FCC AND ISED 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 C, RSS-247 Issue 3 August 2023, ANSI C63.10:2013, RSS-Gen Issue 5, Apr. 2018, Amendment 2 (February 2021)
Report No.	:	DDT-RE24053102-1E03
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

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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 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-RE24053102-1E03		
Date of Receipt:	2024/06/03	**Date of Test:**	2024/06/03~2024/06/24

Prepared By:	**Approved By:**
Tiger Mo	Damon Hu
Tiger Mo/Engineer	**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 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	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

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 FCC2022-0033-2/R2 and GJW2022-4539-2/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 FCC2022-0033-2/R2 and GJW2022-4539-2/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 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, 64QAM, 16QAM, QPSK, BPSK)

Antenna information				
Antenna Type	FPC			
Max Antenna Gain(dBi)		Ant1 gain	Ant2 gain	Directional gain
	IEEE 802.11b	5.1	5.0	/
	IEEE 802.11g	5.1	5.0	/
	IEEE 802.11n HT20	5.1	5.0	8.02
	IEEE 802.11n HT40	5.1	5.0	8.02
	IEEE 802.11ax HE20	5.1	5.0	8.02
	IEEE 802.11ax HE40	5.1	5.0	8.02
Note: This EUT MIMO 2X2, any transmit signals are correlated with each other. So the Directional gain = 10 log[$(10^{G1/20} + 10^{G2/20})^2/2$] =8.02dBi				

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	/	/

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.

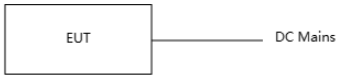
"☒" means to be chosen or applicable; "□" means don't to be chosen or not applicable; This note applies to entire report.

2.2. Accessories of EUT

Accessories	Manufacturer	Model number	Description
/	/	/	/

2.3. Block diagram of EUT configuration for test

Configuration diagram



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: 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	12	13	1	LCH: CH1	2412
	15	10	1	MCH: CH6	2437
	9	13	1	HCH: CH11	2462
IEEE 802.11g	10	10	6	LCH: CH1	2412
	10	10	6	MCH: CH6	2437
	10	10	6	HCH: CH11	2462
IEEE 802.11n HT20	8	8	MCS 8	LCH: CH1	2412
	8	8	MCS 8	MCH: CH6	2437
	8	8	MCS 8	HCH: CH11	2462
	8	8	MCS 8	LCH: CH3	2422

IEEE 802.11n HT40	8	8	MCS 8	MCH: CH6	2437
	8	8	MCS 8	HCH: CH9	2452
IEEE 802.11ax HE20	8	8	MCS 9	LCH: CH1	2412
	8	8	MCS 9	MCH: CH6	2437
	8	8	MCS 9	HCH: CH11	2462
IEEE 802.11ax HE40	10	10	MCS 9	LCH: CH3	2422
	10	10	MCS 9	MCH: CH6	2437
	10	10	MCS 9	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℃ to +35 ℃
Humidity range:	20% to 75%
Pressure range:	86 kPa to106 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

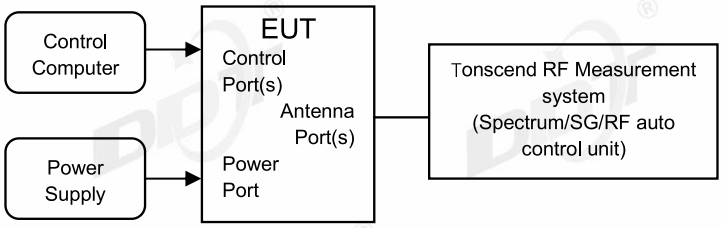
Test Item	Uncertainty
Bandwidth	1.1%
Peak Output Power (Conducted) (Spectrum analyzer)	0.86 dB (10 MHz ≤ f < 3.6 GHz);
	1.38 dB (3.6 GHz ≤ f < 8 GHz)
Peak Output Power (Conducted) (Power Sensor)	0.74 dB
Power Spectral Density	0.74 dB (10 MHz ≤ f < 3.6 GHz);
	1.38 dB (3.6 GHz ≤ f < 8 GHz)
Frequencies Stability	6.7 x 10^{-8} (Antenna couple method)
	5.5 x 10^{-8} (Conducted method)
Conducted spurious emissions	0.86 dB (10 MHz ≤ f < 3.6 GHz);
	1.40 dB (3.6 GHz ≤ f < 8 GHz)
	1.66 dB (8 GHz ≤ f < 26.5 GHz)
Uncertainty for radio frequency (RBW < 20 kHz)	3×10^{-8}
Temperature	0.4 ℃
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	2024/09/05
RF Control Unit	Tonsend	JS0806-2	21I8060485	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:	≥ [3 × 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

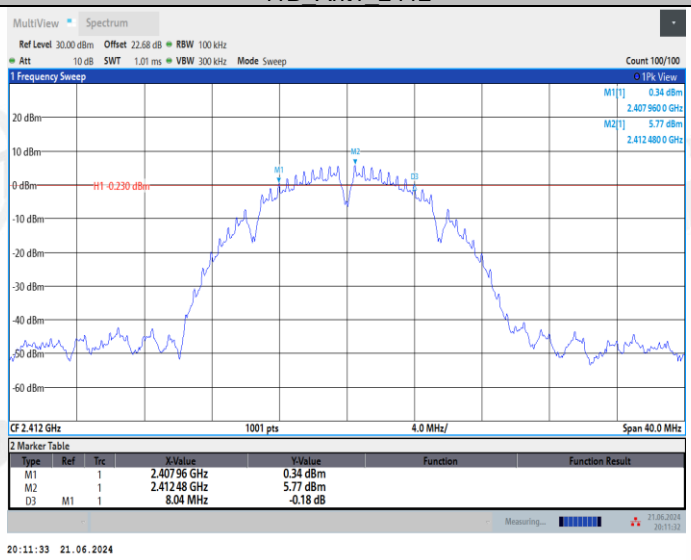
4.4. Test result

Test Engineer:	Haofeng	Test Site:	RF Measurement System 4#
Ambient Condition:	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]	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
11G	Ant1	2412	15.12	2404.40	2419.52	0.5	PASS
	Ant2	2412	15.12	2404.40	2419.52	0.5	PASS
11N20MIMO	Ant1	2462	16.08	2453.80	2469.88	0.5	PASS
	Ant2	2462	17.52	2453.20	2470.72	0.5	PASS
11N40MIMO	Ant1	2452	35.12	2434.48	2469.60	0.5	PASS
	Ant2	2452	35.12	2434.48	2469.60	0.5	PASS
11AX20MIMO	Ant1	2462	18.56	2452.68	2471.24	0.5	PASS
	Ant2	2462	18.56	2452.64	2471.20	0.5	PASS
11AX40MIMO	Ant1	2452	37.04	2433.60	2470.64	0.5	PASS
	Ant2	2452	36.64	2434.16	2470.80	0.5	PASS

4.5. Test graphs

11B_Ant1_2412



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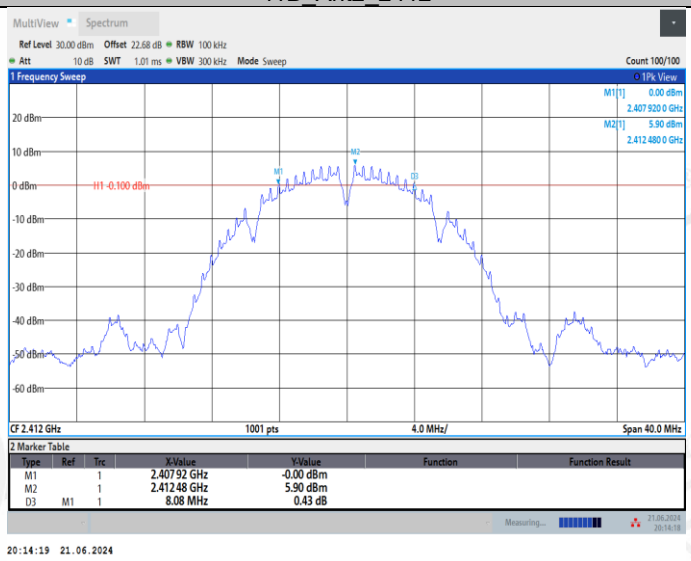
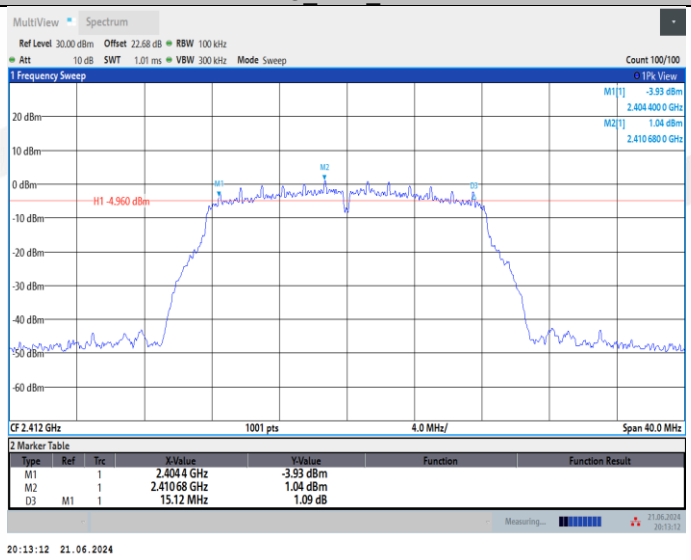
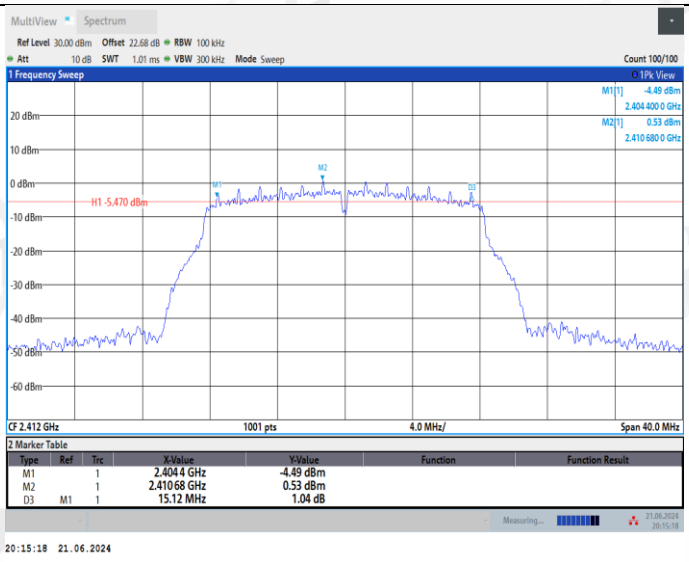


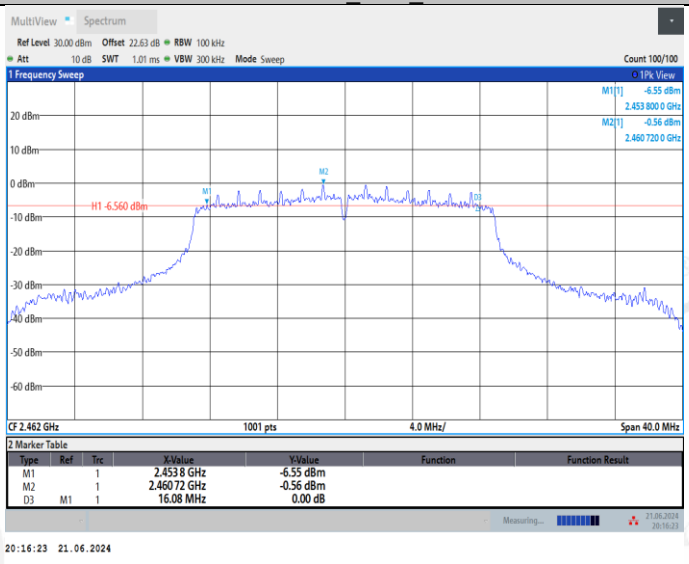
11G_Ant1_2412



11G_Ant2_2412



11N20MIMO_Ant1_2462



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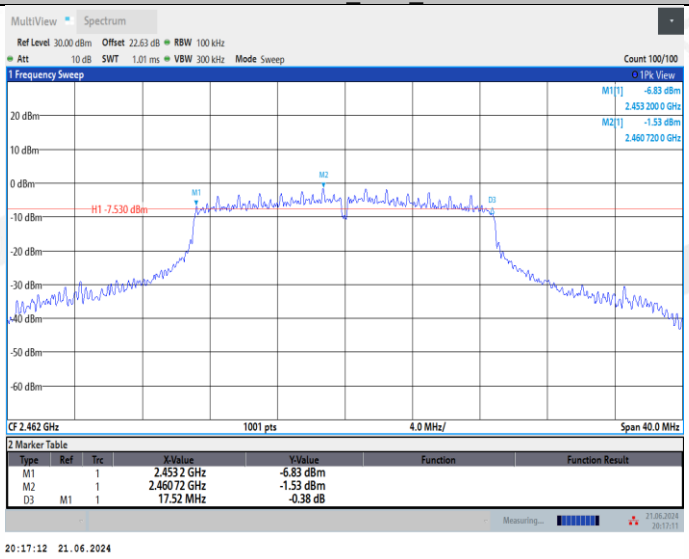
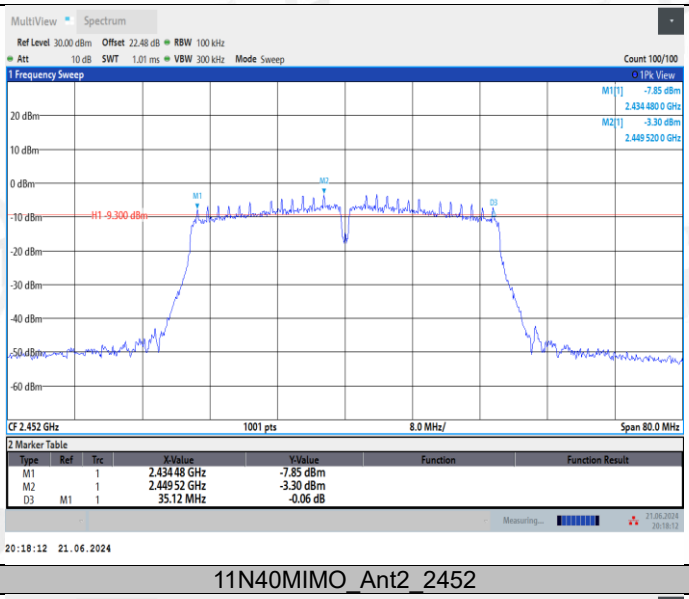


11N40MIMO_Ant1_2452



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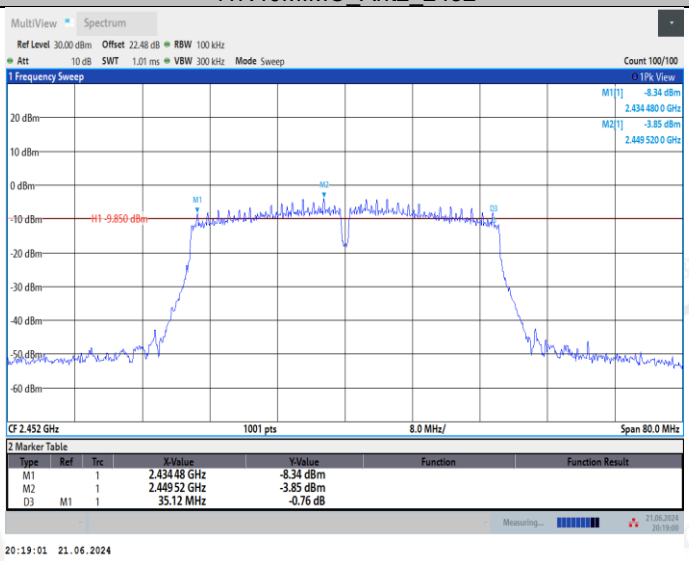
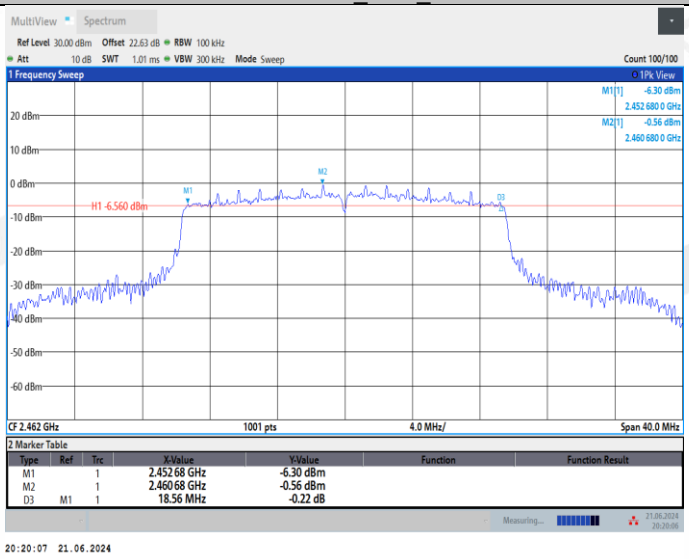
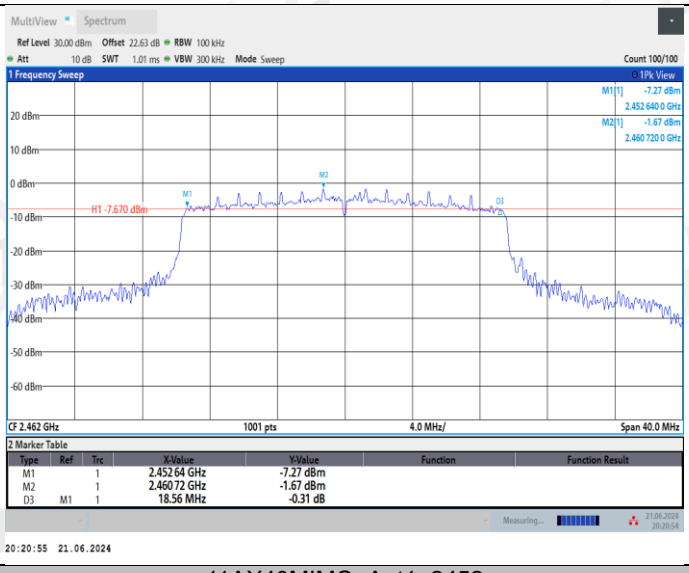


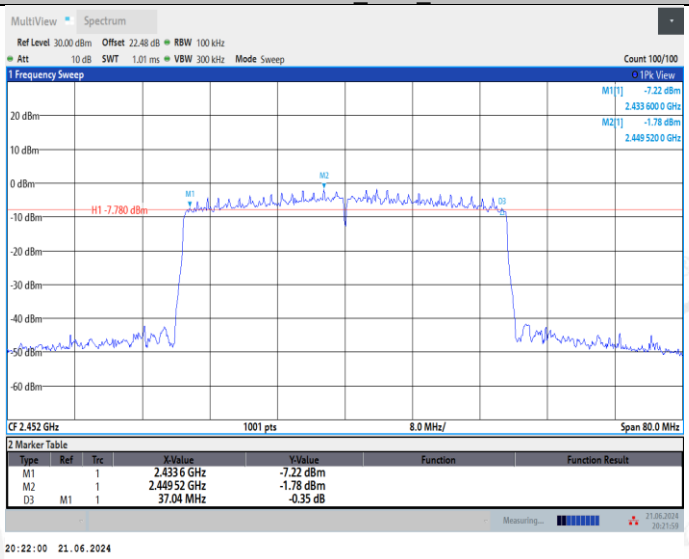
11AX20MIMO_Ant1_2462



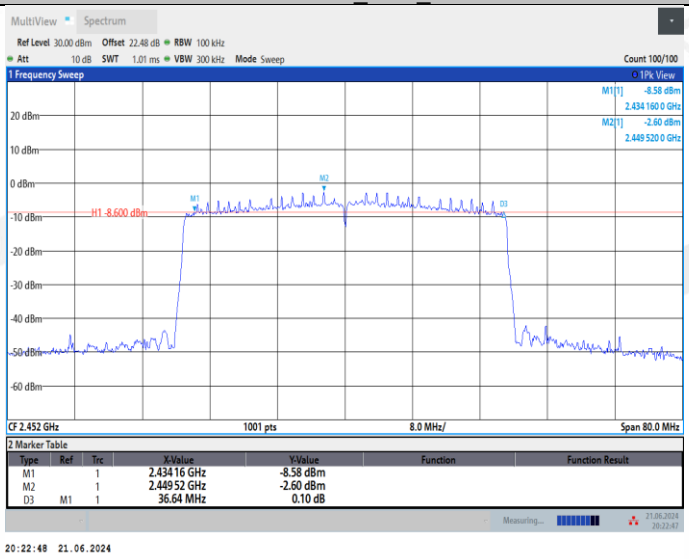
11AX20MIMO_Ant2_2462



11AX40MIMO_Ant1_2452

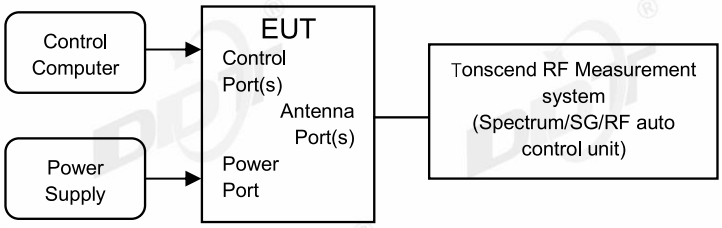


11AX40MIMO_Ant2_2452



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.

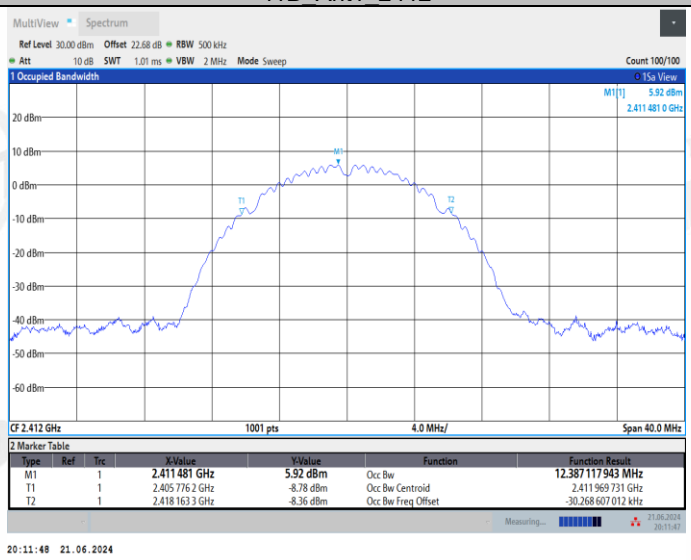
5.4. Test result

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

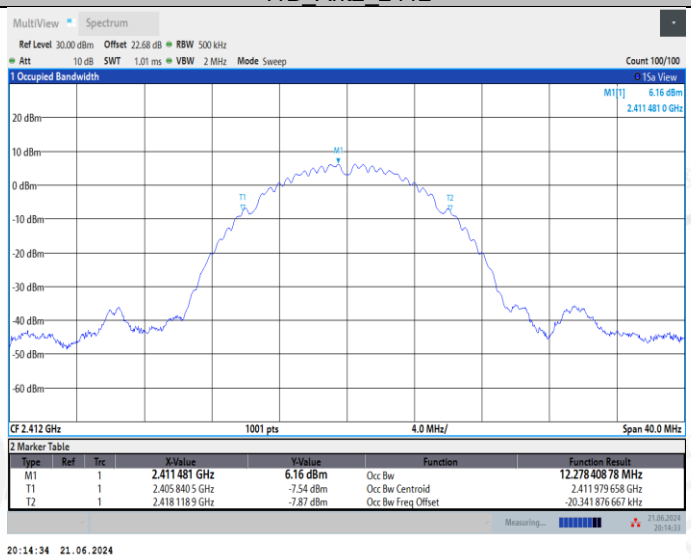
TestMode	Antenna	Channel Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	12.387	2405.7762	2418.1633	---	---
	Ant2	2412	12.278	2405.8405	2418.1189	---	---
11G	Ant1	2412	17.007	2403.4609	2420.4677	---	---
	Ant2	2412	17.057	2403.4393	2420.4963	---	---
11N20MIMO	Ant1	2462	19.44	2452.2507	2471.6910	---	---
	Ant2	2462	18.519	2452.6880	2471.2074	---	---
11N40MIMO	Ant1	2452	36.16	2433.9156	2470.0755	---	---
	Ant2	2452	36.156	2433.9357	2470.0914	---	---
11AX20MIMO	Ant1	2462	19.298	2452.3011	2471.5986	---	---
	Ant2	2462	19.291	2452.3152	2471.6058	---	---
11AX40MIMO	Ant1	2452	37.783	2433.0877	2470.8707	---	---
	Ant2	2452	37.683	2433.1162	2470.7993	---	---

5.5. Test graphs

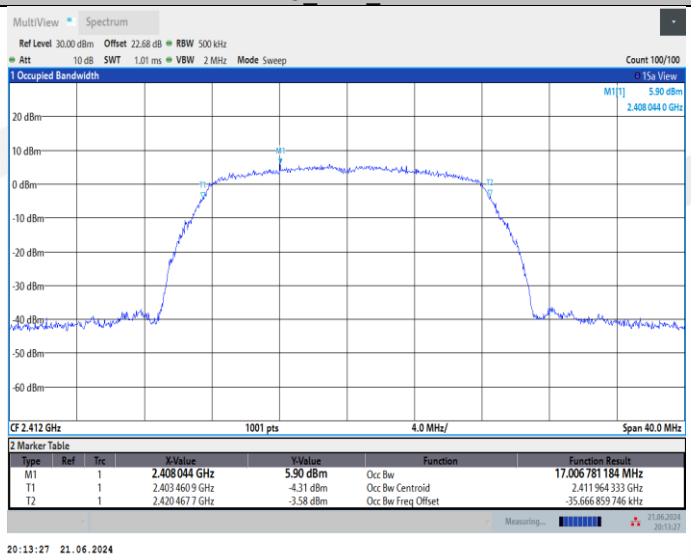
11B_Ant1_2412



11B_Ant2_2412



11G_Ant1_2412



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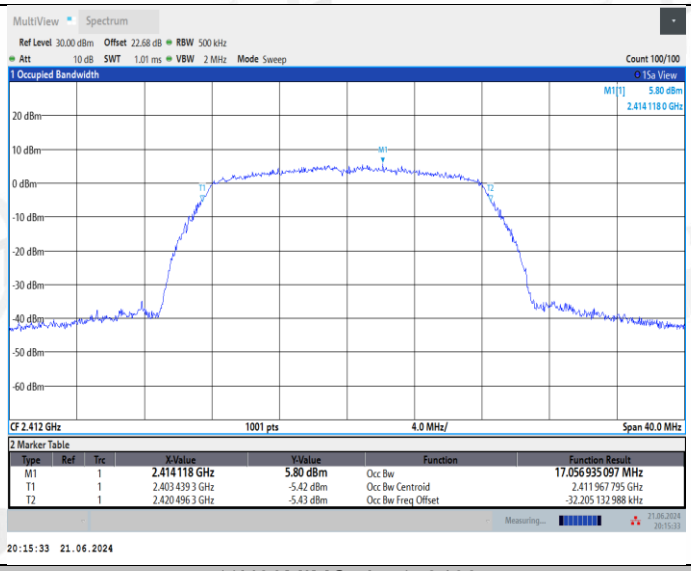
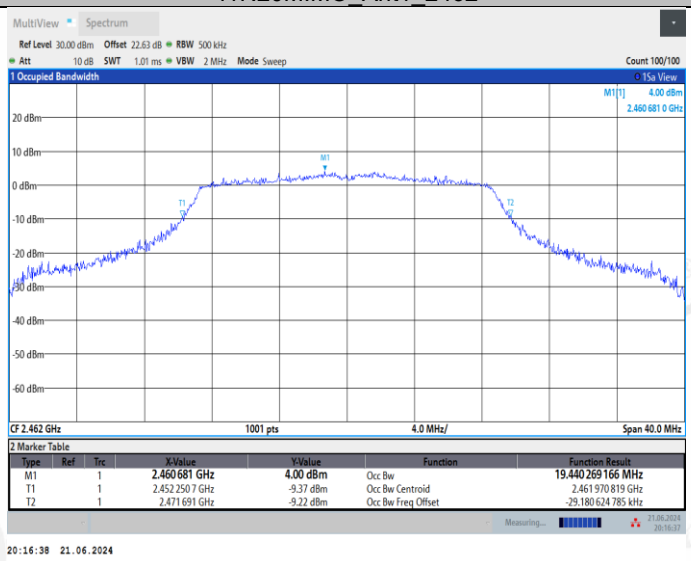
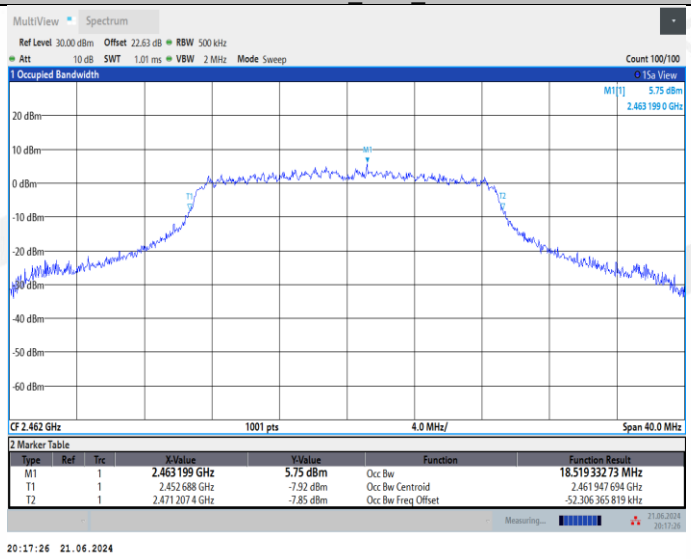


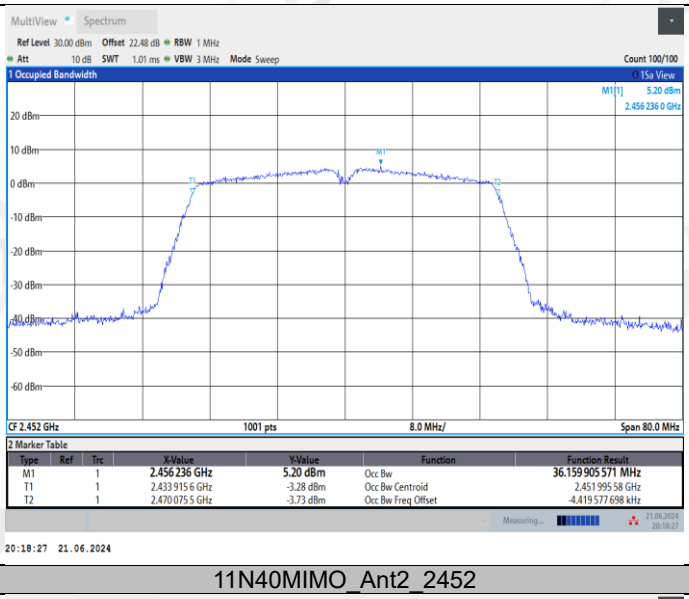
11N20MIMO_Ant1_2462



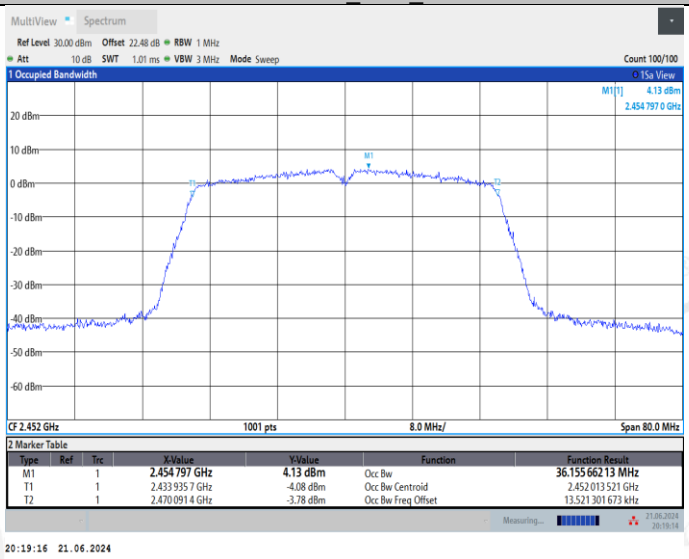
11N20MIMO_Ant2_2462



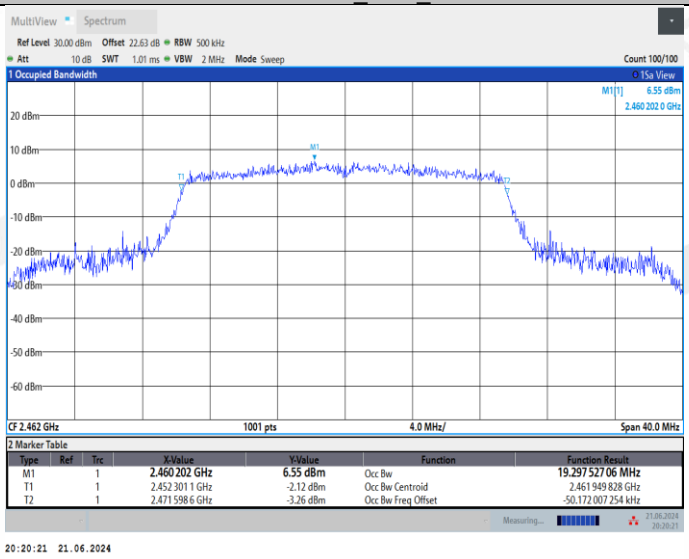
11N40MIMO_Ant1_2452



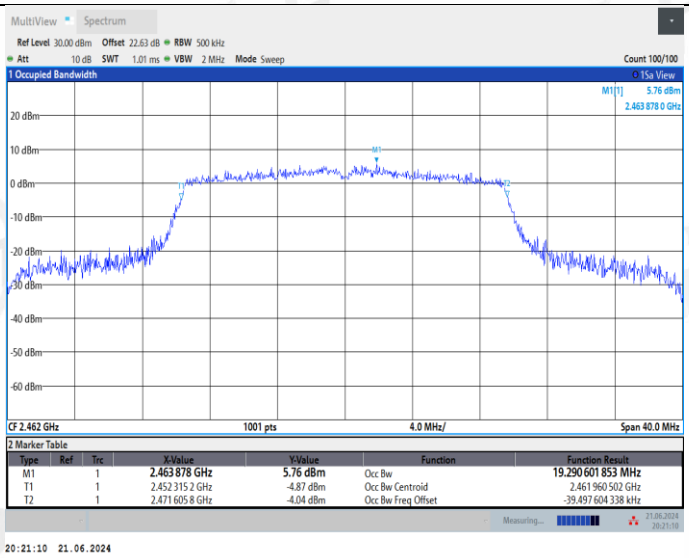
11N40MIMO_Ant2_2452



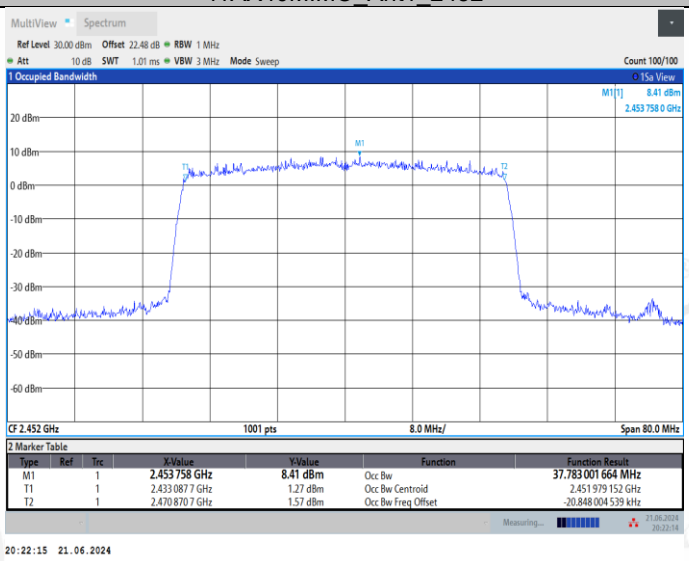
11AX20MIMO_Ant1_2462



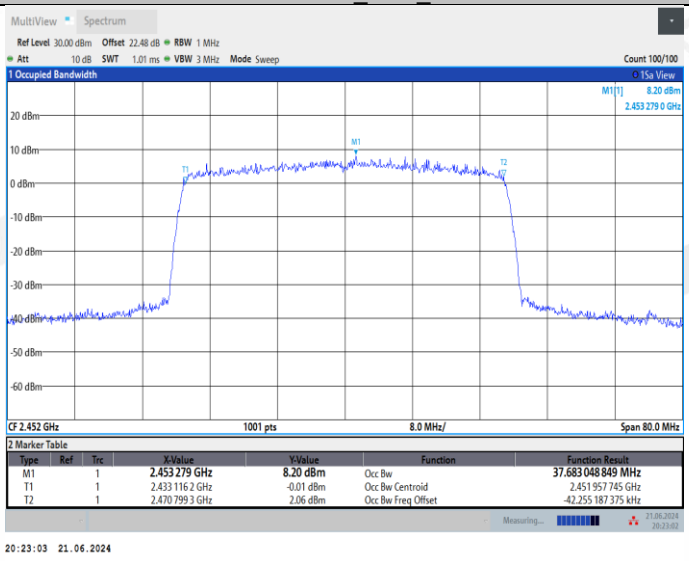
11AX20MIMO_Ant2_2462



11AX40MIMO_Ant1_2452

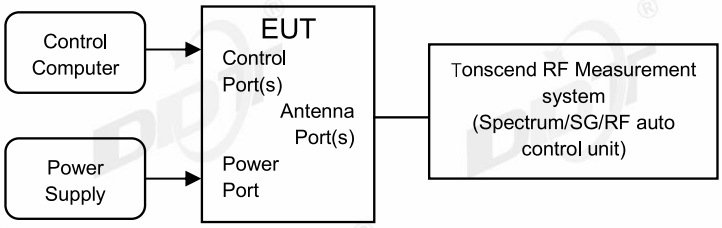


11AX40MIMO_Ant2_2452



6. Conducted Output Power

6.1. Block diagram of test setup



6.2. Limits

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

6.3. Test procedure

(1) The test according to ANSI C63.10-2013 clause 11.9.2.3.
(2) Connect EUT's antenna output to RF power meter 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, If the transmitter does not transmit continuously, measure the duty cycle, D, of the transmitter output signal.
(4) Measure the average power of the transmitter. This measurement is an average over both the ON and OFF periods of the transmitter.
(5) Adjust the measurement in dBm by adding [10 log (1 / D)], where D is the duty cycle.
(6) Record the RF average power of each antenna port.

6.4. Test result average

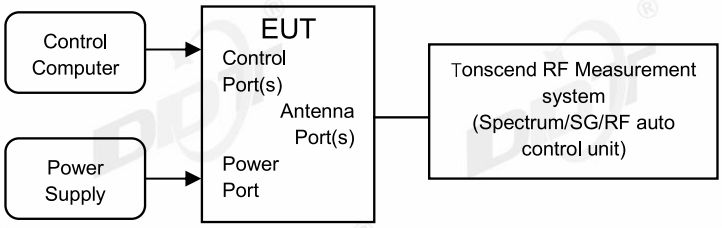
Test Engineer:	Haofeng	Test Site:	RF Measurement System 4#
Ambient Condition:	26.1℃,46.5%RH	Test Date:	2024.06.21
Test Power Supply:	DC 3.3V	Sample Number:	S24053102-001-002

Test Mode	Antenna	Frequency [MHz]	Average power [dBm]	Duty Cycle [%]	DC Factor [dB]	Result [dBm]	Limit [dBm]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
11B	Ant1	2412	13.40	96.77	0.14	13.54	≤30.00	18.64	≤36.00	PASS
	Ant2	2412	13.51	96.88	0.14	13.65	≤30.00	18.65	≤36.00	PASS
	Ant1	2437	16.55	96.77	0.14	16.69	≤30.00	21.79	≤36.00	PASS
	Ant2	2437	10.56	96.77	0.14	10.70	≤30.00	15.70	≤36.00	PASS
	Ant1	2462	10.65	96.88	0.14	10.79	≤30.00	15.89	≤36.00	PASS
	Ant2	2462	13.41	96.89	0.14	13.55	≤30.00	18.55	≤36.00	PASS
11G	Ant1	2412	10.82	83.23	0.80	11.62	≤30.00	16.72	≤36.00	PASS
	Ant2	2412	10.16	83.73	0.77	10.93	≤30.00	15.93	≤36.00	PASS
	Ant1	2437	10.83	83.73	0.77	11.60	≤30.00	16.70	≤36.00	PASS
	Ant2	2437	9.77	83.73	0.77	10.54	≤30.00	15.54	≤36.00	PASS
	Ant1	2462	10.49	83.73	0.77	11.26	≤30.00	16.36	≤36.00	PASS
	Ant2	2462	10.08	82.84	0.82	10.90	≤30.00	15.90	≤36.00	PASS
11N20MIMO	Ant1	2412	8.47	70.53	1.52	9.99	≤30.00	15.09	≤36.00	PASS
	Ant2	2412	7.53	70.53	1.52	9.05	≤30.00	14.05	≤36.00	PASS
	total	2412	---	---	---	12.56	≤30.00	17.61	≤36.00	PASS
	Ant1	2437	8.53	70.53	1.52	10.05	≤30.00	15.15	≤36.00	PASS
	Ant2	2437	7.61	70.53	1.52	9.13	≤30.00	14.13	≤36.00	PASS
	total	2437	---	---	---	12.62	≤30.00	17.68	≤36.00	PASS
	Ant1	2462	8.28	70.53	1.52	9.80	≤30.00	14.90	≤36.00	PASS
	Ant2	2462	7.93	70.53	1.52	9.45	≤30.00	14.45	≤36.00	PASS
	total	2462	---	---	---	12.64	≤30.00	17.69	≤36.00	PASS
11N40MIMO	Ant1	2422	7.85	55.56	2.55	10.40	≤30.00	15.50	≤36.00	PASS
	Ant2	2422	6.68	54.84	2.61	9.29	≤30.00	14.29	≤36.00	PASS
	total	2422	---	---	---	12.89	≤30.00	17.95	≤36.00	PASS
	Ant1	2437	7.58	54.84	2.61	10.19	≤30.00	15.29	≤36.00	PASS
	Ant2	2437	7.32	55.56	2.55	9.87	≤30.00	14.87	≤36.00	PASS
	total	2437	---	---	---	13.04	≤30.00	18.10	≤36.00	PASS
	Ant1	2452	7.98	54.84	2.61	10.59	≤30.00	15.69	≤36.00	PASS
	Ant2	2452	6.75	54.84	2.61	9.36	≤30.00	14.36	≤36.00	PASS
	total	2452	---	---	---	13.03	≤30.00	18.09	≤36.00	PASS
11AX20MIMO	Ant1	2412	8.65	55.36	2.57	11.22	≤30.00	16.32	≤36.00	PASS
	Ant2	2412	8.10	53.45	2.72	10.82	≤30.00	15.82	≤36.00	PASS
	total	2412	---	---	---	14.03	≤30.00	19.09	≤36.00	PASS
	Ant1	2437	8.96	55.36	2.57	11.53	≤30.00	16.63	≤36.00	PASS
	Ant2	2437	8.71	55.36	2.57	11.28	≤30.00	16.28	≤36.00	PASS
	total	2437	---	---	---	14.42	≤30.00	19.47	≤36.00	PASS
	Ant1	2462	9.21	55.36	2.57	11.78	≤30.00	16.88	≤36.00	PASS
	Ant2	2462	8.03	55.36	2.57	10.60	≤30.00	15.60	≤36.00	PASS
	total	2462	---	---	---	14.24	≤30.00	19.30	≤36.00	PASS
11AX40MIMO	Ant1	2422	10.53	65.85	1.81	12.34	≤30.00	17.44	≤36.00	PASS
	Ant2	2422	9.64	65.85	1.81	11.45	≤30.00	16.45	≤36.00	PASS
	total	2422	---	---	---	14.93	≤30.00	19.98	≤36.00	PASS
	Ant1	2437	10.31	65.85	1.81	12.12	≤30.00	17.22	≤36.00	PASS
	Ant2	2437	10.01	65.85	1.81	11.82	≤30.00	16.82	≤36.00	PASS
	total	2437	---	---	---	14.98	≤30.00	20.03	≤36.00	PASS
	Ant1	2452	10.75	65.85	1.81	12.56	≤30.00	17.66	≤36.00	PASS
	Ant2	2452	9.48	65.85	1.81	11.29	≤30.00	16.29	≤36.00	PASS
	total	2452	---	---	---	14.98	≤30.00	20.04	≤36.00	PASS

Note: EIRP (dBm)=Conducted Output Power (dBm)+ Antenna Gain (dBi)

7. Band Edge Compliance (Conducted Method)

7.1. Block diagram of test setup



7.2. Limits

In any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

7.3. Test procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.
(2) Establish a reference level by using the following procedure:

RBW:	100 kHz
VBW:	300 kHz
Span	Encompass frequency range to be measured
Detector Mode:	Peak
Sweep time:	auto
Trace mode	Max hold

(3) Allow the trace to stabilize, use the peak marker function to determine the maximum peak power level to establish the reference level.

Then mark the maximum amplitude of all unwanted emissions outside of the authorized frequency band.

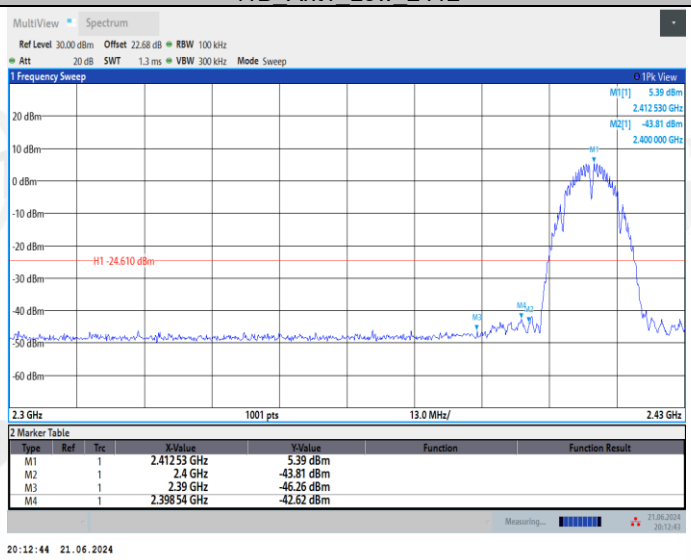
7.4. Test result

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

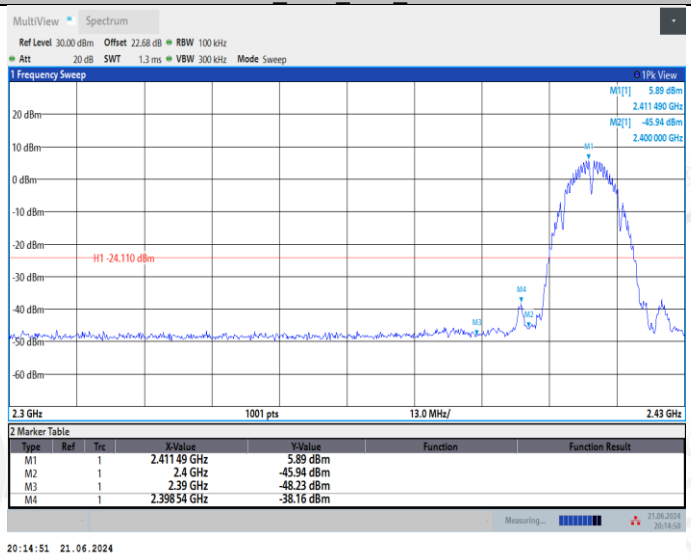
EUT Set Mode	CH or Frequency	Result(dBm)	EUT Set Mode	CH or Frequency	Result (dBm)
11b	CH1	Pass	11g	CH1	Pass
	CH11	Pass		CH11	Pass
11n HT 20	CH1	Pass	11n HT 40	CH3	Pass
	CH11	Pass		CH9	Pass
11ax HE 20	CH1	Pass	11ax HE 40	CH3	Pass
	CH11	Pass		CH9	Pass

7.5. Test graphs

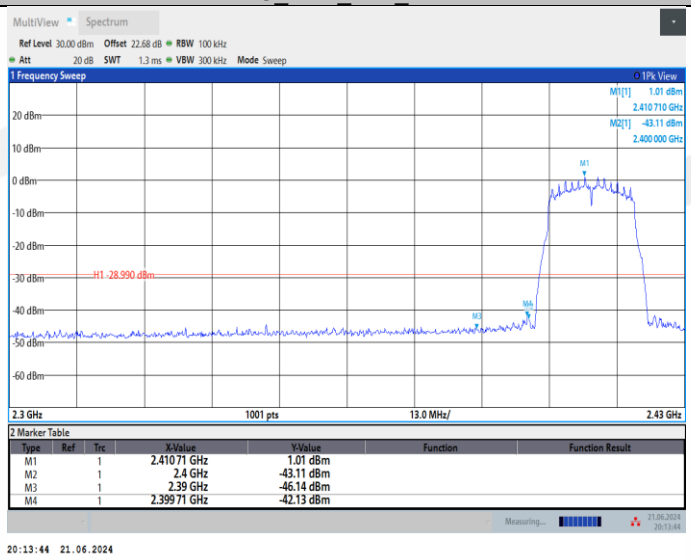
11B_Ant1_Low_2412



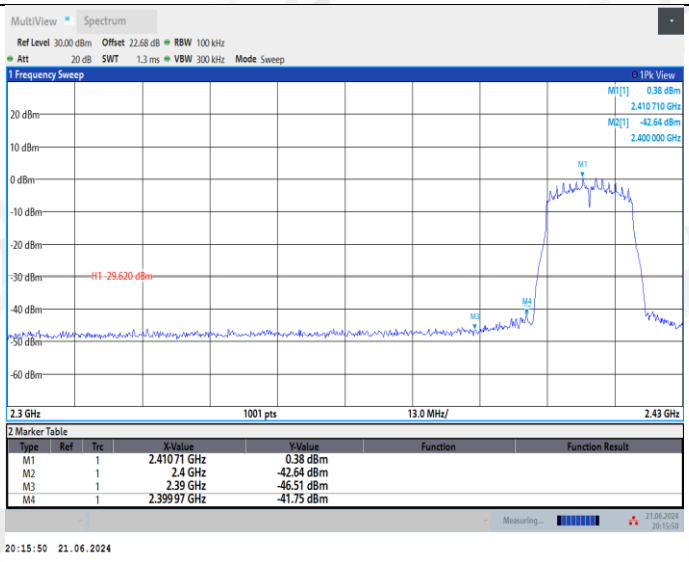
11B_Ant2_Low_2412



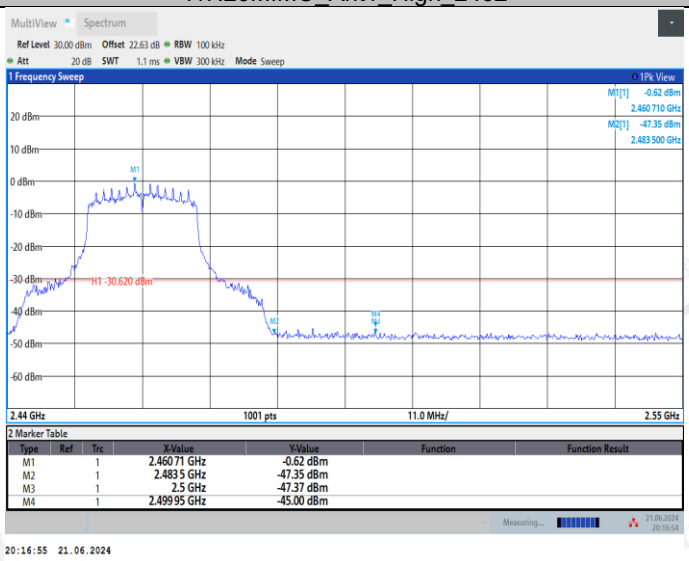
11G_Ant1_Low_2412



11G_Ant2_Low_2412



11N20MIMO_Ant1_High_2462



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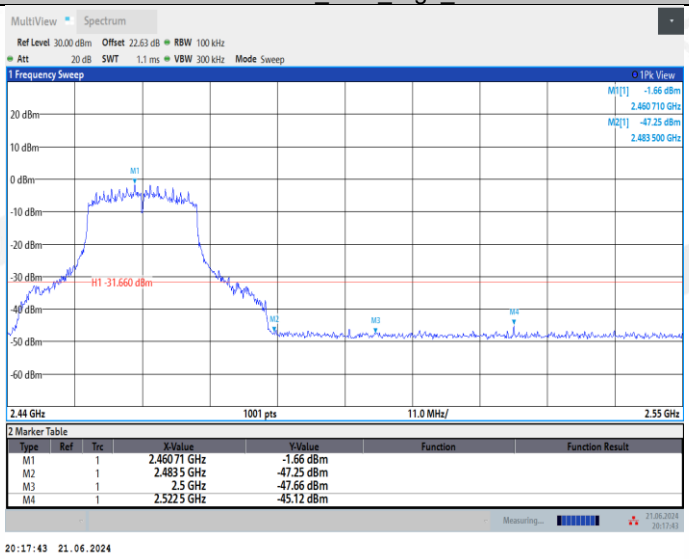
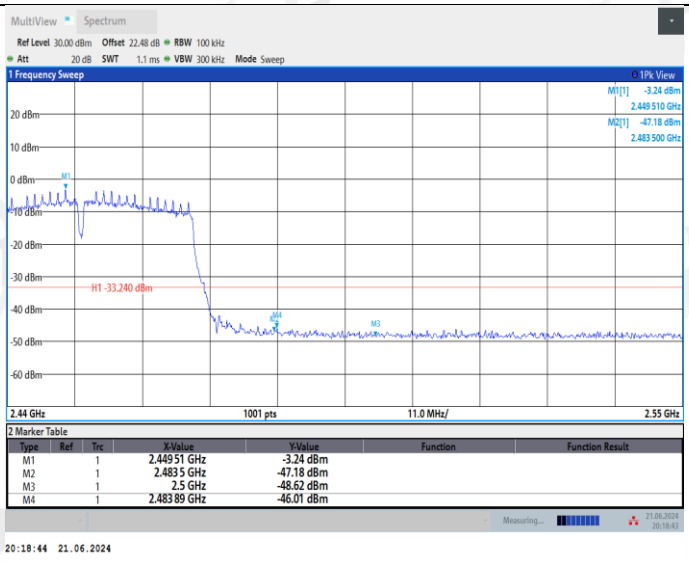
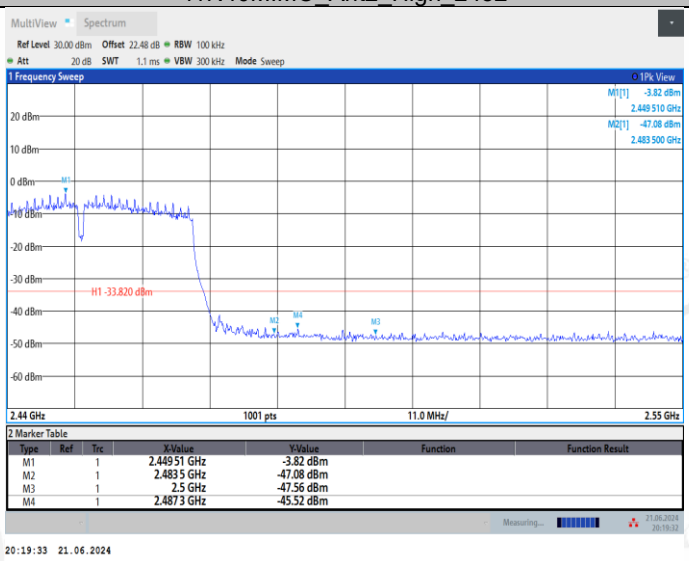


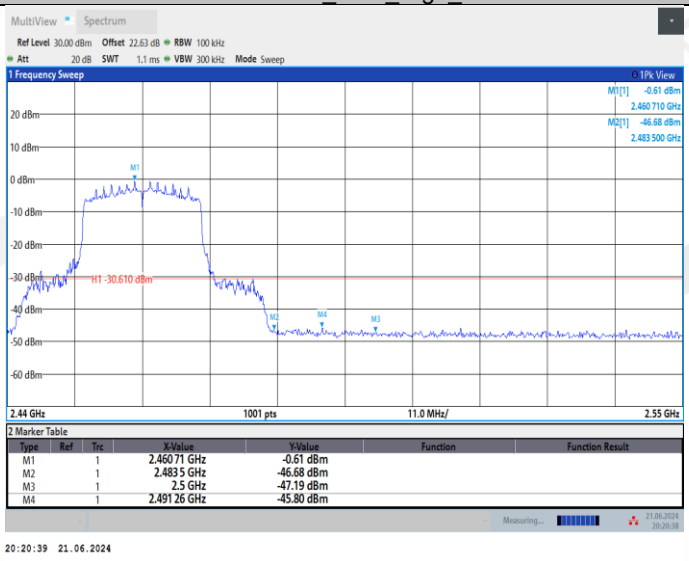
11N40MIMO_Ant1_High_2452



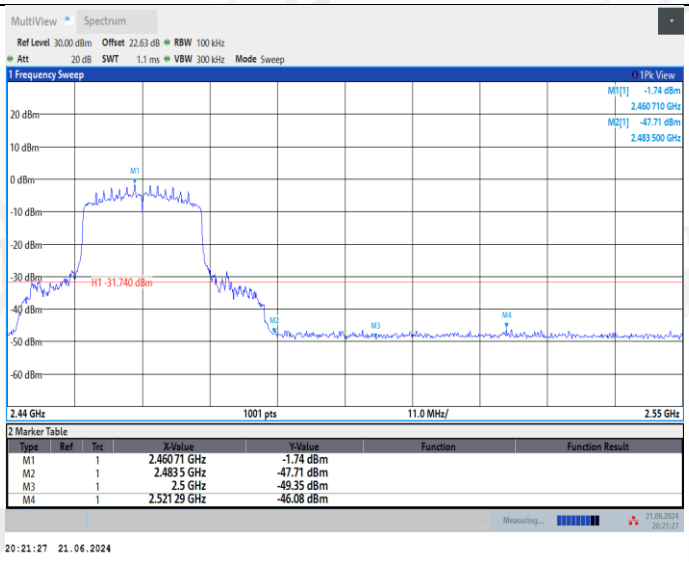
11N40MIMO_Ant2_High_2452



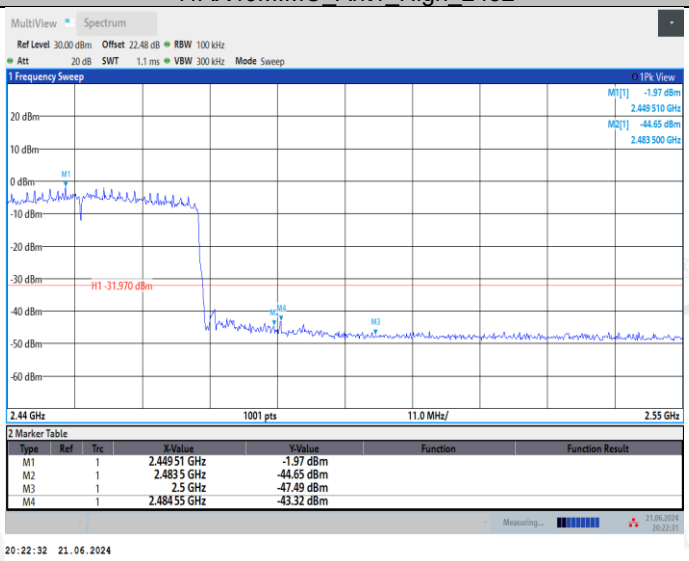
11AX20MIMO_Ant1_High_2462



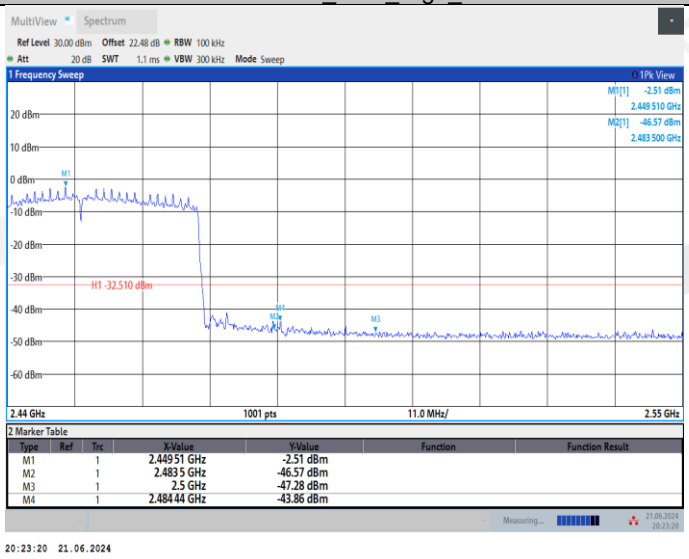
11AX20MIMO_Ant2_High_2462



11AX40MIMO_Ant1_High_2452

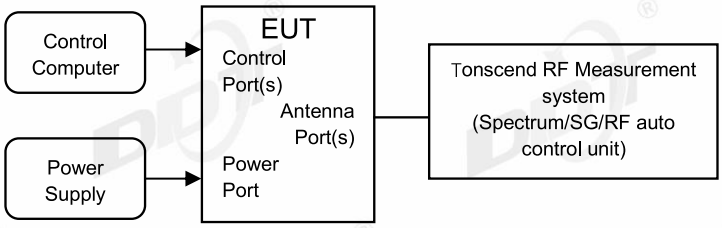


11AX40MIMO_Ant2_High_2452



8. Duty Cycle

8.1. Block diagram of test setup



8.2. Limit

Just for Report.

8.3. 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

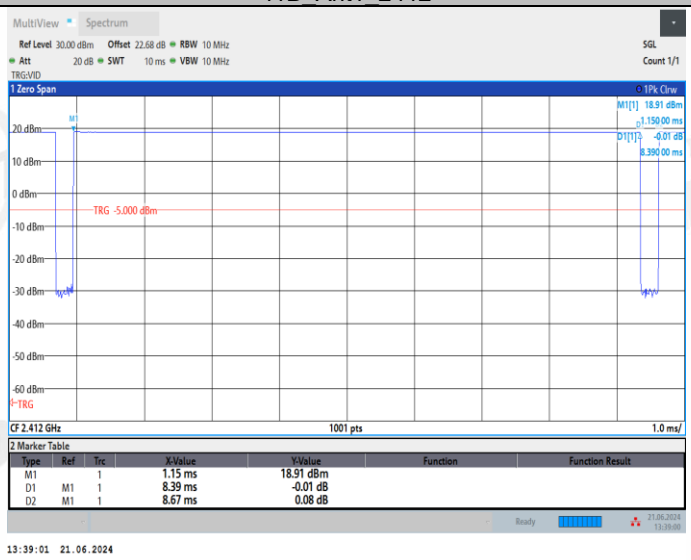
8.4. Test result

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

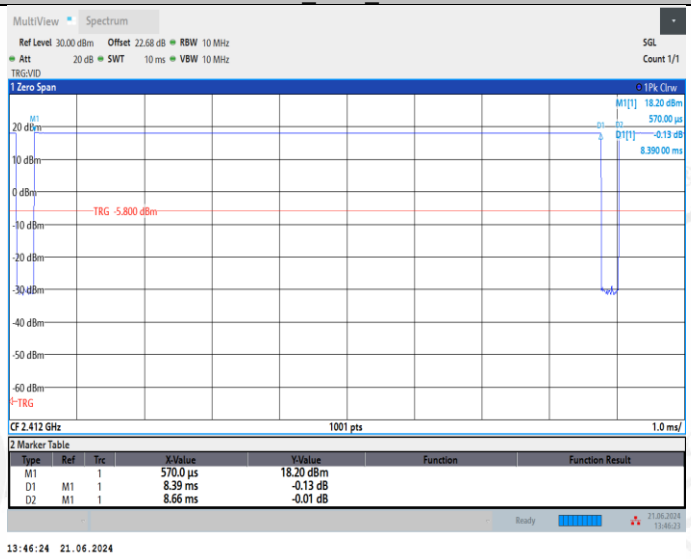
Test Mode	Antenna	Frequency [MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
11B	Ant1	2412	8.39	8.67	96.77
	Ant2	2412	8.39	8.66	96.88
	Ant1	2437	8.40	8.68	96.77
	Ant2	2437	8.39	8.67	96.77
	Ant1	2462	8.39	8.66	96.88
	Ant2	2462	8.40	8.67	96.89
11G	Ant1	2412	1.39	1.67	83.23
	Ant2	2412	1.39	1.66	83.73
	Ant1	2437	1.39	1.66	83.73
	Ant2	2437	1.39	1.66	83.73
	Ant1	2462	1.39	1.66	83.73
	Ant2	2462	1.40	1.69	82.84
11N20MIMO	Ant1	2412	0.67	0.95	70.53
	Ant2	2412	0.67	0.95	70.53
	Ant1	2437	0.67	0.95	70.53
	Ant2	2437	0.67	0.95	70.53
	Ant1	2462	0.67	0.95	70.53
	Ant2	2462	0.67	0.95	70.53
11N40MIMO	Ant1	2422	0.35	0.63	55.56
	Ant2	2422	0.34	0.62	54.84
	Ant1	2437	0.34	0.62	54.84
	Ant2	2437	0.35	0.63	55.56
	Ant1	2452	0.34	0.62	54.84
	Ant2	2452	0.34	0.62	54.84
11AX20MIMO	Ant1	2412	0.31	0.56	55.36
	Ant2	2412	0.31	0.58	53.45
	Ant1	2437	0.31	0.56	55.36
	Ant2	2437	0.31	0.56	55.36
	Ant1	2462	0.31	0.56	55.36
	Ant2	2462	0.31	0.56	55.36
11AX40MIMO	Ant1	2422	0.54	0.82	65.85
	Ant2	2422	0.54	0.82	65.85
	Ant1	2437	0.54	0.82	65.85
	Ant2	2437	0.54	0.82	65.85
	Ant1	2452	0.54	0.82	65.85
	Ant2	2452	0.54	0.82	65.85

8.5. Test graphs

11B_Ant1_2412



11B_Ant2_2412



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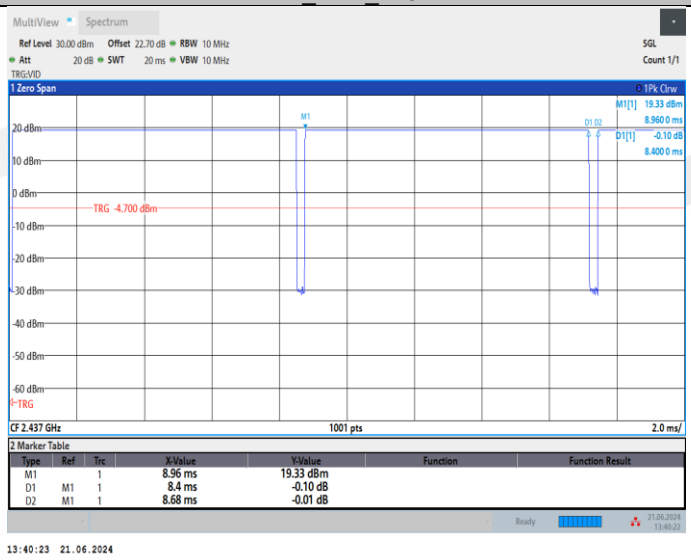

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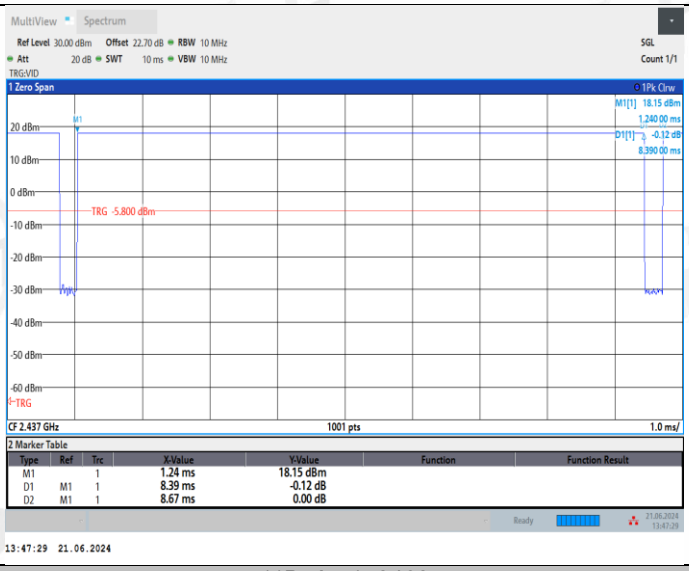

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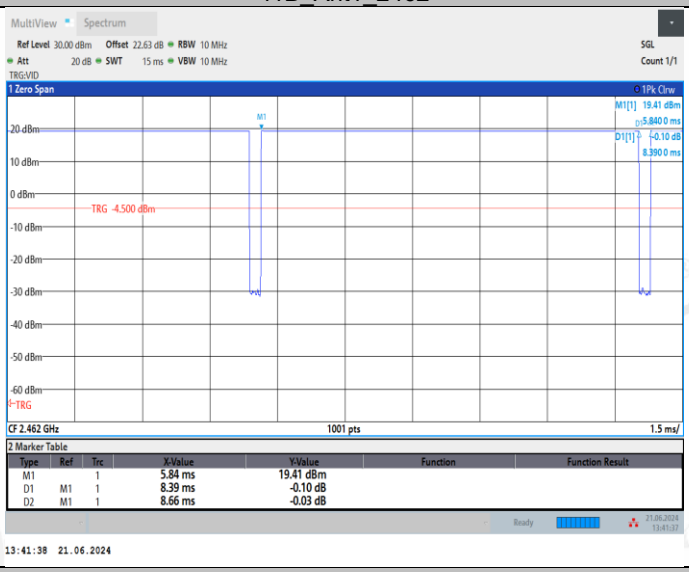

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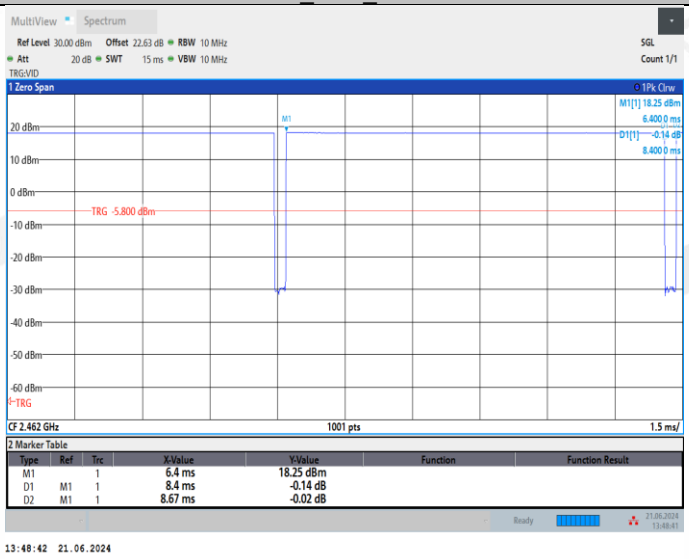

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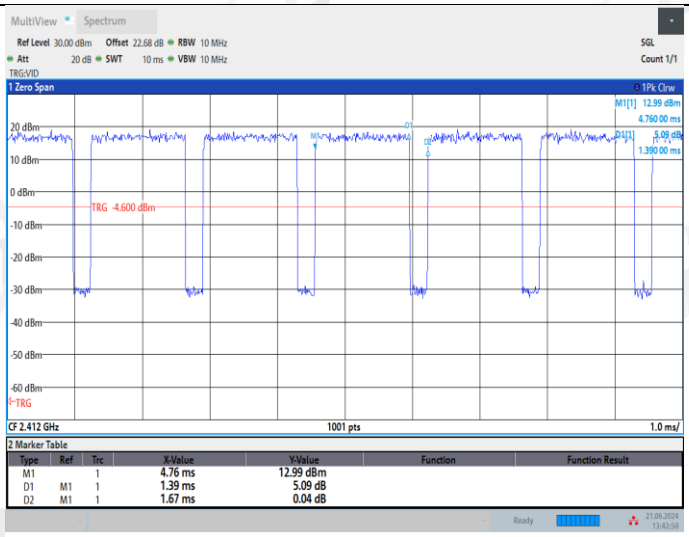

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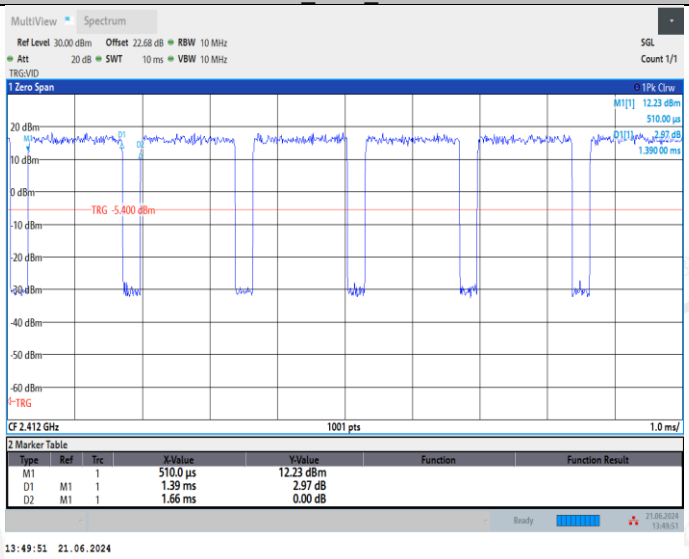

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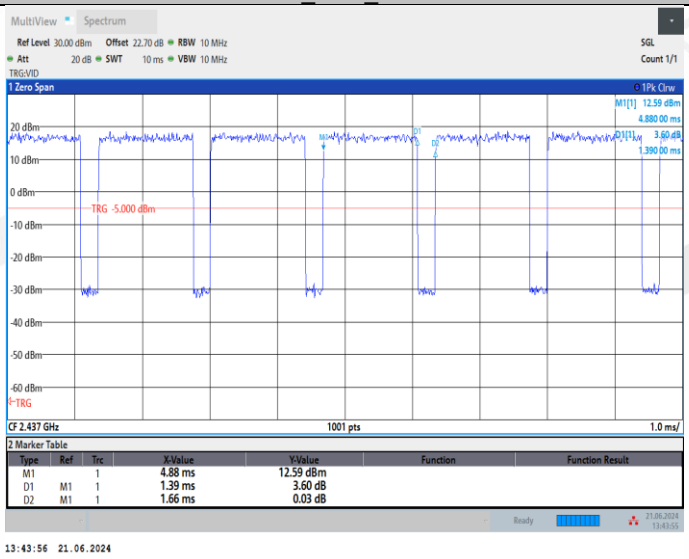

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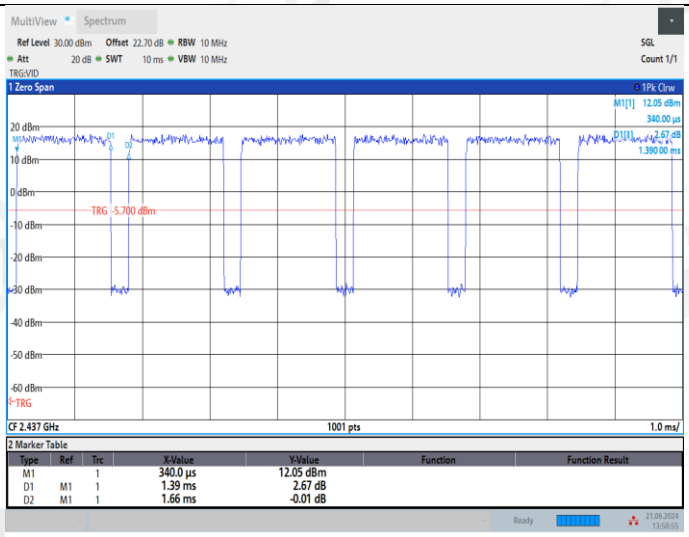

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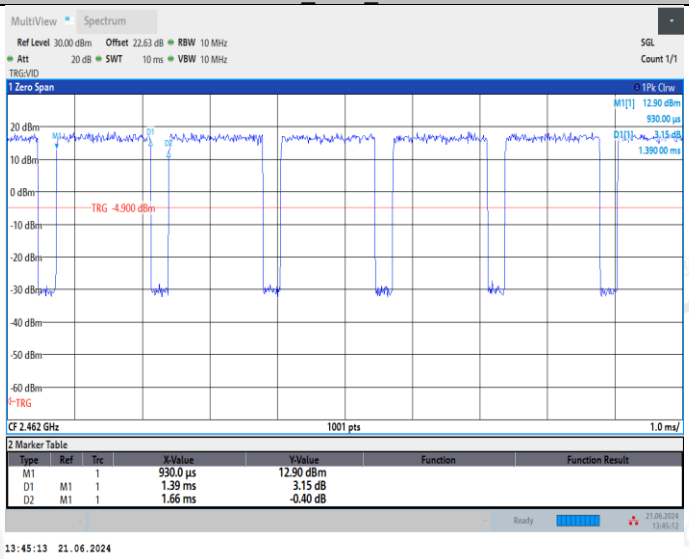

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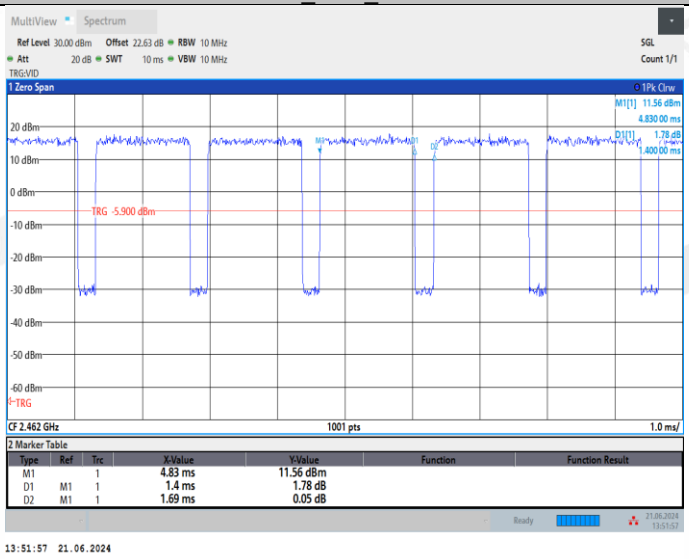

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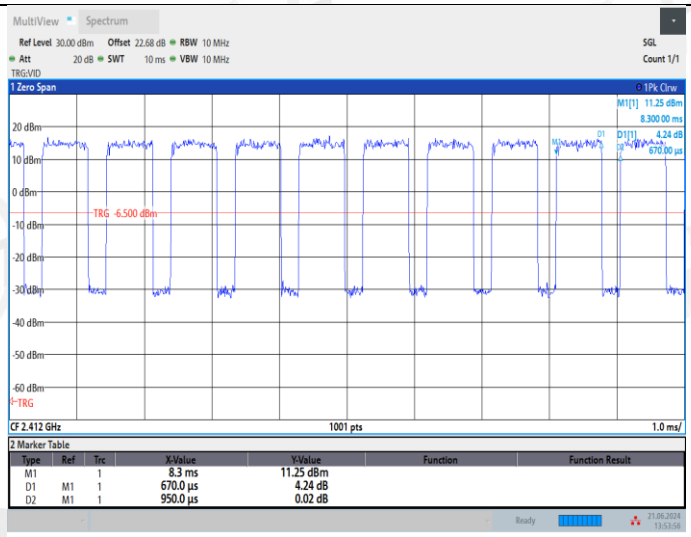

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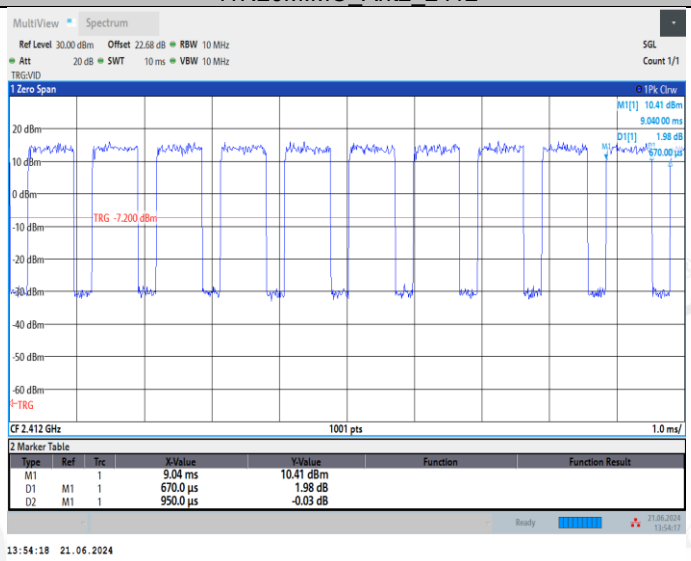

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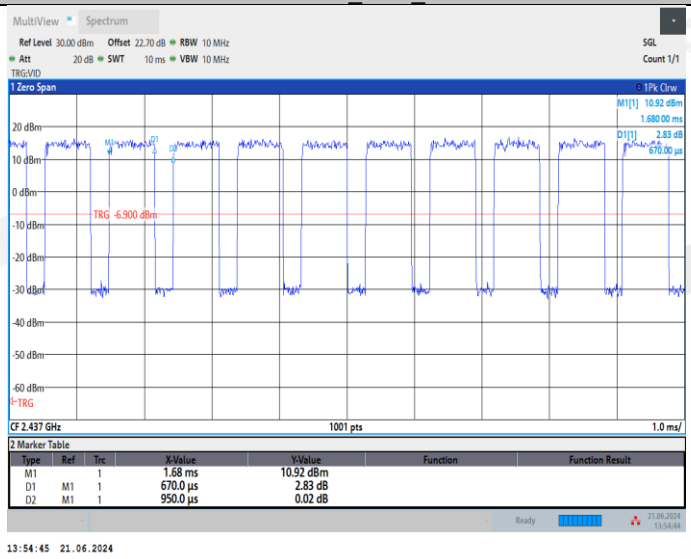

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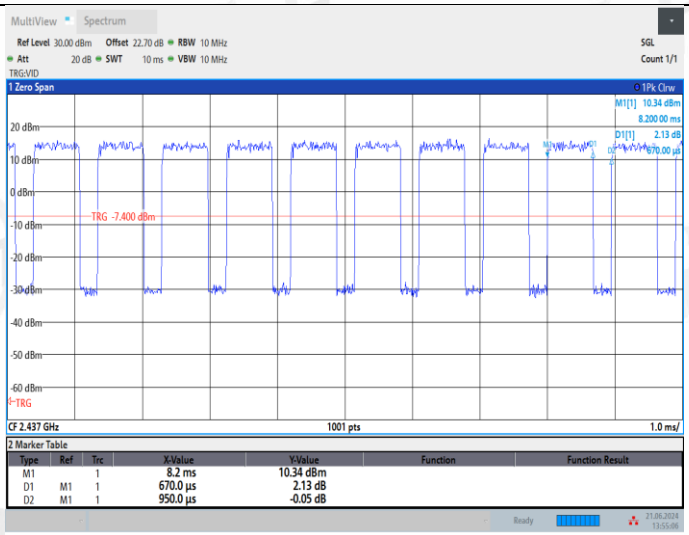

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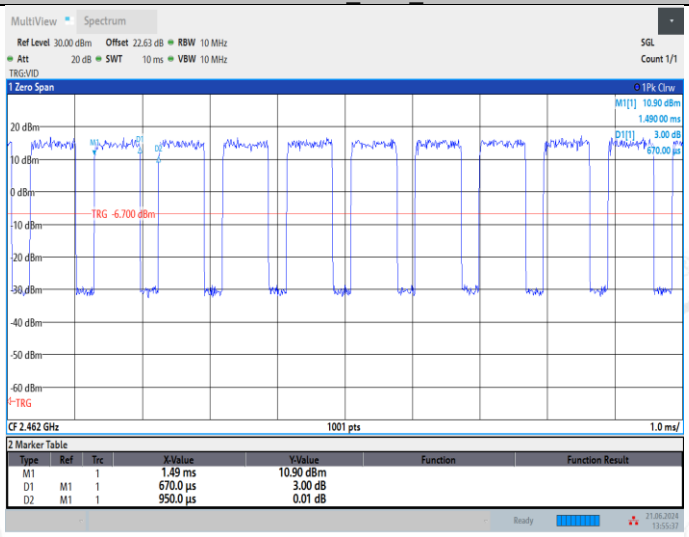

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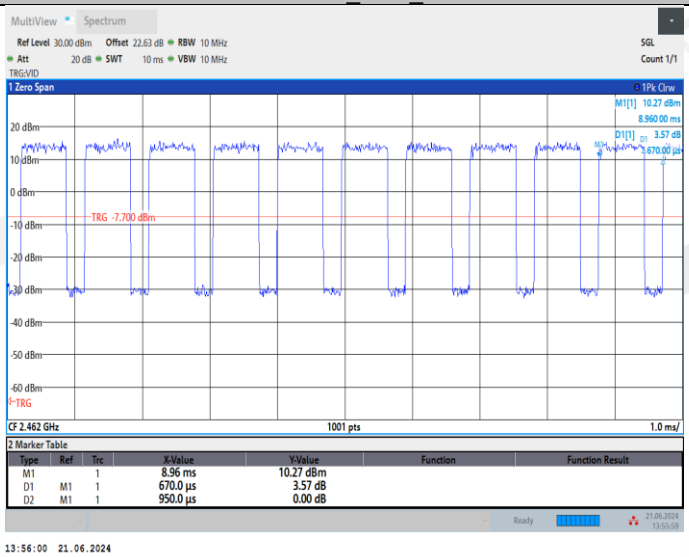

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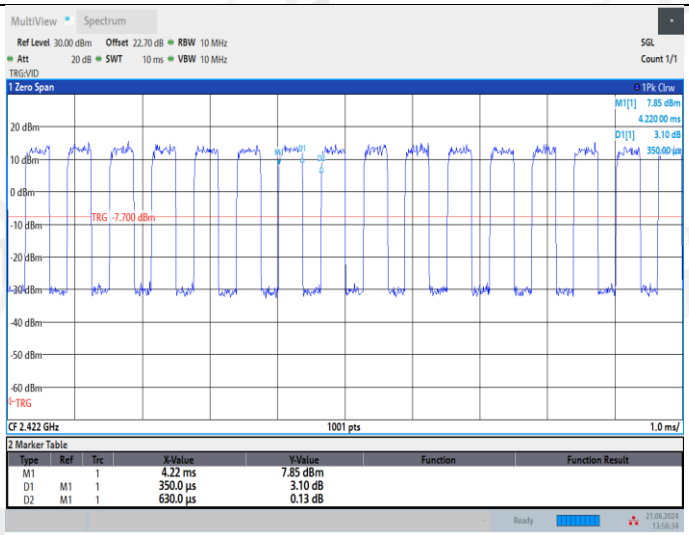

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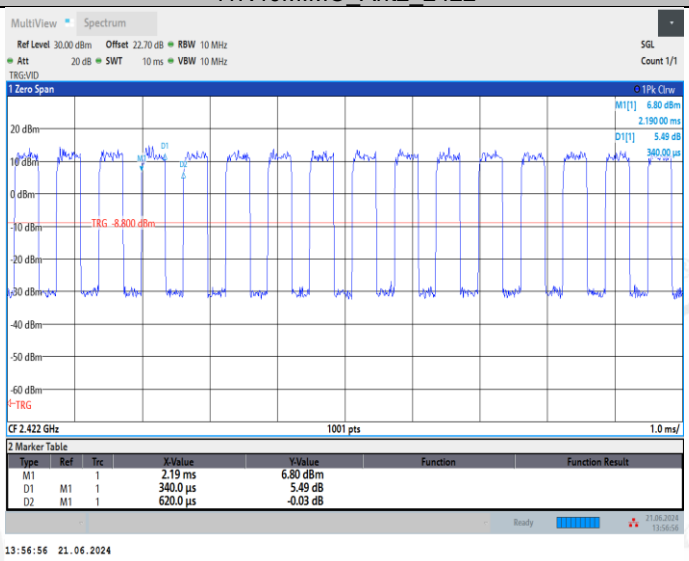

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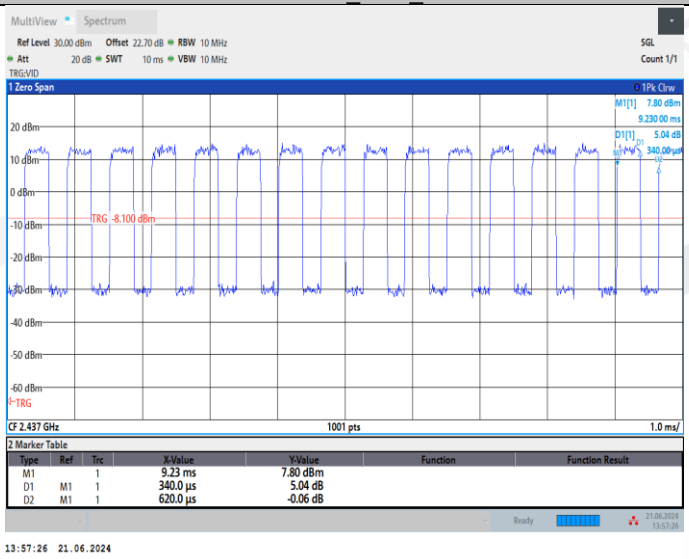

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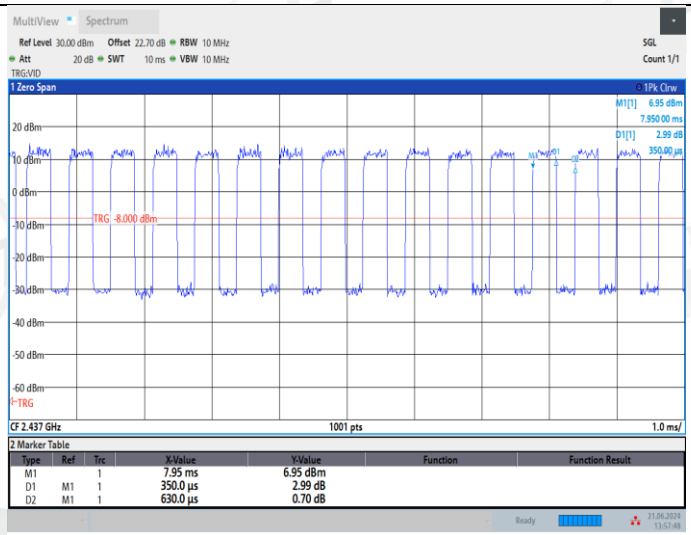

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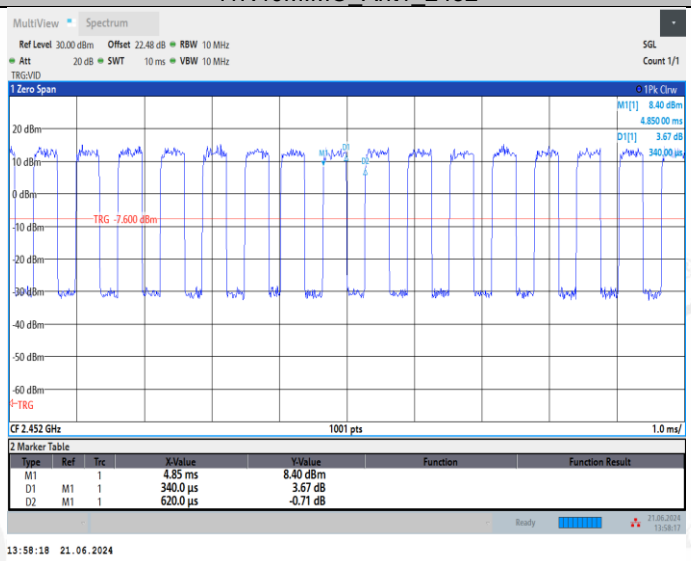

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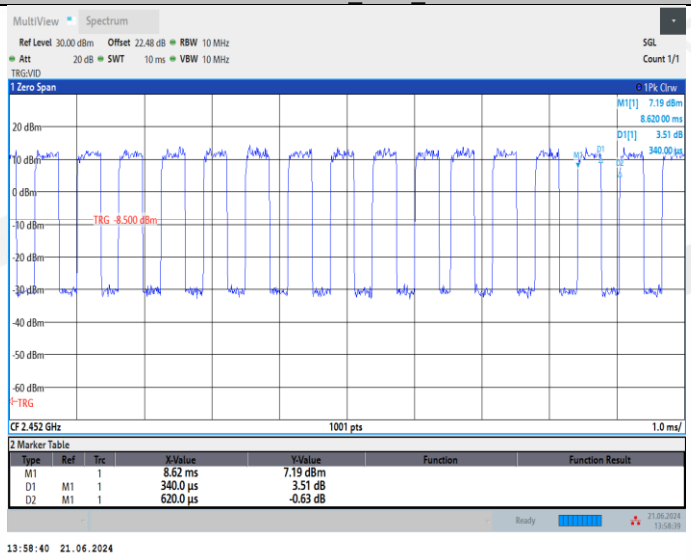

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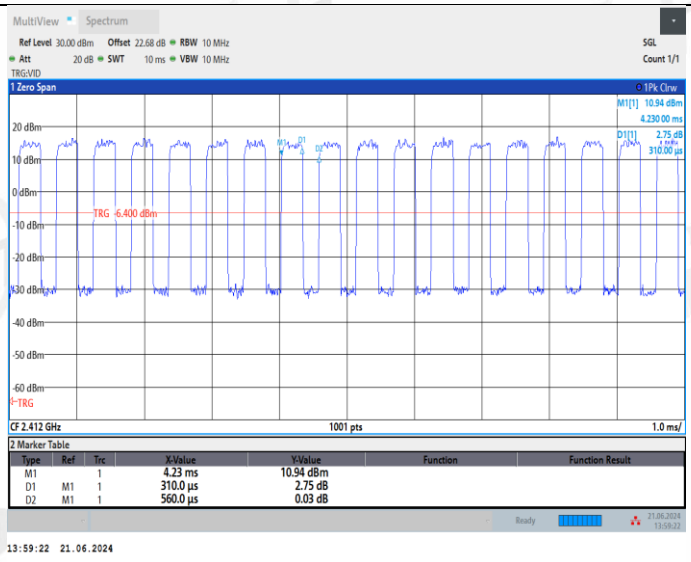

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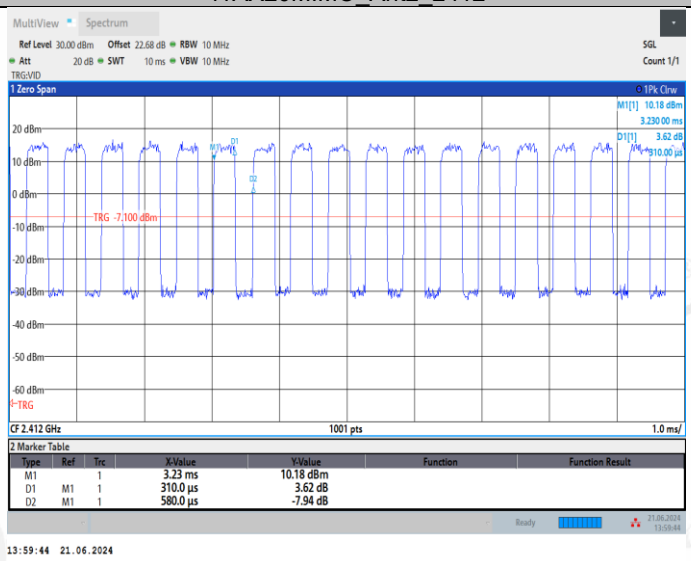

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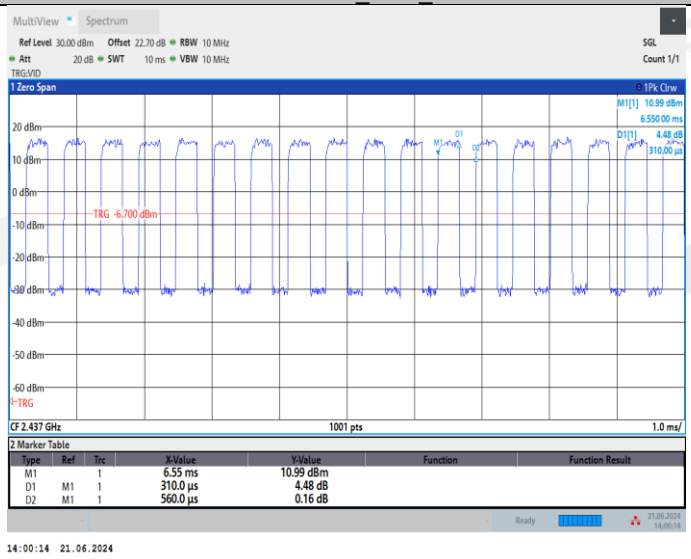

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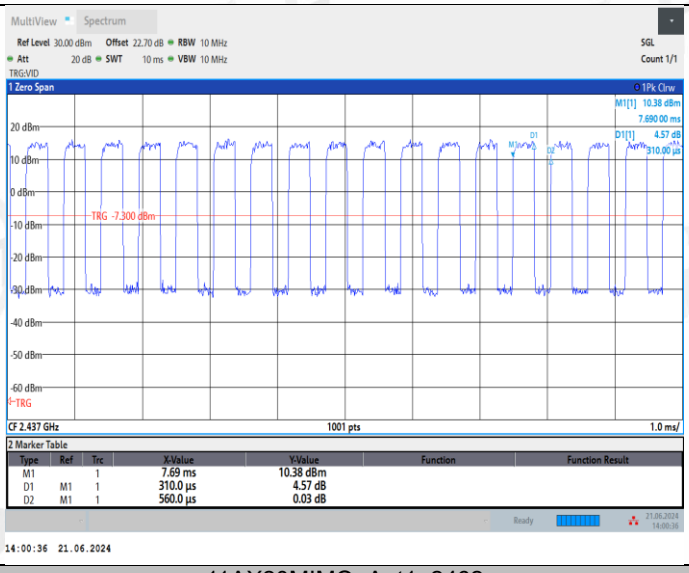

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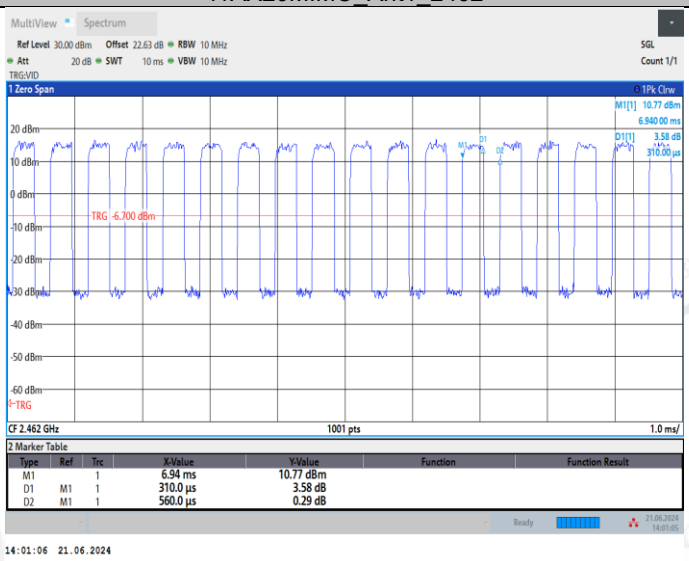

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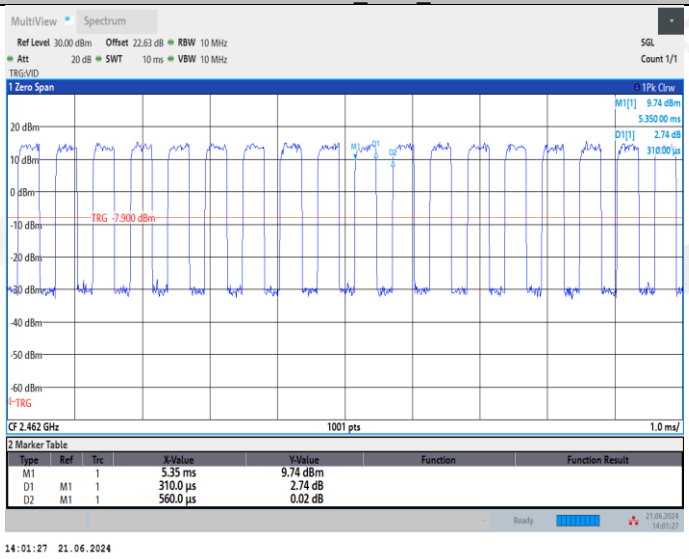

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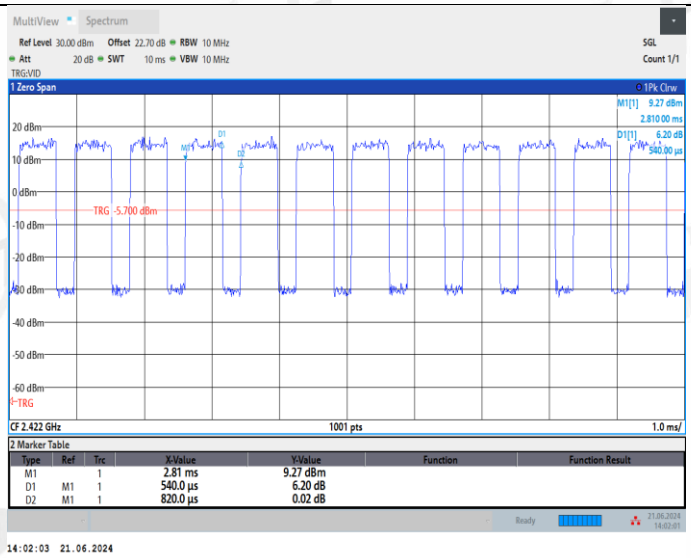

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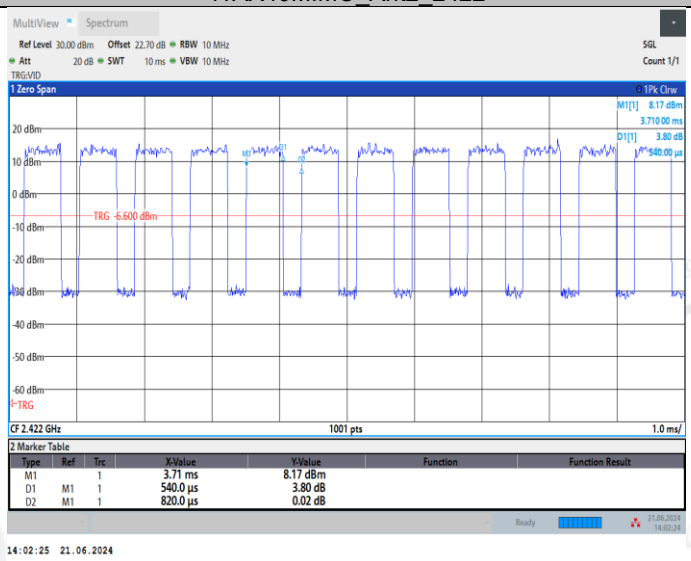

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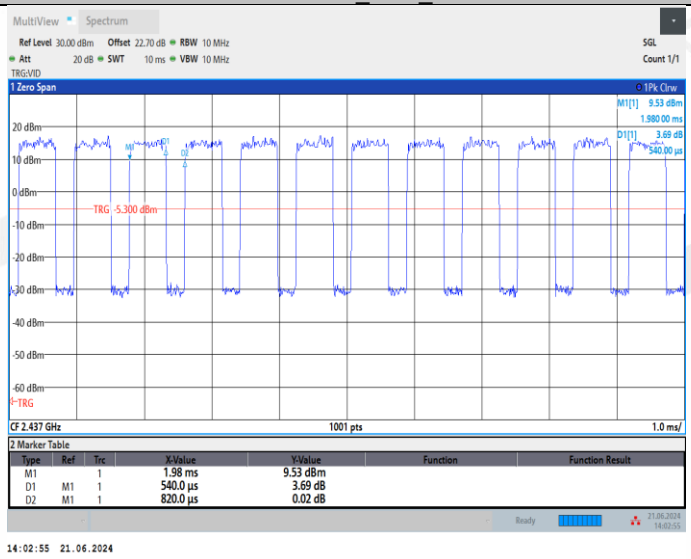

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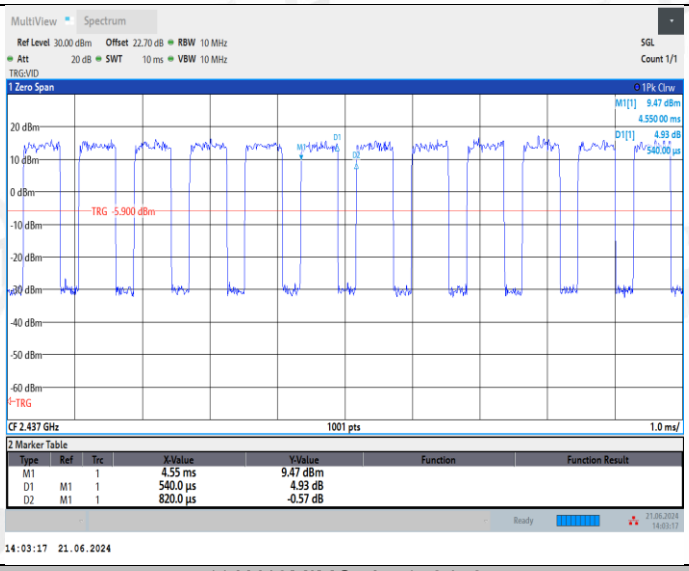

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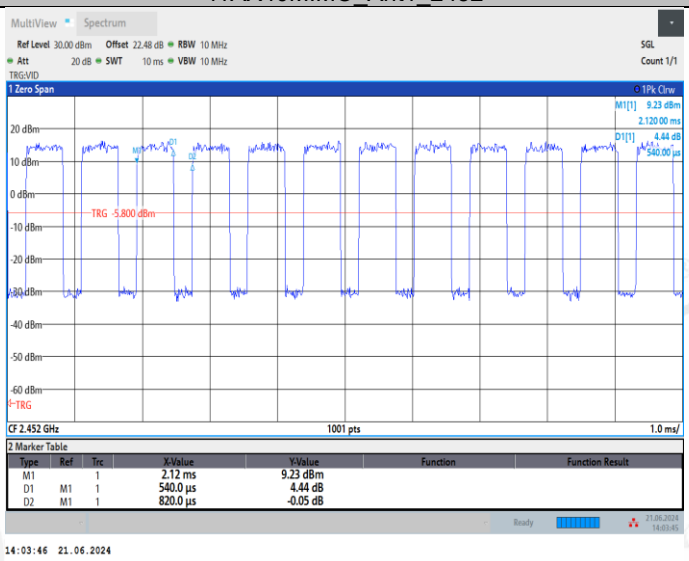

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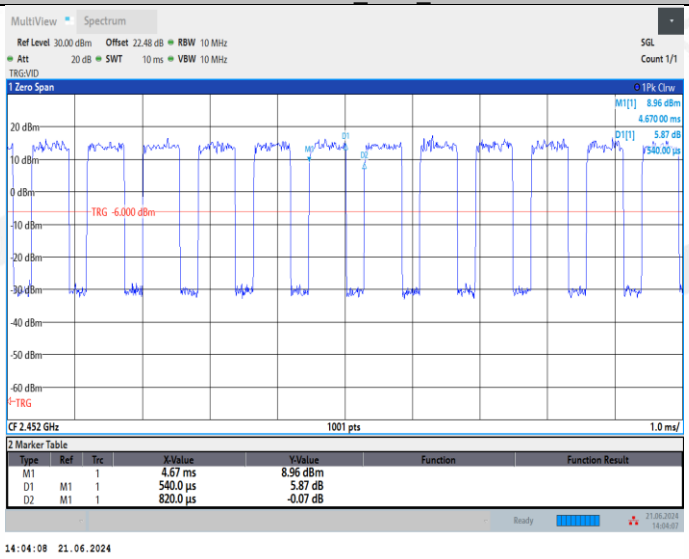

9. Antenna Requirements

9.1. Limit

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For intentional device, according to RSS-Gen issue 5 section 6.8.

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

9.2. Result

The antenna used for this product as Antenna information described in section 2.1 of the report, and there is no other antenna than that furnished by the responsible party shall be used with the device.