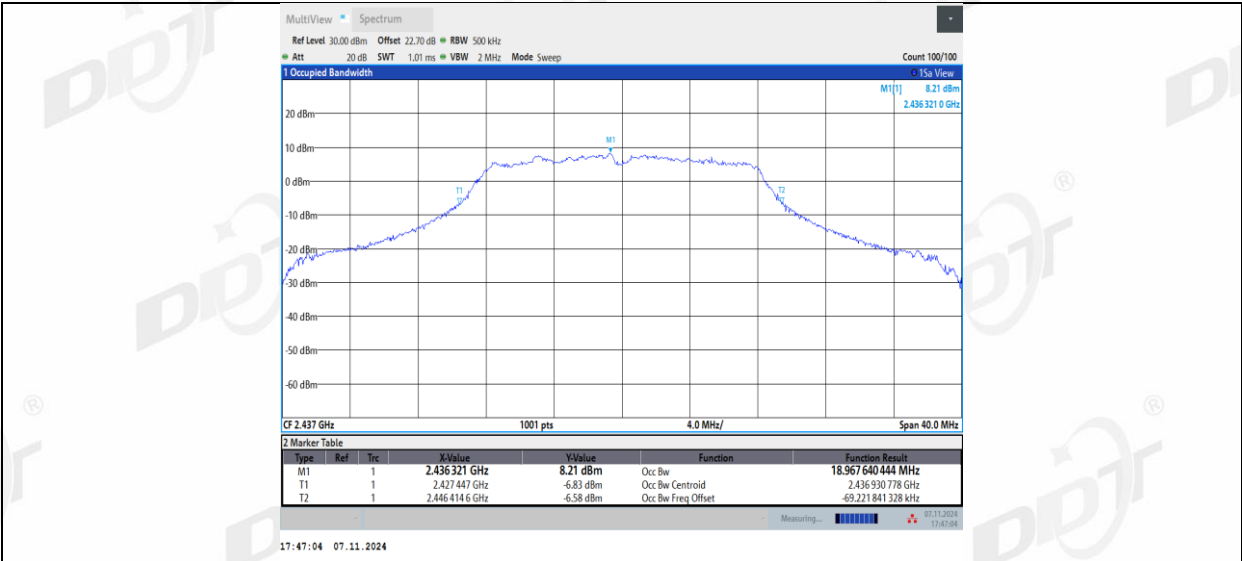
11G_Ant2_2412



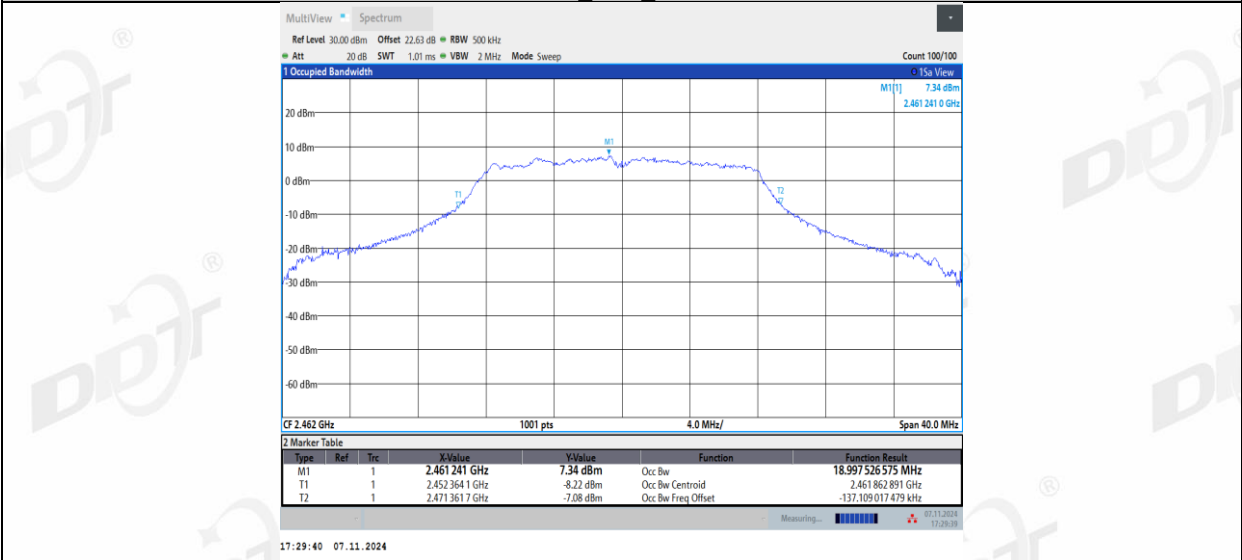
11G_Ant1_2437



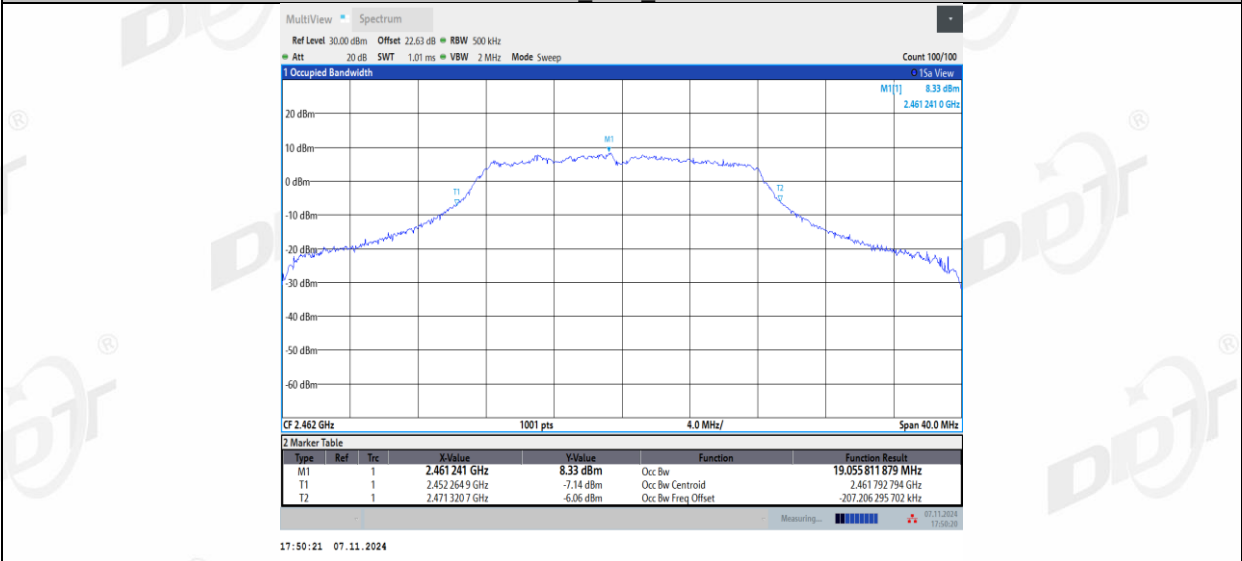
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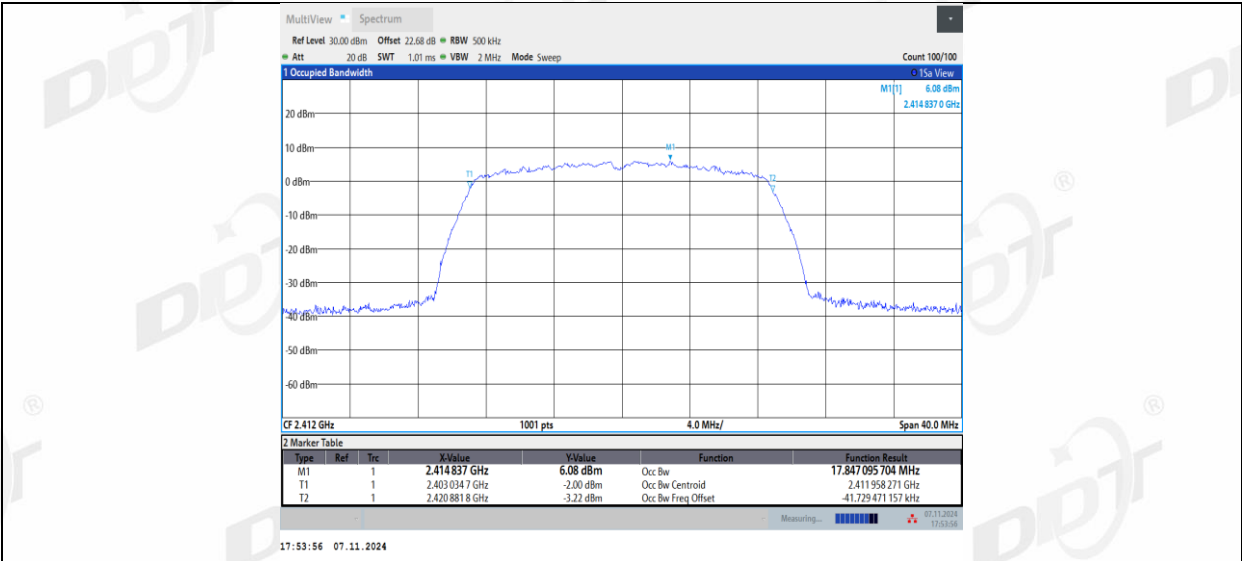
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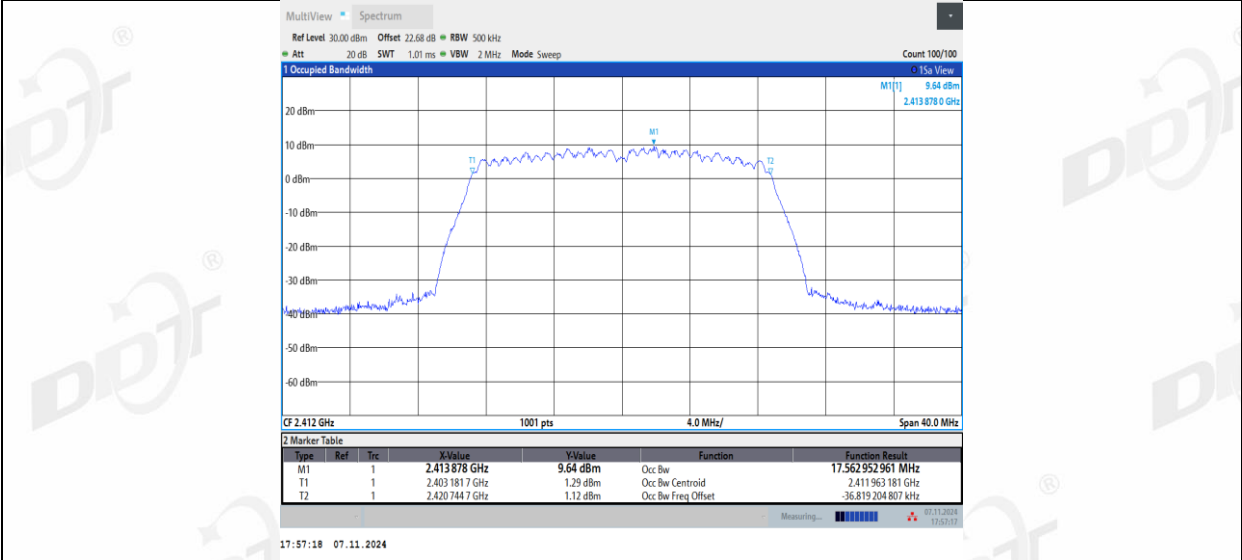
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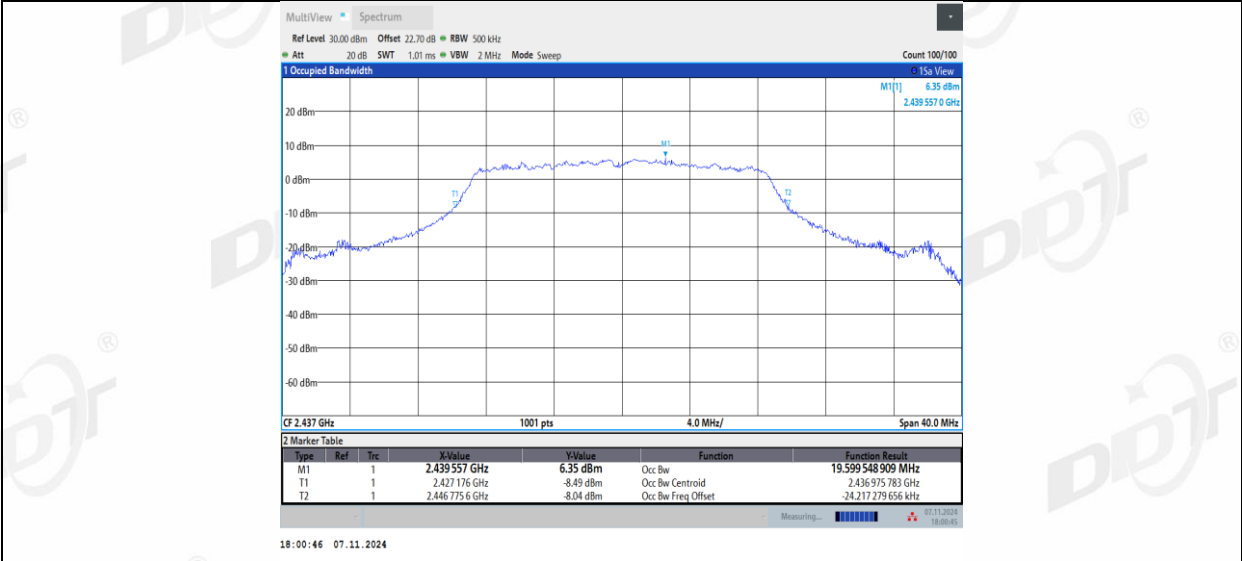
11N20MIMO_Ant1_2412



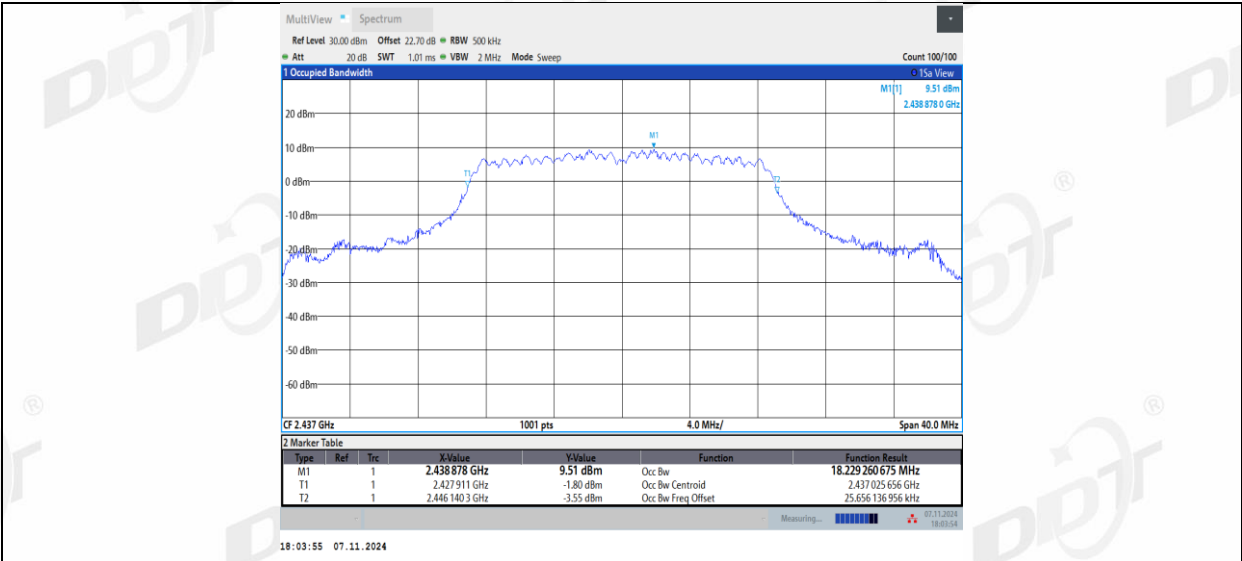
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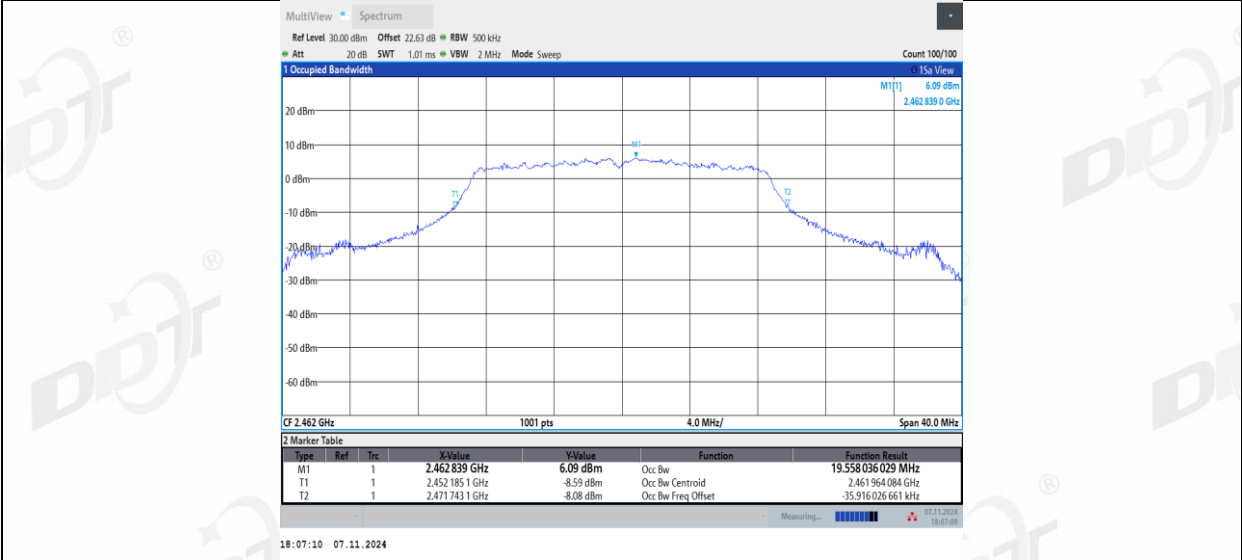
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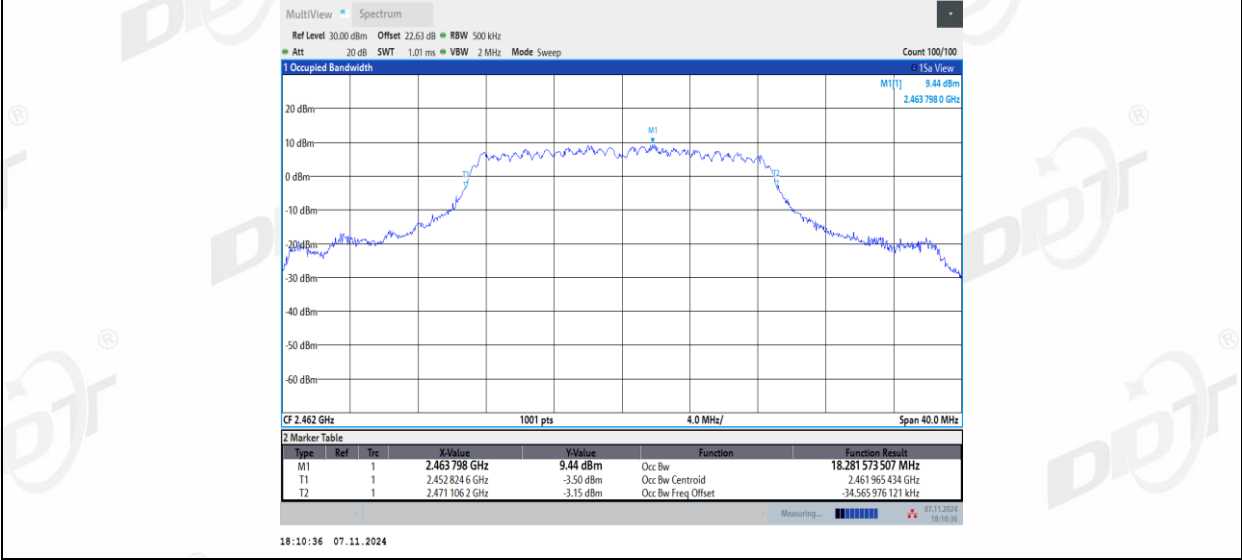
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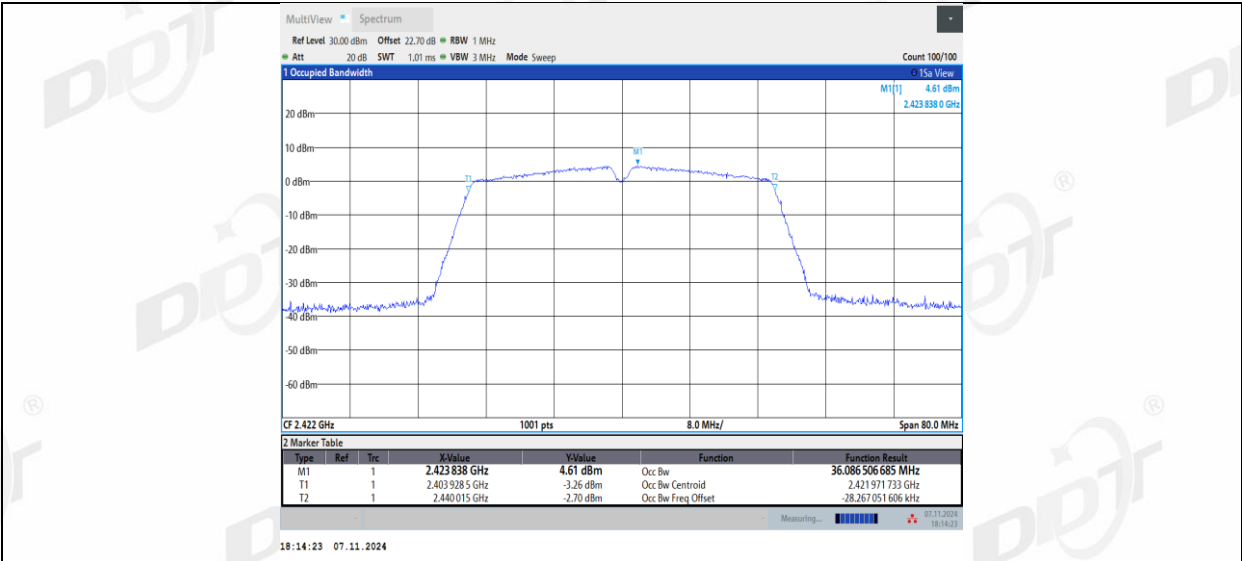
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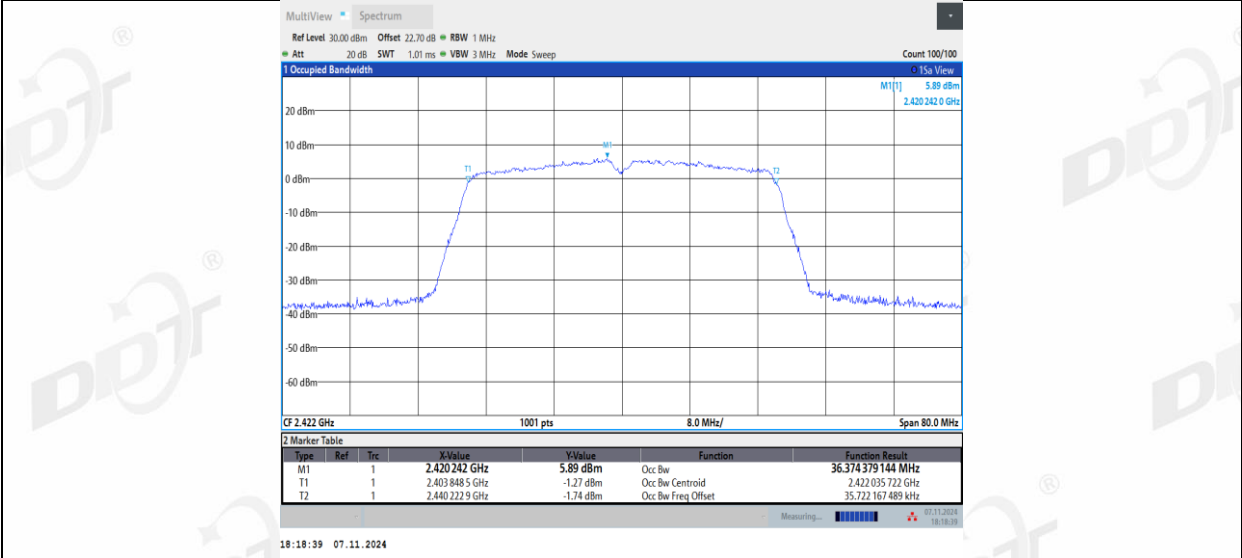
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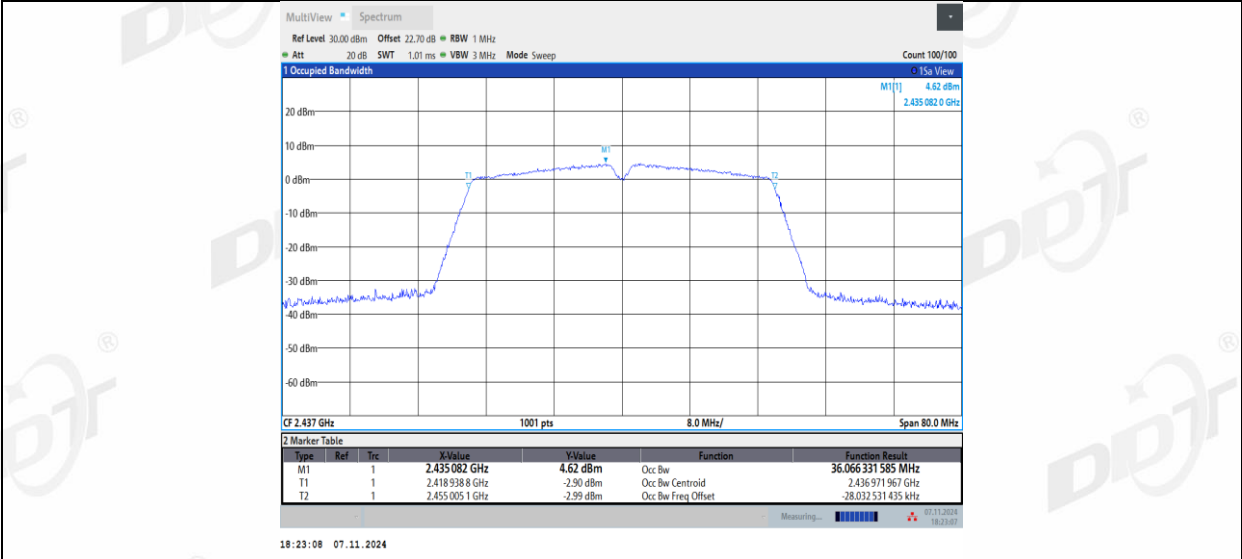
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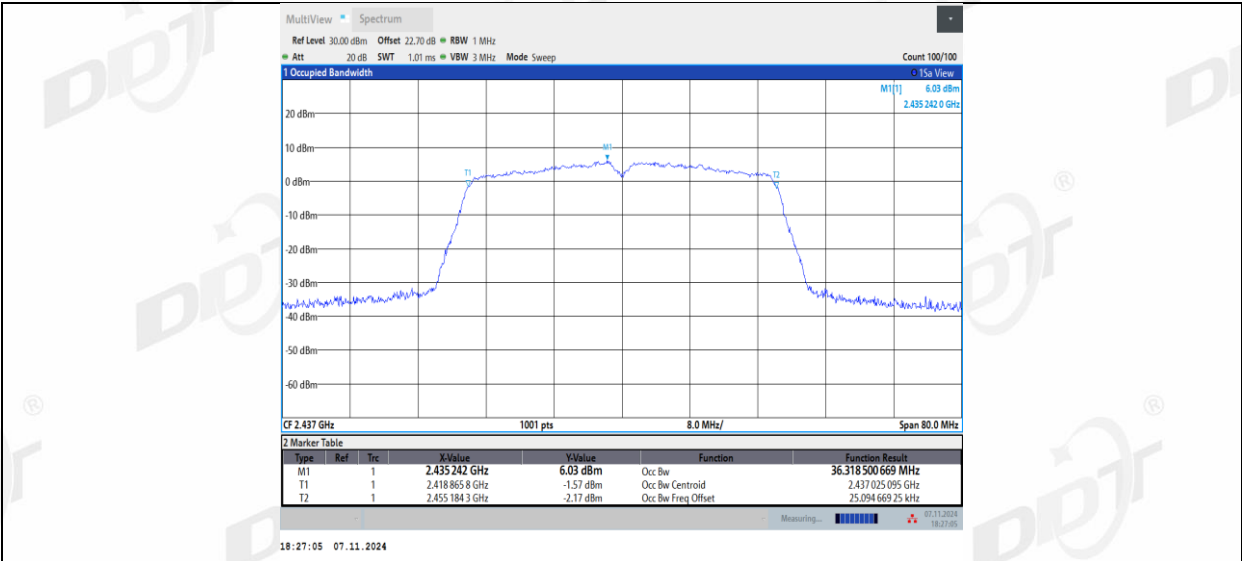
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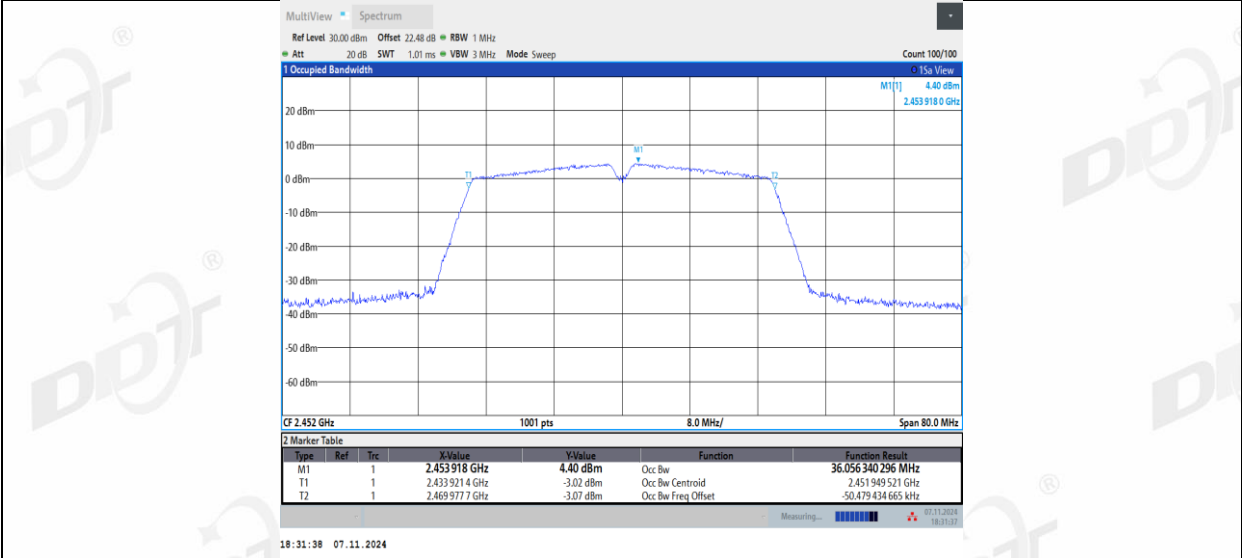
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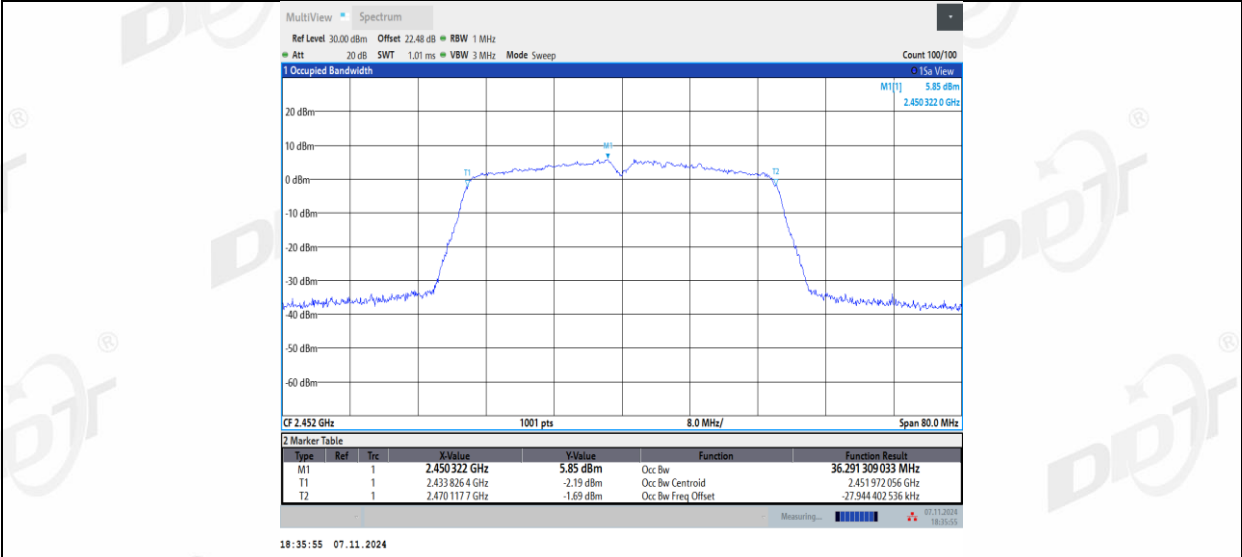
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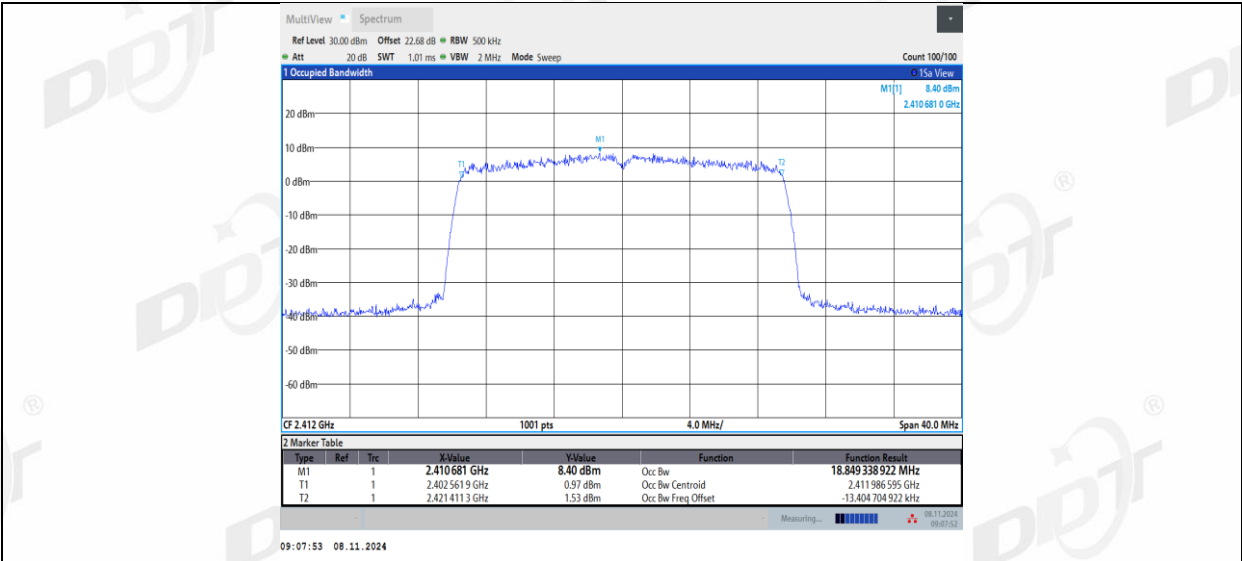
11N40MIMO_Ant1_2452



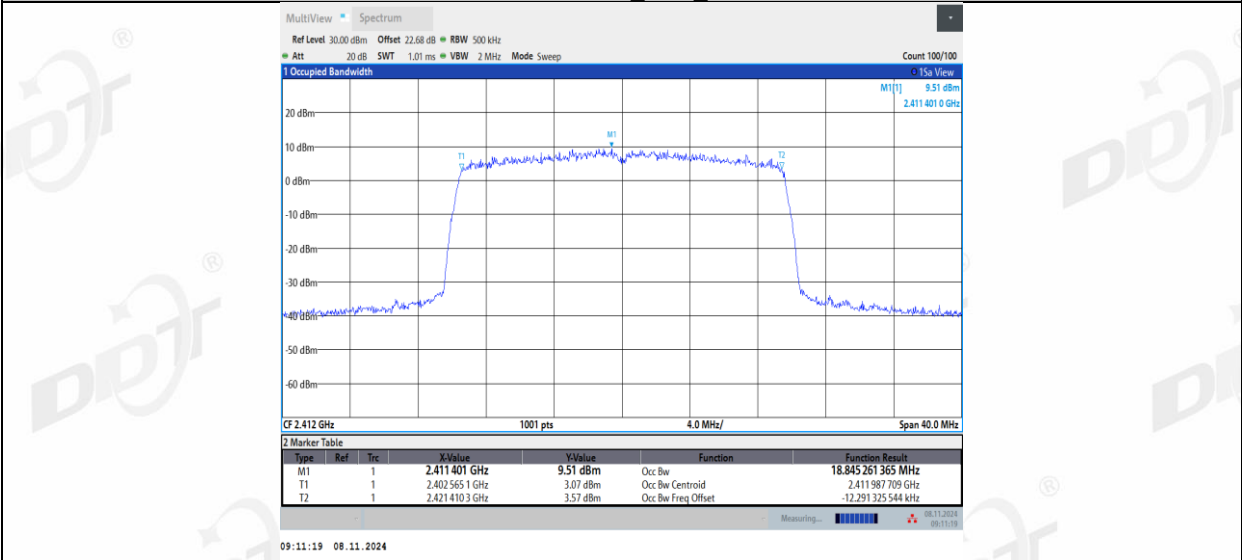
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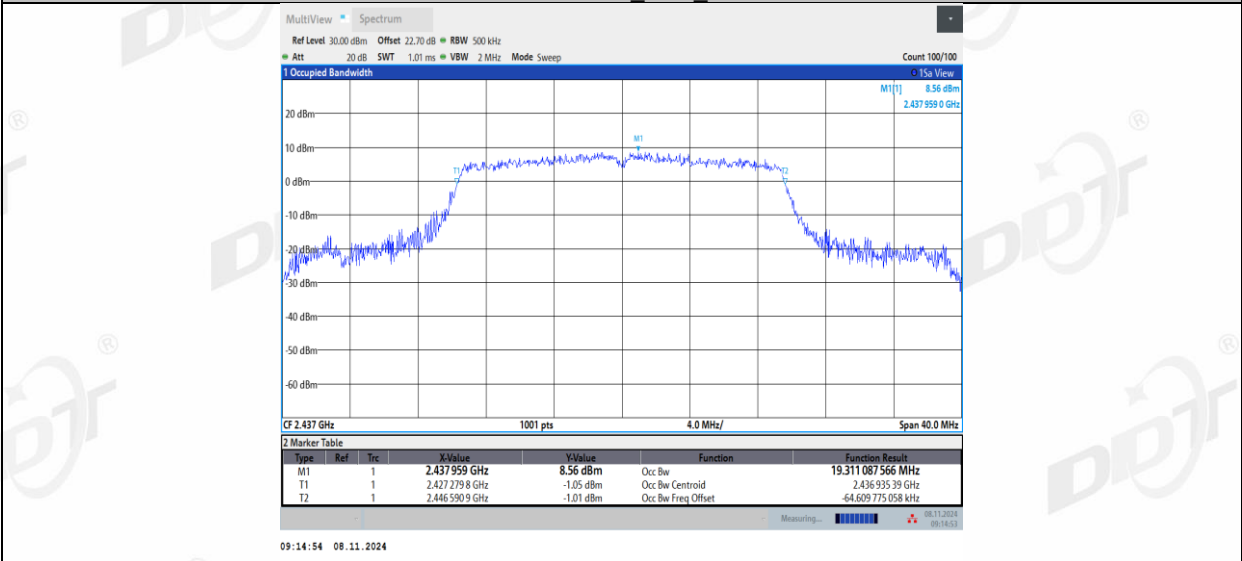
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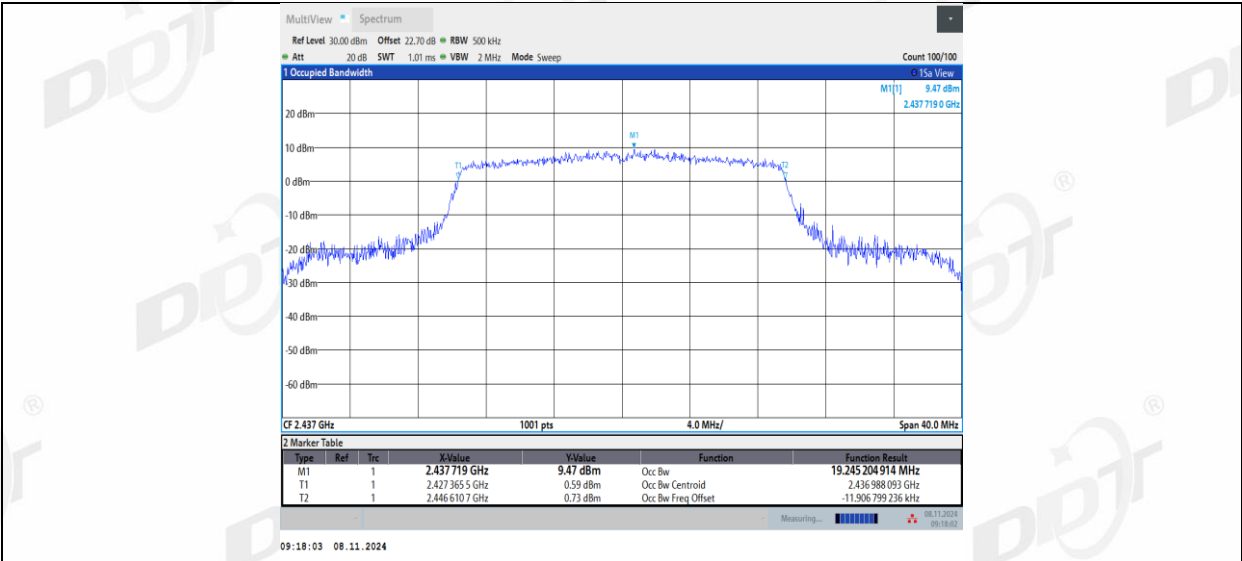
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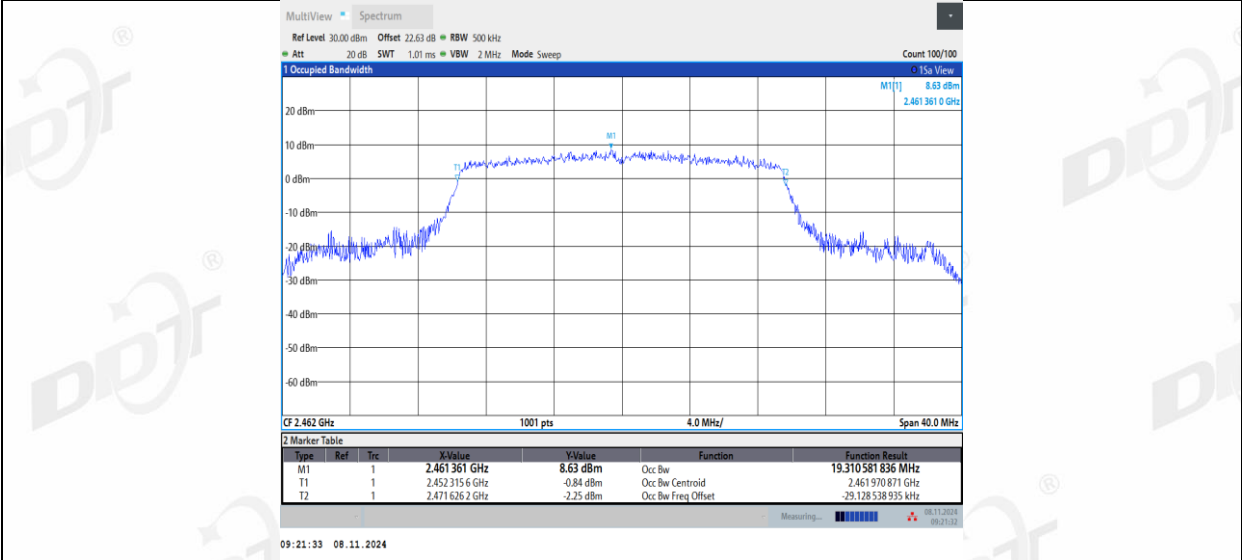
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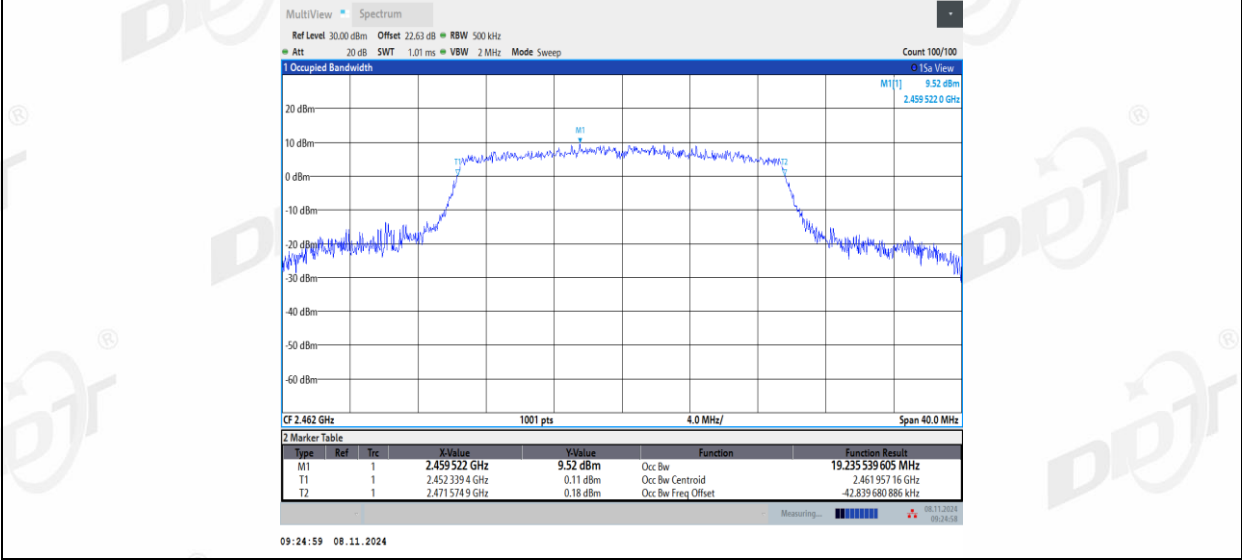
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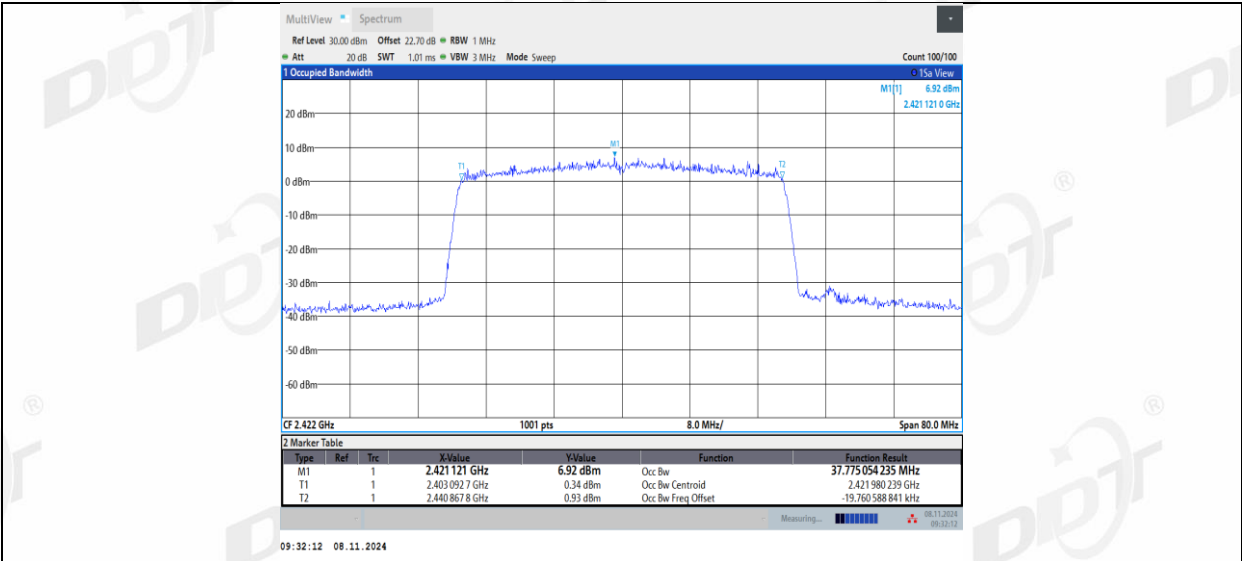
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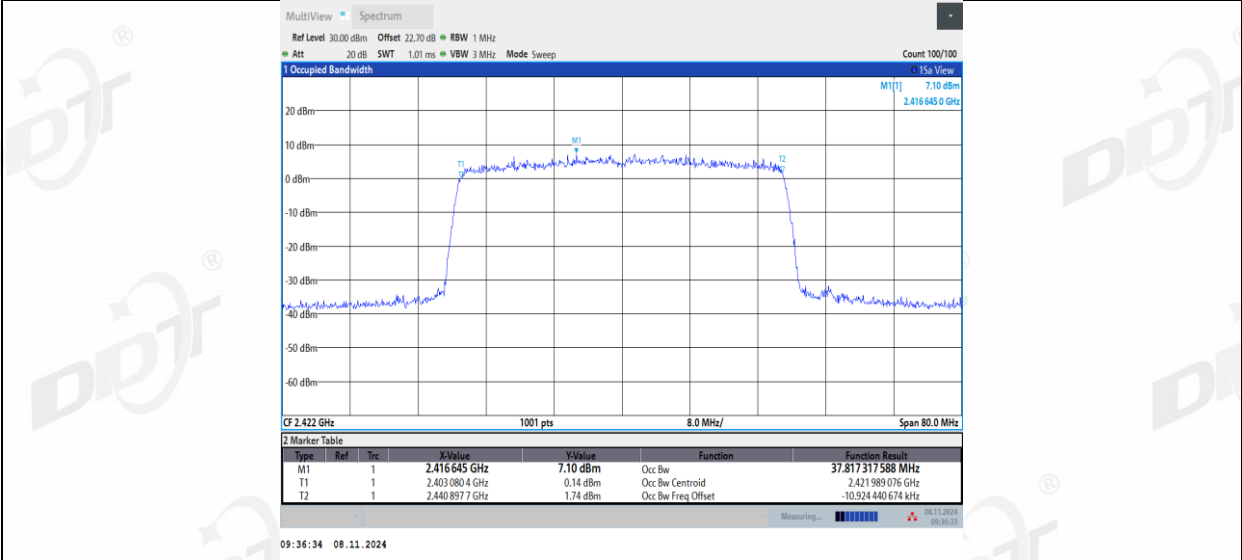
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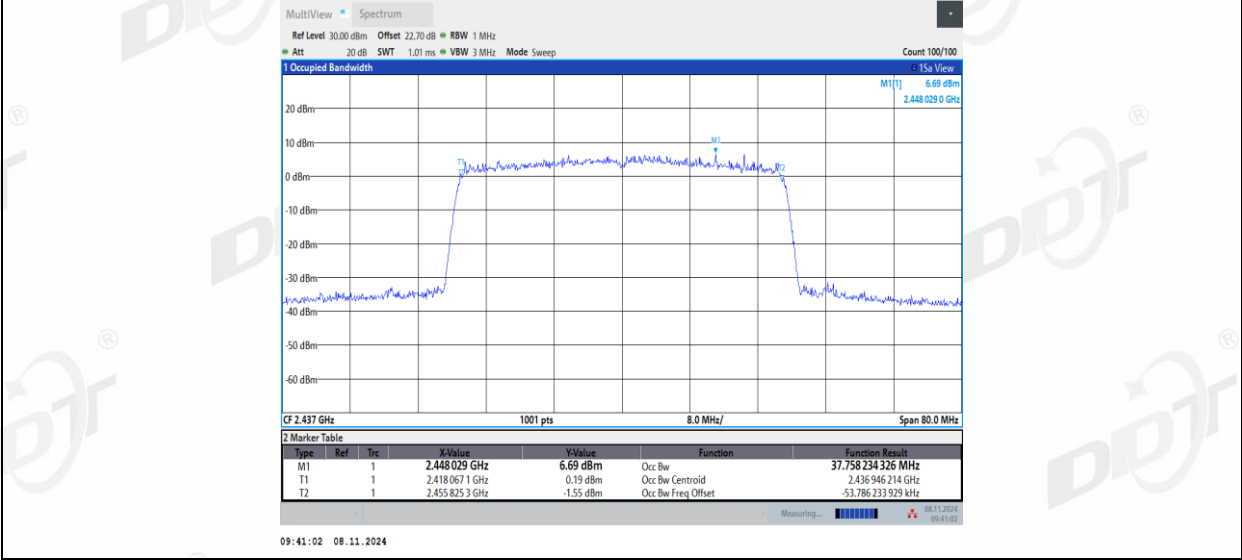
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11AX40MIMO_Ant2_2422



11AX40MIMO_Ant1_2437



11AX40MIMO_Ant2_2437