

Japan Radio Test Report

Project No. : 2508C742
Equipment : Studio Monitors
Brand Name : Behringer
Model Name : TRUTH 8S BT
Applicant : Empower Tribe Commercial FZE
Address : LB181504WS13, Jebel Ali Freezone Dubai, United Arab Emirates
Manufacturer : Empower Tribe Commercial FZE
Address : LB181504WS13, Jebel Ali Freezone Dubai, United Arab Emirates
Factory 1 : Zhongshan Eurotec Electronics Ltd.
Address : NO.10 Wanmei Road, South China Modern Chinese Medicine Park, Nanlang Town, Zhongshan City
Factory 2 : Zhongshan City Li Tai Electronic Industrial Co., Ltd.
Address : 3rd Industrial District, Wuguishan Town, Zhongshan City, Guangdong, China
Date of Receipt : Aug. 27, 2025
Date of Test : Aug. 28, 2025 ~ Dec. 15, 2025
Issued Date : Feb. 09, 2026
Test Sample : Engineering Sample No.: DG92025082749
Standard(s) : Ordinance Regulating Radio Equipment General Provisions, Transmitting Equipment, Receiving Equipment, Article 49-20
Test Procedure : Test Method Specified Radio Equipment Article 2 Paragraph 1 of item19 (MIC Notice No.88 Appendix No.43)

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc. (Dongguan)

Prepared by : Chella Zheng
Chella Zheng

Approved by : Chay Cai
Chay Cai

No.3, Jinshagang 1st Road, Dalang, Dongguan, Guangdong People's Republic of China.

Tel: +86-769-8318-3000

Web: www.newbtl.com

Service mail: btl_qa@newbtl.com

Declaration

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BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** assumes no responsibility for the data provided by the customer, any statements, inferences or generalizations drawn by the customer or others from the reports issued by **BTL**.

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BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

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REVISION HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-JPAP-1-2508C742	R00	Original Report.	Jan. 15, 2026	Invalid
BTL-JPAP-1-2508C742	R01	This report has been revised as follows: 1. Revised the Antenna Gain in section 2.1. 2. Revised the confirmation method in section 3.10.2. 3. Added the test date in chapter 4. 4. Updated the data and limits on pages 35 and 38. It is a revision of the report BTL-JPAP-1-2508C742 R00. This is a newly released report, replacing the BTL-JPAP-1-2508C742 R00 report.	Feb. 03, 2026	Invalid
BTL-JPAP-1-2508C742	R02	This report revised the confirmation method and added a note in section 3.10.2. It is a revision of the report BTL-JPAP-1-2508C742 R01. This is a newly released report, replacing the BTL-JPAP-1-2508C742 R01 report.	Feb. 09, 2026	Valid

1. SUMMARY OF TEST RESULTS

Part	Description of Test	Rule Section	Result
3.1	Frequency Tolerance	Article 5, Annex 1	Pass
3.2	Occupied Bandwidth (99%) and Spread-spectrum Bandwidth (90%)	Article 6, Annex 2	Pass
3.3	Unwanted Emission Intensity	Article 7, Annex 3	Pass
3.4	Antenna Power Tolerance	Article 14	Pass
3.5	Limitation of Collateral Emission of Receiver	Article 24, Paragraph 2	Pass
3.6	Transmission Antenna Gain (EIRP Antenna Power)	Article 49-20	N/A
3.7	Transmission Radiation Angle Width (3dB Beamwidth)	Article 49-20	N/A
3.8	Radio Interference Prevention Capability	Article 9-4, Item 5 Article 6-2, Item 3 and 5 of the Regulation for Enforcement of the Radio Law	Pass
3.9	Hopping Frequency Dwell Time	Article 49-20	Pass
3.10	Construction Protection Confirmation	Article 49-20	Pass

Method of measurement:	MIC Notice No.88 Appendix No.43
Test condition:	Conductive, RF test program provided by the customer was used to control the operating channel as well as the output power level.

Abbreviations used in this test report are as follows:

NC:	Normal Condition
EC:	Extreme Condition
EUT:	Equipment Under Test
DS:	Direct spreading
FH:	Frequency hopping
OFDM:	Orthogonal frequency division multiplexing

1.1. TEST FACILITY

The test facilities used to collect the test data in this report:

DGDLSR08-1: No.3, Jinshagang 1st Road, Dalang, Dongguan, Guangdong People's Republic of China.

1.2. MEASUREMENT UNCERTAINTY

Test Items	Uncertainty	Remark
Frequency Tolerance	1.4 ppm	Confidence levels of 95.45%
99% & 90% Bandwidth	0.75 %	Confidence levels of 95.45%
Antenna Power	1.3 dB	Confidence levels of 95.45%
TX-RX Emission	2.1 dB	Confidence levels of 95.45%

1.3. TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By
Frequency Tolerance	21°C	52%	AC 100V/60Hz	Jayden Li
Occupied Bandwidth (99%) and Spread-spectrum Bandwidth (90%)	21°C	52%	AC 100V/60Hz	Jayden Li
Unwanted Emission Intensity	21°C	52%	AC 100V/60Hz	Jayden Li
Antenna Power Tolerance	21°C	52%	AC 100V/60Hz	Jayden Li
Limitation of Collateral Emission of Receiver	21°C	52%	AC 100V/60Hz	Jayden Li
Hopping Frequency Dwell Time	21°C	52%	AC 100V/60Hz	Jayden Li

2. GENERAL INFORMATION

2.1. GENERAL DESCRIPTION OF EUT

Equipment	Studio Monitors
Brand Name	Behringer
Test Model	TRUTH 8S BT
Model Name	TRUTH 8S BT
Model Difference(s)	N/A
Hardware Version	V0.6
Software Version	V11
Power Source	AC Mains.
Power Rating	100-240V~50/60Hz, 27W
Operation Frequency	2402MHz ~ 2480MHz
Modulation Type	GFSK, $\pi/4$ -DQPSK, 8-DPSK
Data Rate	1Mbps, 2Mbps, 3Mbps
Occupied Bandwidth	1Mbps: 78.80 MHz 3Mbps: 78.80 MHz
Antenna Power (Rated Power)	1Mbps: 0.03 mW/MHz 2Mbps: 0.03 mW/MHz 3Mbps: 0.03 mW/MHz
Antenna Power (Max. Conducted Power)	1Mbps: 0.0187-15.78 mW/MHz 2Mbps: 0.0182-15.90 mW/MHz 3Mbps: 0.0194-15.62 mW/MHz

Note:

1. The above EUT information is declared by manufacturer and for more detailed features description, please refers to the manufacturer's specifications or user's manual.

2. Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	27	2429	54	2456
01	2403	28	2430	55	2457
02	2404	29	2431	56	2458
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	60	2462
07	2409	34	2436	61	2463
08	2410	35	2437	62	2464
09	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		

3. Table for Filed Antenna:

Ant.	Manufacturer	Model Name	Antenna Type	Connector	Gain (dBi)
1	ZhongShan City Li Tai Electronic Industrial Co., Ltd.	ANT	PCB	N/A	2.3

Note: The antenna gain is provided by the manufacturer.

2.2. DESCRIPTION OF TEST MODES

The EUT was tested in a continuous transmitting and receiving mode.

The EUT was tuned to a low, middle, and high channel for all tests.

The EUT continuously transmitted a modulated packet with payload, while transmitting the EUT was setup to operate at the intended maximum power output available to the end user.

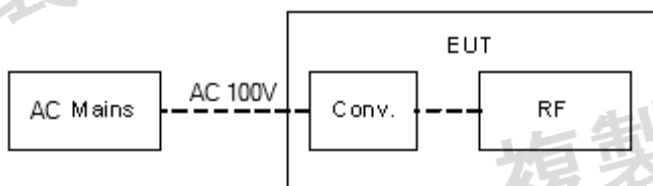
For all test case pre-scans were completed in all modes to determine worst case levels.

Test Mode	Description
Mode 1	1Mbps/CH00, CH39, CH78
Mode 2	2Mbps/CH00, CH39, CH78
Mode 3	3Mbps/CH00, CH39, CH78

Note:

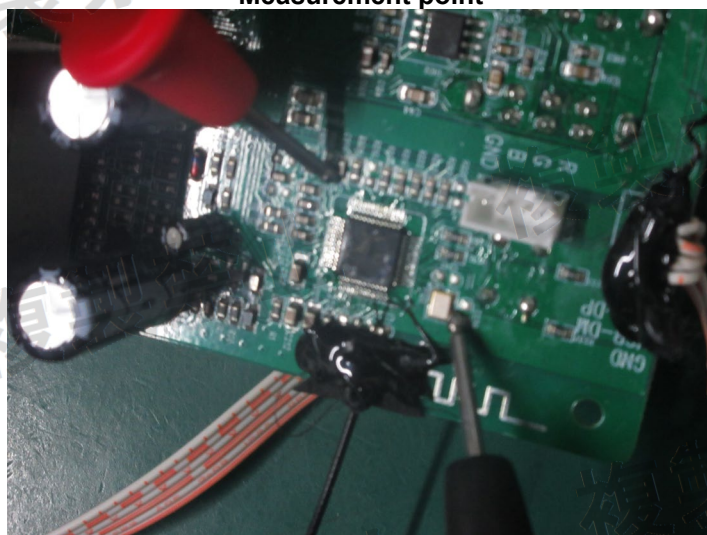
1. The measurements for Antenna Power Tolerance were tested with DH1/3/5 during 1Mbps, 2Mbps and 3Mbps, the worst case were 1Mbps (DH5) and 3Mbps (3DH5), only worst case were documented for other test items except Hopping Frequency Dwell Time.

Power Supply Voltage Fluctuation Test



Voltage Fluctuation Test	Normal Voltage	High Voltage + 10% of Normal Voltage	Low Voltage - 10% of Normal Voltage
Input: AC Power	100V	110V	90V
Output: DC Power	2.995V	2.995V	2.995V
Voltage Variation (%)	-	0	0

Measurement point



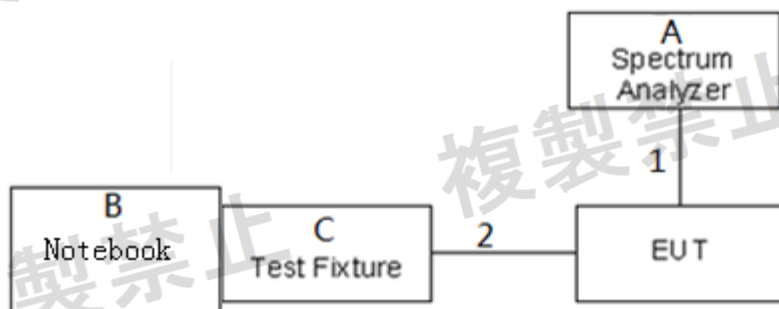
Note:

Voltage Variation (%)
= (Output High Voltage or Low Voltage - Output Normal Voltage) / Output Normal Voltage * 100

During the input supply voltage to the EUT from the external power source is varied by +/- 10%, if output voltage had been confirmed that the fluctuation of power supply to the RF circuit of EUT (excluding power source) is equal to or less than +/- 1%.

Exempt extremely high and low supply voltage condition tests, EUT only operated in normal voltage to test all regulations.

2.3. BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.4. DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.
A	Spectrum Analyzer	R&S	FSP40	100185
B	Notebook	HUAWEI	KLVG-16	N/A
C	Test Fixture	N/A	N/A	N/A

Item	Cable Type	Shielded Type	Ferrite Core	Length
1	RF Cable	YES	NO	0.1m
2	Control Cable	NO	NO	0.2m

2.5. TABLE FOR PARAMETERS OF TEST SOFTWARE SETTING

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level.

Test Software Version	FCC_assist_1.0.2.2
Frequency (MHz)	2402~2480
1Mbps	10
2Mbps	10
3Mbps	8

3. TEST RESULTS

3.1. FREQUENCY TOLERANCE MEASUREMENT

3.1.1. LIMIT

Item	Limits (See Article 5 and Annex 1 table 7-8 of the Ordinance Regulating Radio Equipment)
Frequency Tolerance	-50≤ppm≤50

3.1.2. SETTING

The following table is the setting of the spectrum analyzer.

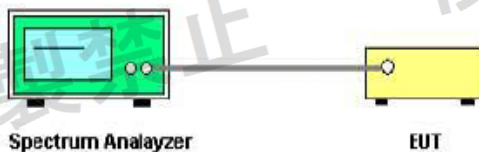
Spectrum Parameter	Setting
Span	200kHz
RBW / VBW	10kHz / 10kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

3.1.3. TEST PROCEDURES

Test method according to Clause 3 of Annex No.43 of MIC Notification No.88.

1. Frequency accuracy of SA shall be less than 10% of limits tolerance (5ppm).
2. Set spectrum analyzer with condition in section 3.1.2 and tune reference level to observe receiving signal position.
3. Center Frequency: The center frequency of testing for EUT.
4. EUT have transmitted absence of modulation signal and fixed channelize. f is using the mark cursor to mark the peak frequency value, f_c is declaring of channel frequency.
Then the frequency error formula is $(f_c - f) / f_c \times 10^6$ ppm and the limit is less than ± 50 ppm.

3.1.4. TEST SETUP LAYOUT



3.1.5. TEST DEVIATION

There is no deviation with the original standard.

3.1.6. EUT OPERATION DURING TEST

The EUT was programmed to be in un-modulation mode.

3.1.7. TEST RESULTS

Please refer to the Appendix A.

3.2. OCCUPIED BANDWIDTH AND SPREAD-SPECTRUM BANDWIDTH MEASUREMENT

3.2.1. LIMIT

Item	Limits (See Article 6 and Annex 2 30 of the Ordinance Regulating Radio Equipment)
Occupied Bandwidth	≤83.5MHz

3.2.2. SETTING

The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Span	83.5MHz
RBW / VBW	300kHz / 300kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

3.2.3. TEST PROCEDURES

Test method according to Clause 4 of Annex No.43 of MIC Notification No.88.

1. Set spectrum analyzer with condition in section 3.2.2 and tune reference level to observe receiving signal position.
2. EUT have transmitted the maximum modulation signal and continuous maximum power of hopping mode. SA set to 99% of occupied bandwidth to measure occupied bandwidth. The limit is less than 83.5MHz.
3. SA set to 90% of occupied bandwidth to measure Spread Spectrum Bandwidth.

3.2.4. TEST SETUP LAYOUT



3.2.5. TEST DEVIATION

There is no deviation with the original standard.

3.2.6. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously hopping mode.

3.2.7. TEST RESULTS

Please refer to the Appendix B.

3.3. UNWANTED EMISSION INTENSITY MEASUREMENT

3.3.1. LIMIT

Item	Limits
	(See Article 7 and Annex 3 26 of the Ordinance Regulating Radio Equipment)
TX	$\leq 2.5 \mu\text{W}/\text{MHz}$ ($30\text{MHz} \leq f \leq 1000\text{MHz}$)
Spurious	$\leq 2.5 \mu\text{W}/\text{MHz}$ ($1000\text{MHz} \leq f < 2387\text{MHz}$; $2496.5\text{MHz} < f$)
Emission	$\leq 25 \mu\text{W}/\text{MHz}$ ($2387\text{MHz} \leq f < 2400\text{MHz}$) and ($2483.5\text{MHz} < f \leq 2496.5\text{MHz}$)
Measurement range: 30MHz~5th harmonics	

3.3.2. SETTING

The following table is the setting of spectrum analyzer.

Spectrum Parameter	Setting
RBW / VBW	100kHz / 100kHz (30~1000MHz) 1 MHz / 1 MHz (Above 1000MHz)
Detector	Positive Peak
Trace	Max Hold
Sweep Time	Auto

3.3.3. TEST PROCEDURES

Test method according to Clause 5 of Annex No.43 of MIC Notification No.88.

1. EUT have transmitted the maximum modulation signal and fixed channelize.
2. Set spectrum analyzer with condition in section 3.3.2 and tune reference level to observe receiving signal position.
3. SA adjusted to start frequency 30MHz and stop frequency 1000MHz. Then to mark peak reading value + cable loss shall be less than $2.5\mu\text{W}/\text{MHz}$.
4. SA adjusted to start frequency 1000MHz and stop frequency 2387MHz. Then to mark peak reading value + cable loss shall be less than $2.5\mu\text{W}/\text{MHz}$.
5. SA adjusted to start frequency 2387MHz and stop frequency 2400MHz. Then to mark peak reading value + cable loss shall be less than $25\mu\text{W}/\text{MHz}$.
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 $25\mu\text{W}/\text{MHz}$.
7. SA adjusted to start frequency 2496.5MHz and stop frequency 12500MHz. Then to mark peak reading value + cable loss shall be less than $2.5\mu\text{W}/\text{MHz}$.
8. If the Result_Value is over the requirement, take total sum of 1MHz band centered at the spur frequency like time domain power measurement as Result_Value.

3.3.4. TEST SETUP LAYOUT



3.3.5. TEST DEVIATION

There is no deviation with the original standard.

3.3.6. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

Note:

- ※ 1: Frequency Band 1 (30MHz≤f≤1000MHz)
- ※ 2: Frequency Band 2 (1000MHz≤f<2387MHz)
- ※ 3: Frequency Band 3 (2387MHz≤f<2400MHz)
- ※ 4: Frequency Band 4 (2483.5MHz<f≤2496.5MHz)
- ※ 5: Frequency Band 5 (2496.5MHz<f)

Band	1	2	3	4	5
Cable Loss(dB)	16	16	16	16	16

3.3.7. TEST RESULTS

Please refer to the Appendix C.

3.4. ANTENNA POWER TOLERANCE MEASUREMENT

3.4.1. LIMIT

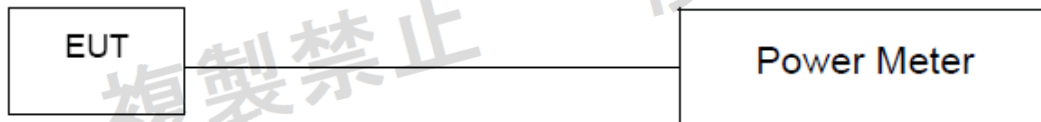
Item	Limits	
	(See Article 14 table 8 and Article 49-20 of the Ordinance Regulating Radio Equipment)	
Frequency Range	2427 - 2470.75 MHz	2400 - 2483.5 MHz (except 2427 - 2470.75 MHz)
Antenna Power	3 mW/MHz or less	10 mW/MHz or less
EIRP	6.91 - 16.91 dBm/MHz or less	12.14 - 22.14 dBm/MHz or less
Antenna Power Tolerance	+20% (Base on manufacturer declare antenna power)	

3.4.2. TEST PROCEDURES

Test method according to Clause 6 of Annex No.43 of MIC Notification No.88.

1. Measure the total power by Power Meter in a state of hopping mode (with Average Sensor).
2. If it's the burst wave, please measure the burst ratio. Then calculate the real total power by burst ratio.
3. Calculate the mean power per 1MHz by dividing the total power by spread bandwidth.

3.4.3. TEST SETUP LAYOUT



3.4.4. TEST DEVIATION

There is no deviation with the original standard.

3.4.5. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously hopping mode.

3.4.6. TEST RESULTS

Please refer to the Appendix D.

3.5. LIMITATION OF COLLATERAL EMISSION OF RECEIVER MEASUREMENT

3.5.1. LIMIT

Item	Limits
	(See Article 24, Paragraph 2 of the Ordinance Regulating Radio Equipment)
RX Spurious Emission	$\leq 4 \text{ nW } (-54 \text{ dBm}) (f < 1\text{GHz})$
	$\leq 20 \text{ nW } (-47 \text{ dBm}) (1\text{GHz} \leq f)$
Measurement range: 30MHz~5th harmonics	

3.5.2. SETTING

The following table is the setting of spectrum analyzer.

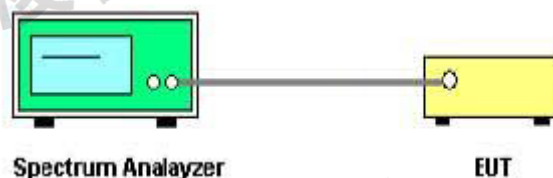
Spectrum Parameter	Setting
RBW / VBW	100kHz / 100kHz (30~1000MHz)
	1 MHz / 1 MHz (Above 1000MHz)
Detector	Positive Peak
Trace	Max Hold
Sweep Time	Auto

3.5.3. TEST PROCEDURES

Test method according to Clause 7 of Annex No.43 of MIC Notification No.88.

1. EUT have the continuous reception mode and fixed only one channelize.
2. Set spectrum analyzer with condition in section 3.5.2 and tune reference level to observe receiving signal position.
3. SA set RBW: 100kHz and VBW: 100kHz. Then adjust to start frequency 30MHz and stop frequency 1000MHz. Search to mark peak reading value + cable loss shall be less than 4nW.
4. SA set RBW: 1MHz and VBW: 1MHz. Then adjust to start frequency 1000MHz and stop frequency 12500MHz. Search to mark peak reading value + cable loss shall be less than 20nW.

3.5.4. TEST SETUP LAYOUT



3.5.5. TEST DEVIATION

There is no deviation with the original standard.

3.5.6. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously receiving mode.

Note:

- ※ 6: Frequency Band 6 ($f < 1\text{GHz}$)
- ※ 7: Frequency Band 7 ($1\text{GHz} \leq f$)

Band	6	7
Cable Loss(dB)	1	1

3.5.7. TEST RESULTS

Please refer to the Appendix E.

3.6. TRANSMISSION ANTENNA GAIN (EIRP ANTENNA POWER) MEASUREMENT

3.6.1. LIMIT

Item	Limits (See Article 49-20 of the Ordinance Regulating Radio Equipment)
Transmission Antenna Gain	12.14 dBi or less (When an E.I.R.P. is less than the limit, the shortage can be compensated for by the gain of the transmitting antenna.)

3.6.2. SETTING

The following table is the setting of spectrum analyzer.

Spectrum Parameter	Setting
Span	0Hz
RBW / VBW	1MHz / 1MHz
Detector	Positive Peak
Trace	Max Hold
Sweep Time	Auto

3.6.3. TEST PROCEDURES

Test method according to Clause 10 of Annex No.43 of MIC Notification No.88.

1. Set EUT and measuring antenna at the same height (1.5 m) and roughly facing each other. EUT have transmitted the maximum modulation signal and fixed channelize.
2. Set spectrum analyzer with condition in section 3.6.2 and tune reference level to observe receiving signal position. Center Frequency: Provide maximum power frequency.
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. Keeping the worst measuring antenna height and turntable angle unchanged, remove the EUT from the turntable and replace it with SG and a replacement standard antenna. Align the replacement antenna with the measuring antenna, and SG sends radio waves of the same frequency as the EUT. Adjust the replacement antenna to the maximum received power.
6. Move the measuring antenna height up and down within $\pm 50\text{cm}$, maintain the worst height, and adjust the output power of SG to achieve the power value "E" in step 4 of the spectrum analyzer.
7. Calculate EIRP by the formula below.

$$\text{EIRP} = G_S - L_F + P_S$$

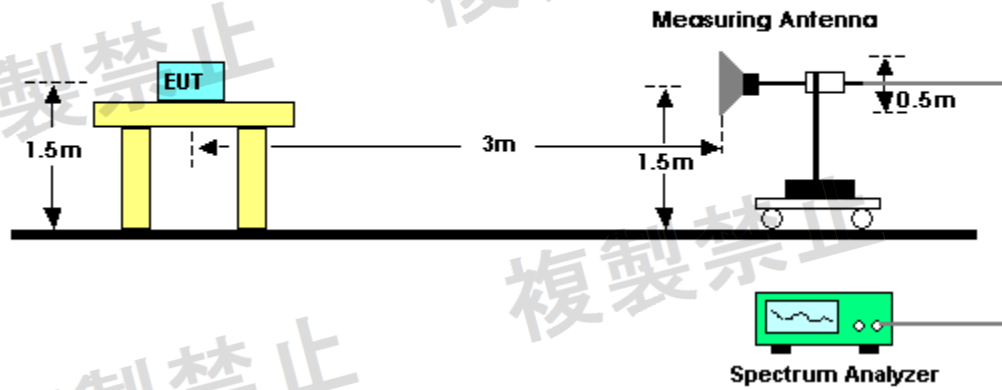
G_S : Gain of replacement antenna (dBi)

L_F : Cable loss between SG and replacement antenna (dB)

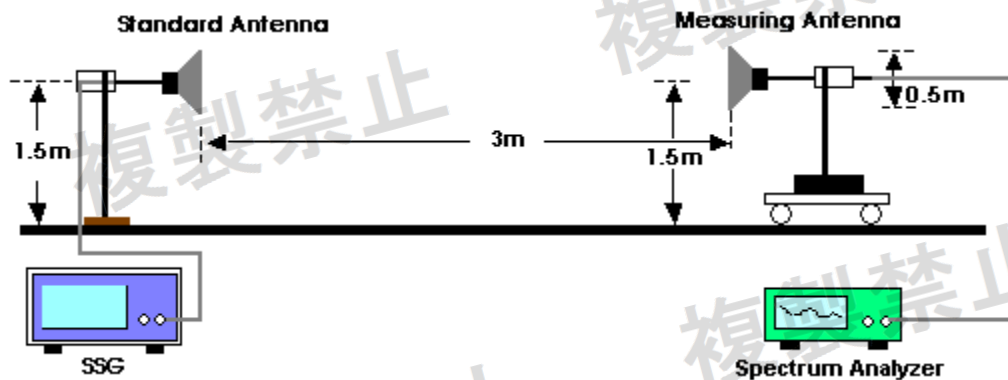
P_S : Output power of SG output port (dBm)

3.6.4. TEST SETUP LAYOUT

For EUT radiation measurement



For standard antenna measurement



3.6.5. TEST DEVIATION

There is no deviation with the original standard.

3.6.6. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

3.6.7. TEST RESULTS OF TRANSMISSION ANTENNA GAIN (EIRP ANTENNA POWER)

Method of measurement:	See MIC Notice No.88 Appendix No.43 Clause 10
Results:	N/A

3.7. TRANSMISSION RADIATION ANGLE WIDTH (3DB BEAMWIDTH) MEASUREMENT

3.7.1. LIMIT

Item	Limits (See Article 49-20 of the Ordinance Regulating Radio Equipment)
3dB antenna beam width	$360^\circ/A$ (If $A < 1$; then $A = 1$) $A = \text{EIRP Power [mW]} / 4.9 \text{ [mW]}$

3.7.2. SETTING

The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Span	0Hz
RBW / VBW	1MHz / 1kHz
Y scale	5dB
Detector	Peak
Trace	Max Hold

3.7.3. TEST PROCEDURES

Test method according to Clause 11 of Annex No.43 of MIC Notification No.88.

1. Set EUT and measuring antenna at the same height (1.5 m) and roughly facing each other. EUT have transmitted absence of modulation signal and fixed channelize.
2. Set spectrum analyzer with condition in section 3.7.2 and tune reference level to observe receiving signal position. Center Frequency: The center frequency of testing for EUT.
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. Using the EIRP measured in section 3.6.3, calculate the allowable angles Θ_0 of the EUT's main radiation in the horizontal and vertical directions using the following formula.

$$\Theta_0 = 360^\circ / A$$

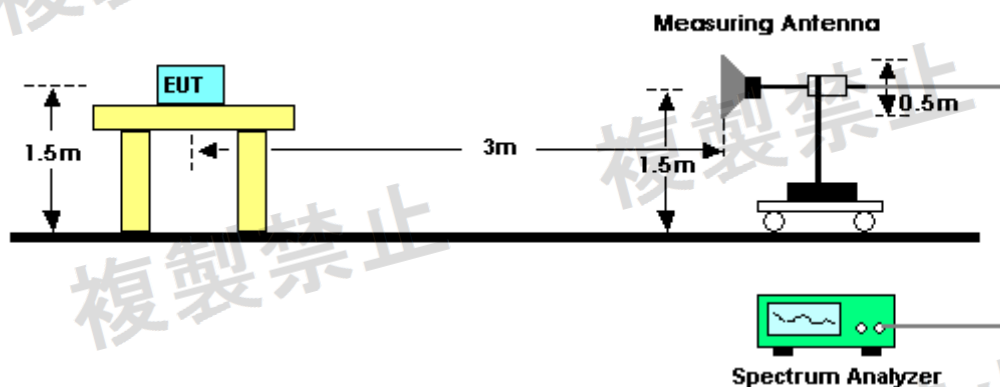
Θ_0 : The allowable angle of the main radiation of EUT transmission antenna ($^\circ$)

A: $\text{EIRP Power [mW]} / 4.9 \text{ [mW]}$ (If $A < 1$; then $A = 1$)

6. Rotate the EUT in the horizontal direction, reducing the angle of the rotating table by 3 dB from the maximum point of received power "E" (θ_n : Measure the half angle of the horizontal plane).
7. Place the EUT horizontally and rotate it as much as possible around the entire circumference from the main radiation direction Θ_0 to the radiation angle other than the one calculated in step 5, ensuring that the received power drops by more than 3dB from the maximum point "E" of the received power.

8. Vertical tilt EUT, measuring the angle from the horizontal plane when the received power drops by 3dB from the maximum point "E" (θ_v : The half value angle of the vertical plane).
9. After returning the test equipment to position 3, the angle of the main radiation calculated from the direction of the main radiation θ_0 should be inclined along the vertical plane direction at the widest possible angle (set at 90 degrees or above) for other radiation angles, ensuring that the received power drops by more than 3dB from the maximum point "E" of the received power.

3.7.4. TEST SETUP LAYOUT



3.7.5. TEST DEVIATION

There is no deviation with the original standard.

3.7.6. EUT OPERATION DURING TEST

The EUT was programmed to be in un-modulation mode.

3.7.7. TEST RESULTS OF TRANSMISSION RADIATION ANGLE WIDTH (3DB BEAMWIDTH)

Method of measurement:	See MIC Notice No.88 Appendix No.43 Clause 11
Results:	N/A

3.8. RADIO INTERFERENCE PREVENTION CAPABILITY MEASUREMENT

3.8.1. LIMIT

Item	Limits (See Article 9-4 Item 5 of the Ordinance Regulating Radio Equipment and Article 6-2 Item 3 of the Regulation for Enforcement of the Radio Law)
Identification code	The wireless equipment of the radio station mainly used in the same station automatically sends or receives the identification code.

3.8.2. MEASURING ID CODE SOFTWARE

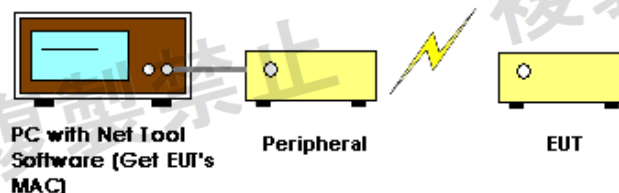
PC with Net Tool	Setting
MAC IP List	MAC Scan

3.8.3. TEST PROCEDURES

Test method according to Clause 23 of Annex No.43 of MIC Notification No.88.

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 LAYOUT



3.8.5. TEST DEVIATION

There is no deviation with the original standard.

3.8.6. EUT OPERATION DURING TEST

The EUT was programmed to be in normal mode.

3.8.7. TEST RESULTS OF RADIO INTERFERENCE PREVENTION CAPABILIT

Test Power:	Normal Voltage
Test Mode:	1Mbps
Test Result:	Pass (identification code:[8C-EC-4B-A5-FB-1D])

8C-EC-4B-A5-FB-1D

3.9. HOPPING FREQUENCY DWELL TIME MEASUREMENT

3.9.1. LIMIT

Item	Limits (See Article 49-20, Item1-k of the Ordinance Regulating Radio Equipment)
Hopping Freq. Dwell Time	$\leq 0.4 \text{ sec (In } 0.4 \text{ sec} \times \text{ spreading rate)}$

3.9.2. SETTING

The following table is the setting of the spectrum analyzer.

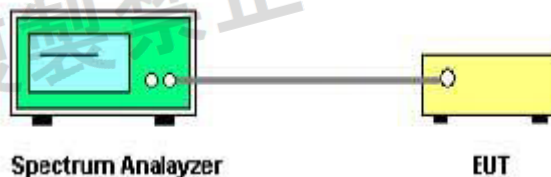
Spectrum Parameter	Setting
RBW / VBW	1 MHz / 1 MHz
Span	0 Hz
Sweep	Single
Detector	Peak
Trace	Max Hold

3.9.3. TEST PROCEDURES

Test method according to Clause 13 of Annex No.43 of MIC Notification No.88.

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Set spectrum analyzer with condition in section 3.9.2 and tune reference level to observe receiving signal position.
3. Measure the maximum time duration of one single pulse.
4. Set the EUT for DH5, DH3 and DH1 packet transmitting.
5. Measure the maximum time duration of one single pulse.
6. Dwell time = [spreading bandwidth/79] x duty cycle x 0.4 seconds (to be determined for each mode, DH1, DH3, DH5).

3.9.4. TEST SETUP LAYOUT



3.9.5. TEST DEVIATION

There is no deviation with the original standard.

3.9.6. EUT OPERATION DURING TEST

The EUT was programmed to be in DH5/DH3/DH1 transmitting mode.

3.9.7. TEST RESULTS

Please refer to the Appendix F.

3.10. CONSTRUCTION PROTECTION CONFIRMATION METHOD

3.10.1. LIMIT

(See Article 49-20 of the Ordinance Regulating Radio Equipment).

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

3.10.2. CONFIRMATION METHOD

The RF and modulation portions are protected against illegal modification as following method:

Tick the appropriate box	
☐	1. Sealed with special screws.
☐	2. Plastic chassis is being welded using ultrasonic waves.
☐	3. Chassis is glued using a special adhesive.
☐	4. Metal covers are spot-fused.
☐	5. Cover is specially interlocked.
☐	6. RF and Modulation components are covered with shielding case and this shielding case is soldered.
☐	7. Shield case is welded at RF and modulation parts, and ID-ROM is welded using the BGA Method.
☐	8. Shield case is welded at RF and modulation parts, and ID-ROM is glued at its lead with a special adhesive.
☐	9. Shield case is welded at RF and modulation parts, and ID-ROM is glued with a non-transparent laminating agent.
☒	10. RF and Modulation parts are mounted on PCB with surface mount technology, and there is no any adjustable part on PCB or adjustable parts are not exposed.

Note: The RF chip is configured with a total of 48 pins, and the pitch between adjacent pins is specified as 0.5 millimeters (mm).

4. LIST OF MEASURING EQUIPMENTS

Test Date: Sep. 01, 2025						
Kind of Equipment	Manufacturer	Model No.	Serial No.	Validity Date (See Note 1)	Calibration Agency	Class Information
Spectrum Analyzer	R&S	FSP40	100185	May 17, 2026	CEPREI Calibration and Testing Center	(c)
Multimeter	FLUKE	15B+(TR13)	45123773W S	May 17, 2026	CEPREI Calibration and Testing Center	(c)
AC power source	Preen	AFC-S-1250	F123080107	Dec. 06, 2025	CEPREI Calibration and Testing Center	(c)
Measurement Software	BTL	BTL Conducted Test	N/A	N/A	N/A	-
Isolation attenuator	Z-Link	ASMA-16-18-2 W	N/A	N/A	N/A	-
DC Block	N/A	N/A	N/A	N/A	N/A	-

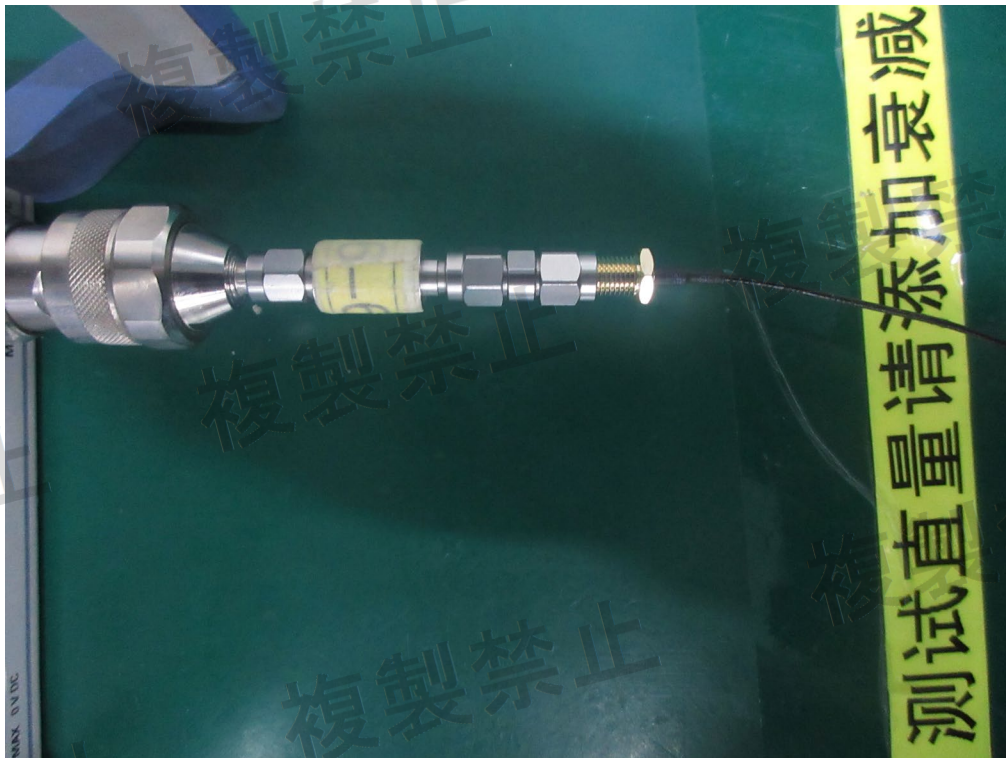
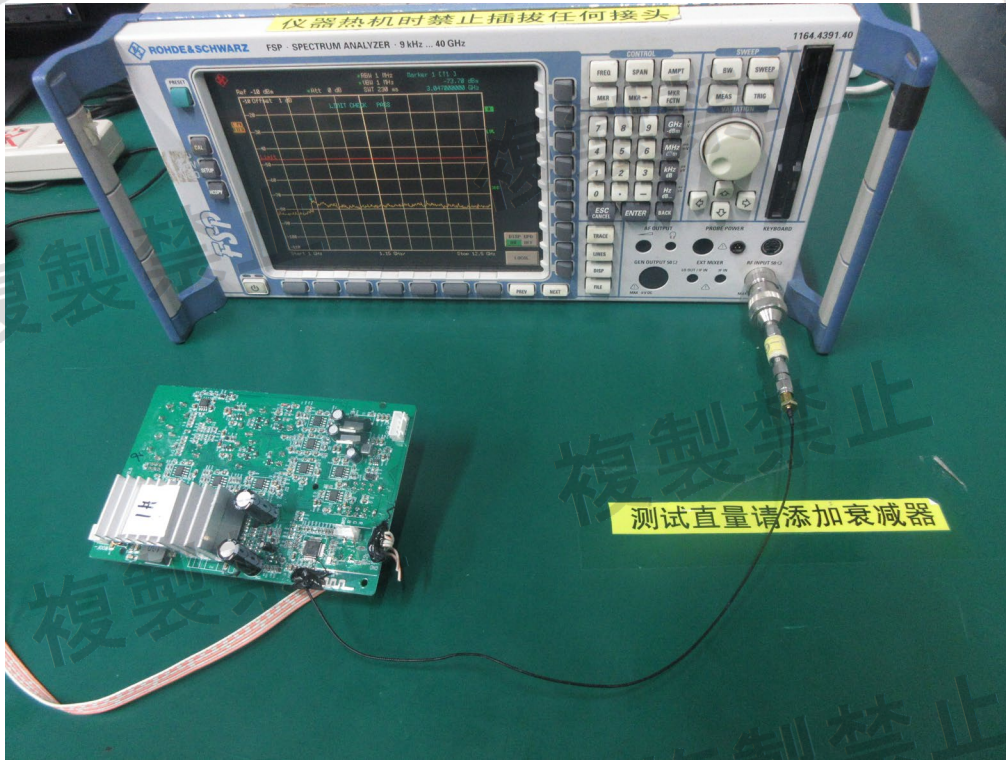
Remark:

- Calibration conducted by the National Institute of Information and Communications Technology (NITC) in Japan (hereinafter referred to as "NITC") or a designated calibration agency under Article 102-18 paragraph (1) in JRL.
- Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Act (Act No.51 of 1992).
- Calibration conducted in countries except Japan, which shall be equivalent to the calibration conducted by the NITC or a designation agency under Article 102-18 paragraph (1).
- Calibration, etc. conducted by using measuring instruments and other equipment listed in the above column of appended table No.3, which shall have been given any type of calibration, etc. listed above from (a) to (c). From JRL Article 24-2, paragraph 4, item 2.

Note:

- "N/A" denotes the equipment is verified or confirmed internally by test lab.
- The calibration interval of the above test instruments is 12 months.
- The Calibration Agency(CHINA CEPREI LABORATORY) address for the Building 9, No. 78, West Zhucun Avenue, Zhucun Street, Zengcheng District, Guangzhou City.

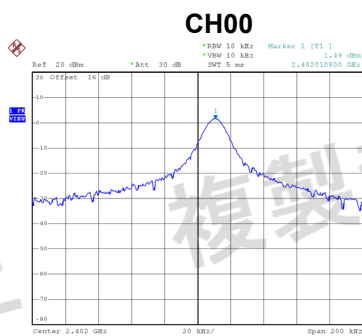
5. EUT TEST PHOTO



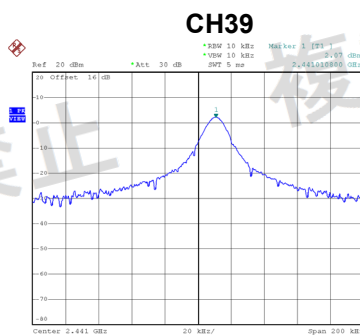
APPENDIX A - FREQUENCY TOLERANCE

Test Mode: TX Mode_1Mbps

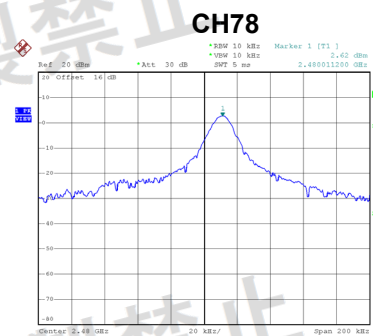
Test Voltage	Normal Voltage			Remarks
Test Frequency (MHz)	2402	2441	2480	Low/Mid/High of test frequency range
Measured Frequency (MHz)	2402.0108	2441.0108	2480.0112	-
Frequency Tolerance (ppm)	+4.50	+4.42	+4.52	Limit: $-50 \leq \text{ppm} \leq 50$



Date: 1.SEP.2025 10:03:18



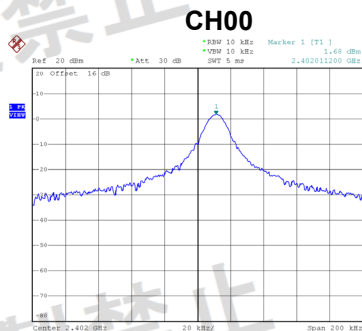
Date: 1.SEP.2025 10:03:48



Date: 1.SEP.2025 10:04:07

Test Mode: TX Mode_3Mbps

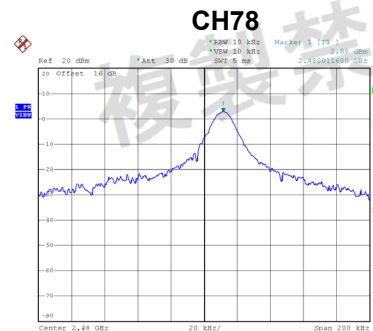
Test Voltage	Normal Voltage			Remarks
Test Frequency (MHz)	2402	2441	2480	Low/Mid/High of test frequency range
Measured Frequency (MHz)	2402.0112	2441.0112	2480.0116	-
Frequency Tolerance (ppm)	+4.66	+4.59	+4.68	Limit: $-50 \leq \text{ppm} \leq 50$



Date: 1.SEP.2025 10:58:17



Date: 1.SEP.2025 10:59:01



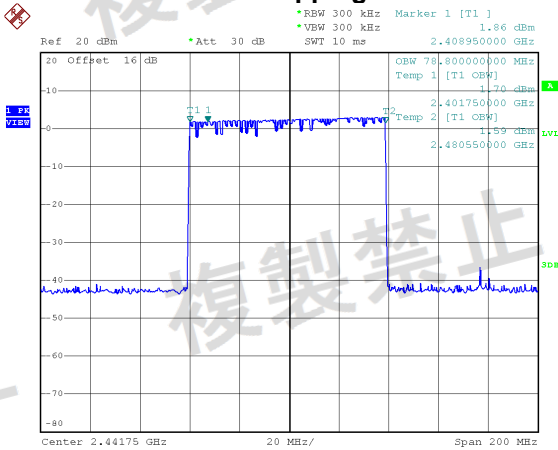
Date: 1.SEP.2025 10:59:18

APPENDIX B - OCCUPIED BANDWIDTH AND SPREAD-SPECTRUM BANDWIDTH

Test Mode: Hopping Mode_1Mbps

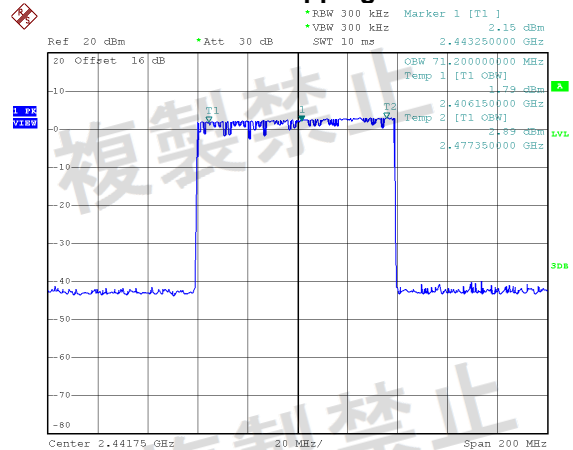
Normal Voltage	Hopping Mode	Remarks
Occupied Bandwidth (MHz)	78.80	Limit ≤ 83.5 MHz
Spreading Bandwidth (MHz)	71.20	-

99% Hopping Mode



Date: 1.SEP.2025 10:13:36

90% Hopping Mode

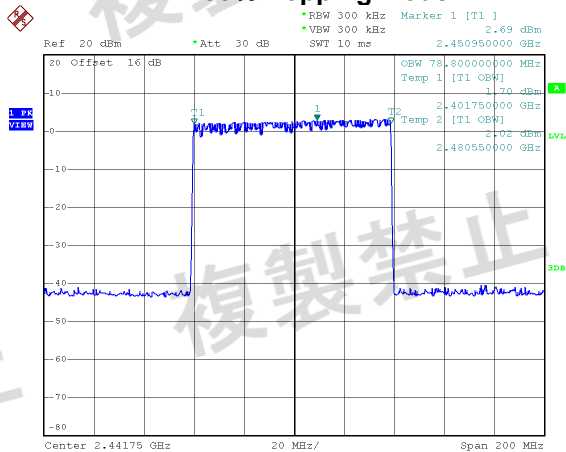


Date: 1.SEP.2025 10:11:51

Test Mode: Hopping Mode_3Mbps

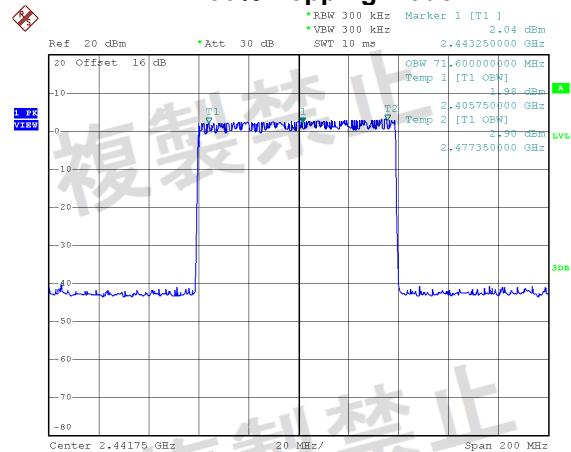
Normal Voltage	Hopping Mode	Remarks
Occupied Bandwidth (MHz)	78.80	Limit $\leq$ 83.5 MHz
Spreading Bandwidth (MHz)	71.60	-

99% Hopping Mode



Date: 1.SEP.2025 10:53:08

90% Hopping Mode

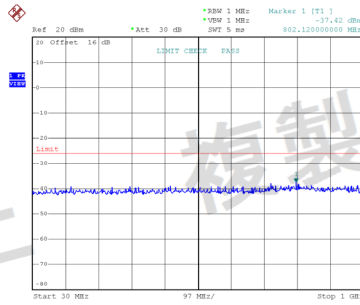


Date: 1.SEP.2025 10:51:24

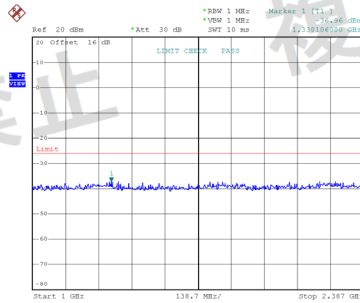
APPENDIX C - UNWANTED EMISSION INTENSITY

Test Mode		TX Mode_1Mbps		
Test Voltage		Normal Voltage		Remarks
Test Frequency (MHz)		2402~2480		Low/Mid/High of test frequency range
Unwanted Emission Intensity (Power emission within 1MHz bandwidth)	※ 1	MHz	802.12	Limit ≤ 2.5 μW/MHz (-26 dBm/MHz)
		μW/MHz	0.1811	
	※ 2	MHz	1330.11	Limit ≤ 2.5 μW/MHz (-26 dBm/MHz)
		μW/MHz	0.2014	
	※ 3	MHz	2400.00	Limit ≤ 25 μW/MHz (-16 dBm/MHz)
		μW/MHz	7.2946	
	※ 4	MHz	2483.50	Limit ≤ 25 μW/MHz (-16 dBm/MHz)
		μW/MHz	0.3917	
	※ 5	MHz	3136.72	Limit ≤ 2.5 μW/MHz (-26 dBm/MHz)
		μW/MHz	0.1180	

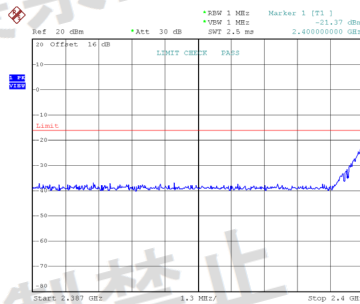
CH00~CH78

※1: $30\text{MHz} \leq f \leq 1000\text{MHz}$ 

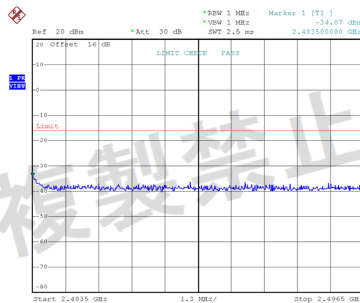
Date: 1.SEP.2025 10:16:00

※2: $1000\text{MHz} \leq f < 2387\text{MHz}$ 

Date: 1.SEP.2025 10:16:10

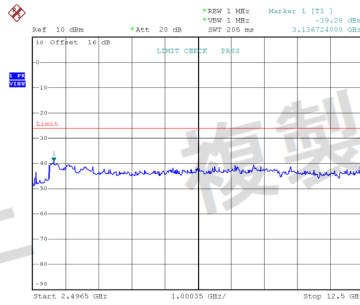
※3: $2387\text{MHz} \leq f < 2400\text{MHz}$ 

Date: 1.SEP.2025 10:16:20

※4: $2483.5\text{MHz} \leq f \leq 2496.5\text{MHz}$ 

Date: 1.SEP.2025 10:16:30

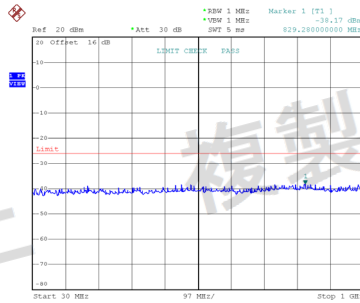
CH00~CH78 ※5: 2496.5MHz<f



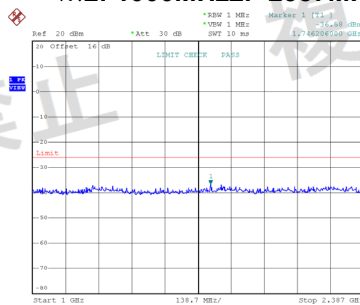
Date: 1.SEP.2025 10:16:40

Test Mode		TX Mode_3Mbps		
Test Voltage		Normal Voltage		Remarks
Test Frequency (MHz)		2402~2480		Low/Mid/High of test frequency range
Unwanted Emission Intensity (Power emission within 1MHz bandwidth)	※ 1	MHz	829.28	Limit ≤ 2.5 μW/MHz (-26 dBm/MHz)
		μW/MHz	0.1524	
	※ 2	MHz	1746.21	Limit ≤ 2.5 μW/MHz (-26 dBm/MHz)
		μW/MHz	0.2198	
	※ 3	MHz	2400.00	Limit ≤ 25 μW/MHz (-16 dBm/MHz)
		μW/MHz	0.3236	
	※ 4	MHz	2483.55	Limit ≤ 25 μW/MHz (-16 dBm/MHz)
		μW/MHz	0.4305	
	※ 5	MHz	2536.51	Limit ≤ 2.5 μW/MHz (-26 dBm/MHz)
		μW/MHz	0.1603	

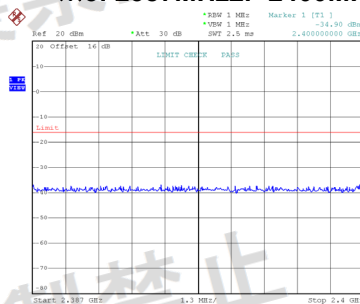
CH00~CH78

※1: $30\text{MHz} \leq f \leq 1000\text{MHz}$ 

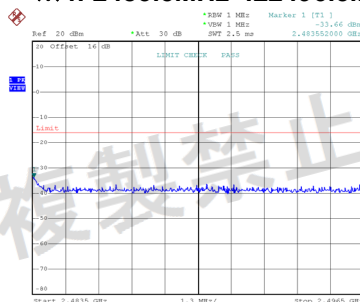
Date: 1.SEP.2025 10:45:30

※2: $1000\text{MHz} \leq f < 2387\text{MHz}$ 

Date: 1.SEP.2025 10:45:40

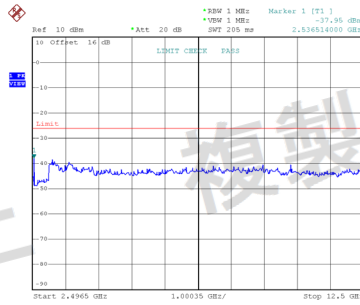
※3: $2387\text{MHz} \leq f < 2400\text{MHz}$ 

Date: 1.SEP.2025 10:45:51

※4: $2483.5\text{MHz} \leq f \leq 2496.5\text{MHz}$ 

Date: 1.SEP.2025 10:46:00

CH00~CH78 ※5: 2496.5MHz<f



Date: 1.SEP.2025 10:46:11

APPENDIX D - ANTENNA POWER TOLERANCE

Test Mode: TX Mode

Normal Voltage

Test Rate	Total Output Power (mW)	Spread Bandwidth (MHz)	Burst Ratio
1Mbps	1.7338	71.20	0.7660
2Mbps	1.6982	71.60	0.7660
3Mbps	1.7906	71.60	0.7766

Test Rate	Conducted Antenna Power (mW/MHz)	Rated Antenna Power (mW/MHz)	Conducted Antenna Power Limit (mW/MHz)	Antenna Power Tolerance Limit (+20%)	
	A	B	-	C	
1Mbps	0.0187	0.03	3	-37.67	%
2Mbps	0.0182		3	-39.33	%
3Mbps	0.0194		3	-35.33	%

Note:

1. $A = \text{Total Output Power (mW)} \times \text{Burst Ratio} / \text{Spread Bandwidth (MHz)}$
2. Spread Bandwidth and Burst Ratio are taken from Appendix F, where Spread Bandwidth = 90% OBW and Burst Ratio = DH5 Duty cycle / 100%
3. $C = (A - B) / B \times 100\%$

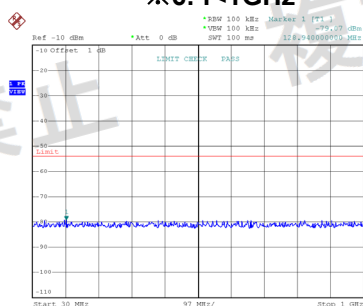
APPENDIX E - LIMITATION OF COLLATERAL EMISSION OF RECEIVER

Test Mode: RX Mode_1Mbps

Test Voltage			Normal Voltage	Remarks
Test Frequency (MHz)			2402~2480	Low/Mid/High of test frequency range
Limitation of Collateral	※6	MHz	128.94	Limit ≤ 4 nW (-54 dBm)
		nW	0.0124	
Emission of Receiver	※7	MHz	3162.00	Limit ≤ 20 nW (-47 dBm)
		nW	0.0356	

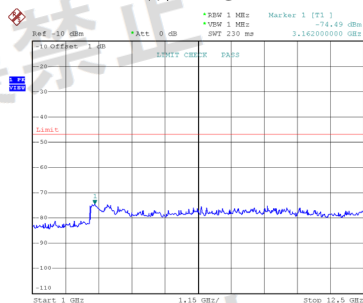
CH00~CH78

※6: f<1GHz



Date: 1.SEP.2025 11:05:53

※7: 1GHz≤f



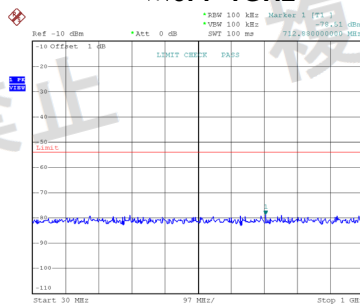
Date: 1.SEP.2025 11:06:04

Test Mode: RX Mode_3Mbps

Test Voltage			Normal Voltage	Remarks
Test Frequency (MHz)			2402~2480	Low/Mid/High of test frequency range
Limitation of Collateral	※6	MHz	712.88	Limit ≤ 4 nW (-54 dBm)
		nW	0.0141	
Emission of Receiver	※7	MHz	3162.00	Limit ≤ 20 nW (-47 dBm)
		nW	0.0367	

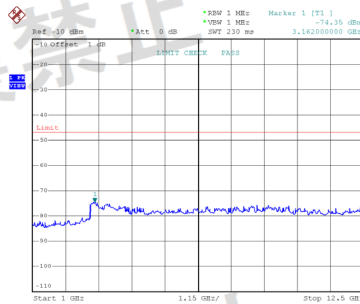
CH00~CH78

※6: f<1GHz



Date: 1.SEP.2025 11:04:07

※7: 1GHz≤f



Date: 1.SEP.2025 11:04:18

APPENDIX F - HOPPING FREQUENCY DWELL TIME

Test Mode: TX Mode CH00_1Mbps

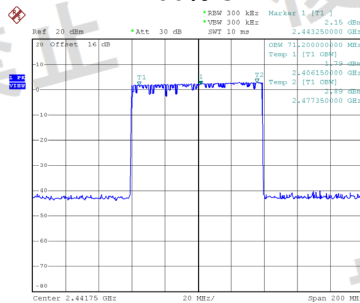
Normal Voltage			
Data Packet	Duty cycle	Dwell Time	Limits
	(%)	(s)	(s)
DH1	30.159	0.109	0.4
DH3	65.600	0.236	0.4
DH5	76.596	0.276	0.4

Note: 90% OBW = 71.20 MHz

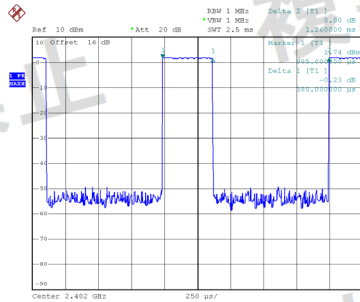
Duty cycle = [on time/total time] x 100%

Dwell time = [spreading bandwidth/79] x duty cycle x 0.4 seconds

90% OBW

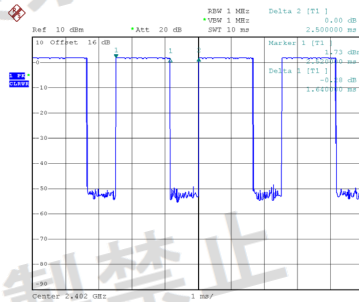


DH1-DUTY CYCLE



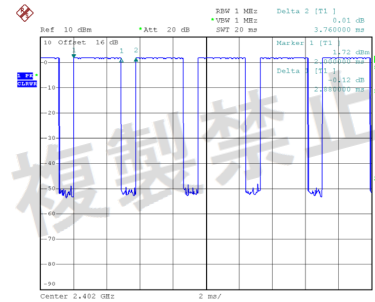
Date: 1.SEP.2025 09:55:15

DH3-DUTY CYCLE



Date: 1.SEP.2025 09:56:09

DH5-DUTY CYCLE



Date: 1.SEP.2025 09:56:50

Test Mode: TX Mode CH00_2Mbps

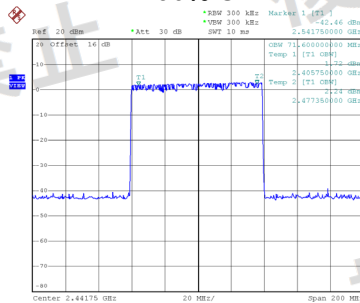
Normal Voltage			
Data Packet	Duty cycle	Dwell Time	Limits
	(%)	(s)	(s)
2DH1	30.952	0.112	0.4
2DH3	65.873	0.239	0.4
2DH5	76.596	0.278	0.4

Note: 90% OBW = 71.60MHz

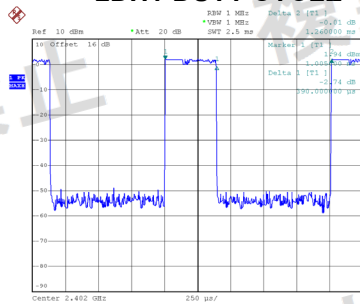
Duty cycle = [on time/total time] x 100%

Dwell time = [spreading bandwidth/79] x duty cycle x 0.4 seconds

90% OBW

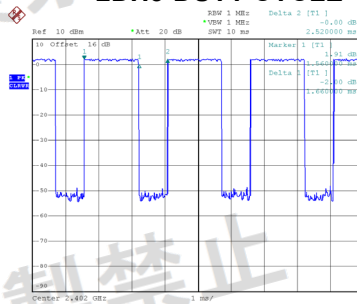


2DH1-DUTY CYCLE



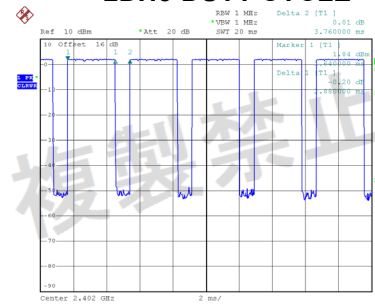
Date: 1.SEP.2025 10:27:08

2DH3-DUTY CYCLE



Date: 1.SEP.2025 10:27:21

2DH5-DUTY CYCLE



Date: 1.SEP.2025 10:27:40

Test Mode: TX Mode CH00_3Mbps

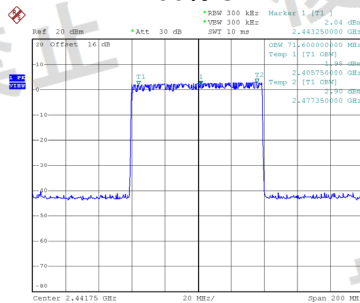
Normal Voltage			
Data Packet	Duty cycle	Dwell Time	Limits
	(%)	(s)	(s)
3DH1	31.076	0.113	0.4
3DH3	65.079	0.236	0.4
3DH5	77.660	0.282	0.4

Note: 90% OBW = 71.60 MHz

Duty cycle = [on time/total time] x 100%

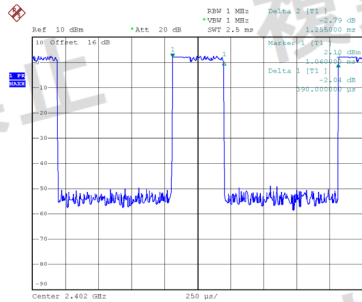
Dwell time = [spreading bandwidth/79] x duty cycle x 0.4 seconds

90% OBW



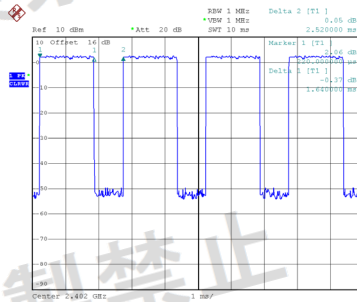
Date: 1.SEP.2025 10:51:24

3DH1-DUTY CYCLE



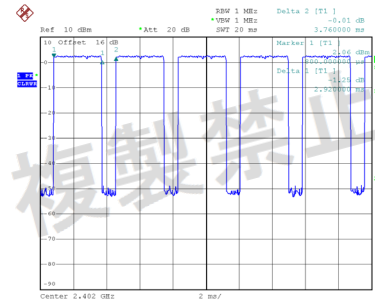
Date: 1.SEP.2025 10:56:02

3DH3-DUTY CYCLE



Date: 1.SEP.2025 10:56:31

3DH5-DUTY CYCLE



Date: 1.SEP.2025 10:56:42

End of Test Report