RF TEST REPORT

Report No.....:	20260102G04109X-W2
Product Name.....:	Unmanned Surface Vehicle
Model No.....:	HydroBoat990
Applicant.....:	Geosolution i Goteborg AB
Applicant Address.....:	Stora Avagen 21, 436 34 ASKIM, Sweden
Dates of Testing.....:	2026-01-29 to 2026-02-27
Issued by.....:	CCIC Southern Testing Co., Ltd.
Lab Location.....:	Electronic Testing Building, No.43, Shahe Road, Xili Street, Nanshan District, Shenzhen, Guangdong, China.
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Test Report

Product.....:	Unmanned Surface Vehicle
Trade Name .....:	SATLAB GEOSOLUTIONS
Applicant.....:	Geosolution i Goteborg AB
Applicant Address.....:	Stora Avagen 21, 436 34 ASKIM, Sweden
Manufacturer.....:	Geosolution i Goteborg AB
Manufacturer Address.....:	Stora Avagen 21, 436 34 ASKIM, Sweden
Factory.....:	Geosolution i Goteborg AB
Factory Address.....:	Stora Avagen 21, 436 34 ASKIM, Sweden
Test Standards.....:	Article 2 paragraph 1 item (19) MIC Notice No.88 Appendix No.43
Test Result.....:	Pass

Tested by .....: Chuiwang Zhang 2026-04-22

Chuiwang Zhang, Test Engineer

Reviewed by.....: Sun Jiaohui 2026-04-22

Sun Jiaohui, Senior Engineer

Approved by.....: Wang Shijie 2026-04-22

Wang Shijie, Manager

Table of Contents

1. GENERAL INFORMATION 4
1.1. Description of EUT 4
1.2. Test Standards and Results 5
1.3. Description of test modes 6
1.4. Test environment 7
1.5. Measurement Uncertainty 7
1.6. Accreditation Certificate 8
2. TRANSMITTER RESULTS 9
2.1. Frequency Error Measurement 9
2.2. Occupied Bandwidth 13
2.3. Antenna Power and Deviation Measurement 17
2.4. Unwanted Emission Intensity Measurement 19
2.5. Secondary Rmissions of Receiver Measurement 30
2.6. Transmitting antenna absolute gain Measurement 44
2.7. Main lobe width of transmitting antenna Measurement 47
2.8. Radio Interference Prevention Capability Measurement 49
2.9. Carrier Sense Capability Measurement 51
2.10. Construction Protection Confirmation Method 53
3. TEST EQUIPMENTS LIST 54
ANNEX A PHOTOS OF THE EUT 55
ANNEX B PHOTOS OF TEST SETUP 56

Change History		
Issue	Date	Reason for change
1.0	2026-04-22	First edition

1. General Information

1.1. Description of EUT

Product Name	Unmanned Surface Vehicle
Hardware Version	PCBA-20220127
Software Version	V3.1.3
Power Supply	Name: Rechargeable Lithium ion Battery Model: BL-24HA Capacity: 32.4V/25Ah(Typical)/32.4V/24Ah(Rated)/777.6Wh Nominal Voltage: 32.4V Max Charging Voltage: 37.8V
EUT supports Radios application	2.4G SRD 10MHz/20MHz
Modulation technology	GFSK
Frequency Range	10MHz: 2411-2466MHz 20MHz: 2411-2466MHz
Channel Number	10MHz: 6 20MHz: 6
Antenna Type	External antenna
Antenna Gain	Ant1: 5.72dBi Ant2: 5.72dBi

Note 1: The information of antenna gain and cable loss is provided by the manufacturer and our lab is not responsible for the accuracy of the antenna gain and cable loss information.

Note 2: This report is based on the original report 20260102G04109X-W1. The EUT has undergone changes to the product model, product label, and external dimensions; however, other internal components, the power supply, circuit design, wiring diagrams, wireless functionality, and internal structure remain essentially the same as the prototype (HydroBoat1200), and therefore do not require retesting.

1.2. Test Standards and Results

The EUT has been tested according to MIC Notice No.88 Appendix No.43.

No.	Identity	Document Title
1	MIC Notice No.88 Appendix No.43	Radio Frequency Devices

Test detailed items/section required by MIC rules and results are as below:

Part	Section in MIC	Description	Result
2.1	3	Frequency Error	PASS
2.2	4	Occupied Bandwidth	PASS
2.3	6	Antenna Power and deviation Measurement	PASS
2.4	5	Unwanted Emission Intensity	PASS
2.5	7	Secondary Rmissions of Receiver	PASS
2.6	10	Transmitting antenna absolute gain	N/A
2.7	11	Main lobe width of transmitting antenna	N/A
2.8	12	Radio Interference Prevention Capability	PASS
2.9	8	Carrier Sense Capability	NA Note 1
2.10	Note 2	Construction Protection Confirmation	PASS

Note 1: Testing is only required OFDM system with occupied frequency bandwidth below 40 MHz and exceed 26 MHz.

Note 2: MIC Ordinance Regulating Radio Equipment Section 4.17 of Article 49.20.

Note 3: N/A means not applicable.

1.3. Description of test modes

6 channels are provided for 2.4G SRD 10MHz/20MHz.

Channel	Frequency(MHz)	Channel	Frequency(MHz)	Channel	Frequency(MHz)
1	2411	3	2433	5	2455
2	2422	4	2444	6	2466

Select test channel and data rate for 2.4G SRD.

For Frequency band 2412 ~ 2472 MHz				
Test Mode	Low Channel	Mid Channel	High Channel	Modulation
2.4G SRD 10MHz	1	4	6	GFSK
2.4G SRD 20MHz	1	4	6	GFSK
Note 1: After scanning all modulation types and data rates for all test patterns, the above list was found to be the worst case.				

1.4. Test environment

Operating Environment	
Temperature	23.5℃
Humidity	57 % RH
Atmospheric Pressure	1010 mbar

For extreme voltage test, we have tested the relationship between the external power supply and RF IC powersupply. Base on the test results, only the normal voltage was selected to perform all items.The details information as below:

External power supply	Test Point	Deviation from normal	Deviation
32.40 Vdc	3.3 Vdc	---	---
29.16 Vdc	3.3 Vdc	0.00 Vdc	0.00%
35.64 Vdc	3.3 Vdc	0.00 Vdc	0.00%
Note: The chip voltage regulation is 3.3 Vdc.			

1.5. Measurement Uncertainty

Test Items	Uncertainty	Remark
Frequency Error / 99% & 90% Bandwidth	$\pm 1.75\times10^{-6}$	Confidence levels of 95%
Antenna Power	±0.849 dB	Confidence levels of 95%
TX-RX Spurious Emissions	±0.614 dB	Confidence levels of 95%
Transmission Antenna Gain	±2.49d B	Confidence levels of 95%
Temperature	±0.8℃	Confidence levels of 95%
Humidity	±4.1%	Confidence levels of 95%
DC / AC Power Source	±0.04%	Confidence levels of 95%

1.6. Accreditation Certificate

☒**CCIC-SET Lab 1**

Address: Electronic Testing Building, No.43, Shahe Road, Xili Street, Nanshan District, Shenzhen, Guangdong, China

ISED Registration: 11185A, CAB number: CN0064

CCIC Southern Testing Co., Ltd. EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 11185A.

A2LA Code: 5721.01

CCIC-SET is a third party testing organization accredited by A2LA according to ISO/IEC 17025. The accreditation certificate number is 5721.01.

CNAS L1659

CCIC Southern Testing Co., Ltd. CCIC is a third party testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L1659.

☐**CCIC-SET Lab 4**

Address: No.125, Hongmei Section, Wangsha Road, Hongmei Town, Dongguan City, Guangdong Province, China

CNAS L1659

CCIC Southern Testing Co., Ltd. CCIC is a third party testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L1659.

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2. Transmitter Results

2.1. Frequency Error Measurement

2.1.1. Limits

Item	Limits
Frequency Tolerance	≤ ±50 ppm

2.1.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.1.3. Test Procedures

1 Frequency accuracy of SA shall be less than 10% of limits tolerance (50 ppm).

2 Setting of SA is following as: RBW: 10 kHz / VBW: 10 kHz / Span: 40 MHz.

3 Center Frequency: The center frequency of testing for EUT.

4 Sweep time: Auto / Sweep mode: Continuous sweep.

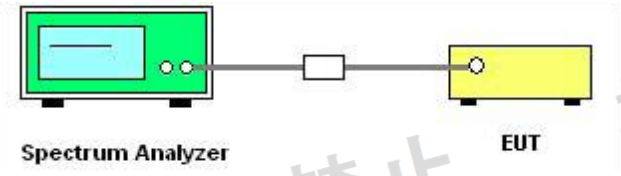
5 Detect mode: Positive peak / Trace mode: Max hold.

6 The peak value of the power envelope shall be measured and noted. The span shall be reduced and the marker moved in a positive frequency increment until the upper, (relative to the centre frequency), -10 dBc point is reached. This value shall be noted as f1.

7 The marker shall then be moved in a negative frequency increment until the lower, (relative to the centre frequency), -10 dBc point is reached. This value shall be noted as f2.

8 The centre frequency is calculated as fc = (f1 + f2) / 2. Then the frequency error formula is (f-fc)/fc×10^6 ppm and the limit is less than ±50 ppm.

2.1.4. Test Setup Layout



2.1.5. Test Setup Deviation

There is no deviation with the original standard.

2.1.6. Test Setup Deviation

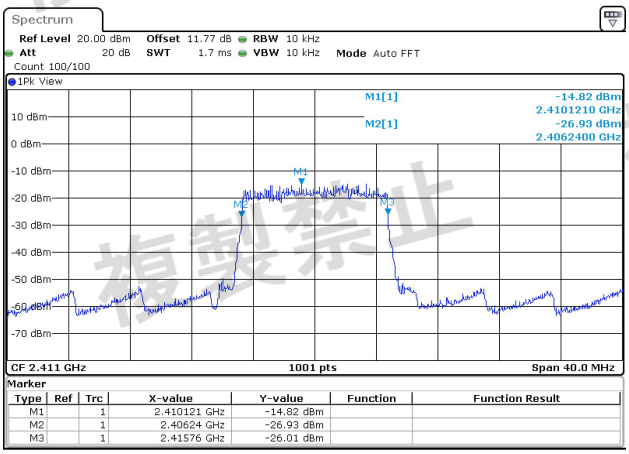
The EUT was placed on the test table and programmed in modulation function.

2.1.7. Test Results of Frequency Error

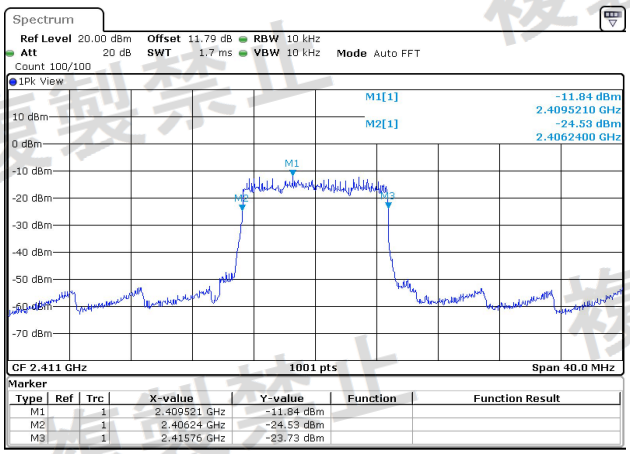
Test Mode	Antenna	Freq. [MHz]	Center Freq [MHz]	Result [ppm]	Limit [ppm]	Verdict
2.4G_MIMO_10M	Ant1	2411	2411	0.00000	±50	PASS
2.4G_MIMO_10M	Ant2	2411	2411	0.00000	±50	PASS
2.4G_MIMO_10M	Ant1	2444	2444	0.00000	±50	PASS
2.4G_MIMO_10M	Ant2	2444	2444	0.00000	±50	PASS
2.4G_MIMO_10M	Ant1	2466	2466	0.00000	±50	PASS
2.4G_MIMO_10M	Ant2	2466	2466	0.00000	±50	PASS
2.4G_MIMO_20M	Ant1	2411	2411	0.00000	±50	PASS
2.4G_MIMO_20M	Ant2	2411	2410.98	-8.29531	±50	PASS
2.4G_MIMO_20M	Ant1	2444	2444.02	8.18331	±50	PASS
2.4G_MIMO_20M	Ant2	2444	2444	0.00000	±50	PASS
2.4G_MIMO_20M	Ant1	2466	2466	0.00000	±50	PASS
2.4G_MIMO_20M	Ant2	2466	2466	0.00000	±50	PASS

Test Graphs

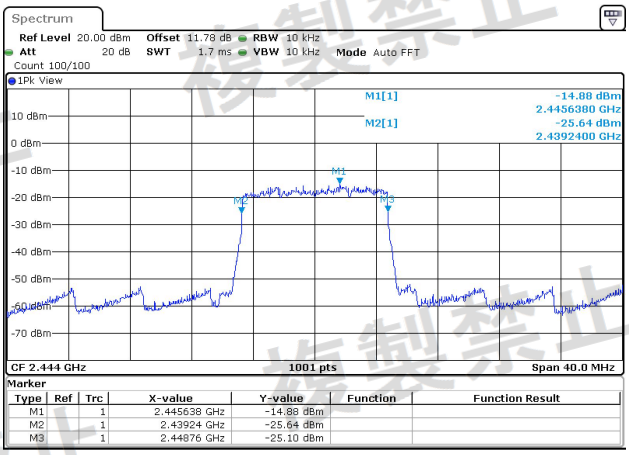
NTNV-2.4G_MIMO_10M-Ant1-2411-PASS



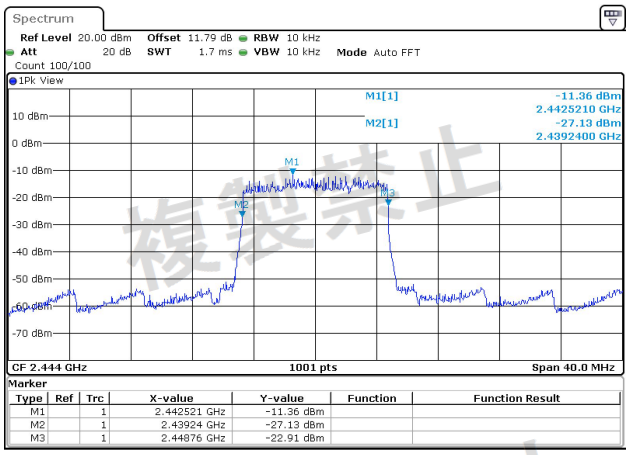
NTNV-2.4G_MIMO_10M-Ant2-2411-PASS



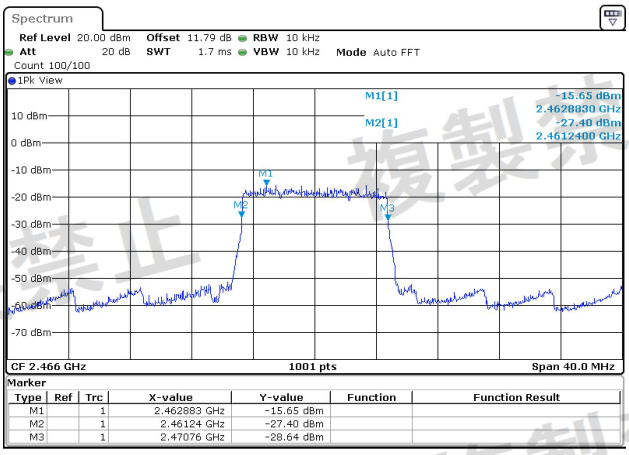
NTNV-2.4G_MIMO_10M-Ant1-2444-PASS



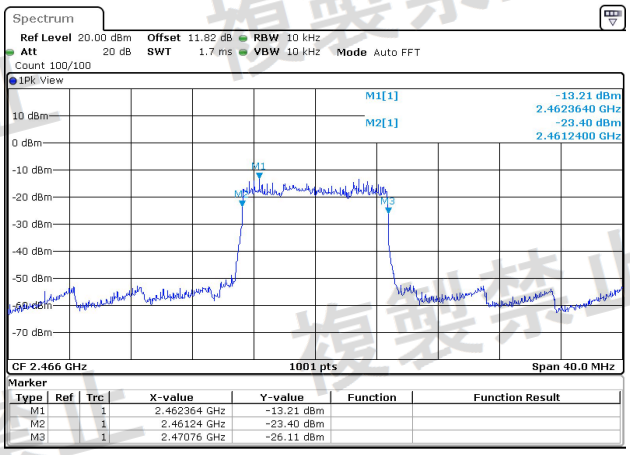
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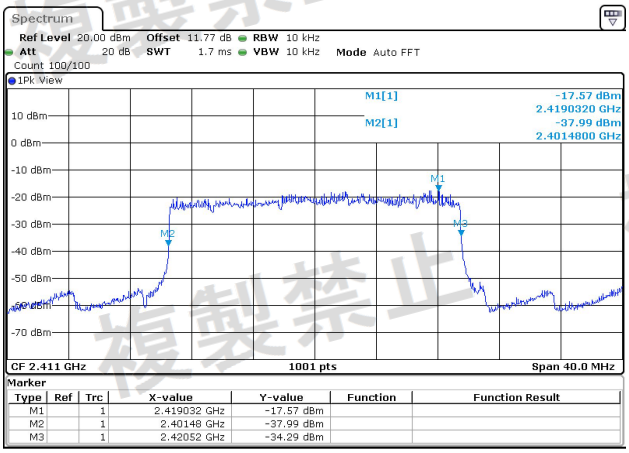
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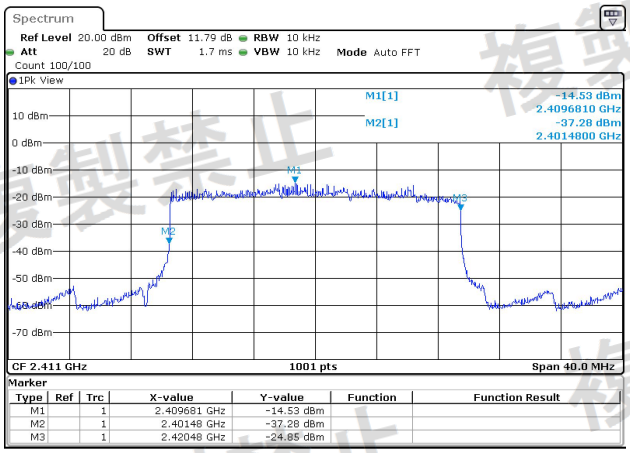
NTNV-2.4G_MIMO_10M-Ant2-2466-PASS



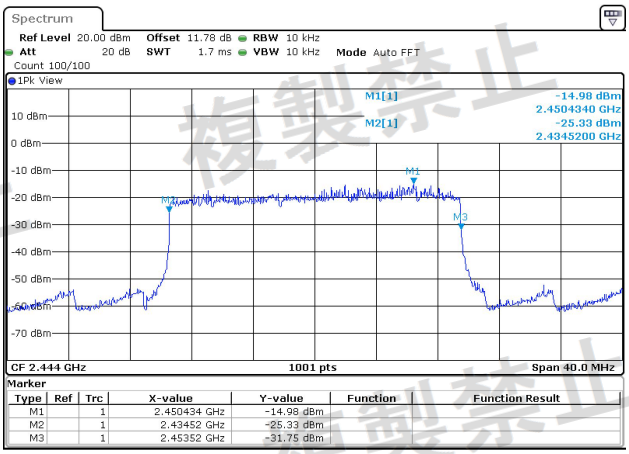
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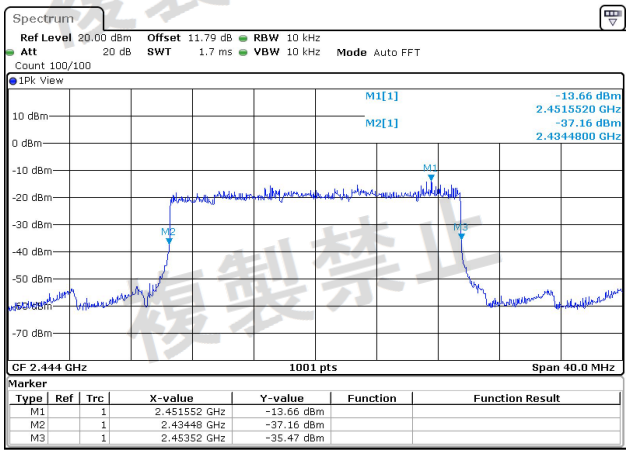
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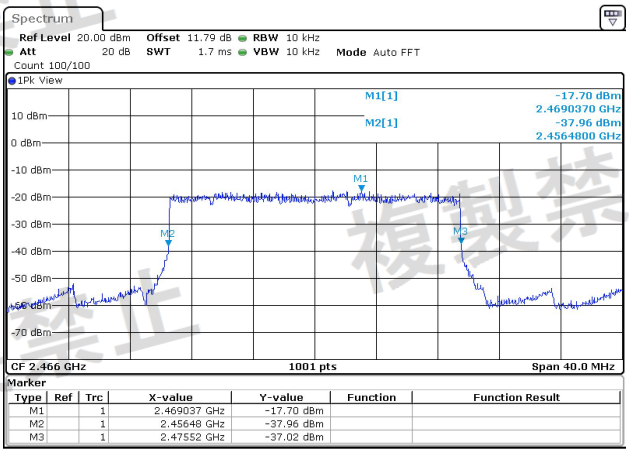
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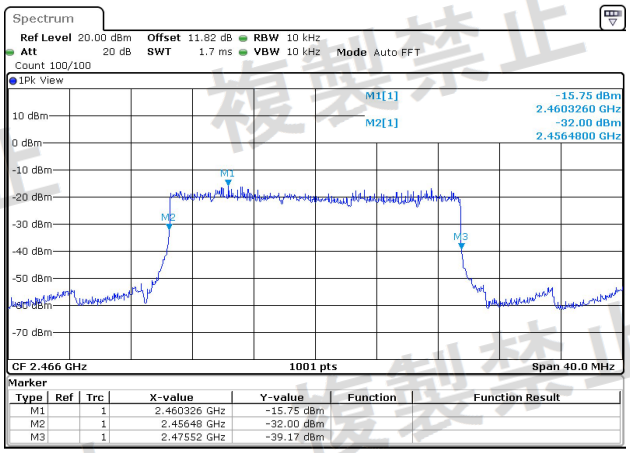
NTNV-2.4G_MIMO_20M-Ant2-2444-PASS



NTNV-2.4G_MIMO_20M-Ant1-2466-PASS



NTNV-2.4G_MIMO_20M-Ant2-2466-PASS



2.2. Occupied Bandwidth

2.2.1. Limits

Item	Limits
Occupied Bandwidth	OFDM, DS ≤ 26 MHz (Narrow Bandwidth); OFDM, DS ≥ 26 MHz, ≤ 40 MHz (Wide Bandwidth)

2.2.2. Measuring Instruments

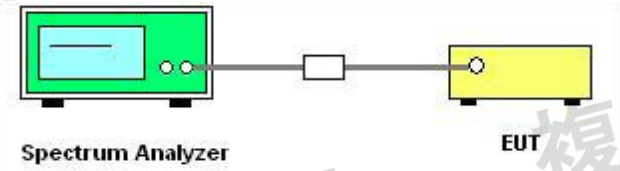
The measuring equipment is listed in the section 3 of this test report.

2.2.3. Test Procedures

1 Setting of SA is following as: RBW: 300kHz / VBW: 300kHz / SPAN: 52MHz or 80MHz / Sweep time: Auto /Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold.

2 EUT have transmitted the maximum modulation signal and fixed channelize (For DSSS or OFDM Device) or continuous maximum power of hopping mode (For FHSS Device). SA set to 99% of occupied bandwidth to measure occupied bandwidth. The limit is less than 26 MHz (For DSSS or OFDM Device) or 83.5 MHz (For FHSS Device).

2.2.4. Test Setup Layout



2.2.5. Test Deviation

There is no deviation with the original standard.

2.2.6. EUT Operation during Test

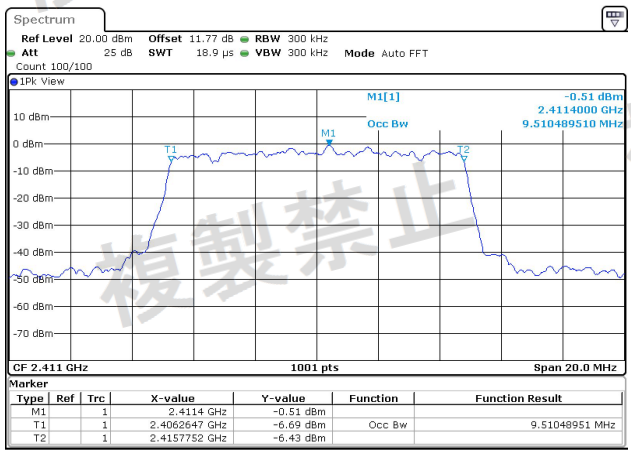
The EUT was programmed to be in continuously transmitting mode.

2.2.7. Test Result of Occupied Bandwidth

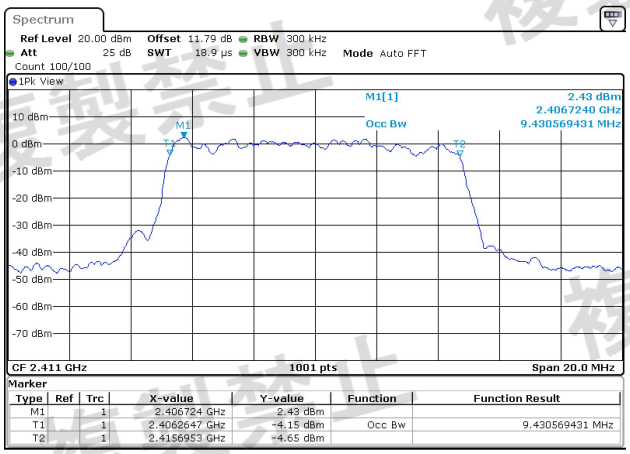
Test Mode	Antenna	Freq. [MHz]	Result [MHz]	Limit [MHz]	Verdict
2.4G_MIMO_10M	Ant1	2411	9.510	≤26	PASS
2.4G_MIMO_10M	Ant2	2411	9.431	≤26	PASS
2.4G_MIMO_10M	Ant1	2444	9.530	≤26	PASS
2.4G_MIMO_10M	Ant2	2444	9.451	≤26	PASS
2.4G_MIMO_10M	Ant1	2466	9.510	≤26	PASS
2.4G_MIMO_10M	Ant2	2466	9.391	≤26	PASS
2.4G_MIMO_20M	Ant1	2411	18.701	≤26	PASS
2.4G_MIMO_20M	Ant2	2411	18.753	≤26	PASS
2.4G_MIMO_20M	Ant1	2444	18.805	≤26	PASS
2.4G_MIMO_20M	Ant2	2444	18.701	≤26	PASS
2.4G_MIMO_20M	Ant1	2466	18.805	≤26	PASS
2.4G_MIMO_20M	Ant2	2466	18.805	≤26	PASS

Test Graphs

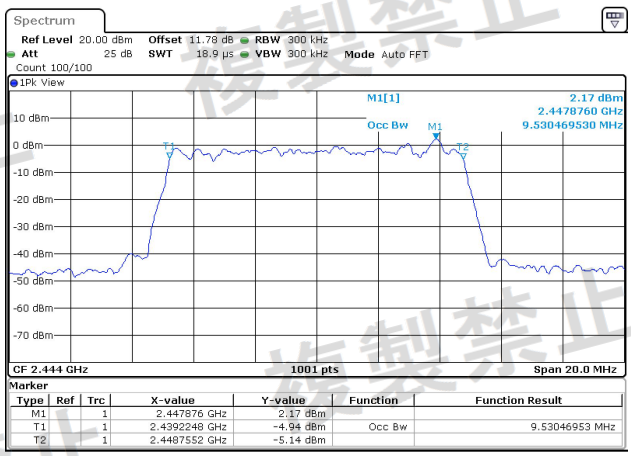
NTNV-2.4G_MIMO_10M-Ant1-2411-PASS



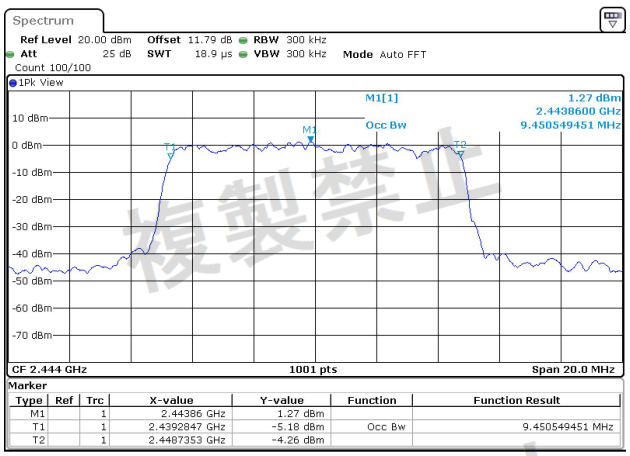
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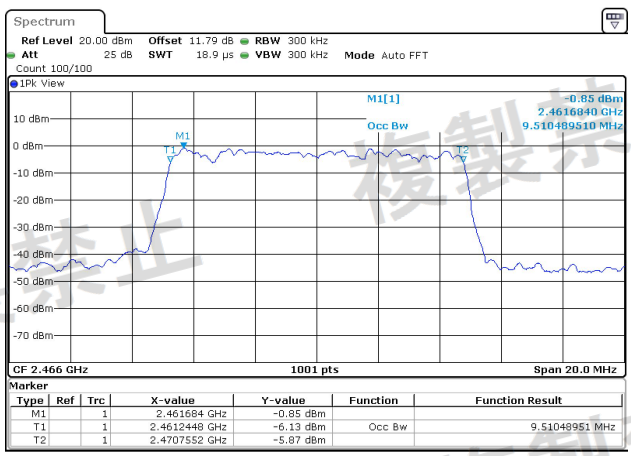
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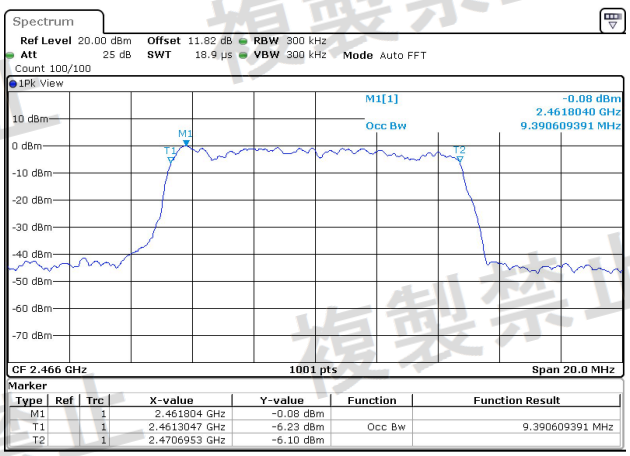
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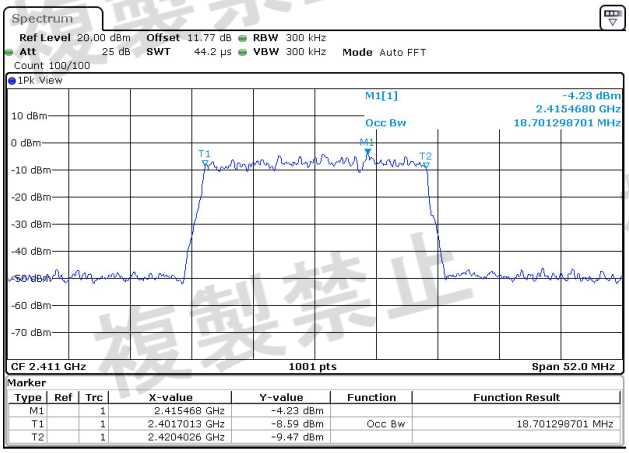
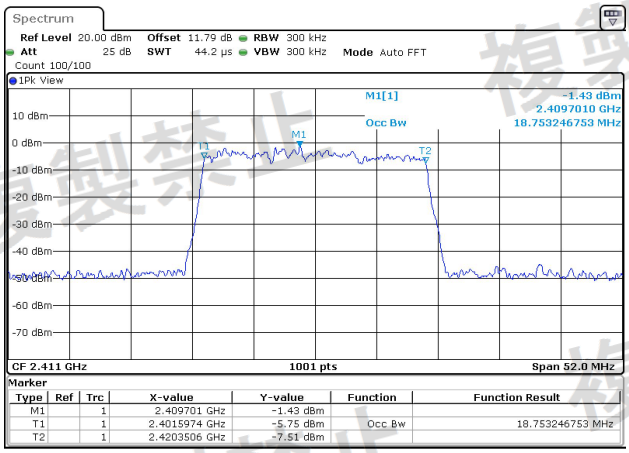
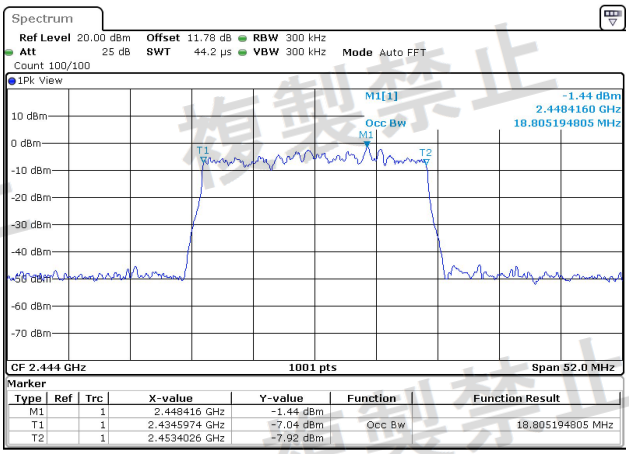
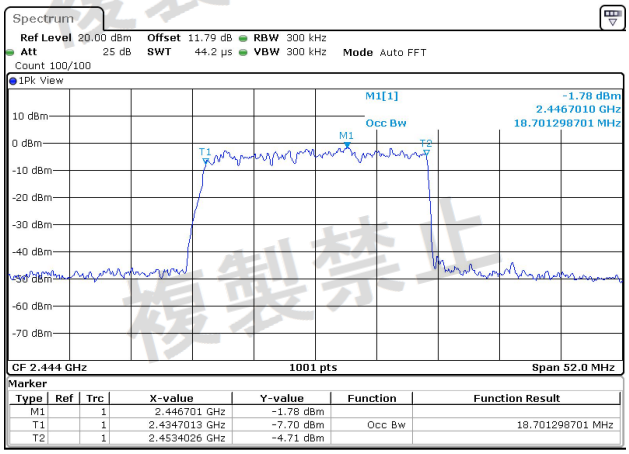
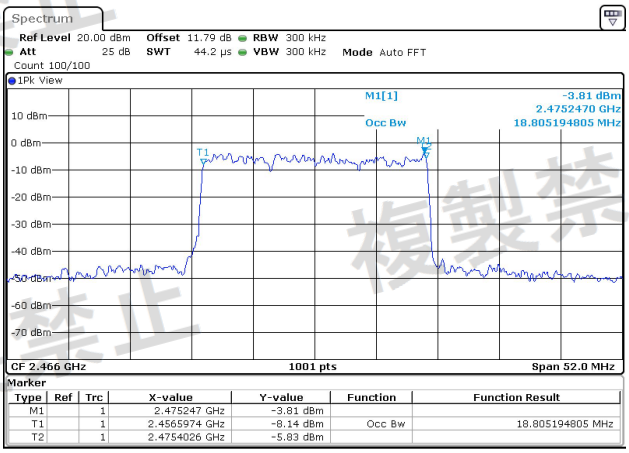
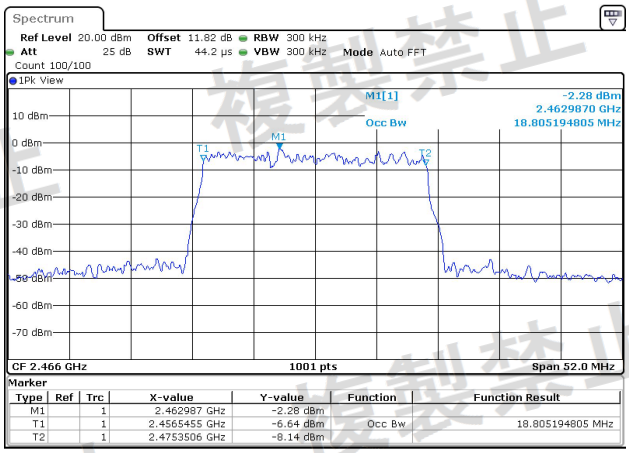


NTNV-2.4G_MIMO_10M-Ant1-2466-PASS



NTNV-2.4G_MIMO_10M-Ant2-2466-PASS



NTNV-2.4G_MIMO_20M-Ant1-2411-PASS	NTNV-2.4G_MIMO_20M-Ant2-2411-PASS
	
NTNV-2.4G_MIMO_20M-Ant1-2444-PASS	NTNV-2.4G_MIMO_20M-Ant2-2444-PASS
	
NTNV-2.4G_MIMO_20M-Ant1-2466-PASS	NTNV-2.4G_MIMO_20M-Ant2-2466-PASS
	

2.3. Antenna Power and Deviation Measurement

2.3.1. Limits

Item	Limits
Antenna Power	≤ 10 mW/MHz (OFDM, DS OBW less than 26 MHz) ≤ 5 mW/MHz (OFDM for OBW between 26 MHz and 40 MHz)
Antenna Power deviation	+20%

2.3.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

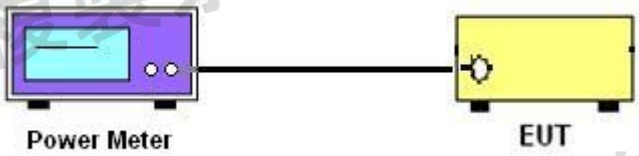
2.3.3. Test Procedure

1 Connect the EUT's RF output port to the power meter input port to measure the total power.

2 Calculated the Maximum deviation and recorded the results.

Deviation = (Antenna Power - Rated Output Power) / Rated Output Power * 100%.

2.3.4. Test Setup



2.3.5. Test Deviation

There is no deviation with the original standard.

2.3.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

2.3.7. Test Result of Antenna Power and Deviation

Antenna Power:

Test Mode	Antenna	Freq. [MHz]	Power [dBm]	Power [mW]	Limit [mW]	Verdict
2.4G_MIMO_10M	Ant1	2411	-4.73	0.3365	≤10	PASS
2.4G_MIMO_10M	Ant2	2411	-2.93	0.5093	≤10	PASS
2.4G_MIMO_10M	total	2411	-0.73	0.8458	≤10	PASS
2.4G_MIMO_10M	Ant1	2444	-3.92	0.4055	≤10	PASS
2.4G_MIMO_10M	Ant2	2444	-3.68	0.4285	≤10	PASS
2.4G_MIMO_10M	total	2444	-0.79	0.8340	≤10	PASS
2.4G_MIMO_10M	Ant1	2466	-5.19	0.3027	≤10	PASS
2.4G_MIMO_10M	Ant2	2466	-4.55	0.3508	≤10	PASS
2.4G_MIMO_10M	total	2466	-1.85	0.6535	≤10	PASS
2.4G_MIMO_20M	Ant1	2411	-6.91	0.2037	≤10	PASS
2.4G_MIMO_20M	Ant2	2411	-6.08	0.2466	≤10	PASS
2.4G_MIMO_20M	total	2411	-3.46	0.4503	≤10	PASS
2.4G_MIMO_20M	Ant1	2444	-6.22	0.2388	≤10	PASS
2.4G_MIMO_20M	Ant2	2444	-4.48	0.3565	≤10	PASS
2.4G_MIMO_20M	total	2444	-2.25	0.5953	≤10	PASS
2.4G_MIMO_20M	Ant1	2466	-7.04	0.1977	≤10	PASS
2.4G_MIMO_20M	Ant2	2466	-5.98	0.2523	≤10	PASS
2.4G_MIMO_20M	total	2466	-3.47	0.4500	≤10	PASS

Antenna Power Deviation:

Test Mode	Antenna	Freq. [MHz]	Power [mW]	Rated Power [mW]	Result [%]	Limit [%]	Verdict
2.4G_MIMO_10M	total	2411	0.8458	1	-15.42	+20	PASS
2.4G_MIMO_10M	total	2444	0.8340	1	-16.60	+20	PASS
2.4G_MIMO_10M	total	2466	0.6535	1	-34.65	+20	PASS
2.4G_MIMO_20M	total	2411	0.4503	1	-54.97	+20	PASS
2.4G_MIMO_20M	total	2444	0.5953	1	-40.47	+20	PASS
2.4G_MIMO_20M	total	2466	0.4500	1	-55.00	+20	PASS

Note: The rated power is declared by the manufacturer.

2.4. Unwanted Emission Intensity Measurement

2.4.1. Limits

Item	Limits
Unwanted Emission Intensit	≤ 2.5 μW (f < 2387 MHz; f > 2496.5 MHz) ≤ 25 μW (2387 MHz ≤ f < 2400 MHz) and (2483.5 MHz < f ≤ 2496.5 MHz)

2.4.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.4.3. Test Procedures

1 EUT have transmitted the maximum modulation signal and fixed channelize.

2 Setting of SA is following as: RBW:1 MHz / VBW:1 MHz / 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 μW.

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 μW.

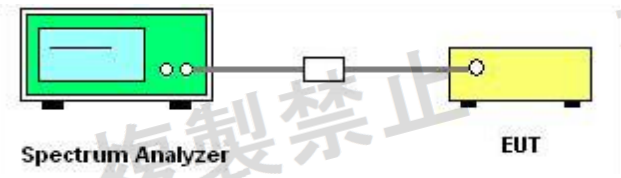
5 SA adjusted to start frequency 2387 MHz and stop frequency 2400 MHz. Then to mark peak reading value + cable loss shall be less than 25 μW.

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 μW.

7 SA adjusted to start frequency 2496.5 MHz and stop frequency 13000 MHz Then to mark peak reading value + cable loss shall be less than 2.5 μW.

8 If the Result Value is over the requirement, take total sum of 1 MHz band centered at the spur frequency like ACLP measurement as Result Value.

2.4.4. Test Setup Layout



2.4.5. Test Deviation

There is no deviation with the original standard.

2.4.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

2.4.7. Test Result of Unwanted Emission Intensity

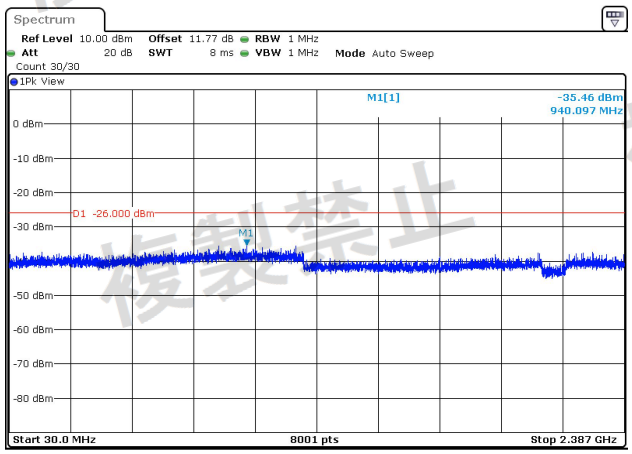
Test Mode	Antenna	Freq. [MHz]	Freq.Range [MHz]	Freq. [MHz]	Result [dBm/MHz]	Result [μW/MHz]	Limit [μW/MHz]	Verdict
2.4G_MIMO_10M	Ant1	2411	30~2387	940.10	-35.46	0.28445	≤2.5	PASS
2.4G_MIMO_10M	Ant2	2411	30~2387	766.27	-35.88	0.25823	≤2.5	PASS
2.4G_MIMO_10M	Ant1	2411	2387~2400	2394.06	-37.41	0.18155	≤25	PASS
2.4G_MIMO_10M	Ant2	2411	2387~2400	2397.82	-36.48	0.22491	≤25	PASS
2.4G_MIMO_10M	Ant1	2411	2483.5~2496.5	2489.16	-37.44	0.18030	≤25	PASS
2.4G_MIMO_10M	Ant2	2411	2483.5~2496.5	2493.05	-36.51	0.22336	≤25	PASS
2.4G_MIMO_10M	Ant1	2411	2496.5~13000	11574.60	-33.76	0.42073	≤2.5	PASS
2.4G_MIMO_10M	Ant2	2411	2496.5~13000	6948.11	-33.65	0.43152	≤2.5	PASS
2.4G_MIMO_10M	Ant1	2444	30~2387	916.23	-34.93	0.32137	≤2.5	PASS
2.4G_MIMO_10M	Ant2	2444	30~2387	744.47	-35.51	0.28119	≤2.5	PASS
2.4G_MIMO_10M	Ant1	2444	2387~2400	2387.81	-37.28	0.18707	≤25	PASS
2.4G_MIMO_10M	Ant2	2444	2387~2400	2388.06	-36.52	0.22284	≤25	PASS
2.4G_MIMO_10M	Ant1	2444	2483.5~2496.5	2493.61	-37.33	0.18493	≤25	PASS
2.4G_MIMO_10M	Ant2	2444	2483.5~2496.5	2492.45	-36.62	0.21777	≤25	PASS
2.4G_MIMO_10M	Ant1	2444	2496.5~13000	12796.75	-33.30	0.46774	≤2.5	PASS
2.4G_MIMO_10M	Ant2	2444	2496.5~13000	6923.42	-33.25	0.47315	≤2.5	PASS
2.4G_MIMO_10M	Ant1	2466	30~2387	959.84	-35.64	0.27290	≤2.5	PASS
2.4G_MIMO_10M	Ant2	2466	30~2387	1048.81	-35.89	0.25763	≤2.5	PASS
2.4G_MIMO_10M	Ant1	2466	2387~2400	2394.21	-37.26	0.18793	≤25	PASS
2.4G_MIMO_10M	Ant2	2466	2387~2400	2392.83	-36.95	0.20184	≤25	PASS
2.4G_MIMO_10M	Ant1	2466	2483.5~2496.5	2484.94	-37.23	0.18923	≤25	PASS
2.4G_MIMO_10M	Ant2	2466	2483.5~2496.5	2494.54	-36.51	0.22336	≤25	PASS
2.4G_MIMO_10M	Ant1	2466	2496.5~13000	6176.59	-33.26	0.47206	≤2.5	PASS
2.4G_MIMO_10M	Ant2	2466	2496.5~13000	5443.40	-33.24	0.47424	≤2.5	PASS
2.4G_MIMO_20M	Ant1	2411	30~2387	959.25	-35.11	0.30832	≤2.5	PASS
2.4G_MIMO_20M	Ant2	2411	30~2387	1074.45	-35.46	0.28445	≤2.5	PASS
2.4G_MIMO_20M	Ant1	2411	2387~2400	2399.95	-28.67	1.35831	≤25	PASS
2.4G_MIMO_20M	Ant2	2411	2387~2400	2399.96	-24.42	3.61410	≤25	PASS
2.4G_MIMO_20M	Ant1	2411	2483.5~2496.5	2489.09	-37.24	0.18880	≤25	PASS
2.4G_MIMO_20M	Ant2	2411	2483.5~2496.5	2495.13	-37.35	0.18408	≤25	PASS
2.4G_MIMO_20M	Ant1	2411	2496.5~13000	6948.63	-33.69	0.42756	≤2.5	PASS
2.4G_MIMO_20M	Ant2	2411	2496.5~13000	5904.01	-32.75	0.53088	≤2.5	PASS
2.4G_MIMO_20M	Ant1	2444	30~2387	989.59	-35.68	0.27040	≤2.5	PASS
2.4G_MIMO_20M	Ant2	2444	30~2387	830.50	-35.79	0.26363	≤2.5	PASS
2.4G_MIMO_20M	Ant1	2444	2387~2400	2396.91	-37.19	0.19099	≤25	PASS

2.4G_MIMO_20M	Ant2	2444	2387~2400	2387.70	-36.68	0.21478	≤25	PASS
2.4G_MIMO_20M	Ant1	2444	2483.5~2496.5	2487.47	-37.05	0.19724	≤25	PASS
2.4G_MIMO_20M	Ant2	2444	2483.5~2496.5	2491.82	-37.13	0.19364	≤25	PASS
2.4G_MIMO_20M	Ant1	2444	2496.5~13000	11205.39	-34.22	0.37844	≤2.5	PASS
2.4G_MIMO_20M	Ant2	2444	2496.5~13000	6968.59	-34.15	0.38459	≤2.5	PASS
2.4G_MIMO_20M	Ant1	2466	30~2387	936.27	-35.22	0.30061	≤2.5	PASS
2.4G_MIMO_20M	Ant2	2466	30~2387	499.04	-35.55	0.27861	≤2.5	PASS
2.4G_MIMO_20M	Ant1	2466	2387~2400	2398.40	-37.70	0.16982	≤25	PASS
2.4G_MIMO_20M	Ant2	2466	2387~2400	2390.41	-37.41	0.18155	≤25	PASS
2.4G_MIMO_20M	Ant1	2466	2483.5~2496.5	2486.27	-36.58	0.21979	≤25	PASS
2.4G_MIMO_20M	Ant2	2466	2483.5~2496.5	2484.85	-36.95	0.20184	≤25	PASS
2.4G_MIMO_20M	Ant1	2466	2496.5~13000	5295.82	-33.44	0.45290	≤2.5	PASS
2.4G_MIMO_20M	Ant2	2466	2496.5~13000	11208.54	-33.39	0.45814	≤2.5	PASS

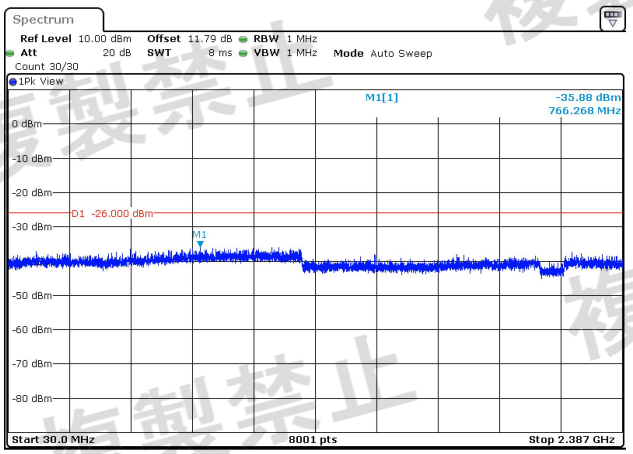
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Test Graphs

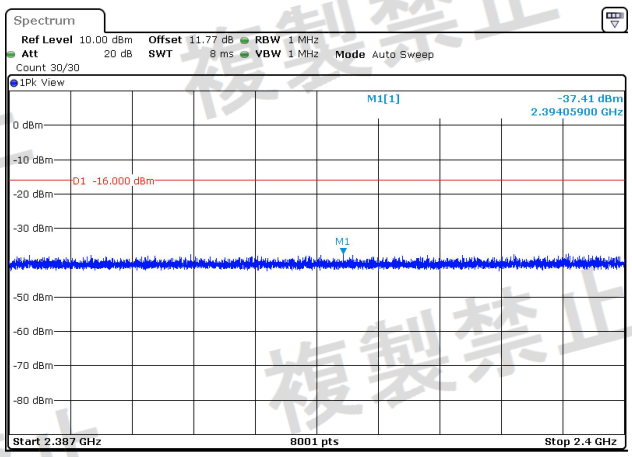
NTNV-2.4G_MIMO_10M-Ant1-2411-30~2387-PASS



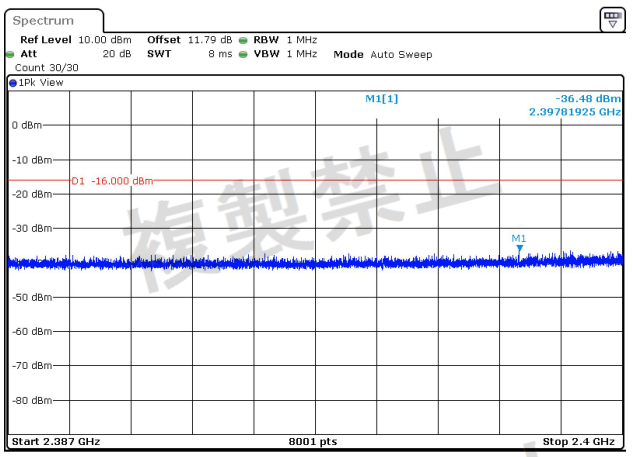
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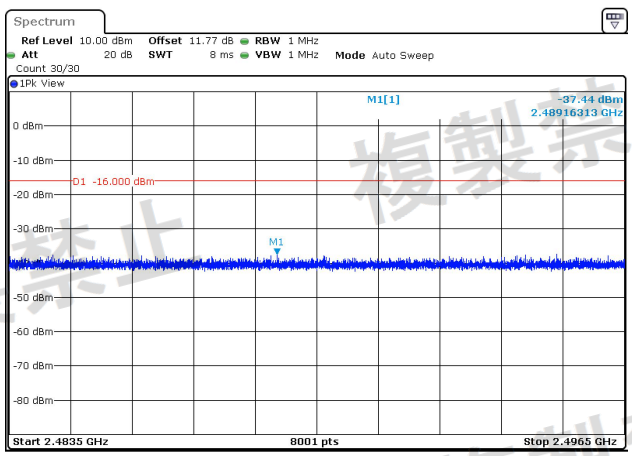
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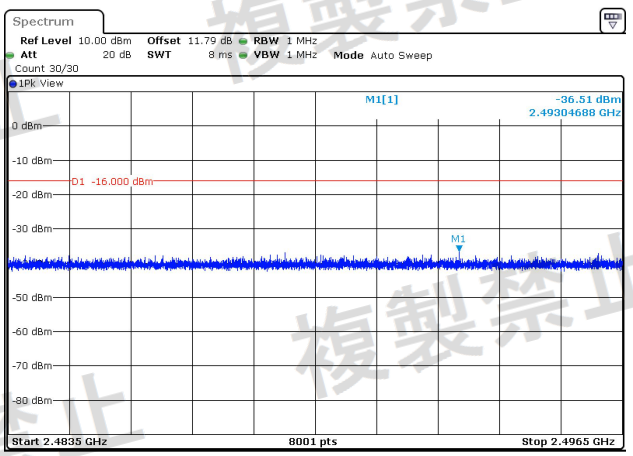
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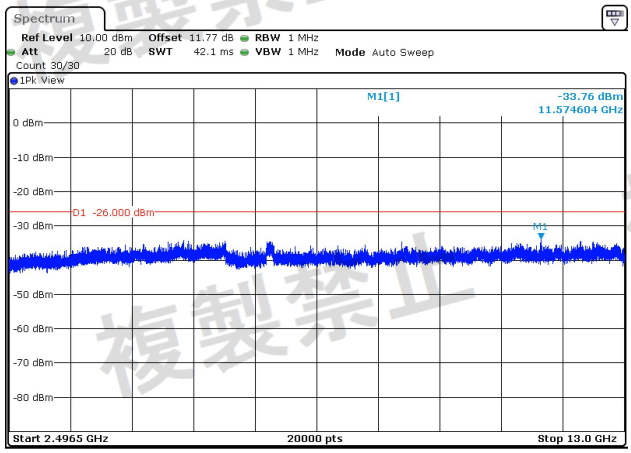
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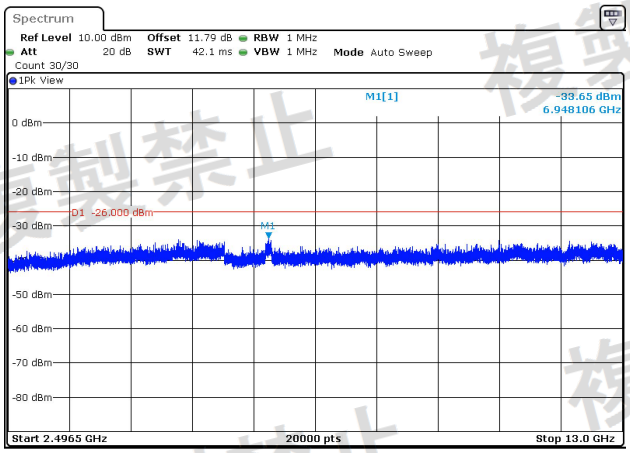
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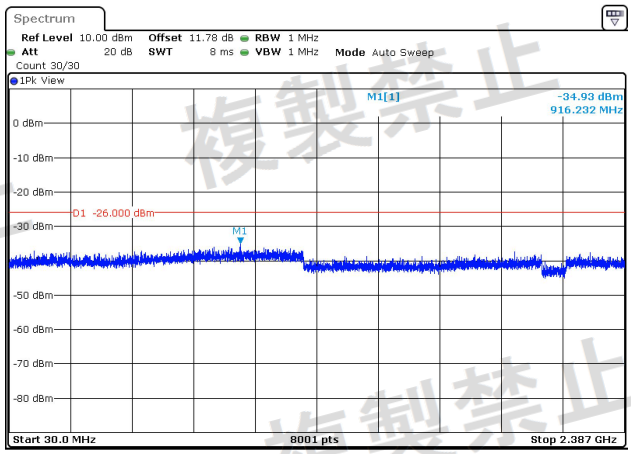
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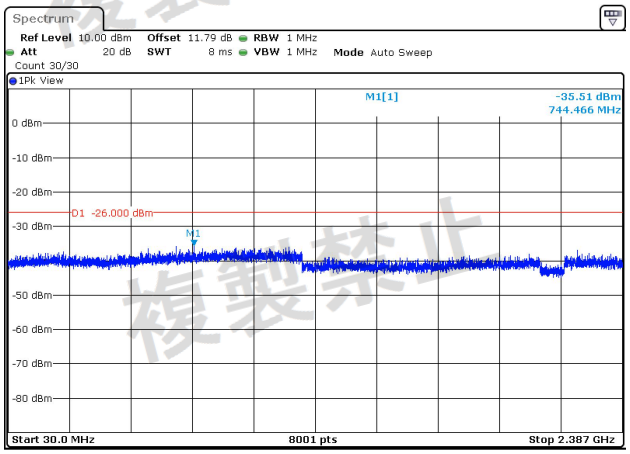
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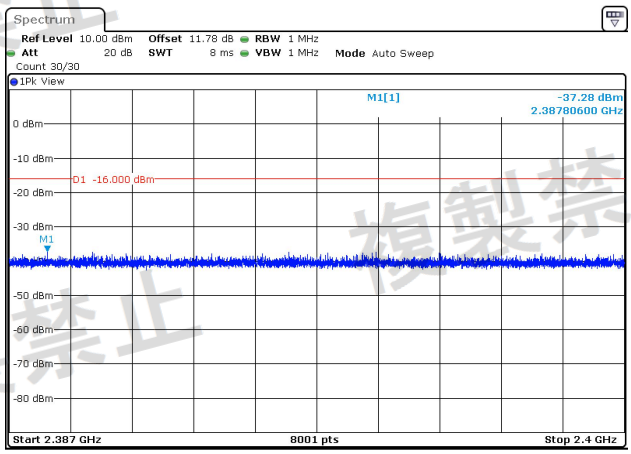
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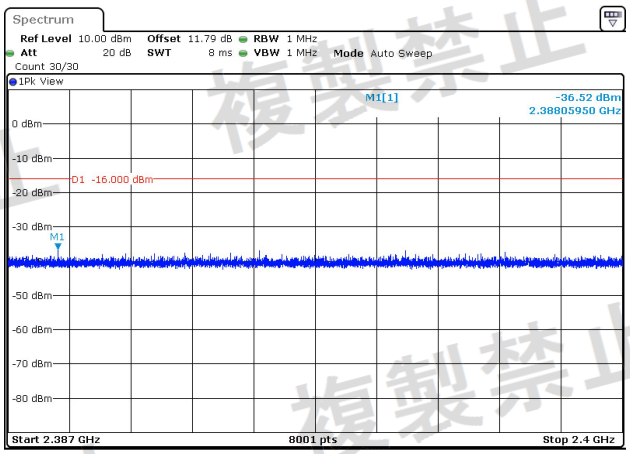
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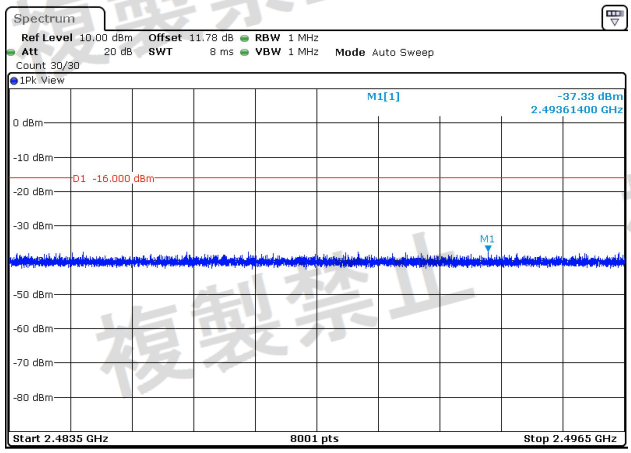
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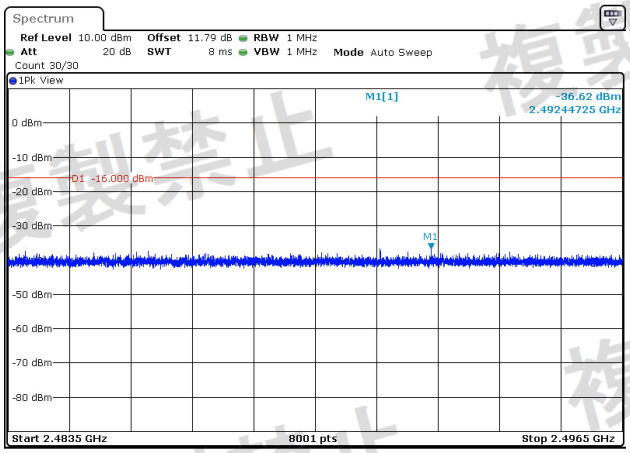
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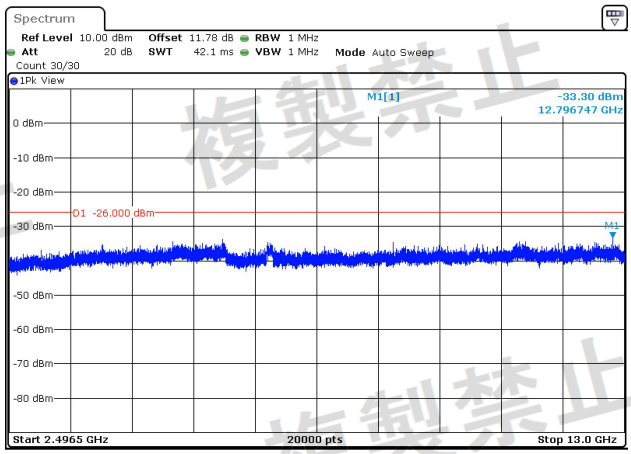
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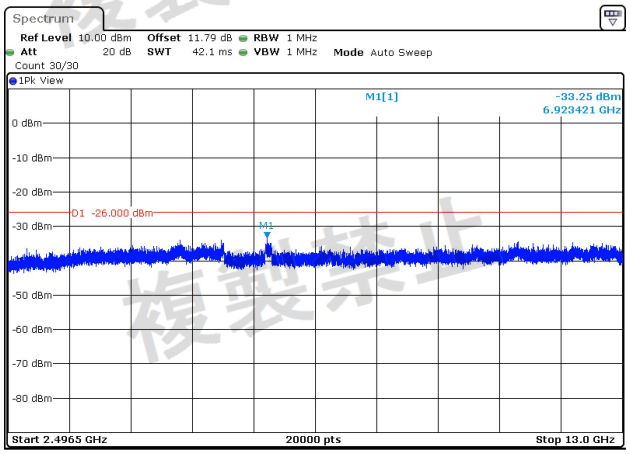
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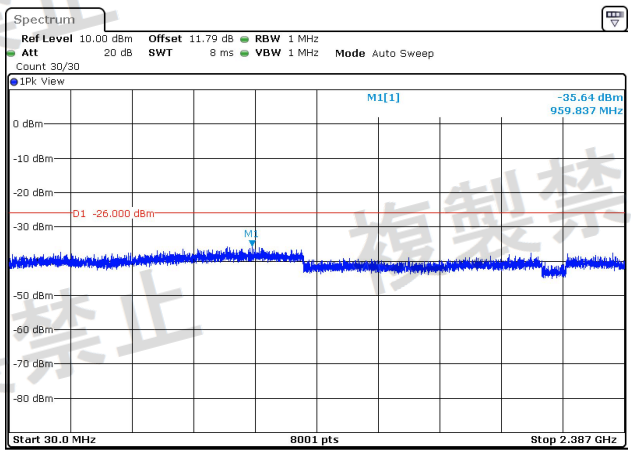
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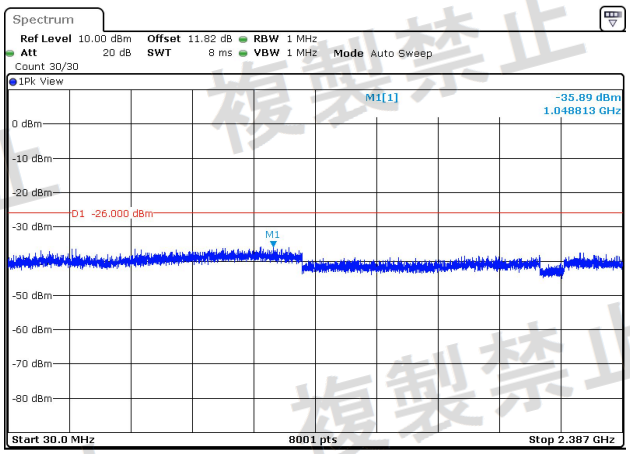
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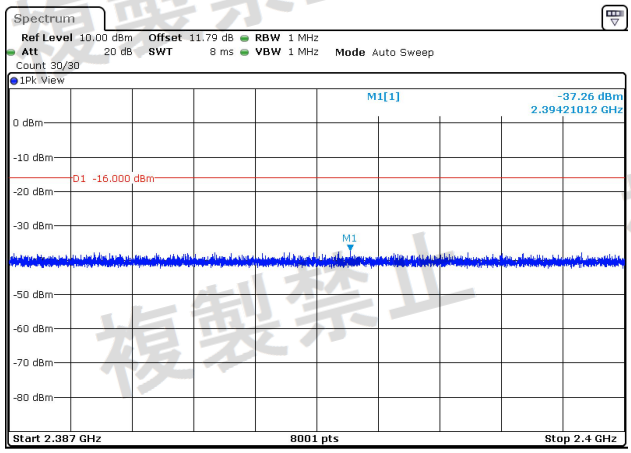
NTNV-2.4G_MIMO_10M-Ant1-2466-30~2387-PASS



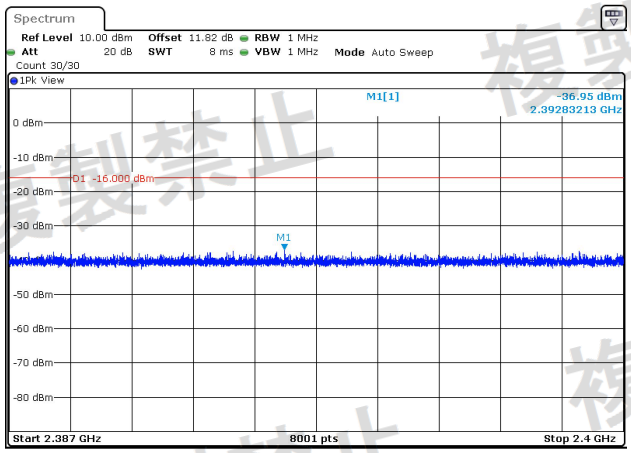
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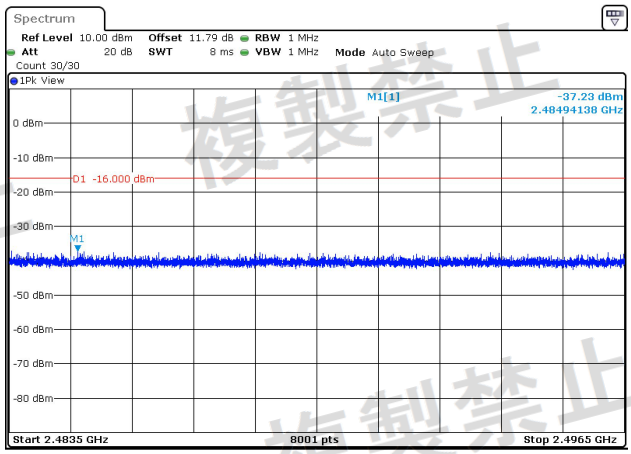
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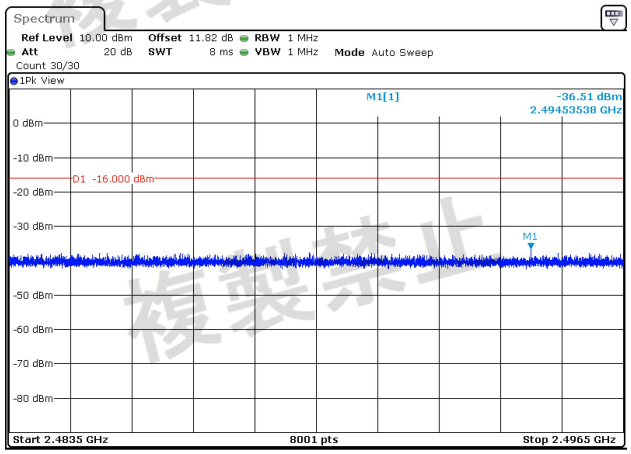
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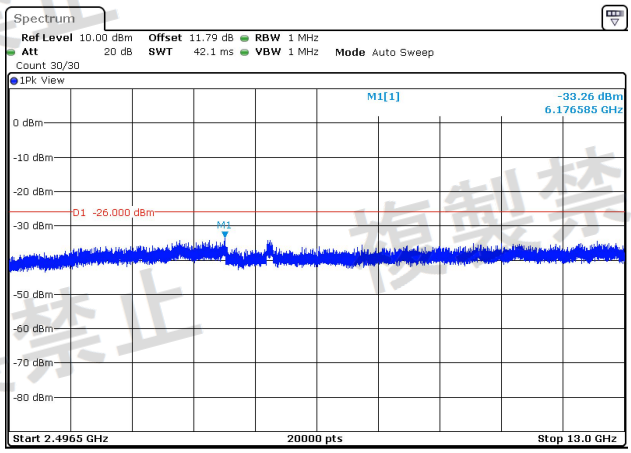
NTNV-2.4G_MIMO_10M-Ant1-2466-2483.5~2496.5-PASS



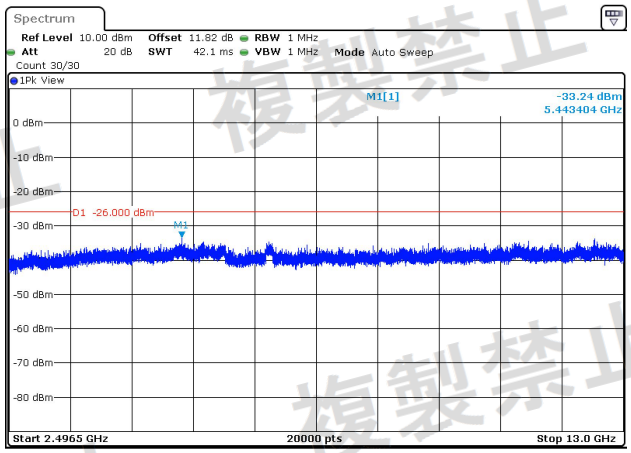
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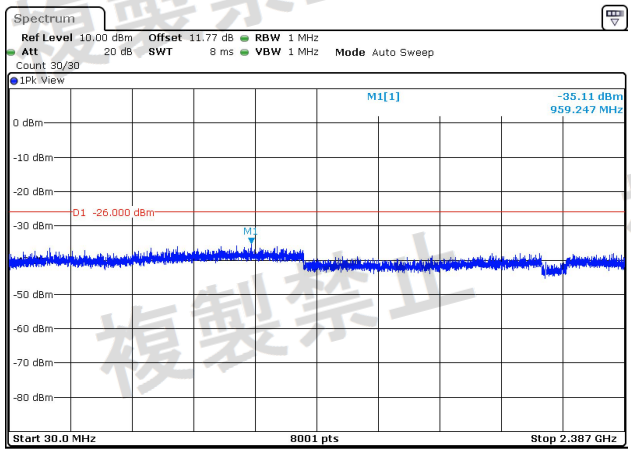
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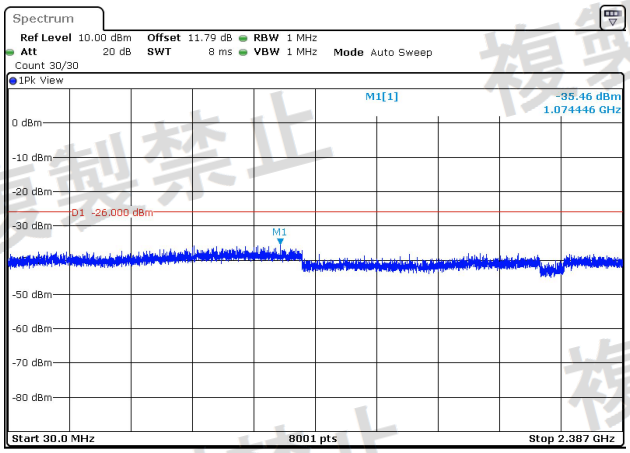
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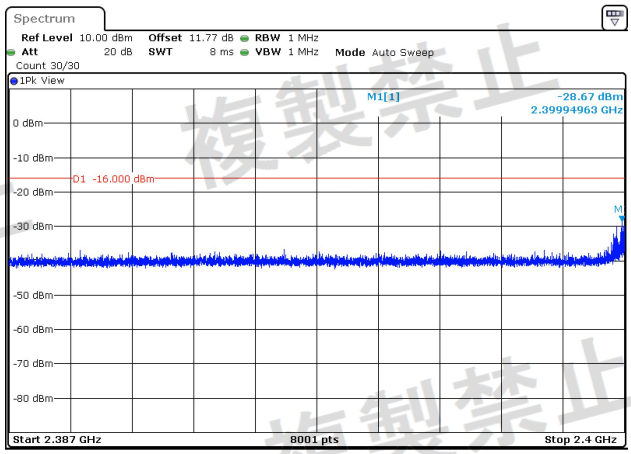
NTNV-2.4G_MIMO_20M-Ant1-2411-30~2387-PASS



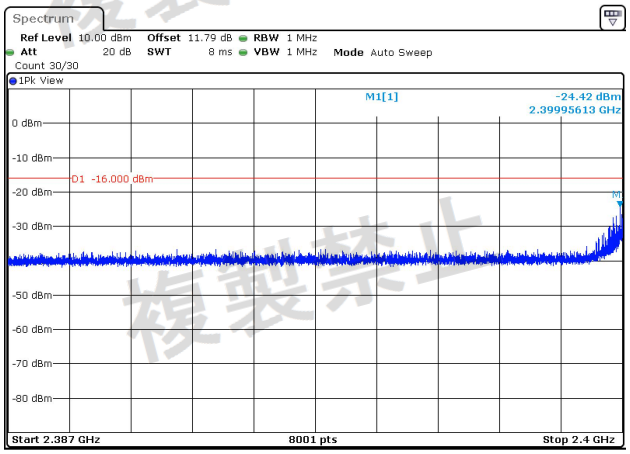
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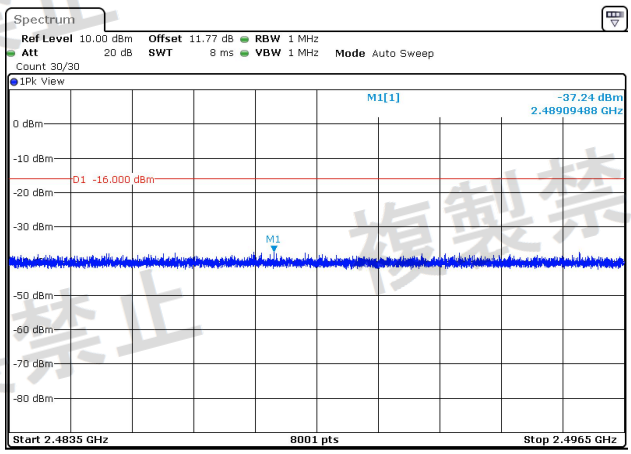
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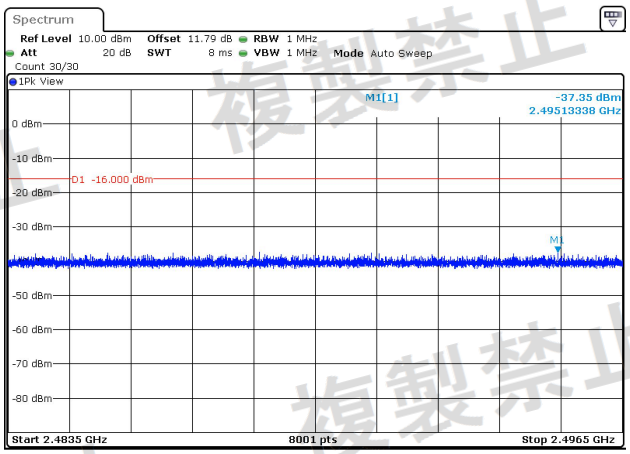
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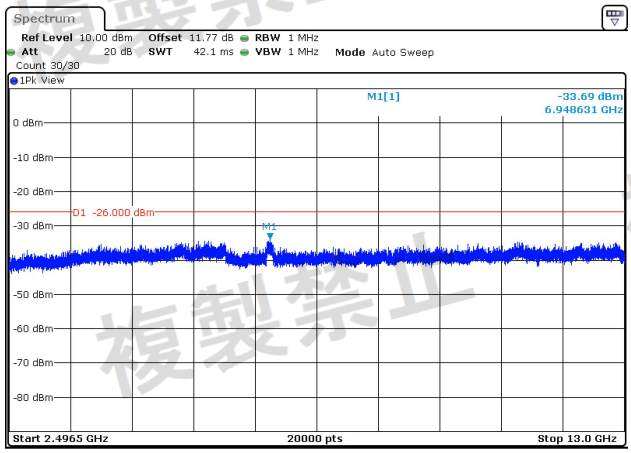
NTNV-2.4G_MIMO_20M-Ant1-2411-2483.5~2496.5-PASS



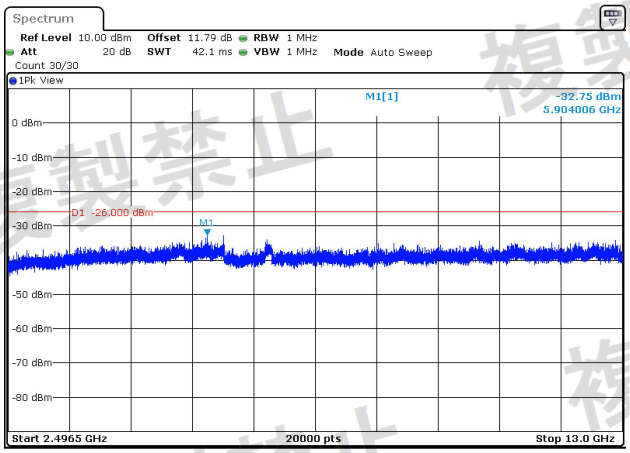
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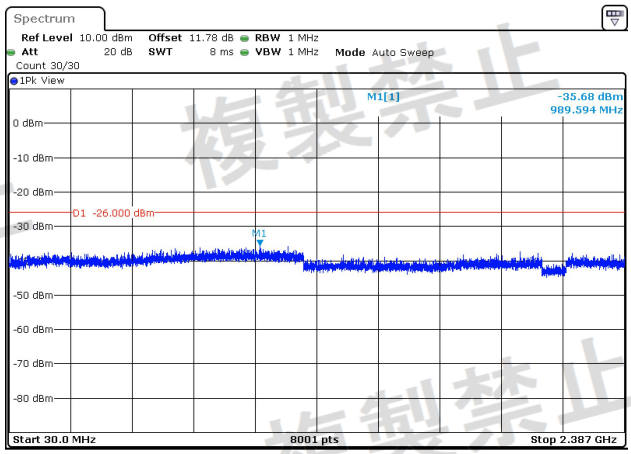
NTNV-2.4G_MIMO_20M-Ant1-2411-2496.5~13000-PASS



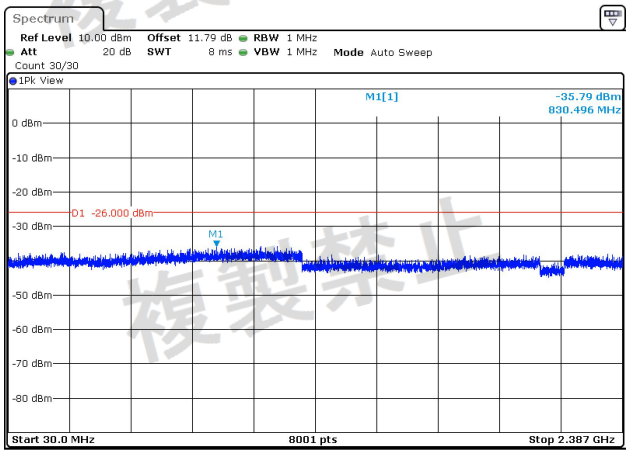
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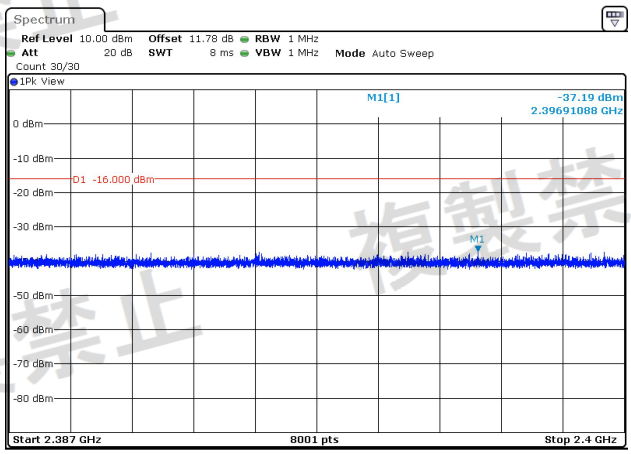
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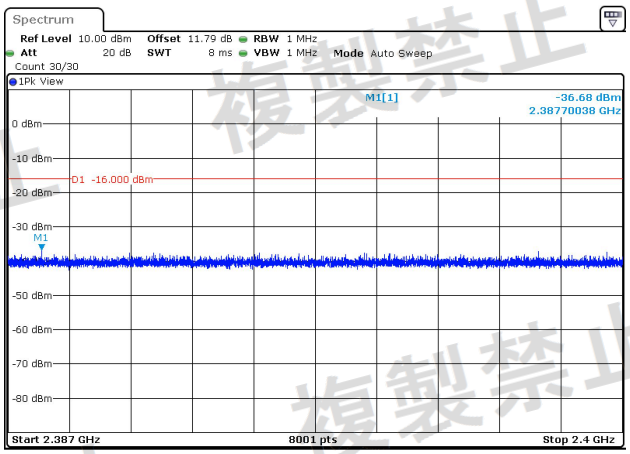
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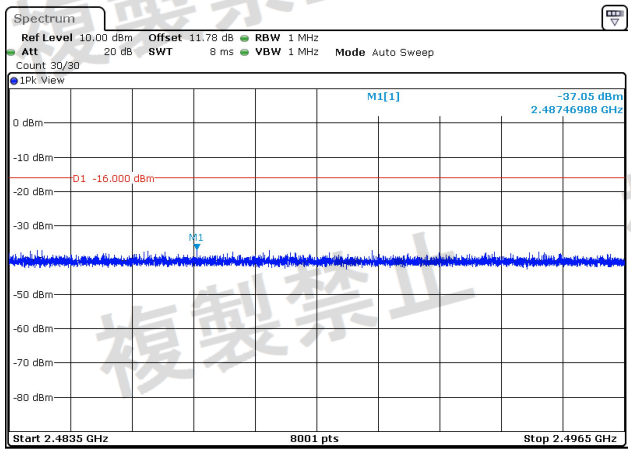
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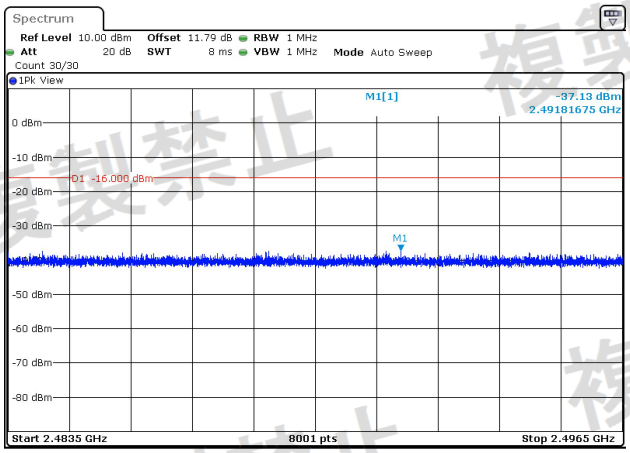
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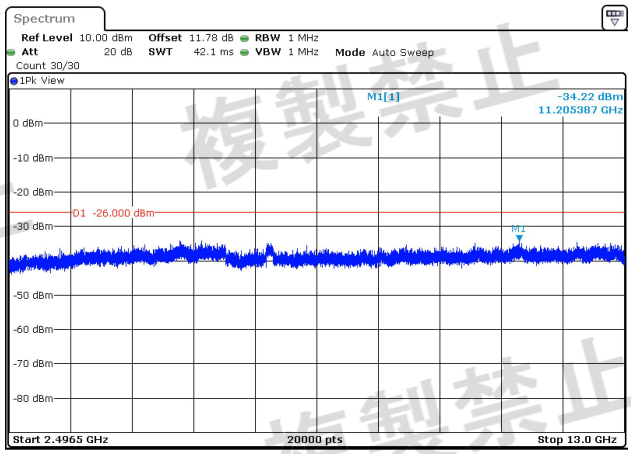
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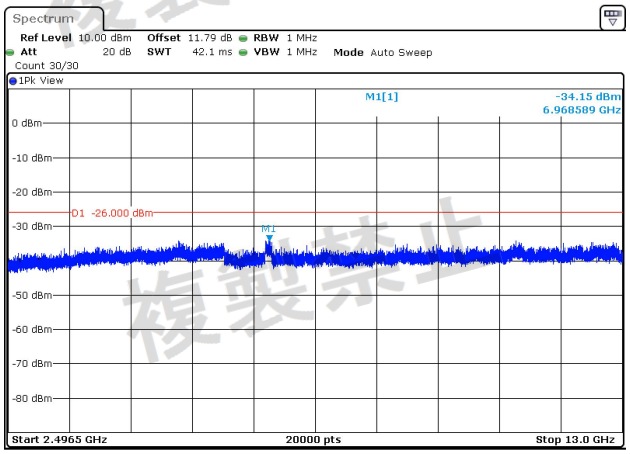
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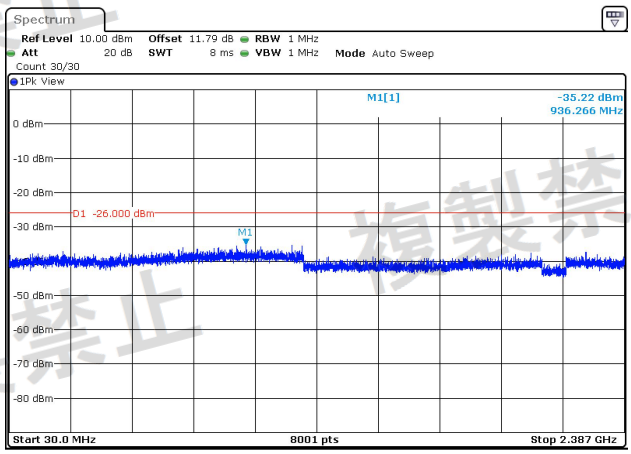
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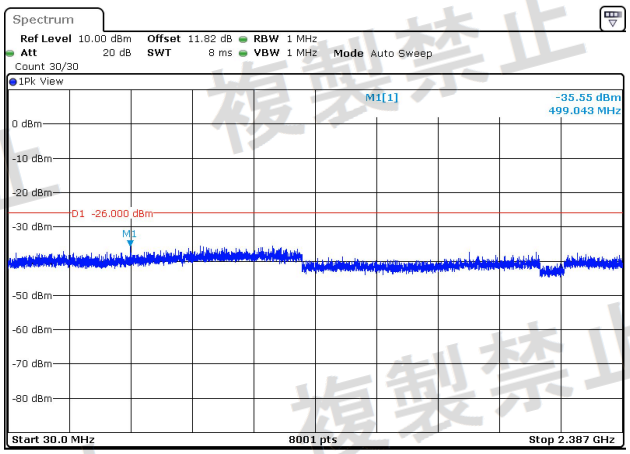
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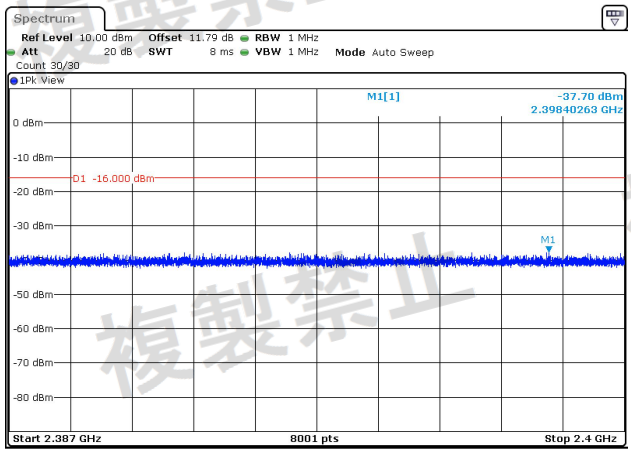
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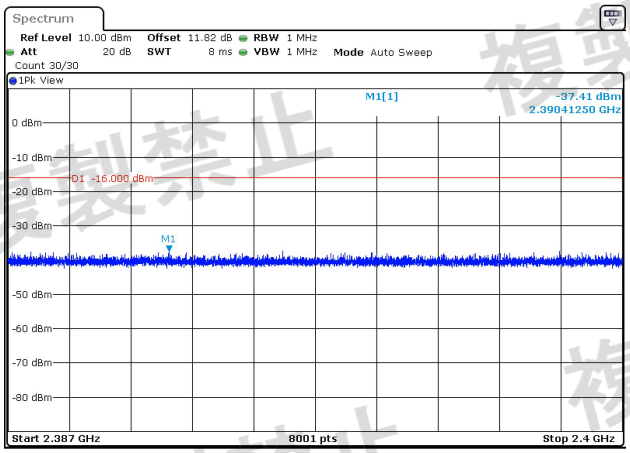
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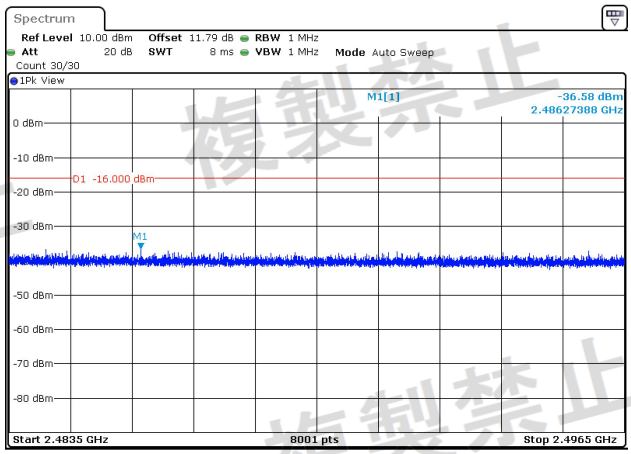
NTNV-2.4G_MIMO_20M-Ant1-2466-2387~2400-PASS



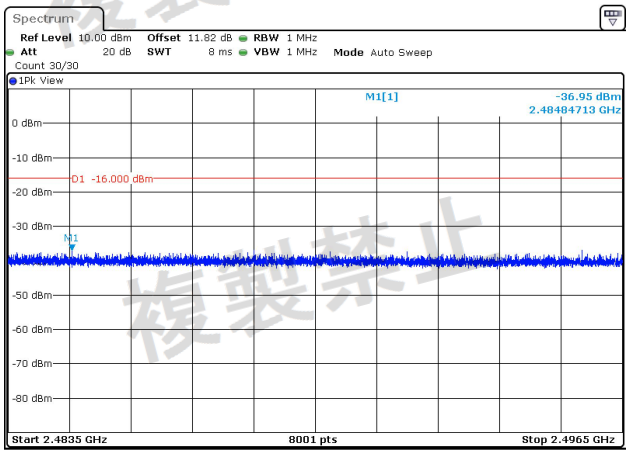
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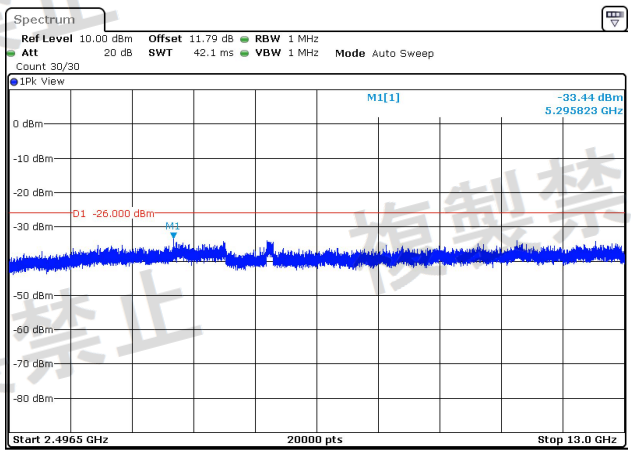
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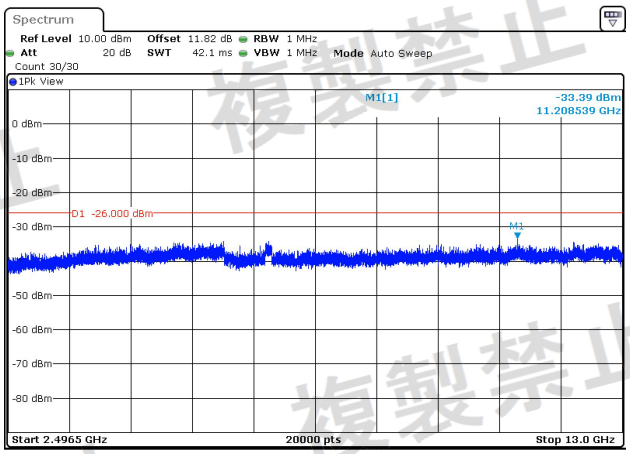
NTNV-2.4G_MIMO_20M-Ant2-2466-2483.5~2496.5-PASS



NTNV-2.4G_MIMO_20M-Ant1-2466-2496.5~13000-PASS



NTNV-2.4G_MIMO_20M-Ant2-2466-2496.5~13000-PASS



2.5. Secondary Rmissions of Receiver Measurement

2.5.1. Limits

Item	Limits
RX Spurious Emission	≤ 4 nW (f < 1 GHz); ≤ 20 nW (1 GHz ≤ f < 10 GHz); ≤ 20 nW (f > 10 GHz)

2.5.2. Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.5.3. Test Procedures

1 EUT has the continuous reception mode and fixed only one channelize.

2 Setting of SA is following as RBW / VBW: 100 kHz (below 1 GHz emissions) / 1 MHz (above 1 GHz emissions) / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold.

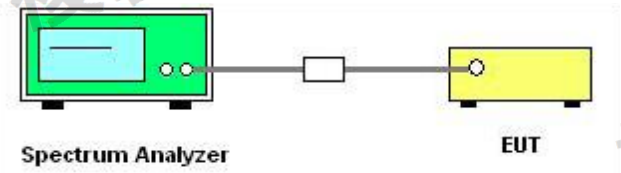
3 SA set RBW: 100 kHz and VBW: 100 kHz. Then adjust to start frequency 30 MHz and stop frequency 1000 MHz. Search to mark peak reading value + cable loss shall be less than 4 nW.

4 SA set RBW: 1 MHz and VBW: 1 MHz. Then adjust to start frequency 1000 MHz and stop frequency 10000 MHz. Search to mark peak reading value + cable loss shall be less than 20 nW.

5 SA set RBW: 1 MHz and VBW: 1 MHz. Then adjust to start frequency 10000 MHz and stop frequency 13000 MHz. Search to mark peak reading value + cable loss shall be less than 20 nW.

6 If power level of lower emissions are more than 1/10 of limit (0.4 nW for f < 1 GHz, 2 nW for f ≥ 1 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.

2.5.4. Test Setup Layout



2.5.5. Test Deviation

There is no deviation with the original standard.

2.5.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

2.5.7. Test Result of Secondary Rmissions of Receiver

Step1：

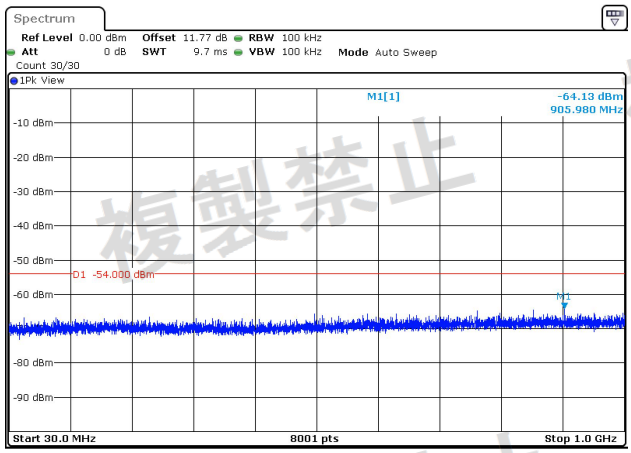
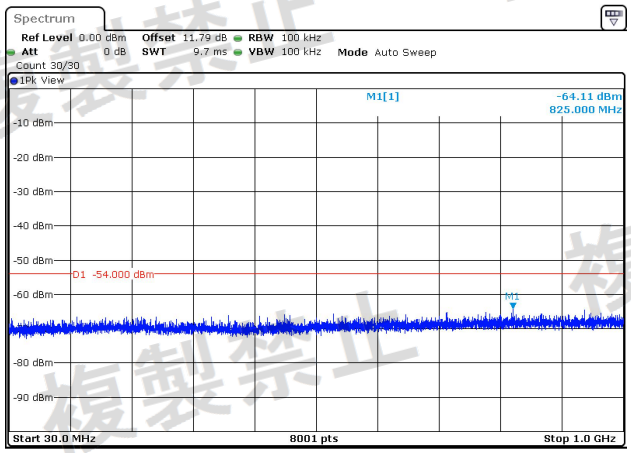
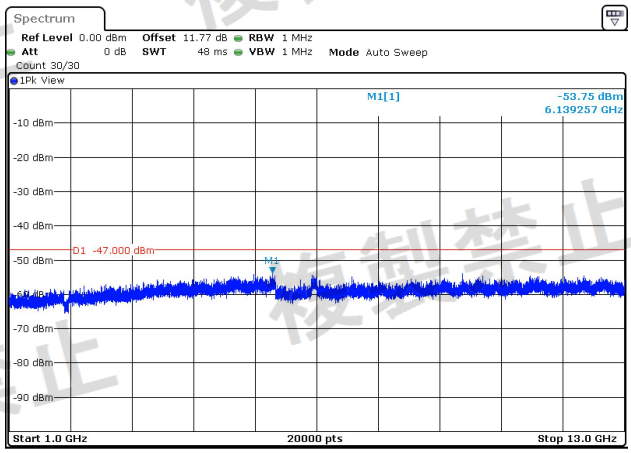
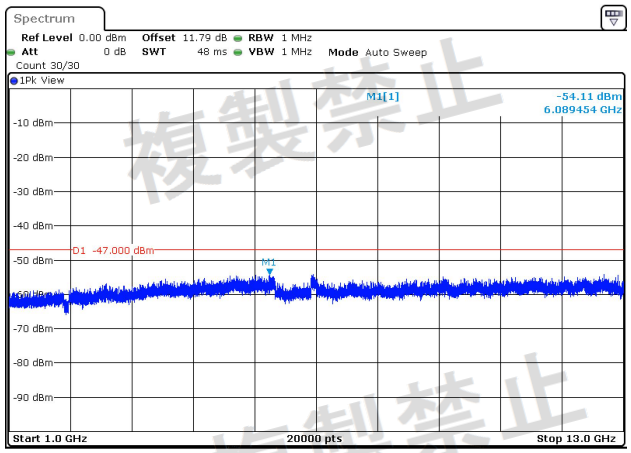
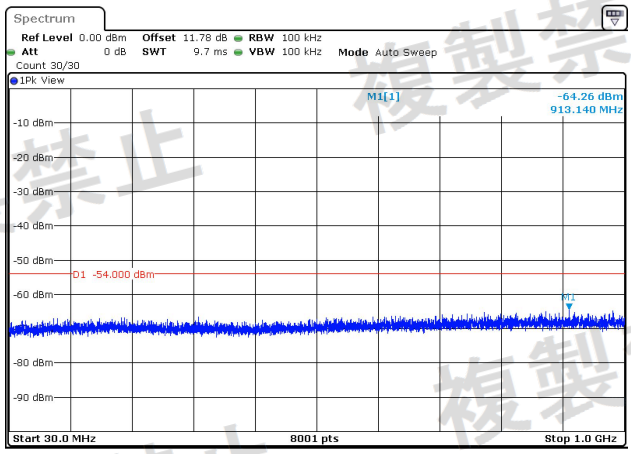
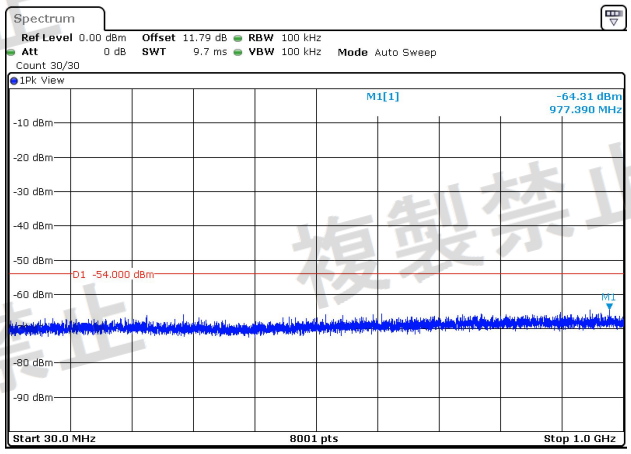
Test Mode	Antenna	Freq. [MHz]	Freq.Range [MHz]	Freq. [MHz]	Result [dBm]	Result [μW]	Limit [μW]	Verdict
2.4G_MIMO_10M	Ant1	2411	30~1000	905.98	-64.13	0.38637	≤4	PASS
2.4G_MIMO_10M	Ant2	2411	30~1000	825.00	-64.11	0.38815	≤4	PASS
2.4G_MIMO_10M	Ant1	2411	1000~13000	6139.26	-53.75	4.21697	≤20	See table below
2.4G_MIMO_10M	Ant2	2411	1000~13000	6089.45	-54.11	3.88150	≤20	See table below
2.4G_MIMO_10M	Ant1	2444	30~1000	913.14	-64.26	0.37497	≤4	PASS
2.4G_MIMO_10M	Ant2	2444	30~1000	977.39	-64.31	0.37068	≤4	PASS
2.4G_MIMO_10M	Ant1	2444	1000~13000	11945.15	-54.03	3.95367	≤20	See table below
2.4G_MIMO_10M	Ant2	2444	1000~13000	11060.1	-54.63	3.44350	≤20	See table below
2.4G_MIMO_10M	Ant1	2466	30~1000	863.19	-65.10	0.30903	≤4	PASS
2.4G_MIMO_10M	Ant2	2466	30~1000	976.06	-65.02	0.31477	≤4	PASS
2.4G_MIMO_10M	Ant1	2466	1000~13000	10958.1	-53.92	4.05509	≤20	See table below
2.4G_MIMO_10M	Ant2	2466	1000~13000	5409.62	-53.42	4.54988	≤20	See table below
2.4G_MIMO_20M	Ant1	2411	30~1000	889.62	-64.40	0.36308	≤4	PASS
2.4G_MIMO_20M	Ant2	2411	30~1000	827.54	-64.89	0.32434	≤4	PASS
2.4G_MIMO_20M	Ant1	2411	1000~13000	6968.5	-53.73	4.23643	≤20	See table below
2.4G_MIMO_20M	Ant2	2411	1000~13000	12252.96	-53.86	4.11150	≤20	See table below
2.4G_MIMO_20M	Ant1	2444	30~1000	980.06	-65.14	0.30620	≤4	PASS
2.4G_MIMO_20M	Ant2	2444	30~1000	746.92	-64.12	0.38726	≤4	PASS
2.4G_MIMO_20M	Ant1	2444	1000~13000	5424.02	-53.61	4.35512	≤20	See table below
2.4G_MIMO_20M	Ant2	2444	1000~13000	5940.65	-53.75	4.21697	≤20	See table below
2.4G_MIMO_20M	Ant1	2466	30~1000	982.42	-63.53	0.44361	≤4	See table below
2.4G_MIMO_20M	Ant2	2466	30~1000	841.12	-64.63	0.34435	≤4	PASS
2.4G_MIMO_20M	Ant1	2466	1000~13000	6167.46	-53.67	4.29536	≤20	See table below
2.4G_MIMO_20M	Ant2	2466	1000~13000	12634.58	-53.83	4.14000	≤20	See table below

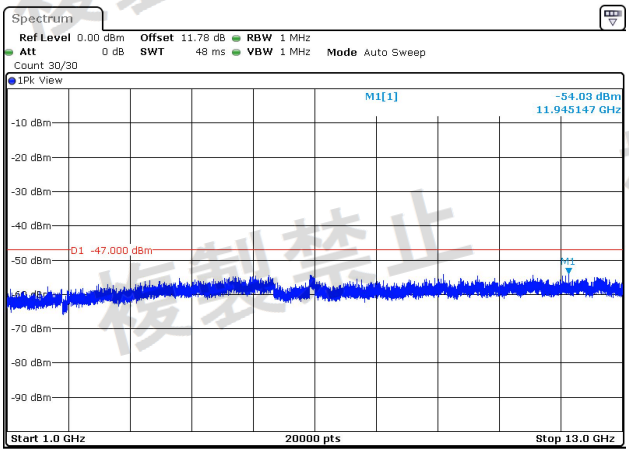
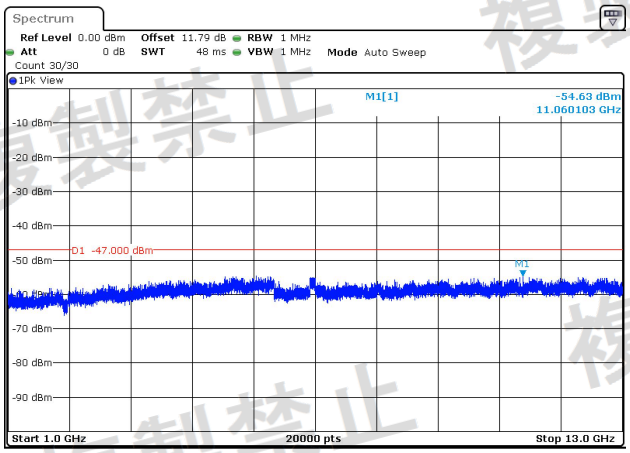
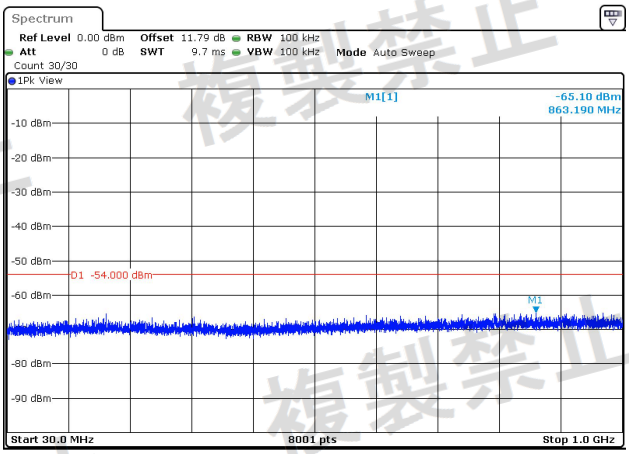
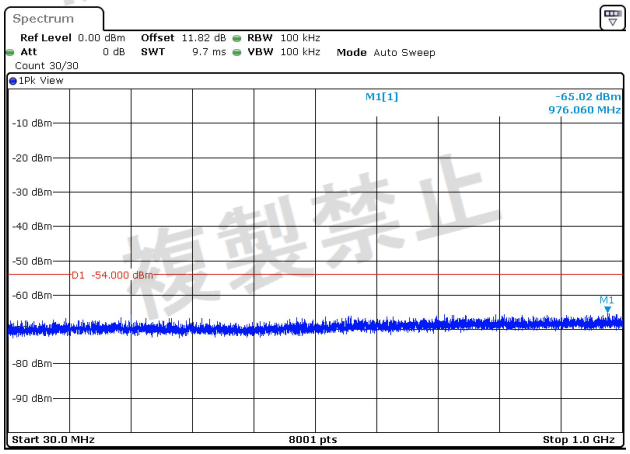
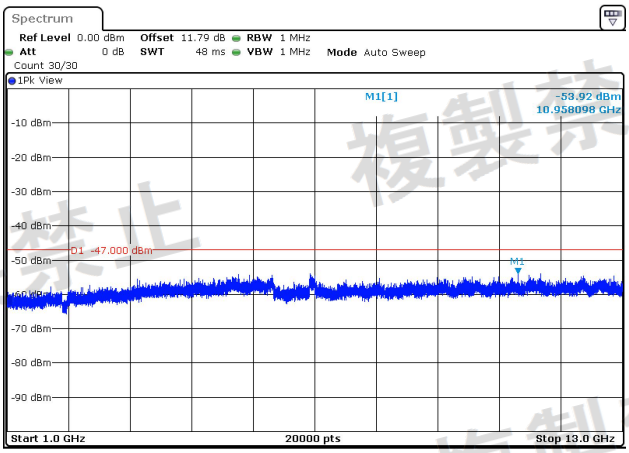
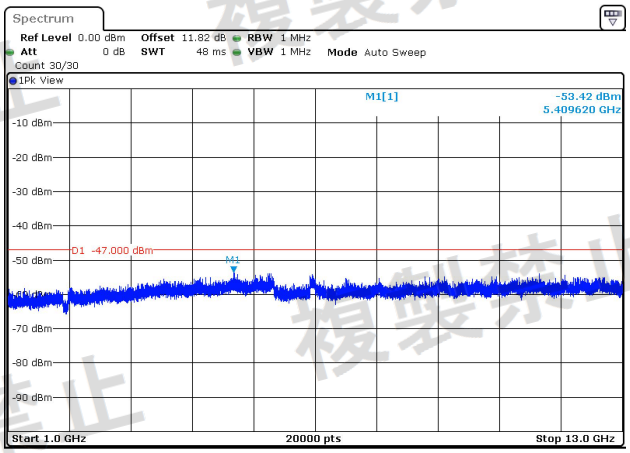
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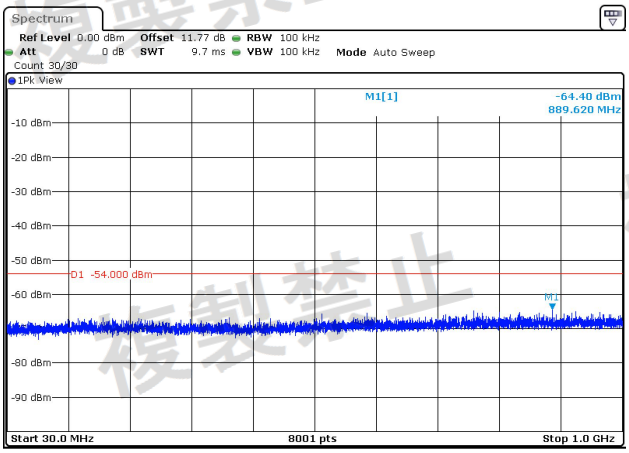
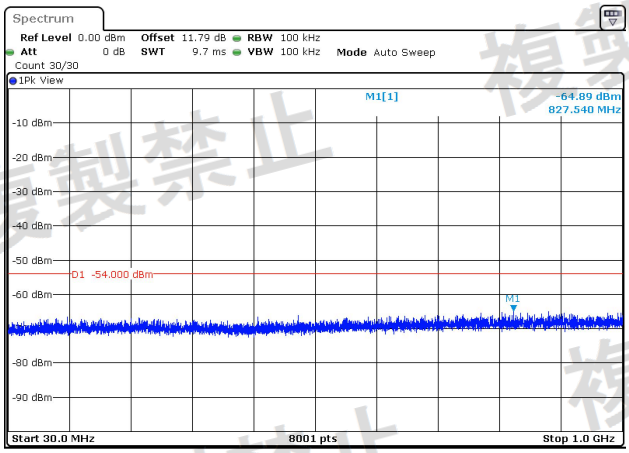
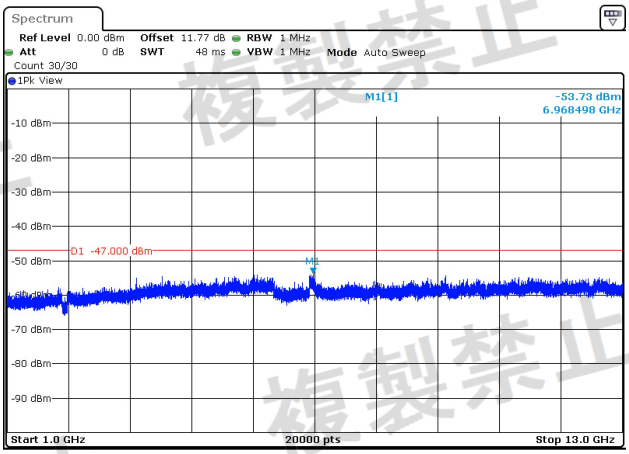
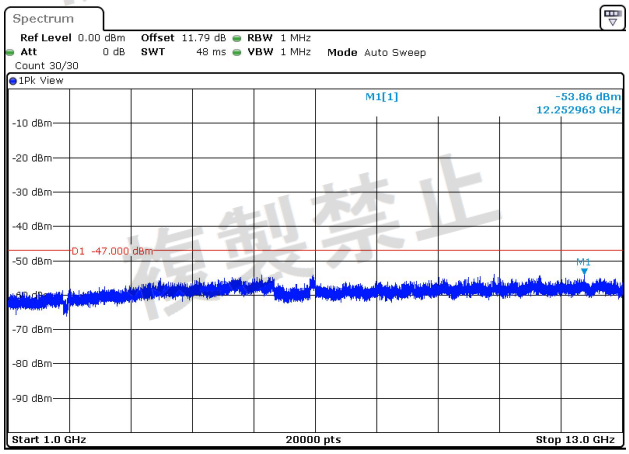
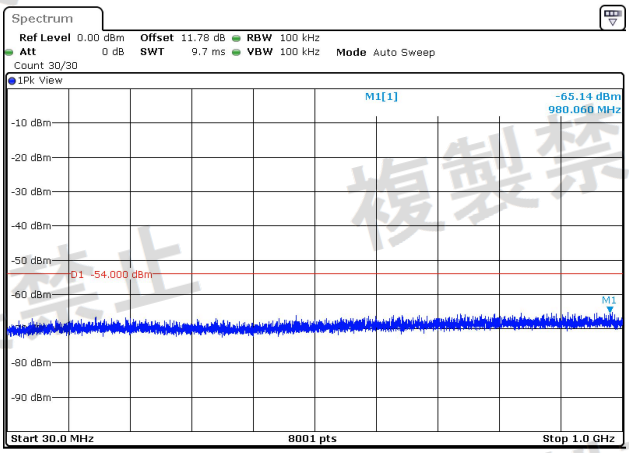
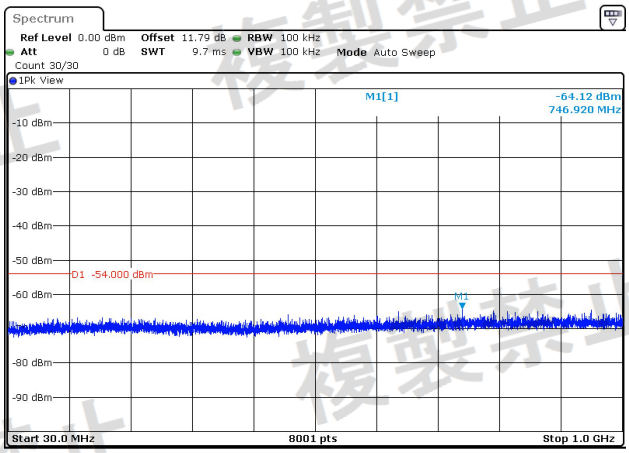
Test Mode	Antenna	Freq. [MHz]	Freq. [MHz]	Result [dBm]	Result [μW]	Limit [μW]	Verdict
2.4G_MIMO_10M	Ant1	2411	6170.31	total:-61.12	total:0.77274	≤20	PASS
2.4G_MIMO_10M	Ant2	2411	6041.11	total:-61.98	total:0.63319	≤20	PASS
2.4G_MIMO_10M	Ant1	2444	11895.37	total:-61.90	total:0.64571	≤20	PASS
2.4G_MIMO_10M	Ant2	2444	11056.83	total:-62.63	total:0.54643	≤20	PASS
2.4G_MIMO_10M	Ant1	2466	10914.25	total:-62.36	total:0.58014	≤20	PASS
2.4G_MIMO_10M	Ant2	2466	5397.20	total:-61.13	total:0.77007	≤20	PASS
2.4G_MIMO_20M	Ant1	2411	6987.44	total:-60.71	total:0.84826	≤20	PASS
2.4G_MIMO_20M	Ant2	2411	12239.07	total:-61.49	total:0.70964	≤20	PASS
2.4G_MIMO_20M	Ant1	2444	5398.63	total:-61.07	total:0.78078	≤20	PASS
2.4G_MIMO_20M	Ant2	2444	5920.49	total:-61.12	total:0.77185	≤20	PASS
2.4G_MIMO_20M	Ant1	2466	993.49	total:-72.83	total:0.05212	≤4	PASS
2.4G_MIMO_20M	Ant1	2466	6140.40	total:-61.39	total:0.72533	≤20	PASS
2.4G_MIMO_20M	Ant2	2466	12627.28	total:-61.21	total:0.75775	≤20	PASS

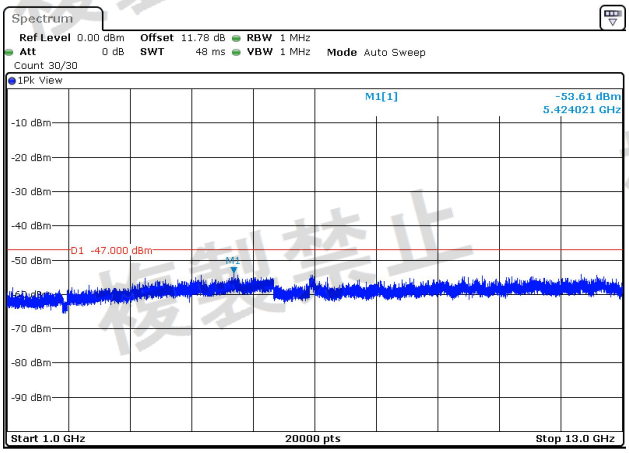
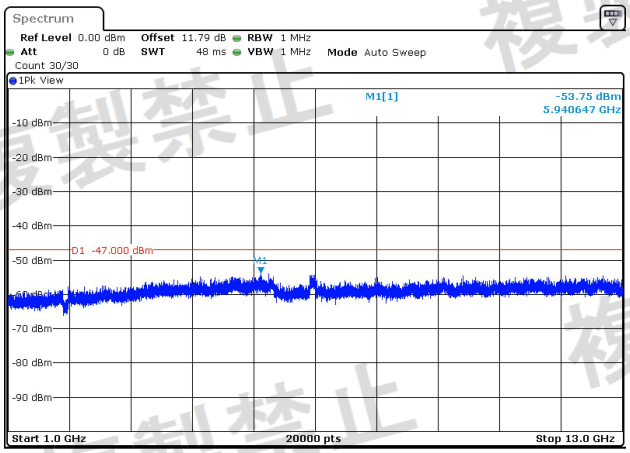
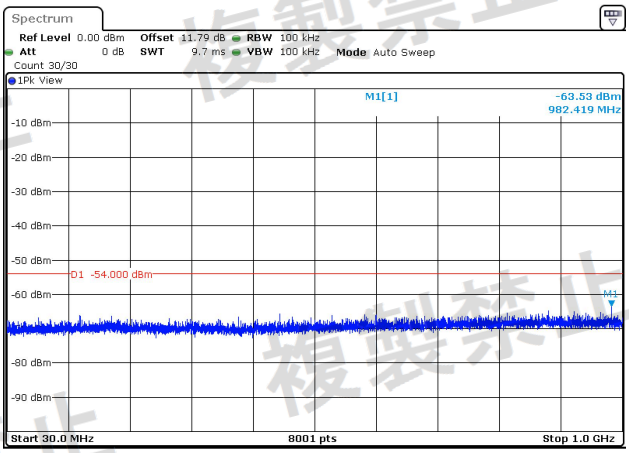
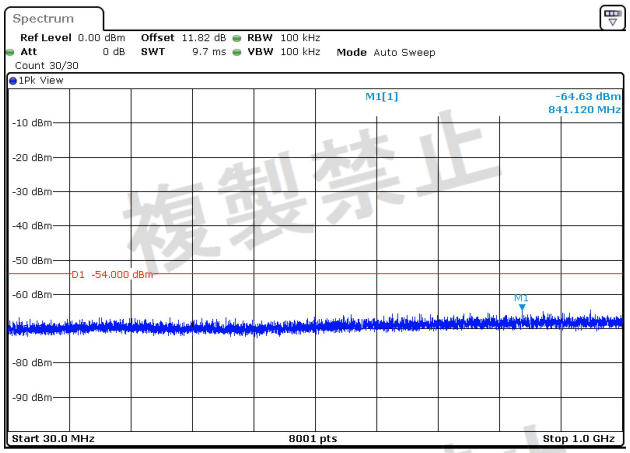
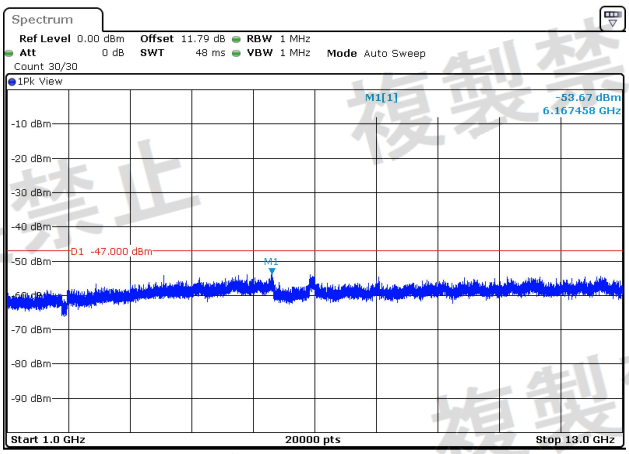
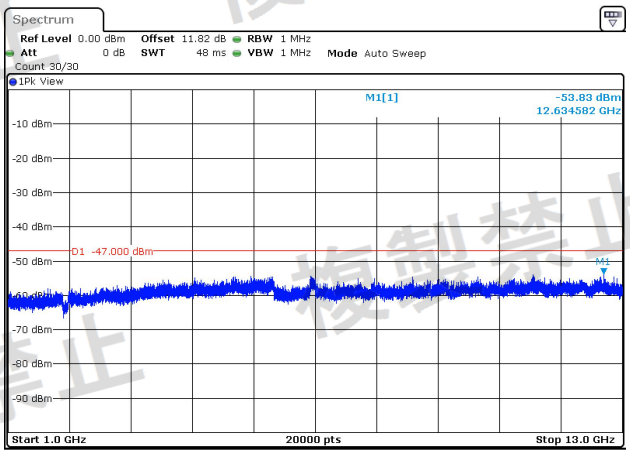
Test Graphs

Step1:

NTNV-2.4G_MIMO_10M-Ant1-2411-30~1000-PASS	NTNV-2.4G_MIMO_10M-Ant2-2411-30~1000-PASS
	
NTNV-2.4G_MIMO_10M-Ant1-2411-1000~13000-See table below	NTNV-2.4G_MIMO_10M-Ant2-2411-1000~13000-See table below
	
NTNV-2.4G_MIMO_10M-Ant1-2444-30~1000-PASS	NTNV-2.4G_MIMO_10M-Ant2-2444-30~1000-PASS
	

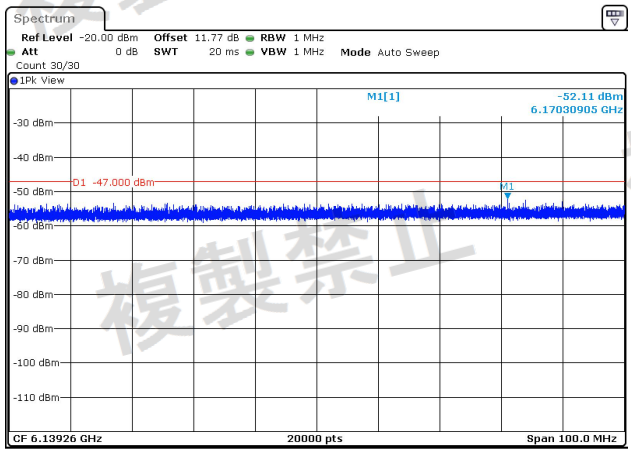
NTNV-2.4G_MIMO_10M-Ant1-2444-1000~13000-See table below	NTNV-2.4G_MIMO_10M-Ant2-2444-1000~13000-See table below
	
NTNV-2.4G_MIMO_10M-Ant1-2466-30~1000-PASS	NTNV-2.4G_MIMO_10M-Ant2-2466-30~1000-PASS
	
NTNV-2.4G_MIMO_10M-Ant1-2466-1000~13000-See table below	NTNV-2.4G_MIMO_10M-Ant2-2466-1000~13000-See table below
	

NTNV-2.4G_MIMO_20M-Ant1-2411-30~1000-PASS	NTNV-2.4G_MIMO_20M-Ant2-2411-30~1000-PASS
	
NTNV-2.4G_MIMO_20M-Ant1-2411-1000~13000-See table below	NTNV-2.4G_MIMO_20M-Ant2-2411-1000~13000-See table below
	
NTNV-2.4G_MIMO_20M-Ant1-2444-30~1000-PASS	NTNV-2.4G_MIMO_20M-Ant2-2444-30~1000-PASS
	

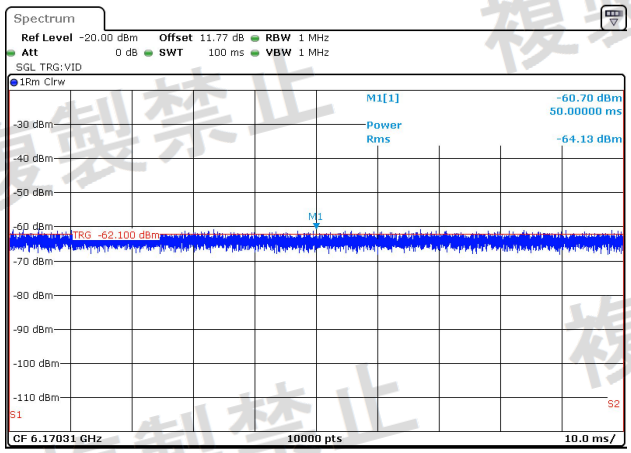
NTNV-2.4G_MIMO_20M-Ant1-2444-1000~13000-See table below	NTNV-2.4G_MIMO_20M-Ant2-2444-1000~13000-See table below
	
NTNV-2.4G_MIMO_20M-Ant1-2466-30~1000-See table below	NTNV-2.4G_MIMO_20M-Ant2-2466-30~1000-PASS
	
NTNV-2.4G_MIMO_20M-Ant1-2466-1000~13000-See table below	NTNV-2.4G_MIMO_20M-Ant2-2466-1000~13000-See table below
	

Step2：

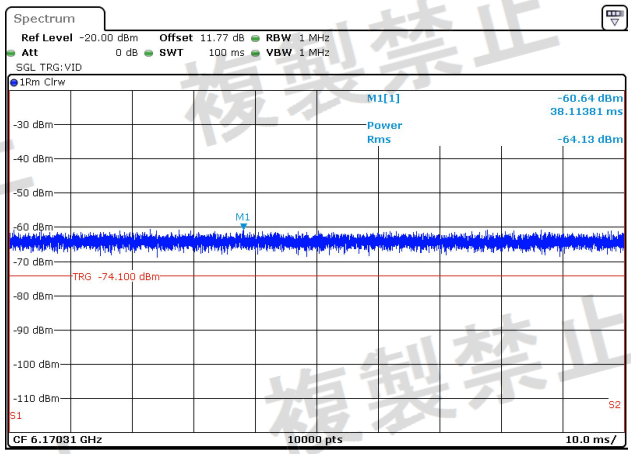
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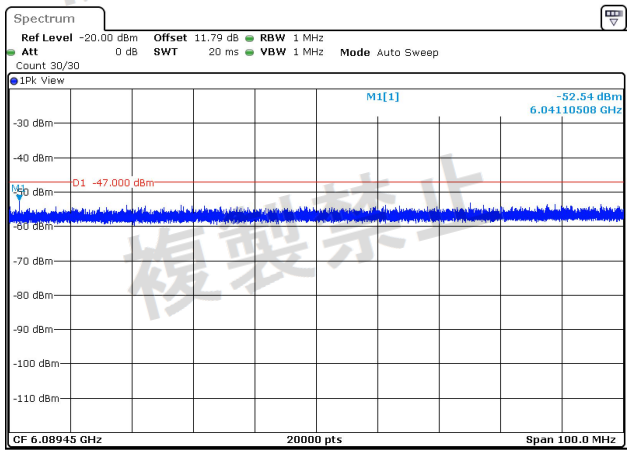
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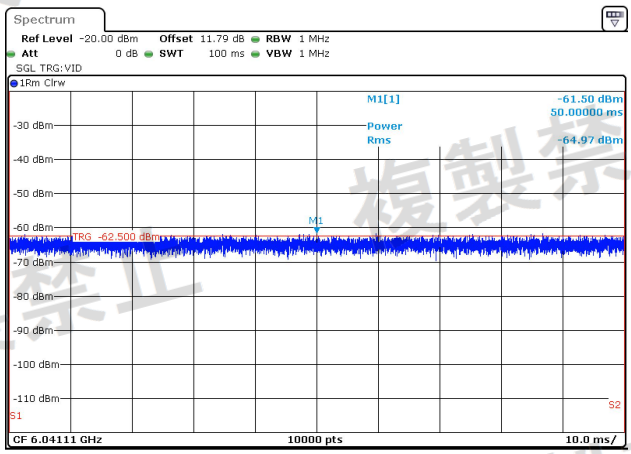
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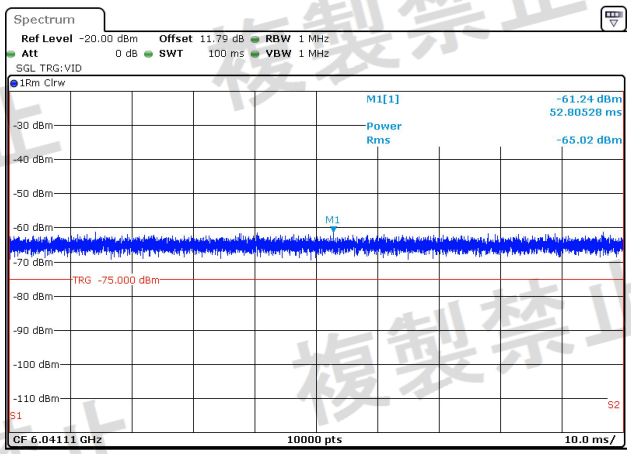
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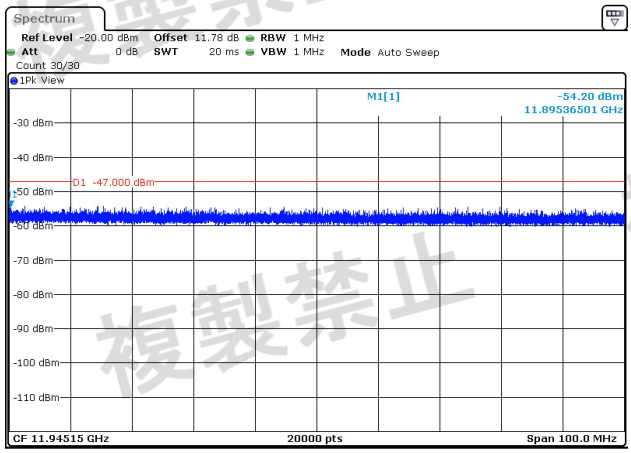
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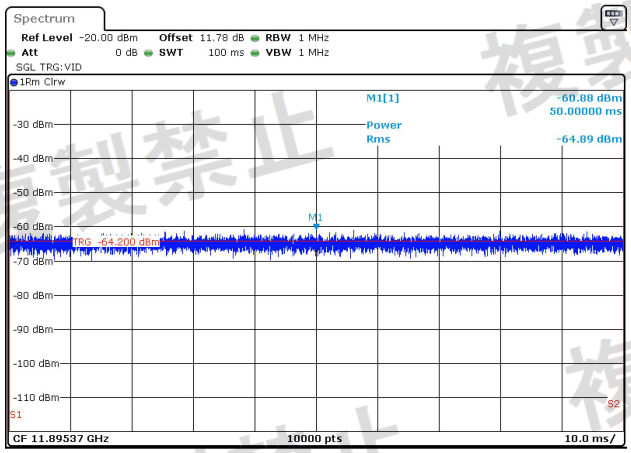
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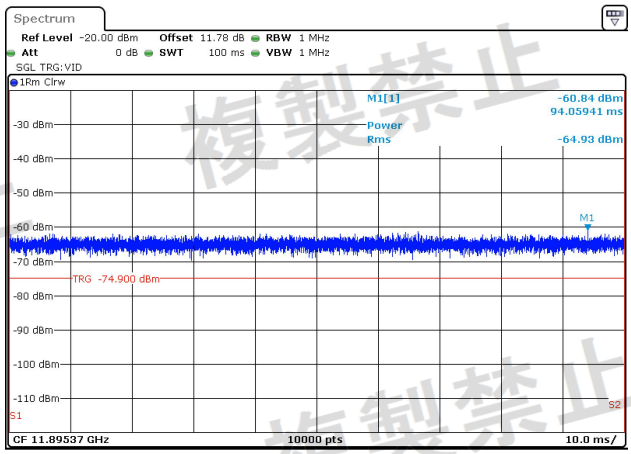
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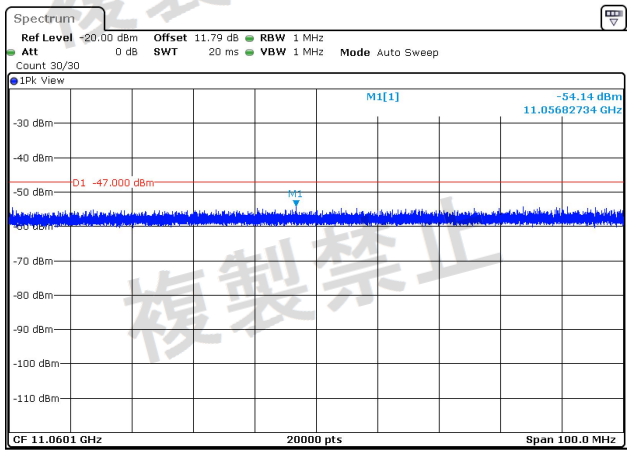
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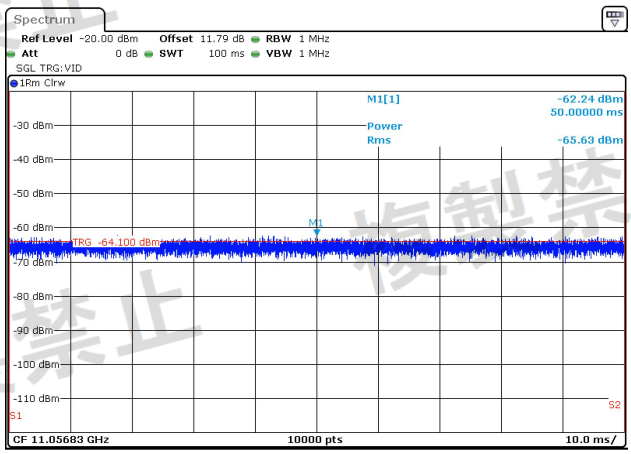
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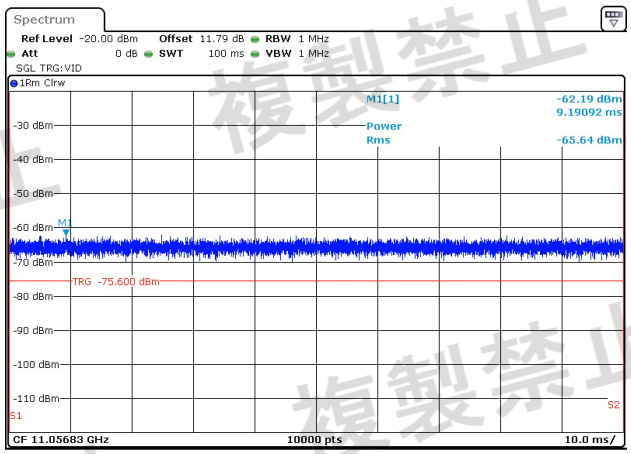
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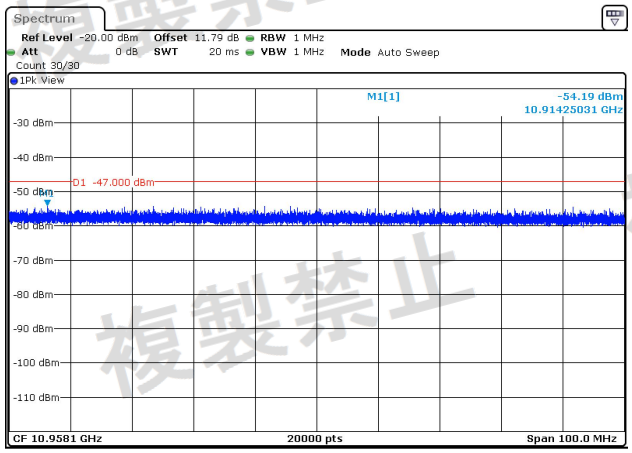
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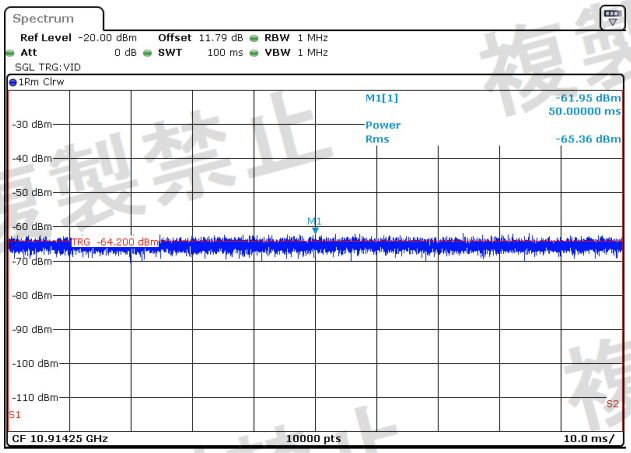
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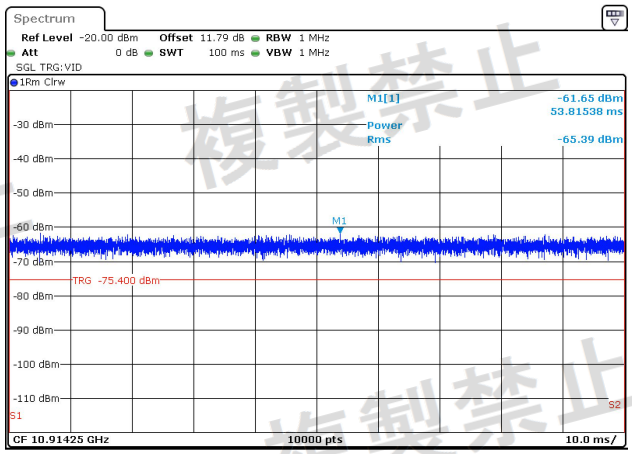
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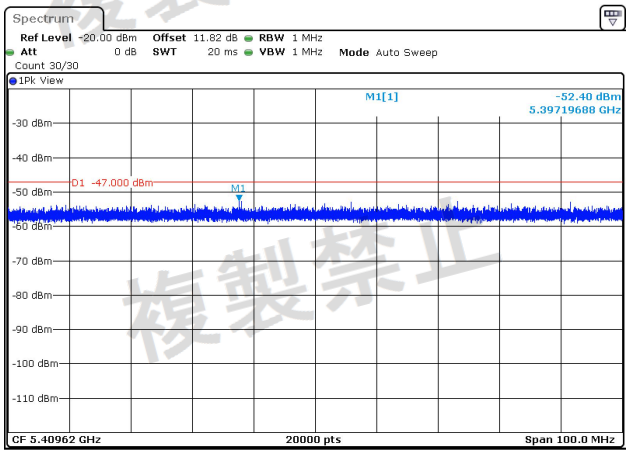
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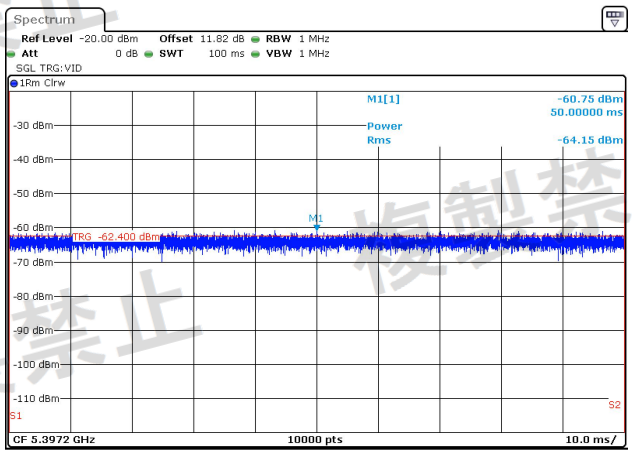
NTNV-2.4G_MIMO_10M-Ant1-2466-1000~13000-PASS



NTNV-2.4G_MIMO_10M-Ant2-2466-1000~13000-PASS



NTNV-2.4G_MIMO_10M-Ant2-2466-1000~13000-PASS



NTNV-2.4G_MIMO_10M-Ant2-2466-1000~13000-PASS

