



JAPAN Radio Test Report

Bluetooth

APPLICANT : Xiaomi Communications Co., Ltd.

PRODUNCT NAME : Wireless Earphones

BRAND NAME : REDMI

MODEL NAME : M2615E1

TYPE EMISSIONS : Left:

78M1F1D(BR);

78M4G1D(EDR);

19M6F1D(BR_AFH);

19M8G1D(EDR_AFH);

1M03F1D(LE 1Mbps) ;

2M03F1D(LE 2Mbps)

Right:

78M1F1D(BR);

78M4G1D(EDR);

19M6F1D(BR_AFH);

19M8G1D(EDR_AFH);

1M02F1D(LE 1Mbps) ;

2M02F1D(LE 2Mbps)

DECLARATION : Left:

OUTPUT POWER

0.500 mW/MHz (BR/EDR);

2.000 mW/MHz (BR_AFH);

2.000 mW/MHz (EDR_AFH);

9.500 mW (LE 1Mbps);

9.050 mW (LE 2Mbps)

Right:

0.500 mW/MHz (BR/EDR);

2.000 mW/MHz (BR_AFH);



2.000 mW/MHz (EDR_AFH);

8.700 mW (LE 1Mbps);

8.700 mW (LE 2Mbps)

STANDARD : Article 49-20 and the relevant articles of the
Ordinance Regulating Radio Equipment

TEST : MIC Notice No.88 Appendix No.43

PROCEDURE

TEST DATE(S) : Mar. 07, 2026

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the procedures given in MIC Notice No.88 Appendix No.43 and shown to be compliant with the applicable technical standards. Article 2 Paragraph 1 Item 19 of the Certificate Ordinance of the Radio Law indicates the classification of the specified radio equipment.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

Jason Jia

Approved by: Jason Jia



Sporton International Inc. (Kunshan)

No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
JR642105	Rev. 01	Initial issue of report	May 21, 2026

SUMMARY OF TEST RESULT

Report Section	Description	Result
3.1	Frequency Tolerance	Pass
3.2	Occupied Bandwidth and Spread-spectrum Bandwidth	Pass
3.3	Unwanted Emission Intensity	Pass
3.4	RF Output Power / Tolerance	Pass
3.5	Limitation of Collateral Emission of Receiver	Pass
3.6	Transmission Antenna Gain (EIRP Antenna Power)	NA
3.7	Transmission Radiation Angle Width (3dB Beam width)	NA
3.8	Radio Interference Prevention Capability	Pass
3.9	Hopping Frequency Dwell Time	Pass
3.10	Transmission frequency switching function	N/A
3.11	Construction Protection Confirmation	Pass

Conformity Assessment Condition:

- The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
- The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty"

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.



1 General Description

1.1 Applicant

Xiaomi Communications Co., Ltd.

#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

1.2 Manufacturer

Xiaomi Communications Co., Ltd.

#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, China, 100085

1.3 Feature of Equipment Under Test

Product Feature & Specification		
Product Name	Wireless Earphones	
Brand Name	REDMI	
Model Name	M2615E1	
Support Category / Frequency Range	Article 2-1-19 / 2400MHz ~ 2483.5MHz	
Type of Modulation	☐ Direct Spreading (DS) ☐ Orthogonal frequency-division multiplexing (OFDM) ☒ Frequency Hopping (FH) ☒ Other :GFSK	
Number of Channels	BR/EDR Mode	79
	AFH Mode	20
	Other : LE 1Mbps/2Mbps	40
Channel Spacing	BR/EDR/AFH Mode	1MHz
	Other : LE 1Mbps/2Mbps	2MHz
Declaration RF Output Power	Left: 0.500 mW/MHz(BR/EDR mode) ; 2.000 mW/MHz (BR_AFH mode) ; 2.000 mW/MHz (EDR_AFH mode) ; 9.500 mW (LE 1Mbps) ; 9.050 mW (LE 2Mbps) Right: 0.500 mW/MHz(BR/EDR mode) ; 2.000 mW/MHz (BR_AFH mode) ; 2.000 mW/MHz (EDR_AFH mode) ; 8.700 mW (LE 1Mbps) ; 8.700 mW (LE 2Mbps)	
Antenna Power (E.I.R.P)	Left: -7.720 dBm/MHz (BR/EDR mode) -1.700 dBm/MHz (BR_AFH mode) -1.700 dBm/MHz (EDR_AFH mode) 5.067 dBm (LE 1Mbps) 4.856 dBm (LE 2Mbps) Right: -7.930 dBm/MHz (BR/EDR mode) -1.910 dBm/MHz (BR_AFH mode) -1.910 dBm/MHz (EDR_AFH mode) 4.475 dBm (LE 1Mbps) 4.475 dBm (LE 2Mbps)	
Modulation	☒ GFSK ☒ $\pi/4$ -DQPSK ☒ 8-DPSK ☐ Other : FSK	

Power Source ^{NOTE}	☐ Commercial power	AC 100 ~ 240V
	☒ External Power Source	DC 5V
	☒ Lithium battery	For Left / Right: DC 3.85V, 46mAh
	☐ UM battery	DC 1.2V

NOTE:

1. When EUT be operated at $\pm 10\%$ from the normal supply voltage, the supply voltage of RF part was varied within $\pm 1\%$. All test cases were done under the normal supply voltage.
2. For $\pi/4$ -DQPSK and 8-DPSK mode, the whole testing has assessed only 8-DPSK mode by referring to their higher conducted power.

Power Supply voltage 3.85 Vdc (Nominal)	Power Supply voltage 4.235 Vdc (+10%)	Power Supply voltage 3.465 Vdc (-10%)
1.701	1.701	1.701
Measurement point		
Right:  Left: 		



Antenna Information			
Brand Name :	N/A	Model Name :	N/A
Antenna Type :	FPC	Antenna Gain :	-4.71 dBi (Left) -4.92 dBi (Right)

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Modification of EUT

No modifications are made to the EUT during all test items.

1.5 Testing Site

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Site	Sporton International Inc. (Kunshan)
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158
Test Site No.	Sporton Site No.: TH01-KS

1.6 Test Software

Item	Site	Manufacturer	Name	Version
1.	TH01-KS	SPORTON	JRF_WLAN_Ver3.0 for China_210602	3.0

1.7 Measurement Uncertainty

Test Items	Uncertainty	Remark
Occupied Channel Bandwidth	±0.384%	Confidence 95%
RF output power, conducted	±0.90 dB	Confidence 95%
Frequency Tolerance	0.38ppm	Confidence 95%
Power density, conducted	±0.90 dB	Confidence 95%
Unwanted Emission	±2.00 dB	Confidence 95%
Temperature	±0.86 °C	Confidence 95%
Humidity	±2.2 %	Confidence 95%
Time	±0.44 %	Confidence 95%

1.8 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- Article 49-20 and the relevant articles of the Ordinance Regulating Radio Equipment

Remark:

- All test items were verified and recorded according to the standards and without any deviation during the test.
- The measurement was implemented in accordance with MIC Notice No. 88 Appendix No. 43.

1.9 Ancillary Equipment List

None.

2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency Channel

Channel (LE Channel)	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0 (0)	2402	27	2429	54 (27)	2456
1	2403	28 (14)	2430	55	2457
2 (1)	2404	29	2431	56 (28)	2458
3	2405	30 (15)	2432	57	2459
4 (2)	2406	31	2433	58 (29)	2460
5	2407	32 (16)	2434	59	2461
6 (3)	2408	33	2435	60 (30)	2462
7	2409	34 (17)	2436	61	2463
8 (4)	2410	35	2437	62 (31)	2464
9	2411	36 (18)	2438	63	2465
10 (5)	2412	37	2439	64 (32)	2466
11	2413	38 (19)	2440	65	2467
12 (6)	2414	39	2441	66 (33)	2468
13	2415	40 (20)	2442	67	2469
14 (7)	2416	41	2443	68 (34)	2470
15	2417	42 (21)	2444	69	2471
16 (8)	2418	43	2445	70 (35)	2472
17	2419	44 (22)	2446	71	2473
18 (9)	2420	45	2447	72 (36)	2474
19	2421	46 (23)	2448	73	2475
20 (10)	2422	47	2449	74 (37)	2476
21	2423	48 (24)	2450	75	2477
22 (11)	2424	49	2451	76 (38)	2478
23	2425	50 (25)	2452	77	2479
24 (12)	2426	51	2453	78 (39)	2480
25	2427	52 (26)	2454	-	-
26 (13)	2428	53	2455	-	-

2.2 EUT Operation Test Setup

The equipment under test (EUT) was linked with Bluetooth simulator or operated by commands in order to make the EUT into the engineering modes for transmitting, receiving signals continuously, and hopping mode.

3 Test Result

3.1 Frequency Tolerance Measurement

3.1.1 Limit

Item	Limits
Frequency Tolerance	$\leq \pm 50\text{ppm}$

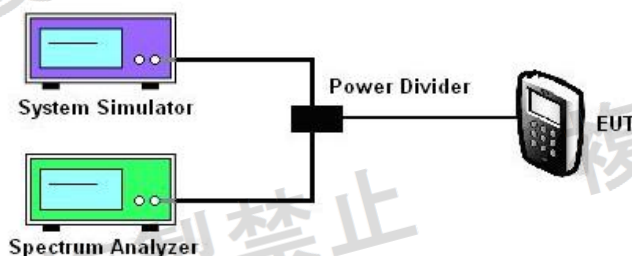
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedure

1. Frequency accuracy of instrument shall be less than 10% of limits tolerance (5ppm).
2. Three testing methods
 - a. Measure frequency tolerance by the system simulator.
 - b. CW Tone method
 - i. Setting of SA is following as: RBW:1kHz / VBW:30kHz.
 - ii. Maker Max. level to get measuring frequency f.
 - c. 10dB down method
 - i. Setting of SA is following as: RBW:30kHz / VBW: 30kHz / Trace: MaxHold
 - ii. Display line Level = Max. level – 10dB to place two markers, highest(fH) and lowest(fL) frequency
 - iii. Determine measuring frequency $f = (fH - fL)/2$
3. The frequency tolerance test case is directly measured using the frequency accuracy function of Bluetooth tester or spectrum analyzer. Then the frequency error formula is $(f - f_c)/f_c \times 10^6 \text{ ppm}$ and the limit is less than $\pm 50\text{ppm}$.

3.1.4 Test Setup



3.1.5 Test Result of Frequency Tolerance

Please refer to Appendix B.

3.2 Occupied Bandwidth and Spread-spectrum Bandwidth

3.2.1 Limit

Item	Limits
Occupied Band Width	$\leq 83.5\text{MHz}$ (FH)
	$\leq 26\text{MHz}$ (OFDM, DS and Others)

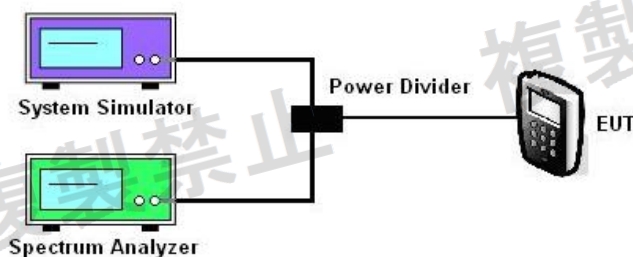
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. Setting of SA is following as: RBW $\leq 3\%$ of bandwidth / VBW = RBW / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold.
2. EUT have transmitted each modulation signal and fixed channelize (For DSSS or OFDM Device) or continuous maximum power of hopping mode (For FHSS Device). SA set to 99% of occupied bandwidth to measure occupied bandwidth. The limit is less than 26MHz (For DSSS or OFDM Device) or 83.5MHz (For FHSS Device).
3. SA set to 90% of occupied bandwidth to measure Spread Spectrum Bandwidth.

3.2.4 Test Setup



3.2.5 Test Result of Occupied Bandwidth and Spread-spectrum Bandwidth

Please refer to Appendix B.

3.3 Unwanted Emission Intensity Measurement

3.3.1 Limit

Item	Limits
Tx Spurious Emission	$\leq 2.5 \mu\text{W/MHz}$ ($2387\text{MHz} > f ; 2496.5\text{MHz} < f$)
	$\leq 25 \mu\text{W/MHz}$ ($2387\text{MHz} \leq f < 2400\text{MHz}$) and ($2483.5\text{MHz} < f \leq 2496.5\text{MHz}$)

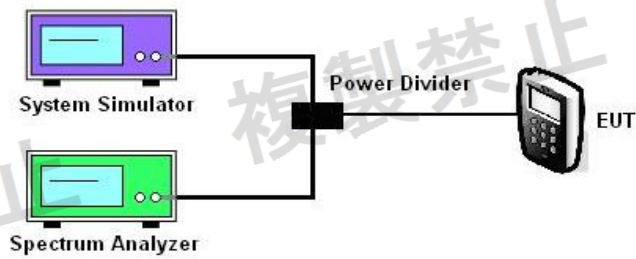
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. EUT have transmitted the maximum power and fixed channelize.
2. Setting of SA is following as: RBW:1MHz / VBW:1MHz above 1GHz, Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold.
3. Setting of SA is following as: RBW:100KHz / VBW:100KHz under 1GHz, Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold.
4. Setting of SA is following as 30MHz and stop frequency 2387MHz Then to mark peak reading value + cable loss shall be less than 2.5 μW .
5. SA adjusted to start frequency 2387MHz and stop frequency 2400MHz. Then to mark peak reading value + cable loss shall be less than 25 μW .
6. SA adjusted to start frequency 2483.5MHz and stop frequency 2496.5MHz Then to mark peak reading value + cable loss shall be less than 25 μW .
7. SA adjusted to start frequency 2496.5MHz and stop frequency 12500MHz Then to mark peak reading value + cable loss shall be less than 2.5 μW .
8. If the Result_Value is over the requirement, take total sum of 1MHz band centered at the spur frequency like ACLP measurement as Result_Value.

3.3.4 Test Setup



3.3.5 Test Result of Unwanted Emission Intensity

Please refer to Appendix B.

3.4 RF Output Power / Tolerance

3.4.1 Limit

Item	Limits
Antenna Power Density	$\leq 3\text{mW/MHz}$ (FH form 2400~2483.5MHz)
	$\leq 10\text{mW/MHz}$ (OFDM,DS from 2400~2483.5MHz)
	$\leq 10\text{mW}$ (Other from 2400~2483.5MHz)
Antenna Power Error	+20% (Base on manufacturer declare antenna power density)

Note: When an E.I.R.P. is less than 2.14dBi + antenna power limit, the shortage can be compensated for by the antenna power.

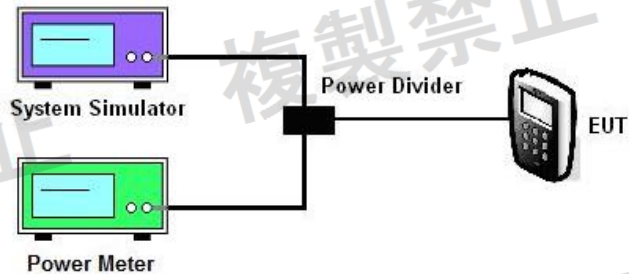
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

1. EUT have transmitted continuous maximum power on hopping mode (For FHSS Device).
2. Frequency hopping system or combined systems of direct spread and frequency hopping:
 - i. Connect the high frequency power meter to the output of the attenuator and measure the total power (without bandwidth limitation)
 - ii. Divide the total power by the spread bandwidth to find the “average” power per MHz.
The average power per MHz is equal to the power meter value dBm + cable loss dB + $10 \log_{10} (1/\text{Duty Cycle})$ dB + $10 \log_{10} (1/\text{Spread Bandwidth})$ dB.
 - iii. Confirm that frequency distribution of the hopping frequencies is homogeneous according to the supporting data.
If frequency distribution of the frequencies is not homogeneous, consider other measurement or correction methods based on the supporting data.
 - iv. Set the antenna power as follows:
 - Continuous waves: value in ii.
3. Antenna RF Output Power Tolerance is definition that actual measure antenna power tolerance + 20% power range that manufacturer declare the conducted power density.

3.4.4 Test Setup



3.4.5 Test Result of RF Output Power / Tolerance

Please refer to Appendix B.

3.5 Limitation of Collateral Emission of Receiver Measurement

3.5.1 Limit

Item	Limits	
Rx Spurious Emission	$\leq 4\text{nW}$	($f < 1\text{GHz}$)
	$\leq 20\text{nW}$	($1\text{GHz} \leq f$)

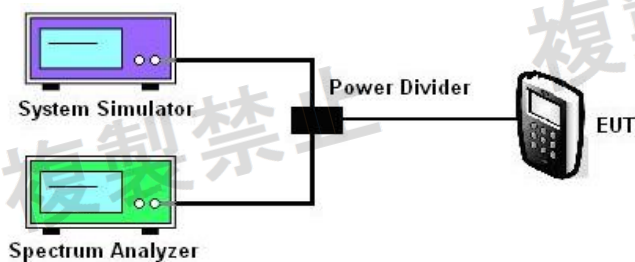
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

1. EUT have the continuous reception mode and fixed only one channelize.
2. SA set RBW: 100KHz and VBW: 100KHz. Then adjust to start frequency 30MHz and stop frequency 1GHz. Search to mark peak reading value + cable loss shall be less than 4nW.
3. SA set RBW: 1MHz and VBW: 1MHz. Then adjust to start frequency 1000MHz and stop frequency 12.5GHz. Search to mark peak reading value + cable loss shall be less than 20nW.
4. If power level of lower emissions are more than 1/10 of limit (0.4nW for $f < 1\text{GHz}$, 2nW for $f \geq 1\text{GHz}$), all those are to be indicated in the 2nd and 3rd lines. If others are 1/10 or less more of the limit, no necessary to be indicated.

3.5.4 Test Setup



3.5.5 Test Result of Limitation of Collateral Emission of Receiver

Please refer to Appendix B.

3.6 Transmission Antenna Gain (EIRP Antenna Power) Measurement

3.6.1 Limit

Item	Limits
EIRP Power Density	$\leq 6.91\text{dBm/MHz}$ (FH form 2400~2483.5MHz)
	$\leq 12.14\text{dBm/MHz}$ (OFDM,DS from 2400~2483.5MHz)
	$\leq 12.14\text{dBm}$ (Other from 2400~2483.5MHz)
Remark: This test item will not be applied to EIRP power of EUT is lower than 12.14dBm/MHz.	

3.6.2 Measuring Instruments

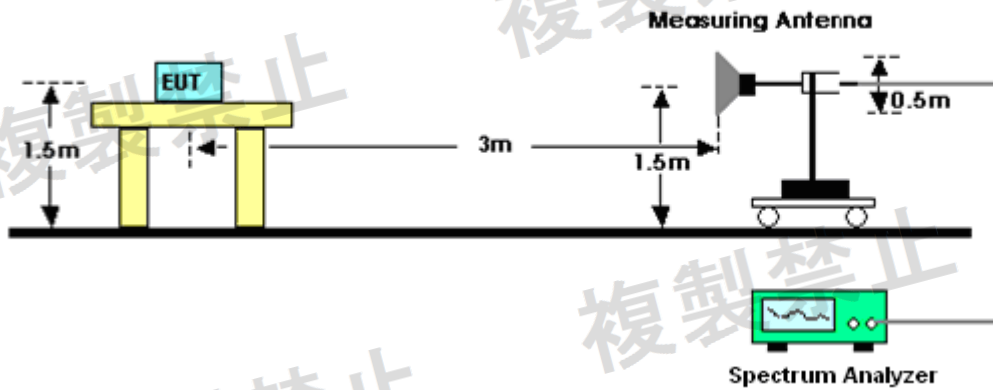
See list of measuring instruments of this test report.

3.6.3 Test Procedures

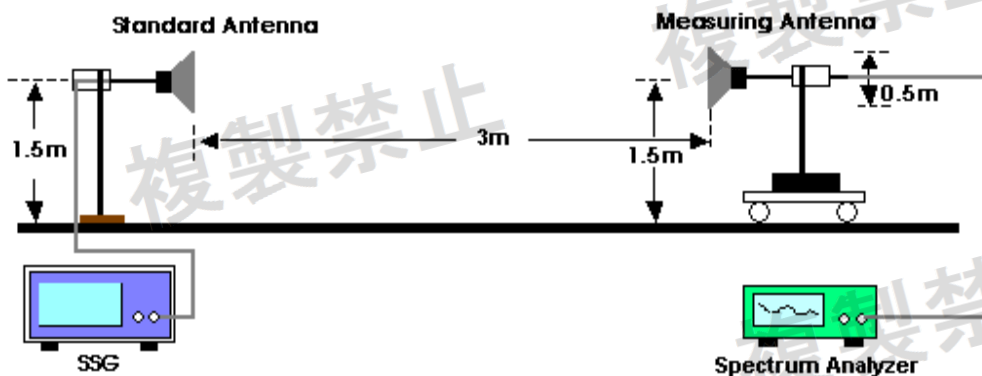
- Set EUT and measuring antenna at the same height and roughly facing each other.
- Move the measuring antenna height up and down within $\pm 50\text{cm}$ of EUT height and swing it to find the maximum output of the measuring antenna. The output level at the spectrum analyzer is read as "E".
- Remove the EUT from the turn table and put the replacing antenna facing to measuring antenna at same height. Set the standard signal generator (SSG) at same frequency and transmit on then receive the signal.
- Swing the replacing antenna give a maximum receiving level.
- Move the measuring antenna height up and down within $\pm 50\text{cm}$ of replacing antenna height and swing it to find the maximum receiving level.
- Set SSG output power at P_t to give the equivalent output level of "E" or calculate P_t with SSG output which gives the nearest of "E" and difference ($\pm 1\text{dB}$). Record the P_t .
- Calculate EIRP by the formula below $\text{EIRP} = G_t - L + P_t$.
 G_t : gain of replacing antenna (dBi)
 L : feeder loss between SSG and replacing antenna
 P_t : Output power of the SSG
- If the antenna for the EUT has circular polarization, sum of V-field and H-field will be result if measuring antenna is linear polarization.

3.6.4 Test Setup

<For EUT radiation measurement>



<For standard antenna measurement>



3.6.5 Test Result of Transmission Antenna Gain (EIRP Antenna Power)

Please refer to Appendix B. For the antenna gain, please refer to antenna test report.

Remark: This test item will not be applied to EIRP power of EUT is lower than 12.14dBm/MHz.

3.7 Transmission Radiation Angle Width (3dB Beamwidth) Measurement

3.7.1 Limit

Item	Limits
3dB antenna beamwidth	360/A (If $A < 1$; then $A = 1$) $A = \{\text{EIRP Power [mW]} / 16.36 \text{ for DS, OFDM}\}$ or $A = \{\text{EIRP Power [mW]} / 4.9 \text{ for FH}\}$
Remark: This test item will not be applied to EIRP power of EUT is lower than 12.14dBm/MHz.	

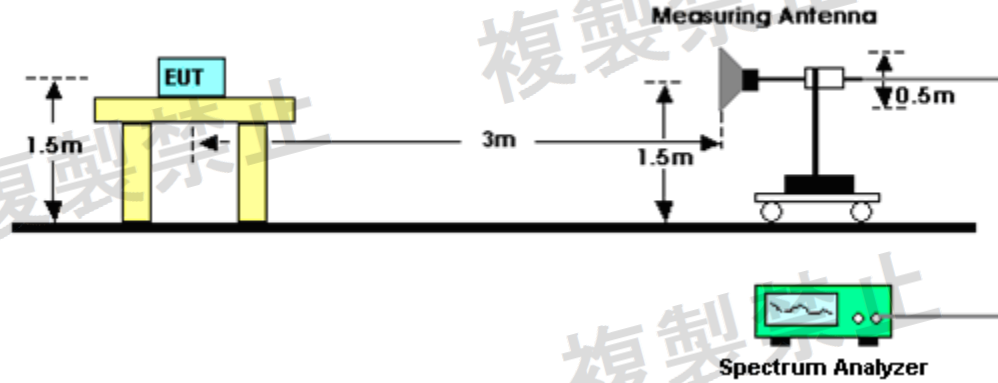
3.7.2 Measuring Instruments

See list of measuring instruments of this test report.

3.7.3 Test Procedures

1. Set EUT and measuring antenna at the same height and roughly facing each other.
2. Set spectrum analyzer with condition in section 3.7.2 and tune reference level to observe receiving signal position.
3. Rotate directions of the EUT horizontally and vertically to find the maximum receiving power.
4. Move the measuring antenna height up and down within $\pm 50\text{cm}$ of EUT height and swing it to find the maximum output of measuring antenna. The output level at the spectrum analyzer is read as "E".
5. Calculate permitted radiation angle in horizontal and vertical using EIRP measured in another test method.
6. Calculate 3dB antenna beam width by the formula below $360/A$ (If $A < 1$; then $A = 1$).
 $A = \{\text{EIRP Power [mW]} / 16.36 \text{ for DS, OFDM}\}$ or
 $A = \{\text{EIRP Power [mW]} / 4.9 \text{ for FH}\}$

3.7.4 Test Setup



3.7.5 Test Result of Transmission Radiation Angle Width (3dB Beamwidth)

Please refer to Appendix B.

For the antenna gain, please refer to antenna test report.

Remark: This test item will not be applied to EIRP power of EUT is lower than 12.14dBm/MHz.

3.8 Radio Interference Prevention Capability Measurement

3.8.1 Limit

Item	Limits
Identification code	≥ 48 bits

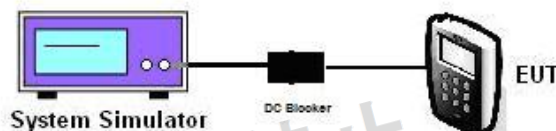
3.8.2 Measuring Instruments

See list of measuring instruments of this test report.

3.8.3 Test Procedures

1. In the case that the EUT has the function of automatically transmitting the identification code: a. Transmit the predetermined identification codes from EUT. b. Check the transmitted identification codes with the demodulator.
2. In the case of receiving the identification code: a. Transmit the predetermined identification codes from the counterpart. b. Check if communication is normal. c. Transmit the signals other than predetermined ID codes from the counterpart. d. Check if the EUT stops the transmission, or if it displays that identification codes are different from the predetermined ones.

3.8.4 Test Setup



3.8.5 Test Result of Radio Interference Prevention Capability

Please refer to Appendix B.

3.9 Hopping Frequency Dwell Time Measurement

3.9.1 Limit

Item	Limits
Hopping Freq. Dwell Time	≤ 0.4 seconds

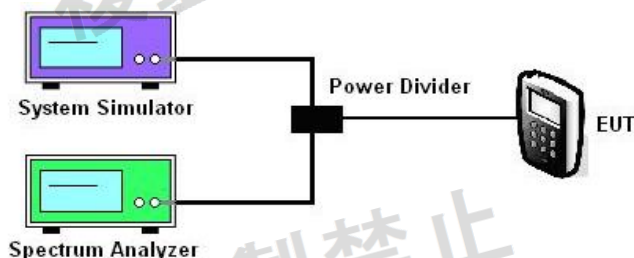
3.9.2 Measuring Instruments

See list of measuring instruments of this test report.

3.9.3 Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Set RBW of spectrum analyzer to 1MHz and VBW to 1MHz.
3. Use a video trigger with the trigger level set to enable triggering only on full pulses.
4. Sweep Time is more than once pulse time.
5. Set the center frequency on any frequency would be measured and set the frequency span to zero span.
6. Measure the maximum time duration of one single pulse.
7. Set the EUT in continuous transmitting for each supported maximum packet format.
8. Measure the maximum time duration of one single pulse.
9. Use the marker-delta function to calculate the dwell time.
10. Dwell Time = Total Number of channels x 0.4(s) x Average Hopping Channel x package transfer time
11. Average Hopping Channel = Total Number of hopping / sweep time

3.9.4 Test Setup



3.9.5 Test Result of Hopping Frequency Dwell Time

Please refer to Appendix B.

3.10 Transmission frequency switching function

3.10.1 Limit

1. Set the test equipment to transmit mode and use a spectrum analyzer to confirm that radio waves at the frequency to be switched are being transmitted.
2. Set the test equipment to transmit operation and use a spectrum analyzer to confirm that the transmission time of the frequency to be switched is within 4 seconds.
(Only transmitters that use Gaussian frequency shift keying and compensate for the drop in equivalent isotropic radiated power with antenna power.)

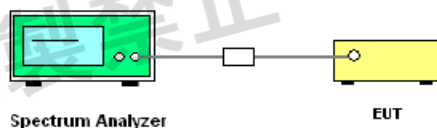
3.10.2 Measuring Instruments

See list of measuring instruments of this test report.

3.10.3 Test Procedures

1. Set the test equipment to transmit operation.
2. SA set RBW: 100KHz and VBW: 100KHz. Bandwidth from the lower limit frequency to the upper limit frequency that the test equipment can switch to.
3. SA set RBW: 100KHz and VBW: 100KHz. Any frequency between the lower limit frequency and the upper limit frequency that the test equipment can switch to.
4. Monitor the EUT, while confirm that the transmission time of the frequency to be switched is within 4 seconds, then record it Good, otherwise, the result is fail.

3.10.4 Test Setup



3.10.5 Test Result

Please refer to Appendix B.

3.11 Construction Protection Confirmation Method

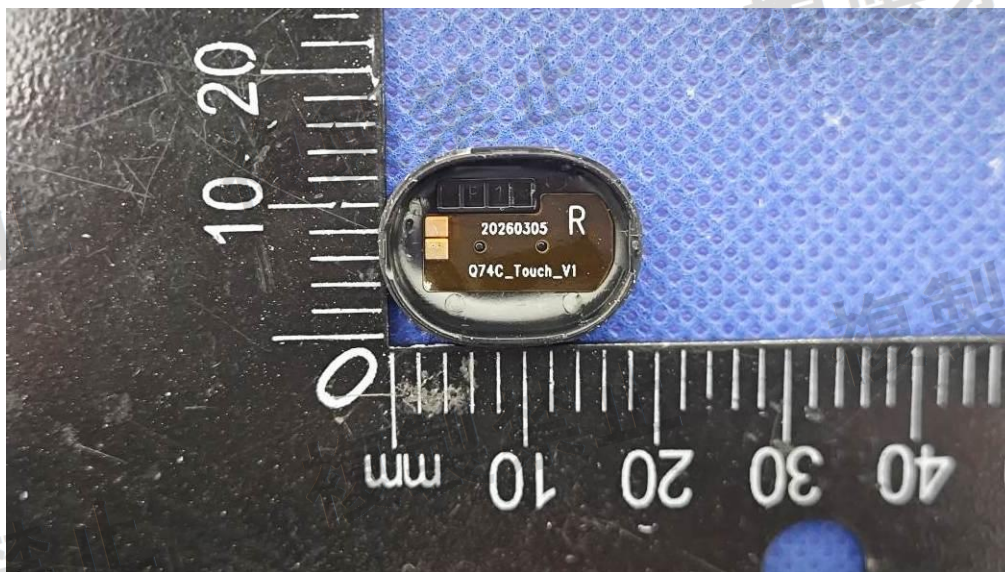
3.11.1 Limit

The high-frequency section and modulation section of the radio equipment except for the antenna system shall not be capable of being opened easily.

3.11.2 Confirmation Method

☐	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 :

3.11.3 The Photos of Construction Protection





4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Periods of Test	Due Date	Calibration Body	Calibration Method
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Jul. 07, 2025	Mar. 07, 2026	Jul. 06, 2026	Guangzhou Lisai metrology&Test Co.,Ltd.	C
Pulse Power Sensor	Anritsu	MA2411B	0917070	300MHz~40GHz	Dec. 25, 2025	Mar. 07, 2026	Dec. 24, 2026	Guangzhou Lisai metrology&Test Co.,Ltd.	C
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Dec. 25, 2025	Mar. 07, 2026	Dec. 24, 2026	Guangzhou Lisai metrology&Test Co.,Ltd.	C
Bluetooth Tester	R&S	CBT	100783	Max input Power +27dBm	Jul. 02, 2025	Mar. 07, 2026	Jul. 01, 2026	Guangzhou Lisai metrology&Test Co.,Ltd.	C
DC Power Supply	GW INSTEK	GPD-2303S	GEO861339	Max 31	Oct. 09, 2025	Mar. 07, 2026	Oct. 08, 2026	Guangzhou Lisai metrology&Test Co.,Ltd.	C
Multi-meter	VICTOR	VC890E	100900972	-	Nov. 11, 2025	Mar. 07, 2026	Nov. 10, 2026	Guangzhou Lisai metrology&Test Co.,Ltd.	C

Note: Above test equipment was used and kept valid calibration period during test.

Calibration Method :

a) : Calibration conducted by the National Institute of Information and Communications Technology~ NICT~ or a designated calibration agency under Article 102-18 paragraph

(1) TELEC Engineering Center, Intertek Japan K.K., Keysight Technologies, Inc~.

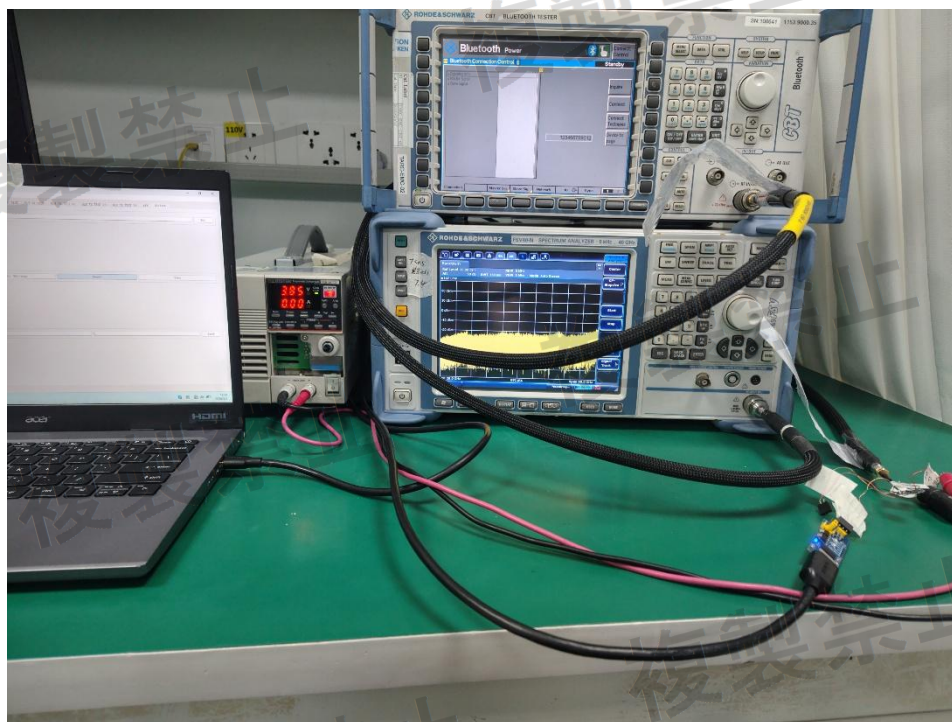
b) : Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992)~Japan Calibration Service System~

c) : 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

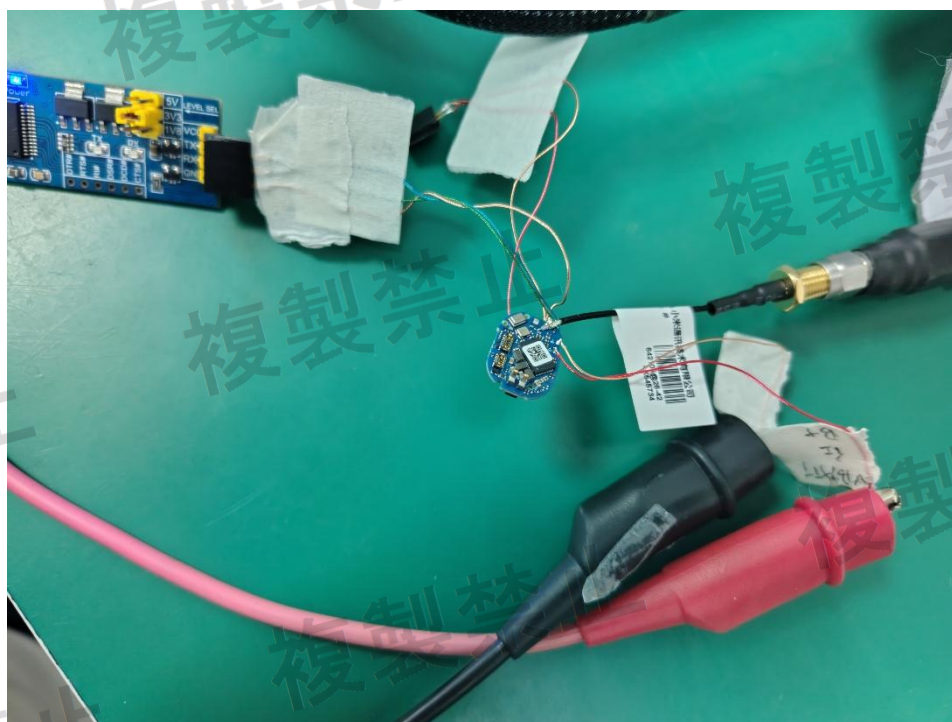
(1)~ TELEC Engineering Center, Intertek Japan K.K., Keysight Technologies, Inc~.

Appendix A. Setup Photographs

Front View



Near View





Appendix B. Test Results

Please refer to the following pages for test results.

Left:

Report Number : JR642105

1. TEST RESULTS DATA BLUETOOTH - BR (Normal Voltage)

Environment of Test Room	Temperature	10~25 °C
	Humidity	55~70 %
Test Engineer	Jacob Zhang	

Modulatoion Type :	GFSK
Type Emissions :	78M1F1D

Declaration Output Power	0.500	mW/MHz
Declaration Output Power	-3.010	dBm/MHz
Antenna Power (E.I.R.P)	-7.720	dBm/MHz
Input Power Voltage	3.850	Vdc

Burst	Path Loss	10.50	dB
	ON TIME	2.888	msec
	OFF TIME	1.059	msec
	Ratio	73.17	%
Packet Type (Mode)	DH5	mode	

Antenna Information:

Antenna Model	Antenna Type	Gain(dBi)
Refer to antenna report	FPC	-4.71

1.1. Test Results (Normal Voltage)

Measurement Frequency	MHz	2402	2441	2480	Limit	Result			Note
Channel Number	Ch.	0	39	78		0	39	78	
Reading Frequency	MHz	2401.977	2440.977	2479.994		-----	-----	-----	
Frequency Tolerance	ppm	-9.638	-9.484	-2.319	±50	PASS	PASS	PASS	

Occupied Bandwidth	MHz	78.15	83.5	PASS	
Spread Bandwidth	MHz	70.62	-	-	
RF Output Power	mW/MHz	0.390	-----	-----	-----
RF Output Power Tolerance	%	-22.00	+20	PASS	
Output Power (With burst radi	dBm	14.40	-----	-----	-----

Unwanted Emission Intensity	Under 2387MHz	μW/MHz	0.04613	0.04487	0.04365	2.5	PASS	PASS	PASS	
		MHz	878.035	841.178	939.721		-----	-----	-----	
	2387MHz - 2400MHz	μW/MHz	2.71019	0.00735	0.00728	25	PASS	PASS	PASS	
		MHz	2400.000	2399.080	2390.080		-----	-----	-----	
	2483.5MHz - 2496.5MHz	μW/MHz	0.00805	0.00783	0.03141	25	PASS	PASS	PASS	
		MHz	2492.430	2487.450	2483.500		-----	-----	-----	
	2496.5MHz - 12.5GHz	μW/MHz	0.05957	0.06998	0.06607	2.5	PASS	PASS	PASS	
		MHz	6944.110	6966.120	6977.120		-----	-----	-----	
Limitation of Collateral Emission of Receiver	Under 1GHz	nW	0.054	0.056	0.062	4	PASS	PASS	PASS	
		MHz	981.620	939.430	901.700		-----	-----	-----	
	1 -12.5GHz	nW	1.014	0.914	0.962	20	PASS	PASS	PASS	
		MHz	6945.480	6888.950	6993.400		-----	-----	-----	

Spread Factor	-----	70.62	5	PASS	
Dwell Time	mSec	239.74	400	PASS	
Radio Interference Prevention Capability	-----	good		PASS	

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2. TEST RESULTS DATA

BLUETOOTH - EDR (Normal Voltage)

Environment of Test Room	Temperature	10~25 °C
	Humidity	55~70 %
Test Engineer	Jacob Zhang	

Modulation Type :	8DPSK
Type Emissions :	78M4G1D

Declaration Output Power	0.500	mW/MHz
Declaration Output Power	-3.010	dBm/MHz
Antenna Power (E.I.R.P)	-7.720	dBm/MHz
Input Power Voltage	3.850	Vdc

Burst	Path Loss	10.50	dB
	ON TIME	2.910	msec
	OFF TIME	0.849	msec
	Ratio	77.41	%
Packet Type (Mode)	3-DH5	mode	

Antenna Information:

Antenna Model	Antenna Type	Gain(dBi)
Refer to antenna report	FPC	-4.71

2.1. Test Results (Normal Voltage)

Measurement Frequency	MHz	2402	2441	2480	Limit	Result			Note
Channel Number	Ch.	0	39	78		0	39	78	
Reading Frequency	MHz	2401.997	2440.994	2479.994		-----	-----	-----	
Frequency Tolerance	ppm	-1.207	-2.356	-2.319	±50	PASS	PASS	PASS	

Occupied Bandwidth	MHz	78.44	83.5	PASS	
Spread Bandwidth	MHz	71.20	-	-	
RF Output Power	mW/MHz	0.211	-----	-----	-----
RF Output Power Tolerance	%	-57.78	+20	PASS	
Output Power (With burst radi	dBm	11.77	-----	-----	-----

Unwanted Emission Intensity	Under 2387MHz	μW/MHz	0.05848	0.06067	0.04487	2.5	PASS	PASS	PASS	
		MHz	327.033	914.406	949.129		-----	-----	-----	
	2387MHz - 2400MHz	μW/MHz	6.05341	0.00762	0.00736	25	PASS	PASS	PASS	
		MHz	2400.000	2399.280	2398.830		-----	-----	-----	
	2483.5MHz - 2496.5MHz	μW/MHz	0.00798	0.00807	0.03013	25	PASS	PASS	PASS	
		MHz	2488.170	2494.870	2483.500		-----	-----	-----	
Limitation of Collateral Emission of Receiver	Under 1GHz	μW/MHz	0.06383	0.07362	0.06855	2.5	PASS	PASS	PASS	
		MHz	6963.120	-6999.130	6987.120		-----	-----	-----	
	1 -12.5GHz	nW	0.065	0.074	0.056	4	PASS	PASS	PASS	
		MHz	929.343	843.603	269.518		-----	-----	-----	
		nW	0.916	0.979	0.791	20	PASS	PASS	PASS	
		MHz	6863.070	6993.400	6981.900		-----	-----	-----	

Spread Factor	-----	71.20	5	PASS	
Dwell Time	mSec	264.82	400	PASS	
Radio Interference Prevention Capability	-----	good		PASS	

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3. TEST RESULTS DATA

BLUETOOTH - AFH BR (Normal Voltage)

Environment of Test Room	Temperature	10~25 °C
	Humidity	55~70 %
Test Engineer	Jacob Zhang	

Modulatoin Type :	GFSK
Type Emissions :	19M6F1D

Declaration Output Power	2.000	mW/MHz
Declaration Output Power	3.010	dBm/MHz
Antenna Power (E.I.R.P)	-1.700	dBm/MHz
Input Power Voltage	3.850	Vdc

Burst	Path Loss	10.50	dB
	ON TIME	2.888	msec
	OFF TIME	0.861	msec
	Ratio	77.04	%
Packet Type (Mode)	DH5	mode	

Antenna Information:

Antenna Model	Antenna Type	Gain(dBi)
Refer to antenna report	FPC	-4.71

3.1. Test Results (Normal Voltage)

Measurement Frequency	MHz	2402	2411	2421	Limit	Result			Note
Channel Number	Ch.	0	9	19		0	9	19	
Reading Frequency	MHz	2401.977	2410.977	2420.977		-----	-----	-----	
Frequency Tolerance	ppm	-9.638	-9.602	-9.562	±50	PASS	PASS	PASS	

Occupied Bandwidth	MHz	19.61	83.5	PASS	
Spread Bandwidth	MHz	18.02	-	-	
RF Output Power	mW/MHz	1.529	-----	-----	-----
RF Output Power Tolerance	%	-23.57	+20	PASS	
Output Power (With burst radi	dBm	14.40	-----	-----	-----

Unwanted Emission Intensity	Under 2387MHz	μW/MHz	0.04943	0.04977	0.04955	2.5	PASS	PASS	PASS
		MHz	903.834	941.660	570.381		-----	-----	-----
	2387-2400MHz	μW/MHz	2.76058	0.00951	0.00793	25	PASS	PASS	PASS
		MHz	2400.000	2397.220	2395.160		-----	-----	-----
	2483.5-2496.5MHz	μW/MHz	0.00750	0.00733	0.00764	25	PASS	PASS	PASS
		MHz	2489.010	2493.090	2491.600		-----	-----	-----
Limitation of Collateral Emission of Receiver	2496.5MHz - 12.5GHz	μW/MHz	0.06353	0.06095	0.06353	2.5	PASS	PASS	PASS
		MHz	6980.120	6979.120	6946.110		-----	-----	-----
	Under 1GHz	nW	0.059	0.050	0.057	4	PASS	PASS	PASS
		MHz	579.499	855.242	591.6223		-----	-----	-----
	1 -12.5GHz	nW	0.865	0.881	0.929	20	PASS	PASS	PASS
		MHz	6892.780	6994.350	6985.730		-----	-----	-----

Spread Factor	-----	18.02	5	PASS	
Dwell Time	mSec	103.98	400	PASS	
Radio Interference Prevention Capability	-----	good		PASS	

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4. TEST RESULTS DATA

BLUETOOTH - AFH EDR (Normal Voltage)

Environment of Test Room	Temperature	10~25 °C
	Humidity	55~70 %
Test Engineer	Jacob Zhang	

Modulation Type :	8DPSK
Type Emissions :	19M8G1D

Declaration Output Power	2.000	mW/MHz
Declaration Output Power	3.010	dBm/MHz
Antenna Power (E.I.R.P)	-1.700	dBm/MHz
Input Power Voltage	3.850	Vdc

Burst	Path Loss	10.50	dB
	ON TIME	2.910	msec
	OFF TIME	0.849	msec
	Ratio	77.41	%
Packet Type (Mode)	3DH5	mode	

Antenna Information:

Antenna Model	Antenna Type	Gain(dBi)
Refer to antenna report	FPC	-4.71

4.1. Test Results (Normal Voltage)

Measurement Frequency	MHz	2402	2411	2421	Limit	Result			Note
Channel Number	Ch.	0	9	19		0	9	19	
Reading Frequency	MHz	2401.997	2410.997	2420.997		-----	-----	-----	
Frequency Tolerance	ppm	-1.207	-1.203	-1.198	±50	PASS	PASS	PASS	

Occupied Bandwidth	MHz	19.83	83.5	PASS	
Spread Bandwidth	MHz	18.23	-	-	
RF Output Power	mW/MHz	0.824	-----	-----	-----
RF Output Power Tolerance	%	-58.78	+20	PASS	
Output Power (With burst radi	dBm	11.77	-----	-----	-----

Unwanted Emission Intensity	Under 2387MHz	μW/MHz	0.04295	0.04256	0.04920	2.5	PASS	PASS	PASS	
		MHz	991.028	632.261	926.336		-----	-----	-----	
	2387-2400MHz	μW/MHz	6.87068	0.00830	0.00815	25	PASS	PASS	PASS	
		MHz	2400.000	2398.150	2398.960		-----	-----	-----	
	2483.5-2496.5MHz	μW/MHz	0.00782	0.00750	0.00767	25	PASS	PASS	PASS	
		MHz	2491.940	2492.290	2484.570		-----	-----	-----	
	2496.5MHz - 12.5GHz	μW/MHz	0.06067	0.07311	0.07145	2.5	PASS	PASS	PASS	
		MHz	6993.120	6987.120	6994.120		-----	-----	-----	
Limitation of Collateral Emission of Receiver	Under 1GHz	nW	0.059	0.047	0.058	4	PASS	PASS	PASS	
		MHz	880.556	830.703	809.9475		-----	-----	-----	
	1 -12.5GHz	nW	0.971	0.843	0.984	20	PASS	PASS	PASS	
		MHz	6993.400	6944.530	6943.570		-----	-----	-----	

Spread Factor	-----	18.23	5	PASS	
Dwell Time	mSec	81.48	400	PASS	
Radio Interference Prevention Capability	-----	good		PASS	

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5. TEST RESULTS DATA BLUETOOTH - LE 1M

Environment of Test Room	Temperature	10~25 °C
	Humidity	55~70 %
Test Engineer	Jacob Zhang	

Modulatoin Type :	GFSK
Type Emissions :	1M03F1D

Declaration Output Power	9.500	mW
Declaration Output Power	9.777	dBm
Antenna Power (E.I.R.P)	5.067	dBm
Input Power Voltage	3.850	Vdc

Path Loss		10.50	dB
Burst	ON TIME	0.386	msec
	OFF TIME	0.241	msec
	Ratio	61.57	%
Packet Type (Mode)		Low Energy	mode

Antenna Information:

Antenna Model	Antenna Type	Gain(dBi)
Refer to antenna report	FPC	-4.71

5.1. Test Results (Normal Voltage)

Measurement Frequency	MHz	2402	2440	2480	Limit	Result			Note
Channel Number	Ch.	0	19	39		0	19	39	
Reading Frequency	MHz	2401.968	2439.968	2479.968		-----	-----	-----	
Frequency Tolerance	ppm	-13.260	-13.053	-12.843	$-50 \leq x \leq +50$	PASS	PASS	PASS	

Occupied Bandwidth	MHz	1.02	1.03	1.02	26	PASS		
Spreading Bandwidth	MHz	N/A			0.5	N/A		
RF Output Power	mW	8.492	9.078	9.506	-	-----		
RF Output Power Tolerance	%	-10.61	-4.44	0.06	$\leq +20$	PASS		
Output Power (With burst ratio)	dBm	9.29	9.58	9.78	-	-----		

Unwanted Emission Intensity	Under 2387MHz	$\mu\text{W}/\text{MHz}$	0.03926	0.04246	0.05224	2.5	PASS	PASS	PASS
		MHz	560.585	940.399	917.510		-----	-----	-----
	2387MHz - 2400MHz	$\mu\text{W}/\text{MHz}$	1.87068	0.00755	0.00673	25	PASS	PASS	PASS
		MHz	2400.000	2396.510	2388.430		-----	-----	-----
	2483.5MHz - 2496.5MHz	$\mu\text{W}/\text{MHz}$	0.00724	0.00760	0.01592	25	PASS	PASS	PASS
		MHz	2490.010	2488.020	2483.560		-----	-----	-----
	2496.5MHz - 12.5GHz	$\mu\text{W}/\text{MHz}$	0.06281	0.06637	0.06607	2.5	PASS	PASS	PASS
		MHz	6996.120	6916.100	6945.110		-----	-----	-----
Limitation of Collateral Emission of Receiver	Under 1GHz	nW	0.054	0.054	0.062	4	PASS	PASS	PASS
		MHz	984.821	538.569	802.091		-----	-----	-----
	1 - 12.5GHz	nW	1.021	0.904	0.767	20	PASS	PASS	PASS
		MHz	6988.610	6815.160	6889.910		-----	-----	-----

Spread Factor	-----	N/A			5	N/A		
Dwell Time	mSec	N/A			400	N/A		
Radio Interference Prevention Capability	-----	good				PASS		

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6. TEST RESULTS DATA BLUETOOTH - LE 2M

Environment of Test Room	Temperature	10~25 °C
	Humidity	55~70 %
Test Engineer	Jacob Zhang	

Modulatoin Type :	GFSK
Type Emissions :	2M03F1D

Declaration Output Power	9.050	mW
Declaration Output Power	9.566	dBm
Antenna Power (E.I.R.P)	4.856	dBm
Input Power Voltage	3.850	Vdc

Path Loss		10.50	dB
Burst	ON TIME	0.197	msec
	OFF TIME	0.429	msec
	Ratio	31.48	%
Packet Type (Mode)		Low Energy	mode

Antenna Information:

Antenna Model	Antenna Type	Gain(dBi)
Refer to antenna report	FPC	-4.71

6.1. Test Results (Normal Voltage)

Measurement Frequency	MHz	2402	2440	2480	Limit	Result			Note
Channel Number	Ch.	0	19	39		0	19	39	
Reading Frequency	MHz	2401.974	2439.974	2479.971		-----	-----	-----	
Frequency Tolerance	ppm	-10.845	-10.676	-11.673	$-50 \leq x \leq +50$	PASS	PASS	PASS	

Occupied Bandwidth	MHz	2.03	2.03	2.03	26	PASS		
Spreading Bandwidth	MHz	N/A			0.5	N/A		
RF Output Power	mW	8.511	9.057	8.933	-	-----		
RF Output Power Tolerance	%	-5.95	0.08	-1.29	$\leq +20$	PASS		
Output Power (With burst ratio)	dBm	9.30	9.57	9.51	-	-----		

Unwanted Emission Intensity	Under 2387MHz	$\mu\text{W}/\text{MHz}$	0.03784	0.04560	0.05058	2.5	PASS	PASS	PASS
		MHz	853.981	376.013	977.353		-----	-----	-----
	2387MHz - 2400MHz	$\mu\text{W}/\text{MHz}$	7.81628	0.00731	0.00687	25	PASS	PASS	PASS
		MHz	2400.000	2390.780	2392.820		-----	-----	-----
	2483.5MHz - 2496.5MHz	$\mu\text{W}/\text{MHz}$	0.00697	0.00845	0.01854	25	PASS	PASS	PASS
		MHz	2485.110	2495.420	2483.680		-----	-----	-----
	2496.5MHz - 12.5GHz	$\mu\text{W}/\text{MHz}$	0.05395	0.07161	0.06950	2.5	PASS	PASS	PASS
		MHz	6965.120	6943.110	6970.120		-----	-----	-----
Limitation of Collateral Emission of Receiver	Under 1GHz	nW	0.110	0.082	0.064	4	PASS	PASS	PASS
		MHz	704.422	844.088	874.834		-----	-----	-----
	1 - 12.5GHz	nW	0.863	0.832	1.242	20	PASS	PASS	PASS
		MHz	6989.560	6886.070	6962.730		-----	-----	-----

Spread Factor	-----	N/A			5	N/A		
Dwell Time	mSec	N/A			400	N/A		
Radio Interference Prevention Capability	-----	good				PASS		

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Right:

Report Number : JR642105

1. TEST RESULTS DATA

BLUETOOTH - BR (Normal Voltage)

Environment of Test Room	Temperature	10~25 °C
	Humidity	55~70 %
Test Engineer	Jacob Zhang	

Modulatoion Type :	GFSK
Type Emissions :	78M1F1D

Declaration Output Power	0.500	mW/MHz
Declaration Output Power	-3.010	dBm/MHz
Antenna Power (E.I.R.P)	-7.930	dBm/MHz
Input Power Voltage	3.850	Vdc

Burst	Path Loss	10.50	dB
	ON TIME	2.888	msec
	OFF TIME	0.861	msec
	Ratio	77.04	%
Packet Type (Mode)	DH5	mode	

Antenna Information:

Antenna Model	Antenna Type	Gain(dBi)
Refer to antenna report	FPC	-4.92

1.1. Test Results (Normal Voltage)

Measurement Frequency	MHz	2402	2441	2480	Limit	Result			Note
Channel Number	Ch.	0	39	78		0	39	78	
Reading Frequency	MHz	2401.977	2440.977	2479.977		-----	-----	-----	
Frequency Tolerance	ppm	-9.638	-9.484	-9.335	±50	PASS	PASS	PASS	

Occupied Bandwidth	MHz	78.15	83.5	PASS	
Spread Bandwidth	MHz	70.33	-	-	
RF Output Power	mW/MHz	0.374	-----	-----	-----
RF Output Power Tolerance	%	-25.20	+20	PASS	
Output Power (With burst radi	dBm	14.20	-----	-----	-----

Unwanted Emission Intensity	Under 2387MHz	μW/MHz	0.05000	0.04325	0.04345	2.5	PASS	PASS	PASS	
		MHz	764.556	855.436	790.452		-----	-----	-----	
	2387MHz - 2400MHz	μW/MHz	2.36048	0.00716	0.00713	25	PASS	PASS	PASS	
		MHz	2400.000	2394.690	2388.360		-----	-----	-----	
	2483.5MHz - 2496.5MHz	μW/MHz	0.00759	0.00798	0.02742	25	PASS	PASS	PASS	
		MHz	2494.620	2486.760	2483.810		-----	-----	-----	
Limitation of Collateral Emission of Receiver	Under 1GHz	μW/MHz	0.06383	0.08054	0.06237	2.5	PASS	PASS	PASS	
		MHz	6999.130	6973.120	6980.120		-----	-----	-----	
	1 -12.5GHz	nW	0.086	0.061	0.056	4	PASS	PASS	PASS	
		MHz	716.449	836.814	783.178		-----	-----	-----	
	1 -12.5GHz	nW	0.834	0.885	1.002	20	PASS	PASS	PASS	
		MHz	6989.560	6892.780	6983.810		-----	-----	-----	

Spread Factor	-----	70.33	5	PASS	
Dwell Time	mSec	277.29	400	PASS	
Radio Interference Prevention Capability	-----	good		PASS	

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2. TEST RESULTS DATA

BLUETOOTH - EDR (Normal Voltage)

Environment of Test Room	Temperature	10~25 °C
	Humidity	55~70 %
Test Engineer	Jacob Zhang	

Modulation Type :	8DPSK
Type Emissions :	78M4G1D

Declaration Output Power	0.500	mW/MHz
Declaration Output Power	-3.010	dBm/MHz
Antenna Power (E.I.R.P)	-7.930	dBm/MHz
Input Power Voltage	3.850	Vdc

Burst	Path Loss	10.50	dB
	ON TIME	2.896	msec
	OFF TIME	0.864	msec
	Ratio	77.03	%
Packet Type (Mode)	3-DH5	mode	

Antenna Information:

Antenna Model	Antenna Type	Gain(dBi)
Refer to antenna report	FPC	-4.92

2.1. Test Results (Normal Voltage)

Measurement Frequency	MHz	2402	2441	2480	Limit	Result			Note
Channel Number	Ch.	0	39	78		0	39	78	
Reading Frequency	MHz	2401.997	2440.997	2479.994		-----	-----	-----	
Frequency Tolerance	ppm	-1.207	-1.188	-2.319	±50	PASS	PASS	PASS	

Occupied Bandwidth	MHz	78.44	83.5	PASS	
Spread Bandwidth	MHz	70.91	-	-	
RF Output Power	mW/MHz	0.195	-----	-----	-----
RF Output Power Tolerance	%	-60.98	+20	PASS	
Output Power (With burst radi	dBm	11.41	-----	-----	-----

Unwanted Emission Intensity	Under 2387MHz	μW/MHz	0.04130	0.04710	0.05035	2.5	PASS	PASS	PASS	
		MHz	337.896	932.543	801.121		-----	-----	-----	
	2387MHz - 2400MHz	μW/MHz	5.83445	0.00787	0.00764	25	PASS	PASS	PASS	
		MHz	2400.000	2395.390	2393.640		-----	-----	-----	
	2483.5MHz - 2496.5MHz	μW/MHz	0.00745	0.00785	0.02228	25	PASS	PASS	PASS	
		MHz	2485.300	2484.370	2483.760		-----	-----	-----	
Limitation of Collateral Emission of Receiver	2496.5MHz - 12.5GHz	μW/MHz	0.08072	0.06902	0.06637	2.5	PASS	PASS	PASS	
		MHz	6996.120	6992.120	6933.110		-----	-----	-----	
	Under 1GHz	nW	0.084	0.214	0.062	4	PASS	PASS	PASS	
		MHz	724.693	721.880	483.963		-----	-----	-----	
	1 -12.5GHz	nW	0.841	0.902	0.931	20	PASS	PASS	PASS	
		MHz	6938.780	6886.070	6995.310		-----	-----	-----	

Spread Factor	-----	70.91	5	PASS	
Dwell Time	mSec	246.13	400	PASS	
Radio Interference Prevention Capability	-----	good		PASS	

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3. TEST RESULTS DATA

BLUETOOTH - AFH BR (Normal Voltage)

Environment of Test Room	Temperature	10~25 °C
	Humidity	55~70 %
Test Engineer	Jacob Zhang	

Modulatoin Type :	GFSK
Type Emissions :	19M6F1D

Declaration Output Power	2.000	mW/MHz
Declaration Output Power	3.010	dBm/MHz
Antenna Power (E.I.R.P)	-1.910	dBm/MHz
Input Power Voltage	3.850	Vdc

Burst	Path Loss	10.50	dB
	ON TIME	2.888	msec
	OFF TIME	0.861	msec
	Ratio	77.04	%
Packet Type (Mode)		DH5	mode

Antenna Information:

Antenna Model	Antenna Type	Gain(dBi)
Refer to antenna report	FPC	-4.92

3.1. Test Results (Normal Voltage)

Measurement Frequency	MHz	2402	2411	2421	Limit	Result			Note
Channel Number	Ch.	0	9	19		0	9	19	
Reading Frequency	MHz	2401.977	2410.977	2420.977		-----	-----	-----	
Frequency Tolerance	ppm	-9.638	-9.602	-9.562	±50	PASS	PASS	PASS	

Occupied Bandwidth	MHz	19.61	83.5	PASS	
Spread Bandwidth	MHz	18.02	-	-	
RF Output Power	mW/MHz	1.460	-----	-----	-----
RF Output Power Tolerance	%	-27.01	+20	PASS	
Output Power (With burst radi	dBm	14.20	-----	-----	-----

Unwanted Emission Intensity	Under 2387MHz	μW/MHz	0.04550	0.04375	0.04036	2.5	PASS	PASS	PASS	
		MHz	349.923	883.175	385.518		-----	-----	-----	
	2387-2400MHz	μW/MHz	2.31206	0.00883	0.00796	25	PASS	PASS	PASS	
		MHz	2400.000	2398.910	2397.240		-----	-----	-----	
	2483.5-2496.5MHz	μW/MHz	0.00736	0.00820	0.00729	25	PASS	PASS	PASS	
		MHz	2495.130	2485.370	2494.710		-----	-----	-----	
	2496.5MHz - 12.5GHz	μW/MHz	0.06745	0.06339	0.06012	2.5	PASS	PASS	PASS	
		MHz	6843.090	6969.120	6983.120		-----	-----	-----	
Limitation of Collateral Emission of Receiver	Under 1GHz	nW	0.071	0.048	0.146	4	PASS	PASS	PASS	
		MHz	889.868	801.024	705.3920		-----	-----	-----	
	1 -12.5GHz	nW	0.849	0.818	0.899	20	PASS	PASS	PASS	
		MHz	6797.910	6982.860	6984.770		-----	-----	-----	

Spread Factor	-----	18.02	5	PASS	
Dwell Time	mSec	109.76	400	PASS	
Radio Interference Prevention Capability	-----	good		PASS	

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4. TEST RESULTS DATA

BLUETOOTH - AFH EDR (Normal Voltage)

Environment of Test Room	Temperature	10~25 °C
	Humidity	55~70 %
Test Engineer	Jacob Zhang	

Modulatoin Type :	8DPSK
Type Emissions :	19M8G1D

Declaration Output Power	2.000	mW/MHz
Declaration Output Power	3.010	dBm/MHz
Antenna Power (E.I.R.P)	-1.910	dBm/MHz
Input Power Voltage	3.850	Vdc

Burst	Path Loss	10.50	dB
	ON TIME	2.896	msec
	OFF TIME	0.864	msec
	Ratio	77.03	%
Packet Type (Mode)	3DH5	mode	

Antenna Information:

Antenna Model	Antenna Type	Gain(dBi)
Refer to antenna report	FPC	-4.92

4.1. Test Results (Normal Voltage)

Measurement Frequency	MHz	2402	2411	2421	Limit	Result			Note
Channel Number	Ch.	0	9	19		0	9	19	
Reading Frequency	MHz	2401.997	2410.997	2420.997		-----	-----	-----	
Frequency Tolerance	ppm	-1.207	-1.203	-1.198	±50	PASS	PASS	PASS	

Occupied Bandwidth	MHz	19.83	83.5	PASS	
Spread Bandwidth	MHz	18.09	-	-	
RF Output Power	mW/MHz	0.765	-----	-----	-----
RF Output Power Tolerance	%	-61.76	+20	PASS	
Output Power (With burst radi	dBm	11.41	-----	-----	-----

Unwanted Emission Intensity	Under 2387MHz	μW/MHz	0.04710	0.04477	0.04295	2.5	PASS	PASS	PASS	
		MHz	962.610	883.272	871.633		-----	-----	-----	
	2387-2400MHz	μW/MHz	5.79429	0.00839	0.00753	25	PASS	PASS	PASS	
		MHz	2400.000	2399.330	2388.960		-----	-----	-----	
	2483.5-2496.5MHz	μW/MHz	0.00718	0.00753	0.00745	25	PASS	PASS	PASS	
		MHz	2490.270	2489.810	2485.080		-----	-----	-----	
Limitation of Collateral Emission of Receiver	2496.5MHz - 12.5GHz	μW/MHz	0.08375	0.06823	0.06887	2.5	PASS	PASS	PASS	
		MHz	6998.130	6987.120	6791.070		-----	-----	-----	
	Under 1GHz	nW	0.055	0.059	0.056	4	PASS	PASS	PASS	
		MHz	824.884	784.439	858.3457		-----	-----	-----	
	1 -12.5GHz	nW	0.973	0.973	0.918	20	PASS	PASS	PASS	
		MHz	6725.090	6987.650	6926.320		-----	-----	-----	

Spread Factor	-----	18.09	5	PASS	
Dwell Time	mSec	81.08	400	PASS	
Radio Interference Prevention Capability	-----	good		PASS	

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5. TEST RESULTS DATA

BLUETOOTH - LE 1M

Environment of Test Room	Temperature	10~25 °C
	Humidity	55~70 %
Test Engineer	Jacob Zhang	

Modulatoin Type :	GFSK
Type Emissions :	1M02F1D

Declaration Output Power	8.700	mW
Declaration Output Power	9.395	dBm
Antenna Power (E.I.R.P)	4.475	dBm
Input Power Voltage	3.850	Vdc

Path Loss		10.50	dB
Burst	ON TIME	0.386	msec
	OFF TIME	0.241	msec
	Ratio	61.57	%
Packet Type (Mode)		Low Energy	mode

Antenna Information:

Antenna Model	Antenna Type	Gain(dBi)
Refer to antenna report	FPC	-4.92

5.1. Test Results (Normal Voltage)

Measurement Frequency	MHz	2402	2440	2480	Limit	Result			Note
Channel Number	Ch.	0	19	39		0	19	39	
Reading Frequency	MHz	2401.968	2439.968	2479.968		-----	-----	-----	
Frequency Tolerance	ppm	-13.260	-13.053	-12.843	$-50 \leq x \leq +50$	PASS	PASS	PASS	

Occupied Bandwidth	MHz	1.02	1.02	1.02	26	PASS		
Spreading Bandwidth	MHz	N/A			0.5	N/A		
RF Output Power	mW	7.674	8.279	8.690	-	-----		
RF Output Power Tolerance	%	-11.80	-4.83	-0.12	$\leq +20$	PASS		
Output Power (With burst ratio)	dBm	8.85	9.18	9.39	-	-----		

Unwanted Emission Intensity	Under 2387MHz	$\mu\text{W}/\text{MHz}$	0.04977	0.04227	0.04842	2.5	PASS	PASS	PASS
		MHz	902.282	505.689	955.336		-----	-----	-----
	2387MHz - 2400MHz	$\mu\text{W}/\text{MHz}$	1.65577	0.00689	0.00703	25	PASS	PASS	PASS
		MHz	2400.000	2387.110	2399.850		-----	-----	-----
	2483.5MHz - 2496.5MHz	$\mu\text{W}/\text{MHz}$	0.00787	0.00782	0.01982	25	PASS	PASS	PASS
		MHz	2490.070	2496.440	2483.690		-----	-----	-----
	2496.5MHz - 12.5GHz	$\mu\text{W}/\text{MHz}$	0.06252	0.06637	0.06561	2.5	PASS	PASS	PASS
		MHz	6993.120	6937.110	6994.120		-----	-----	-----
Limitation of Collateral Emission of Receiver	Under 1GHz	nW	0.069	0.068	0.060	4	PASS	PASS	PASS
		MHz	843.894	992.386	958.828		-----	-----	-----
	1 - 12.5GHz	nW	0.869	0.966	0.955	20	PASS	PASS	PASS
		MHz	6998.190	6990.520	6985.730		-----	-----	-----

Spread Factor	-----	N/A			5	N/A		
Dwell Time	mSec	N/A			400	N/A		
Radio Interference Prevention Capability	-----	good				PASS		

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6. TEST RESULTS DATA BLUETOOTH - LE 2M

Environment of Test Room	Temperature	10~25 °C
	Humidity	55~70 %
Test Engineer	Jacob Zhang	

Modulatoin Type :	GFSK
Type Emissions :	2M02F1D

Declaration Output Power	8.700	mW
Declaration Output Power	9.395	dBm
Antenna Power (E.I.R.P)	4.475	dBm
Input Power Voltage	3.850	Vdc

Path Loss		10.50	dB
Burst	ON TIME	0.197	msec
	OFF TIME	0.429	msec
	Ratio	31.48	%
Packet Type (Mode)		Low Energy	mode

Antenna Information:

Antenna Model	Antenna Type	Gain(dBi)
Refer to antenna report	FPC	-4.92

6.1. Test Results (Normal Voltage)

Measurement Frequency	MHz	2402	2440	2480	Limit	Result			Note
Channel Number	Ch.	0	19	39		0	19	39	
Reading Frequency	MHz	2401.971	2439.974	2479.971		-----	-----	-----	
Frequency Tolerance	ppm	-12.052	-10.676	-11.673	$-50 \leq x \leq +50$	PASS	PASS	PASS	

Occupied Bandwidth	MHz	2.02	2.02	2.02	26	PASS		
Spreading Bandwidth	MHz	N/A			0.5	N/A		
RF Output Power	mW	7.603	8.279	8.710	-	-----		
RF Output Power Tolerance	%	-12.61	-4.83	0.11	$\leq +20$	PASS		
Output Power (With burst ratio)	dBm	8.81	9.18	9.40	-	-----		

Unwanted Emission Intensity	Under 2387MHz	$\mu\text{W}/\text{MHz}$	0.04375	0.04571	0.04365	2.5	PASS	PASS	PASS
		MHz	946.704	806.747	992.968		-----	-----	-----
	2387MHz - 2400MHz	$\mu\text{W}/\text{MHz}$	20.27683	0.00748	0.00726	25	PASS	PASS	PASS
		MHz	2400.000	2398.460	2399.560		-----	-----	-----
	2483.5MHz - 2496.5MHz	$\mu\text{W}/\text{MHz}$	0.29107	0.00782	0.02109	25	PASS	PASS	PASS
		MHz	2494.520	2492.130	2483.520		-----	-----	-----
	2496.5MHz - 12.5GHz	$\mu\text{W}/\text{MHz}$	0.06412	0.06653	0.06918	2.5	PASS	PASS	PASS
		MHz	6914.100	6967.120	6978.120		-----	-----	-----
Limitation of Collateral Emission of Receiver	Under 1GHz	nW	0.059	0.053	0.054	4	PASS	PASS	PASS
		MHz	919.935	944.570	813.730		-----	-----	-----
	1 - 12.5GHz	nW	0.966	0.887	0.851	20	PASS	PASS	PASS
		MHz	6986.690	6867.870	6970.400		-----	-----	-----

Spread Factor	-----	N/A			5	N/A		
Dwell Time	mSec	N/A			400	N/A		
Radio Interference Prevention Capability	-----	good				PASS		

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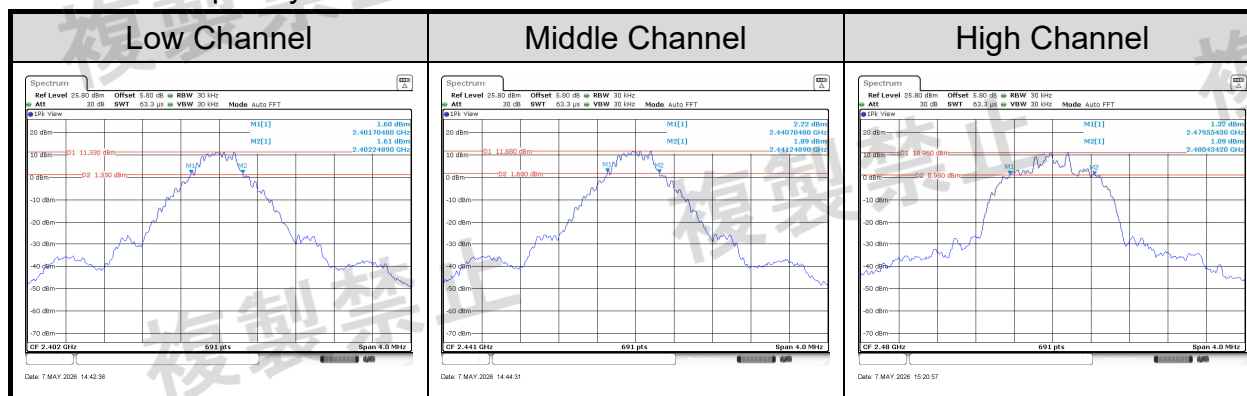


Appendix C. Test Plots

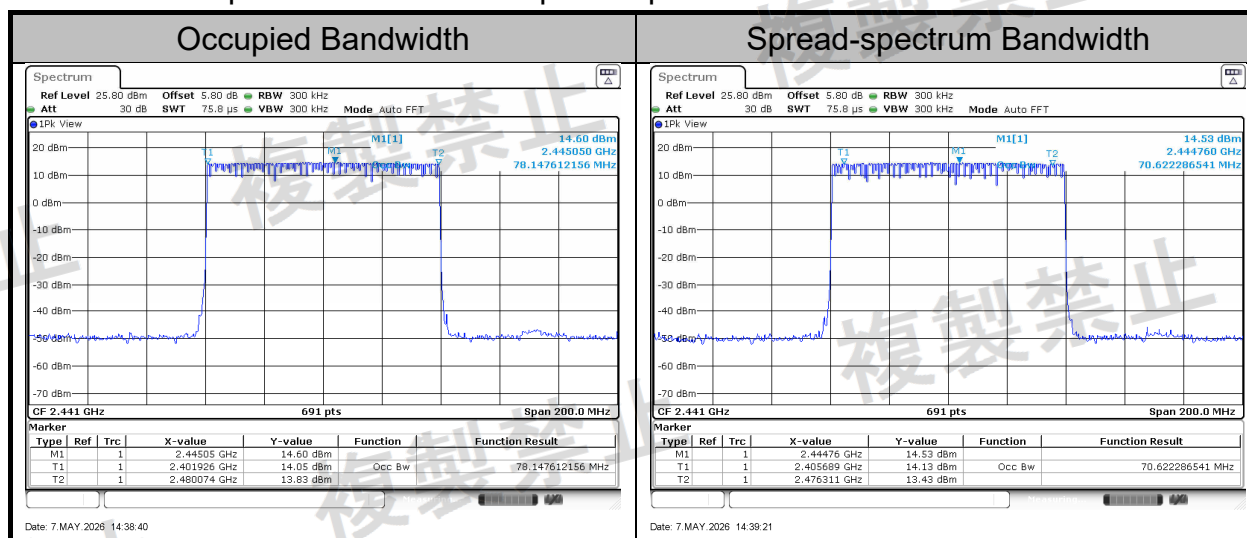
Left :

C.1. BR

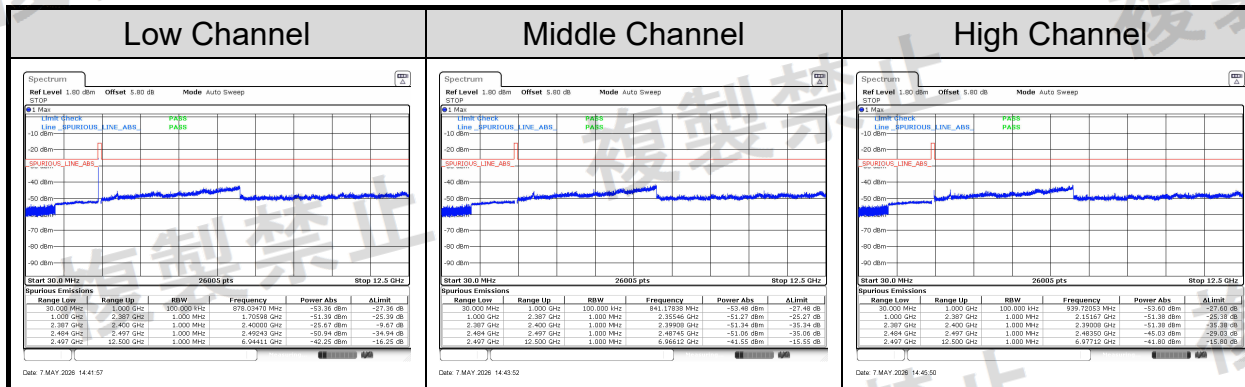
C.1.1. Frequency Tolerance



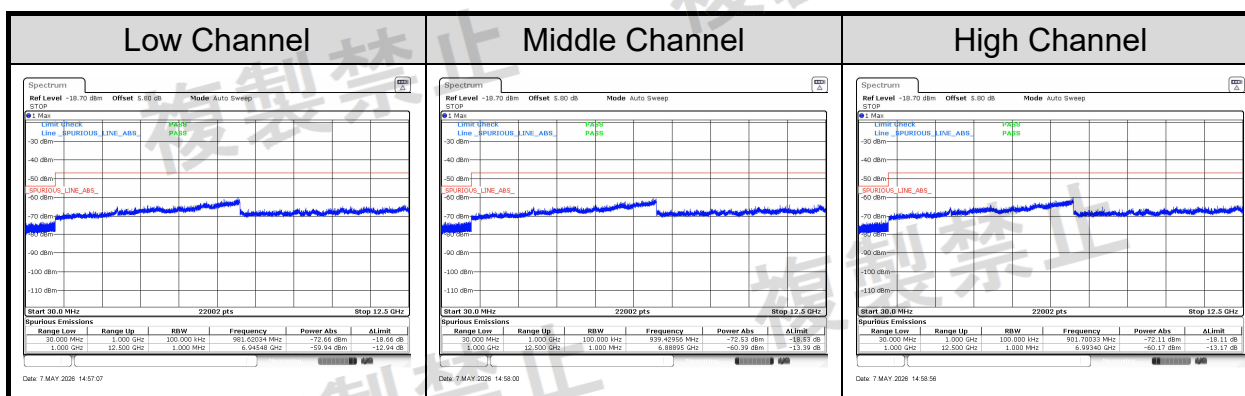
C.1.2. Occupied Bandwidth and Spread-spectrum Bandwidth



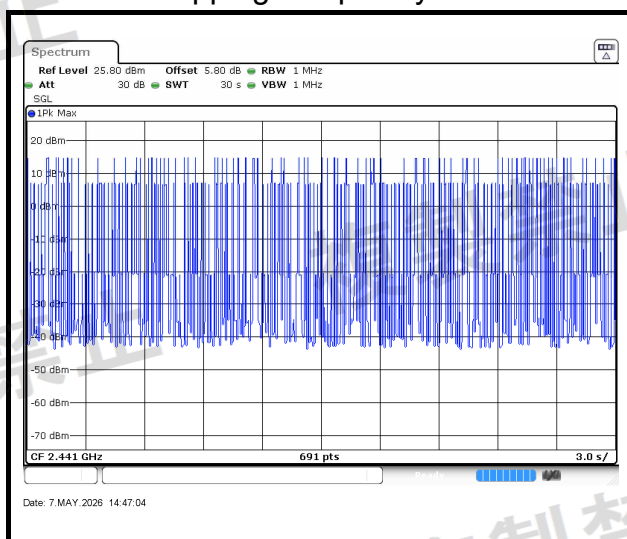
C.1.3. Unwanted Emission Intensity



C.1.4. Limitation of Collateral Emission of Receiver

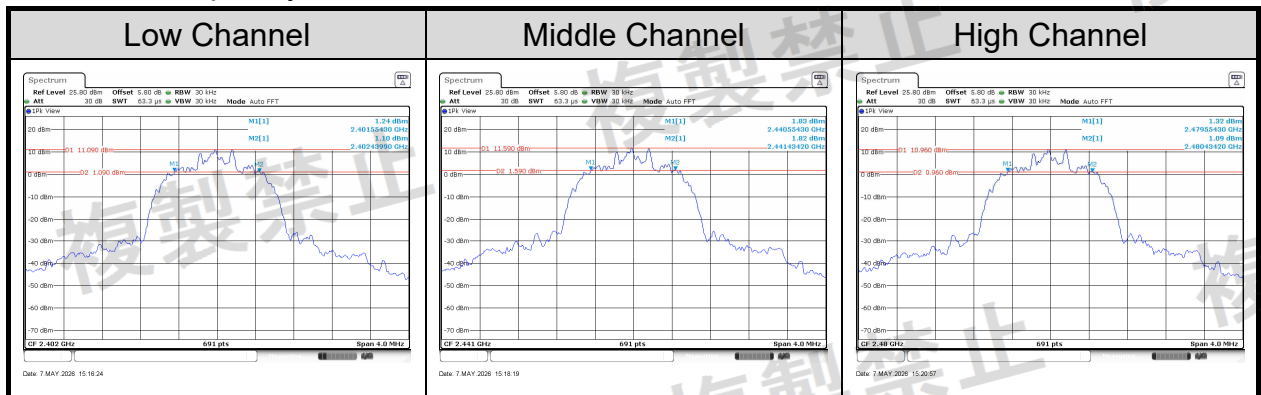


C.1.5. Hopping Frequency Dwell Time

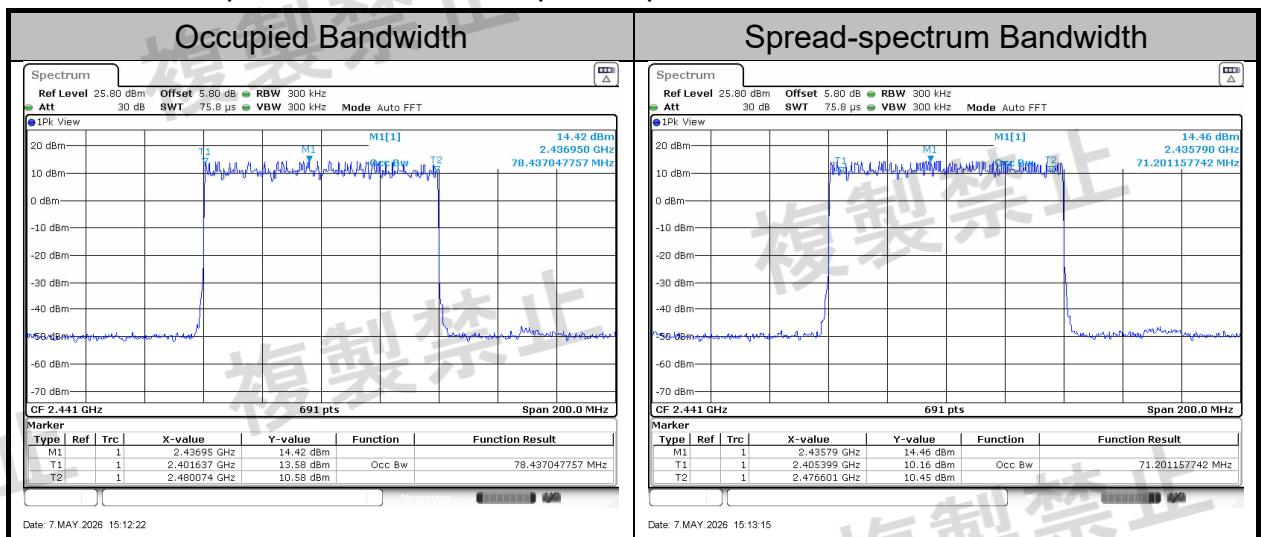


C.2. EDR (Enhanced Data Rate)

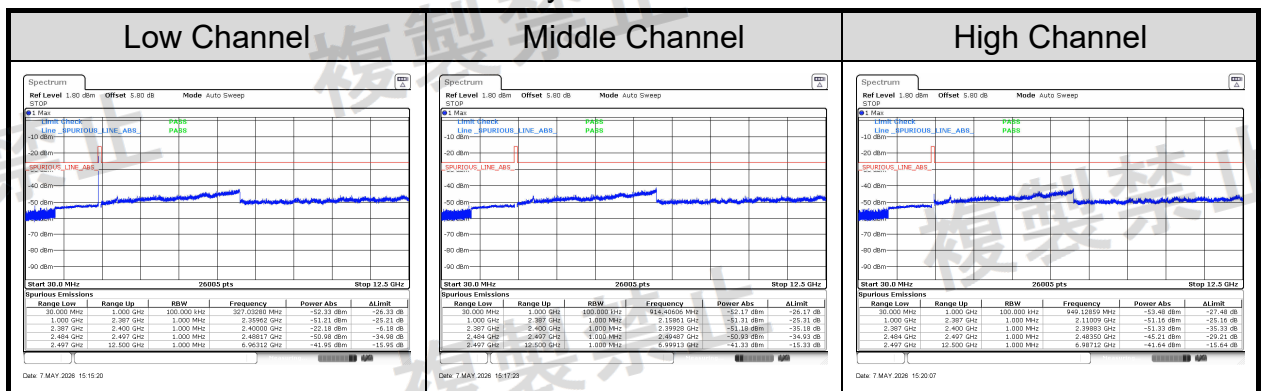
C.2.1. Frequency Tolerance



C.2.2. Occupied Bandwidth and Spread-spectrum Bandwidth

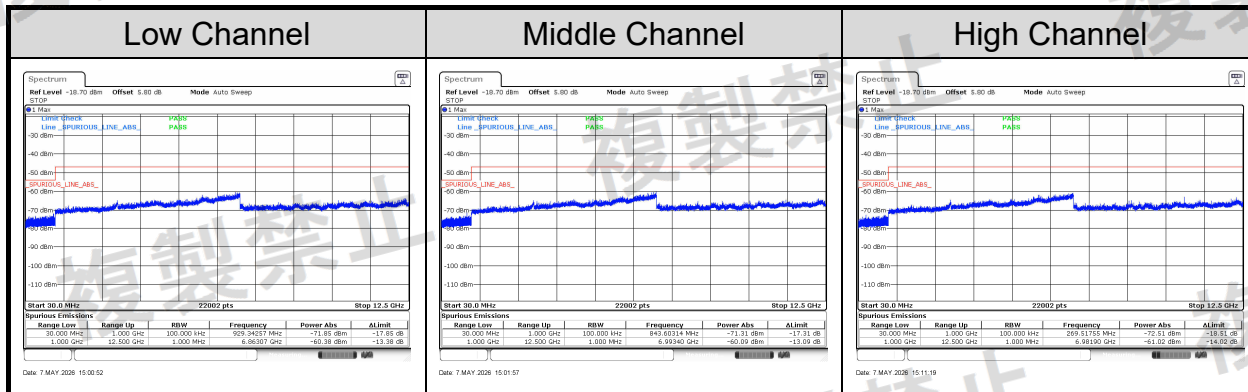


C.2.3. Unwanted Emission Intensity

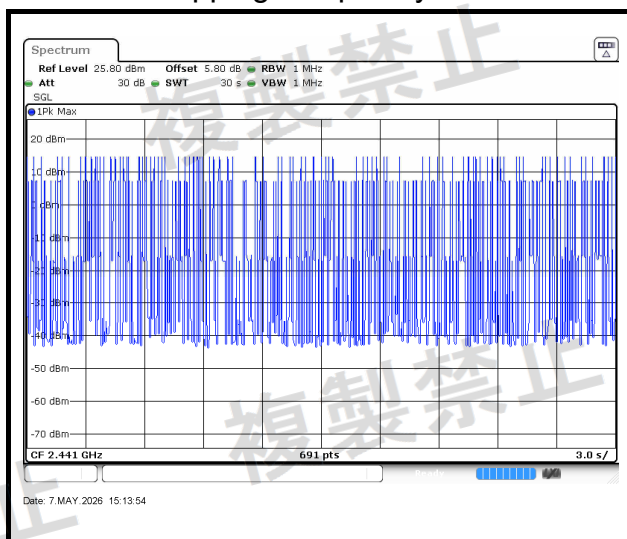




C.2.4. Limitation of Collateral Emission of Receiver

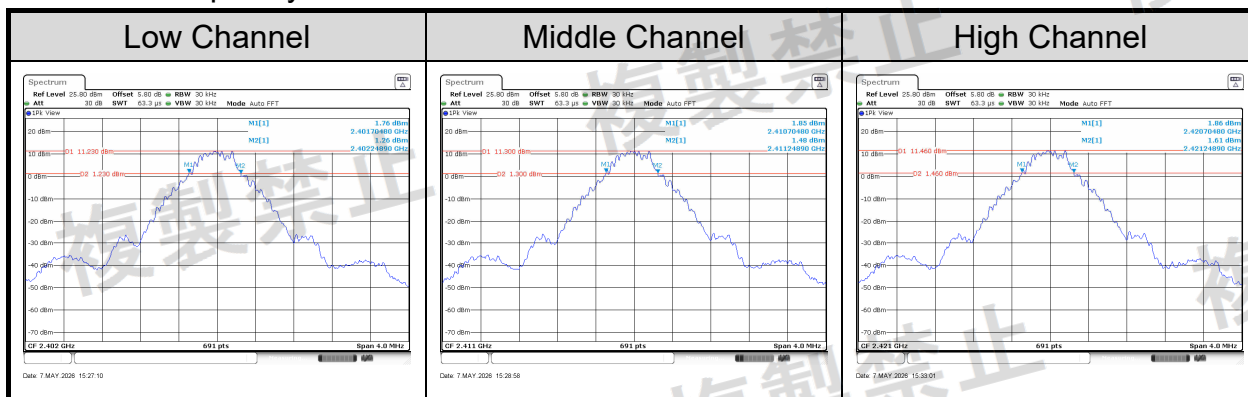


C.2.5. Hopping Frequency Dwell Time

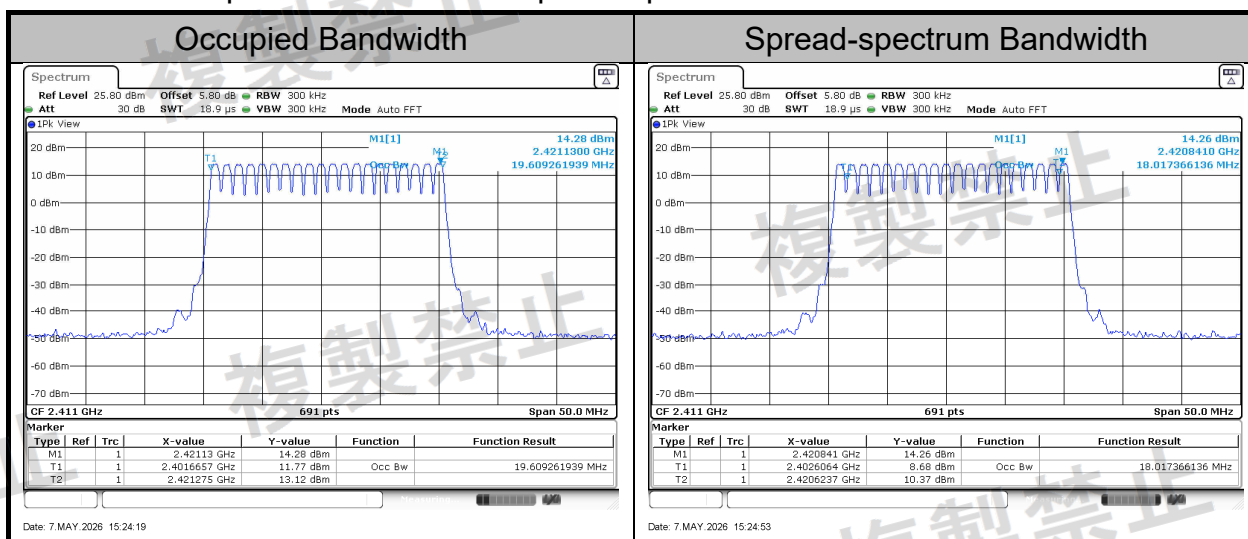


C.3. AFHBDT (Basic Rate)

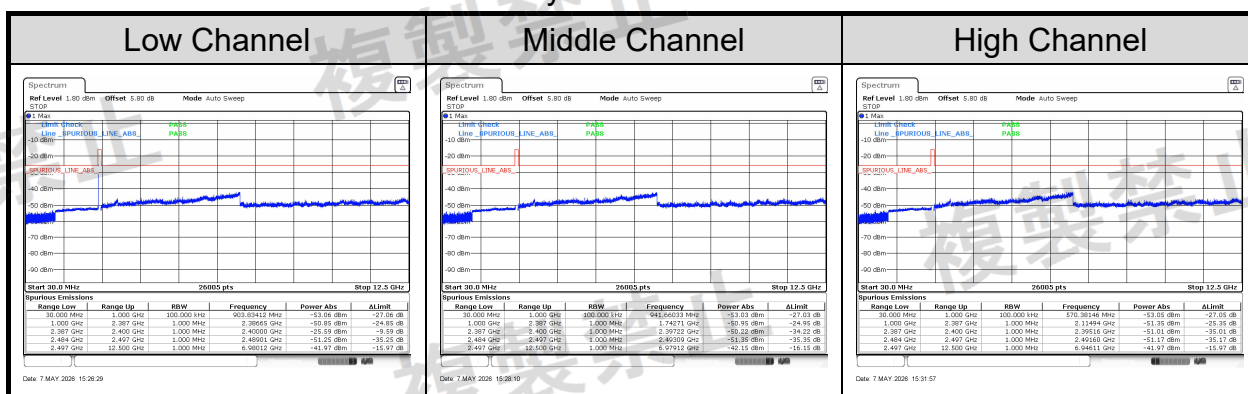
C.3.1. Frequency Tolerance



C.3.2. Occupied Bandwidth and Spread-spectrum Bandwidth

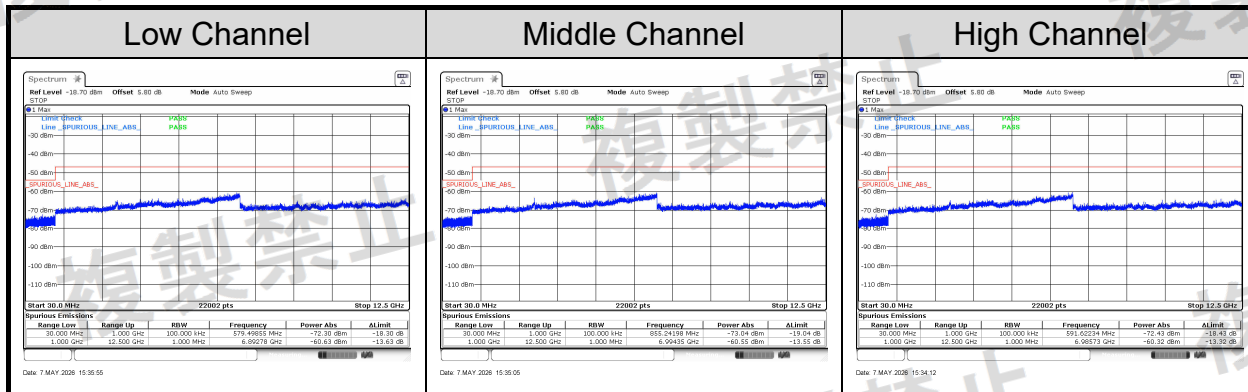


C.3.3. Unwanted Emission Intensity

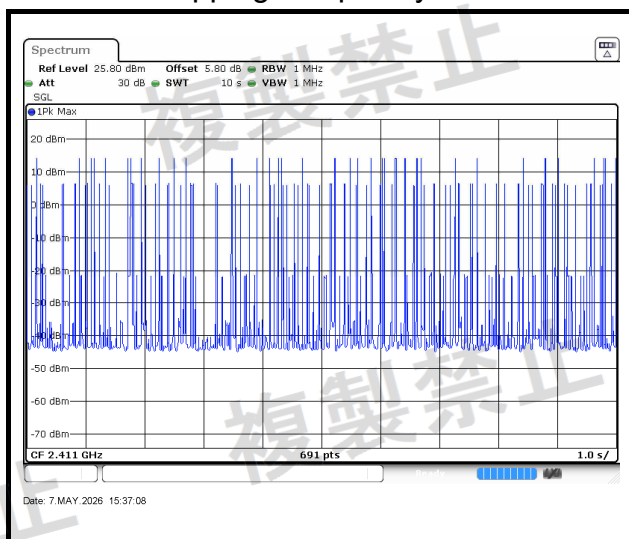




C.3.4. Limitation of Collateral Emission of Receiver



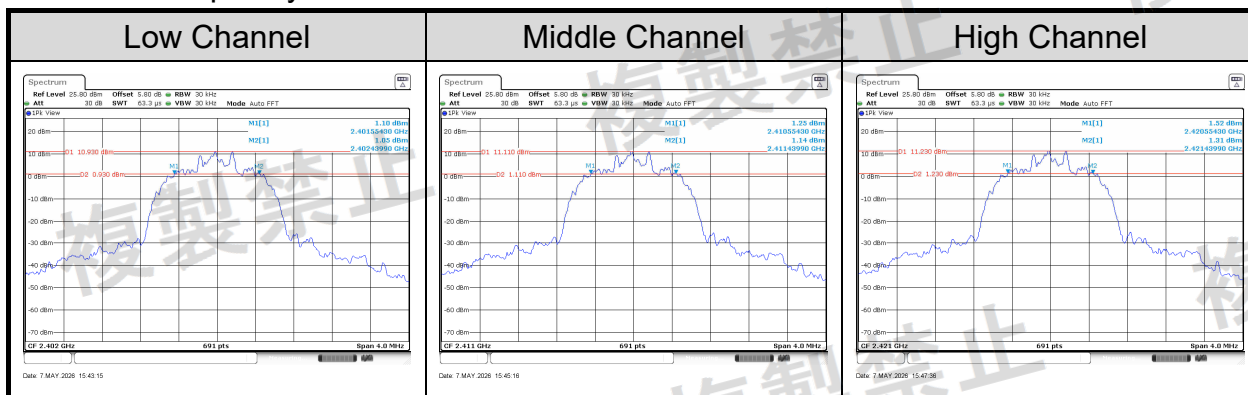
C.3.5. Hopping Frequency Dwell Time



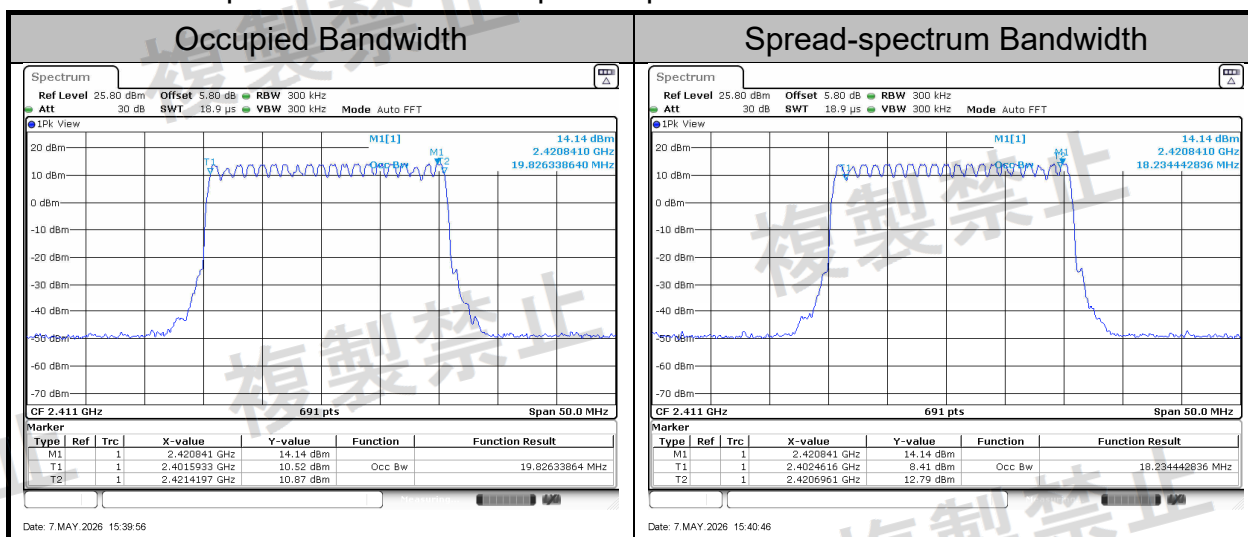


C.4. AFHEDR

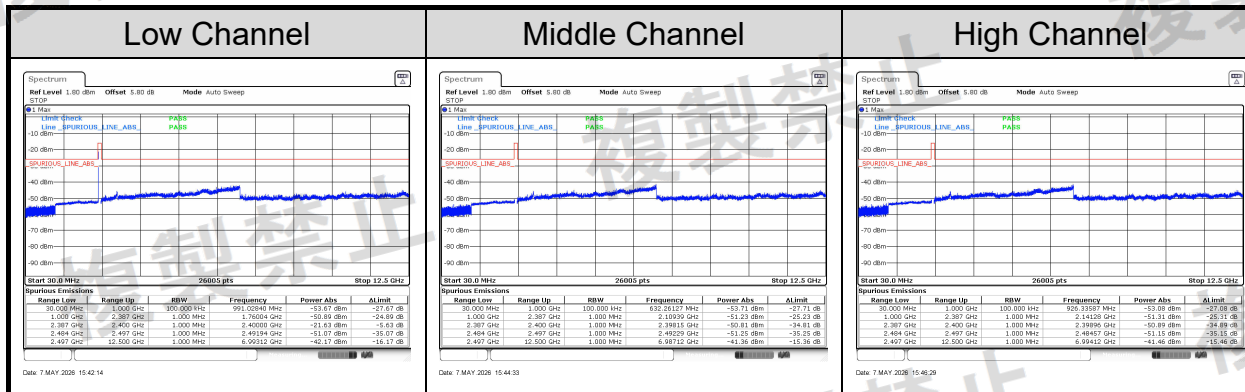
C.4.1. Frequency Tolerance



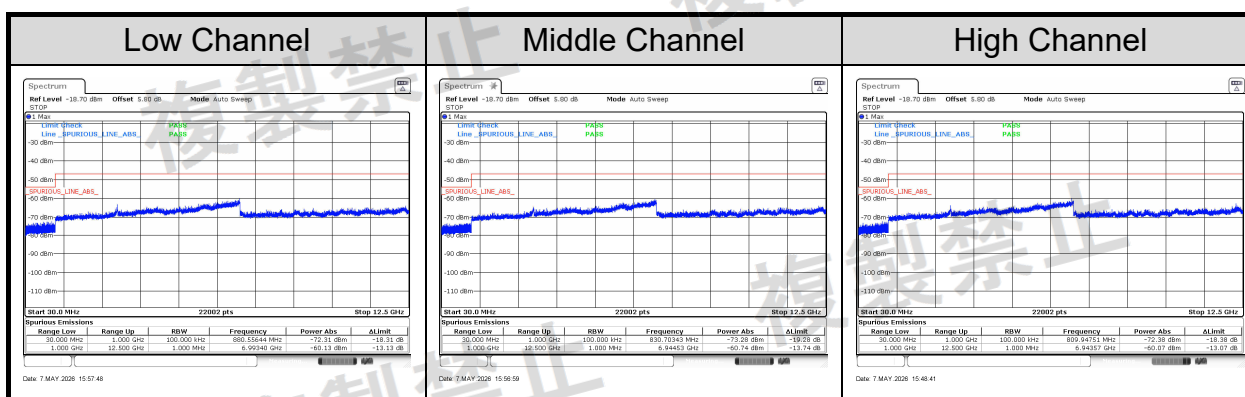
C.4.2. Occupied Bandwidth and Spread-spectrum Bandwidth



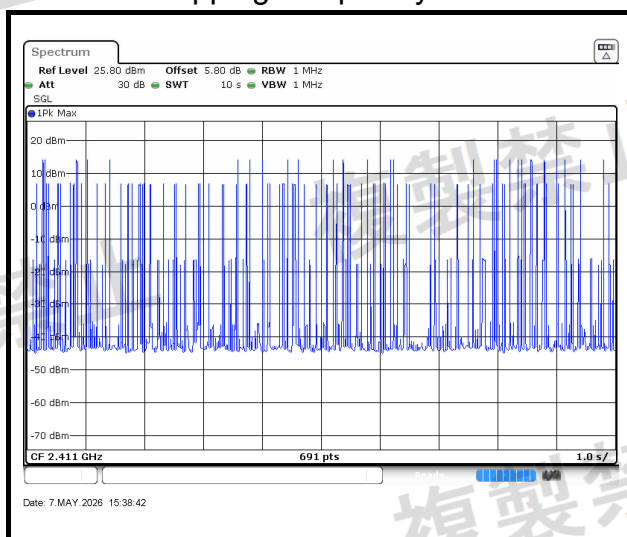
C.4.3. Unwanted Emission Intensity



C.4.4. Limitation of Collateral Emission of Receiver



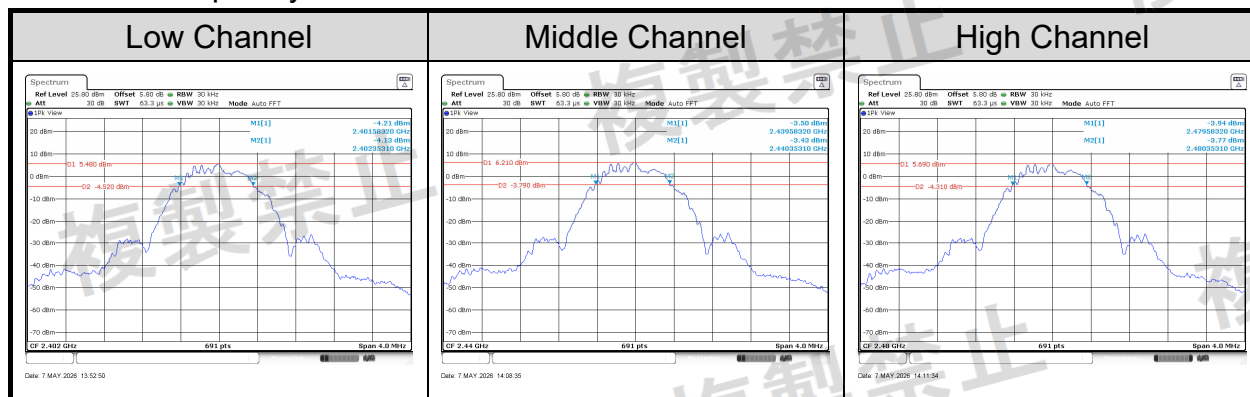
C.4.5. Hopping Frequency Dwell Time



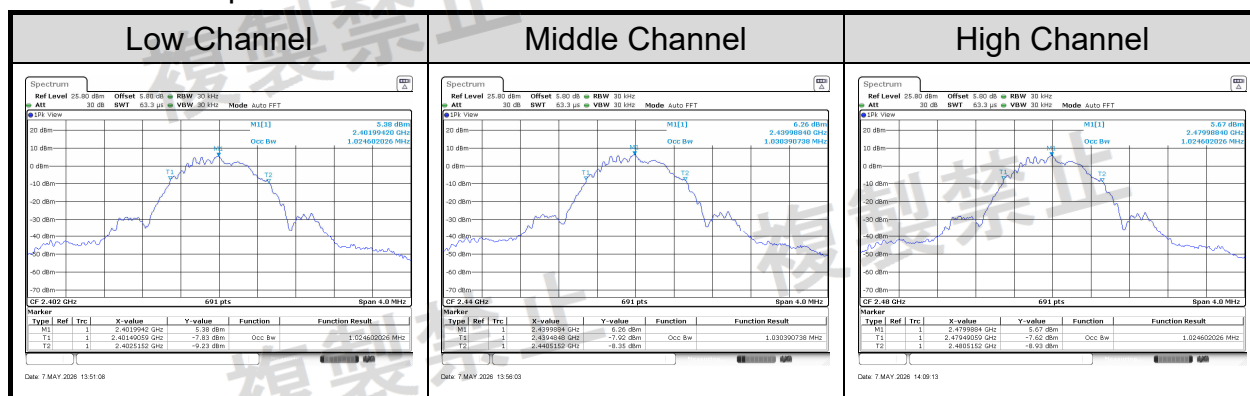


C.5. LE1M

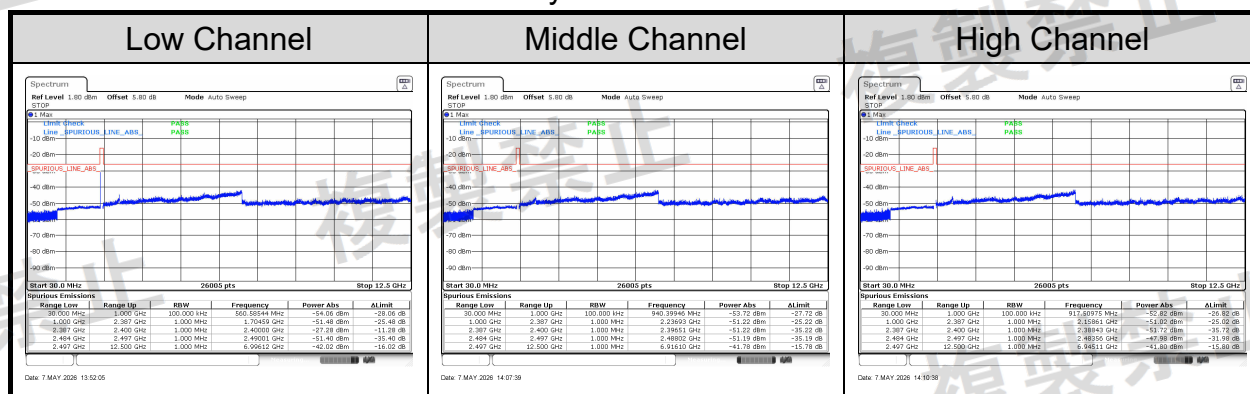
C.5.1. Frequency Tolerance



C.5.2. Occupied Bandwidth

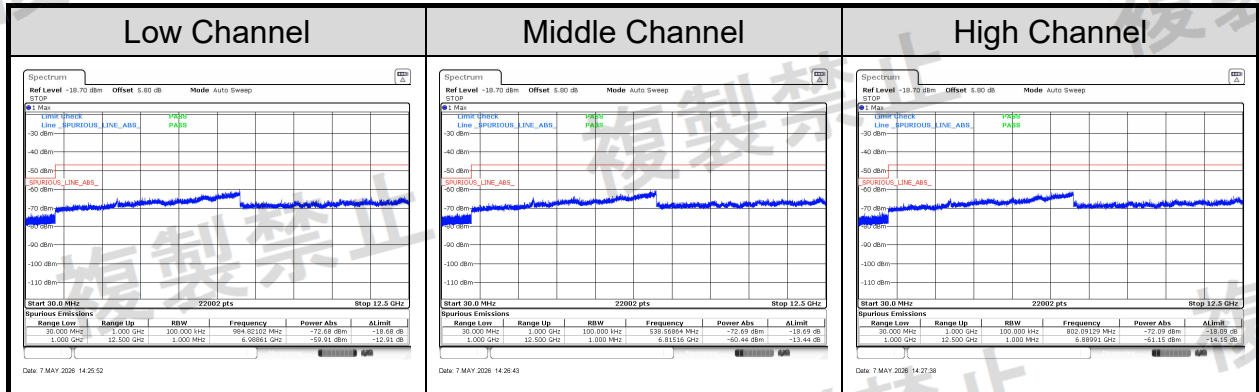


C.5.3. Unwanted Emission Intensity



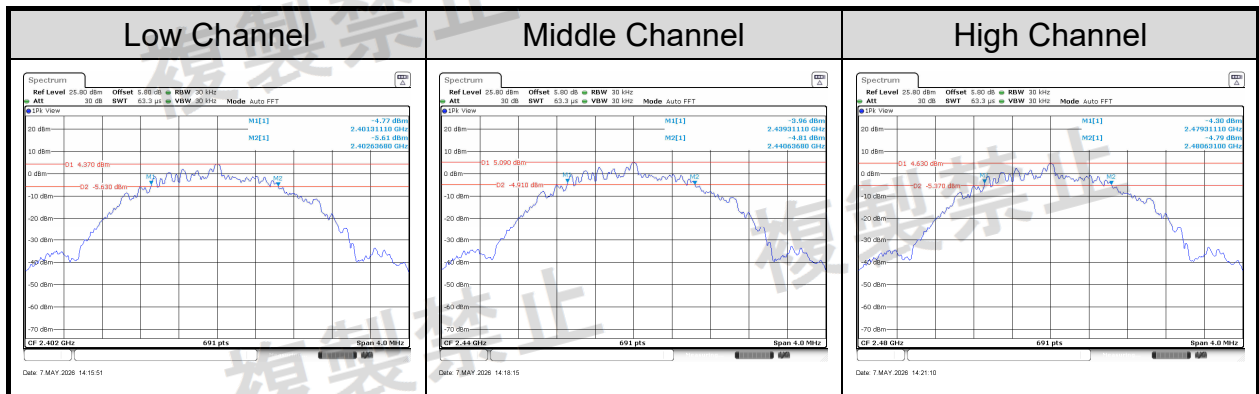


C.5.4. Limitation of Collateral Emission of Receiver

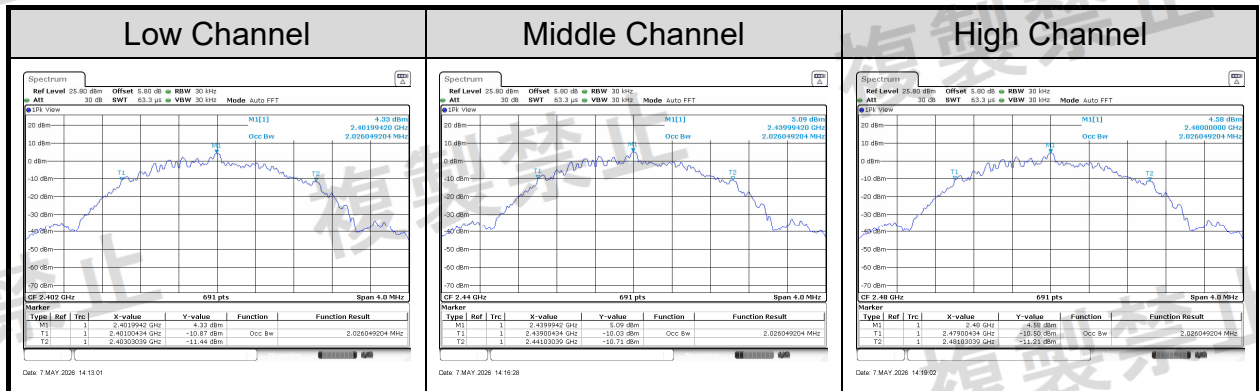


C.6. LE2M

C.6.1. Frequency Tolerance

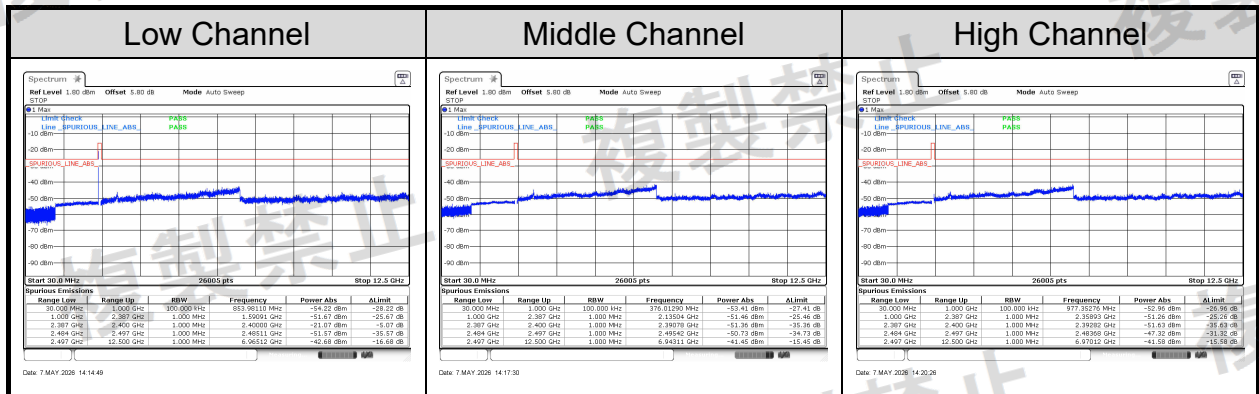


C.6.2. Occupied Bandwidth

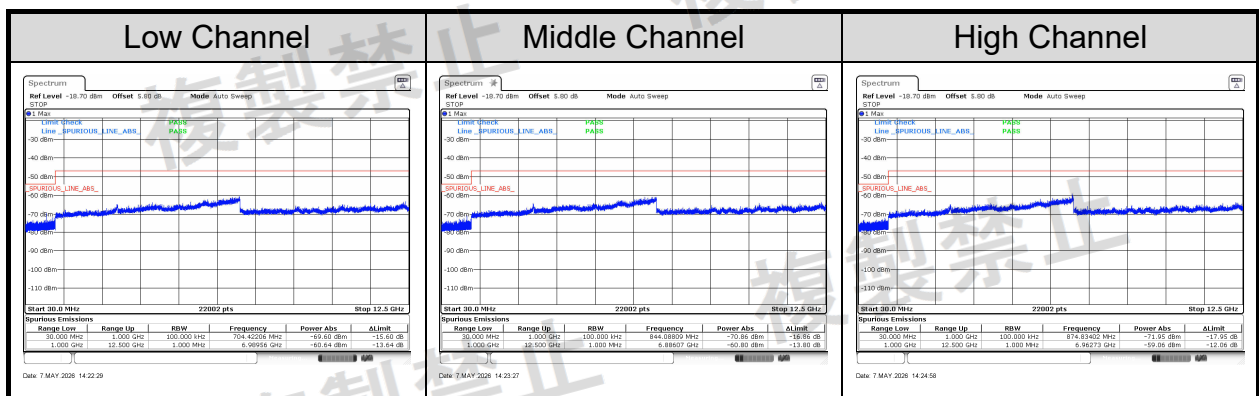




C.6.3. Unwanted Emission Intensity



C.6.4. Limitation of Collateral Emission of Receiver

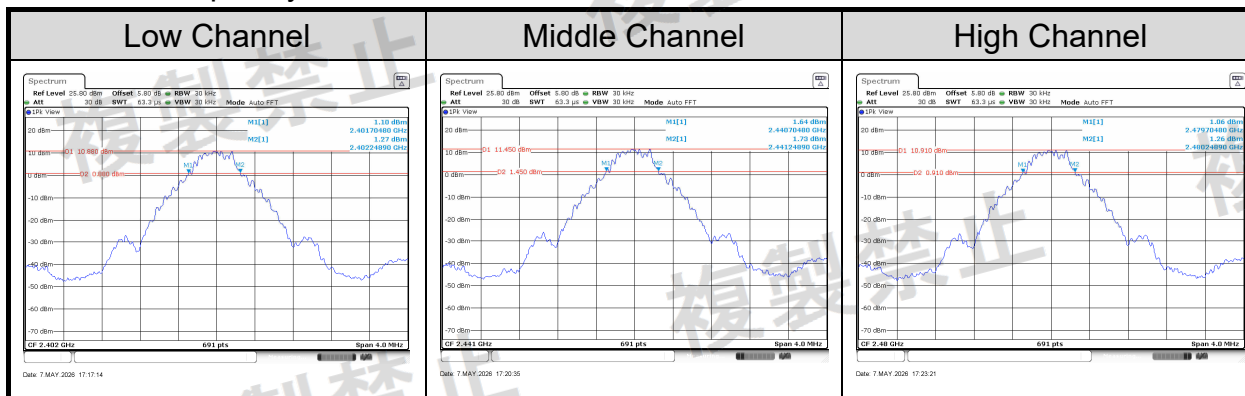




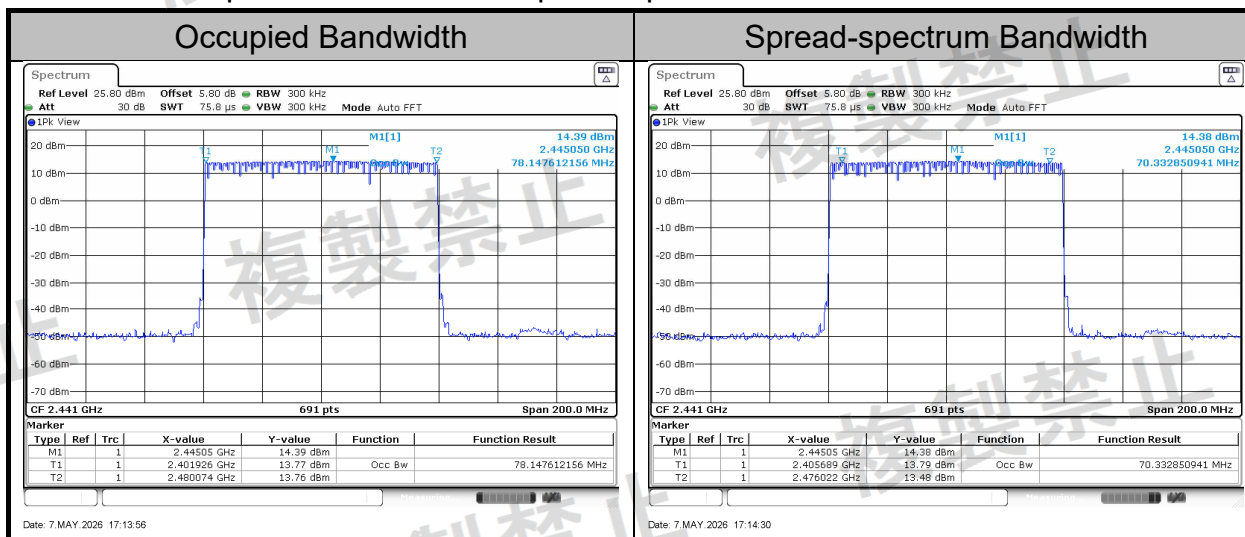
Right :

C.7.BR

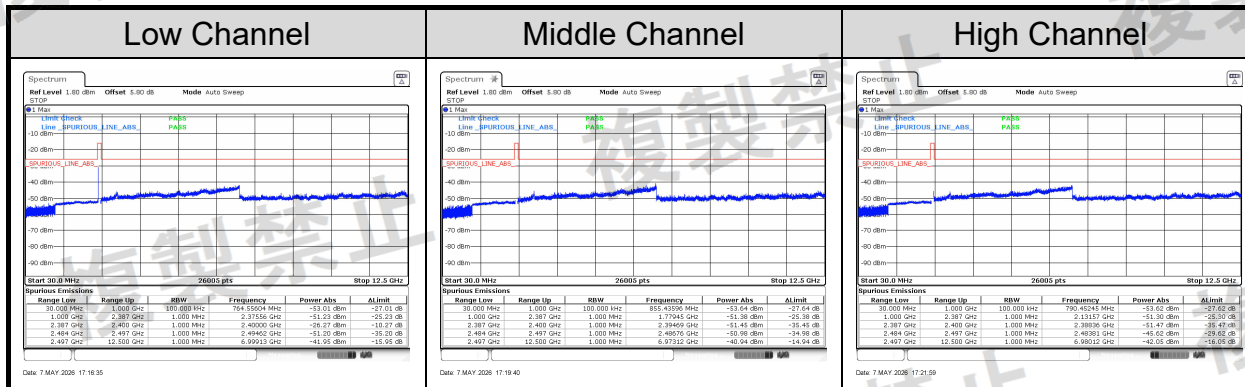
C.7.1. Frequency Tolerance



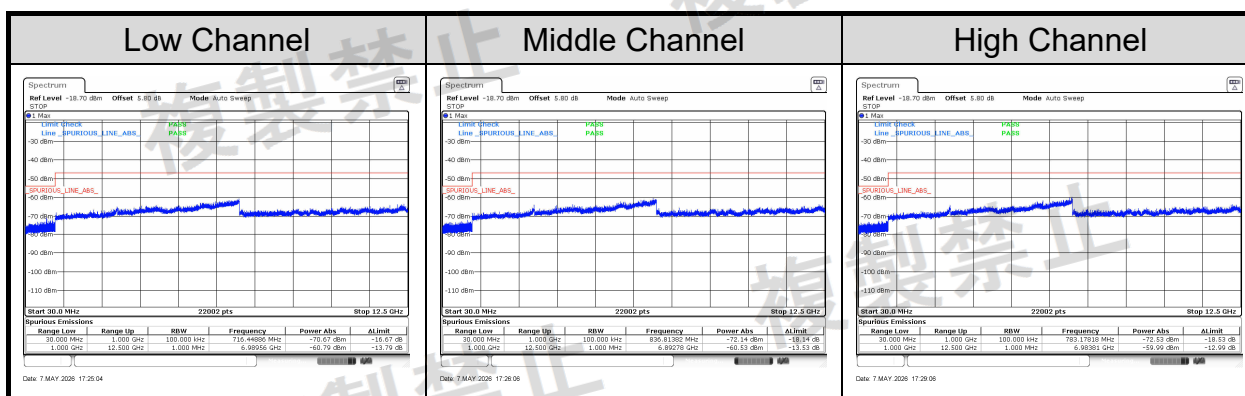
C.7.2. Occupied Bandwidth and Spread-spectrum Bandwidth



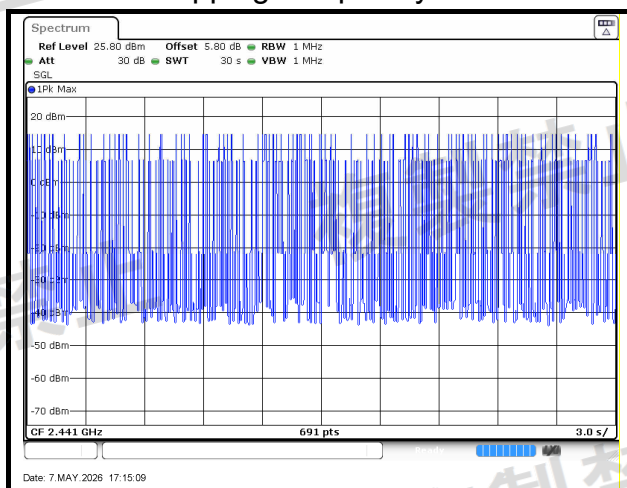
C.7.3. Unwanted Emission Intensity



C.7.4. Limitation of Collateral Emission of Receiver



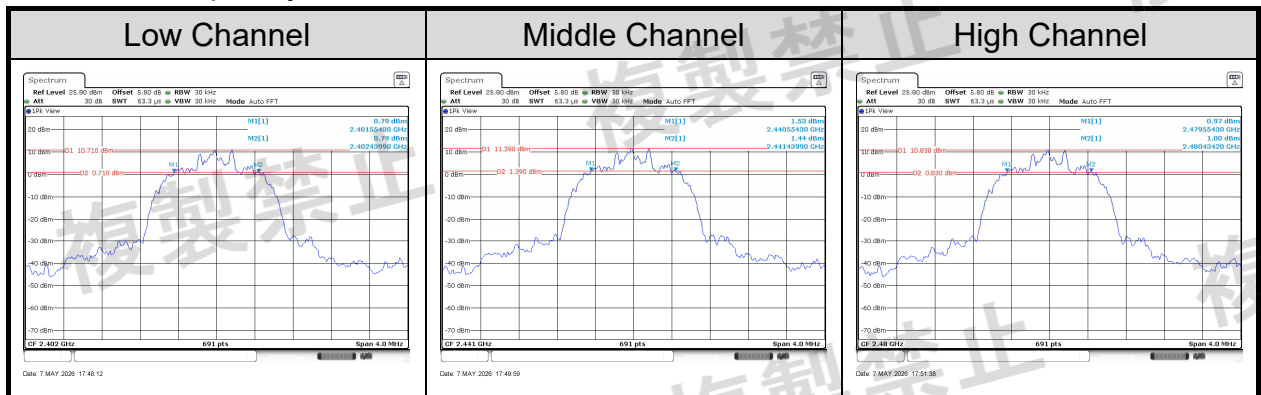
C.7.5. Hopping Frequency Dwell Time



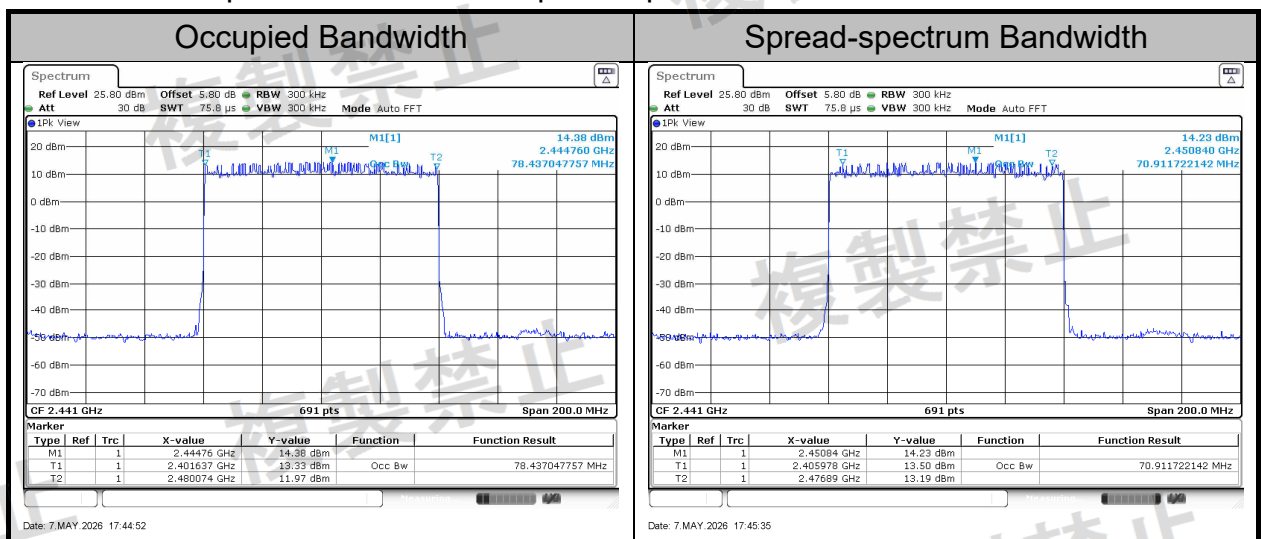


C.8. EDR (Enhanced Data Rate)

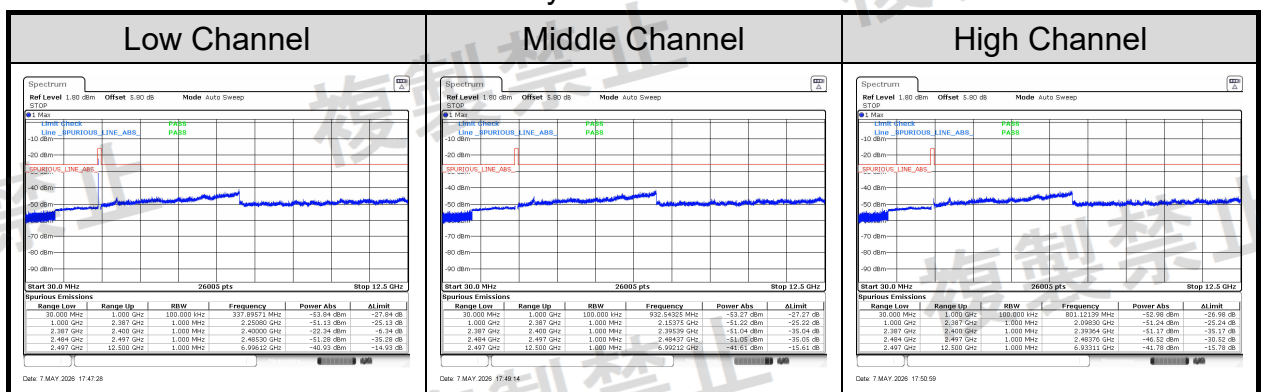
C.8.1. Frequency Tolerance



C.8.2. Occupied Bandwidth and Spread-spectrum Bandwidth

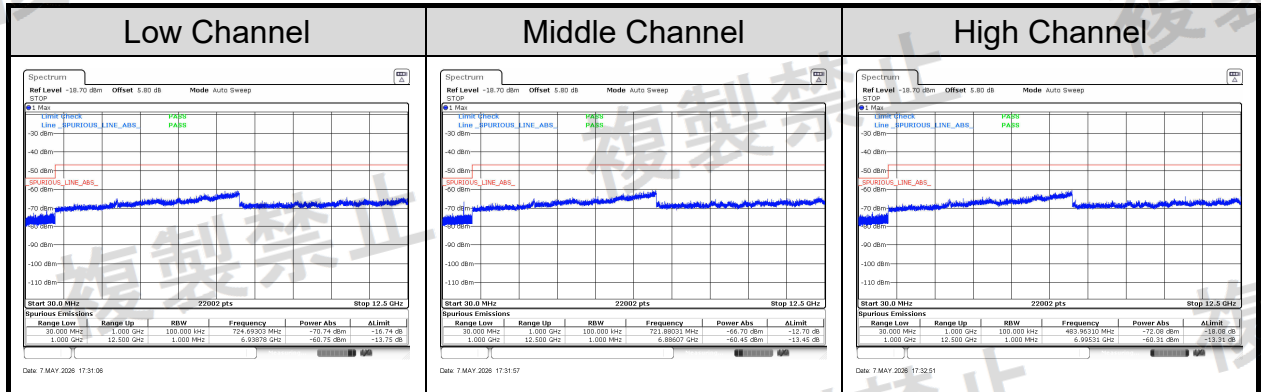


C.8.3. Unwanted Emission Intensity

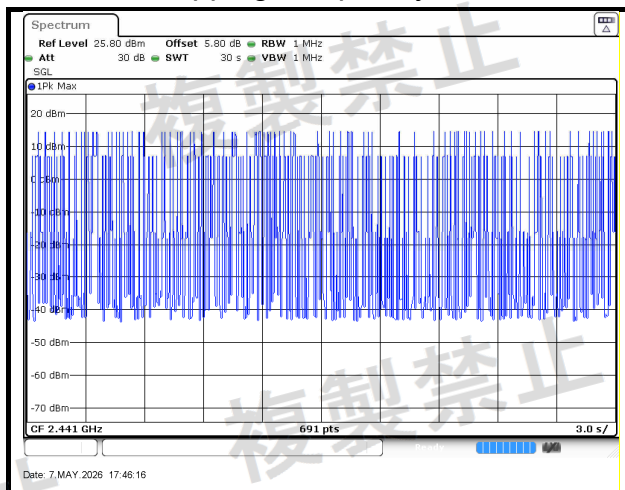


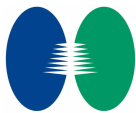


C.8.4. Limitation of Collateral Emission of Receiver



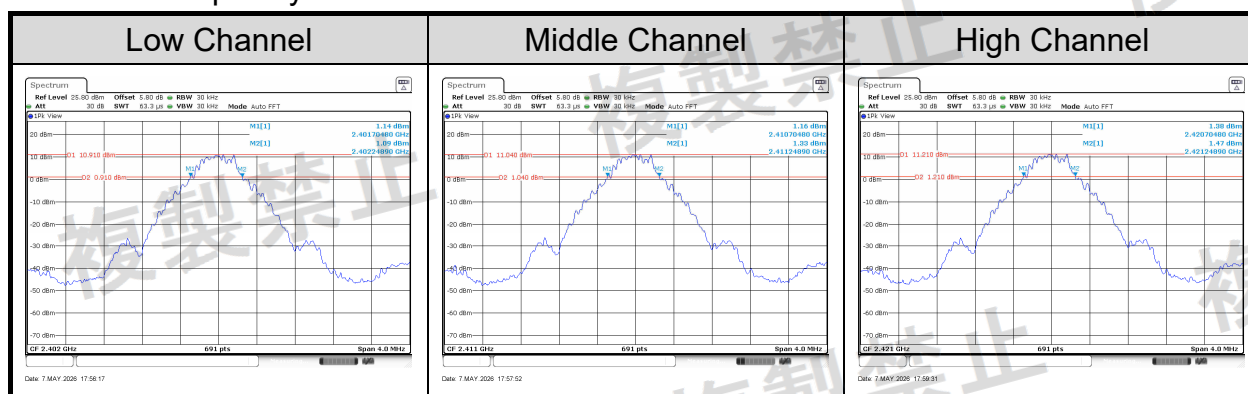
C.8.5. Hopping Frequency Dwell Time



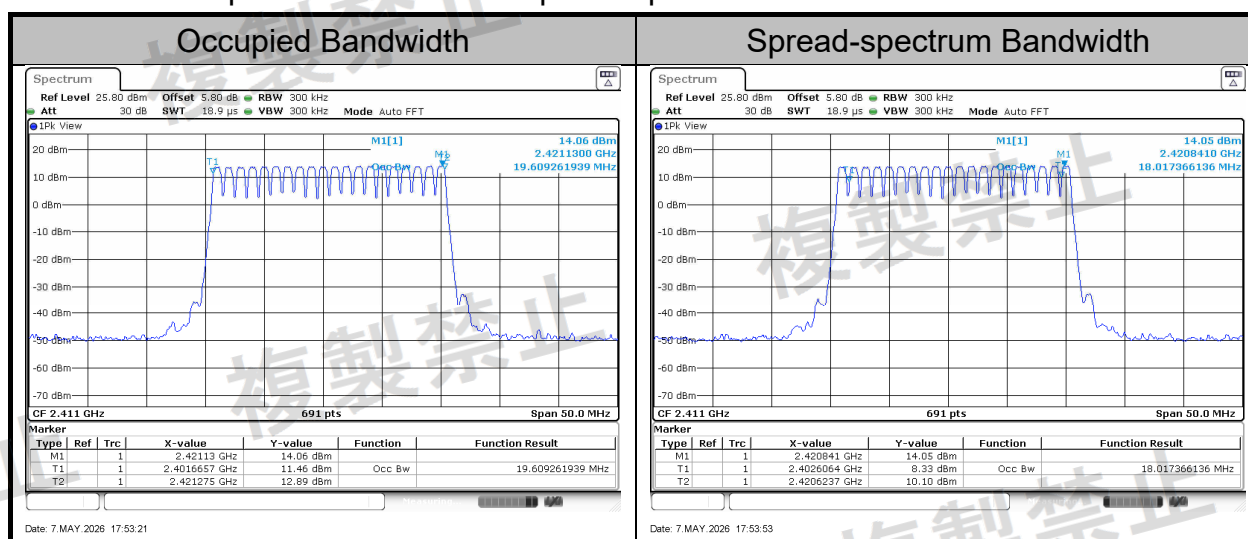


C.9. AFHBDR (Basic Rate)

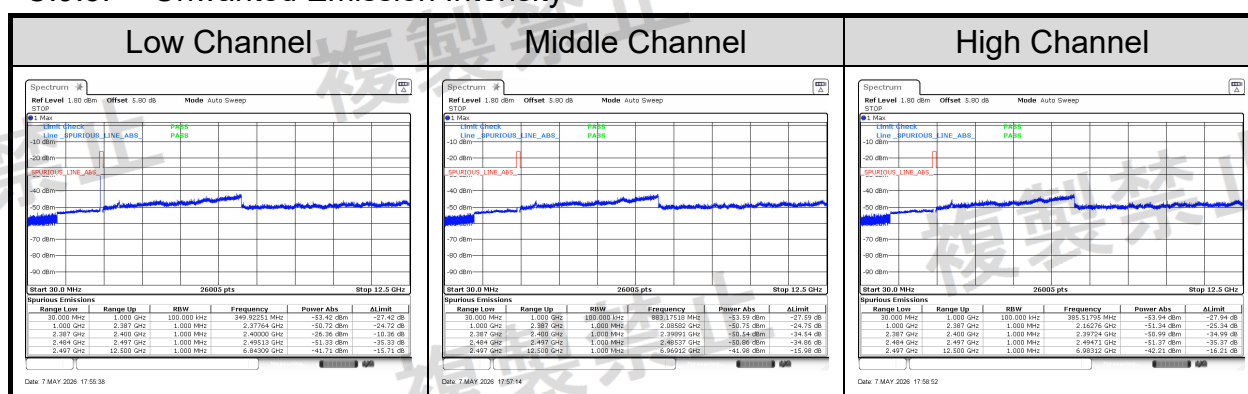
C.9.1. Frequency Tolerance



C.9.2. Occupied Bandwidth and Spread-spectrum Bandwidth

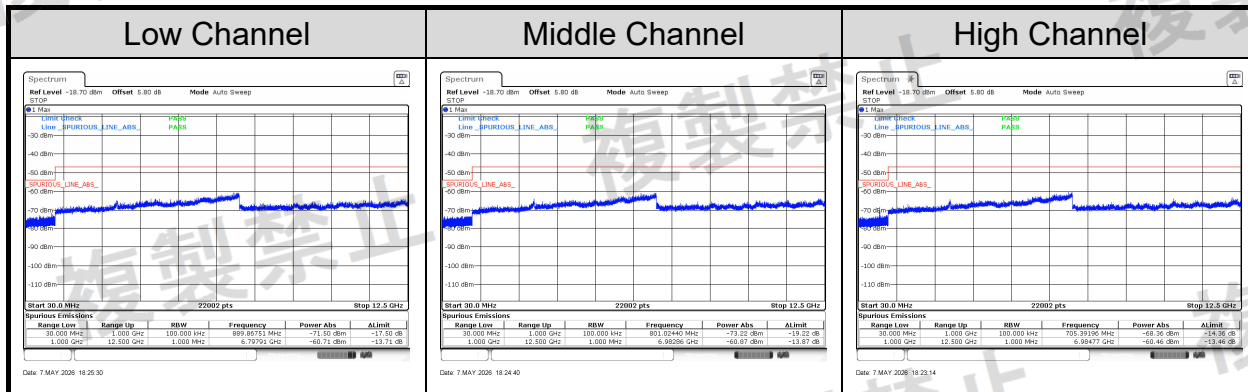


C.9.3. Unwanted Emission Intensity

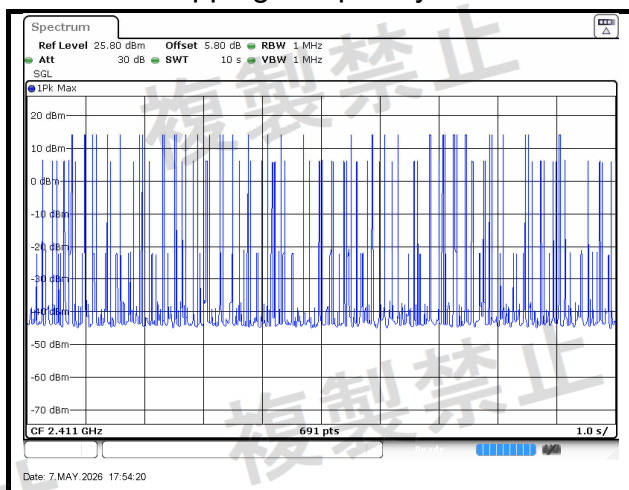




C.9.4. Limitation of Collateral Emission of Receiver



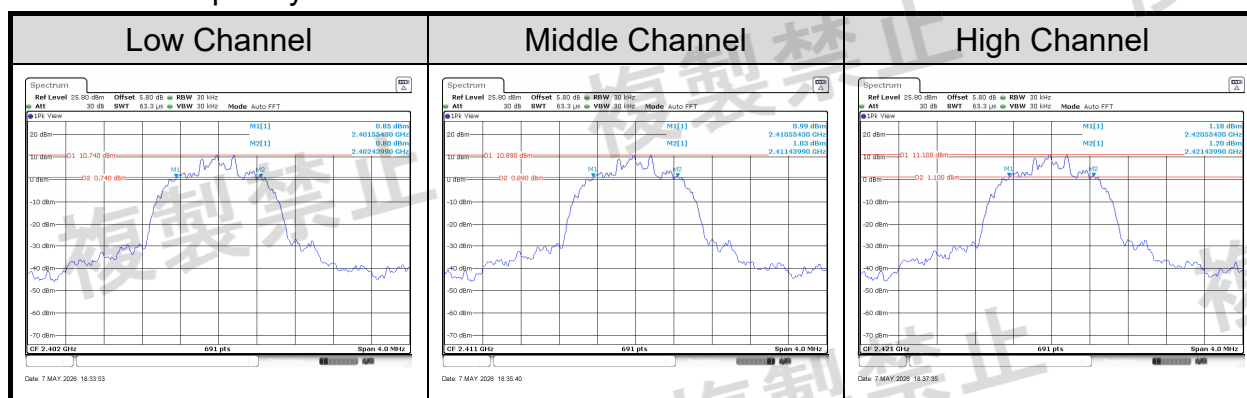
C.9.5. Hopping Frequency Dwell Time



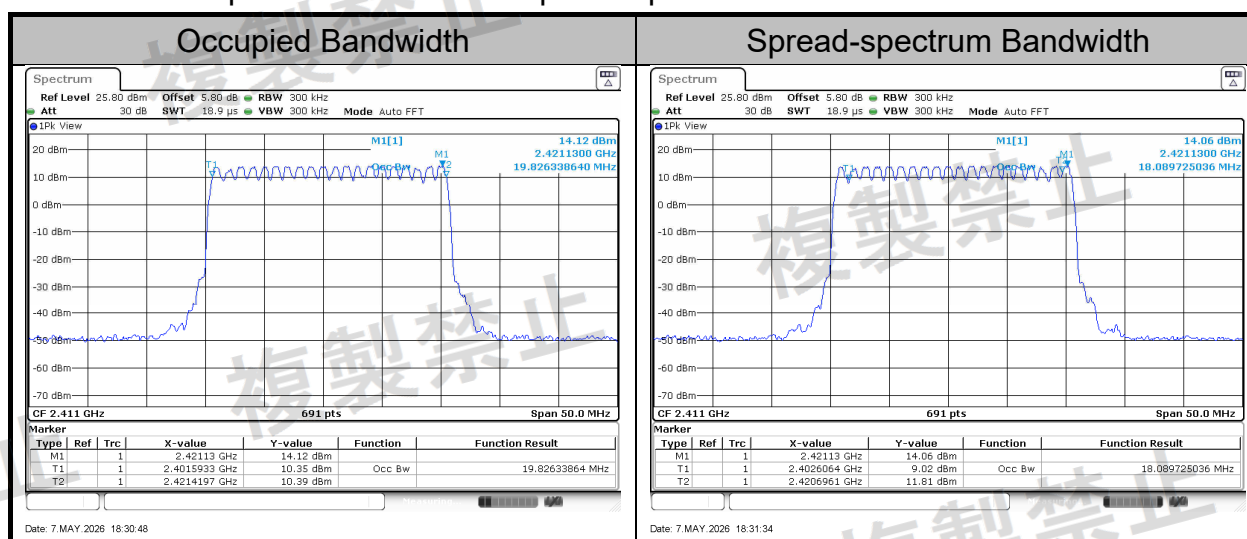


C.10. AFHEDR

C.10.1. Frequency Tolerance

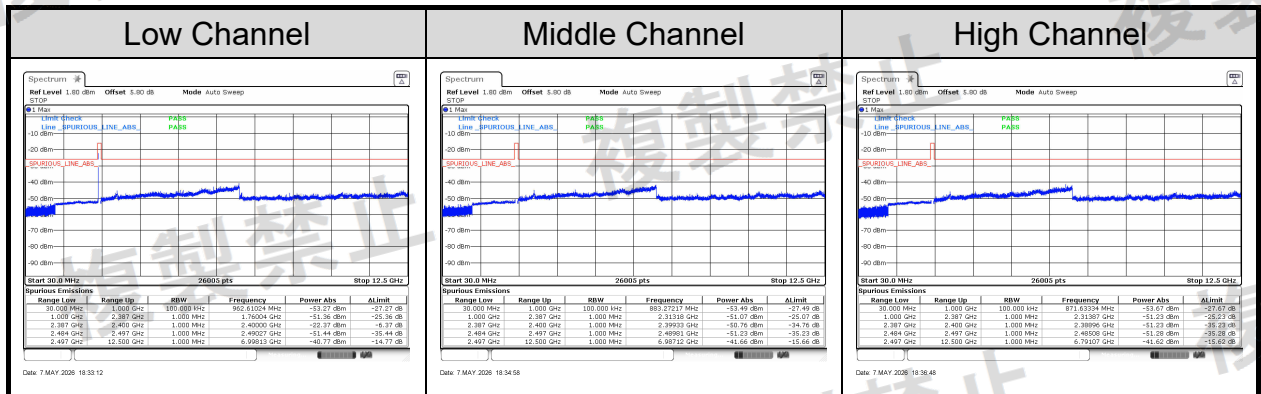


C.10.2. Occupied Bandwidth and Spread-spectrum Bandwidth

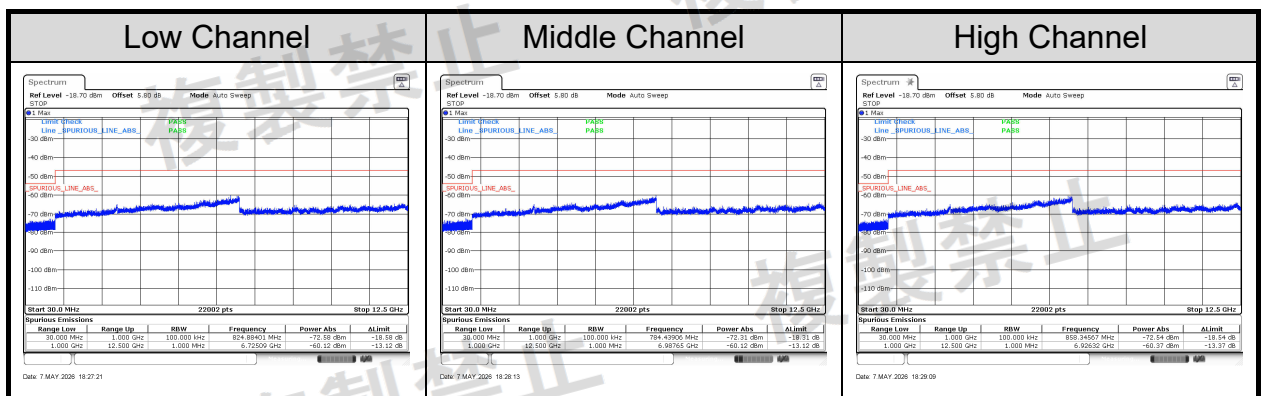




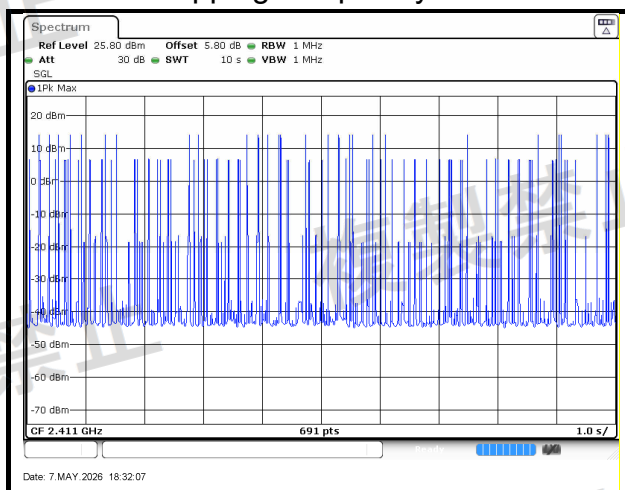
C.10.3. Unwanted Emission Intensity



C.10.4. Limitation of Collateral Emission of Receiver



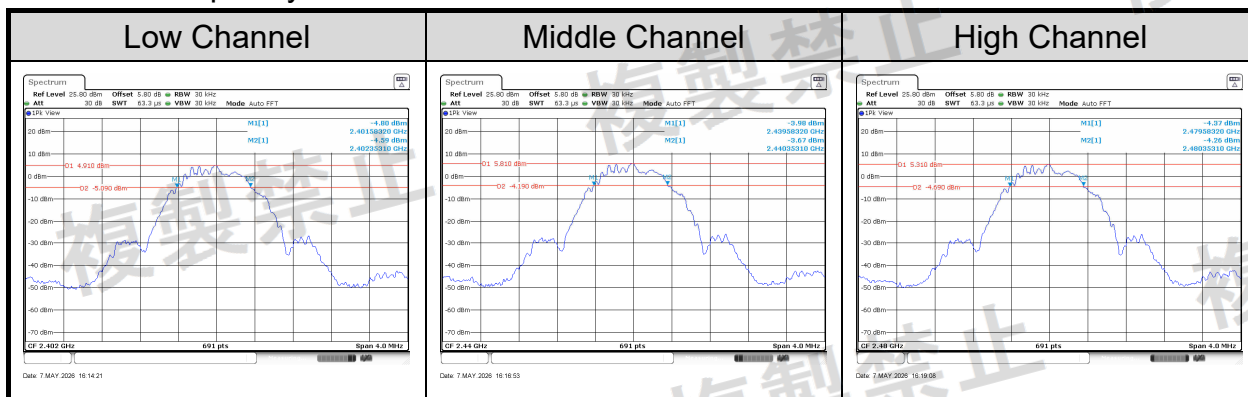
C.10.5. Hopping Frequency Dwell Time



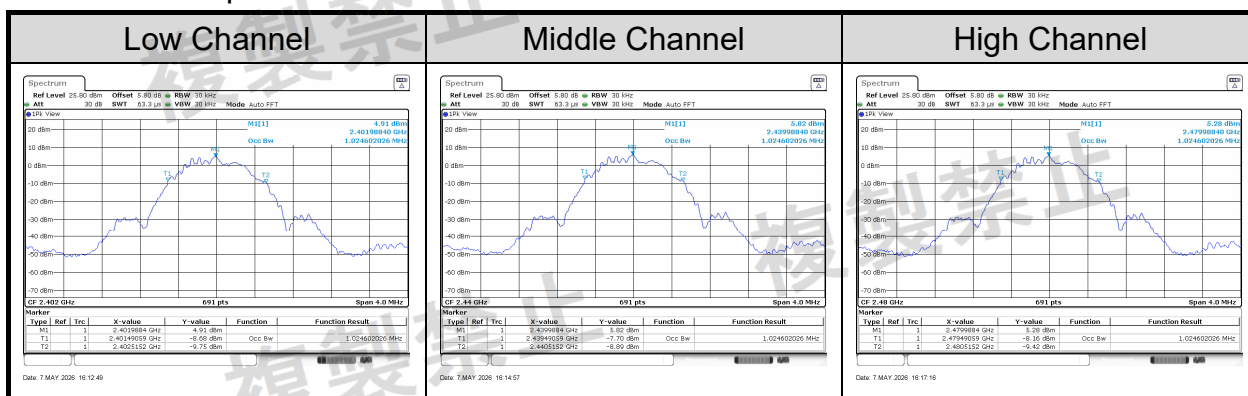


C.11. LE1M

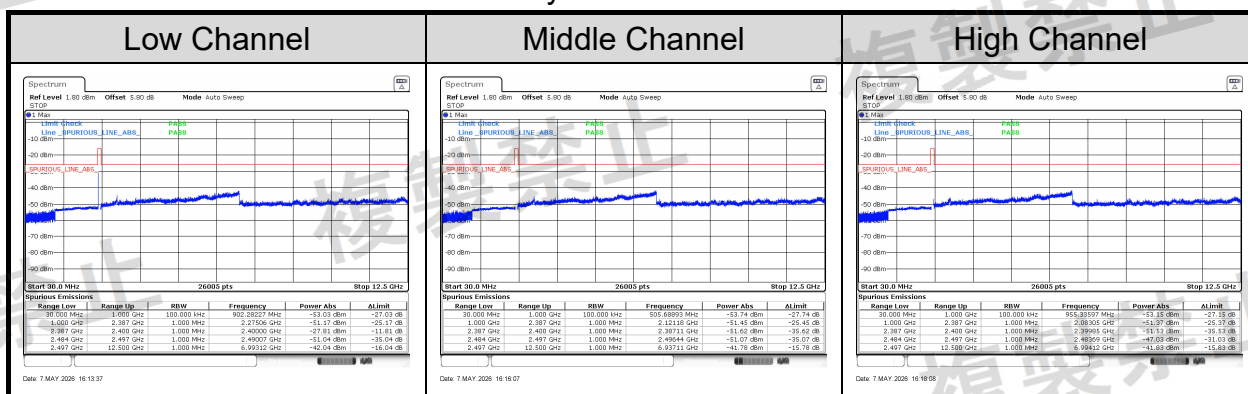
C.11.1. Frequency Tolerance



C.11.2. Occupied Bandwidth

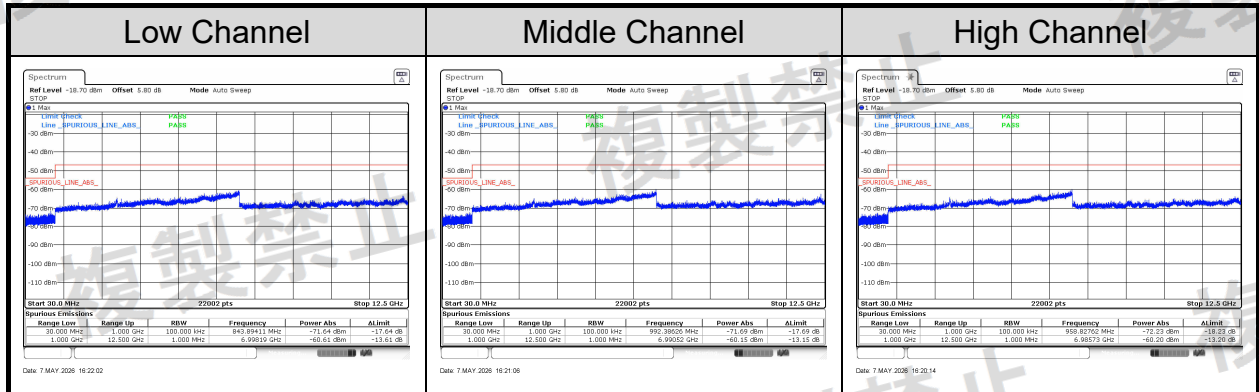


C.11.3. Unwanted Emission Intensity



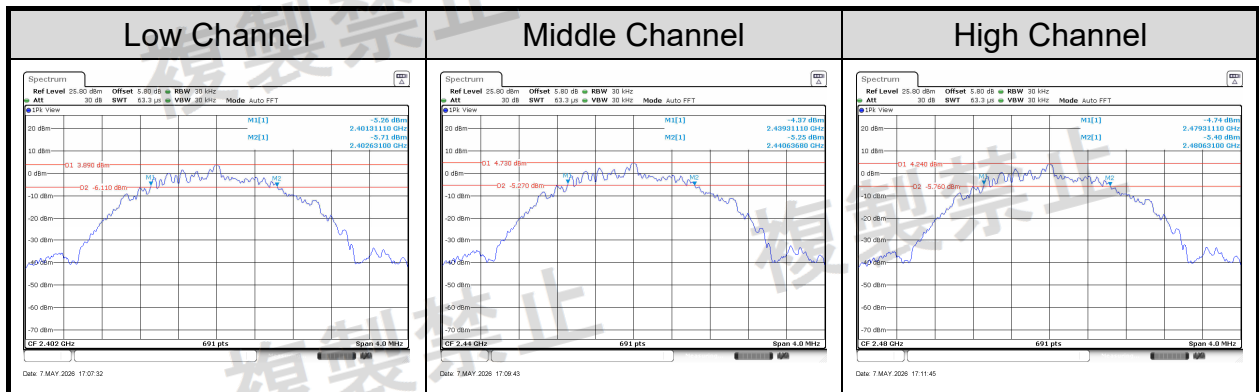


C.11.4. Limitation of Collateral Emission of Receiver

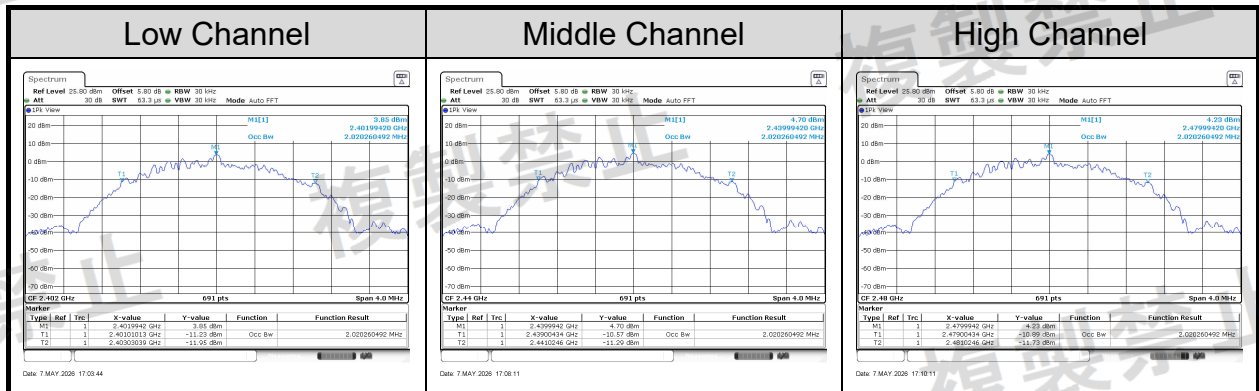


C.12. LE2M

C.12.1. Frequency Tolerance

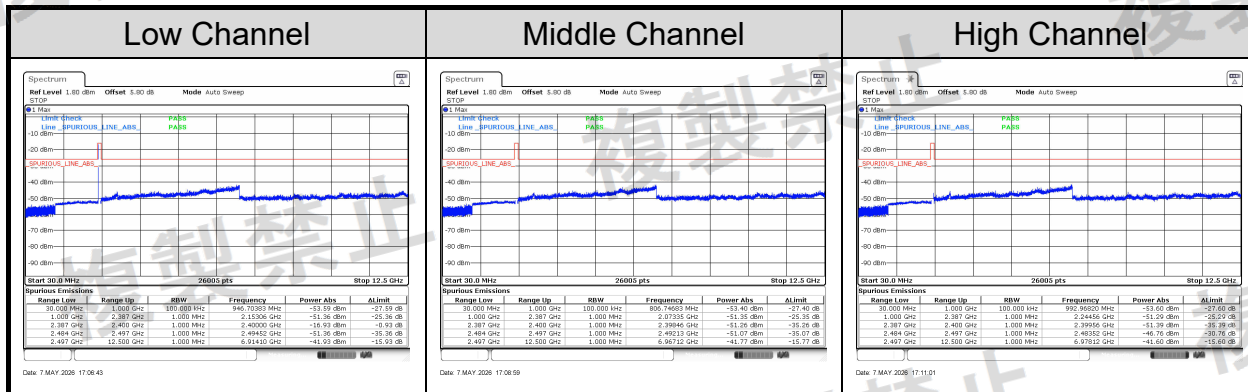


C.12.2. Occupied Bandwidth





C.12.3. C.2.3 Unwanted Emission Intensity



C.12.4. Limitation of Collateral Emission of Receiver

