

TEST REPORT

Application No.: SZCR2607003081AT
Applicant: Harman International Industries, Incorporated
Address of Applicant: 8500 Balboa Blvd, Northridge, CA 91325, UNITED STATES
Manufacturer: Harman International Industries, Incorporated
Address of Manufacturer: 8500 Balboa Blvd, Northridge, CA 91325, UNITED STATES
Equipment Under Test (EUT):
EUT Name: Bluetooth Speaker
Model No.: Authentics 20
Trade Mark: JBL
Standard(s) : MIC Item 19 of Article 2 Paragraph 1
Date of Receipt: 2026-07-08
Date of Test: 2026-07-17 to 2026-07-21
Date of Issue: 2026-08-03

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.

Keny Xu
KenY Xu
EMC Laboratory Manager



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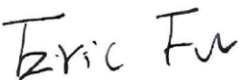
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SZEMC-TRF-01 Rev. A/2

Report No.: SZCR260700308101

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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2026-08-03		Original

Authorized for issue by:			
			
		Charlie Dai/Project Engineer	
			
		Eric Fu/Reviewer	



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2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	MIC Item 19 of Article 2 Paragraph 1	MIC Notice No.88 Appendix No.43	MIC Item 19 of Article 2 Paragraph 1	Pass
Interference prevention capability		MIC Notice No.88 Appendix No.43	MIC Item 19 of Article 2 Paragraph 1	Pass
RF accessibility		MIC Notice No.88 Appendix No.43	MIC Item 19 of Article 2 Paragraph 1	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Frequency Error	MIC Item 19 of Article 2 Paragraph 1	MIC Notice No.88 Appendix No.43	MIC Item 19 of Article 2 Paragraph 1	Pass
Occupied Bandwidth(99%)		MIC Notice No.88 Appendix No.43	MIC Item 19 of Article 2 Paragraph 1	Pass
Spread spectrum Bandwidth(90%)		MIC Notice No.88 Appendix No.43	MIC Item 19 of Article 2 Paragraph 1	Pass
Antenna Power		MIC Notice No.88 Appendix No.43	MIC Item 19 of Article 2 Paragraph 1	Pass
Dwell time		MIC Notice No.88 Appendix No.43	MIC Item 19 of Article 2 Paragraph 1	Pass
Spurious emission Intensity		MIC Notice No.88 Appendix No.43	MIC Item 19 of Article 2 Paragraph 1	Pass
Limit of secondary radiated emissions		MIC Notice No.88 Appendix No.43	MIC Item 19 of Article 2 Paragraph 1	Pass



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4 General Information

4.1 Details of E.U.T.

Power supply:	AC Input: 100-240V~50/60Hz
Cable(s):	AC Cable 199cm unshielded
Technology Type:	BT Classic
Operation Frequency:	2402MHz to 2480MHz
Modulation Type:	GFSK, Pi/4DQPSK, 8DPSK
Channel Spacing:	1MHz
Spectrum Spread Technology:	Frequency Hopping Spread Spectrum(FHSS)
Number of Channels:	79
Antenna Type:	FPC Antenna
Antenna Gain:	2.06dBi
Cable Loss (for RF conducted test):	0.8dB
Testing Software:	FCC_Tool_V3.02
Power Setting:	9

Remark: The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

4.2 Test Conditions

Power Supply	AC 100V								
	The RF unit is supplied DC3.6V. The fluctuation of input voltage to the circuit of RF unit of test equipment is under $\pm 1\%$, when input voltage from AC100V to the test equipment is fluctuated by $\pm 10\%$, So, all measurement has been conducted by only rated voltage.								
	The measurement result of the voltage fluctuation at RF circuit when AC100V $\pm 10\%$.								
	<table><tr><td>AC Input</td><td>DC3V60</td></tr><tr><td>90V</td><td>3.599V</td></tr><tr><td>100V</td><td>3.600V</td></tr><tr><td>110V</td><td>3.602V</td></tr></table>	AC Input	DC3V60	90V	3.599V	100V	3.600V	110V	3.602V
AC Input	DC3V60								
90V	3.599V								
100V	3.600V								
110V	3.602V								

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Temperature:	5-35 °C
Humidity:	45-85 % RH
Atmospheric Pressure:	1000 -1010 mbar
Note:	VN: Normal Voltage TN: Normal Temperature TL: Low Extreme Test Temperature TH: High Extreme Test Temperature
Test Frequencies:	If the EUT can be set to 3 or more different (carrier) frequencies in 1 allocated band, testing shall be performed using the Lowest, Middle and the Highest frequency (L, M and H). If there are 2 or fewer frequencies, testing shall be performed with the available frequencies.



4.3 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
--	--	--	--
The EUT has been tested as an independent unit.			

4.4 Measurement Uncertainty

Test Item	Measurement Uncertainty
Frequency Error	$\pm 7.25\text{E-}8$
Occupied Bandwidth(99%)	$\pm 3\%$
Spread spectrum Bandwidth(90%)	$\pm 3\%$
Antenna Power	$\pm 0.75\text{dB}$
Dwell time	$\pm 0.37\%$
Spurious emission Intensity	$\pm 0.75\text{dB}$
Limit of secondary radiated emissions	$\pm 0.75\text{dB}$

Remark:

The U_{lab} (lab Uncertainty) is less than $U_{\text{CISPR/ETSI}}$ (CISPR/ETSI Uncertainty), so the test results

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.
- the measurement uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.



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4.5 Test Location

All tests were performed at:

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Tel: +86 755 2601 2053

Fax: +86 755 2671 0594

No tests were sub-contracted.

4.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• **VCCI (Member No. 1937)**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• **FCC –Designation Number: CN1336**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1336. Test Firm Registration Number: 787754.

• **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.7 Deviation from Standards

None

4.8 Abnormalities from Standard Conditions

None



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5 Equipment List

Equipment list								
Equipment	Manufacturer	Model No	Serial No	Inventory No	Cal Date	Cal Due Date	Calibration body	Classification
DC Power Supply	Chroma	62012P-80-60	62012PD 01784	SEM011-11	2026-04-01	2027-03-31	GRGTES T	(c)
MXA Signal Analyzer(10 Hz-26.5GHz)	KEYSIG HT	N9020A	MY53300 619	SEM004-21	2026-02-03	2027-02-02	CEPREI	(c)
Signal Generator (9kHz-40GHz)	KEYSIG HT	N5173B	MY53270 267	SEM006-05	2025-09-10	2026-09-09	CEPREI	(c)
Multimeter	FLUKE	Fluke 87	27900002	SEM022-07	2026-02-03	2027-02-02	SGS	(c)
Universal Radio Communication Tester	Rohde & Schwarz	CMW 500	152272	SEM010-03	2026-02-03	2027-02-02	CEPREI	(c)
Humidity/Temperature Indicator	Deli	8838	N/A	SEM002-44	2026-07-08	2027-07-07	SGS	(c)
Barometer	Changchun Meteorological Industry Factory	DYM3	0026	SEM002-01	2026-02-14	2027-02-13	CEPREI	(c)
Measurement Software	TST PASS	TST PASS V2.0	N/A	N/A	N/A	N/A	N/A	N/A

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 Article 102-18 paragraph (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



6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

MIC Item 19 of Article 2 Paragraph 1

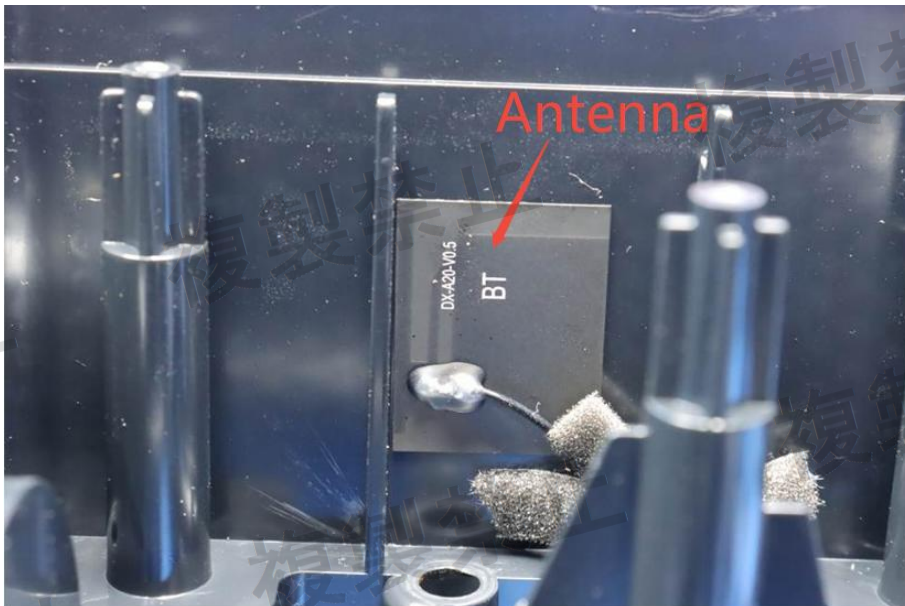
6.1.2 Conclusion

Standard requirement:

Applicable for equipment with an antenna terminal, including testing terminals. If an antenna connector is available, all relevant tests will be carried out conducted. If not, tests will be carried out in an anechoic room or with a suitable test-fixture.

EUT Details:

The antenna is integrated on the enclosure and no consideration of replacement. The best case gain of the antenna is: 2.06dBi.



Result:

An antenna connector is available, all relevant tests will be carried out conducted. In the conducted test, the RF cable was soldered and separated from the antenna.

6.2 Interference prevention capability

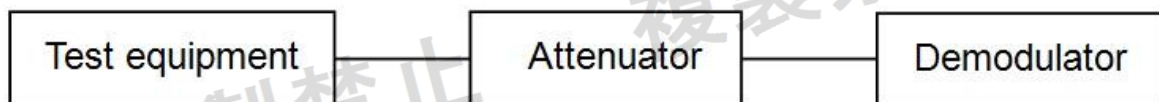
6.2.1 Test Requirement:

MIC Item 19 of Article 2 Paragraph 1

Limit:

The function specified in Article 9-4 of the Ordinance Regulating Radio Equipment.

6.2.2 Test Setup Diagram



6.2.3 Conclusion

Standard Requirement:

- 1) Measurement system diagram as shown above and test equipment keep transmitting identification code.
- 2) Condition of measuring instrument
 - (1) Demodulator must be able to demodulate the transmitting signal emitted by test equipment and to indicate the identification code.
- 3) Condition of test equipment the mode of normal use.
- 4) Measuring operation procedure
 - (1) When test equipment has the function to transmit identification code automatically:
 - A) Transmit the predetermined identification code from test equipment.
 - B) Confirm the transmitted identification code by demodulator.

EUT Details:

9C:51:87:6D:46:89

The unit does meet the requirements (Good).



6.3 RF accessibility

6.3.1 Test Requirement:

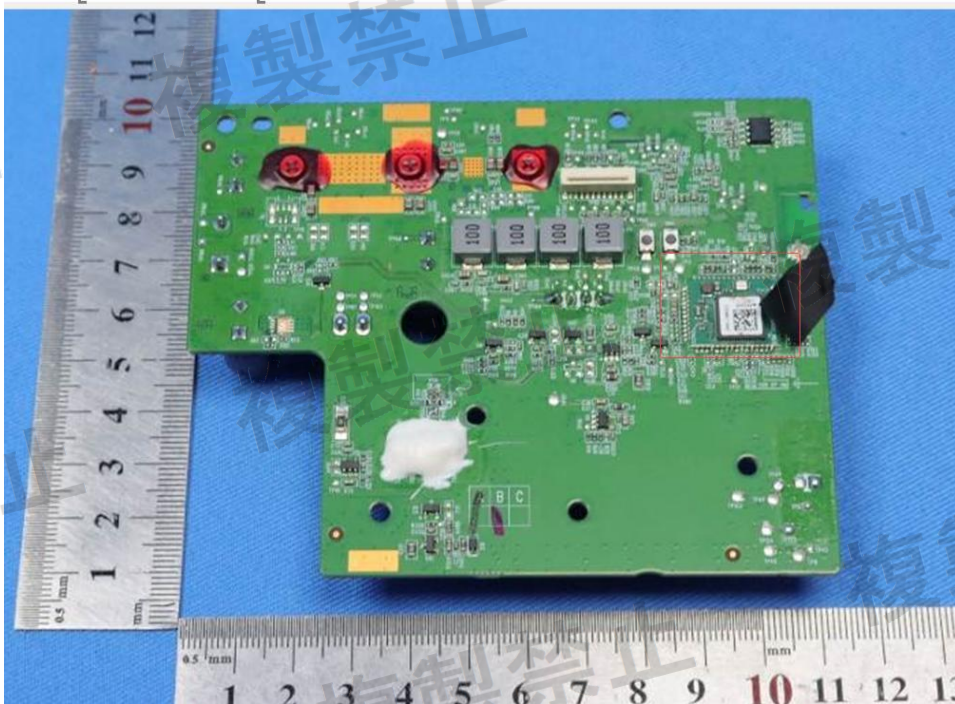
MIC Item 19 of Article 2 Paragraph 1

6.3.2 Conclusion

Standard Requirement:

The EUT shall be constructed in such a way that sensitive RF parts, (like modulation and oscillator parts) cannot be reached easily by the user. These parts shall be covered by soldered metal caps or glue or by other mechanical covers. If the covers are fixed with screws, these shall be not the common type(s) like a Phillips, but special versions like Torx, so that the user cannot open the device with common tools.

EUT Details:



RF and Modulation parts are mounted on PCB with surface mount technology, and there is no any adjustable parts on PCB or adjustable parts are not exposed.

7 Radio Spectrum Matter Test Results

7.1 Frequency Error

Test Requirement: MIC Item 19 of Article 2 Paragraph 1
 Test Method: MIC Notice No.88 Appendix No.43
 Test Engineer: Mingli Hu

Limit:

Tolerance of frequency: $\pm 50\text{E-6}$

7.1.1 E.U.T. Operation

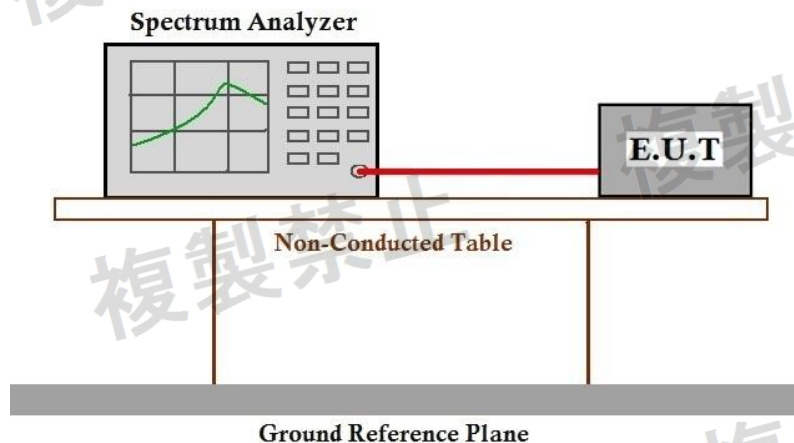
Operating Environment:

Temperature: 25.6 °C Humidity: 48.6 % RH Atmospheric Pressure: 1015 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX_Keep the EUT in transmitting mode

7.1.3 Test Setup Diagram



7.1.4 Measurement Procedure and Data

1. Test Conditions:

Spectrum Analyzer is used for measurement.

2. EUT conditions:

Modulation/Spread/Hopping OFF, CW Tx

3. Spectrum Analyzer conditions:

Frequency: Test Frequency

Span 1MHz

RBW 10 kHz (Modulation OFF),

VBW 10 kHz (Modulation OFF),

Sweep Time Auto

Detector mode Positive peak

Indication mode Max hold

Alternative method:

Frequency: Test Frequency

Span 2 times channel bandwidth

RBW 100 kHz (Modulation ON),

VBW 100 kHz (Modulation ON),

Sweep Time Auto

Detector mode Positive peak

Indication mode Max hold

Please Refer to Appendix for Details



7.2 Occupied Bandwidth(99%)

Test Requirement MIC Item 19 of Article 2 Paragraph 1
 Test Method: MIC Notice No.88 Appendix No.43
 Test Engineer: Mingli Hu

Limit:

FH: 83.5MHz or less

OFDM: 40MHz or less

Others: 26MHz or less

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 25.6 °C

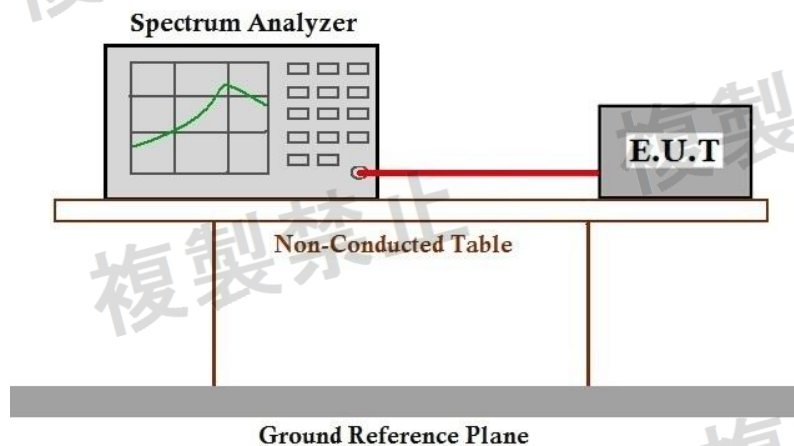
Humidity: 48.6 % RH

Atmospheric Pressure: 1015 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX_Keep the EUT in transmitting mode

7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

1. Test Conditions:

Spectrum Analyzer is used for measurement.

2. EUT conditions:

Modulation/Spread/Hopping ON, Modulation Tx

For equipment using diffusion code, set to the test diffusion code and modulate with standard coding test signal.

3. Spectrum Analyzer conditions:

Frequency: Test Frequency

Span 83.5 MHz (FHSS); 40/60 MHz (OFDM; DSSS); 2-5 times OBW (Others)

RBW 1 MHz (FHSS); 300kHz (OFDM; DSSS); 3% OBW (Others)

VBW 1 MHz (FHSS); 300kHz (OFDM; DSSS); 3 times RBW (Others)

Sweep Time Auto

detector mode Positive peak

Indication mode Max hold

OBW 99%

Please Refer to Appendix for Details



7.3 Spread spectrum Bandwidth(90%)

Test Requirement MIC Item 19 of Article 2 Paragraph 1
Test Method: MIC Notice No.88 Appendix No.43
Test Engineer: Mingli Hu

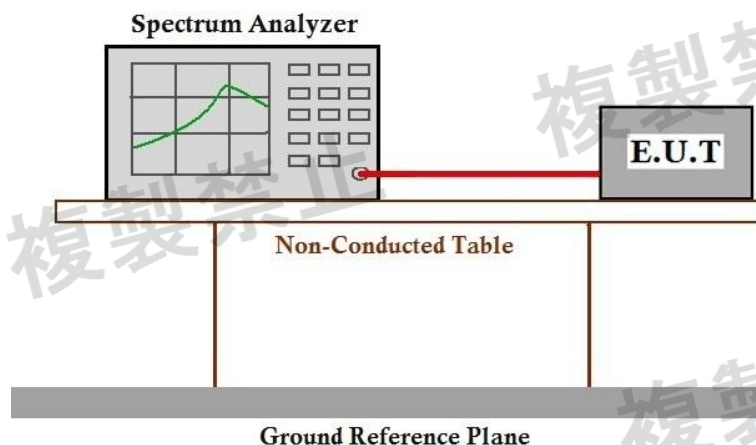
7.3.1 E.U.T. Operation

Operating Environment:
Temperature: 25.6 °C Humidity: 48.6 % RH Atmospheric Pressure: 1015 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX_Keep the EUT in transmitting mode

7.3.3 Test Setup Diagram



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7.3.4 Measurement Procedure and Data

1. Test Conditions:

Spectrum Analyzer is used for measurement.

2. EUT conditions:

Modulation/Spread/Hopping ON, Modulation Tx

For equipment using diffusion code, set to the test diffusion code and modulate with standard coding test signal.

3. Spectrum Analyzer conditions:

Frequency: Test Frequency

Span 83.5 MHz (FHSS); 40/60 MHz (OFDM; DSSS)

RBW 1 MHz (FHSS); 300kHz (OFDM; DSSS)

VBW 1 MHz (FHSS); 300kHz (OFDM; DSSS)

Sweep Time Auto

detector mode Positive peak

Indication mode Max hold

OBW 90%

Please Refer to Appendix for Details



7.4 Antenna Power

Test Requirement MIC Item 19 of Article 2 Paragraph 1
Test Method: MIC Notice No.88 Appendix No.43
Test Engineer: Mingli Hu

Limit:

Designated value

- (1) FH, FH+DS, FH+OFDM: 3mW/MHz
(used in the range of 2427 - 2470.75 MHz)
(2) OFDM, DS other than (1) 10mW/MHz
(3) Other than (1) & (2) 10mW
(4) OFDM OBW 26 - 40MHz: 5mW/MHz
Tolerance: +20%

7.4.1 E.U.T. Operation

Operating Environment:

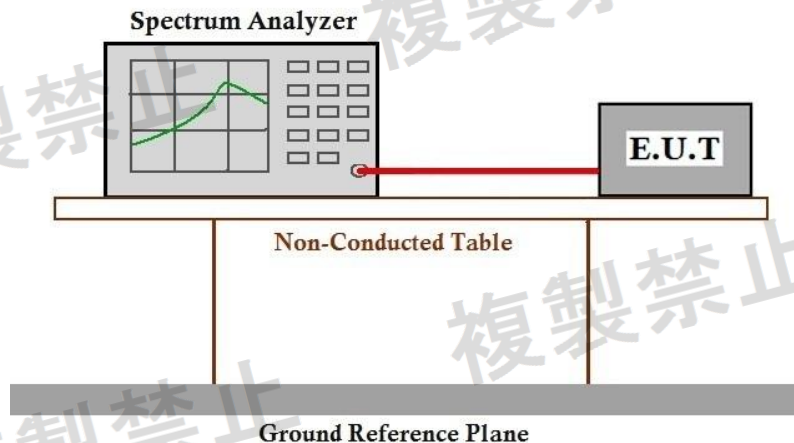
Temperature: 25.6 °C Humidity: 48.6 % RH Atmospheric Pressure: 1015 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX_Keep the EUT in transmitting mode



7.4.3 Test Setup Diagram



7.4.4 Measurement Procedure and Data

1. Test Conditions:

Spectrum Analyzer is used for measurement.

2. EUT conditions:

Modulation/Spread/Hopping ON, Modulation Tx

For equipment using diffusion code, set to the test diffusion code and modulate with standard coding test signal.

3. Spectrum Analyzer conditions:

Frequency: Test Frequency

Span 25 MHz(FHSS); 40/60 MHz (OFDM; DSSS); Enough to capture the emission (Others)

RBW 1 MHz (FHSS; OFDM; DSSS); More than OBW (Others)

VBW 1 MHz (FHSS; OFDM; DSSS); More than RBW (Others)

Sweep Time Auto

detector mode RMS

Indication mode Max hold

Please Refer to Appendix for Details



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7.5 Dwell time

Test Requirement MIC Item 19 of Article 2 Paragraph 1

Test Method: MIC Notice No.88 Appendix No.43

Test Engineer: Mingli Hu

Limit:

less than 0.4sec

7.5.1 E.U.T. Operation

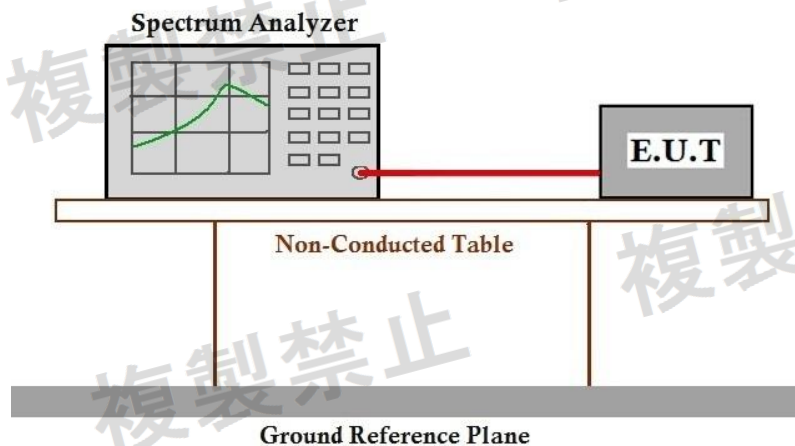
Operating Environment:

Temperature: 25.6 °C Humidity: 48.6 % RH Atmospheric Pressure: 1015 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX_Keep the EUT in transmitting mode

7.5.3 Test Setup Diagram



7.5.4 Measurement Procedure and Data

1. Test Conditions:

Spectrum Analyzer is used for measurement.

2. EUT conditions:

Modulation/Spread/Hopping ON, Hopping frequency is fixed, Bluetooth equipment is setting DH5 mode

For equipment using diffusion code, set to the test diffusion code and modulate with standard coding test signal.

3. Spectrum Analyzer conditions:

Frequency: Test Frequency (fixed hopping frequency)

Span 0 Hz

RBW 1 MHz

VBW 1 MHz

Sweep Time EUT condition

Trigger Video Trigger

Measures the Transmission time of 1 burst (sec)

Measures the Burst cycle (sec)

4. Calculation procedure:

Dwell time = $(0.4(s) \times [\text{spreading rate}] \times [\text{Transmission time of 1 burst}(s)]) / ([\text{burst cycle}(s)] \times [\text{No. of hopping channel}])$

Note:

* Spreading rate = $[\text{Spread bandwidth (actual measurement value)}] / [\text{Transmission rate}]$

Please Refer to Appendix for Details



7.6 Spurious emission Intensity

Test Requirement MIC Item 19 of Article 2 Paragraph 1

Test Method: MIC Notice No.88 Appendix No.43

Test Engineer: Mingli Hu

Limit:

- (1) Below 2387 MHz: 2.5 μ W/MHz
- (2) 2387 to 2400 MHz: 25 μ W/MHz
- (3) 2483.5 through 2496.5 MHz: 25 μ W/MHz
- (4) Over 2496.5 MHz: 2.5 μ W/MHz

7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 25.6 $^{\circ}$ C

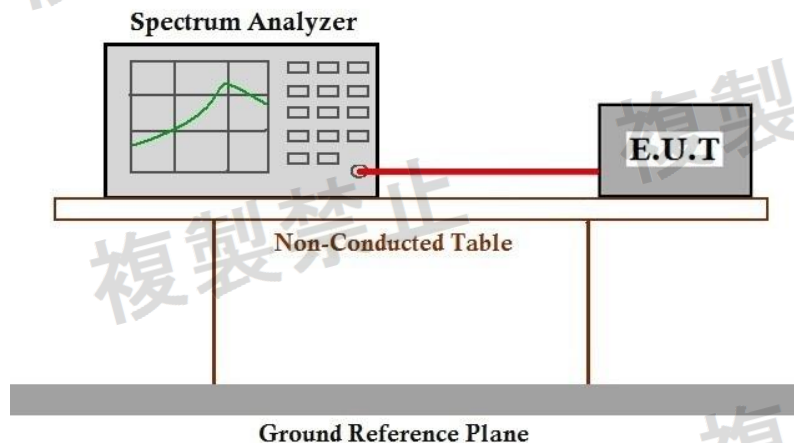
Humidity: 48.6 % RH

Atmospheric Pressure: 1015 mbar

7.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX_Keep the EUT in transmitting mode

7.6.3 Test Setup Diagram



7.6.4 Measurement Procedure and Data

1. Test Conditions:

Spectrum Analyzer is used for measurement.

2. EUT conditions:

Modulation/Spread/Hopping ON, Modulation Tx

For equipment using diffusion code, set to the test diffusion code and modulate with standard coding test signal.

3. Spectrum Analyzer conditions:

Step 1

All spurious are measured from 30 MHz to 13 GHz by peak mode.

Step 2

If the value measured by Step1 is 2 dB or less, measure in average mode.

Test setup for Step 1:

Frequency: 30 MHz - 2400 MHz, 2483.5 MHz -13 GHz

RBW 1 MHz

VBW 1 MHz

Sweep Time Auto

detector mode Positive peak

Indication mode Max hold

Test setup for Step 2:

Frequency: Spurious Frequency

RBW 1 MHz

VBW 1 MHz

Sweep Time Auto

detector mode Sample

Indication mode Max hold

Please Refer to Appendix for Details



7.7 Limit of secondary radiated emissions

Test Requirement MIC Item 19 of Article 2 Paragraph 1

Test Method: MIC Notice No.88 Appendix No.43

Test Engineer: Mingli Hu

Limit:

(1) Below 1 GHz : 4 nW or less

(2) 1 GHz and over : 20 nW or less

7.7.1 E.U.T. Operation

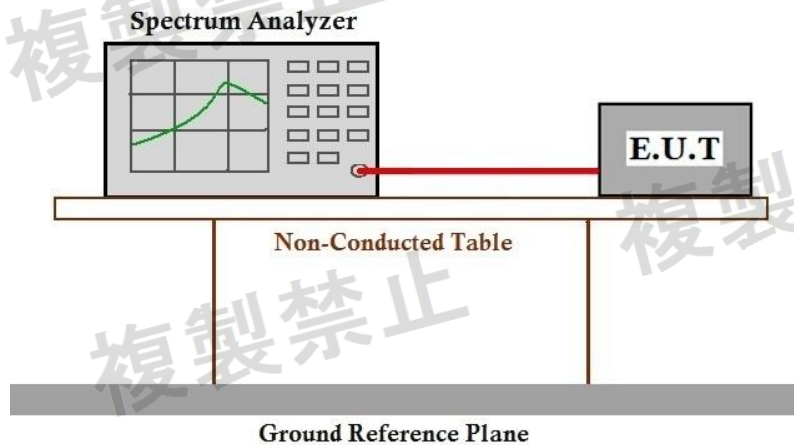
Operating Environment:

Temperature: 25.6 °C Humidity: 48.6 % RH Atmospheric Pressure: 1015 mbar

7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	RX_Keep the EUT in receiving mode

7.7.3 Test Setup Diagram



7.7.4 Measurement Procedure and Data

1. Test Conditions:

Spectrum Analyzer is used for measurement.

2. EUT conditions:

Modulation/Spread/Hopping ON

For equipment using diffusion code, set to the test diffusion code and modulate with standard coding test signal.

3. Spectrum Analyzer conditions:

Step 1

All spurious are measured from 30 MHz to 13 GHz by peak mode.

Step 2

If the value measured by Step1 is 2 dB or less, measure in average mode.

Test setup for Step 1:

Frequency: 30 MHz - 2400 MHz, 2483.5 MHz - 13 GHz

RBW 100 kHz (30 - 1GHz), 1 MHz (over 1GHz)

VBW 100 kHz (30 - 1GHz), 1 MHz (over 1GHz)

Sweep Time Auto

detector mode Positive peak

Indication mode Max hold

Test setup for Step 2:

Frequency: Spurious Frequency

Span 0 Hz

RBW 100 kHz (30 - 1GHz), 1 MHz (over 1GHz)

VBW 100 kHz (30 - 1GHz), 1 MHz (over 1GHz)

Sweep Time Auto

detector mode Sample

Indication mode Max hold

Please Refer to Appendix for Details



8 Test Setup Photo



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9 EUT Constructional Details (EUT Photos)

Refer to Appendix _Photographs of EUT Constructional Details for SZCR2607003081AT.



10 Appendix

1. Frequency Error

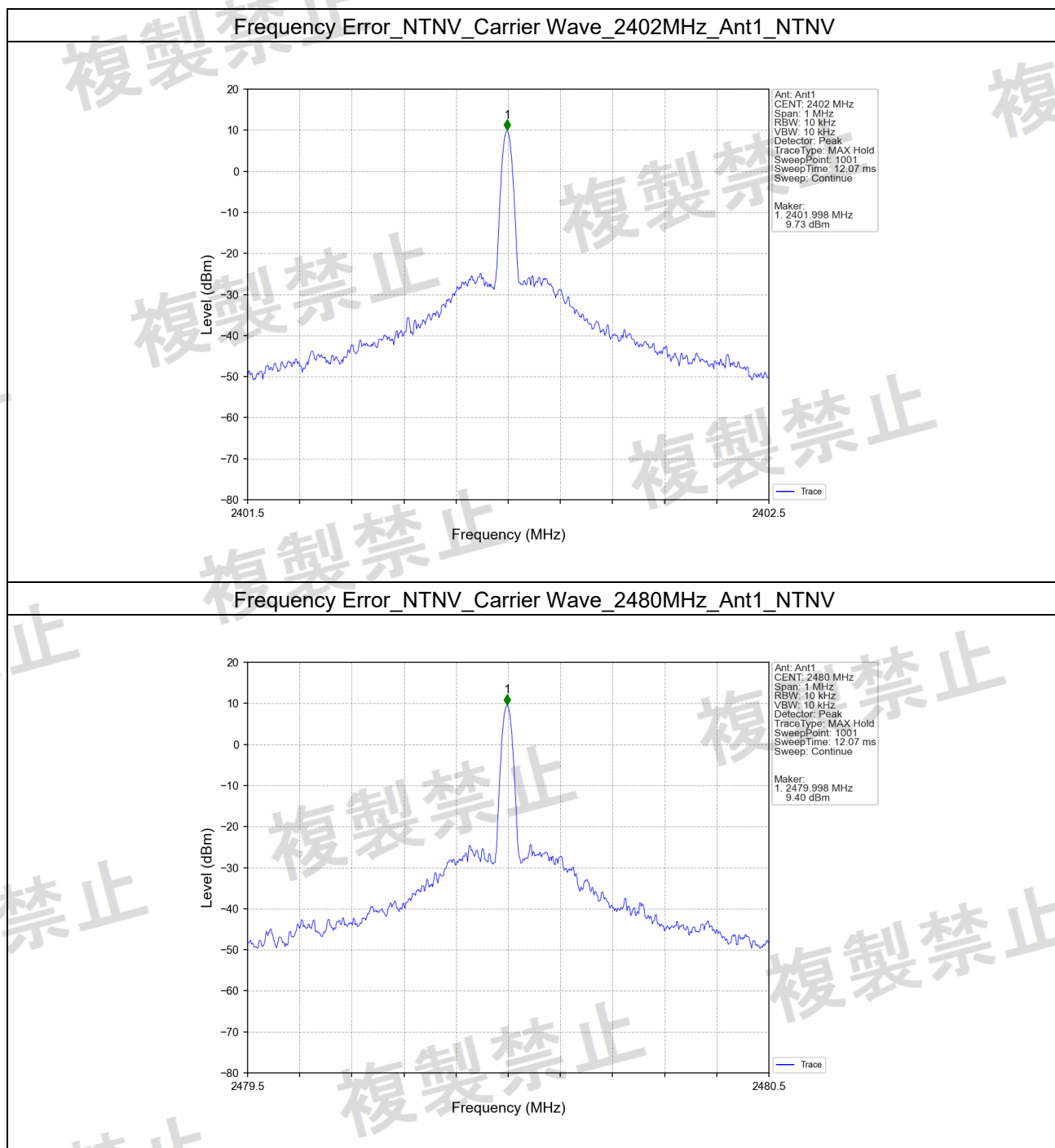
1.1 Test Result

1.1.1 Ant1

Ant1								
ENV	Mode	TX Type	Frequency (MHz)	Packet Type	Measured Frequency (MHz)	Tolerance (ppm)		Verdict
						Result	Limit	
NTNV	Carrier Wave	SISO	2402	DH5	2401.998	-0.83	-50 to 50	Pass
			2480	DH5	2479.998	-0.81	-50 to 50	Pass

1.2 Test Graph

1.2.1 Ant1



2. Occupied Bandwidth

2.1 Test Result

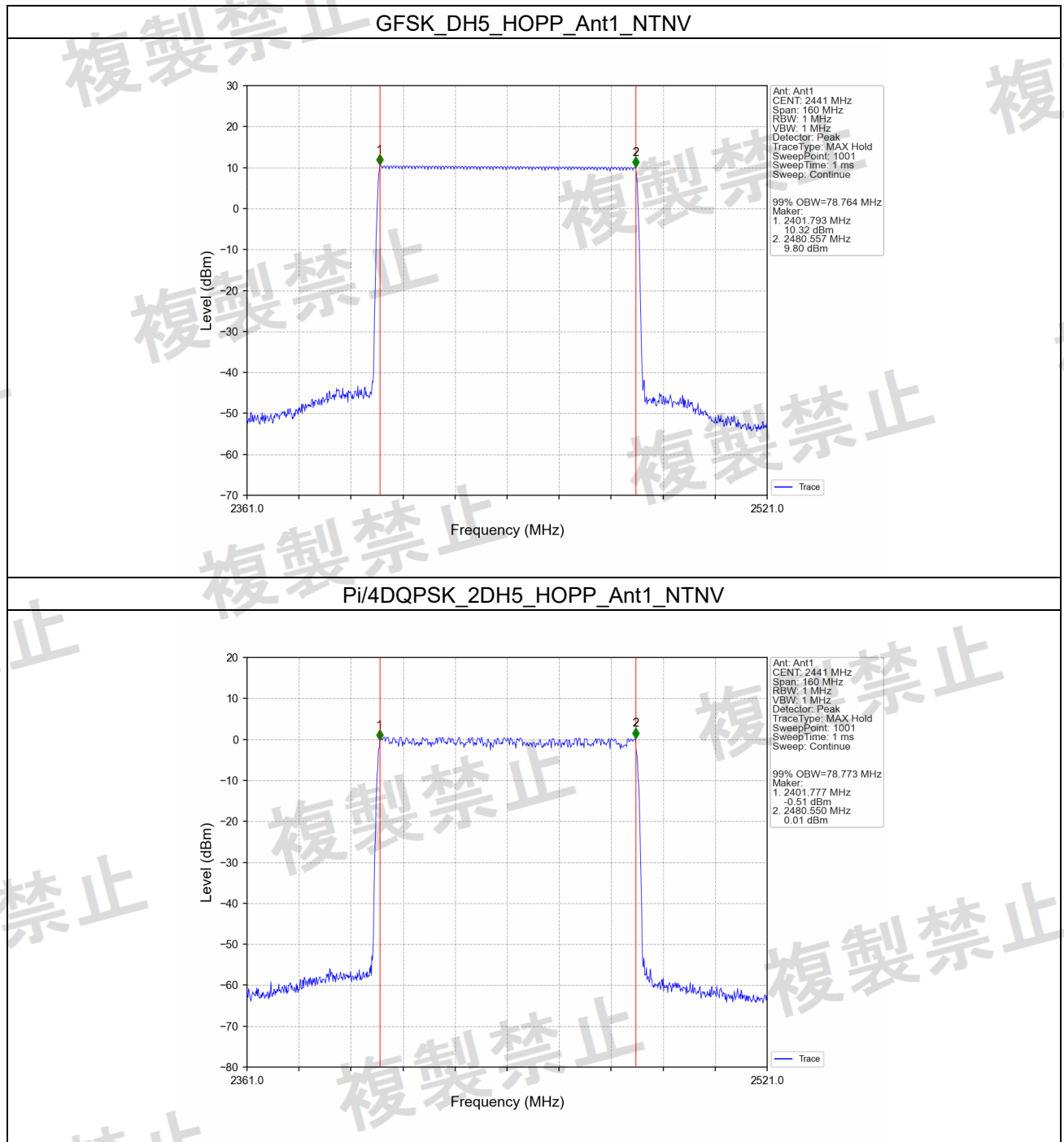
2.1.1 OBW

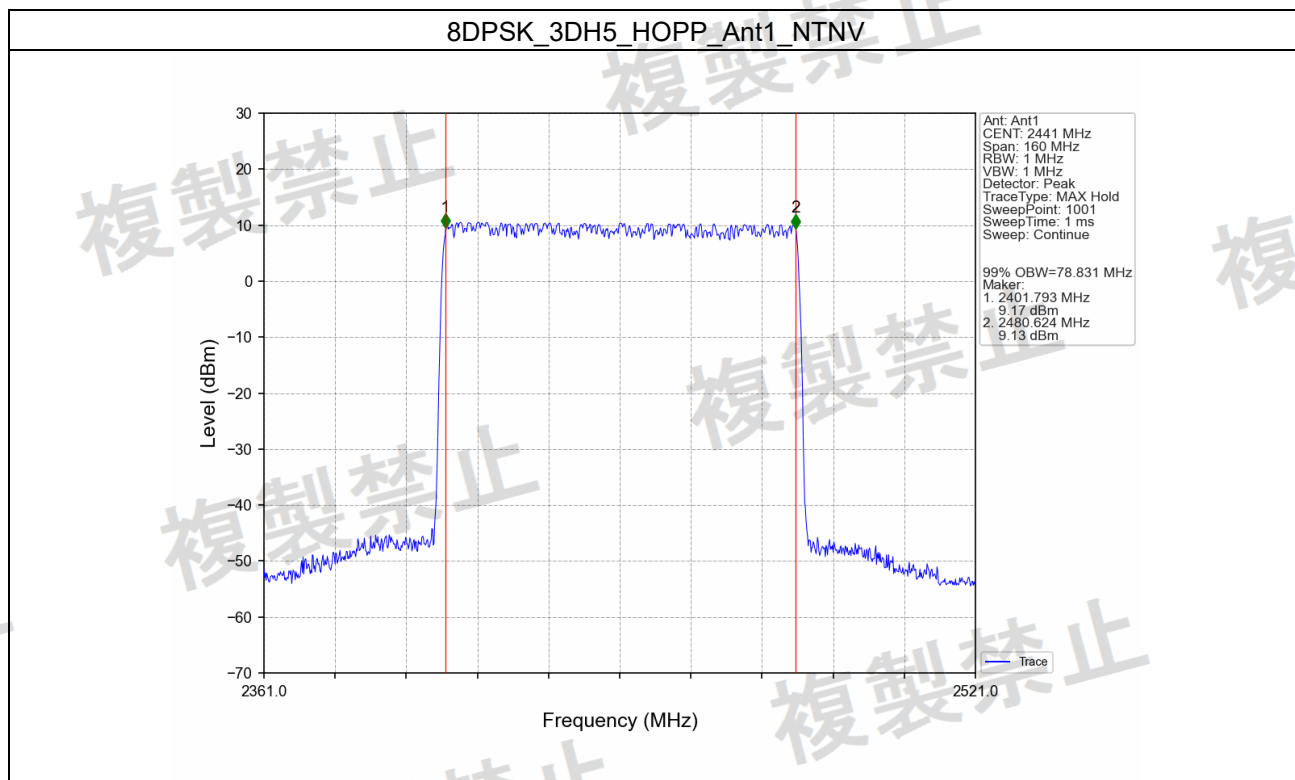
ENV	Mode	TX Type	Frequency (MHz)	Packet Type	99% Occupied Bandwidth (MHz)		Verdict
					ANT1	Limit	
NTNV	GFSK	SISO	HOPP	DH5	78.764	<=83.5	Pass
	Pi/4DQPSK	SISO	HOPP	2DH5	78.773	<=83.5	Pass
	8DPSK	SISO	HOPP	3DH5	78.831	<=83.5	Pass



2.2 Test Graph

2.2.1 OBW





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3. Spread Bandwidth

3.1 Test Result

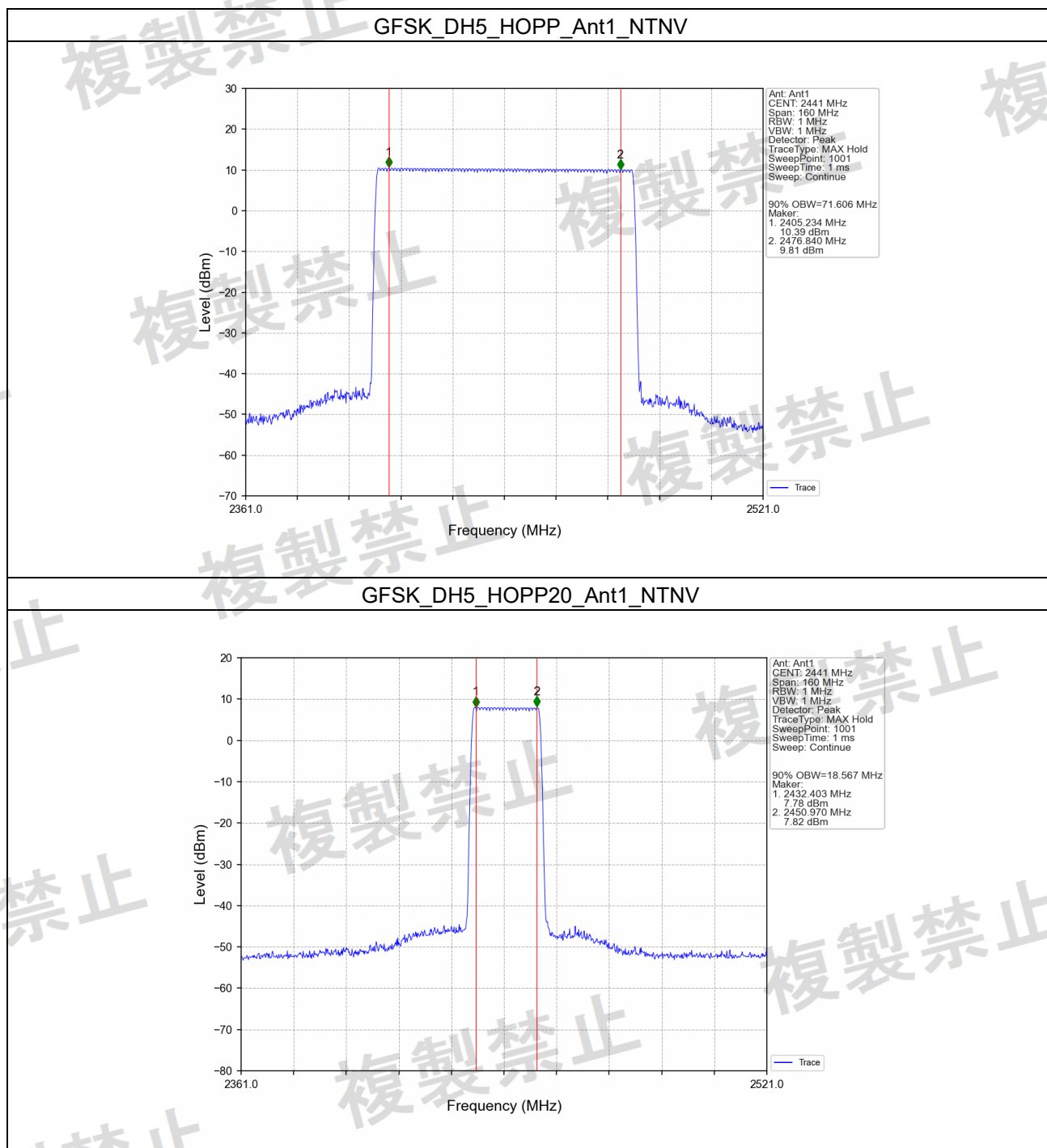
3.1.1 SPBW

ENV	Mode	TX Type	Frequency (MHz)	Packet Type	Spread Bandwidth (MHz)		Verdict
					ANT1	Limit	
NTNV	GFSK	SISO	HOPP	DH5	71.606	/	Only For Report
			HOPP20	DH5	18.567	/	Only For Report
	Pi/4DQPSK	SISO	HOPP	2DH5	72.266	/	Only For Report
			HOPP20	2DH5	18.595	/	Only For Report
	8DPSK	SISO	HOPP	3DH5	72.039	/	Only For Report
			HOPP20	3DH5	18.611	/	Only For Report

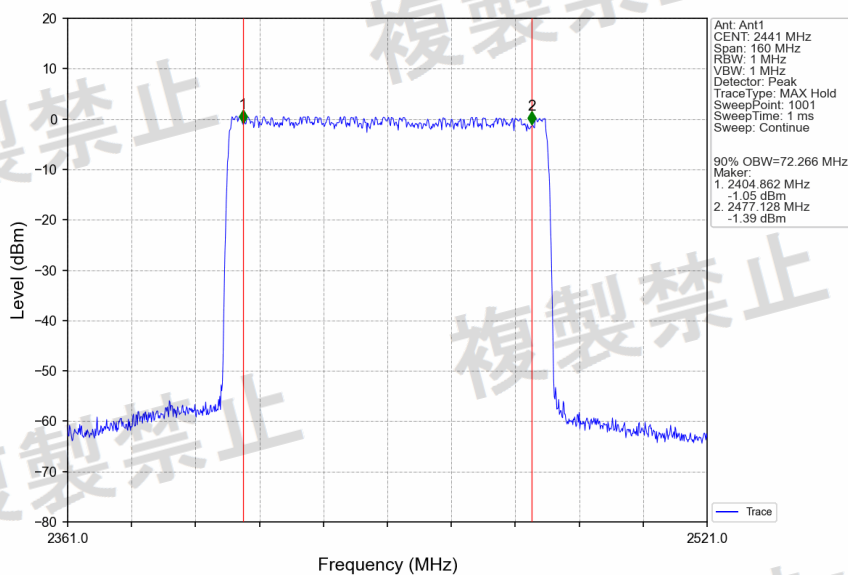


3.2 Test Graph

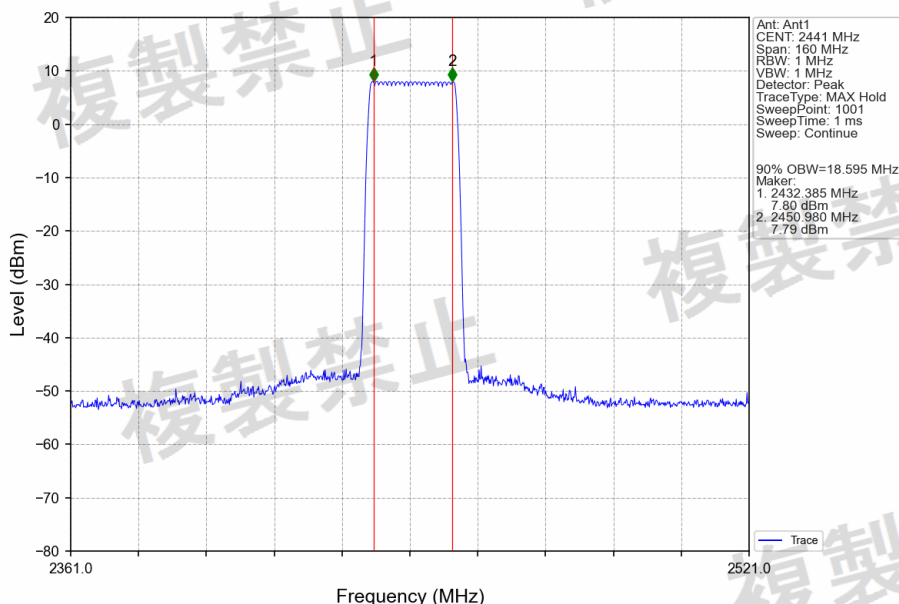
3.2.1 SPBW



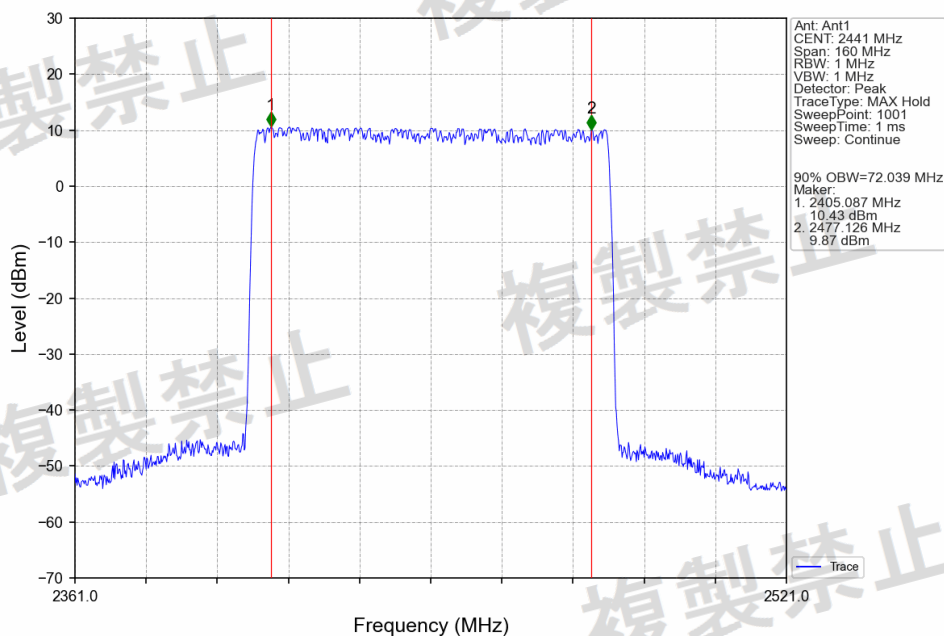
Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



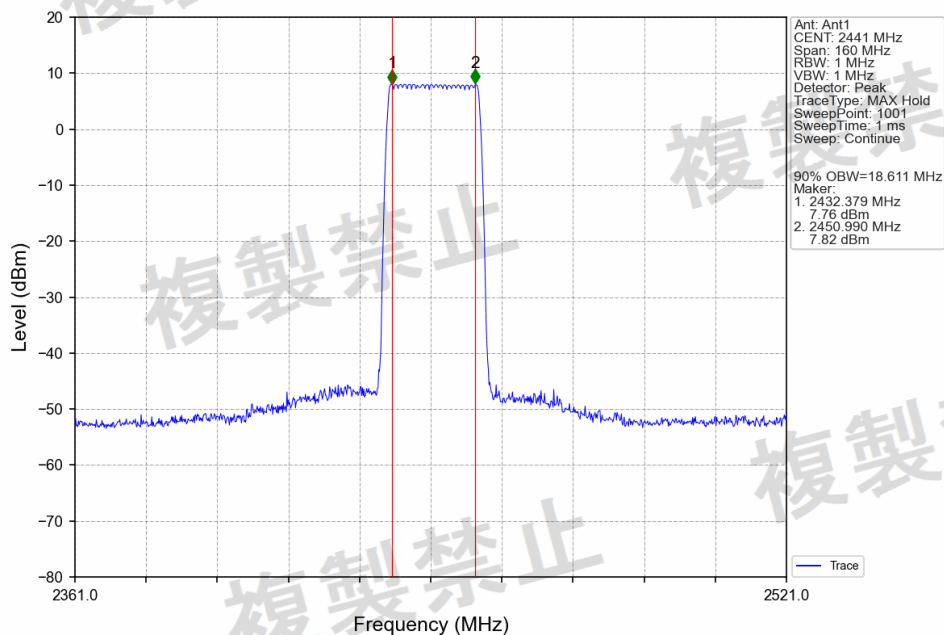
Pi/4DQPSK_2DH5_HOPP20_Ant1_NTNV



8DPSK_3DH5_HOPP_Ant1_NTNV



8DPSK_3DH5_HOPP20_Ant1_NTNV



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4. Antenna Power

4.1 Test Result

4.1.1 Power

ENV	Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Antenna Power (mW/MHz)		Nominal Power (mW/MHz)	Tolerance (%)		Verdict
						Measured	Limit		Measured	Limit	
NTNV	GFSK	SISO	HOPP	DH5	1	0.115	<=3.00	0.12	-4.17	<=20	Pass
			HOPP20	DH5	1	0.445	<=3.00	0.50	-11.0	<=20	Pass
	Pi/4DQPSK	SISO	HOPP	2DH5	1	0.100	<=3.00	0.10	0	<=20	Pass
			HOPP20	2DH5	1	0.387	<=3.00	0.35	10.57	<=20	Pass
	8DPSK	SISO	HOPP	3DH5	1	0.063	<=3.00	0.10	-37.0	<=20	Pass
			HOPP20	3DH5	1	0.243	<=3.00	0.35	-30.57	<=20	Pass

4.1.2 EIRP

ENV	Mode	TX Type	Frequency (MHz)	Packet Type	ANT	Gain (dBi)	EIRP (dBm/MHz)		Verdict
							Result	Limit	
NTNV	GFSK	SISO	HOPP	DH5	1	2.06	-7.33	<=6.91	Pass
			HOPP20	DH5	1	2.06	-1.46	<=6.91	Pass
	Pi/4DQPSK	SISO	HOPP	2DH5	1	2.06	-7.94	<=6.91	Pass
			HOPP20	2DH5	1	2.06	-2.06	<=6.91	Pass
	8DPSK	SISO	HOPP	3DH5	1	2.06	-9.95	<=6.91	Pass
			HOPP20	3DH5	1	2.06	-4.08	<=6.91	Pass

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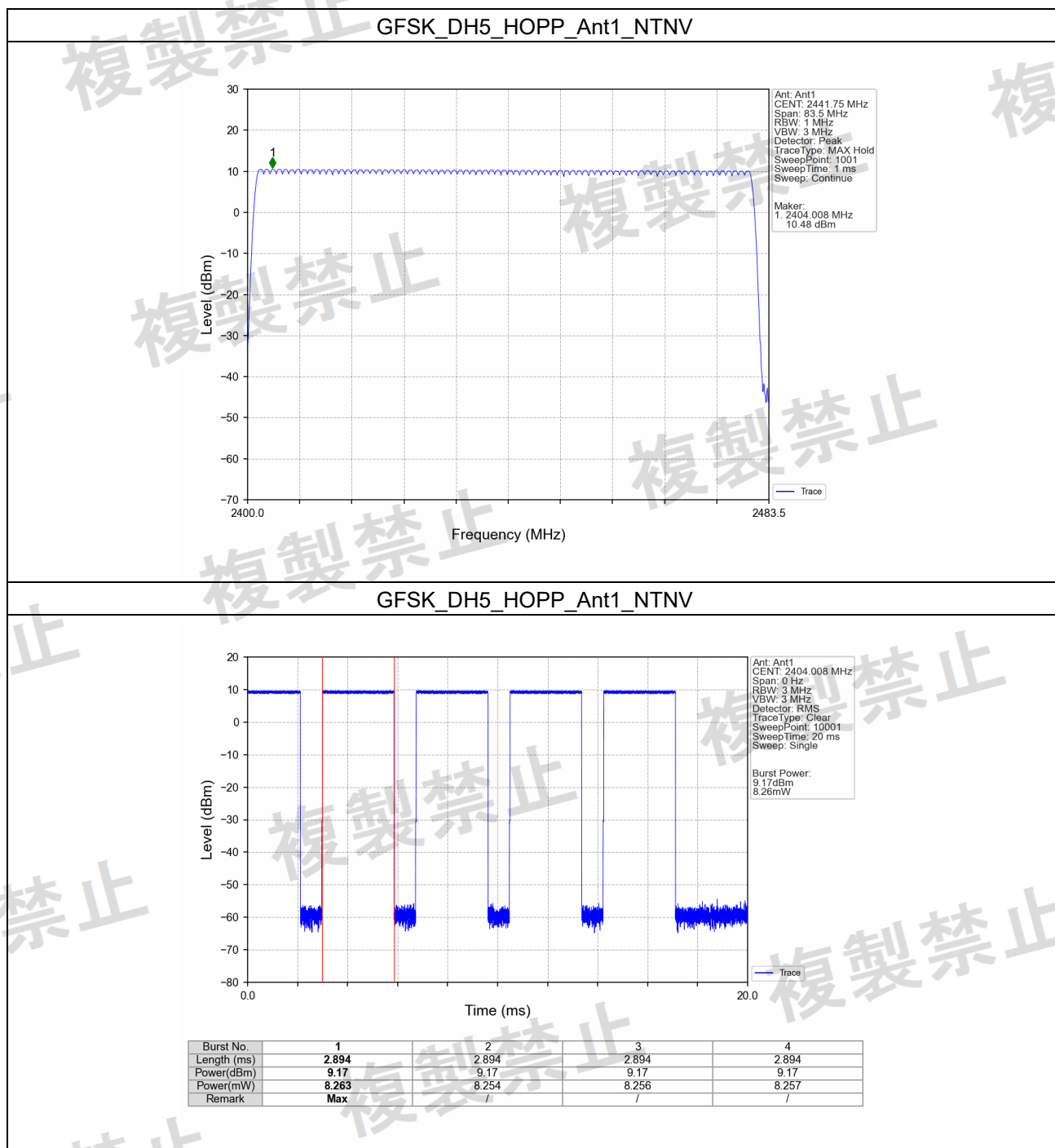


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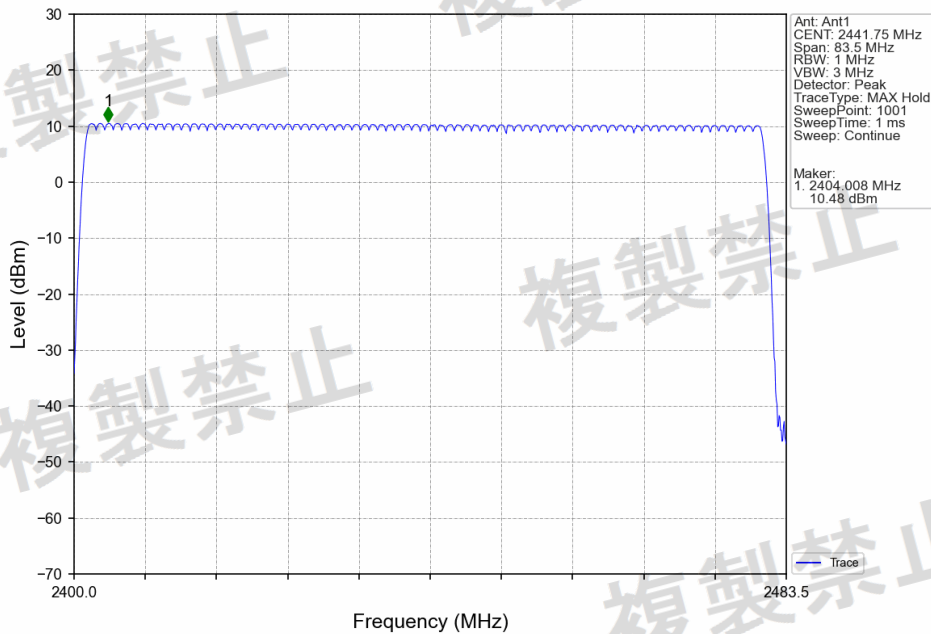
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4.2 Test Graph

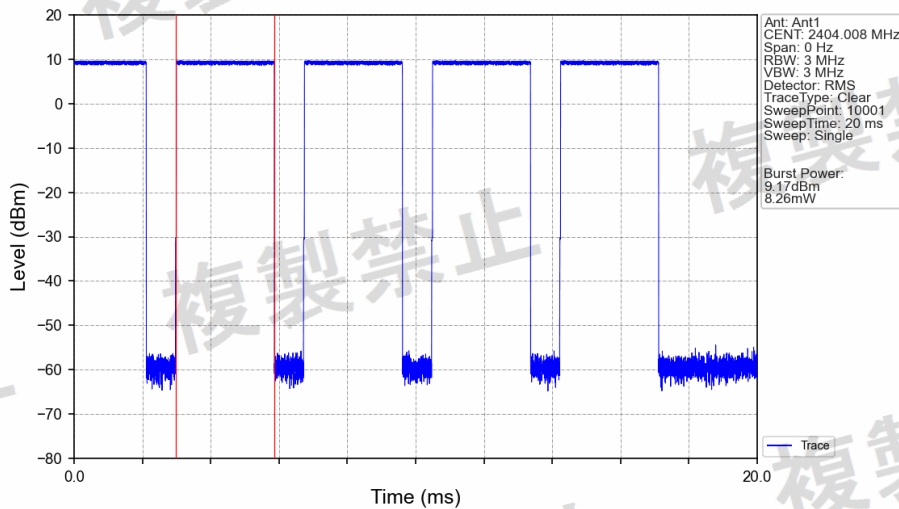
4.2.1 Power



GFSK_DH5_HOPP20_Ant1_NTNV



GFSK_DH5_HOPP20_Ant1_NTNV



Burst No.	1	2	3	4
Length (ms)	2.894	2.894	2.894	2.894
Power(dBm)	9.17	9.17	9.17	9.17
Power(mW)	8.263	8.254	8.256	8.257
Remark	Max	/	/	/

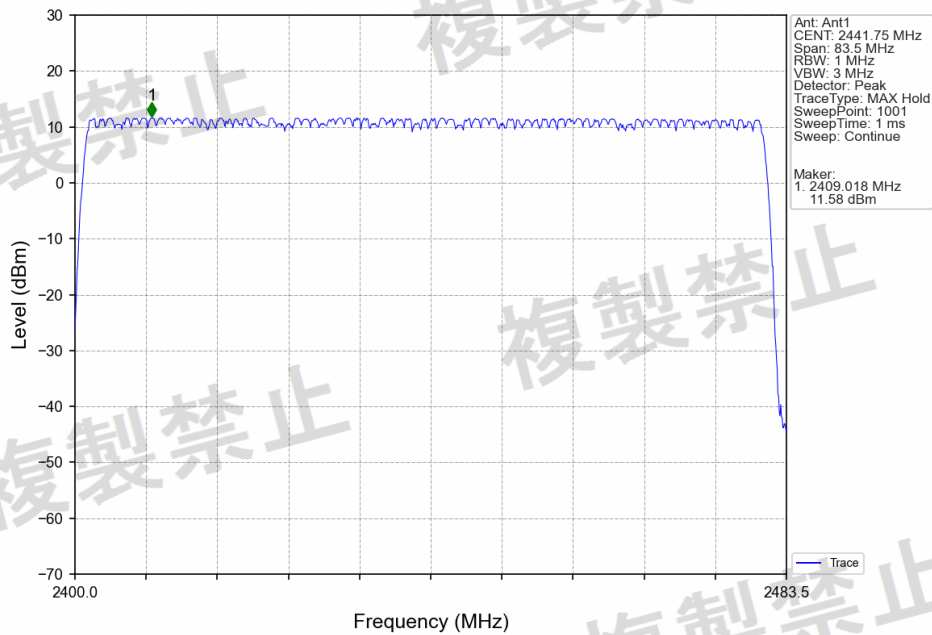
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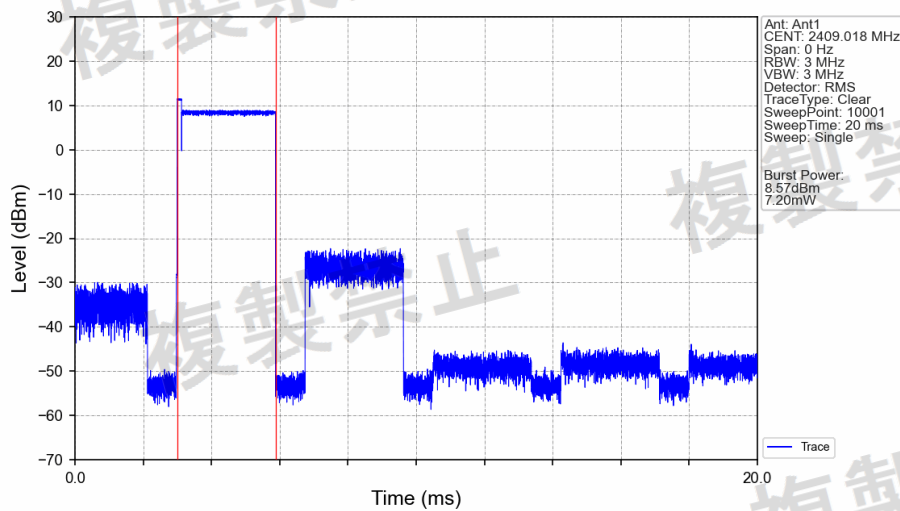
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Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



Pi/4DQPSK_2DH5_HOPP_Ant1_NTNV



Burst No.	1
Length (ms)	2.882
Power(dBm)	8.57
Power(mW)	7.199
Remark	Max

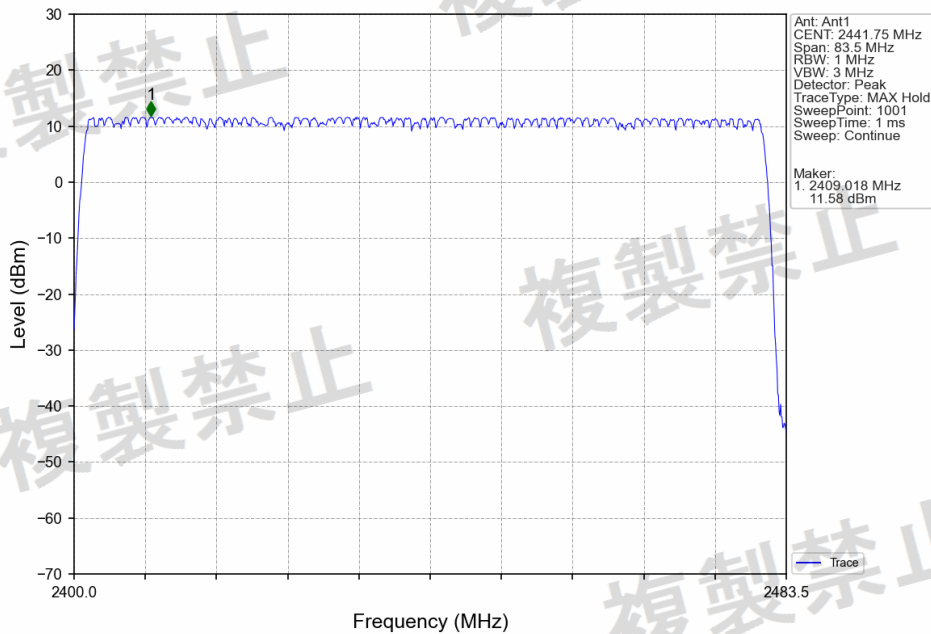
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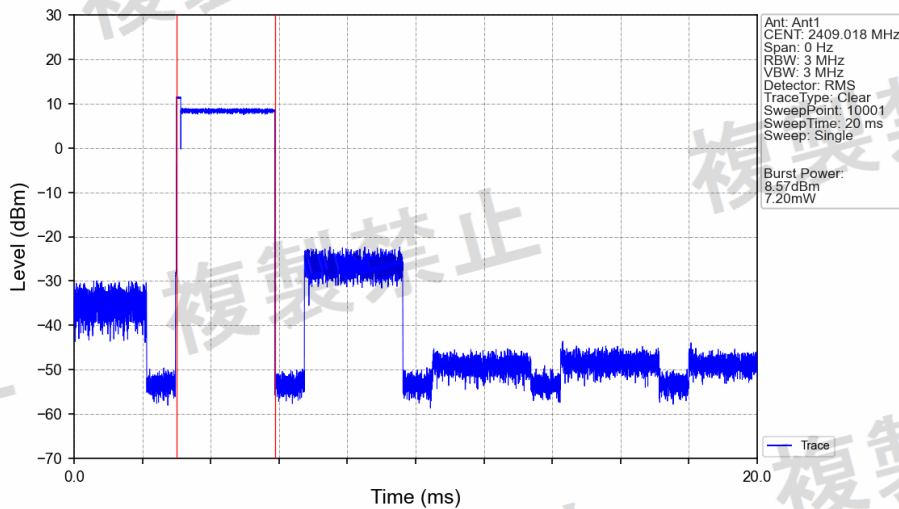
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Pi/4DQPSK_2DH5_HOPP20_Ant1_NTNV



Pi/4DQPSK_2DH5_HOPP20_Ant1_NTNV



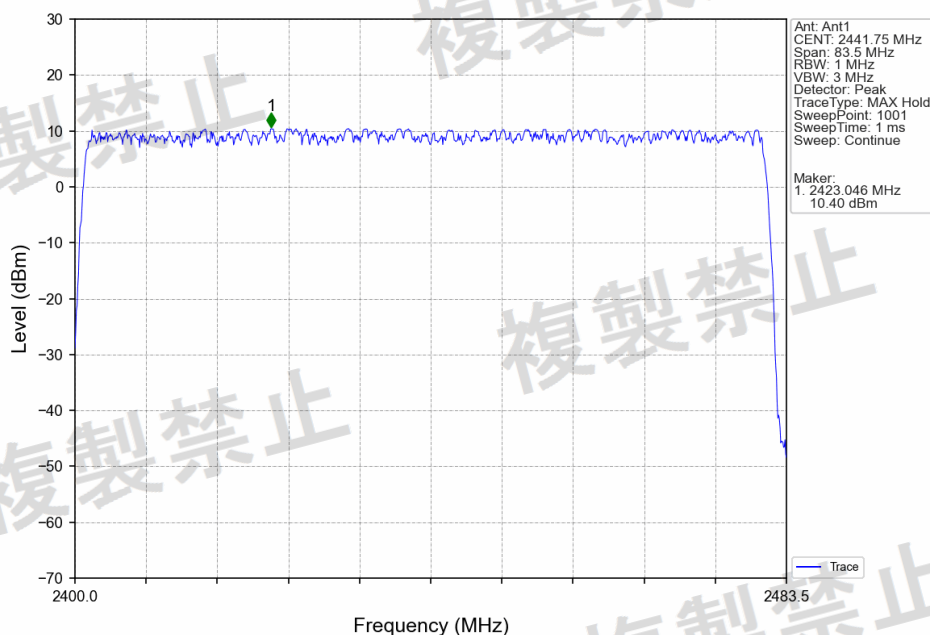
Burst No.	1
Length (ms)	2.882
Power(dBm)	8.57
Power(mW)	7.199
Remark	Max

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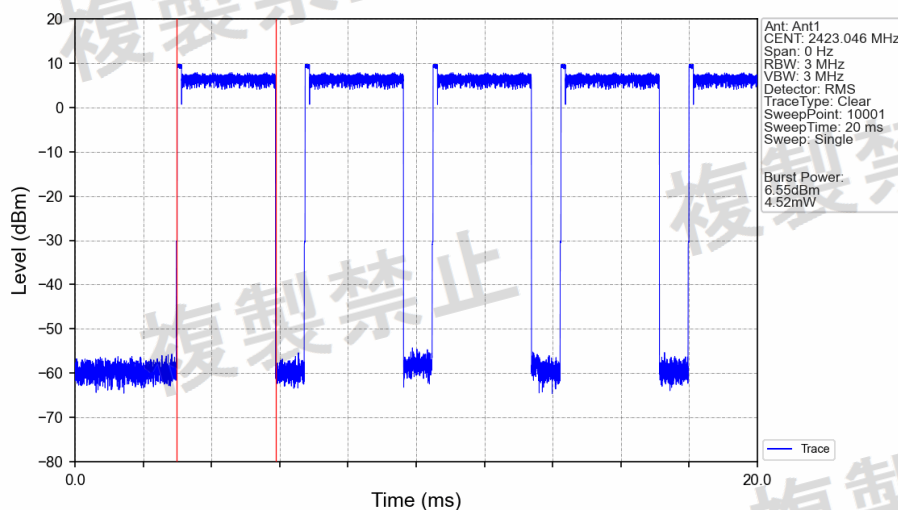
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8DPSK_3DH5_HOPP_Ant1_NTNV



8DPSK_3DH5_HOPP_Ant1_NTNV



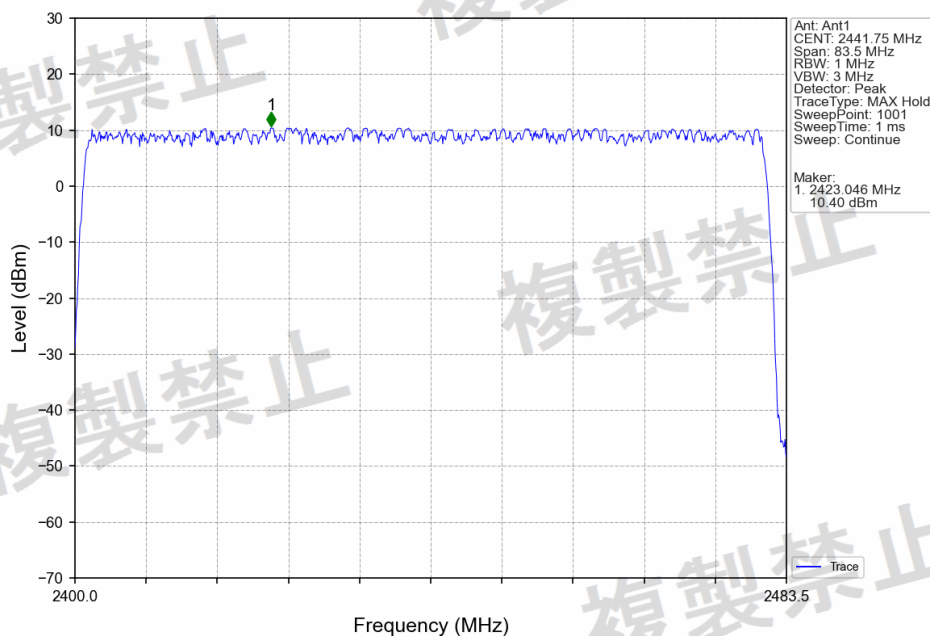
Burst No.	1	2	3	4
Length (ms)	2.908	2.908	2.908	2.908
Power(dBm)	6.55	6.54	6.53	6.53
Power(mW)	4.519	4.508	4.499	4.495
Remark	Max	/	/	/

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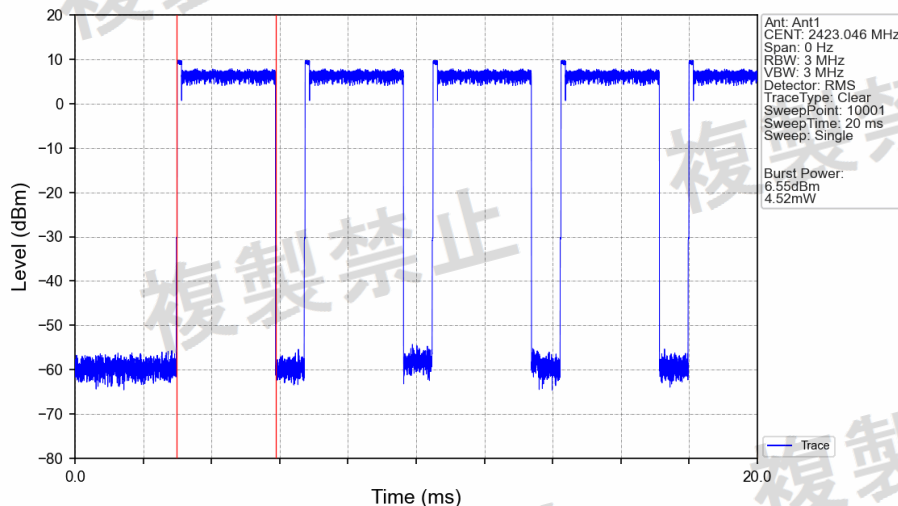
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8DPSK_3DH5_HOPP20_Ant1_NTNV



8DPSK_3DH5_HOPP20_Ant1_NTNV



Burst No.	1	2	3	4
Length (ms)	2.908	2.908	2.908	2.908
Power(dBm)	6.55	6.54	6.53	6.53
Power(mW)	4.519	4.508	4.499	4.495
Remark	Max	/	/	/

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5. Dwell Time

5.1 Test Result

5.1.1 Ant1

Ant1											
ENV	Mode	TX Type	Frequency (MHz)	Packet Type	Spreading Rate	T_on (ms)	Period (ms)	Hopp Number	Dwell Time (ms)		Verdict
									Result	Limit	
NTNV	GFSK	SISO	2402	DH1	71.606	0.374	1.250	79	108.479	<=400	Pass
				DH3	71.606	1.623	2.500	79	235.375	<=400	Pass
				DH5	71.606	2.870	3.750	79	277.481	<=400	Pass
			2480	DH1	71.606	0.374	1.250	79	108.479	<=400	Pass
				DH3	71.606	1.622	2.500	79	235.230	<=400	Pass
				DH5	71.606	2.870	3.750	79	277.481	<=400	Pass
	Pi/4DQPSK	SISO	2402	2DH1	72.266	0.383	1.250	79	112.113	<=400	Pass
				2DH3	72.266	1.635	2.500	79	239.301	<=400	Pass
				2DH5	72.266	2.882	3.750	79	281.209	<=400	Pass
			2480	2DH1	72.266	0.382	1.250	79	111.820	<=400	Pass
				2DH3	72.266	1.634	2.500	79	239.155	<=400	Pass
				2DH5	72.266	2.882	3.750	79	281.209	<=400	Pass
	8DPSK	SISO	2402	3DH1	72.039	0.382	1.250	79	111.469	<=400	Pass
				3DH3	72.039	1.632	2.500	79	238.112	<=400	Pass
				3DH5	72.039	2.883	3.750	79	280.423	<=400	Pass
			2480	3DH1	72.039	0.382	1.250	79	111.469	<=400	Pass
				3DH3	72.039	1.632	2.500	79	238.112	<=400	Pass
				3DH5	72.039	2.883	3.750	79	280.423	<=400	Pass



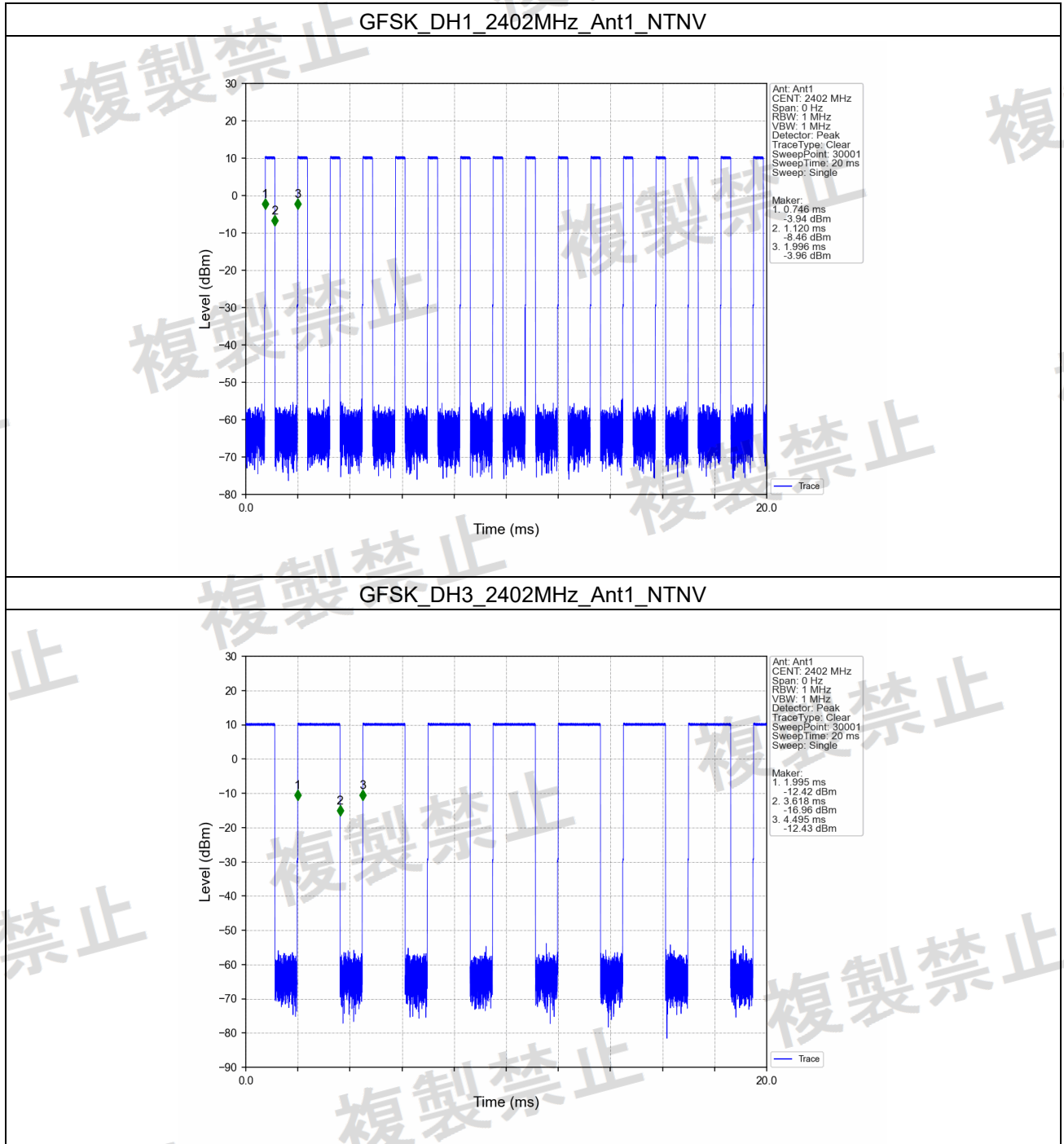
5.1.2 Ant1_HOPP20

Ant1_HOPP20											
ENV	Mode	TX Type	Frequency (MHz)	Packet Type	Spreading Rate	T_on (ms)	Period (ms)	Hopp Number	Dwell Time (ms)		Verdict
									Result	Limit	
NTNV	GFSK	SISO	2402	DH1	18.567	0.374	1.250	20	111.105	<=400	Pass
				DH3	18.567	1.623	2.500	20	241.074	<=400	Pass
				DH5	18.567	2.870	3.750	20	284.199	<=400	Pass
			2480	DH1	18.567	0.374	1.250	20	111.105	<=400	Pass
				DH3	18.567	1.622	2.500	20	240.925	<=400	Pass
				DH5	18.567	2.870	3.750	20	284.199	<=400	Pass
	Pi/4DQPSK	SISO	2402	2DH1	18.595	0.383	1.250	20	113.95	<=400	Pass
				2DH3	18.595	1.635	2.500	20	243.223	<=400	Pass
				2DH5	18.595	2.882	3.750	20	285.818	<=400	Pass
			2480	2DH1	18.595	0.382	1.250	20	113.653	<=400	Pass
				2DH3	18.595	1.634	2.500	20	243.074	<=400	Pass
				2DH5	18.595	2.882	3.750	20	285.818	<=400	Pass
	8DPSK	SISO	2402	3DH1	18.611	0.382	1.250	20	113.75	<=400	Pass
				3DH3	18.611	1.632	2.500	20	242.985	<=400	Pass
				3DH5	18.611	2.883	3.750	20	286.163	<=400	Pass
			2480	3DH1	18.611	0.382	1.250	20	113.75	<=400	Pass
				3DH3	18.611	1.632	2.500	20	242.985	<=400	Pass
				3DH5	18.611	2.883	3.750	20	286.163	<=400	Pass

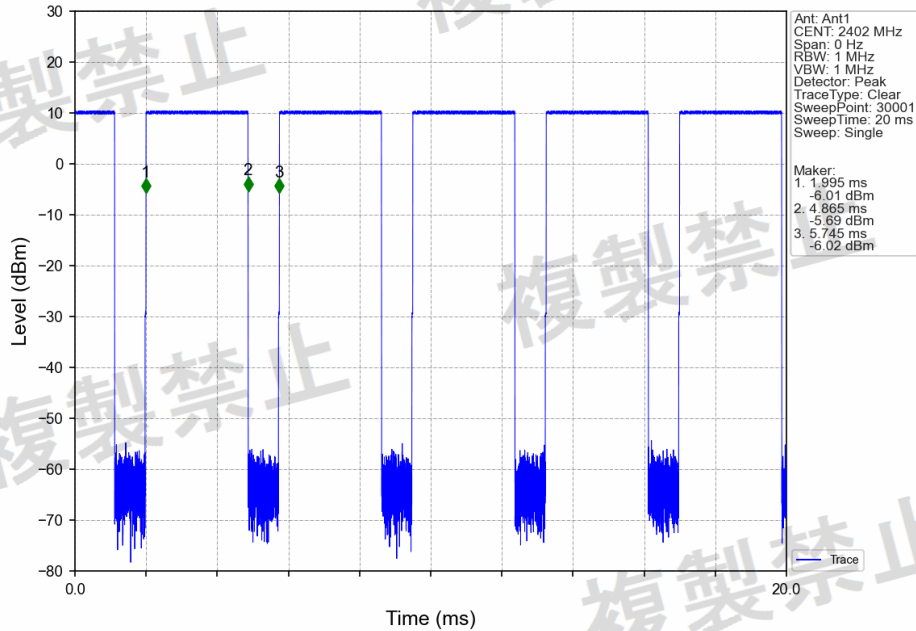


5.2 Test Graph

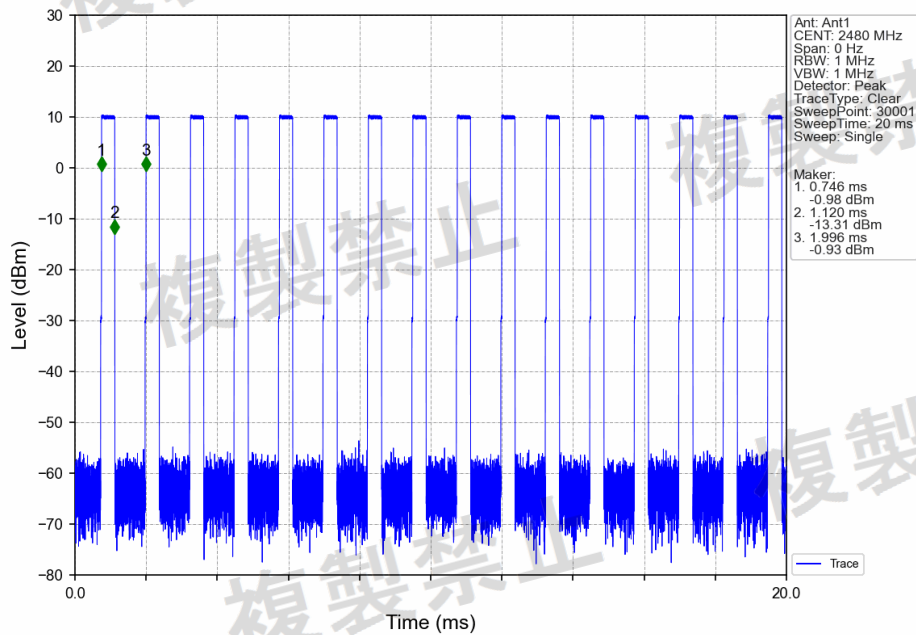
5.2.1 Ant1



GFSK_DH5_2402MHz_Ant1_NTNV



GFSK_DH1_2480MHz_Ant1_NTNV

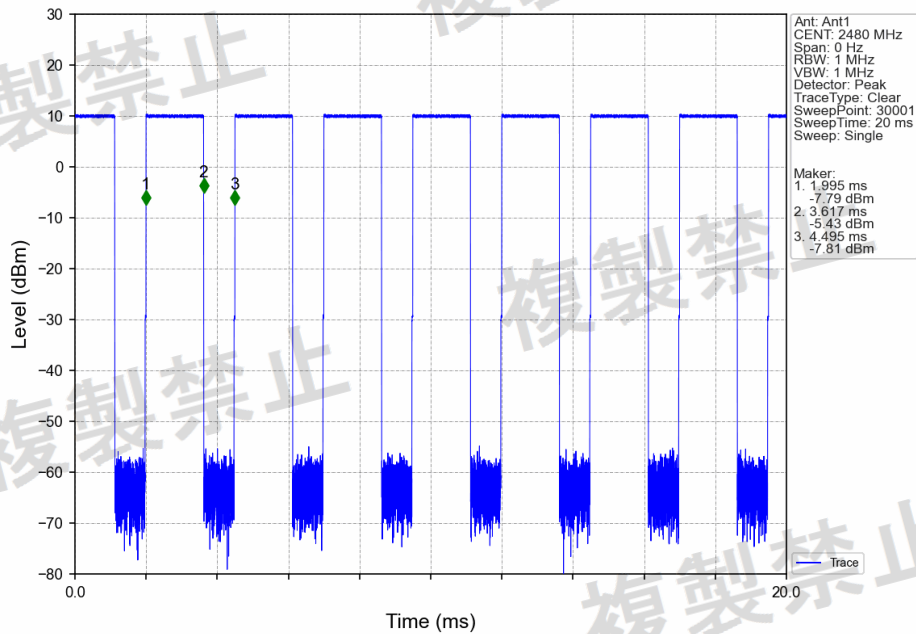


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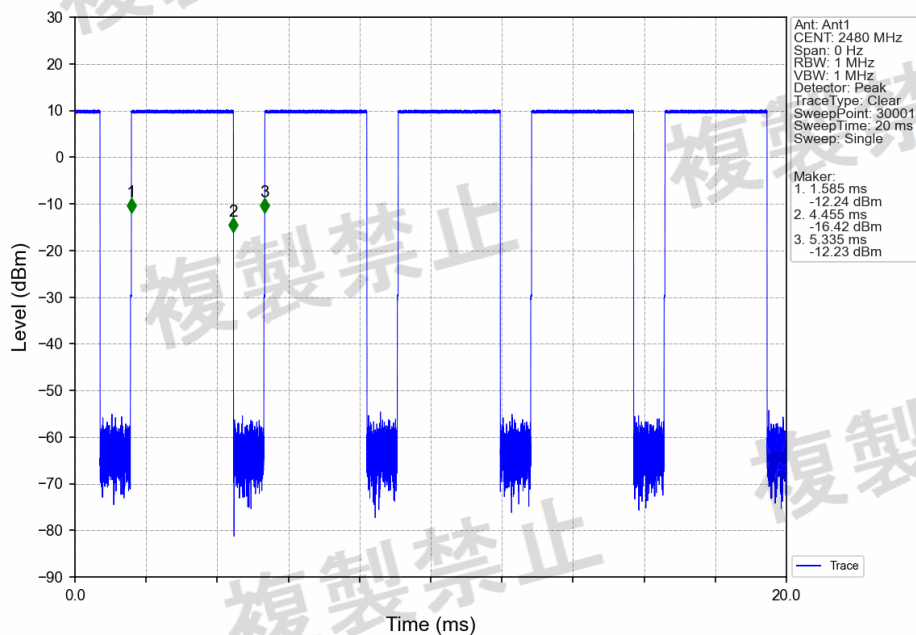
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GFSK_DH3_2480MHz_Ant1_NTNV



GFSK_DH5_2480MHz_Ant1_NTNV



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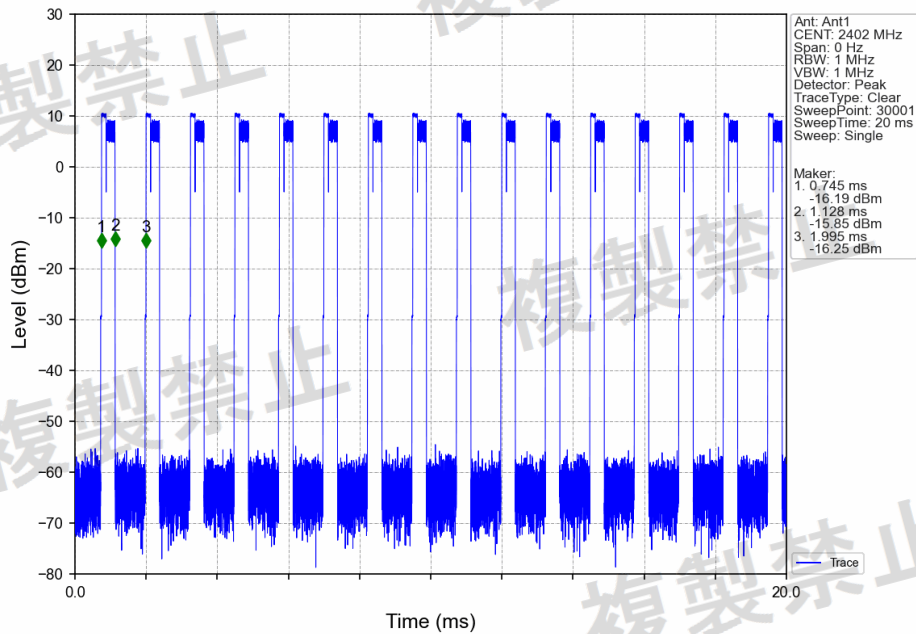
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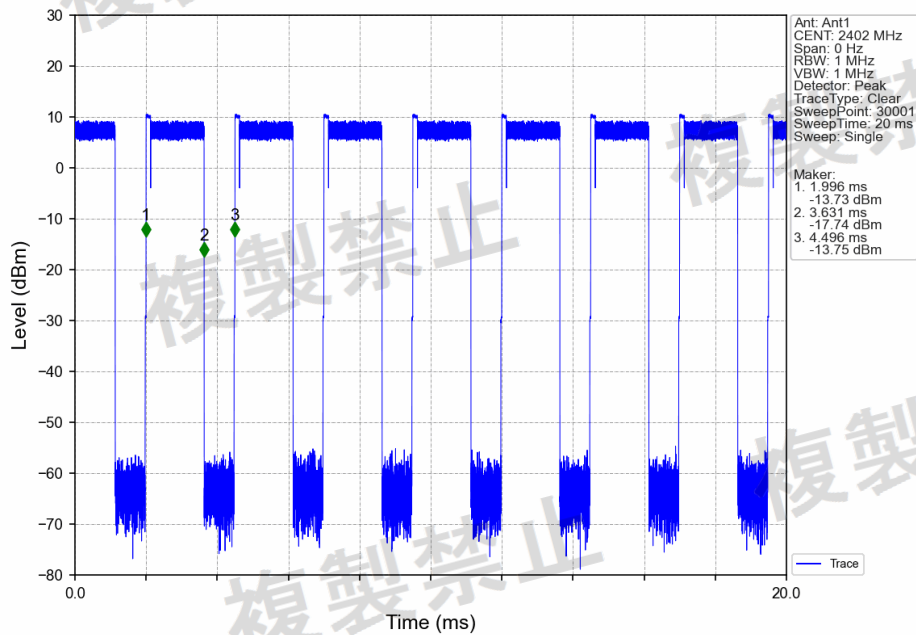
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Pi/4DQPSK_2DH1_2402MHz_Ant1_NTNV



Pi/4DQPSK_2DH3_2402MHz_Ant1_NTNV

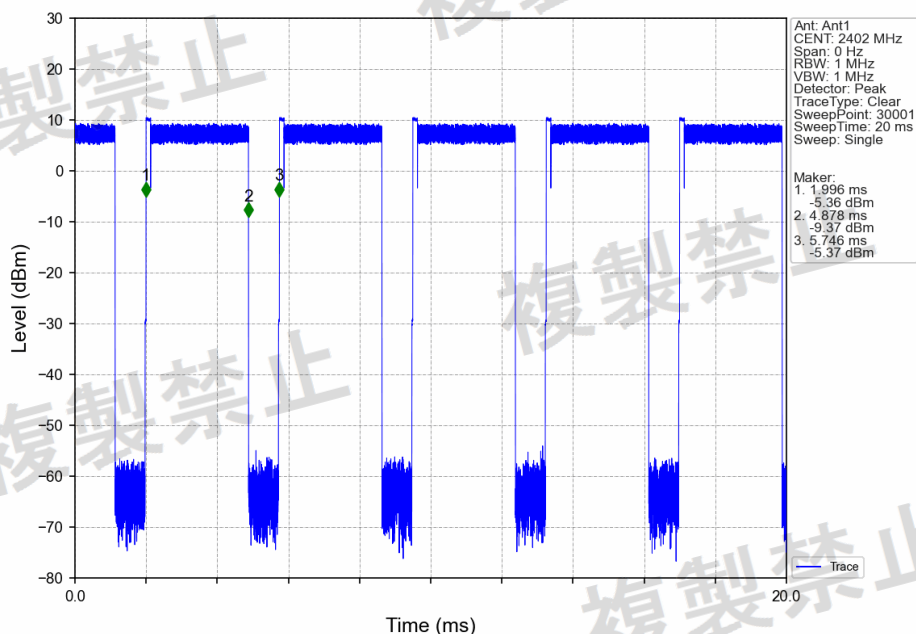


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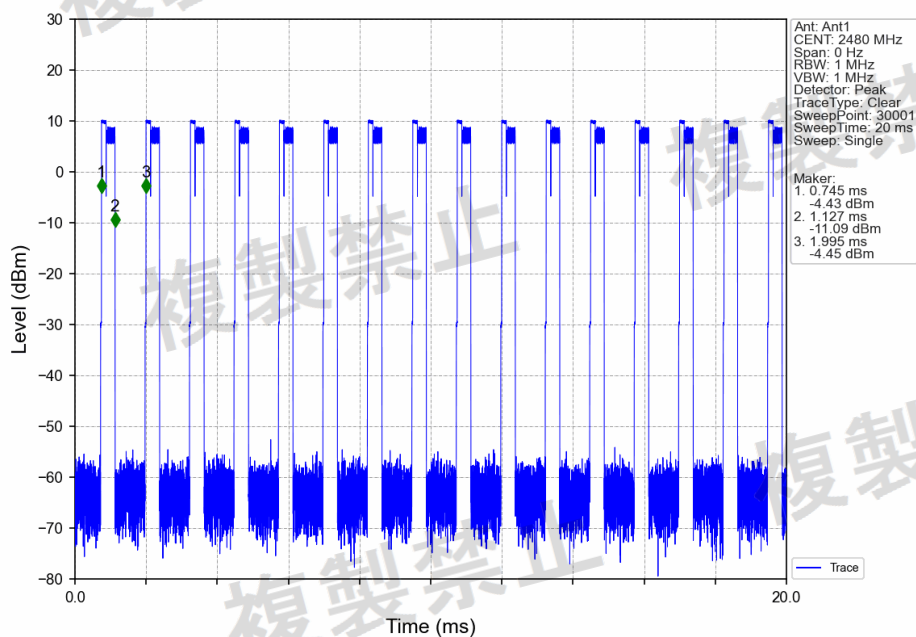
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Pi/4DQPSK_2DH5_2402MHz_Ant1_NTNV



Pi/4DQPSK_2DH1_2480MHz_Ant1_NTNV



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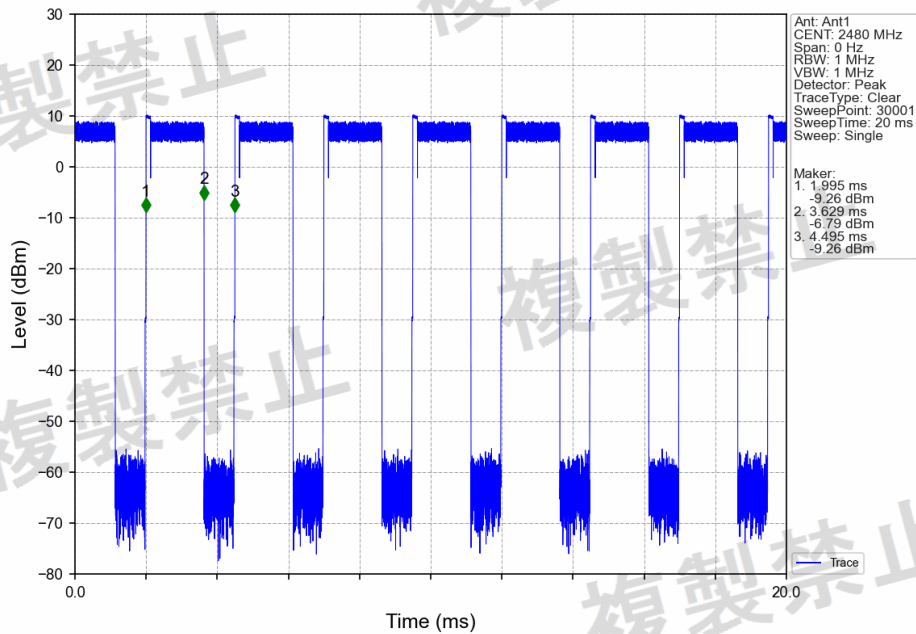
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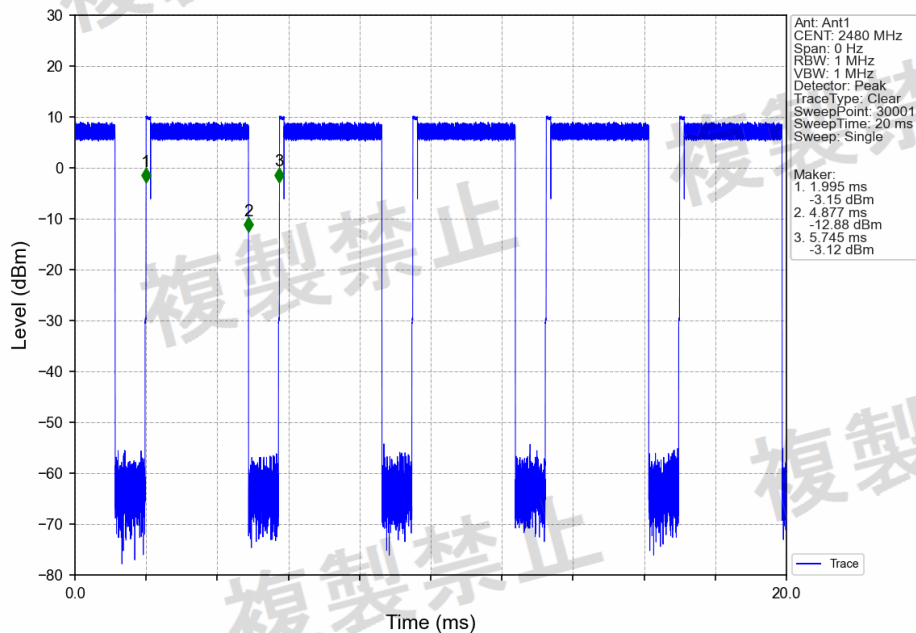
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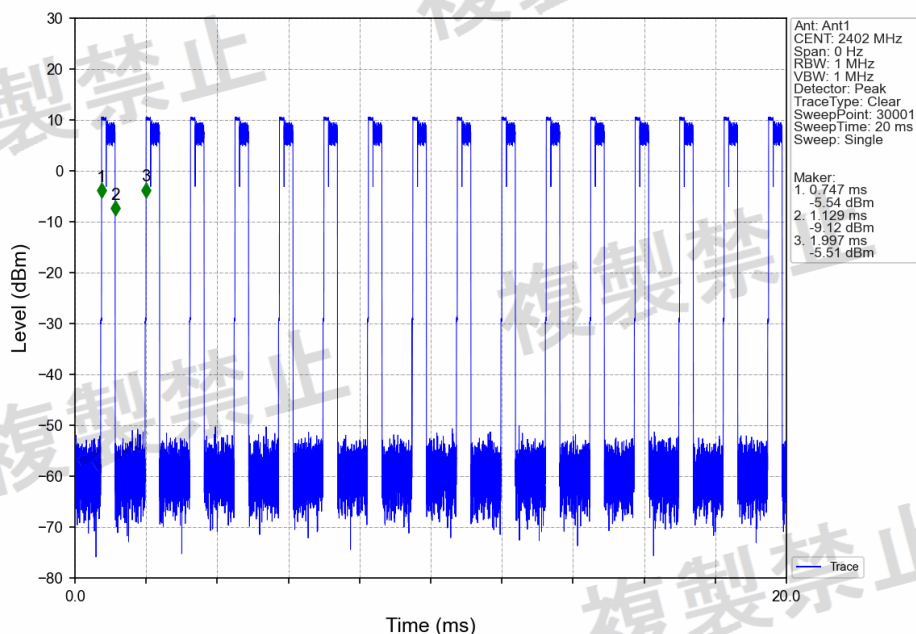
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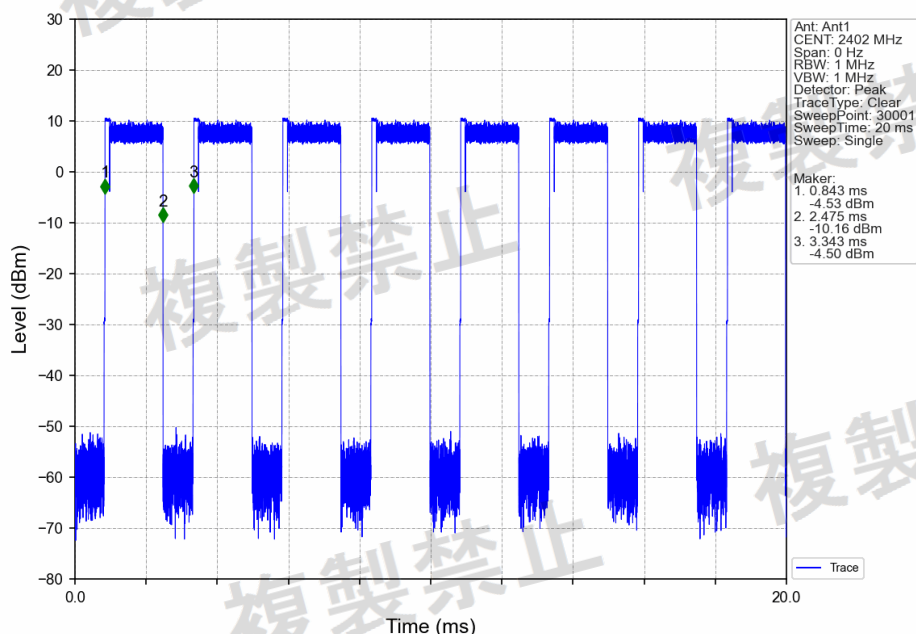
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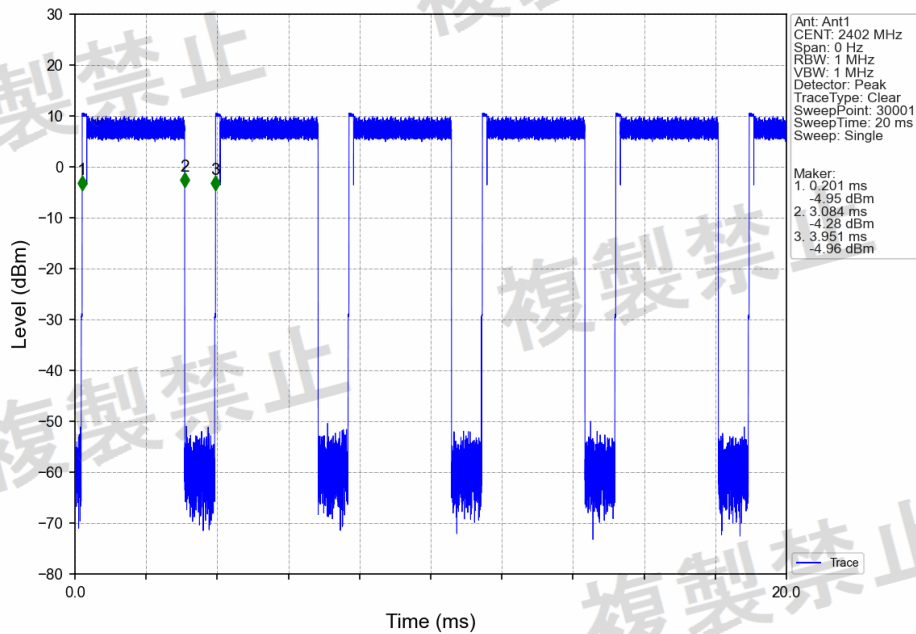
8DPSK_3DH1_2402MHz_Ant1_NTNV



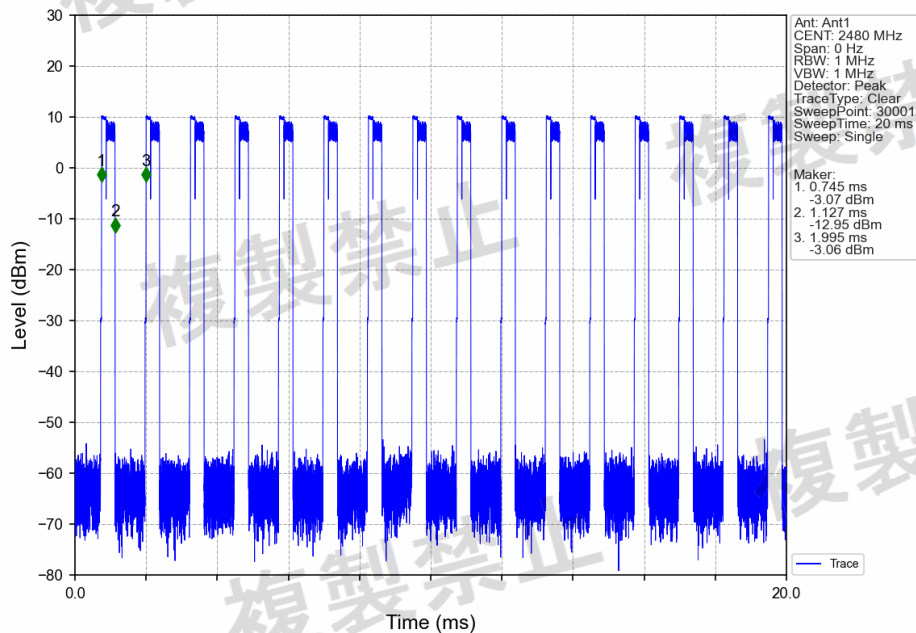
8DPSK_3DH3_2402MHz_Ant1_NTNV



8DPSK_3DH5_2402MHz_Ant1_NTNV



8DPSK_3DH1_2480MHz_Ant1_NTNV



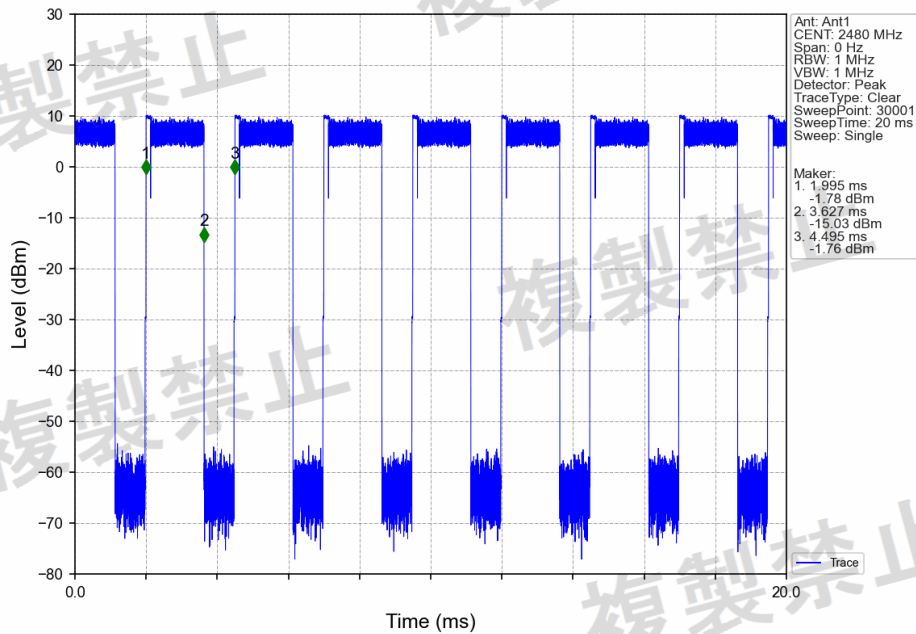
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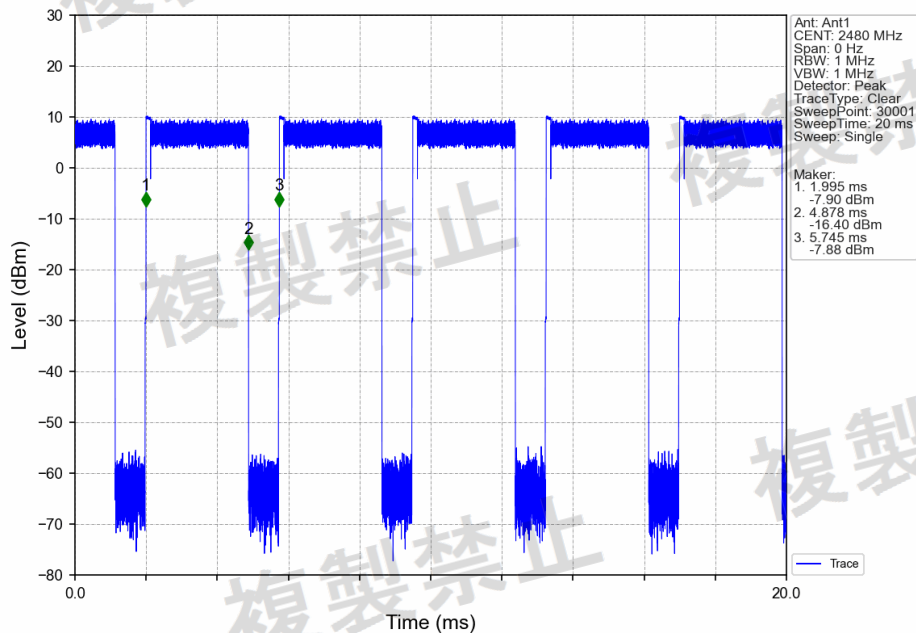
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8DPSK_3DH3_2480MHz_Ant1_NTNV



8DPSK_3DH5_2480MHz_Ant1_NTNV



6. Spurious Emission Intensity

6.1 Test Result

6.1.1 TxSe_NTNV

NTNV												
Mode	TX Type	Freq. (MHz)	ANT	Freq. Range		Marker					Limit (uW /MHz)	Verdict
				Start (MHz)	Stop (MHz)	Freq. (MHz)	PK Power (dBm /MHz)	PK Power (uW /MHz)	AV Power (dBm /MHz)	AV Power (uW /MHz)		
GFSK	SISO	2402	1	30	2387	2386.5	-43.82	0.041	/	/	2.5	Pass
				2387	2400	2399.987	-30.85	0.822	/	/	25	Pass
				2483.5	2496.5	2492.08	-51.83	0.007	/	/	25	Pass
				2496.5	12500	5176.5	-37.11	0.195	/	/	2.5	Pass
		2480	1	30	2387	32.5	-48.88	0.013	/	/	2.5	Pass
				2387	2400	2387.117	-51.62	0.007	/	/	25	Pass
				2483.5	2496.5	2484.007	-43.35	0.046	/	/	25	Pass
				2496.5	12500	4960.5	-44.08	0.039	/	/	2.5	Pass
Pi/4DQPSK	SISO	2402	1	30	2387	2386.5	-46.38	0.023	/	/	2.5	Pass
				2387	2400	2399.987	-25.06	3.119	/	/	25	Pass
				2483.5	2496.5	2491.573	-51.65	0.007	/	/	25	Pass
				2496.5	12500	4805	-44.86	0.033	/	/	2.5	Pass
		2480	1	30	2387	1904.5	-48.13	0.015	/	/	2.5	Pass
				2387	2400	2393.032	-52.35	0.006	/	/	25	Pass
				2483.5	2496.5	2483.916	-44.22	0.038	/	/	25	Pass
				2496.5	12500	4960.5	-45.39	0.029	/	/	2.5	Pass
8DPSK	SISO	2402	1	30	2387	2385.5	-44.31	0.037	/	/	2.5	Pass
				2387	2400	2399.987	-24.02	3.963	/	/	25	Pass
				2483.5	2496.5	2489.805	-48.52	0.014	/	/	25	Pass
				2496.5	12500	5209.5	-43.72	0.042	/	/	2.5	Pass
		2480	1	30	2387	1767	-50.56	0.009	/	/	2.5	Pass
				2387	2400	2390.237	-51.75	0.007	/	/	25	Pass
				2483.5	2496.5	2494.914	-44.71	0.034	/	/	25	Pass
				2496.5	12500	5176.5	-44.01	0.040	/	/	2.5	Pass



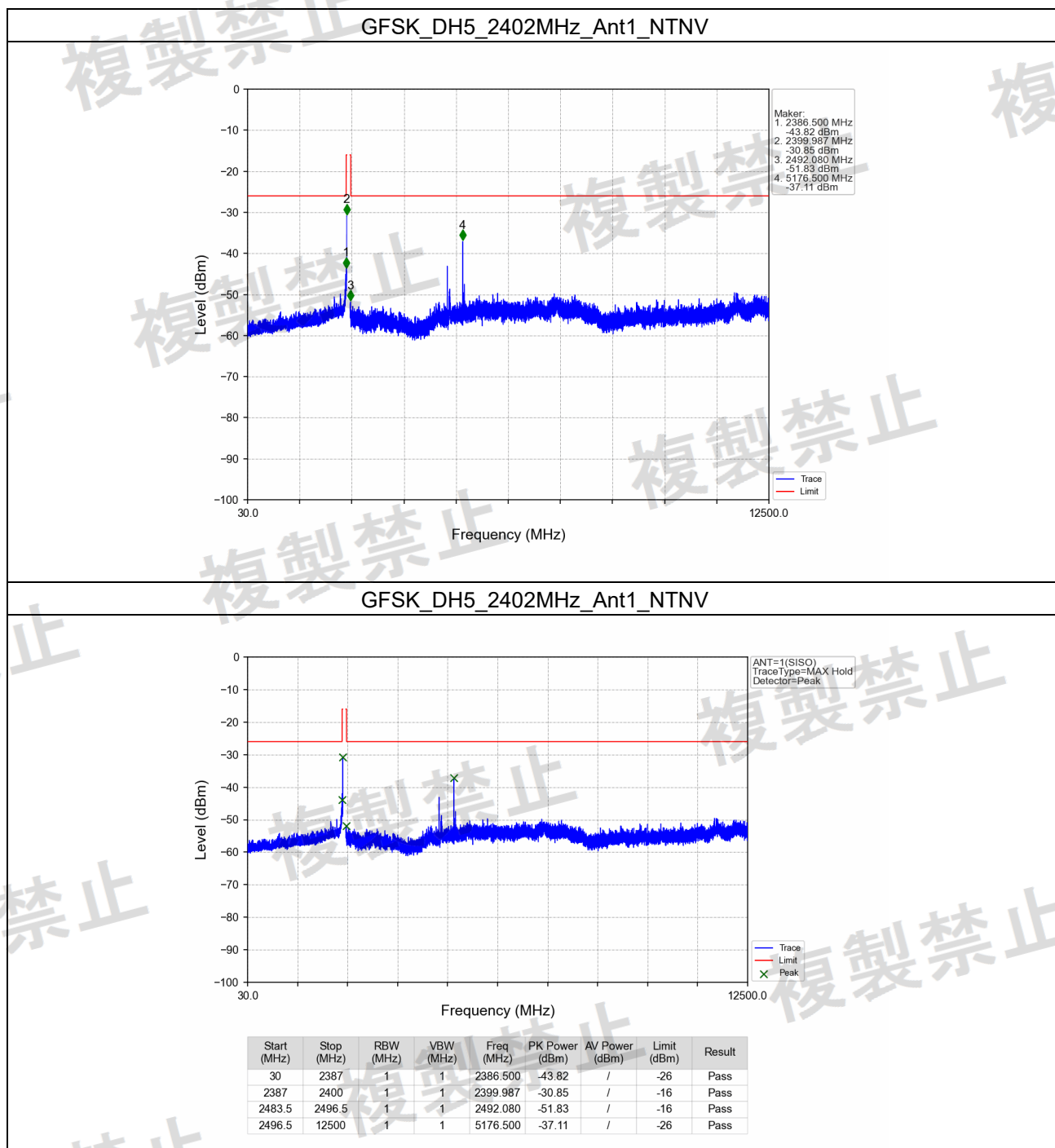
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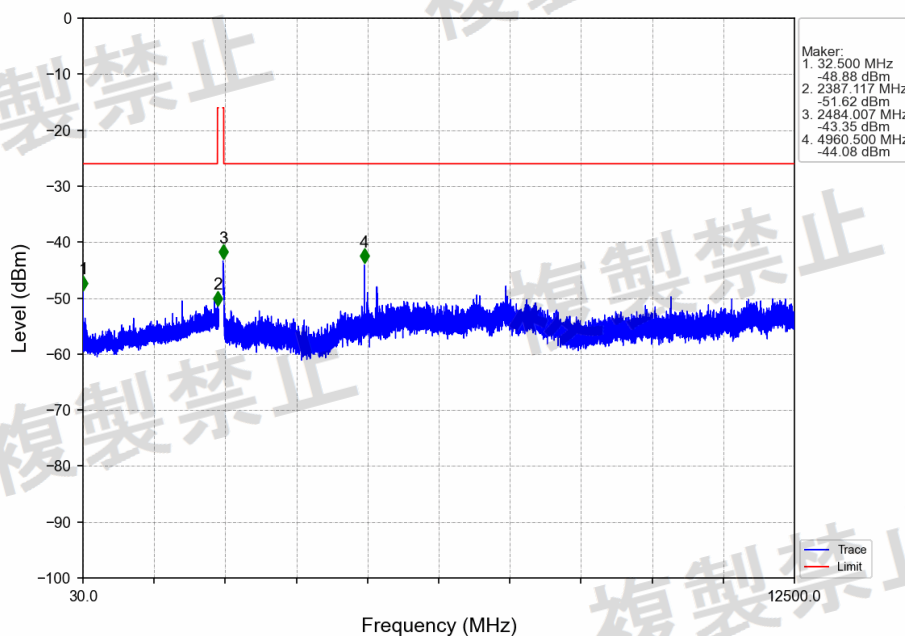
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6.2 Test Graph

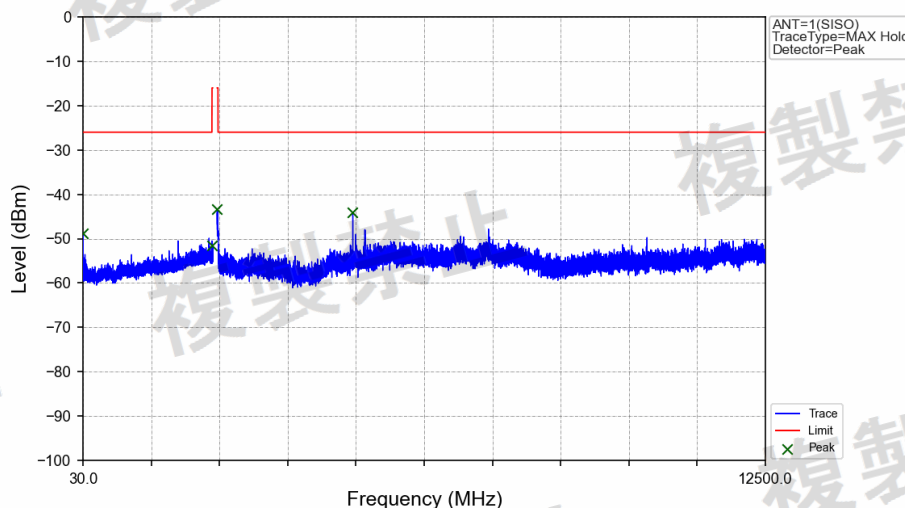
6.2.1 TxSe_NTNV



GFSK_DH5_2480MHz_Ant1_NTNV



GFSK_DH5_2480MHz_Ant1_NTNV



Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	32.500	-48.88	/	-26	Pass
2387	2400	1	1	2387.117	-51.62	/	-16	Pass
2483.5	2496.5	1	1	2484.007	-43.35	/	-16	Pass
2496.5	12500	1	1	4960.500	-44.08	/	-26	Pass

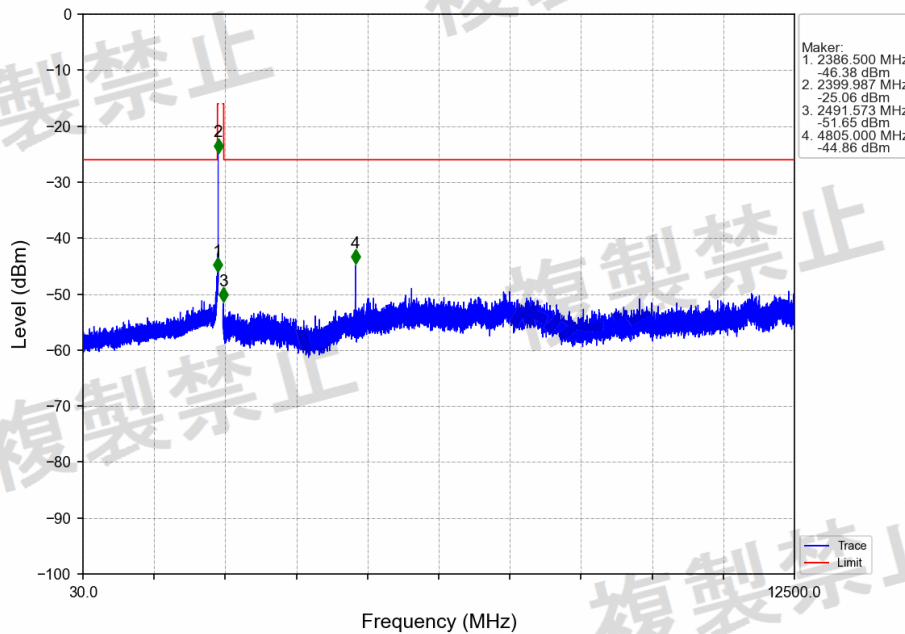
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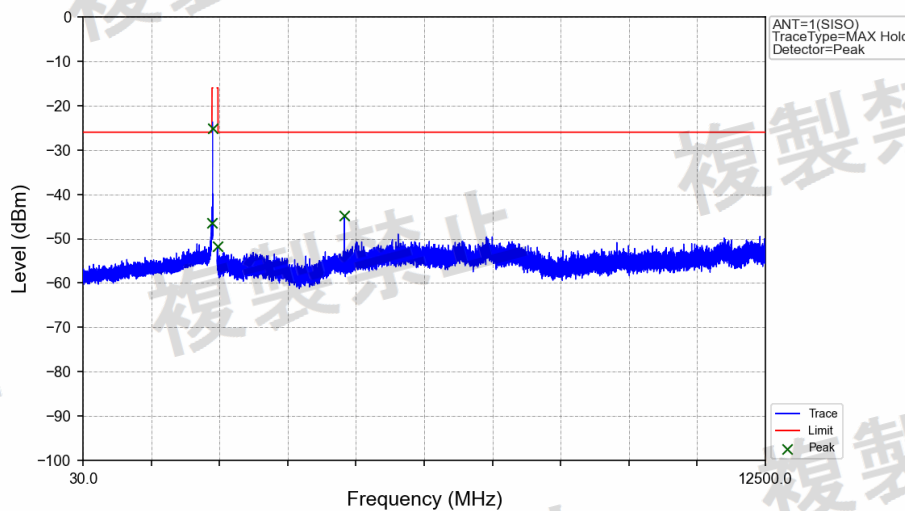
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Pi/4DQPSK_2DH5_2402MHz_Ant1_NTNV



Pi/4DQPSK_2DH5_2402MHz_Ant1_NTNV



Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	2386.500	-46.38	/	-26	Pass
2387	2400	1	1	2399.987	-25.06	/	-16	Pass
2483.5	2496.5	1	1	2491.573	-51.65	/	-16	Pass
2496.5	12500	1	1	4805.000	-44.86	/	-26	Pass

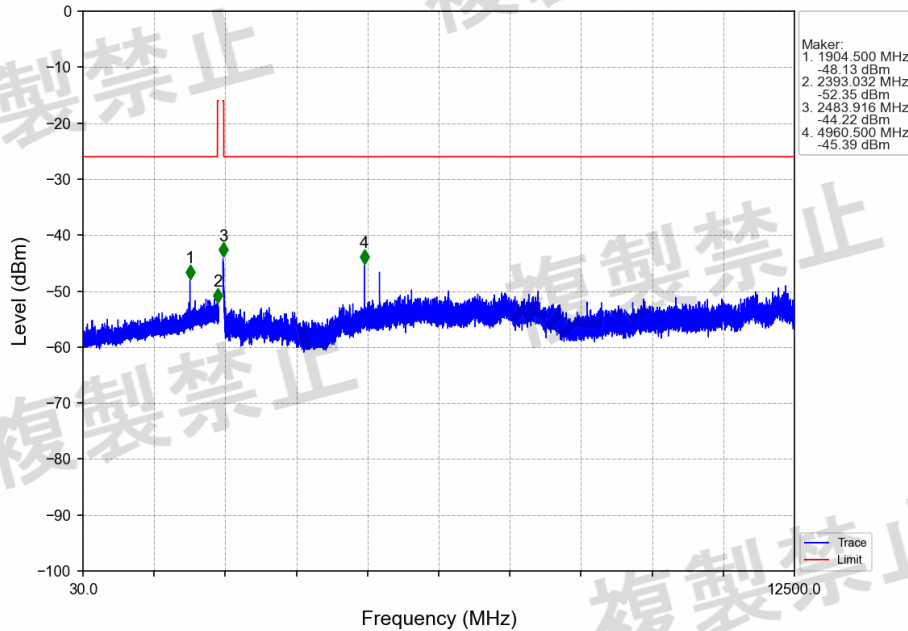
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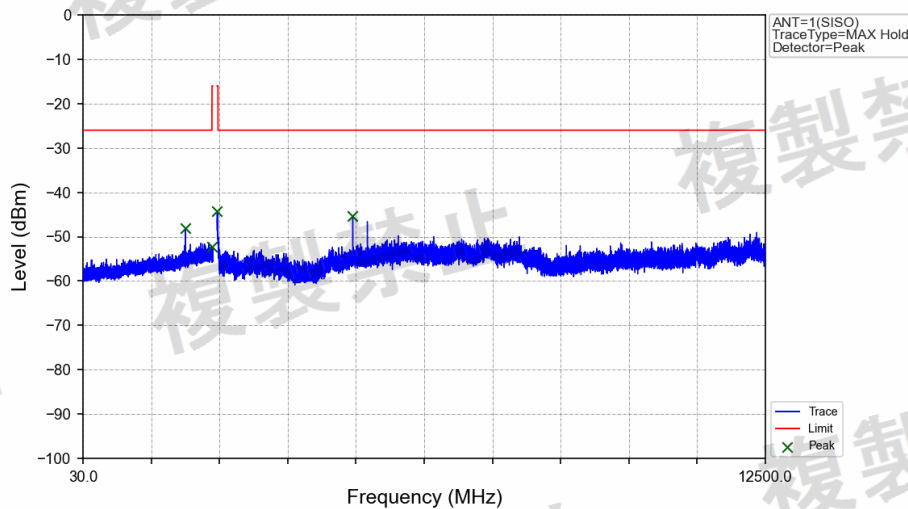
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Pi/4DQPSK_2DH5_2480MHz_Ant1_NTNV



Pi/4DQPSK_2DH5_2480MHz_Ant1_NTNV



Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	1904.500	-48.13	/	-26	Pass
2387	2400	1	1	2393.032	-52.35	/	-16	Pass
2483.5	2496.5	1	1	2483.916	-44.22	/	-16	Pass
2496.5	12500	1	1	4960.500	-45.39	/	-26	Pass

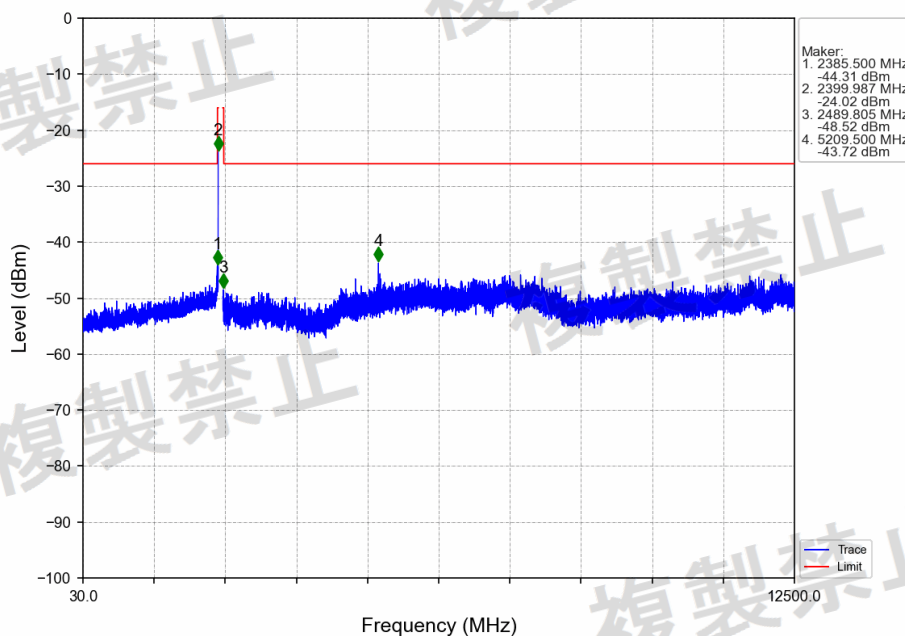
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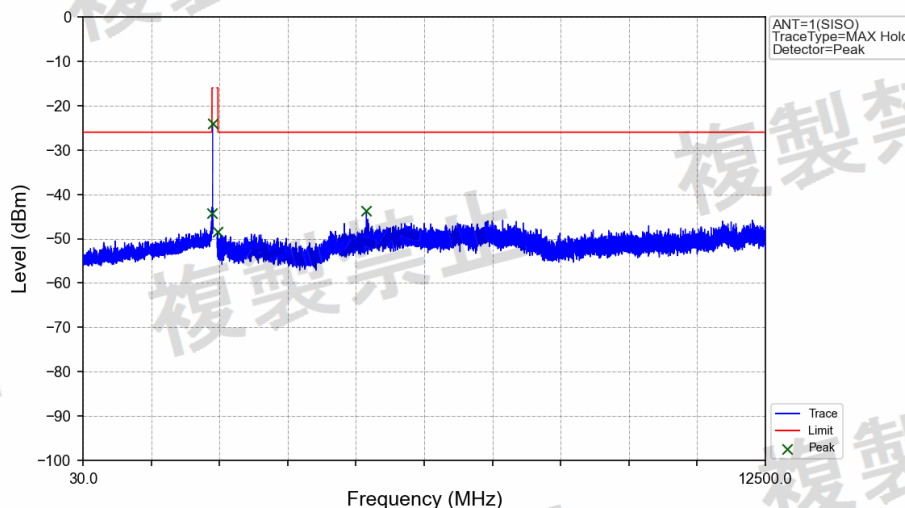
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8DPSK_3DH5_2402MHz_Ant1_NTNV



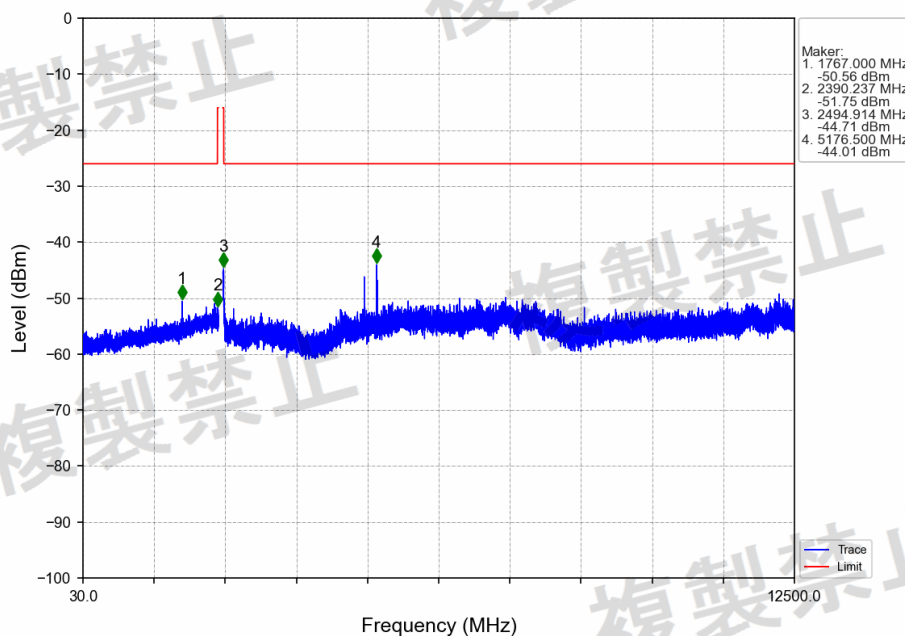
8DPSK_3DH5_2402MHz_Ant1_NTNV



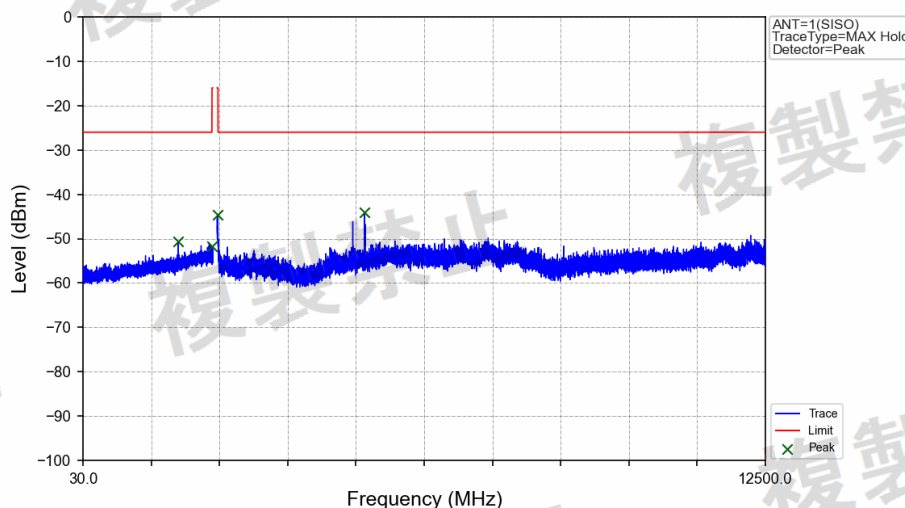
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	2385.500	-44.31	/	-26	Pass
2387	2400	1	1	2399.987	-24.02	/	-16	Pass
2483.5	2496.5	1	1	2489.805	-48.52	/	-16	Pass
2496.5	12500	1	1	5209.500	-43.72	/	-26	Pass



8DPSK_3DH5_2480MHz_Ant1_NTNV



8DPSK_3DH5_2480MHz_Ant1_NTNV



Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	2387	1	1	1767.000	-50.56	/	-26	Pass
2387	2400	1	1	2390.237	-51.75	/	-16	Pass
2483.5	2496.5	1	1	2494.914	-44.71	/	-16	Pass
2496.5	12500	1	1	5176.500	-44.01	/	-26	Pass

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7. Secondary Radiated Emission

7.1 Test Result

7.1.1 RxSe_NTNV

NTNV												
Mode	TX Type	Freq. (MHz)	ANT	Freq. Range		Marker					Limit (nW)	Verdict
				Start (MHz)	Stop (MHz)	Freq. (MHz)	PK Power (dBm)	PK Power (nW)	AV Power (dBm)	AV Power (nW)		
GFSK	SISO	2402	1	30	1000	706.6	-66.50	0.224	/	/	4	Pass
				1000	12500	1729.5	-57.33	1.849	/	/	20	Pass
		2480	1	30	1000	921.5	-80.70	0.009	/	/	4	Pass
				1000	12500	1887	-54.84	3.281	-78.54	0.014	20	Pass
Pi/4DQPSK	SISO	2402	1	1000	12500	1905	-55.71	2.685	-79.70	0.011	20	Pass
				30	1000	705.15	-69.84	0.104	/	/	4	Pass
		2480	1	30	1000	722	-70.37	0.092	/	/	4	Pass
				1000	12500	5791.5	-58.17	1.524	/	/	20	Pass
8DPSK	SISO	2402	1	30	1000	716.3	-75.32	0.029	/	/	4	Pass
				1000	12500	2421	-62.10	0.617	/	/	20	Pass
		2480	1	30	1000	906.5	-80.17	0.010	/	/	4	Pass
				1000	12500	2673.5	-57.30	1.862	/	/	20	Pass

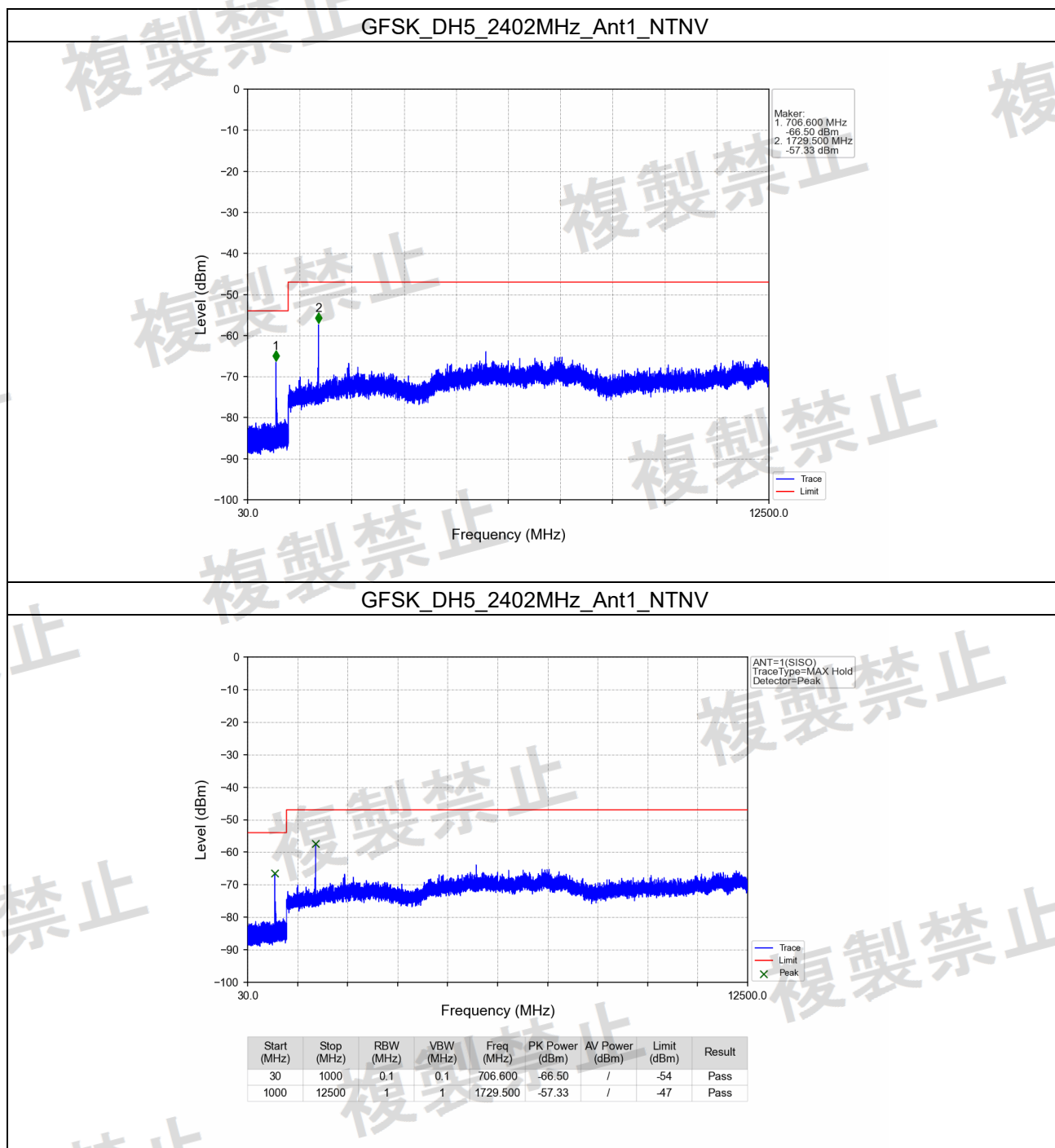
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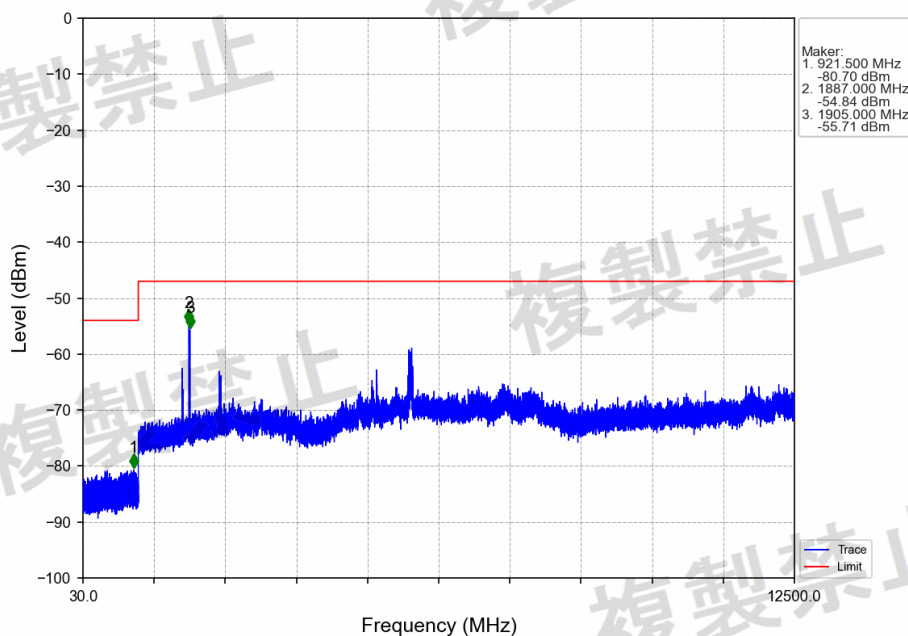


7.2 Test Graph

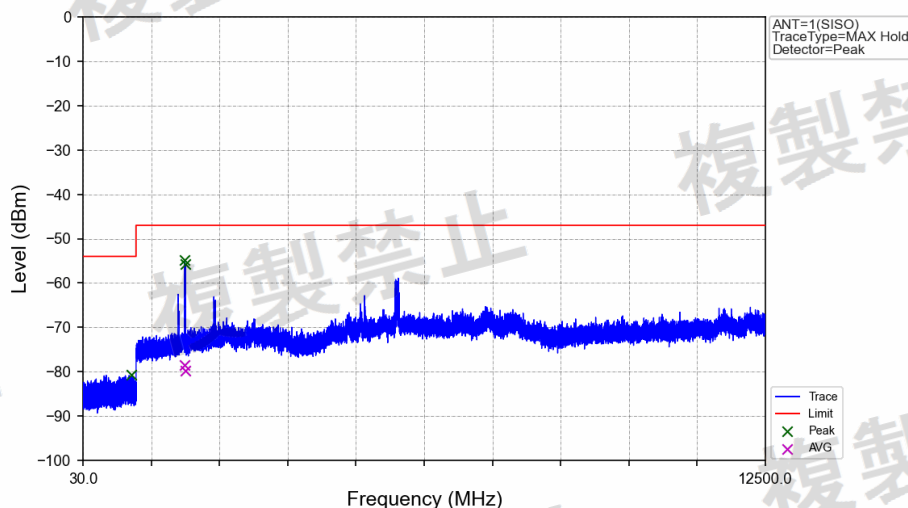
7.2.1 RxSe_NTNV



GFSK_DH5_2480MHz_Ant1_NTNV



GFSK_DH5_2480MHz_Ant1_NTNV



Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	921.500	-80.70	/	-54	Pass
1000	12500	1	1	1887.000	-54.84	-78.54	-47	Pass
1000	12500	1	1	1905.000	-55.71	-79.70	-47	Pass

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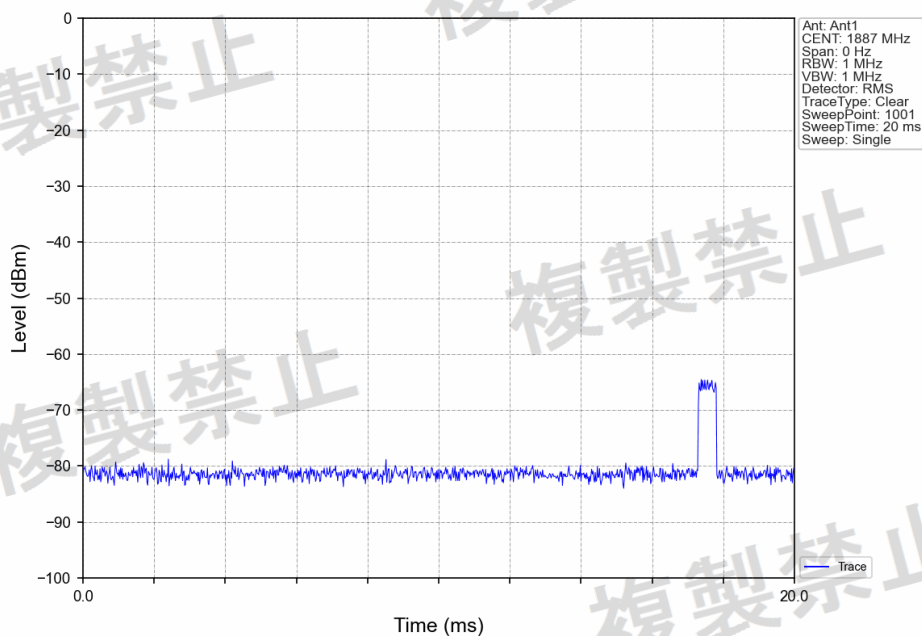
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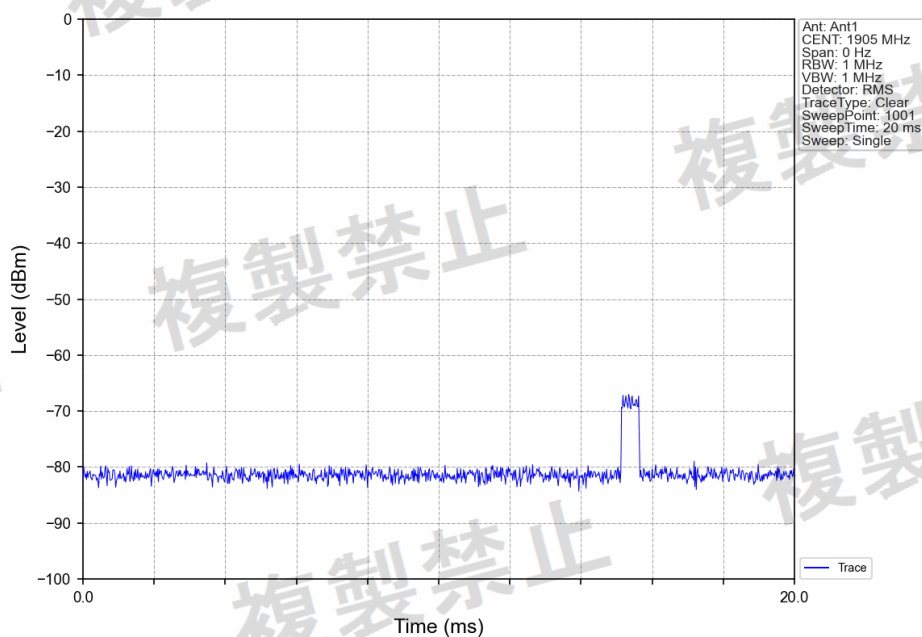
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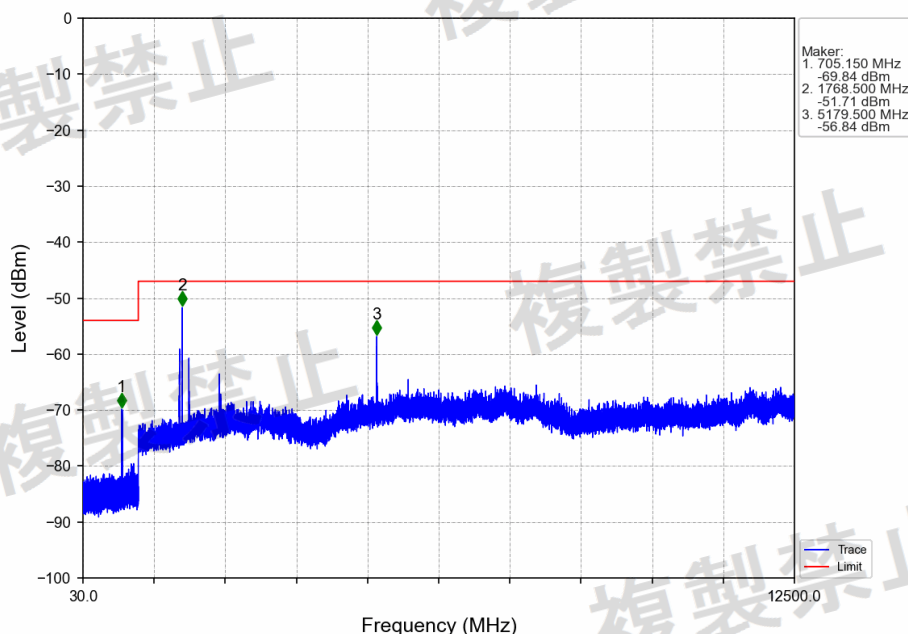
GFSK_DH5_2480MHz_Ant1_NTNV



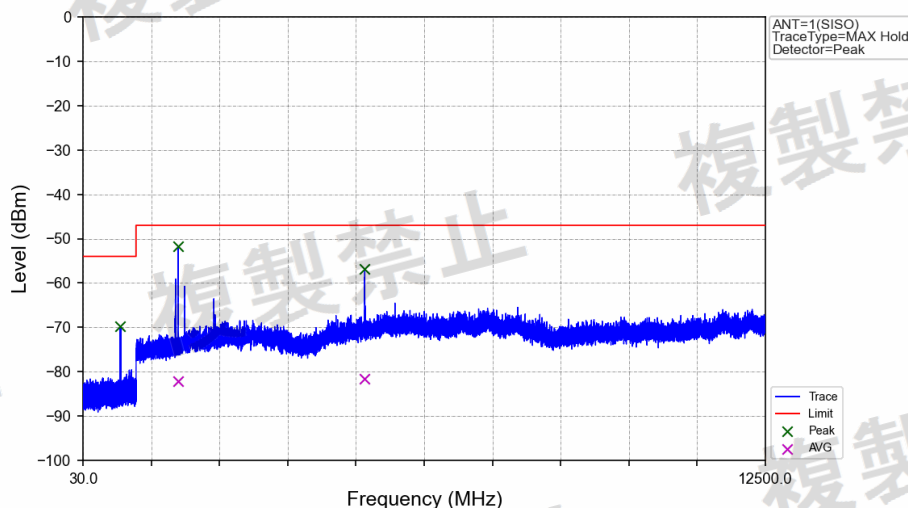
GFSK_DH5_2480MHz_Ant1_NTNV



Pi/4DQPSK_2DH5_2402MHz_Ant1_NTNV



Pi/4DQPSK_2DH5_2402MHz_Ant1_NTNV



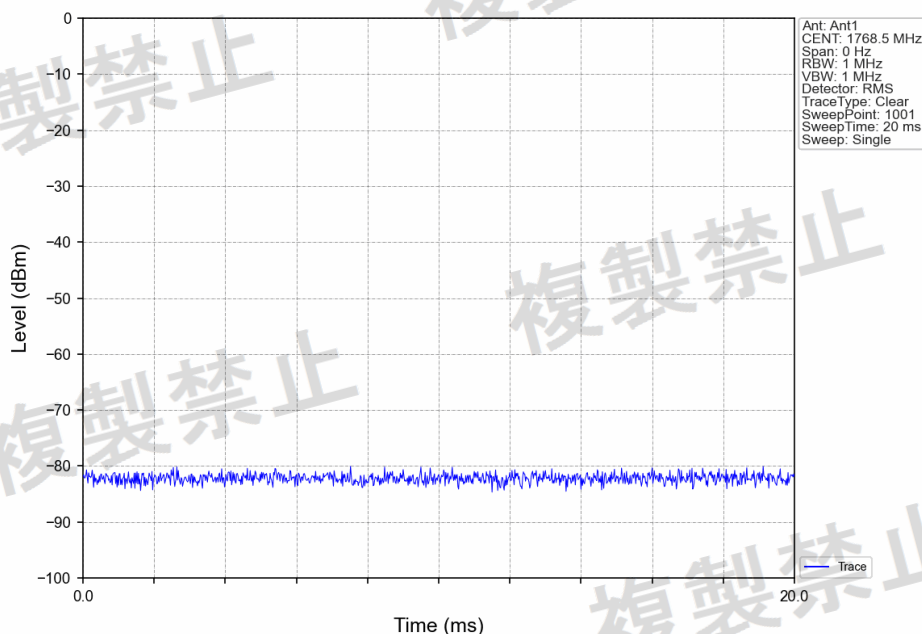
Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	705.150	-69.84	/	-54	Pass
1000	12500	1	1	1768.500	-51.71	-82.13	-47	Pass
1000	12500	1	1	5179.500	-56.84	-81.56	-47	Pass

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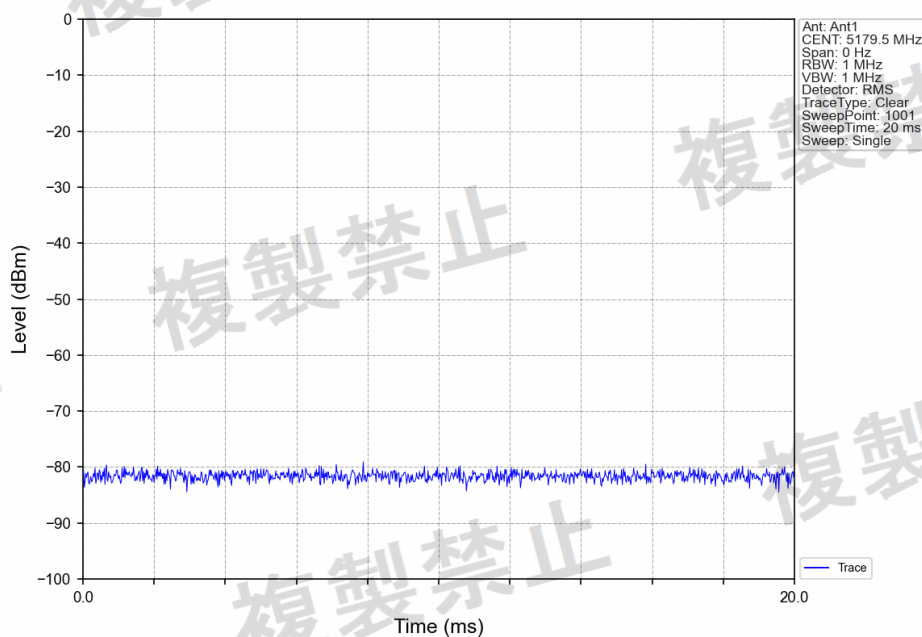
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Pi/4DQPSK_2DH5_2402MHz_Ant1_NTNV



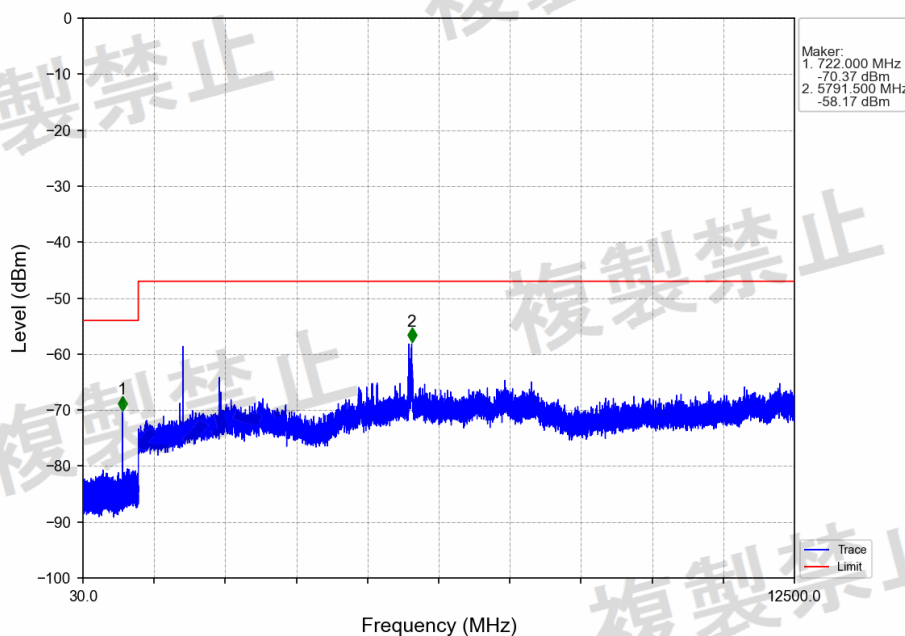
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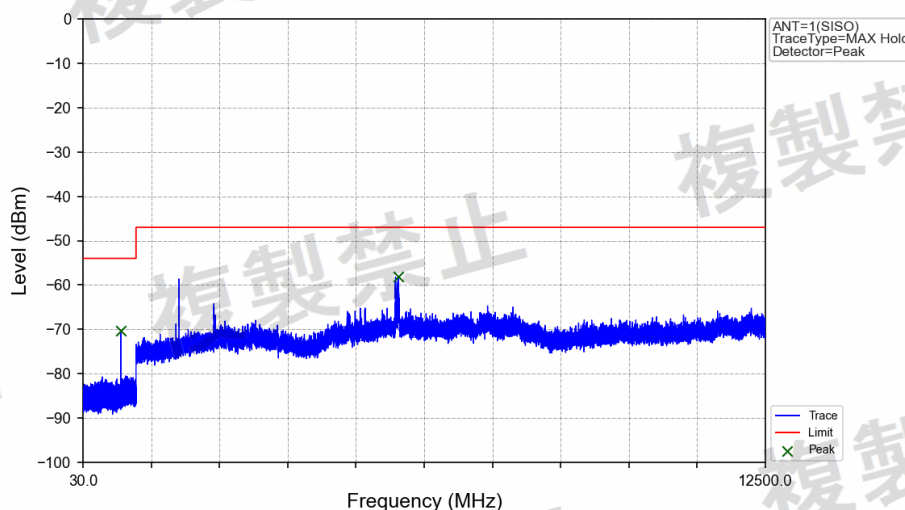
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Pi/4DQPSK_2DH5_2480MHz_Ant1_NTNV

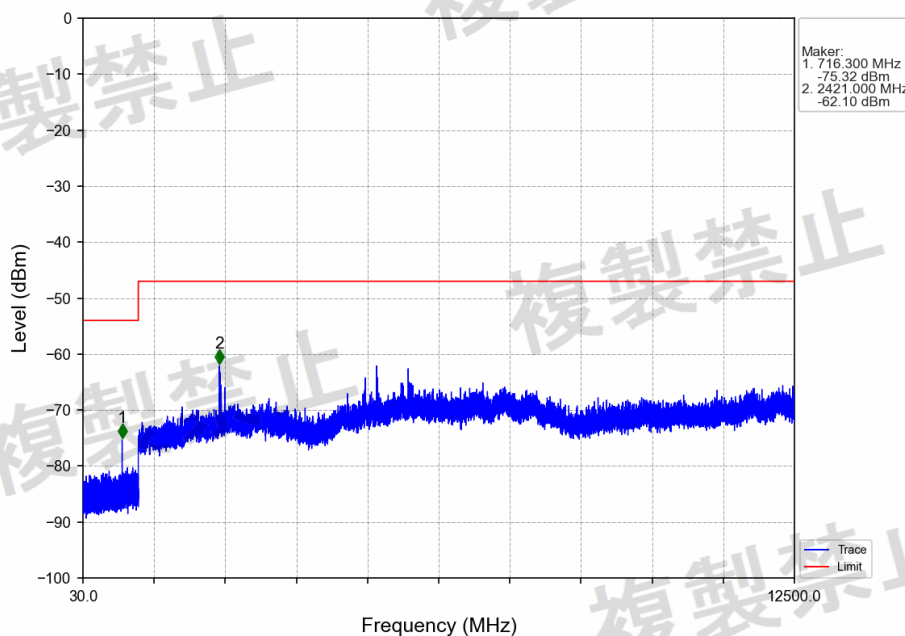


Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	722.000	-70.37	/	-54	Pass
1000	12500	1	1	5791.500	-58.17	/	-47	Pass

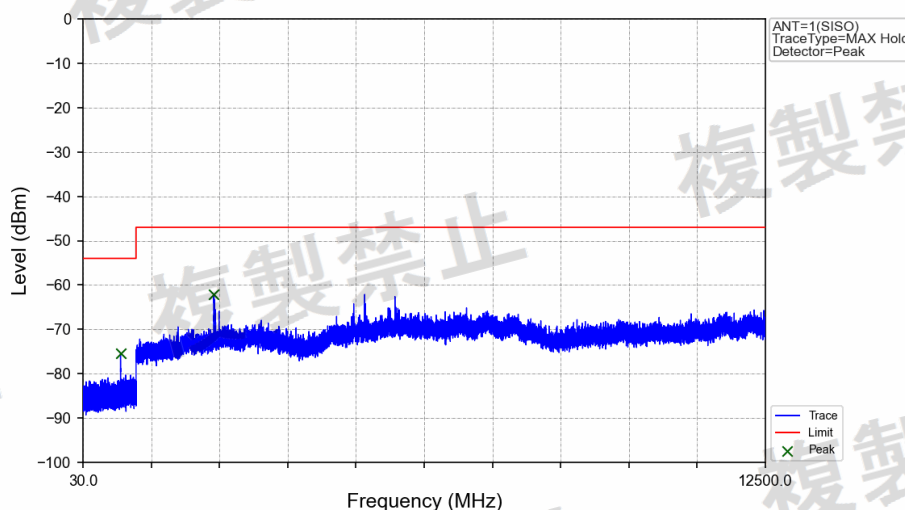
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8DPSK_3DH5_2402MHz_Ant1_NTNV



8DPSK_3DH5_2402MHz_Ant1_NTNV



Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	716.300	-75.32	/	-54	Pass
1000	12500	1	1	2421.000	-62.10	/	-47	Pass

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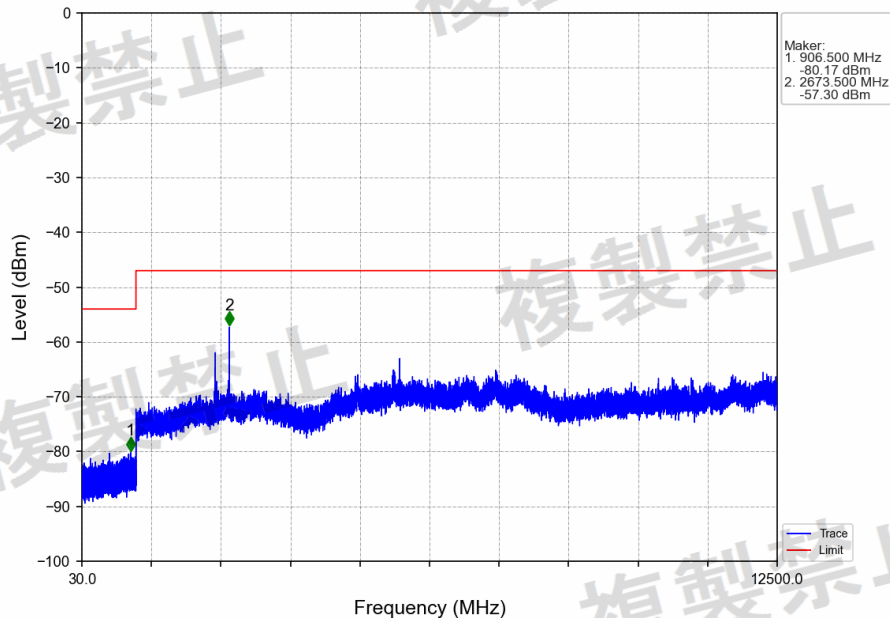
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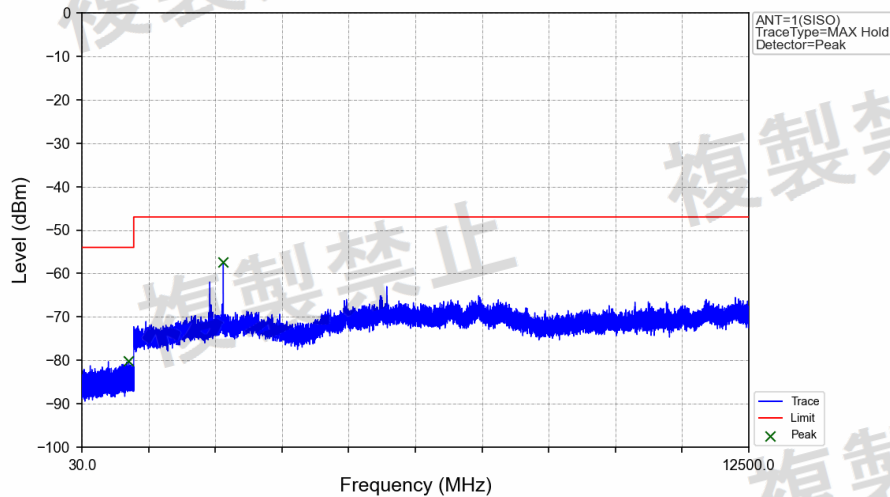


SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch Laboratory

8DPSK_3DH5_2480MHz_Ant1_NTNV



8DPSK_3DH5_2480MHz_Ant1_NTNV



Start (MHz)	Stop (MHz)	RBW (MHz)	VBW (MHz)	Freq (MHz)	PK Power (dBm)	AV Power (dBm)	Limit (dBm)	Result
30	1000	0.1	0.1	906.500	-80.17	/	-54	Pass
1000	12500	1	1	2673.500	-57.30	/	-47	Pass

- End of the Report -

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