



TEST REPORT

Report Number.....: ZKT-2606090655E-1

Date of Test..... Jun. 09, 2026 to Jul. 20, 2026

Date of issue.....: Jul. 20, 2026

Total number of pages..... 44

Test Result PASS

Testing Laboratory.....: Shenzhen ZKT Technology Co., Ltd.

Address 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

Applicant's name Shenzhen Linland Youpin Technology Co., Ltd

Address 2F558, Area B, Gushu Huating, No. 38 Gushu 1st Road, Guxing Community, Xixiang Street, Bao' an District, Shenzhen

Manufacturer's name Shenzhen Linland Youpin Technology Co., Ltd

Address 2F558, Area B, Gushu Huating, No. 38 Gushu 1st Road, Guxing Community, Xixiang Street, Bao' an District, Shenzhen

Test specification:

Standard..... Article 2 paragraph 1 of item 19
MIC Notice No.88 Annex 1
MIC Notice No.88 Annex 43

Test procedure.....: /

Non-standard test method N/A

Test Report Form No.....: TRF-EL-153_V0

Test Report Form(s) Originator.....: ZKT Testing

Master TRF Dated: 2020-01-06

This device described above has been tested by ZKT, and the test results show that the equipment under test (EUT) is in compliance with the Telec requirements. And it is applicable only to the tested sample identified in the report.

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Product name.....: Projector

Trademark N/A

Model/Type reference.....: V5
V5-KTV,V1,V2,V3,V4,V6,V7,V8,V9,U1,U2,U3,U4,U5,U6,U7,U8,
U9,P10,P20,P30,P40,P50,P60,P70,P80,P90,HCS350,HCS360,
HCS370,HCS380,HCS390,S10,S20,S30,S40,S50,S60,S70,S80,
S90,V1-V100

Ratings.....: Input: 100-240V ~ 50/60Hz
Output: 12V=1.5A / 36V=1.5A



Testing procedure and testing location:

Testing Laboratory.....: Shenzhen ZKT Technology Co., Ltd.

Address.....: 1/F, No. 101, Building B, No. 6, Tangwei Community
Industrial Avenue, Fuhai Street, Bao'an District,
Shenzhen, China

Tested by (name + signature).....: Jim Liu

Jim Liu

Reviewer (name + signature).....: Jackson Fang

Jackson Fang

Approved (name + signature).....: Lake Xie





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1. VERSION

Report No.	Version	Description	Approved
ZKT-2606090655E-1	Rev.01	Initial issue of report	Jul. 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 & E.I.R.P. & Antenna Power Tolerance	Item 19 Clause 3.2(2)	Pass
4	99% Occupied Bandwidth	Item 19 Clause 3.2(7)	Pass
5	Dwell time	Item 19 Clause 3.2(11)	Pass
6	Spurious Emissions Intensity	Item 19 Clause 3.2(6)	Pass
7	Limit of secondary radiated emissions	Item 19 Clause 3.3(1)	Pass
8	Interference suppression	Item 19 Clause 3.4.1	Pass
9	Transmission Antenna Gain	Item 19 Clause 3.6	Pass
10	Transmission Radiation Angle Width (3dB Beam width)	Item 19 Clause 3.6	N/A

Remark:

Test method reference: Mic Notice No.88 Appendix No.43;
N/A is EIRP does not exceed 6.91dBm/MHz.



2.1 TEST FACILITY

Shenzhen ZKT Technology Co., Ltd.

Add.: 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

FCC Test Firm Registration Number: 927491

Designation Number: CN1431

IC Registered No.: 27033

CAB identifier: CN0110

China Registered No.: CNAS L11527

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	Conducted Emission Test	$\pm 3.2\text{dB}$
2	Radiated Emission Test	$\pm 4.7\text{dB}$
3	RF power conducted	$\pm 0.16\text{dB}$
4	Spurious emissions conducted	$\pm 0.21\text{dB}$
5	All emissions radiated(<1G)	$\pm 4.68\text{dB}$
6	All emissions radiated(>1G)	$\pm 5.0\text{dB}$
7	frequency error ppm	$\pm 0.5\text{ppm}$
8	RF Occupied Bandwidth	$U=1.8\text{KHz}$
9	Time	$U=1\text{ms}$



3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Product Name:	Projector
Model No.:	V5
Series Models:	V5-KTV,V1,V2,V3,V4,V6,V7,V8,V9,U1,U2,U3,U4,U5,U6,U7,U8,U9,P10,P20,P30,P40,P50,P60,P70,P80,P90,HCS350,HCS360,HCS370,HCS380,HCS390,S10,S20,S30,S40,S50,S60,S70,S80,S90,V1-V100
Model Difference:	See the Model Difference letter
Hardware Version:	H1.0
Software Version:	S1.0
Operation Frequency:	2402MHz~2480MHz
Channel Numbers:	79
Channel Separation:	1MHz
Modulation Technology:	GFSK, $\pi/4$ -DQPSK, 8DPSK
Rated Power:	GFSK: 2mW/MHz $\pi/4$ -DQPSK: 2mW/MHz 8DPSK: 2mW/MHz
Antenna Specification:	PCB Antenna
Antenna Gain:	-0.1dBi
Power Supply:	Input: 100-240V ~ 50/60Hz Output: 12V ---1.5A / 36V ---1.5A



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

- 3.

Final test channel as follow:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	39	2441	78	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 AB_tool 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: CMD	
	Test Mode	Power Level
	GFSK	Default
	$\pi/4$ -DQPSK	Default
	8DPSK	Default

3.3 TEST CONDITIONS

Supply Voltage				
	Input Voltage (Vdc)		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	Projector	N/A	V5	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.

Item	Equipment	Manufacturer	Type No.	Serial No.	Firmware Version	Last calibration	Calibrated until	Cal. Method
1	Spectrum Analyzer (9kHz-26.5GHz)	KEYSIGHT	N9020A	MY55370835	A.17.05	Sep. 20, 2025	Sep. 19, 2026	c
2	Spectrum Analyzer (10kHz-39.9GHz)	R&S	FSV40-N	100363	1.71 SP2	Sep. 20, 2025	Sep. 19, 2026	c
3	Test Cable	N/A	RF-01	N/A	N/A	May 25, 2026	May 24, 2027	c
4	Test Cable	N/A	RF-02	N/A	N/A	May 25, 2026	May 24, 2027	c
5	Test Cable	N/A	RF-03	N/A	N/A	May 25, 2026	May 24, 2027	c
6	ESG Signal Generator	Agilent	E4421B	N/A	B.03.84	Sep. 19, 2025	Sep. 18, 2026	c
7	Signal Generator	Agilent	N5182A	N/A	A.01.87	Sep. 20, 2025	Sep. 19, 2026	c
8	Magnetic Field Probe Tester	Narda	ELT-400	0-0344/M-1752	N/A	Sep. 25, 2025	Sep. 24, 2026	c
9	Van der Hoofden measuring head	Schwarzbeck Mess-elektronik	VDHH 9502	9502-039	N/A	Sep. 30, 2025	Sep. 29, 2026	c
10	Wideband Radio Communication Test	R&S	CMW500	106504	V 3.7.22	Sep. 28, 2025	Sep. 27, 2026	c
11	MWRF Power Meter Test system	MW	MW100-RFC B	N/A	N/A	Sep. 19, 2025	Sep. 18, 2026	c
12	Power Meter	KEYSIGHT	N1912AP	926431	A.05.00	Sep. 29, 2025	Sep. 28, 2026	c
13	D.C. Power Supply	LongWei	TPR-6405D	GQ7516	N/A	Sep. 29, 2025	Sep. 28, 2026	c
14	Attenuators	XINQY	XQY-SMAJK S-12-2W	N/A	N/A	Sep. 29, 2025	Sep. 28, 2026	c
15	RF Software	MW	MTS8310	V2.0.0.0	N/A	\	\	

Note: Calibration method: Section c of the calibration method under Article 24-2, Paragraph 4, Item 2 of the Radio Law

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) 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

(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). The calibration corresponds to c described above.

All the equipments for Guangzhou LiSai Metrology & Test Co.,Ltd.



4. RF SHIELDING METHOD

Enclosure:

We apply the product for Japan RF certification. The RF circuit adopts SMD components. The product plastic casing serves as the shielding structure for the internal module. The outer shell of the EUT is assembled and sealed via snap-fit buckles, which is not easy to disassemble. Any attempt by the user to pry open or take apart the housing will easily cause damage to the equipment. Please refer to the attached photos for detailed information.





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.

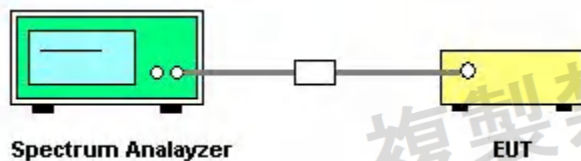
Spectrum Parameter	Setting
Attenuation	Auto
RB / VB	10KHz
Detector	Peak
Span	1MHz
Trace	Max Hold
Sweep Time	Auto

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

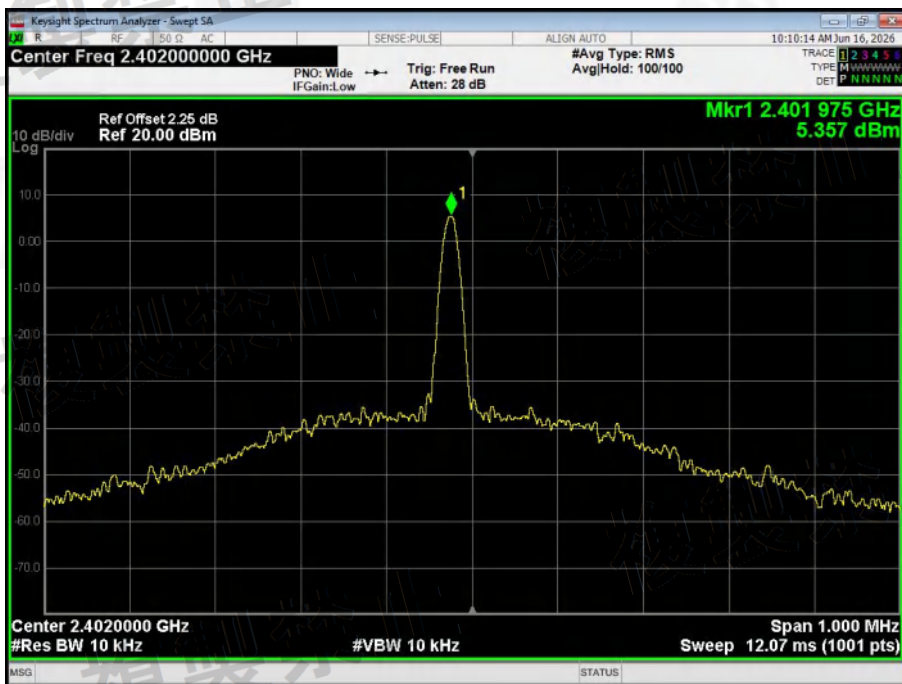
The EUT was placed on the test table and programmed in un-modulation function.



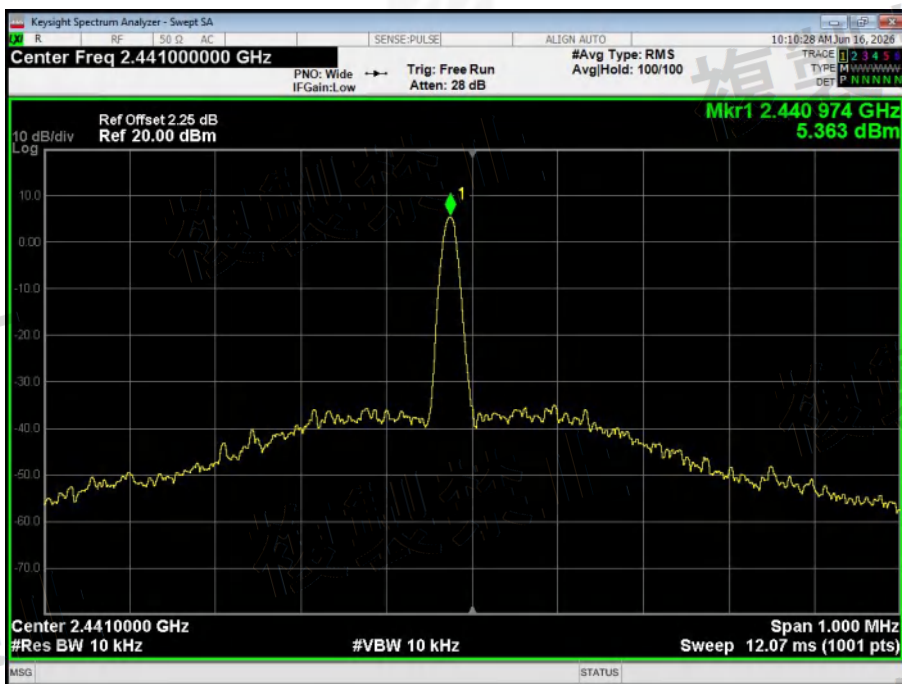
5.1.6 TEST RESULT

Test mode	Test voltage	Frequency (MHz)	Read (MHz)	Tolerance (ppm)	Limit (ppm)	Result
Un-modulation mode	Normal	2402	2401.975	-10.41	±50.00	Pass
		2441	2440.974	-10.65		
		2480	2479.973	-10.89		

2402MHz

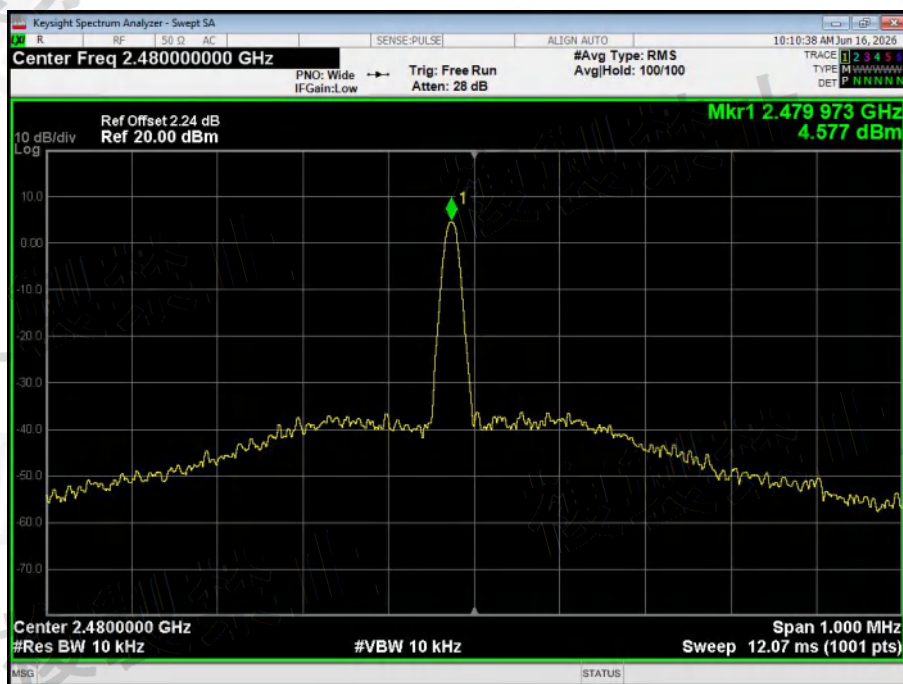


2441MHz





2480MHz





5.2 ANTENNA POWER & EIRP POWER

5.2.1 LIMIT

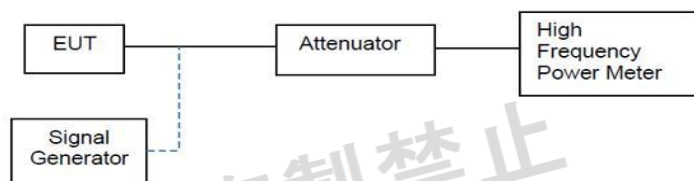
Item	Limits
Antenna Power Density	≤3mW/MHz
EIRP Power Density	6.91dBm/MHz
Antenna Power Error	+20% (No lower limit)

5.2.2 TEST PROCEDURES

1. Measure the total power by the Power Meter in a state of hopping mode.
2. Calculate the mean power per 1MHz by dividing the reading level by spread bandwidth.

Output power Density (mW/MHz) = Total power (mW) / spread bandwidth(MHz)

5.2.3 TEST SETUP LAYOUT





5.2.5 TEST DEVIATION

There is no deviation with the original standard.

5.2.6 TEST RESULT

Test Voltage: Normal									
Modulation	Frequency (MHz)	Total hopping power (mW)	Spread Bandwidth (MHz)	Power (mW/MHz)	Rated Power (mW/MHz)	Power Limit (mW/MHz)	Tolerance (%)	Tolerance Limit (%)	Result
GFSK	Hopping	104.125	71.147	1.464	2.00	3.00	-26.80	+ 20	Pass
$\pi/4$ -DQPSK	Hopping	113.358	70.630	1.605	2.00	3.00	-19.75	+ 20	Pass
8DPSK	Hopping	107.547	71.322	1.508	2.00	3.00	-24.60	+ 20	Pass
Tolerance Limit : +20% (No lower limit). Total hopping power (mW) = Sum of radiated power of all 79 FHSS hopping channels in linear mW value									

Modulation	Frequency (MHz)	Total hopping power (dBm/MHz)	Antenna Gain (dBi)	EIRP (dBm/MHz)	EIRP Limit (dBm/MHz)	Result
GFSK	Hopping	1.655	-0.1	1.555	6.91	Pass
$\pi/4$ -DQPSK	Hopping	2.055	-0.1	1.955	6.91	Pass
8DPSK	Hopping	1.784	-0.1	1.684	6.91	Pass
Note: EIRP = Total hopping power + Antenna Gain. Note: PdBm/MHz=10×log10(PmW/MHz)						



5.3 99% OCCUPIED BANDWITH

5.3.1 LIMIT

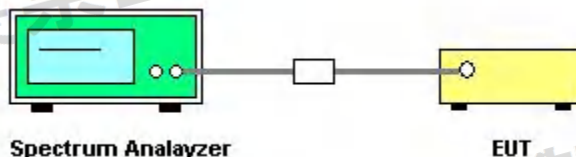
Item	Limits
Occupied Band Width:	83.5MHz or less

5.3.2 MEASURING INSTRUMENTS AND SETTING

5.3.3 TEST PROCEDURES

- Setting of SA is following as: RB: 1MHz / VB:1MHz / SPAN: 120MHz / AT: 20dB Ref: 22.25dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold
- 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).

5.3.4 TEST SETUP LAYOUT



5.3.5 TEST DEVIATION

There is no deviation with the original standard.

5.3.6 EUT OPERATION DURING TEST

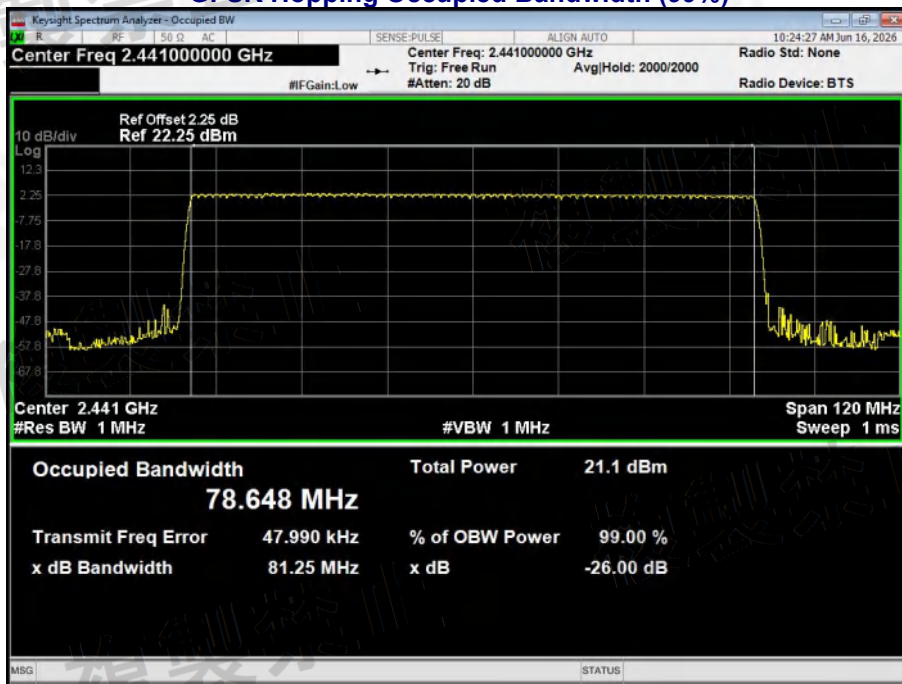
The EUT was programmed to be in continuously transmitting mode.



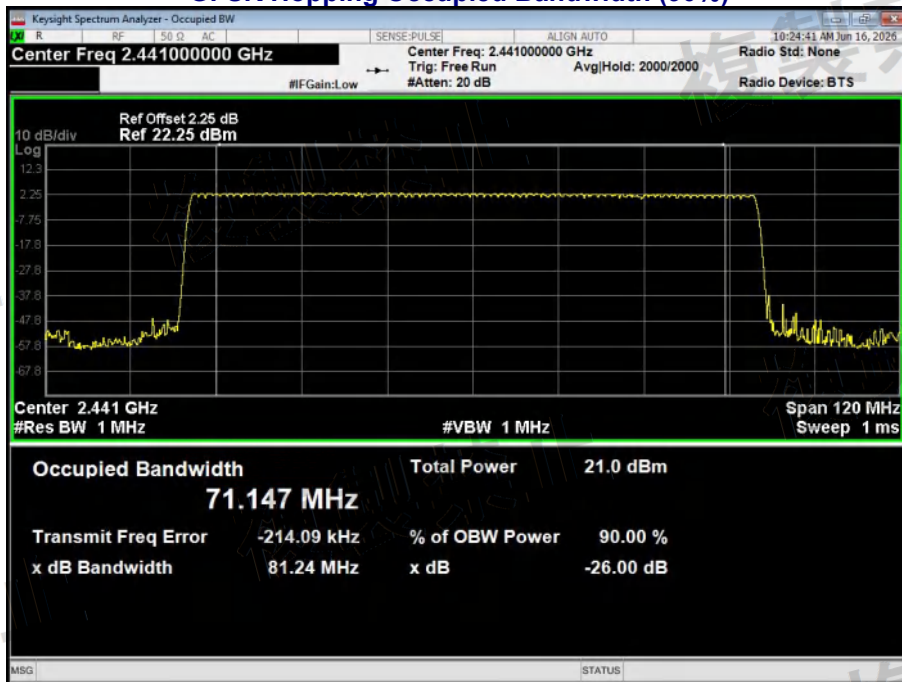
5.3.7 TEST RESULT

Test Voltage	Test Condition	Frequency (MHz)	99% Bandwidth (MHz)	90% Bandwidth (MHz)	99% Bandwidth Limits (MHz)	Result
Normal	GFSK	Hopping	78.648	71.147	≤83.5	Pass
	$\pi/4$ -DPSK	Hopping	78.684	70.630	≤83.5	Pass
	8-DPSK	Hopping	78.719	71.322	≤83.5	Pass

GFSK Hopping Occupied Bandwidth (99%)

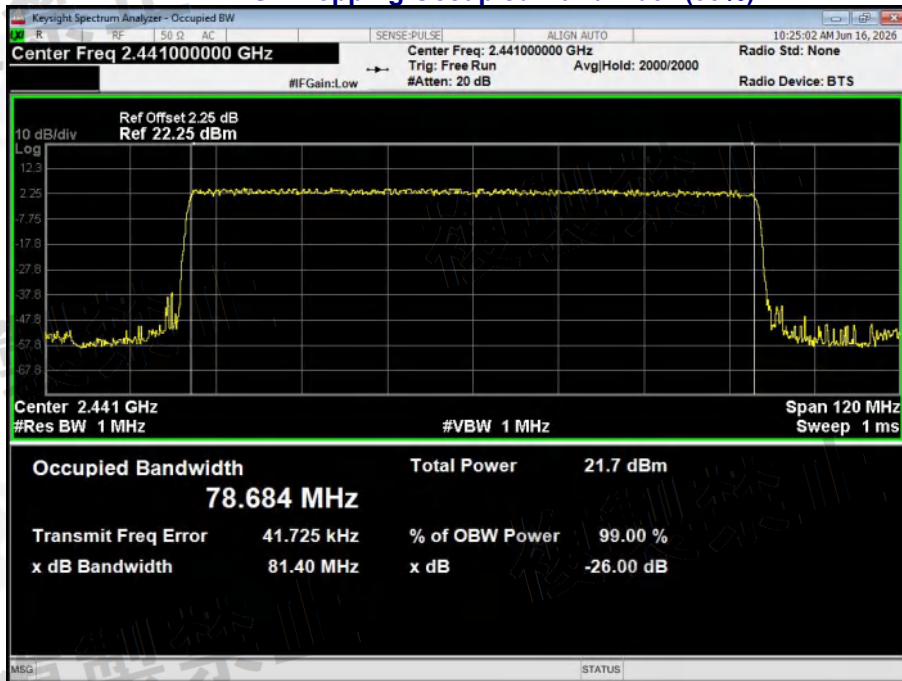


GFSK Hopping Occupied Bandwidth (90%)

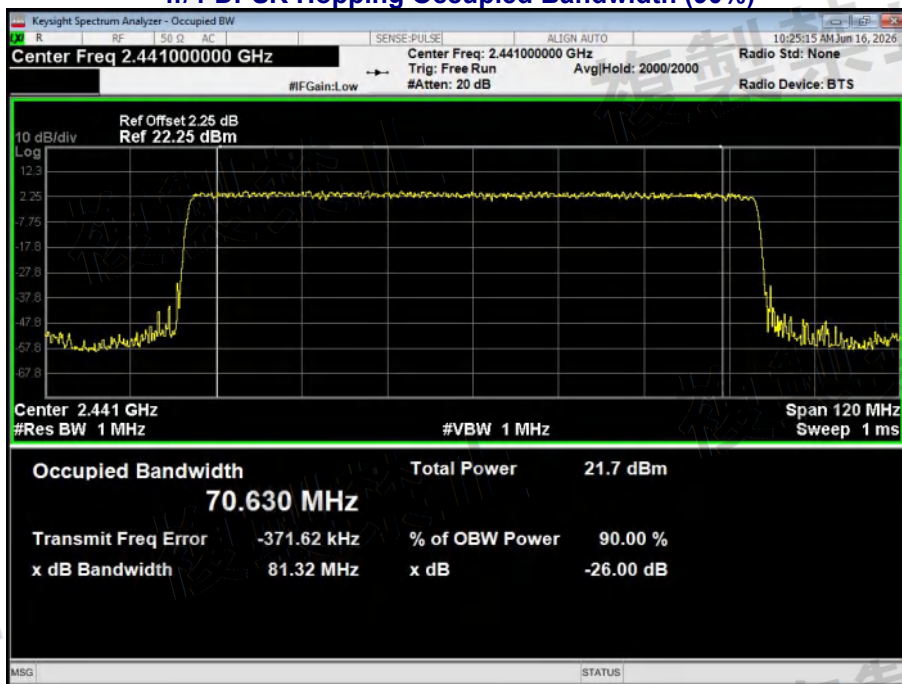




$\pi/4$ -DPSK Hopping Occupied Bandwidth (99%)

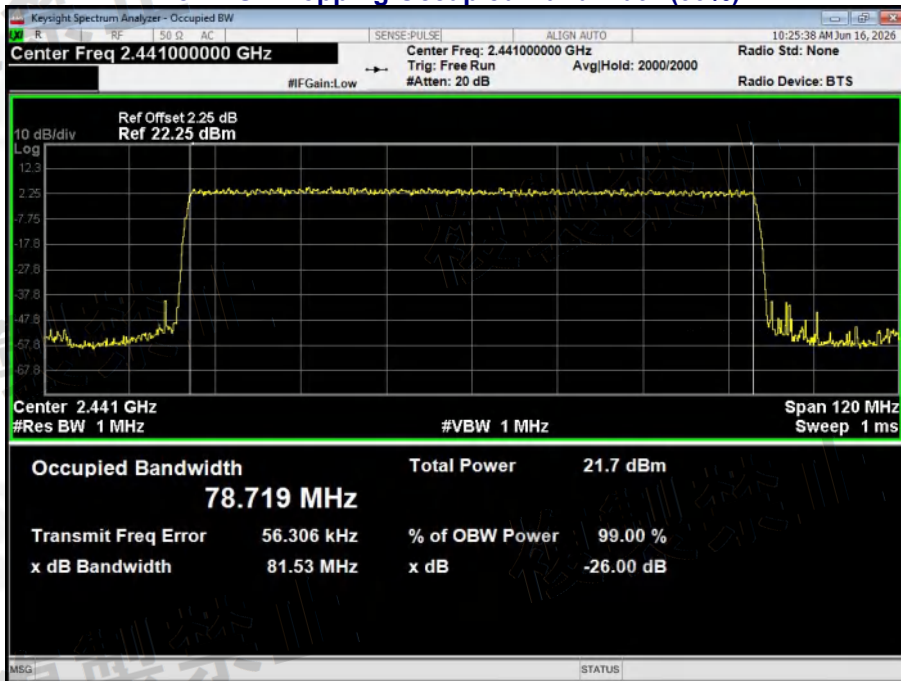


$\pi/4$ -DPSK Hopping Occupied Bandwidth (90%)

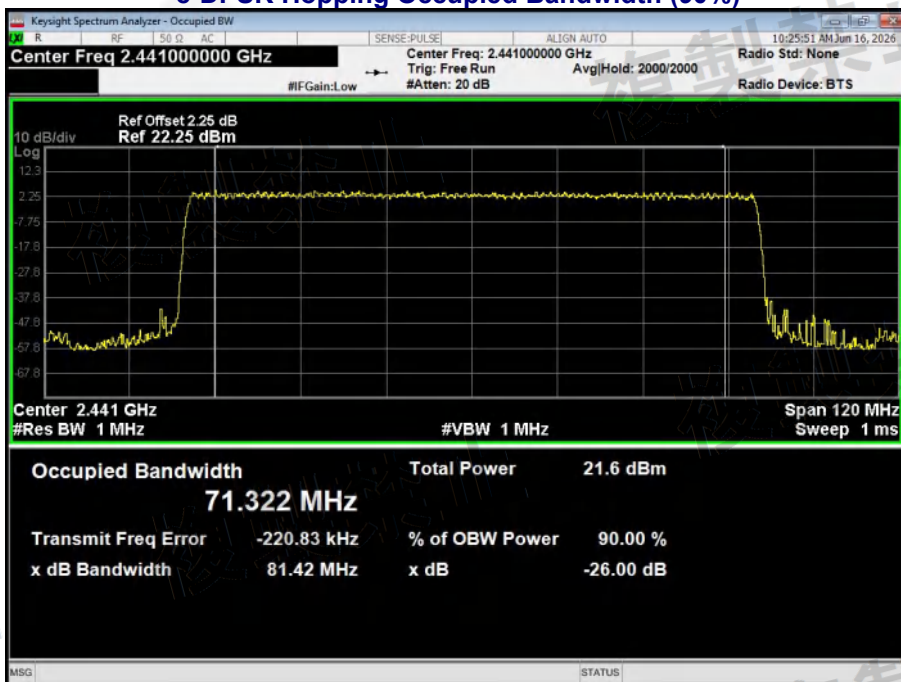




8-DPSK Hopping Occupied Bandwidth (99%)



8-DPSK Hopping Occupied Bandwidth (90%)





5.4 UNWANTED EMISSION INTENSITY MEASUREMENT

5.4.1 LIMIT

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

5.4.2 MEASURING INSTRUMENTS AND SETTING

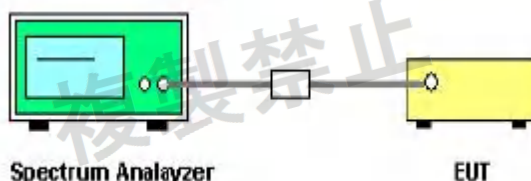
Please refer to section 5 in this report. The following table is the setting of Spectrum Analyzer.

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

1. EUT have transmitted the maximum modulation signal and fixed channelize.
2. Setting of SA is following as: Below 1GHz RB:100KHz / VB:100KHz
Above 1GHz RB:1MHz / VB:1MHz / AT: 20dB Ref: 12.25dBm / Sweep time: Auto
Sweep Mode: Continuous sweep / Detect mode: Positive peak
Trace mode: Max hold
3. Setting of SA is following as 30MHz and stop frequency 1000MHz Then to mark peak reading value + cable loss shall be less than 2.5 μ W/MHz.
4. Setting of SA is following as 1000MHz and stop frequency 2387MHz Then to mark peak reading value + cable loss shall be less than 2.5 μ W/MHz.
5. SA adjusted to start frequency 2387MHz and stop frequency 2400MHz. Then to mark peak reading value + cable loss shall be less than 25 μ W/MHz.
6. SA adjusted to start frequency 2483.5MHz and stop frequency 2496.5MHz Then to mark peak reading value + cable loss shall be less than 25 μ W/MHz
7. SA adjusted to start frequency 2496.5MHz and stop frequency 12500MHz Then to mark peak reading value + cable loss shall be less than 2.5 μ W/MHz
8. 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]
9. 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

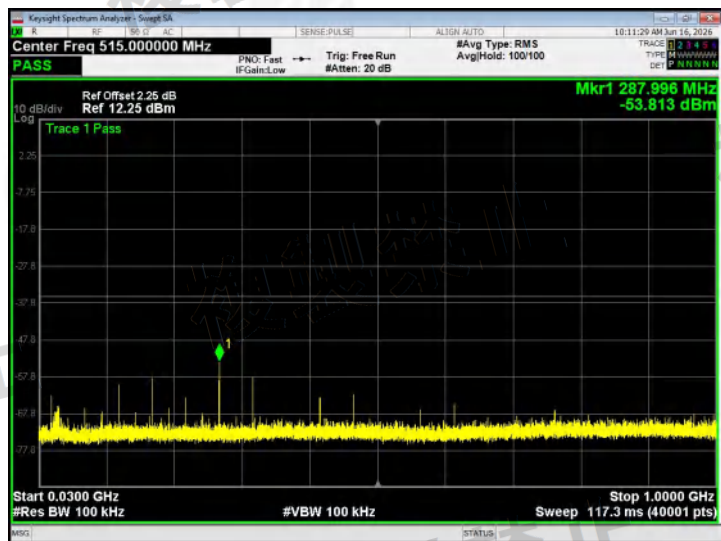
Test Voltage	Mode	Frequency (MHz)	Range (MHz)	Emission Frequency (MHz)	Max Value (dBm)	Max Value (μW/MHz)	Limit (μW/MHz)	Result
Normal	GFSK	2402	30-1000	288	-43.81	0.0416	2.5	Pass
			1000-2387	2305.34	-53.5	0.0045	2.5	Pass
			2387-2400	2399.98	-28.51	1.4093	25	Pass
			2483.5-2496.5	2495.9	-52.46	0.0057	25	Pass
			2496.5-13000	4804.91	-41.67	0.0681	2.5	Pass
Normal	GFSK	2441	30-1000	288	-43.91	0.0406	2.5	Pass
			1000-2387	2345.84	-52.7	0.0054	2.5	Pass
			2387-2400	2393.12	-55.43	0.0029	25	Pass
			2483.5-2496.5	2489.24	-54.83	0.0033	25	Pass
			2496.5-13000	4882.37	-43.39	0.0458	2.5	Pass
Normal	GFSK	2480	30-1000	288.02	-43.97	0.0401	2.5	Pass
			1000-2387	2384.3	-50.19	0.0096	2.5	Pass
			2387-2400	2387.41	-56.18	0.0024	25	Pass
			2483.5-2496.5	2483.62	-38.46	0.1426	25	Pass
			2496.5-13000	4960.88	-43.99	0.0399	2.5	Pass
Normal	π/4-DQPSK	2402	30-1000	288.02	-43.51	0.0446	2.5	Pass
			1000-2387	2114.87	-52.53	0.0056	2.5	Pass
			2387-2400	2399.84	-29.44	1.1376	25	Pass
			2483.5-2496.5	2496.02	-52.31	0.0059	25	Pass
			2496.5-13000	4804.38	-39.53	0.1114	2.5	Pass
Normal	π/4-DQPSK	2441	30-1000	288.02	-43.71	0.0426	2.5	Pass
			1000-2387	2345.29	-52.64	0.0054	2.5	Pass
			2387-2400	2392.98	-55.37	0.0029	25	Pass
			2483.5-2496.5	2489.04	-54.94	0.0032	25	Pass
			2496.5-13000	4882.63	-41.23	0.0753	2.5	Pass
Normal	π/4-DQPSK	2480	30-1000	288.02	-43.82	0.0415	2.5	Pass
			1000-2387	2384.4	-49.14	0.0122	2.5	Pass
			2387-2400	2387.03	-55.91	0.0026	25	Pass
			2483.5-2496.5	2483.53	-38.09	0.1552	25	Pass
			2496.5-13000	4960.88	-42.25	0.0596	2.5	Pass
Normal	8DPSK	2402	30-1000	288	-43.55	0.0442	2.5	Pass
			1000-2387	2306.76	-53.23	0.0048	2.5	Pass
			2387-2400	2399.92	-28.73	1.3397	25	Pass
			2483.5-2496.5	2495.82	-53.27	0.0047	25	Pass
			2496.5-13000	4804.38	-40.11	0.0975	2.5	Pass
Normal	8DPSK	2441	30-1000	288.02	-43.59	0.0438	2.5	Pass
			1000-2387	2345.88	-52.69	0.0054	2.5	Pass
			2387-2400	2392.78	-55.45	0.0029	25	Pass
			2483.5-2496.5	2488.31	-54.73	0.0034	25	Pass
			2496.5-13000	4882.11	-41.99	0.0632	2.5	Pass
Normal	8DPSK	2480	30-1000	288	-43.82	0.0415	2.5	Pass
			1000-2387	2384.33	-52.03	0.0063	2.5	Pass
			2387-2400	2387.02	-55.76	0.0027	25	Pass
			2483.5-2496.5	2483.7	-37.86	0.1637	25	Pass
			2496.5-13000	4960.36	-41.62	0.0689	2.5	Pass

Note: 30M - 1GHz test for RB = 100 kHz,
Test Result = Max Value + RB factor
RB factor = $10 \log (RB0 / RB1) = 10 \log (1M / 100K) = 10 \text{ dB}$.

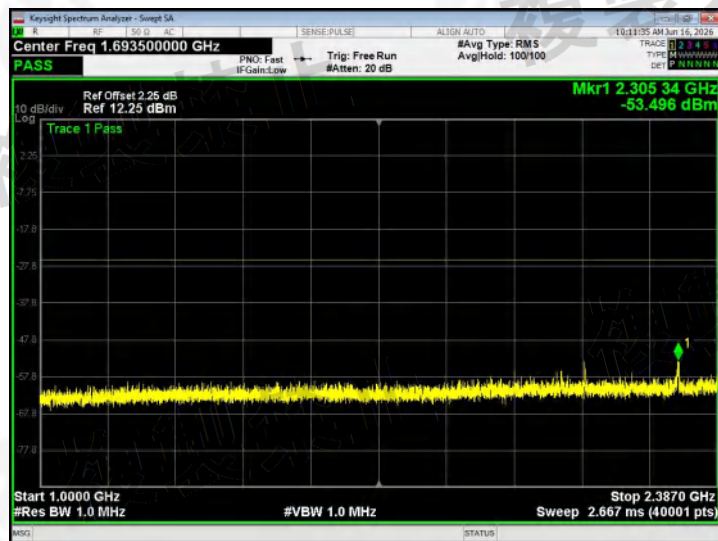


Modulation type: GFSK

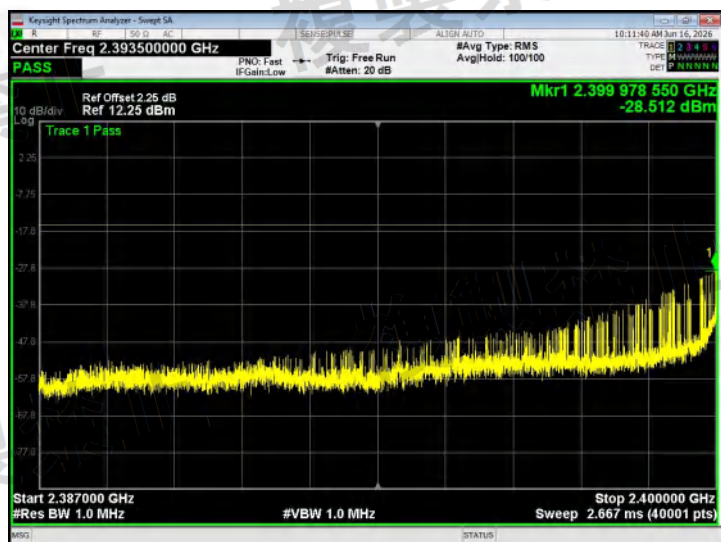
Test voltage	Normal	Test Channel (MHz)	2402.00
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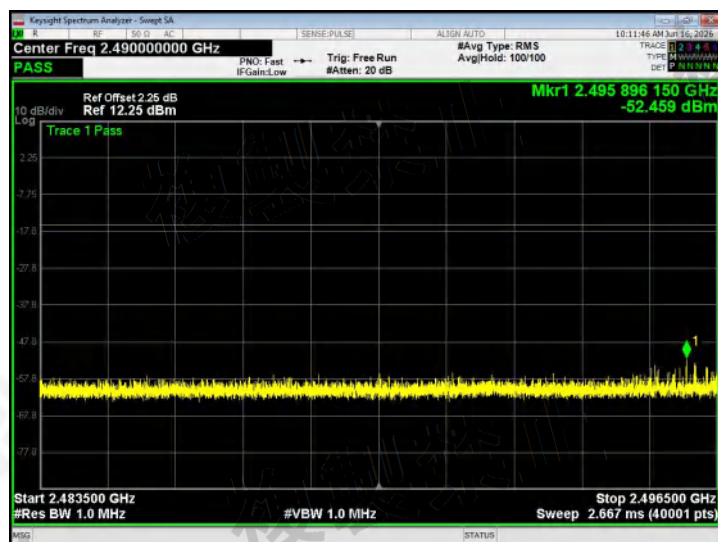
$$30 \text{ MHz} \leq f \leq 1000 \text{ MHz}$$



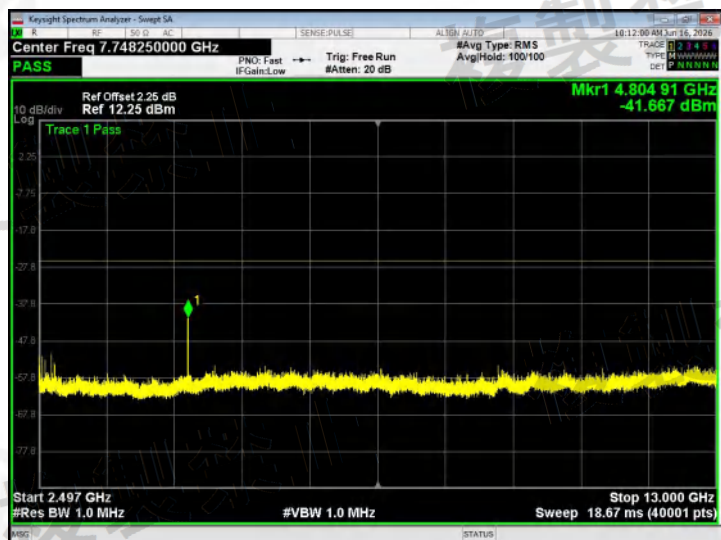
$$1000 \text{ MHz} < f \leq 2387 \text{ MHz}$$



$$2387 \text{ MHz} < f \leq 2400 \text{ MHz}$$



$$2483.5 \text{ MHz} \leq f < 2496.5 \text{ MHz}$$



$$2496.5 \text{ MHz} \leq f < 13 \text{ GHz}$$

Shenzhen ZKT Technology Co., Ltd.

1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

+86-400-000-9970

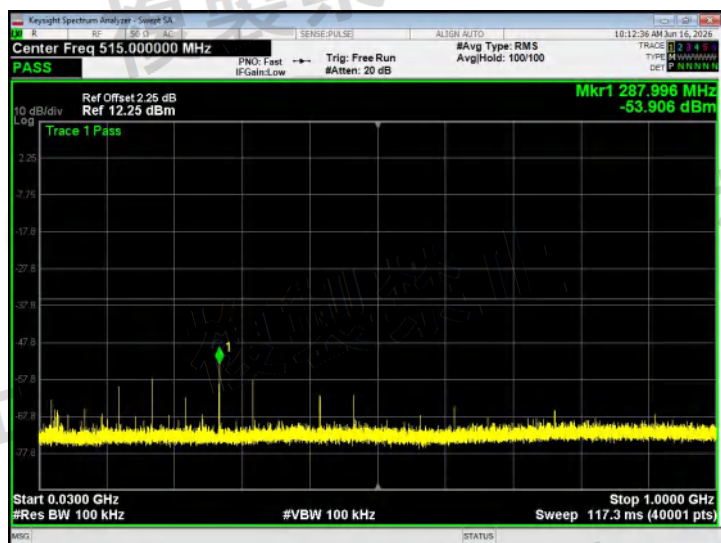
+86-755-2235 6585

zkt@zkt-lab.com

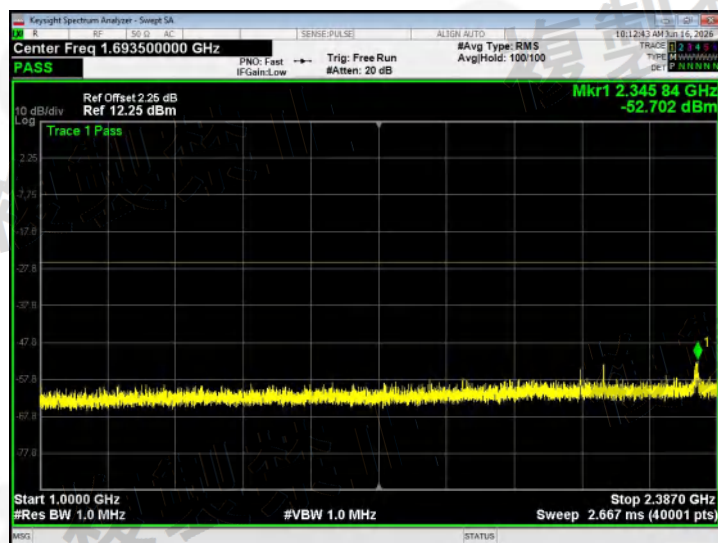
www.zkt-lab.com



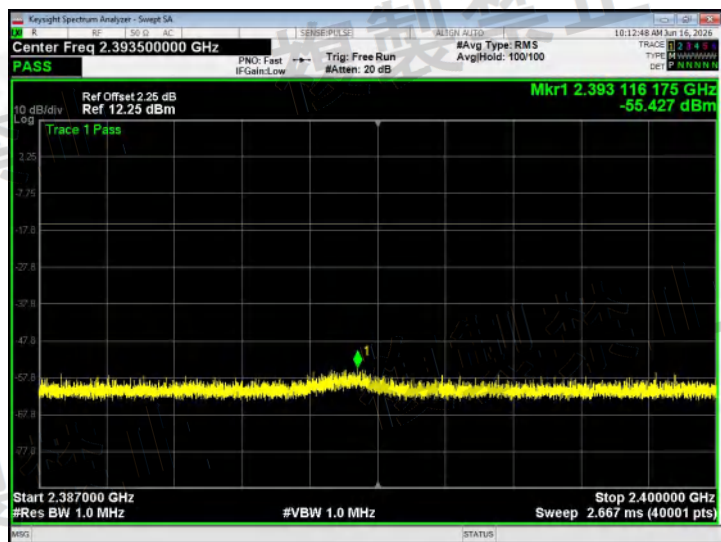
Test voltage	Normal	Test Channel (MHz)	2441.00
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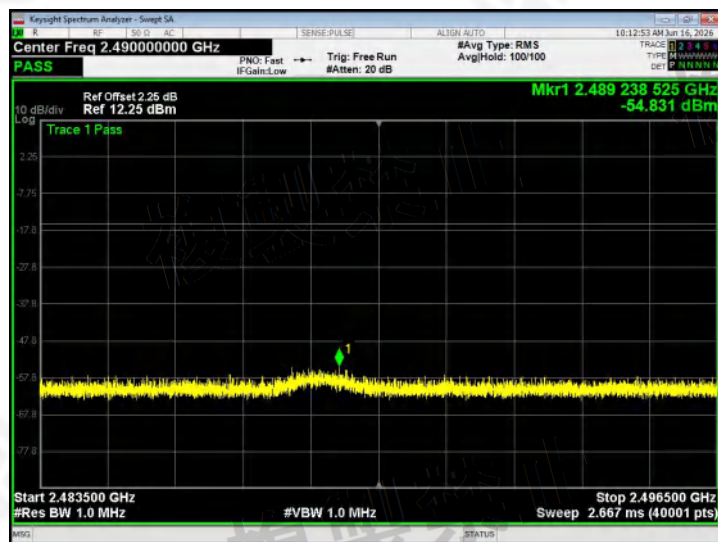
$30 \text{ MHz} \leq f \leq 1000 \text{ MHz}$



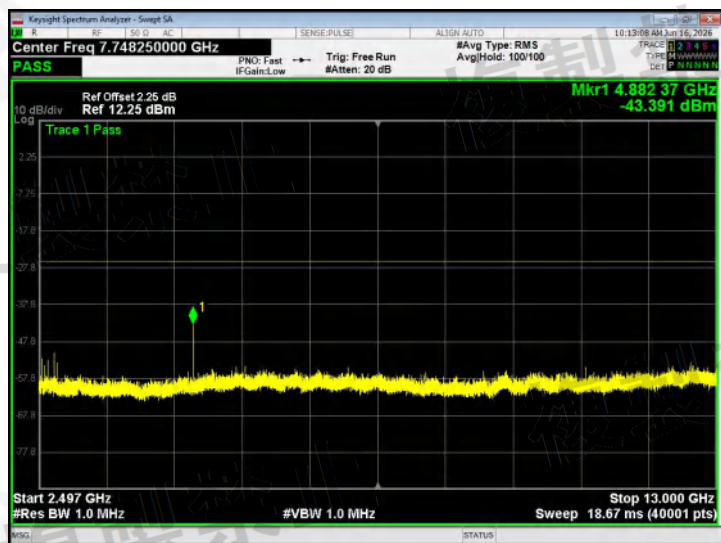
$1000 \text{ MHz} < f \leq 2387 \text{ MHz}$



$2387 \text{ MHz} < f \leq 2400 \text{ MHz}$



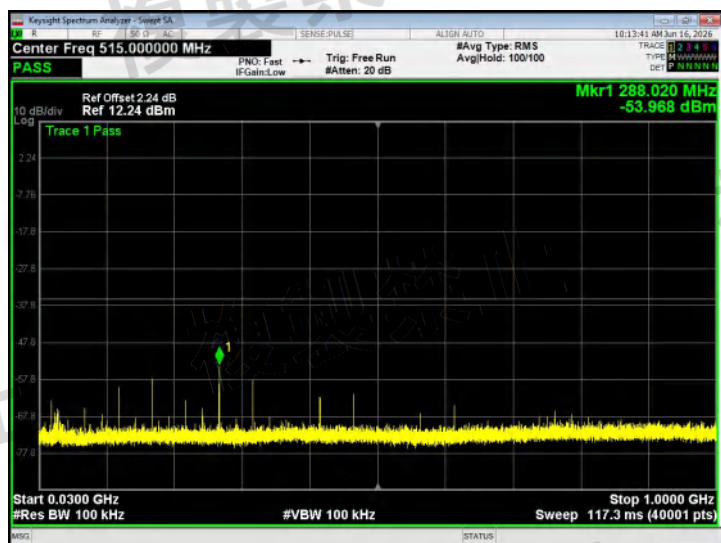
$2483.5 \text{ MHz} \leq f < 2496.5 \text{ MHz}$



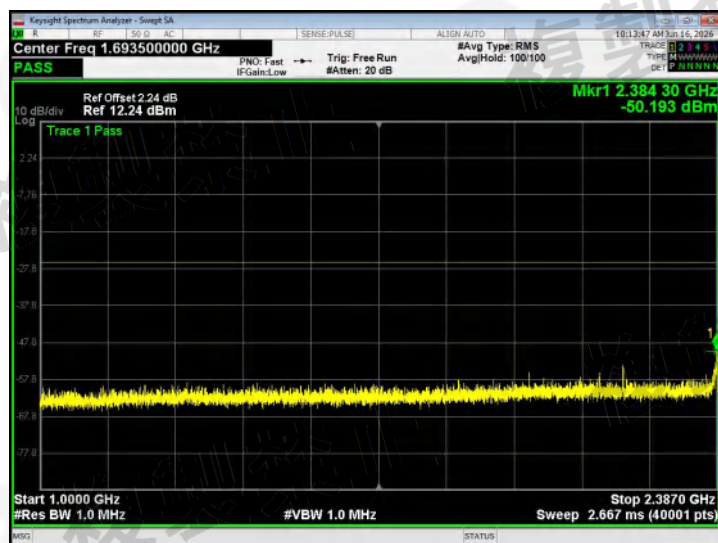
$2496.5 \text{ MHz} \leq f < 13 \text{ GHz}$



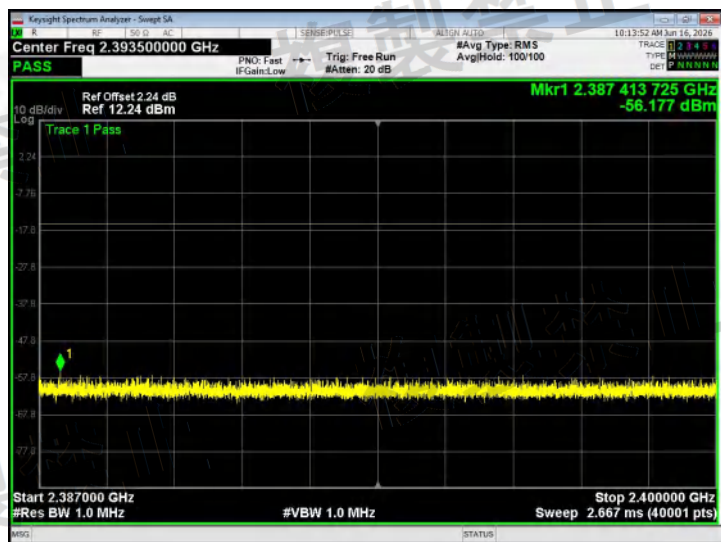
Test voltage	Normal	Test Channel (MHz)	2480.00
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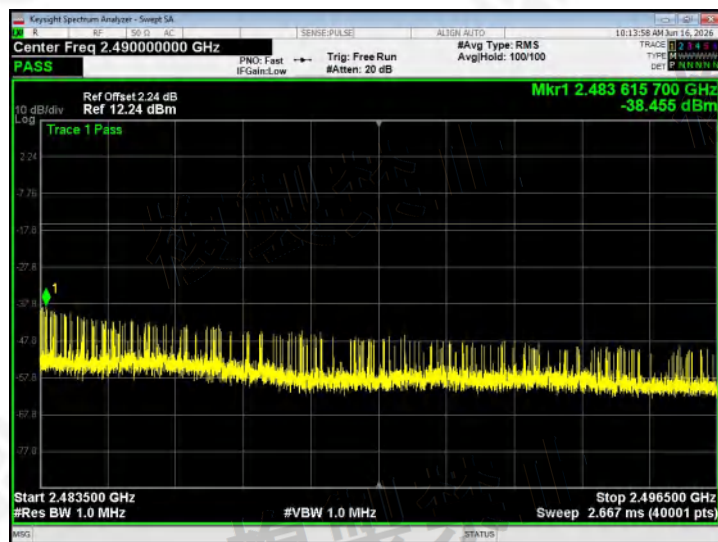
$30 \text{ MHz} \leq f \leq 1000 \text{ MHz}$



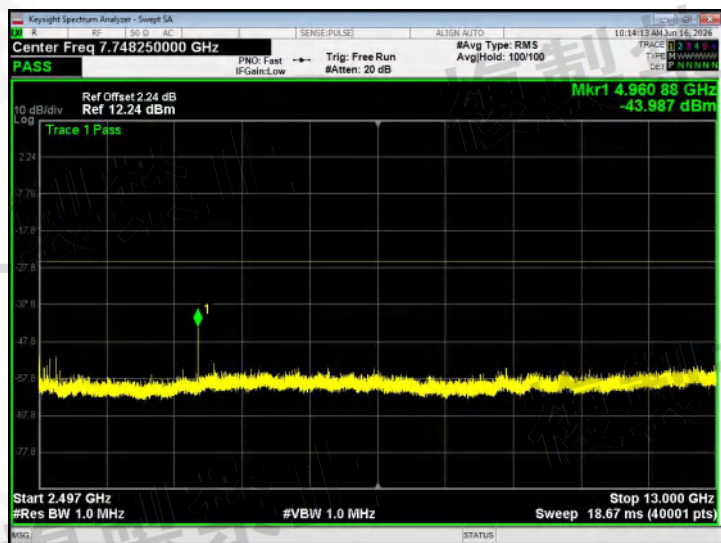
$1000 \text{ MHz} < f \leq 2387 \text{ MHz}$



$2387 \text{ MHz} < f \leq 2400 \text{ MHz}$



$2483.5 \text{ MHz} \leq f < 2496.5 \text{ MHz}$

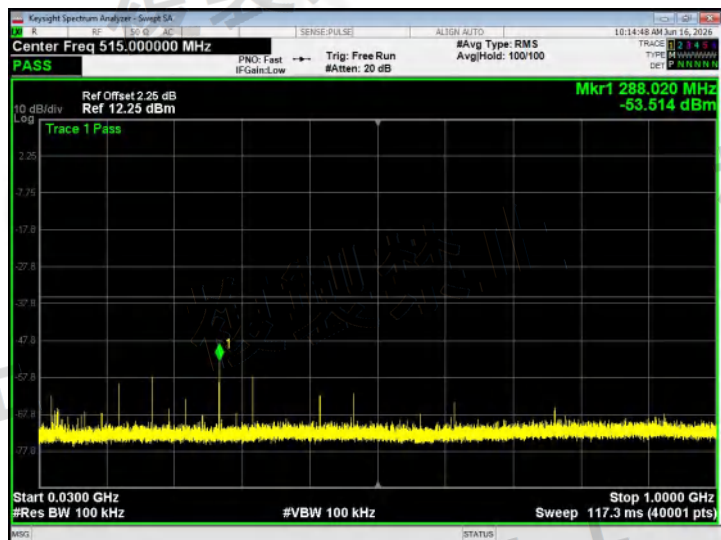


$2496.5 \text{ MHz} \leq f < 13 \text{ GHz}$

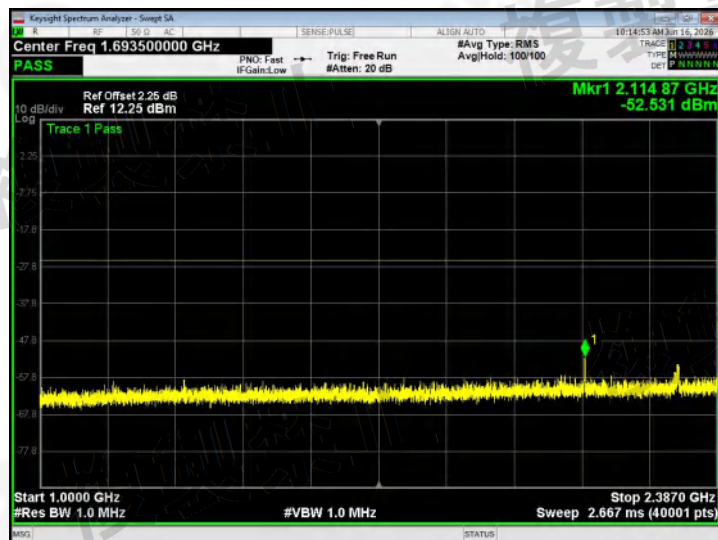


Modulation type: $\pi/4$ -DQPSK

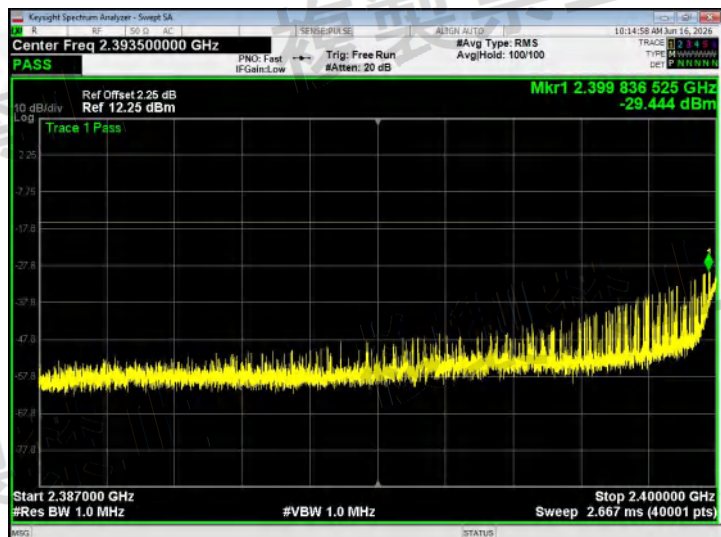
Test voltage	Normal	Test Channel (MHz)	2402.00
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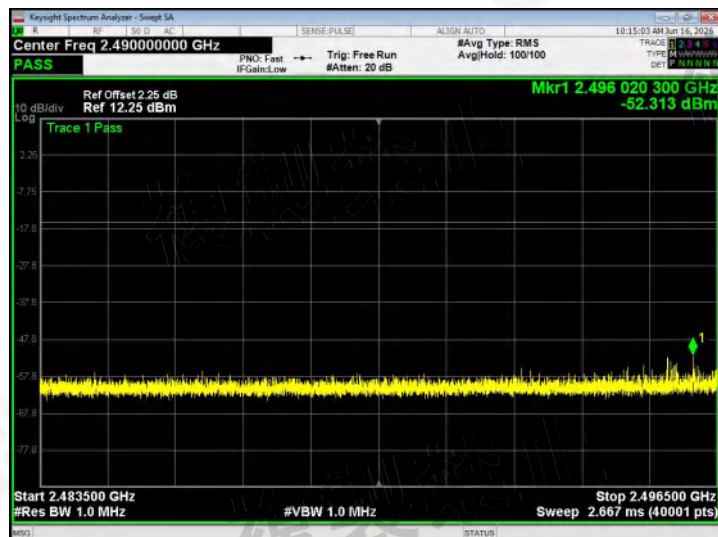
$30 \text{ MHz} \leq f \leq 1000 \text{ MHz}$



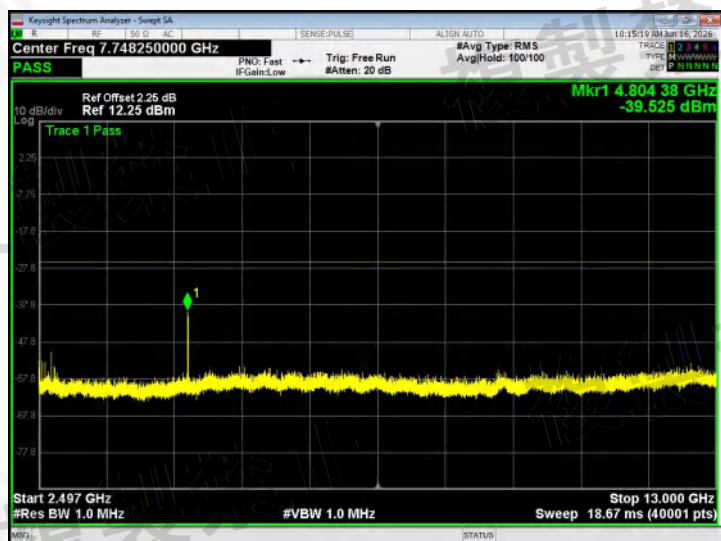
$1000 \text{ MHz} < f \leq 2387 \text{ MHz}$



$2387 \text{ MHz} < f \leq 2400 \text{ MHz}$



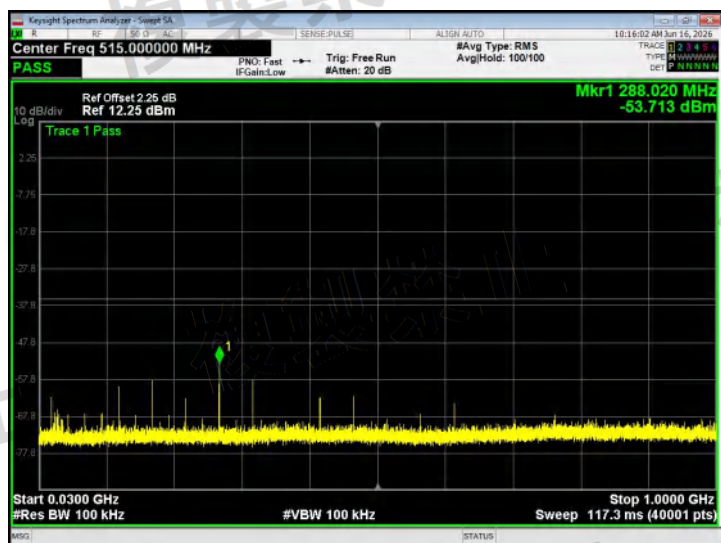
$2483.5 \text{ MHz} \leq f < 2496.5 \text{ MHz}$



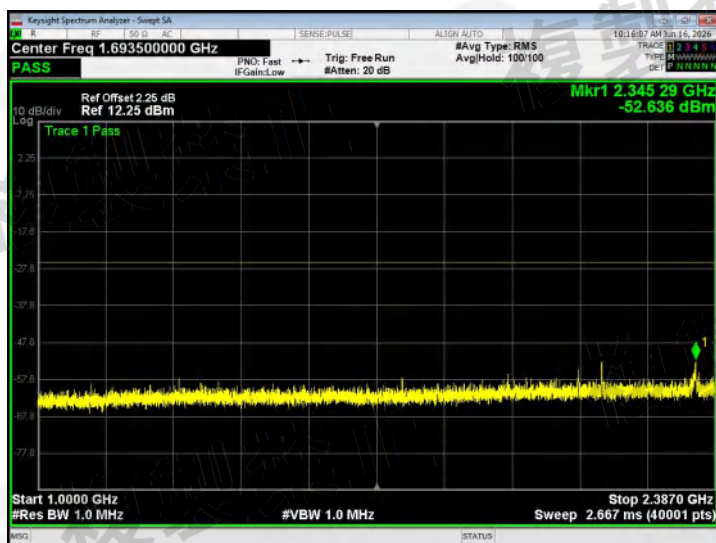
$2496.5 \text{ MHz} \leq f < 13 \text{ GHz}$



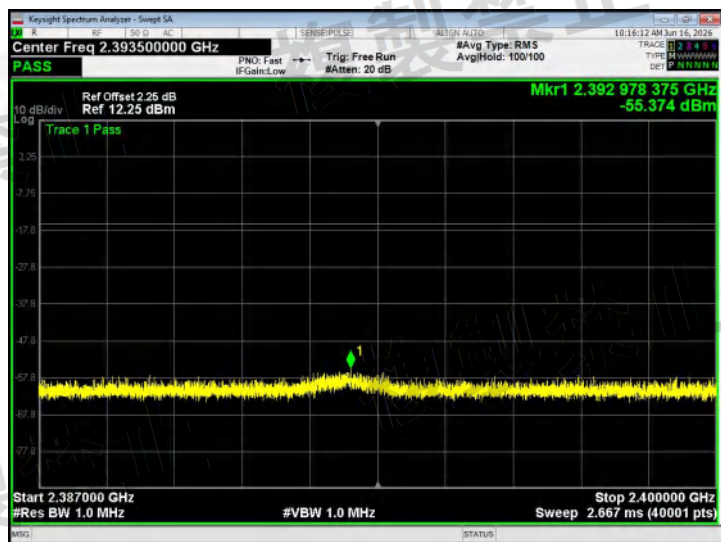
Test voltage	Normal	Test Channel (MHz)	2441.00
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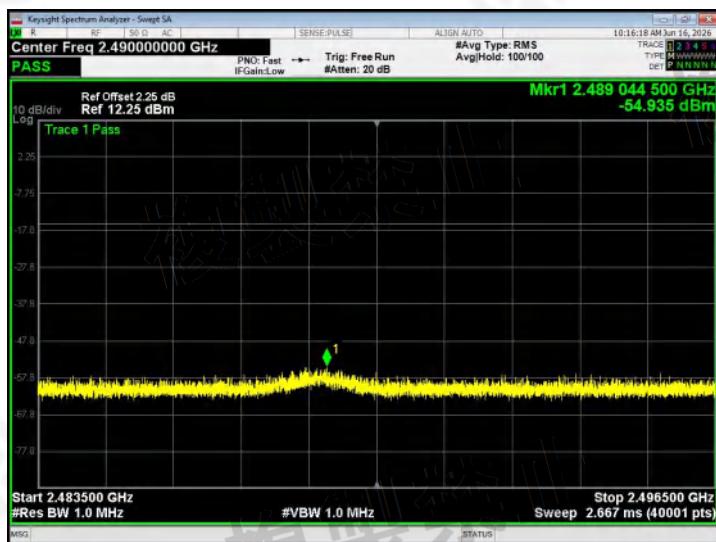
$30 \text{ MHz} \leq f \leq 1000 \text{ MHz}$



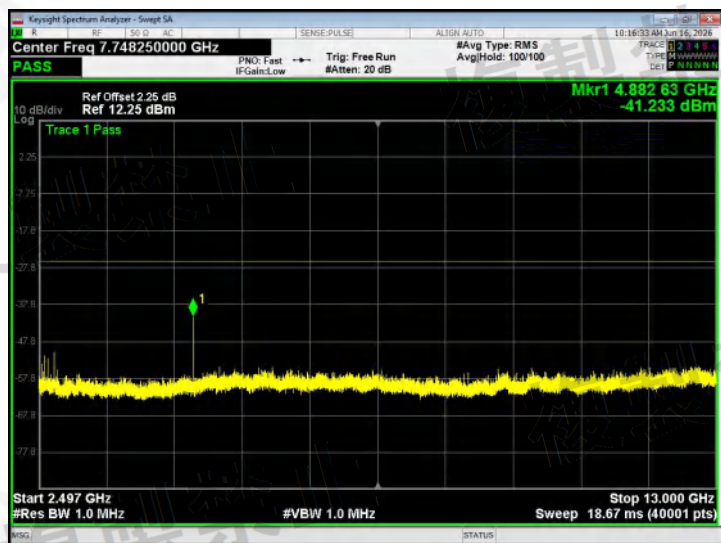
$1000 \text{ MHz} < f \leq 2387 \text{ MHz}$



$2387 \text{ MHz} < f \leq 2400 \text{ MHz}$



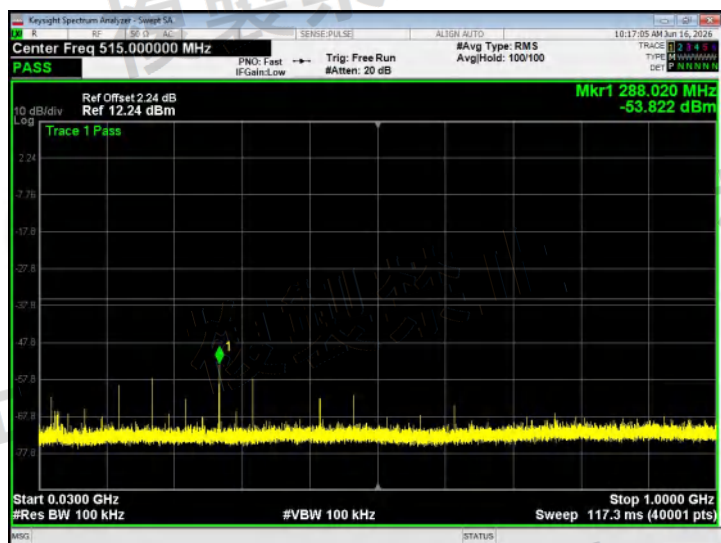
$2483.5 \text{ MHz} \leq f < 2496.5 \text{ MHz}$



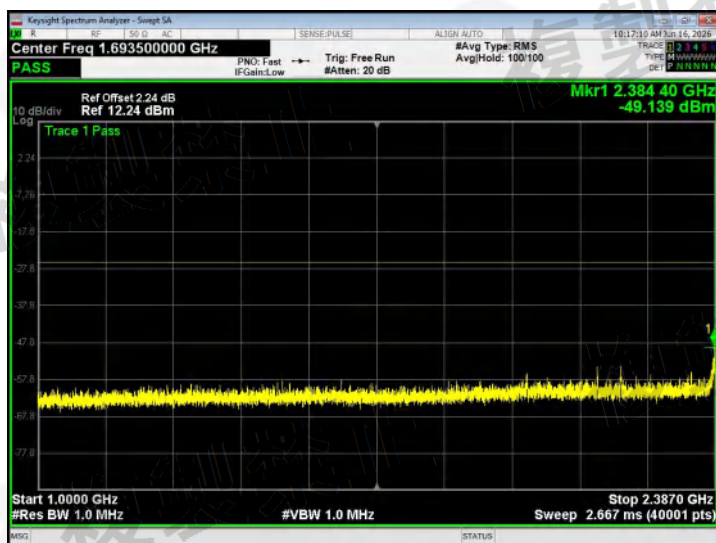
$2496.5 \text{ MHz} \leq f < 13 \text{ GHz}$



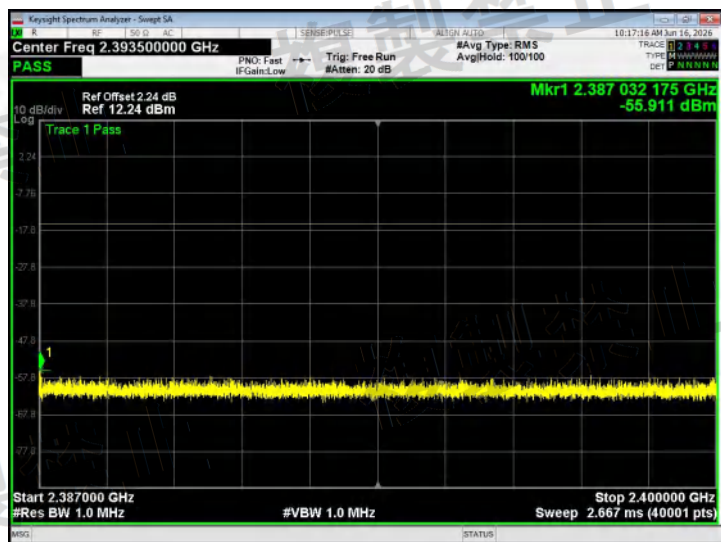
Test voltage	Normal	Test Channel (MHz)	2480.00
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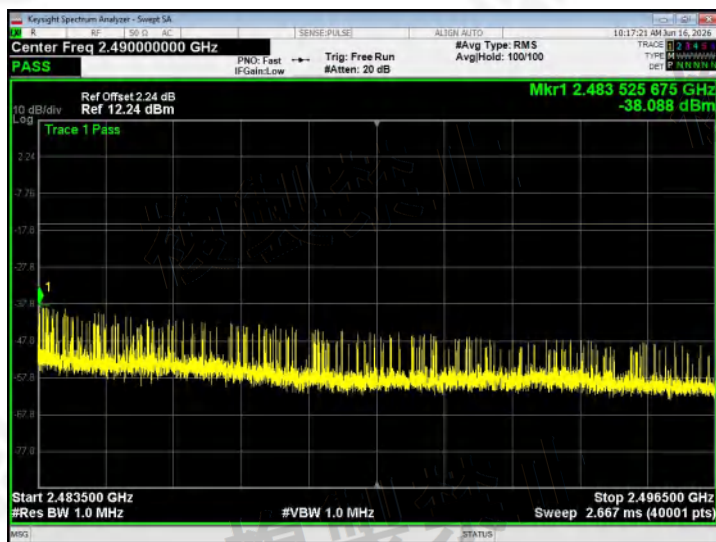
$30 \text{ MHz} \leq f \leq 1000 \text{ MHz}$



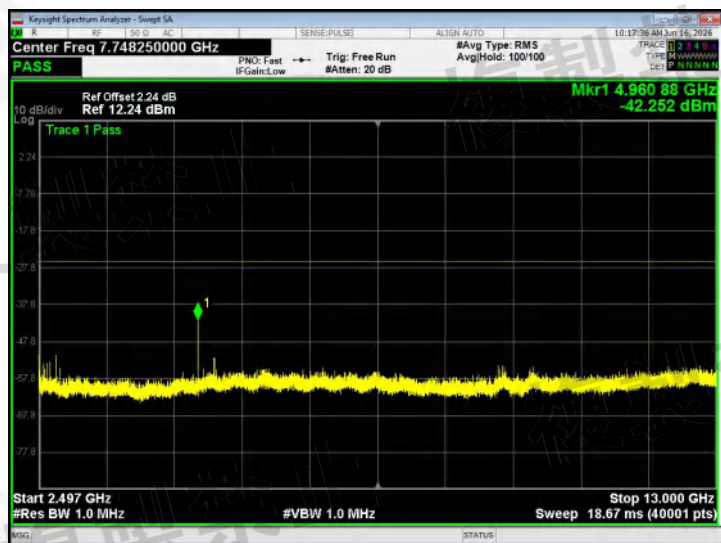
$1000 \text{ MHz} < f \leq 2387 \text{ MHz}$



$2387 \text{ MHz} < f \leq 2400 \text{ MHz}$



$2483.5 \text{ MHz} \leq f < 2496.5 \text{ MHz}$

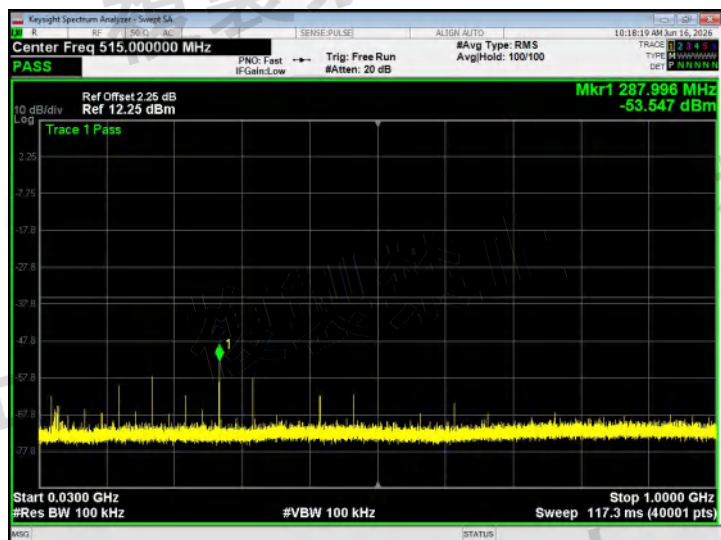


$2496.5 \text{ MHz} \leq f < 13 \text{ GHz}$

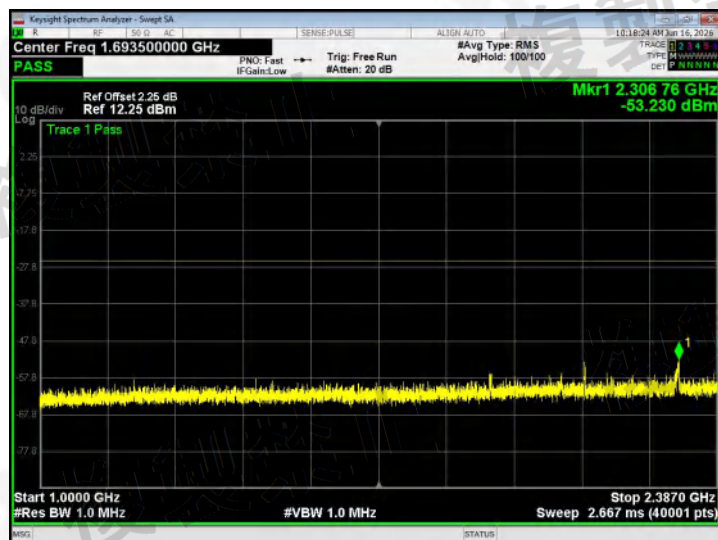


Modulation type: 8DPSK

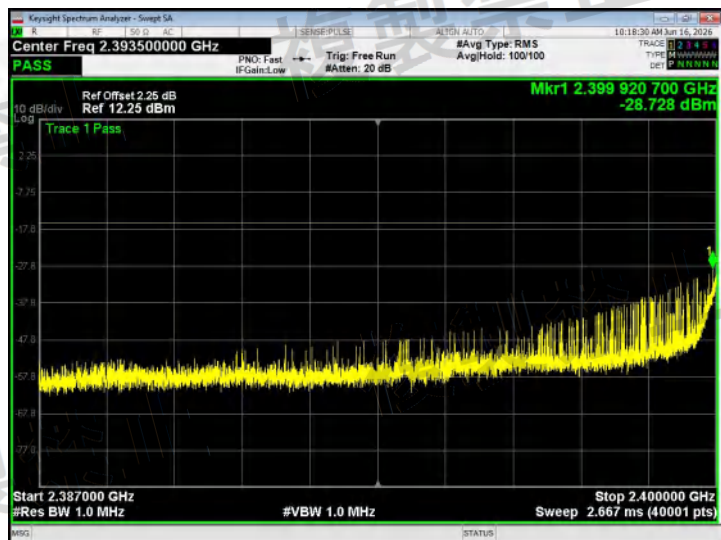
Test voltage	Normal	Test Channel (MHz)	2402.00
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$30 \text{ MHz} \leq f \leq 1000 \text{ MHz}$



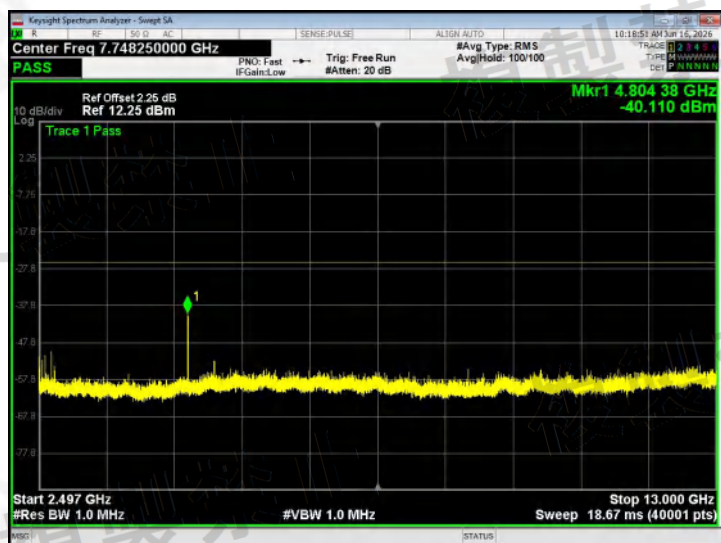
$1000 \text{ MHz} < f \leq 2387 \text{ MHz}$



$2387 \text{ MHz} < f \leq 2400 \text{ MHz}$



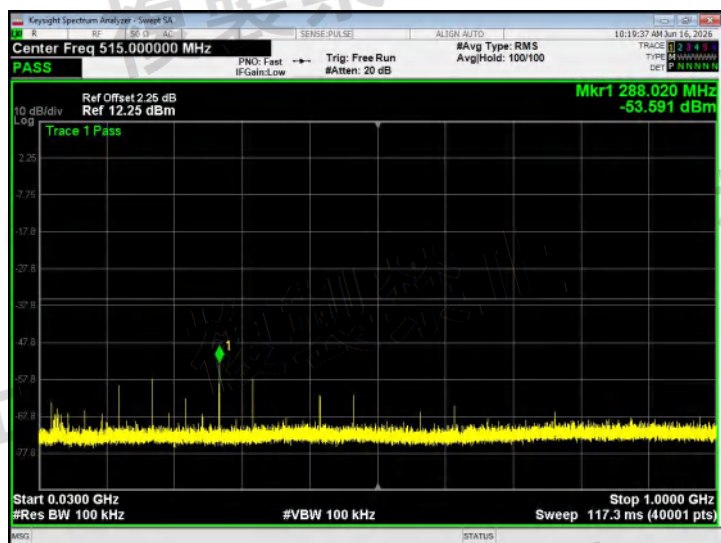
$2483.5 \text{ MHz} \leq f < 2496.5 \text{ MHz}$



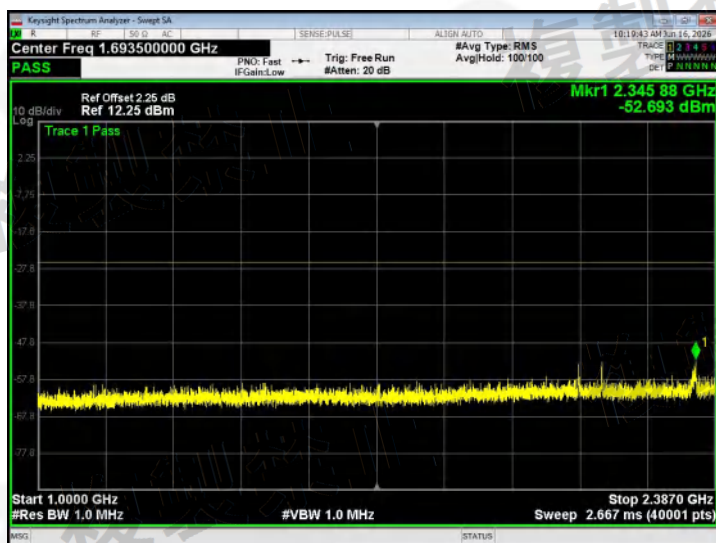
$2496.5 \text{ MHz} \leq f < 13 \text{ GHz}$



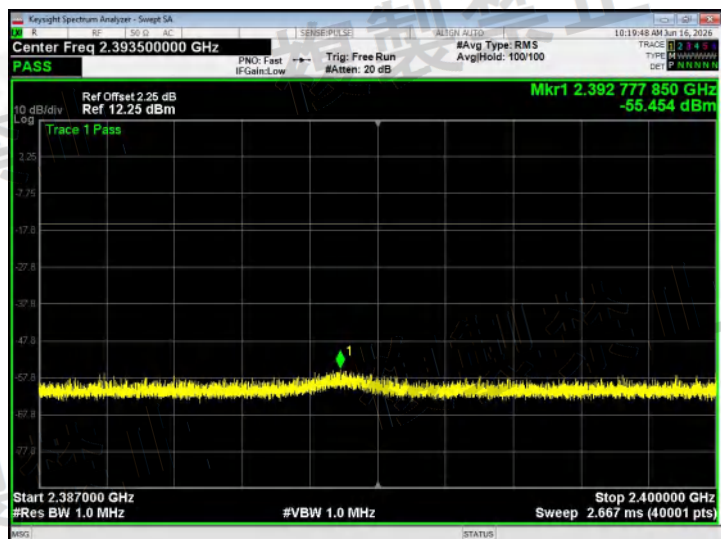
Test voltage	Normal	Test Channel (MHz)	2441.00
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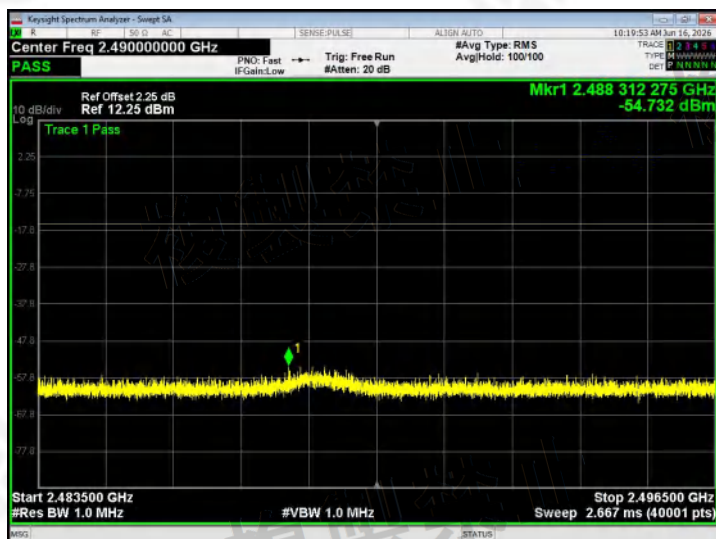
$30 \text{ MHz} \leq f \leq 1000 \text{ MHz}$



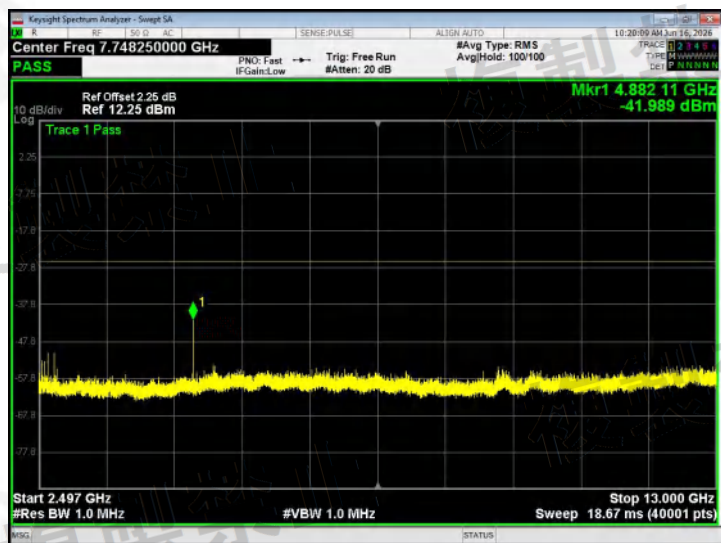
$1000 \text{ MHz} < f \leq 2387 \text{ MHz}$



$2387 \text{ MHz} < f \leq 2400 \text{ MHz}$



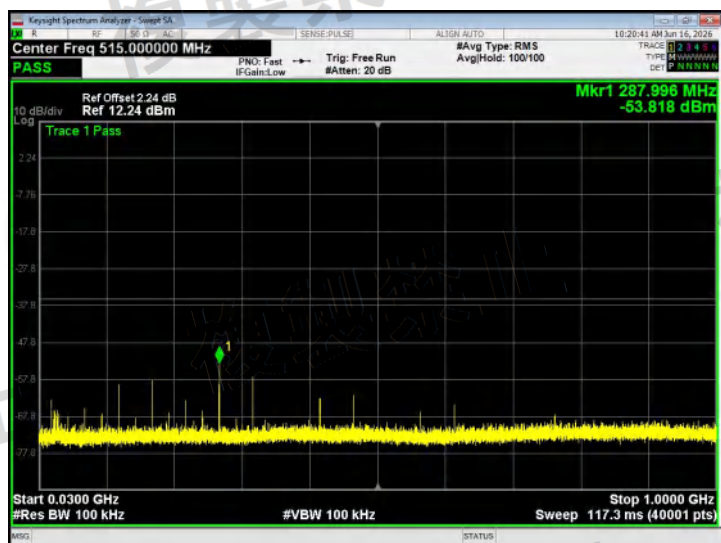
$2483.5 \text{ MHz} \leq f < 2496.5 \text{ MHz}$



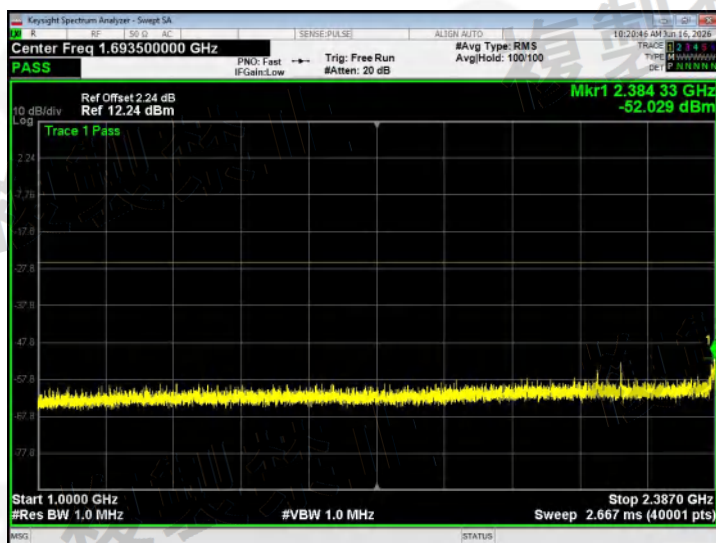
$2496.5 \text{ MHz} \leq f < 13 \text{ GHz}$



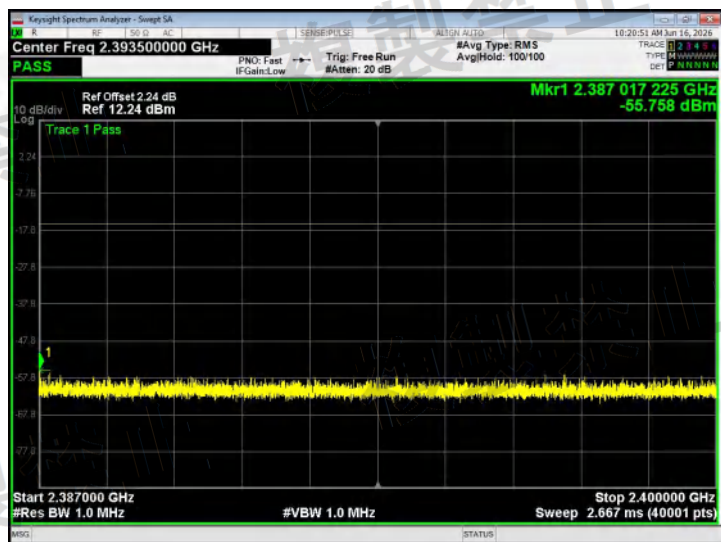
Test voltage	Normal	Test Channel (MHz)	2480.00
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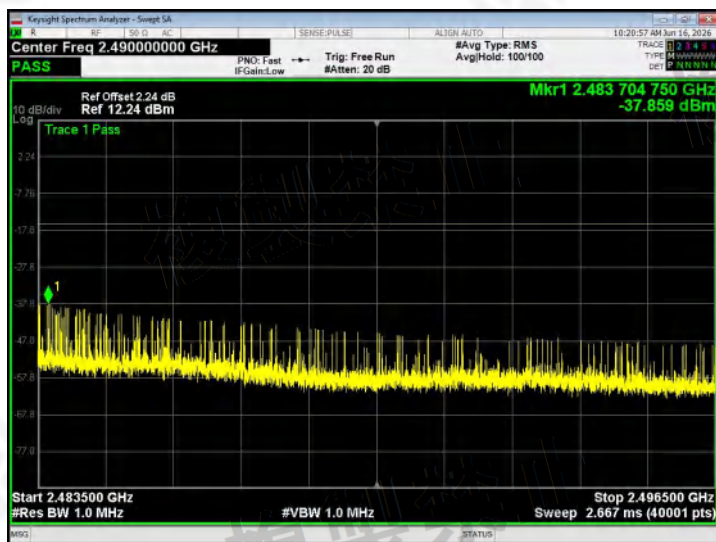
$30 \text{ MHz} \leq f \leq 1000 \text{ MHz}$



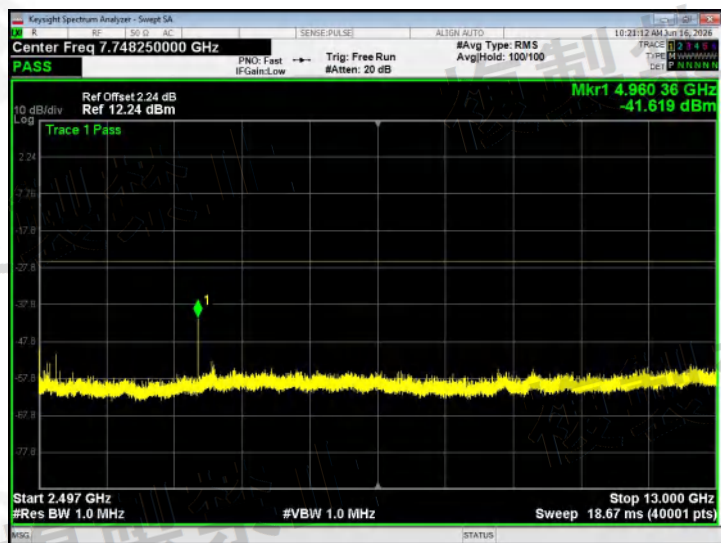
$1000 \text{ MHz} < f \leq 2387 \text{ MHz}$



$2387 \text{ MHz} < f \leq 2400 \text{ MHz}$



$2483.5 \text{ MHz} \leq f < 2496.5 \text{ MHz}$



$2496.5 \text{ MHz} \leq f < 13 \text{ GHz}$



5.5 RADIO INTERFERENCE PREVENTION CAPABILITY MEASUREMENT

5.5.1 LIMIT

Item	Limits
Identification code	≥ 48 bits

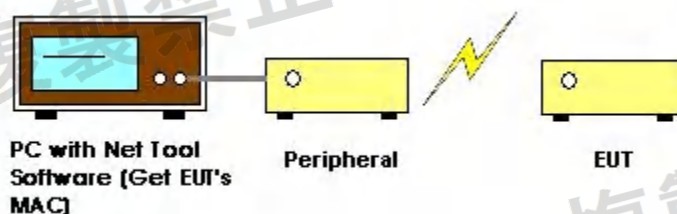
5.5.2 MEASURING ID CODE SOFTWARE

Item	Limits
MAC IP List	MAC Scan

5.5.3 TEST PROCEDURESC

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 ocde: 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 idnetification codes are different from the predetermined ones.

5.5.4 TEST SETUP LAYOUT



5.5.5 TEST DEVIATION

There is no deviation with the original standard.

5.5.6 EUT OPERATION DURING TEST

The EUT was programmed to be in normal transmitting mode.

5.5.7 TEST RESULT OF RADIO INTERFERENCE PREVENTION CAPABILIT

PASS

Bluetooth Device Address: 00:1A:2B:3C:4D:5E



5.6 DWELL TIME

5.6.1 LIMIT

Item	Limits
Hopping Freq. Dwell Time	$\leq 0.4 \text{ sec (In } 0.4 \text{ sec} \times \text{ spreading rate)}$

5.6.2 MEASURING INSTRUMENTS AND SETTING

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

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

5.6.3 TEST PROCEDURES

- The transmitter output (antenna port) was connected to the spectrum analyzer
- Set RBW of spectrum analyzer to 1MHz and VBW to 1MHz.
- Use a video trigger with the trigger level set to enable triggering only on full pulses.
- Sweep Time is more than once pulse time.
- Set the center frequency on any frequency would be measure and set the frequency span to zero span.
- Measure the maximum time duration of one single pulse.
- Set the EUT for DH1,DH3,DH5;2DH1,2DH3,2DH5;3DH1,3DH3,3DH5 packet transmitting.
- Measure the maximum time duration of one single pulse.
- Dwell Time = (One Pulse Time * Burst Count in Period Time)

5.6.4 TEST SETUP LAYOUT





5.6.5 TEST RESULT

Dwell Time = (One Pulse Time * Burst Count in Period Time);

The Period Time = 0.4s * (79 Hopping channel);

Spread Spectrum Factor = Spread Spectrum Bandwidth / Modulation Rate of EUT.

Modulation rate of EUT is below:

GFSK Modulation: 1Mbps

$\pi/4$ -DQPSK Modulation: 1Mbps

8DPSK Modulation: 1Mbps

The GFSK Spread Spectrum Factor = 71.147 / 1 = 71.147

Condition	Mode	Frequency (MHz)	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Result
NVNT	1-DH1	2441	0.401	127.518	318	31600	400	Pass
NVNT	1-DH3	2441	1.656	269.928	163	31600	400	Pass
NVNT	1-DH5	2441	2.905	316.645	109	31600	400	Pass

The $\pi/4$ -DQPSK Spread Spectrum Factor = 70.630 / 1 = 70.630

Condition	Mode	Frequency (MHz)	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Result
NVNT	2-DH1	2441	0.41	128.33	313	31600	400	Pass
NVNT	2-DH3	2441	1.662	252.624	152	31600	400	Pass
NVNT	2-DH5	2441	2.91	325.92	112	31600	400	Pass

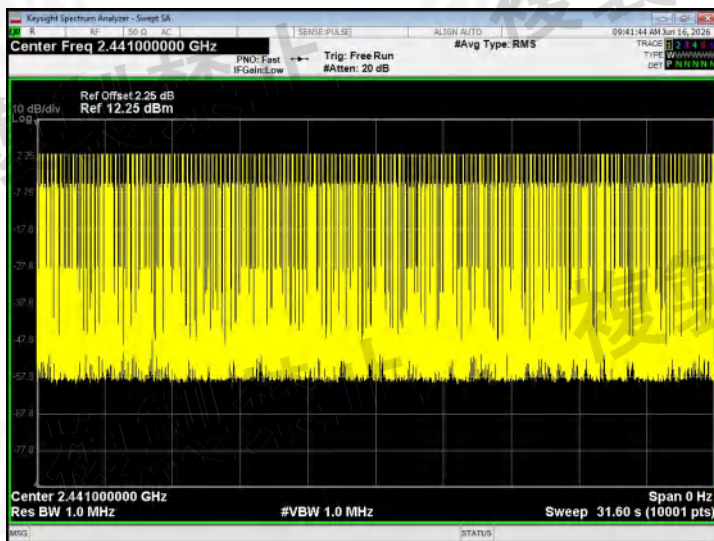
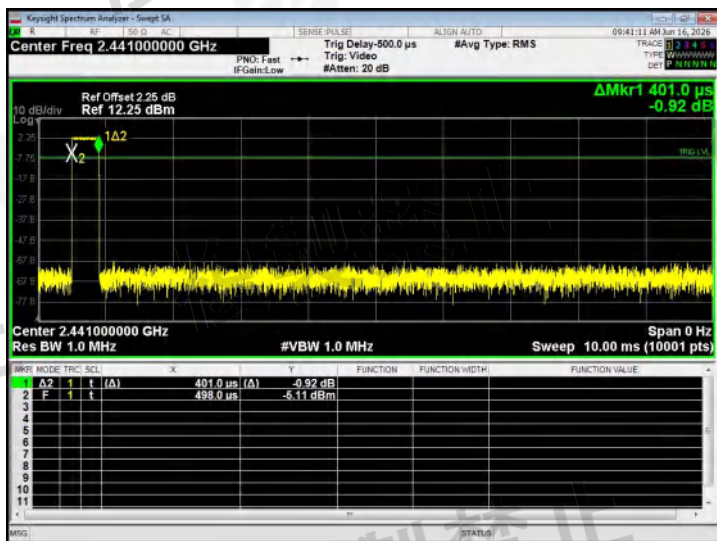
The 8DPSK Spread Spectrum Factor = 71.322 / 1 = 71.322

Condition	Mode	Frequency (MHz)	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Result
NVNT	3-DH1	2441	0.41	129.97	317	31600	400	Pass
NVNT	3-DH3	2441	1.66	255.64	154	31600	400	Pass
NVNT	3-DH5	2441	2.911	317.299	109	31600	400	Pass

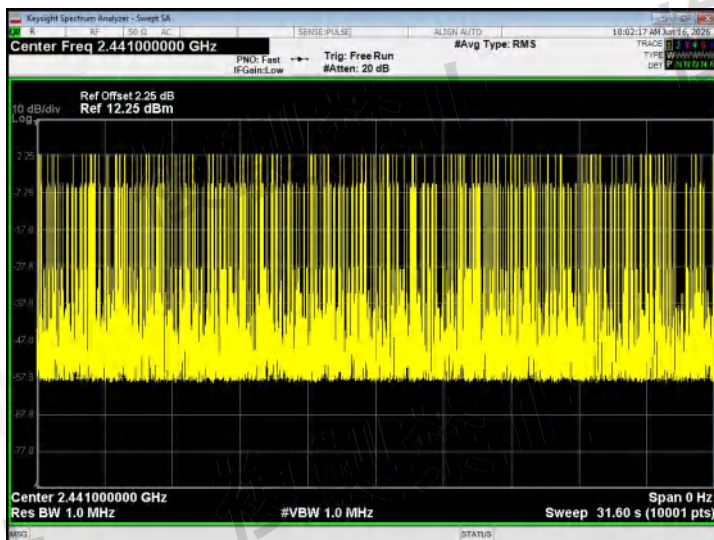


Modulation type:	GFSK	Test voltage:	Normal
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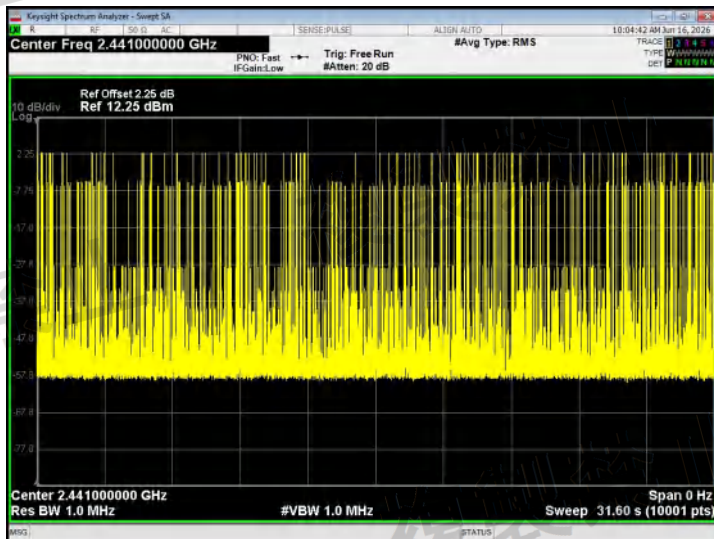
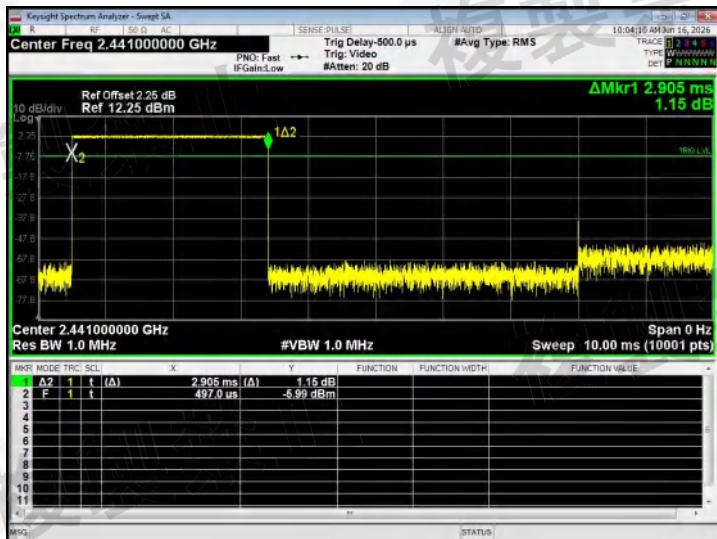
1-DH1



1-DH3



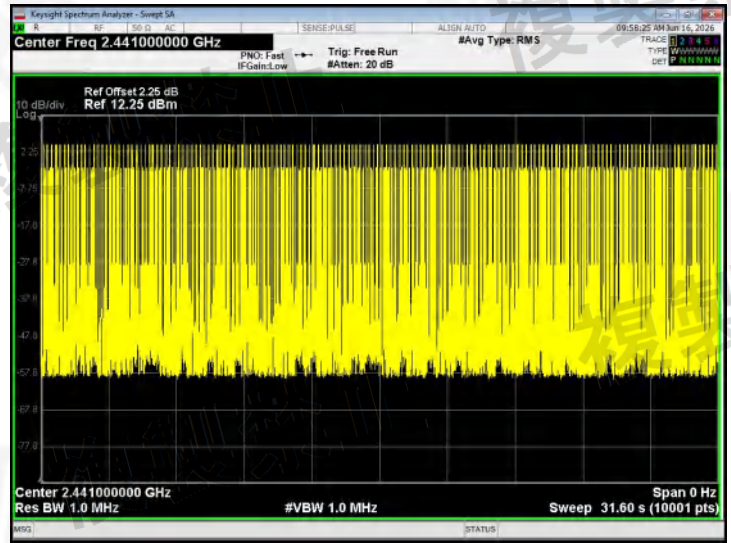
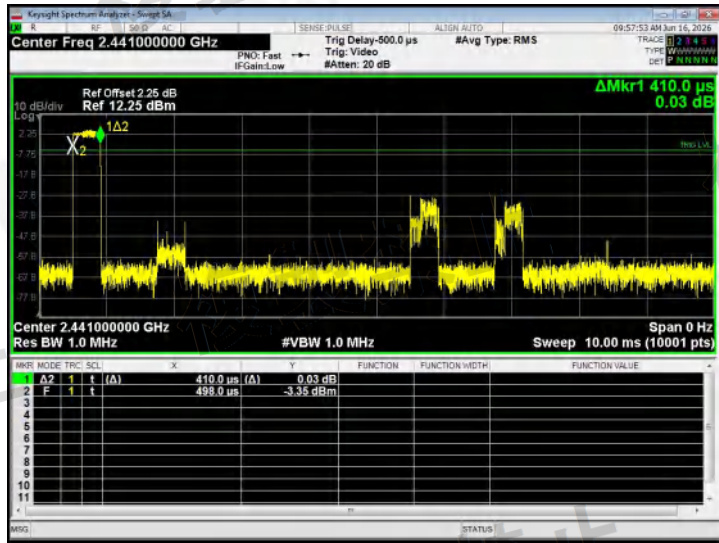
1-DH5



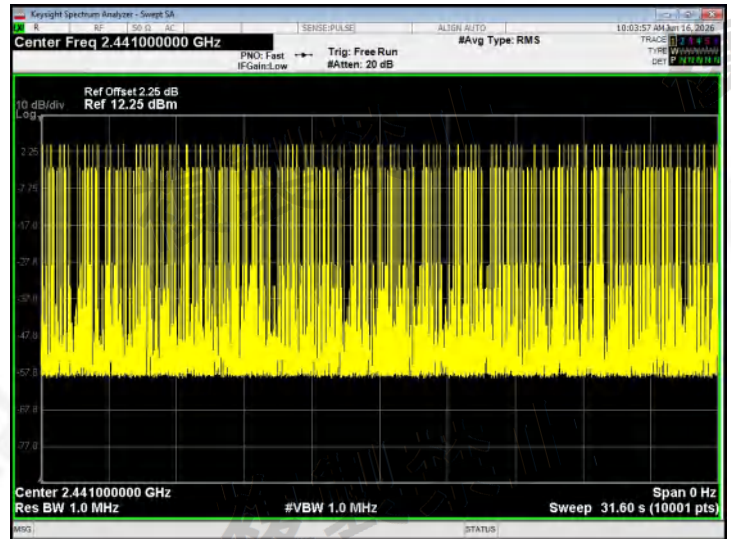
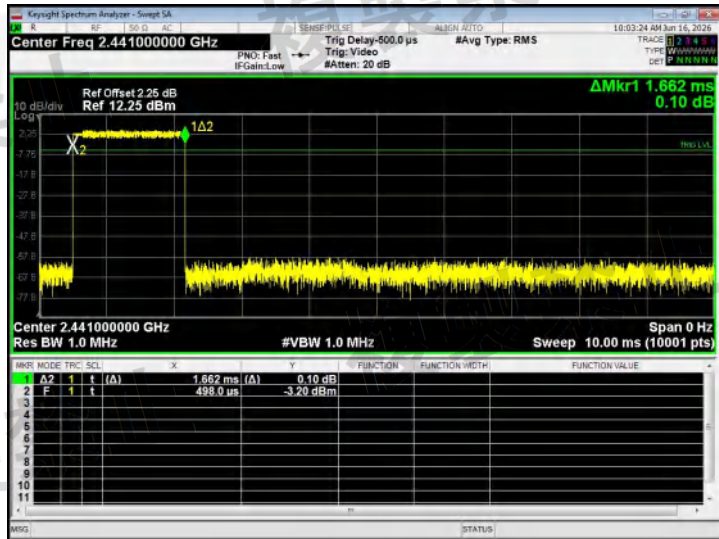


Modulation type:	$\pi/4$ -DQPSK	Test voltage:	Normal
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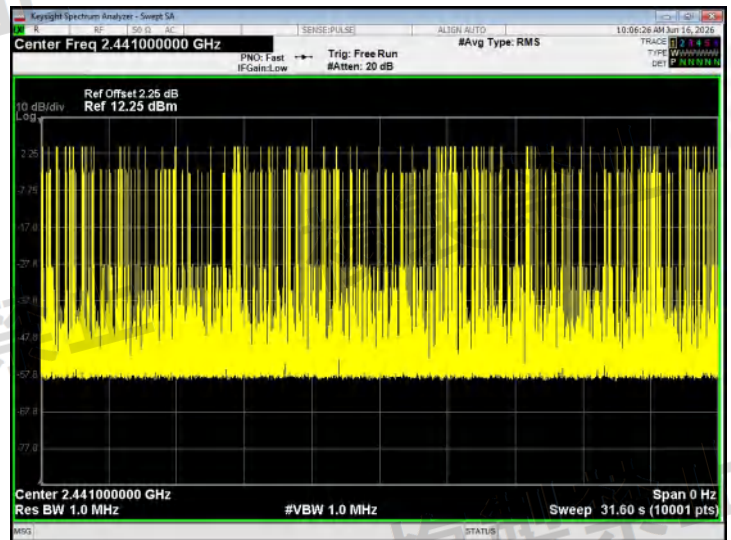
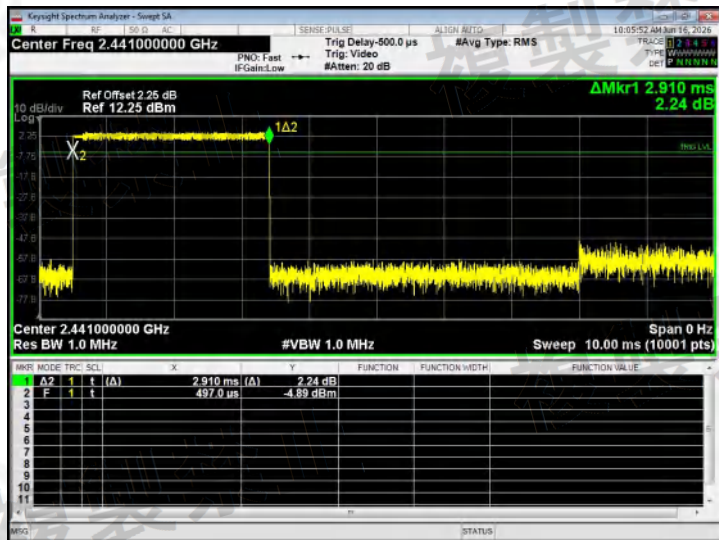
2-DH1



2-DH3



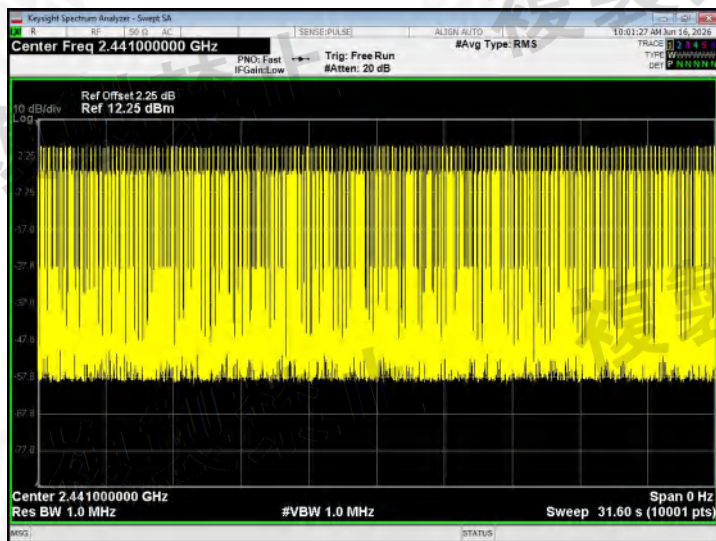
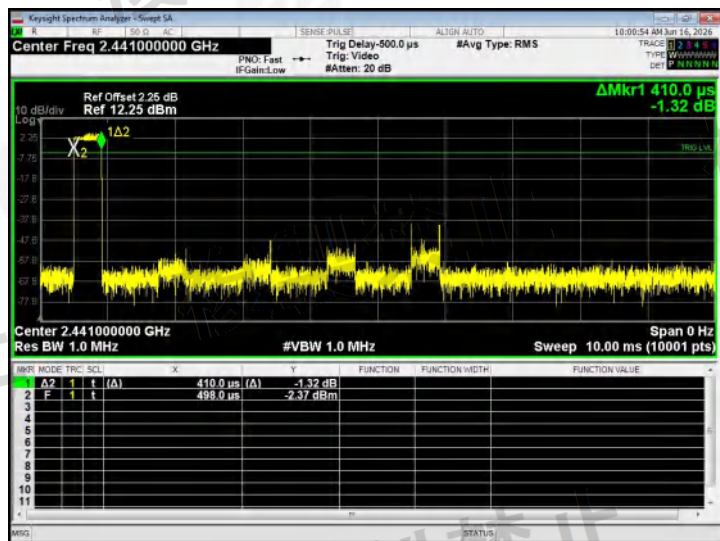
2-DH5



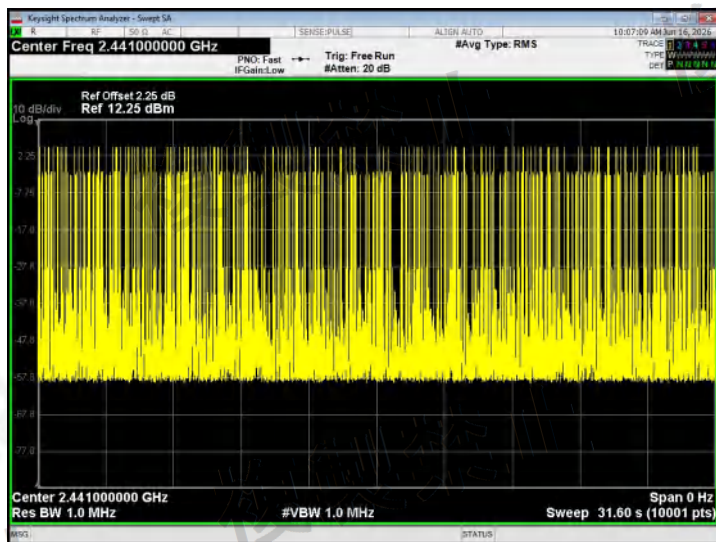
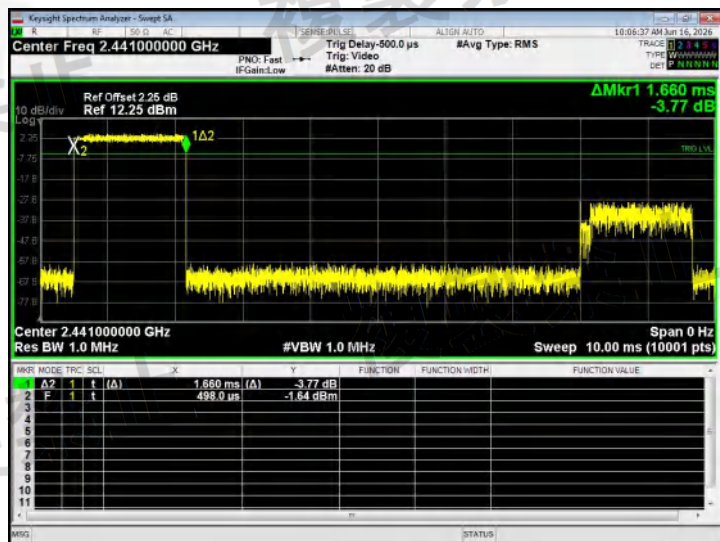


Modulation type:	8DPSK	Test voltage:	Normal
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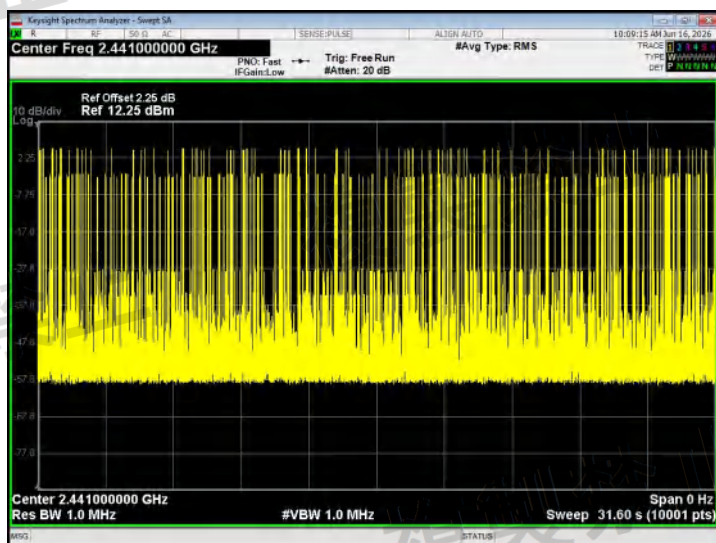
3-DH1



3-DH3



3-DH5





5.7 IMITATION OF COLLATERAL EMISSION OF RECEIVER MEASUREMENT

5.7.1 LIMIT

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

5.7.2 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

5.7.3 TEST PROCEDURES

1. EUT have the continuous reception mode and fixed only one channelize.
2. Setting of SA is following as RB / VB: 100 kHz (below 1GHz emissions) / 1 MHz (above 1GHz emissions) / AT: 0dB / Ref: -17.75dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold
3. 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
4. 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
5. 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.

5.7.4 TEST RESULT

Test Voltage	Test Mode	Frequency (MHz)	Range (MHz)	Emission Frequency (MHz)	Max Value (dBm)	Max Value (nW)	Limit (nW)	Result
Normal	GFSK	2441	30-1000	49.982	-71.925	0.06419	4	Pass
			1000-12500	1762.738	-62.815	0.52300	20	Pass
Normal	$\pi/4$ -DQPSK	2441	30-1000	50.006	-72.042	0.06249	4	Pass
			1000-12500	5188.013	-72.281	0.05914	20	Pass
Normal	8DPSK	2441	30-1000	50.006	-71.479	0.07114	4	Pass
			1000-12500	1780.85	-62.431	0.57135	20	Pass

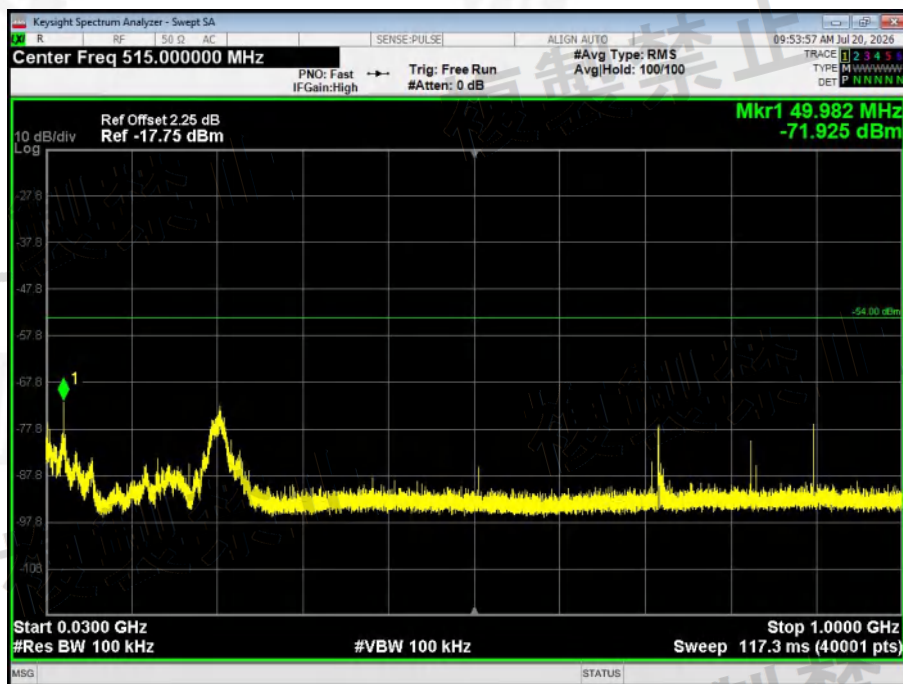
Note: All channels are tested , only the worst test data recorded was 2441MHz.



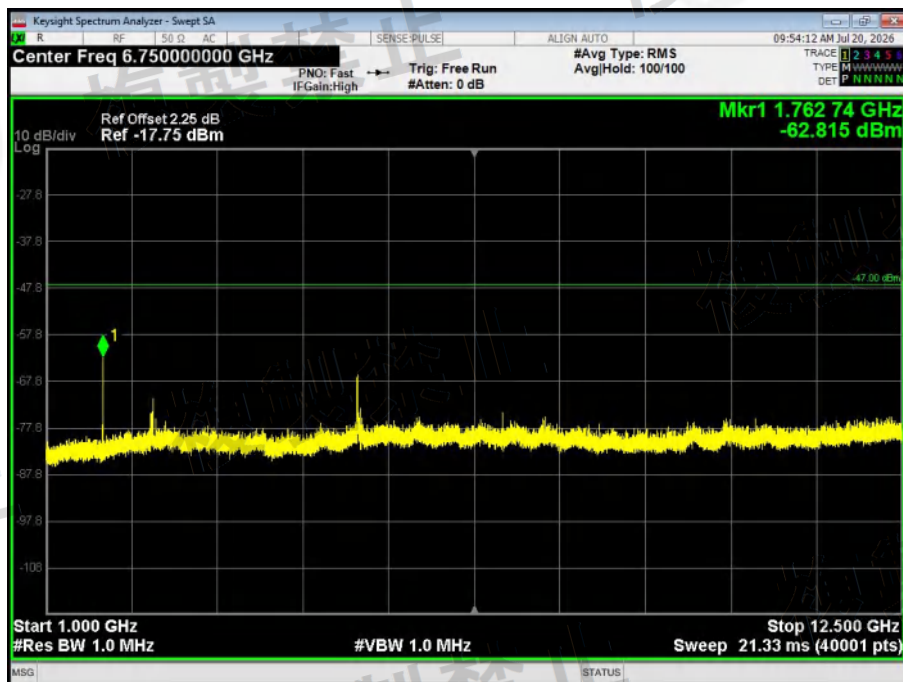
Modulation type: GFSK - 2441MHz

Test voltage	Normal	Test Channel	2441MHz
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30MHz~1GHz



1GHz~12.5GHz

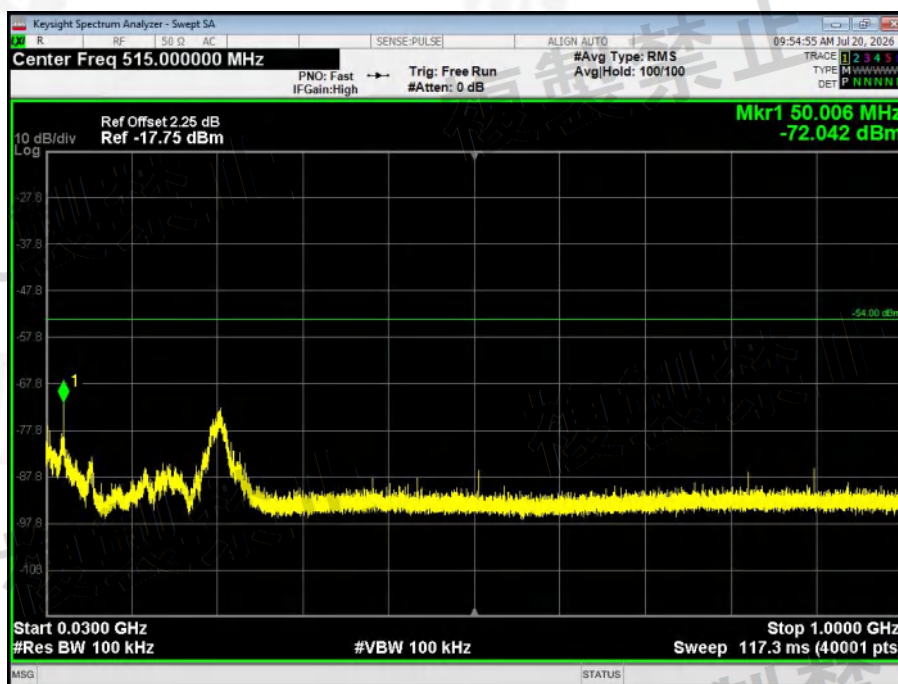




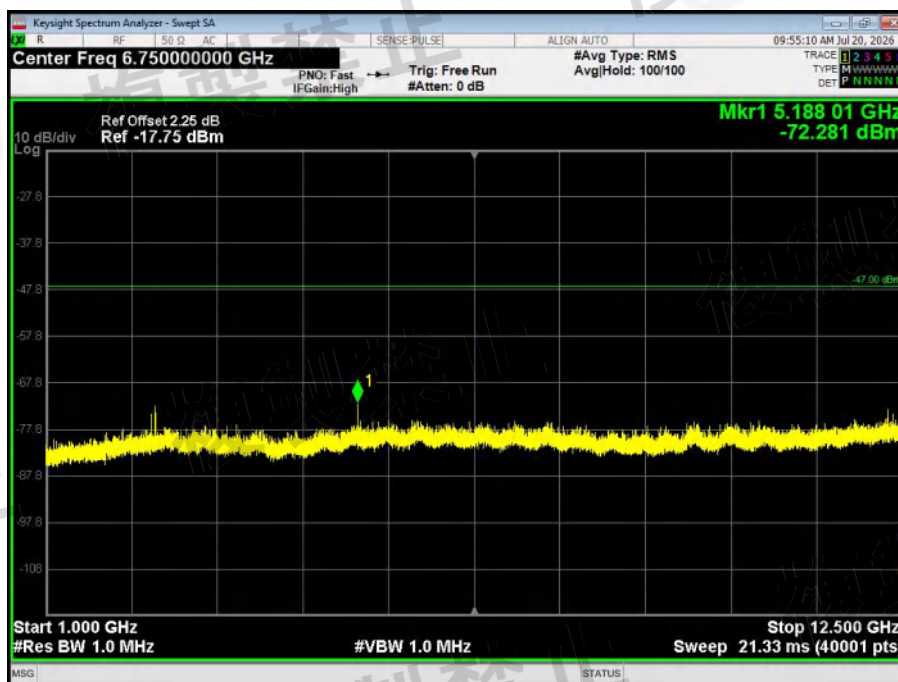
Modulation type: $\pi/4$ -DQPSK - 2441MHz

Test voltage	Normal	Test Channel	2441MHz
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30MHz~1GHz



1GHz~12.5GHz

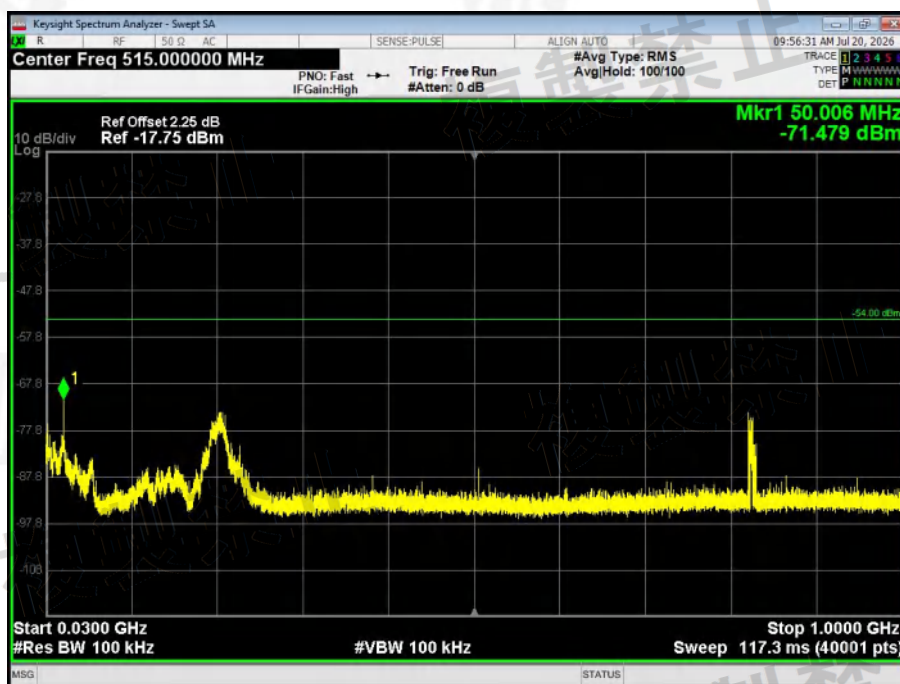




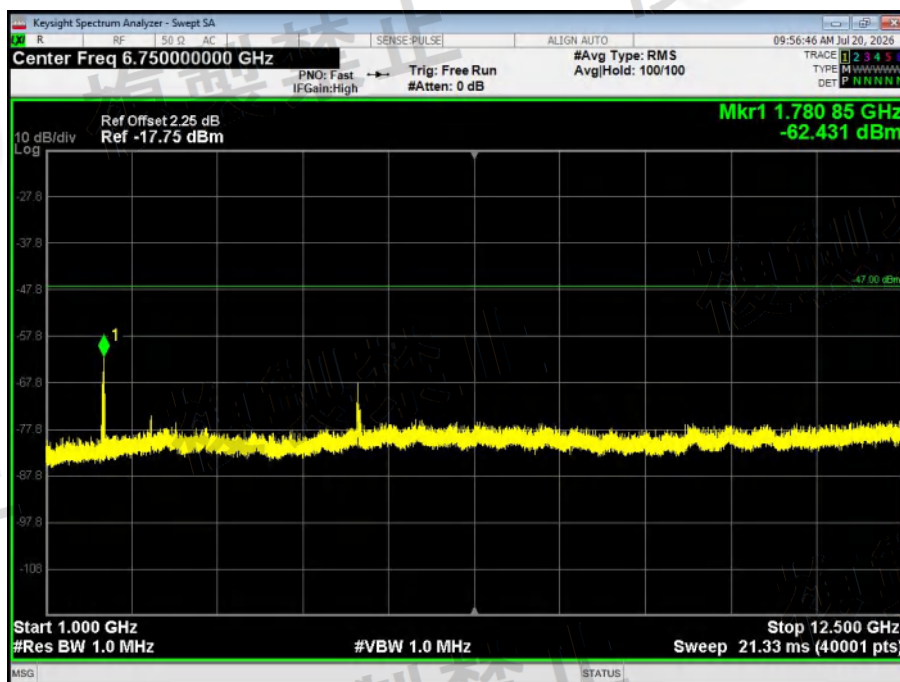
Modulation type: 8DPSK - 2441MHz

Test voltage	Normal	Test Channel	2441MHz
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30MHz~1GHz



1GHz~12.5GHz





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 *****