



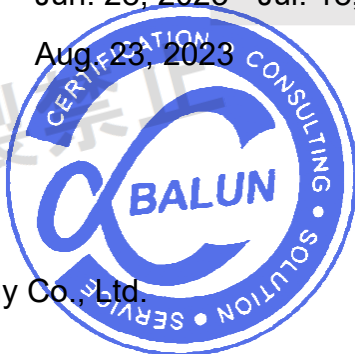
中国认可
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检测
TESTING
CNAS L6791

TEST REPORT

Applicant: Ugreen Group Limited
Address: Ugreen Building, Longcheng Industrial Park,
Longguanxi Road, Longhua, ShenZhen, China
Equipment Type: Wireless HDMI Transmitter
Model Name: CM586 (refer to section 2.4)
Brand Name: **UGREEN**
Test Standard: MIC Notice No.88 Appendix No.43
Ordinance of MPT No.37, 1981:
Article 2 paragraph 1 item (19)
Sample Arrival Date: Jun. 14, 2023
Test Date: Jun. 28, 2023 - Jul. 18, 2023
Date of Issue: Aug. 23, 2023

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.



Tested by: Julie Zhu

Checked by: Ye Hongji

Approved by: Liao Jianming
(Technical Director)

Julie Zhu

Ye Hongji

Liao Jianming

Revision History

Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>Aug. 23, 2023</u>	<u>Added the series model name.</u> <u>This report replaces BL-SZ2360688-601 which issued by BALUN on Aug. 15, 2023, the original report is invalid.</u>

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1. GENERAL INFORMATION

1.1 Test Laboratory

Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	☒ Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	☐ 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China

2. PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Ugreen Group Limited
Address	Ugreen Building, Longcheng Industrial Park, Longguanxi Road, Longhua, ShenZhen, China

2.2 Manufacturer Information

Manufacturer	Ugreen Group Limited
Address	Ugreen Building, Longcheng Industrial Park, Longguanxi Road, Longhua, ShenZhen, China

2.3 Factory Information

Factory	SHENZHEN HAIYING ZHILIAN INDUSTRIAL CO., LTD.
Address	2-5 / F, NO.8 FACTORY BUILDING, LONGCHENG INDUSTRY AND TRADE YU'AN FACTORY, GAOFENG COMMUNITY, DALANG STREET, LONGHUA DISTRICT, SHENZHEN, P.R. CHINA

2.4 General Description for Equipment under Test (EUT)

EUT Name	Wireless HDMI Transmitter
Under Test Model Name	CM586
Series Model Name	90909, 90909A
Description of Model name differentiation	All models are same with electrical parameters and internal circuit structure, but only differ in model name. (this information provided by the applicant)
Hardware Version	N/A
Software Version	N/A
Dimensions (Approx.)	N/A
Weight (Approx.)	N/A

2.5 Technical Information

Network and Wireless connectivity	2.4G WIFI 802.11b, 802.11g, 802.11n (Only TX) 5G WIFI 802.11a, 802.11n and 802.11ac Band 1 (Only TX)
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The requirement for the following technical information of the EUT was tested in this report:

Frequency Range	802.11b/g/n(20 MHz): 2.412 GHz - 2.472 GHz $f_c = 2412 \text{ MHz} + (N-1) \times 5 \text{ MHz}$, where - f_c = "Operating Frequency" in MHz, - N = "Channel Number" with the range from 1 to 13. 802.11n(40 MHz): 2.422 GHz - 2.462 GHz $f_c = 2412 \text{ MHz} + (N-1) \times 5 \text{ MHz}$, where - f_c = "Operating Frequency" in MHz, - N = "Channel Number" with the range from 3 to 11.
Equipment Type (LBT / non- LBT)	Adaptive equipment LBT based Detect and Avoid
MAC ID	54:77:87:D4:E1:52
Antenna Type	Shrapnel Antenna
Antenna Gain	3.0 dBi (In test items related to antenna gain, the final results reflect this figure. This value is provided by the applicant.)
Declare Max Antenna Power Density	4.72 mW/MHz

Modulation technology	Modulation Type	Transfer Rate (Mbps)
DSSS (802.11b)	DBPSK	1
	DQPSK	2
	CCK	5.5/11
OFDM (802.11g)	BPSK	6/9
	QPSK	12/18
	16QAM	24/36
	64QAM	48/54
OFDM (802.11n-20 MHz)	BPSK	6.5/7.2
	QPSK	13/19.5/14.4/21.7
	16QAM	26/39/28.9/43.3
	64QAM	52/58.5/65/57.8/65/72.2
OFDM (802.11n-40 MHz)	BPSK	13.5/15
	QPSK	27/40.5/30/45
	16QAM	54/81/60/90
	64QAM	108/121.5/135/120/150

3. SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

Part	Description	Channel		Test Mode	Data Rate	Verdict
5.1	Frequency Error	13/7/1	3/7/11	Un-modulation	/	Pass
5.2	Occupied Bandwidth and Spread-spectrum Bandwidth / Factor	13/7/1	3/7/11	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	Pass
5.3	Unwanted Emission Intensity	13/7/1	3/7/11	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	Pass
5.4	Antenna Power Error	13/7/1	3/7/11	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	Pass
5.5	Limitation of Collateral Emission of Receiver	13/7/1	3/7/11	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	N/A ^{Note3}
5.6	Carrier sensing function (1)	--	3/7/11	11n40	13.5 Mbps	Pass
5.7	Carrier sensing function (2)	13/7/1	3/7/11	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	N/A
5.8	Transmission Antenna Gain (EIRP Antenna Power)	13/7/1	3/7/11	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	N/A ^{Note2}
5.9	Transmission Radiation Angle Width (3dB Beamwidth)	13/7/1	3/7/11	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	N/A ^{Note2}
5.10	Radio Interference Prevention Capability	13/7/1	3/7/11	11b/11g/11n20/11n40	1/6/6.5/13.5 Mbps	Pass
5.11	Construction Protection Confirmation	--	--	--	--	Pass

Note 1: The tests were performed according to the method of measurements prescribed in MIC Ordinance Regulating Radio Equipment Section 4.17 of Article 49.20.

Note 2: When the EIRP is less than 12.14 dBm/MHz, it is not necessary.

Note 3: This requirement does not apply to devices that do not support receiver.

The test channel corresponding to the frequency list

Mode	Channel	Channel Number	Frequency (MHz)
11b	HIGH/MIDDLE/LOW(H/M/L)	13/7/1	2472/2442/2412
11g	HIGH/MIDDLE/LOW(H/M/L)	13/7/1	2472/2442/2412
11n20	HIGH/MIDDLE/LOW(H/M/L)	13/7/1	2472/2442/2412
11n40	HIGH/MIDDLE/LOW(H/M/L)	11/7/3	2462/2442/2422

3.1 MEASUREMENT UNCERTAINTY

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2.

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

Parameters	Uncertainty
Frequency Error / 99% & 90% Bandwidth	$(3.2 \times f \times 10^{-6})$ Hz
Antenna Power	1.82 dB
TX-RX Spurious Emissions	1.84 dB
Transmission Antenna Gain	5.36 dB
Temperature	0.8°C
Humidity	4%
DC / AC Power Source	0.04%
Note: " f " is the nominal signal frequency in Hz.	

4. GENERAL TEST CONFIGURATIONS

4.1 Test Environment Conditions

During the measurement, the normal environment conditions were within the listed ranges:

Relative Humidity (%)	52% to 64%	
Atmospheric Pressure (kPa)	100 kPa to 102 kPa	
Temperature	+20.0°C to +25.4°C	
Working Voltage of the EUT	NV (Normal Voltage)	3.30 V
	LV (Low Voltage)	2.97 V
	HV (High Voltage)	3.63 V

4.2 Test Equipment List

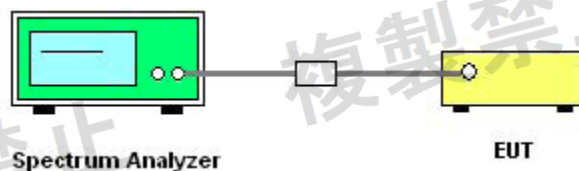
Description	Manufacturer	Model	Serial No.	Calibration Company	Calibration Address	Calibration By	Cal. Date	Cal. Due	Calibration Method
Spectrum Analyzer	KEYSIGHT	N9020A	MY50330200	Shenzhen Academy of Metrology & Quality Inspection	92 Longzhu Avenue, Nanshan District, Shenzhen, Guangdong, China	HuanJun	2023.05.16	2024.05.15	c)
Multimeter	CEM	DT-9915	12104971	GUANGZHOU NEM METROLOGY&TEST TECHNOLOGY CO., LTD.	2/F., Building 1, No.176, Hedong Road, Liwan District, Guangzhou, Guangdong, China	LiXiang	2022.12.28	2023.12.27	c)
DC Power Supply	ITECH	IT6863A	800014020757810006	GUANGZHOU NEM METROLOGY&TEST TECHNOLOGY CO., LTD.	2/F., Building 1, No.176, Hedong Road, Liwan District, Guangzhou, Guangdong, China	LiXiang	2022.09.25	2023.09.24	c)

Note:

- Calibration conducted by the National Institute of Information and Communications Technology (NICT) (hereinafter referred to as "NICT") or a designated calibration agency under Article 102-18 paragraph (1)
- Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992)
- 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)
- Calibration conducted by using measuring instruments and other equipment listed in the right column of Table No. 3 attached hereto, which shall have been given any of calibration, etc. listed above from a) to c)

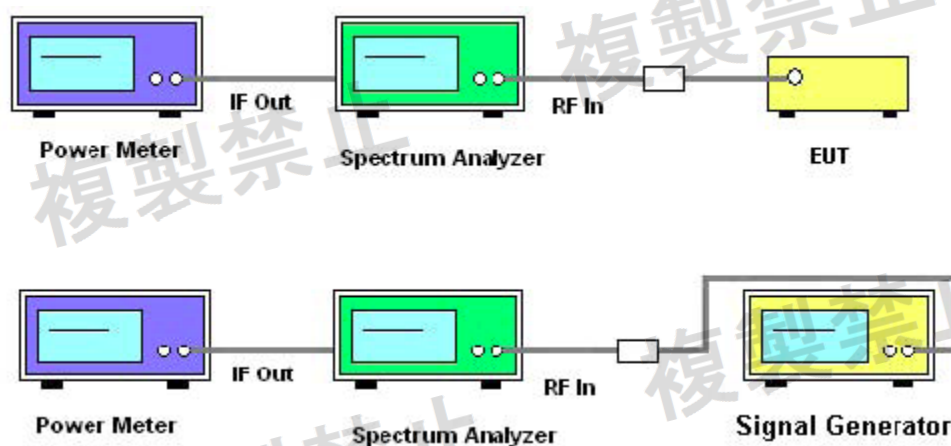
4.3 Description of Test Setup

4.3.1 For Antenna Port Test



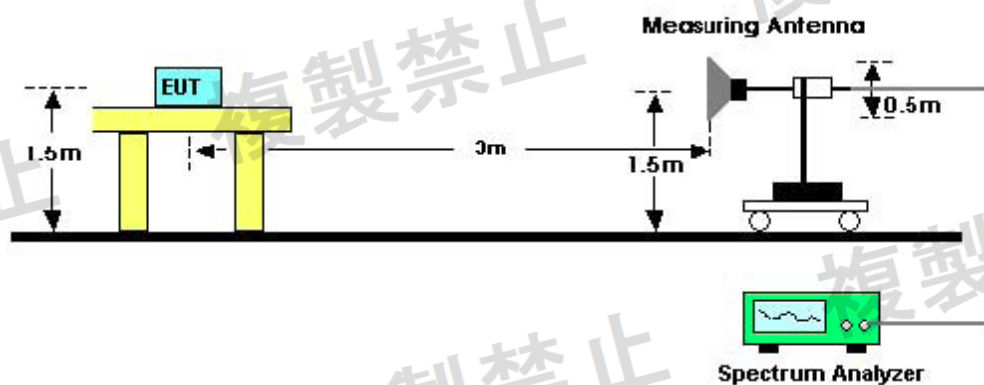
(Diagram 1)

4.3.2 For Antenna Power Error Test

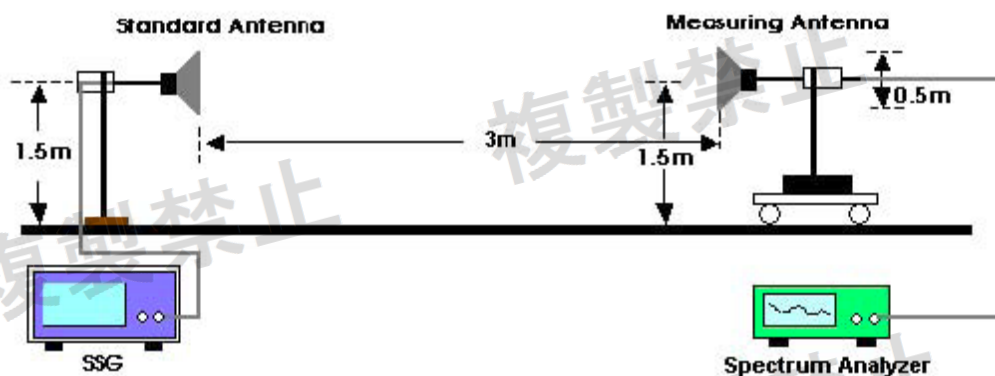


(Diagram 2)

4.3.3 For EIRP Antenna Power Test

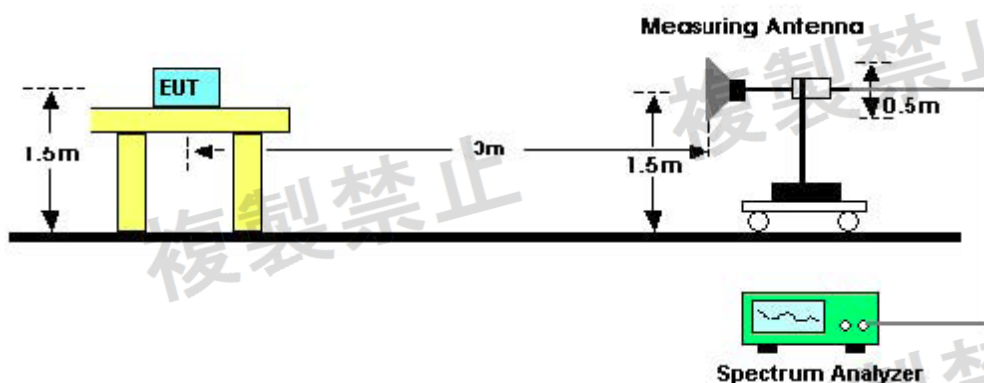


(Diagram 3)



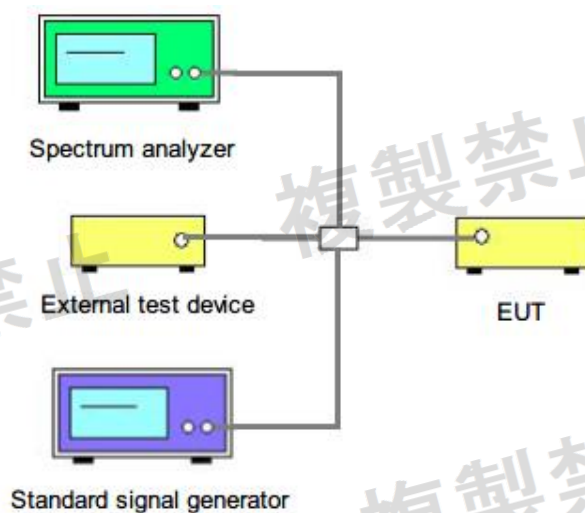
(Diagram 4)

4.3.4 For 3dB Beamwidth Test

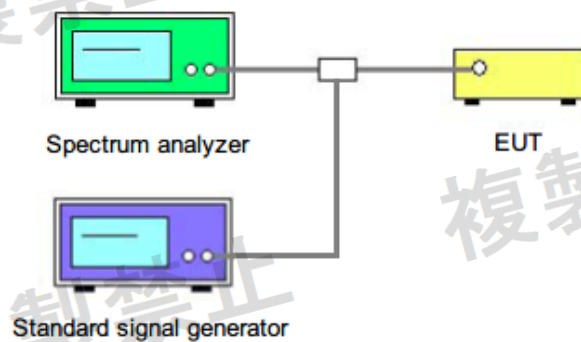


(Diagram 5)

4.3.5 For Carrier sensing function Test



(Diagram 6)



(Diagram 7)

5. TEST ITEMS

5.1 Frequency Error Measurement

5.1.1 Limit

Item	Limits
Frequency Tolerance	$\leq \pm 50$ ppm

5.1.2 Test Setup

See section 4.3.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX A.

5.1.3 Test Procedure

- 1 Frequency accuracy of SA shall be less than 10% of limits tolerance (5 ppm)
- 2 Setting of SA is following as: RB:1 kHz / VB:3 kHz / SPAN: 50 kHz
- 3 Center Frequency: The center frequency of testing for EUT
- 4 Sweep time: Auto
- 5 Sweep mode: Continuous sweep
- 6 Detect mode: Positive peak
- 7 Mark function: Frequency Counter (Resolution 100 Hz)
- 8 EUT have transmitted absence of modulation signal and fixed channelize. f is using the mark cursor to mark the peak frequency value, f_c is declaring of channel frequency. Then the frequency error formula is $(f_c - f) / f_c \times 10^6$ ppm and the limit is less than ± 50 ppm

5.1.4 Test Deviation

There is no deviation with the original standard.

5.1.5 EUT Operation during Test

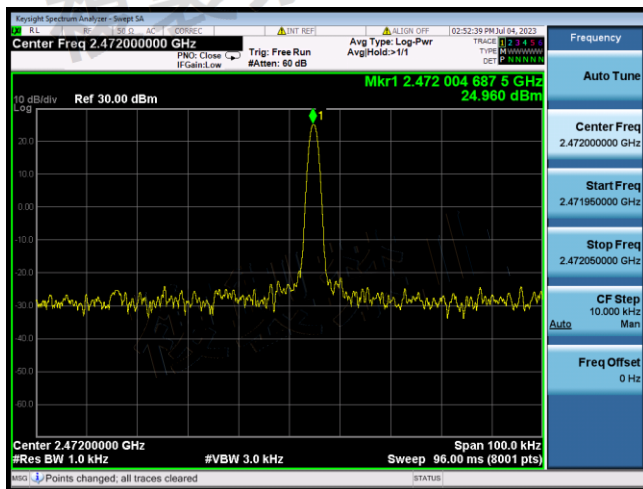
The EUT was placed on the test table and programmed in un-modulation function.

5.1.6 Test Result

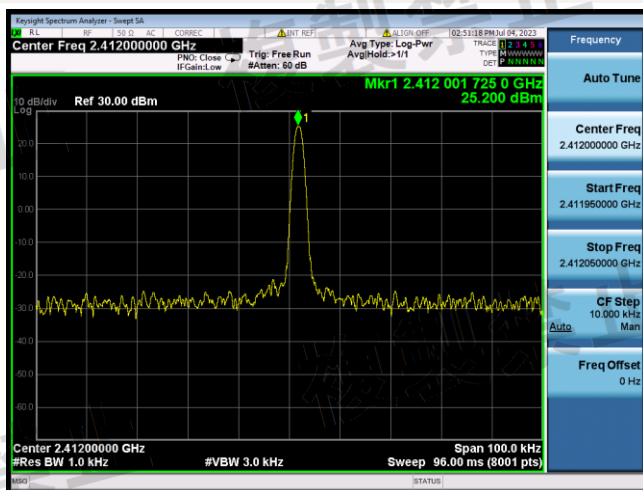
Test Data

Mode	Test Voltage	Channel	Frequency fc (MHz)	Test Frequency (MHz)	Frequency Error ppm	Verdict
20 MHz	LV	Low	2412	2411.9974750	-1.05	Pass
		Middle	2442	2442.0014375	0.59	Pass
		High	2472	2472.0035250	1.43	Pass
	NV	Low	2412	2411.9990125	-0.41	Pass
		Middle	2442	2442.0031250	1.28	Pass
		High	2472	2472.0046875	1.90	Pass
	HV	Low	2412	2412.0017250	0.72	Pass
		Middle	2442	2442.0041000	1.68	Pass
		High	2472	2472.0055750	2.26	Pass
40 MHz	LV	Low	2422	2422.0050375	2.08	Pass
		Middle	2442	2442.0066625	2.73	Pass
		High	2462	2462.0073875	3.00	Pass
	NV	Low	2422	2422.0065000	2.68	Pass
		Middle	2442	2442.0081750	3.35	Pass
		High	2462	2462.0089750	3.65	Pass
	HV	Low	2422	2422.0071500	2.95	Pass
		Middle	2442	2442.0085875	3.52	Pass
		High	2462	2462.0095625	3.88	Pass

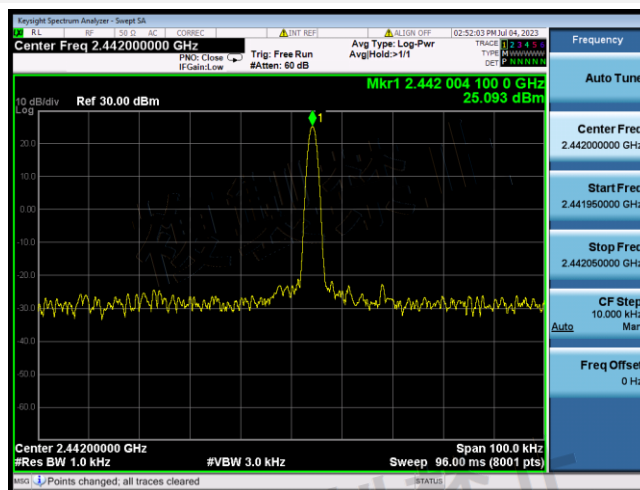
A.1.6 20 MHz NV High Channel



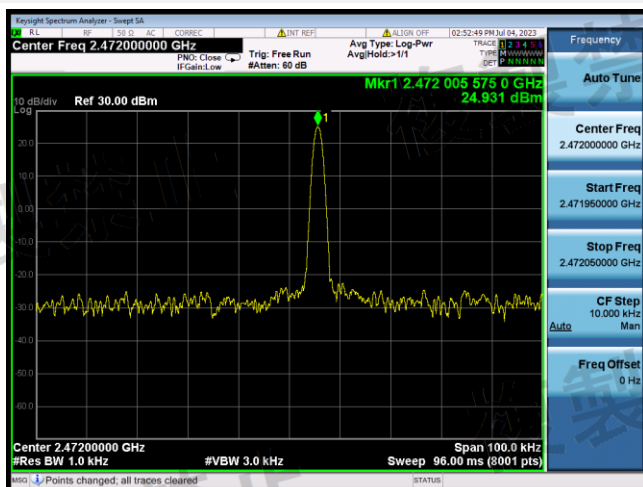
A.1.7 20 MHz HV Low Channel



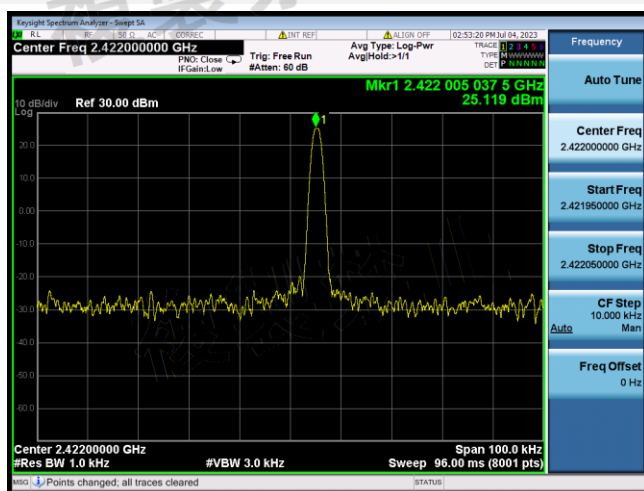
A.1.8 20 MHz HV Middle Channel



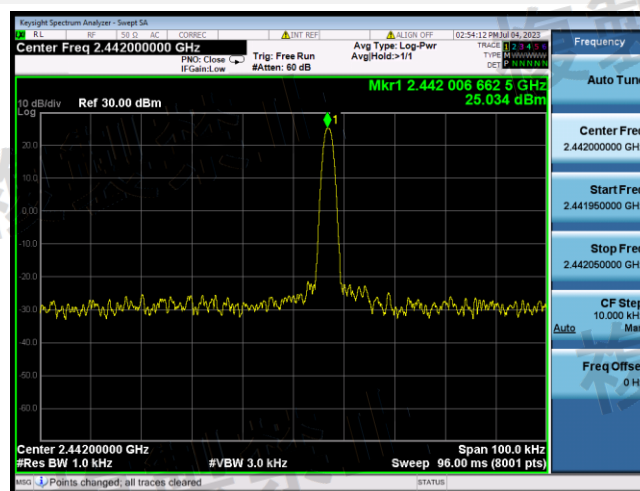
A.1.9 20 MHz HV High Channel



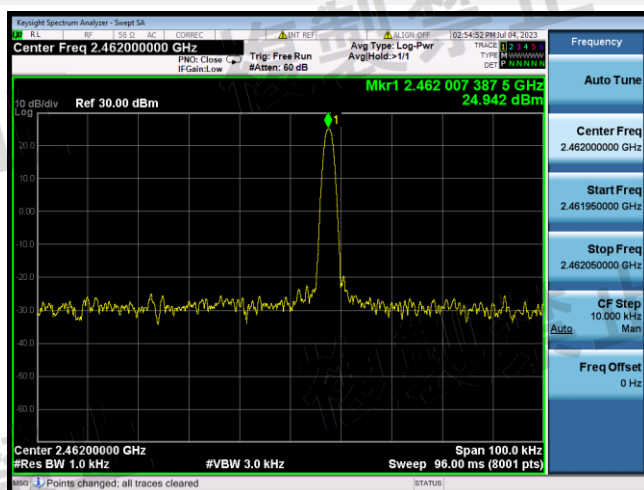
A.1.10 40 MHz LV Low Channel



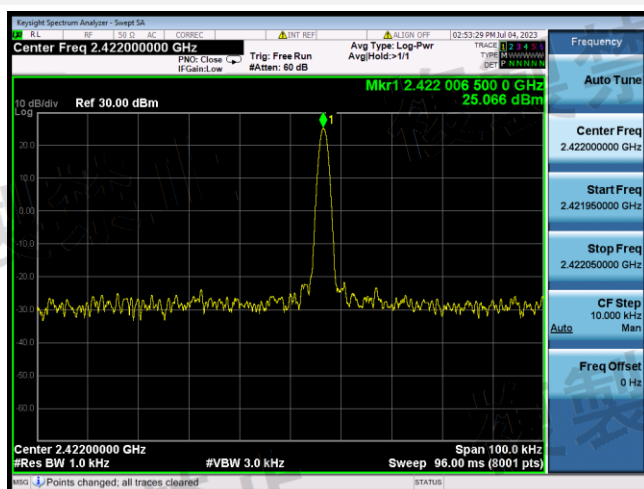
A.1.11 40 MHz LV Middle Channel



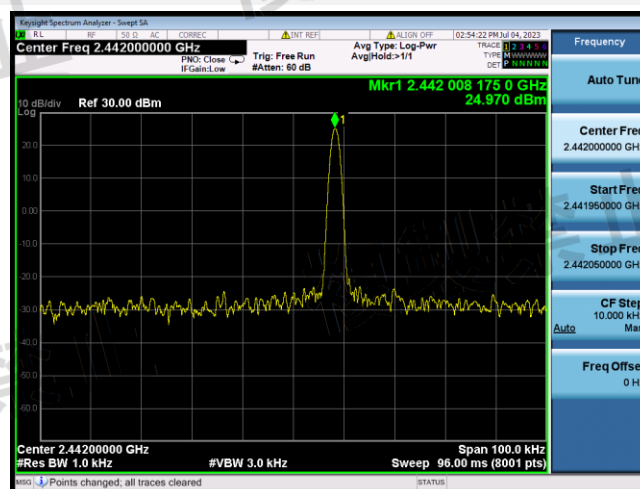
A.1.12 40 MHz LV High Channel



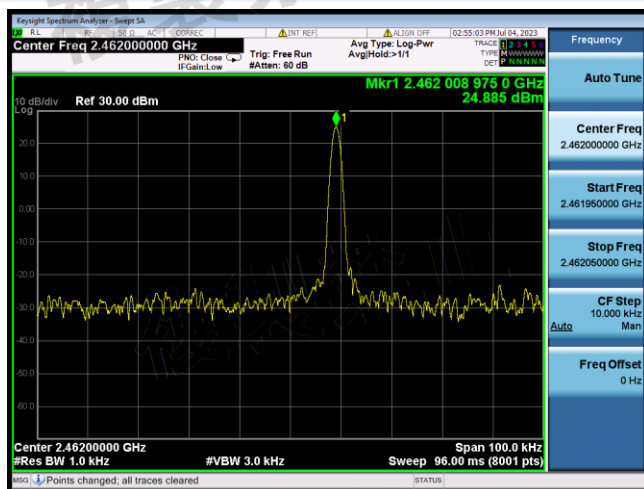
A.1.13 40 MHz NV Low Channel



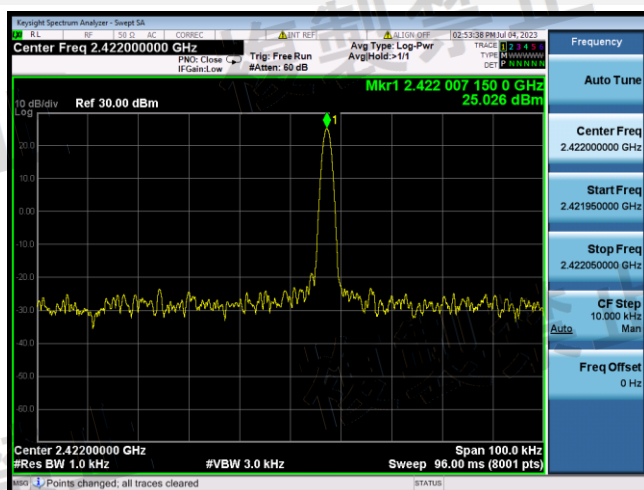
A.1.14 40 MHz NV Middle Channel



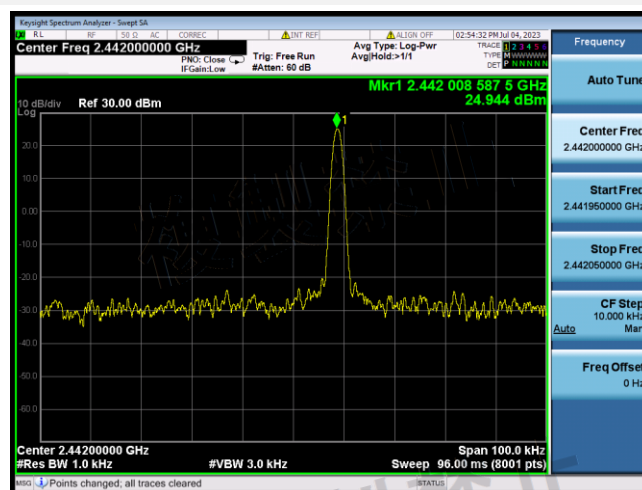
A.1.15 40 MHz NV High Channel



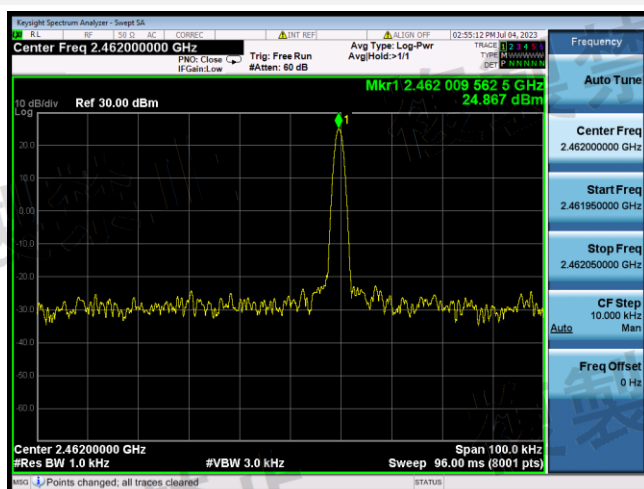
A.1.16 40 MHz HV Low Channel



A.1.17 40 MHz HV Middle Channel



A.1.18 40 MHz HV High Channel



5.2 Occupied Bandwidth and Spread-spectrum Bandwidth / Factor

5.2.1 Limit

Item	Limits
Occupied Band Width	FHSS $\leq$ 83.5MHz; OFDM $\leq$ 40MHz, DSSS $\leq$ 26MHz; Others $\leq$ 26MHz
Spread-spectrum Bandwidth	$\geq$ 500 kHz (FHSS, DSSS)
Spreading Spectrum Factor	$\geq$ 5 , Operating Frequency 2400 -2483.5 MHz $\geq$ 10 , Operating Frequency 2471 -2497 MHz

5.2.2 Test Setup

See section 4.3.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX A.

5.2.3 Test Procedure

- 1 Set the spectrum analyzer as follows:

Center frequency: Test frequency

Span: Approximately 2 to 3.5 times nominal bandwidth

Resolution bandwidth: Approximately 3% or less nominal bandwidth

Video bandwidth: equivalent to resolvable bandwidth

Sweep time: auto

Sweep mode: Continuous sweep

Detection: Positive peak

Trace mode: Maximum hold

- 2 After repeating sweeps until the display shows steady data, store the values at all data points into the computer array variables.

- 3 Convert the dB values at all data points to antilogarithm on the power dimension.

- 4 Obtain sum total of the power at all data points, and store it as "total power".

- 5 Accumulate the power at each data point sequentially upward from the lowest frequency and obtain the limit data point where the accumulated power becomes 0.5% (5% for spreading bandwidth) of the "total power". Then convert the limit data point into frequency and store it as "lower limit frequency".

- 6 Accumulate the power at each data point sequentially downward from the highest frequency and obtain the limit data point where the accumulated power becomes 0.5% (5% for spreading bandwidth) of the "total power". Then convert the limit data point into frequency and store it as "upper limit frequency".

- 7 Spread Spectrum Factor = Spread Spectrum Bandwidth / modulation rate of EUT.

5.2.4 Test Deviation

There is no deviation with the original standard.

5.2.5 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.2.6 Test Result

Test Data

Note1: Spread Spectrum Factor = Spread Bandwidth / transmission rate, (transmission rate = 1.375 for 802.11b; transmission rate = 1.5 for 802.11g / 802.11n (20M)

802.11b

Results of Occupied Bandwidth	Channel	Test Voltage	Measured 99% Occupied Bandwidth (MHz)		Verdict
	Low	LV	14.97		Pass
		NV	14.99		Pass
		HV	15.00		Pass
	Middle	LV	14.91		Pass
		NV	14.93		Pass
		HV	14.86		Pass
	High	LV	14.88		Pass
		NV	14.92		Pass
		HV	15.00		Pass
Results of Spread-spectrum Bandwidth	Channel	Test Voltage	Measured 90% Spread-spectrum Bandwidth (MHz)	Spread Spectrum Factor	Verdict
	Low	LV	9.85	7.30	Pass
		NV	9.93	7.36	Pass
		HV	9.77	7.24	Pass
	Middle	LV	9.79	7.25	Pass
		NV	9.89	7.33	Pass
		HV	9.84	7.29	Pass
	High	LV	9.79	7.25	Pass
		NV	9.85	7.30	Pass
		HV	9.76	7.23	Pass

802.11g

Results of Occupied Bandwidth	Channel	Test Voltage	Measured 99% Occupied Bandwidth (MHz)	Verdict
	Low	LV	16.44	Pass
		NV	16.42	Pass
		HV	16.42	Pass
	Middle	LV	16.44	Pass
		NV	16.45	Pass
		HV	16.44	Pass
	High	LV	16.46	Pass
		NV	16.44	Pass
		HV	16.44	Pass

802.11n- 20 MHz

Results of Occupied Bandwidth	Channel	Test Voltage	Measured 99% Occupied Bandwidth (MHz)	Verdict
	Low	LV	17.60	Pass
		NV	17.60	Pass
		HV	17.61	Pass
	Middle	LV	17.61	Pass
		NV	17.61	Pass
		HV	17.61	Pass
	High	LV	17.61	Pass
		NV	17.61	Pass
		HV	17.61	Pass

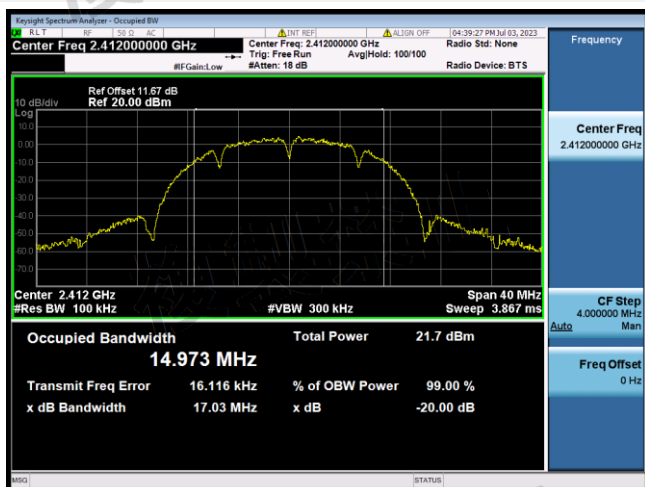
802.11n -40 MHz

Results of Occupied Bandwidth	Channel	Test Voltage	Measured 99% Occupied Bandwidth (MHz)	Verdict
	Low	LV	36.06	Pass
		NV	36.01	Pass
		HV	36.03	Pass
	Middle	LV	35.99	Pass
		NV	36.00	Pass
		HV	36.04	Pass
	High	LV	36.02	Pass
		NV	36.00	Pass
		HV	36.03	Pass

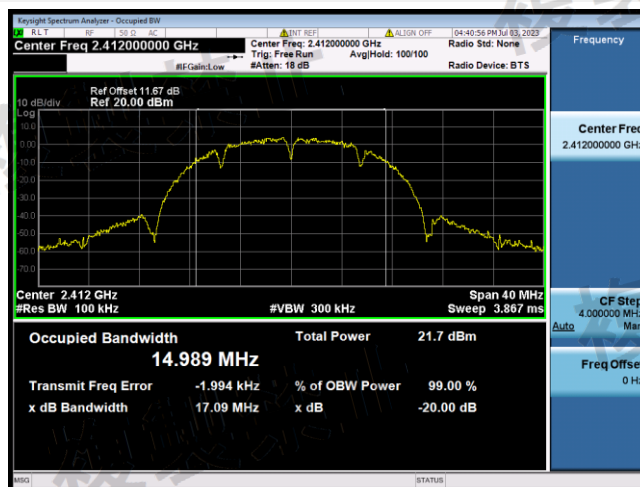
Test plots (Occupied Bandwidth)

802.11b (99% Occupied Bandwidth)

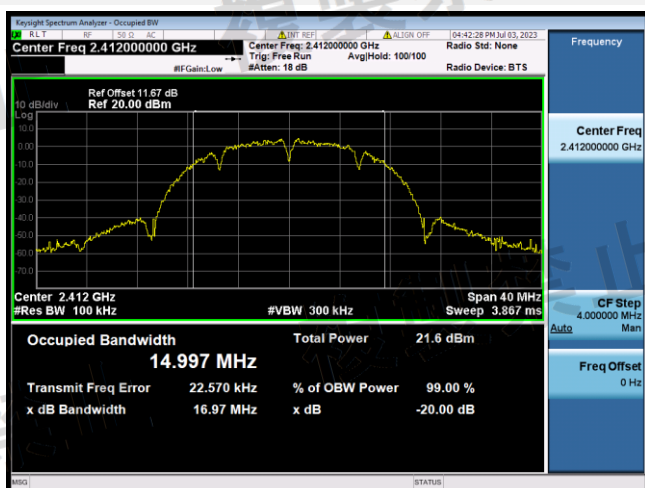
A.2.1 802.11b Low Channel LV



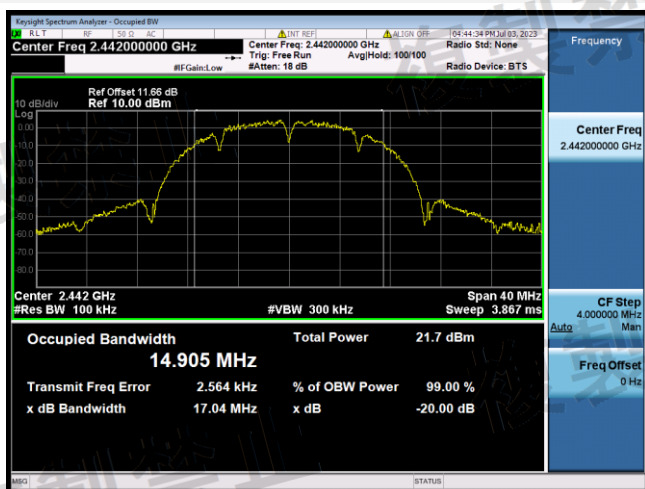
A.2.2 802.11b Low Channel NV



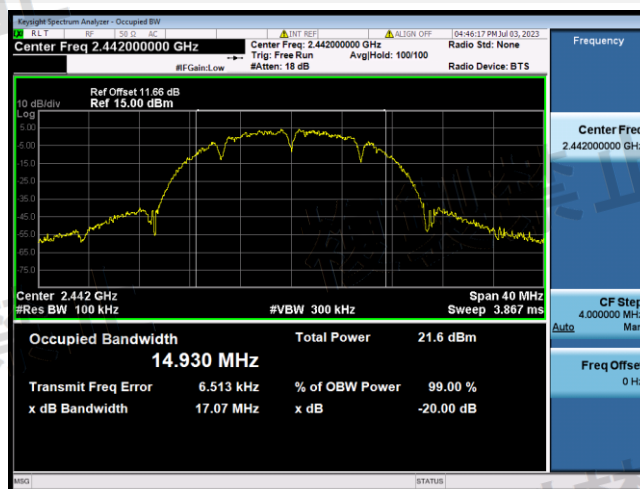
A.2.3 802.11b Low Channel HV



A.2.4 802.11b Middle Channel LV



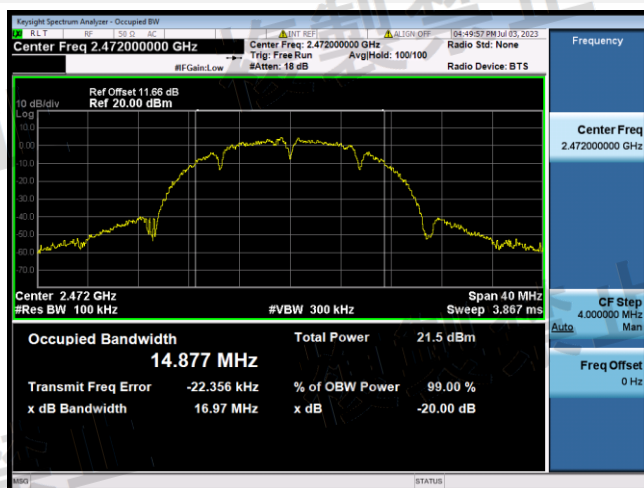
A.2.5 802.11b Middle Channel NV



A.2.6 802.11b Middle Channel HV



A.2.7 802.11b High Channel LV



A.2.8 802.11b High Channel NV



A.2.9 802.11b High Channel HV

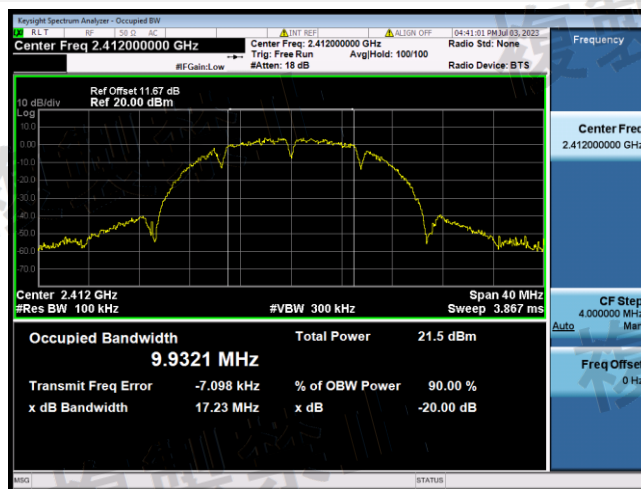


802.11b (90% Spread-spectrum Bandwidth)

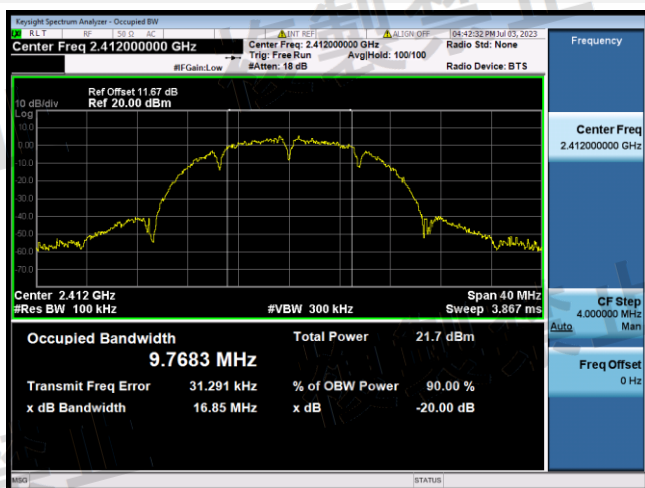
A.2.10 802.11b Low Channel LV



A.2.11 802.11b Low Channel NV



A.2.12 802.11b Low Channel HV



A.2.13 802.11b Middle Channel LV



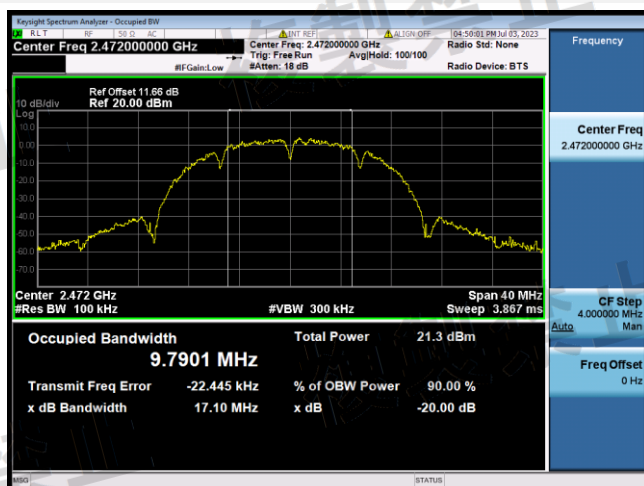
A.2.14 802.11b Middle Channel NV



A.2.15 802.11b Middle Channel HV



A.2.16 802.11b High Channel LV



A.2.17 802.11b High Channel NV

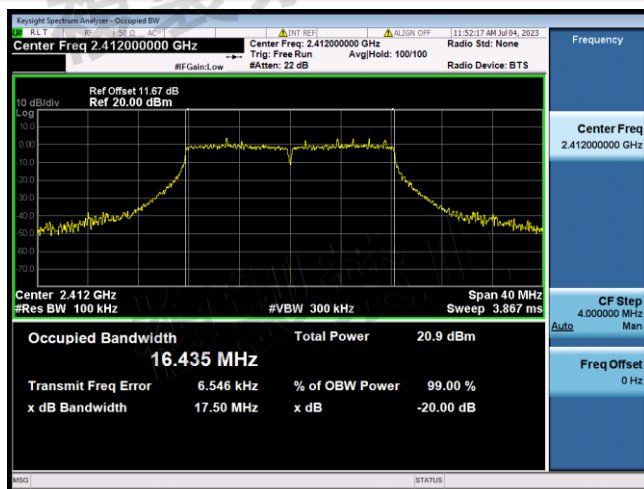


A.2.18 802.11b High Channel HV

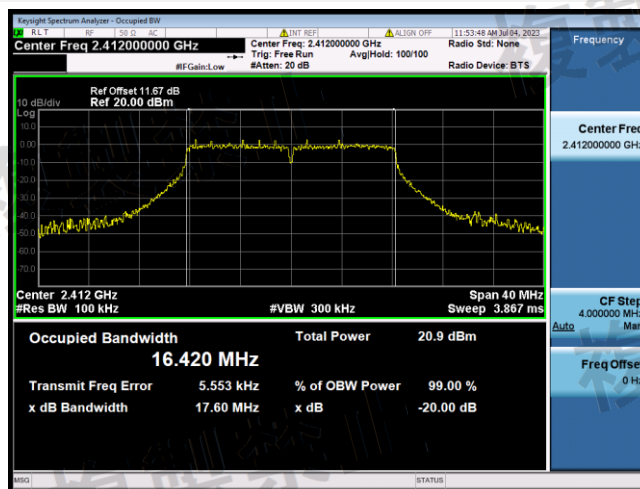


802.11g (99% Occupied Bandwidth)

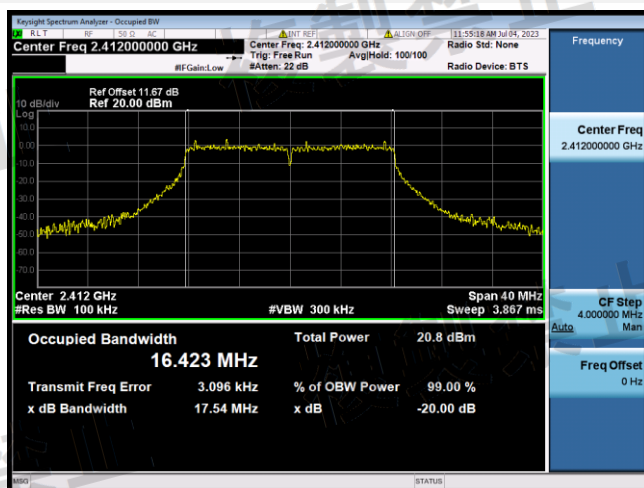
A.2.19 802.11g Low Channel LV



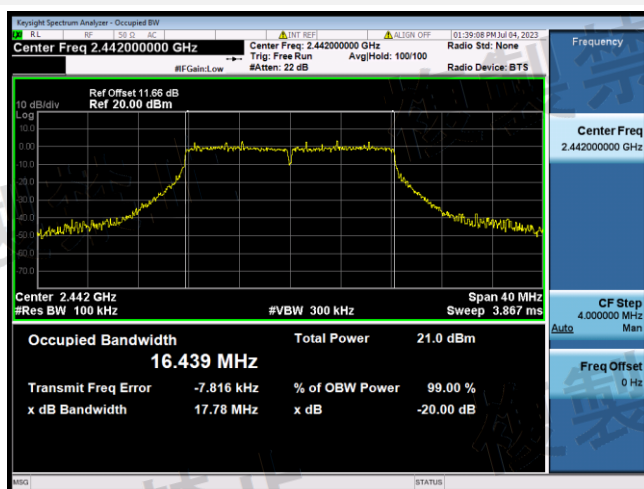
A.2.20 802.11g Low Channel NV



A.2.21 802.11g Low Channel HV



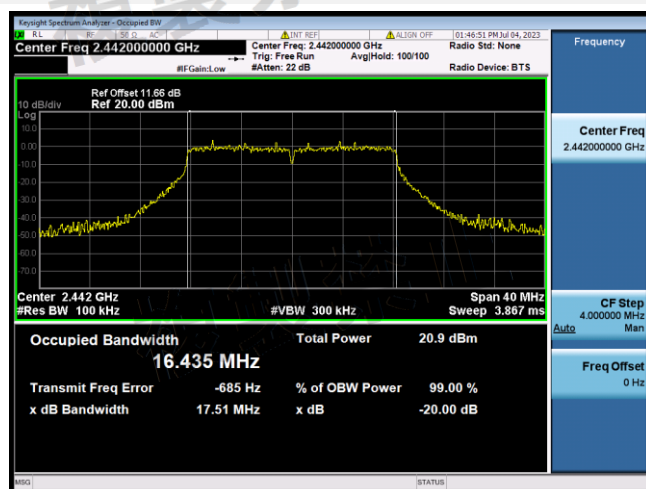
A.2.22 802.11g Middle Channel LV



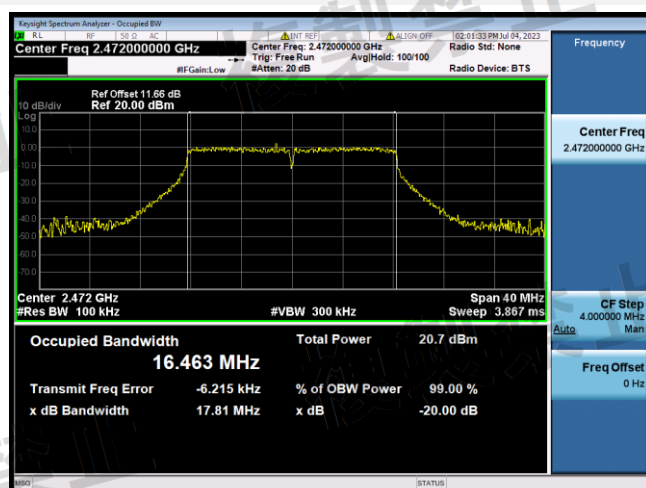
A.2.23 802.11g Middle Channel NV



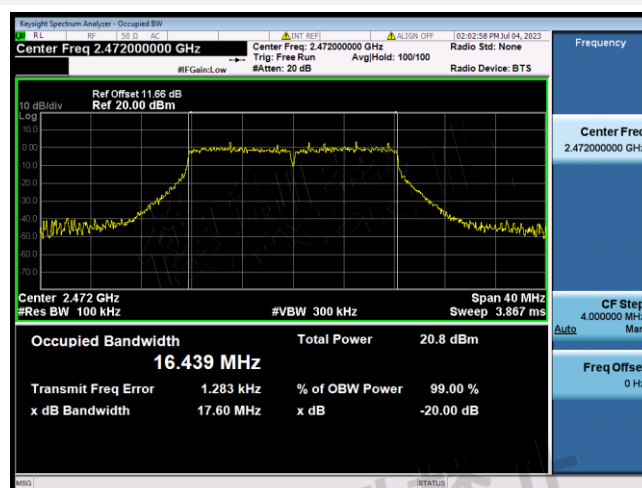
A.2.24 802.11g Middle Channel HV



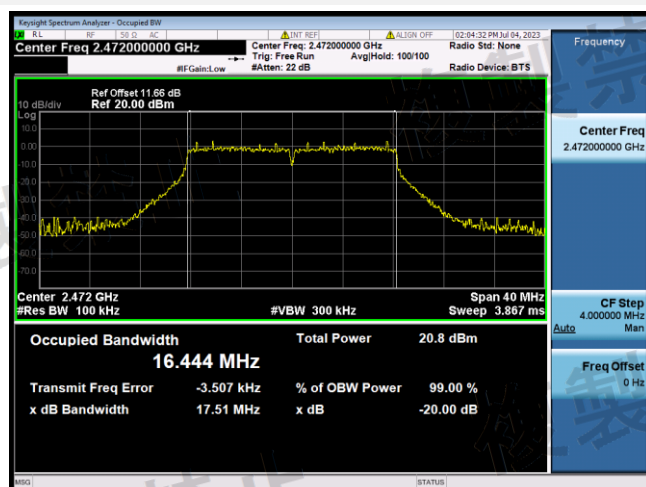
A.2.25 802.11g High Channel LV



A.2.26 802.11g High Channel NV

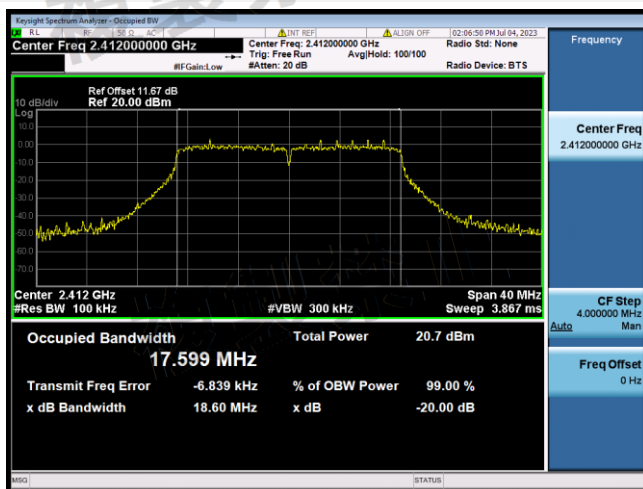


A.2.27 802.11g High Channel HV

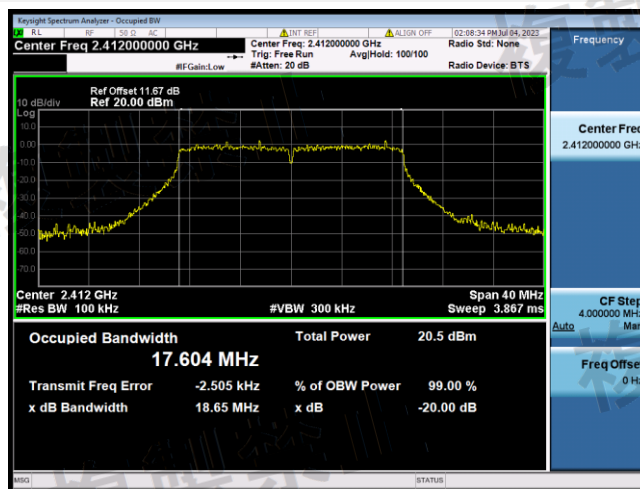


802.11n - 20MHz (99% Occupied Bandwidth)

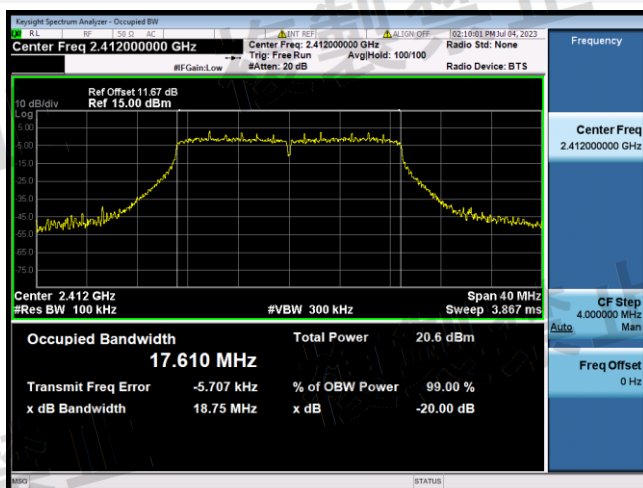
A.2.28 802.11n-20 Low Channel LV



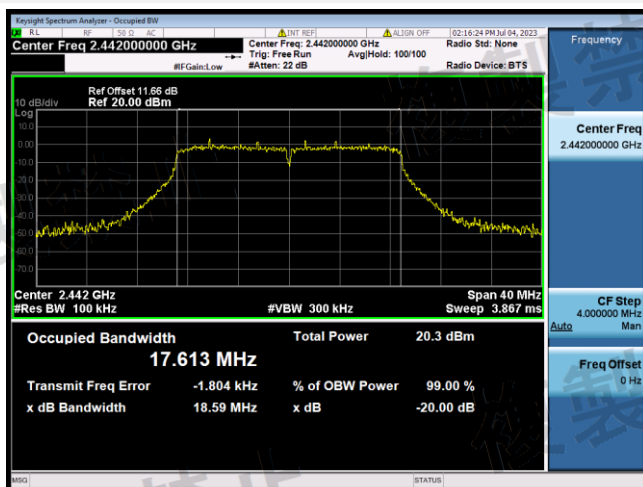
A.2.29 802.11n-20 Low Channel NV



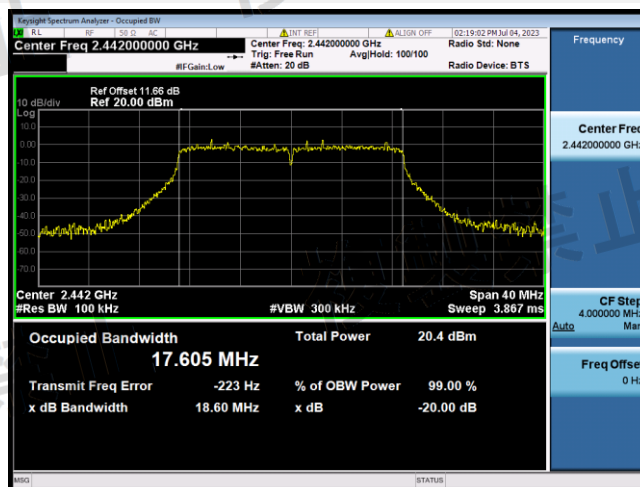
A.2.30 802.11n-20 Low Channel HV



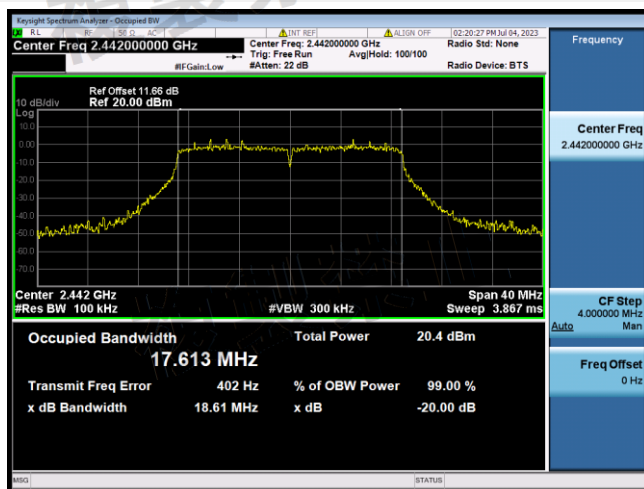
A.2.31 802.11n-20 Middle Channel LV



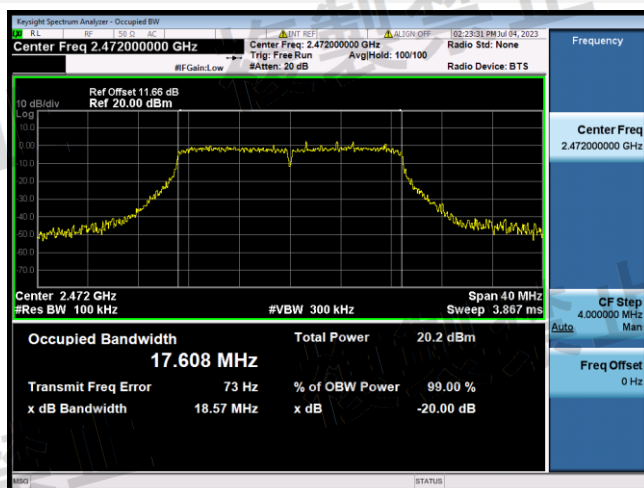
A.2.32 802.11n-20 Middle Channel NV



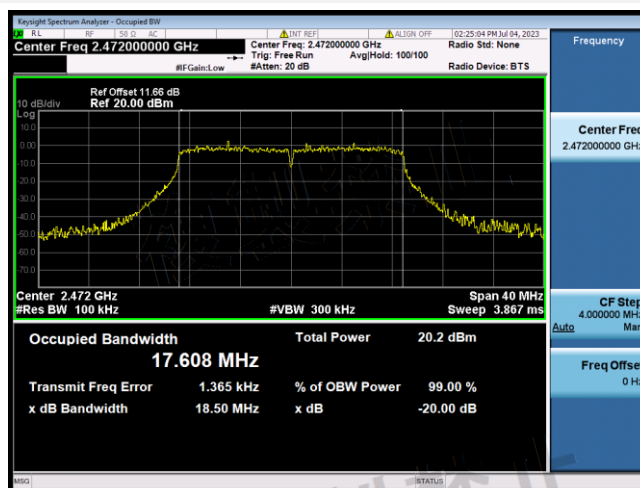
A.2.33 802.11n-20 Middle Channel HV



A.2.34 802.11n-20 High Channel LV



A.2.35 802.11n-20 High Channel NV

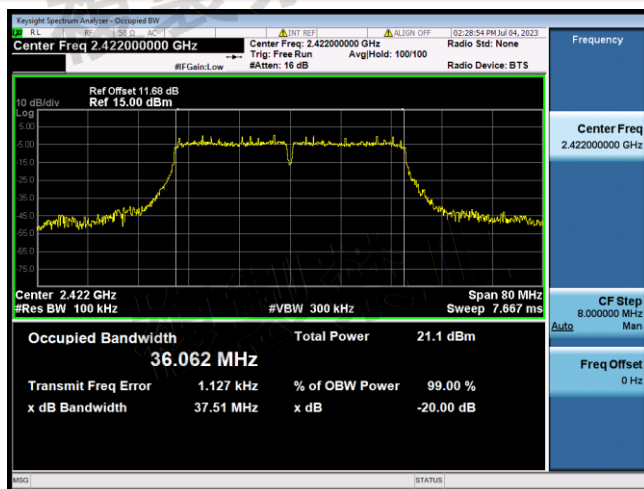


A.2.36 802.11n-20 High Channel HV

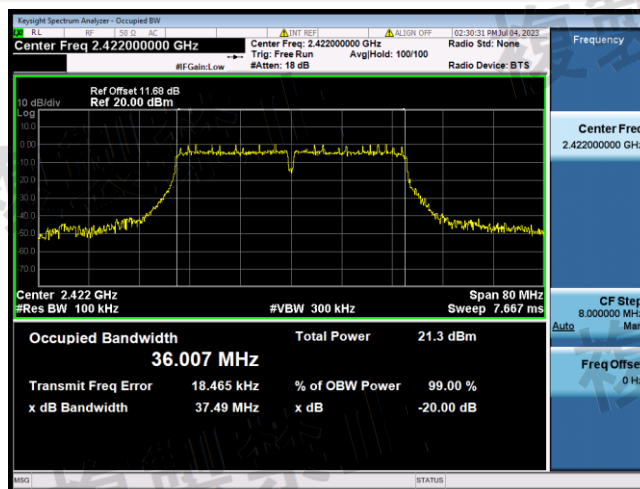


802.11n - 40MHz (99% Occupied Bandwidth)

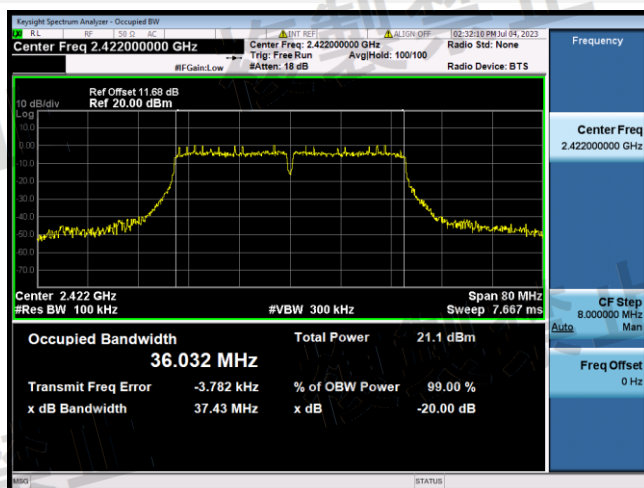
A.2.37 802.11n-40 Low Channel LV



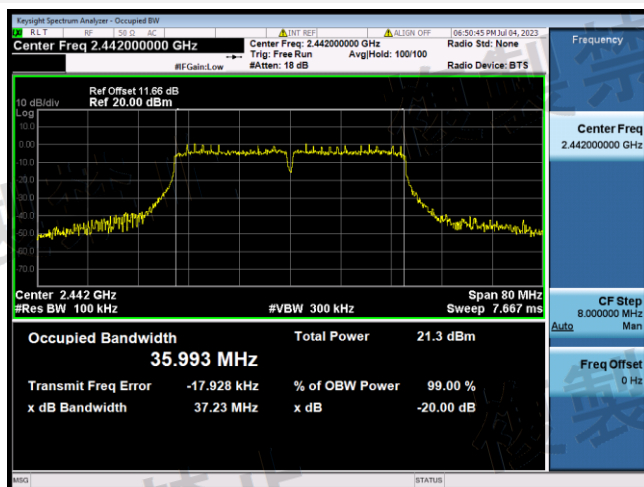
A.2.38 802.11n-40 Low Channel NV



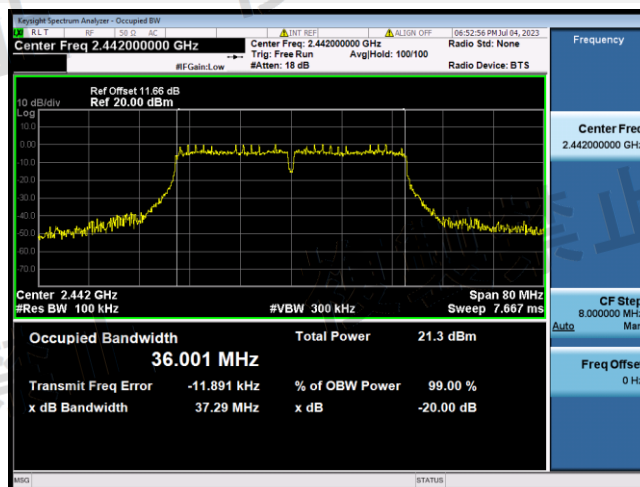
A.2.39 802.11n-40 Low Channel HV



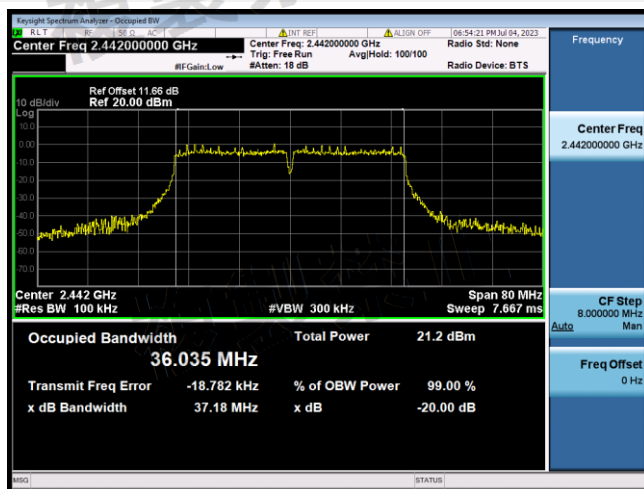
A.2.40 802.11n-40 Middle Channel LV



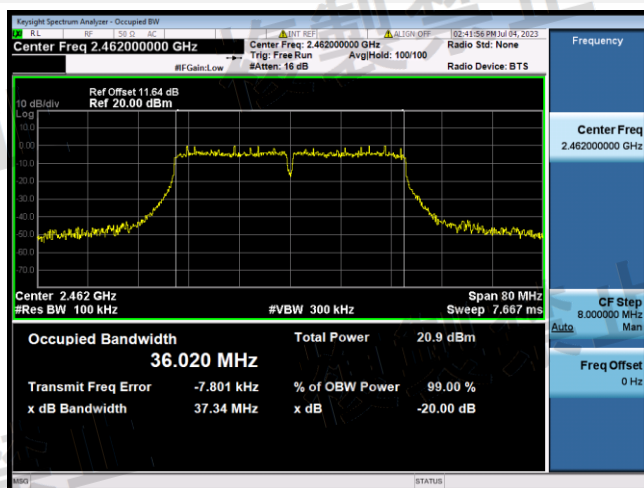
A.2.41 802.11n-40 Middle Channel NV



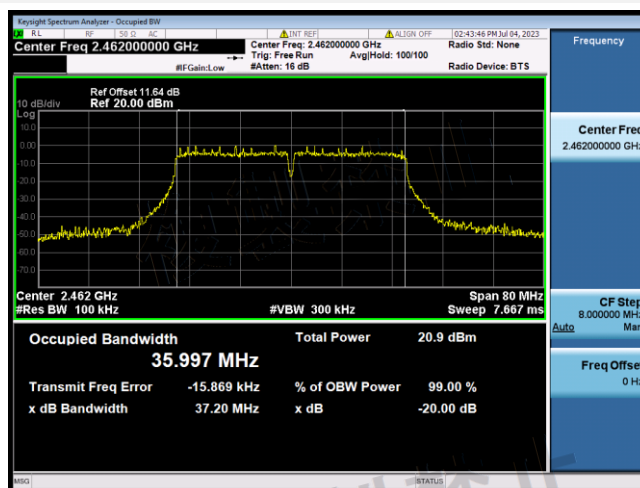
A.2.42 802.11n-40 Middle Channel HV



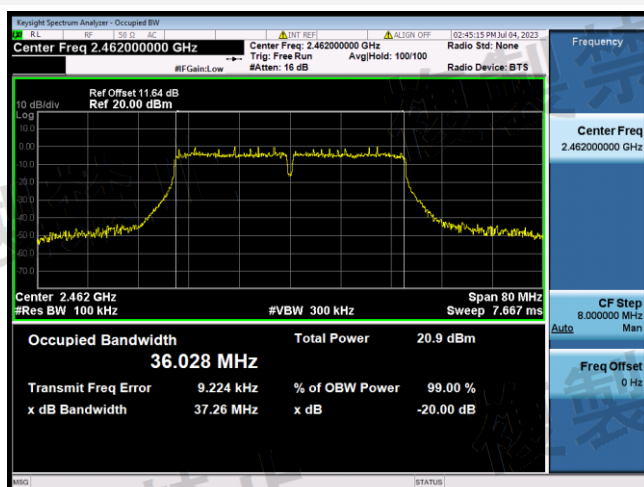
A.2.43 802.11n-40 High Channel LV



A.2.44 802.11n-40 High Channel NV



A.2.45 802.11n-40 High Channel HV



5.3 Unwanted Emission Intensity Measurement

5.3.1 Limit

Item	Limits
TX Spurious Emission	$\leq 2.5 \mu\text{W}/\text{MHz}$ ($30 \leq f \leq 1000 \text{ MHz}$) ,
	$\leq 2.5 \mu\text{W}/\text{MHz}$ ($1000 \text{ MHz} \leq f < 2387 \text{ MHz}$; $2496.5 \text{ MHz} < f$)
	$\leq 25 \mu\text{W}/\text{MHz}$ ($2387 \text{ MHz} \leq f < 2400 \text{ MHz}$) and ($2483.5 \text{ MHz} < f \leq 2496.5 \text{ MHz}$)

5.3.2 Test Setup

See section 4.3.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX A.

5.3.3 Test Procedure

- 1 EUT have transmitted the maximum modulation signal and fixed channelize.
- 2 Setting of SA is following as: RBW/VBW = 1MHz; / AT: 10dB / Ref: 0dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold.
- 3 Setting of SA is following as 30 MHz and stop frequency 1000 MHz Then to mark peak reading value + cable loss shall be less than 2.5 $\mu\text{W}/\text{MHz}$.
- 4 Setting of SA is following as 1000 MHz and stop frequency 2387 MHz Then to mark peak reading value + cable loss shall be less than 2.5 $\mu\text{W}/\text{MHz}$.
- 5 SA adjusted to start frequency 2387 MHz and stop frequency 2400 MHz. Then to mark peak reading value + cable loss shall be less than 25 $\mu\text{W}/\text{MHz}$.
- 6 SA adjusted to start frequency 2483.5 MHz and stop frequency 2496.5 MHz Then to mark peak reading value + cable loss shall be less than 25 $\mu\text{W}/\text{MHz}$.
- 7 SA adjusted to start frequency 2496.5 MHz and stop frequency 12500 MHz Then to mark peak reading value + cable loss shall be less than 2.5 $\mu\text{W}/\text{MHz}$.
- 8 Measure side band spurious as follows: For 2.4 GHz band: 2374 MHz~2400 MHz and 2483.5 MHz~2509.5 MHz RBW = VBW = 30 kHz, Result_Value = Measured_Value + 15.2 [dBm].
- 9 If the Result_Value is over the requirement, take total sum of 1MHz band centered at the spur frequency like ACLP measurement as Result_Value.

5.3.4 Test Deviation

There is no deviation with the original standard.

5.3.5 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

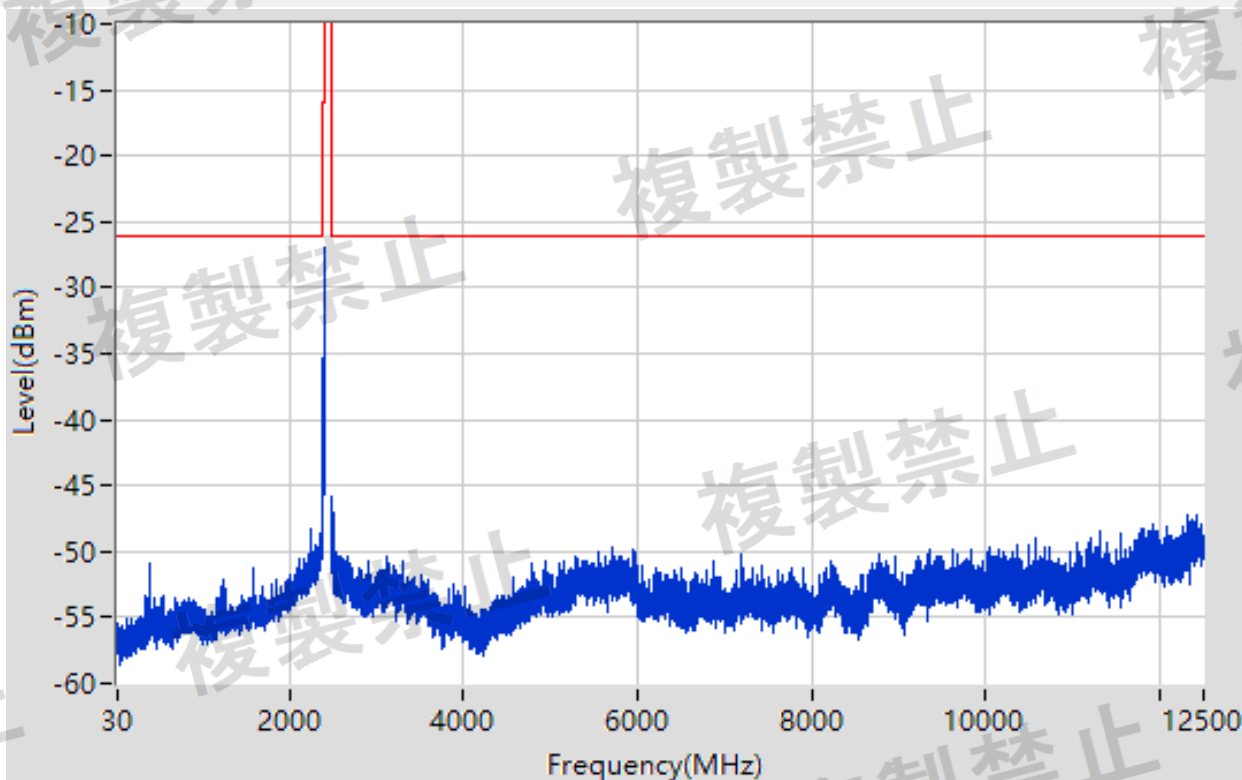
5.3.6 Test Result

Test Data

Mode	Test Voltage	Channel	Refer to Plot	Verdict
802.11b	LV	Low	A.3.1	Pass
	NV		A.3.2	Pass
	HV		A.3.3	Pass
	LV	Middle	A.3.4	Pass
	NV		A.3.5	Pass
	HV		A.3.6	Pass
	LV	High	A.3.7	Pass
	NV		A.3.8	Pass
	HV		A.3.9	Pass
802.11g	LV	Low	A.3.10	Pass
	NV		A.3.11	Pass
	HV		A.3.12	Pass
	LV	Middle	A.3.13	Pass
	NV		A.3.14	Pass
	HV		A.3.15	Pass
	LV	High	A.3.16	Pass
	NV		A.3.17	Pass
	HV		A.3.18	Pass
802.11n-20 MHz	LV	Low	A.3.19	Pass
	NV		A.3.20	Pass
	HV		A.3.21	Pass
	LV	Middle	A.3.22	Pass
	NV		A.3.23	Pass
	HV		A.3.24	Pass
	LV	High	A.3.25	Pass
	NV		A.3.26	Pass
	HV		A.3.27	Pass
802.11n-40 MHz	LV	Low	A.3.28	Pass
	NV		A.3.29	Pass
	HV		A.3.30	Pass
	LV	Middle	A.3.31	Pass
	NV		A.3.32	Pass
	HV		A.3.33	Pass
	LV	High	A.3.34	Pass
	NV		A.3.35	Pass
	HV		A.3.36	Pass

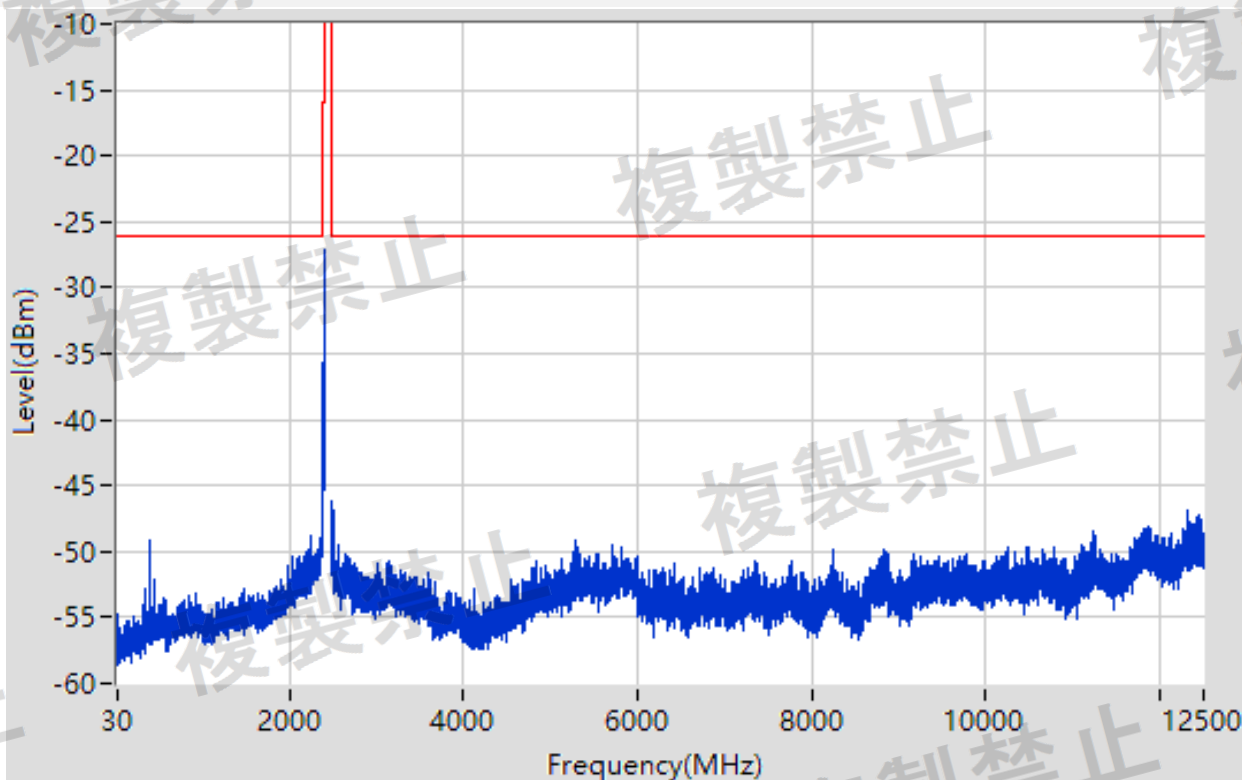
Test plots

A.3.1 802.11b LV Low Channel



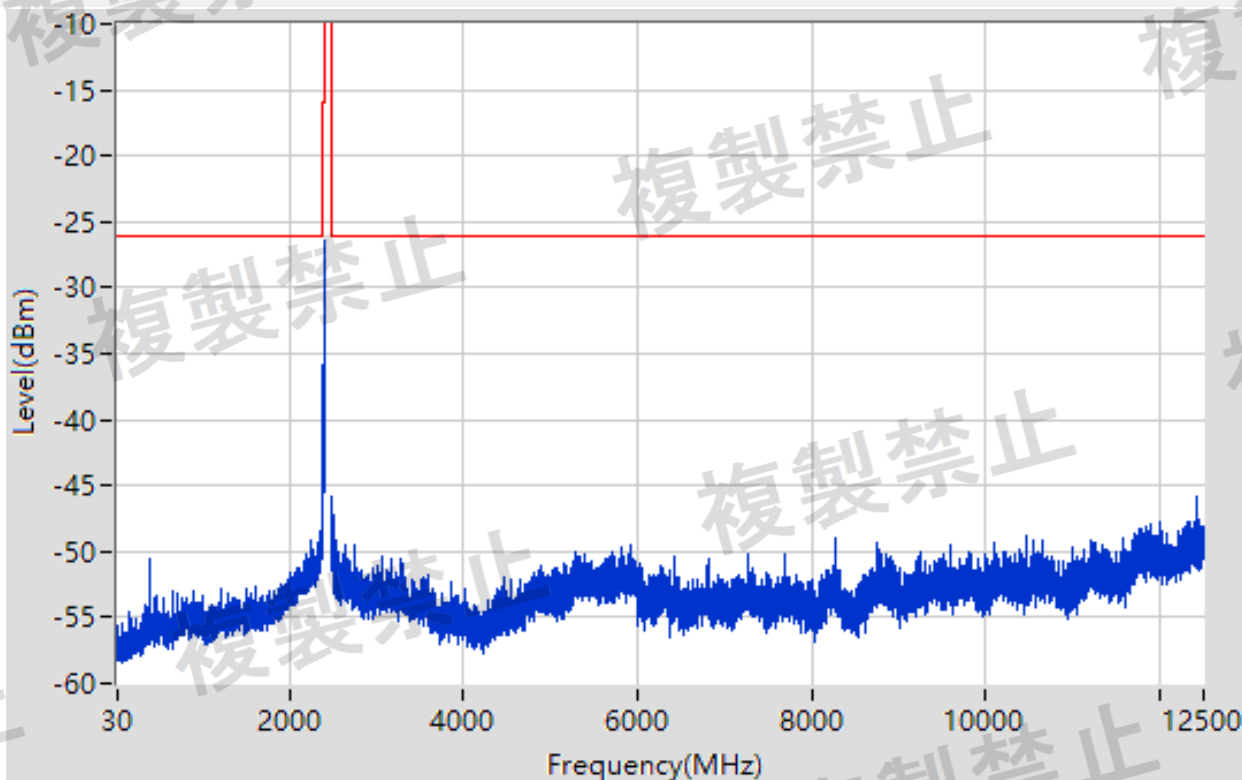
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	401	-50.98	-26	Pass	971
1000	2374	1	Peak	2373	-45.79	-26	Pass	1375
2374	2387	1	Peak	2385.787	-39.89	-26	Pass	601
2387	2400	1	Peak	2400	-26.98	-16	Pass	601
2483.5	2496.5	1	Peak	2489.047	-45.86	-16	Pass	601
2496.5	2509.5	1	Peak	2501.093	-47.08	-26	Pass	601
2509.5	6000	1	Peak	5720.96	-49.74	-26	Pass	3491
6000	12500	1	Peak	12310	-47.28	-26	Pass	6501

A.3.2 802.11b NV Low Channel



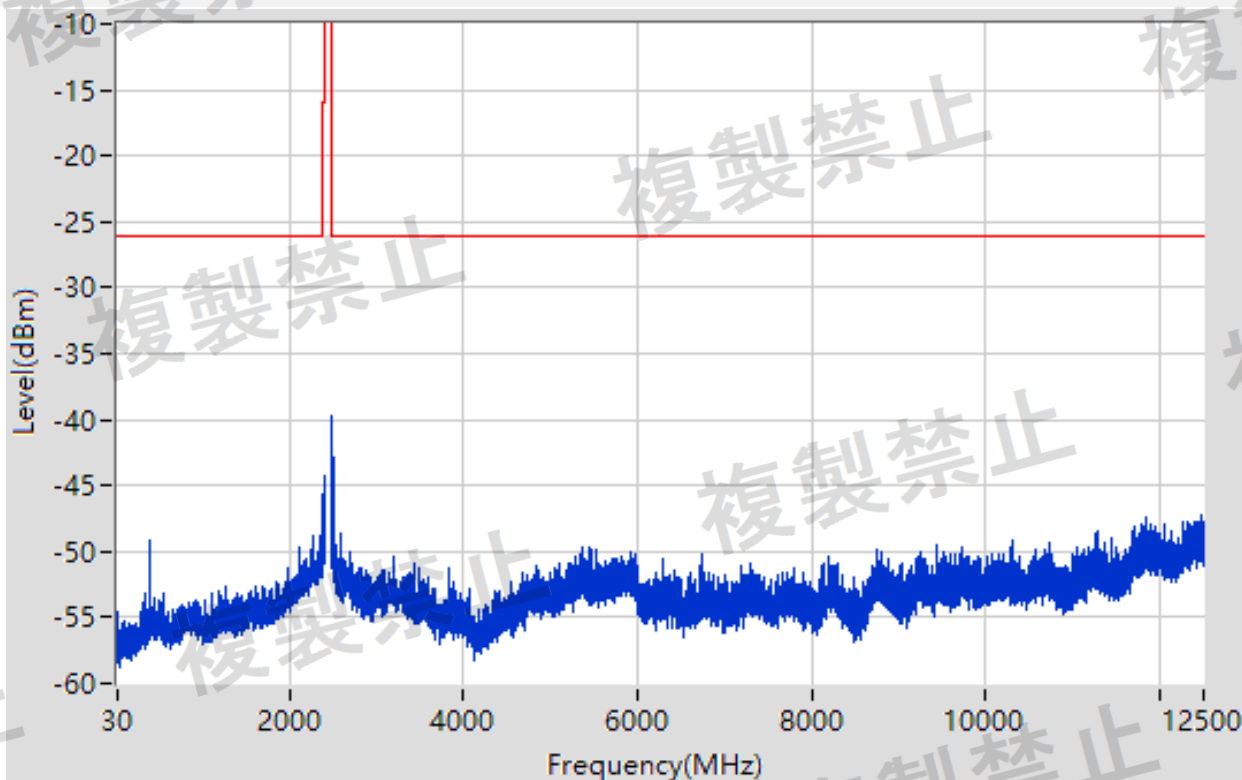
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-49.09	-26	Pass	971
1000	2374	1	Peak	2370	-45.41	-26	Pass	1375
2374	2387	1	Peak	2386.35	-40.1	-26	Pass	601
2387	2400	1	Peak	2399.87	-27.09	-16	Pass	601
2483.5	2496.5	1	Peak	2488.137	-46.22	-16	Pass	601
2496.5	2509.5	1	Peak	2507.16	-46.96	-26	Pass	601
2509.5	6000	1	Peak	5295.899	-49.22	-26	Pass	3491
6000	12500	1	Peak	12313	-46.9	-26	Pass	6501

A.3.3 802.11b HV Low Channel



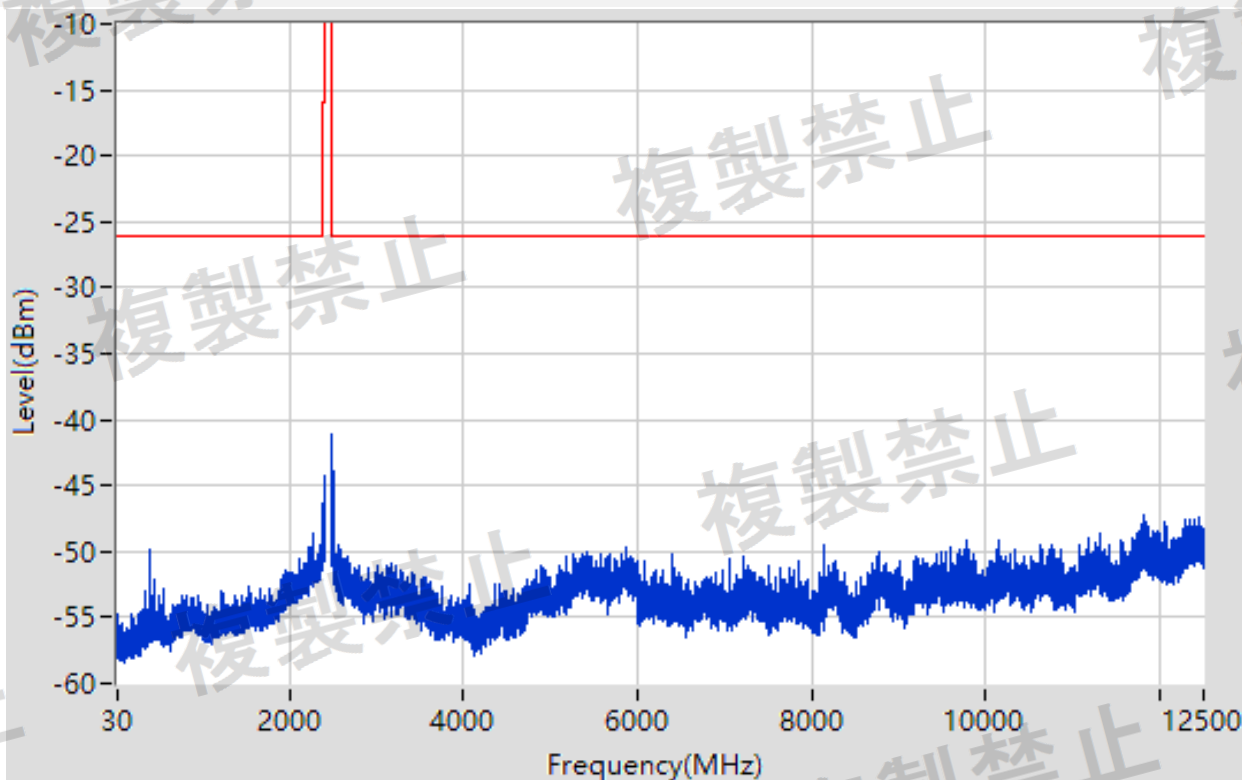
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	401	-50.59	-26	Pass	971
1000	2374	1	Peak	2374	-45.79	-26	Pass	1375
2374	2387	1	Peak	2386.978	-40.18	-26	Pass	601
2387	2400	1	Peak	2400	-26.45	-16	Pass	601
2483.5	2496.5	1	Peak	2493.922	-45.81	-16	Pass	601
2496.5	2509.5	1	Peak	2502.35	-47.24	-26	Pass	601
2509.5	6000	1	Peak	2538.504	-49.25	-26	Pass	3491
6000	12500	1	Peak	12430	-45.88	-26	Pass	6501

A.3.4 802.11b LV Middle Channel



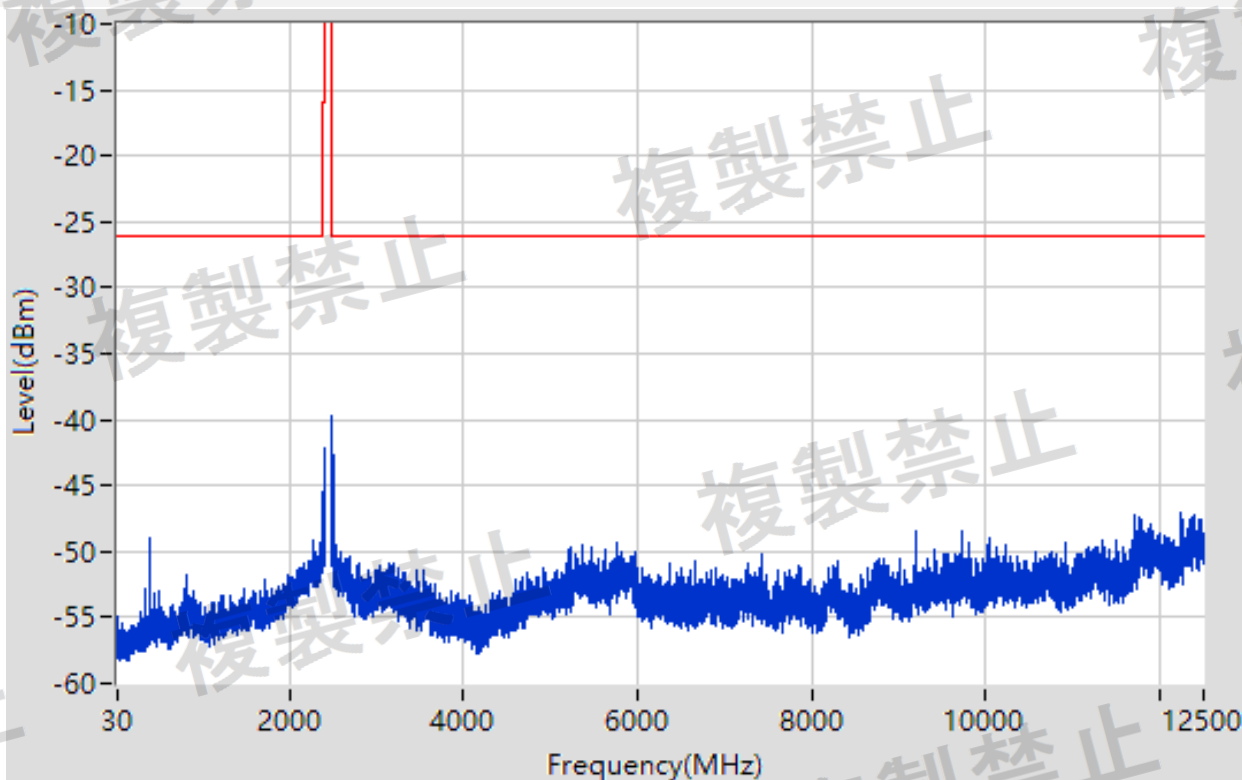
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-49.1	-26	Pass	971
1000	2374	1	Peak	2287	-48.73	-26	Pass	1375
2374	2387	1	Peak	2386.263	-47.89	-26	Pass	601
2387	2400	1	Peak	2398.288	-44.19	-16	Pass	601
2483.5	2496.5	1	Peak	2491.495	-39.71	-16	Pass	601
2496.5	2509.5	1	Peak	2502.437	-42.84	-26	Pass	601
2509.5	6000	1	Peak	2602.513	-48.59	-26	Pass	3491
6000	12500	1	Peak	12473	-47.22	-26	Pass	6501

A.3.5 802.11b NV Middle Channel



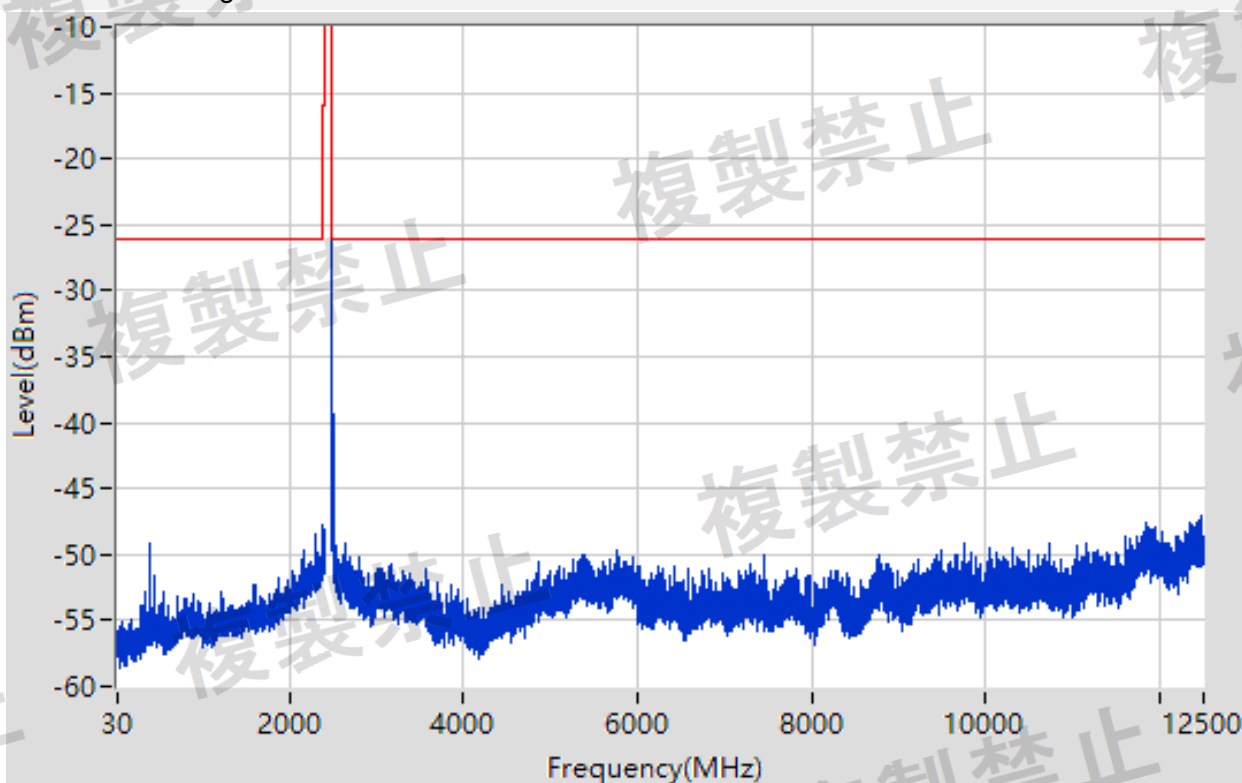
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-49.9	-26	Pass	971
1000	2374	1	Peak	2281	-48.63	-26	Pass	1375
2374	2387	1	Peak	2386.805	-46.51	-26	Pass	601
2387	2400	1	Peak	2395.32	-44.23	-16	Pass	601
2483.5	2496.5	1	Peak	2484.453	-41.17	-16	Pass	601
2496.5	2509.5	1	Peak	2500.682	-43.89	-26	Pass	601
2509.5	6000	1	Peak	2511.5	-47.56	-26	Pass	3491
6000	12500	1	Peak	11822	-47.2	-26	Pass	6501

A.3.6 802.11b HV Middle Channel



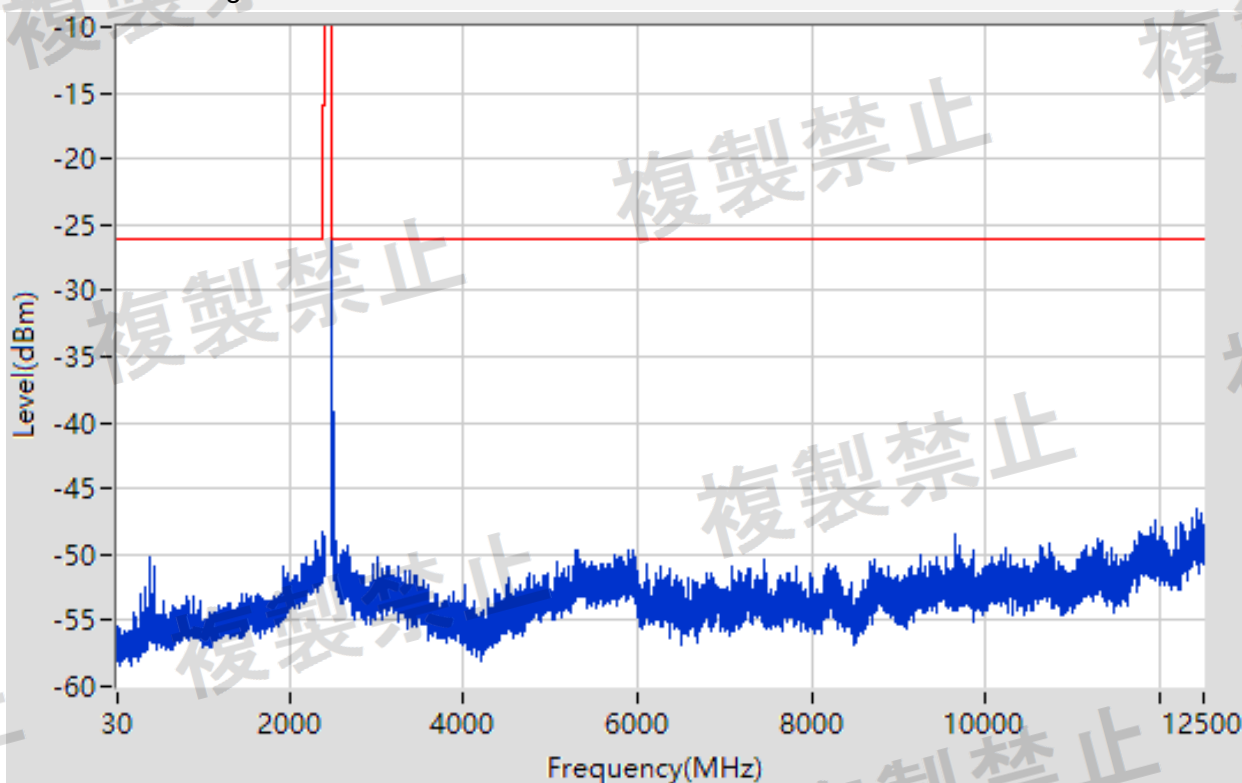
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-48.92	-26	Pass	971
1000	2374	1	Peak	2373	-49.15	-26	Pass	1375
2374	2387	1	Peak	2386.675	-47.1	-26	Pass	601
2387	2400	1	Peak	2398.527	-42.17	-16	Pass	601
2483.5	2496.5	1	Peak	2490.282	-39.77	-16	Pass	601
2496.5	2509.5	1	Peak	2497.735	-41.35	-26	Pass	601
2509.5	6000	1	Peak	2512.5	-46.61	-26	Pass	3491
6000	12500	1	Peak	12229	-46.99	-26	Pass	6501

A.3.7 802.11b LV High Channel



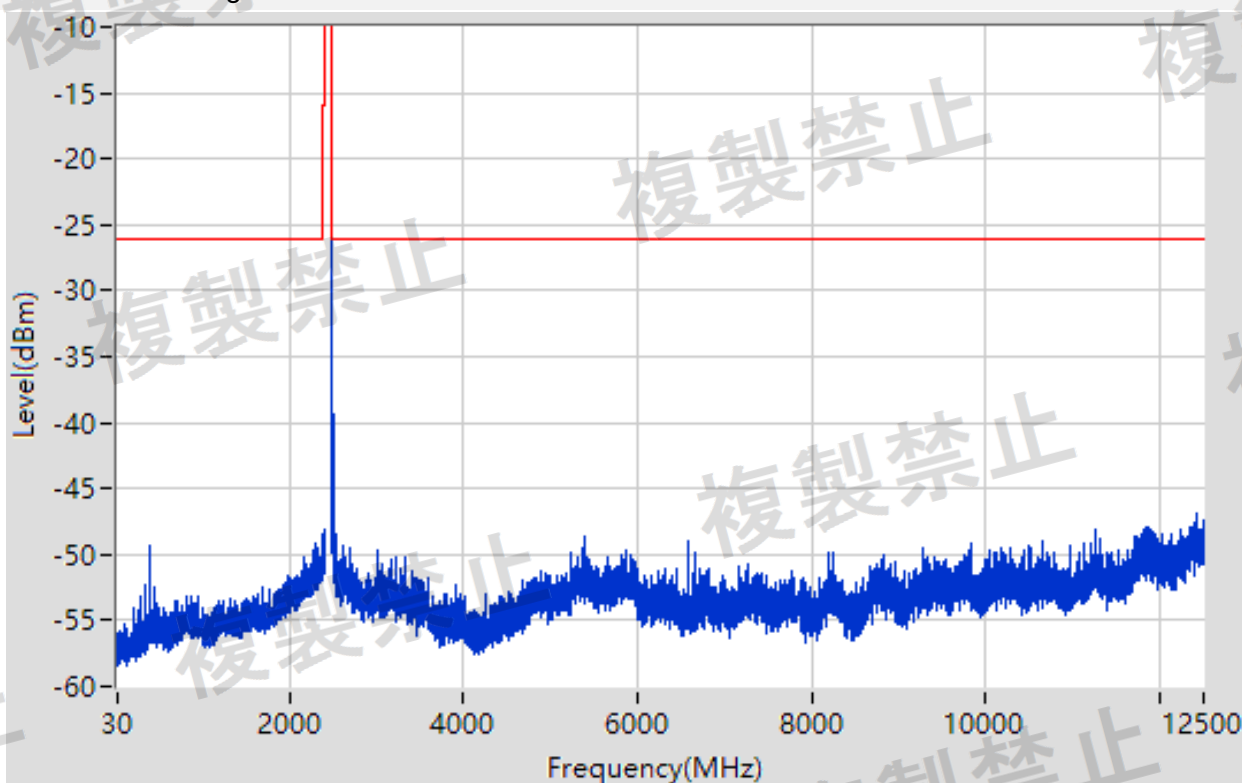
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-49.13	-26	Pass	971
1000	2374	1	Peak	2312	-48.48	-26	Pass	1375
2374	2387	1	Peak	2381.627	-47.83	-26	Pass	601
2387	2400	1	Peak	2393.132	-48.04	-16	Pass	601
2483.5	2496.5	1	Peak	2483.543	-25.48	-16	Pass	601
2496.5	2509.5	1	Peak	2496.933	-37.62	-26	Pass	601
2509.5	6000	1	Peak	2517.501	-46.08	-26	Pass	3491
6000	12500	1	Peak	12462	-47.13	-26	Pass	6501

A.3.8 802.11b NV High Channel



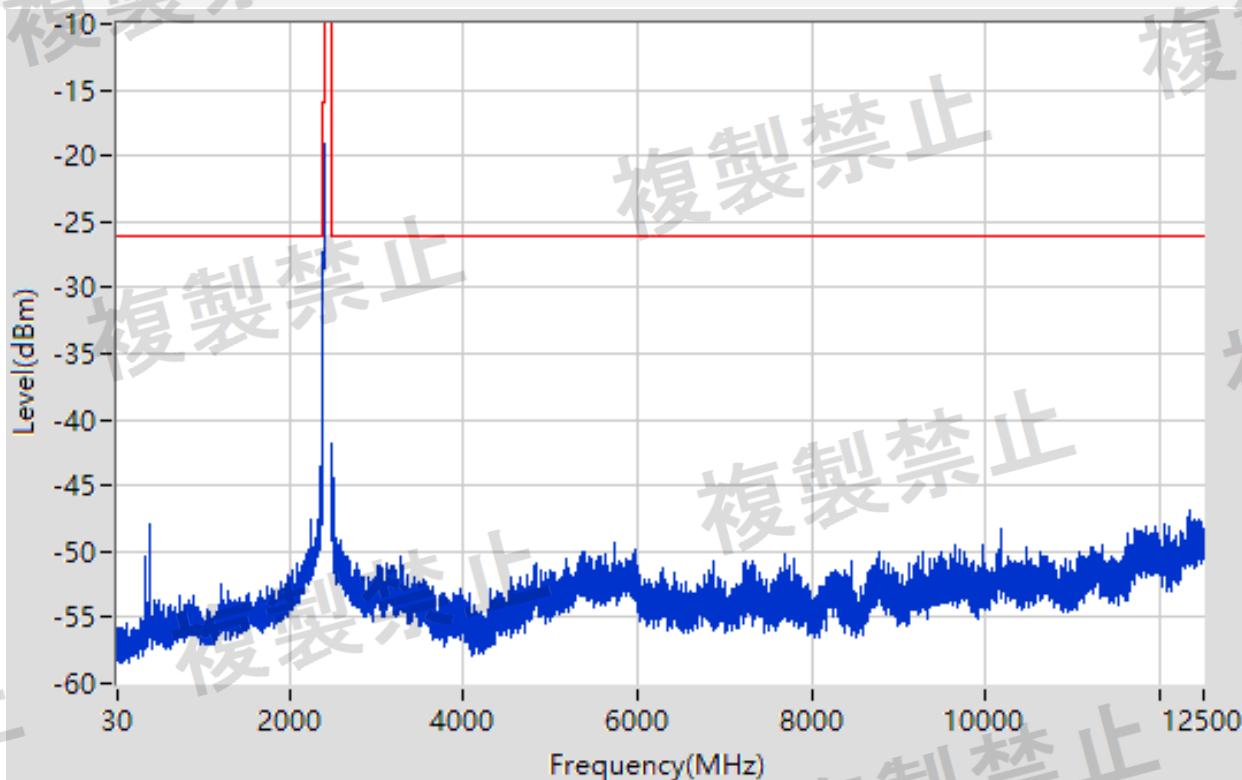
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	399	-50.28	-26	Pass	971
1000	2374	1	Peak	2310	-48.96	-26	Pass	1375
2374	2387	1	Peak	2377.293	-48.25	-26	Pass	601
2387	2400	1	Peak	2390.532	-48.25	-16	Pass	601
2483.5	2496.5	1	Peak	2483.5	-25.54	-16	Pass	601
2496.5	2509.5	1	Peak	2496.673	-37.19	-26	Pass	601
2509.5	6000	1	Peak	2512.5	-47.92	-26	Pass	3491
6000	12500	1	Peak	12413	-46.62	-26	Pass	6501

A.3.9 802.11b HV High Channel



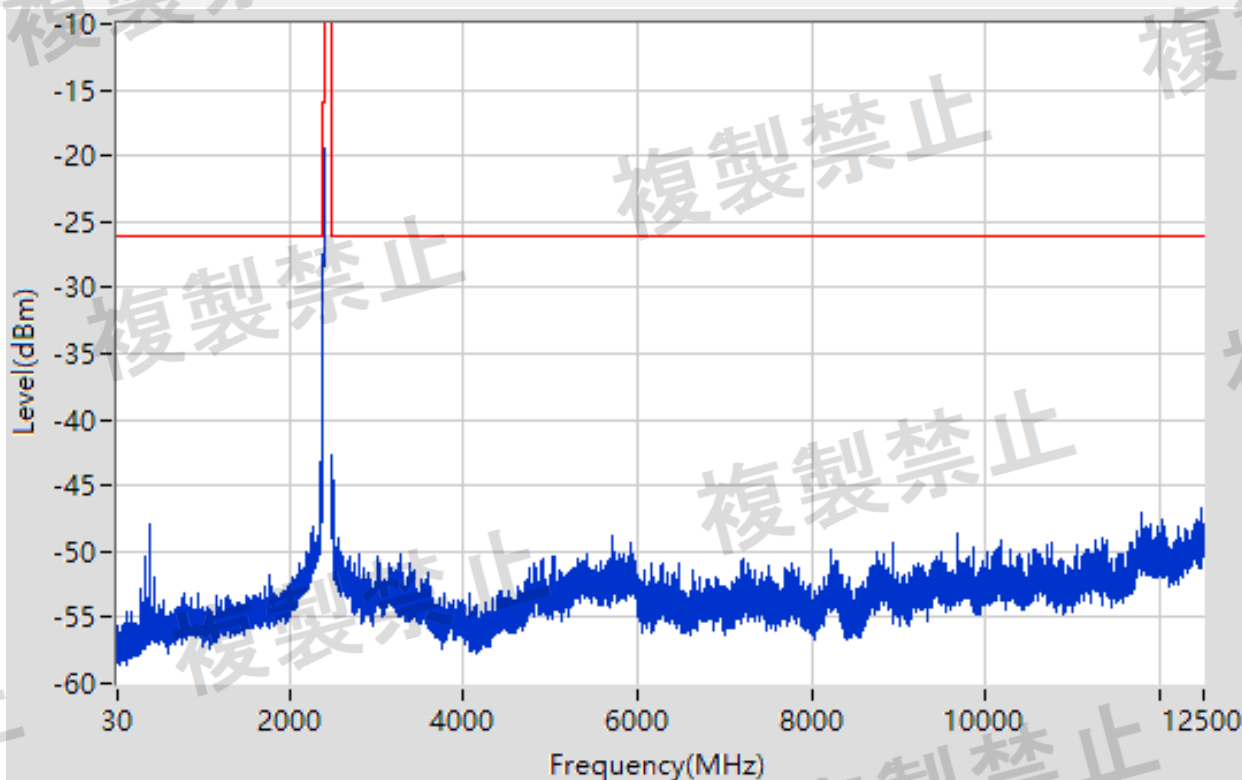
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-49.34	-26	Pass	971
1000	2374	1	Peak	2313	-49.18	-26	Pass	1375
2374	2387	1	Peak	2379.568	-48.48	-26	Pass	601
2387	2400	1	Peak	2398.397	-48.03	-16	Pass	601
2483.5	2496.5	1	Peak	2483.522	-25.12	-16	Pass	601
2496.5	2509.5	1	Peak	2497.15	-38	-26	Pass	601
2509.5	6000	1	Peak	2513.501	-42.54	-26	Pass	3491
6000	12500	1	Peak	12412	-46.95	-26	Pass	6501

A.3.10 802.11g LV Low Channel



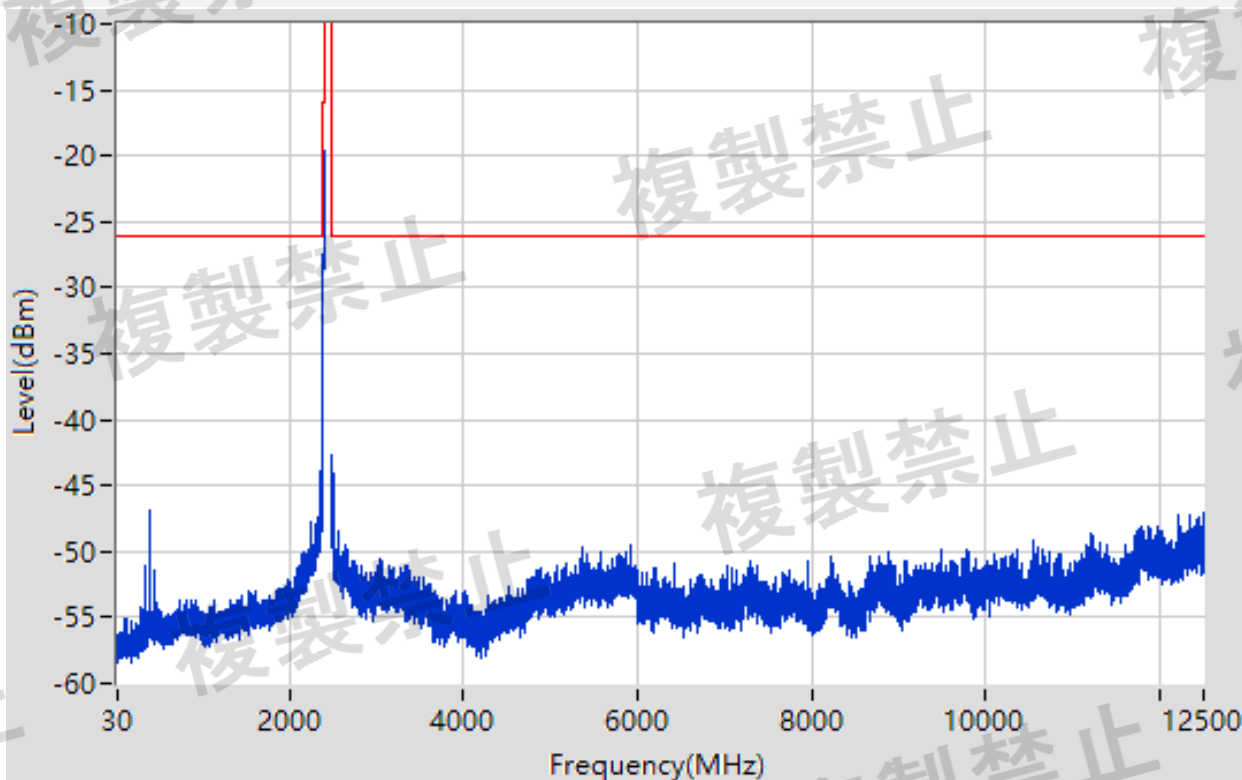
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-47.97	-26	Pass	971
1000	2374	1	Peak	2372	-42.42	-26	Pass	1375
2374	2387	1	Peak	2385.548	-36.23	-26	Pass	601
2387	2400	1	Peak	2399.978	-19.15	-16	Pass	601
2483.5	2496.5	1	Peak	2492.015	-41.89	-16	Pass	601
2496.5	2509.5	1	Peak	2496.652	-43.51	-26	Pass	601
2509.5	6000	1	Peak	2513.501	-48.01	-26	Pass	3491
6000	12500	1	Peak	12331	-46.84	-26	Pass	6501

A.3.11 802.11g NV Low Channel



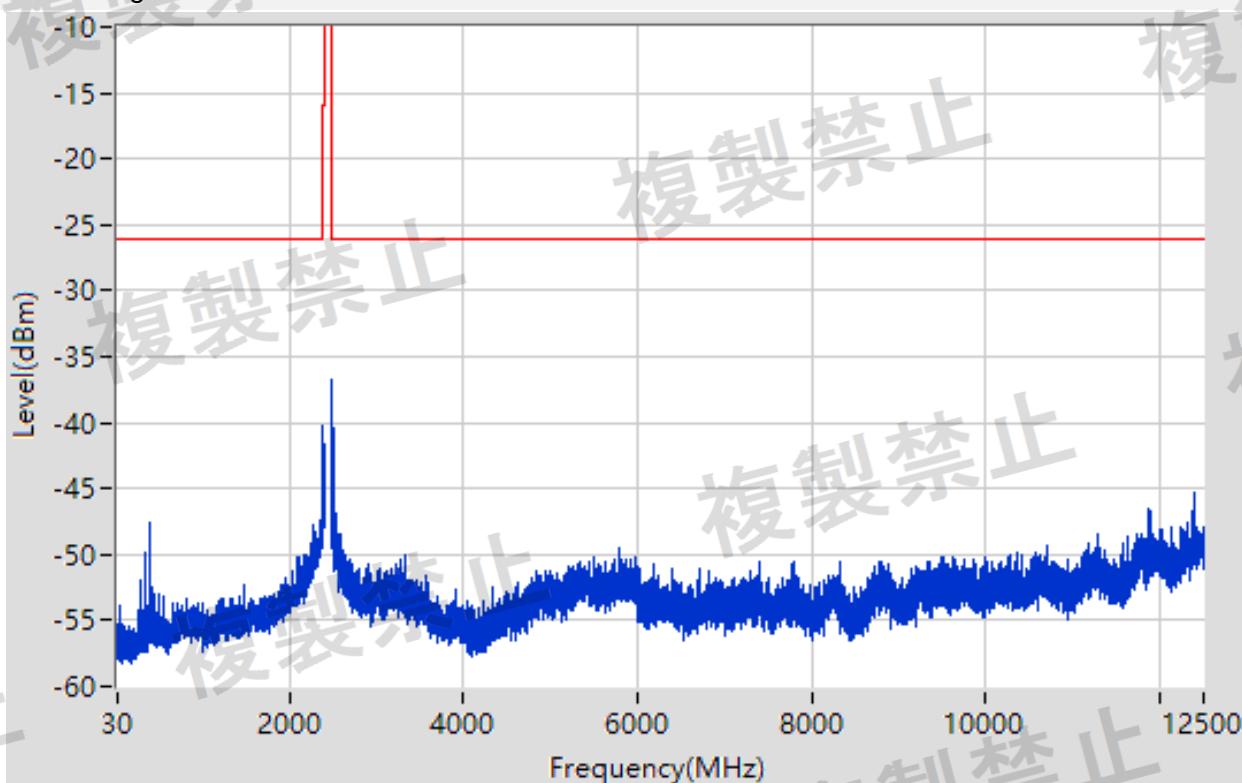
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-47.86	-26	Pass	971
1000	2374	1	Peak	2373	-42.7	-26	Pass	1375
2374	2387	1	Peak	2386.567	-36	-26	Pass	601
2387	2400	1	Peak	2400	-19.46	-16	Pass	601
2483.5	2496.5	1	Peak	2484.518	-42.7	-16	Pass	601
2496.5	2509.5	1	Peak	2499.577	-43.51	-26	Pass	601
2509.5	6000	1	Peak	5711.959	-48.88	-26	Pass	3491
6000	12500	1	Peak	12461	-46.64	-26	Pass	6501

A.3.12 802.11g HV Low Channel



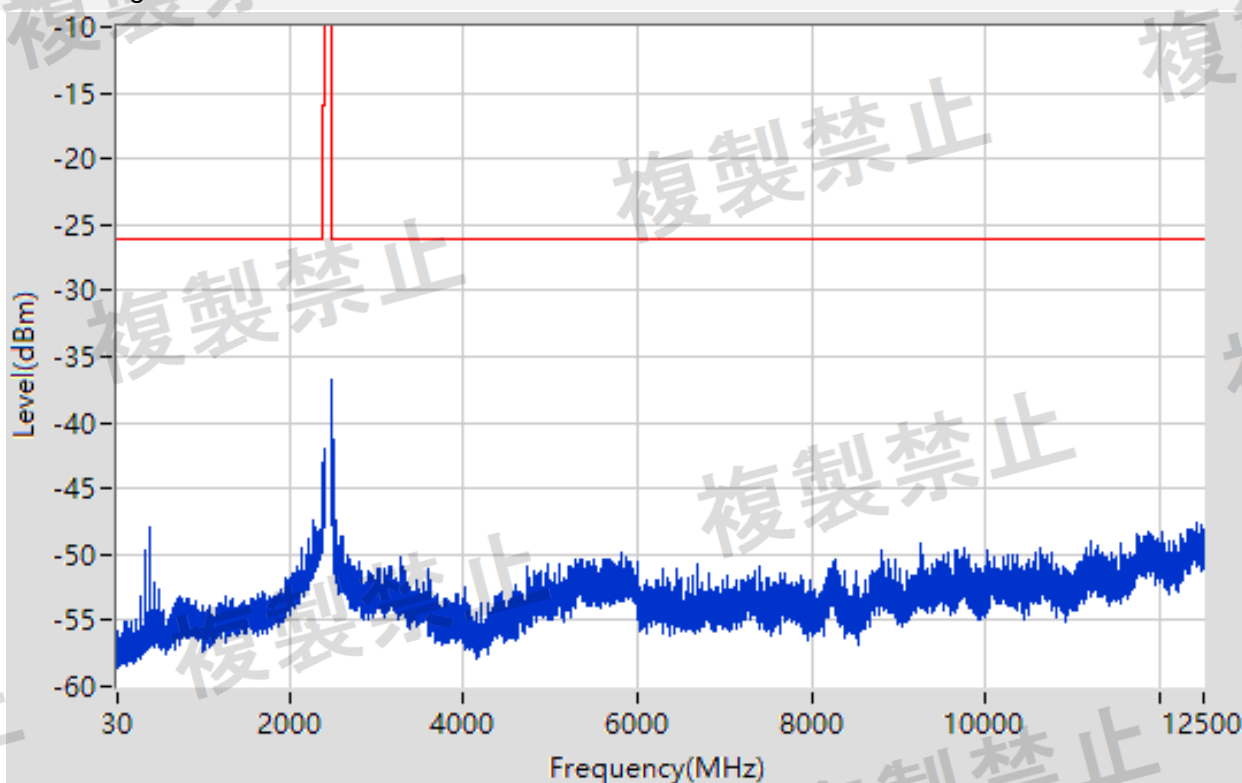
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	399	-46.84	-26	Pass	971
1000	2374	1	Peak	2374	-41.79	-26	Pass	1375
2374	2387	1	Peak	2386.805	-36.68	-26	Pass	601
2387	2400	1	Peak	2399.978	-19.59	-16	Pass	601
2483.5	2496.5	1	Peak	2488.223	-42.65	-16	Pass	601
2496.5	2509.5	1	Peak	2499.577	-44.02	-26	Pass	601
2509.5	6000	1	Peak	2511.5	-48.01	-26	Pass	3491
6000	12500	1	Peak	12497	-47.11	-26	Pass	6501

A.3.13 802.11g LV Middle Channel



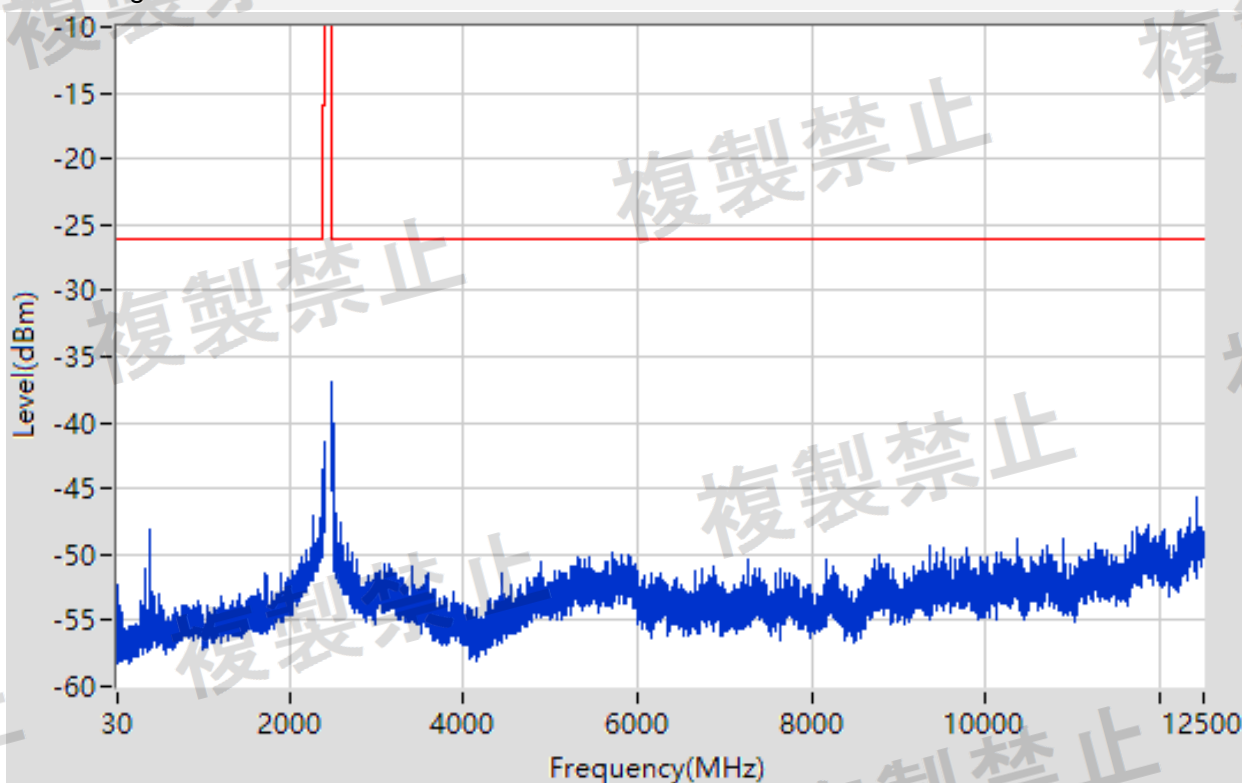
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-47.63	-26	Pass	971
1000	2374	1	Peak	2356	-47.41	-26	Pass	1375
2374	2387	1	Peak	2384.313	-42.56	-26	Pass	601
2387	2400	1	Peak	2394.02	-40.21	-16	Pass	601
2483.5	2496.5	1	Peak	2484.995	-36.79	-16	Pass	601
2496.5	2509.5	1	Peak	2508.157	-40.38	-26	Pass	601
2509.5	6000	1	Peak	2522.502	-43.88	-26	Pass	3491
6000	12500	1	Peak	12390	-45.37	-26	Pass	6501

A.3.14 802.11g NV Middle Channel



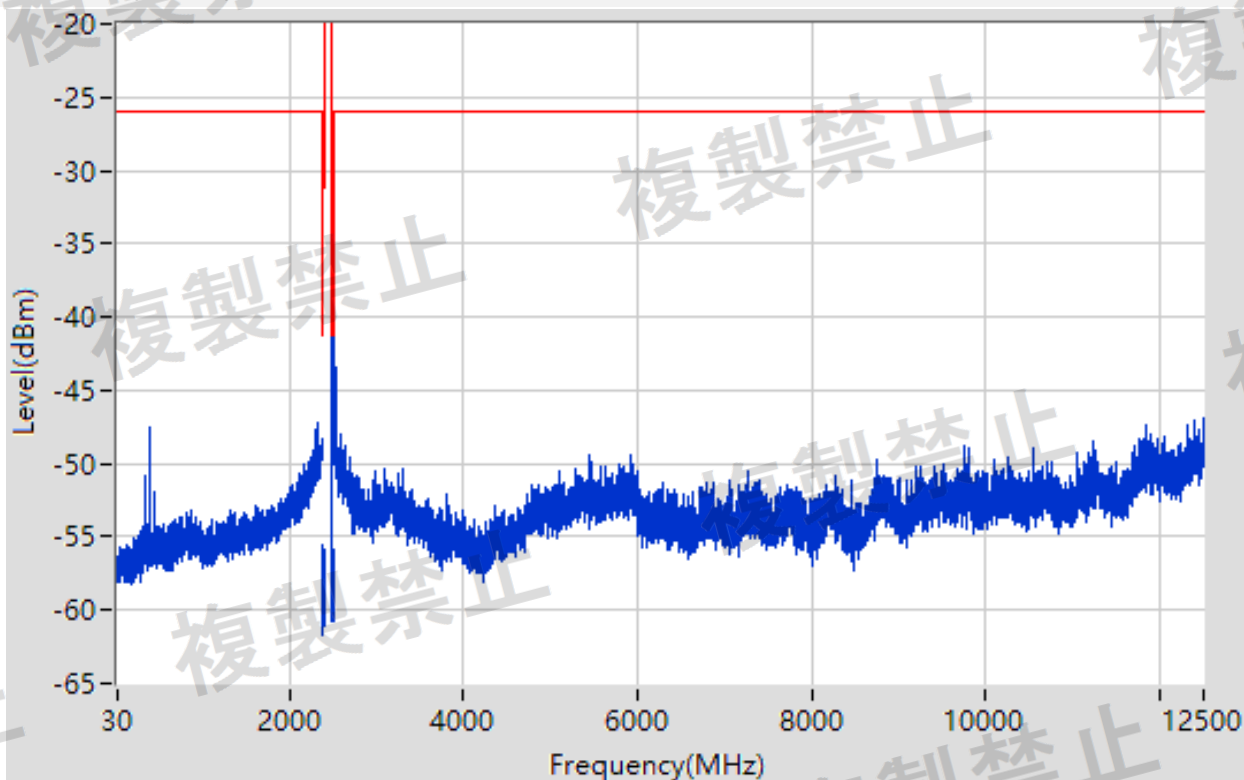
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-47.88	-26	Pass	971
1000	2374	1	Peak	2374	-46.74	-26	Pass	1375
2374	2387	1	Peak	2386.653	-44.1	-26	Pass	601
2387	2400	1	Peak	2399.523	-41.97	-16	Pass	601
2483.5	2496.5	1	Peak	2487.162	-36.72	-16	Pass	601
2496.5	2509.5	1	Peak	2497.583	-38.88	-26	Pass	601
2509.5	6000	1	Peak	2511.5	-44.01	-26	Pass	3491
6000	12500	1	Peak	12433	-47.55	-26	Pass	6501

A.3.15 802.11g HV Middle Channel



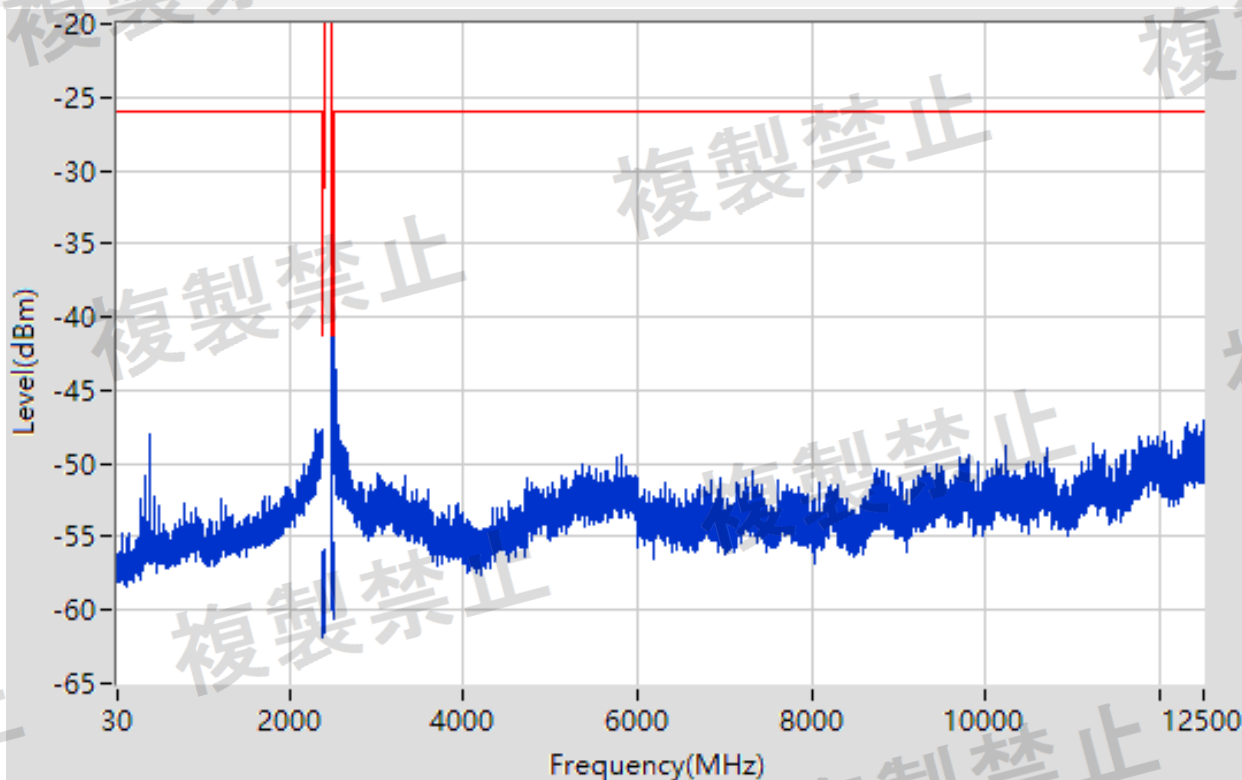
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-48.14	-26	Pass	971
1000	2374	1	Peak	2286	-47.13	-26	Pass	1375
2374	2387	1	Peak	2384.942	-44.47	-26	Pass	601
2387	2400	1	Peak	2396.88	-41.44	-16	Pass	601
2483.5	2496.5	1	Peak	2483.63	-36.89	-16	Pass	601
2496.5	2509.5	1	Peak	2500.552	-40.1	-26	Pass	601
2509.5	6000	1	Peak	2521.502	-43.85	-26	Pass	3491
6000	12500	1	Peak	12420	-45.72	-26	Pass	6501

A.3.16 802.11g LV High Channel



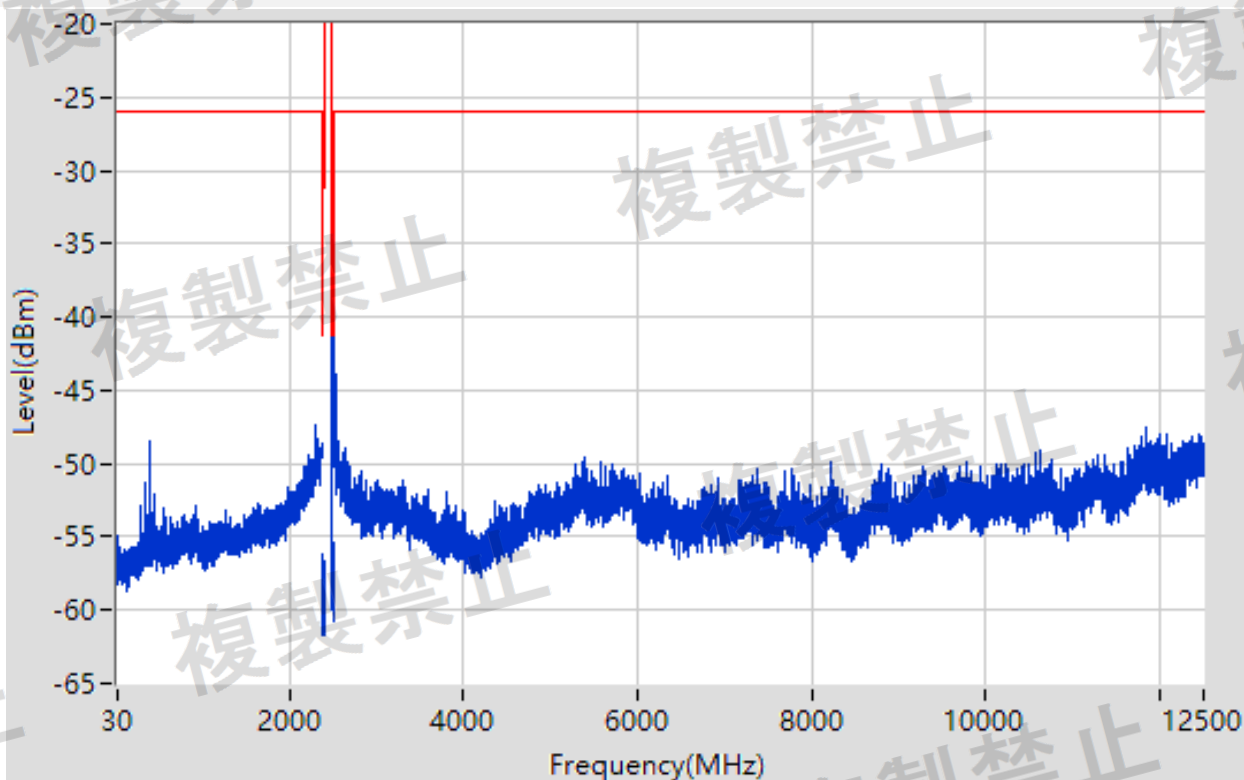
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-47.51	-26	Pass	971
1000	2374	1	Peak	2316	-47.22	-26	Pass	1375
2374	2387	0.03	Peak	2386.957	-55.49	-41.2	Pass	601
2387	2400	0.03	Peak	2397.357	-55.81	-31.2	Pass	601
2483.5	2496.5	0.03	Peak	2483.5	-38.49	-31.2	Pass	601
2496.5	2509.5	0.03	Peak	2499.447	-55.24	-41.2	Pass	601
2509.5	6000	1	Peak	2509.5	-37.84	-26	Pass	3491
6000	12500	1	Peak	12496	-46.95	-26	Pass	6501

A.3.17 802.11g NV High Channel



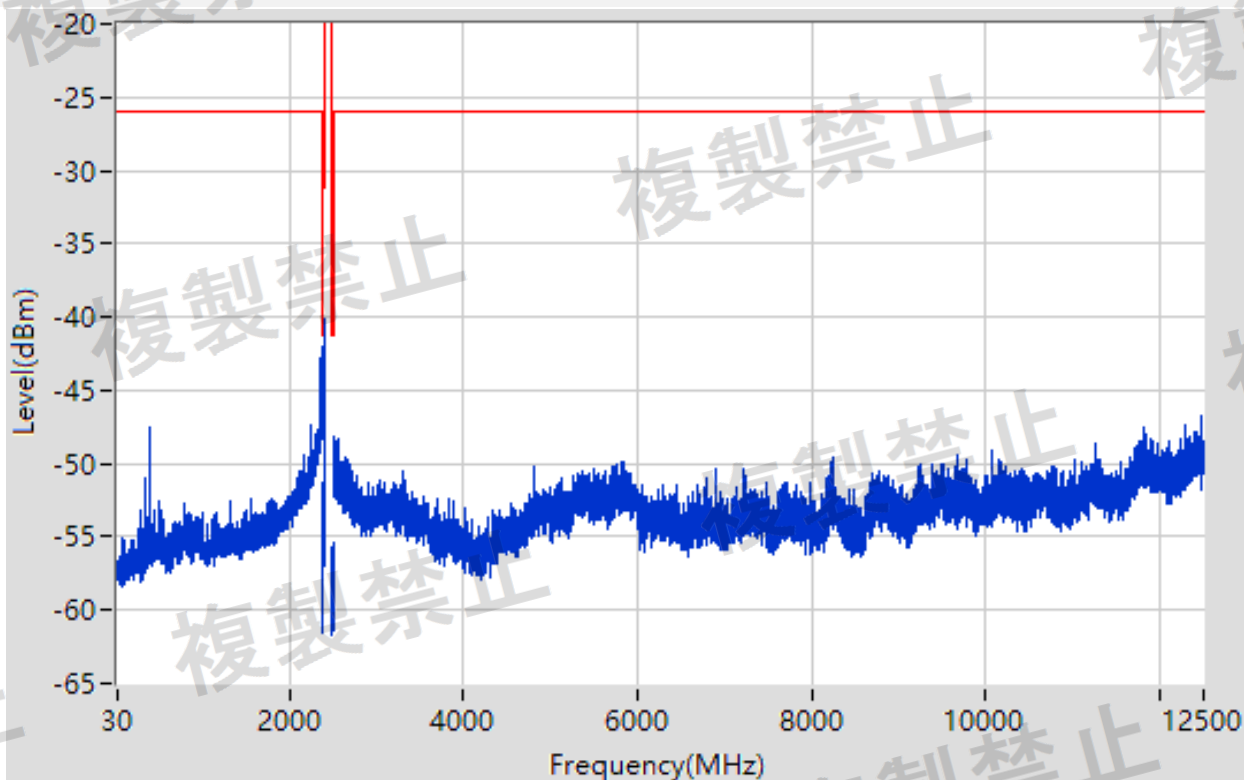
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-48.05	-26	Pass	971
1000	2374	1	Peak	2314	-47.7	-26	Pass	1375
2374	2387	0.03	Peak	2385.743	-56.7	-41.2	Pass	601
2387	2400	0.03	Peak	2396.577	-55.82	-31.2	Pass	601
2483.5	2496.5	0.03	Peak	2483.5	-39.11	-31.2	Pass	601
2496.5	2509.5	0.03	Peak	2498.32	-55.11	-41.2	Pass	601
2509.5	6000	1	Peak	2514.501	-40.73	-26	Pass	3491
6000	12500	1	Peak	12488	-47	-26	Pass	6501

A.3.18 802.11g HV High Channel



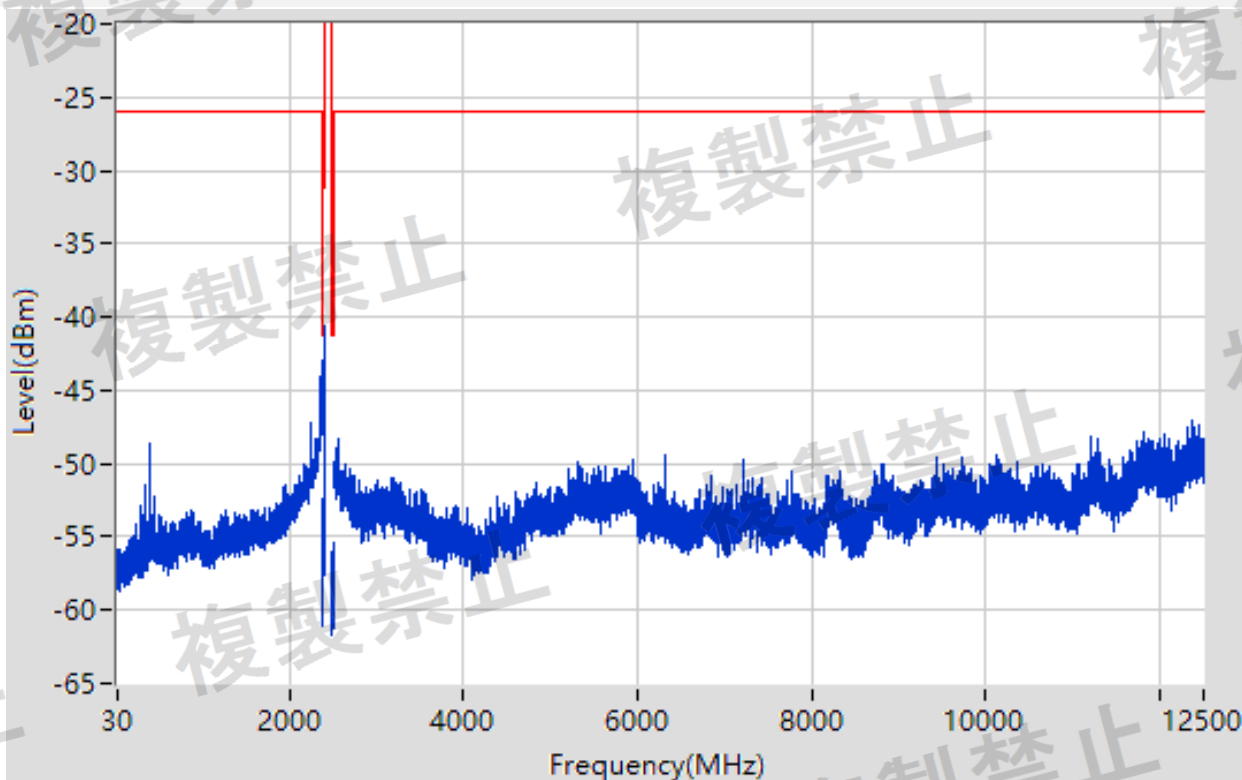
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-48.51	-26	Pass	971
1000	2374	1	Peak	2312	-47.43	-26	Pass	1375
2374	2387	0.03	Peak	2385.895	-56.25	-41.2	Pass	601
2387	2400	0.03	Peak	2394.128	-56.2	-31.2	Pass	601
2483.5	2496.5	0.03	Peak	2483.5	-38.67	-31.2	Pass	601
2496.5	2509.5	0.03	Peak	2497.843	-54.7	-41.2	Pass	601
2509.5	6000	1	Peak	2511.5	-39.59	-26	Pass	3491
6000	12500	1	Peak	11844	-47.55	-26	Pass	6501

A.3.19 802.11n-20MHz LV Low Channel



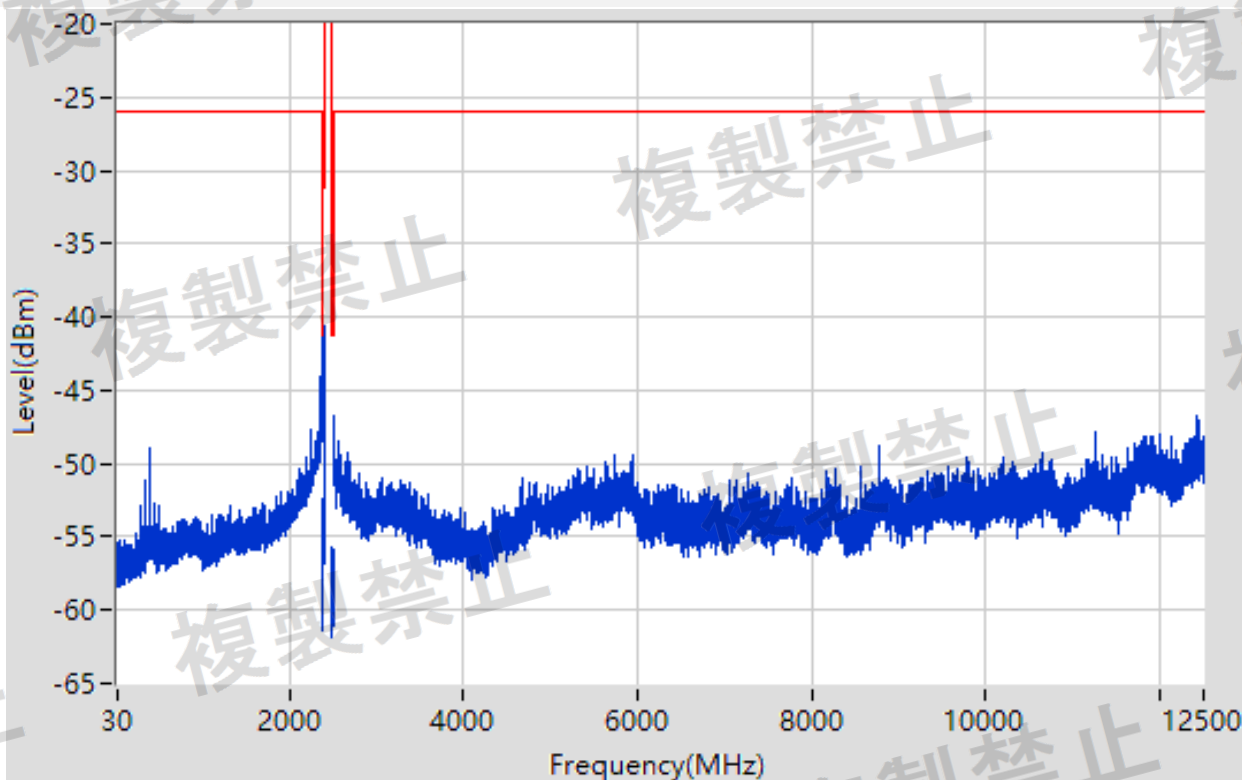
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-47.49	-26	Pass	971
1000	2374	1	Peak	2374	-41.99	-26	Pass	1375
2374	2387	0.03	Peak	2376.903	-55.86	-41.2	Pass	601
2387	2400	0.03	Peak	2399.935	-40.19	-31.2	Pass	601
2483.5	2496.5	0.03	Peak	2495.113	-55.75	-31.2	Pass	601
2496.5	2509.5	0.03	Peak	2504.733	-55.33	-41.2	Pass	601
2509.5	6000	1	Peak	2515.501	-48.15	-26	Pass	3491
6000	12500	1	Peak	12483	-46.7	-26	Pass	6501

A.3.20 802.11n-20MHz NV Low Channel



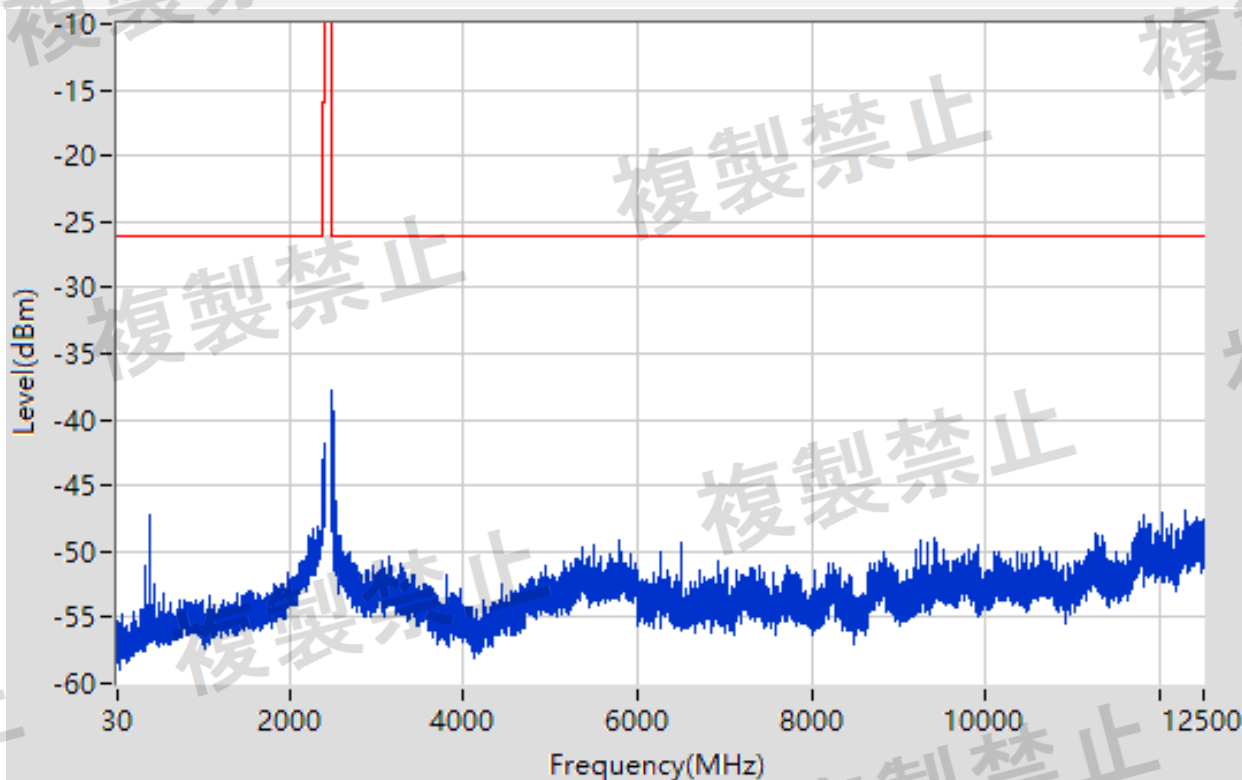
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-48.61	-26	Pass	971
1000	2374	1	Peak	2372	-43.02	-26	Pass	1375
2374	2387	0.03	Peak	2385.223	-55.02	-41.2	Pass	601
2387	2400	0.03	Peak	2399.935	-40.67	-31.2	Pass	601
2483.5	2496.5	0.03	Peak	2495.677	-56.05	-31.2	Pass	601
2496.5	2509.5	0.03	Peak	2503.477	-55.41	-41.2	Pass	601
2509.5	6000	1	Peak	2576.51	-48.36	-26	Pass	3491
6000	12500	1	Peak	12374	-47.03	-26	Pass	6501

A.3.21 802.11n-20MHz HV Low Channel



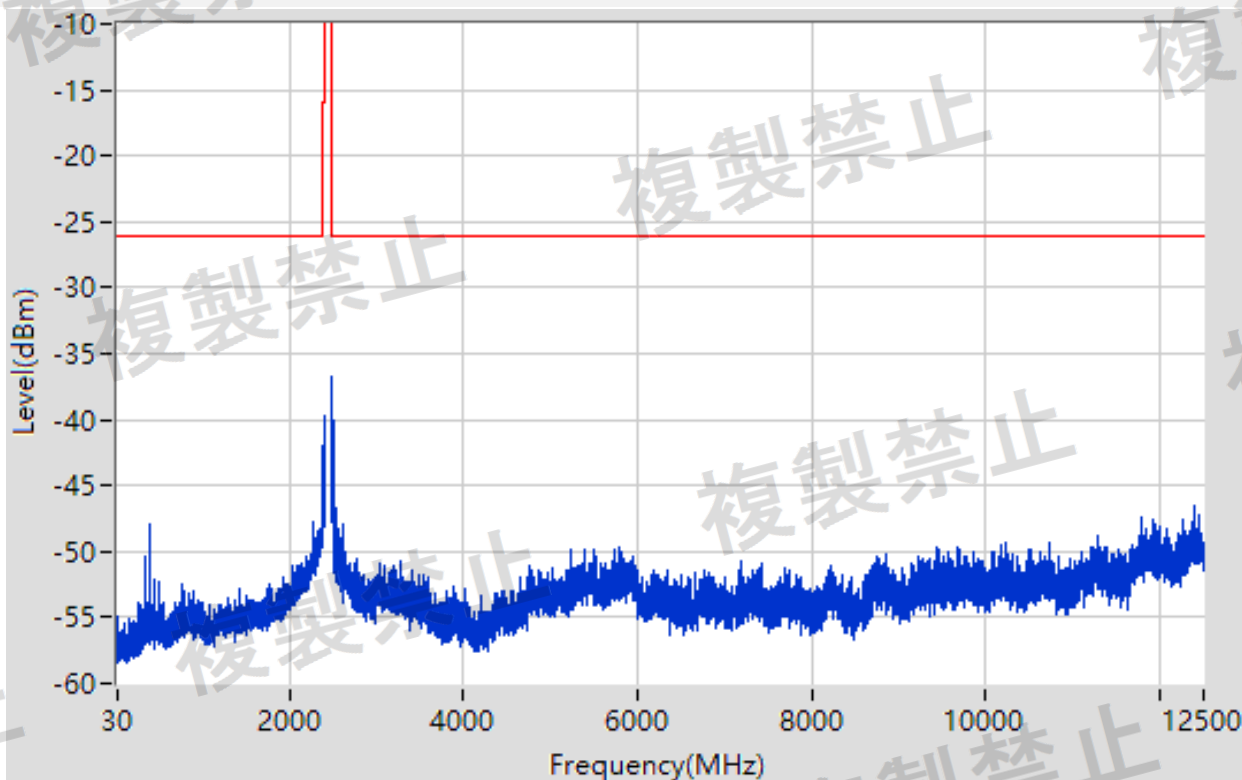
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-49	-26	Pass	971
1000	2374	1	Peak	2373	-40.97	-26	Pass	1375
2374	2387	0.03	Peak	2385.678	-54.13	-41.2	Pass	601
2387	2400	0.03	Peak	2399.935	-40.57	-31.2	Pass	601
2483.5	2496.5	0.03	Peak	2487.032	-55.79	-31.2	Pass	601
2496.5	2509.5	0.03	Peak	2506.532	-55.9	-41.2	Pass	601
2509.5	6000	1	Peak	2512.5	-46.68	-26	Pass	3491
6000	12500	1	Peak	12421	-46.81	-26	Pass	6501

A.3.22 802.11n-20MHz LV Middle Channel



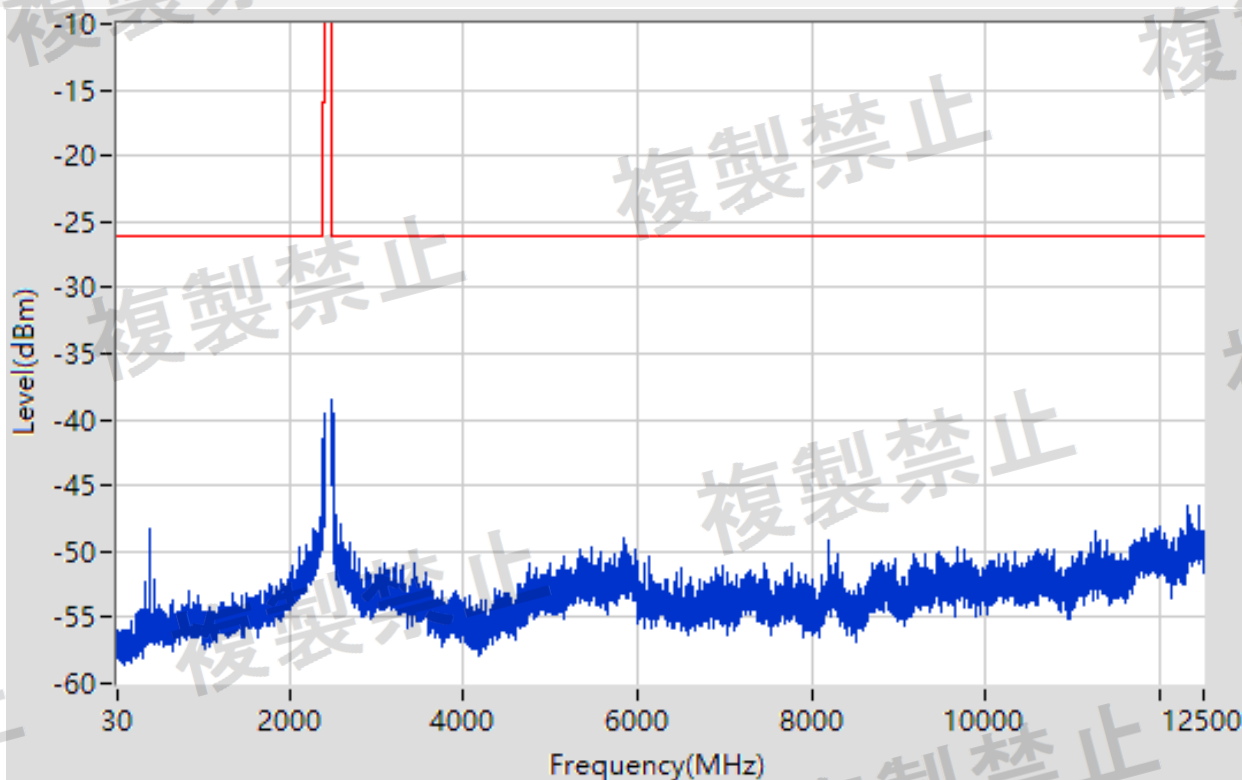
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-47.16	-26	Pass	971
1000	2374	1	Peak	2369	-47.87	-26	Pass	1375
2374	2387	1	Peak	2384.573	-43.4	-26	Pass	601
2387	2400	1	Peak	2399.675	-41.8	-16	Pass	601
2483.5	2496.5	1	Peak	2485.06	-37.87	-16	Pass	601
2496.5	2509.5	1	Peak	2500.898	-39.32	-26	Pass	601
2509.5	6000	1	Peak	2514.501	-45.64	-26	Pass	3491
6000	12500	1	Peak	12280	-46.8	-26	Pass	6501

A.3.23 802.11n-20MHz NV Middle Channel



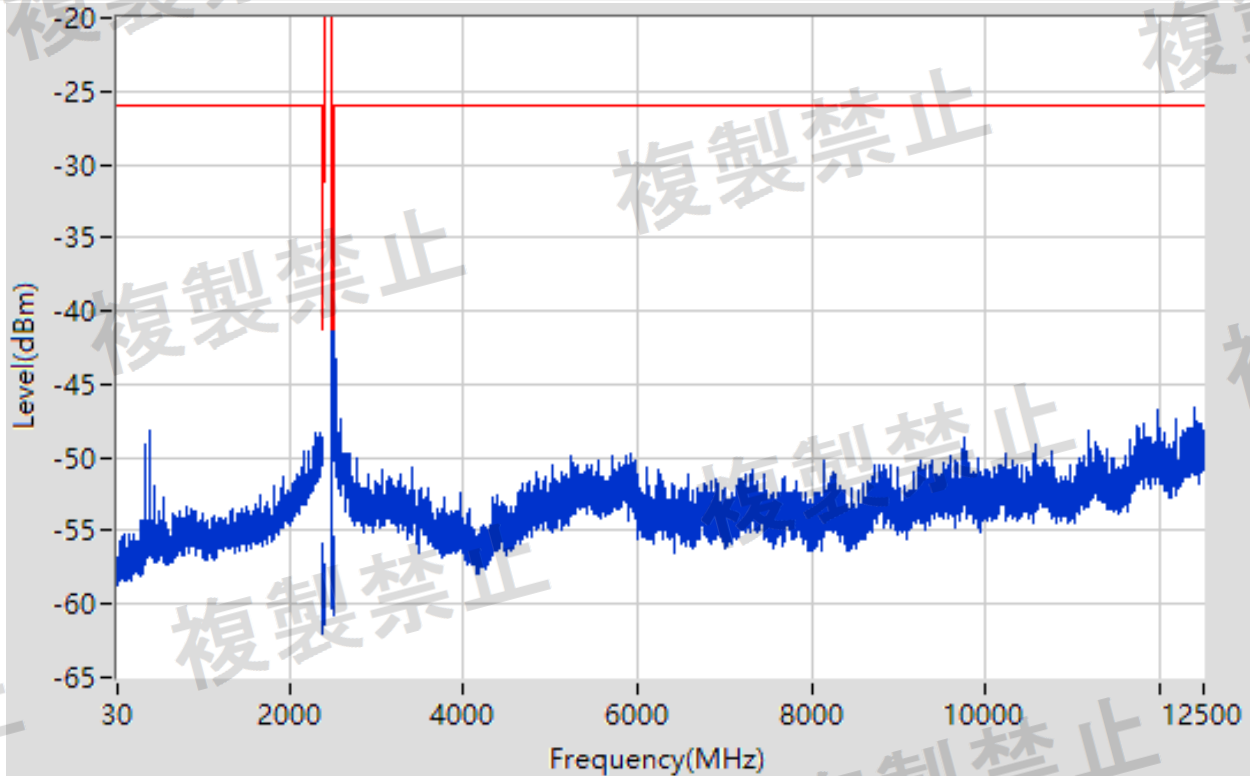
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-47.87	-26	Pass	971
1000	2374	1	Peak	2372	-47.62	-26	Pass	1375
2374	2387	1	Peak	2384.183	-43.72	-26	Pass	601
2387	2400	1	Peak	2399.523	-39.68	-16	Pass	601
2483.5	2496.5	1	Peak	2492.123	-36.8	-16	Pass	601
2496.5	2509.5	1	Peak	2496.912	-38.6	-26	Pass	601
2509.5	6000	1	Peak	2510.5	-43.63	-26	Pass	3491
6000	12500	1	Peak	12385	-46.57	-26	Pass	6501

A.3.24 802.11n-20MHz HV Middle Channel



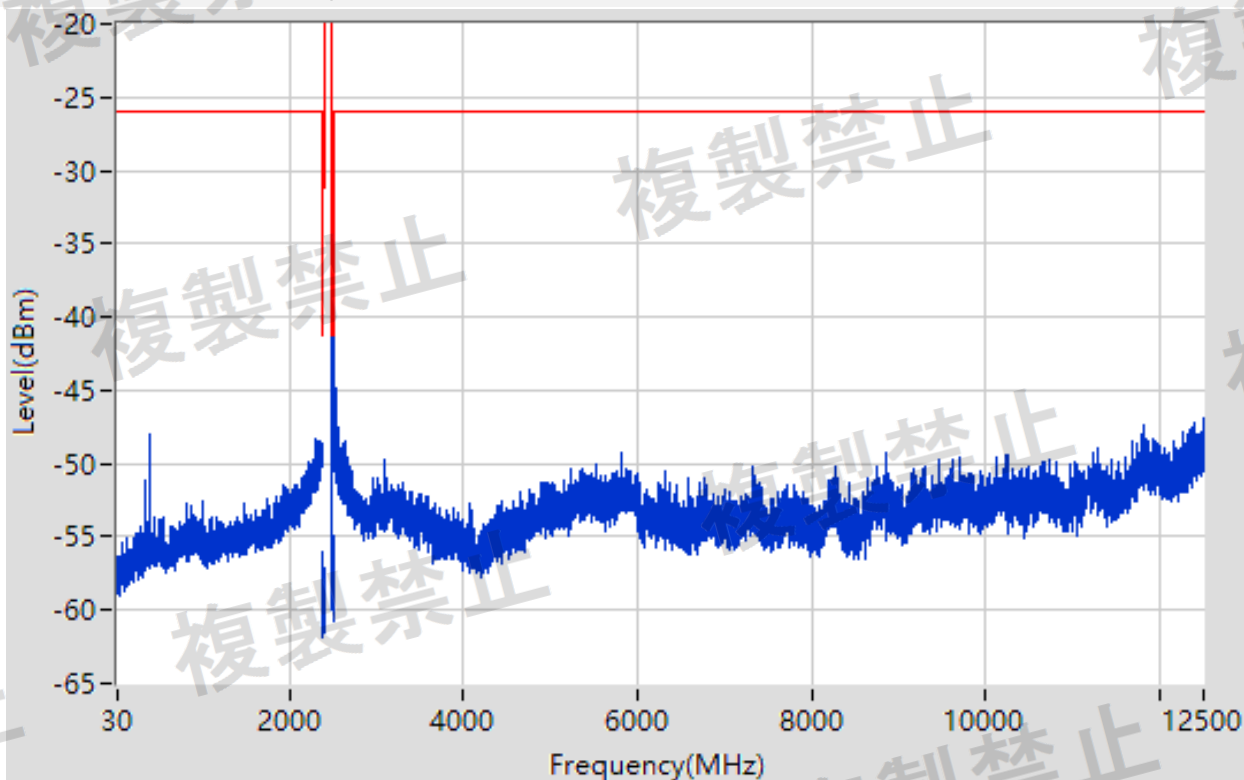
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	401	-48.23	-26	Pass	971
1000	2374	1	Peak	2360	-47.41	-26	Pass	1375
2374	2387	1	Peak	2383.75	-43.56	-26	Pass	601
2387	2400	1	Peak	2399.198	-39.63	-16	Pass	601
2483.5	2496.5	1	Peak	2491.603	-38.45	-16	Pass	601
2496.5	2509.5	1	Peak	2507.572	-39.58	-26	Pass	601
2509.5	6000	1	Peak	2512.5	-45.01	-26	Pass	3491
6000	12500	1	Peak	12451	-46.56	-26	Pass	6501

A.3.25 802.11n-20MHz LV High Channel



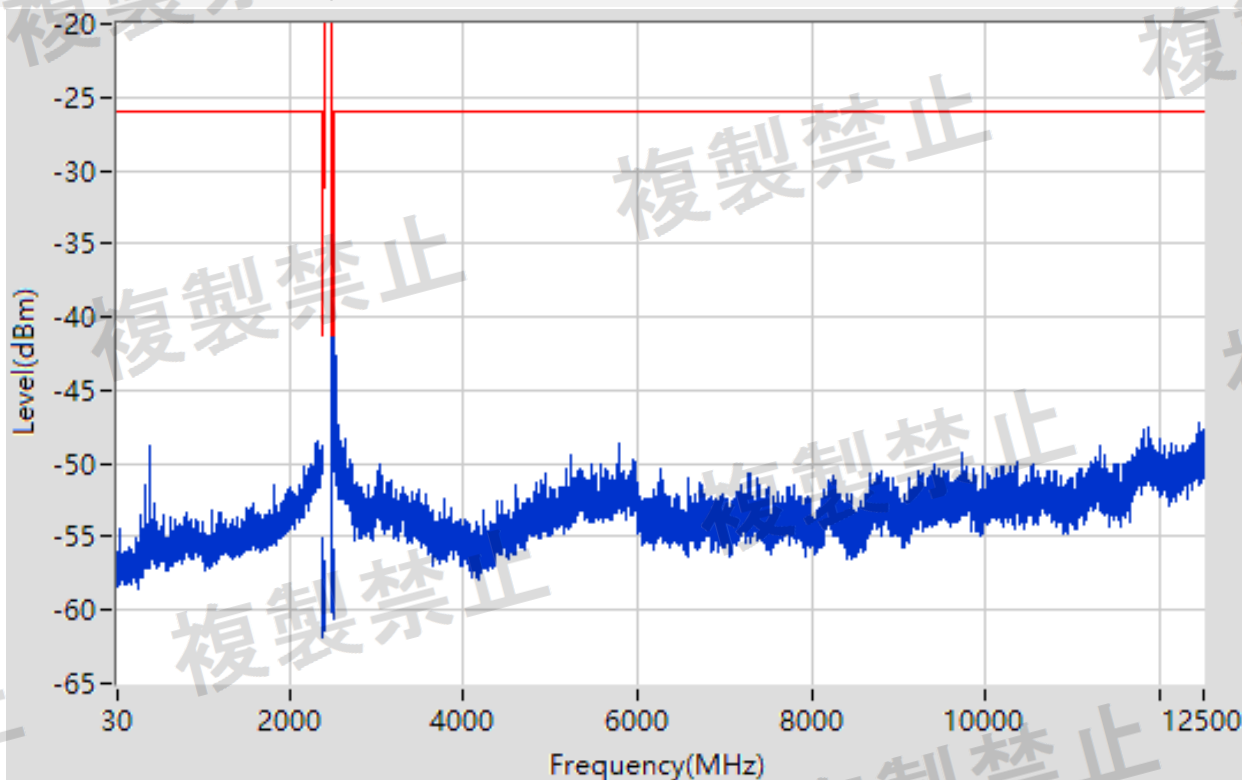
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-48.09	-26	Pass	971
1000	2374	1	Peak	2313	-48.27	-26	Pass	1375
2374	2387	0.03	Peak	2374.823	-55.93	-41.2	Pass	601
2387	2400	0.03	Peak	2393.023	-56.51	-31.2	Pass	601
2483.5	2496.5	0.03	Peak	2483.738	-38.77	-31.2	Pass	601
2496.5	2509.5	0.03	Peak	2496.717	-54.92	-41.2	Pass	601
2509.5	6000	1	Peak	2511.5	-40.06	-26	Pass	3491
6000	12500	1	Peak	12393	-46.52	-26	Pass	6501

A.3.26 802.11n-20MHz NV High Channel



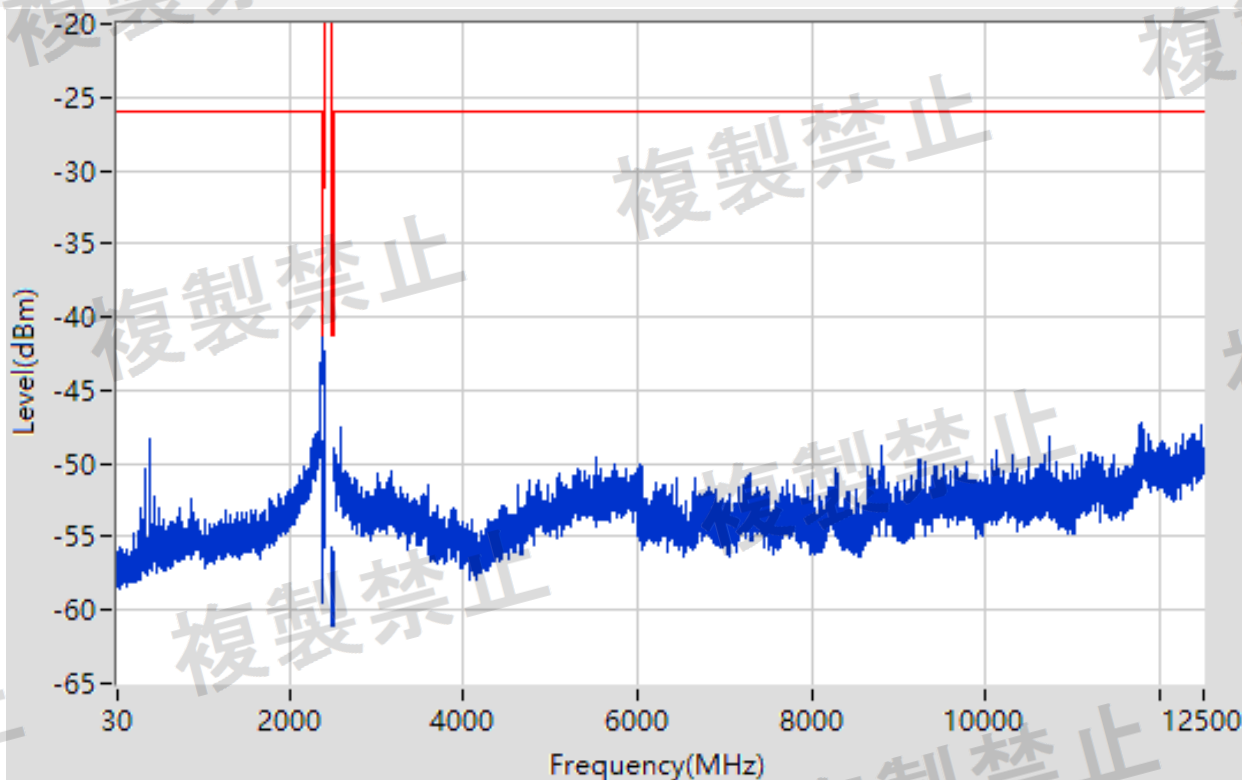
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-47.96	-26	Pass	971
1000	2374	1	Peak	2309	-48.36	-26	Pass	1375
2374	2387	0.03	Peak	2374.867	-56	-41.2	Pass	601
2387	2400	0.03	Peak	2392.005	-56.42	-31.2	Pass	601
2483.5	2496.5	0.03	Peak	2483.5	-38.83	-31.2	Pass	601
2496.5	2509.5	0.03	Peak	2503.022	-54.94	-41.2	Pass	601
2509.5	6000	1	Peak	2518.501	-40.68	-26	Pass	3491
6000	12500	1	Peak	12500	-46.86	-26	Pass	6501

A.3.27 802.11n-20MHz HV High Channel



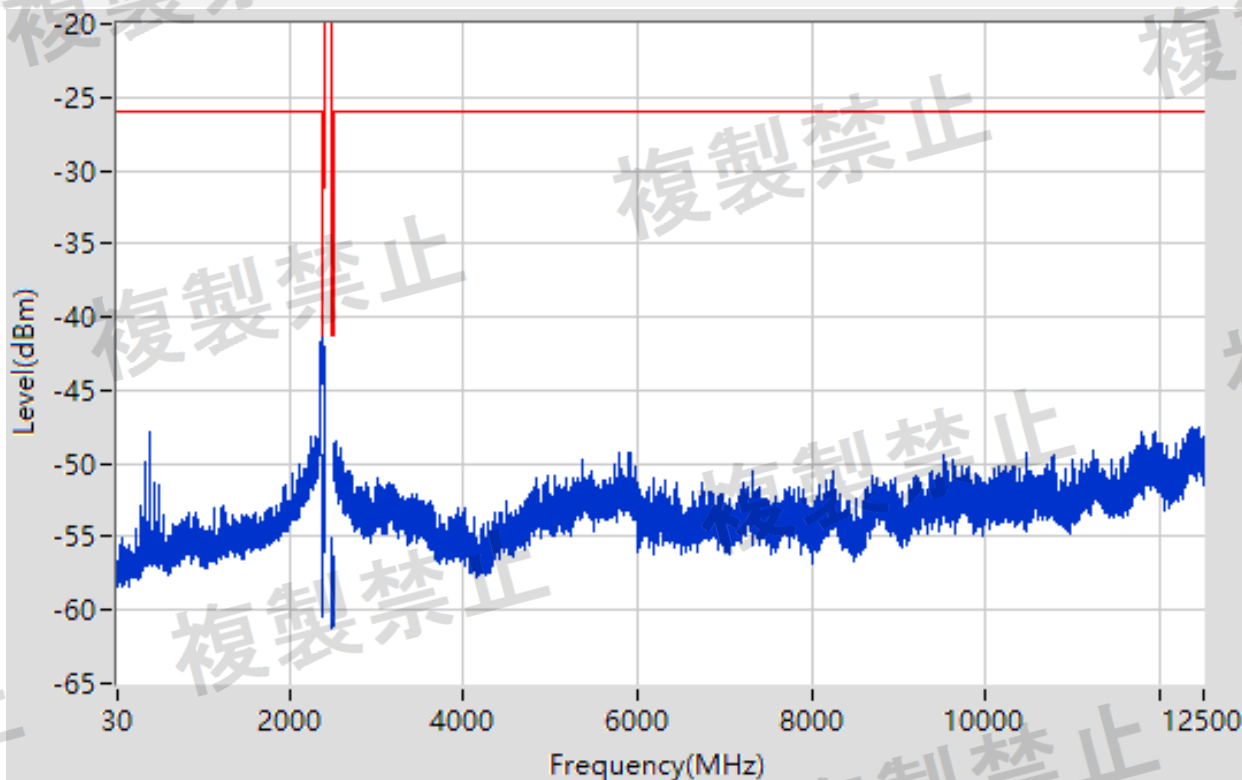
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	399	-48.75	-26	Pass	971
1000	2374	1	Peak	2317	-48.55	-26	Pass	1375
2374	2387	0.03	Peak	2376.643	-55.14	-41.2	Pass	601
2387	2400	0.03	Peak	2399.848	-56.61	-31.2	Pass	601
2483.5	2496.5	0.03	Peak	2483.738	-39.11	-31.2	Pass	601
2496.5	2509.5	0.03	Peak	2498.623	-55.49	-41.2	Pass	601
2509.5	6000	1	Peak	2514.501	-41.12	-26	Pass	3491
6000	12500	1	Peak	12458	-47.27	-26	Pass	6501

A.3.28 802.11n-40MHz LV Low Channel



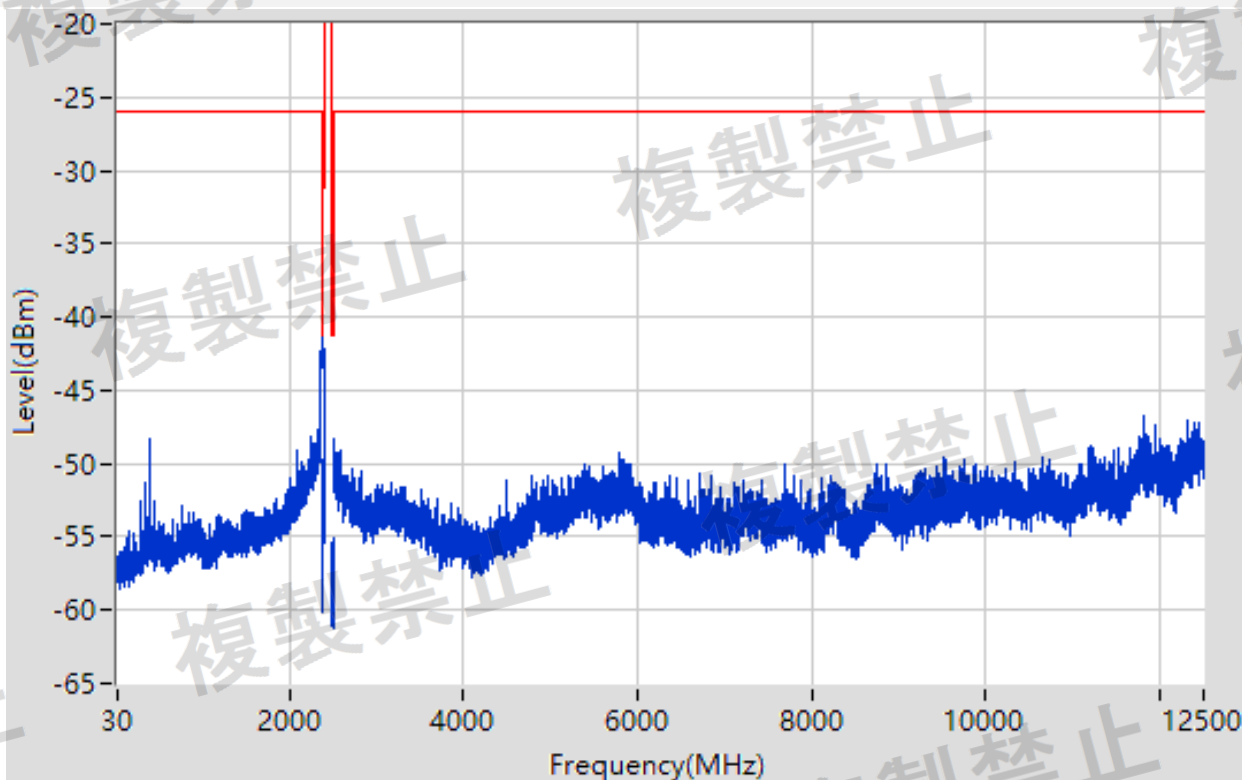
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	399	-48.28	-26	Pass	971
1000	2374	1	Peak	2374	-37.08	-26	Pass	1375
2374	2387	0.03	Peak	2386.003	-52.06	-41.2	Pass	601
2387	2400	0.03	Peak	2400	-42.41	-31.2	Pass	601
2483.5	2496.5	0.03	Peak	2489.372	-55.73	-31.2	Pass	601
2496.5	2509.5	0.03	Peak	2502.805	-56.04	-41.2	Pass	601
2509.5	6000	1	Peak	2592.512	-47.6	-26	Pass	3491
6000	12500	1	Peak	11784	-47.26	-26	Pass	6501

A.3.29 802.11n-40MHz NV Low Channel



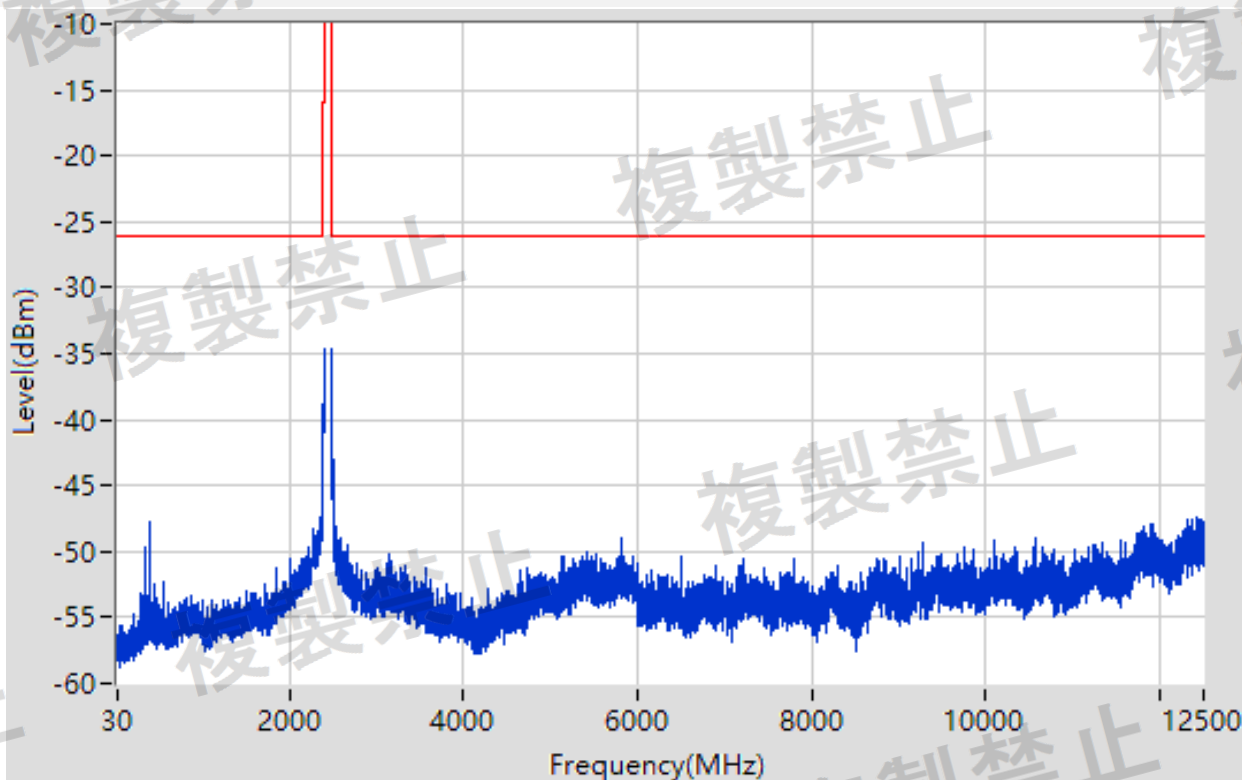
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-47.92	-26	Pass	971
1000	2374	1	Peak	2374	-37.55	-26	Pass	1375
2374	2387	0.03	Peak	2386.242	-52.14	-41.2	Pass	601
2387	2400	0.03	Peak	2400	-42.02	-31.2	Pass	601
2483.5	2496.5	0.03	Peak	2491.928	-55.65	-31.2	Pass	601
2496.5	2509.5	0.03	Peak	2497.172	-55.09	-41.2	Pass	601
2509.5	6000	1	Peak	2529.503	-48.49	-26	Pass	3491
6000	12500	1	Peak	12376	-47.52	-26	Pass	6501

A.3.30 802.11n-40MHz HV Low Channel



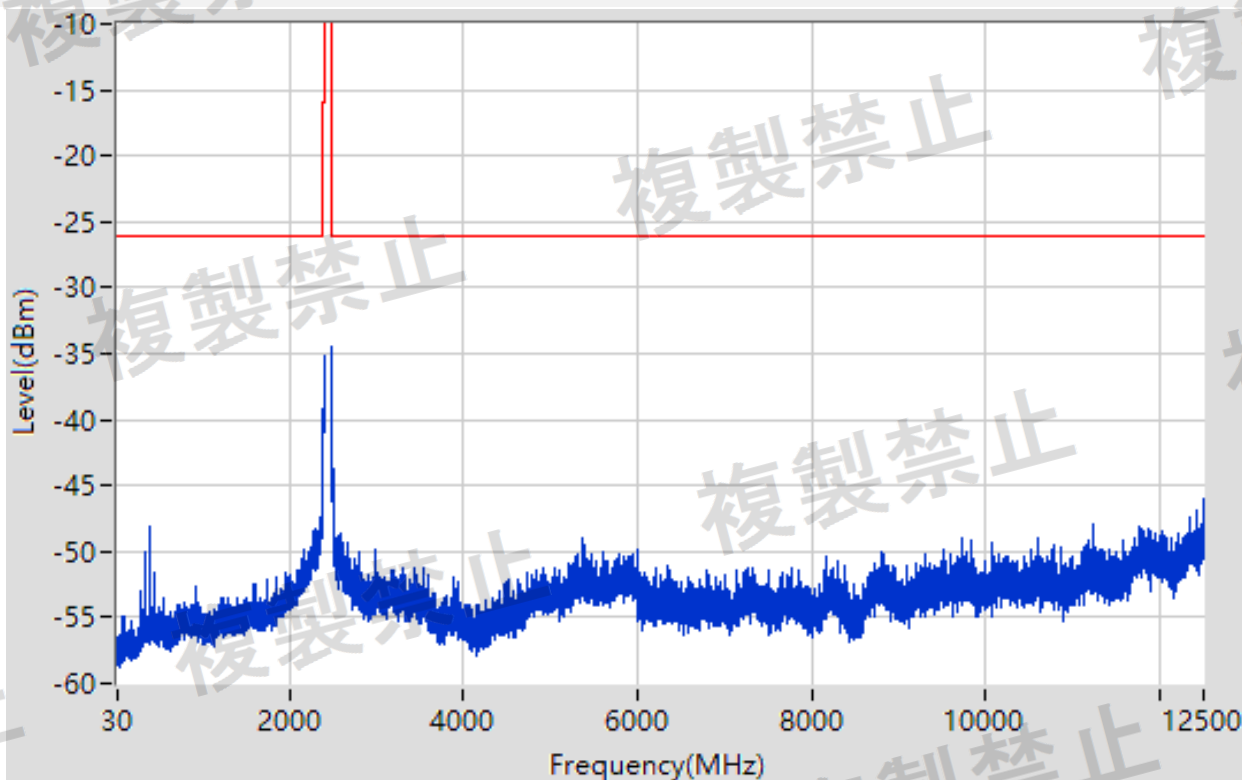
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-48.33	-26	Pass	971
1000	2374	1	Peak	2374	-36.96	-26	Pass	1375
2374	2387	0.03	Peak	2385.83	-52.05	-41.2	Pass	601
2387	2400	0.03	Peak	2400	-42.11	-31.2	Pass	601
2483.5	2496.5	0.03	Peak	2493.77	-55.39	-31.2	Pass	601
2496.5	2509.5	0.03	Peak	2509.457	-55.15	-41.2	Pass	601
2509.5	6000	1	Peak	2512.5	-48.37	-26	Pass	3491
6000	12500	1	Peak	11811	-46.7	-26	Pass	6501

A.3.31 802.11n-40MHz LV Middle Channel



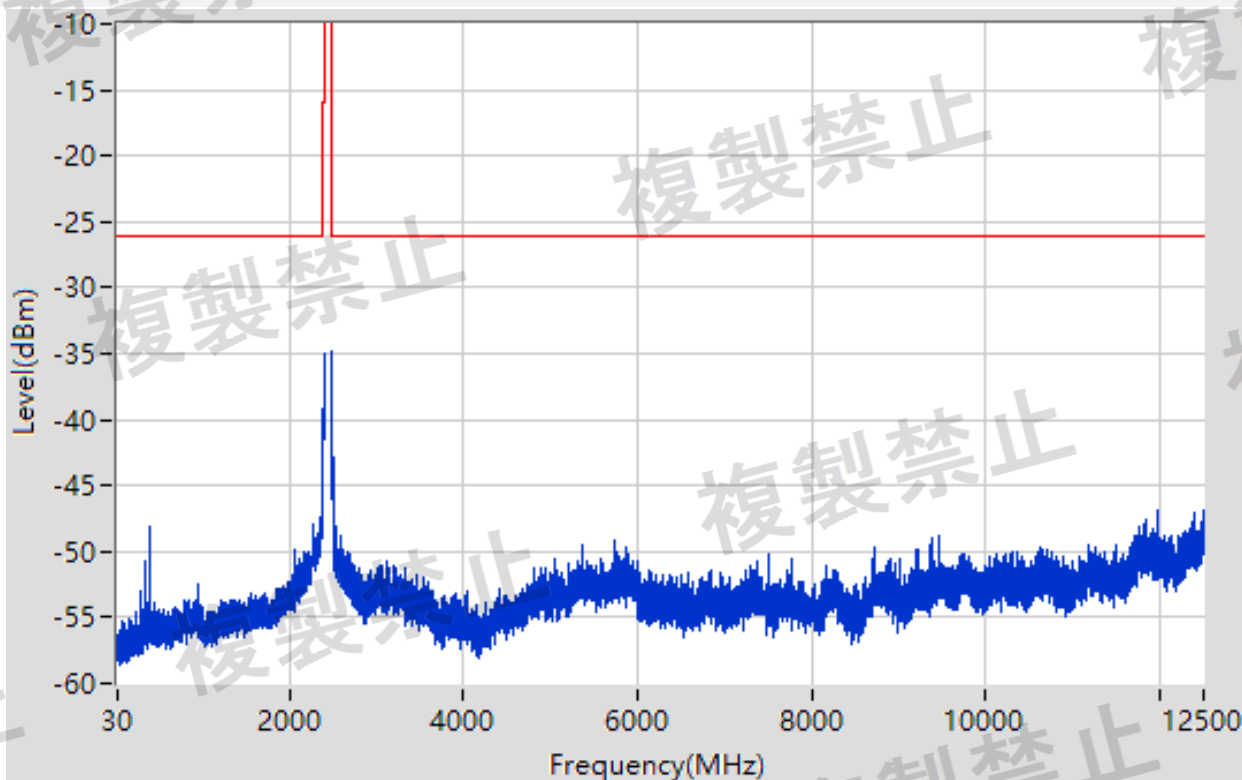
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-47.74	-26	Pass	971
1000	2374	1	Peak	2373	-47.1	-26	Pass	1375
2374	2387	1	Peak	2386.112	-42.21	-26	Pass	601
2387	2400	1	Peak	2399.935	-34.73	-16	Pass	601
2483.5	2496.5	1	Peak	2484.172	-34.67	-16	Pass	601
2496.5	2509.5	1	Peak	2496.998	-41.96	-26	Pass	601
2509.5	6000	1	Peak	2514.501	-46.77	-26	Pass	3491
6000	12500	1	Peak	12418	-47.47	-26	Pass	6501

A.3.32 802.11n-40MHz NV Middle Channel



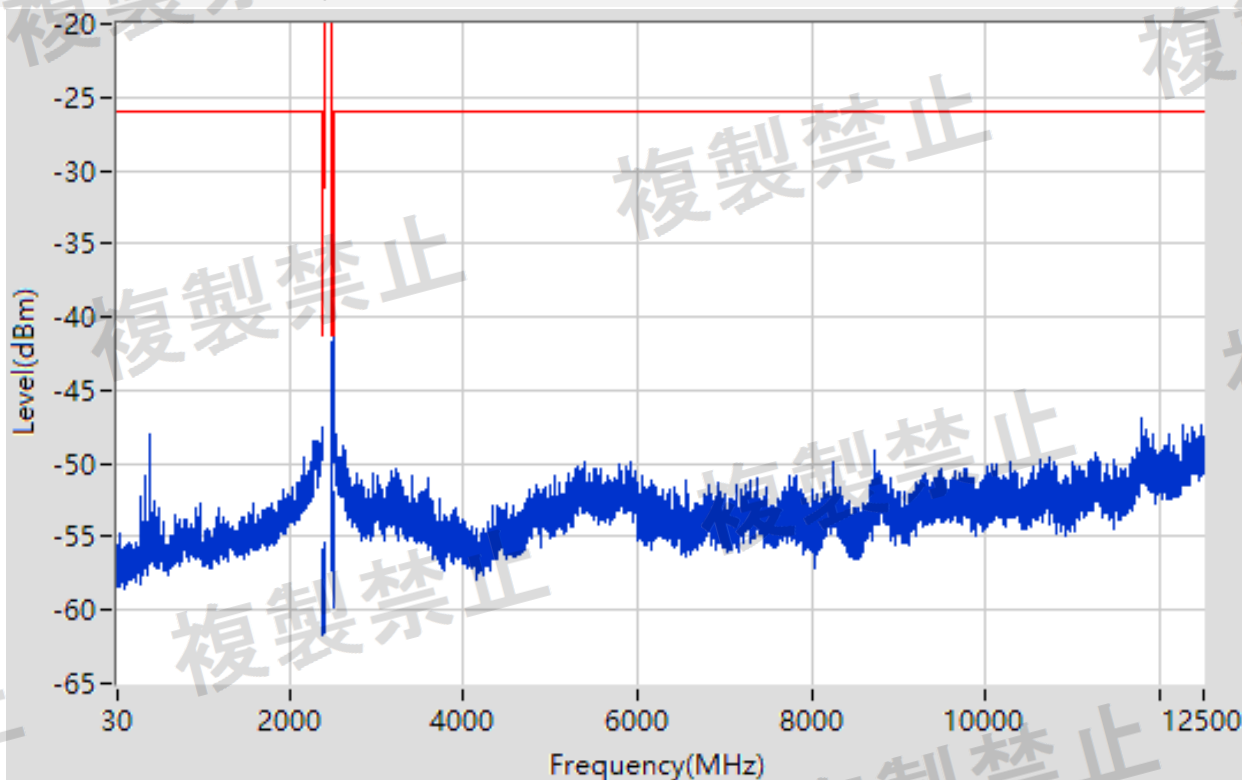
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	399	-48.09	-26	Pass	971
1000	2374	1	Peak	2355	-47.48	-26	Pass	1375
2374	2387	1	Peak	2384.227	-41.92	-26	Pass	601
2387	2400	1	Peak	2399.35	-35.12	-16	Pass	601
2483.5	2496.5	1	Peak	2484.822	-34.42	-16	Pass	601
2496.5	2509.5	1	Peak	2496.933	-41.34	-26	Pass	601
2509.5	6000	1	Peak	2512.5	-47.82	-26	Pass	3491
6000	12500	1	Peak	12488	-46.07	-26	Pass	6501

A.3.33 802.11n-40MHz HV Middle Channel



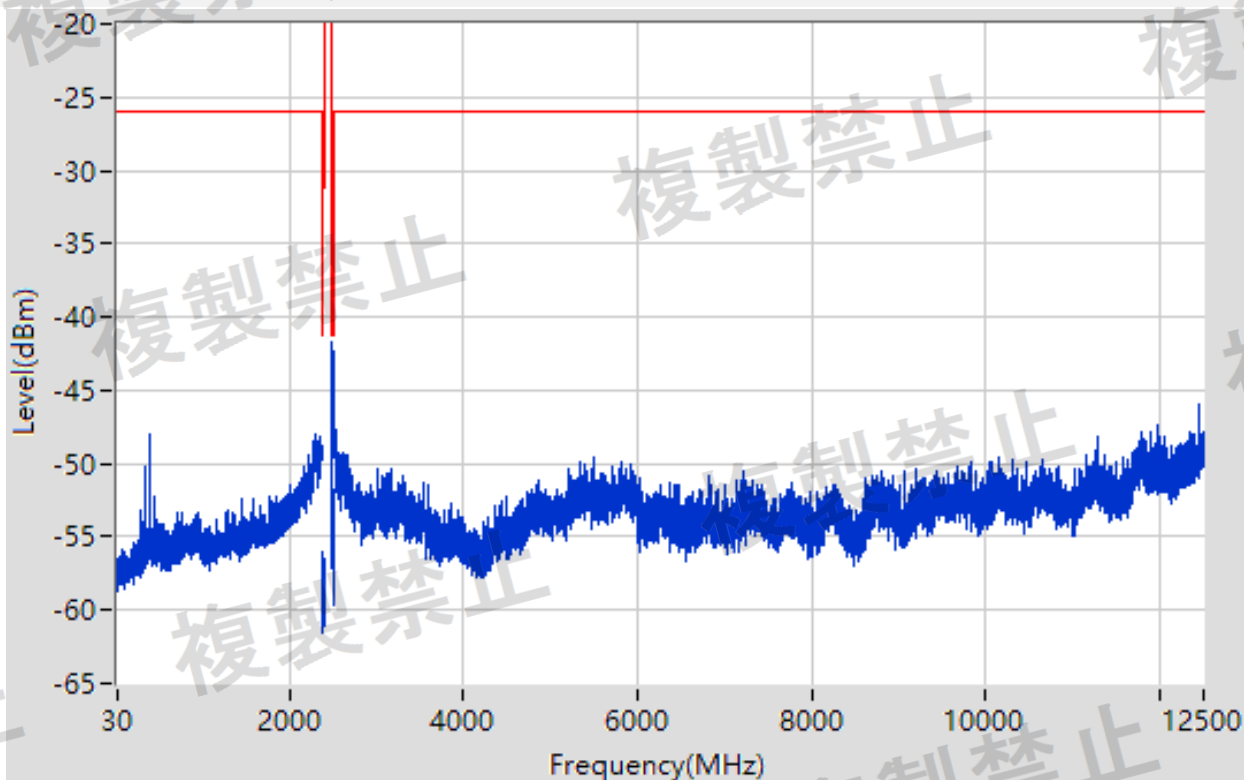
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-48.06	-26	Pass	971
1000	2374	1	Peak	2368	-47.35	-26	Pass	1375
2374	2387	1	Peak	2386.762	-42.41	-26	Pass	601
2387	2400	1	Peak	2399.675	-34.97	-16	Pass	601
2483.5	2496.5	1	Peak	2484.432	-34.79	-16	Pass	601
2496.5	2509.5	1	Peak	2497.237	-42.1	-26	Pass	601
2509.5	6000	1	Peak	2517.501	-46.8	-26	Pass	3491
6000	12500	1	Peak	11962	-46.84	-26	Pass	6501

A.3.34 802.11n-40MHz LV High Channel



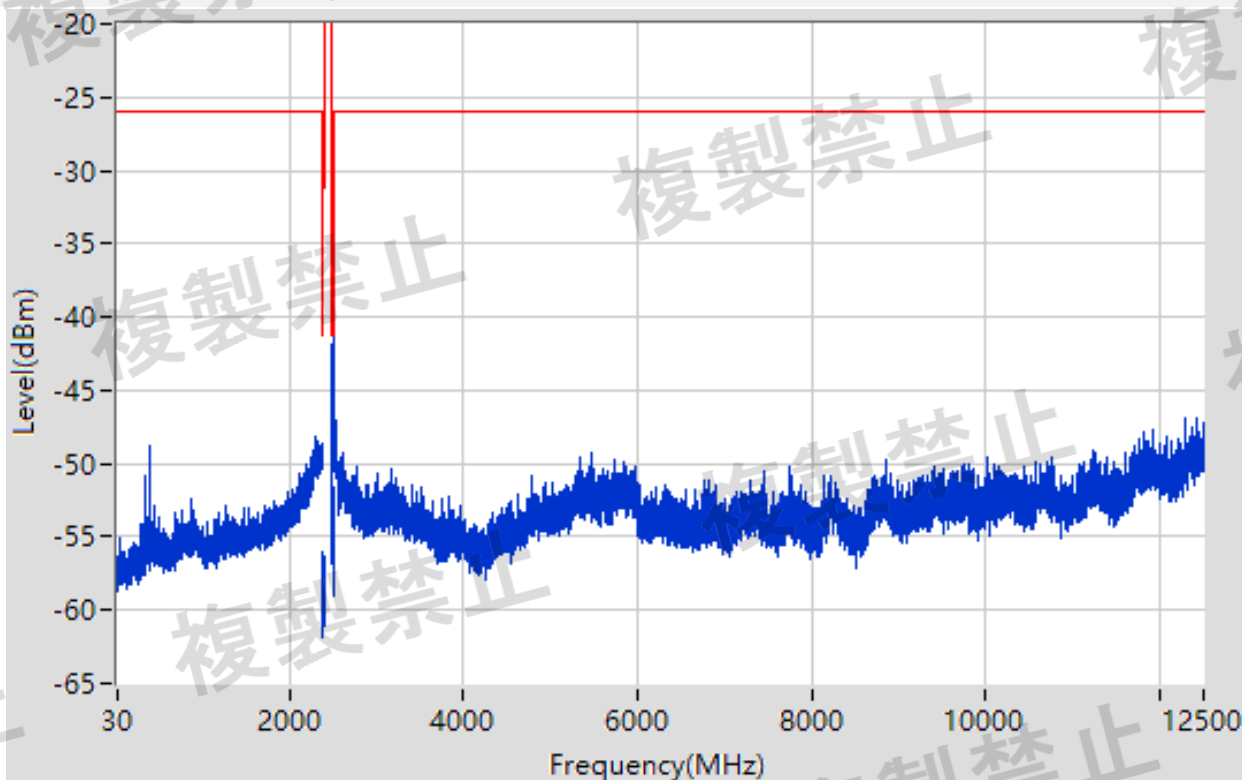
Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-47.98	-26	Pass	971
1000	2374	1	Peak	2370	-47.54	-26	Pass	1375
2374	2387	0.03	Peak	2384.162	-56.66	-41.2	Pass	601
2387	2400	0.03	Peak	2396.945	-55.41	-31.2	Pass	601
2483.5	2496.5	0.03	Peak	2483.5	-41.69	-31.2	Pass	601
2496.5	2509.5	0.03	Peak	2498.905	-50.64	-41.2	Pass	601
2509.5	6000	1	Peak	2510.5	-39.12	-26	Pass	3491
6000	12500	1	Peak	11779	-46.96	-26	Pass	6501

A.3.35 802.11n-40MHz NV High Channel



Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	400	-48.01	-26	Pass	971
1000	2374	1	Peak	2307	-48.07	-26	Pass	1375
2374	2387	0.03	Peak	2381.107	-56.62	-41.2	Pass	601
2387	2400	0.03	Peak	2391.55	-56.07	-31.2	Pass	601
2483.5	2496.5	0.03	Peak	2483.5	-41.64	-31.2	Pass	601
2496.5	2509.5	0.03	Peak	2497.345	-50.9	-41.2	Pass	601
2509.5	6000	1	Peak	2509.5	-42.37	-26	Pass	3491
6000	12500	1	Peak	12459	-45.98	-26	Pass	6501

A.3.36 802.11n-40MHz HV High Channel



Start Frequency (MHz)	Stop Frequency (MHz)	RBW (MHz)	Detector	Frequency (MHz)	Power (dBm)	Limit (dBm)	Verdict	Sweep Point
30	1000	1	Peak	399	-48.8	-26	Pass	971
1000	2374	1	Peak	2303	-48.2	-26	Pass	1375
2374	2387	0.03	Peak	2380.543	-56.71	-41.2	Pass	601
2387	2400	0.03	Peak	2389.102	-55.99	-31.2	Pass	601
2483.5	2496.5	0.03	Peak	2483.5	-41.89	-31.2	Pass	601
2496.5	2509.5	0.03	Peak	2499.23	-51.57	-41.2	Pass	601
2509.5	6000	1	Peak	2510.5	-41.02	-26	Pass	3491
6000	12500	1	Peak	12299	-46.84	-26	Pass	6501

5.4 Antenna Power Error Measurement

5.4.1 Limit

Item	Limits
Antenna Power Density	a) FH,FH+DS, or FH+OFDM form 2427 - 2470.75 MHz: ≤ 3 mW/MHz b) DS but other than a) from 2400~2483.5 MHz: ≤ 10 mW/MHz c) OFDM, but other than a): For OCB of 26MHz or less: ≤ 10 mW/MHz For OCB of over 26 MHz to 40 MHz: ≤ 5 mW/MHz d) Other than a), b) and c): ≤ 10 mW
Antenna Power Error	+20%, -80% (Base on manufacturer declare antenna power density)

5.4.2 Test Setup

See section 4.3.2 for test setup description for the antenna power error measurement. The photo of test setup please refer to ANNEX A.

5.4.3 Test Procedure

The following table is the setting of the spectrum.

Spectrum Parameter	Setting
Span Frequency	0MHz
RB/VB	1MHz
Detector	Positive Peak
Trace	Max hold
Sweep Time	Auto

Power Meter Parameter	Setting
Filter No.	Auto
Measurement time	0.135 s ~ 26 s

1 Measure equivalent noise bandwidth at 1 MHz resolution bandwidth of the spectrum analyzer and obtain a correction value used for correcting the resolution bandwidth into 1 MHz equivalent bandwidth. However, in case that the spreading bandwidth is 1 MHz or less, correction using the measured equivalent noise bandwidth is not required.

2 The attenuator shall be adjusted to supply an optimum input level to the spectrum analyzer.

3 Set the spectrum analyzer as follows to search for frequency giving the maximum antenna power:

Centre Frequency: Test frequency

Frequency sweep width: Approximately twice the occupied bandwidth

Resolution bandwidth: 1MHz

Video bandwidth: Approximately 3 times the resolution bandwidth (e.g. 3 MHz)

Y-axis scale: 10 dB / div

Sweep time: Minimum time to ensure the measuring accuracy (In case of burst wave, one burst shall be included in one sample at least.)

Trigger condition: Free-run

Number of data points: 1001 points or more

Sweep mode: Continuous sweep

Detection mode: Positive peak

Indication mode: Maximum hold

- 4 Set the spectrum analyzer as follows to measure antenna power. Prior to the measurement, calibrate indication of the power meter for the indication at EUT output in the condition that the power meter is connected to IF output of the spectrum analyzer.

Center frequency: A frequency giving the maximum power (searched frequency);

Frequency sweep width: 0 Hz;

Resolution bandwidth: 1 MHz;

Sweep mode: Continuous sweep.

- 5 When using the calculation function of the spectrum analyzer to measure antenna power, the settings of the spectrum analyzer are as follows:

Centre Frequency: Equal to the frequency recorded in step 2.

Frequency sweep width: 10 MHz

Operation bandwidth: 1 MHz

Resolution bandwidth: 30 kHz to 300 kHz

Video bandwidth: Approximately 3 times the resolution bandwidth

Y-axis scale: 10 dB / div

Sweep time: Integer multiple of burst period per sample

Trigger condition: Free-run

Number of data points: 1001 points or more

Sweep mode: Continuous sweep

Detection mode: RMS

Indication mode: RMS power, about 10 on average.

Measuring procedures (Antenna power)

- a. For orthogonal frequency division multiplexing system or spread spectrum system using direct sequence spreading:

(1) Set the spectrum analyzer according to 3.

(2) After repeating sweeps until spectrum fluctuation is not observed, measure the frequency giving the maximum power per 1 MHz.

(3) Set the spectrum analyzer according to 5.

(4) Antenna power shall be obtained as follows.

(a) For continuous wave; Values obtained from the operation of the spectrum analyzer.

(b) For burst wave; Mean power in burst that is calculated from the transmission time ratio and the values obtained from the operation in the same way as that for continuous wave:

Mean power in burst = values obtained from the operation of the spectrum analyzer / transmission time

ratio

where

Transmission time ratio = burst transmission time / burst repetition period

(5) When the EUT has plural modulation methods for sub-carriers in orthogonal frequency division multiplexing system, measure antenna power for each modulation method and use the maximum value as the measured value.

(6) When EUT has plural antenna terminals, conduct above measurement at each terminal.

b. For other systems

(1) Connect the power meter to the attenuator output and measure the total power (mW).

(2) Antenna power shall be obtained as follows.

(a) For continuous wave; Value obtained in (1)

(b) For burst wave; Mean power in burst that is calculated from the transmission time ratio and the value obtained in (1)

Mean power in burst = indicated value of power meter / transmission time ratio

(3) Measure antenna power per 1 MHz bandwidth (m W / MHz) in the same way as that in Measuring procedures a above.

(4) When EUT has plural antenna terminals, conduct above measurement at each terminal.

5.4.4 Test Deviation

There is no deviation with the original standard.

5.4.5 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.4.6 Test Result

802.11b Test Result

Duty cycle = 0.989

Antenna Power Density PD = power value dBm (contains cable loss dB) + 10 log₁₀(1/ Duty cycle) dB

Manufacturer declares the conducted power density = 4.72 mW/MHz

Test Channel	Test Voltage	power value (dBm)	Antenna Power Density PD (dBm/ MHz)	Antenna Power Density PD (mW / MHz)	Antenna Power Error	Verdict
Low	LV	5.60	5.64	3.66	-22.37%	Pass
	NV	5.45	5.49	3.54	-25.00%	Pass
	HV	5.43	5.48	3.53	-25.18%	Pass
Middle	LV	5.48	5.53	3.57	-24.31%	Pass
	NV	5.33	5.38	3.45	-26.88%	Pass
	HV	5.32	5.36	3.44	-27.21%	Pass
High	LV	5.35	5.40	3.47	-26.54%	Pass
	NV	5.17	5.22	3.33	-29.52%	Pass
	HV	5.16	5.21	3.32	-29.69%	Pass

EIRP Antenna Power

Test Channel	Test Voltage	Measured EIRP (dBm/ MHz)	Limit (dBm/MHz)	Verdict
Low	LV	8.64	12.14	Pass
	NV	8.49		Pass
	HV	8.48		Pass
Middle	LV	8.53		Pass
	NV	8.38		Pass
	HV	8.36		Pass
High	LV	8.40		Pass
	NV	8.22		Pass
	HV	8.21		Pass

802.11g Test Result

Duty cycle =0.936

Antenna Power Density PD = power value dBm (contains cable loss dB) +10 log₁₀(1/ Duty cycle) dB

Manufacturer declares the conducted power density = 3.28 mW/MHz

Test Channel	Test Voltage	power value (dBm)	Antenna Power Density PD (dBm/ MHz)	Antenna Power Density PD (mW / MHz)	Antenna Power Error	Verdict
Low	LV	3.36	3.65	2.32	-29.44%	Pass
	NV	3.22	3.51	2.24	-31.68%	Pass
	HV	3.17	3.46	2.22	-32.46%	Pass
Middle	LV	3.63	3.92	2.47	-24.91%	Pass
	NV	3.31	3.59	2.29	-30.41%	Pass
	HV	3.23	3.52	2.25	-31.52%	Pass
High	LV	3.61	3.90	2.45	-25.26%	Pass
	NV	3.38	3.67	2.33	-29.11%	Pass
	HV	3.28	3.57	2.28	-30.73%	Pass

EIRP Antenna Power

Test Channel	Test Voltage	Measured EIRP (dBm/ MHz)	Limit (dBm/MHz)	Verdict
Low	LV	6.65	12.14	Pass
	NV	6.51		Pass
	HV	6.46		Pass
Middle	LV	6.92		Pass
	NV	6.59		Pass
	HV	6.52		Pass
High	LV	6.90		Pass
	NV	6.67		Pass
	HV	6.57		Pass

802.11n-20 MHz Test Result

Duty cycle = 0.929

Antenna Power Density PD = power value dBm (contains cable loss dB) +10 log₁₀(1/ Duty cycle) dB

Manufacturer declares the conducted power density = 2.61 mW/MHz

Test Channel	Test Voltage	power value (dBm)	Antenna Power Density PD (dBm/ MHz)	Antenna Power Density PD (mW / MHz)	Antenna Power Error	Verdict
Low	LV	2.84	3.16	2.07	-20.80%	Pass
	NV	2.75	3.07	2.03	-22.42%	Pass
	HV	2.70	3.02	2.00	-23.31%	Pass
Middle	LV	2.63	2.95	1.97	-24.54%	Pass
	NV	2.47	2.79	1.90	-27.27%	Pass
	HV	2.50	2.82	1.91	-26.76%	Pass
High	LV	2.54	2.86	1.93	-26.08%	Pass
	NV	2.30	2.62	1.83	-30.06%	Pass
	HV	2.31	2.63	1.83	-29.90%	Pass

EIRP Antenna Power

Test Channel	Test Voltage	Measured EIRP (dBm/ MHz)	Limit (dBm/MHz)	Verdict
Low	LV	6.16	12.14	Pass
	NV	6.07		Pass
	HV	6.02		Pass
Middle	LV	5.95		Pass
	NV	5.79		Pass
	HV	5.82		Pass
High	LV	5.86		Pass
	NV	5.62		Pass
	HV	5.63		Pass

802.11n-40 MHz Test Result

Duty cycle = 0.859

Antenna Power Density PD = power value dBm (contains cable loss dB) +10 log₁₀(1/ Duty cycle) dB

Manufacturer declares the conducted power density = 1.41 mW/MHz

Test Channel	Test Voltage	power value (dBm)	Antenna Power Density PD (dBm/ MHz)	Antenna Power Density PD (mW / MHz)	Antenna Power Error	Verdict
Low	LV	-0.35	0.31	1.07	-23.61%	Pass
	NV	-0.42	0.24	1.06	-24.83%	Pass
	HV	-0.12	0.54	1.13	-19.45%	Pass
Middle	LV	-0.15	0.51	1.12	-20.01%	Pass
	NV	-0.19	0.47	1.11	-20.74%	Pass
	HV	-0.30	0.36	1.09	-22.72%	Pass
High	LV	-0.58	0.08	1.02	-27.55%	Pass
	NV	-0.60	0.06	1.01	-27.88%	Pass
	HV	-0.66	0.00	1.00	-28.87%	Pass

EIRP Antenna Power

Test Channel	Test Voltage	Measured EIRP (dBm/ MHz)	Limit (dBm/MHz)	Verdict
Low	LV	3.31	12.14	Pass
	NV	3.24		Pass
	HV	3.54		Pass
Middle	LV	3.51		Pass
	NV	3.47		Pass
	HV	3.36		Pass
High	LV	3.08		Pass
	NV	3.06		Pass
	HV	3.00		Pass

5.5 Limitation of Collateral Emission of Receiver Measurement

5.5.1 Limit

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

5.5.2 Test Setup

See section 4.3.1 for test setup description for the antenna port. The photo of test setup please refer to ANNEX A.

5.5.3 Test Procedure

- 1 EUT has the continuous reception mode and fixed only one channelize.
- 2 Setting of SA is following as RB / VB: 100 kHz (below 1GHz emissions) / 1 MHz (above 1GHz emissions) / AT:10 dB / Ref: 0dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold
- 3 SA set RB: 100 kHz and VB: 100 kHz. Then adjust to start frequency 30 MHz and stop frequency 1000 MHz. Search to mark peak reading value + cable loss shall be less than 4 nW
- 4 SA set RB: 1 MHz and VB: 1 MHz. Then adjust to start frequency 1000 MHz and stop frequency 12500 MHz. Search to mark peak reading value + cable loss shall be less than 20 nW
- 5 If power level of lower emissions are more than 1/10 of limit (0.4nW for $f < 1\text{GHz}$, 2 nW for $f \geq 1\text{GHz}$), all those are to be indicated in the 2nd and 3rd lines. If others are 1/10 or less more of the limit, no necessary to be indicated

5.5.4 Test Deviation

There is no deviation with the original standard.

5.5.5 EUT Operation during Test

The EUT was programmed to be in continuously receiving mode.

5.5.6 Test Result

Note: Not applicable.

5.6 Carrier sensing function (1)

5.6.1 Limit

Radio equipment using OFDM method shall provide a carrier sensing function when the occupied bandwidth of its transmitting device is over 26 MHz and 40 MHz or less.

5.6.2 Test Setup

See section 4.3.1 Diagram 6 for test setup description for the antenna port. The photo of test setup please refer to ANNEX A.

5.6.3 Test Procedure

- 1 Set the spectrum analyzer as follows:
Center frequency: Center of frequency of test channel
Frequency sweep width: 50MHz
RBW: Approximately 1MHz
VBW: Approximately same as RBW
Y-axis scale: 10dB / div
Detection mode: Positive peak
- 2 Turn off the output of the standard signal generator. Set the standard signal generator as follows:
Carrier frequency: Center of reception frequency band of EUT
Modulation: No modulation
Output level: Specified level at antenna input of EUT
- 3 Make a line connection between the EUT and the external test device and confirm using the spectrum analyzer that the EUT is transmitting a test frequency signal of OFDM method which occupied bandwidth is over 26 MHz.
- 4 EUT is set to a test frequency and a test spreading code and put to reception state first. when using an external test device, a communication link between the EUT and the external test device is established.
- 5 Turn on the output of the standard signal generator, set the EUT to transmission state and confirm using the spectrum analyzer that the EUT does not transmit radio wave of OFDM method which occupied bandwidth is over 26 MHz.

5.6.4 Test Deviation

There is no deviation with the original standard.

5.6.5 EUT Operation during Test

EUT is set to a test frequency and a test spreading code and put to reception state first.

5.6.6 Test Result

Note: Only for orthogonal frequency division multiplexing (OFDM) system which occupied bandwidth is over 26MHz.

802.11n (40M)

Test Voltage	Channel	Test Result	Verdict
LV	Low	GOOD	Pass
	Middle	GOOD	Pass
	High	GOOD	Pass
NV	Low	GOOD	Pass
	Middle	GOOD	Pass
	High	GOOD	Pass
HV	Low	GOOD	Pass
	Middle	GOOD	Pass
	High	GOOD	Pass

5.7 Carrier sensing function (2)

5.7.1 Limit

Transmission device used for radio control of outdoor-use model-airplane (except frequency hopping system) shall provide a carrier sensing function that works at the start of the transmission.

5.7.2 Test Setup

See section 4.3.1 Diagram 7 for test setup description for the antenna port. The photo of test setup please refer to ANNEX A.

5.7.3 Test Procedure

1 Set the output level of standard signal generator to the specified level at antenna input of EUT, Set the standard signal generator as follows:

Carrier frequency: Center of reception frequency band of EUT

Modulation: No modulation

Output level: Specified level at antenna input of EUT

2 Set the EUT to reception state

3 Turn on the output of the standard signal generator.

4 Set the EUT to transmission state and confirm using the spectrum analyzer that the EUT does not transmit radio wave. Set the spectrum analyzer as follows:

Center frequency: Center of frequency of test channel

Frequency sweep width: 50MHz

RBW: Approximately 1MHz

VBW: Approximately same as RBW

Y-axis scale: 10dB / div

Detection mode: Positive peak

5 Set the EUT to reception state

6 Turn off the output of the standard signal generator.

7 Set the EUT to transmission state and confirm using the spectrum analyzer that the EUT is transmitting radio wave.

5.7.4 Test Deviation

There is no deviation with the original standard.

5.7.5 EUT Operation during Test

EUT is set to a test frequency.

5.7.6 Test Result

Because of the EUT is not a radio control of outdoor-use model-airplane, so this test item will not be applied.

5.8 Transmission Antenna Gain (EIRP Antenna Power) Measurement

5.8.1 Limit

Item	Non-directional antennal limits	Directional antennal limits
EIRP Power Density	a) FH,FH+DS, or FH+OFDM form 2427 - 2470.75 MHz: $\leq 6.91 \text{ dBm/MHz}$ b) DS but other than a) from 2400~2483.5 MHz: $\leq 12.14 \text{ dBm/MHz}$ c) OFDM, but other than a): For OCB of 26MHz or less: $\leq 12.14 \text{ dBm/MHz}$ For OCB of over 26 MHz to 40 MHz: $\leq 9.14 \text{ dBm/MHz}$ d) Other than a), b) and c): $\leq 12.14 \text{ dBm}$	a) FH,FH+DS, or FH+OFDM form 2427 - 2470.75 MHz: $\leq 16.91 \text{ dBm/MHz}$ b) DS but other than a) from 2400~2483.5 MHz: $\leq 22.14 \text{ dBm/MHz}$ c) OFDM, but other than a): For OCB of 26MHz or less: $\leq 22.14 \text{ dBm/MHz}$ For OCB of over 26 MHz to 40 MHz: $\leq 19.14 \text{ dBm/MHz}$ d) Other than a), b) and c): $\leq 22.14 \text{ dBm}$
Note: This test item will not be applied to the transmission antenna which has a gain of 2.14dBi or less		

5.8.2 Test Setup

See section 4.3.4 for test setup description for the antenna port.

5.8.3 Test Procedure

- 1 Set EUT ad measuring antenna at the same height and roughly facing each other.
- 2 Set spectrum analyzer with RBW=1MHz, VBW=1MHz, Detector=Peak, Trace mode=Max Hold, and tune reference level to observe receiving signal position.
- 3 Move the measuring antenna height up and down within $\pm 50\text{cm}$ of EUT height and swing it to find the maximum output of the measuring antenna. The output level at the spectrum analyzer is read sa “E”.
- 4 Remove the EUT from the turn table and put the replacing antenna facing to measuring antenna at same height. Set the standard signal generator (SSG) at same frequency and transmit on then receive the signal
- 5 Swing the replacing antenna give a maximum receiving level.
- 6 Move the measuring antenna height up and down within $\pm 50\text{cm}$ of replacing antenna height and swing it to find the maximum receiving level.
- 7 Set SSG output power at Pt to give the equivalent output level of “E” or caluate Pt with SSG output which gives the nearest of “E” and difference ($\pm 1\text{dB}$). Record the Pt.
- 8 Calculate EIRP by the formula below $\text{EIRP} = G_t - L + P_t$.

Gt: gain of replacing antenna (dBi)

L: feeder loss between SSG and replacing antenna

Pt: Output power of the SSG

9 If the antenna for the EUT has circular polarization, sum of V-field and H-field will be result if measuring antenna is linear polarization.

5.8.4 Test Deviation

There is no deviation with the original standard.

5.8.5 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.8.6 Test Result

Note: Not applicable.

5.9 Transmission Radiation Angle Width (3dB Beamwidth) Measurement

5.9.1 Limit

Item	Limits
3dB antenna beam width	360/A (If $A < 1$; then $A = 1$) $A = \{\text{EIRP Power [mW]} / 16.36 \text{ for DS, OFDM}\}$ or $A = \{\text{EIRP Power [mW]} / 4.9 \text{ for FH}\}$
Note: This test item will not be applied to the transmission antenna which has a gain of 2.14dBi or less	

5.9.2 Test Setup

See section 4.3.4 for test setup description for the antenna port. The photo of test setup please refer to ANNEX A.

5.9.3 Test Procedure

- 1 Set EUT and measuring antenna at the same height and roughly facing each other.
- 2 Set spectrum analyzer with RBW=1 MHz, VBW=1 KHz, Y scale=5 dB, Detector=Peak, Trace mode=Max Hold, and tune reference level to observe receiving signal position.
- 3 Rotate directions of the EUT horizontally and vertically to find the maximum receiving power.
- 4 Move the measuring antenna height up and down within $\pm 50\text{cm}$ of EUT height and swing it to find the maximum output of measuring antenna. The output level at the spectrum analyzer is read as "E"
- 5 Calculate permitted radiation angle in horizontal and vertical using EIRP measured in another test method.
- 6 Calculate 3dB antenna beam width by the formula below $360/A$ (If $A < 1$; then $A = 1$). $A = \{\text{EIRP Power [mW]} / 16.36 \text{ for DS, OFDM}\}$ or $A = \{\text{EIRP Power [mW]} / 4.9 \text{ for FH}\}$

5.9.4 Test Deviation

There is no deviation with the original standard.

5.9.5 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.9.6 Test Result

Note: Not applicable.

5.10 Radio Interference Prevention Capability Measurement

5.10.1 Limit

Item	Limits
Identification	≥ 48 bits

5.10.2 Test Setup

The photo of test setup please refer to ANNEX A.



5.10.3 Test Procedure

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

5.10.4 Test Deviation

There is no deviation with the original standard.

5.10.5 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

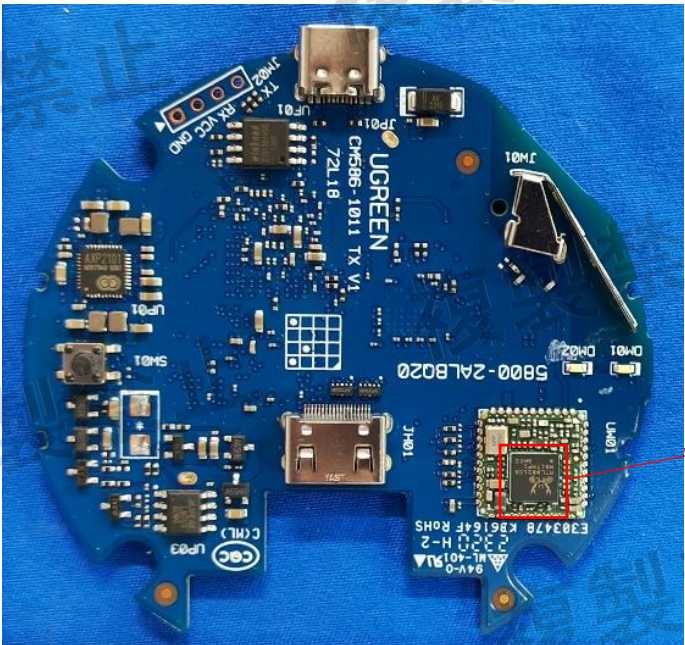
5.10.6 Test Result

Test Voltage	Channel	Test Result (ID Code)	Verdict
LV	Low	GOOD	Pass
	Middle	GOOD	Pass
	High	GOOD	Pass
NV	Low	GOOD	Pass
	Middle	GOOD	Pass
	High	GOOD	Pass
HV	Low	GOOD	Pass
	Middle	GOOD	Pass
	High	GOOD	Pass

5.11 Construction Protection Confirmation Method

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

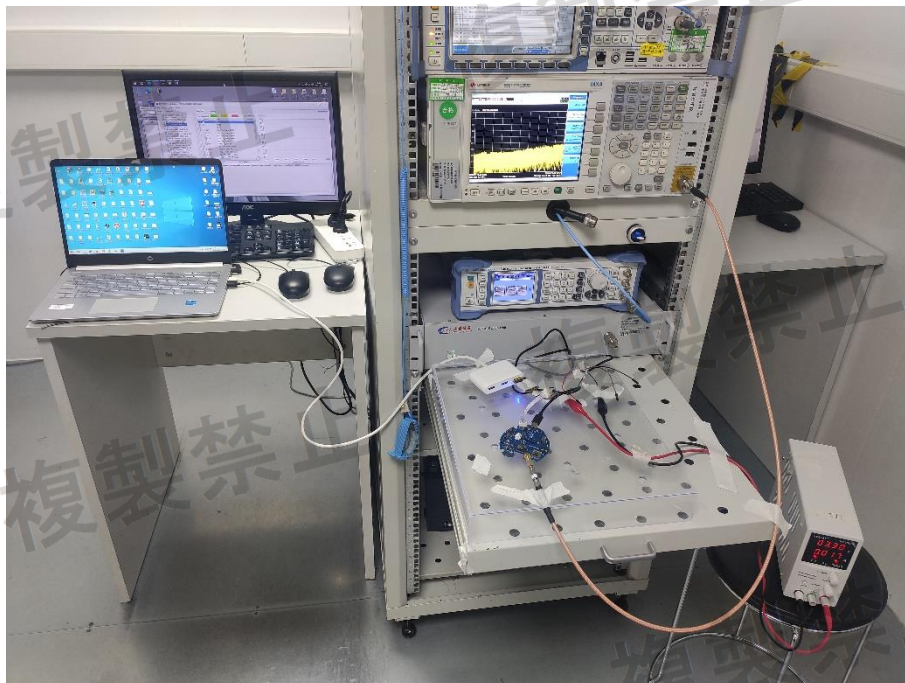
Protected Method	Description
Structure protection	The RF Module is BGA SoC IC, can't be easily modified
Reference Photo	



ANNEX A TEST SETUP PHOTOS

1 Conducted Test Photo

Conducted Test-WLAN 2.4G



ANNEX B EUT EXTERNAL PHOTOS

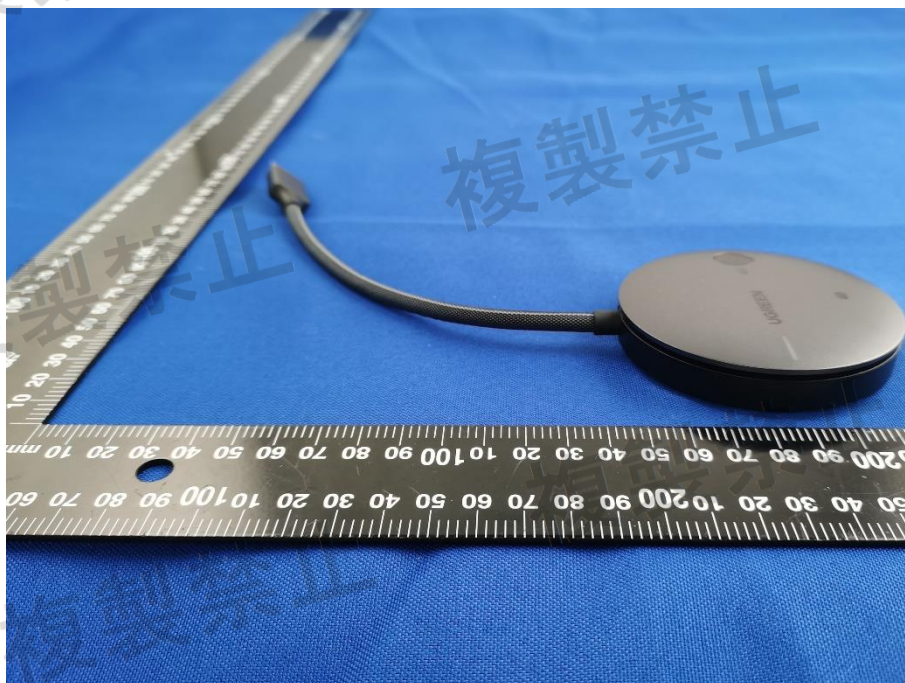
FRONT VIEW OF EUT



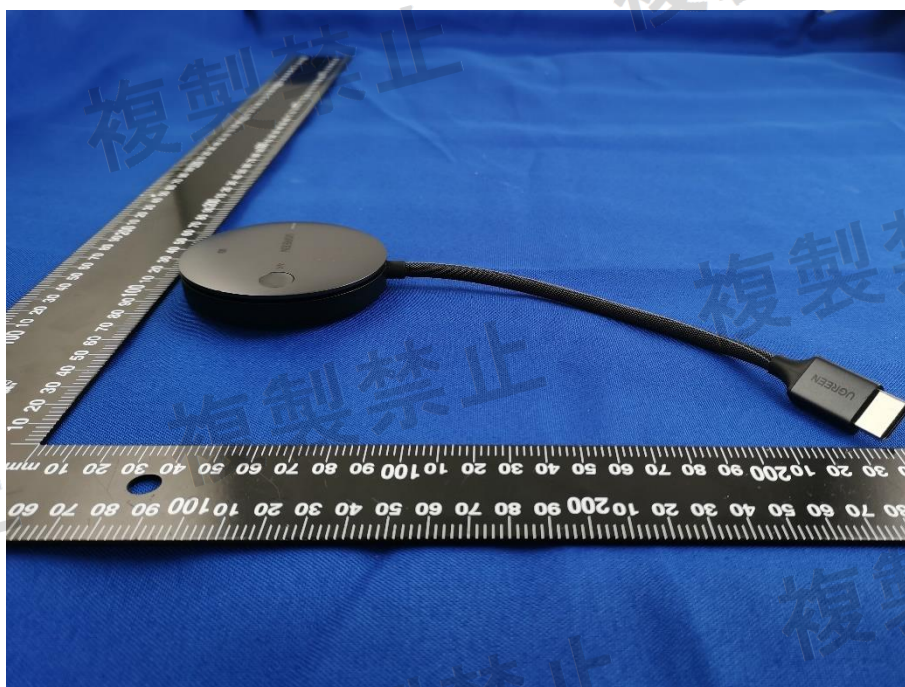
REAR VIEW OF EUT



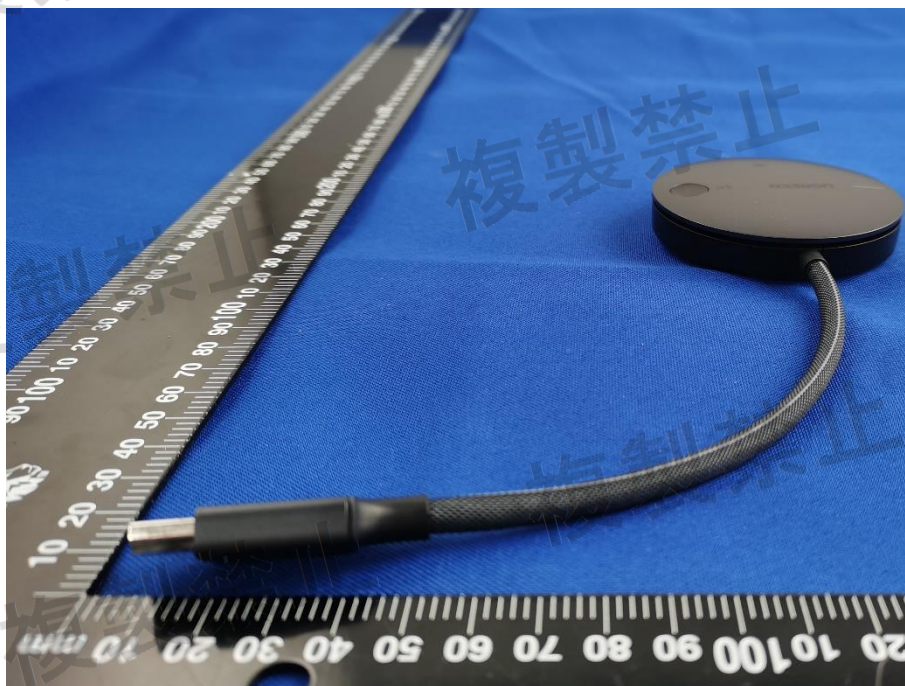
LEFT VIEW OF EUT



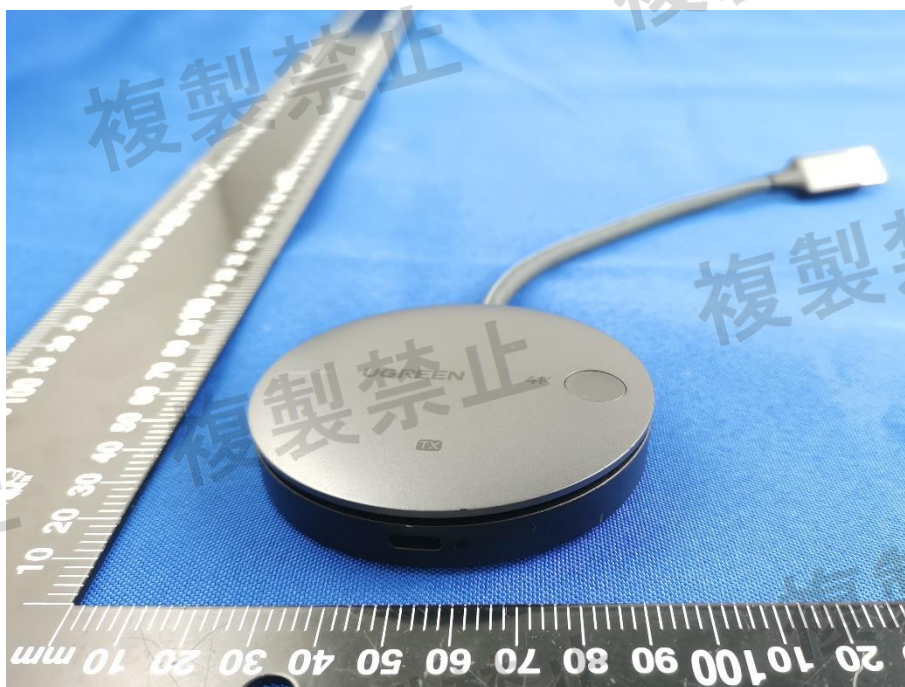
RIGHT VIEW OF EUT



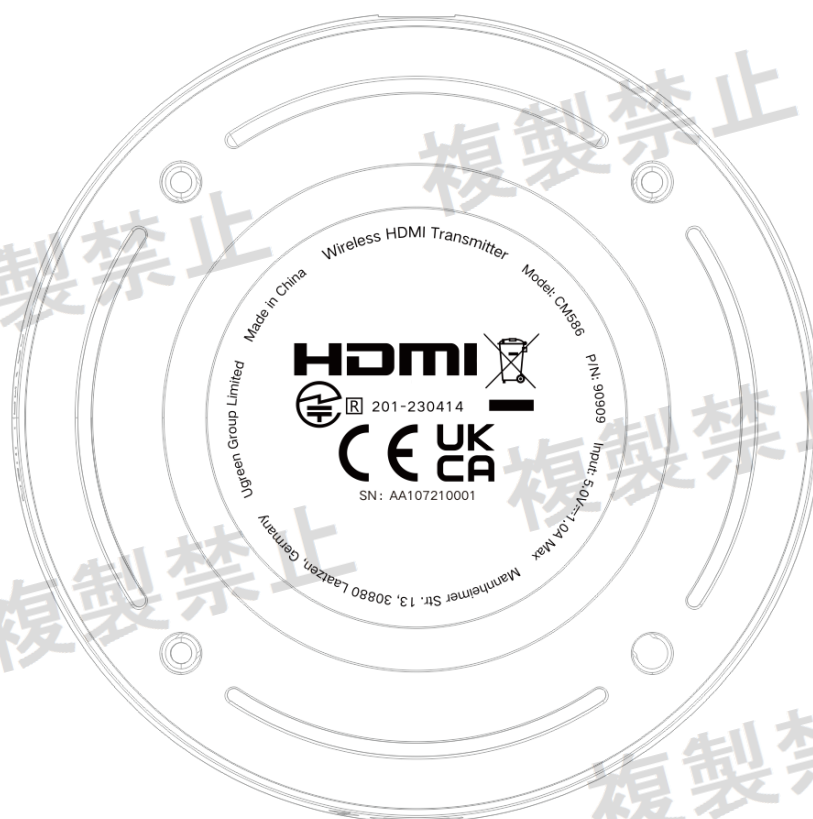
TOP VIEW OF EUT



BOTTOM VIEW OF EUT



NAMEPLATE



Accessory-HDMI Cable



Accessory-AUX Cable

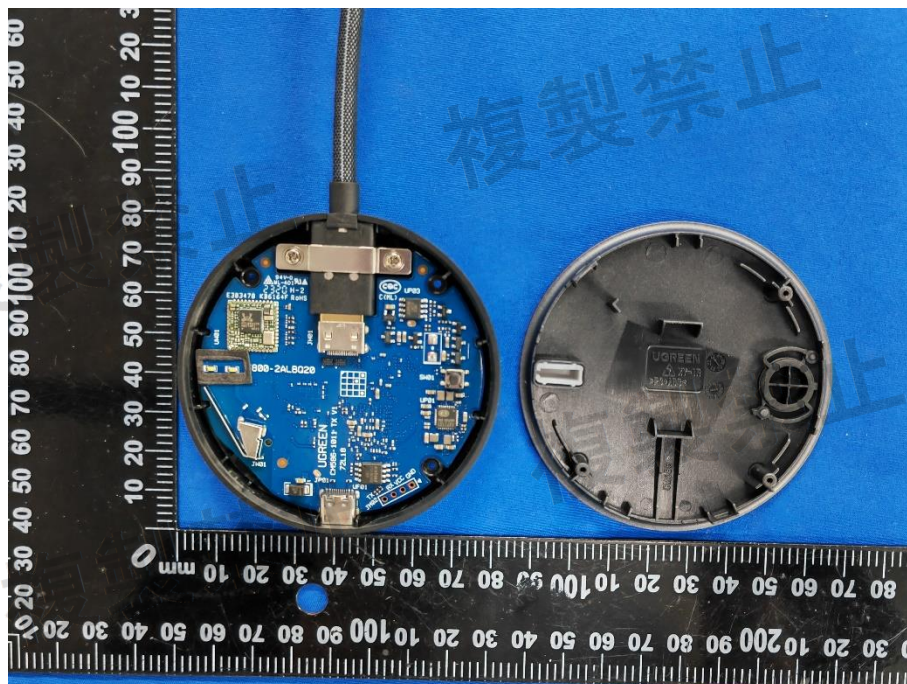


Accessory-Type-C Cable

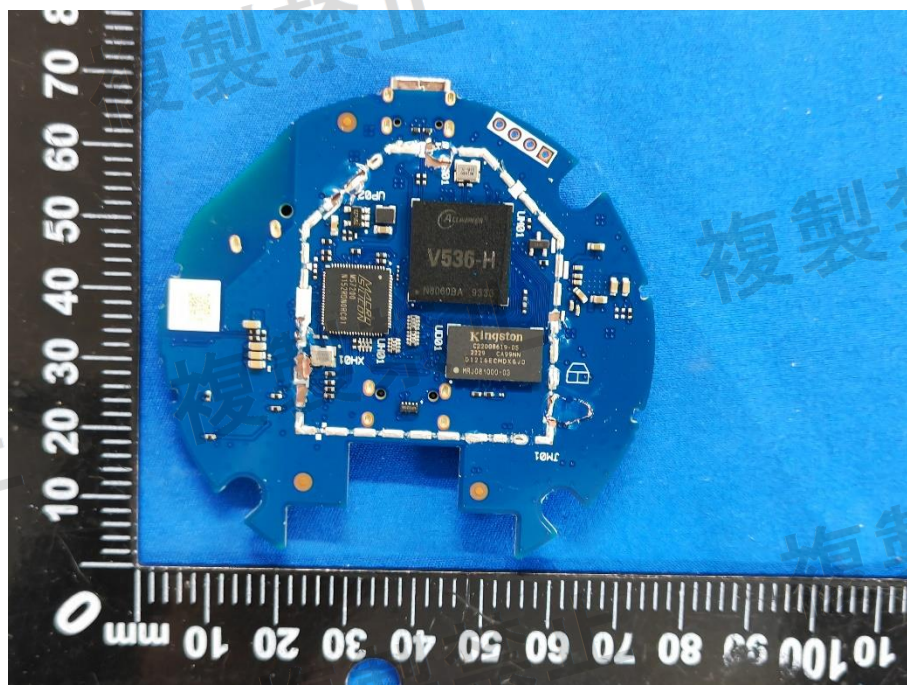


ANNEX C EUT INTERNAL PHOTOS

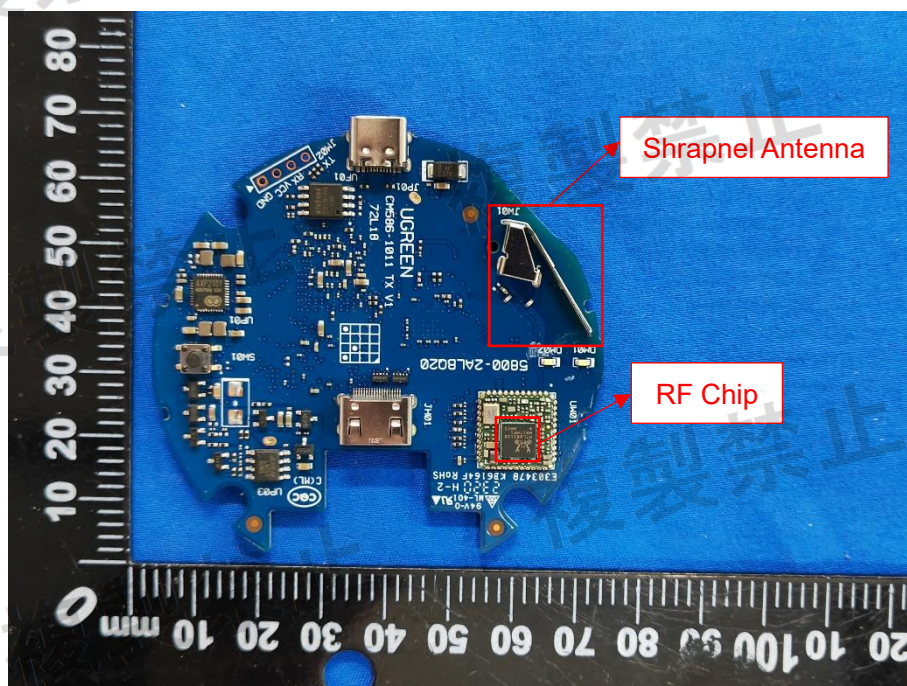
EUT UNCOVER VIEW 1



MAIN BOARD TOP VIEW



MAIN BOARD REAR VIEW



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--END OF REPORT--