

TEST REPORT

Report No.: CSTC-26050003E-1

Applicant: Innovator One Co.,Ltd

Product Name: 19.2-inch bar display

Model/Type Ref.: MEM-IOX192-SB

Tested Date: May 06, 2026 to May 20, 2026

Issued Date: May 20, 2026

Shenzhen CSTC Testing Co., Ltd.

Product Name: 19.2-inch bar display
Trademark: N/A
Model/Type Ref.: MEM-IOX192-SB
Series Models: N/A
Prepared For: Innovator One Co., Ltd
Address: 1F Shinagawa East, 1-6-34 Konan, Minato-ku, Tokyo 108-0075, Japan
Manufacturer: Hefei Fangao Display Technology Co., Ltd.
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Prepared By: Shenzhen CSTC Testing Co., Ltd.
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Sample Received Date: May 06, 2026
Sample tested Date: May 06, 2026 to May 20, 2026
Issue Date: May 20, 2026
Report No.: CSTC-26050003E-1
Test Standards: Article 2 paragraph 1 of item 19
MIC Notice No.88 Annex 1
MIC Notice No.88 Annex 43
Test Results: PASS
Remark: This is JAPAN RADIO test report.

Tested by:

Zane Cai

Zane Cai/Project Handler



Approved by:

Jeff Fu

Jeff.Fu/Reviewer

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1. VERSION

Report No.	Version	Description	Approved
CSTC-26050003E-1	Rev.01	Initial issue of report	May 20, 2026

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

NO.	Test Item	Test Requirement	Result
1	RF shielding method	item 19 Clause 3.7	Pass
2	Frequency Error	item 19 Clause 3.2(4)	Pass
3	Antenna Power & EIRP	item 19 Clause 3.2(2)	Pass
4	99% Occupied Bandwidth	item 19 Clause 3.2(7)	Pass
5	Spurious Emissions Intensity	item 19 Clause 3.2(6)	Pass
6	Limit of secondary radiated emissions	item 19 Clause 3.3(1)	Pass
7	Interference suppression	item 19 Clause 3.4.1	Pass
8	Transmission Antenna Gain	item 19 Clause 3.6	N/A*
9	Transmission Radiation Angle Width (3dB Beam width)	item 19 Clause 3.6	Pass

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report

2.1 TEST FACILITY

Shenzhen CSTC Testing Co., Ltd.

Add.: No. 101, Building 1, Shajing Wanfeng Huafeng Entrepreneurship Park, Heyi Community, Shajing Street, Bao'an District, Shenzhen City, Guangdong Province, China.

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	RF power conducted	$\pm 0.16\text{dB}$
2	Spurious emissions conducted	$\pm 0.21\text{dB}$
3	All emissions radiated(<1G)	$\pm 4.68\text{dB}$
4	All emissions radiated(>1G)	$\pm 5.0\text{dB}$
5	frequency error ppm	$\pm 0.5\text{ppm}$

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Product Name:	19.2-inch bar display
Model No.:	MEM-IOX192-SB
Series models:	N/A
Model Difference:	N/A
Hardware Version:	HD-3568V-V1.1
Software Version:	V1.0.32.4
Operation Frequency:	2402MHz~2480MHz
Channel Numbers:	40
Channel Separation:	2MHz
Modulation Technology:	GFSK 1Mbps, GFSK 2Mbps
Rated Power:	1mW
Antenna Type:	External Antenna
Antenna Gain:	2.24 dBi
Power Supply:	AC100V/60Hz

Note:

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

2.

Channel List							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2402 MHz	11	2422 MHz	21	2442 MHz	31	2462 MHz
2	2404 MHz	12	2424 MHz	22	2444 MHz	32	2464 MHz
3	2406 MHz	13	2426 MHz	23	2446 MHz	33	2466 MHz
4	2408 MHz	14	2428 MHz	24	2448 MHz	34	2468 MHz
5	2410 MHz	15	2430 MHz	25	2450 MHz	35	2470 MHz
6	2412 MHz	16	2432 MHz	26	2452 MHz	36	2472 MHz
7	2414 MHz	17	2434 MHz	27	2454 MHz	37	2474 MHz
8	2416 MHz	18	2436 MHz	28	2456 MHz	38	2476 MHz
9	2418 MHz	19	2438 MHz	29	2458 MHz	39	2478 MHz
10	2420 MHz	20	2440 MHz	30	2460 MHz	40	2480 MHz

3. Final test channel as follow:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2402	20	2440	40	2480

3.2 DESCRIPTION OF TEST MODES

Software used to control the EUT for staying in continuous transmitting and receiving mode is programmed.		
The EUT was tuned to a low, middle, and high channel for all tests. For all test case pre/scans were completed in all Modes to determine worst case levels. test software PixArt PAR2860 BLE Tool V1.1.6 used for controlling the EUT. During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of FHSS		
Test Software: SecureCRT		
Test Mode	Power Level	
GFSK	Default	

3.3 TEST CONDITIONS

Supply Voltage				
	Input Voltage (VAC)		Voltage at the input of the RF Circuit (Vdc)	Tolerance (%)
Normal	100	Normal	3.3	
+10%	110	+1%	3.3	0
-10%	90	-1%	3.3	0
Others				
Temperature (°C)		20-25		
Relative humidity		51%.		
ATM Pressure:		1019 mbar		
Note 1: When the input voltage is reduced or increased by 10%, the regulator voltage changes of less than 1%.So the following test items are conducted in the normal voltage.				

3.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



3.5 DESCRIPTION OF SUPPORT UNITS (CONDUCTED MODE)

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.	Note
E-1	19.2-inch bar display	N/A	MEM-IOX192-SB	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) "YES" is means "shielded" "with core"; "NO" is means "unshielded" "without core".

3.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

Calibration company: Guangzhou LiSai Metrology & Test Co., Ltd. (Article 24-2, Paragraph 4 of the Radio Act) method c

Radiation Emissions & Radiation Spurious Emissions Test

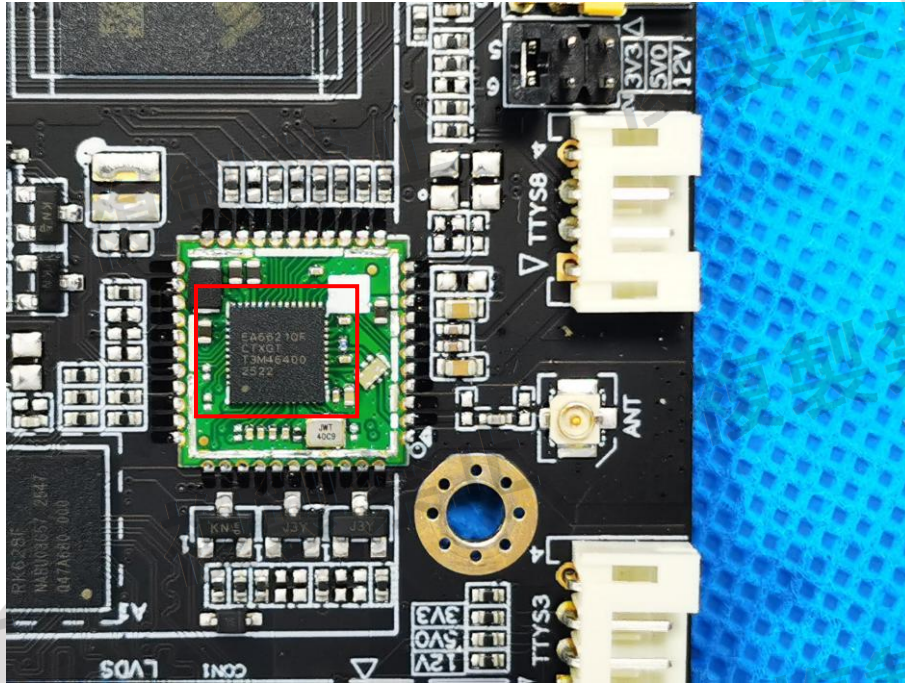
Item	Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	KEYSIGHT	N9020A	MY55370835	A.17.05	Sep. 17, 2025	Sep. 16, 2026
2	Spectrum Analyzer (10kHz-39.9GHz)	R&S	FSV40-N	100363	1.71 SP2	Sep. 17, 2025	Sep. 16, 2026
3	EMI Test Receiver (9kHz-7GHz)	R&S	ESCI7	100969	4.32	Sep. 17, 2025	Sep. 16, 2026
4	Bilog Antenna (30MHz-1500MHz)	Schwarzbeck	VULB9168	00877	N/A	Sep. 17, 2025	Sep. 16, 2026
5	Horn Antenna (1GHz-18GHz)	Agilent	AH-118	071145	N/A	Sep. 17, 2025	Sep. 16, 2026
6	Horn Antenna (15GHz-40GHz)	A.H.System	SAS-574	588	N/A	Sep. 17, 2025	Sep. 16, 2026
7	Loop Antenna	TESEQ	HLA6121	58357	N/A	Sep. 17, 2025	Sep. 16, 2026
8	Amplifier (30-1000MHz)	EM Electronics	EM330 Amplifier	60747	N/A	Sep. 17, 2025	Sep. 16, 2026
9	Amplifier (1GHz-26.5GHz)	HuiPu	8449B	3008A00315	N/A	Sep. 17, 2025	Sep. 16, 2026
10	Amplifier (500MHz-40GHz)	QuanJuDa	DLE-161	097	N/A	Sep. 17, 2025	Sep. 16, 2026
11	Test Cable	N/A	R-01	N/A	N/A	Sep. 17, 2025	Sep. 16, 2026
12	Test Cable	N/A	R-02	N/A	N/A	Sep. 17, 2025	Sep. 16, 2026
13	Test Cable	N/A	R-03	N/A	N/A	Sep. 17, 2025	Sep. 16, 2026
14	D.C. Power Supply	LongWei	TPR-6405D	GQ7516	N/A	Sep. 17, 2025	Sep. 16, 2026
15	EMC Software	Frad	EZ-EMC	Ver.EMC-CO N 3A1.1	N/A	\	\
16	Turntable	MF	MF-7802BS	N/A	N/A	\	\
17	Antenna tower	MF	MF-7802BS	N/A	N/A	\	\
18	Power Meter	KEYSIGHT	N1912AP	926431	A.05.00	Sep. 17, 2025	Sep. 16, 2026
19	Attenuator	GuoRenTong Xin	SGR-SJQ-6 dB-DC-3	N/A	N/A	Sep. 17, 2025	Sep. 16, 2026
20	Signal Generator	Agilent	N5182A	MY47420215	A.01.87	Sep. 17, 2025	Sep. 16, 2026

4. RF SHIELDING METHOD

Chipset:

The product structure is uses SMD patch process.

As shown in the picture, If the will be open so the product be damage.
terminalnumber is 48. Pitch is 0.35mm.



5. TEST RESULT FOR BLUETOOTH

5.1 FREQUENCY ERROR

5.1.1 LIMIT

Item	Limits
Frequency Error	±50ppm

5.1.2 MEASURING INSTRUMENTS AND SETTING

The following table is the setting of Spectrum Analyzer.

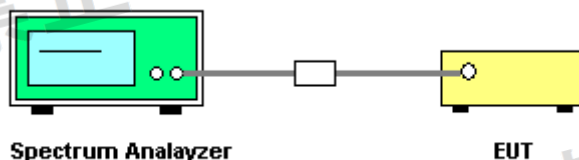
Spectrum Parameter	Setting
Attenuation	Auto
RB / VB	10kHz/10kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

5.1.3 TEST PROCEDURES

- (1) In the case of unmodulated signal (continuous or continuous burst), measure the frequency directly by a frequency meter.
- (2) In the case of burst waves, the measurement shall be done for enough time in order to obtain the enough measuring accuracy, and the average of the measured values becomes the final value.
- (3) In the case of a test mode with a specific frequency spectrum, measure the frequency of the specific spectrum by a spectrum analyzer.
- (4) In the cases above, if the frequency equivalent to the test frequency is not directly measured in principle, it shall be obtained by necessary calculation.

In the case of modulated signal, if there is no specific spectrum measurable by a spectrum analyzer but a specific dip is observed, it is allowed to measure the frequency with the signal generator (synthesized). That is, observe a signal of the signal generator concurrently (or alternately) with the tested signal using the spectrum analyzer while setting the frequency of the signal generator to the position of the dip on the screen of the spectrum analyzer, and determine the frequency of the signal generator at the time as a measured value.

5.1.4 TEST SETUP LAYOUT



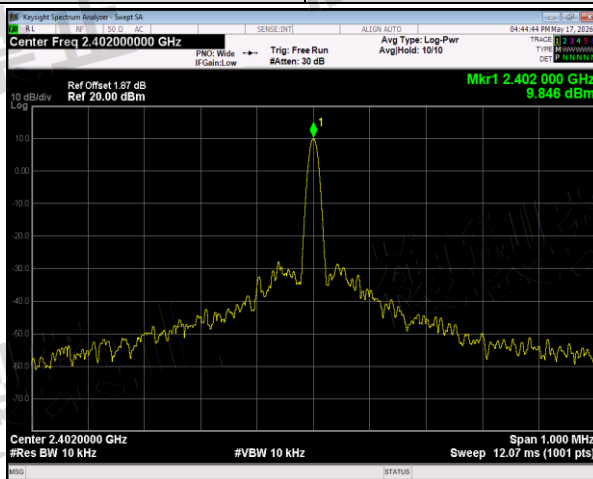
5.1.5 EUT OPERATION DURING TEST

The EUT was placed on the test table and programmed in un-modulation function.

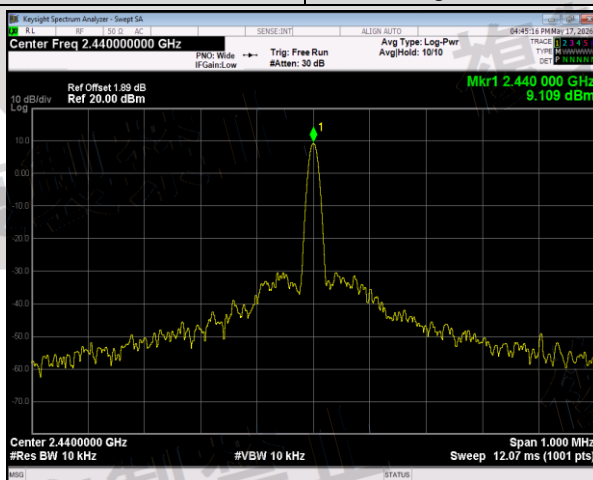
5.1.6 TEST RESULT

Test mode	Test voltage	Frequency (MHz)	Read (MHz)	Tolerance (ppm)	Limit (ppm)	Result
Un-modulation mode	Normal	2402	2402	0	±50.00	Pass
		2440	2440	0		
		2480	2480	0		

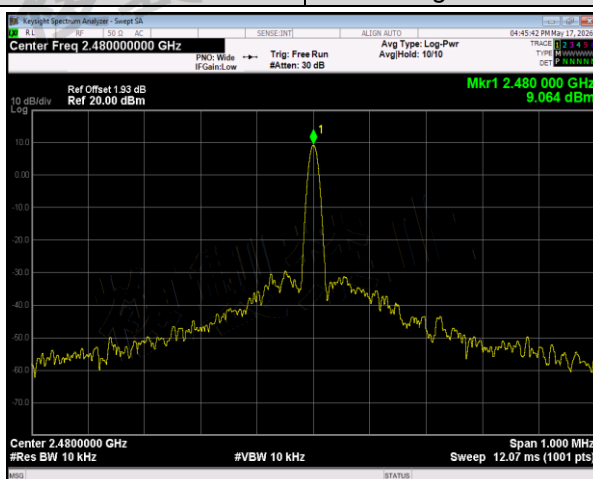
Lowest Channel	Test voltage	NORMAL
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Middle Channel	Test voltage	NORMAL
----------------	--------------	--------



Highest Channel	Test voltage	NORMAL
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5.2 ANTENNA POWER & EIRP

5.2.1 LIMIT

Item	Limits
Antenna Power	≤10mW
EIRP	≤12.14dBm
Antenna Power Error	+20% (No lower limit)

5.2.2 TEST PROCEDURES

1. A power meter is connected on the EUT

2. The power meter indicates the measured power "E".

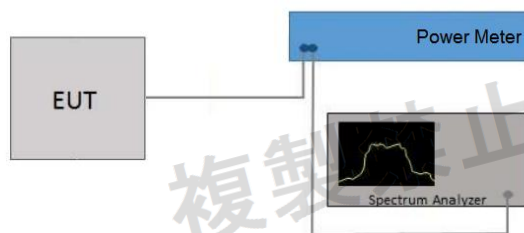
3. Calculate antenna power density by the formula below $PD = Pt + 10 \cdot \log(1/x)$.

x: The duty cycle of the EUT in continuously transmitting mode (there the duty cycle is 100%)

Pt: Output power of the SSG

4. Antenna Power Error is definition that actual measure antenna power tolerance below + 20% power that base on manufacturer declare the conducted power.

5.2.3 TEST SETUP LAYOUT



5.2.4 TEST DEVIATION

There is no deviation with the original standard.

5.2.5 TEST RESULT

Operation Mode:	Normal Voltage – GFSK 1Mbps						
Test Frequency (MHz)	Antenna Power (dBm)	Antenna Power (mW)	Rated power (mW)	Antenna Power Limit (mW)	Tolerance (%)	Tolerance Limit (%)	RESULT
2402	-2.04	0.625	1.00	≤10	-38	+ 20	PASS
2440	-2.58	0.552	1.00	≤10	-45	+ 20	PASS
2480	-2.13	0.612	1.00	≤10	-39	+ 20	PASS
Operation Mode:	Normal Voltage – GFSK 2Mbps						
Test Frequency (MHz)	Antenna Power (dBm)	Antenna Power (mW)	Rated power (mW)	Antenna Power Limit (mW)	Tolerance (%)	Tolerance Limit (%)	RESULT
2402	-2.15	0.61	1.00	≤10	-39	+ 20	PASS
2440	-2.67	0.541	1.00	≤10	-46	+ 20	PASS
2480	-2.23	0.598	1.00	≤10	-40	+ 20	PASS
Tolerance Limit : + 20% (No lower limit)							

Operation Mode:	Normal Voltage – GFSK 1Mbps				
Test Frequency (MHz)	Antenna Power (dBm)	Antenna gain (dBi)	EIRP (dBm)	Limits (dBm)	RESULT
2402	-2.04	2.24	0.2	≤12.14	PASS
2440	-2.58	2.24	-0.34	≤12.14	PASS
2480	-2.13	2.24	0.11	≤12.14	PASS
Operation Mode:	Normal Voltage – GFSK 2Mbps				
Test Frequency (MHz)	Antenna Power (dBm)	Antenna gain (dBi)	EIRP (dBm)	Limits (dBm)	RESULT
2402	-2.15	2.24	0.09	≤12.14	PASS
2440	-2.67	2.24	-0.43	≤12.14	PASS
2480	-2.23	2.24	0.01	≤12.14	PASS

Note: EIRP Power = Antenna Power + Antenna Gain.

5.3 OCCUPIED BANDWIDTH

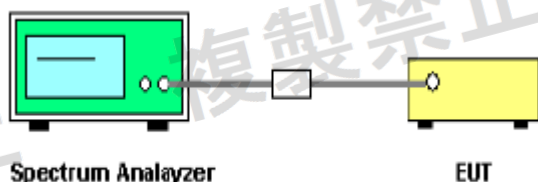
5.3.1 LIMIT

Item	Limits
Occupied Band Width:	$\leq 26\text{MHz}$

5.3.2 TEST PROCEDURES

1. Setting of SA is following as: RB: 300kHz / VB:300kHz / SPAN: 3MHz / AT: 30dB Ref: 21.87dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold
2. EUT have transmitted the maximum 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).

5.3.3 TEST SETUP LAYOUT



5.3.4 TEST DEVIATION

There is no deviation with the original standard.

5.3.5 EUT OPERATION DURING TEST

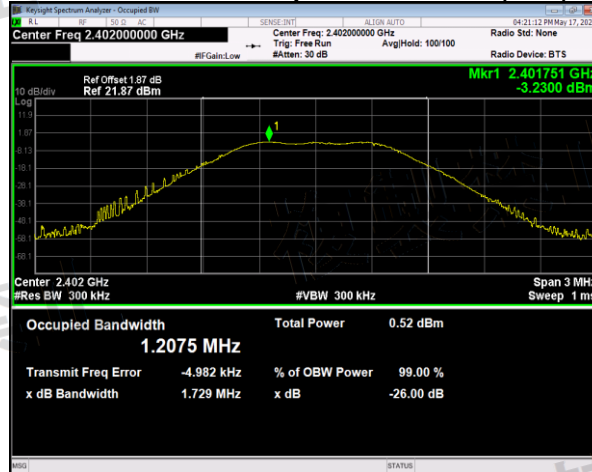
The EUT was programmed to be in continuously transmitting mode.

5.3.6 TEST RESULT

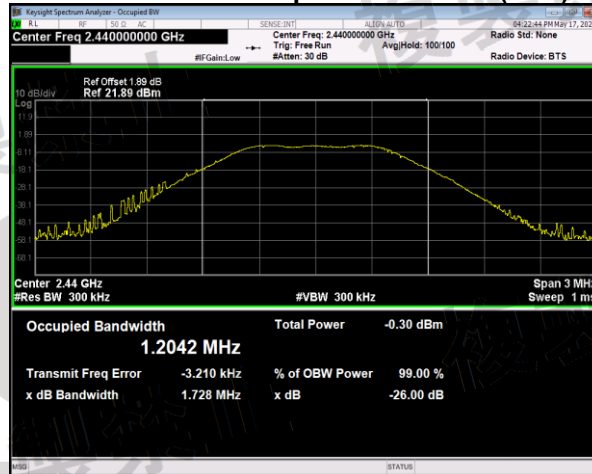
Test voltage	Mode	Test Frequency (MHz)	99% Occupied Bandwidth (MHz)	Limits (MHz)	Result
Normal	BLE 1M	2402	1.2075	≤ 26	Pass
	BLE 1M	2440	1.2042	≤ 26	Pass
	BLE 1M	2480	1.2072	≤ 26	Pass
	BLE 2M	2402	2.1112	≤ 26	Pass
	BLE 2M	2440	2.1091	≤ 26	Pass
	BLE 2M	2480	2.1072	≤ 26	Pass



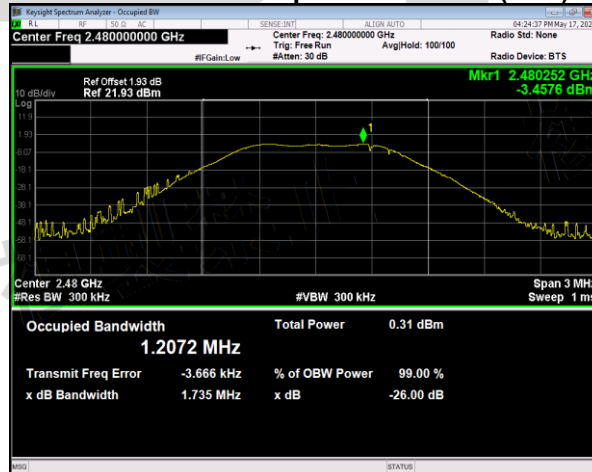
BLE 1M CH01 Occupied Bandwidth (99%)



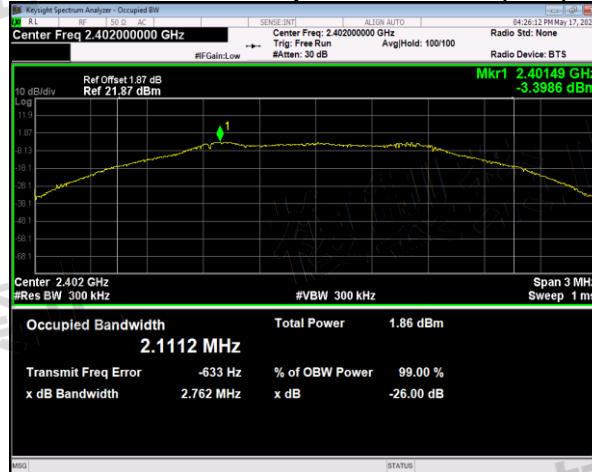
BLE 1M CH20 Occupied Bandwidth (99%)



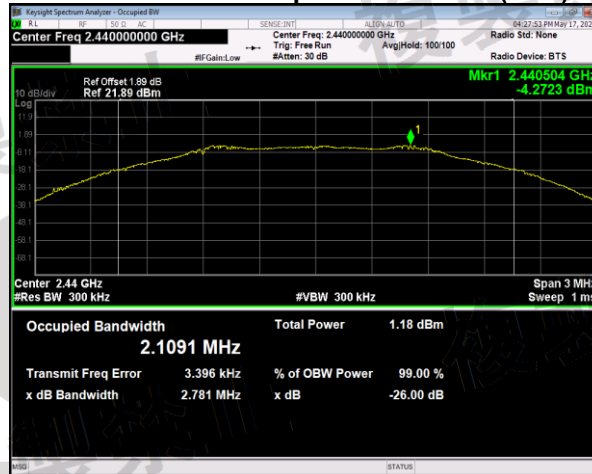
BLE 1M CH40 Occupied Bandwidth (99%)



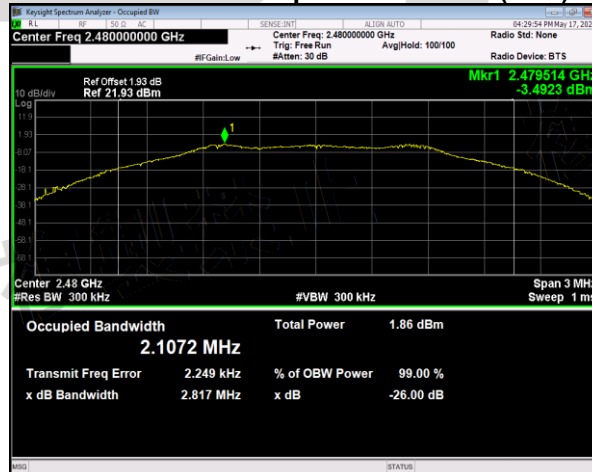
BLE 2M CH01 Occupied Bandwidth (99%)



BLE 2M CH20 Occupied Bandwidth (99%)



BLE 2M CH40 Occupied Bandwidth (99%)



5.4 UNWANTED EMISSION INTENSITY MEASUREMENT

5.4.1 LIMIT

Item	Limits
TX Spurious Emission	Below 1G: 2.5uW/MHz or less Below 2387 MHz: 2.5μW/MHz or less 2387 to 2400 MHz: 25μW/MHz or less 2483.5 through 2496.5 MHz: 25μW/MHz or less Over 2496.5 MHz: 2.5μW/MHz or less

5.4.2 MEASURING INSTRUMENTS AND SETTING

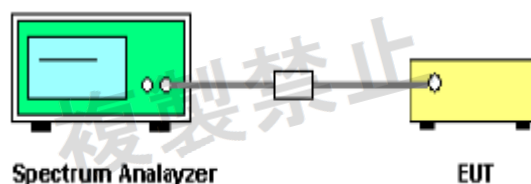
Please refer to section 5 in this report. The following table is the setting of Spectrum Analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
RB / VB	Below 1GHz: 100 kHz / 100 kHz Above 1GHz: 1 MHz / 1 MHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

5.4.3 TEST PROCEDURES

- EUT have transmitted the maximum modulation signal and fixed channelize.
- Setting of SA is following as: Below 1GHz RB:100KHz / VB:100KHz
Above 1GHz RB:1MHz / VB:1MHz / AT: 30dB Ref: 20dBm / Sweep time: Auto
Sweep Mode: Continuous sweep / Detect mode: Positive peak
Trace mode: Max hold
- Setting of SA is following as 30MHz and stop frequency 1000MHz Then to mark peak reading value + cable loss shall be less than 2.5μW/MHz.
- Setting of SA is following as 1000MHz and stop frequency 2387MHz Then to mark peak reading value + cable loss shall be less than 2.5μW/MHz.
- SA adjusted to start frequency 2387MHz and stop frequency 2400MHz. Then to mark peak reading value + cable loss shall be less than 25μW/MHz.
- SA adjusted to start frequency 2483.5MHz and stop frequency 2496.5MHz Then to mark peak reading value + cable loss shall be less than 25μW/MHz.
- SA adjusted to start frequency 2496.5MHz and stop frequency 12500MHz Then to mark peak reading value + cable loss shall be less than 2.5μW/MHz
- Measure side band spurious as follows: For 2.4GHz band: 2374MHz~2400MHz and 2483.5MHz~2509.5MHz RBW = VBW = 30kHz, Result_Value = Measured_Value + 15.2 [dBm]
- 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.

5.4.4 TEST SETUP LAYOUT



5.4.5 TEST DEVIATION

There is no deviation with the original standard.

5.4.6 TEST RESULT

Test Voltage	Mode	Frequency (MHz)	Range (MHz)	Emission Frequency (MHz)	Max Value (dBm)	Max Value (uW/MHz)	Limit (uW/MHz)	Verdict
Normal	GFSK 1M	2402	30-1000	916.58	-49.68	0.0108	2.5	Pass
Normal	GFSK 1M	2402	1000-2387	2217.79	-48.81	0.0132	2.5	Pass
Normal	GFSK 1M	2402	2387-2400	2400.00	-43.32	0.0466	25	Pass
Normal	GFSK 1M	2402	2483.5-2496.5	2487.22	-46.49	0.0224	25	Pass
Normal	GFSK 1M	2402	2496.5-13000	5952.15	-46.28	0.0236	2.5	Pass
Normal	GFSK 1M	2440	30-1000	798.24	-49.25	0.0119	2.5	Pass
Normal	GFSK 1M	2440	1000-2387	1963.97	-48.53	0.014	2.5	Pass
Normal	GFSK 1M	2440	2387-2400	2395.16	-48.49	0.0142	25	Pass
Normal	GFSK 1M	2440	2483.5-2496.5	2485.83	-48.09	0.0155	25	Pass
Normal	GFSK 1M	2440	2496.5-13000	12453.82	-45.86	0.0259	2.5	Pass
Normal	GFSK 1M	2480	30-1000	861.29	-49.50	0.0112	2.5	Pass
Normal	GFSK 1M	2480	1000-2387	2258.01	-48.14	0.0153	2.5	Pass
Normal	GFSK 1M	2480	2387-2400	2391.60	-47.36	0.0184	25	Pass
Normal	GFSK 1M	2480	2483.5-2496.5	2484.01	-39.77	0.1054	25	Pass
Normal	GFSK 1M	2480	2496.5-13000	3011.17	-46.26	0.0237	2.5	Pass
Normal	GFSK 2M	2402	30-1000	901.06	-49.31	0.0117	2.5	Pass
Normal	GFSK 2M	2402	1000-2387	2287.14	-48.75	0.0133	2.5	Pass
Normal	GFSK 2M	2402	2387-2400	2399.87	-27.12	1.9409	25	Pass
Normal	GFSK 2M	2402	2483.5-2496.5	2492.64	-48.16	0.0153	25	Pass
Normal	GFSK 2M	2402	2496.5-13000	2916.64	-46.58	0.022	2.5	Pass
Normal	GFSK 2M	2440	30-1000	543.13	-48.65	0.0136	2.5	Pass
Normal	GFSK 2M	2440	1000-2387	2280.20	-48.90	0.0129	2.5	Pass
Normal	GFSK 2M	2440	2387-2400	2389.44	-47.99	0.0159	25	Pass
Normal	GFSK 2M	2440	2483.5-2496.5	2488.83	-47.87	0.0163	25	Pass
Normal	GFSK 2M	2440	2496.5-13000	5920.64	-45.54	0.0279	2.5	Pass
Normal	GFSK 2M	2480	30-1000	911.73	-48.55	0.0140	2.5	Pass
Normal	GFSK 2M	2480	1000-2387	2360.65	-48.06	0.0156	2.5	Pass
Normal	GFSK 2M	2480	2387-2400	2393.27	-47.79	0.0166	25	Pass
Normal	GFSK 2M	2480	2483.5-2496.5	2483.60	-40.25	0.0944	25	Pass
Normal	GFSK 2M	2480	2496.5-13000	12422.31	-45.74	0.0267	2.5	Pass

Note: 30M-1GHz test for RB=100kHz;

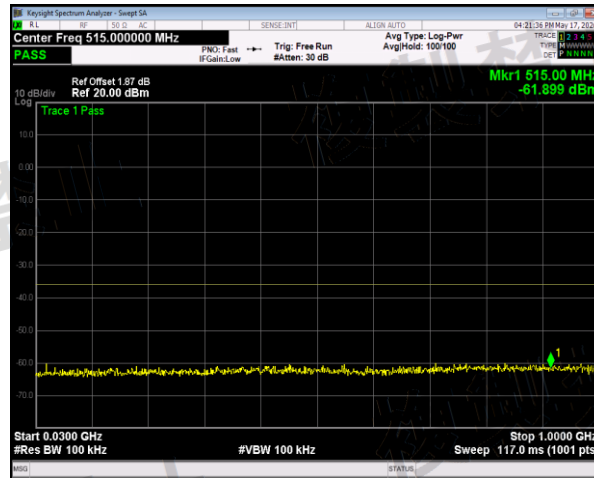
Test Result = Max Value +RB factor;

RB factor = $10\log(RB0/RB1) = 10\log(1M/100K) = 10dB$.

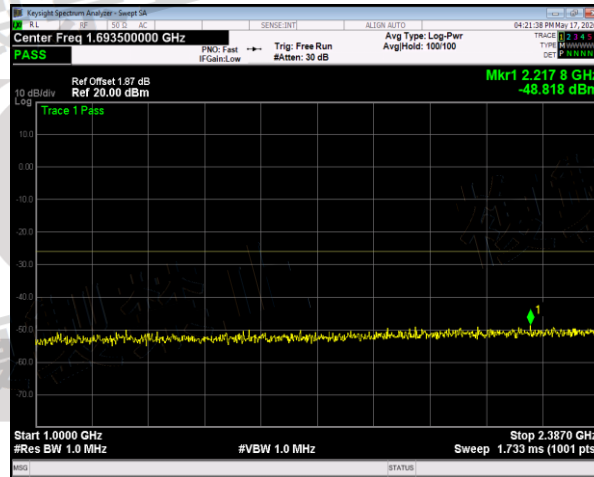
Modulation type: GFSK 1M - 2402MHz

Test voltage	Normal	RESULT	PASS
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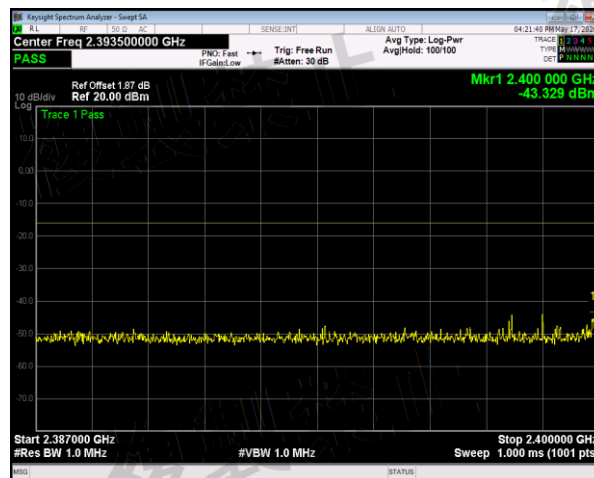
30MHz~1GHz



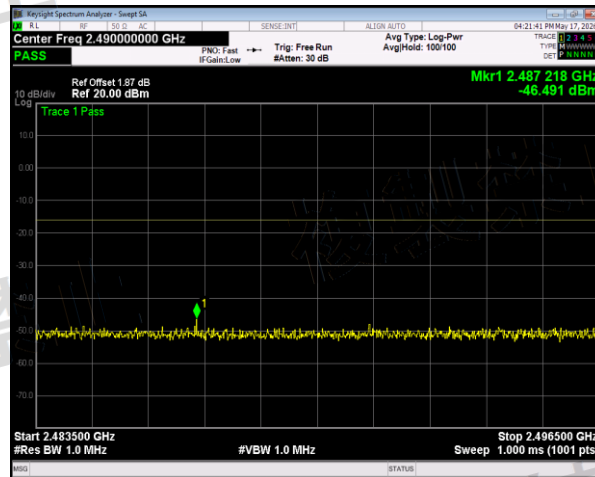
1GHz~2.387GHz



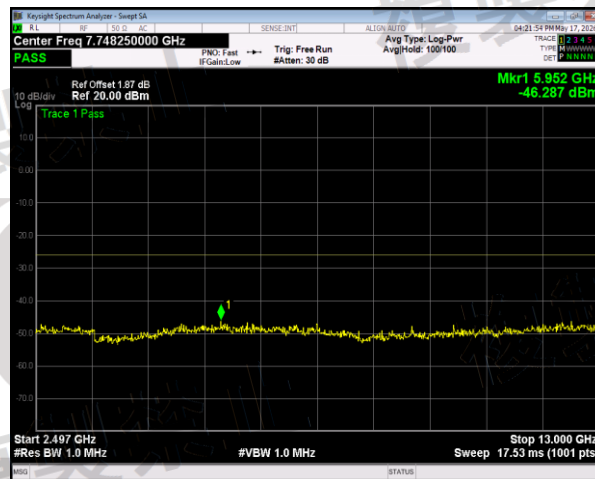
2.387GHz~2.4GHz



2.4835Hz~2.4965GHz



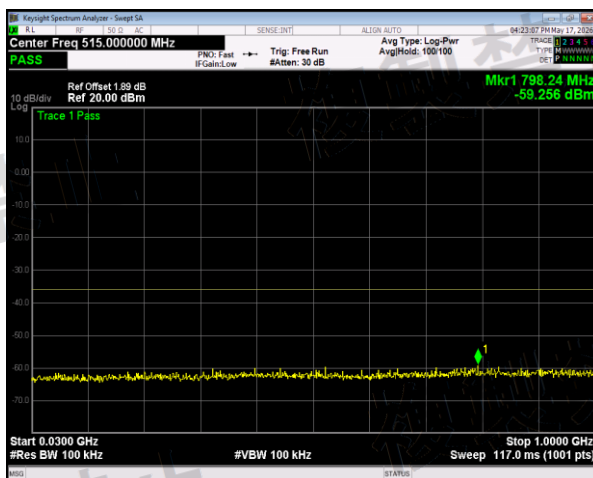
2.4965GHz~13GHz



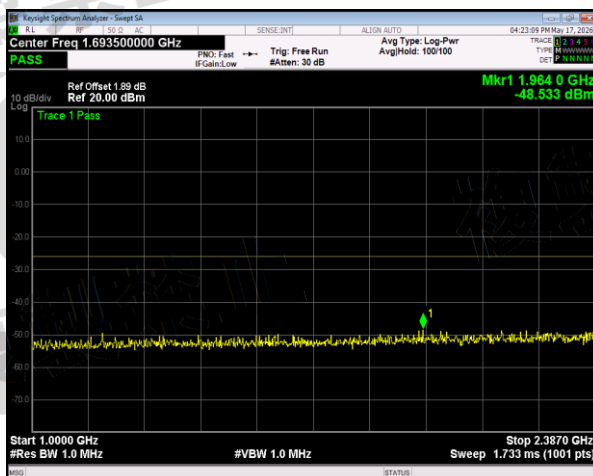
Modulation type: GFSK 1M- 2440MHz

Test voltage	Normal	RESULT	PASS
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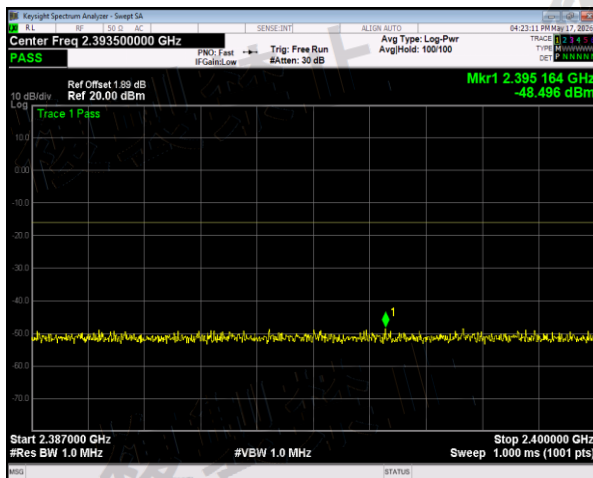
30MHz~1GHz



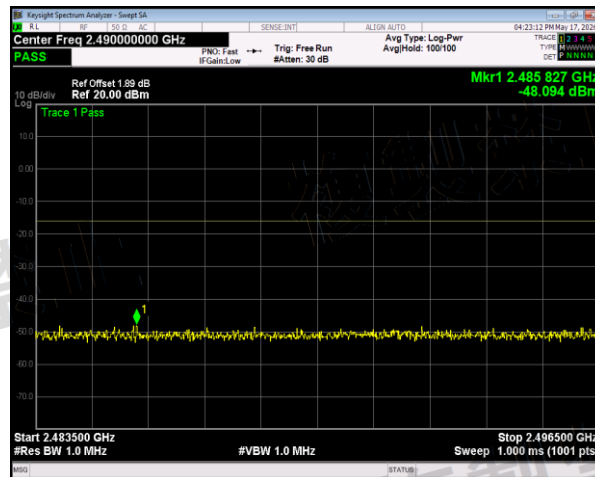
1GHz~2.387GHz



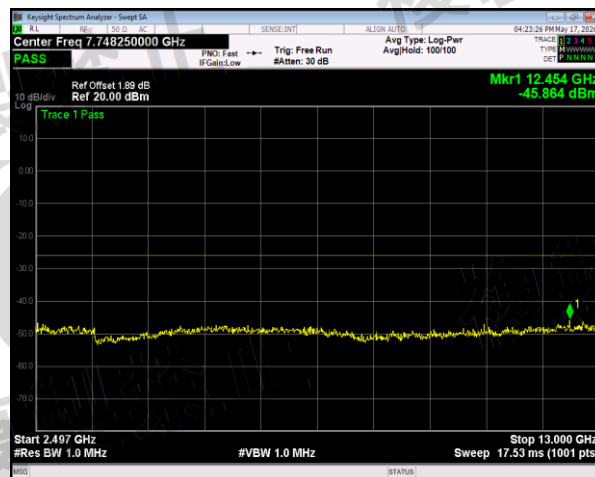
2.387GHz~2.4GHz



2.4835Hz~2.4965GHz



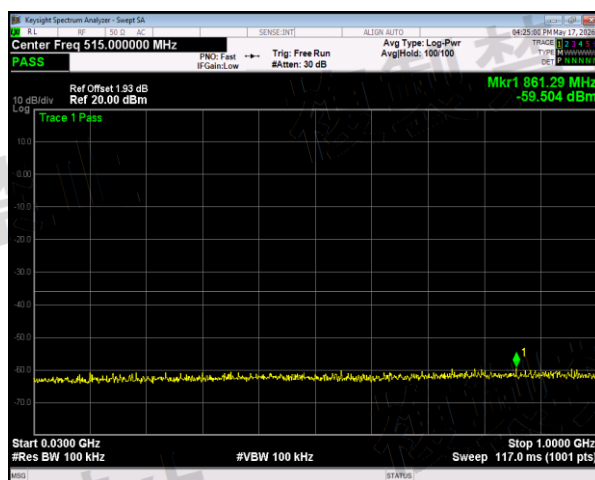
2.4965GHz~13GHz



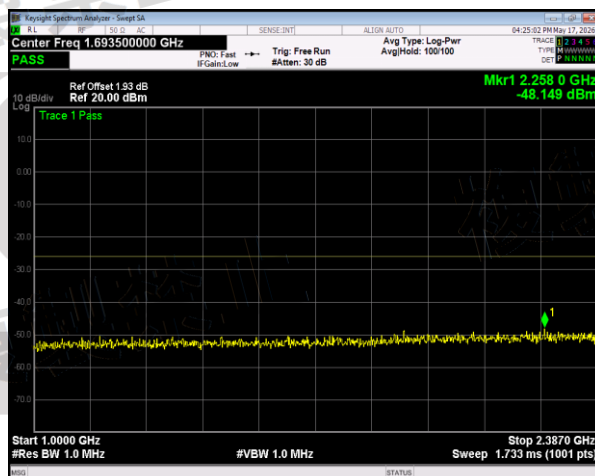
Modulation type: GFSK 1 M- 2480MHz

Test voltage	Normal	RESULT	PASS
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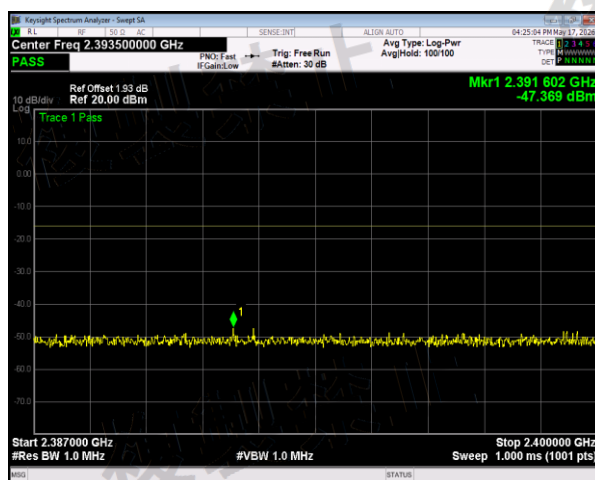
30MHz~1GHz



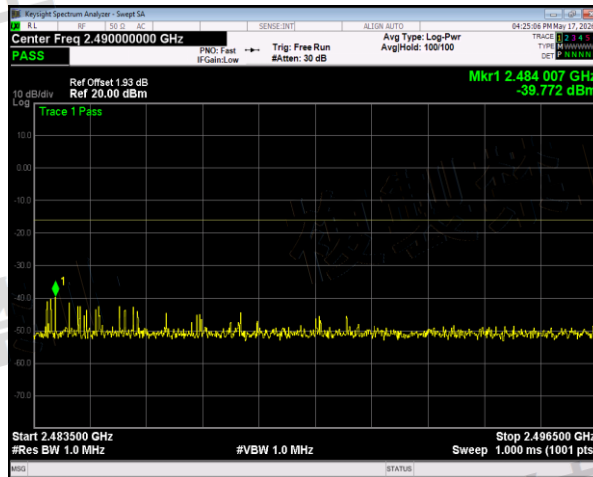
1GHz~2.387GHz



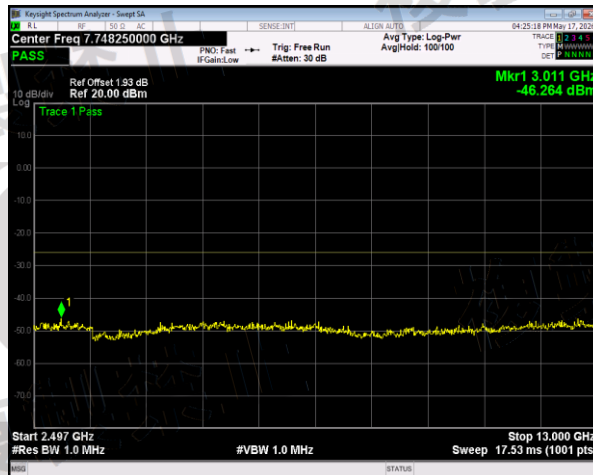
2.387GHz~2.4GHz



2.4835Hz~2.4965GHz



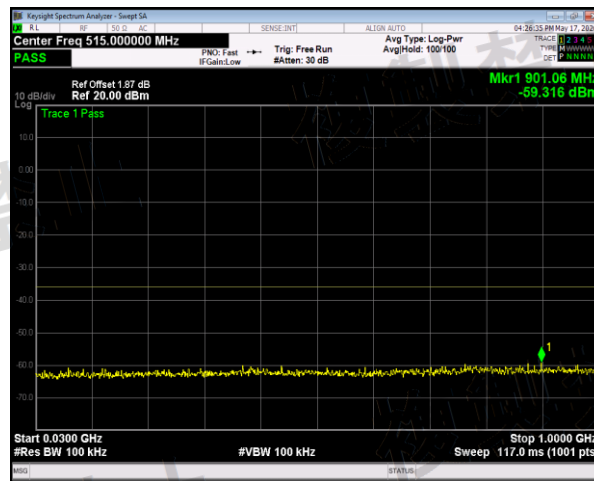
2.4965GHz~13GHz



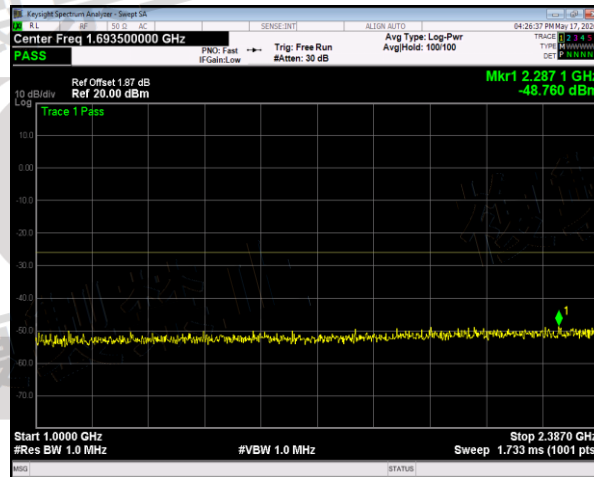
Modulation type: GFSK 2M - 2402MHz

Test voltage	Normal	RESULT	PASS
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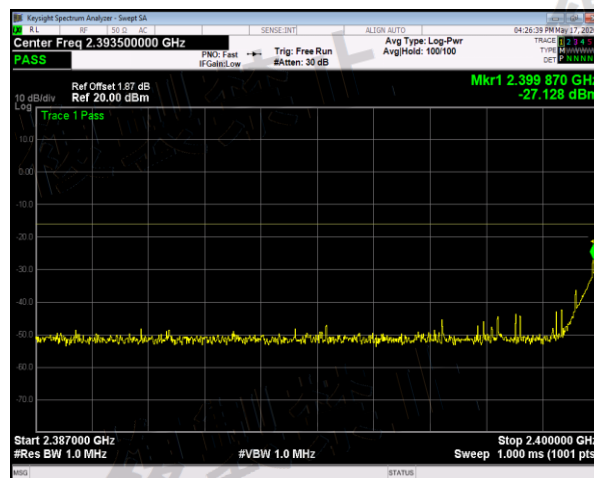
30MHz~1GHz



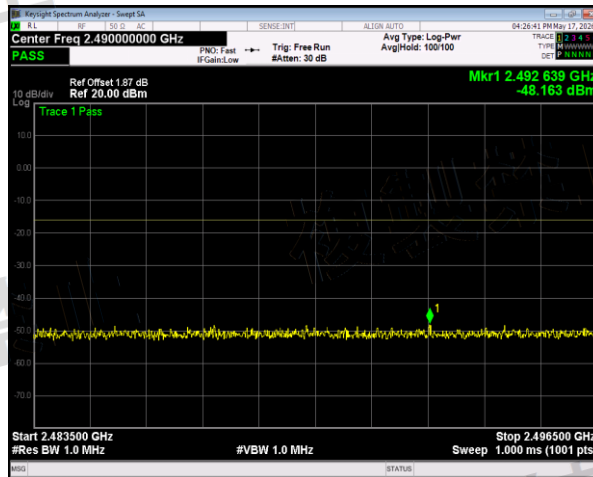
1GHz~2.387GHz



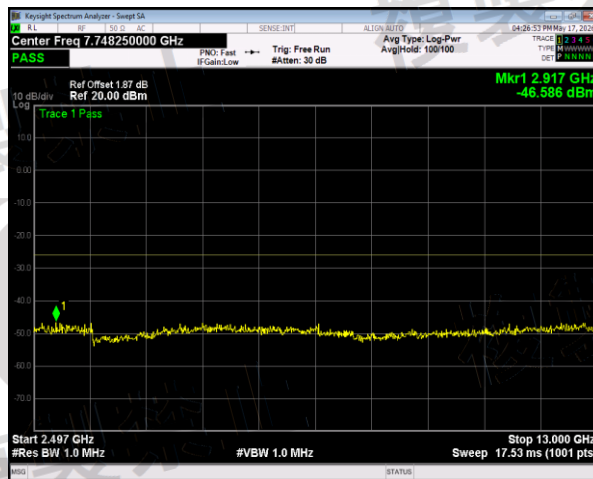
2.387GHz~2.4GHz



2.4835Hz~2.4965GHz



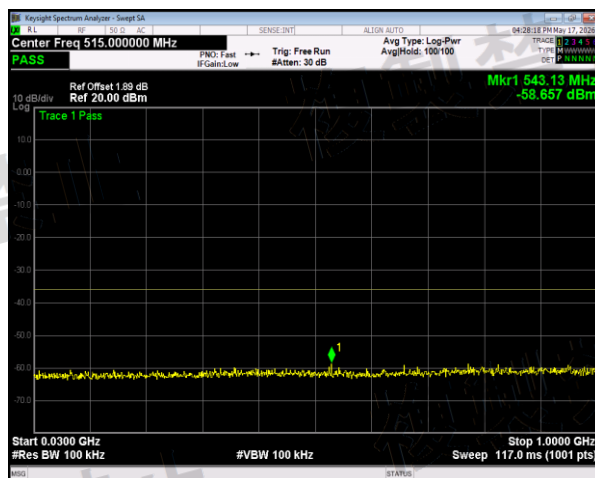
2.4965GHz~13GHz



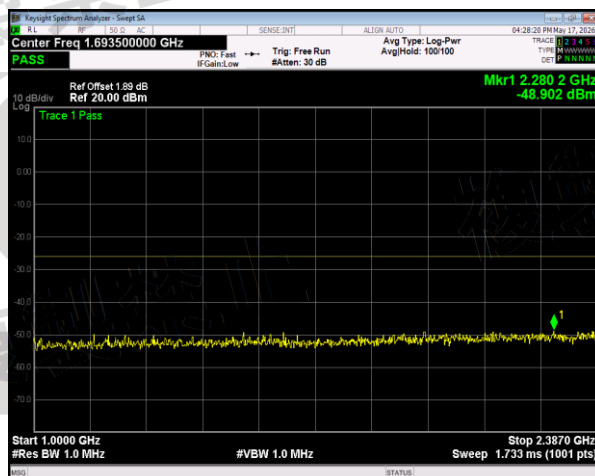
Modulation type: GFSK 2M- 2440MHz

Test voltage	Normal	RESULT	PASS
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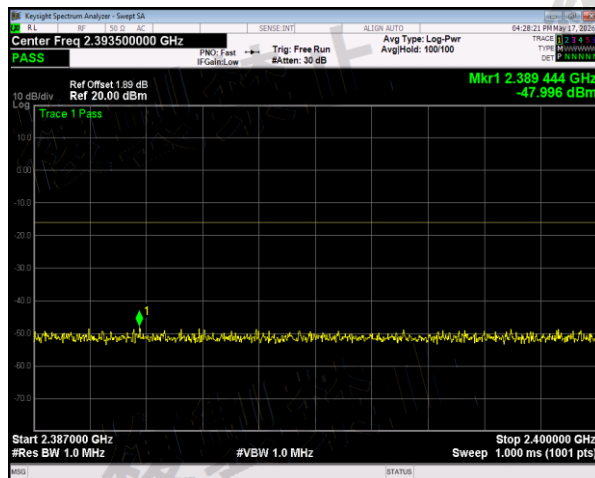
30MHz~1GHz



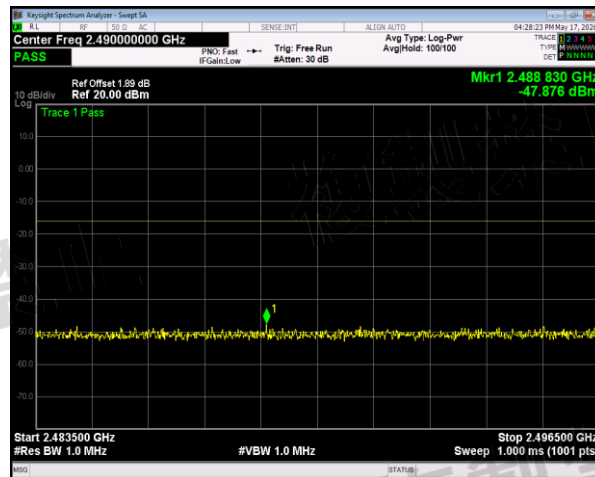
1GHz~2.387GHz



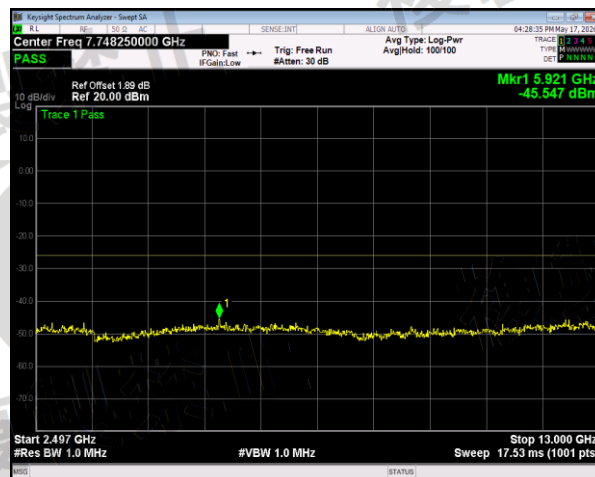
2.387GHz~2.4GHz



2.4835Hz~2.4965GHz



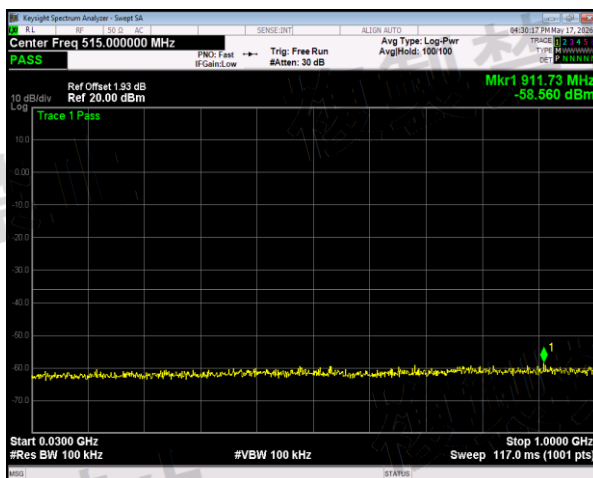
2.4965GHz~13GHz



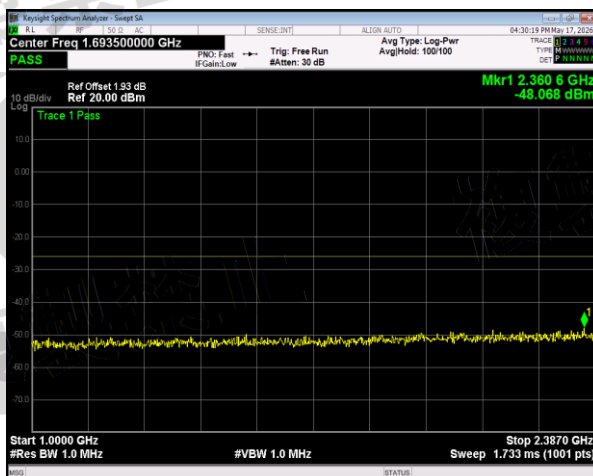
Modulation type: GFSK 2M- 2480MHz

Test voltage	Normal	RESULT	PASS
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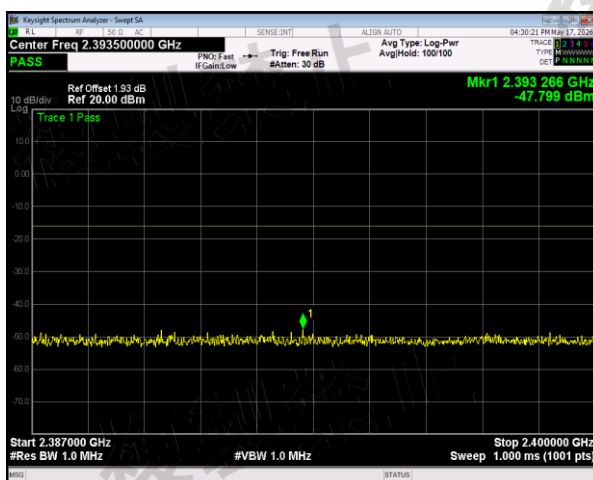
30MHz~1GHz



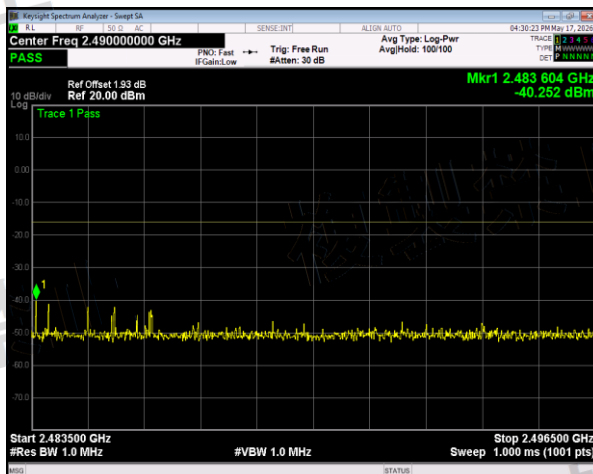
1GHz~2.387GHz



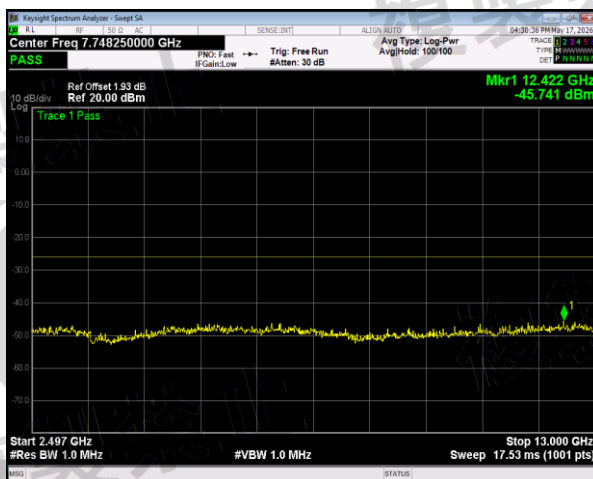
2.387GHz~2.4GHz



2.4835Hz~2.4965GHz



2.4965GHz~13GHz



5.5 IMITATION OF COLLATERAL EMISSION OF RECEIVER MEASUREMENT

5.5.1 LIMIT

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

5.5.2 MEASURING INSTRUMENTS AND SETTING

Please refer to section 5 in this report. The following table is the setting of Spectrum Analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
RB	100 kHz (below 1GHz emissions) 1 MHz (above 1GHz emissions)
VB	100 kHz (below 1GHz emissions) 1 MHz (above 1GHz emissions)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

5.5.3 TEST PROCEDURES

- EUT have the continuous reception mode and fixed only one channelize.
- Setting of SA is following as RB / VB: 100 kHz (below 1GHz emissions) / 1 MHz (above 1GHz emissions) / AT: 0dB / Ref: -15dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold
- SA set RB: 100kHz and VB: 100kHz. Then adjust to start frequency 30MHz and stop frequency 1000MHz. Search to mark peak reading value + cable loss shall be less than 4nW
- SA set RB: 1MHz and VB: 1MHz. Then adjust to start frequency 1000MHz and stop frequency 12500MHz. Search to mark peak reading value + cable loss shall be less than 20nW
- 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.

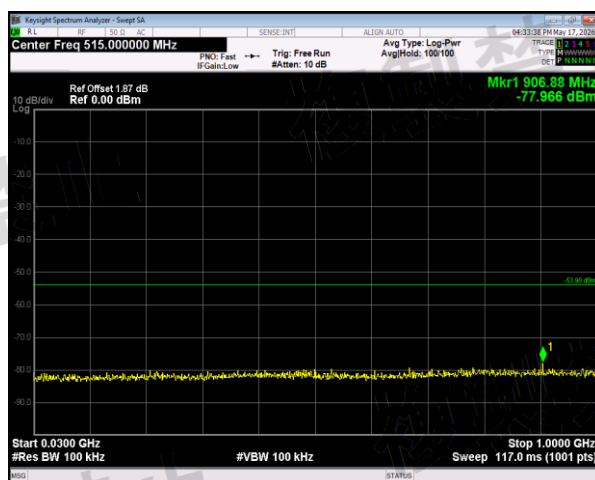
5.5.4 TEST RESULT

Test Voltage	Mode	Frequency (MHz)	Range (MHz)	Emission Frequency (MHz)	Max Value (dBm)	Max RMS Value (dBm)	Max Value (nW)	Max RMS Value (nW)	Limit (nW)	Verdict
Normal	GFSK 1M	2402	30-1000	906.88	-77.97	NA	0.016	NA	4	Pass
Normal	GFSK 1M	2402	1000-13000	4804.00	-63.47	NA	0.4498	NA	20	Pass
Normal	GFSK 1M	2440	30-1000	831.22	-78.70	NA	0.0135	NA	4	Pass
Normal	GFSK 1M	2440	1000-13000	4876.00	-64.07	NA	0.3917	NA	20	Pass
Normal	GFSK 1M	2480	30-1000	898.15	-78.46	NA	0.0143	NA	4	Pass
Normal	GFSK 1M	2480	1000-13000	5176.00	-62.97	NA	0.5047	NA	20	Pass
Normal	GFSK 2M	2402	30-1000	768.17	-77.89	NA	0.0163	NA	4	Pass
Normal	GFSK 2M	2402	1000-12500	4960.00	-64.42	NA	0.3614	NA	20	Pass
Normal	GFSK 2M	2440	30-1000	911.73	-46.98	-81.59	20.0447	0.0069	4	Pass
Normal	GFSK 2M	2440	1000-12500	5236.00	-63.44	NA	0.4529	NA	20	Pass
Normal	GFSK 2M	2480	30-1000	878.75	-78.82	NA	0.0131	NA	4	Pass
Normal	GFSK 2M	2480	1000-12500	4804.00	-64.26	NA	0.375	NA	20	Pass

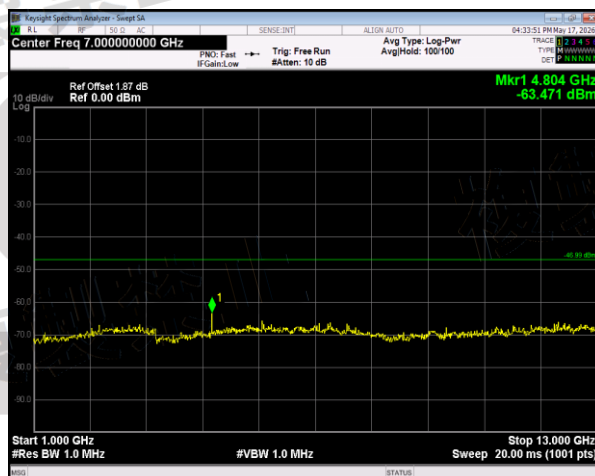
Modulation type: GFSK 1M- 2402MHz

Test voltage	Normal	RESULT	PASS
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30MHz~1GHz



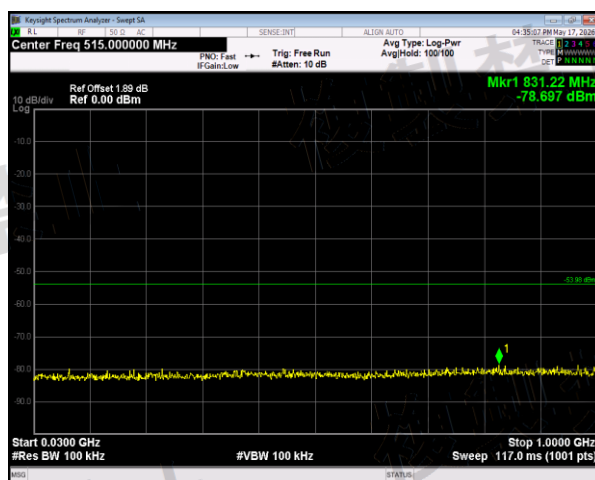
1GHz~13GHz



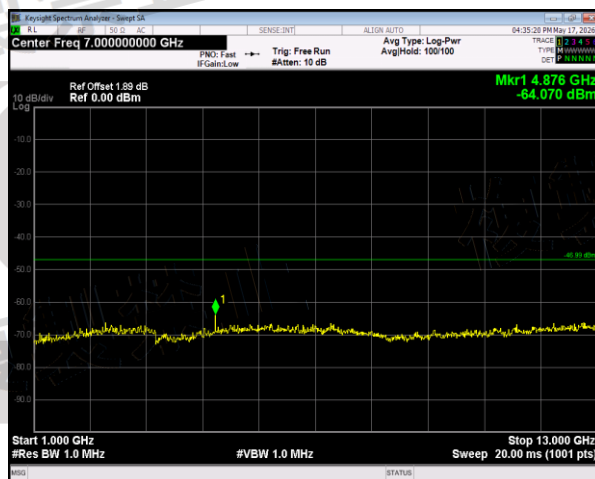
Modulation type: GFSK 1M- 2440MHz

Test voltage	Normal	RESULT	PASS
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30MHz~1GHz



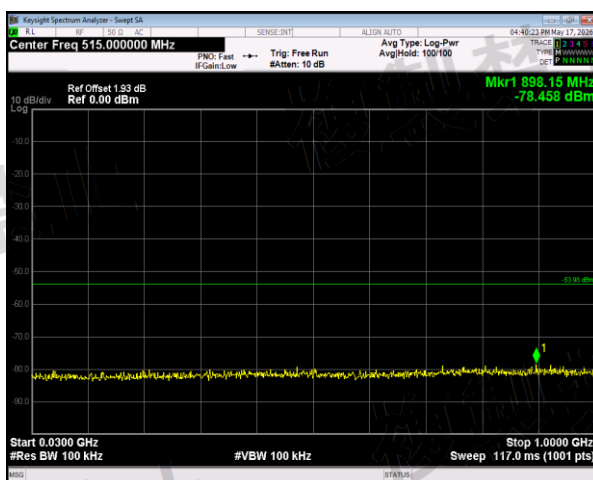
1GHz~13GHz



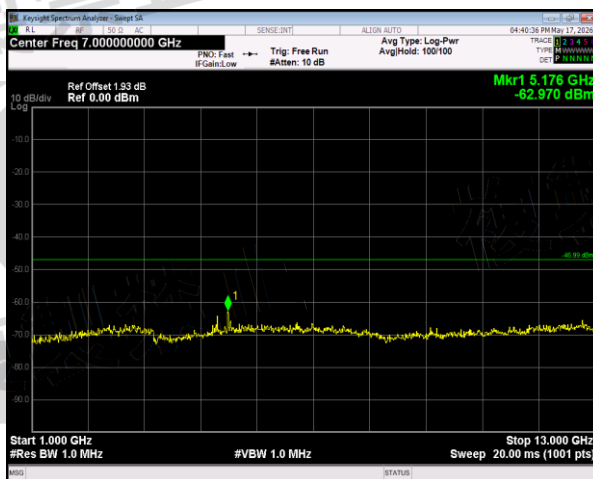
Modulation type: GFSK 1M- 2480MHz

Test voltage	Normal	RESULT	PASS
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30MHz~1GHz



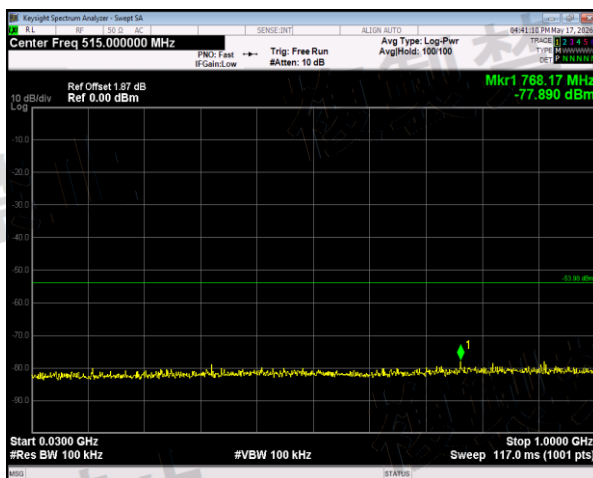
1GHz~13GHz



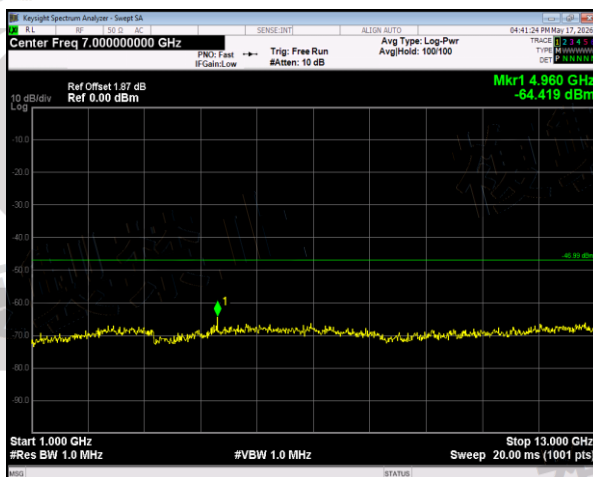
Modulation type: GFSK 2M- 2402MHz

Test voltage	Normal	RESULT	PASS
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30MHz~1GHz



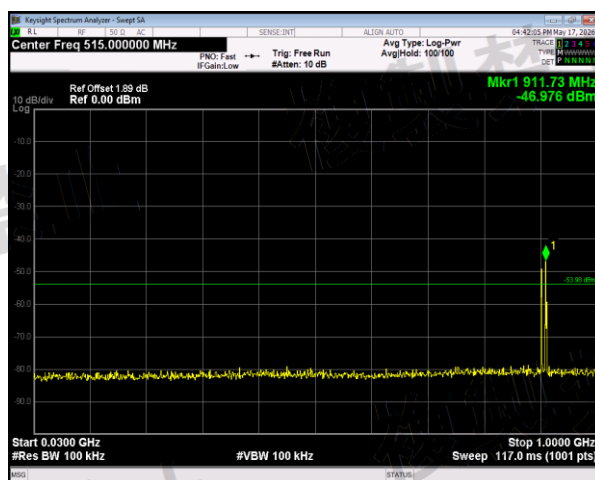
1GHz~13GHz



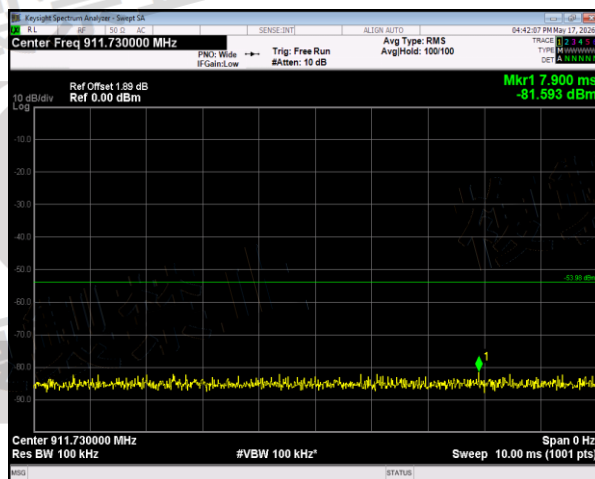
Modulation type: GFSK 2M- 2440MHz

Test voltage	Normal	RESULT	PASS
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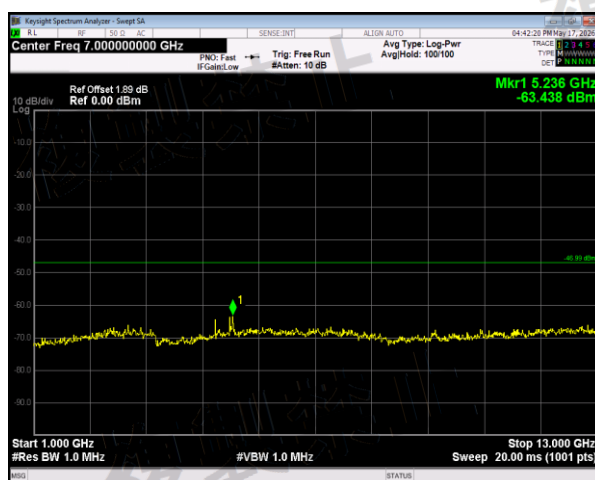
30MHz~1GHz



30MHz~1GHz Final



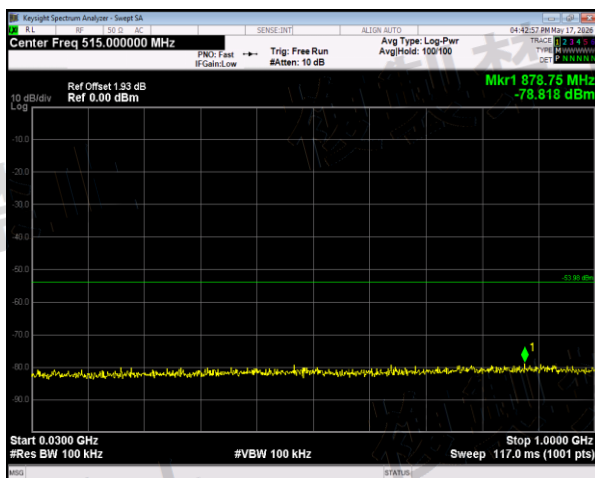
1GHz~13GHz



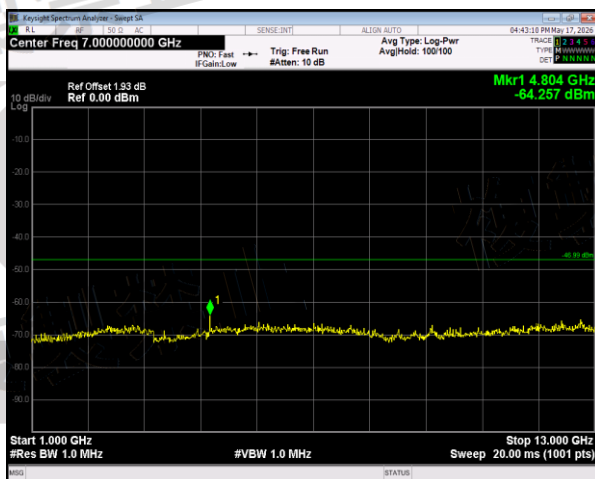
Modulation type: GFSK 2M- 2480MHz

Test voltage	Normal	RESULT	PASS
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30MHz~1GHz



1GHz~13GHz



5.6 RADIO INTERFERENCE PREVENTION CAPABILITY MEASUREMENT

5.6.1 LIMIT

Item	Limits
Identification code	≥ 48 bits

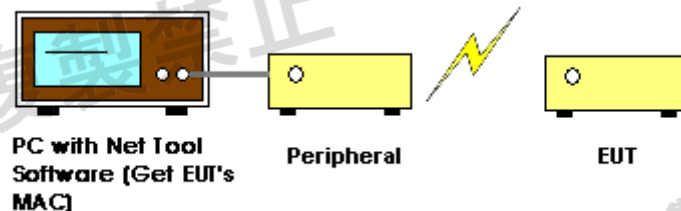
5.6.2 MEASURING ID CODE SOFTWARE

Item	Limits
MAC IP List	MAC Scan

5.6.3 TEST PROCEDURES

- 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.
- 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.

5.6.4 TEST SETUP LAYOUT



5.6.5 TEST DEVIATION

There is no deviation with the original standard.

5.6.6 EUT OPERATION DURING TEST

The EUT was programmed to be in normal transmitting mode.

5.6.7 TEST RESULT OF RADIO INTERFERENCE PREVENTION CAPABILITY

Bluetooth Device Address: 65-34-6C-3E-8F-74

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

5.7.1. LIMIT

Item	Limits
3dB antenna beam width	$360/A$ (If $A < 1$; then $A = 1$) $A = \{ \text{EIRP Power [mW]} / 16.36 \text{ for DS, OFDM} \}$ or $A = \{ \text{EIRP Power [mW]} / 4.9 \text{ for FH} \}$
Note: This test item is not applied for radio equipment with equivalent isotropic radiation power lower than 12.14dBm/MHz, but Antenna Power(Conducted) limit is 10 mW/MHz (10 dBm/MHz), So the test item will not be applied to the transmission antenna which has a gain of 2.14dBi or less	

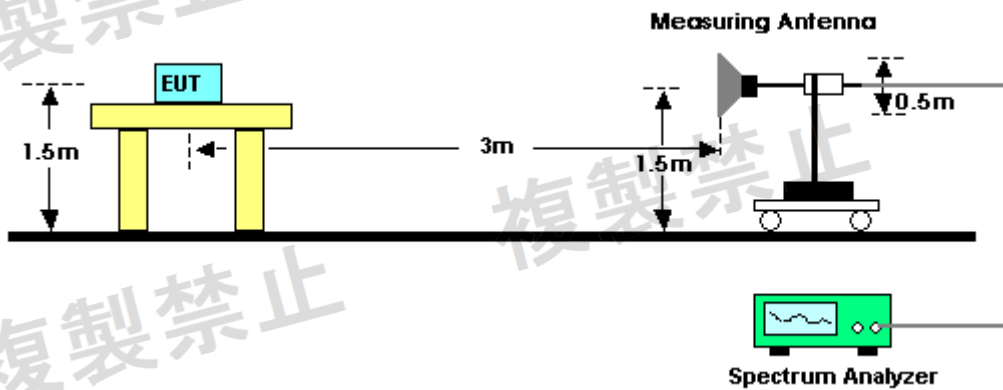
5.7.2. MEASURING INSTRUMENTS AND SETTING

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	0 MHz
RB	1 MHz
VB	1 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

5.7.3. 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 4.7.2 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
 $A = \{ \text{EIRP Power [mW]} / 4.9 \text{ for FH} \}$

5.7.4. TEST SETUP LAYOUT



5.7.5. TEST DEVIATION

There is no deviation with the original standard.

5.7.6. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

5.7.7. TEST RESULT OF TRANSMISSION RADIATION ANGLE WIDTH (3DB BEAMWIDTH)

Not applicable, when EIRP is less than 12.14dBm.

6. EUT TEST PHOTO

Reference to the appendix I for details.

7. EUT CONSTRUCTIONAL DETAILS

Reference to the appendix II for details.

***** END OF REPORT *****

