



MIC public notice 88 TEST REPORT

On Behalf of

Innfact Design Inc.

Find4Me

Model No.: FID-2124W-KEY, FID-2124G-KEY, FID-2124C-KEY,
FID-2124N-KEY, FID-2124P-KEY

Prepared for : Innfact Design Inc.
Address : 13th Floor-1, No.191, Fuxing North Road, Songshan District, Taipei
City

Prepared By : Shenzhen PSI Testing Co., Ltd.
Address : 1-2/F., Building 5, Yudafu Industrial Park, No.10, Xingye West Road,
Shajing Subdistrict, Bao'an District, Shenzhen, Guangdong, China

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TEST REPORT DECLARATION

Applicant : Innfact Design Inc.
Address : 13th Floor-1, No.191, Fuxing North Road, Songshan District, Taipei City
Manufacturer : RUNHO CO., LTD
Address : Room1207-1, Building 8, Chang'an Vanke Center, No.1 Changqing South Road,
Chang'an Town, Dongguan City, Guangdong Province
EUT name : Find4Me
(A) Model No. : FID-2124W-KEY, FID-2124G-KEY, FID-2124C-KEY,
FID-2124N-KEY, FID-2124P-KEY
(B) Trademark : innfact

Measurement Standard Used:

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

Test Result: PASS

The device described above is tested by Shenzhen PSI Testing Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the MIC public notice 88:2004, annex 43 and annex 1 limits both conducted and radiated emissions. The test results are contained in this test report and Shenzhen PSI Testing Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After the test, our opinion is that EUT compliance with the requirement of the above standards.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen PSI Testing Co., Ltd.

Tested by (name + signature)..... Felix Pang
Test Engineer

Approved by (name + signature)..... Simple Guan
Project Manager

Date of issue..... March 21, 2025

Revision History

Revision	Issue Date	Revisions	Revised By
V0	March 21, 2025	Initial released Issue	Felix Pang

1. General Information

1.1. Description of Device (EUT)

EUT	: Find4Me
Model No.	: FID-2124W-KEY, FID-2124G-KEY, FID-2124C-KEY, FID-2124N-KEY, FID-2124P-KEY
Diff	: There is no difference except the name of the model. All tests are made with the FID-2124W-KEY model.
Power supply	: DC 3V from button cell.
Radio Technology	: Bluetooth V5.2 LE
Operation frequency	: 2402MHz -2480MHz
Number of channels	: 40
Modulation	: GFSK
Channel spacing	: 2MHz
Rate	: 1Mbps/2Mbps
Stated power	: 3mW
Antenna Type	: Internal antenna, maximum gain is 1.24dBi.
Software version	: V1.0
Hardware version	: V1.0
Note	: Antenna information is provided by applicant. : Testing lab is not responsible for the accuracy of the information.

1.2. Accessories of Device (EUT)

Accessories : N/A
Manufacturer : N/A
Model : N/A
Ratings : N/A

1.3. Ancillary Equipment Details

No.	Description	Manufacturer	Model	Serial Number	Certification
1.	Notebook PC	Dell	Latitude 3490	N/A	N/A
2.	DC Power Supply	Xinouhua	ADC120V10A	202211251638	N/A
3.	USB to TTL board	N/A	N/A	N/A	N/A

1.4. Test Lab Information

Shenzhen PSI Testing Co., Ltd.
1-2/F., Building 5, Yudafu Industrial Park, No.10, Xingye West Road, Shajing Subdistrict,
Bao'an District, Shenzhen, Guangdong, China

August 30, 2023 File on A2LA
Certificate Number: 6975.01

2. Summary of test

2.1. Test Standard Description

MIC Notice No.88 Appendix No. 43

Second-Generation Low-Power Data Communication System/Wireless LAN System

2.2. 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 (5)	Transmission Rate	N/A
3.2 (7)	Occupied Frequency Bandwidth	Pass
3.2 (8)	Spread Bandwidth	Just for reported
3.2 (9)	Transmitting Antenna Absolute Gain	Pass
3.2 (10)	Number of Carriers	N/A
3.2 (11)	Dwell Time	N/A
3.2 (6)	Spurious Emissions	Pass
/	Interference prevention function	Pass
/	Carrier Sensing function 1	N/A*
	Carrier Sensing function 2	N/A**
/	Equivalent Isotropic Radiated Power	Pass
/	3dB Beam Bandwidth	N/A***
Receiver Parameters		
3.3 (1)	Secondary Radiated Emissions	Pass
Note: 1. N/A is an abbreviation for Not Applicable. 2. Decision rules for the conclusion of this test report: decision by actual test data without considering measurement uncertainty. 3. This device have more than 1 subcamier in 1MHz, compliance with the requirement. *: Application to transmitting devices which EIRP is less than (2.14dBi + antenna power limit) and the shortage of EIRP is compensated by the antenna power. Not applicable to this product. **: Application to transmitting devices with OFDM modulation and the occupied bandwidth greater than 26MHz. ***: This test item is not applied for radio equipment with equivalent isotropic radiation power lower than 12.14dBm.		

2.3. Block Diagram



2.4. 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:

Mode	Channel	Frequency(MHz)
Carrier Tx Mode	CH0	2402
	CH19	2440
	CH39	2480
GFSK Tx Mode	CH0	2402
	CH19	2440
	CH39	2480

2.5. Test Conditions

Items	Required	Actual
Temperature range:	15-35℃	26℃
Humidity range:	25-75%	54%
Pressure range:	86-106kPa	101kPa

2.6. Test Voltage

Voltage mode	Input Voltage	Radio Unit Voltage
DC	DC 2.7V	DC 3.3V
	DC 3.0V	DC 3.3V
	DC 3.3V	DC 3.3V
Note: 1 The radio unit Voltage with the IC. 2 During external power source is varied by $\pm 10\%$, power supply to the RF circuit of EUT (excluding power source) is less than $\pm 1\%$. So the test only rated voltage (Normal voltage DC 3.0V).		

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

Item	MU
Bandwidth	968Hz
Antenna Power	0.41dB
Frequency Tolerance	$\pm 0.5\text{ppm}$
Conducted spurious emission	1.26dB

3. Antenna Power

3.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	RF Power Probe	Rohde&Schwarz	NRP-Z11	1138.3004.02-111533-Fz	2024.12.18	1 Year

Note: The test equipment is calibrated by China Certification & Inspection (Group) Co., Ltd.

3.2. Limit

Limit	10mW
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 Power Meter by suitable attenuator.
- (4)When the trace is complete, find the peak value of the power envelope and record.

3.5. Test result

Condition	Antenna	Rate	Frequency	Measured Power(dBm)	Antenna Power(mW)	Rated Power(mW)	Power Limit(mW)	Power Tolerance(%)	Tolerance Limit(%)	Result
NVNT	ANT1	1Mbps	2402	3.89	2.45	3.00	10	-18.33	+20	Pass
NVNT	ANT1	1Mbps	2440.00	4.17	2.61	3.00	10	-13.00	+20	Pass
NVNT	ANT1	1Mbps	2480	3.93	2.47	3.00	10	-17.67	+20	Pass
NVNT	ANT1	2Mbps	2402	3.94	2.48	3.00	10	-17.33	+20	Pass
NVNT	ANT1	2Mbps	2440.00	4.21	2.64	3.00	10	-12.00	+20	Pass
NVNT	ANT1	2Mbps	2480	3.95	2.48	3.00	10	-17.33	+20	Pass

Condition	Antenna	Mode	Frequency	Measured Power(dBm)	Antenna Gain(dBi)	EIRP(dBm)	EIRP Limit(dBm)	Result
NVNT	ANT1	1Mbps	2402	3.89	1.24	5.13	12.14	Pass
NVNT	ANT1	1Mbps	2440.00	4.17	1.24	5.41	12.14	Pass
NVNT	ANT1	1Mbps	2480	3.93	1.24	5.17	12.14	Pass
NVNT	ANT1	2Mbps	2402	3.94	1.24	5.18	12.14	Pass
NVNT	ANT1	2Mbps	2440.00	4.21	1.24	5.45	12.14	Pass
NVNT	ANT1	2Mbps	2480	3.95	1.24	5.19	12.14	Pass

4. Frequency Tolerance

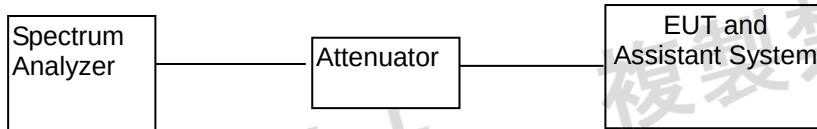
4.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum analyzer	Agilent	N9020A	MY51281067	2024.12.18	1 Year
Note: The test equipment is calibrated by China Certification & Inspection (Group) Co., Ltd.						

4.2. Limit

+/- 50x 10⁻⁶ or less(50ppm)

4.3. Block diagram of test setup

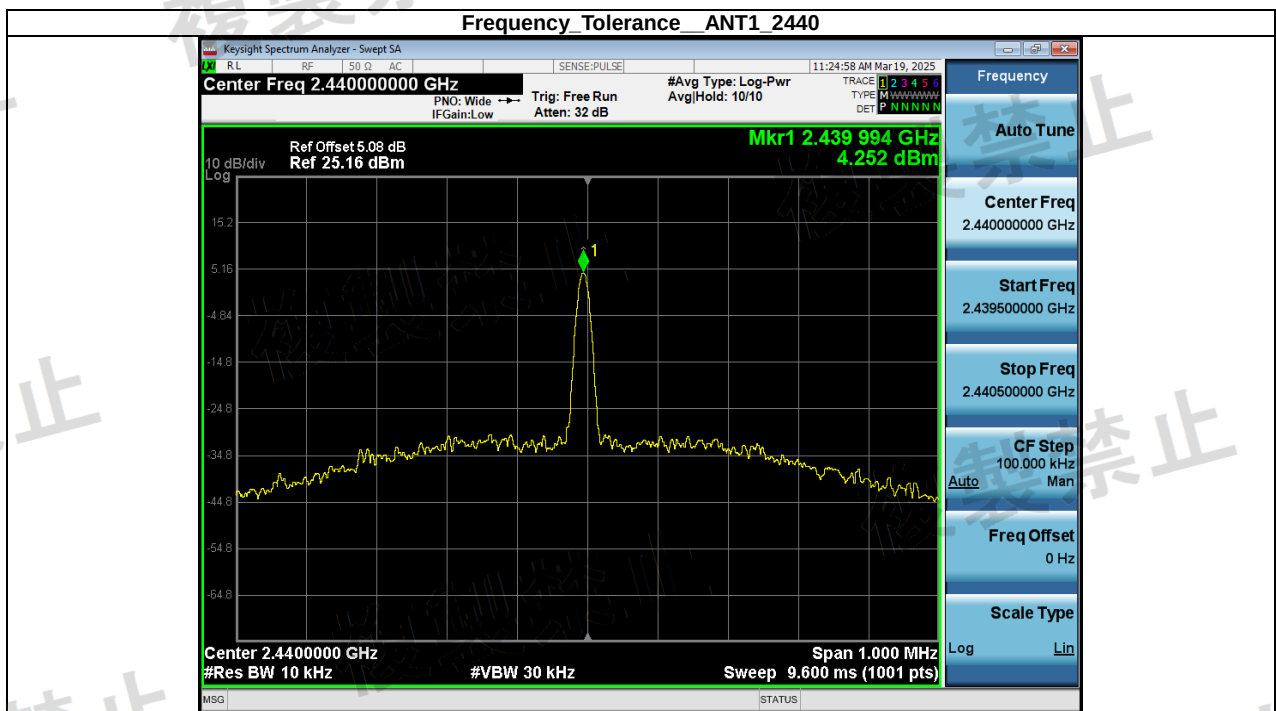
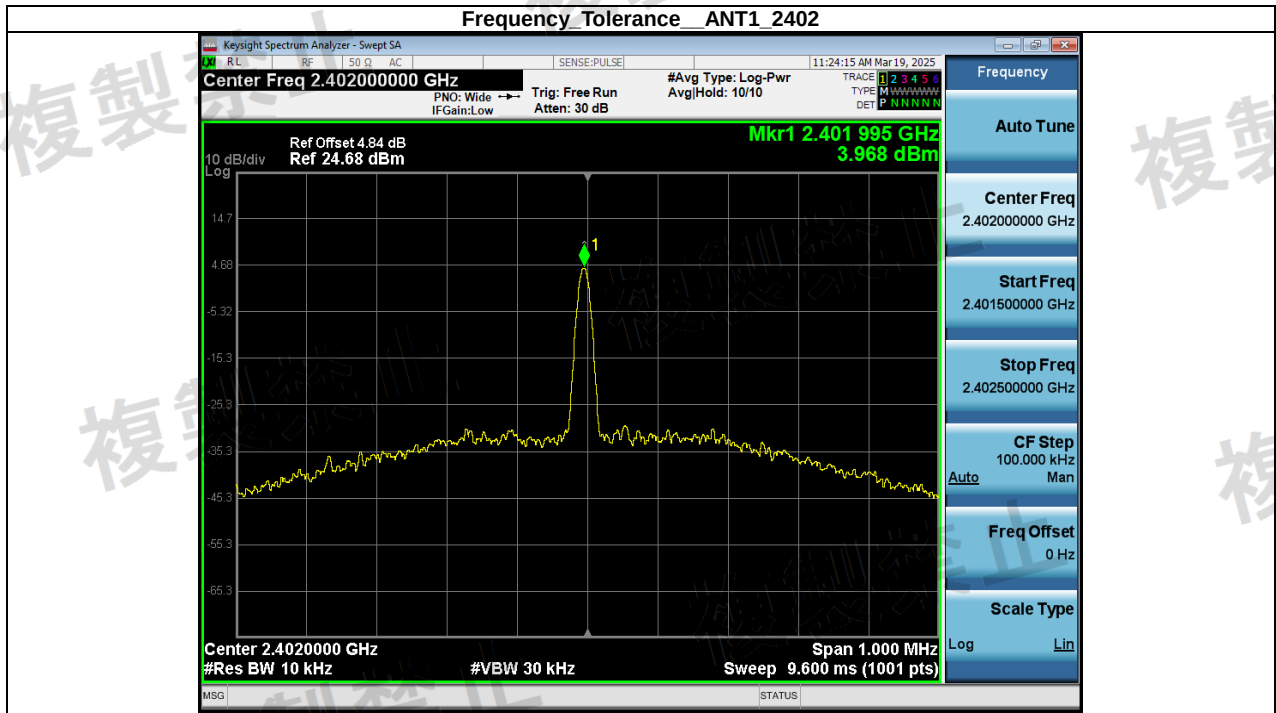


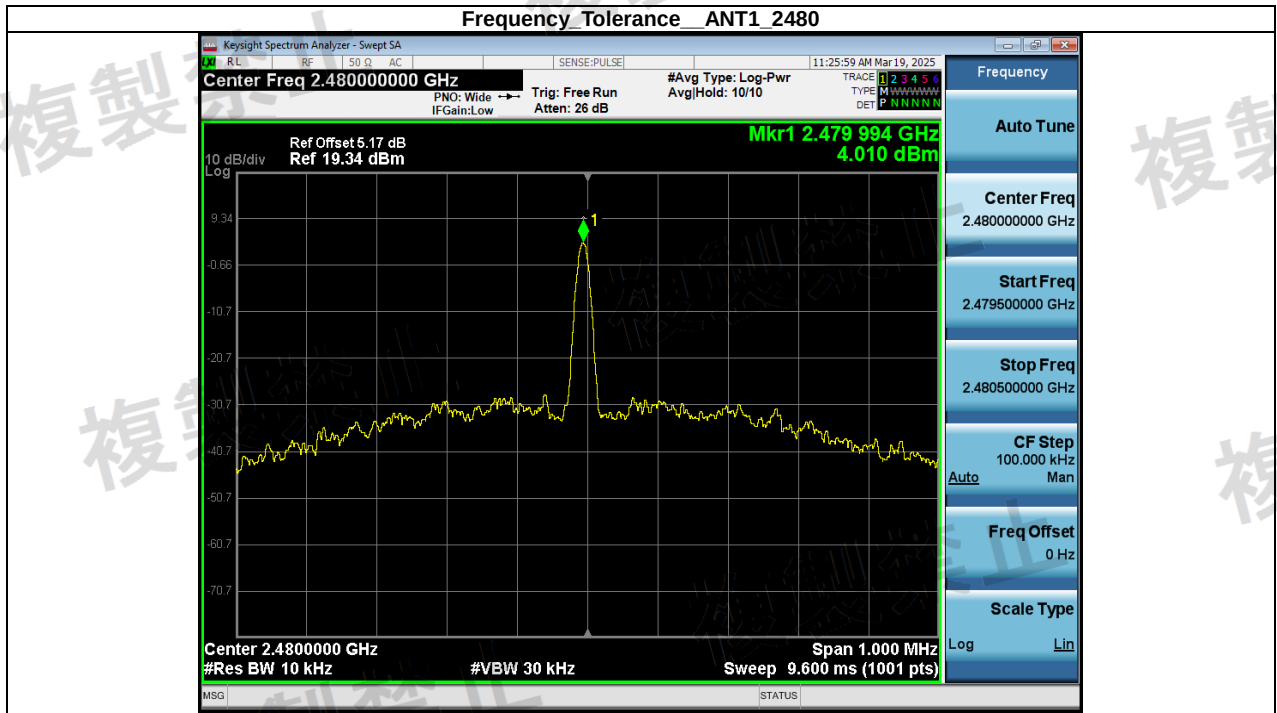
4.4. Test Procedure

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: 30 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
NVNT	ANT1	CW	2402	2401.995	-2.082	±50	Pass
NVNT	ANT1	CW	2440.00	2439.994	-2.459	±50	Pass
NVNT	ANT1	CW	2480	2479.994	-2.419	±50	Pass





5. Occupied Frequency Bandwidth

5.1. Test Equipment

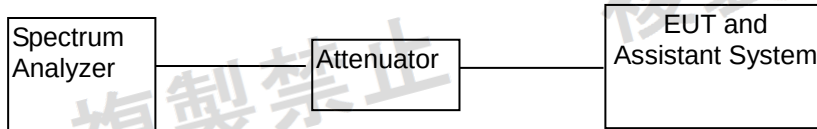
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum analyzer	Agilent	N9020A	MY51281067	2024.12.18	1 Year

Note: The test equipment is calibrated by China Certification & Inspection (Group) Co., Ltd.

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

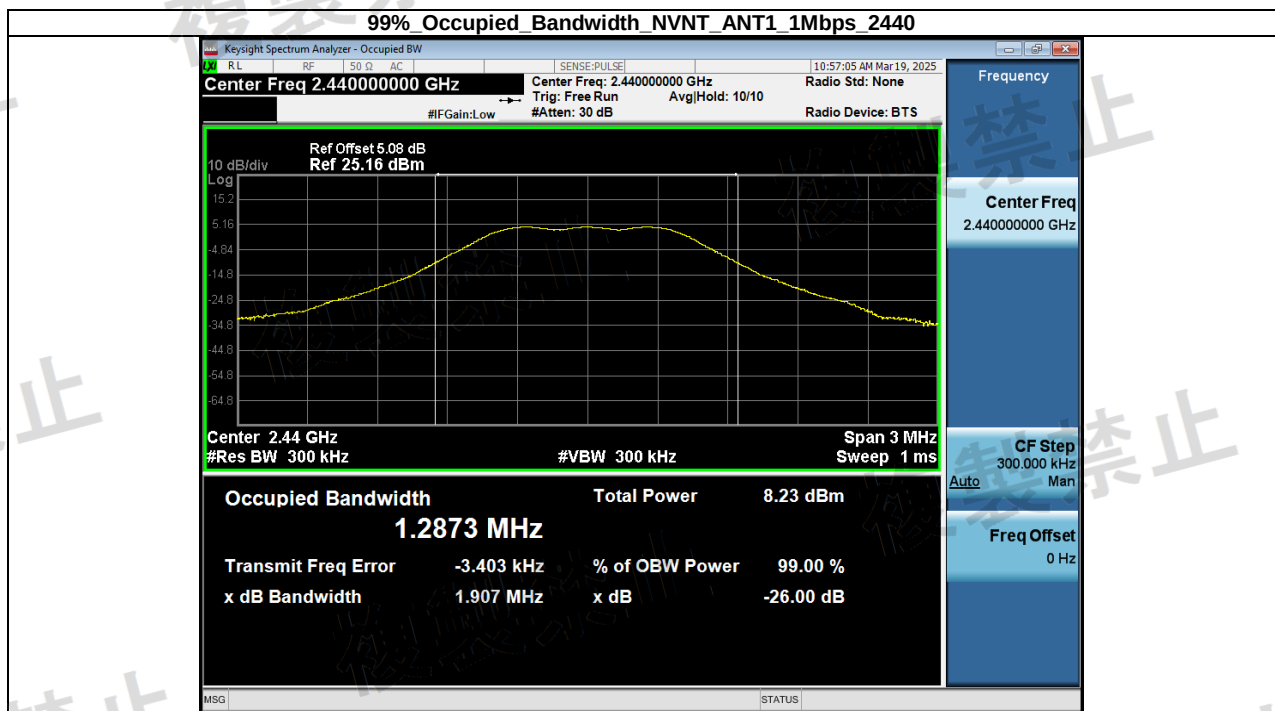
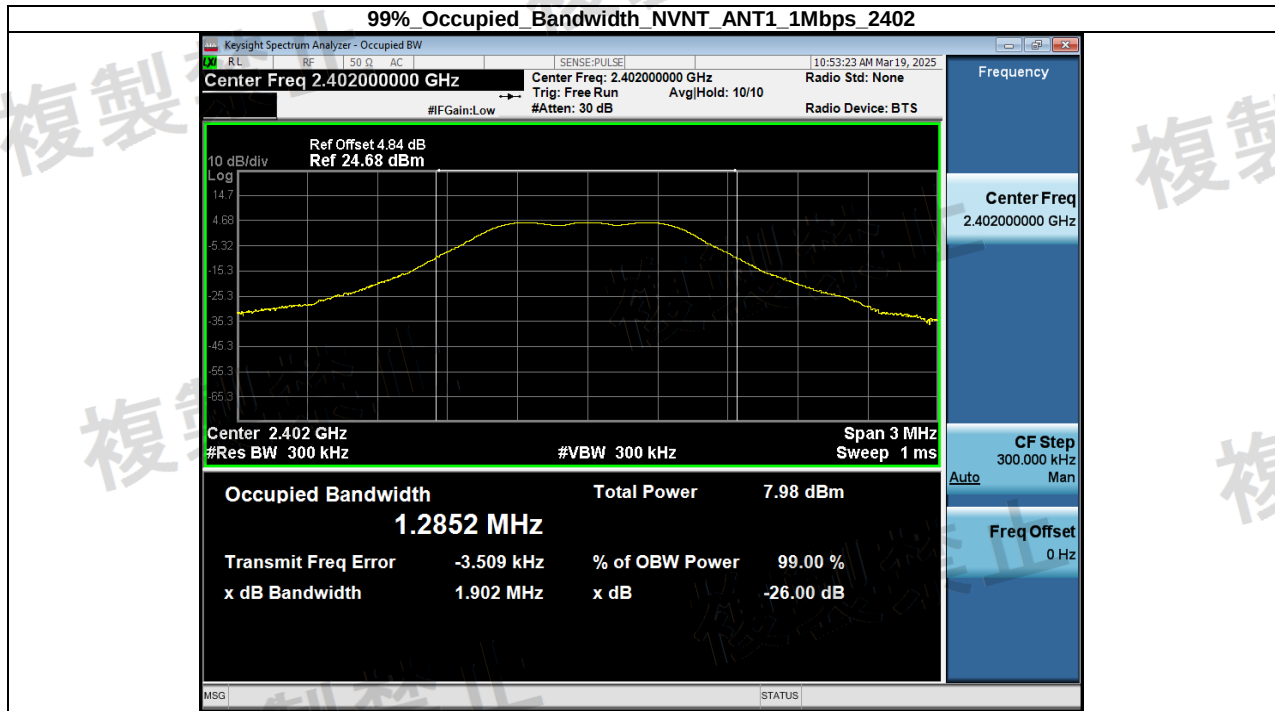


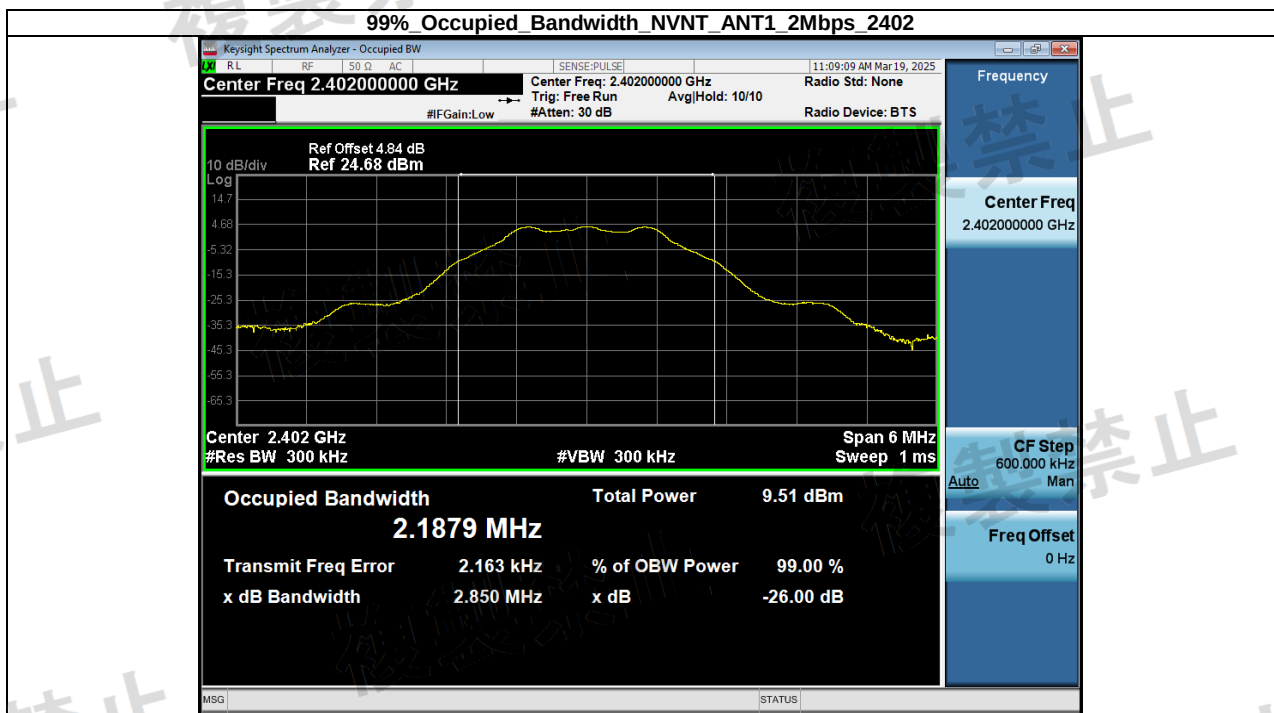
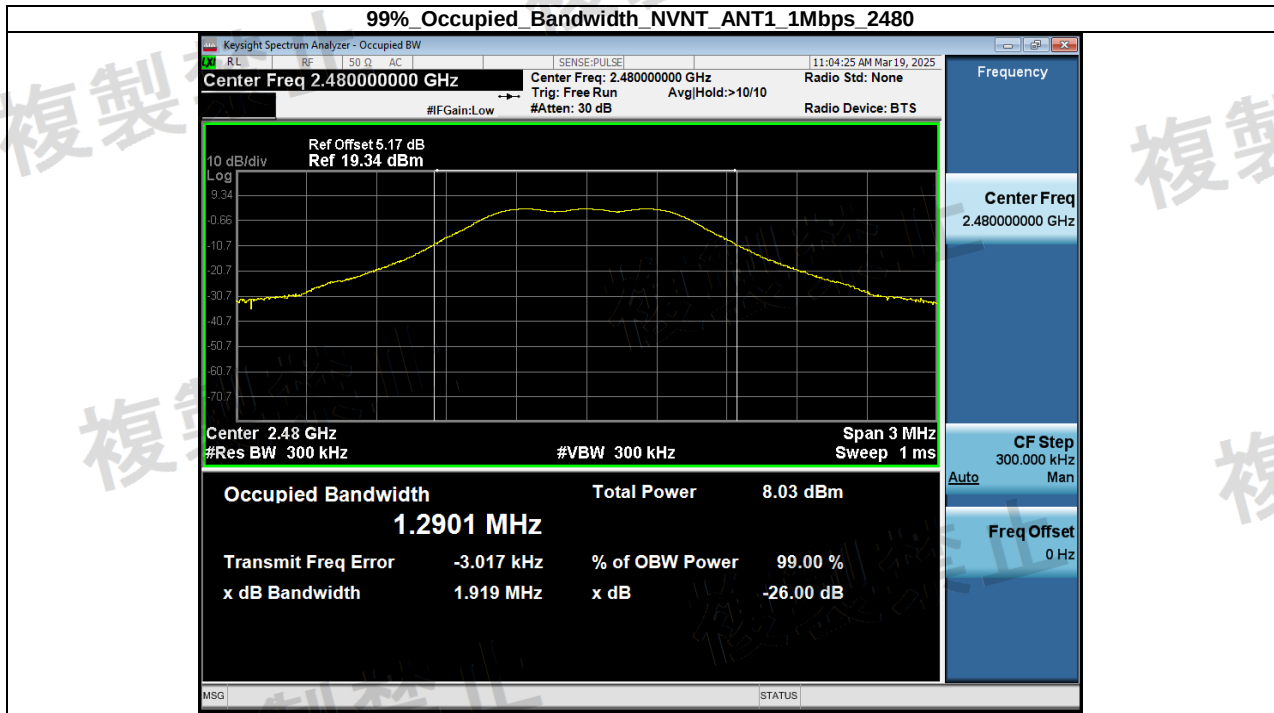
5.4. Test Procedure

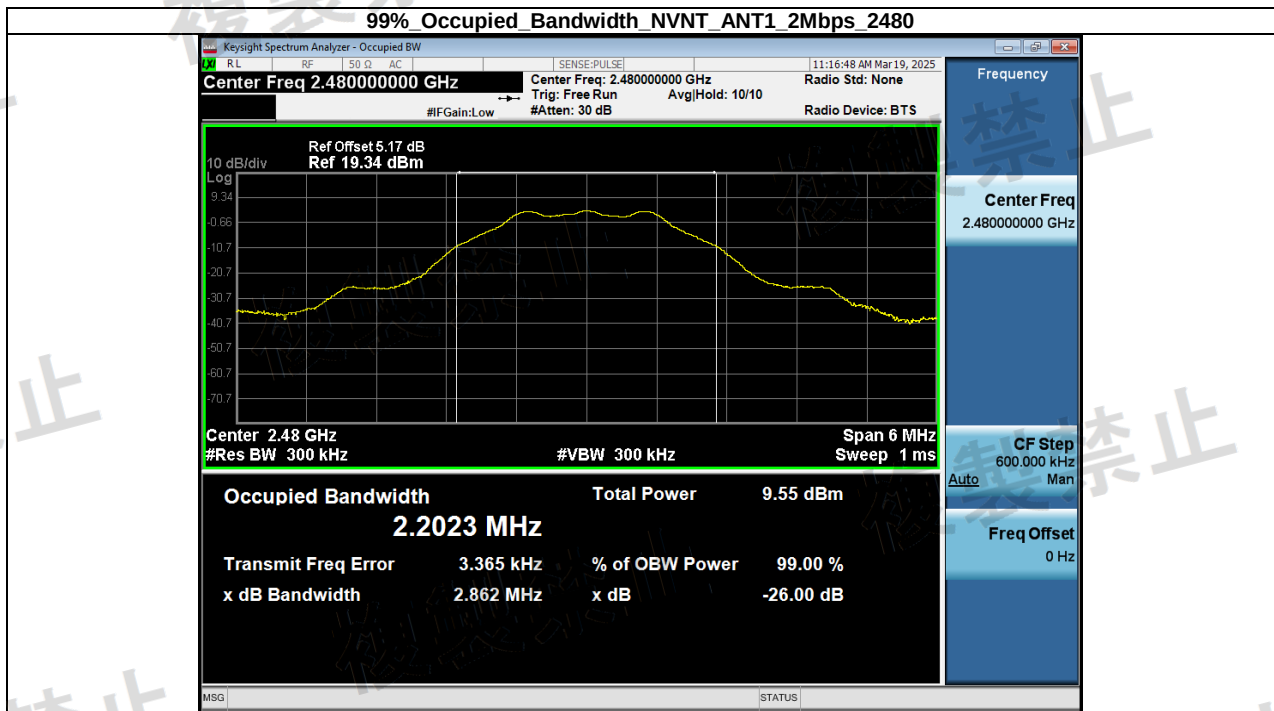
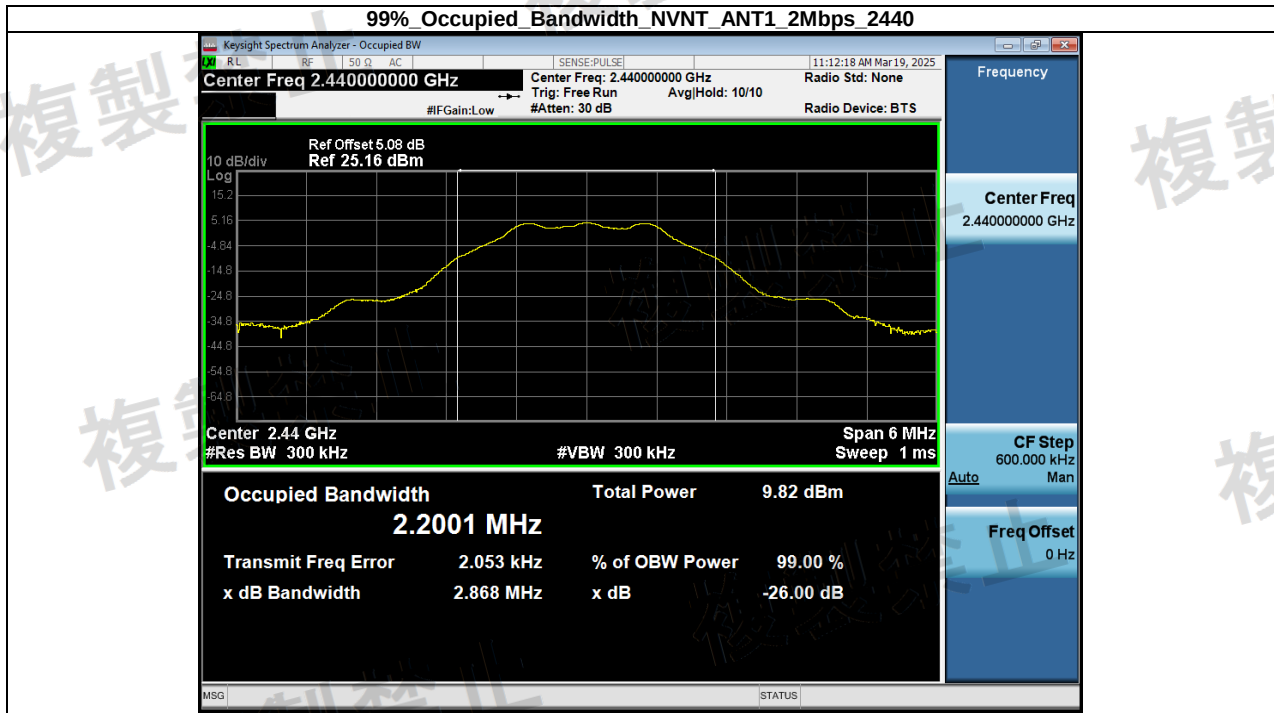
1. Configure EUT and assistant system according clause 2.3 and 5.3
2. Set EUT work in test mode as described in clause 2.4
3. Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:
Centre Frequency: The centre frequency of the channel under test.
Resolution BW: 300 KHz
Video BW: 300 KHz
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	Rate	Frequency(MHz)	Occupied Bandwidth(MHz)	Limit(MHz)	Result
NVNT	ANT1	1Mbps	2402	1.29	<26	Pass
NVNT	ANT1	1Mbps	2440.00	1.29	<26	Pass
NVNT	ANT1	1Mbps	2480	1.29	<26	Pass
NVNT	ANT1	2Mbps	2402	2.19	<26	Pass
NVNT	ANT1	2Mbps	2440.00	2.20	<26	Pass
NVNT	ANT1	2Mbps	2480	2.20	<26	Pass







6. Spread Bandwidth

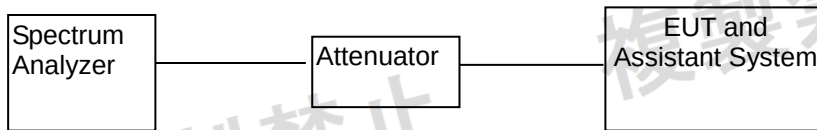
6.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum analyzer	Agilent	N9020A	MY51281067	2024.12.18	1 Year
Note: The test equipment is calibrated by China Certification & Inspection (Group) Co., Ltd.						

6.2. Limit

N/A.

6.3. Block diagram of test setup

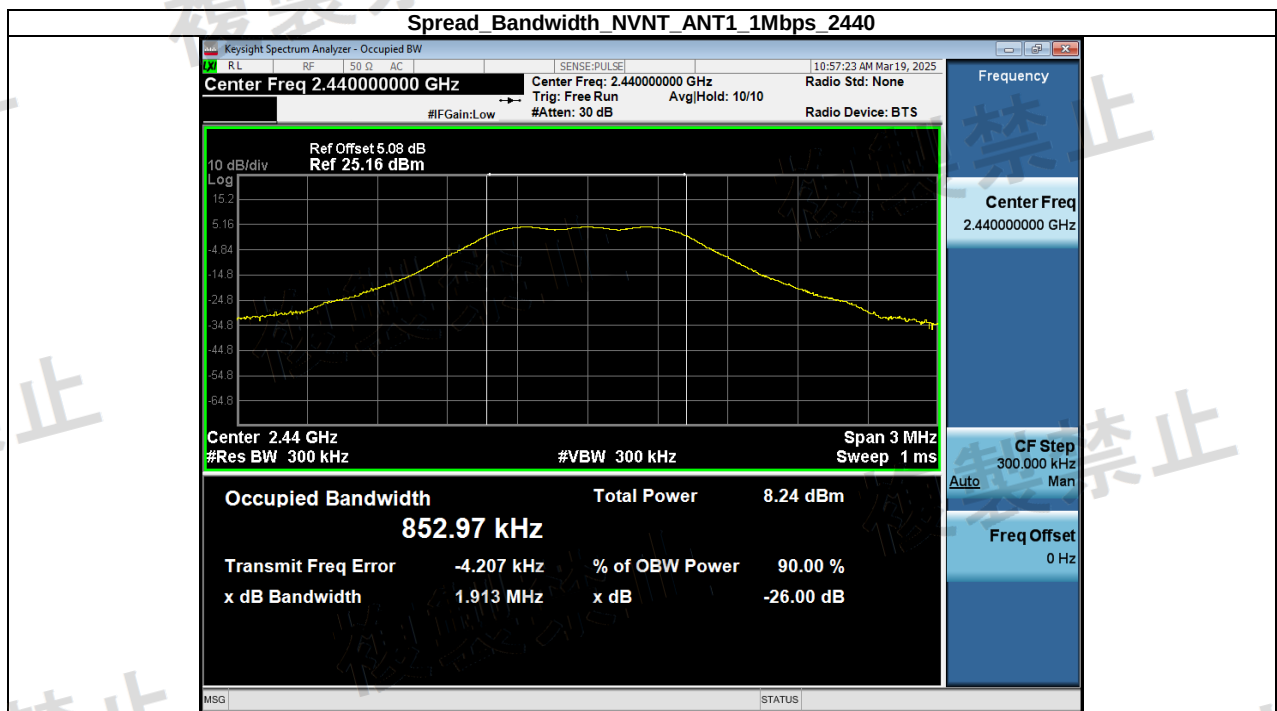
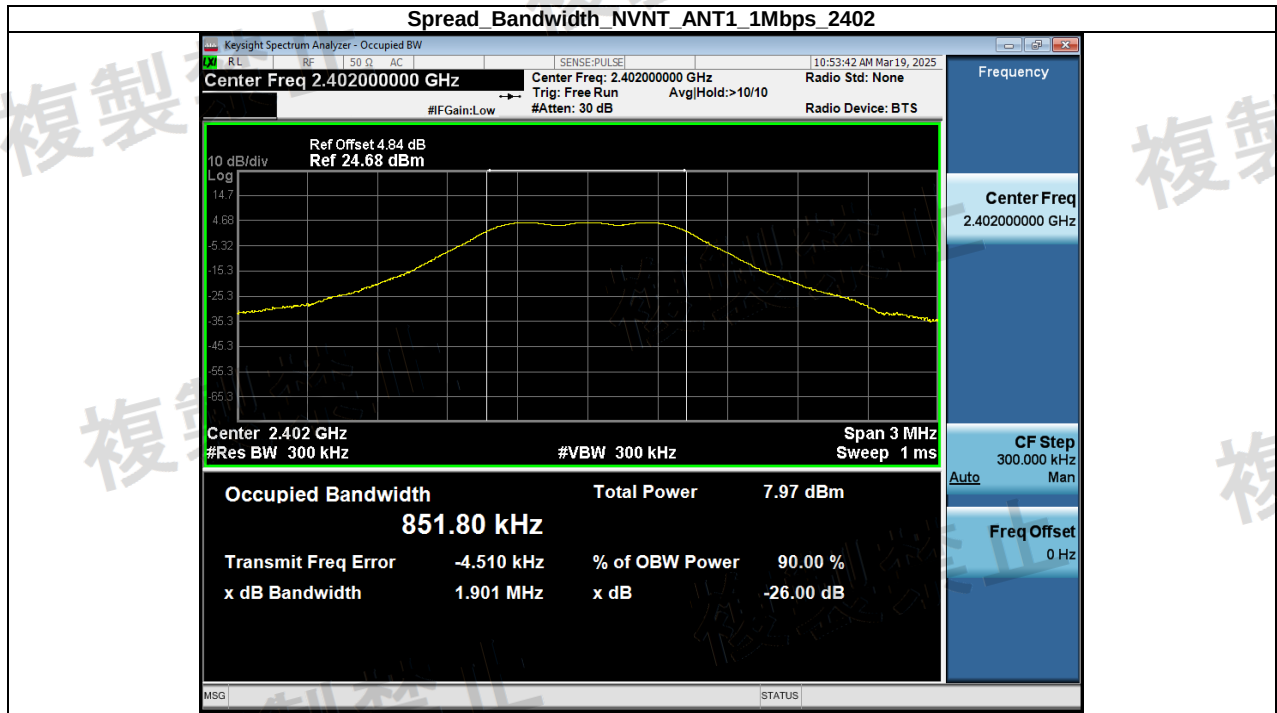


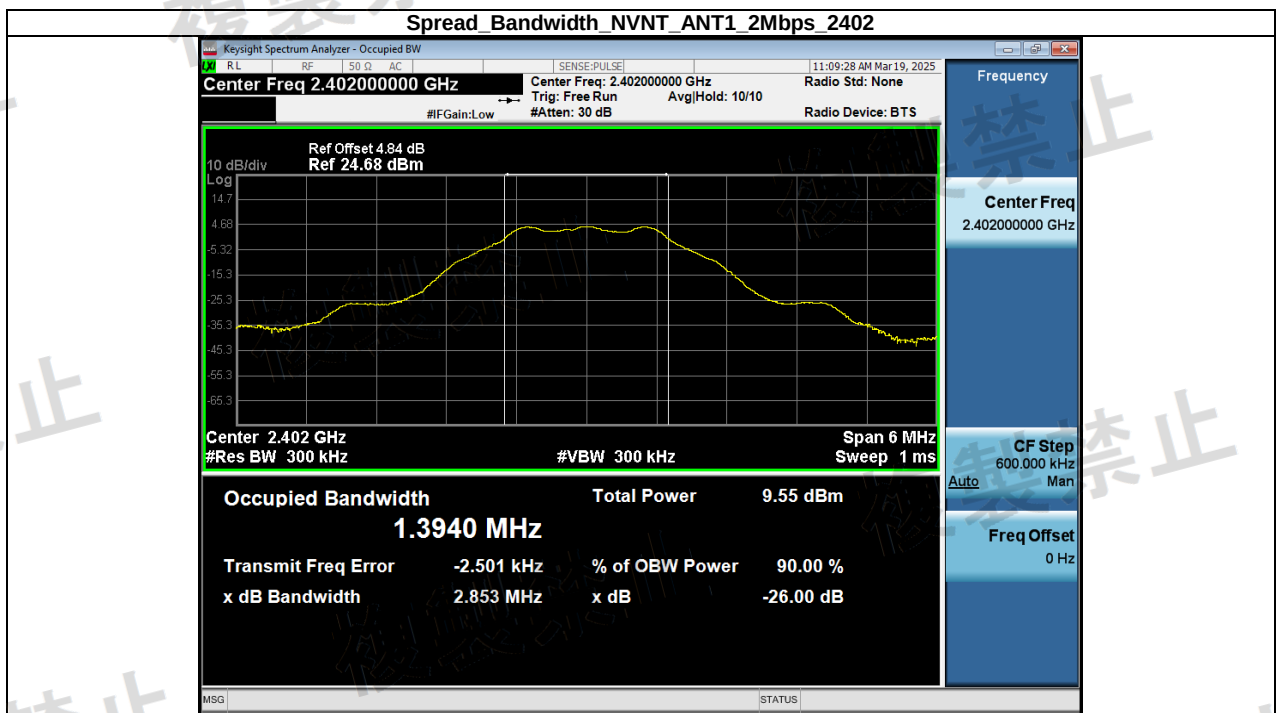
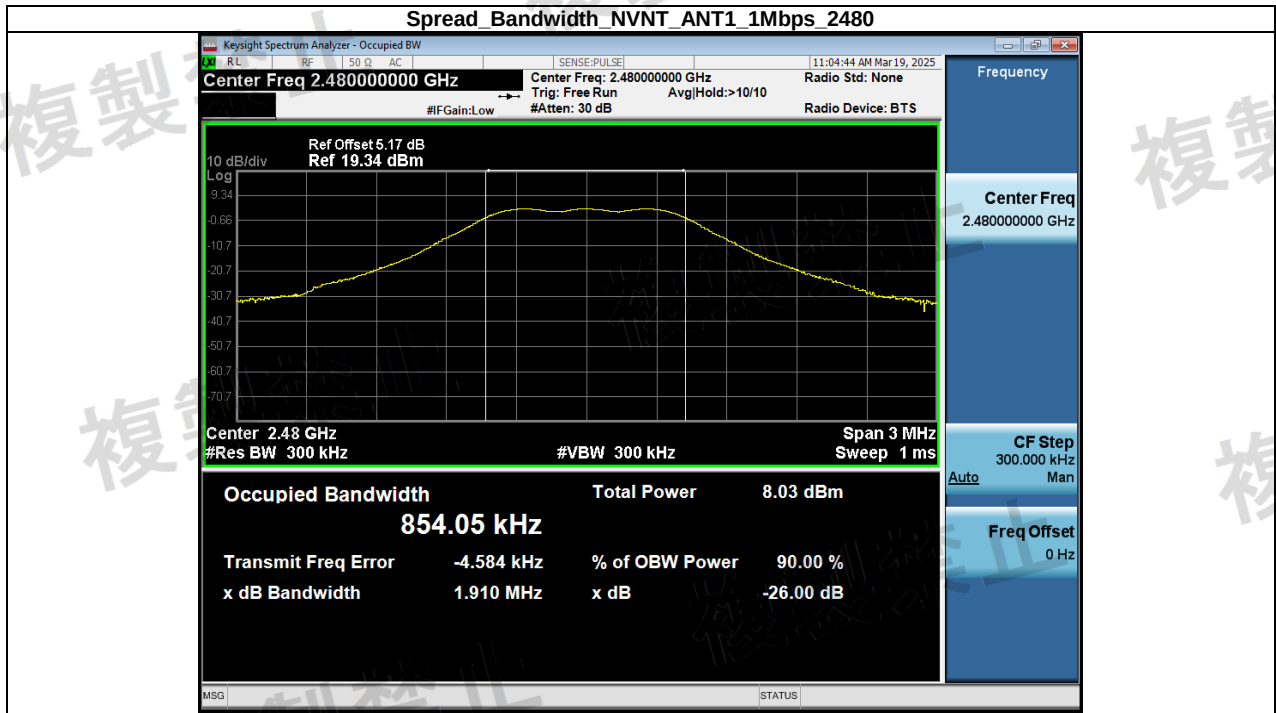
6.4. Test Procedure

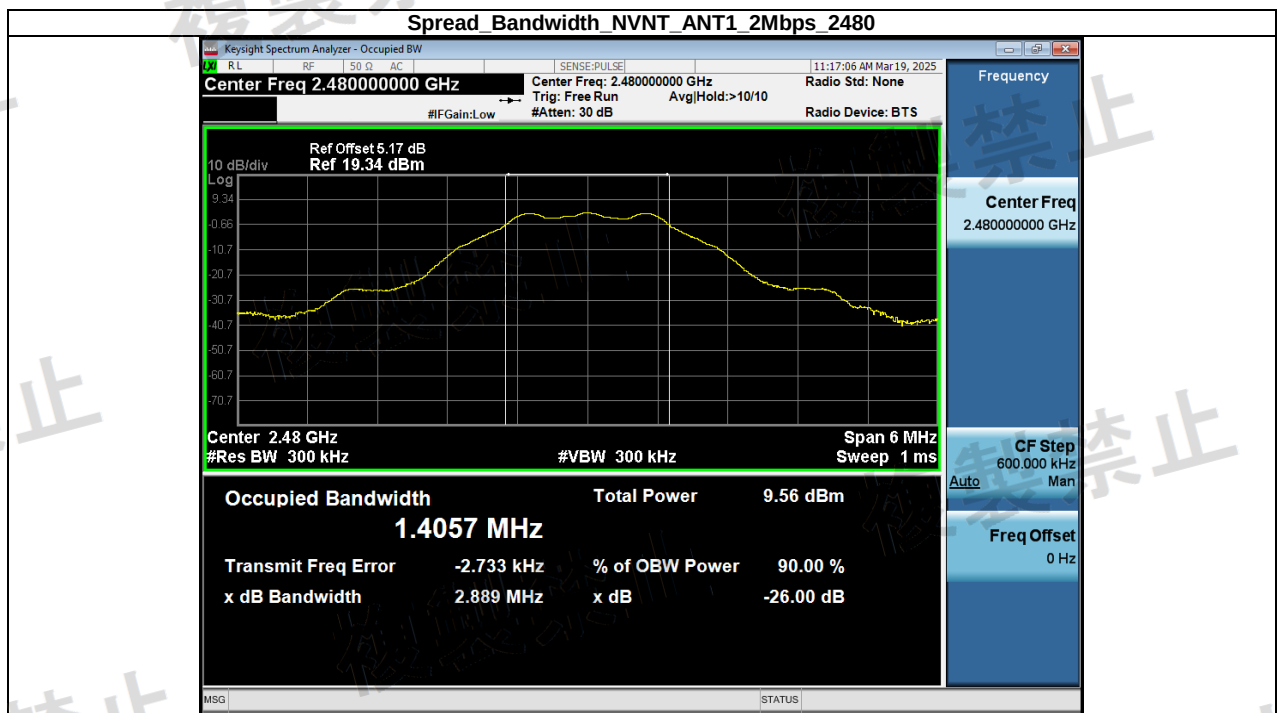
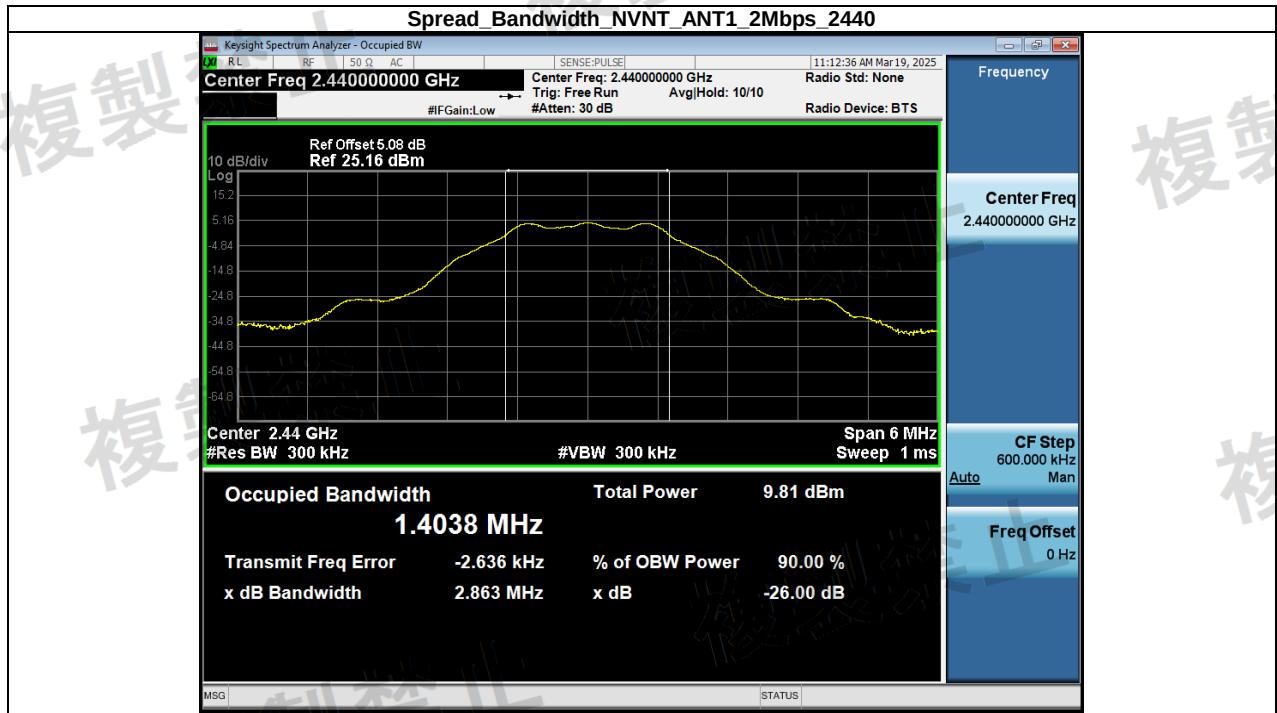
1. Configure EUT and assistant system according clause 2.3 and 6.3
2. Set EUT work in test mode as described in clause 2.4
3. Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:
Centre Frequency: The centre frequency of the channel under test.
Resolution BW: 300 KHz.
Video BW: 300 KHz.
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 spread bandwidth (90% bandwidth) with spectrum analyzer's bandwidth measure function.

6.5. Test result

Condition	Antenna	Rate	Frequency(MHz)	Spread Bandwidth(MHz)
NVNT	ANT1	1Mbps	2402	0.85
NVNT	ANT1	1Mbps	2440.00	0.85
NVNT	ANT1	1Mbps	2480	0.85
NVNT	ANT1	2Mbps	2402	1.39
NVNT	ANT1	2Mbps	2440.00	1.40
NVNT	ANT1	2Mbps	2480	1.41







7. Transmitter Spurious Emissions (Conducted)

7.1. Test Equipment

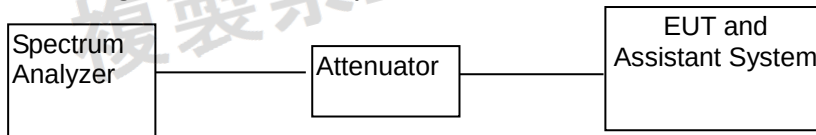
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum analyzer	Agilent	N9020A	MY51281067	2024.12.18	1 Year
Note: The test equipment is calibrated by China Certification & Inspection (Group) Co., Ltd.						

7.2. 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 $\mu\text{W}/\text{MHz}$ or less
- $2,387\text{MHz} > f$ and $2,496.5\text{MHz} < f$ 2.5 $\mu\text{W}/\text{MHz}$ or less

7.3. Block diagram of test setup

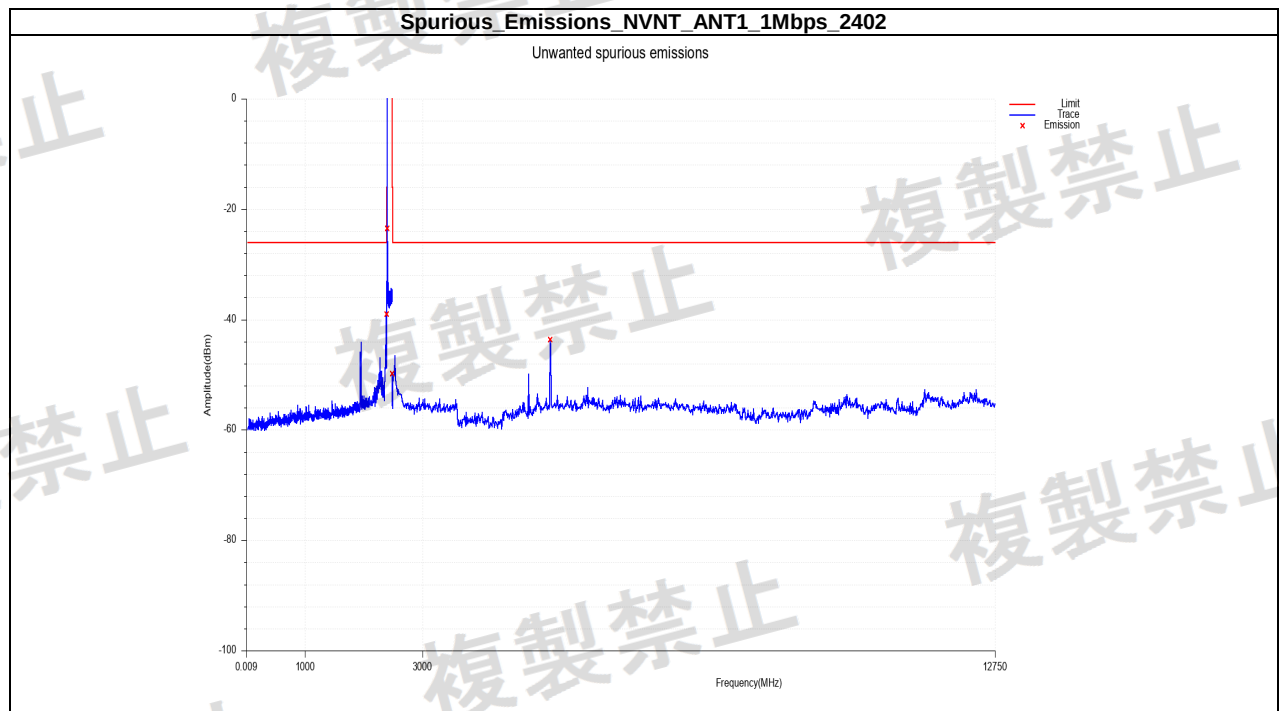


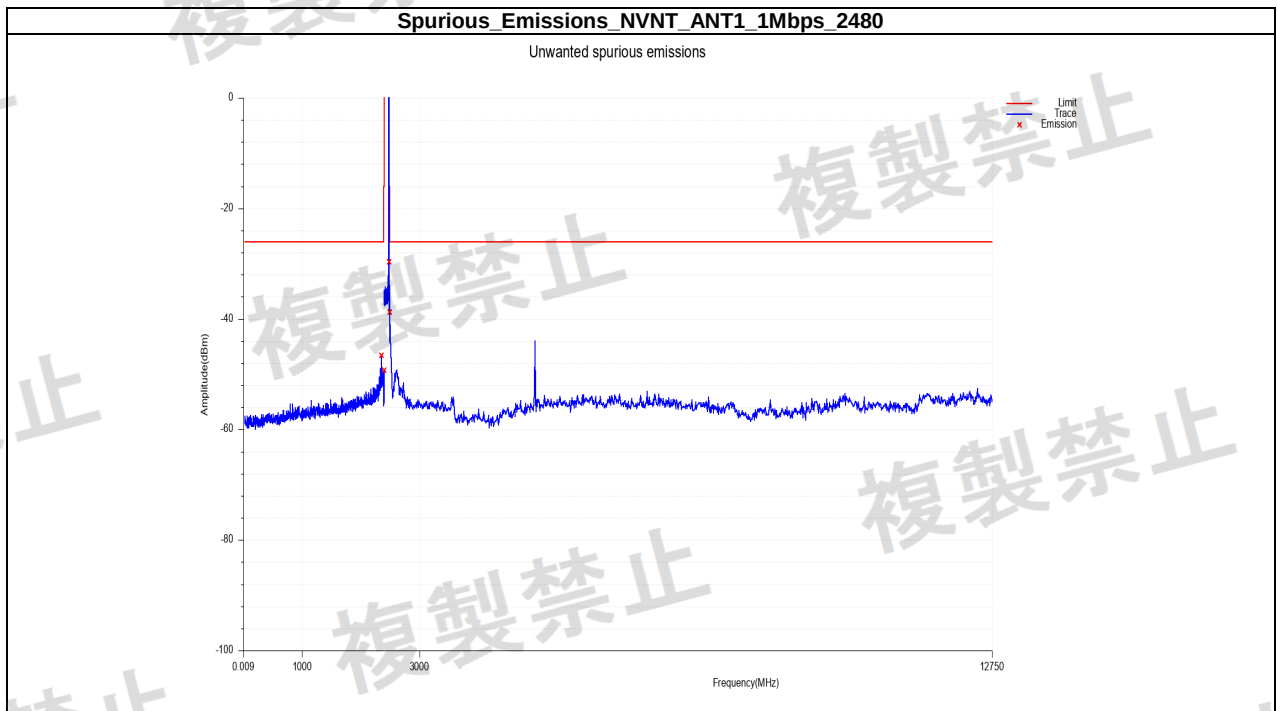
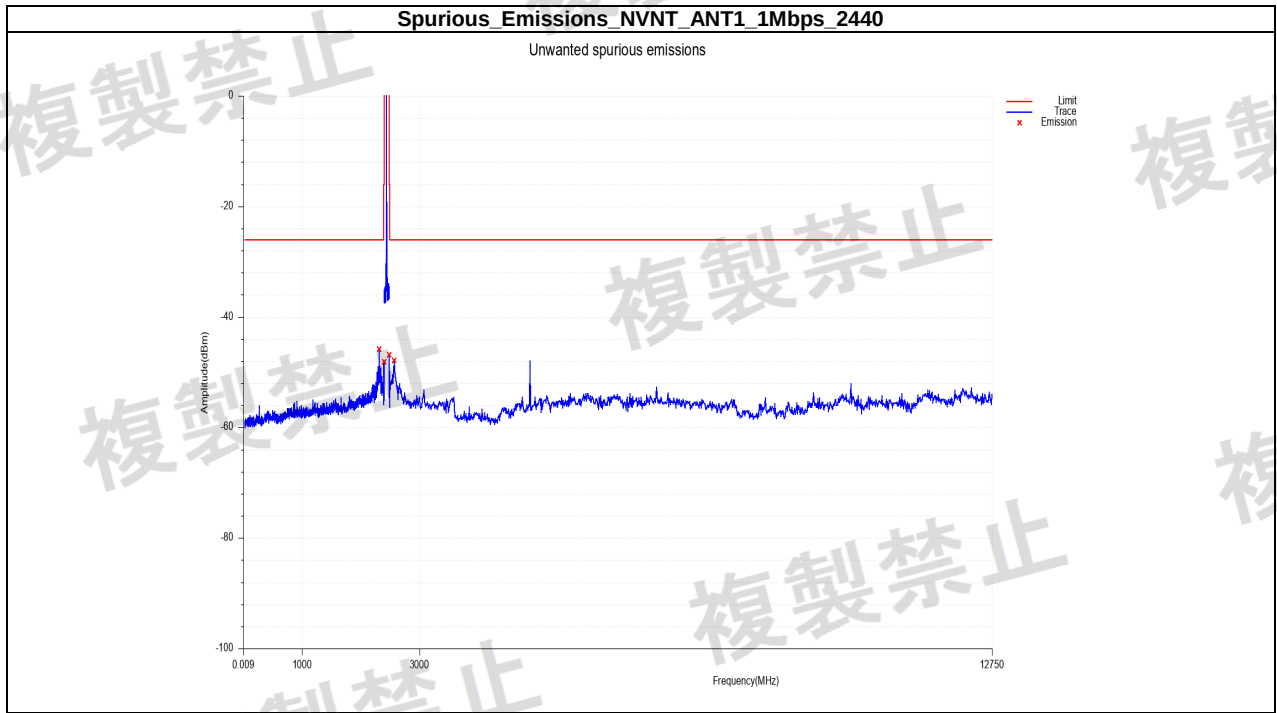
7.4. Test Procedure

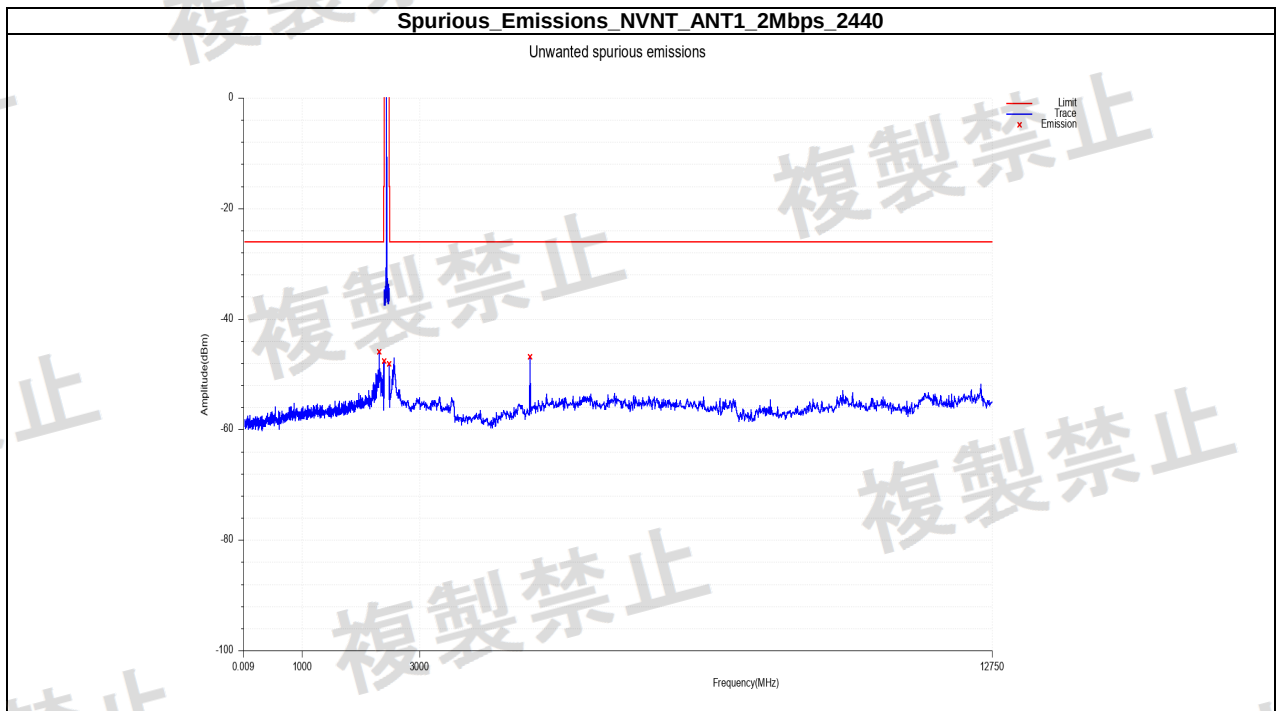
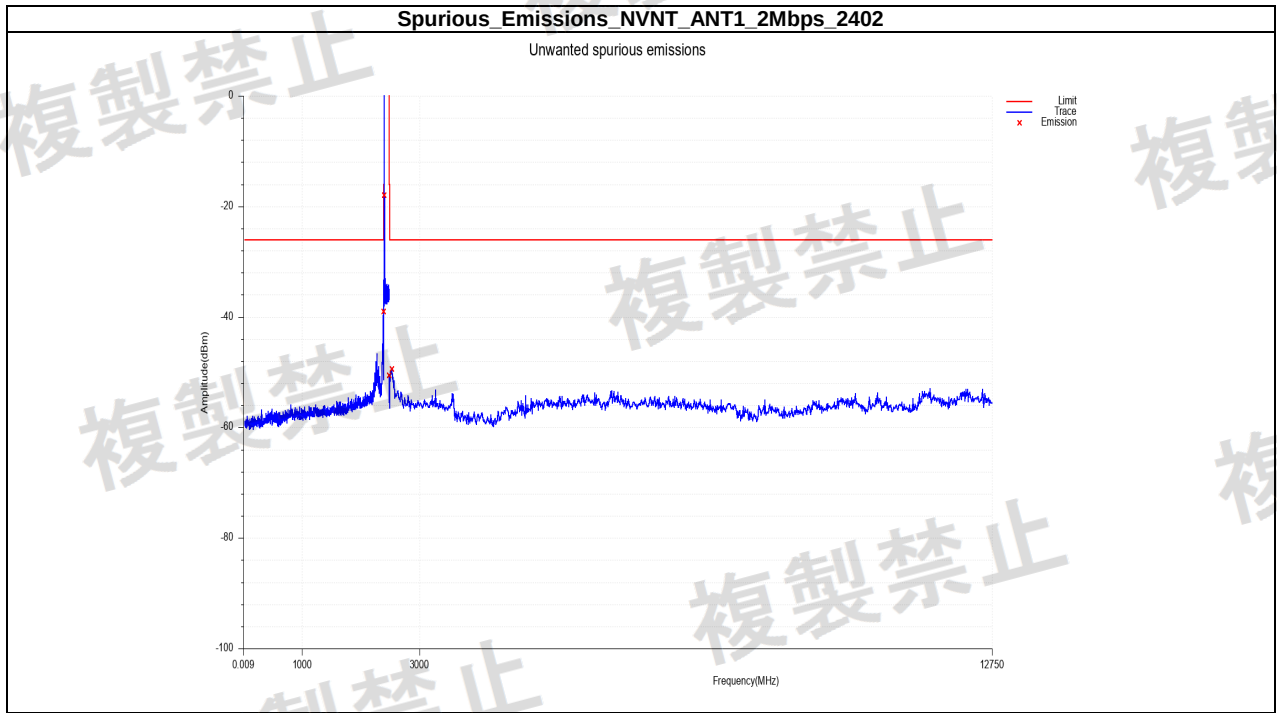
- Configure EUT and assistant system according clause 2.3 and 7.3
- Set EUT work in test mode as described in clause 2.4
- Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:
 - Resolution BW: 1MHz.
 - Video BW: 1MHz.
 - Detector: Peak.
 - Trace Mode: Max Hold.
- All the emissions from 30MHz to 13GHz were measured and record.
- Adjust the spectrum analyzer configuration during final testing:
 - Set the spectrum analyzer at the secondary launch measurement as follows:
 - Center frequency secondary firing frequency
 - Sweep frequency width span = 0Hz
 - If the resolution bandwidth is less than 1 GHz, it is 100 kHz and 1 MHz for 1 GHz or more
 - Same as video bandwidth resolution bandwidth
 - Minimum time guaranteed sweep time measurement accuracy
 - Sweep mode single sweep
 - Detection mode samples or RMS

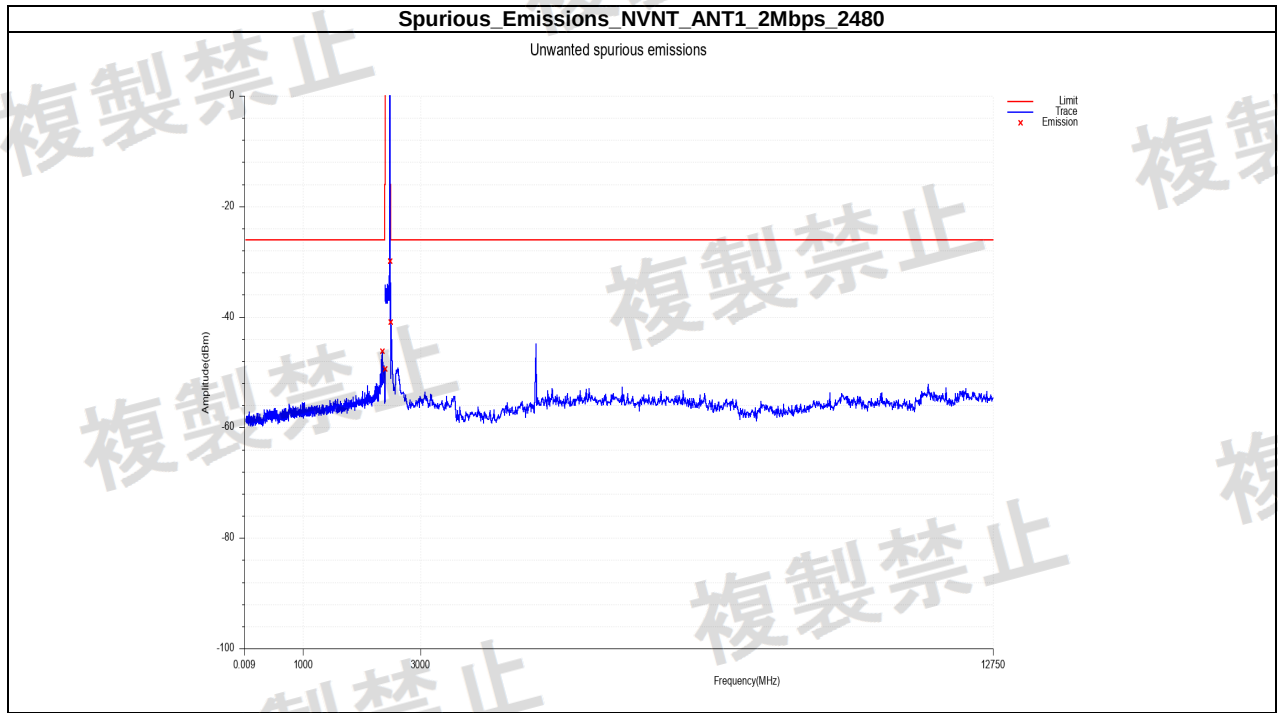
7.5. Test result

Mode	Frequency (MHz)	Frequency Area(MHz)	RBW (kHz)	Spur. Fre.(MHz)	Spur. Level(dBm/MHz)	Limit (dBm/MHz)	Spur. Level	Llimit	Result
1Mbps	2402	30.00~2387.00	1000	2387.00	-38.98	-26	0.1263μW/MHz	2.5μW/MHz	Pass
1Mbps	2402	2387.00~2400.00	1000	2399.97	-23.50	-16	4.4632μW/MHz	25μW/MHz	Pass
1Mbps	2402	2400.00~2483.50	/	/	/	/	/	/	/
1Mbps	2402	2483.50~2496.50	1000	2483.57	-49.79	-16	0.0105μW/MHz	25μW/MHz	Pass
1Mbps	2402	2496.50~13000.00	1000	5174.89	-43.64	-26	0.0432μW/MHz	2.5μW/MHz	Pass
1Mbps	2440.00	30.00~2387.00	1000	2313.93	-45.86	-26	0.0259μW/MHz	2.5μW/MHz	Pass
1Mbps	2440.00	2387.00~2400.00	1000	2398.82	-48.12	-16	0.0154μW/MHz	25μW/MHz	Pass
1Mbps	2440.00	2400.00~2483.50	/	/	/	/	/	/	/
1Mbps	2440.00	2483.50~2496.50	1000	2484.47	-46.88	-16	0.0205μW/MHz	25μW/MHz	Pass
1Mbps	2440.00	2496.50~13000.00	1000	2570.02	-47.93	-26	0.0161μW/MHz	2.5μW/MHz	Pass
1Mbps	2480	30.00~2387.00	1000	2354.00	-46.58	-26	0.0219μW/MHz	2.5μW/MHz	Pass
1Mbps	2480	2387.00~2400.00	1000	2398.80	-49.32	-16	0.0117μW/MHz	25μW/MHz	Pass
1Mbps	2480	2400.00~2483.50	/	/	/	/	/	/	/
1Mbps	2480	2483.50~2496.50	1000	2483.54	-29.63	-16	1.0888μW/MHz	25μW/MHz	Pass
1Mbps	2480	2496.50~13000.00	1000	2496.50	-38.76	-26	0.1330μW/MHz	2.5μW/MHz	Pass
2Mbps	2402	30.00~2387.00	1000	2387.00	-39.06	-26	0.1242μW/MHz	2.5μW/MHz	Pass
2Mbps	2402	2387.00~2400.00	1000	2400.00	-17.97	-16	15.9610μW/MHz	25μW/MHz	Pass
2Mbps	2402	2400.00~2483.50	/	/	/	/	/	/	/
2Mbps	2402	2483.50~2496.50	1000	2485.68	-50.56	-16	0.0087μW/MHz	25μW/MHz	Pass
2Mbps	2402	2496.50~13000.00	1000	2528.01	-49.38	-26	0.0115μW/MHz	2.5μW/MHz	Pass
2Mbps	2440.00	30.00~2387.00	1000	2313.93	-46.01	-26	0.0250μW/MHz	2.5μW/MHz	Pass
2Mbps	2440.00	2387.00~2400.00	1000	2395.88	-47.58	-16	0.0174μW/MHz	25μW/MHz	Pass
2Mbps	2440.00	2400.00~2483.50	/	/	/	/	/	/	/
2Mbps	2440.00	2483.50~2496.50	1000	2484.47	-48.12	-16	0.0154μW/MHz	25μW/MHz	Pass
2Mbps	2440.00	2496.50~13000.00	1000	4880.79	-46.85	-26	0.0206μW/MHz	2.5μW/MHz	Pass
2Mbps	2480	30.00~2387.00	1000	2354.00	-46.24	-26	0.0237μW/MHz	2.5μW/MHz	Pass
2Mbps	2480	2387.00~2400.00	1000	2399.43	-49.40	-16	0.0114μW/MHz	25μW/MHz	Pass
2Mbps	2480	2400.00~2483.50	/	/	/	/	/	/	/
2Mbps	2480	2483.50~2496.50	1000	2483.50	-29.88	-16	1.0273μW/MHz	25μW/MHz	Pass
2Mbps	2480	2496.50~13000.00	1000	2496.50	-40.99	-26	0.0795μW/MHz	2.5μW/MHz	Pass







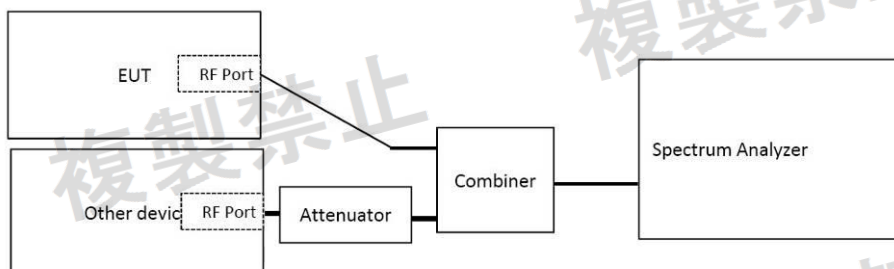


8. Transmission rate

8.1. Limit

The maximum transmission burst length is limited to 4ms.

8.2. Block diagram of test setup



8.3. Test Procedure

The device was configured to transmit maximum length packets at the fastest and slowest data rate (2MB/s and 1Mb/s).

8.4. Test result

Not applicable.

9. Transmitting Antenna Absolute Gain

9.1. Limit

12.14dBi or less(When an E.I.R.P. is less than the limit, the shortage can be compensated for by the gain of the transmitting antenna.)

9.2. Test result

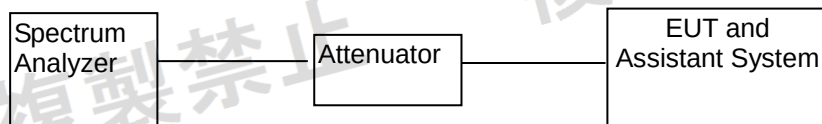
Pass(maximum gain of the EUT is 1.24dBi).

10. Number of carriers

10.1. Limit

The OFDM system shall have one or more carriers per 1 MHz bandwidth.

10.2. Block diagram of test setup



10.3. Test Precedure

1. Configure EUT and assistant system according clause 2.3 and 8.3
2. Set EUT work in test mode as described in clause 2.4

10.4. Test result

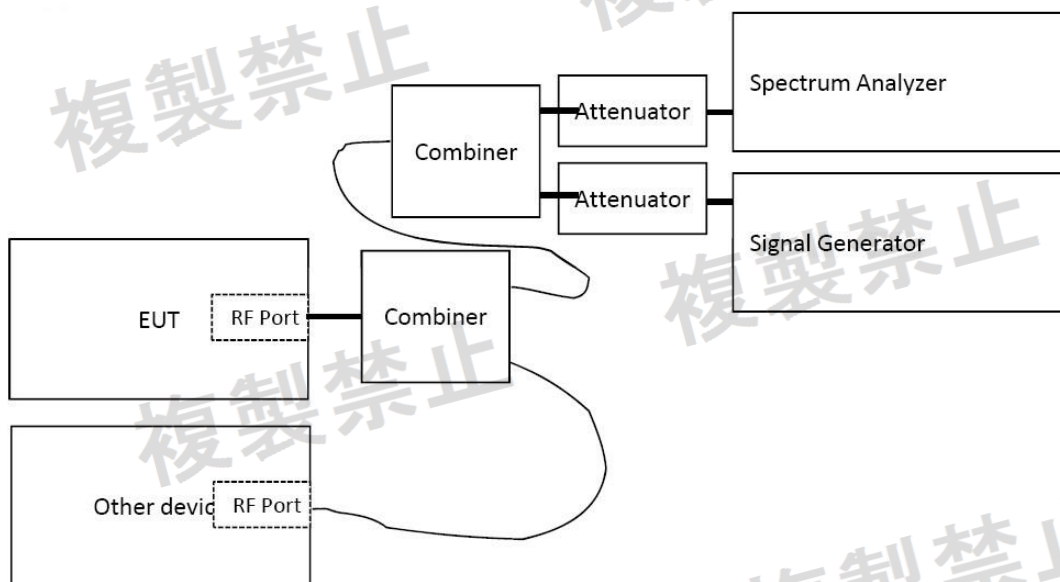
Not Applicable

11. Carrier sensing function

11.1. Limit

The device shall not transmit radio wave when receiving 100Mw/m

11.2. Block diagram of test setup



11.3. Test Procedure

The device is configured to communicate with another device as shown below. Once the communications link is established the signal generator is configured to produce a CW signal at the center frequency of the operating channel. The level of the signal generator is increased from a level approximately 30dB lower than the required carrier sense detection threshold (calculated based on the lowest antenna gain to be used with the device) until the device stops transmitting. This level is recorded as the carrier sense detection threshold.

11.4. Test result

Not Applicable

12. Interference prevention function

12.1. Limit

Item	Limits
Identification	≥48 bits

12.2. Test Equipment

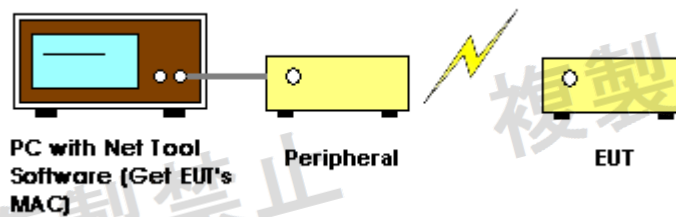
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Comprehensive Test Instrument	Rohde&Schwarz	CMW 500	145266	2024.12.18	1 Year
2	Notebook PC	Dell	Latitude 3490	N/A	N/A	N/A

Note: The test equipment is calibrated by China Certification & Inspection (Group) Co., Ltd.

12.3. Measuring ID Code Software

Item	Limits
MAC IP List	MAC Scan

12.4. Block diagram of test setup



12.5. Test Procedure

1. 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.
2. 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.

12.6. Test result

Temperature:	26℃	Humidity:	54%RH
Mac:	A8:34:2B:32:46:29	Test result:	Conform

13. Secondary Radiated Emissions

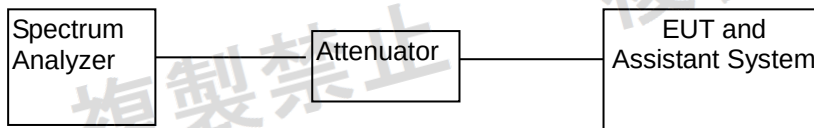
13.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum analyzer	Agilent	N9020A	MY51281067	2024.12.18	1 Year
Note: The test equipment is calibrated by China Certification & Inspection (Group) Co., Ltd.						

13.2. 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.

13.3. Block diagram of test setup

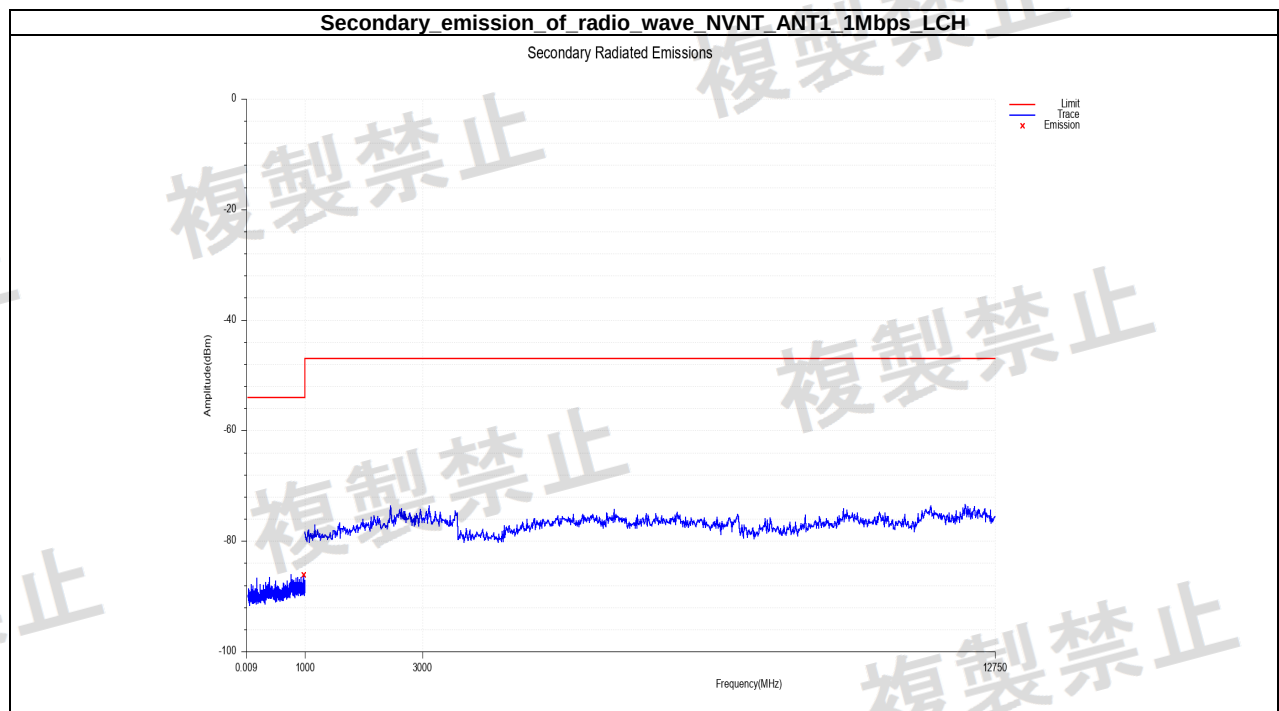


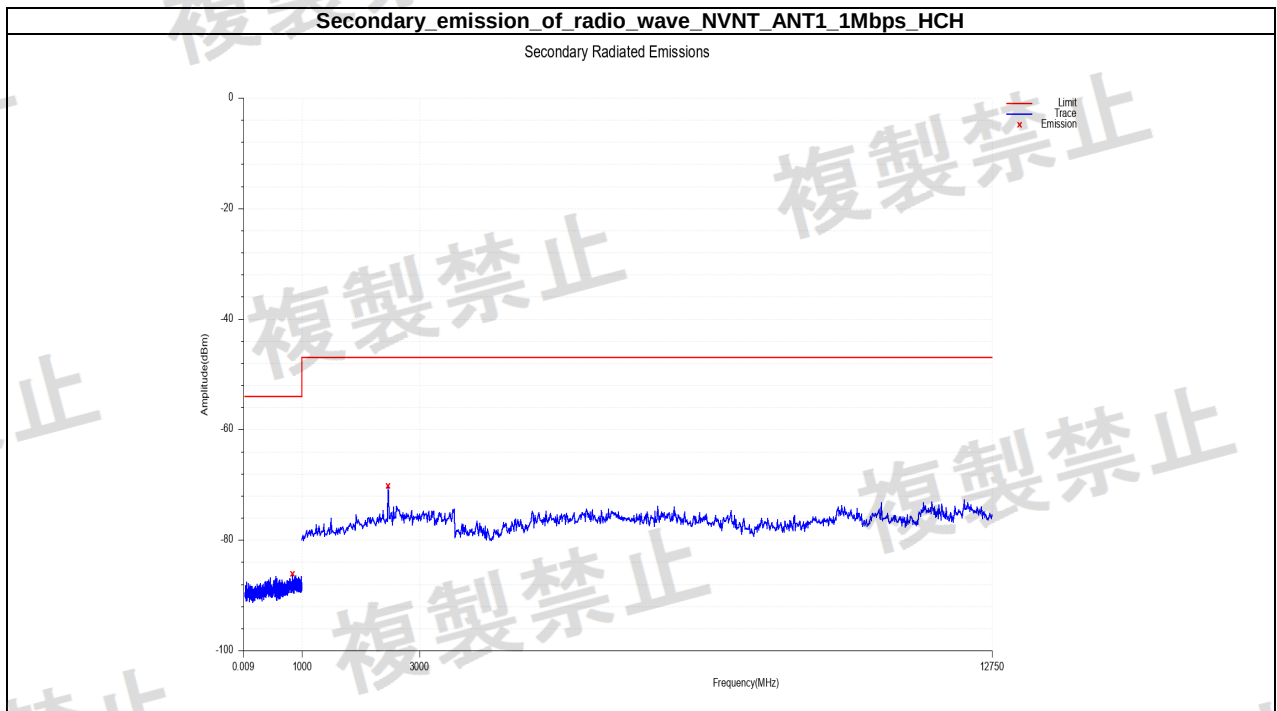
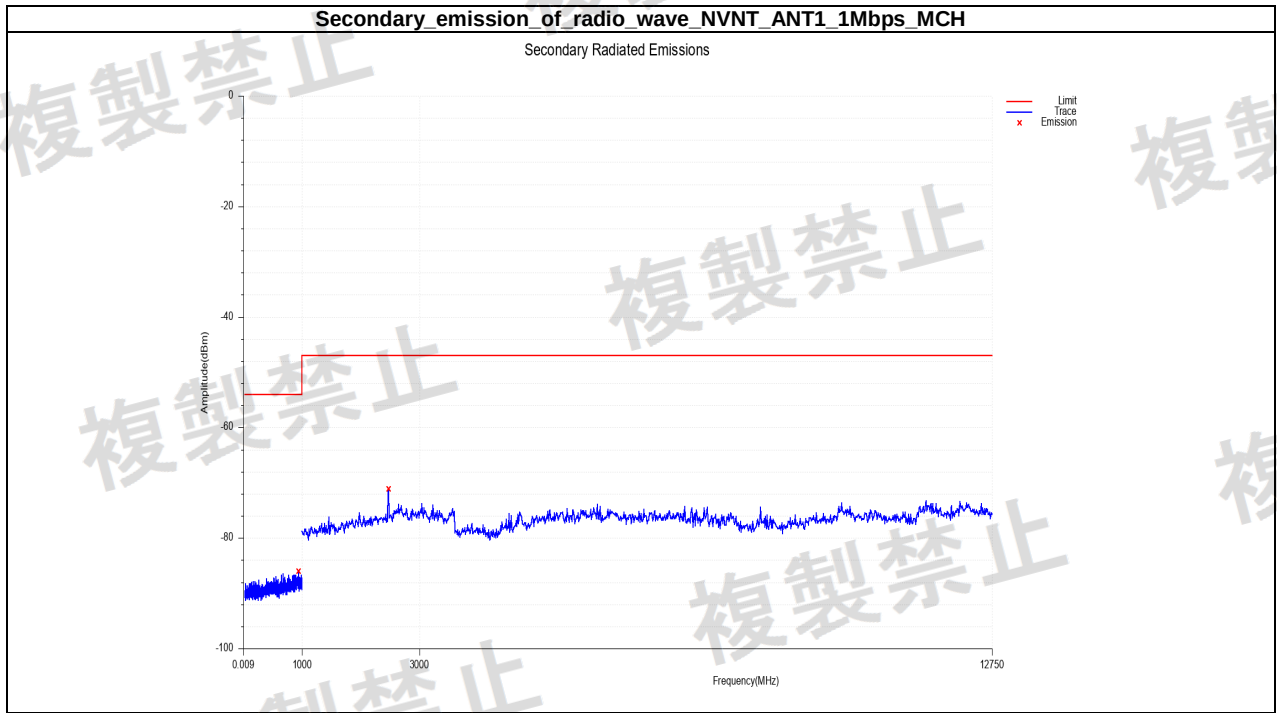
13.4. Test Procedure

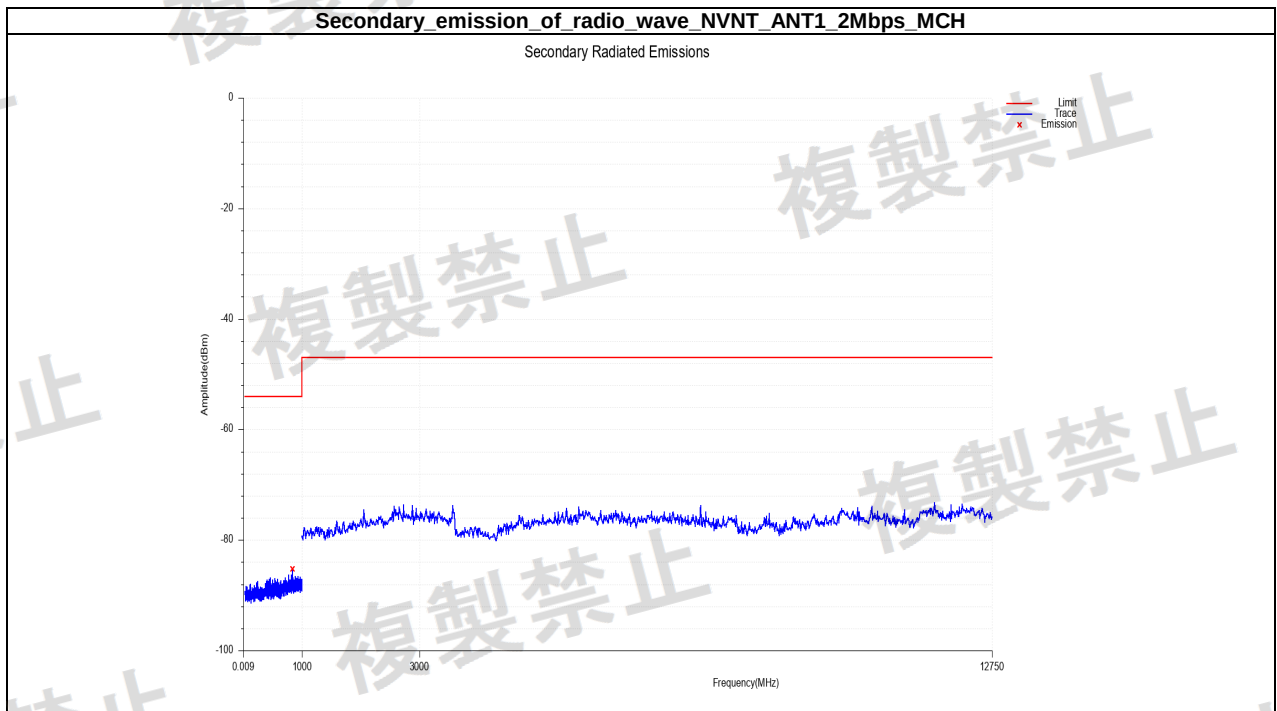
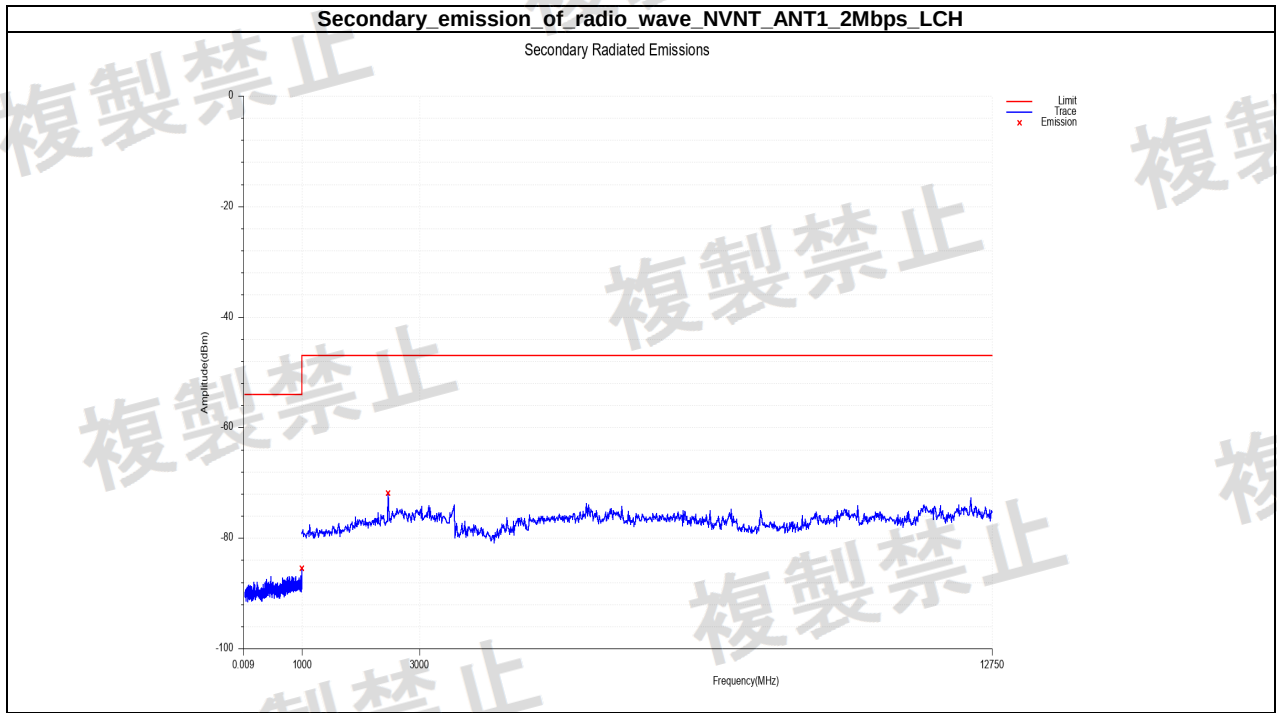
1. Configure EUT and assistant system according clause 2.3 and 8.3
2. Set EUT work in test mode as described in clause 2.4
3. Connected the EUT's antenna port to the Spectrum Analyzer by suitable attenuator, set the Spectrum Analyzer as below:
Resolution BW: 100 KHz for frequency below 1GHz and 1MHz 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.
5. Adjust the spectrum analyzer configuration during final testing:
Set the spectrum analyzer at the secondary launch measurement as follows:
Center frequency secondary firing frequency
Sweep frequency width span = 0Hz
If the resolution bandwidth is less than 1 GHz, it is 100 kHz and 1 MHz for 1 GHz or more
Same as video bandwidth resolution bandwidth
Minimum time guaranteed sweep time measurement accuracy
Sweep mode single sweep
Detection mode samples or RMS

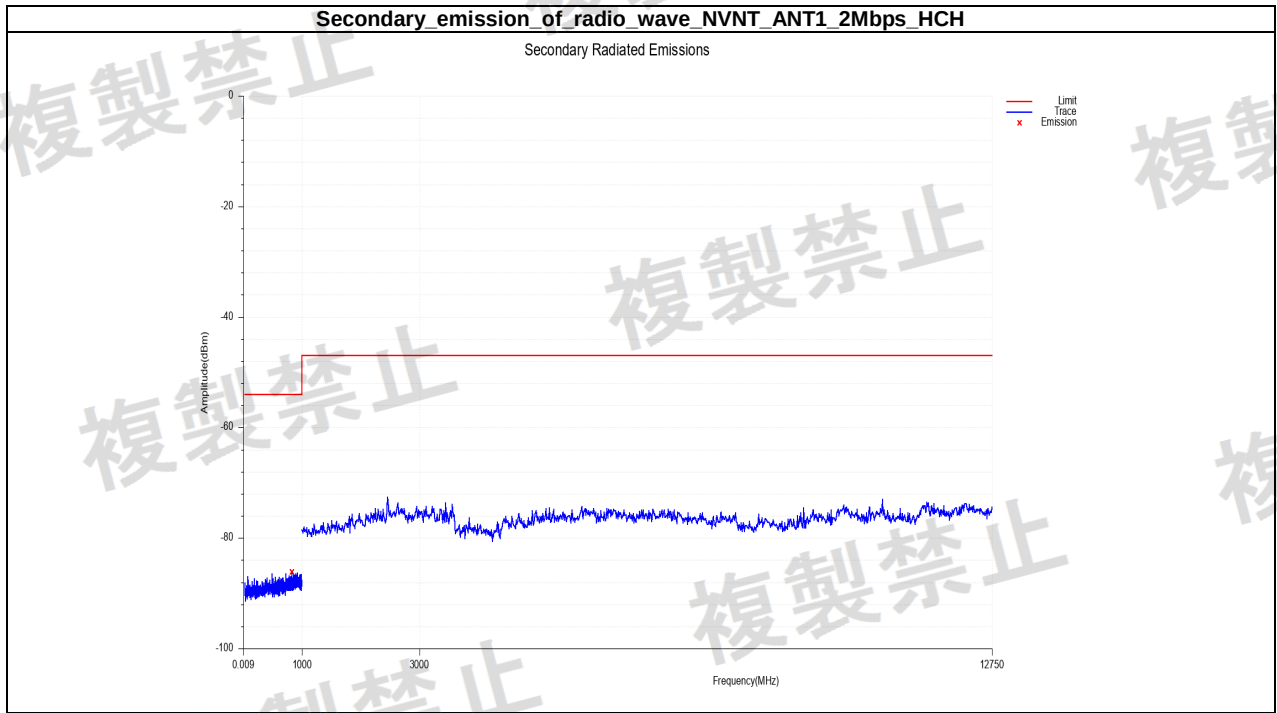
13.5. Test result

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
1Mbps	LCH	30.0~1000.0	100	978.66	-86.09	0.0024nW	4nW	NO	/	/	Pass
1Mbps	LCH	1000.0~13000.0	1000	12916.00	-72.24	0.0596nW	20nW	NO	/	/	Pass
1Mbps	MCH	30.0~1000.0	100	940.83	-86.05	0.0024nW	4nW	NO	/	/	Pass
1Mbps	MCH	1000.0~13000.0	1000	2476.00	-71.10	0.0775nW	20nW	NO	/	/	Pass
1Mbps	HCH	30.0~1000.0	100	838.98	-86.14	0.0024nW	4nW	NO	/	/	Pass
1Mbps	HCH	1000.0~13000.0	1000	2464.00	-70.25	0.0944nW	20nW	NO	/	/	Pass
2Mbps	LCH	30.0~1000.0	100	993.21	-85.46	0.0028nW	4nW	NO	/	/	Pass
2Mbps	LCH	1000.0~13000.0	1000	2464.00	-71.87	0.0650nW	20nW	NO	/	/	Pass
2Mbps	MCH	30.0~1000.0	100	834.13	-85.18	0.0030nW	4nW	NO	/	/	Pass
2Mbps	MCH	1000.0~13000.0	1000	12964.00	-72.46	0.0567nW	20nW	NO	/	/	Pass
2Mbps	HCH	30.0~1000.0	100	827.34	-86.19	0.0024nW	4nW	NO	/	/	Pass
2Mbps	HCH	1000.0~13000.0	1000	12964.00	-72.12	0.0614nW	20nW	NO	/	/	Pass









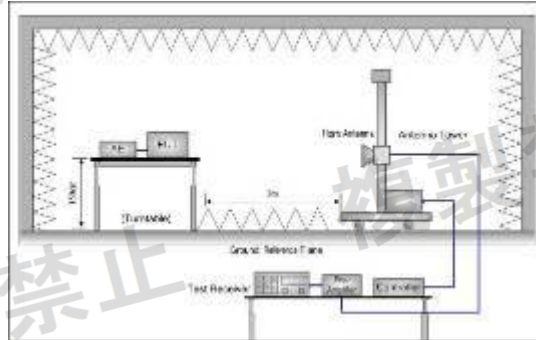
14.3dB Beam Bandwidth

14.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	Spectrum analyzer	ROHDE&SCHWARZ	FSU	1166.1660.26	2024.12.18	1 Year
2	Horn Antenna	Schwarzbeck	BBHA 9120 D	2106	2025.01.02	2 Year

Note: The test equipment is calibrated by China Certification & Inspection (Group) Co., Ltd.

14.2. Block diagram of test setup



14.3. 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 ODFM, 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.

14.4. Test result

Not applicable.

Note: This test item is not applied for radio equipment with equivalent isotropic radiation power lower than 12.14dBm.

15. Test setup photo

Reference to the **appendix I Test Setup Photo** for details.

16. EUT Photos

Reference to the **appendix II external photos** and **appendix III internal photos** for details.

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