



FCC CERTIFICATION TEST REPORT

Applicant	:	Guangzhou FiiO Electronics Technology Co., Ltd.
Address of Applicant	:	2/F, F Building, Hougang Industrial Zone, Shigang, Huangshi West Road, Baiyun District, Guangzhou, China
Manufacturer	:	Guangzhou FiiO Electronics Technology Co., Ltd.
Address of Manufacturer	:	2/F, F Building, Hougang Industrial Zone, Shigang, Huangshi West Road, Baiyun District, Guangzhou, China
Equipment under Test	:	All-In-One Desktop Android HiFi Music Player
Model No.	:	F3051R, F3061R, F3071R, F3081R, F3091R, F3051M, F3061M, F3071M, F3081M, F3091M, F3051S, F3061S, F3071S, F3091S
FCC ID	:	R56-F30511
Test Standard(s)	:	FCC Rules and Regulations Part 15 Subpart C, ANSI C63.10:2013,
Report No.	:	DDT-RE23101912-2E09
Issue Date	:	2024/01/17
Issue By	:	Guangdong Dongdian Testing Service Co., Ltd.
Address of Laboratory	:	Unit 2, Building 1, No. 17, Zongbu 2nd Road, Songshan Lake Park, Dongguan, Guangdong, China, 523808

REPORT

Table of Contents

	Test report declares.....	4
1.	Summary of Test Results.....	7
2.	General Test Information	8
2.1.	Description of EUT	8
2.2.	Accessories of EUT.....	9
2.3.	Assistant equipment used for test.....	9
2.4.	Block diagram of EUT configuration for test	9
2.5.	Deviations of test standard.....	10
2.6.	Test environment conditions	10
2.7.	Test laboratory	10
2.8.	Measurement uncertainty.....	11
3.	Equipment Used During Conductive Test.....	12
4.	6dB Bandwidth	13
4.1.	Block diagram of test setup.....	13
4.2.	Limits	13
4.3.	Test procedure	13
4.4.	Test result.....	14
4.5.	Test graphs	15
5.	99% Bandwidth	19
5.1.	Block diagram of test setup.....	19
5.2.	Limits	19
5.3.	Test procedure	19
5.4.	Test result.....	20
5.5.	Test graphs	21
6.	Conducted Output Power.....	25
6.1.	Block diagram of test setup.....	25
6.2.	Limits	25
6.3.	Test procedure	25
6.4.	Test result.....	26
7.	Power Spectral Density.....	27
7.1.	Block diagram of test setup.....	27
7.2.	Limits	27
7.3.	Test procedure	27
7.4.	Test result.....	28
7.5.	Test graphs	29
8.	Band Edge Compliance (Conducted Method)	33
8.1.	Block diagram of test setup.....	33

8.2.	Limits	33
8.3.	Test procedure	33
8.4.	Test result.....	34
8.5.	Test graphs	34
9.	RF Conducted Spurious Emissions	37
9.1.	Block diagram of test setup.....	37
9.2.	Limits	37
9.3.	Test procedure	37
9.4.	Test result.....	38
9.5.	Test graphs	38
10.	Duty Cycle.....	51
10.1.	Block diagram of test setup.....	51
10.2.	Limit	51
10.3.	Test procedure	51
10.4.	Test result.....	52
10.5.	Test graphs	53
11.	Radiated Spurious Emissions	57
11.1.	Test equipment.....	57
11.2.	Block diagram of test setup.....	57
11.3.	Limit	59
11.4.	Test procedure	61
11.5.	Test result.....	62
12.	Radiated Band Edge Compliance.....	71
12.1.	Test equipment.....	71
12.2.	Block diagram of test setup.....	71
12.3.	Limit	71
12.4.	Test procedure	72
12.5.	Test result.....	72
13.	Power Line Conducted Emission	89
13.1.	Test equipment.....	89
13.2.	Block diagram of test setup.....	89
13.3.	Power Line Conducted Emission Limits	89
13.4.	Test procedure	90
13.5.	Test result.....	90
14.	Antenna Requirements	93
14.1.	Limit.....	93
14.2.	Result	93
15.	Test Setup Photograph	94

16. Photos of the EUT 96

Test Report Declare

Applicant	:	Guangzhou FiiO Electronics Technology Co., Ltd.
Address of Applicant	:	2/F, F Building, Hougang Industrial Zone, Shigang, Huangshi West Road, Baiyun District, Guangzhou, China
Equipment under Test	:	All-In-One Desktop Android HiFi Music Player
Model No.	:	F3051R, F3061R, F3071R, F3081R, F3091R, F3051M, F3061M, F3071M, F3081M, F3091M, F3051S, F3061S, F3071S, F3091S
Manufacturer	:	Guangzhou FiiO Electronics Technology Co., Ltd.
Address of Manufacturer	:	2/F, F Building, Hougang Industrial Zone, Shigang, Huangshi West Road, Baiyun District, Guangzhou, China

Test Standard Used:

FCC Rules and Regulations Part 15 Subpart C

Test Procedure Used:

ANSI C63.10:2013

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.

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

Report No.:	DDT-RE23101912-2E09		
Date of Receipt:	2023/10/24	Date of Test:	2023/10/24-2024/01/10

Prepared By:

Jacky Huang

Jacky Huang/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	2024/01/17	

1. Summary of Test Results

The EUT have been tested according to the applicable standards as referenced below.		
Description of Test Item	Standard	Results
6dB Bandwidth and 99% Bandwidth	FCC Part 15: 15.247(a)(2)	PASS
Conducted Output Power	FCC Part 15: 15.247(b)(3)	PASS
Power Spectral Density	FCC Part 15:15.247(e)	PASS
Band-edge and Spurious Emissions (Conducted)	FCC Part 15: 15.247(d)	PASS
Radiated Spurious Emissions	FCC Part 15: 15.205 FCC Part 15: 15.209 FCC Part 15: 15.247(d)	PASS
Radiated Band Edge Compliance	FCC Part 15: 15.205 FCC Part 15: 15.209 FCC Part 15: 15.247(d)	PASS
Power Line Conducted Emission	FCC Part 15: 15.207(a)	PASS
Antenna requirement	FCC Part 15: 15.203	PASS

2. General Test Information

2.1. Description of EUT

EUT Name	: All-In-One Desktop Android HiFi Music Player
Model Number	: F3051R, F3061R, F3071R, F3081R, F3091R, F3051M, F3061M, F3071M, F3081M, F3091M, F3051S, F3061S, F3071S, F3091S
Model Difference	: Only the model name and appearance are different, any other is the same. The test model is F3051R.
EUT Function Description	: Please reference user manual of this device
Power Supply	: AC 100-240V~50/60Hz, 40W
Radio Specification	: Bluetooth (BR/EDR/LE), WLAN (2.4 GHz): IEEE 802.11b/g/n, WLAN (5 GHz): IEEE 802.11a/n/ac
Operation Frequency	: Bluetooth (BR/EDR/LE): 2402 MHz-2480 MHz IEEE 802.11b/g/n: 2412 MHz to 2472 MHz, IEEE 802.11a/n/ac: 5180 MHz to 5240 MHz, 5260 MHz to 5320 MHz, 5500 MHz to 5720 MHz, 5745 MHz to 5825 MHz
Modulation	: Bluetooth BR/EDR: GFSK, $\pi/4$ -DQPSK, 8DPSK Bluetooth LE: GFSK IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g/a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac: OFDM (256QAM, 64QAM, 16QAM, QPSK, BPSK)
Sample Number	: S23101912-01

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

Note 2: “☑” means to be chosen or applicable; “☐” means don't to be chosen or not applicable; This note applies to entire report.

Note 3: This report only for WLAN (2.4 GHz): IEEE 802.11b/g/n.

Note 4: Simultaneously transmission condition: N/A.

Note 5: Antenna information:

WLAN (2.4 GHz) Antenna information	
Antenna Type	: FPC
Antenna Gain (dBi)	: 7.25

Note 6: Channel information:

Channel information					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	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 7: 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. Assistant equipment used for test

Assistant equipment	Manufacturer	Model number	EMC Compliance	SN
Laptop	Lenovo	X201	N/A	00154-290-415-484

2.4. Block diagram of EUT configuration for test



The QRCT4.exe was used to control EUT work in Continuous Tx mode and select test channel, wireless mode as below table.

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

Tested mode, channel, and data rate information				
Mode	Setting Tx Power	data rate (Mbps) (see Note)	Channel	Frequency (MHz)
IEEE 802.11b	Default	1	LCH: CH1	2412
	Default	1	MCH: CH6	2437
	Default	1	HCH: CH11	2462
IEEE 802.11g	Default	6	LCH: CH1	2412
	Default	6	MCH: CH6	2437
	Default	6	HCH: CH11	2462
IEEE 802.11n HT20	Default	MCS 0	LCH: CH1	2412
	Default	MCS 0	MCH: CH6	2437
	Default	MCS 0	HCH: CH11	2462
IEEE 802.11n HT40	Default	MCS 0	LCH: CH3	2422
	Default	MCS 0	MCH: CH6	2437
	Default	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

Temperature range:	+15°C to +35 °C
Humidity range:	20% to 75%
Pressure range:	86 kPa to 106 kPa

2.7. Test laboratory

Guangdong Dongdian Testing Service Co., Ltd.

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 × 10 ⁻⁸ (Antenna couple method)
	5.5 × 10 ⁻⁸ (Conducted method)
Conducted spurious emissions	0.86 dB (10 MHz ≤ f < 3.6 GHz);
	1.40 dB (3.6 GHz ≤ f < 8 GHz)
	1.66 dB (8 GHz ≤ f < 26.5 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)

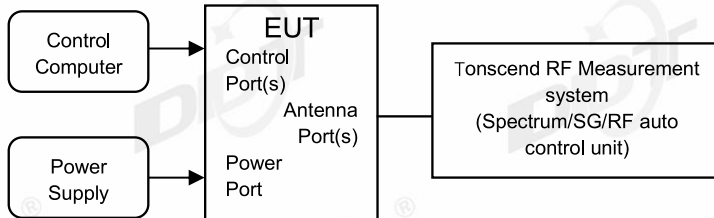
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3. Equipment Used During Conductive Test

Equipment	Manufacturer	Model No.	Serial Number	Due Date	Cal. Interval
☑RF Connected Test (RF Measurement System 3#)					
SIGNAL ANALYZER	R&S	FSV40	101407	2024/07/11	1 Year
Wideband Radio Communication Tester	R&S	CMW500	117491	2024/04/26	1 Year
EXG Analog Signal Generator	KEYSIGHT	N5173B	MY62153058	2024/07/11	1 Year
MXG Vector Signal Generator	Agilent	N5182A	MY48180912	2024/04/22	1 Year
RF Control Unit	Tonscend	JS0806-2	20C8060230	2024/04/26	1 Year
TEMP&HUMI Programmable Chamber	ZHIXIANG	ZXGDJS-150L	ZX170110-A	2024/05/14	1 Year
Test Software	Tonscend	JS1120-3	Ver.3.2.22	N/A	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:

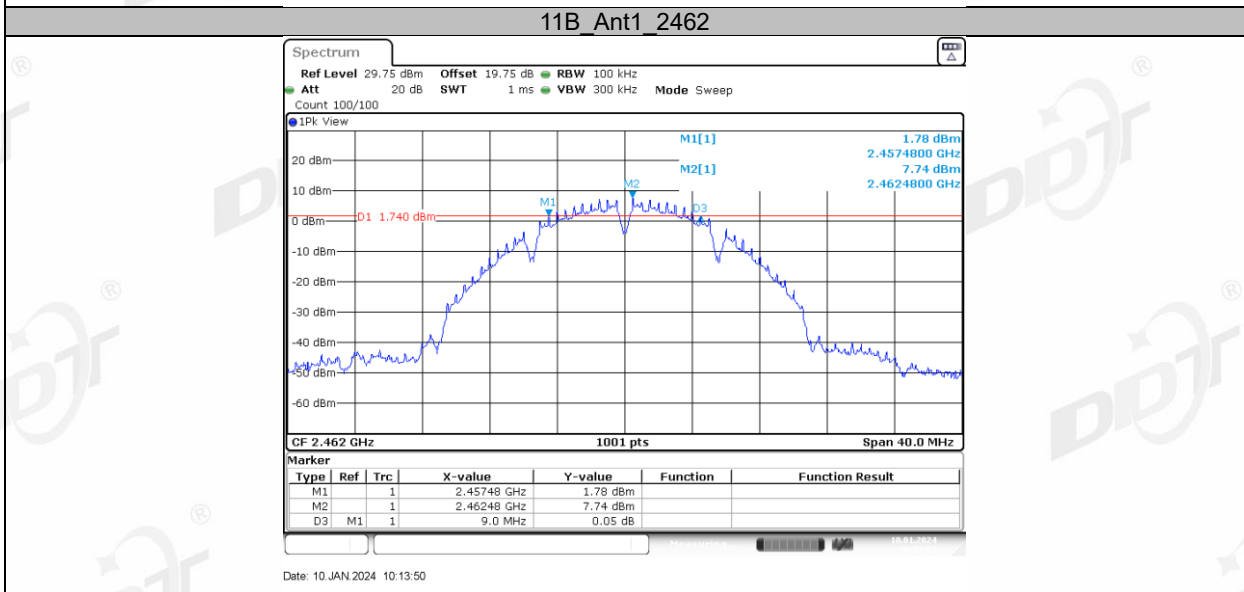
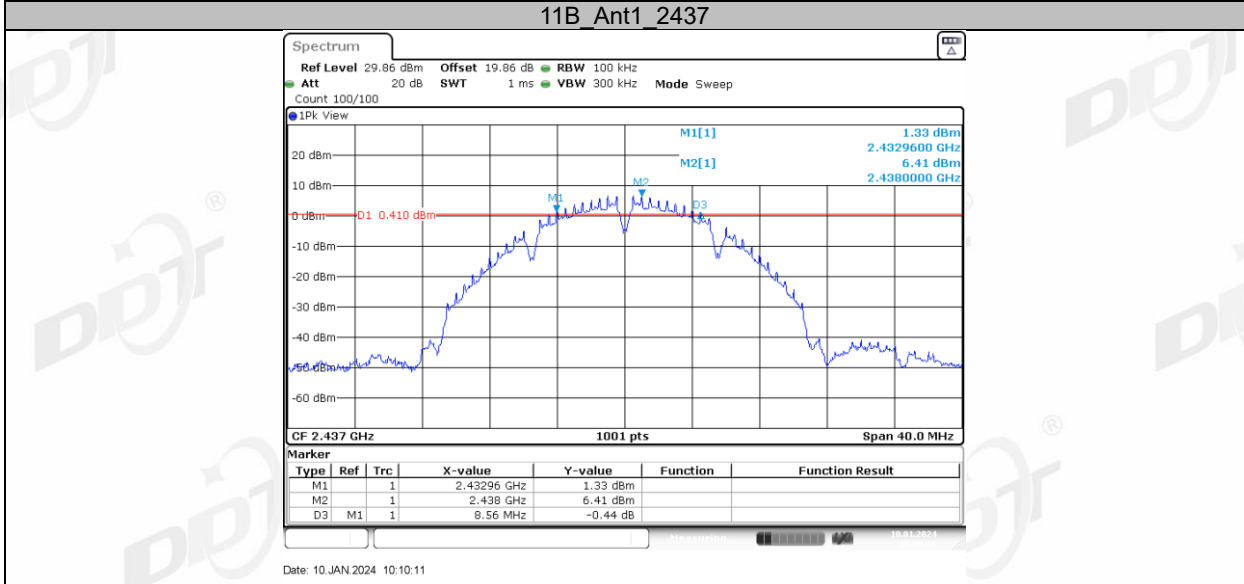
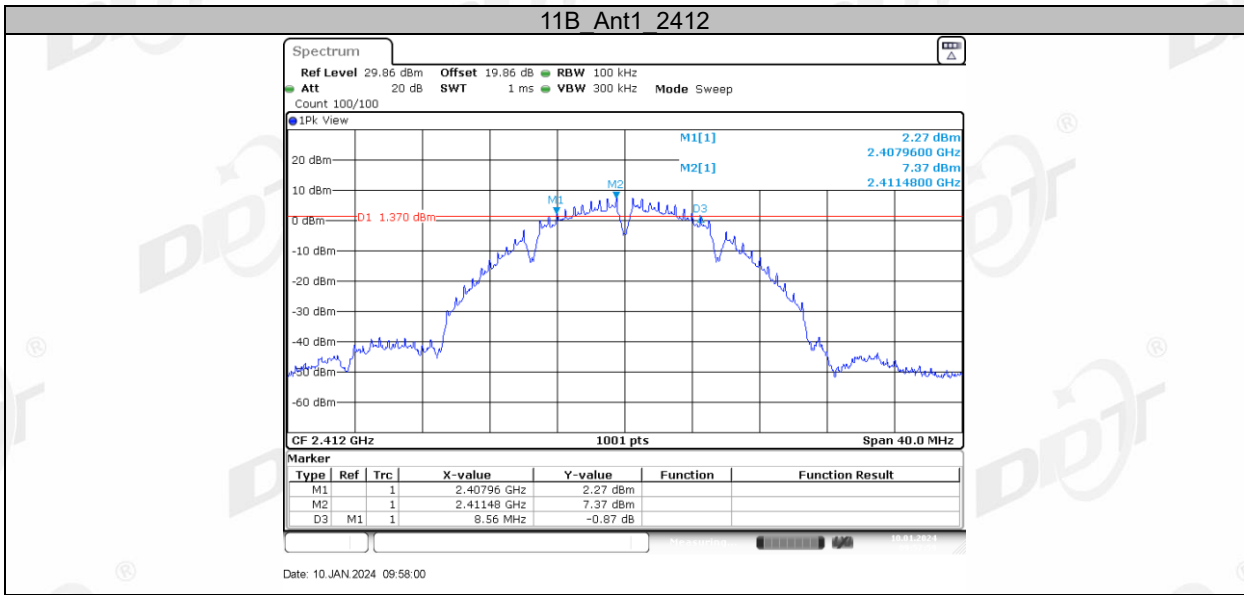
RBW:	100 kHz
VBW:	$\geq [3 \times \text{RBW}]$
Detector Mode:	peak
Sweep time:	auto
Trace mode	max hold
- (5) Allow the trace to stabilize, measure the 6 dB bandwidth of signal, and record the results in the report.

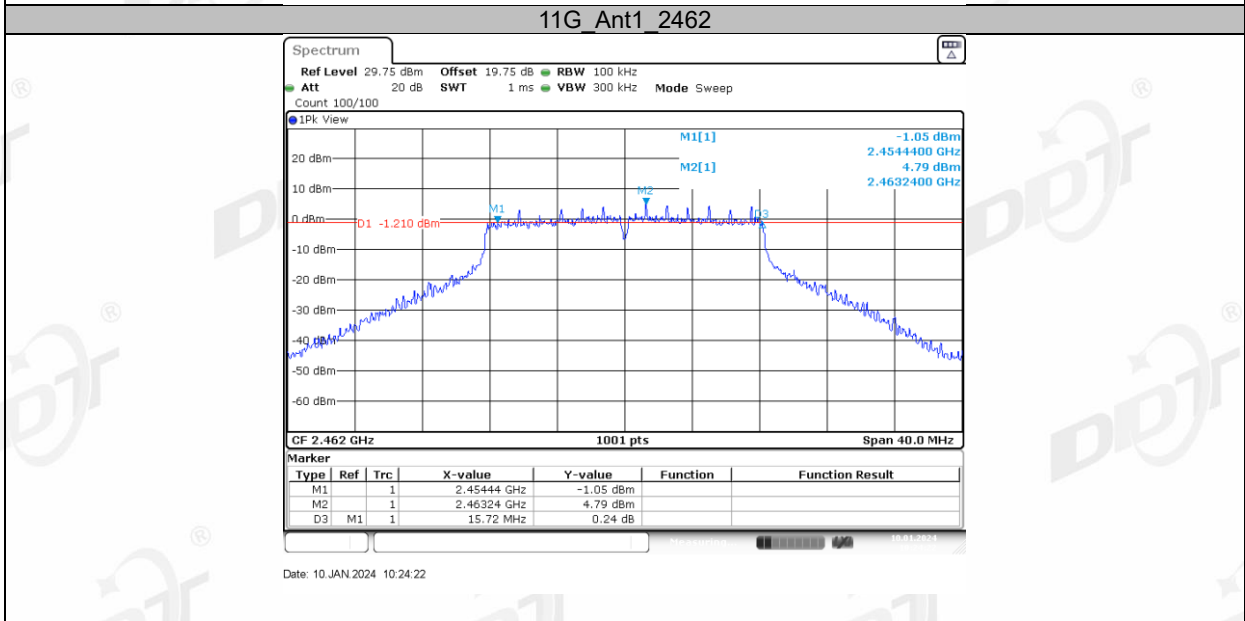
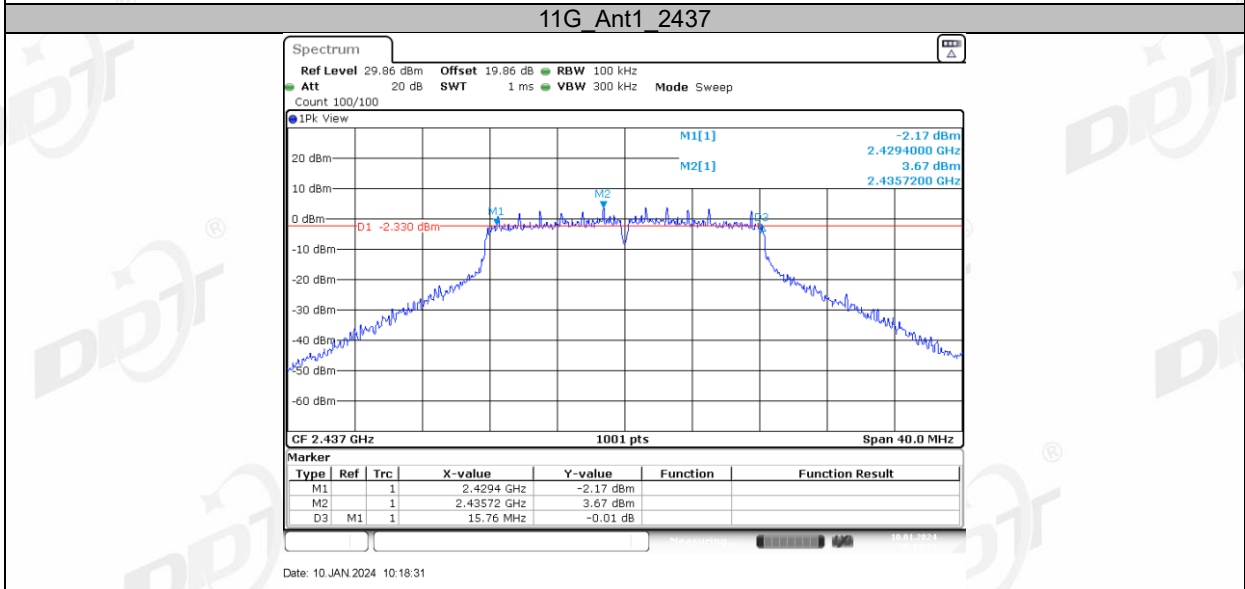
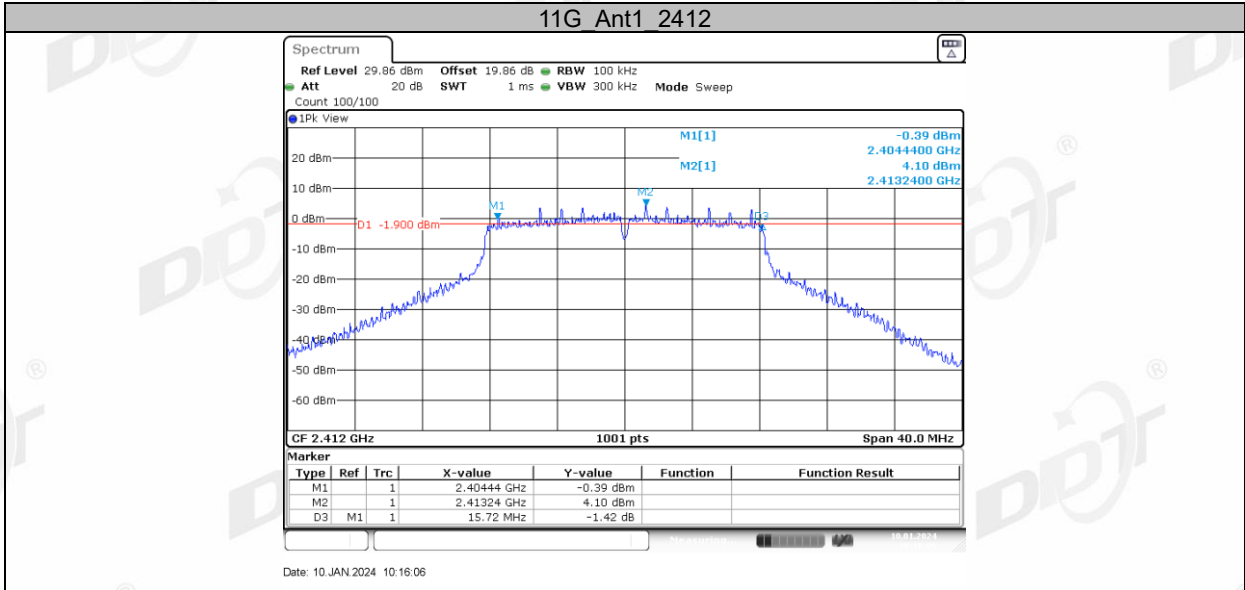
4.4. Test result

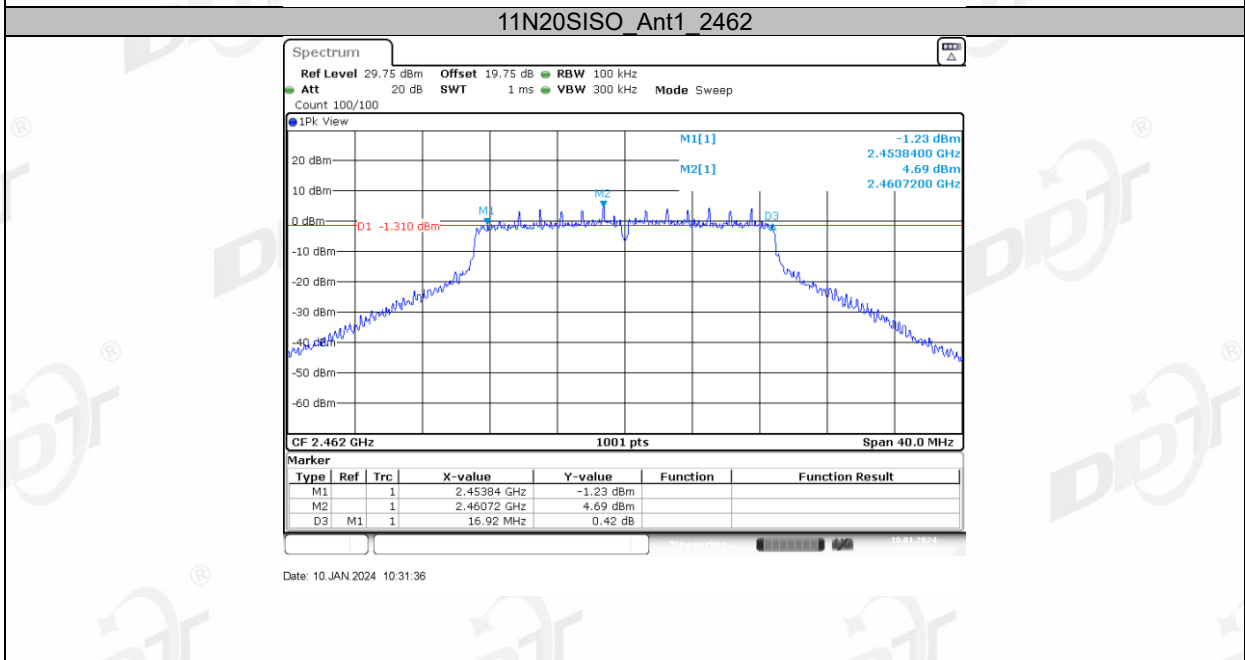
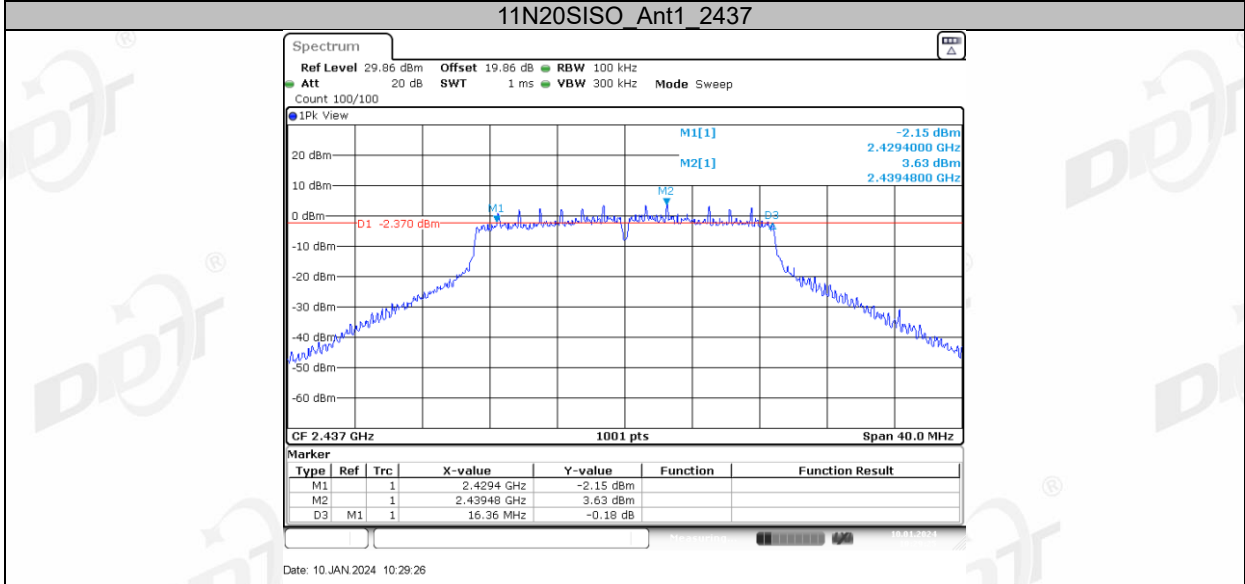
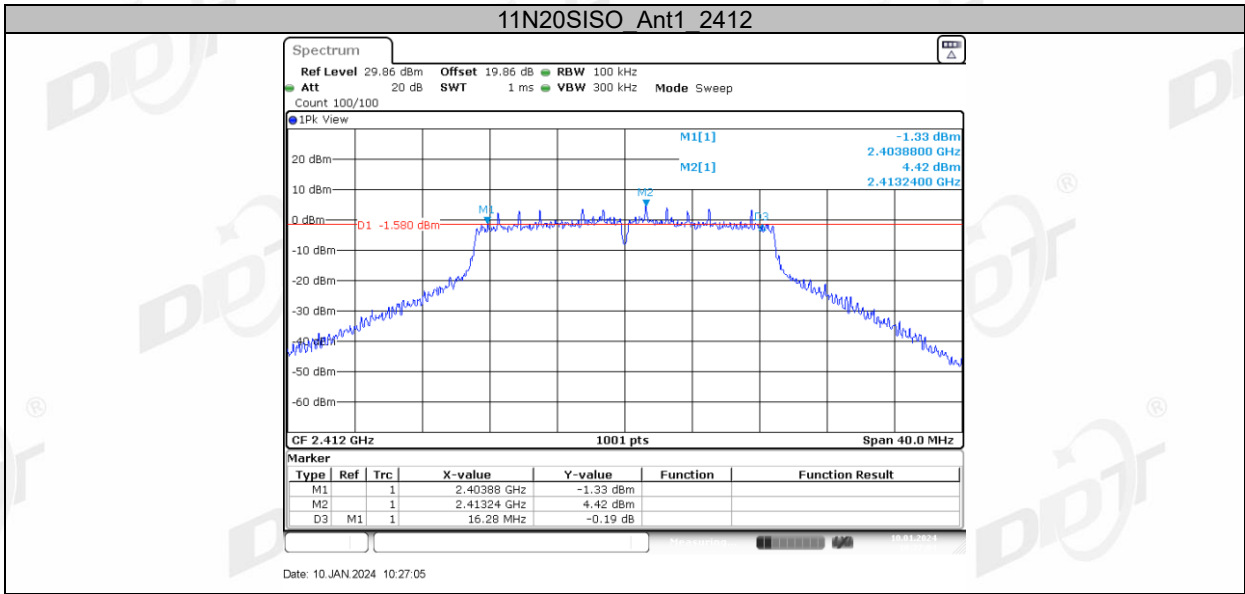
Test Engineer:	Zhongyao	Test Site:	RF Measurement System 3#
Ambient Condition:	25.3°C, 45.7%RH	Test Date:	2024.1.10
Test Power Supply:	AC 230V	EUT:	All-In-One Desktop Android HiFi Music Player
Sample Number:	S23101912-01	Model No.:	F3051R

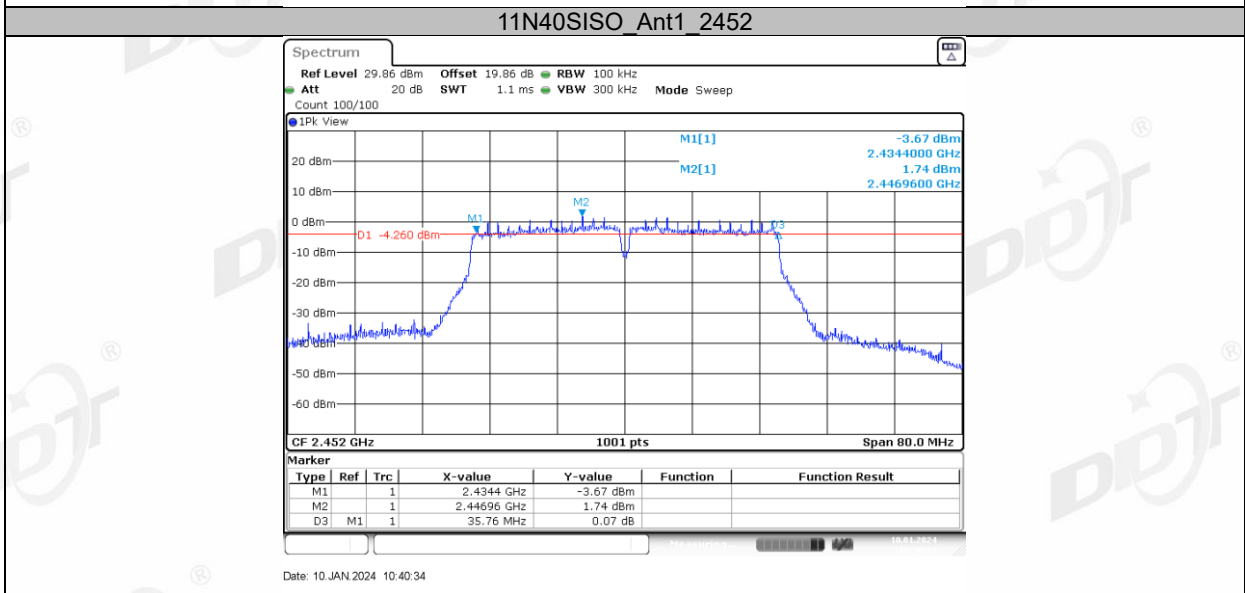
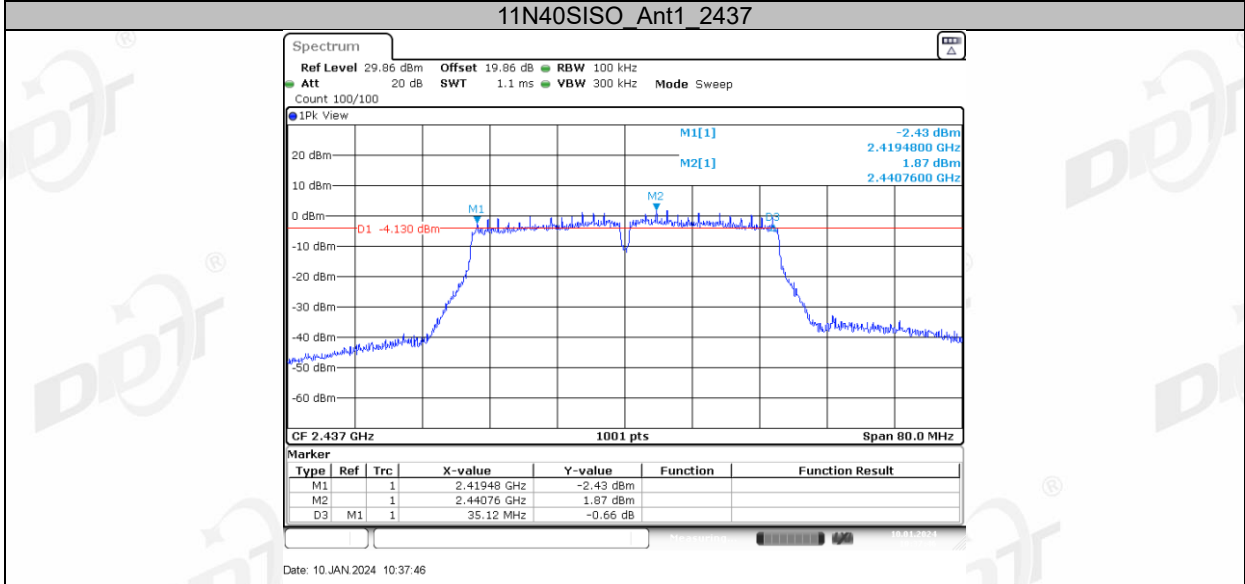
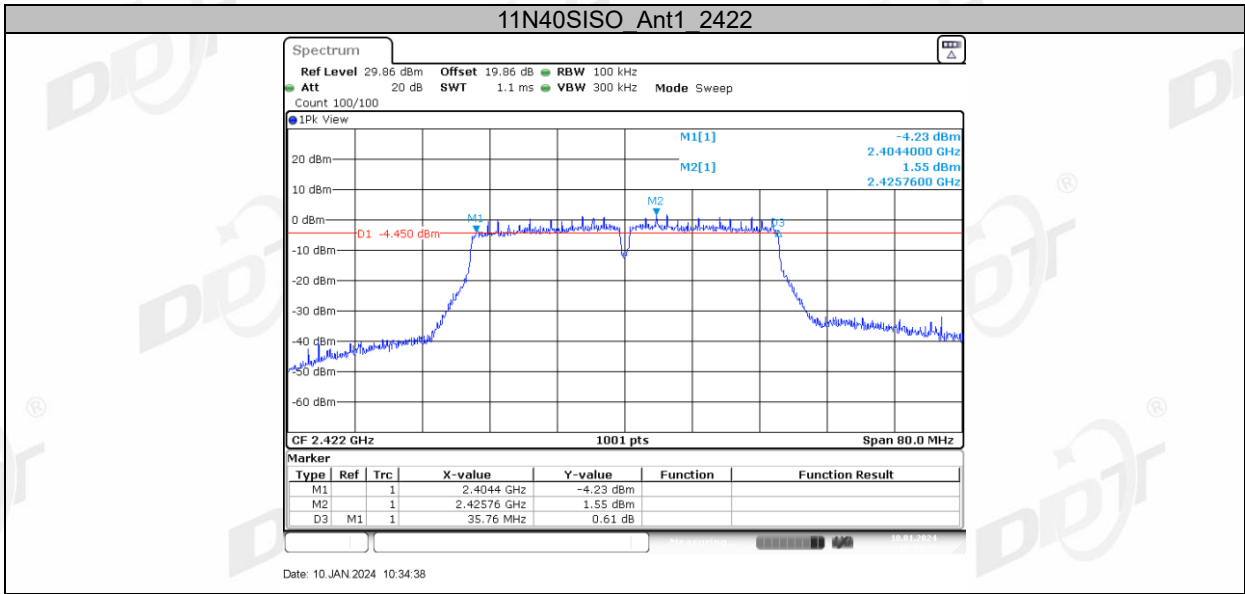
Test Mode	Antenna	Frequency [MHz]	DTS BW [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
11B	Ant1	2412	8.56	2407.96	2416.52	0.5	PASS
		2437	8.56	2432.96	2441.52	0.5	PASS
		2462	9.00	2457.48	2466.48	0.5	PASS
11G	Ant1	2412	15.72	2404.44	2420.16	0.5	PASS
		2437	15.76	2429.40	2445.16	0.5	PASS
		2462	15.72	2454.44	2470.16	0.5	PASS
11N20SISO	Ant1	2412	16.28	2403.88	2420.16	0.5	PASS
		2437	16.36	2429.40	2445.76	0.5	PASS
		2462	16.92	2453.84	2470.76	0.5	PASS
11N40SISO	Ant1	2422	35.76	2404.40	2440.16	0.5	PASS
		2437	35.12	2419.48	2454.60	0.5	PASS
		2452	35.76	2434.40	2470.16	0.5	PASS

4.5. Test graphs



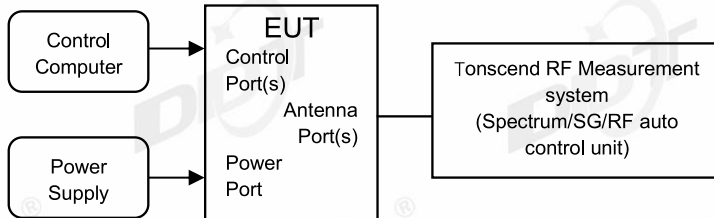






5. 99% Bandwidth

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:

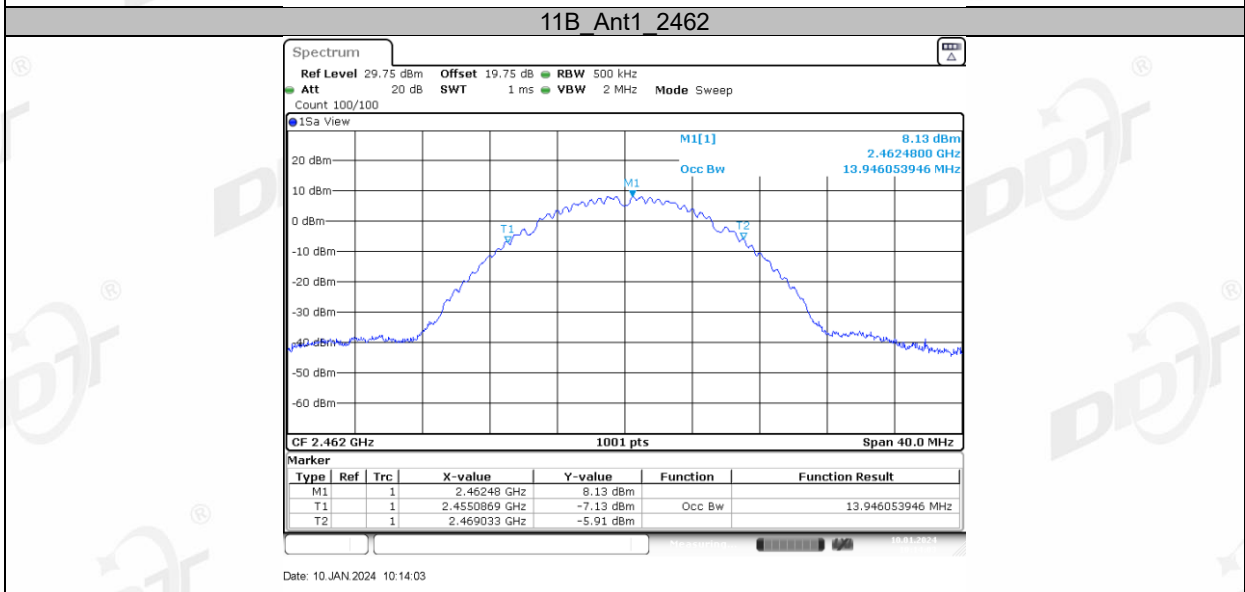
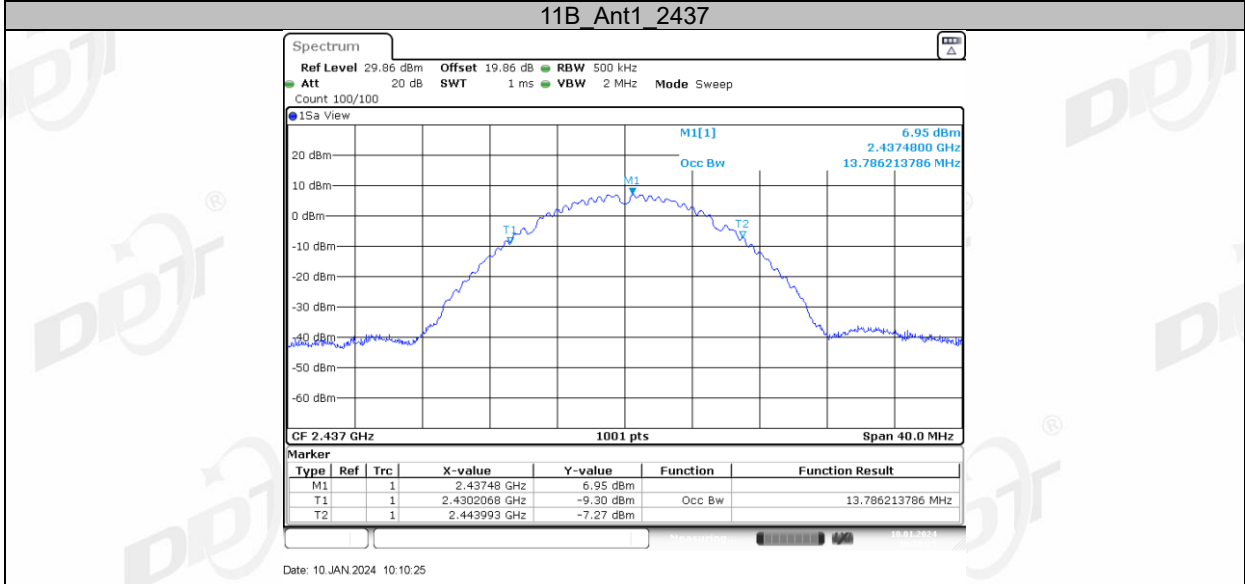
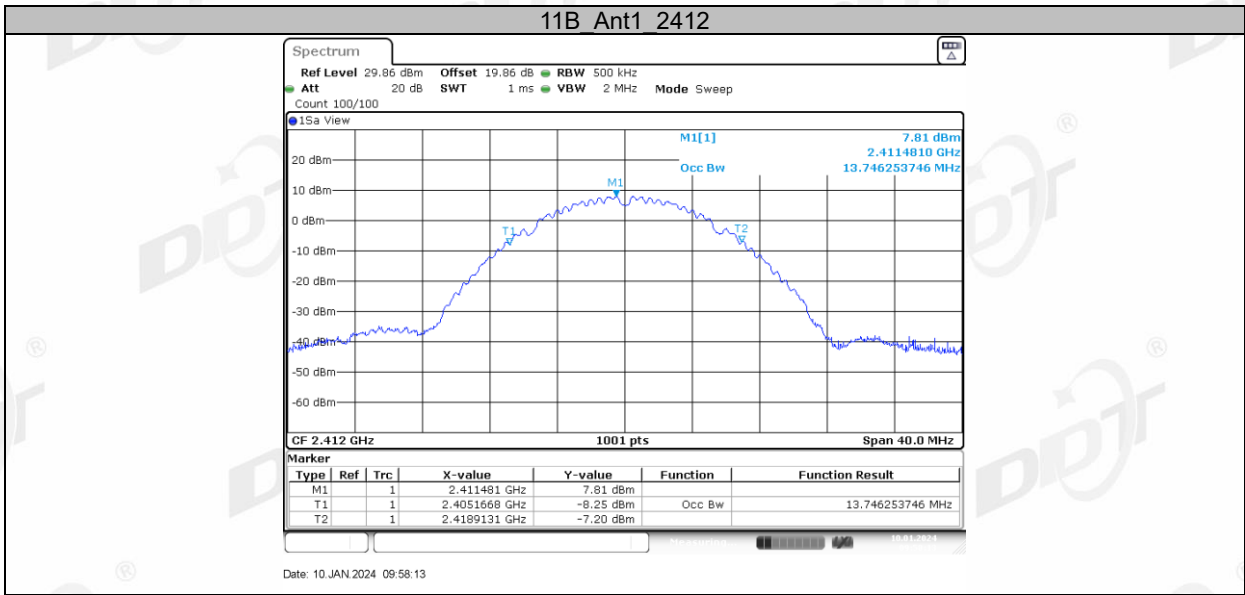
RBW:	1% to 5% of the OBW
VBW:	approximately three times RBW
Span:	between 1.5 times and 5.0 times the OBW
Detector Mode:	peak
Sweep time:	auto
Trace mode	max hold
- (5) Allow the trace to stabilize, measure the 99% bandwidth of signal, and record the results in the report.

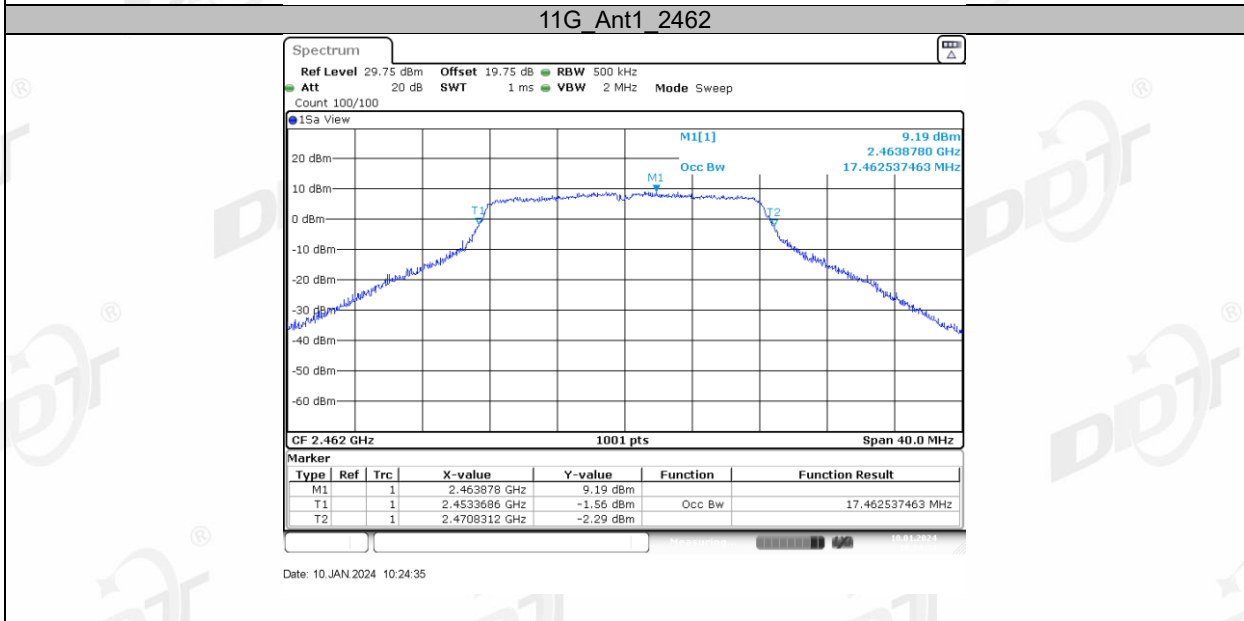
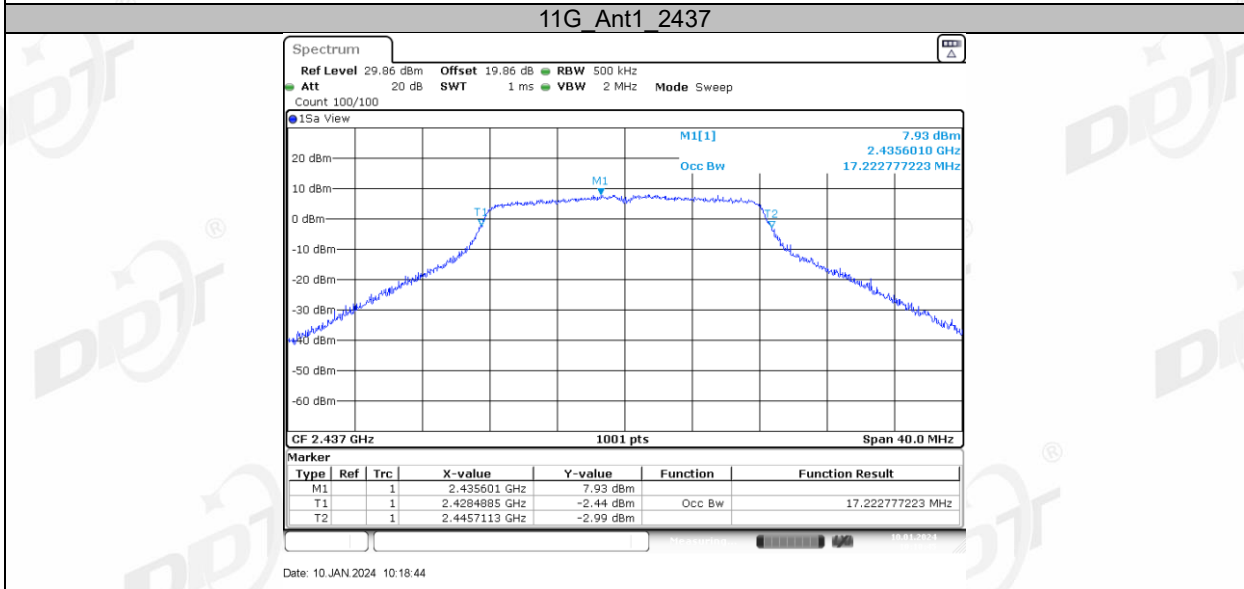
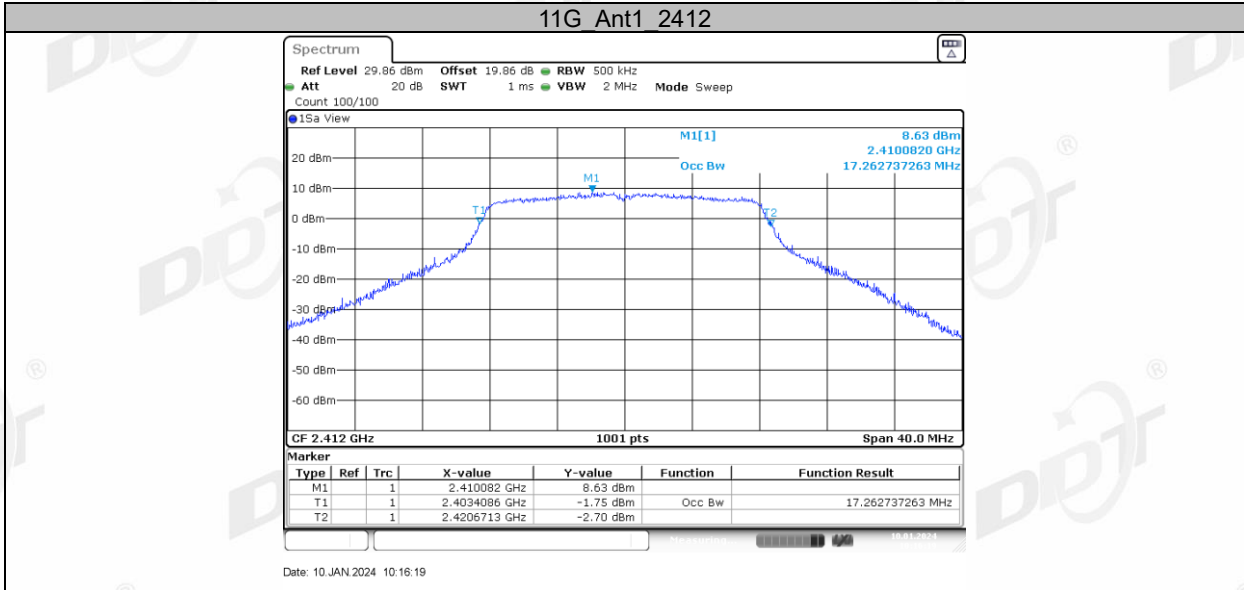
5.4. Test result

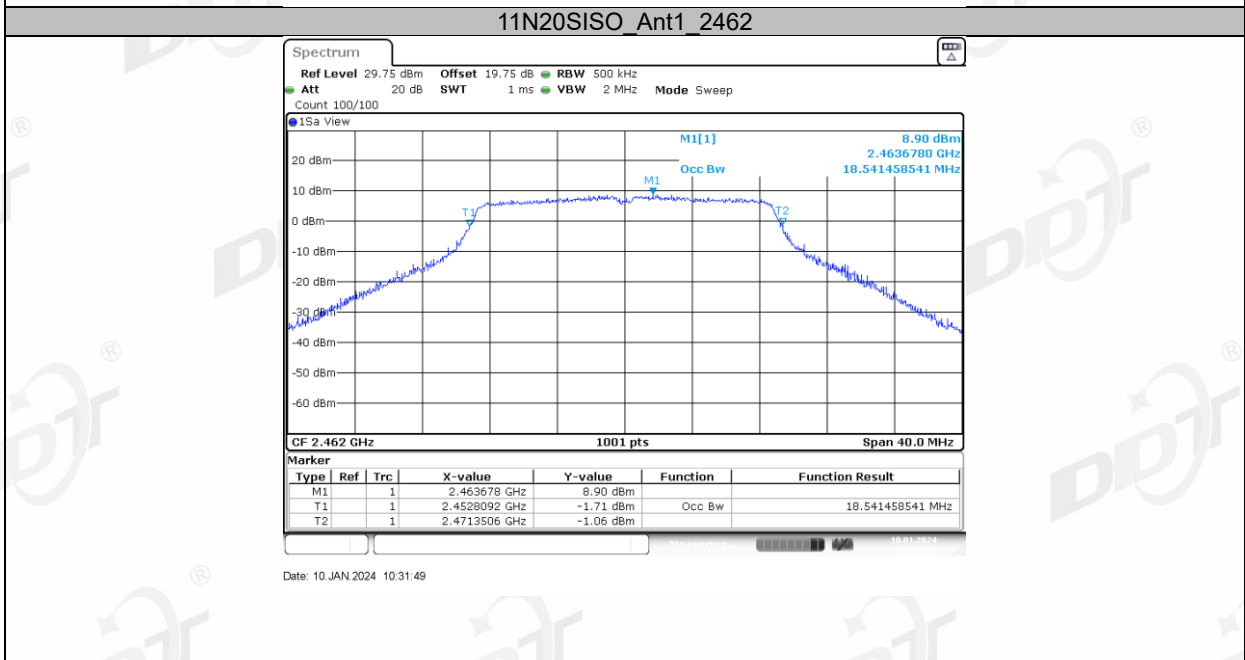
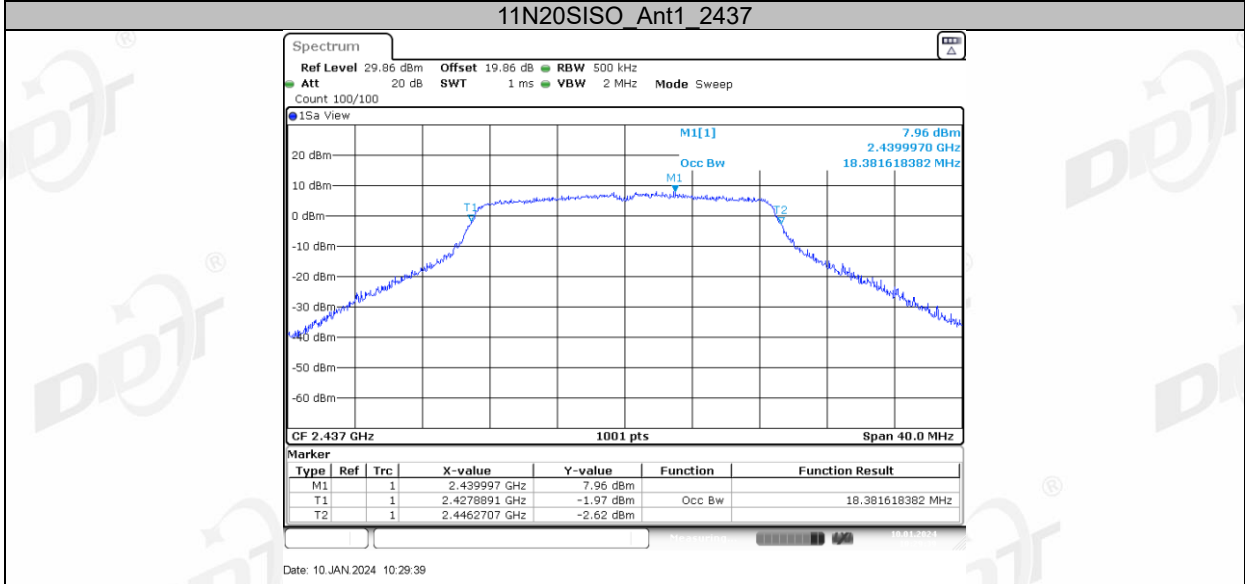
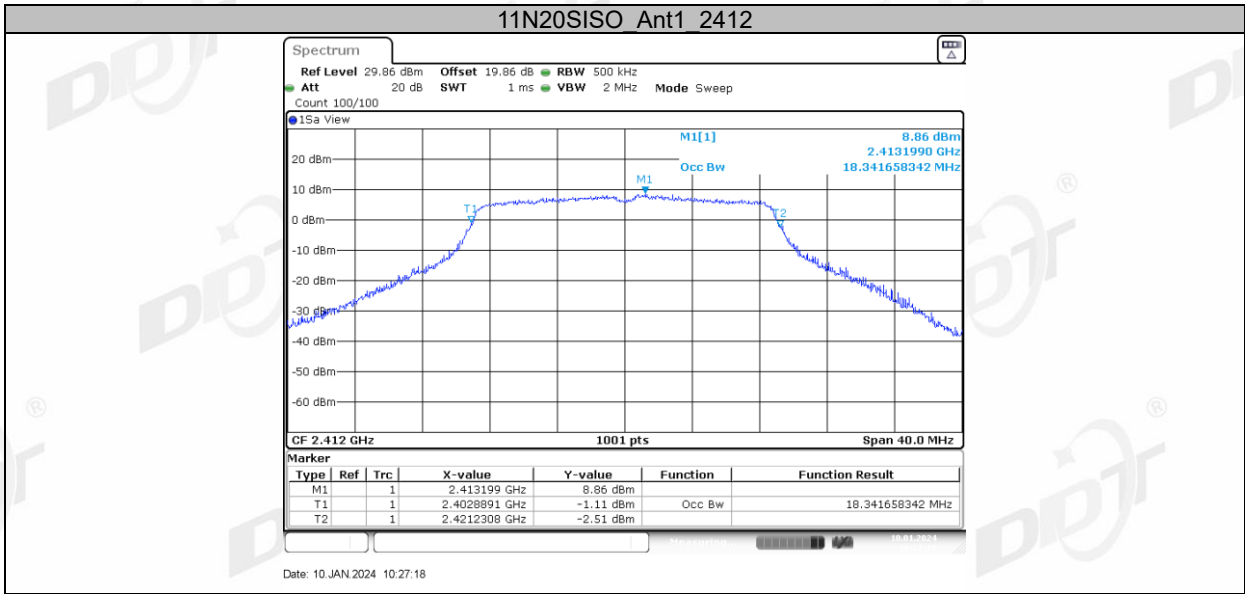
Test Engineer:	Zhongyao	Test Site:	RF Measurement System 3#
Ambient Condition:	25.3°C, 45.7%RH	Test Date:	2024.1.10
Test Power Supply:	AC 230V	EUT:	All-In-One Desktop Android HiFi Music Player
Sample Number:	S23101912-01	Model No.:	F3051R

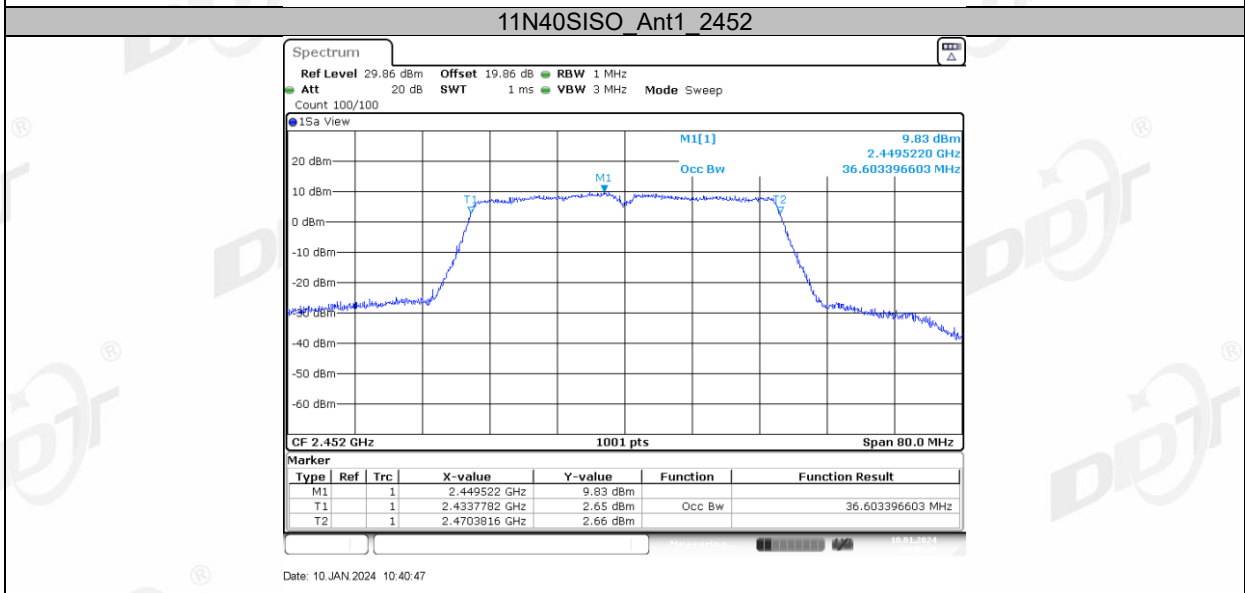
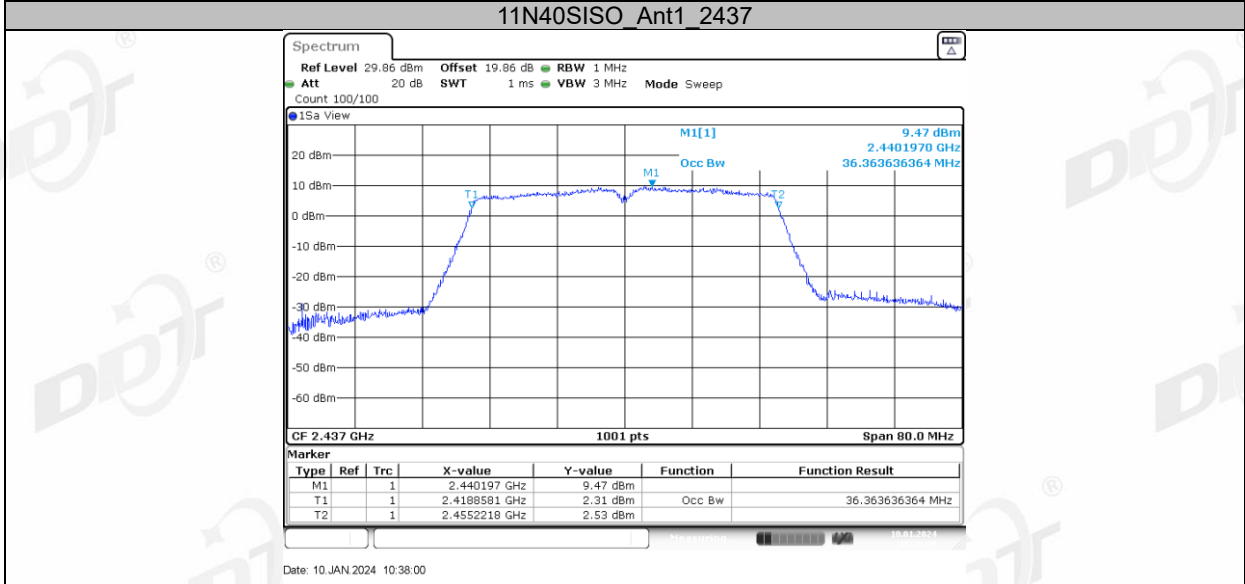
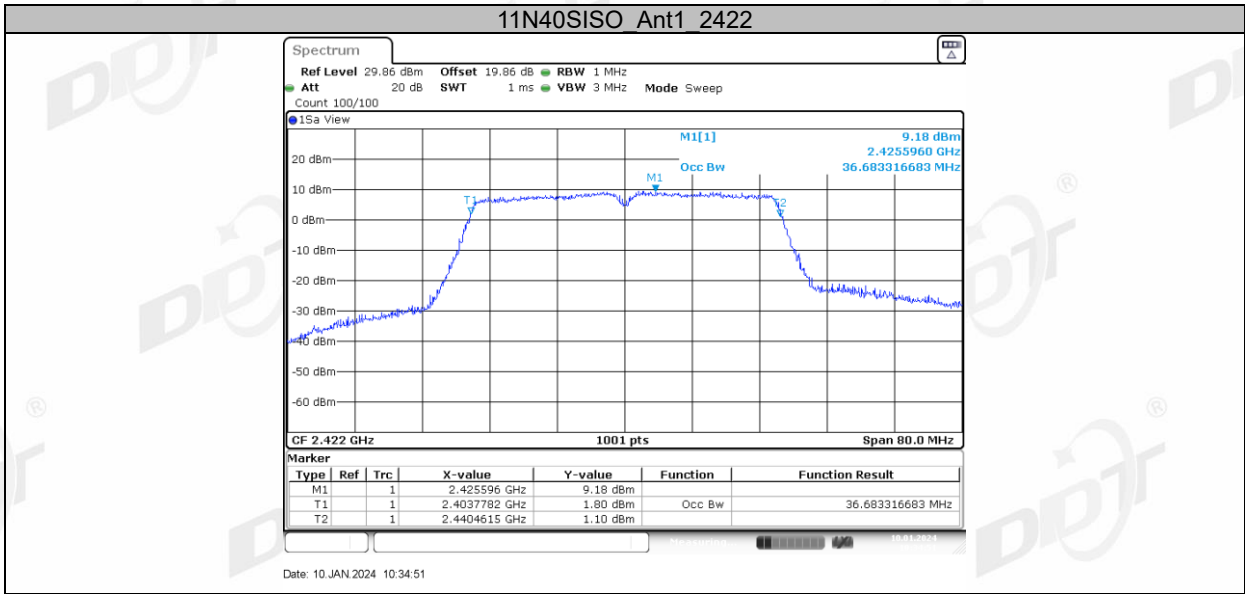
Test Mode	Antenna	Channel Frequency [MHz]	OCB [MHz]	FL [MHz]	FH [MHz]	Limit [MHz]	Verdict
11B	Ant1	2412	13.746	2405.1668	2418.9131	---	---
		2437	13.786	2430.2068	2443.9930	---	---
		2462	13.946	2455.0869	2469.0330	---	---
11G	Ant1	2412	17.263	2403.4086	2420.6713	---	---
		2437	17.223	2428.4885	2445.7113	---	---
		2462	17.463	2453.3686	2470.8312	---	---
11N20SISO	Ant1	2412	18.342	2402.8891	2421.2308	---	---
		2437	18.382	2427.8891	2446.2707	---	---
		2462	18.541	2452.8092	2471.3506	---	---
11N40SISO	Ant1	2422	36.683	2403.7782	2440.4615	---	---
		2437	36.364	2418.8581	2455.2218	---	---
		2452	36.603	2433.7782	2470.3816	---	---

5.5. Test graphs



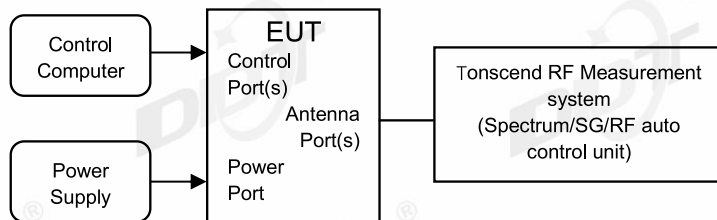






6. Conducted Output Power

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

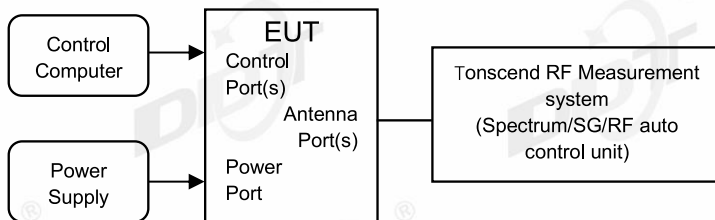
Test Engineer:	Zhongyao	Test Site:	RF Measurement System 3#
Ambient Condition:	25.3°C, 45.7%RH	Test Date:	2024.1.10
Test Power Supply:	AC 230V	EUT:	All-In-One Desktop Android HiFi Music Player
Sample Number:	S23101912-01	Model No.:	F3051R

Test Mode	Antenna	Frequency [MHz]	Peak Conducted Output Power	Limit [dBm]	EIRP [dBm]	EIRP Limit [dBm]	Verdict
11B	Ant1	2412	17.59	≤30.00	24.84	≤36.00	PASS
		2437	16.78	≤30.00	24.03	≤36.00	PASS
		2462	16.99	≤30.00	24.24	≤36.00	PASS
11G	Ant1	2412	17.66	≤30.00	24.91	≤36.00	PASS
		2437	17.99	≤30.00	25.24	≤36.00	PASS
		2462	18.00	≤30.00	25.25	≤36.00	PASS
11N20SISO	Ant1	2412	17.65	≤30.00	24.90	≤36.00	PASS
		2437	17.90	≤30.00	25.15	≤36.00	PASS
		2462	17.86	≤30.00	25.11	≤36.00	PASS
11N40SISO	Ant1	2422	17.81	≤30.00	25.06	≤36.00	PASS
		2437	18.00	≤30.00	25.25	≤36.00	PASS
		2452	17.95	≤30.00	25.20	≤36.00	PASS

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

7. Power Spectral Density

7.1. Block diagram of test setup



7.2. Limits

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

7.3. Test procedure

- (1) The test according to ANSI C63.10-2013 clause 11.10.5.
- (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 Power Spectral Density measurement:

Center frequency	DTS Channel center frequency
RBW:	$3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$
VBW:	$\geq 3\text{RBW}$
Span	1.5 times the DTS bandwidth
Detector Mode:	RMS
Sweep time:	auto
Trace mode:	max hold
Trace:	Employ trace averaging (rms) mode over a minimum of 100 traces.
- (5) Add $[10 \log (1 / D)]$, where D is the duty cycle measured in step a), to the measured PSD to compute the average PSD during the actual transmission time.
If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

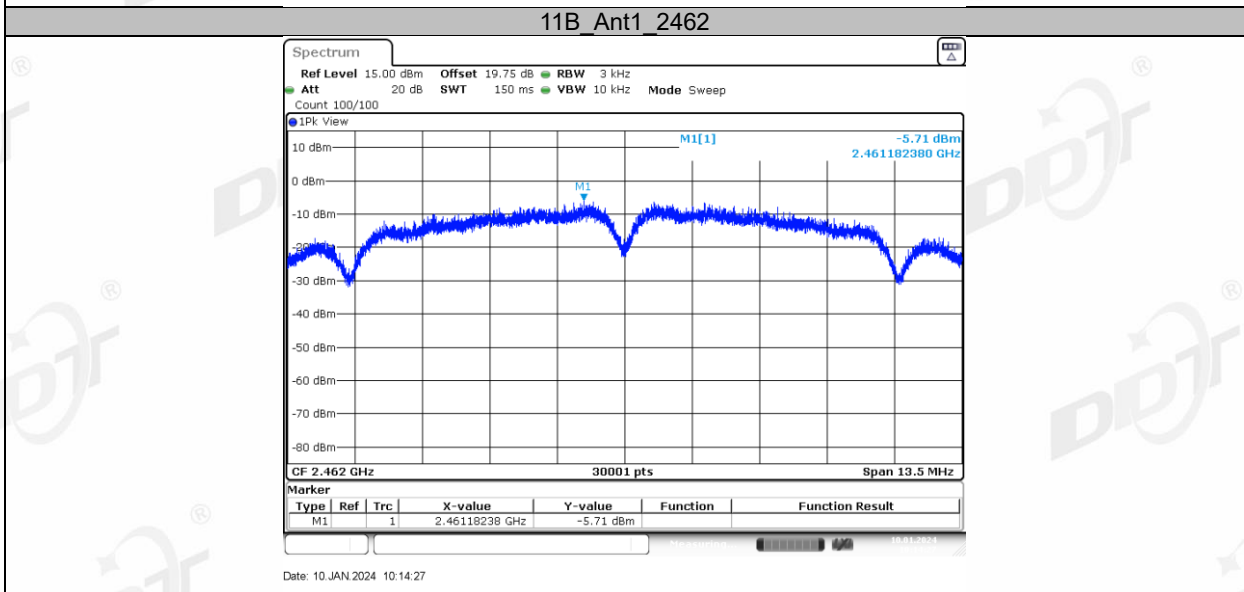
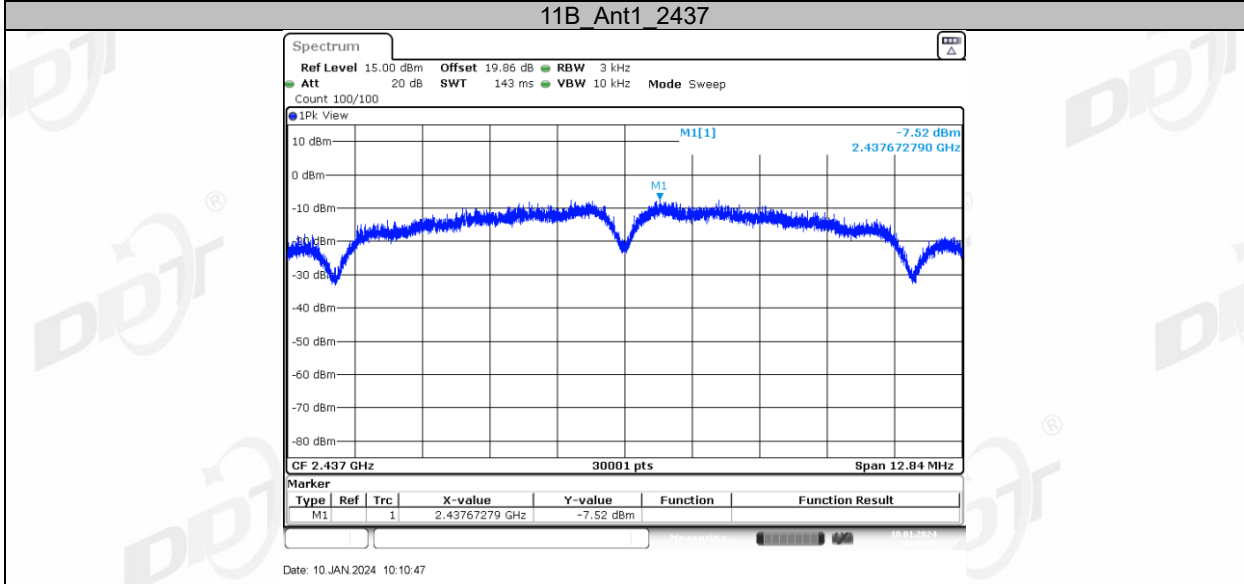
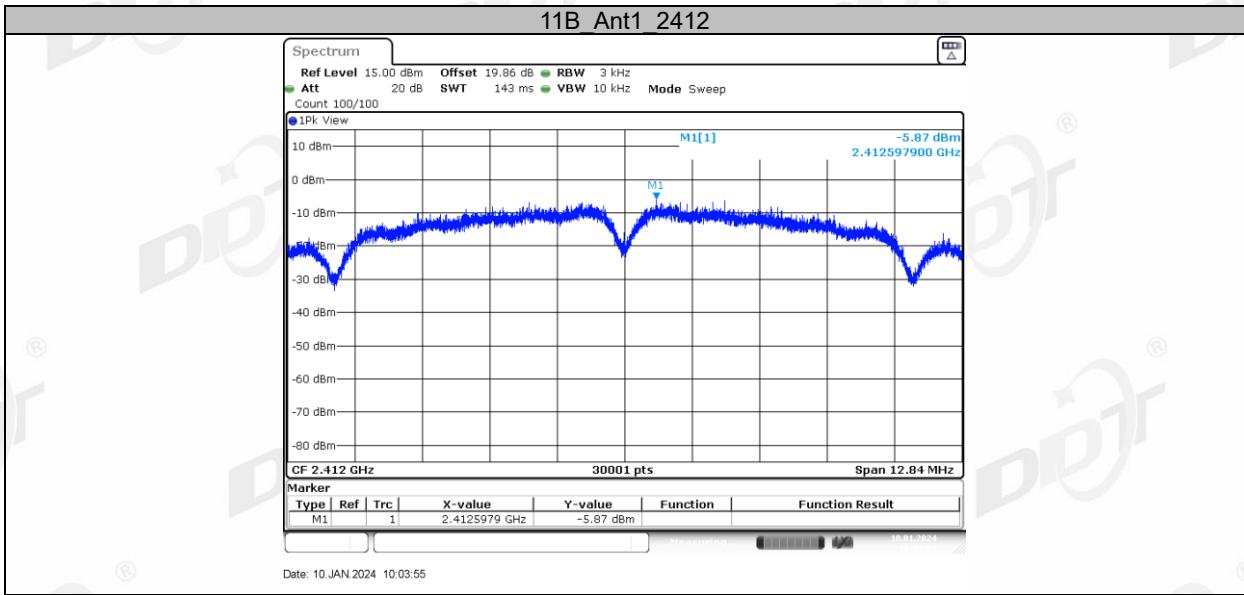
7.4. Test result

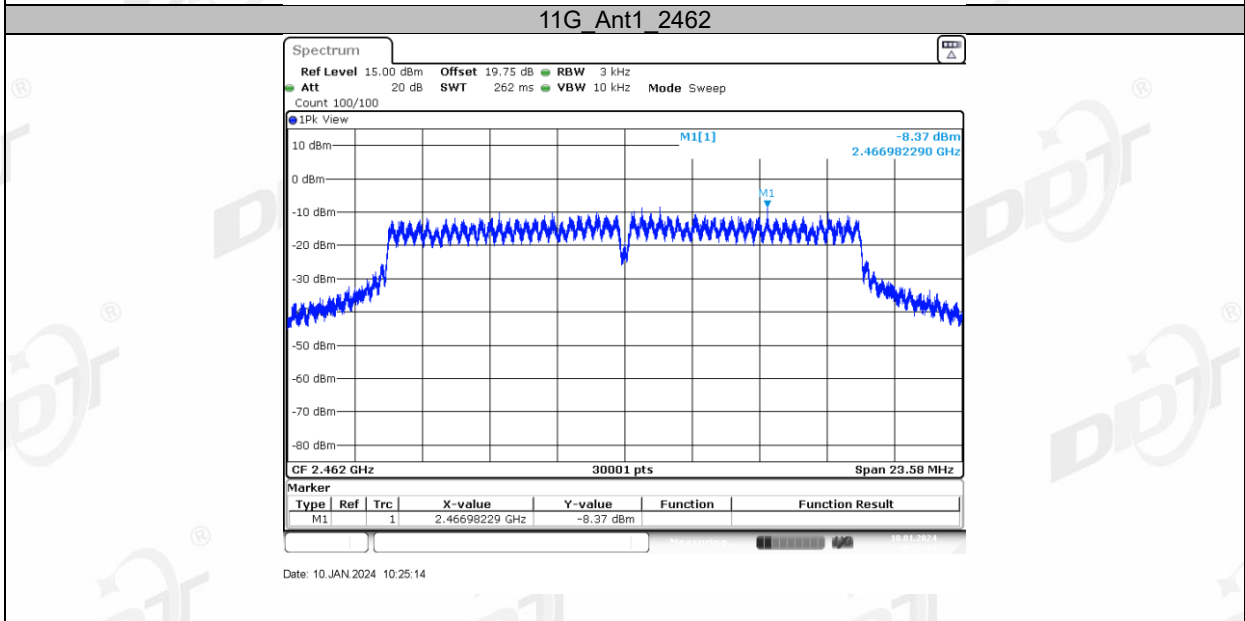
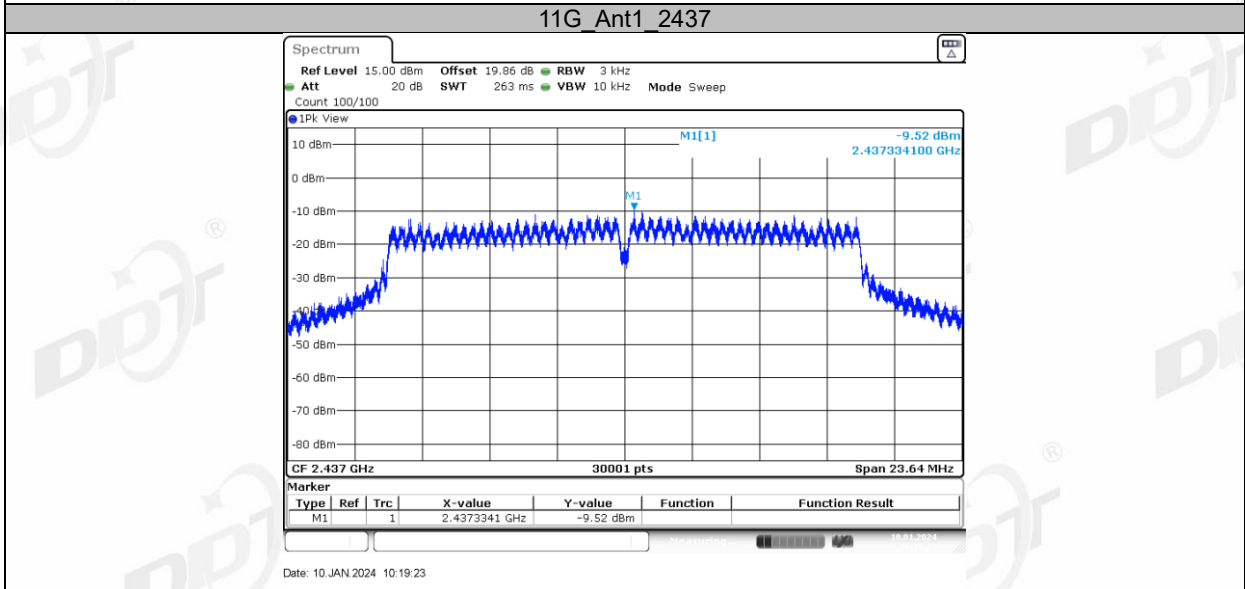
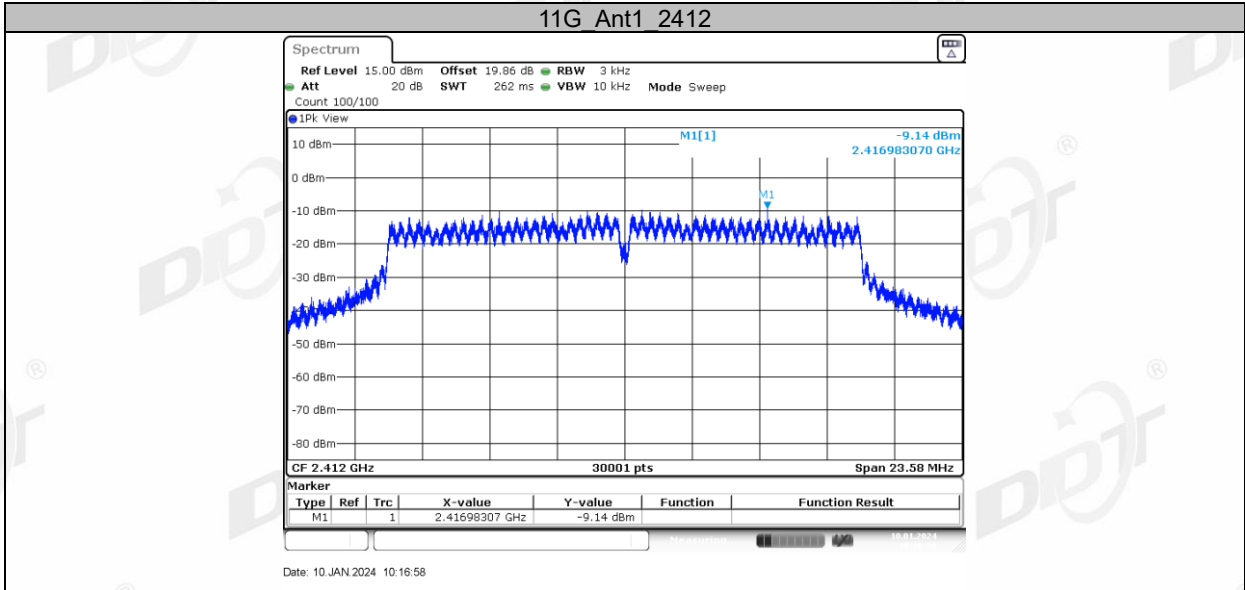
Test Engineer:	Zhongyao	Test Site:	RF Measurement System 3#
Ambient Condition:	25.3°C, 45.7%RH	Test Date:	2024.1.10
Test Power Supply:	AC 230V	EUT:	All-In-One Desktop Android HiFi Music Player
Sample Number:	S23101912-01	Model No.:	F3051R

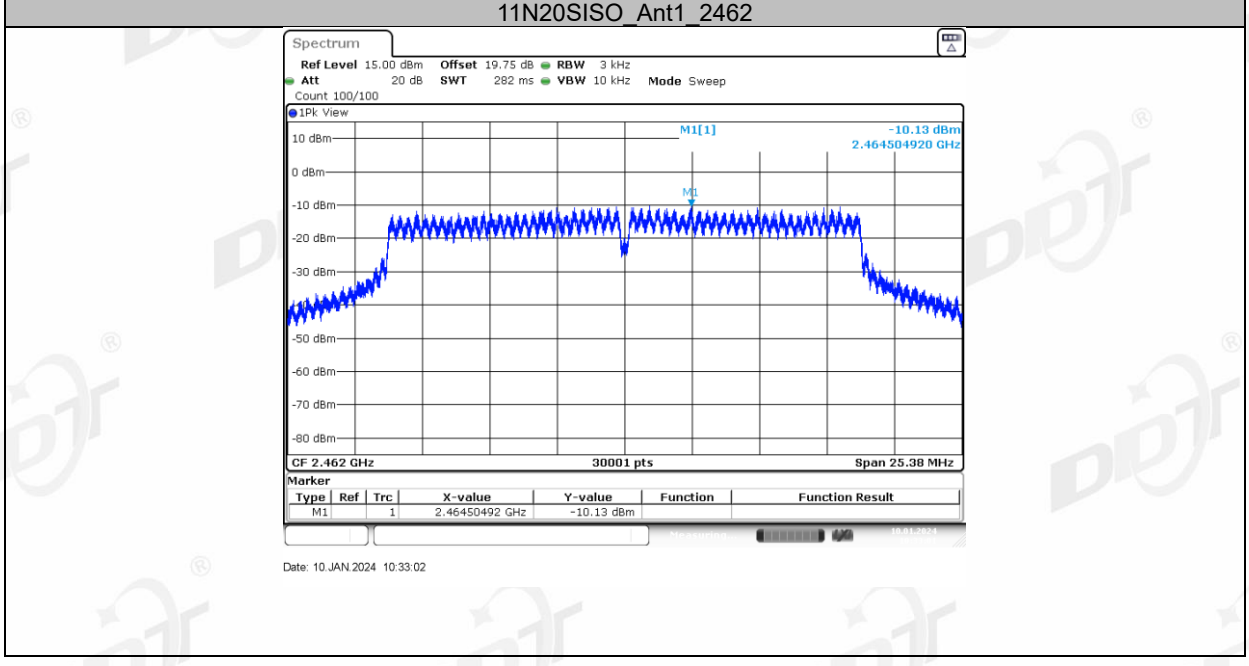
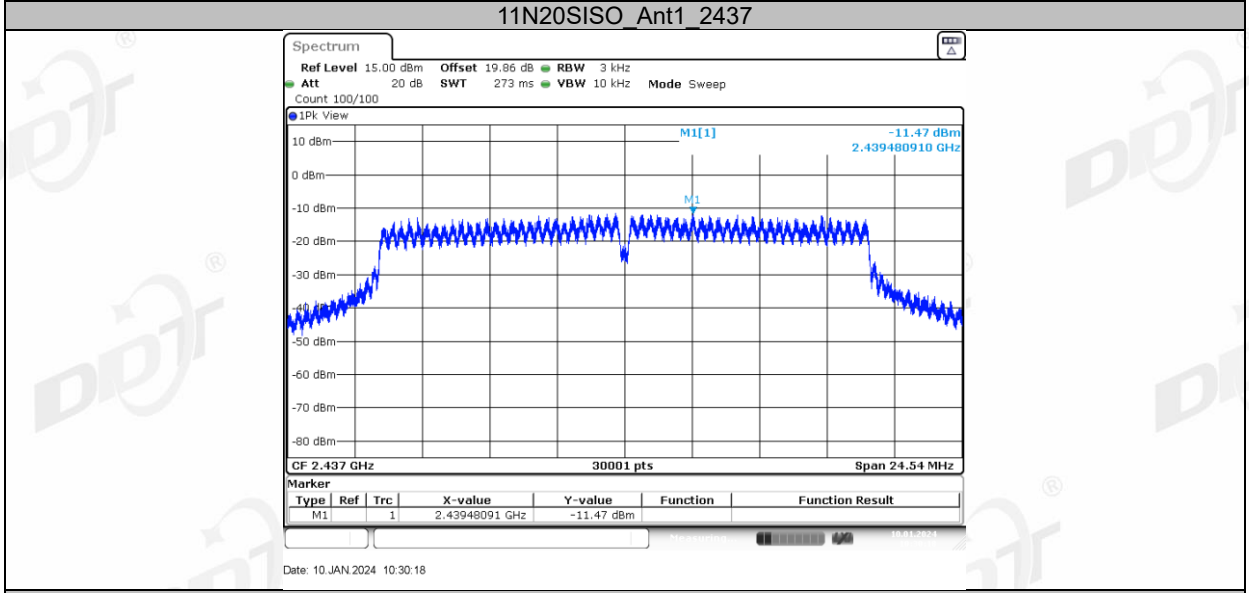
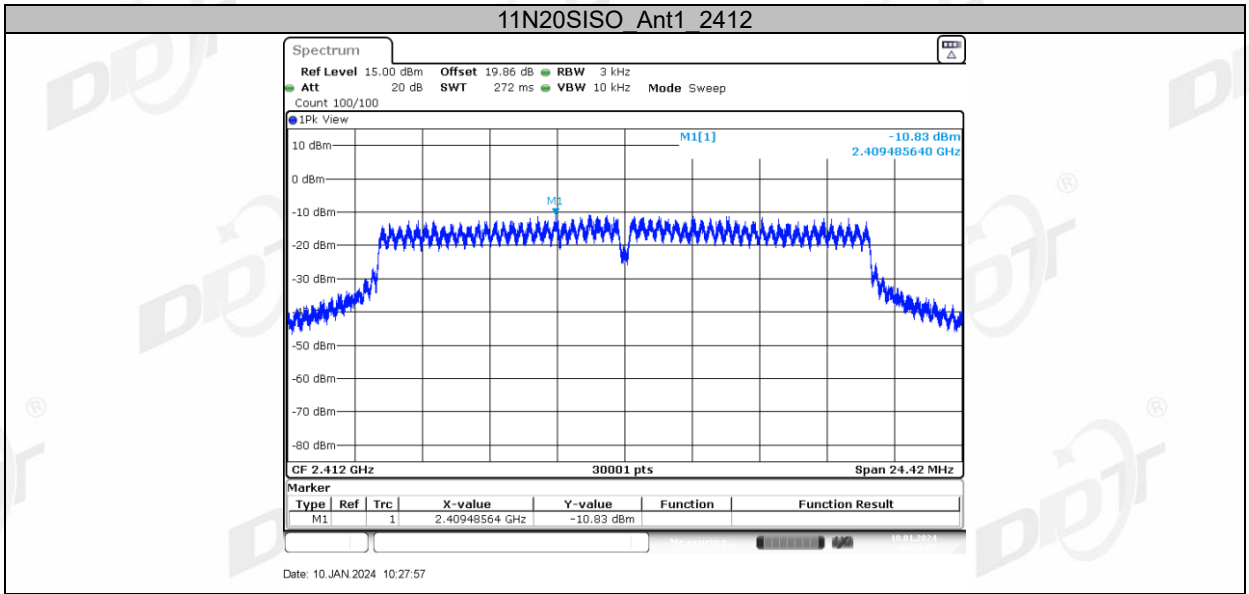
Test Mode	Antenna	Frequency [MHz]	Result [dBm/3-100kHz]	Limit [dBm/3kHz]	Verdict
11B	Ant1	2412	-5.87	≤8.00	PASS
		2437	-7.52	≤8.00	PASS
		2462	-5.71	≤8.00	PASS
11G	Ant1	2412	-9.14	≤8.00	PASS
		2437	-9.52	≤8.00	PASS
		2462	-8.37	≤8.00	PASS
11N20SISO	Ant1	2412	-10.83	≤8.00	PASS
		2437	-11.47	≤8.00	PASS
		2462	-10.13	≤8.00	PASS
11N40SISO	Ant1	2422	-12.80	≤8.00	PASS
		2437	-12.61	≤8.00	PASS
		2452	-12.65	≤8.00	PASS

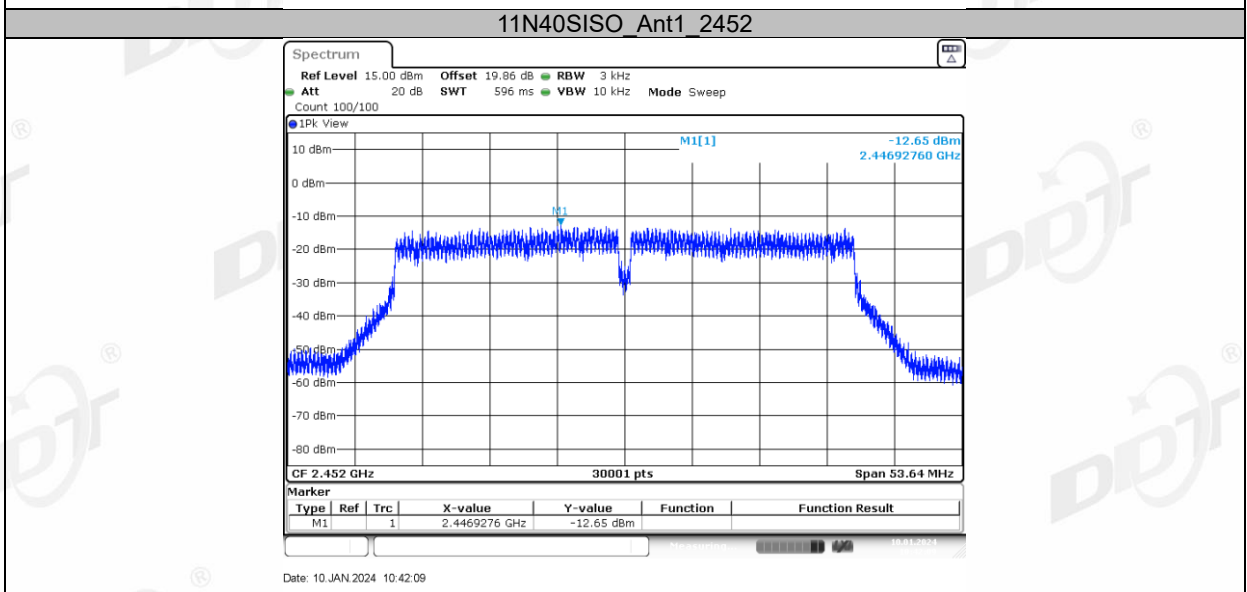
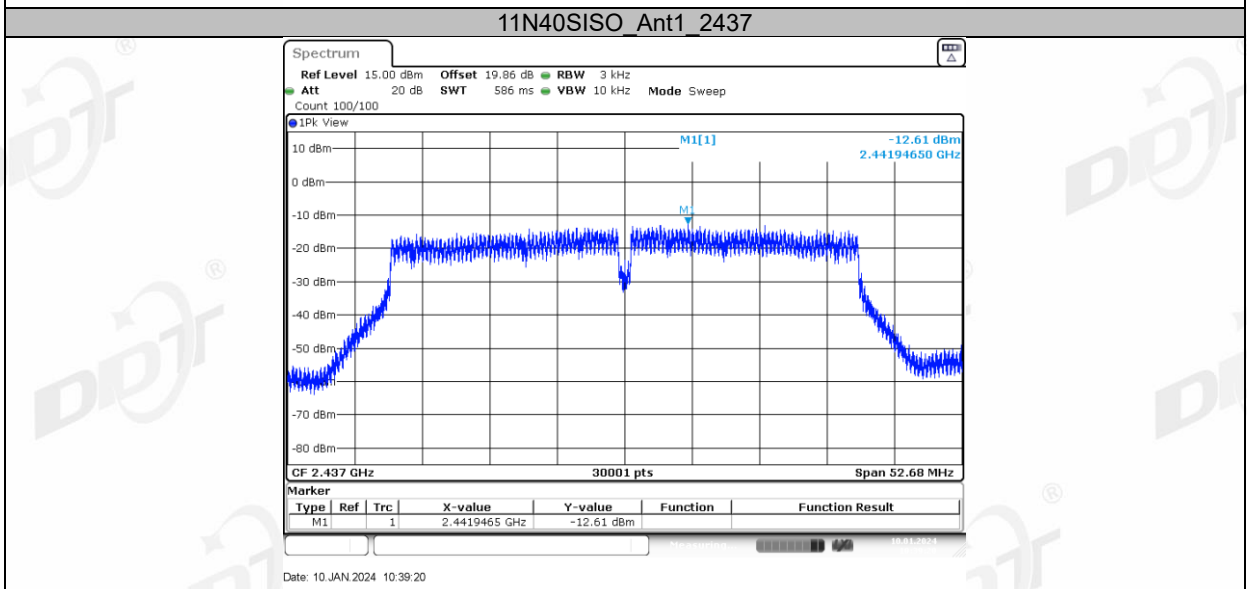
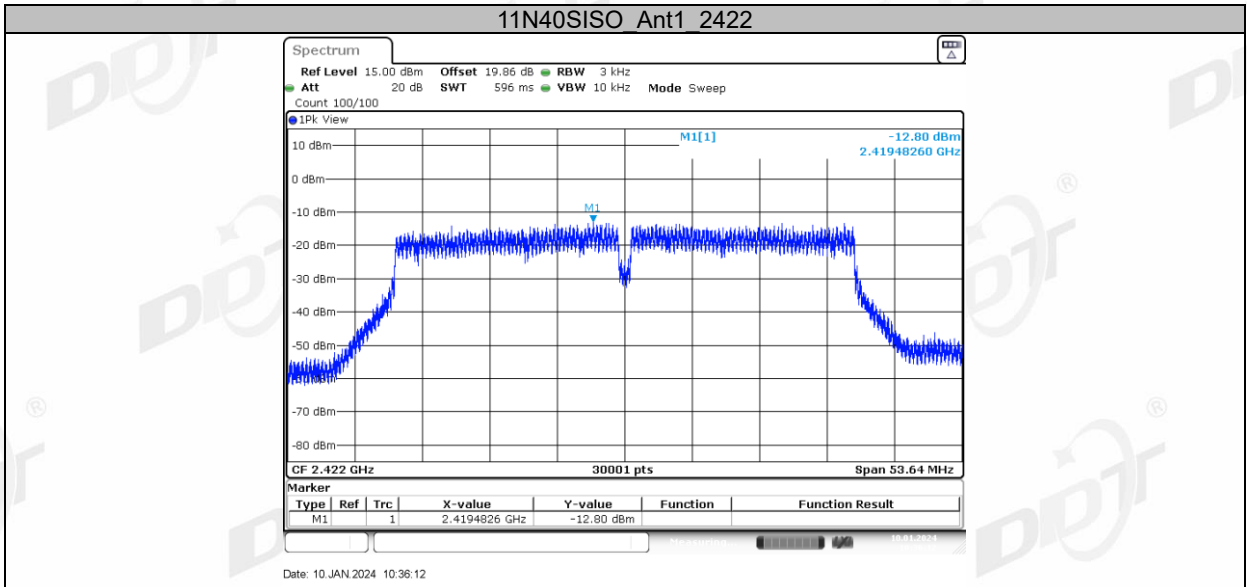
Note: The Duty Cycle Factor is compensated in the graph.

7.5. Test graphs



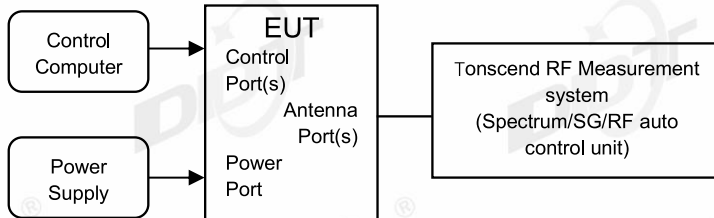






8. Band Edge Compliance (Conducted Method)

8.1. Block diagram of test setup



8.2. Limits

In any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is 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.

8.3. Test procedure

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

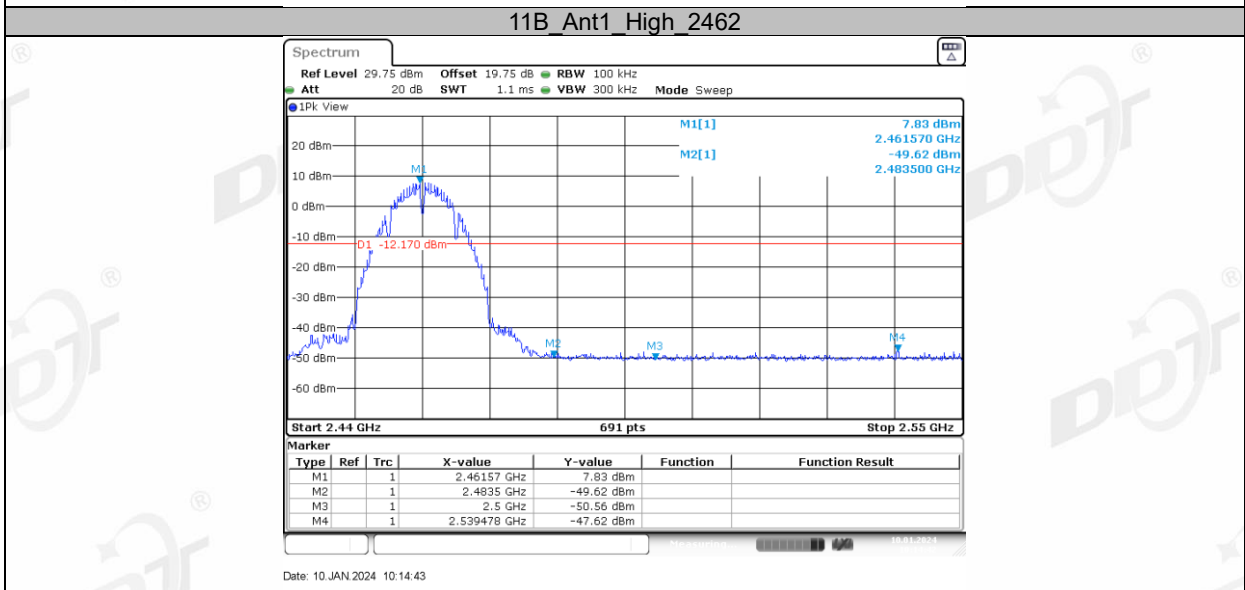
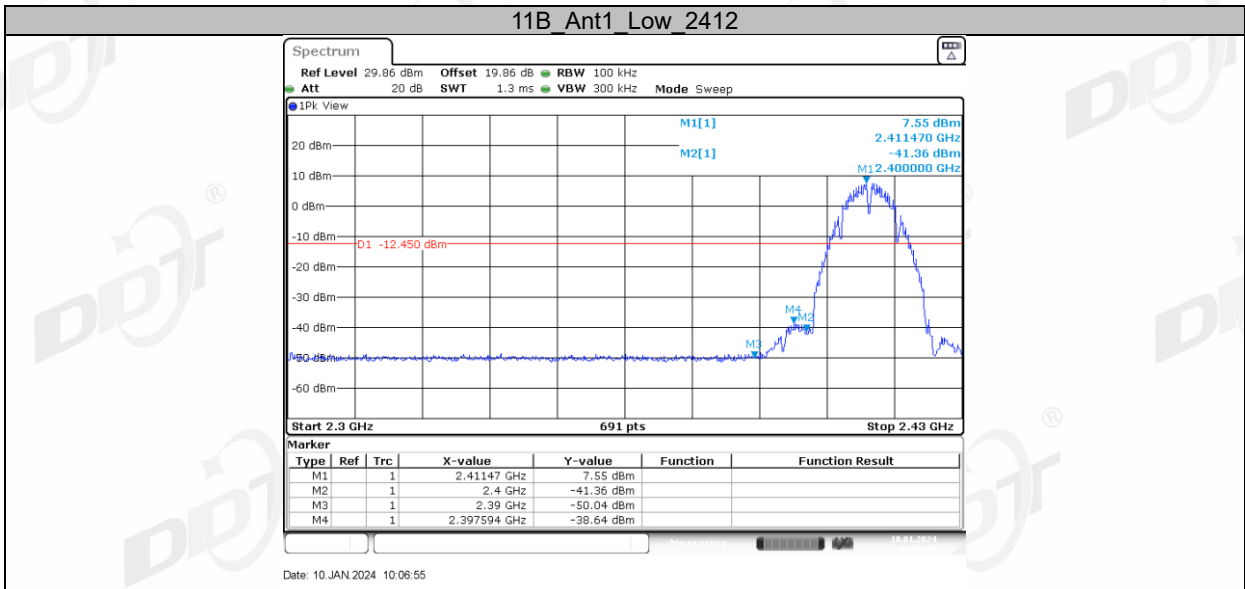
RBW:	100 kHz
VBW:	300 kHz
Span	Encompass frequency range to be measured
Detector Mode:	Peak
Sweep time:	auto
Trace mode	Max hold
- (3) Allow the trace to stabilize, use the peak marker function to determine the maximum peak power level to establish the reference level.
- (4) Then mark the maximum amplitude of all unwanted emissions outside of the authorized frequency band.

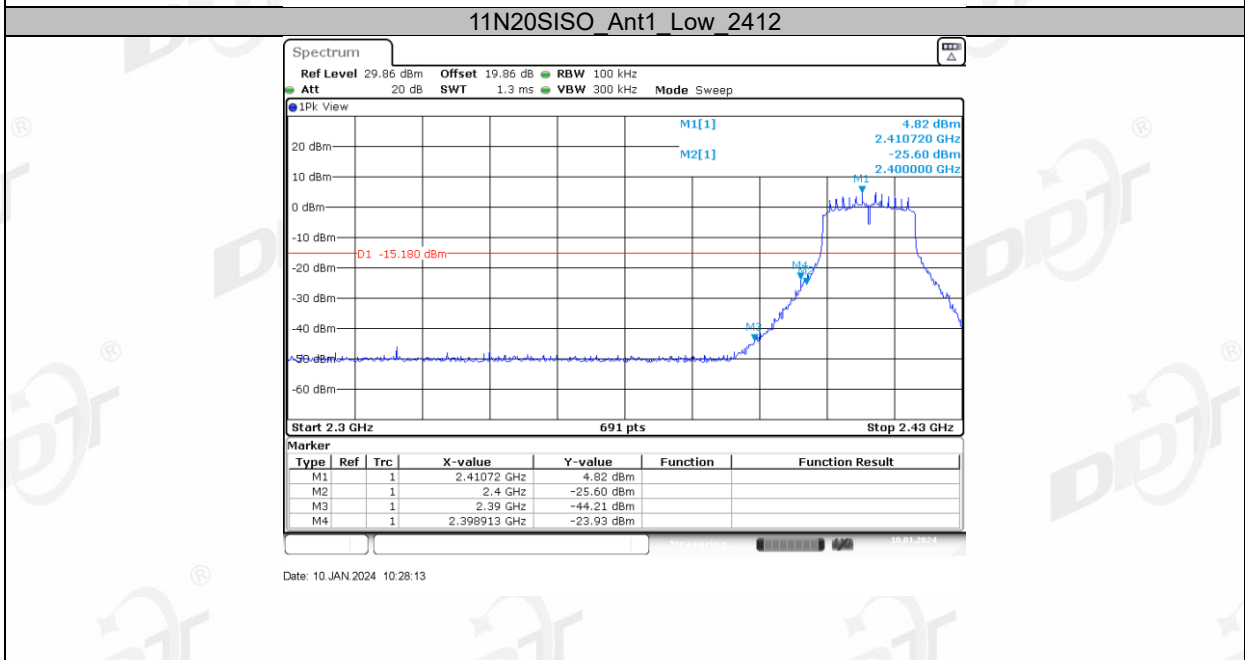
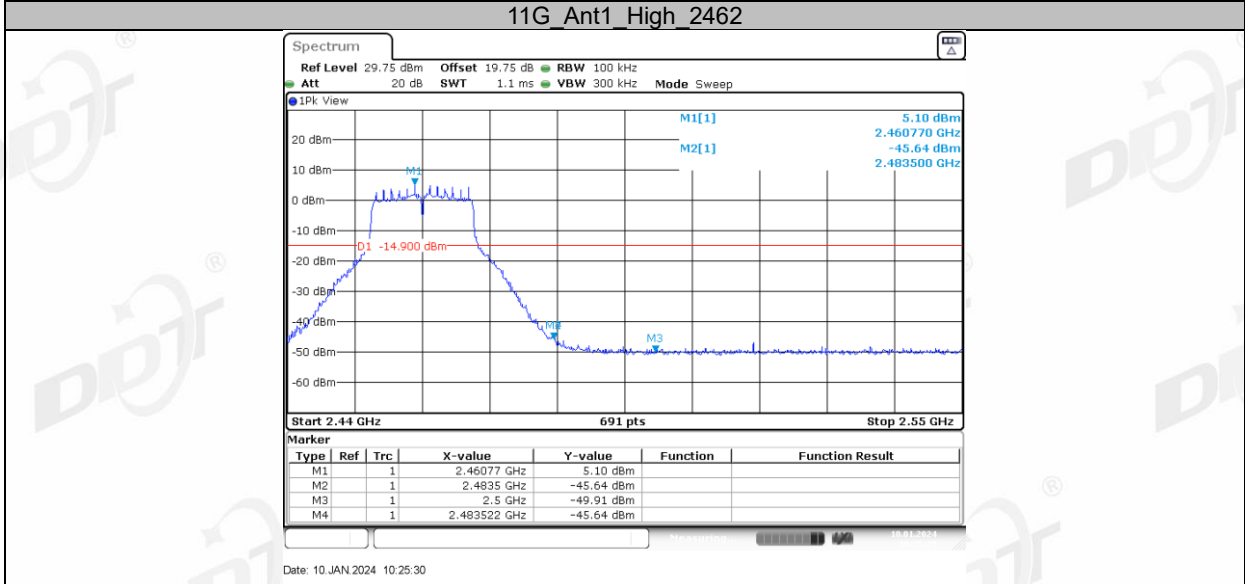
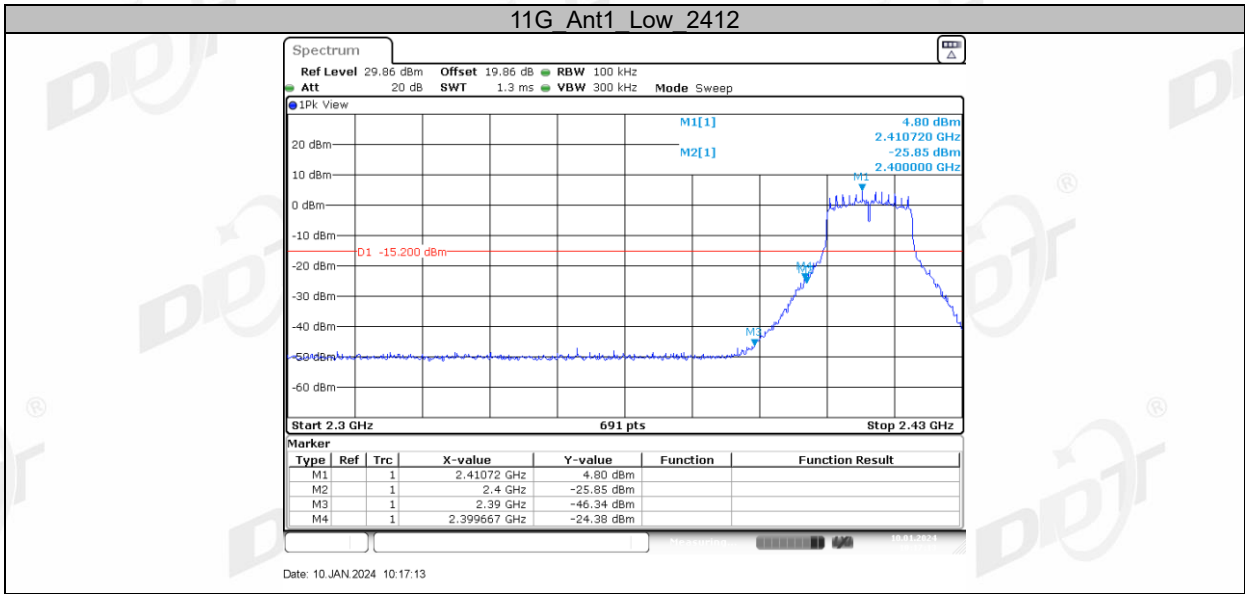
8.4. Test result

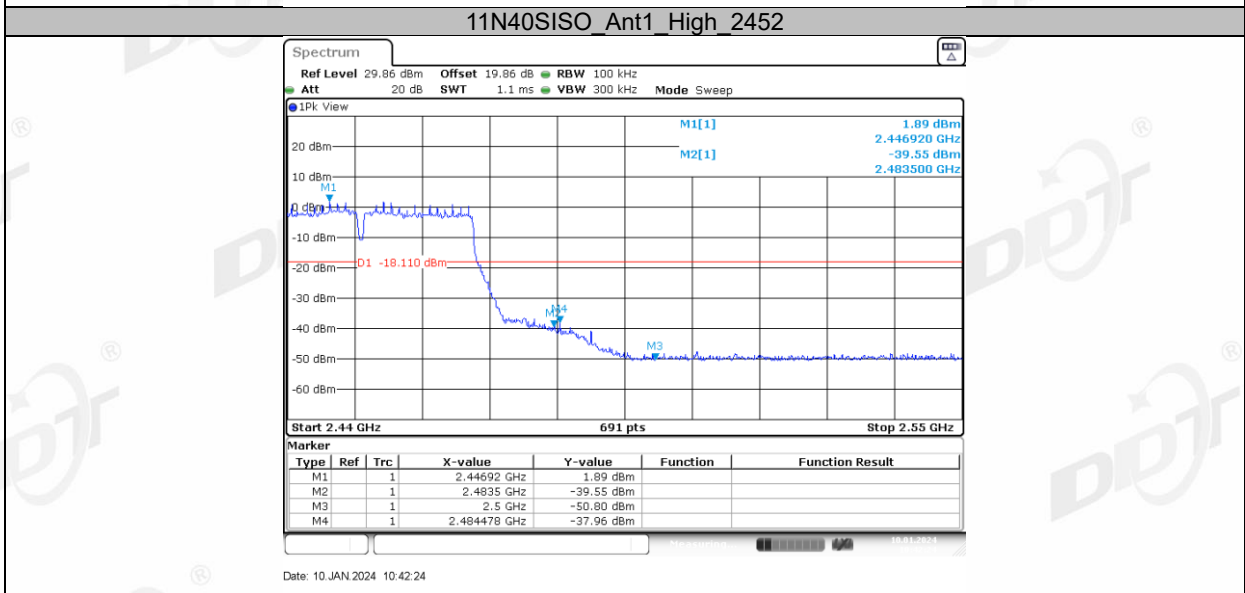
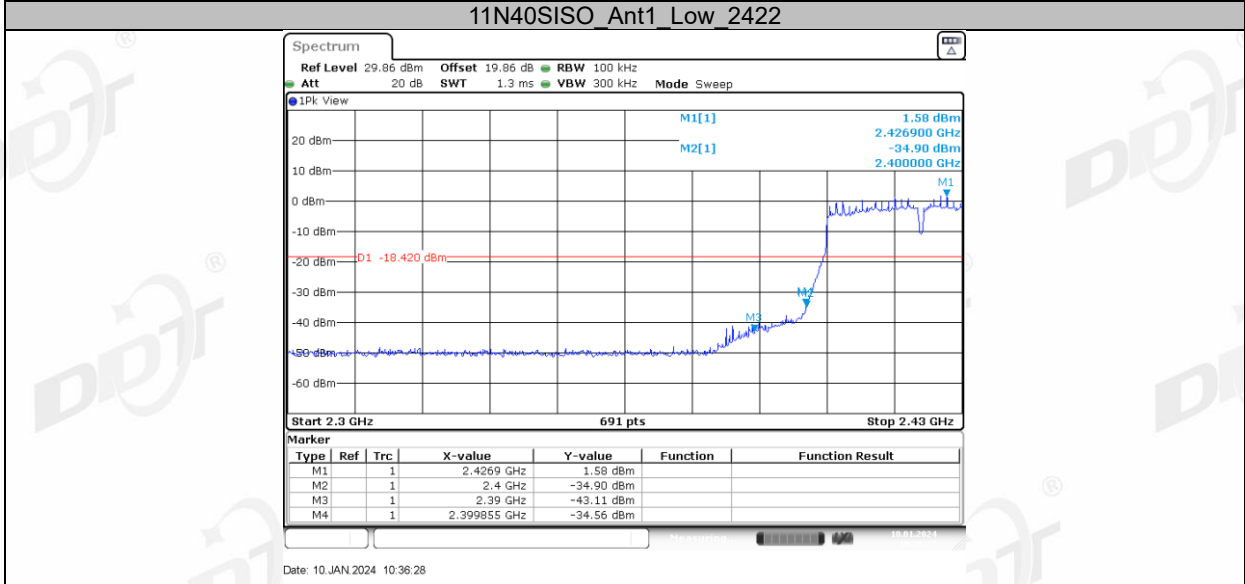
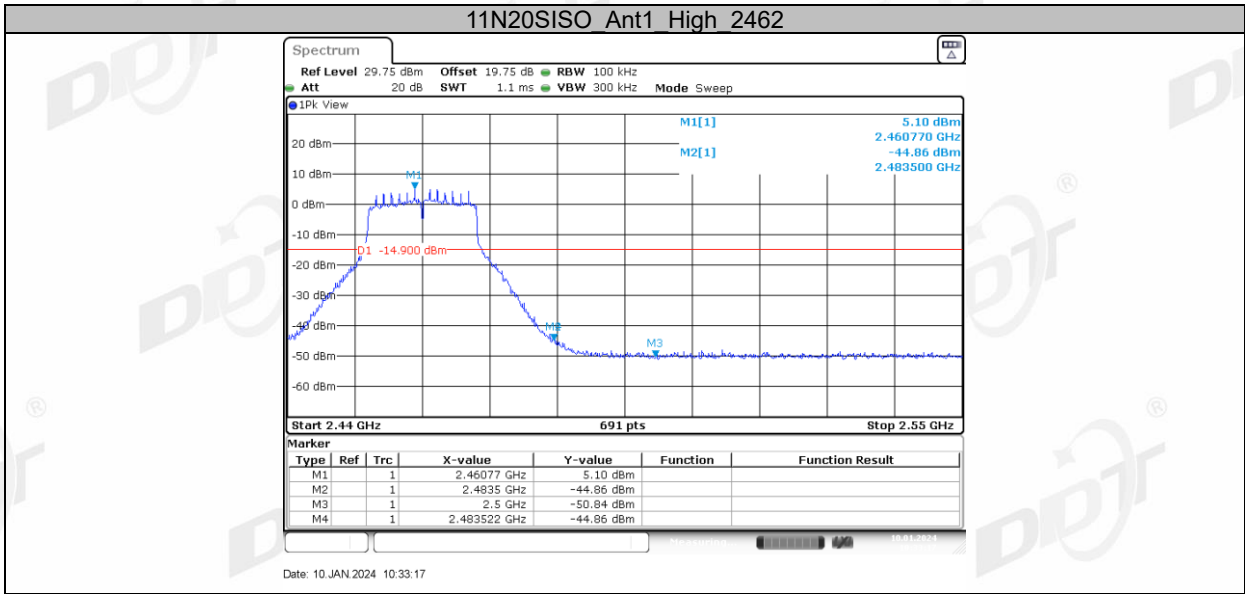
Test Engineer:	Zhongyao	Test Site:	RF Measurement System 3#
Ambient Condition:	25.3°C, 45.7%RH	Test Date:	2024.1.10
Test Power Supply:	AC 230V	EUT:	All-In-One Desktop Android HiFi Music Player
Sample Number:	S23101912-01	Model No.:	F3051R

EUT Set Mode	Channel or Frequency	Result (dBm)	EUT Set Mode	Channel 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

8.5. Test graphs

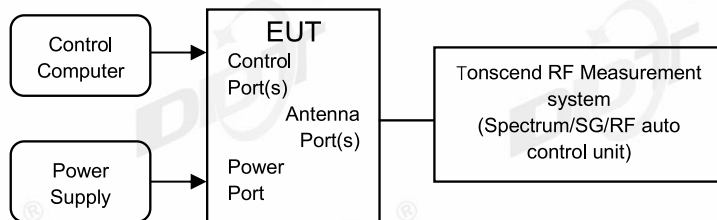






9. RF Conducted Spurious Emissions

9.1. Block diagram of test setup



9.2. Limits

In any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is 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.

9.3. Test procedure

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

(2) Establish a reference level by using the following procedure:

Center frequency	Test frequency
RBW:	100 kHz
VBW:	300 kHz
Span	Wide enough to capture the peak level of the in-band emission
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.

(4) Set the spectrum analyzer as follows:

RBW:	100 kHz
VBW:	300 kHz
Span	Encompass frequency range to be measured
Number of measurement points	$\geq \text{Span}/\text{RBW}$
Detector Mode:	Peak
Sweep time:	auto
Trace mode	Max hold

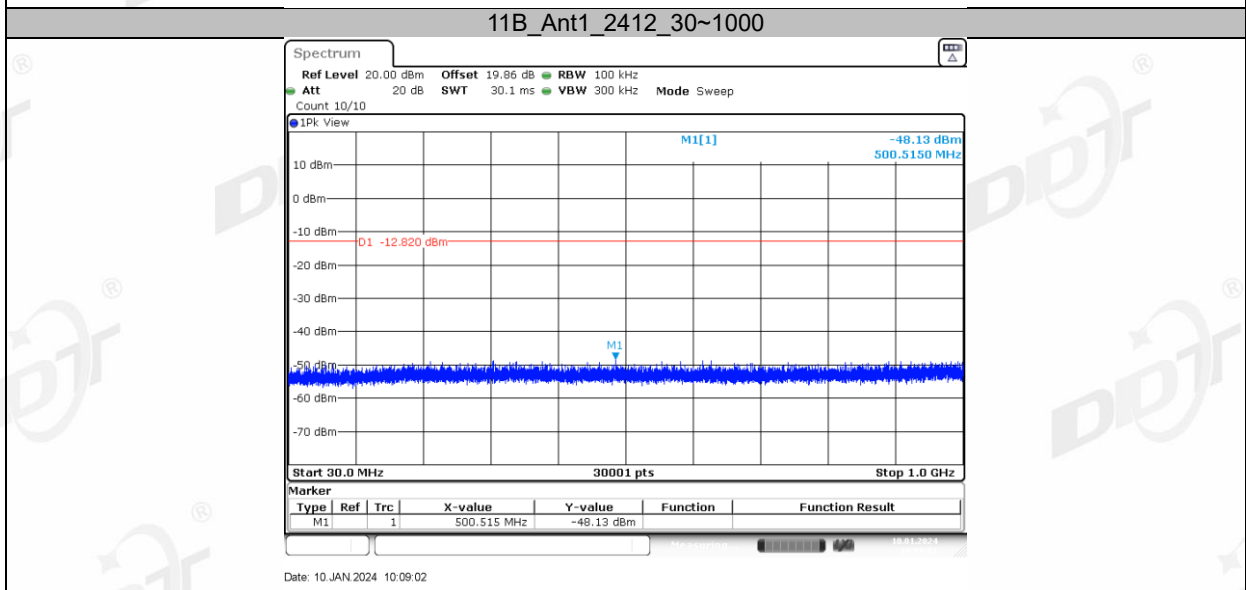
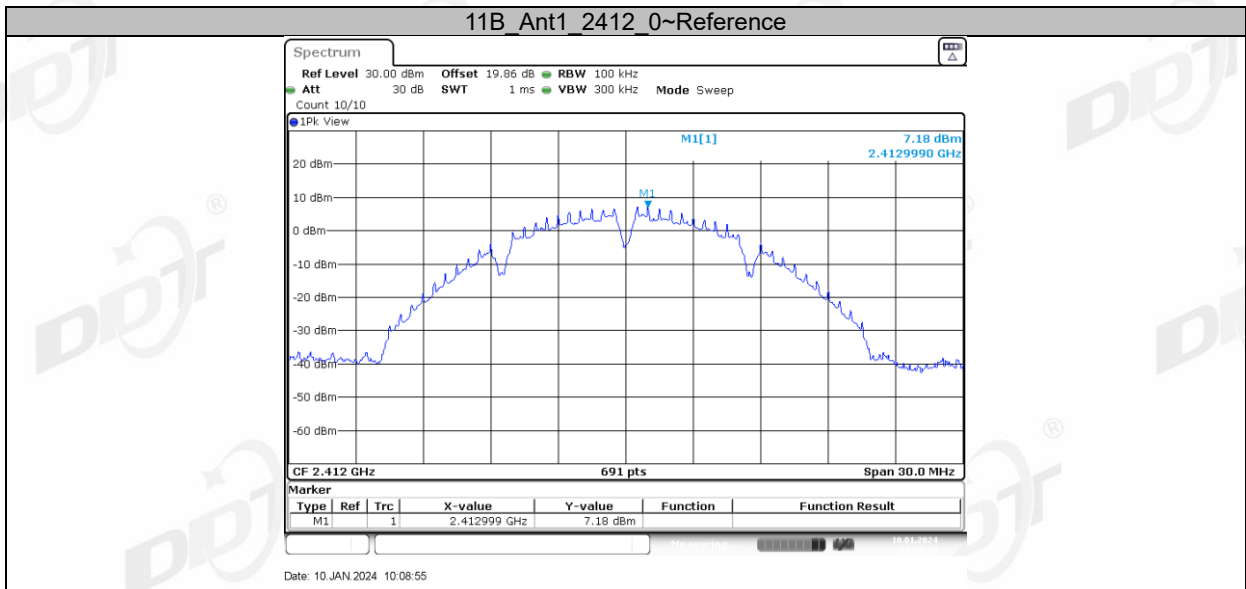
(5) Allow the trace to stabilize, use the peak marker function to determine the maximum amplitude of all unwanted emissions outside of the authorized frequency band

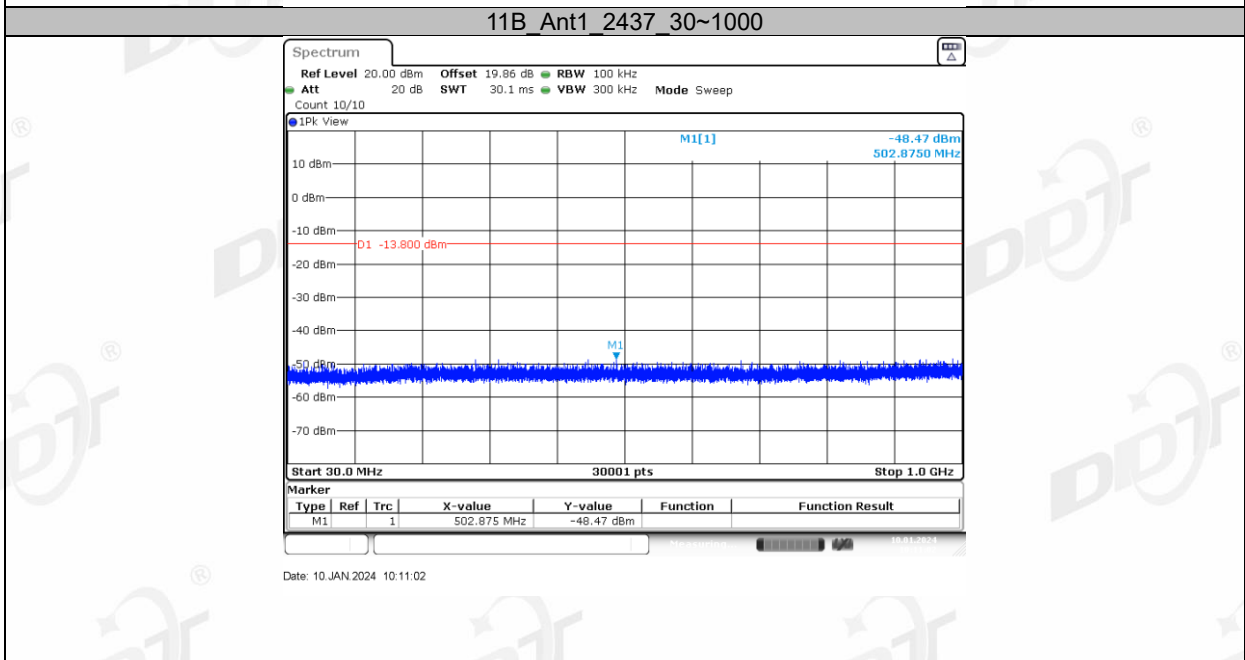
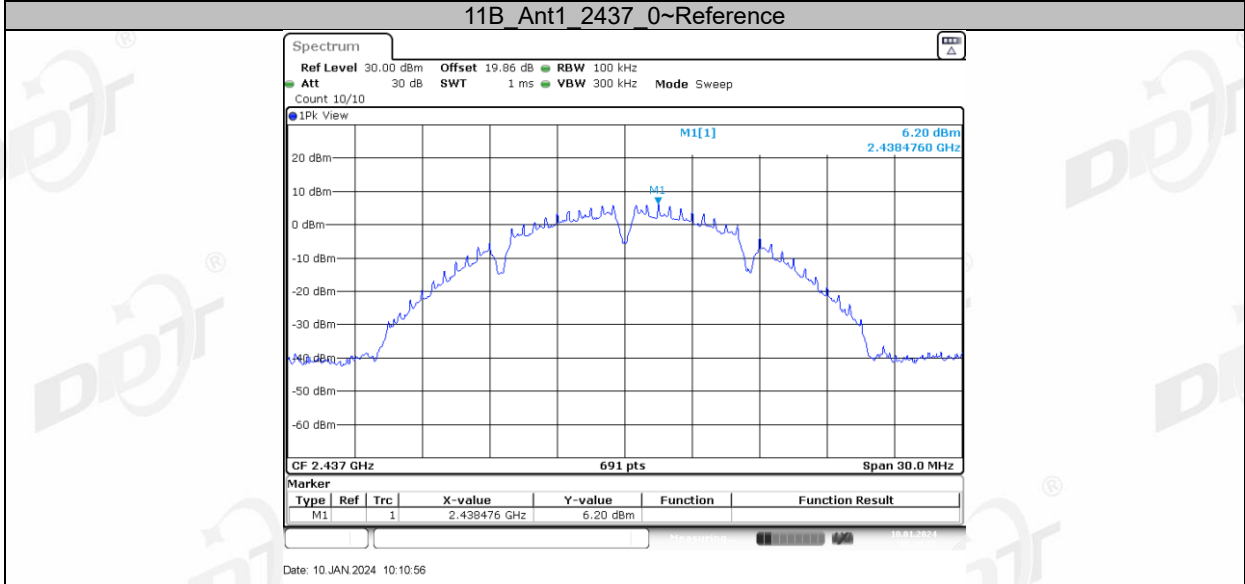
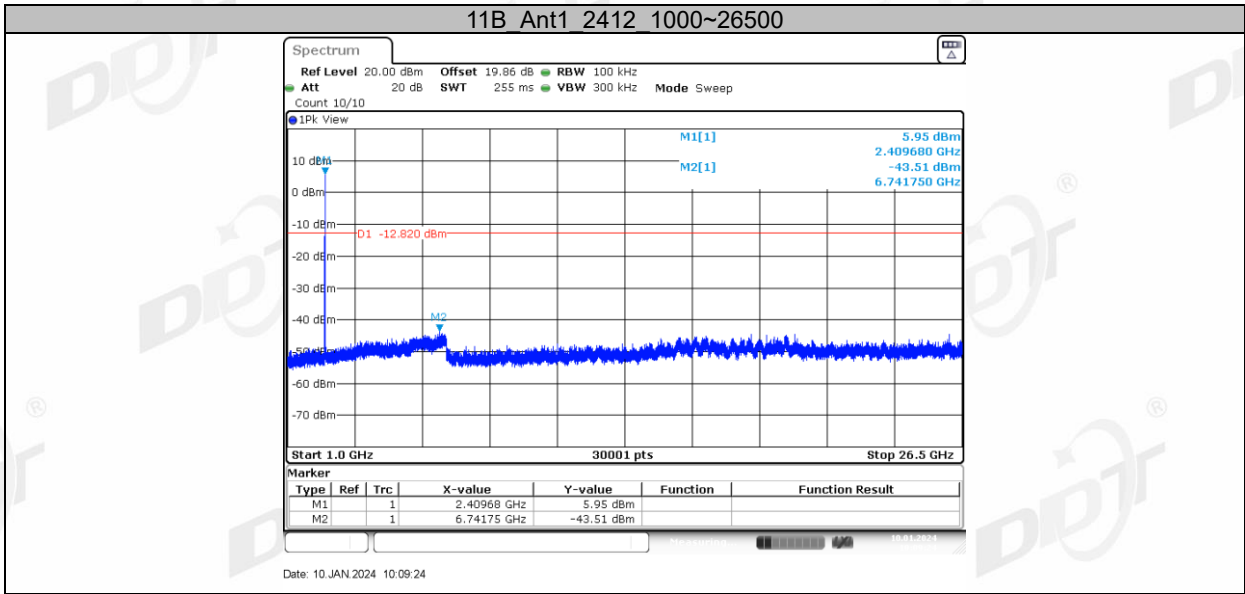
9.4. Test result

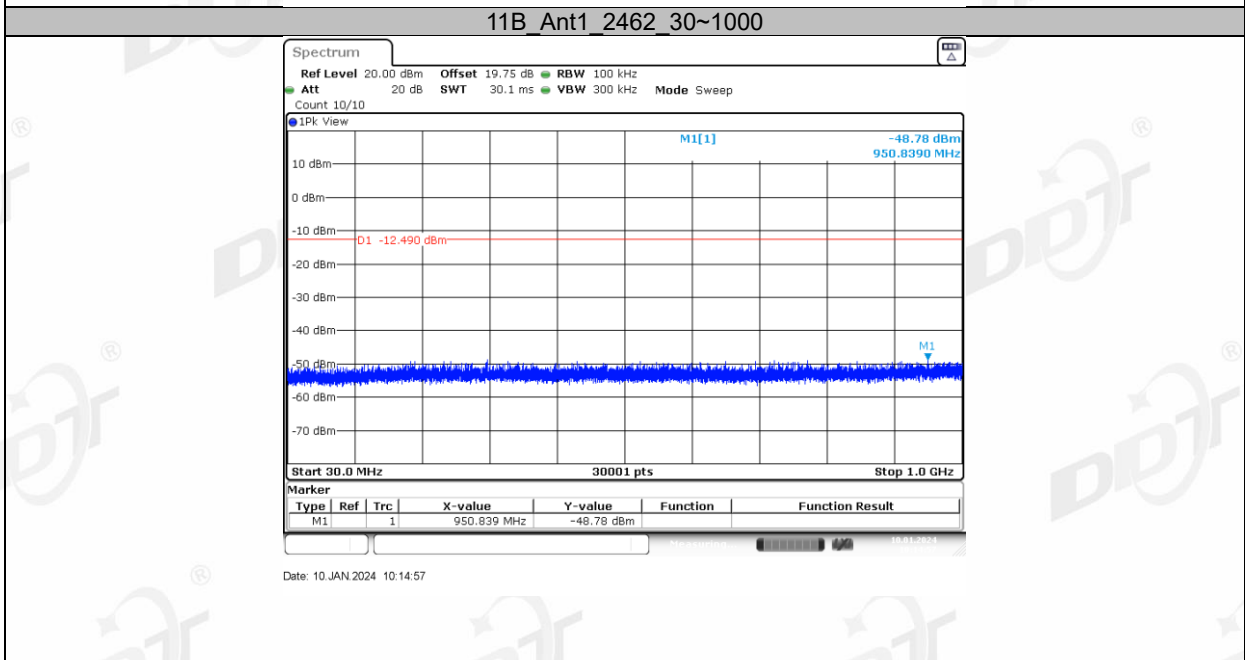
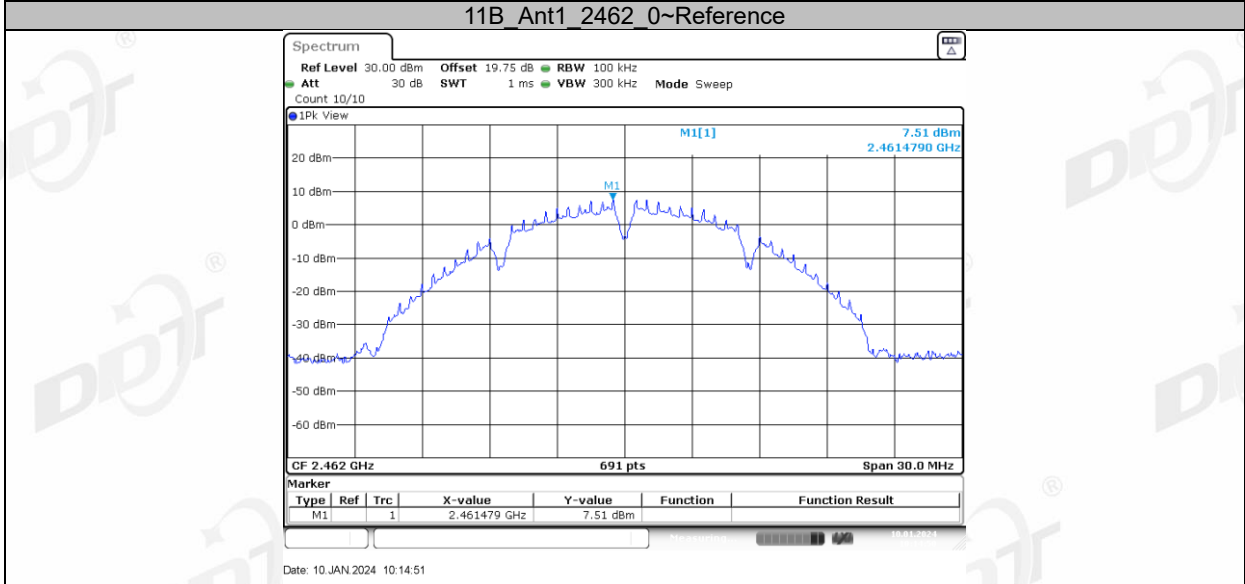
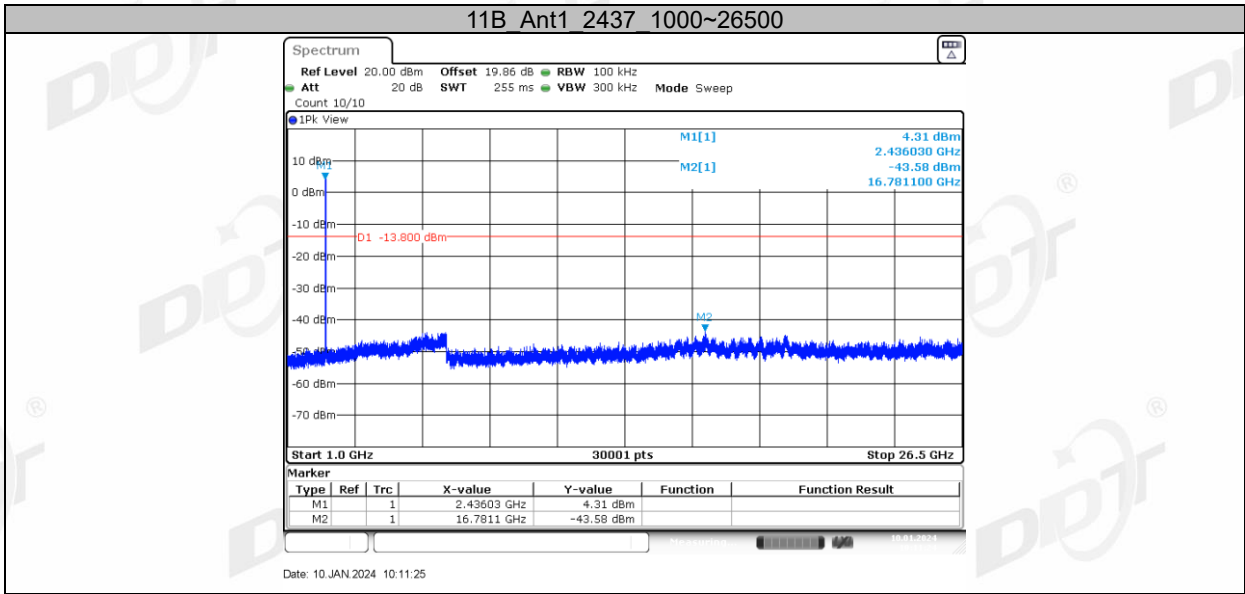
Test Engineer:	Zhongyao	Test Site:	RF Measurement System 3#
Ambient Condition:	25.3°C, 45.7%RH	Test Date:	2024.1.10
Test Power Supply:	AC 230V	EUT:	All-In-One Desktop Android HiFi Music Player
Sample Number:	S23101912-01	Model No.:	F3051R

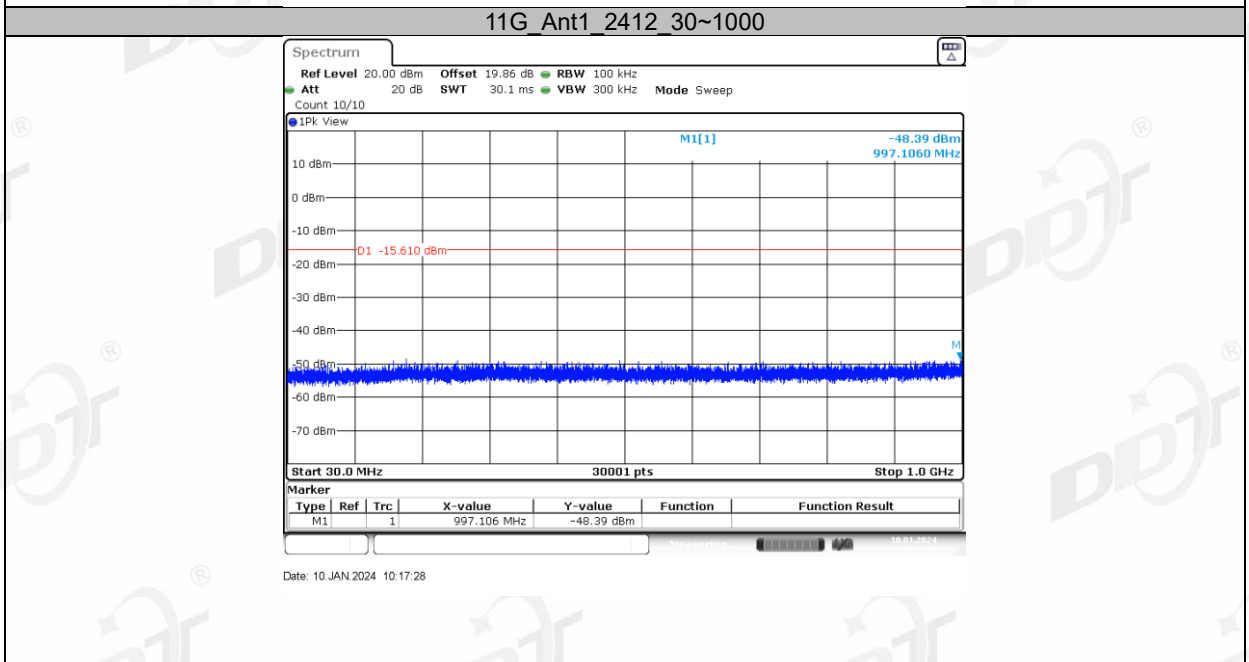
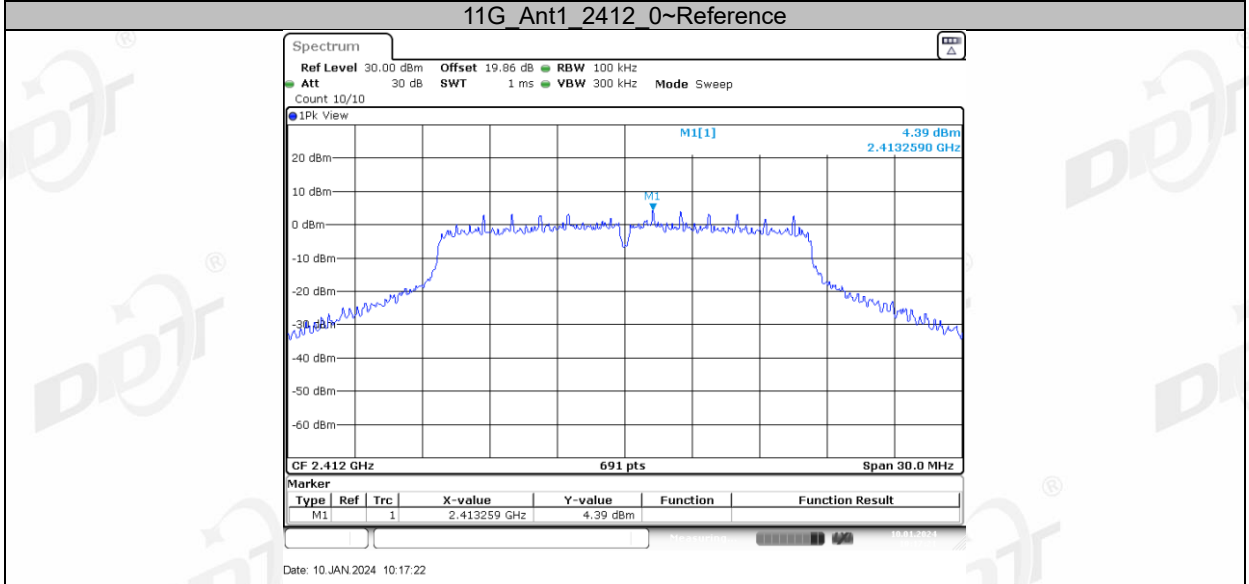
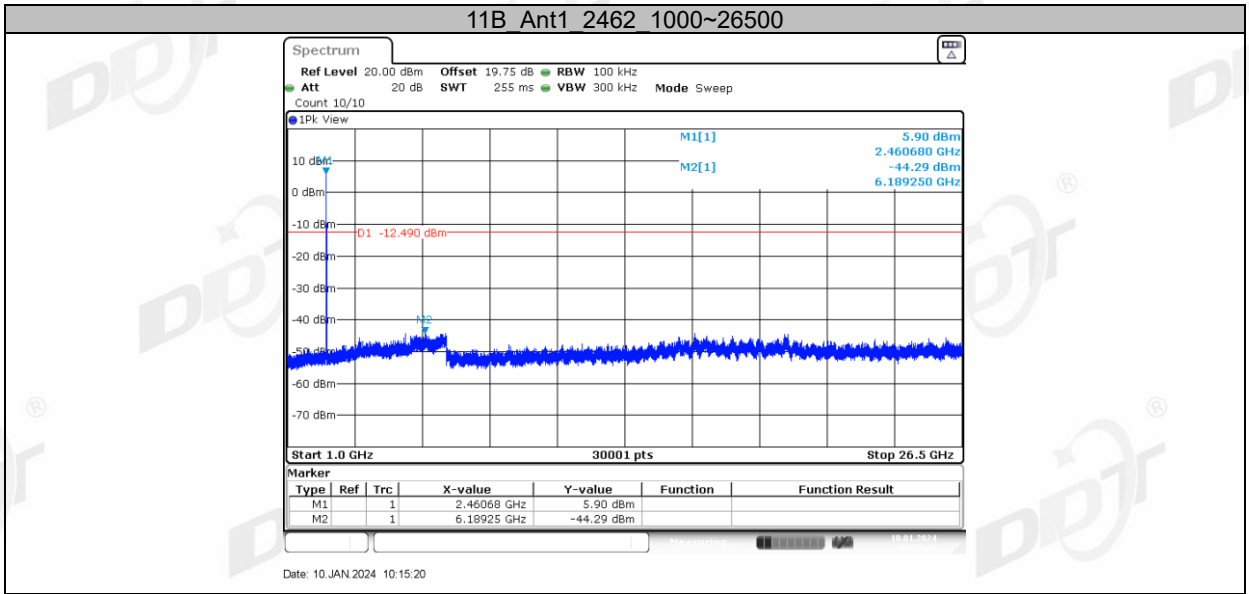
EUT Set Mode	Channel or Frequency	Result (dBm)	EUT Set Mode	Channel or Frequency	Result (dBm)
11b	CH1	Pass	11g	CH1	Pass
	CH11	Pass		CH11	Pass
11n HT 20	CH1	Pass	11n HT 40	CH3	Pass
	CH11	Pass		CH9	Pass

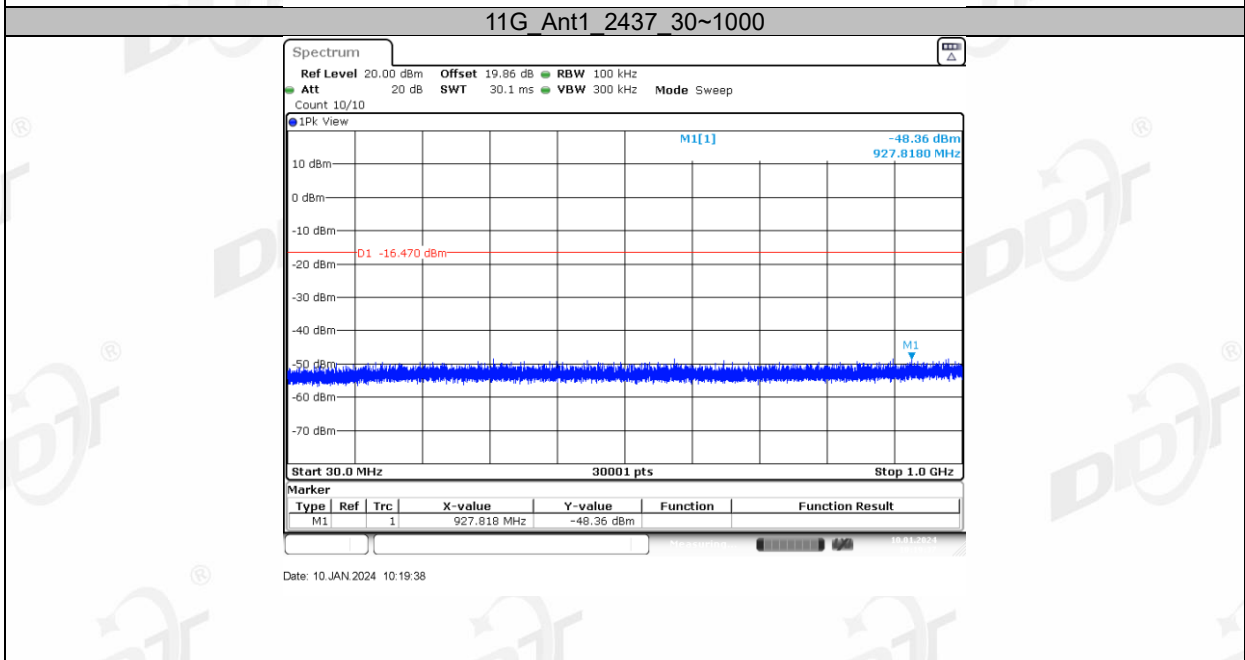
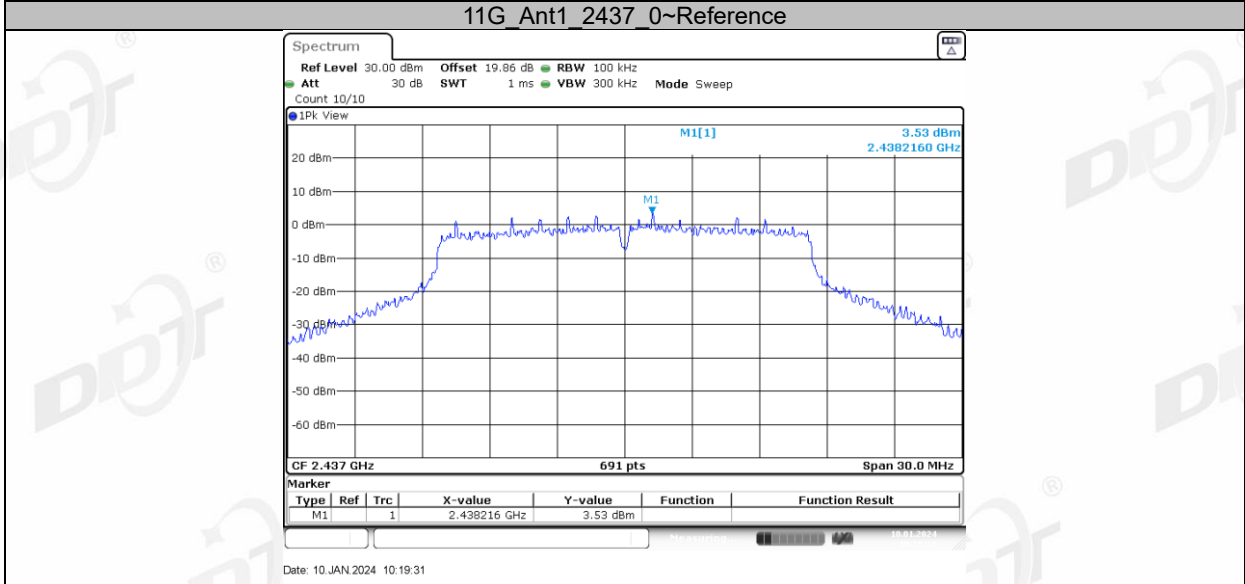
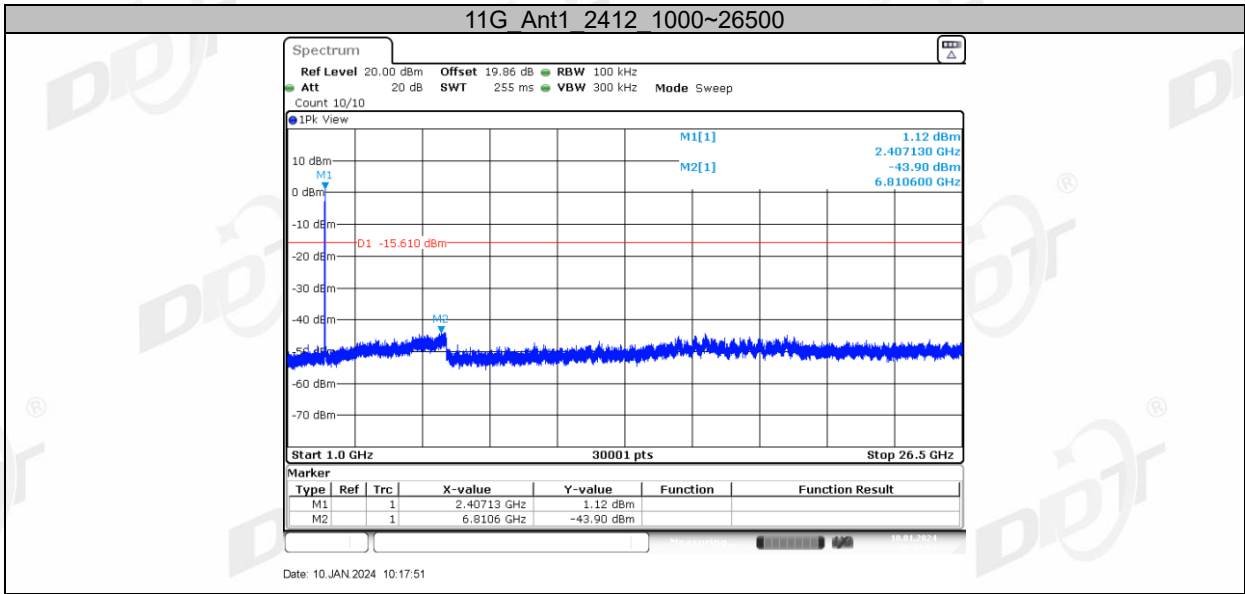
9.5. Test graphs

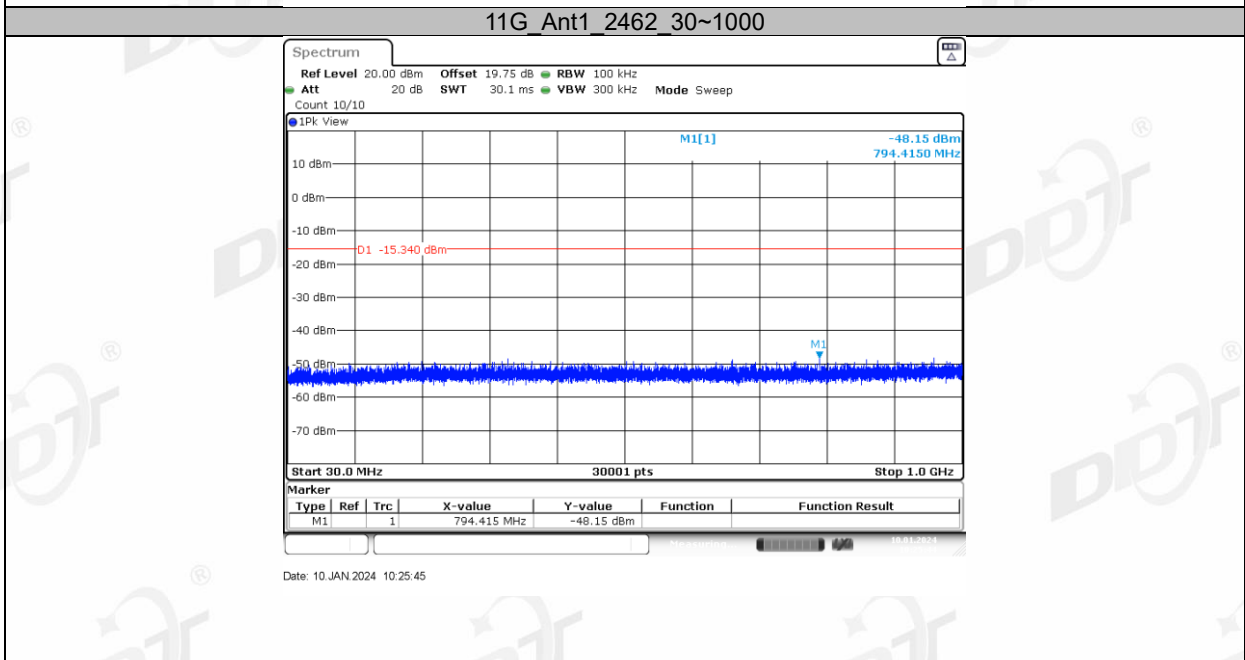
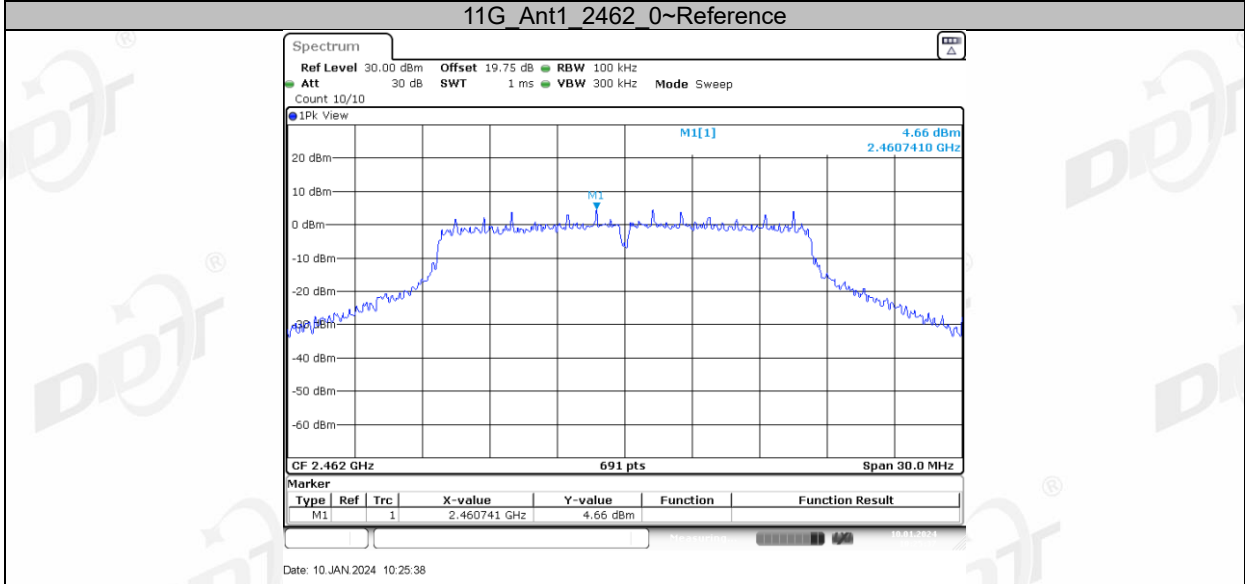
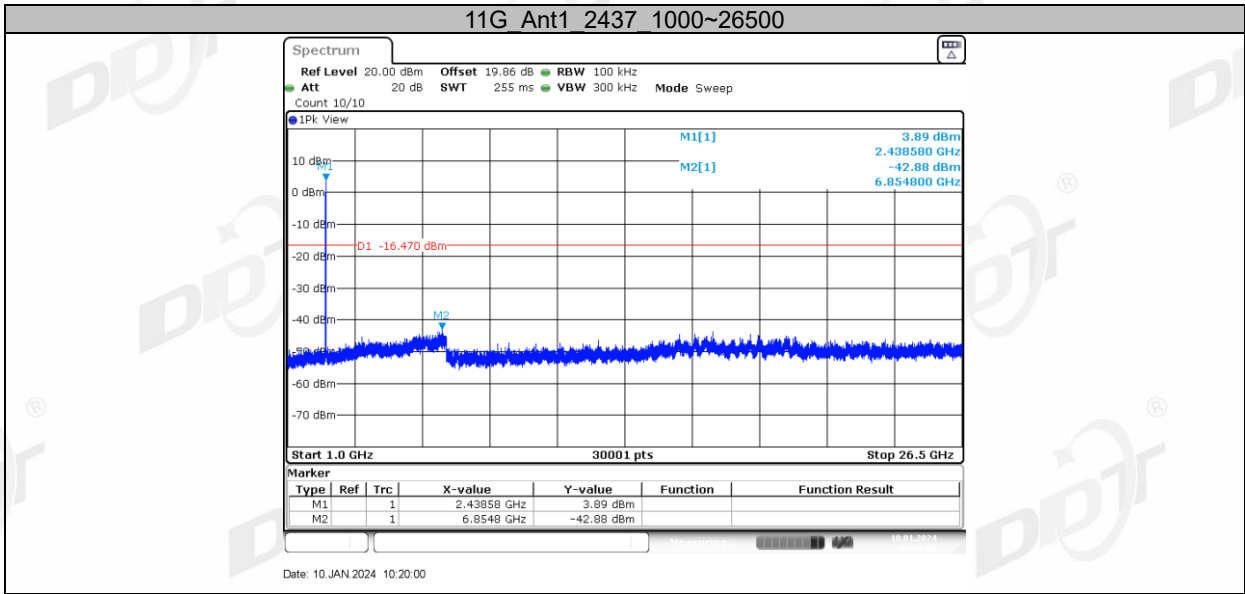


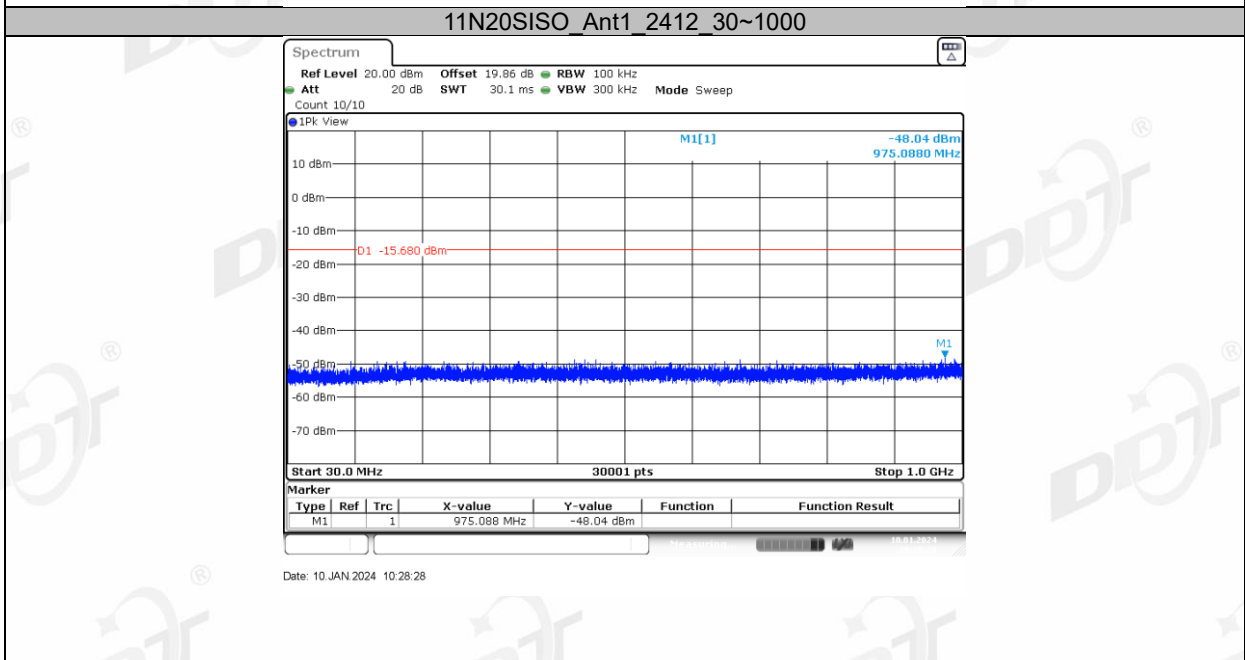
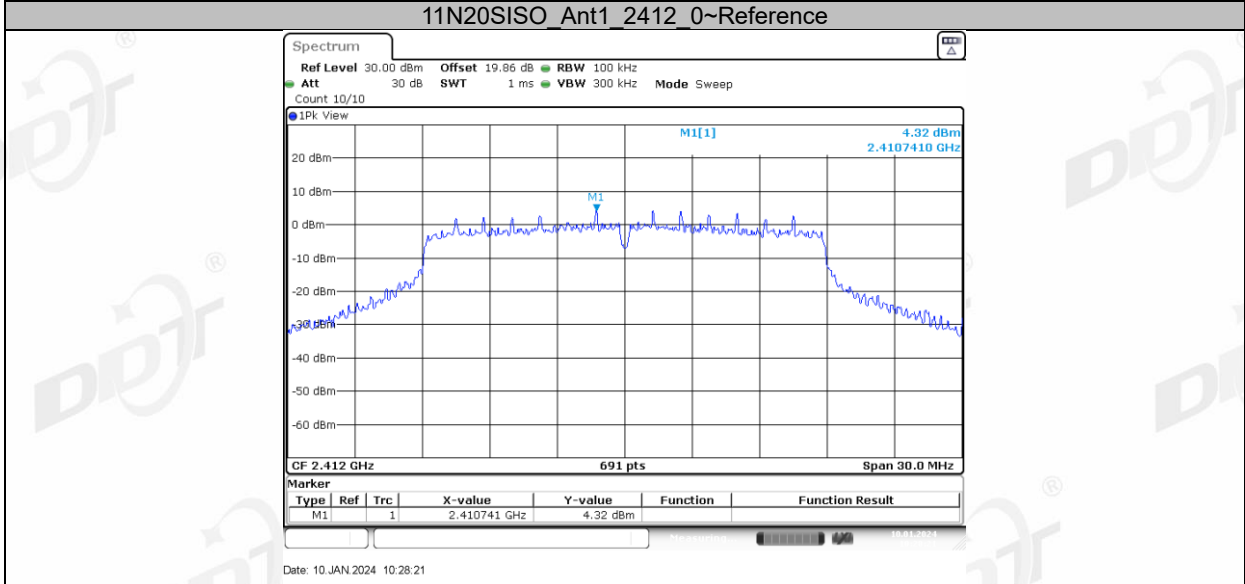
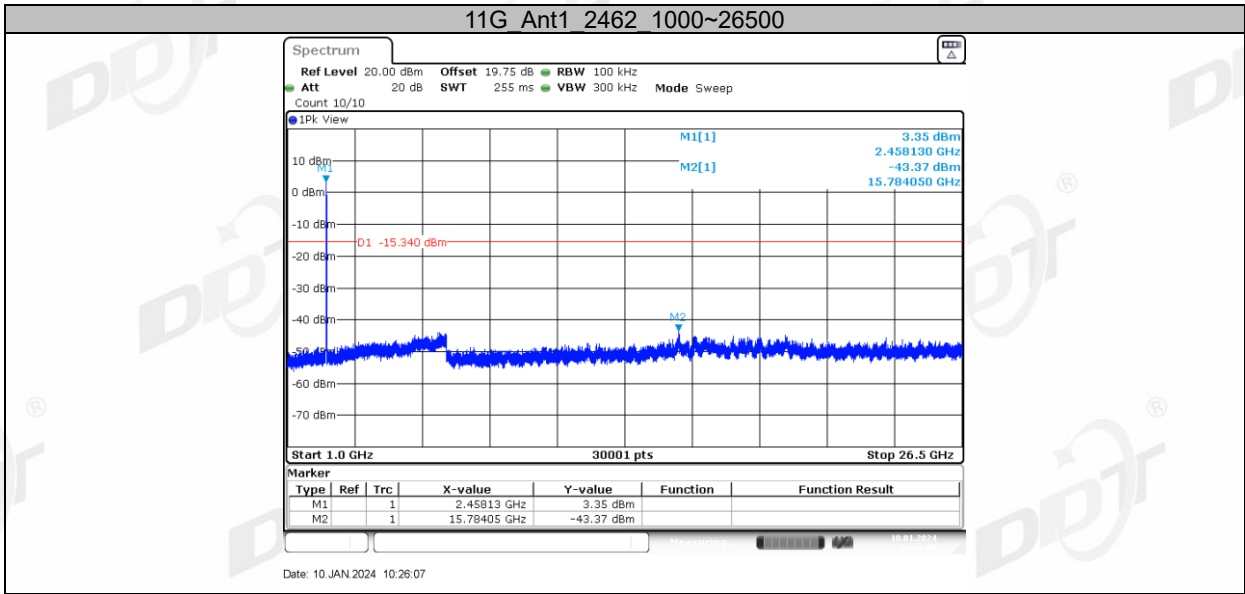


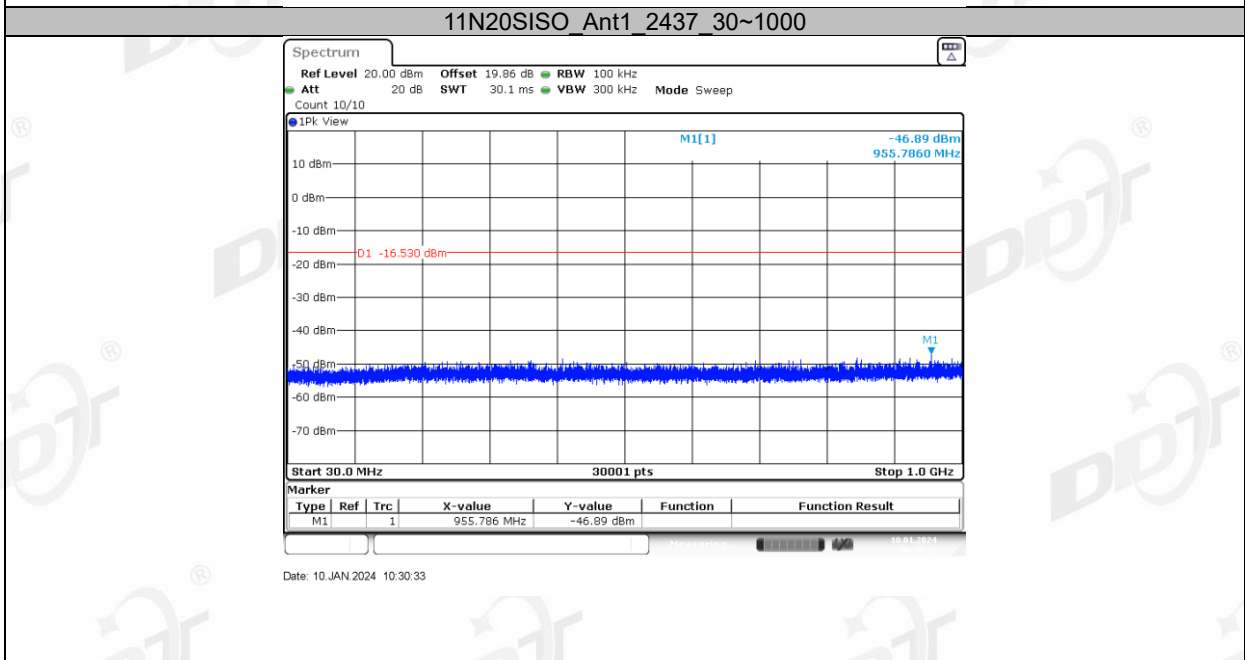
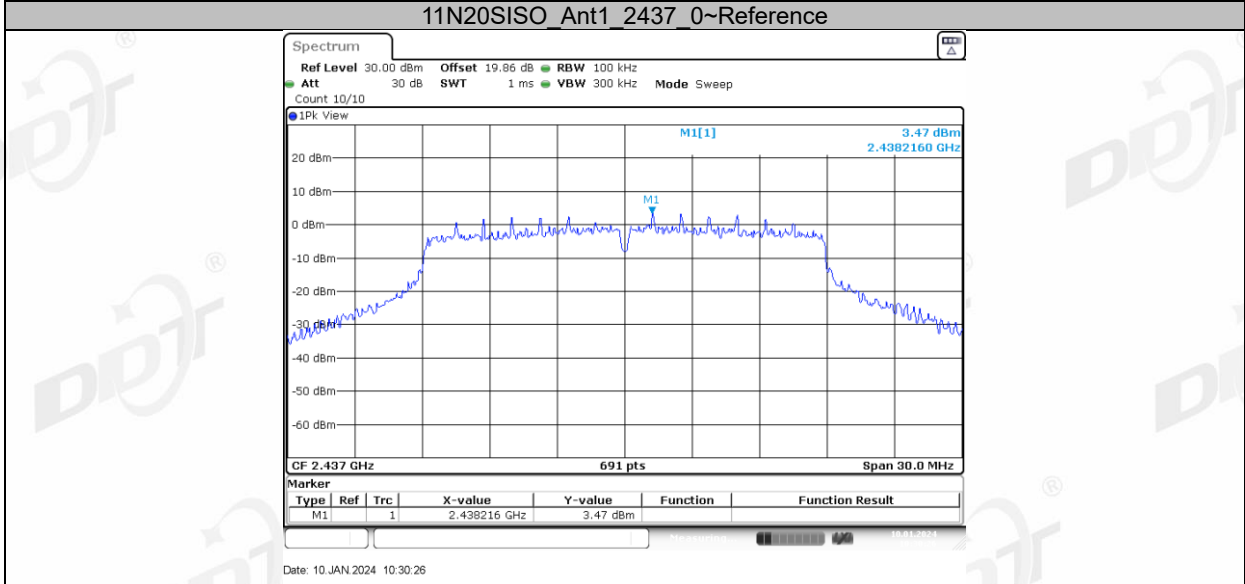
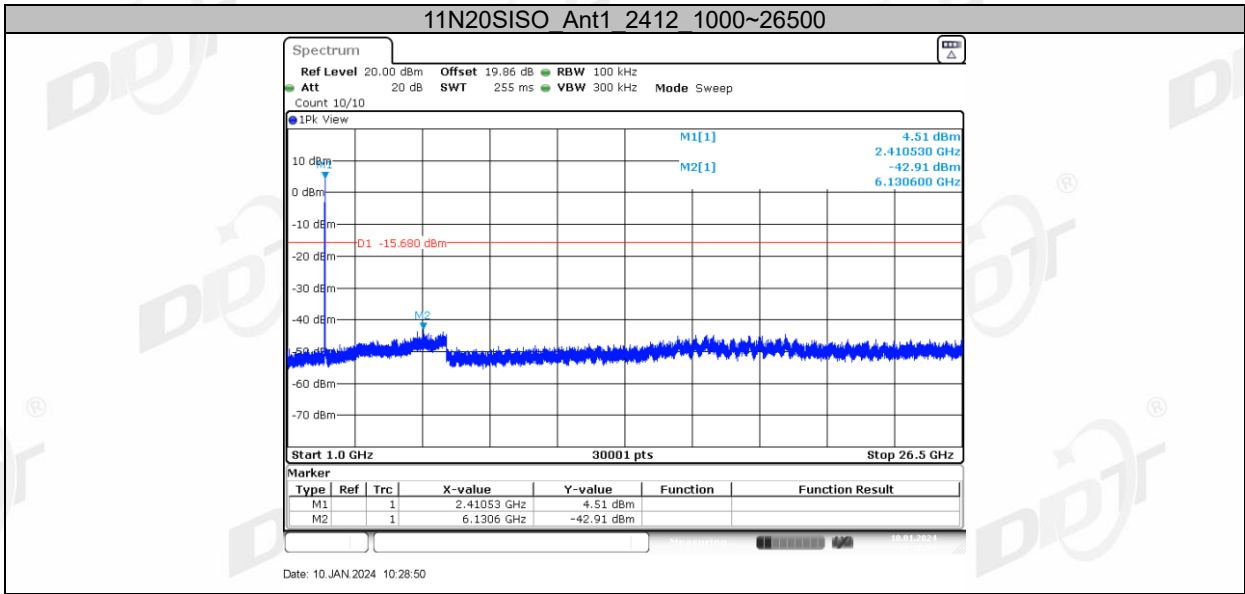


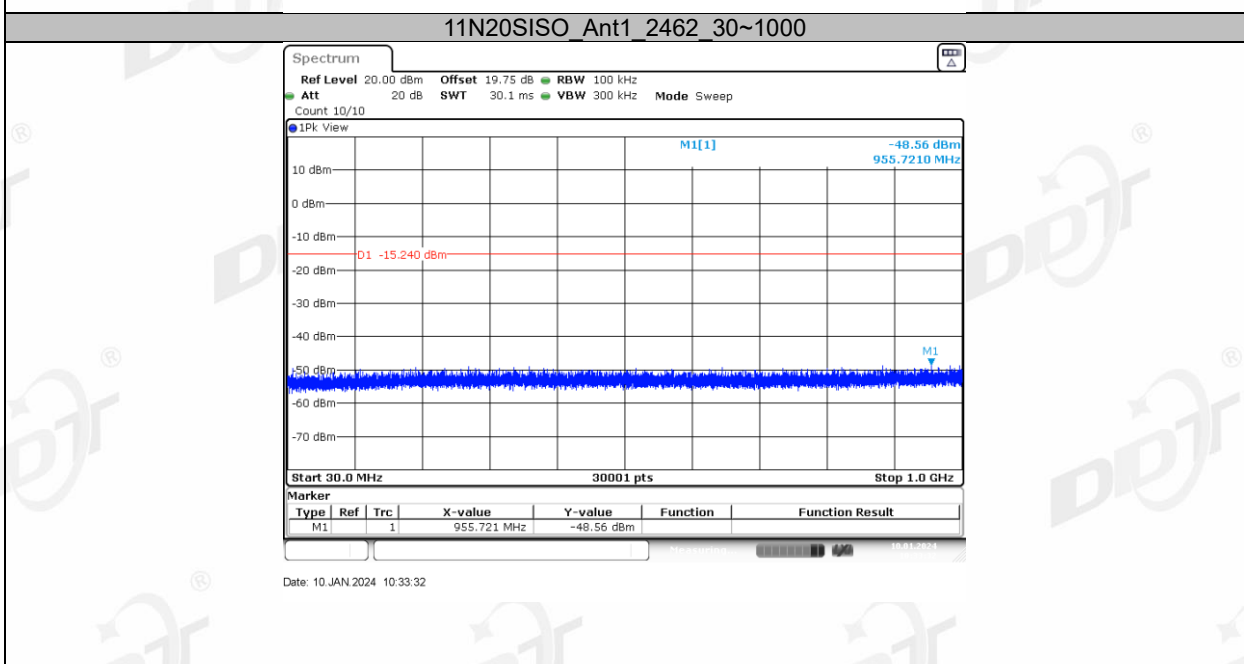
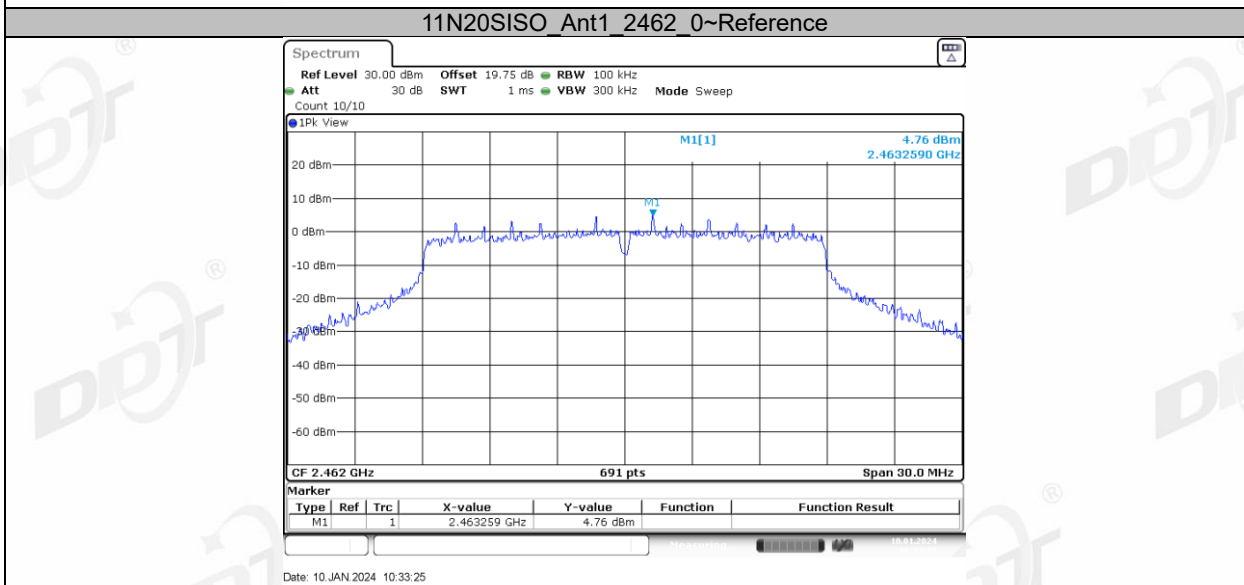
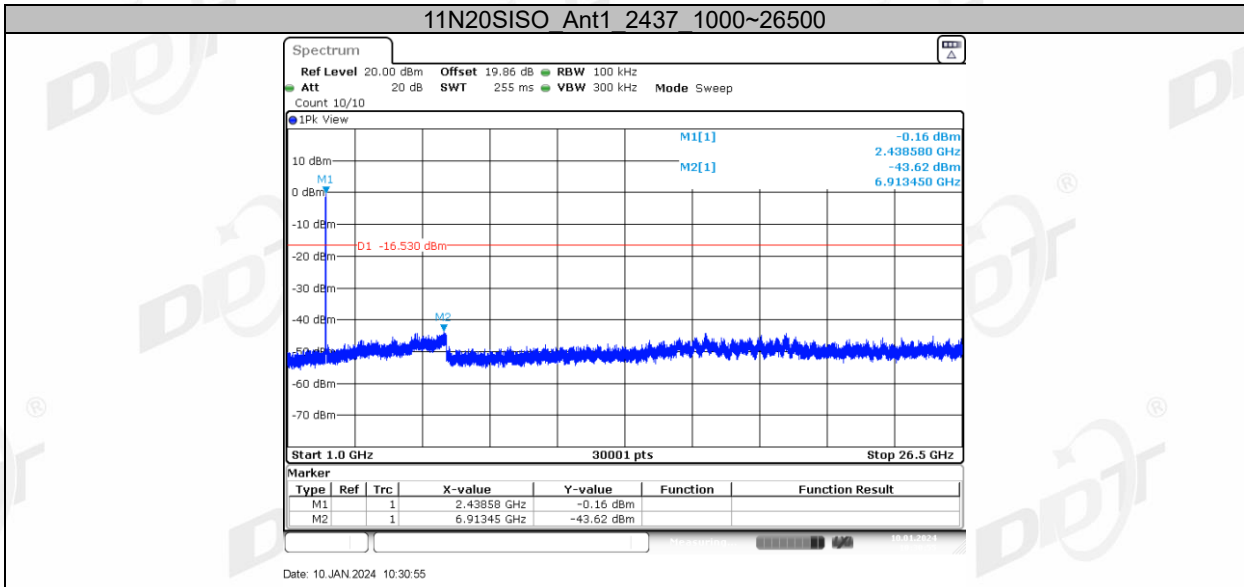


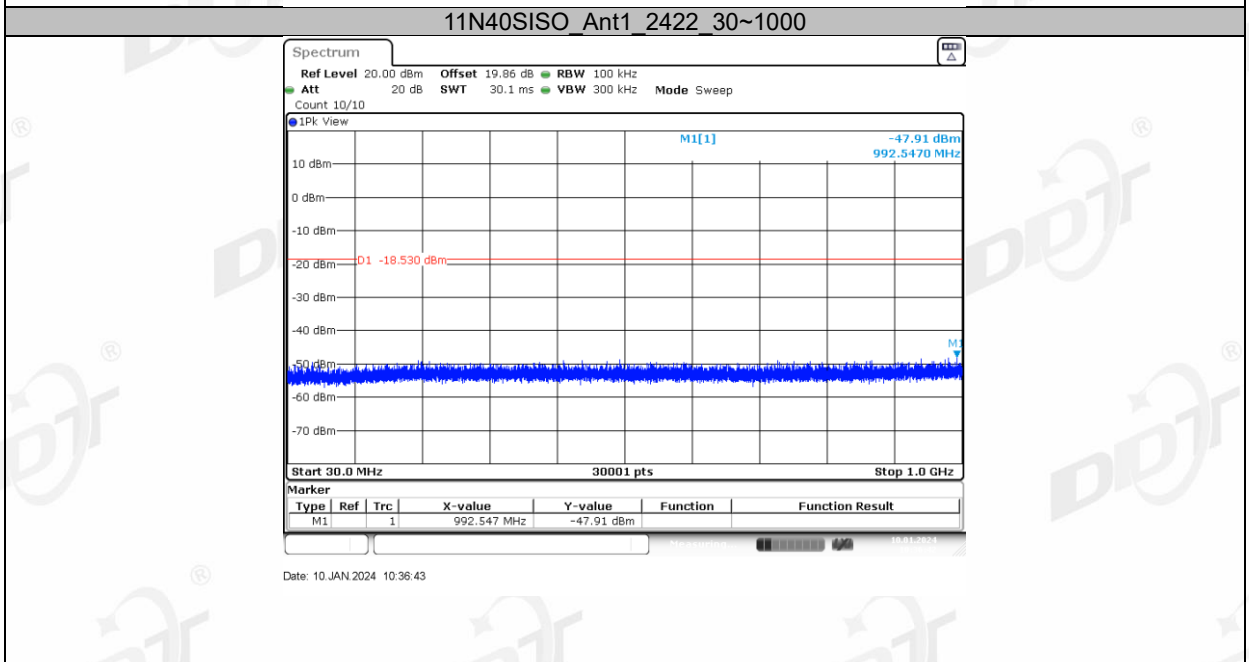
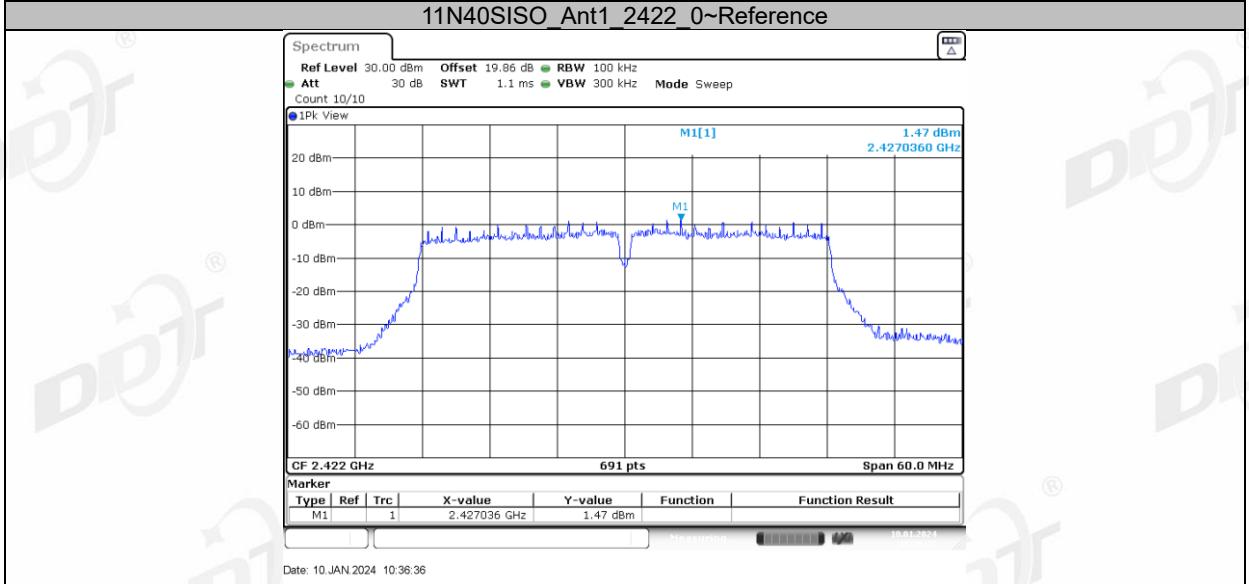
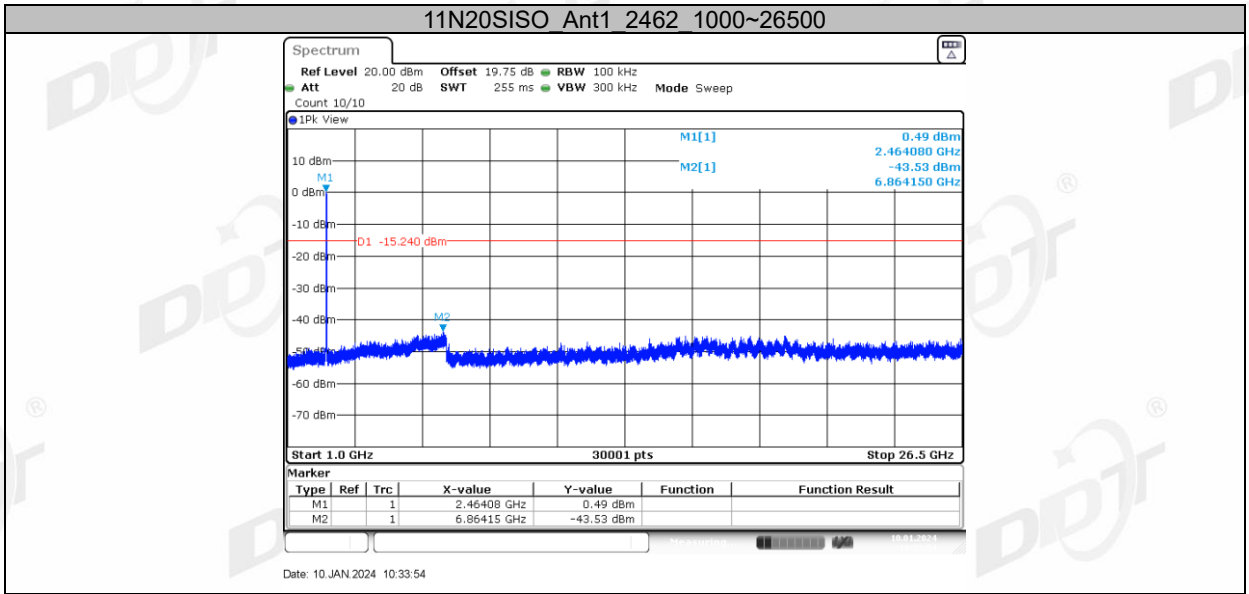


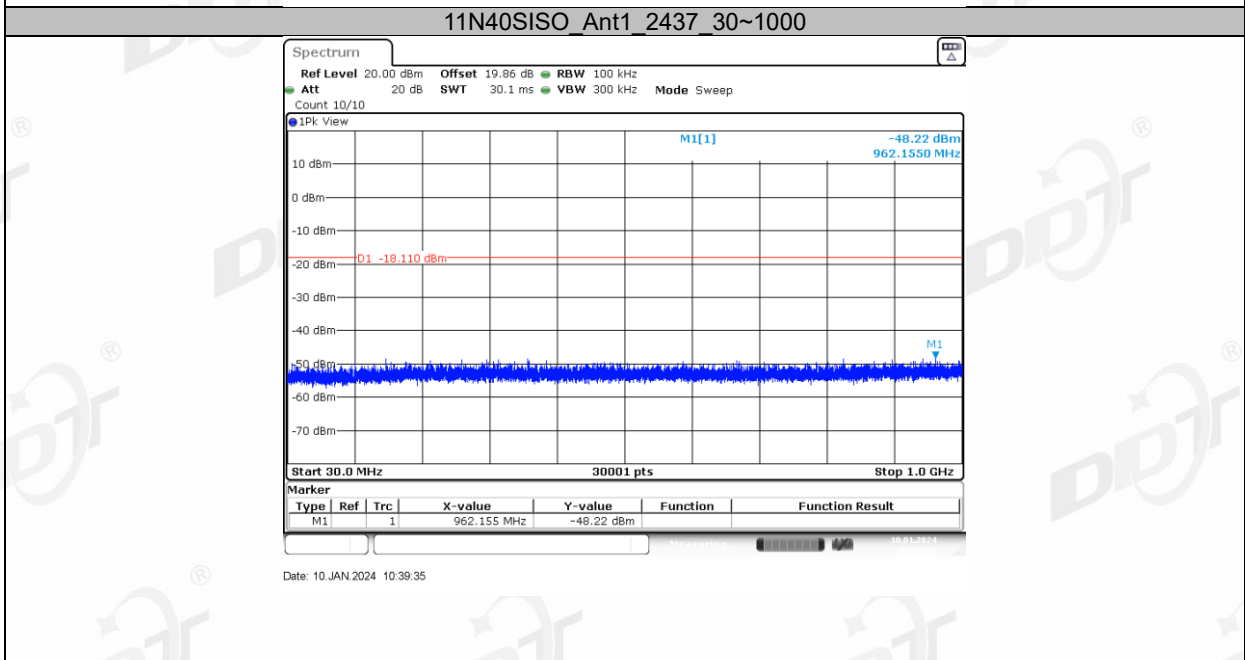
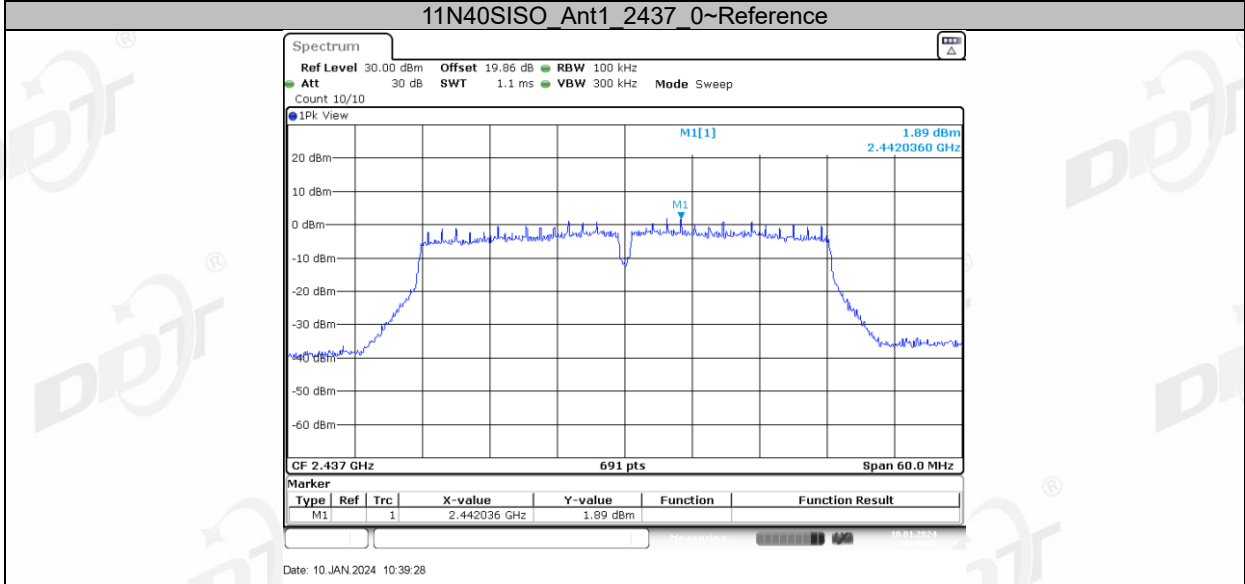
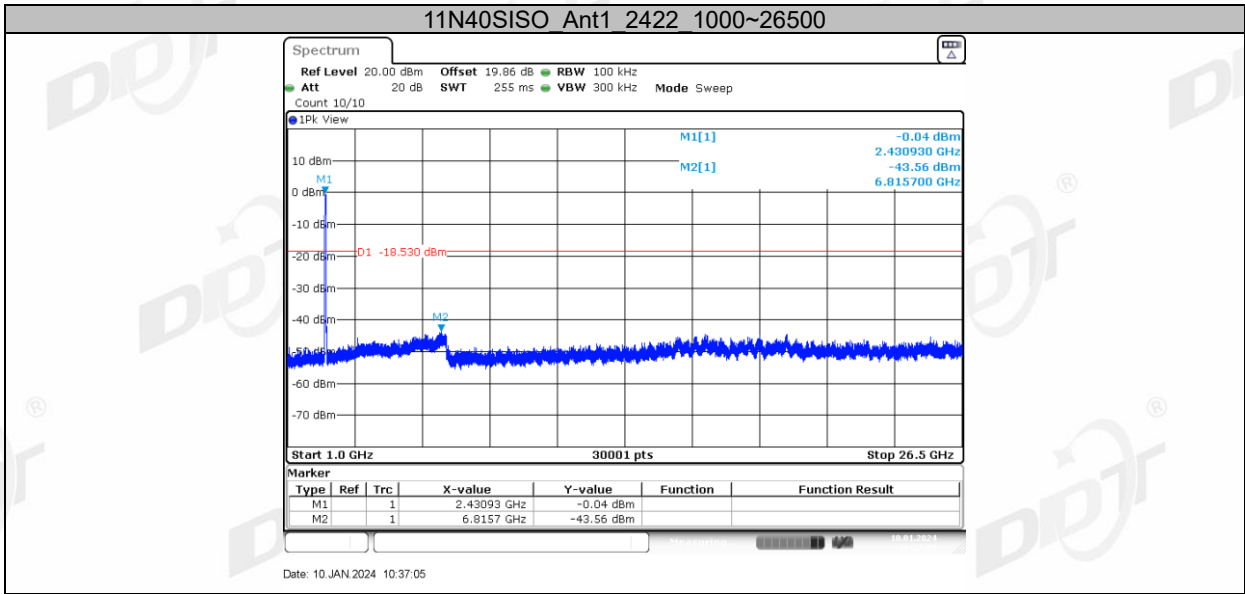


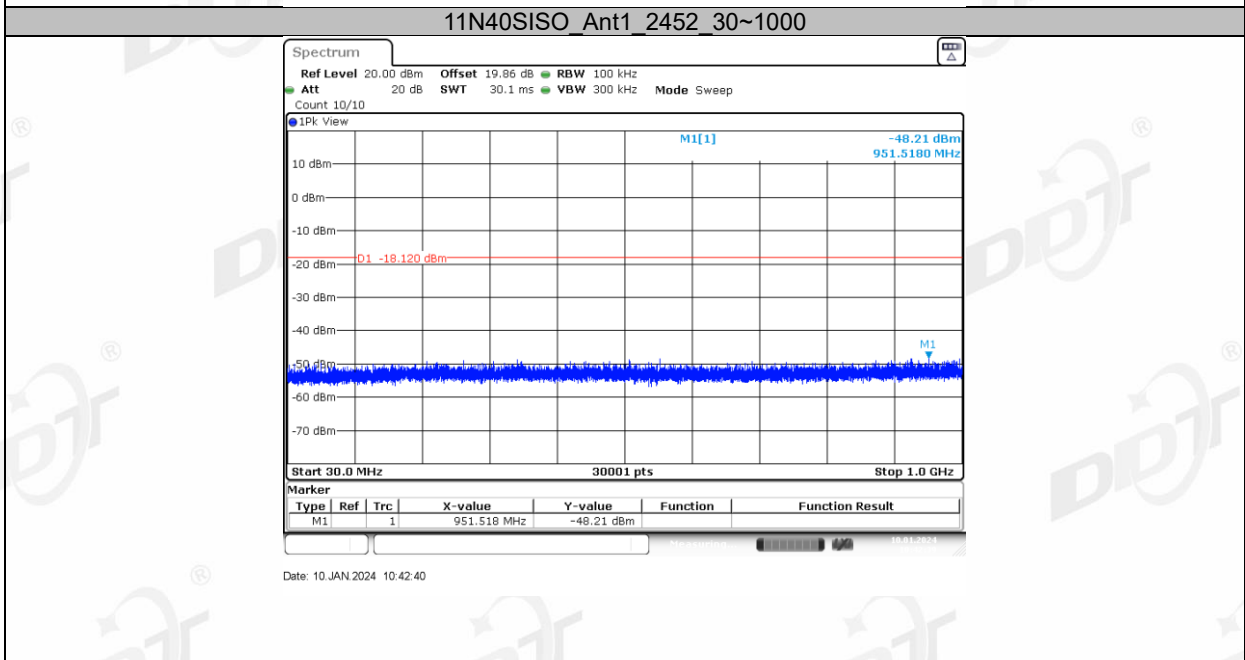
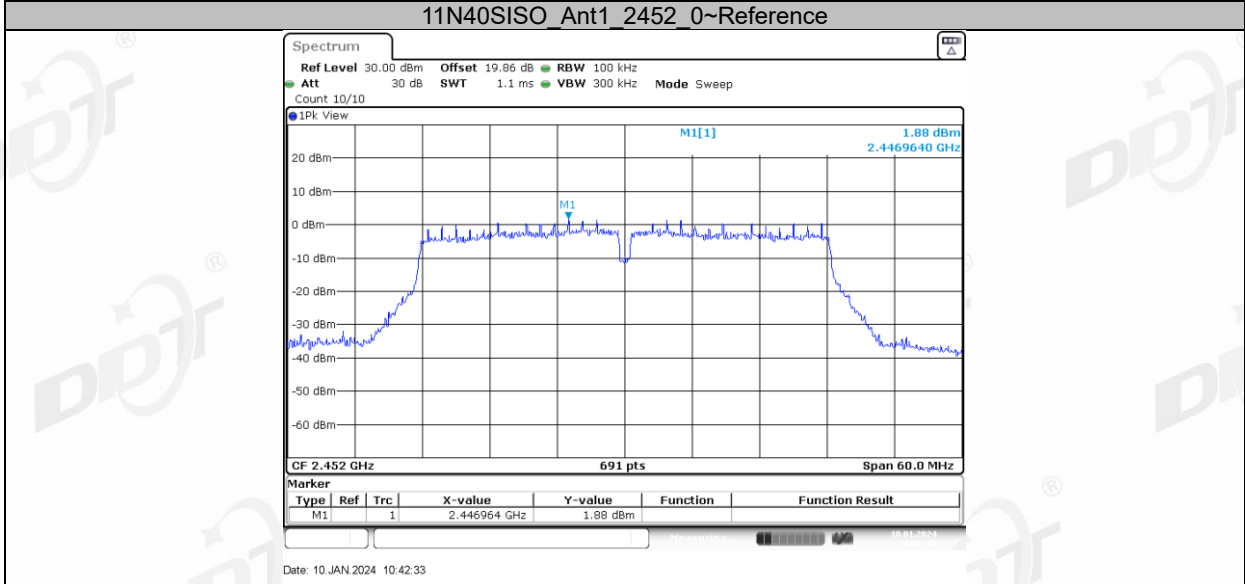
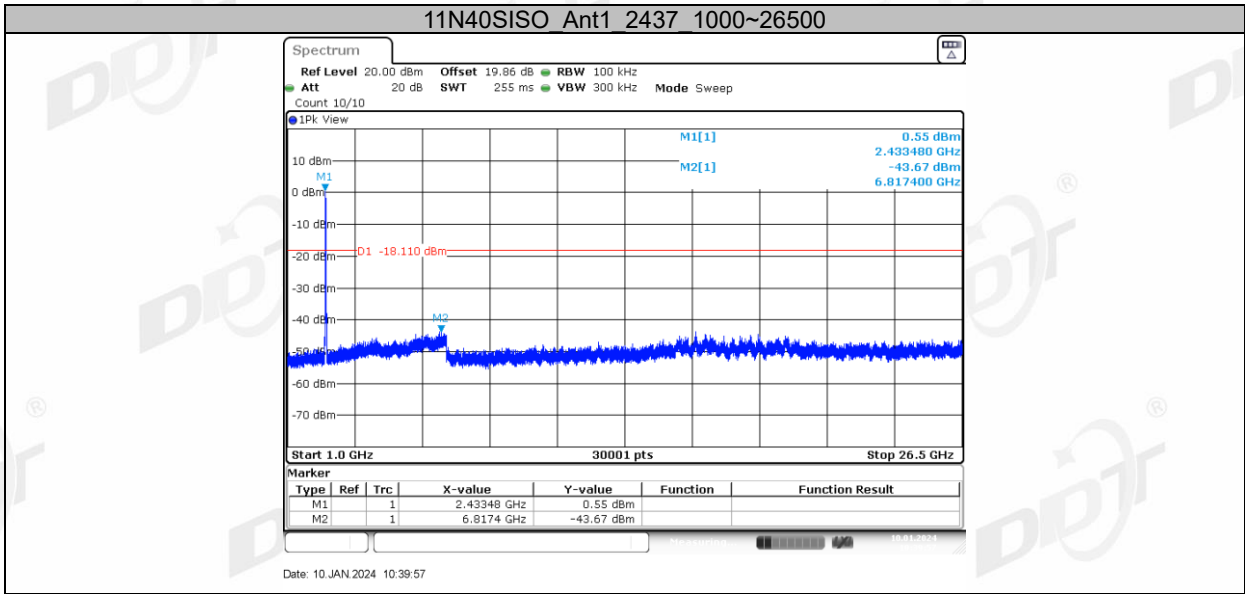


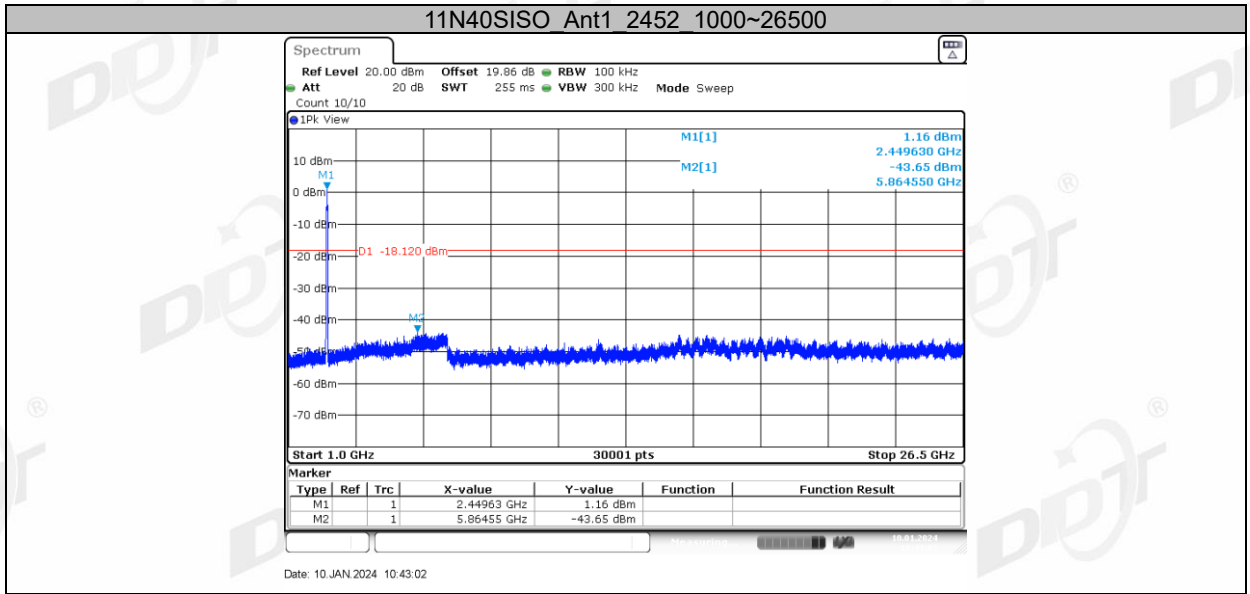






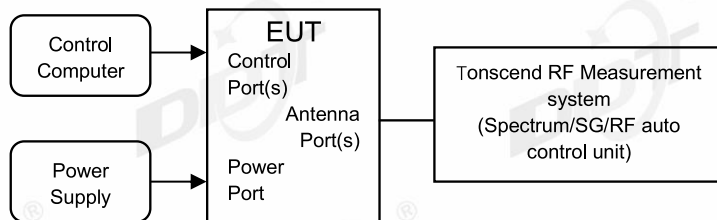






10. Duty Cycle

10.1. Block diagram of test setup



10.2. Limit

Just for Report.

10.3. 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

10.4. Test result

Test Engineer:	Zhongyao	Test Site:	RF Measurement System 3#
Ambient Condition:	25.3℃, 45.7%RH	Test Date:	2024.1.10
Test Power Supply:	AC 230V	EUT:	All-In-One Desktop Android HiFi Music Player
Sample Number:	S23101912-01	Model No.:	F3051R

Test Mode	Antenna	Frequency [MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]
11B	Ant1	2412	12.22	12.32	99.19
		2437	12.22	12.32	99.19
		2462	12.22	12.32	99.19
11G	Ant1	2412	2.04	2.07	98.55
		2437	2.03	2.07	98.07
		2462	2.03	2.06	98.54
11N20SISO	Ant1	2412	1.89	1.93	97.93
		2437	1.89	1.93	97.93
		2462	1.89	1.92	98.44
11N40SISO	Ant1	2422	0.93	0.98	94.90
		2437	0.93	0.98	94.90
		2452	0.93	0.98	94.90