



JAPAN Radio Test Report

WLAN 2.4GHz Band

APPLICANT : Realsil Microelectronics (Suzhou) Co., Ltd.

PRODUCT NAME : 802.11 b/g/n/ax Wireless LAN+Bluetooth module

BRAND NAME : Realsil

MODEL NAME : PKM8710ECF-C53-F20, PKM8710ECF-D63-F20

TYPE EMISSIONS : 12M3G1D (DSSS_802.11b) ;
16M7G1D/D1D (OFDM_802.11g) ;
17M8G1D/D1D (OFDM_802.11n_HT20) ;
19M0G1D/D1D (OFDM_802.11ax_HE20) ;

DECLARATION : 5.800 mW/MHz (DSSS_802.11b) ;

OUTPUT POWER : 5.800 mW/MHz (OFDM_802.11g) ;
5.800 mW/MHz (OFDM_802.11n_HT20) ;
5.800 mW/MHz (OFDM_802.11ax_HE20)

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

TEST PROCEDURE : MIC Notice No.88 Appendix No.43

TEST DATE(S) : Jul. 07, 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
JR651815B	Rev. 01	Initial issue of report	Aug. 13, 2026

SUMMARY OF TEST RESULT

Report Section	Description	Result
3.1	Frequency Tolerance	Pass
3.2	Occupied 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)	N/A
3.7	Transmission Radiation Angle Width (3dB Beam width)	N/A
3.8	Radio Interference Prevention Capability	Pass
3.9	Carrier Sense Function	N/A
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/manufacturer 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

Realsil Microelectronics (Suzhou) Co., Ltd.

No.128, West Shenhu Road, Suzhou Industrial Park, Jiangsu Province

1.2 Manufacturer

Realsil Microelectronics (Suzhou) Co., Ltd.

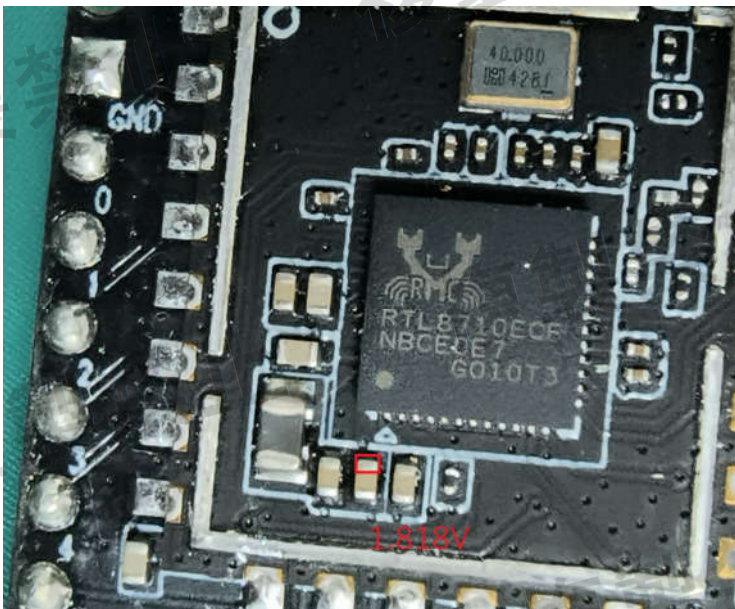
No.128, West Shenhu Road, Suzhou Industrial Park, Jiangsu Province

1.3 Feature of Equipment Under Test

Product Feature & Specification		
Product Name	802.11 b/g/n/ax Wireless LAN+Bluetooth module	
Brand Name	Realsil	
Model Name	PKM8710ECF-C53-F20, PKM8710ECF-D63-F20	
Support Category / Frequency Range	Article 2-1-19 / 2412MHz ~ 2472MHz	
WLAN Type of Modulation	☒ Direct Spreading (DS) ☒ Orthogonal frequency-division multiplexing (OFDM) ☐ Frequency Hopping (FH)	
RF Technology	☒ 802.11b ☒ 802.11g ☒ 802.11n-HT20 ☒ 802.11ax-HE20 ☐ 802.11n-HT40 ☐ 802.11ax-HE40 ☐ 802.11be-EHT20 ☐ 802.11be-EHT40	
Number of Channels	20MHz System	13
	40MHz System	N/A
Channel Spacing	5 MHz	
Declaration RF Output Power	5.800 mW/MHz (DSSS 802.11b mode) 5.800 mW/MHz (OFDM 802.11g mode) 5.800 mW/MHz (OFDM 802.11n_HT20 mode) 5.800 mW/MHz (OFDM 802.11ax_HE20 mode)	
Antenna Power (E.I.R.P)	12.10 dBm/MHz (DSSS 802.11b mode) 11.69 dBm/MHz (OFDM 802.11g mode) 12.02 dBm/MHz (OFDM 802.11n_HT20 mode) 11.97 dBm/MHz (OFDM 802.11ax_HE20 mode)	
Type of Modulation	☒ BPSK ☒ QPSK ☒ 16QAM ☒ 64QAM ☒ 256QAM ☐ 1024QAM	
Power Source	☐ Commercial power	AC 100 ~ 240V
	☒ External Power Source	DC 3.3V
	☐ Lithium battery	DC 3.7V, mAh
	☐ UM battery	DC 1.2V

NOTE:

- 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.
- For 802.11ax mode, Pre-scanned the conducted power for full and partial of Resource unit, the whole testing has assessed only full Ru mode by referring to their higher conducted power.
- There are two types of EUT: Sample 1 (PKM8710ECF-C53-F20) and Sample 2 (PKM8710ECF-D63-F20). For details, please refer to the Product Equality Declaration exhibit separately. After evaluation, the difference will not affect RF performance, so we choose Sample 1 (PKM8710ECF-C53-F20) to full test.

Power Supply voltage 3.3 Vdc (Nominal)	Power Supply voltage 3.63 Vdc (+10%)	Power Supply voltage 2.97 Vdc (-10%)
1.818	1.818	1.818
Measurement point		
		

Antenna Type 1 Information			
Brand Name :	N/A	Model Name :	N/A
Antenna Type :	PCB Antenna	Antenna Gain :	4.50 dBi

Antenna Type 2 Information			
Brand Name :	N/A	Model Name :	N/A
Antenna Type :	FPC Antenna	Antenna Gain :	3.60 dBi

Remark:

1. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.
2. There are two types of Antennas, after evaluation, we selected Antenna Type 1 which has the higher antenna gain for WLAN 2.4GHz testing.

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	±0.42%	Confidence 95%
RF output power, conducted	±1.30 dB	Confidence 95%
Frequency Tolerance	0.99ppm	Confidence 95%
Power density, conducted	±1.44 dB	Confidence 95%
Unwanted Emission	±1.92 dB	Confidence 95%
Temperature	±0.30 °C	Confidence 95%
Humidity	±2.00 %	Confidence 95%
Time	±0.40 %	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	Frequency (MHz)
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457
11	2462
12	2467
13	2472

2.2 EUT Operation Test Setup

During testing, RF test program provided by the customer was used to control the operating channel as well as the output power level.

3 Test Result

3.1 Frequency Tolerance Measurement

3.1.1 Limit

Item	Limits
Frequency Tolerance	≤50ppm

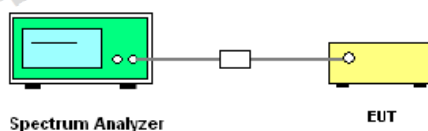
3.1.2 Measuring Instruments

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. Two methods for the item
 - a. CW Tone method
 - i. Setting of SA is following as: RBW:1kHz / VBW:30kHz.
 - ii. Maker Max. level to get measuring frequency f.
 - b. 10dB down method
 - i. Setting of SA is following as: RBW:100kHz / VBW: 100kHz / 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 spectrum analyzer. Then the frequency error formula is $(f - f_c) / f_c \times 10^6$ ppm and the limit is less than ±50ppm.

3.1.4 Test Setup





3.1.5 Test Deviation

There is no deviation with the original standard.

3.1.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.1.7 Test Result of Frequency Tolerance

Please refer to Appendix B.

3.2 Occupied Bandwidth

3.2.1 Limit

Item	Limits
Occupied Band Width	DS $\leq$ 26MHz; Others $\leq$ 26MHz OFDM (For BW=20MHz) $\leq$ 26MHz

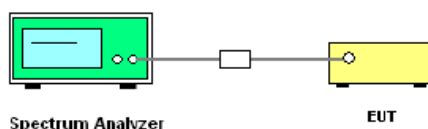
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

3.2.3 Test Procedures

- Setting of SA is following as: RBW: 300KHz / VBW:300KHz / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold.
- EUT have transmitted each modulation signal and fixed channelize (For DSSS or OFDM Device). SA set to 99% of occupied bandwidth to measure occupied bandwidth. The limit is less than 26MHz (For DSSS or OFDM Device).

3.2.4 Test Setup



3.2.5 Test Deviation

There is no deviation with the original standard.

3.2.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.2.7 Test Result of Occupied Bandwidth Measurement

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 ($2483.5\text{MHz} < f \leq 2496.5\text{MHz}$)

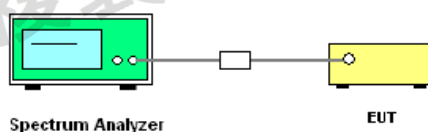
3.3.2 Measuring Instruments

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 2.5 μW .
5. SA adjusted to start frequency 2387MHz and stop frequency 2400MHz. Then to mark peak reading value + cable loss shall be less than 25 μW .
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 25 μW .
7. SA adjusted to start frequency 2496.5MHz and stop frequency 12500MHz Then to mark peak reading value + cable loss shall be less than 2.5 μW .
8. If the Result_Value is over the requirement, we need to measurement as below steps.
9. Find the frequency that have maximum value.
10. Setting of SA is following as: Span: Zero / RBW:100KHz(1MHz) ,VBW:100KHz(1MHz) under(above) 1GHz/ Sweep time: Auto / Sweep Mode: Singled sweep / Detect mode: Sample.
11. Calculated the mean power value, add all value of test point and division sample point number.
Report the mean power

3.3.4 Test Setup





3.3.5 Test Deviation

There is no deviation with the original standard.

3.3.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.3.7 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	$\leq 10\text{mW/MHz}$ (OFDM,DS from 2400~2483.5MHz) (For BW=20MHz)
	$\leq 5\text{mW/MHz}$ (OFDM from 2400~2483.5MHz) (For BW=40MHz)
	$\leq 10\text{mW}$ (Other from 2400~2483.5MHz) (For BW=20MHz)
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.

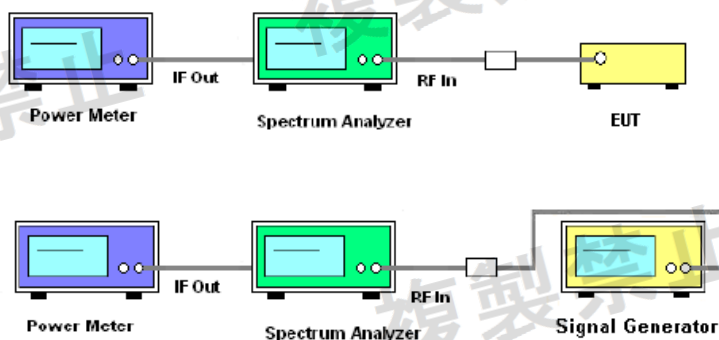
3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

3.4.3 Test Procedures

1. A power meter is connected on the IF output port of the spectrum analyzer.
2. Adjust the spectrum analyzer to have the center frequency the same with the measured carrier.
RBW=VBW=1MHz, detector mode is positive peak. Turn off the averaging function and use zero span.
3. The calibrating signal power shall be reduced to 0 dBm and it shall be verified that the power meter reading also reduces by 10 dB.
4. Connect the equipment to be measured. Using the following settings of the spectrum analyzer in combination with "max hold" function, find the frequency of highest power output in the power envelope: center frequency equal to operating frequency; RBW & VBW: 1 MHz; detector mode: positive peak; averaging: off; span: 3 times the spectrum width; amplitude: adjust for middle of the instrument's range. The frequency found shall be recorded.
5. Set the center frequency of the spectrum analyzer to the found frequency and switch to zero span. The power meter indicates the measured power density "E".
6. Remove the EUT and put the replacing standard signal generator (SSG). Set the standard signal generator (SSG) at same frequency and transmit on, then set SSG output power at P_t to give the equivalent output level of "E".
7. Calculate antenna power density by the formula below $PD = P_t + 10 \cdot \log(1/x)$.
x: The duty cycle of the EUT in continuously transmitting mode
 P_t : Output power of the SSG
8. Antenna Power Error is definition that actual measure antenna power tolerance + 20% power range that base on manufacturer declare the conducted power density.

3.4.4 Test Setup



3.4.5 Test Deviation

There is no deviation with the original standard.

3.4.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.4.7 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	$\leq 4\text{nW}$ ($f < 1\text{GHz}$)
	$\leq 20\text{nW}$ ($1\text{GHz} \leq f$)

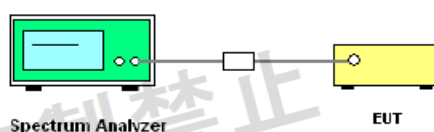
3.5.2 Measuring Instruments

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 1000MHz. 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 12500MHz. 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 Deviation

There is no deviation with the original standard.

3.5.6 EUT Operation during Test

The EUT was programmed to be in continuously reception mode.

3.5.7 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	$\leq 12.14\text{dBm/MHz}$ (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

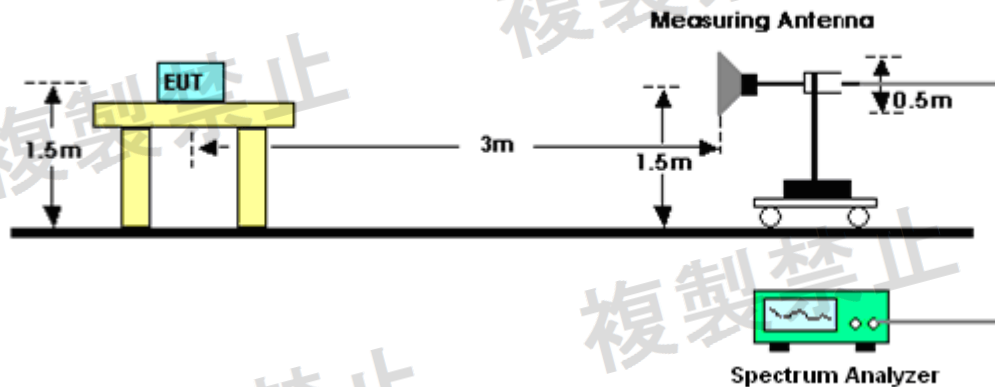
See list of measuring instruments of this test report.

3.6.3 Test Procedures

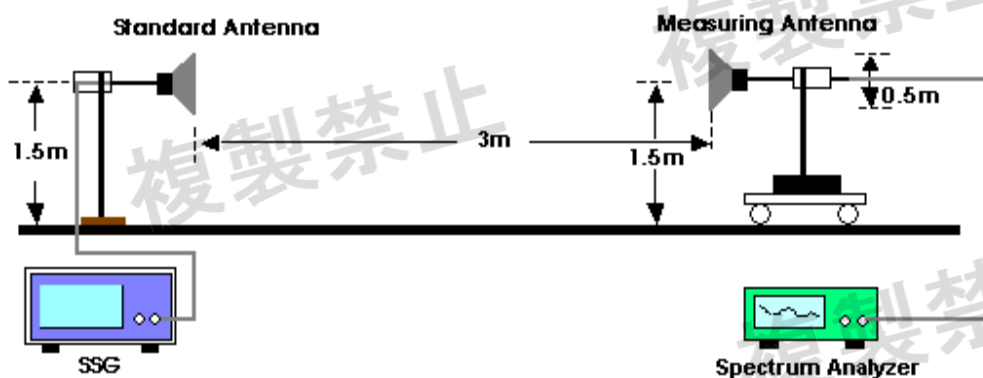
1. Set EUT and measuring antenna at the same height and roughly facing each other.
2. Move the measuring antenna height up and down within $\pm 50\text{cm}$ of EUT height and swing it to find the maximum output of the measuring antenna. The output level at the spectrum analyzer is read as "E".
3. Remove 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.
4. Swing the replacing antenna give a maximum receiving level.
5. 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.
6. 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 .
7. 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
8. 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 Deviation

There is no deviation with the original standard.

3.6.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.6.7 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 $A = 1$) $A = \{\text{EIRP Power [dBm/MHz]} - 12.14 \text{ [dBm/MHz] for DS, OFDM}\}$ or $\{\text{E.I.R.P Power [dBm/MHz]} - 6.91 \text{ [dBm/MHz] for FH}\}$
Remark: This test item will not be applied to EIRP power of EUT is lower than 12.14dBm/MHz.	

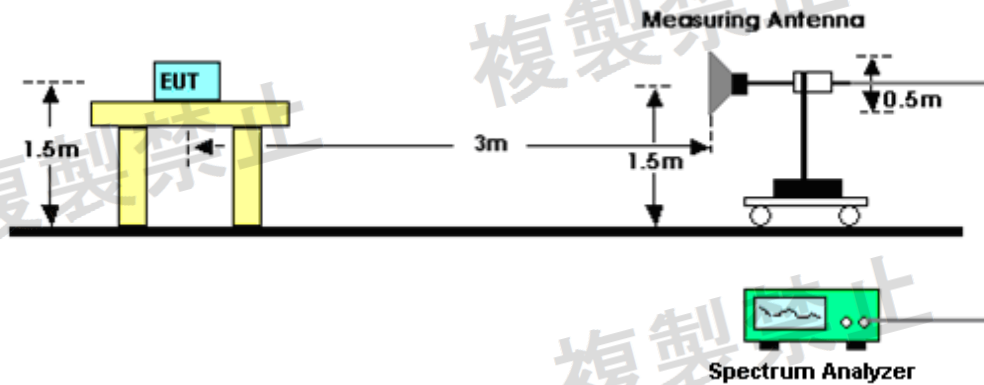
3.7.2 Measuring Instruments

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 $A = 1$).
 $A = \{\text{EIRP Power [dBm/MHz]} - 12.14 \text{ [dBm/MHz] for DS, OFDM}\}$ or
 $A = \{\text{E.I.R.P Power [dBm/MHz]} - 6.91 \text{ [dBm/MHz] for FH}\}$

3.7.4 Test Setup



3.7.5 Test Deviation

There is no deviation with the original standard.

3.7.6 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.7.7 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

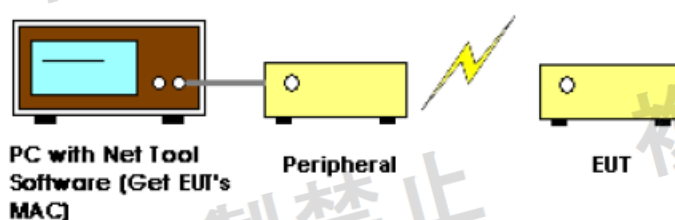
3.8.2 Measuring Instruments

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 form 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 form the counterpart. b . Check if communication is normal. c. Transmit the signals other than predetermined ID codes form the counterpart. d. check if the EUT stops the transmission, or if it displays that identification codes are different from the predetermined ones.

3.8.4 Test Setup



3.8.5 Test Deviation

There is no deviation with the original standard.

3.8.6 EUT Operation during Test

The EUT was programmed to be in normal transmitting mode.

3.8.7 Test Result of Radio Interference Prevention Capability

Please refer to Appendix B.

3.9 Carrier Sense

3.9.1 Limit

The radio equipment connected to telecommunication circuit equipment shall be equipped with a device which detects emissions radiated from another radio station and prevents interference, or a device which prevents interference by operation on a receive signal and a signal for diffusion for signal level detection.

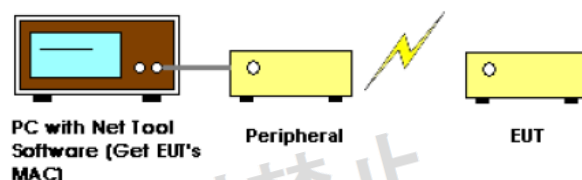
3.9.2 Measuring Instruments

See list of measuring instruments of this test report.

3.9.3 Test Procedures

1. Set the EUT link with a peripheral, access point 40M bandwidth or Only transmitters that compensate for the decrease in absolute gain with antenna power and are equipped with carrier sense.
2. Set a signal generator (simulate a radio device which co-exists with EUT) at same frequency channel with a proper signal level (exceeding 100mV/m) output to act as interference signal.
3. Monitor the signal transmission between the EUT and peripheral, while the interference signal presents. The EUT would stop transmitting once it detects interference signal over the air, then record it pass, otherwise, the result is fail.

3.9.4 Test Setup



3.9.5 Test Deviation

There is no deviation with the original standard.

3.9.6 EUT Operation during Test

The EUT was programmed to be in normal transmitting mode.

3.9.7 Test Result of Carrier Sense

Not Applicable.

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.)

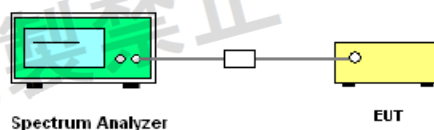
3.10.2 Measuring Instruments

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. 06, 2026	Jul. 07, 2026	Jul. 05, 2027	Guangzhou Lisai metrology&Test Co., Ltd.	C
Pulse Power Sensor	Anritsu	MA2411B	0917070	300MHz~40GHz	Dec. 25, 2025	Jul. 07, 2026	Dec. 24, 2026	Guangzhou Lisai metrology&Test Co., Ltd.	C
Power Meter	Anritsu	ML2495A	1005002	50MHz Bandwidth	Dec. 25, 2025	Jul. 07, 2026	Dec. 24, 2026	Guangzhou Lisai metrology&Test Co., Ltd.	C
DC Power Supply	GW INSTEK	GPD-2303S	GEO861339	Max 31	Oct. 09, 2025	Jul. 07, 2026	Oct. 08, 2026	Guangzhou Lisai metrology&Test Co., Ltd.	C
Multi-meter	VICTOR	VC890E	100900972	-	Nov. 11, 2025	Jul. 07, 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~

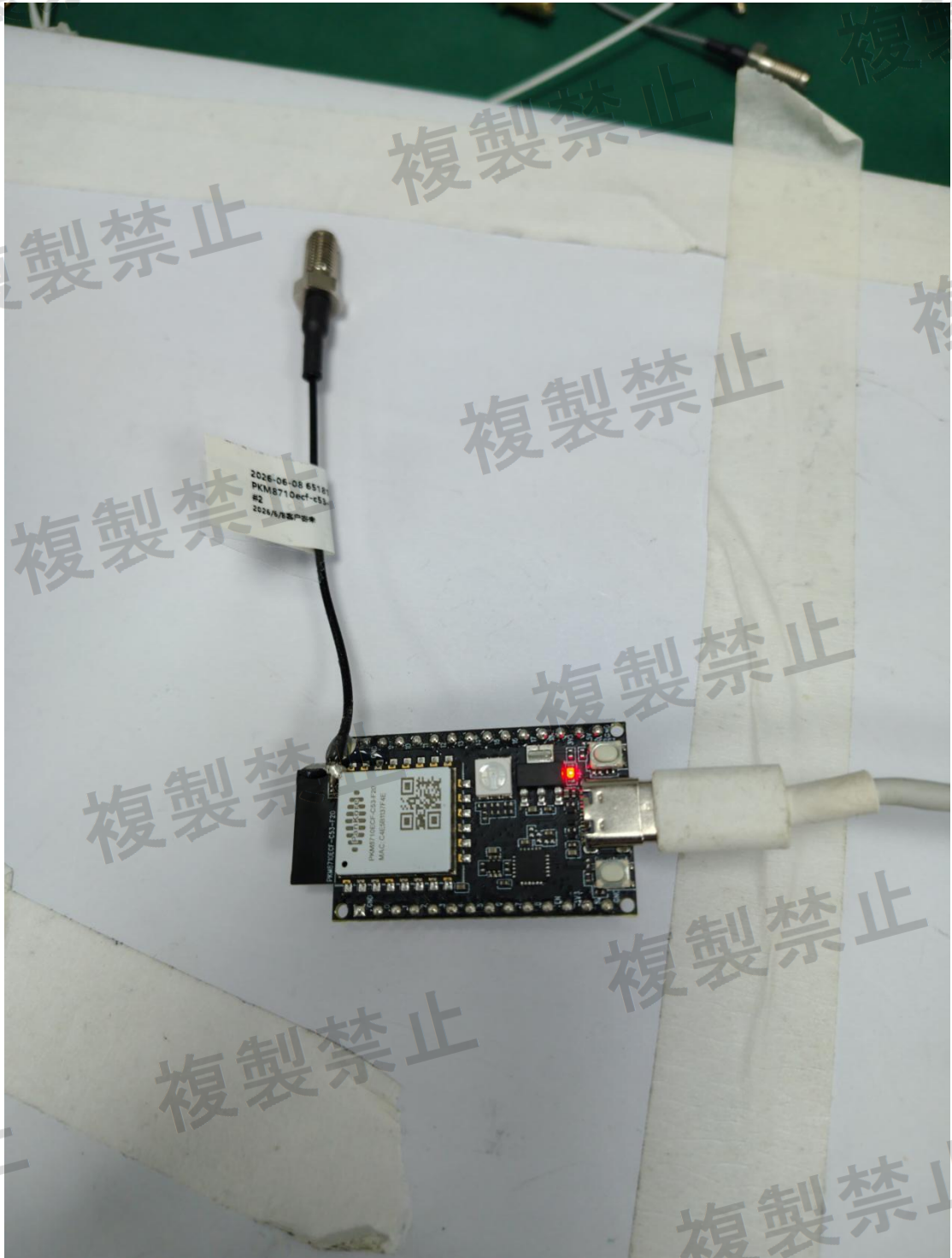
c) : Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph

(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
WLAN 2.4G Band

Environment of Test Room	Temperature	23~25 °C
	Humidity	50~55 %
Test Engineer	Xiang Long Wu	

Test Category :	2.4GHz Band Wideband Low-Power Data Communication System	
Comprehensive operation test		
Use the DC Power Supply to adjust Voltage.		
Input Power Voltage:	3.3	VDC

Antenna	No.	Type	Gain	Frequency equal to the transmission (11B) 5.5Mbps mode 1.375
	1	PCB	4.5	
	2			
	3	-	-	
	4	-	-	

Type Emissions			
11B	Modulatoion Type:	DS	
	Type Emissions:	12M3G1D	
	Antenna System	SISO	
11G	Modulatoion Type:	OFDM	
	Type Emissions:	16M7G1D/D1D	
	Antenna System	SISO	
HT20	Modulatoion Type:	OFDM	
	Type Emissions:	17M8G1D/D1D	
	Antenna System	SISO	
HE20	Modulatoion Type:	OFDM	
	Type Emissions:	19M0G1D/D1D	
	Antenna System	SISO	

Interference Prevention Function	-----	good	PASS
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Mode						Conducted Average Power	
Band	SISO	N _{TX}	Channel	Freq (MHz)	Data Rate	Power (dBm)	Sum Power(dBm)
						Ant 1	
11b	SISO	1	1	2412	1Mbps	15.97	-
11b	SISO	1	7	2442	1Mbps	15.66	-
11b	SISO	1	13	2472	1Mbps	15.95	-
11g	SISO	1	1	2412	6Mbps	18.99	-
11g	SISO	1	7	2442	6Mbps	18.65	-
11g	SISO	1	13	2472	6Mbps	19.31	-
HT20	SISO	1	1	2412	MCS0	19.31	-
HT20	SISO	1	7	2442	MCS0	19.16	-
HT20	SISO	1	13	2472	MCS0	19.75	-
HE20	SISO	1	1	2412	MCS0	19.76	-
HE20	SISO	1	7	2442	MCS0	19.62	-
HE20	SISO	1	13	2472	MCS0	19.71	-

Burst			Port 1	Packet Type (Mode)
			Ant1	
11B	ON TIME(msec)		1.57	1Mbps
	OFF TIME(msec)		0.01	
	Ratio(%)		99.27	
11G	ON TIME(msec)		1.56	6Mbps
	OFF TIME(msec)		0.08	
	Ratio(%)		95.07	
HT20	ON TIME(msec)		1.31	MCS0
	OFF TIME(msec)		0.08	
	Ratio(%)		94.19	
HE20	ON TIME(msec)		1.12	MCS0
	OFF TIME(msec)		0.08	
	Ratio(%)		93.23	
Cable loss			10.8	



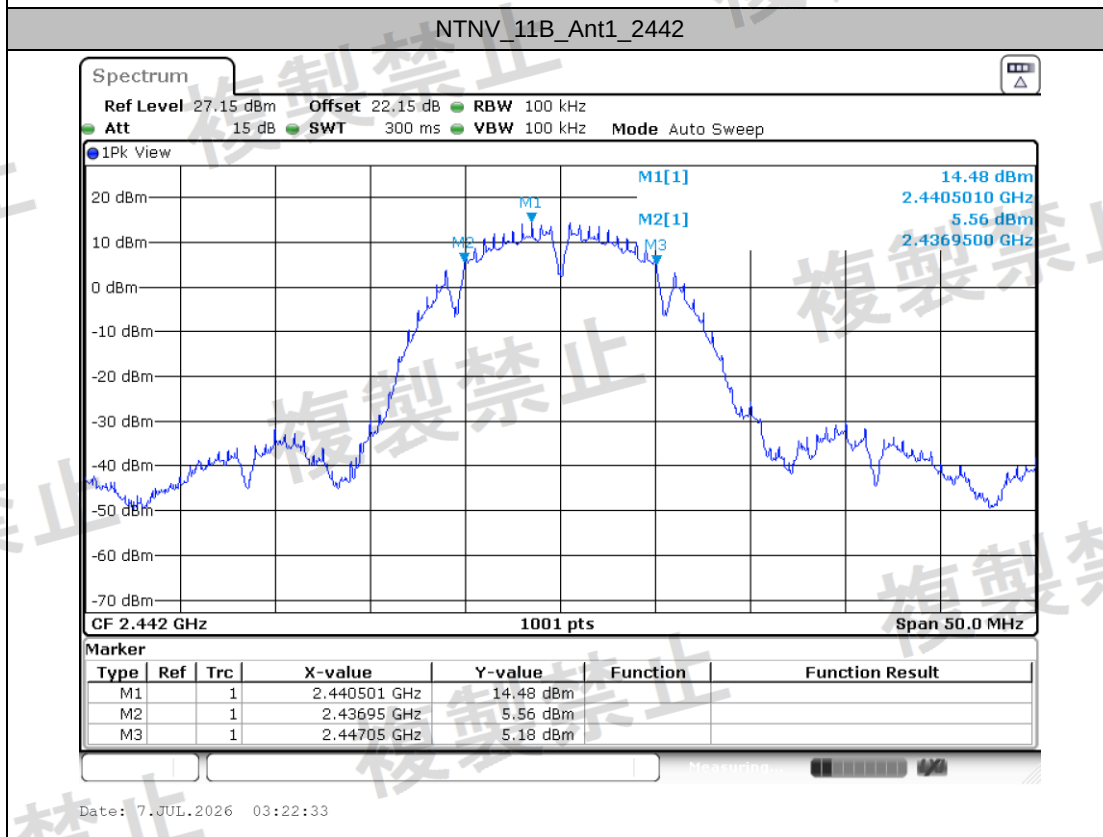
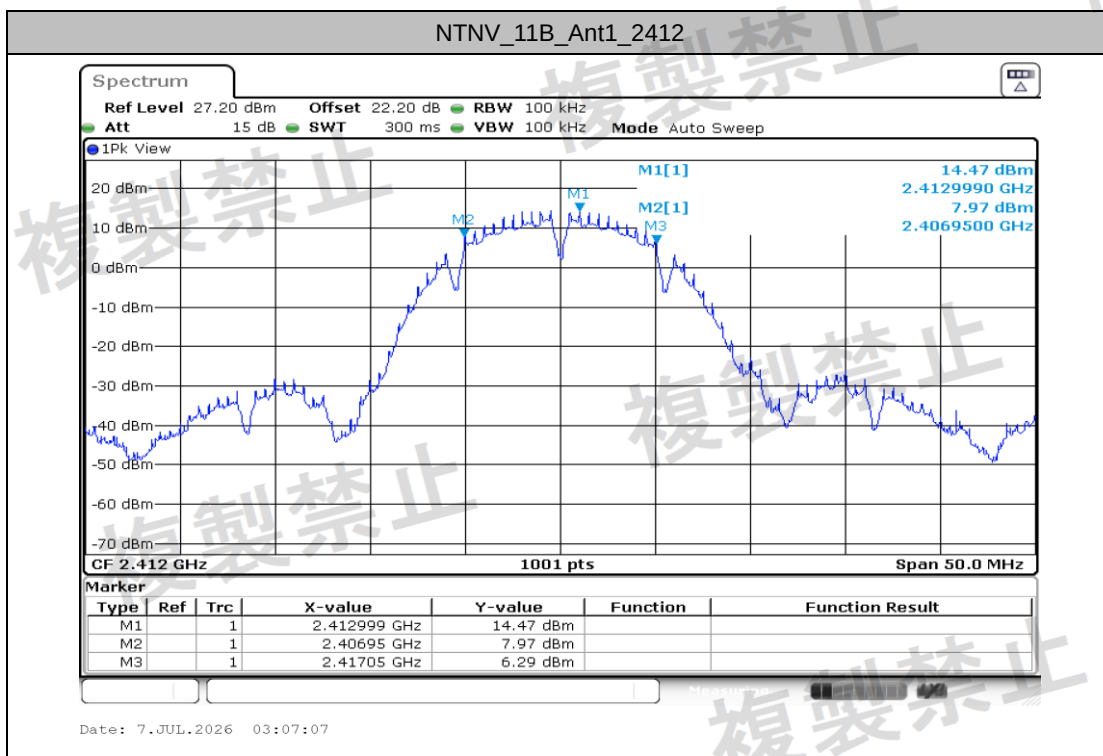
Frequency Error

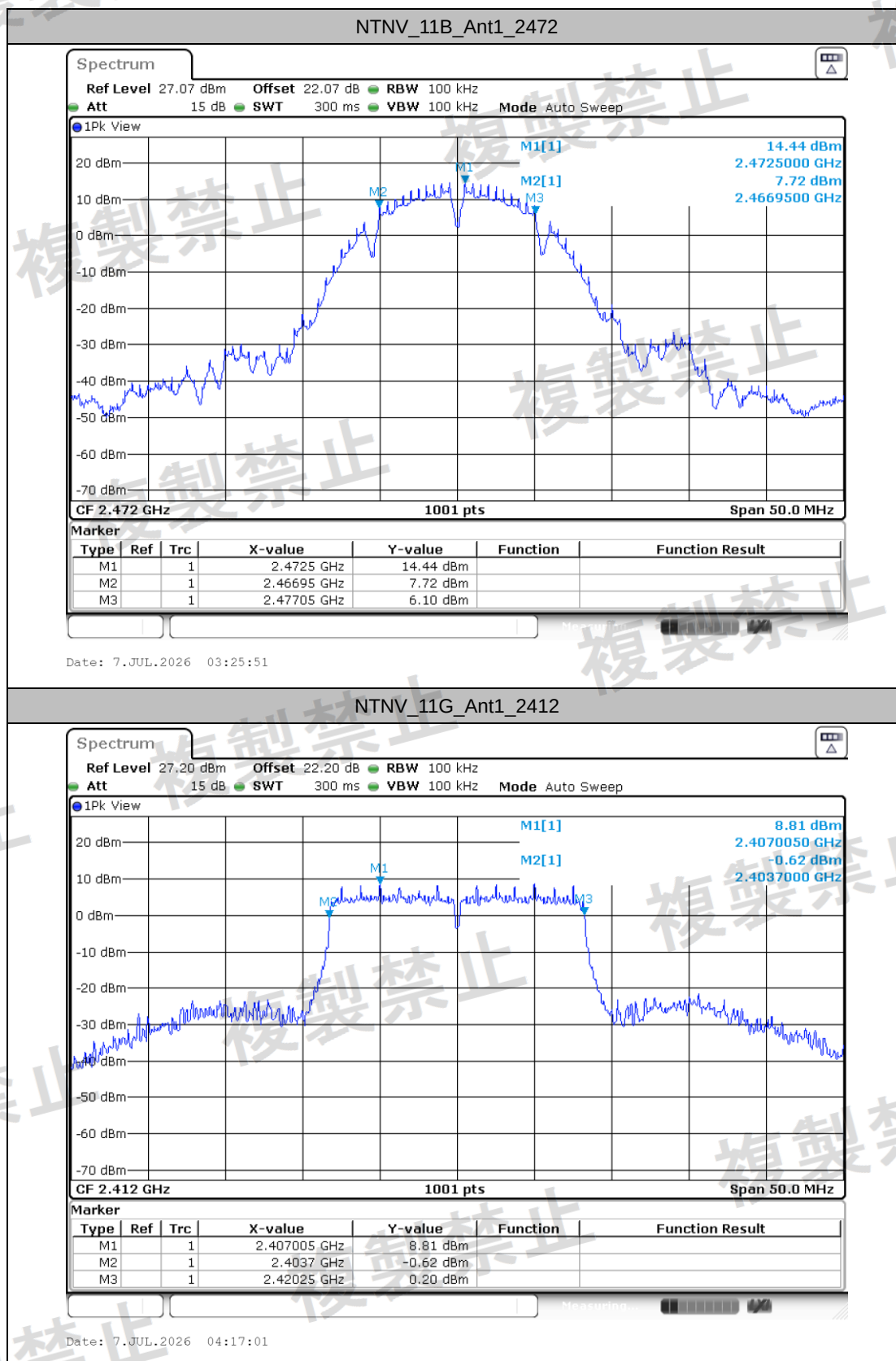
Test Result

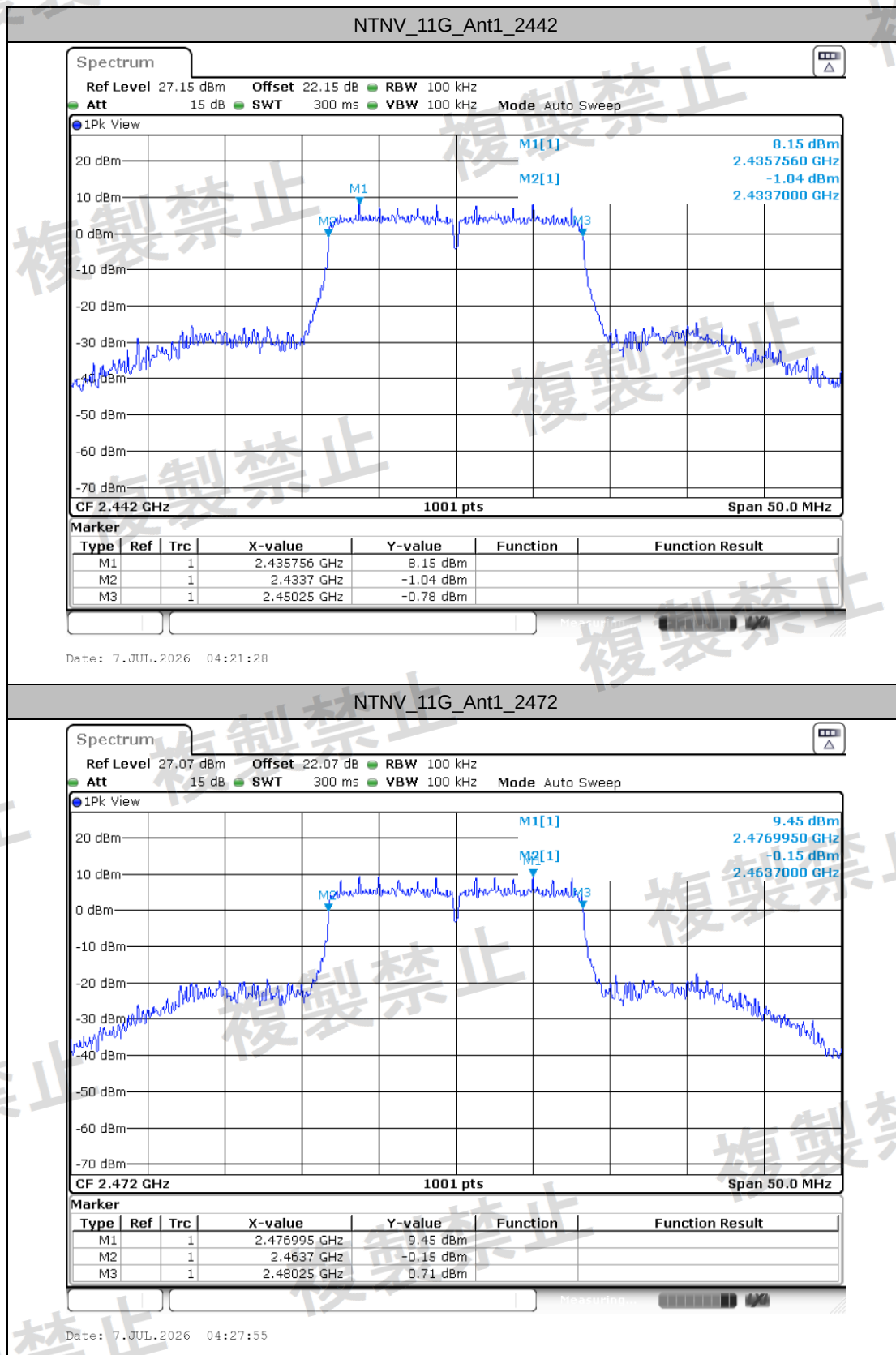
TestCondition	TestMode	Antenna	Freq(MHz)	CenterFreq [MHz]	Result[ppm]	Limit[ppm]	Verdict
NTNV	11B	Ant1	2412	2412.0000	0.0000	±50	PASS
			2442	2442.0000	0.0000	±50	PASS
			2472	2472.0000	0.0000	±50	PASS
	11G	Ant1	2412	2411.9750	-10.3648	±50	PASS
			2442	2441.9750	-10.2375	±50	PASS
			2472	2471.9750	-10.1133	±50	PASS
	11N20SISO	Ant1	2412	2412.0000	0.0000	±50	PASS
			2442	2441.9881	-4.8773	±50	PASS
			2472	2472.0000	0.0000	±50	PASS
	11AX20SISO	Ant1	2412	2412.0000	0.0000	±50	PASS
			2442	2442.0000	0.0000	±50	PASS
			2472	2472.0000	0.0000	±50	PASS

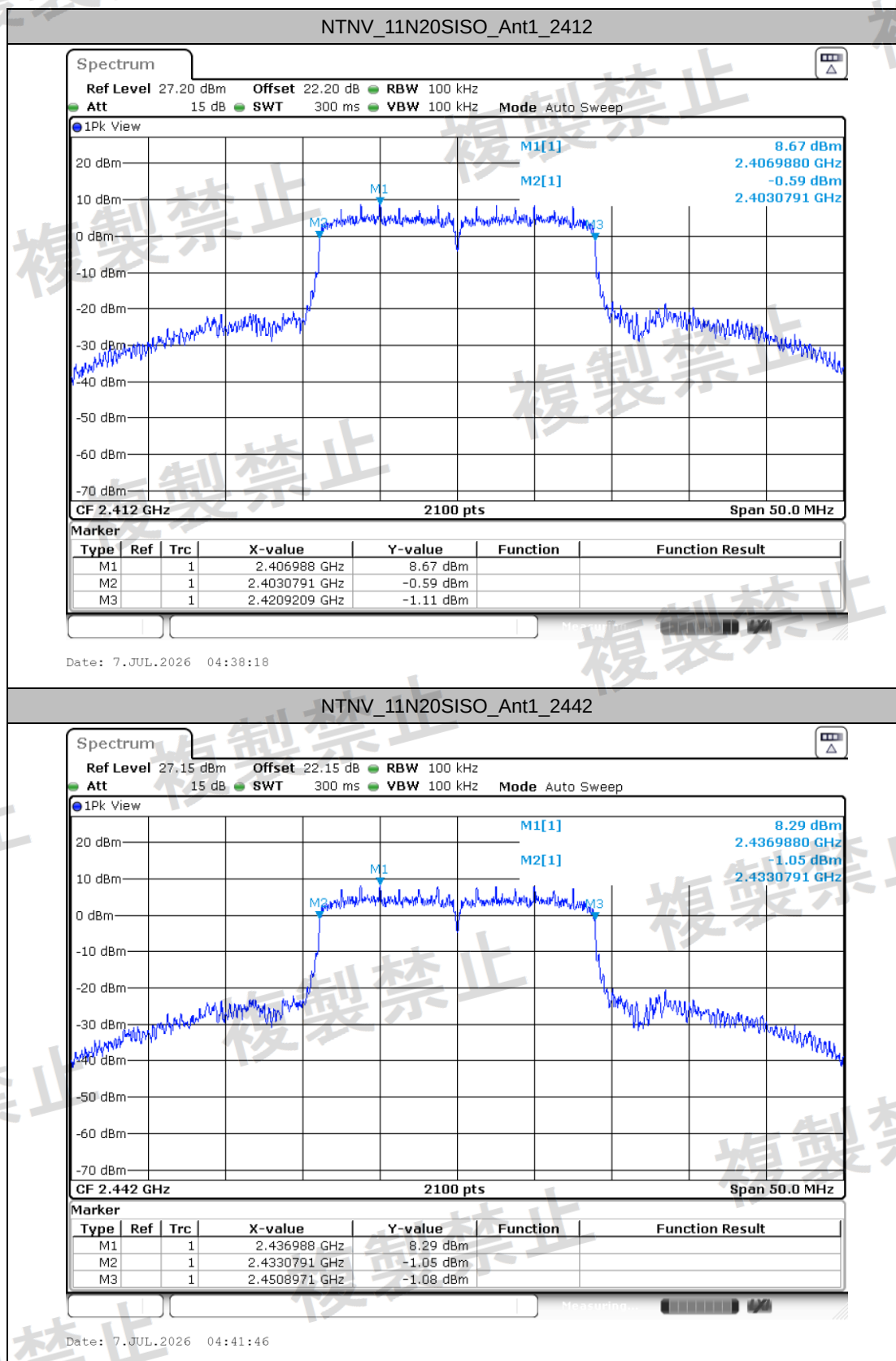


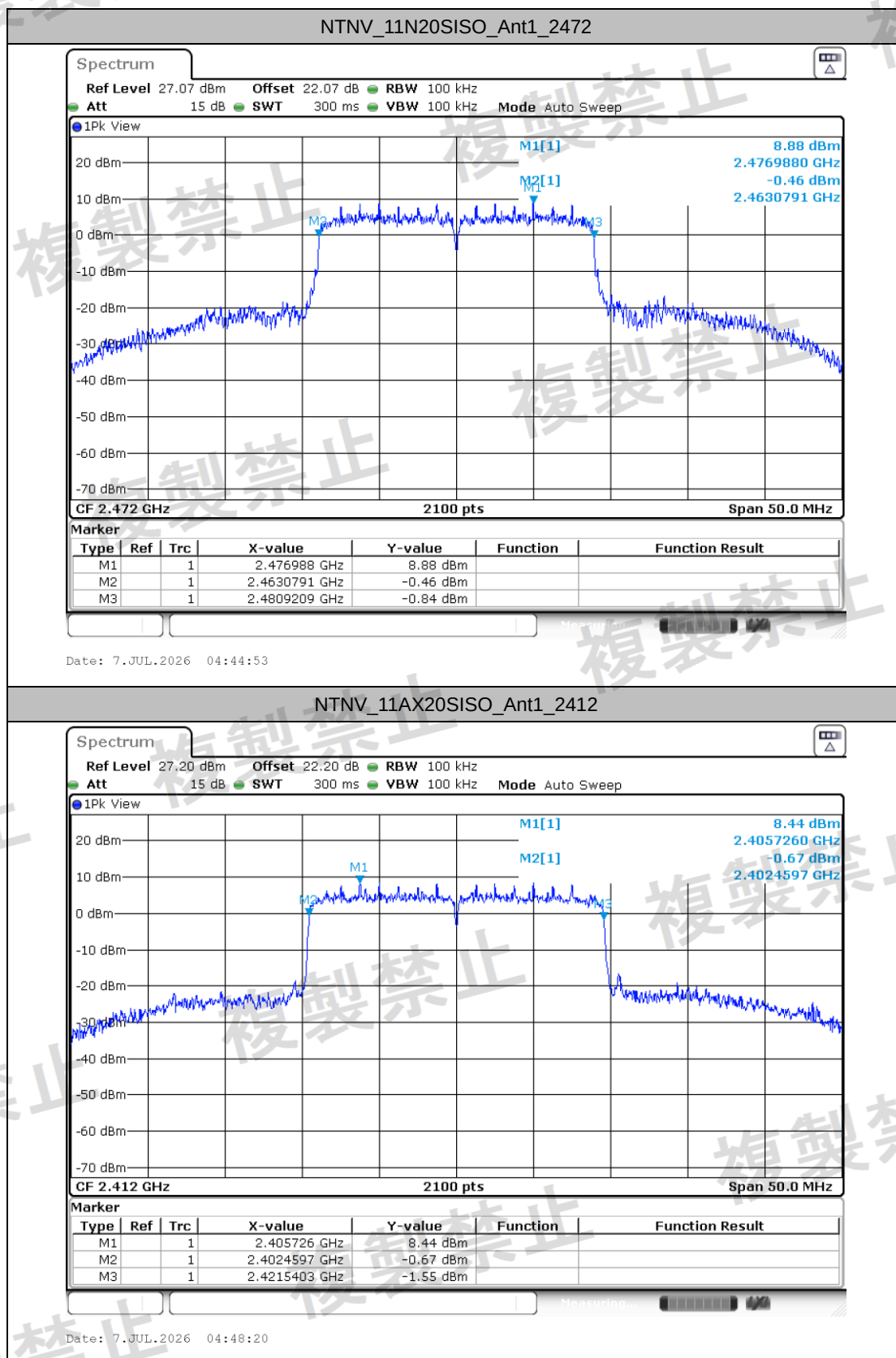
Test Graphs

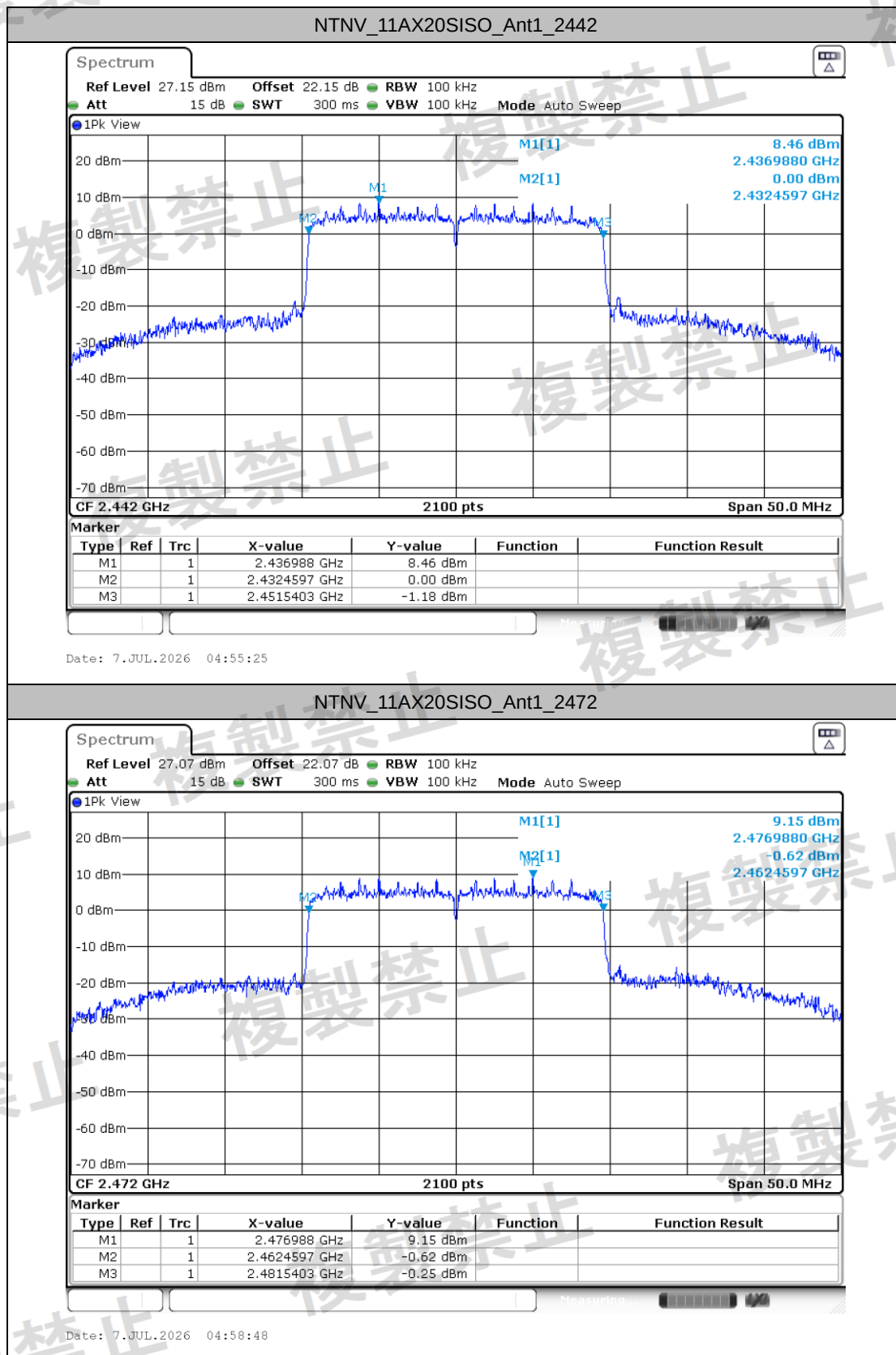












Antenna Power

Test Result

Antenna Power									
Test Condition	Test Mode	Antenna	Freq (MHz)	Result (dBm/MHz)	Result (mW/MHz)	Gain (dBi)	EIRP (dBm /MHz)	EIRP Limit(dBm /MHz)	Verdict
NTNV	11B	Ant1	2412	7.60	5.7544	4.50	12.10	12.14	PASS
			2442	7.40	5.4954	4.50	11.90	12.14	PASS
			2472	7.25	5.3088	4.50	11.75	12.14	PASS
	11G	Ant1	2412	7.14	5.1761	4.50	11.64	12.14	PASS
			2442	7.08	5.1050	4.50	11.58	12.14	PASS
			2472	7.19	5.2360	4.50	11.69	12.14	PASS
	11N20 SISO	Ant1	2412	7.41	5.5081	4.50	11.91	12.14	PASS
			2442	7.48	5.5976	4.50	11.98	12.14	PASS
			2472	7.52	5.6494	4.50	12.02	12.14	PASS
	11AX 20SISO	Ant1	2412	7.47	5.5847	4.50	11.97	12.14	PASS
			2442	7.31	5.3827	4.50	11.81	12.14	PASS
			2472	7.16	5.2000	4.50	11.66	12.14	PASS

Tolerance

Declaration Output Power and Tolerance								
Test Condition	Test Mode	Antenna	Freq (MHz)	Power (mW /MHz)	Declaration Output Power (mW/MHz)	Result (%)	Limit (%)	Verdict
NTNV	11B	Ant1	2412	5.7544	5.80	-0.79	+20	PASS
			2442	5.4954	5.80	-5.25	+20	PASS
			2472	5.3088	5.80	-8.47	+20	PASS
	11G	Ant1	2412	5.1761	5.80	-10.76	+20	PASS
			2442	5.1050	5.80	-11.98	+20	PASS
			2472	5.2360	5.80	-9.72	+20	PASS
	11N20SISO	Ant1	2412	5.5081	5.80	-5.03	+20	PASS
			2442	5.5976	5.80	-3.49	+20	PASS
			2472	5.6494	5.80	-2.60	+20	PASS
	11AX20SISO	Ant1	2412	5.5847	5.80	-3.71	+20	PASS
			2442	5.3827	5.80	-7.19	+20	PASS
			2472	5.2000	5.80	-10.34	+20	PASS



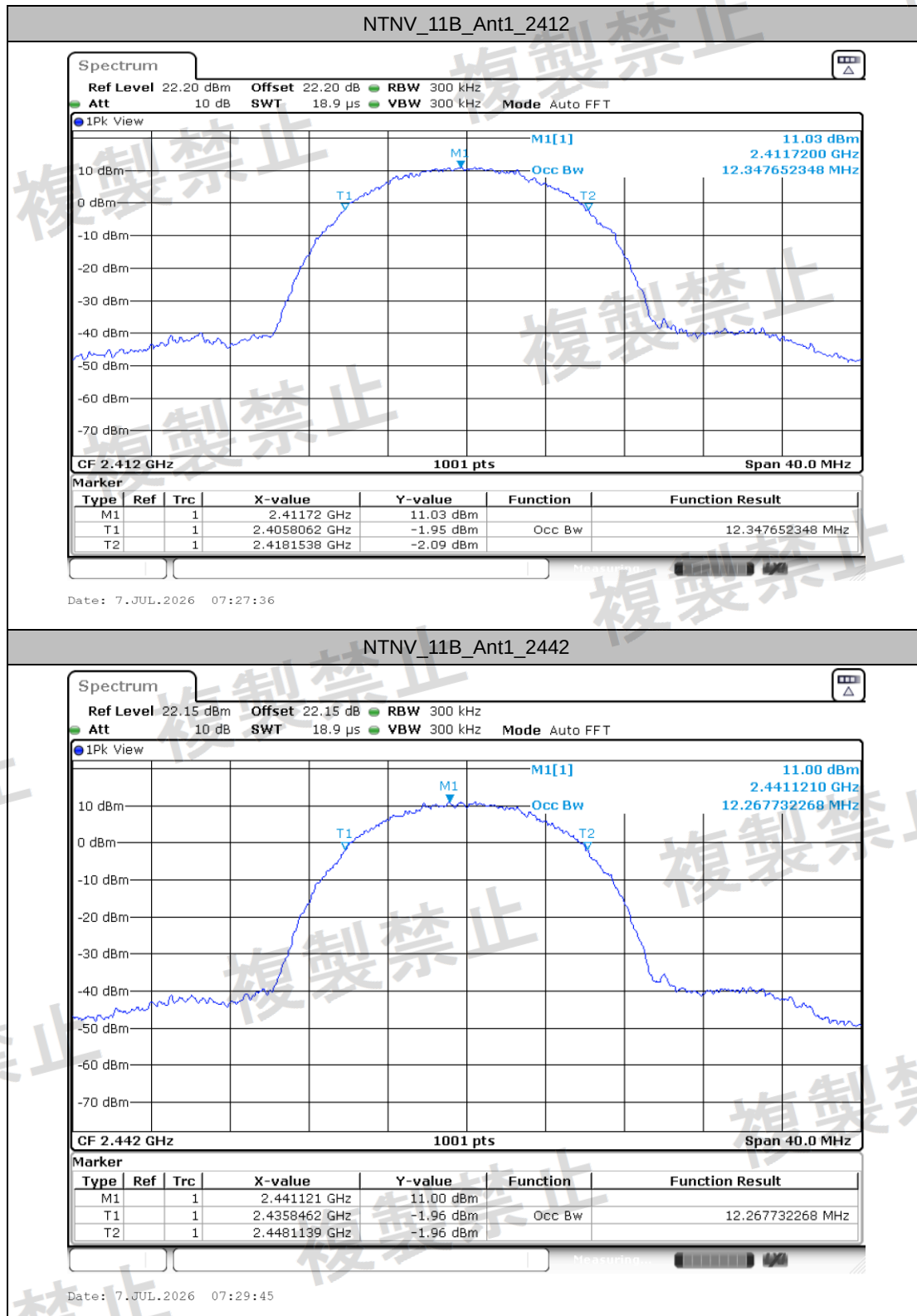
Occupied Bandwidth

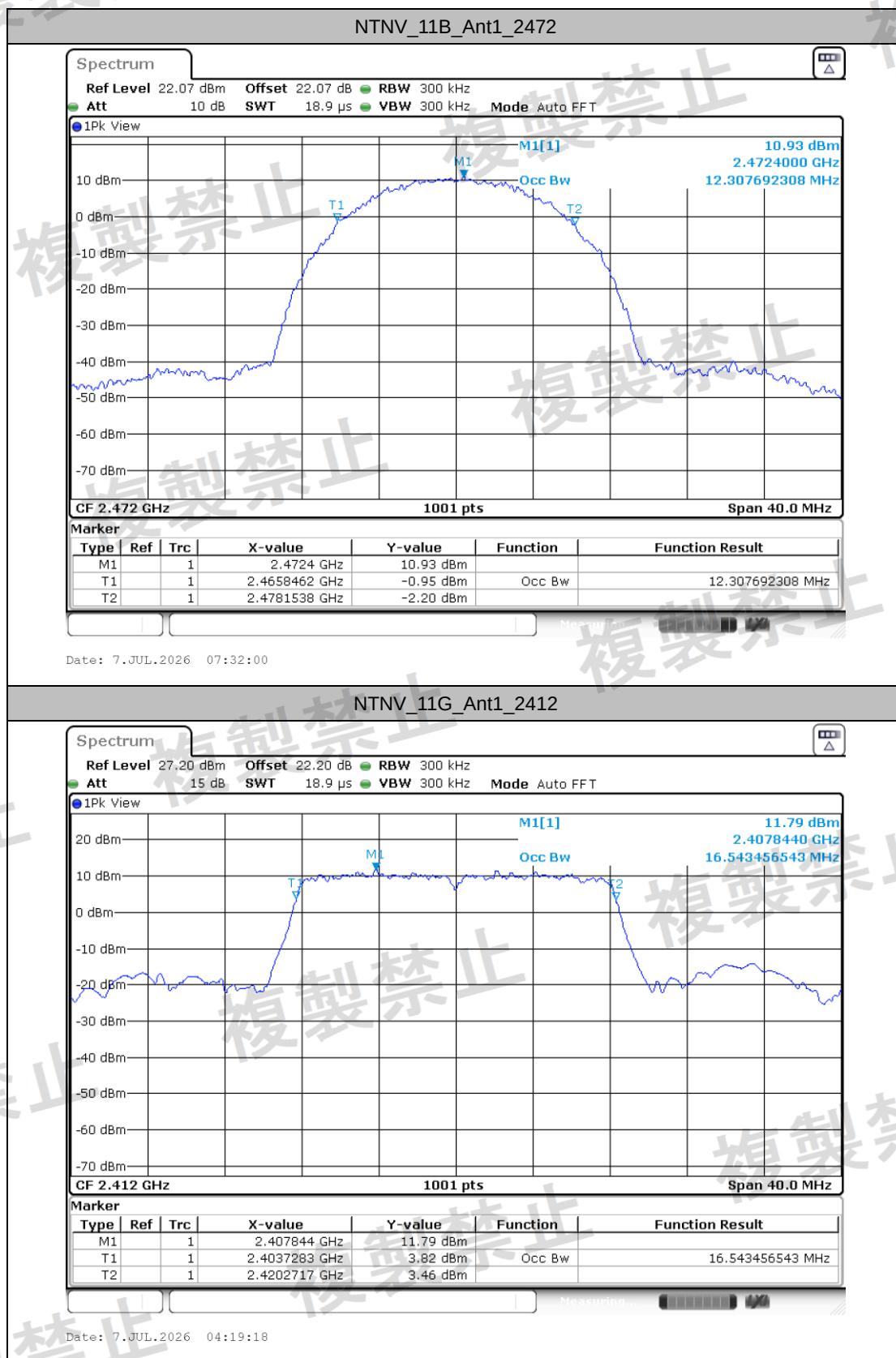
Test Result

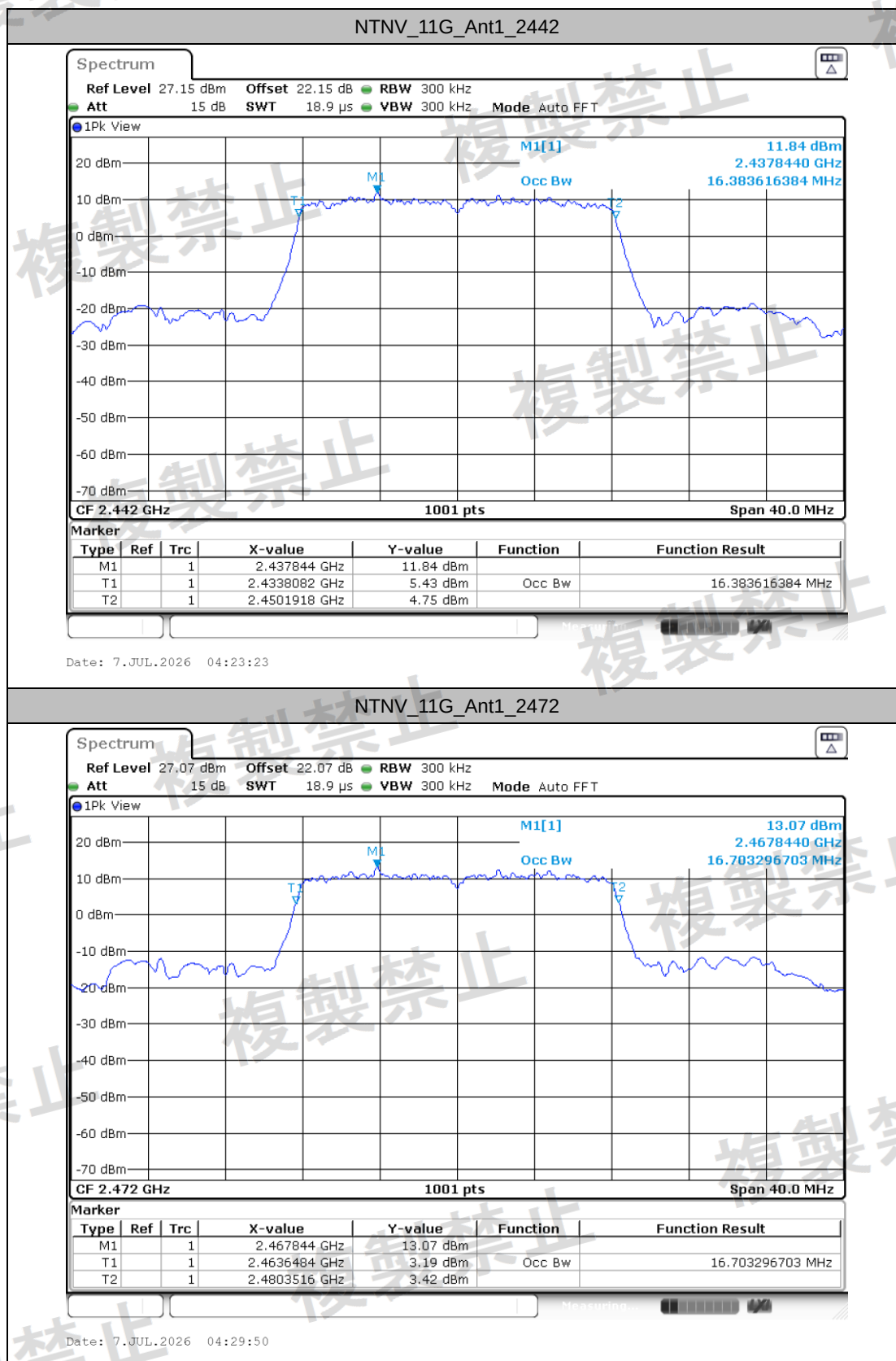
TestCondition	TestMode	Antenna	Freq(MHz)	Result [MHz]	Limit [MHz]	Verdict
NTNV	11B	Ant1	2412	12.348	≤26	PASS
			2442	12.268	≤26	PASS
			2472	12.308	≤26	PASS
	11G	Ant1	2412	16.543	≤26	PASS
			2442	16.384	≤26	PASS
			2472	16.703	≤26	PASS
	11N20SISO	Ant1	2412	17.676	≤26	PASS
			2442	17.562	≤26	PASS
			2472	17.810	≤26	PASS
	11AX20SISO	Ant1	2412	18.876	≤26	PASS
			2442	18.876	≤26	PASS
			2472	18.952	≤26	PASS

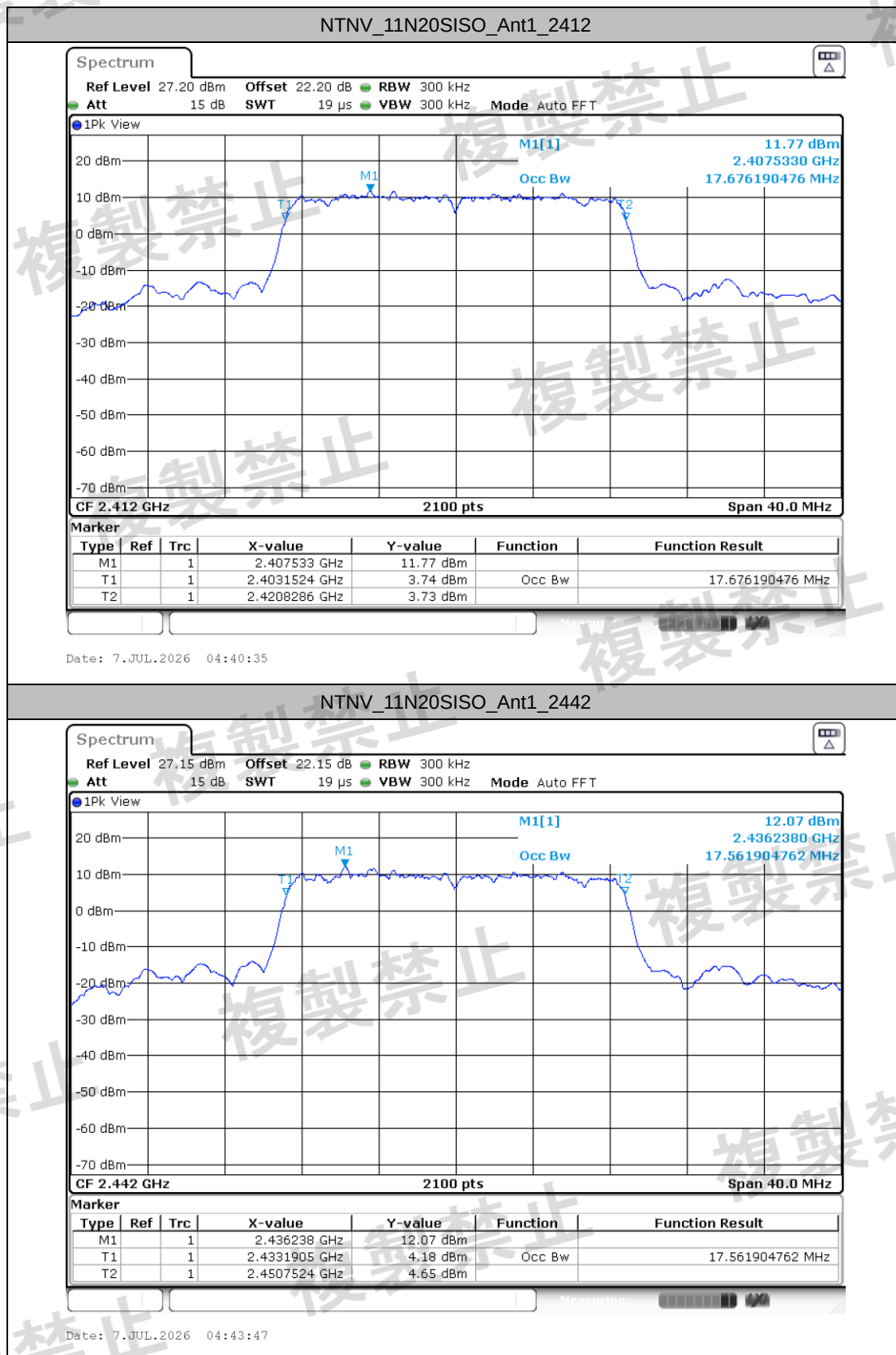


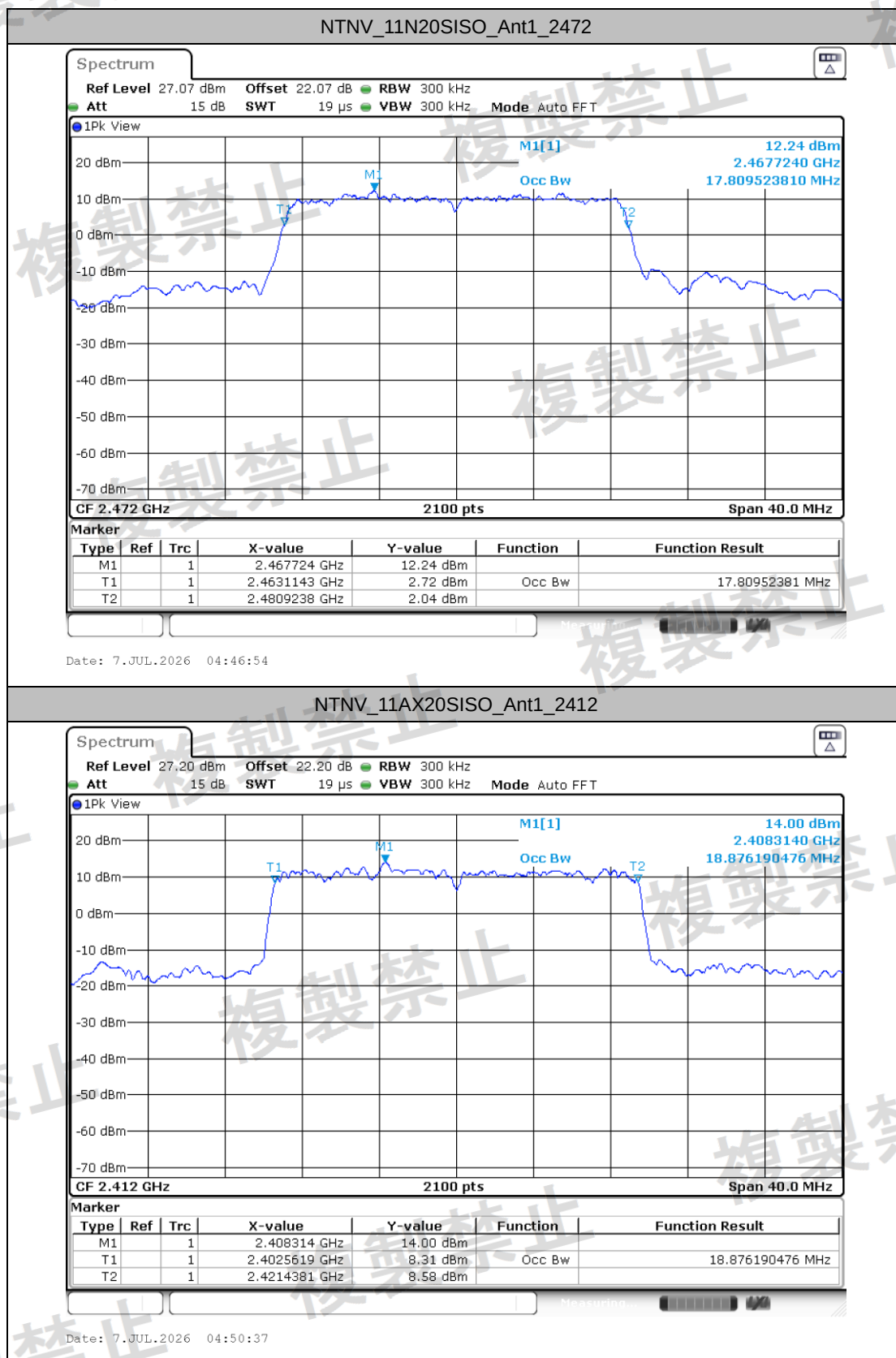
Test Graphs

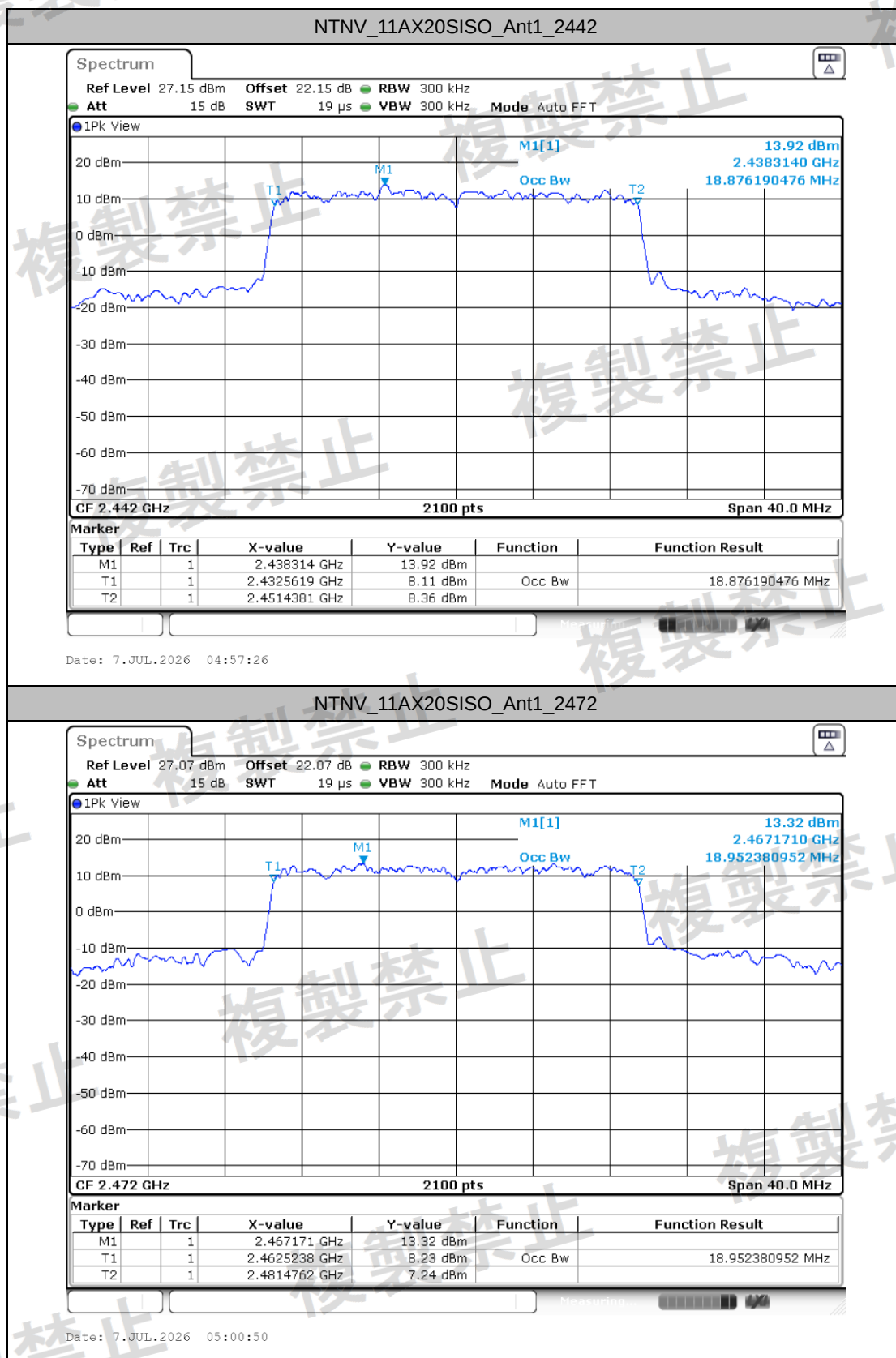












Unwanted Emission Strength

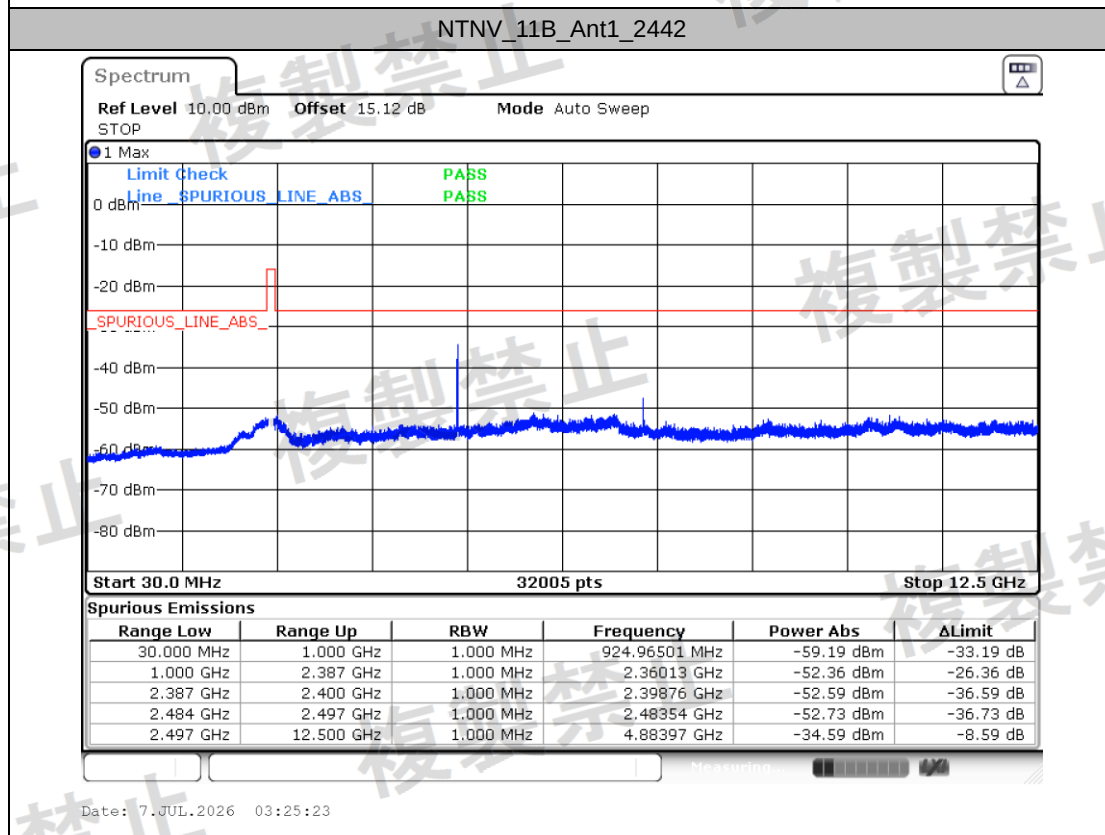
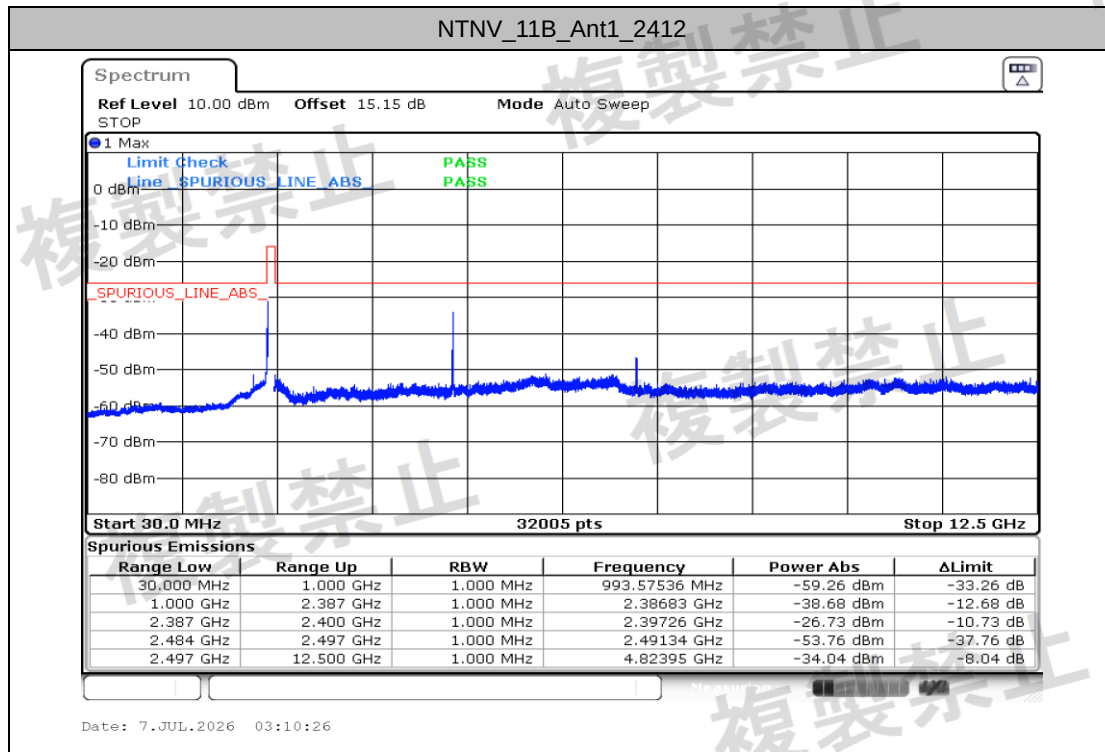
Test Result

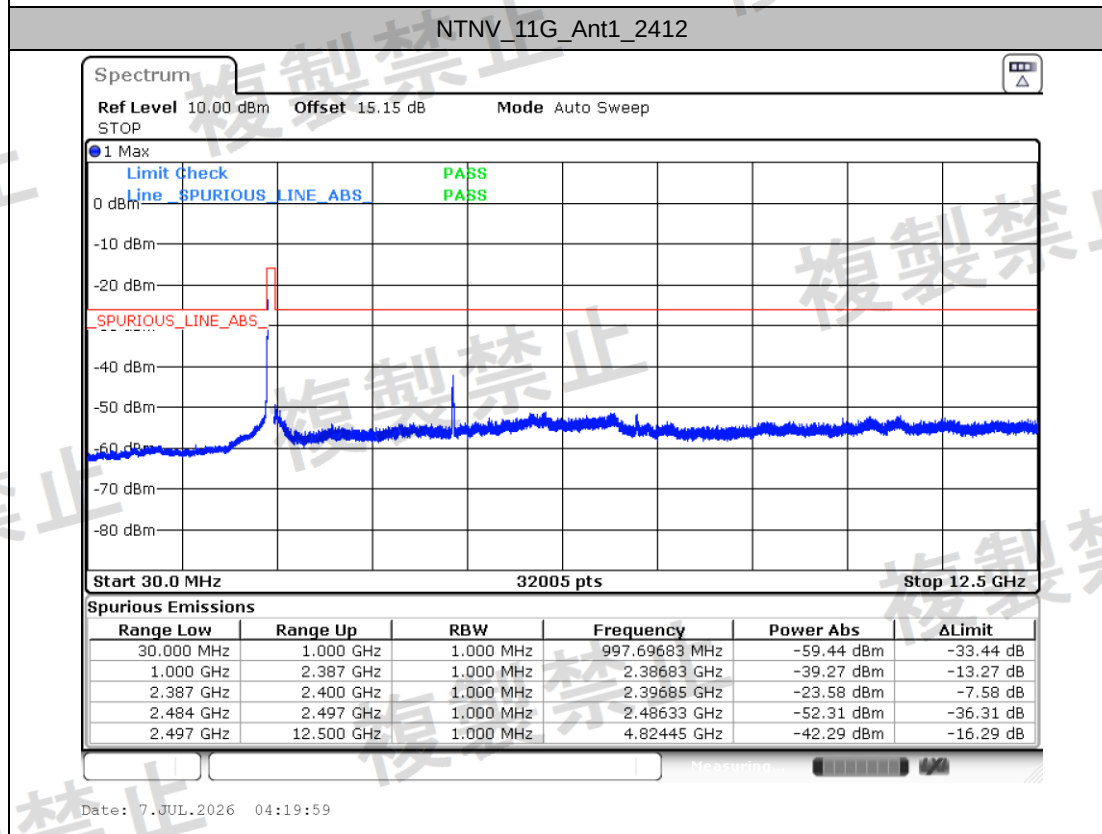
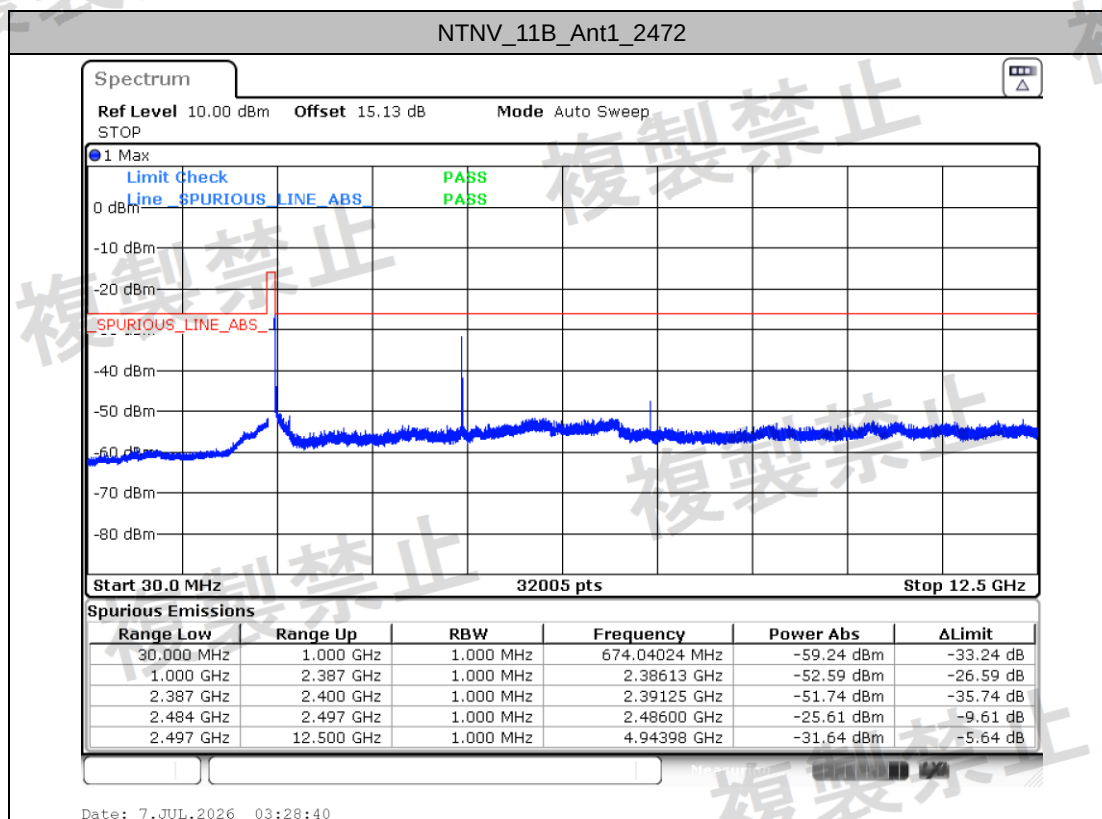
Test Condition	Test Mode	Antenna	Freq (MHz)	Freq.Range [MHz]	Freq. [MHz]	Result [dBm /MHz]	Limit [dBm /MHz]	Result [μW /MHz]	Limit [μW /MHz]	Verdict
NTNV	11B	Ant1	2412	30~1000	993.58	-59.26	-26.00	0.00119	2.5	PASS
				1000~2387	2386.83	-38.68	-26.00	0.13552	2.5	PASS
				2387~2400	2397.26	-26.73	-16.00	2.12324	25	PASS
				2483.5~2496.5	2491.34	-53.76	-16.00	0.00421	25	PASS
				2496.5~12500	4823.95	-34.04	-26.00	0.39446	2.5	PASS
			2442	30~1000	924.97	-59.19	-26.00	0.00121	2.5	PASS
				1000~2387	2360.13	-52.36	-26.00	0.00581	2.5	PASS
				2387~2400	2398.76	-52.59	-16.00	0.00551	25	PASS
				2483.5~2496.5	2483.54	-52.73	-16.00	0.00533	25	PASS
				2496.5~12500	4883.97	-34.59	-26.00	0.34754	2.5	PASS
			2472	30~1000	674.04	-59.24	-26.00	0.00119	2.5	PASS
				1000~2387	2386.13	-52.59	-26.00	0.00551	2.5	PASS
				2387~2400	2391.25	-51.74	-16.00	0.00670	25	PASS
				2483.5~2496.5	2486.00	-25.61	-16.00	2.74789	25	PASS
				2496.5~12500	4943.98	-31.64	-26.00	0.68549	2.5	PASS
	11G	Ant1	2412	30~1000	997.70	-59.44	-26.00	0.00114	2.5	PASS
				1000~2387	2386.83	-39.27	-26.00	0.11830	2.5	PASS
				2387~2400	2396.85	-23.58	-16.00	4.38531	25	PASS
				2483.5~2496.5	2486.33	-52.31	-16.00	0.00587	25	PASS
				2496.5~12500	4824.45	-42.29	-26.00	0.05902	2.5	PASS
			2442	30~1000	901.45	-59.68	-26.00	0.00108	2.5	PASS
				1000~2387	2382.67	-52.74	-26.00	0.00532	2.5	PASS
				2387~2400	2399.18	-49.39	-16.00	0.01151	25	PASS
				2483.5~2496.5	2483.57	-49.11	-16.00	0.01227	25	PASS
				2496.5~12500	4884.47	-44.62	-26.00	0.03451	2.5	PASS
			2472	30~1000	996.48	-59.32	-26.00	0.00117	2.5	PASS
				1000~2387	2379.20	-52.04	-26.00	0.00625	2.5	PASS
				2387~2400	2396.64	-51.70	-16.00	0.00676	25	PASS
				2483.5~2496.5	2487.47	-19.75	-16.00	10.59254	25	PASS
				2496.5~12500	2497.25	-35.35	-26.00	0.29174	2.5	PASS
	11N20SISO	Ant1	2412	30~1000	937.09	-59.22	-26.00	0.00120	2.5	PASS
				1000~2387	2386.83	-36.53	-26.00	0.22233	2.5	PASS
				2387~2400	2398.78	-21.15	-16.00	7.67361	25	PASS
				2483.5~2496.5	2490.80	-52.32	-16.00	0.00586	25	PASS
				2496.5~12500	4824.95	-42.97	-26.00	0.05047	2.5	PASS
			2442	30~1000	997.94	-59.34	-26.00	0.00116	2.5	PASS
				1000~2387	2386.48	-51.91	-26.00	0.00644	2.5	PASS

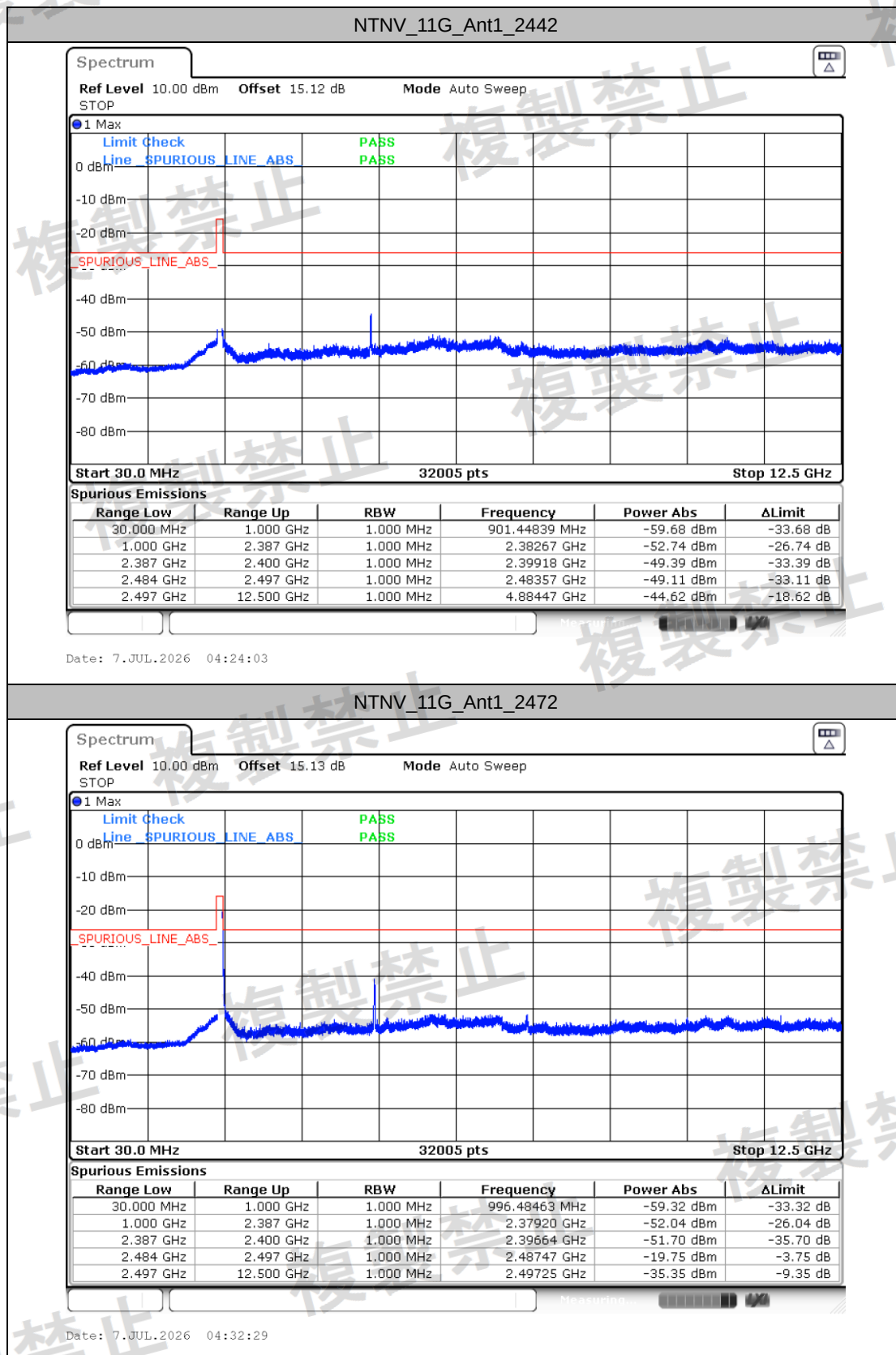
11AX20SISO	Ant1	2472	2387~2400	2399.98	-49.04	-16.00	0.01247	25	PASS
			2483.5~2496.5	2484.05	-48.04	-16.00	0.01570	25	PASS
			2496.5~12500	4883.47	-44.21	-26.00	0.03793	2.5	PASS
			30~1000	997.21	-59.46	-26.00	0.00113	2.5	PASS
			1000~2387	2385.79	-51.99	-26.00	0.00632	2.5	PASS
			2387~2400	2399.42	-51.26	-16.00	0.00748	25	PASS
			2483.5~2496.5	2485.17	-17.14	-16.00	19.31968	25	PASS
			2496.5~12500	2496.75	-28.21	-26.00	1.51008	2.5	PASS
		2412	30~1000	899.75	-59.49	-26.00	0.00112	2.5	PASS
			1000~2387	2386.83	-28.34	-26.00	1.46555	2.5	PASS
			2387~2400	2398.31	-19.88	-16.00	10.28016	25	PASS
			2483.5~2496.5	2490.29	-52.17	-16.00	0.00607	25	PASS
			2496.5~12500	4825.45	-42.49	-26.00	0.05636	2.5	PASS
		2442	30~1000	863.39	-59.41	-26.00	0.00115	2.5	PASS
			1000~2387	2386.13	-50.60	-26.00	0.00871	2.5	PASS
			2387~2400	2398.57	-46.43	-16.00	0.02275	25	PASS
			2483.5~2496.5	2483.53	-44.46	-16.00	0.03581	25	PASS
			2496.5~12500	4880.97	-41.61	-26.00	0.06902	2.5	PASS
		2472	30~1000	965.21	-59.63	-26.00	0.00109	2.5	PASS
			1000~2387	2362.91	-51.78	-26.00	0.00664	2.5	PASS
			2387~2400	2398.60	-51.24	-16.00	0.00752	25	PASS
			2483.5~2496.5	2487.19	-17.43	-16.00	18.07174	25	PASS
			2496.5~12500	2496.75	-27.35	-26.00	1.84077	2.5	PASS

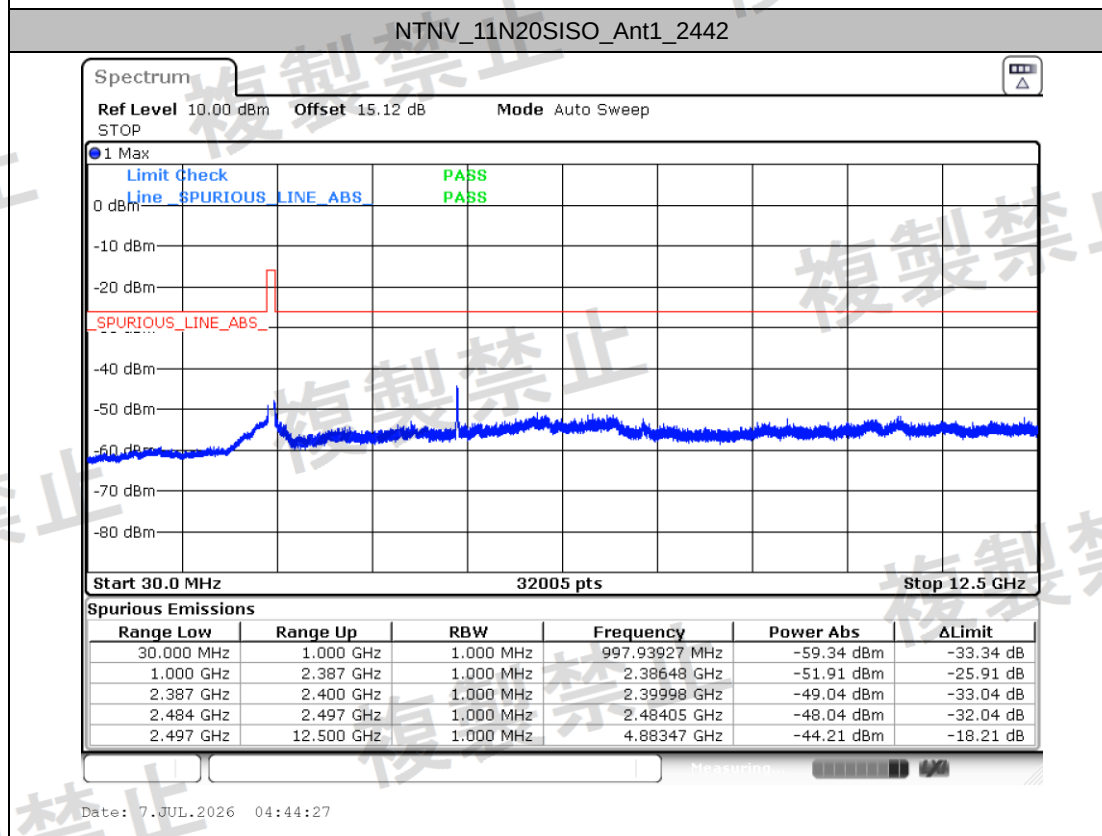
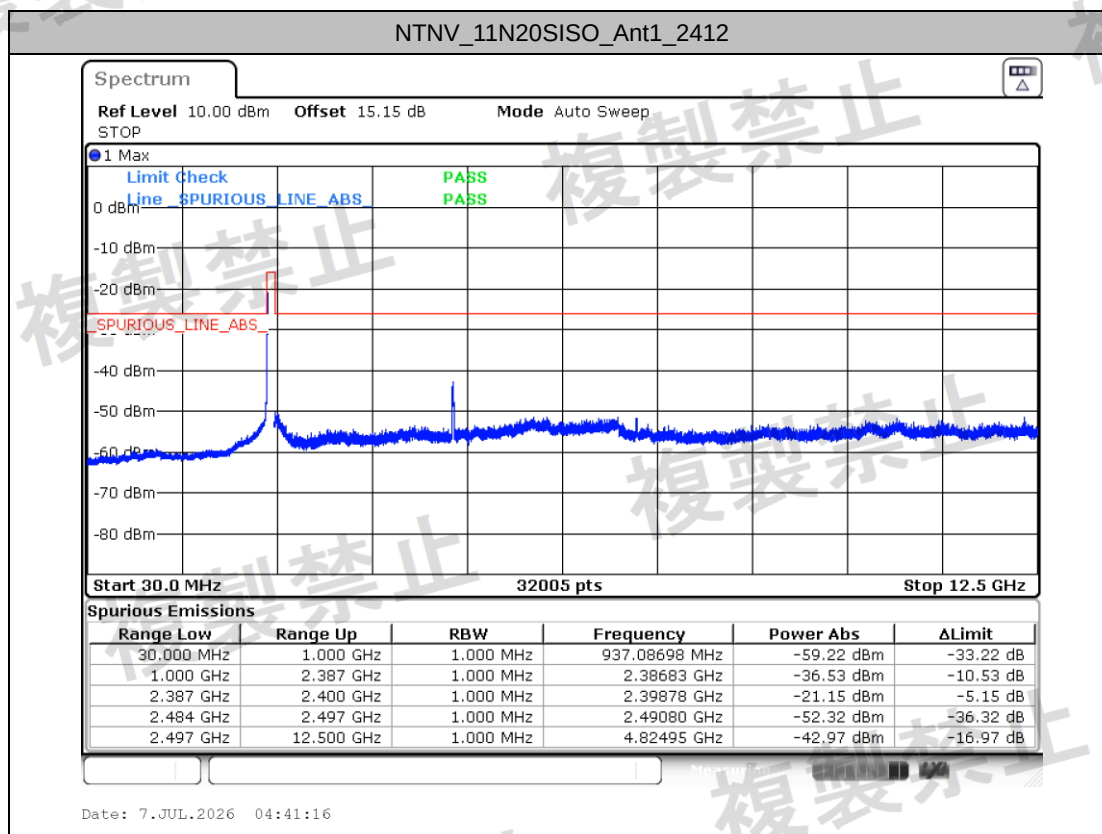


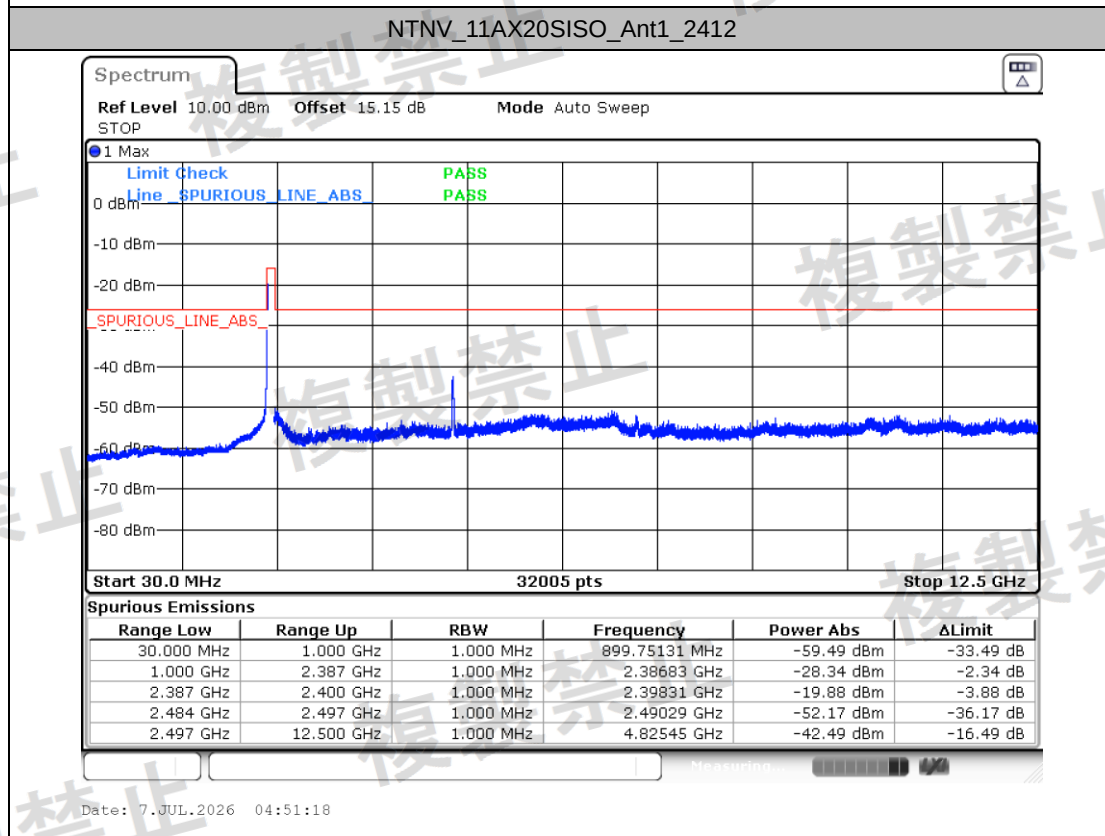
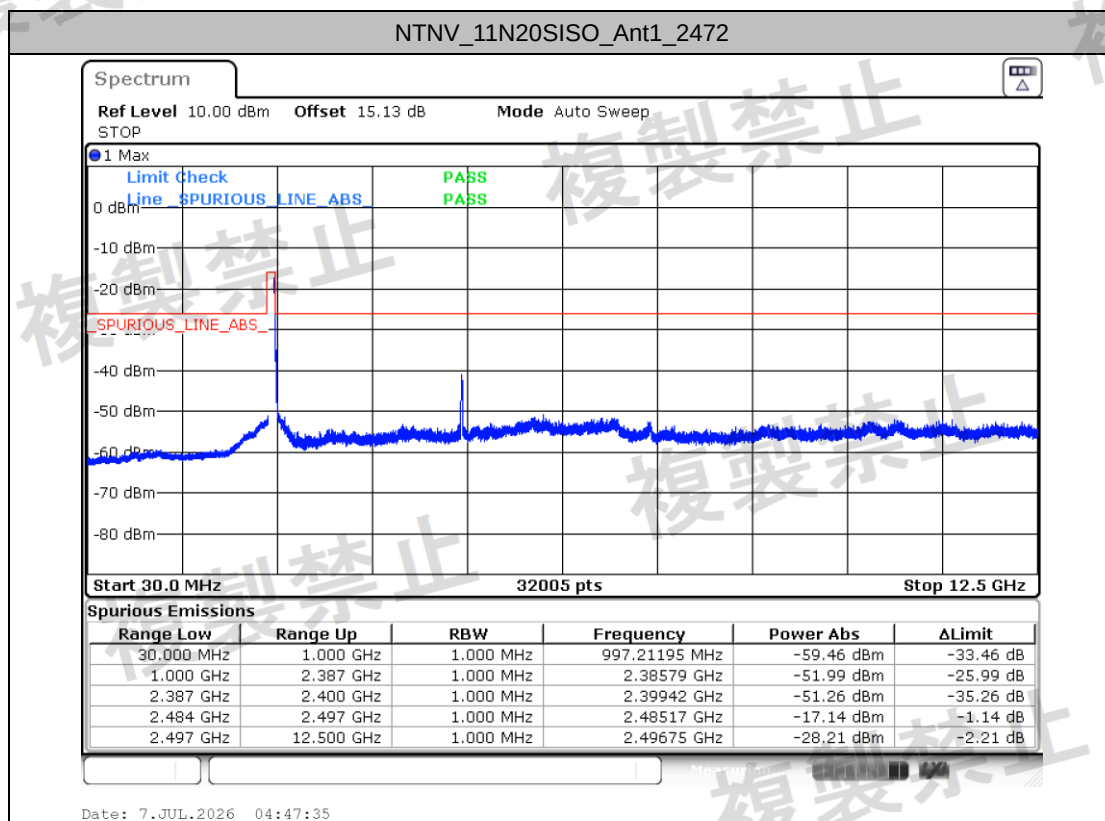
Test Graphs

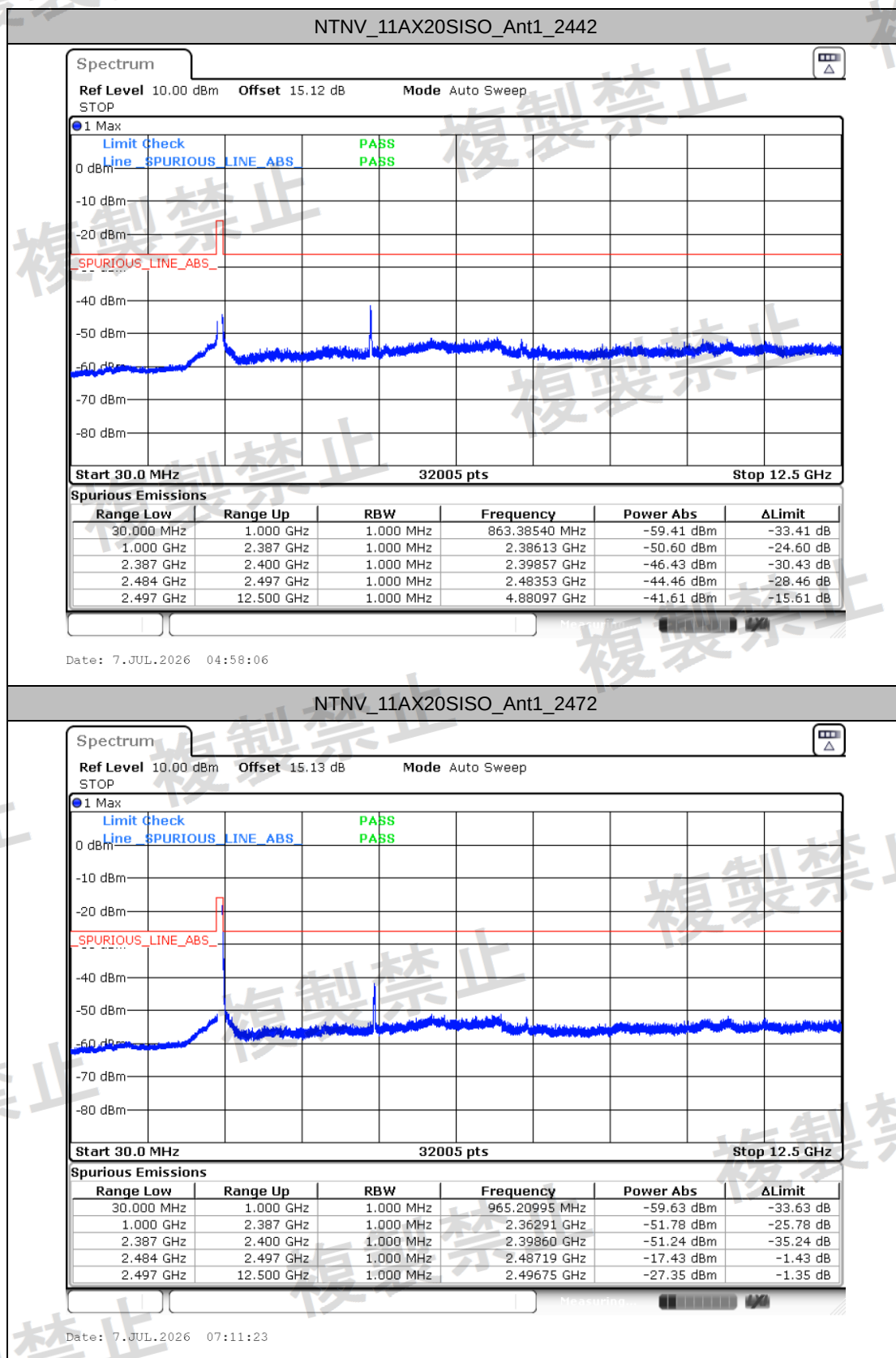












Secondarily Emitted Radio Wave Strength

Test Result

Test Condition	TestMode	Antenna	Freq (MHz)	Freq.Range [MHz]	Freq. [MHz]	Result [dBm]	Limit [dBm]	Result [nW]	Limit [nW]	Verdict
NTNV	11B	Ant1	2412	30~1000	470.40	-74.45	-54.00	0.03589	4	PASS
				1000~12500	5879.49	-59.19	-47.00	1.20504	20	PASS
			2442	30~1000	724.42	-74.17	-54.00	0.03828	4	PASS
				1000~12500	5877.77	-59.45	-47.00	1.13501	20	PASS
			2472	30~1000	620.68	-74.76	-54.00	0.03342	4	PASS
				1000~12500	6927.67	-58.62	-47.00	1.37404	20	PASS
	11G	Ant1	2412	30~1000	956.61	-74.86	-54.00	0.03266	4	PASS
				1000~12500	6011.74	-57.61	-47.00	1.73380	20	PASS
			2442	30~1000	992.49	-74.81	-54.00	0.03304	4	PASS
				1000~12500	5951.94	-58.55	-47.00	1.39637	20	PASS
			2472	30~1000	941.10	-74.75	-54.00	0.03350	4	PASS
				1000~12500	6904.09	-59.12	-47.00	1.22462	20	PASS
	11N20SISO	Ant1	2412	30~1000	870.33	-74.90	-54.00	0.03236	4	PASS
				1000~12500	5974.94	-59.32	-47.00	1.16950	20	PASS
			2442	30~1000	819.91	-74.43	-54.00	0.03606	4	PASS
				1000~12500	6909.84	-59.22	-47.00	1.19674	20	PASS
			2472	30~1000	941.59	-74.53	-54.00	0.03524	4	PASS
				1000~12500	5846.72	-59.02	-47.00	1.25314	20	PASS
	11AX20SISO	Ant1	2412	30~1000	991.52	-74.74	-54.00	0.03357	4	PASS
				1000~12500	6081.88	-58.93	-47.00	1.27938	20	PASS
			2442	30~1000	733.63	-74.42	-54.00	0.03614	4	PASS
				1000~12500	6426.29	-58.47	-47.00	1.42233	20	PASS
			2472	30~1000	777.25	-74.75	-54.00	0.03350	4	PASS
				1000~12500	6415.37	-58.60	-47.00	1.38038	20	PASS



Test Graphs

