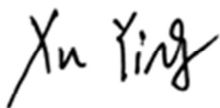


Test Report

Applicant Suzhou MobyData Smart System Co., Ltd.
Product Mobile Computer
Model M63S; M63; OA66; MB68; SA68
Report No. EFTA25060022-IE-02-R1
Issue Date July 15, 2025

Eurofins TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **Article 49-20, MIC notification. No.88 of 2004, Annex 43**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.



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Summary of Measurement Results

Number	Summary of Measurements Of Results	Verdict
1	Frequency Error Measurement	PASS
2	Occupied Bandwidth Measurement	PASS
3	Spread Bandwidth and Spread Factor Measurement	PASS
4	Antenna Power (Conducted) Measurement	PASS
5	Transmission Radiation Angle Width (3dB Beamwidth)	NA
6	Unwanted Emission Strength Measurement	PASS
7	Secondarily Emitted Radio Wave Strength Measurement	PASS
8	Carrier Sense Measurement	N/A
9	Radio Interference Prevention Capability Measurement	PASS
10	Construction Protection Confirmation Method	PASS
Date of Testing: June 10, 2025~ June 24, 2025		
Date of Sample Received: June 3, 2025		
Note: NA = Not applicable.		
All indications of Pass/Fail in this report are opinions expressed by Eurofins TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.		

1. Test Laboratory

1.1. Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **Eurofins TA Technology (Shanghai) Co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2. Test Facility

A2LA (Certificate Number: 3857.01)

Eurofins TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform measurement.

1.3. Testing Location

Company: Eurofins TA Technology (Shanghai) Co., Ltd.
Address: Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China
City: Shanghai
Post code: 201201
Country: P. R. China
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Website: <https://www.eurofins.com/electrical-and-electronics>
E-mail: Kain.Xu@cpt.eurofinscn.com

2. General Description of Equipment Under Test

2.1. Applicant and Manufacturer Information

Applicant	Suzhou MobyData Smart System Co., Ltd.
Applicant address	3f, building E, Yida Science Park, No.11 Jinpu Road, SIP, Suzhou, Jiangsu Province, China.
Manufacturer	MOBIWIRE MOBILES(NINGBO)CO.,LTD
Manufacturer address	No.518, Changting East Road,Fenghua District,Ningbo City, Zhejiang Province

2.2. General Information

EUT Description	
Model	M63S; M63; OA66; MB68; SA68
SN	25C21L0010
Hardware Version	V01
Software Version	M14.01.06.20250703
Antenna Type	PIFA Antenna
Antenna Gain	1.46 dBi
Device Operating Configurations	
Test Mode:	802.11b; 802.11g; 802.11n HT20
Operating Frequency Range(s)	2412 MHz ~ 2472 MHz
Test Modulation:	(802.11b) DSSS; (802.11g/n) OFDM
Operating voltage range	3.6 V to 4.35 V
State DC voltage	3.8V
Number of subcarriers:	The number of the subcarriers per MHz is 1 or more.
Note:	
1. The EUT is sent from the applicant to Eurofins TA and the information of the EUT is declared by the applicant.	
2. The customer claims that the RF specifications of the family models (M63S; M63; OA66; MB68; SA68) are identical. The difference is the sales area and the naming methods of customer needs, which also do not affect the EMC and safety performance of the product.	

Environment of Test Site					
Temperature:		25℃			
Huidity:		59%			
Atmospheric Pressure:		100.77 kpa			
Test Voltage:		Normal Voltage: 3.8V Extreme Voltage: 3.6V-4.35V			
Note: For extreme voltage test, we have tested the relationship between the external power supply and RF IC power supply. Base on the test results. only the normal voltage was selected to perform all items. The details information as below:					
External Power Supply(V)	IC power supply1(V)	IC power supply2(V)	IC power supply3(V)	Deviation from normal(V)	Deviation(%)
NV: 3.8V	2.8V	3.3V	1.8V	--	--
LV: 3.6V	2.8V	3.3V	1.8V	0.00V	0.00%
HV: 4.35V	2.8V	3.3V	1.8V	0.00V	0.00%

3. Applied Standards

According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

Article 49-20

Article 2, Paragraph 1, Item (19)

Reference

MIC Notice No.88 of 2004, Annex 43

4. Test Configuration

For all the test items, an engineering test program installed in notebook was used to make the EUT continuously transmit/receive.

5. Test Case Results

5.1. Frequency Error Measurement

Ambient Condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

Spectrum Analyzer Setting

SPAN: 300 kHz

RBW: 10 kHz

VBW: 10 kHz

Sweep Time: AUTO (Minimum time to ensure measurement accuracy.)

Data Points: 401 points or more

Sweep Mode: Single Sweep

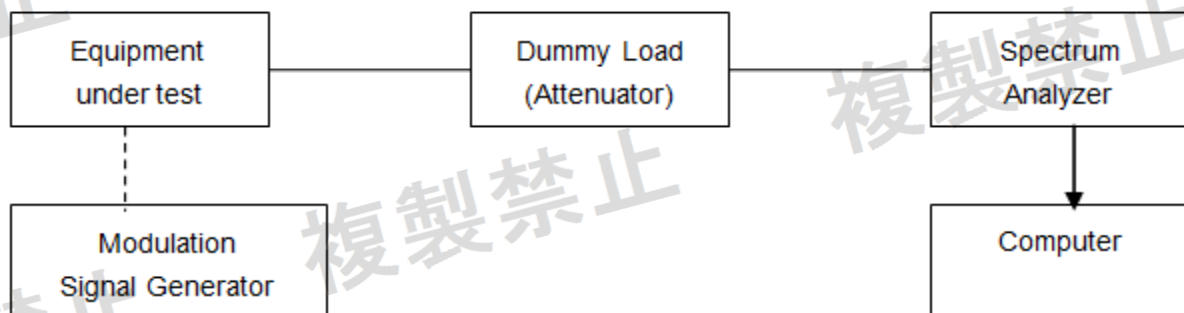
Detection Mode: Positive Peak

Storage Mode: Normal

Y-axis Scale: 10 dB/Div.

Reference Level: Enough level for maximum dynamic range

Test Setup



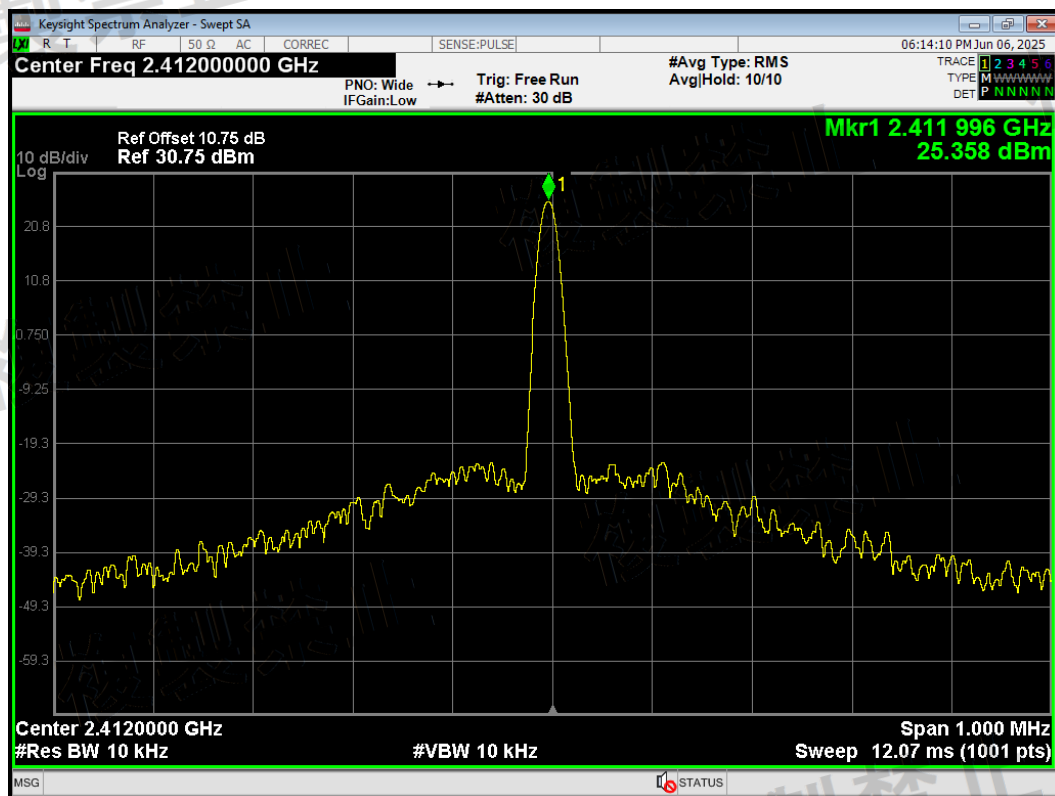
Limits

Frequency Tolerance +/-50 ppm.

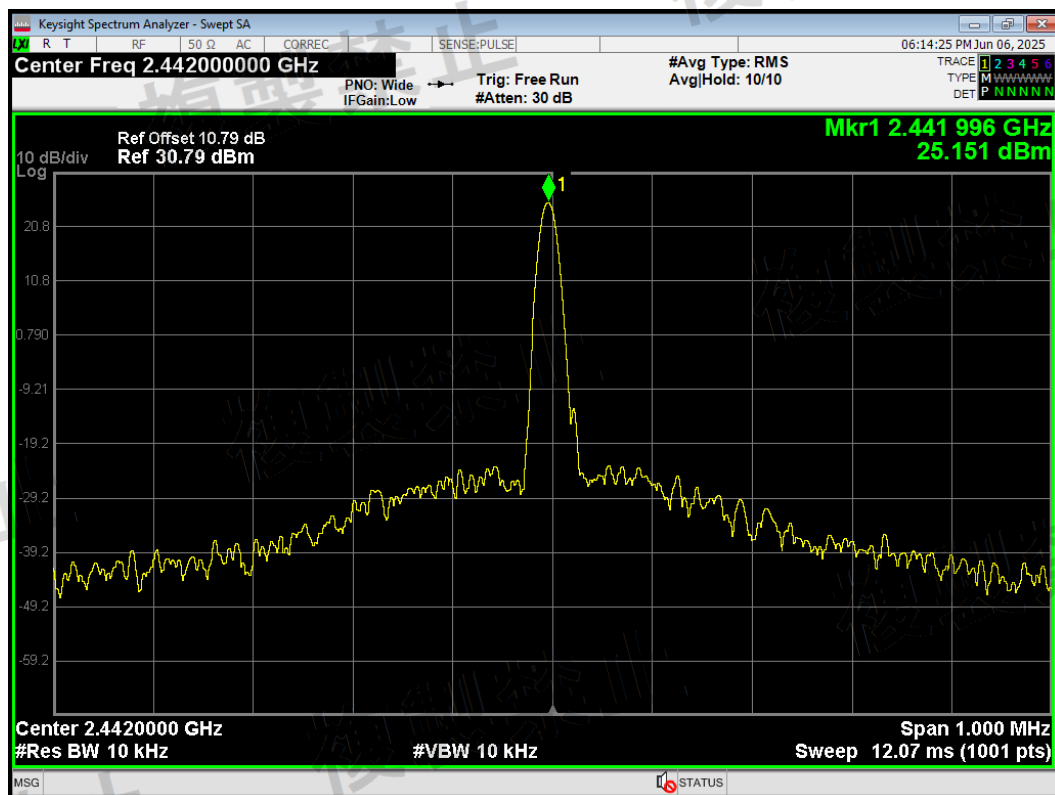
Test Results

Test Mode	Test Frequency (MHz)	Measured Frequency (MHz)	Tolerance (MHz)	Frequency Tolerance (ppm)	Limit (ppm)	Result
CW	2412	2411.996	0.004	-1.66	+/-50	Pass
	2442	2441.996	0.004	-1.64	+/-50	Pass
	2472	2471.995	0.005	-2.02	+/-50	Pass

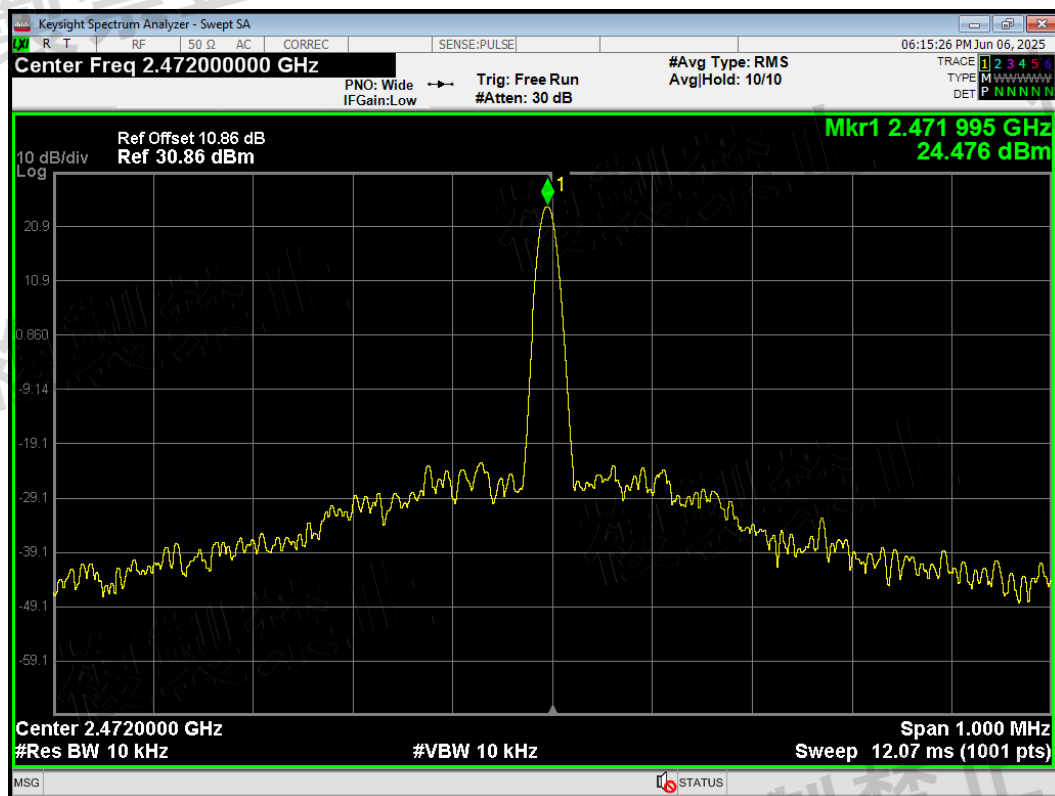
Freq. Error 2412MHz



Freq. Error 2442MHz



Freq. Error 2472MHz



5.2. Occupied Bandwidth Measurement

Ambient Condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Method of Measurement

Spectrum Analyzer Setting

SPAN: 40 MHz(BW=20) or 80 MHz(BW=40) or 160 MHz(BW=80) or 320 MHz(BW=160)

RBW: 300 kHz

VBW: 300 kHz

Sweep Time: AUTO (Minimum time to ensure measurement accuracy.)

Data Points: 401 points or more

Indication mode: Max hold

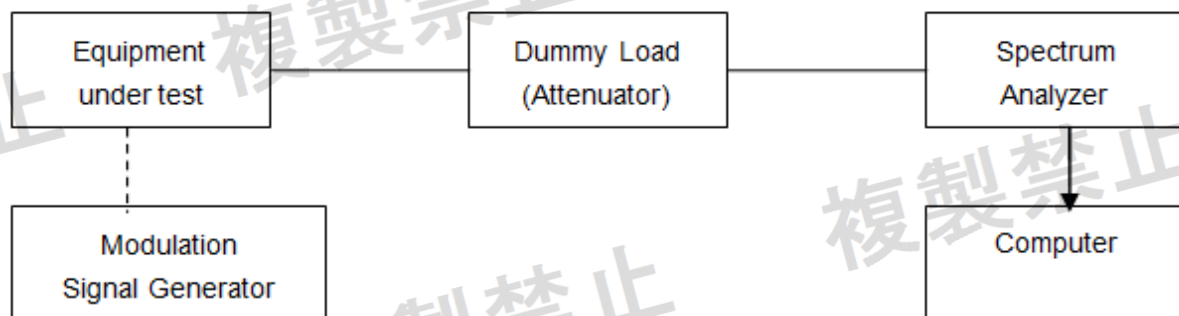
Detection Mode: Positive Peak

Storage Mode: Normal

Y-axis Scale: 10 dB/Div.

Reference Level: Enough level for maximum dynamic range

Test Setup



Limits

Others: Occupied Bandwidth ≤ 26 MHz.

OFDM: Occupied Bandwidth ≤ 40 MHz.

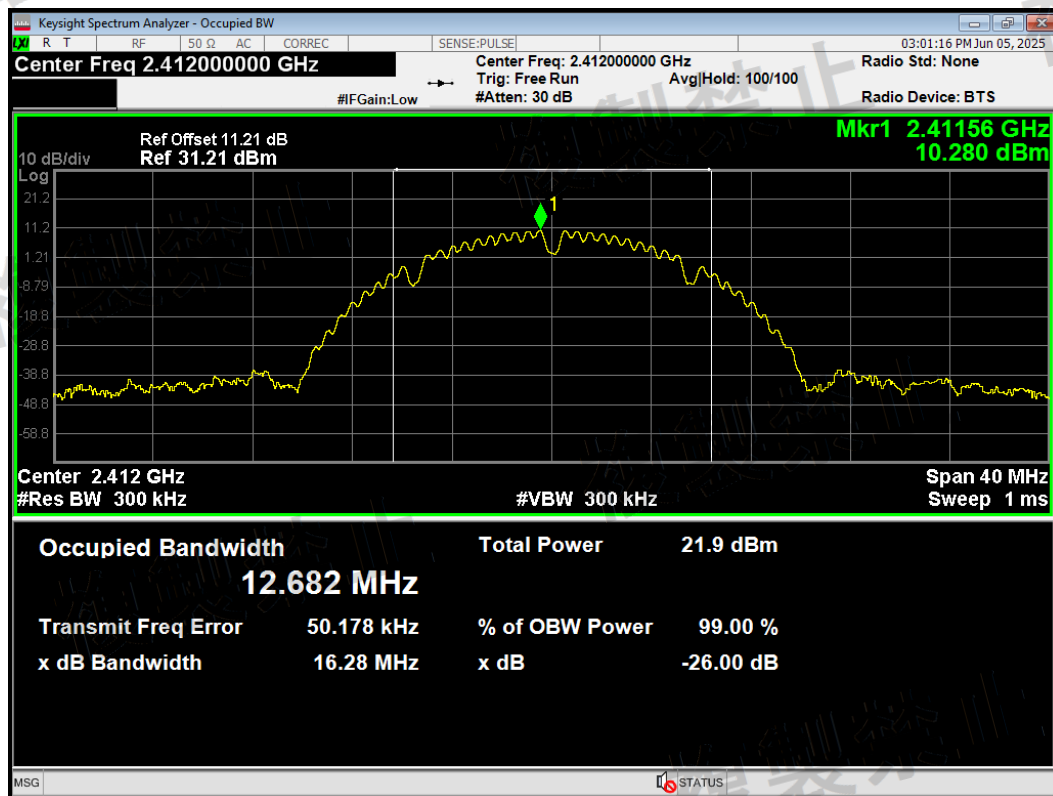
Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 936$ Hz.

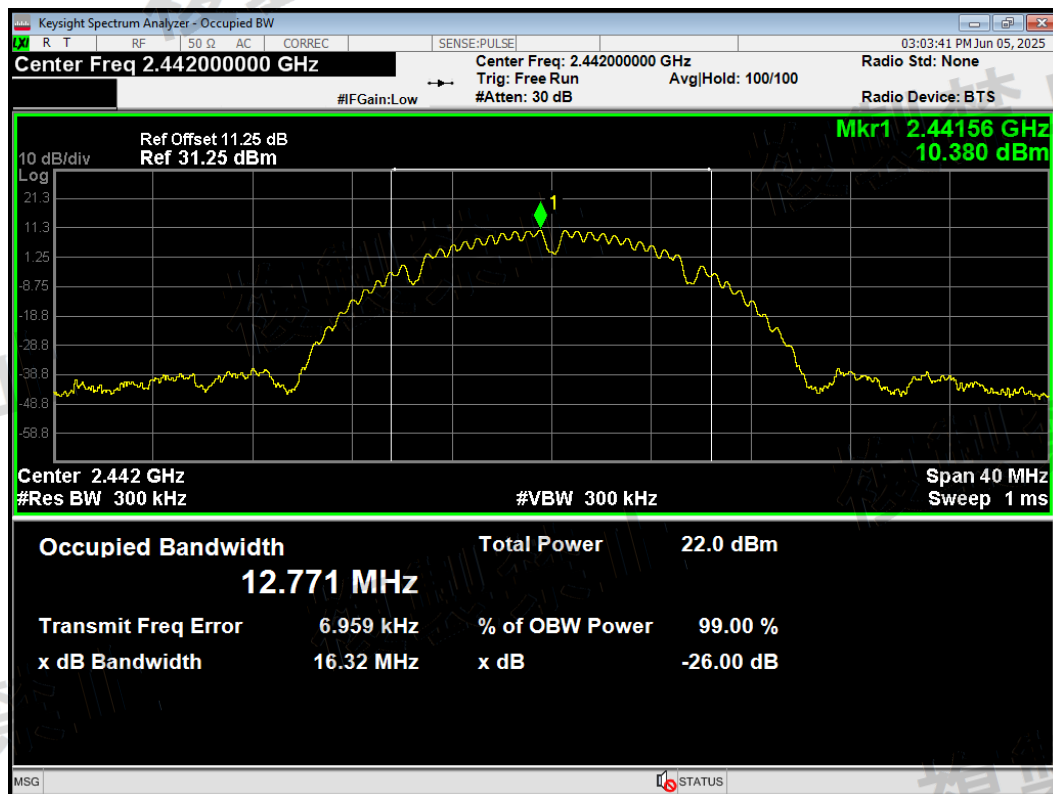
Test Results

Test Mode	Carrier frequency (MHz)	99% bandwidth (MHz)	Limit (MHz)	Result
802.11b	2412	12.682	≤26	Pass
802.11b	2442	12.771	≤26	Pass
802.11b	2472	12.652	≤26	Pass
802.11g	2412	16.562	≤40	Pass
802.11g	2442	16.696	≤40	Pass
802.11g	2472	16.662	≤40	Pass
802.11n(HT20)	2412	17.679	≤40	Pass
802.11n(HT20)	2442	17.831	≤40	Pass
802.11n(HT20)	2472	17.725	≤40	Pass

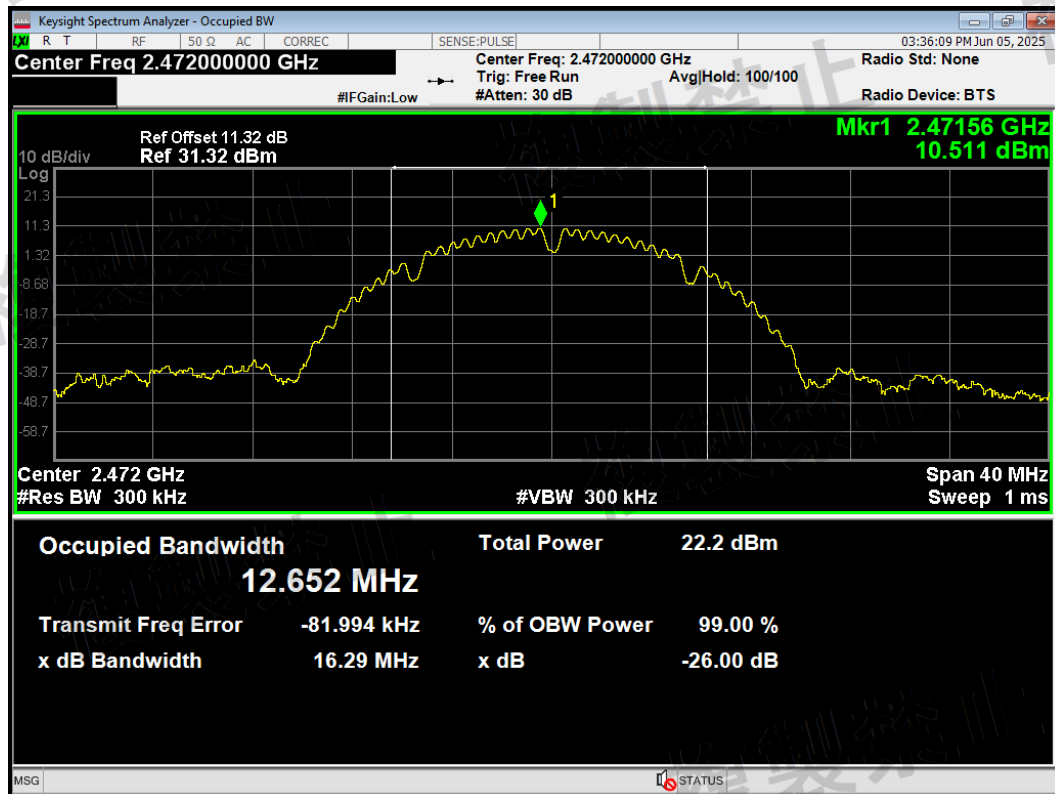
OBW 802.11b 2412MHz



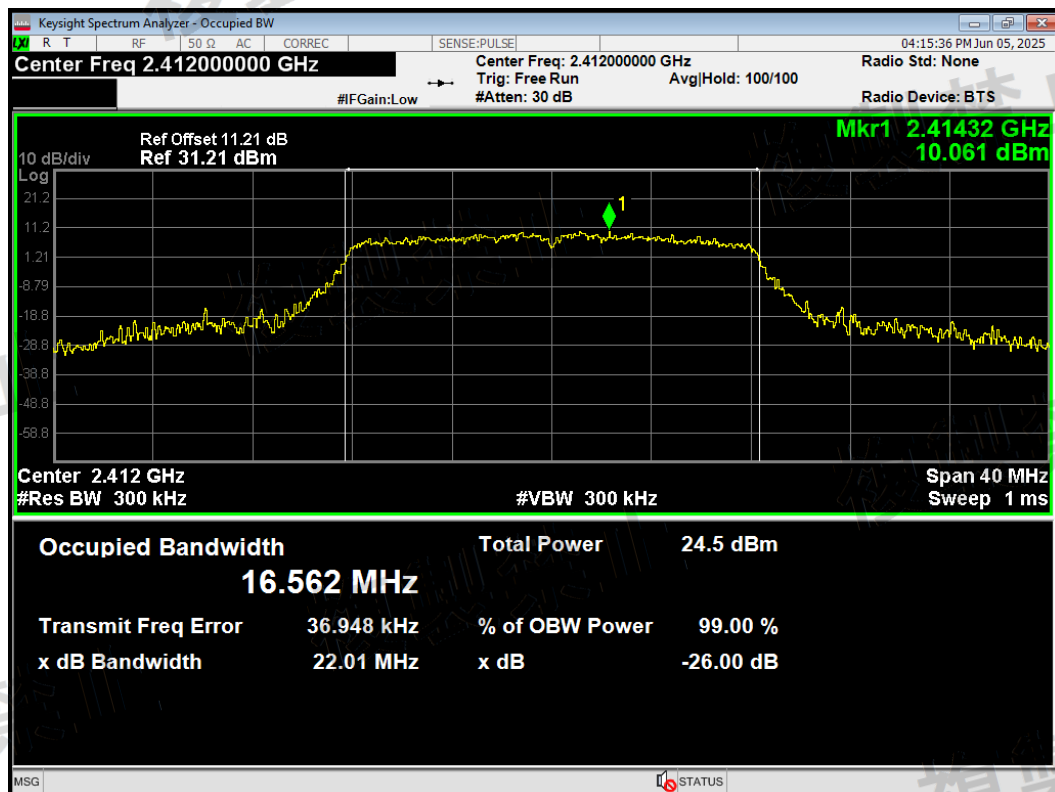
OBW 802.11b 2442MHz



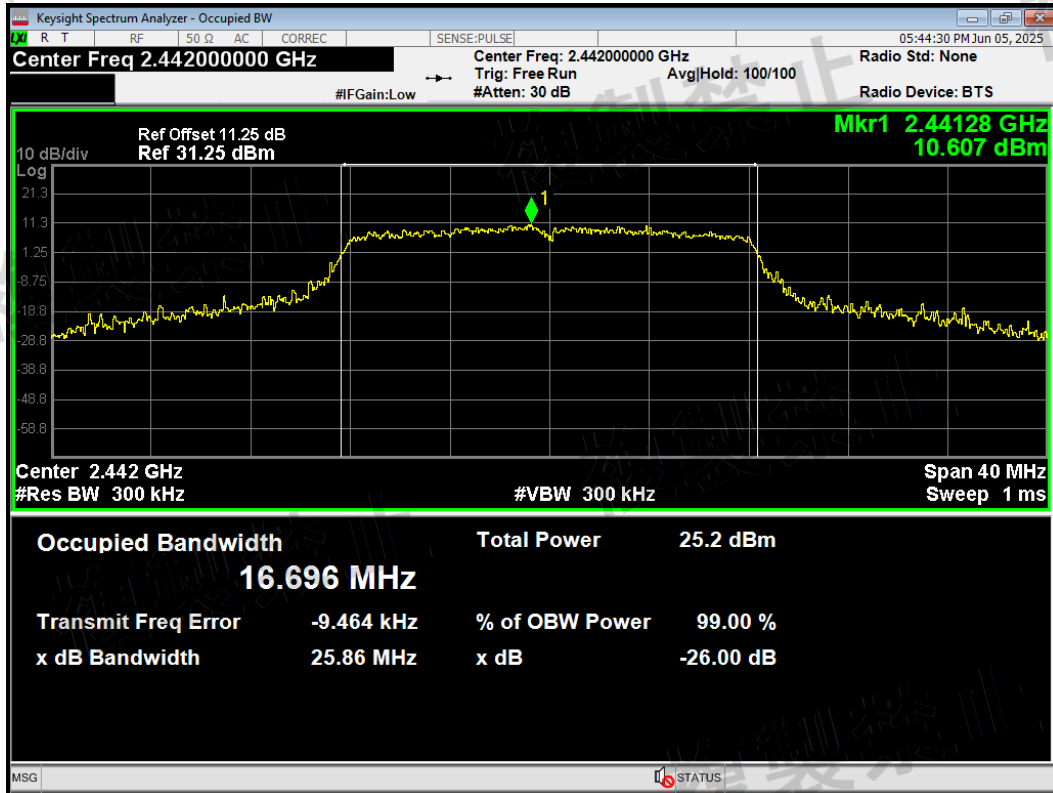
OBW 802.11b 2472MHz



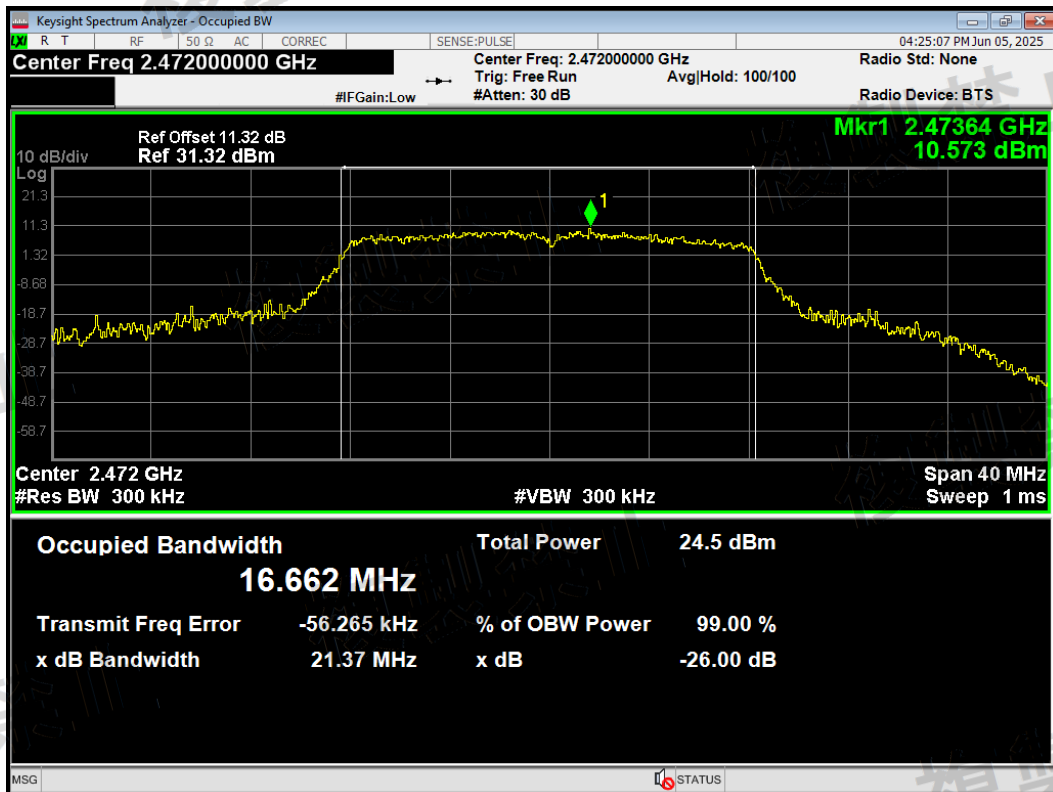
OBW 802.11g 2412MHz



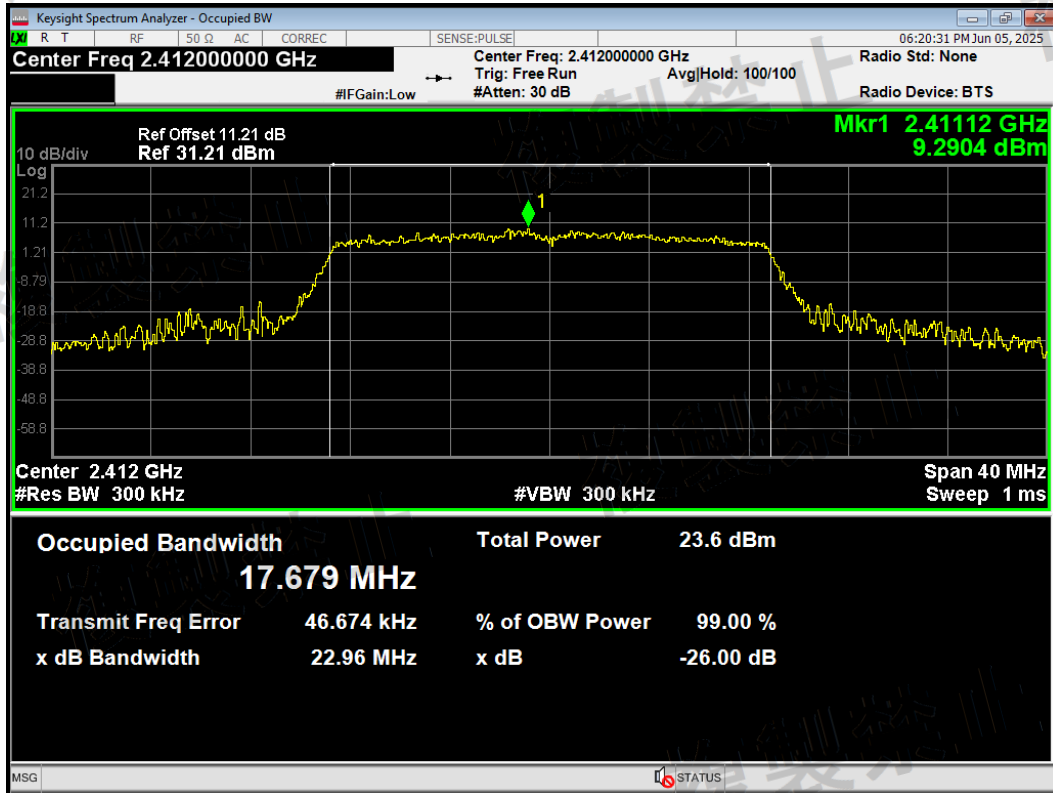
OBW 802.11g 2442MHz



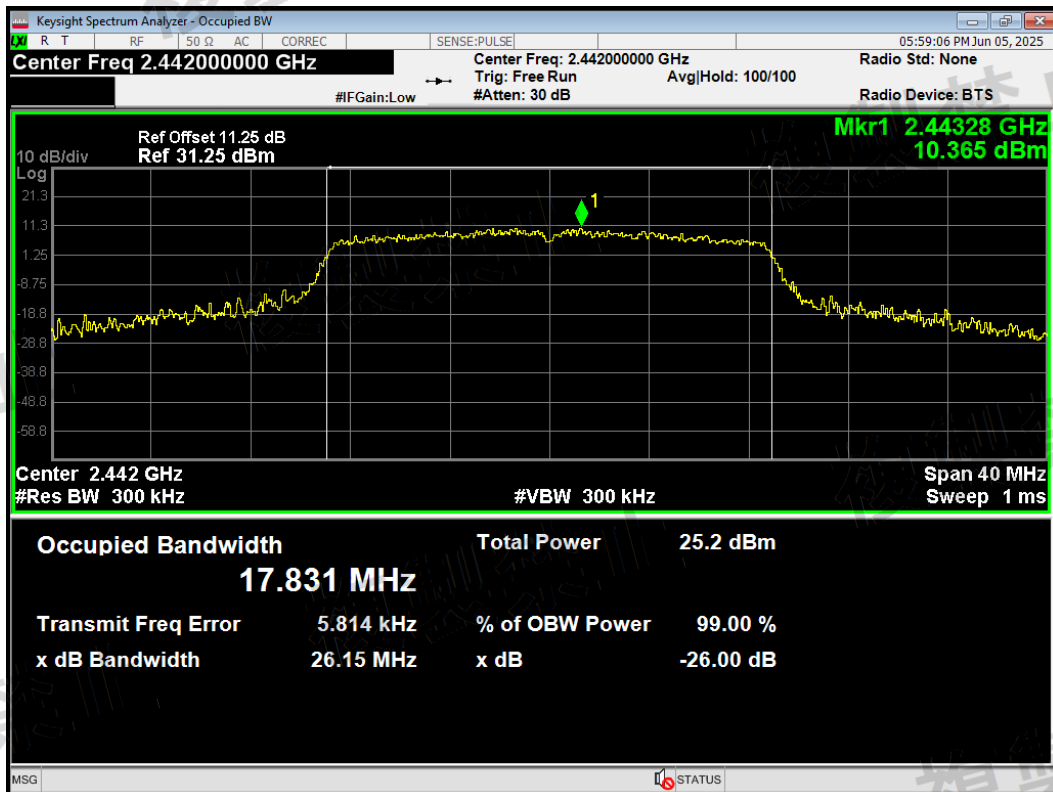
OBW 802.11g 2472MHz



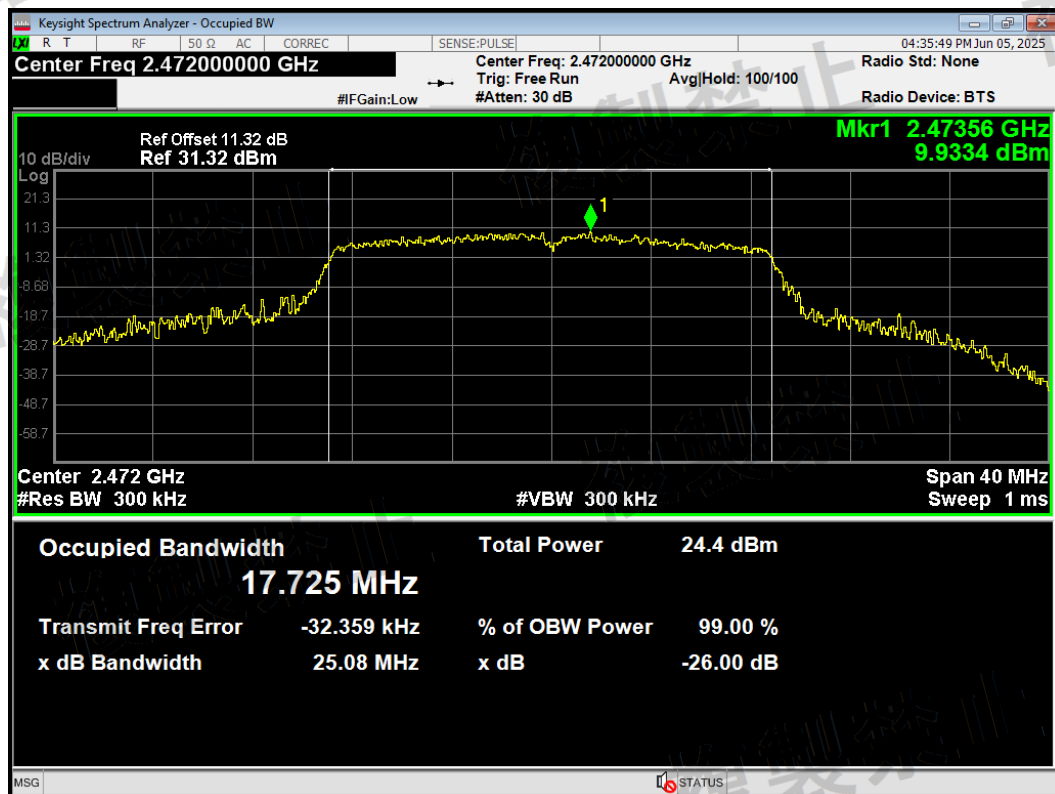
OBW 802.11n(HT20) 2412MHz



OBW 802.11n(HT20) 2442MHz



OBW 802.11n(HT20) 2472MHz



5.3. Antenna Power (Conducted) Measurement

Ambient Condition

Temperature	Relative humidity	Pressure
23°C ~ 25°C	45% ~ 50%	101.5kPa

Methods of Measurement

Spectrum Analyzer Setting

SPAN: OBW×2

RBW: 1 MHz

VBW: 1 MHz

Detector: Positive peak

Display mode: Max hold

Sweep Time: AUTO (Minimum time to ensure measurement accuracy.)

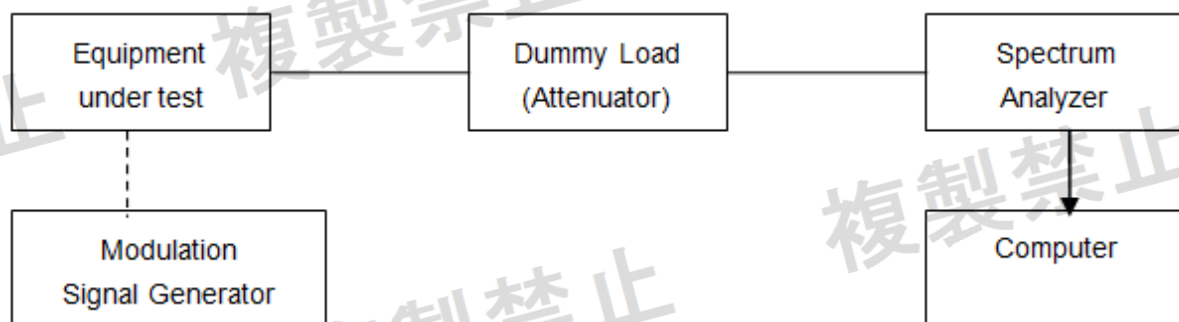
Center Frequency: Searched frequency

Span: 0

RBW: 1MHz

VBW: 1MHz

Test Setup



Limits

For 20M

(1) OFDM BW<26 MHz: RF Output Power ≤ 10 mW/MHz;

12.14 dBm/MHz $\leq$ EIRP Limit ≤ 22.14 dBm/MHz

For 40M

(2) OFDM BW=26 MHz~38 MHz: RF Output Power ≤ 5 mW/MHz;

9.13 dBm/MHz $\leq$ EIRP Limit ≤ 19.13 dBm/MHz

RF Output Power Tolerance ≤ 20 %

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.44$ dB.

Test Results:

Test Mode	Test Frequency (MHz)	Antenna Power (dBm/MHz)	Antenna Power (mW/MHz)	Limit (mW/MHz)	Declaration Antenna Power (mW/MHz)	Tolerance	Tolerance Limit	Result
802.11b	2412	9.61	9.14	10	9	1.57%	[<20%]	Pass
	2442	9.73	9.40	10	9	4.41%	[<20%]	Pass
	2472	9.91	9.79	10	9	8.83%	[<20%]	Pass
802.11g	2412	7.50	5.62	10	9	-37.52%	[<20%]	Pass
	2442	7.34	5.42	10	9	-39.78%	[<20%]	Pass
	2472	7.75	5.96	10	9	-33.82%	[<20%]	Pass
802.11n(20M)	2412	5.96	3.94	10	9	-56.17%	[<20%]	Pass
	2442	7.65	5.82	10	9	-35.32%	[<20%]	Pass
	2472	7.15	5.19	10	9	-42.36%	[<20%]	Pass

Test Mode	Test Frequency (MHz)	EIRP (dBm/MHz)	Limit (dBm/MHz)
802.11b	2412	11.07	12.14
	2442	11.19	12.14
	2472	11.37	12.14
802.11g	2412	8.96	12.14
	2442	8.80	12.14
	2472	9.21	12.14
802.11n(20M)	2412	7.42	12.14
	2442	9.11	12.14
	2472	8.61	12.14

Note: 1. EIRP = Antenna Power + Antenna Gain (Antenna Gain = 1.46 dBi)
2. Gain ≤ 2.14 dBi, EIRP Limit = 12.14 dBm/MHz for 20M
EIRP Limit = 9.13 dBm/MHz for 40M
Gain > 2.14 dBi, EIRP Limit = 12.14 + (Gain - 2.14) dBm/MHz for 20M
EIRP Limit = 9.13 + (Gain - 2.14) dBm/MHz for 40M

5.4. Transmission Radiation Angle Width (3dB Beamwidth)

Ambient Condition

Temperature	Relative humidity	Pressure
23°C ~ 25°C	45% ~ 50%	101.5kPa

Methods of Measurement

Set EUT and measuring antenna at the same height and roughly facing each other.

Set spectrum analyzer RBW=1MHz,VBW=1MHz,SPAN=0Hz,Dector=Positive Peak and tune reference level to observer receiving signal position.

Rotate directions of the EUT horizontally and vertically to find the maximum receiving power.

Move the measuring antenna height up and down with $\pm 50\text{cm}$ 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".

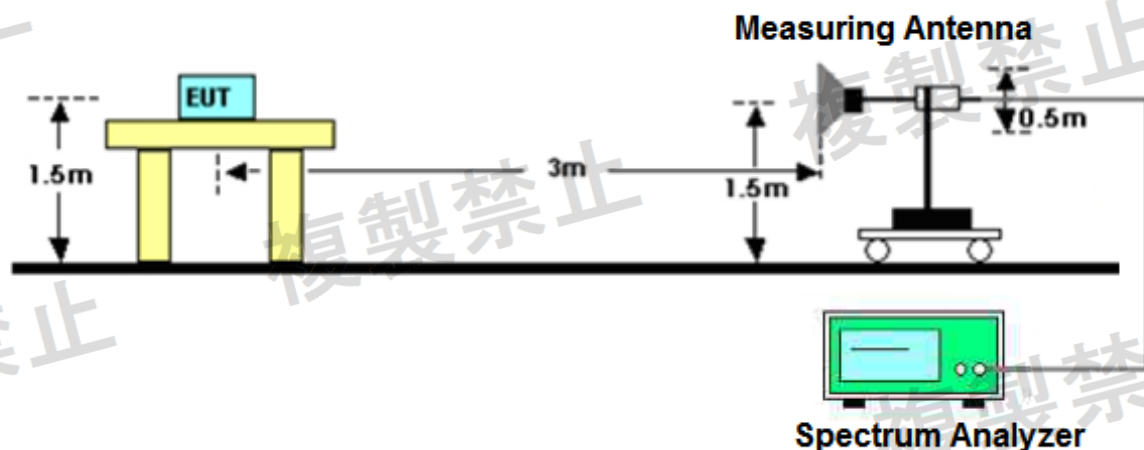
Calculate permitted radiation angle in horizontal and vertical using EIRP measured in another test method.

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

$A = \{\text{EIRP Power [mW]} / 4.9 \text{ for FH}\}$

Test Setup



Limit

Item	Limits
3dB Antenna beamwidth	$360/A$ (if $A < 1$; then $A = 1$) $A = \{ \text{EIRP Power [mW]} / 16.36 \text{ for DS, OFDM} \}$ or $A = \{ \text{EIRP Power [mW]} / 4.9 \text{ for FH} \}$
Remark: This test item will not be applied to Antenna Gain of EUT is lower than 2.14dBi.	

Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U = 3.55 \text{ dB}$.

Test Results

This test item will not be applied to EIRP of EUT is Lower than 12.14 dBm.

5.5. Unwanted Emission Strength Measurement

Ambient Condition

Temperature	Relative humidity	Pressure
25°C	50%	101.5kPa

Method of Measurement

Step-1 (Search Mode)

Spectrum Analyzer Setting

SPAN: Measuring Frequency Range (Refer to the 4.7 of the page 18)

RBW: 1 MHz

VBW: Same as RBW

Sweep Time: AUTO (Minimum time to ensure measurement accuracy.

*In case of burst wave, one burst shall be included per data point)

Data Points: 401 points or more

Sweep Mode: Single Sweep

Detection Mode: Positive Peak

Y-axis Scale: 10 dB/Div.

Reference Level: Enough level for maximum dynamic range

Step-2 (Measuring Mode *Normal)

Spectrum Analyzer Setting

Center Frequency: Searched Frequency

SPAN: 1 MHz – 10 MHz (The SPAN that keeps accuracy of the frequency.)

RBW: 1 MHz

VBW: Same as RBW

Sweep Time: AUTO (Minimum time to ensure measurement accuracy.

*In case of burst wave, one burst shall be included per data point)

Data Points: 401 points or more

Sweep Mode: Single Sweep

Detection Mode: Positive Peak

Y-axis Scale: 10 dB/Div.

Reference Level: Enough level for maximum dynamic range

Step-3 (Measuring Mode *Zero Span)

Spectrum Analyzer Setting

Center Frequency: Searched Frequency

SPAN: 0 Hz (ZERO SPAN)

RBW: 1 MHz

VBW: Same as RBW

Sweep Time: AUTO (Minimum time to ensure measurement accuracy.

*In case of burst wave, one burst shall be included per data point)

Data Points: 401 points or more

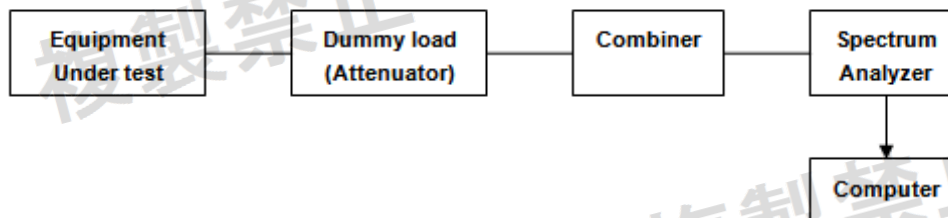
Sweep Mode: Single Sweep

Detection Mode: Sample

Y-axis Scale: 10 dB/Div.

Reference Level: Enough level for maximum dynamic range

Test Setup



Limit

Frequency Range	Limits(μ W/MHz)
30MHz - 2387 MHz	2.5 μ W/MHz
2387MHz - 2400MHz	25 μ W/MHz
2483.5MHz - 2496.5MHz	25 μ W/MHz
2496.5MHz - 12.5GHz	2.5 μ W/MHz

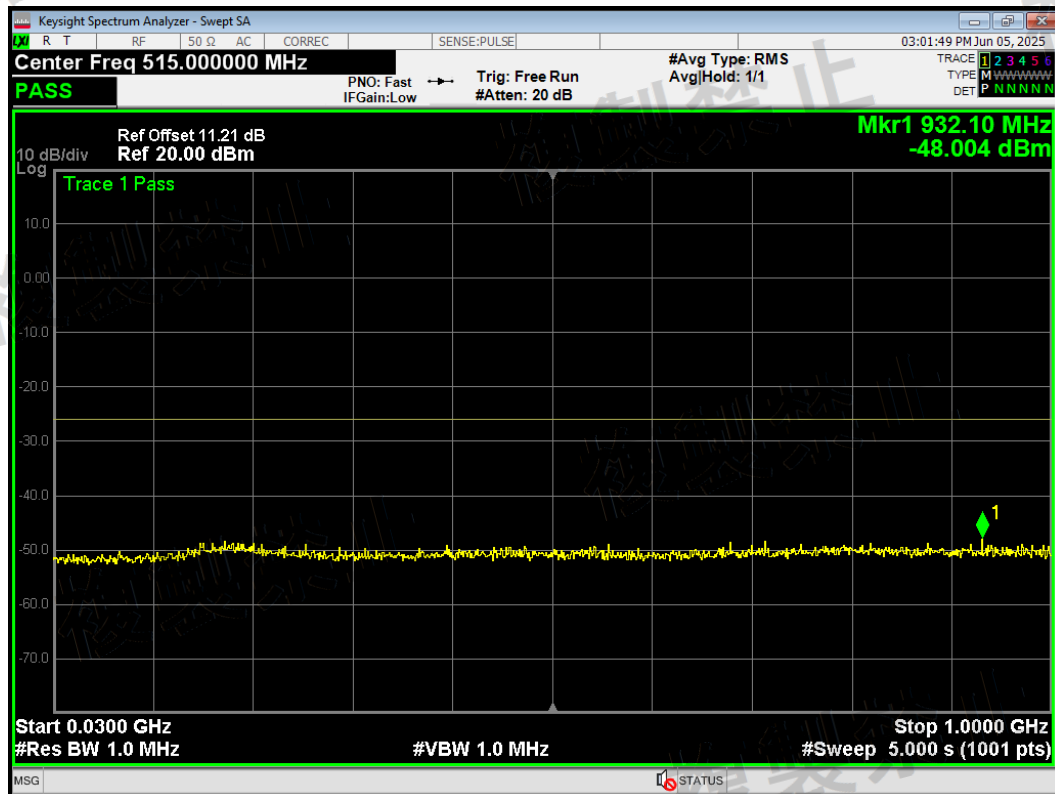
Test Results

Note: 1. The value was tested under Measuring Mode *Zero Span. (Pass^{Note1})

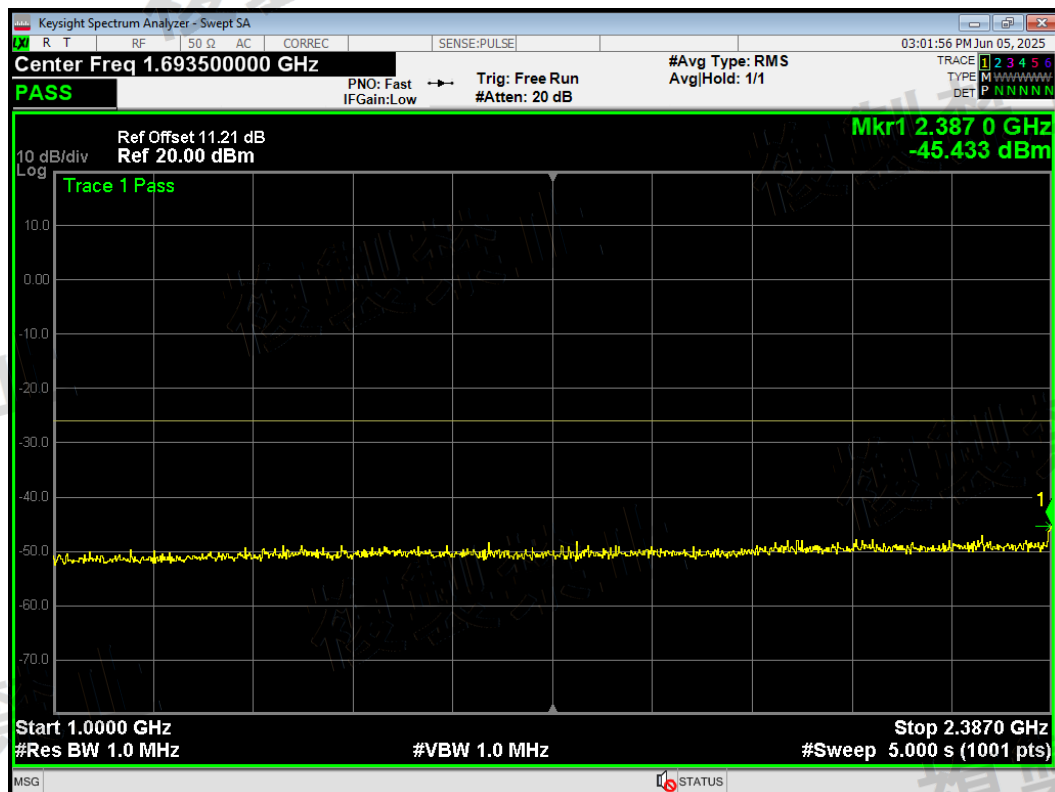
Mode	Frequency (MHz)	Range (MHz)	Emission Frequency (MHz)	Max Peak Value (dBm/MHz)	Max RMS Value (dBm/MHz)	Limit Start (dBm/MHz)	Limit Stop (dBm/MHz)	Verdict
802.11b	2412	30-1000	932.10	-48.00	NA	-26	-26	Pass
802.11b	2412	1000-2387	2387.00	-45.43	NA	-26	-26	Pass
802.11b	2412	2387-2400	2399.82	-34.75	NA	-16	-16	Pass
802.11b	2412	2483.5-2496.5	2484.10	-44.91	NA	-16	-16	Pass
802.11b	2412	2496.5-13000	11666.06	-44.84	NA	-26	-26	Pass
802.11b	2442	30-1000	256.98	-48.03	NA	-26	-26	Pass
802.11b	2442	1000-2387	2384.23	-45.37	NA	-26	-26	Pass
802.11b	2442	2387-2400	2392.17	-41.38	NA	-16	-16	Pass
802.11b	2442	2483.5-2496.5	2486.06	-44.47	NA	-16	-16	Pass
802.11b	2442	2496.5-13000	3315.77	-46.12	NA	-26	-26	Pass
802.11b	2472	30-1000	830.25	-48.00	NA	-26	-26	Pass
802.11b	2472	1000-2387	2387.00	-44.59	NA	-26	-26	Pass
802.11b	2472	2387-2400	2396.46	-40.37	NA	-16	-16	Pass
802.11b	2472	2483.5-2496.5	2483.82	-33.80	NA	-16	-16	Pass
802.11b	2472	2496.5-13000	12947.48	-45.74	NA	-26	-26	Pass
802.11g	2412	30-1000	726.46	-48.15	NA	-26	-26	Pass
802.11g	2412	1000-2387	2387.00	-26.26	-43.53	-26	-26	Pass
802.11g	2412	2387-2400	2399.90	-5.12	-29.38	-16	-16	Pass
802.11g	2412	2483.5-2496.5	2484.81	-42.03	NA	-16	-16	Pass
802.11g	2412	2496.5-13000	6267.26	-45.15	NA	-26	-26	Pass
802.11g	2442	30-1000	759.44	-48.20	NA	-26	-26	Pass
802.11g	2442	1000-2387	2387.00	-41.07	NA	-26	-26	Pass
802.11g	2442	2387-2400	2399.15	-27.97	NA	-16	-16	Pass
802.11g	2442	2483.5-2496.5	2483.68	-30.77	NA	-16	-16	Pass
802.11g	2442	2496.5-13000	6046.68	-45.80	NA	-26	-26	Pass
802.11g	2472	30-1000	192.96	-47.91	NA	-26	-26	Pass
802.11g	2472	1000-2387	2384.23	-42.54	NA	-26	-26	Pass
802.11g	2472	2387-2400	2398.08	-37.68	NA	-16	-16	Pass
802.11g	2472	2483.5-2496.5	2483.99	-6.85	-27.41	-16	-16	Pass
802.11g	2472	2496.5-13000	2496.50	-32.66	NA	-26	-26	Pass
802.11n(HT20)	2412	30-1000	200.72	-48.44	NA	-26	-26	Pass
802.11n(HT20)	2412	1000-2387	2387.00	-28.42	-47.52	-26	-26	Pass
802.11n(HT20)	2412	2387-2400	2399.96	-8.30	-33.52	-16	-16	Pass
802.11n(HT20)	2412	2483.5-2496.5	2485.68	-42.74	NA	-16	-16	Pass
802.11n(HT20)	2412	2496.5-13000	12884.46	-45.35	NA	-26	-26	Pass
802.11n(HT20)	2442	30-1000	198.78	-47.75	NA	-26	-26	Pass
802.11n(HT20)	2442	1000-2387	2387.00	-38.74	NA	-26	-26	Pass
802.11n(HT20)	2442	2387-2400	2397.26	-26.70	NA	-16	-16	Pass

802.11n(HT20)	2442	2483.5-2496.5	2484.66	-29.46	NA	-16	-16	Pass
802.11n(HT20)	2442	2496.5-13000	12233.24	-45.83	NA	-26	-26	Pass
802.11n(HT20)	2472	30-1000	201.69	-47.52	NA	-26	-26	Pass
802.11n(HT20)	2472	1000-2387	2387.00	-41.81	NA	-26	-26	Pass
802.11n(HT20)	2472	2387-2400	2396.69	-36.83	NA	-16	-16	Pass
802.11n(HT20)	2472	2483.5-2496.5	2484.54	-5.62	-28.72	-16	-16	Pass
802.11n(HT20)	2472	2496.5-13000	2496.50	-33.17	NA	-26	-26	Pass

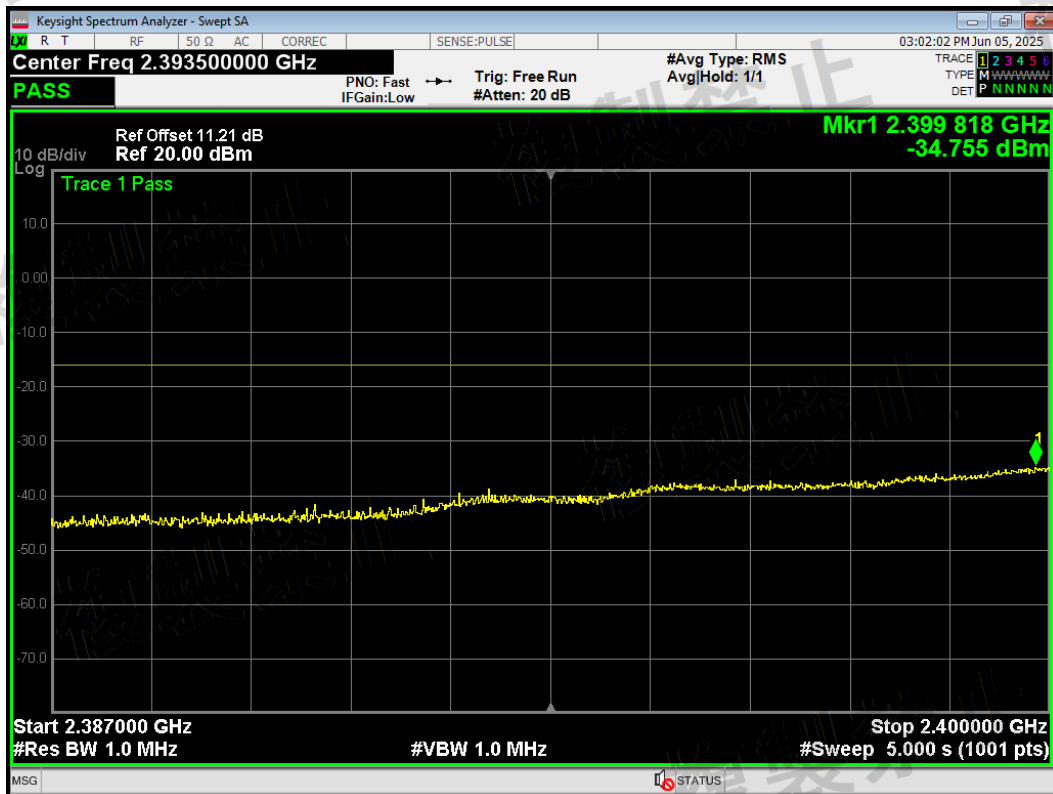
Tx. Spurious 802.11b 2412MHz @ 30MHz-1000MHz



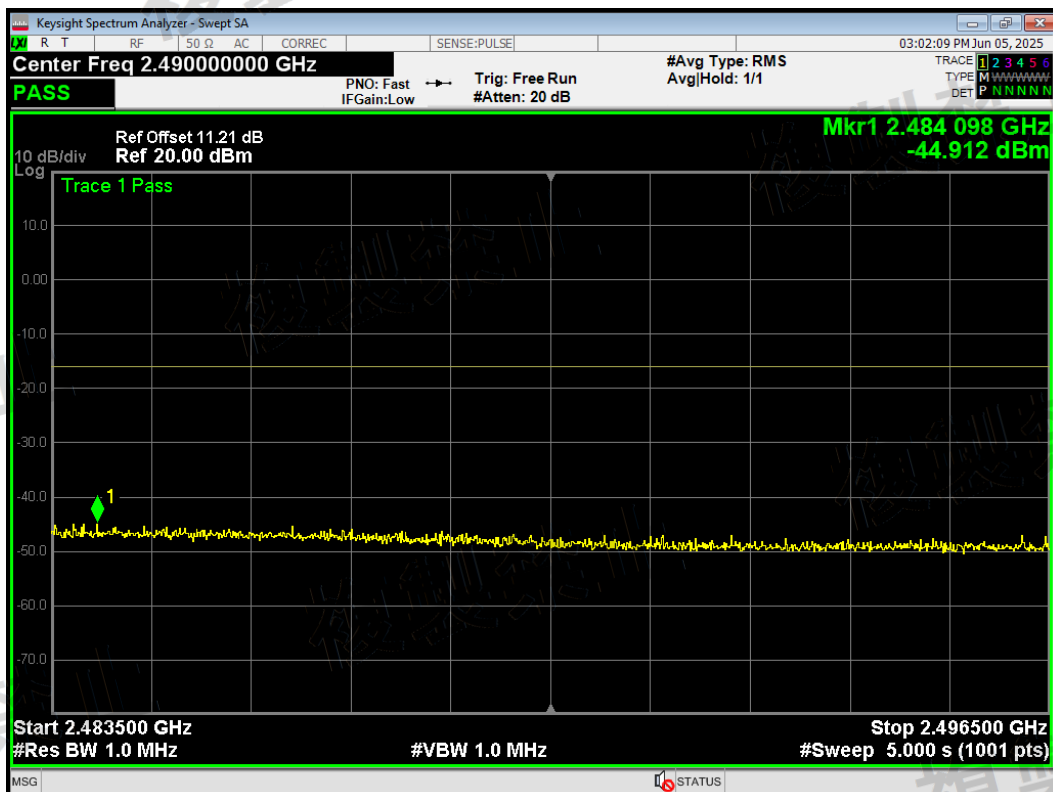
Tx. Spurious 802.11b 2412MHz @ 1000MHz-2387MHz



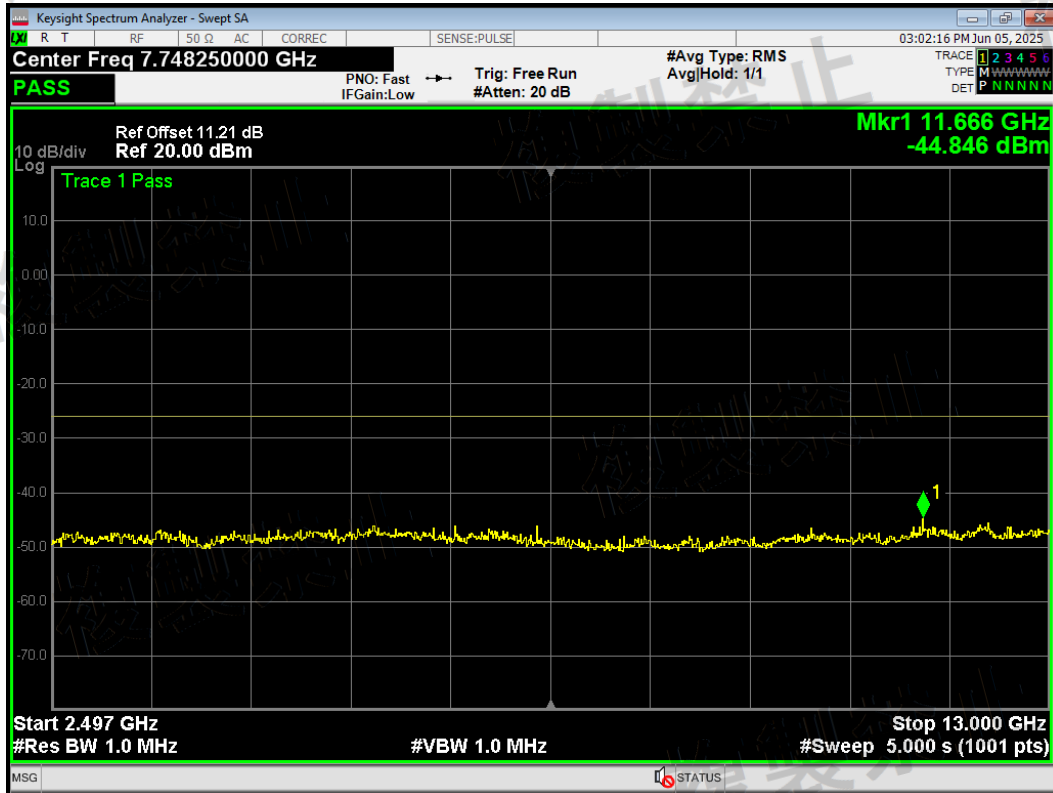
Tx. Spurious 802.11b 2412MHz @ 2387MHz-2400MHz



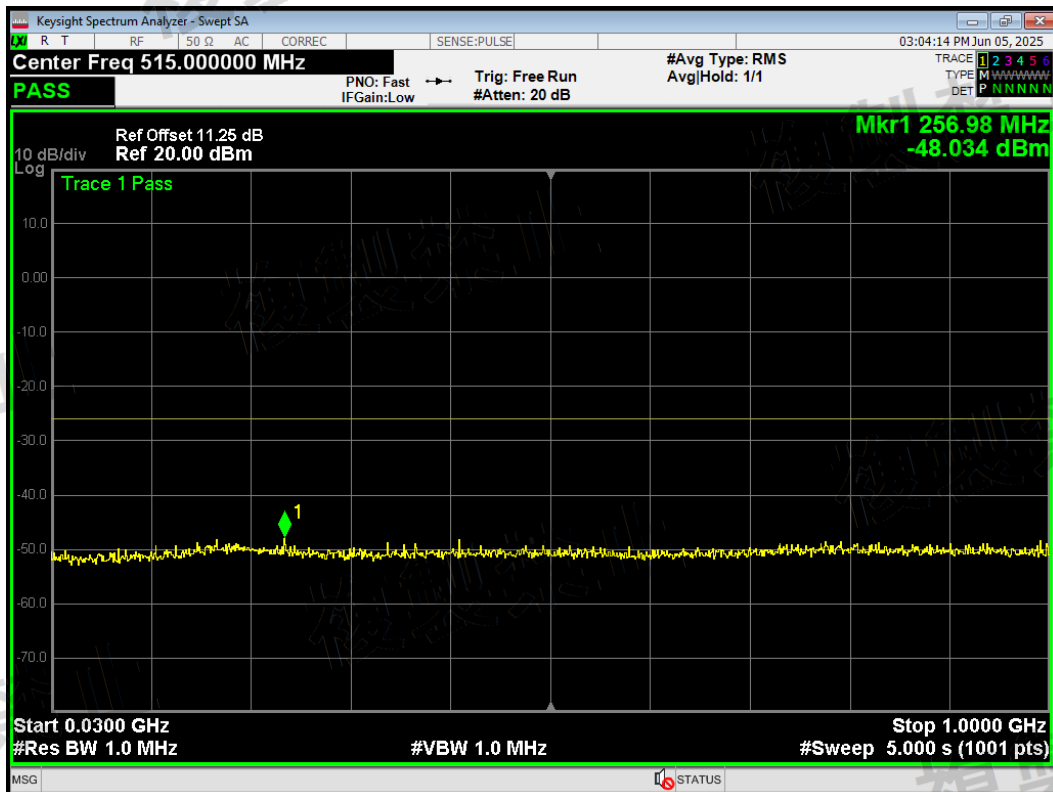
Tx. Spurious 802.11b 2412MHz @ 2483.5MHz-2496.5MHz



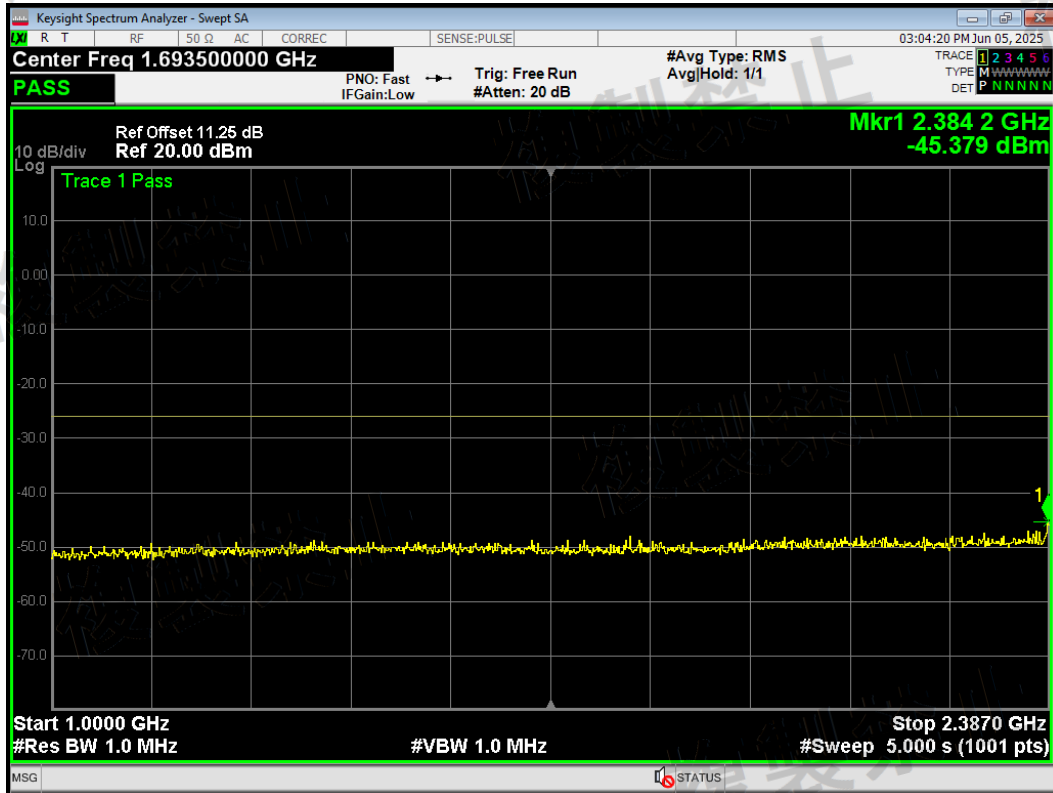
Tx. Spurious 802.11b 2412MHz @ 2496.5MHz-13000MHz



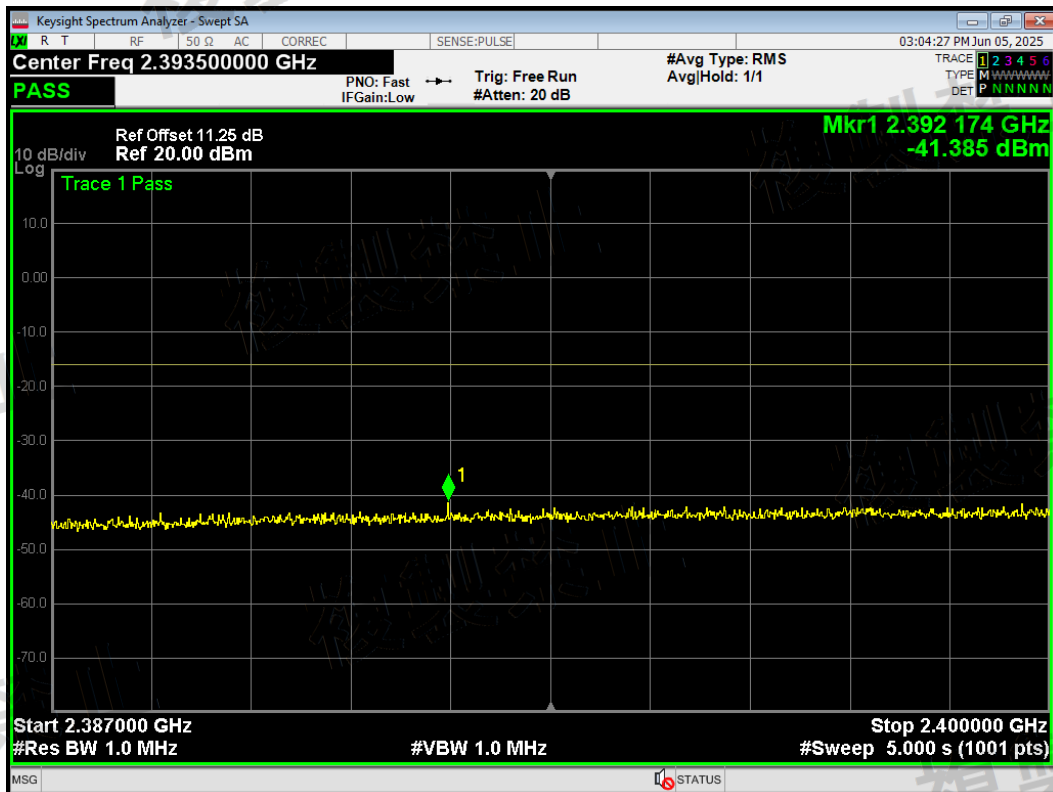
Tx. Spurious 802.11b 2442MHz @ 30MHz-1000MHz



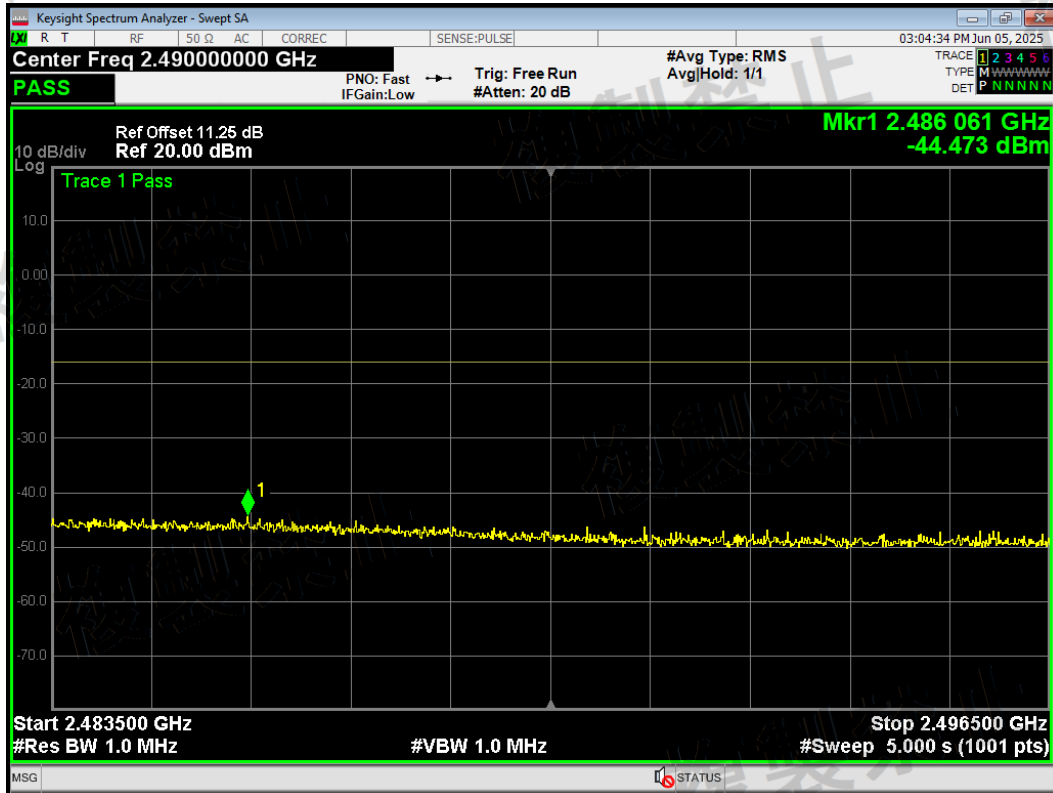
Tx. Spurious 802.11b 2442MHz @ 1000MHz-2387MHz



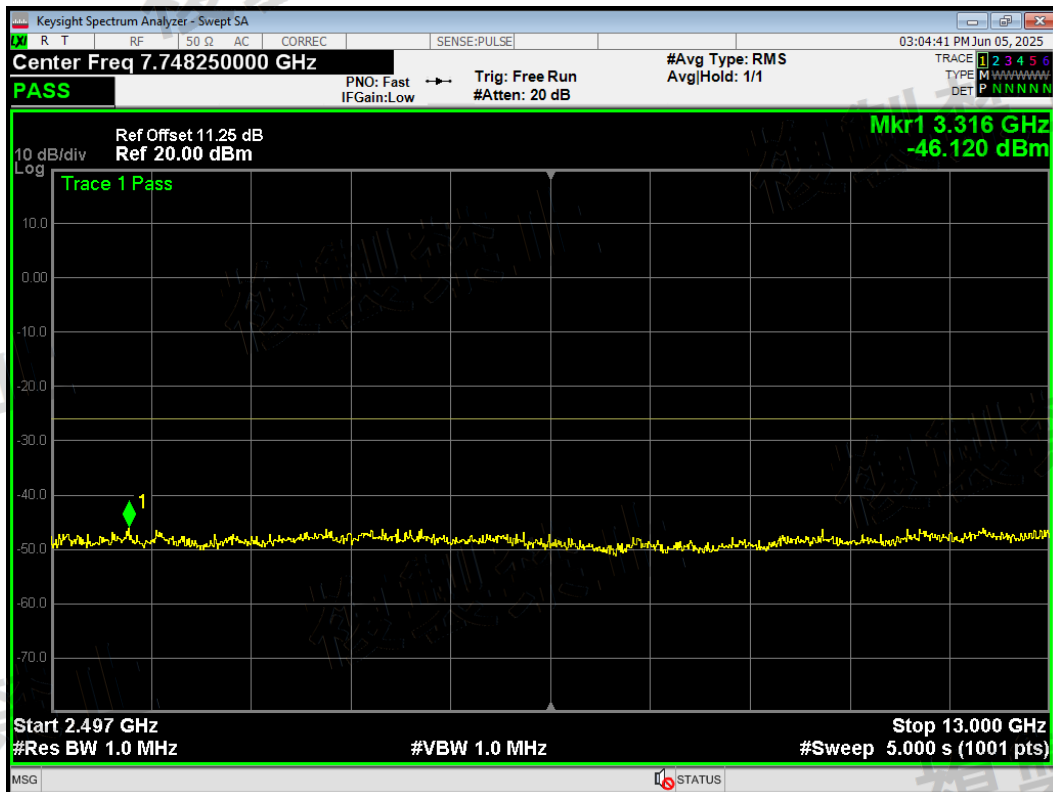
Tx. Spurious 802.11b 2442MHz @ 2387MHz-2400MHz



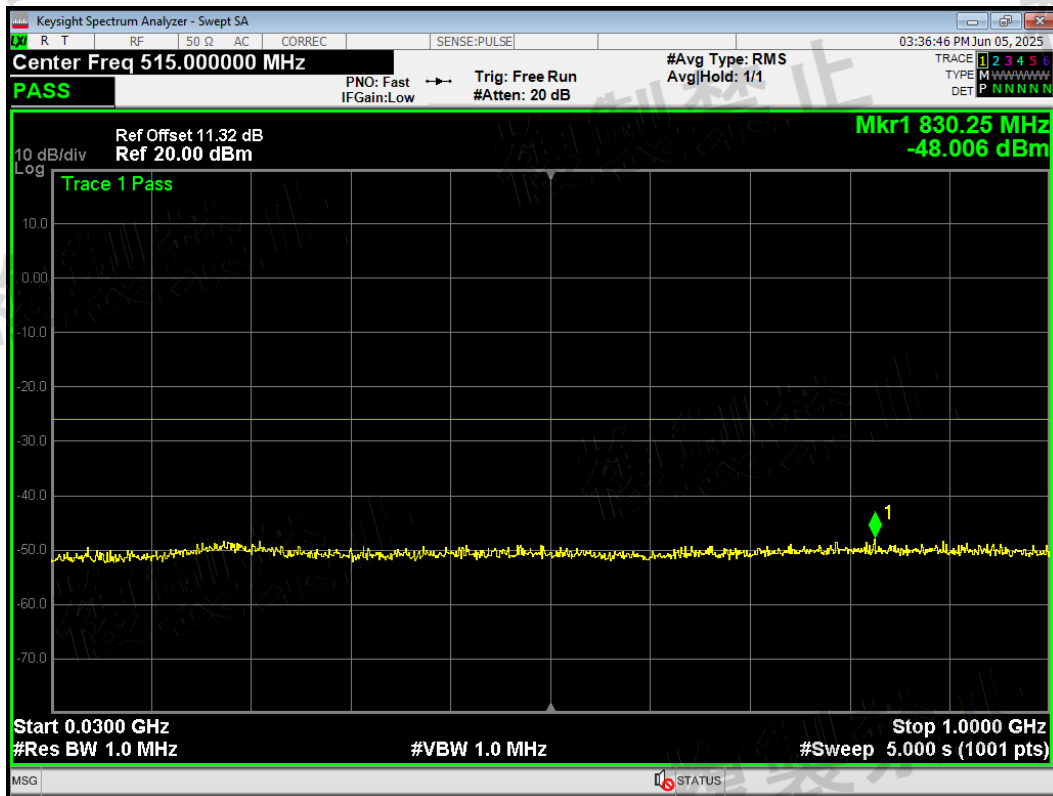
Tx. Spurious 802.11b 2442MHz @ 2483.5MHz-2496.5MHz



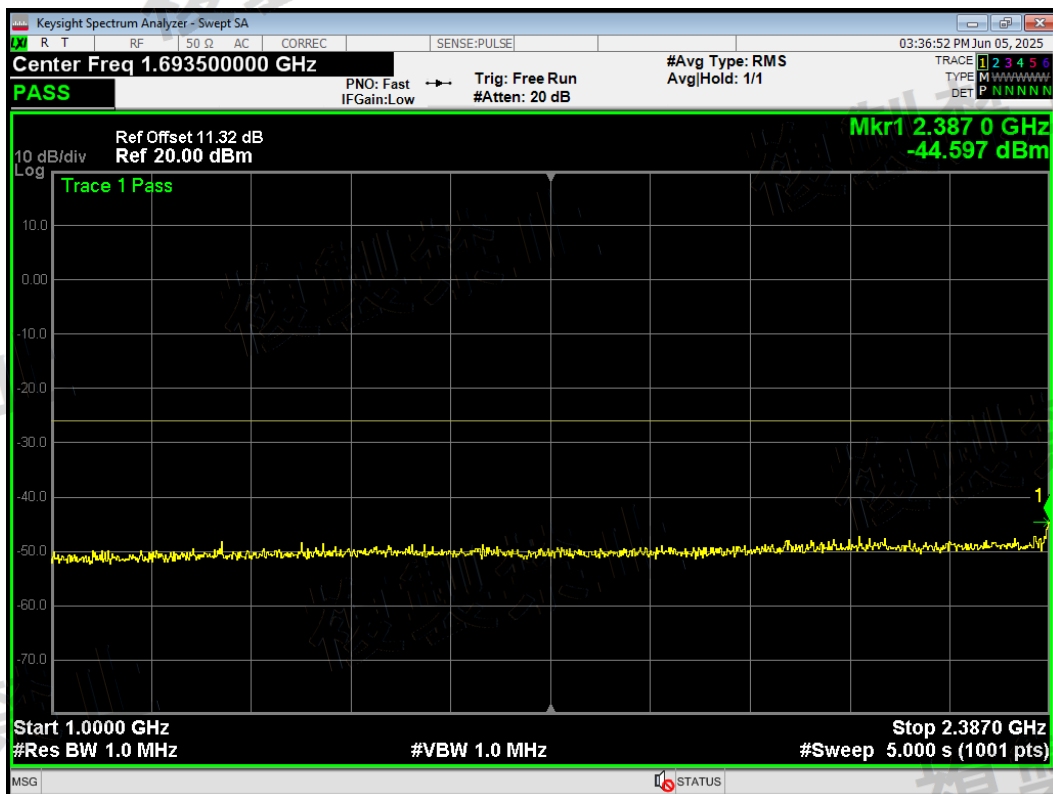
Tx. Spurious 802.11b 2442MHz @ 2496.5MHz-13000MHz



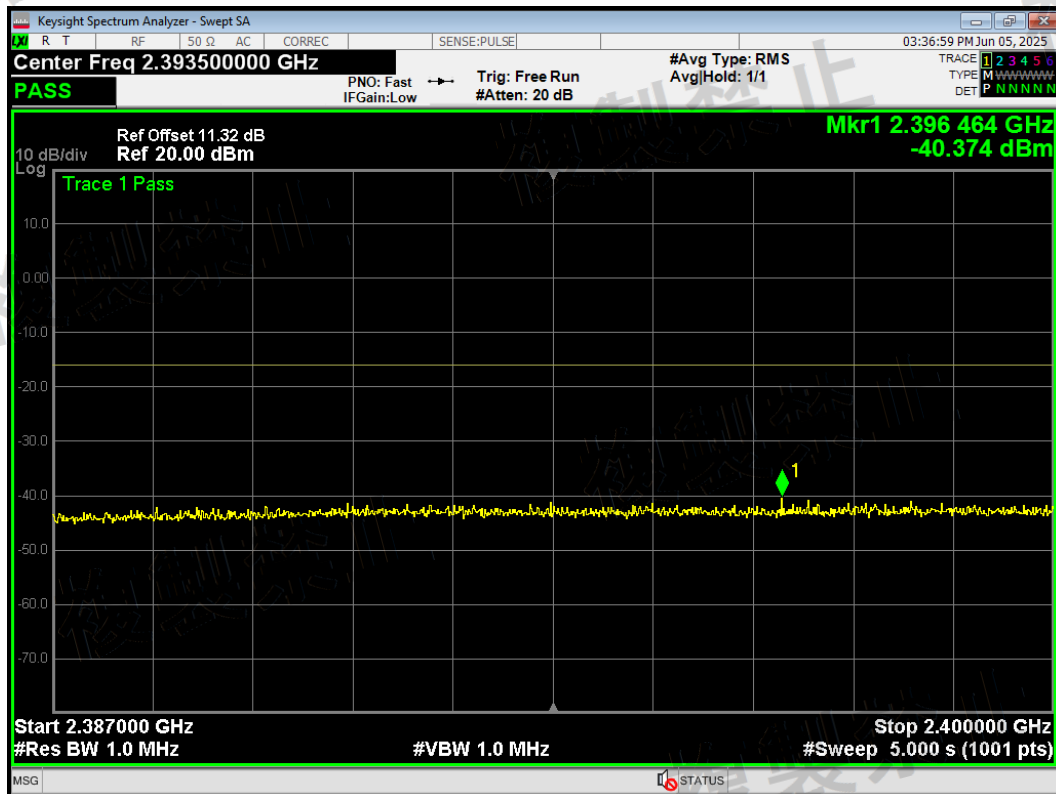
Tx. Spurious 802.11b 2472MHz @ 30MHz-1000MHz



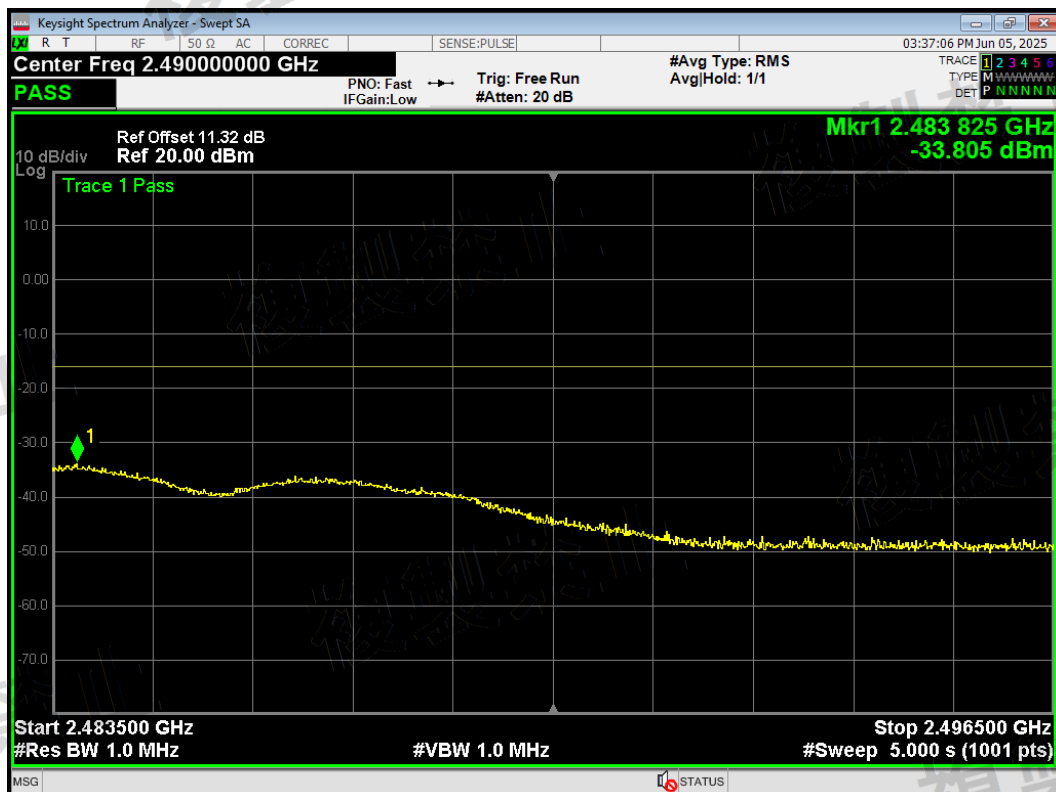
Tx. Spurious 802.11b 2472MHz @ 1000MHz-2387MHz



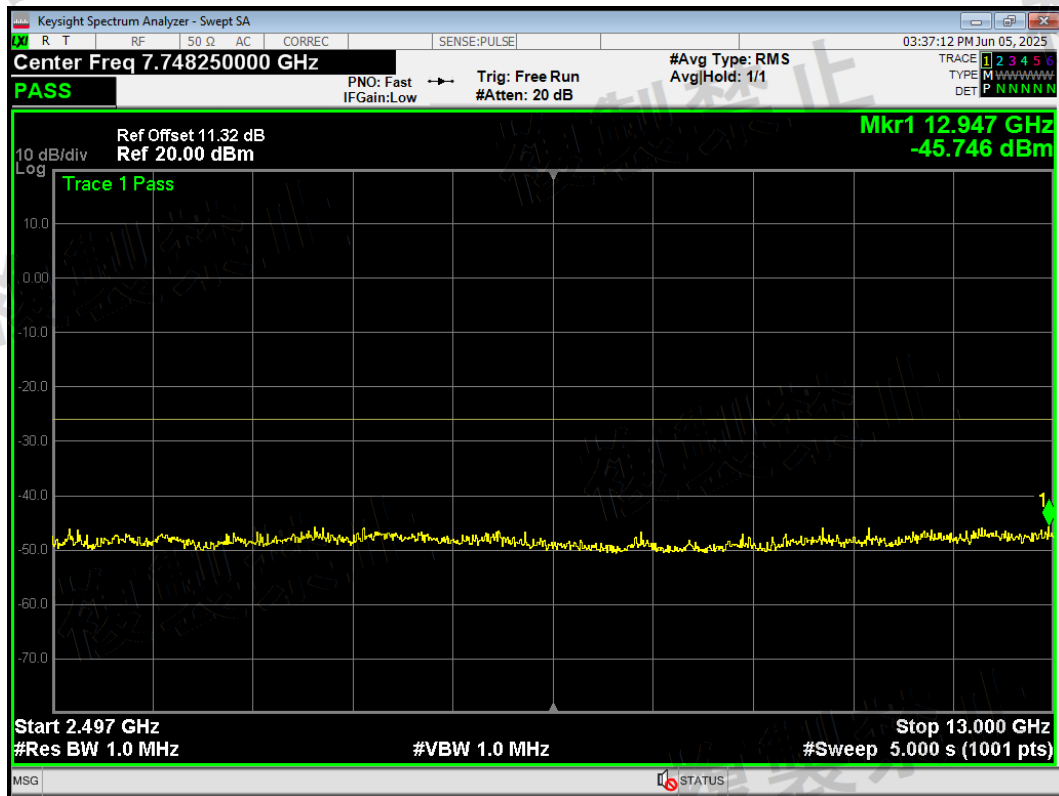
Tx. Spurious 802.11b 2472MHz @ 2387MHz-2400MHz



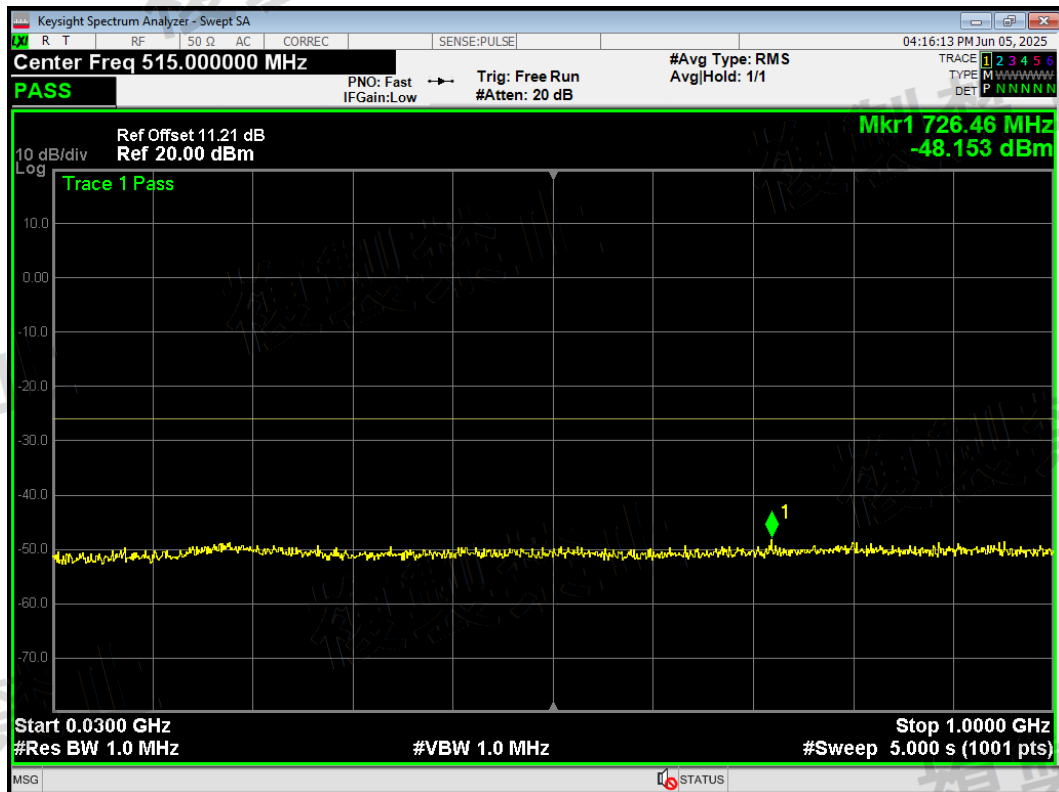
Tx. Spurious 802.11b 2472MHz @ 2483.5MHz-2496.5MHz



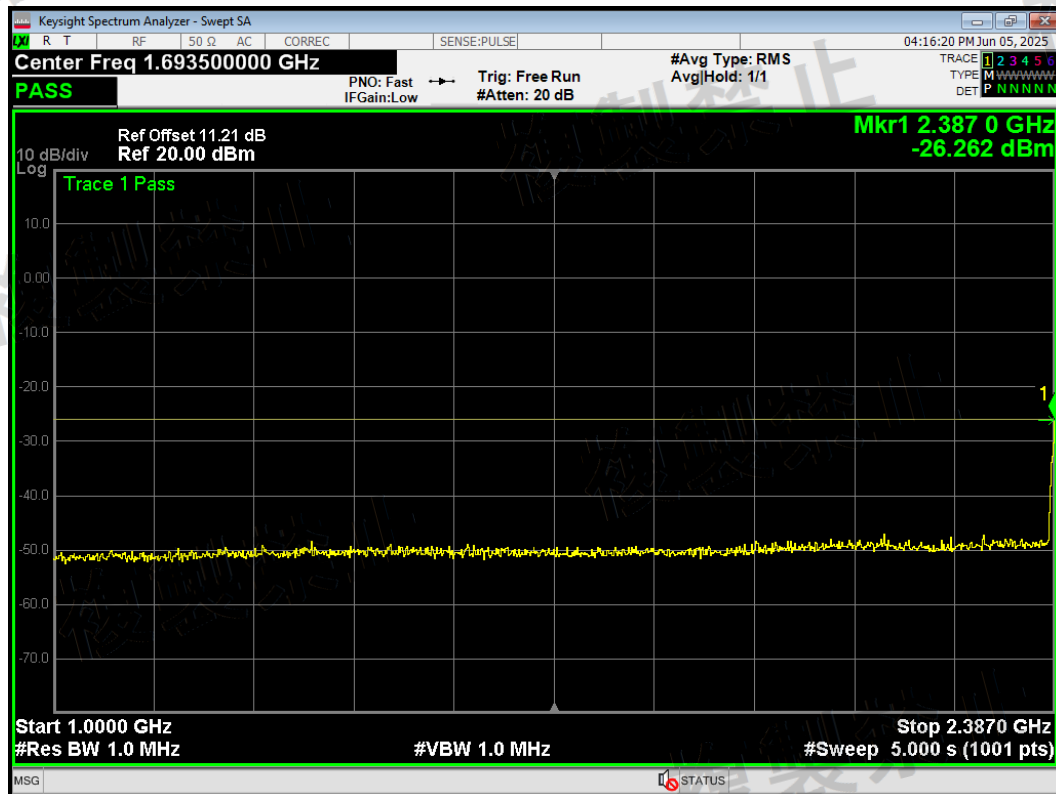
Tx. Spurious 802.11b 2472MHz @ 2496.5MHz-13000MHz



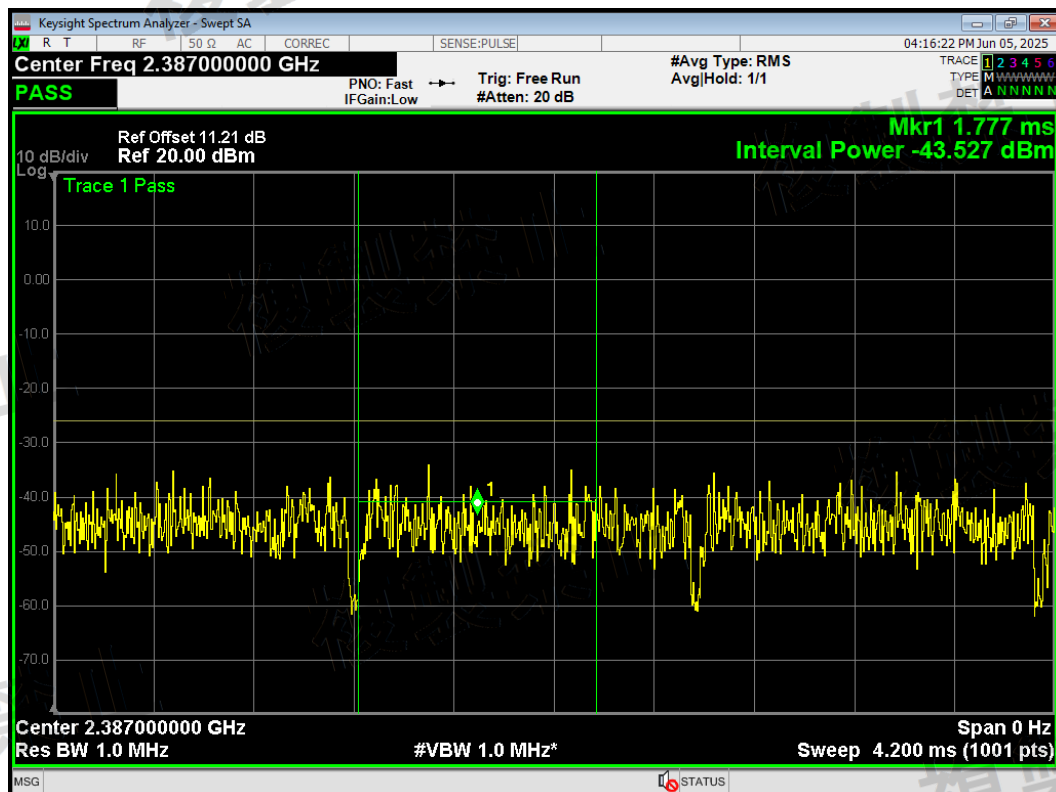
Tx. Spurious 802.11g 2412MHz @ 30MHz-1000MHz



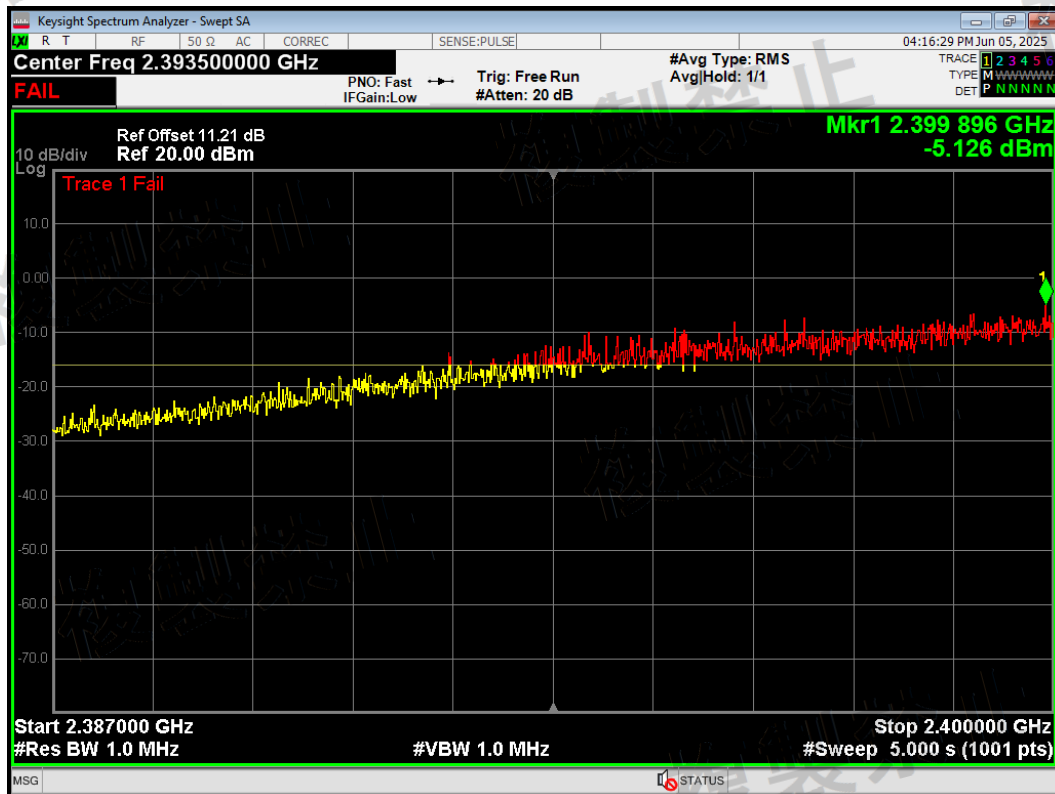
Tx. Spurious 802.11g 2412MHz @ 1000MHz-2387MHz



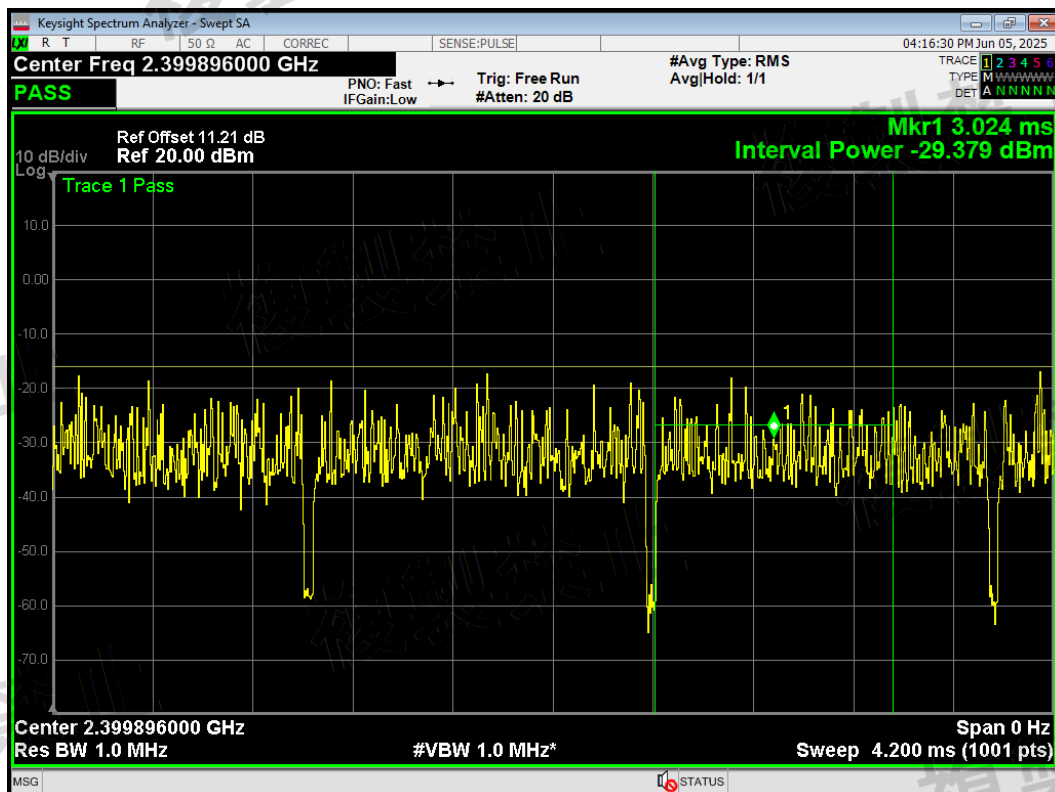
Tx. Spurious 802.11g 2412MHz @ 1000MHz-2387MHz Final



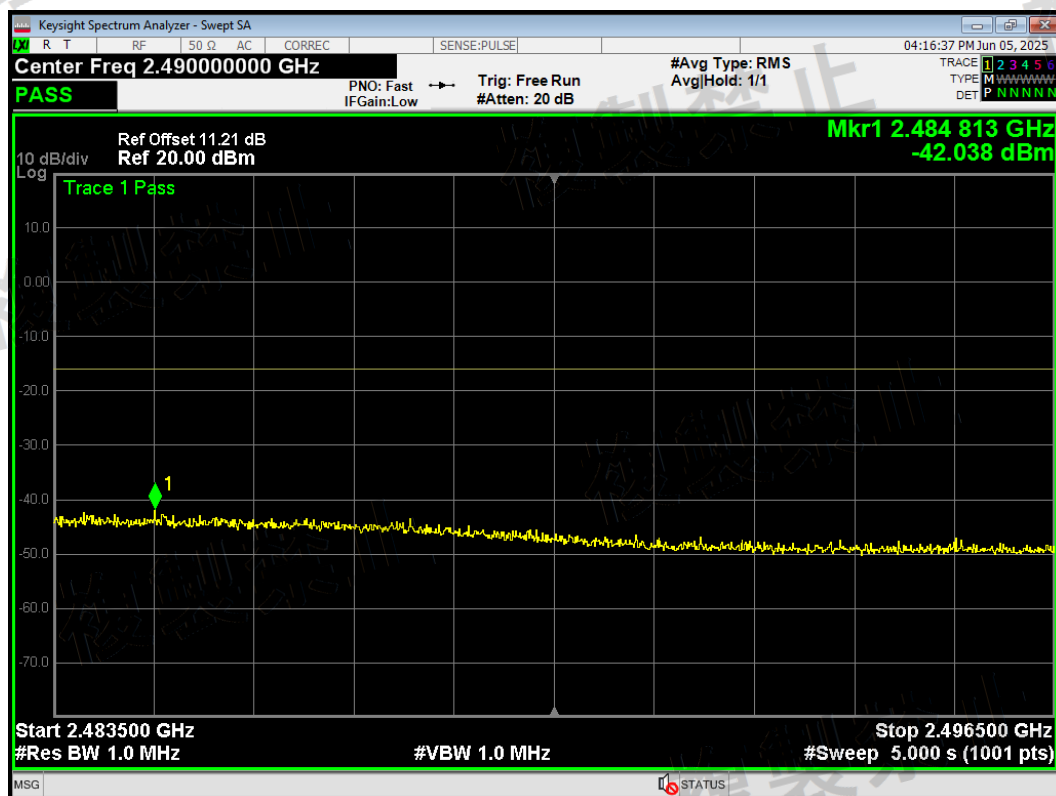
Tx. Spurious 802.11g 2412MHz @ 2387MHz-2400MHz



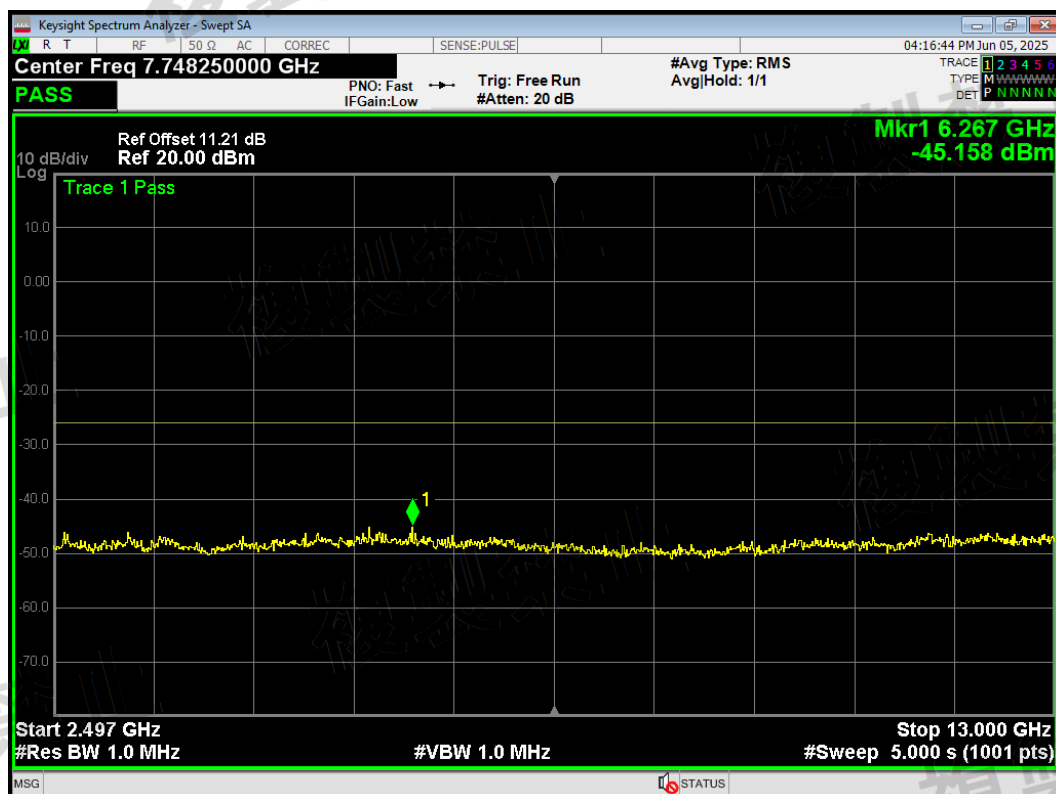
Tx. Spurious 802.11g 2412MHz @ 2387MHz-2400MHz Final



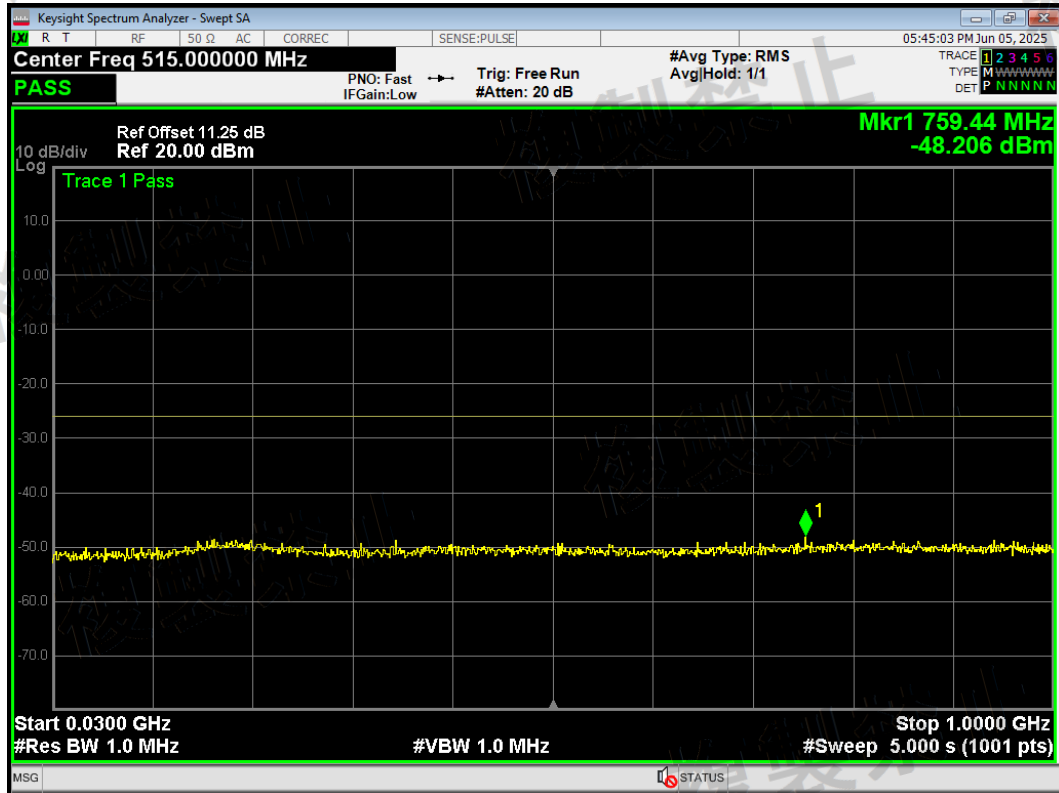
Tx. Spurious 802.11g 2412MHz @ 2483.5MHz-2496.5MHz



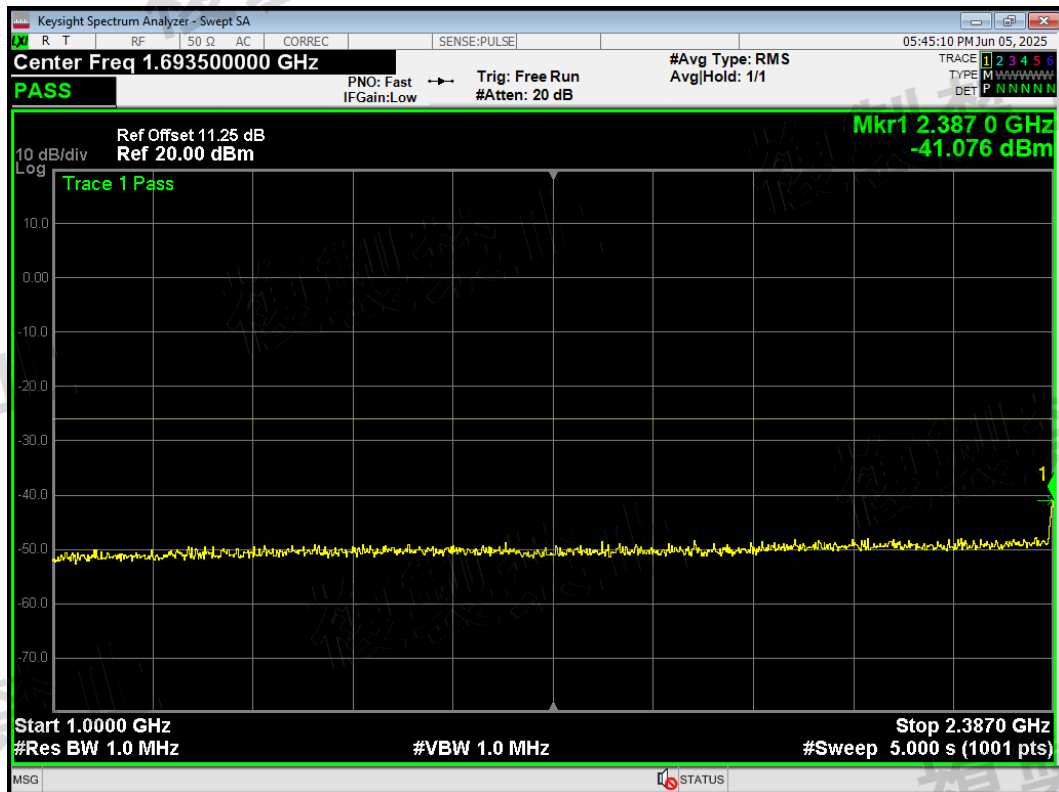
Tx. Spurious 802.11g 2412MHz @ 2496.5MHz-13000MHz



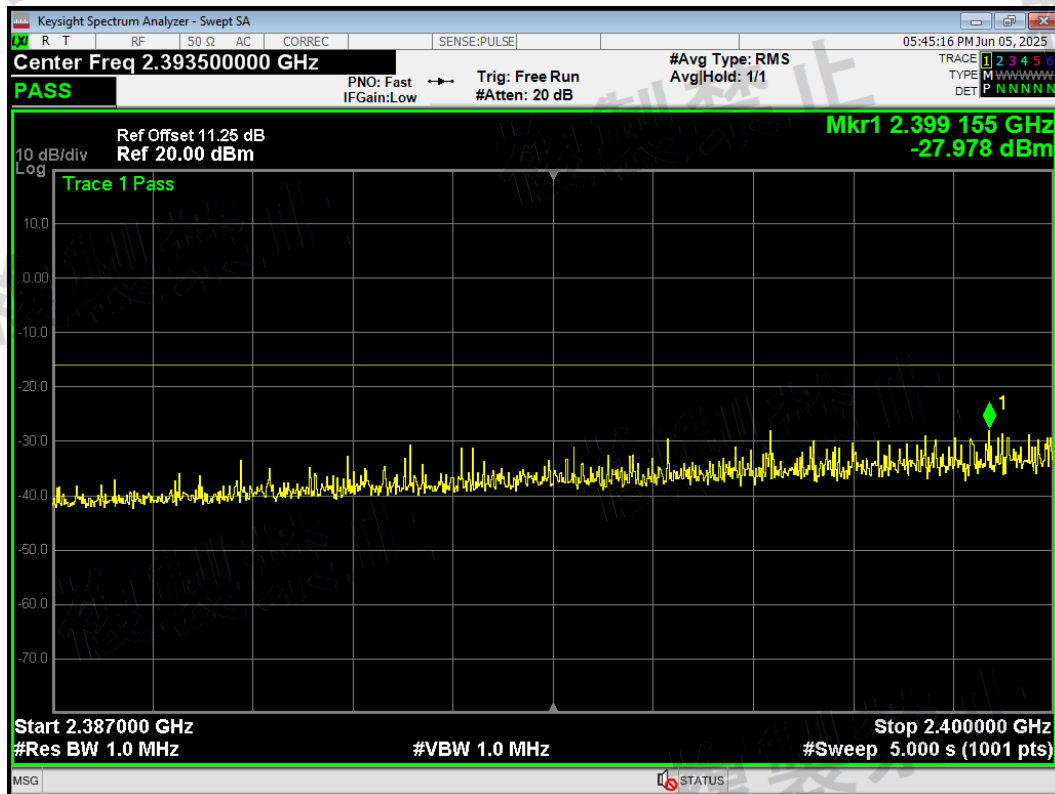
Tx. Spurious 802.11g 2442MHz @ 30MHz-1000MHz



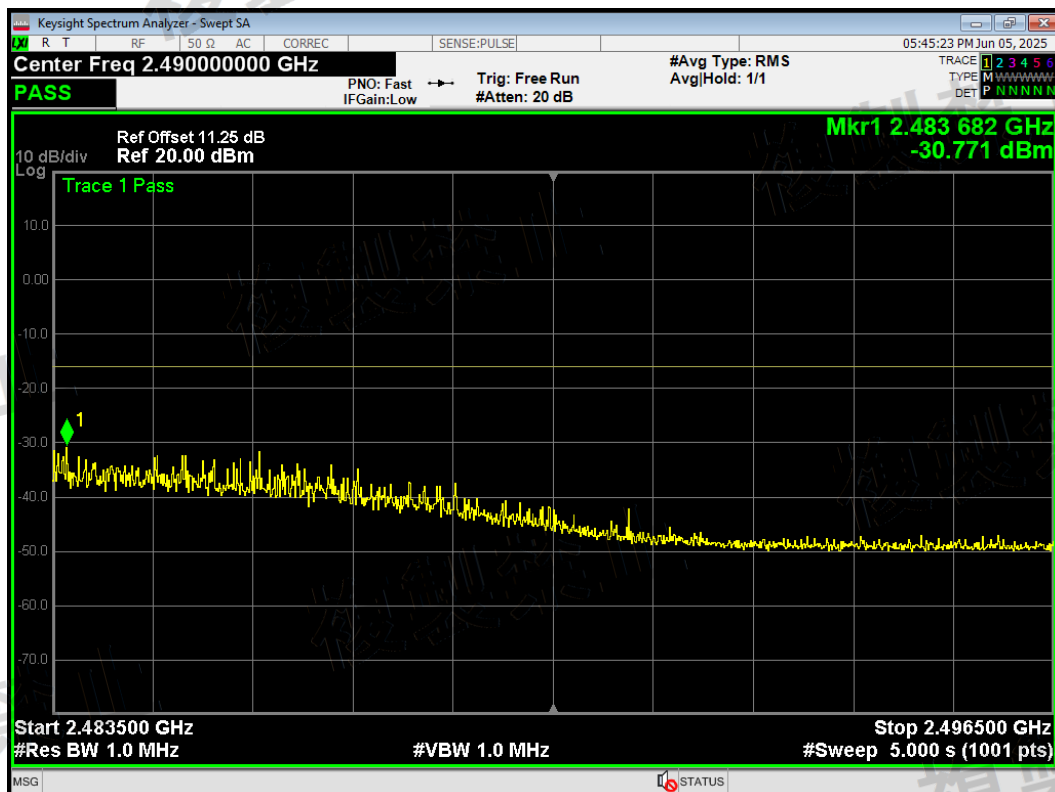
Tx. Spurious 802.11g 2442MHz @ 1000MHz-2387MHz



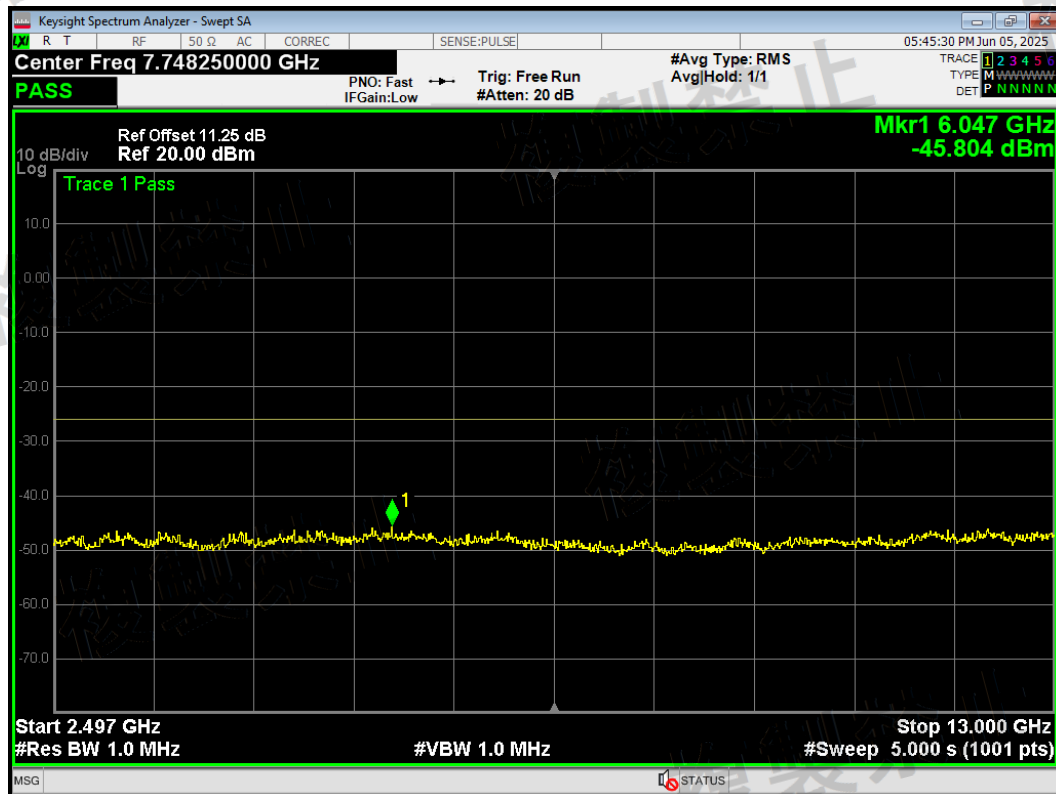
Tx. Spurious 802.11g 2442MHz @ 2387MHz-2400MHz



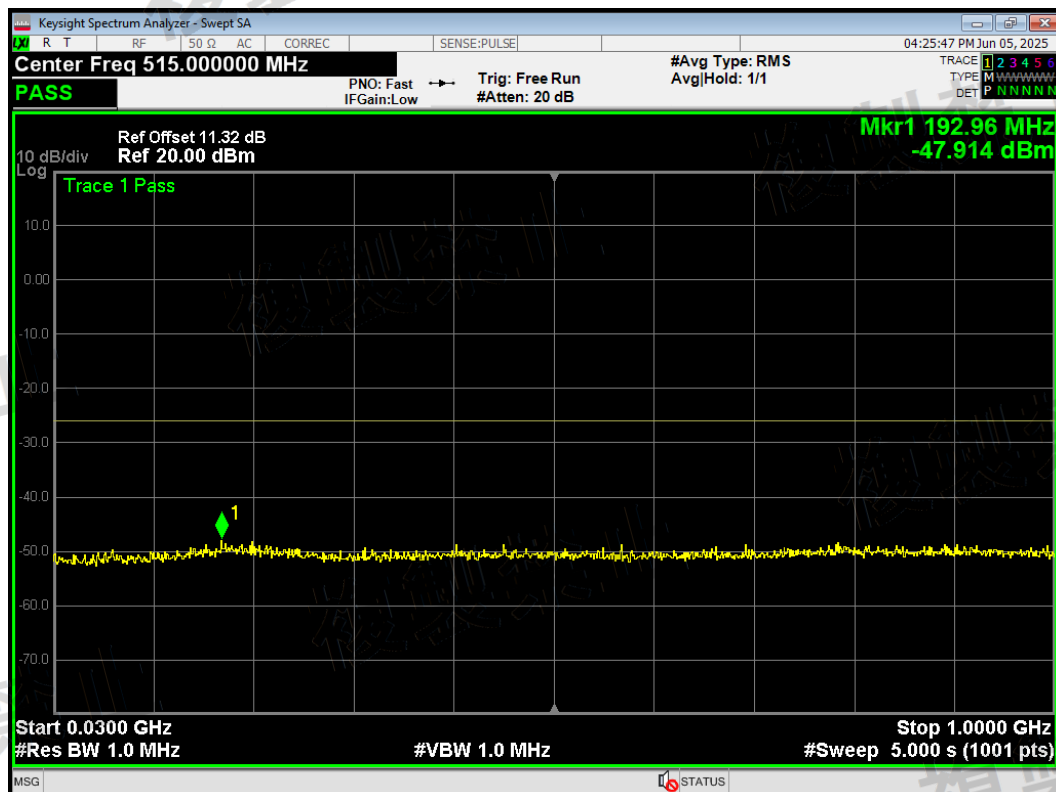
Tx. Spurious 802.11g 2442MHz @ 2483.5MHz-2496.5MHz



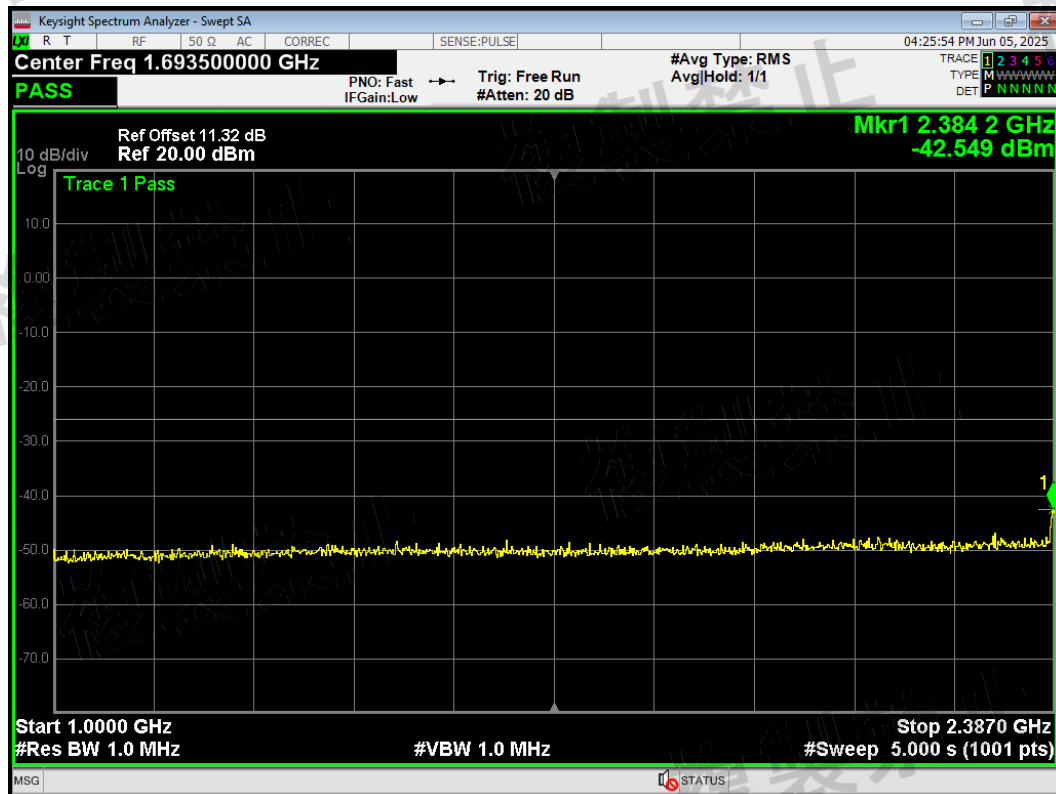
Tx. Spurious 802.11g 2442MHz @ 2496.5MHz-13000MHz



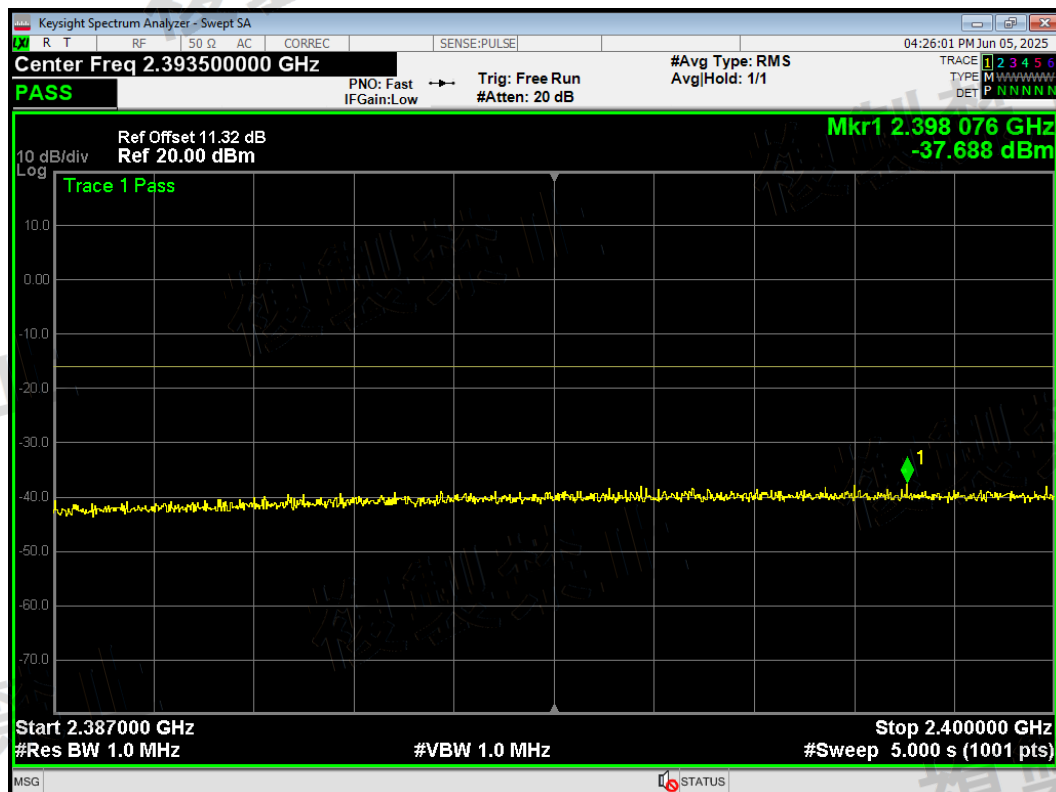
Tx. Spurious 802.11g 2472MHz @ 30MHz-1000MHz



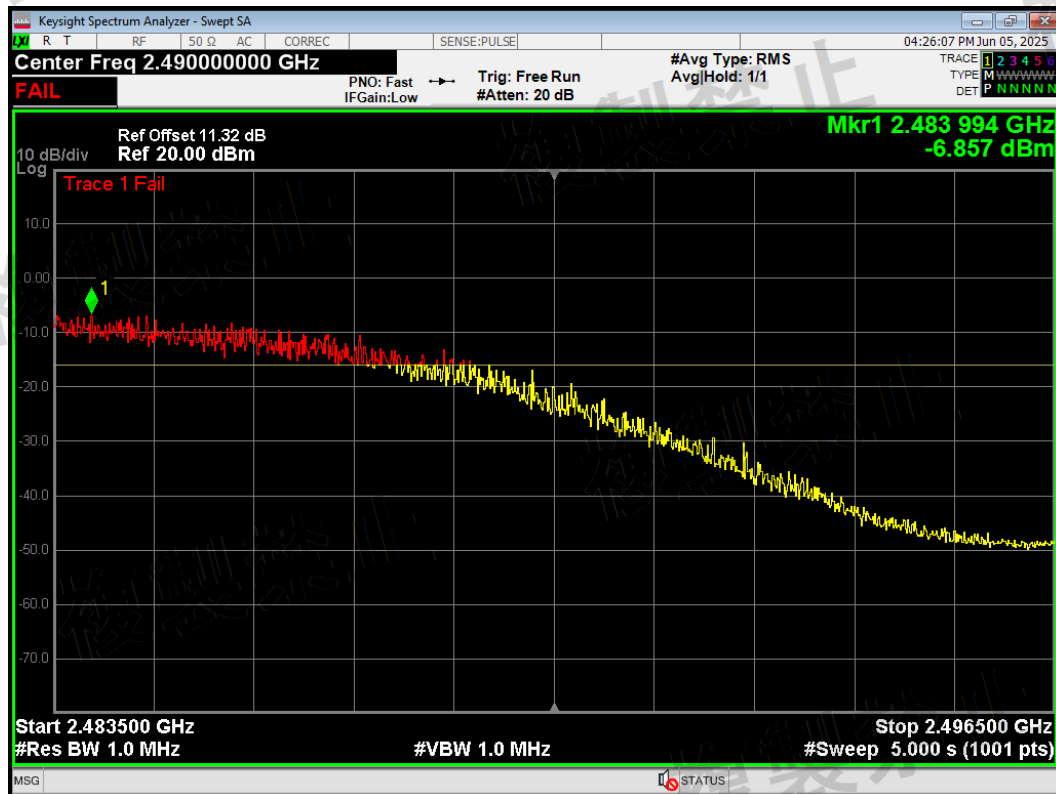
Tx. Spurious 802.11g 2472MHz @ 1000MHz-2387MHz



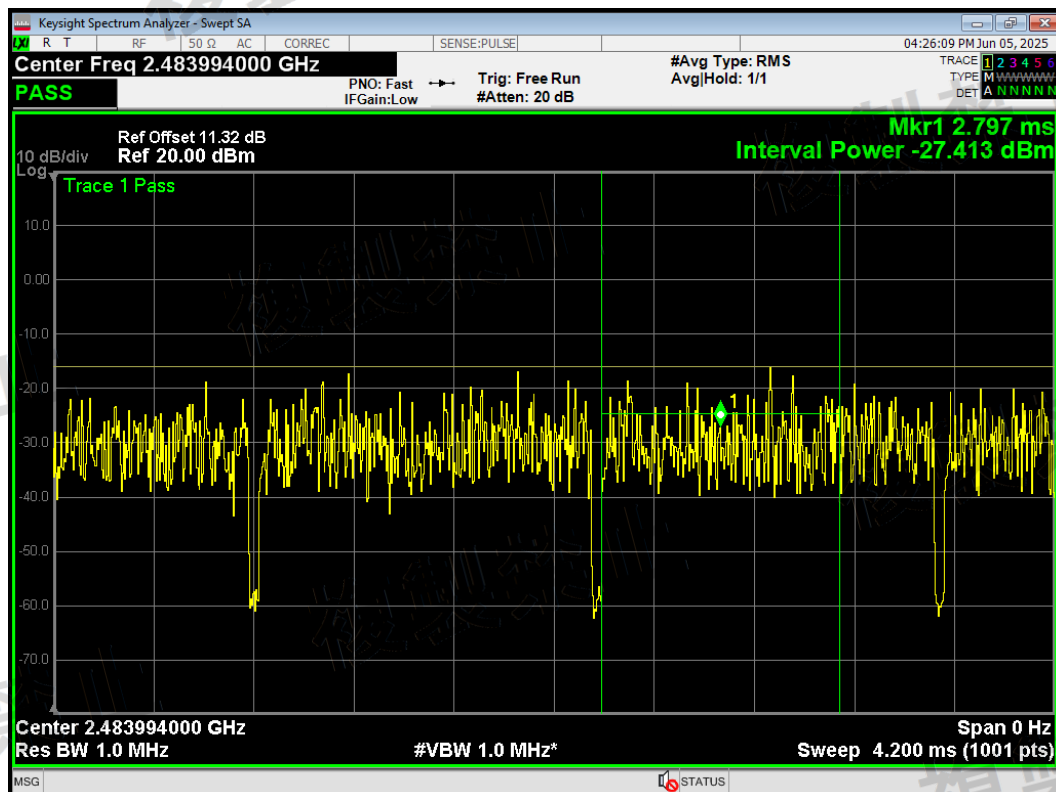
Tx. Spurious 802.11g 2472MHz @ 2387MHz-2400MHz



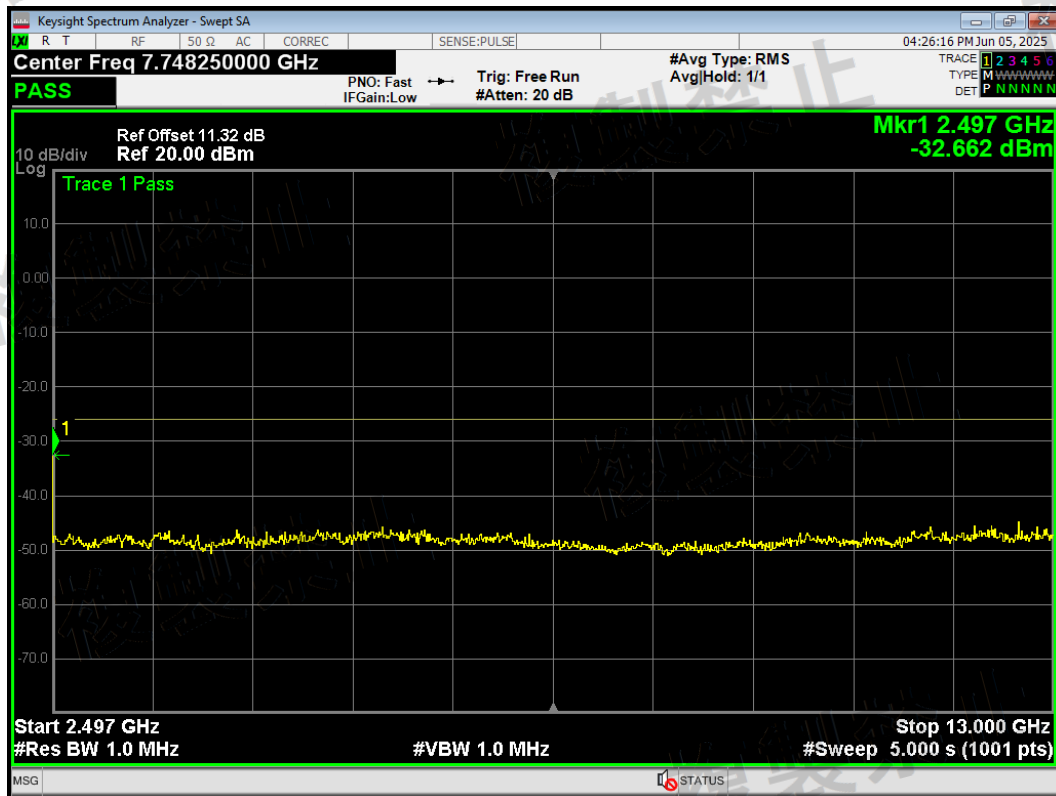
Tx. Spurious 802.11g 2472MHz @ 2483.5MHz-2496.5MHz



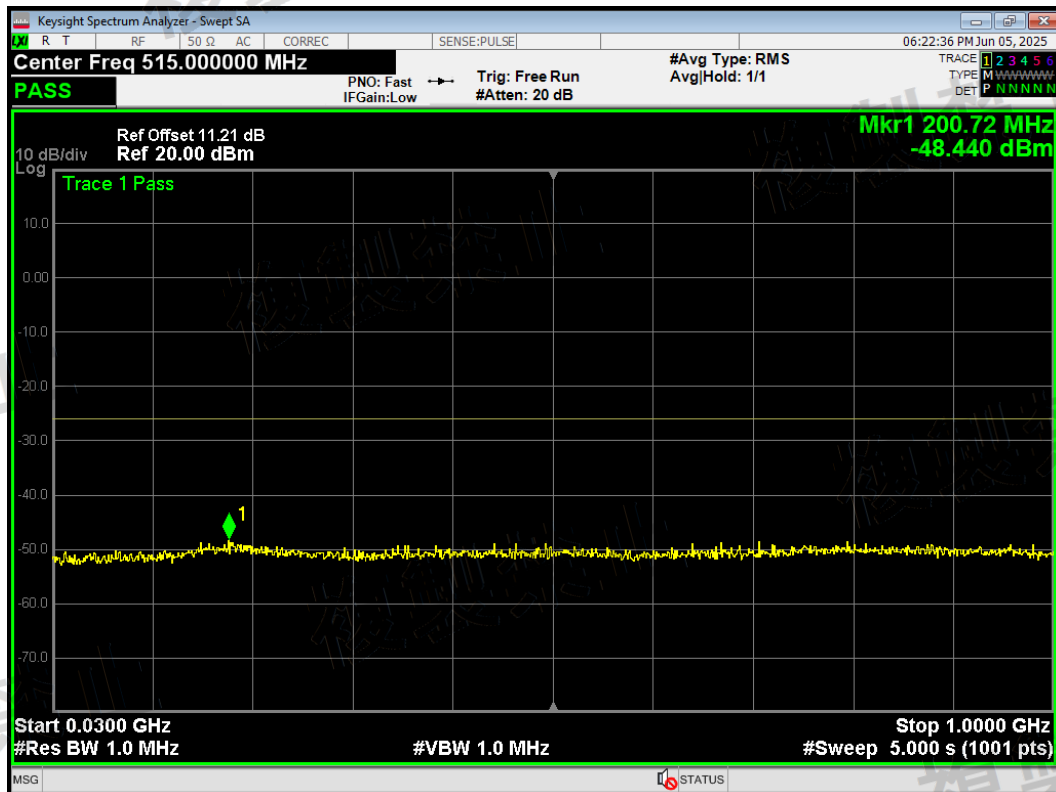
Tx. Spurious 802.11g 2472MHz @ 2483.5MHz-2496.5MHz Final



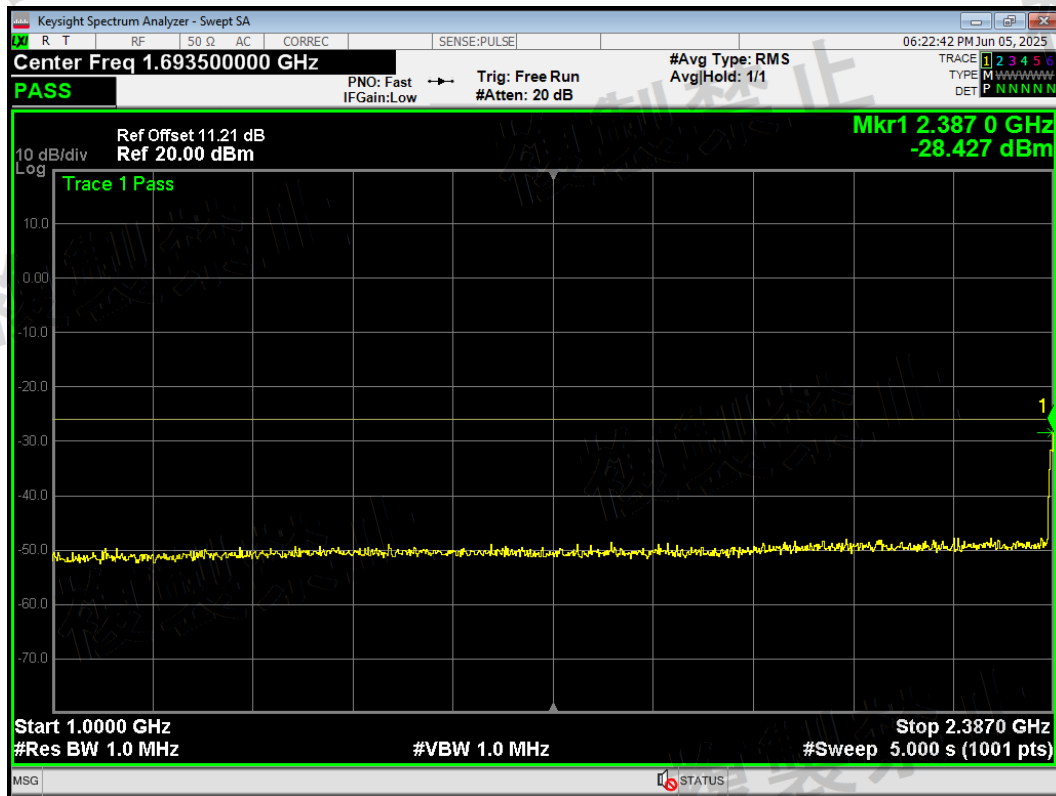
Tx. Spurious 802.11g 2472MHz @ 2496.5MHz-13000MHz



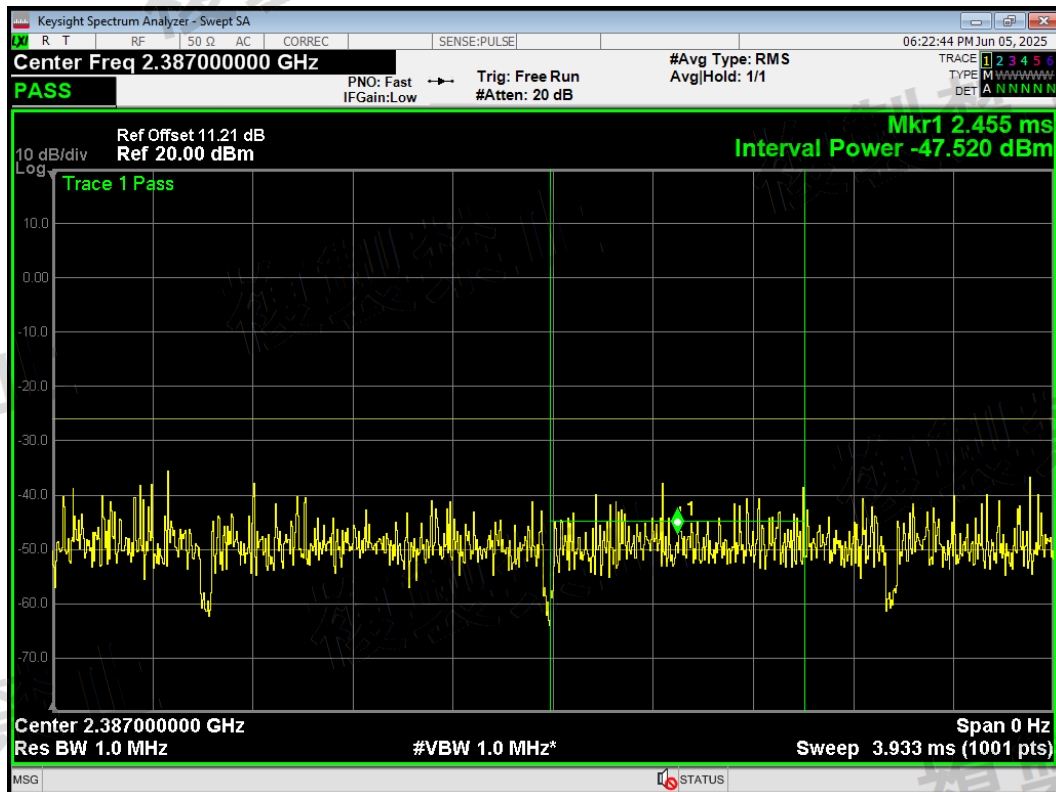
Tx. Spurious 802.11n(HT20) 2412MHz @ 30MHz-1000MHz



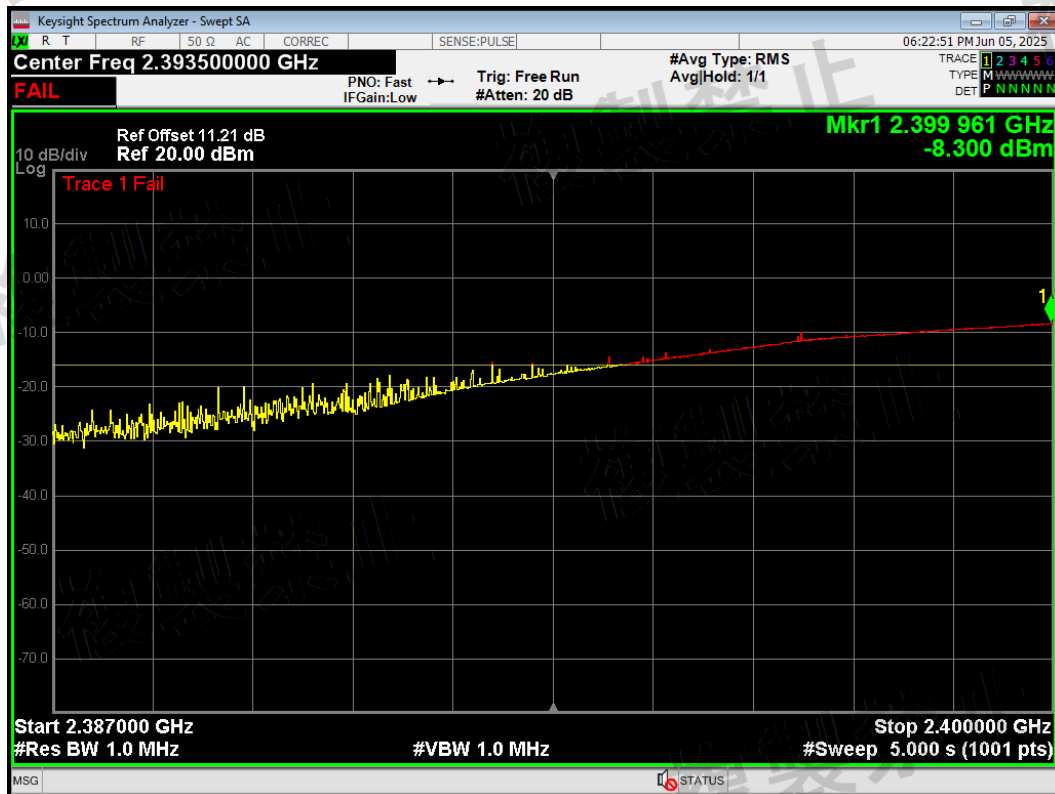
Tx. Spurious 802.11n(HT20) 2412MHz @ 1000MHz-2387MHz



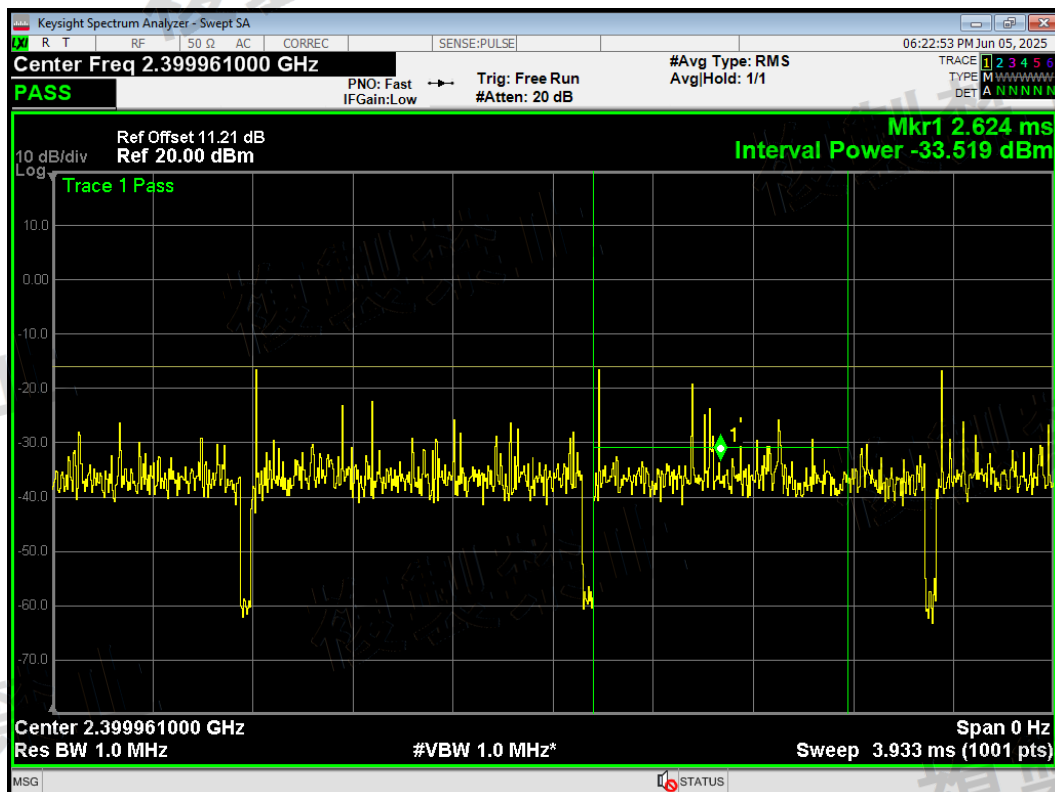
Tx. Spurious 802.11n(HT20) 2412MHz @ 1000MHz-2387MHz Final



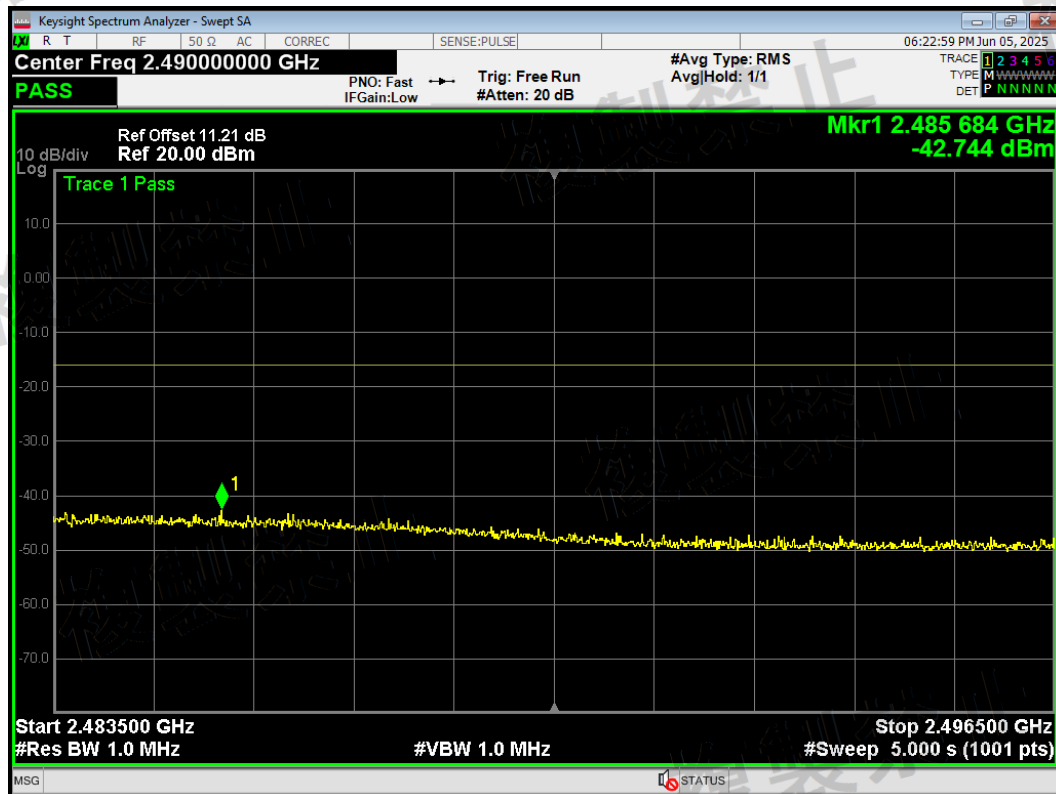
Tx. Spurious 802.11n(HT20) 2412MHz @ 2387MHz-2400MHz



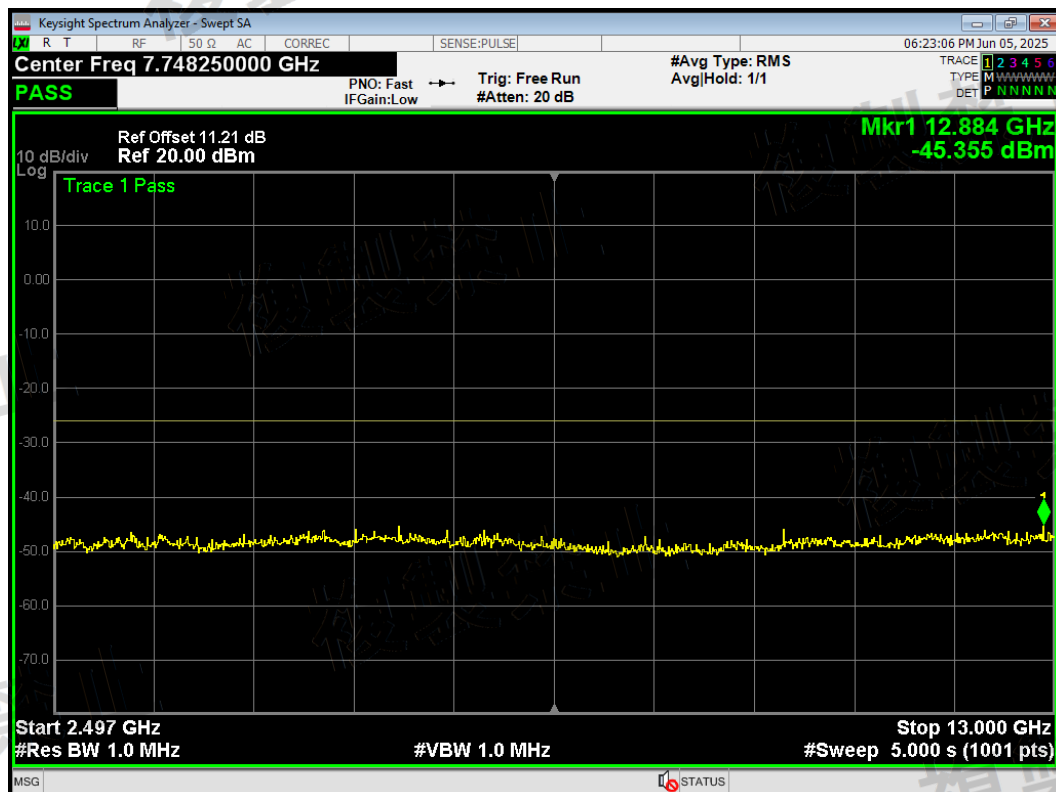
Tx. Spurious 802.11n(HT20) 2412MHz @ 2387MHz-2400MHz Final



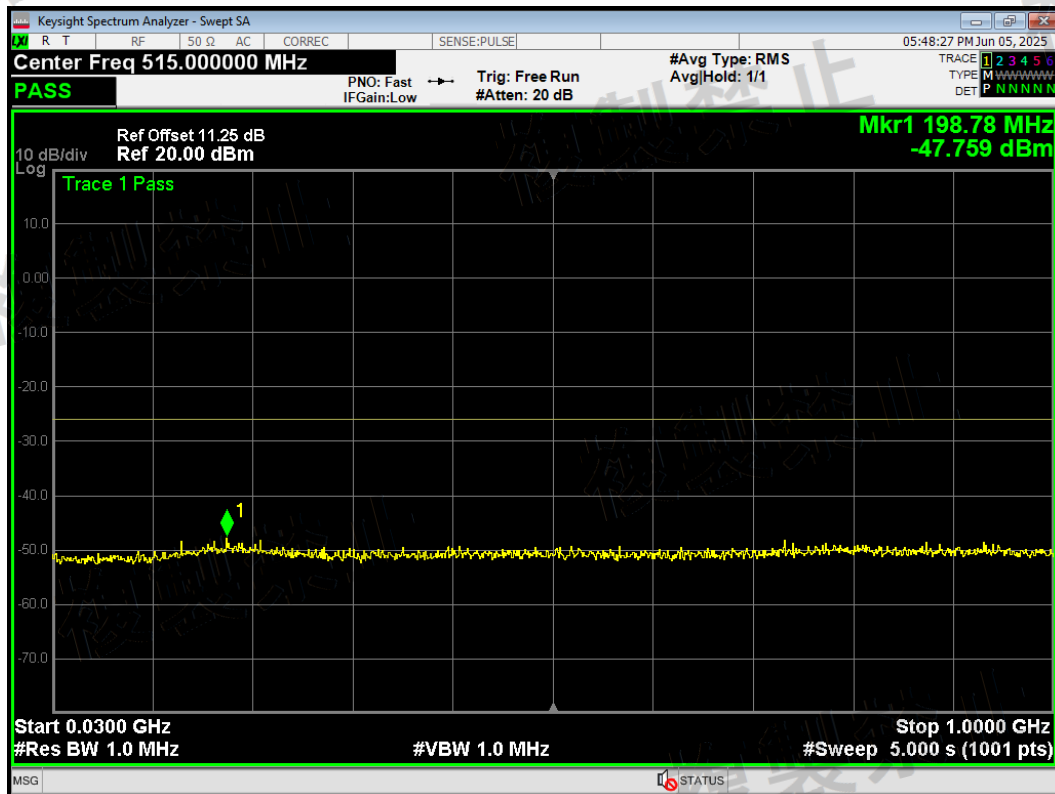
Tx. Spurious 802.11n(HT20) 2412MHz @ 2483.5MHz-2496.5MHz



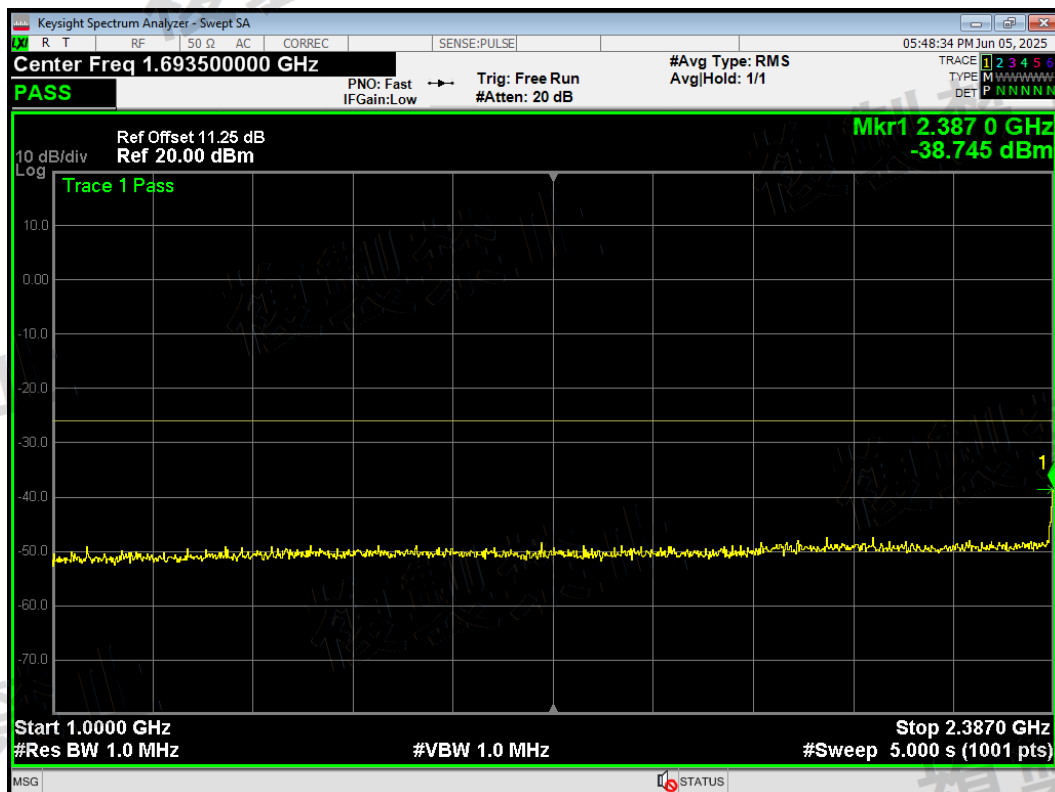
Tx. Spurious 802.11n(HT20) 2412MHz @ 2496.5MHz-13000MHz



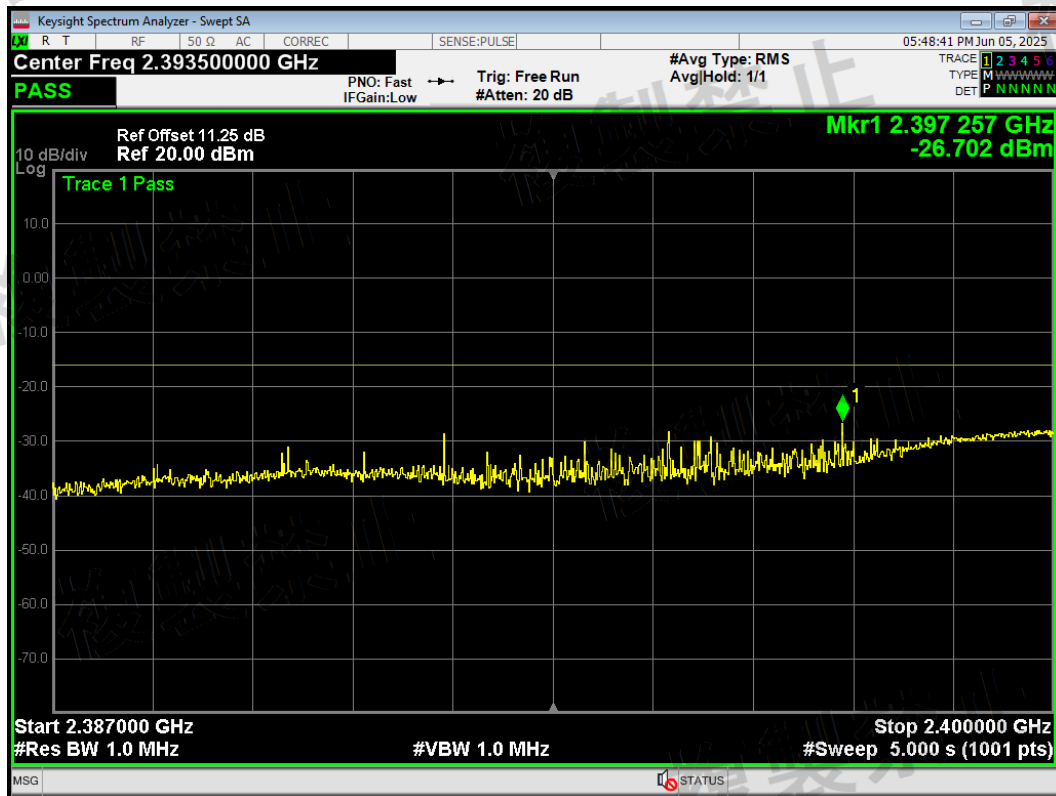
Tx. Spurious 802.11n(HT20) 2442MHz @ 30MHz-1000MHz



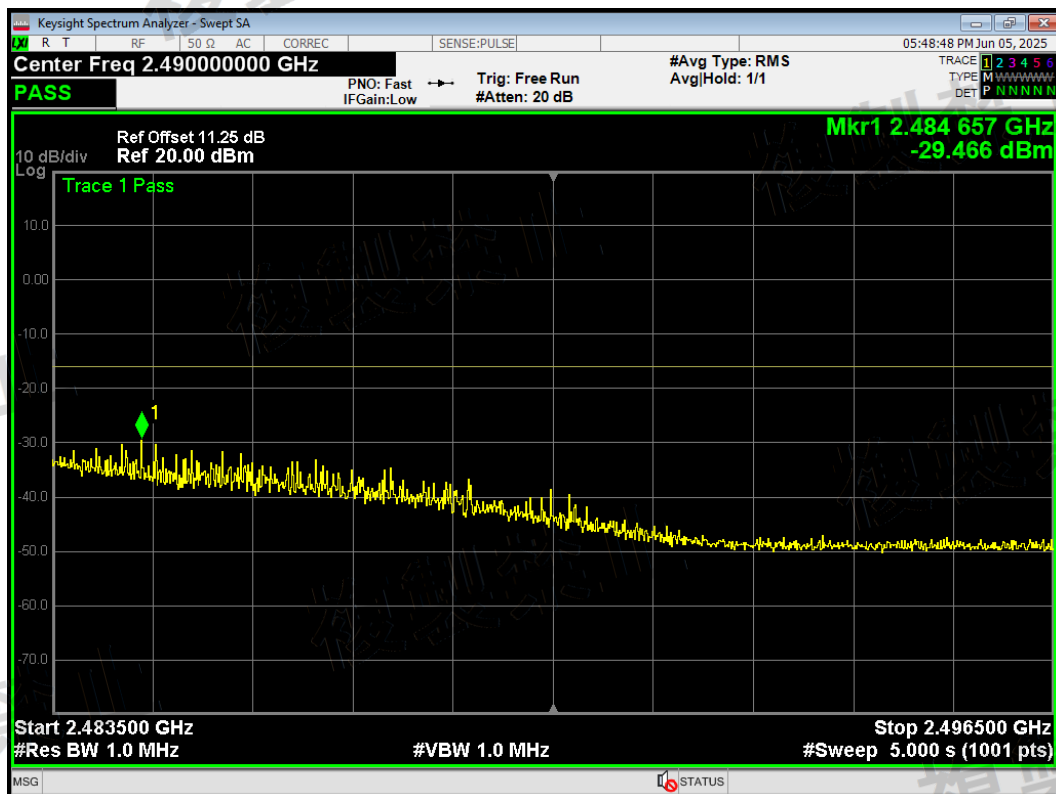
Tx. Spurious 802.11n(HT20) 2442MHz @ 1000MHz-2387MHz



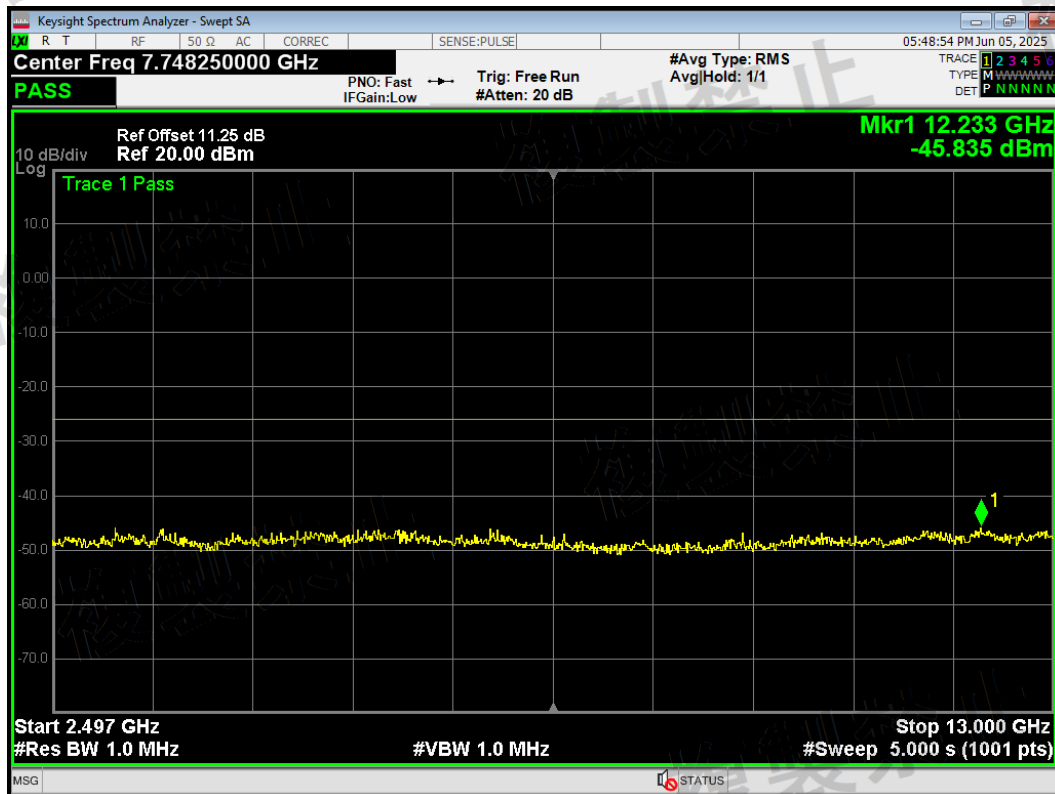
Tx. Spurious 802.11n(HT20) 2442MHz @ 2387MHz-2400MHz



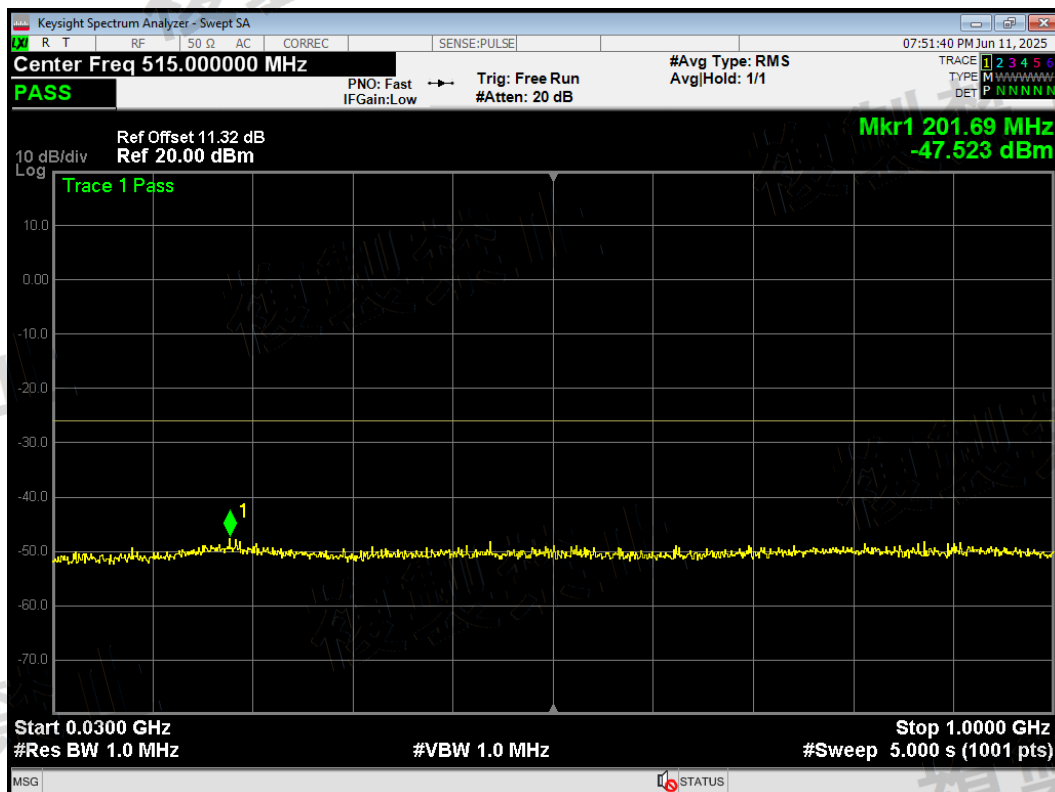
Tx. Spurious 802.11n(HT20) 2442MHz @ 2483.5MHz-2496.5MHz



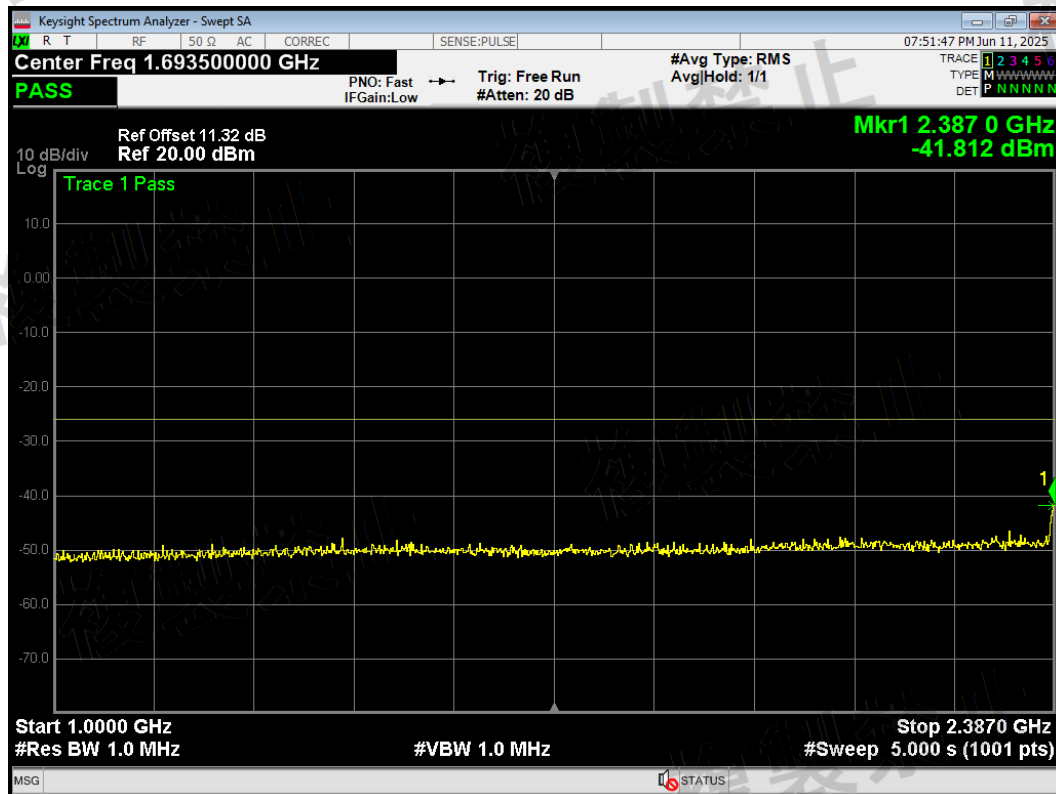
Tx. Spurious 802.11n(HT20) 2442MHz @ 2496.5MHz-13000MHz



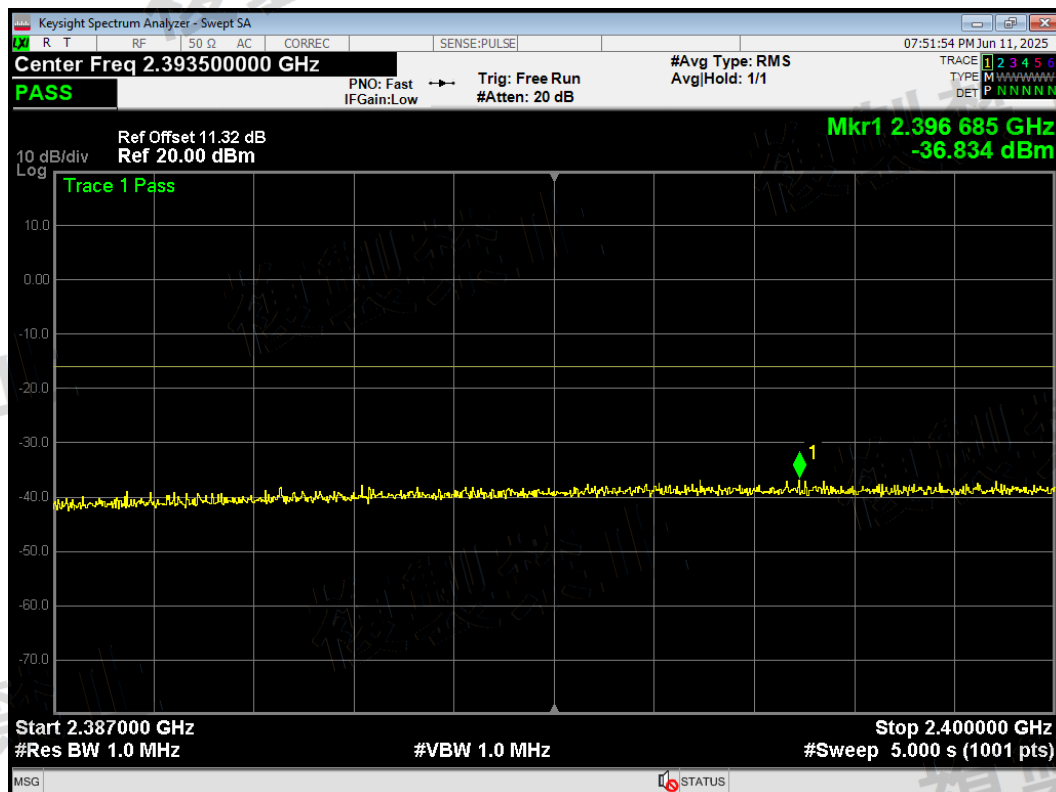
Tx. Spurious 802.11n(HT20) 2472MHz @ 30MHz-1000MHz



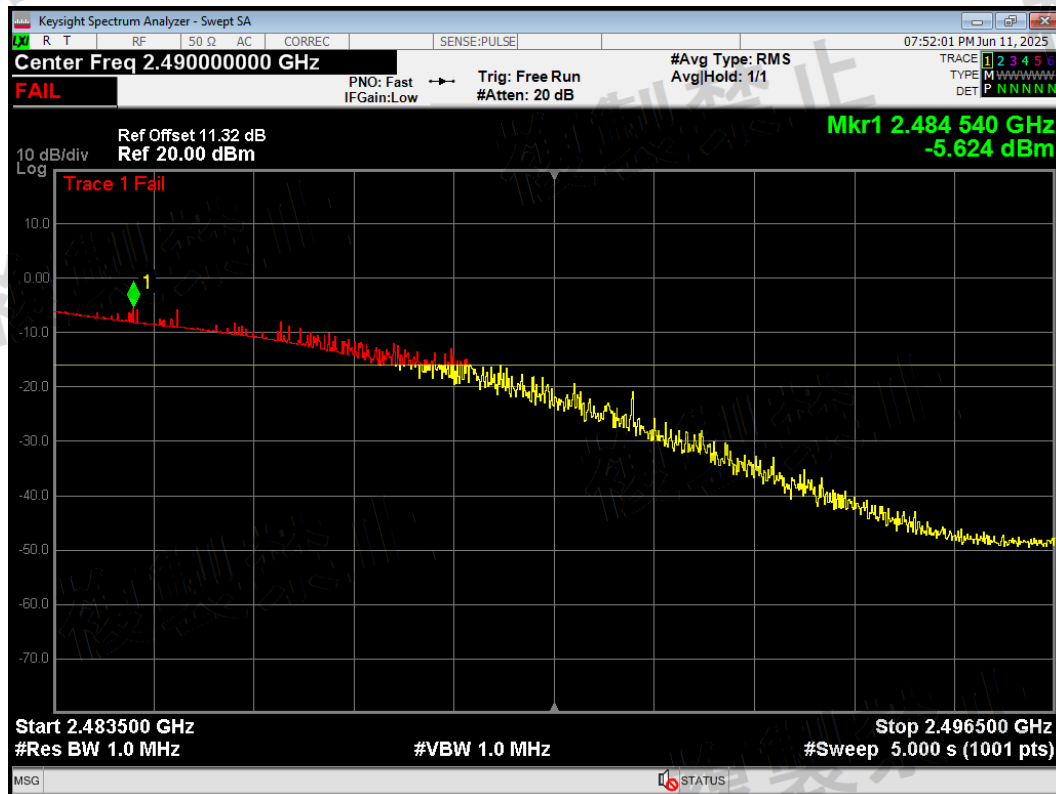
Tx. Spurious 802.11n(HT20) 2472MHz @ 1000MHz-2387MHz



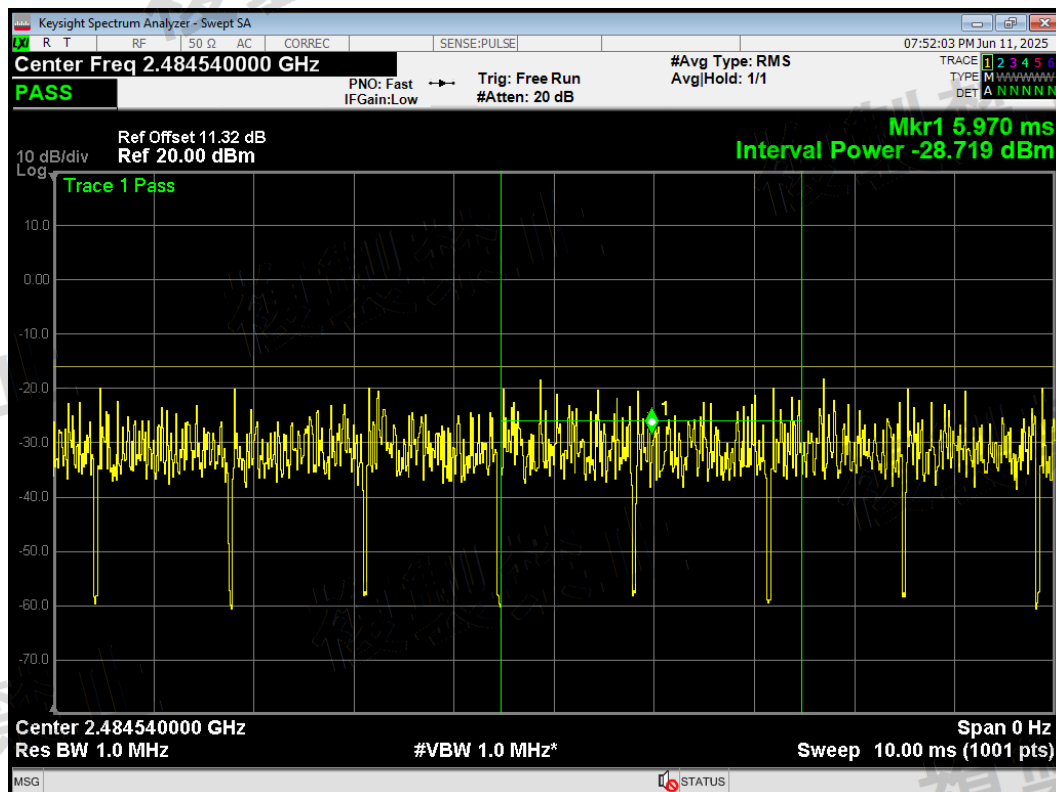
Tx. Spurious 802.11n(HT20) 2472MHz @ 2387MHz-2400MHz



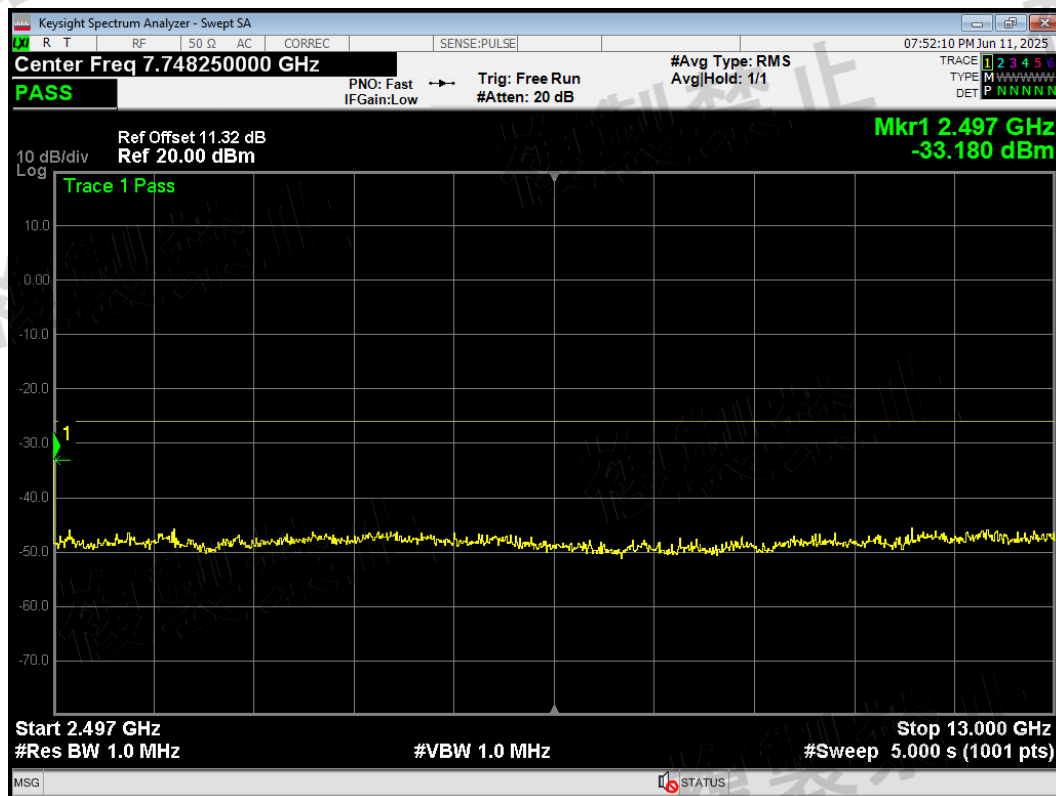
Tx. Spurious 802.11n(HT20) 2472MHz @ 2483.5MHz-2496.5MHz



Tx. Spurious 802.11n(HT20) 2472MHz @ 2483.5MHz-2496.5MHz Final



Tx. Spurious 802.11n(HT20) 2472MHz @ 2496.5MHz-13000MHz



5.6. Secondarily Emitted Radio Wave Strength Measurement

Ambient Condition

Temperature	Relative humidity	Pressure
25°C	50%	101.5kPa

Method of Measurement

Step-1 (Search Mode)

Spectrum Analyzer Setting

SPAN: Measuring Frequency Range (Refer to the 4.7 of the page 18)

RBW: 1 MHz (frequency range; 1 GHz over), 100 kHz (frequency range; 30 MHz to 1 GHz)

VBW: Same as RBW (1 MHz or 100 kHz)

Sweep Time: AUTO (Minimum time to ensure measurement accuracy.

*In case of burst wave, one burst shall be included per data point)

Data Points: 401 points or more

Sweep Mode: Single Sweep

Detection Mode: Positive Peak

Y-axis Scale: 10 dB/Div.

Reference Level: Enough level for maximum dynamic range

Step-2 (Measuring Mode *Normal)

Spectrum Analyzer Setting

Center Frequency: Searched Frequency

SPAN: 1 MHz – 10 MHz (The SPAN that keeps accuracy of the frequency.)

RBW: 1 MHz (frequency range; 1 GHz over), 100 kHz (frequency range; 30 MHz to 1 GHz)

VBW: Same as RBW (1 MHz or 100 kHz)

Sweep Time: AUTO (Minimum time to ensure measurement accuracy.

*In case of burst wave, one burst shall be included per data point)

Data Points: 401 points or more

Sweep Mode: Single Sweep

Detection Mode: Positive Peak

Y-axis Scale: 10 dB/Div.

Reference Level: Enough level for maximum dynamic range

Step-3 (Measuring Mode *Zero Span)

Spectrum Analyzer Setting

Center Frequency: Searched Frequency SPAN: 0 Hz (ZERO SPAN)

RBW: 1 MHz (frequency range; 1 GHz over), 100 kHz (frequency range; 30 MHz to 1 GHz)

VBW: Same as RBW (1 MHz or 100 kHz)

Sweep Time: AUTO (Minimum time to ensure measurement accuracy.

*In case of burst wave, one burst shall be included per data point)

Data Points: 401 points or more

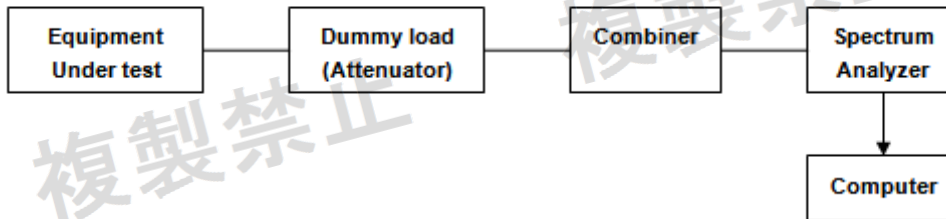
Sweep Mode: Single Sweep

Detection Mode: Sample

Y-axis Scale: 10 dB/Div.

Reference Level: Enough level for maximum dynamic range

Test Setup



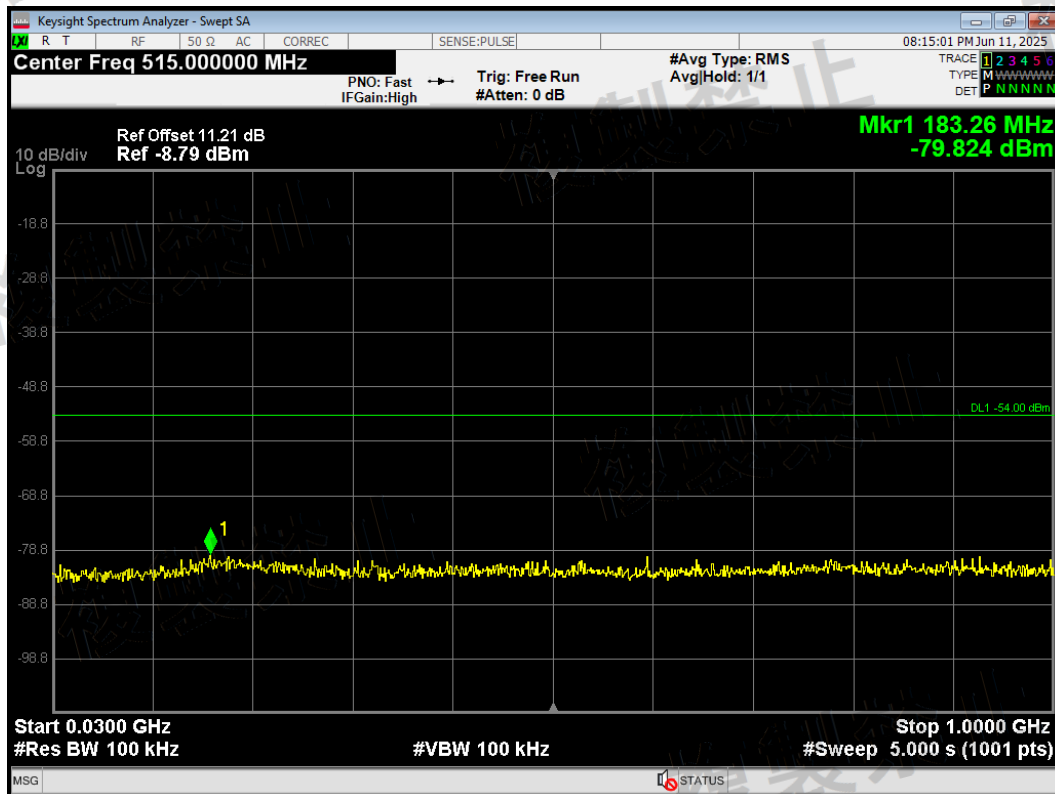
Limit

Frequency Range	Limits(nW)
Under 1 GHz	≤ 4
1GHz-12.5GHz	≤ 20

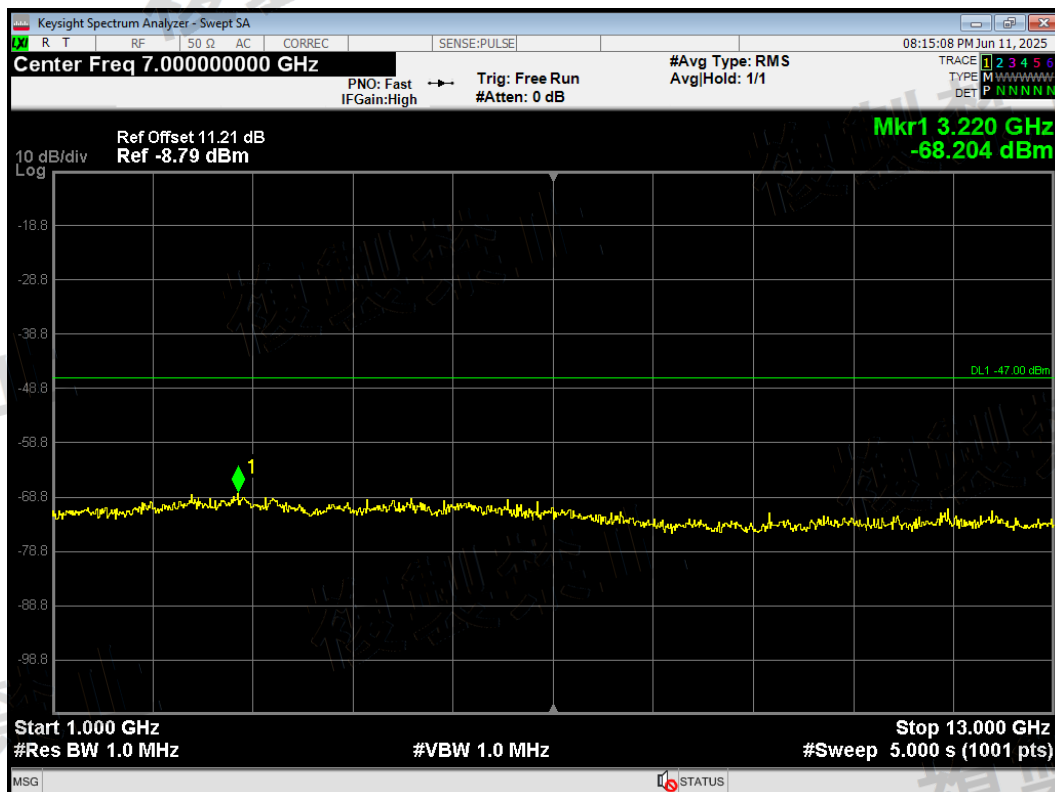
Test Results

Mode	Frequency (MHz)	Range (MHz)	Emission Frequency (MHz)	Max Value (dBm)	Limit (dBm)	Verdict
802.11b	2412	30-1000	183.26	-79.82	-54	Pass
802.11b	2412	1000-13000	3220	-68.2	-47	Pass
802.11b	2442	30-1000	199.75	-79.45	-54	Pass
802.11b	2442	1000-13000	3388	-67.98	-47	Pass
802.11b	2472	30-1000	187.14	-78.78	-54	Pass
802.11b	2472	1000-13000	3640	-67.6	-47	Pass
802.11b	2484	30-1000	932.1	-79.09	-54	Pass
802.11b	2484	1000-13000	3292	-67.68	-47	Pass
802.11g	2412	30-1000	204.6	-79.64	-54	Pass
802.11g	2412	1000-13000	3172	-68.22	-47	Pass
802.11g	2442	30-1000	196.84	-79.46	-54	Pass
802.11g	2442	1000-13000	2692	-67.21	-47	Pass
802.11g	2472	30-1000	803.09	-79.4	-54	Pass
802.11g	2472	1000-13000	2680	-68.26	-47	Pass
802.11n(HT20)	2412	30-1000	226.91	-79.67	-54	Pass
802.11n(HT20)	2412	1000-13000	3292	-67.51	-47	Pass
802.11n(HT20)	2442	30-1000	210.42	-79.59	-54	Pass
802.11n(HT20)	2442	1000-13000	3328	-68.37	-47	Pass
802.11n(HT20)	2472	30-1000	202.66	-79.09	-54	Pass
802.11n(HT20)	2472	1000-13000	3004	-68.42	-47	Pass

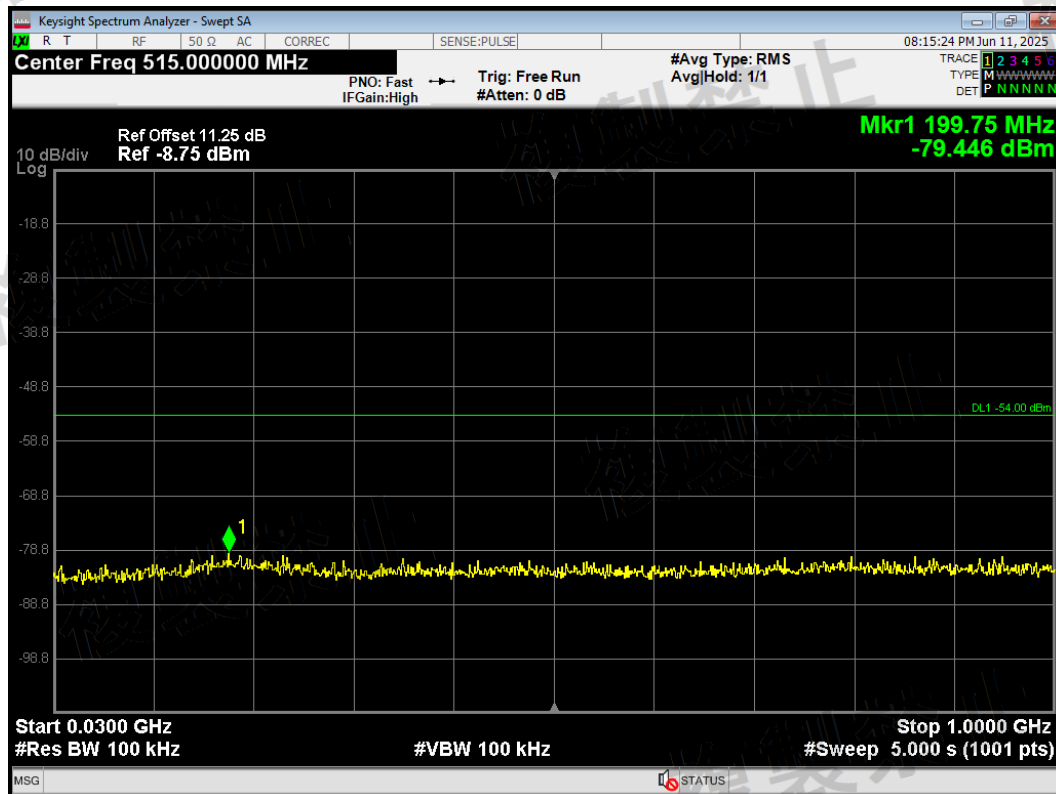
Rx. Spurious 802.11b 2412MHz @ 30MHz-1000MHz



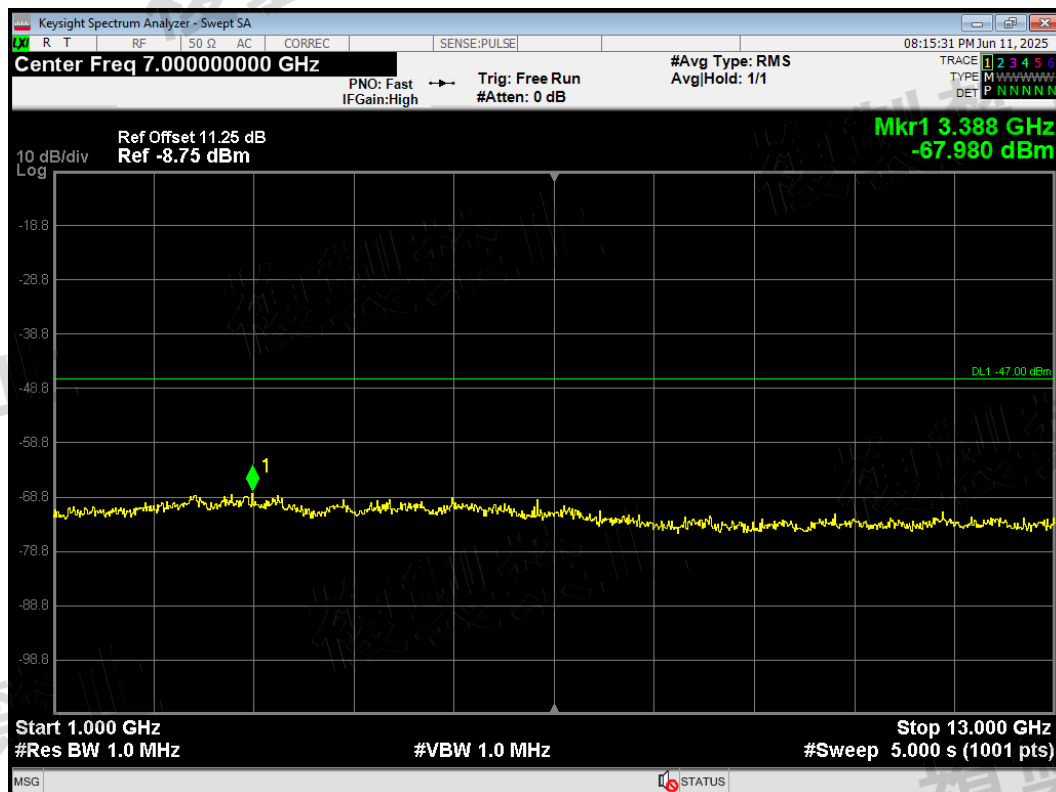
Rx. Spurious 802.11b 2412MHz @ 1000MHz-13000MHz



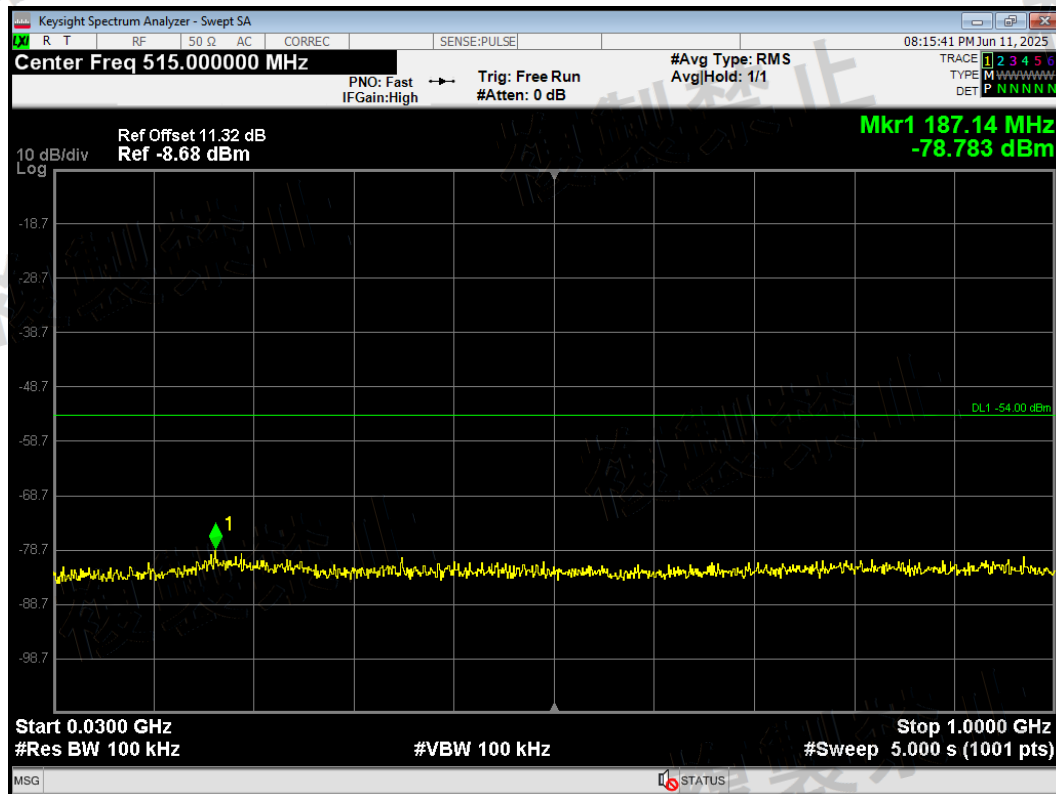
Rx. Spurious 802.11b 2442MHz @ 30MHz-1000MHz



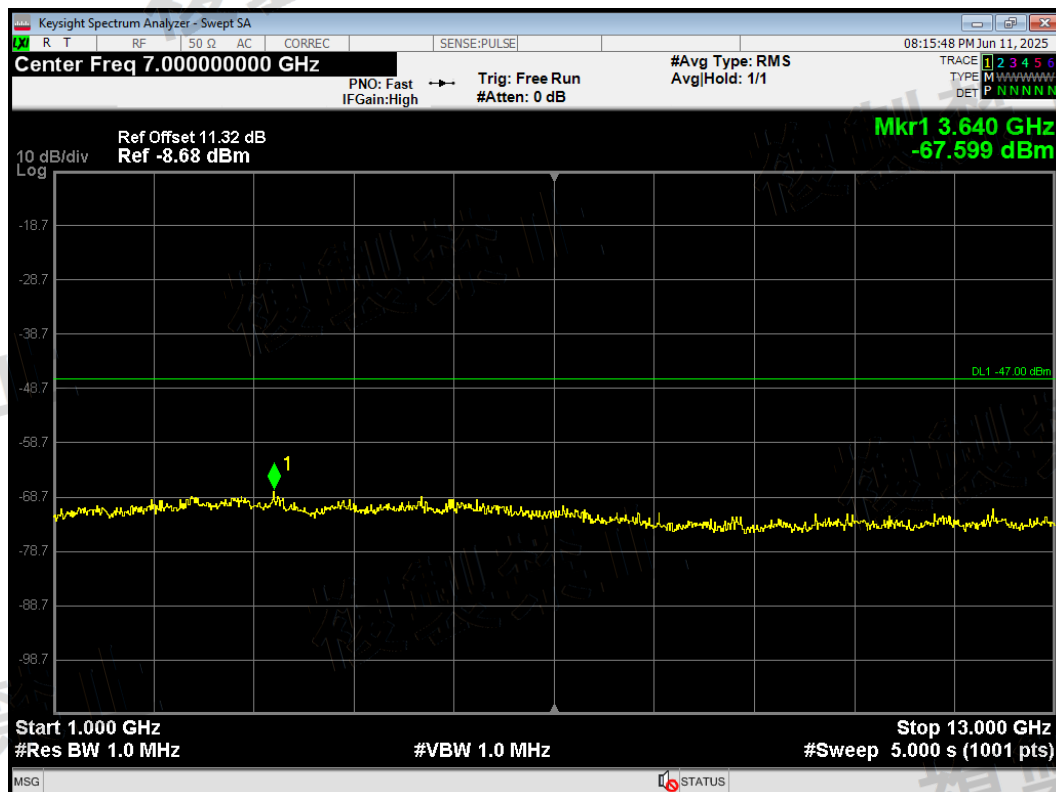
Rx. Spurious 802.11b 2442MHz @ 1000MHz-13000MHz



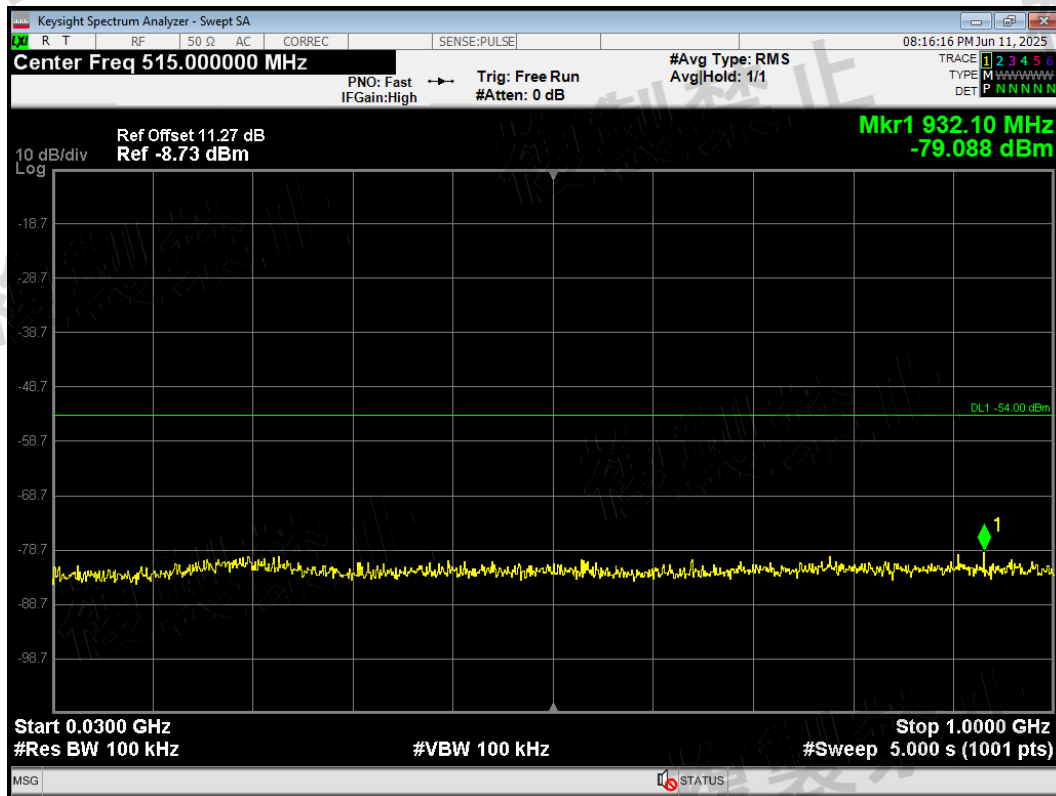
Rx. Spurious 802.11b 2472MHz @ 30MHz-1000MHz



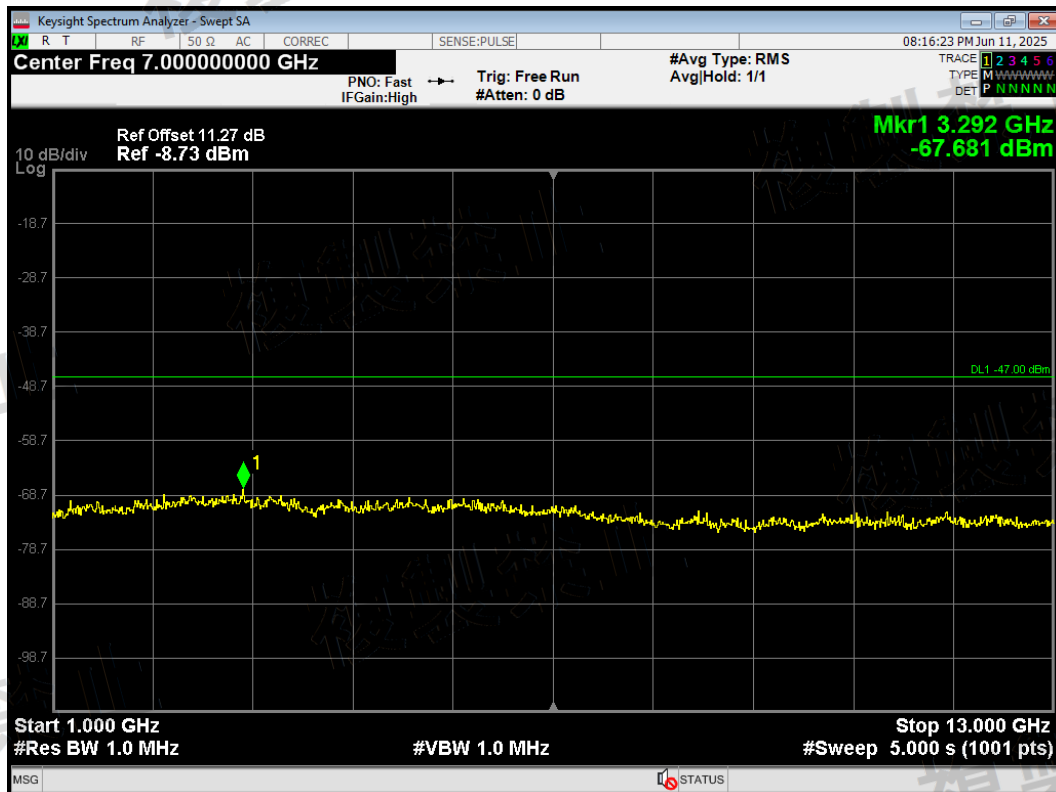
Rx. Spurious 802.11b 2472MHz @ 1000MHz-13000MHz



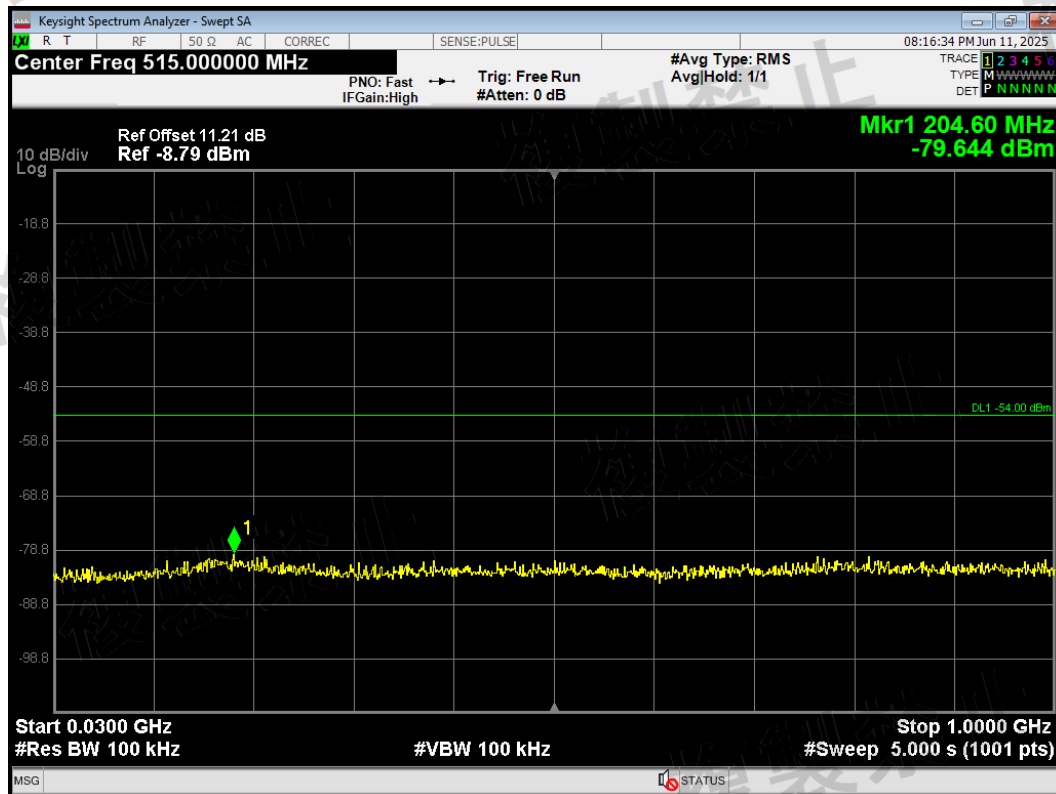
Rx. Spurious 802.11b 2484MHz @ 30MHz-1000MHz



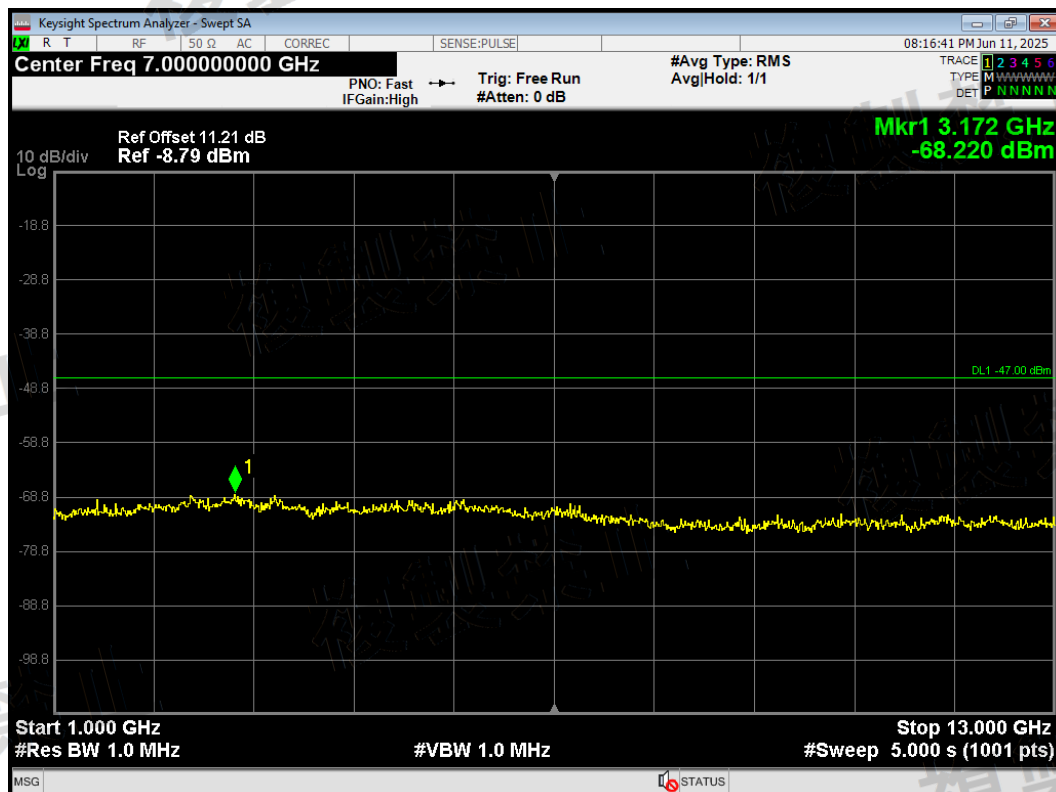
Rx. Spurious 802.11b 2484MHz @ 1000MHz-13000MHz



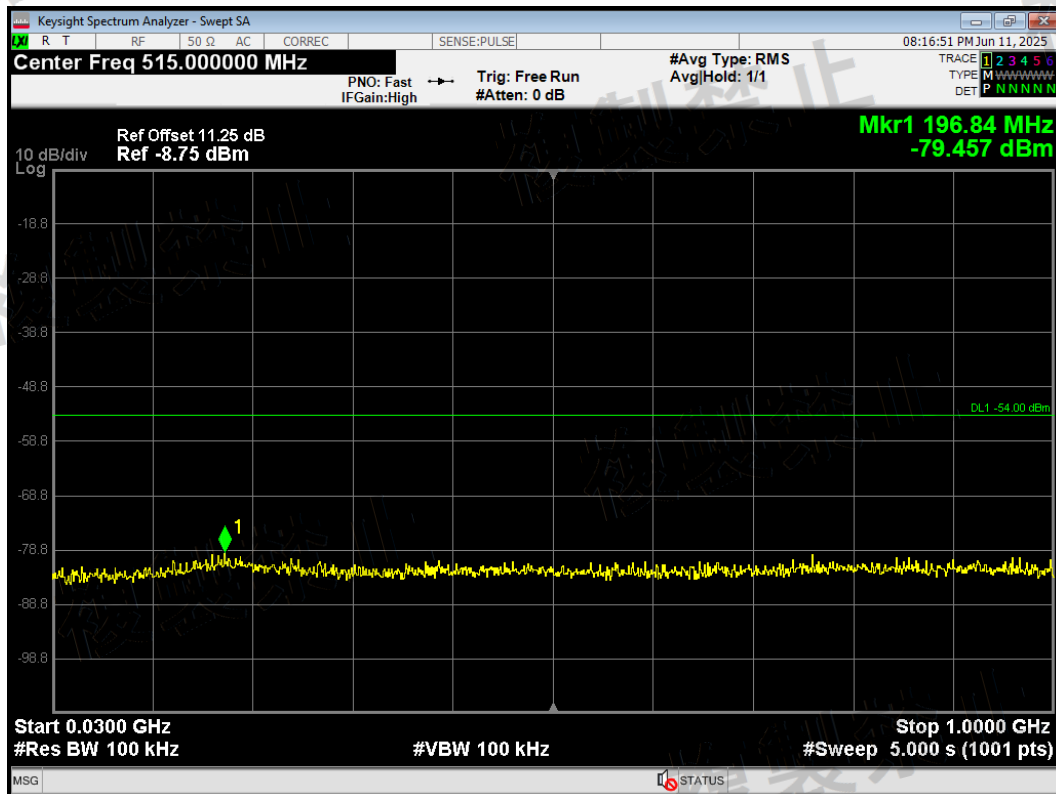
Rx. Spurious 802.11g 2412MHz @ 30MHz-1000MHz



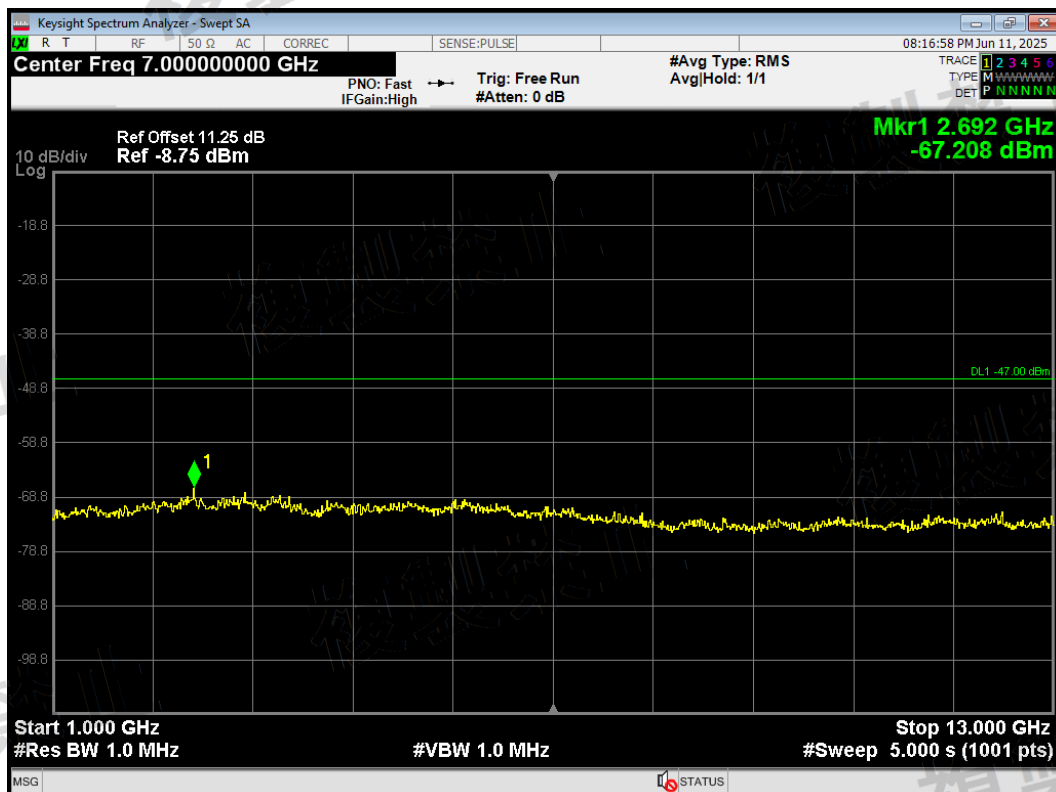
Rx. Spurious 802.11g 2412MHz @ 1000MHz-13000MHz



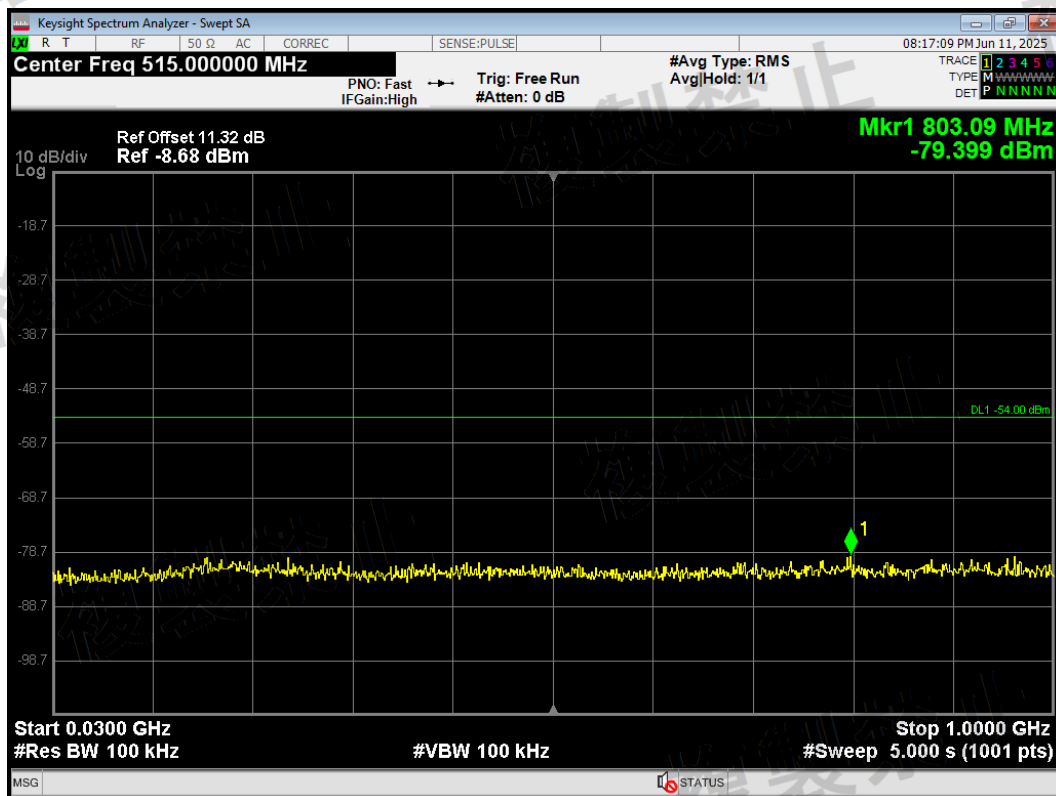
Rx. Spurious 802.11g 2442MHz @ 30MHz-1000MHz



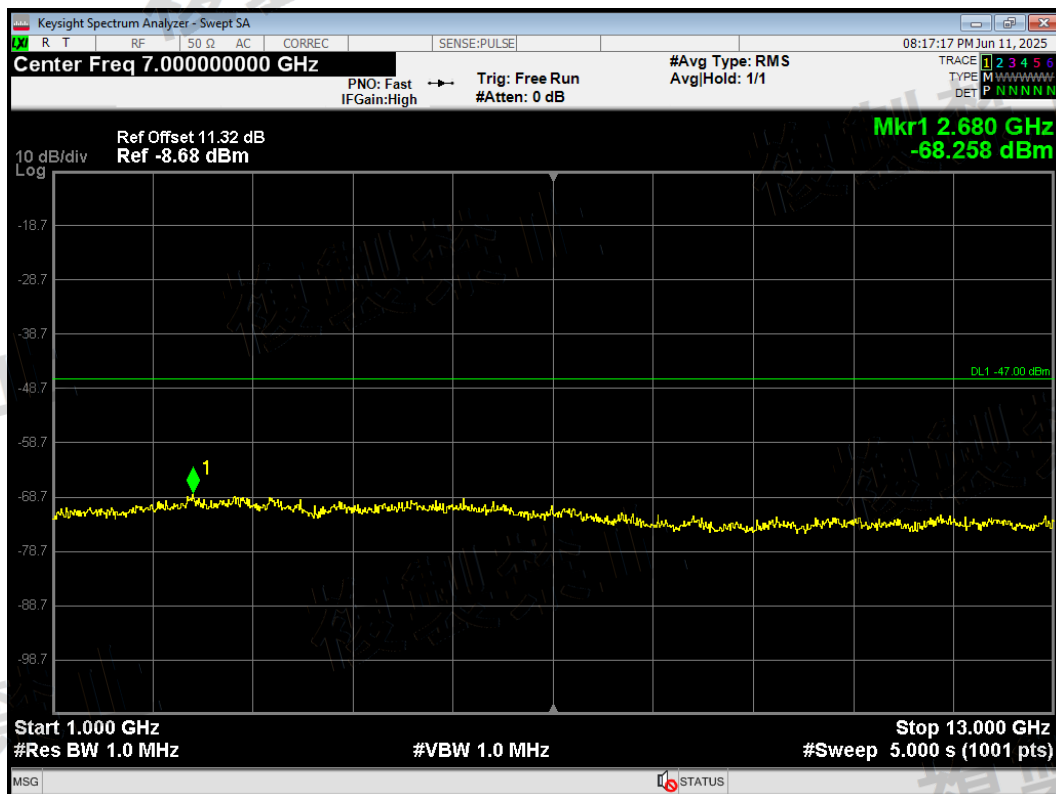
Rx. Spurious 802.11g 2442MHz @ 1000MHz-13000MHz



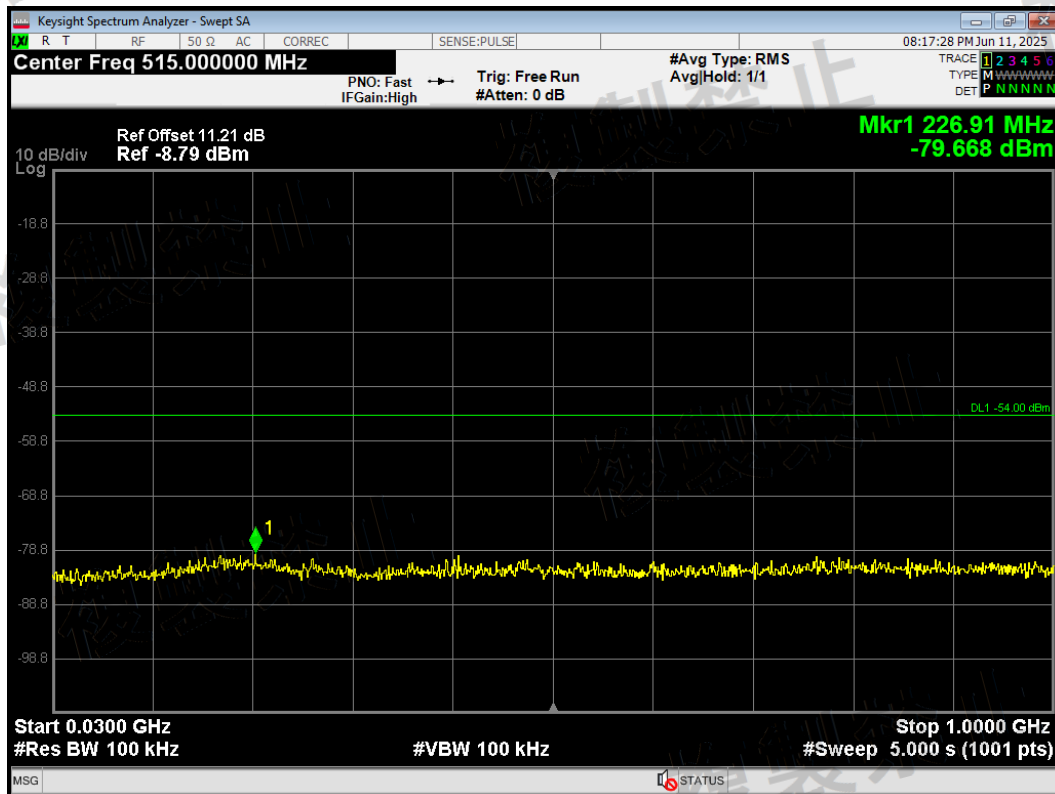
Rx. Spurious 802.11g 2472MHz @ 30MHz-1000MHz



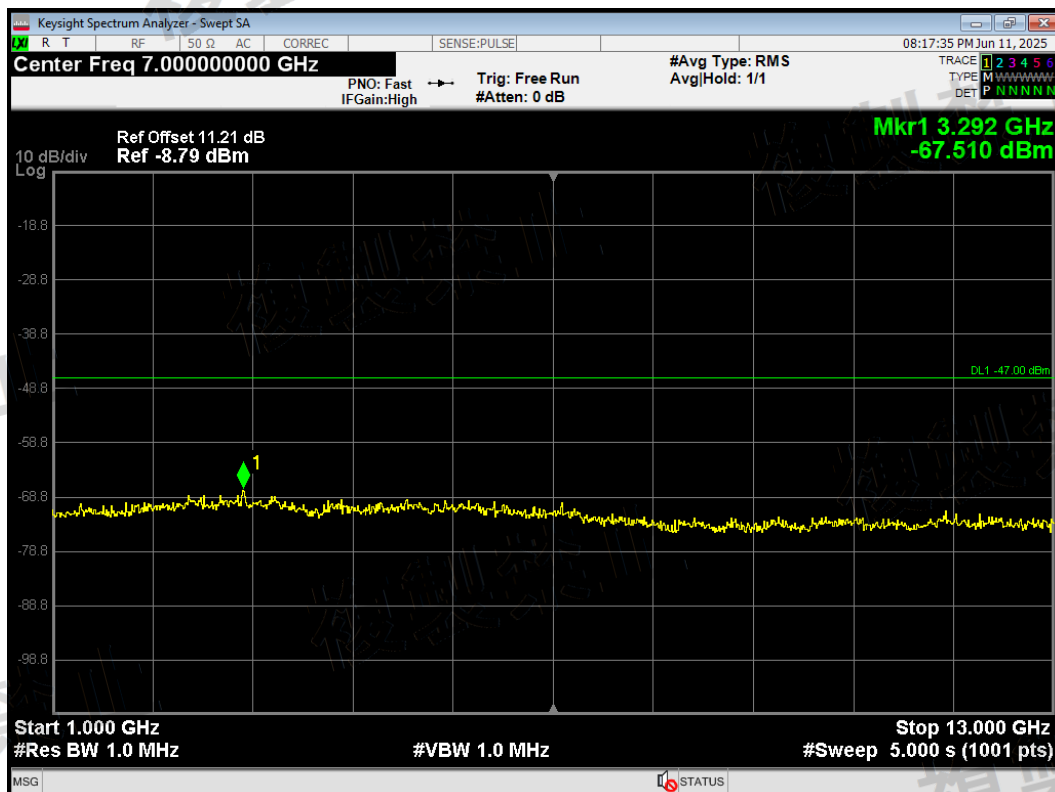
Rx. Spurious 802.11g 2472MHz @ 1000MHz-13000MHz



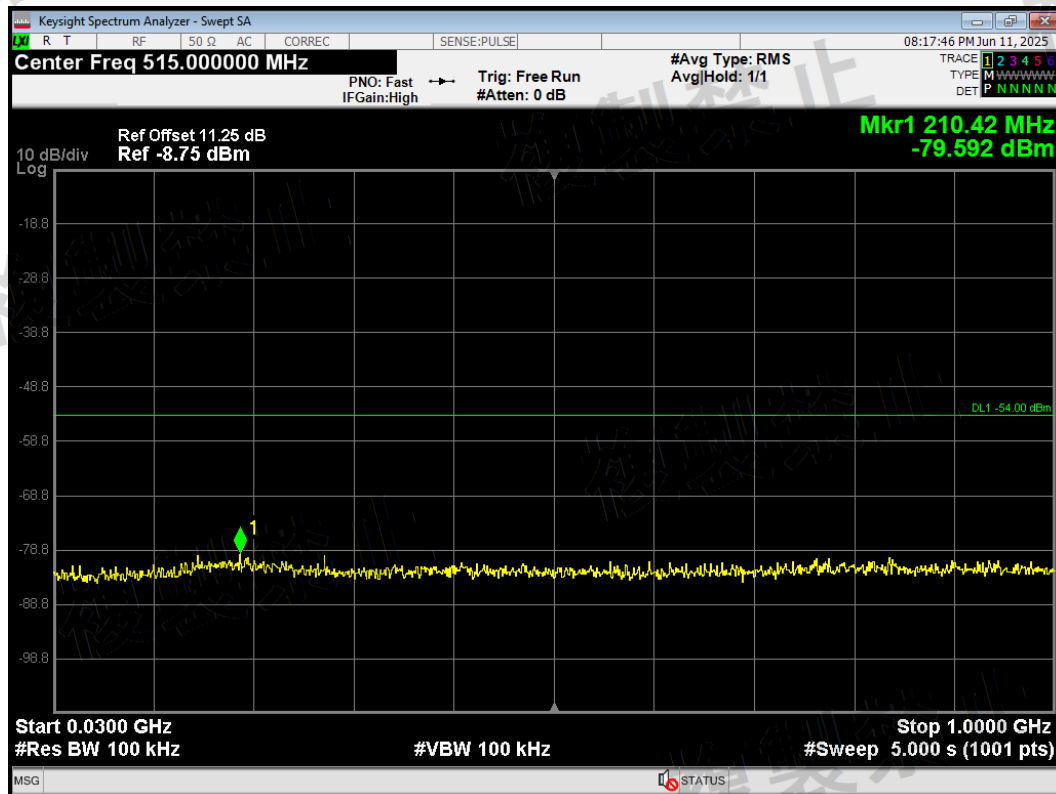
Rx. Spurious 802.11n(HT20) 2412MHz @ 30MHz-1000MHz



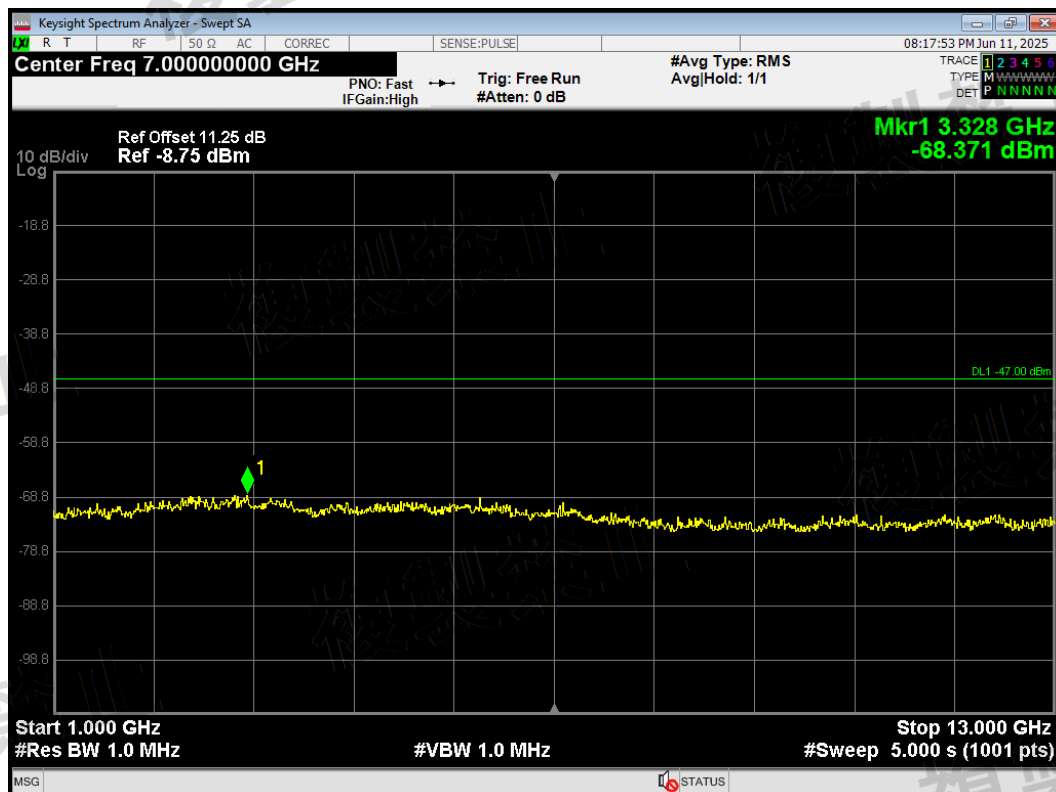
Rx. Spurious 802.11n(HT20) 2412MHz @ 1000MHz-13000MHz



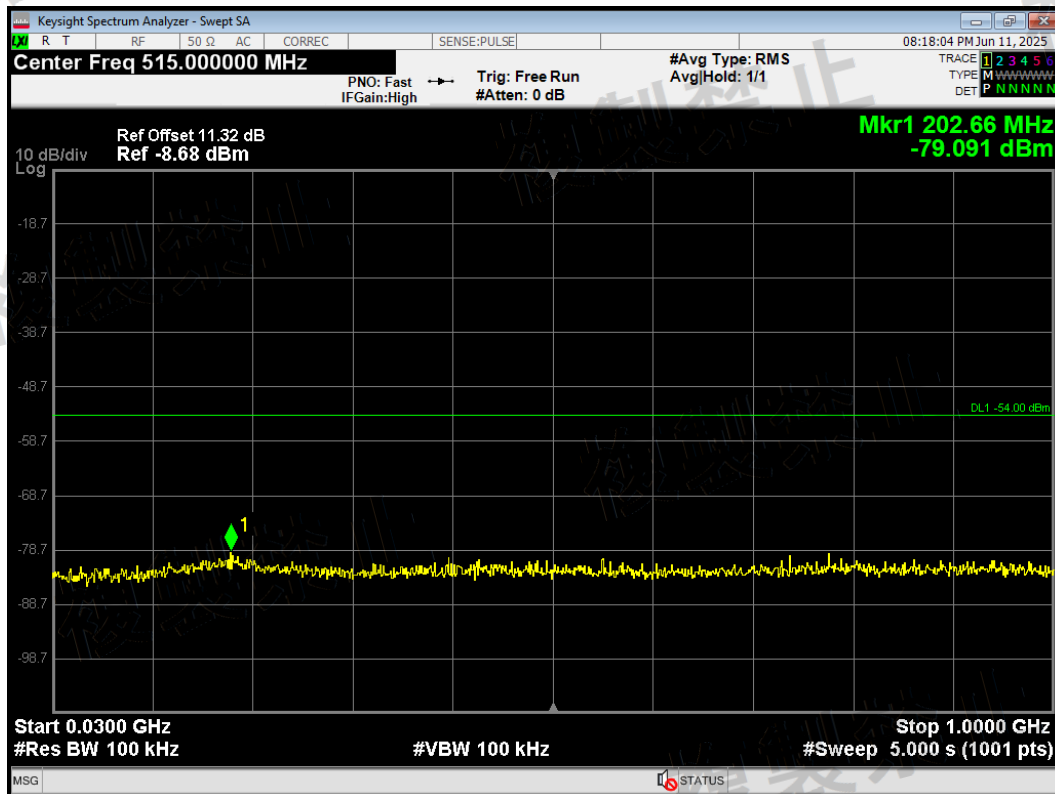
Rx. Spurious 802.11n(HT20) 2442MHz @ 30MHz-1000MHz



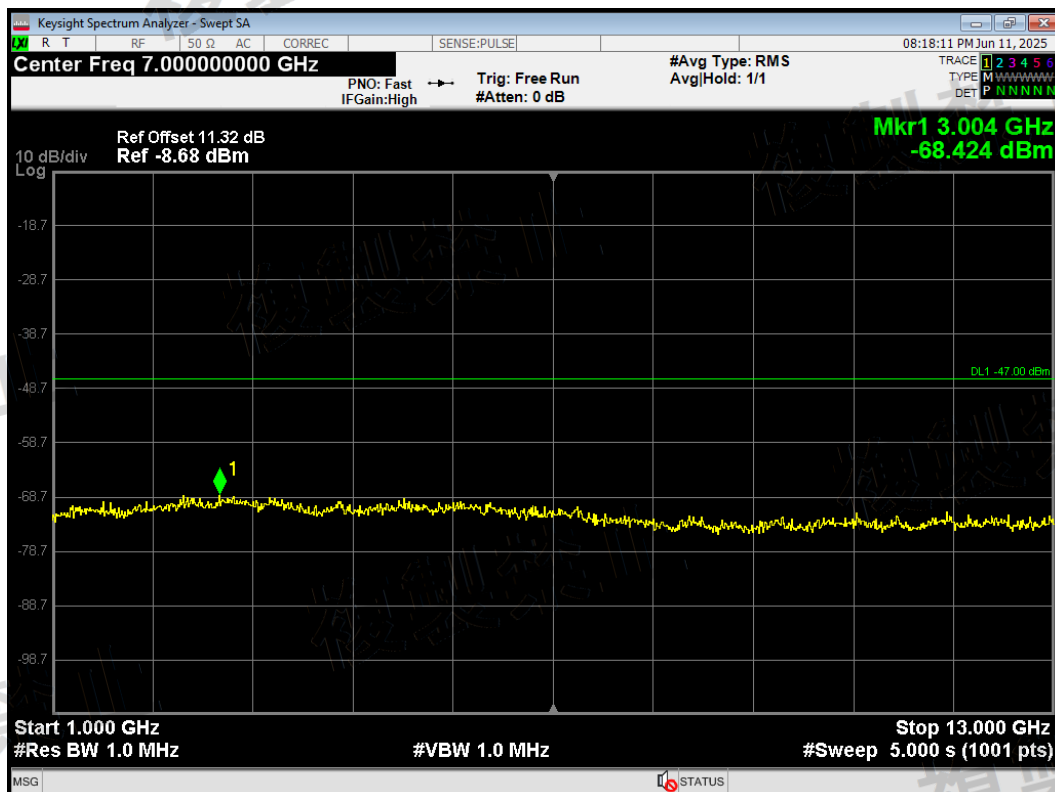
Rx. Spurious 802.11n(HT20) 2442MHz @ 1000MHz-13000MHz



Rx. Spurious 802.11n(HT20) 2472MHz @ 30MHz-1000MHz



Rx. Spurious 802.11n(HT20) 2472MHz @ 1000MHz-13000MHz



5.7. Carrier Sense Measurement

Ambient Condition

Temperature	Relative humidity	Pressure
25°C	50%	101.5kPa

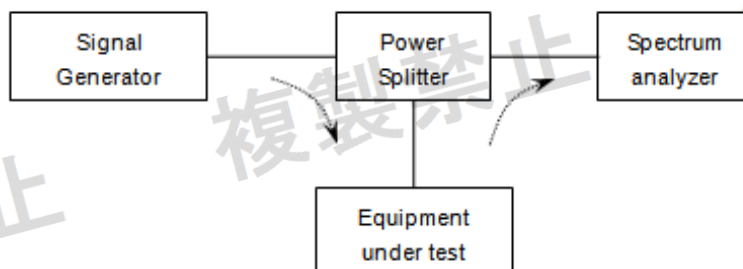
Method of Measurement

Set the spectrum analyzer as follow:

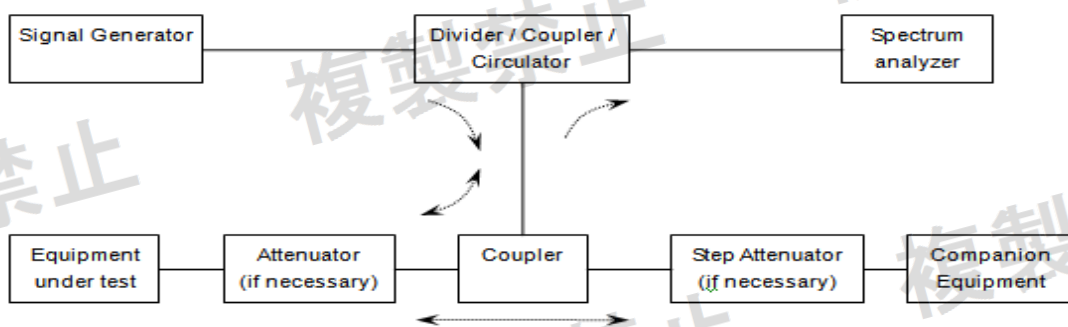
Resolution bandwidth: 1 MHz
 Video bandwidth: 1 MHz
 Sweep Time: AUTO (Minimum time to ensure measurement accuracy.)
 Sweep mode: Continuous Sweep
 Detection mode: Positive peak
 Storage Mode: Normal
 Y-axis scale: 10 dB/Div
 Trigger: Free Run

Test Setup

Carry out the test by Equipment under Test only (Necessary a Test Mode)



Carry out the test by using a companion equipment (Necessary actual communication)



Limit

During outputting Carrier Wave by Signal Generator, check the EUT does not transmit any waves (include the Beacon)

Test Results

Note: Only the OFDM with 40MHz bandwidth needs to be tested.

5.8. Radio Interference Prevention Capability Measurement

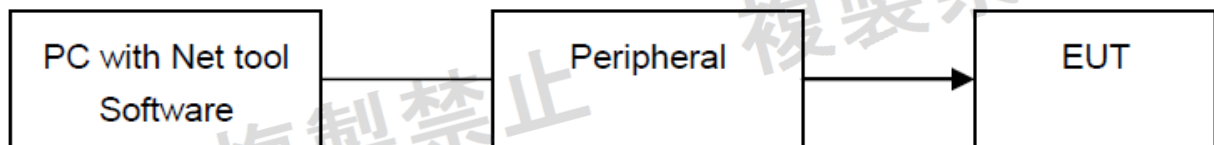
Ambient Condition

Temperature	Relative humidity	Pressure
25°C	50%	101.5kPa

Method of Measurement

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

Test Setup



Limit

Identification code $\geq$ 48 bits

Test Results

Test Mode	Test Frequency (MHz)	Identification code	Result
802.11b	2412	48	Pass
	2442	48	Pass
	2472	48	Pass

MAC address	<div>Device Wi-Fi MAC address</div> <div>7c:0c:92:12:2f:09</div>
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5.9. Construction Protection Confirmation Method

Ambient Condition

Temperature	Relative humidity	Pressure
25°C	50%	101.5kPa

Limit

The high-frequency section and modulation section of the radio equipment except for the antenna system shall not be capable of being opened easily.

Test Results:

Protected Method	RF and Modulation components are covered with shielding case and this shielding case is soldered.
Description	<p>Bluetooth/BLE/WIFI RF chip is protected since IC package type is QFN under the package and are not accessible to the user.</p> <p>Bluetooth/BLE/WIFI MCU pins are covered since IC package type is BGA – pins are soldered under the package and are not accessible to the user.</p> <p>Bluetooth/WIFI RF chip and Bluetooth/WIFI MCU are protected by shielding can.</p>

Photo



6. Uncertainty Measurement

Parameter	Uncertainty
RF Output Power	$\pm 1.25\text{dB}$
Frequency Error Measurement	$\pm 2.5 \times 10^{-7}$
Occupied Bandwidth and Spread-spectrum Bandwidth / Factor	$\pm 4.54\%$
Unwanted Emission Strength Measurement	$\pm 1.23\text{dB}$
Secondarily Emitted Radio Wave Strength	$\pm 1.12\text{ dB}$
Carrier Sense	$\pm 1.55\text{ dB}$

7. Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Unite	Date of Calibration	Expiry Date	Calibration Method
Power sensor	R&S	NRP18S	101954	CEPREI	2025-05-06	2026-05-05	c
Spectrum Analyzer	KEYSIGHT	N9020A	MY51330870	CEPREI	2025-05-06	2026-05-05	c
Multimeter	FLUKE	15B+	34210714WS	CEPREI	2025-05-06	2026-05-05	c
Vector Signal Generator	KEYSIGHT	N5182B	MY51350303	CTTL	2024-12-02	2025-12-01	c
Test software	MW	MTS8310	/	/	/	/	c

Calibration Method:

- a) 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)
- b) Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992)
- c) 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)
- d) 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)

ANNEX A: The EUT Appearance

The EUT Appearance are submitted separately.

ANNEX B: Test Setup Photos

The Test Setup Photos are submitted separately.

*****END OF REPORT *****