

Test Report

Applicant: Dalian Golden Hualu Digital Technology Co.,Ltd.

Product Name: Wireless Speaker

Product Model: WB5331

Brand Name: CHL

Test standard: MIC public notice 88:2004, annex 43 and annex 1, Article 2, Paragraph 1, Item 19

Date of Issue: 2026-01-26

Beijing TIRT Technology Service Co.,Ltd Shenzhen Branch
1st Floor,South Flat,Building 7,Tongfuyu Industrial Zone,Xinhe
Avenue,Gonghe Community, Shajing Street ,BaoAn District, Shenzhen,
Guangdong, China
E-Mail:business@tirt.com.cn <http://www.tirt.com.cn>

Prepared By:	Reviewed By:	Approved By:	
Star Yang	Stone Tang	Robben Chen	
			

RF TEST REPORT

According to

**MIC public notice 88:2004, annex 43 and annex 1, Article 2,
Paragraph 1, Item 19**

Applicant:	Dalian Golden Hualu Digital Technology Co.,Ltd.
Address:	No.1 Hua Road,Qixianling,High-Tech Industrial Zone,Dalian,Liaoning Province, China
Manufacturer:	Dalian Golden Hualu Digital Technology Co.,Ltd.
Address:	No.1 Hua Road,Qixianling,High-Tech Industrial Zone,Dalian,Liaoning Province, China
Factory:	Dalian Golden Hualu Digital Technology Co.,Ltd.
Address:	No.1 Hua Road,Qixianling,High-Tech Industrial Zone,Dalian,Liaoning Province, China
Sample No:	1000072127
Product Name:	Wireless Speaker
Brand Name:	CHL
Model No.:	WB5331
Test No.:	WB5331

Date of Receipt:	2025/12/23
Date of Test:	2025/12/23~2026/01/20
Issued Date:	2026/01/26
Testing Lab:	TIRT

Note:

- 1, The laboratory is responsible for all the information provided in the report, except when information is provided by the customer;
- 2, This report shall not be reproduced except in full, without the written approval of Beijing TIRT Technology Service Co.,Ltd Shenzhen branch laboratory;
- 3, This document may be altered or revised by Beijing TIRT Technology Service Co.,Ltd Shenzhen branch laboratory Personnel only, and shall be noted in the revision section of the document. The test results of this report relate only to the tested sample identified in this report.

TABLE OF CONTENTS

Description	Page
1. General Information	6
1.1. Description of Device (EUT)	6
1.2. Accessories of Device (EUT)	7
1.3. Ancillary Equipment Details	7
1.4. Additions, Deviations and Exclusions from Standards	7
1.5. Model differences	7
2. Summary of test	8
2.1. Summary of test result	8
2.2. Block Diagram	8
2.3. Test mode	9
2.4. Test Conditions	9
2.5. Test Voltage	9
2.6. Test Facility	9
2.7. Measurement Uncertainty (95% confidence levels, k=2)	10
3. Antenna Power	11
3.1. Test Equipment	11
3.2. Limit	11
3.3. Block diagram of test setup	11
3.4. Test Procedure	11
3.5. Test result	11
4. Frequency Tolerance	17
4.1. Test Equipment	17
4.2. Limit	17
4.3. Block diagram of test setup	17
4.4. Test Procedure	17
4.5. Test result	17
5. Occupied Frequency Bandwidth	23
5.1. Test Equipment	23
5.2. Limit	23
5.3. Block diagram of test setup	23
5.4. Test Procedure	23
5.5. Test result	24
6. Transmitter Spurious Emissions (conducted)	26
6.1. Test Equipment	26
6.2. Limit	26
6.3. Block diagram of test setup	26
6.4. Test Procedure	26
6.5. Test result	26
7. Dwell time	34
7.1. Test Equipment	34
7.2. Limit	34
7.3. Block diagram of test setup	34
7.4. Test Procedure	34
7.5. Test result	35
8. Interference prevention function	40
8.1. Limit	40
8.2. Measuring ID Code Software	40
8.3. Block diagram of test setup	40
8.4. Test Procedure	40
8.5. Test result	40

9. Secondary Radiated Emissions	41
9.1. Test Equipment	41
9.2. Limit	41
9.3. Block diagram of test setup	41
9.4. Test Procedure	41
9.5. Test result	42
10. Equivalent Isotropic Radiated Power	48
10.1. Test Equipment	48
10.2. Limit	48
10.3. Block diagram of test setup	48
10.4. Test Procedure	48
10.5. Test result	49
11. 3dB Beam Bandwidth	50
11.1. Test Equipment	50
11.2. Block diagram of test setup	50
11.3. Test Procedure	50
11.4. Test result	51
12. Photos of test setup	52
13. EUT Photo	53

History of the test report

Report No.	Version	Description	Issued Date	Note
ITEZA2-202500768RF2	V1.0	Original Report.	2026-01-26	Valid

1. General Information

1.1. Description of Device (EUT)

EUT	: Wireless Speaker
Model No.	: WB5331
Power supply	: DC 5V from Fast charger or DC 3.7V from battery
Radio Technology	: Bluetooth V5.2
Operation frequency	: 2402MHz -2480MHz
Number of channels	: 79
Data Rate	: 1Mbps, 2Mbps, 3Mbps
Modulation	: GFSK / Pi/4-DQPSK / 8-DPSK
Stated power	: 0.5mW/MHz
Antenna Type	: Internal antenna, max gain 2.32dBi Antenna information is provided by applicant. Testing lab is not responsible for the accuracy of the information.
Software Version	: 1.0.0
Hardware version	: V1.0

1.2. Accessories of Device (EUT)

Accessories : /
Manufacturer : /
Model : /
Ratings : /

1.3. Ancillary Equipment Details

No.	Description	Manufacturer	Model	Note
1	PC	DELL	3511	N/A

1.4. Additions, Deviations and Exclusions from Standards

None

1.5. Model differences

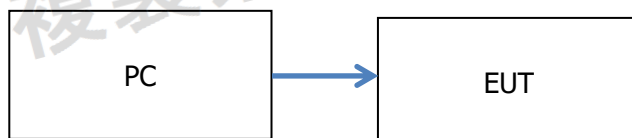
N/A

2. Summary of test

2.1. Summary of test result

CLAUSE	TEST PARAMETER	RESULTS
Transmitter Parameters		
3.2 (2)	Antenna Power	Pass
3.2 (3)	Tolerances for Antenna Power	Pass
3.2 (4)	Frequency Tolerance	Pass
3.2 (7)	Occupied Frequency Bandwidth	Pass
3.2 (11)	Dwell Time	Pass
3.2 (6)	Spurious Emissions	Pass
/	Equivalent Isotropic Radiated Power	Pass
/	3dB Beam Bandwidth	N/A
/	Interference prevention function	Pass
Receiver Parameters		
3.3 (1)	Secondary Radiated Emissions	Pass
N/A is an abbreviation for Not Applicable.		

2.2. Block Diagram



2.3. Test mode

The test software is used to control the operation of the EUT in the continuous transmission mode, and select the test channel and wireless mode:

Tested mode, channel, and data rate information		
Mode	Channel	Frequency (MHz)
Carrier Tx Mode	CH0	2402
	CH39	2441
	CH78	2480
GFSK / Pi/4-DQPSK / 8-DPSK hopping on Tx Mode	CH0 to CH78	2402 to 2480
GFSK / Pi/4-DQPSK / 8-DPSK hopping off Tx Mode	CH0	2402
	CH39	2441
	CH78	2480
GFSK / Pi/4-DQPSK / 8-DPSK Rx Mode	CH0	2402
	CH39	2441
	CH78	2480

2.4. Test Conditions

Temperature range	5-35℃
Humidity range	45-85%
Pressure range	86-106kPa

2.5. Test Voltage

Voltage mode	Input Voltage	Radio Unit Voltage
DC	DC 2.7V	DC 3.3V
	DC 3.3V	DC 3.3V
	DC 4.8V	DC 3.3V
Note: 1 The radio unit Voltage with the IC regulator. 2 The radio unit less than 1%, so the test only rated voltage (Normal voltage DC 3.3V).		

2.6. Test Facility

Company:	Beijing TIRT Technology Service Co.,Ltd Shenzhen Branch
Address:	1st Floor, South Flat, Building 7, Tongfuyu Industrial Zone, Xinhe Avenue, Gonghe Community, Shajing Street, BaoAn District, Shenzhen, Guangdong, China
CNAS Registration Number:	CNAS L14158
A2LA Registration Number:	6049.01
FCC Designation Number:	CN1366
Test Firm Registration Number:	820690
Telephone:	+86-0755-27087573

2.7. Measurement Uncertainty (95% confidence levels, k=2)

Item	MU
Frequency Error	±1.9%
Antenna Power	±0.743dB
Occupied Bandwidth	±0.0196%
Spread Bandwidth	±0.0196%
Transmitter Spurious Emission Strength and Unwanted Emission Intensity	30MHz-1GHz:±0.746dB 1GHz-13GHz: ±1.328dB
Receiver Spurious Emission and Unwanted Emission Intensity	30MHz-1GHz:±0.746dB 1GHz-26GHz: ±1.328dB

3. Antenna Power

3.1. Test Equipment

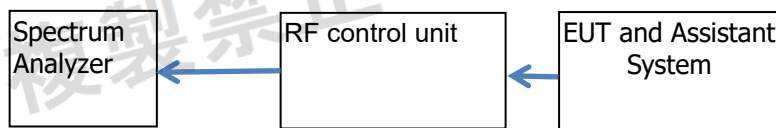
Item	Type	Manufacturer	Model No.	Serial No.	Last Calibration	Due Calibration
1	Spectrum analyzer	Agilent	N9020A	MY54484584	2025.11.10	2026.11.09
2	RF control unit	Tonscend	JS0806-1	19K8060206	2025.11.12	2026.11.11

Note: The test equipment is calibrated by HUAJUE MEDICAL TESTING AND METROLOGY (SHENZHEN) CO.,LTD. Calibration standard: Article 24-2, Paragraph 4 of the Radio Act, method c

3.2. Limit

Limit	3mW/MHz
Tolerance	+20%, No Low Limit

3.3. Block diagram of test setup



3.4. Test Procedure

- (1) Configure EUT and assistant system according clause 2.3 and 3.3
- (2) Set EUT work in test mode as described in clause 2.4
- (3) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:

Centre Frequency: The centre frequency of the channel under test.

Resolution BW: 1 MHz.

Video BW: 3 MHz.

Span: Wide enough to cover the complete power envelope of the signal of the EUT.

Detector: Peak.

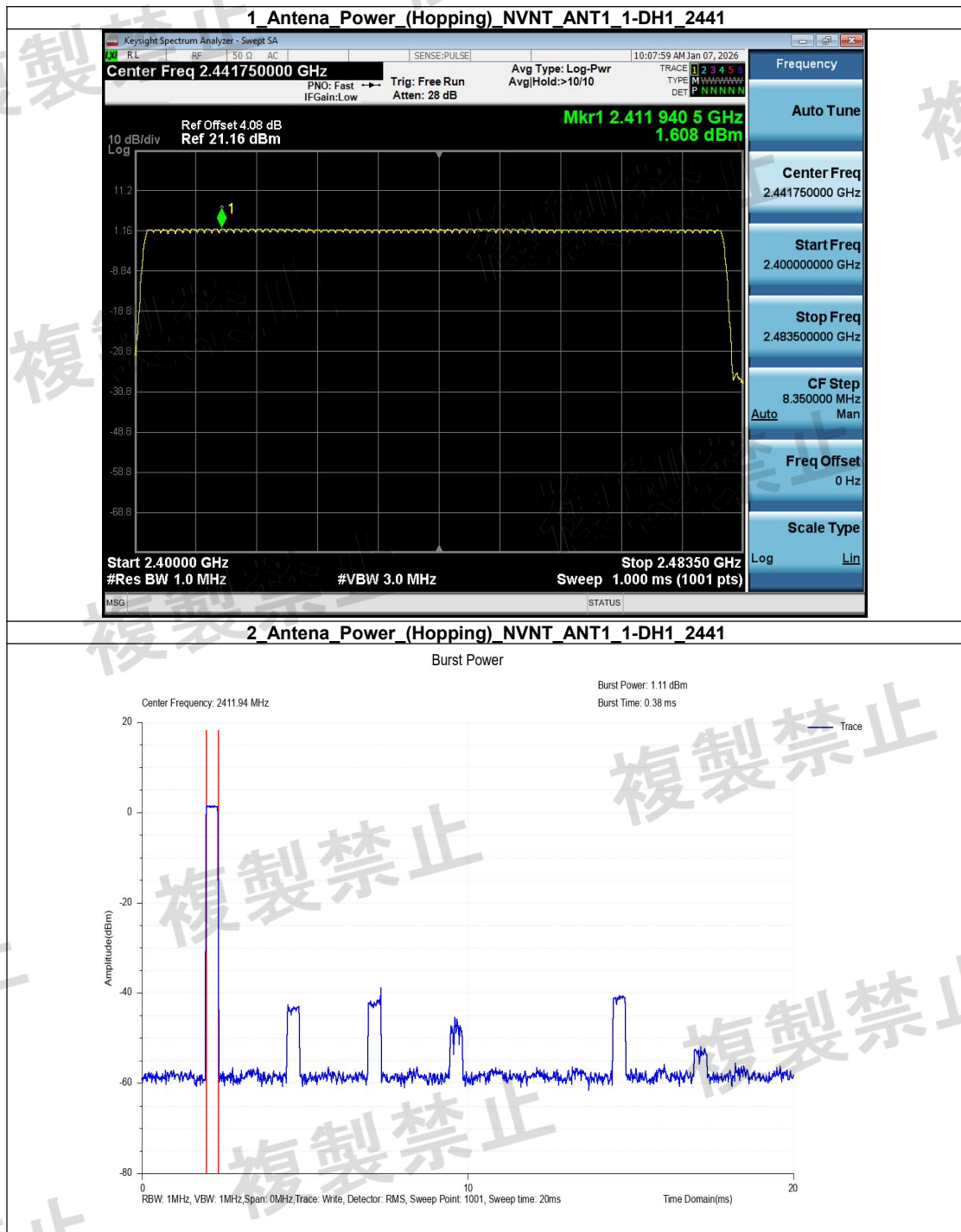
Trace Mode: Max Hold.

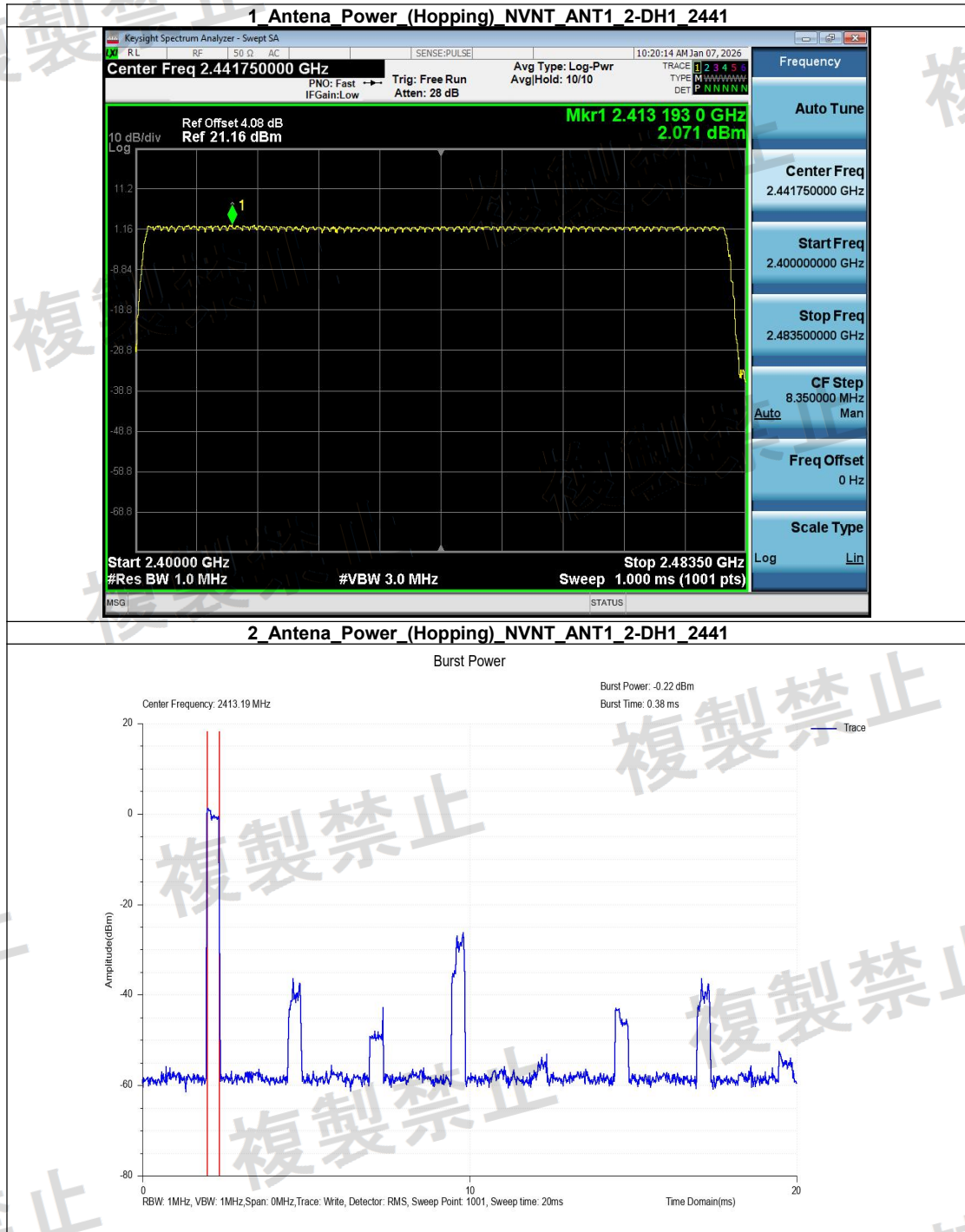
- (4)When the trace is complete, find the peak value of the power envelope and record.

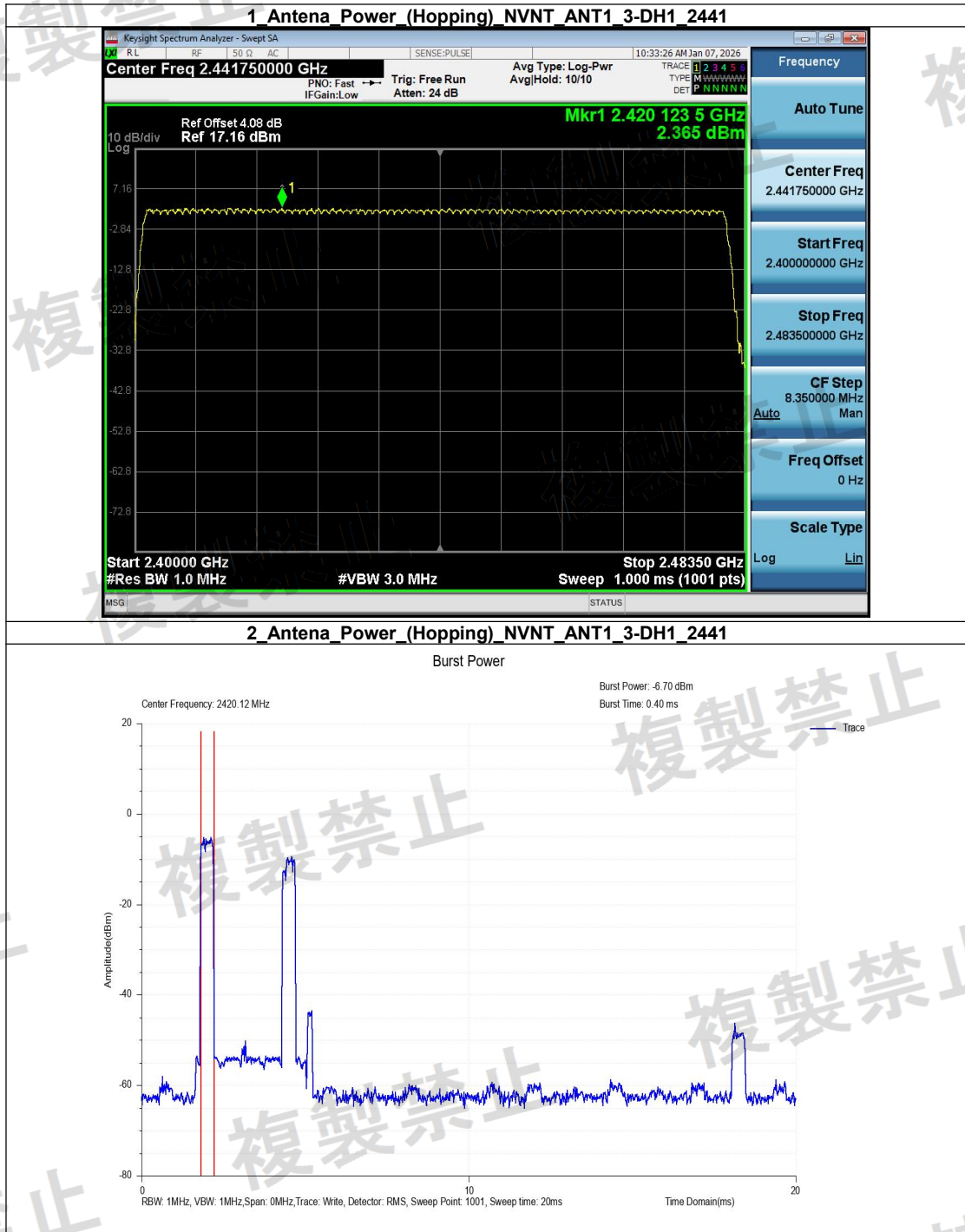
3.5. Test result

Condition	Antenna	Mode	Frequency	Burst Power(dBm)	Burst Power(mW)	Spread BW(MHz)	Antenna Power(mW/MHz)
NVNT	ANT1	1-DH1	Hopping	1.11	1.29	71.500	0.02
NVNT	ANT1	2-DH1	Hopping	-0.22	0.95	71.710	0.01
NVNT	ANT1	3-DH1	Hopping	-6.70	0.21	71.630	0.00

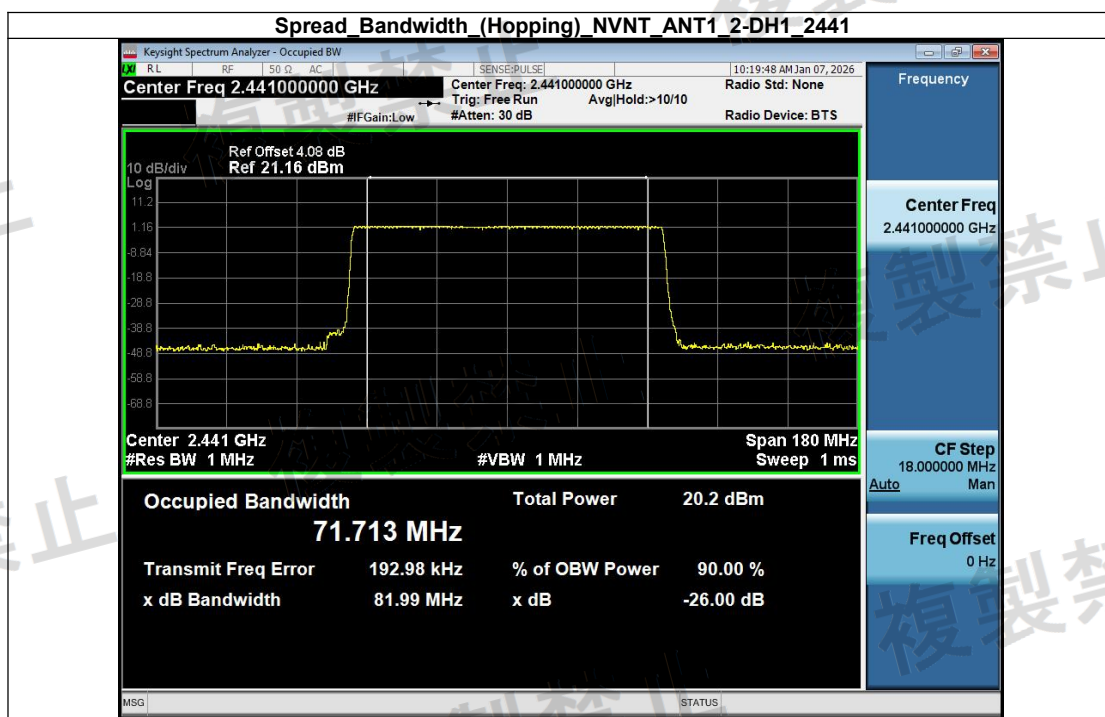
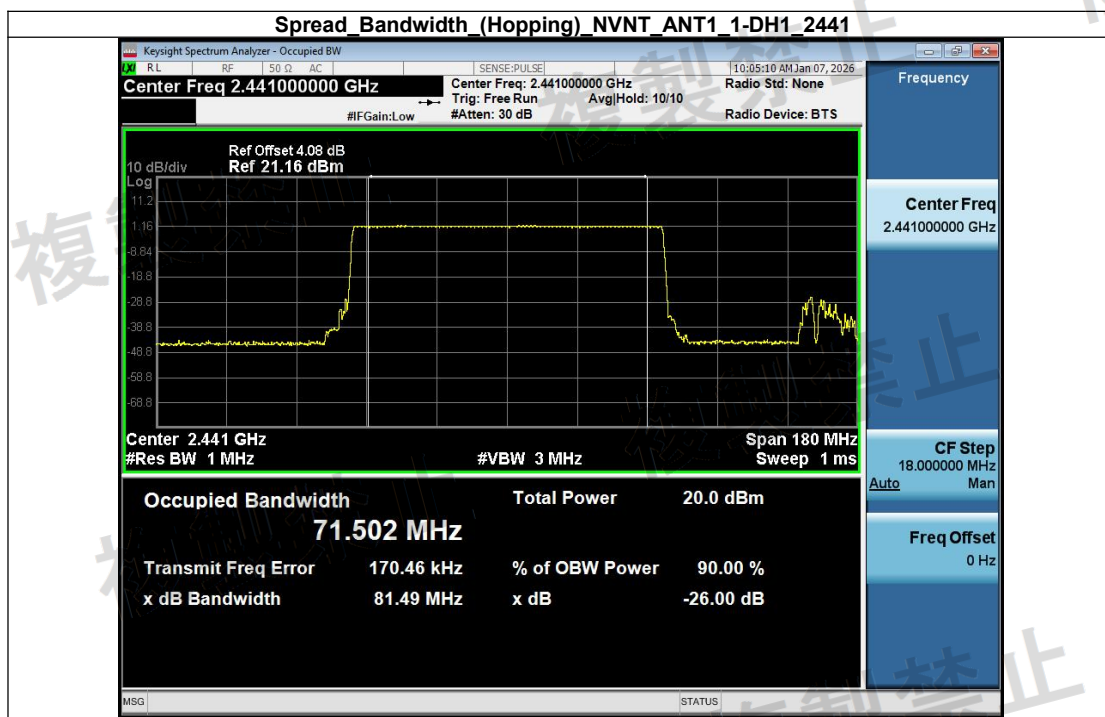
Condition	Antenna	Modulation	Mode	Antenna Power (mW/MHz)	Rated Power (mW/MHz)	Power Limit (mW/MHz)	Power Tolerance (%)	Tolerance Limit(%)	Result
NVNT	ANT1	1-DH1	Hopping	0.02	0.50	3	-96.39	+20	Pass
NVNT	ANT1	2-DH1	Hopping	0.01	0.50	3	-97.35	+20	Pass
NVNT	ANT1	3-DH1	Hopping	0.00	0.50	3	-99.40	+20	Pass

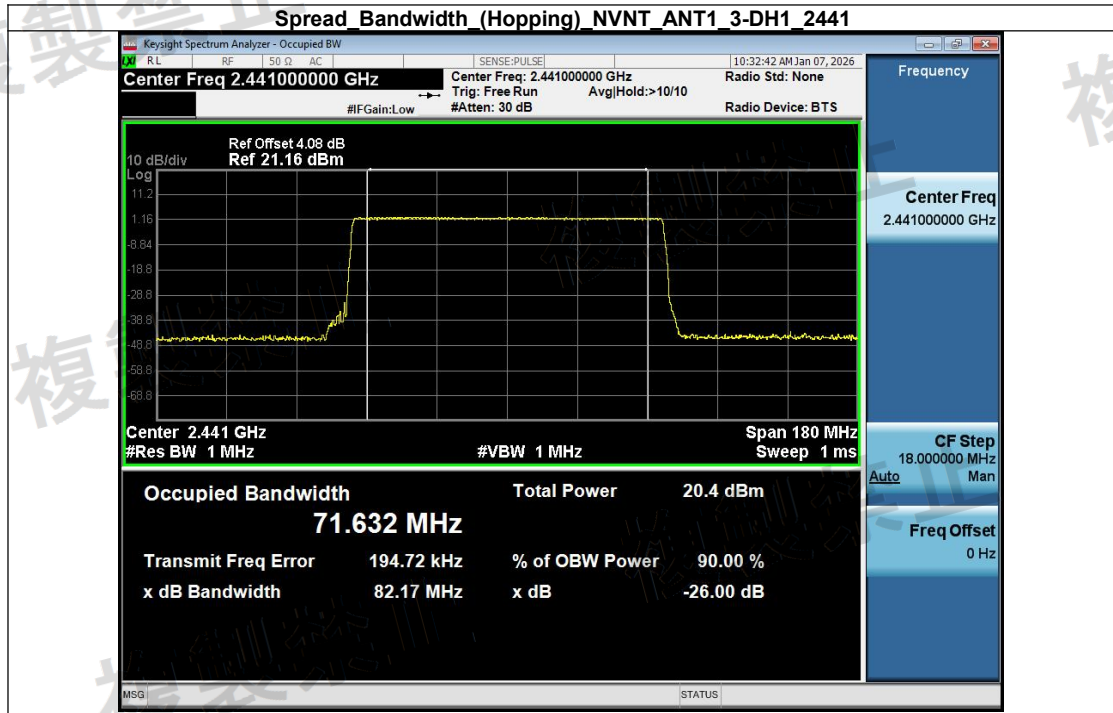






Condition	Antenna	Modulation	mode	Spread Bandwidth(MHz)	Spread Bandwidth Limit(kHz)	Rate(Msymbol/s)	Spread Factor
NVNT	ANT1	1-DH1	Hopping	71.50	500	1	71.50
NVNT	ANT1	2-DH1	Hopping	71.71	500	1	71.71
NVNT	ANT1	3-DH1	Hopping	71.63	500	1	71.63





4. Frequency Tolerance

4.1. Test Equipment

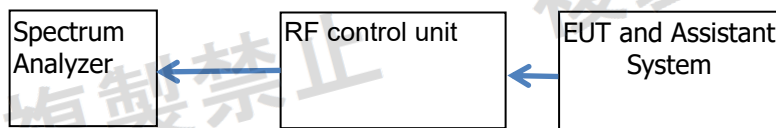
Item	Type	Manufacturer	Model No.	Serial No.	Last Calibration	Due Calibration
1	Spectrum analyzer	Agilent	N9020A	MY54484584	2025.11.10	2026.11.09
2	RF control unit	Tonscend	JS0806-1	19K8060206	2025.11.12	2026.11.11

Note: The test equipment is calibrated by HUAJUE MEDICAL TESTING AND METROLOGY (SHENZHEN) CO.,LTD. Calibration standard: Article 24-2, Paragraph 4 of the Radio Act, method c

4.2. Limit

+/- 50x 10⁻⁶ or less(50ppm)

4.3. Block diagram of test setup



4.4. Test Procedure

- (1) Configure EUT and assistant system according clause 2.3 and 4.3
- (2) Set EUT work in carrier Tx mode as described in clause 2.4
- (3) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:

Centre Frequency: The centre frequency of the channel under test.

Resolution BW: 10 KHz.

Video BW: 10 KHz.

Span: 1MHz.

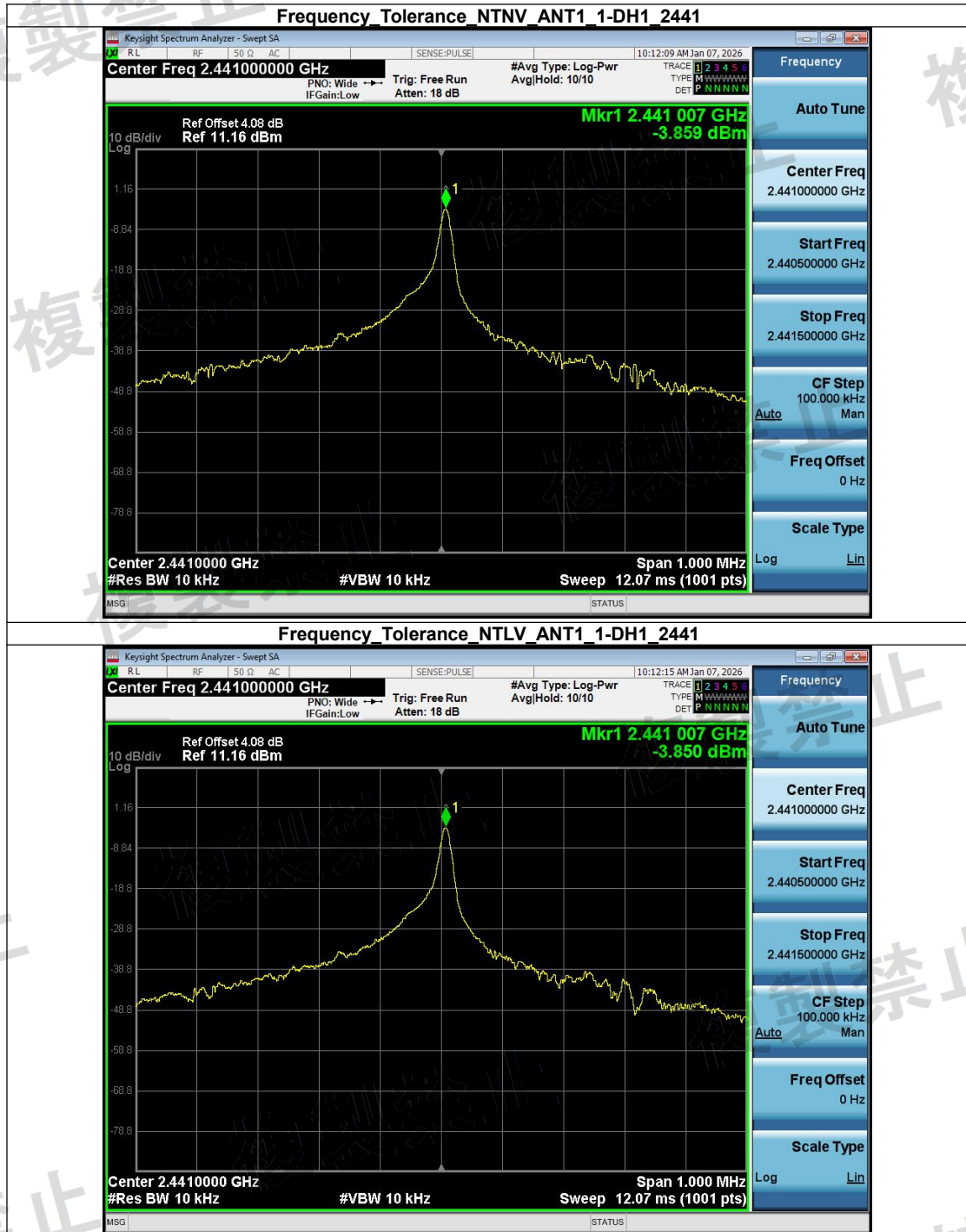
Detector: Peak.

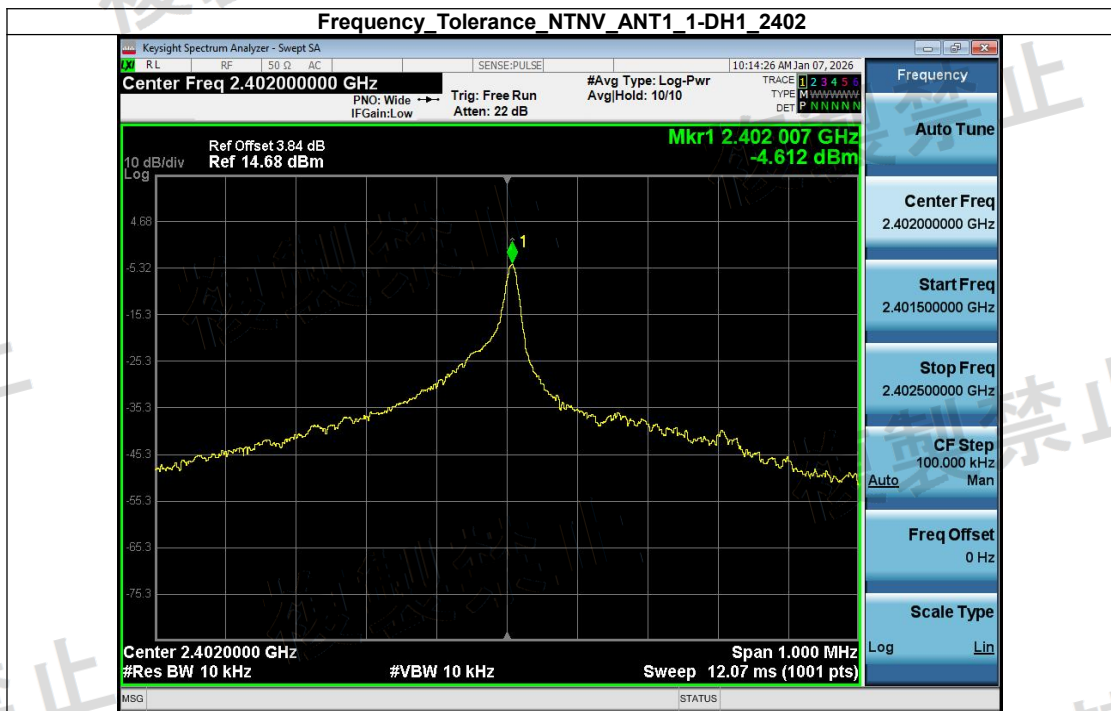
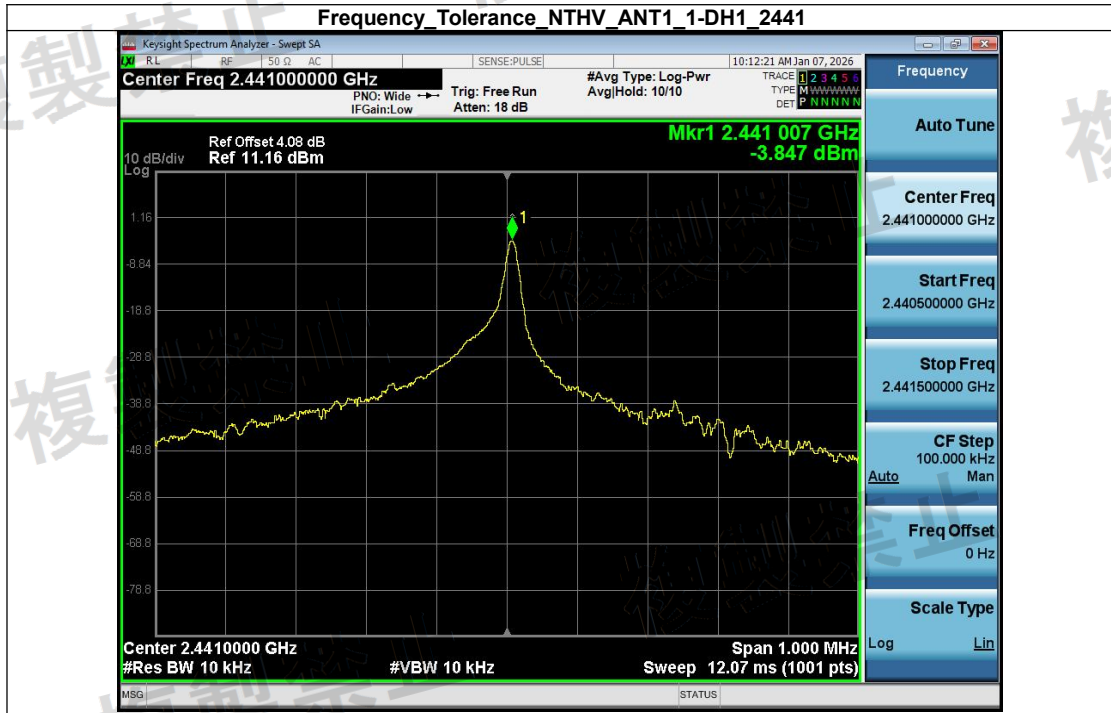
Trace Mode: Max Hold.

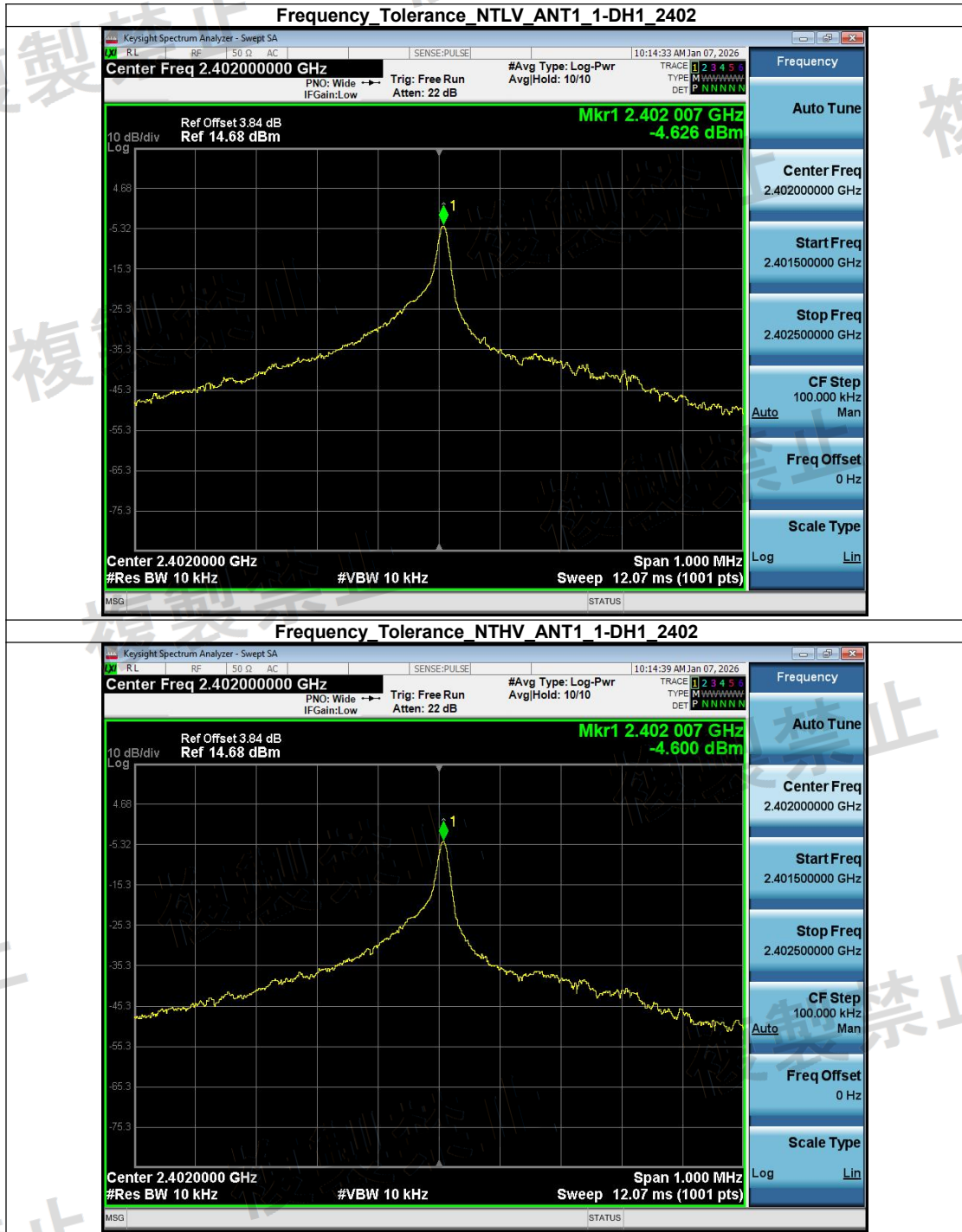
- (4)When the trace is complete, find the peak value of the power envelope and record the frequency.

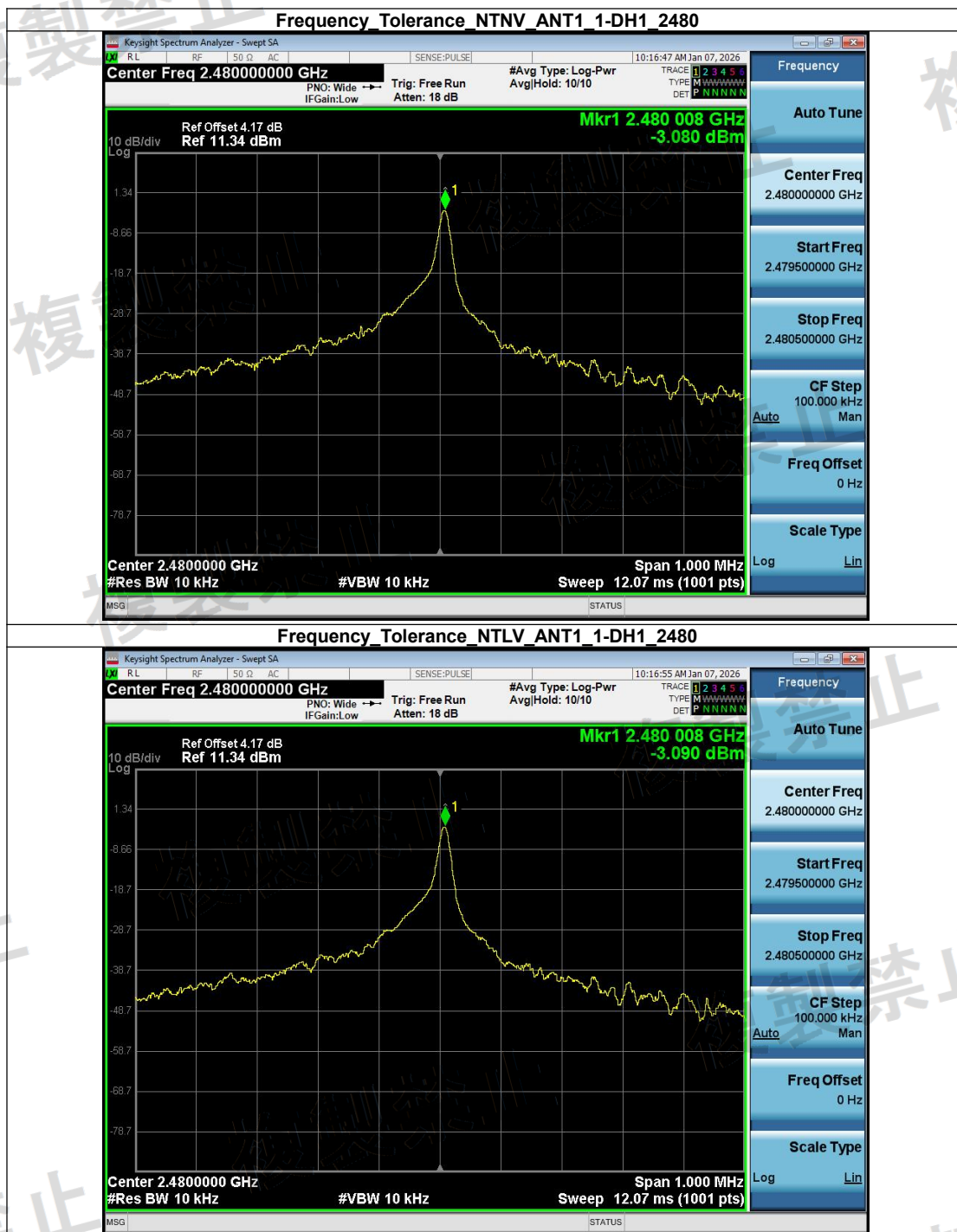
4.5. Test result

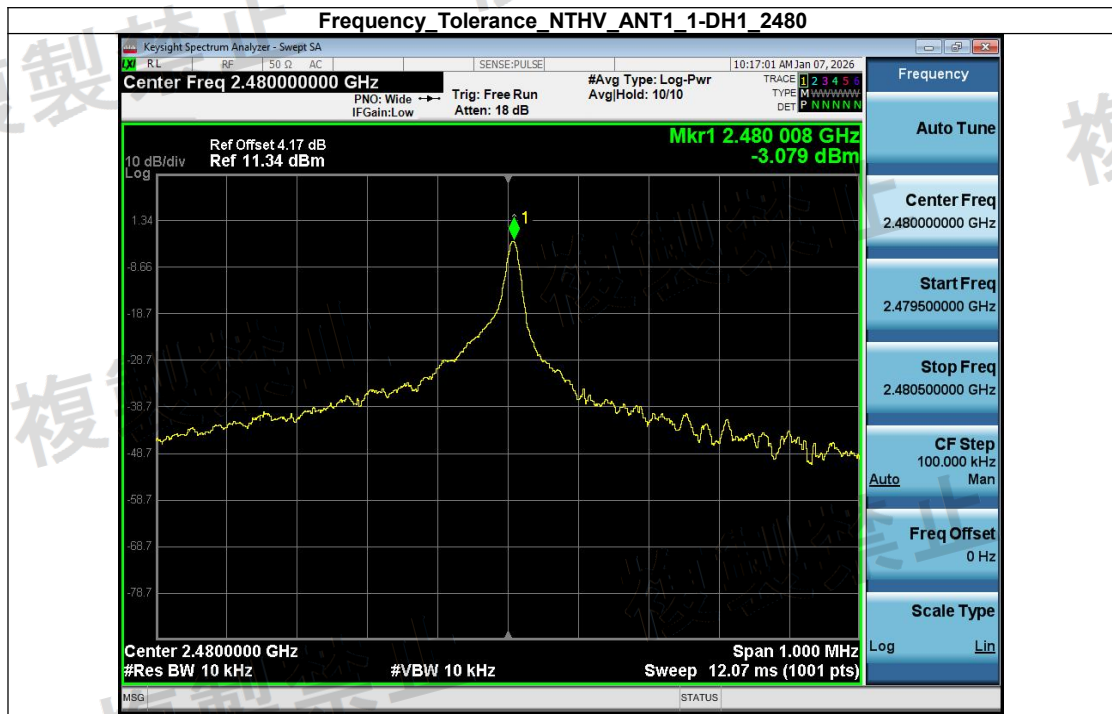
Condition	Antenna	Modulation	Frequency (MHz)	Test Frequency(MHz)	Frequency Tolerance(ppm)	Limit(ppm)	Result
NTNV	ANT1	un-modulation	2441.00	2441.007	2.868	±50	Pass
NTLV	ANT1	un-modulation	2441.00	2441.007	2.868	±50	Pass
NTHV	ANT1	un-modulation	2441.00	2441.007	2.868	±50	Pass
NTNV	ANT1	un-modulation	2402.00	2402.007	2.914	±50	Pass
NTLV	ANT1	un-modulation	2402.00	2402.007	2.914	±50	Pass
NTHV	ANT1	un-modulation	2402.00	2402.007	2.914	±50	Pass
NTNV	ANT1	un-modulation	2480.00	2480.008	3.226	±50	Pass
NTLV	ANT1	un-modulation	2480.00	2480.008	3.226	±50	Pass
NTHV	ANT1	un-modulation	2480.00	2480.008	3.226	±50	Pass











5. Occupied Frequency Bandwidth

5.1. Test Equipment

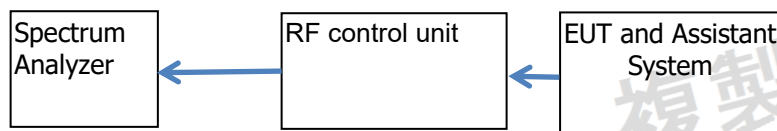
Item	Type	Manufacturer	Model No.	Serial No.	Last Calibration	Due Calibration
1	Spectrum analyzer	Agilent	N9020A	MY54484584	2025.11.10	2026.11.09
2	RF control unit	Tonscend	JS0806-1	19K8060206	2025.11.12	2026.11.11

Note: The test equipment is calibrated by HUAJUE MEDICAL TESTING AND METROLOGY (SHENZHEN) CO.,LTD. Calibration standard: Article 24-2, Paragraph 4 of the Radio Act, method c

5.2. Limit

Permissible value for occupied bandwidth using the FH system, a hybrid system combining DS and FH systems, or a hybrid system combining FH and OFDM systems shall be 83.5 MHz or less, while necessary bandwidth (minimum occupied bandwidth sufficient to ensure information transmission of required quality at a required transmission rate for the system used under specified conditions for a given emission type) using a system other than any of the above shall be 26 MHz or less.

5.3. Block diagram of test setup



5.4. Test Procedure

- (1) Configure EUT and assistant system according clause 2.3 and 5.3
- (2) Set EUT work in test mode as described in clause 2.4
- (3) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:

Centre Frequency: The centre frequency of the channel under test.

Resolution BW: 1MHz

Video BW: 3MHz

Span: Wide enough to cover the complete power envelope of the signal of the EUT.

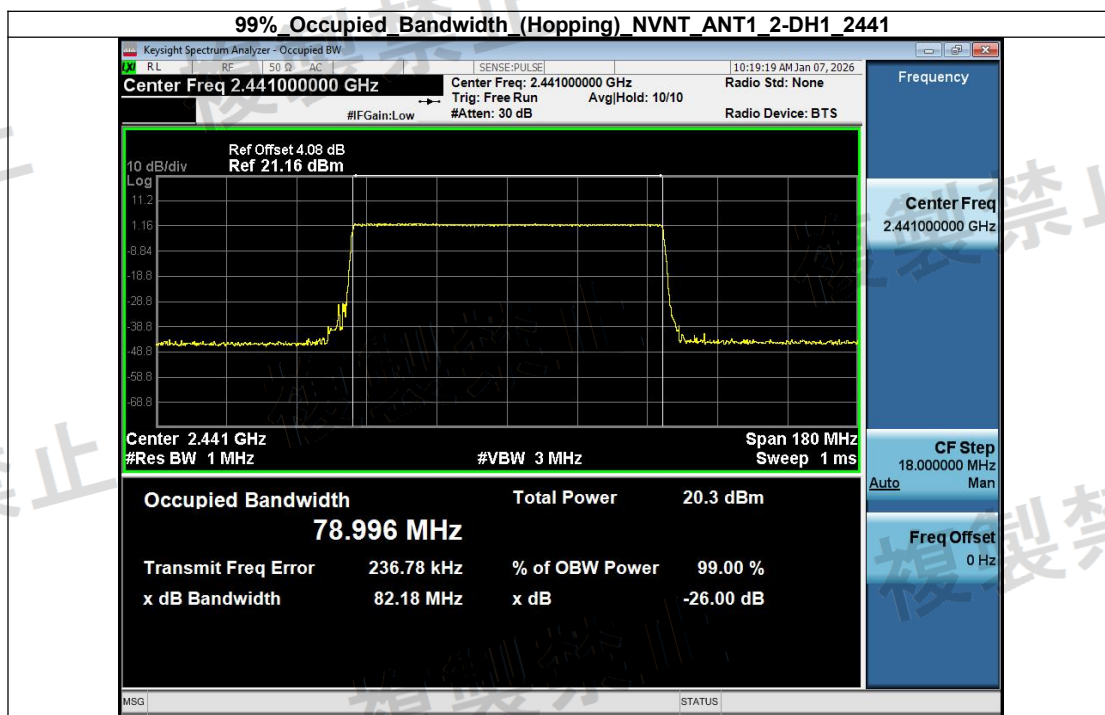
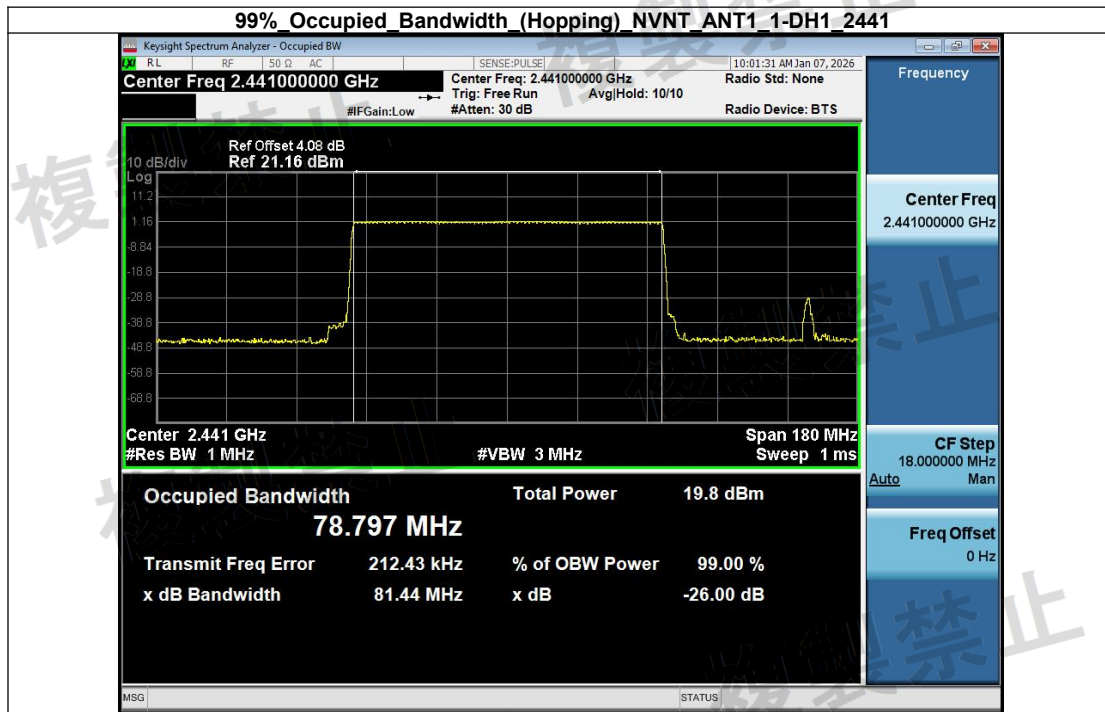
Detector: Peak.

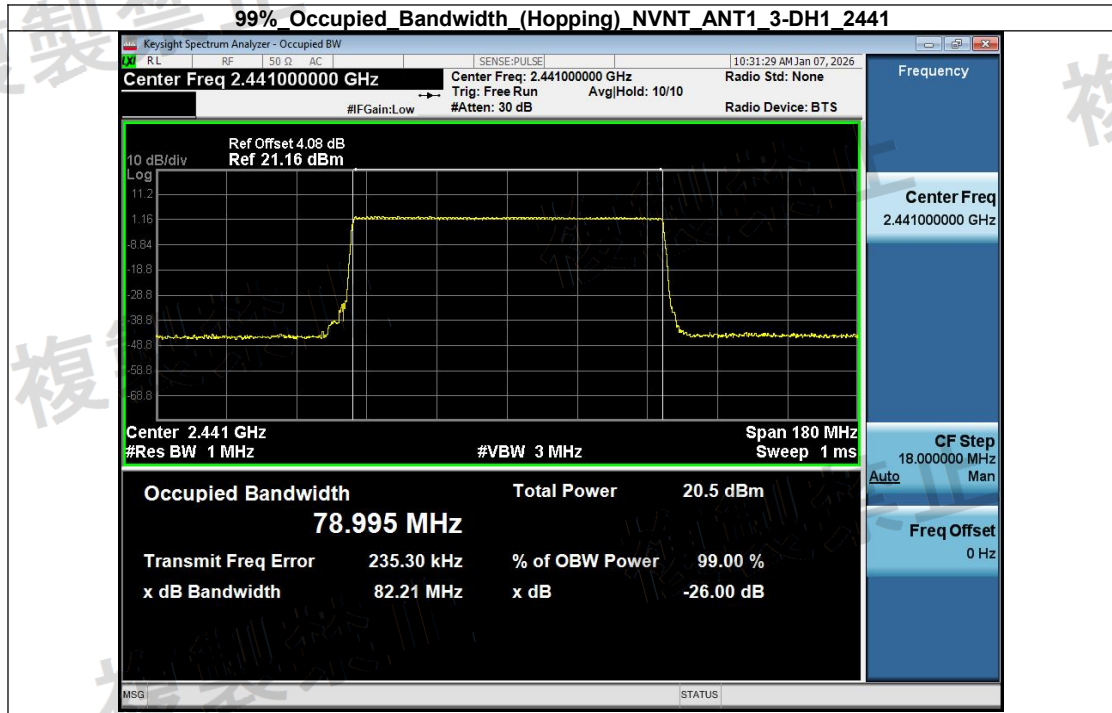
Trace Mode: Max Hold.

- (4) When the trace is complete, measure the occupied bandwidth (99% bandwidth) with spectrum analyzer's bandwidth measure function.

5.5. Test result

Condition	Antenna	Modulation	mode	Occupied Bandwidth(MHz)	Limit(MHz)	Result
NVNT	ANT1	1-DH1	Hopping	78.80	83.50	Pass
NVNT	ANT1	2-DH1	Hopping	79.00	83.50	Pass
NVNT	ANT1	3-DH1	Hopping	79.00	83.50	Pass





6. Transmitter Spurious Emissions (conducted)

6.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Calibration	Due Calibration
1	Spectrum analyzer	Agilent	N9020A	MY54484584	2025.11.10	2026.11.09
2	RF control unit	Tonscend	JS0806-1	19K8060206	2025.11.12	2026.11.11

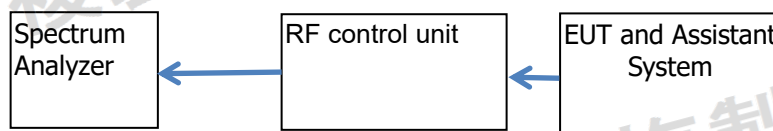
Note: The test equipment is calibrated by HUAJUE MEDICAL TESTING AND METROLOGY (SHENZHEN) CO.,LTD. Calibration standard: Article 24-2, Paragraph 4 of the Radio Act, method c

6.2. Limit

Permissible mean power of spurious emission of each frequency supplied to a feeder, that is, mean power of spurious emission in the 1 MHz bandwidth at frequency f other than frequency band used shall be as follows:

- $2,387\text{MHz} \leq f \leq 2,400\text{MHz}$ and $2,483.5\text{MHz} < f \leq 2,496.5\text{MHz}$ 25 μW or less
- $2,387\text{MHz} > f$ and $2,496.5\text{MHz} < f$ 2.5 μW or less

6.3. Block diagram of test setup



6.4. Test Procedure

- Configure EUT and assistant system according clause 2.3 and 7.3
- Set EUT work in test mode as described in clause 2.4
- Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:

Below 1GHz: Resolution BW: 100KHz.
Video BW: 100KH.
Detector: Peak.
Trace Mode: Max Hold.

Above 1GHz: Resolution BW: 1MHz.
Video BW: 1MHz.
Detector: Peak.
Trace Mode: Max Hold.

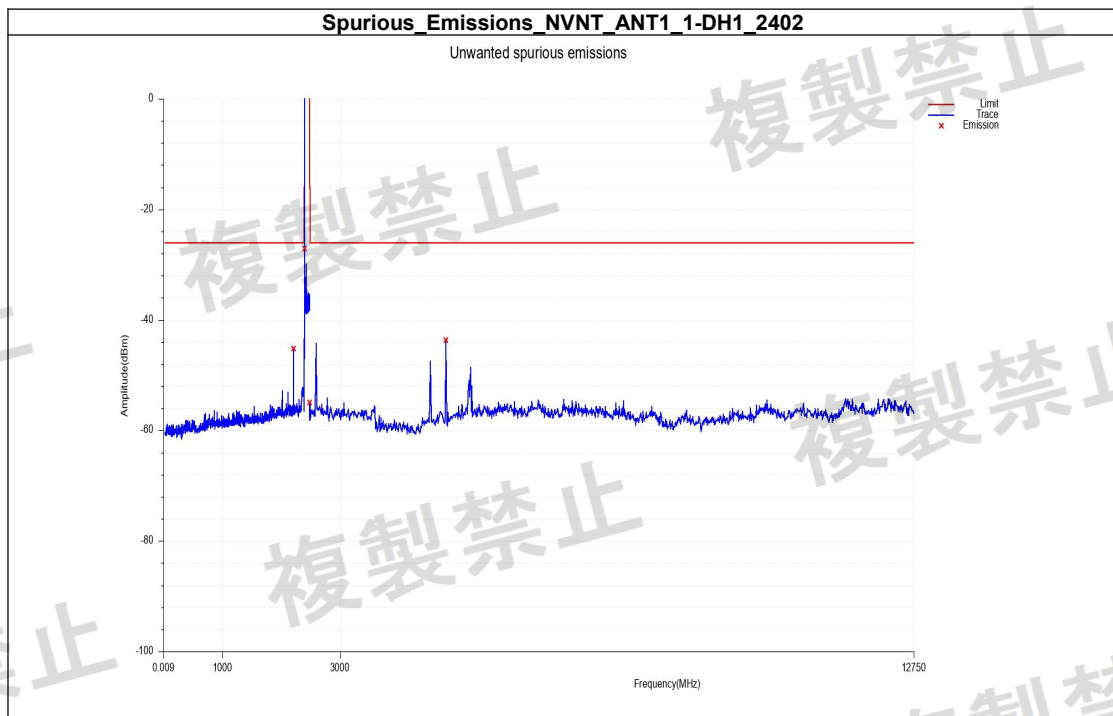
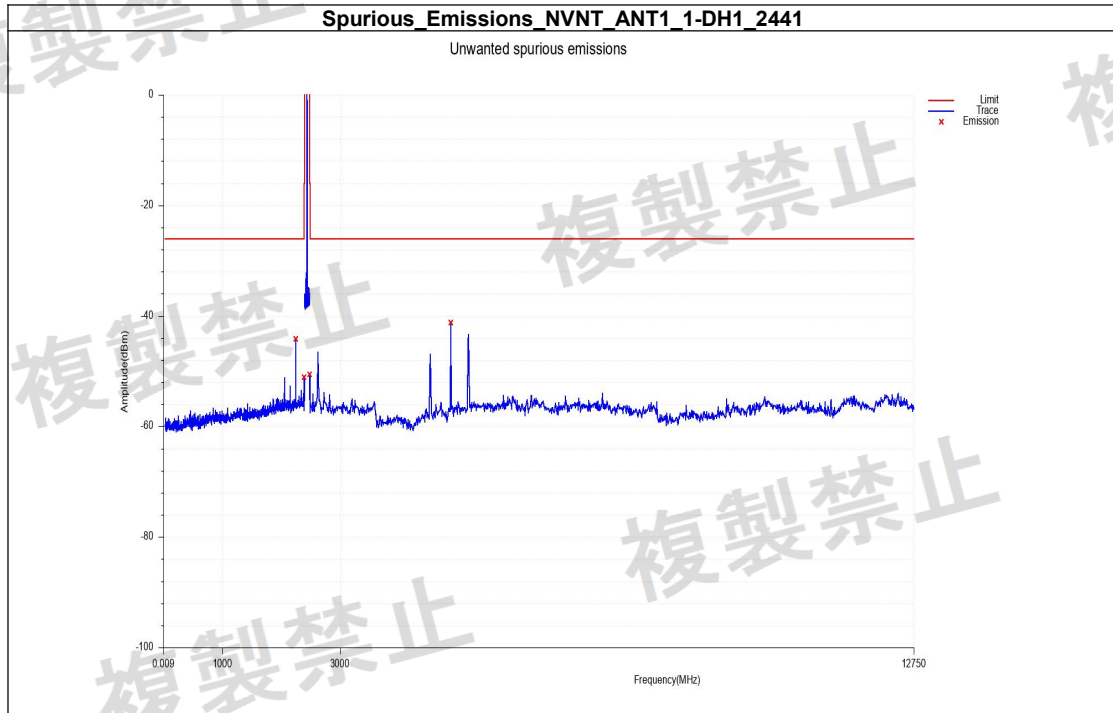
- All the emissions from 30MHz to 13GHz were measured and record.

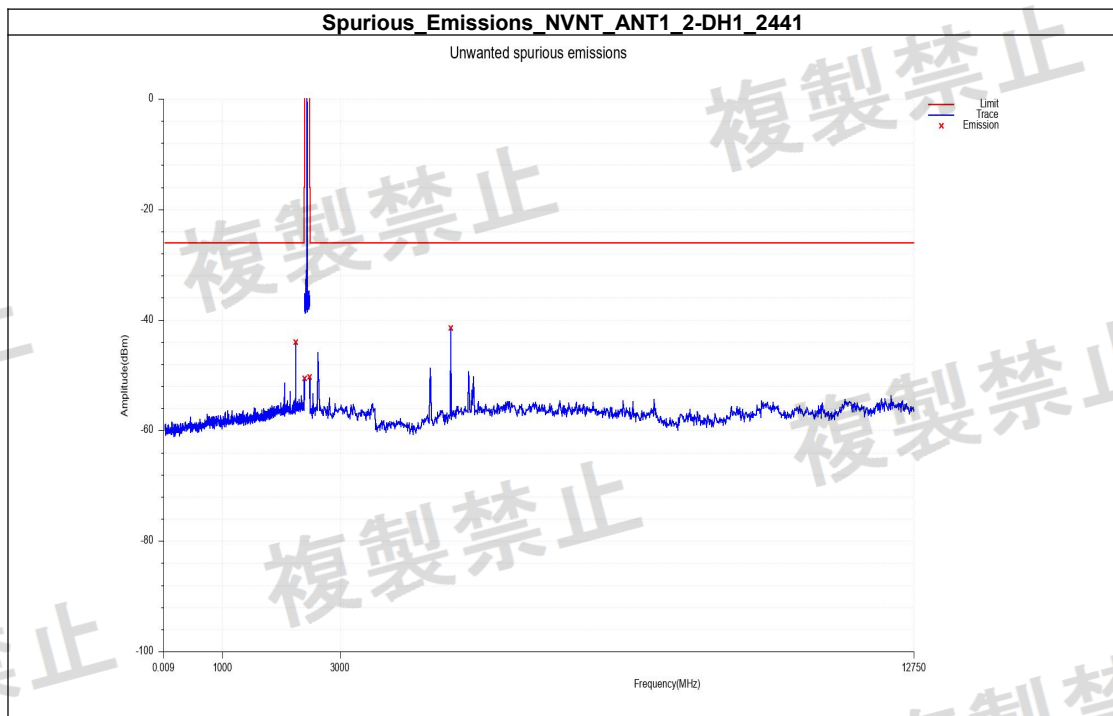
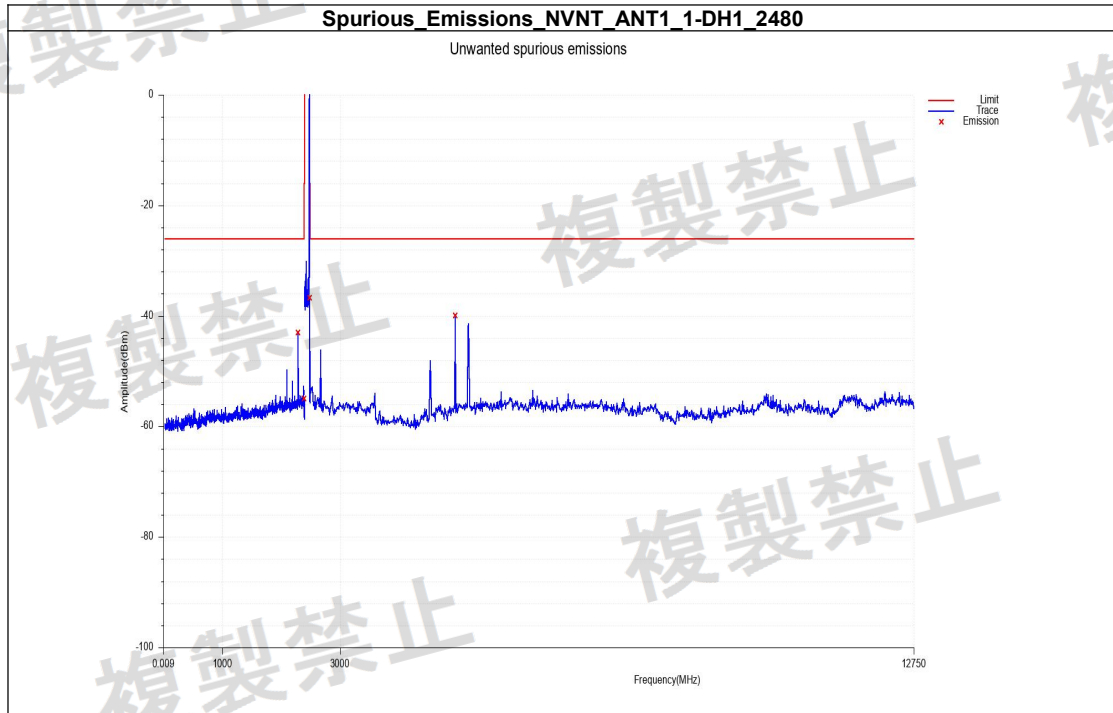
6.5. Test result

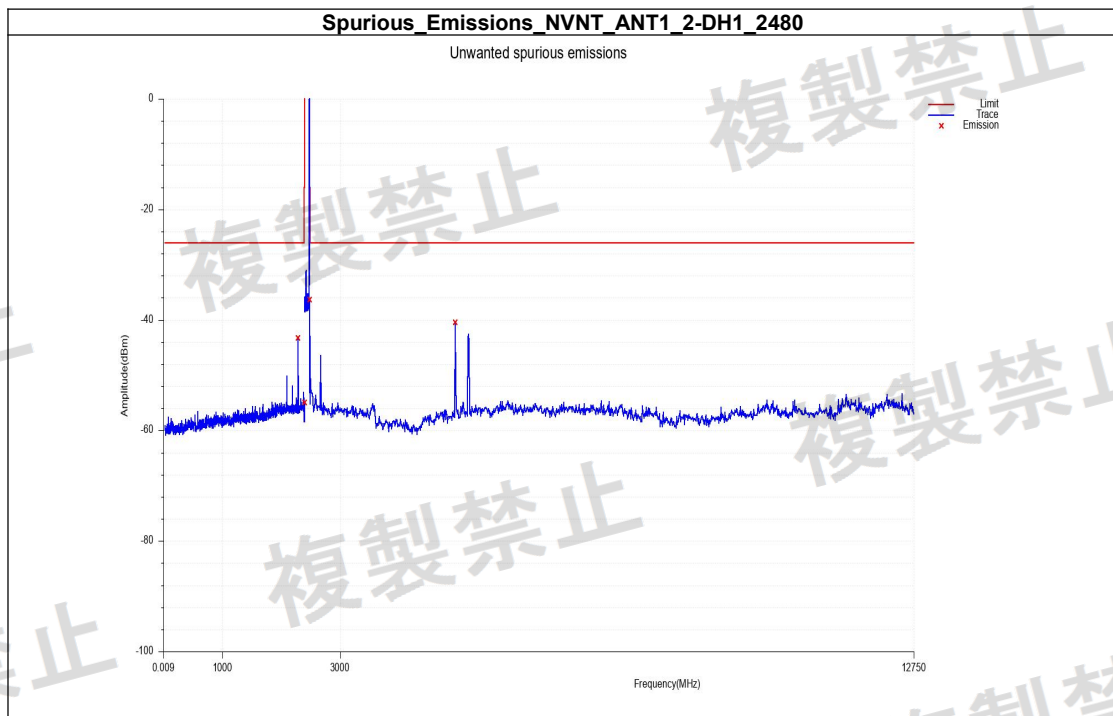
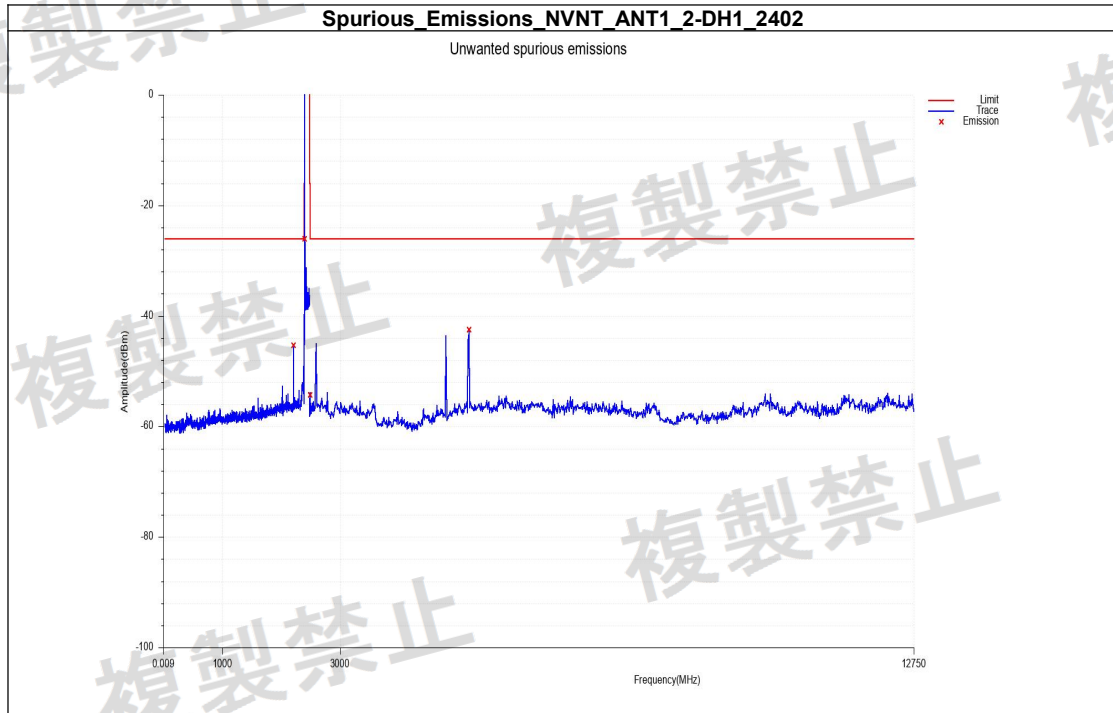
Pass. (See below original test data)

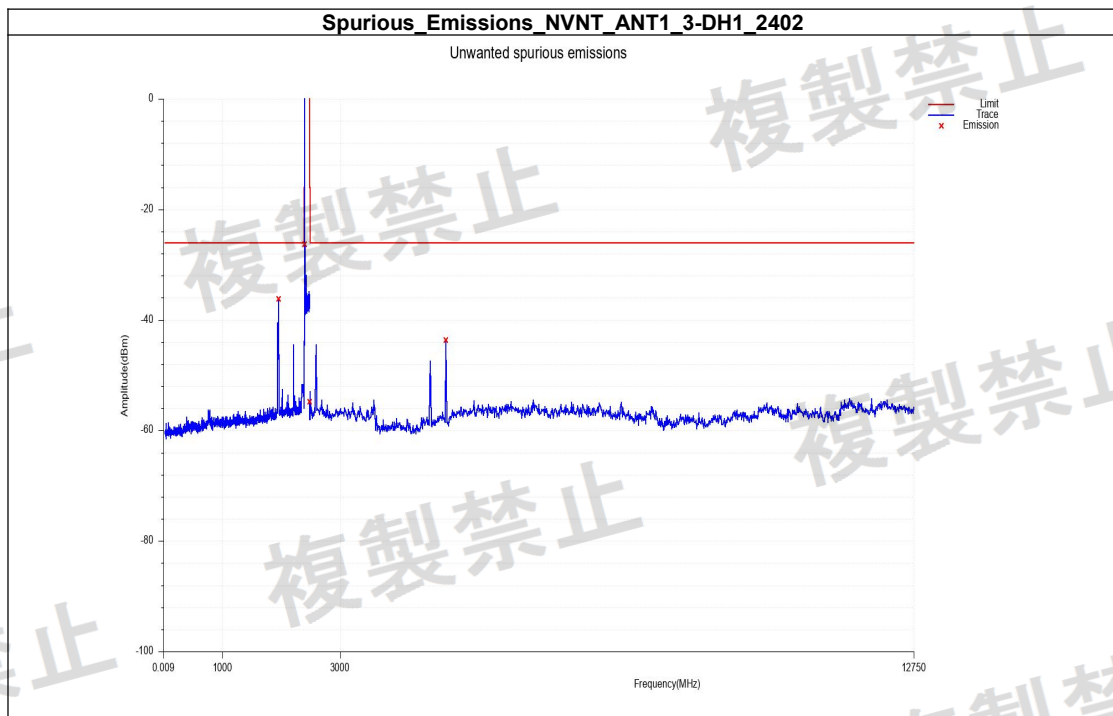
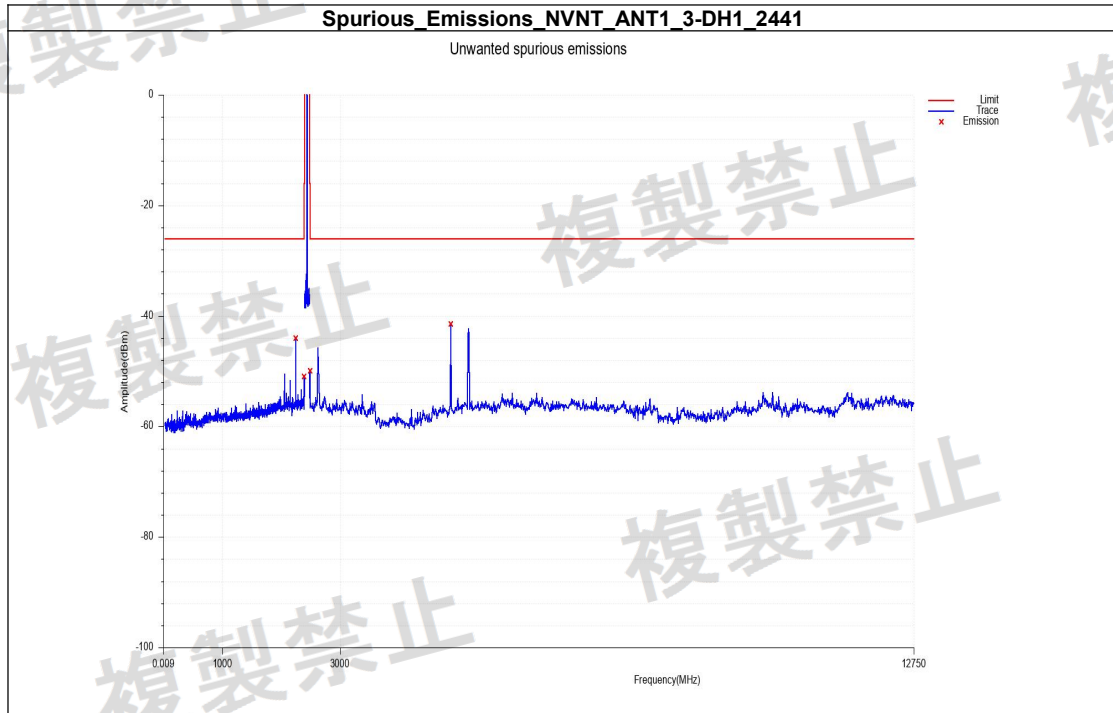
Condition	Antenna	Mode	Frequency (MHz)	Frequency Area(MHz)	RBW (kHz)	Spur. Fre. (MHz)	Spur. Level (dBm/MHz)	Limit (dBm/MHz)	Spur. Level	Limit	Result
NVNT	ANT1	1-DH1	2441.00	30.000000~2387.000000	1000	2250.29	-44.16	-26	0.0383 μ W/MHz	2.5 μ W/MHz	Pass
NVNT	ANT1	1-DH1	2441.00	2387.000000~2400.000000	1000	2392.67	-51.14	-16	0.0076 μ W/MHz	25 μ W/MHz	Pass
NVNT	ANT1	1-DH1	2441.00	2400.000000~2483.500000	/	/	/	/	/	/	/
NVNT	ANT1	1-DH1	2441.00	2483.500000~2496.500000	1000	2486.30	-50.54	-16	0.0088 μ W/MHz	25 μ W/MHz	Pass
NVNT	ANT1	1-DH1	2441.00	2496.500000~12750.000000	1000	4885.57	-41.15	-26	0.0767 μ W/MHz	2.5 μ W/MHz	Pass
NVNT	ANT1	1-DH1	2402.00	30.000000~2387.000000	1000	2210.22	-45.15	-26	0.0305 μ W/MHz	2.5 μ W/MHz	Pass
NVNT	ANT1	1-DH1	2402.00	2387.000000~2400.000000	1000	2399.99	-27.07	-16	1.9644 μ W/MHz	25 μ W/MHz	Pass
NVNT	ANT1	1-DH1	2402.00	2400.000000~2483.500000	/	/	/	/	/	/	/
NVNT	ANT1	1-DH1	2402.00	2483.500000~2496.500000	1000	2486.24	-54.89	-16	0.0032 μ W/MHz	25 μ W/MHz	Pass
NVNT	ANT1	1-DH1	2402.00	2496.500000~12750.000000	1000	4803.54	-43.62	-26	0.0434 μ W/MHz	2.5 μ W/MHz	Pass
NVNT	ANT1	1-DH1	2480.00	30.000000~2387.000000	1000	2288.01	-42.97	-26	0.0504 μ W/MHz	2.5 μ W/MHz	Pass
NVNT	ANT1	1-DH1	2480.00	2387.000000~2400.000000	1000	2387.29	-54.96	-16	0.0031 μ W/MHz	25 μ W/MHz	Pass
NVNT	ANT1	1-DH1	2480.00	2400.000000~2483.500000	/	/	/	/	/	/	/
NVNT	ANT1	1-DH1	2480.00	2483.500000~2496.500000	1000	2483.54	-36.69	-16	0.2140 μ W/MHz	25 μ W/MHz	Pass
NVNT	ANT1	1-DH1	2480.00	2496.500000~12750.000000	1000	4957.34	-39.98	-26	0.1003 μ W/MHz	2.5 μ W/MHz	Pass
NVNT	ANT1	2-DH1	2441.00	30.000000~2387.000000	1000	2250.29	-43.97	-26	0.0400 μ W/MHz	2.5 μ W/MHz	Pass
NVNT	ANT1	2-DH1	2441.00	2387.000000~2400.000000	1000	2398.17	-50.63	-16	0.0086 μ W/MHz	25 μ W/MHz	Pass
NVNT	ANT1	2-DH1	2441.00	2400.000000~2483.500000	/	/	/	/	/	/	/
NVNT	ANT1	2-DH1	2441.00	2483.500000~2496.500000	1000	2486.87	-50.28	-16	0.0093 μ W/MHz	25 μ W/MHz	Pass
NVNT	ANT1	2-DH1	2441.00	2496.500000~12750.000000	1000	4885.57	-41.52	-26	0.0705 μ W/MHz	2.5 μ W/MHz	Pass
NVNT	ANT1	2-DH1	2402.00	30.000000~2387.000000	1000	2210.22	-45.27	-26	0.0297 μ W/MHz	2.5 μ W/MHz	Pass
NVNT	ANT1	2-DH1	2402.00	2387.000000~2400.000000	1000	2399.66	-26.09	-16	2.4605 μ W/MHz	25 μ W/MHz	Pass
NVNT	ANT1	2-DH1	2402.00	2400.000000~2483.500000	/	/	/	/	/	/	/
NVNT	ANT1	2-DH1	2402.00	2483.500000~2496.500000	1000	2492.77	-54.33	-16	0.0036 μ W/MHz	25 μ W/MHz	Pass
NVNT	ANT1	2-DH1	2402.00	2496.500000~12750.000000	1000	5193.17	-42.44	-26	0.0570 μ W/MHz	2.5 μ W/MHz	Pass
NVNT	ANT1	2-DH1	2480.00	30.000000~2387.000000	1000	2288.01	-43.23	-26	0.0475 μ W/MHz	2.5 μ W/MHz	Pass
NVNT	ANT1	2-DH1	2480.00	2387.000000~2400.000000	1000	2394.80	-54.96	-16	0.0031 μ W/MHz	25 μ W/MHz	Pass
NVNT	ANT1	2-DH1	2480.00	2400.000000~2483.500000	/	/	/	/	/	/	/
NVNT	ANT1	2-DH1	2480.00	2483.500000~2496.500000	1000	2483.51	-36.29	-16	0.2350 μ W/MHz	25 μ W/MHz	Pass
NVNT	ANT1	2-DH1	2480.00	2496.500000~12750.000000	1000	4957.34	-40.49	-26	0.0893 μ W/MHz	2.5 μ W/MHz	Pass
NVNT	ANT1	3-DH1	2441.00	30.000000~2387.000000	1000	2250.29	-44.00	-26	0.0398 μ W/MHz	2.5 μ W/MHz	Pass
NVNT	ANT1	3-DH1	2441.00	2387.000000~2400.000000	1000	2392.75	-50.98	-16	0.0079 μ W/MHz	25 μ W/MHz	Pass
NVNT	ANT1	3-DH1	2441.00	2400.000000~2483.500000	/	/	/	/	/	/	/
NVNT	ANT1	3-DH1	2441.00	2483.500000~2496.500000	1000	2489.	-49.90	-16	0.0102 μ W/MHz	25 μ W/MHz	Pass

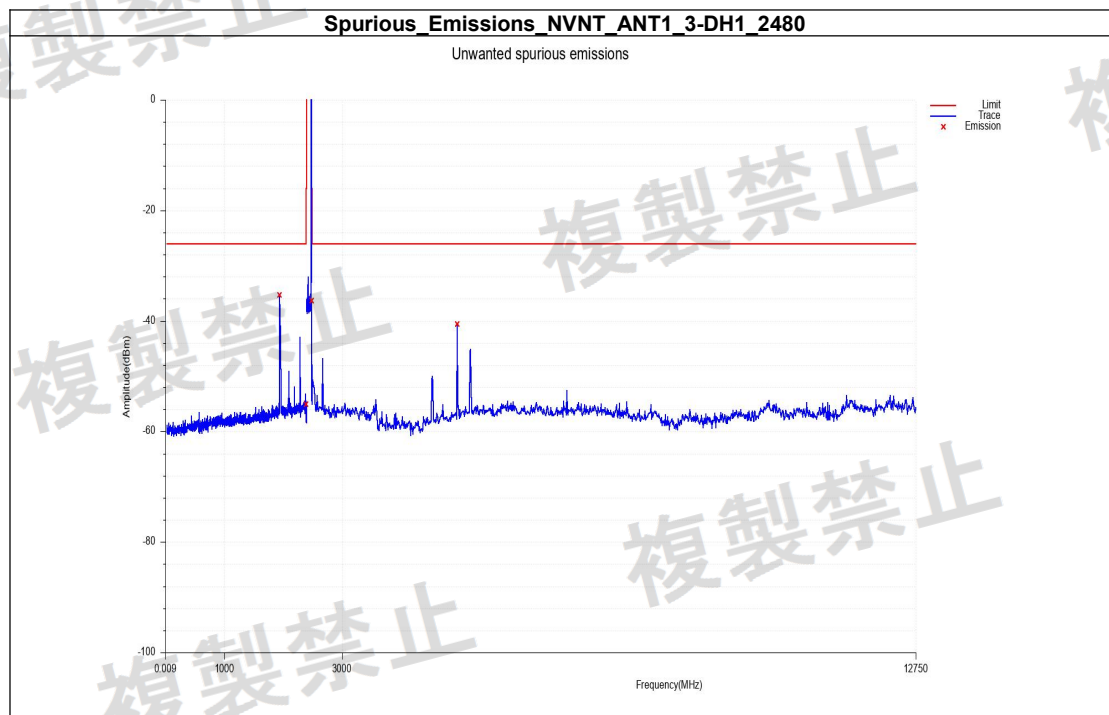
				96.500000		53			MHz		
NVNT	ANT1	3-DH1	2441.00	2496.500000~12750.000000	1000	4885.57	-41.44	-26	0.0717 μ W/MHz	2.5 μ W/MHz	Pass
NVNT	ANT1	3-DH1	2402.00	30.000000~2387.000000	1000	1960.38	-36.18	-26	0.2407 μ W/MHz	2.5 μ W/MHz	Pass
NVNT	ANT1	3-DH1	2402.00	2387.000000~2400.000000	1000	2400.00	-26.33	-16	2.3275 μ W/MHz	25 μ W/MHz	Pass
NVNT	ANT1	3-DH1	2402.00	2400.000000~2483.500000	/	/	/	/	/	/	/
NVNT	ANT1	3-DH1	2402.00	2483.500000~2496.500000	1000	2483.88	-54.79	-16	0.0033 μ W/MHz	25 μ W/MHz	Pass
NVNT	ANT1	3-DH1	2402.00	2496.500000~12750.000000	1000	4803.54	-43.70	-26	0.0426 μ W/MHz	2.5 μ W/MHz	Pass
NVNT	ANT1	3-DH1	2480.00	30.000000~2387.000000	1000	1941.53	-35.27	-26	0.2972 μ W/MHz	2.5 μ W/MHz	Pass
NVNT	ANT1	3-DH1	2480.00	2387.000000~2400.000000	1000	2394.07	-55.10	-16	0.0030 μ W/MHz	25 μ W/MHz	Pass
NVNT	ANT1	3-DH1	2480.00	2400.000000~2483.500000	/	/	/	/	/	/	/
NVNT	ANT1	3-DH1	2480.00	2483.500000~2496.500000	1000	2483.51	-36.34	-16	0.2324 μ W/MHz	25 μ W/MHz	Pass
NVNT	ANT1	3-DH1	2480.00	2496.500000~12750.000000	1000	4957.34	-40.56	-26	0.0879 μ W/MHz	2.5 μ W/MHz	Pass











7. Dwell time

7.1. Test Equipment

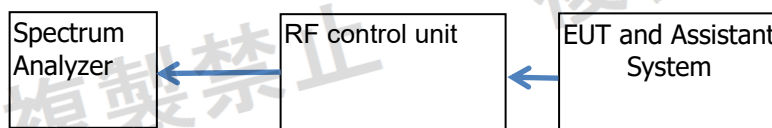
Item	Type	Manufacturer	Model No.	Serial No.	Last Calibration	Due Calibration
1	Spectrum analyzer	Agilent	N9020A	MY54484584	2025.11.10	2026.11.09
2	RF control unit	Tonscend	JS0806-1	19K8060206	2025.11.12	2026.11.11

Note: The test equipment is calibrated by HUAJUE MEDICAL TESTING AND METROLOGY (SHENZHEN) CO.,LTD. Calibration standard: Article 24-2, Paragraph 4 of the Radio Act, method c

7.2. Limit

Frequency dwell time (time during which radio waves continue to be emitted at a specified frequency) of a transmitting equipment using the FH system shall be 0.4 seconds or less.

7.3. Block diagram of test setup



7.4. Test Procedure

- (1) Configure EUT and assistant system according clause 2.4 and 7.3
- (2) Set EUT work in test mode as described in clause 2.4
- (3) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:

Centre Frequency: The centre frequency of the middle hopping channel.

Resolution BW: 1MHz.

Video BW: 1MHz.

Span: Zero span.

Detector: Peak.

Trace Mode: Max Hold.

Sweep: Video Trigger

- (4) When the trace is complete, measure the sending time of 1 burst and the duty cycle of 1 Burst cycle.

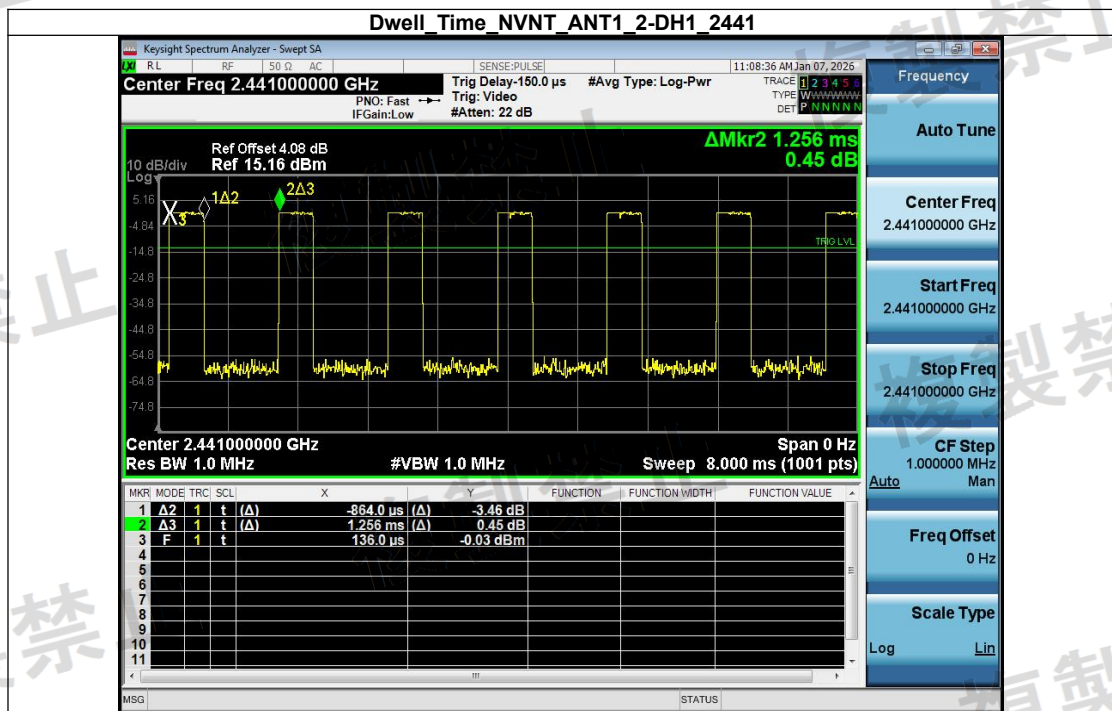
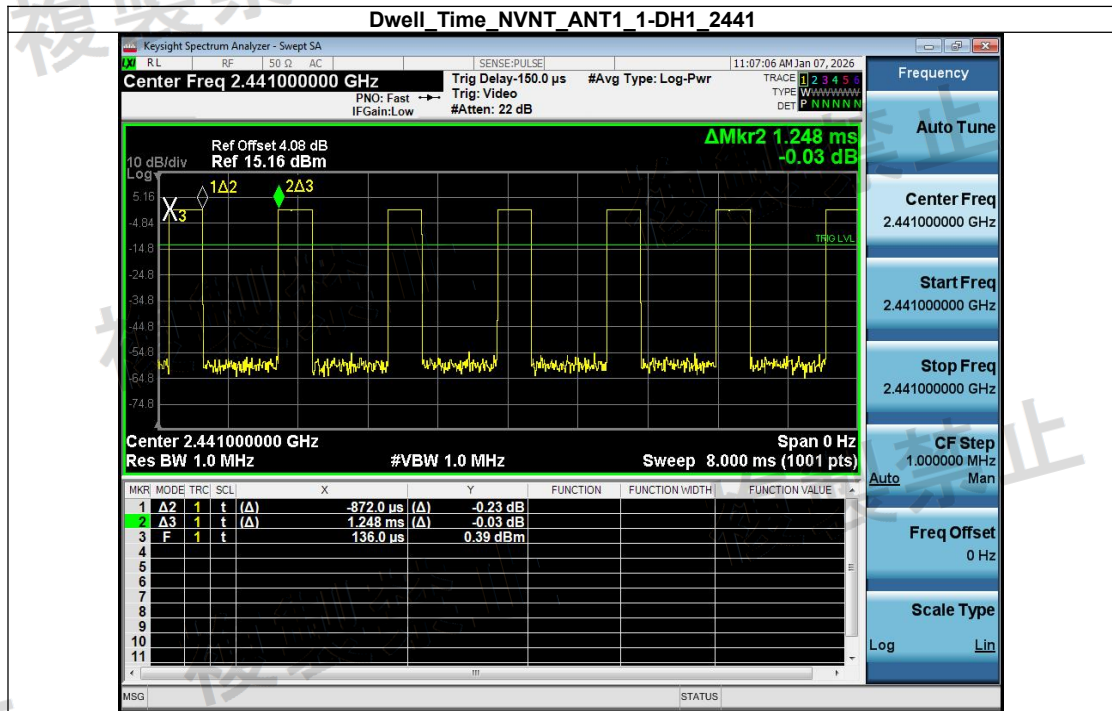
- (5) Calculate dwell time follow below formula:

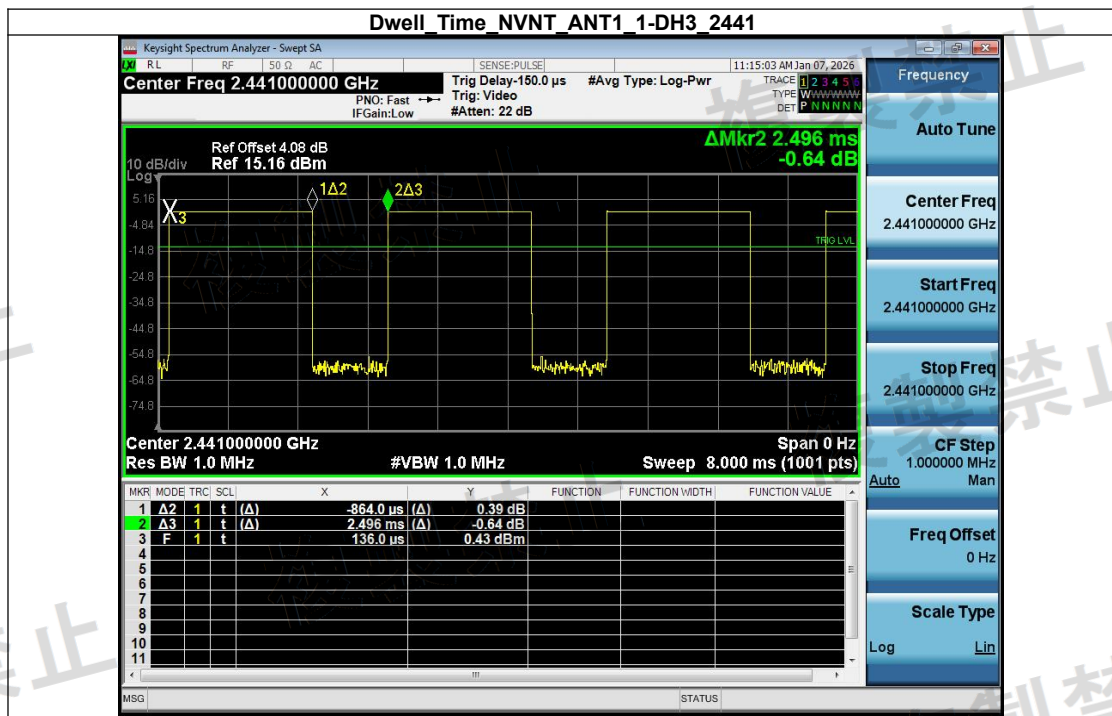
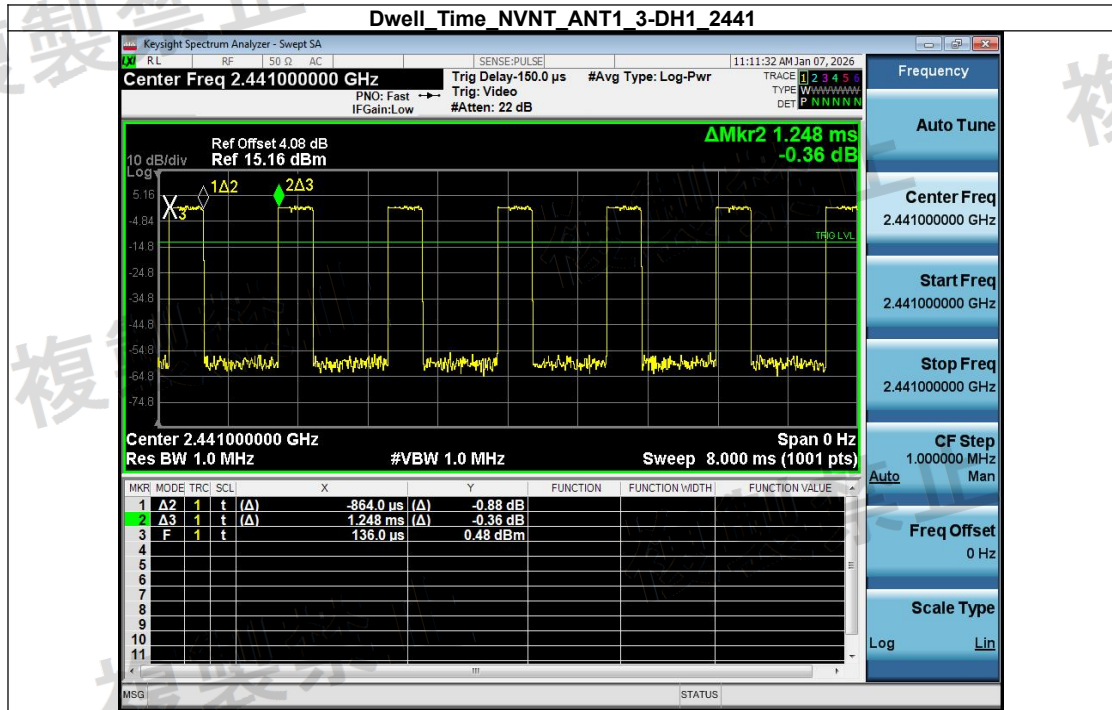
Dwell time $= (0.4(s) \times \text{spreading rate} \times \text{sending time of 1 burst}(s)) / (\text{Burst cycle}(s) \times \text{No. of hopping channel})$

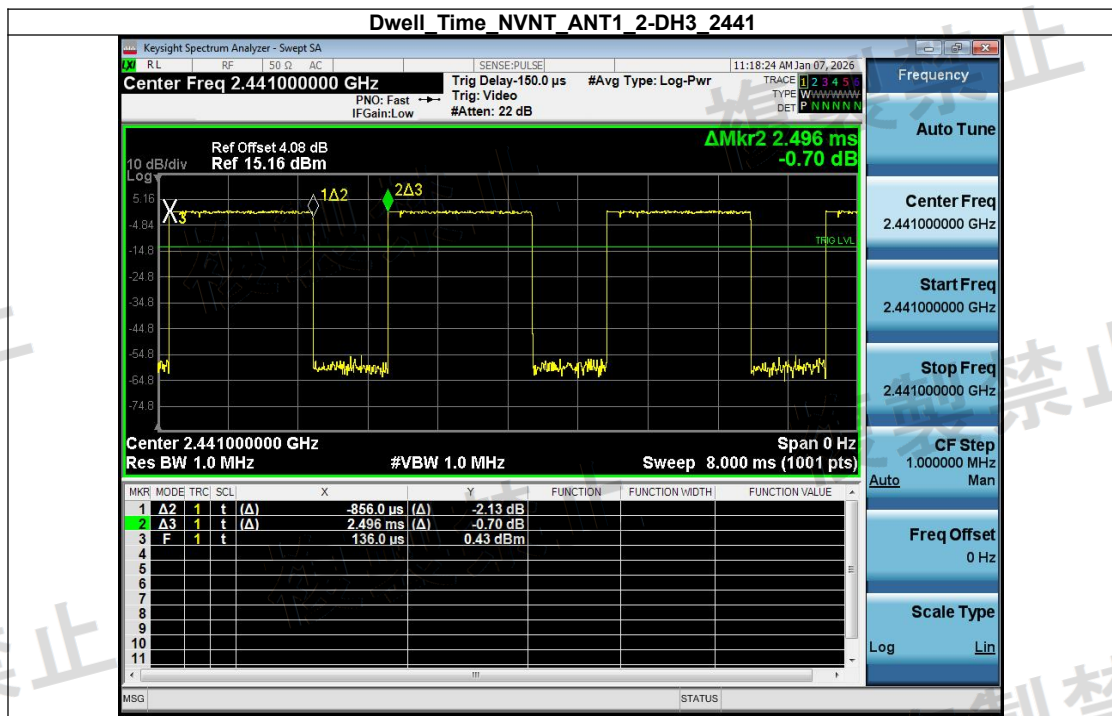
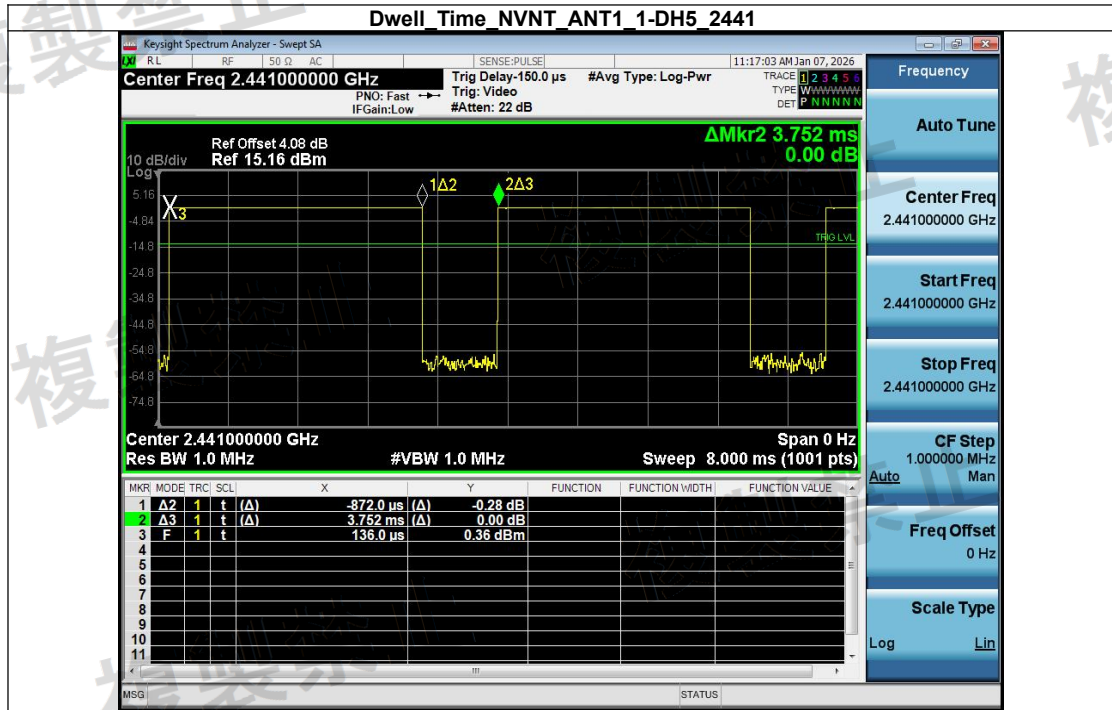
Spreading rate = Spread bandwidth (actual measurement value)/Transmission rate.

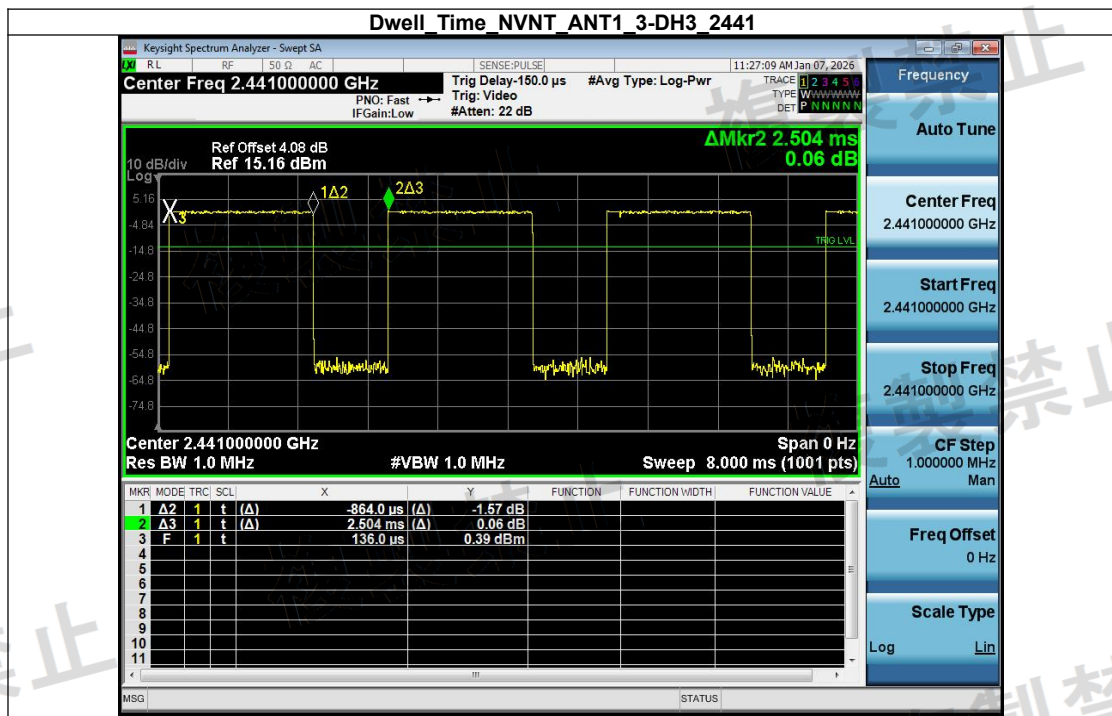
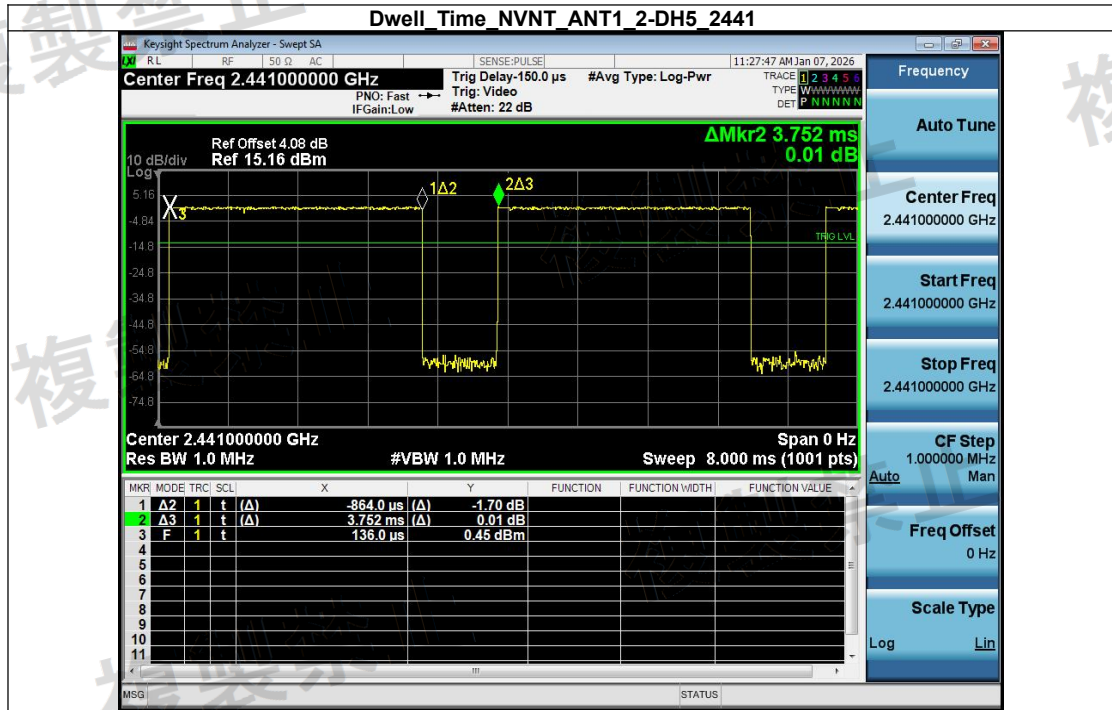
7.5. Test result

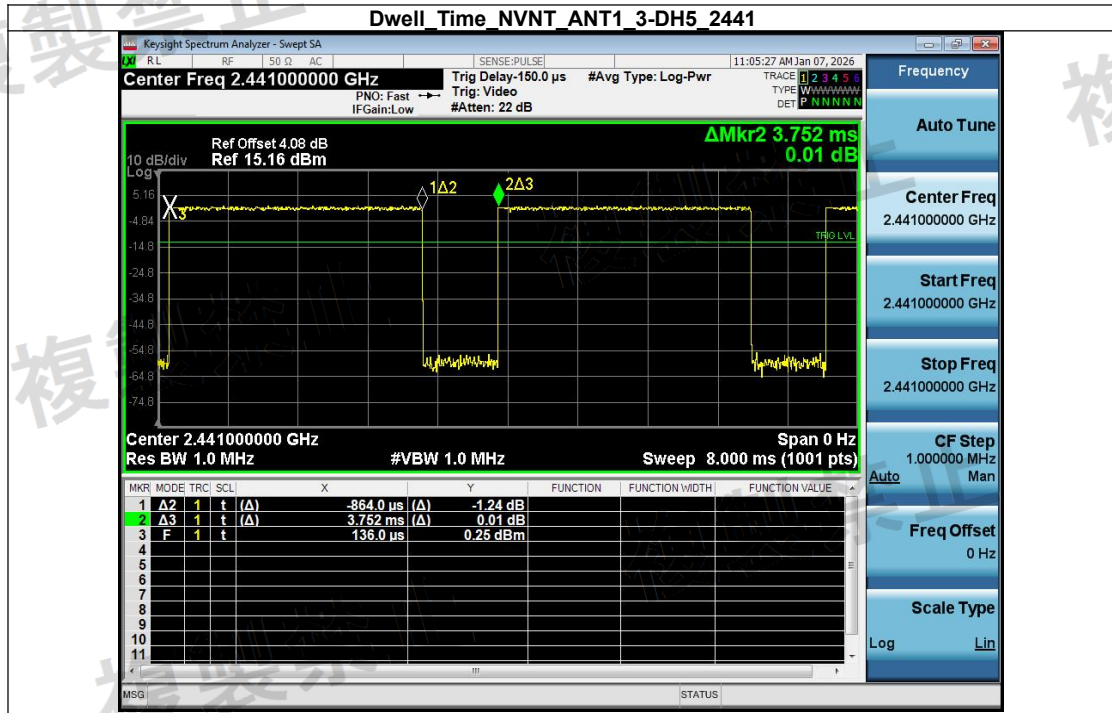
Condition	Antenna	Modulation	mode	Burst Time(ms)	Burst Cycle(ms)	Dwell Time(s)	Limit(s)	Result
NVNT	ANT1	1-DH1	Hopping	0.376	1.248	0.109	0.4	Pass
NVNT	ANT1	2-DH1	Hopping	0.392	1.256	0.113	0.4	Pass
NVNT	ANT1	3-DH1	Hopping	0.384	1.248	0.112	0.4	Pass
NVNT	ANT1	1-DH3	Hopping	1.632	2.496	0.235	0.4	Pass
NVNT	ANT1	1-DH5	Hopping	2.880	3.752	0.275	0.4	Pass
NVNT	ANT1	2-DH3	Hopping	1.640	2.496	0.236	0.4	Pass
NVNT	ANT1	2-DH5	Hopping	2.888	3.752	0.276	0.4	Pass
NVNT	ANT1	3-DH3	Hopping	1.640	2.504	0.235	0.4	Pass
NVNT	ANT1	3-DH5	Hopping	2.888	3.752	0.276	0.4	Pass











8. Interference prevention function

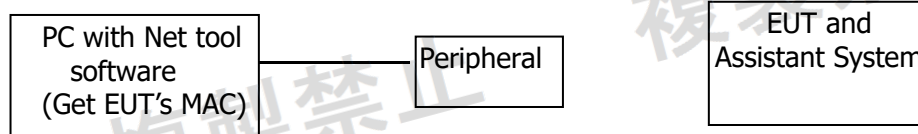
8.1. Limit

Item	Limits
Identification	≥48 bits

8.2. Measuring ID Code Software

Item	Limits
MAC IP List	MAC Scan

8.3. Block diagram of test setup



8.4. Test Procedure

- In the case that the EUT has the function of automatically transmitting the identification code: a. Transmit the predetermined identification codes from EUT. b. Check the transmitted identification codes with the demodulator.
- In the case of receiving the identification code: a. Transmit the predetermined identification codes from the counterpart. b. Check if communication is normal. c. Transmit the signals other than predetermined ID codes from the counterpart. d. Check if the EUT stops the transmission, or if it displays that identification codes are different from the predetermined ones.

8.5. Test result

EUT:	Wireless Speaker	Tested by:	Aaron Long
Temperature:	24℃	MAC address:	00:16:F5:5E:49:45
Humidity:	56%RH		
Test result:	Conform		

9. Secondary Radiated Emissions

9.1. Test Equipment

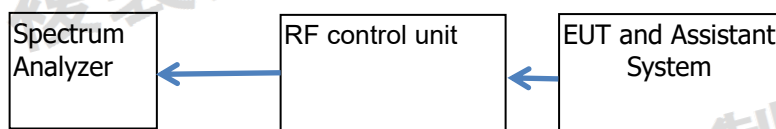
Item	Type	Manufacturer	Model No.	Serial No.	Last Calibration	Due Calibration
1	Spectrum analyzer	Agilent	N9020A	MY54484584	2025.11.10	2026.11.09
2	RF control unit	Tonscend	JS0806-1	19K8060206	2025.11.12	2026.11.11

Note: The test equipment is calibrated by HUAJUE MEDICAL TESTING AND METROLOGY (SHENZHEN) CO.,LTD. Calibration standard: Article 24-2, Paragraph 4 of the Radio Act, method c

9.2. Limit

The limit on secondary emissions radiated from the receiving equipment within which the function of other radio equipment will not be impaired shall be, in terms of the power of a dummy antenna circuit that has the same electrical constant as the receiving antenna, 4 nW or less at a frequency below 1 GHz and 20 nW or less at a frequency of 1 GHz or higher as measured using the circuit.

9.3. Block diagram of test setup

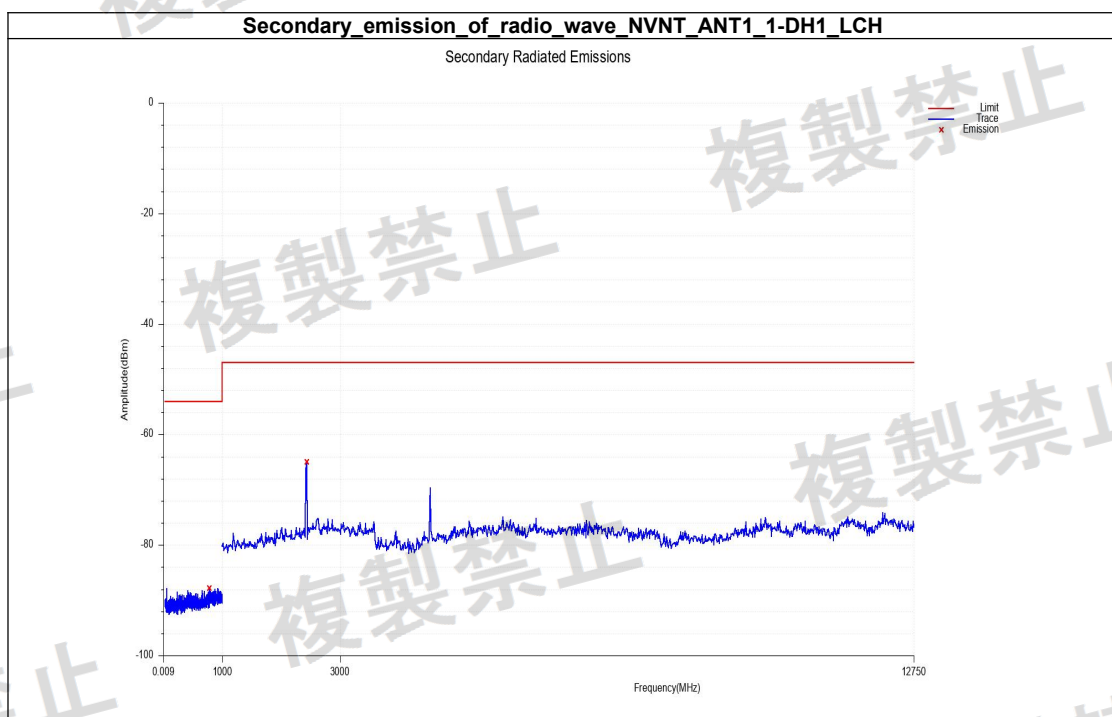
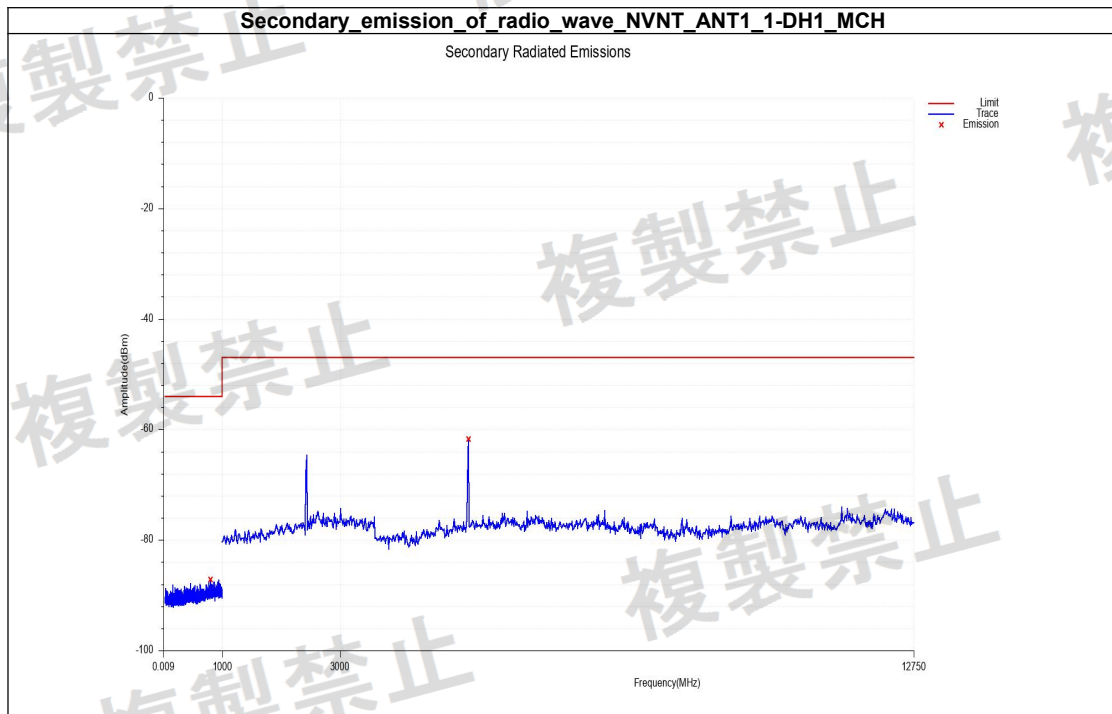


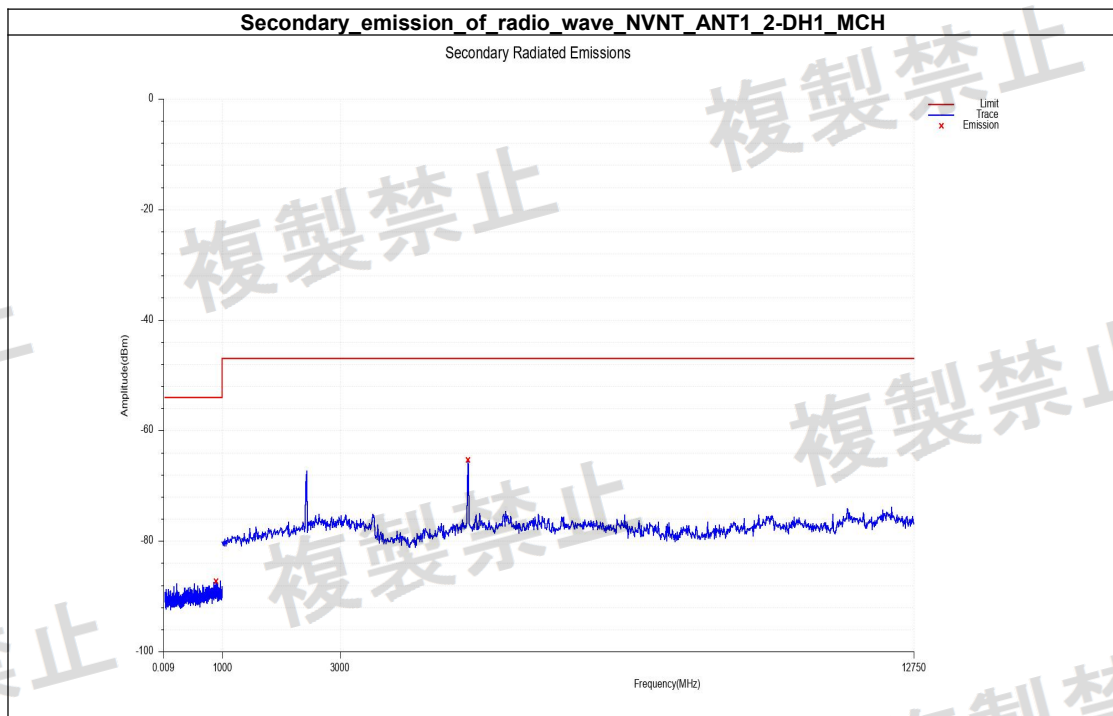
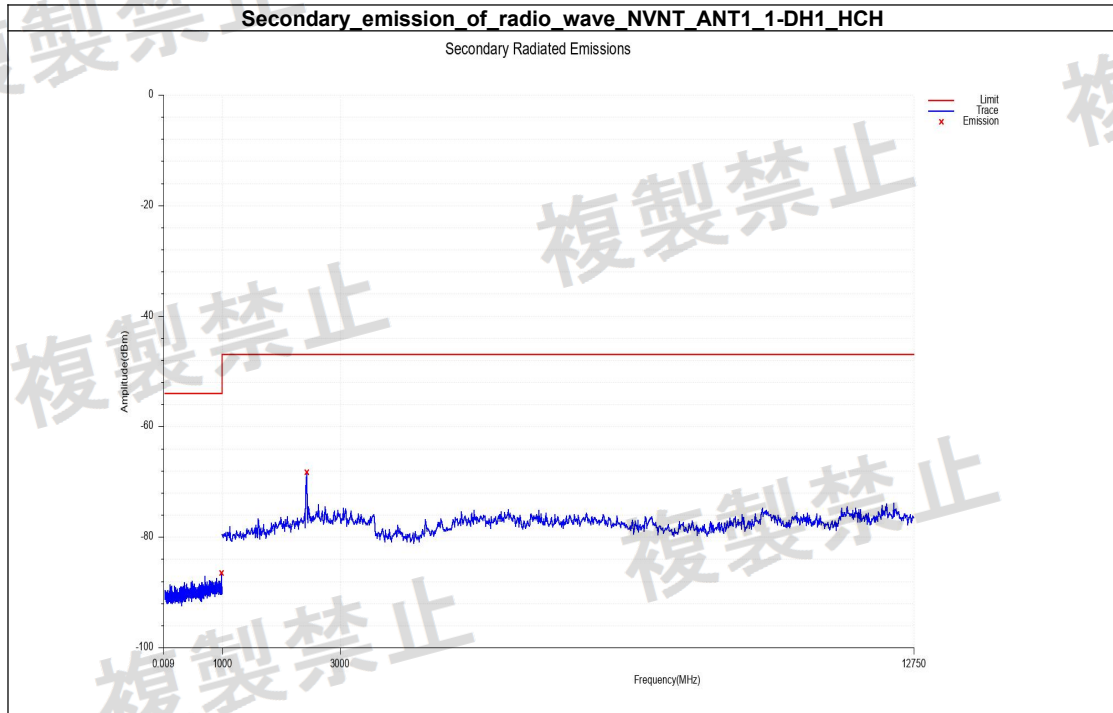
9.4. Test Procedure

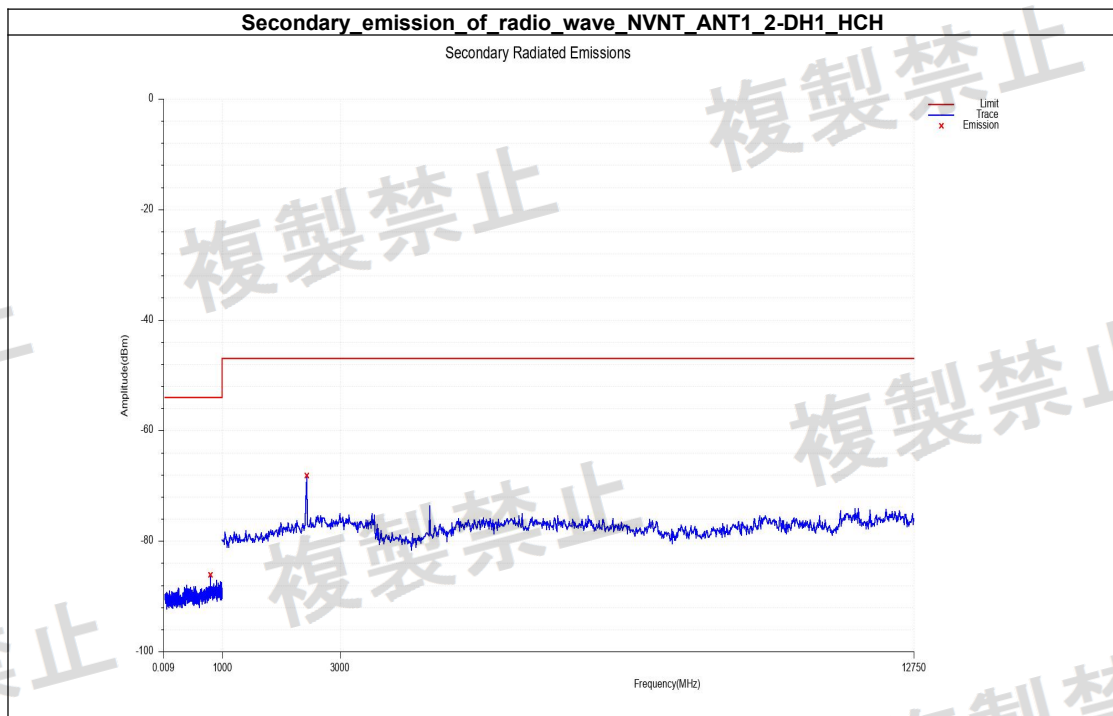
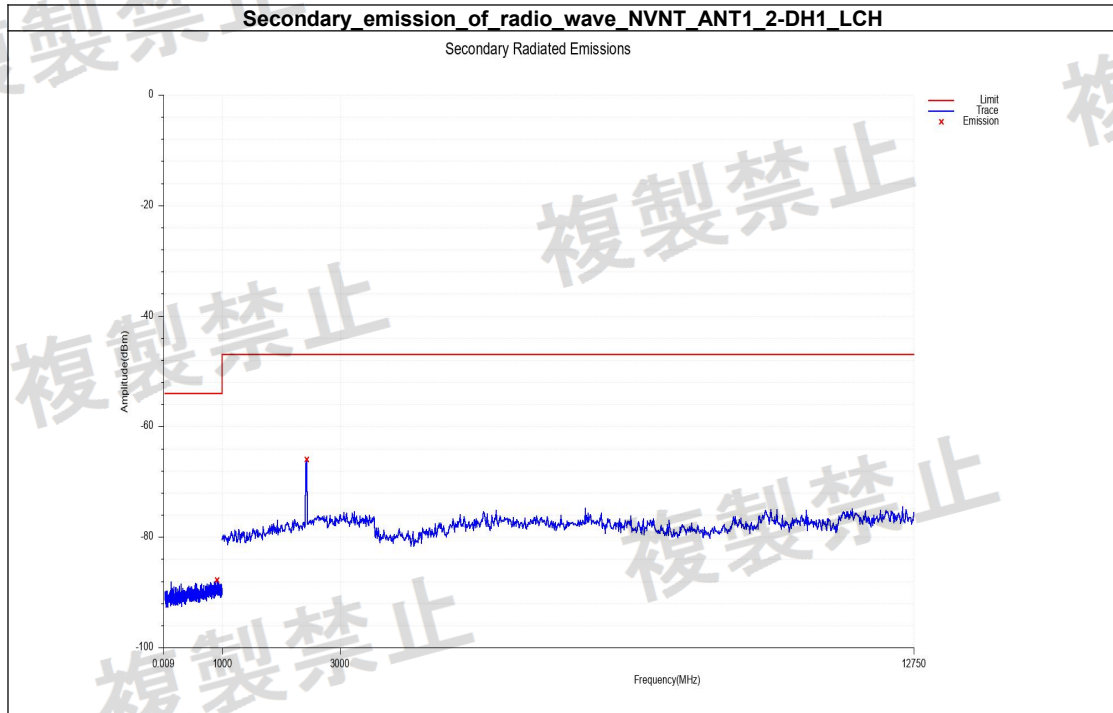
- (1) Configure EUT and assistant system according clause 2.3 and 13.3
- (2) Set EUT work in test mode as described in clause 2.4
- (3) Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:
 - Resolution BW: 100 KHz for frequency below 1GHz and 1MHz for frequency above 1GHz
 - Video BW: 100 KHz for frequency below 1GHz and 1MHz for frequency above 1GHz
 - Detector: Peak.
 - Trace Mode: Max Hold.
- (4) All the emissions from 30MHz to 13GHz were measured and record.

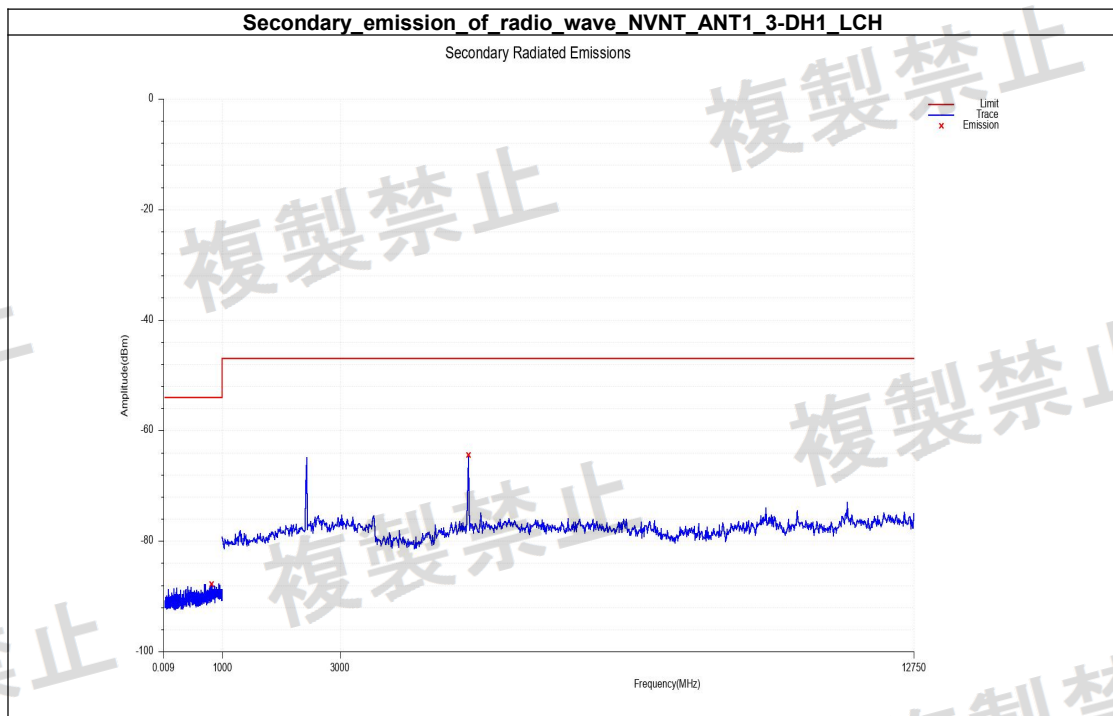
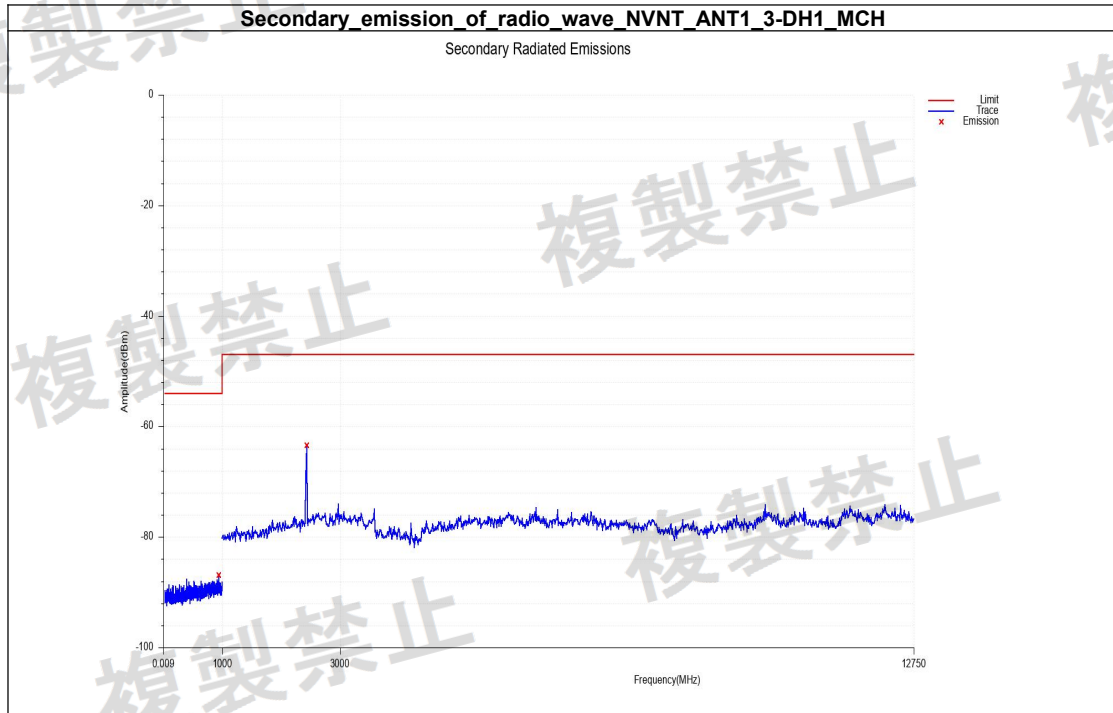
9.5. Test result

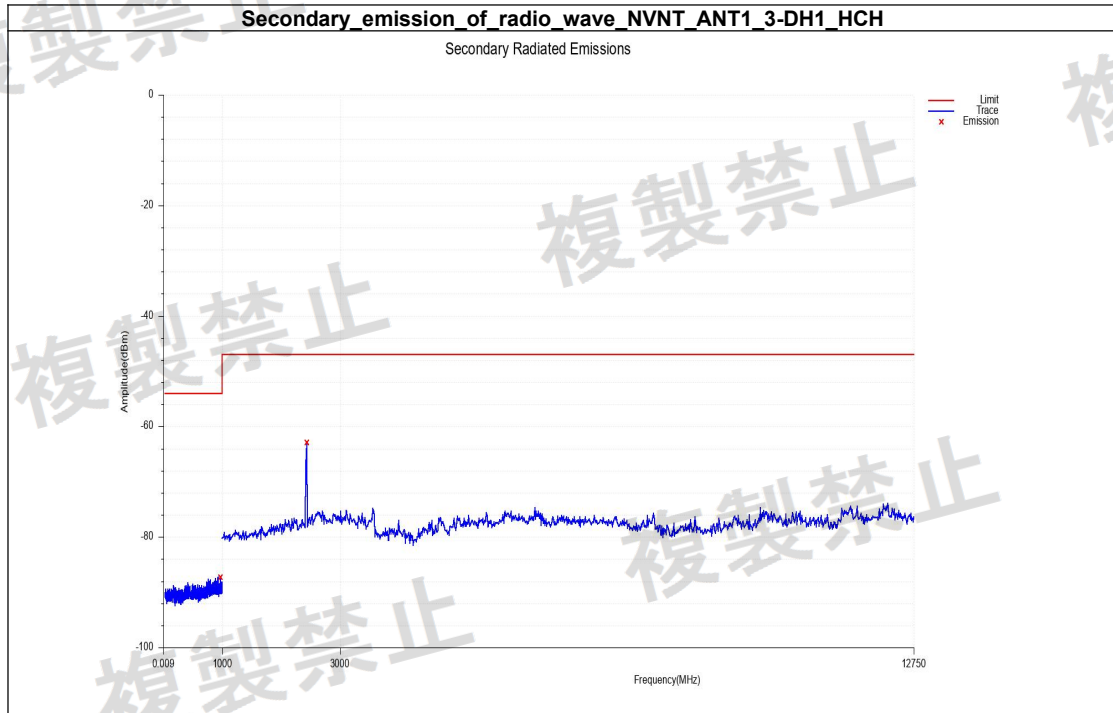
Condition	ANT	Mode	Channel	Range (MHz)	RBW (kHz)	Spur. Freq. (MHz)	Spur. Lev. (dBm)	Spur. Lev	Limit	Over 1/10 Limit	Read Lev.(dBm)	Read Lev.	Result
NVNT	ANT1	1-DH1	MCH	30.0~1000.0	100	798.24	-87.16	0.0019 nW	4nW	NO	/	/	Pass
NVNT	ANT1	1-DH1	MCH	1000.0~12750.0	1000	5183.00	-61.72	0.6735 nW	20nW	NO	/	/	Pass
NVNT	ANT1	1-DH1	LCH	30.0~1000.0	100	779.81	-87.76	0.0016 nW	4nW	NO	/	/	Pass
NVNT	ANT1	1-DH1	LCH	1000.0~12750.0	1000	2433.50	-64.90	0.3236 nW	20nW	NO	/	/	Pass
NVNT	ANT1	1-DH1	HCH	30.0~1000.0	100	991.27	-86.49	0.0022 nW	4nW	NO	/	/	Pass
NVNT	ANT1	1-DH1	HCH	1000.0~12750.0	1000	2433.50	-68.23	0.1502 nW	20nW	NO	/	/	Pass
NVNT	ANT1	2-DH1	MCH	30.0~1000.0	100	891.36	-87.28	0.0018 nW	4nW	NO	/	/	Pass
NVNT	ANT1	2-DH1	MCH	1000.0~12750.0	1000	5171.25	-65.35	0.2917 nW	20nW	NO	/	/	Pass
NVNT	ANT1	2-DH1	LCH	30.0~1000.0	100	910.76	-87.83	0.0016 nW	4nW	NO	/	/	Pass
NVNT	ANT1	2-DH1	LCH	1000.0~12750.0	1000	2433.50	-65.99	0.2519 nW	20nW	NO	/	/	Pass
NVNT	ANT1	2-DH1	HCH	30.0~1000.0	100	800.18	-86.13	0.0024 nW	4nW	NO	/	/	Pass
NVNT	ANT1	2-DH1	HCH	1000.0~12750.0	1000	2433.50	-68.12	0.1542 nW	20nW	NO	/	/	Pass
NVNT	ANT1	3-DH1	MCH	30.0~1000.0	100	938.89	-86.89	0.0020 nW	4nW	NO	/	/	Pass
NVNT	ANT1	3-DH1	MCH	1000.0~12750.0	1000	2433.50	-63.36	0.4612 nW	20nW	NO	/	/	Pass
NVNT	ANT1	3-DH1	LCH	30.0~1000.0	100	816.67	-87.77	0.0016 nW	4nW	NO	/	/	Pass
NVNT	ANT1	3-DH1	LCH	1000.0~12750.0	1000	5183.00	-64.48	0.3563 nW	20nW	NO	/	/	Pass
NVNT	ANT1	3-DH1	HCH	30.0~1000.0	100	972.84	-87.25	0.0018 nW	4nW	NO	/	/	Pass
NVNT	ANT1	3-DH1	HCH	1000.0~12750.0	1000	2433.50	-62.84	0.5200 nW	20nW	NO	/	/	Pass











10. Equivalent Isotropic Radiated Power

10.1. Test Equipment

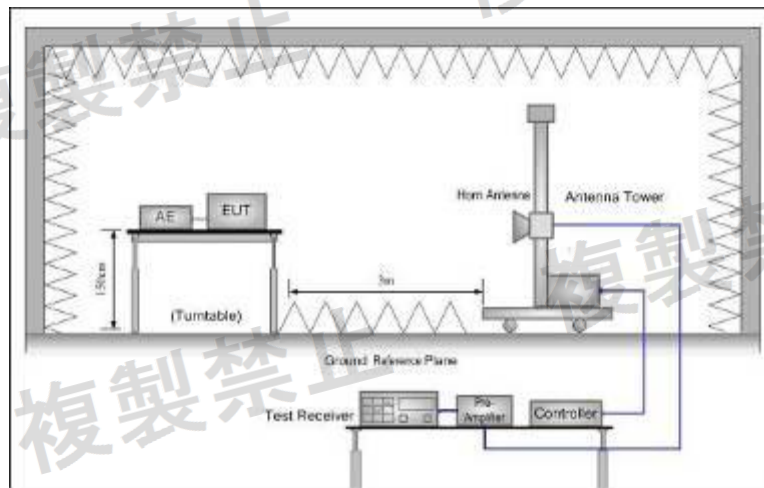
Item	Type	Manufacturer	Model No.	Serial No.	Last Calibration	Due Calibration
1	Spectrum analyzer	Agilent	N9020A	MY54484584	2025.11.10	2026.11.09
2	RF control unit	Tonscend	JS0806-1	19K8060206	2025.11.12	2026.11.11
3	Horn Antenna	SCHWARZBECK	BBHA9170	00956	2025.05.18	2026.05.17

Note: The test equipment is calibrated by HUAJUE MEDICAL TESTING AND METROLOGY (SHENZHEN) CO.,LTD. Calibration standard: Article 24-2, Paragraph 4 of the Radio Act, method c

10.2. Limit

EIRP: 6.91dBm/MHz

10.3. Block diagram of test setup



10.4. Test Procedure

Step 1

Set the test equipment at test frequency, and in continuous transmitting mode or intermittent burst mode (constant frequency and constant burst time). Stop the spread.

Step 2

Set the height and direction of test equipment and measurement antenna approximately facing each other.

Step 3

In the frequency derived in D), change the height of the measurement antenna from the ground by $\pm 50\text{cm}$ with a central focus on the antenna of test equipment. Search the location that the power is maximum by adjusting the direction of measurement antenna. Set the indicator of spectrum analyzer at this point as "E".

Step 4

Remove the test equipment from the turntable, set the opening of substitution antenna at the same location as the opening of the test equipment, and receive by outputting radio wave of the same frequency from the standard signal generator for substitution.

Step 5

Adjust at the maximum power point, turning the substitution antenna.

Step 6

Change the height of the measurement antenna from the ground by $\pm 50\text{cm}$ with a central focus on the substitution antenna, and adjust the direction of measurement antenna to the location that the received power is maximum.

Step 7

Adjust output of standard signal generator and record the power P_s that is equal to "E". Or record P_s by counting backward from the difference with "E" as the close value to "E" (within $\pm 1\text{dB}$).

Step 8

EIRP is derived from the following calculating formula:

$$\text{EIRP} = G_s - L_F + P_s$$

G_s ; Absolute gain of substitution antenna (dBi).

L_F ; Loss of electric supply line between standard signal generator and substitution antenna (dB).

P_s ; Output of standard signal generator (dBm).

Step 9

Spectrum Analyzer as below:

Centre Frequency: The centre frequency of the channel under test.

Frequency Span: 0Hz

Resolution BW: 1MHz

Video BW: 3MHz

Detector: Peak.

Sweep mode: Continuous sweep

10.5. Test result

Condition	Antenna	Mode	Frequency	Measured Power (dBm/MHz)	Antenna Gain (dBi)	EIRP (dBm/MHz)	EIRP Limit(dBm/MHz)	Result
NVNT	ANT1	1-DH1	2441.00	-17.44	2.32	-15.12	6.91	Pass
NVNT	ANT1	2-DH1	2441.00	-18.78	2.32	-16.46	6.91	Pass
NVNT	ANT1	3-DH1	2441.00	-25.25	2.32	-22.93	6.91	Pass

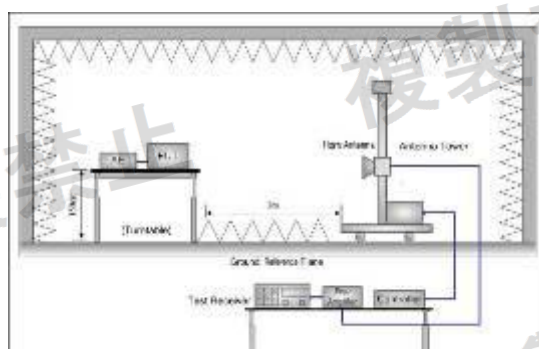
11.3dB Beam Bandwidth

11.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Calibration	Due Calibration
1	Spectrum analyzer	Agilent	N9020A	MY54484584	2025.11.10	2026.11.09
2	RF control unit	Tonscend	JS0806-1	19K8060206	2025.11.12	2026.11.11
3	Horn Antenna	SCHWARZBECK	BBHA9170	00956	2025.05.18	2026.05.17

Note: The test equipment is calibrated by HUAJUE MEDICAL TESTING AND METROLOGY (SHENZHEN) CO.,LTD. Calibration standard: Article 24-2, Paragraph 4 of the Radio Act, method c

11.2. Block diagram of test setup



11.3. Test Procedure

Step 1

Set the test equipment at test frequency, and transmit.

Step 2

Stop the modulation, and make it “continuous transmission of unmodulated wave” in principle. If it is impossible, make it “intermittent burst transmission of unmodulated wave”

Step 3

Polarized wave side of measurement antenna is the same using mode as test equipment.

Step 4

Set the height and direction of test equipment and measurement antenna approximately facing each other.

Step 5

Set the spectrum analyzer according to “Spectrum set” and set as reference level and receive.

Step 6

Adjust at the maximum received power point, turning the test equipment horizontally and vertically.

Step 7

Change the height of the measurement antenna from the ground by $\pm 50\text{cm}$ with a central focus on the antenna of test equipment, and search the location that the power is maximum by adjusting the direction of measurement antenna. Set the indicator of spectrum analyzer at this point as “E”.

Step 8

By using EIRP (P_E) that is measured at 9, calculate allowed main beam angle (θ_0) between the horizontal plane and vertical plane of the test equipment as follows.

Allowed main beam angle (θ_0) = $360/A$

θ_0 : Allowed transmitter antenna beamwidth angle in degree of test equipment

P_E : EIRP of test equipment (dBm)

A: A is defined as EIRP divides by the summation of antenna gain 2.14dBi transmitter antenna and average power 10mW (In case of using OFDM, or DS, or FHSS, or DS and complex with FHSS, or OFDM and complex with FHSS, 10mW/MHz. However, in FHSS or DS and complex with FHSS, or OFDM and complex with FHSS, when using the frequency from 2,427MHz to 2,470.75MHz, 3mW/MHz) antenna power. In case the value is lower than 1, set A as 1.

Step 9

Turn the test equipment in horizontal direction, from main beam direction with the beam angle except main beam angle (θ_0) calculated by (step 8), over all surroundings as much as possible. Confirm that received power is decreased more than 3dB from the maximum point value of received power (E).

Step 10

Return the test equipment to position (step 6), incline the test equipment in vertical direction, from main beam direction with the beam angle except main beam angle (θ_0) calculated by (step 8), widely as much as possible (over 90 degrees. However, it is able to according to "6. other condition", too.) Confirm that received power is 3dB lower than the maximum point value of received power (E).

Step 9

Spectrum Analyzer as below:

Centre Frequency: The centre frequency of the channel under test.

Frequency Span: 0Hz

Resolution BW: 1MHz

Video BW: 1KHz

Y-Axis: 5dB/Div

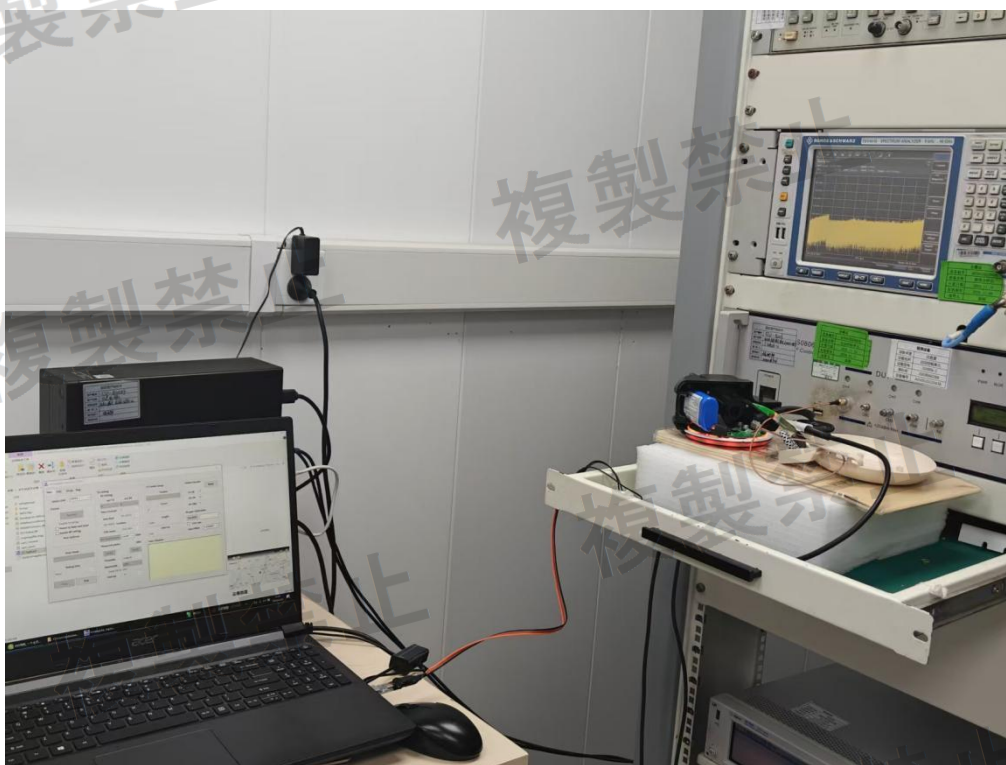
Detector: Peak.

Sweep mode: Continuous sweep

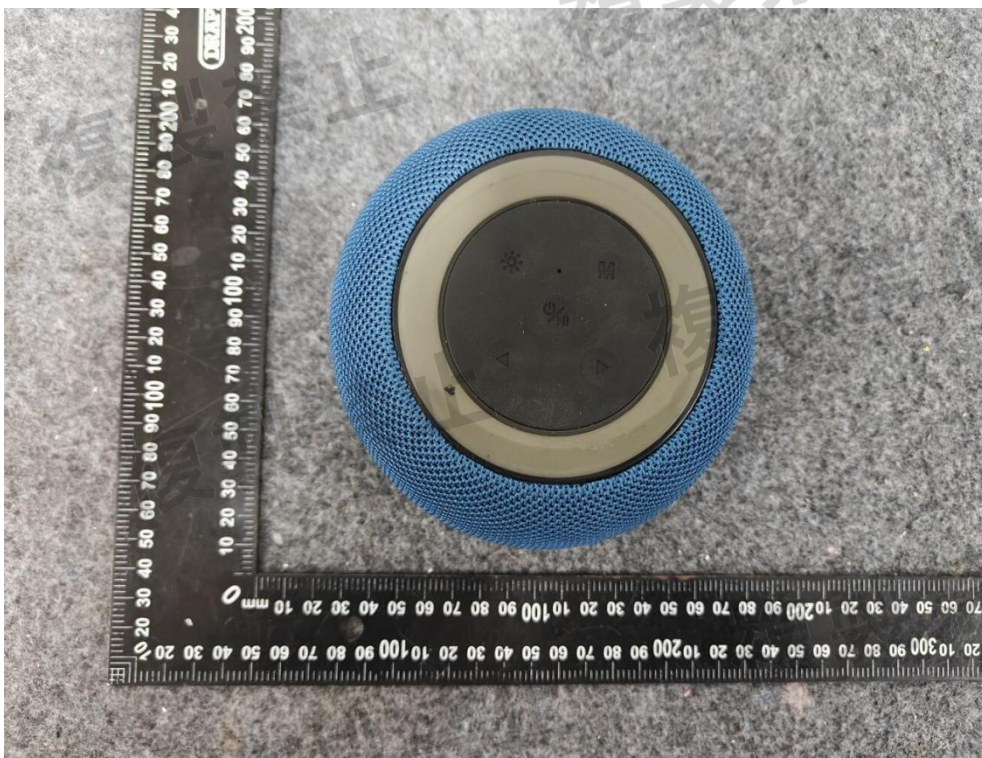
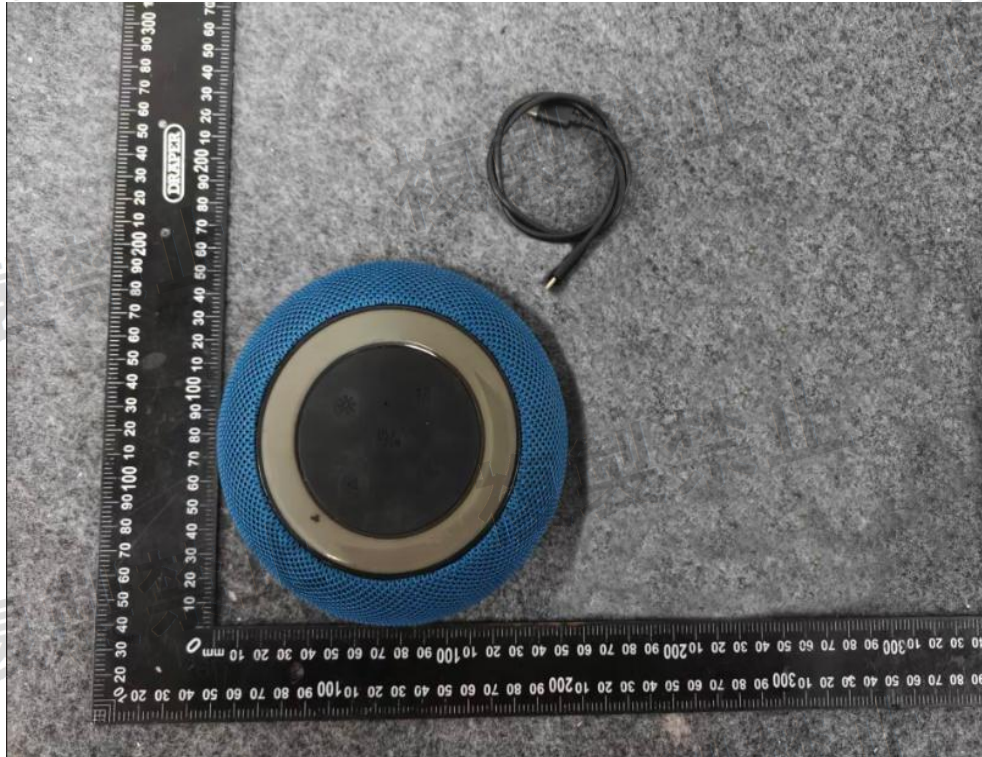
Input level: the amplitude of transmission signal is set around max. line area of mixer.

11.4. Test result

Not applicable (the EIRP less than 12.14dBm).

12. Photos of test setup

13. EUT Photo

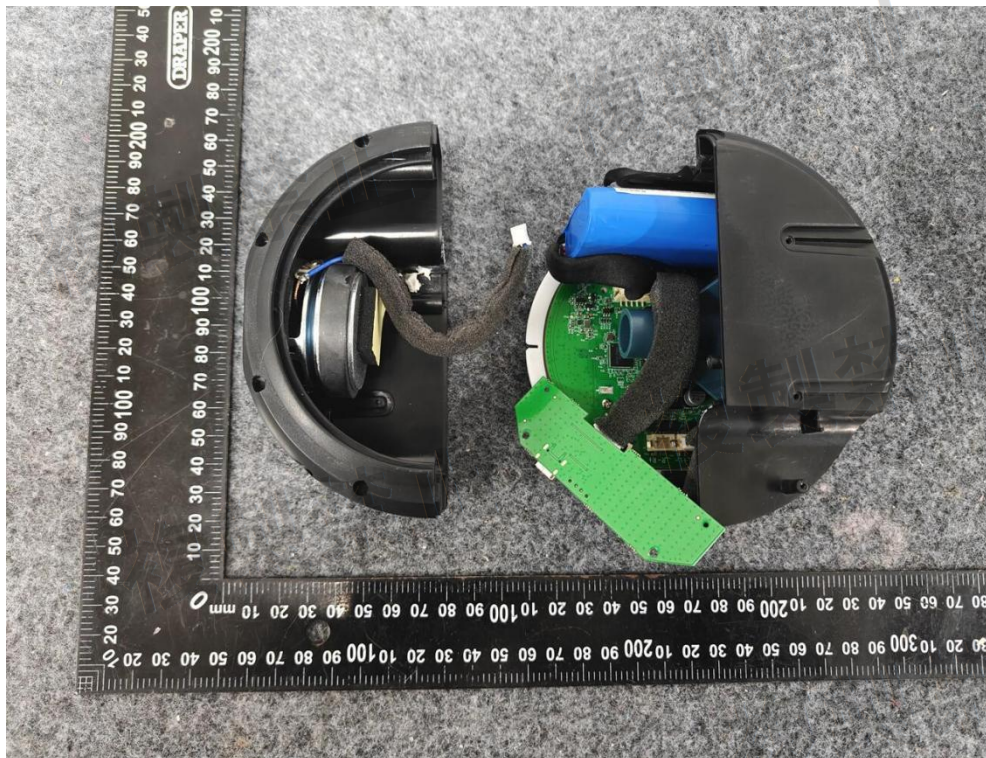


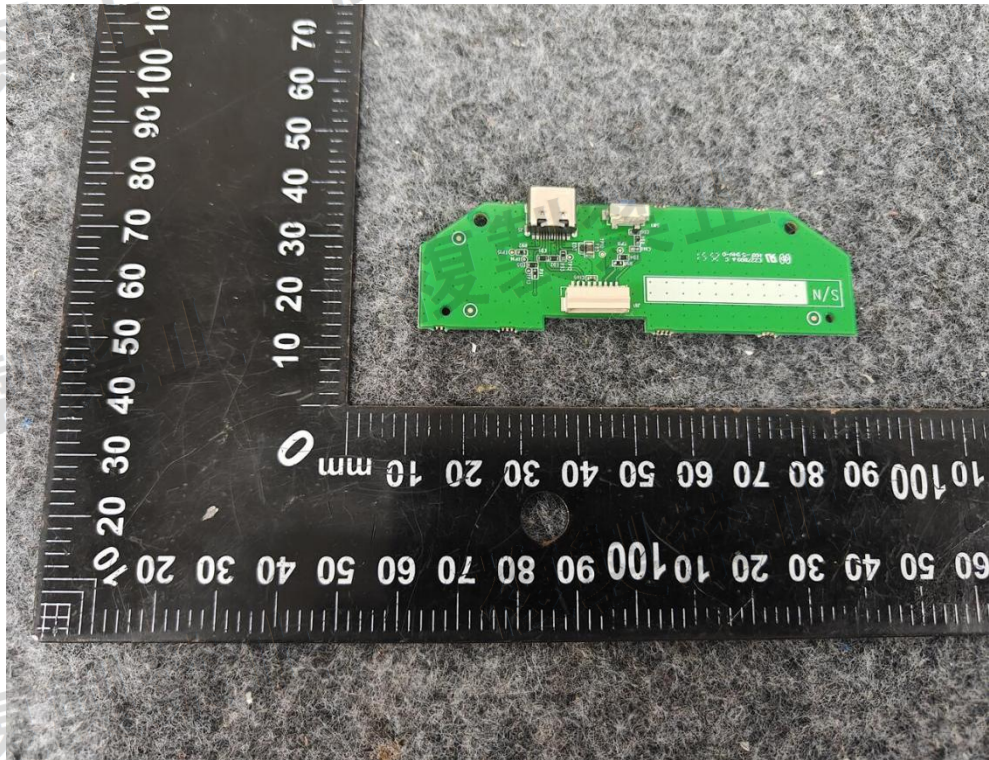




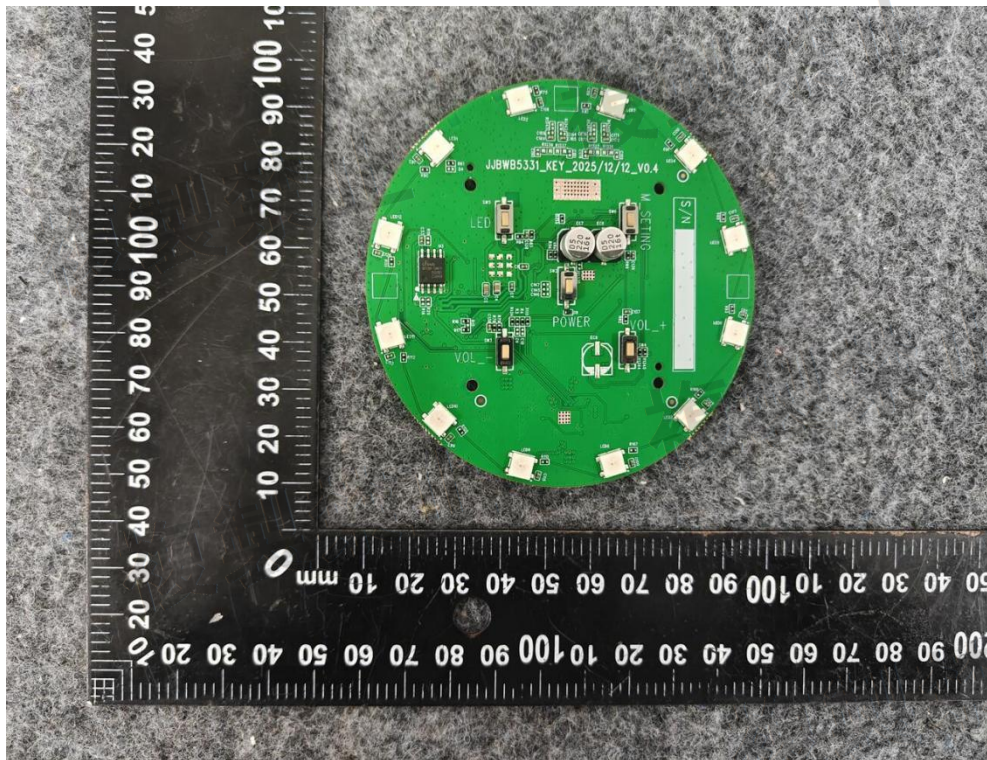
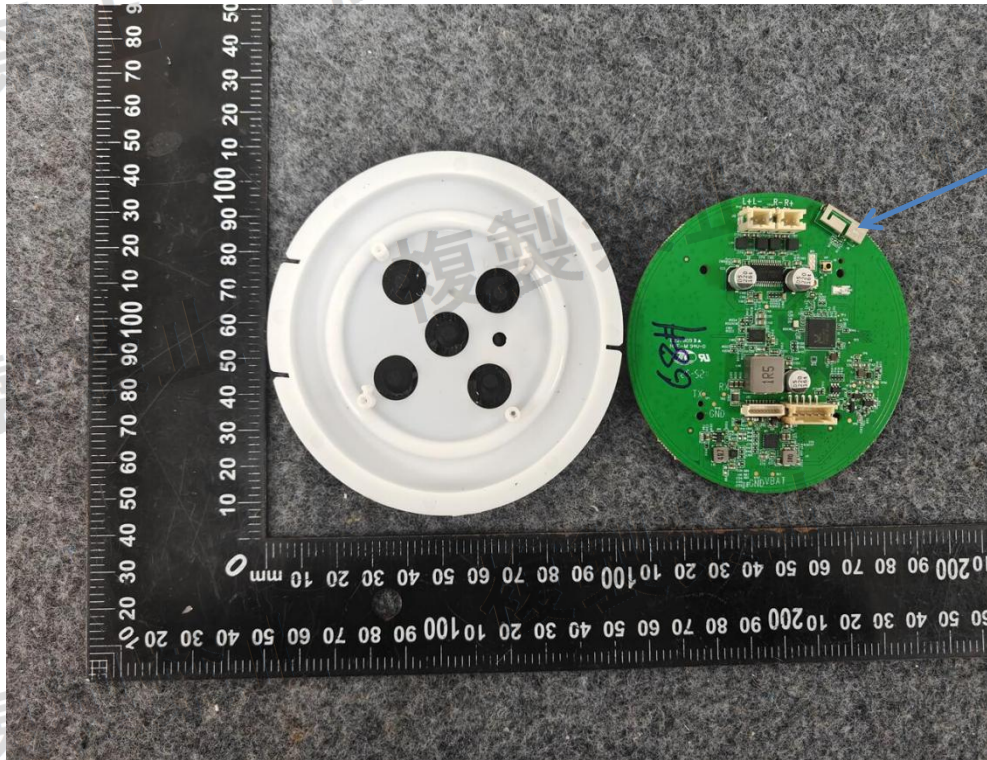


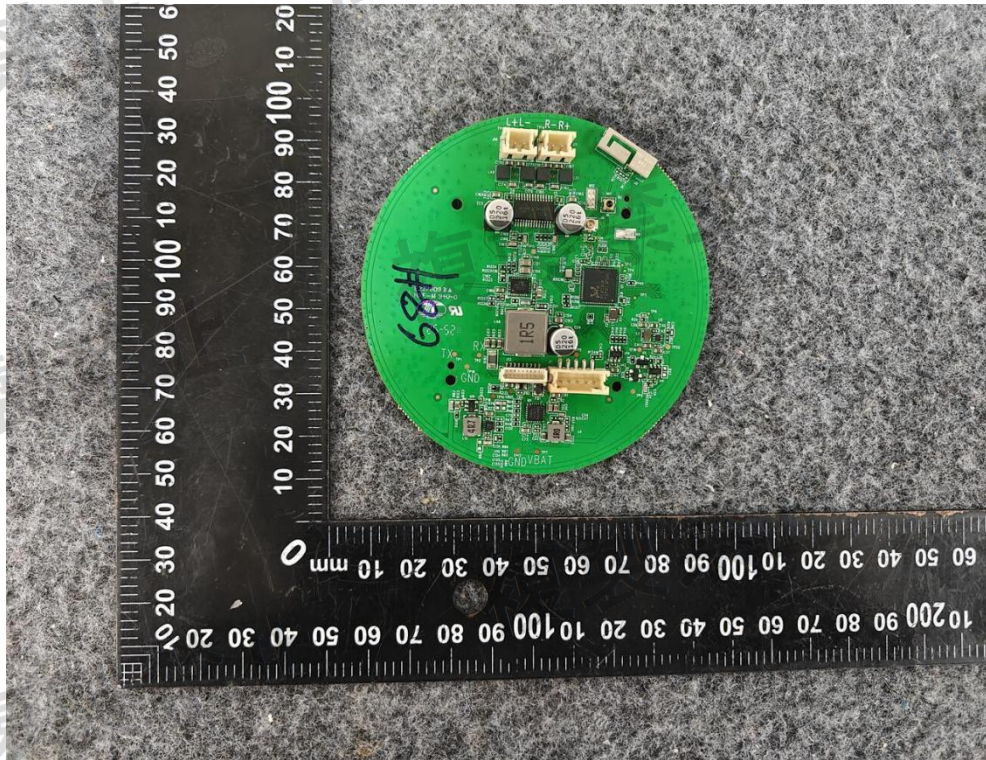












-----END OF REPORT-----