



JAPAN Radio Test Report

Bluetooth

APPLICANT : Cardo Systems, LTD

PRODUNCT NAME : 509 UCS EDGE, UCS RG2 SHOCKWAVE, PACKTALK-S,
HJC-PACKTALK, CARDO VENTURE, UCS MESH

BRAND NAME : Cardo Systems, LTD

MODEL NAME : UCSE

TYPE EMISSIONS : <ANT1>
78M1F1D(BR);
78M5G1D(EDR);
19M6F1D(BR_AFH);
20M0G1D(EDR_AFH);
1M04F1D(LE 1Mbps) ;
2M05F1D(LE 2Mbps)
<ANT2>
78M3F1D(BR);
78M5G1D(EDR);
19M6F1D(BR_AFH);
20M1G1D(EDR_AFH);

DECLARATION : <Ant 1>

OUTPUT POWER 0.002 mW/MHz (BR/EDR);
0.006 mW/MHz (BR_AFH);
0.006 mW/MHz (EDR_AFH);
0.025 mW (LE 1Mbps);
0.025 mW (LE 2Mbps);
<Ant 2>
0.500 mW/MHz (BR/EDR);
2.000 mW/MHz (BR_AFH);
2.000 mW/MHz (EDR_AFH);



STANDARD : Article 49-20 and the relevant articles of the Ordinance
Regulating Radio Equipment

TEST : MIC Notice No.88 Appendix No.43

PROCEDURE

TEST DATE(S) : May 22, 2026 ~ Jun. 08, 2026

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the procedures given in MIC Notice No.88 Appendix No.43 and shown to be compliant with the applicable technical standards. Article 2 Paragraph 1 Item 19 of the Certificate Ordinance of the Radio Law indicates the classification of the specified radio equipment.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

Jason Jia

Approved by: Jason Jia



Sporton International Inc. (Kunshan)

**No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300
People's Republic of China**



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
JR442306-04A	Rev. 01	Initial issue of report	Jun. 12, 2026

SUMMARY OF TEST RESULT

Report Section	Description	Result
3.1	Frequency Tolerance	Pass
3.2	Occupied Bandwidth and Spread-spectrum Bandwidth	Pass
3.3	Unwanted Emission Intensity	Pass
3.4	RF Output Power / Tolerance	Pass
3.5	Limitation of Collateral Emission of Receiver	Pass
3.6	Transmission Antenna Gain (EIRP Antenna Power)	NA
3.7	Transmission Radiation Angle Width (3dB Beam width)	NA
3.8	Radio Interference Prevention Capability	Pass
3.9	Hopping Frequency Dwell Time	Pass
3.10	Transmission frequency switching function	N/A
3.11	Construction Protection Confirmation	Pass

Conformity Assessment Condition:

- The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacture who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.
- The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty"

Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.



1 General Description

1.1 Applicant

Cardo Systems, LTD
101 E. Park Blvd, Suite 600, Plano TX, 75074 USA

1.2 Manufacturer

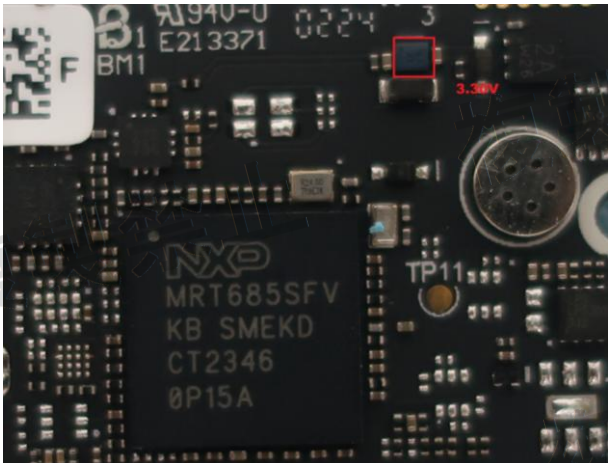
Cardo Systems, LTD
101 E. Park Blvd, Suite 600, Plano TX, 75074 USA

1.3 Feature of Equipment Under Test

Product Feature & Specification		
Product Name	509 UCS EDGE, UCS RG2 SHOCKWAVE, PACKTALK-S, HJC-PACKTALK, CARDO VENTURE, UCS MESH	
Brand Name	Cardo Systems, LTD	
Model Name	UCSE	
Support Category / Frequency Range	Article 2-1-19 / 2400MHz ~ 2483.5MHz	
Type of Modulation	☐ Direct Spreading (DS) ☐ Orthogonal frequency-division multiplexing (OFDM) ☒ Frequency Hopping (FH) ☒ Other :GFSK	
Number of Channels	BR/EDR Mode	79
	AFH Mode	20
	Other : LE 1Mbps/2Mbps	40
Channel Spacing	BR/EDR/AFH Mode	1MHz
	Other : LE 1Mbps/2Mbps	2MHz
Declaration RF Output Power	<Ant 1> 0.002 mW/MHz (BR/EDR mode) ; 0.006 mW/MHz (BR_AFH mode) ; 0.006 mW/MHz (EDR_AFH mode) ; 0.025 mW (LE 1Mbps) ; 0.025 mW (LE 2Mbps) <Ant 2> 0.500 mW/MHz (BR/EDR mode) ; 2.000 mW/MHz (BR_AFH mode) ; 2.000 mW/MHz (EDR_AFH mode) ;	
Antenna Power (E.I.R.P)	<Ant 1> -26.029 dBm/MHz (BR/EDR mode) -20.008 dBm/MHz (BR_AFH mode) -20.008 dBm/MHz (EDR_AFH mode) -13.811 dBm (LE 1Mbps) -13.811 dBm (LE 2Mbps) <Ant 2> -3.010 dBm/MHz (BR/EDR mode) 3.010 dBm/MHz (BR_AFH mode) 3.010 dBm/MHz (EDR_AFH mode)	
Modulation	☒ GFSK ☒ π/4-DQPSK ☒ 8-DPSK ☐ Other : FSK	
Power Source ^{NOTE}	☐ Commercial power	AC 100 ~ 240V
	☐ External Power Source	DC 5V
	☒ Lithium battery	DC 3.7V, 850mAh
	☐ UM battery	DC 1.2V

NOTE:

1. When EUT be operated at $\pm 10\%$ from the normal supply voltage, the supply voltage of RF part was varied within $\pm 1\%$. All test cases were done under the normal supply voltage.
2. For $\pi/4$ -DQPSK and 8-DPSK mode, the whole testing has assessed only 8-DPSK mode by referring to their higher conducted power.
3. For the differences of the six products: 509 UCS EDGE, UCS RG2 SHOCKWAVE, PACKTALK-S, HJC-PACKTALK, Cardo VENTRUE, UCS EDGE, please refer to the Product Equality Declaration which is exhibit separately. After evaluation, only the product PACKTALK-S was chose to perform full test.

Power Supply voltage 3.7 Vdc (Nominal)	Power Supply voltage 4.07 Vdc (+10%)	Power Supply voltage 3.33 Vdc (-10%)
3.3	3.3	3.3
Measurement point		
		

Antenna Information			
Brand Name :	N/A	Model Name :	N/A
Antenna Type (Ant 1):	Chip	Antenna Gain :	2.21 dBi
Brand Name :	N/A	Model Name :	N/A
Antenna Type (Ant 2):	Printed	Antenna Gain :	0 dBi

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Modification of EUT

No modifications are made to the EUT during all test items.

1.5 Testing Site

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Site	Sporton International Inc. (Kunshan)
Test Site Location	No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China TEL : +86-512-57900158
Test Site No.	Sporton Site No.: TH01-KS

1.6 Test Software

Item	Site	Manufacturer	Name	Version
1.	TH01-KS	Tonscend	JS1120-3 test system China_210602	3.3.10

1.7 Measurement Uncertainty

Test Items	Uncertainty	Remark
Occupied Channel Bandwidth	±0.384%	Confidence 95%
RF output power, conducted	±0.90 dB	Confidence 95%
Frequency Tolerance	0.38ppm	Confidence 95%
Power density, conducted	±1.70 dB	Confidence 95%
Unwanted Emission	±2.00 dB	Confidence 95%
Temperature	±0.86 °C	Confidence 95%
Humidity	±2.20 %	Confidence 95%
Time	±0.44 %	Confidence 95%



1.8 Applied Standards

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

- Article 49-20 and the relevant articles of the Ordinance Regulating Radio Equipment

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. The measurement was implemented in accordance with MIC Notice No. 88 Appendix No. 43.

1.9 Ancillary Equipment List

None.

2 Test Configuration of Equipment Under Test

2.1 Carrier Frequency Channel

Channel (LE Channel)	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0 (0)	2402	27	2429	54 (27)	2456
1	2403	28 (14)	2430	55	2457
2 (1)	2404	29	2431	56 (28)	2458
3	2405	30 (15)	2432	57	2459
4 (2)	2406	31	2433	58 (29)	2460
5	2407	32 (16)	2434	59	2461
6 (3)	2408	33	2435	60 (30)	2462
7	2409	34 (17)	2436	61	2463
8 (4)	2410	35	2437	62 (31)	2464
9	2411	36 (18)	2438	63	2465
10 (5)	2412	37	2439	64 (32)	2466
11	2413	38 (19)	2440	65	2467
12 (6)	2414	39	2441	66 (33)	2468
13	2415	40 (20)	2442	67	2469
14 (7)	2416	41	2443	68 (34)	2470
15	2417	42 (21)	2444	69	2471
16 (8)	2418	43	2445	70 (35)	2472
17	2419	44 (22)	2446	71	2473
18 (9)	2420	45	2447	72 (36)	2474
19	2421	46 (23)	2448	73	2475
20 (10)	2422	47	2449	74 (37)	2476
21	2423	48 (24)	2450	75	2477
22 (11)	2424	49	2451	76 (38)	2478
23	2425	50 (25)	2452	77	2479
24 (12)	2426	51	2453	78 (39)	2480
25	2427	52 (26)	2454	-	-
26 (13)	2428	53	2455	-	-

2.2 EUT Operation Test Setup

The equipment under test (EUT) was linked with Bluetooth simulator or operated by commands in order to make the EUT into the engineering modes for transmitting, receiving signals continuously, and hopping mode.

3 Test Result

3.1 Frequency Tolerance Measurement

3.1.1 Limit

Item	Limits
Frequency Tolerance	$\leq \pm 50\text{ppm}$

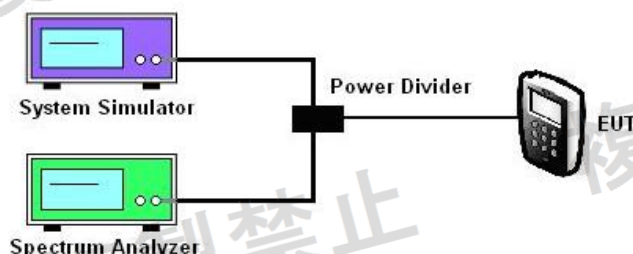
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedure

1. Frequency accuracy of instrument shall be less than 10% of limits tolerance (5ppm).
2. Three testing methods
 - a. Measure frequency tolerance by the system simulator.
 - b. CW Tone method
 - i. Setting of SA is following as: RBW:1kHz / VBW:30kHz.
 - ii. Maker Max. level to get measuring frequency f.
 - c. 10dB down method
 - i. Setting of SA is following as: RBW:30kHz / VBW: 30kHz / Trace: MaxHold
 - ii. Display line Level = Max. level – 10dB to place two markers, highest(fH) and lowest(fL) frequency
 - iii. Determine measuring frequency $f = (fH - fL)/2$
3. The frequency tolerance test case is directly measured using the frequency accuracy function of Bluetooth tester or spectrum analyzer. Then the frequency error formula is $(f - f_c)/f_c \times 10^6 \text{ ppm}$ and the limit is less than $\pm 50\text{ppm}$.

3.1.4 Test Setup



3.1.5 Test Result of Frequency Tolerance

Please refer to Appendix B.

3.2 Occupied Bandwidth and Spread-spectrum Bandwidth

3.2.1 Limit

Item	Limits	
Occupied Band Width	$\leq 83.5\text{MHz}$	(FH)
	$\leq 26\text{MHz}$	(OFDM, DS and Others)

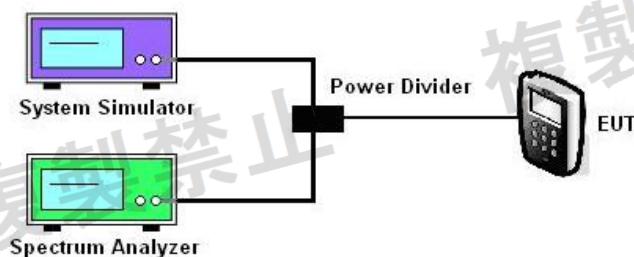
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

1. Setting of SA is following as: RBW $\leq 3\%$ of bandwidth / VBW = RBW / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold.
2. EUT have transmitted each 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 26MHz (For DSSS or OFDM Device) or 83.5MHz (For FHSS Device).
3. SA set to 90% of occupied bandwidth to measure Spread Spectrum Bandwidth.

3.2.4 Test Setup



3.2.5 Test Result of Occupied Bandwidth and Spread-spectrum Bandwidth

Please refer to Appendix B.

3.3 Unwanted Emission Intensity Measurement

3.3.1 Limit

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

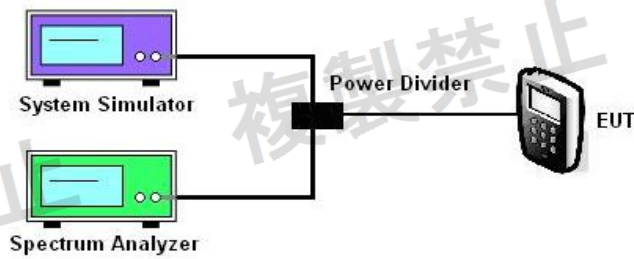
3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

3.3.3 Test Procedures

1. EUT have transmitted the maximum power and fixed channelize.
2. Setting of SA is following as: RBW:1MHz / VBW:1MHz above 1GHz, Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold.
3. Setting of SA is following as: RBW:100KHz / VBW:100KHz under 1GHz, Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold.
4. Setting of SA is following as 30MHz and stop frequency 2387MHz Then to mark peak reading value + cable loss shall be less than 2.5μW.
5. SA adjusted to start frequency 2387MHz and stop frequency 2400MHz. Then to mark peak reading value + cable loss shall be less than 25μW.
6. SA adjusted to start frequency 2483.5MHz and stop frequency 2496.5MHz Then to mark peak reading value + cable loss shall be less than 25μW.
7. SA adjusted to start frequency 2496.5MHz and stop frequency 12500MHz Then to mark peak reading value + cable loss shall be less than 2.5μW.
8. If the Result_Value is over the requirement, take total sum of 1MHz band centered at the spur frequency like ACLP measurement as Result_Value.

3.3.4 Test Setup



3.3.5 Test Result of Unwanted Emission Intensity

Please refer to Appendix B.

3.4 RF Output Power / Tolerance

3.4.1 Limit

Item	Limits
Antenna Power Density	$\leq 3\text{mW/MHz}$ (FH form 2400~2483.5MHz)
	$\leq 10\text{mW/MHz}$ (OFDM,DS from 2400~2483.5MHz)
	$\leq 10\text{mW}$ (Other from 2400~2483.5MHz)
Antenna Power Error	+20% (Base on manufacturer declare antenna power density)

Note: When an E.I.R.P. is less than 2.14dBi + antenna power limit, the shortage can be compensated for by the antenna power.

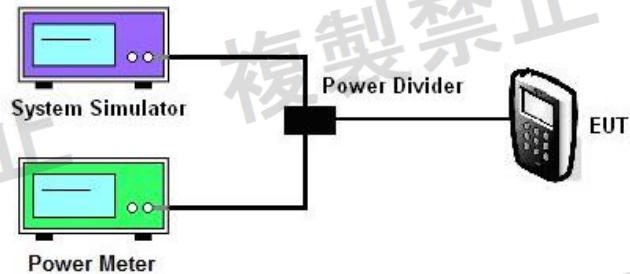
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

1. EUT have transmitted continuous maximum power on hopping mode (For FHSS Device).
2. Frequency hopping system or combined systems of direct spread and frequency hopping:
 - i. Connect the high frequency power meter to the output of the attenuator and measure the total power (without bandwidth limitation)
 - ii. Divide the total power by the spread bandwidth to find the “average” power per MHz.
The average power per MHz is equal to the power meter value dBm + cable loss dB + $10 \log_{10} (1/\text{Duty Cycle})$ dB + $10 \log_{10} (1/\text{Spread Bandwidth})$ dB.
 - iii. Confirm that frequency distribution of the hopping frequencies is homogeneous according to the supporting data.
If frequency distribution of the frequencies is not homogeneous, consider other measurement or correction methods based on the supporting data.
 - iv. Set the antenna power as follows:
 - Continuous waves: value in ii.
3. Antenna RF Output Power Tolerance is definition that actual measure antenna power tolerance + 20% power range that manufacturer declare the conducted power density.

3.4.4 Test Setup



3.4.5 Test Result of RF Output Power / Tolerance

Please refer to Appendix B.

3.5 Limitation of Collateral Emission of Receiver Measurement

3.5.1 Limit

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

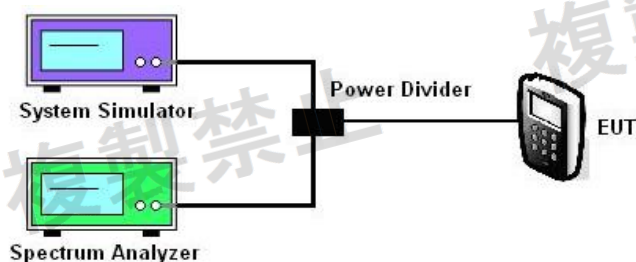
3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

3.5.3 Test Procedures

1. EUT have the continuous reception mode and fixed only one channelize.
2. SA set RBW: 100KHz and VBW: 100KHz. Then adjust to start frequency 30MHz and stop frequency 1GHz. Search to mark peak reading value + cable loss shall be less than 4nW.
3. SA set RBW: 1MHz and VBW: 1MHz. Then adjust to start frequency 1000MHz and stop frequency 12.5GHz. Search to mark peak reading value + cable loss shall be less than 20nW.
4. If power level of lower emissions are more than 1/10 of limit (0.4nW for $f < 1\text{GHz}$, 2nW for $f \geq 1\text{GHz}$), all those are to be indicated in the 2nd and 3rd lines. If others are 1/10 or less more of the limit, no necessary to be indicated.

3.5.4 Test Setup



3.5.5 Test Result of Limitation of Collateral Emission of Receiver

Please refer to Appendix B.

3.6 Transmission Antenna Gain (EIRP Antenna Power) Measurement

3.6.1 Limit

Item	Limits
EIRP Power Density	$\leq 6.91\text{dBm/MHz}$ (FH form 2400~2483.5MHz)
	$\leq 12.14\text{dBm/MHz}$ (OFDM,DS from 2400~2483.5MHz)
	$\leq 12.14\text{dBm}$ (Other from 2400~2483.5MHz)
Remark: This test item will not be applied to EIRP power of EUT is lower than 12.14dBm/MHz.	

3.6.2 Measuring Instruments

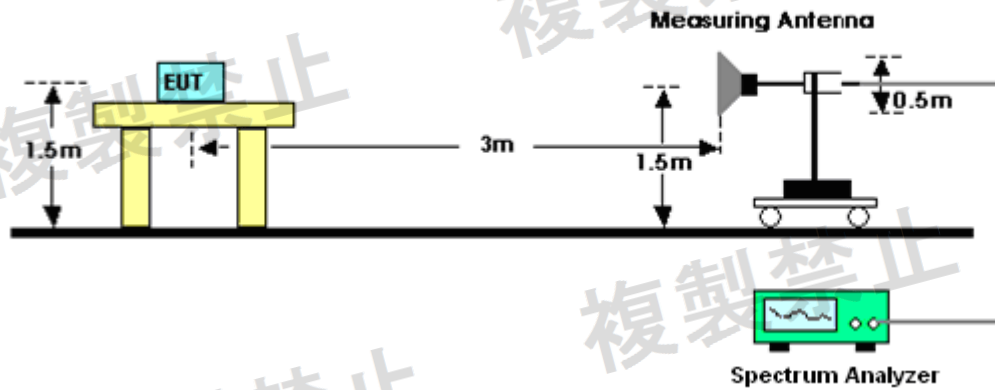
See list of measuring instruments of this test report.

3.6.3 Test Procedures

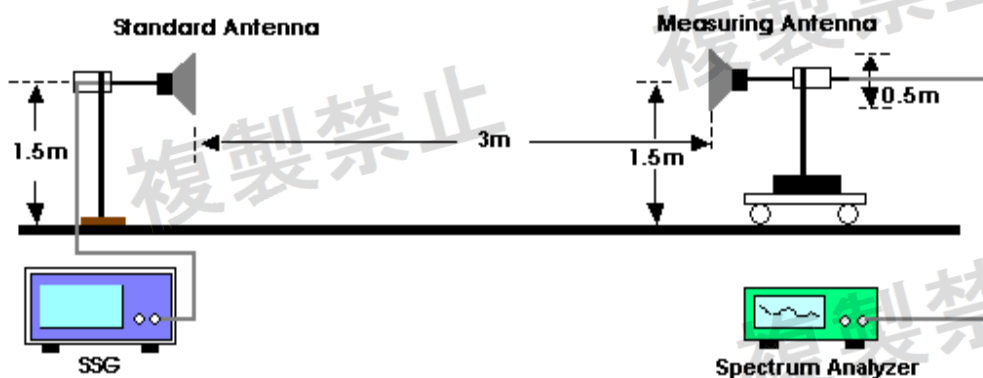
- Set EUT and measuring antenna at the same height and roughly facing each other.
- Move the measuring antenna height up and down within $\pm 50\text{cm}$ of EUT height and swing it to find the maximum output of the measuring antenna. The output level at the spectrum analyzer is read as "E".
- Remove the EUT from the turn table and put the replacing antenna facing to measuring antenna at same height. Set the standard signal generator (SSG) at same frequency and transmit on then receive the signal.
- Swing the replacing antenna give a maximum receiving level.
- Move the measuring antenna height up and down within $\pm 50\text{cm}$ of replacing antenna height and swing it to find the maximum receiving level.
- Set SSG output power at P_t to give the equivalent output level of "E" or calculate P_t with SSG output which gives the nearest of "E" and difference ($\pm 1\text{dB}$). Record the P_t .
- Calculate EIRP by the formula below $\text{EIRP} = G_t - L + P_t$.
 G_t : gain of replacing antenna (dBi)
 L : feeder loss between SSG and replacing antenna
 P_t : Output power of the SSG
- If the antenna for the EUT has circular polarization, sum of V-field and H-field will be result if measuring antenna is linear polarization.

3.6.4 Test Setup

<For EUT radiation measurement>



<For standard antenna measurement>



3.6.5 Test Result of Transmission Antenna Gain (EIRP Antenna Power)

Please refer to Appendix B. For the antenna gain, please refer to antenna test report.

Remark: This test item will not be applied to EIRP power of EUT is lower than 12.14dBm/MHz.

3.7 Transmission Radiation Angle Width (3dB Beamwidth) Measurement

3.7.1 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 EIRP power of EUT is lower than 12.14dBm/MHz.	

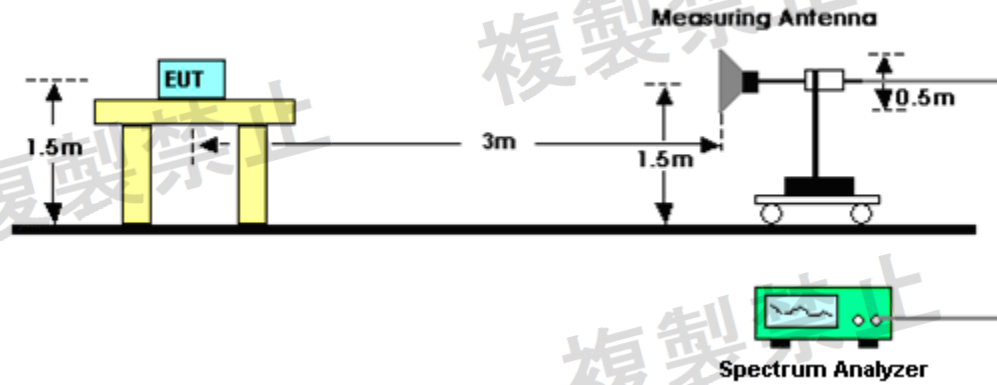
3.7.2 Measuring Instruments

See list of measuring instruments of this test report.

3.7.3 Test Procedures

1. Set EUT and measuring antenna at the same height and roughly facing each other.
2. Set spectrum analyzer with condition in section 3.7.2 and tune reference level to observe receiving signal position.
3. Rotate directions of the EUT horizontally and vertically to find the maximum receiving power.
4. Move the measuring antenna height up and down within $\pm 50\text{cm}$ of EUT height and swing it to find the maximum output of measuring antenna. The output level at the spectrum analyzer is read as "E".
5. Calculate permitted radiation angle in horizontal and vertical using EIRP measured in another test method.
6. Calculate 3dB antenna beam width by the formula below $360/A$ (If $A < 1$; then $A = 1$).
 $A = \{\text{EIRP Power [mW]} / 16.36 \text{ for DS, OFDM}\}$ or
 $A = \{\text{EIRP Power [mW]} / 4.9 \text{ for FH}\}$

3.7.4 Test Setup



3.7.5 Test Result of Transmission Radiation Angle Width (3dB Beamwidth)

Please refer to Appendix B.

For the antenna gain, please refer to antenna test report.

Remark: This test item will not be applied to EIRP power of EUT is lower than 12.14dBm/MHz.

3.8 Radio Interference Prevention Capability Measurement

3.8.1 Limit

Item	Limits
Identification code	≥ 48 bits

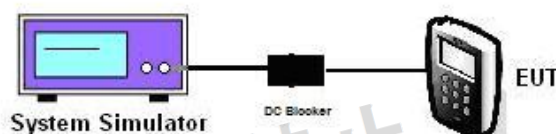
3.8.2 Measuring Instruments

See list of measuring instruments of this test report.

3.8.3 Test Procedures

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.

3.8.4 Test Setup



3.8.5 Test Result of Radio Interference Prevention Capability

Please refer to Appendix B.

3.9 Hopping Frequency Dwell Time Measurement

3.9.1 Limit

Item	Limits
Hopping Freq. Dwell Time	≤ 0.4 seconds

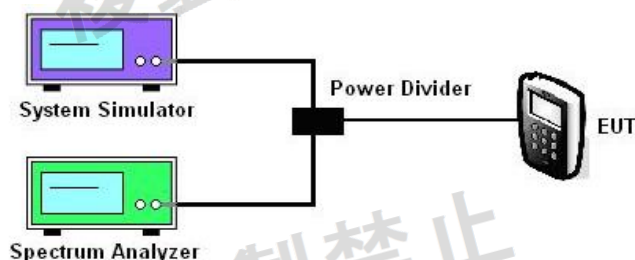
3.9.2 Measuring Instruments

See list of measuring instruments of this test report.

3.9.3 Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Set RBW of spectrum analyzer to 1MHz and VBW to 1MHz.
3. Use a video trigger with the trigger level set to enable triggering only on full pulses.
4. Sweep Time is more than once pulse time.
5. Set the center frequency on any frequency would be measured and set the frequency span to zero span.
6. Measure the maximum time duration of one single pulse.
7. Set the EUT in continuous transmitting for each supported maximum packet format.
8. Measure the maximum time duration of one single pulse.
9. Use the marker-delta function to calculate the dwell time.
10. Dwell Time = Total Number of channels x 0.4(s) x Average Hopping Channel x package transfer time
11. Average Hopping Channel = Total Number of hopping / sweep time

3.9.4 Test Setup



3.9.5 Test Result of Hopping Frequency Dwell Time

Please refer to Appendix B.

3.10 Transmission frequency switching function

3.10.1 Limit

1. Set the test equipment to transmit mode and use a spectrum analyzer to confirm that radio waves at the frequency to be switched are being transmitted.
2. Set the test equipment to transmit operation and use a spectrum analyzer to confirm that the transmission time of the frequency to be switched is within 4 seconds.
(Only transmitters that use Gaussian frequency shift keying and compensate for the drop in equivalent isotropic radiated power with antenna power.)

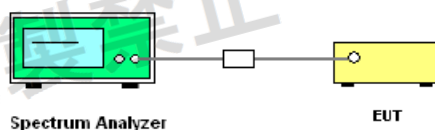
3.10.2 Measuring Instruments

See list of measuring instruments of this test report.

3.10.3 Test Procedures

1. Set the test equipment to transmit operation.
2. SA set RBW: 100KHz and VBW: 100KHz. Bandwidth from the lower limit frequency to the upper limit frequency that the test equipment can switch to.
3. SA set RBW: 100KHz and VBW: 100KHz. Any frequency between the lower limit frequency and the upper limit frequency that the test equipment can switch to.
4. Monitor the EUT, while confirm that the transmission time of the frequency to be switched is within 4 seconds, then record it Good, otherwise, the result is fail.

3.10.4 Test Setup



3.10.5 Test Result

Not Applicable.

3.11 Construction Protection Confirmation Method

3.11.1 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.

3.11.2 Confirmation Method

☒	Sealed with special screws.
☐	Plastic chassis is being welded using ultrasonic waves.
☐	Chassis is glued using a special adhesive.
☐	Metal covers are spot-fused.
☐	Cover is specially interlocked.
☐	RF and Modulation components are covered with shielding case and this shielding case is soldered.
☐	Shield case is welded at RF and modulation parts, and ID-ROM is welded using the BGA Method.
☐	Shield case is welded at RF and modulation parts, and ID-ROM is glued at its lead with a special adhesive.
☐	Shield case is welded at RF and modulation parts, and ID-ROM is glued with a non-transparent laminating agent.
☐	Other :

3.11.3 The Photos of Construction Protection





4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Periods of Test	Due Date	Calibration Body	Calibration Method
Spectrum Analyzer	R&S	FSV40	101040	10Hz~40GHz	Jul. 07, 2025	May 22, 2026~ Jun. 08, 2026	Jul. 06, 2026	Guangzhou Lisai metrology&Test Co., Ltd.	C
Pulse Power Sensor	Anritsu	MA2411B	0917070	300MHz~40GHz	Dec. 25, 2025	May 22, 2026~ Jun. 08, 2026	Dec. 24, 2026	Guangzhou Lisai metrology&Test Co., Ltd.	C
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Dec. 25, 2025	May 22, 2026~ Jun. 08, 2026	Dec. 24, 2026	Guangzhou Lisai metrology&Test Co., Ltd.	C
Bluetooth Tester	R&S	CBT	100783	Max input Power +27dBm	Jul. 02, 2025	May 22, 2026~ Jun. 08, 2026	Jul. 01, 2026	Guangzhou Lisai metrology&Test Co., Ltd.	C
DC Power Supply	GW INSTEK	GPD-2303S	GEO861339	Max 31	Oct. 09, 2025	May 22, 2026~ Jun. 08, 2026	Oct. 08, 2026	Guangzhou Lisai metrology&Test Co., Ltd.	C
Multi-meter	VICTOR	VC890E	100900972	-	Nov. 11, 2025	May 22, 2026~ Jun. 08, 2026	Nov. 10, 2026	Guangzhou Lisai metrology&Test Co., Ltd.	C

Note: Above test equipment was used and kept valid calibration period during test.

Calibration Method :

a) : Calibration conducted by the National Institute of Information and Communications Technology~ NICT~ or a designated calibration agency under Article 102-18 paragraph

(1) TELEC Engineering Center, Intertek Japan K.K., Keysight Technologies, Inc~.

b) : Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992)~Japan Calibration Service System~

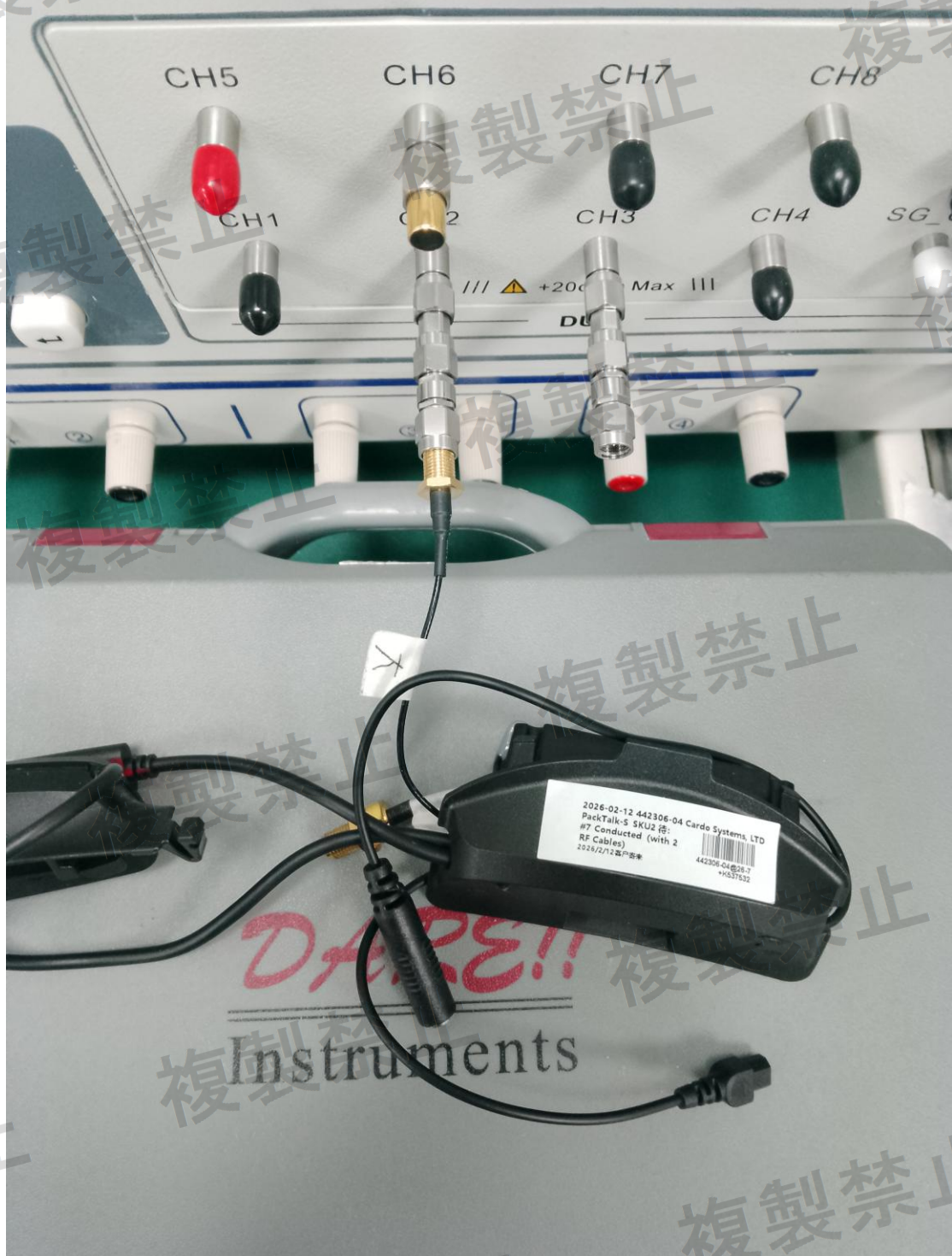
c) : Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph

(1)~ TELEC Engineering Center, Intertek Japan K.K., Keysight Technologies, Inc~.

Appendix A. Setup Photographs

Front View





Near View



Appendix B. Test Results

Please refer to the following pages for test results.

TEST RESULTS DATA
BLUETOOTH(Normal Voltage)

Environment of Test Room		Temperature	23~25 °C	
		Humidity	50~55 %	
Test Engineer		Jiang Jun		
Use the DC Power Supply to adjust Voltage.				
Input Power Voltage:		3.7		VDC
Antenna	No.	Type	Gain	
	2	Printed	0	
	1	Chip	2.21	

Type Emissions			
		Ant 2	Ant 1
BR	Modulatoin Type:	GFSK	GFSK
	Type Emissions:	78M3F1D	78M1F1D
EDR	Modulatoin Type:	8DPSK	8DPSK
	Type Emissions:	78M5G1D	78M5G1D
AFH BR	Modulatoin Type:	GFSK	GFSK
	Type Emissions:	19M6F1D	19M6F1D
AFH EDR	Modulatoin Type:	8DPSK	8DPSK
	Type Emissions:	20M1G1D	20M0G1D

Radio Interference Prevention Capability	----	good	PASS
--	------	------	------

E.I.R.P		Port 2	Port 1	
		Ant 2	Ant 1	
BR	Peak Antenna Gain	0.00	2.21	dBi
	Declaration Output Power	0.500	0.002	mW/MHz
	Declaration Output Power	-3.010	-28.239	dBm/MHz
	E.I.R.P	-3.010	-26.029	dBm/MHz
EDR	Peak Antenna Gain	0.00	2.21	dBi
	Declaration Output Power	0.500	0.002	mW/MHz
	Declaration Output Power	-3.010	-28.239	dBm/MHz
	E.I.R.P	-3.010	-26.029	dBm/MHz
AFH BR	Peak Antenna Gain	0.00	2.21	dBi
	Declaration Output Power	2.000	0.006	mW/MHz
	Declaration Output Power	3.010	-22.218	dBm/MHz
	E.I.R.P	3.010	-20.008	dBm/MHz
AFH EDR	Peak Antenna Gain	0.00	2.21	dBi
	Declaration Output Power	2.000	0.006	mW/MHz
	Declaration Output Power	3.010	-22.218	dBm/MHz
	E.I.R.P	3.010	-20.008	dBm/MHz

Power Tolerance										
Antenna			Ant 2			Ant 1				
BR	Measurement Frequency	MHz	2402	2441	2480	2402	2441	2480	Limit	Result
	Channel Number	Ch	0	39	78	0	39	78	/	-
	Occupied Bandwidth	MHz	78.32			78.12			/	-
	Spread Bandwidth	MHz	71.53			70.73			/	-
	RF Output Power	mW/MHz	0.514			0.001			/	-
	RF Output Power Tolerance	%	2.87			-8.47			+20	PASS
	Output Power (With burst radio)	dBm	15.66			-10.13			/	-
EDR	Measurement Frequency	MHz	2402	2441	2480	2402	2441	2480	Limit	Result
	Channel Number	Ch	0	39	78	0	39	78	/	-
	Occupied Bandwidth	MHz	78.52			78.52			/	-
	Spread Bandwidth	MHz	71.53			71.13			/	-
	RF Output Power	mW/MHz	0.474			0.002			/	-
	RF Output Power Tolerance	%	-5.27			2.86			+20	PASS
	Output Power (With burst radio)	dBm	15.30			-9.60			/	-
AFH BR	Measurement Frequency	MHz	2402	2411	2421	2402	2411	2421	Limit	Result
	Channel Number	Ch	0	9	19	0	9	19	/	-
	Occupied Bandwidth	MHz	19.58			19.58			/	-
	Spread Bandwidth	MHz	18.28			18.08			/	-
	RF Output Power	mW/MHz	2.012			0.005			/	-
	RF Output Power Tolerance	%	0.62			-10.50			+20	PASS
	Output Power (With burst radio)	dBm	15.66			-10.13			/	-
AFH EDR	Measurement Frequency	MHz	2402	2411	2421	2402	2411	2421	Limit	Result
	Channel Number	Ch	0	9	19	0	9	19	/	-
	Occupied Bandwidth	mW/MHz	20.08			19.98			/	-
	Spread Bandwidth	mW/MHz	18.33			18.23			/	-
	RF Output Power	mW/MHz	1.848			0.006			/	-
	RF Output Power Tolerance	%	-7.59			0.32			+20	PASS
	Output Power (With burst radio)	dBm	15.30			-9.60			/	-

Burst			
Antenna		Ant 2	Ant 1
BR	ON TIME(msec)	2.883	2.884
	OFF TIME(msec)	0.877	0.868
	Ratio(%)	76.68	76.86
	Packet Type (Mode)	DH5	DH5
EDR	ON TIME(msec)	2.883	2.910
	OFF TIME(msec)	0.877	0.849
	Ratio(%)	76.68	77.41
	Packet Type (Mode)	3-DH5	3-DH5
AFH BR	ON TIME(msec)	2.883	2.884
	OFF TIME(msec)	0.877	0.868
	Ratio(%)	76.68	76.86
	Packet Type (Mode)	DH5	DH5
AFH EDR	ON TIME(msec)	2.883	2.910
	OFF TIME(msec)	0.877	0.849
	Ratio(%)	76.68	77.41
	Packet Type (Mode)	3-DH5	3-DH5
Cable loss		6	

TEST RESULTS DATA
BLUETOOTH LE(Normal Voltage)

Environment of Test Room		Temperature	23~25 °C
		Humidity	50~55 %
Test Engineer		Jiang Jun	
Use the DC Power Supply to adjust Voltage.			
Input Power Voltage:		3.7	
Antenna	No.	Type	Gain
	1	Chip	2.21
	-		

Type Emissions		
		Ant 1
BLE 1M	Modulatoin Type:	GFSK
	Type Emissions:	1M04F1D
BLE 2M	Modulatoin Type:	GFSK
	Type Emissions:	2M05F1D

Radio Interference Prevention Capability	-----	good	PASS
--	-------	------	------

E.I.R.P		Port 1	
		Ant 1	
BLE 1M	Peak Antenna Gain	2.21	dBi
	Declaration Output Power	0.025	Mw
	Declaration Output Power	-16.021	dBm
	E.I.R.P	-13.811	dBm
BLE 2M	Peak Antenna Gain	2.21	dBi
	Declaration Output Power	0.025	Mw
	Declaration Output Power	-16.021	dBm
	E.I.R.P	-13.811	dBm

Power Tolerance							
Antenna			Ant 1				
BLE 1M	Measurement Frequency	MHz	2402	2440	2480	Limit	Result
	Channel Number	Ch	0	19	39	/	-
	RF Output Power	mW	0.015	0.019	0.012	/	-
	RF Output Power Tolerance	%	-40.34	-22.97	-53.37	+20	PASS
	Output Power (With burst radio)	dBm	-18.26	-17.15	-19.33	/	-
BLE 2M	Measurement Frequency	MHz	2402	2440	2480	Limit	Result
	Channel Number	Ch	0	19	39	/	-
	RF Output Power	mW	0.018	0.025	0.018	/	-
	RF Output Power Tolerance	%	-26.60	-0.31	-29.91	+20	PASS
	Output Power (With burst radio)	dBm	-17.36	-16.03	-17.56	/	-

Burst		
Antenna		Ant 1
BLE 1M	ON TIME(msec)	0.394
	OFF TIME(msec)	0.232
	Ratio(%)	62.96
	Packet Type (Mode)	Low Energy
BLE 2M	ON TIME(msec)	0.206
	OFF TIME(msec)	0.420
	Ratio(%)	32.87
	Packet Type (Mode)	Low Energy
Cable loss		6



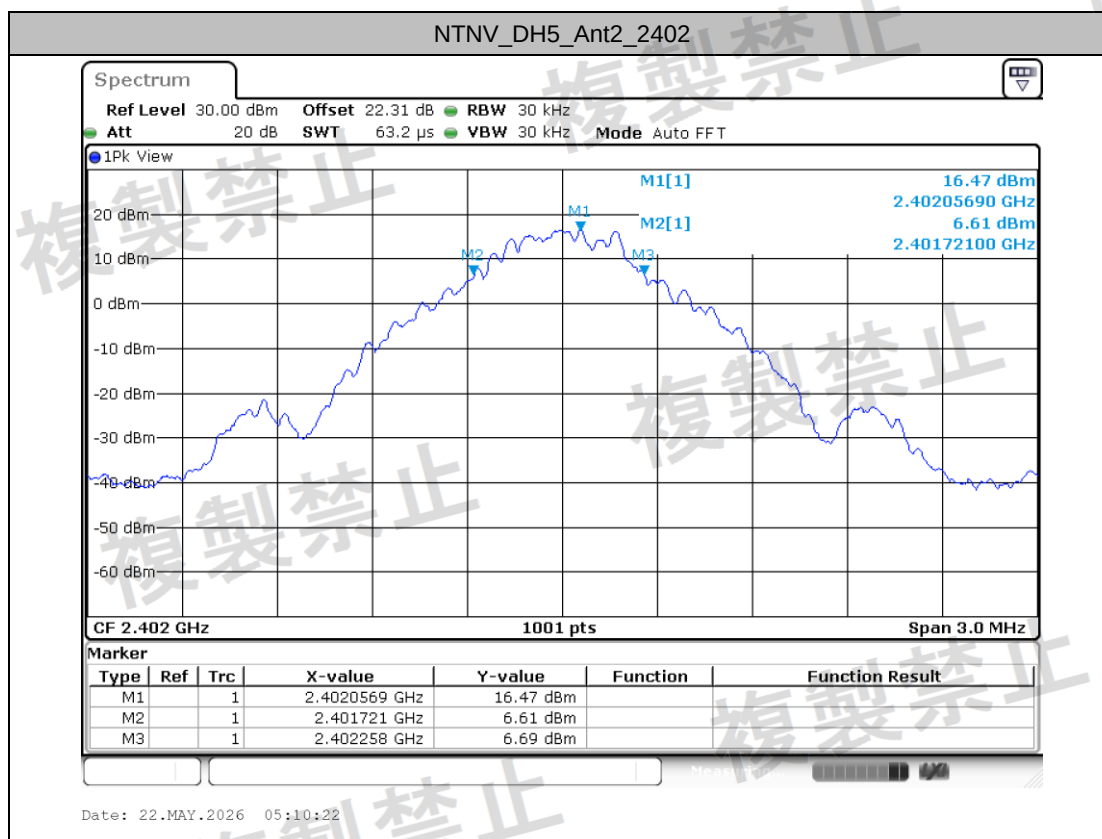
<Bluetooth BR/EDR Ant 2>

Frequency_Error

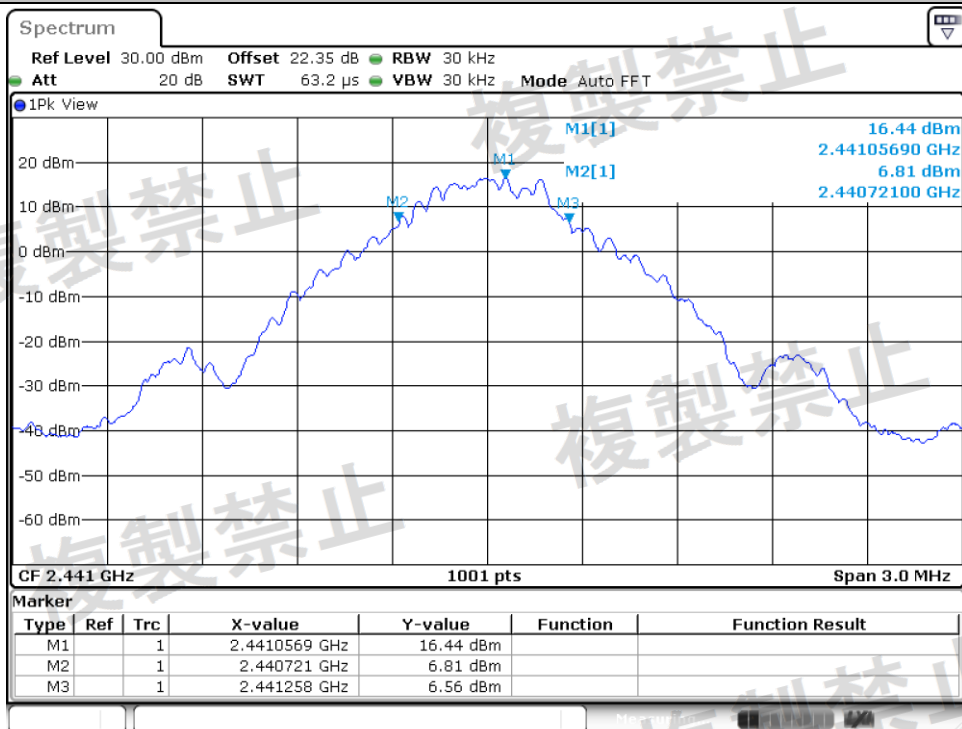
Test Result

Test Condition	Test Mode	Antenna	Freq(MHz)	CenterFreq [MHz]	Result[ppm]	Limit[ppm]	Verdict
NTNV	DH5	Ant2	2402	2401.9895	-4.37136	±50	PASS
			2441	2440.9895	-4.30152	±50	PASS
			2480	2479.9895	-4.23387	±50	PASS
	3DH5	Ant2	2402	2402	0.00000	±50	PASS
			2441	2441	0.00000	±50	PASS
			2480	2480.009	3.62903	±50	PASS
	AFH_DH5	Ant2	2402	2401.9895	-4.37136	±50	PASS
			2411	2410.9895	-4.35504	±50	PASS
			2421	2420.9895	-4.33705	±50	PASS
	AFH_3DH5	Ant2	2402	2402	0.00000	±50	PASS
			2411	2411	0.00000	±50	PASS
			2421	2421	0.00000	±50	PASS

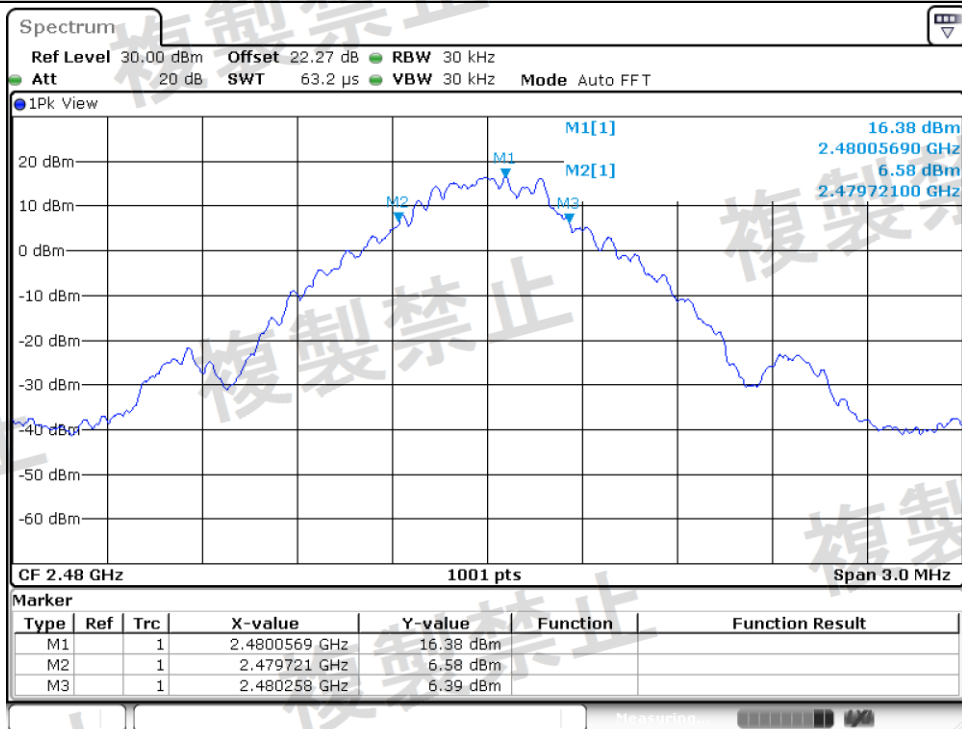
Test Graphs

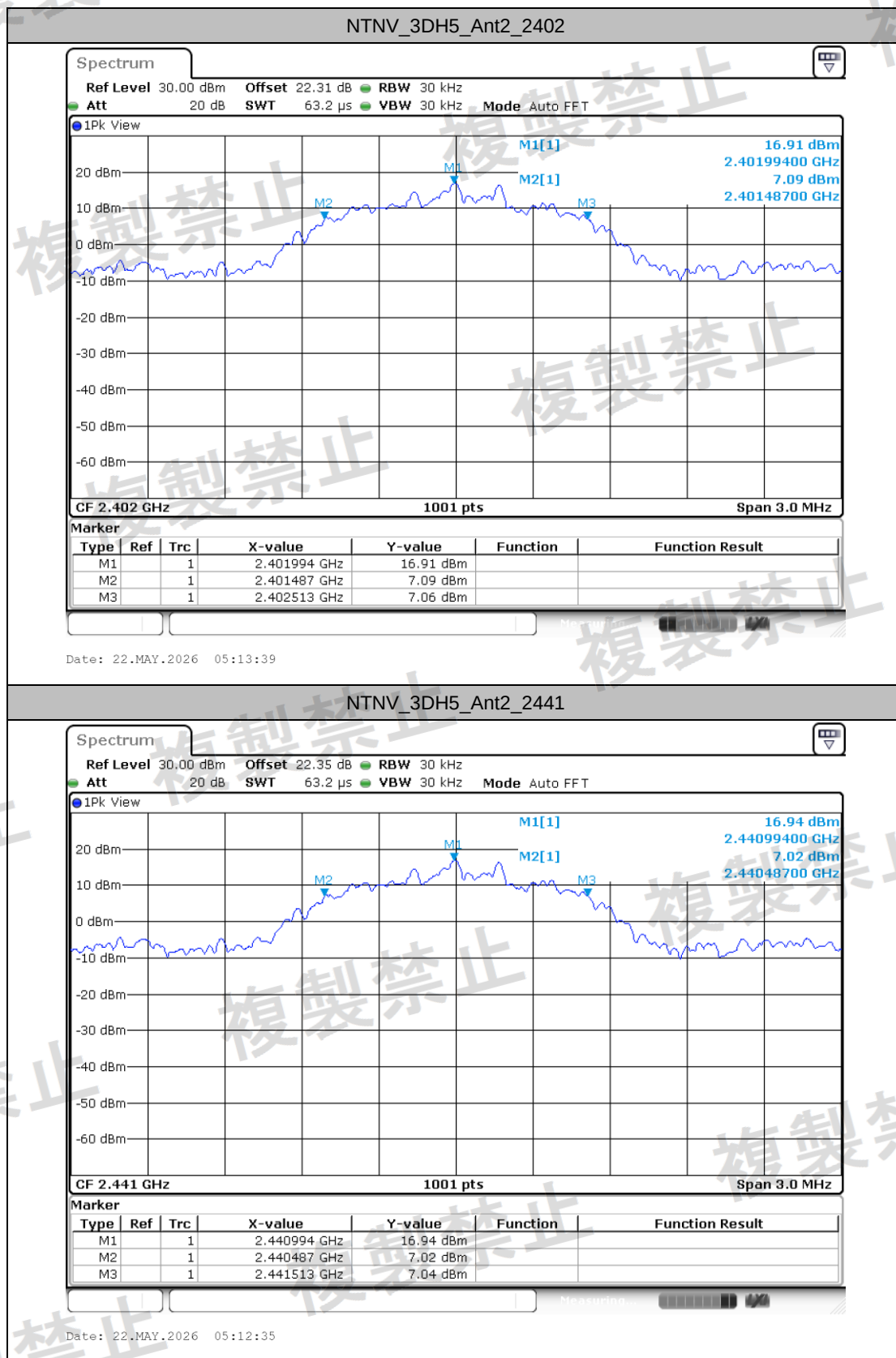


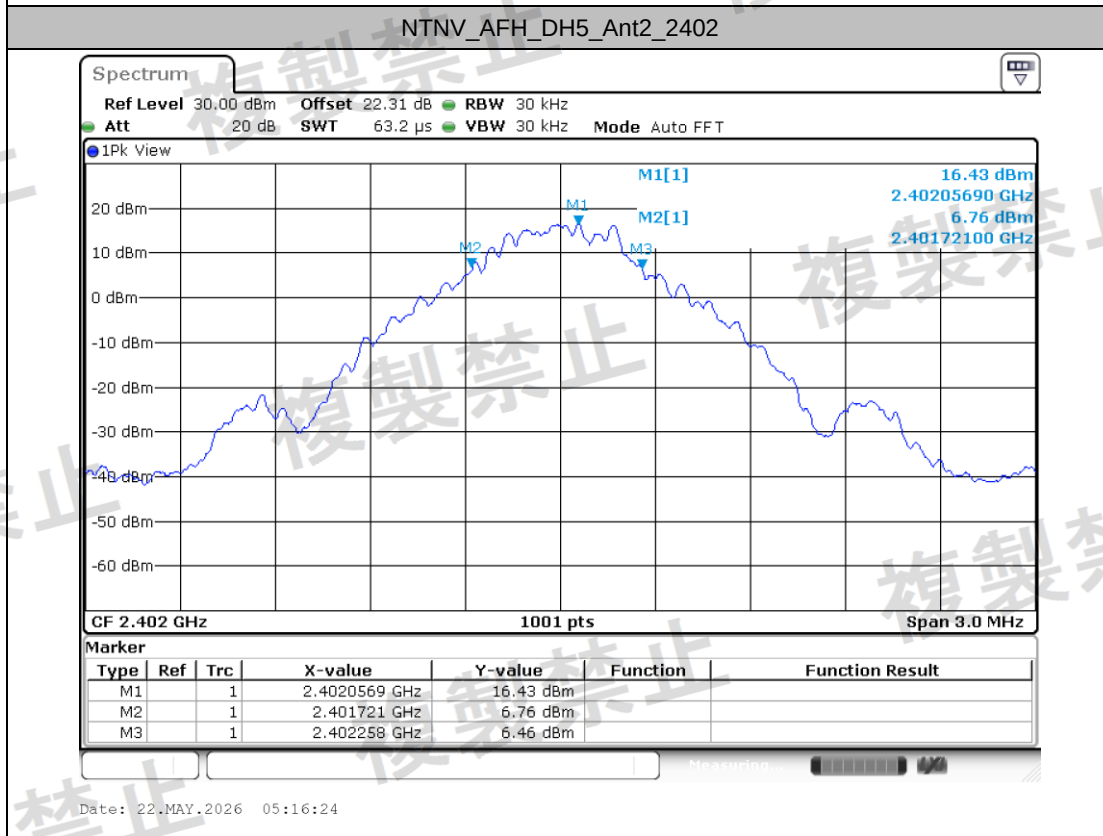
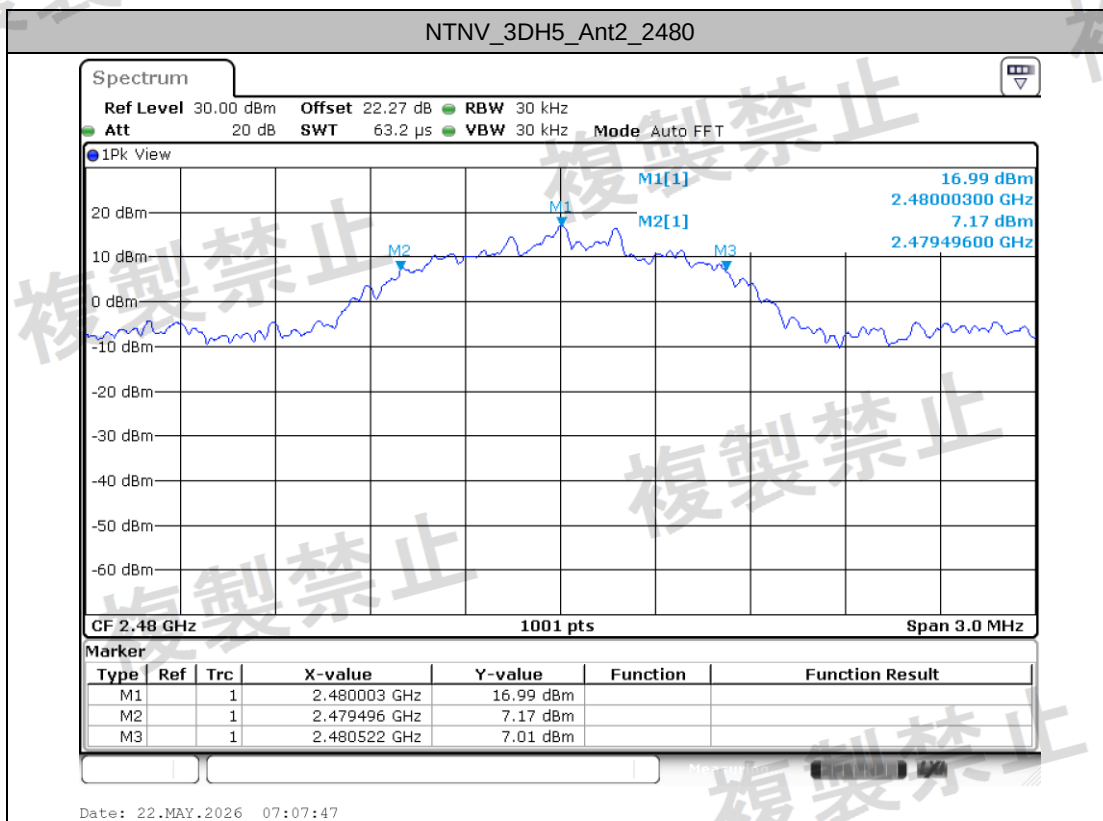
NTNV_DH5_Ant2_2441

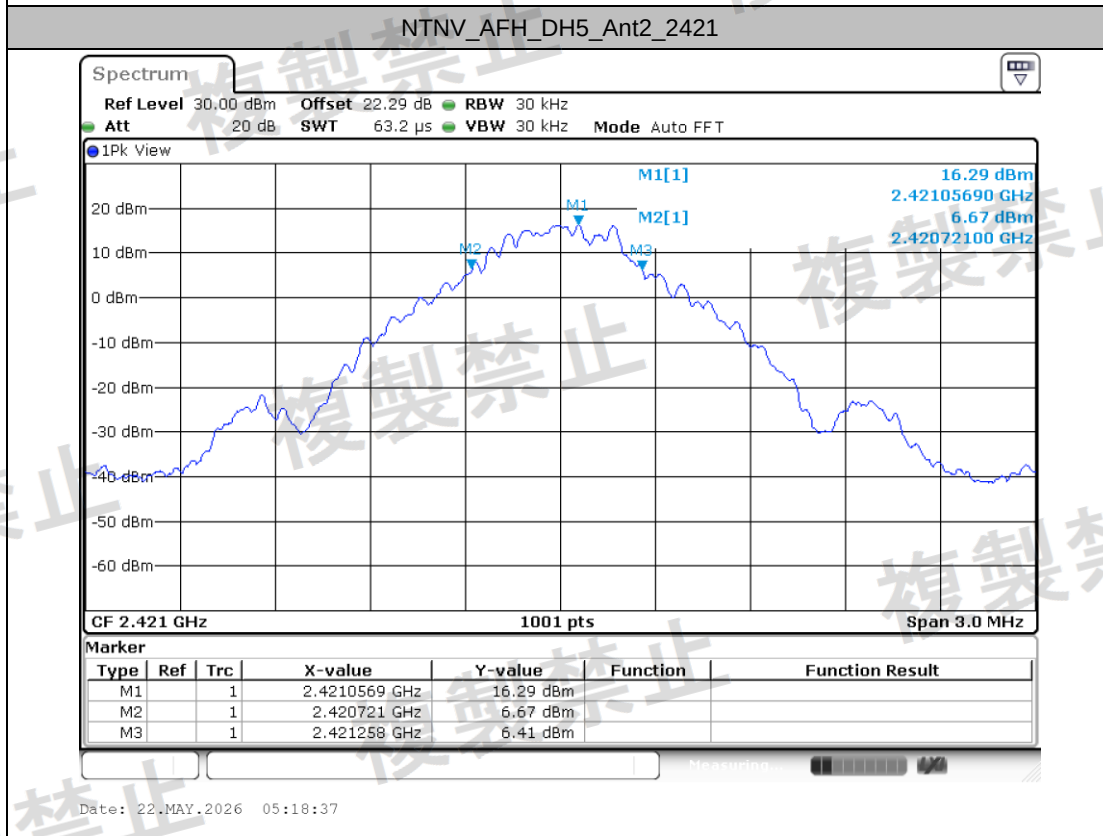
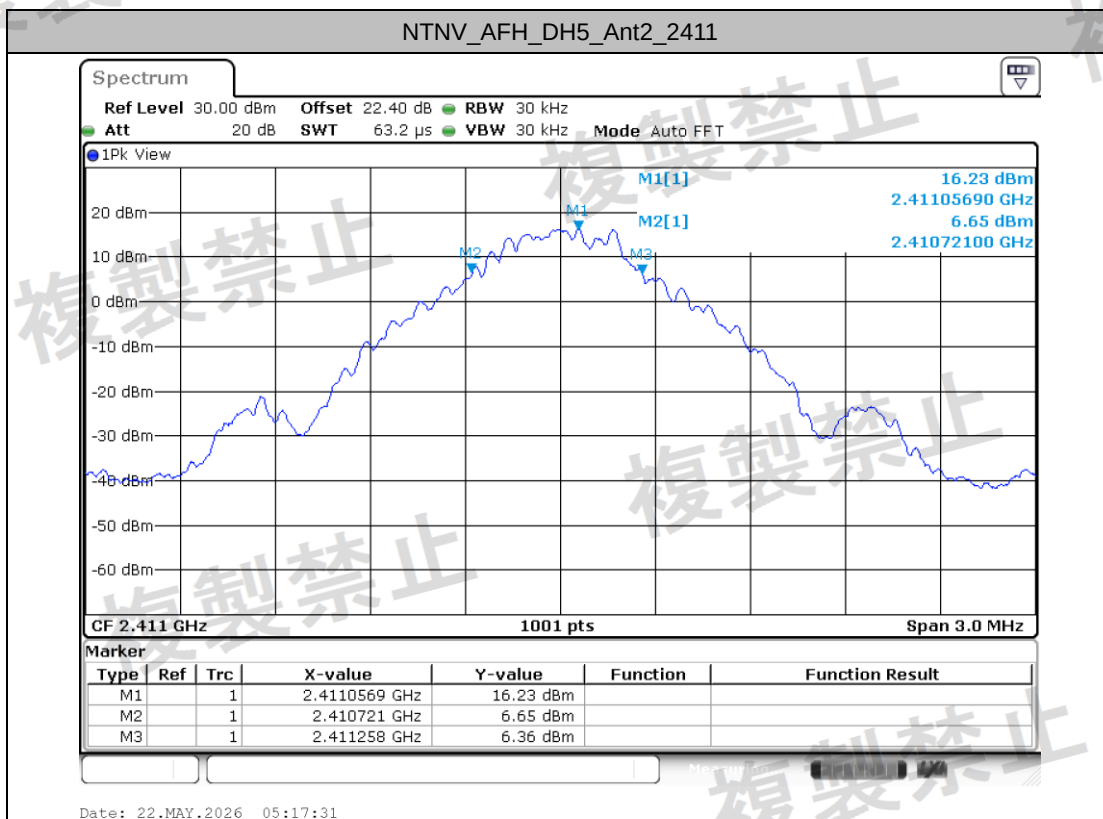


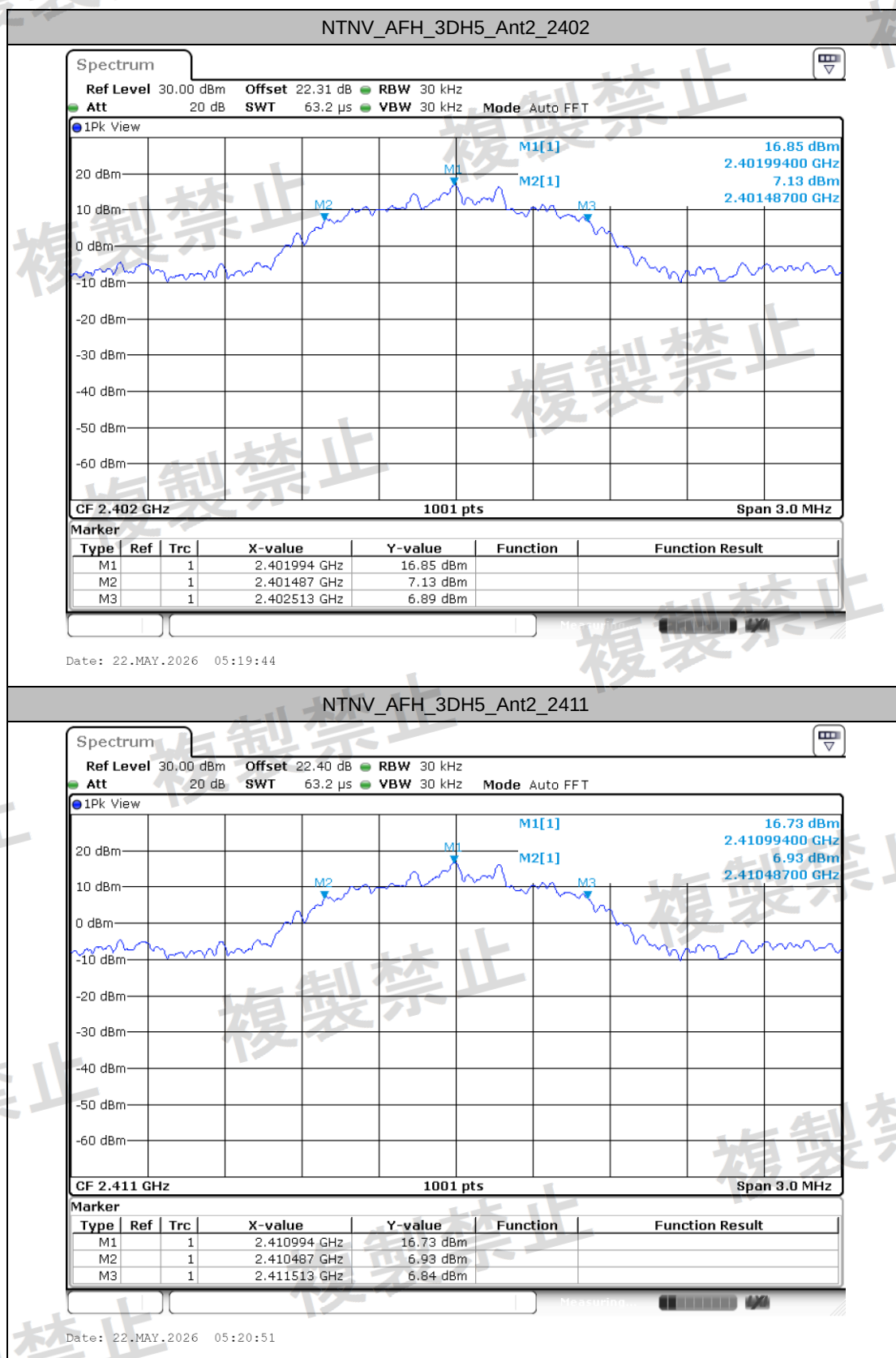
NTNV_DH5_Ant2_2480

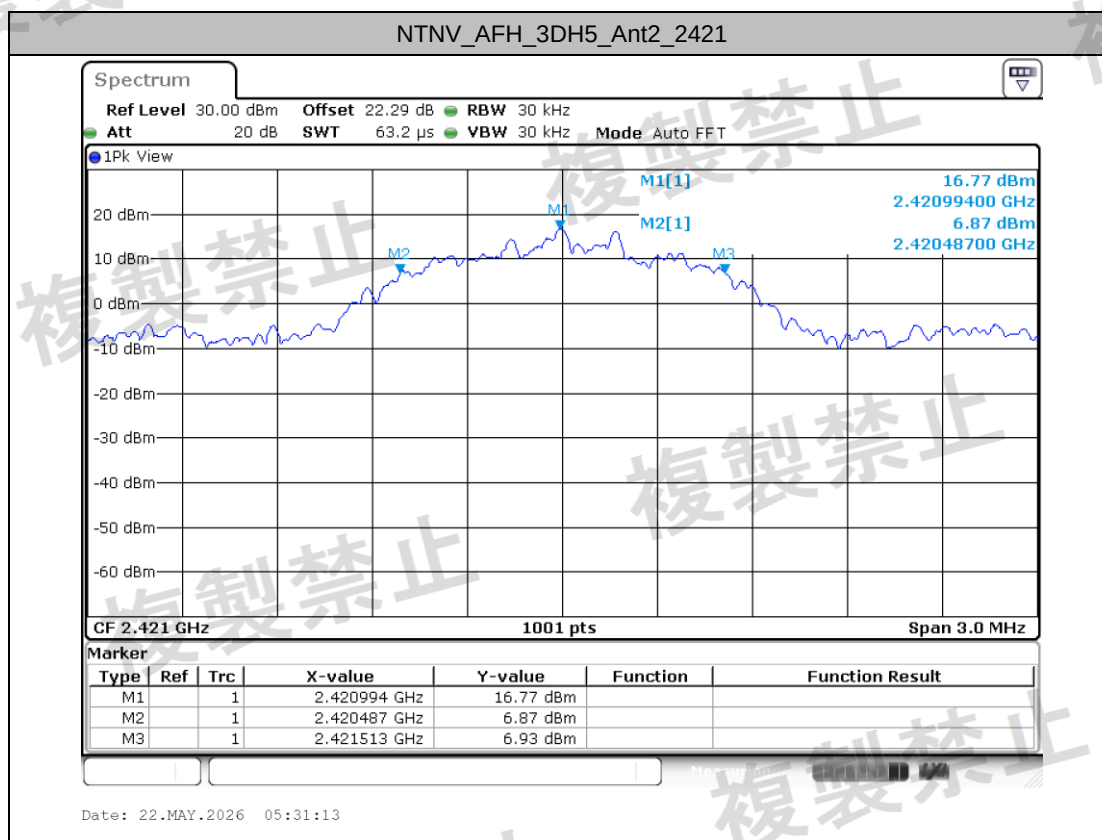












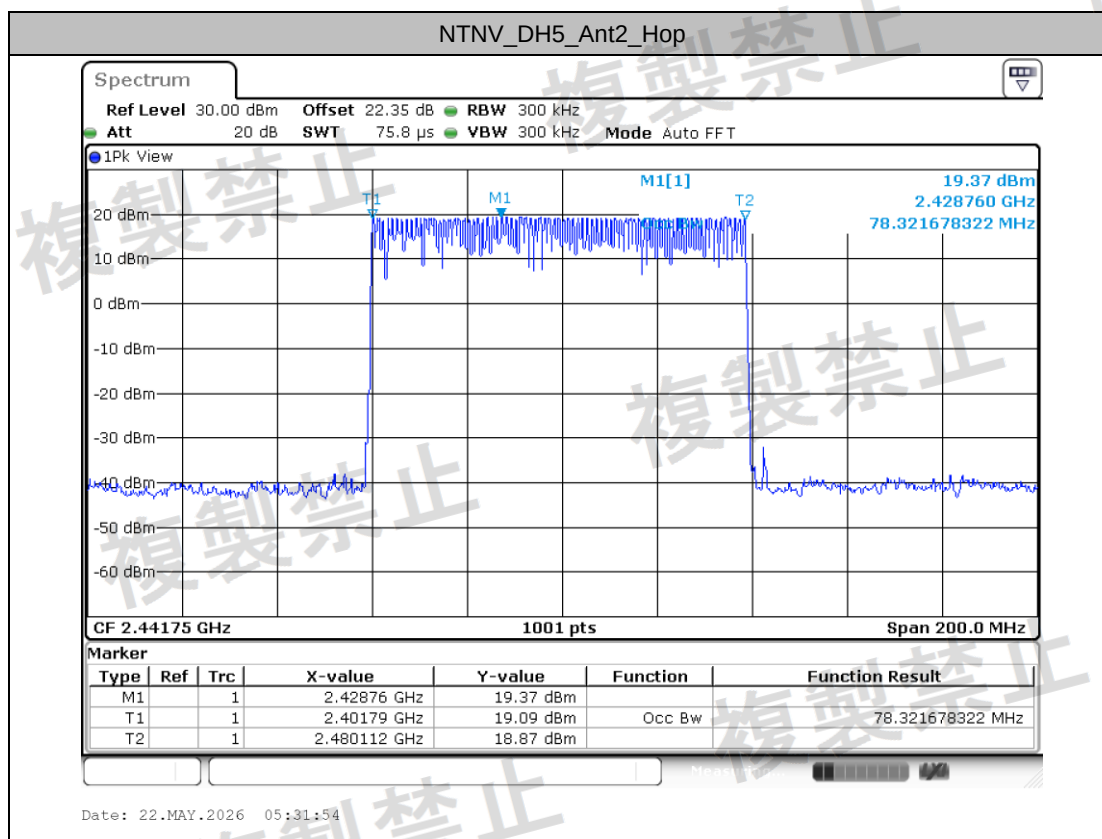


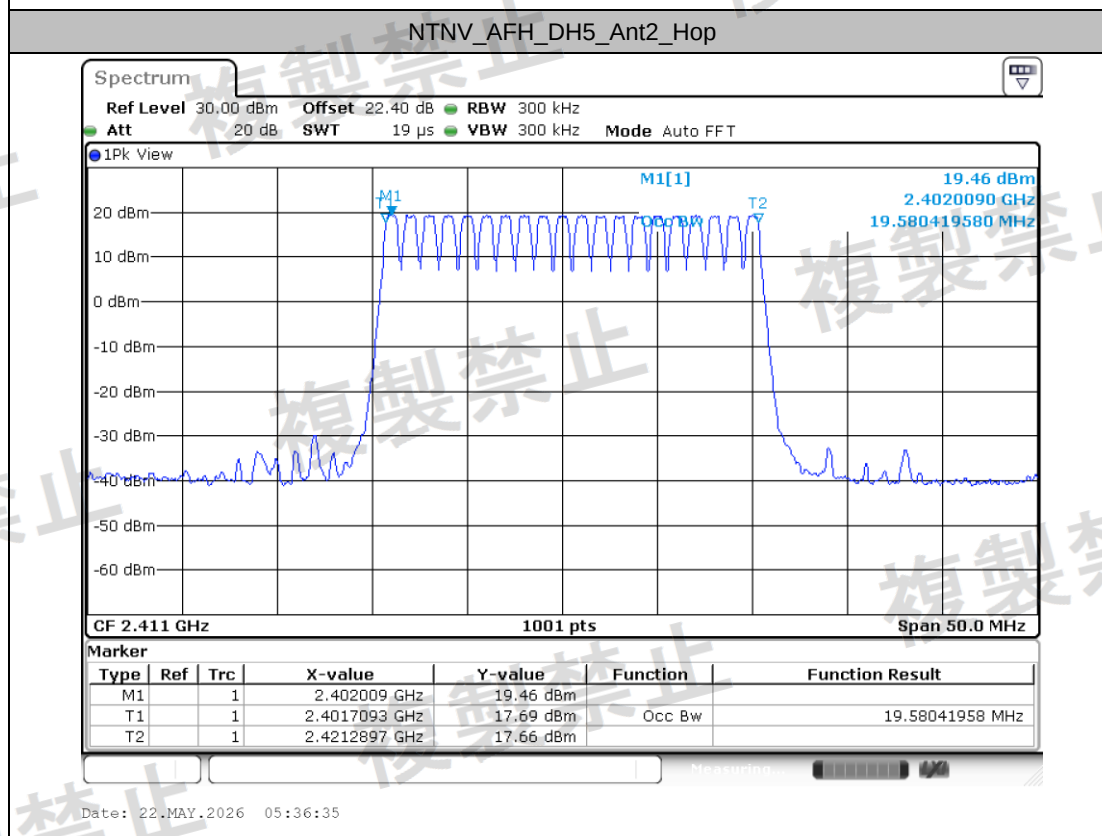
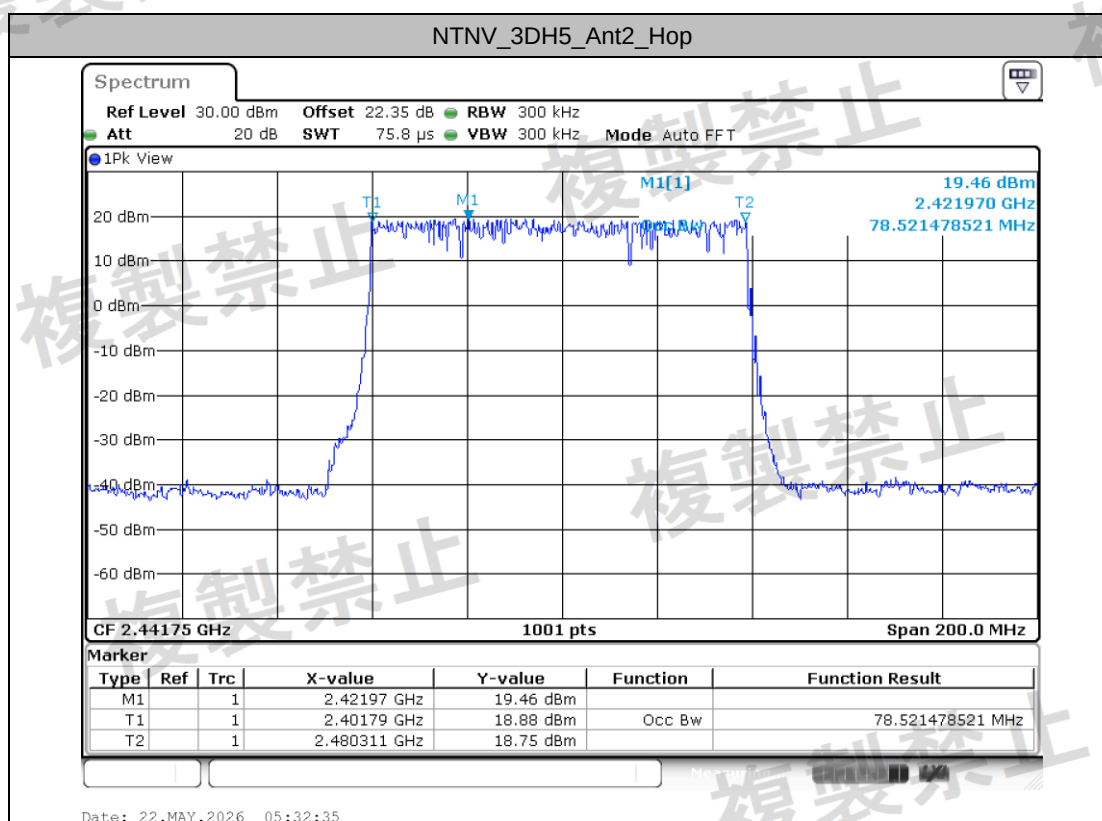
Occupied Bandwidth

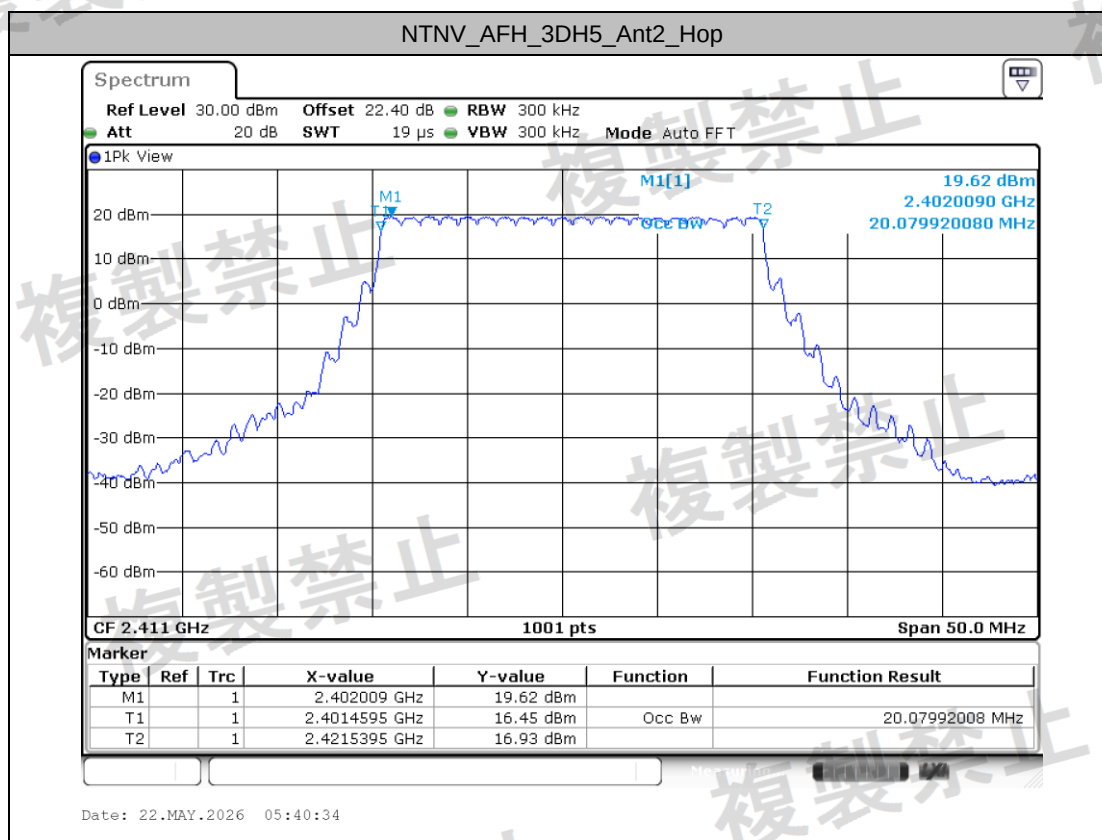
Test Result

Test Condition	Test Mode	Antenna	Freq(MHz)	Result [MHz]	Limit [MHz]	Verdict
NTNV	DH5	Ant2	Hop	78.322	≤83.5	PASS
	3DH5	Ant2	Hop	78.521	≤83.5	PASS
	AFH_DH5	Ant2	Hop	19.580	≤83.5	PASS
	AFH_3DH5	Ant2	Hop	20.080	≤83.5	PASS

Test Graphs







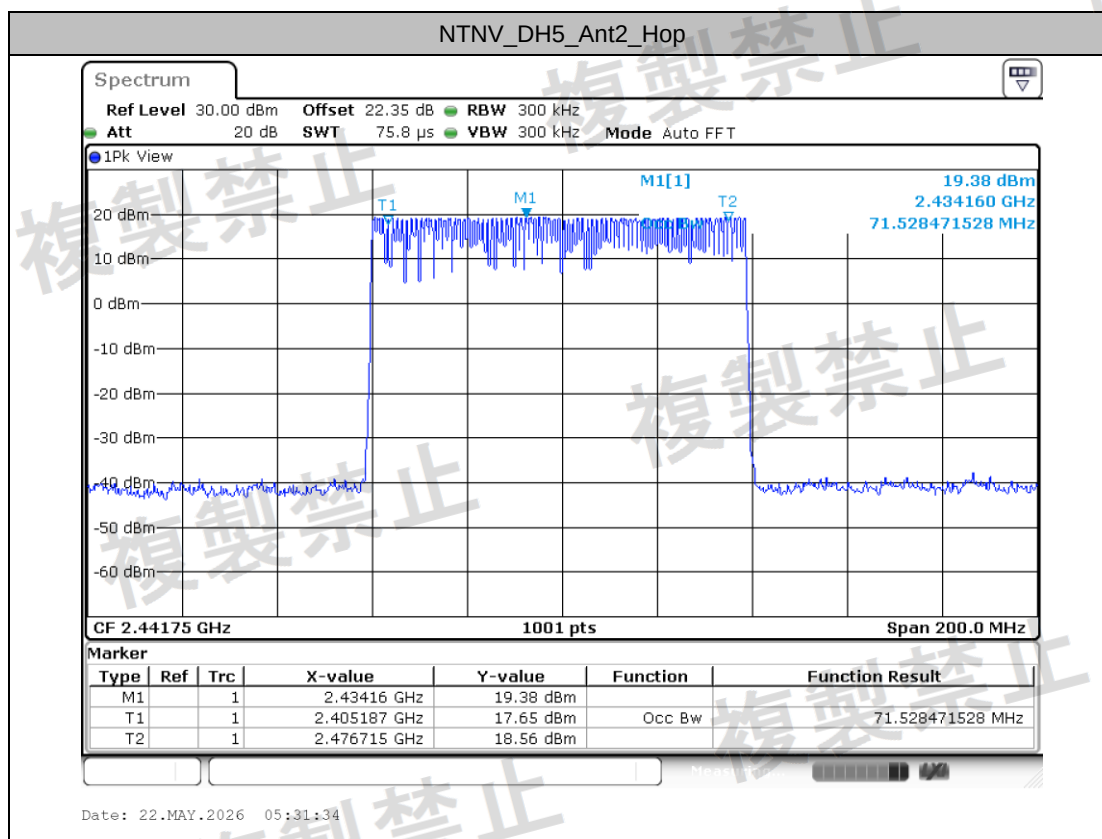


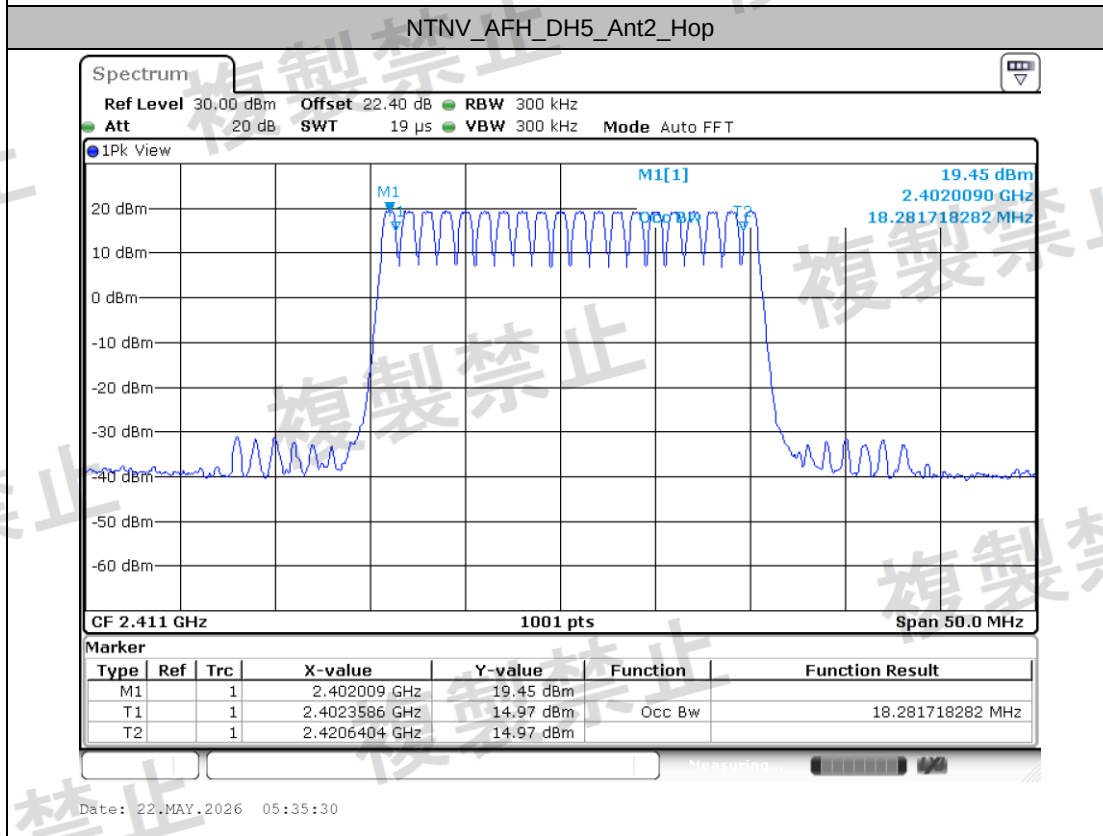
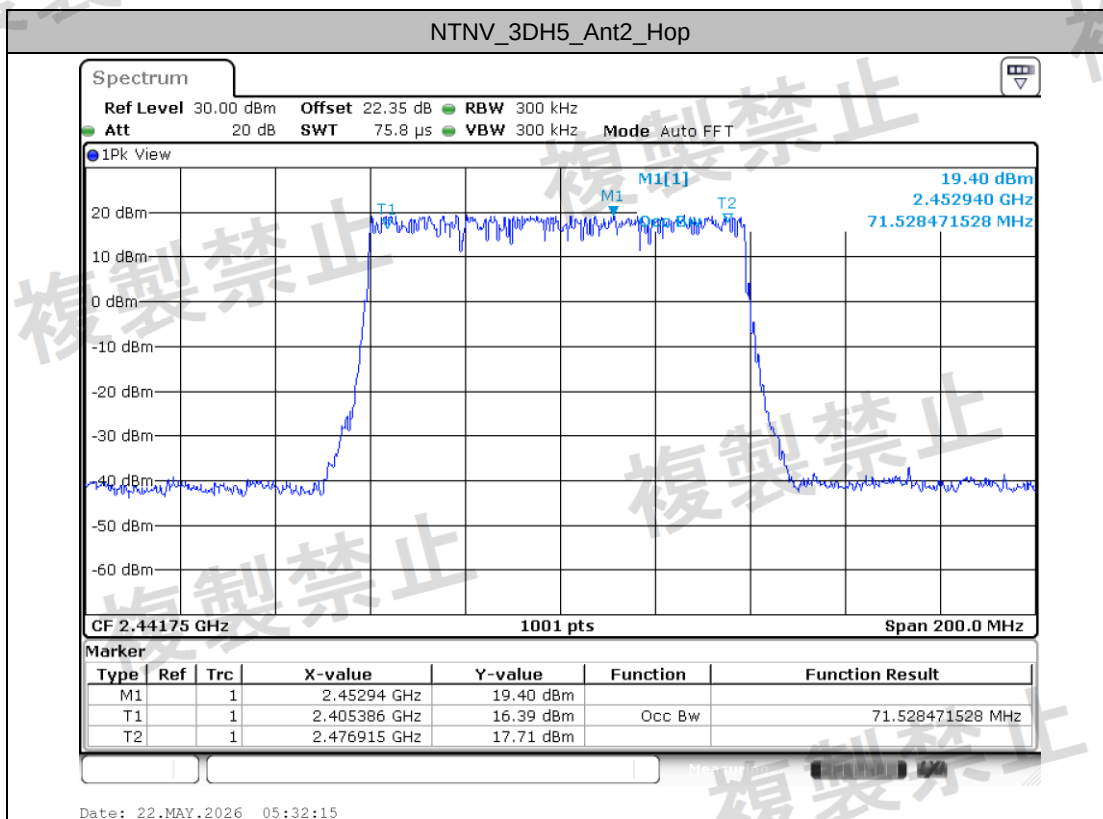
Spread Bandwidth

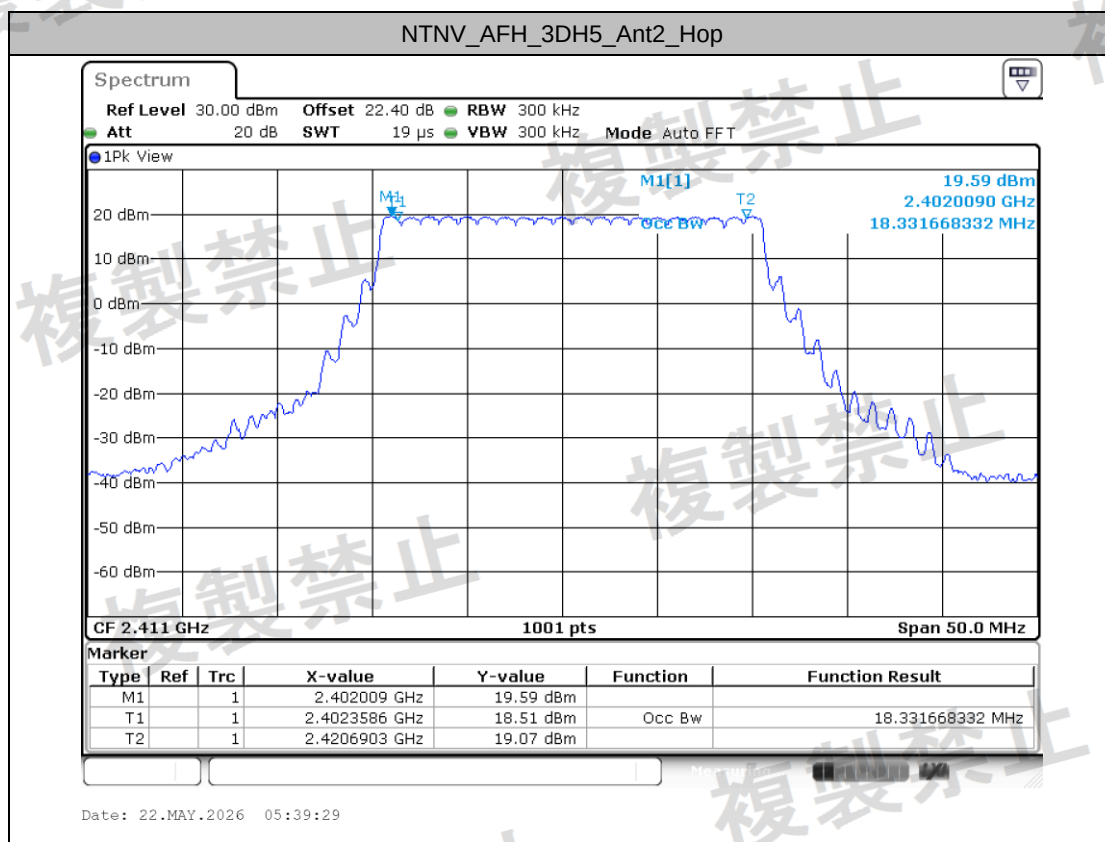
Test Result

Test Condition	Test Mode	Antenna	Freq (MHz)	Result [MHz]
NTNV	DH5	Ant2	Hop	71.528
	3DH5	Ant2	Hop	71.528
	AFH_DH5	Ant2	Hop	18.282
	AFH_3DH5	Ant2	Hop	18.332

Test Graphs







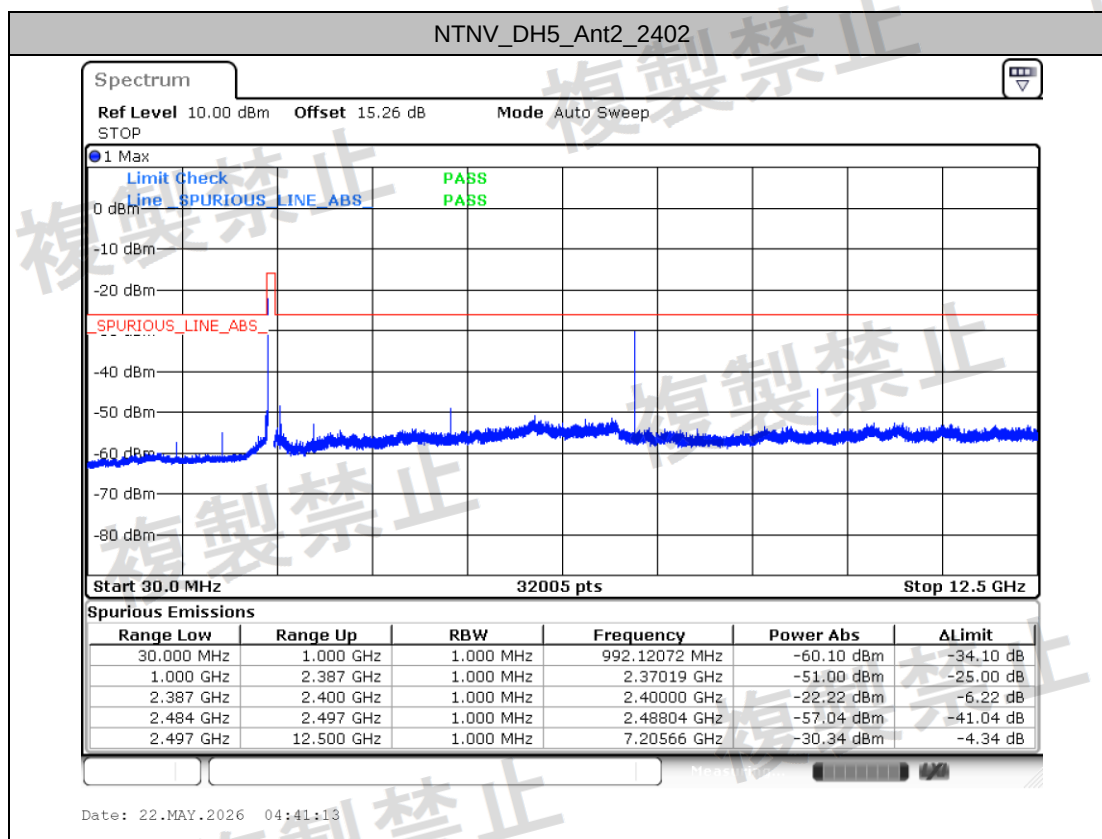
Unwanted Emission Intensity

Test Result

Test Condition	Test Mode	Antenna	Freq (MHz)	Freq.Range [MHz]	Freq. [MHz]	Result [dBm /MHz]	Limit [dBm /MHz]	Result [μW /MHz]	Limit [μW /MHz]	Verdict
NTNV	DH5	Ant2	2402	30~1000	992.12	-60.10	-26.00	0.00098	2.5	PASS
				1000~2387	2370.19	-51.00	-26.00	0.00794	2.5	PASS
				2387~2400	2400.00	-22.22	-16.00	5.99791	25	PASS
				2483.5~2496.5	2488.04	-57.04	-16.00	0.00198	25	PASS
				2496.5~12500	7205.66	-30.34	-26.00	0.92470	2.5	PASS
			2441	30~1000	966.66	-59.84	-26.00	0.00104	2.5	PASS
				1000~2387	2280.40	-51.18	-26.00	0.00762	2.5	PASS
				2387~2400	2399.43	-56.52	-16.00	0.00223	25	PASS
				2483.5~2496.5	2491.88	-56.24	-16.00	0.00238	25	PASS
				2496.5~12500	7323.20	-32.80	-26.00	0.52481	2.5	PASS
			2480	30~1000	954.30	-59.71	-26.00	0.00107	2.5	PASS
				1000~2387	1859.90	-50.84	-26.00	0.00824	2.5	PASS
				2387~2400	2398.93	-51.80	-16.00	0.00661	25	PASS
				2483.5~2496.5	2487.98	-39.99	-16.00	0.10023	25	PASS
				2496.5~12500	7440.73	-34.35	-26.00	0.36728	2.5	PASS
	3DH5	Ant2	2402	30~1000	837.93	-60.28	-26.00	0.00094	2.5	PASS
				1000~2387	2386.83	-47.03	-26.00	0.01982	2.5	PASS
				2387~2400	2400.00	-18.77	-16.00	13.27394	25	PASS
				2483.5~2496.5	2489.95	-58.35	-16.00	0.00146	25	PASS
				2496.5~12500	7206.66	-49.89	-26.00	0.01026	2.5	PASS
			2441	30~1000	964.24	-60.07	-26.00	0.00098	2.5	PASS
				1000~2387	1830.78	-50.36	-26.00	0.00920	2.5	PASS
				2387~2400	2399.73	-55.85	-16.00	0.00260	25	PASS
				2483.5~2496.5	2485.42	-55.91	-16.00	0.00256	25	PASS
				2496.5~12500	7322.70	-28.69	-26.00	1.35207	2.5	PASS
		2480		30~1000	965.21	-60.01	-26.00	0.00100	2.5	PASS
				1000~2387	1859.90	-49.65	-26.00	0.01084	2.5	PASS
				2387~2400	2392.29	-57.20	-16.00	0.00191	25	PASS
				2483.5~2496.5	2483.50	-17.51	-16.00	17.74189	25	PASS
				2496.5~12500	7439.73	-30.76	-26.00	0.83946	2.5	PASS
	AFH_DH5	Ant2	2402	30~1000	719.62	-57.95	-26.00	0.00160	2.5	PASS
				1000~2387	2081.76	-50.52	-26.00	0.00887	2.5	PASS

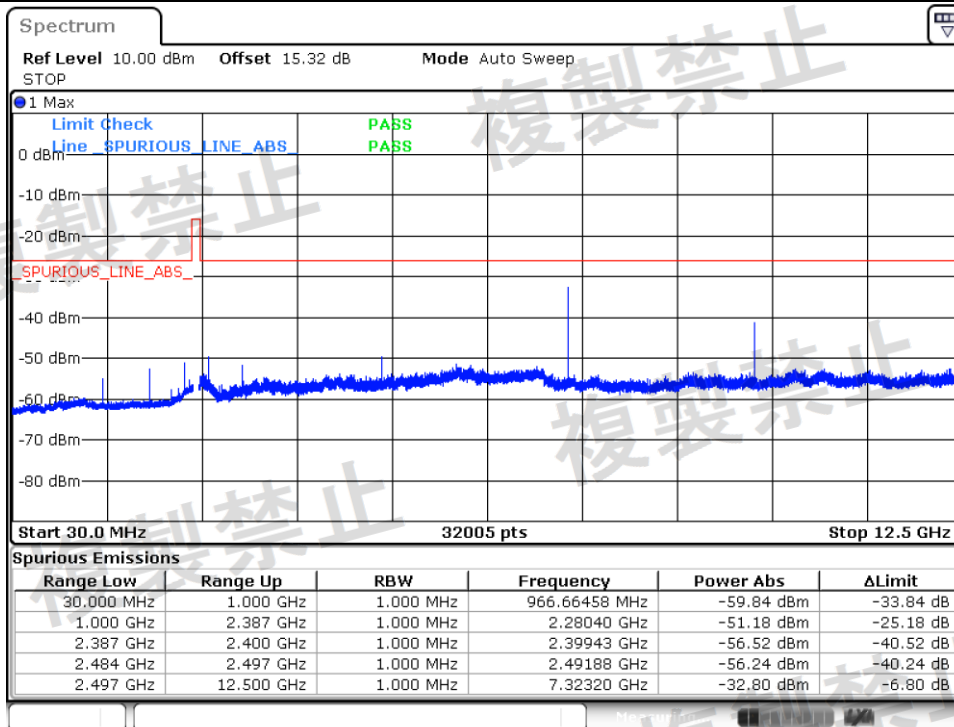
	AFH_3DH5	Ant2		2387~2400	2400.00	-22.35	-16.00	5.82103	25	PASS
				2483.5~2496.5	2491.62	-57.06	-16.00	0.00197	25	PASS
				2496.5~12500	7206.66	-30.45	-26.00	0.90157	2.5	PASS
			2411	30~1000	704.35	-54.67	-26.00	0.00341	2.5	PASS
				1000~2387	2378.85	-50.79	-26.00	0.00834	2.5	PASS
				2387~2400	2398.63	-49.82	-16.00	0.01042	25	PASS
				2483.5~2496.5	2484.59	-56.79	-16.00	0.00209	25	PASS
				2496.5~12500	7232.67	-30.49	-26.00	0.89331	2.5	PASS
			2421	30~1000	722.04	-44.75	-26.00	0.03350	2.5	PASS
				1000~2387	2260.64	-51.78	-26.00	0.00664	2.5	PASS
				2387~2400	2388.89	-50.56	-16.00	0.00879	25	PASS
				2483.5~2496.5	2485.11	-56.01	-16.00	0.00251	25	PASS
				2496.5~12500	7263.68	-30.97	-26.00	0.79983	2.5	PASS
			2402	30~1000	977.82	-60.14	-26.00	0.00097	2.5	PASS
				1000~2387	2386.83	-46.99	-26.00	0.02000	2.5	PASS
				2387~2400	2400.00	-18.75	-16.00	13.33521	25	PASS
				2483.5~2496.5	2491.52	-58.47	-16.00	0.00142	25	PASS
				2496.5~12500	2561.77	-47.68	-26.00	0.01706	2.5	PASS
			2411	30~1000	713.56	-49.82	-26.00	0.01042	2.5	PASS
				1000~2387	2379.20	-48.79	-26.00	0.01321	2.5	PASS
				2387~2400	2400.00	-41.30	-16.00	0.07413	25	PASS
				2483.5~2496.5	2483.58	-56.58	-16.00	0.00220	25	PASS
				2496.5~12500	7233.17	-27.13	-26.00	1.93642	2.5	PASS
			2421	30~1000	704.59	-45.41	-26.00	0.02877	2.5	PASS
				1000~2387	1815.87	-51.26	-26.00	0.00748	2.5	PASS
				2387~2400	2389.31	-48.95	-16.00	0.01274	25	PASS
				2483.5~2496.5	2485.13	-54.18	-16.00	0.00382	25	PASS
				2496.5~12500	7263.68	-26.52	-26.00	2.22844	2.5	PASS

Test Graphs

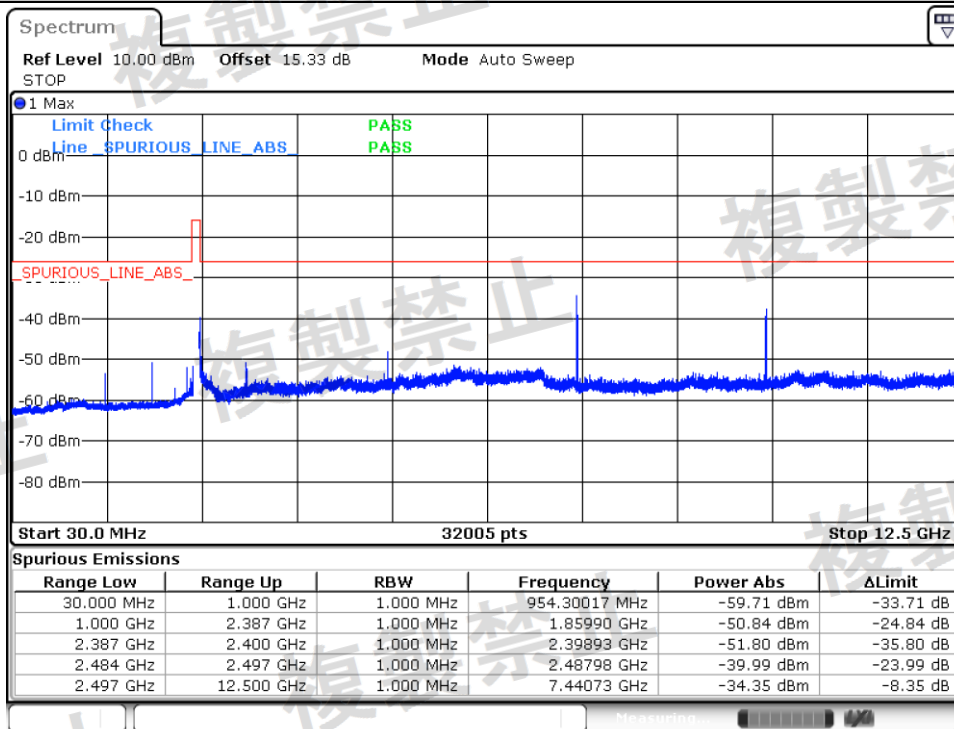


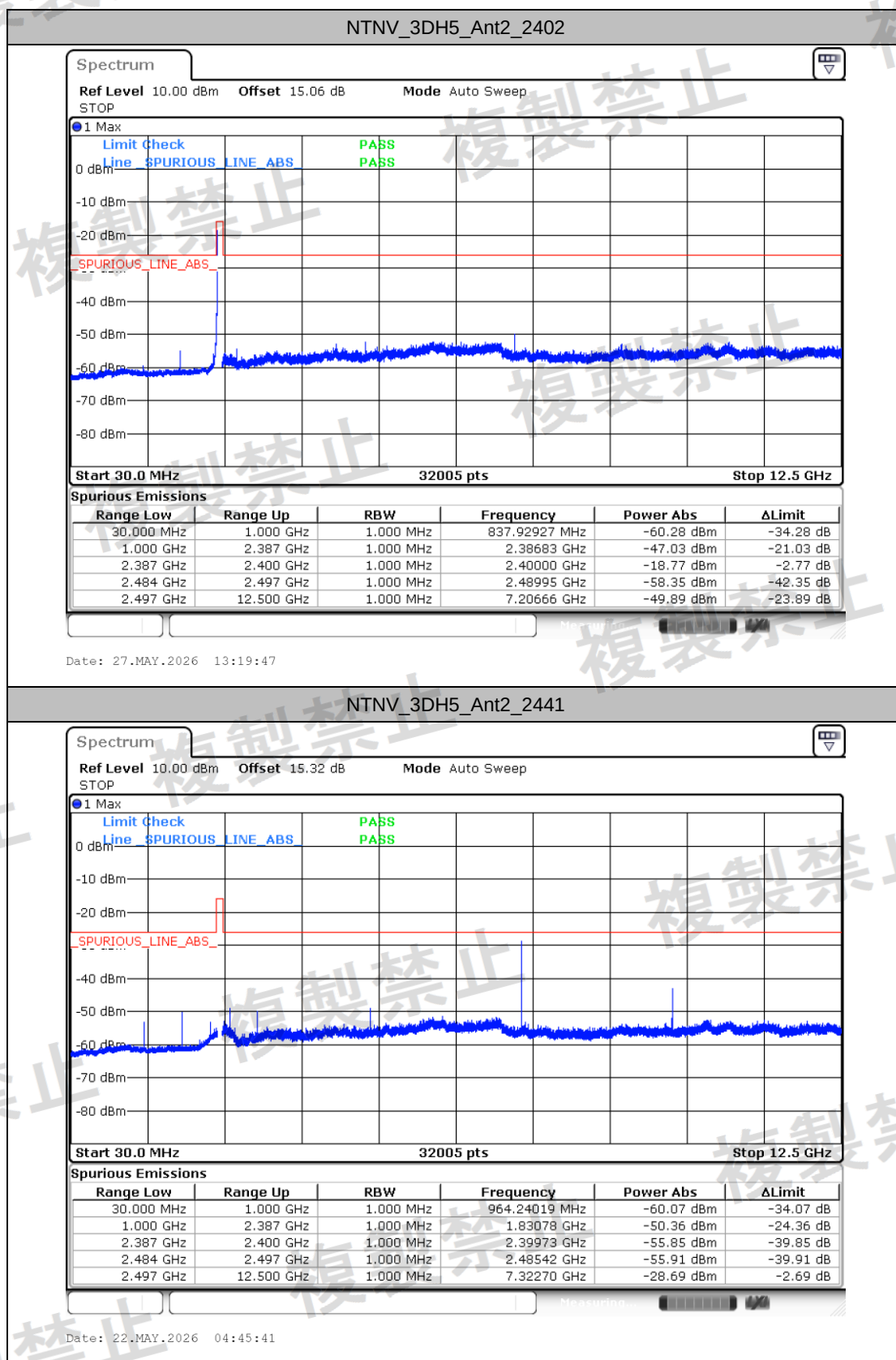


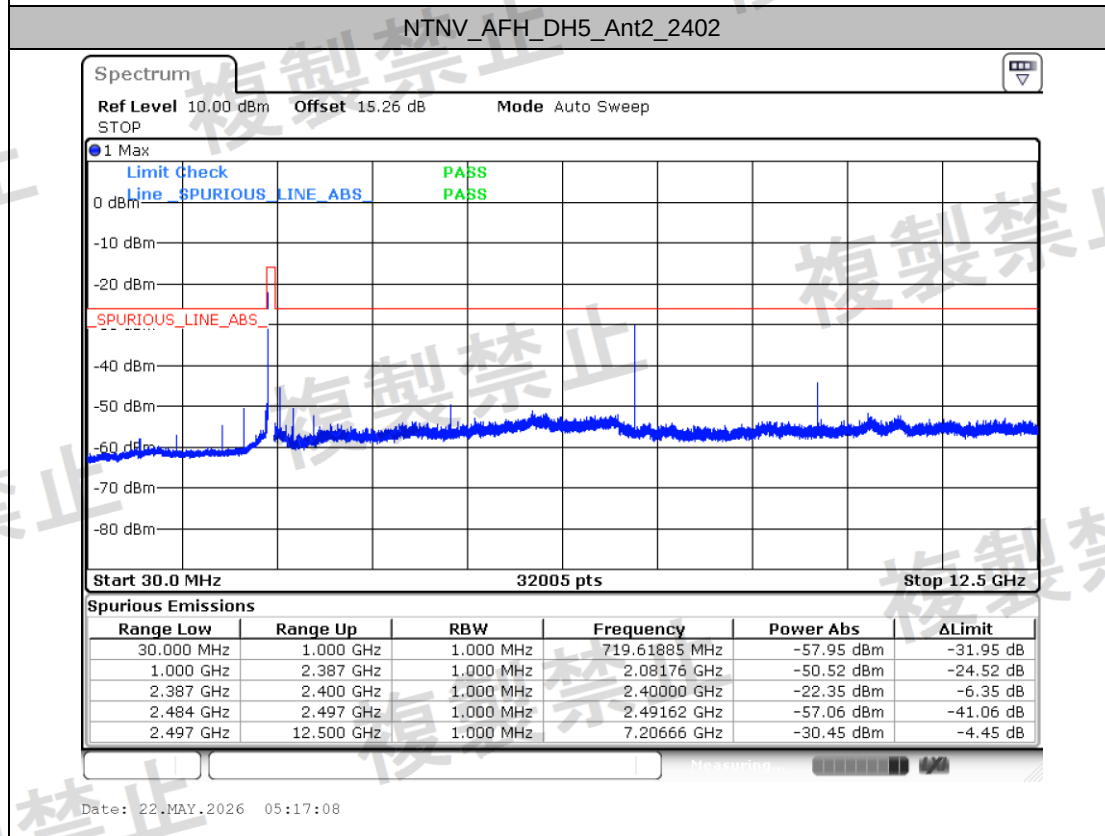
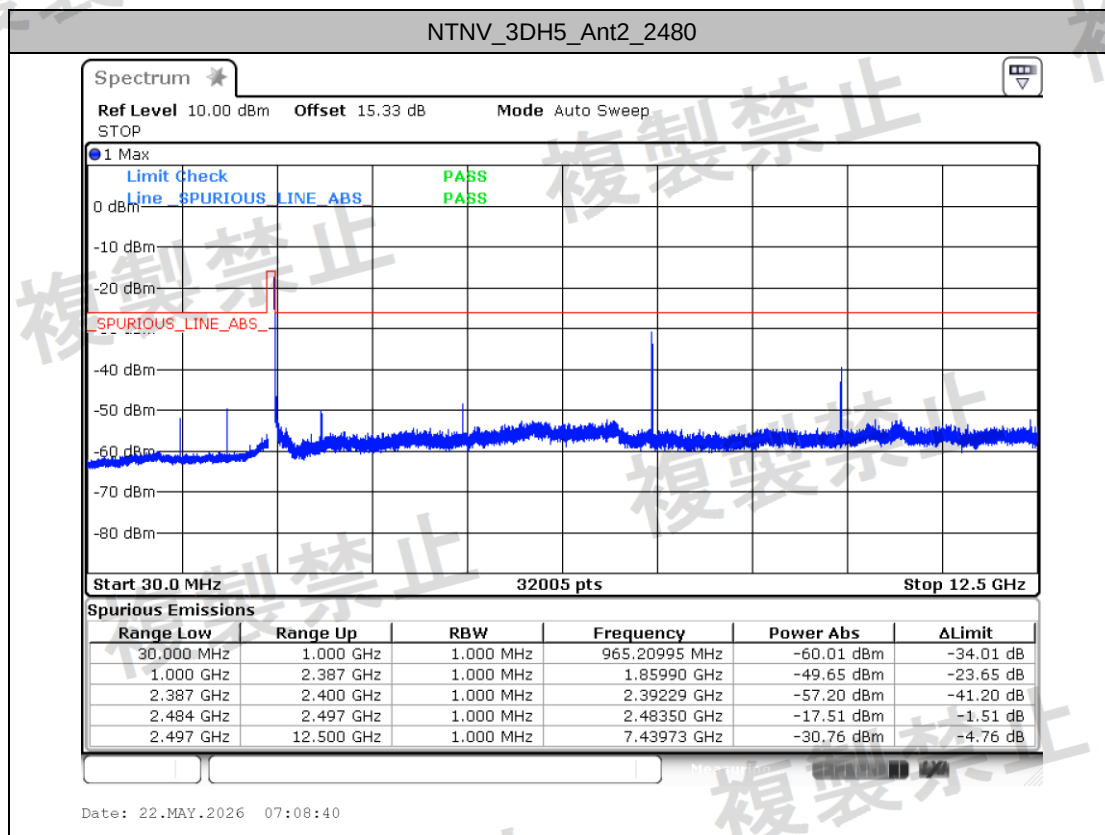
NTNV_DH5_Ant2_2441

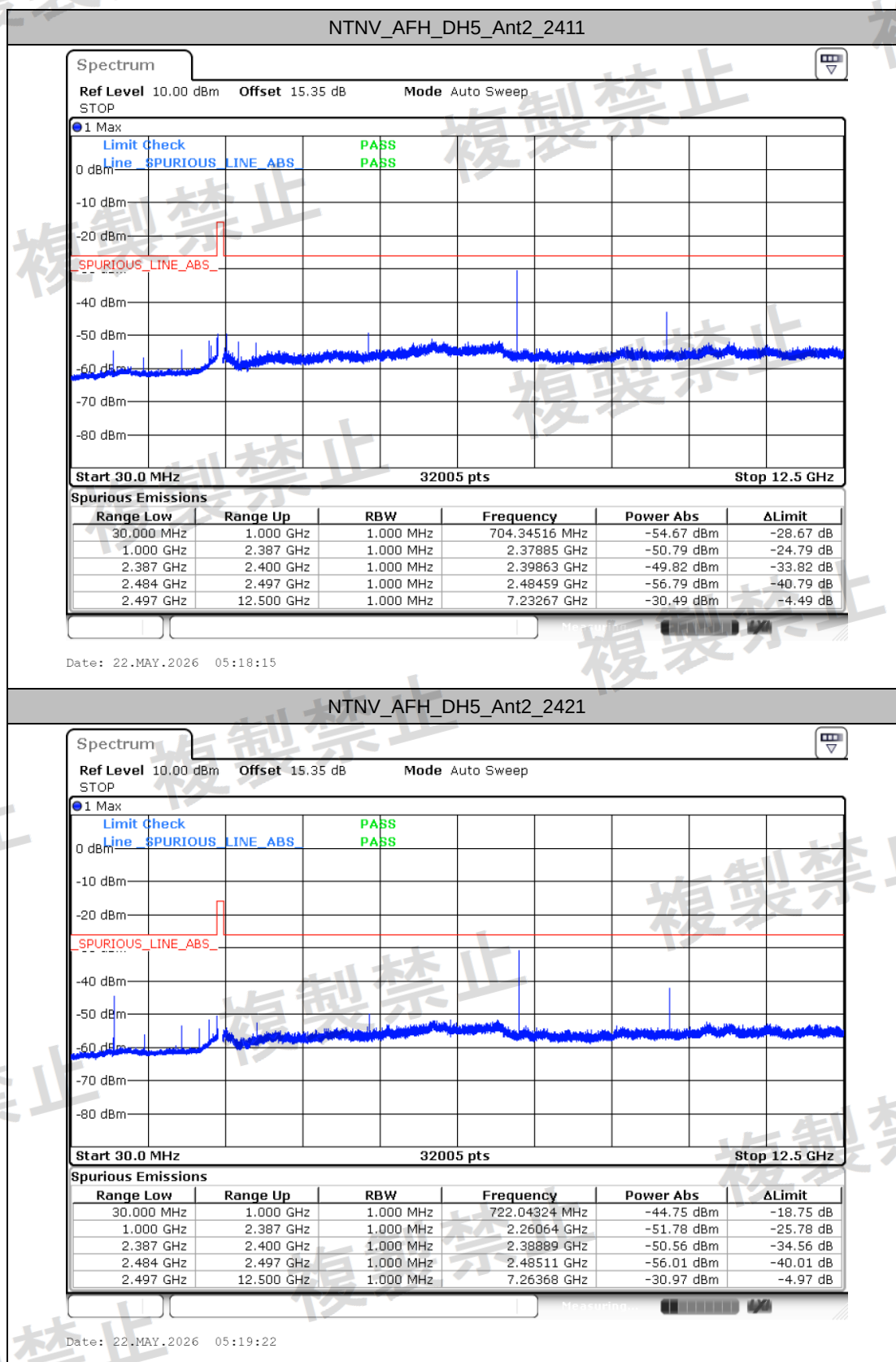


NTNV_DH5_Ant2_2480



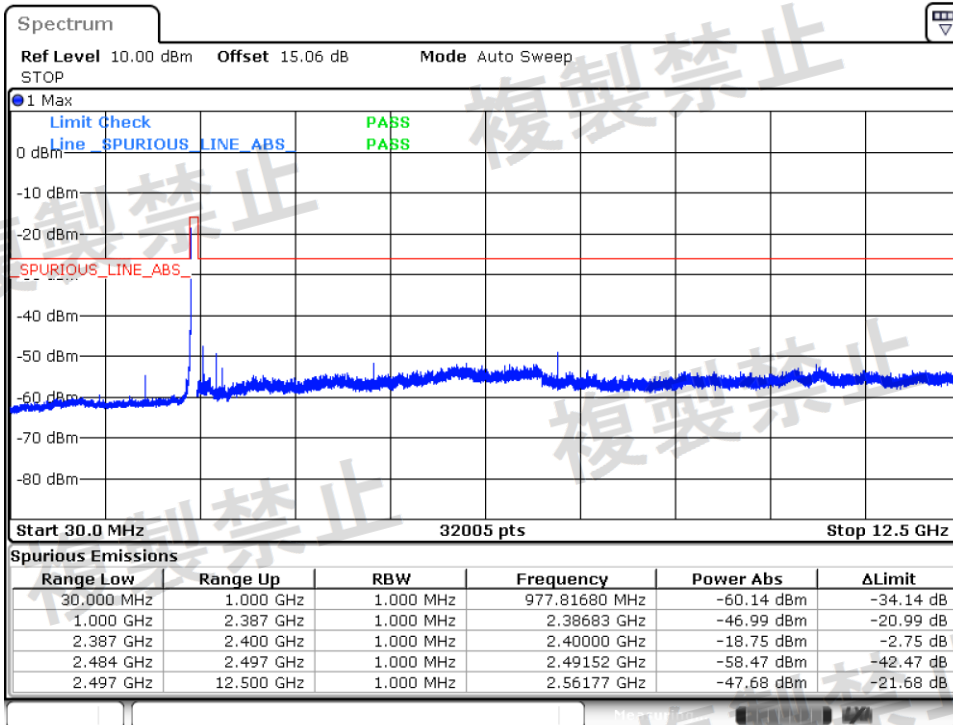






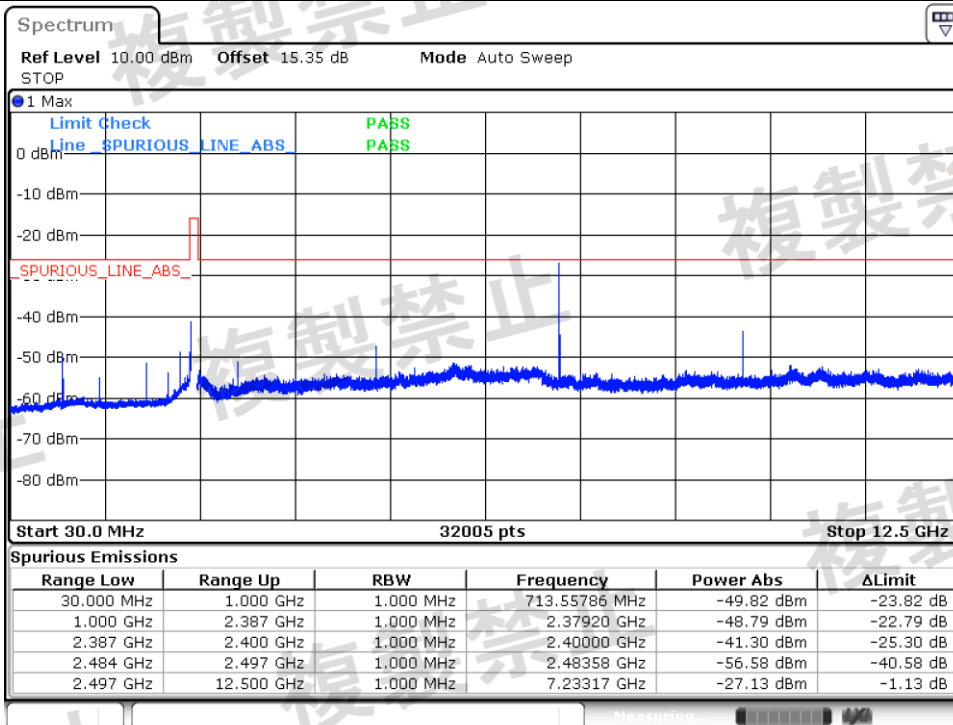


NTNV_AFH_3DH5_Ant2_2402

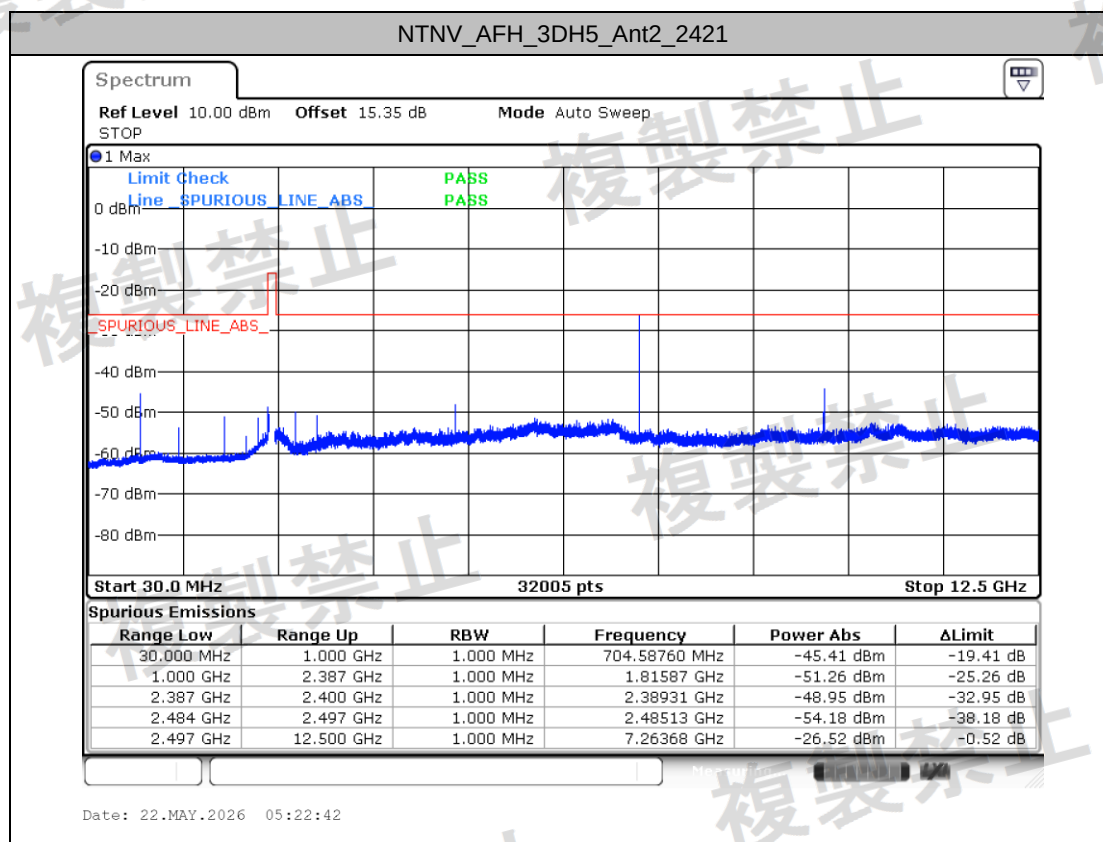


Date: 27.MAY.2026 13:20:31

NTNV_AFH_3DH5_Ant2_2411



Date: 22.MAY.2026 05:21:35



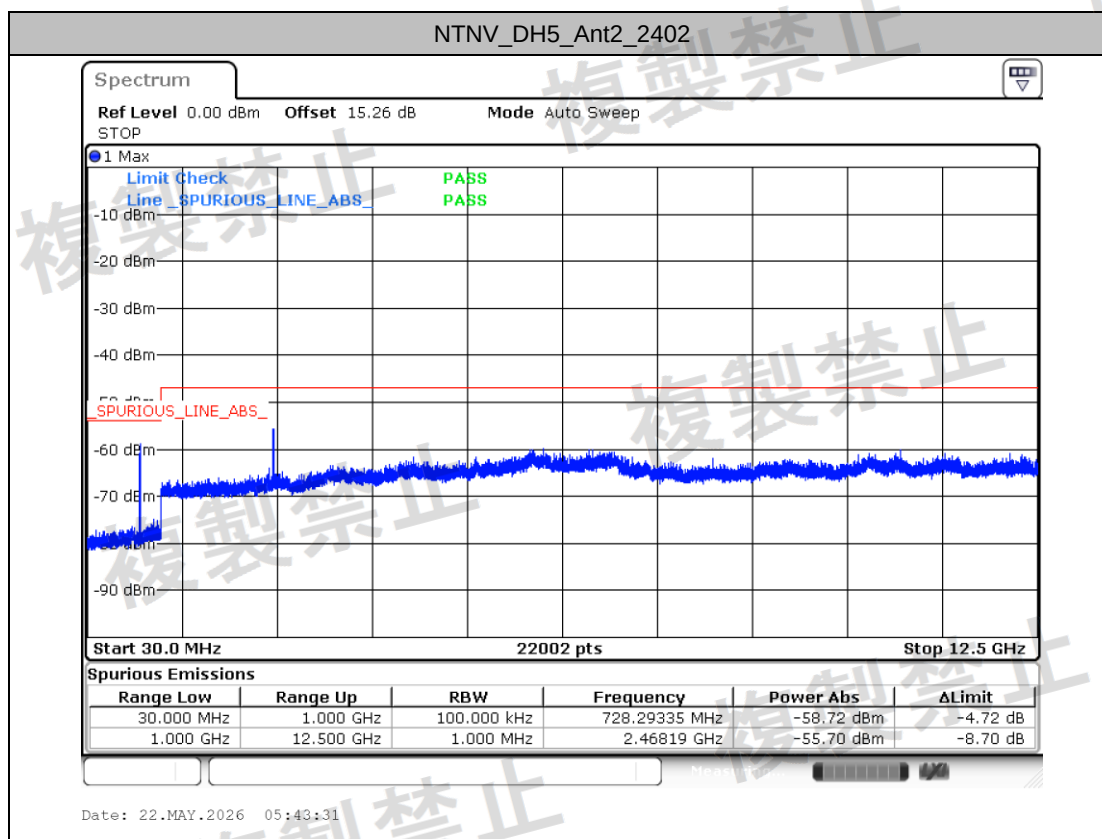
Limitation of Collateral Emission of Receiver

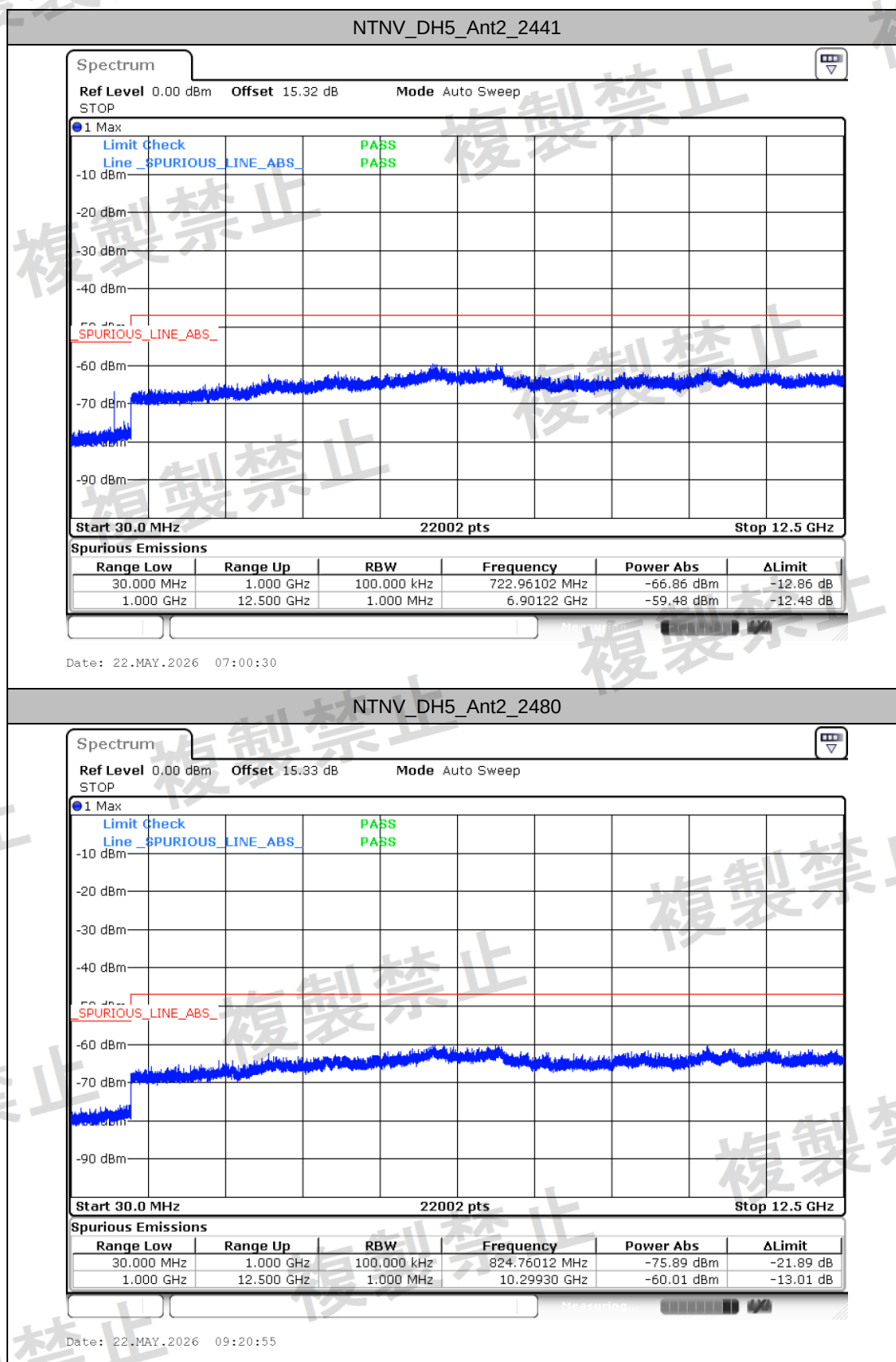
Test Result

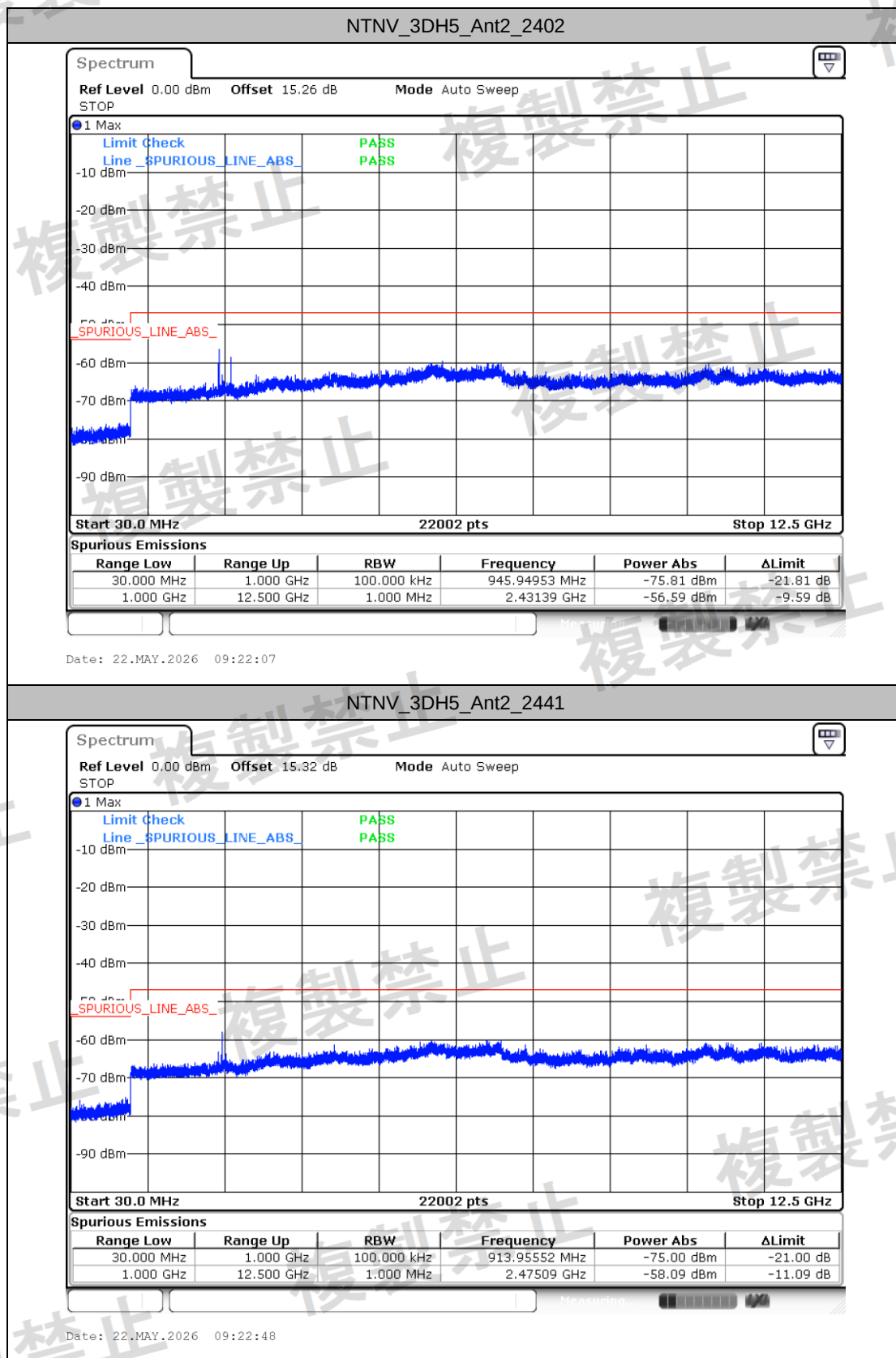
Test Condition	Test Mode	Antenna	Freq (MHz)	Freq.Range [MHz]	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [nW]	Limit [nW]	Verdict
NTNV	DH5	Ant2	2402	30~1000	728.29	-58.72	-54.00	1.34276	4	PASS
				1000~12500	2468.19	-55.70	-47.00	2.69153	20	PASS
			2441	30~1000	722.96	-66.86	-54.00	0.20606	4	PASS
				1000~12500	6901.22	-59.48	-47.00	1.12720	20	PASS
			2480	30~1000	824.76	-75.89	-54.00	0.02576	4	PASS
				1000~12500	10299.30	-60.01	-47.00	0.99770	20	PASS
	3DH5	Ant2	2402	30~1000	945.95	-75.81	-54.00	0.02624	4	PASS
				1000~12500	2431.39	-56.59	-47.00	2.19280	20	PASS
			2441	30~1000	913.96	-75.00	-54.00	0.03162	4	PASS
				1000~12500	2475.09	-58.09	-47.00	1.55239	20	PASS
			2480	30~1000	933.35	-75.61	-54.00	0.02748	4	PASS
				1000~12500	6029.56	-60.06	-47.00	0.98628	20	PASS
	AFH_DH5	Ant2	2402	30~1000	705.99	-74.97	-54.00	0.03184	4	PASS
				1000~12500	5869.14	-60.20	-47.00	0.95499	20	PASS
			2411	30~1000	32.18	-72.19	-54.00	0.06039	4	PASS
				1000~12500	6979.41	-59.98	-47.00	1.00462	20	PASS
			2421	30~1000	976.49	-75.02	-54.00	0.03148	4	PASS
				1000~12500	5931.82	-59.82	-47.00	1.04232	20	PASS
	AFH_3DH5	Ant2	2402	30~1000	919.29	-76.14	-54.00	0.02432	4	PASS
				1000~12500	6939.74	-59.82	-47.00	1.04232	20	PASS
			2411	30~1000	977.94	-74.72	-54.00	0.03373	4	PASS
				1000~12500	2613.08	-57.92	-47.00	1.61436	20	PASS
			2421	30~1000	704.54	-70.92	-54.00	0.08091	4	PASS
				1000~12500	5882.94	-59.38	-47.00	1.15345	20	PASS

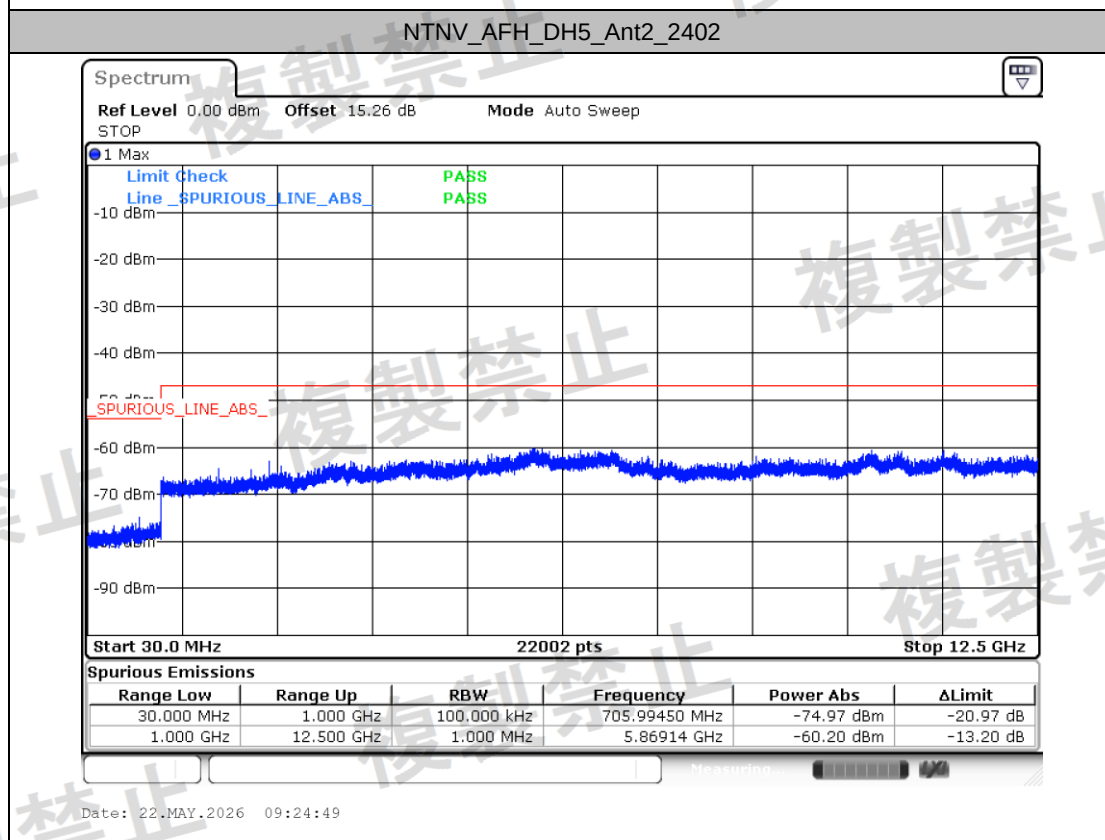
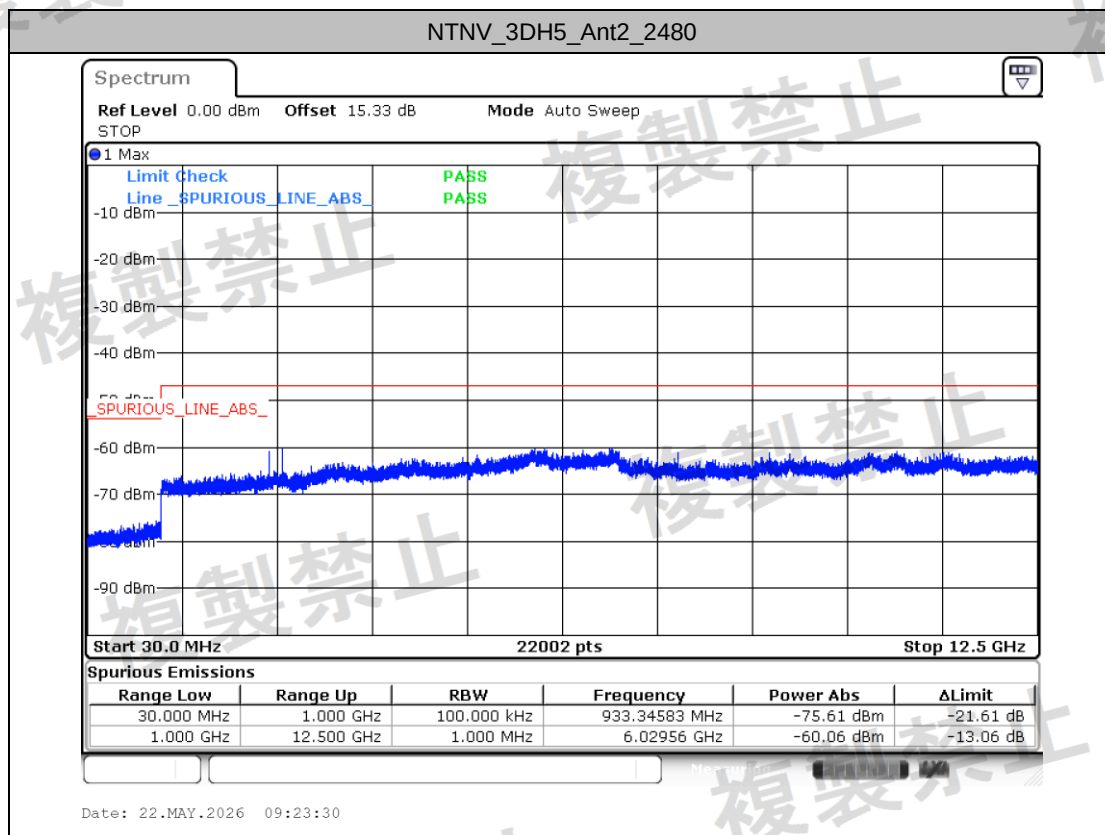


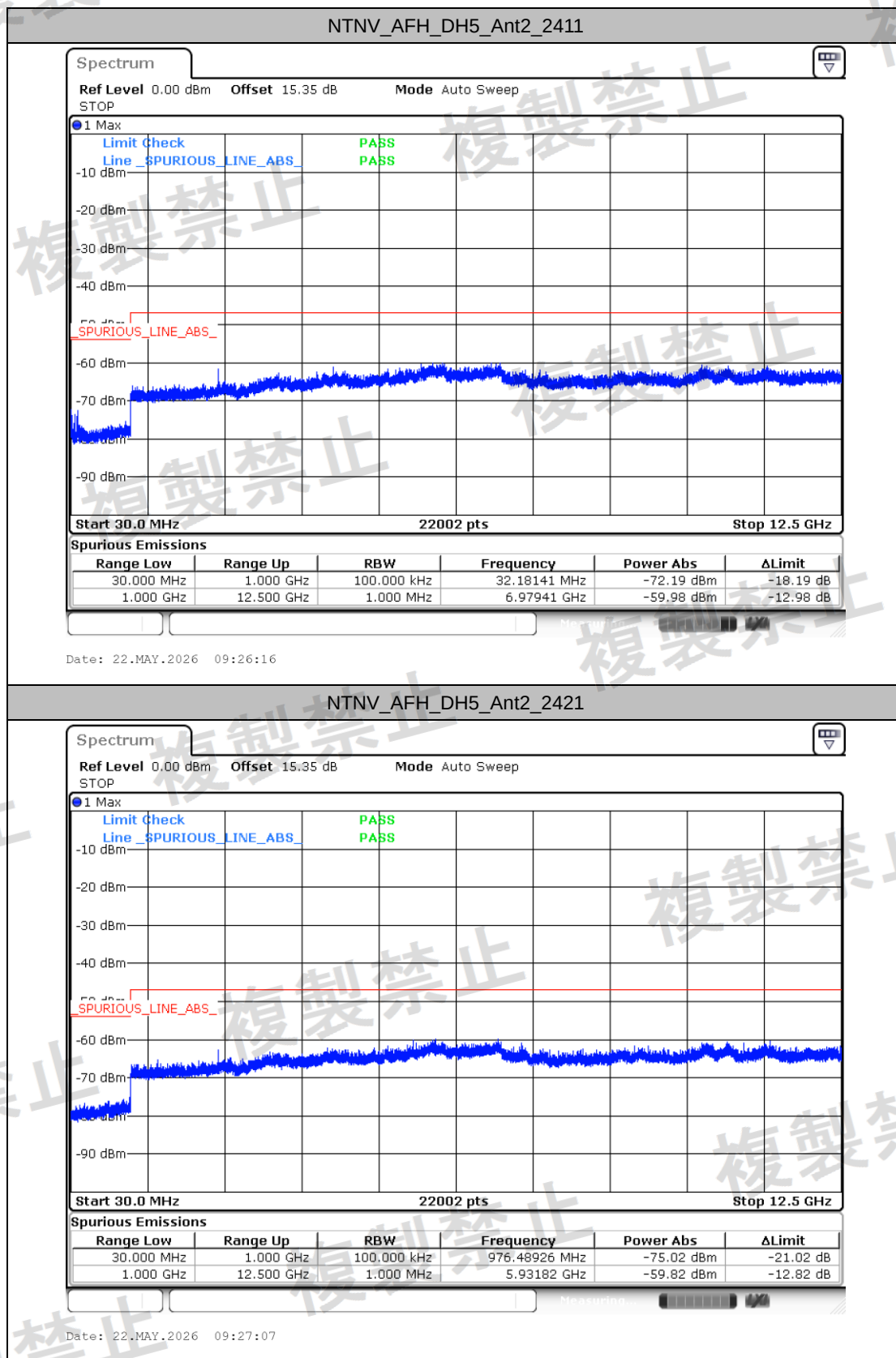
Test Graphs

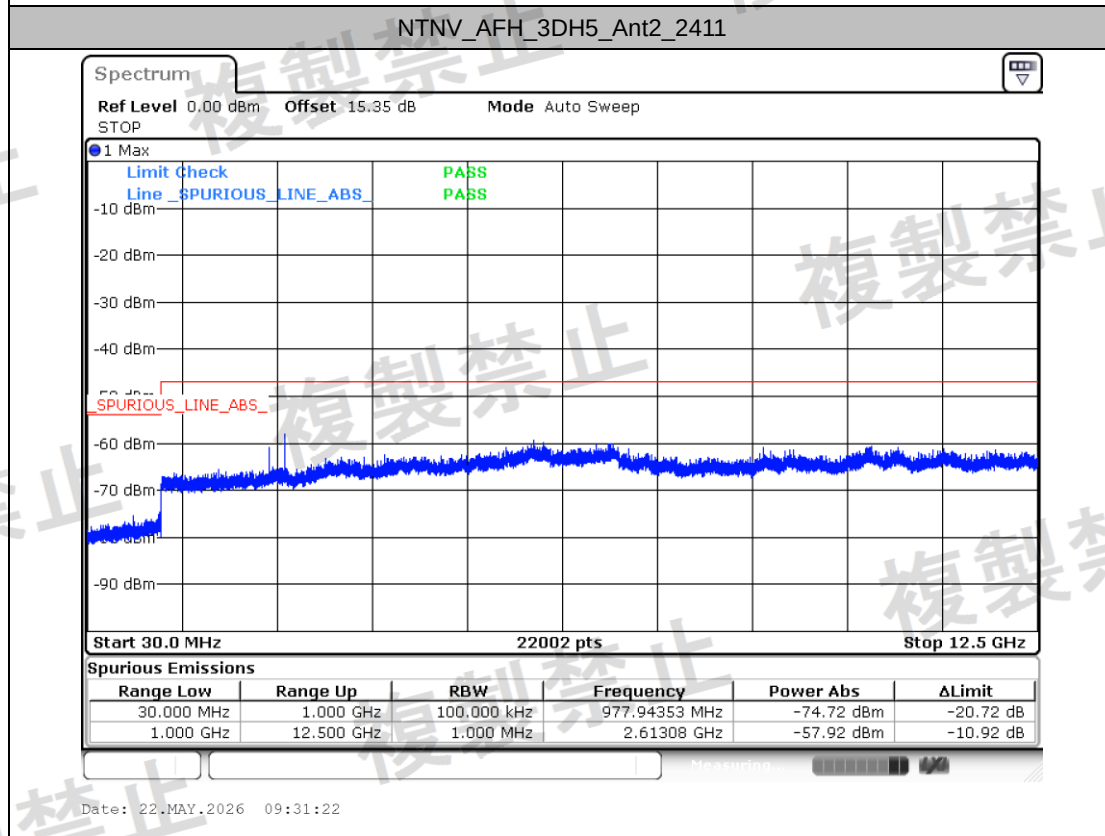
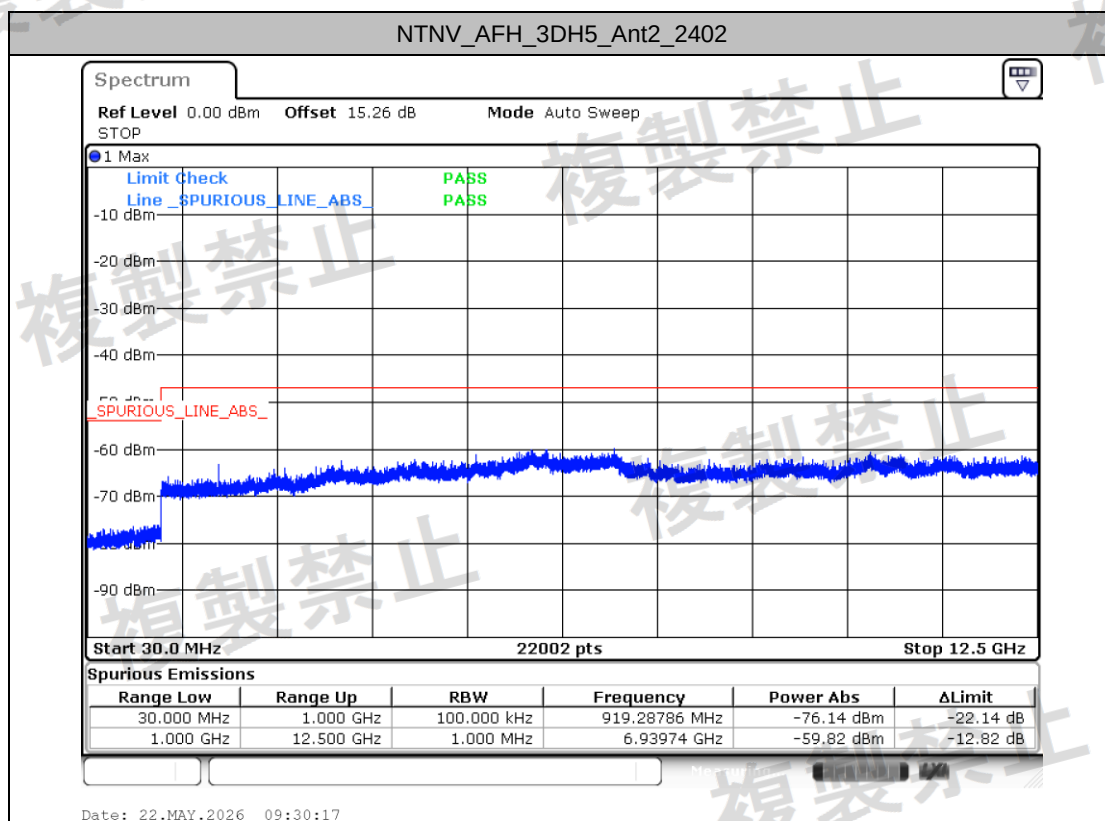


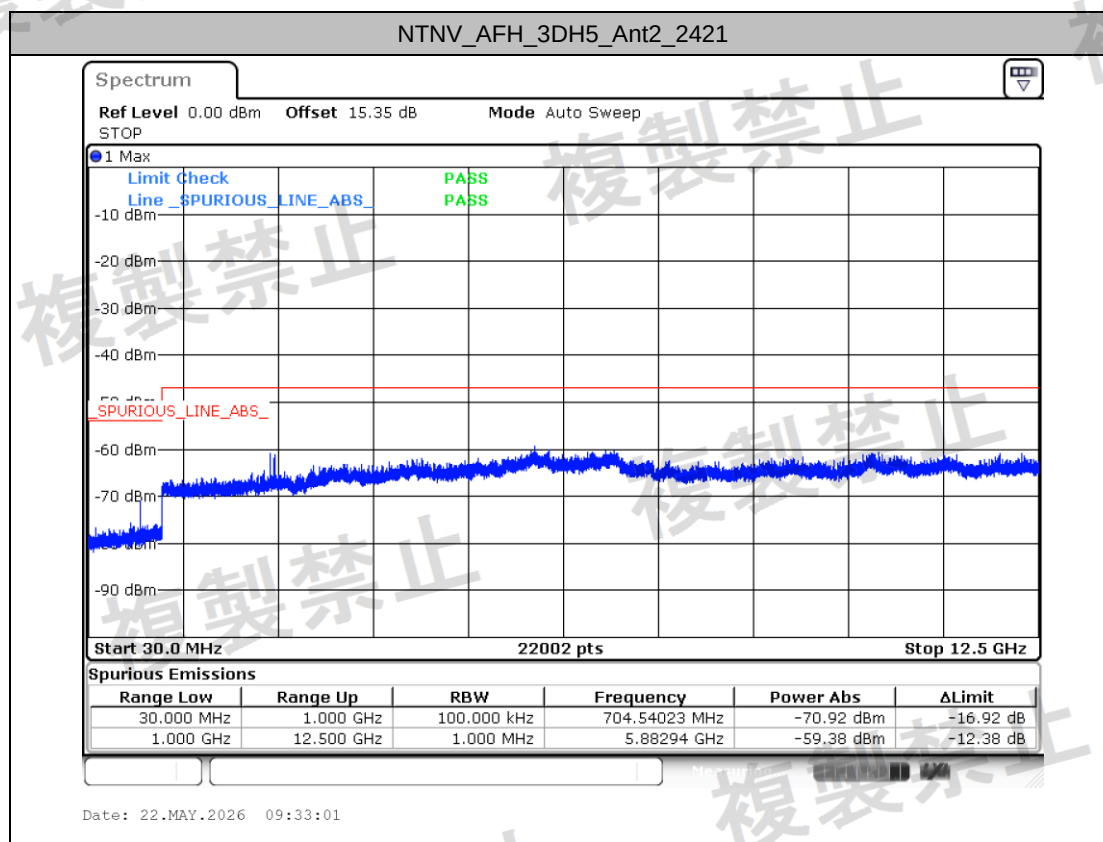












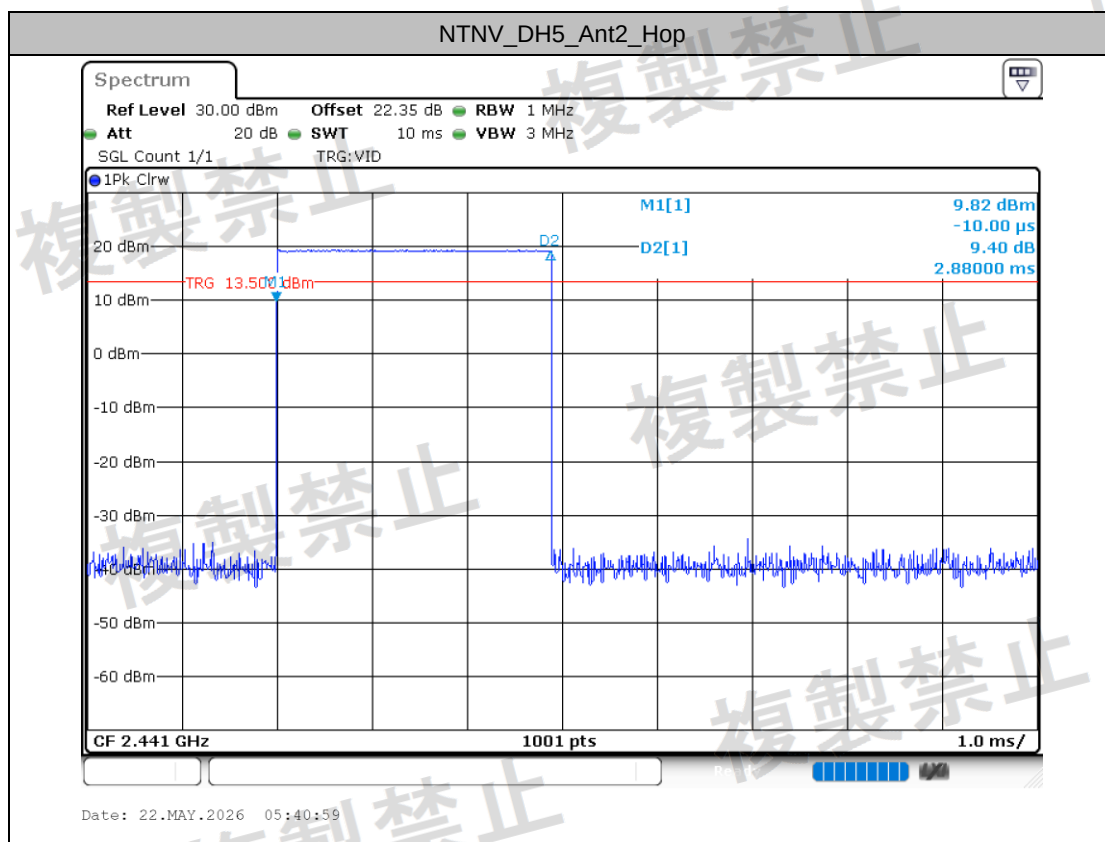


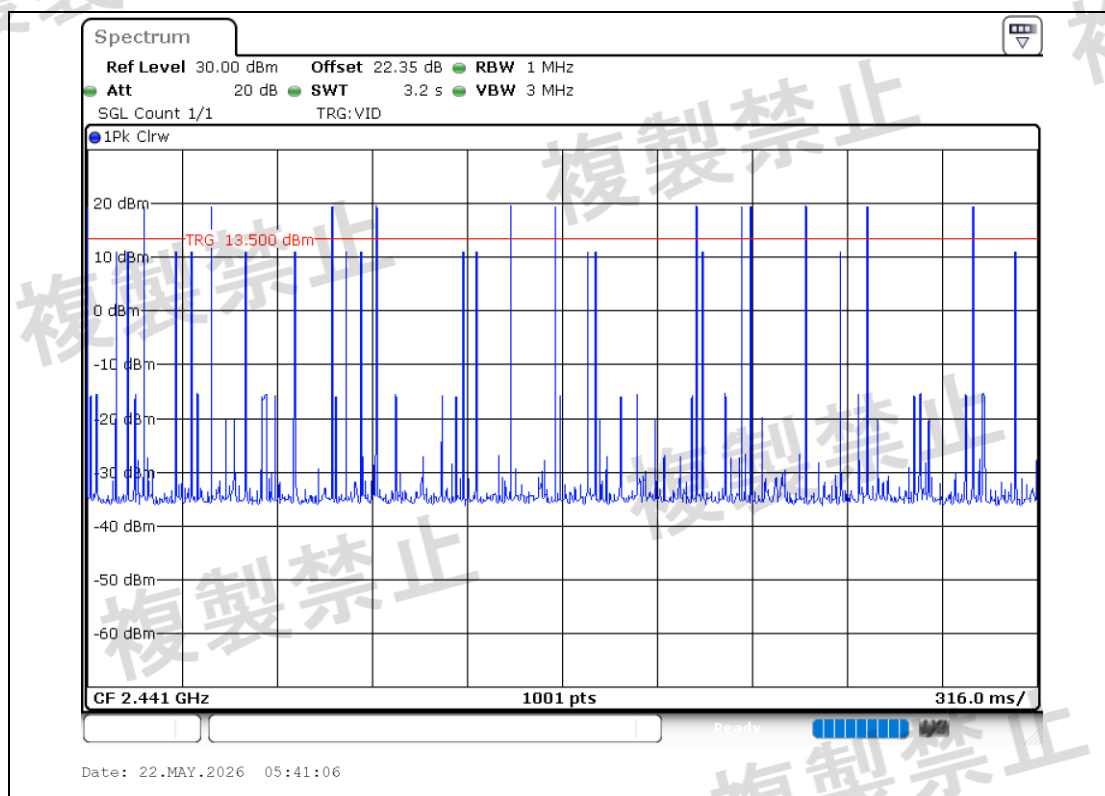
Dwell Time

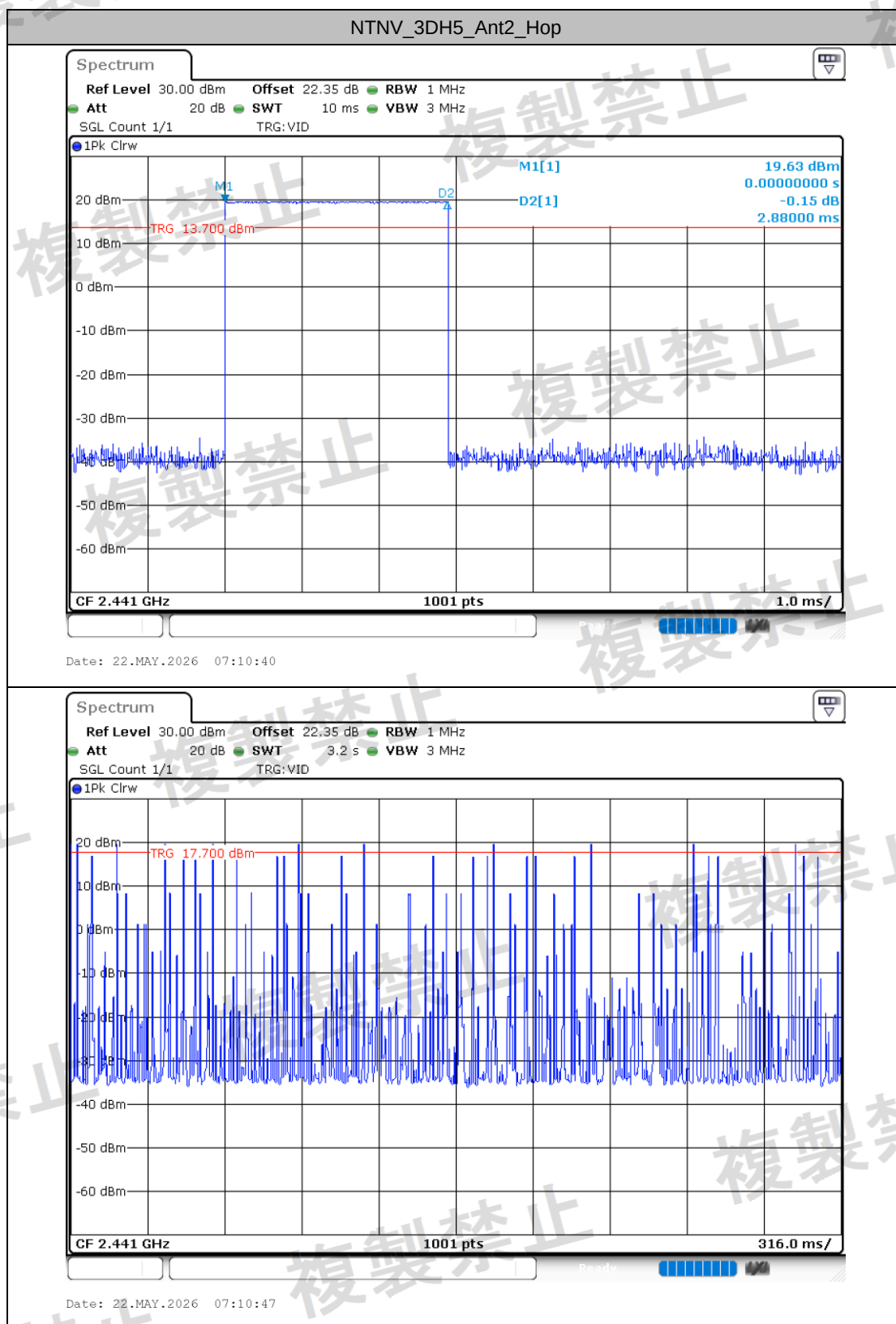
Test Result

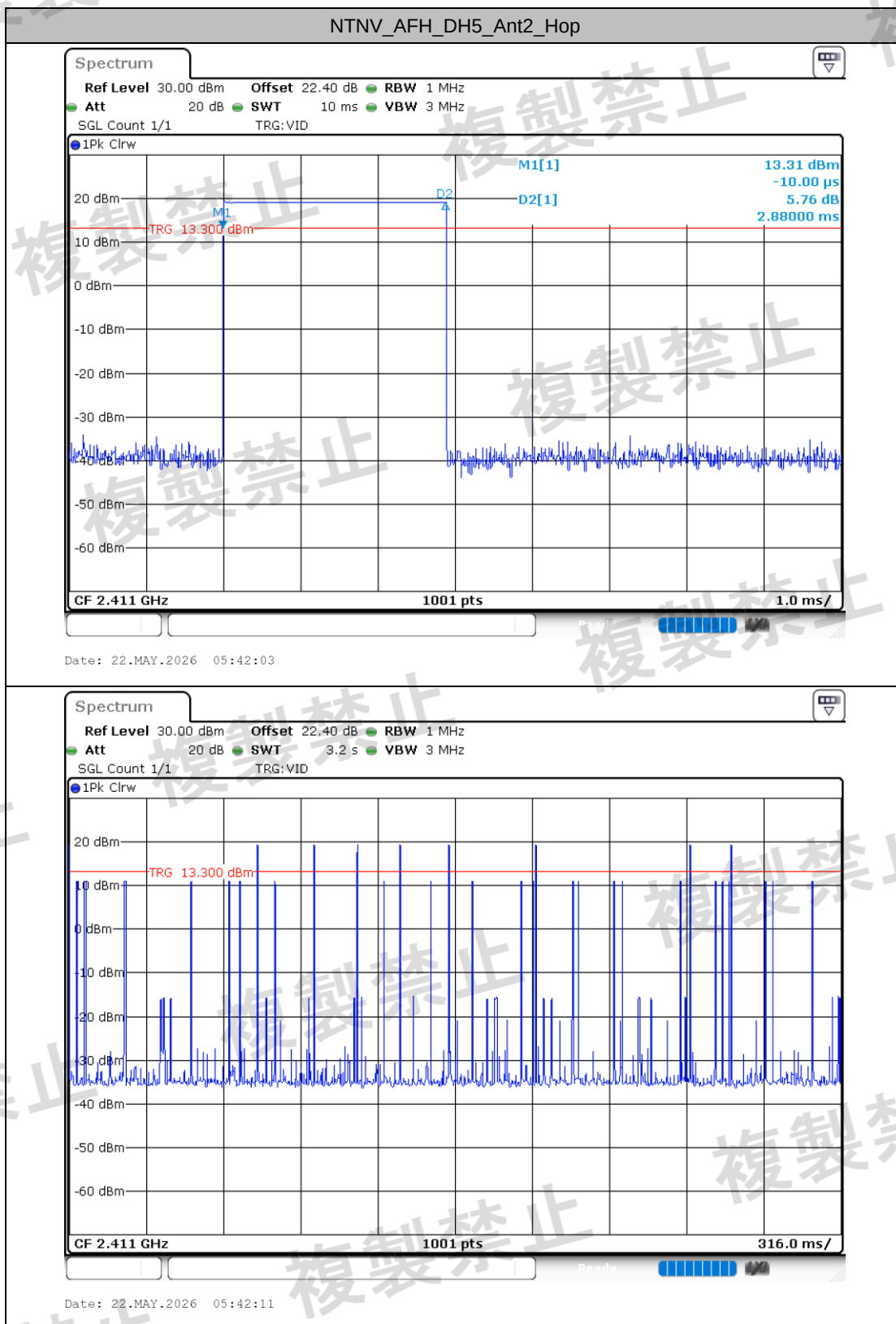
Test Condition	Test Mode	Antenna	Freq (MHz)	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit [s]	Verdict
NTNV	DH5	Ant2	Hop	2.88	130	0.374	≤0.4	PASS
	3DH5	Ant2	Hop	2.88	110	0.317	≤0.4	PASS
	AFH_DH5	Ant2	Hop	2.88	90	0.259	≤0.4	PASS
	AFH_3DH5	Ant2	Hop	2.88	90	0.259	≤0.4	PASS

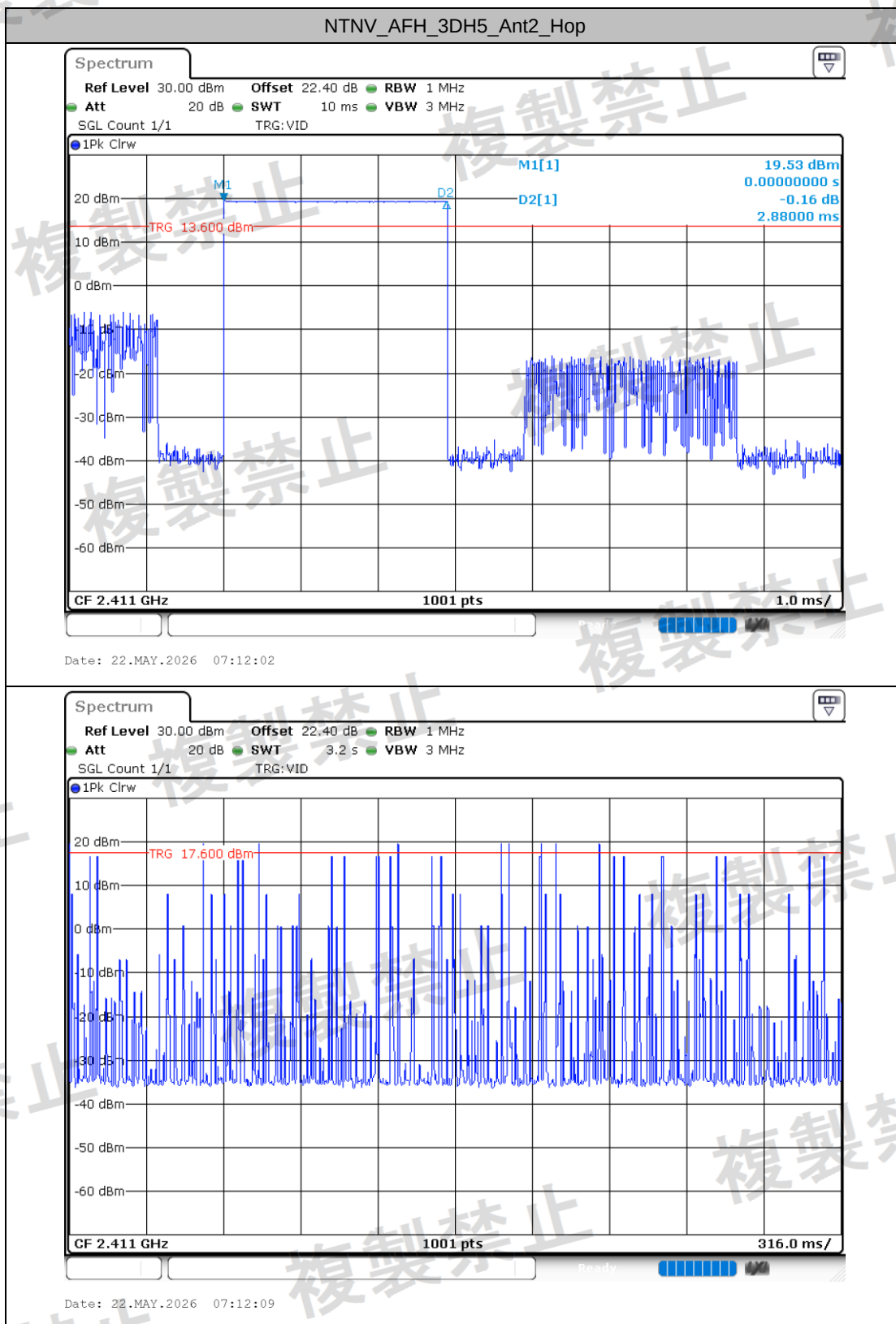
Test Graphs













<Bluetooth BR/EDR Ant 1>

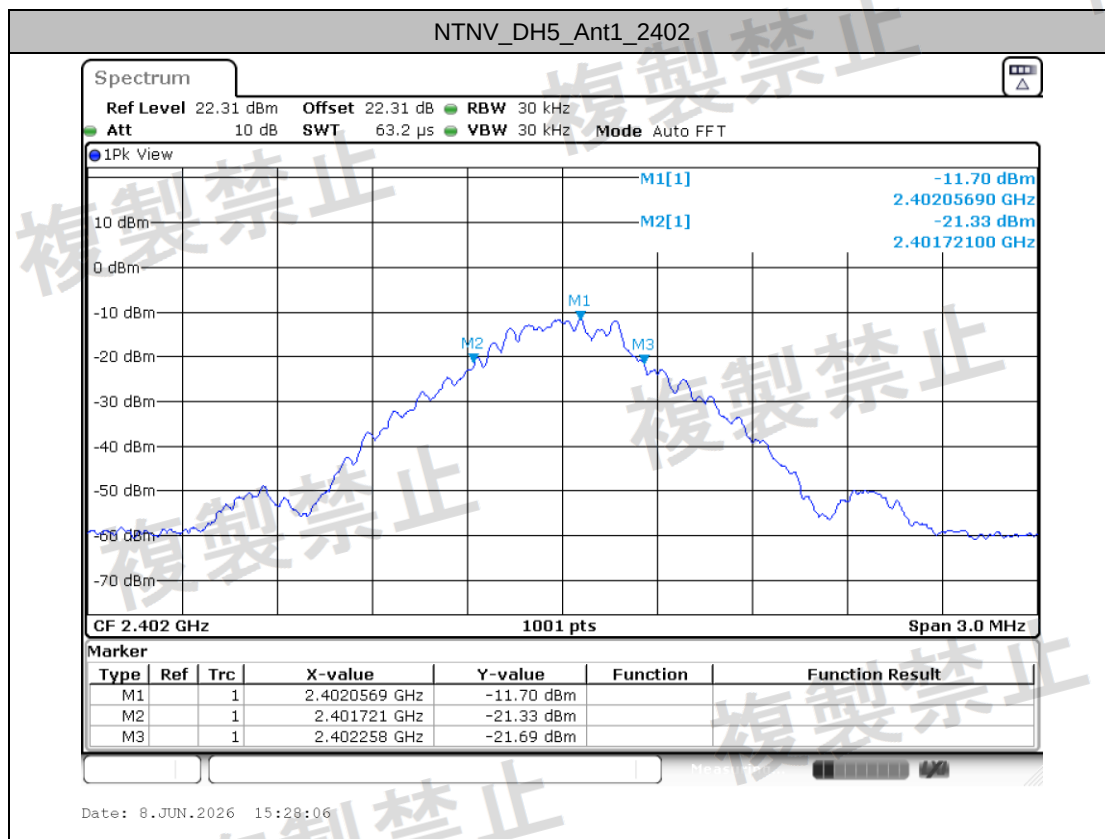
Frequency_Error

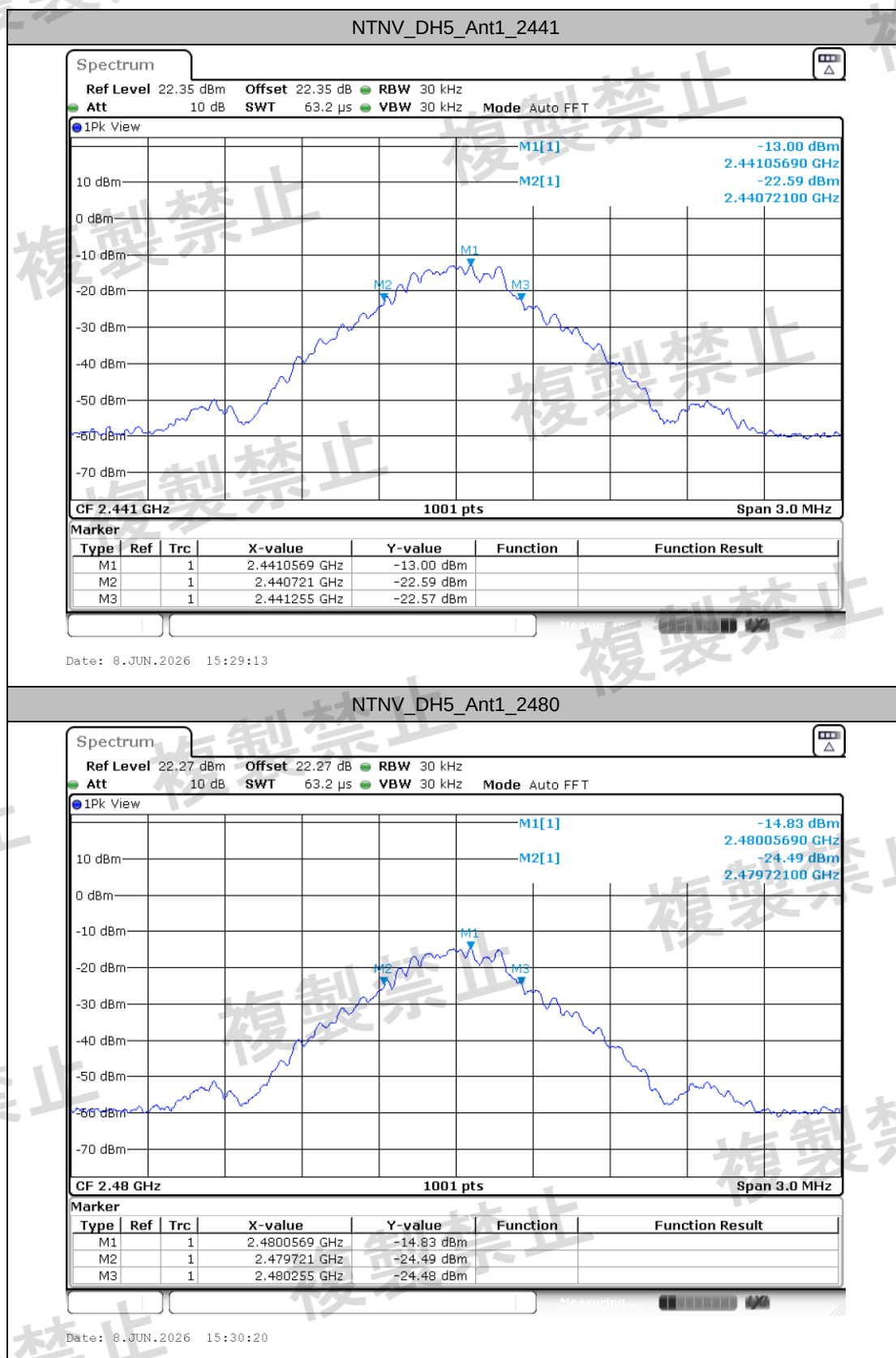
Test Result

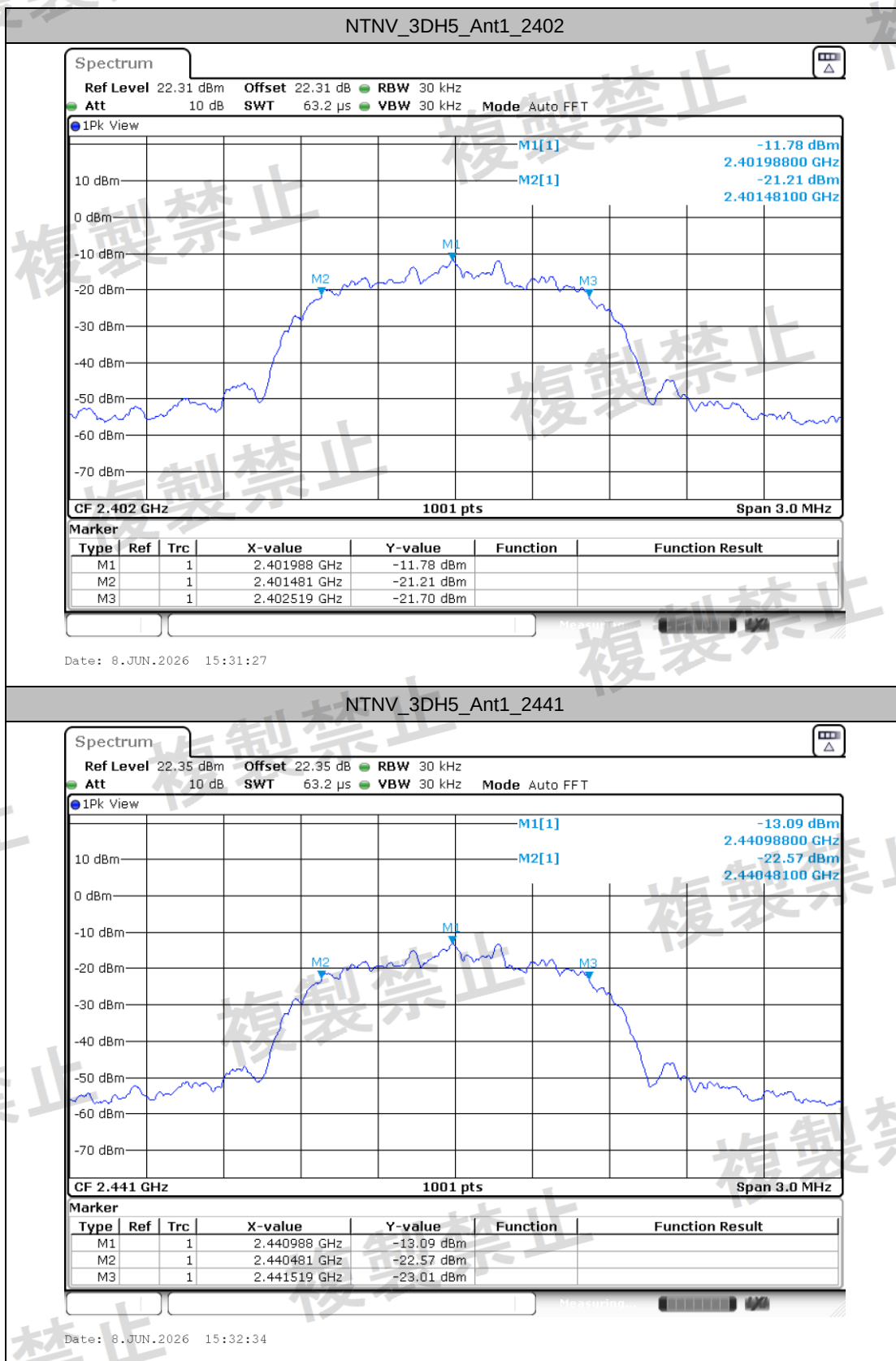
Test Condition	Test Mode	Antenna	Freq(MHz)	CenterFreq [MHz]	Result[ppm]	Limit[ppm]	Verdict
NTNV	DH5	Ant1	2402	2401.9895	-4.37136	±50	PASS
			2441	2440.988	-4.91602	±50	PASS
			2480	2479.988	-4.83871	±50	PASS
	3DH5	Ant1	2402	2402	0.00000	±50	PASS
			2441	2441	0.00000	±50	PASS
			2480	2479.9985	-0.60484	±50	PASS
	AFH_DH5	Ant1	2402	2401.988	-4.99584	±50	PASS
			2411	2410.988	-4.97719	±50	PASS
			2421	2420.988	-4.95663	±50	PASS
	AFH_3DH5	Ant1	2402	2402	0.00000	±50	PASS
			2411	2410.9985	-0.62215	±50	PASS
			2421	2421	0.00000	±50	PASS

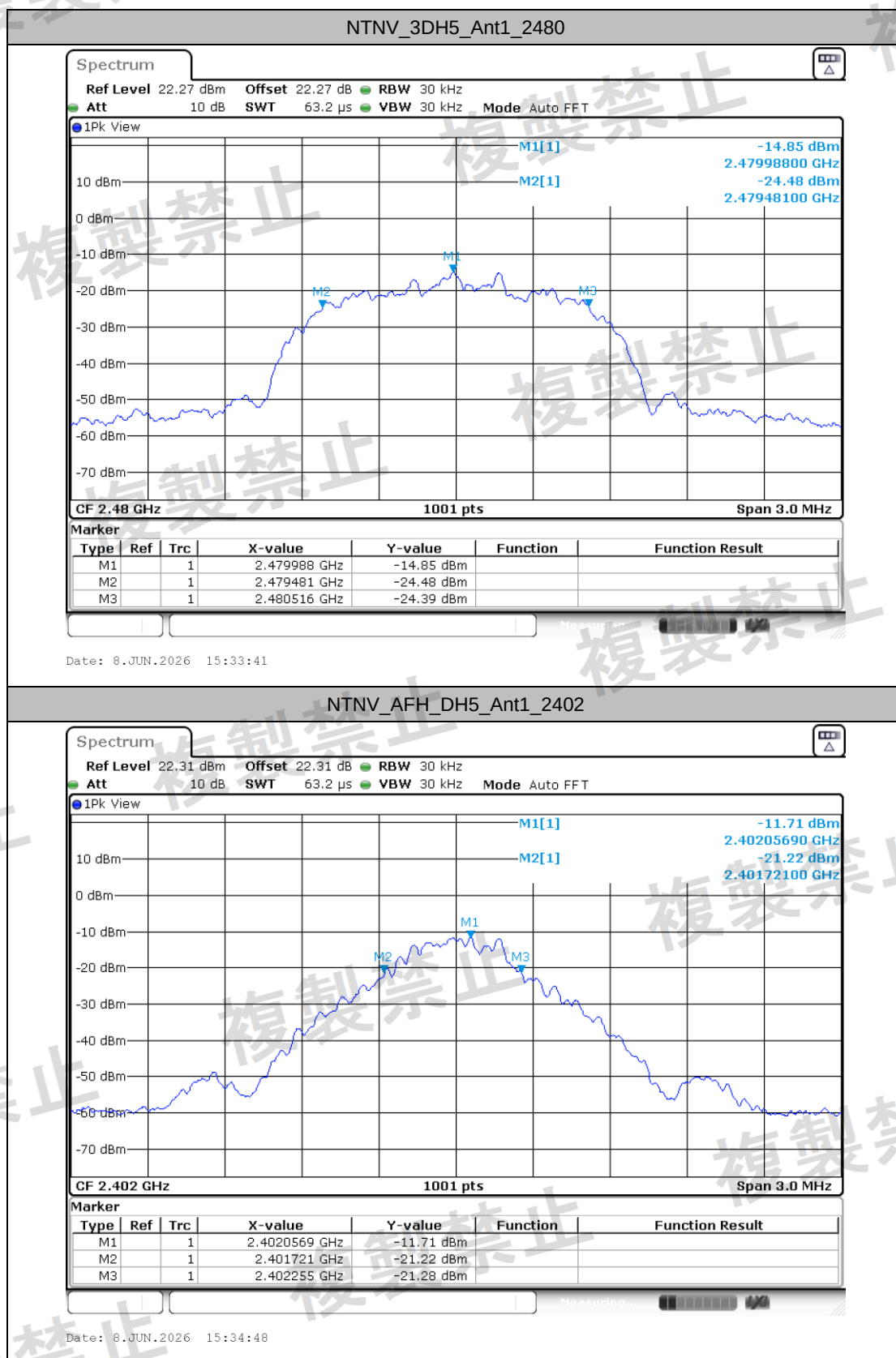


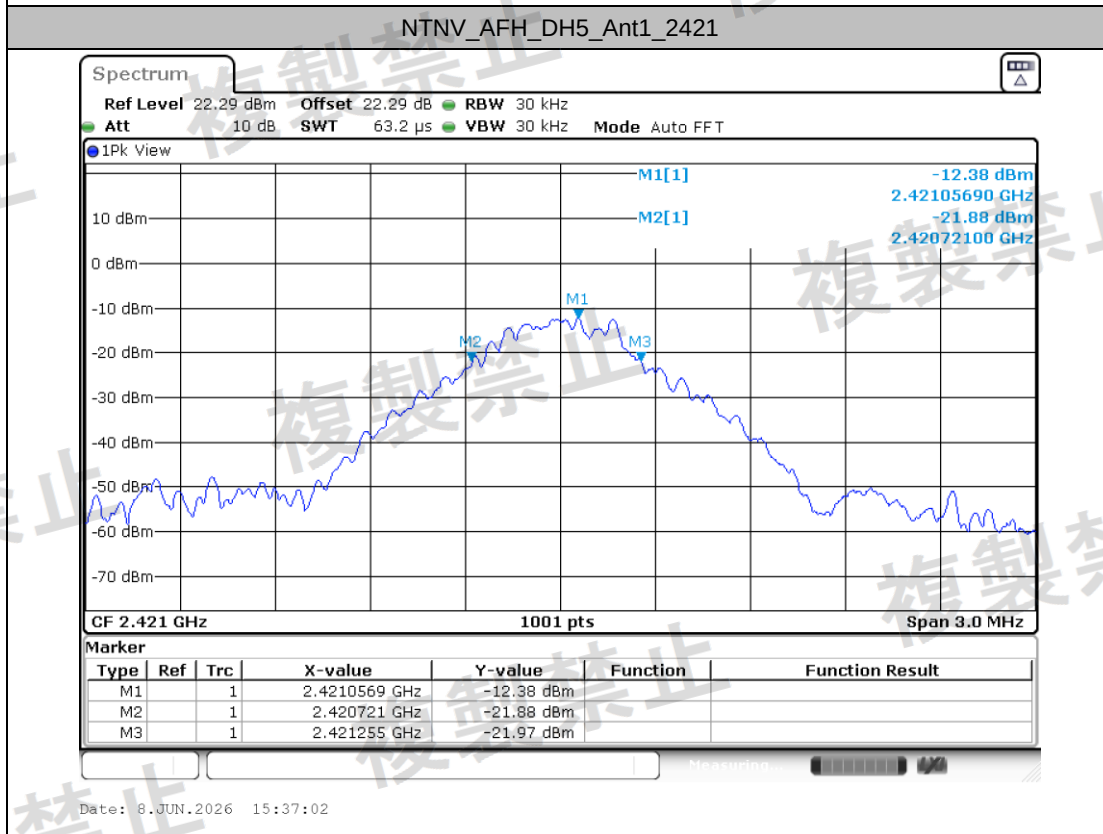
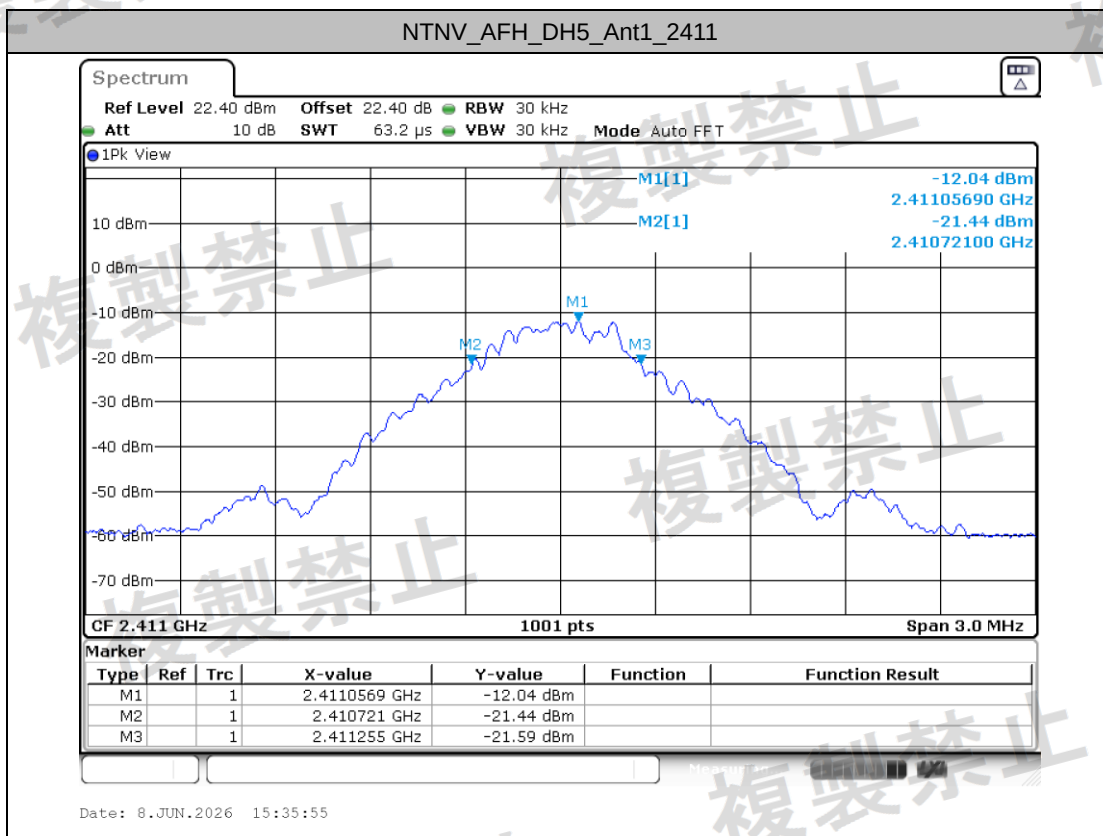
Test Graphs

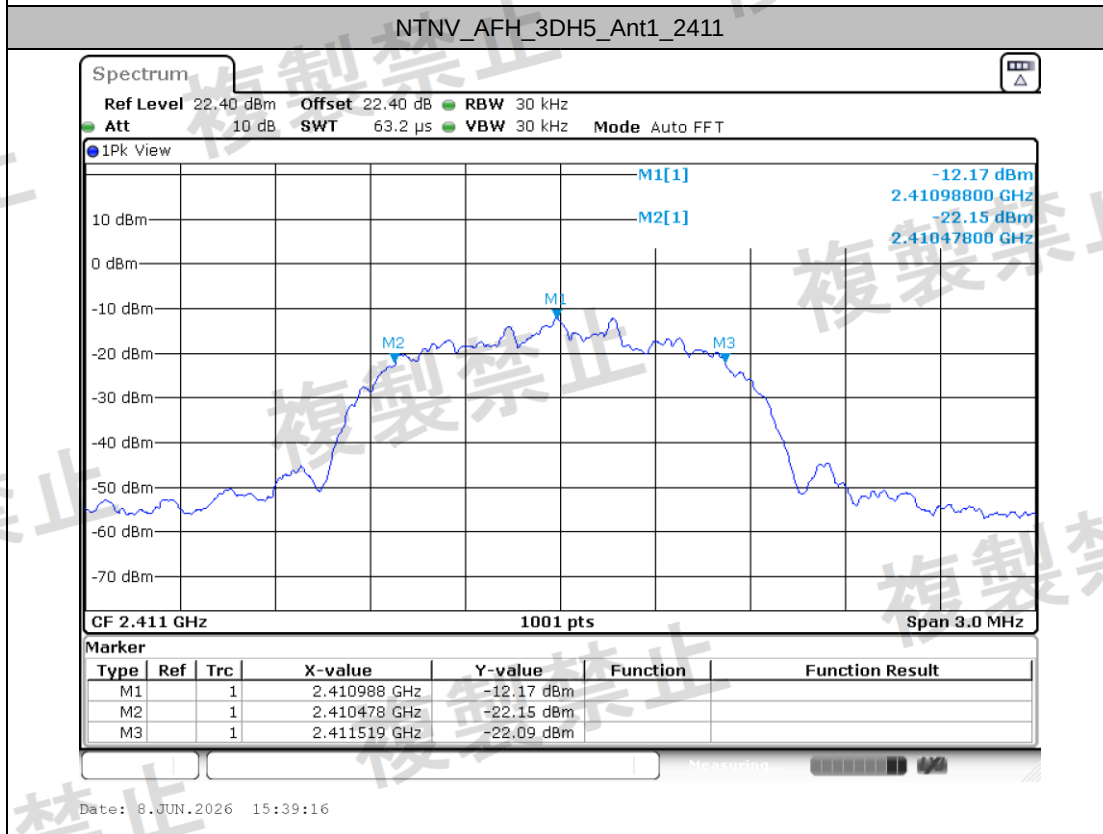
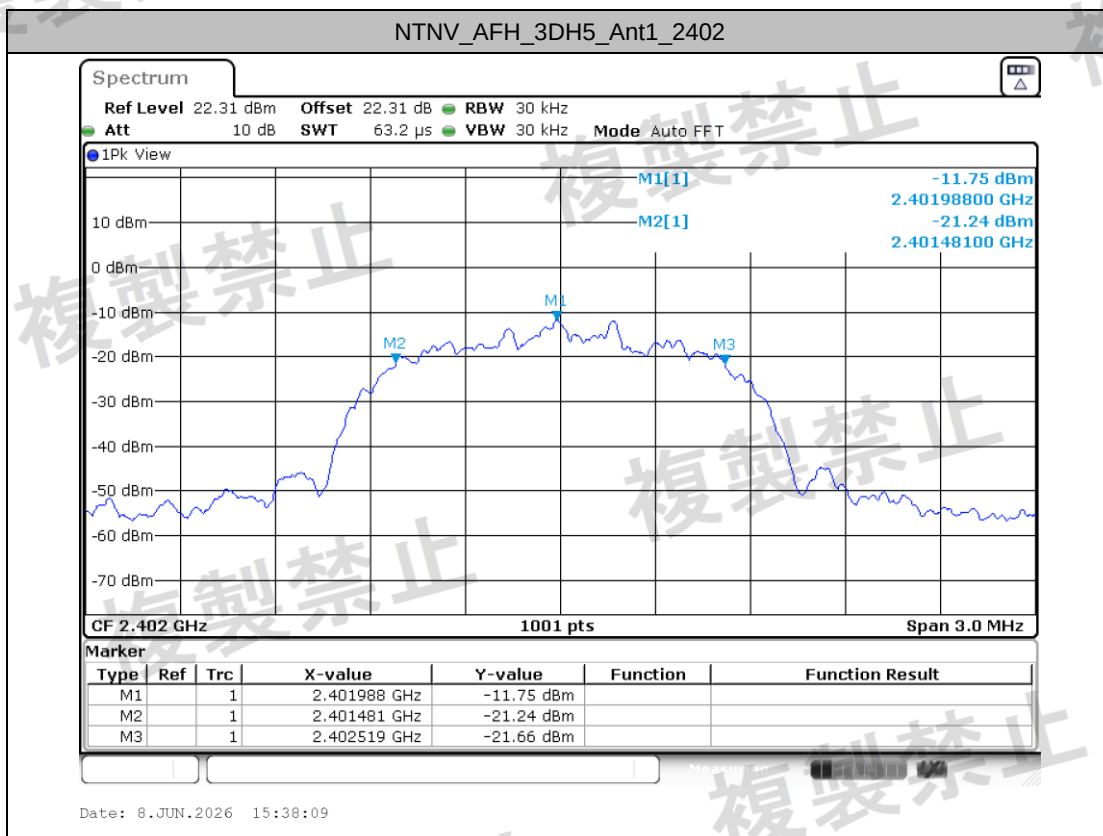


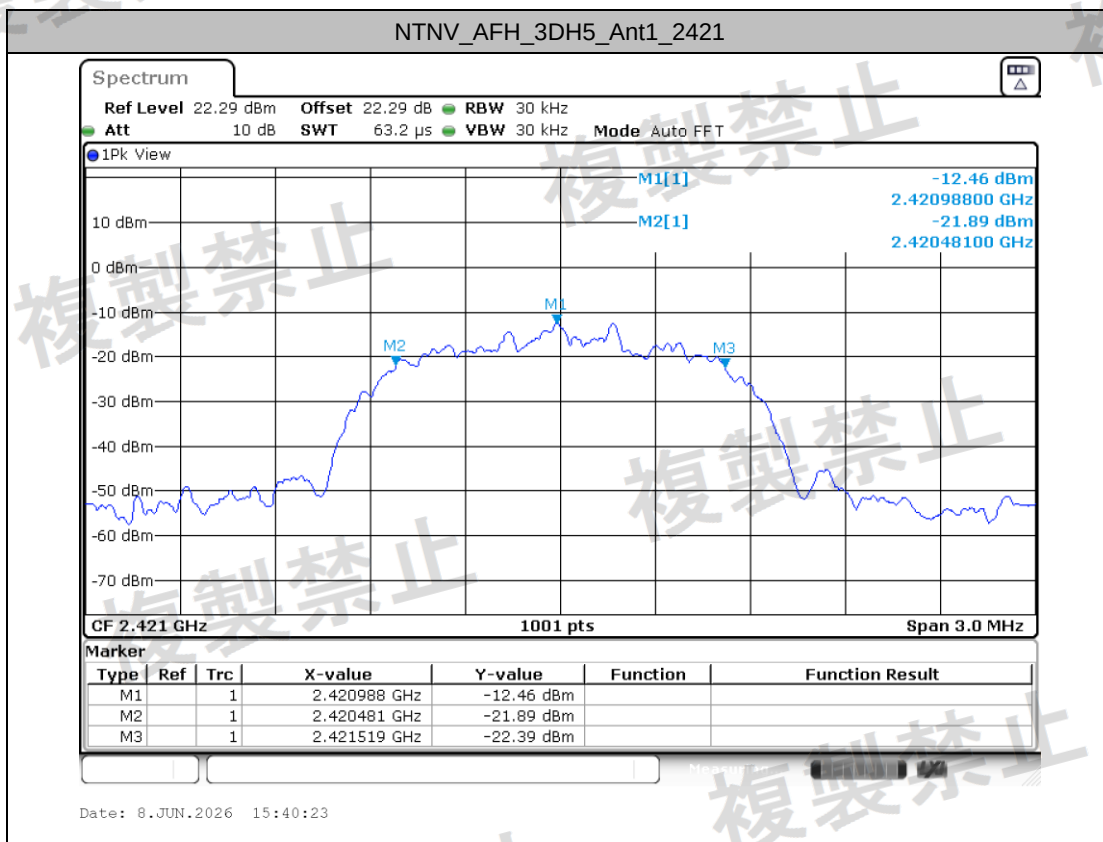














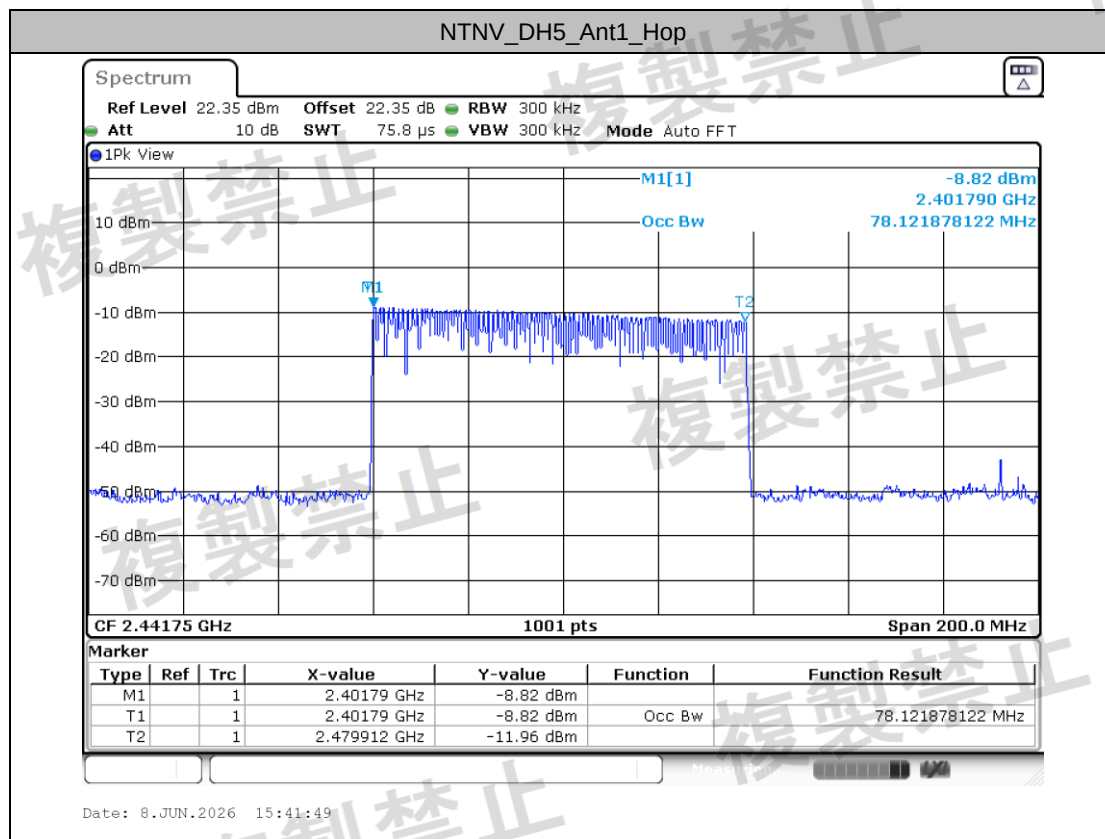
Occupied Bandwidth

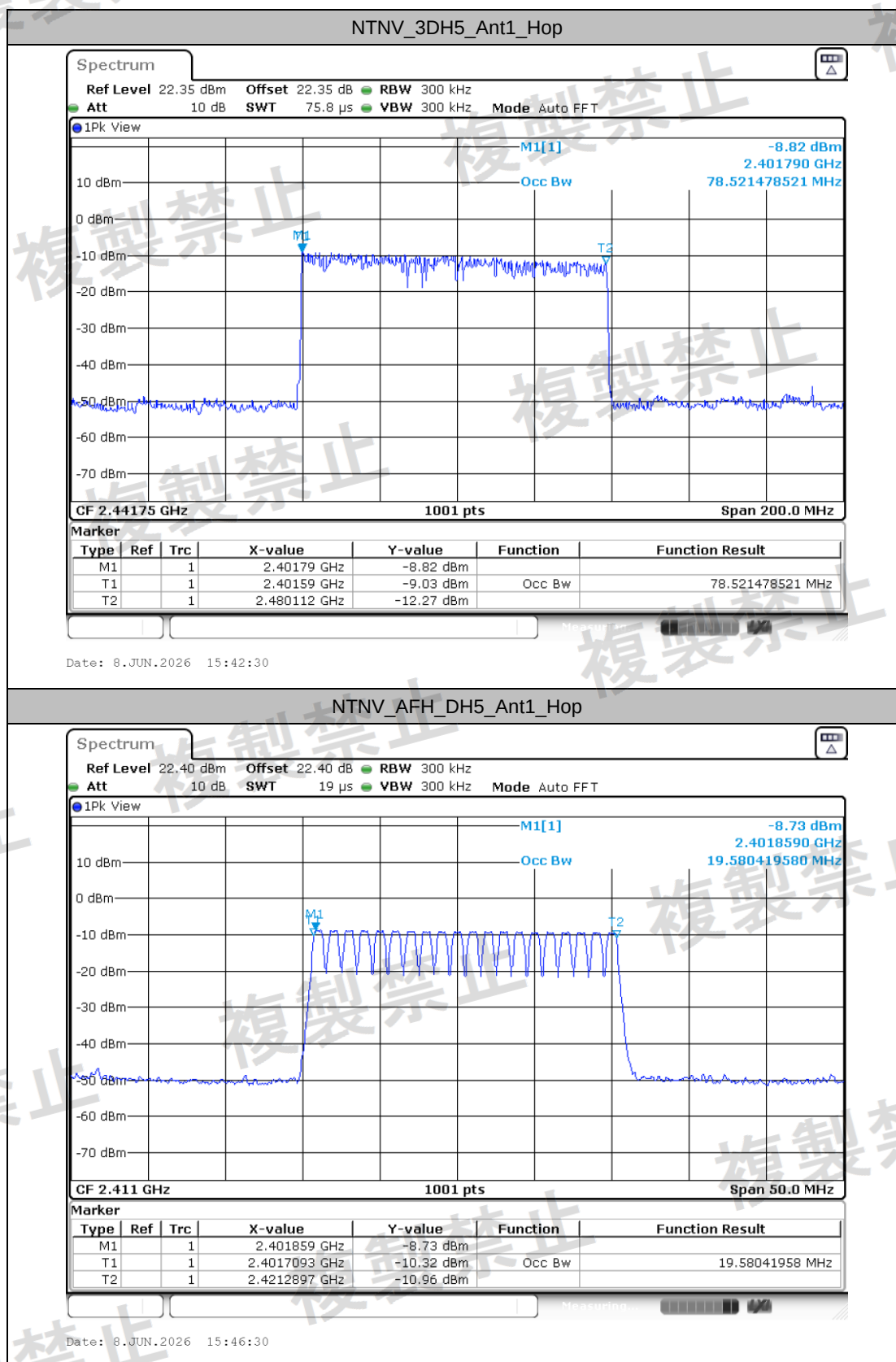
Test Result

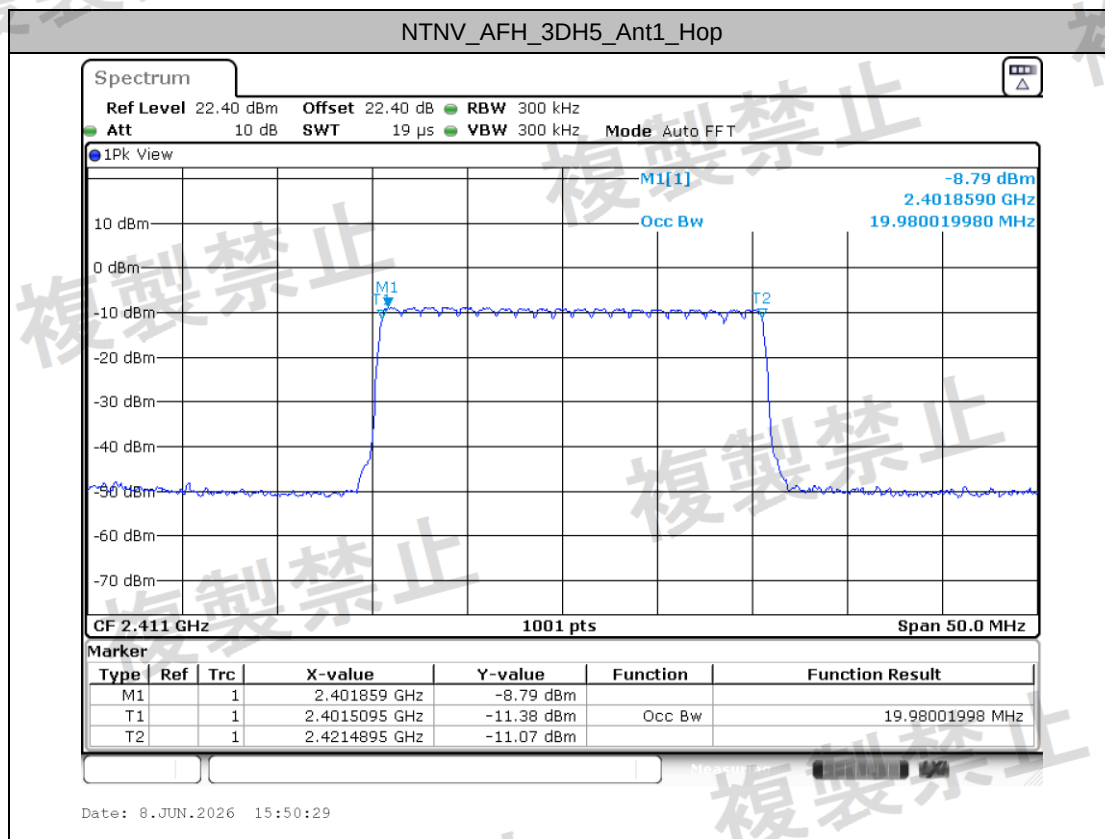
Test Condition	Test Mode	Antenna	Freq(MHz)	Result [MHz]	Limit [MHz]	Verdict
NTNV	DH5	Ant1	Hop	78.122	≤83.5	PASS
	3DH5	Ant1	Hop	78.521	≤83.5	PASS
	AFH_DH5	Ant1	Hop	19.580	≤83.5	PASS
	AFH_3DH5	Ant1	Hop	19.980	≤83.5	PASS



Test Graphs









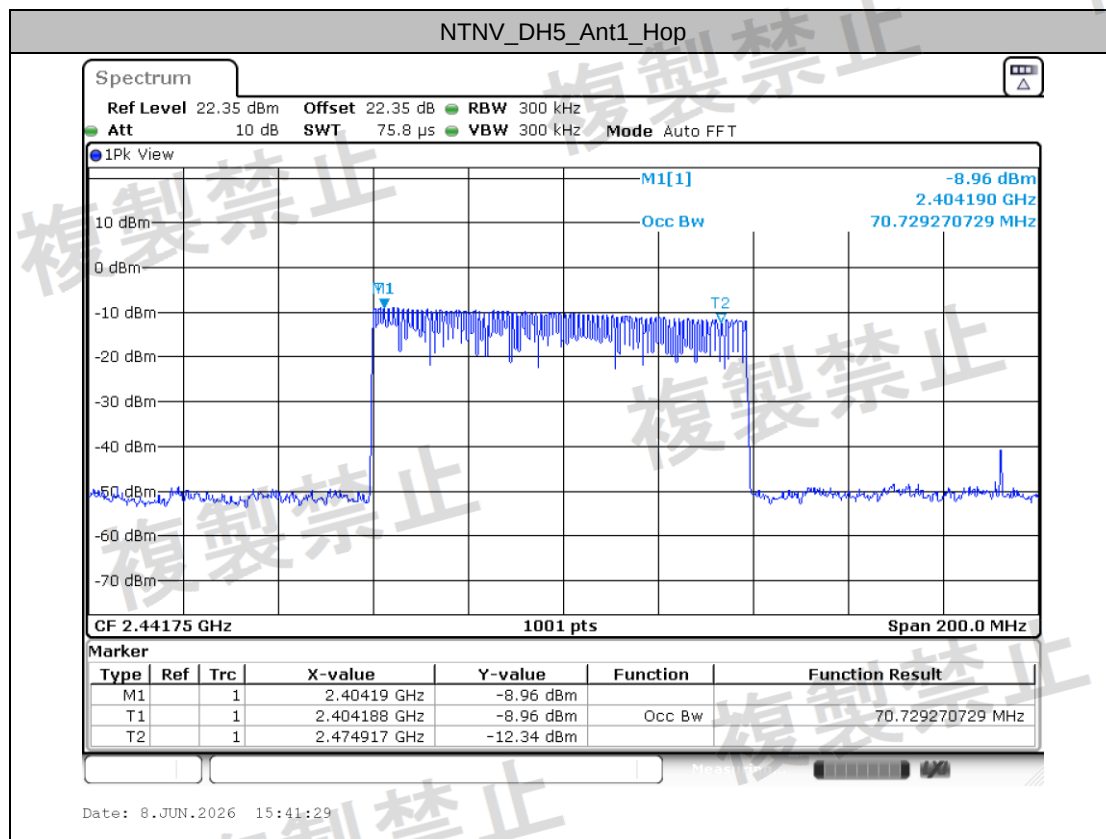
Spread Bandwidth

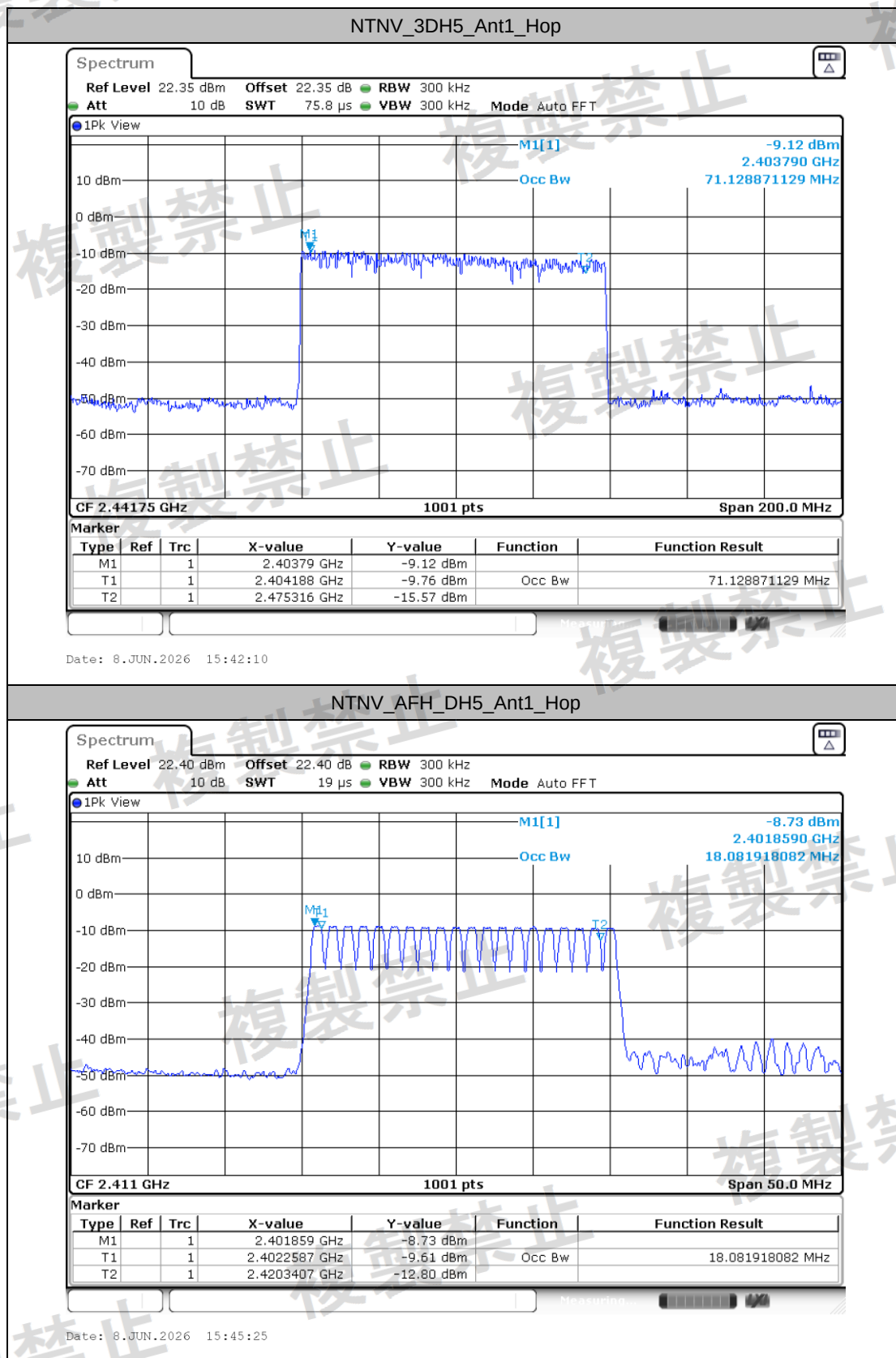
Test Result

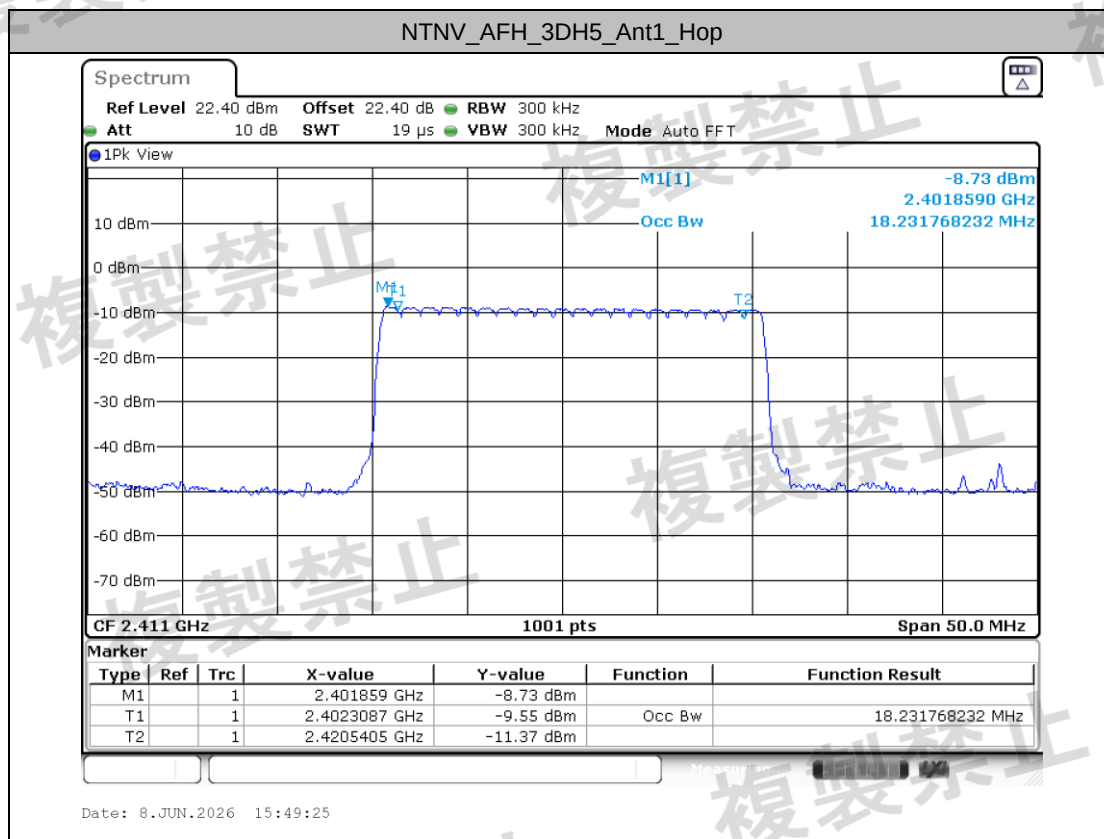
Test Condition	Test Mode	Antenna	Freq (MHz)	Result [MHz]
NTNV	DH5	Ant1	Hop	70.729
	3DH5	Ant1	Hop	71.129
	AFH_DH5	Ant1	Hop	18.082
	AFH_3DH5	Ant1	Hop	18.232



Test Graphs







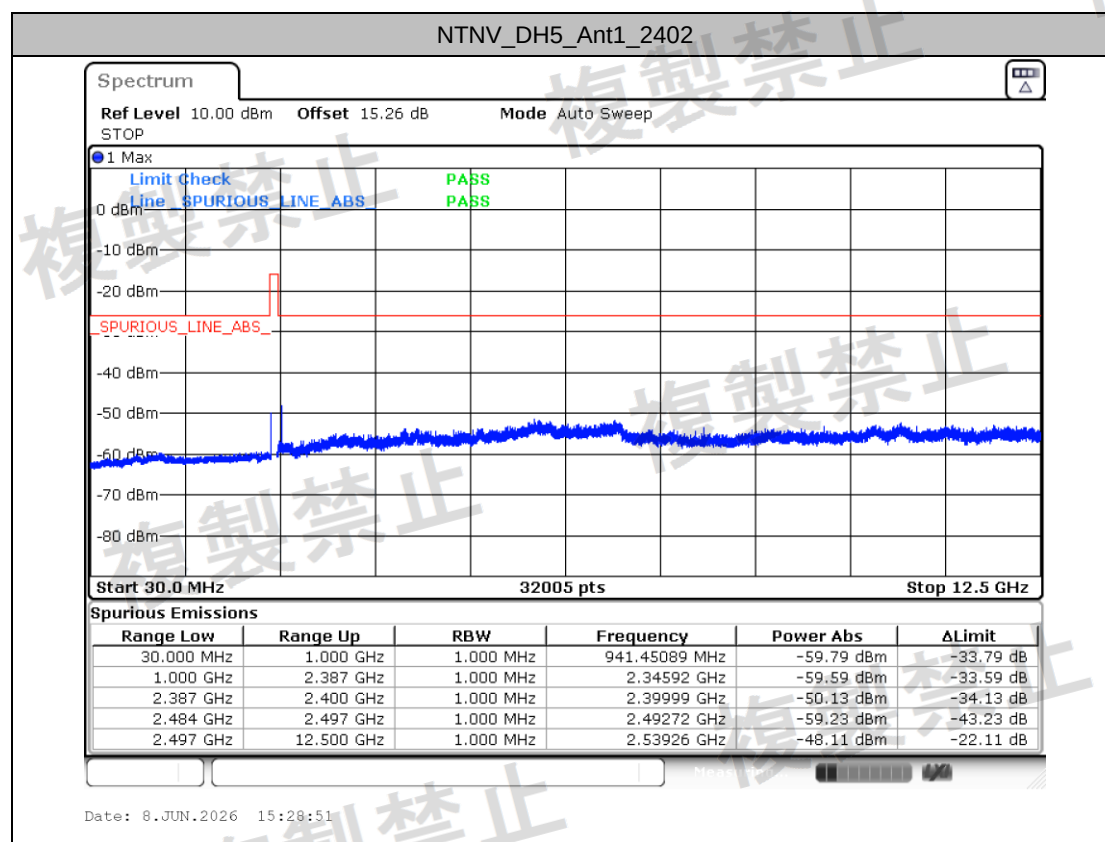
Unwanted Emission Intensity

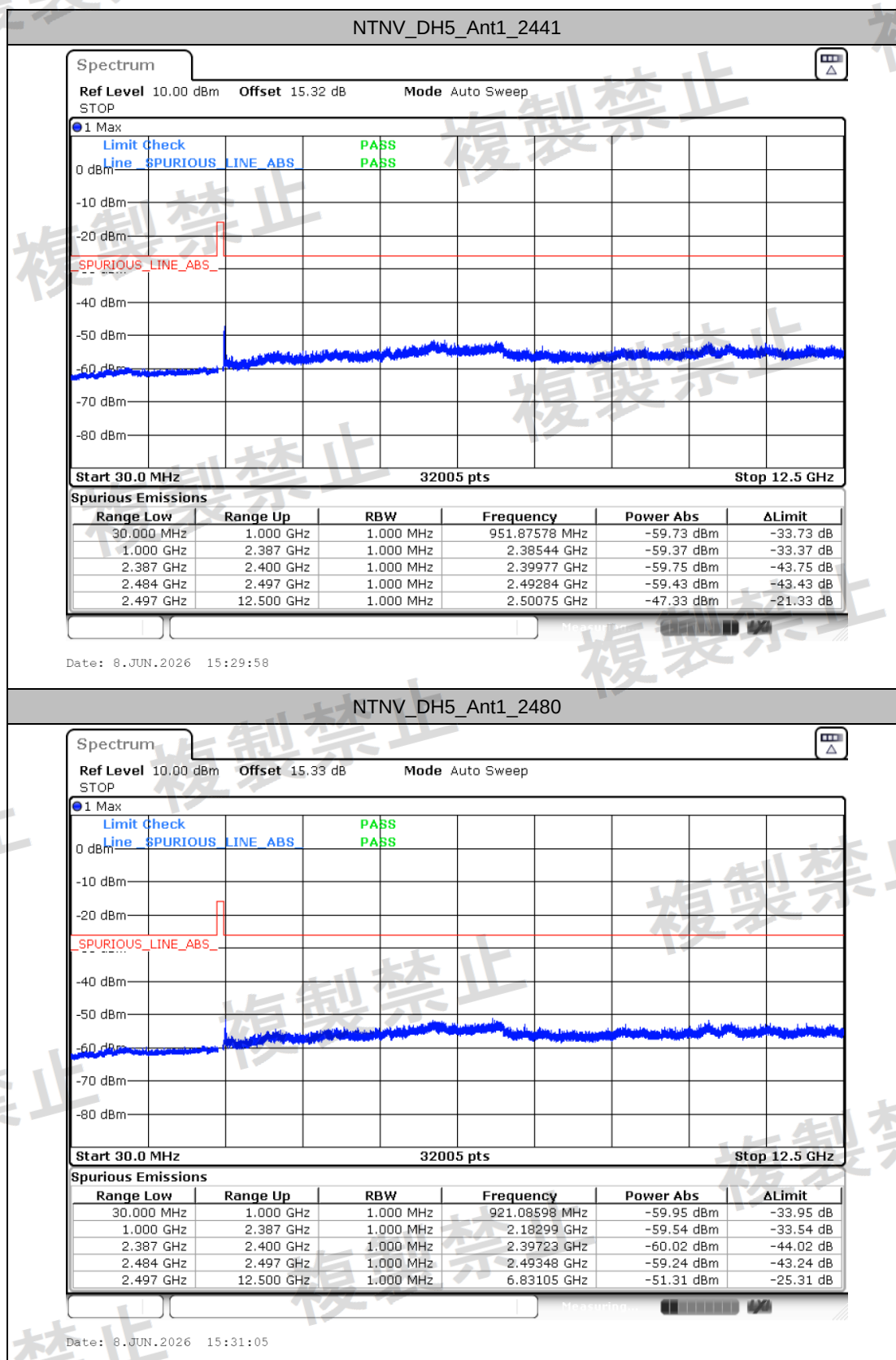
Test Result

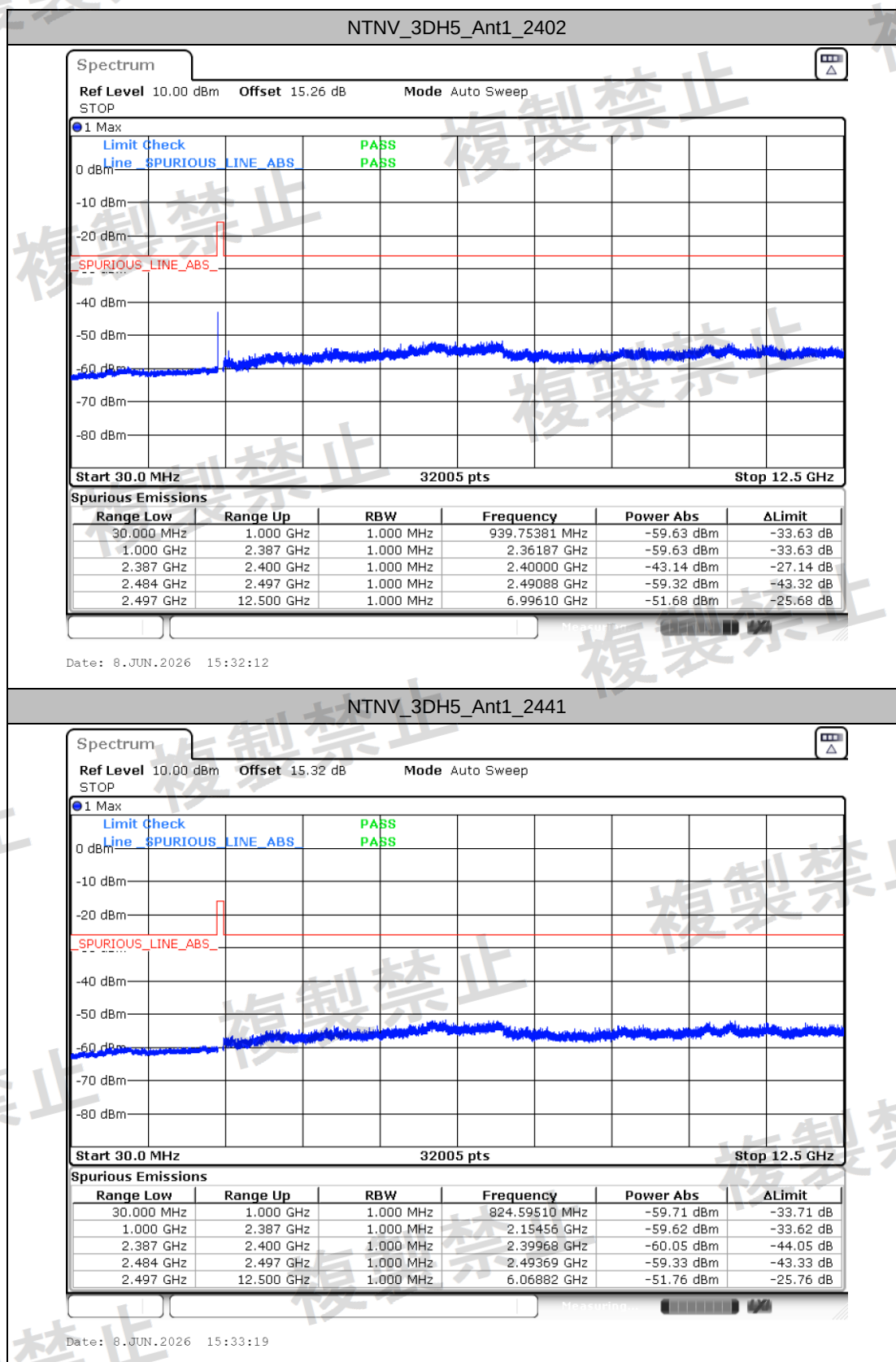
Test Condition	Test Mode	Antenna	Freq (MHz)	Freq.Range [MHz]	Freq. [MHz]	Result [dBm /MHz]	Limit [dBm /MHz]	Result [μW /MHz]	Limit [μW /MHz]	Verdict
NTNV	DH5	Ant1	2402	30~1000	941.45	-59.79	-26.00	0.00105	2.5	PASS
				1000~2387	2345.92	-59.59	-26.00	0.00110	2.5	PASS
				2387~2400	2399.99	-50.13	-16.00	0.00971	25	PASS
				2483.5~2496.5	2492.72	-59.23	-16.00	0.00119	25	PASS
				2496.5~12500	2539.26	-48.11	-26.00	0.01545	2.5	PASS
			2441	30~1000	951.88	-59.73	-26.00	0.00106	2.5	PASS
				1000~2387	2385.44	-59.37	-26.00	0.00116	2.5	PASS
				2387~2400	2399.77	-59.75	-16.00	0.00106	25	PASS
				2483.5~2496.5	2492.84	-59.43	-16.00	0.00114	25	PASS
				2496.5~12500	2500.75	-47.33	-26.00	0.01849	2.5	PASS
		2480		30~1000	921.09	-59.95	-26.00	0.00101	2.5	PASS
				1000~2387	2182.99	-59.54	-26.00	0.00111	2.5	PASS
				2387~2400	2397.23	-60.02	-16.00	0.00100	25	PASS
				2483.5~2496.5	2493.48	-59.24	-16.00	0.00119	25	PASS
				2496.5~12500	6831.05	-51.31	-26.00	0.00740	2.5	PASS
	3DH5	Ant1	2402	30~1000	939.75	-59.63	-26.00	0.00109	2.5	PASS
				1000~2387	2361.87	-59.63	-26.00	0.00109	2.5	PASS
				2387~2400	2400.00	-43.14	-16.00	0.04853	25	PASS
				2483.5~2496.5	2490.88	-59.32	-16.00	0.00117	25	PASS
				2496.5~12500	6996.10	-51.68	-26.00	0.00679	2.5	PASS
			2441	30~1000	824.60	-59.71	-26.00	0.00107	2.5	PASS
				1000~2387	2154.56	-59.62	-26.00	0.00109	2.5	PASS
				2387~2400	2399.68	-60.05	-16.00	0.00099	25	PASS
				2483.5~2496.5	2493.69	-59.33	-16.00	0.00117	25	PASS
				2496.5~12500	6068.82	-51.76	-26.00	0.00667	2.5	PASS
		2480		30~1000	993.82	-59.89	-26.00	0.00103	2.5	PASS
				1000~2387	2364.64	-59.55	-26.00	0.00111	2.5	PASS
				2387~2400	2388.69	-60.05	-16.00	0.00099	25	PASS
				2483.5~2496.5	2484.89	-59.03	-16.00	0.00125	25	PASS
				2496.5~12500	5898.27	-51.17	-26.00	0.00764	2.5	PASS
	AFH_DH5	Ant1	2402	30~1000	844.96	-59.78	-26.00	0.00105	2.5	PASS
				1000~2387	2140.35	-59.73	-26.00	0.00106	2.5	PASS
				2387~2400	2400.00	-49.99	-16.00	0.01002	25	PASS
				2483.5~2496.5	2494.80	-59.39	-16.00	0.00115	25	PASS
				2496.5~12500	6751.03	-50.97	-26.00	0.00800	2.5	PASS
			2411	30~1000	955.51	-59.76	-26.00	0.00106	2.5	PASS
				1000~2387	2164.96	-59.62	-26.00	0.00109	2.5	PASS

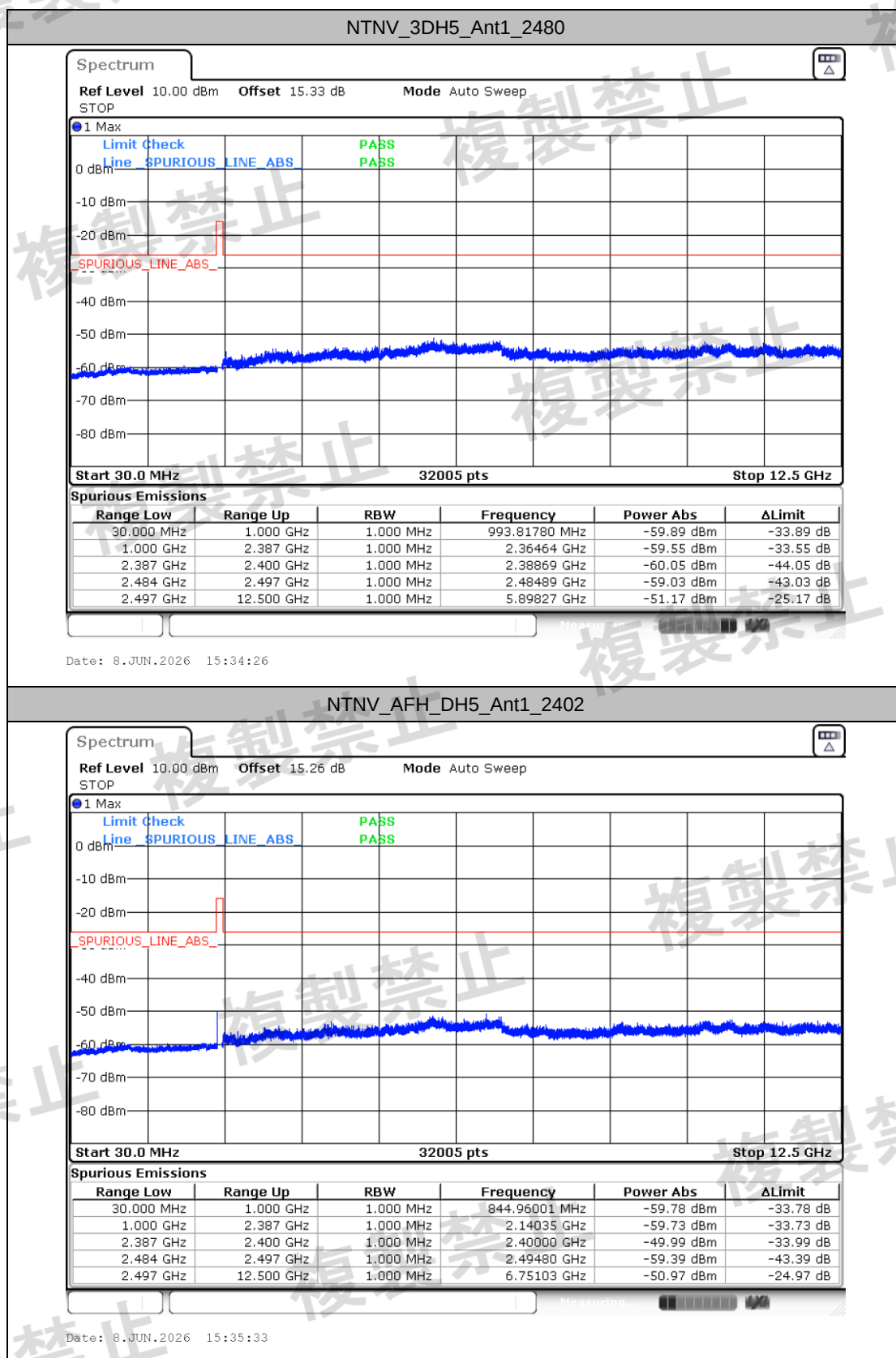
AFH_3DH5	Ant1	2421	2387~2400	2398.18	-59.66	-16.00	0.00108	25	PASS
			2483.5~2496.5	2495.20	-59.36	-16.00	0.00116	25	PASS
			2496.5~12500	6050.82	-51.30	-26.00	0.00741	2.5	PASS
			30~1000	946.78	-59.89	-26.00	0.00103	2.5	PASS
			1000~2387	2143.82	-59.36	-26.00	0.00116	2.5	PASS
			2387~2400	2388.95	-59.67	-16.00	0.00108	25	PASS
		2402	2483.5~2496.5	2494.92	-59.20	-16.00	0.00120	25	PASS
			2496.5~12500	6963.59	-51.07	-26.00	0.00782	2.5	PASS
			30~1000	828.72	-59.72	-26.00	0.00107	2.5	PASS
			1000~2387	2305.71	-59.68	-26.00	0.00108	2.5	PASS
			2387~2400	2400.00	-43.04	-16.00	0.04966	25	PASS
			2483.5~2496.5	2485.69	-59.48	-16.00	0.00113	25	PASS
		2411	2496.5~12500	2533.76	-48.09	-26.00	0.01552	2.5	PASS
			30~1000	830.41	-59.50	-26.00	0.00112	2.5	PASS
			1000~2387	2169.12	-59.27	-26.00	0.00118	2.5	PASS
			2387~2400	2398.79	-59.63	-16.00	0.00109	25	PASS
			2483.5~2496.5	2494.11	-59.45	-16.00	0.00114	25	PASS
			2496.5~12500	2525.26	-49.84	-26.00	0.01038	2.5	PASS
		2421	30~1000	960.60	-59.71	-26.00	0.00107	2.5	PASS
			1000~2387	2206.56	-59.47	-26.00	0.00113	2.5	PASS
			2387~2400	2395.94	-59.90	-16.00	0.00102	25	PASS
			2483.5~2496.5	2494.55	-59.35	-16.00	0.00116	25	PASS
			2496.5~12500	6067.32	-51.56	-26.00	0.00698	2.5	PASS

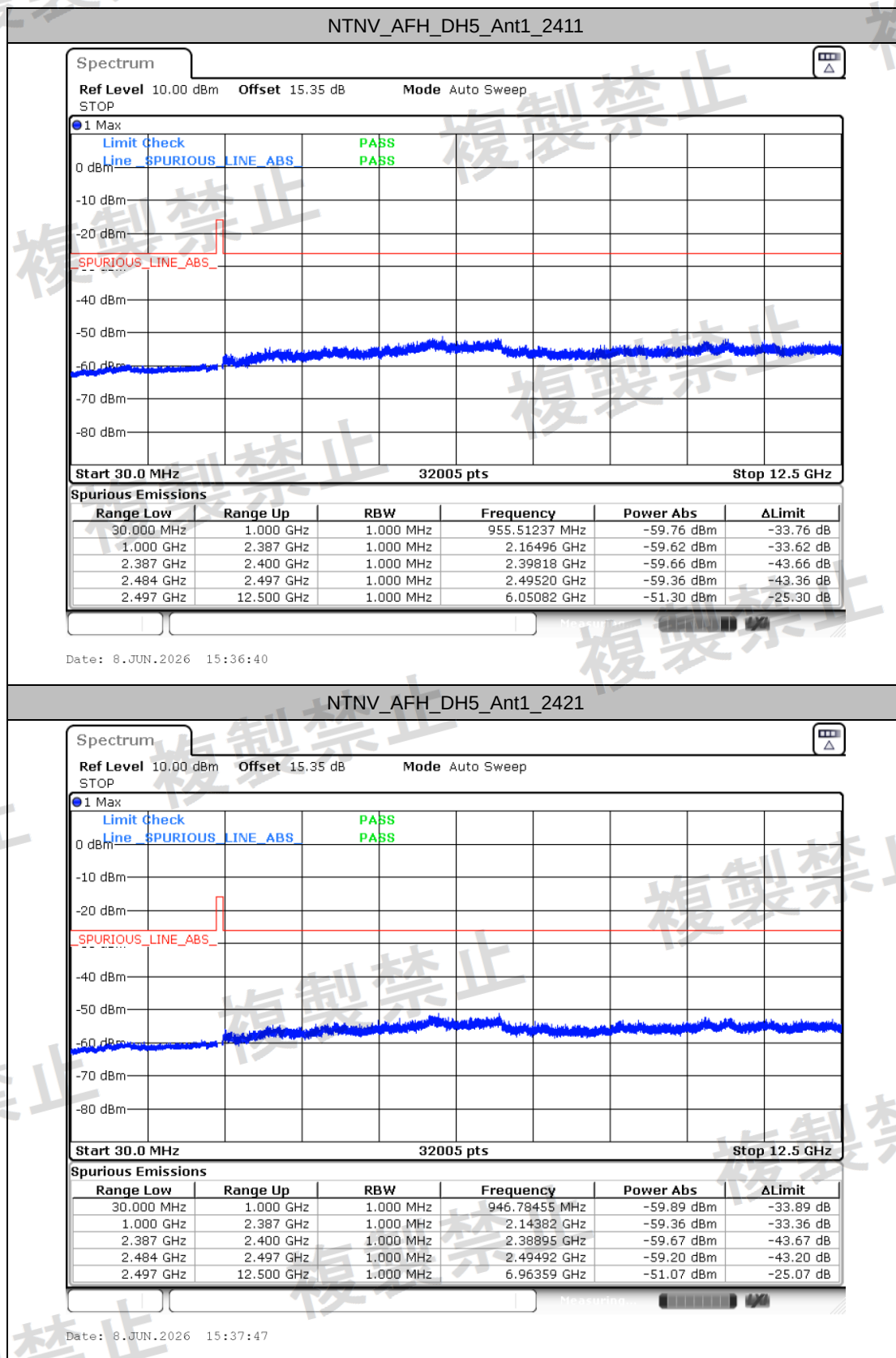
Test Graphs

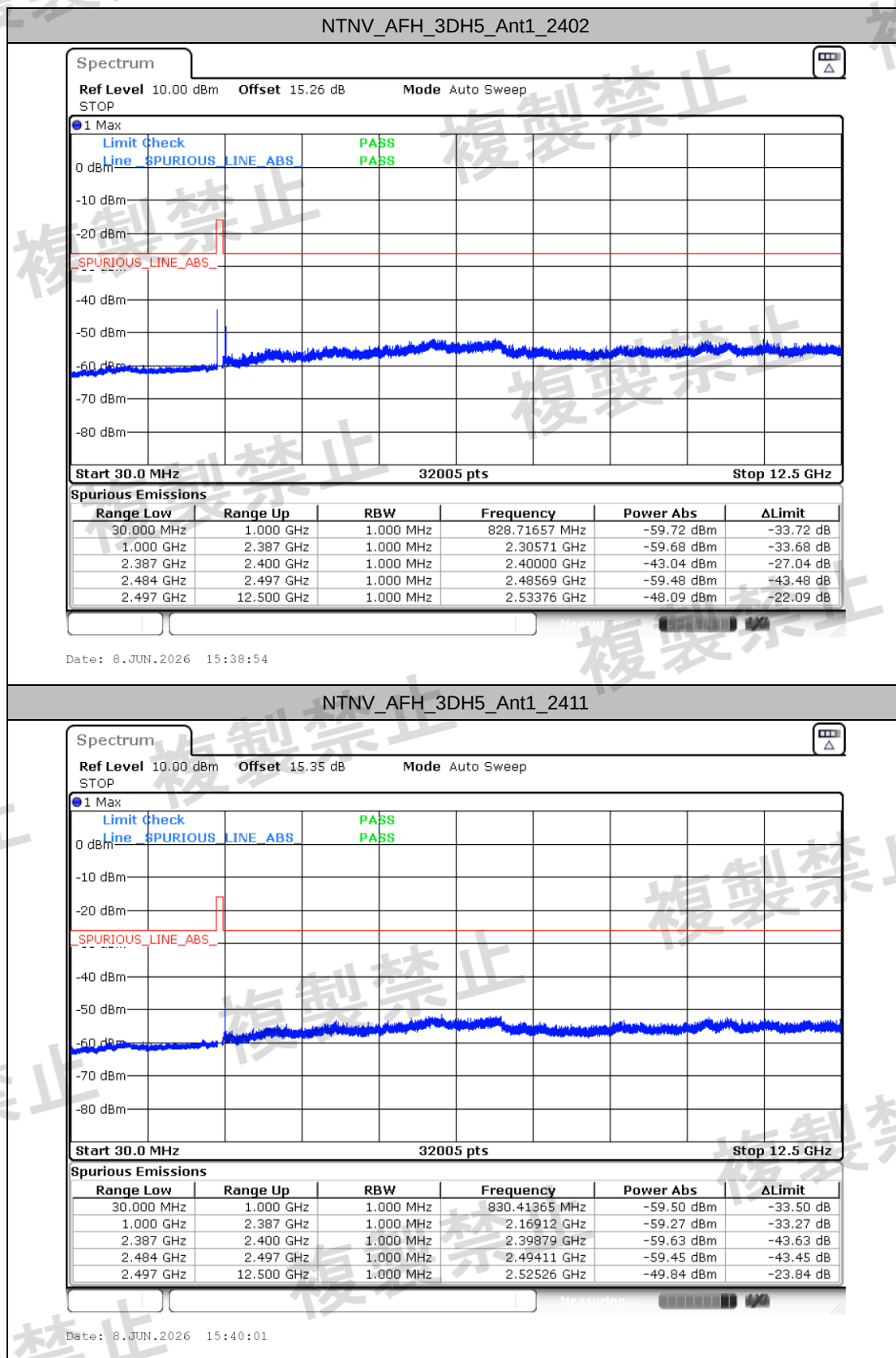


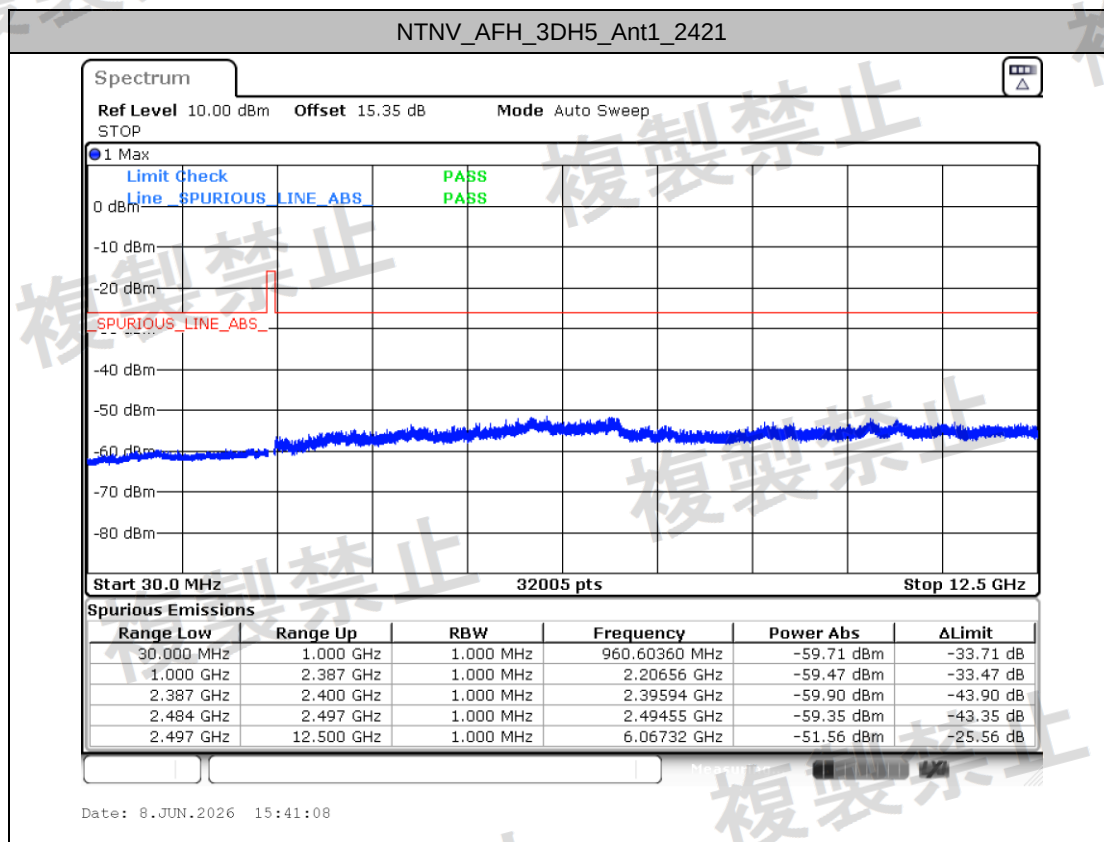












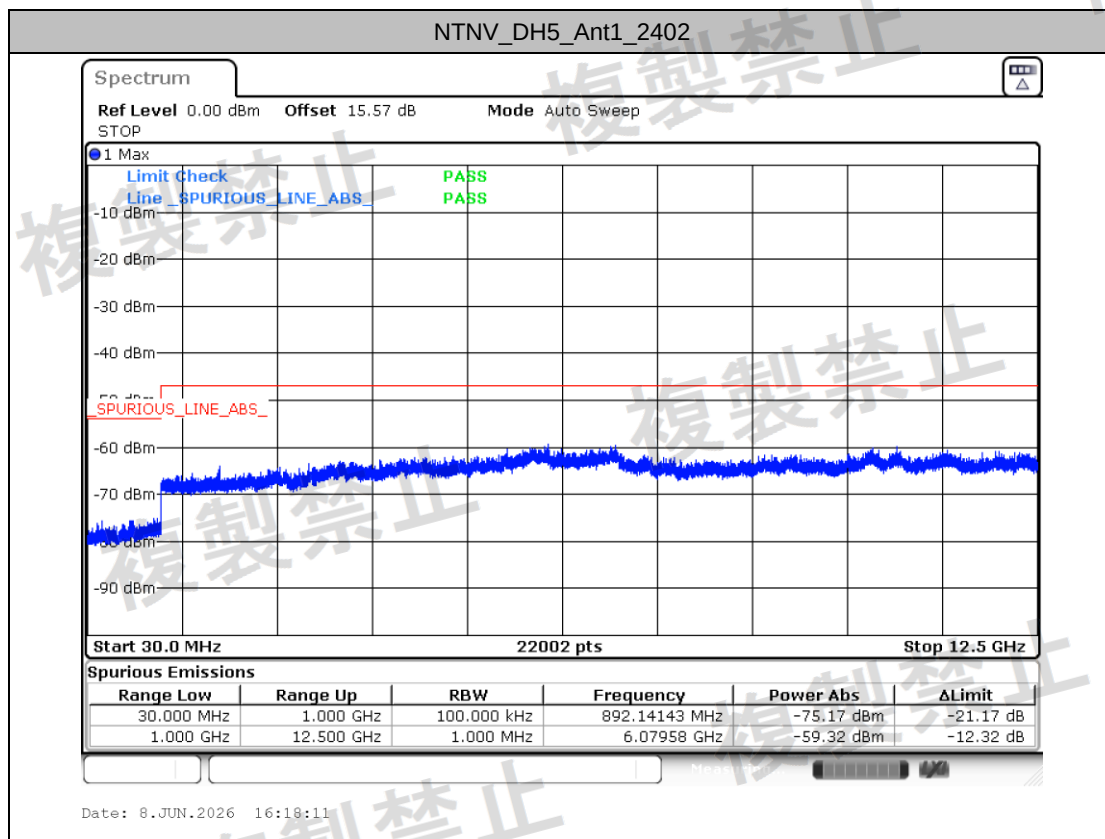
Limitation of Collateral Emission of Receiver

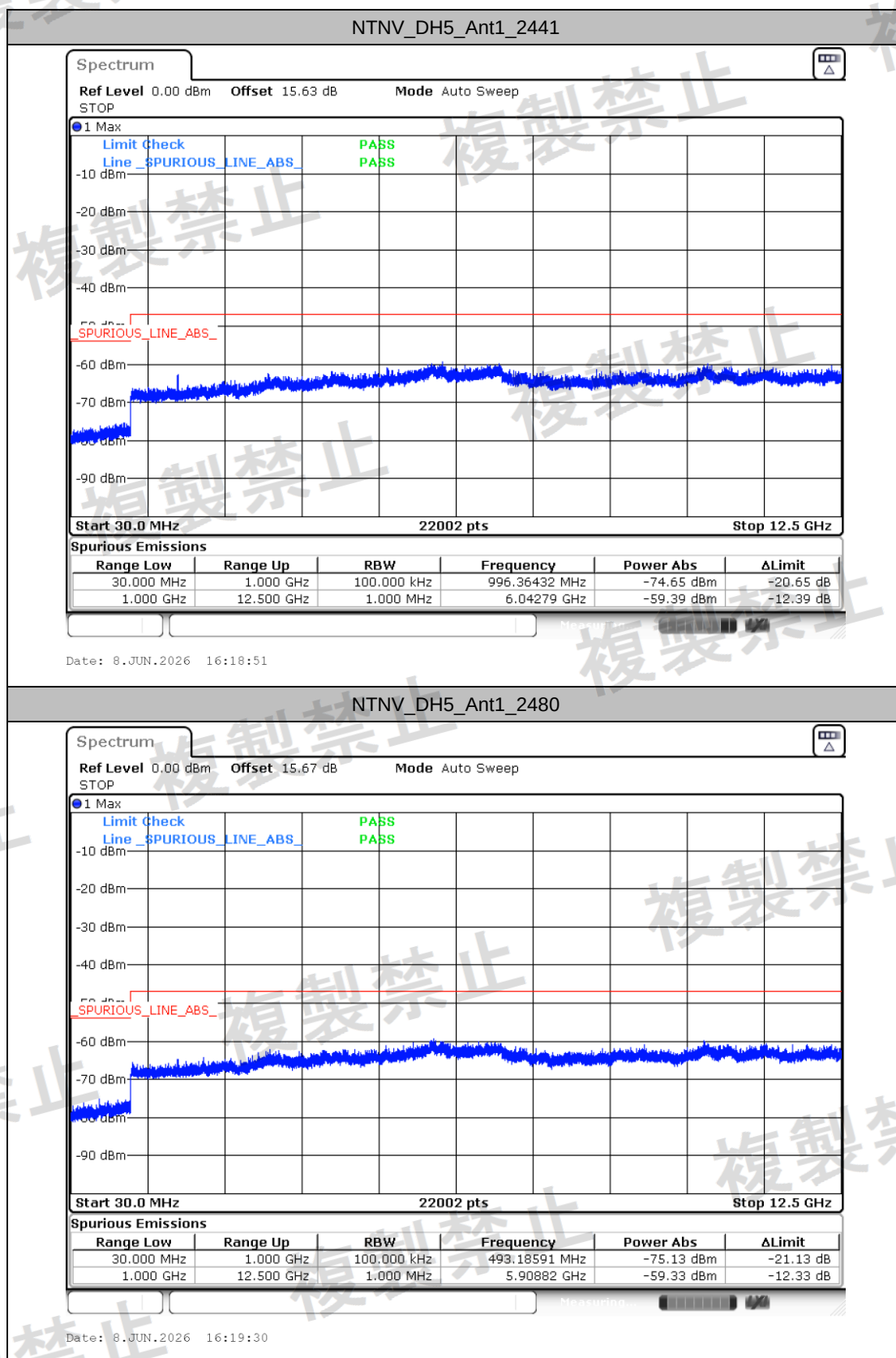
Test Result

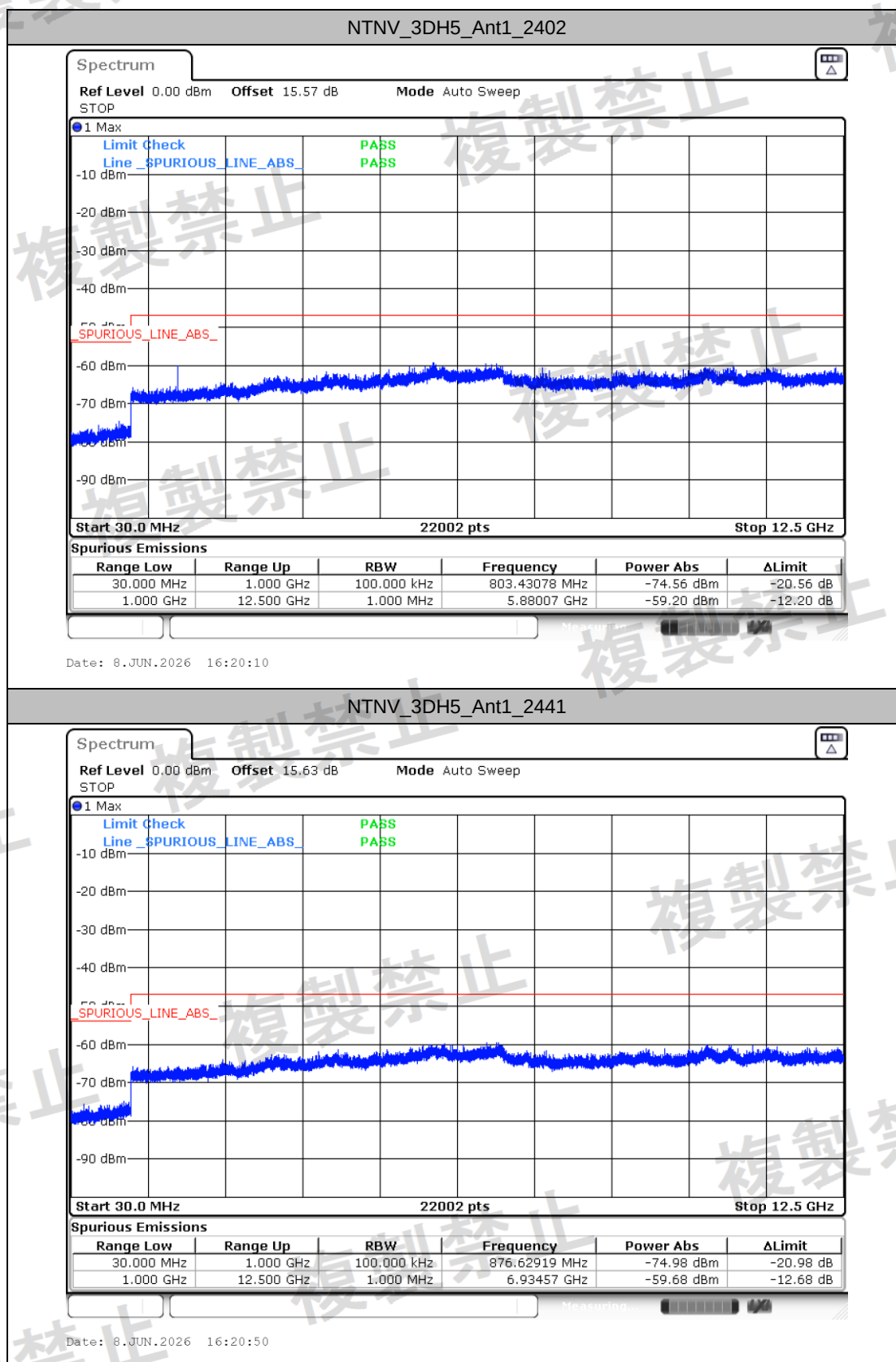
Test Condition	Test Mode	Antenna	Freq (MHz)	Freq.Range [MHz]	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [nW]	Limit [nW]	Verdict
NTNV	DH5	Ant1	2402	30~1000	892.14	-75.17	-54.00	0.03041	4	PASS
				1000~12500	6079.58	-59.32	-47.00	1.16950	20	PASS
			2441	30~1000	996.36	-74.65	-54.00	0.03428	4	PASS
				1000~12500	6042.79	-59.39	-47.00	1.15080	20	PASS
			2480	30~1000	493.19	-75.13	-54.00	0.03069	4	PASS
				1000~12500	5908.82	-59.33	-47.00	1.16681	20	PASS
	3DH5	Ant1	2402	30~1000	803.43	-74.56	-54.00	0.03499	4	PASS
				1000~12500	5880.07	-59.20	-47.00	1.20226	20	PASS
			2441	30~1000	876.63	-74.98	-54.00	0.03177	4	PASS
				1000~12500	6934.57	-59.68	-47.00	1.07647	20	PASS
			2480	30~1000	945.95	-74.92	-54.00	0.03221	4	PASS
				1000~12500	6940.32	-59.05	-47.00	1.24451	20	PASS
	AFH_DH5	Ant1	2402	30~1000	888.75	-74.97	-54.00	0.03184	4	PASS
				1000~12500	6931.12	-59.61	-47.00	1.09396	20	PASS
			2411	30~1000	923.17	-75.38	-54.00	0.02897	4	PASS
				1000~12500	10340.70	-58.93	-47.00	1.27938	20	PASS
			2421	30~1000	639.10	-75.55	-54.00	0.02786	4	PASS
				1000~12500	5857.07	-59.07	-47.00	1.23880	20	PASS
	AFH_3DH5	Ant1	2402	30~1000	968.73	-75.10	-54.00	0.03090	4	PASS
				1000~12500	5906.52	-58.80	-47.00	1.31826	20	PASS
			2411	30~1000	635.22	-75.22	-54.00	0.03006	4	PASS
				1000~12500	6998.96	-59.35	-47.00	1.16145	20	PASS
			2421	30~1000	767.07	-75.49	-54.00	0.02825	4	PASS
				1000~12500	5853.04	-59.45	-47.00	1.13501	20	PASS

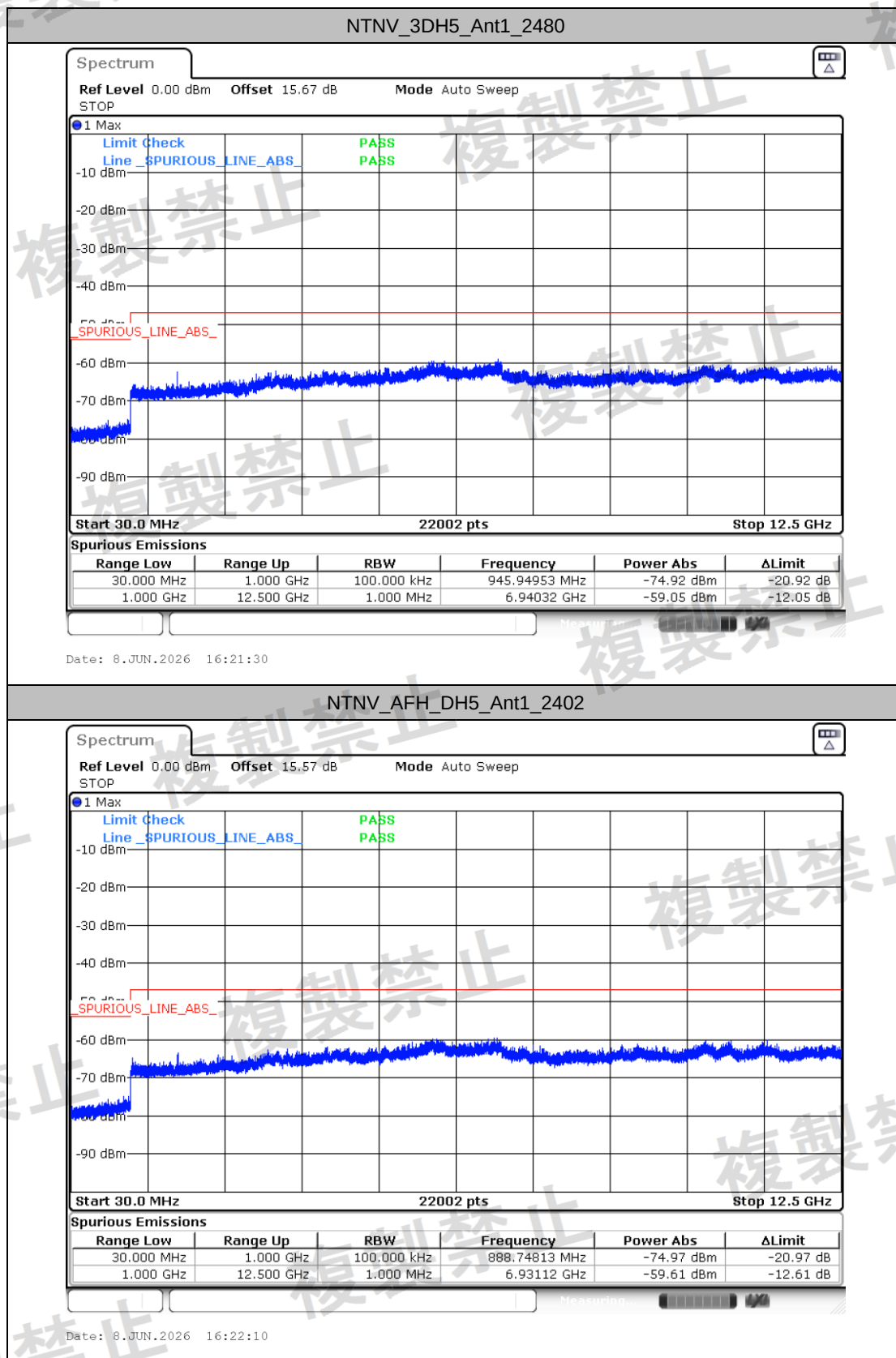


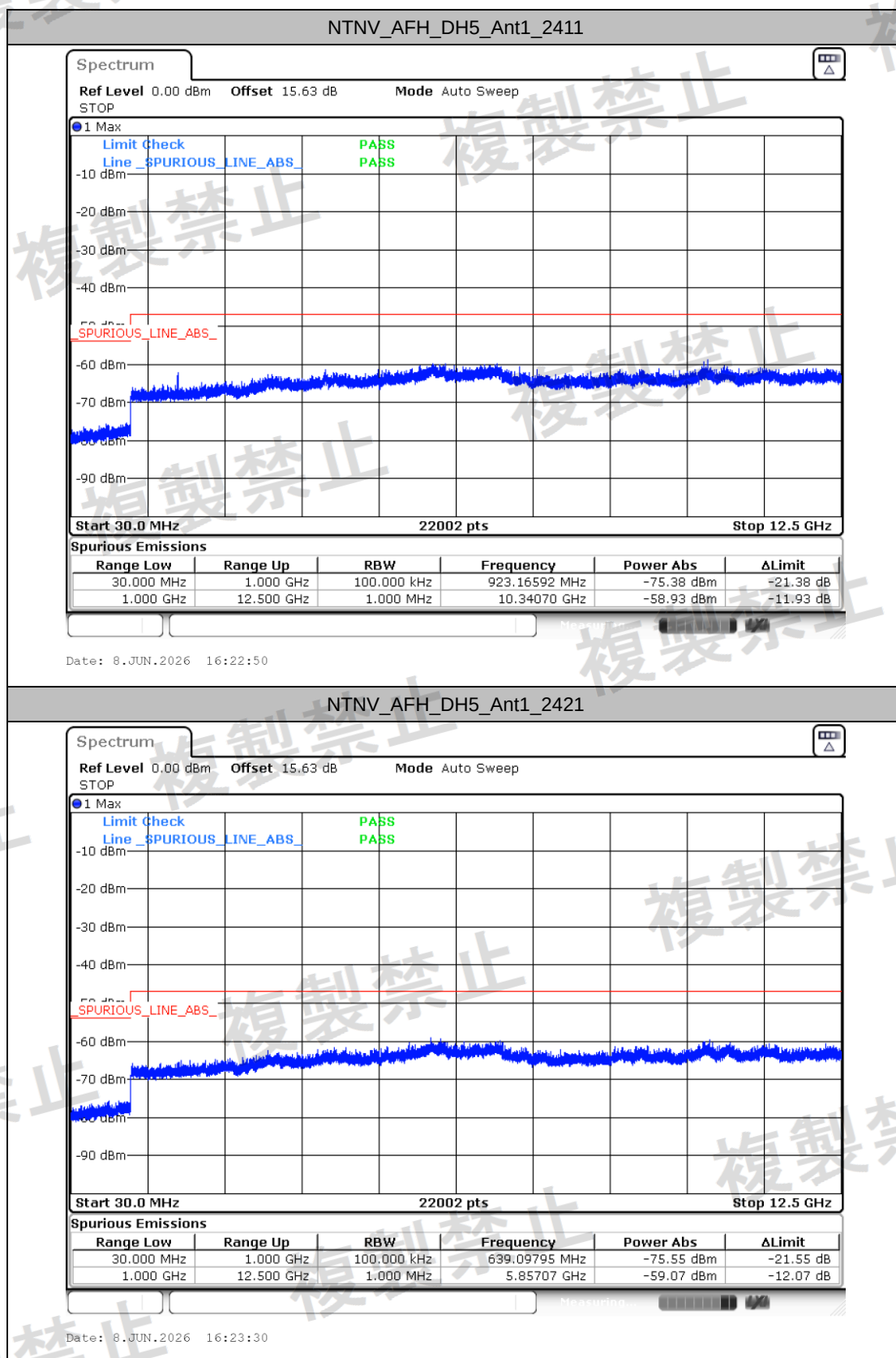
Test Graphs

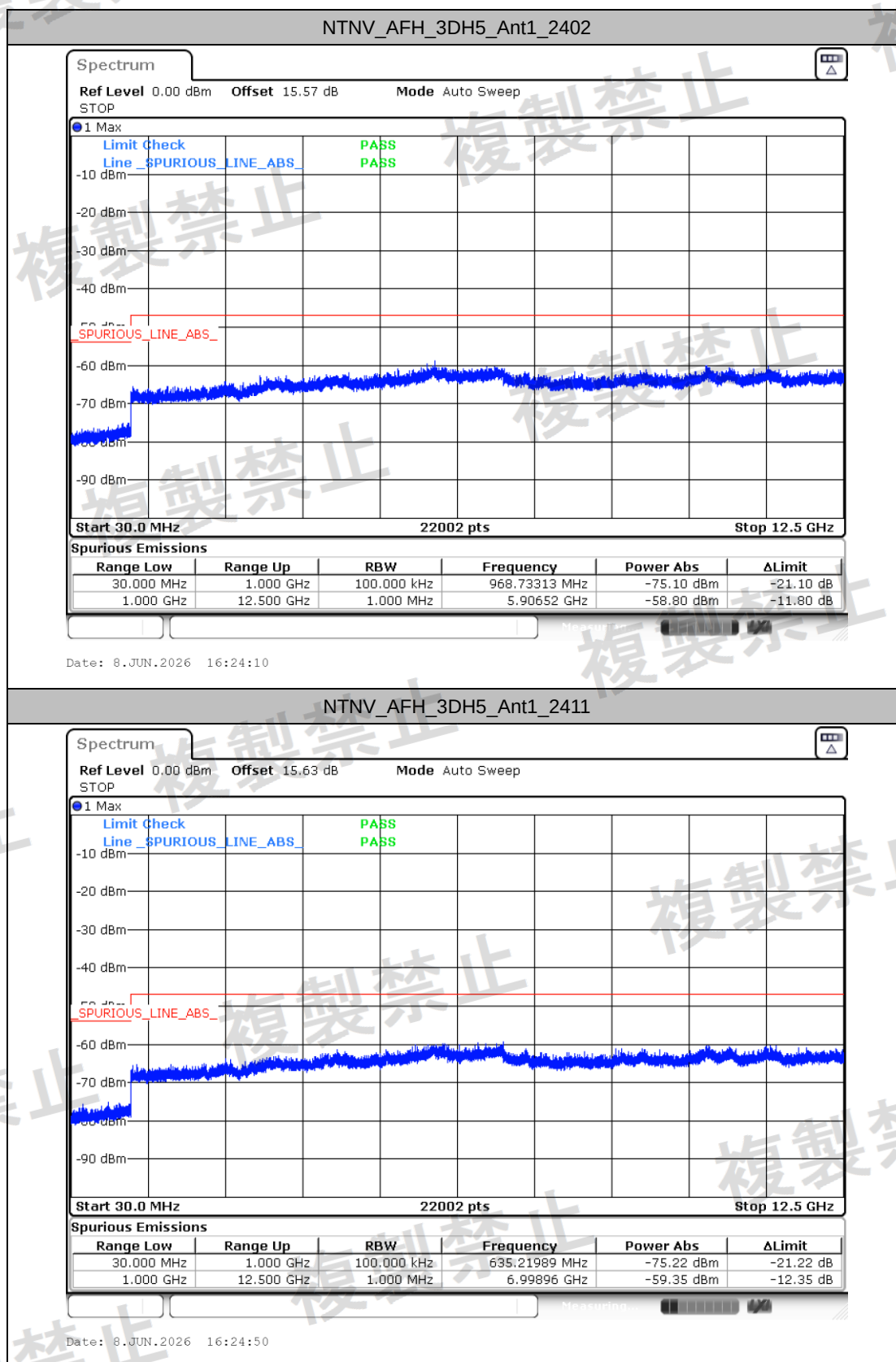


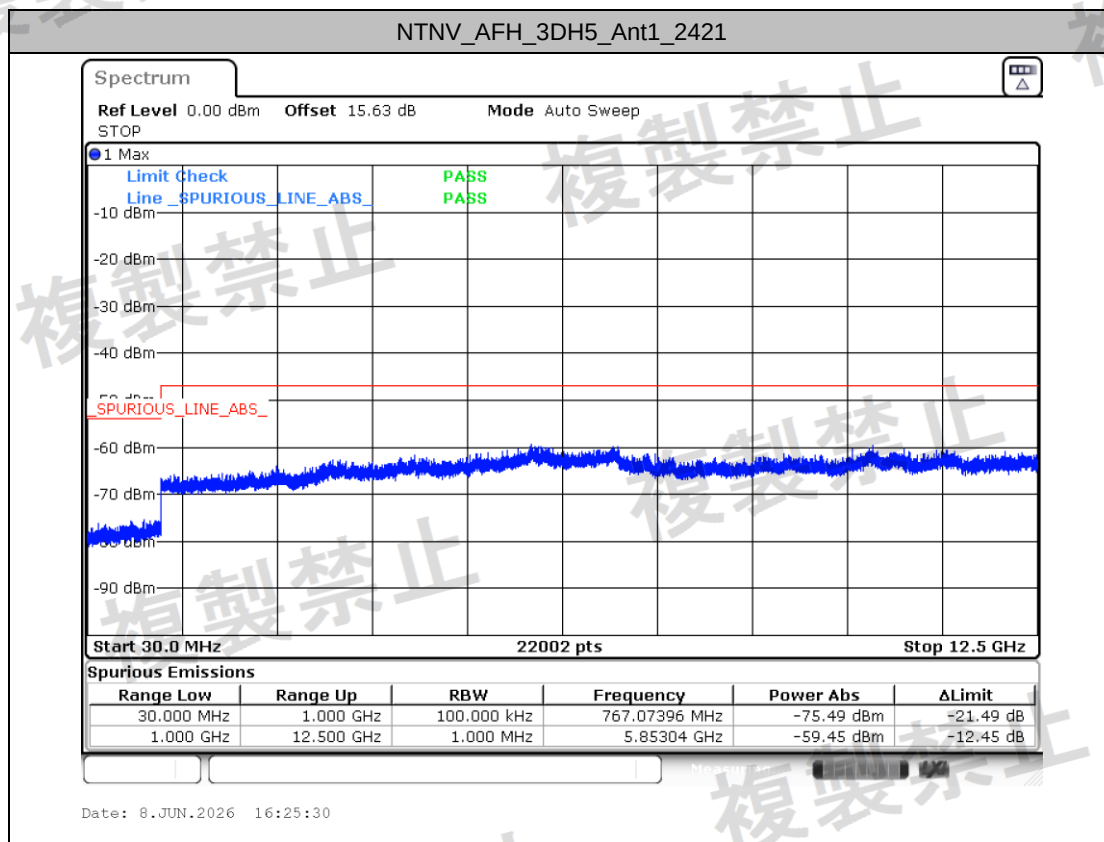












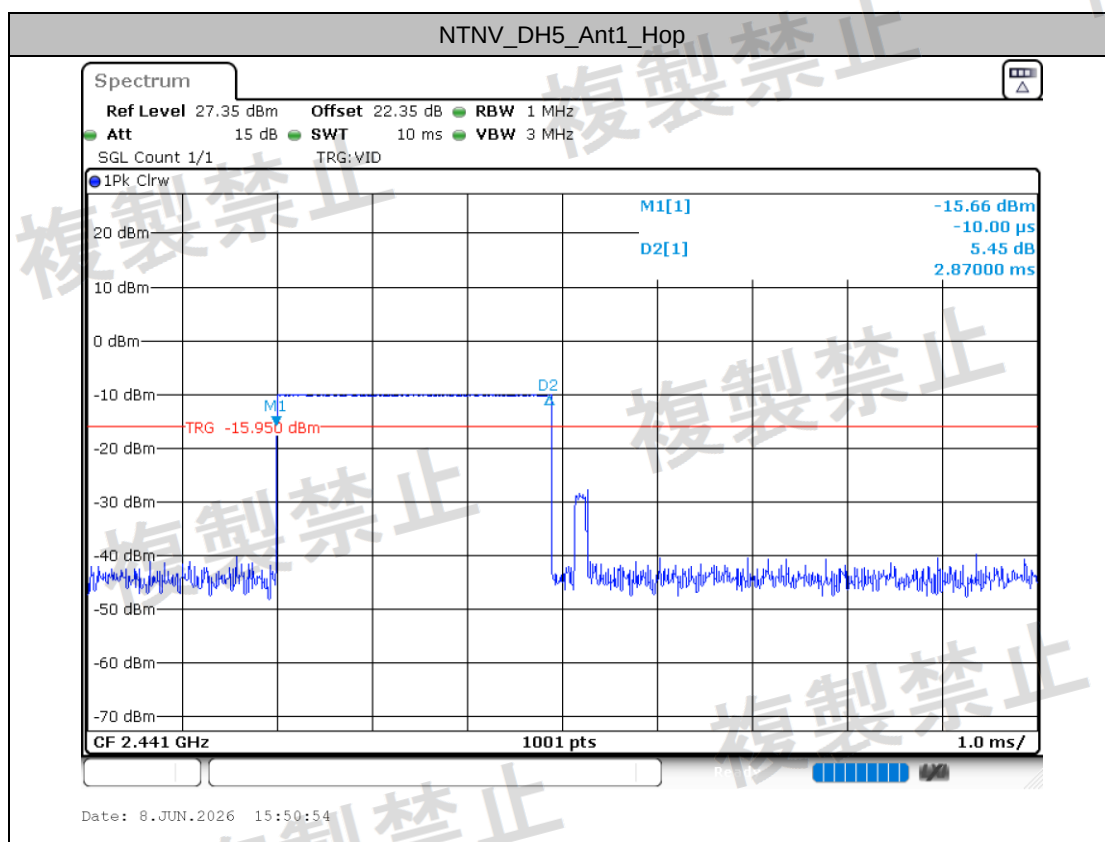


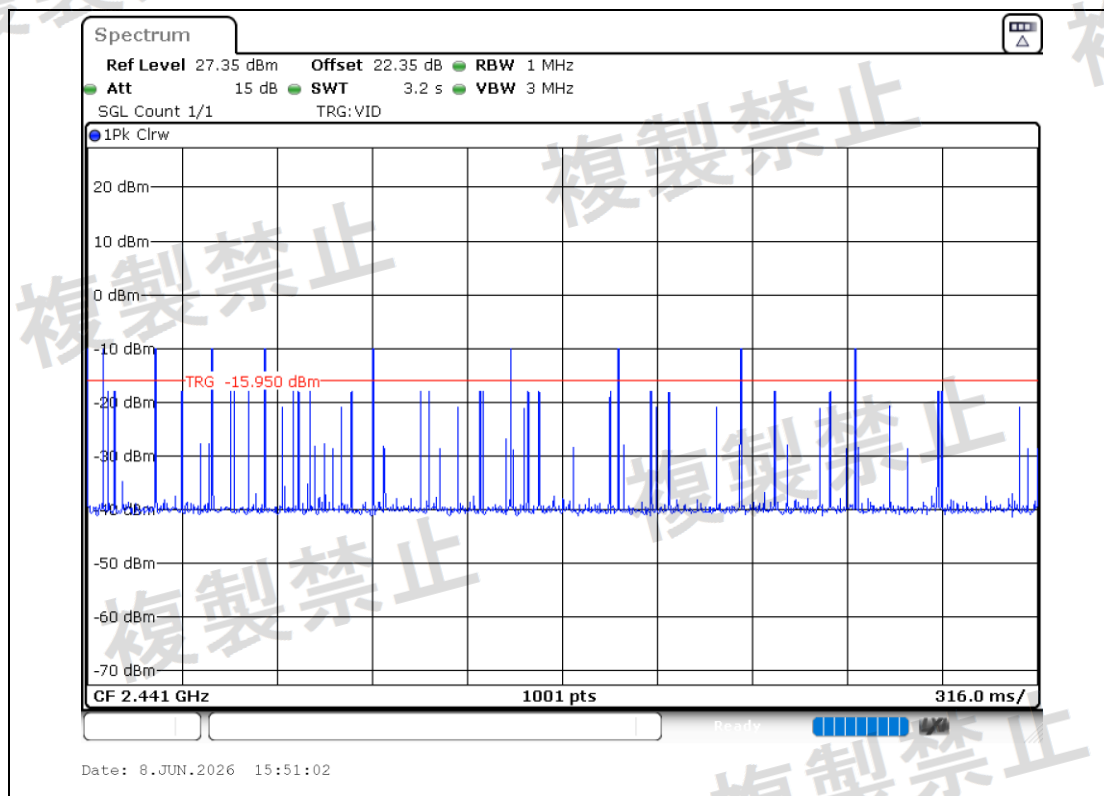
Dwell Time

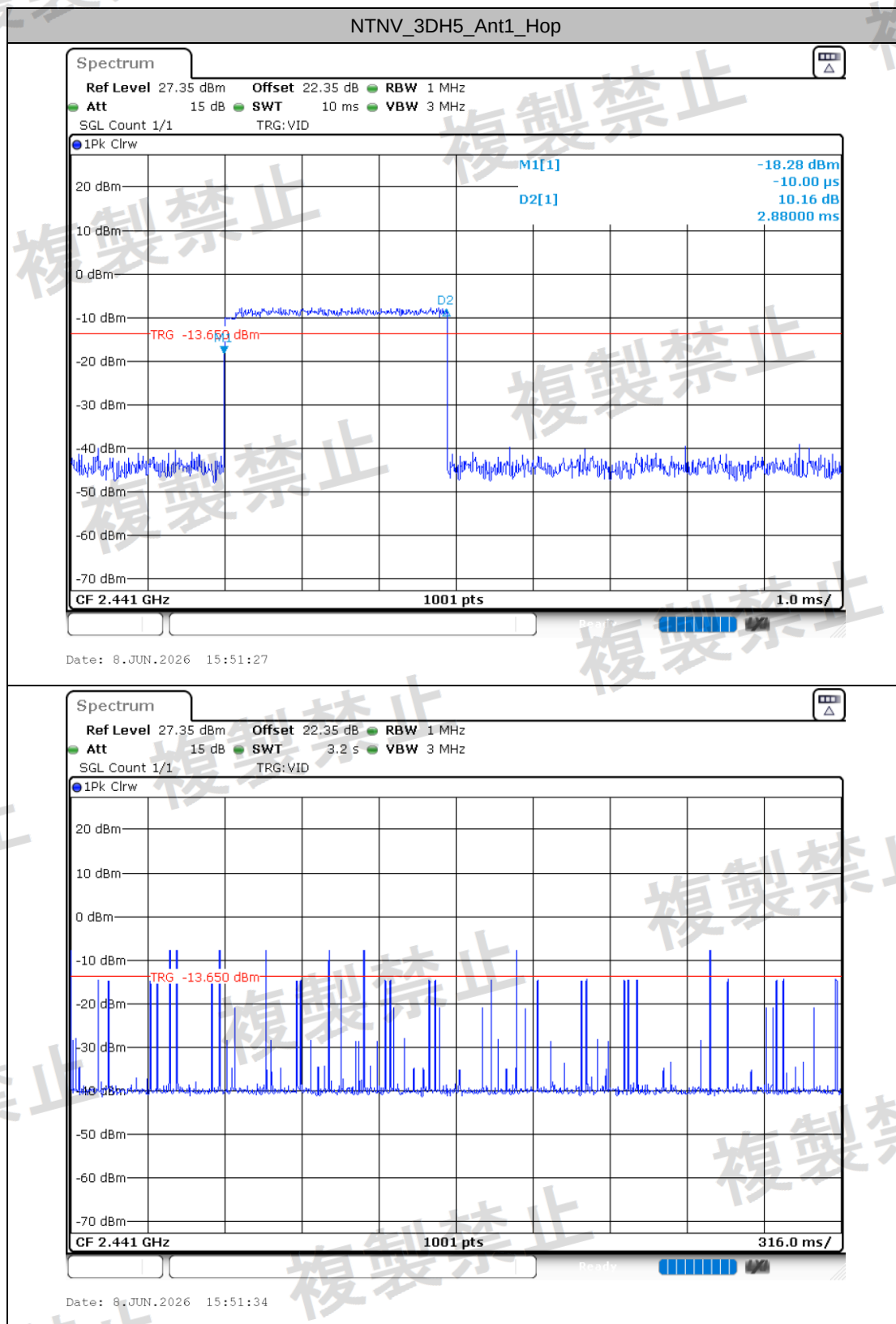
Test Result

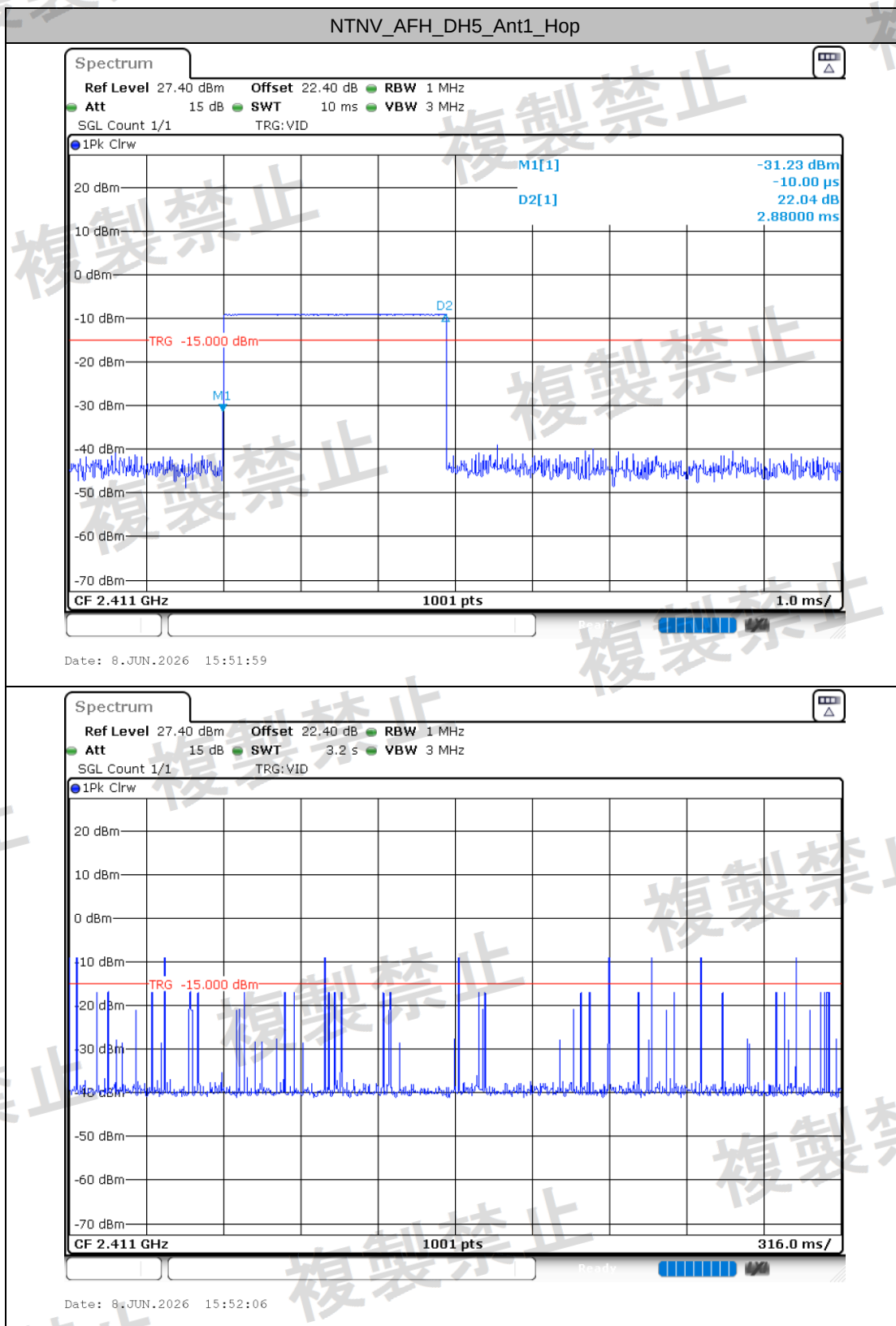
Test Condition	Test Mode	Antenna	Freq (MHz)	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit [s]	Verdict
NTNV	DH5	Ant1	Hop	2.87	100	0.287	≤0.4	PASS
	3DH5	Ant1	Hop	2.88	90	0.259	≤0.4	PASS
	AFH_DH5	Ant1	Hop	2.88	23	0.259	≤0.4	PASS
	AFH_3DH5	Ant1	Hop	0.12	30	0.014	≤0.4	PASS

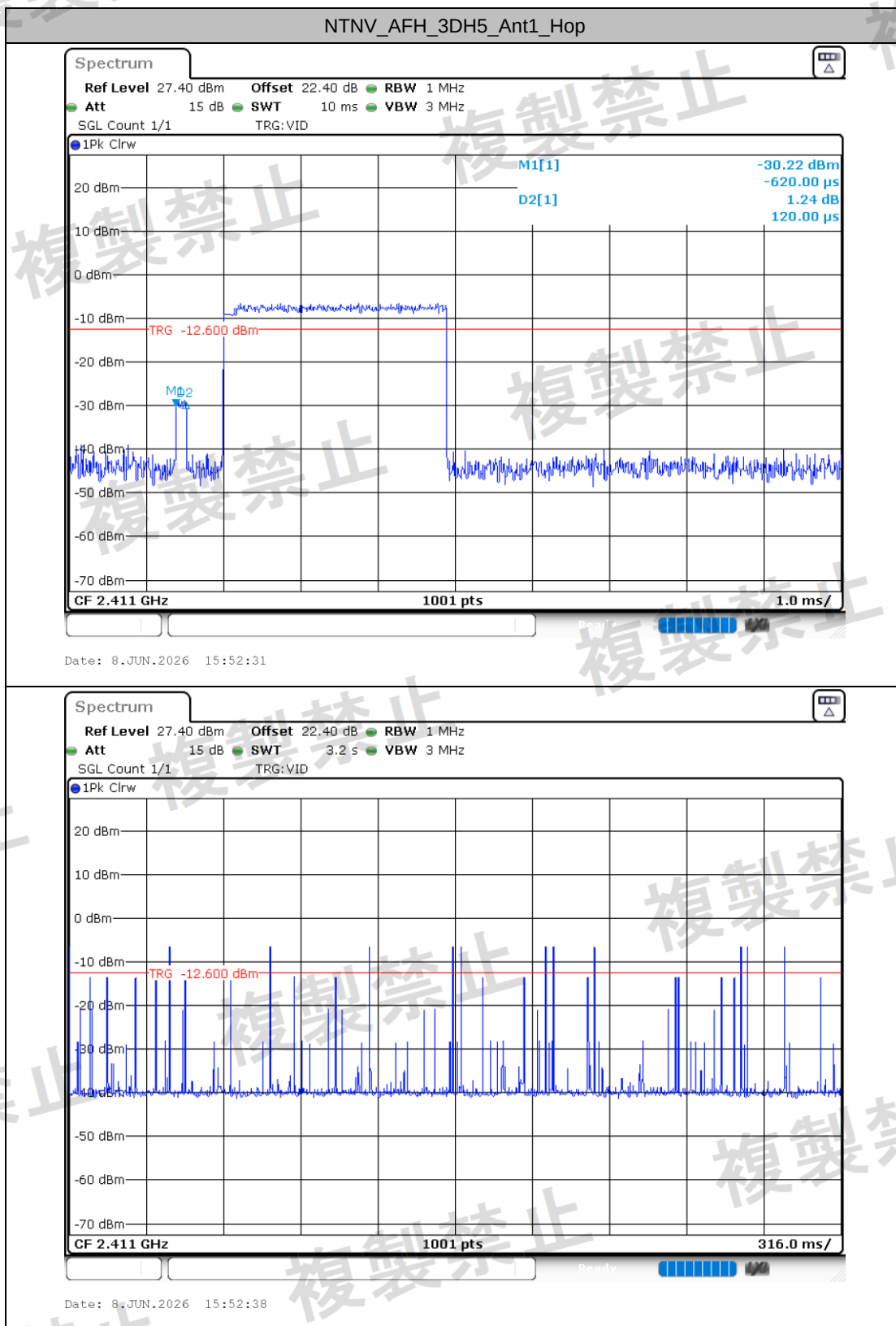
Test Graphs













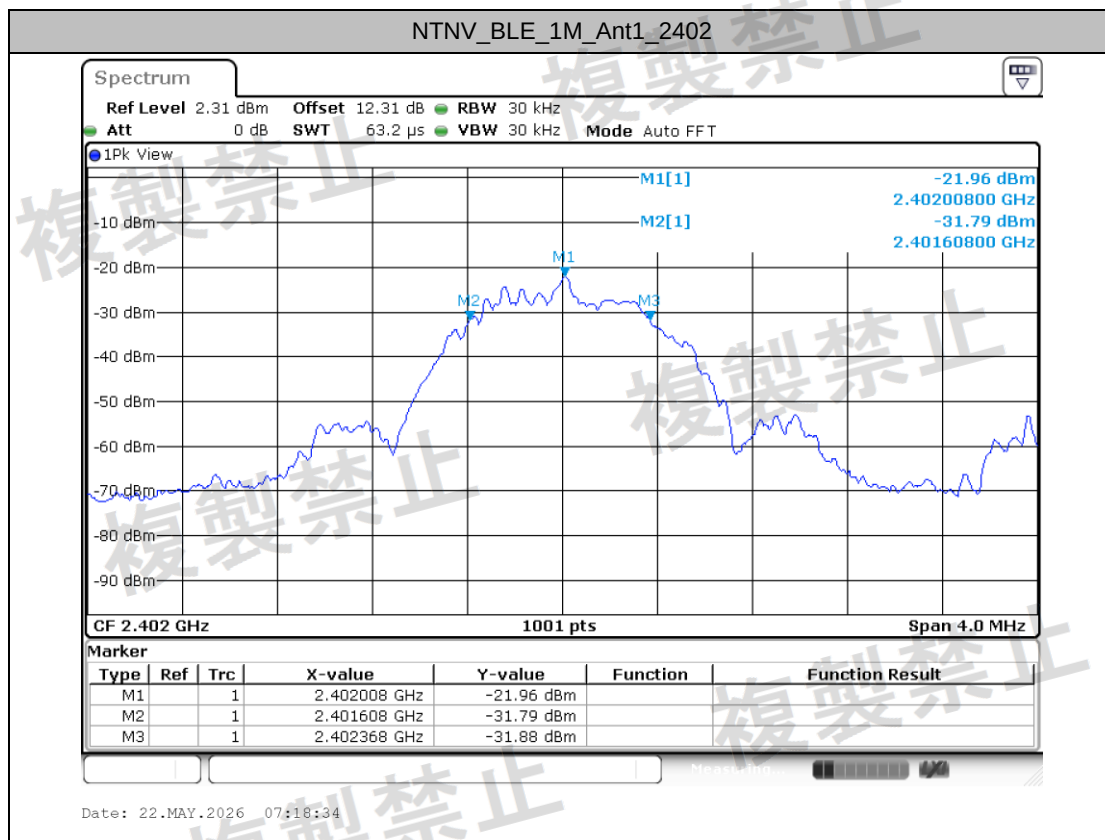
<BLE Ant 1>

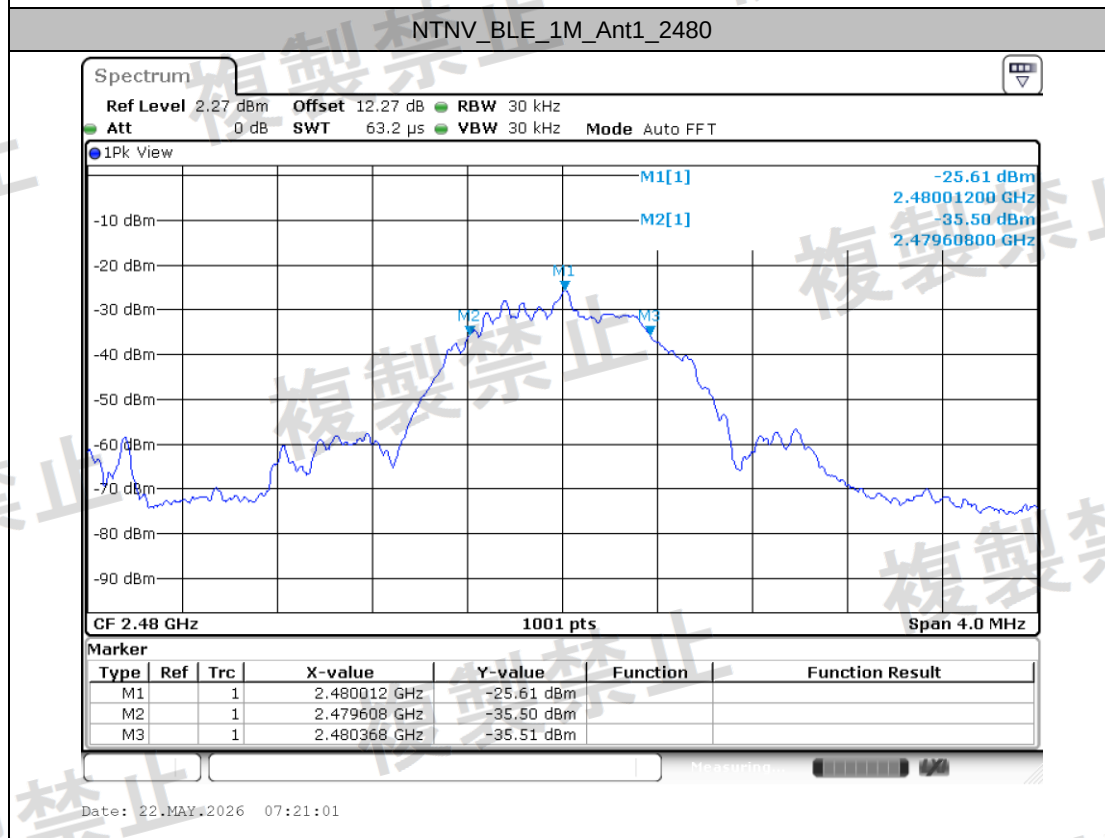
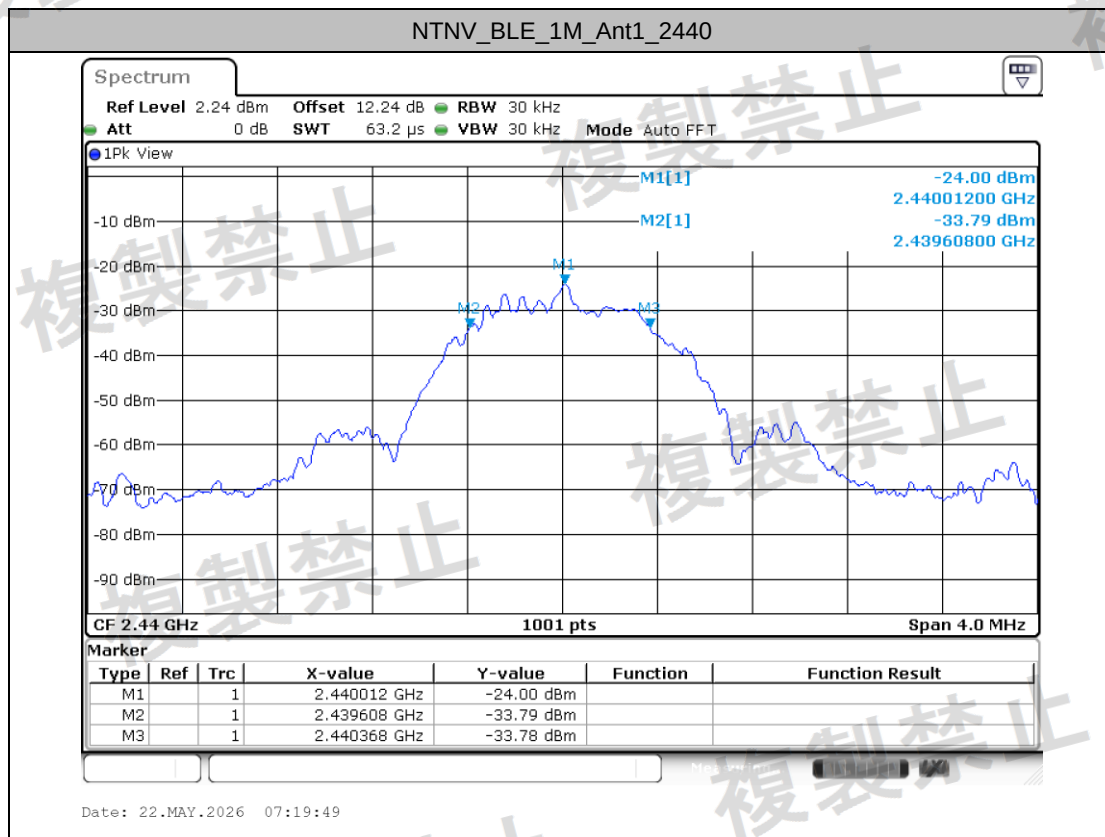
Frequency Error

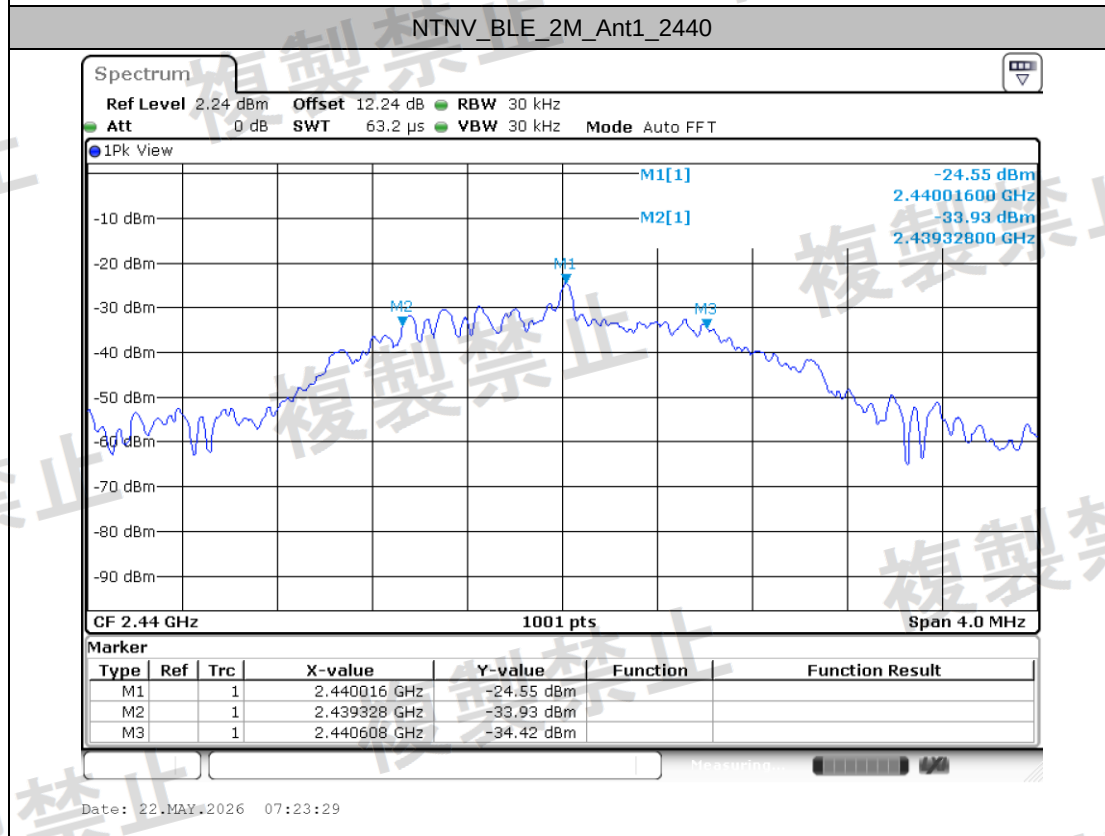
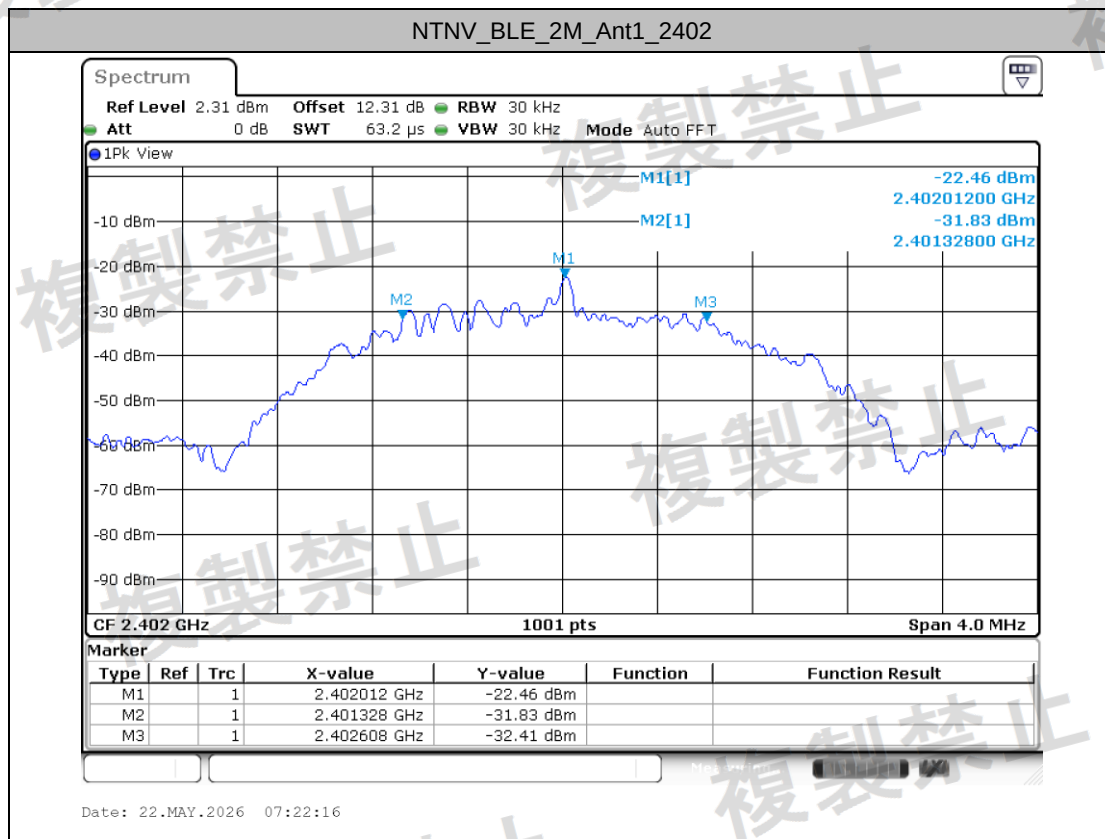
Test Result

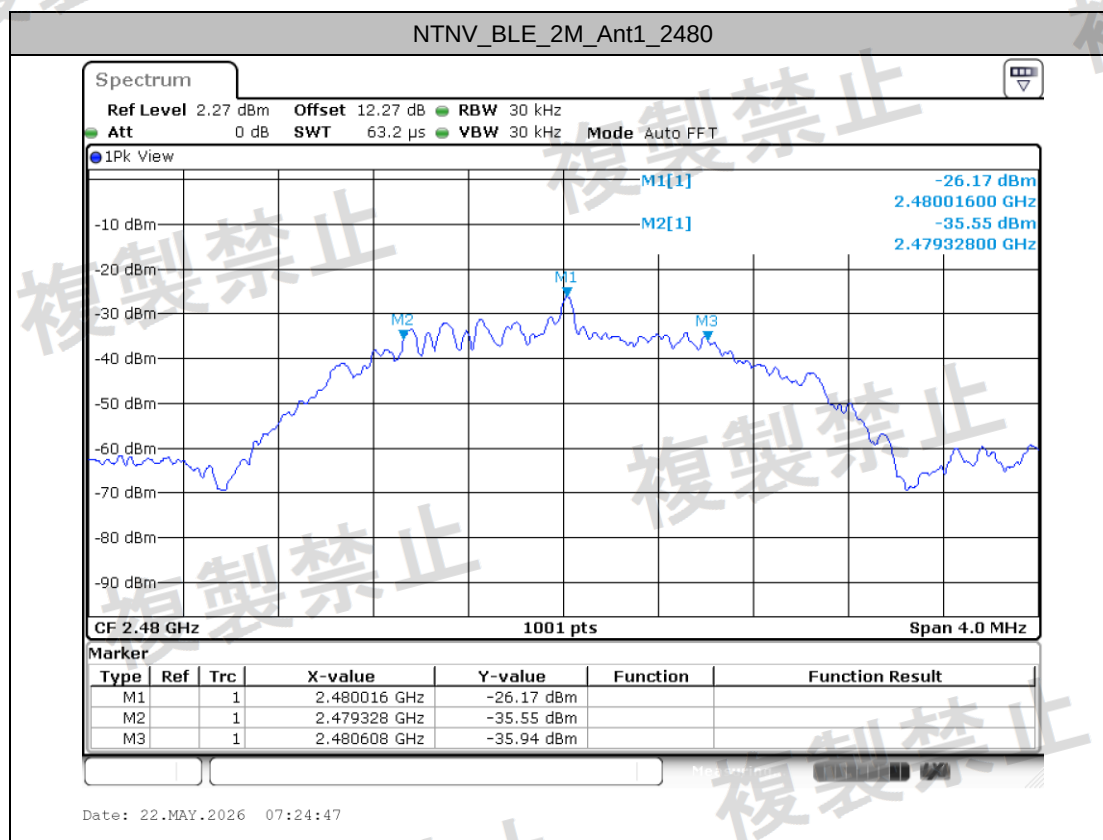
TestCondition	TestMode	Antenna	Freq (MHz)	CenterFreq [MHz]	Result[ppm]	Limit[ppm]	Verdict
NTNV	BLE_1M	Ant1	2402	2401.988	-4.99584	±50	PASS
			2440	2439.988	-4.91803	±50	PASS
			2480	2479.988	-4.83871	±50	PASS
	BLE_2M	Ant1	2402	2401.968	-13.32223	±50	PASS
			2440	2439.968	-13.11475	±50	PASS
			2480	2479.968	-12.90323	±50	PASS

Test Graphs









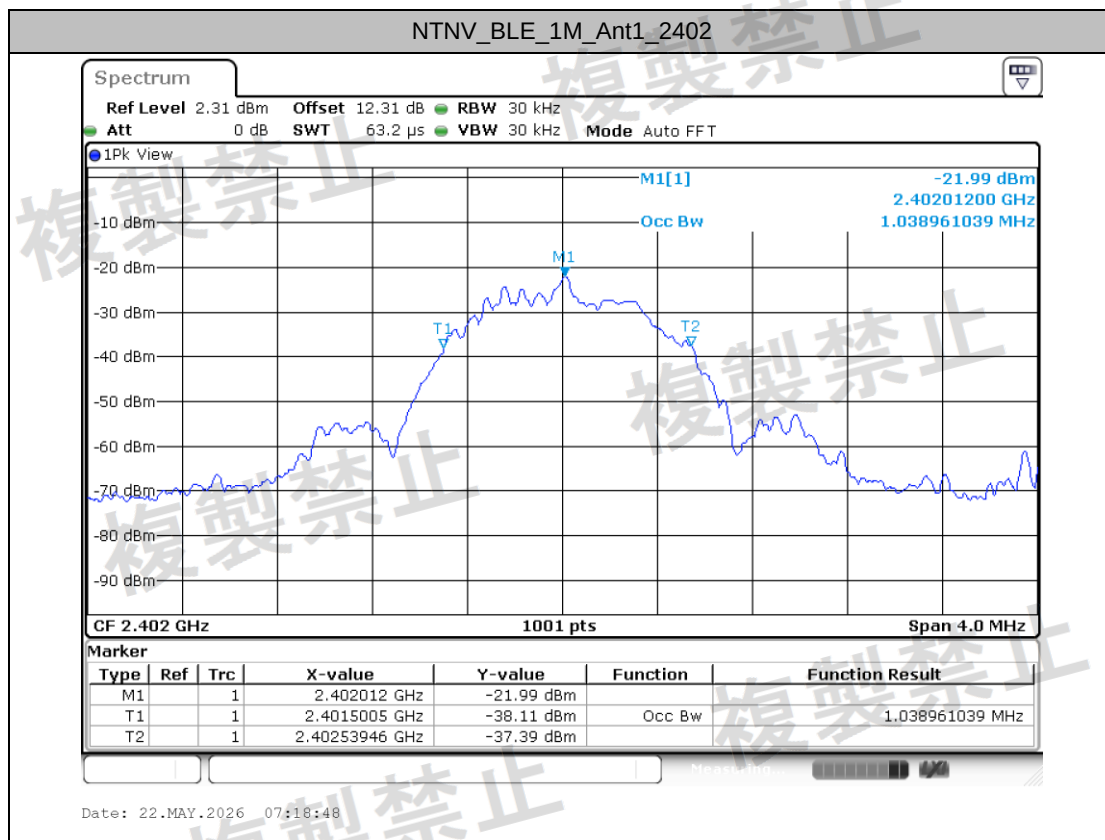


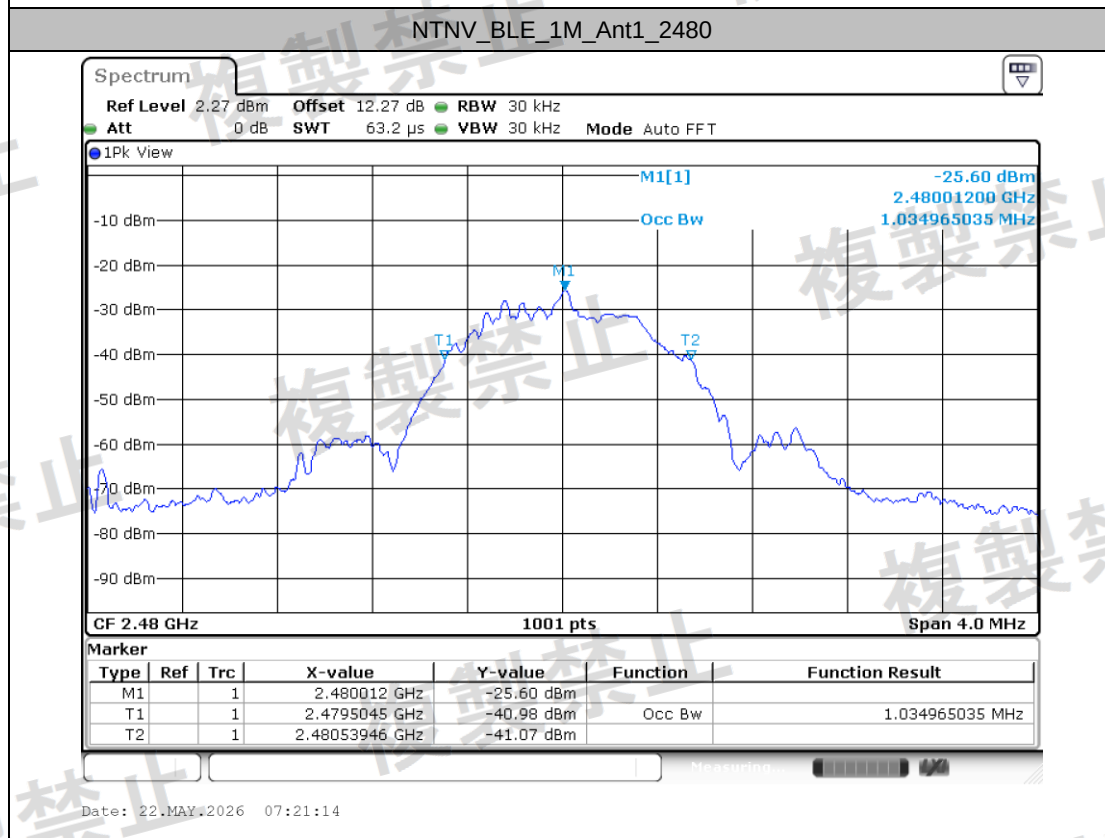
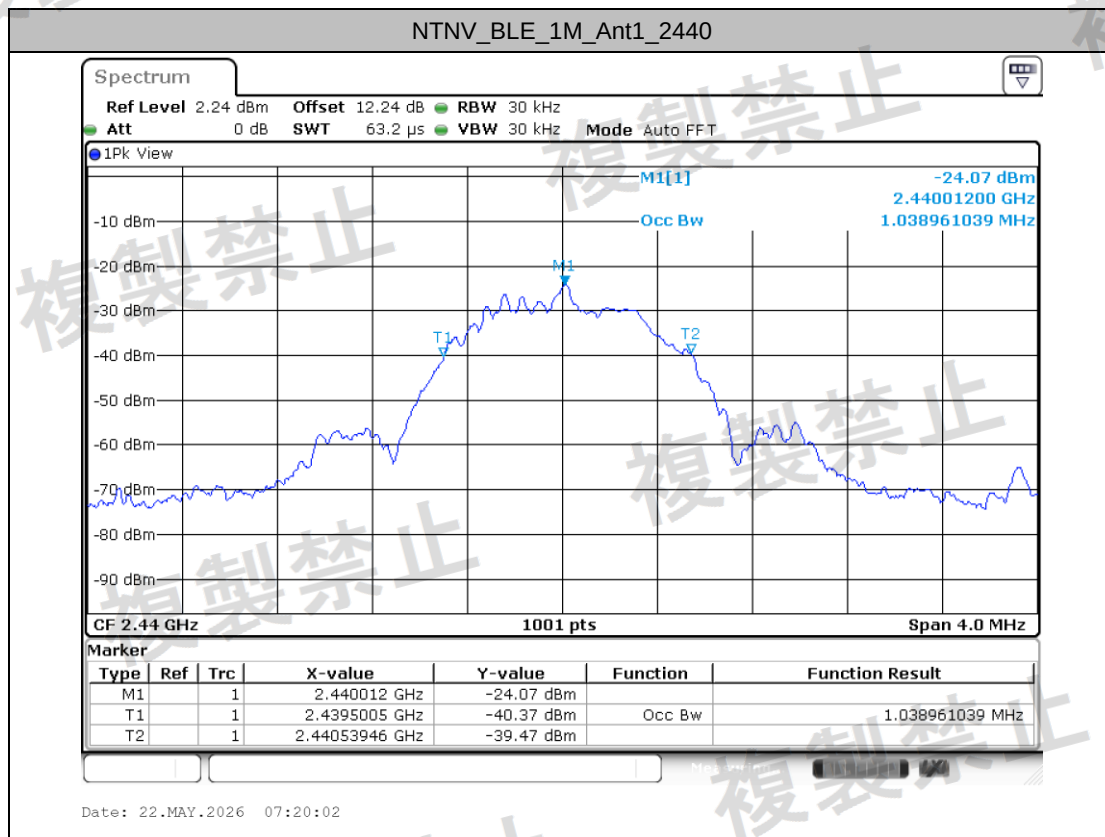
Occupied Bandwidth

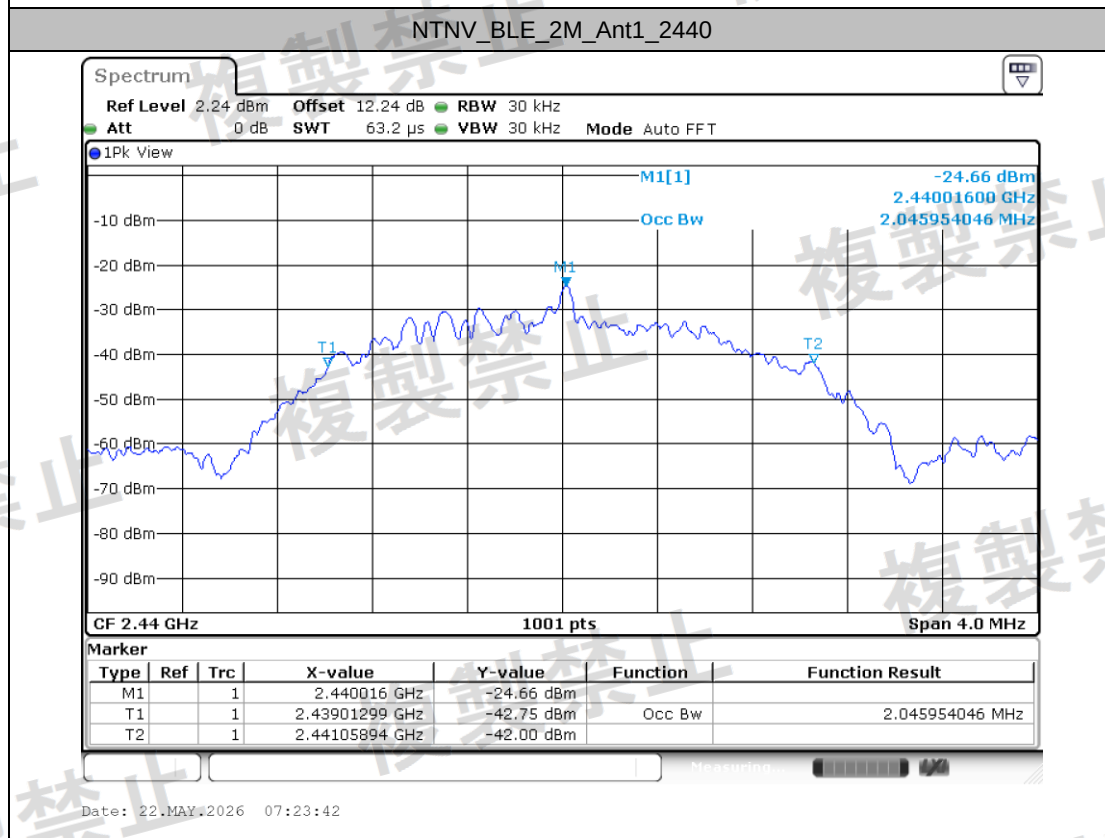
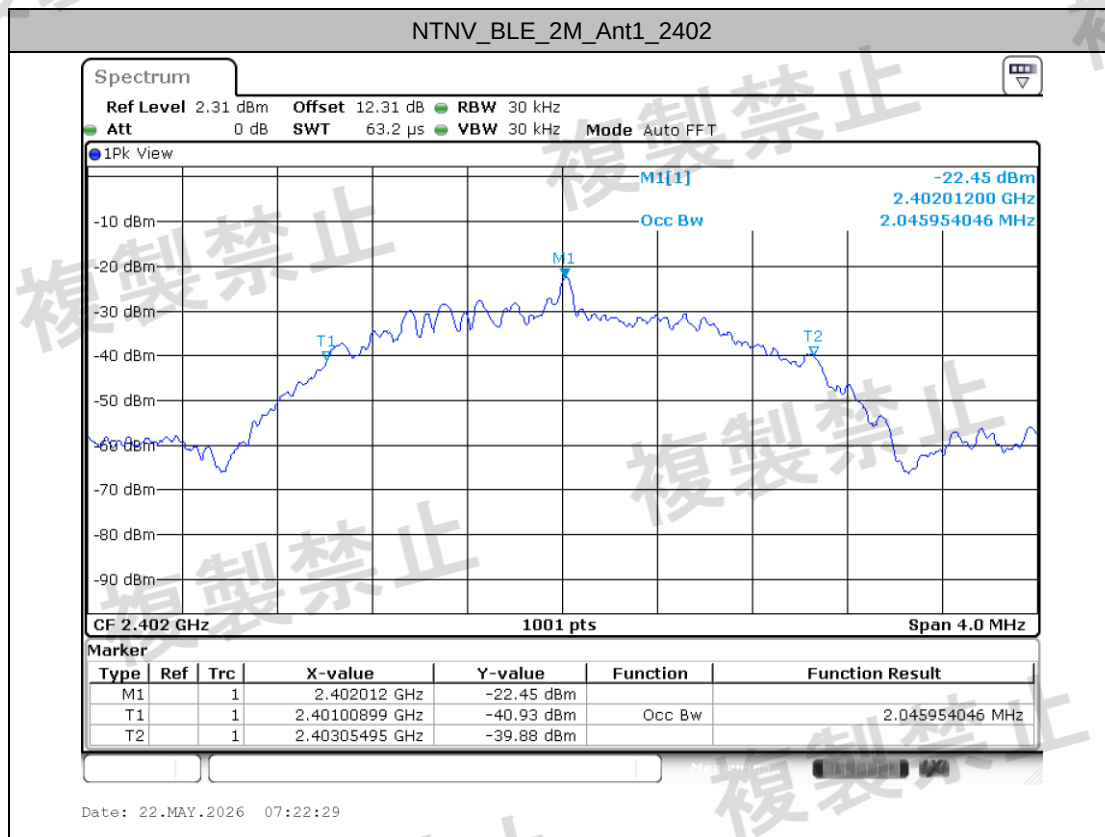
Test Result

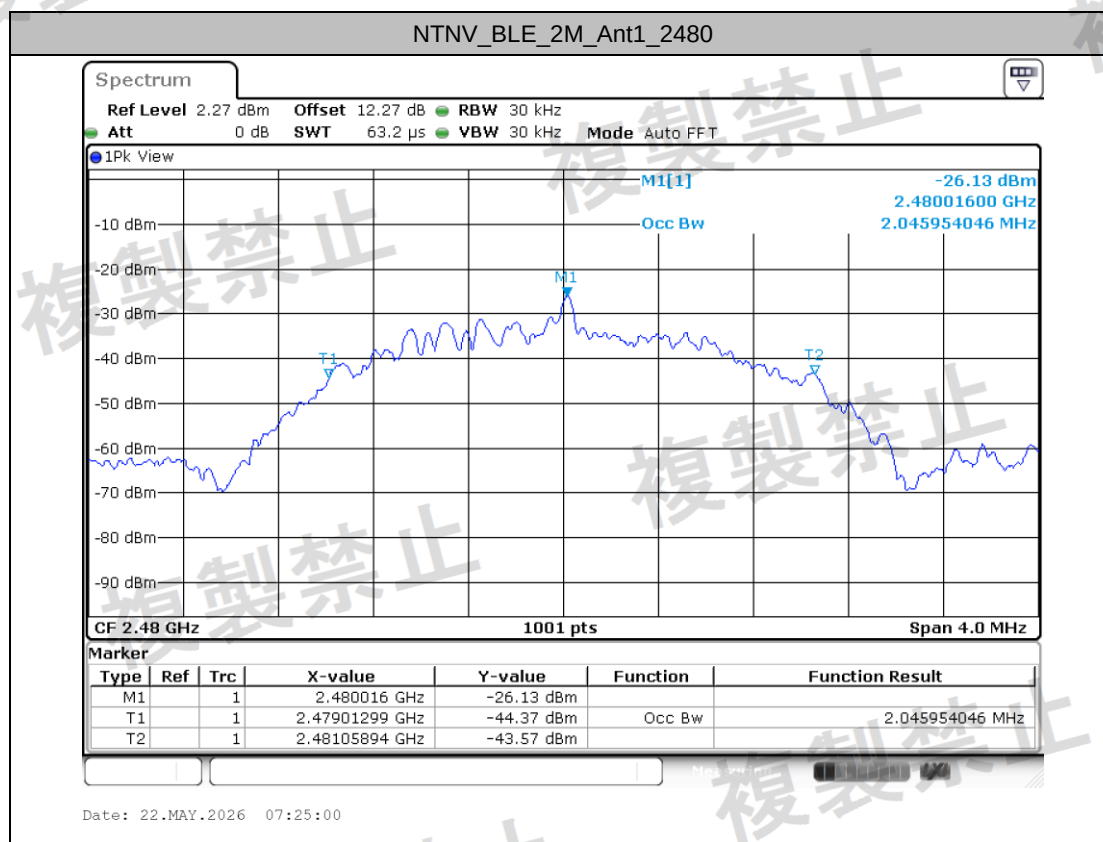
TestCondition	TestMode	Antenna	Freq(MHz)	Result [MHz]	Limit [MHz]	Verdict
NTNV	BLE_1M	Ant1	2402	1.039	≤26	PASS
			2440	1.039	≤26	PASS
			2480	1.035	≤26	PASS
	BLE_2M	Ant1	2402	2.046	≤26	PASS
			2440	2.046	≤26	PASS
			2480	2.046	≤26	PASS

Test Graphs







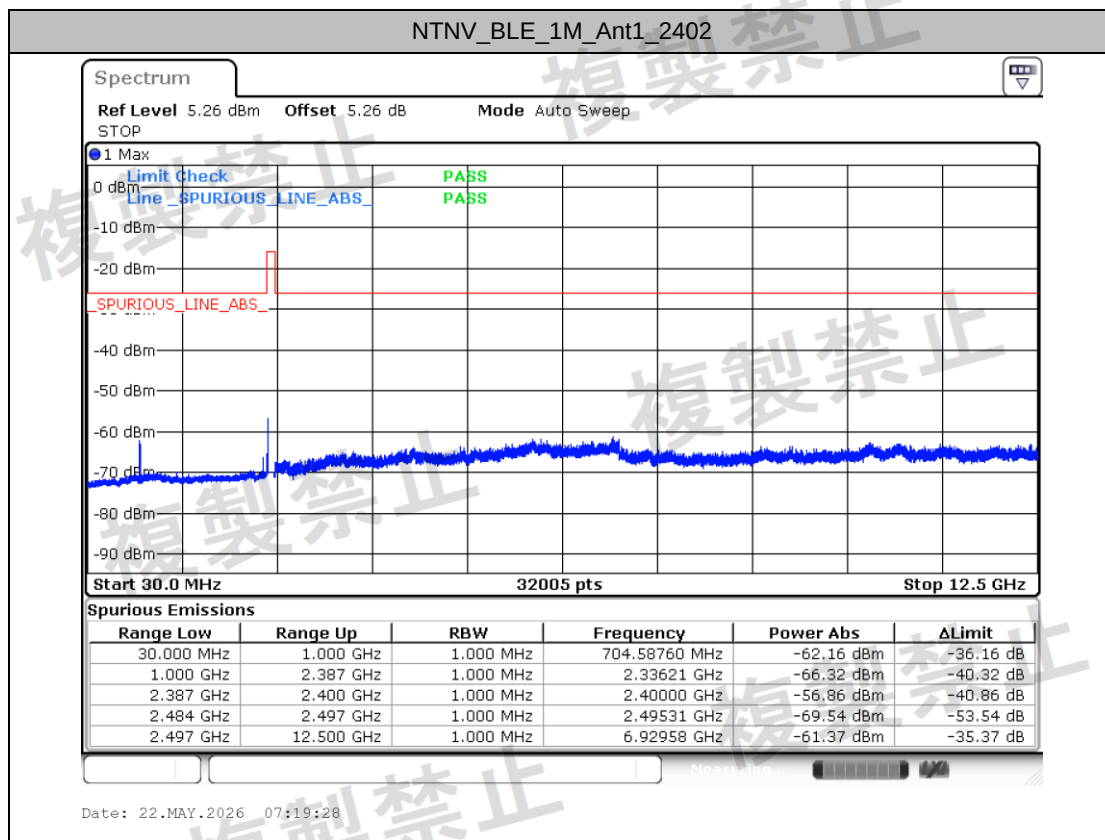


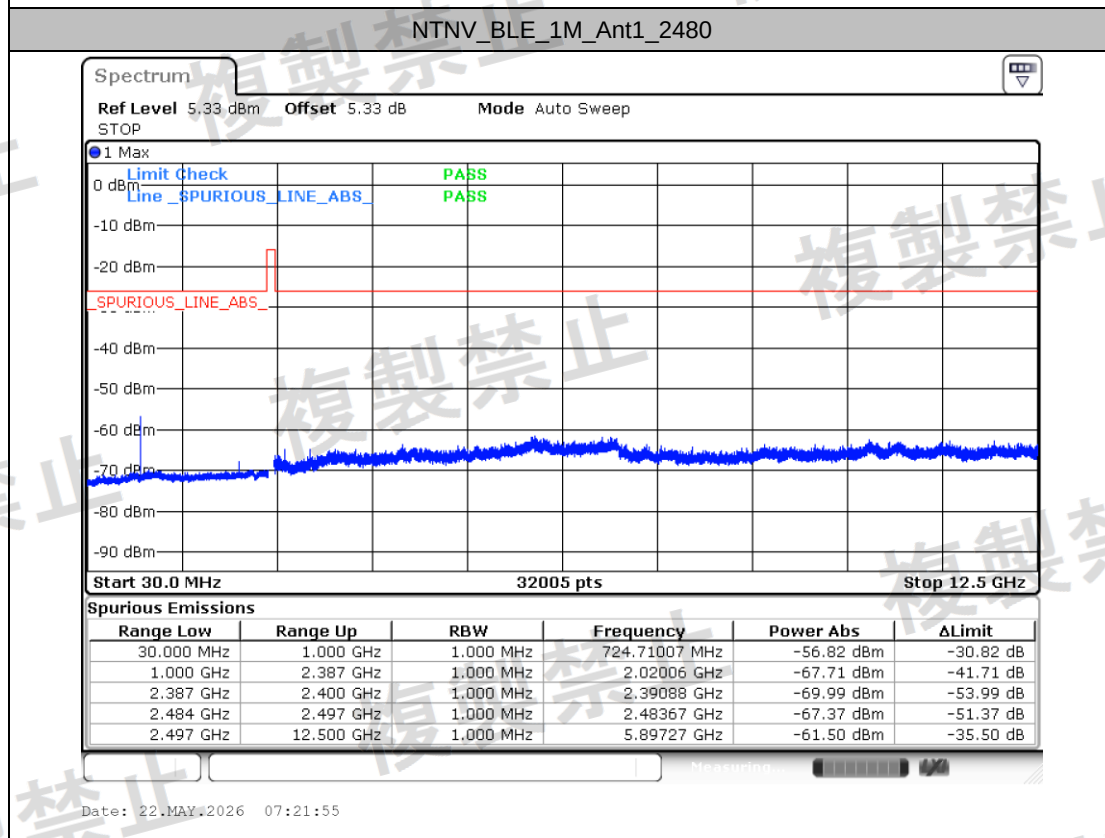
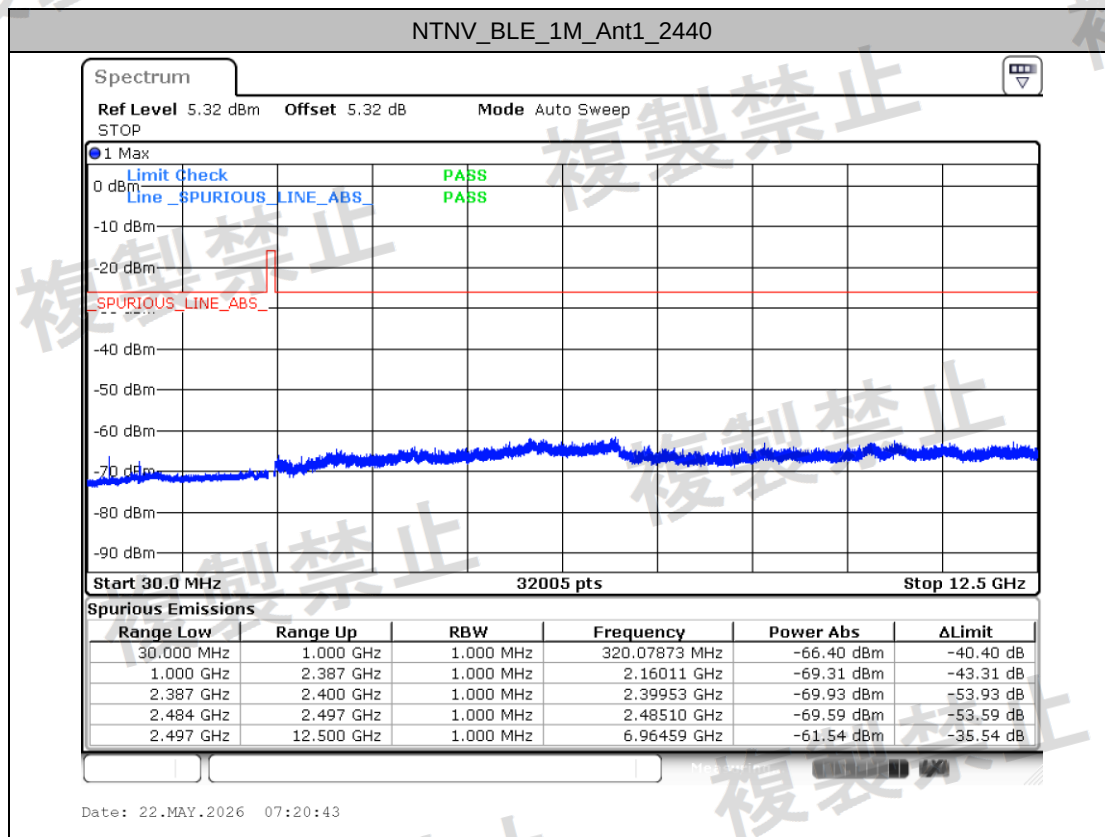
Unwanted Emission Intensity

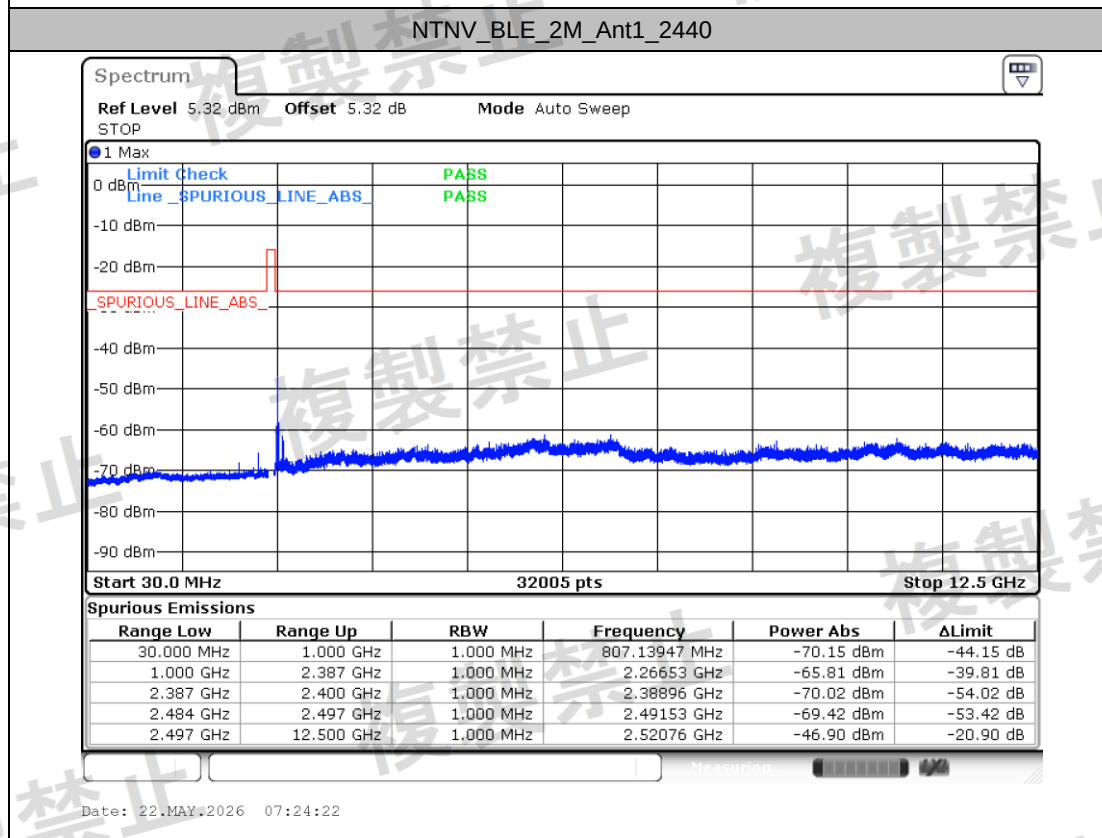
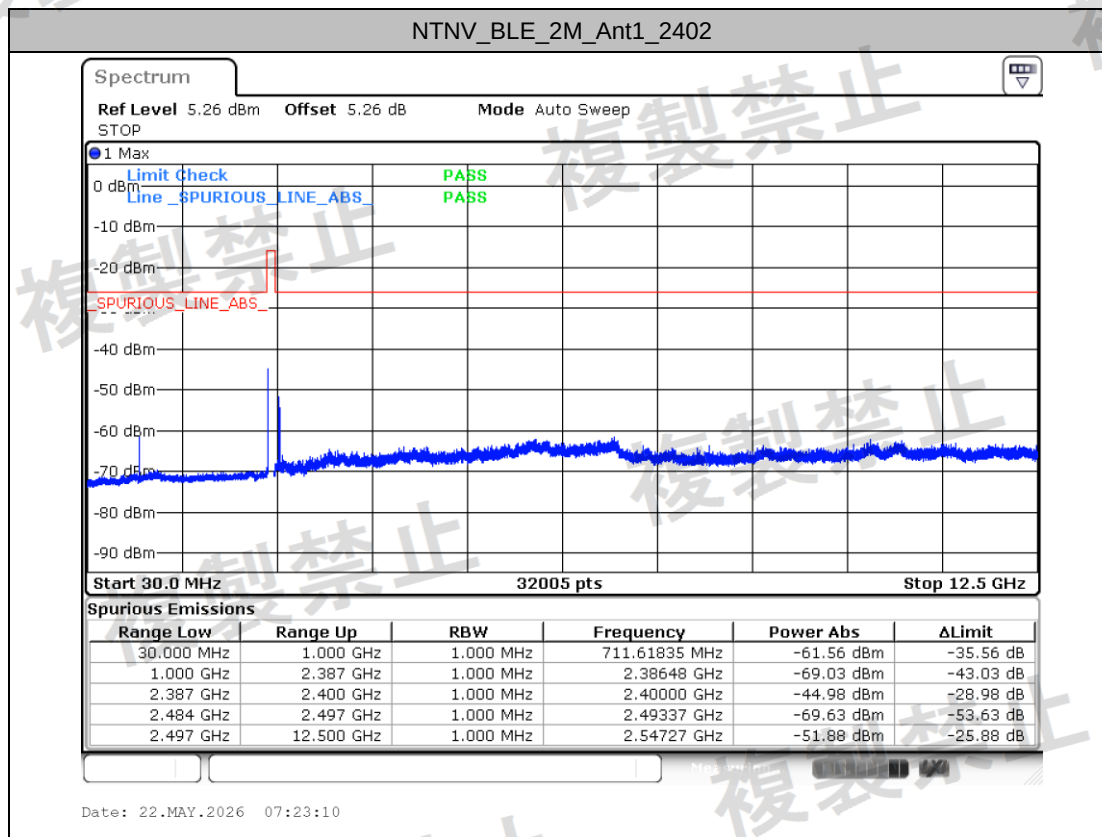
Test Result

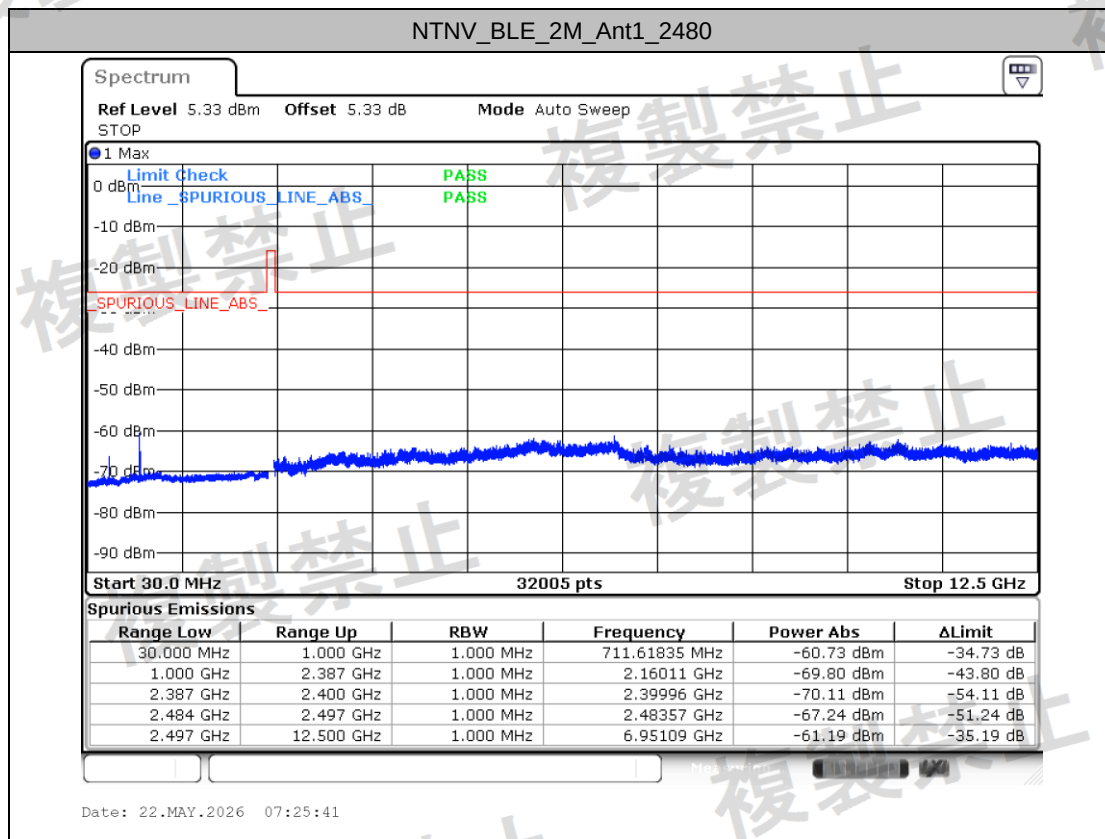
Test Condition	Test Mode	Antenna	Freq (MHz)	Freq.Range [MHz]	Freq. [MHz]	Result [dBm /MHz]	Limit [dBm /MHz]	Result [μW /MHz]	Limit [μW /MHz]	Verdict
NTNV	BLE_1M	Ant1	2402	30~1000	704.59	-62.16	-26.00	0.00061	2.5	PASS
				1000~2387	2336.21	-66.32	-26.00	0.00023	2.5	PASS
				2387~2400	2400.00	-56.86	-16.00	0.00206	25	PASS
				2483.5~2496.5	2495.31	-69.54	-16.00	0.00011	25	PASS
				2496.5~12500	6929.58	-61.37	-26.00	0.00073	2.5	PASS
			2440	30~1000	320.08	-66.40	-26.00	0.00023	2.5	PASS
				1000~2387	2160.11	-69.31	-26.00	0.00012	2.5	PASS
				2387~2400	2399.53	-69.93	-16.00	0.00010	25	PASS
				2483.5~2496.5	2485.10	-69.59	-16.00	0.00011	25	PASS
				2496.5~12500	6964.59	-61.54	-26.00	0.00070	2.5	PASS
	BLE_2M	Ant1	2402	30~1000	724.71	-56.82	-26.00	0.00208	2.5	PASS
				1000~2387	2020.06	-67.71	-26.00	0.00017	2.5	PASS
				2387~2400	2390.88	-69.99	-16.00	0.00010	25	PASS
				2483.5~2496.5	2483.67	-67.37	-16.00	0.00018	25	PASS
				2496.5~12500	5897.27	-61.50	-26.00	0.00071	2.5	PASS
			2440	30~1000	711.62	-61.56	-26.00	0.00070	2.5	PASS
				1000~2387	2386.48	-69.03	-26.00	0.00013	2.5	PASS
				2387~2400	2400.00	-44.98	-16.00	0.03177	25	PASS
				2483.5~2496.5	2493.37	-69.63	-16.00	0.00011	25	PASS
				2496.5~12500	2547.27	-51.88	-26.00	0.00649	2.5	PASS
			2480	30~1000	807.14	-70.15	-26.00	0.00010	2.5	PASS
				1000~2387	2266.53	-65.81	-26.00	0.00026	2.5	PASS
				2387~2400	2388.96	-70.02	-16.00	0.00010	25	PASS
				2483.5~2496.5	2491.53	-69.42	-16.00	0.00011	25	PASS
				2496.5~12500	2520.76	-46.90	-26.00	0.02042	2.5	PASS
			2480	30~1000	711.62	-60.73	-26.00	0.00085	2.5	PASS
				1000~2387	2160.11	-69.80	-26.00	0.00010	2.5	PASS
				2387~2400	2399.96	-70.11	-16.00	0.00010	25	PASS
				2483.5~2496.5	2483.57	-67.24	-16.00	0.00019	25	PASS
				2496.5~12500	6951.09	-61.19	-26.00	0.00076	2.5	PASS

Test Graphs









Limitation of Collateral Emission of Receiver

Test Result

Test Condition	Test Mode	Antenna	Freq (MHz)	Freq.Range [MHz]	Freq [MHz]	Result [dBm]	Limit [dBm]	Result [nW]	Limit [nW]	Verdict
NTNV	BLE_1M	Ant1	2402	30~1000	705.99	-67.17	-54.00	0.19187	4	PASS
				1000~12500	2605.03	-52.24	-47.00	5.97035	20	PASS
			2440	30~1000	149.98	-64.72	-54.00	0.33729	4	PASS
				1000~12500	6796.00	-59.98	-47.00	1.00462	20	PASS
			2480	30~1000	723.45	-74.26	-54.00	0.03750	4	PASS
				1000~12500	2613.08	-59.43	-47.00	1.14025	20	PASS
	BLE_2M	Ant1	2402	30~1000	919.29	-75.59	-54.00	0.02761	4	PASS
				1000~12500	2571.11	-59.14	-47.00	1.21899	20	PASS
			2440	30~1000	913.47	-75.68	-54.00	0.02704	4	PASS
				1000~12500	2521.66	-53.57	-47.00	4.39542	20	PASS
			2480	30~1000	799.07	-75.76	-54.00	0.02655	4	PASS
				1000~12500	2612.51	-53.53	-47.00	4.43609	20	PASS



Test Graphs

