

TEST REPORT

Report No.....: S20260327212201

Applicant.....: Beijing ESWIN Computing Technology Co., Ltd.

Applicant's address: Business at Room 101, 1st Floor,
Building 3, No.18, Kechuang 10th
Street, BDA (Beijing
Economic--Technological Development
Area), Beijing City, P.R. China

Sample description.: EBC77 Series Single Board Computer

Model.....: EBC7700-B02, EBC7700-B00,
EBC7700-B01



方圆广电检验检测股份有限公司
Fangguang Inspection & Testing Co., Ltd.



扫一扫验真伪



TEST REPORT

Application No..... : S202603272122

Applicant's name... : Beijing ESWIN Computing Technology Co., Ltd.

Applicant's address: Business at Room 101, 1st Floor, Building 3, No.18, Kechuang 10th Street, BDA (Beijing Economic--Technological Development Area), Beijing City, P.R. China

Sample description: EBC77 Series Single Board Computer

Model : EBC7700-B02, EBC7700-B00, EBC7700-B01

Date of receipt of test item : 2026-04-09

Test location : 3/F., Comprehensive Laboratory Building, No.8, Ningyun Road, Xingwu District, Wuxi, Jiangsu, China

Test standard : MIC Article 2 Paragraph 1 Item 19

Test date(s) : 2026-04-13 ~ 2026-06-09

Test result : The test results are in compliance with the above mentioned standards.

Date of issue..... : 2026-06-15

Compiled by:
Stone Zhang

Reviewed by:
Qianlan Sang

Approved by:
Jacke Ding/Vice Manager

Stone Zhang

Qianlan Sang

Jacke Ding



Other aspects: P = passed; F = failed; N/A = not applicable



Test item description :	EBC77 Series Single Board Computer
Trade mark :	/
Manufacturer..... :	Beijing ESWIN Computing Technology Co., Ltd.
Manufacturer's address..... :	Business at Room 101, 1st Floor, Building 3, No.18, Kechuang 10th Street, BDA (Beijing Economic--Technological Development Area), Beijing City, P.R. China
Factory..... :	Beijing ESWIN Computing Technology Co., Ltd.
Factory's address..... :	Business at Room 101, 1st Floor, Building 3, No.18, Kechuang 10th Street, BDA (Beijing Economic--Technological Development Area), Beijing City, P.R. China
Ratings :	DC 5~15V, 1-3A, 10-15W

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1. General Information

1.1. Testing Facility

Test Site
Fangguang Inspection & Testing Co., Ltd.
Test Site Location
3/F., Comprehensive Laboratory Building, No.8, Ningyun Road, Xinwu District, Wuxi, Jiangsu, China

1.2. Feature of Equipment Under Test

Product Name	EBC77 Series Single Board Computer
Model No.	EBC7700-B02
Additional Model:	EBC7700-B00, EBC7700-B01
Model Description:	The three models EBC7700-B00, EBC7700-B01. and EBC7700-B02 difrer in LPDDR5 memory capacity: EBC7700-B00 is single-board 8GB, EBC7700-B01 is single-board 16GB, and EBC7700-B02 is single-board 32GB. Other than the model numbers and LPDDRS memory capacity, the printed circuit boards, schematics and other components are identical for all models. All tests were conducted on the model EBC7700-B02. The different LPDDR5 memory capacity no affect the test result, the results of model EBC7700-B02 can represent the compliance of the other models.
Power Supply	DC 5~15V, 1-3A, 10-15W
Rated Power	802.11b: 9.0 mW/MHz 802.11g: 9.5 mW/MHz 802.11n-HT20: 9.5 mW/MHz
Wi-Fi Specification:	802.11b/g/n
Hardware Version:	CIBPBSBC000-000-A3
Software Version:	linux 6.6.115

Note: This information is provided by the Customer and its authenticity is the responsibility of the Customer.

1.3. Product Specification Subjective to this Report

Frequency Range:	802.11b/g/n-HT20: 2412 ~ 2472MHz
Channel Number:	802.11b/g/n-HT20:13
Antenna Type:	Ceramic Antenna
Antenna Gain:	0.56dBi
Channel Separation:	5MHz
Type of Modulation:	802.11b: DSSS



	802.11g/n: OFDM
Data Rate:	802.11b: 1/2/5.5/11Mbps 802.11g: 6/9/12/18/24/36/48/54Mbps 802.11n: MCS0~MCS7

Note:

1. For other features of this EUT, test report will be issued separately.
2. The maximum Antenna Gain was declared by the manufacturer.

1.4. Working Frequencies for this Report

802.11b/g/n-HT20

Channel	Frequency	Channel	Frequency	Channel	Frequency
01	2412 MHz	02	2417 MHz	03	2422 MHz
04	2427 MHz	05	2432 MHz	06	2437 MHz
07	2442 MHz	08	2447 MHz	09	2452 MHz
10	2457 MHz	11	2462 MHz	12	2467 MHz
13	2472 MHz	--	--	--	--

EUT was tested with Channel 01, 07 and 13.

2. Test Configuration of Equipment under Test

2.1. Test Mode

Test Mode
Mode 1: 2.4G WIFI Transmit mode
Mode 2: 2.4G WIFI Receive mode
Mode 3: 2.4G WIFI Normal mode

2.2. Test Methodology

Measurement was conducted by the test method which MIC notification No. 88 of 2004, Annex 43.

2.3. Test Software

RF Test Tool: MobaXterm.exe

We have pretested all the data rate, the worst condition was performed under:

Mode	Data rate	Channel	Power Level Setting
802.11b	1 Mbps	1	12
		7	12
		13	12
802.11g	6 Mbps	1	12
		7	12
		13	12
802.11n-HT20	MCS0	1	12
		7	12
		13	12

2.4. Local Supportive

No.	Name of Equipment	Manufacturer	Model	Serial Number
A	Notebook	DELL	Ideacentre 720-18IKL	/
B	USB Cable	/	/	/

2.5. Test Setup



3. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

RF frequency
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.1×10^{-6} MHz
Conducted Spurious Emissions
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 30MHz-1GHz: 1.00 dB 1GHz-12.75GHz: 1.30 dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.60dB
Power Spectrum Density
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.80dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$): 0.20MHz

This uncertainty represents an expanded uncertainty factor of $k=2$.

4. Test Summary

MIC Article 2 Paragraph 1 Item 19		
Standard Section	Test Type and Limit	Test Result
Article 5	Frequency Error	PASS
Article 6	Occupied Bandwidth, Spreading Bandwidth and Spreading Rate	PASS
Article 7	Unwanted Emission Intensity	PASS
Article 14	Antenna Power and Antenna Power Tolerance	PASS
Article 24	Limitation of Collateral Emission of Receiver	PASS
Article 49.20(1);k	Carrier Sense Capability	N/A
Article 49.20(1);e	Transmission Antenna Gain	N/A (See Note 1)
Article 49.20(1);f	Transmission Radiation Angle Width	N/A (See Note 1)
Article 9.4	Interference Prevention Function	PASS
Article 49.20(1);k	Frequency Hopping Dwell Time	N/A (See Note 2)
Article 49.20(1);a	Construction Protection Confirmation	PASS

Note:

1. This test item will not be applied to the transmission antenna which EIRP is less than 12.14dBm.
2. This test is only required for FHSS system devices



5. List of Measuring Instrument

Instrument	Manufacturer	Type No.	Asset No.	Calibration Agency	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Keysight	N9010B	FWXGJC-2018-010	GRGTEST	1 year	2026/07/16
RF Control Unit	Toncend	JS0806-2	FWXGJC-2018-013	GRGTEST	1 year	2026/07/21
Signal Generator	Keysight	N5182B	FWXGJC-2018-011	GRGTEST	1 year	2026/07/07
Signal Generator	Keysight	N5171B	FWXGJC-2018-012	GRGTEST	1 year	2026/07/14
Comprehensive measuring instrument	R&S	CMW270	FWXGJC-2018-023	GRGTEST	1 year	2026/07/20
Thermohygrometer	Yuhuaze	HTC-1	FWXDA-2016-385	GRGTEST	1 year	2026/08/24
Aneroid Barometer	Shanghai Yipin	DYM3	FWXDA-2018-038	GRGTEST	1 year	2027/04/16

Test Software	Manufacturer	Version	Asset No.	Function
RF Test Software	Tonscend	3.3.10	/	/

Note:

1. Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1).
2. GRGTEST full name is GRG METROLOGY & TEST GROUP CO., LTD.

6. Test Methodology& Conditions

DC input (V)	DC output in modulation circuit (V)	voltage variation
5	3.382	Reference
4.5	3.382	0%
5.5	3.382	0%

Apply the input DC voltage to the EUT and vary the DC input voltage with +10% and -10%, then check how much the “output voltage” varies at one measuring points within the radio section:

1) Measure the output voltage in the RF circuit.

a). If the voltage variation at RF circuit appears to be more than 1%, then it is mandatory to perform further testing at three voltage levels (normal voltage, low voltage and high voltage).

b). If the voltage variation at RF circuit appears to be less than 1%, then you only have to conduct further testing at normal voltage.

Note: low voltage is normal voltage -10%, high voltage is normal voltage +10%.

According to the test result, the voltage variation at RF circuit appears to be less than 1%, so only need to test at normal voltage.

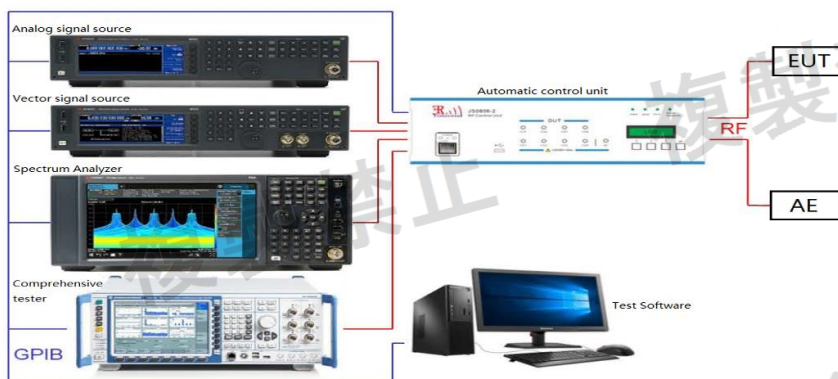


7. Frequency Error

7.1. Limit

Item	Limits
Frequency Error	±50ppm

7.2. Test Setup



7.3. Test Procedure

Frequency accuracy of SA shall be less than 10% of limits tolerance (5ppm)

Set the EUT to the measurement frequency without modulation.

Setting of SA is following as: RBW:1kHz / VBW:30kHz / SPAN: 100kHz

Center Frequency: The center frequency of testing for EUT

Sweep time: Auto

Sweep mode: Continuous sweep

Detect mode: Positive peak

EUT have transmitted absence of modulation signal and fixed channelize. f is using the mark cursor to mark the peak frequency value fc is declaring of channel frequency.

Then the frequency error formula is $(f-f_c)/f_c \times 10^6$ ppm and the limit is less than ±50ppm



7.4. Test Result

Test environment:

Temperature:	25.8 °C
Relative Humidity:	46%
ATM Pressure:	101.2 kPa
Test Date (yy-mm-dd):	2026-04-22
Test Voltage:	DC 5V
Test Engineer:	Stone Zhang

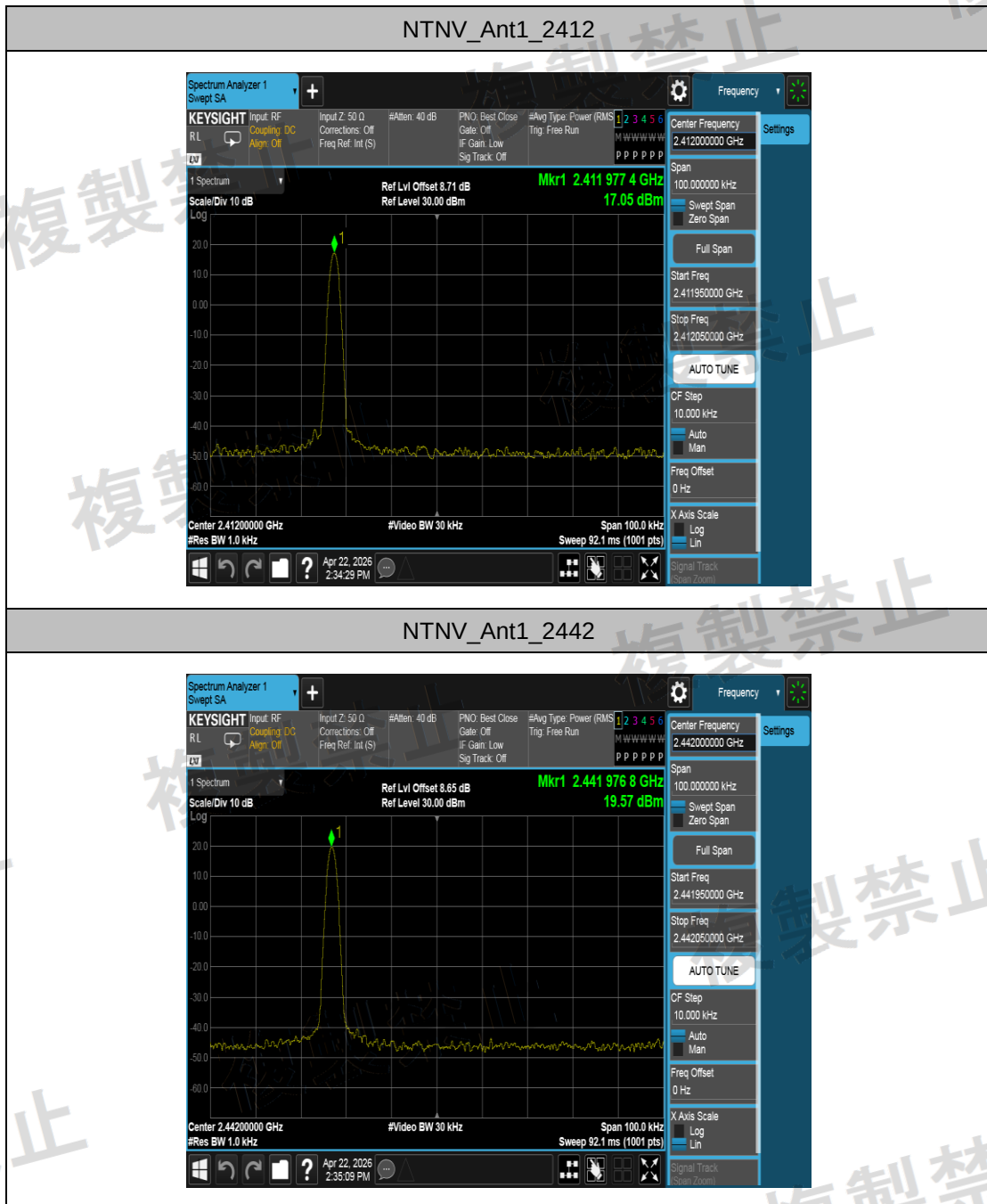
Test Data:

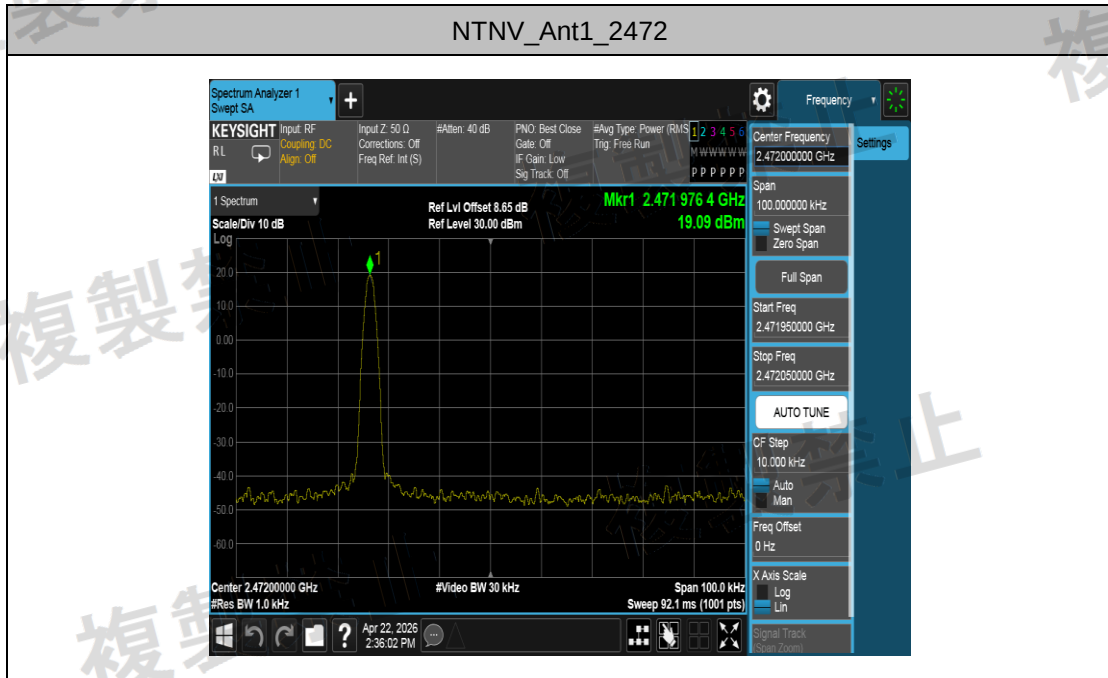
Frequency (MHz)	Reading Frequency (MHz)	Frequency Tolerance (ppm)	Limit (ppm)	Verdict
2412	2411.9774	-9.37	±50	PASS
2442	2441.9768	-9.50		PASS
2472	2471.9764	-9.55		PASS

Note: $FT (ppm) = \{(RF - MF) / MF\} * 1000000$

(FT: Frequency Tolerance, RF: Reading Frequency, MF: Measurement Frequency)

Test Plots:





8. Occupied Bandwidth, Spreading Bandwidth and Spreading Rate

8.1. Limit

Item	Limits
Occupied Bandwidth	FHSS $\leq$ 83.5MHz; OFDM, DSSS $\leq$ 26MHz; 26 MHz $\leq$ OFDM $\leq$ 40MHz
Spreading Bandwidth	$\geq$ 500 kHz (FHSS, DSSS)
Spreading Rate	$\geq$ 5, Operating Frequency 2400-2483.5MHz

8.2. Test Setup



8.3. Test Procedure

Setting of SA is following as: RB: 300 kHz / VB: 300 kHz / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold.

EUT have transmitted the maximum modulation signal and fixed channelize. SA set to 99% of occupied bandwidth to measure occupied bandwidth.

EUT have transmitted the maximum modulation signal and fixed channelize. SA set to 90% of occupied bandwidth to measure occupied bandwidth.

Spread Factor = Spread Bandwidth/modulation rate.



8.4. Test Result

Test environment:

Temperature:	25.9 °C
Relative Humidity:	47%
ATM Pressure:	101.1 kPa
Test Date (yy-mm-dd):	2026-04-19
Test Voltage:	DC 5V
Test Engineer:	Stone Zhang

Test Data:

Occupied Bandwidth

Test Condition	Test Mode	Antenna	Channel	Result [MHz]	Limit [MHz]	Verdict
NTNV	11B	Ant1	2412	10.591	≤26	PASS
			2442	10.590	≤26	PASS
			2472	10.605	≤26	PASS
	11G	Ant1	2412	16.604	≤26	PASS
			2442	16.601	≤26	PASS
			2472	16.593	≤26	PASS
	11N20SISO	Ant1	2412	17.701	≤26	PASS
			2442	17.703	≤26	PASS
			2472	17.704	≤26	PASS

Spread Bandwidth

Test Condition	Test Mode	Antenna	Channel	Result [MHz]	Limit [MHz]	Verdict
NTNV	11B	Ant1	2412	7.380	≥0.5	PASS
			2442	7.376	≥0.5	PASS
			2472	7.397	≥0.5	PASS

Spreading Rate

Test Mode	Channel	Spreading Bandwidth (MHz)	Modulation Rate	Spreading Rate	Limit	Verdict
11B	2412	7.380	1.375	5.367	≥5	PASS
	2442	7.376	1.375	5.364	≥5	PASS
	2472	7.397	1.375	5.380	≥5	PASS

Note:

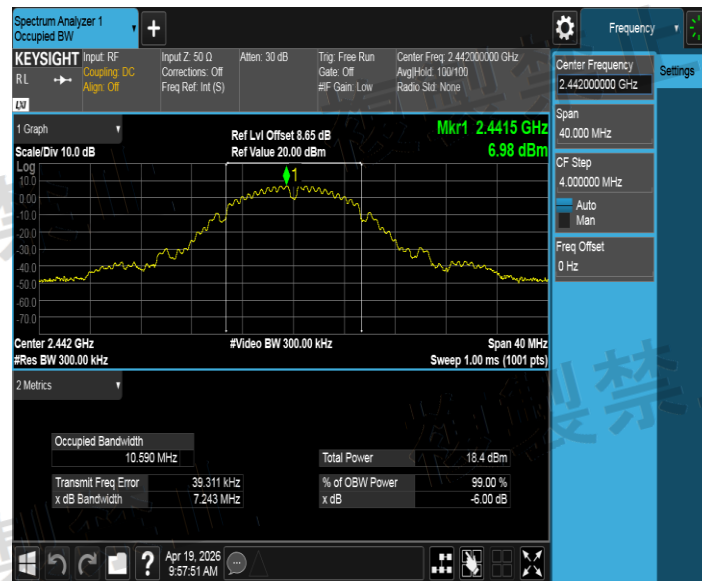
1. Spreading Rate = Spreading Bandwidth / Modulation Rate of EUT.
2. For 802.11b mode, the modulation rate of EUT is 1.375.

Test Plots:

Occupied Bandwidth



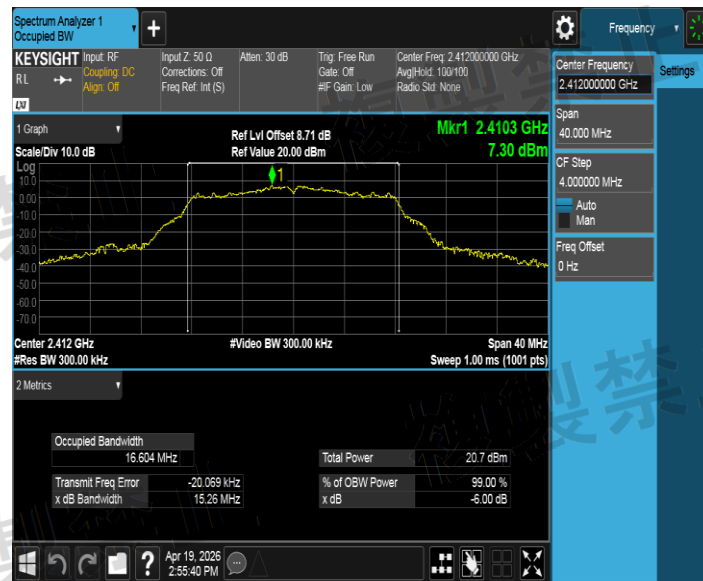
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NTNV_11B_Ant1_2472



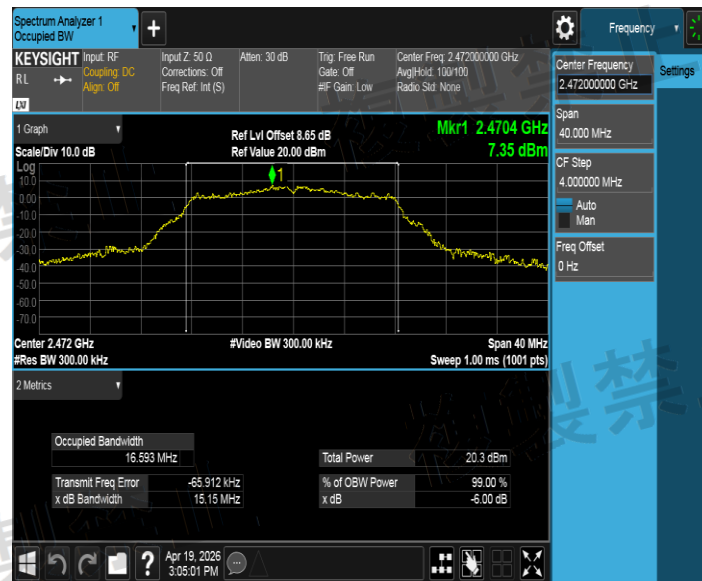
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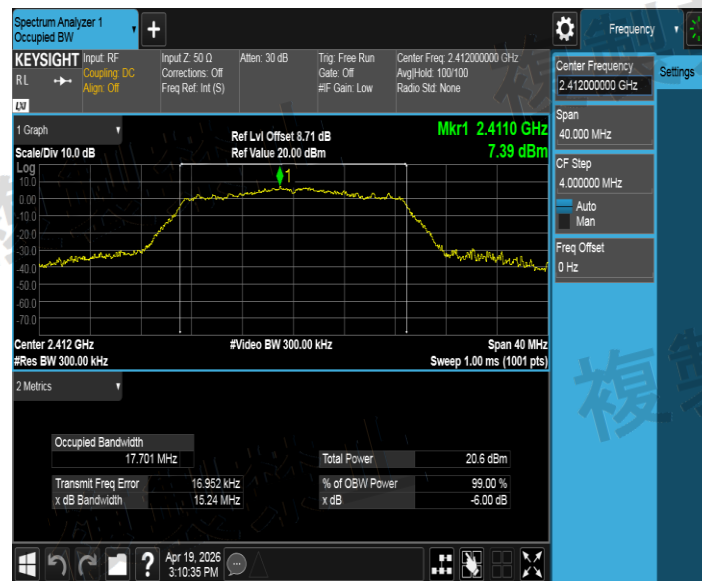
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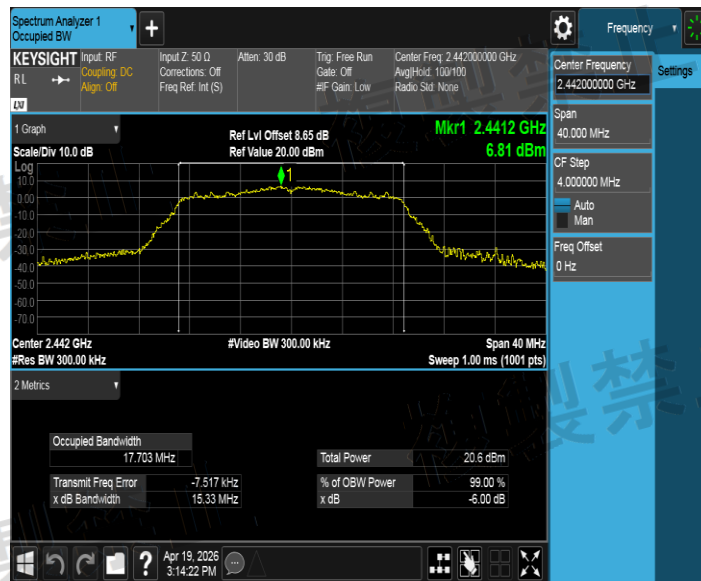
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NTNV_11N20SISO_Ant1_2412



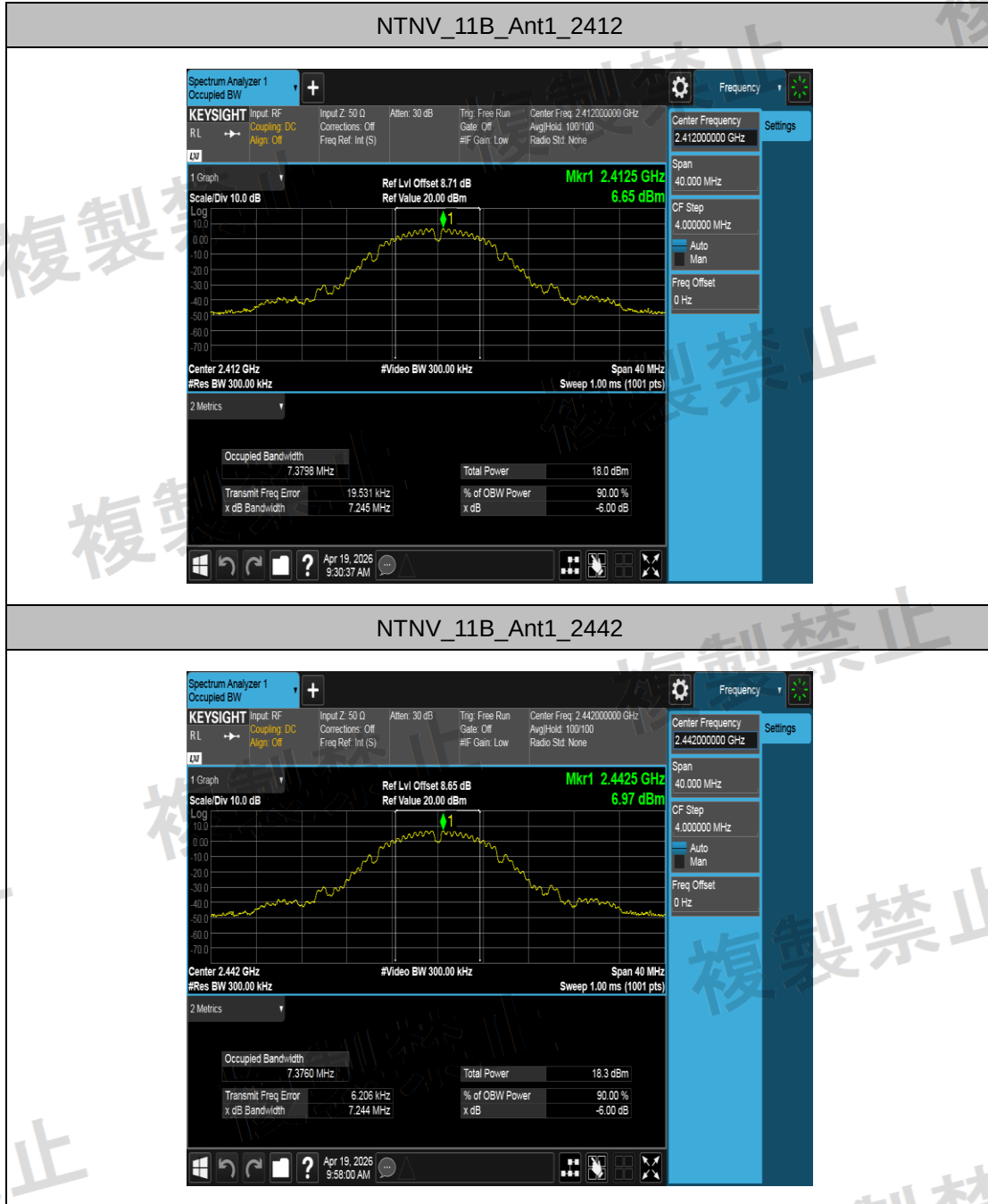
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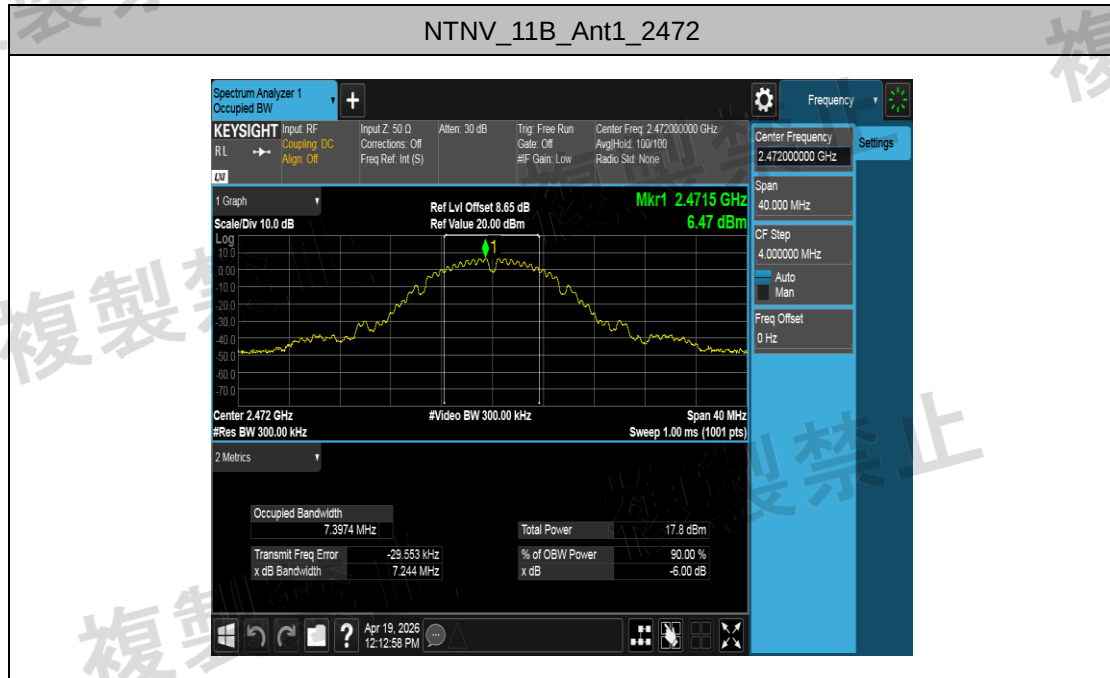


NTNV_11N20SISO_Ant1_2472



Spread Bandwidth





9. Antenna Power and Antenna Power Tolerance

9.1. Limit

Item	Limits
Antenna Power	$\leq 3\text{mW/MHz}$ (FHSS 2427 ~ 2470.75 MHz) $\leq 5\text{mW/MHz}$ (OFDM, DSSS 2400 ~ 2483.5MHz, for 26MHz< occupied bandwidth $\leq 40\text{MHz}$) $\leq 10\text{mW/MHz}$ (OFDM, DSSS 2400 ~ 2483.5MHz, for occupied bandwidth $\leq 26\text{MHz}$) $\leq 10\text{mW}$ (Other modulation method 2400 ~ 2483.5MHz)
Antenna Power Error	-80% ~ +20% (Base on manufacturer declare antenna power density)
E.i.r.p	$\leq 12.14\text{dBm/MHz}$ (OFDM,DSSS from 2400-2483.5MHz)

9.2. Test Setup



9.3. Test Procedure

The spectrum analyzer setting up to search a frequency that will give the maximum value of antenna power is as follows.

Center frequency	Test frequency
Sweep bandwidth	2 times of occupied bandwidth
Resoluble bandwidth	1MHz
Video bandwidth	1MHz
Y-axis scale	10dB/Div.
Sweep time	Minimum time by which measuring accuracy is assured (In case of burst

	wave, 1 burst shall be contained per 1 sample)
Trigger condition	Free run
Data points	More than 400 points
Sweep mode	Continuous sweeping
Display mode	Maximum holding

The spectrum analyzer setting up to measure antenna power is as follows. In this case, connecting the high frequency power meter with IF output of the spectrum analyzer, calibrate indication of the high frequency power meter power against output point of the radio equipment.

Center frequency	Maximum power point frequency
Sweep bandwidth	0Hz
Resoluble bandwidth	1MHz
Video bandwidth	Equivalent to resolvable bandwidth
Sweep mode	Continuous sweeping

Note: The test frequency range of spectrum Analyzer is 10Hz-30GHz, it contains test frequencies, so spectrum Analyzer didn't connect to high frequency power meter.

9.4. Test Result

Test environment:

Temperature:	25.9 °C
Relative Humidity:	47%
ATM Pressure:	101.1 kPa
Test Date (yy-mm-dd):	2026-04-19
Test Voltage:	DC 5V
Test Engineer:	Stone Zhang

Test Data:

802.11b

Frequency (MHz)	Antenna Power (dBm)	Antenna Power (mW/MHz)	Rated Power (mW/MHz)	Antenna Power Limit (mW/MHz)	Tolerance (%)	Antenna Gain (dBi)	EIRP (dBm/MHz)	EIRP Limit (dBm/MHz)	Tolerance Limit
2412	9.2847	8.4814	9	≤ 10	-5.76	0.56	9.8447	≤ 12.14	-80% ~ +20%
2442	9.4540	8.8186	9		-2.02	0.56	10.014		
2472	8.9814	7.9093	9		-12.12	0.56	9.5414		

Note:

- The Rated power is 9.0 mW/MHz, which is declared by manufacturer.
- Tolerance(%)=(Antenna Power-Rated Power)/Rated Power) x 100%.



802.11g

Frequency (MHz)	Antenna Power (dBm)	Antenna Power (mW/MHz)	Rated Power (mW/MHz)	Antenna Power Limit (mW/MHz)	Tolerance (%)	Antenna Gain (dBi)	EIRP dBm/MHz)	EIRP Limit (dBm/MHz)	Tolerance Limit
2412	9.7429	9.4252	9.5	≤ 10	-0.79	0.56	10.3029	≤ 12.14	-80% ~ +20%
2442	9.7460	9.4319	9.5		-0.72	0.56	10.306		
2472	9.6177	9.1574	9.5		-3.61	0.56	10.1777		

Note:

1. The Rated power is 9.5 mW/MHz, which is declared by manufacturer.
2. $\text{Tolerance}(\%) = (\text{Antenna Power} - \text{Rated Power}) / \text{Rated Power} \times 100\%$.

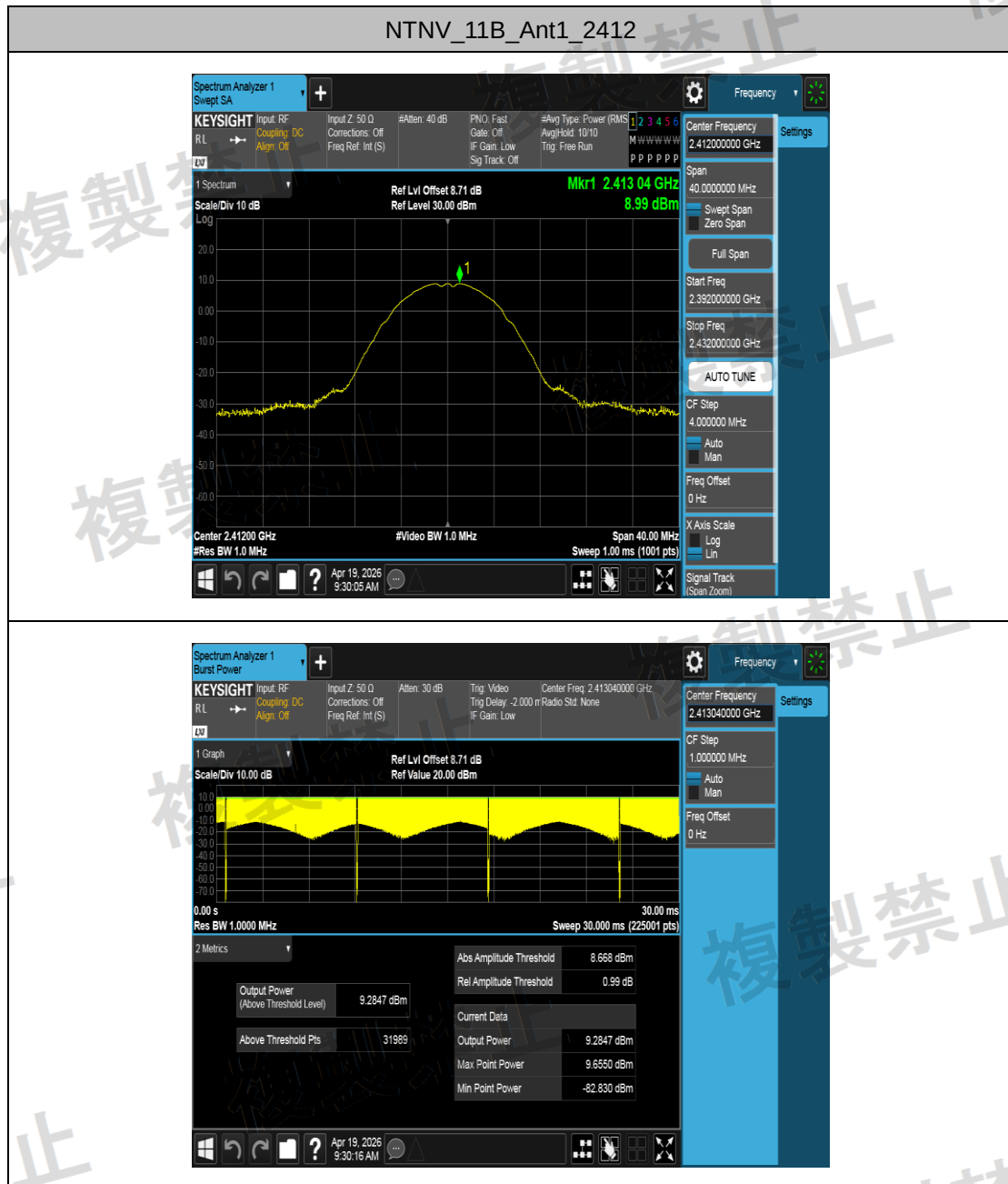
802.11n-HT20

Frequency (MHz)	Antenna Power (dBm)	Antenna Power (mW/MHz)	Rated Power (mW/MHz)	Antenna Power Limit (mW/MHz)	Tolerance (%)	Antenna Gain (dBi)	EIRP dBm/MHz)	EIRP Limit (dBm/MHz)	Tolerance Limit
2412	9.4238	8.7575	9.5	≤ 10	-7.82	0.56	9.9838	≤ 12.14	-80% ~ +20%
2442	9.8007	9.5515	9.5		0.54	0.56	10.3607		
2472	9.3112	8.5334	9.5		-10.18	0.56	9.8712		

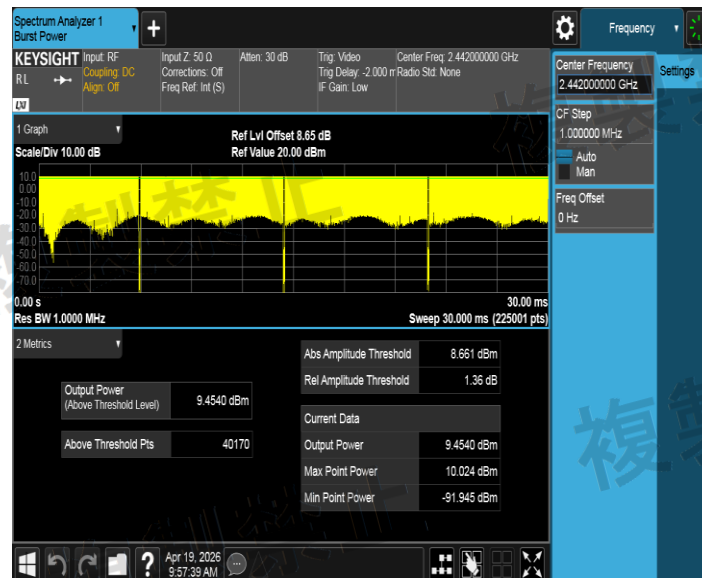
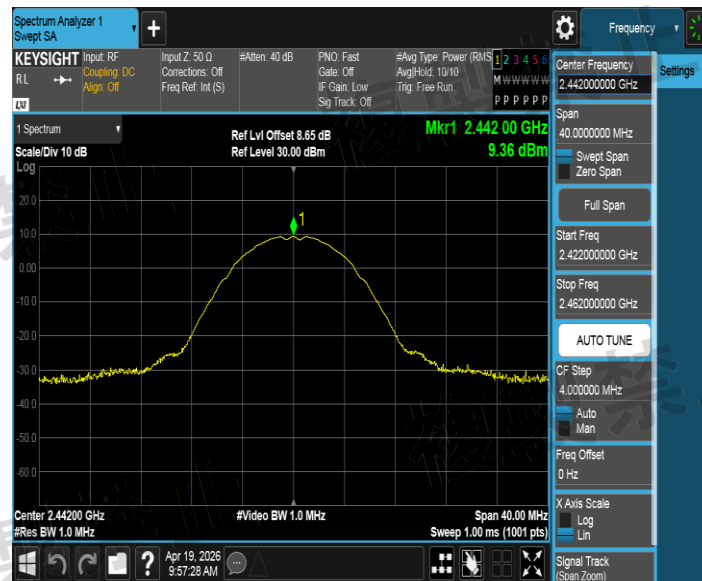
Note:

1. The Rated power is 9.5 mW/MHz, which is declared by manufacturer.
2. $\text{Tolerance}(\%) = (\text{Antenna Power} - \text{Rated Power}) / \text{Rated Power} \times 100\%$.

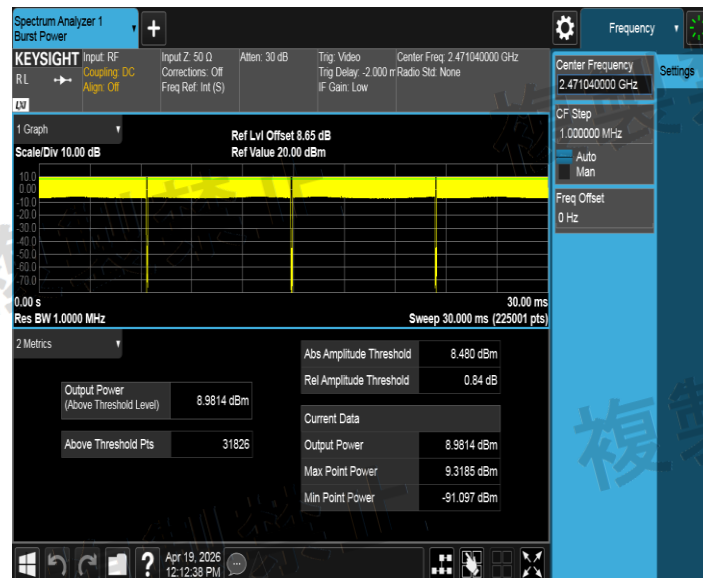
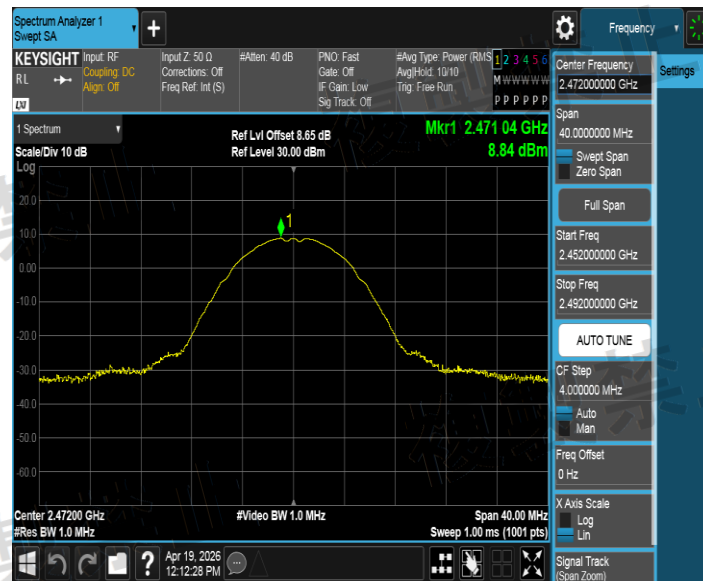
Test Plots:



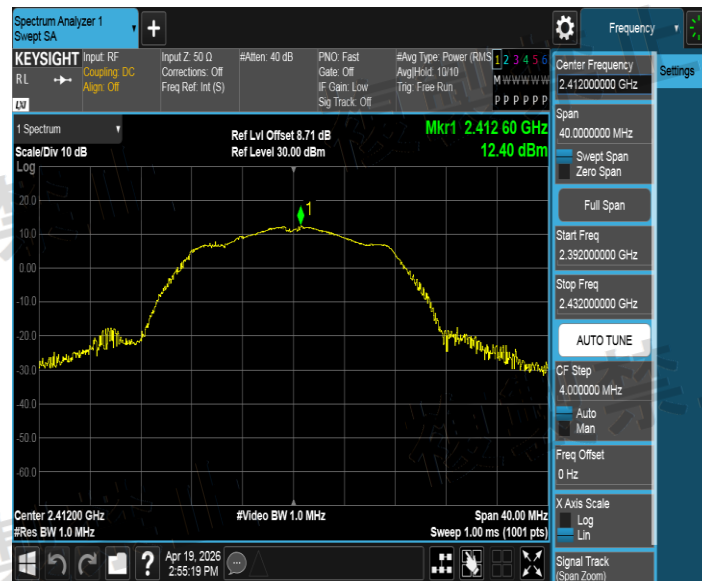
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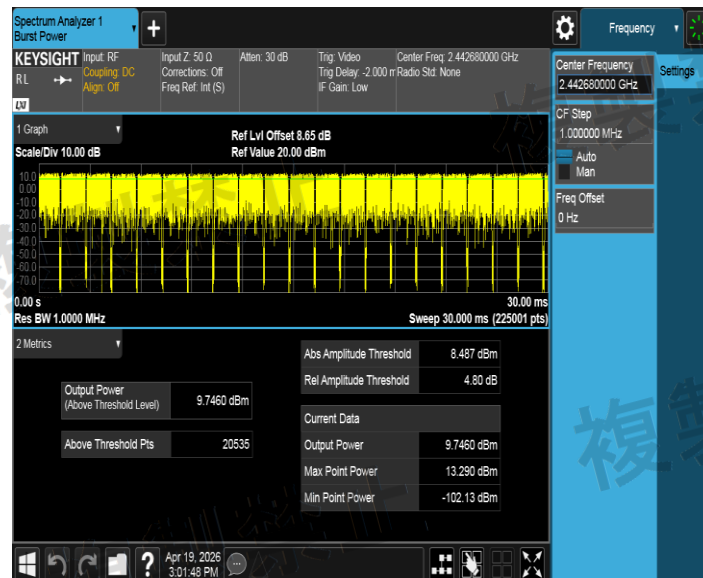
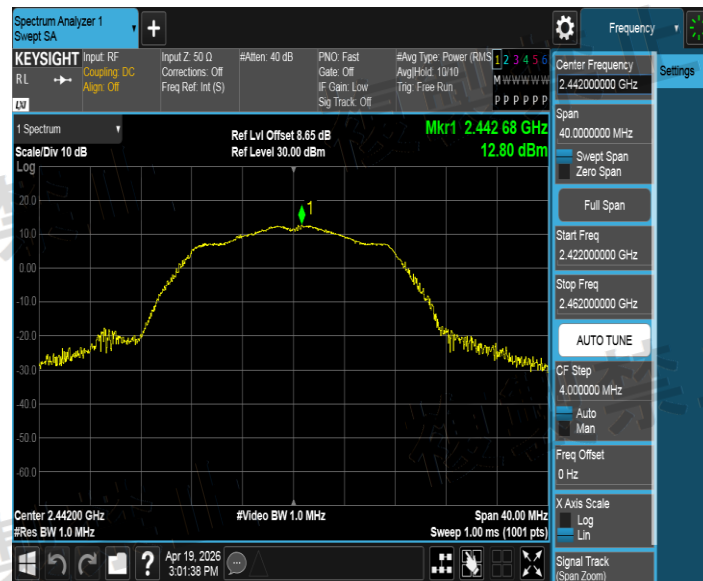
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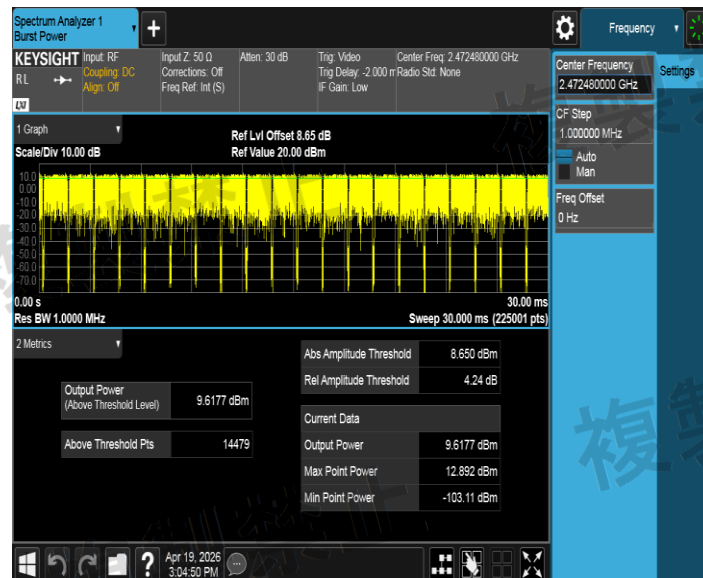
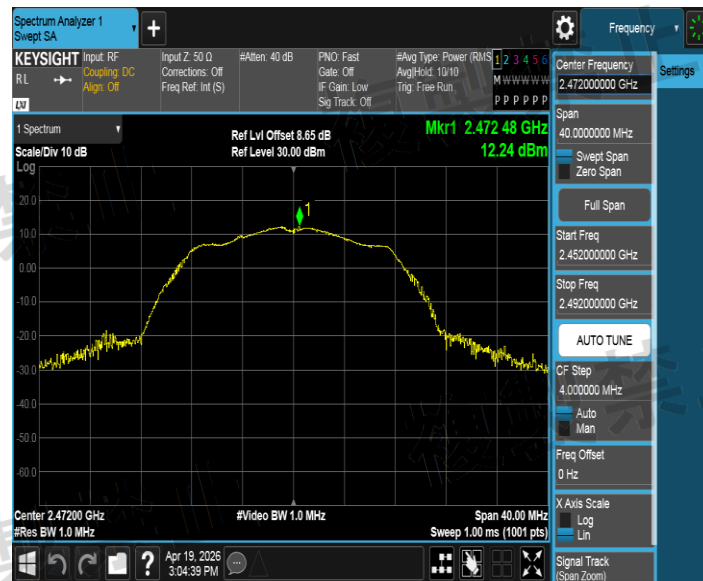
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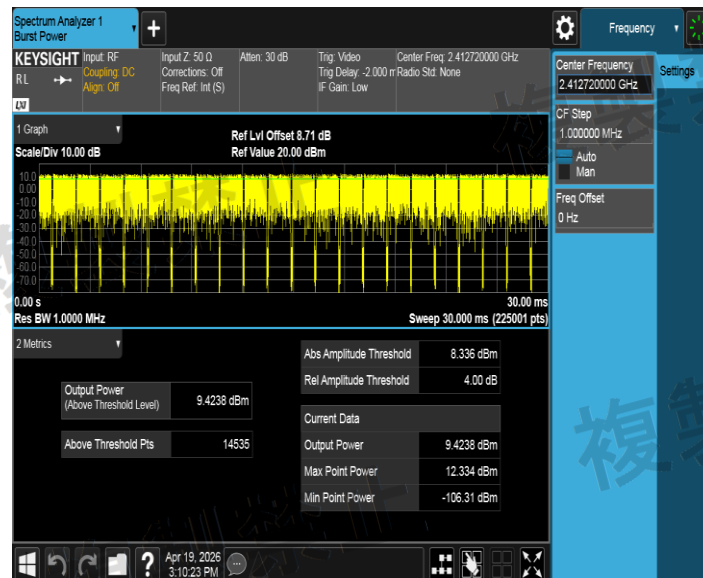
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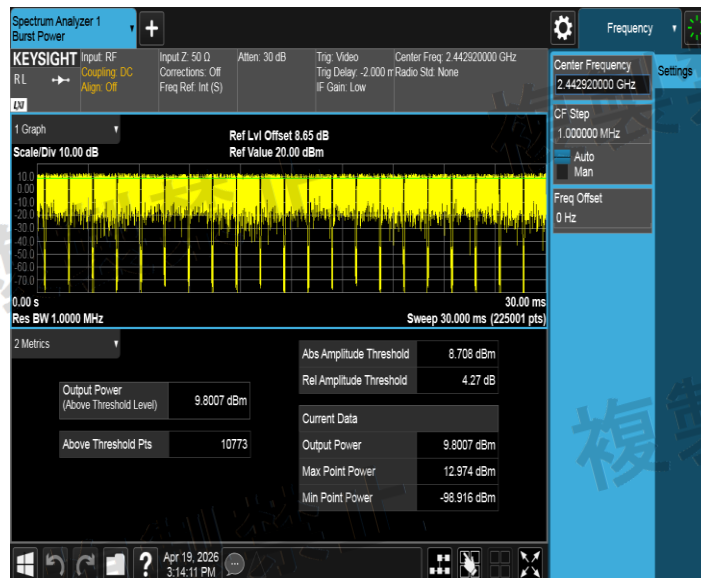
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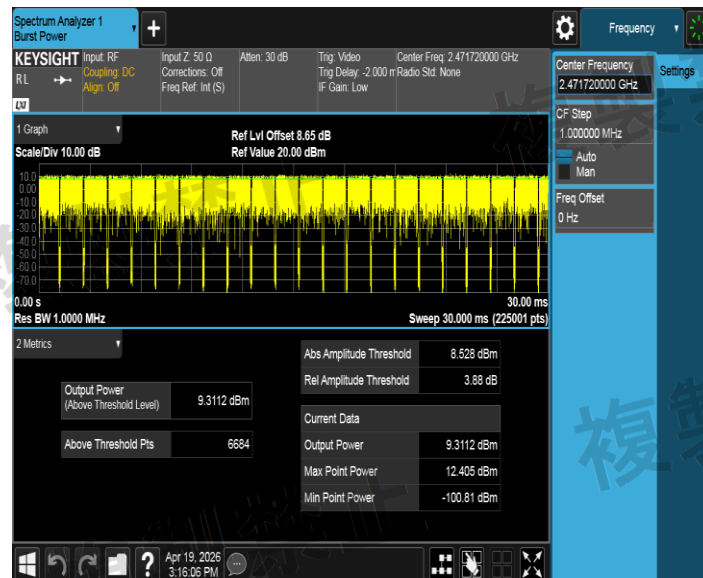
NTNV_11N20SISO_Ant1_2412



NTNV_11N20SISO_Ant1_2442



NTNV_11N20SISO_Ant1_2472



10. Limitation of Collateral Emission of Receiver

10.1. Limit

Item	Limits
RX Spurious Emission	$\leq 4 \text{ nW } (-54 \text{ dBm}) (f < 1\text{GHz})$
	$\leq 20 \text{ nW } (-47 \text{ dBm}) (1\text{GHz} \leq f)$

10.2. Test Setup



10.3. Test Procedure

Spectrum Analyzer	Setting
Attenuation	Auto
RBW	100 kHz: $30 \text{ MHz} \leq f < 1000 \text{ MHz}$ 1 MHz: $1000 \text{ MHz} \leq f < 5\text{th Harmonics}$
VBW	100 kHz: $30 \text{ MHz} \leq f < 1000 \text{ MHz}$ 1 MHz: $1000 \text{ MHz} \leq f < 5\text{th Harmonics}$
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

a. EUT have the continuous reception mode and fixed only one channelize.

Start frequency 30MHz and stop frequency 1000MHz. Search to mark peak reading value + cable loss shall be less than 4nW.

Start frequency 1000MHz and stop frequency 5th Harmonics. Search to mark peak reading value + cable loss shall be less than 20nW.

Max. frequency point of power level of lower emissions is to be indicated in each paragraph.

b. If the power level of Max. frequency point in the pre-scan higher than the limit, then using the Max. frequency point as a benchmark, narrow down the test, find the real highest point, and read the point follow below:

Spectrum Analyzer	Setting
Attenuation	Auto
RBW	100 kHz: $30\text{ MHz} \leq f < 1000\text{ MHz}$ 1 MHz: $1000\text{ MHz} \leq f < 5\text{th Harmonics}$
VBW	100 kHz: $30\text{ MHz} \leq f < 1000\text{ MHz}$ 1 MHz: $1000\text{ MHz} \leq f < 5\text{th Harmonics}$
SPAN	0 MHz
Detector	RMS
Trace	Clear write
Sweep Time	Auto

10.4. Test Result

Test environment:

Temperature:	24.3 °C
Relative Humidity:	52 %
ATM Pressure:	101 kPa
Test Date (yy-mm-dd):	2026-04-20~2026-05-15
Test Voltage:	DC 5V
Test Engineer:	Stone Zhang

Test Data:

Test Condition	Test Mode	Antenna	Frequency (MHz)	Frequency Range [MHz]	Frequency [MHz]	Result [dBm]	Limit [dBm]	Result [nW]	Limit [nW]	Verdict
NTNV	11B	Ant1	2412	30~1000	165.8	-74.35	≤-54	0.03673	≤4	PASS
				1000~12500	9710.675	-66.86	≤-47	0.20606	≤20	PASS
			2442	30~1000	165.8	-75.04	≤-54	0.03133	≤4	PASS
				1000~12500	10898.050	-67.14	≤-47	0.19320	≤20	PASS
			2472	30~1000	165.8	-74.36	≤-54	0.03664	≤4	PASS
				1000~12500	11982.500	-67.05	≤-47	0.19724	≤20	PASS
	11G	Ant1	2412	30~1000	165.8	-75.37	≤-54	0.02904	≤4	PASS

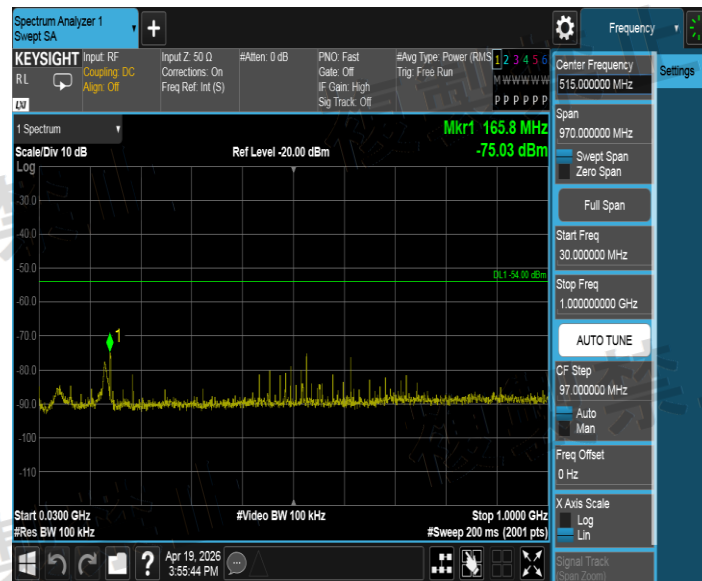


	11N20SISO	Ant1		1000~12500	10697.950	-67.53	≤ -47	0.17660	≤ 20	PASS
			2442	30~1000	165.8	-74.09	≤ -54	0.03899	≤ 4	PASS
				1000~12500	10639.300	-66.92	≤ -47	0.20324	≤ 20	PASS
			2472	30~1000	165.8	-74.35	≤ -54	0.03673	≤ 4	PASS
				1000~12500	10979.125	-67.25	≤ -47	0.18836	≤ 20	PASS
			2412	30~1000	165.8	-74.82	≤ -54	0.03296	≤ 4	PASS
				1000~12500	3816.925	-67.23	≤ -47	0.18923	≤ 20	PASS
			2442	30~1000	166.8	-73.83	≤ -54	0.04140	≤ 4	PASS
				1000~12500	5219.350	-60.89	≤ -47	0.81470	≤ 20	PASS
			2472	30~1000	166.8	-74.96	≤ -54	0.03192	≤ 4	PASS
				1000~12500	10365.025	-66.83	≤ -47	0.20749	≤ 20	PASS

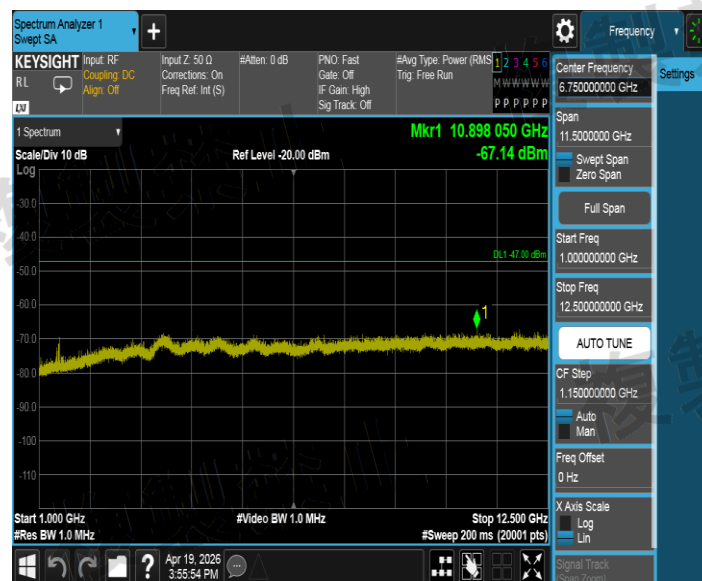
Test Plots:



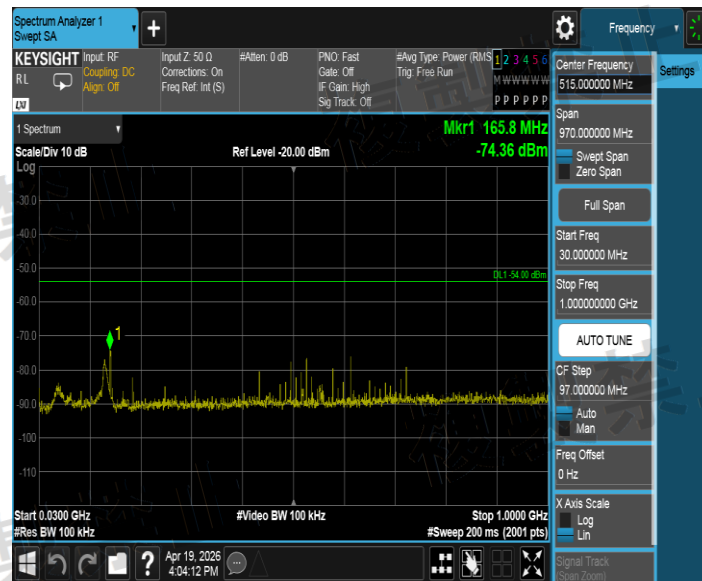
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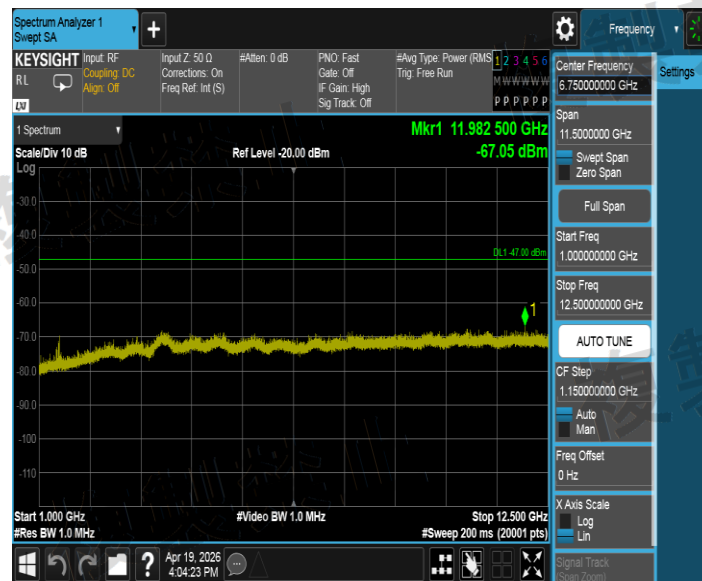
NTNV_11B_Ant1_2442_1000~12500



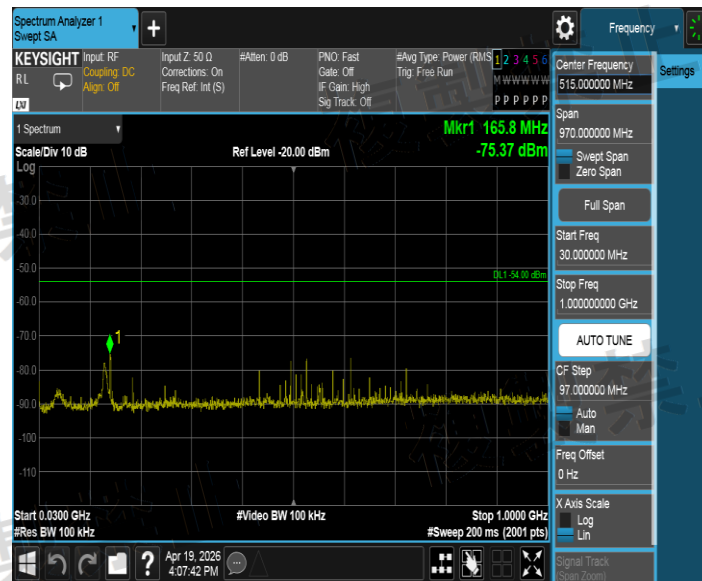
NTNV_11B_Ant1_2472_30~1000



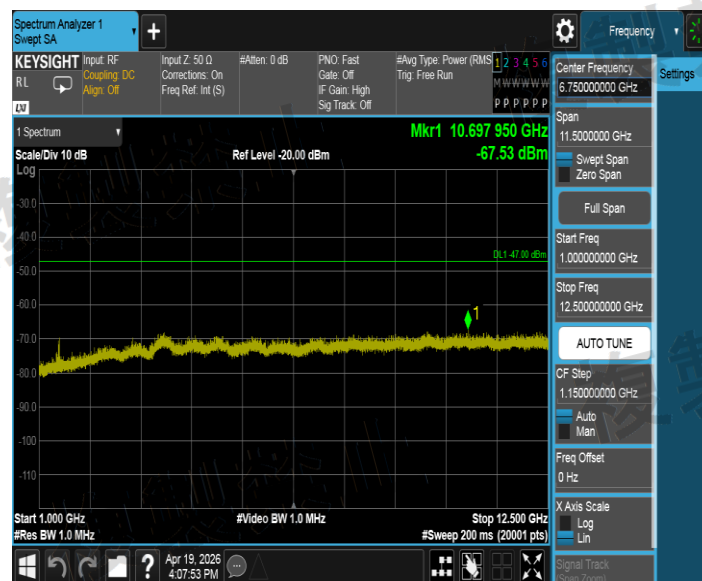
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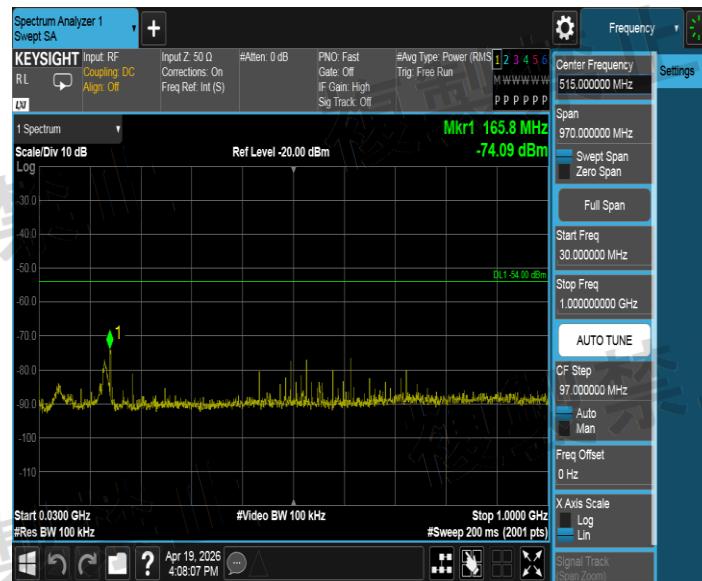
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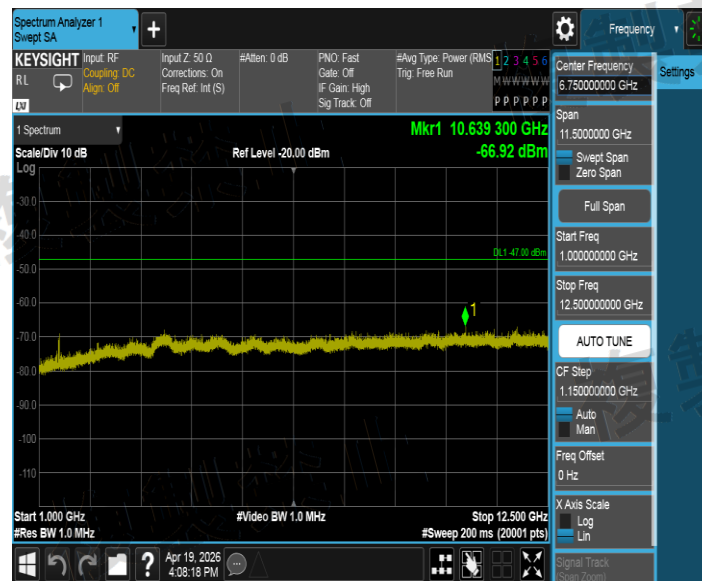
NTNV_11G_Ant1_2412_1000~12500



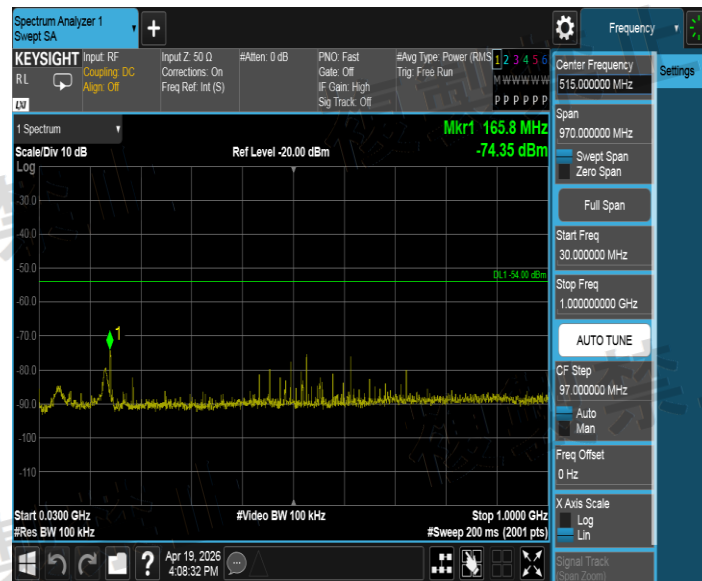
NTNV_11G_Ant1_2442_30~1000



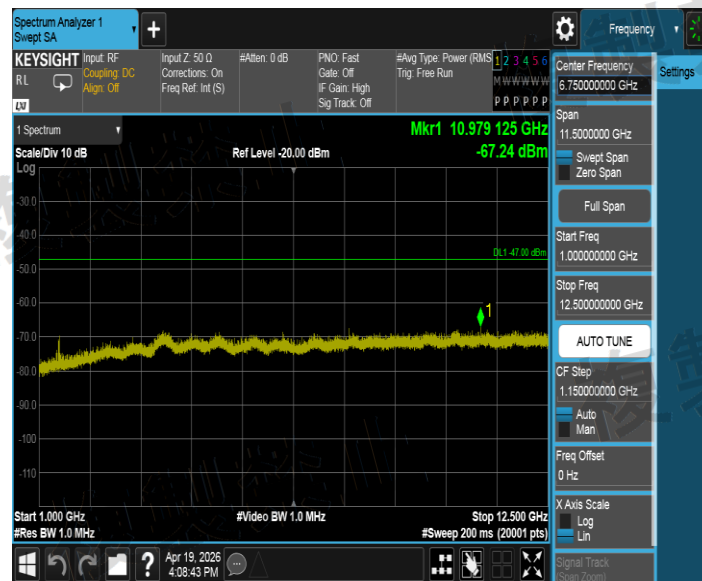
NTNV_11G_Ant1_2442_1000~12500



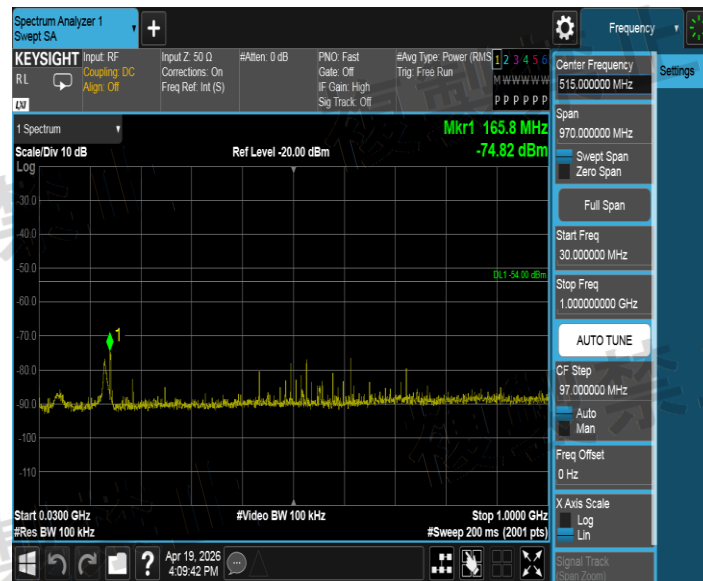
NTNV_11G_Ant1_2472_30~1000



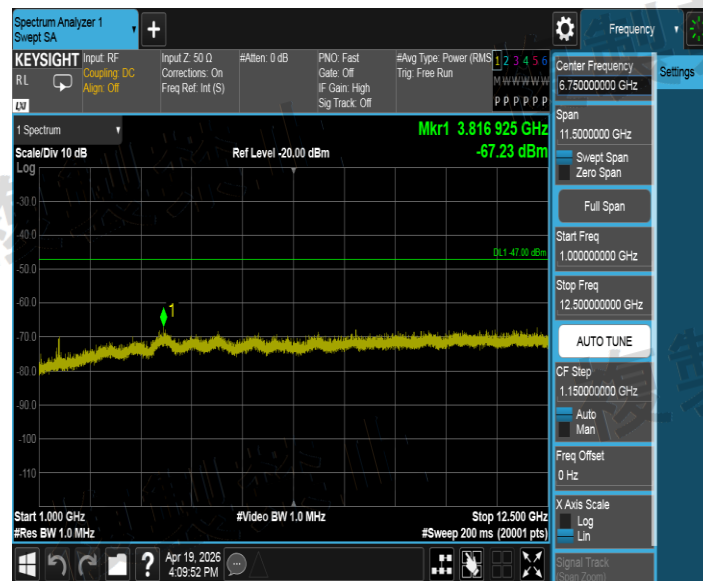
NTNV_11G_Ant1_2472_1000~12500



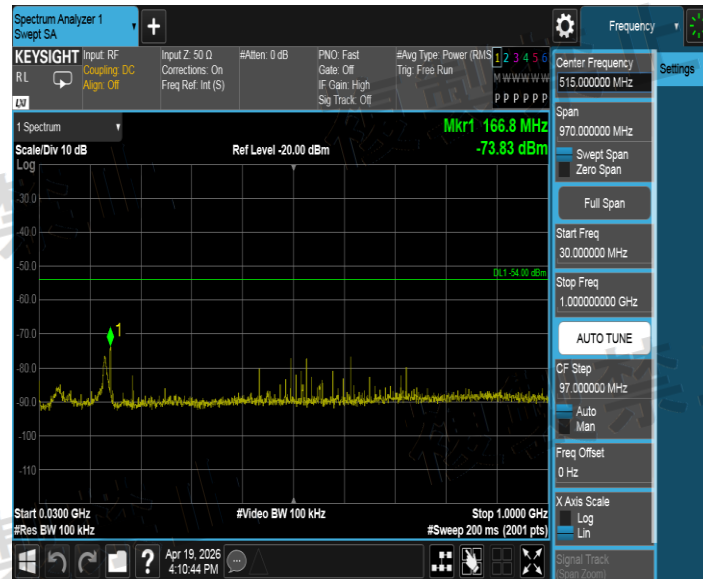
NTNV_11N20SISO_Ant1_2412_30~1000



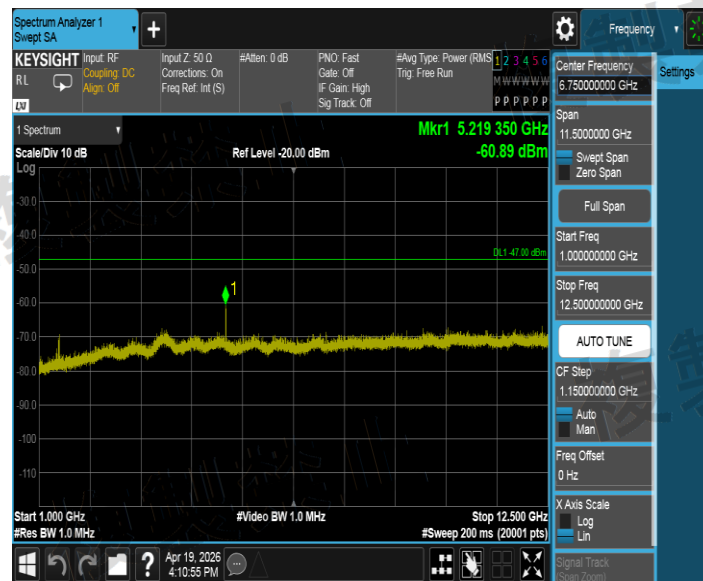
NTNV_11N20SISO_Ant1_2412_1000~12500



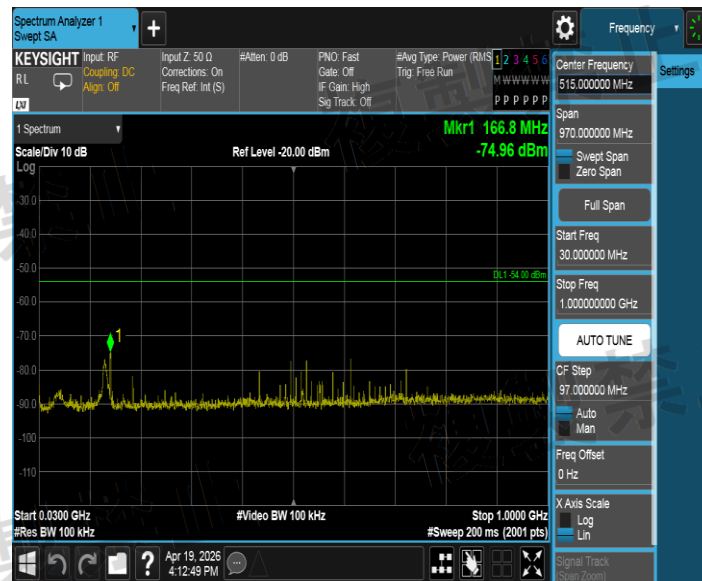
NTNV_11N20SISO_Ant1_2442_30~1000



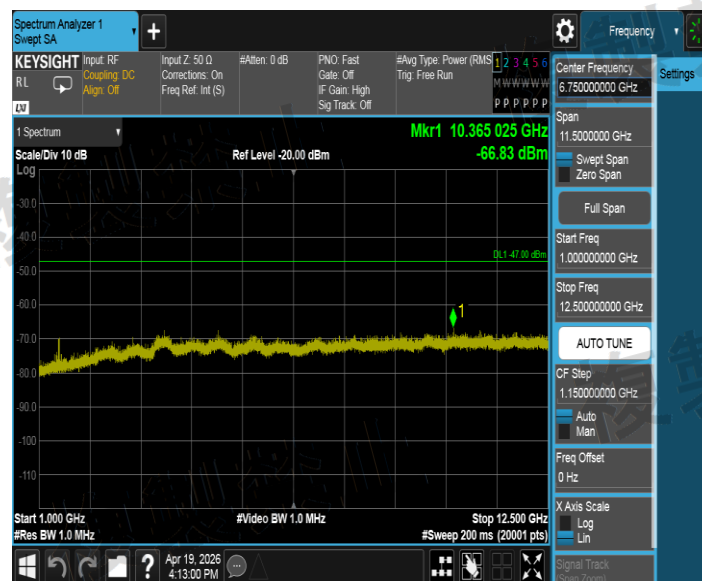
NTNV_11N20SISO_Ant1_2442_1000~12500



NTNV_11N20SISO_Ant1_2472_30~1000



NTNV_11N20SISO_Ant1_2472_1000~12500



11. Unwanted Emission Intensity Measurement

11.1. Limit

Item	Limits
TX Spurious Emission	$\leq 2.5 \mu\text{W}/\text{MHz}$ (30MHz - 1000MHz)
	$\leq 2.5 \mu\text{W}/\text{MHz}$ (1000MHz - 2387MHz)
	$\leq 25 \mu\text{W}/\text{MHz}$ (2387MHz - 2400MHz)
	$\leq 25 \mu\text{W}/\text{MHz}$ (2483.5MHz - 2496.5MHz)
	$\leq 2.5 \mu\text{W}/\text{MHz}$ (more than 2496.5MHz)

11.2. Test Setup



11.3. Test Procedure

Spectrum Analyzer	Setting
Attenuation	/
RBW	100 kHz: $30 \text{ MHz} \leq f < 1000 \text{ MHz}$ 1 MHz: $1000 \text{ MHz} \leq f < 5\text{th Harmonics}$
VBW	100 kHz: $30 \text{ MHz} \leq f < 1000 \text{ MHz}$ 1MHz: $1000 \text{ MHz} \leq f < 5\text{th Harmonics}$
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

a. EUT have the continuous reception mode and fixed only one channelize.

Setting of SA is following as 30MHz and stop frequency 1000MHz. Then to mark peak reading value

+ cable loss shall be less than 0.25μW.

Setting of SA is following as 1000MHz and stop frequency 2387MHz. Then to mark peak reading value + cable loss shall be less than 2.5μW.

SA adjusted to start frequency 2387MHz and stop frequency 2400MHz. Then to mark peak reading value + cable loss shall be less than 25μW.

SA adjusted to start frequency 2483.5MHz and stop frequency 2496.5MHz. Then to mark peak reading value + cable loss shall be less than 25μW.

SA adjusted to start frequency 2496.5MHz and stop frequency 12500MHz. Then to mark peak reading value + cable loss shall be less than 2.5μW.

b. If the power level of Max. frequency point in the pre-scan higher than the limit, then using the Max. frequency point as a benchmark, narrow down the test, find the real highest point, and read the point follow below:

Spectrum Analyzer	Setting
Attenuation	Auto
RBW	1 MHz: 30 MHz ≤ f < 1000 MHz 1 MHz: 1000 MHz ≤ f < 5th Harmonics
VBW	1 MHz: 30 MHz ≤ f < 1000 MHz 1 MHz: 1000 MHz ≤ f < 5th Harmonics
SPAN	0 MHz
Detector	RMS
Trace	Clear write
Sweep Time	Auto

11.4. Test Result

Test environment:

Temperature:	24.3 °C
Relative Humidity:	52 %
ATM Pressure:	101 kPa
Test Date (yy-mm-dd):	2026-04-20~2026-05-15
Test Voltage:	DC 5V
Test Engineer:	Stone Zhang

Test Data:

Test Condition	Test Mode	Antenna	Frequency (MHz)	Freq.Range [MHz]	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [μW]	Limit [μW]	Verdict
NTNV	11B	Ant1	2412	30~2387	2355.77	-47.83	≤-26	0.01648	≤2.5	PASS
				2387~2400	2399.02	-33.66	≤-16	0.43053	≤25	PASS
				2483.5~2496.5	2494.19	-39.39	≤-16	0.11508	≤25	PASS
				2496.5~12500	11104.01	-46.49	≤-26	0.02244	≤2.5	PASS
			2442	30~2387	2356.36	-47.15	≤-26	0.01928	≤2.5	PASS
				2387~2400	2393.21	-39.94	≤-16	0.10139	≤25	PASS
				2483.5~2496.5	2486.81	-39.55	≤-16	0.11092	≤25	PASS
				2496.5~12500	3787.95	-46.70	≤-26	0.02138	≤2.5	PASS
			2472	30~2387	2369.91	-48.33	≤-26	0.01469	≤2.5	PASS
				2387~2400	2399.89	-39.88	≤-16	0.10280	≤25	PASS
				2483.5~2496.5	2483.51	-33.03	≤-16	0.49774	≤25	PASS
				2496.5~12500	9826.06	-46.30	≤-26	0.02344	≤2.5	PASS
	11G	Ant1	2412	30~2387	2387.00	-30.93	≤-26	0.80724	≤2.5	PASS
				2387~2400	2397.58	-17.64	≤-16	17.21869	≤25	See table below
				2483.5~2496.5	2492.29	-39.66	≤-16	0.10814	≤25	PASS
				2496.5~12500	10895.44	-46.51	≤-26	0.02234	≤2.5	PASS
			2442	30~2387	2386.41	-48.09	≤-26	0.01552	≤2.5	PASS
				2387~2400	2399.42	-38.32	≤-16	0.14723	≤25	PASS
				2483.5~2496.5	2483.97	-37.82	≤-16	0.16520	≤25	PASS
				2496.5~12500	9740.53	-46.30	≤-26	0.02344	≤2.5	PASS
			2472	30~2387	2384.05	-48.35	≤-26	0.01462	≤2.5	PASS
				2387~2400	2397.95	-39.68	≤-16	0.10765	≤25	PASS
				2483.5~2496.5	2484.17	-16.72	≤-16	21.28139	≤25	See table below
				2496.5~12500	2496.50	-37.81	≤-26	0.16558	≤2.5	PASS
	11N20SISO	Ant1	2412	30~2387	2386.41	-37.87	≤-26	0.16331	≤2.5	PASS
				2387~2400	2399.22	-20.47	≤-16	8.97429	≤25	PASS
				2483.5~2496.5	2492.46	-39.43	≤-16	0.11402	≤25	PASS
				2496.5~12500	10383.26	-46.13	≤-26	0.02438	≤2.5	PASS
			2442	30~2387	2381.70	-48.03	≤-26	0.01574	≤2.5	PASS
				2387~2400	2389.02	-38.78	≤-16	0.13243	≤25	PASS

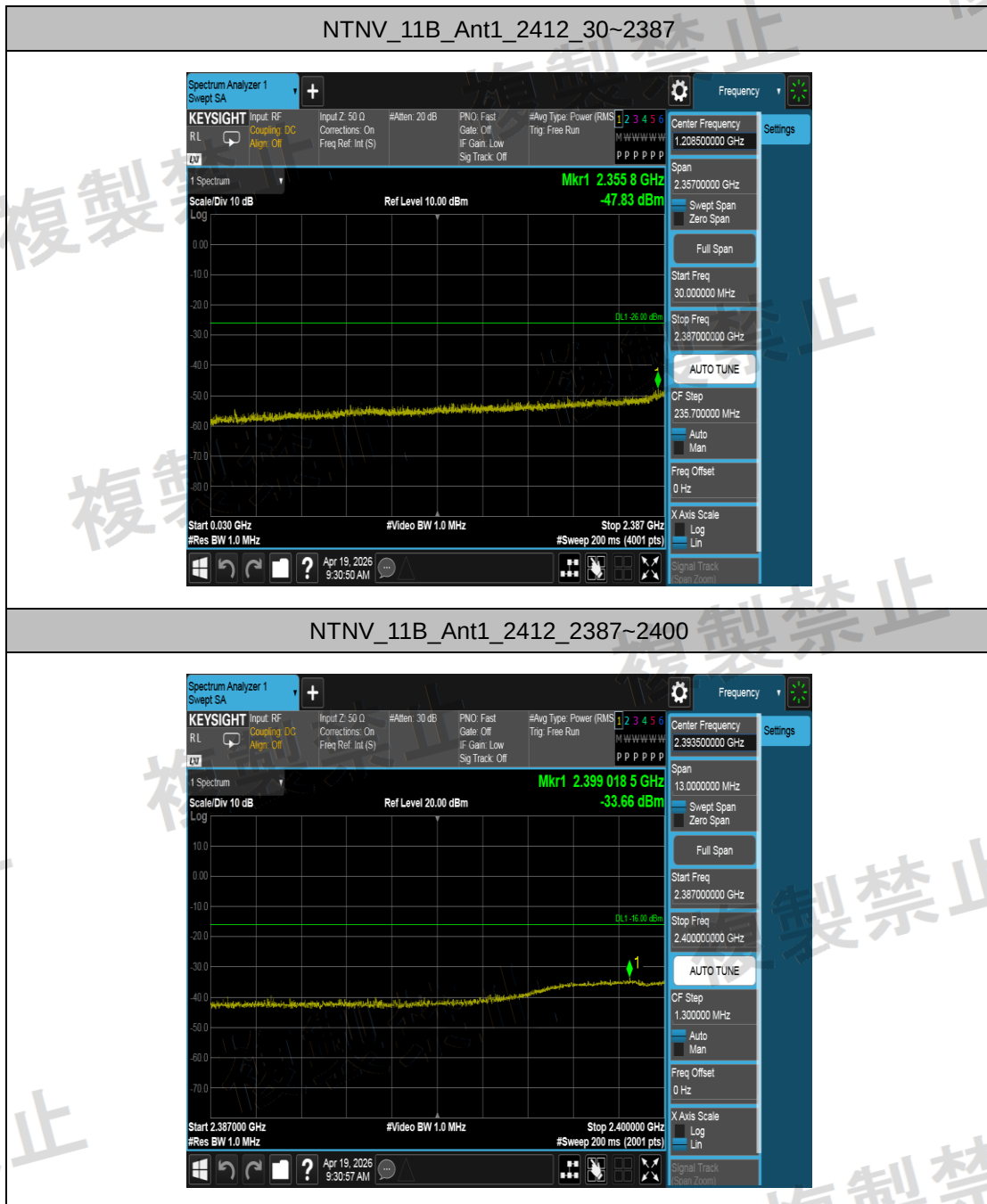


		2472	2483.5~2496.5	2483.88	-38.93	≤ -16	0.12794	≤ 25	PASS
			2496.5~12500	12111.36	-46.43	≤ -26	0.02275	≤ 2.5	PASS
			30~2387	2336.91	-49.26	≤ -26	0.01186	≤ 2.5	PASS
			2387~2400	2391.89	-39.40	≤ -16	0.11482	≤ 25	PASS
			2483.5~2496.5	2483.51	-16.02	≤ -16	25.00345	≤ 25	See table below
			2496.5~12500	2496.50	-39.03	≤ -26	0.12503	≤ 2.5	PASS

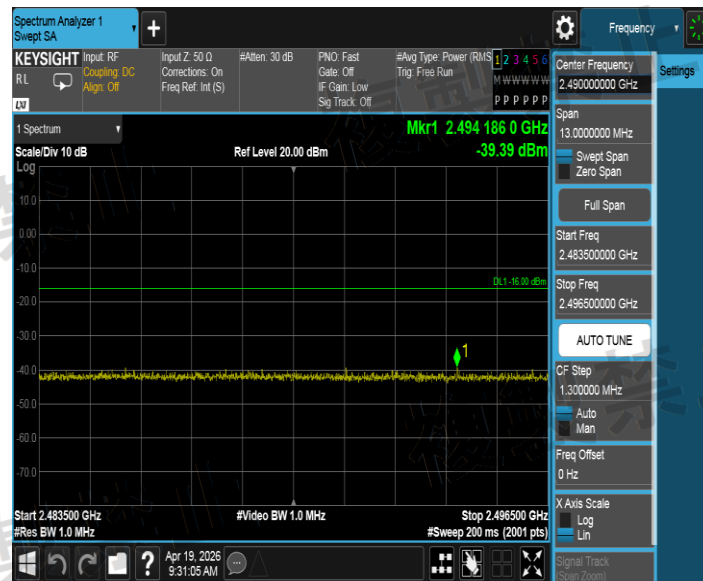
Test Result_Step2

Test Condition	Test Mode	PreScan In Ant	Channel	Ant	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [μ W]	Limit [μ W]	Verdict
NTNV	11G	Ant1	2412	Ant1	2397.53	-36.29	≤ -16	0.23496	≤ 25	PASS
			2472	Ant1	2483.50	-33.41	≤ -16	0.45604	≤ 25	PASS
	11N20SISO	Ant1	2472	Ant1	2483.65	-34.84	≤ -16	0.32810	≤ 25	PASS

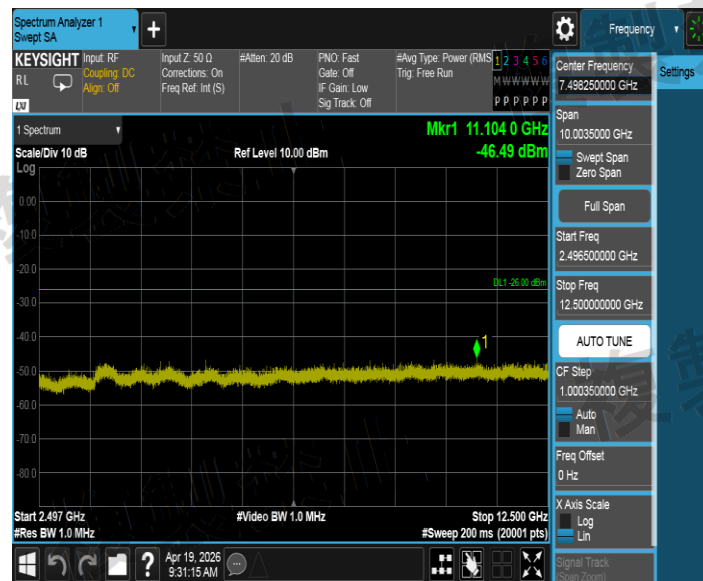
Test Plots:



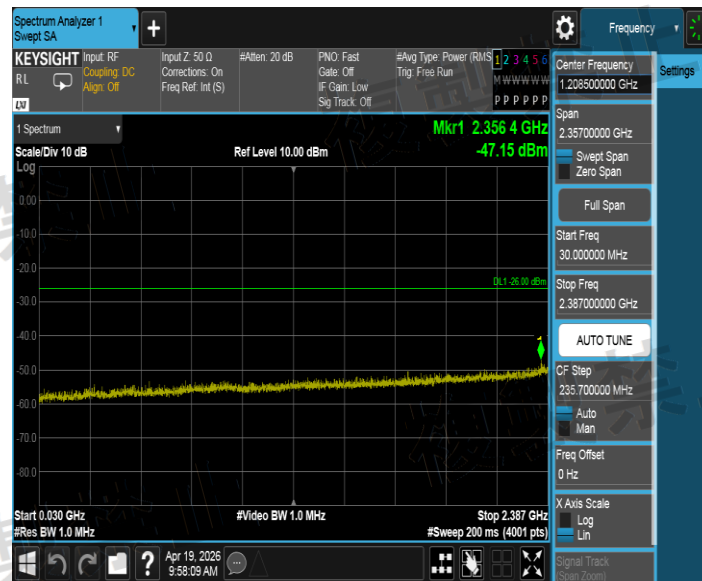
NTNV_11B_Ant1_2412_2483.5~2496.5



NTNV_11B_Ant1_2412_2496.5~12500



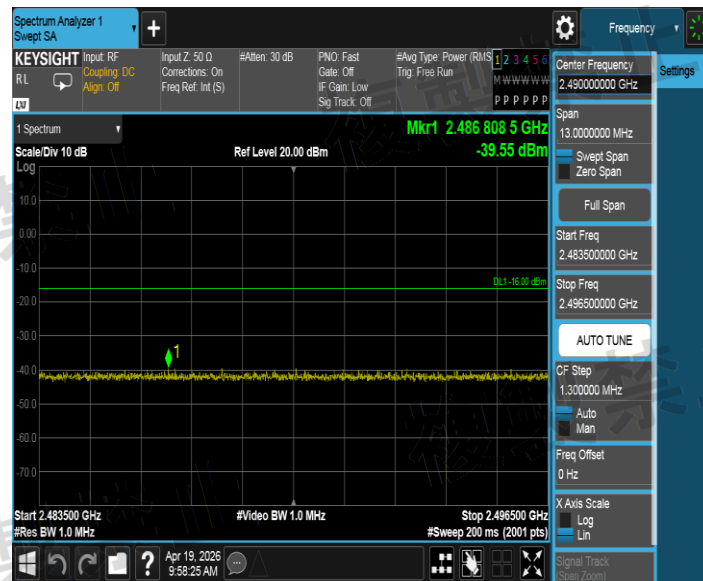
NTNV_11B_Ant1_2442_30~2387



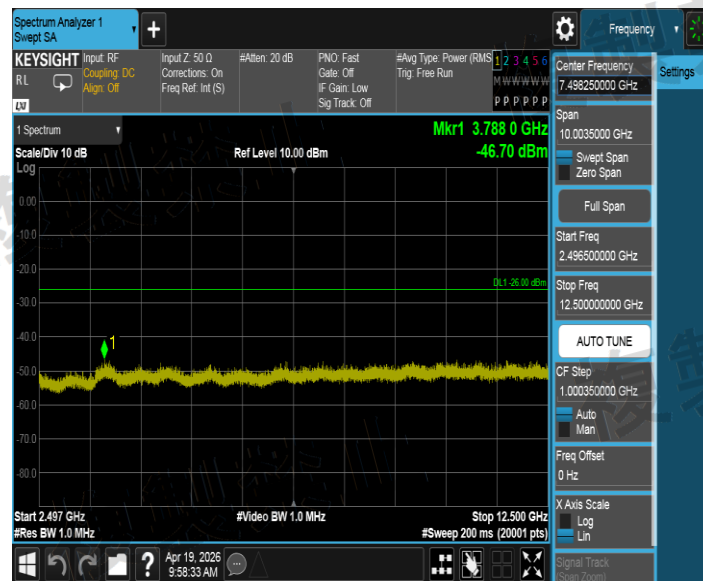
NTNV_11B_Ant1_2442_2387~2400



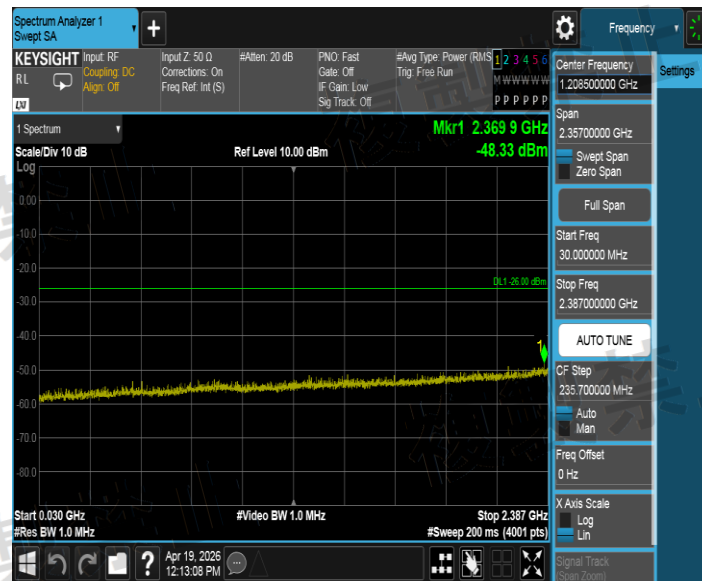
NTNV_11B_Ant1_2442_2483.5~2496.5



NTNV_11B_Ant1_2442_2496.5~12500



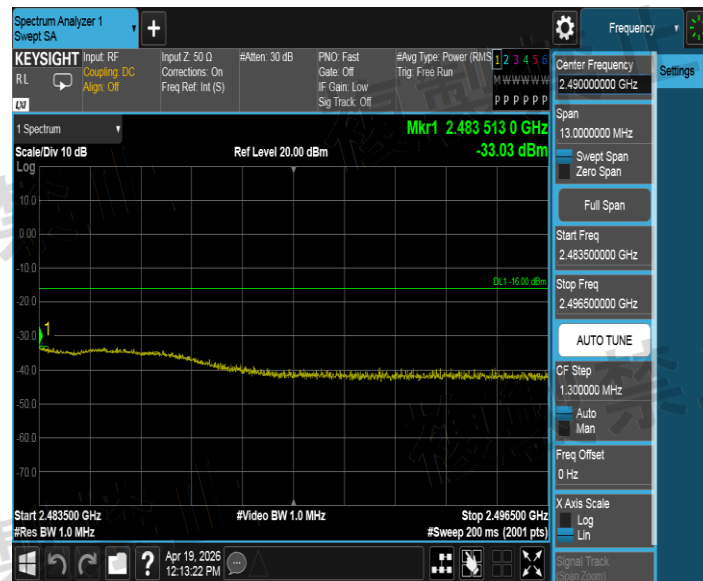
NTNV_11B_Ant1_2472_30~2387



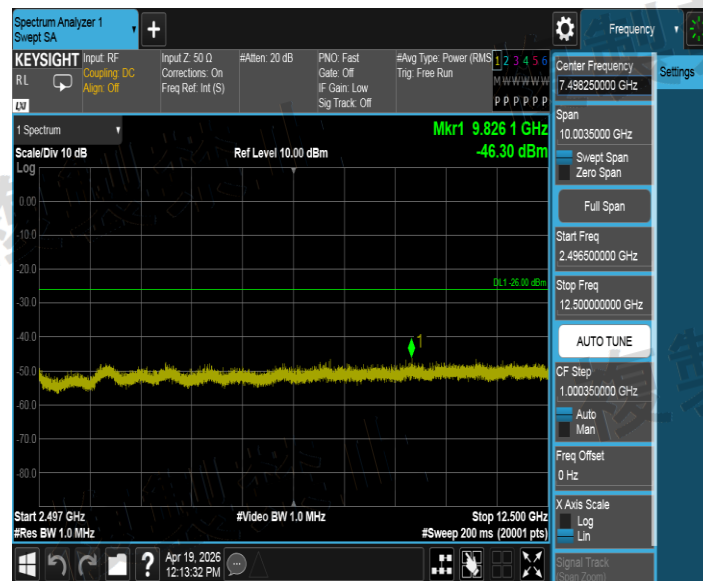
NTNV_11B_Ant1_2472_2387~2400



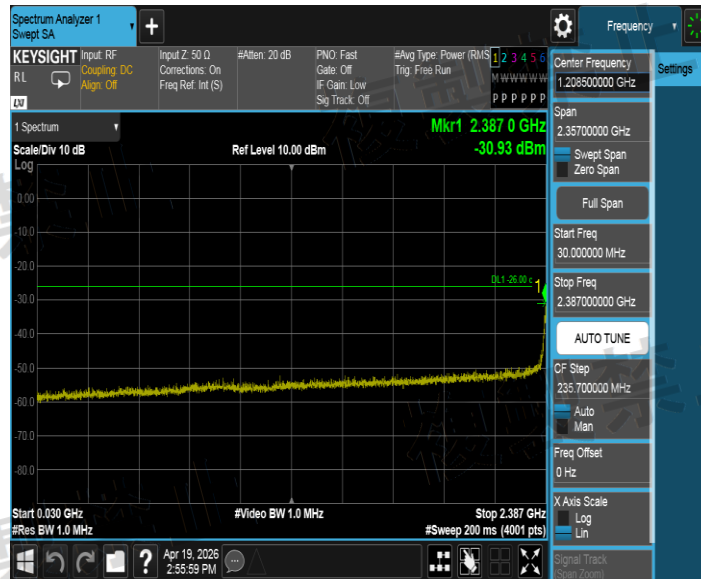
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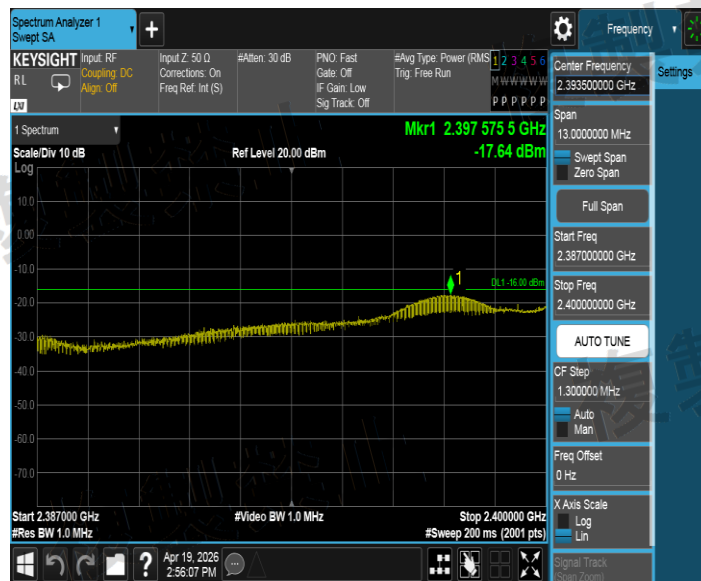
NTNV_11B_Ant1_2472_2496.5~12500



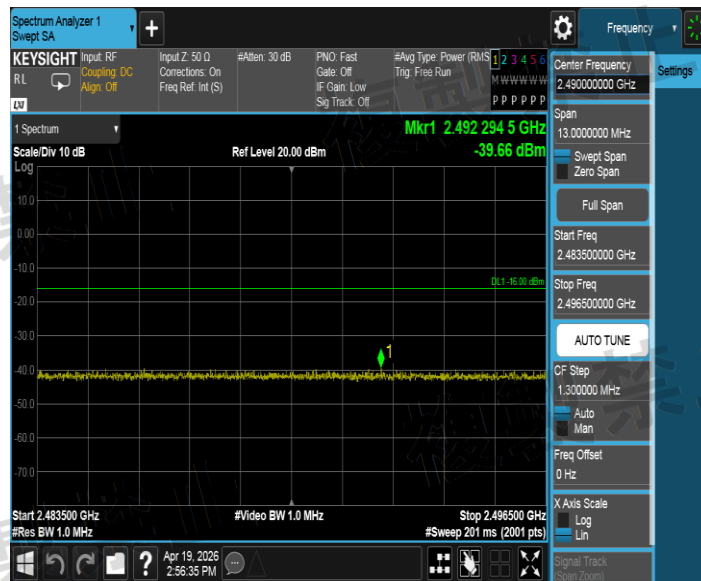
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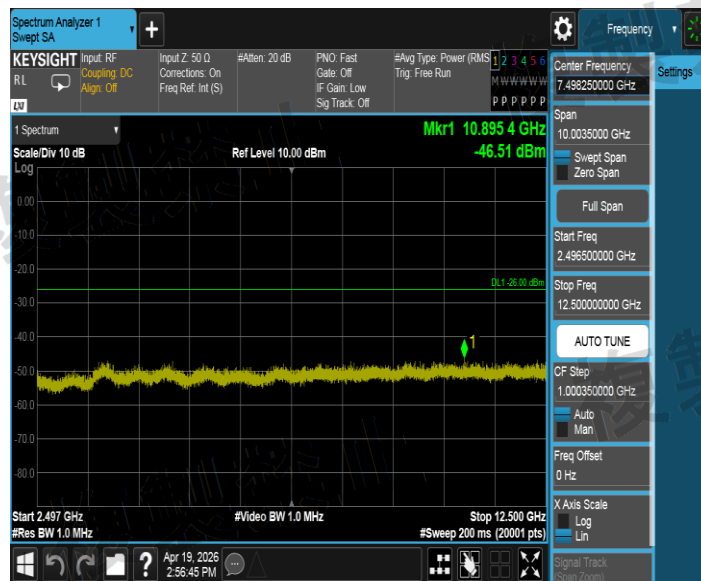
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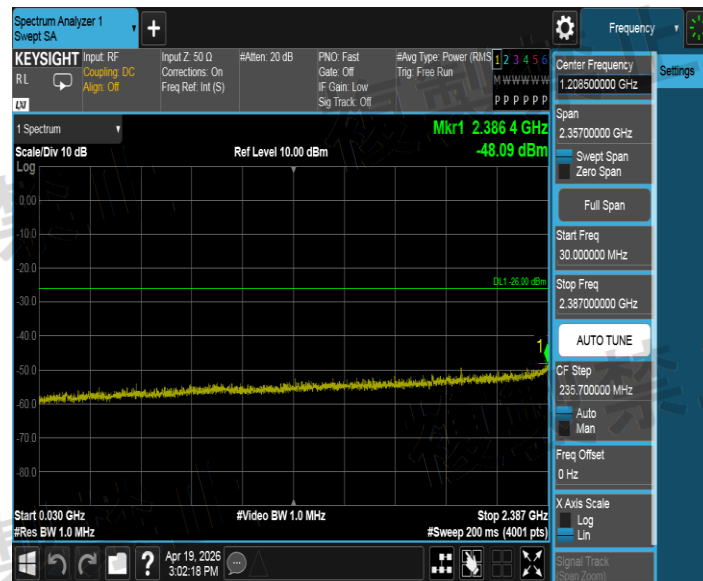
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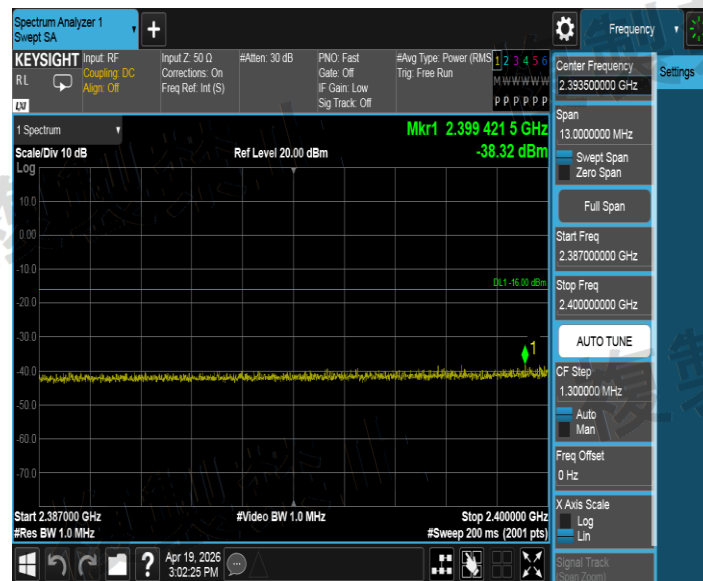
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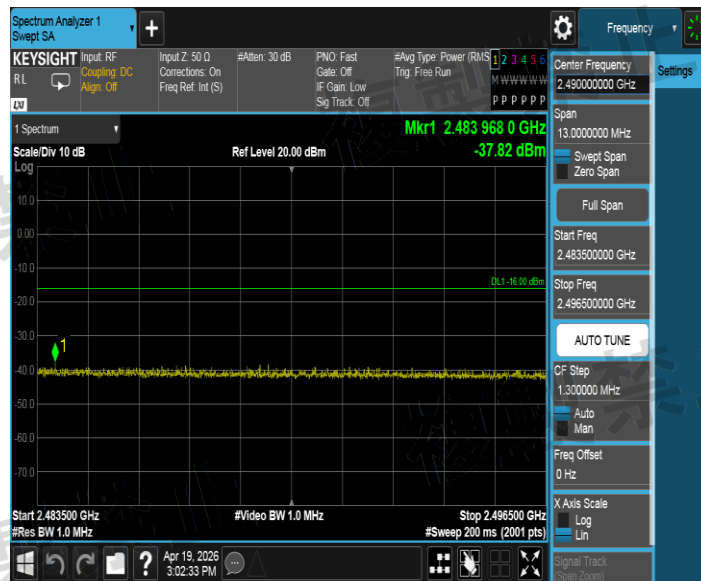
NTNV_11G_Ant1_2442_30~2387



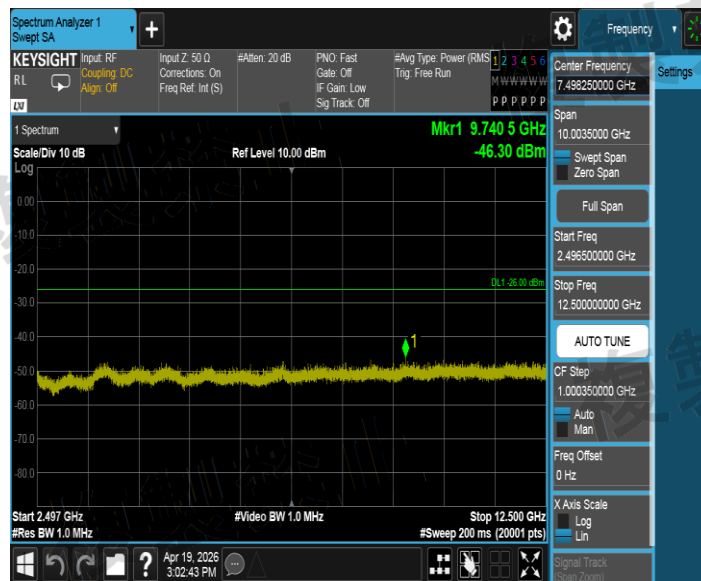
NTNV_11G_Ant1_2442_2387~2400



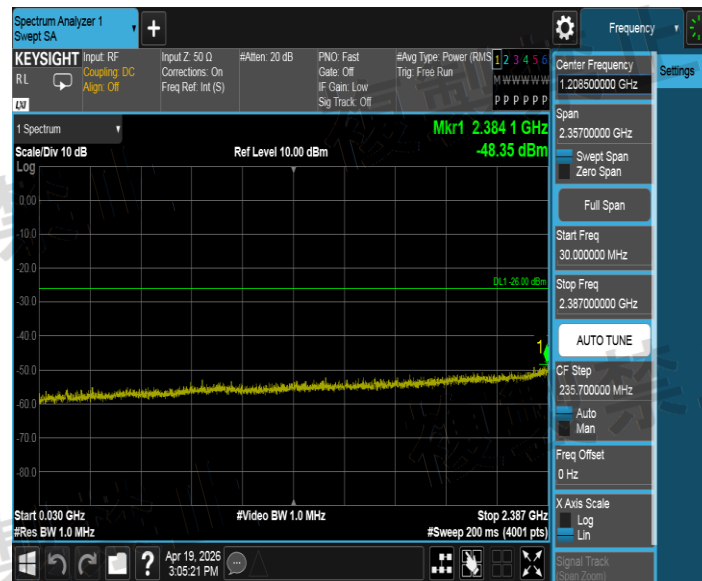
NTNV_11G_Ant1_2442_2483.5~2496.5



NTNV_11G_Ant1_2442_2496.5~12500



NTNV_11G_Ant1_2472_30~2387



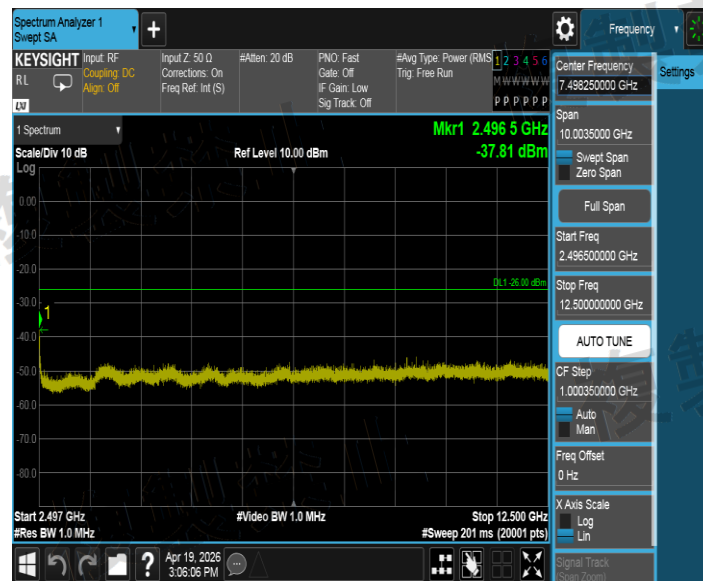
NTNV_11G_Ant1_2472_2387~2400



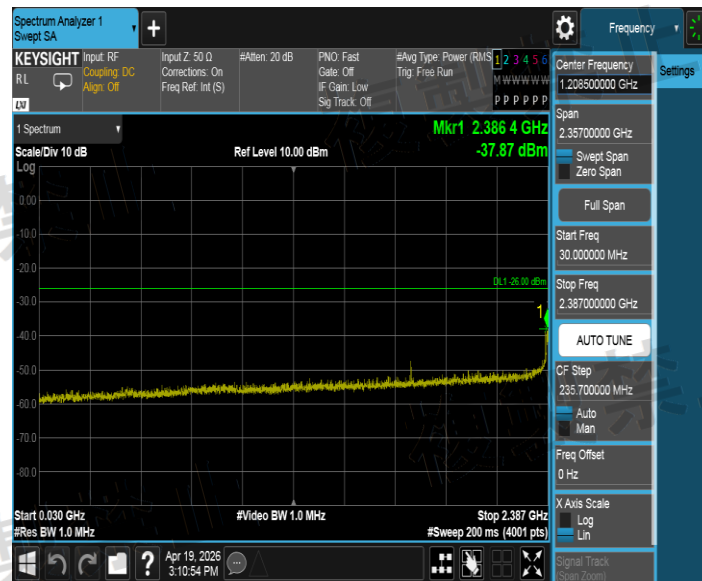
NTNV_11G_Ant1_2472_2483.5~2496.5



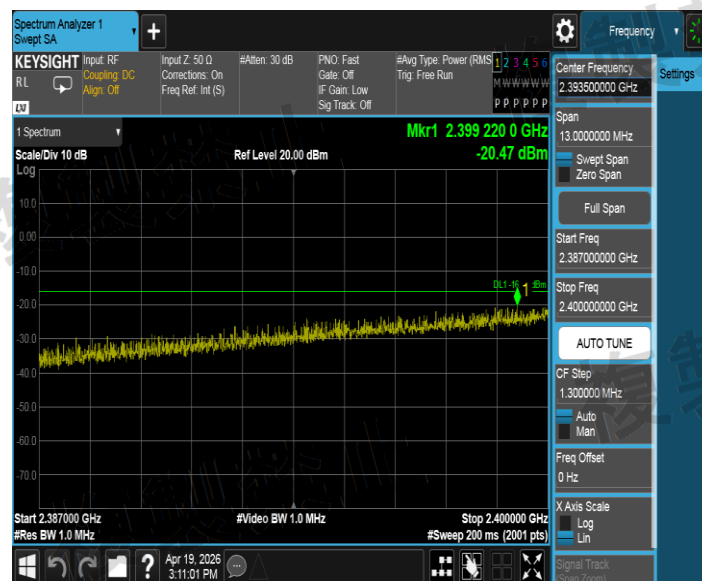
NTNV_11G_Ant1_2472_2496.5~12500



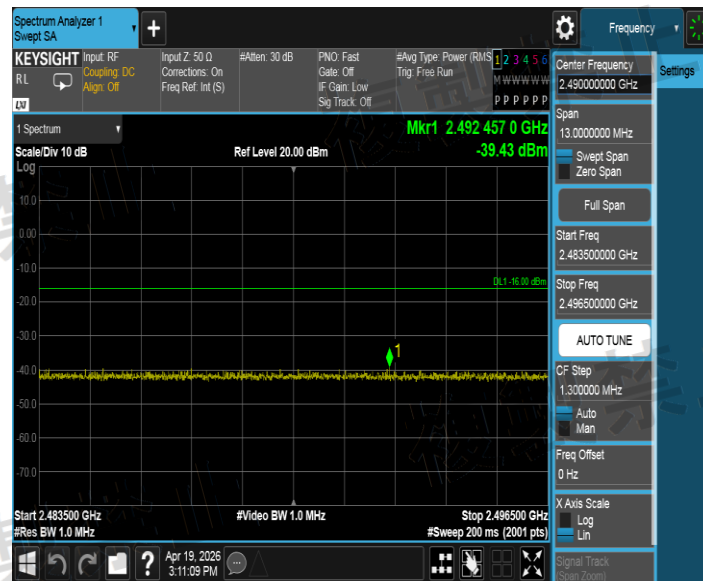
NTNV_11N20SISO_Ant1_2412_30~2387



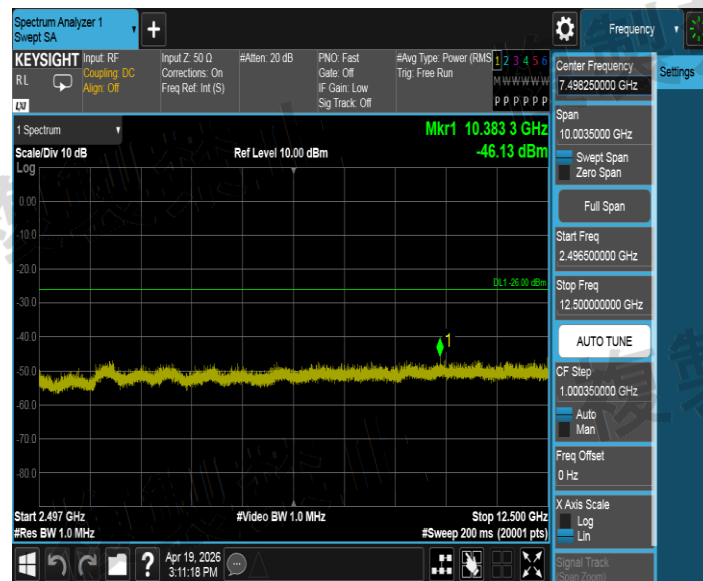
NTNV_11N20SISO_Ant1_2412_2387~2400



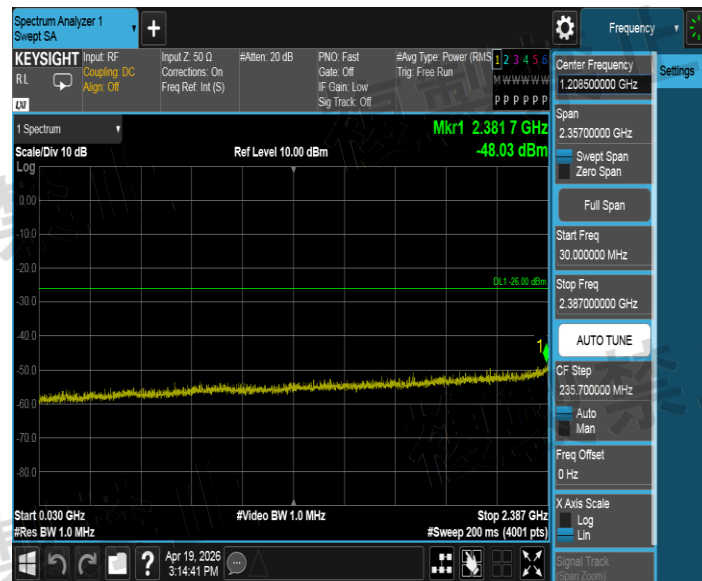
NTNV_11N20SISO_Ant1_2412_2483.5~2496.5



NTNV_11N20SISO_Ant1_2412_2496.5~12500



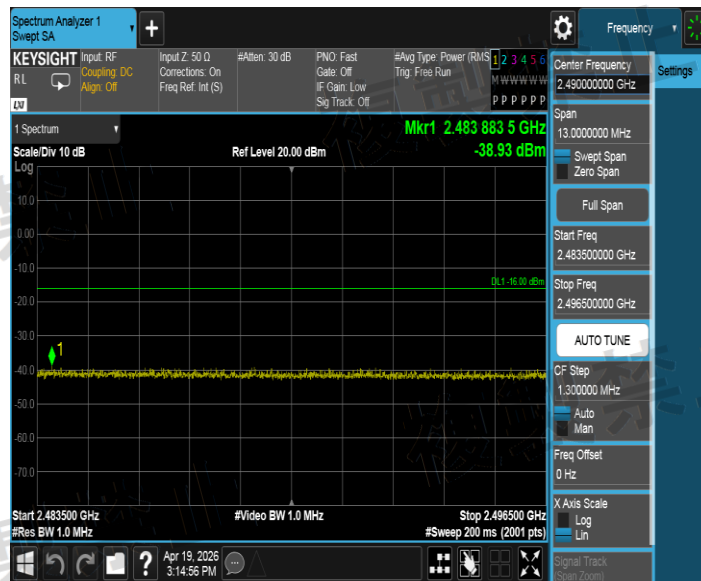
NTNV_11N20SISO_Ant1_2442_30~2387



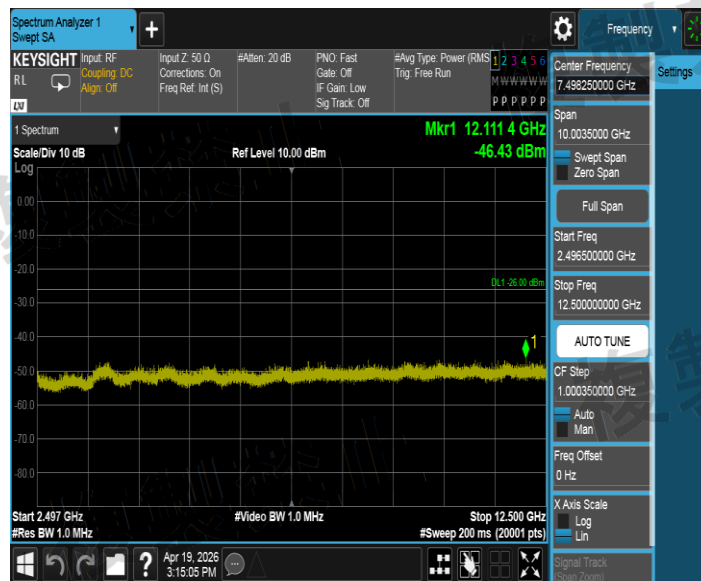
NTNV_11N20SISO_Ant1_2442_2387~2400



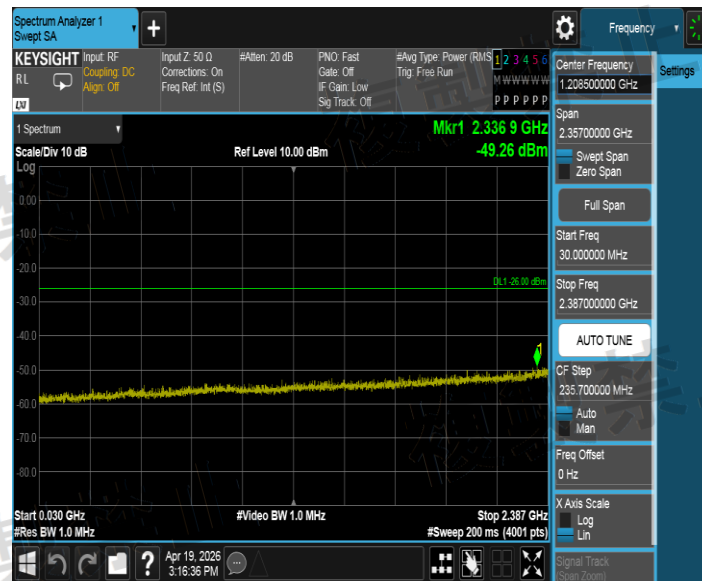
NTNV_11N20SISO_Ant1_2442_2483.5~2496.5



NTNV_11N20SISO_Ant1_2442_2496.5~12500



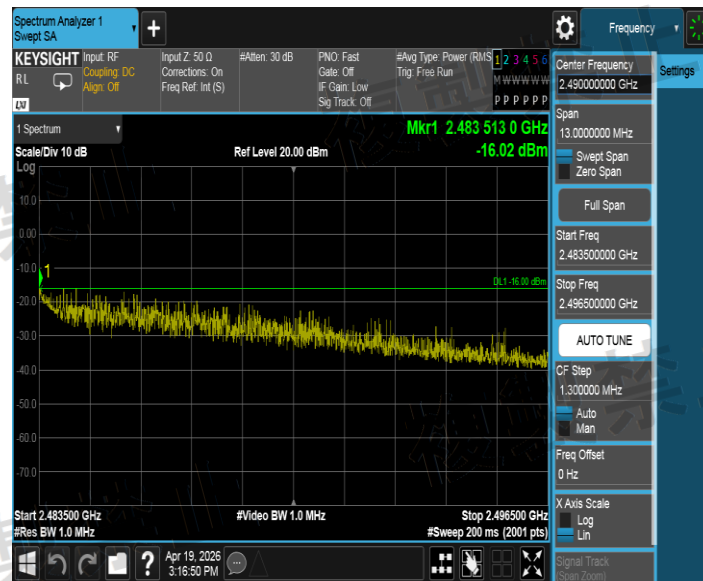
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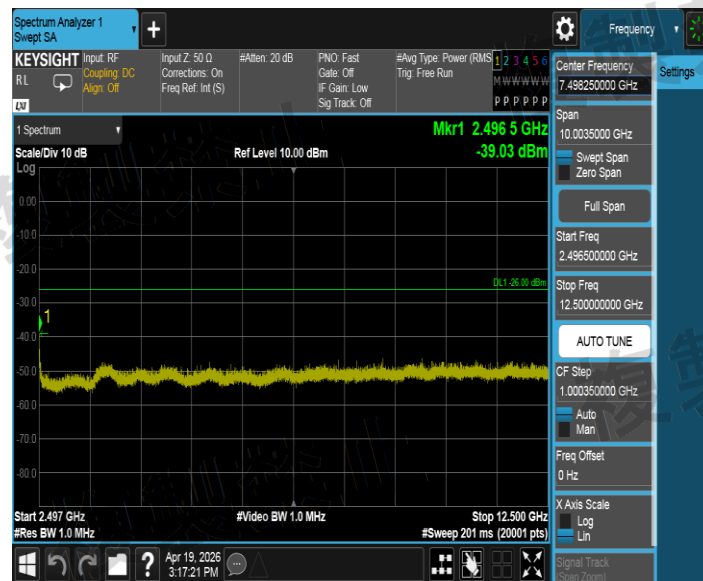
NTNV_11N20SISO_Ant1_2472_2387~2400



NTNV_11N20SISO_Ant1_2472_2483.5~2496.5

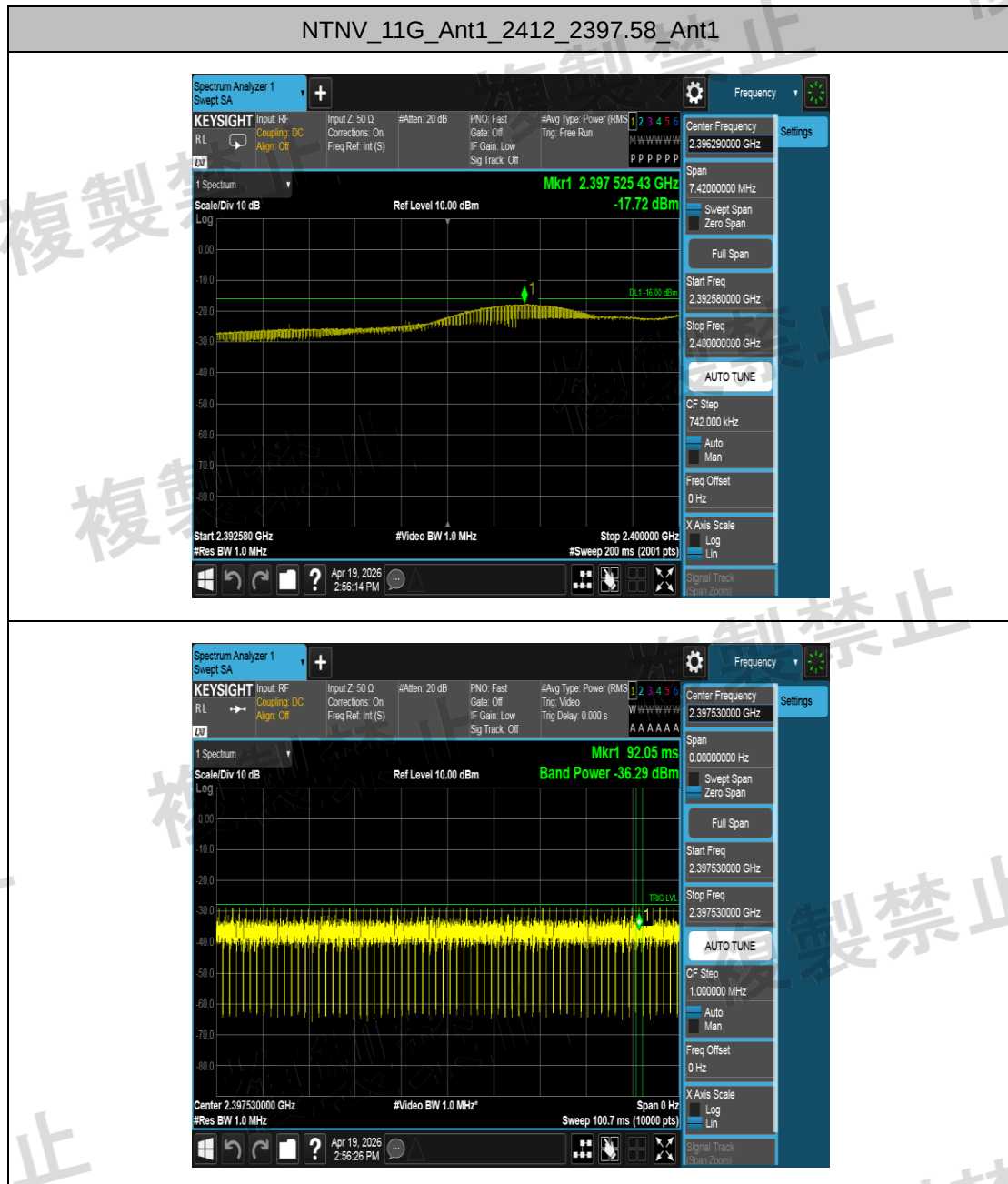


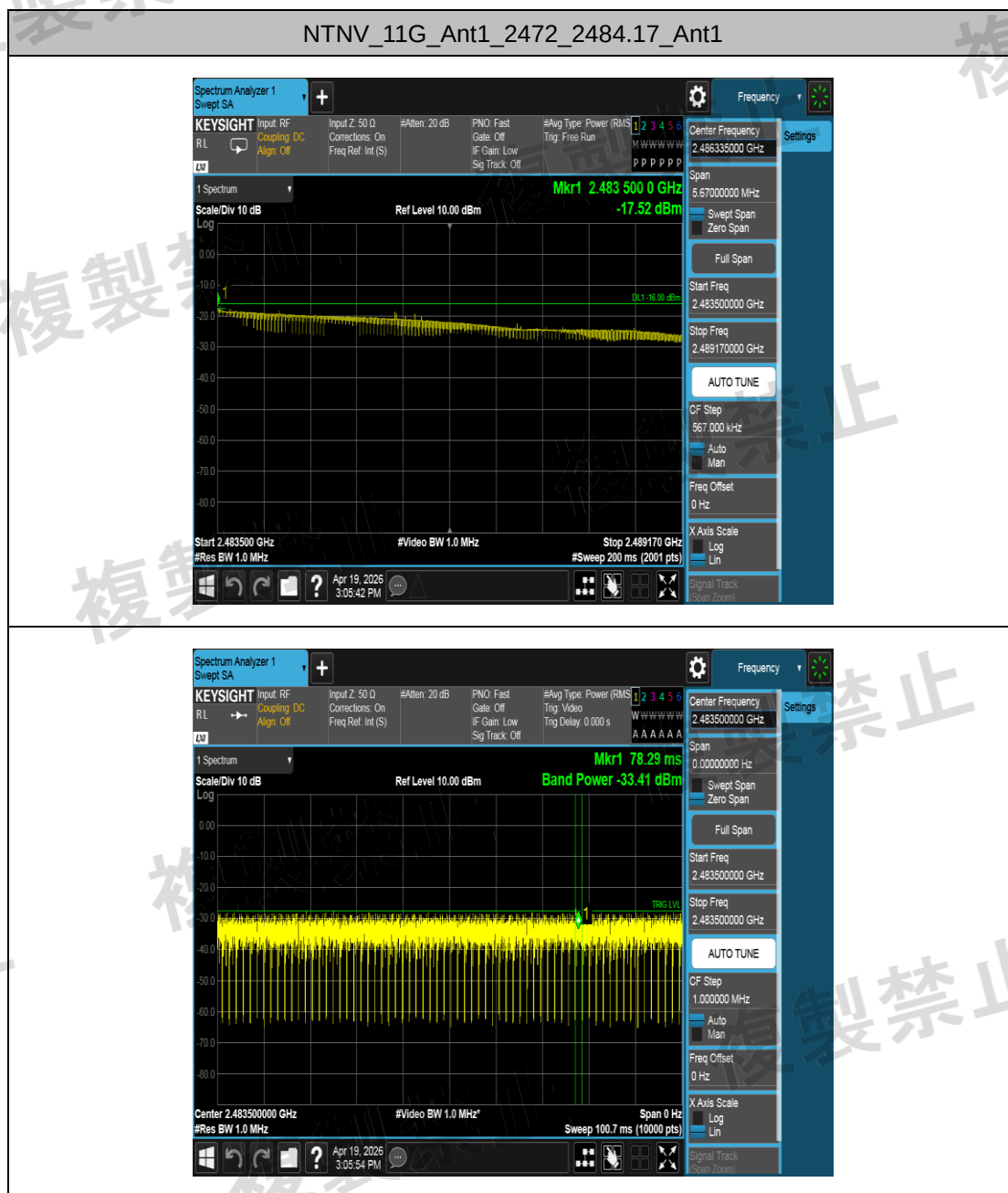
NTNV_11N20SISO_Ant1_2472_2496.5~12500



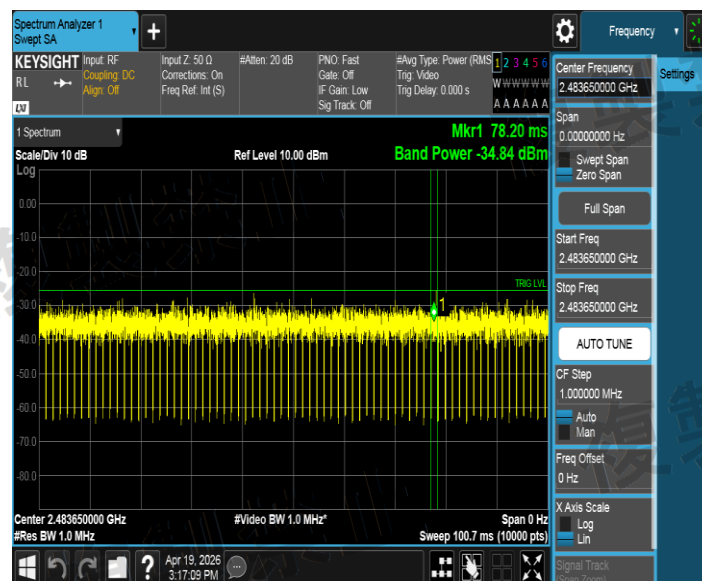
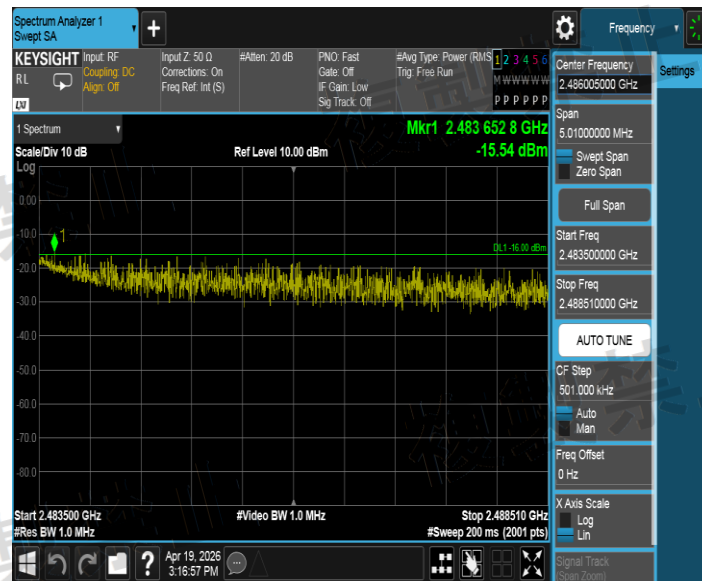


Test Graphs_Step2





NTNV_11N20SISO_Ant1_2472_2483.51_Ant1

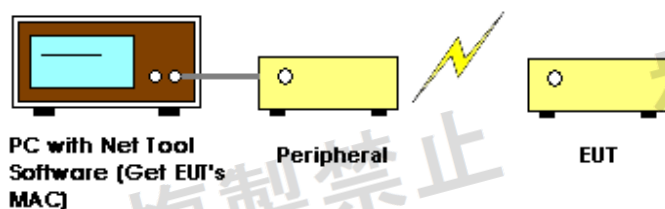


12. Radio Interference Prevention Capability Measurement

12.1. Limit

Item	Limits
Identification code	≥48 bits

12.2. Test Setup



12.3. Test Procedure

In the case that the EUT has the function of automatically transmitting the identification code: Transmit the predetermined identification codes from EUT. Check the transmitted identification codes with the demodulator.

In the case of receiving the identification code: Transmit the predetermined identification codes from the counterpart. Check if communication is normal. Transmit the signals other than predetermined ID codes from the counterpart. Check if the EUT stops the transmission, or if it displays that identification codes are different from the predetermined ones.

12.4. Test Result

Test environment:

Temperature:	24.3 °C
Relative Humidity:	52 %
ATM Pressure:	101 kPa
Test Date (yy-mm-dd):	2026-04-20~2026-05-15
Test Voltage:	DC 5V
Test Engineer:	Stone Zhang

Test Mode	EUT normal working
Test Result	Good (identification code: 9C:B8:B4:71:00:38)

13. Construction Protection Confirmation Method

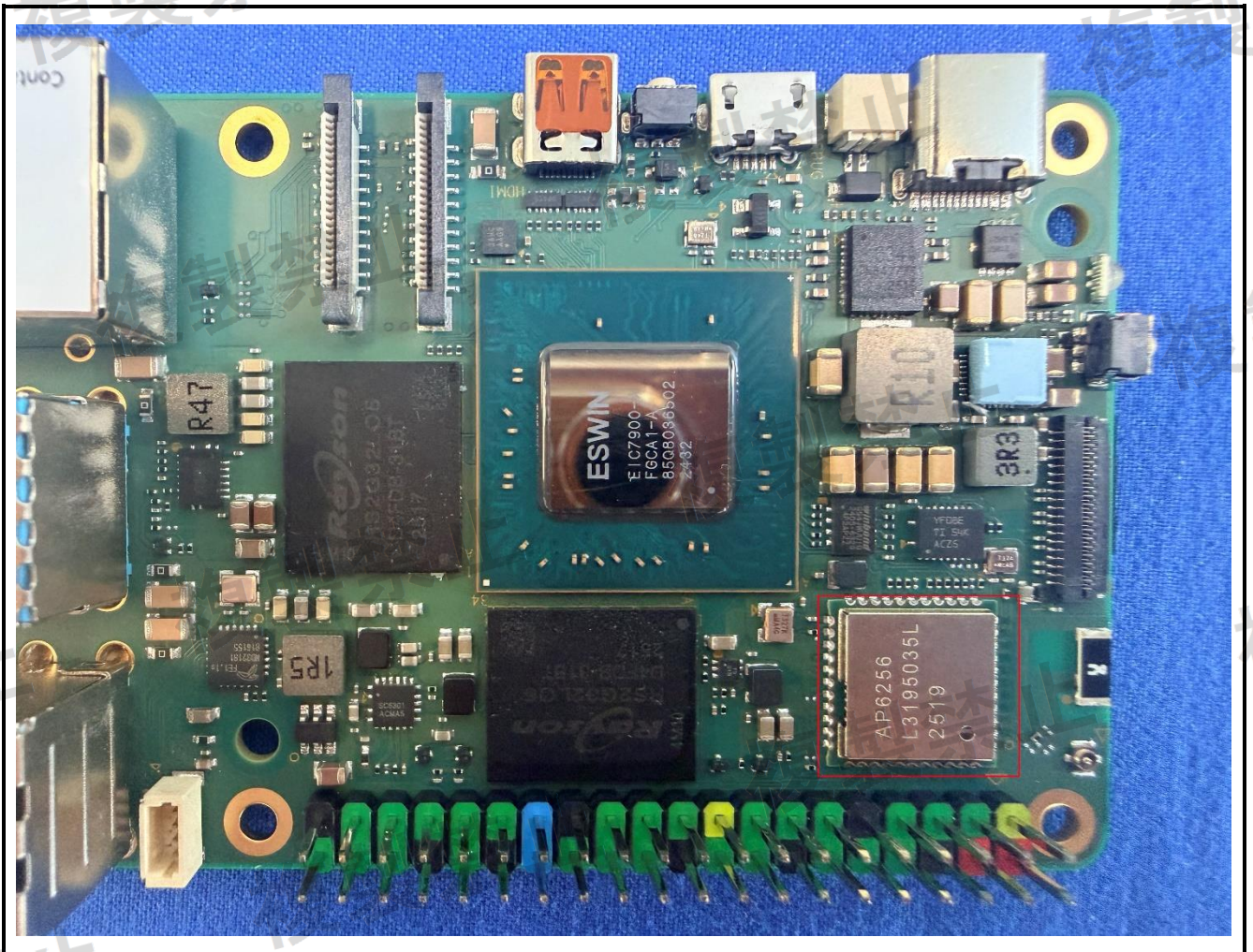
13.1. Limit

(See Article 49-20, Item1-a of the Ordinance Regulating Radio Equipment) The high-frequency section and modulation section of the radio equipment except for the antenna system shall not be capable of being opened easily.

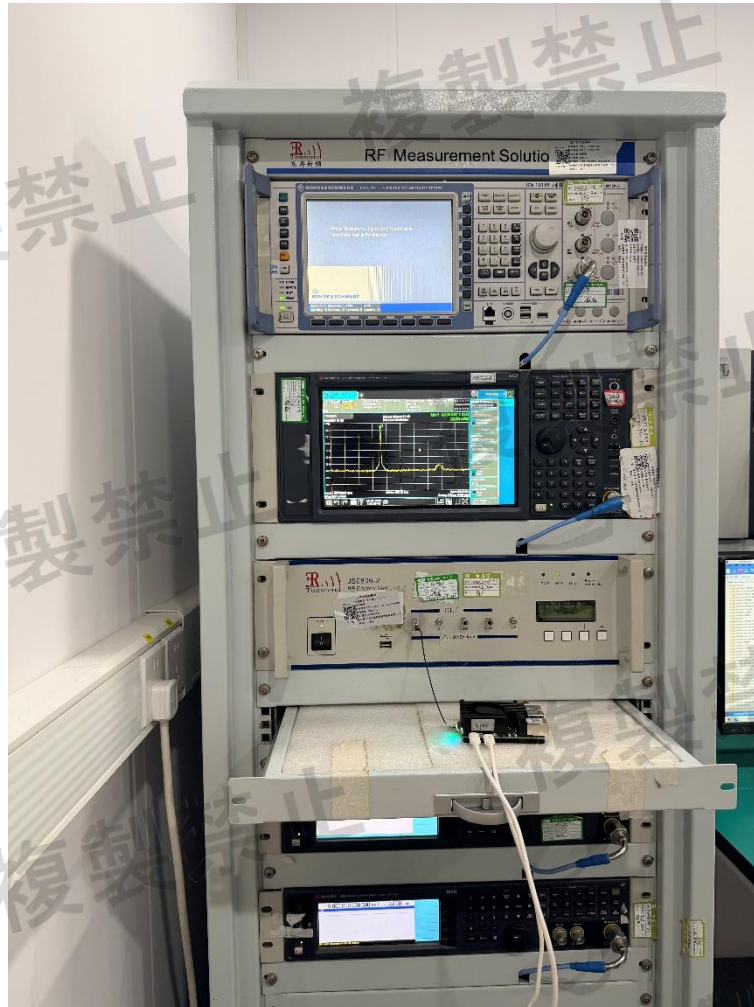
13.2. Confirmation Method

The RF and modulation portions are protected against illegal modification as following method:

Tick the appropriate box	
	1). Sealed with special screws.
	2). Plastic chassis is being welded using ultrasonic waves.
	3). Chassis is glued using a special adhesive.
	4). Metal covers are spot-fused.
	5). Cover is specially interlocked.
☒	6). RF and Modulation components are covered with shielding case and this shielding case is soldered.
	7). Shield case is welded at RF and modulation parts, and ID-ROM is welded using the BGA Method.
	8). Shield case is welded at RF and modulation parts, and ID-ROM is glued at its lead with a special adhesive
	9). Shield case is welded at RF and modulation parts, and ID-ROM is glued with a non-transparent laminating agent.
	10). RF and Modulation parts are mounted on PCB with surface mount technology, and there is no any adjustable part on PCB or adjustable parts are not exposed.



14. Photograph of The Test Connection Diagram



15. Appendix - EUT Photograph

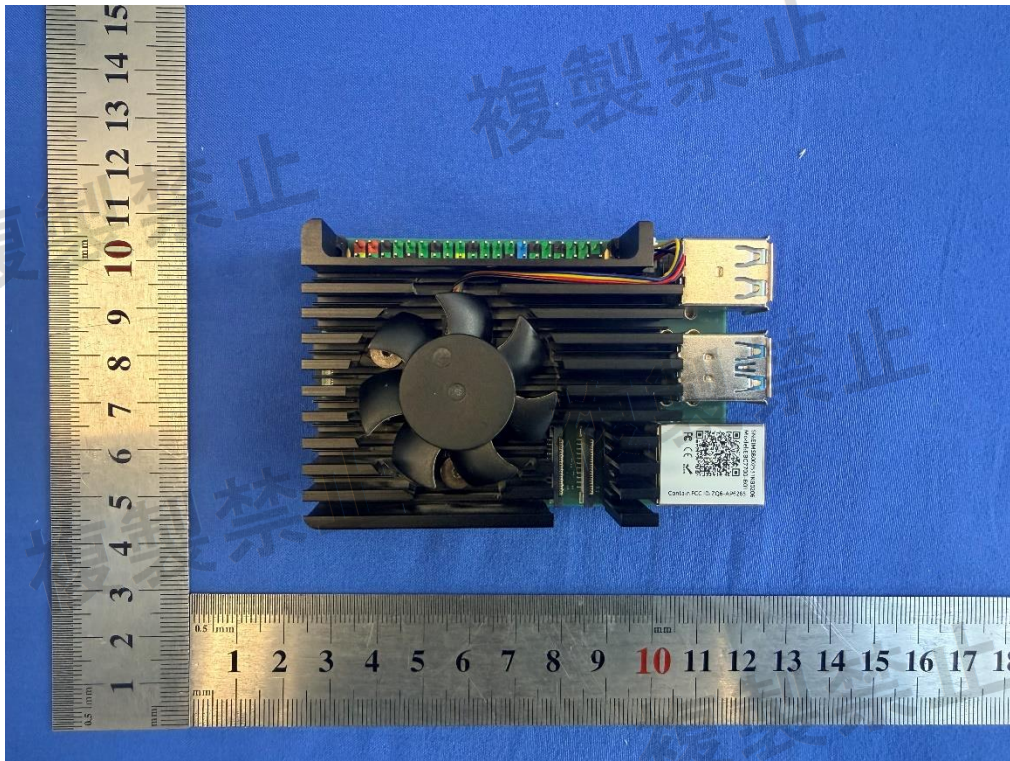


Photo 1: The whole product view

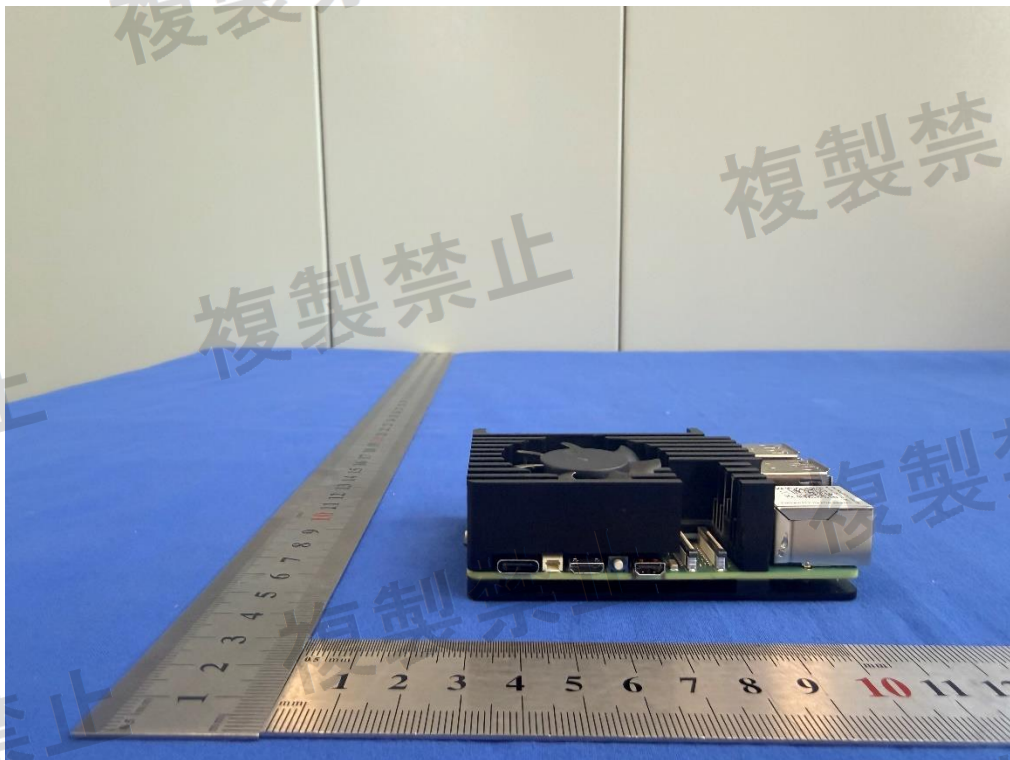


Photo 2: The whole product view

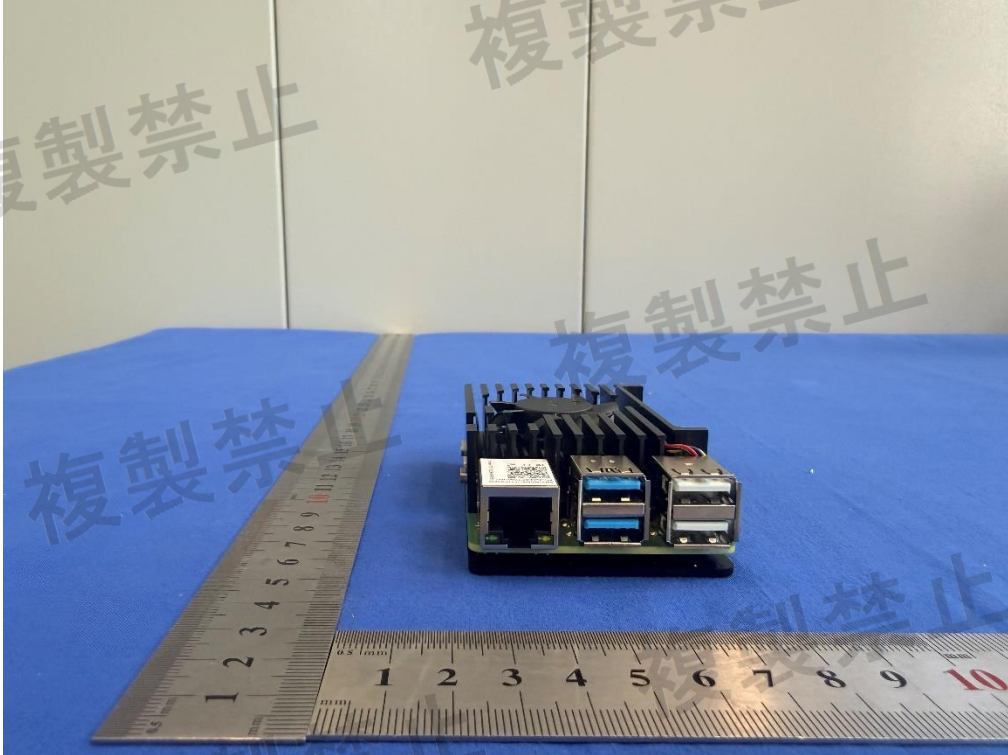


Photo 3: The whole product view

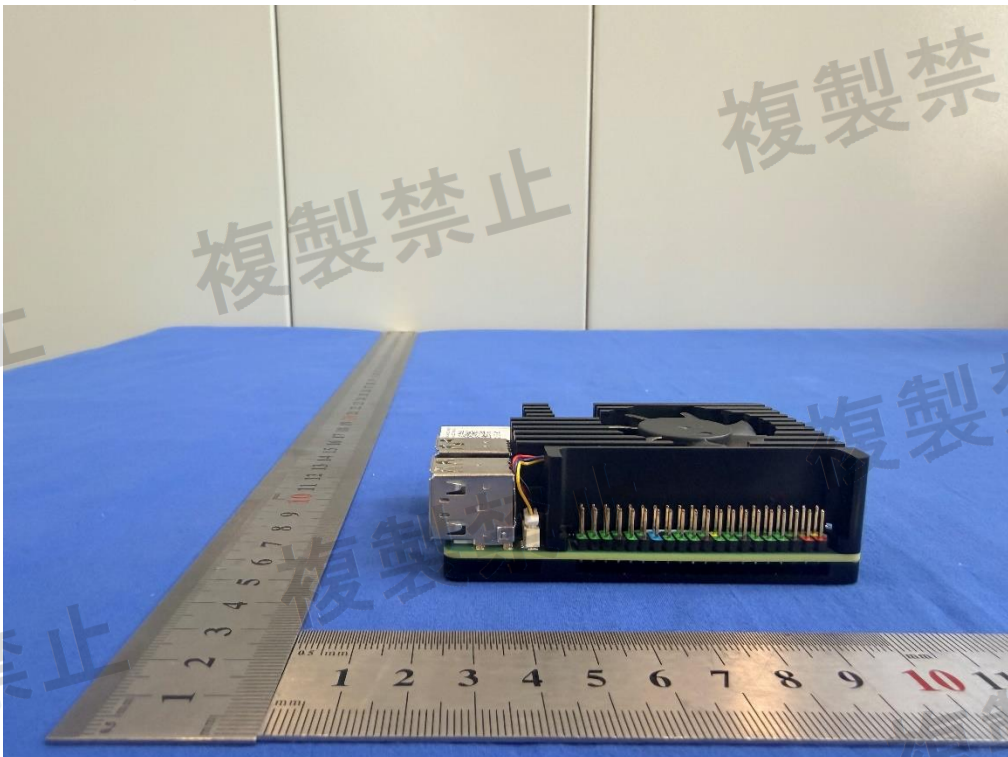


Photo 4: The whole product view

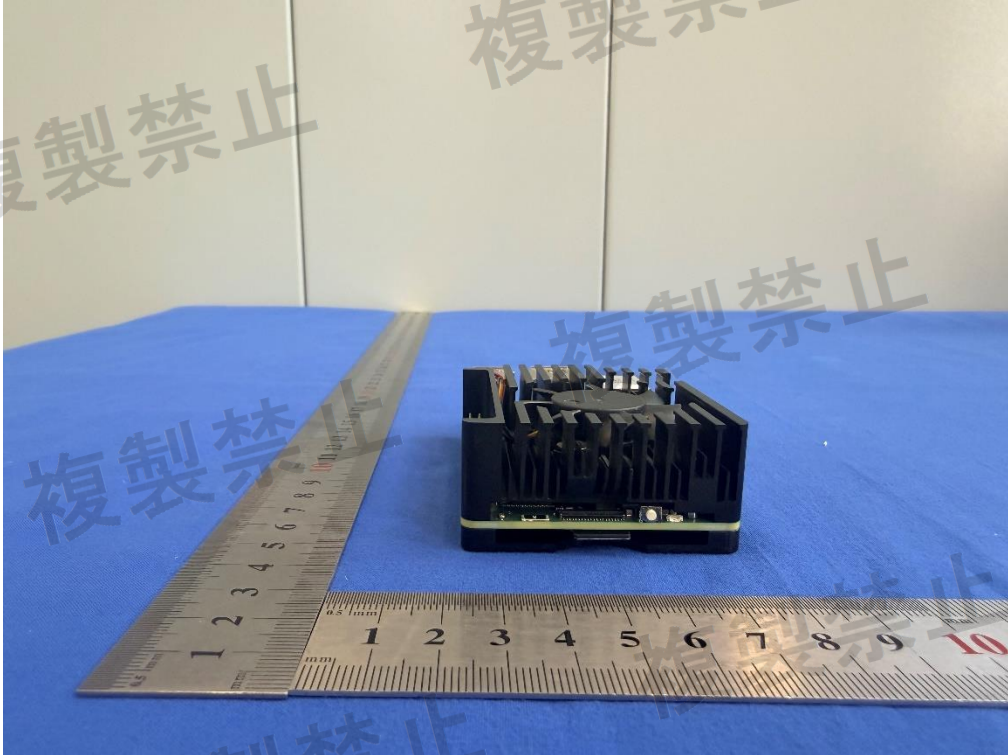


Photo 5: The whole product view

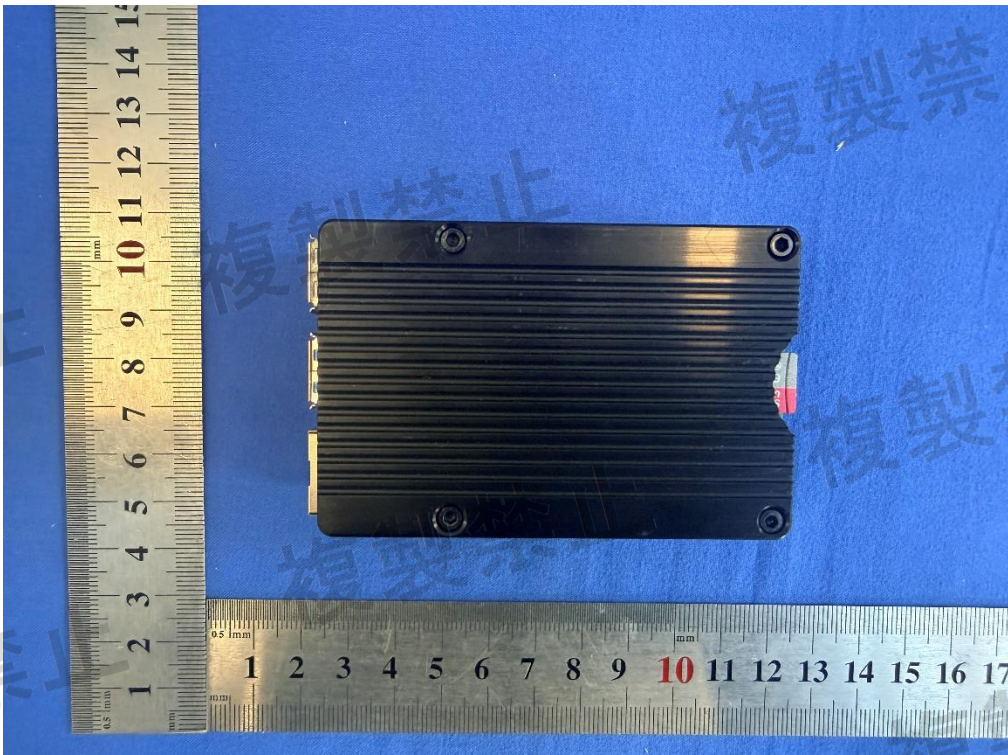


Photo 6: The whole product view

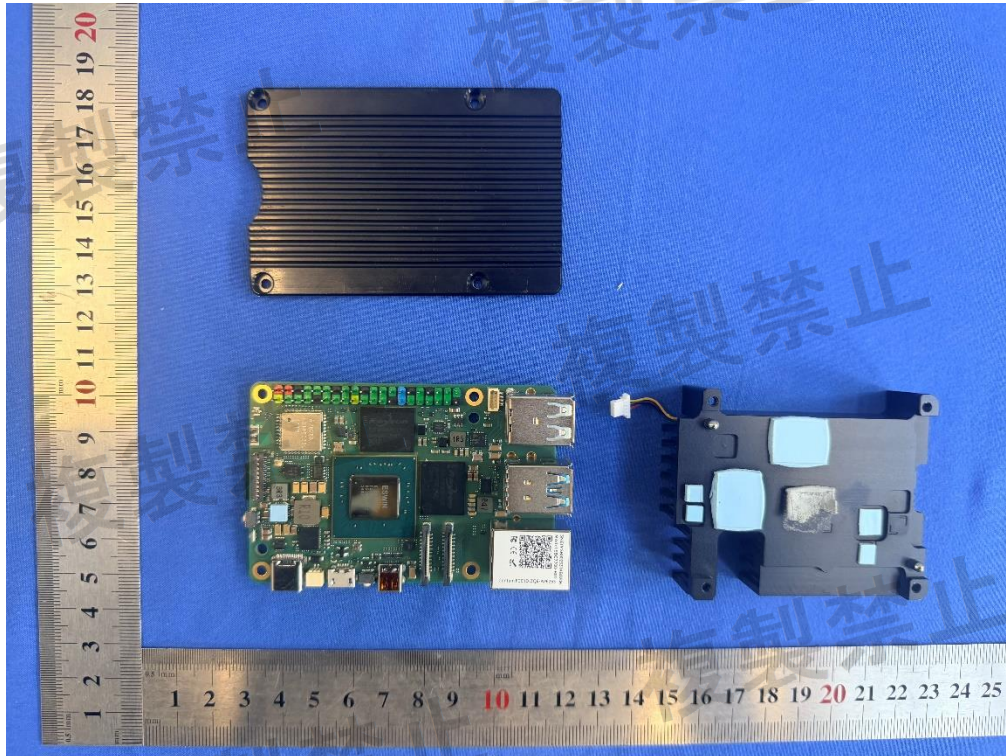


Photo 7: Internal View for PCB

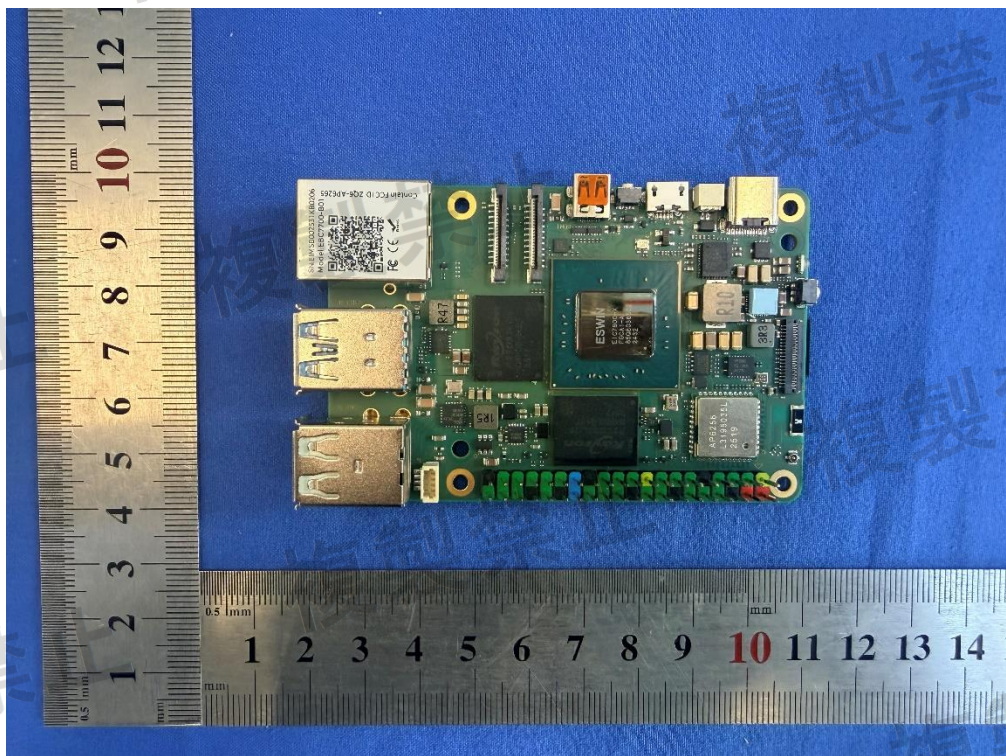


Photo 8: Internal View for PCB

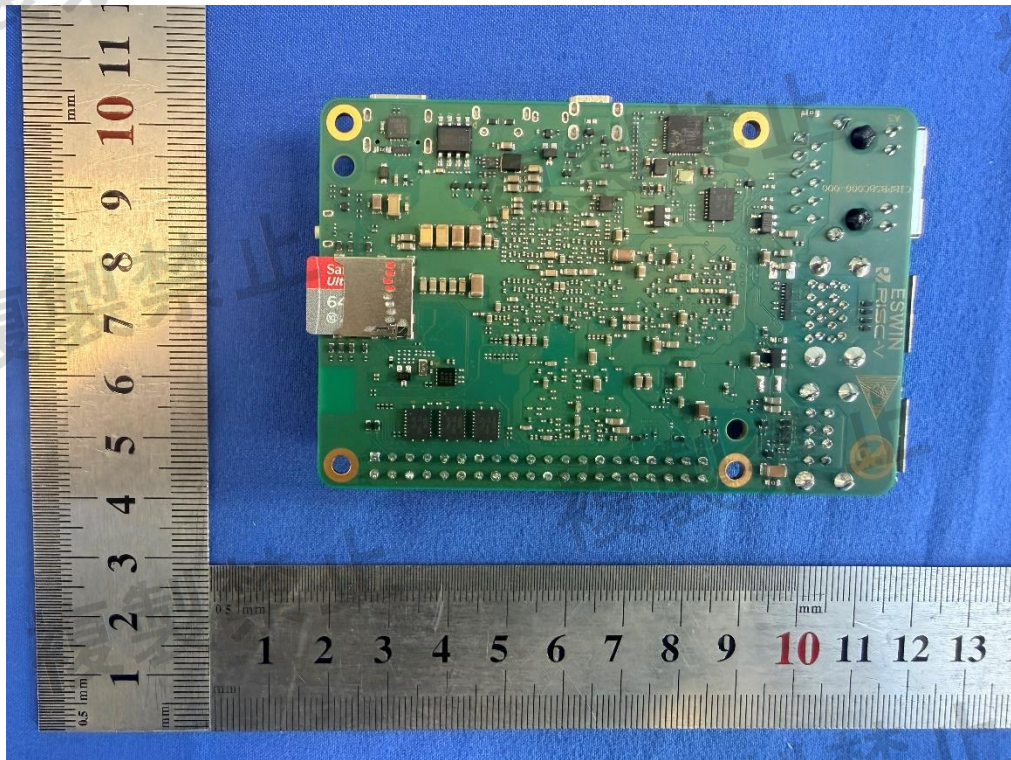


Photo 9: Internal View for PCB

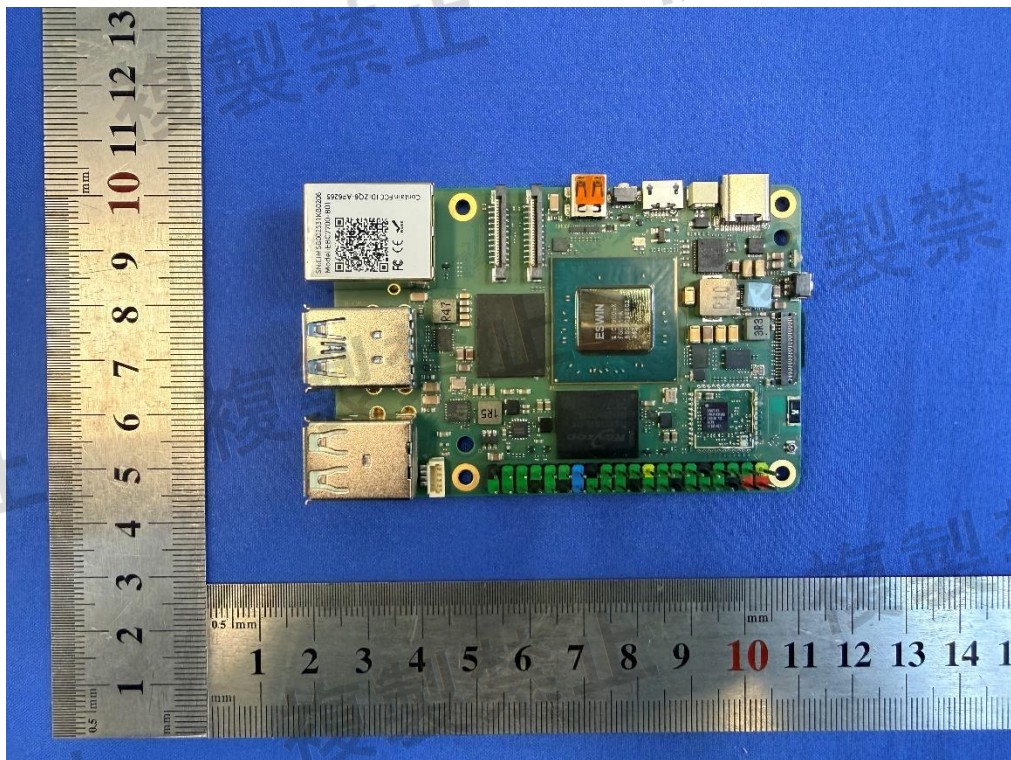


Photo 10: Internal View for PCB

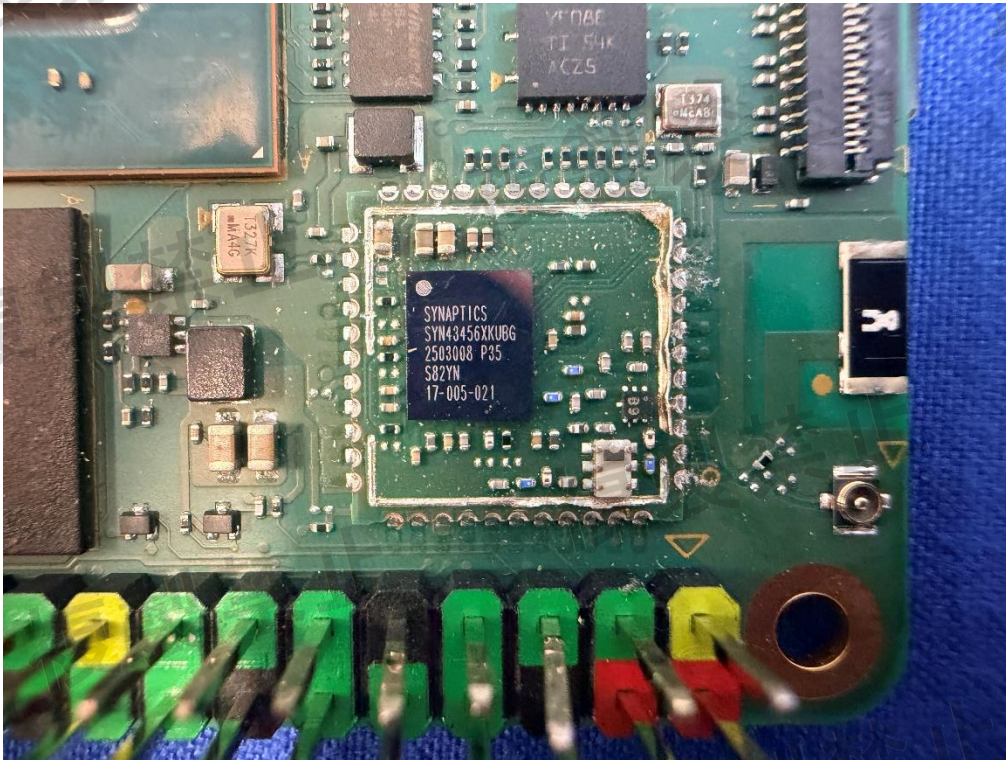


Photo 11: Internal View for PCB

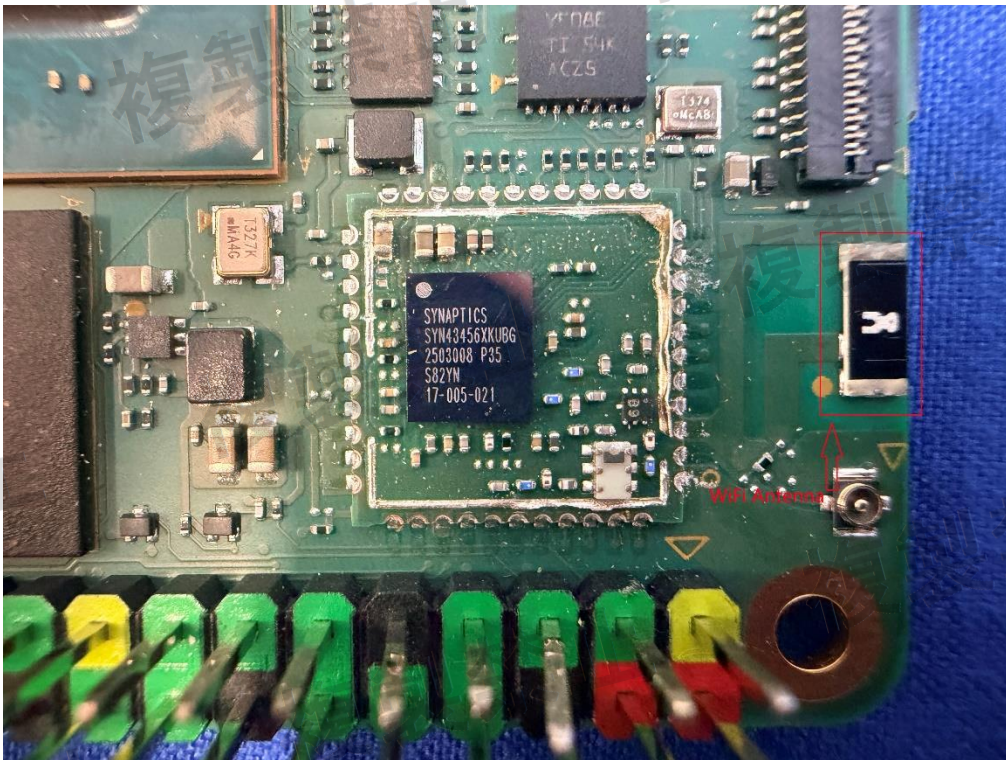


Photo 12: Internal View for WIFI Antenna



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