

Nien Made Enterprise Co., Ltd

TEST REPORT

Model:
BMCS-RF

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Radio Spectrum TEST REPORT

Applicant:	Nien Made Enterprise Co., Ltd 26F.-1, No. 98, Shizheng N. 7th Rd., Xitun Dist., Taichung City 407025, Taiwan
Product:	Motorized Cellular Shade Module
Model No.:	BMCS-RF
Test Standard:	ARIB STD-T66 version 3.8 (No. 88 of MIC, 2004, Annex 43)
Test By:	Intertek Testing Services Taiwan Ltd., Hsinchu Laboratory No. 17, Ln. 246, Niupu S. Rd., Xiangshan Dist, Hsinchu City 300075, Taiwan


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Revision History

Report No.	Issue Date	Revision Summary
251000171THC-001	Dec. 16, 2025	Original report

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1. General Information

1.1 Identification of the EUT

Product:	Motorized Cellular Shade Module
Model No.:	BMCS-RF
Operating Frequency:	2415 MHz, 2439 MHz, 2459 MHz
Channel Number:	3 channels
Rating:	DC 7.4V
Sample receiving date:	2025/10/20
Sample condition:	Workable
Test Date(s):	2025/11/17 ~ 2025/11/26

1.2 Rated power declaration

Technology	Rated Conducted Power (mW)
GFSK	3.33

1.3 Antenna description

Antenna Gain: 1.8dBi
 Antenna Type: Chip Antenna
 Connector Type: Fixed
 Remark: Antenna information provided by the client.

1.4 Assemble

The radio facility should be enclosed in one chassis which is not easily opened. However, an exception applies where the HPHPT prescribes otherwise

☐	Sealed with special screws.
☐	Plastic chassis is being welded using ultrasonic waves.
☐	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.
☐	Shield case is welded at RF and modulation parts, and ID-ROM is welded using the BGA Method.
☐	Shield case is welded at RF and modulation parts, and ID-ROM is glued at its lead with a special adhesive.
☐	Shield case is welded at RF and modulation parts, and ID-ROM is glued with a non-transparent laminating agent.
☐	Other: Applicant hereby declares that the structure of the high frequency and modulation part of the radio, except antenna system in the applying device is designed not to be tampered with or modify by the end user.
☐	other

1.5 Voltage fluctuation:

When it is confirmed that when the input voltage from the external power supply to EUT fluctuates by $\pm 10\%$, the fluctuation of the input voltage to the circuit of the radio section of EUT (excluding the power supply) is $\pm 1\%$ or less. Only test items at rated voltage.

EUT input Voltage	RF circuit Voltage	Deviation
DC 7.4V	DC 3.30V	
DC 8.14V(+10%)	DC 3.30V	0%
DC 6.66V(-10%)	DC 3.30V	0%

2. Test Summary

Test items	Mode	Channel	Antenna	Result
Frequency Tolerance	Single Tone	Low/Mid/High	Chain0	Pass
Antenna Power	GFSK	Low/Mid/High	Chain0	Pass
	GFSK	Low/Mid/High	Chain0	
	GFSK	Low/Mid/High	Chain0	
Spurious Emission Intensity	GFSK	Low/Mid/High	Chain0	Pass
	GFSK	Low/Mid/High	Chain0	
	GFSK	Low/Mid/High	Chain0	
Secondary Radiated Emissions	GFSK	Low/Mid/High	Chain0	Pass
	GFSK	Low/Mid/High	Chain0	
	GFSK	Low/Mid/High	Chain0	
Occupied Bandwidth	GFSK	Low/Mid/High	Chain0	Pass
	GFSK	Low/Mid/High	Chain0	
	GFSK	Low/Mid/High	Chain0	

Note: Please note that the test results with statement of conformity, the decision rules which are based on: Safety Testing: the specification, standard or IEC Guide 115.

Other Testing: the specification, standard and not taking into account the measurement uncertainty.

3. Test Specifications

3.1 Standards

Radio equipment stipulated in the certification ordinance Article 2, Item (19) Appendix 43, B-1 (2) and Item 19 of Article 2 Paragraph 1.

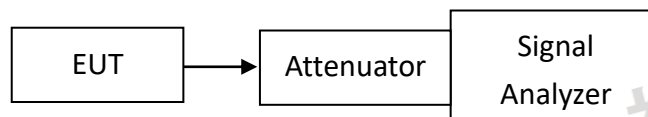
3.2 Mode of operation during the test

Use the engineering sample , press button to change different frequency.

3.3 Peripherals equipment

Peripherals	Brand	Model No.	Serial No.	Data cable
DC Power Supply	Twintex	TP-1603C	N/A	N/A

3.4 Test Set-up



4. Frequency Tolerance

4.1 Limit of Frequency Tolerance

Frequency Tolerance shall be $\pm 50\text{ppm}$.

4.2 Test method

Test method: According to Notification No. 88 of MIC, 2004, Annex 43

1. Set spectrum analyzer as below

Frequency=Test Frequency

Span=1MHz

RBW=10kHz

VBW=RBW

Detector=Peak

Sweep time=Auto

Trace=Maxhold

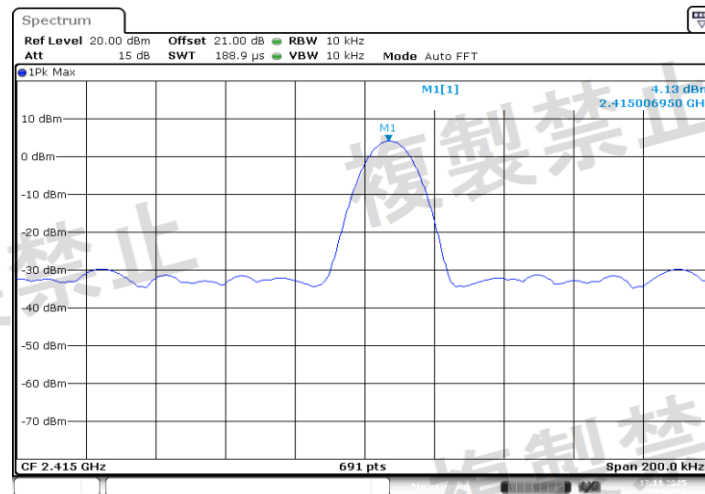
2. Use peak search function to find the max value and record it.

4.3 Test Result for Frequency Tolerance

Date	2025/11/17
Temperature (°C)	22
Humidity (%)	67

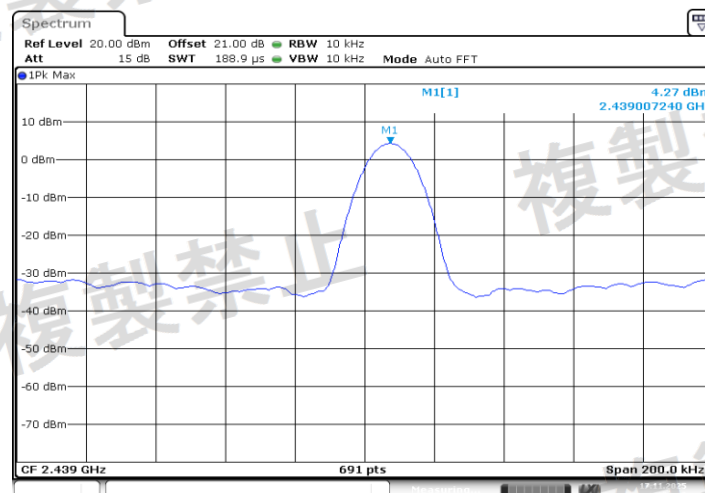
Test Voltage				
DC 7.4V				
Channel	Frequency (MHz)	Carrier Frequency (MHz)	Frequency Deviation (PPM)	Limit (PPM)
Low	2415	2415.01	2.88	± 50
Middle	2439	2439.01	2.97	± 50
High	2459	2459.01	2.94	± 50

Chain0 : Frequency Tolerance @ 2415MHz for DC 7.4V



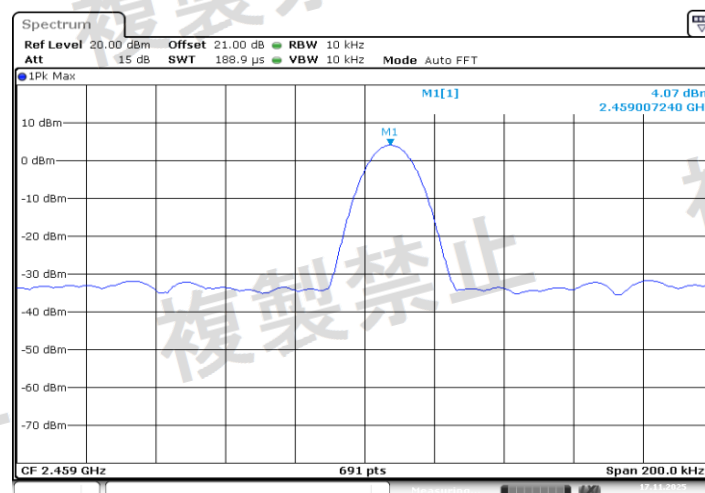
Date: 17.NOV.2025 09:57:50

Chain0 : Frequency Tolerance @ 2439MHz for DC 7.4V



Date: 17.NOV.2025 10:00:13

Chain0 : Frequency Tolerance @ 2459MHz for DC 7.4V



Date: 17.NOV.2025 10:01:24

5. Antenna Power

5.1 Limit of Antenna Power

Mode	Limit	Tolerance
DSSS	10mW/MHz	+20% , -80%
OFDM(20MHz)	10mW/MHz	+20% , -80%
OFDM(40MHz)	5mW/MHz	+20% , -80%
FHSS	3mW/MHz	+20% , -80%
Others	10mW	+20% , -80%

5.2 Test method

Test method: According to Notification No. 88 of MIC, 2004, Annex 43

Using the gate function of power meter to measure burst power.

5.3 Test Result for Antenna Power

Date	2025/11/17
Temperature (°C)	22
Humidity (%)	67

Test Voltage									
DC 7.4V									
Mode	Channel	Frequency (MHz)	Antenna Power (mW)	Limit (mW)	Tolerance (%)	Limit	Antenna gain (dBi)	E.I.R.P (dBm)	Limit (dBm)
GFSK	Low	2415	3.33	10	0.00	+20% ~ -80%	1.8	7.02	12.14
	Middle	2439	3.27	10	-1.80	+20% ~ -80%	1.8	6.95	12.14
	High	2459	3.20	10	-3.90	+20% ~ -80%	1.8	6.85	12.14

6. Spurious Emission Intensity**6.1 Limit of Spurious Emission Intensity & Test Procedures**

Frequency Range	Limit
$\leq 2387\text{MHz}$	2.5uW/MHz
2387MHz-2400MHz	25uW/MHz
2483.5MHz-2496.5MHz	25uW/MHz
$\geq 2496.5\text{MHz}$	2.5uW/MHz

6.2 Test method

Test method: According to Notification No. 88 of MIC, 2004, Annex 43

Set spectrum analyzer as below

Frequency=30MHz-2400MHz,2483.5MHz-13GHz

RBW=1MHz

VBW=RBW

Sweep time=Auto

Detector=Peak

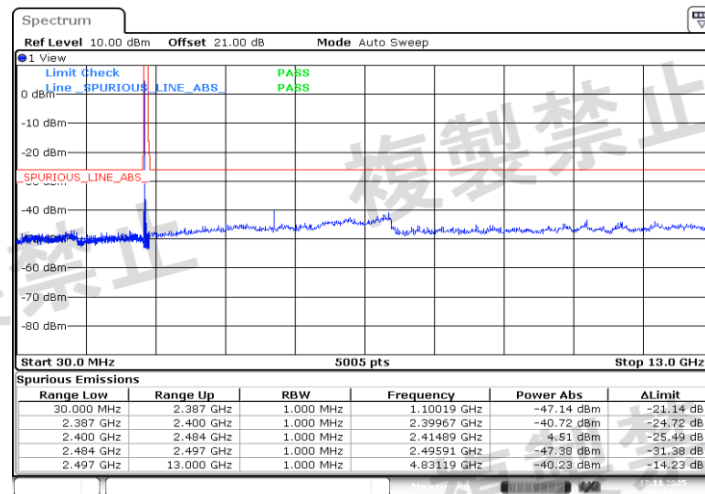
Trace=Maxhold

6.3 Test Result for Spurious Emission Intensity

Date	2025/11/17
Temperature (°C)	22
Humidity (%)	67

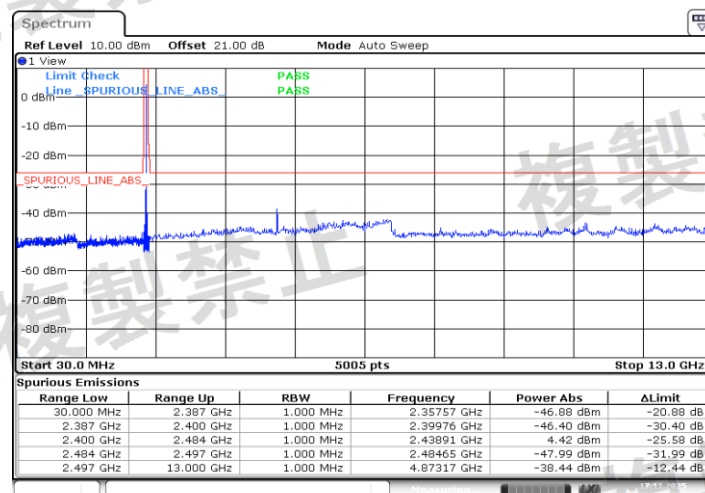
Test Voltage							
DC 7.4V							
Mode	Channel	Frequency (MHz)	Frequency Range	Frequency (MHz)	Measure Level (dBm/MHz)	Measure Level (uW/MHz)	Limit (uW/MHz)
GFSK	Low	2415	30-2387 MHz	1100.19	-47.14	0.02	2.5
			2387-2400 MHz	2399.67	-40.72	0.08	25
			2483.5-2496.5 MHz	2495.91	-47.38	0.02	25
			2496.5-13000 MHz	4831.19	-40.23	0.09	2.5
	Middle	2439	30-2387 MHz	2357.57	-46.88	0.02	2.5
			2387-2400 MHz	2399.76	-46.40	0.02	25
			2483.5-2496.5 MHz	2484.65	-47.99	0.02	25
			2496.5-13000 MHz	4873.17	-38.44	0.14	2.5
	High	2459	30-2387 MHz	1008.36	-47.13	0.02	2.5
			2387-2400 MHz	2398.88	-48.36	0.01	25
			2483.5-2496.5 MHz	2484.16	-43.42	0.05	25
			2496.5-13000 MHz	4915.14	-40.18	0.10	2.5

Chain0 : Spurious Emission Intensity @ GFSK Mode Ch low for DC 7.4V



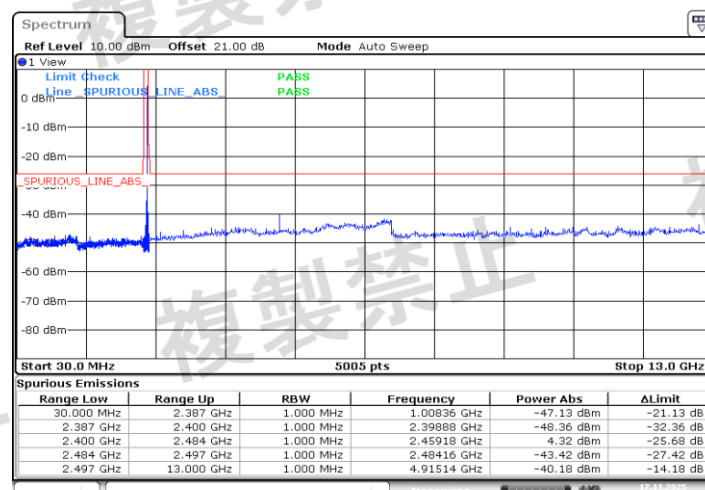
Date: 17.NOV.2025 10:17:55

Chain0 : Spurious Emission Intensity @ GFSK Mode Ch mid for DC 7.4V



Date: 17.NOV.2025 10:18:37

Chain0 : Spurious Emission Intensity @ GFSK Mode Ch high for DC 7.4V



Date: 17.NOV.2025 10:19:05

7. Secondary Radiated Emissions

7.1 Limit of Secondary Radiated Emissions & Test Procedures

Frequency Range	Limit
<1000MHz	4nW
≥1000MHz	20nW

7.2 Test method

Test method: According to Notification No. 88 of MIC, 2004, Annex 43

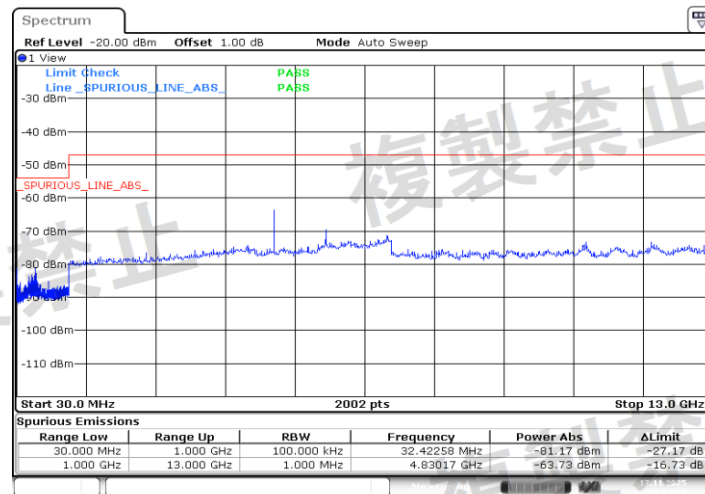
- Set spectrum analyzer as below
 Frequency: 30MHz to 13GHz
 RBW=100 kHz for 1 GHz ↓ , 1 MHz for 1 GHz ↑
 VBW=RBW
 Sweep time=Auto
 Detector=Peak
- Set spectrum analyzer for final measurement as below
 Center frequency: Secondary emission frequency
 Span: 0Hz
 RBW=100 kHz for 1 GHz ↓ , 1 MHz for 1 GHz ↑
 VBW=RBW
 Sweep time=Auto
Detector: Sample

7.3 Test Result for Secondary Radiated Emissions

Date	2025/11/17
Temperature (°C)	22
Humidity (%)	67

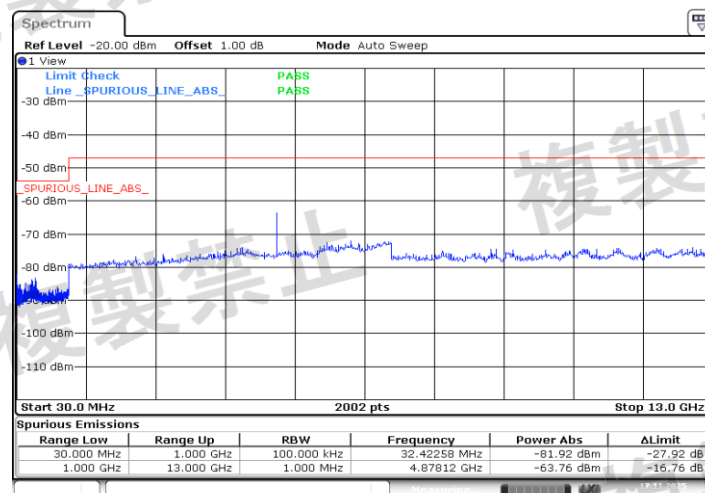
Test Voltage							
DC 7.4V							
Mode	Channel	Frequency (MHz)	Frequency Range	Frequency (MHz)	Measure Level (dBm)	Measure Level (nW)	Limit (nW)
GFSK	Low	2415	30-1000 MHz	32.42	-81.17	0.01	4
			1000-13000 MHz	4830.17	-63.73	0.42	20
	Mid	2439	30-1000 MHz	32.42	-81.92	0.01	4
			1000-13000 MHz	4878.12	-63.76	0.42	20
	High	2459	30-1000 MHz	32.42	-81.32	0.01	4
			1000-13000 MHz	4914.09	-65.18	0.30	20

Chain0 : Secondary Radiated Emission @ GFSK Mode Ch low for DC 7.4V



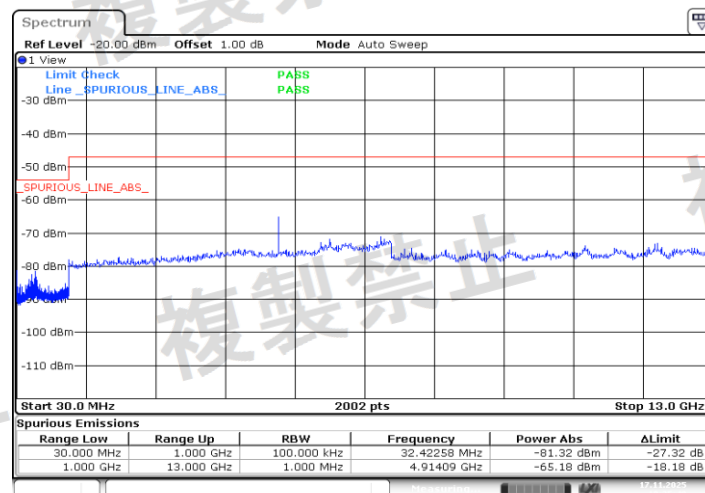
Date: 17.NOV.2025 10:24:26

Chain0 : Secondary Radiated Emission @ GFSK Mode Ch mid for DC 7.4V



Date: 17.NOV.2025 10:25:17

Chain0 : Secondary Radiated Emission @ GFSK Mode Ch high for DC 7.4V



Date: 17.NOV.2025 10:25:49

8. Occupied Bandwidth

8.1 Limit of Occupied Bandwidth

Mode	Limit(MHz)
DSSS	26
OFDM(20MHz)	26
OFDM(40MHz)	38
FHSS	83.5
Others	26

8.2 Test method

Test method: According to Notification No. 88 of MIC, 2004, Annex 43

1. Set spectrum analyzer as below

Frequency=Test Frequency

Span=3MHz

RBW=below 3% the limit

VBW=RBW

Detector=Peak

Sweep time=Auto

Trace=Maxhold

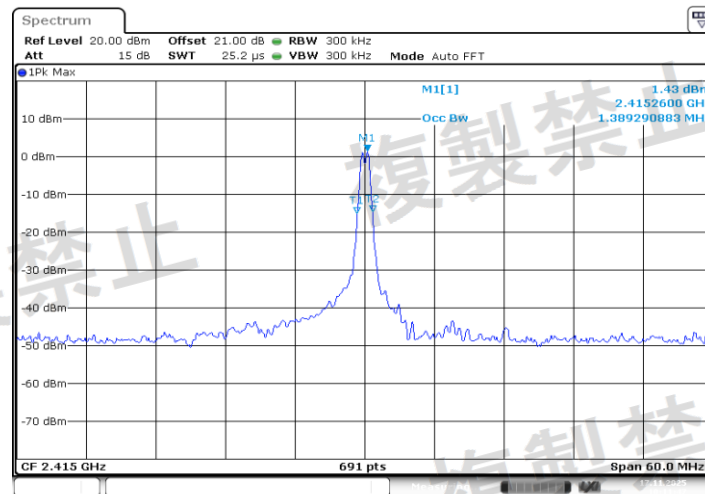
2. Using the OCB(99%) function of spectrum analyzer to measure value.

8.3 Test Result for Occupied Bandwidth

Date	2025/11/17
Temperature (°C)	22
Humidity (%)	67

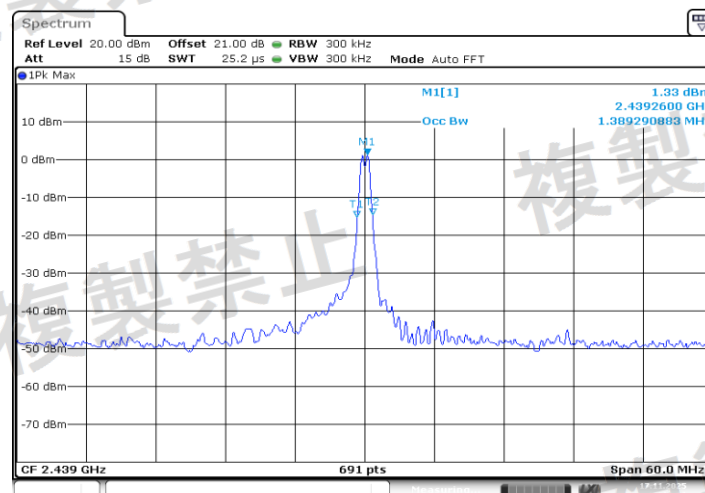
Test Voltage				
DC 7.4V				
Mode	Channel	Frequency (MHz)	Measure Value (MHz)	Limit (MHz)
GFSK	Low	2415	1.39	26
	Middle	2439	1.39	26
	High	2459	1.39	26

Chain0 : Occupied Bandwidth @ GFSK Mode Ch low for DC 7.4V



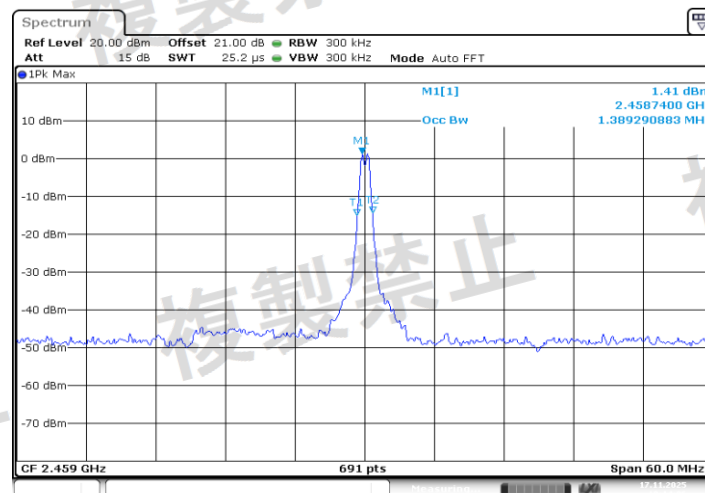
Date: 17.NOV.2025 10:11:47

Chain0 : Occupied Bandwidth @ GFSK Mode Ch mid for 7.4V



Date: 17.NOV.2025 10:13:01

Chain0 : Occupied Bandwidth @ GFSK Mode Ch high for DC 7.4V



Date: 17.NOV.2025 10:14:07

9. Interference Prevention Function

9.1 Test method

Test method: According to Notification No. 88 of MIC, 2004, Annex 43

9.2 Test Result for Interference Prevention Function

Date	2025/11/26
Temperature (°C)	23
Humidity (%)	64

Test Voltage		
DC 7.4V		
Mode	MAC Address	Result
Normal link	55BD	Good

Appendix A: Test Equipment

Test Equipment	Brand	Model No.	Serial No.	Calibration Date	Next Calibration Date	Calibration Body	Calibration Method
Signal Analyzer	R&S	FSV40	101532	2025/06/11	2026/06/10	ETC	c
Power Meter	Anritsu	ML2495A	0844001	2024/12/07	2025/12/06	ETC	c
Power Sensor	Anritsu	MA2491A	031543	2024/12/07	2025/12/06	ETC	c
20dB Attenuator	PE	PE7001-20	N/A	2025/05/22	2026/05/21	Intertek	c

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)