

Test report No:
6248703.51

MIC TEST REPORT

Radio Spectrum Matters (RSM)

Identification of item tested	LED lamp
Trademark	PHILIPS , hue, 
Model and /or type reference	9290042955; 9290042958
Ratings	100 Vac, 50/60 Hz, E17 cap; 46 mA; 3.9 W;
Test Laboratory	DEKRA Testing and Certification (Shanghai) Ltd. No.250, Jiangchangsan Road, Jing'an District, Shanghai, China
Applicant's name / address	Signify (China) Investment Co., Ltd. Building no.9, Lane 888, Tianlin Road, Minhang District, Shanghai, 200233, China.
Test method requested, standard	Ministry of Internal Affairs and Communications Notification No. 88, Appendix No.43 Certification Ordinance of Article 2 Paragraph 1 item 19
Verdict Summary	IN COMPLIANCE
Tested by (name / position & signature)	Kaiyuan Dai Test Engineer 
Approved by (name / position & signature)	Zuyao Fan Project Manager 
Date of issue	2025-12-17
Report template No	TRF_MIC_RSM V1.0

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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. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.
5. The information provided by the customer in this report may affect the validity of the results, the test lab is not responsible for it.
6. The test results presented in this report relate only to the object tested.
7. Samples undergoing test have been provided by: The client.

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%. Refer to the Annex 1 for further information.

The measurement result is considered in conformance with the requirement if it is within the prescribed limit. It is not necessary to calculate the uncertainty associated with the measurement result, unless the specification, standard or customer have special requirements.

ENVIRONMENTAL CONDITIONS

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	5 °C – 35 °C
Relative Humidity air	45 % - 85 %
Atmospheric pressure	86 kPa – 106 kPa

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not measured	N/M

DEFINITION OF SYMBOLS USED IN THIS TEST REPORT

☒ Indicates that the listed condition, standard or equipment is applicable for this report/test/EUT.			
☐ Indicates that the listed condition, standard or equipment is not applicable for this report/test/EUT.			
Decimal separator used in this report	☐	Comma (,)	☒ Point (.)

ABBREVIATIONS

For the purposes of the present document, the following abbreviations apply:

EUT	: Equipment Under Test
QP	: Quasi-Peak
AV	: Average
SAC	: Semi-Anechoic Chamber
OATS	: Open Area Test Site
CCA	: Clear Channel Assessment
CW	: Continuous Wave
DAA	: Detect And Avoid
DC	: Duty Cycle
DSSS	: Direct Sequence Spread Spectrum
OFDM	: Orthogonal Frequency Division Multiplexing
E.I.R.P.	: Equivalent Isotropically Radiated Power
E.R.P.	: Effective Radiated Power
FHSS	: Frequency Hopping Spread Spectrum
LBT	: Listen Before Talk
MCS	: Modulation and Coding Scheme
BW	: Bandwidth
Cat	: Receiver Category
DC	: Duty Cycle
MU	: Medium Utilization Factor
PER	: Packet Error Rate
PSD	: Power Spectral Density
RMS	: Root Mean Square
U_N	: Nominal voltage
N/A	: Not Applicable
N/M	: Not Measured

DOCUMENT HISTORY

Report nr.	Date	Description
6248703.51	2025-12-17	First release.

DATA PROVIDED BY THE APPLICANT

The following data has been provided by the client:

1. Information relating to the description of the sample ("Identification of the item tested", "Trademark", "Model and/or type reference tested", "Applicant's name / address", "Ratings" and "Derived model(s)", "Antenna Gain").
2. Derived model not tested. These models have been declared by the applicant as being the same as the model under test.

DEKRA declines any responsibility with respect to the information provided by the applicant and that may affect the validity of results.

CONCLUSION, REMARKS AND COMMENTS

The equipment under test (EUT) does meet the requirements of the stated standard(s)/test(s).

This report shall not be reproduced, except in full, without the written approval.

The tests described in this report do not result in the right to use any approval mark as conferred by DEKRA. As far as the tests were based on certain specifications, these are mentioned in the report.

These products are Hue LED lamps which utilize Zigbee and Bluetooth protocols for connectivity. While Bluetooth allows direct smartphone control without a hub, Zigbee integration via the Hue Bridge or Hue remote control enables full ecosystem functionality, including synchronized color effects and voice assistant integration.

According to the declaration from manufacturer, model 9290042955 and 9290042958 are identical except for different function. Model 9290042955 can deliver different color variations and dynamic lighting scenes. Model 9290042958 can deliver different color temperature variations and dynamic lighting scenes.

After review, all tests were carried out on the following model 9290042955. The test results stated in this report are also representative for other model.

1 GENERAL INFORMATION

1.1 General Description of the Item(s)

Description of the item	LED lamp
Test model number 1	9290042955
Serial number	N/A
Trademark	PHILIPS , hue, 
Manufacturer	Signify (China) Investment Co., Ltd. Building no.9, Lane 888, Tianlin Road, Minhang District, Shanghai, 200233, China.

Mode of Operation	Bluetooth 5.0, LE 1M, LE 2M, LE Coded S=2, LE Coded S=8								
Physical Layer	LE 1M, LE 2M, LE Coded S=2, LE Coded S=8								
Data Rate	1 Mbit/s, 2 Mbit/s, 500 Kbit/s, 125 Kbit/s								
Operating frequency range(s) – Tx.:	2402 MHz – 2480 MHz								
Operating frequency range(s) – Rx :	2402 MHz – 2480 MHz								
Type of Modulation	GFSK								
Antenna Type	PIFA Antenna								
Antenna Gain	0.7 dBi								
Number of channel	40								
Rated power supply	Voltage and Frequency				Reference poles				
					L1	L2	L3	N	PE
	☒	AC: 100 V, 50/60 Hz			☒	☐	☐	☒	☐
	☐	AC: 100 – 277 V, 50/60 Hz			☐	☐	☐	☐	☐
	☐	DC: 12 V, 24 V, 12 / 24 V							
	☐	Battery:							
Software version	Not provided								
Hardware version.....	Not provided								

1.2 Test data

Location	DEKRA Testing and Certification (Shanghai) Ltd.
Address	No.250, Jiangchangsan Road, Jing'an District, Shanghai, China
Date of receipt of test item	2025-11-13
Date(s) of performance of tests	2025-11-13 to 2025-12-17

1.3 Channel List

Bluetooth 5.0 LE

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2404 MHz	02	2406 MHz	03	2408 MHz
04	2410 MHz	05	2412 MHz	06	2414 MHz	07	2416 MHz
08	2418 MHz	09	2420 MHz	10	2422 MHz	11	2424 MHz
12	2426 MHz	13	2428 MHz	14	2430 MHz	15	2432 MHz
16	2434 MHz	17	2436 MHz	18	2438 MHz	19	2440 MHz
20	2442 MHz	21	2444 MHz	22	2446 MHz	23	2448 MHz
24	2450 MHz	25	2452 MHz	26	2454 MHz	27	2456 MHz
28	2458 MHz	29	2460 MHz	30	2462 MHz	31	2464 MHz
32	2466 MHz	33	2468 MHz	34	2470 MHz	35	2472 MHz
36	2474 MHz	37	2476 MHz	38	2478 MHz	39	2480 MHz

1.4 Transmitter: RF Output Power Setting

Operating Mode	Frequency (MHz)	Power Setting
Bluetooth 5.0 LE 1M	2402	8
	2440	8
	2480	8
Bluetooth 5.0 LE 2M	2402	8
	2440	8
	2480	8
Bluetooth 5.0 LE Coded S=2	2402	8
	2440	8
	2480	8
Bluetooth 5.0 LE Coded S=8	2402	8
	2440	8
	2480	8
Supplemental information:		

2 DESCRIPTION OF TEST SETUP

2.1 Operating mode(s) used for tests

During the tests the following operating mode(s) has(have) been used.

Operating mode	Operating mode description
1	Transmitting: Bluetooth LE 1M, BitRate: 1 Mbit/s
2	Transmitting: Bluetooth LE 2M, BitRate: 2 Mbit/s
3	Transmitting: Bluetooth LE Coded S=2, BitRate: 500 Kbit/s
4	Transmitting: Bluetooth LE Coded S=8, BitRate: 125 Kbit/s
5	Receiving: Bluetooth LE 1M
6	Receiving: Bluetooth LE 2M
7	Receiving: Bluetooth LE Coded S=2
8	Receiving: Bluetooth LE Coded S=8
9	Normal Operating, Power ON
Supplemental information:	

2.2 Support / Auxiliary equipment / unit / software for the EUT

The EUT has been tested with the following auxiliary equipment / unit / software:

Auxiliary equipment / unit / software	Type / Version	Manufacturer	Supplied by
Notebook	Latitude	DELL	DEKRA
Debug board	N/A	Signify	Signify
Hue Approbation tool	V1.5.9	Signify	Signify
Supplemental information:			

3 VERDICT SUMMARY SECTION

This chapter presents an overview of standards and results. Refer to the next chapters for details of measured test results and applied test levels.

3.1 Standards

Standard	Year	Description
Ministry of Internal Affairs and Communications Notification No. 88 Appendix No.43	2004	Test methods for characteristics tests based on the provisions of Appendix 1, paragraph 1 (3) of the Rules on Technical Regulations Conformity Certification for Specified Radio Equipment
Article 2 Paragraph 1 item 19	2004	Low-power data communication system in the 2.4 GHz band (2,400-2,483.5MHz)
ARIB STD-T66 V3.7	2014	Second Generation Low Power Data Communication System / Wireless Lan System

3.2 Deviation(s) from the Standard(s) / Test Specification(s)

The following deviation(s) was / were made from the published requirements of the listed standards:

The product also fulfils the requirements of Radio Equipment Regulations

3.3 Overview of results

Requirement – Article 2 Paragraph 1 item 19		
Requirement – Test case	Verdict	Remark
Power supply voltage	PASS	---
Antenna power	PASS	---
Tolerances for antenna power	PASS	---
Antenna gain measurement	PASS	---
Frequency tolerance	PASS	---
Occupied bandwidth	PASS	---
Spurious emission / unwanted emission intensity	PASS	---
Secondary radiated emissions	PASS	---
Interference prevention function	PASS	---
Construction protection confirmation method	PASS	---
Supplementary information:		

4 TEST RESULTS

4.1	Power supply voltage	VERDICT:	PASS
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Standard	Article 2 Paragraph 1 item 19
Limits: The input voltage from an external power supply to the EUT shall be carried out with three different supply voltages: the rated nominal value, - 10 % and + 10 %. However, each following cases shall be as follows: A. It is acceptable to restrict the measurements to the nominal supply voltage value under the condition that the regulator is capable to reduce the voltage variation to a value smaller than 1 % (if the input is varied with 10%) B. When the test equipment is designed to operate only within a specific fluctuation range of the power supply voltage within $\pm 10\%$, and this fact and the upper and lower limits of the specific fluctuation range are stated in the construction specifications, it shall be measured at the rated voltage and the upper and lower limits of the specific fluctuation range.	

Performed measurements

Test setup	Refer to Appendix test setup photo(s).
Operating mode(s) used	Mode 9
Ambient temperature	27.1°C
Relative humidity air	56.2 %
Atmospheric pressure	101.6 kPa
Remark	---

Result:

EUT Input Voltage (Vac)		Voltage Fluctuation (%)	RF module Input Voltage (Vdc)		Voltage Fluctuation (%)	Limit (%)
Nominal	100	0	Nominal	2.893	0	1
Low	90	0.01	Low	2.893	0	1
High	110	0.01	High	2.893	0	1

Conclusion:

The device uses an internal voltage regulator, supplying power to all critical parts of the radio circuitry.
The input voltage of EUT is varied with 10% under max load conditions and the output voltage of the regulator is capable to reduce the voltage variation to a value smaller than 1 %. **All measurements are carried out under normal supply voltage.**

4.2	Antenna power	VERDICT: PASS
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Standard	Article 2 Paragraph 1 item 19
Limits:	
a) The antenna power of the transmitting equipment which uses the frequency hopping method (including a combination of the frequency hopping method and direct spread method or a combination of the frequency hopping method and OFDM), and that uses emissions of a frequency from 2,427 MHz to 2,470.75 MHz shall provide a mean power within a bandwidth of 1 MHz of 3 mW or less in the case of modulation using a standard coding test signal with the same transmission rate as that of the modulation signal. b) The antenna power of the transmitting equipment which uses the spread spectrum method other than clause a) shall provide the mean power within a bandwidth of 1 MHz of 10 mW or less in the case of modulation using a standard coding test signal with the same transmission rate as that of the modulation signal. c) The antenna power of the transmitting equipment which uses OFDM method other than clause a) shall be one of the items as follows; (i) Shall provide the mean power within a bandwidth of 1 MHz of 10 mW or less in the case of occupied Bandwidth is no greater than 26 MHz. (ii) Shall provide the mean power within a bandwidth of 1 MHz of 5 mW or less in the case of occupied Bandwidth is greater than 26 MHz to 38 MHz. d) The antenna power of the transmitting equipment other than that stated in (a), (b), and (c) shall be 10 mW or less.	

Performed measurements

Test method applied	☒	Conducted measurement
	☐	Radiated measurement
Test setup	Refer to Appendix test setup photo(s).	
Operating mode(s) used	Mode 1, 2, 3, 4	
Ambient temperature	27.1°C	
Relative humidity air	56.1 %	
Atmospheric pressure	101.6 kPa	
Remark	---	

Results

Opearting Mode	Frequency (MHz)	Result (dBm)	Result (mW)	Limit (mW)
Mode 1	2402	8.17	6.56	10
	2440	7.75	5.96	10
	2480	7.57	5.71	10
Mode 2	2402	8.17	6.56	10
	2440	7.74	5.94	10
	2480	7.56	5.70	10
Mode 3	2402	8.16	6.55	10
	2440	7.74	5.94	10
	2480	7.57	5.71	10
Mode 4	2402	8.16	6.55	10
	2440	7.74	5.94	10
	2480	7.56	5.70	10

4.3 Tolerances for antenna power	VERDICT: PASS
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Standard	Article 2 Paragraph 1 item 19
Limits: The tolerance for the antenna power of transmitting equipment shall be +20% (upper limit) Deviation = (Antenna Power - Declared Power) / Declared Power x 100%	

Performed measurements

Test method applied	☒	Conducted measurement
	☐	Radiated measurement
Test setup	Refer to Appendix test setup photo(s).	
Operating mode(s) used	Mode 1, 2, 3, 4	
Ambient temperature	27.2°C	
Relative humidity air	56.2 %	
Atmospheric pressure	101.6 kPa	
Remark	---	

Results

Operating Mode	Frequency (MHz)	Declared Power (mW)	Antenna power (mW)	Tolerance (%)	Upper Limit (%)
Mode 1	2402	8	6.56	-17.98	+20
	2440	8	5.96	-25.54	+20
	2480	8	5.71	-28.57	+20
Mode 2	2402	8	6.56	-17.98	+20
	2440	8	5.94	-25.71	+20
	2480	8	5.70	-28.73	+20
Mode 3	2402	8	6.55	-18.17	+20
	2440	8	5.94	-25.71	+20
	2480	8	5.71	-28.57	+20
Mode 4	2402	8	6.55	-18.17	+20
	2440	8	5.94	-25.71	+20
	2480	8	5.70	-28.73	+20

4.4	Antenna gain measurement	VERDICT: PASS
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Standard	Article 2 Paragraph 1 item 19
Limits:	
In the case of a transmitting device using a spread spectrum system or an OFDM system, when the E.I.R.P in a bandwidth of 1 MHz of the transmitting device falls below the value obtained when the average power in a bandwidth of 1 MHz is added to a transmitting antenna with an absolute gain of 2.14 decibels, or when the transmitting device uses a GFSK system and the E.I.R.P of the transmitting device falls below the value obtained when the antenna power is added to a transmitting antenna with an absolute gain of 2.14 decibels, the reduction in the E.I.R.P may be compensated for by the antenna power. No test requirements If the ERIP power density is lower than 12.14 dBm in a bandwidth of 1 MHz.	

Performed measurements

Test method applied	☒	Conducted measurement
	☐	Radiated measurement
Test setup	Refer to Appendix test setup photo(s).	
Operating mode(s) used	Mode 1, 2, 3, 4	
Ambient temperature	27.3°C	
Relative humidity air	56.2 %	
Atmospheric pressure	101.6 kPa	
Remark	---	

Results

Opearting Mode	Frequency (MHz)	E.I.R.P Density (dBm)	Limit (dBm)
Mode 1	2402	8.17	12.14
	2440	7.75	12.14
	2480	7.57	12.14
Mode 2	2402	8.17	12.14
	2440	7.74	12.14
	2480	7.56	12.14
Mode 3	2402	8.16	12.14
	2440	7.74	12.14
	2480	7.57	12.14
Mode 4	2402	8.16	12.14
	2440	7.74	12.14
	2480	7.56	12.14

4.5	Frequency tolerance	VERDICT: PASS
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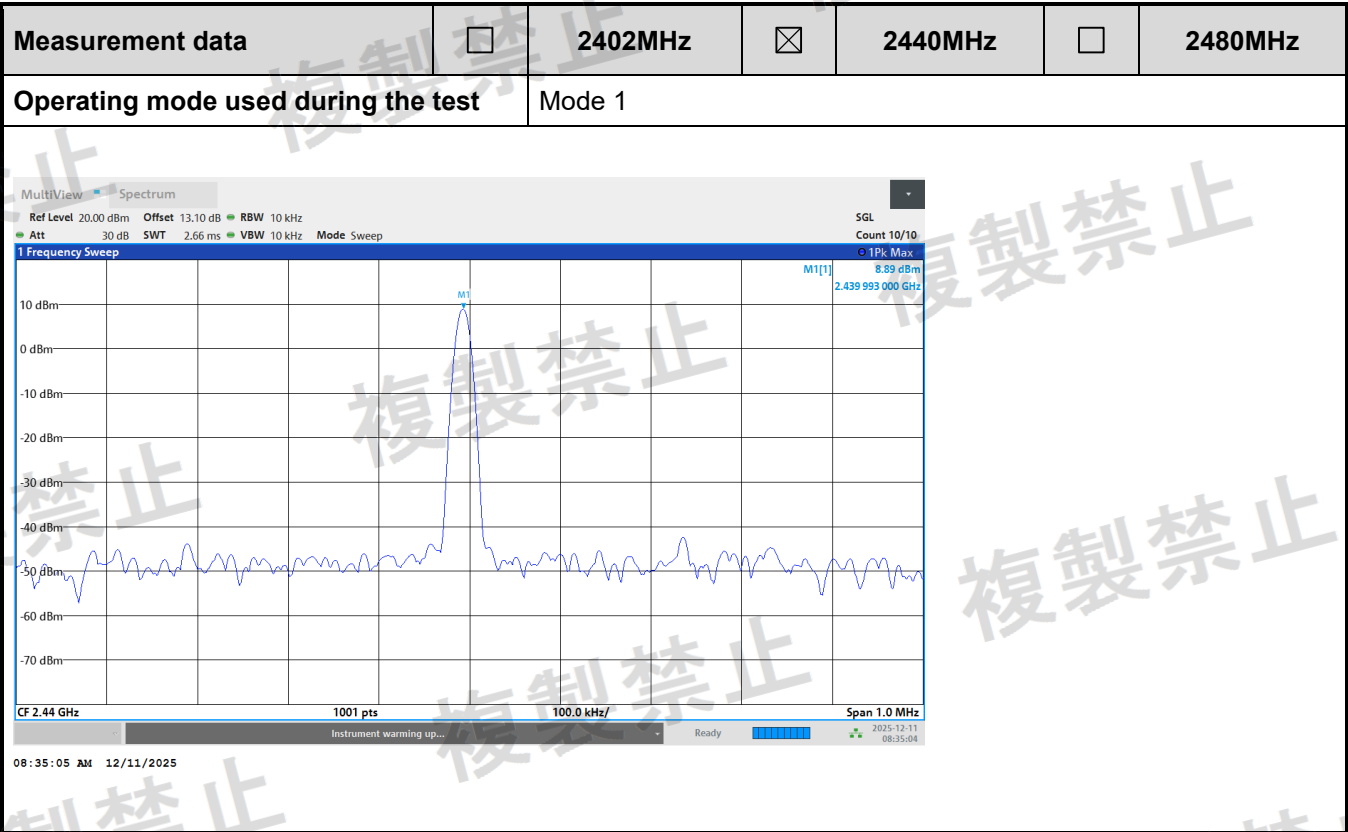
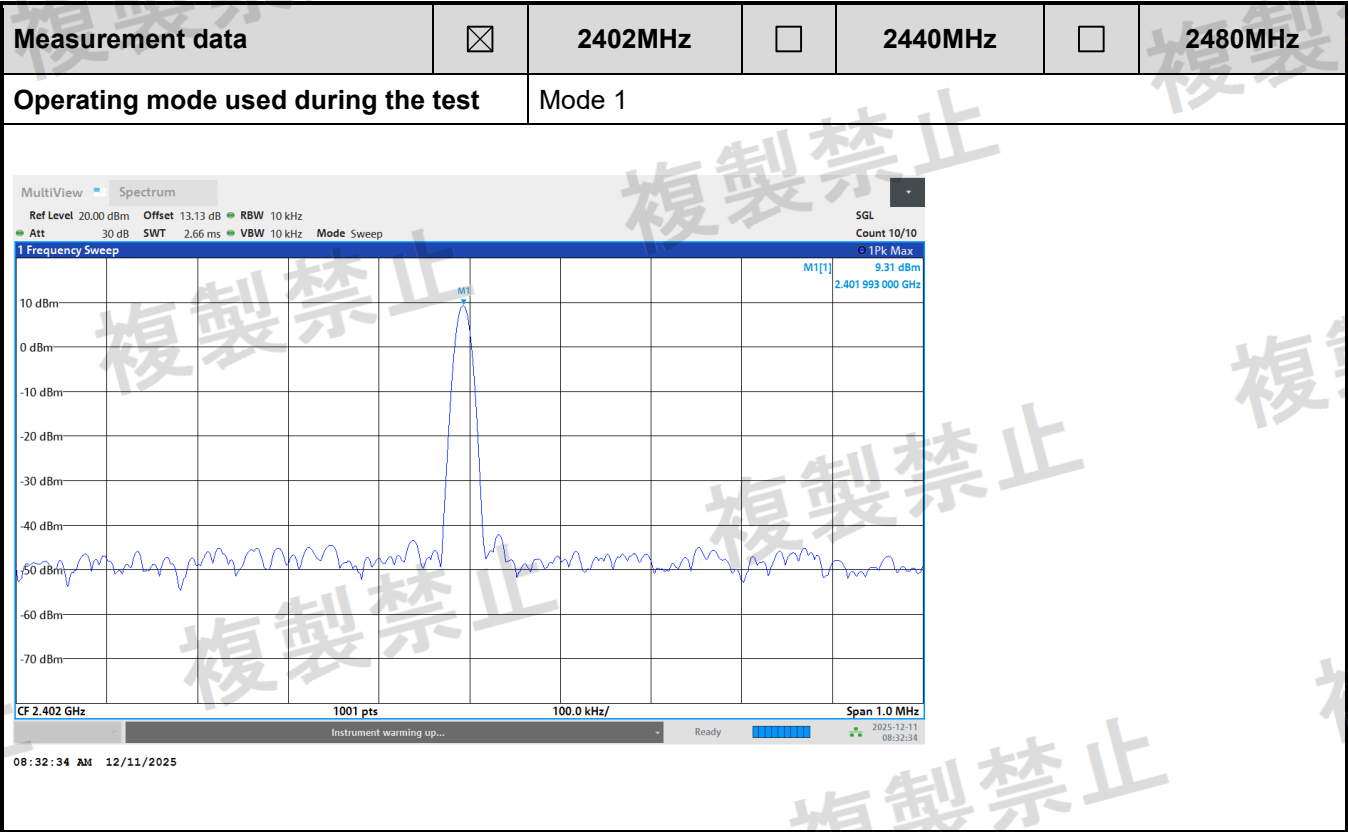
Standard	Article 2 Paragraph 1 item 19
Limits: The tolerance of frequencies used in transmitting equipment shall be ± 50 ppm.	

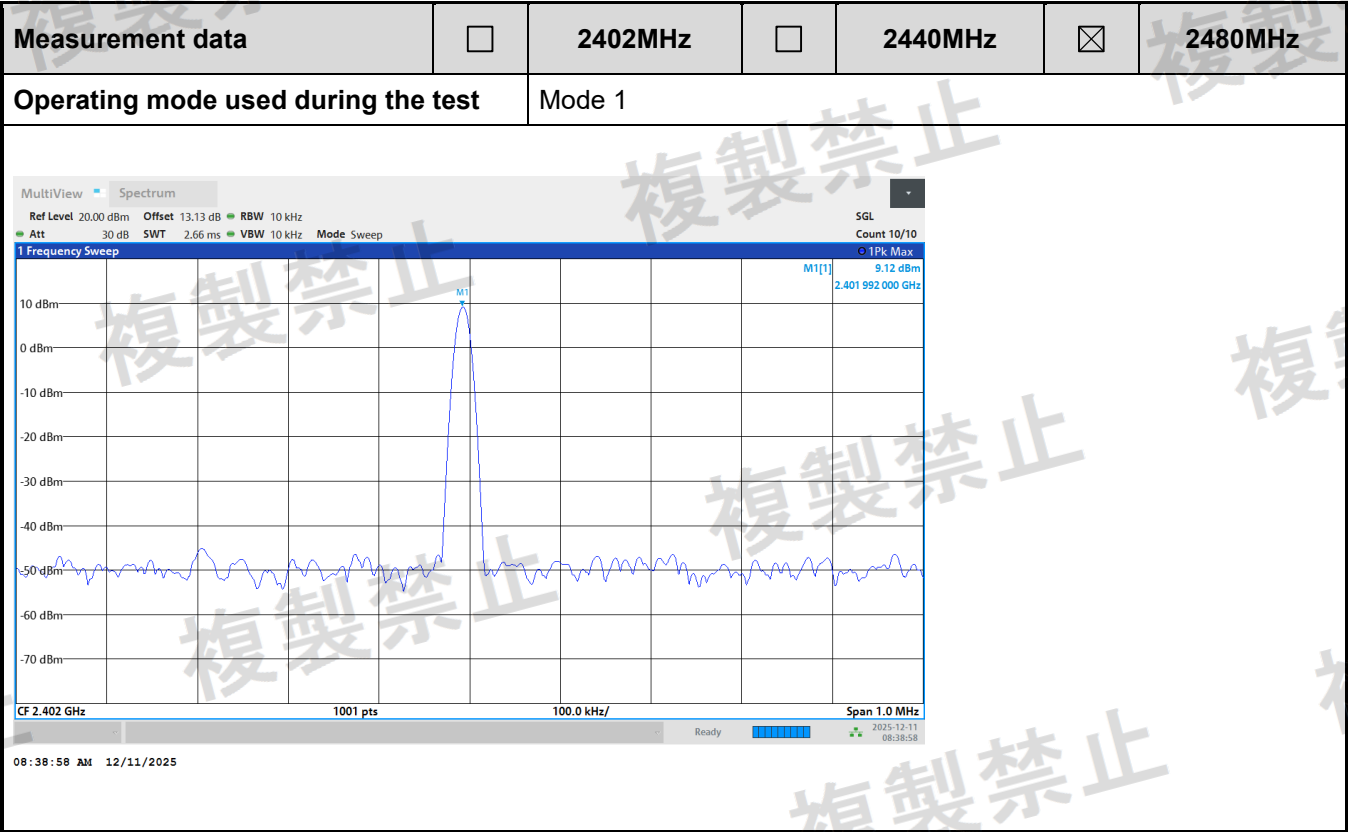
Performed measurements

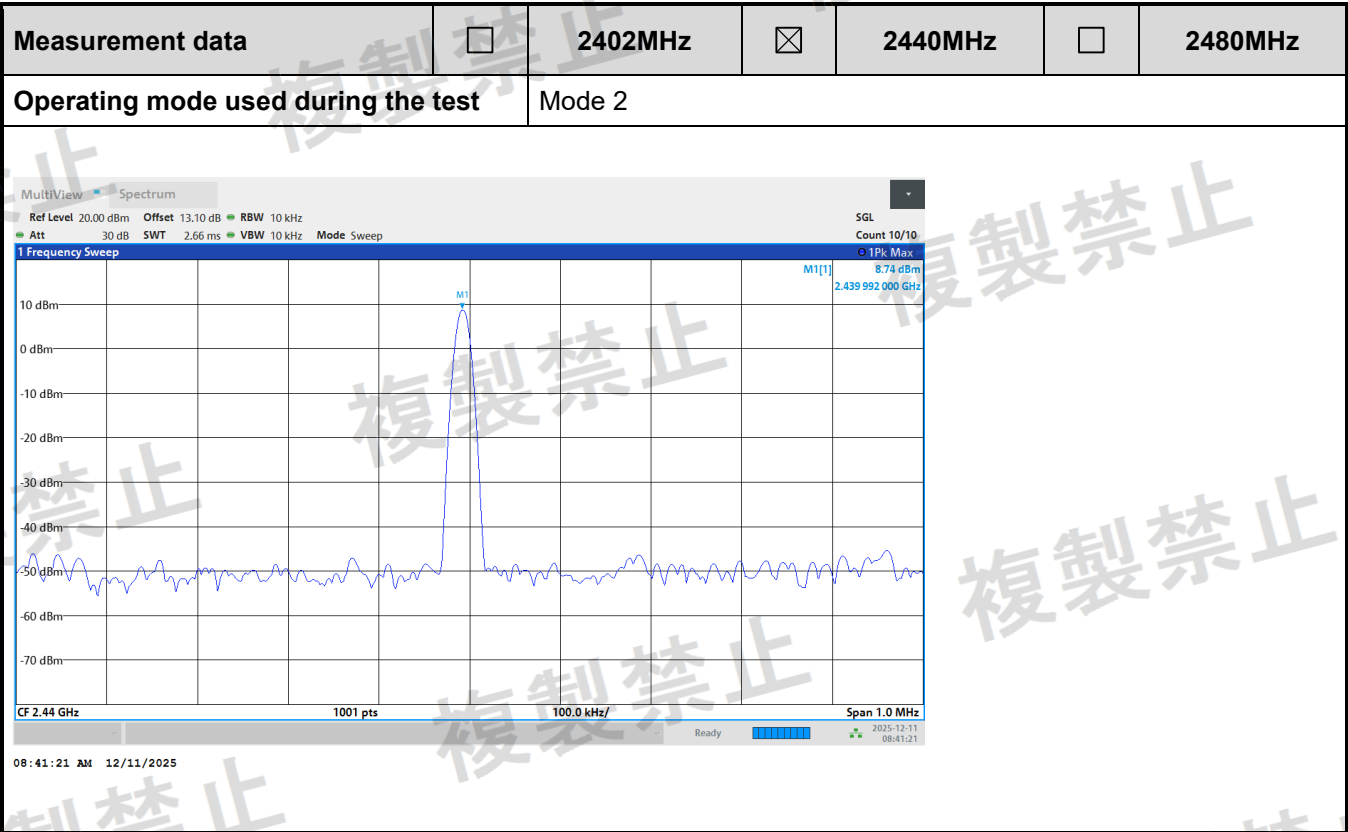
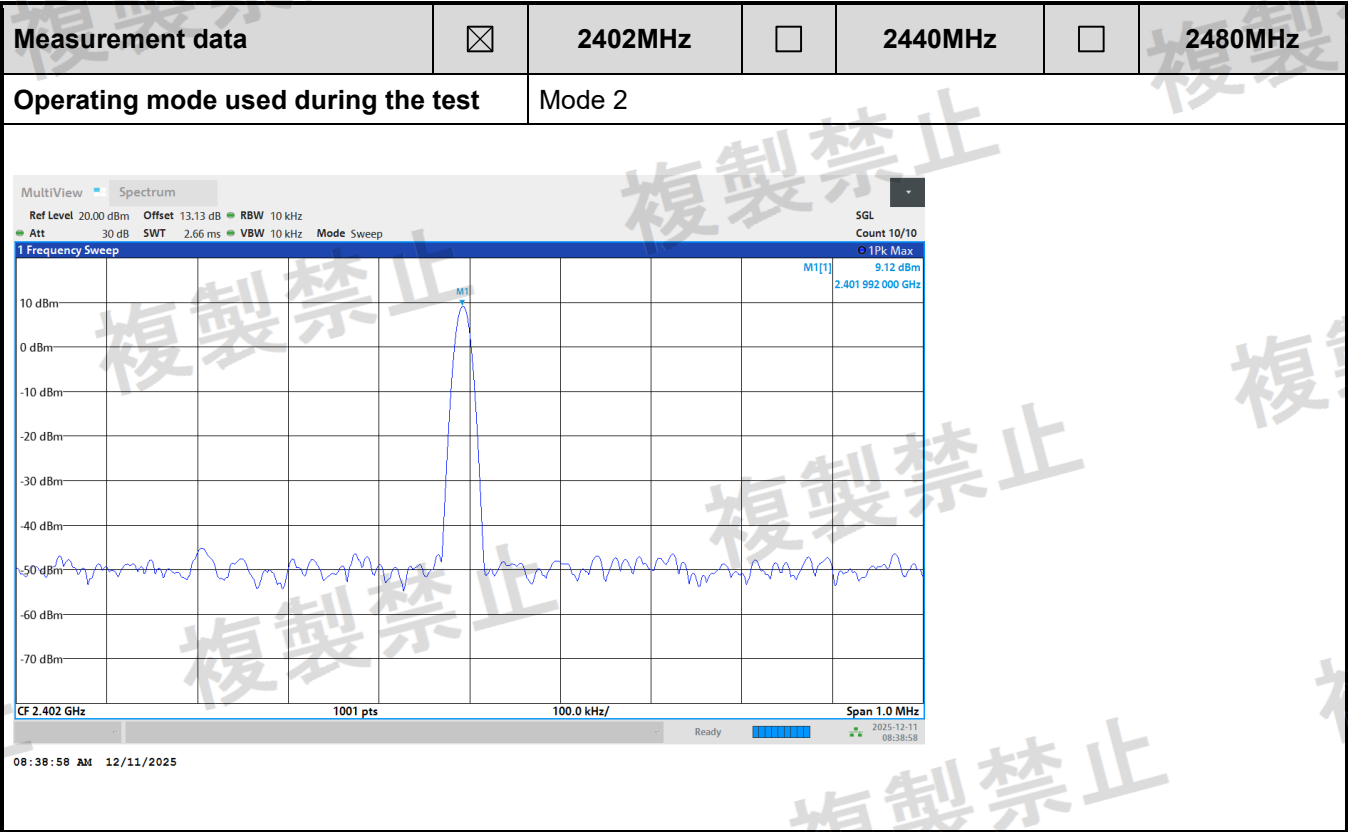
Test method applied	☒	Conducted measurement
	☐	Radiated measurement
Test setup	Refer to Appendix test setup photo(s).	
Operating mode(s) used	Mode 1, 2, 3, 4	
Ambient temperature	26.9°C	
Relative humidity air	56.1 %	
Atmospheric pressure	101.6 kPa	
Remark	---	

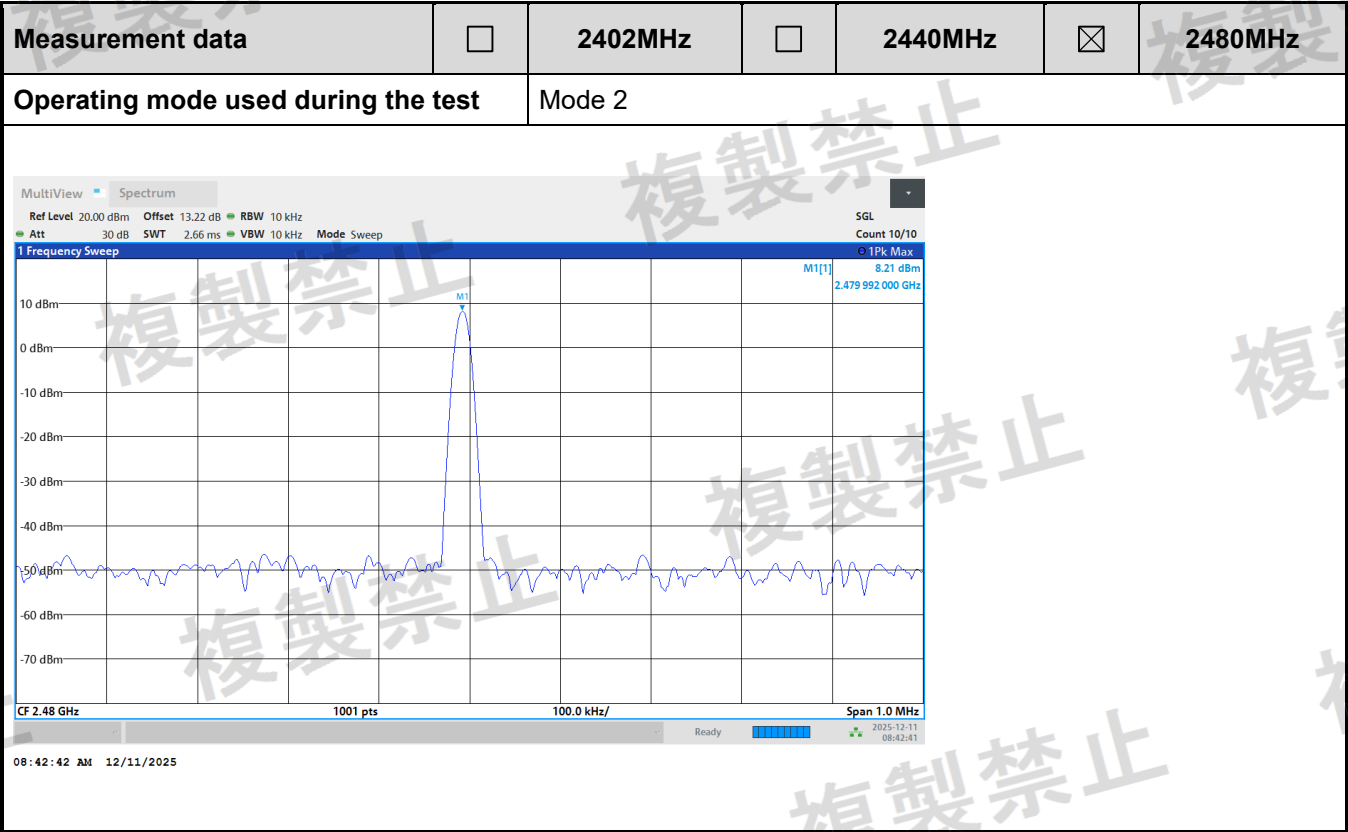
Results

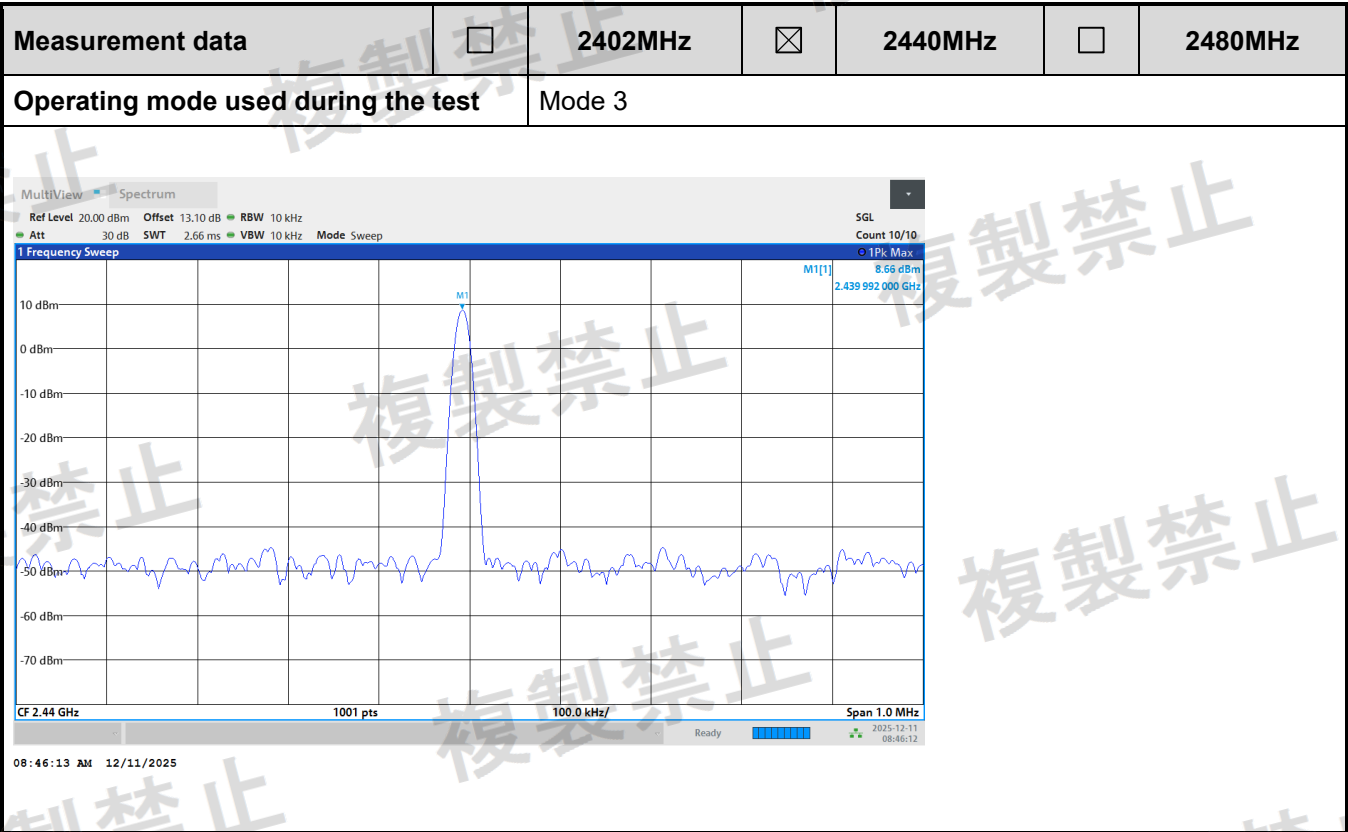
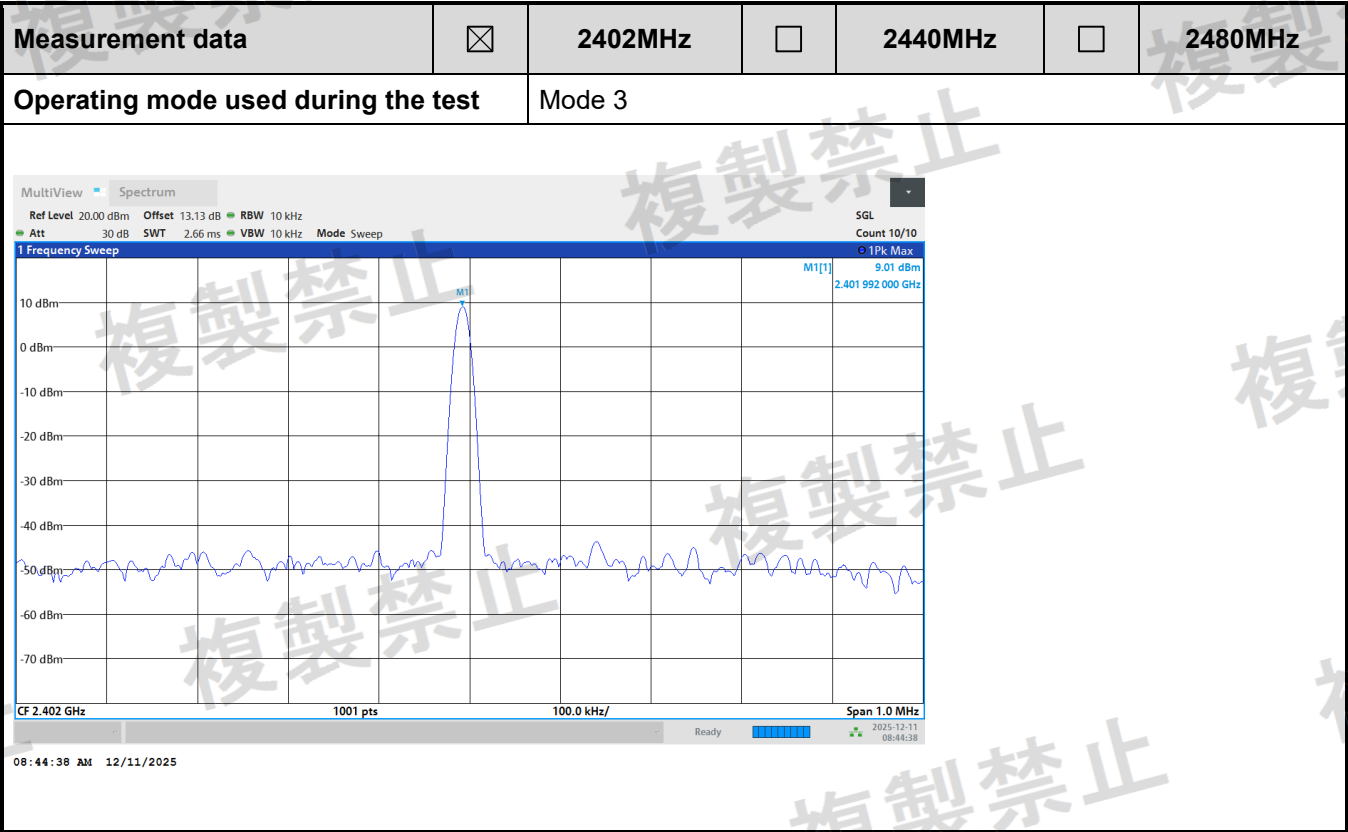
Operating Mode	Frequency (MHz)	Measured Frequency (MHz)	Deviation (Hz)	Tolerance (ppm)	Limit (ppm)
Mode 1	2402	2402.1119	-7000	-2.91	± 50
	2440	2440.1129	-7000	-2.87	± 50
	2480	2480.1149	-8000	-3.23	± 50
Mode 2	2402	2402.1119	-8000	-3.33	± 50
	2440	2440.1129	-8000	-3.28	± 50
	2480	2480.1149	-8000	-3.23	± 50
Mode 3	2402	2402.1129	-8000	-3.33	± 50
	2440	2440.1139	-8000	-3.28	± 50
	2480	2480.1159	-8000	-3.23	± 50
Mode 4	2402	2402.1109	-8000	-3.33	± 50
	2440	2440.1129	-8000	-3.28	± 50
	2480	2480.1159	-9000	-3.63	± 50

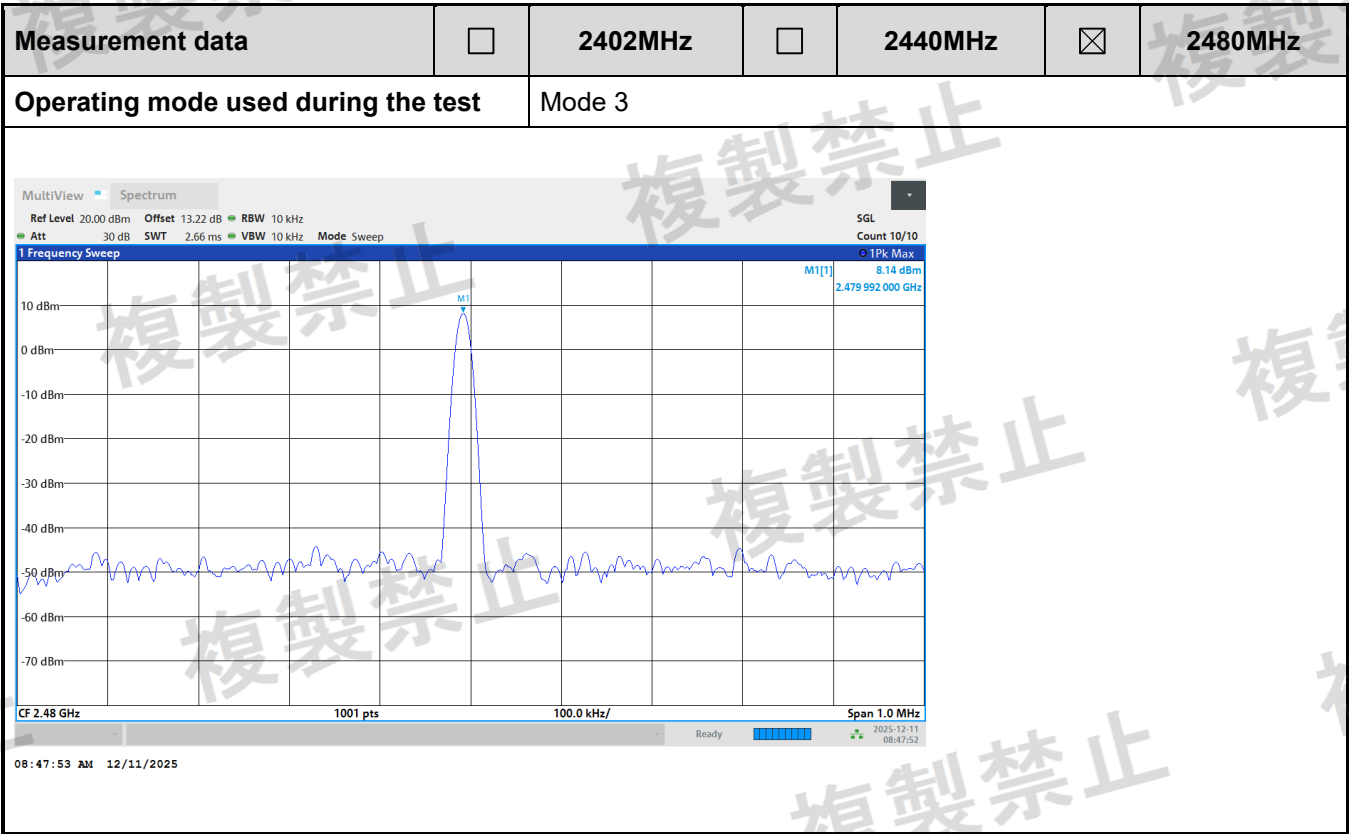


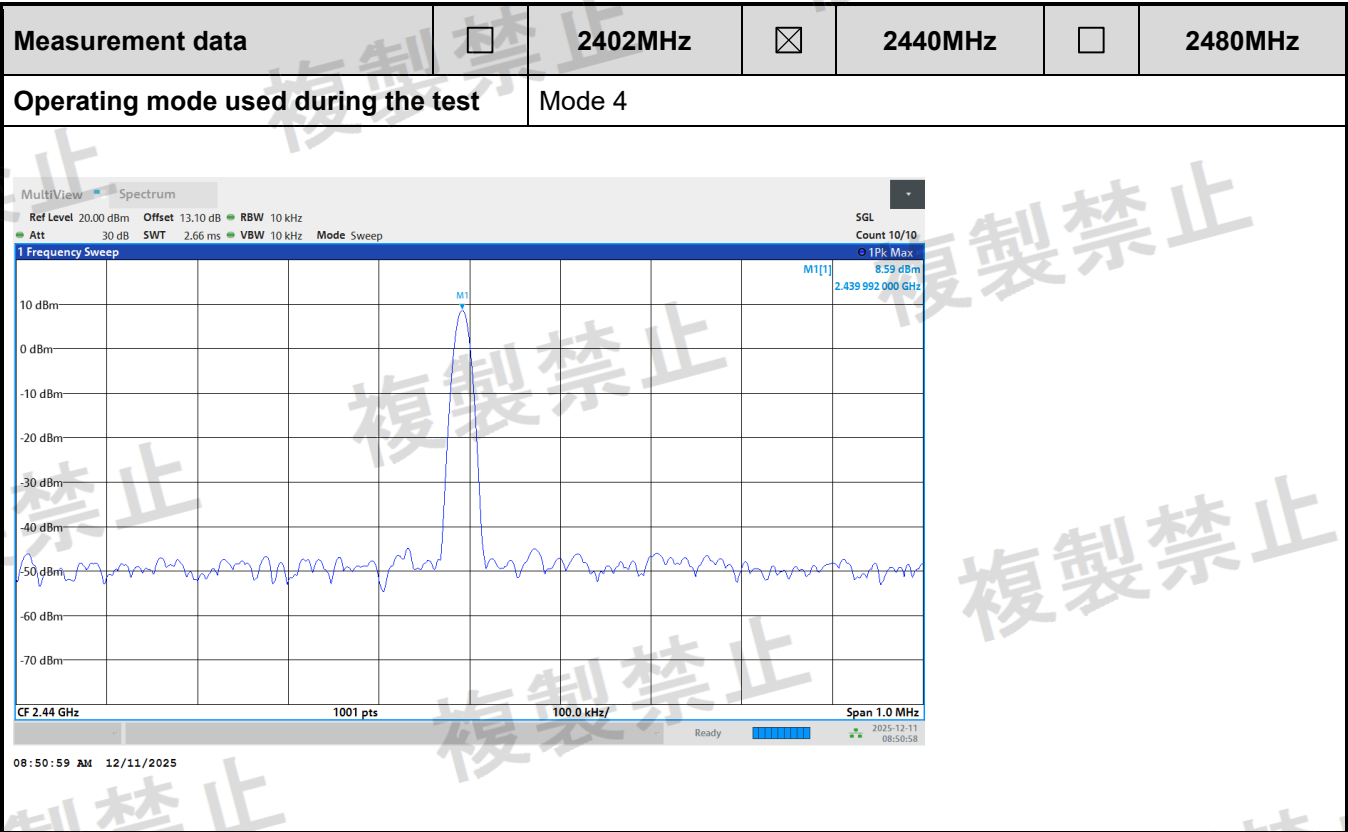
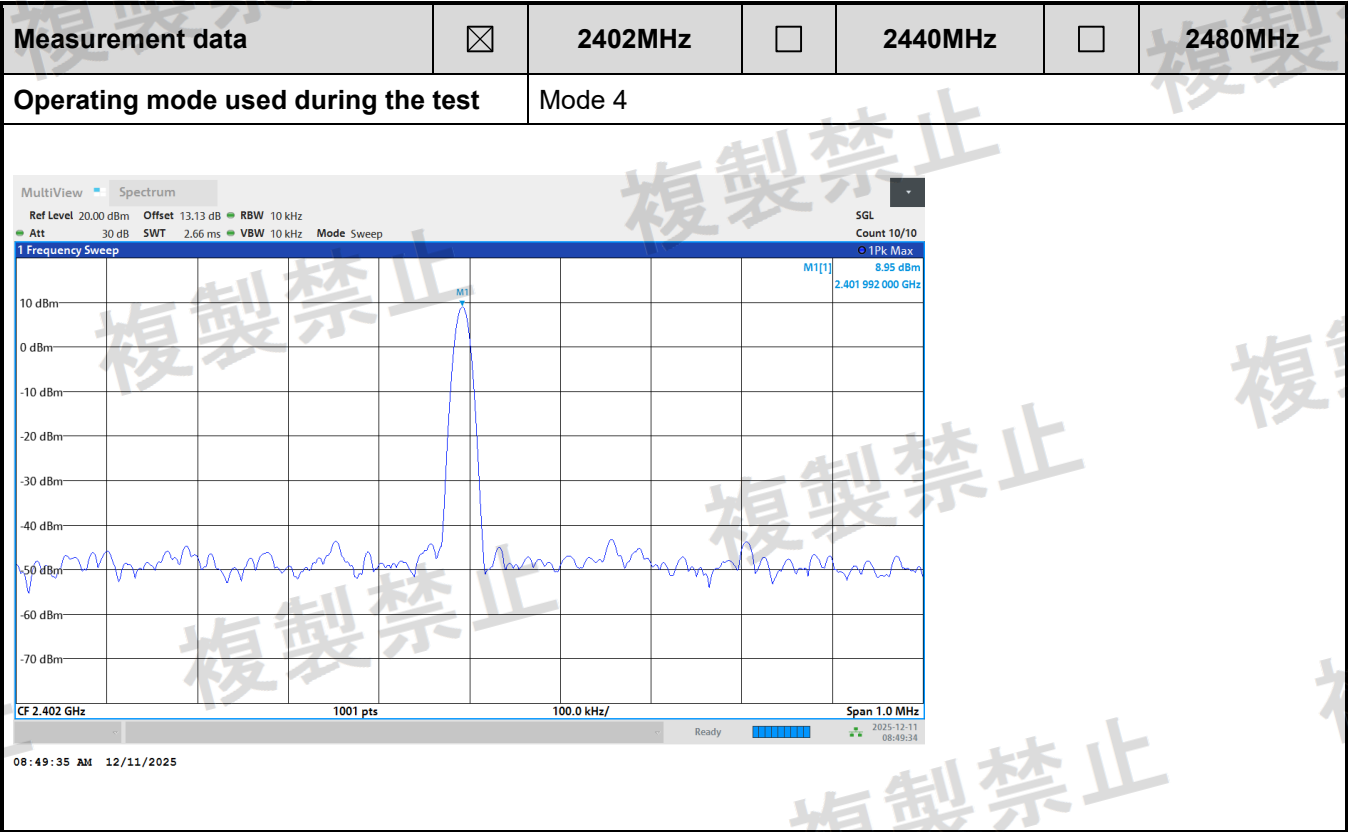


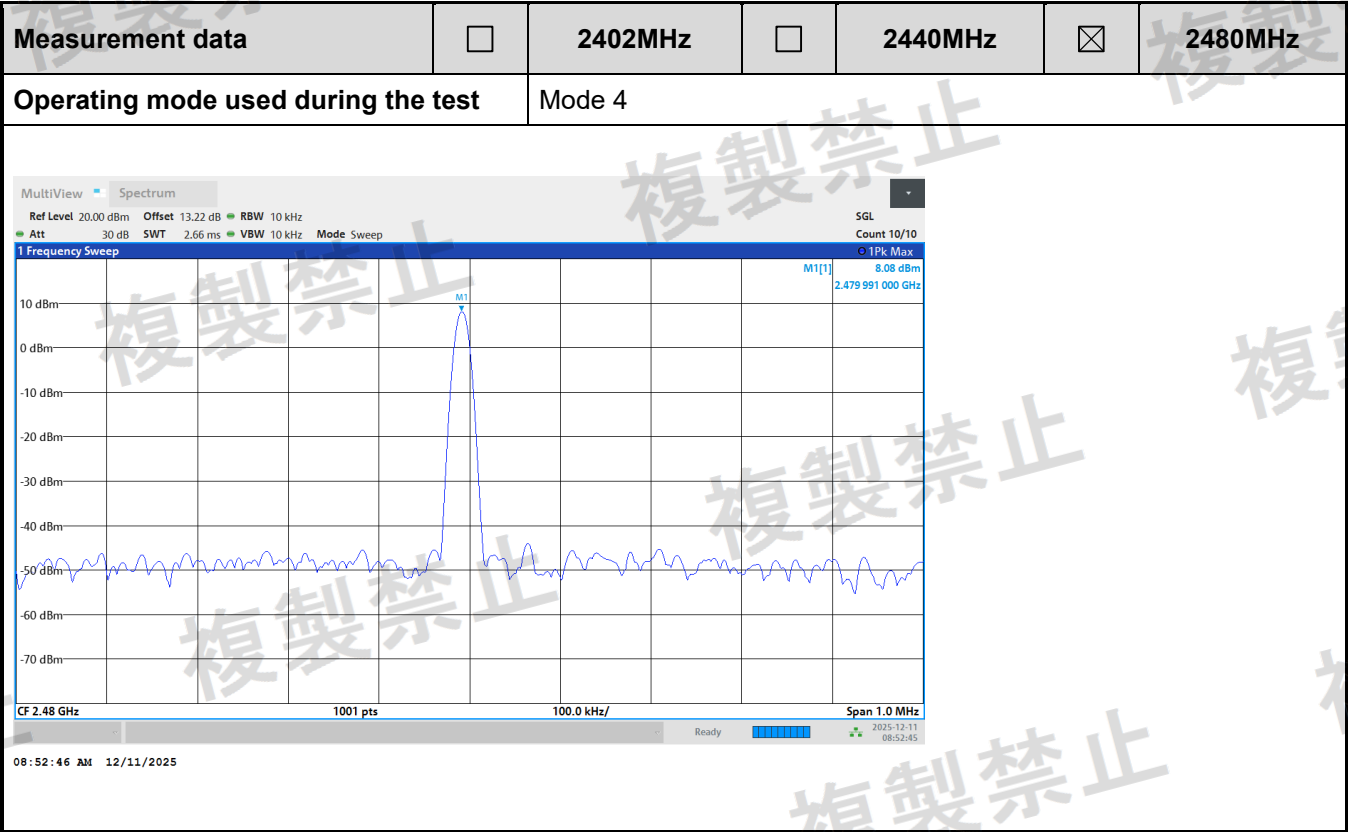












4.6	Occupied bandwidth	VERDICT: PASS
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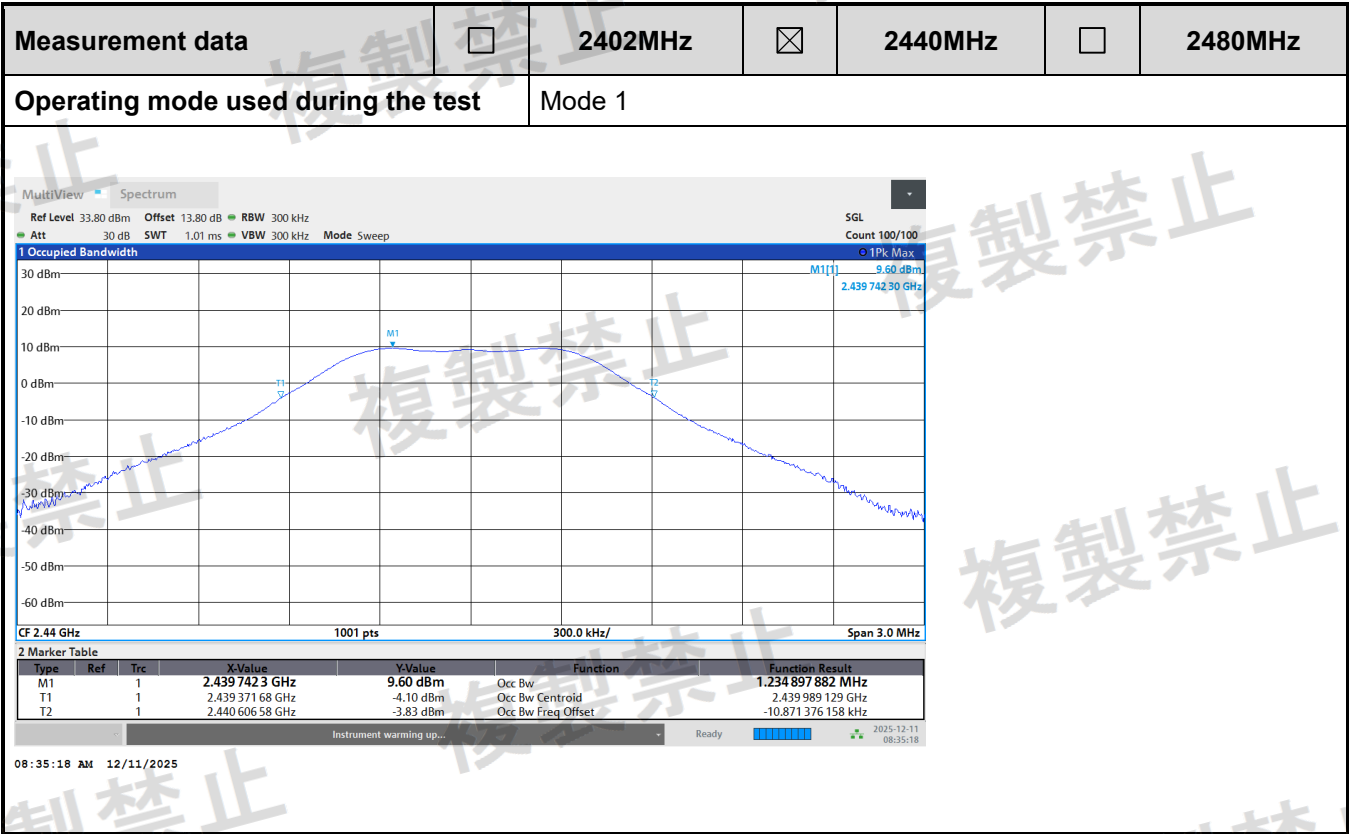
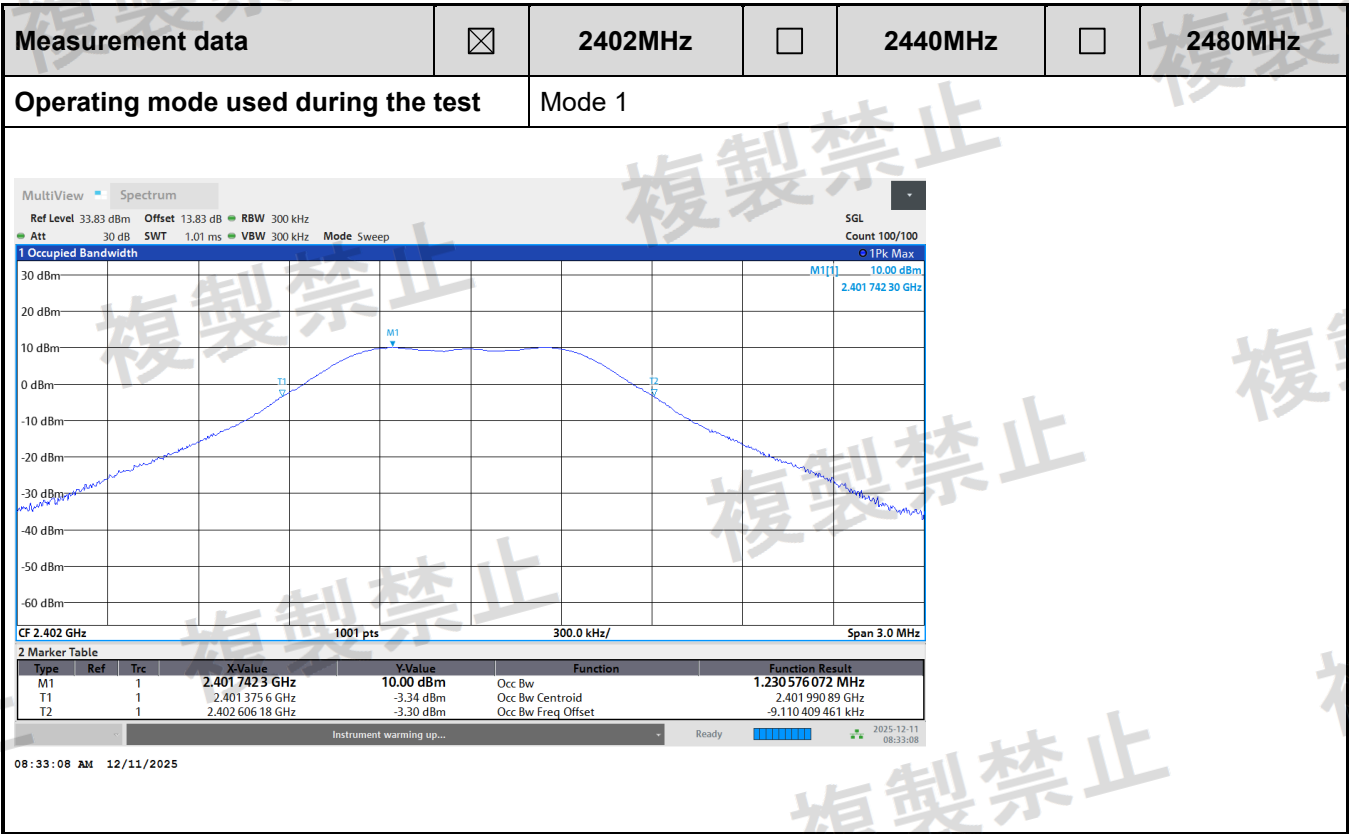
Standard	Article 2 Paragraph 1 item 19
Limits:	
The tolerance for the occupied bandwidth of the radio equipment of low-power data-based communication systems shall be as follows:	
a) Radio equipment that uses 2,400 MHz or higher to 2,483.5 MHz and uses the frequency hopping method, direct spread method, and a combination of the frequency hopping method and direct spread method, or a combination of OFDM and the frequency hopping method: 83.5 MHz b) Radio equipment that uses OFDM method and other than clause a): 40 MHz c) Radio equipment that uses methods other than clause a) and b): 26 MHz	

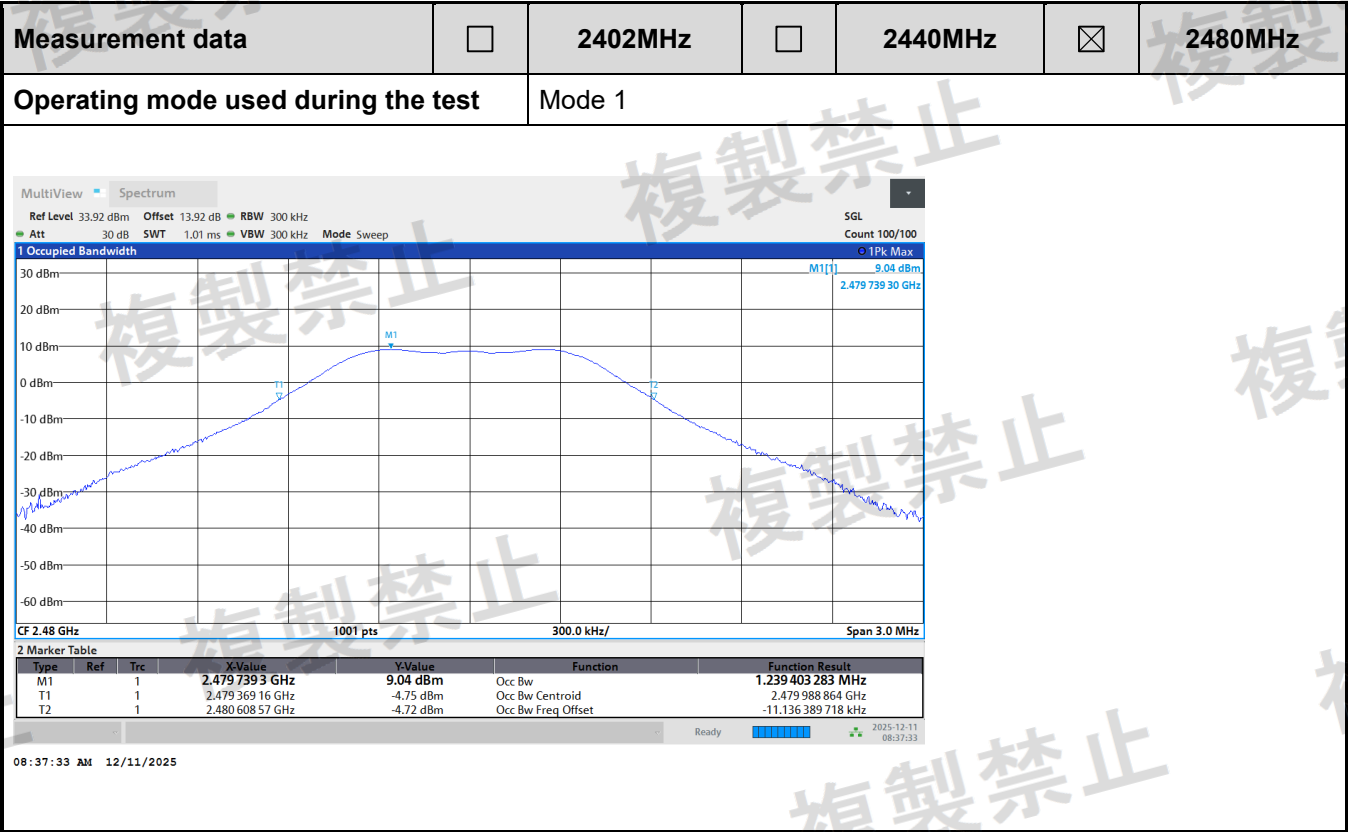
Performed measurements

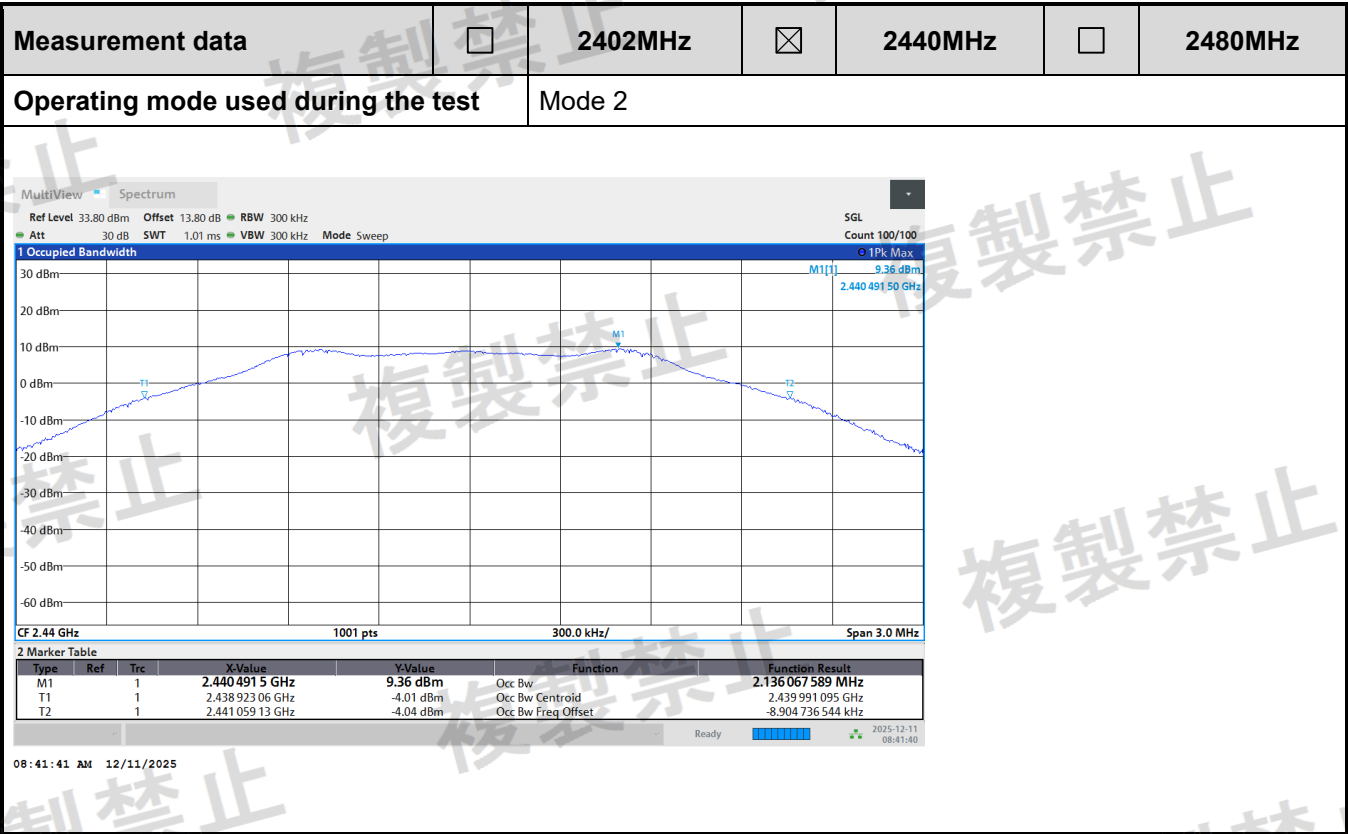
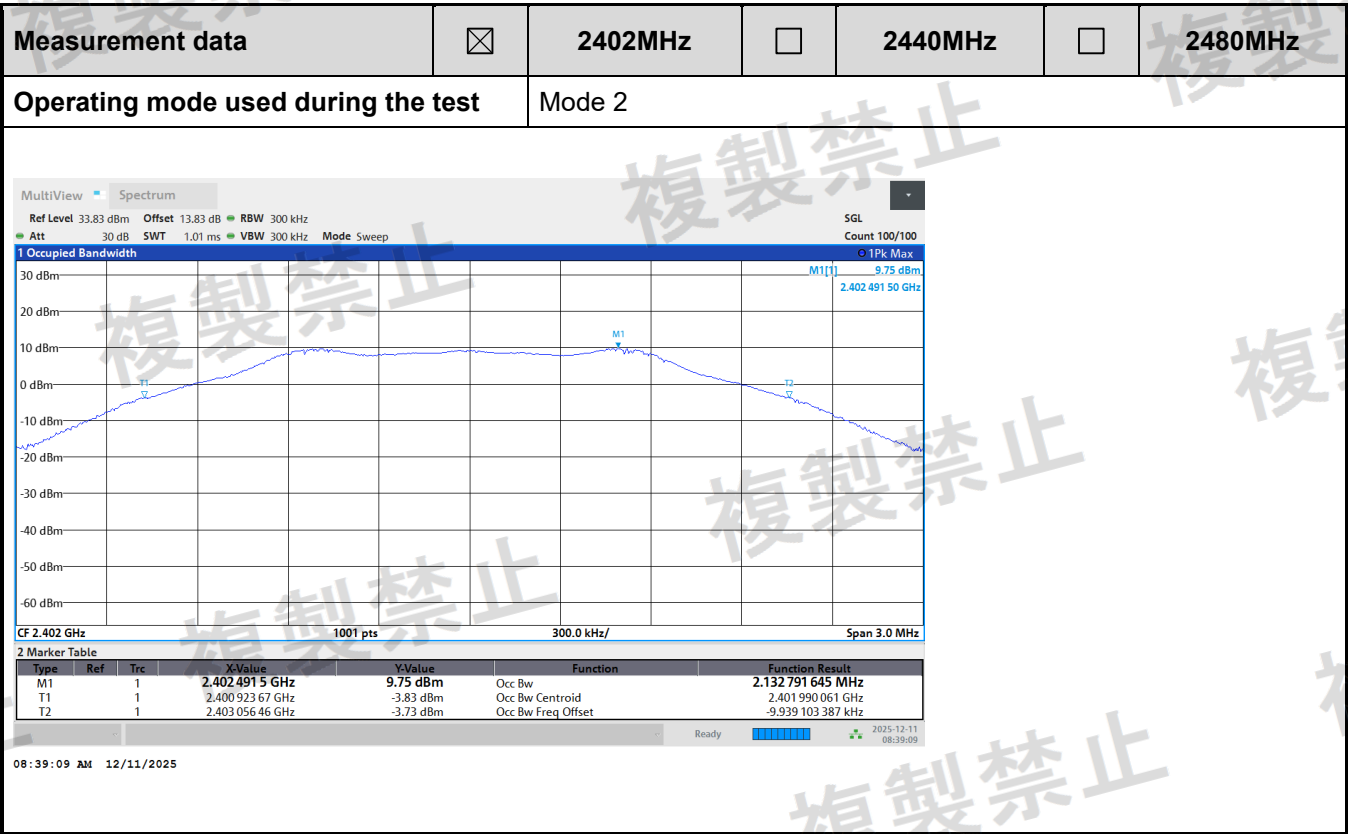
Test method applied	☒	Conducted measurement
	☐	Radiated measurement
Test setup	Refer to Appendix test setup photo(s).	
Operating mode(s) used	Mode 1, 2, 3, 4	
Ambient temperature	27.1°C	
Relative humidity air	56.4 %	
Atmospheric pressure	101.6 kPa	
Remark	---	

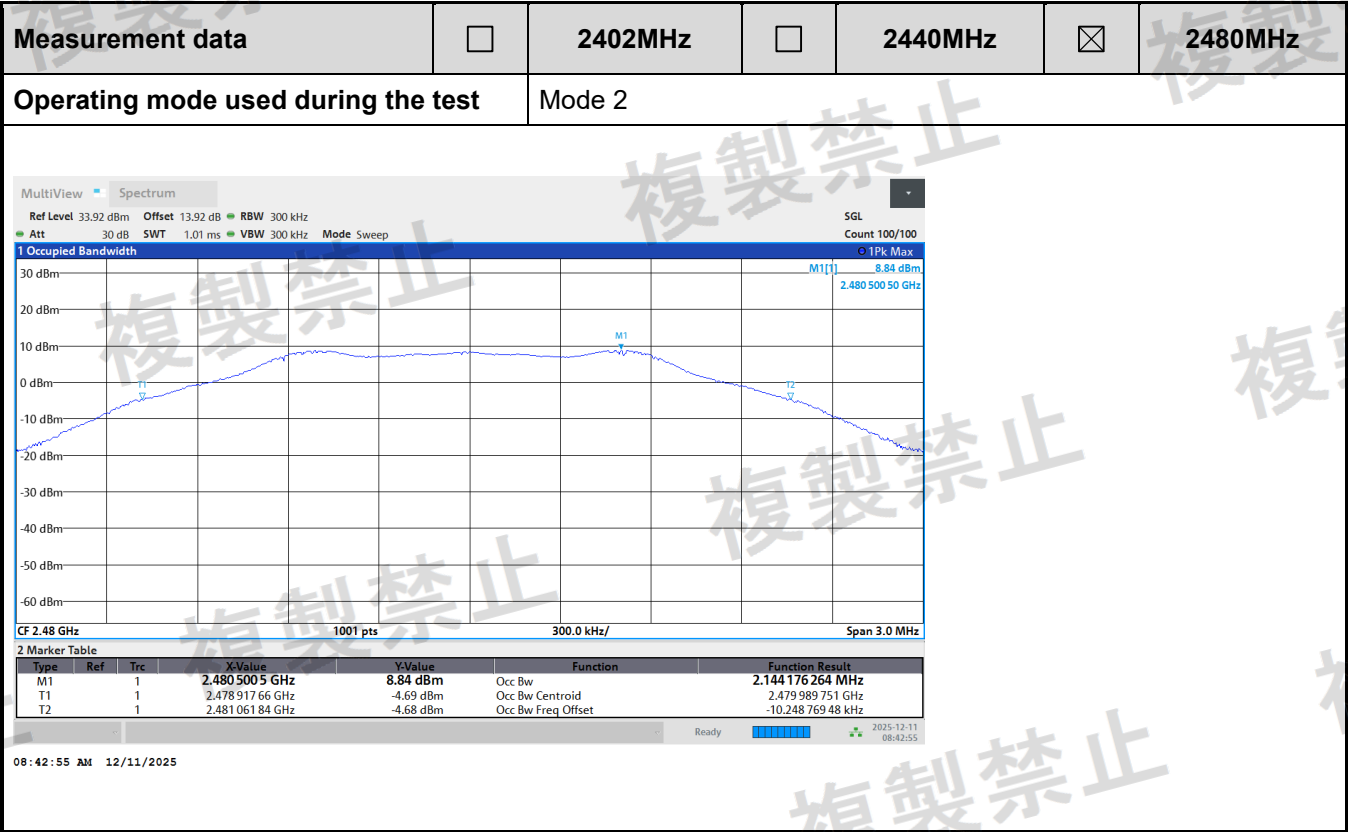
Results

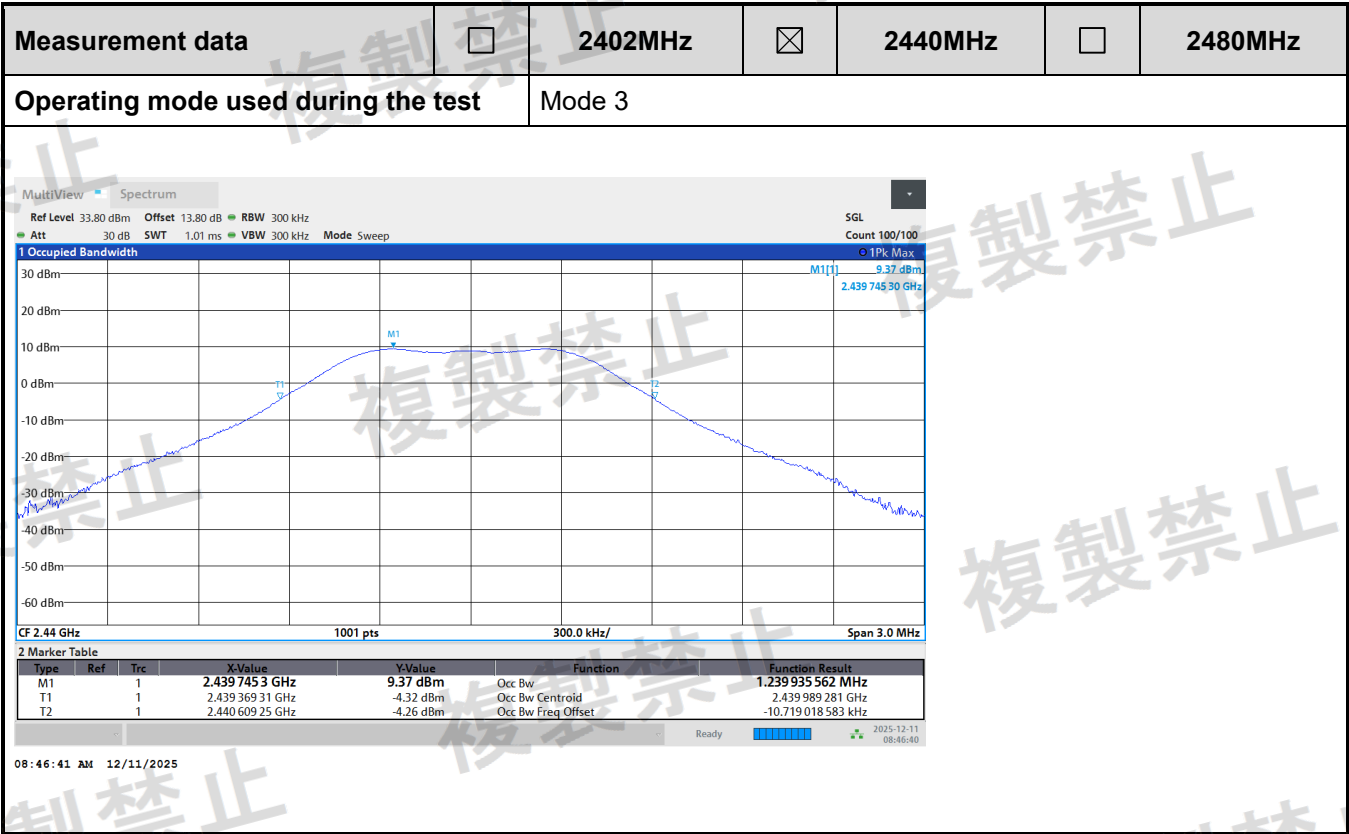
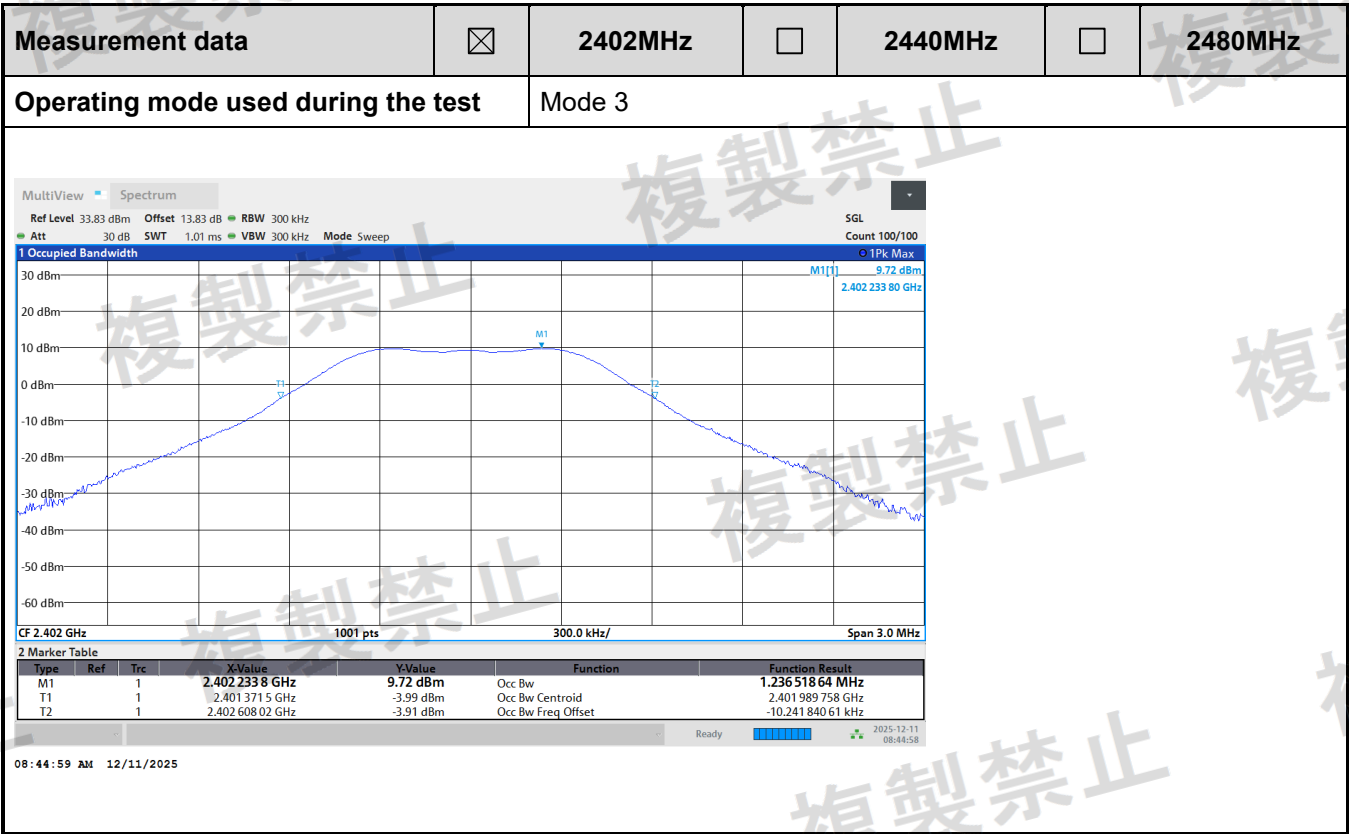
Opearting Mode	Frequency (MHz)	99% Bandwidth (MHz)	Limit (MHz)
Mode 1	2402	1.231	26
	2440	1.235	26
	2480	1.239	26
Mode 2	2402	2.133	26
	2440	2.136	26
	2480	2.144	26
Mode 3	2402	1.237	26
	2440	1.24	26
	2480	1.244	26
Mode 4	2402	1.218	26
	2440	1.219	26
	2480	1.219	26

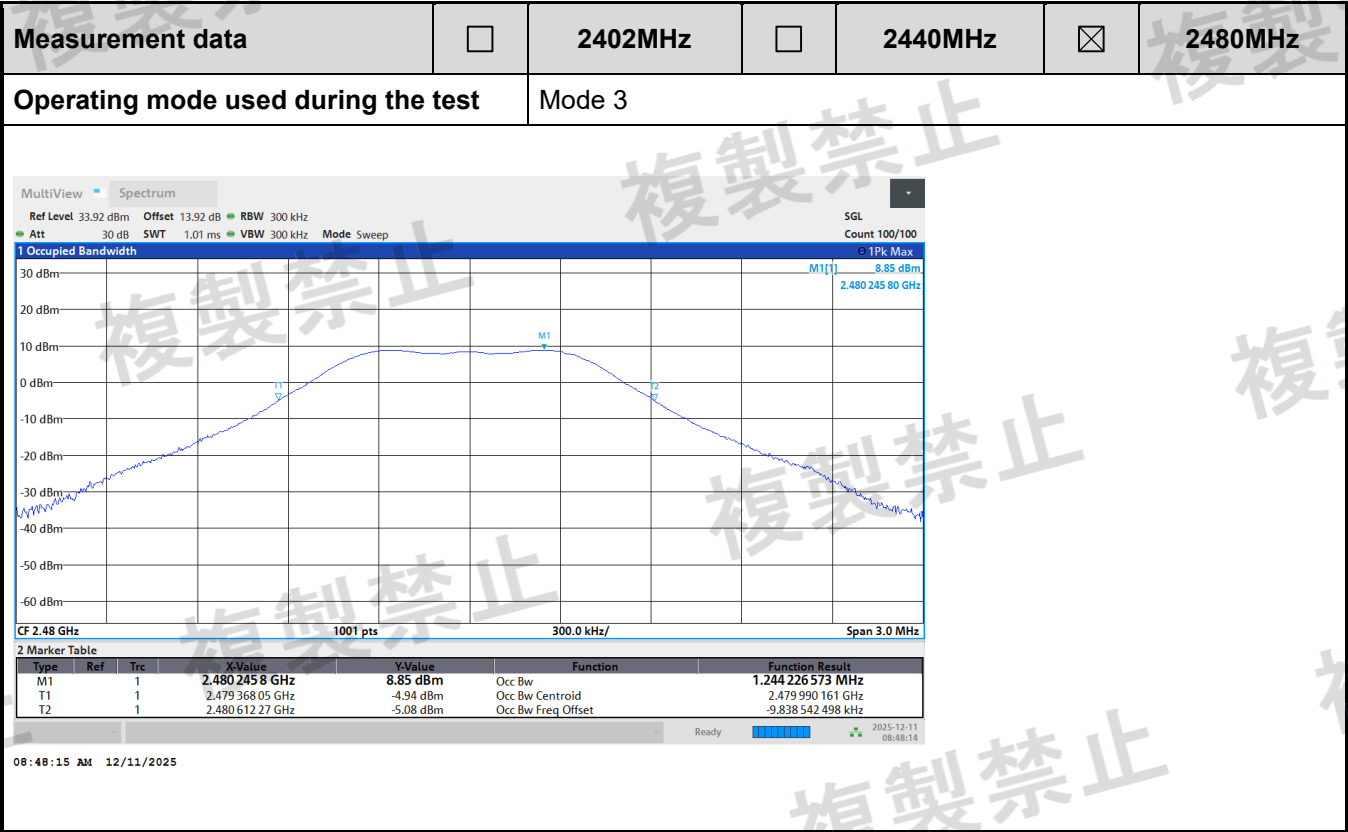


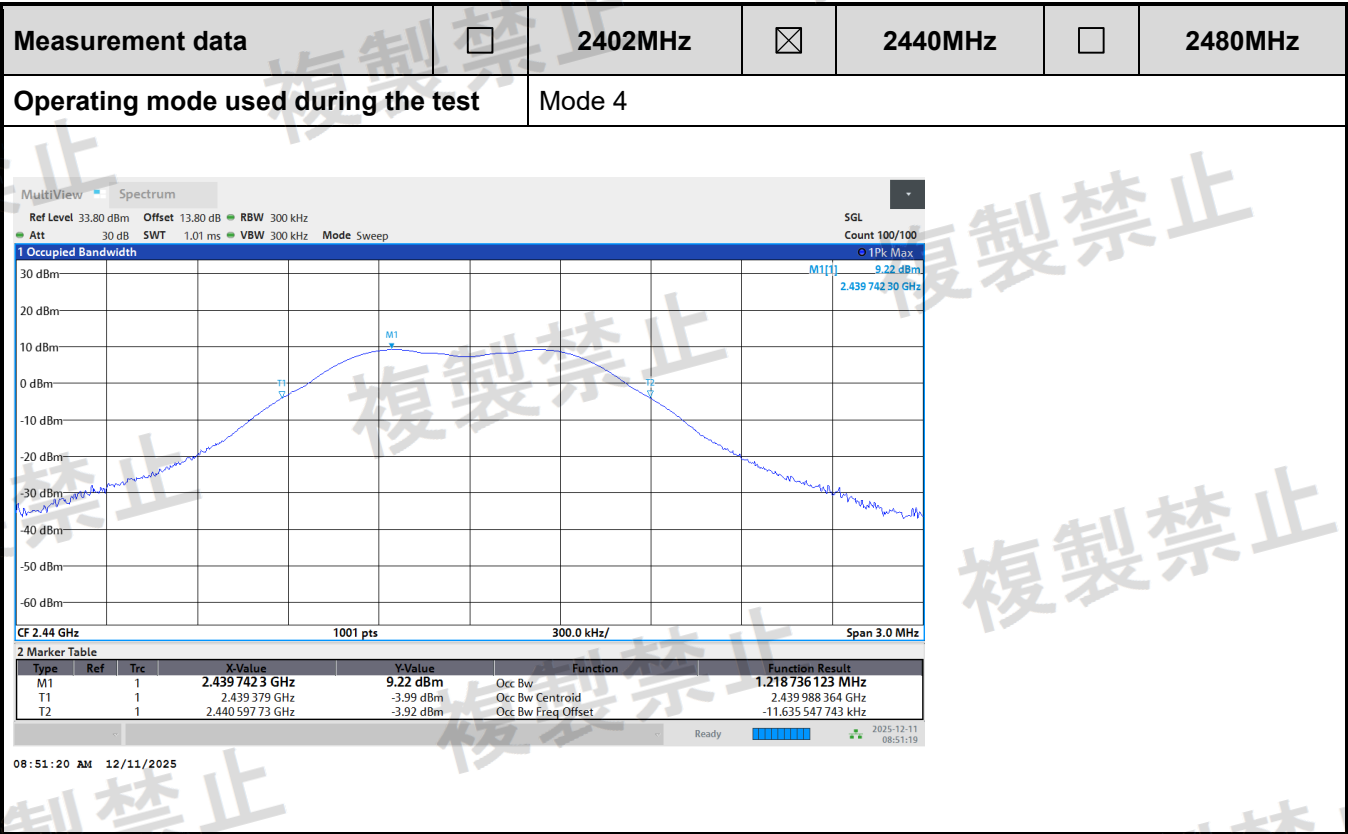
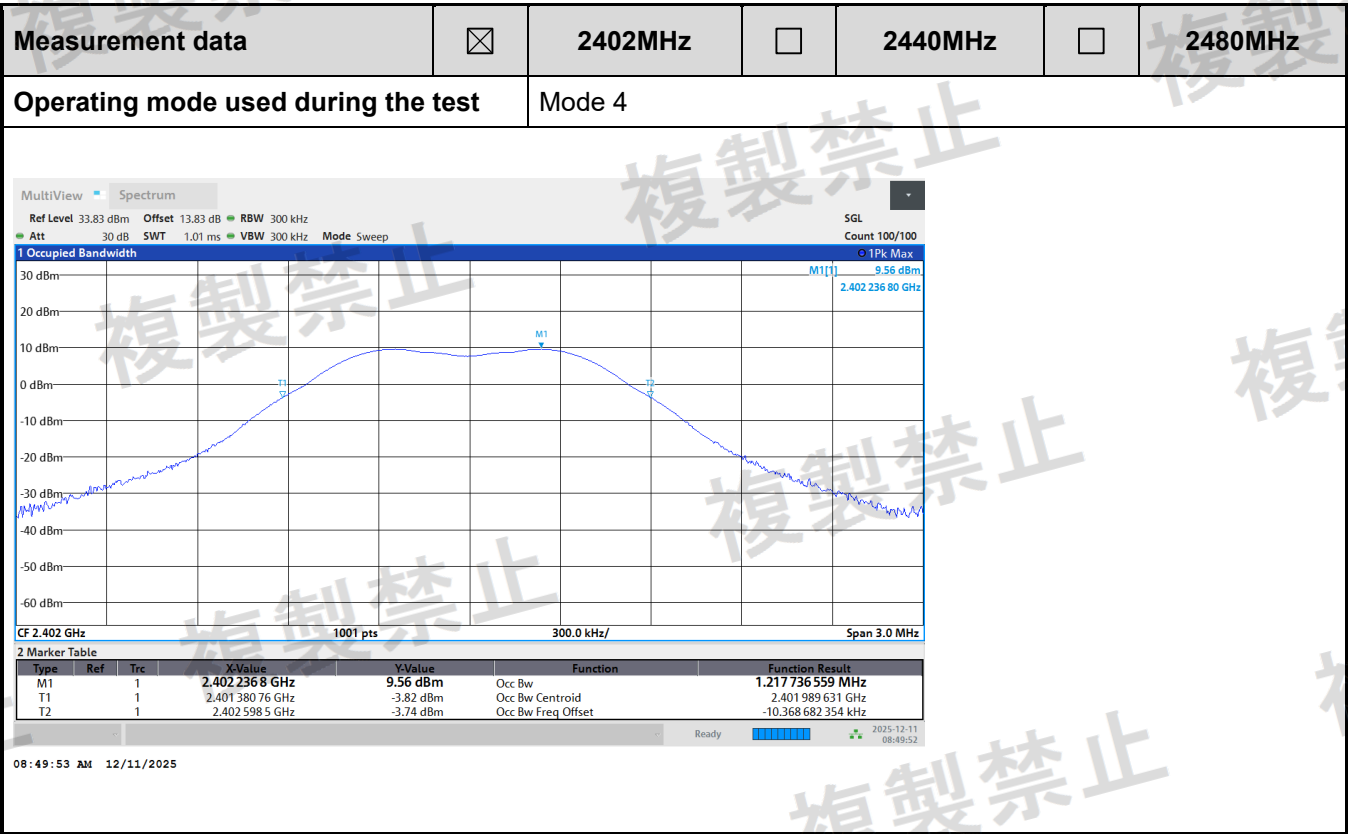


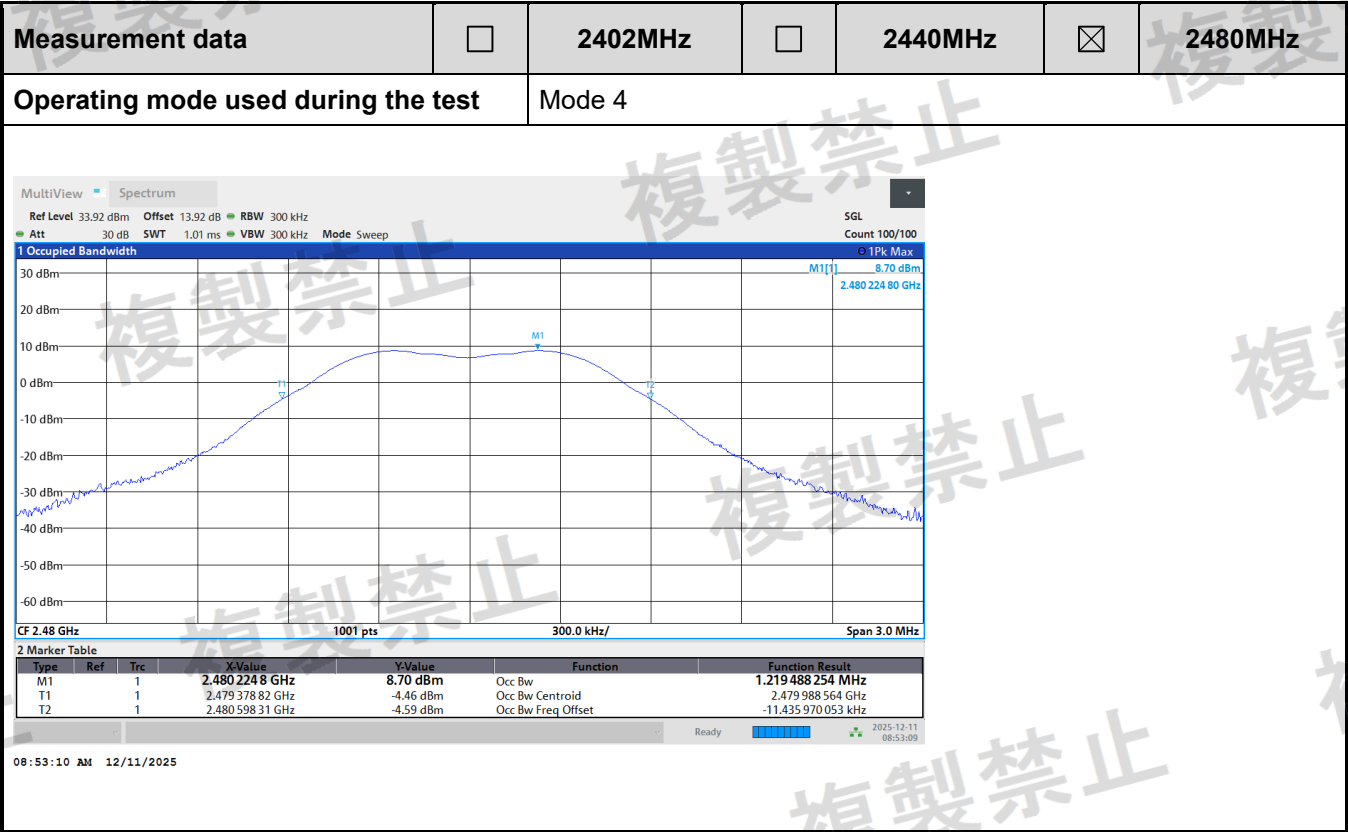












4.7	Spurious emission / unwanted emission intensity	VERDICT: PASS
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Standard	Article 2 Paragraph 1 item 19										
Limits: The permissible value of the unwanted emission intensity of the transmitting equipment of specified low-power radio stations which use emissions of a frequency of 2,400 MHz or higher but no more than 2,483.5 MHz and which use the frequency hopping method, and the transmission equipment at radio stations of low-power data communication systems that use emissions of a frequency of 2,400 MHz or higher but no more than 2,483.5 MHz shall be as follows: <table border="1"> <thead> <tr> <th>Frequency range</th><th>Permissible value of unwanted emission intensity</th></tr> </thead> <tbody> <tr> <td>30 MHz to 2387 MHz</td><td>$\leq 2.5 \mu\text{W/MHz}$</td></tr> <tr> <td>2387 MHz to 2400 MHz</td><td>$\leq 25 \mu\text{W/MHz}$</td></tr> <tr> <td>2483.5 MHz to 2496.5 MHz</td><td>$\leq 25 \mu\text{W/MHz}$</td></tr> <tr> <td>2496.5 MHz to 12.5 GHz</td><td>$\leq 2.5 \mu\text{W/MHz}$</td></tr> </tbody> </table>		Frequency range	Permissible value of unwanted emission intensity	30 MHz to 2387 MHz	$\leq 2.5 \mu\text{W/MHz}$	2387 MHz to 2400 MHz	$\leq 25 \mu\text{W/MHz}$	2483.5 MHz to 2496.5 MHz	$\leq 25 \mu\text{W/MHz}$	2496.5 MHz to 12.5 GHz	$\leq 2.5 \mu\text{W/MHz}$
Frequency range	Permissible value of unwanted emission intensity										
30 MHz to 2387 MHz	$\leq 2.5 \mu\text{W/MHz}$										
2387 MHz to 2400 MHz	$\leq 25 \mu\text{W/MHz}$										
2483.5 MHz to 2496.5 MHz	$\leq 25 \mu\text{W/MHz}$										
2496.5 MHz to 12.5 GHz	$\leq 2.5 \mu\text{W/MHz}$										

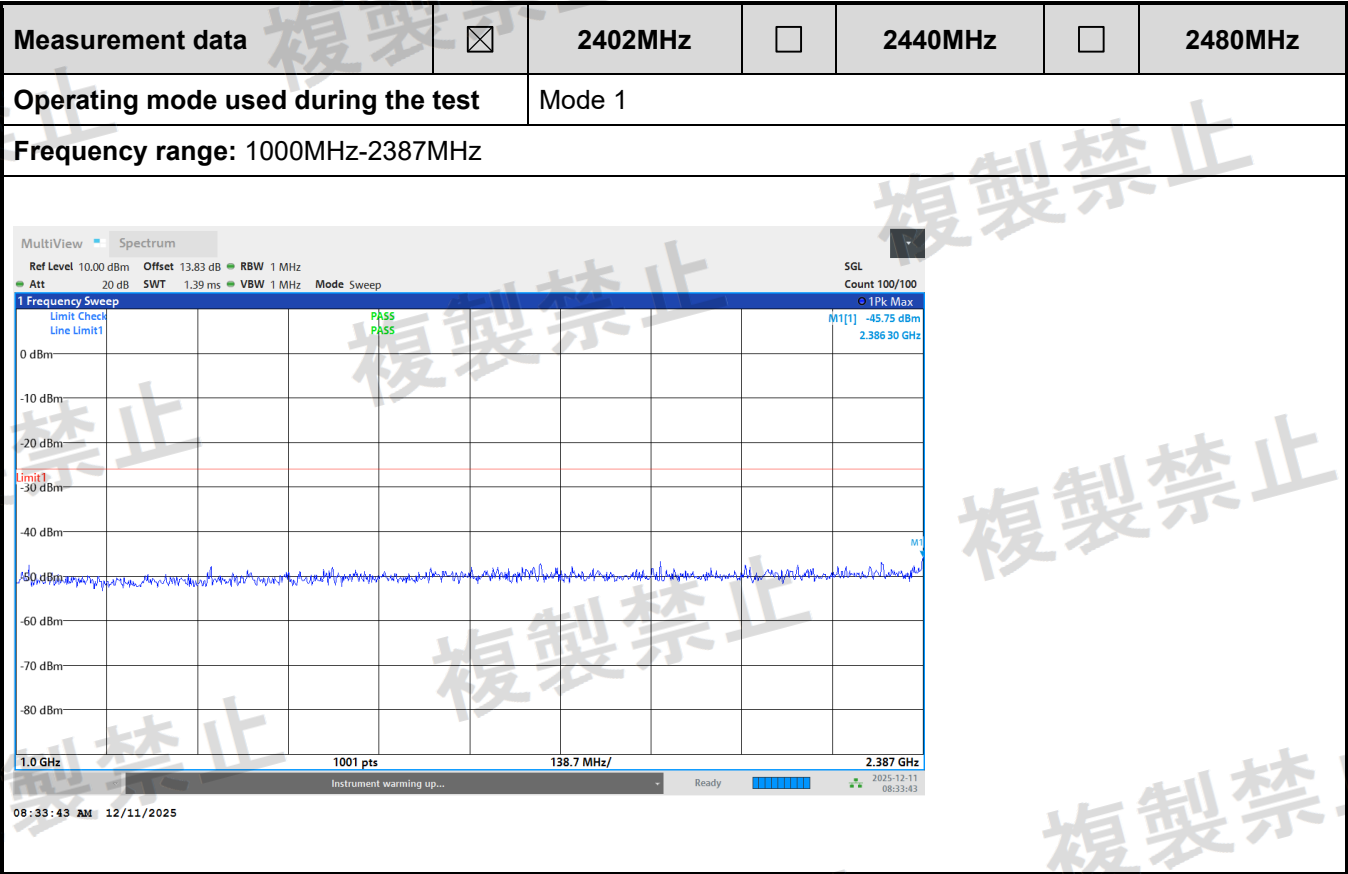
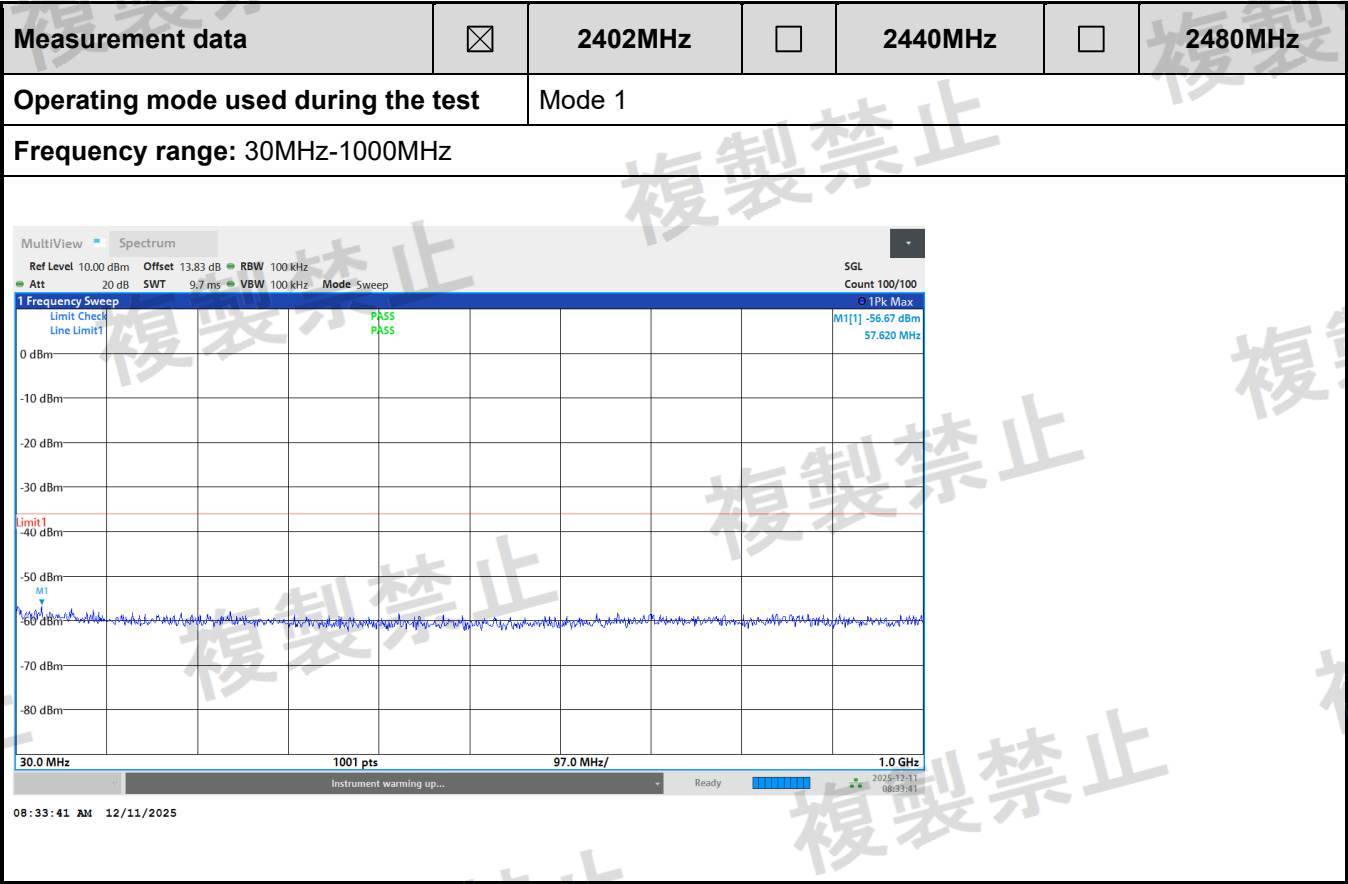
Performed measurements

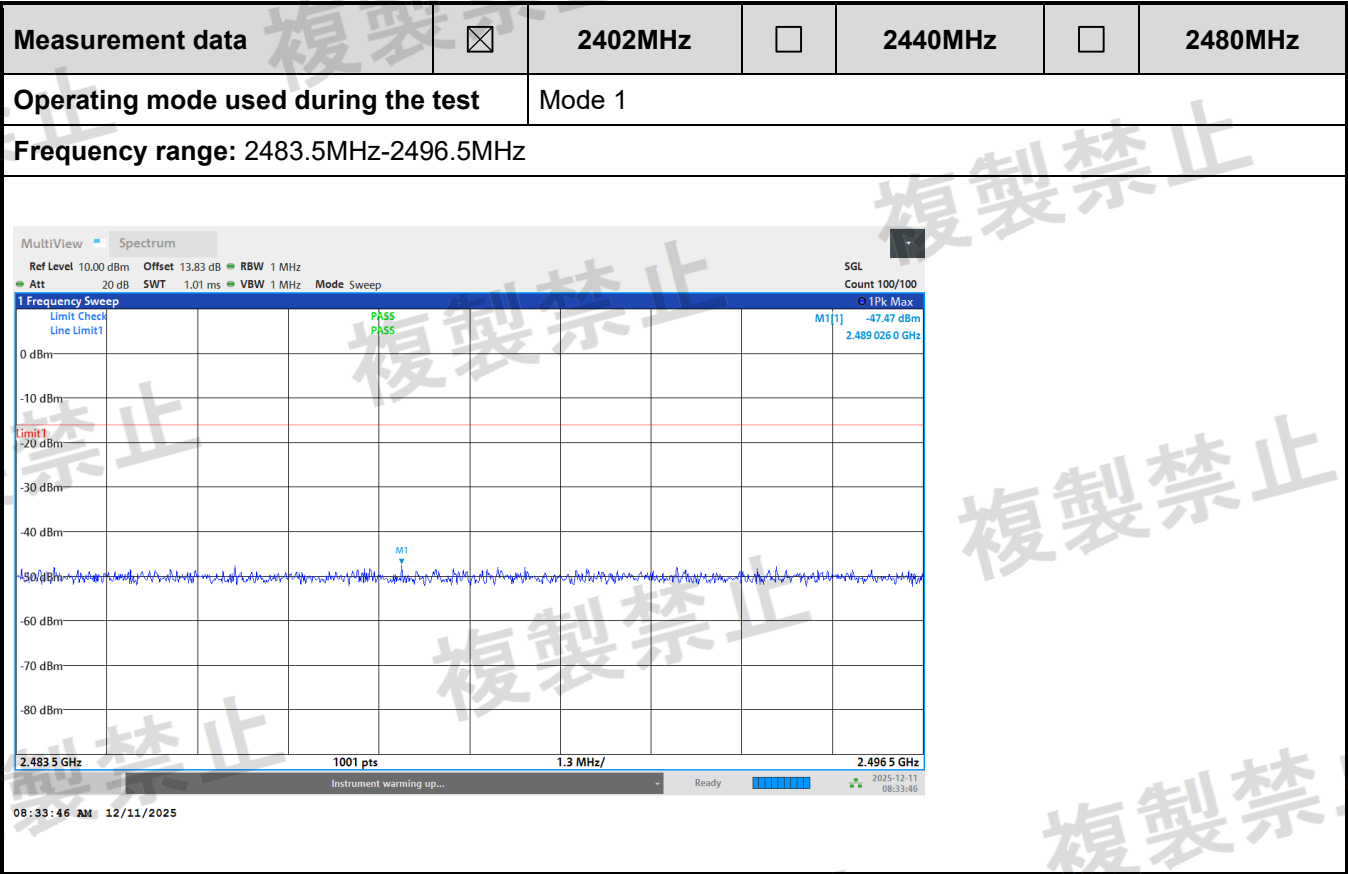
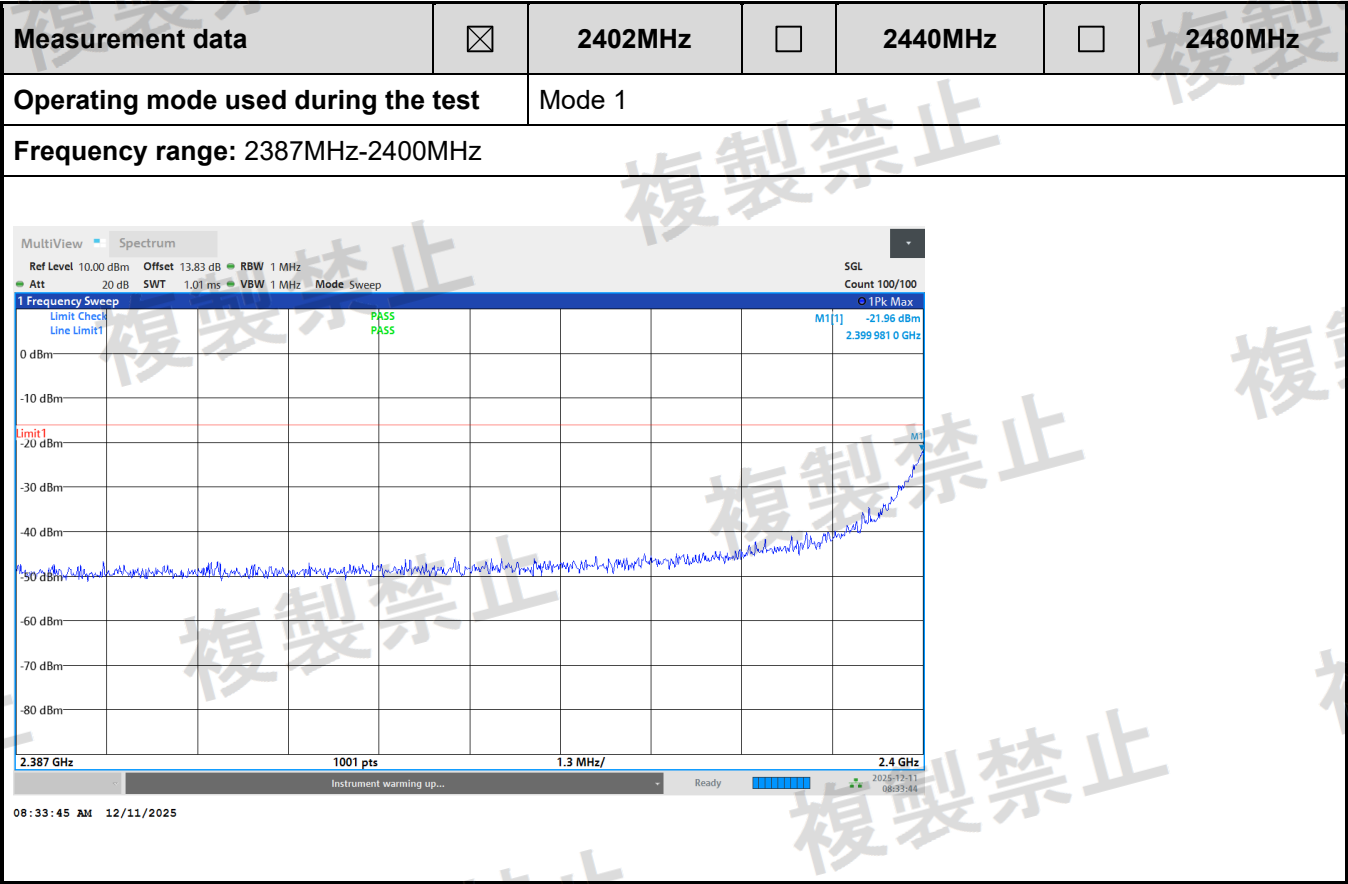
Test method applied	☒	Conducted measurement
	☐	Radiated measurement
Test setup	Refer to Appendix test setup photo(s).	
Operating mode(s) used	Mode 1, 2, 3, 4	
Ambient temperature	27.1°C	
Relative humidity air	56.1 %	
Atmospheric pressure	101.6 kPa	
Remark	---	

Results

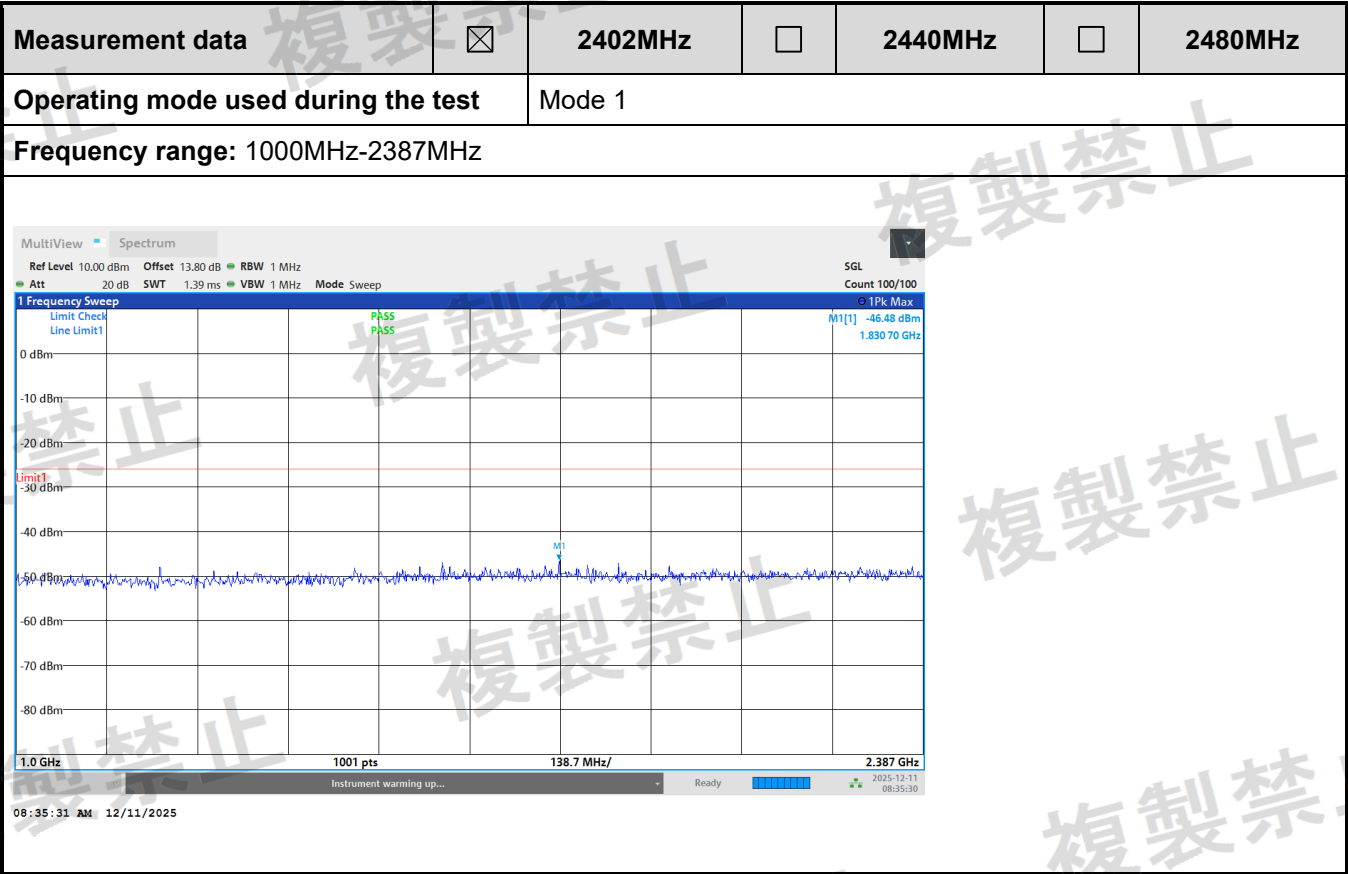
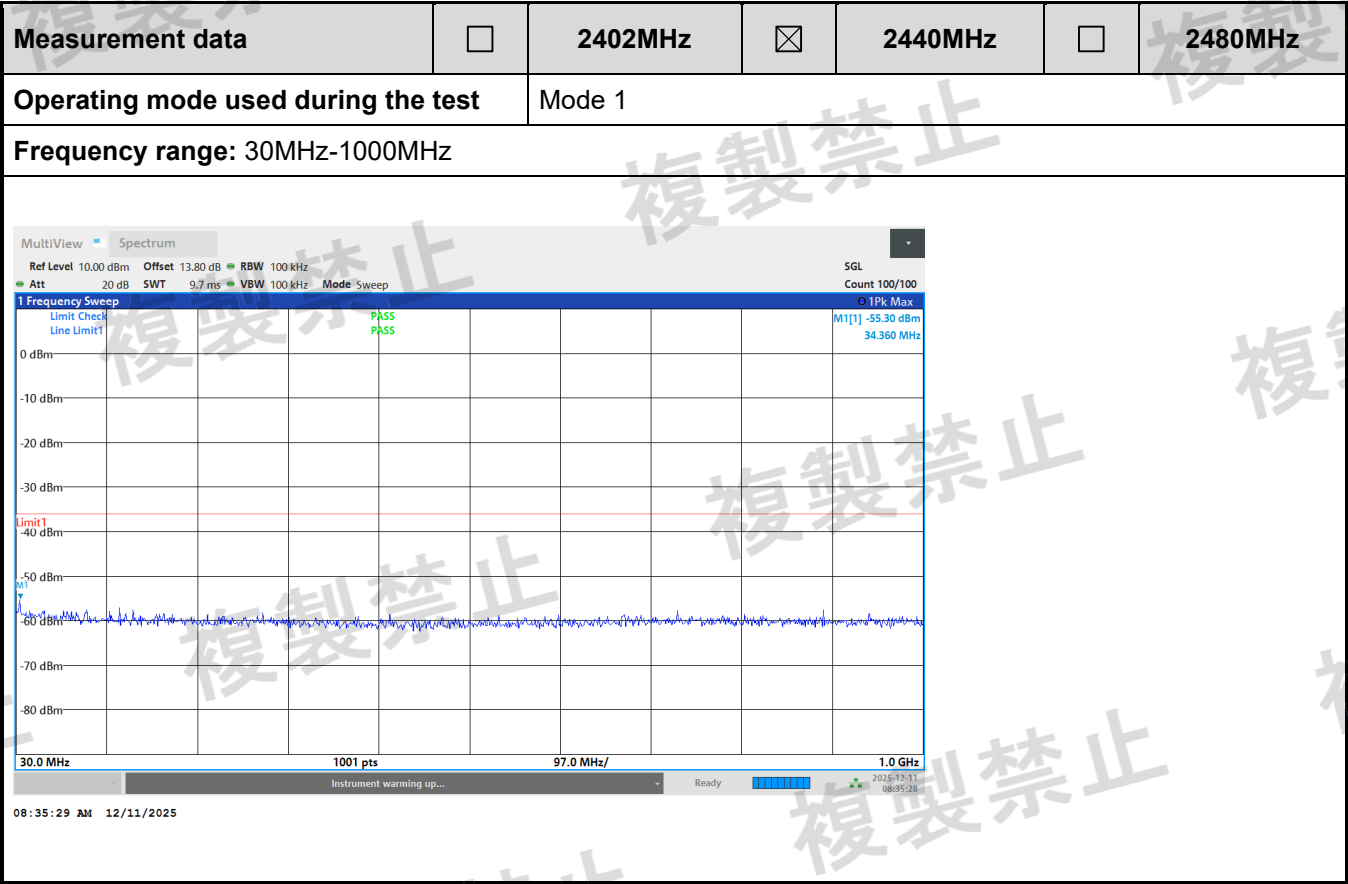
Opearting Mode	Channel (MHz)	Frequency Range (MHz)	Emission Frequency (MHz)	Measured Level (dBm)	Limit (dBm)
1	2402	30-1000	57.62	-46.67	-36
1	2402	1000-2387	2386.3	-45.75	-26
1	2402	2387-2400	2399.98	-21.96	-16
1	2402	2483.5-2496.5	2489.03	-47.47	-16
1	2402	2496.5-13000	7464.5	-41.85	-26
1	2440	30-1000	34.36	-45.3	-36
1	2440	1000-2387	1830.7	-46.48	-26
1	2440	2387-2400	2397.82	-46.17	-16
1	2440	2483.5-2496.5	2490.12	-47.16	-16
1	2440	2496.5-13000	6289.5	-41.46	-26
1	2480	30-1000	35.33	-46.69	-36
1	2480	1000-2387	1548	-47.01	-26
1	2480	2387-2400	2390.71	-46.49	-16
1	2480	2483.5-2496.5	2483.6	-41.71	-16
1	2480	2496.5-13000	7485.5	-41.39	-26
2	2402	30-1000	33.39	-46.24	-36
2	2402	1000-2387	1801.6	-46.39	-26
2	2402	2387-2400	2399.99	-22.19	-16
2	2402	2483.5-2496.5	2495.53	-45.87	-16
2	2402	2496.5-13000	7485.5	-41.23	-26
2	2440	30-1000	119.64	-46.27	-36
2	2440	1000-2387	1830.7	-46.5	-26
2	2440	2387-2400	2387.38	-46.78	-16
2	2440	2483.5-2496.5	2489.48	-46.53	-16
2	2440	2496.5-13000	7276.5	-41.72	-26
2	2480	30-1000	34.36	-45.92	-36
2	2480	1000-2387	1859.8	-46.2	-26
2	2480	2387-2400	2391.02	-46.57	-16
2	2480	2483.5-2496.5	2483.58	-32.18	-16
2	2480	2496.5-13000	7485.5	-41.24	-26
3	2402	30-1000	35.33	-45.91	-36
3	2402	1000-2387	2143.8	-47.06	-26
3	2402	2387-2400	2399.99	-21.79	-16

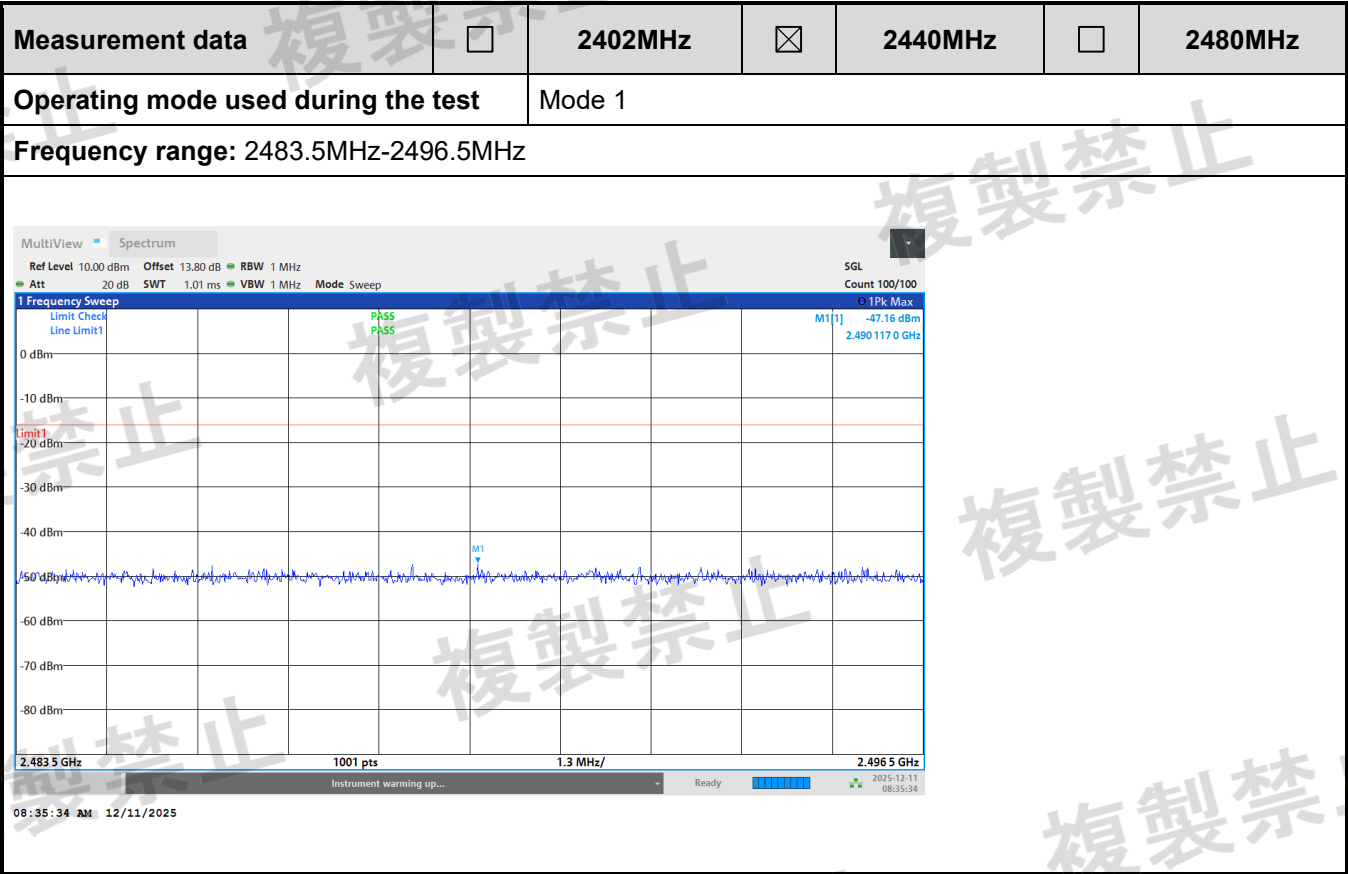
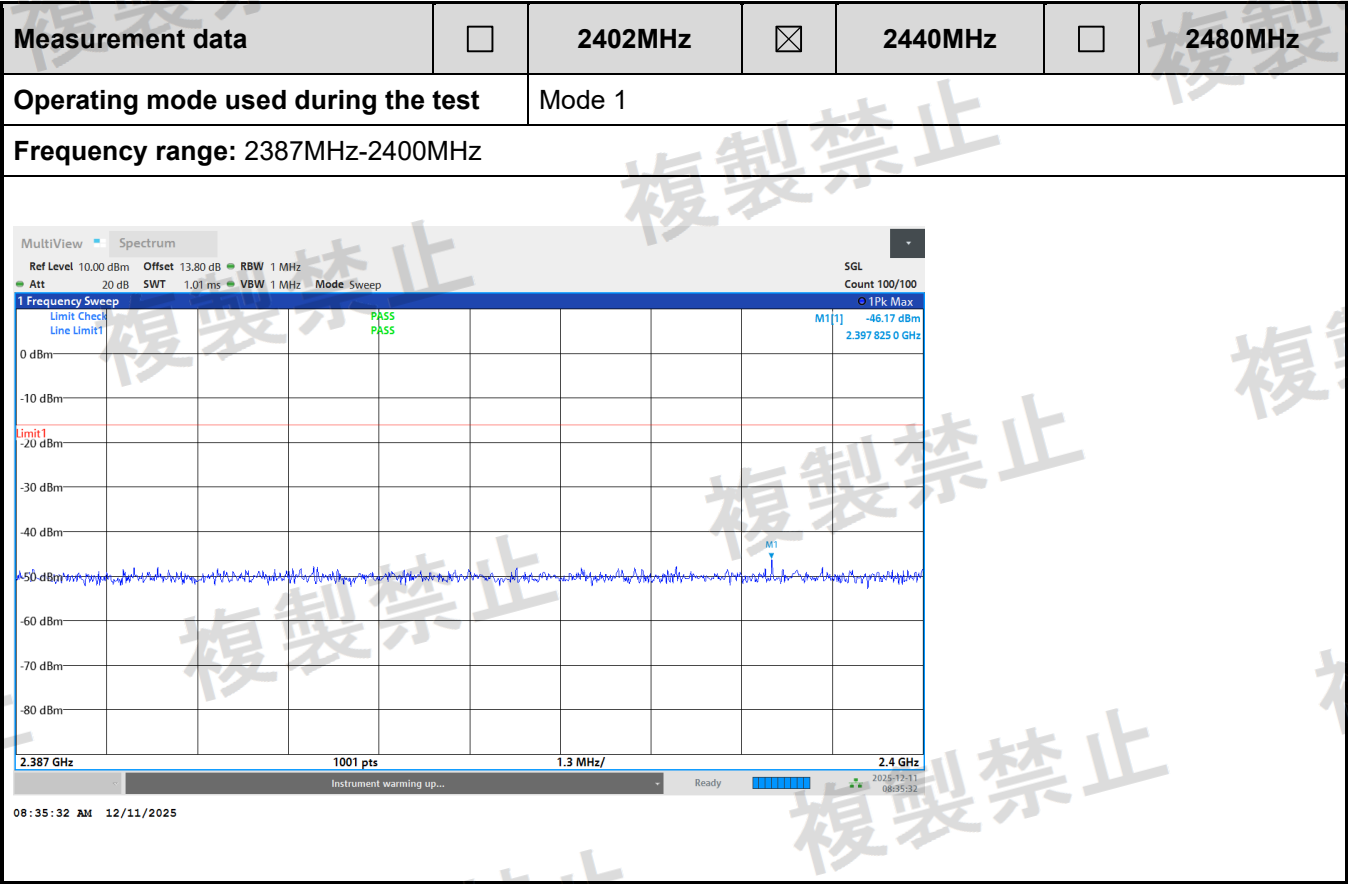
3	2402	2483.5-2496.5	2484.77	-46.84	-16
3	2402	2496.5-13000	6468.5	-41.49	-26
3	2440	30-1000	34.36	-45.96	-36
3	2440	1000-2387	1830.7	-46.69	-26
3	2440	2387-2400	2387.03	-47.72	-16
3	2440	2483.5-2496.5	2483.8	-47.3	-16
3	2440	2496.5-13000	7496.5	-41.22	-26
3	2480	30-1000	35.33	-45.71	-36
3	2480	1000-2387	1841.8	-46.57	-26
3	2480	2387-2400	2388.59	-46.63	-16
3	2480	2483.5-2496.5	2483.75	-42.36	-16
3	2480	2496.5-13000	7412.5	-41.27	-26
4	2402	30-1000	40.17	-46.63	-36
4	2402	1000-2387	2265.8	-47.03	-26
4	2402	2387-2400	2399.99	-23.62	-16
4	2402	2483.5-2496.5	2490.91	-47.51	-16
4	2402	2496.5-13000	7475.5	-40.58	-26
4	2440	30-1000	35.33	-46.14	-36
4	2440	1000-2387	1667.2	-46.17	-26
4	2440	2387-2400	2392.89	-47.44	-16
4	2440	2483.5-2496.5	2484.05	-46.49	-16
4	2440	2496.5-13000	7370.5	-41.58	-26
4	2480	30-1000	34.36	-46.4	-36
4	2480	1000-2387	2171.5	-45.53	-26
4	2480	2387-2400	2394.51	-47.47	-16
4	2480	2483.5-2496.5	2483.55	-41.35	-16
4	2480	2496.5-13000	7013.5	-41.82	-26



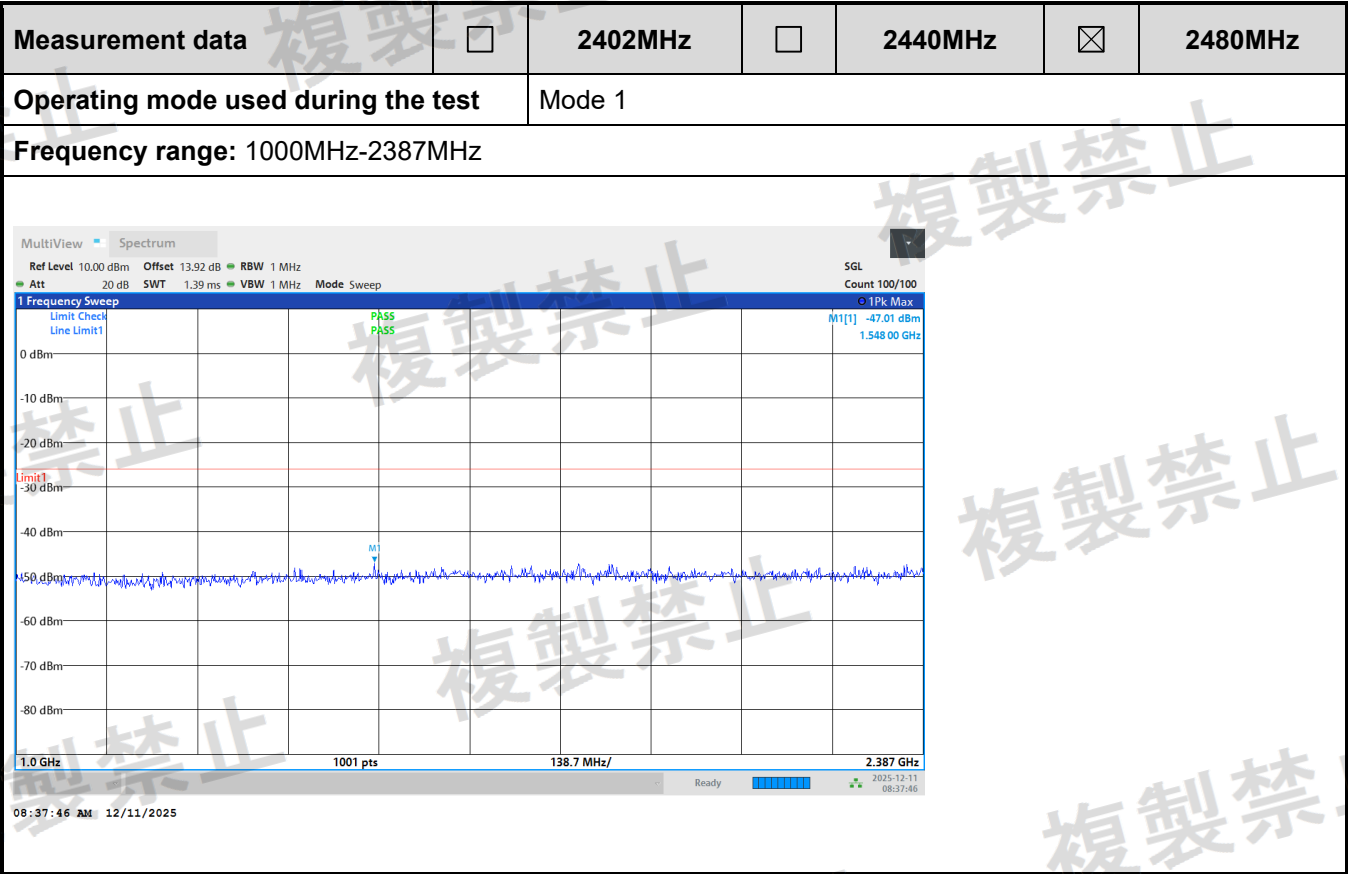
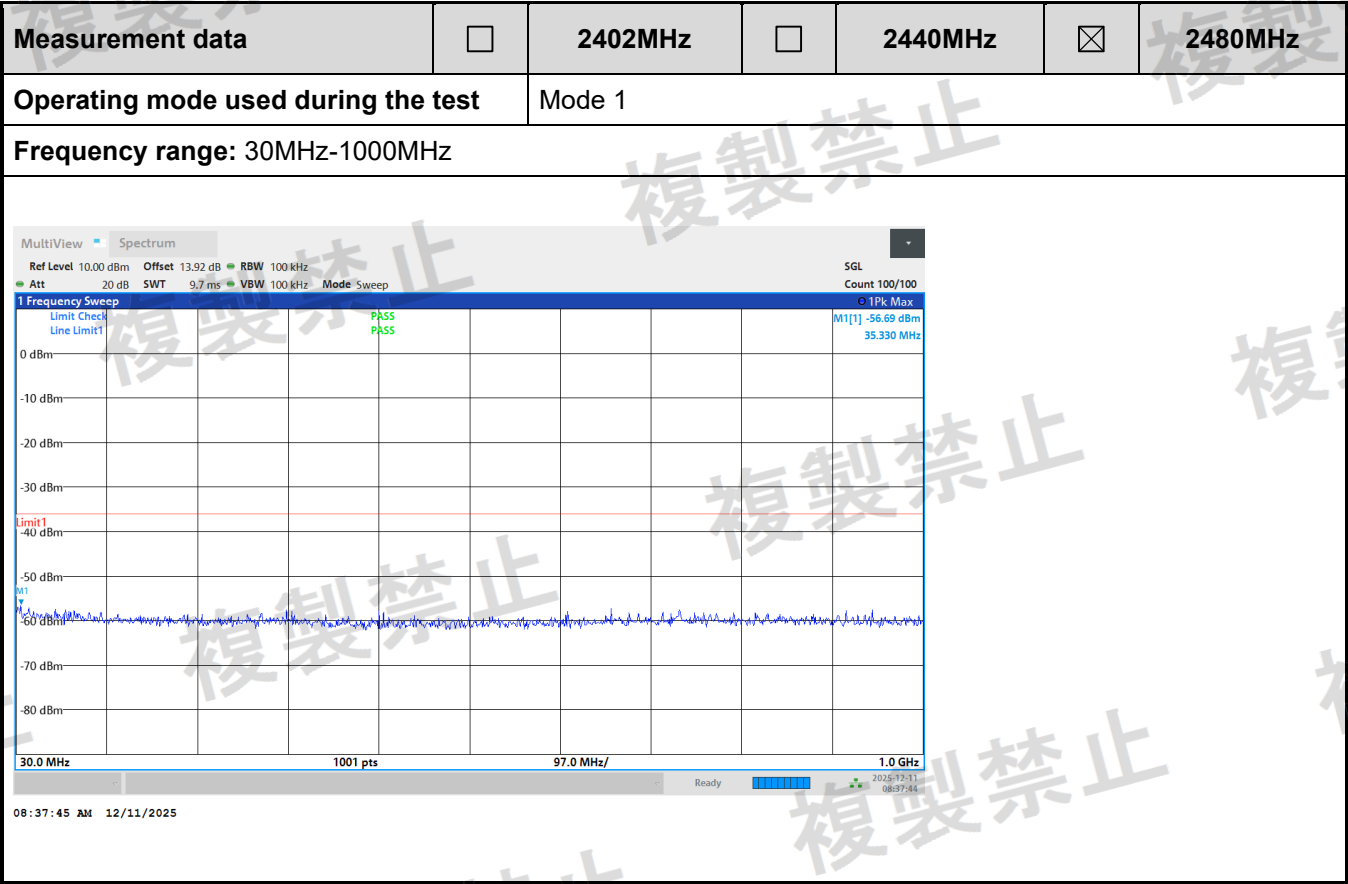


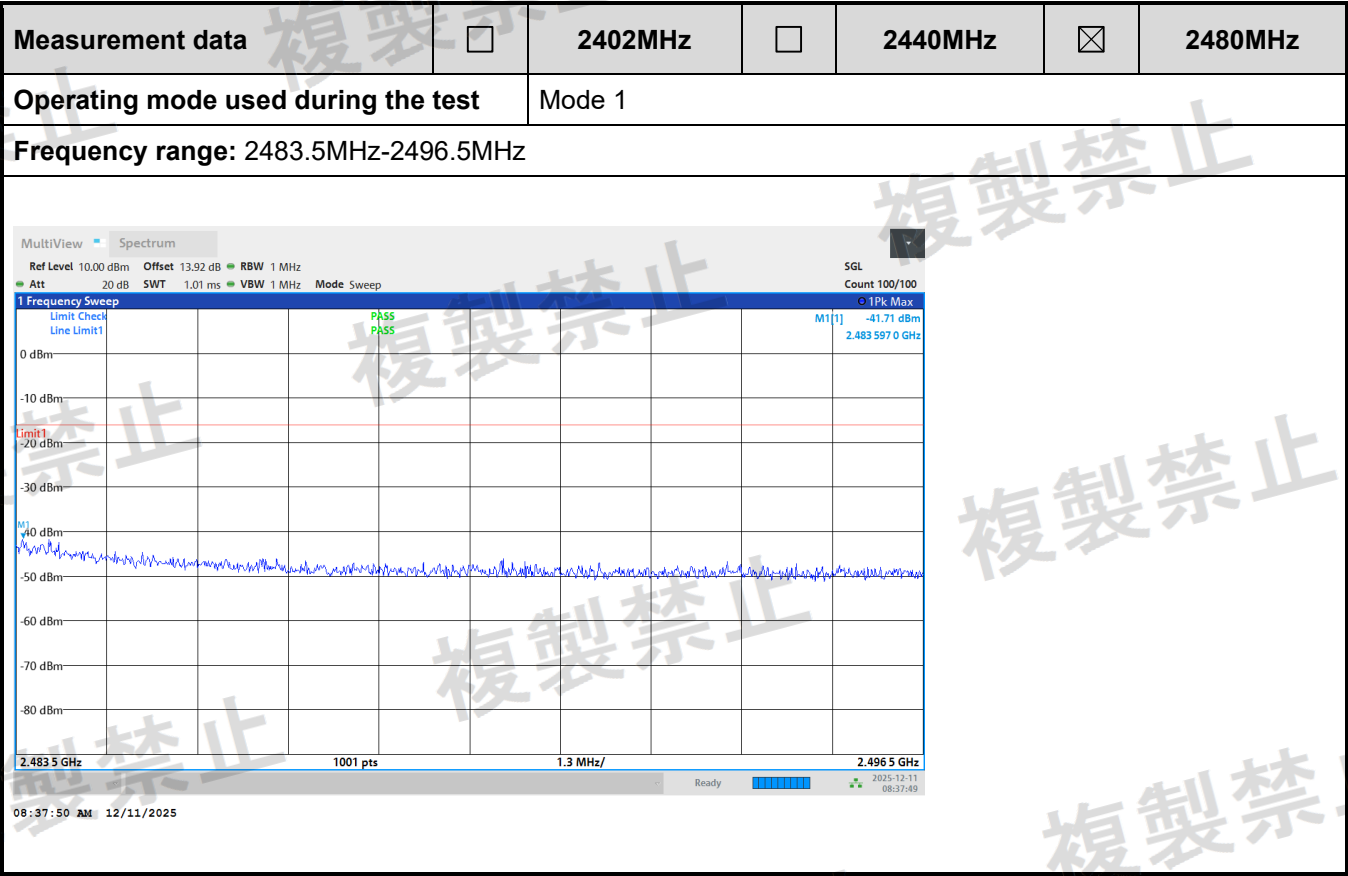




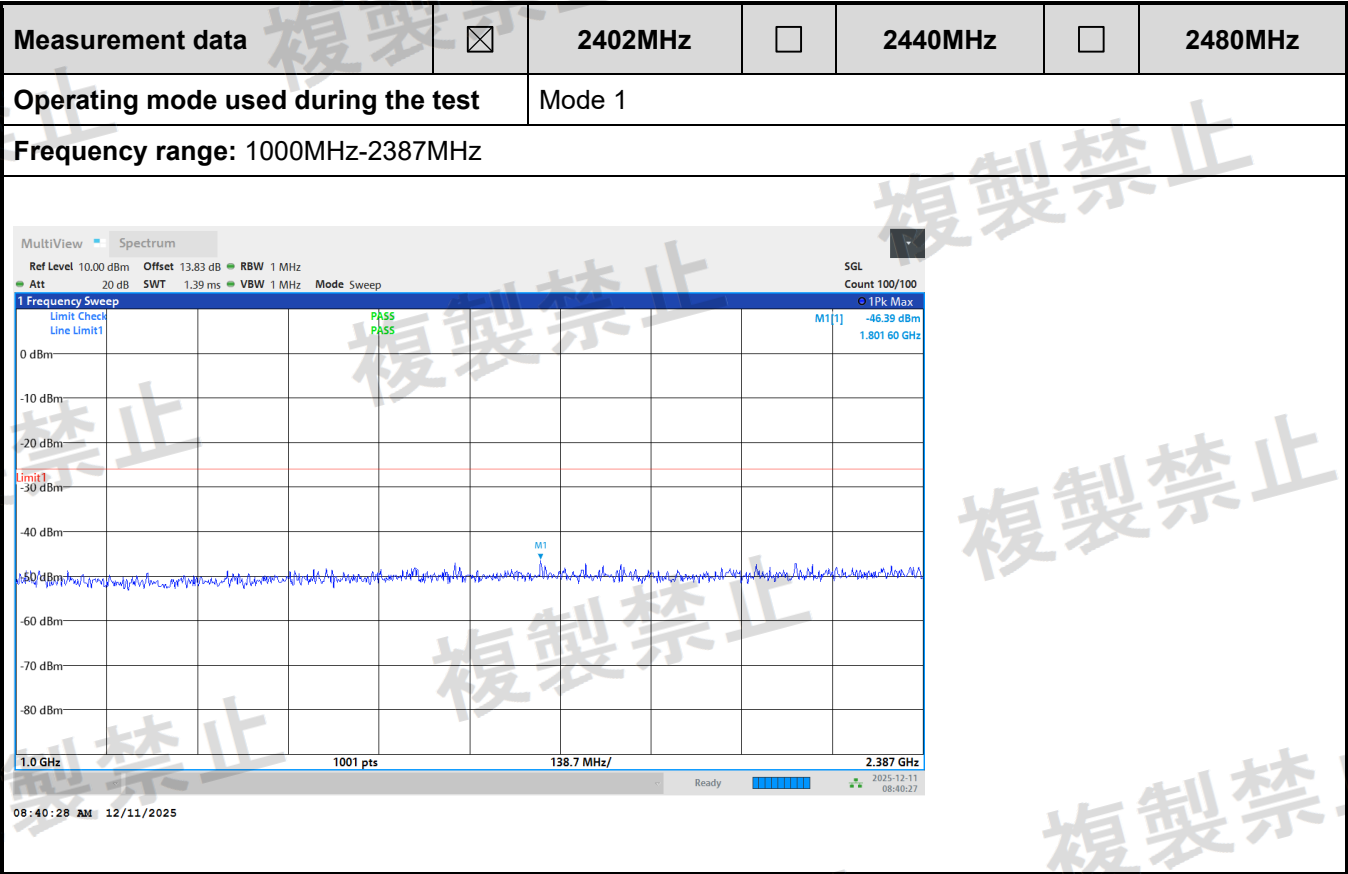
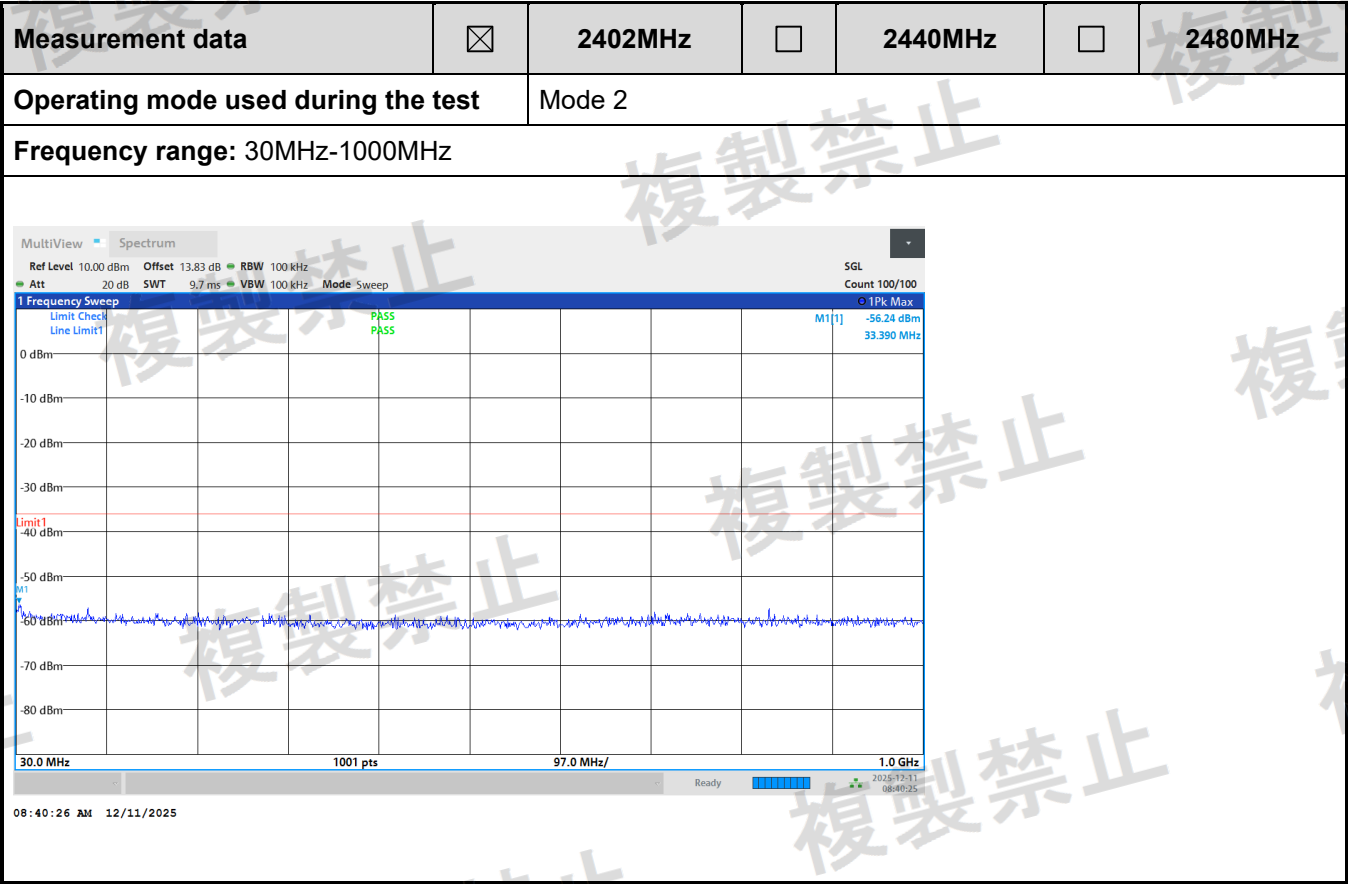


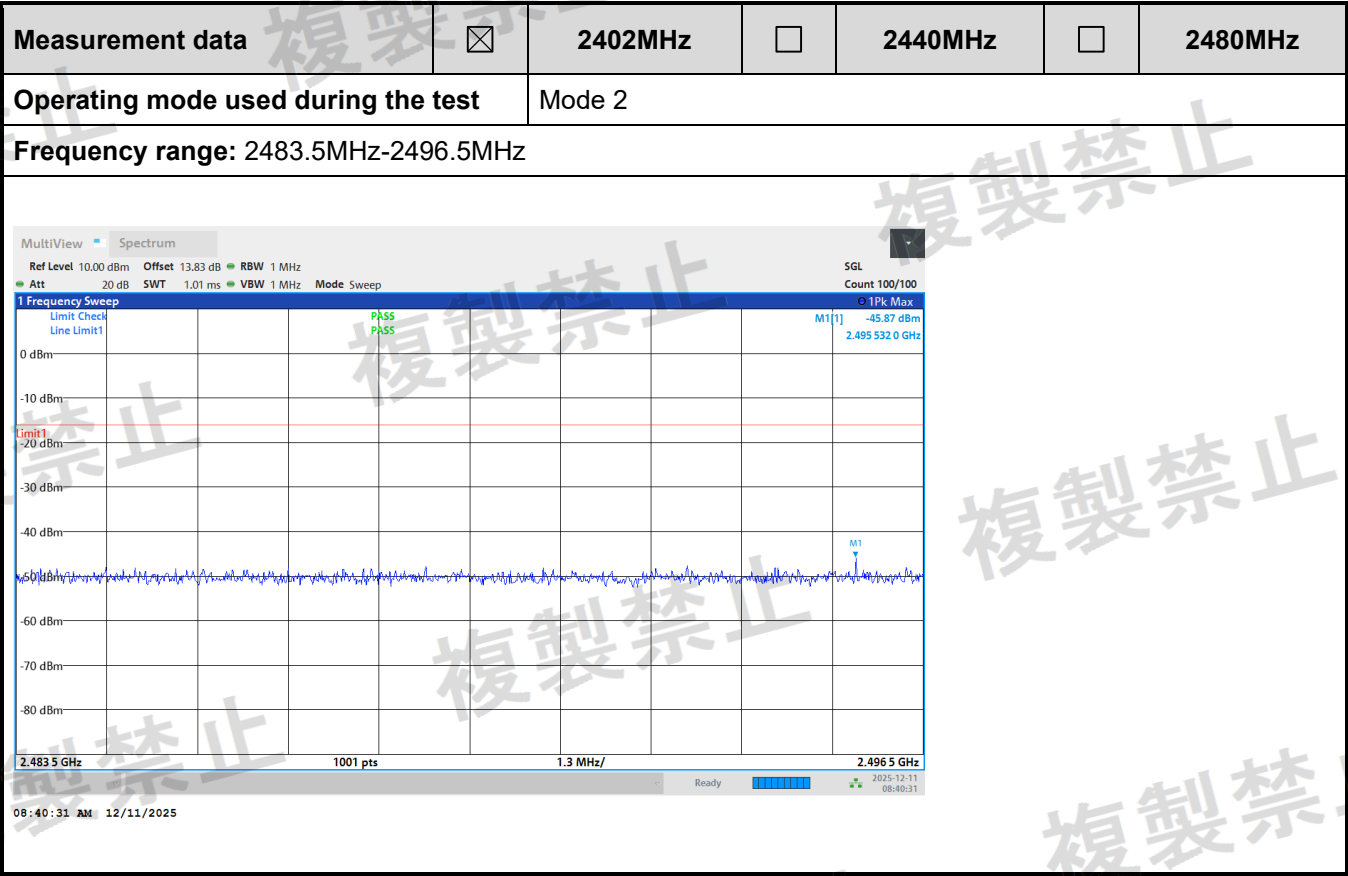
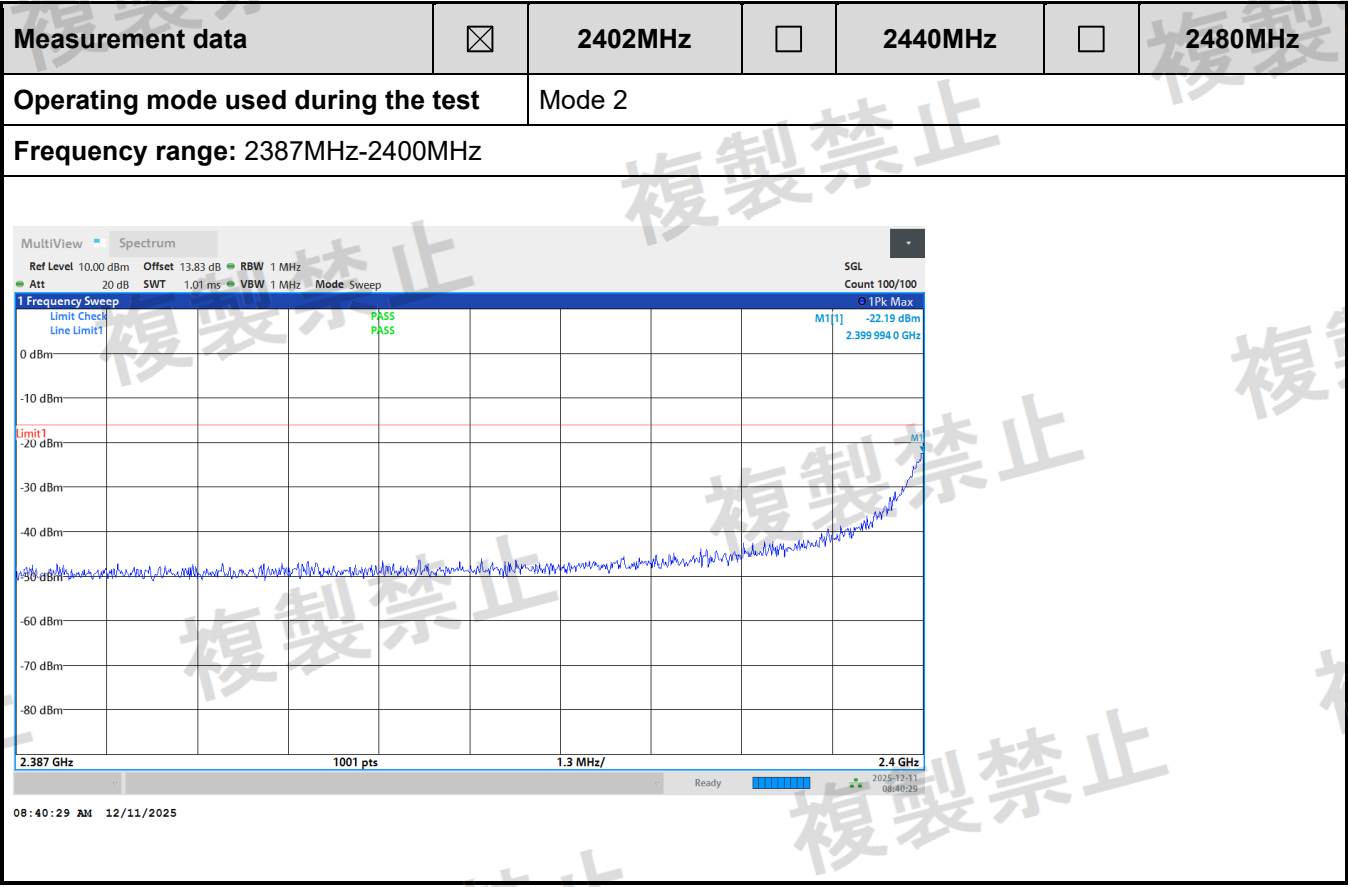




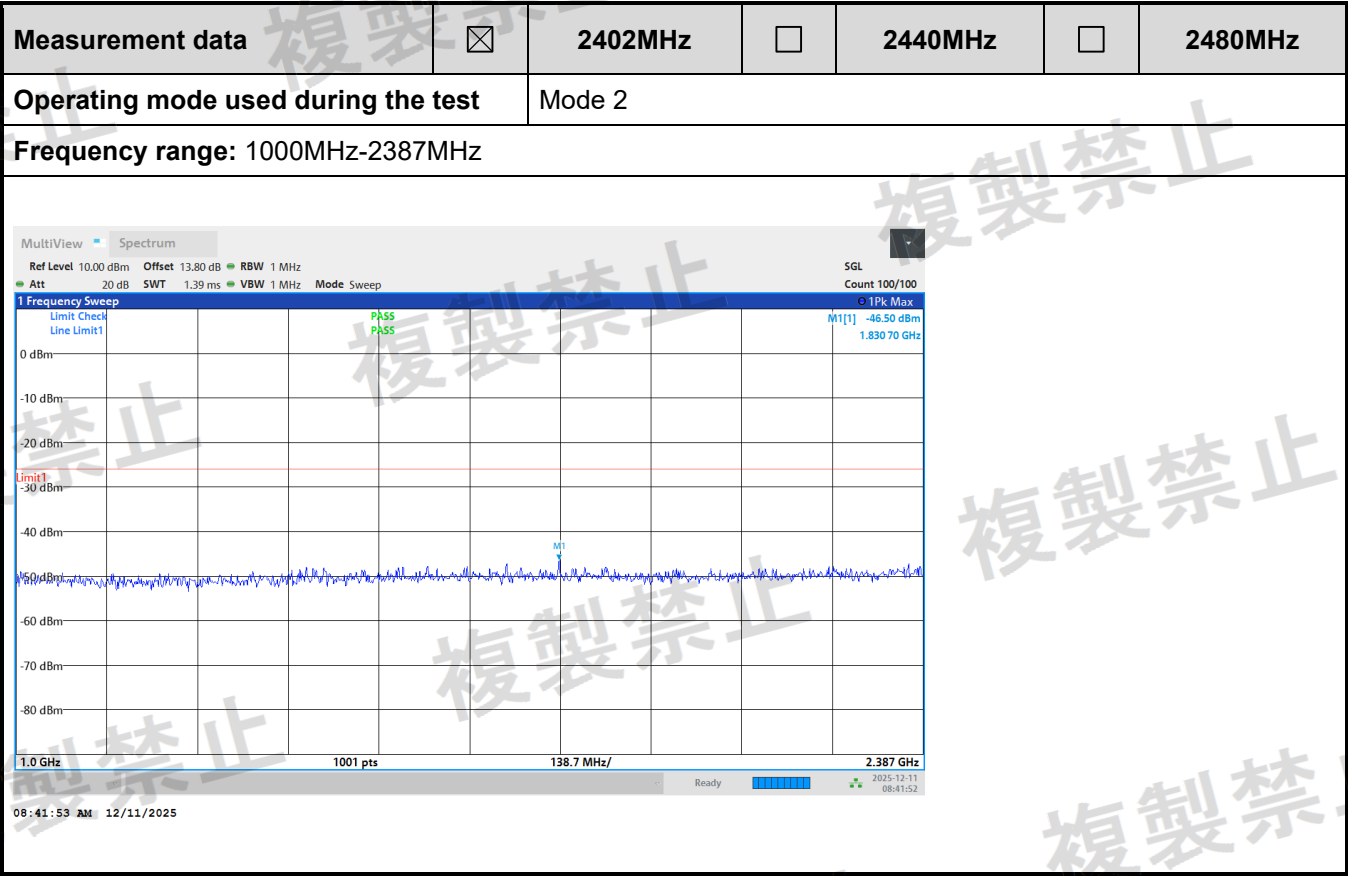
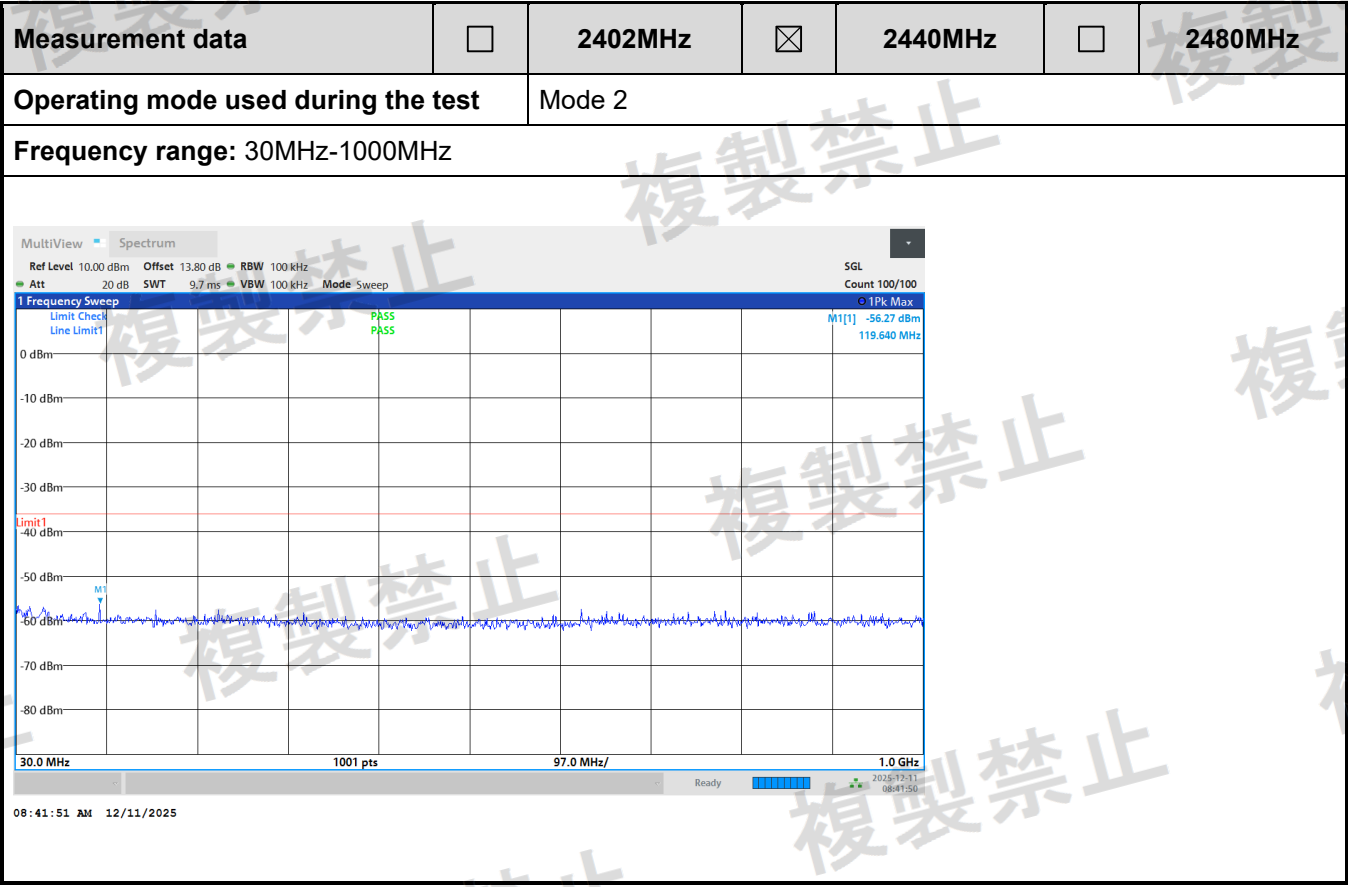


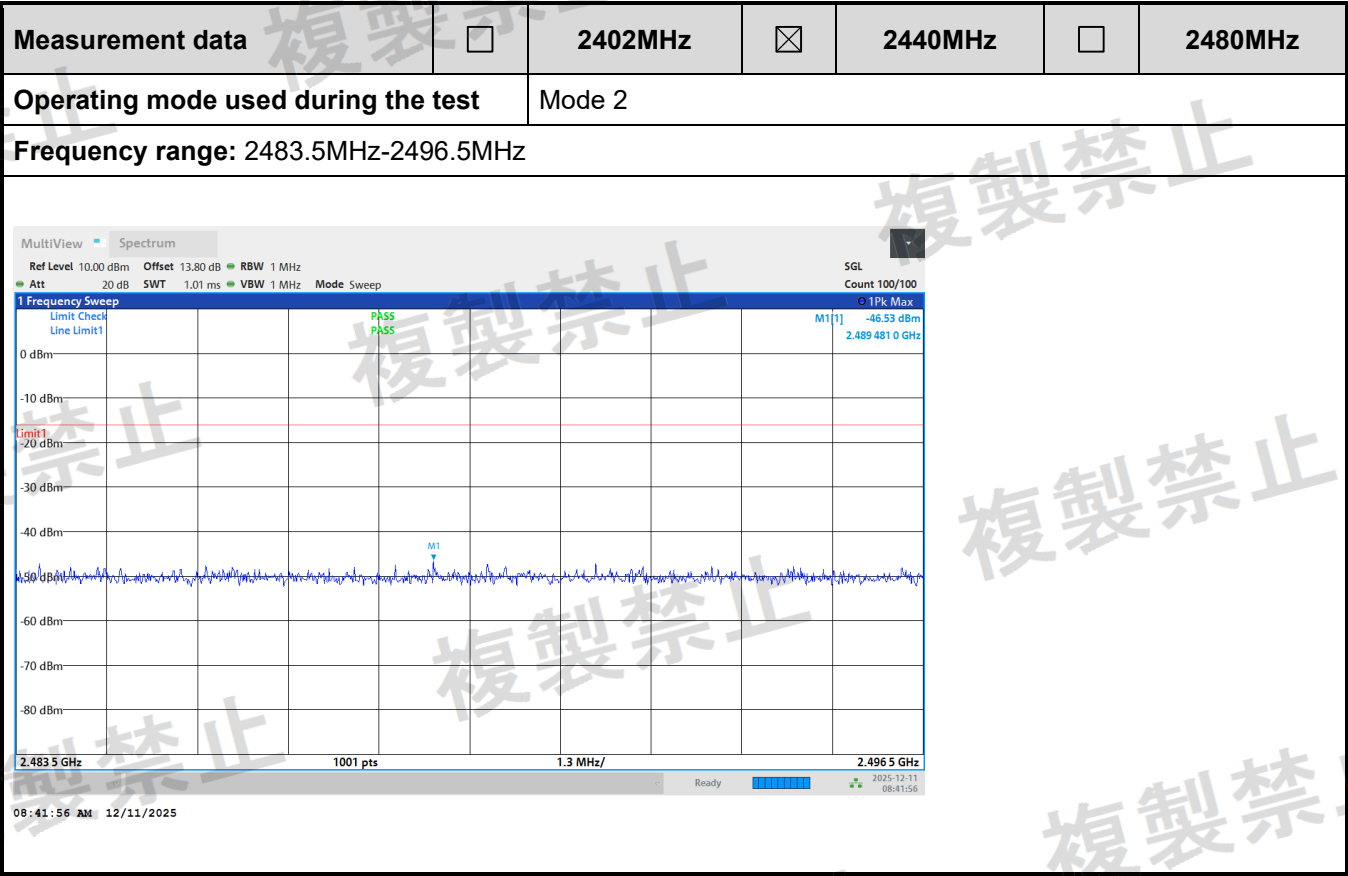


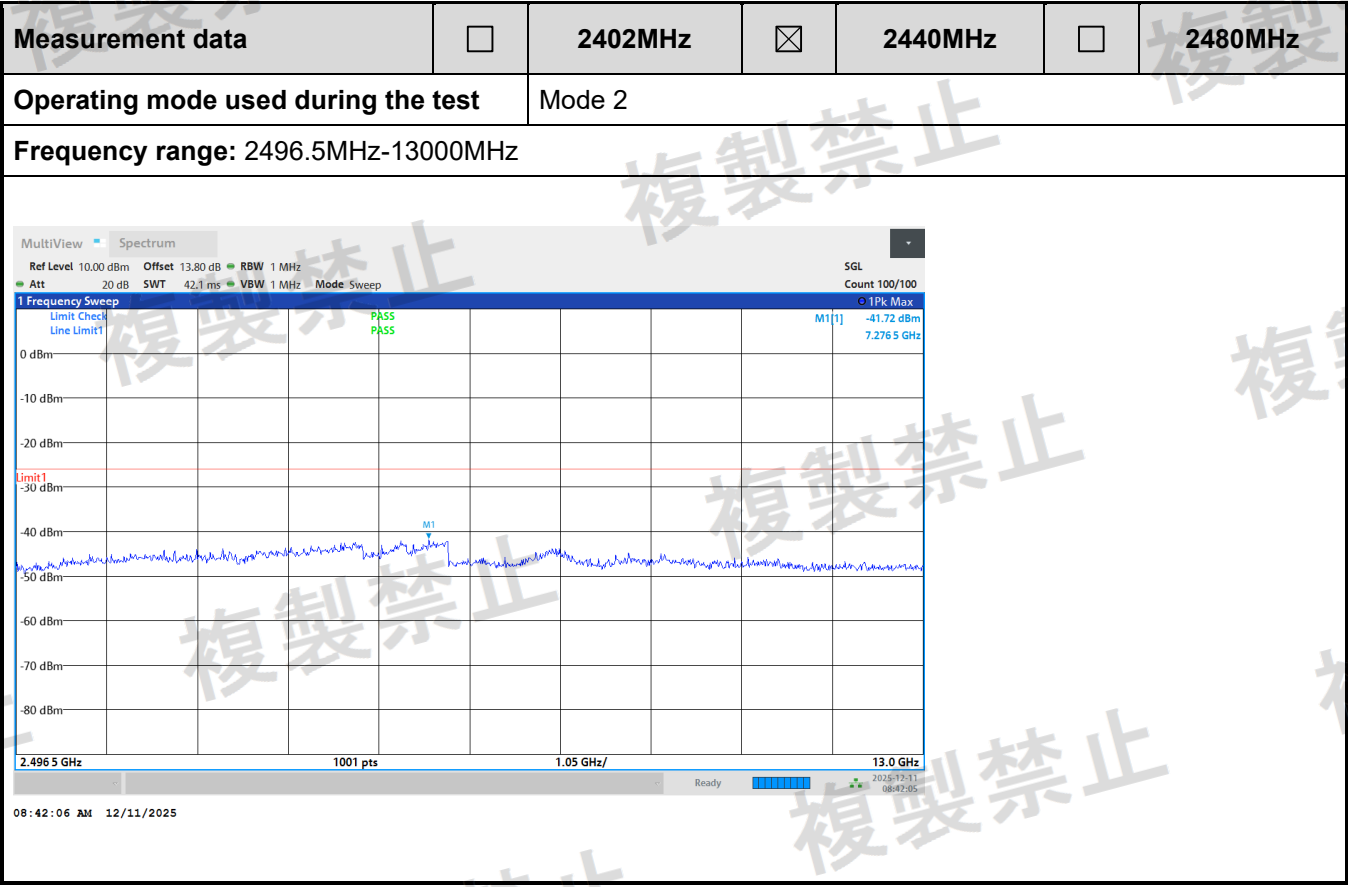


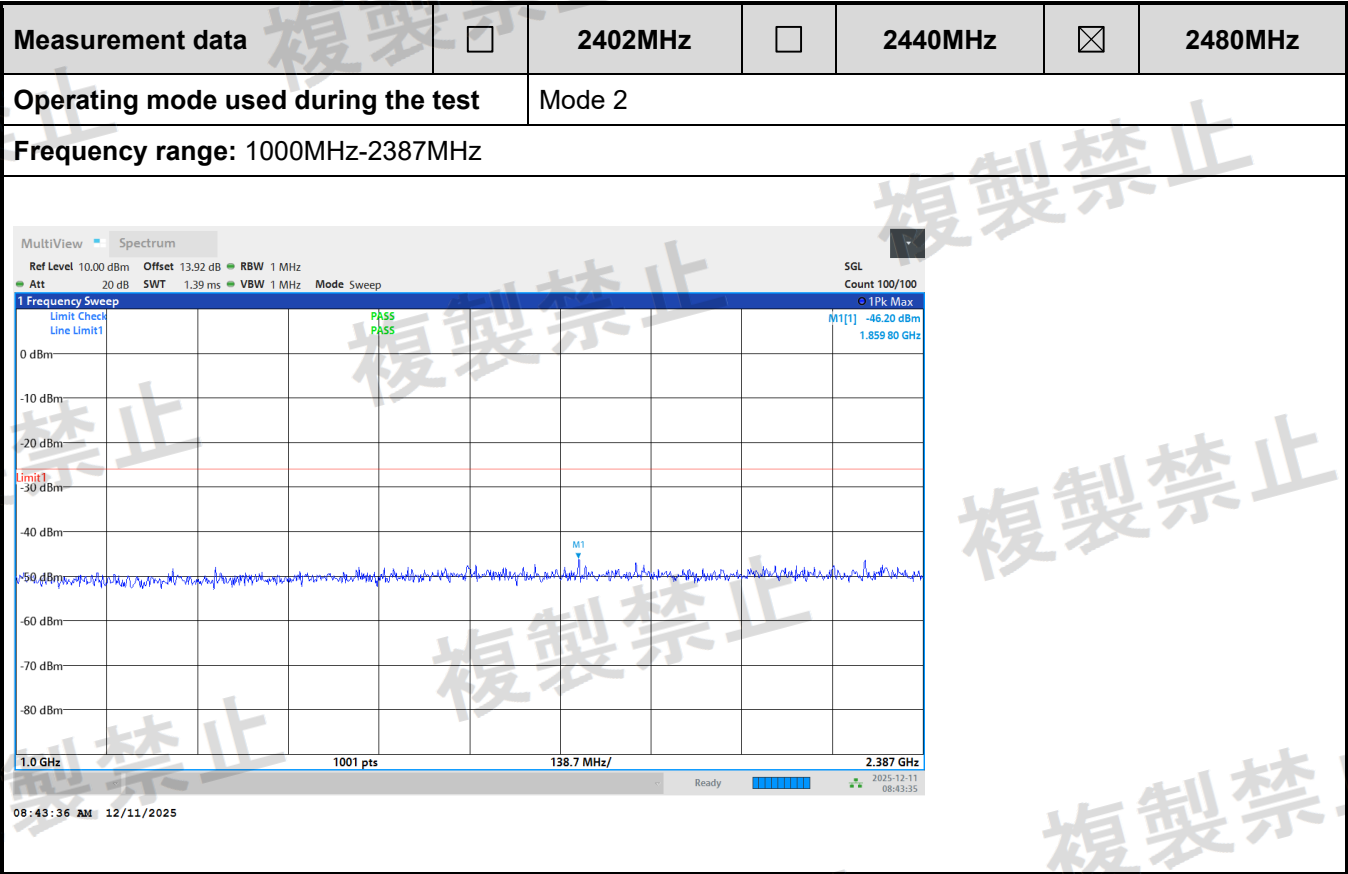
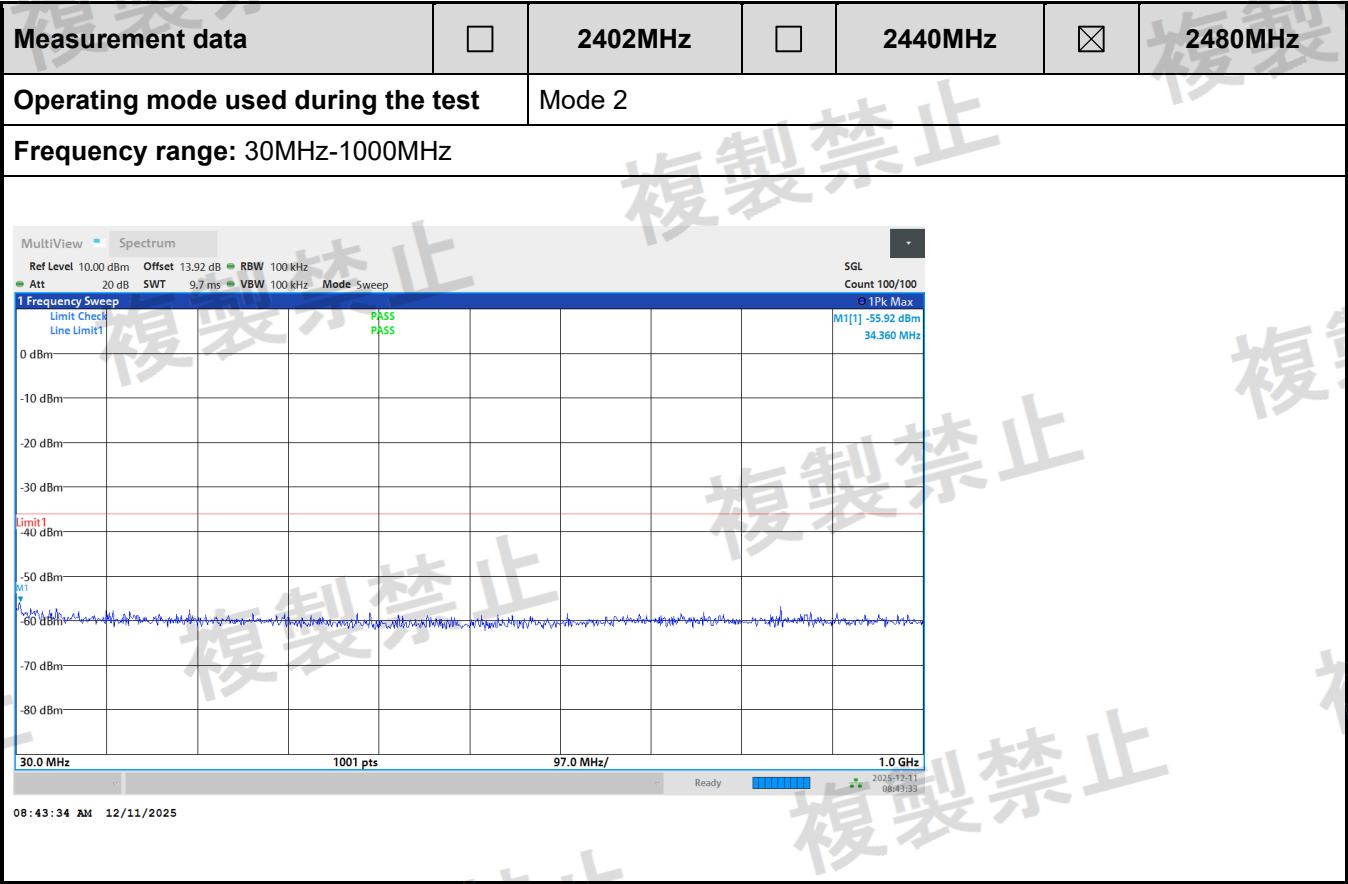


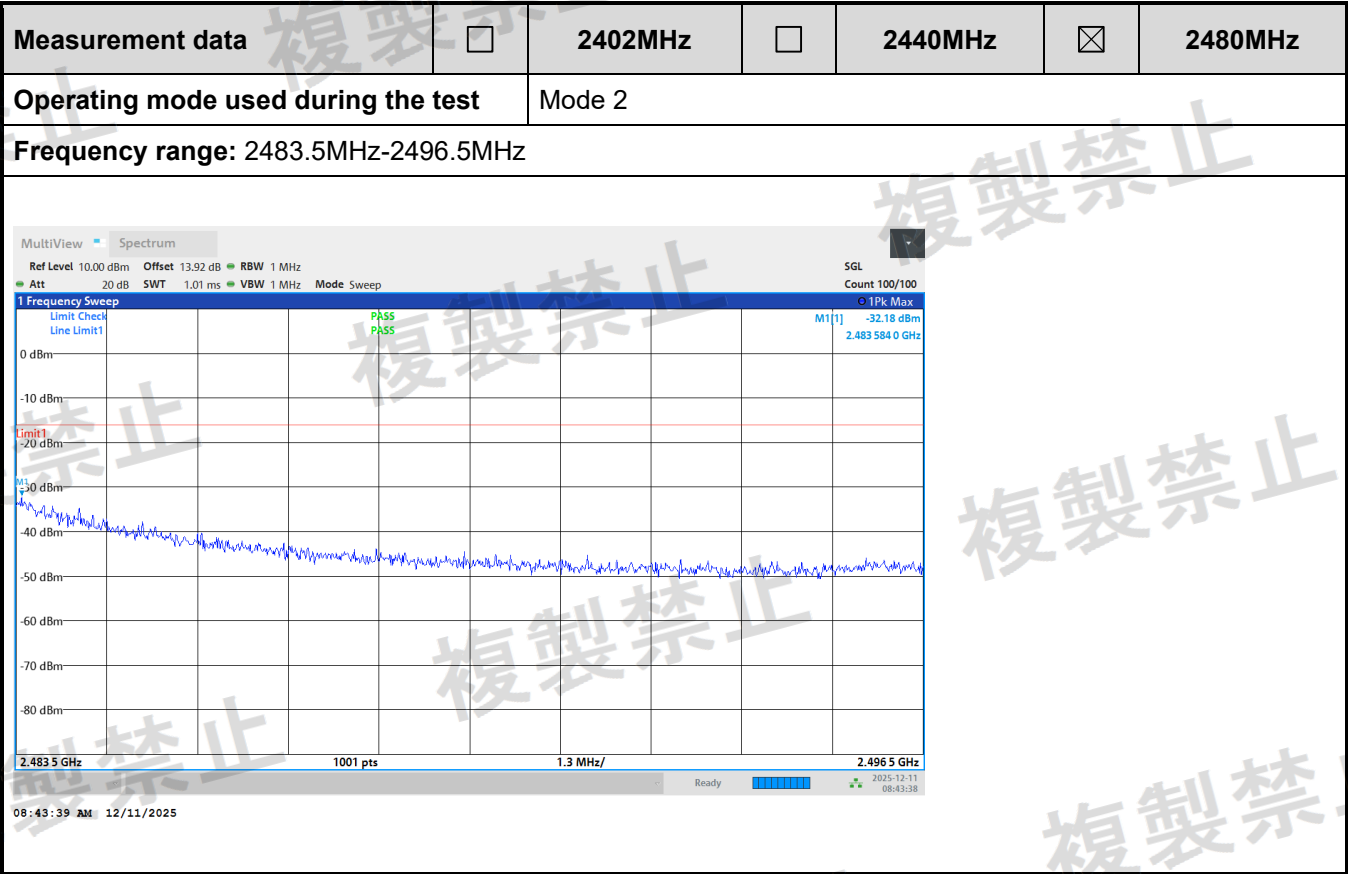


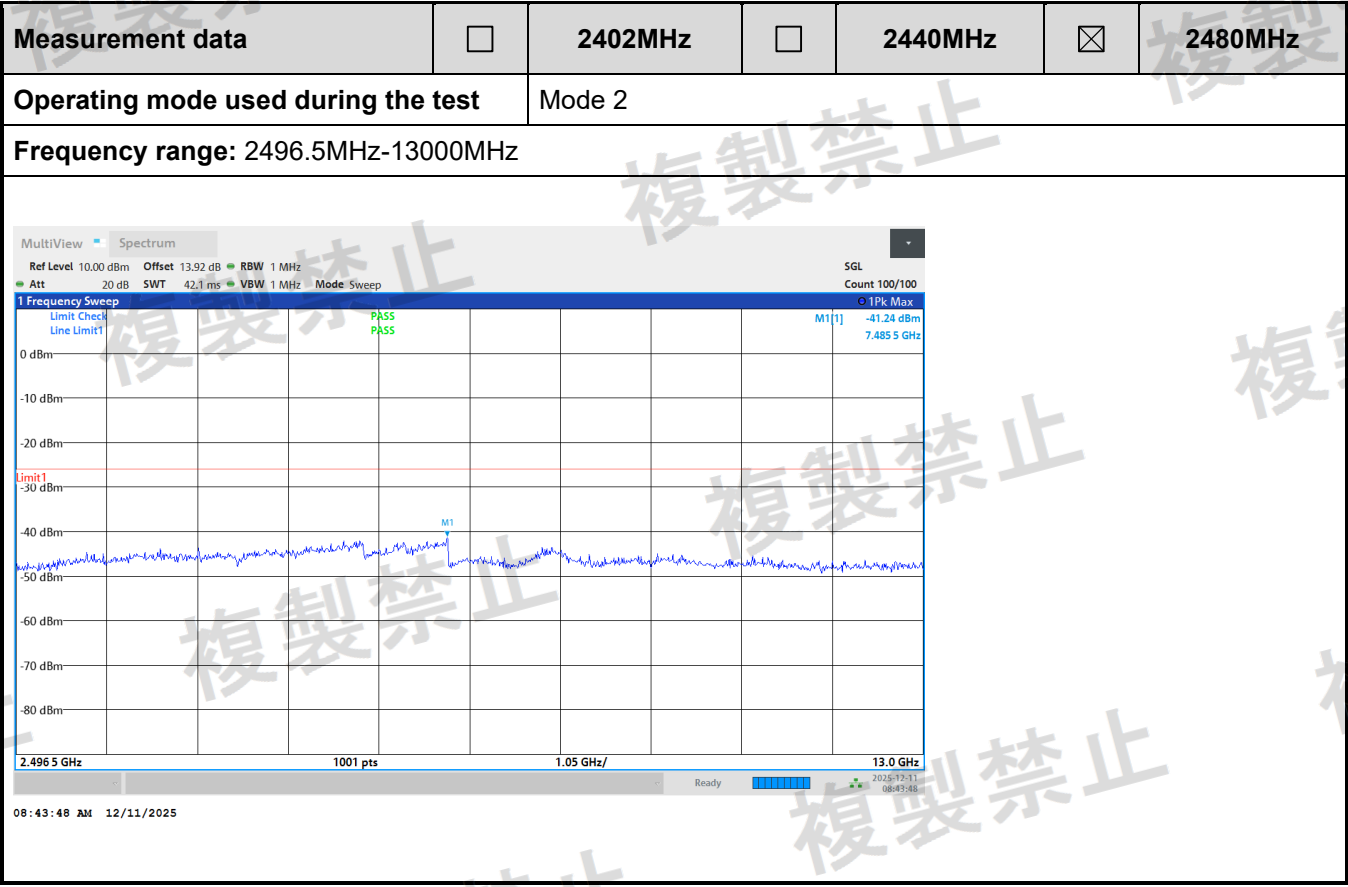






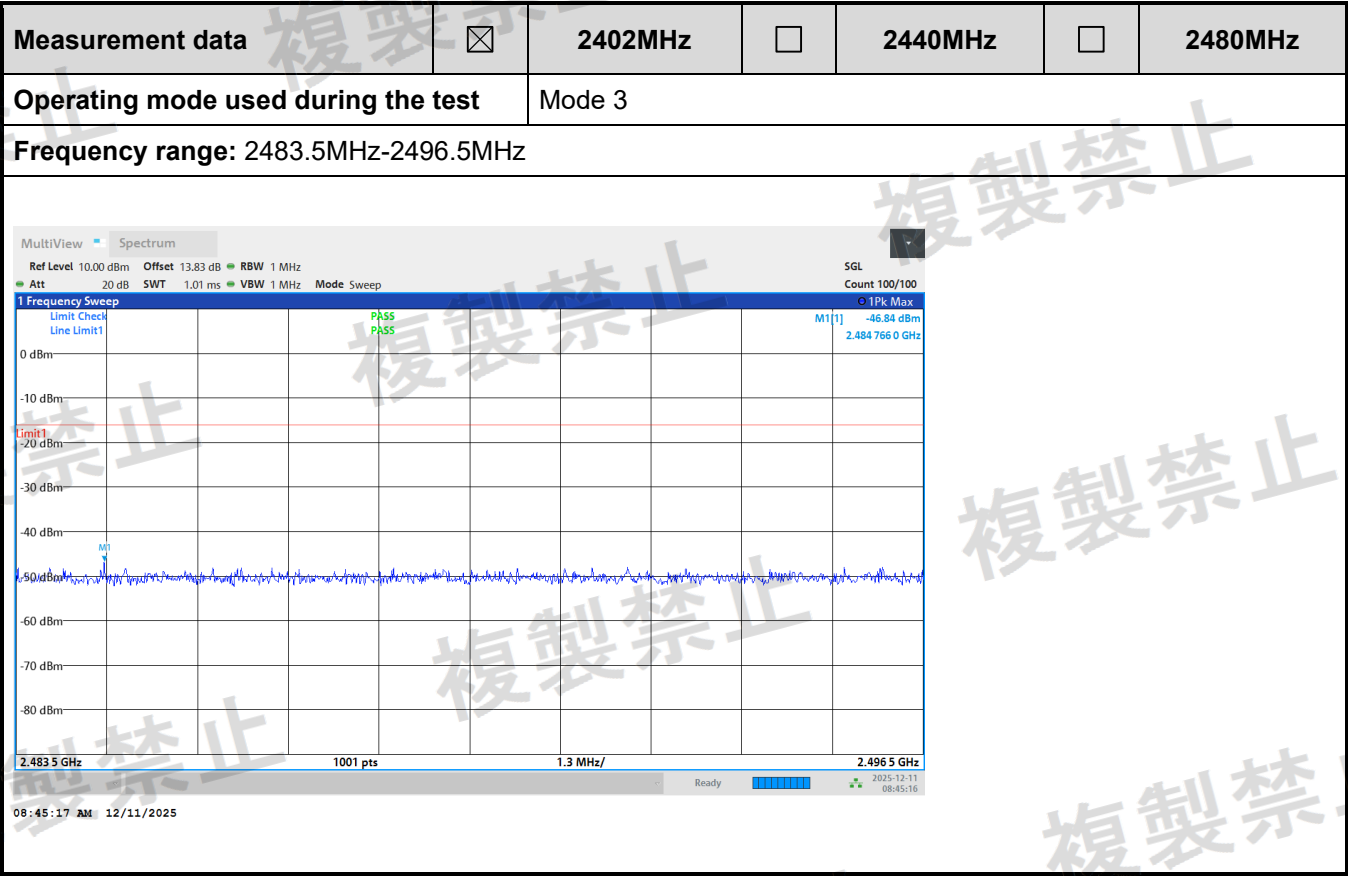
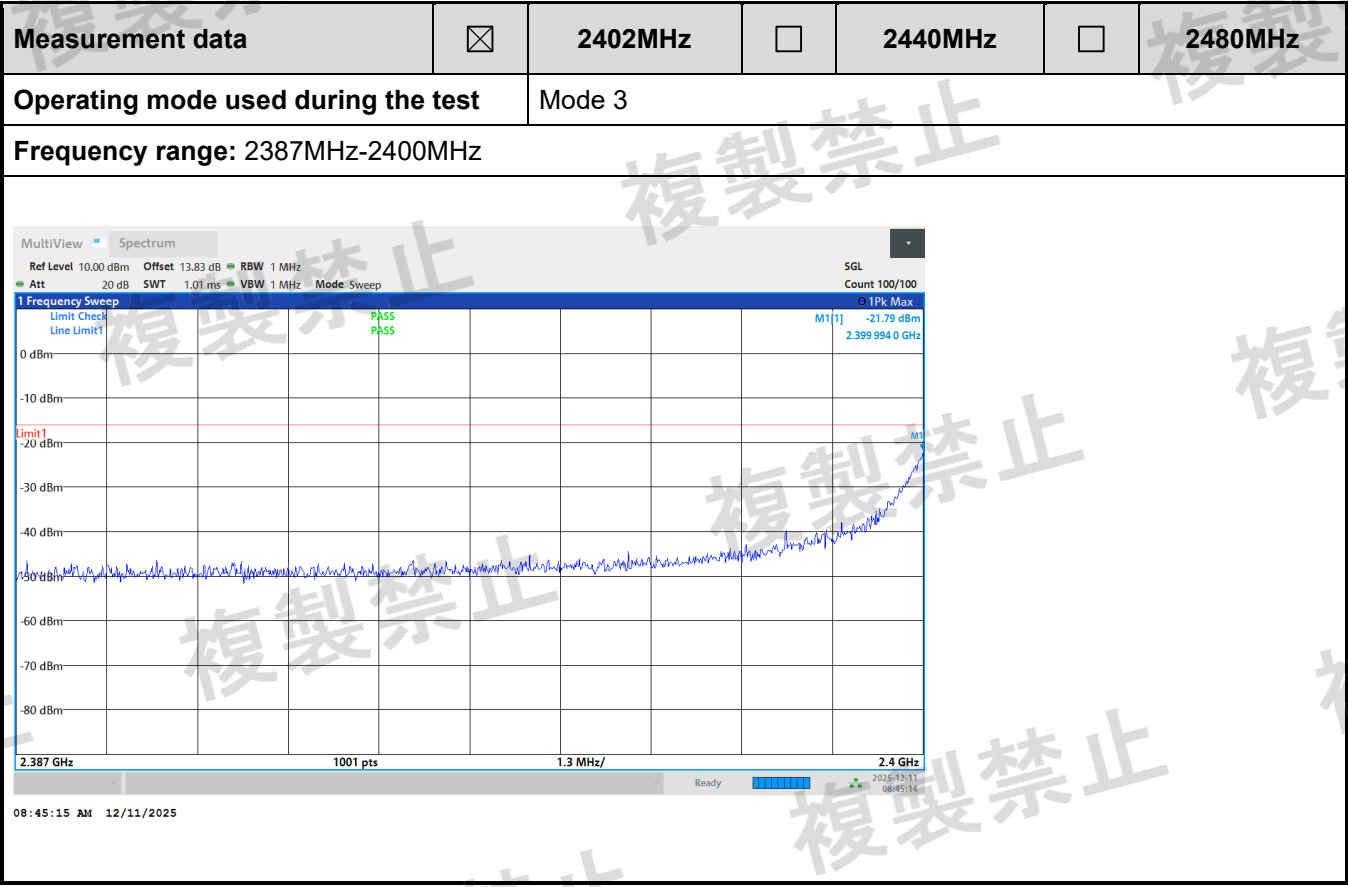


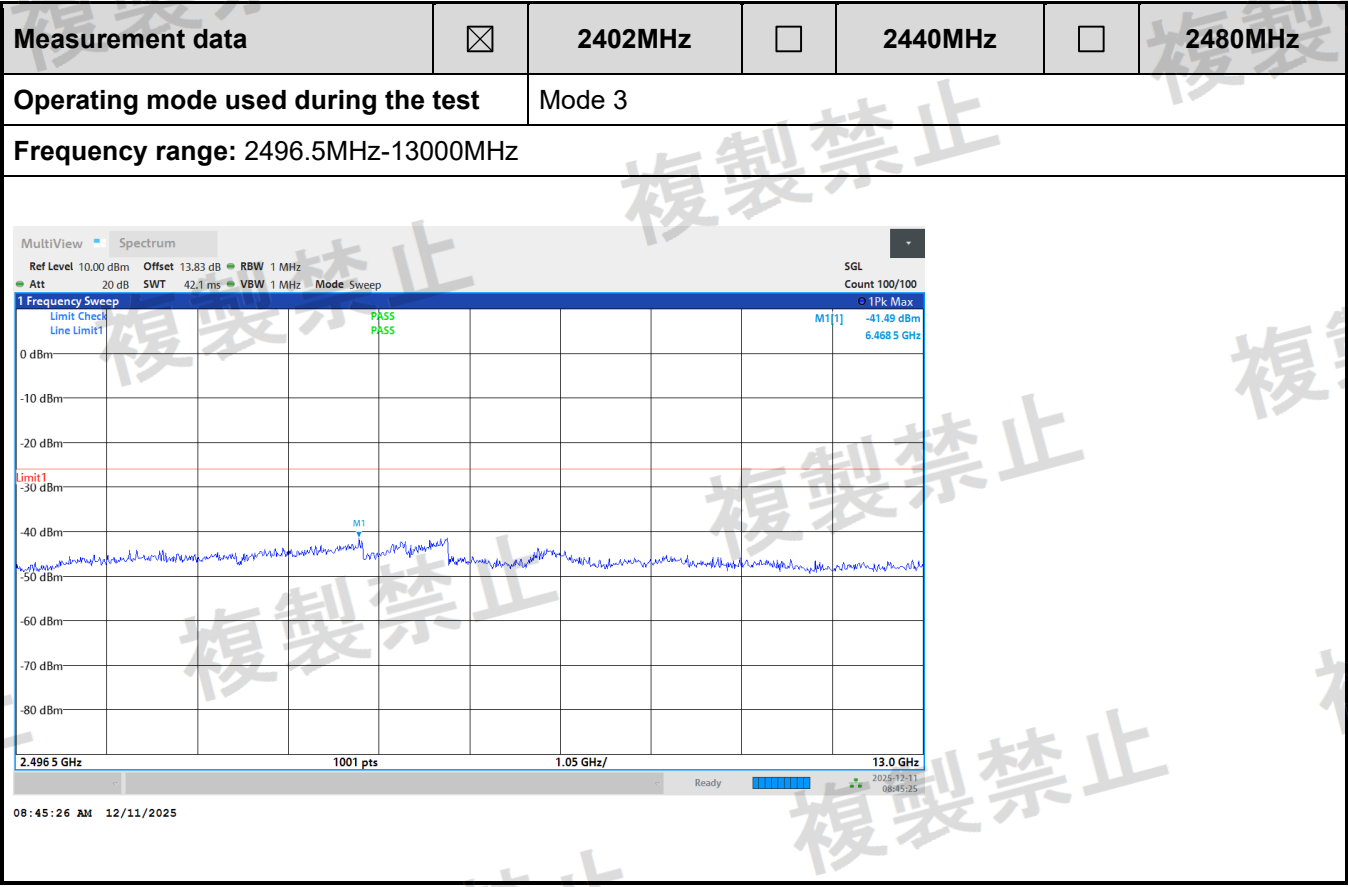


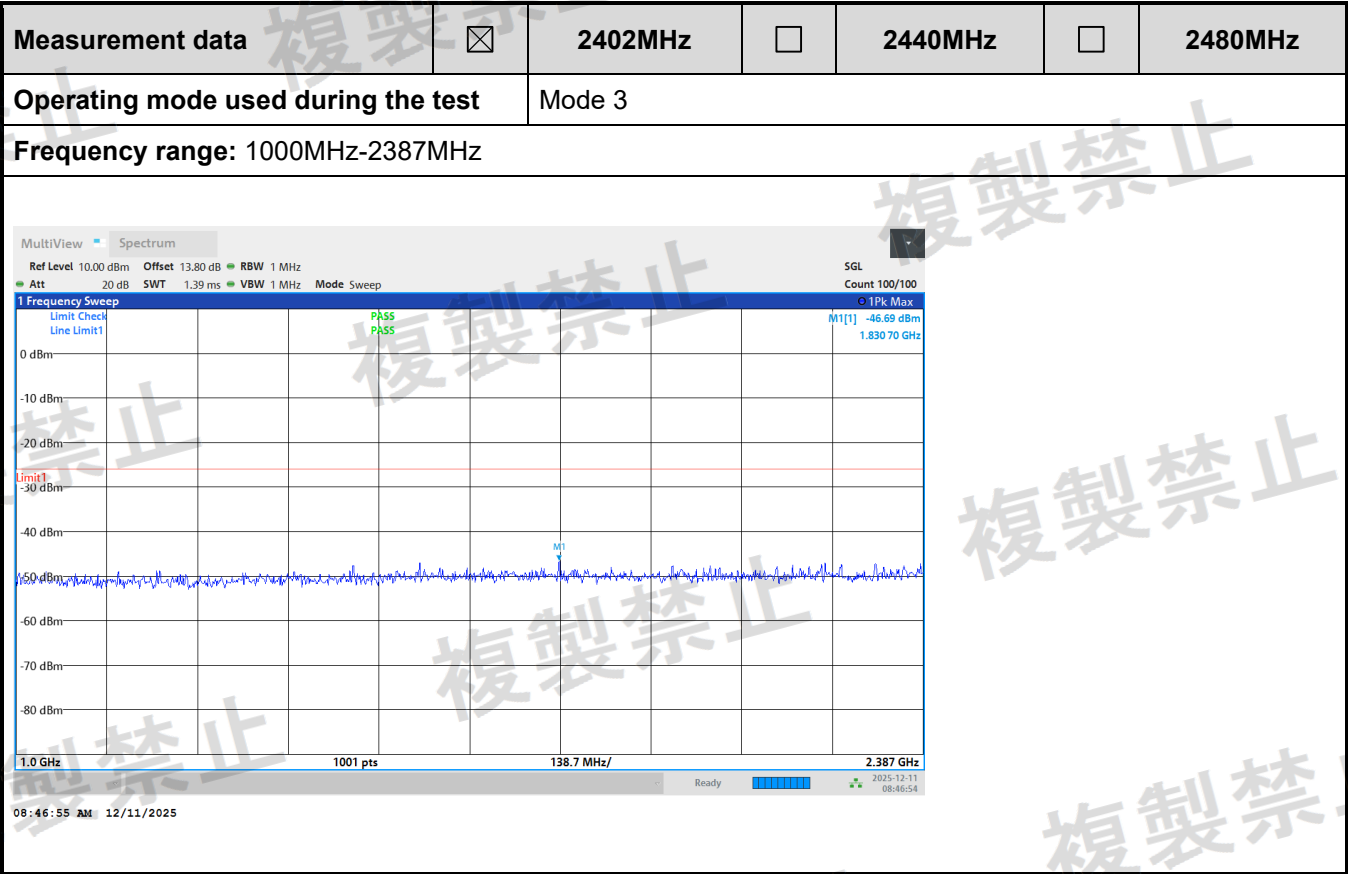
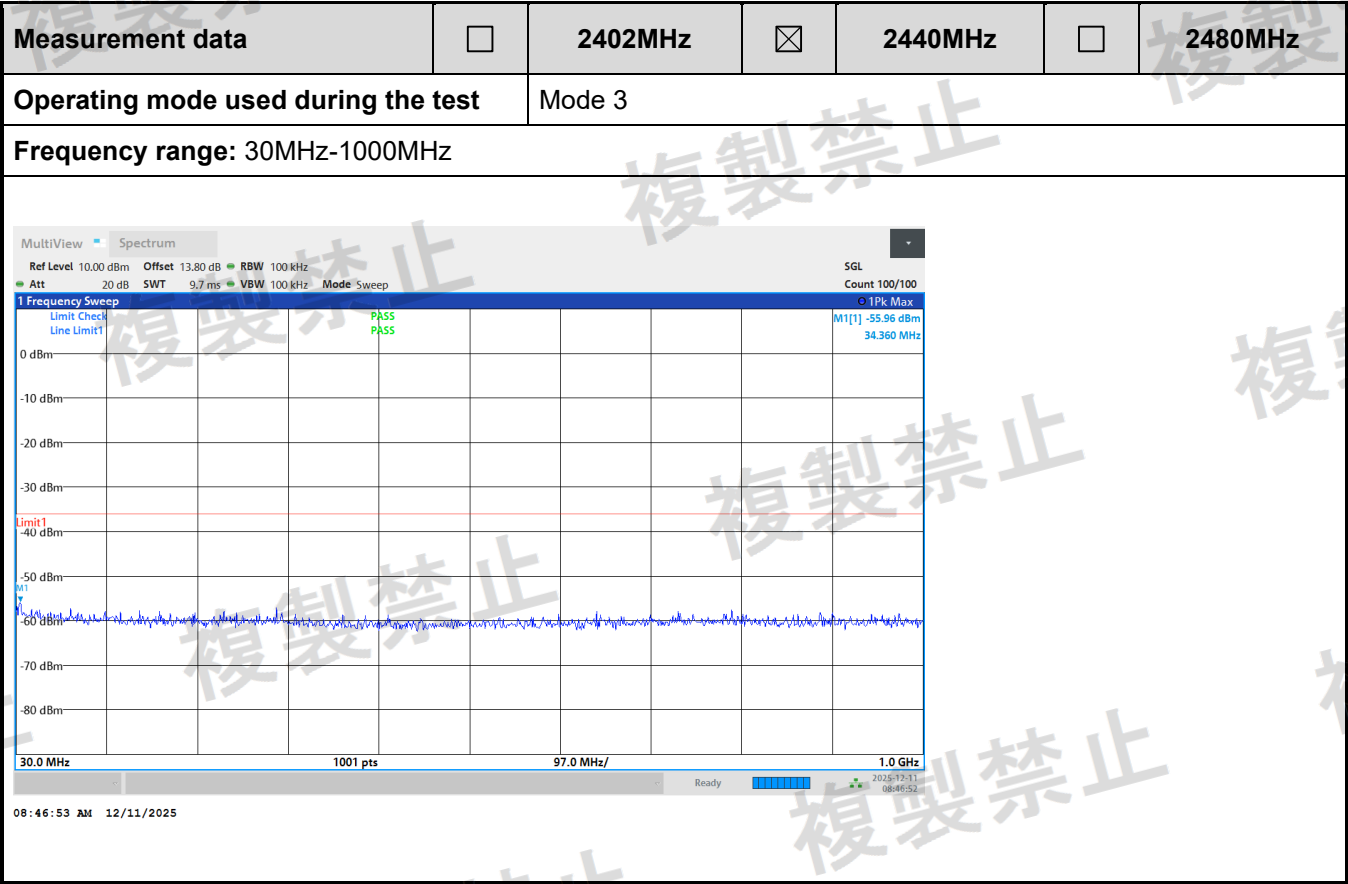


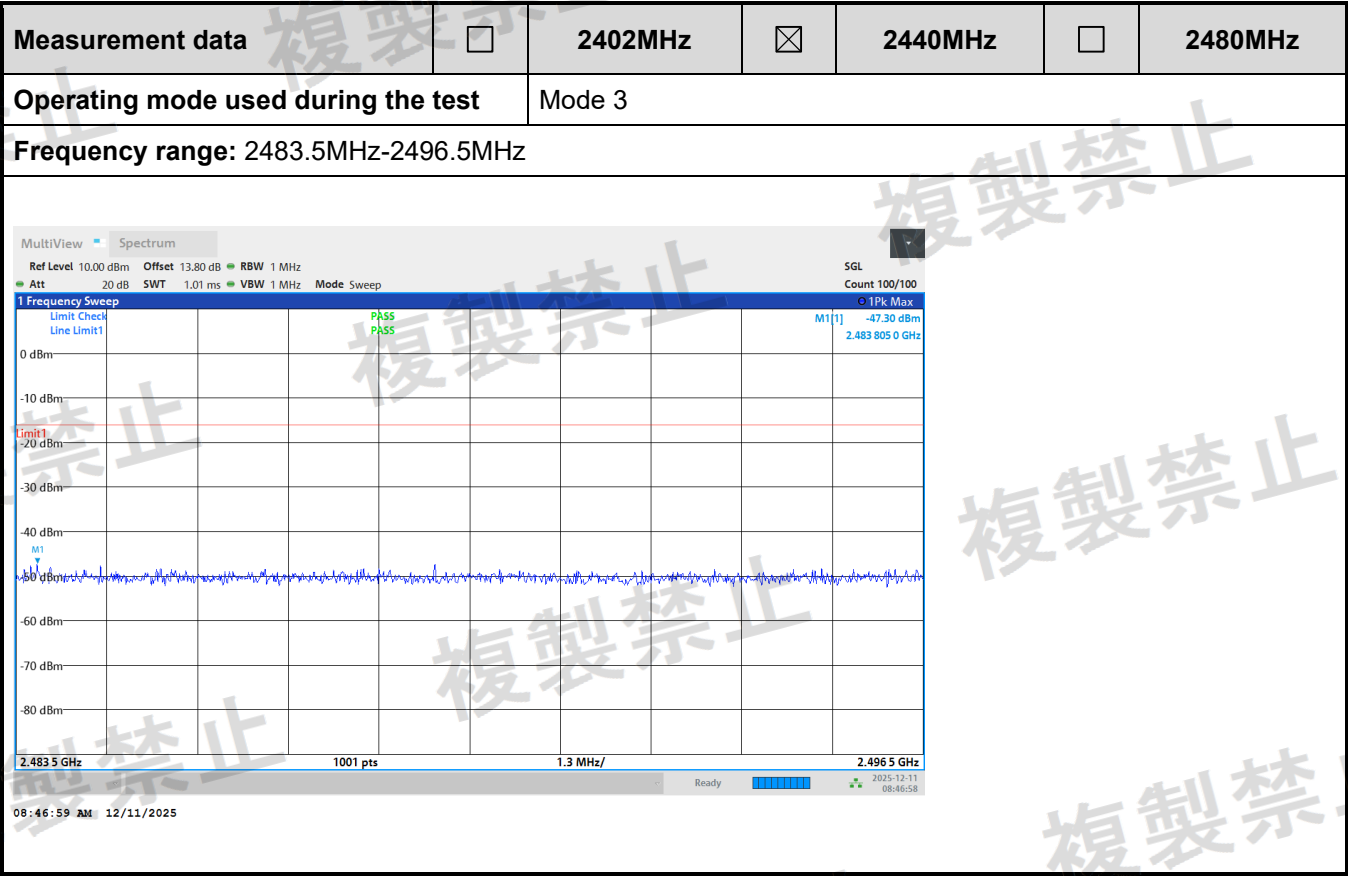
Measurement data

Measurement data
Operating mode used during
Frequency range: 1000MHz-2

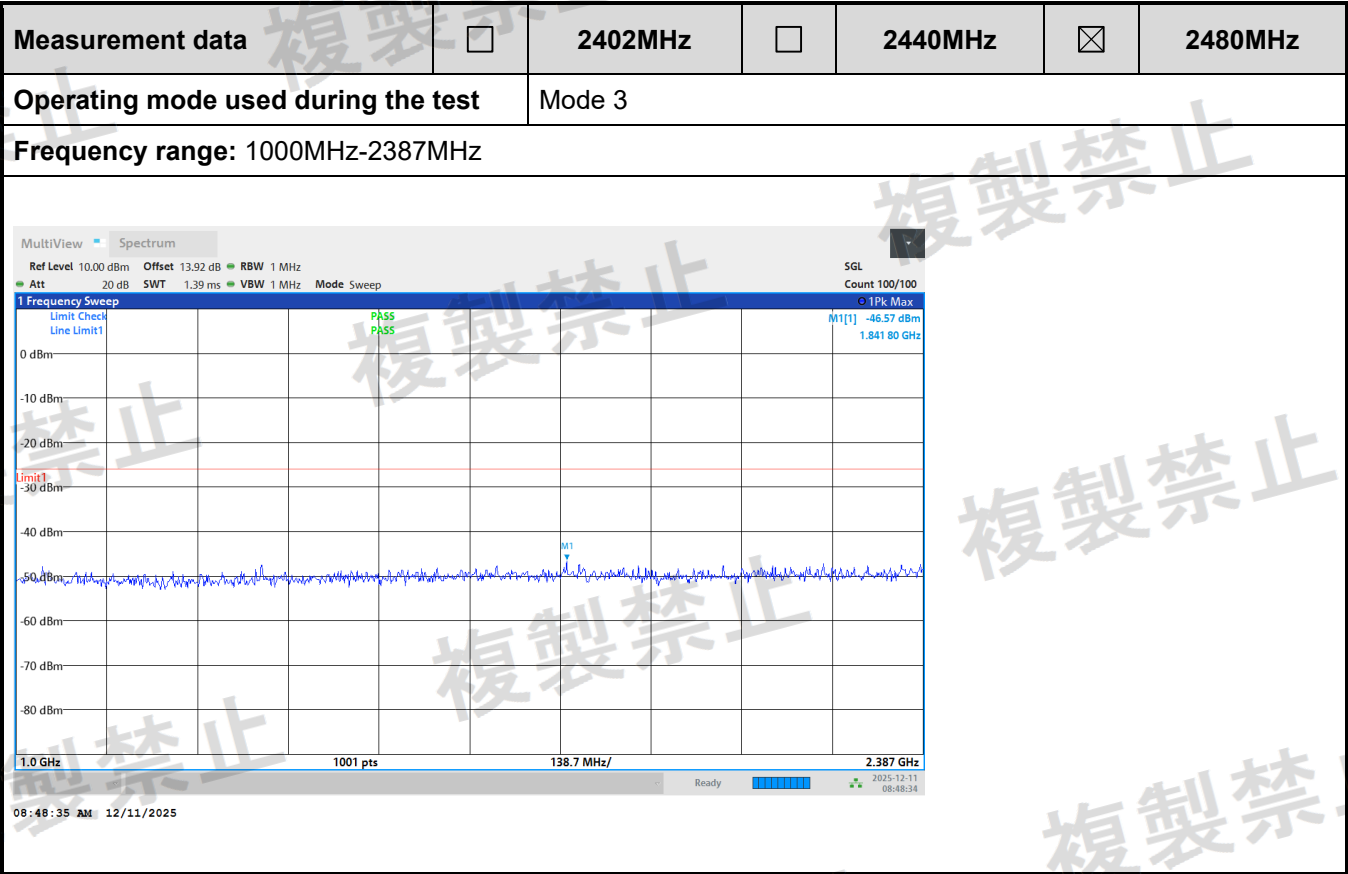
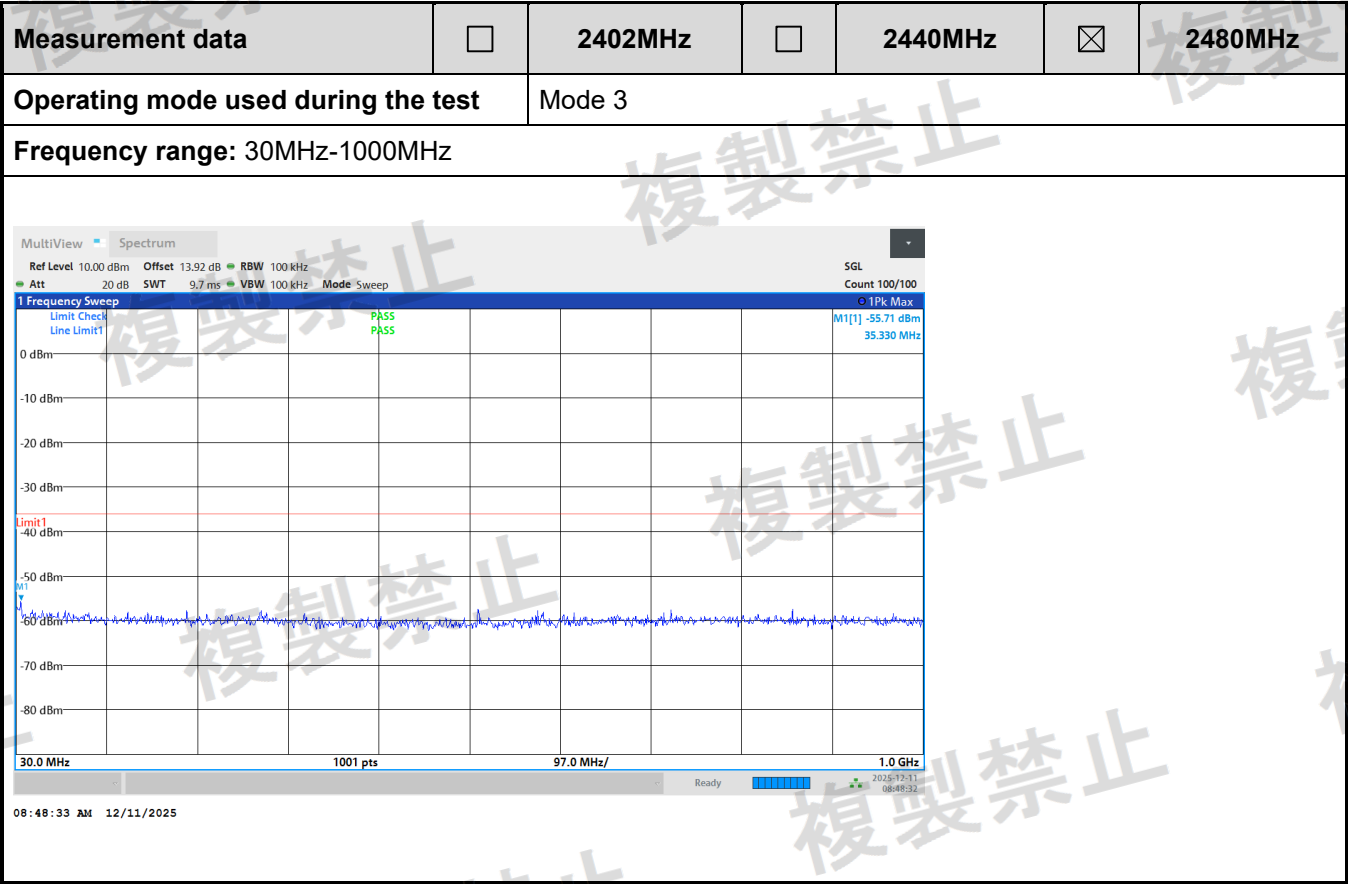


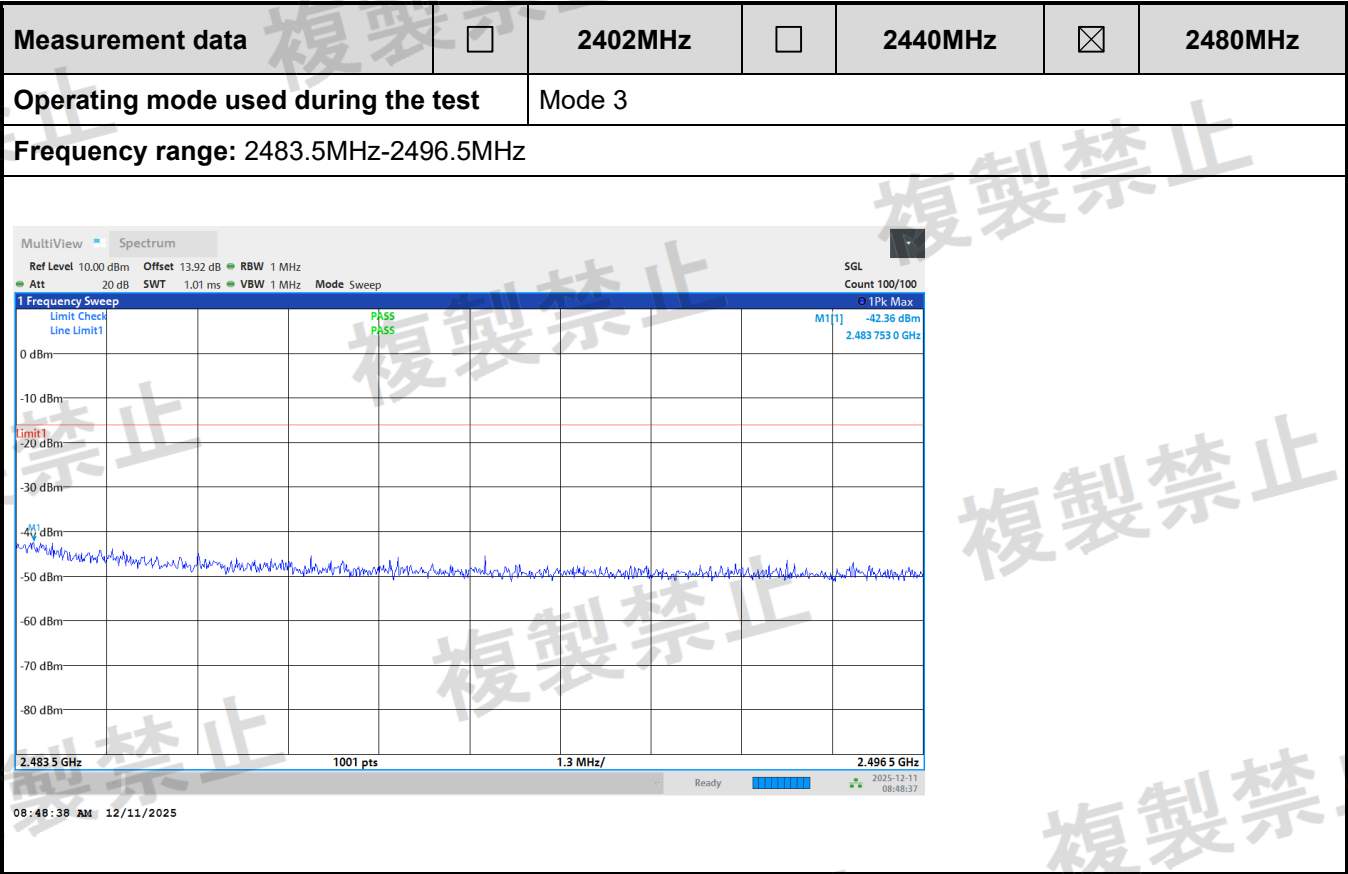
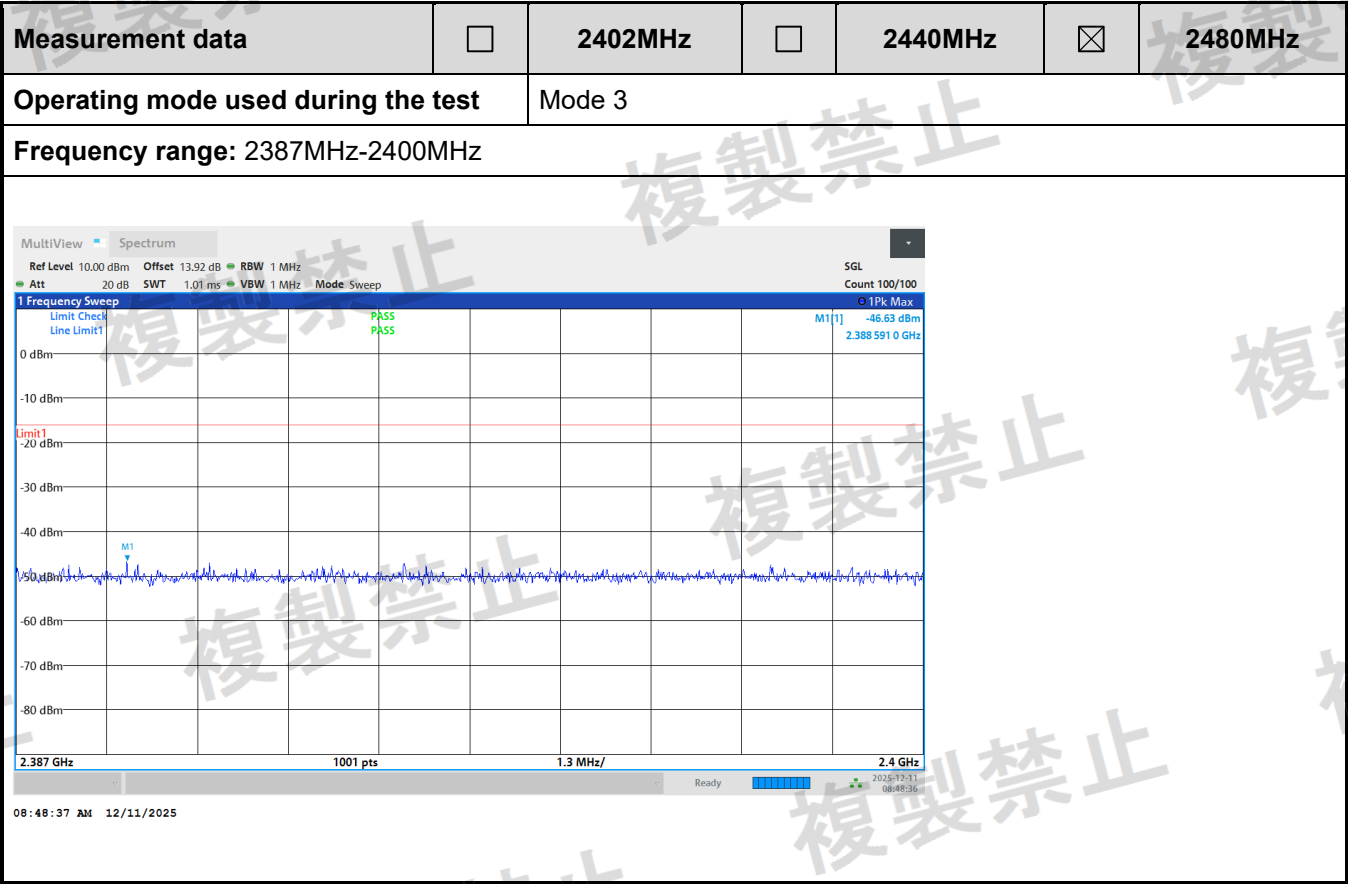


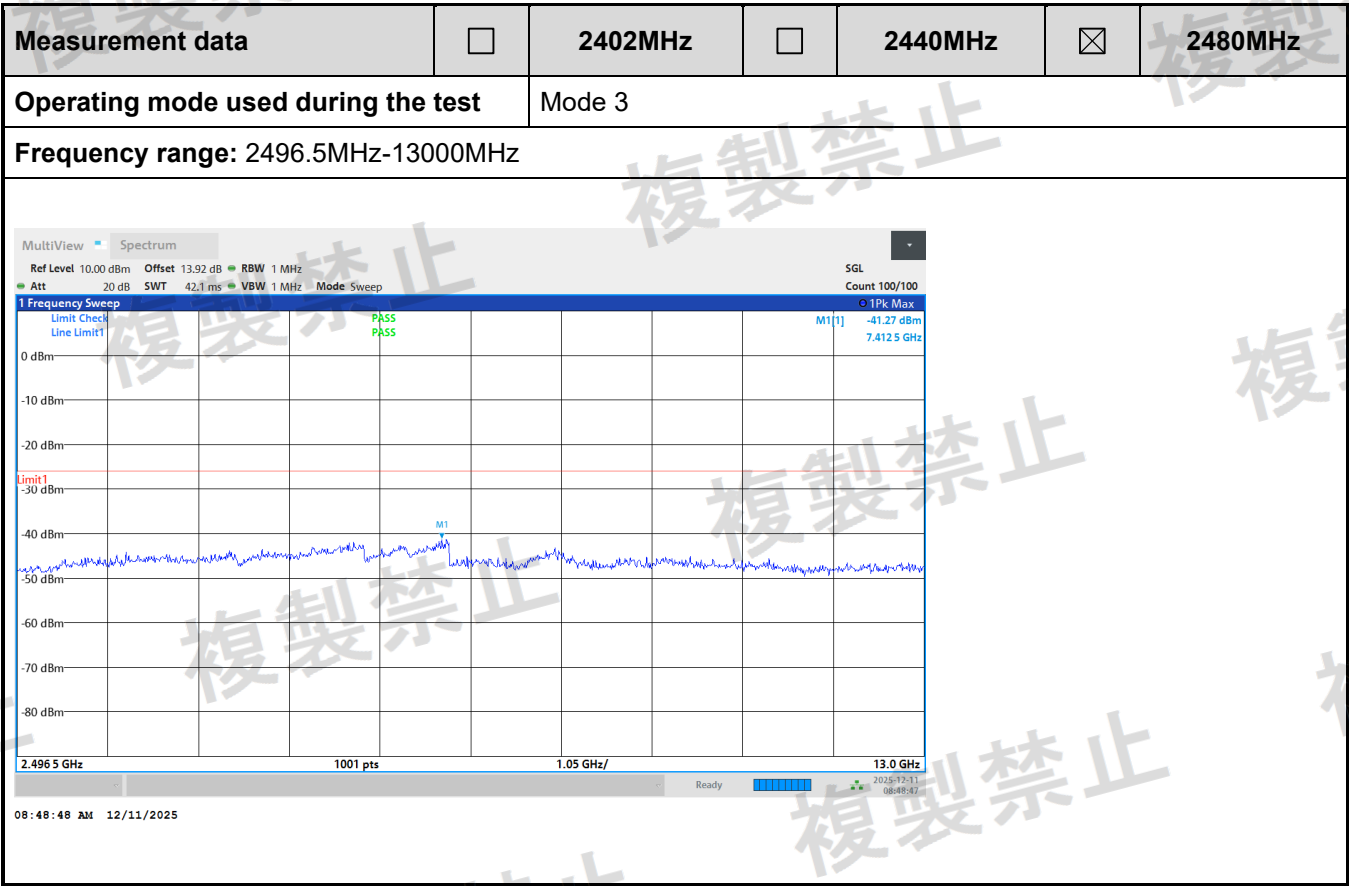


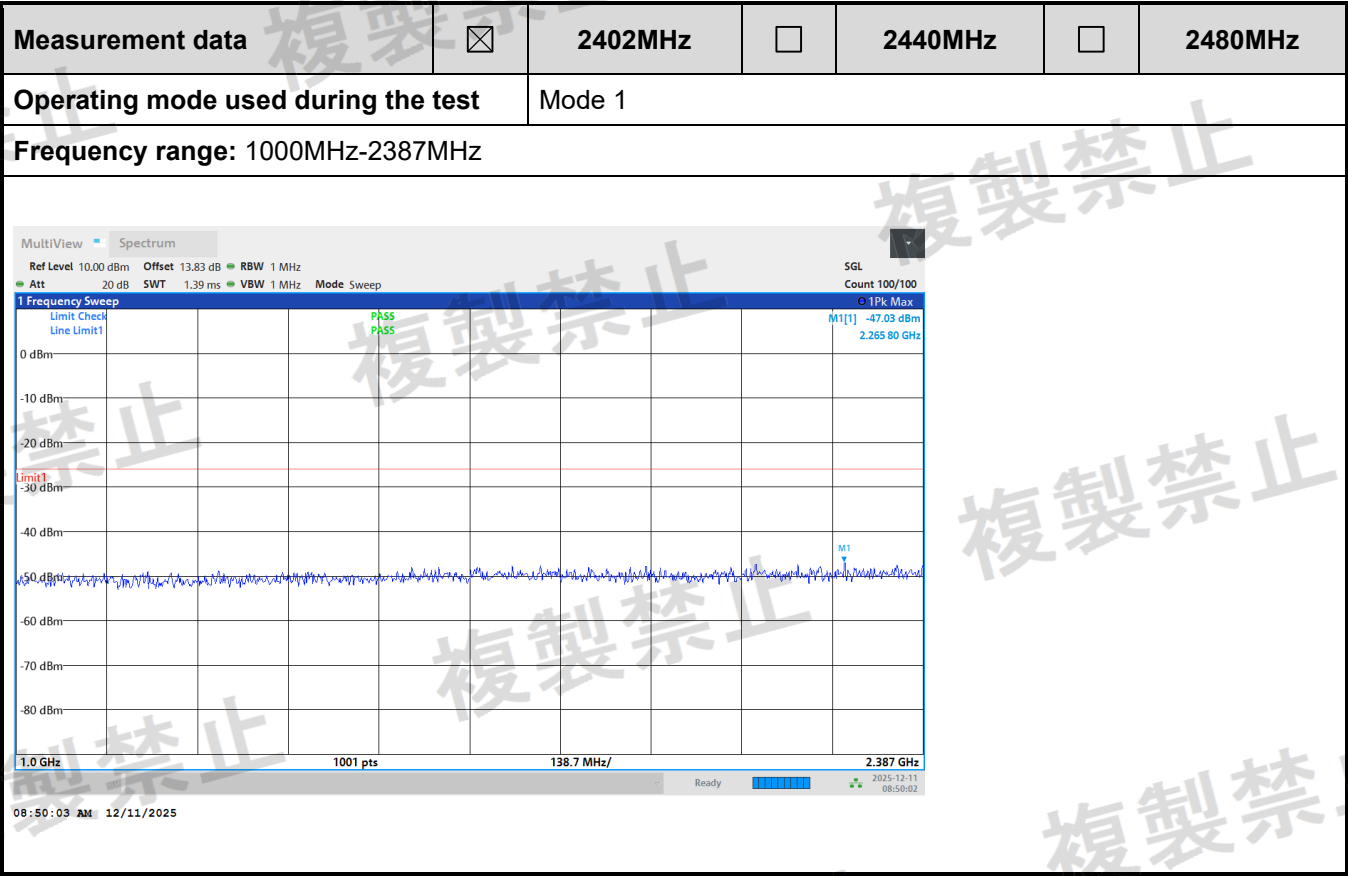
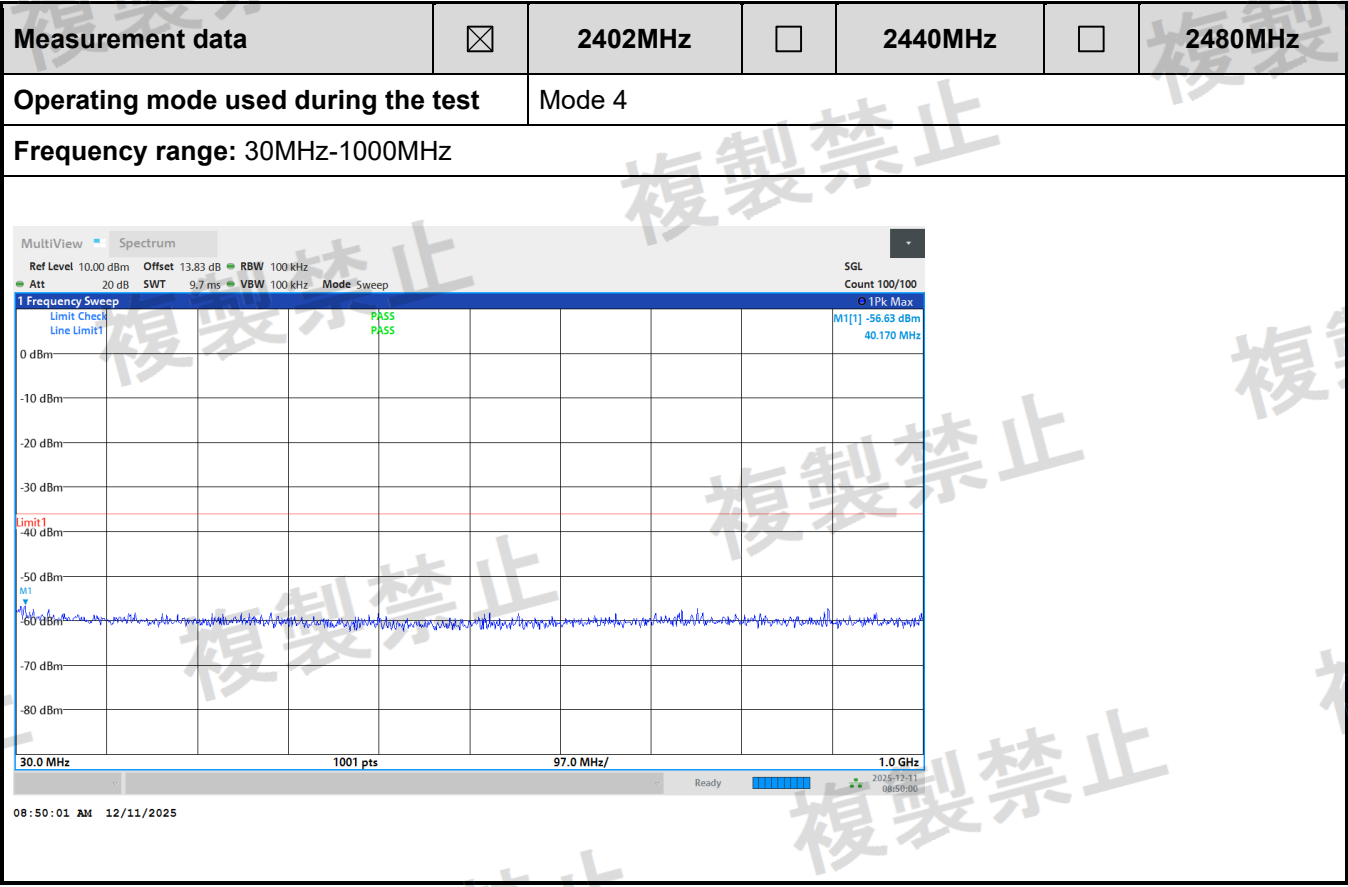


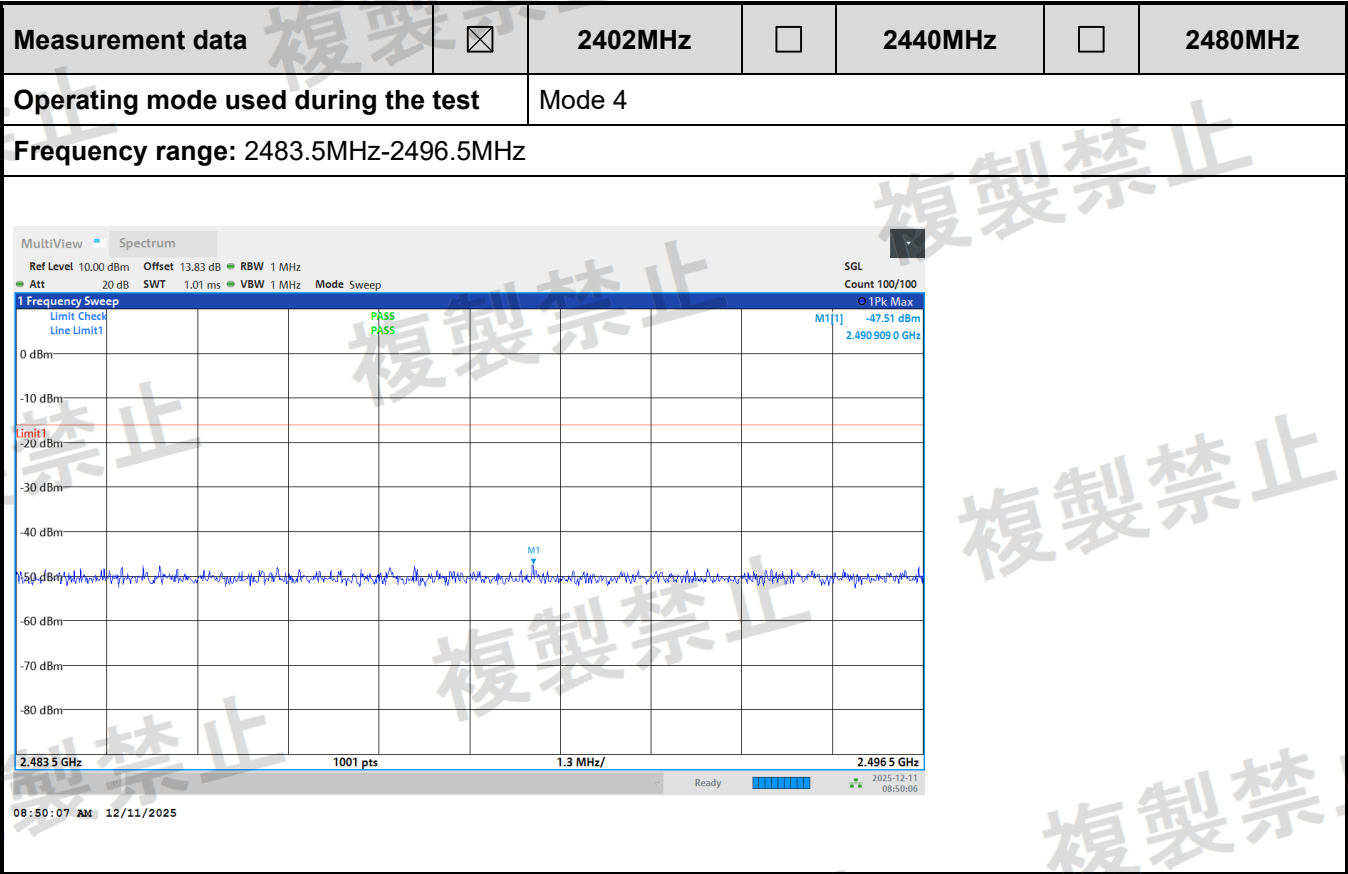
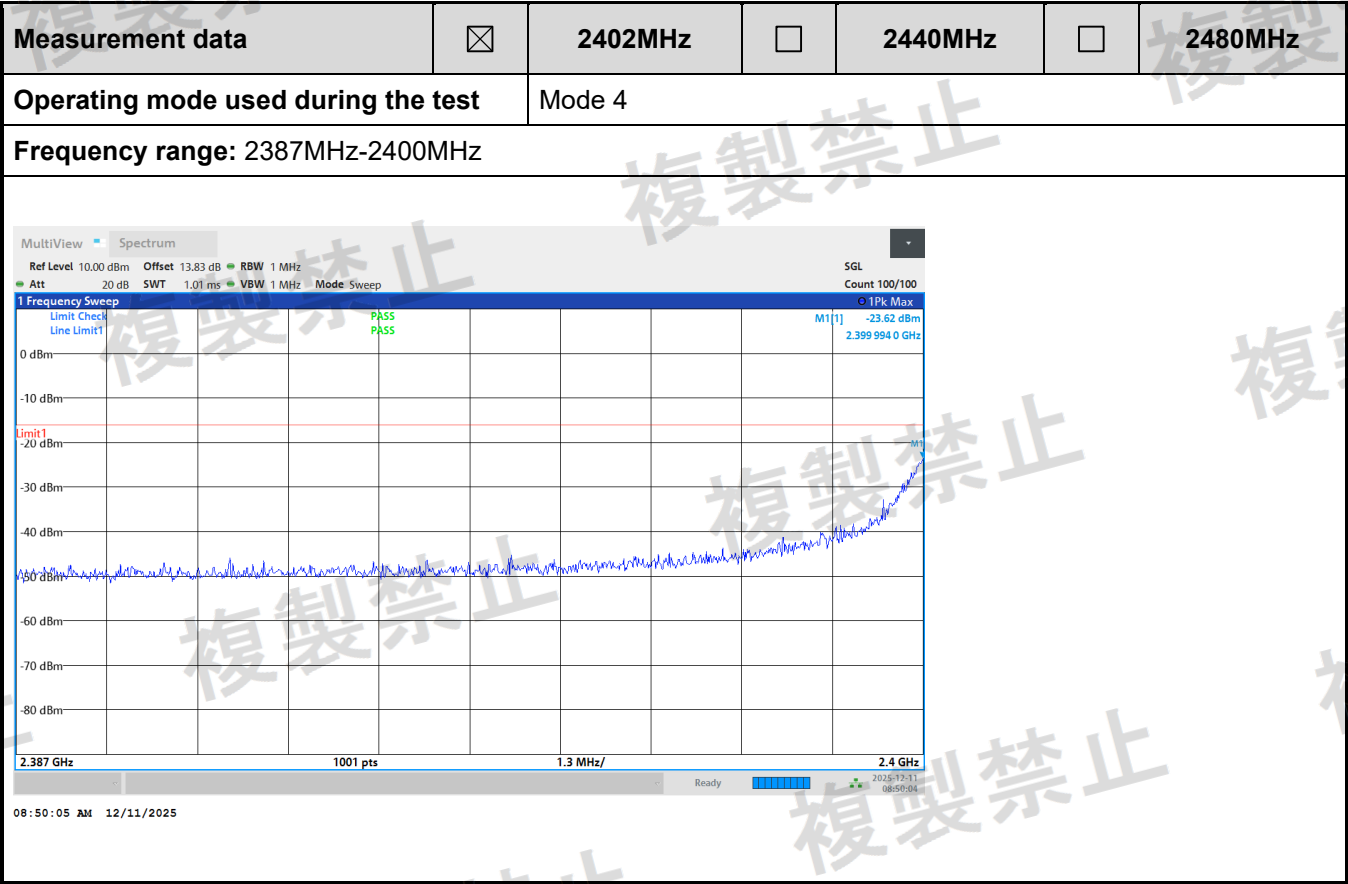


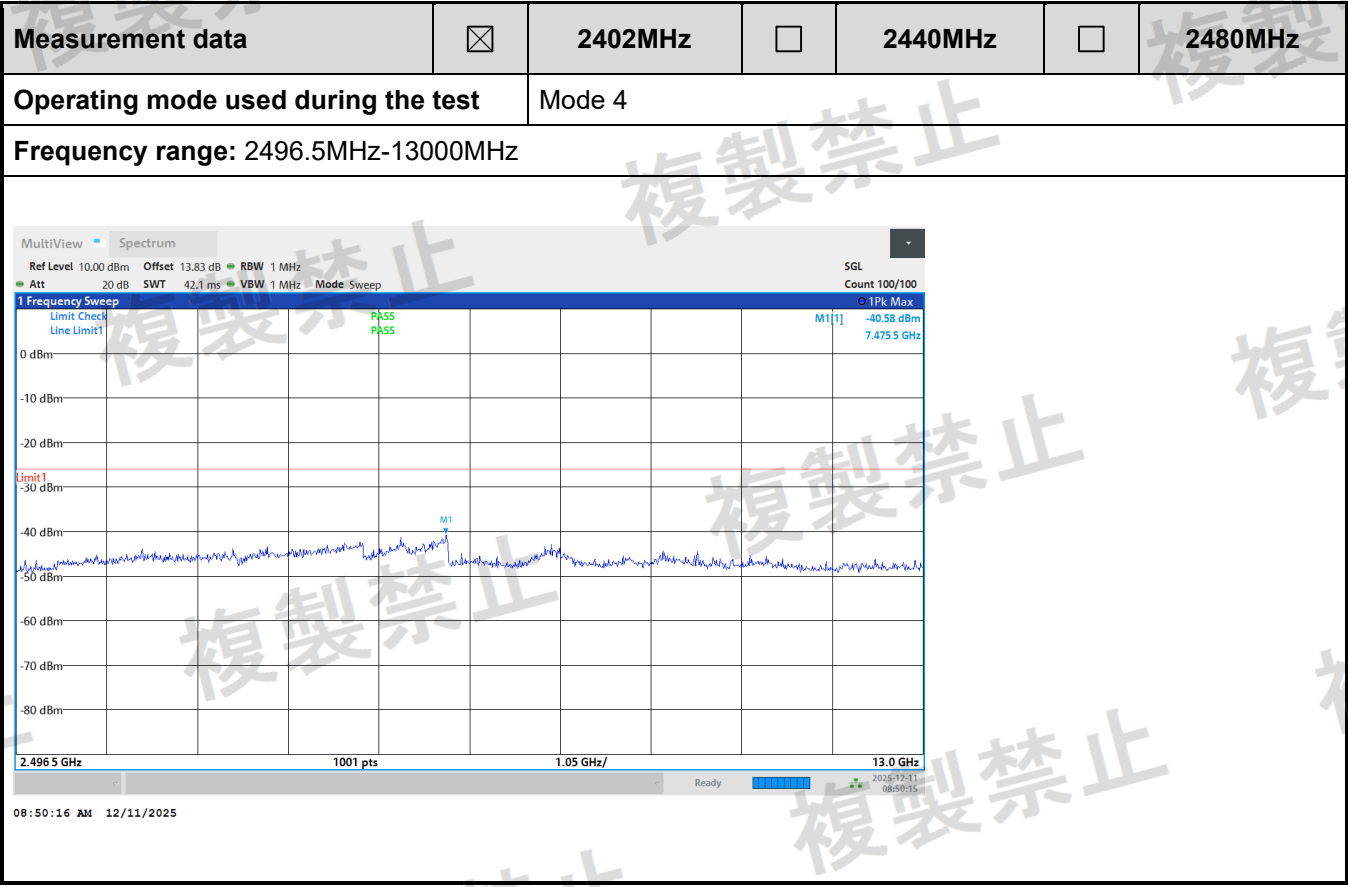


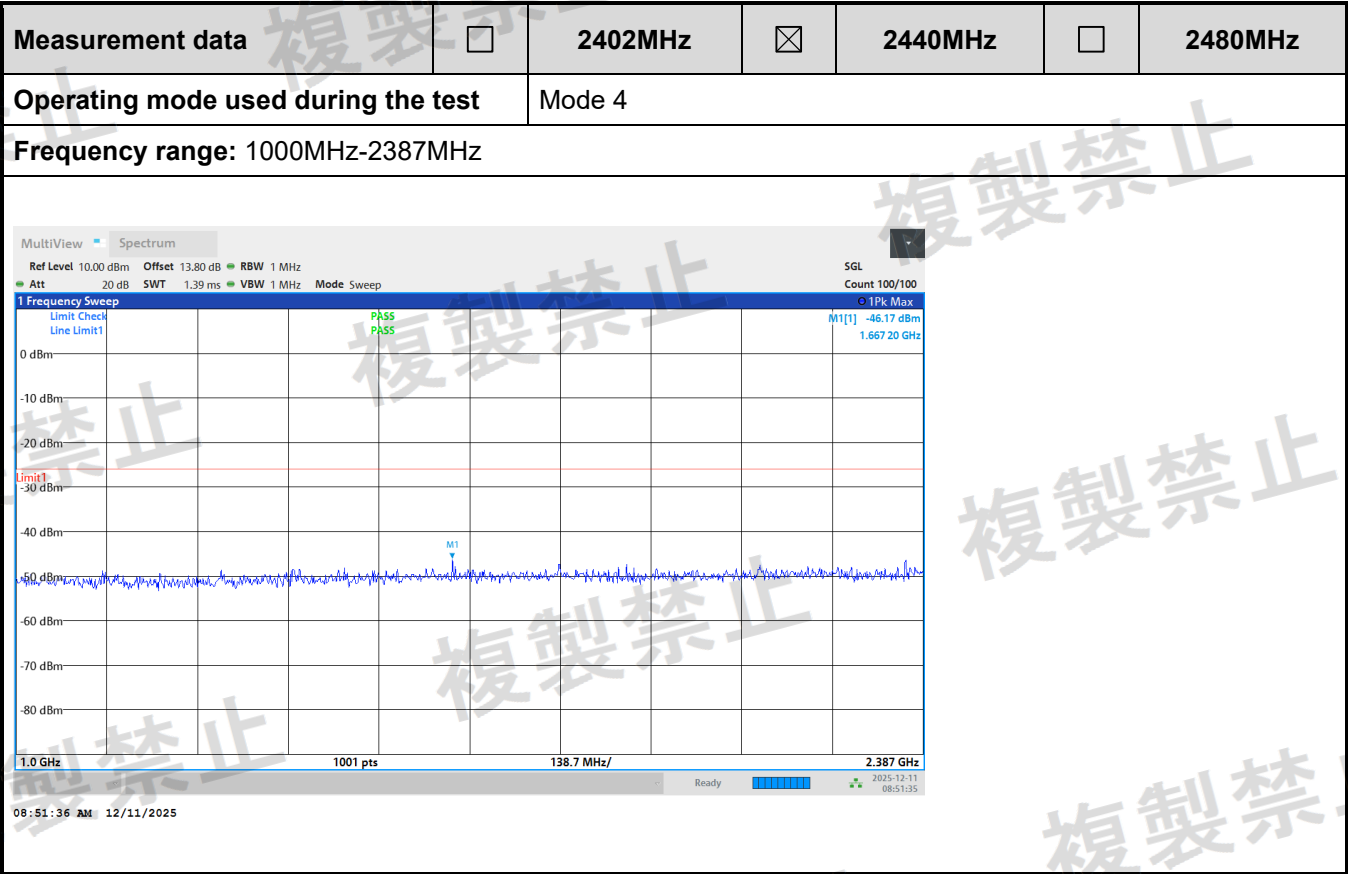
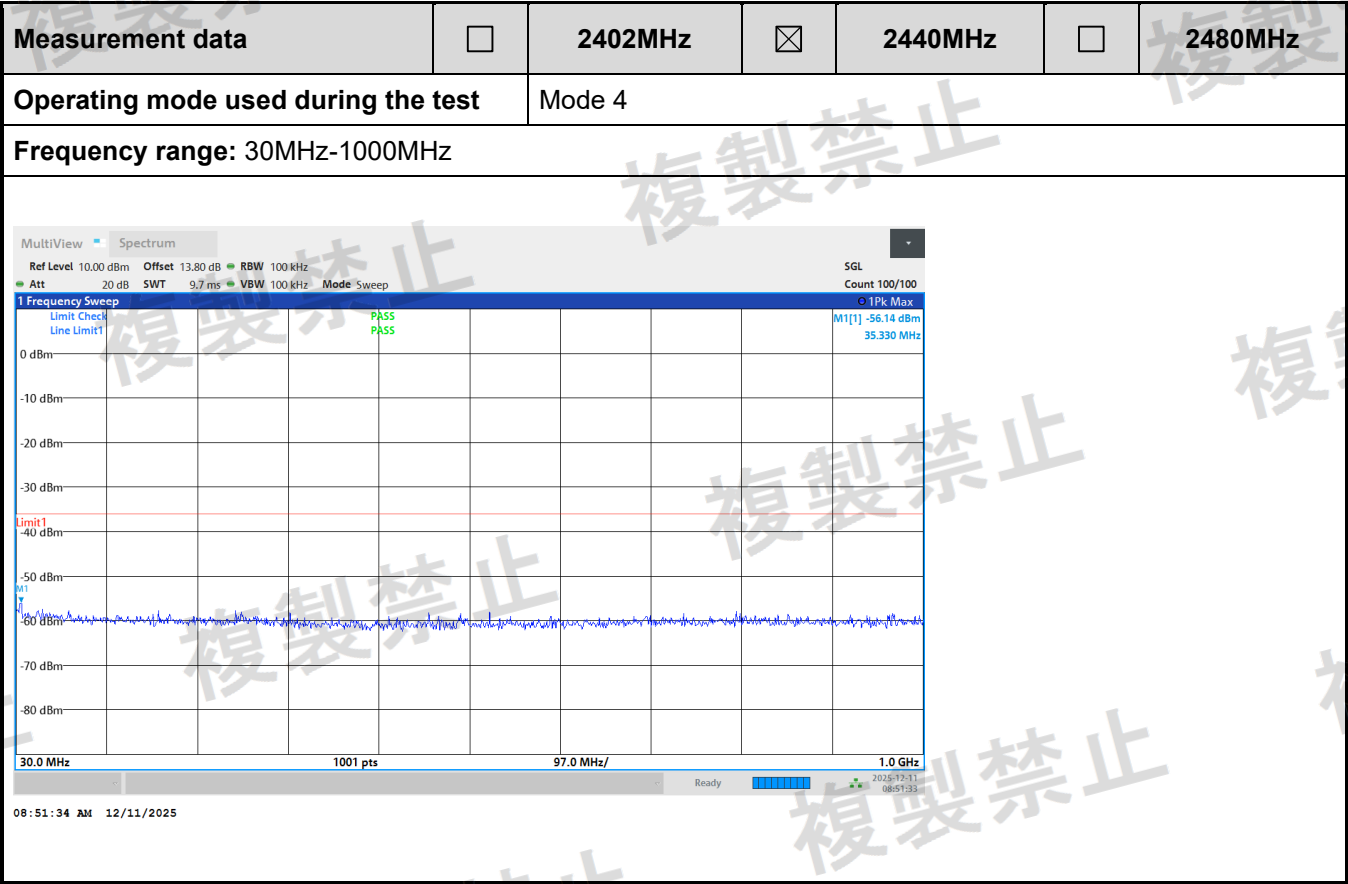


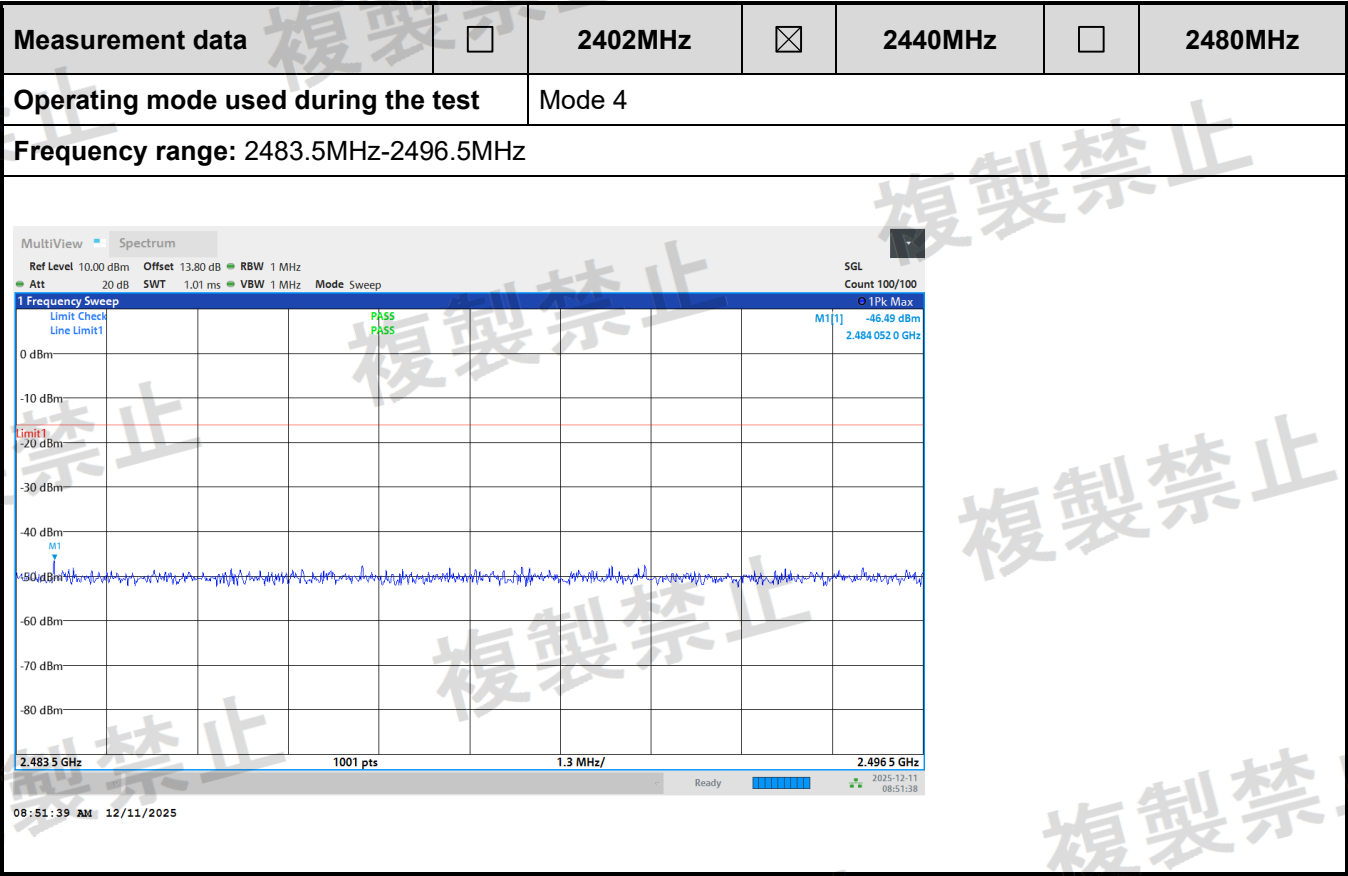


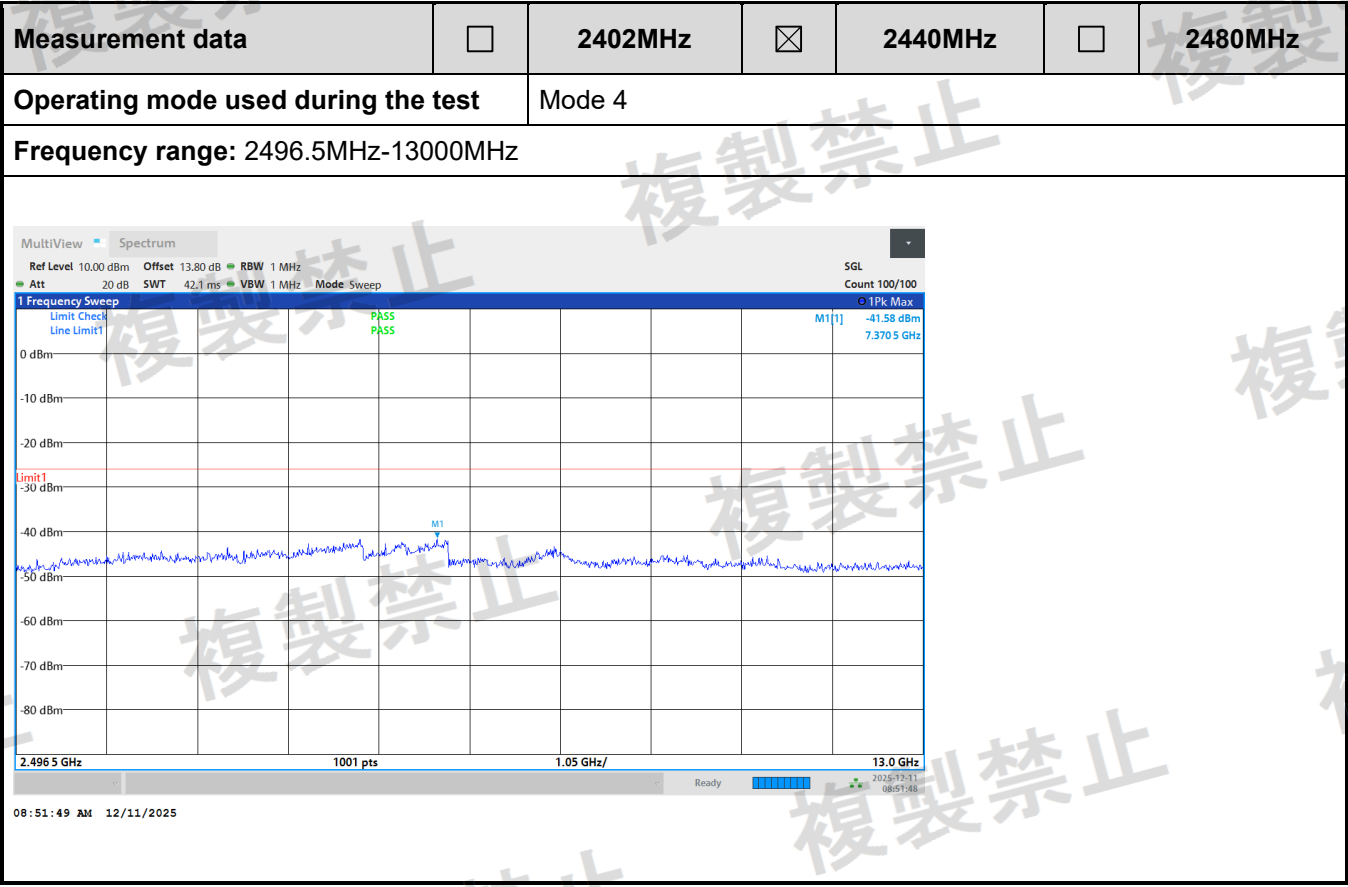


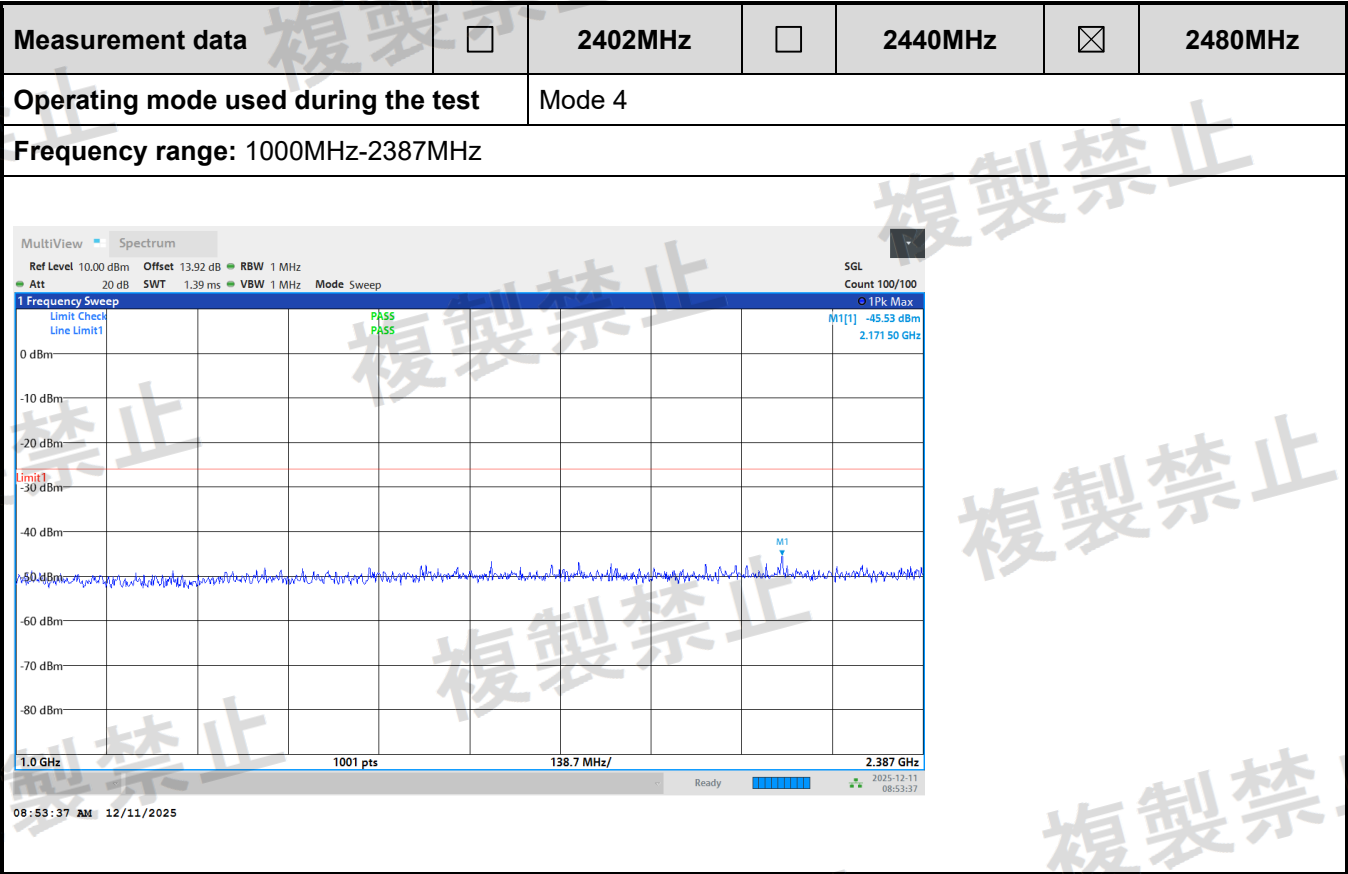
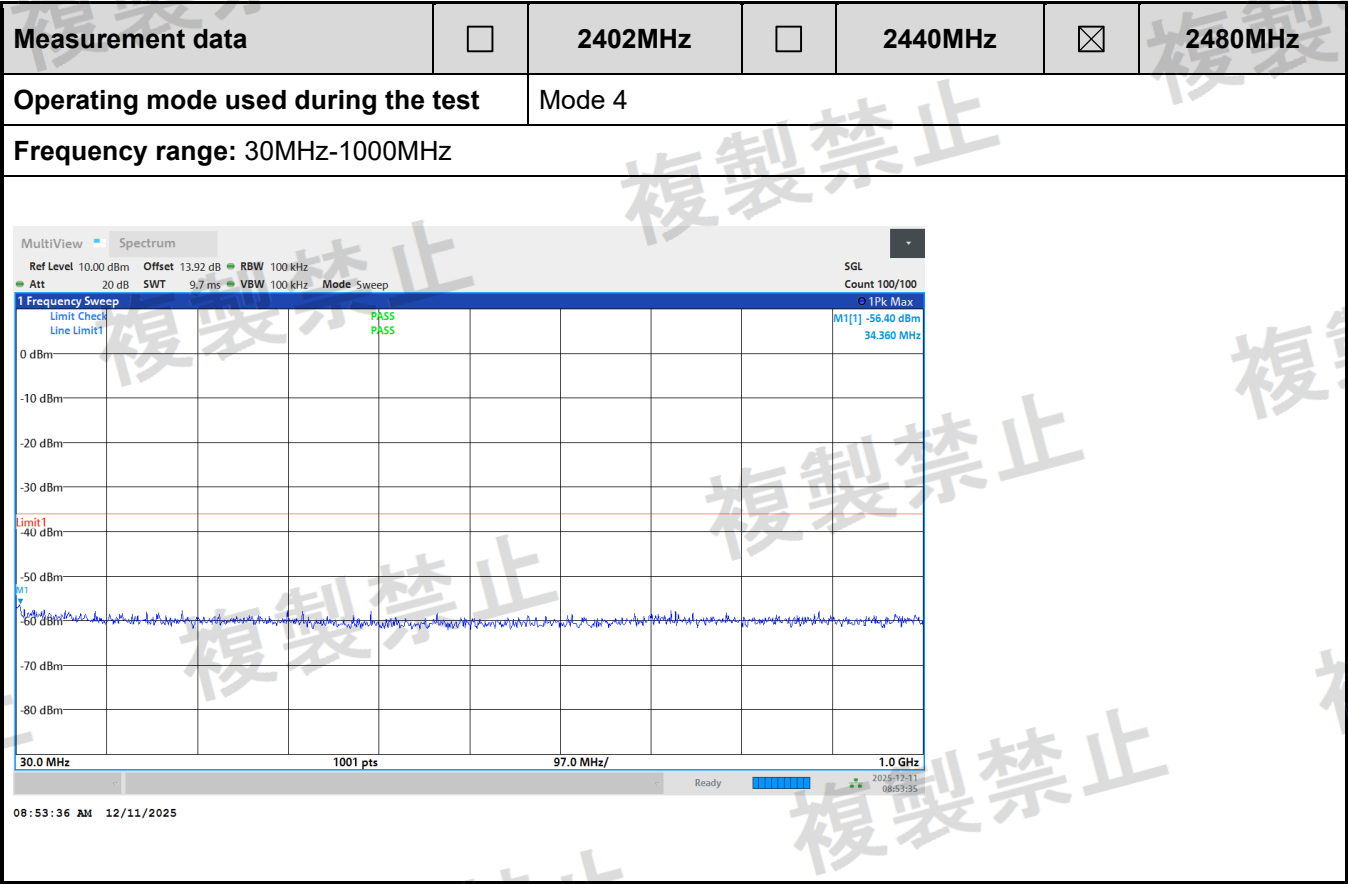


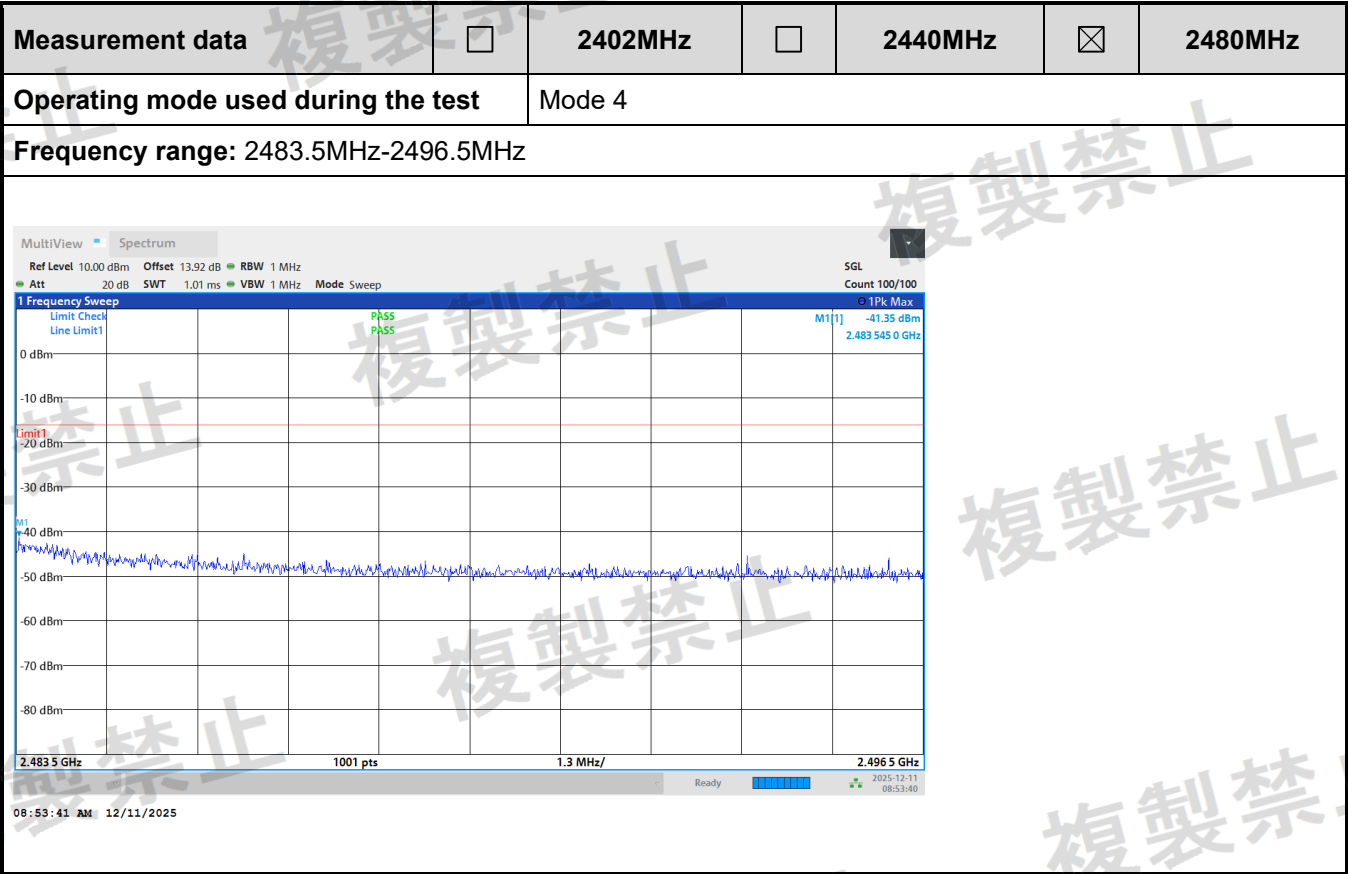
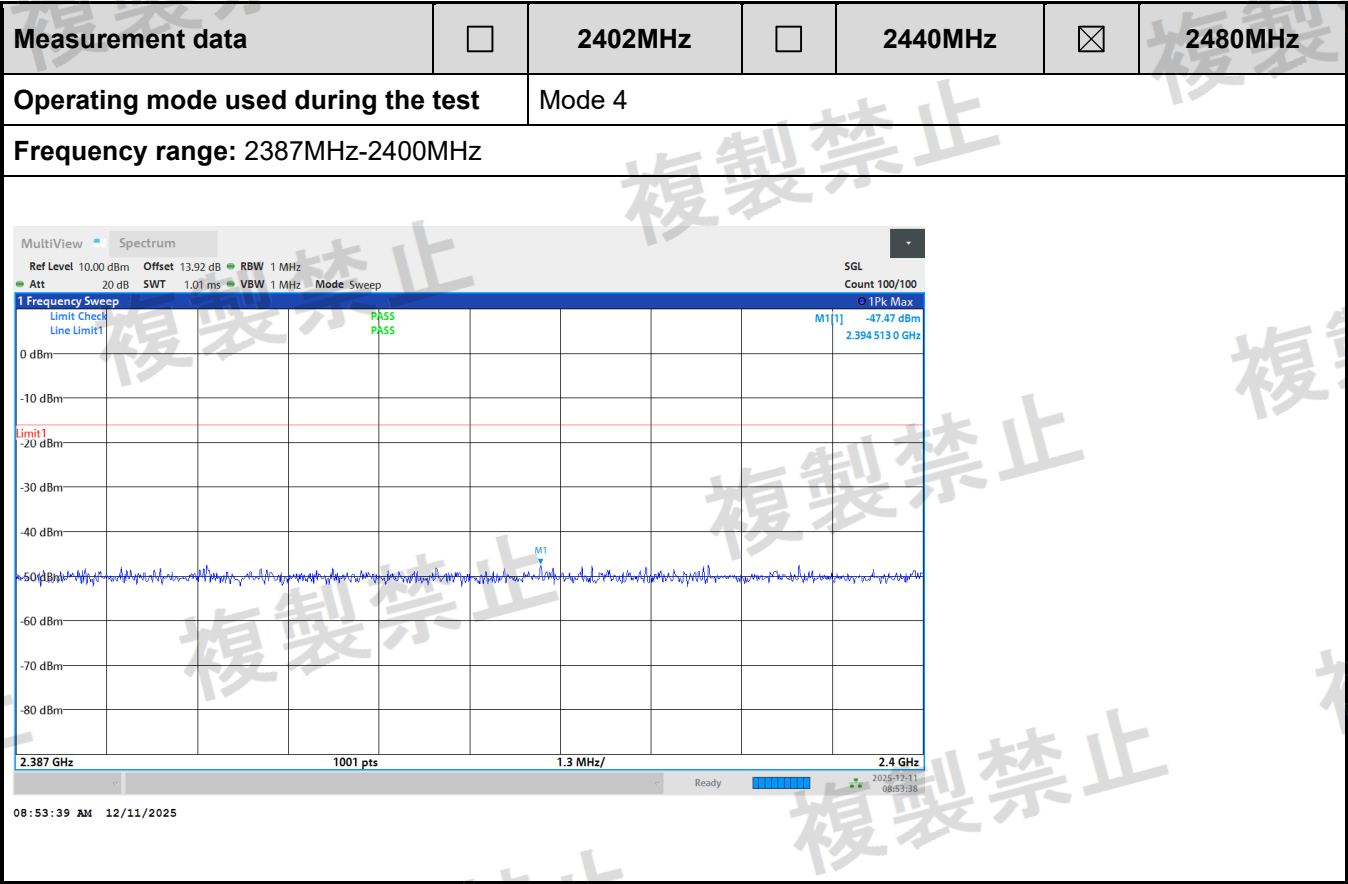


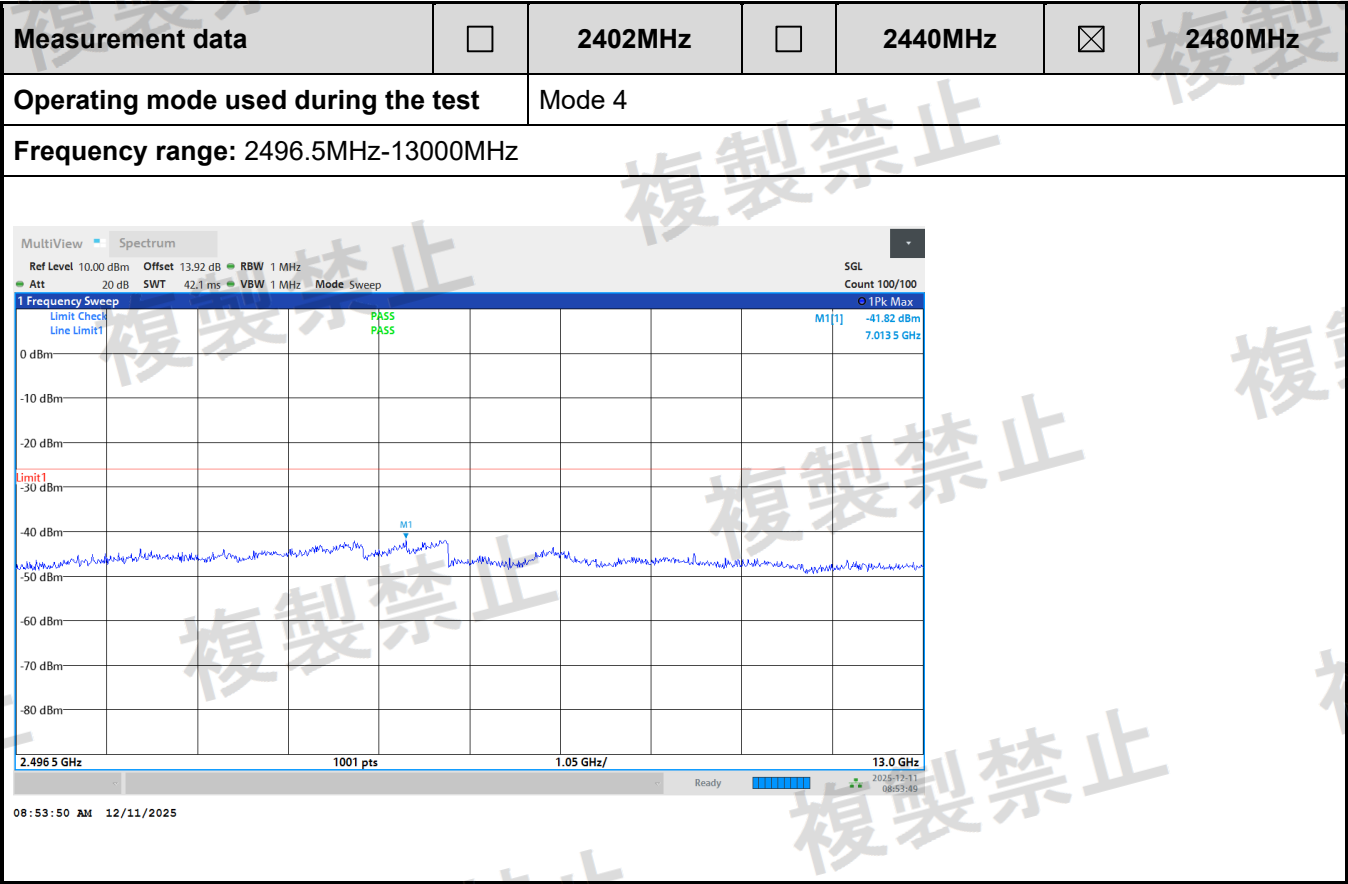












4.8	Secondary radiated emissions	VERDICT: PASS
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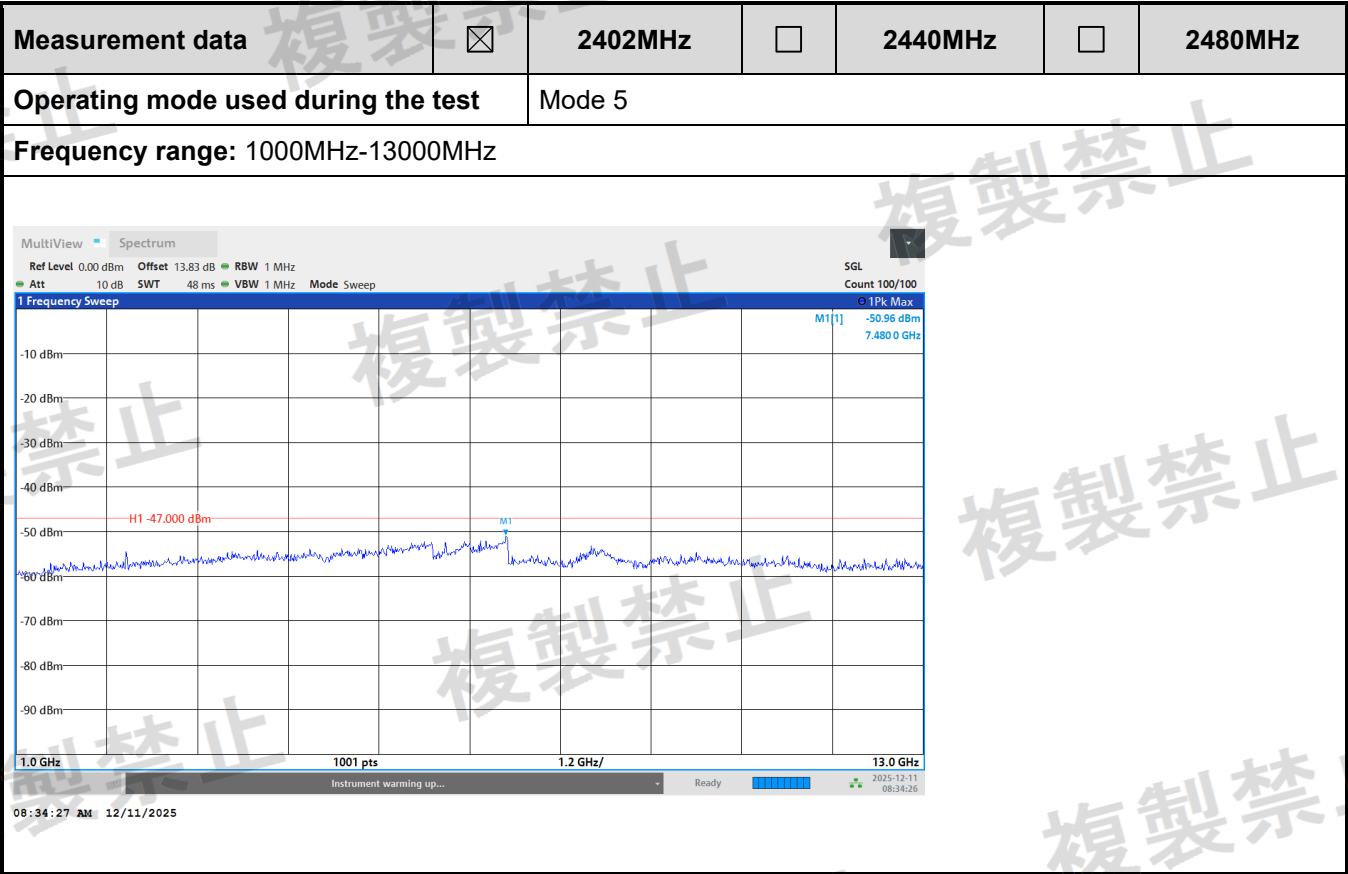
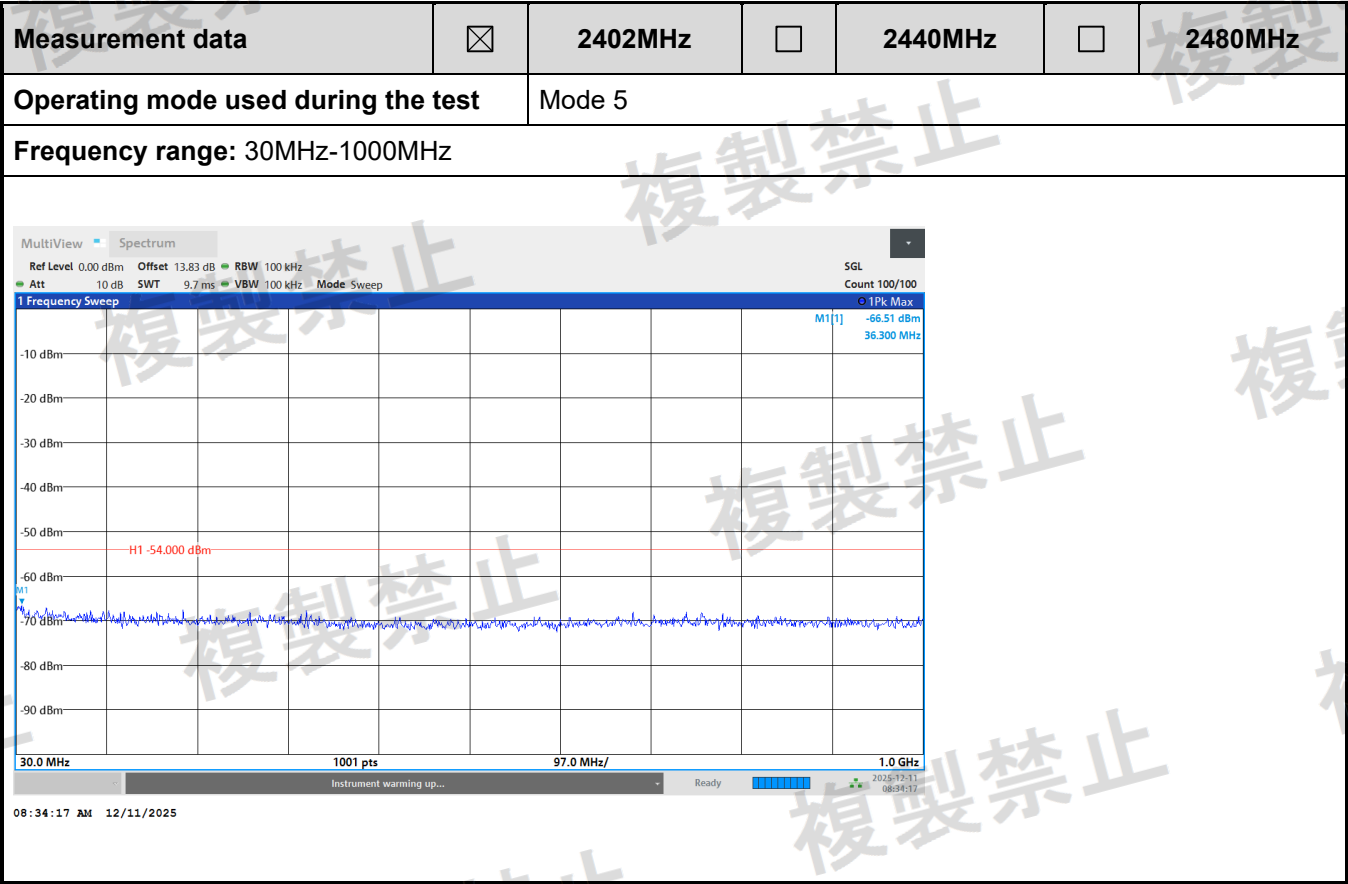
Standard	Article 2 Paragraph 1 item 19								
Limits:									
The limit on the secondary emissions radiated from the receiving equipment at a specified low-power radio station which uses emissions of a frequency from 2,400 MHz to 2,483.5 MHz, at a premises radio station which uses emissions of a frequency in the range higher than 2,425 MHz to 2,475 MHz and uses a frequency hopping system, at the radio station of a low-power data communication system, shall be as stipulated in the following table:									
<table border="1"> <thead> <tr> <th>Frequency range</th><th>Limit on secondary radiated emissions</th></tr> </thead> <tbody> <tr> <td>30 MHz to 1 GHz</td><td>4 nW</td></tr> <tr> <td>1 GHz to 10 GHz</td><td>20 nW</td></tr> <tr> <td>10 GHz to 12.5 GHz</td><td>20 nW</td></tr> </tbody> </table>		Frequency range	Limit on secondary radiated emissions	30 MHz to 1 GHz	4 nW	1 GHz to 10 GHz	20 nW	10 GHz to 12.5 GHz	20 nW
Frequency range	Limit on secondary radiated emissions								
30 MHz to 1 GHz	4 nW								
1 GHz to 10 GHz	20 nW								
10 GHz to 12.5 GHz	20 nW								

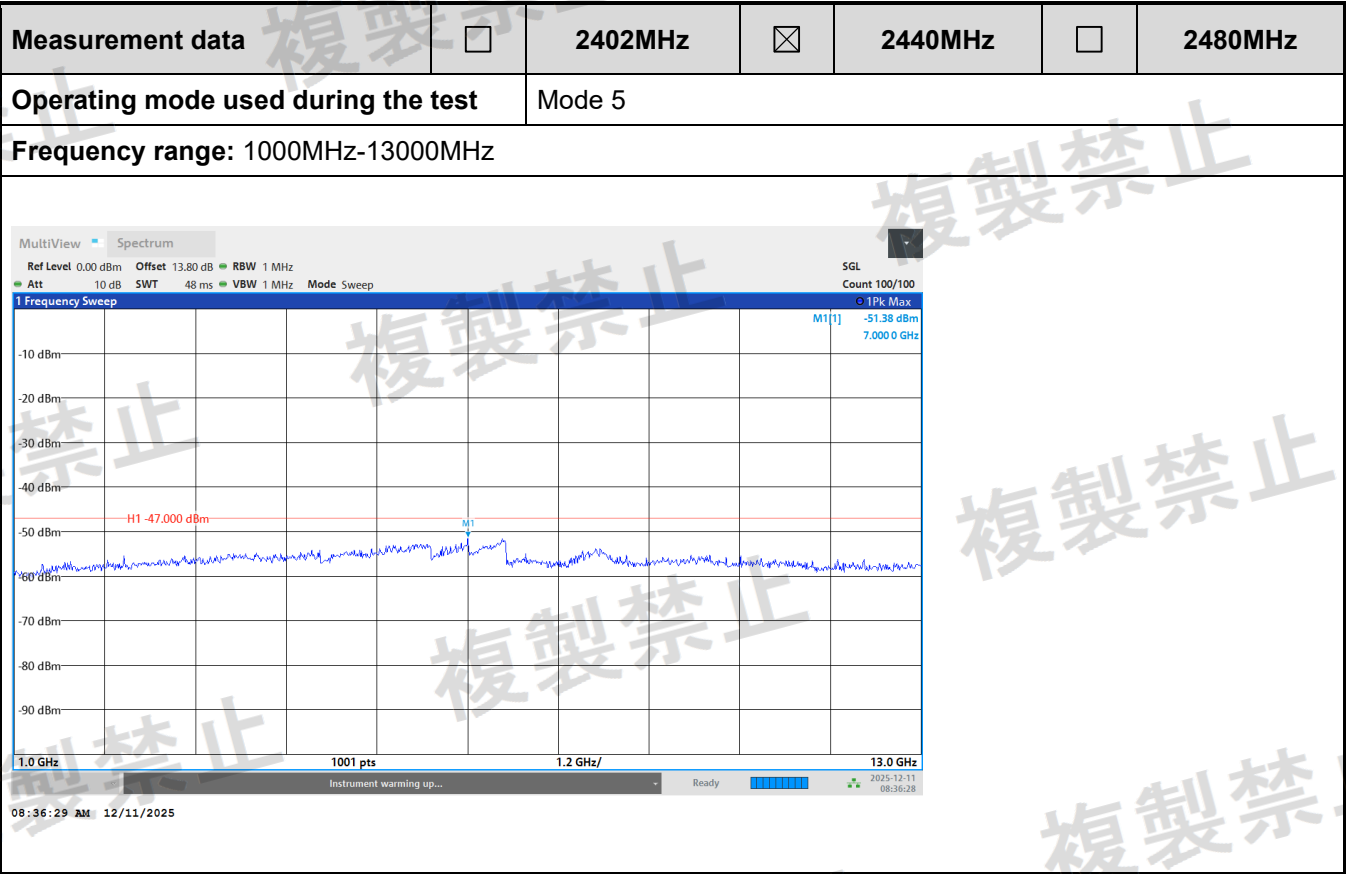
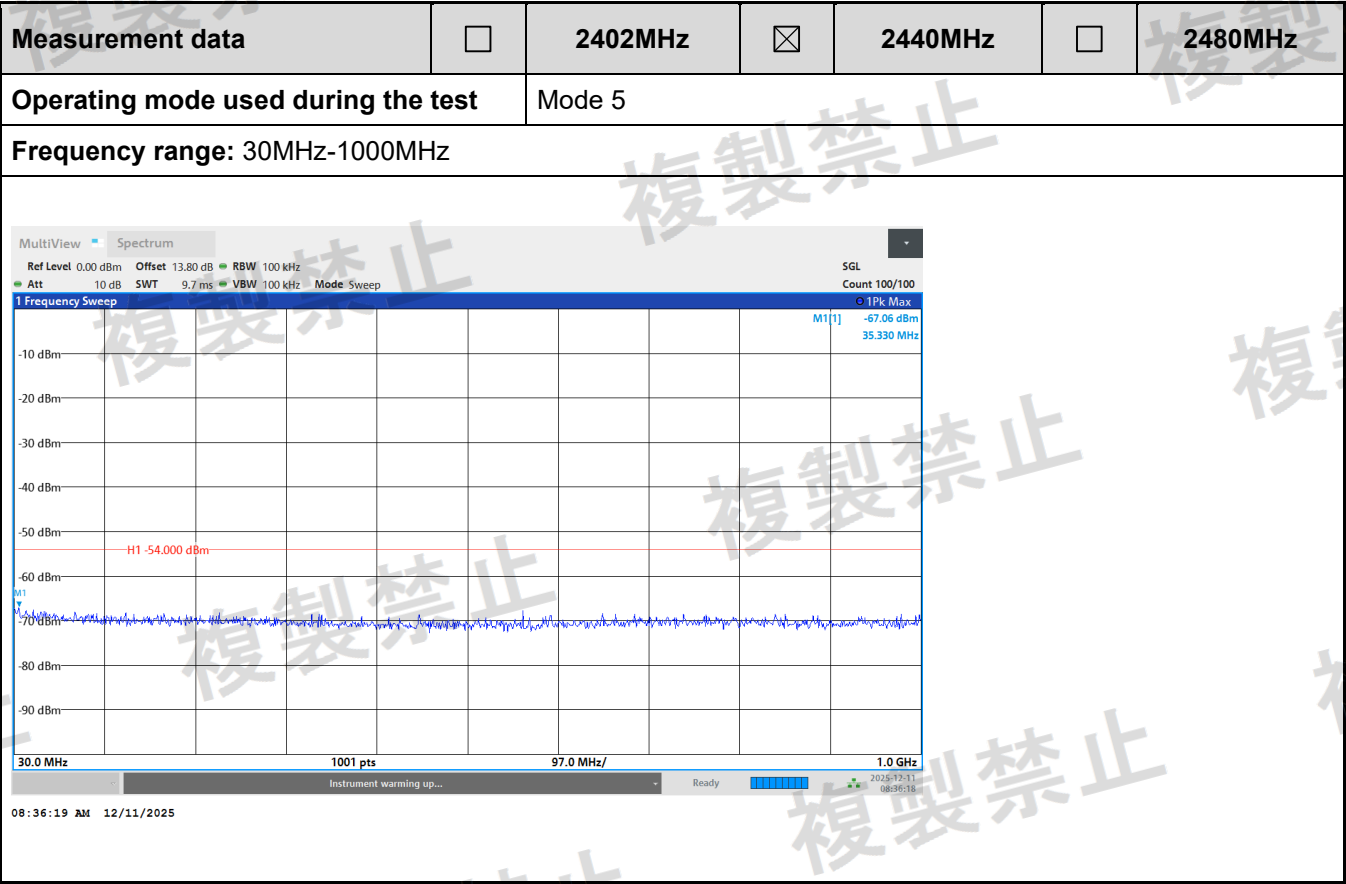
Performed measurements

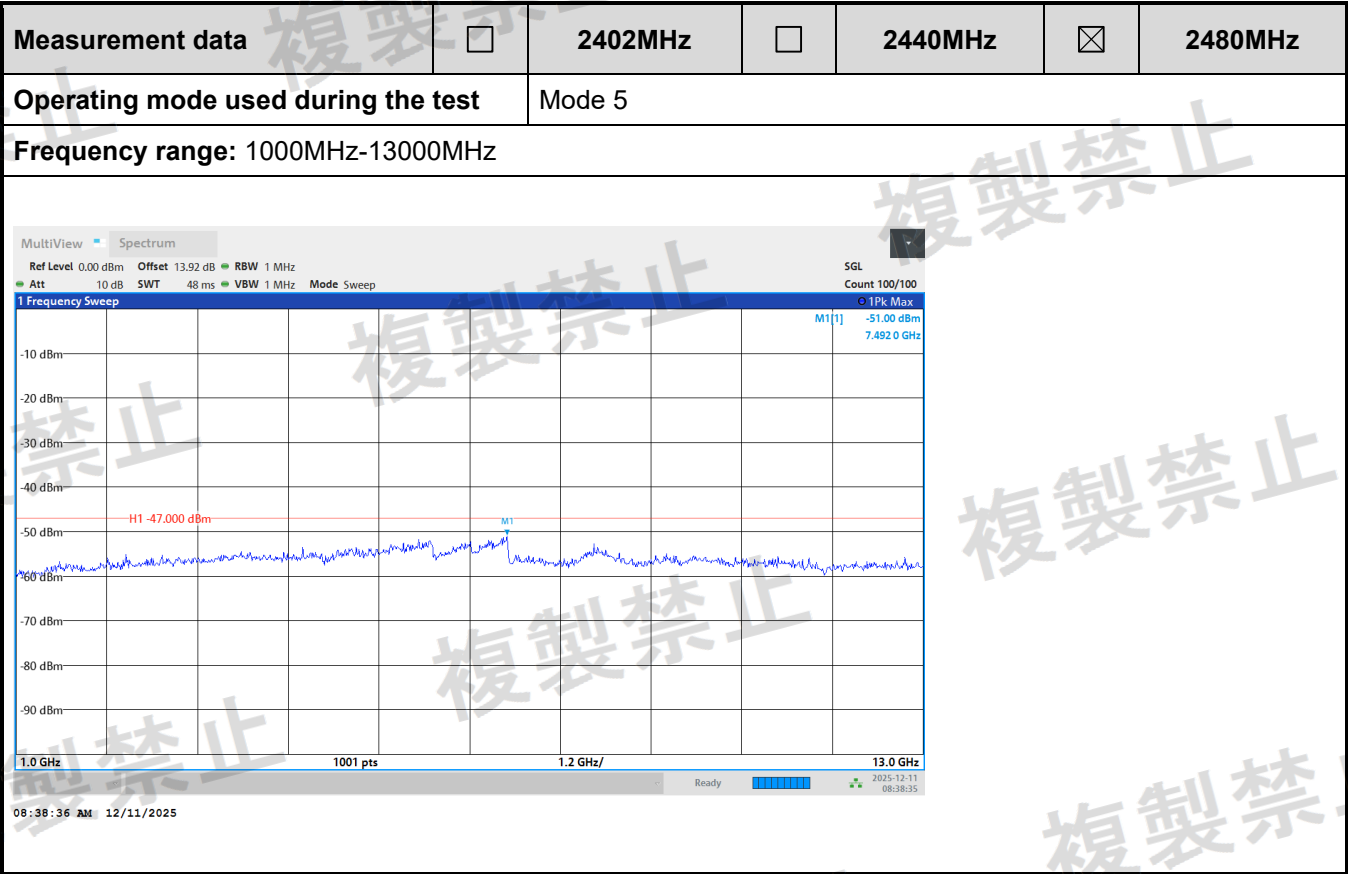
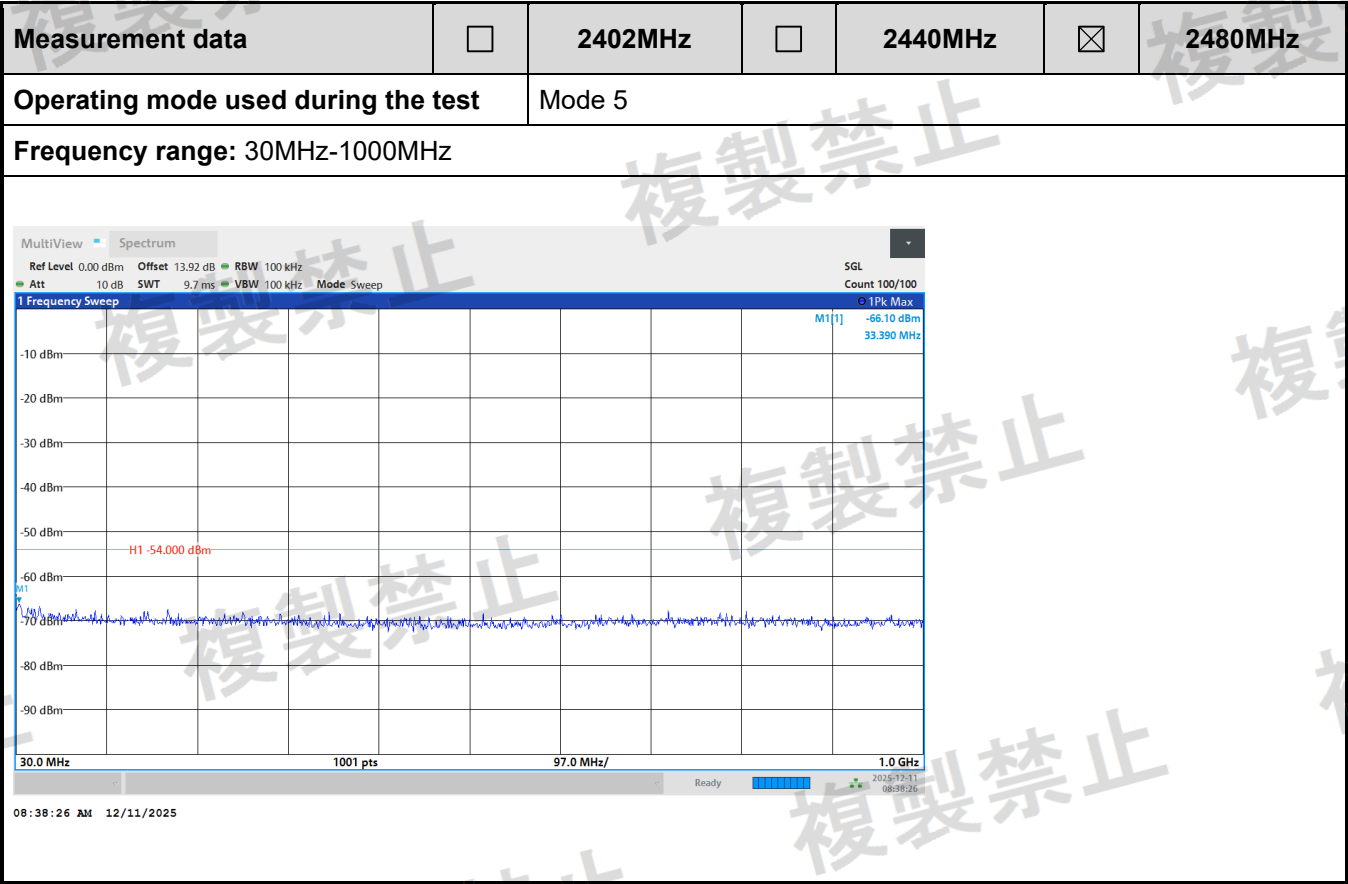
Test method applied	☒	Conducted measurement
	☐	Radiated measurement
Test setup	Refer to Appendix test setup photo(s).	
Operating mode(s) used	Mode 5, 6, 7, 8	
Ambient temperature	27.1°C	
Relative humidity air	56.2 %	
Atmospheric pressure	101.6 kPa	
Remark	---	

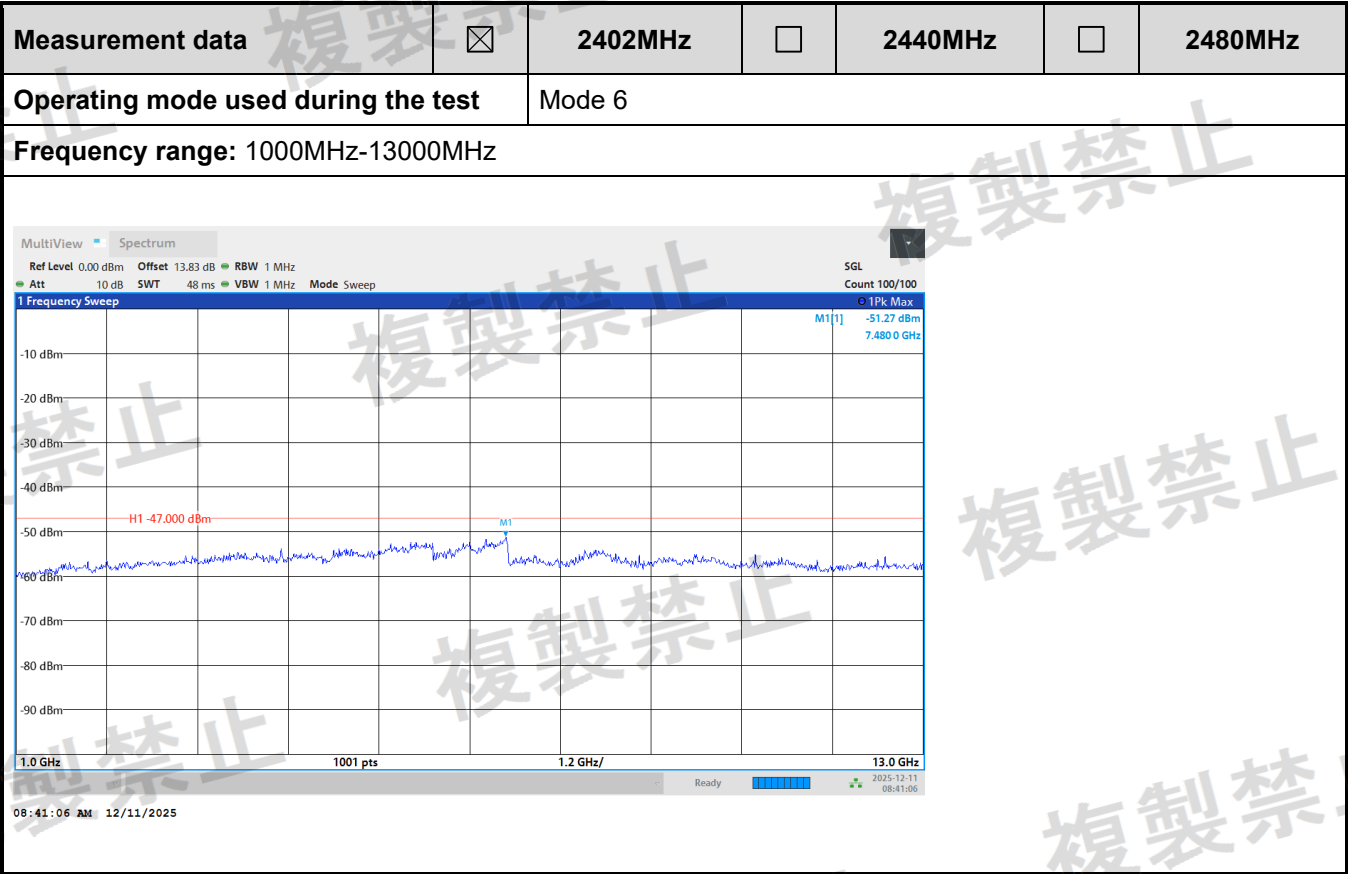
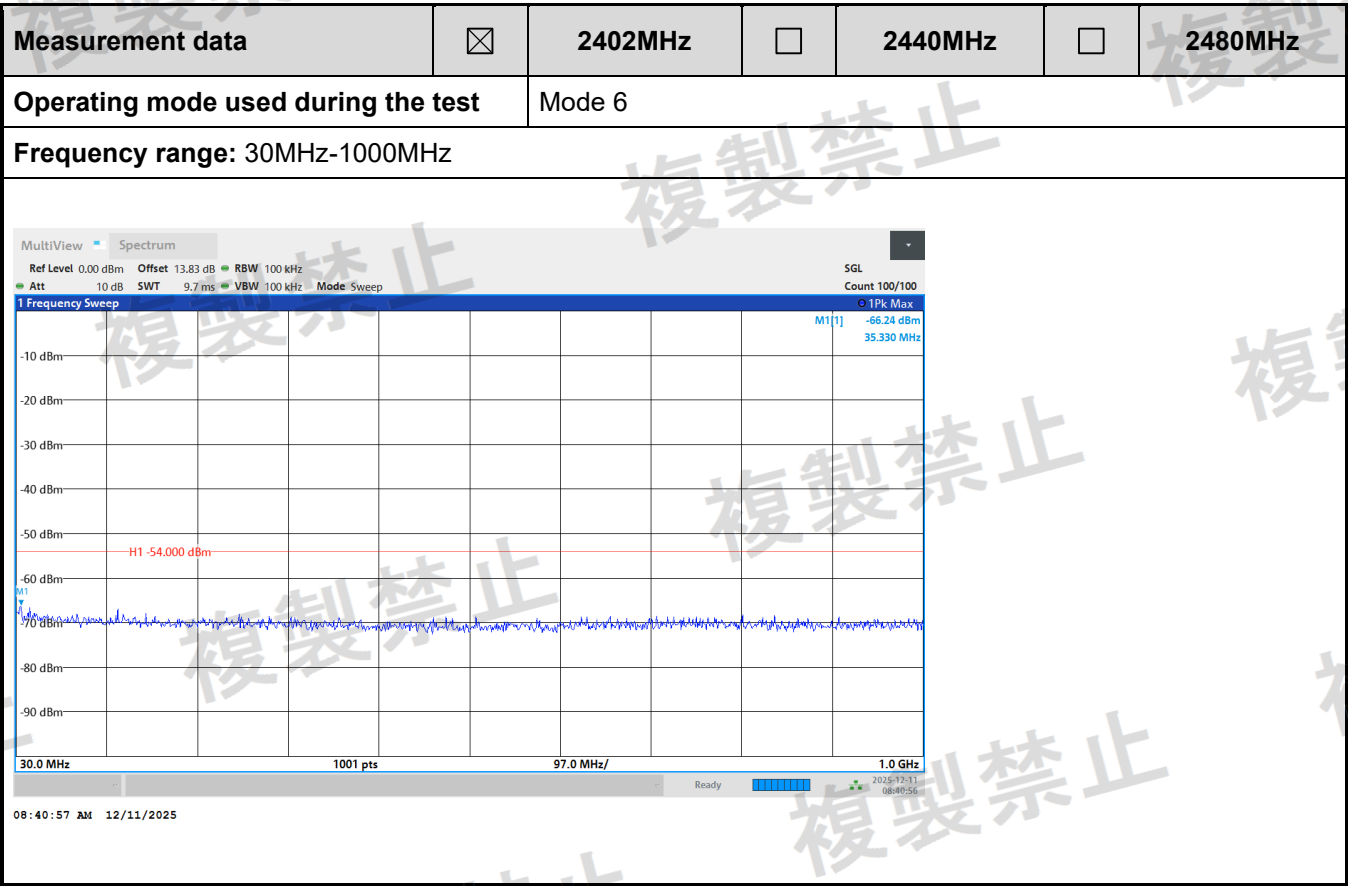
Results

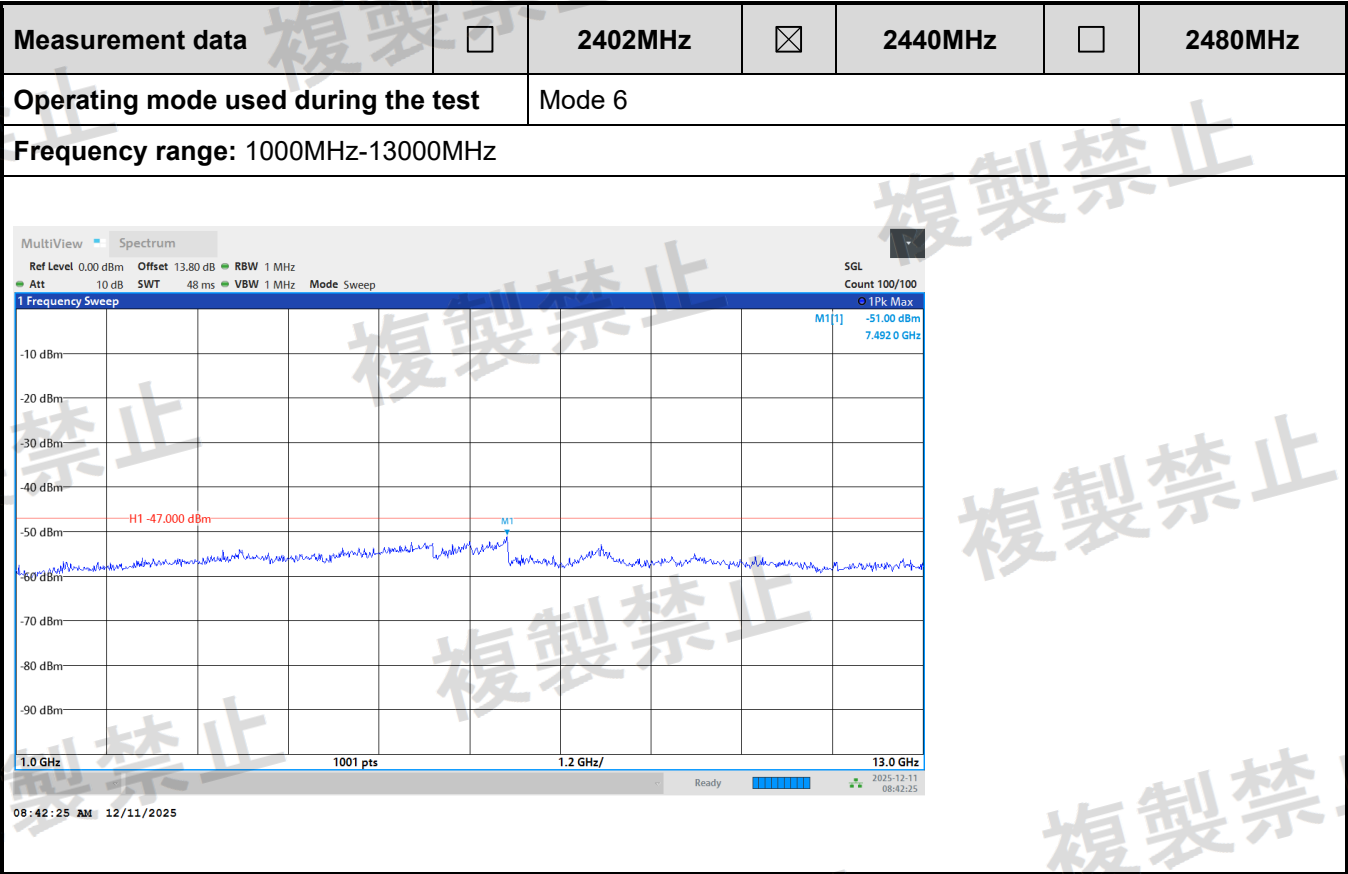
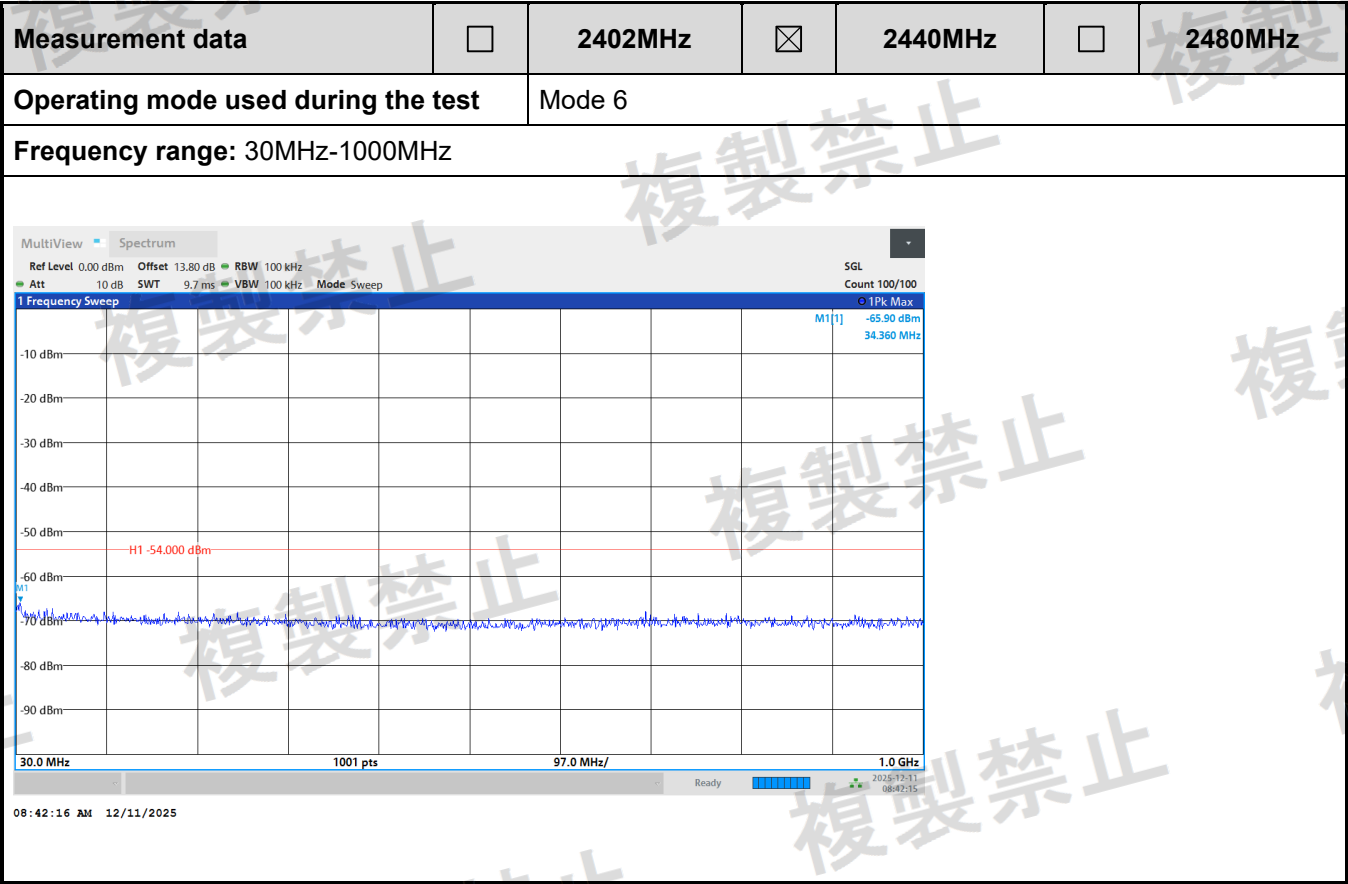
Opearting Mode	Channel (MHz)	Frequency Range (MHz)	Emission Frequency (MHz)	Measured Level (dBm)	Limit (dBm)
5	2402	30-1000	36.3	-66.51	-54
5	2402	1000-13000	7480	-50.96	-47
5	2440	30-1000	35.33	-67.06	-54
5	2440	1000-13000	7000	-51.38	-47
5	2480	30-1000	33.39	-66.1	-54
5	2480	1000-13000	7492	-51	-47
6	2402	30-1000	35.33	-66.24	-54
6	2402	1000-13000	7480	-51.27	-47
6	2440	30-1000	34.36	-65.9	-54
6	2440	1000-13000	7492	-51	-47
6	2480	30-1000	30.48	-66.7	-54
6	2480	1000-13000	7492	-50.93	-47
7	2402	30-1000	34.36	-66.65	-54
7	2402	1000-13000	7492	-50.79	-47
7	2440	30-1000	32.42	-66.44	-54
7	2440	1000-13000	6293	-51.54	-47
7	2480	30-1000	43.08	-65.97	-54
7	2480	1000-13000	7492	-51.67	-47
8	2402	30-1000	43.08	-67.03	-54
8	2402	1000-13000	7336	-51.41	-47
8	2440	30-1000	35.33	-66.68	-54
8	2440	1000-13000	7480	-51.7	-47
8	2480	30-1000	32.42	-66.17	-54
8	2480	1000-13000	7492	-50.94	-47

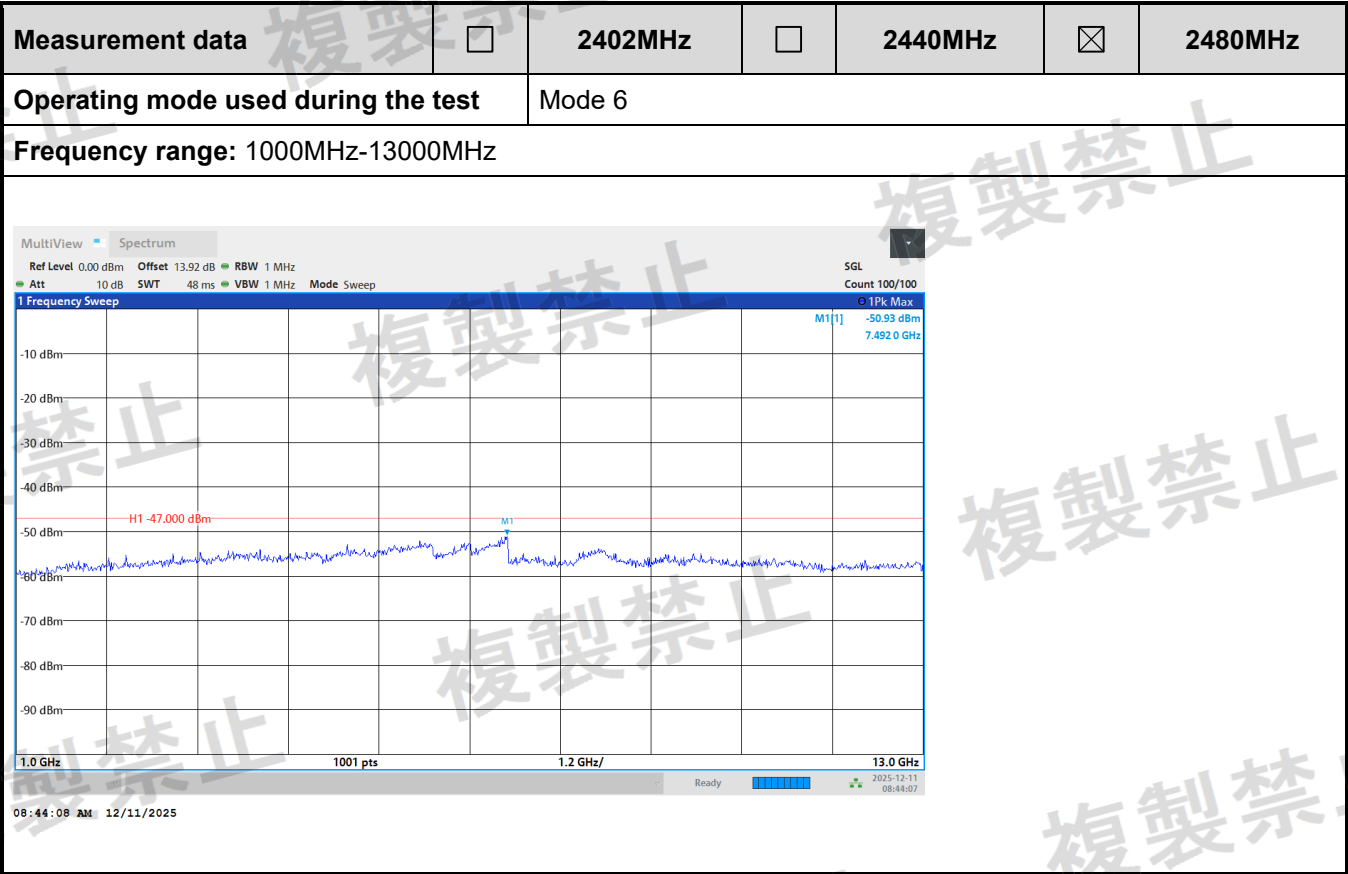
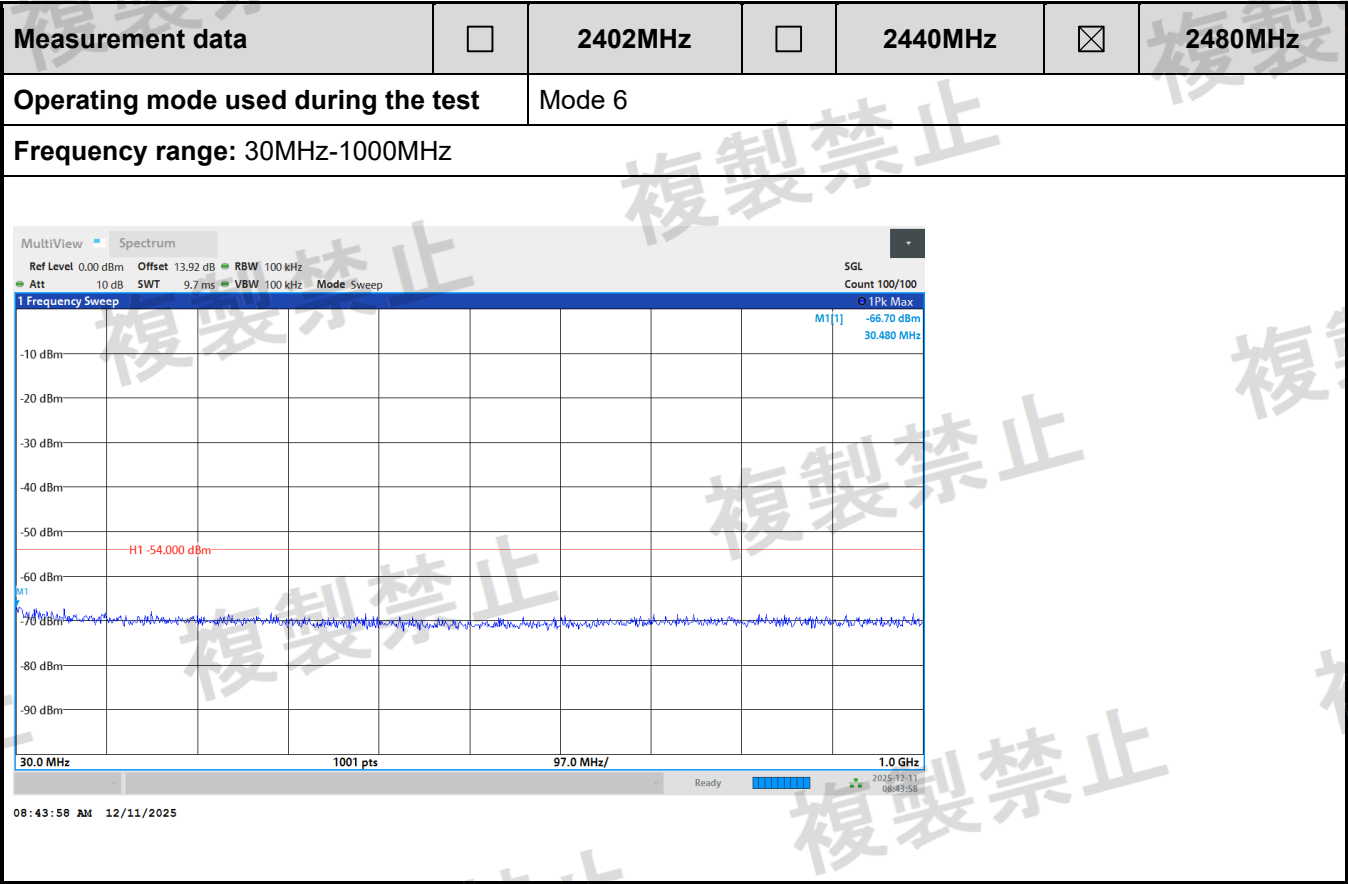






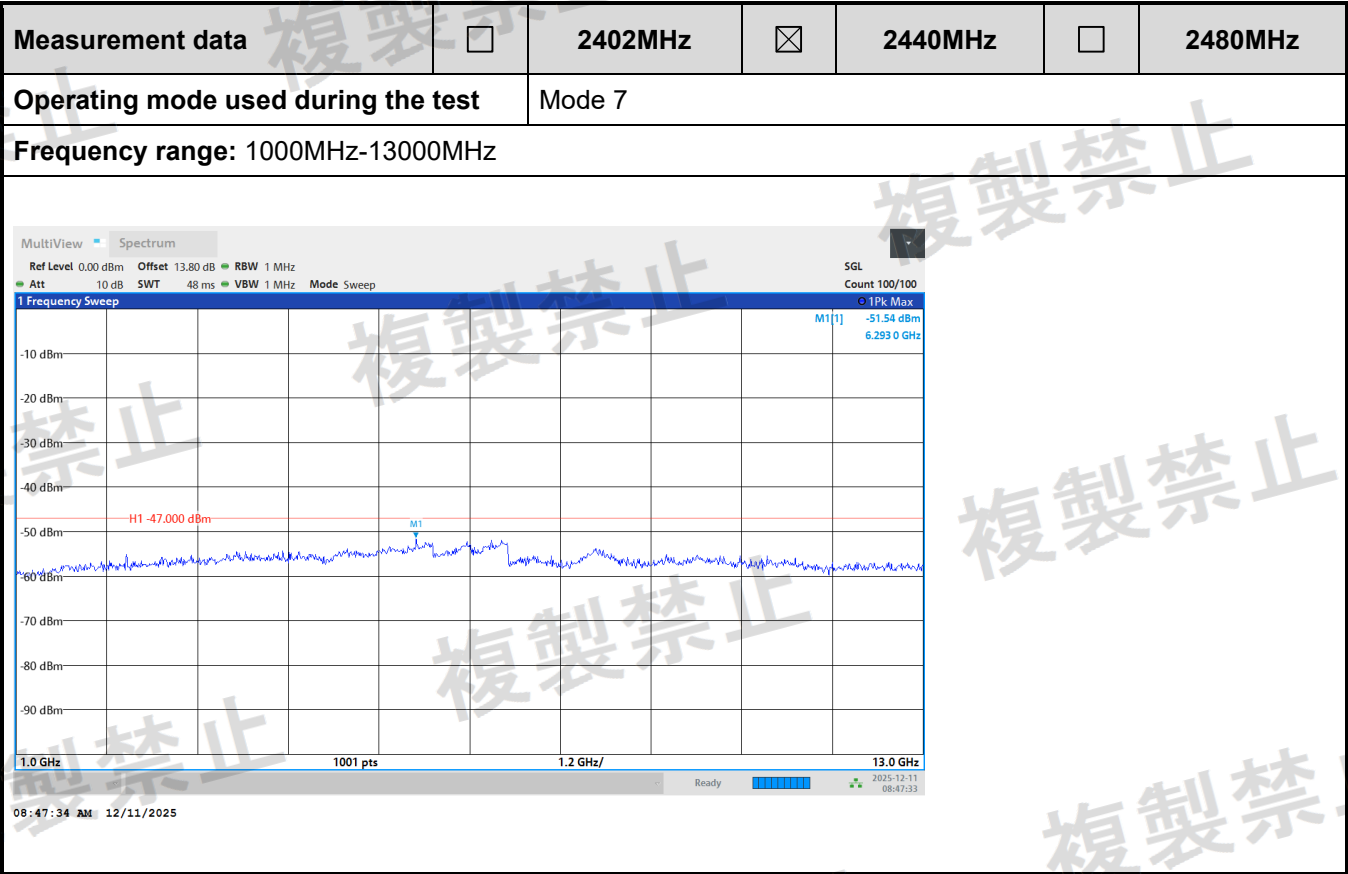
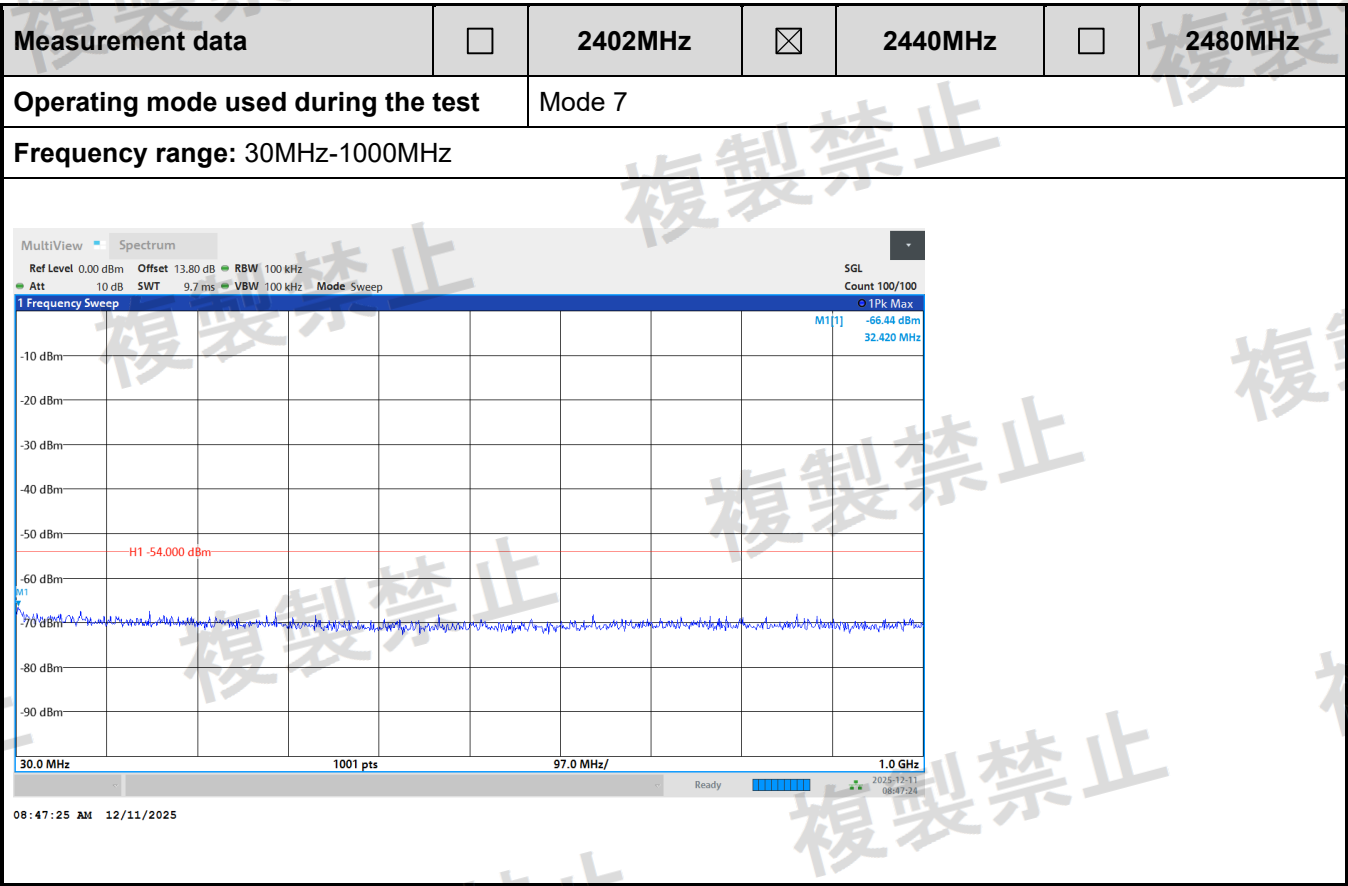


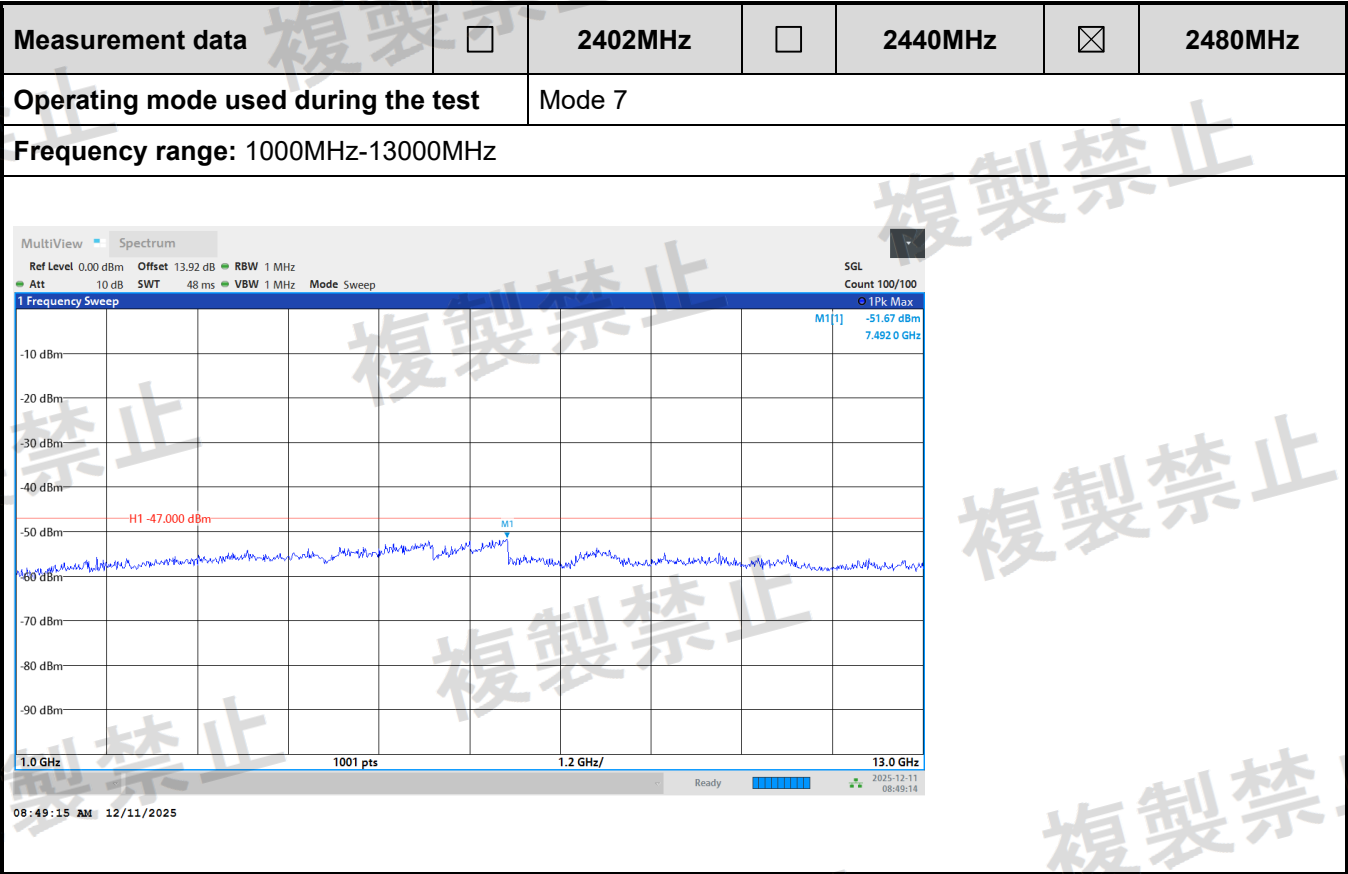
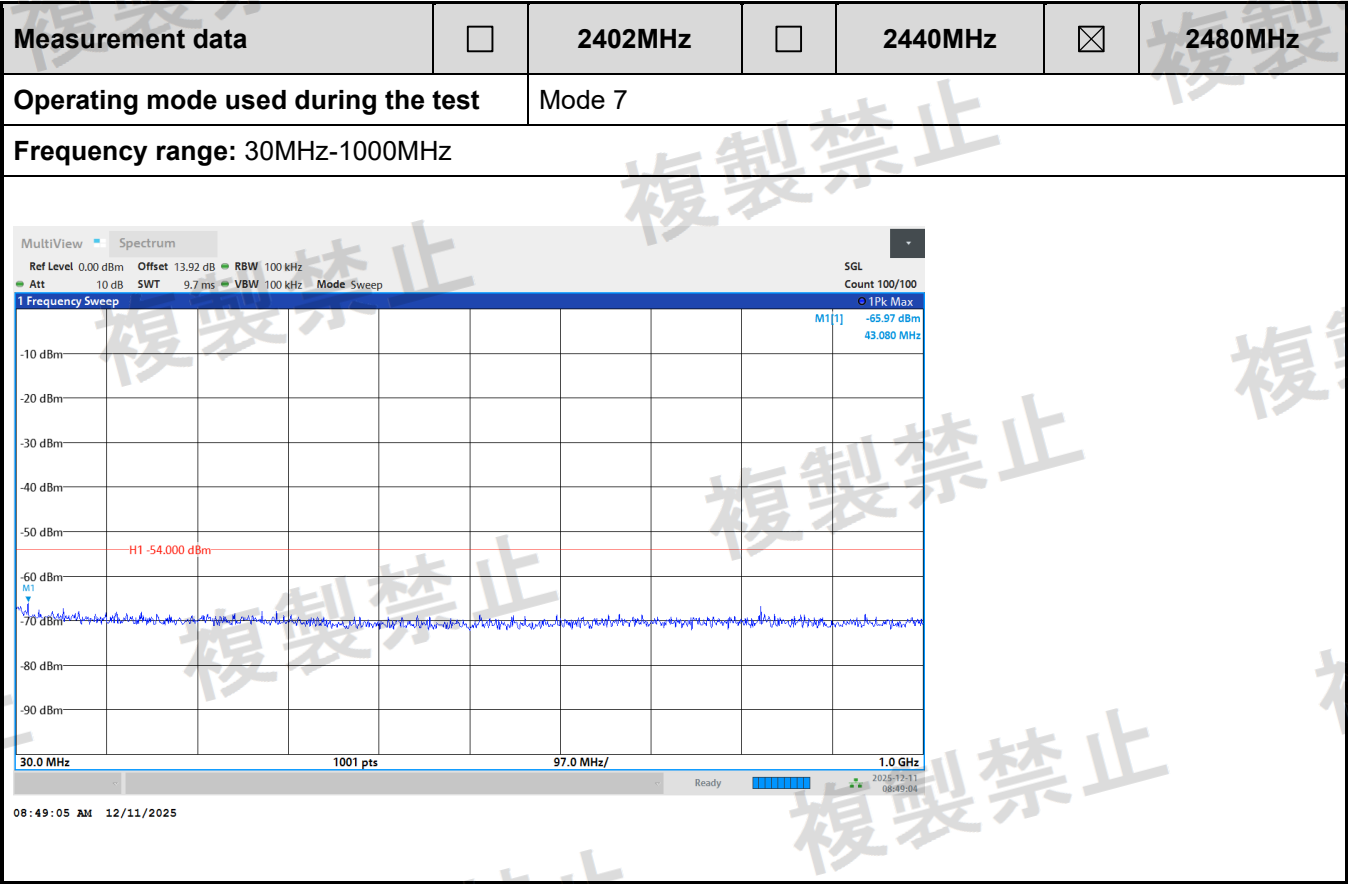


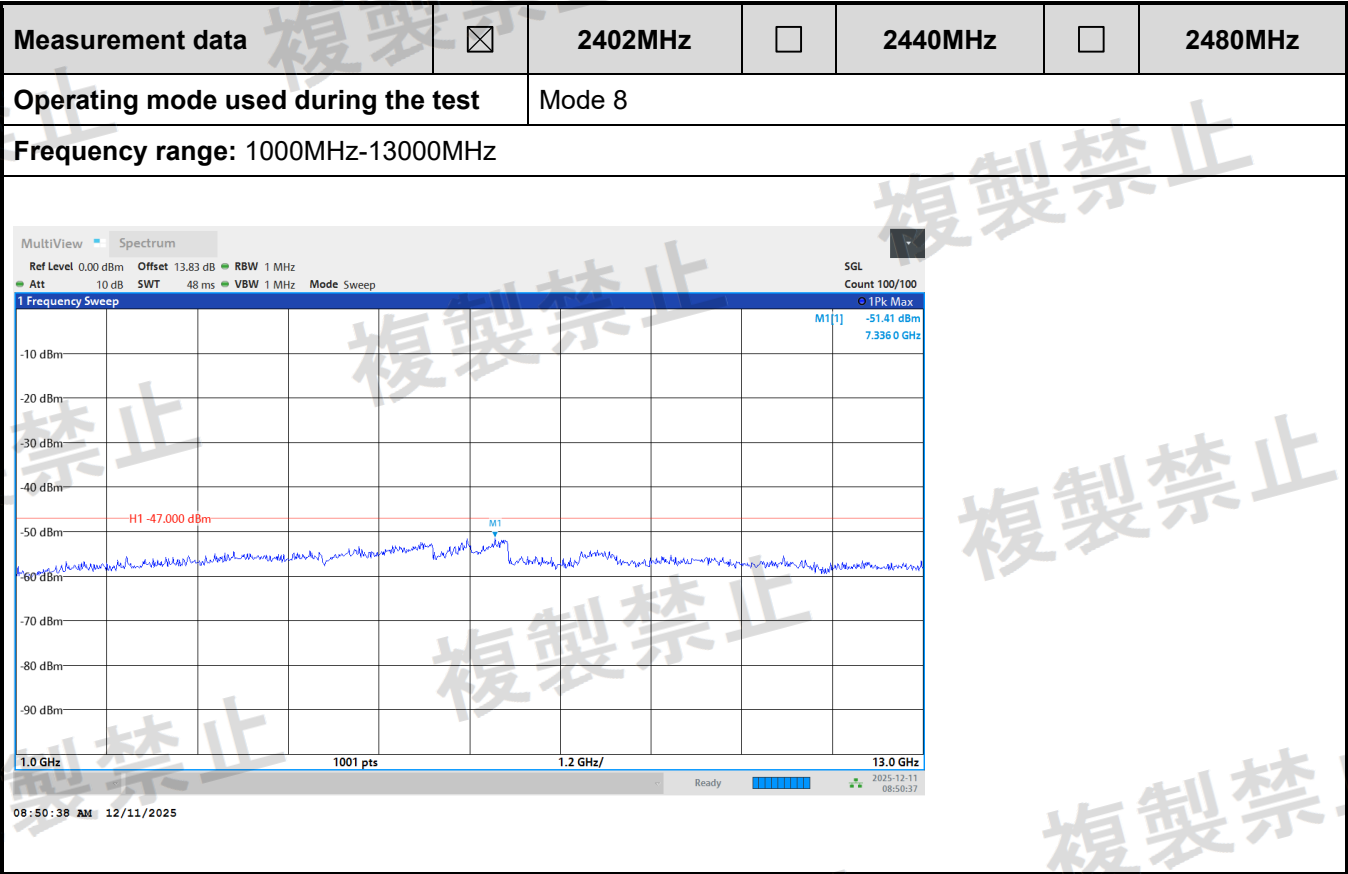
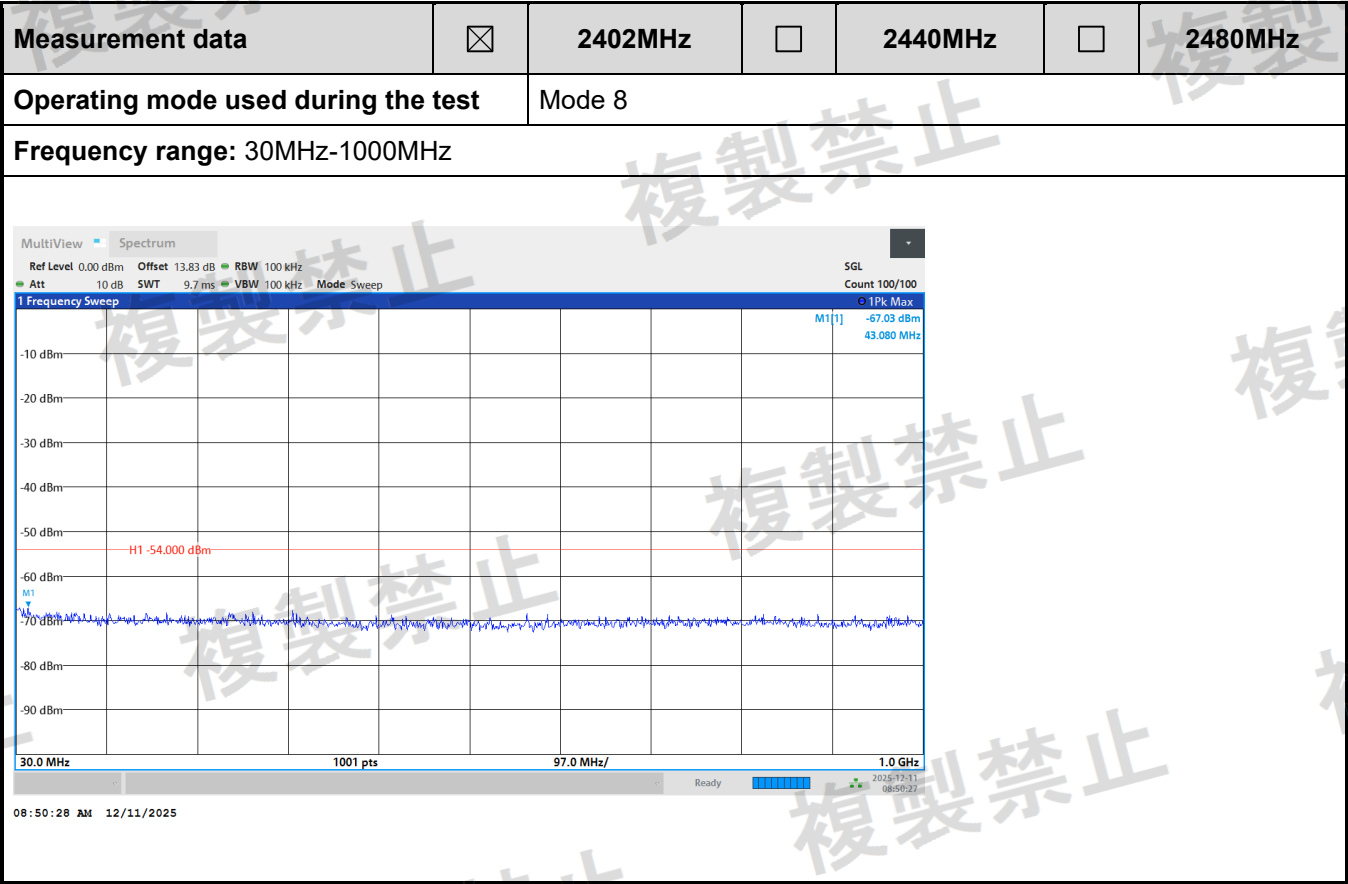


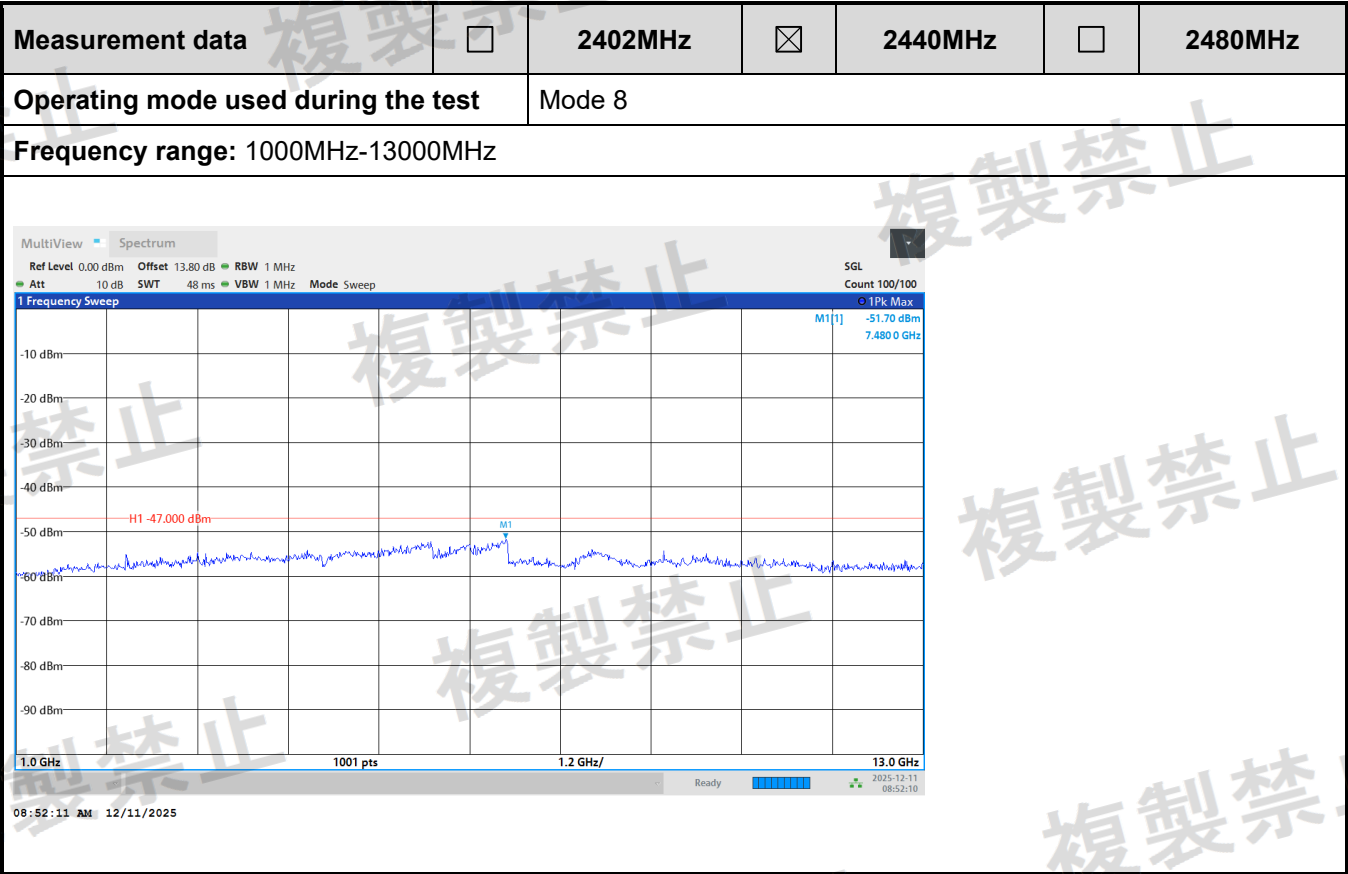
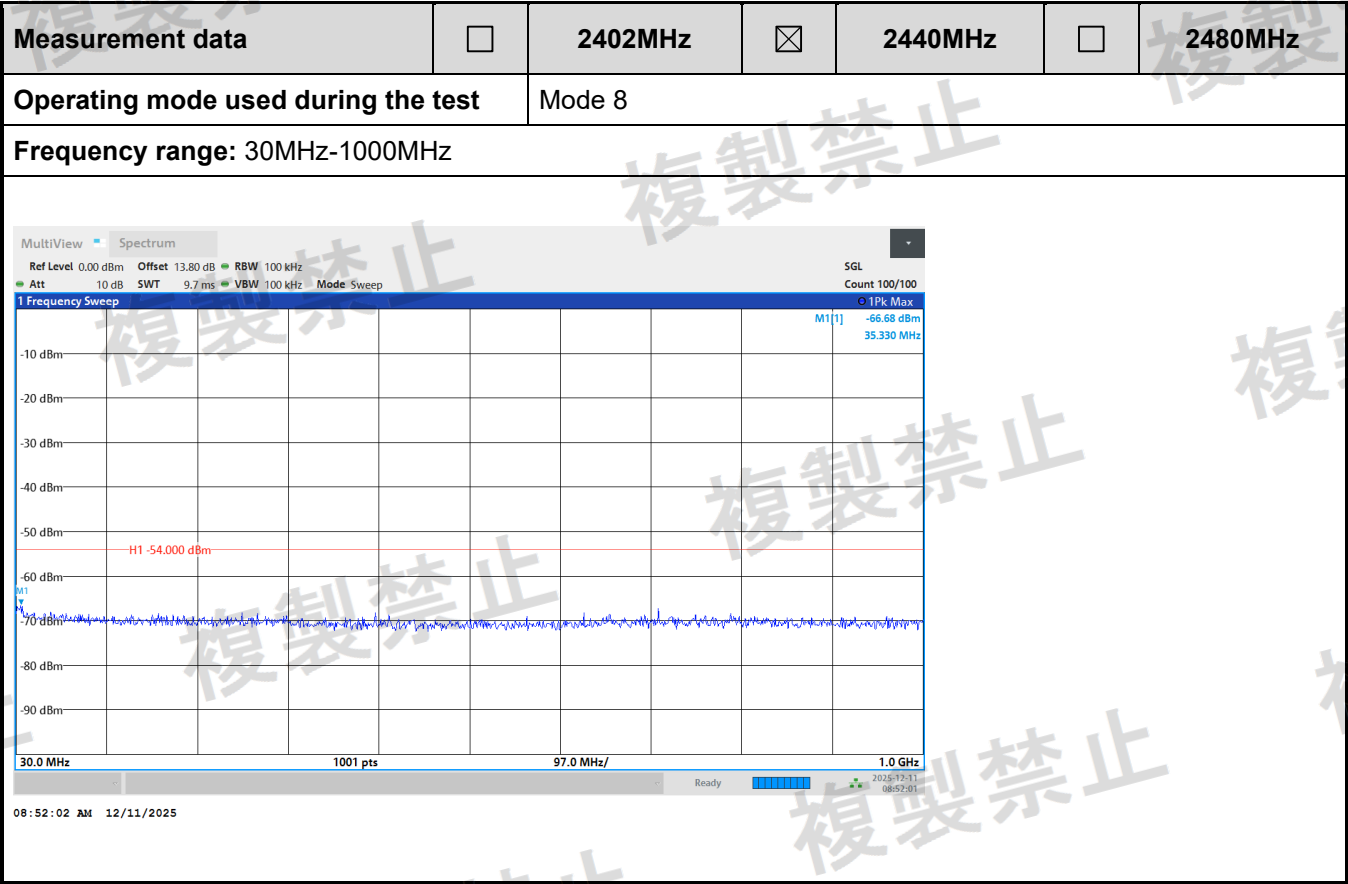
Measurement data

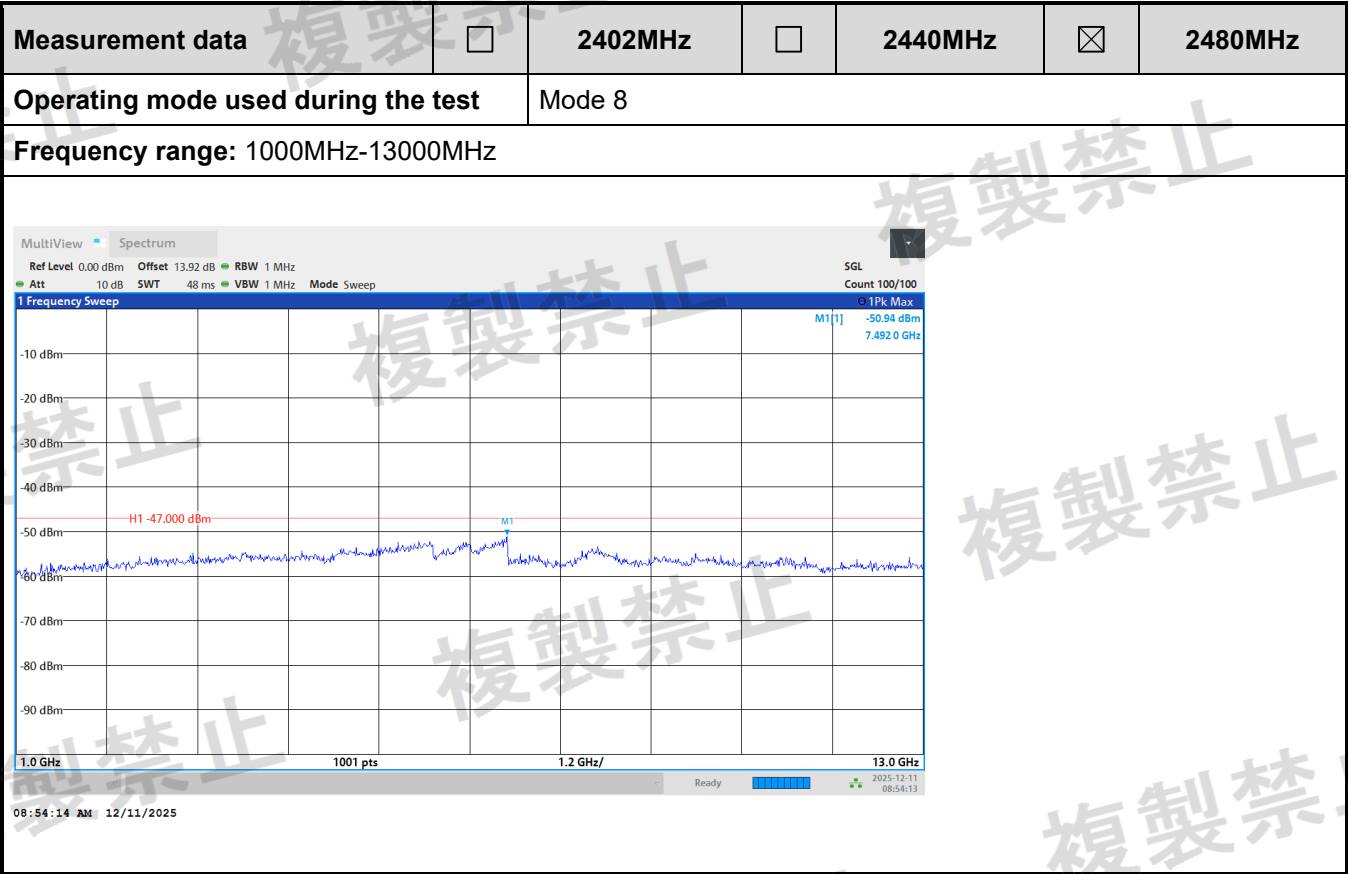
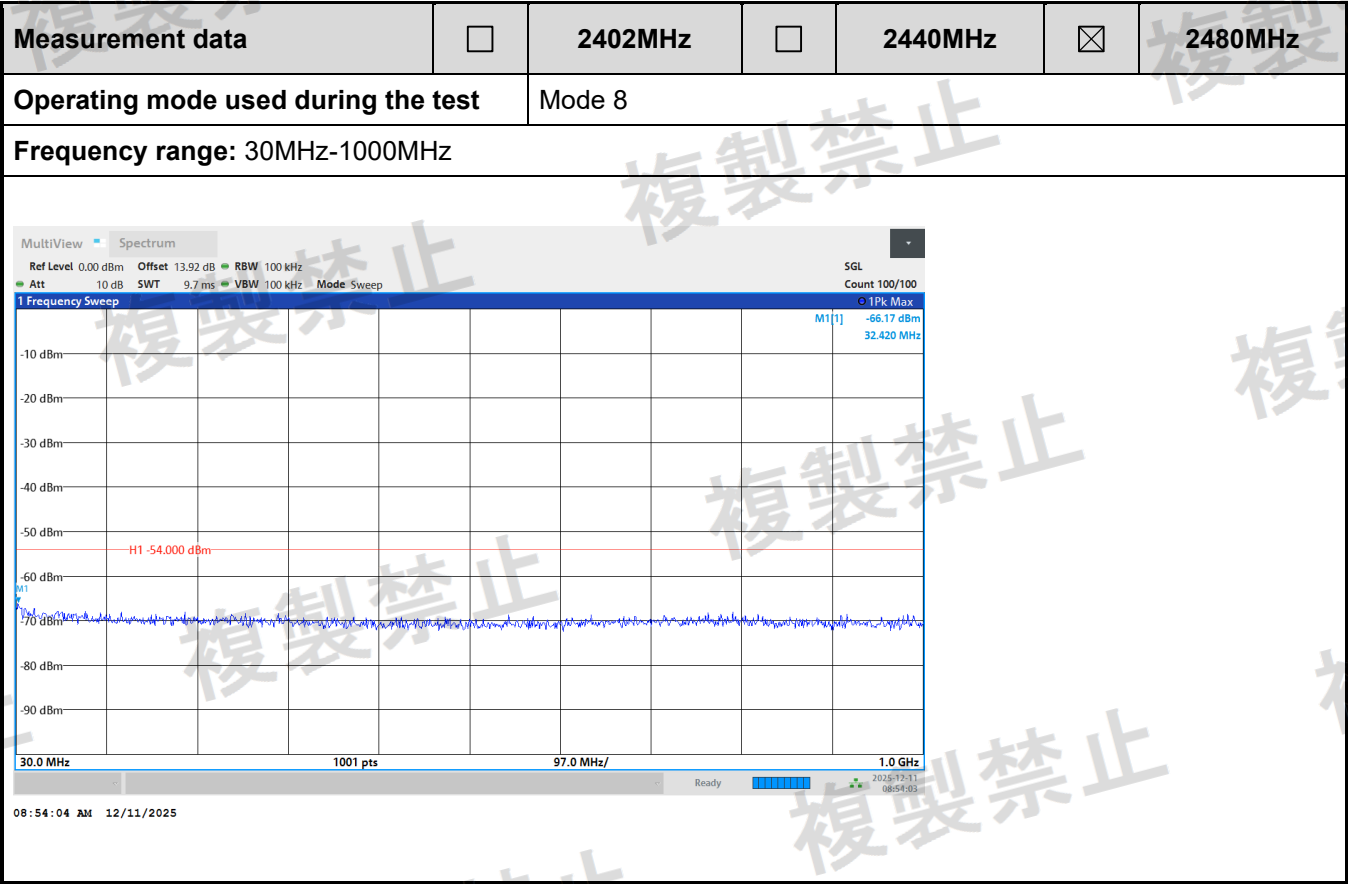
Measurement data
Operating mode used during











4.9 Interference prevention function	VERDICT: PASS
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Standard	Article 2 Paragraph 1 item 19
Limits:	
Identification code: ≥ 48 bits	

Performed measurements

Test setup	Refer to Appendix test setup photo(s).
Operating mode(s) used	Mode 9
Ambient temperature	27.1°C
Relative humidity air	56.2 %
Atmospheric pressure	101.6 kPa
Remark	---

Results

EUT displayed a valid identification and is programmed to connect with specific host only.

Test Item	Result
Automatically transmitting the identification code	Good
Automatically receiving the identification code	Good

MAC=00:17:88:01:10:27:7B:C6

4.10	Construction protection confirmation method	VERDICT: PASS
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Standard	Article 2 Paragraph 1 item 19
Limits:	
The high-frequency section and modulation section (except for the antenna system) shall not be capable of being opened easily.	

Performed measurements

Test setup	Refer to Appendix test setup photo(s).
Ambient temperature	27.1°C
Relative humidity air	56.2 %
Atmospheric pressure	101.6 kPa
Remark	---

Confirmation method

☐	Sealed with special screws
☐	Plastic chassis is being welded using ultrasonic waves
☒	Cover is bonded using a special adhesive
☐	Chassis is glued using a special adhesive
☐	Metal covers are spot-fused
☐	Cover is specially interlocked
☐	RF and modulation components are covered with shielding case and this shielding case is soldered

5 ANNEX 1 - MEASUREMENT UNCERTAINTIES

The table(s) below show(s) measurement uncertainties of the RF test set-ups. 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%.

Test Item	Uncertainty	
Frequency & Bandwidth	2 ppm	
RF power, conducted	0.16 dB	
Dwell Time	2.02 ms	
unwanted emissions in the spurious domain	(30MHz~1GHz)	Horizontal: 4.00 dB
		Vertical: 3.99 dB
	(1GHz~8GHz)	Horizontal: 4.39 dB
		Vertical: 4.14 dB
	(8GHz~12.75GHz)	Horizontal: 4.27 dB
		Vertical: 4.19 dB
	(12.75GHz~18GHz)	Horizontal: 4.70 dB
		Vertical: 4.04 dB
	(18GHz~40GHz)	Horizontal: 4.01 dB
		Vertical: 4.03 dB
Humidity	1.4 %	
Temperature	0.5 °C	

6 ANNEX 2 – USED EQUIPMENT

Transmitter and receiver Test							
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Calibration Method	Cal. date	Cal. due date
Wireless Connectivity Tester	R&S	CMW270	102651	CEPREI	C	2025/01/21	2026/01/20
Vector signal generator	R&S	SMM100A	101780	CEPREI	C	2025/01/21	2026/01/20
Open switch and control platform	R&S	OSP150	100856	CEPREI	C	2025/10/27	2026/10/26
Signal and Spectrum analyzer	R&S	FSV3044	101287	CEPREI	C	2025/02/24	2026/02/23
Signal Generator	R&S	SMB100A	183222	CEPREI	C	2025/01/21	2026/01/20
DC power supply	apc	ADC-0800100-15	D222120022	CEPREI	C	2024/11/22	2025/11/21
AC power supply	apc	KDF-11005GS	F322120041	CEPREI	C	2025/01/21	2026/01/20
Temperature & Humidity Chamber	HESON	HS-225B	GDW230301-01	CEPREI	C	2025/02/18	2026/02/17

Note 1: The calibration of measurement equipment is valid for one year period.

Note 2: Calibration method:

- 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).
- Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992).
- Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1).
- Calibration conducted by using measuring instruments and other equipment listed in the right column of Table No. 3 attached hereto, which shall have been given any of calibration, etc. listed above from a) to c).

7 IDENTIFICATION OF THE EQUIPMENT UNDER TEST

The photographs show the tested device.

Refer to Appendix External Photographs

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