



JAPAN RADIO TEST REPORT

Applicant : Cooler Master Technology Inc.

Address : 7F., No. 398, Xinhua 1st Rd., Neihu Dist., Taipei City
114065, Taiwan

Manufacturer : VAST GLORY ELECTRONICS & HARDWARE &
PLASTIC(HUIZHOU) LTD

Address : No.18,He Chang E.4th Rd., Zhong Kai High-tech
Industrial Development Zone ,HuiZhou City, GuangDong
Province

Equipment : MasterFan M/A Series & Wireless Controller

Model No. : MFZ-ZHHN-1NWN1-T1

Trade Name : Cooler Master

Output Power : 0.709mW

Carrier Sense : ☐Yes ☒No

I HEREBY CERTIFY THAT :

The sample was received on May 14, 2026 and the testing was completed on May 25, 2026 at CerpPASS Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of CerpPASS Technology Corp., the test report shall not be reproduced except in full.

Approved by:

Leevin Li / Supervisor



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History of this test report

☒ Original☐ Additional attachment as following record:

Report No.	Issue Date	Description
26050200-DRMIC01	May 28, 2026	Original



1. Summary of Test Procedure and Test Results

1.1 Applicable Standards

“MIC Notification No. 88, Appendix No. 43”

TELEC-T401 (2022-09):

- Item 19 of Article 2

Description	Result
. Frequency Error	Pass
. Occupied Bandwidth	Pass
. Spread Bandwidth	Pass
. RF Output Power Tolerance	Pass
. Spurious Emissions(TX)	Pass
. Interference Prevention Function	Pass
. Angular Width of Principal Radiation	Pass
. Spurious Emissions(RX)	Pass
. Construction Protection Confirmation	Pass
Note: Deviations Yes ☐ No ☒ *The lab has reduced the uncertainty risk factor from test equipment, environment and staff technicians which according to the standard on contract. Therefore, the test result will only be determined by standard requirement, measurement uncertainty evaluation is not considered.	



2. Test Configuration of Equipment under Test

2.1 Feature of Equipment under Test

Equipment	MasterFan M/A Series & Wireless Controller
Model Name	MFZ-ZHHN-1NWN1-T1
Model Discrepancy	N/A
Frequency Range	2402MHz-2480MHz
Modulation Type	GFSK
Data Rate	GFSK:1Mbps
Antenna Gain	1.344dBi
Antenna Type	PCB Antenna
Operating Voltage	DC 12V
Note: 1) The cable insertion loss used by "RF Output Power" and other conduction measurement items is 0.5dB (Provide by the manufacturer). 2) The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.	

Note: For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

Accessories:

Equipment	Model Name
MasterFan M/A Series & Wireless Controller (Optional)	MFZ-P2NA-40NPK-R1
MasterFan M/A Series & Wireless Controller (Optional)	MFZ-P4NA-30NPK-R1
MasterFan M/A Series & Wireless Controller	MFZ-ZHHN-1NWN1-R1



2.2 Test Mode and Test Software

- The complete test system included Notebook, DC Power and EUT for RF test.
- An executive program "FCC_assist.exe (Ver.: 1.0.4.0)" under Windows 10 system was executed to transmit and receive data via Wireless.
- The following test modes were performed for the test:

Test Mode	Operating Description
1	GFSK (1Mbps)



2.3 Carrier Frequency of Channels

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

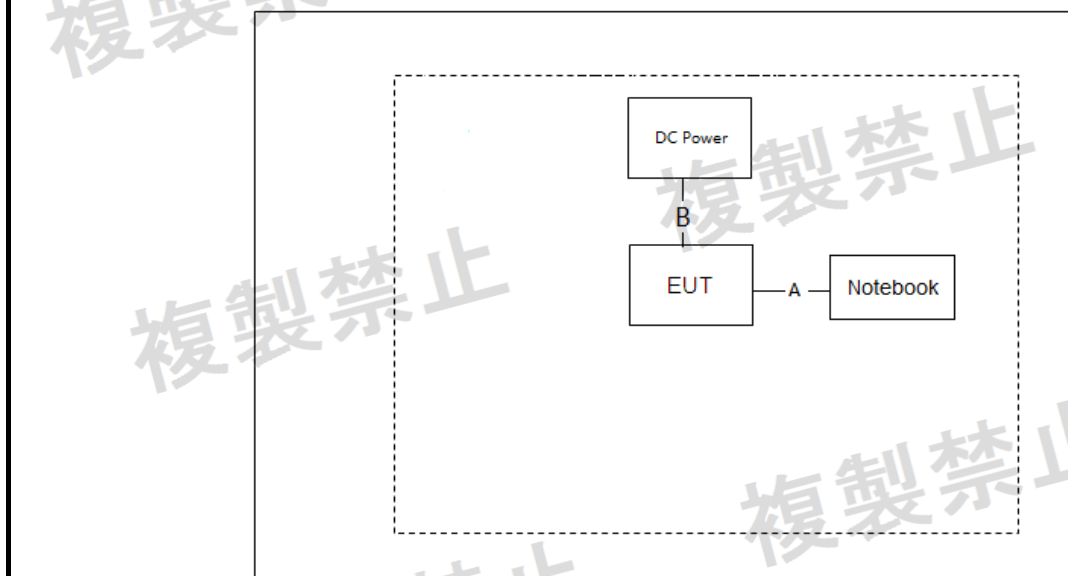
Note: Channels remarked * are selected to perform test.



2.4 Description of Test System

Product	Manufacturer	Model No.	Power Cord
1 Notebook	Dell	Latitude 3400	Non-Shielded, 1.8m
2 DC Power	LONG WEI	PS-305D	Non-Shielded, 1.8m

Connection Diagram



Signal Cable Type	Quantity	Signal cable Description
A USB Cable	1	0.5m Non-Shielding
B DC Cable	2	0.5m Non-Shielding



2.5 General Information of Test

Test Site	CerpPASS Technology Corporation (CerpPASS Laboratory) Address: Room 102, No. 5, Xing'an Road, Chang'an Town, Dongguan City, Guangdong Province, China Tel: +86-769-8547-1212 Fax: +86-769-8547-1912
FCC Designation No.:	CN1288
CNAS	L5053
Test Condition	Normal Voltage: DC 12V Extreme Voltage: DC 13.2V and DC 10.8V

Test Item	Test Site	Test Period	Environmental Conditions	Tested By
RF Conducted	RFCON01-DG	2026/05/27	24°C / 54%	Amos Zhang

2.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)).

Measurement Item	Uncertainty
Output power	$\pm 0.844\text{dB}$
TX Unwanted Emissions Strength	$\pm 1.808\text{dB}$
RX Unwanted Emissions Strength	$\pm 1.421\text{dB}$
Occupied bandwidth	$\pm 4.5\%$
Spreading Bandwidth	$\pm 4.5\%$
Frequency tolerance	$\pm 78.2\text{Hz}$
Dwell Time	$\pm 3.5\%$



3. Test Equipment and Ancillaries Used for Tests

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date	Calibration authority	Calibration method
FSQ Signal Analyzer	R&S	FSQ40	200012	2025/12/26	2026/12/25	LISAI	C
MXA Signal Analyzer	KEYSIGHT	N9020A	US46220290	2025/12/26	2026/12/25	LISAI	C
EXA Signal Analyzer	KEYSIGHT	N9010A	MY53400169	2025/12/26	2026/12/25	LISAI	C
ESG VECTOR SIGNAL GENERATOR	Agilent	E4438C	MY45092582	2025/12/26	2026/12/25	LISAI	C
MXG VECTOR SIGNAL GENERATOR	Agilent	N5182B	MY53050127	2025/12/26	2026/12/25	LISAI	C
Power sensor	Theda	4PS6A	TTW5451026~29	2025/12/26	2026/12/25	LISAI	C
Wideband Radio Communication Tester	R&S	CMW500	101133	2025/07/22	2026/07/21	LISAI	C
USB Wideband Power Sensor	Boonton	55006	9778	2025/07/22	2026/07/21	LISAI	C
Temperature/Humidity Meter	mingle	ETH529	N/A	2025/12/29	2026/12/28	LISAI	C
DC Power	LONG WEI	PS-305D	N/A	2025/12/26	2026/12/25	LISAI	C

Note: 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).
- b) : Calibration 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).
- d) : Calibration conducted by using other equipment that listed above from a) to c).
- e) : LISAI company name is Guangzhou Lisai Metrology & Test Co. ,Ltd.



4. Transmitter Parameters

4.1 Frequency Error

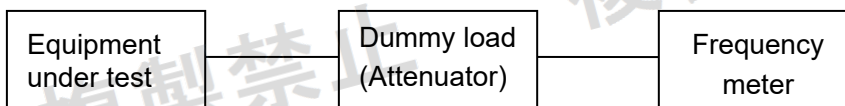
4.1.1 Test Limit

Limits: $\pm 50 \times 10^{-6}$, 50ppm

4.1.2 Test Procedures

According to Notification No. 88 of MIC, 2004, Annex 43, Test item frequency error measuring procedures.

4.1.3 Test Setup



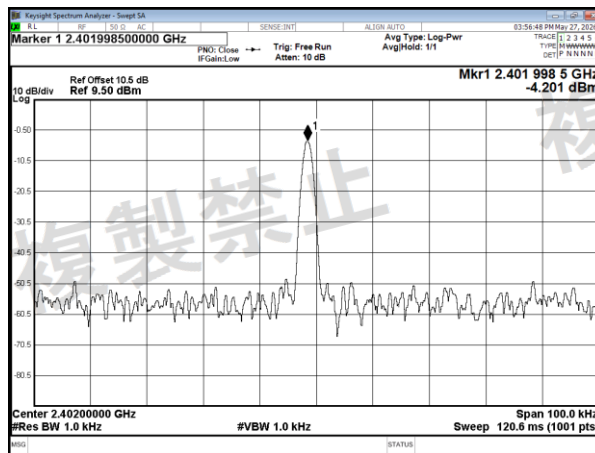
4.1.4 Test Result and Data

Modulation Type: GFSK(1Mbps)		
Test Voltage: Vnom		
Frequency (MHz)	Operation Frequency (MHz)	Frequency Error (ppm)
2402	2401.9985	-0.624
2440	2439.9981	-0.779
2480	2479.9979	-0.847

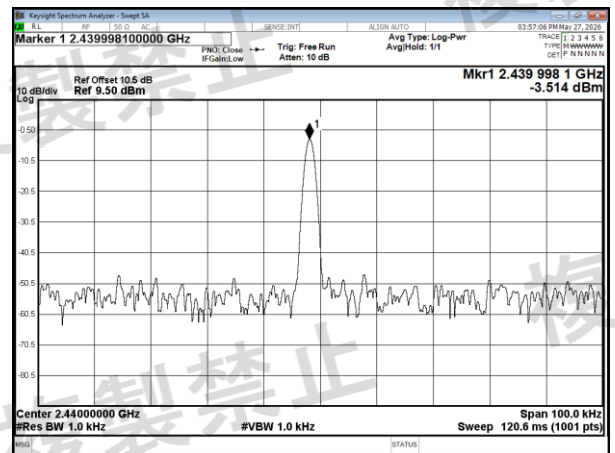
Limits: $\pm 50 \times 10^{-6}$, 50ppm



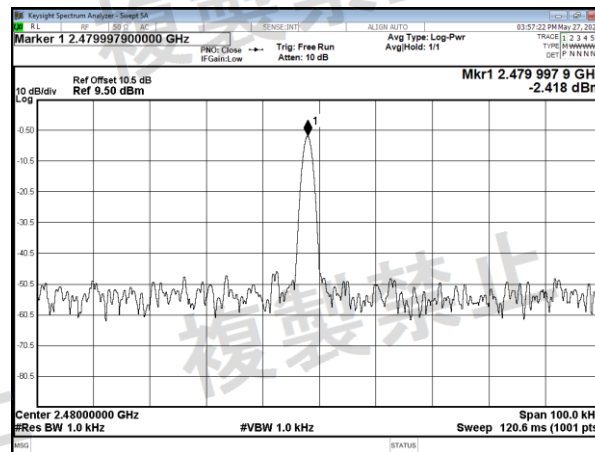
CH00



CH19



CH39





4.2 Occupied Bandwidth

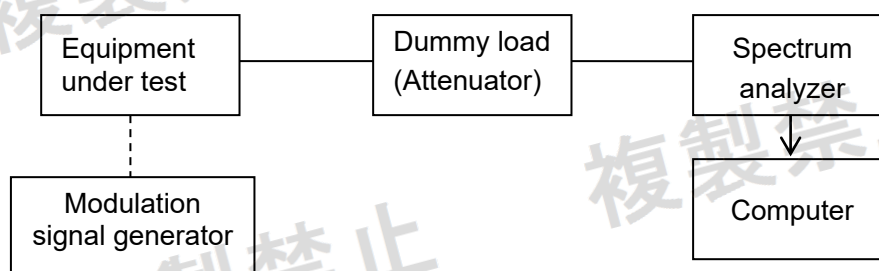
4.2.1 Test Limit

Modulation type	Occupied Band Width
FH、FH+DS、FH+OFDM	< 83.5 MHz
DS	< 26 MHz
Other	< 26 MHz

4.2.2 Test Procedures

According to Notification No. 88 of MIC, 2004, Annex 43, test item occupied bandwidth and spreading bandwidth, measuring procedures.

4.2.3 Test Setup





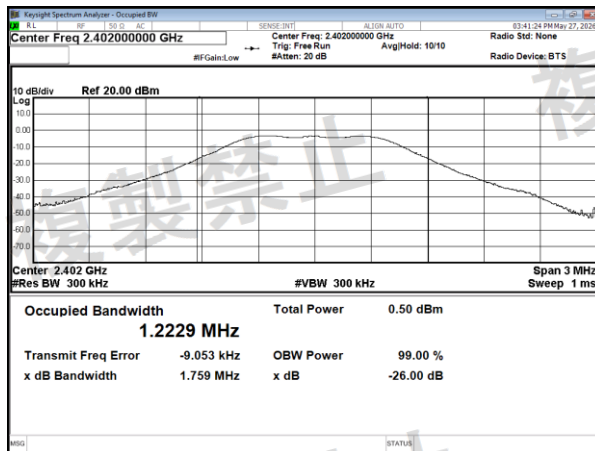
4.2.4 Test Result and Data

Modulation Type: GFSK(1Mbps)	
Test Voltage: Vnom	
Operation Frequency (MHz)	Occupied Bandwidth (MHz)
2402MHz	1.2229
2440MHz	1.2220
2480MHz	1.2247

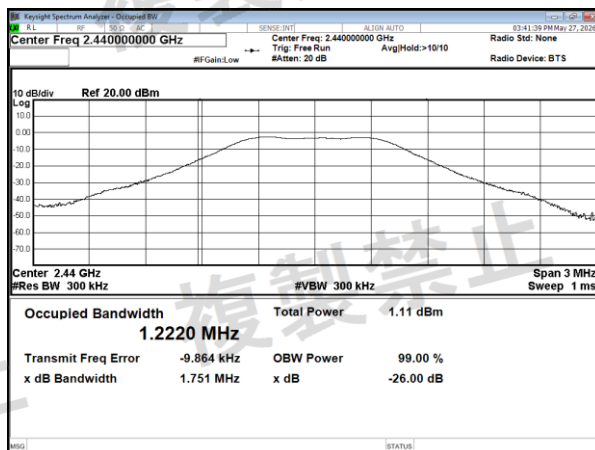
Notice: After confirmation, there is a least one carrier (channel) with BW of 1 MHz or more.



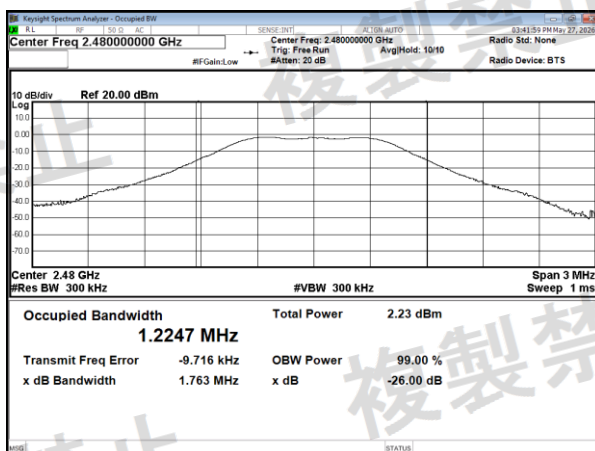
Modulation Type: GFSK(1Mbps)
CH00



CH19



CH39





4.3 Spread Bandwidth

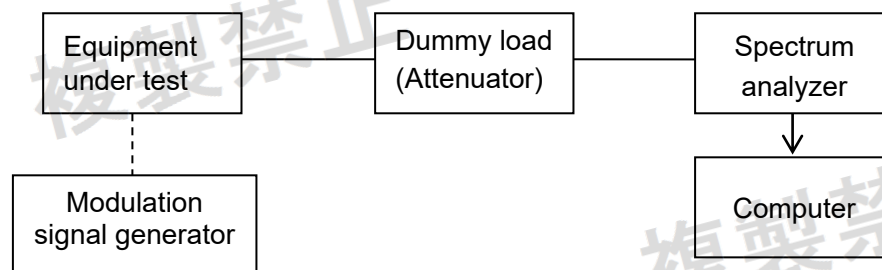
4.3.1 Test Limit

Modulation type	Occupied Band Width
FH、FH+DS、FH+OFDM	> 500 KHz
DS	> 500 KHz
Other	----

4.3.2 Test Procedures

According to Notification No. 88 of MIC, 2004, Annex 43, test item occupied bandwidth and spreading bandwidth, measuring procedures.

4.3.3 Test Setup



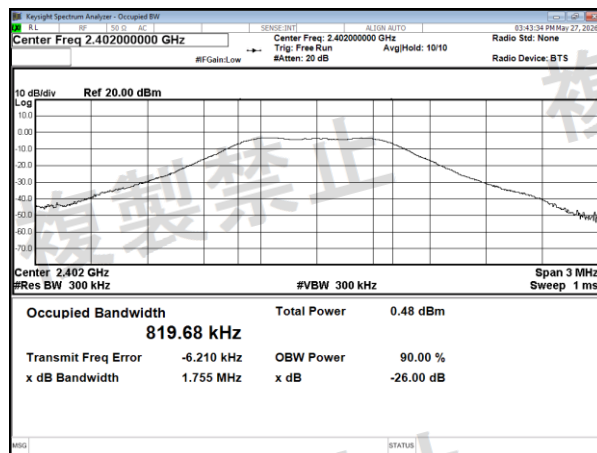


4.3.4 Test Result and Data

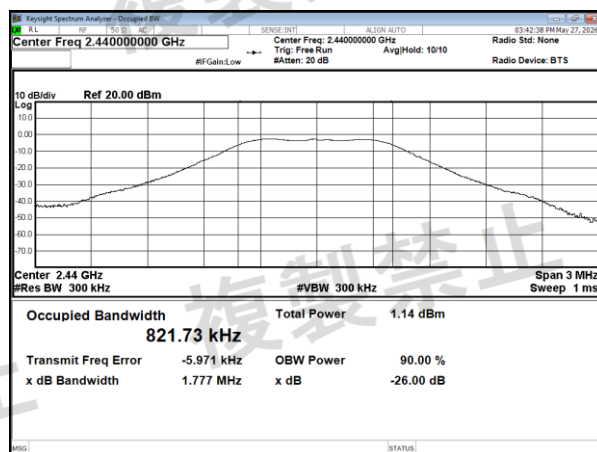
Modulation Type: GFSK(1Mbps)	
Test Voltage: Vnom	
Operation Frequency (MHz)	Spread Bandwidth (MHz)
2402MHz	0.81968
2440MHz	0.82173
2480MHz	0.8227



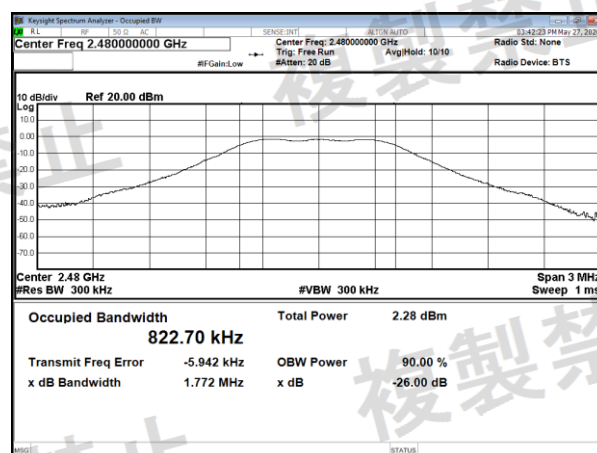
Modulation Type: GFSK(1Mbps)
CH00



CH19



CH39





4.4 RF Output Power Tolerance

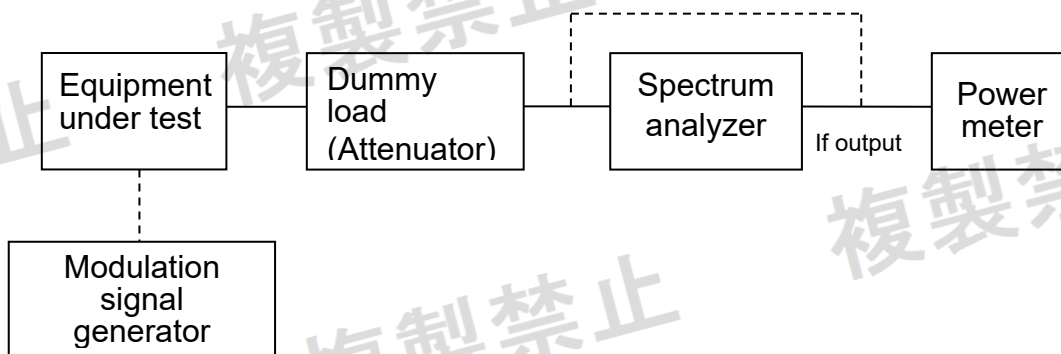
4.4.1 Test Limit

1. tolerance: +20 % ~ - 80%
2. output power:
 - (1) FH、FH+DS、FH+OFDM < 3mW/MHz
 - (2) OFDM、DS(below 26MHz) < 10mW/MHz
 - (3) OFDM(26~40MHz) < 5mW/MHz
 - (4) Other < 10mW
3. EIRP:
 - (1) FH、FH+DS、FH+OFDM < 6.91dBm/MHz
 - (2) OFDM、DS(below 26MHz) < 12.14dBm/MHz
 - (3) OFDM(26~40MHz) < 9.13dBm/MHz
 - (4) Other < 12.14dBm

4.4.2 Test Procedure

According to Notification No. 88 of MIC, 2004, Annex 43, test item antenna power error measuring procedure.

4.4.3 Test Setup



**4.4.4 Test Result and Data**

Modulation type: GFSK(1Mbps)			
Test Frequency MHz	Antenna Power mW	Antenna Power Error %	EIRP Power mW
2402MHz	0.478	-32.609	0.651
2440MHz	0.553	-22.017	0.754
2480MHz	0.709	0.000	0.966
Note: Declared rated power is 0.709 mW			



4.5 Spurious Emissions

4.5.1 Test Limit

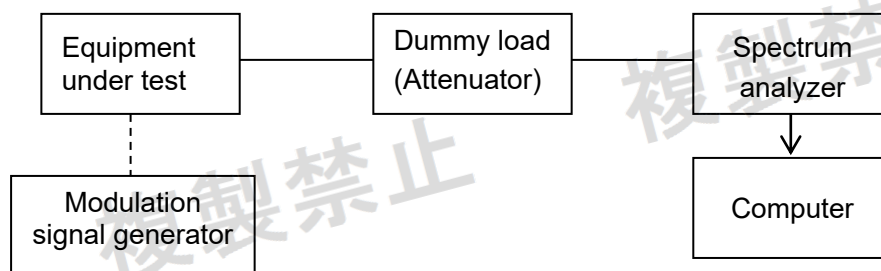
Limits:

	Frequency Band (For 2400 ~ 2483.5 MHz)	Limit
*1	<2387MHz	2.5 μ W
*2	2387MHz ~ 2400MHz	25 μ W
*3	2483.5MHz ~ 2496.5MHz	25 μ W
*4	>2496.5MHz	2.5 μ W

4.5.2 Test Procedure

According to Notification No. 88 of MIC, 2004, Annex 43 Spurious and unwanted emission intensity measuring procedure.

4.5.3 Test Setup



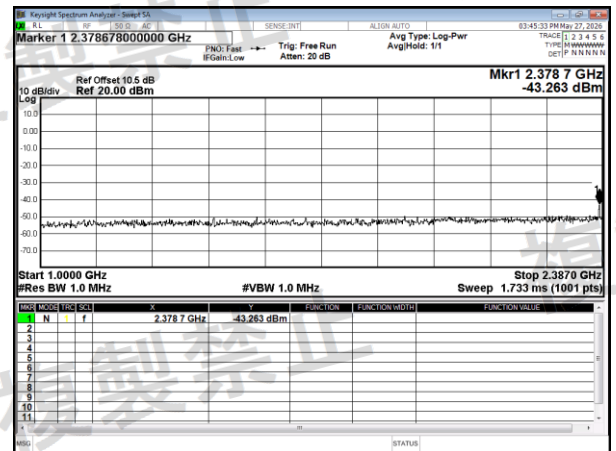
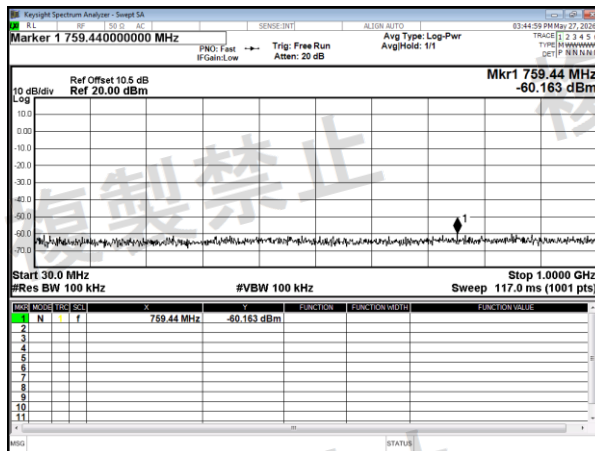


4.5.4 Test Result and Data

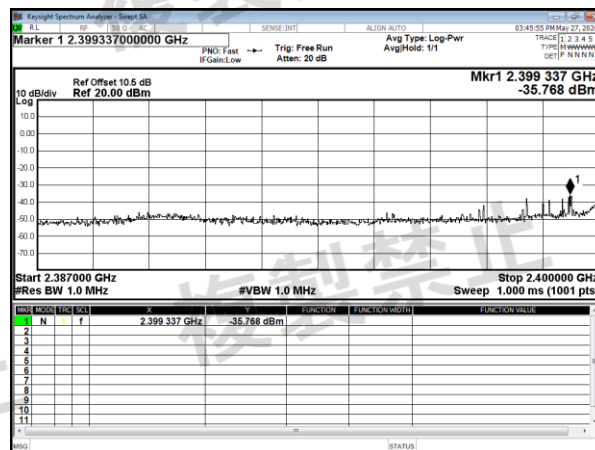
Modulation type: GFSK (1Mbps)				
Operation Frequency (MHz)	Frequency Band	Spurious Emission		
		MHz	dBm	μW
2402MHz	< 2387MHz	2378.70	-43.26	0.0472
	2387 ~ 2400MHz	2399.34	-35.77	0.2650
	2483.5 ~ 2496.5MHz	2488.41	-49.19	0.0121
	>2496.5MHz	5840.00	-45.80	0.0263
2440MHz	< 2387MHz	2270.50	-49.23	0.0119
	2387 ~ 2400MHz	2392.14	-46.43	0.0228
	2483.5 ~ 2496.5MHz	2487.65	-43.15	0.0484
	>2496.5MHz	5760.00	-46.94	0.0202
2480MHz	< 2387MHz	2251.10	-48.95	0.0127
	2387 ~ 2400MHz	2399.83	-49.43	0.0114
	2483.5 ~ 2496.5MHz	2492.30	-41.68	0.0680
	>2496.5MHz	2500.00	-44.04	0.0395



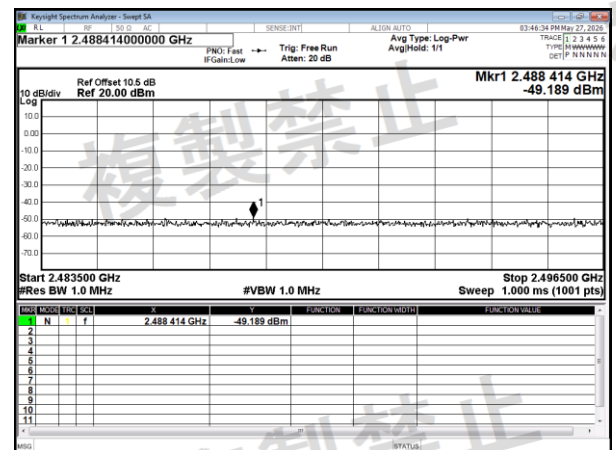
Modulation type: GFSK(1Mbps), CH00
Frequency Band: < 2387MHz



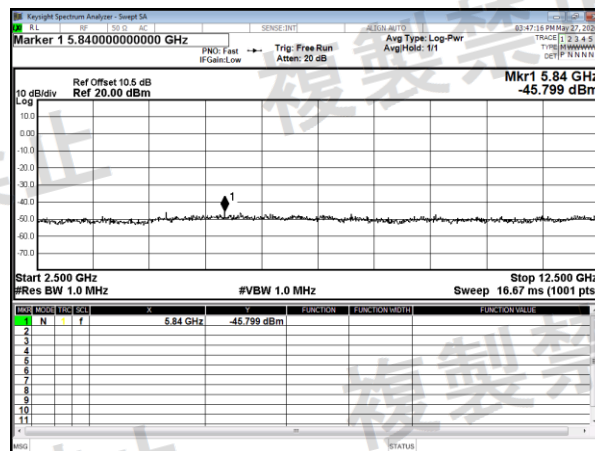
Frequency Band: 2387 ~ 2400MHz



Frequency Band: 2483.5~2496.5MHz

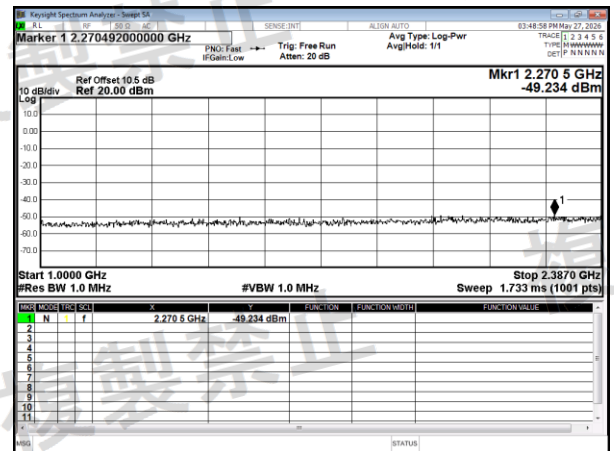
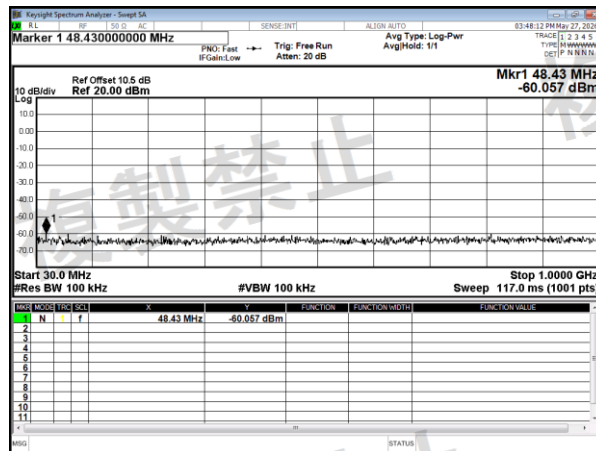


Frequency Band: >2496.5MHz

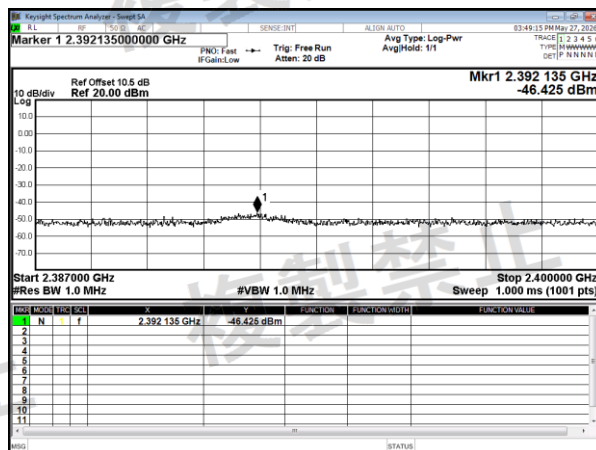




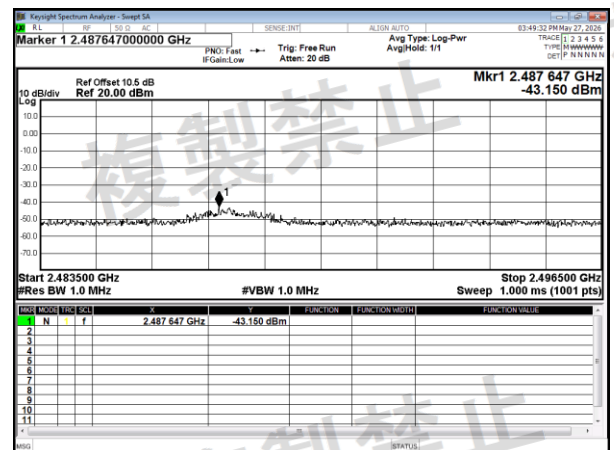
Modulation type: GFSK(1Mbps), CH19
Frequency Band: < 2387MHz



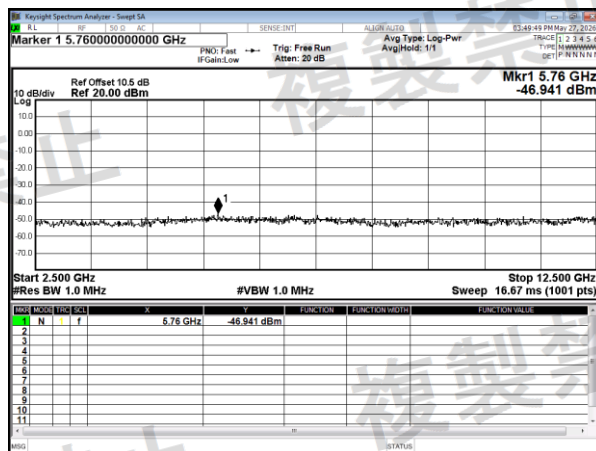
Frequency Band: 2387 ~ 2400MHz



Frequency Band: 2483.5~2496.5MHz

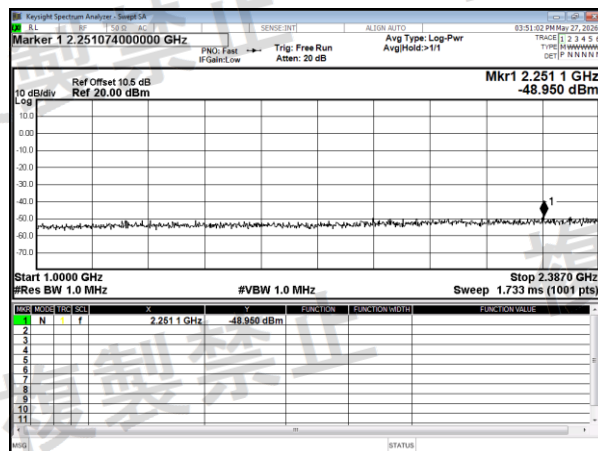
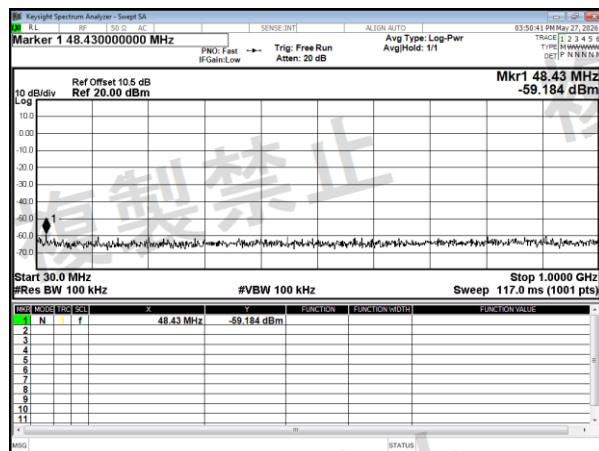


Frequency Band: >2496.5MHz

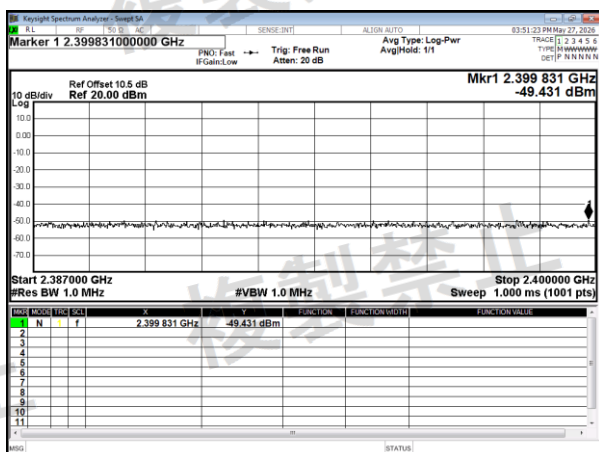




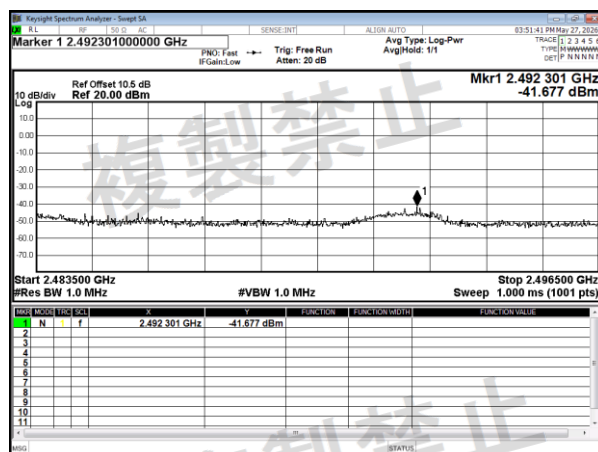
Modulation type: GFSK(1Mbps), CH39
Frequency Band: < 2387MHz



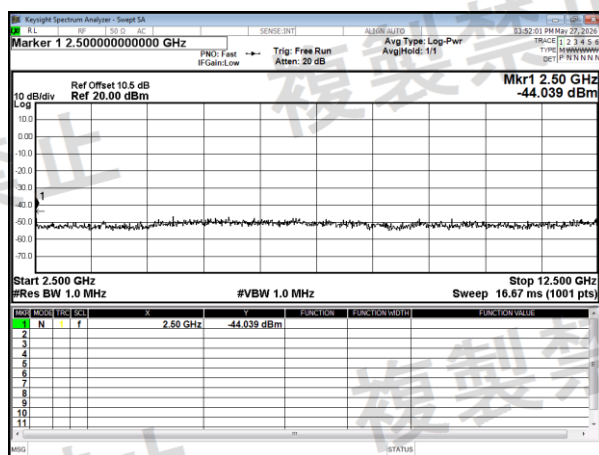
Frequency Band: 2387 ~ 2400MHz



Frequency Band: 2483.5~2496.5MHz



Frequency Band: >2496.5MHz





4.6 Interference Prevention Function

4.6.1 Test Limit

Identification code ≥ 48 bits

4.6.2 Test Procedures

1. Set EUT under operation mode and link up with companion equipment
2. Check communication status between EUT and companion equipment is normal
3. Confirm the MAC address of EUT

4.6.3 Test Setup



4.6.4 Test Result

ID Code	MAC Address :0x25:0x22:0x23:0x2A:0xAB:0x71
Result: PASS	



5. Receiver Parameters

5.1 Spurious Emissions

5.1.1 Test Limit

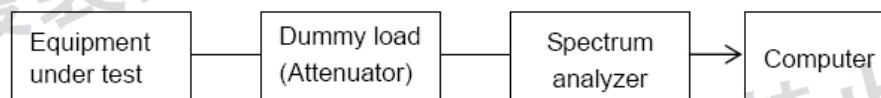
Limits:

Modulation type	Limit
<1GHz	4nW
1GHz ~ 10GHz	20nW

5.1.2 Test Procedure

According to Notification No. 88 of MIC, 2004, Annex 43 Limit of secondary radiated emissions measuring procedure.

5.1.3 Test Setup





5.1.4 Test Result and Data

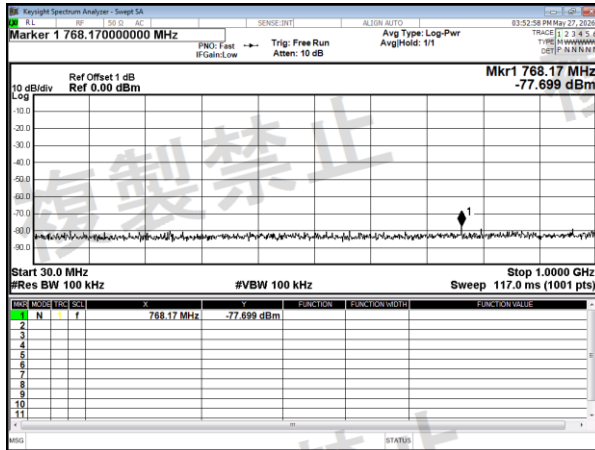
Modulation type: GFSK (1Mbps)				
Operation Frequency (MHz)	Frequency Band	Spurious Emission		
		MHz	dBm	μ W
2402MHz	< 1GHz	768.17	-77.70	0.00002
	1GHz – 12.5GHz	5784.00	-66.58	0.00022
2440MHz	< 1GHz	903.00	-79.96	0.00001
	1GHz – 12.5GHz	7072.00	-66.00	0.00025
2480MHz	< 1GHz	913.67	-78.95	0.00001
	1GHz – 12.5GHz	5715.00	-66.54	0.00022



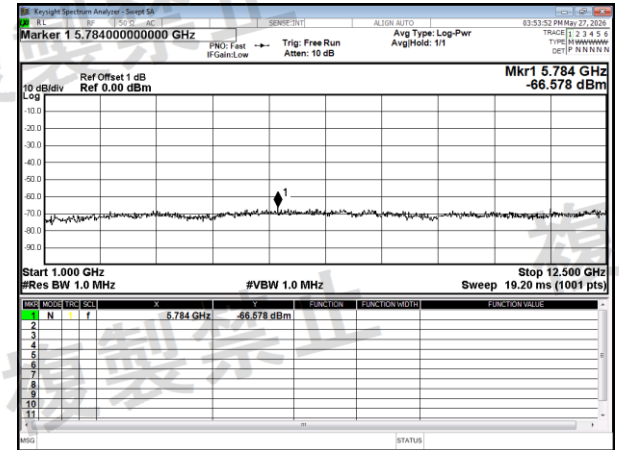
Modulation Type: GFSK(1Mbps)

CH00

Frequency Band: <1GHz

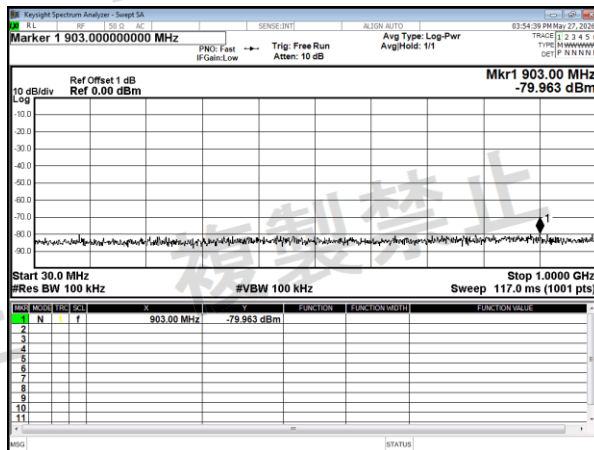


Frequency Band: 1GHz ~ 12.5GHz

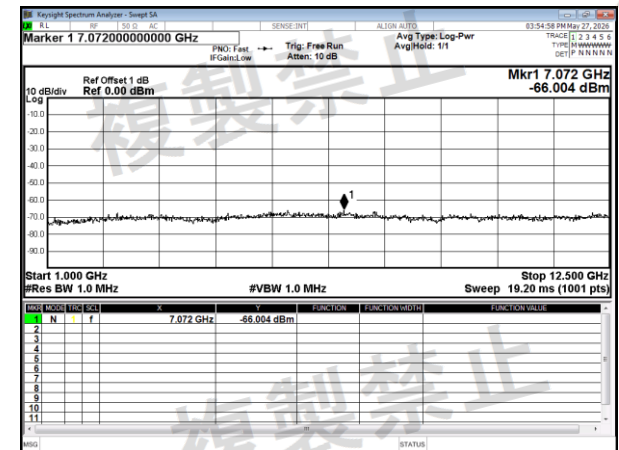


CH19

Frequency Band: <1GHz

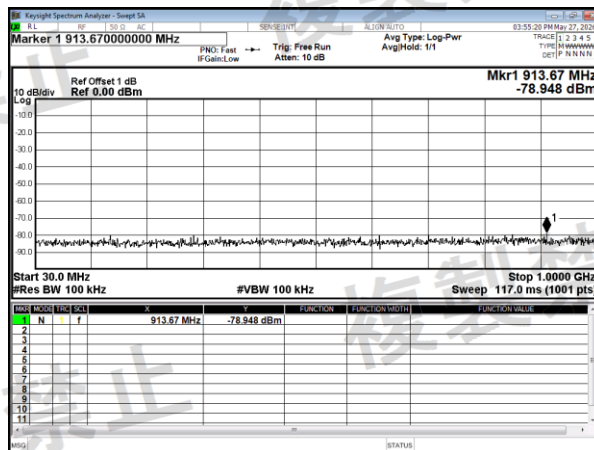


Frequency Band: 1GHz ~ 12.5GHz

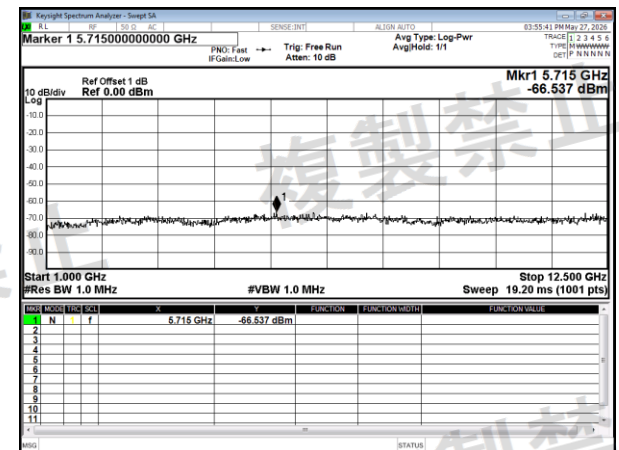


CH39

Frequency Band: <1GHz



Frequency Band: 1GHz ~ 12.5GHz





6. Angular Width of Principal Radiation

6.1 Test Result

Antenna Type	PCB Antenna
Antenna Gain (dBi)	1.344
Cable Loss (dB)	0
EIRP (dBm)	-0.15
Half Power Beam Angles (deg)	360
Limit of E.I.R.P (dBm)	12.14
Result	Pass



7. Power Supply Voltage Fluctuation Test

Voltage Fluctuation Test	Normal Voltage	High Voltage + 10% of Normal Voltage	Low Voltage - 10% of Normal Voltage
Input DC Power	12	13.2	10.8
Output DC Power	3.33	3.33	3.33
Voltage Variation (%)	-	0.00%	0.00%

Note: Voltage Variation(%)=(Output High or Low Voltage - Output Normal Voltage)/Output Normal Voltage X 100 During the 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.



8. Construction Protection Confirmation

The Radio Equipment:
☐ Use Special Screw
☐ Metal Shielding is Soldered
☐ Use Ball Grid Array (BGA)
☐ The RF part is covered by glue.
☒ Ultrasonic Welding
Module/Chip:
☐ RF module/Chip Pins > 20 and Chip Pins distance < 1.5 mm



-----THE END OF REPORT-----