



Test report No.: 2330285R-RFJPV02S-A

TEST REPORT

Product Name	Mobile Computer
Trademark	CIPHERLAB
Model and /or type reference	RS36W60
Applicant's name / address	CipherLab Co., Ltd. 12F, 333, Dunhua S.Rd., Sec.2, Taipei, Taiwan
Manufacturer's name	CIPHERLAB CO. LTD.
Test method requested, standard	Public notice of MIC No.88 test method of specified radio equipment (January 26, 2004) Annex43. Article 2 paragraph 1 item 19
Verdict Summary	IN COMPLIANCE
Documented By (Senior Project Specialist / Joanne Lin)	Joanne Lin
Tested By (Senior Engineer / Bill Lin)	Bill Lin
Approved By (Senior Engineer / Alan Chen)	Alan Chen
Date of Receipt	2023/03/07
Test Date	2023/03/28~2023/05/08
Date of Issue	2023/05/19
Report Version	V1.0

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Appendix 1: EUT Test Photographs

Appendix 2: Product Photos-Please refer to the file: 2330285R-Product Photos

Competences and Guarantees

DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

IMPORTANT: No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA.

General conditions

1. The test results relate only to the samples tested.
2. The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.
3. This report must not be used to claim product endorsement by TAF or any agency of the government.
4. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.
5. Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Revision History

Report No.	Version	Description	Issued Date
2330285R-RFJPV02S-A	V1.0	Initial issue of report.	2023/05/19

1. General Information

1.1. EUT Description

Product Name	Mobile Computer
Trademark	CIPHERLAB
Model and /or type reference	RS36W60
EUT Rated Voltage	DC 5V (Power by USB) or DC 3.85V (Power by Battery)
EUT Test Voltage	DC 3.85V (Power by Battery)
Frequency Range	802.11b/g/n/ac/ax-20 MHz: 2412-2472 MHz
Number of Channels	802.11b/g/n/ac/ax-20 MHz: 13CH
Data Rate	802.11b: 1-11 Mbps, 802.11g: 6-54 Mbps, 802.11n: up to 144.4 Mbps 802.11ac: up to 173.3 Mbps, 802.11ax up to 286.8 Mbps
Type of Modulation	802.11b: DSSS, DBPSK, DQPSK, CCK 802.11g/n/ac/ax: OFDM, OFDMA, BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM
Channel Control	Auto
Declared Output Power	802.11b: 7.24 mW/MHz 802.11g: 8.86 mW/MHz 802.11ax-20 MHz: 6.86 mW/MHz
RS35 to USB Cable (Optional)	Non-Shielded, 1.5m, with one ferrite core bonded.
Power Adapter #1 (Optional)	MFR: Sunny, M/N: SYS1561-1005 Input: AC 100-240V~, 1.0A MAX, 50-60Hz Output: +5.0V=2.0A, 10.0W MAX.
Power Adapter #2 (Optional)	MFR: CWT, M/N: 2AEA010BC3D Input: AC 100-240V~ 50/60Hz 0.35A Output: 5.0V=2.0A, 10.0W

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	auden	BRS36ANT00001 (Main)	PIFA	1.8 dBi for 2400 MHz
		BRS36ANT00001 (Aux)	PIFA	0.3 dBi for 2400 MHz

Note: Only the higher gain antenna was tested and recorded in this report.

802.11b/g/n/ac/ax-20 MHz Center Frequency of Each Channel:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	02	2417	03	2422	04	2427
05	2432	06	2437	07	2442	08	2447
09	2452	10	2457	11	2462	12	2467
13	2472	--	--	--	--	--	--

Note:

1. The EUT is a Mobile Computer with built-in WLAN and Bluetooth transceiver, this report for 2.4 GHz WLAN.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. Lowest and highest data rates are tested in each mode. Only worst case is shown in the report.
4. DEKRA verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode	Mode 1	Transmit (802.11b 1 Mbps)
		Transmit (802.11b 11 Mbps)
		Transmit (802.11g)
		Transmit (802.11ax-20 MHz)
	Mode 2	Receive (802.11b)
		Receive (802.11g)
		Receive (802.11ax-20 MHz)

1.2. EUT Exercise Software

1	Execute software “Command character Ver. 10.0.18363.1198” on the Notebook PC.
2	Configure the test mode, the test channel, and the data rate.
3	Press “OK” to start the continuous Transmit.
4	Verify that the EUT works properly.

1.3. Parament of test software setting

The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Frequency	2412 MHz	2442 MHz	2472 MHz
802.11b (SISO A)	15	14.5	15.25
802.11b (SISO B)	15.5	15.5	16
802.11g	13.5	13.5	14
802.11ax-20 MHz	13.75	13.5	14.25

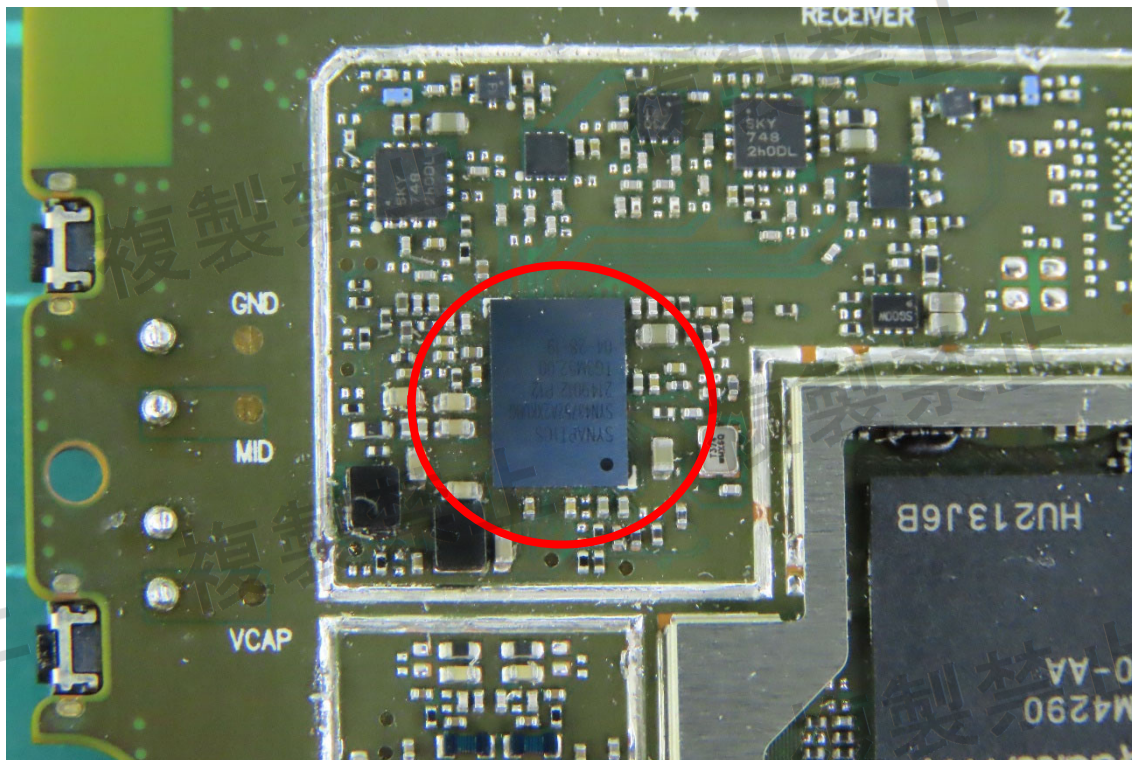
1.4. Test Conditions

Voltage Test Item	Test Voltage	Voltage meter reading value (U3207 Pin C3252)
Nominal Voltage	DC 3.85 V	DC 3.3 V
Highest Voltage	DC 4.23 V	DC 3.3 V
Lowest Voltage	DC 3.46 V	DC 3.3 V

Note: The internal supply gives a fluctuation value less than 1 % (Around 0% from max. to min.)

1.5. RF and IF section must be tamper requirement

Requirement	Comments	Result
RF, IF and Modulation section must be tamper	☐ Use Special Screw ☒ Metal Shielding is Soldered (Please see Attachment: EUT Detailed Photographs) ☒ Use Ball Grid Array (BGA)	Complete
	☒ RF module/Chip pin >10 ☒ RF module/Chip pins distance <1.5mm (Please see mechanism photograph)	Complete



1.6. Test Facility

Ambient conditions in the laboratory:

Performed Item	Items	Required	Actual
Conductive	Temperature (°C)	5~35 °C	25.6 °C
	Humidity (%RH)	45~85 %	61.0 %

Site Description	Accredited by TAF
	Accredited Number: 3023

Test Laboratory	DEKRA Testing and Certification Co., Ltd
Address	No. 5-22, Ruishukeng Linkou District, New Taipei City, 24451, Taiwan
Performed Location	No. 26, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan, R.O.C.
Phone Number	+886-3-275-7255
Fax Number	+886-3-327-8031

1.7. List of Test Item and Equipment

For Conducted measurements / HY-SR02

	Equipment	Manufacturer	Model No.	Serial No.	Cal. by	Cal. Method	Cal. Date	Due Date
V	Spectrum Analyzer	R&S	FSV30	103466	ETC	*(c)	2022/12/22	2023/12/21
V	Power Meter	Anritsu	ML2496A	1548003	ETC	*(c)	2022/12/22	2023/12/21
V	Power Sensor	Anritsu	MA2411B	1531024	ETC	*(c)	2022/12/22	2023/12/21
V	Power Sensor	Anritsu	MA2411B	1531025	ETC	*(c)	2022/12/22	2023/12/21

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with “V” are used to measure the final test results.
3. Test Software Version: DEKRA Conduction Test System V9.0.6.
4. a) Calibration conducted by the National Institute of Information and Communications Technology(NICT) (hereinafter referred to as "NICT") or a designated calibration agency under Article 102-18 paragraph (1).
b) Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992).
c) Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated agency under Article 102-18 paragraph (1).
d) Calibration conducted by using other equipment that listed above from a) to c).

1.8. Uncertainty

Uncertainties have been calculated according to the DEKRA internal document.

The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

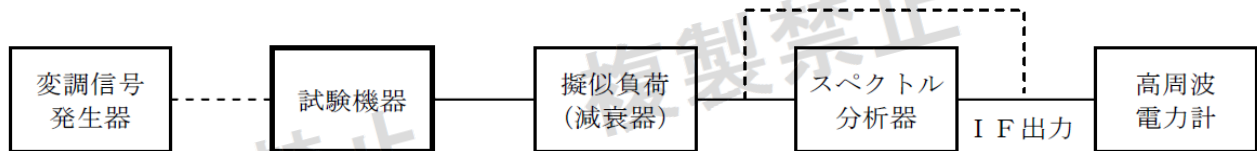
Test item	Uncertainty
Antenna Power and Antenna Power Tolerance	Spectrum Analyzer: ± 2.14 dB Power Meter: ± 1.05 dB
Spread Bandwidth and Spread Factor	± 1580.61 Hz
Occupied Bandwidth	± 1580.61 Hz
Frequency Tolerance	± 1580.61 Hz
Transmitter Spurious Emissions	± 2.14 dB
Receiver Spurious Emissions	± 2.14 dB
Carrier Sensing	± 0.53 %

1.9. Summary of Test Results

Chapter	Test Content	Test Date	Result
2	Antenna Power and Antenna Power Tolerance	2023/03/28~2023/05/08	PASS
3	Spread Bandwidth and Spread Factor	2023/03/28~2023/05/08	PASS
4	Occupied Bandwidth	2023/03/28~2023/05/08	PASS
5	Frequency Tolerance	2023/03/28~2023/05/08	PASS
6	Transmitter Spurious Emissions	2023/03/28~2023/05/08	PASS
7	Receiver Spurious Emissions	2023/03/28	PASS
8	Carrier Sensing	--	--
9	Interference Prevention Function	2023/05/08	PASS

2. Antenna Power and Antenna Power Tolerance

2.1. Test Setup



2.2. Limits

Antenna Power of 802.11b/g/n/ac/ax-20: $\leq 10\text{mW/MHz}$

E.I.R.P of 802.11b/g/n/ac/ax-20: $\leq 12.14\text{dBm/MHz}$

Antenna Power of 802.11n/ac/ax-40: $\leq 5\text{mW/MHz}$

E.I.R.P of 802.11n/ac/ax-40: $\leq 9.13\text{dBm/MHz}$

Antenna Power Tolerance: +20% to -80%

2.3. Test Procedure

A spectrum analyzer or similar device shall be used to observe a sample of the modulated transmitter's radio frequency power output.

- A sample detector function must be used.
- A measurement instrument with an integrated 1 MHz power bandwidth function may be used to automate the test process.
- Connect the power meter to the IF output of the spectrum analyzer.
- Set zero span of spectrum analyzer and 'Maximum Hold' than test result will show in power meter.

2.4. Test method

According to MIC Notice No. 88 Annex 43.

2.5. Test Result of Antenna Power and Antenna Power Tolerance

Product : Mobile Computer
 Test Item : Antenna Power and Antenna Power Tolerance
 Test Mode : Transmit (802.11b 1 Mbps)

SISO A

Duty Factor = 0.33 dB					
Maximum Antenna Gain = 1.80 dBi					
Frequency (MHz)	Antenna Power (dBm/MHz)	Antenna Power (mW/MHz)	Limit (mW/MHz)	E.I.R.P (dBm/MHz)	Limit (E.I.R.P) (dBm/MHz)
2412	7.70	6.35	10	9.83	12.14
2442	8.27	7.24	10	10.40	12.14
2472	8.21	7.14	10	10.34	12.14

E.I.R.P = Antenna Power + Antenna Gain.

Frequency (MHz)	Declared Antenna Power (mW/MHz)	Antenna Power (mW/MHz)	Tolerance (%)	Limit (%)
2412	7.24	6.35	-12.30	+20% to -80%
2442	7.24	7.24	0.00	+20% to -80%
2472	7.24	7.14	-1.37	+20% to -80%

Note: Deviation = (Antenna Power - Declared Antenna Power) / Declared Antenna Power * 100%.

Product : Mobile Computer
 Test Item : Antenna Power and Antenna Power Tolerance
 Test Mode : Transmit (802.11b 1 Mbps)

SISO B

Duty Factor = 0.33 dB					
Maximum Antenna Gain = 1.80 dBi					
Frequency (MHz)	Antenna Power (dBm/MHz)	Antenna Power (mW/MHz)	Limit (mW/MHz)	E.I.R.P (dBm/MHz)	Limit (E.I.R.P) (dBm/MHz)
2412	6.67	5.01	10	8.80	12.14
2442	6.31	4.61	10	8.44	12.14
2472	6.00	4.29	10	8.13	12.14

E.I.R.P = Antenna Power + Antenna Gain.

Frequency (MHz)	Declared Antenna Power (mW/MHz)	Antenna Power (mW/MHz)	Tolerance (%)	Limit (%)
2412	7.24	5.010	-30.80	+20% to -80%
2442	7.24	4.611	-36.31	+20% to -80%
2472	7.24	4.294	-40.70	+20% to -80%

Note: Deviation = (Antenna Power - Declared Antenna Power) / Declared Antenna Power * 100%.

Product : Mobile Computer
 Test Item : Antenna Power and Antenna Power Tolerance
 Test Mode : Transmit (802.11g)

Duty Factor: 0.21 dB				
Frequency (MHz)	Antenna Power (mW/MHz)			Limit (mW/MHz)
	Chain A	Chain B	Chain A+B	
2412	2.15	2.61	4.98	10
2442	5.02	3.03	8.44	10
2472	5.42	3.03	8.86	10

Note: Chain A+B = Chain A (mW) + Chain B (mW) + Duty Factor.

Antenna Gain: 1.8 dBi				
Frequency (MHz)	Antenna Power (mW/MHz)	Antenna Power (dBm/MHz)	E.I.R.P (dBm/MHz)	Limit (dBm/MHz)
2412	4.98	6.98	8.78	12.14
2442	8.44	9.26	11.06	12.14
2472	8.86	9.48	11.28	12.14

Note: E.I.R.P= Antenna Power + Antenna Gain.

Frequency (MHz)	Declared Antenna Power (mW/MHz)	Antenna Power (mW/MHz)	Tolerance (%)	Limit (%)
2412	8.86	4.98	-43.77	+20% to -80%
2442	8.86	8.44	-4.77	+20% to -80%
2472	8.86	8.86	0.00	+20% to -80%

Note: Deviation = (Antenna Power - Declared Antenna Power) / Declared Antenna Power * 100%.

Product : Mobile Computer
 Test Item : Antenna Power and Antenna Power Tolerance
 Test Mode : Transmit (802.11ax-20 MHz)

Duty Factor: 0.11 dB				
Frequency (MHz)	Antenna Power (mW/MHz)			Limit (mW/MHz)
	Chain A	Chain B	Chain A+B	
2412	2.64	2.82	5.60	10
2442	3.99	1.86	6.00	10
2472	4.53	2.16	6.86	10

Note: Chain A+B = Chain A (mW) + Chain B (mW) + Duty Factor.

Antenna Gain: 1.8 dBi				
Frequency (MHz)	Antenna Power (mW/MHz)	Antenna Power (dBm/MHz)	E.I.R.P (dBm/MHz)	Limit (dBm/MHz)
2412	5.60	7.48	9.28	12.14
2442	6.00	7.78	9.58	12.14
2472	6.86	8.37	10.17	12.14

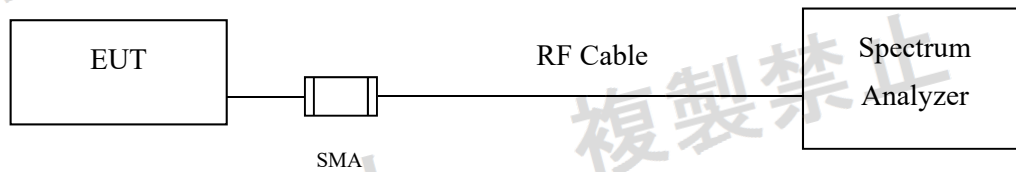
Note: E.I.R.P= Antenna Power + Antenna Gain.

Frequency (MHz)	Declared Antenna Power (mW/MHz)	Antenna Power (mW/MHz)	Tolerance (%)	Limit (%)
2412	6.86	5.60	-18.39	+20% to -80%
2442	6.86	6.00	-12.61	+20% to -80%
2472	6.86	6.86	0.00	+20% to -80%

Note: Deviation = (Antenna Power - Declared Antenna Power) / Declared Antenna Power * 100%.

3. Spread Bandwidth and Spread Factor

3.1. Test Setup



3.2. Test Procedure

A spectrum analyzer or similar device shall be used to observe a sample of the modulated transmitter's radio frequency power output.

- (a) A positive peak detector function must be used.
- (b) A measurement instrument with an integrated 90% power bandwidth function may be used to automate the test process.
- (c) The measurement instrument bandwidth and span must be set sufficiently with, and, the scan time set sufficiently slow, to ensure all major modulation products are captured. Note that the measurement bandwidth should also be set sufficiently narrow to avoid adding significant error to the test result.
- (d) 'Maximum Hold' mode may be used to accumulate the measurement result over several scans provided the emission is repetitive in nature.

3.3. Test method

According to MIC Notice No. 88 Annex 43.

3.4. Limits

Spread Bandwidth ≥ 500 kHz

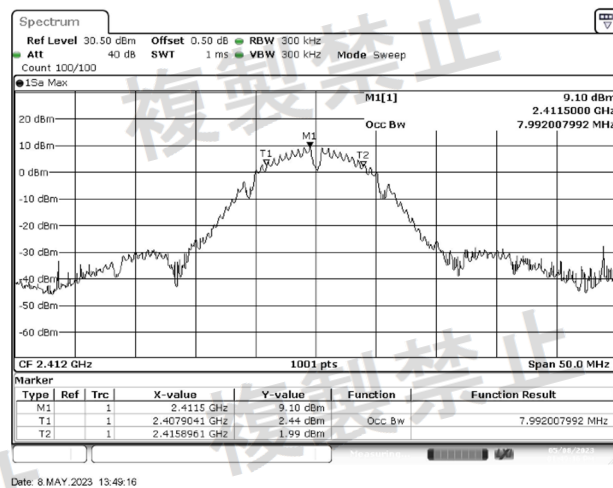
Spread Factor ≥ 5 for 2400 – 2483.5 MHz, ≥ 10 for 2471 – 2497 MHz

3.5. Test Result of Spread Bandwidth and Spread Factor

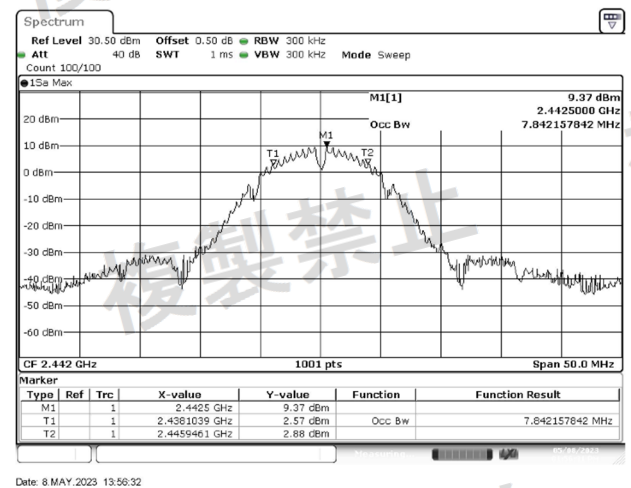
Product : Mobile Computer
 Test Item : Spread Bandwidth
 Test Mode : Transmit (802.11b 1 Mbps)

Frequency (MHz)	Reading Value (MHz)	Limit (kHz)
2412	7.99	≥ 500
2442	7.84	≥ 500
2472	7.64	≥ 500

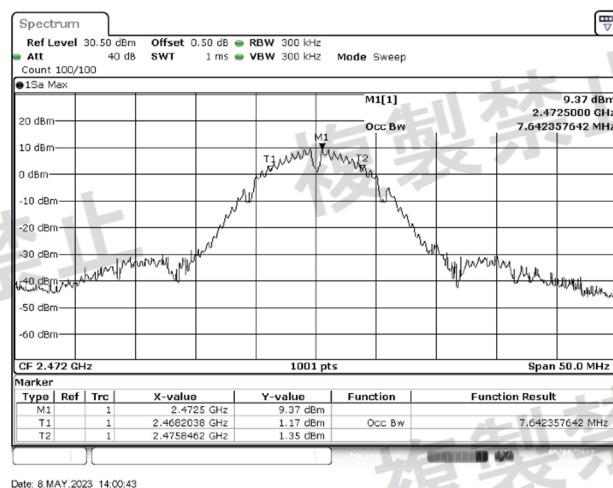
2412 MHz



2442 MHz



2472 MHz



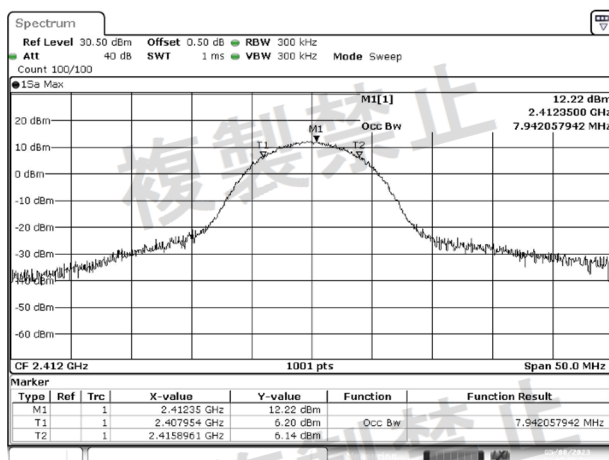
Product : Mobile Computer
Test Item : Spread Factor
Test Mode : Transmit (802.11b 1 Mbps)

Frequency (MHz)	Spread Bandwidth / 1.375 (MHz)	Limit
2412	5.81	≥ 5
2442	5.70	≥ 5
2472	5.56	≥ 5

Product : Mobile Computer
 Test Item : Spread Bandwidth
 Test Mode : Transmit (802.11b 11 Mbps)

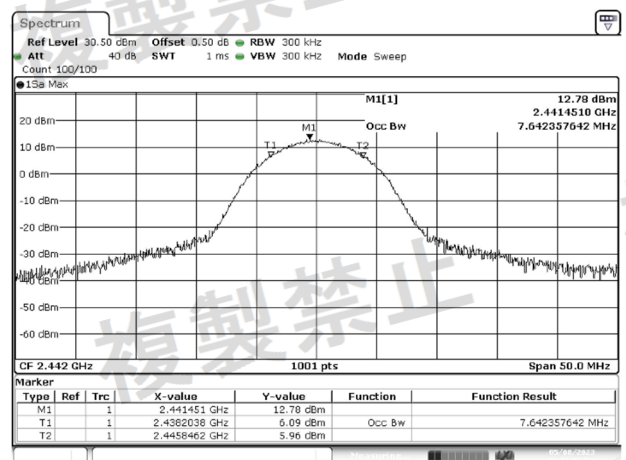
Frequency (MHz)	Reading Value (MHz)	Limit (kHz)
2412	7.94	≥ 500
2442	7.64	≥ 500
2472	7.49	≥ 500

2412 MHz



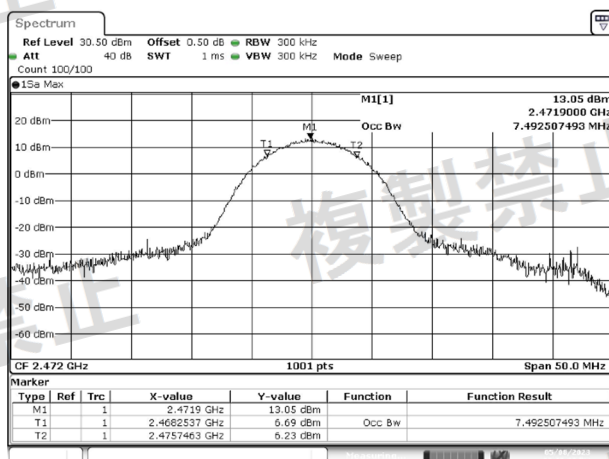
Date: 8 MAY 2023 14:07:57

2442 MHz



Date: 8 MAY 2023 14:12:02

2472 MHz



Date: 8 MAY 2023 14:13:33

Product : Mobile Computer
Test Item : Spread Factor
Test Mode : Transmit (802.11b 11 Mbps)

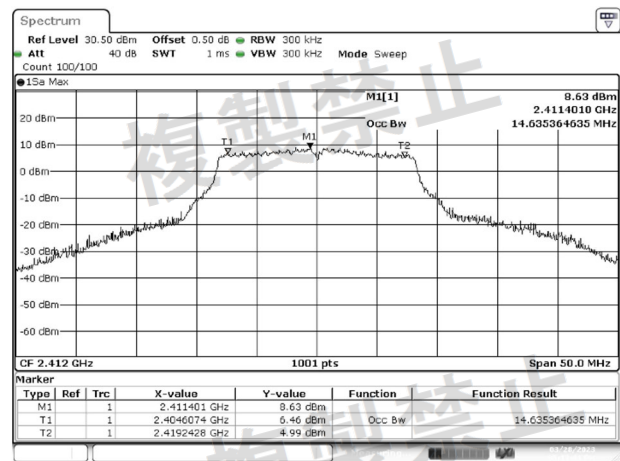
Frequency (MHz)	Spread Bandwidth / 1.375 (MHz)	Limit
2412	5.78	≥ 5
2442	5.56	≥ 5
2472	5.45	≥ 5

Product : Mobile Computer
Test Item : Spread Bandwidth
Test Mode : Transmit (802.11g)

Chain A

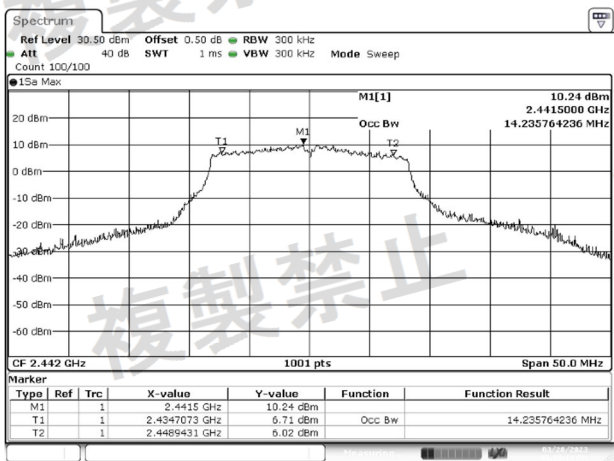
Frequency (MHz)	Reading Value (MHz)	Limit (kHz)
2412	14.63	≥ 500
2442	14.23	≥ 500
2472	14.18	≥ 500

2412 MHz



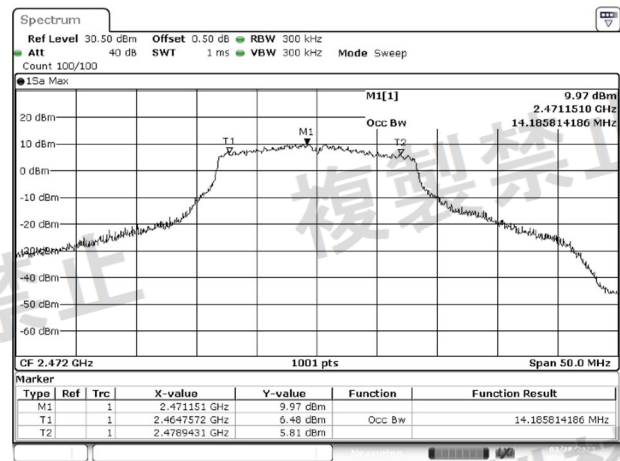
Date: 28 MAR 2023 17:13:42

2442 MHz



Date: 28 MAR 2023 17:18:15

2472 MHz

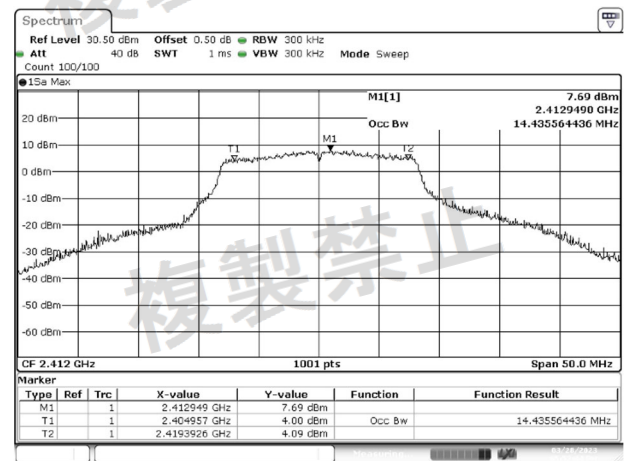


Date: 28 MAR 2023 17:21:38

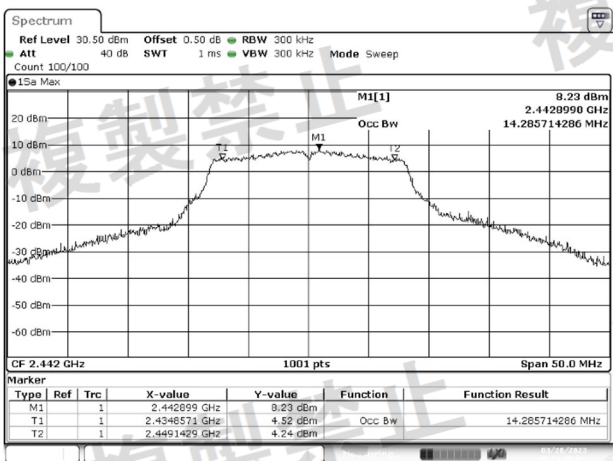
Chain B

Frequency (MHz)	Reading Value (MHz)	Limit (kHz)
2412	14.43	≥ 500
2442	14.28	≥ 500
2472	14.23	≥ 500

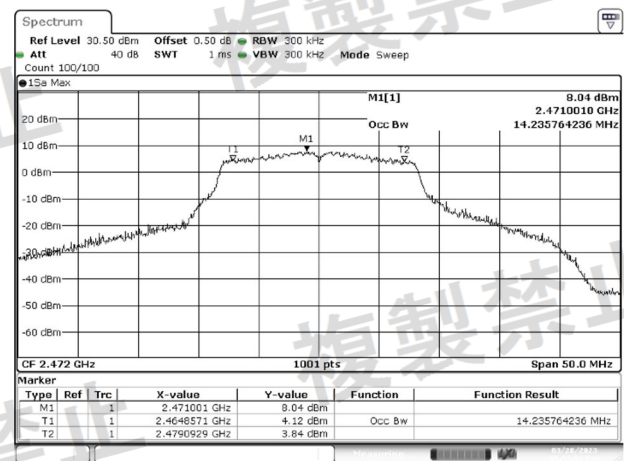
2412 MHz



2442 MHz



2472 MHz



Product : Mobile Computer
Test Item : Spread Factor
Test Mode : Transmit (802.11g)

Chain A

Frequency (MHz)	Spread Bandwidth / 1.375 (MHz)	Limit
2412	10.64	≥ 5
2442	10.35	≥ 5
2472	10.31	≥ 5

Chain B

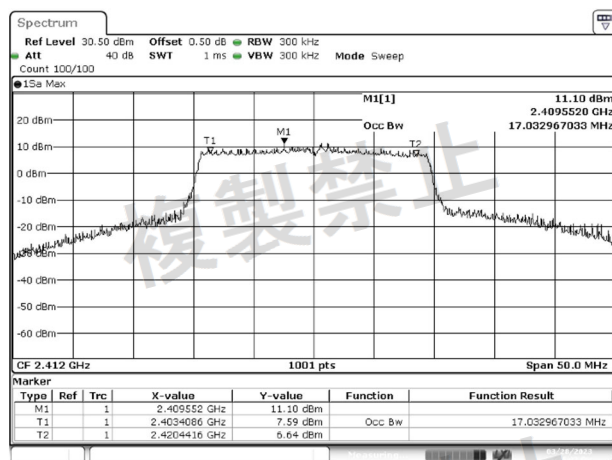
Frequency (MHz)	Spread Bandwidth / 1.375 (MHz)	Limit
2412	10.49	≥ 5
2442	10.39	≥ 5
2472	10.35	≥ 5

Product : Mobile Computer
 Test Item : Spread Bandwidth
 Test Mode : Transmit (802.11ax-20 MHz)

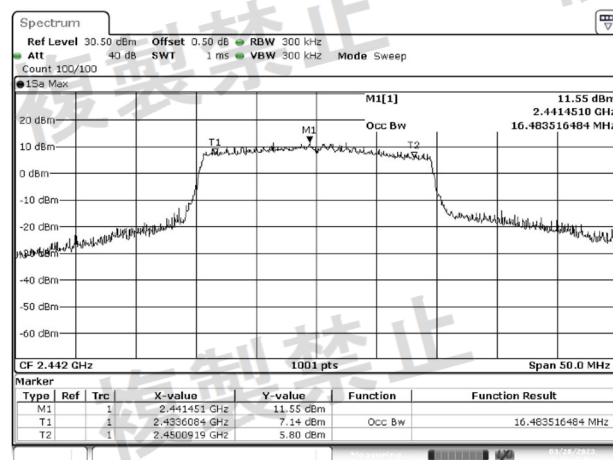
Chain A

Frequency (MHz)	Reading Value (MHz)	Limit (kHz)
2412	17.03	≥ 500
2442	16.48	≥ 500
2472	16.38	≥ 500

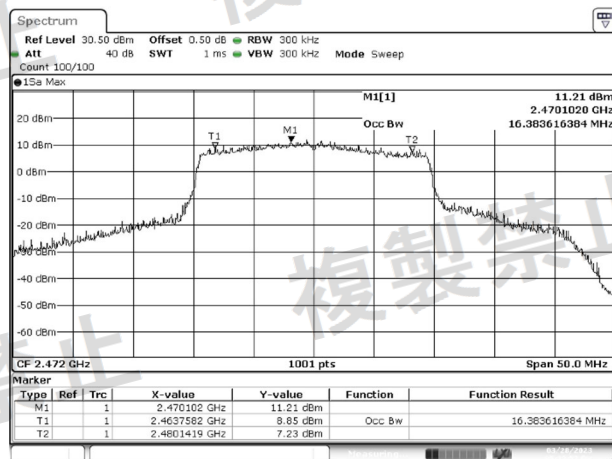
2412 MHz



2442 MHz



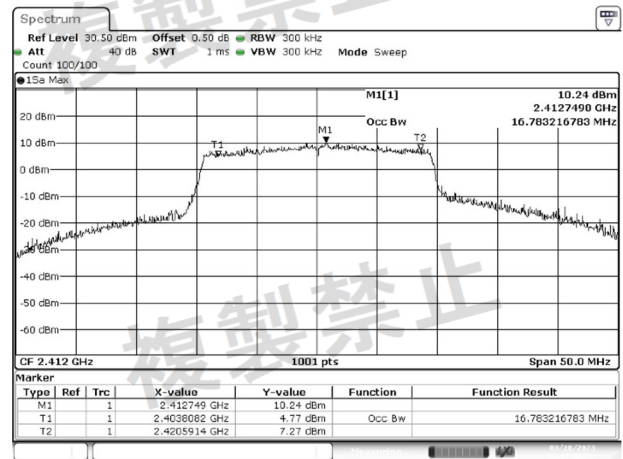
2472 MHz



Chain B

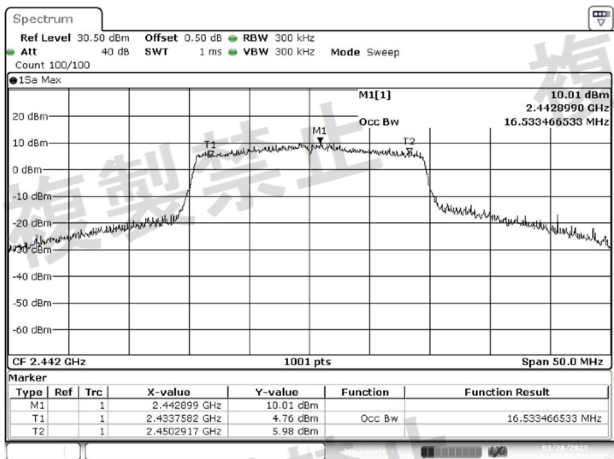
Frequency (MHz)	Reading Value (MHz)	Limit (kHz)
2412	16.78	≥ 500
2442	16.53	≥ 500
2472	16.38	≥ 500

2412 MHz



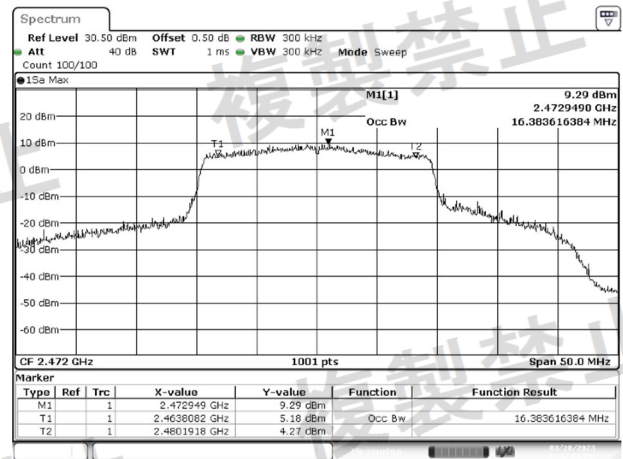
Date: 28 MAR 2023 18:03:40

2442 MHz



Date: 28 MAR 2023 18:09:07

2472 MHz



Date: 28 MAR 2023 18:17:06

Product : Mobile Computer
Test Item : Spread Factor
Test Mode : Transmit (802.11ax-20 MHz)

Chain A

Frequency (MHz)	Spread Bandwidth / 1.375 (MHz)	Limit
2412	12.39	≥ 5
2442	11.99	≥ 5
2472	11.91	≥ 5

Chain B

Frequency (MHz)	Spread Bandwidth / 1.375 (MHz)	Limit
2412	12.20	≥ 5
2442	12.02	≥ 5
2472	11.91	≥ 5

4. Occupied Bandwidth

4.1. Test Setup



4.2. Test Procedure

A spectrum analyzer or similar device shall be used to observe a sample of the modulated transmitter's radio frequency power output.

- (a) A positive peak detector function must be used.
- (b) A measurement instrument with an integrated 99% power bandwidth function may be used to automate the test process.
- (c) The measurement instrument bandwidth and span must be set sufficiently with, and, the scan time set sufficiently slow, to ensure all major modulation products are captured. Note that the measurement bandwidth should also be set sufficiently narrow to avoid adding significant error to the test result.
- (d) 'Maximum Hold' mode may be used to accumulate the measurement result over several scans provided the emission is repetitive in nature.

4.3. Test method

According to MIC Notice No. 88 Annex 43.

4.4. Limits

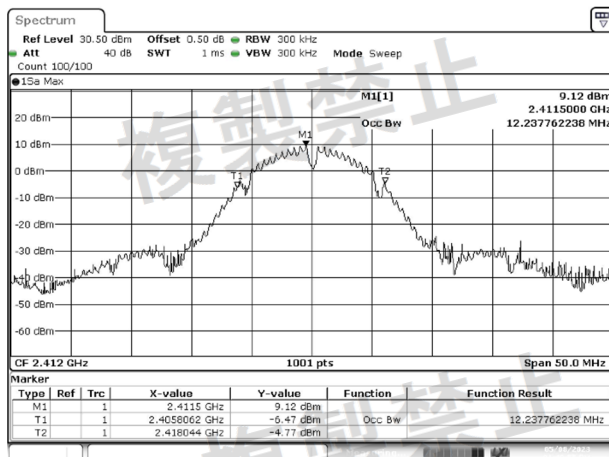
≤ 26 MHz for DSSS&OFDM, ≤ 83.5 MHz for FHSS
 ≤ 40 MHz for OFDM(Wide-band)

4.5. Test Result of Occupied Bandwidth

Product : Mobile Computer
 Test Item : Occupied Bandwidth
 Test Mode : Transmit (802.11b 1 Mbps)

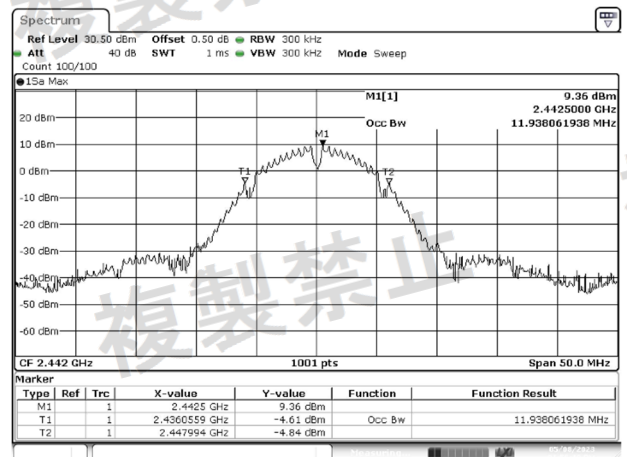
Frequency (MHz)	Reading Value (MHz)	Limit (MHz)
2412	12.24	≤ 26
2442	11.94	≤ 26
2472	11.79	≤ 26

2412 MHz



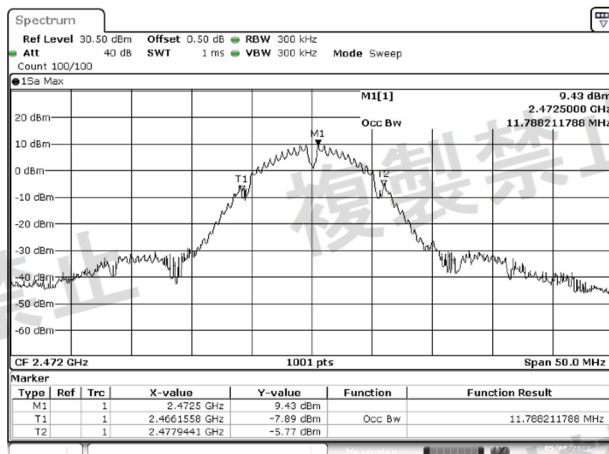
Date: 8 MAY 2023 13:48:55

2442 MHz



Date: 8 MAY 2023 13:56:10

2472 MHz



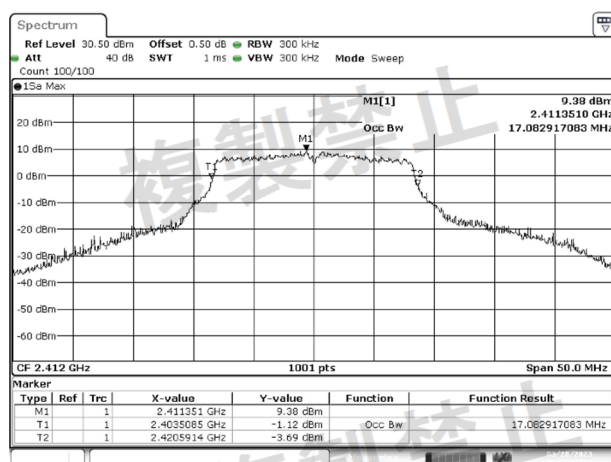
Date: 8 MAY 2023 14:00:21

Product : Mobile Computer
 Test Item : Occupied Bandwidth
 Test Mode : Transmit (802.11g)

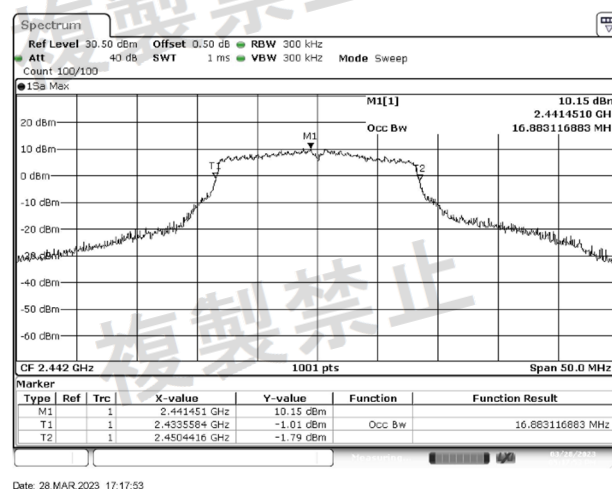
Chain A

Frequency (MHz)	Reading Value (MHz)	Limit (MHz)
2412	17.08	≤ 26
2442	16.88	≤ 26
2472	16.93	≤ 26

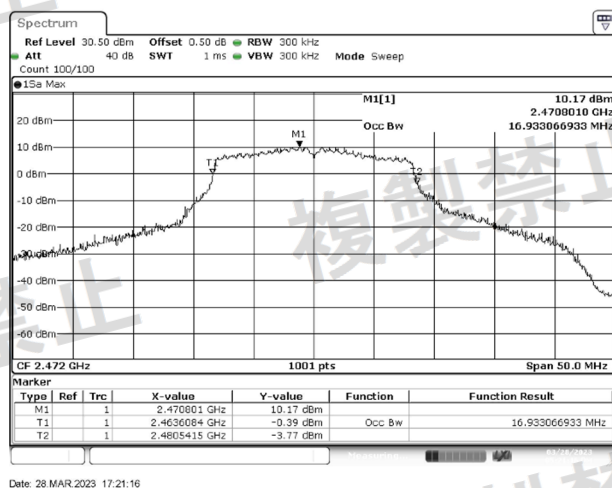
2412 MHz



2442 MHz



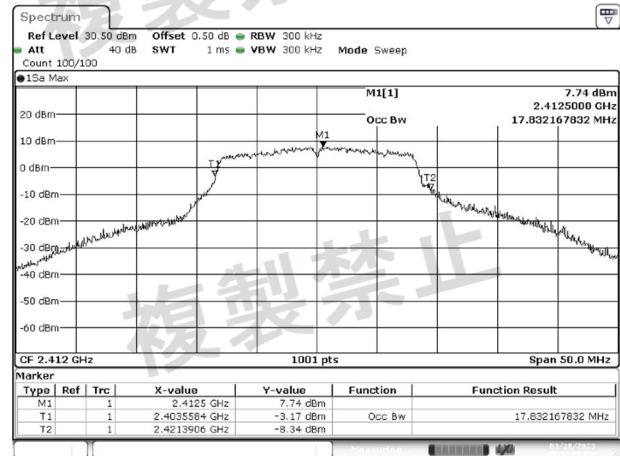
2472 MHz



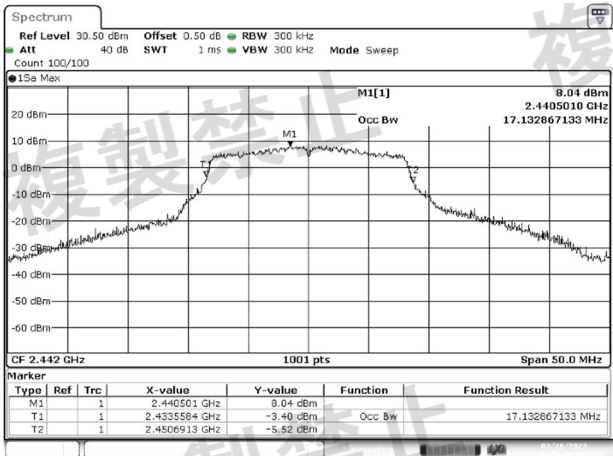
Chain B

Frequency (MHz)	Reading Value (MHz)	Limit (MHz)
2412	17.83	≤ 26
2442	17.13	≤ 26
2472	17.23	≤ 26

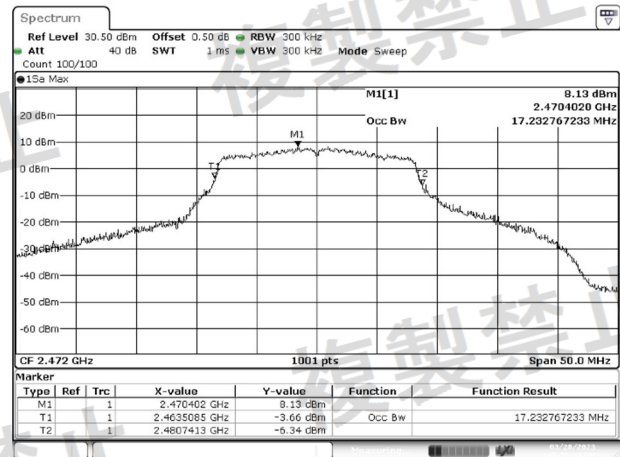
2412 MHz



2442 MHz



2472 MHz

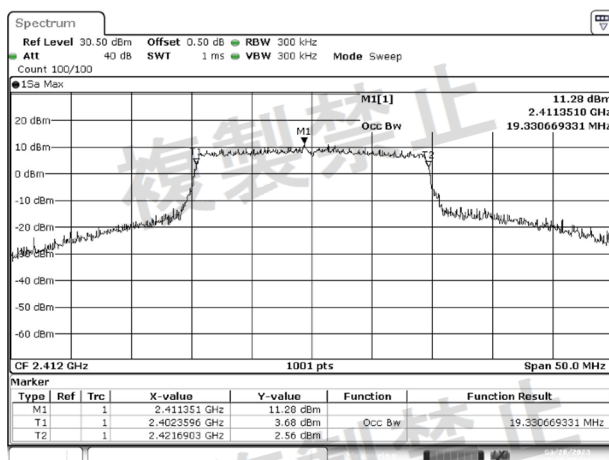


Product : Mobile Computer
 Test Item : Occupied Bandwidth
 Test Mode : Transmit (802.11ax-20 MHz)

Chain A

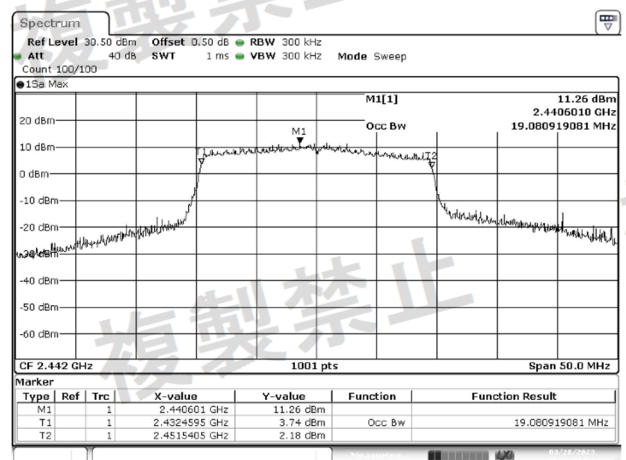
Frequency (MHz)	Reading Value (MHz)	Limit (MHz)
2412	19.33	≤ 26
2442	19.08	≤ 26
2472	19.13	≤ 26

2412 MHz



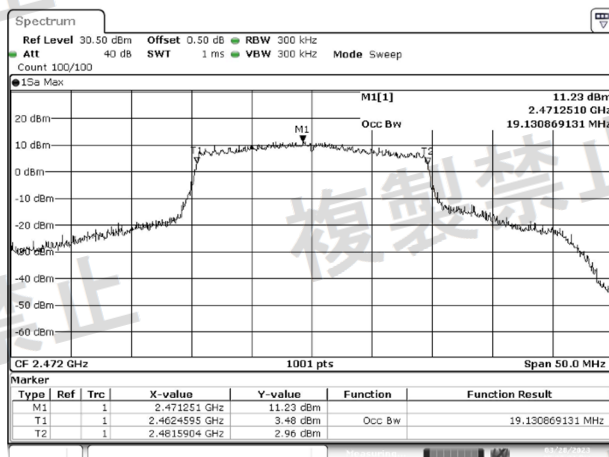
Date: 28 MAR 2023 17:25:01

2442 MHz



Date: 28 MAR 2023 17:29:04

2472 MHz

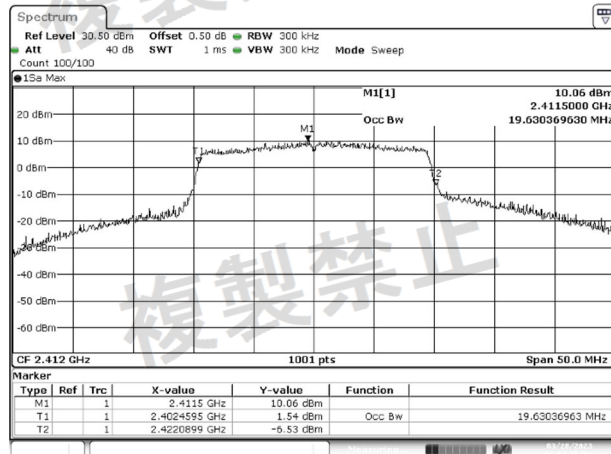


Date: 28 MAR 2023 17:32:31

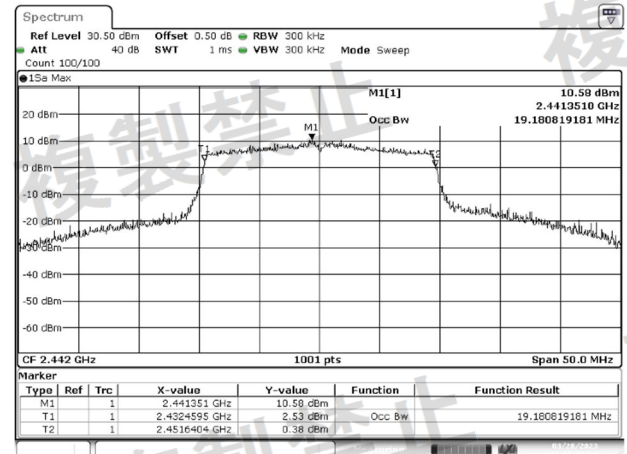
Chain B

Frequency (MHz)	Reading Value (MHz)	Limit (MHz)
2412	19.63	≤ 26
2442	19.18	≤ 26
2472	19.18	≤ 26

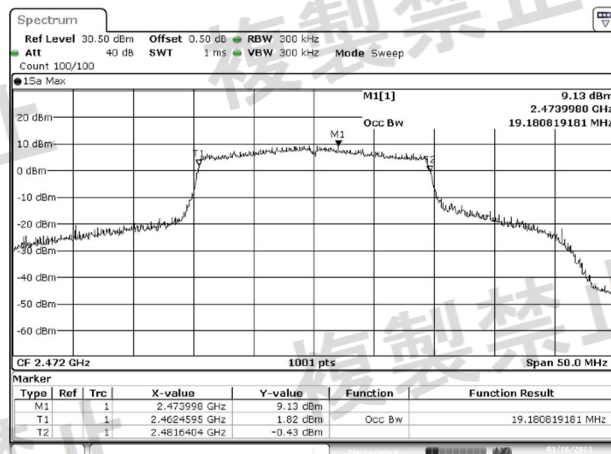
2412 MHz



2442 MHz



2472 MHz



5. Frequency Tolerance

5.1. Test Setup



5.2. Test Procedure

A spectrum analyzer or similar device shall be used to observe a sample of the modulated transmitter's radio frequency power output.

- (a) A positive peak detector function must be used.
- (b) The measurement instrument bandwidth and span must be set sufficiently with, and, the scan time set sufficiently slow, to ensure all major modulation products are captured. Note that the measurement bandwidth should also be set sufficiently narrow to avoid adding significant error to the test result.
- (c) 'Maximum Hold' mode may be used to accumulate the measurement result over several scans provided the emission is repetitive in nature.

5.3. Test method

According to MIC Notice No. 88 Annex 43.

5.4. Limits

± 50 ppm

5.5. Test Result of Frequency Tolerance

Product : Mobile Computer
Test Item : Frequency Tolerance
Test Mode : Transmit (802.11b 1 Mbps)

Frequency (MHz)	Reading Value (MHz)	Tolerance (ppm)	Limit (ppm)
2412	2412.0105	4.3532	± 50
2442	2442.0106	4.3407	± 50
2472	2472.0108	4.3689	± 50

Product : Mobile Computer
Test Item : Frequency Tolerance
Test Mode : Transmit (802.11g)

Chain A

Frequency (MHz)	Reading Value (MHz)	Tolerance (ppm)	Limit (ppm)
2412	2412.0065	2.6949	± 50
2442	2442.0066	2.7027	± 50
2472	2472.0065	2.6294	± 50

Chain B

Frequency (MHz)	Reading Value (MHz)	Tolerance (ppm)	Limit (ppm)
2412	2412.0060	2.4876	± 50
2442	2442.0061	2.4980	± 50
2472	2472.0062	2.5081	± 50

Product : Mobile Computer
Test Item : Frequency Tolerance
Test Mode : Transmit (802.11ax-20 MHz)

Chain A

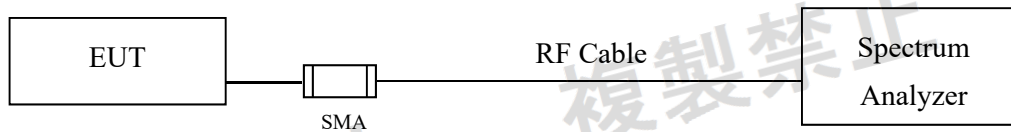
Frequency (MHz)	Reading Value (MHz)	Tolerance (ppm)	Limit (ppm)
2412	2412.0064	2.6534	± 50
2442	2442.0065	2.6618	± 50
2472	2472.0065	2.6294	± 50

Chain B

Frequency (MHz)	Reading Value (MHz)	Tolerance (ppm)	Limit (ppm)
2412	2412.0060	2.4876	± 50
2442	2442.0061	2.4980	± 50
2472	2472.0062	2.5081	± 50

6. Transmitter Spurious Emissions

6.1. Test Setup



6.2. Test Procedure

A spectrum analyzer or similar device shall be used to observe a sample of the modulated transmitter's radio frequency power output.

- (a) A positive peak detector function must be used.
- (b) The measurement instrument bandwidth and span must be set sufficiently with, and, the scan time set sufficiently slow, to ensure all major modulation products are captured. Note that the measurement bandwidth should also be set sufficiently narrow to avoid adding significant error to the test result.
- (c) 'Maximum Hold' mode may be used to accumulate the measurement result over several scans provided the emission is repetitive in nature.

6.3. Test method

According to MIC Notice No. 88 Annex 43.

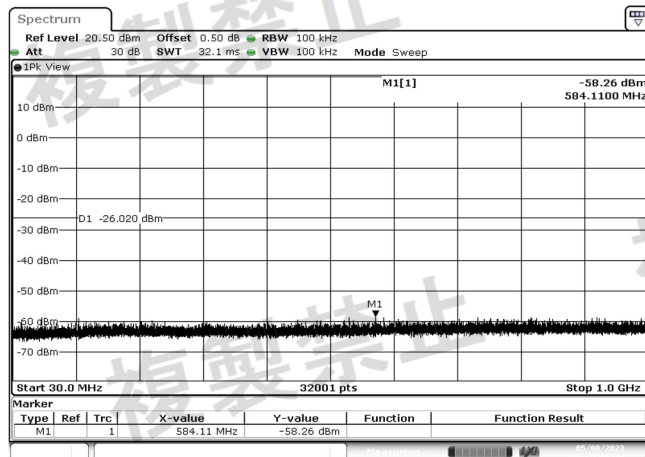
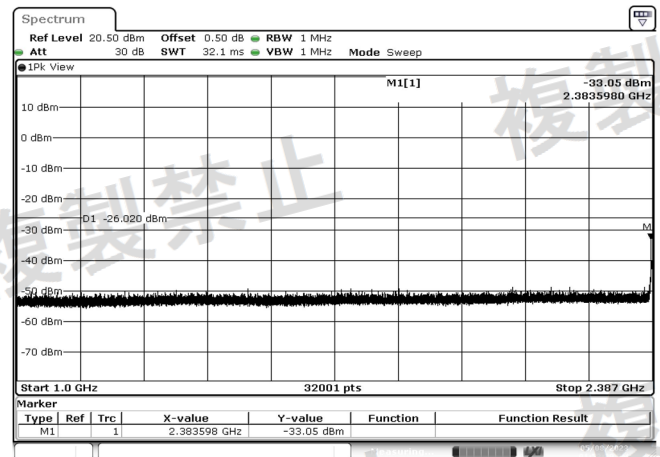
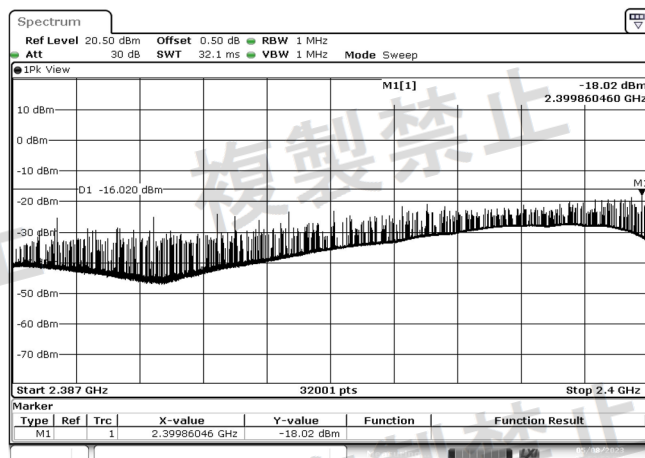
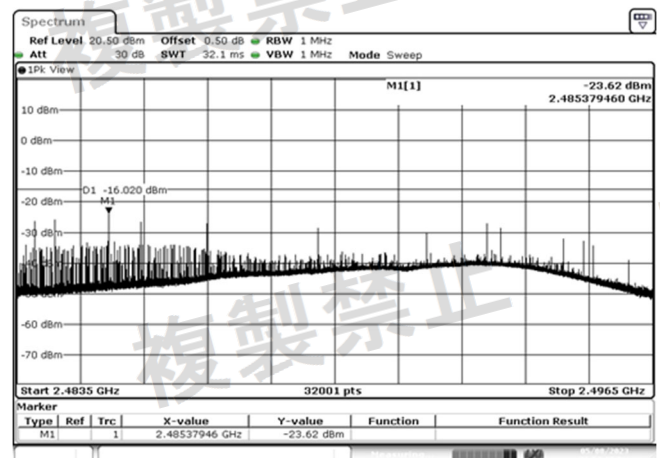
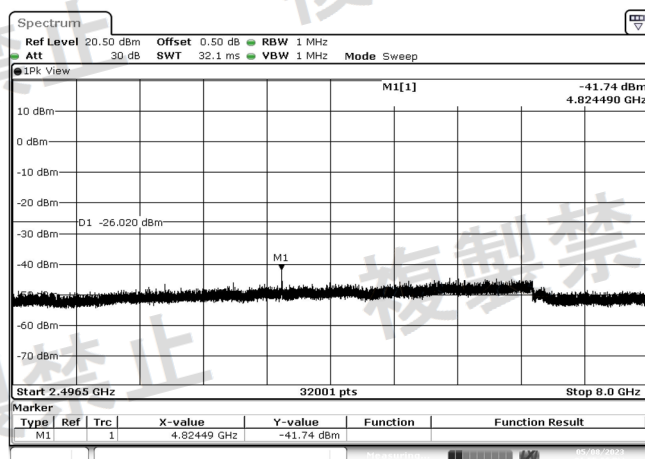
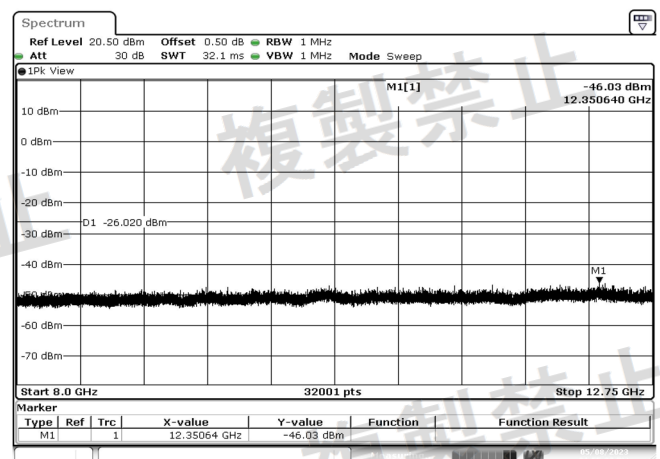
6.4. Limits

- $\leq 2.5 \mu\text{W}/\text{MHz}$ for 30 – 2387 MHz
- $\leq 25 \mu\text{W}/\text{MHz}$ for 2387 – 2400 MHz
- $\leq 25 \mu\text{W}/\text{MHz}$ for 2483.5 – 2496.5 MHz
- $\leq 2.5 \mu\text{W}/\text{MHz}$ for 2496.5 – 12500 MHz

6.5. Test Result of Transmitter Spurious Emissions

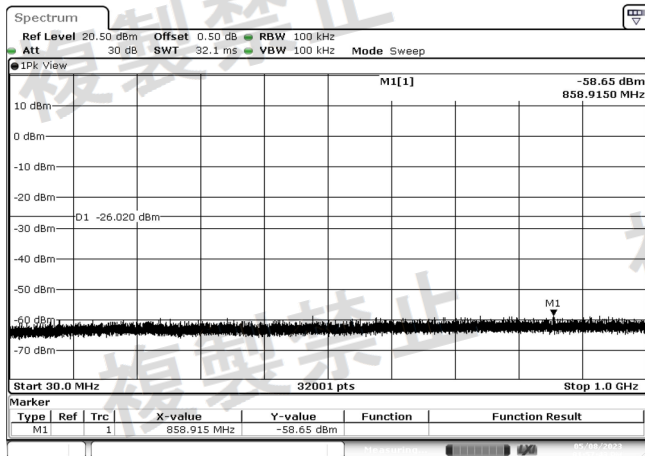
Product : Mobile Computer
Test Item : Transmitter Spurious Emissions
Test Mode : Transmit (802.11b 1 Mbps) (2412 MHz)

Frequency Range (MHz)	Chain	Frequency (MHz)	Reading Value (μ W/MHz)	Limit (μ W/MHz)
30 - 1000	A	584.11	0.001493	2.5
1000 - 2387	A	2383.60	0.495450	2.5
2387 - 2400	A	2399.86	15.776113	25
2483.5 - 2496.5	A	2485.38	4.345102	25
2496.5 - 8000	A	4824.49	0.066988	2.5
8000 - 12750	A	12350.64	0.024946	2.5

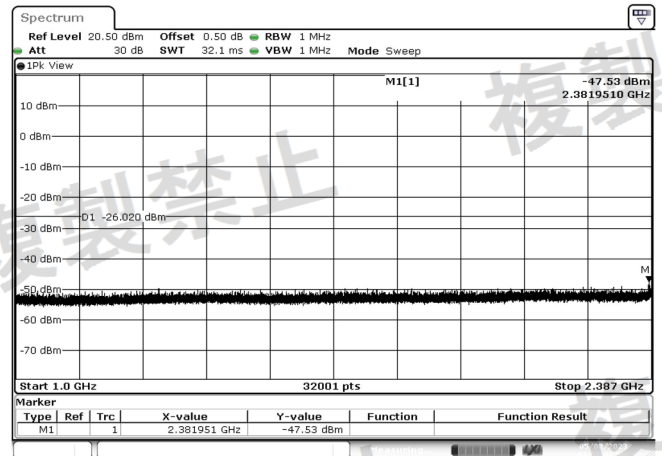


Product : Mobile Computer
Test Item : Transmitter Spurious Emissions
Test Mode : Transmit (802.11b 1 Mbps) (2442 MHz)

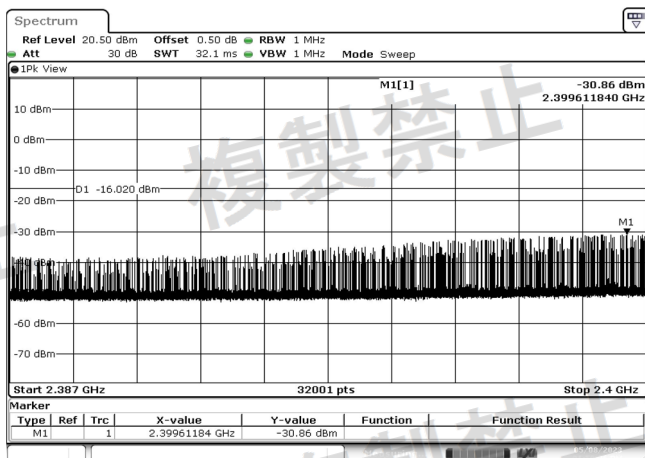
Frequency Range (MHz)	Chain	Frequency (MHz)	Reading Value (μ W/MHz)	Limit (μ W/MHz)
30 - 1000	A	858.92	0.001365	2.5
1000 - 2387	A	2381.95	0.017660	2.5
2387 - 2400	A	2399.61	0.820352	25
2483.5 - 2496.5	A	2486.18	1.156112	25
2496.5 - 8000	A	4884.17	0.084140	2.5
8000 - 12750	A	12342.03	0.023121	2.5



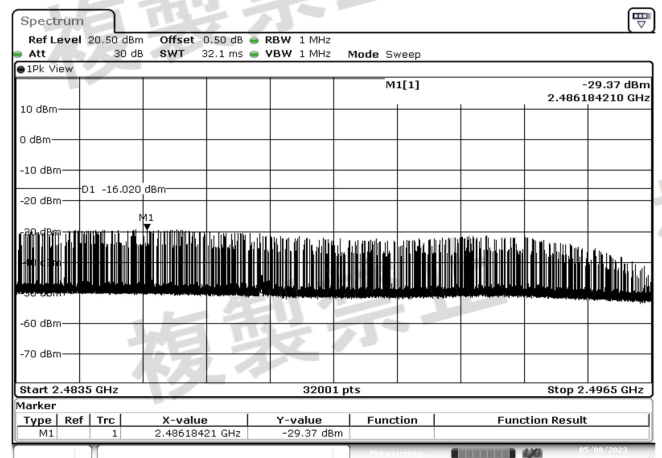
Date: 8 MAY 2023 13:57:43



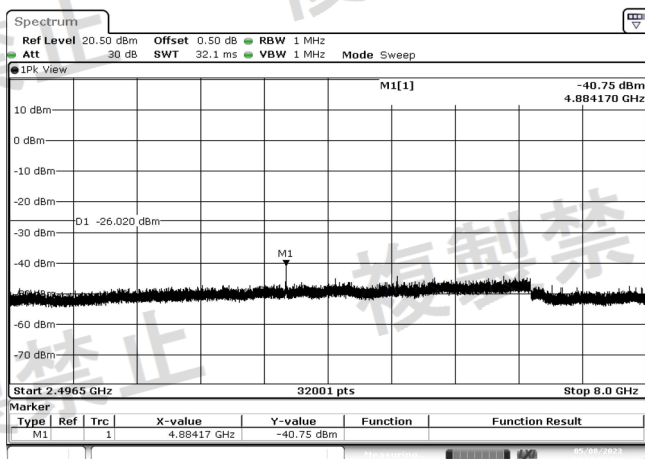
Date: 8 MAY 2023 13:58:05



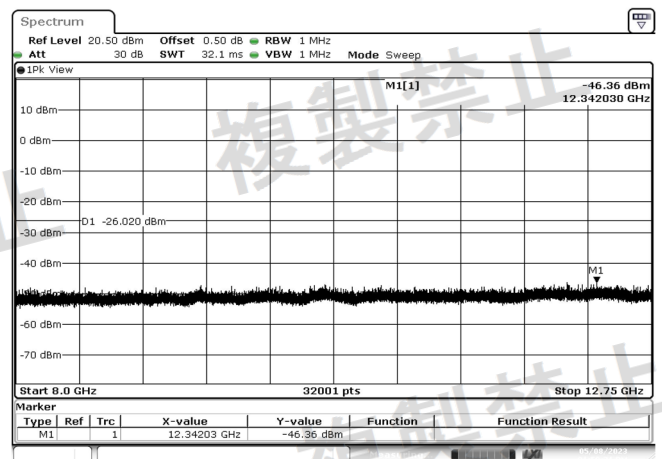
Date: 8 MAY 2023 13:58:27



Date: 8 MAY 2023 13:58:48



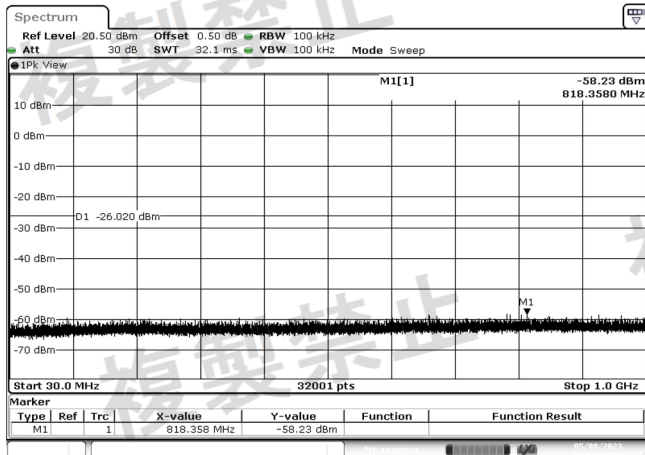
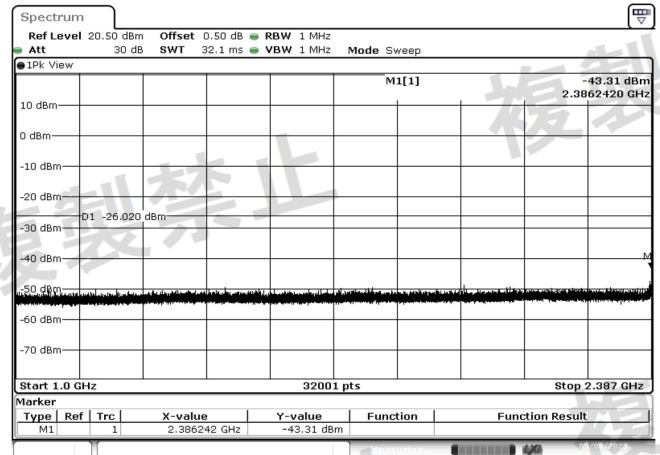
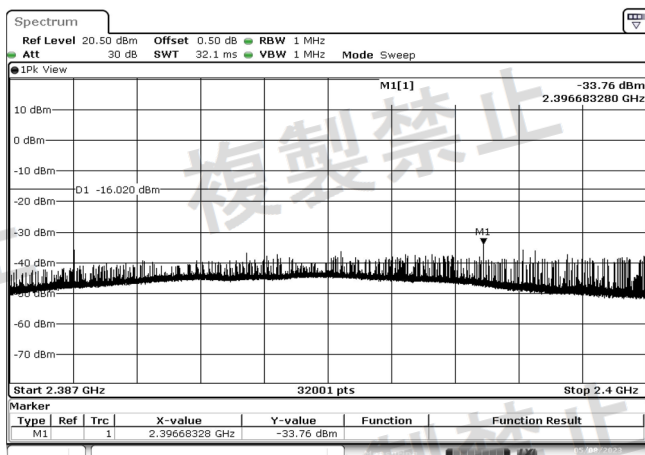
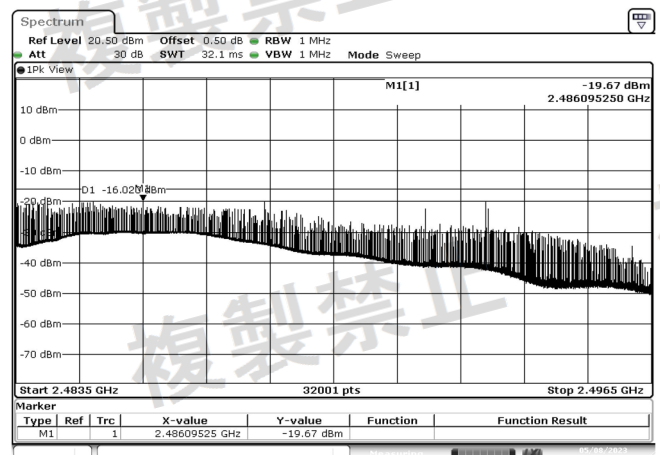
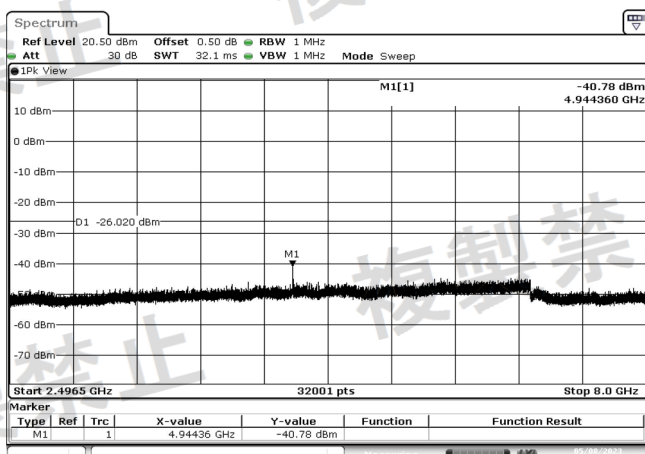
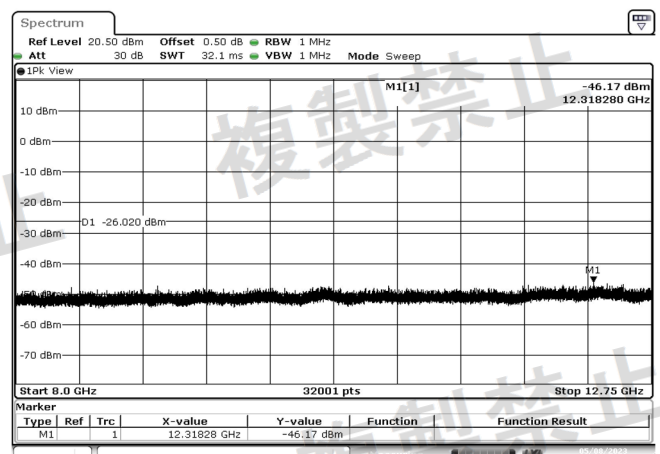
Date: 8 MAY 2023 13:59:10



Date: 8 MAY 2023 13:59:31

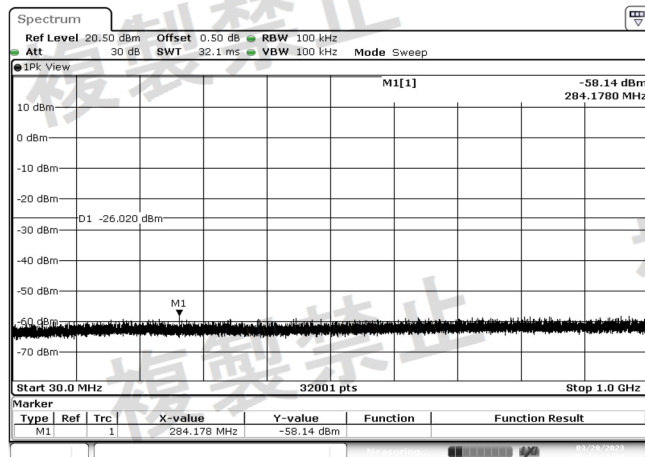
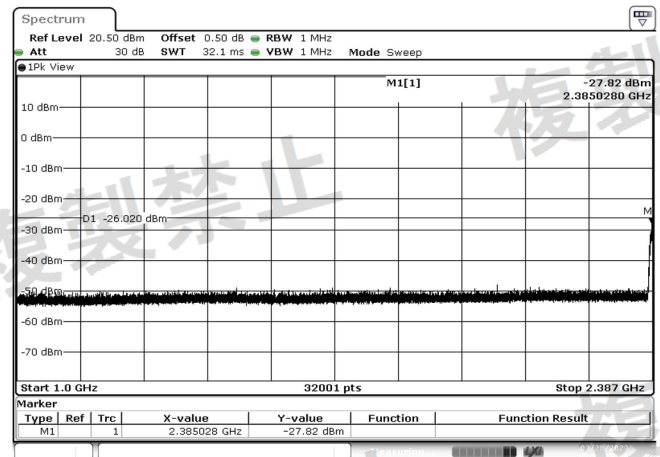
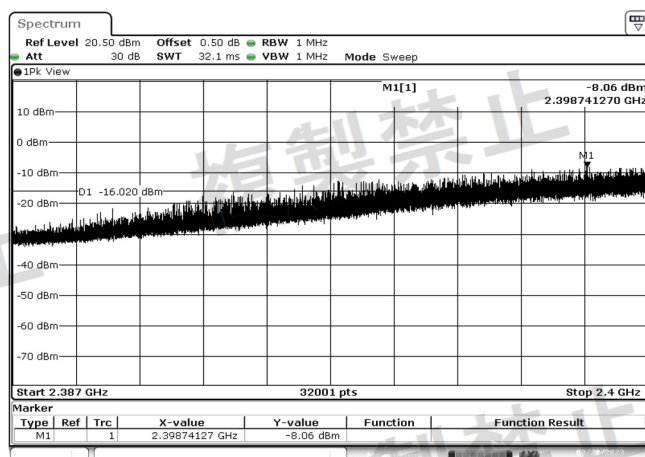
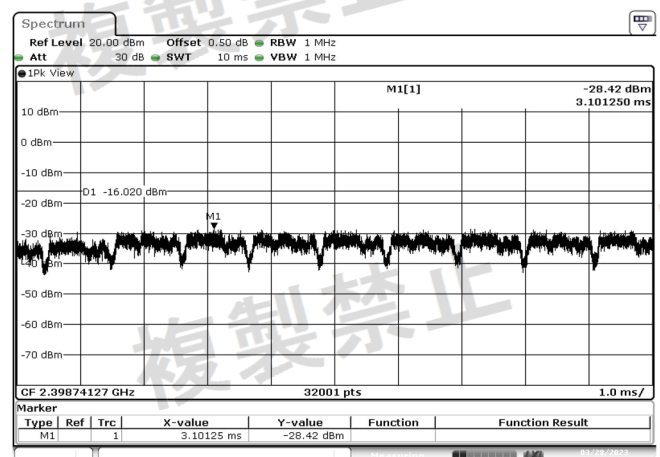
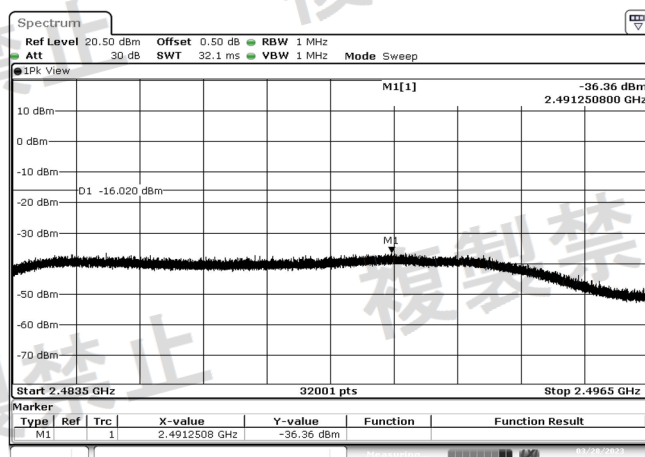
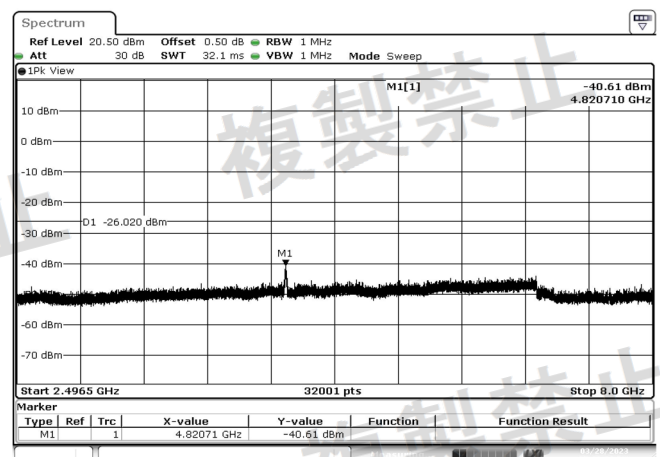
Product : Mobile Computer
Test Item : Transmitter Spurious Emissions
Test Mode : Transmit (802.11b 1 Mbps) (2472 MHz)

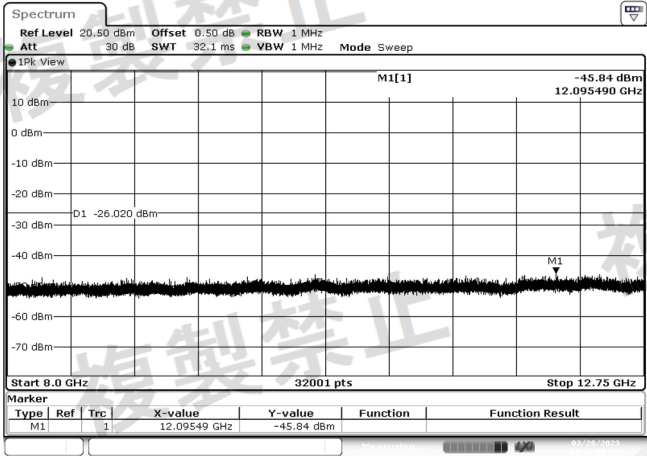
Frequency Range (MHz)	Chain	Frequency (MHz)	Reading Value ($\mu\text{W}/\text{MHz}$)	Limit ($\mu\text{W}/\text{MHz}$)
30 - 1000	A	818.36	0.001503	2.5
1000 - 2387	A	2386.24	0.046666	2.5
2387 - 2400	A	2396.68	0.420727	25
2483.5 - 2496.5	A	2486.10	10.789467	25
2496.5 - 8000	A	4944.36	0.083560	2.5
8000 - 12750	A	12318.28	0.024155	2.5



Product : Mobile Computer
Test Item : Transmitter Spurious Emissions
Test Mode : Transmit (802.11g) (2412 MHz)

Frequency Range (MHz)	Chain	Frequency (MHz)	Reading Value (μ W/MHz)	Limit (μ W/MHz)
30 - 1000	A	284.18	0.001535	2.5
1000 - 2387	A	2385.03	1.651962	2.5
2387 - 2400	A	2398.74	1.438799	25
2483.5 - 2496.5	A	2491.25	0.231206	25
2496.5 - 8000	A	4820.71	0.086896	2.5
8000 - 12750	A	12095.49	0.026062	2.5





Date: 28.MAR.2023 17:16:49

Product : Mobile Computer
Test Item : Transmitter Spurious Emissions
Test Mode : Transmit (802.11g) (2442 MHz)

Frequency Range (MHz)	Chain	Frequency (MHz)	Reading Value (μ W/MHz)	Limit (μ W/MHz)
30 - 1000	A	774.98	0.001862	2.5
1000 - 2387	A	2385.03	0.118850	2.5
2387 - 2400	A	2399.83	1.815516	25
2483.5 - 2496.5	A	2483.60	1.037528	25
2496.5 - 8000	A	4881.59	0.099312	2.5
8000 - 12750	A	12392.50	0.024378	2.5