JAPAN RADIO TEST REPORT

Applicant.....	: Abbingdon Global Limited
Address.....	: 79 Scarisbrick New Road, Southport, Merseyside, PR8 6LJ, United Kingdom Of Great Britain And Northern Ireland
Manufacturer.....	: Abbingdon Global Limited
Address.....	: 79 Scarisbrick New Road, Southport, Merseyside, PR8 6LJ, United Kingdom Of Great Britain And Northern Ireland
Factory.....	: Dongguan Kaiyun Technology Co., Ltd.
Address.....	: No. 1, Jinhe Wenming 4th Street, Zhangmutou Town, Dongguan City, Guangdong Province.
Product Name	: Hi-Res Bluetooth Transmitter
Brand Name.....	: iFi
Model No.	: UP PLAY
Measurement Standard.....	: Article 2 Paragraph 1 of Certification Ordinance Item 19
Receipt Date of Samples....	: February 04, 2026
Date of Tested.....	: March 03, 2026 to March 20, 2026
Date of Report.....	: April 16, 2026

This report shows that above equipment is technically compliant with the requirements of the standards above. All test results in this report apply only to the tested sample(s). Without prior written approval of Dongguan Nore Testing Center Co., Ltd, this report shall not be reproduced except in full.

Prepared by

Alina Guo / Project Engineer

Approved by

Iori Fan / Authorized Signatory

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Revision History

Report Number	Description	Issued Date
NTC2602083EV00	Initial Issue	2026-04-16

1. Summary of Test Result

Section (MIC Notice No.88)	Description of Test	Result	Remarks
3.2(1) Article 49-20	Spread Spectrum Method	N/A	---
3.2(2) Article 49-20	Antenna Power	PASS	---
3.2(3) Article 14	Antenna Power Tolerance	PASS	---
3.2(4) Article 5, Attached Table No.1	Frequency Tolerance	PASS	---
3.2(5)	Transmission rate	N/A	---
3.2(6) Article 7	Spurious emission intensity	PASS	---
3.3(1) Article 24	Limit on secondary radiated emissions	PASS	---
3.2(7) Article 6, Attached Table No.2	Occupied Bandwidth	PASS	---
3.2(8) Article 49-20	Spreading Bandwidth	---	Reporting only
3.6(2) Article 49-20	Transmitting Antenna Absolute Gain	N/A	Only for EIRP > 12.14dBm/MHz
3.6(2) Article 49-20	Half Power Beam Angle	N/A	Only for EIRP > 12.14dBm/MHz
Article 49-20	Carrier Sensing Function	N/A	---
3.2(11) Article 49-20	Dwell time	PASS	---
Article 49-20	Number of Carrier	N/A	---
Article 6-2, Article 9-4	Interference Prevention Function	PASS	---
Article 49-20	Spreading Factor	N/A	---

Note:

1. Test method is conducted according MIC Notice No.88 Appendix No.43 (Item 19, Paragraph 1, Article 2).
2. N/A means not applicable.

3. General Information

Product Information	
Product Name:	Hi-Res Bluetooth Transmitter
Main Model Name:	UP PLAY
Additional Model Name:	N/A
Model Difference:	N/A
S/N:	2602-0613
Brand Name:	iFi
Hardware version:	V01
Software version:	V01
Rating:	USB Type-C: DC 5V
Test Voltage:	DC 5V (Normal Voltage)
I/O Port:	Refer to the user's manual
Accessories Information	
Adapter:	N/A
Cable:	N/A
Other:	N/A
Additional Information	
Note:	N/A
Remark:	All the information above are provided by the manufacturer. More detailed feature of the EUT please refers to the user manual.

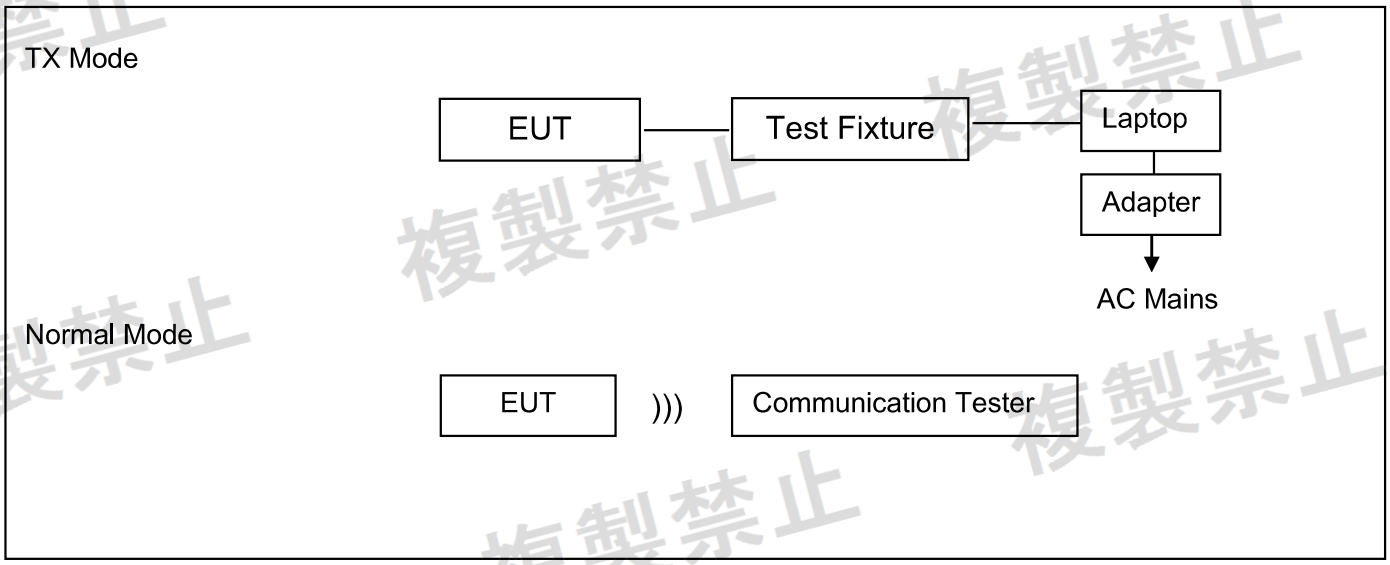
Technical Specification	
Bluetooth Version:	V5.2
Frequency Range:	2402-2480MHz
Modulation Type:	GFSK, π/4-DQPSK, 8DPSK
Number of Channel:	79
Channel Space:	1MHz
Antenna Type:	FPC Antenna
Number of Antenna	1
Antenna Gain:	-1.83 dBi (Declared by the manufacturer)
Note: This EUT only support to BDR/EDR feature.	

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

4. Test Channels and Modes Detail

Mode		Channel		Frequency (MHz)	Modulation
1.	TX (Hopping)	0-78		2402 – 2480	GFSK/ π/4-DQPSK/ 8DPSK
2.	TX	Low	0	2402	(Un-modulation)
		Middle	39	2441	(Un-modulation)
		High	78	2480	(Un-modulation)
3.	TX	Low	0	2402	GFSK/ π/4-DQPSK/ 8DPSK
		Middle	39	2441	GFSK/ π/4-DQPSK/ 8DPSK
		High	78	2480	GFSK/ π/4-DQPSK/ 8DPSK
4.	RX	Low	0	2402	GFSK/ π/4-DQPSK/ 8DPSK
		Middle	39	2441	GFSK/ π/4-DQPSK/ 8DPSK
		High	78	2480	GFSK/ π/4-DQPSK/ 8DPSK
5.	Normal Mode	---	---	---	---

5. Block Diagram of Configuration (Conduction connection)



6. Modification of EUT

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

7. Description Support Device

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.

No.	Equipment	Brand	M/N	S/N	Cable Specification	Remarks
1.	Laptop	DELL	VOSTR03400	H3K2XA01	I/P: AC 100-240V 50-60Hz, 1.3A O/P: DC 19.5V 2.31A 45W AC Line: 1.13m unshielded DC Line: 1.15m unshielded with a core	Provide by the Lab
2.	Adapter of laptop	DELL	HA45NM140	---		Provide by the Lab
3.	Test fixture	---	---	---	----	Provided by manufacturer
4.	Communication Tester	Rohde & Schwarz	CMW500	---	---	Provide by the Lab

No.	Test Software	Modulation	Power Setting
1.	BlueTest3 (Qualcomm BlueSuite 3.3.15)	GFSK	4
2.		π/4-DQPSK	4
3.		8DPSK	4

8. Test Facility and Location

Test Site	:	Dongguan Nore Testing Center Co., Ltd. (Dongguan NTC Co., Ltd.)
Accreditations and Authorizations	:	The Laboratory has been assessed and proved to be in compliance with CNAS/CL01 Listed by CNAS, August 13, 2018 The Certificate Registration Number is L5795. The Certificate is valid until August 13, 2030 The Laboratory has been assessed and proved to be in compliance with ISO17025 Listed by A2LA, November 01, 2017 The Certificate Registration Number is 4429.01 The Certificate is valid until December 31, 2027 Listed by FCC, November 06, 2017 Test Firm Registration Number: 907417 Listed by Industry Canada, June 08, 2017 The Certificate Registration Number. Is 46405-9743A
Test Site Location	:	Room 101, 1101, Building 2, No. 61, Hongmei Section, Wangsha Road, Hongmei Town, Dongguan, Guangdong, People's Republic of China

9. Applicable Standards and References

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

Test Standards:

Article 2 Paragraph 1 of Certification Ordinance Item 19

Test method is conducted according MIC Notice No.88 Appendix No.43 (Item 19, Paragraph 1, Article 2).

10. Deviations and Abnormalities from Standard Conditions

No additions, deviations and exclusions from the standard.

11. Test Conditions

No.	Test Item	Test Mode	Test Voltage	Tested by	Remarks
1.	Frequency tolerance	2	☒NV ☐LV ☐HV	Sean	See note 1
2.	Permissible value for occupied bandwidth	1	☒NV ☐LV ☐HV	Sean	See note 1
3.	Spread bandwidth	1	☒NV ☐LV ☐HV	Sean	See note 1
4.	Spurious emission intensity	1, 3	☒NV ☐LV ☐HV	Sean	See note 1
5.	Limit on secondary radiated emissions	4	☒NV ☐LV ☐HV	Sean	See note 1
6.	Antenna power	1	☒NV ☐LV ☐HV	Sean	See note 1
7.	Tolerances for antenna power	1	☒NV ☐LV ☐HV	Sean	See note 1
8.	Dwell time	1	☒NV ☐LV ☐HV	Sean	See note 1
9.	Interference Prevention Function	5	☒NV ☐LV ☐HV	Sean	See note 1

Note:

1. The testing climatic conditions for temperature, humidity, and atmospheric pressure are within: 24℃, 55%, 101kPa.
2. NV= Normal Voltage; LV= Low Voltage = 90% x Normal Voltage; HV= High Voltage = 110% x Normal Voltage.
3. 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 test, EUT only operated in normal voltage (DC 5V) to test all regulations.

Input voltage		RF circuit voltage	RF circuit voltage variation
NV	DC 5V	DC 3.3V	0%
LV	DC 4.5V	DC 3.3V	0%
HV	DC 5.5V	DC 3.3V	0%

12. Measurement Uncertainty

Test Item	Measurement Uncertainty
Uncertainty for Conduction Spurious emission Measurement:	±1.06dB
Uncertainty for Output power Measurement:	±1.08dB
Uncertainty for Power density Measurement:	±1.76dB
Uncertainty for Frequency range Measurement:	±0.94dB
Uncertainty for Bandwidth Measurement:	±0.71%
Dwell time	0.001ms
Frequency error	±0.01%

Note:
This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

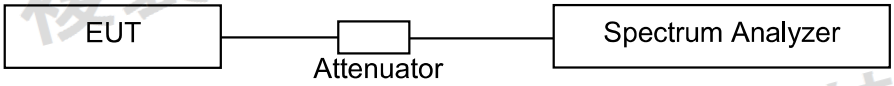
13. Test Item and Test Result

13.1 Frequency tolerance

LIMITS

Standard	Item	Limit
Item 19 of Article 2-1	Tolerance of Frequency	≤ ±50 ppm

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

1. The antenna port of the EUT was connected to the input of a spectrum analyzer. And analyzer was set as below:

a. Set center frequency to test frequency

b. Set the span to 500 KHz.

c. Set the RBW to 10 KHz

d. Set the VBW ≥ RBW

e. Set the Detector = peak

f. Set the Sweep time = auto couple

g. Set the Trace mode = max hold

h. Allow trace to fully stabilize

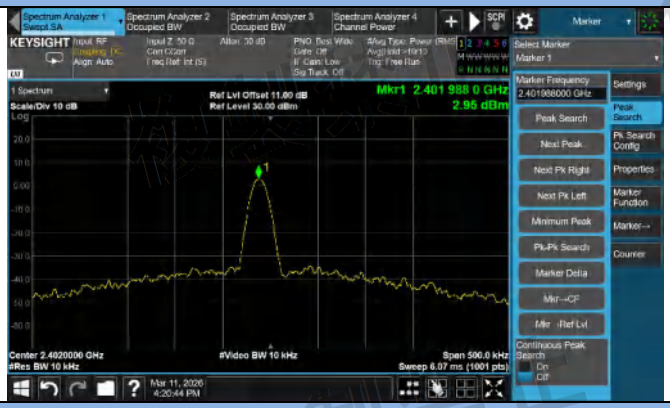
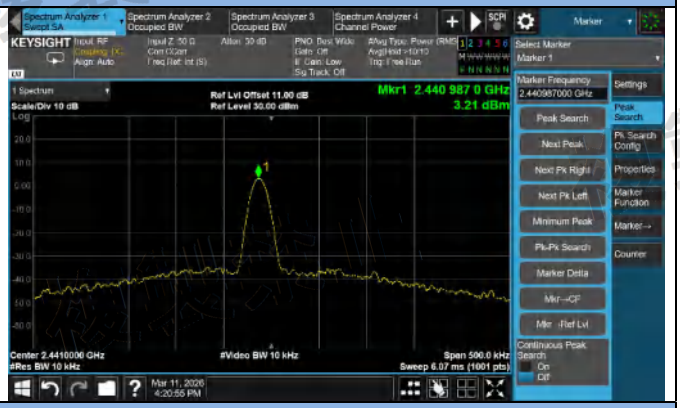
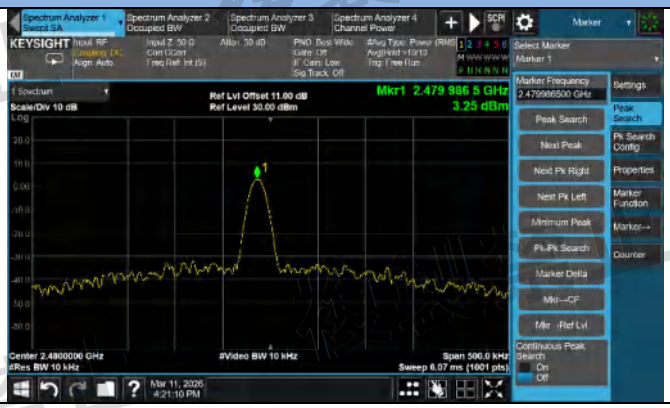
2. Use the peak marker function to determine the frequency tolerance.

TEST RESULTS

PASS

Please refer to the following tables.

Test Date: March 11, 2026		Test Result: PASS		
Frequency (MHz)	Test Power	Test Result (MHz)	Frequency Error (ppm)	Limit
TX (Un-modulation)				
2402	NV	2401.9880	-5.00	±50ppm
	LV	--	--	--
	HV	--	--	--
2441	NV	2440.9870	-5.33	±50ppm
	LV	--	--	--
	HV	--	--	--
2480	NV	2479.9865	-5.44	±50ppm
	LV	--	--	--
	HV	--	--	--

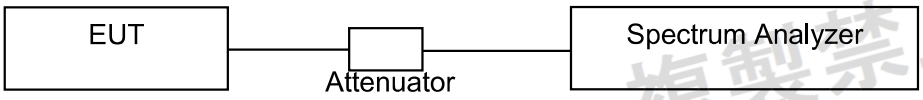
Test Plots - (Normal Voltage)	
2402 MHz	2441 MHz
	
2480 MHz	---
	Blank

13.2 Occupied Bandwidth (99%)

LIMITS

Standard	Type	Limit
Item 19 of Article 2-1	DSSS	<26MHz
	FHSS	<83.5MHz
	OFDM	<26MHz or <26~40MHz
	Others	<26MHz

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

1. The antenna port of the EUT was connected to the input of a spectrum analyzer. And analyzer was set as below:

a. Set frequency to 2402 ~ 2480 MHz

b. Set the RBW to 1 MHz

c. Set the VBW ≥ RBW

d. Set the span to 107.5 MHz.

e. Set the Detector = peak

f. Set the Sweep time = auto couple

g. Set the Trace mode = max hold

h. Allow trace to fully stabilize

2. Use the 99% occupied bandwidth function to determine the occupied bandwidth.

TEST RESULTS

PASS

Please refer to the following tables.

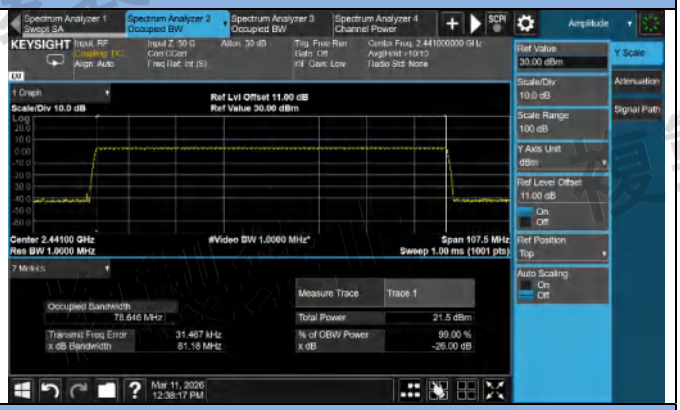
Test Date: March 11, 2026		Test Result: PASS		
Frequency (MHz)	Test Power	Packet Type	Test Result (MHz)	Limit
TX Hopping (GFSK)				
2402-2480	NV	DH1	78.641	<83.5MHz
		DH3	78.646	<83.5MHz
		DH5	78.648	<83.5MHz
	LV	DH1	--	--
		DH3	--	--
		DH5	--	--
	HV	DH1	--	--
		DH3	--	--
		DH5	--	--
TX Hopping (π/4-DQPSK)				
2402-2480	NV	2-DH1	78.813	<83.5MHz
		2-DH3	78.782	<83.5MHz
		2-DH5	78.821	<83.5MHz
	LV	2-DH1	--	--
		2-DH3	--	--
		2-DH5	--	--
	HV	2-DH1	--	--
		2-DH3	--	--
		2-DH5	--	--

Frequency (MHz)	Test Power	Packet Type	Test Result (MHz)	Limit
TX Hopping (8DPSK)				
2402-2480	NV	3-DH1	78.825	<83.5MHz
		3-DH3	78.825	<83.5MHz
		3-DH5	78.814	<83.5MHz
	LV	3-DH1	--	--
		3-DH3	--	--
		3-DH5	--	--
	HV	3-DH1	--	--
		3-DH3	--	--
		3-DH5	--	--

Test Plots - (Normal Voltage)

GFSK DH1

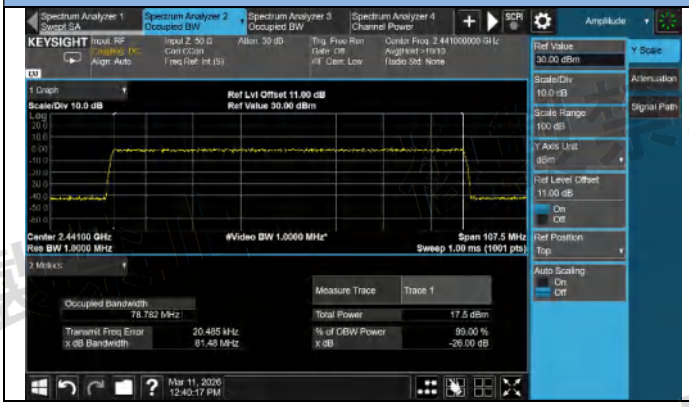
GFSK DH3



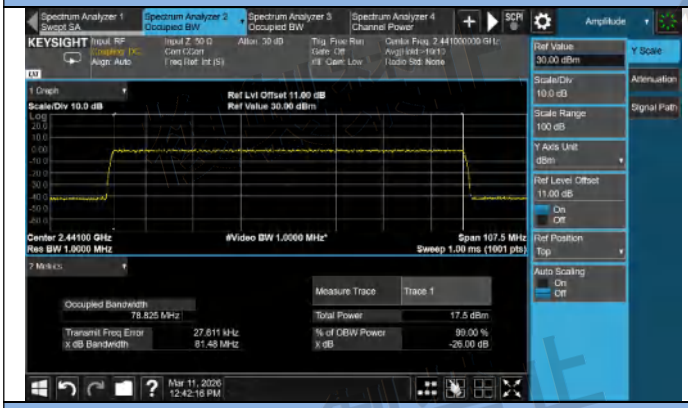
GFSK DH5

π/4-DQPSK 2-DH1

π/4-DQPSK 2-DH3



π/4-DQPSK 2-DH5

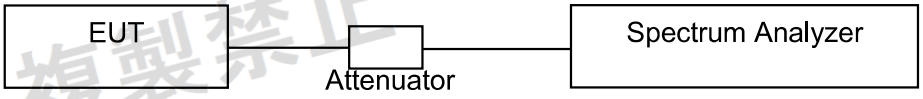
Test Plots - (Normal Voltage)	
8DPSK 3-DH1	8DPSK 3-DH3
	
8DPSK 3-DH5	---
	Blank

13.3 Spread-Spectrum Bandwidth (90%)

LIMITS

Standard	Type	Limit
Item 19 of Article 2-1	Spread-Spectrum	Only for reported

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

1. The antenna port of the EUT was connected to the input of a spectrum analyzer. And analyzer was set as below:

a. Set frequency to 2402 ~ 2480 MHz

b. Set the RBW to 1 MHz

c. Set the VBW ≥ RBW

d. Set the span to 107.5 MHz

e. Set the Detector = peak

f. Set the Sweep time = auto couple

g. Set the Trace mode = max hold

2. Allow trace to fully stabilize

3. Use the 90% occupied bandwidth function to determine the Spread-Spectrum bandwidth.

TEST RESULTS

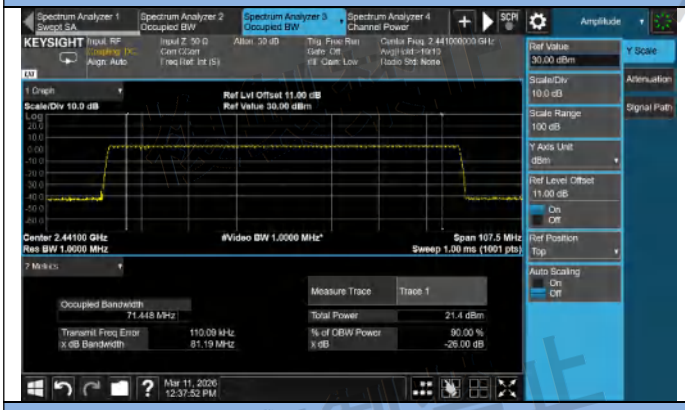
PASS

Please refer to the following tables.

Test Date: March 11, 2026		Test Result: PASS		
Frequency (MHz)	Test Power	Packet Type	Test Result (MHz)	Limit
TX Hopping (GFSK)				
2402-2480	NV	DH1	71.448	Only for reported
		DH3	71.447	Only for reported
		DH5	71.411	Only for reported
	LV	DH1	--	--
		DH3	--	--
		DH5	--	--
	HV	DH1	--	--
		DH3	--	--
		DH5	--	--
TX Hopping (π/4-DQPSK)				
2402-2480	NV	2-DH1	71.725	Only for reported
		2-DH3	71.573	Only for reported
		2-DH5	71.579	Only for reported
	LV	2-DH1	--	--
		2-DH3	--	--
		2-DH5	--	--
	HV	2-DH1	--	--
		2-DH3	--	--
		2-DH5	--	--
TX Hopping (8DPSK)				
2402-2480	NV	3-DH1	71.625	Only for reported
		3-DH3	71.432	Only for reported
		3-DH5	71.246	Only for reported
	LV	3-DH1	--	--
		3-DH3	--	--
		3-DH5	--	--
	HV	3-DH1	--	--
		3-DH3	--	--
		3-DH5	--	--

Test Plots - (Normal Voltage)

GFSK DH1

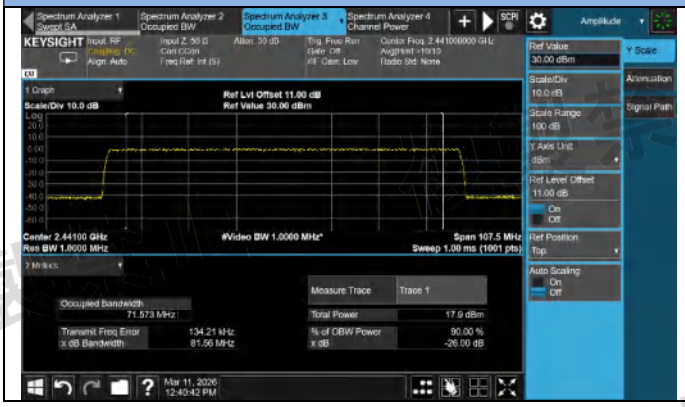


GFSK DH3

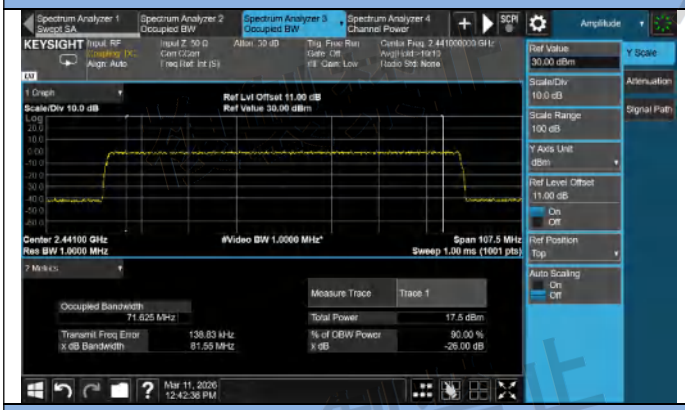
GFSK DH5

π/4-DQPSK 2-DH1

π/4-DQPSK 2-DH3



π/4-DQPSK 2-DH5

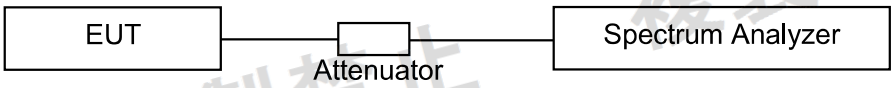
Test Plots - (Normal Voltage)	
8DPSK 3-DH1	8DPSK 3-DH3
	
8DPSK 3-DH5	---
	Blank

13.4 Spurious Emission Intensity

LIMITS

Standard	Item	Frequency	Limit
Item 19 of Article 2-1	TX Spurious Emission	30 - 2387MHz	< 2.5uW/-26dBm/MHz
		2387 - 2400MHz	< 25uW/-16dBm/MHz
		2483.5 - 2496.5MHz	< 25uW/-16dBm/MHz
		2496.5MHz - 12.5GHz	< 2.5uW/-26dBm/MHz

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

1. The antenna port of the EUT was connected to the input of a spectrum analyzer. And analyzer was set as below:

a. Set frequency to: 30 ~ 2387 MHz, 2387 ~ 2400 MHz, 2483.5 ~ 2496.5 MHz, 2496.5 ~ 12500 MHz

b. Set the RBW to 1 MHz

c. Set the VBW ≥ RBW

d. Set the Detector = peak

e. Set the Sweep time = auto couple

f. Set the Trace mode = max hold

g. Allow trace to fully stabilize

2. Use the peak marker function to determine the emissions.

TEST RESULTS

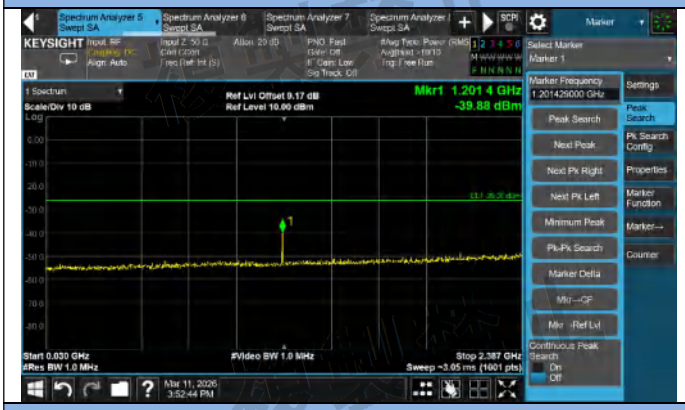
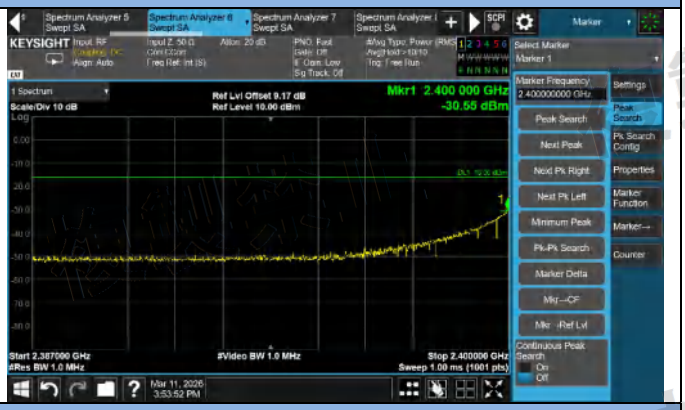
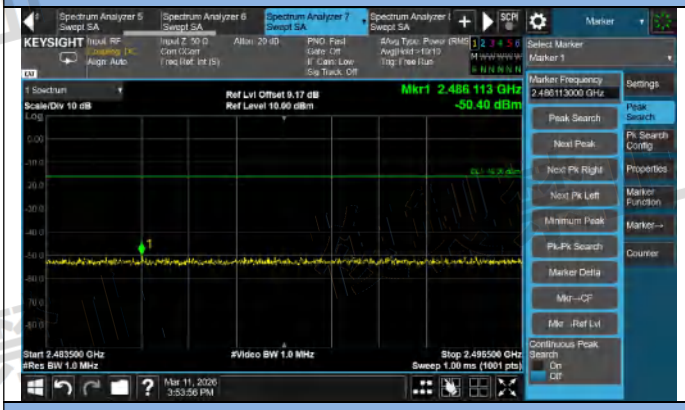
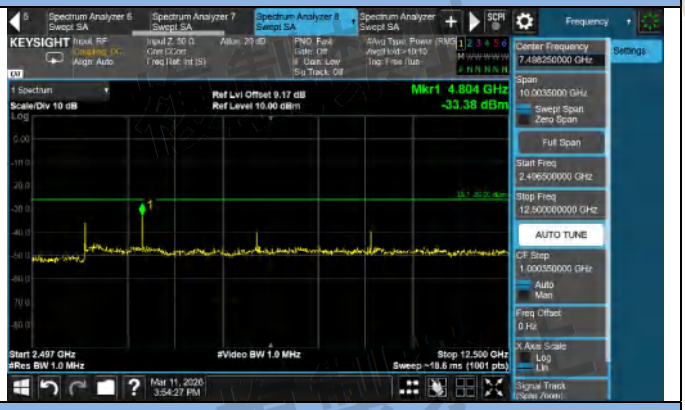
PASS

Please refer to the following tables.

Test Date: March 11, 2026		Test Result: PASS		
Frequency (MHz)	Frequency Range	Test Result		Limit
		Peak	AVG	
Normal voltage				
TX (GFSK)				
2402	30 - 2387MHz	-39.88dBm/MHz	---	< -26dBm/MHz
	2387 - 2400MHz	-30.55dBm/MHz	---	< -16dBm/MHz
	2483.5 - 2496.5MHz	-50.40dBm/MHz	---	< -16dBm/MHz
	2496.5MHz - 12.5GHz	-33.38dBm/MHz	-33.32dBm/MHz	< -26dBm/MHz
2441	30 - 2387MHz	-39.31dBm/MHz	---	< -26dBm/MHz
	2387 - 2400MHz	-51.30dBm/MHz	---	< -16dBm/MHz
	2483.5 - 2496.5MHz	-50.43dBm/MHz	---	< -16dBm/MHz
	2496.5MHz - 12.5GHz	-32.55dBm/MHz	-32.30dBm/MHz	< -26dBm/MHz
2480	30 - 2387MHz	-38.61dBm/MHz	---	< -26dBm/MHz
	2387 - 2400MHz	-50.51dBm/MHz	---	< -16dBm/MHz
	2483.5 - 2496.5MHz	-40.91dBm/MHz	---	< -16dBm/MHz
	2496.5MHz - 12.5GHz	-31.83dBm/MHz	-31.90dBm/MHz	< -26dBm/MHz
TX (π/4-DQPSK)				
2402	30 - 2387MHz	-41.54dBm/MHz	---	< -26dBm/MHz
	2387 - 2400MHz	-34.24dBm/MHz	---	< -16dBm/MHz
	2483.5 - 2496.5MHz	-50.71dBm/MHz	---	< -16dBm/MHz
	2496.5MHz - 12.5GHz	-35.31dBm/MHz	-35.08dBm/MHz	< -26dBm/MHz
2441	30 - 2387MHz	-41.15dBm/MHz	---	< -26dBm/MHz
	2387 - 2400MHz	-50.64dBm/MHz	---	< -16dBm/MHz
	2483.5 - 2496.5MHz	-49.56dBm/MHz	---	< -16dBm/MHz
	2496.5MHz - 12.5GHz	-34.27dBm/MHz	-34.38dBm/MHz	< -26dBm/MHz
2480	30 - 2387MHz	-40.45dBm/MHz	---	< -26dBm/MHz
	2387 - 2400MHz	-50.31dBm/MHz	---	< -16dBm/MHz
	2483.5 - 2496.5MHz	-44.61dBm/MHz	---	< -16dBm/MHz
	2496.5MHz - 12.5GHz	-33.80dBm/MHz	-33.43dBm/MHz	< -26dBm/MHz

Test Date: March 11, 2026		Test Result: PASS		
Frequency (MHz)	Frequency Range	Test Result		Limit
		Peak	AVG	
Normal voltage				
TX (8DPSK)				
2402	30 - 2387MHz	-41.84dBm/MHz	---	< -26dBm/MHz
	2387 - 2400MHz	-32.62dBm/MHz	---	< -16dBm/MHz
	2483.5 - 2496.5MHz	-50.55dBm/MHz	---	< -16dBm/MHz
	2496.5MHz - 12.5GHz	-34.55dBm/MHz	-34.42dBm/MHz	< -26dBm/MHz
2441	30 - 2387MHz	-41.10dBm/MHz	---	< -26dBm/MHz
	2387 - 2400MHz	-50.56dBm/MHz	---	< -16dBm/MHz
	2483.5 - 2496.5MHz	-50.67dBm/MHz	---	< -16dBm/MHz
	2496.5MHz - 12.5GHz	-34.61dBm/MHz	-33.96dBm/MHz	< -26dBm/MHz
2480	30 - 2387MHz	-40.64dBm/MHz	---	< -26dBm/MHz
	2387 - 2400MHz	-50.40dBm/MHz	---	< -16dBm/MHz
	2483.5 - 2496.5MHz	-45.56dBm/MHz	---	< -16dBm/MHz
	2496.5MHz - 12.5GHz	-33.68dBm/MHz	-33.36dBm/MHz	< -26dBm/MHz

Test Date: March 11, 2026		Test Result: PASS		
Frequency (MHz)	Frequency Range	Test Result		Limit
		Peak	AVG	
TX Hopping (GFSK)				
2402-2480	30 - 2387MHz	-39.37dBm/MHz	---	< -26dBm/MHz
	2387 - 2400MHz	-32.50dBm/MHz	---	< -16dBm/MHz
	2483.5 - 2496.5MHz	-43.46dBm/MHz	---	< -16dBm/MHz
	2496.5MHz - 12.5GHz	-32.05dBm/MHz	-36.45dBm/MHz	< -26dBm/MHz
TX Hopping (π/4-DQPSK)				
2402-2480	30 - 2387MHz	-40.67dBm/MHz	---	< -26dBm/MHz
	2387 - 2400MHz	-36.04dBm/MHz	---	< -16dBm/MHz
	2483.5 - 2496.5MHz	-48.13dBm/MHz	---	< -16dBm/MHz
	2496.5MHz - 12.5GHz	-33.46dBm/MHz	-35.34dBm	< -26dBm/MHz
TX Hopping (8DPSK)				
2402-2480	30 - 2387MHz	-41.39dBm/MHz	---	< -26dBm/MHz
	2387 - 2400MHz	-32.82dBm/MHz	---	< -16dBm/MHz
	2483.5 - 2496.5MHz	-48.33dBm/MHz	---	< -16dBm/MHz
	2496.5MHz - 12.5GHz	-33.39dBm/MHz	-35.65dBm	< -26dBm/MHz

Test Plots - Normal Voltage	
GFSK / 2402MHz	
30-2387MHz	2387-2400MHz
	
2483.5-2496.5MHz	2496.5MHz-12.5GHz
	
2496.5MHz-12.5GHz (AVG)	---
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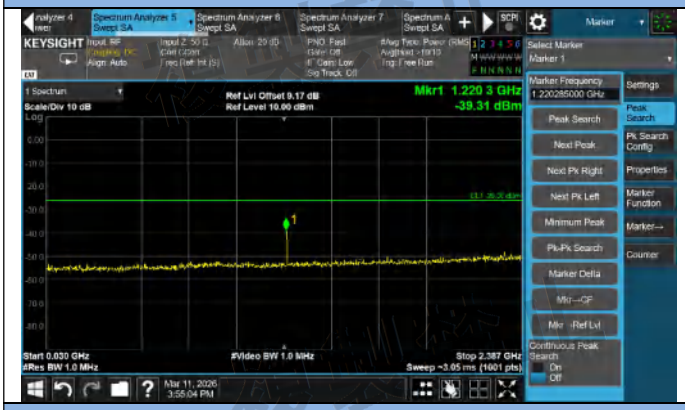
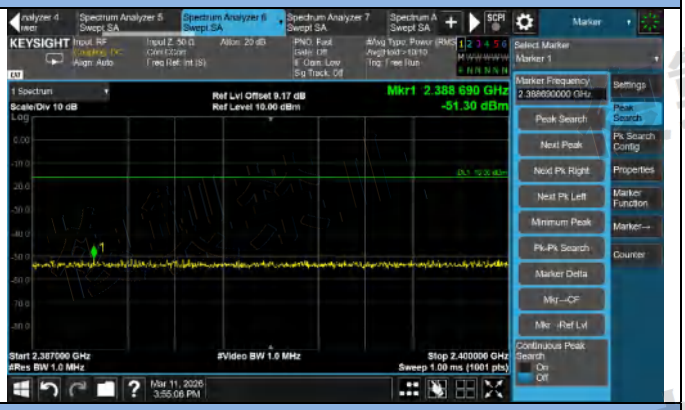
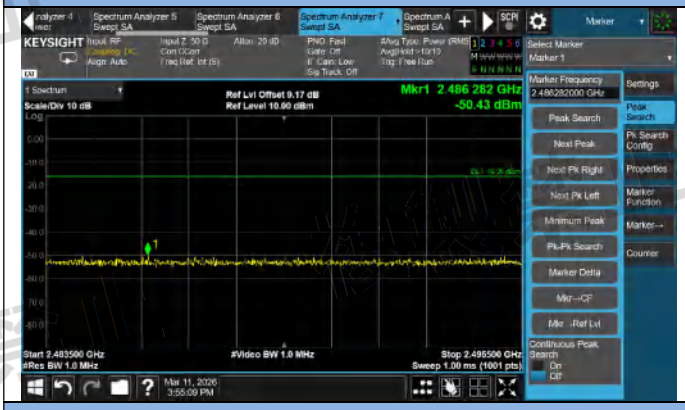
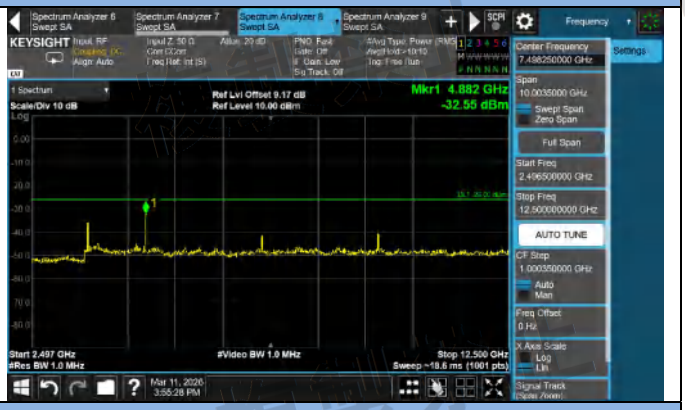
Test Plots - Normal Voltage	
GFSK / 2441MHz	
30-2387MHz	2387-2400MHz
	
2483.5-2496.5MHz	2496.5MHz-12.5GHz
	
2496.5MHz-12.5GHz (AVG)	---
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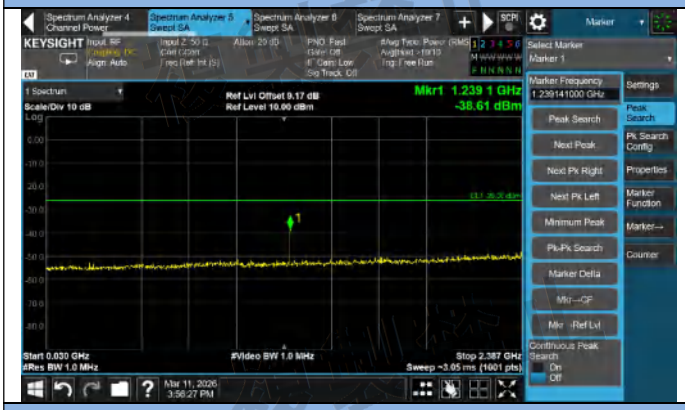
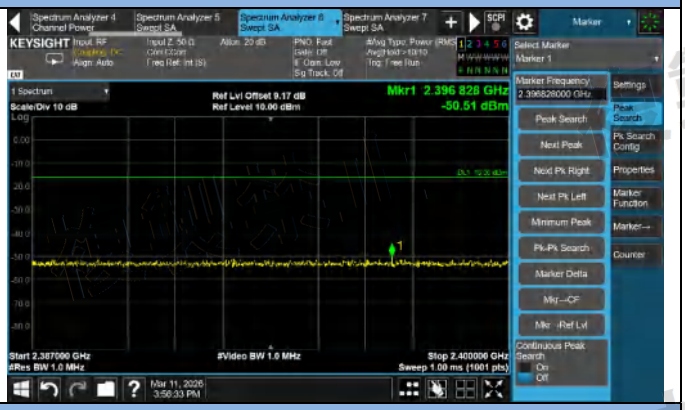
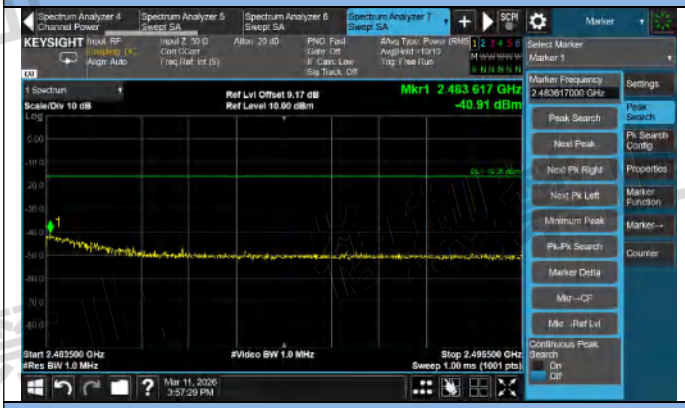
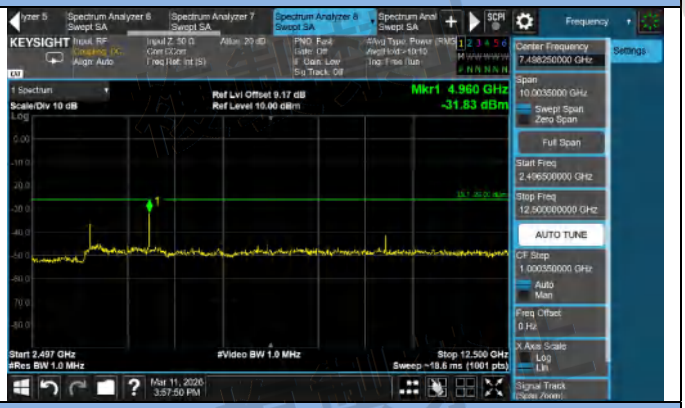
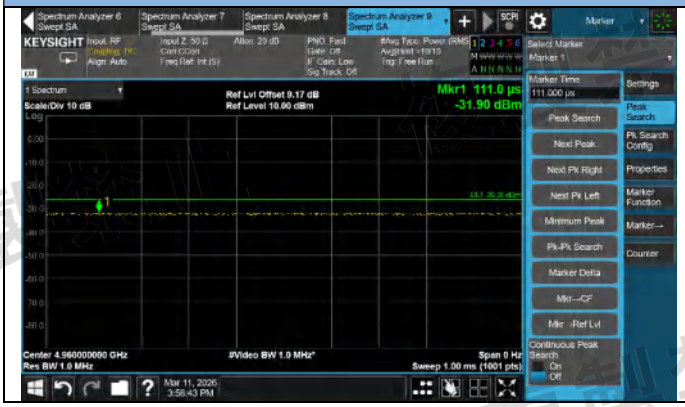
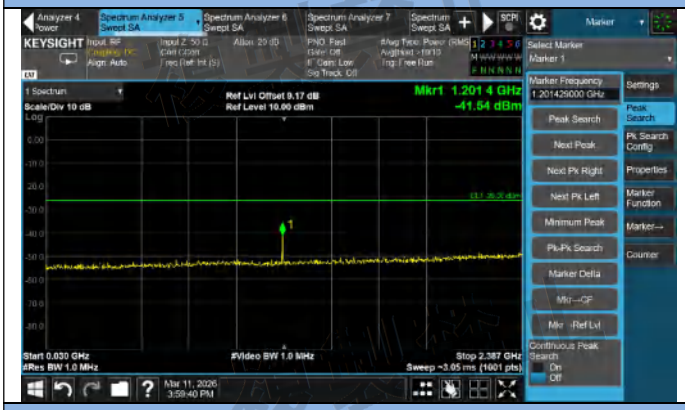
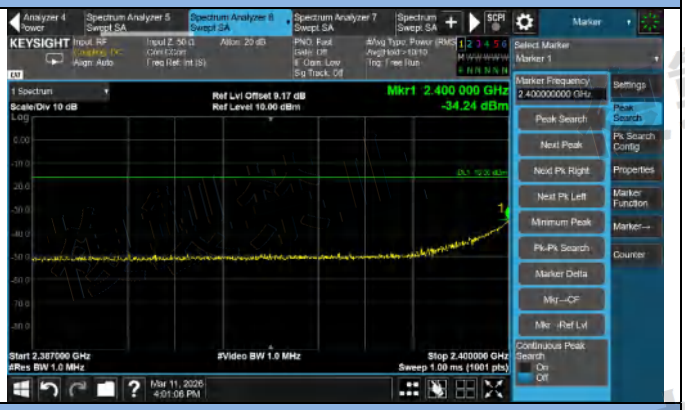
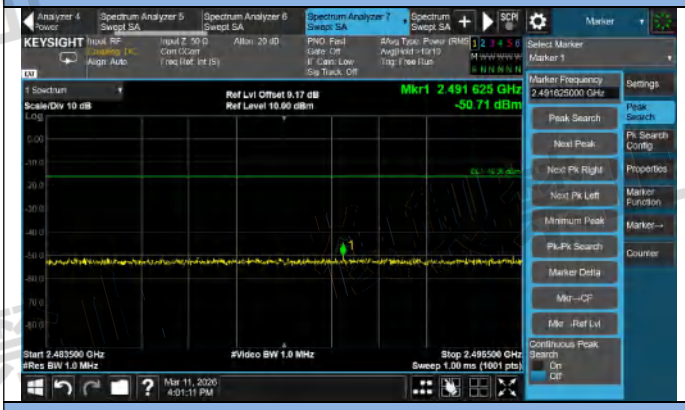
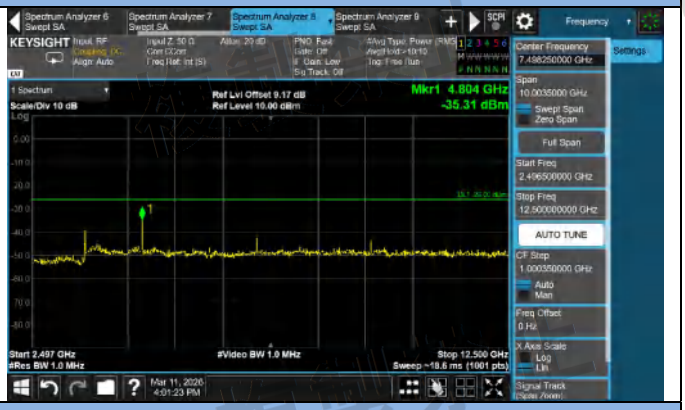
Test Plots - Normal Voltage	
GFSK / 2480MHz	
30-2387MHz	2387-2400MHz
	
2483.5-2496.5MHz	2496.5MHz-12.5GHz
	
2496.5MHz-12.5GHz (AVG)	---
	Blank

Test Plots - Normal Voltage	
Π4/-DQPSK / 2402MHz	
30-2387MHz	2387-2400MHz
	
2483.5-2496.5MHz	2496.5MHz-12.5GHz
	
2496.5MHz-12.5GHz (AVG)	---
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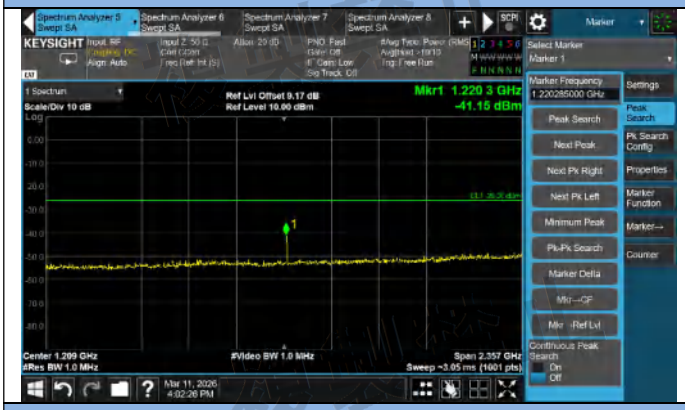
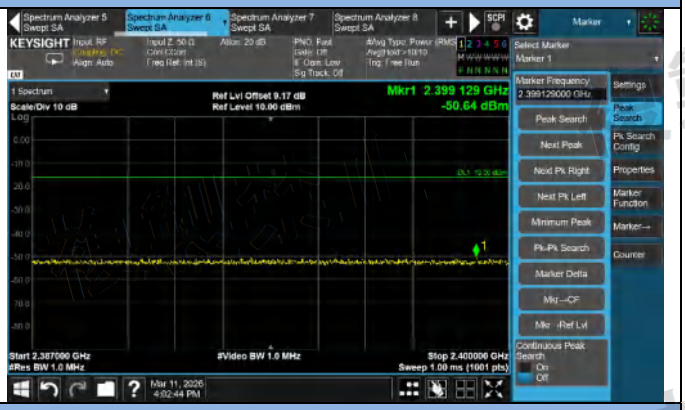
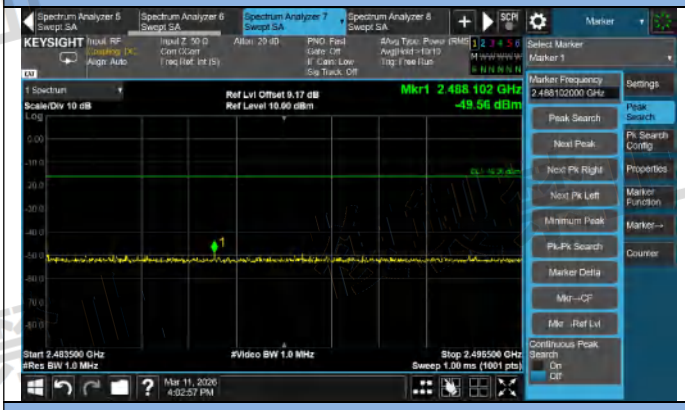
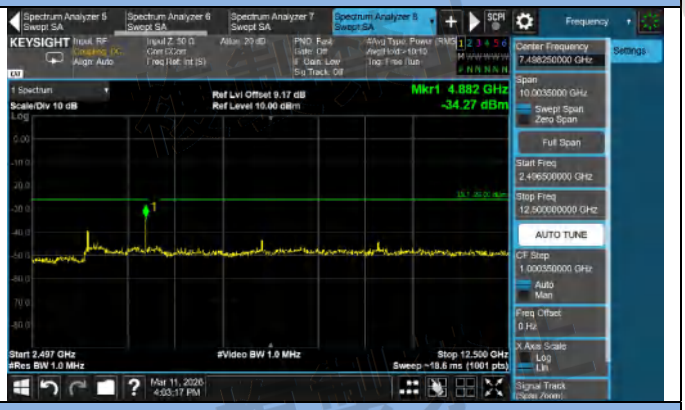
Test Plots - Normal Voltage	
Π4/-DQPSK / 2441MHz	
30-2387MHz	2387-2400MHz
	
2483.5-2496.5MHz	2496.5MHz-12.5GHz
	
2496.5MHz-12.5GHz (AVG)	---
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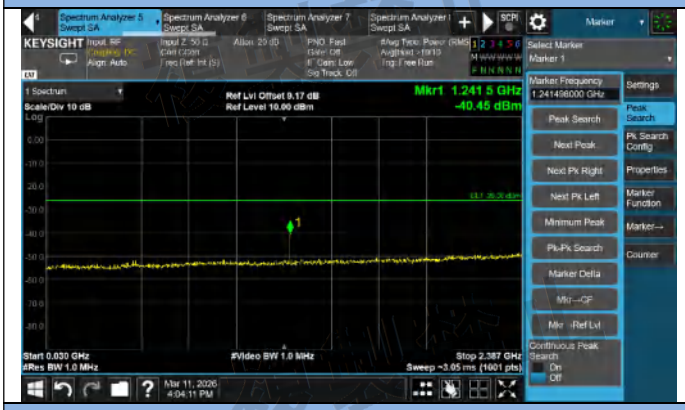
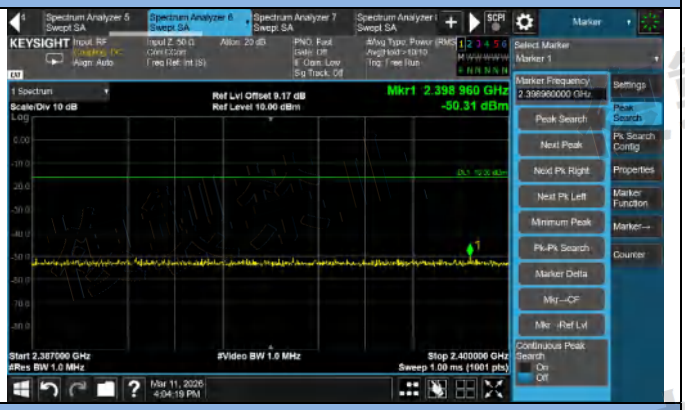
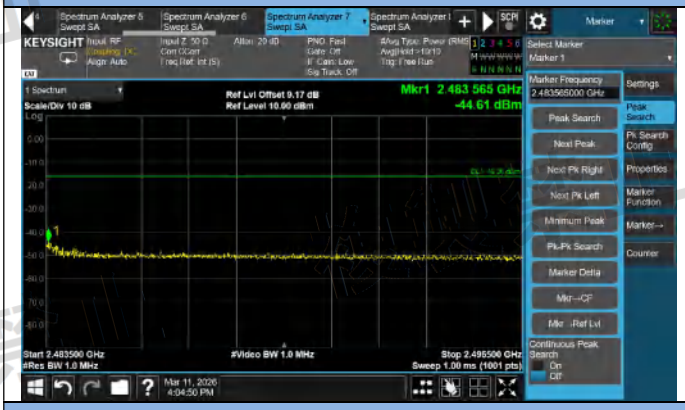
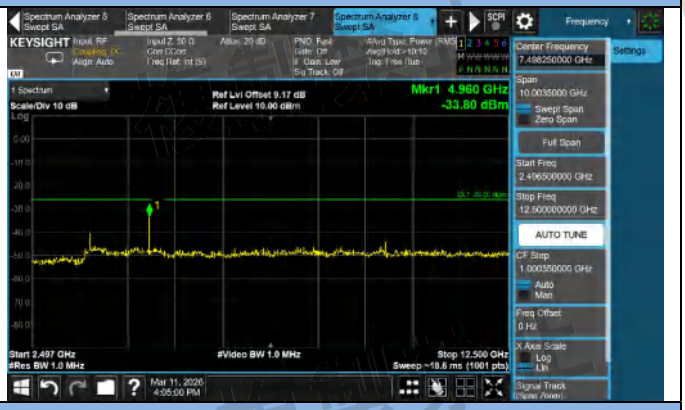
Test Plots - Normal Voltage	
Π4/-DQPSK / 2480MHz	
30-2387MHz	2387-2400MHz
	
2483.5-2496.5MHz	2496.5MHz-12.5GHz
	
2496.5MHz-12.5GHz (AVG)	---
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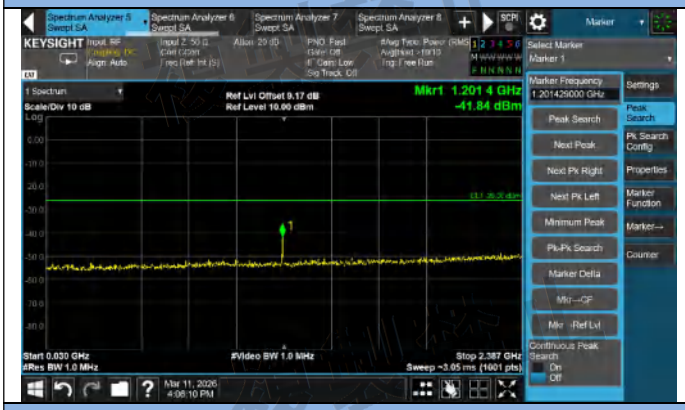
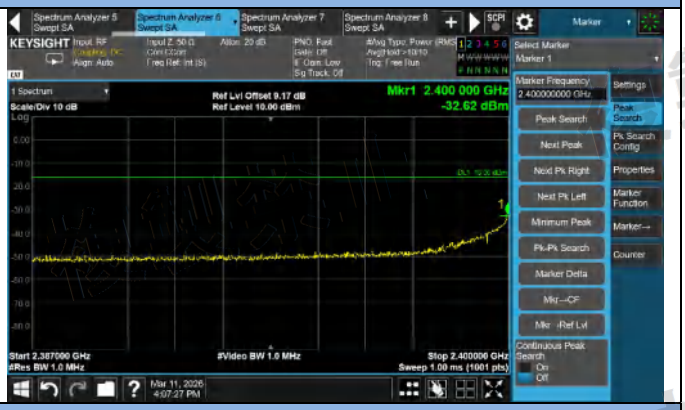
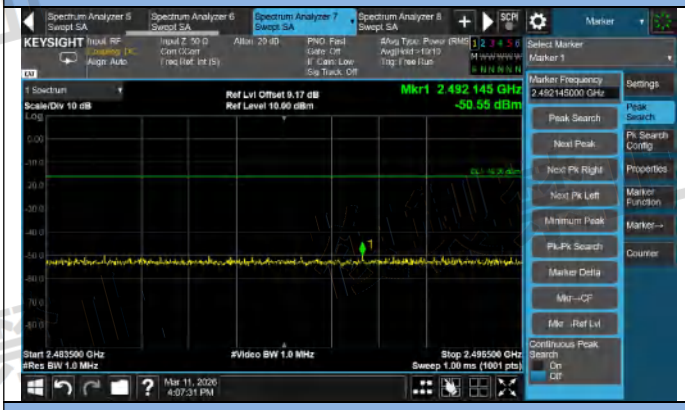
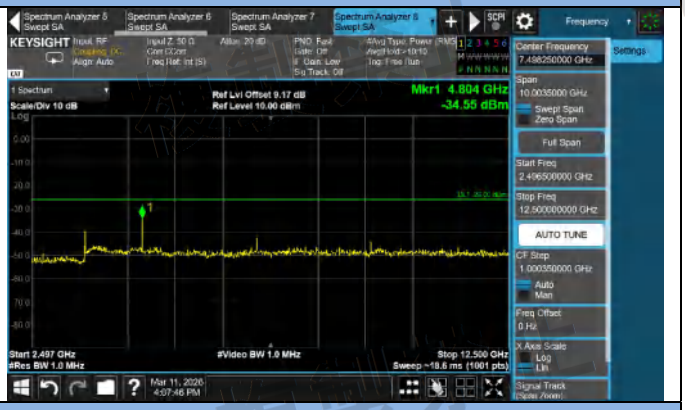
Test Plots - Normal Voltage	
8DPSK / 2402MHz	
30-2387MHz	2387-2400MHz
	
2483.5-2496.5MHz	2496.5MHz-12.5GHz
	
2496.5MHz-12.5GHz (AVG)	---
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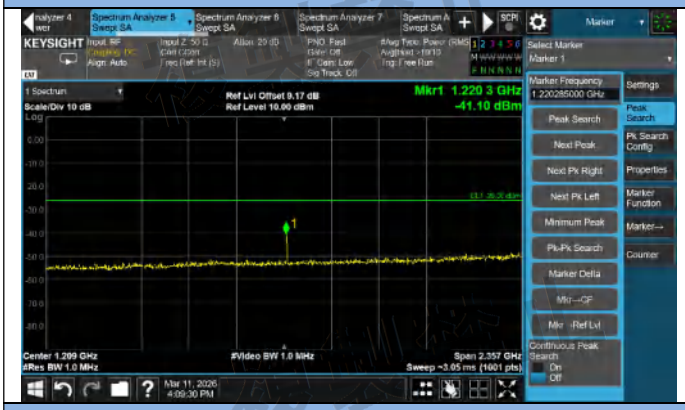
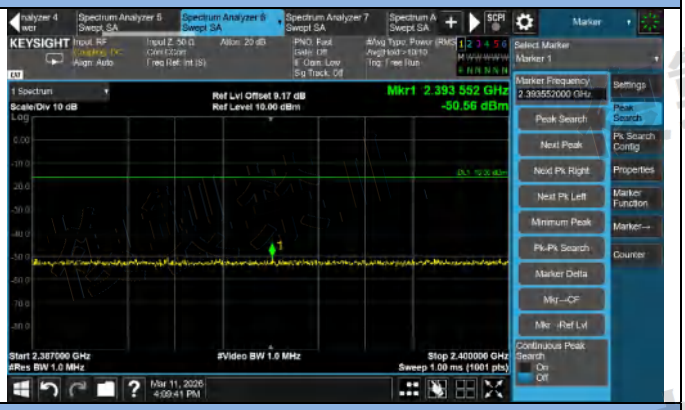
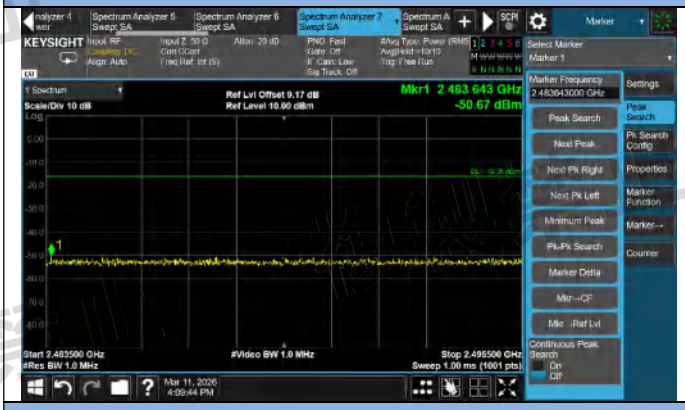
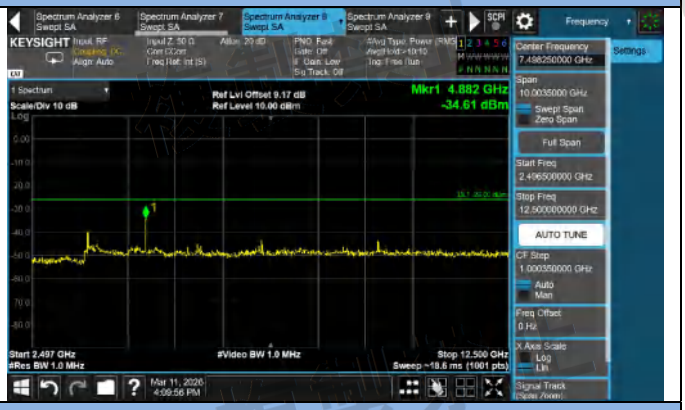
Test Plots - Normal Voltage	
8DPSK / 2441MHz	
30-2387MHz	2387-2400MHz
	
2483.5-2496.5MHz	2496.5MHz-12.5GHz
	
2496.5MHz-12.5GHz (AVG)	---
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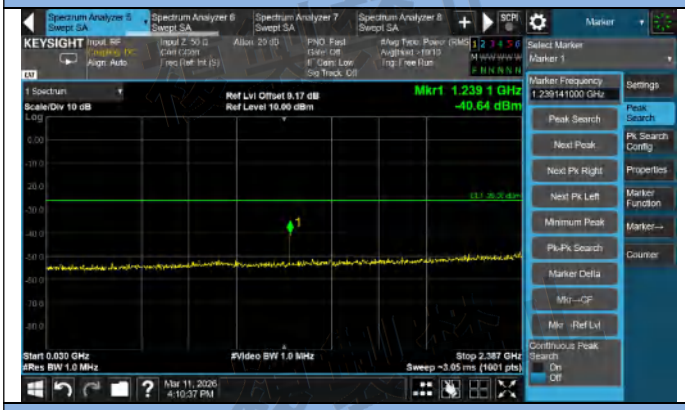
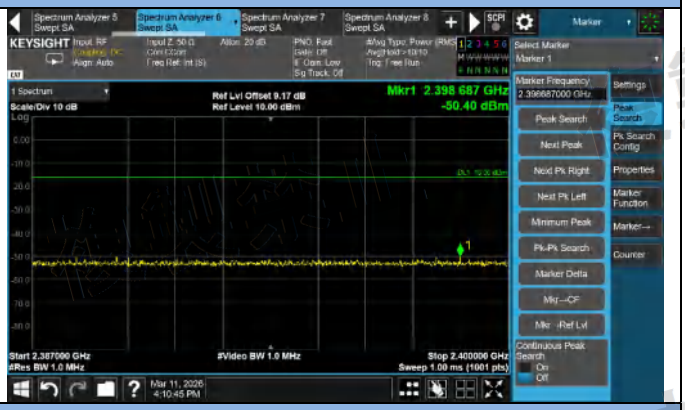
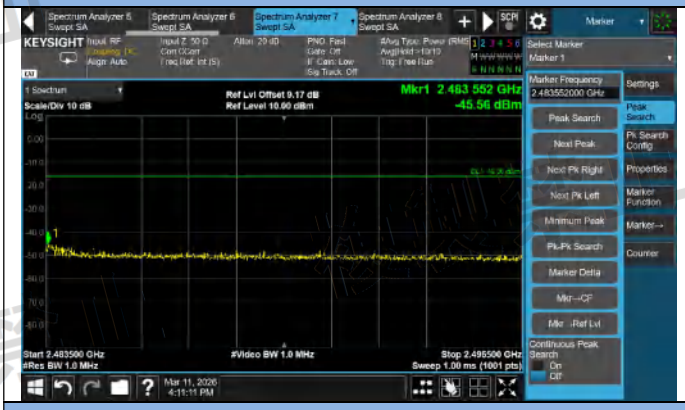
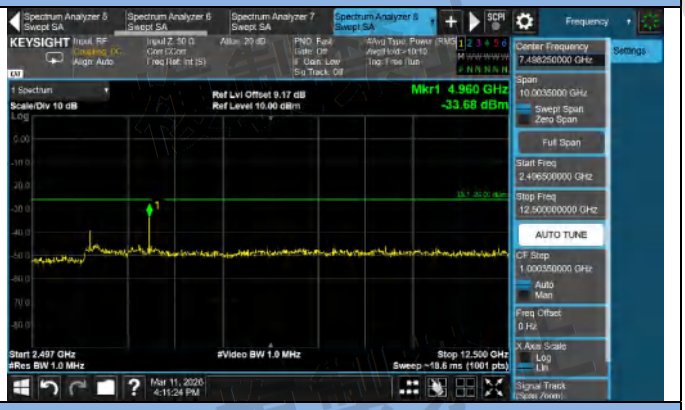
Test Plots - Normal Voltage	
8DPSK / 2480MHz	
30-2387MHz	2387-2400MHz
	
2483.5-2496.5MHz	2496.5MHz-12.5GHz
	
2496.5MHz-12.5GHz (AVG)	---
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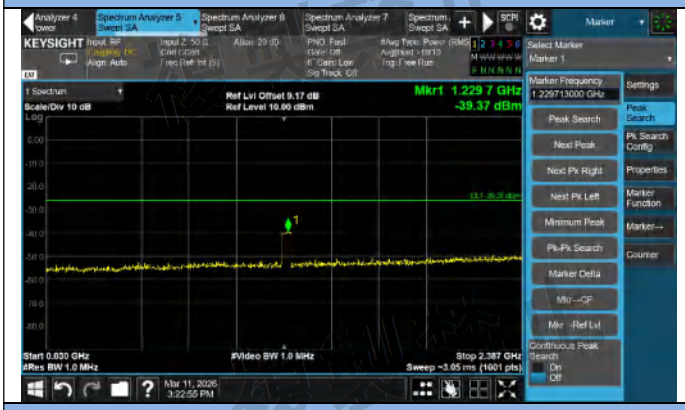
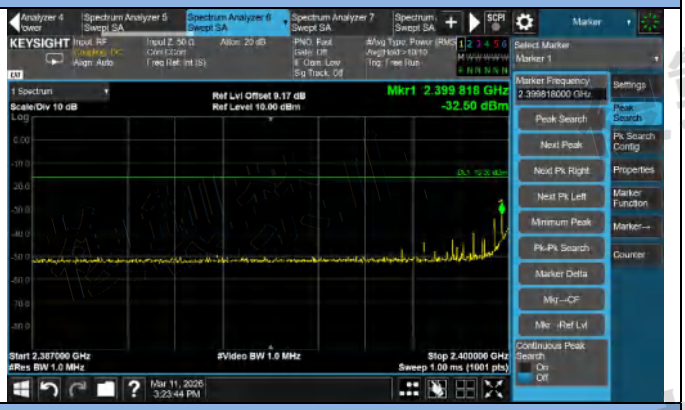
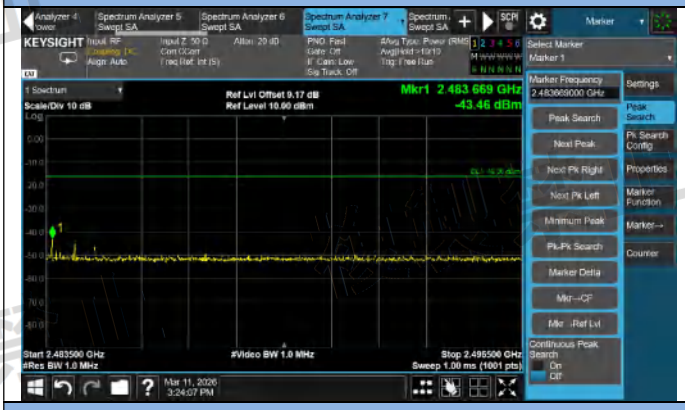
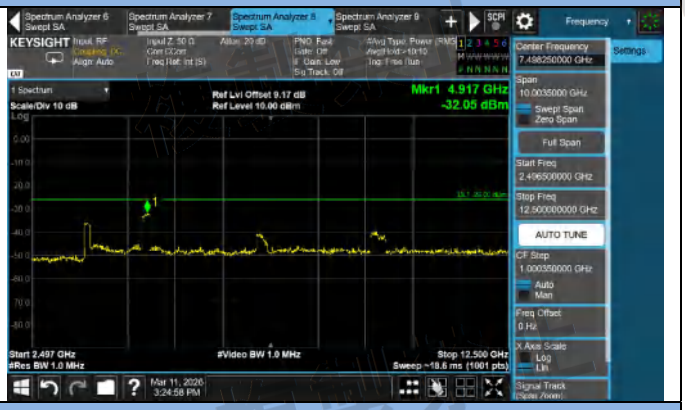
Test Plots - Normal Voltage	
GFSK / Hopping	
30-2387MHz	2387-2400MHz
	
2483.5-2496.5MHz	2496.5MHz-12.5GHz
	
2496.5MHz-12.5GHz (AVG)	---
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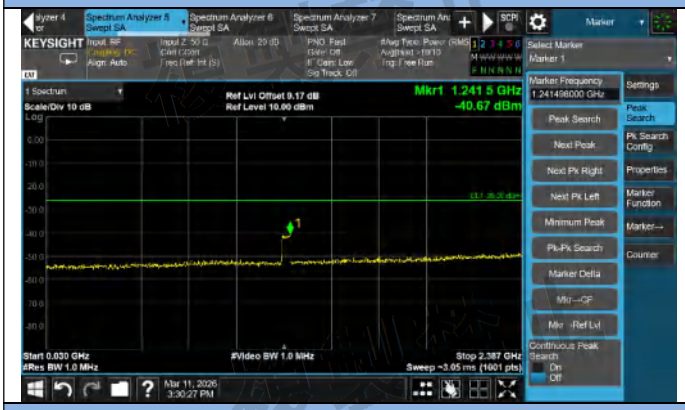
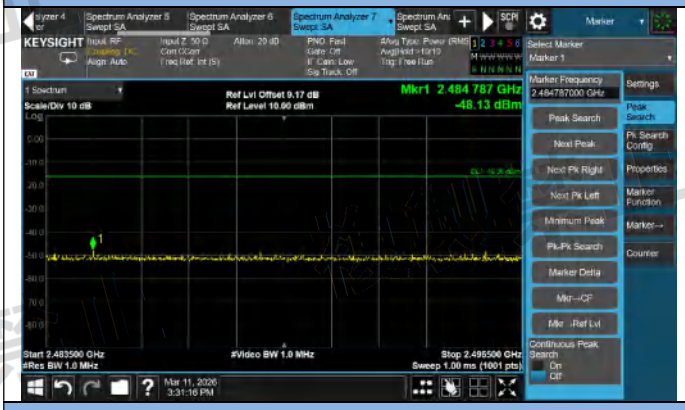
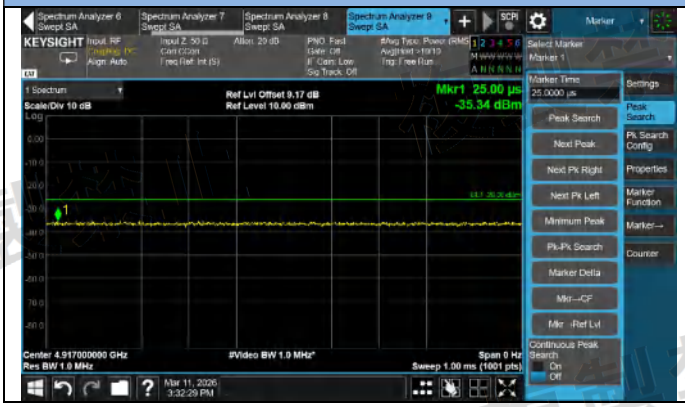
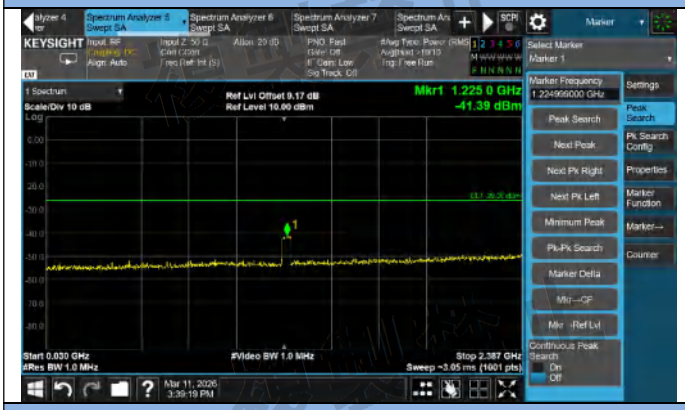
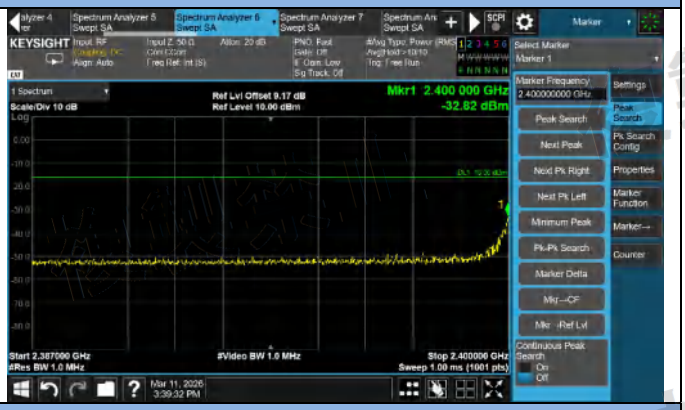
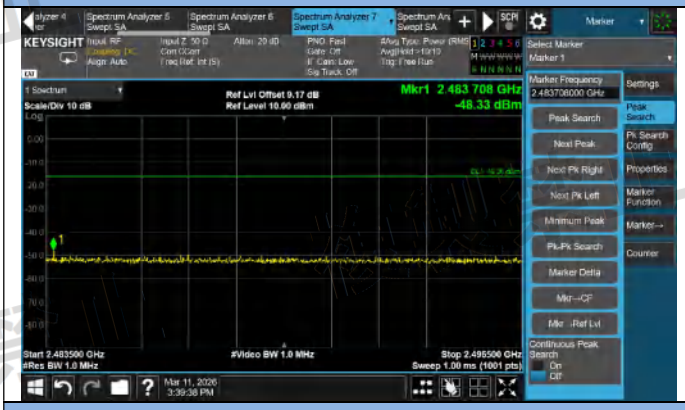
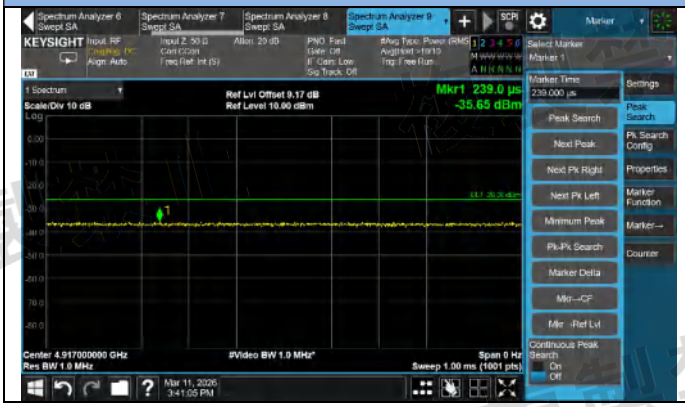
Test Plots - Normal Voltage	
Π4/-DQPSK / Hopping	
30-2387MHz	2387-2400MHz
	
2483.5-2496.5MHz	2496.5MHz-12.5GHz
	
2496.5MHz-12.5GHz (AVG)	---
	Blank

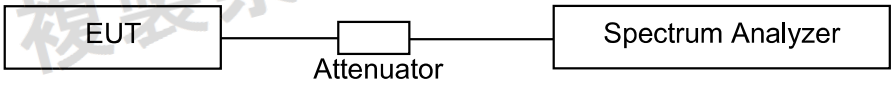
Test Plots - Normal Voltage	
8DPSK / Hopping	
30-2387MHz	2387-2400MHz
	
2483.5-2496.5MHz	2496.5MHz-12.5GHz
	
2496.5MHz-12.5GHz (AVG)	---
	Blank

13.5 Limit of Secondary Spurious Emissions

LIMITS

Standard	Item	Frequency	Limit
Item 19 of Article 2-1	RX Spurious Emission	Below 1GHz	< 4nW/-54dBm
		Above 1GHz	< 20nW/-47dBm

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

1. The antenna port of the EUT was connected to the input of a spectrum analyzer. And analyzer was set as below:

a. Set frequency to: 30 ~ 1000 MHz, 1000 ~ 12500 MHz

b. Set the RBW to 100 KHz for below 1GHz, and 1 MHz for above 1 GHz

c. Set the VBW ≥ RBW

d. Set the Detector = peak

e. Set the Sweep time = auto couple

f. Set the Trace mode = max hold

g. Allow trace to fully stabilize

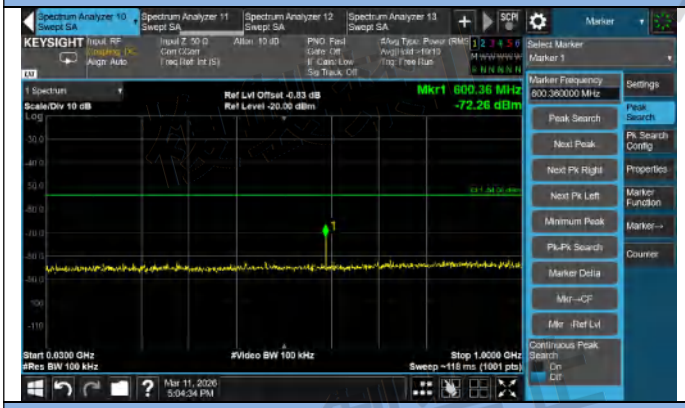
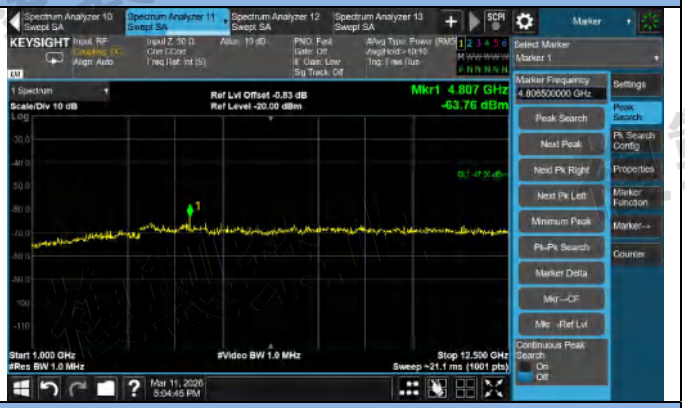
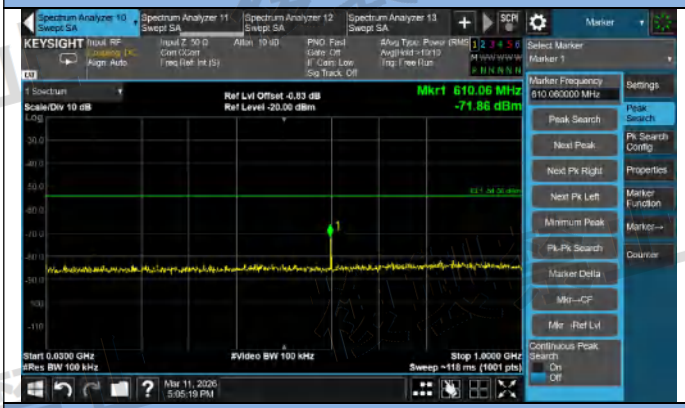
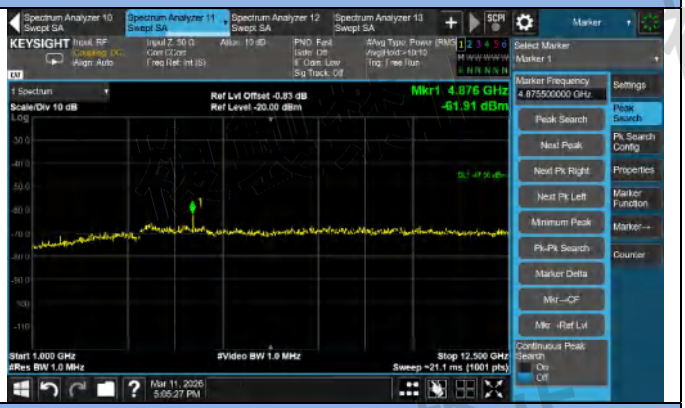
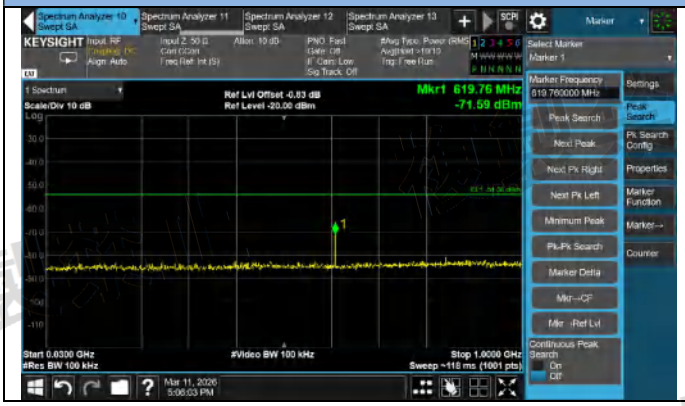
2. Use the peak marker function to determine the emissions.

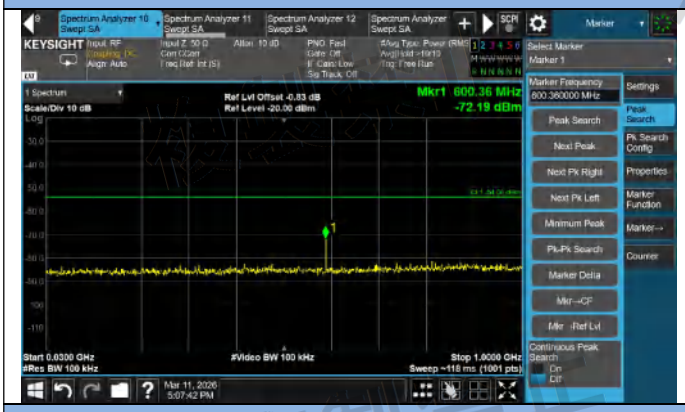
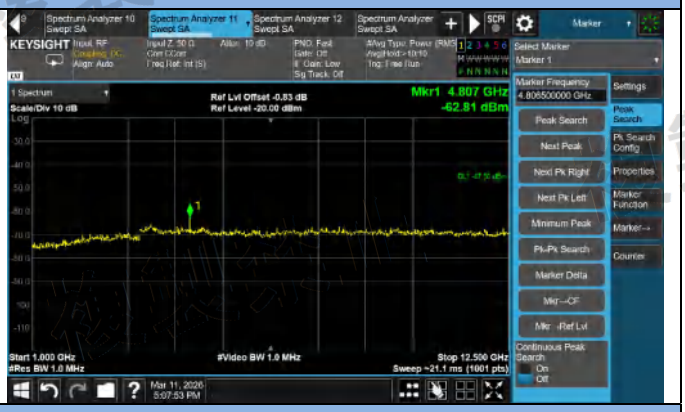
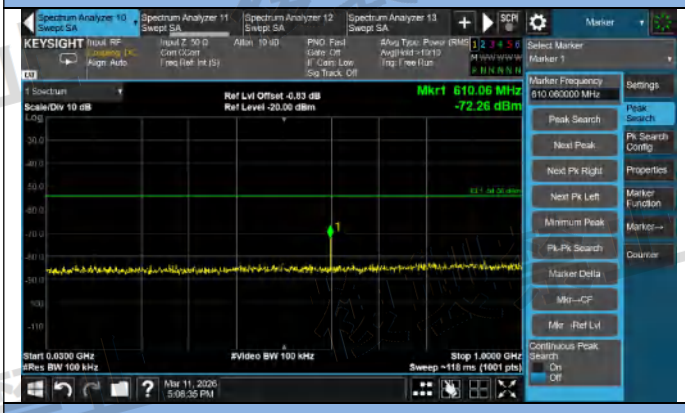
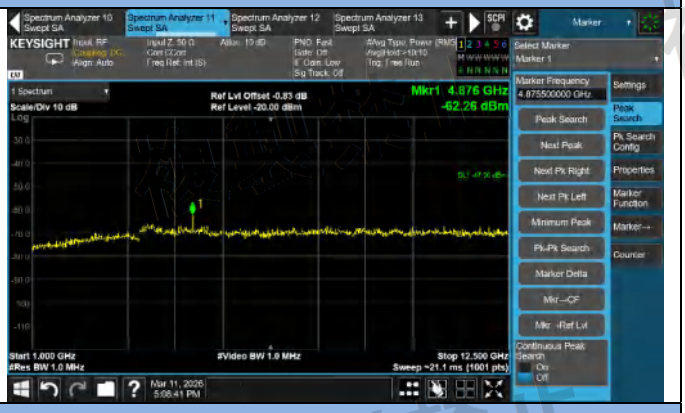
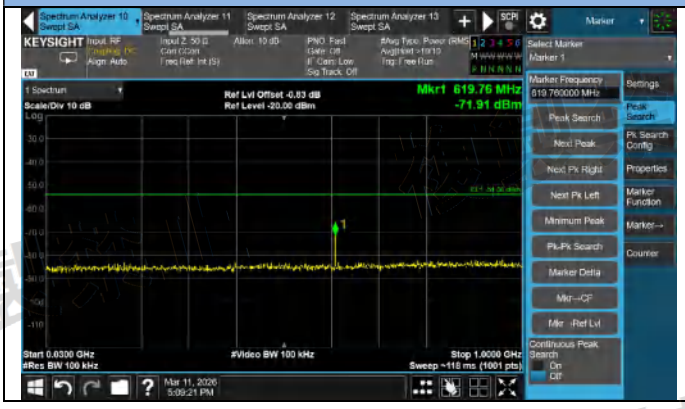
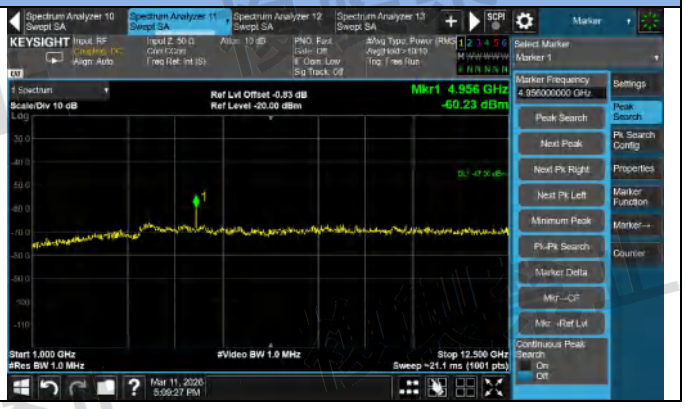
TEST RESULTS

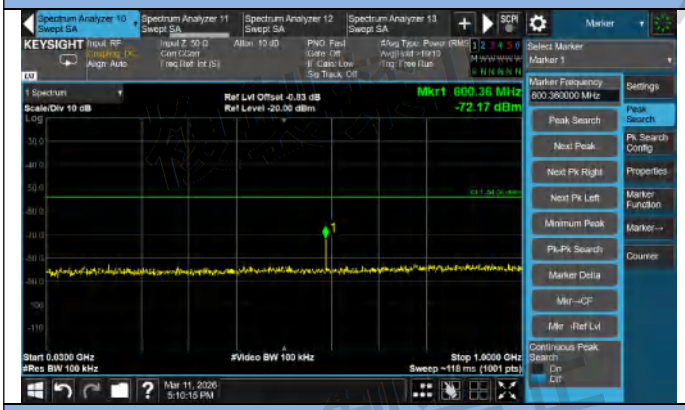
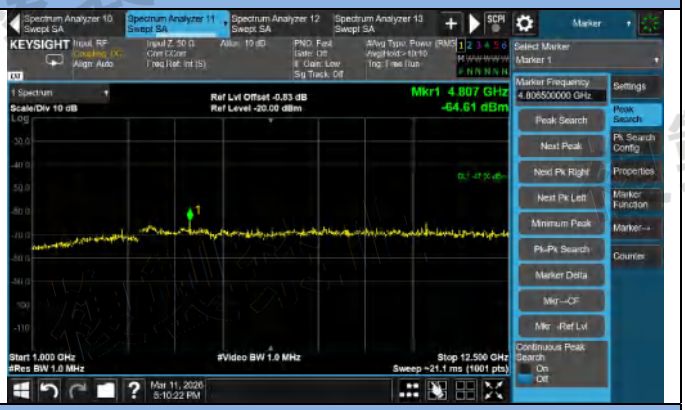
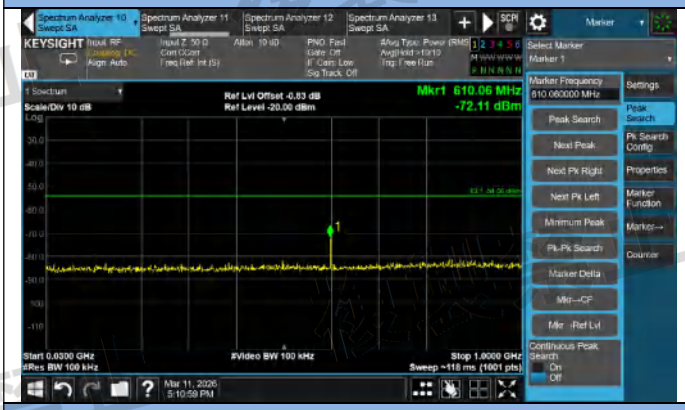
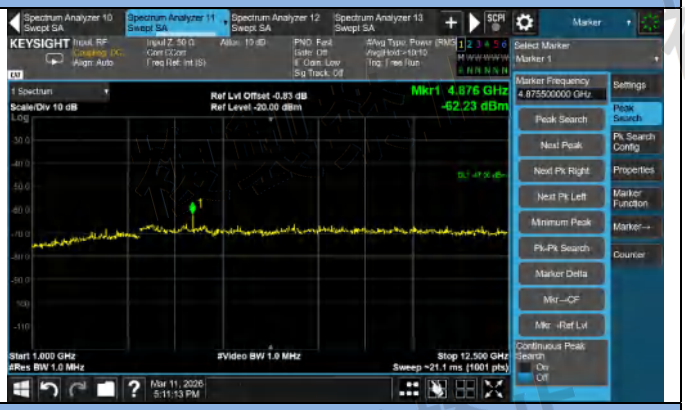
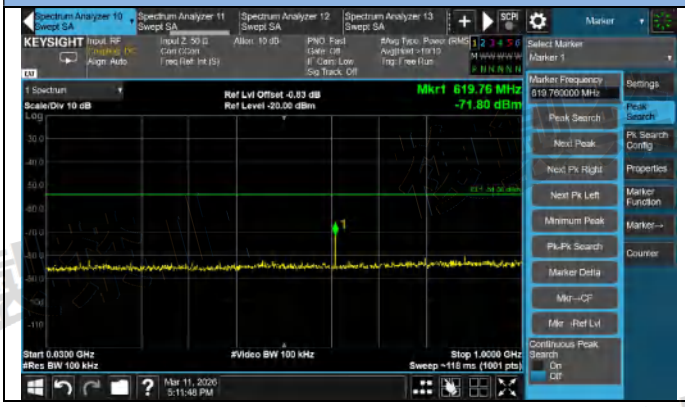
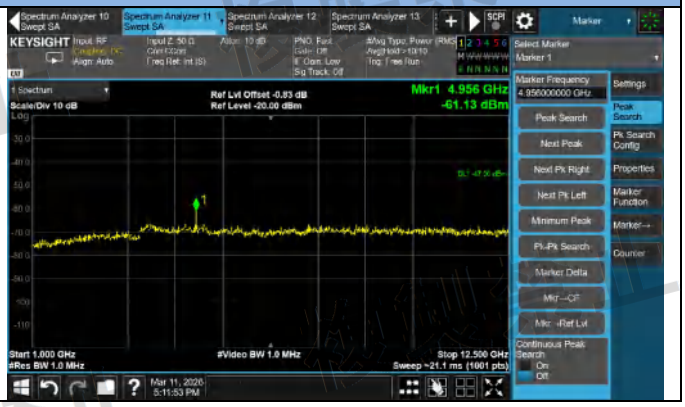
PASS

Please refer to the following tables.

Test Date: March 11, 2026		Test Result: PASS		
Frequency (MHz)	Frequency Range	Test Result		Limit
		Peak	AVG	
RX (GFSK)– Normal Voltage				
2402	30 - 1000MHz	-72.26dBm	---	< -54dBm
	1 - 12.5GHz	-63.76dBm	---	< -47dBm
2441	30 - 1000MHz	-71.86dBm	---	< -54dBm
	1 - 12.5GHz	-61.91dBm	---	< -47dBm
2480	30 - 1000MHz	-71.59dBm	---	< -54dBm
	1 - 12.5GHz	-59.91dBm	---	< -47dBm
RX (π/4-DQPSK) – Normal Voltage				
2402	30 - 1000MHz	-72.19dBm	---	< -54dBm
	1 - 12.5GHz	-62.81dBm	---	< -47dBm
2441	30 - 1000MHz	-72.26dBm	---	< -54dBm
	1 - 12.5GHz	-62.26dBm	---	< -47dBm
2480	30 - 1000MHz	-71.91dBm	---	< -54dBm
	1 - 12.5GHz	-60.23dBm	---	< -47dBm
RX (8DPSK) – Normal Voltage				
2402	30 - 1000MHz	-72.17dBm	---	< -54dBm
	1 - 12.5GHz	-64.61dBm	---	< -47dBm
2441	30 - 1000MHz	-72.11dBm	---	< -54dBm
	1 - 12.5GHz	-62.23dBm	---	< -47dBm
2480	30 - 1000MHz	-71.80dBm	---	< -54dBm
	1 - 12.5GHz	-61.13dBm	---	< -47dBm

Test Plots – GFSK (Normal Voltage)	
2402MHz (30 - 1000MHz)	2402MHz (1 - 12.5GHz)
	
2441MHz (30 - 1000MHz)	2441MHz (1 - 12.5GHz)
	
2480MHz (30 - 1000MHz)	2480MHz (1 - 12.5GHz)
	

Test Plots – Π4/-DQPSK (Normal Voltage)	
2402MHz (30 - 1000MHz)	2402MHz (1 - 12.5GHz)
	
2441MHz (30 - 1000MHz)	2441MHz (1 - 12.5GHz)
	
2480MHz (30 - 1000MHz)	2480MHz (1 - 12.5GHz)
	

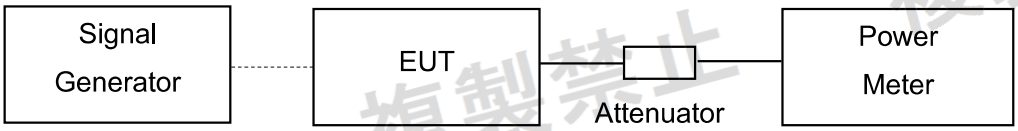
Test Plots – 8DPSK (Normal Voltage)	
2402MHz (30 - 1000MHz)	2402MHz (1 - 12.5GHz)
	
2441MHz (30 - 1000MHz)	2441MHz (1 - 12.5GHz)
	
2480MHz (30 - 1000MHz)	2480MHz (1 - 12.5GHz)
	

13.6 Antenna Power Measurement

LIMITS

Standard	Item	Spread Spectrum Method	Limit
Article 2-1 Item 19	Antenna Power	FHSS	3mW/MHz or less (2427 - 2470.75MHz)
			3mW/MHz or less (2400 - 2483.5MHz)
		DSSS	10mW/MHz or less
		OFDM	10mW/MHz or less (Occupied bandwidth within 26MHz)
			5mW/MHz or less (Occupied bandwidth 26 - 40MHz)
		Other	10mW or less
	Antenna Power Tolerance	---	+20% or less

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

1. Connect the EUT antenna terminal to the Power Meter and measure the total power.
2. Divide the total power by the spread bandwidth to find the average power per MHz.

TEST RESULTS

PASS

Please refer to the following table.

Test Date: March 11, 2026				Test Result: PASS					
Frequency (MHz)	Test Voltage	Power Output (dBm)	Power Output (mW)	Spread Bandwidth (MHz)	Antenna Power Output (mW/MHz)	Limit (mW/MHz)	Rating antenna power (mW/MHz)	Antenna Power Error (mW/MHz)	Antenna Power Error (+20%)
GFSK Hopping – DH1									
2402-2480	NV	21.08	128.23	71.448	1.795	3	2.0	-0.205	-10.25%
	LV	--	--	--	--	--	--	--	--
	HV	--	--	--	--	--	--	--	--
π/4-DQPSK Hopping – 2-DH1									
2402-2480	NV	17.42	55.21	71.725	0.770	3	1.0	-0.230	-23.00%
	LV	--	--	--	--	--	--	--	--
	HV	--	--	--	--	--	--	--	--
8DPSK Hopping – 3-DH1									
2402-2480	NV	17.45	55.59	71.625	0.776	3	1.0	-0.224	-22.40%
	LV	--	--	--	--	--	--	--	--
	HV	--	--	--	--	--	--	--	--

EIRP GFSK (The Worst Case)		
Antenna Power Output (dBm/ MHz)	Antenna Gain (dBi)	EIRP (dBm/MHz)
2.54	-1.83	0.71

Note:

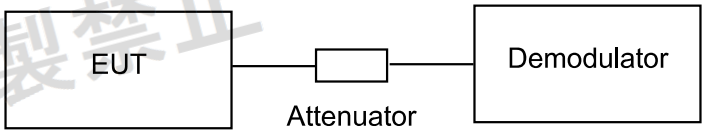
1. Rating antenna power (mW/MHz) declared by the manufacturer.
2. Antenna Power Error (mW/MHz) = Test Result (mW/MHz) - Rating antenna power (mW/MHz)
3. Antenna Power Error (+20%) = Antenna Power Error (mW/MHz) / Rating antenna power (mW/MHz) * 100%.
4. EIRP (dBm) = Antenna power (dBm) + antenna gain (dBi)

13.7 Radio Interface Prevention Function

LIMITS

Standard	Item	Limit
Item 19 of Article 2-1	Identification code	≥48 bits

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

1. In the case that the EUT has the function of automatically transmitting the identification code:

a. Transmit the predetermined identification codes form 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 form the counterpart.

b. Check if communication is normal.

c. Transmit the signals other than predetermined ID codes form the counterpart.

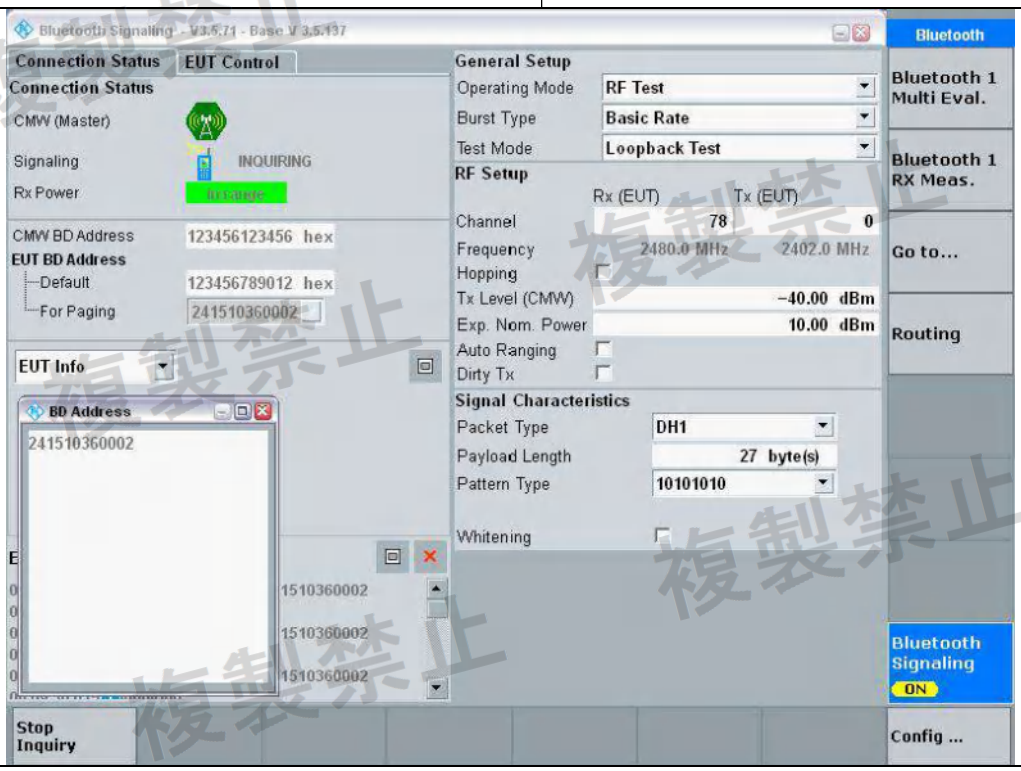
d. Check if the EUT stops the transmission, or if it displays that identification codes are different from the predetermined ones.

TEST RESULTS

PASS

Please refer to the following table.

Test Date: March 11, 2026	
MAC Address	Result
241510360002	Pass

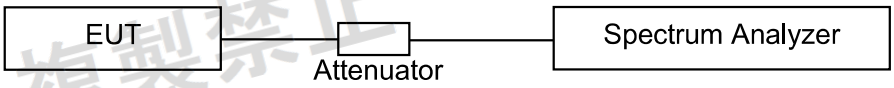


13.8 Dwell Time

LIMITS

Standard	Item	Limit
Item 19 of Article 2-1	Hopping Frequency Dwell Time	<0.4s

BLOCK DIAGRAM OF TEST SETUP



TEST PROCEDURES

1. The antenna port of the EUT was connected to the input of a spectrum analyzer. And analyzer was set as below:

a. Set frequency to test frequency

b. Set the RBW to 1 MHz

c. Set the VBW ≥ RBW

d. Set the span to zero

e. Set the Detector = peak

f. Set the Sweep time = auto couple

g. Set the Trace mode = max hold

2. Set the EUT transmitting different packet to determine the maximum time duration of one single pulse.

TEST RESULTS

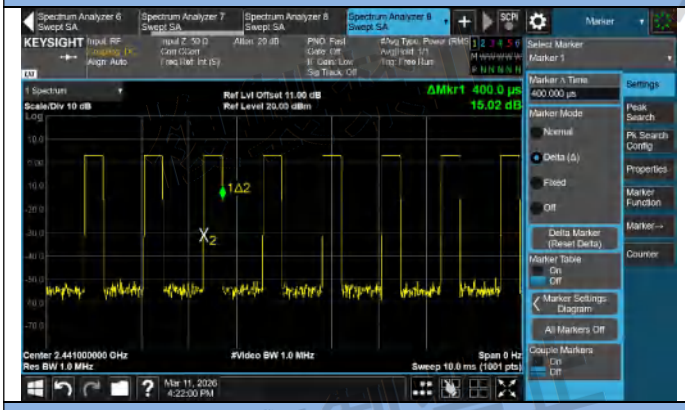
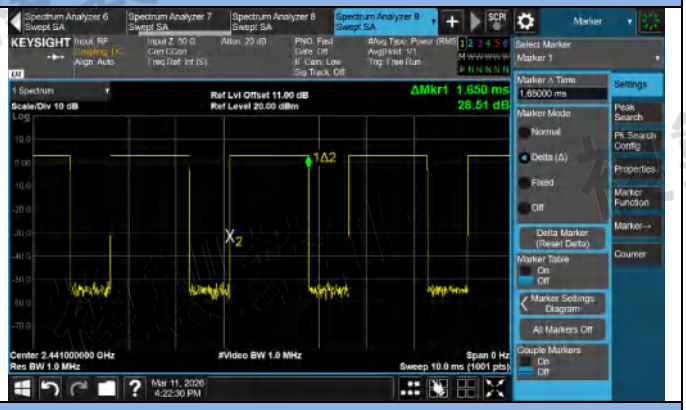
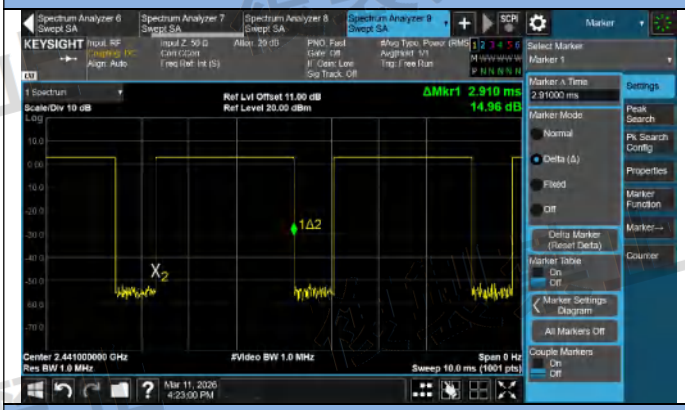
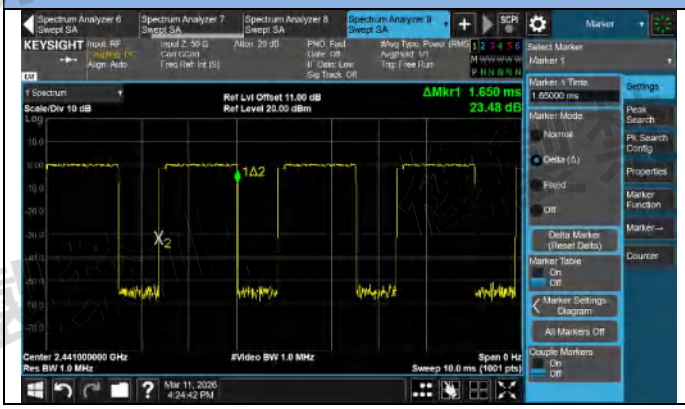
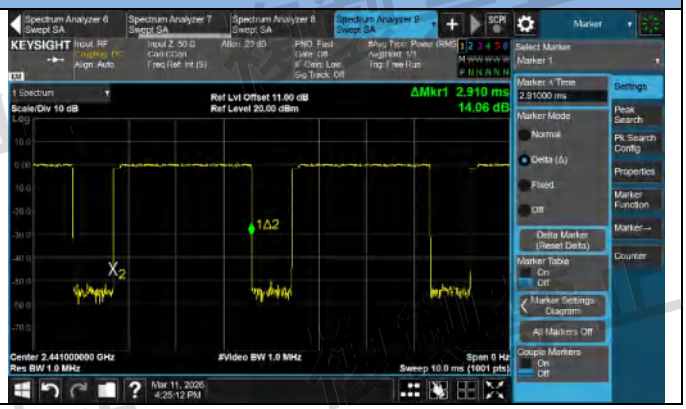
PASS

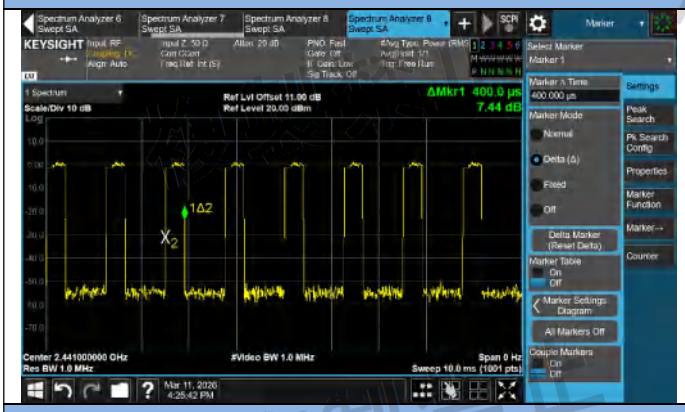
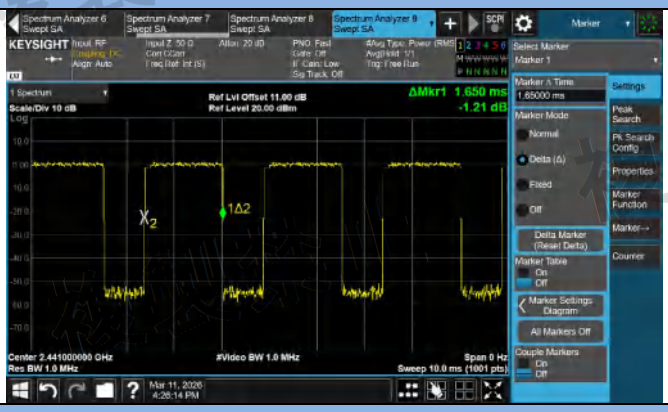
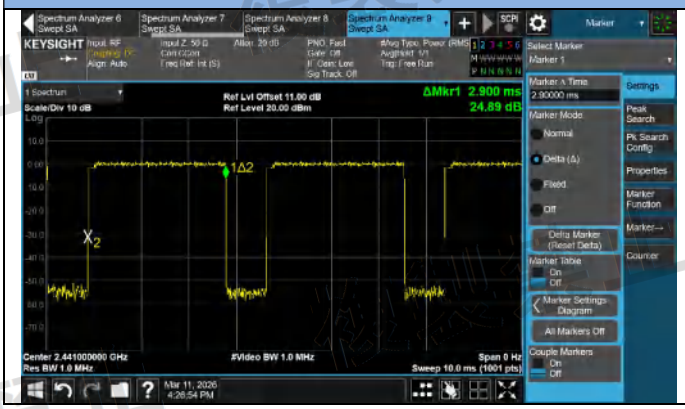
Please refer to the following tables.

Test Date: March 11, 2026		Test Result: PASS			
Test Voltage: Normal Voltage					
Packet Type	**90% Spread BW (MHz)**	**Sending time of 1 burst (ms)**	**Number of Transmission**	**Dwell Time (s)**	**Limit (s)**
GFSK Hopping					
DH1	71.448	0.400	10.13	0.1158	<0.4
DH3	71.447	1.650	5.06	0.2386	<0.4
DH5	71.411	2.910	3.38	0.2810	<0.4
π/4-DQPSK Hopping					
2-DH1	71.725	0.400	10.13	0.1163	<0.4
2-DH3	71.573	1.650	5.06	0.2390	<0.4
2-DH5	71.579	2.910	3.38	0.2816	<0.4
8DPSK Hopping					
3-DH1	71.625	0.400	10.13	0.1161	<0.4
3-DH3	71.432	1.650	5.06	0.2386	<0.4
3-DH5	71.246	2.900	3.38	0.2793	<0.4

Note:

1. No. of Hopping Channel = 79.
2. Spreading rate = Spread Bandwidth / transmission rate.
3. Per second Number of Transmission / DH1= 1600/(2*79), DH3 = 1600/(4*79), DH5 = 1600/(6*79).
4. Dwell time = 0.4s * spreading rate * sending time of 1 burst * Number of Transmission.
5. Transmission rate = 1.

Test Plots – Normal Voltage	
GFSK DH1	GFSK DH3
	
GFSK DH5	Π4/-DQPSK 2-DH1
	
Π4/-DQPSK 2-DH3	Π4/-DQPSK 2-DH5
	

Test Plots – Normal Voltage	
8DPSK 3-DH1	8DPSK 3-DH3
	
8DPSK 3-DH5	---
	Blank

14. Test Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Keysight	N9010B	MY62170254	Aug. 21, 2025	1 Year
2.	Signal Generator	Agilent	E4421B	MY41000708	Aug. 22, 2025	1 Year
3.	Signal Generator	Agilent	N5182A	MY48180739	Aug. 22, 2025	1 Year
4.	Spectrum Analyzer	Keysight	N9020A	MY54200831	Aug. 22, 2025	1 Year
5.	Power Sensor	Agilent	N1921A	MY48251036	Aug. 21, 2025	1 Year
6.	Communication Tester	Rohde & Schwarz	CMW500	149004	Aug. 28, 2025	1 Year
7.	DC Source	ZHAOXIN	KXN305D	N/A	Aug. 23, 2025	1 Year

Remark:

(a) Calibration conducted by the National Institute of Information and Communications Technology(NICT) in Japan (hereinafter referred to as "NICT") or a designated calibration agency under Article102-18paragraph (1) in JRL.

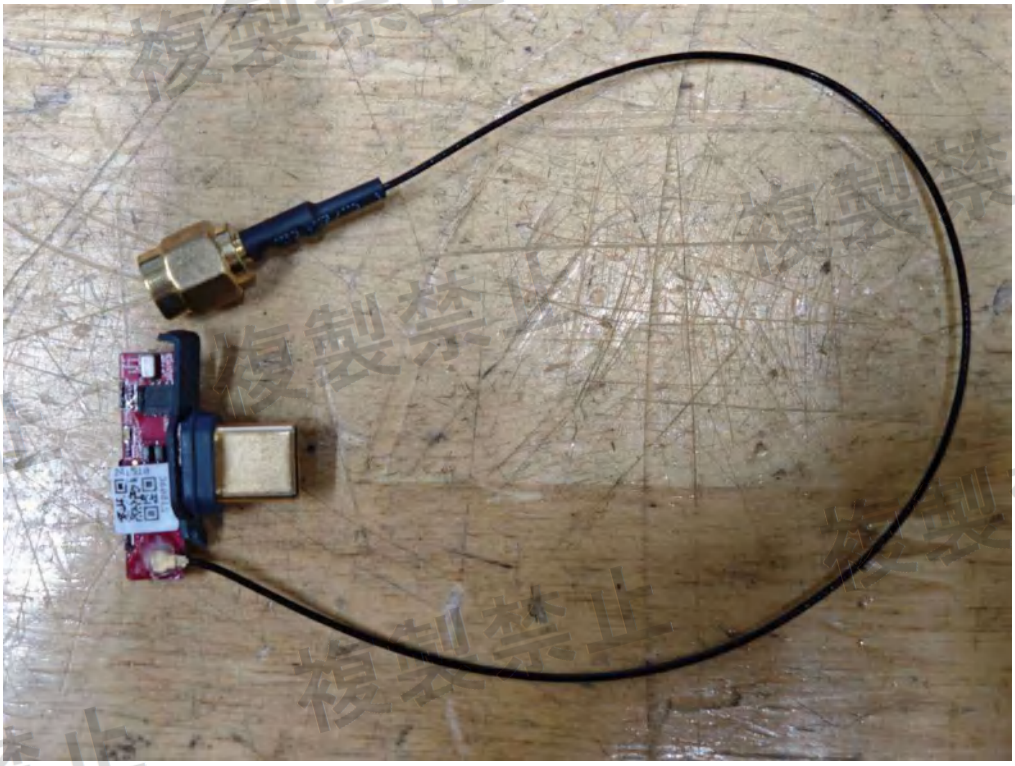
(b) Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Act(Act No. 51 of 1992) .

(c) Calibration conducted in countries except Japan, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1).

(d) Calibration, etc. conducted by using measuring instruments and other equipment listed in the right 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: Our lab selects method (c) for the calibration.

15. Photograph of Test Setup



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