TEST REPORT

Product Name : Electric Fan
Model Number : BPLDS12DM

Prepared for : Xiaomi Communications Co., Ltd.
Address : #019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, 100085, China

Prepared by : EMTEK (SHENZHEN) CO., LTD.
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Report Number : ENS2510290156W00101R
Date(s) of Tests : November 1, 2025 to December 5, 2025
Date of issue : December 8, 2025

TEST RESULT CERTIFICATION

Applicant	:	Xiaomi Communications Co., Ltd.
Address	:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, 100085, China
Manufacturer	:	Xiaomi Communications Co., Ltd.
Address	:	#019, 9th Floor, Building 6, 33 Xi'erqi Middle Road, Haidian District, Beijing, 100085, China
EUT	:	Electric Fan
Model Name	:	BPLDS12DM
Trademark	:	Mijia, Xiaomi

Measurement Procedure Used:

APPLICABLE STANDARDS		
STANDARD	**Test Procedure**	**TEST RESULT**
Item 19 of Article 2 Paragraph 1	MIC public notice 88:2004, annex 43	PASS

The device described above is tested by EMTEK (SHENZHEN) CO., LTD. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and EMTEK (SHENZHEN) CO., LTD. is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) was measured according to the test methods of Ordinance Concerning Technical Regulations Conformity Certification etc. of Specified Radio Equipment in Annex 1, the Ministry of Internal Affairs and Communication notification in Annex "43" of Article 88, Paragraph 1 or the test method more than equivalent and the result is technically compliant with the ARIB STD T-66 requirements.
The test results of this report relate only to the tested sample identified in this report

Date of Test : November 1, 2025 to December 5, 2025

Prepared by : Yu Xiaolan/Editor

Reviewer : Xia Lilu/Supervisor

Approved & Authorized Signer : Wang Li/Manager

Modified Information

Version	Report No.	Revision Date	Summary
Ver.1.0	ENS2510290156W00101R	/	Original Report

TABLE OF CONTENTS

1 EUT TECHNICAL DESCRIPTION 5

2 SUMMARY OF TEST RESULT 6

3 TEST METHODOLOGY 7

3.1 GENERAL DESCRIPTION OF APPLIED STANDARDS 7
3.2 MEASUREMENT EQUIPMENT USED 7
3.3 DESCRIPTION OF TEST MODES 8
3.4 SUPPORT EQUIPMENT 9

4 FACILITIES AND ACCREDITATIONS 10

4.1 FACILITIES 10
4.2 LABORATORY ACCREDITATIONS AND LISTINGS 10

5 TEST SYSTEM UNCERTAINTY 11

6 SETUP OF EQUIPMENT UNDER TEST 12

6.1 Applicable Standard 12
6.2 Test Configuration 12
6.3 Test Results 12

7 TEST REQUIREMENTS 13

7.1 FREQUENCY TOLERANCE 13
7.2 OCCUPIED BANDWIDTH / SPREADING BANDWIDTH 17
7.3 POWER TO ANTENNA (CONDUCTED) 23
7.4 SPURIOUS EMISSIONS INTENSITY 25
7.5 COLLATERAL EMISSIONS OF RECEIVER 28
7.6 INTERFERENCE PREVENTION FUNCTION 39

8 APPENDIX PHOTOGRAPHS OF TEST SETUP 40

複製禁止

1 EUT TECHNICAL DESCRIPTION

Characteristics	Description
Product:	Electric Fan
Model Number:	BPLDS12DM
Variant Number:	N/A
Bluetooth Version:	Bluetooth V5.0
Data Rate:	1Mbps, 2Mbps
Modulation:	GFSK
Operating Frequency Range(s):	2402-2480MHz
Number of Channels:	40 Channels for Bluetooth-LE
Rated Antenna power:	10 mW
Antenna Type :	PCB Antenna
Antenna Gain:	2.70 dBi (Note: The antenna information is provided by the customers, which will have a certain impact on the test results.)
Power Supply:	DC 12V from adapter
Adapter:	MODEL:AD-0181200150TW-18 INPUT:100-240V~50/60Hz Max 0.6A OUTPUT:5V/2.4A 12.0W 9V/2.0A, 12.0V/1.5A 18.0W
Test Voltage:	AC 100V/50Hz
Temperature Range:	0°C ~ +45°C
Software Version:	1.0.3.0002
Hardware Version:	V1.0

Note: *for more details, please refer to the User's manual of the EUT.*

2 SUMMARY OF TEST RESULT

MIC RULES	DESCRIPTION OF TEST	RESULT
Item 19	RF Output Power	Compliant
Item 19	Frequency Tolerance	Compliant
Item 19	Occupied Bandwidth /Spreading Bandwidth/Spread Factor	Compliant
Item 19	Transmitter Spurious Emissions	Compliant
Item 19	Receiver Spurious Emissions	Compliant
Item 19	Interference Prevention Function	Compliant

3 TEST METHODOLOGY

3.1 GENERAL DESCRIPTION OF APPLIED STANDARDS

According to its specifications, the EUT must comply with the requirements of the following standards: Item 19 of Article 2 Paragraph 1 of the TELEC rules for 2.4GHz band wide-band low-power data communication system. All measurements contained in this report were conducted with test method for radio equipment specified in MIC public notice 88:2004, annex 43 for certification. And measuring method for electric field intensity of radio station with remarkably weak radiowave transmitted.

3.2 MEASUREMENT EQUIPMENT USED

3.2.1 Radio Frequency Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Calibration Body	Calibration Method
Wideband Radio Communication Tester	R&S	CMW500	171168	2025/9/9	LISAI	(c)
Spectrum Analyzer	R&S	FSV3044	101289	2024/12/17	LISAI	(c)
Signal Analyzer	Agilent	N9010A	MY53470879	2025/5/10	LISAI	(c)
Analog Signal Generator	R&S	SMB100A	183237	2025/9/9	LISAI	(c)
Vector Signal Generator	R&S	SMM100A	101808	2025/9/9	LISAI	(c)
RF Control Unit(Power Meter)	Tonscend	JS0806-2	22C8060567	2025/9/9	LISAI	(c)
Temperature&Humidity Chamber	ESPEC	EL-02KA	12107166	2025/5/10	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

Notice: Calibration duration for above equipments is 1 year.

3.3 DESCRIPTION OF TEST MODES

The EUT has been tested under its typical operating condition.
The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.

Those data rates (BLE mode: 1Mbps/2Mbps) were used for all test.

Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Frequency and Channel list for Bluetooth_BLE:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	19	2440	…	…
1	2404	20	2442	37	2476
2	2406	21	2444	38	2478
…	…	…	…	39	2480
Note: fc=2402MHz+k×2MHz k=1 to 39					

Test Frequency and channel for Bluetooth_BLE:

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	19	2440	39	2480

3.4 SUPPORT EQUIPMENT

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Auxiliary Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
/	/	/	/

Notes:

1. *All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
2. *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

4 FACILITIES AND ACCREDITATIONS

4.1 FACILITIES

All measurement facilities used to collect the measurement data are located at
Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China
The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22."

4.2 LABORATORY ACCREDITATIONS AND LISTINGS

Site Description
Name of Firm : EMTEK (SHENZHEN) CO., LTD.
Site Location : Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China

5 TEST SYSTEM UNCERTAINTY

The following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Parameter	Uncertainty
Radio Frequency	±1x10^-5
Uncertainty for Output power test	±0.83dB
Conducted Emissions Test	±2.0dB
Radiated Emission Test	±2.0dB
Occupied Bandwidth Test	±1.0dB
Power density test	±1.85dB
All emission, radiated	±3dB
Antenna Port Emission	±3dB
Temperature	±0.5℃
Humidity	±3%

Measurement Uncertainty for a level of Confidence of 95%

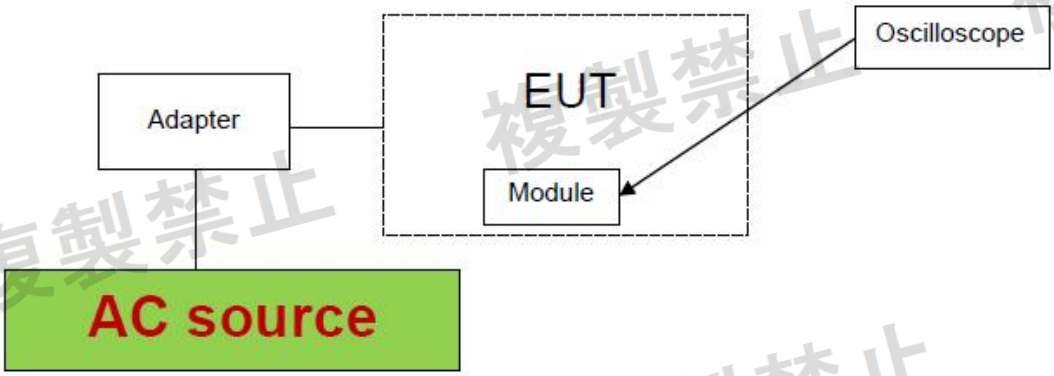
6 SETUP OF EQUIPMENT UNDER TEST

6.1 Applicable Standard

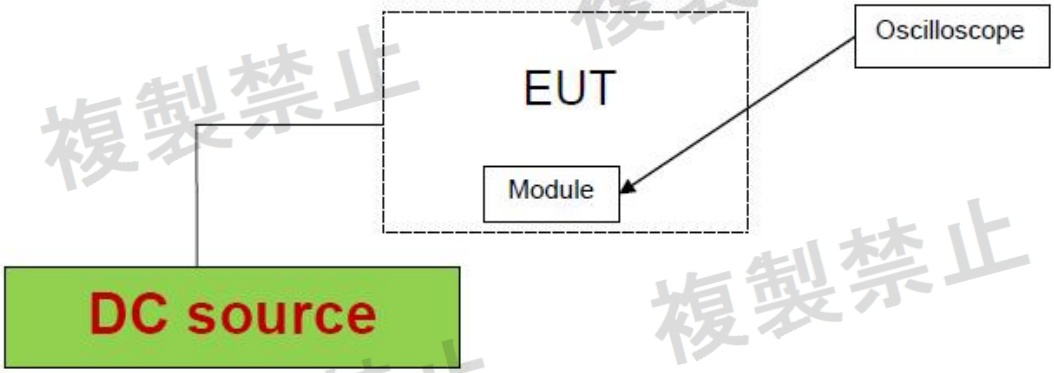
When there is a fluctuation of +/-10% input voltage from external power to the test equipment. If the fluctuation of input voltage to the circuit of the radio part (excl. power) in the test equipment is confirmed below +/-1%, Measurement shall be tested with the rated voltage.

6.2 Test Configuration

Config A



Config B



6.3 Test Results

Test Sample DC Input Voltage	4.5V	5V	5.5V
Input Voltage To The Circuit	3.30	3.30	3.30
Module Rated Voltage	3.30	3.30	3.30
The Deviation of Module Voltage (%)	0.00%	0.00%	0.00%

Note: In extreme conditions, EUT module power is confirmed below +/-1%.

7 TEST REQUIREMENTS

7.1 FREQUENCY TOLERANCE

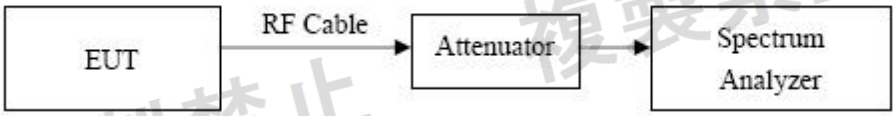
7.1.1 Applicable Standard

According to Item 19 of Article 2 Paragraph 1.

7.1.2 Conformance Limit

For the 2.4 GHz bands it shall be better than 50 ppm under the operational conditions.

7.1.3 Test Setup Block Diagram



7.1.4 Test Procedure

If the fluctuation of input voltage to the circuit of the radio part (excl. power) in the test equipment is confirmed below +/-1%, Measurement shall be tested with the rated voltage.
When there is a fluctuation of +/-10% input voltage from external power to the test equipment. In case the test equipment is designed to function only within the specified fluctuation range of +/-10% for the voltage source tests shall be conducted applying the rated voltage and a respective specified maximum/minimum value of fluctuation range.
Set the EUT on the test frequency and transmit.
Stop the modulation (stop the spreading), set on “continuous transmission of no-modulated radiation” in principle. If impossible, on “continuous burst transmission of no-modulated radiation”, or a modulation mode to generate a specific frequency spectrum so that the frequency can be measured using a spectrum analyzer (example: a wave of the sub-carrier).
In case of no-modulation (consecutive or continuous burst), direct measurement is conducted with the frequency meter.
In case of burst wave, the measurement is conducted for a time period to achieve a sufficient accuracy. The mean value is employed as the measurement value.
In case of a test mode generating specific frequency spectrum, the spectrum frequency is measured with the spectrum analyzer.

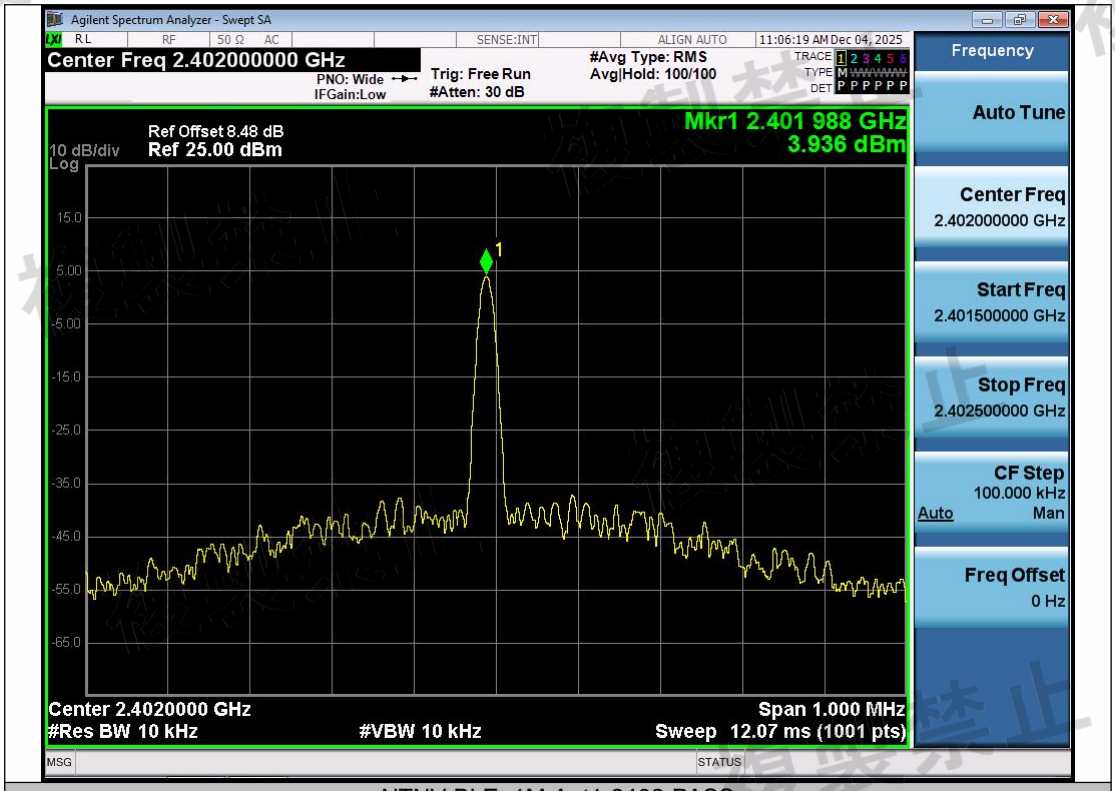
7.1.5 Environmental Conditions

Temperature:	22.1 °C
Relative Humidity:	42%
ATM Pressure:	1011 mbar

7.1.6 Test Results

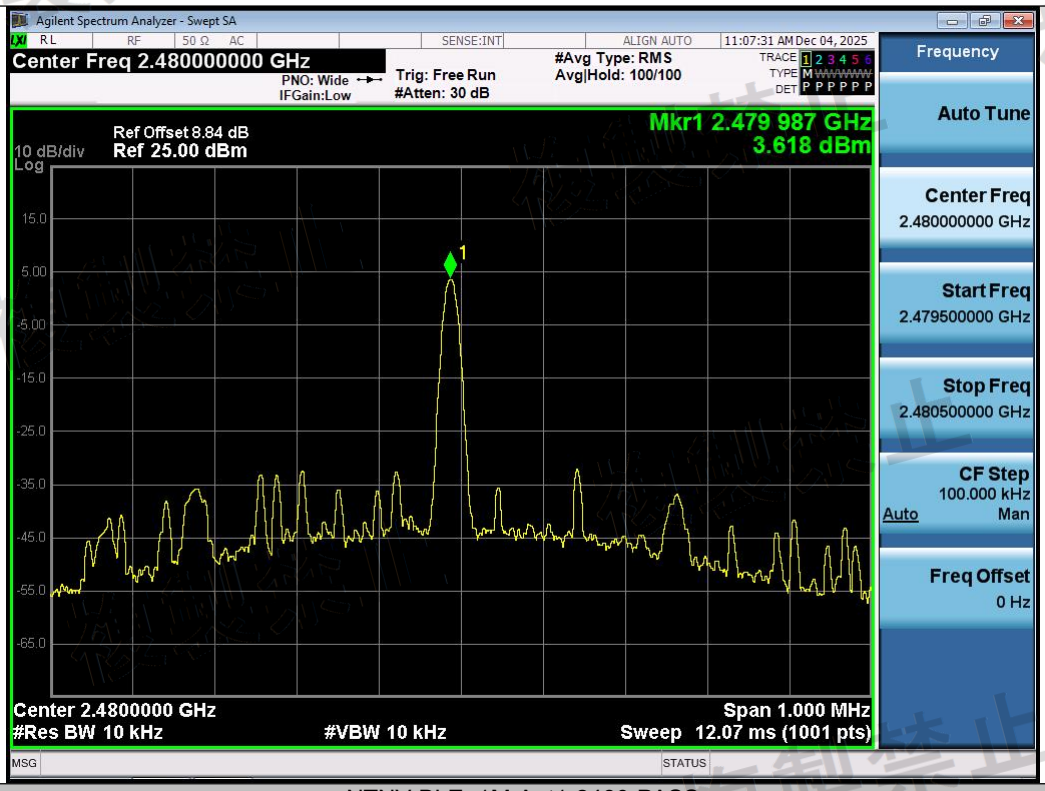
TestCondition	TestMode	Antenna	Freq(MHz)	Result[ppm]	Limit[ppm]	Verdict
NTNV	BLE_1M	Ant1	2402	-4.99584	±50	PASS
NTNV	BLE_1M	Ant1	2440	-4.91803	±50	PASS
NTNV	BLE_1M	Ant1	2480	-5.24194	±50	PASS

複製禁止



NTNV-BLE_1M-Ant1-2402-PASS

NTNV-BLE_1M-Ant1-2440-PASS



NTNV-BLE_1M-Ant1-2480-PASS

7.2 OCCUPIED BANDWIDTH / SPREADING BANDWIDTH

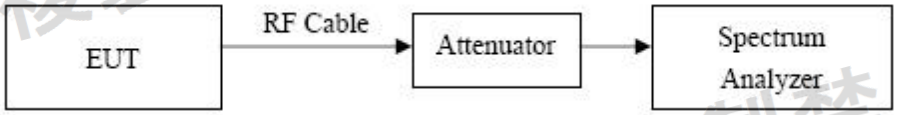
7.2.1 Applicable Standard

According to Item 19 of Article 2 Paragraph 1

7.2.2 Conformance Limit

Permissible value for occupied bandwidth for DSSS & OFDM equipment (Carrier frequencies from 2,400MHz to 2,483.5MHz or from 2,471MHz to 2,497MHz, for all equipment except for 40 MHz channel separation) shall be 26MHz or less.
In spread spectrum systems, spread bandwidth (which refers to a frequency bandwidth with an upper limit and lower limit such that each of the mean powers radiated above the upper frequency limit and below the lower frequency limit is equal to 5% of the total mean power radiated ,this also applies hereafter) shall be 500kHz or more.

7.2.3 Test Setup Block Diagram



7.2.4 Test Procedure

Spectrum analyzer is set as below

Central Frequency	Test frequency
Sweeping Bandwidth	2 to 3.5 times the allowable value (SPAN=4MHz)
Resolution Bandwidth	Lower than 3 % of allowable value (RBW=10kHz)
Video Bandwidth	Same level as Resolution Bandwidth
Y-Axis Scale	10 dB/Div
Input Level	Carrier level is sufficiently higher than spectrum analyzer noise
Sweep Time	Minimum time to assure the measurement accuracy (In case of burst wave, 1 burst per 1 sample)
Sampling points	More than 400 points
Sweep Mode	Consecutive sweep
Phase-Detection Mode	Positive peak
Trigger Condition	Max-hold

The measured value of the spectrum analyzer is processed by the computer internally or externally
Conditions of EUT
Set the test frequency and the modulation is performed with the standard coded test signal. In case of OFDM with burst wave, the modulation is conducted to minimize the rate of the time that the number of sub-carrier is less (short preamble).
After a repetition of sweep so that no variation is found, values of all the data points are loaded into the array variable on the computer.
For all the data, the dB values are converted to antilogarithm of power dimension.
Power summation of all the data is estimated and stored as “total power value”.
Starting with the data of the minimum frequency, the power is summed sequentially, and the limiting data point where the value achieves 0.5% of the total power is sensed. The limiting point is converted to

frequency, stored as “lower limit”.
Starting with the data of the maximum frequency, the power is summed sequentially, and the limiting data point where the value achieves 0.5% of the total power is sensed. The limiting point is converted to frequency, stored as “upper limit”

7.2.5 Environmental Conditions

Temperature:	22.1 °C
Relative Humidity:	42%
ATM Pressure:	1011 mbar

7.2.6 Test Results

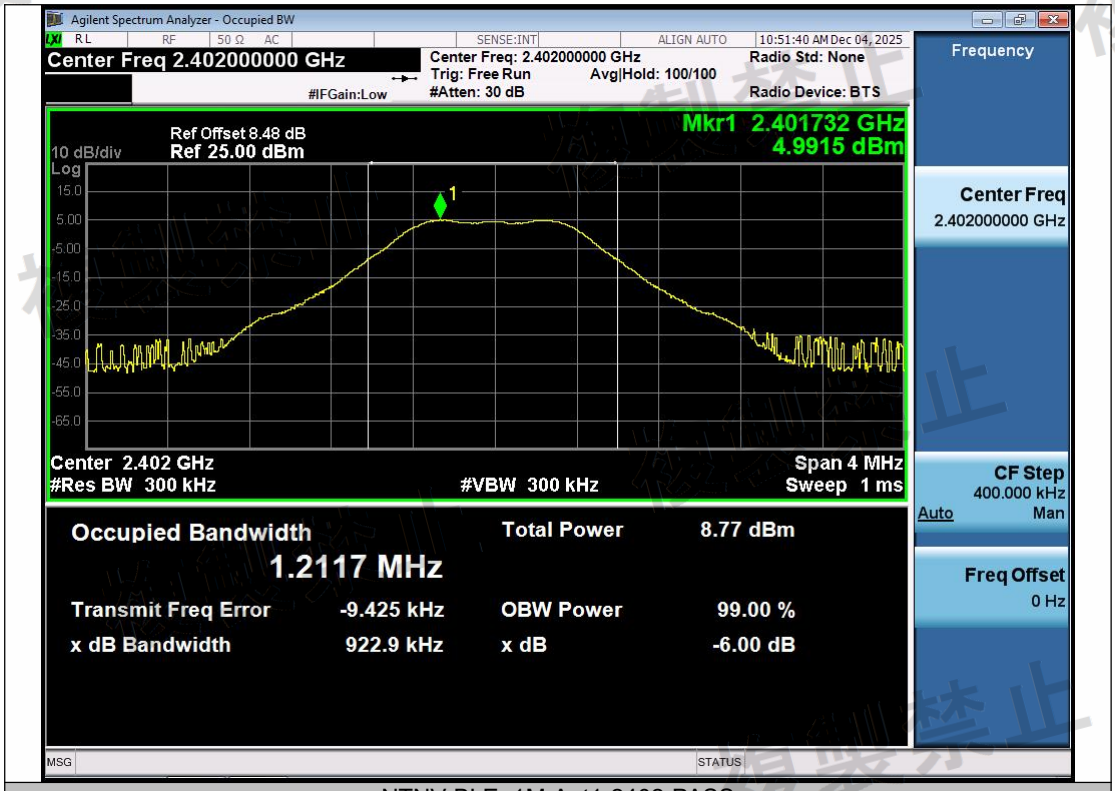
99% Emission bandwidth

TestCondition	TestMode	Antenna	Freq(MHz)	Result [MHz]	Limit [MHz]	Verdict
NTNV	BLE_1M	Ant1	2402	1.212	≤26	PASS
NTNV	BLE_1M	Ant1	2440	1.211	≤26	PASS
NTNV	BLE_1M	Ant1	2480	1.213	≤26	PASS

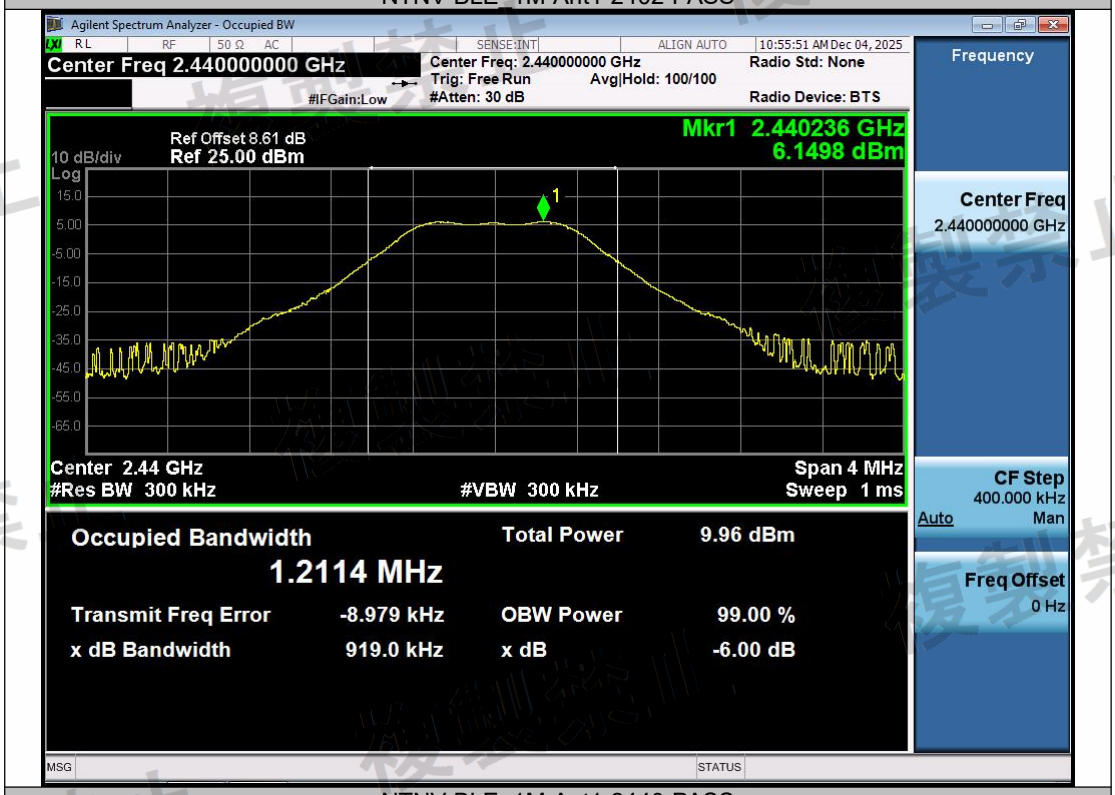
90% Emission bandwidth

TestCondition	TestMode	Antenna	Freq(MHz)	Result [MHz]	Limit [MHz]	Verdict
NTNV	BLE_1M	Ant1	2402	0.821	≥0.5	PASS
NTNV	BLE_1M	Ant1	2440	0.822	≥0.5	PASS
NTNV	BLE_1M	Ant1	2480	0.820	≥0.5	PASS

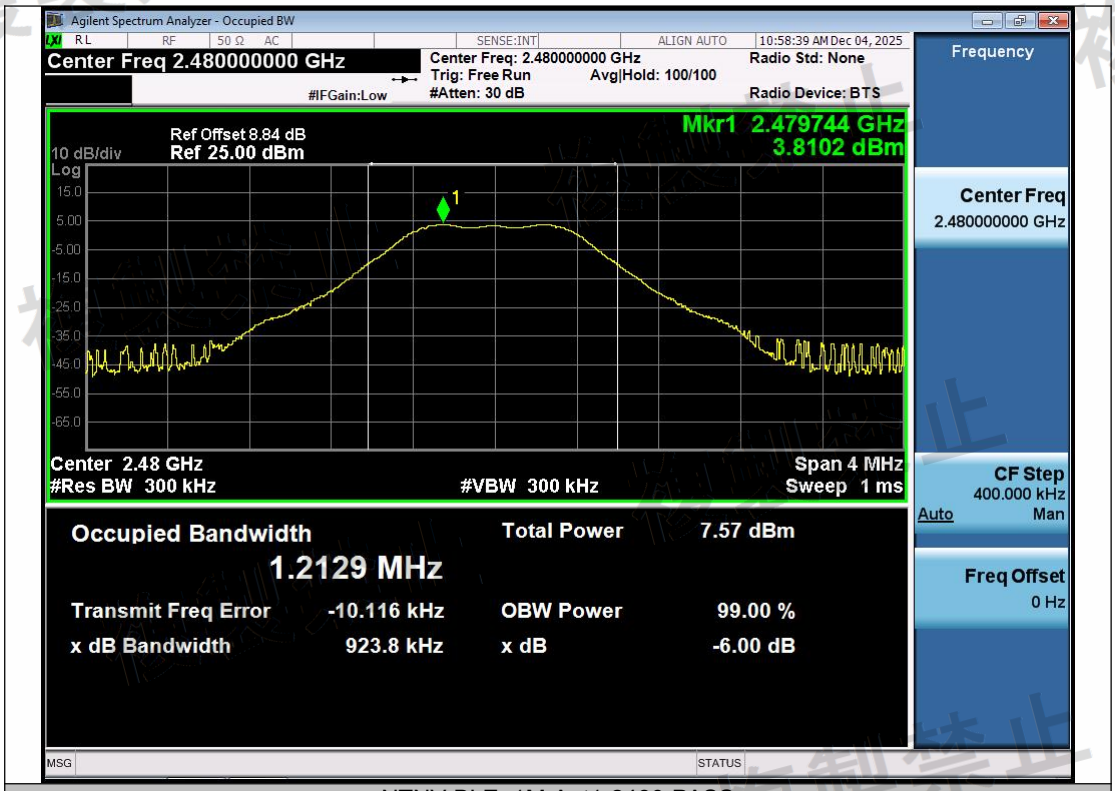
99% Emission bandwidth



NTNV-BLE_1M-Ant1-2402-PASS

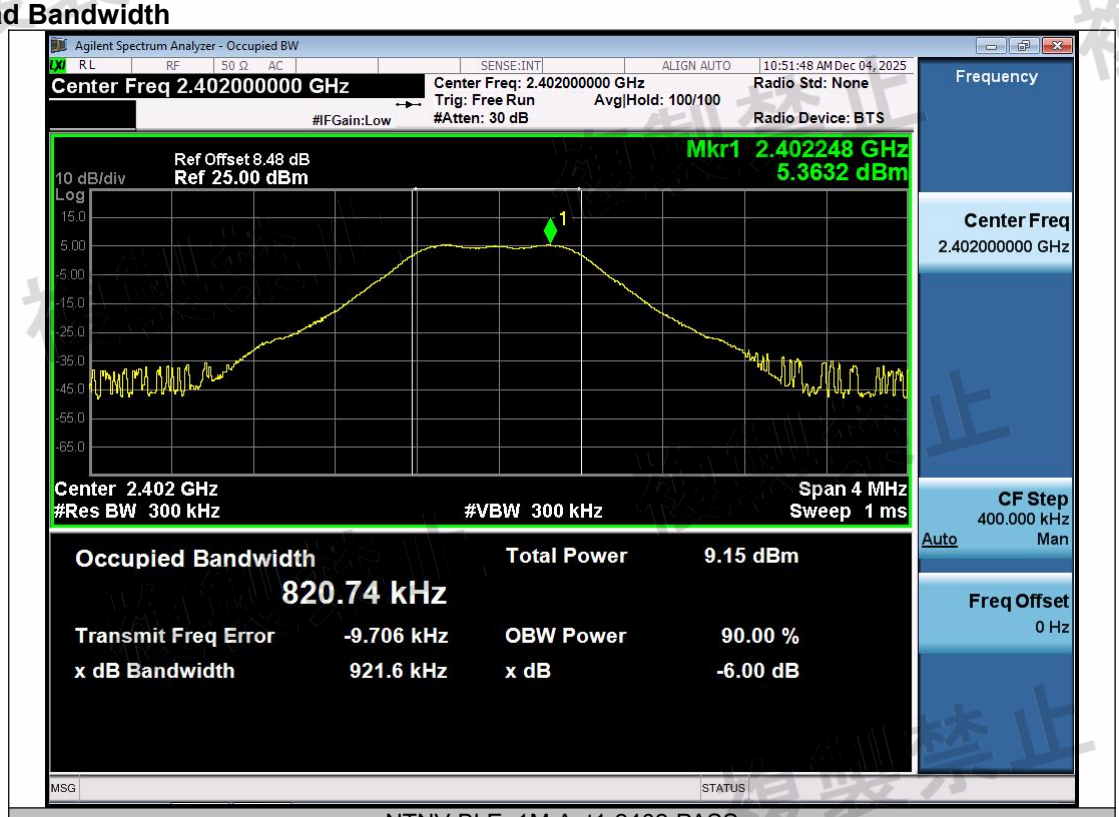


NTNV-BLE_1M-Ant1-2440-PASS

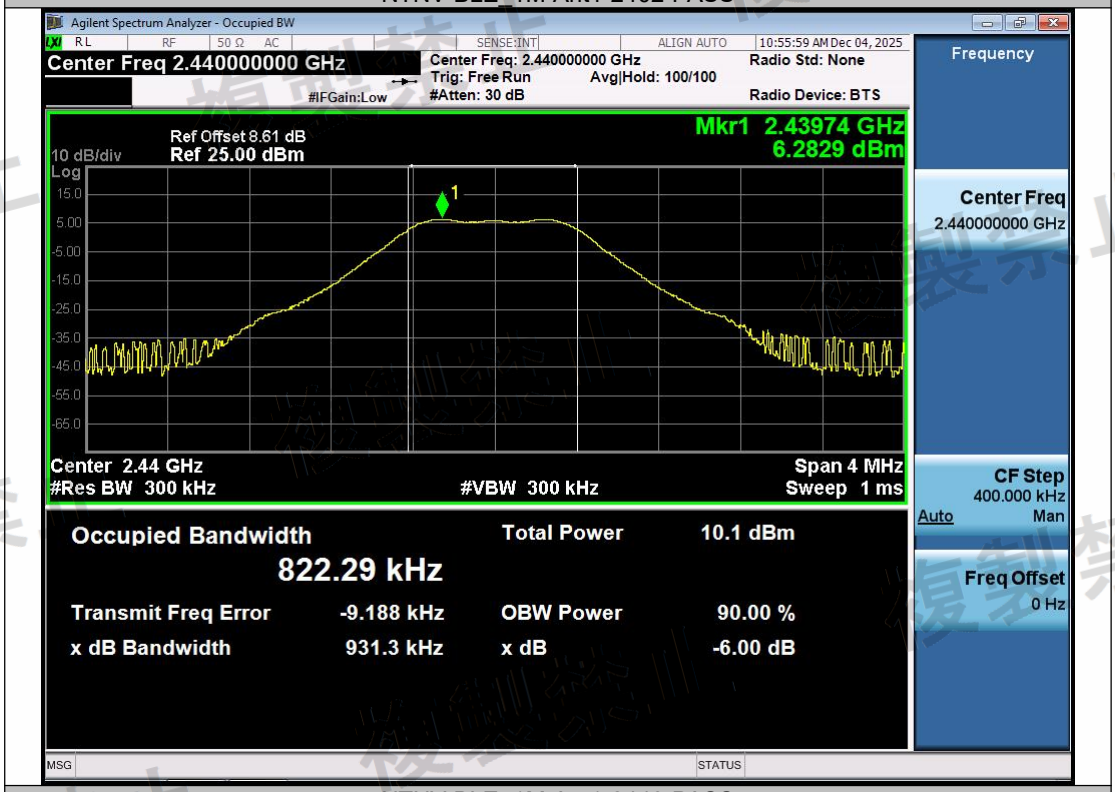


NTNV-BLE_1M-Ant1-2480-PASS

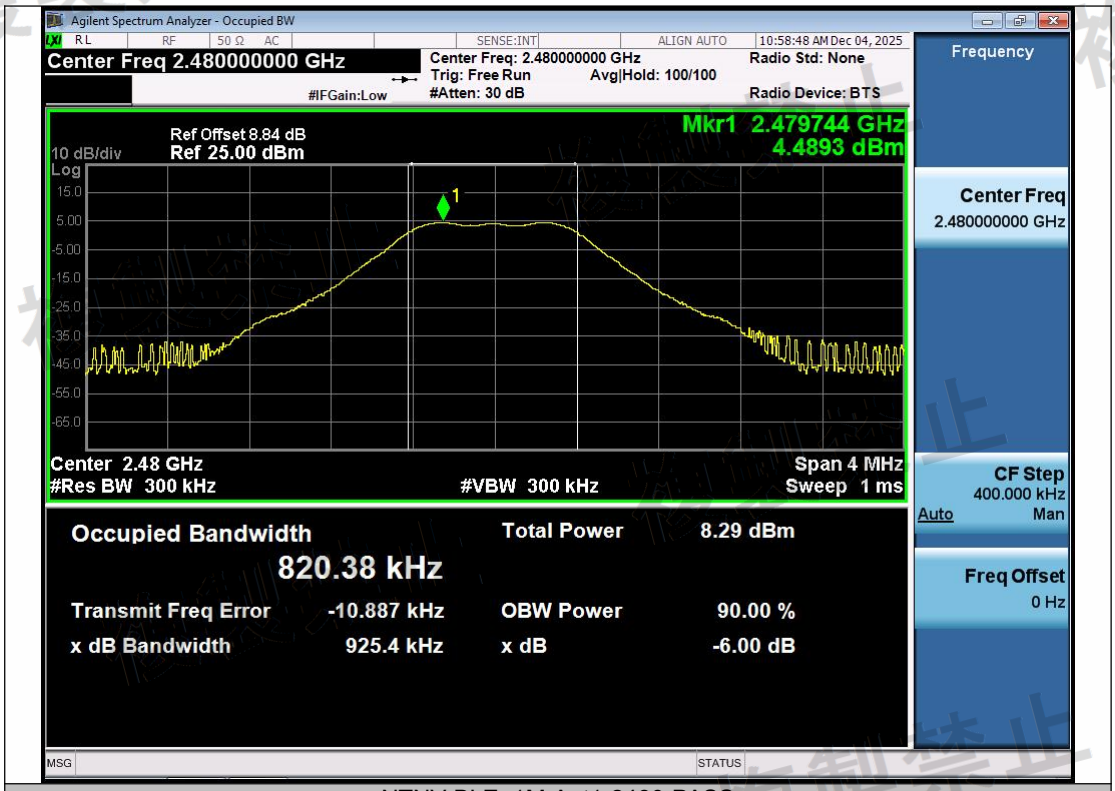
Spread Bandwidth



NTNV-BLE_1M-Ant1-2402-PASS



NTNV-BLE_1M-Ant1-2440-PASS



NTNV-BLE_1M-Ant1-2480-PASS

7.3 POWER TO ANTENNA (CONDUCTED)

7.3.1 Applicable Standard

According to Item 19 of Article 2 Paragraph 1.

7.3.2 Conformance Limit

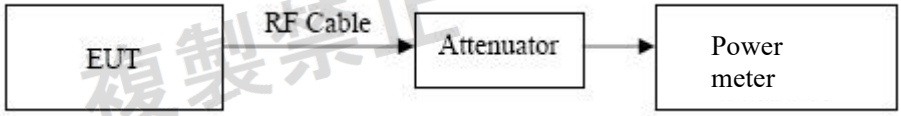
- ≤ 3 mW /MHz(FHSS from 2402-2480 MHz)
- ≤ 10 mW /MHz(DS OFDM (Occupied Bandwith <26MHz) from 2400-2483.5 MHz)
- ≤ 5 mW/MHz (OFDM(26MHz<Occupied Bandwith <38MHz) from 2400-2483.5 MHz)
- ≤ 10 mW (other from 2400-2483.5 MHz)

The Output Power Tolerance must be less than 20%.
E.i.r.p:

- ≤ 6.91mW /MHz(FHSS from 2402-2480 MHz)
- ≤ 12.14 mW /MHz(DS OFDM (Occupied Bandwith <26MHz) from 2400-2483.5 MHz)
- ≤ 9.14 mW/MHz (OFDM(26MHz<Occupied Bandwith <38MHz) from 2400-2483.5 MHz)
- ≤ 12.14 mW (other from 2400-2483.5 MHz)

Note: E.I.R.P will not be applied to the transmission antenna which has a gain of 2.14dBi or less.

7.3.3 Test Setup Block Diagram



7.3.4 Test Procedure

Set the EUT on the test frequency and the consecutive TX mode or continuous (constant period, constant burst length) burst TX mode.
In case of spreading code used, set on the test spreading code, then the modulation is performed with standard coding test signal.
(a) Connect a high-frequency power meter to the output of EUT and measure the total power.
(b) Antenna power shall be as follows.
a. Value of a for continuous wave
b. Burst wave The average power in the burst is calculated from the value of (a) and the transmission time rate.

7.3.5 Environmental Conditions

Temperature:	22.1 °C
Relative Humidity:	42%
ATM Pressure:	1011 mbar

7.3.6 Test Results

TestCondition	TestMode	Antenna	Freq(MHz)	Result(dBm)	Result(mW)	Limit(mW)	Verdict
NTNV	BLE_1M	Ant1	2402	7.50	5.6234	≤10	PASS
NTNV	BLE_1M	Ant1	2440	7.22	5.2723	≤10	PASS
NTNV	BLE_1M	Ant1	2480	5.16	3.2810	≤10	PASS

TestCondition	TestMode	Antenna	Freq(MHz)	Power (dBm)	EIRP(dBm)	Limit(dBm)	Verdict
NTNV	BLE_1M	Ant1	2402	7.50	10.20	≤12.14	PASS
NTNV	BLE_1M	Ant1	2440	7.22	9.92	≤12.14	PASS
NTNV	BLE_1M	Ant1	2480	5.16	7.86	≤12.14	PASS

Test Condition	Test Mode	Antenna	Freq(MHz)	Power (mW)	RatedPower (mW)	Result (%)	Limit (%)	Verdict
NTNV	BLE_1M	Ant1	2402	5.6234	10	-43.77	-80 to +20	PASS
NTNV	BLE_1M	Ant1	2440	5.2723	10	-47.28	-80 to +20	PASS
NTNV	BLE_1M	Ant1	2480	3.2810	10	-67.19	-80 to +20	PASS

7.4 SPURIOUS EMISSIONS INTENSITY

7.4.1 Applicable Standard

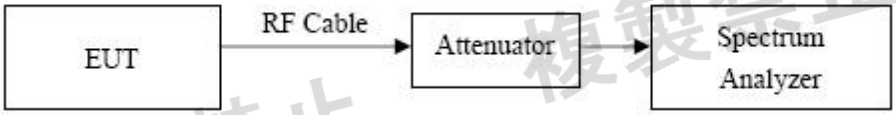
According to Item 19 of Article 2 Paragraph 1.

7.4.2 Conformance 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:

a. 2,387MHz ≤ f ≤ 2,400MHz and 2,483.5MHz < f ≤ 2,496.5MHz 25 μW(-16dB) or less
b. 2,387MHz > f and 2,496.5MHz < f 2.5 μW(-26dB) or less

7.4.3 Test Setup Block Diagram



7.4.4 Test Procedure

(1)Spectrum analyzer for seeking the spurious emission is set as below

Sweeping Bandwidth	For seeking the spurious emission, from frequency lowest possible to the 5 times the carrier frequency
Resolution Bandwidth	1 MHz
Video Bandwidth	Approx. As same as Resolution bandwidth
Y-Axis Scale	10 dB/Div
Input Level	Value of maximum dynamic range
Sweep Time	Minimum time to assure the measurement accuracy (Note 1)
Sweep Mode	Single sweep
Phase-Detection Mode	Positive peak

(2)The settings of the spectrum analyzer while conducting spurious amplitude measurements are as follows:

- Central Frequency: Acquired spurious frequencies in (1)
- Sweep Frequency 0 Hz
- Resolution Bandwidth 1 MHz
- Video Bandwidth same as Resolution Bandwidth
- Note: take into account that the requirement limits the power in a bandwidth of 1 MHz.
- If the measurement is carried out with a bandwidth of 100 kHz (for frequencies below 1 GHz), the limit shall be reduced with 10 dB.
- For example 2.5 uW in 1 MHz = -26 dBm limit, becomes –36 dBm for 100 kHz bandwidth.
- Y-Axis Scale 10 dB/Div
- Input Level: choose input level within the linear range of the SA mixer (so that no additional spurious are generated by the mixer)
- Sweep Time: Minimum amount of time to ensure measurement accuracy. However, in the case of burst waves, time exceeds duration of 1 burst.
- Data Points Over 400 points
- Sweep Mode: Single sweep

- Detection Mode Sample (BIN-Width << RBW, so that all spurious emissions are captured) [BIN-width is the frequency difference between 2 adjacent sample points on the display)

(3)Set EUT as occupied bandwidth is measure. That is, Set the EUT on the test frequency and the continuous TX mode or continuous (constant period, constant burst length) burst TX mode. In case of spreading code used, set on the test spreading code, then the modulation is performed with standard coding test signal.

The spectrum analyzer is set as 2 (1). Seek the spurious emission If the amplitude of the sought spurious emission satisfies the specified value (in case of 2 (2) Note 1, the specified value is –3dB), the measurement

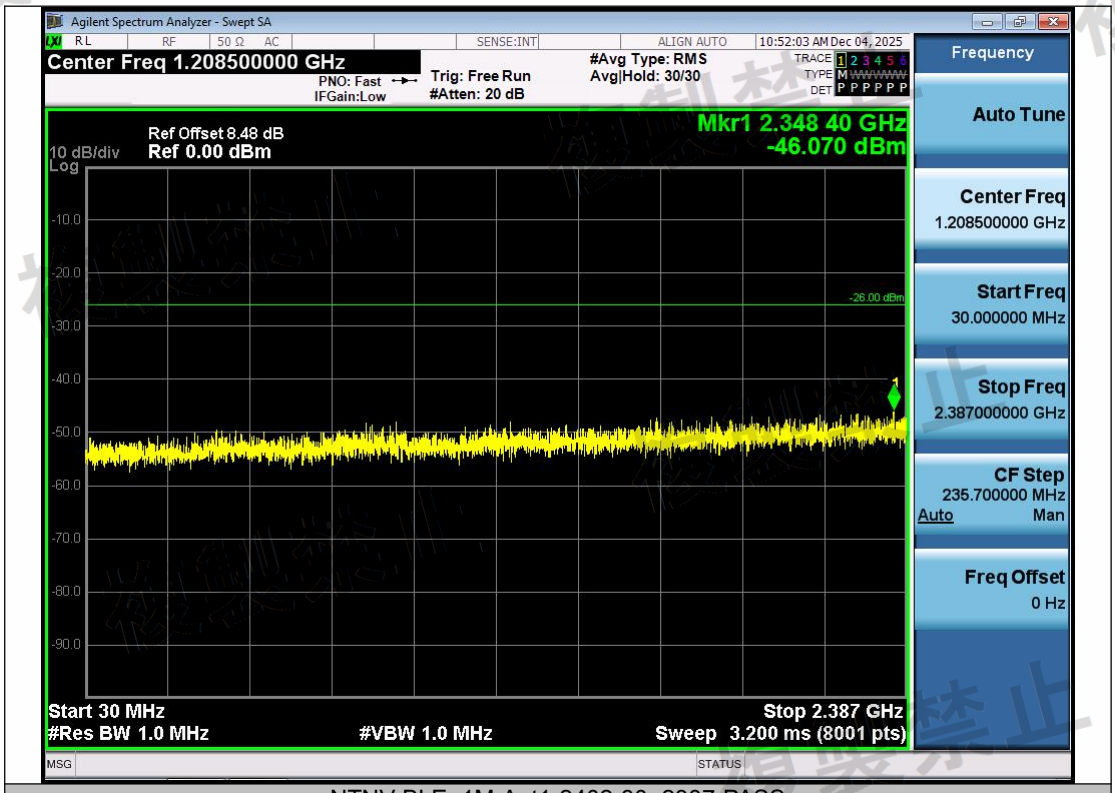
of 2 (2) is not performed, then the estimated value is employed as the measured value.
In case the sought spurious emission amplitude exceeds the specified value, seek the spurious frequency by narrowing the sweeping band sequentially as 100 MHz, 10 MHz, 1 MHz for the purpose of higher accuracy of the spectrum analyzer. Set the spectrum analyzer as 2 (2). Estimate the mean value of the spurious amplitude, then employ it as the measured value (In case DSSS as well as OFDM with burst wave, the mean inside of the burst).
Sweep Bandwidth: 30MHz~2387MHz, 2483.5MHz~2496.5MHz, 2496.5MHz~12500MHz
Respectively mark the maximum results in the above sweep bandwidth.

7.4.5 Environmental Conditions

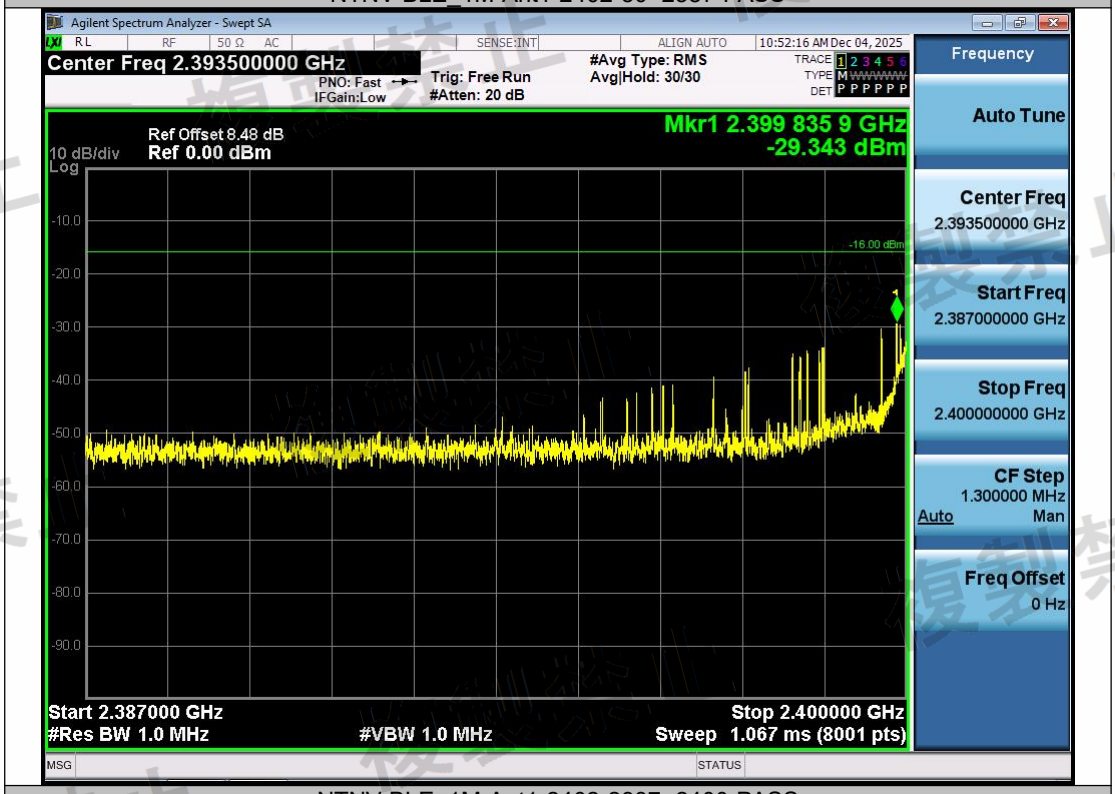
Temperature:	22.1 °C
Relative Humidity:	42%
ATM Pressure:	1011 mbar

7.4.6 Test Results

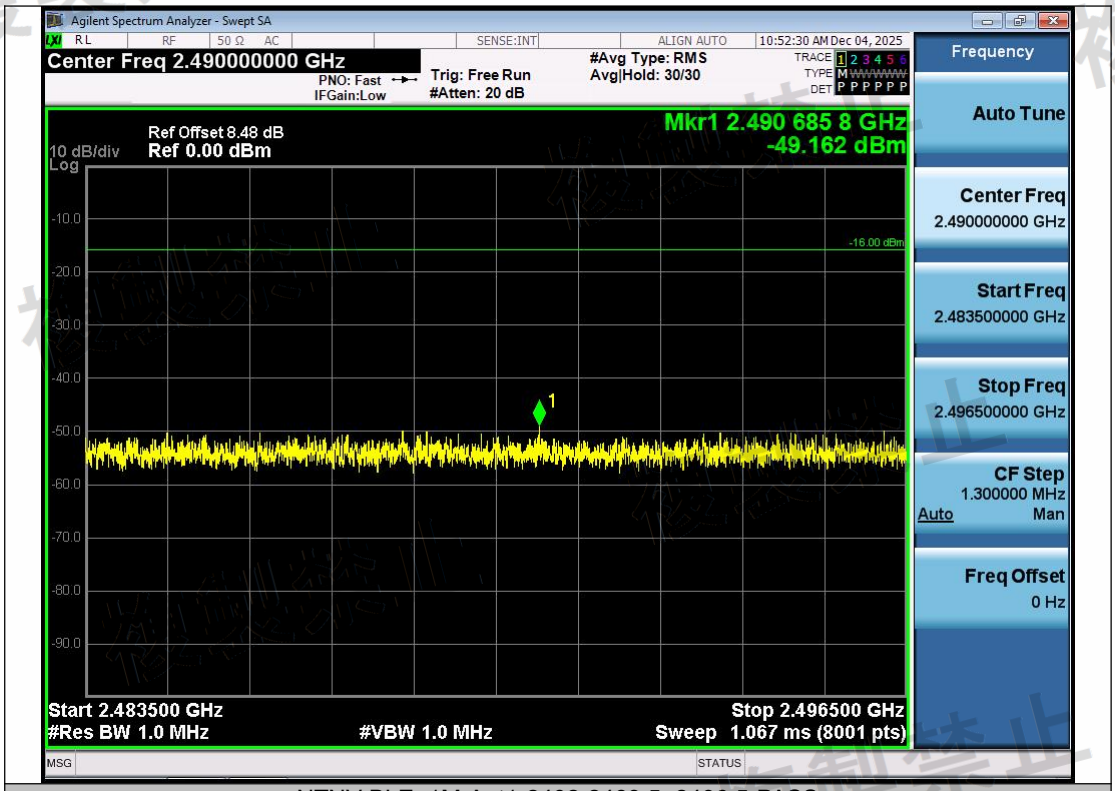
TestCondition	TestMode	Antenna	Freq(MHz)	Freq.Range [MHz]	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [μW]	Limit [μW]	Verdict
NTNV	BLE_1M	Ant1	2402	30~2387	2348.40	-46.07	≤-26	0.02472	≤2.5	PASS
NTNV	BLE_1M	Ant1	2402	2387~2400	2399.84	-29.34	≤-16	1.16413	≤25	PASS
NTNV	BLE_1M	Ant1	2402	2483.5~2496.5	2490.69	-49.16	≤-16	0.01213	≤25	PASS
NTNV	BLE_1M	Ant1	2402	2496.5~13000	12643.91	-43.75	≤-26	0.04217	≤2.5	PASS
NTNV	BLE_1M	Ant1	2440	30~2387	2315.70	-45.59	≤-26	0.02761	≤2.5	PASS
NTNV	BLE_1M	Ant1	2440	2387~2400	2387.67	-48.89	≤-16	0.01291	≤25	PASS
NTNV	BLE_1M	Ant1	2440	2483.5~2496.5	2484.94	-49.59	≤-16	0.01099	≤25	PASS
NTNV	BLE_1M	Ant1	2440	2496.5~13000	7286.34	-44.07	≤-26	0.03917	≤2.5	PASS
NTNV	BLE_1M	Ant1	2480	30~2387	2064.68	-45.27	≤-26	0.02972	≤2.5	PASS
NTNV	BLE_1M	Ant1	2480	2387~2400	2391.82	-48.65	≤-16	0.01365	≤25	PASS
NTNV	BLE_1M	Ant1	2480	2483.5~2496.5	2483.56	-34.53	≤-16	0.35237	≤25	PASS
NTNV	BLE_1M	Ant1	2480	2496.5~13000	5004.34	-44.15	≤-26	0.03846	≤2.5	PASS



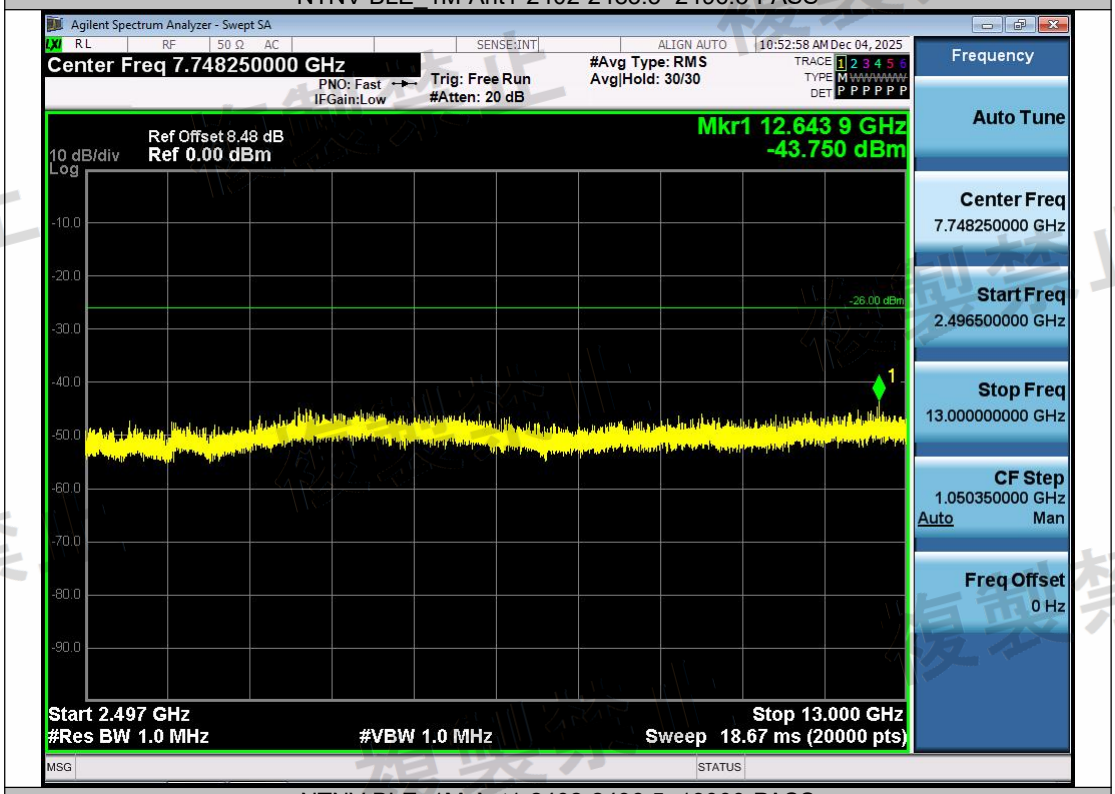
NTNV-BLE_1M-Ant1-2402-30~2387-PASS



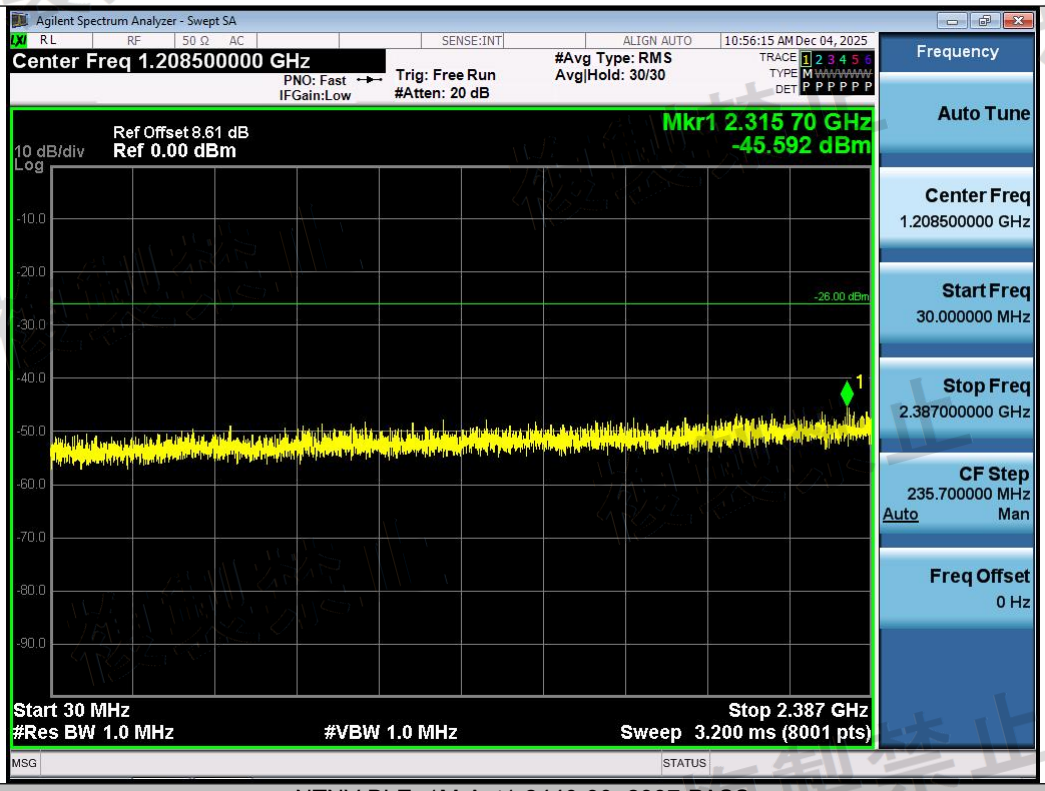
NTNV-BLE_1M-Ant1-2402-2387~2400-PASS



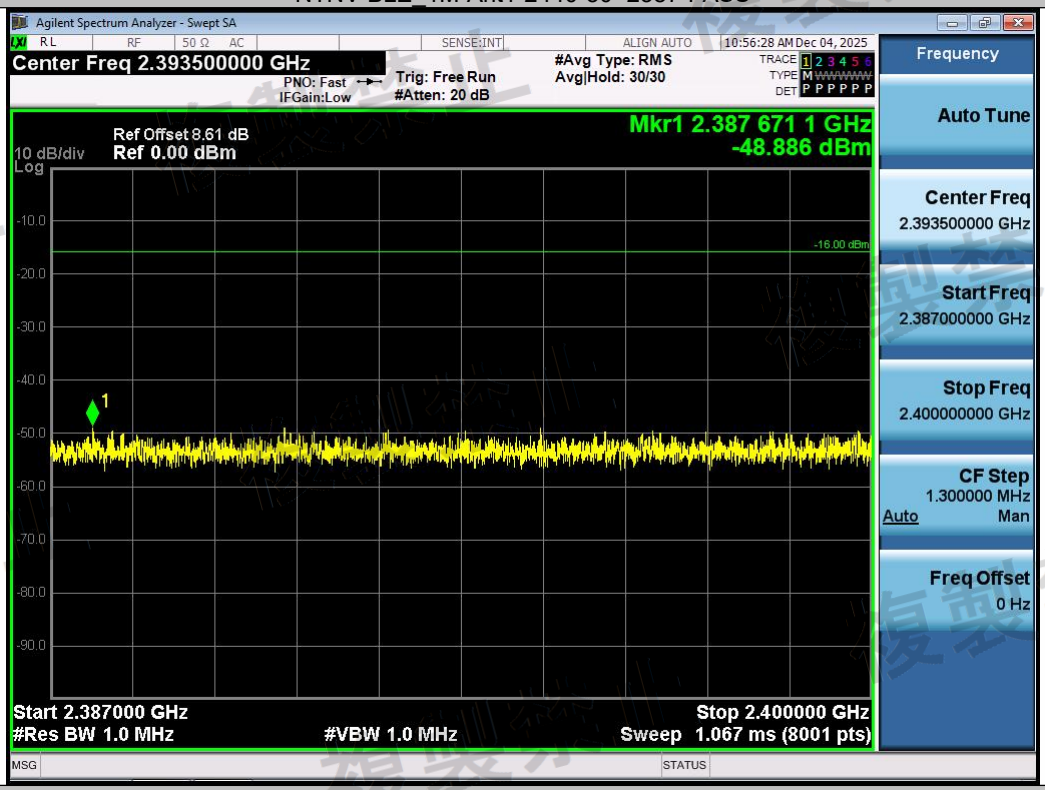
NTNV-BLE_1M-Ant1-2402-2483.5~2496.5-PASS



NTNV-BLE_1M-Ant1-2402-2496.5~13000-PASS



NTNV-BLE_1M-Ant1-2440-30~2387-PASS



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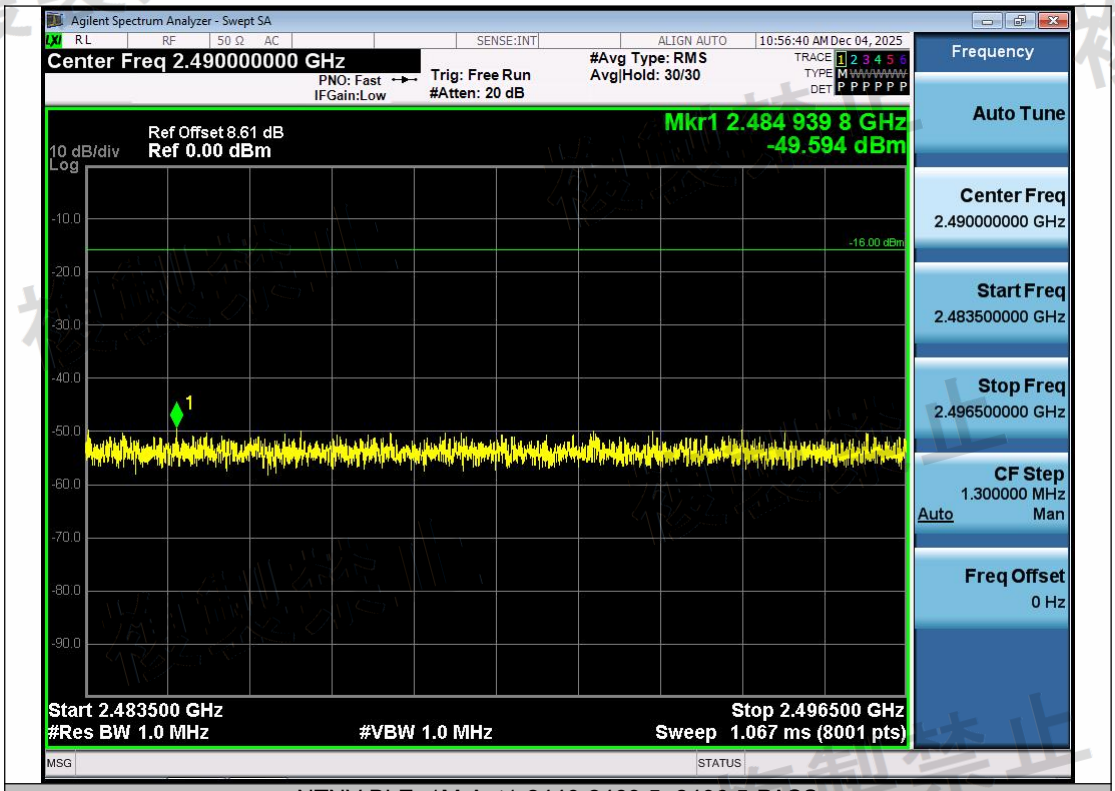
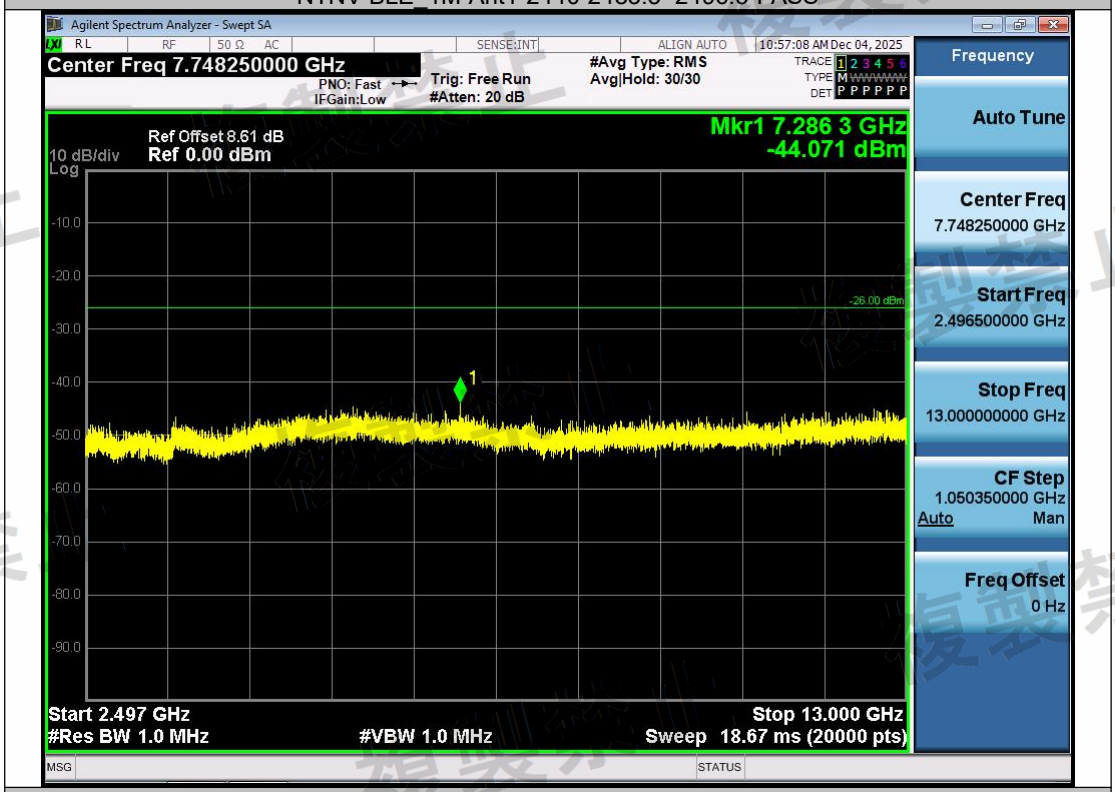
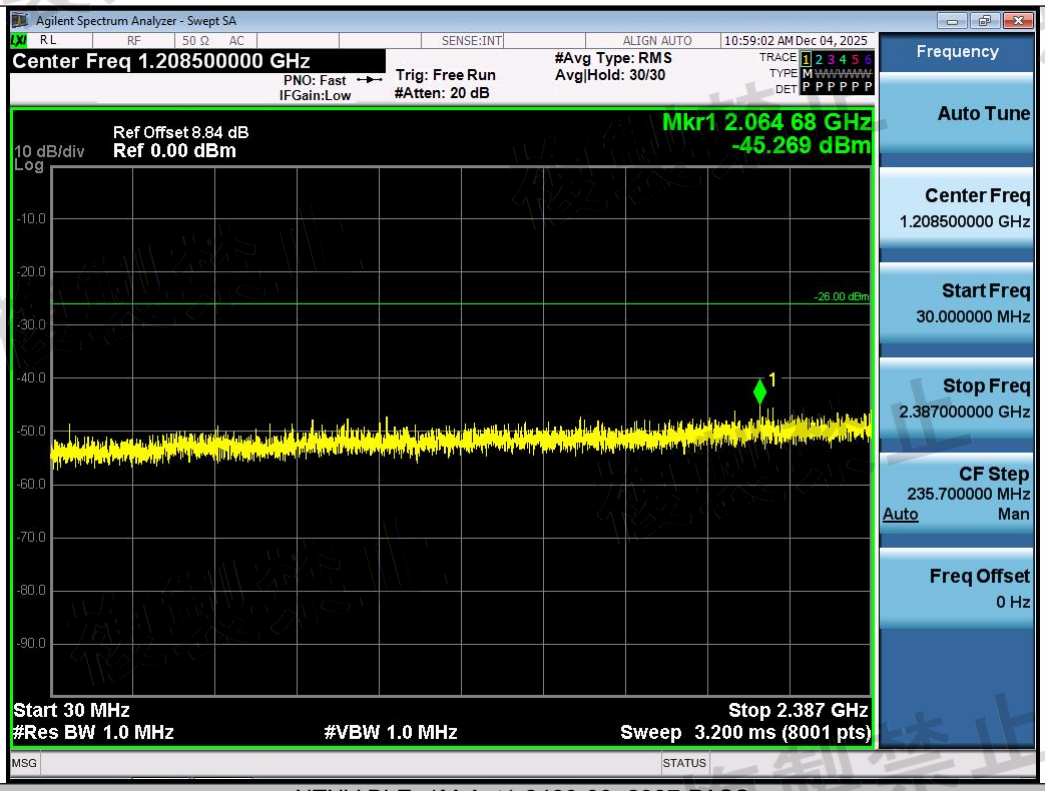


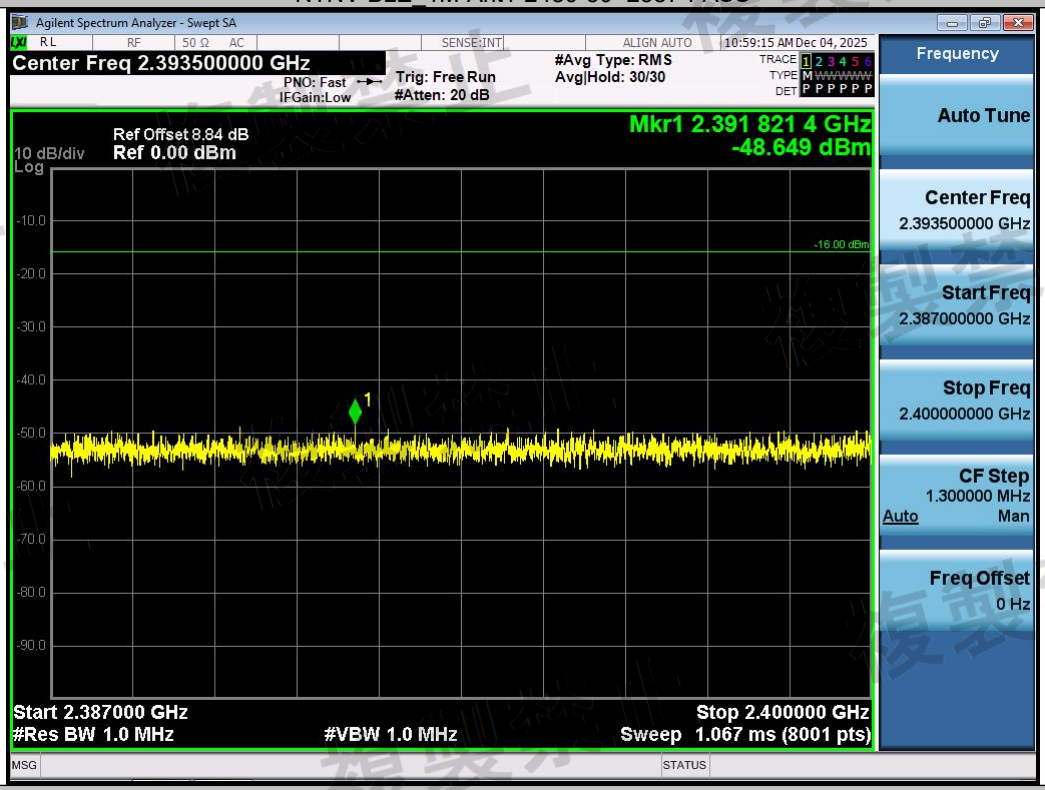
NTNV-BLE_1M-Ant1-2440-2483.5~2496.5-PASS



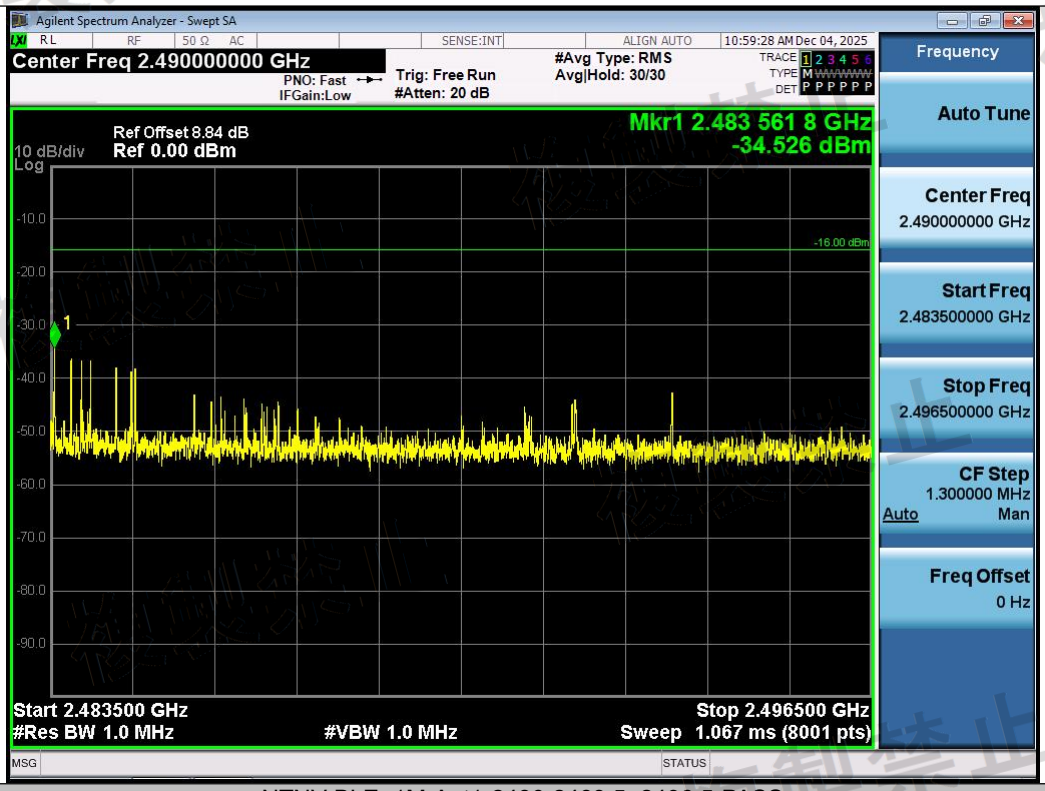
NTNV-BLE_1M-Ant1-2440-2496.5~13000-PASS



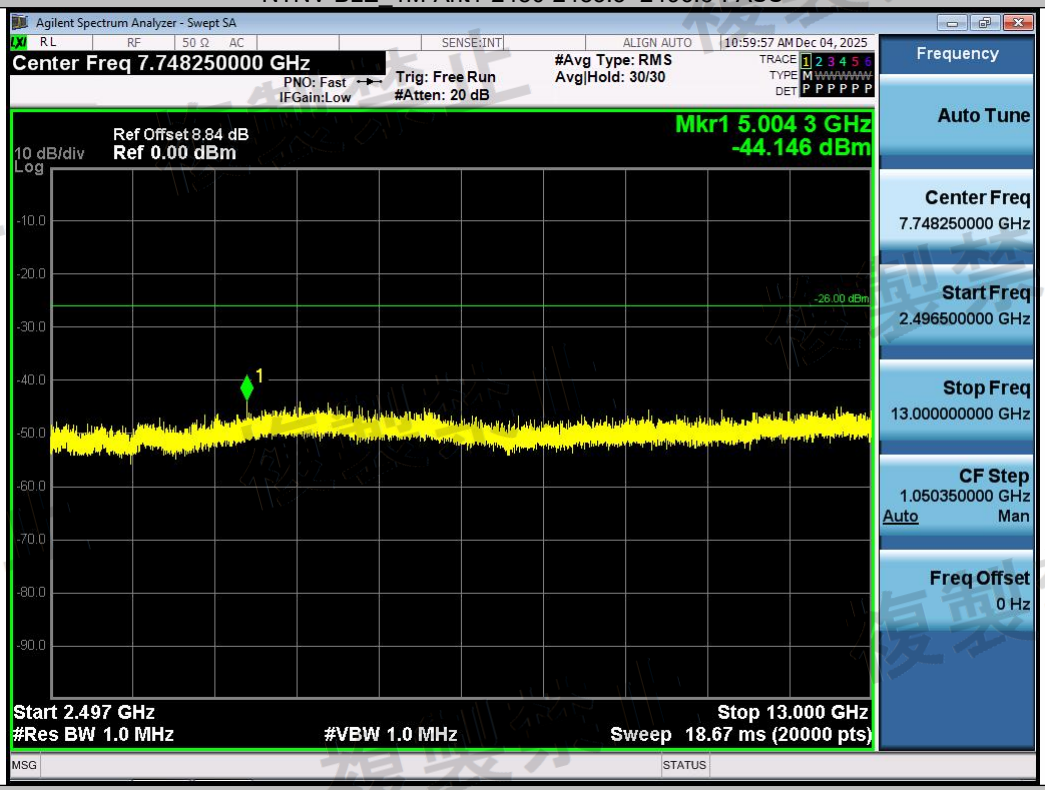
NTNV-BLE_1M-Ant1-2480-30~2387-PASS



NTNV-BLE_1M-Ant1-2480-2387~2400-PASS



NTNV-BLE_1M-Ant1-2480-2483.5~2496.5-PASS



NTNV-BLE_1M-Ant1-2480-2496.5~13000-PASS

7.5 COLLATERAL EMISSIONS OF RECEIVER

7.5.1 Applicable Standard

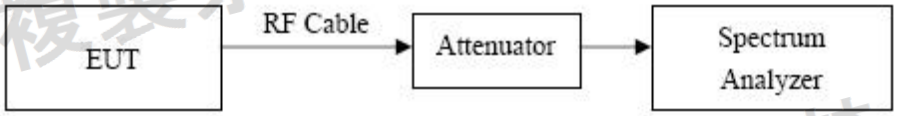
According to Item 19 of Article 2 Paragraph 1

7.5.2 Conformance 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 (-54dBm) or less at a frequency below 1 GHz and 20 nW(-47dBm) or less at a frequency of 1 GHz or higher as measured using the circuit.

a. 30 MHz - 1000 MHz 4 nW (-54dBm) or less
b. 1GHz – 12.5 GHz 20 nW(-47dBm) or less

7.5.3 Test Setup Block Diagram



7.5.4 Test Procedure

Set the EUT so that the test frequency is can be measured receipt consecutively all the time.

(1) Set the attenuation value of the dummy load lowest as possible, due to low level of the measured object.

(2) Set Spectrum analyzer for seeking the collateral emission is set as below.

Sweeping Bandwidth	30MHz to 5 times of carrier frequency
Resolution Bandwidth	In case of frequency lower than 1 GHz, 100 kHz In case of frequency higher than 1 MHz
Video Bandwidth	Same level as the resolution bandwidth
Sweep Time	Minimum time to assure the measurement accuracy
Y-Axis Scale	10 dB/Div
Sweep Mode	Single sweep
Phase-Detection Mode	Positive peak

(3) Spectrum analyzer for measuring the collateral emission is set as below.

Central Frequency	Collateral emission frequency
Sweeping Bandwidth	0 Hz
Resolution Bandwidth	In case of frequency lower than 1 GHz, 100 kHz In case of frequency higher than 1 MHz
Video Bandwidth	Same level as the resolution bandwidth
Sweep Mode	Single sweep
Detection Mode	Sample

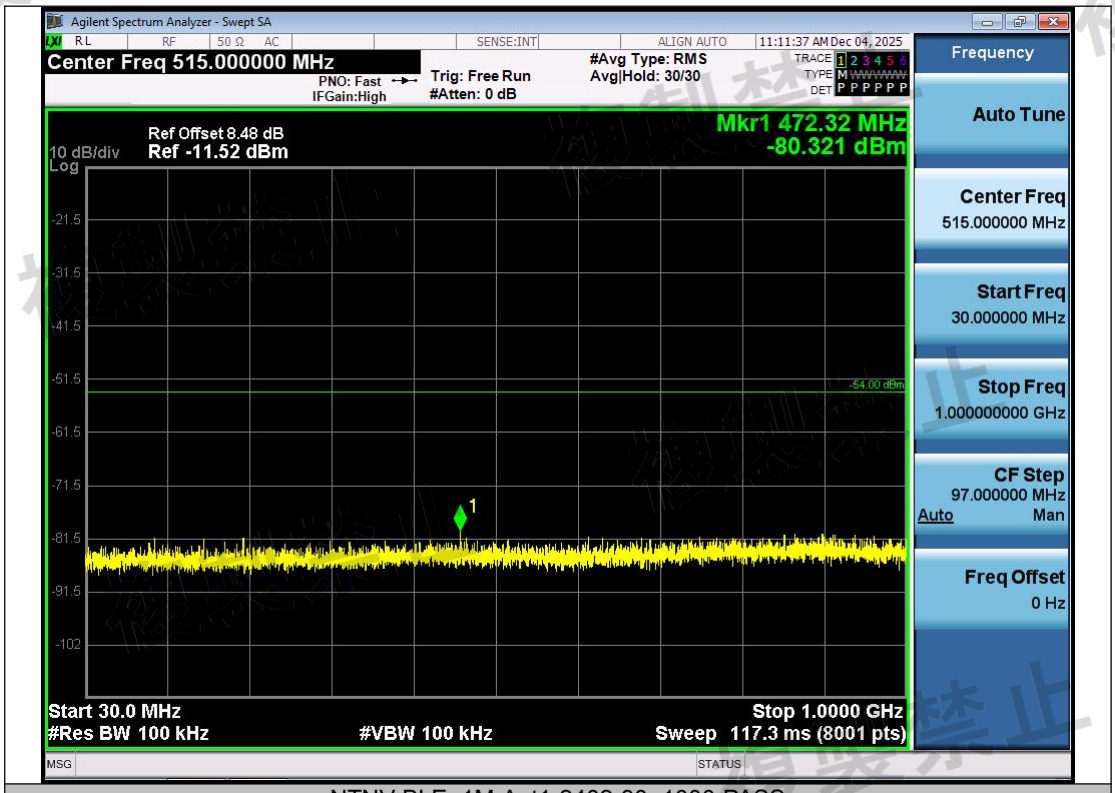
Set the spectrum analyzer as (2), seek the maximum amplitude of the collateral emission.
In case of sought result lower than 1/10 limit value, employ the sought value as the measured value.
In case the sought value exceeds 1/10 limit value, seek the collateral emission frequency by narrowing the sweeping band sequentially to 1/10 for the purpose of higher accuracy of the spectrum analyzer. Set the spectrum analyzer as (3).

7.5.5 Environmental Conditions

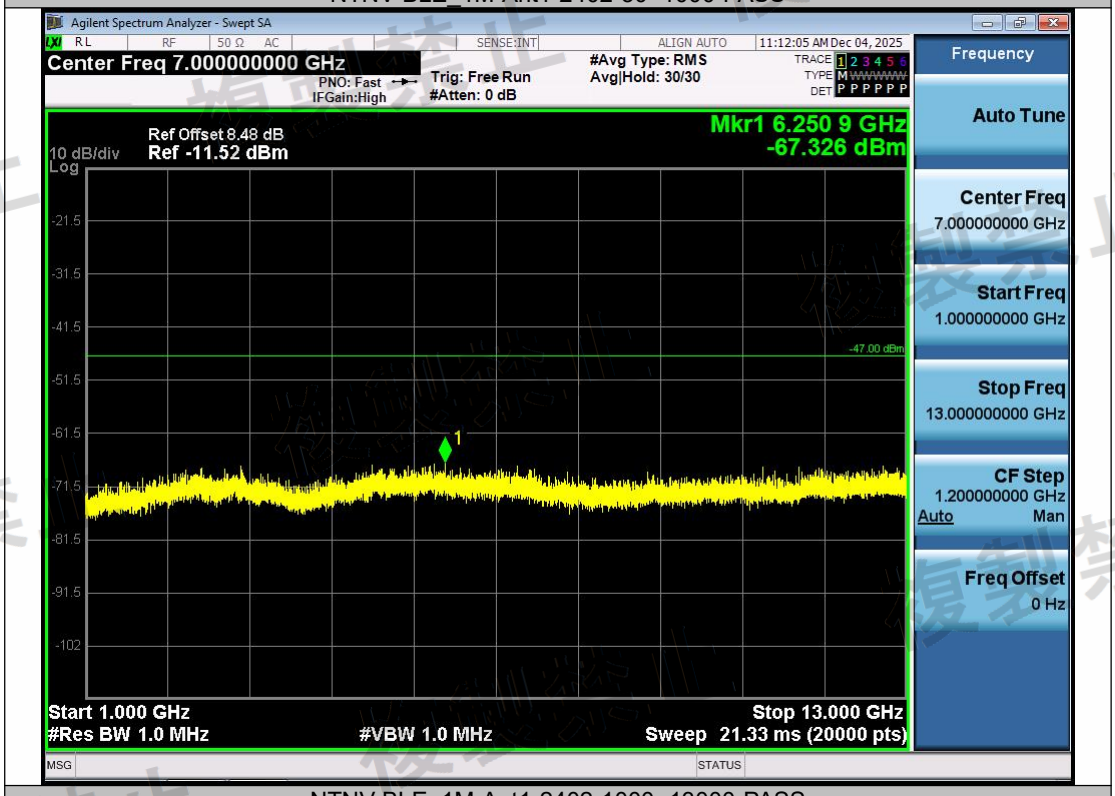
Temperature:	22.1 °C
Relative Humidity:	42%
ATM Pressure:	1011 mbar

7.5.6 Test Results

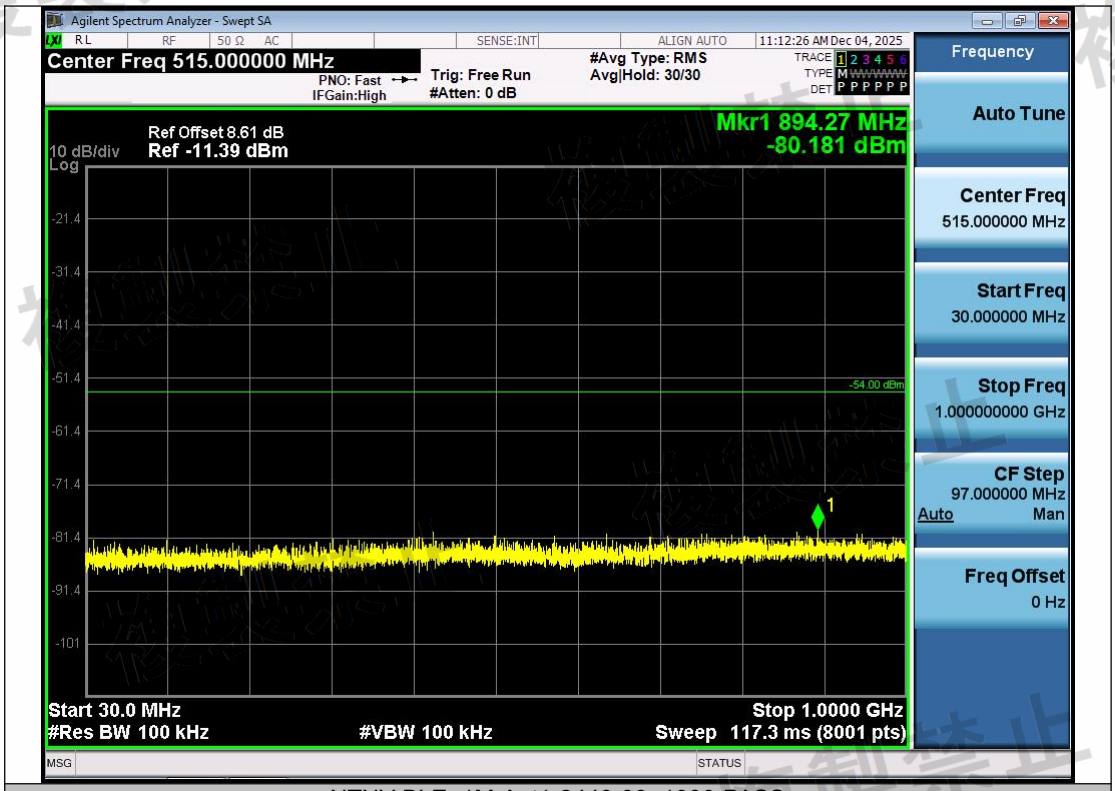
TestCondition	TestMode	Antenna	Freq(MHz)	Freq.Range [MHz]	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [nW]	Limit [nW]	Verdict
NTNV	BLE_1M	Ant1	2402	30~1000	472.32	-80.32	≤-54	0.00929	≤4	PASS
NTNV	BLE_1M	Ant1	2402	1000~13000	6250.86	-67.33	≤-47	0.18493	≤20	PASS
NTNV	BLE_1M	Ant1	2440	30~1000	894.27	-80.18	≤-54	0.00959	≤4	PASS
NTNV	BLE_1M	Ant1	2440	1000~13000	5980.85	-67.13	≤-47	0.19364	≤20	PASS
NTNV	BLE_1M	Ant1	2480	30~1000	972.23	-80.34	≤-54	0.00925	≤4	PASS
NTNV	BLE_1M	Ant1	2480	1000~13000	5361.02	-67.00	≤-47	0.19953	≤20	PASS



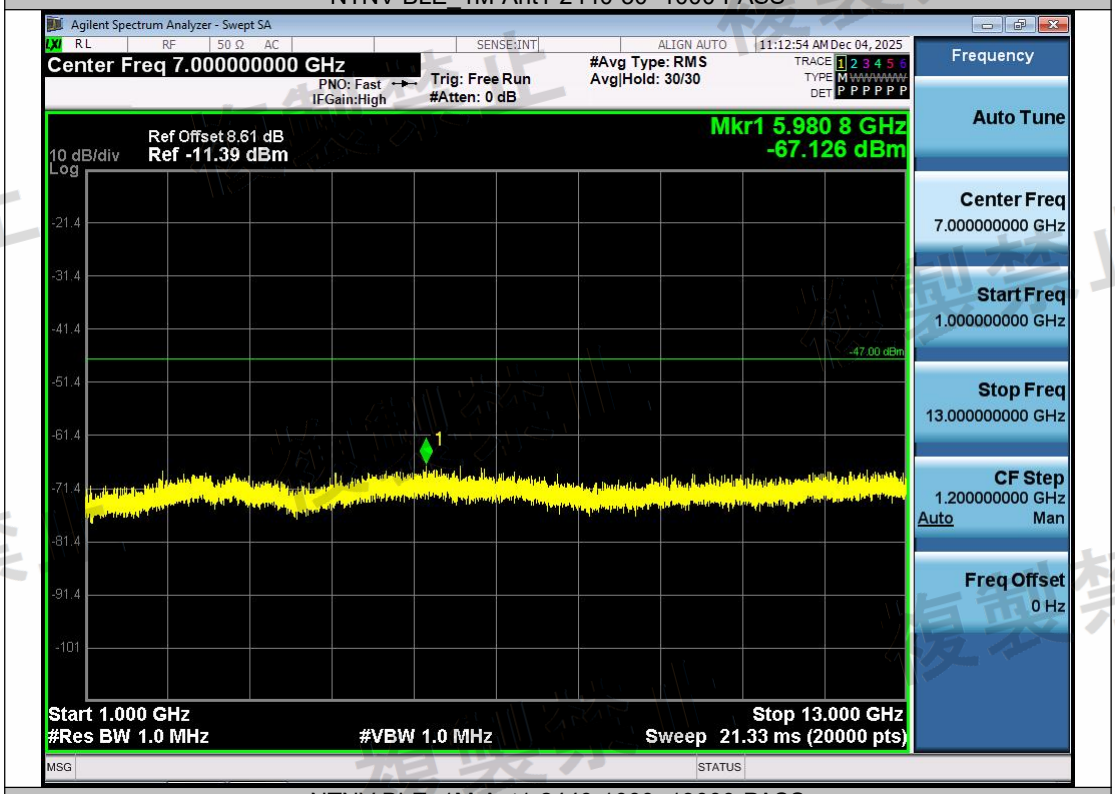
NTNV-BLE_1M-Ant1-2402-30~1000-PASS



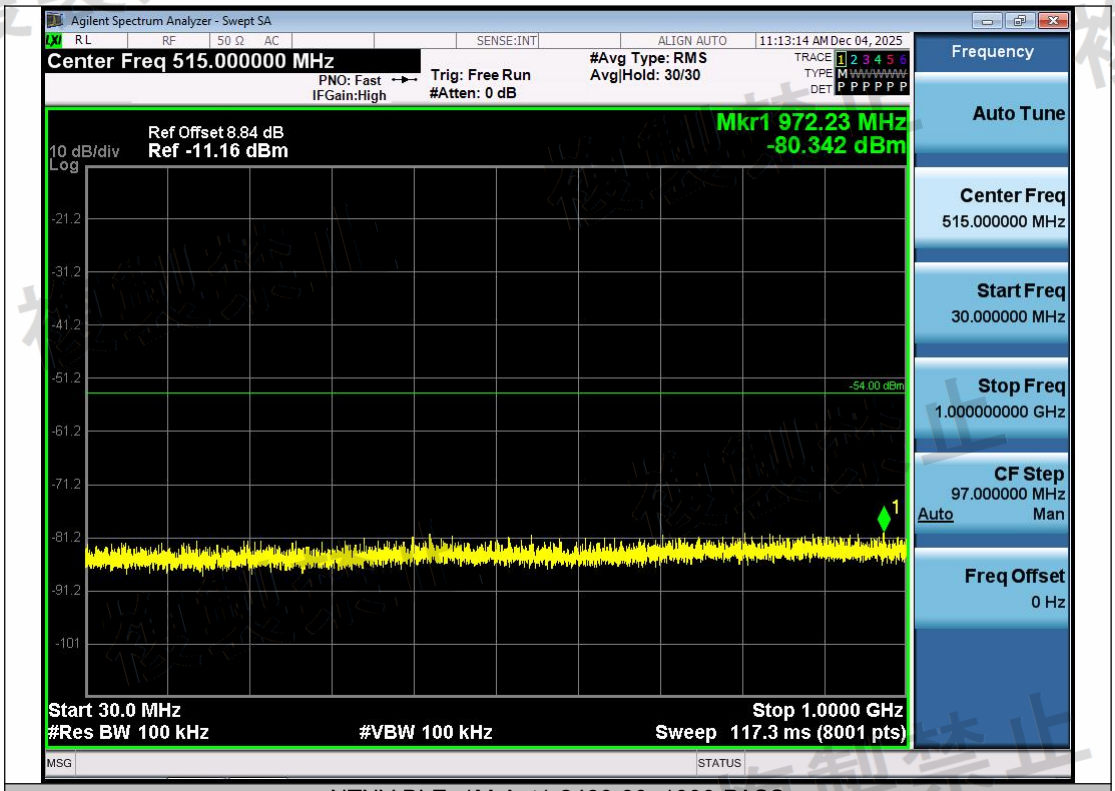
NTNV-BLE_1M-Ant1-2402-1000~13000-PASS



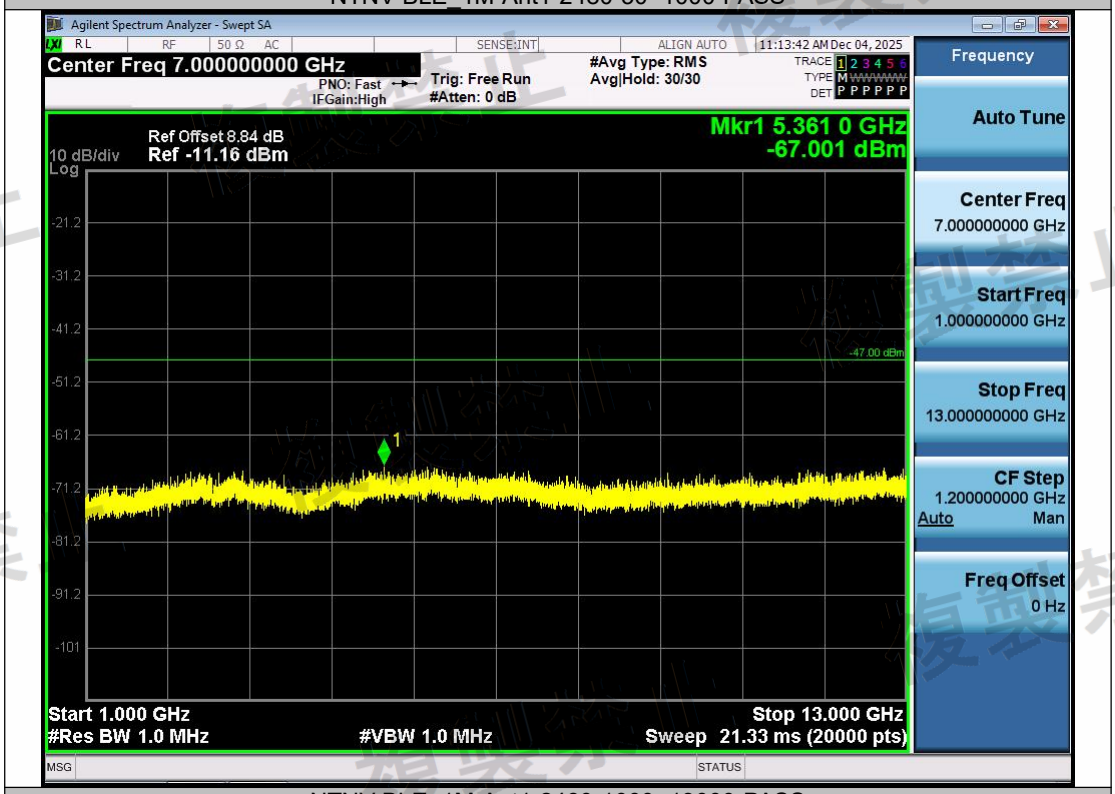
NTNV-BLE_1M-Ant1-2440-30~1000-PASS



NTNV-BLE_1M-Ant1-2440-1000~13000-PASS



NTNV-BLE_1M-Ant1-2480-30~1000-PASS



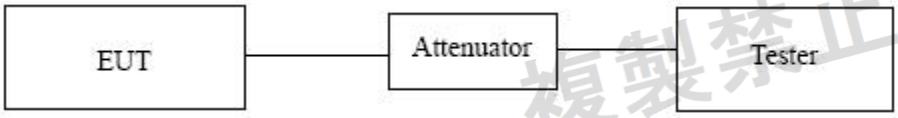
NTNV-BLE_1M-Ant1-2480-1000~13000-PASS

7.6 INTERFERENCE PREVENTION FUNCTION

7.6.1 Standard Applicable

According to Item 19 of Article 2 Paragraph 1. The device shall have the function of automatic transmission or reception of identification code.

7.6.2 Test Setup Block Diagram



7.6.3 Test Procedure

1. Set the EUT in the usual operation condition

2. The radio equipment with automatic transmitting function of identification code

A. Transmit the assigned identification code from the radio equipment.
B. Confirm the identification code received by the demodulator.

3. The radio equipment with automatic receiving function of identification code

A. Transmit the assigned identification code from the opposite equipment.
B. Confirm that the usual communication is available.
C. Transmit the identification code distinct from the assigned one from the opposite equipment.
D. Confirm that the radio equipment is stopped or an indication is displayed as the identification code is different.

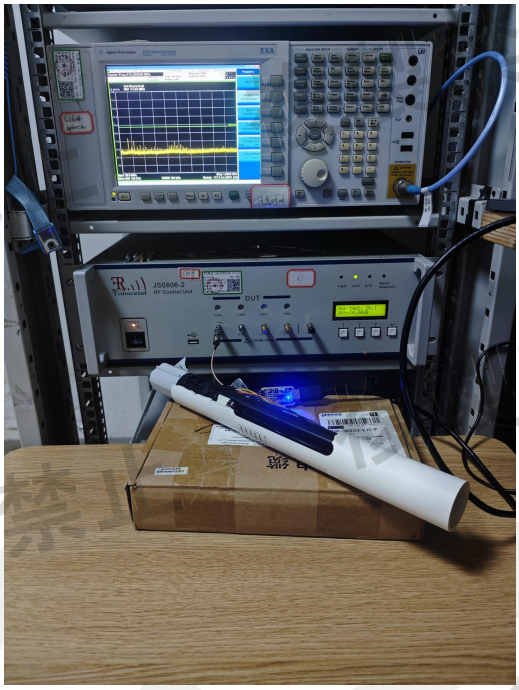
The identification function shall be recorded.

7.6.4 Summary of Test Results/Plots

Pass

Test Item	Test Result
Transmitting Function of Identification Code	The device have the function of automatic transmission or reception of identification code
Receiving Function of Identification Code	The device have the function of automatic transmission or reception of identification code

8 APPENDIX PHOTOGRAPHS OF TEST SETUP



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