



Radio Test Report

Report No.:STS2601448W04

Issued for

Shenzhen Timekettle Technologies Co.,Ltd

801, West Tower, Lepu Building, No.66, Xingke Road,
Nanshan, Shenzhen, China

Product Name: X1 Pro Earbuds

Brand Name: Timekettle

Model Name: TMK019-02

Series Model(s): N/A

Test Standard: Article 2 Paragraph 1 of Item 19
MIC Notice No.88 Appendix No.43

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Shenzhen STS Test Services Co., Ltd.

**TEST REPORT**

Applicant's Name : Shenzhen Timekettle Technologies Co.,Ltd
Address..... : 801, West Tower, Lepu Building, No.66, Xingke Road, Nanshan, Shenzhen, China
Manufacturer's Name..... : Shenzhen Timekettle Technologies Co.,Ltd
Address..... : 801, West Tower, Lepu Building, No.66, Xingke Road, Nanshan, Shenzhen, China

Test specification:

Standard : Article 2 Paragraph 1 of Item 19
MIC Notice No.88 Appendix No.43

Product Description

Product Name : X1 Pro Earbuds
Brand Name..... : Timekettle
Model Name : TMK019-02
Series Model(s)..... : N/A

This device described above has been tested by STS, the test results show that the equipment under test (EUT) is in compliance with Article 2 Paragraph 1 of Item 19, MIC Notice No.88 Appendix No.43 requirements. And it is applicable only to the tested sample identified in the report.

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Shenzhen STS Test Services Co., Ltd.

Testing

Date of receipt of test item : 31 Jan. 2026
Date (s) of performance of tests : 31 Jan. 2026 ~ 19 Mar. 2026
Date of Issue : 19 Mar. 2026
Test Result : **Pass**

Testing Engineer :

Aaron Bu

(Aaron Bu)

Technical Manager :

Skylar Li

(Skylar Li)

Authorized Signatory :

Bovey Yang

(Bovey Yang)





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**Revision History**

Rev.	Issue Date	Report No.	Effect Page	Contents
00	19 Mar. 2026	STS2601448W04	ALL	Initial Issue



1. SUMMARY OF TEST RESULTS

Article 2 Paragraph 1 of Item 19 of the certification Measurement Project		
Ordinance Regulating Radio Equipment	Description of Test	Judgement
Article 5	Frequency Error	PASS
Article 6	Occupied Bandwidth (99%)	PASS
Article 7	Unwanted Emission Intensity	PASS
Article 14&49-20	Power Error	PASS
Article 24.2	Limitation of Collateral Emission of Receiver	PASS
Article 49-20	Transmission Radiation power	PASS
Article 49-20	Transmission Radiation Angle Width (3dB Beamwidth)	N/A
Article 9-4.5	Radio Interference Prevention Capability	PASS
Article 49-20	Carrier Sense Capability(1)	N/A Note(3)
Article 49-20	Carrier Sense Capability(2)	N/A Note(4)
Article 49-20	Construction Protection Confirmation	PASS

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report.

(2) Article 2 Paragraph 1 of Item 19, MIC Notice No.88 Appendix No.43

(3) Application to transmitting devices which EIRP is less than (2.14dBi+ antenna power limit) and the shortage of EIRP is compensated by the antenna power. Not applicable to this product

(4) Application to transmitting devices which OFDM modulation occupied bandwidth greater than 26MHz.



1.1 TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD

Add. : 101, Building B, Zhuoke Science Park, No.190 Chongqing Road, ZhanChengShequ, Fuhai Sub-District, Bao'an District, Shenzhen, Guang Dong, China

FCC test Firm Registration Number: 625569

IC test Firm Registration Number: 12108A

A2LA Certificate No.: 4338.01

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately **95** %.

No.	Item	Uncertainty
1	RF output power, conducted	$\pm 0.751\text{dB}$
2	Unwanted Emissions, conducted	$\pm 2.888\text{dB}$
3	Frequency tolerance	$\pm 0.03\text{ppm}$
4	Occupied Channel Bandwidth	$\pm 3.6\%$



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Equipment	X1 Pro Earbuds	
Brand Name	Timekettle	
Model Name	TMK019-02	
Series Model(s)	N/A	
Model Difference	N/A	
Product Description	The EUT is X1 Pro Earbuds	
	Operation Frequency:	2402~2480 MHz
	Modulation Type:	GFSK
	Number Of Channel:	40CH
	Antenna Designation:	Please refer to the Note 3.
	Antenna Gain(Peak):	L:-4.42dBi R:-6.2dBi
Channel List	Please refer to the Note 2.	
Rating	Input: 5V DC 2A	
Adapter	N/A	
Battery	Model: CH1054AA Brand:N/A Rated Voltage: 3.85V Charge Limit Voltage: 4.4V Capacity: 50mAh	
Hardware version	R:INC-SKHTMK019-JL7016G3-V01-R L:INC-SKHTMK019-JL7016G3-V01-L	
Software version	3.0.1	
Connecting I/O Port(s)	Please refer to the Note 1.	

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User Manual.

2

Channel List for BLE							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	10	2422	20	2442	30	2462
01	2404	11	2424	21	2444	31	2464
02	2406	12	2426	22	2446	32	2466
03	2408	13	2428	23	2448	33	2468
04	2410	14	2430	24	2450	34	2470
05	2412	15	2432	25	2452	35	2472
06	2414	16	2434	26	2454	36	2474
07	2416	17	2436	27	2456	37	2476
08	2418	18	2438	28	2458	38	2478
09	2420	19	2440	29	2460	39	2480

3. Table for Filed Antenna

Ant.	Antenna Brand	Antenna Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	Timekettle	TMK019	FPC	N/A	L:-4.42 R:-6.2	BLE ANT

Note: The antenna information refer the manufacturer provide report, applicable only to the tested sample identified in the report.

2.2 DESCRIPTION OF THE TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Worst Mode	Description
Mode 1	TX Mode (CH00)
Mode 2	TX Mode (CH39)



2.3 TABLE FOR PARAMETERS OF THE TEST SOFTWARE SETTING

During testing, channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and going to be fixed on the firmware of the final end product.

RF Function	Type	Mode Or Modulation type	ANT Gain(dBi)	Power Class	Software For Testing
BLE(With 2M PHY)	BLE 1M PHY	GFSK	L:-4.42	6	FCC_assist1.0.4
	BLE 2M PHY	GFSK	R:-6.2	6	

2.4 TEST CONDITIONS

The module was tested while in a continuous transmitter/receiver mode.

The EUT was tuned to a low, middle, and high channel for all tests. For all test case pre/scans were completed in all Modes to determine worst case levels.

During the measurement the environmental conditions were within the listed ranges:

- Temperature: 25°C
- Humidity: 65 %
- Atmospheric pressure: 96 kPa

Power Supply Voltage Fluctuation Test

Voltage Fluctuation Test	Normal Voltage	High Voltage +10% of Normal Voltage	Low Voltage -10% of Normal Voltage
Input DC Power(V)	3.85	4.24	3.47
RF Chip Input DC Power(V)	3.297	3.312	3.288
Voltage Variation (%)	/	0.45	-0.27

Note:

1. Voltage Variation (%)

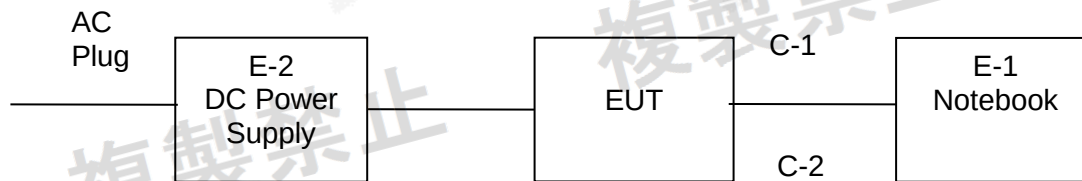
= (RF chip Input high or Low Voltage - RF chip Input Normal Voltage) / RF chip Input Normal Voltage * 100

2. RF chip Input DC power fluctuation is verified at the power input PIN of the RF chip.

When the input supply voltage to the EUT from the external power source is varied by +/- 10%, the output voltage had been confirmed that the fluctuation of power supply to the RF circuit of EUT (excluding power source) is equal to or less than +/- 1%, and the DC power fluctuation at the power input PIN of the RF chip is equal to or less than +/- 1%. Exempt extremely high and low supply voltage condition tests, EUT only operated in normal voltage to test all regulations.



2.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.6 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Note
E-1	Notebook	DELL	Inspiron 3501	N/A
E-2	DC power supply	HONGSHEN GFENG	DPS-305AF	N/A
C-1	Serial port board	XES	WTYZK	N/A
C-2	USB Cable	MI	RYEW3A	N/A

Item	Equipment	Mfr/Brand	Length	Note
C-2	Shielded	NO	150cm	N/A

Note:1. For detachable type I/O cable should be specified the length in cm in 『Length』 column.



2.7 EQUIPMENTS LIST FOR ALL TEST ITEMS

RF Connected Test Equipment					
Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Signal Generator	Keysight	N5182B	MY57301448	2025.09.26	2026.09.25
Signal Analyzer	Agilent	N9020A	MY51510623	2025.02.22	2026.02.21
				2026.02.04	2027.02.03
Temperature & Humidity	SW-108	SuWei	N/A	2025.02.24	2026.02.23
				2026.02.04	2027.02.03
Digital Oscilloscope	Tektronix	TDS1012B	C062149	2025.09.22	2026.09.21
Power Sensor	Keysight	U2021XA	MY55520005	2025.09.25	2026.09.24
Power Divider	eastsheep	PD-0.5/0.6-2S	B519	2025.02.25	2026.02.24
				2026.02.24	2027.02.23
Attenuator	Agilent	8494B	DC-18G	2025.02.25	2026.02.24
				2026.02.24	2027.02.23
DC power supply	HONGSHEN GFENG	DPS-305AF	17064939	2025.09.22	2026.09.21
Switch control box	MW	MW100-RFCB	N/A	N/A	N/A
Test SW	MW	MTS 8310 2.0.0.0			

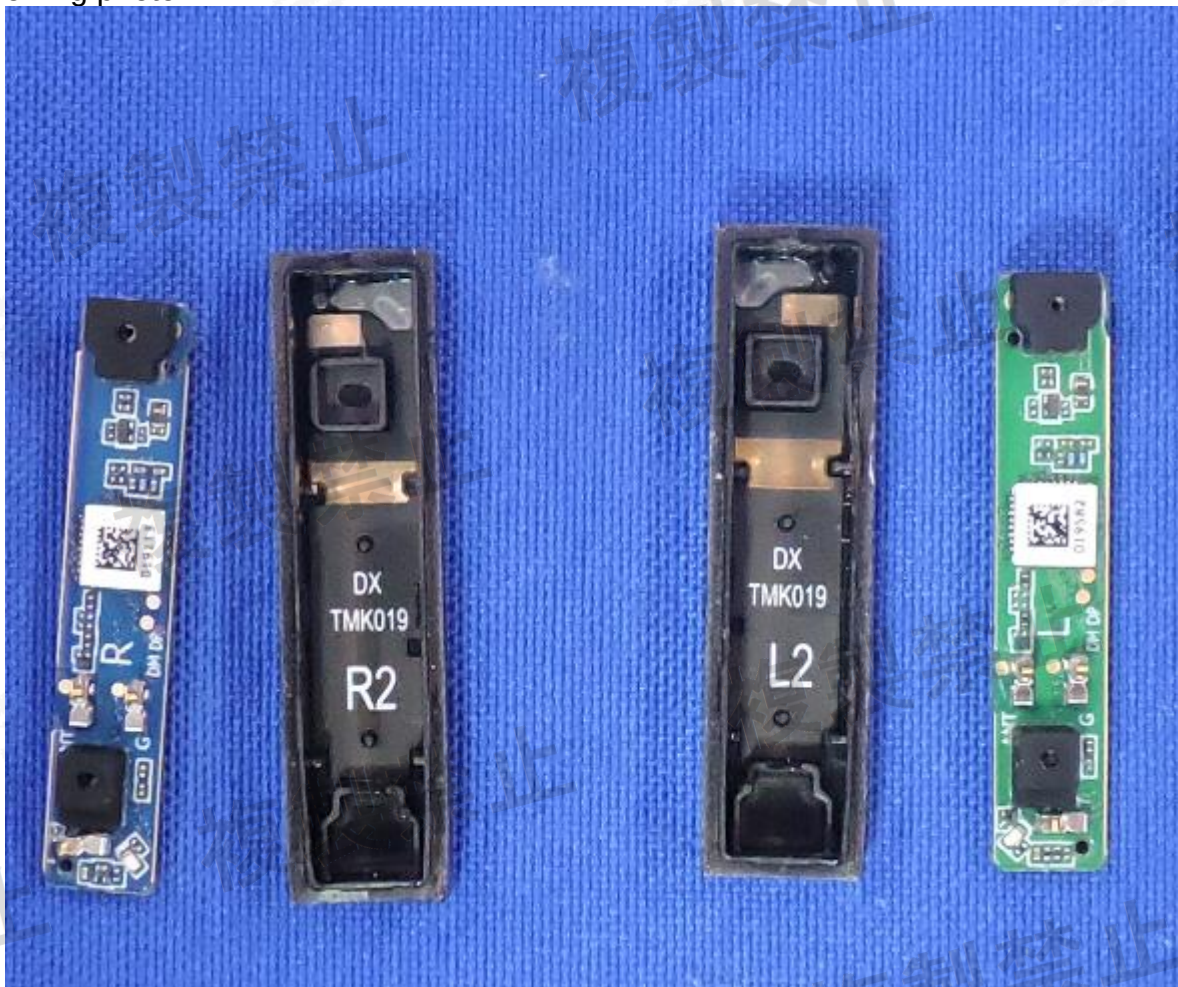
Test Equipment Calibration

All of the test equipment is effective use and calibration certification institution, GRGT, the address is No.8 Chuangyun Rd,Panyu District,Guangzhou,Guangdong,China

Note: The calibration agency listed on the table corresponds to item ii c) of Article 24-2 paragraph 4.

3. CONSTRUCTION PROTECTION CONFIRMATION

Our products apply for Japanese radio frequency (rf) certification. The high-frequency section and modulation section use SMT technology, not easy to change. (The chip have more than 10 chip pins, less than 1.5mm pin distance.).For more information, see the following photo.





4. FREQUENCY ERROR

4.1 LIMIT

Item	Limits
Frequency Error	$\pm 50\text{ppm}$

4.2 TEST PROCEDURES

The following table is the setting of Spectrum Analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
RB / VB	10KHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

- (1) In the case of unmodulated signal (continuous or continuous burst), measure the frequency directly by a spectrum analyzer.
- (2) In the case of burst waves, the measurement shall be done for enough time in order to obtain the enough measuring accuracy, and the average of the measured values becomes the final value.
- (3) In the case of a test mode with a specific frequency spectrum, measure the frequency of the specific spectrum by a spectrum analyzer.
- (4) In the cases above, if the frequency equivalent to the test frequency is not directly measured in principle, it shall be obtained by necessary calculation.

In the case of modulated signal, if there is no specific spectrum measurable by a spectrum analyzer but a specific dip is observed, it is allowed to measure the frequency with the signal generator (synthesized). That is, observe a signal of the signal generator concurrently (or alternately) with the tested signal using the spectrum analyzer while setting the frequency of the signal generator to the position of the dip on the screen of the spectrum analyzer, and determine the frequency of the signal generator at the time as a measured value.

4.3 TEST SETUP



4.4 TEST RESULT

Note: The test data please refer to APPENDIX 1.

5. ANTENNA POWER

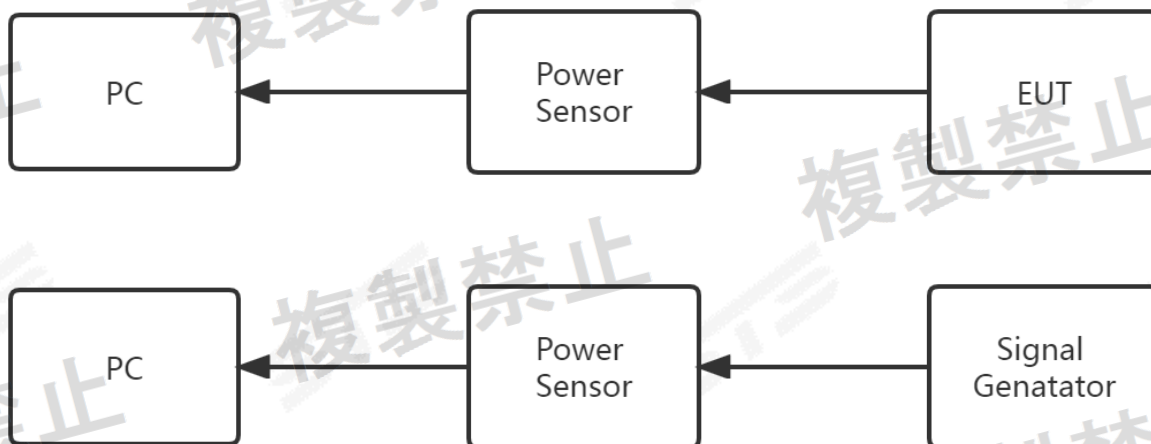
5.1 LIMIT

Item	Limits
Antenna Power Density	$\leq 3\text{mW/MHz}$ (FH from 2400 – 2483.5 MHz) $\leq 10\text{mW/MHz}$ (OFDM,DS from 2400~2483.5MHz, 802.11b/g/n HT20) $\leq 5\text{mW/MHz}$ (OFDM,DS from 2400~2483.5MHz, 802.11n HT40) $\leq 10\text{mW}$ (Other from 2400~2483.5MHz)
Power Error	+20%, No lower limit (Base on manufacturer declare power)

5.2 TEST PROCEDURE

1. EUT turn to test frequency channel and keep continuous transmitting.
2. Reading the output power from the Power sensor as PEUT.
3. Turn the Signal generator to frequency channel the same as the EUT.
4. Turn the level of Signal generator, scan with the power meter until the power equal to PEUT, the level of Signal generator recorded as “P”.
5. The antenna power of EUT is “P”.
6. EIRP power=“P”+antenna gain.

5.3 TEST SETUP



5.3 TEST DEVIATION

There is no deviation with the original standard.

5.4 TEST RESULT

Note: The test data please refer to APPENDIX 1.



6. RADIATION POWER

6.1 LIMIT

Item	Limits
Radiation power EIRP	FH from 2427 - 2470.75 MHz ,EIRP $\leq$ 6.91dBm/MHz CCK/OFDM/DBPSK (2400~2483.5MHz) OFDM or DS other than (802.11b/g/n HT20) EIRP $\leq$ 12.14 dBm/MHz OFDM or DS other than (802.11n HT40) EIRP $\leq$ 9.13dBm/MHz Other from 2400~2483.5MHz: 12.14 dBm or less

6.2 TEST RESULT

Note: The test data please refer to APPENDIX 1.



7. OCCUPIED BANDWIDTH (99%)

7.1 LIMIT

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

7.2 TEST PROCEDURE

1. Setting of SA is following as: RB: 300KHz / VB: 300KHz / SPAN: 2~3.5*OBW / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold.
2. EUT have transmitted the maximum modulation signal and fixed channelize (For DSSS or OFDM Device) or continuous maximum power of hopping mode (For FHSS Device). SA set to 99% of occupied bandwidth to measure occupied bandwidth. The limit is less than 26MHz(For DSSS or OFDM Device) or 83.5MHz(For FHSS Device).

7.3 TEST SETUP



7.4 TEST DEVIATION

There is no deviation with the original standard.

7.5 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

7.6 TEST RESULT

Note: The test data please refer to APPENDIX 1.



8. UNWANTED EMISSION INTENSITY MEASUREMENT

8.1 LIMIT

Item	Limits
TX Spurious Emission	$\leq 2.5 \mu\text{W/MHz}$ ($30\text{MHz} \leq f \leq 1000\text{MHz}$)
	$\leq 2.5 \mu\text{W/MHz}$ ($1000\text{MHz} < f \leq 2387\text{MHz}$)
	$\leq 25 \mu\text{W/MHz}$ ($2387\text{MHz} < f \leq 2400\text{MHz}$)
	$\leq 25 \mu\text{W/MHz}$ ($2483.5\text{MHz} \leq f < 2496.5\text{MHz}$)
	$\leq 2.5 \mu\text{W/MHz}$ ($2496.5\text{MHz} \leq f < 12500\text{MHz}$)

8.2 TEST PROCEDURE

Spectrum Parameter	Setting
Attenuation	Auto
RB / VB	1 MHz/1 MHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

1. EUT have transmitted the maximum modulation signal and fixed channelize.
2. Setting of SA is following as: RB: 1MHz / VB: 1MHz / Sweep time: Auto/ Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold.
3. Setting of SA is following as 30MHz and stop frequency 1000MHz. Then to mark peak reading value + cable loss shall be less than 2.5 $\mu\text{W/MHz}$.
4. Setting of SA is following as 1000MHz and stop frequency 2387MHz. Then to mark peak reading value + cable loss shall be less than 2.5 $\mu\text{W/MHz}$.
5. SA adjusted to start frequency 2387MHz and stop frequency 2400MHz. Then to mark peak reading value + cable loss shall be less than 25 $\mu\text{W/MHz}$.
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 $\mu\text{W/MHz}$.
7. SA adjusted to start frequency 2496.5MHz and stop frequency 12750MHz. Then to mark peak reading value + cable loss shall be less than 2.5 $\mu\text{W/MHz}$.
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.

8.3 TEST SETUP



8.4 TEST DEVIATION

There is no deviation with the original standard.

8.5 TEST RESULT

Note: 1. SA set to from 2.4965GHz to 13GHz, plot shows from 2.497GHz to 13GHz as of SA's default format. The test data please refer to APPENDIX 1.



9. IMITATION OF COLLATERAL EMISSION OF RECEIVER MEASUREMENT

9.1 LIMIT

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

9.2 TEST PROCEDURES

Spectrum Parameter	Setting
Attenuation	Auto
RB	100 kHz (below 1GHz emissions) 1 MHz (above 1GHz emissions)
VB	100 kHz (below 1GHz emissions) 1 MHz (above 1GHz emissions)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

1. EUT have the continuous reception mode and fixed only one channelize.
2. Setting of SA is following as RB / VB: 100 kHz (below 1GHz emissions) / 1 MHz (above 1GHz emissions) / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold.
3. SA set RB: 100kHz and VB: 100kHz. Then adjust to start frequency 30MHz and stop frequency 1000MHz. Search to mark peak reading value + cable loss shall be less than 4nW.
4. SA set RB: 1MHz and VB: 1MHz. Then adjust to start frequency 1000MHz and stop frequency 12500MHz. Search to mark peak reading value + cable loss shall be less than 20nW.
5. 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.

9.3 TEST RESULT

Note: The test data please refer to APPENDIX 1.



10. TRANSMISSION RADIATION ANGLE WIDTH (3DB BEAMWIDTH) MEASUREMENT

10.1 LIMIT

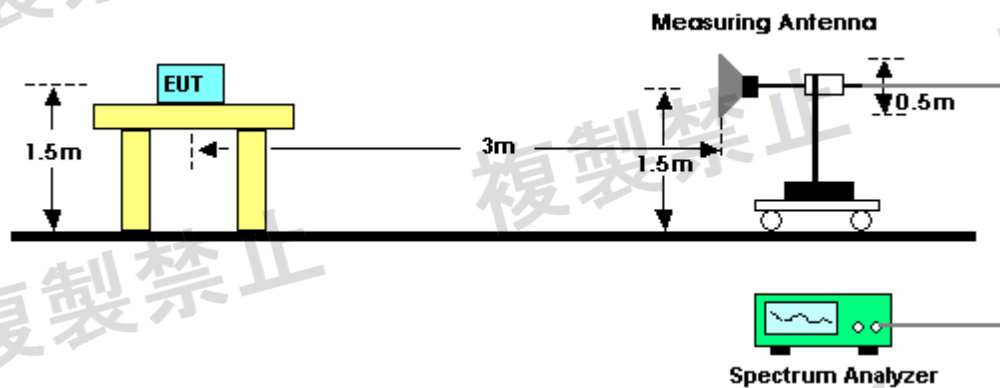
Item	Limits
3dB antenna beam width	$e \leq 360/A$ (The A is 10 in maximum) $A = \{EIRP \text{ Power [mW/MHz]} / \{2.14\text{dBi} + \text{output power (10mW /MHz, 3mW/MHz)}\}\}$ Shall be 1 when A is lower than 1
Note: This test item is not applied for radio equipment with equivalent isotropic radiation power lower than 12.14dBm/MHz, but Antenna Power(Conducted) limit is 10 mW/MHz (10 dBm/MHz), So the test item will not be applied to the transmission antenna which has a gain of 2.14dBi or less	

10.2 TEST PROCEDURES

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	0 MHz
RB	1 MHz
VB	1 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

1. Set EUT and measuring antenna at the same height and roughly facing each other.
2. Set spectrum analyzer with condition in section 11.2 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. "E" is the half-power beam width (angle between two points at which radiated power becomes 1/2)
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 $A = 1$).
 $A = \{EIRP \text{ Power [mW/MHz]} / \{2.14\text{dBi} + \text{output power (10mW /MHz, 3mW/MHz)}\}\}$
Shall be 1 when A is lower than 1

10.3 TEST SETUP



10.4 TEST DEVIATION

There is no deviation with the original standard.

10.5 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

10.6 TEST RESULT

Note: The Max EIRP is less than 12.14dBm/MHz, not applicable.

11. RADIO INTERFERENCE PREVENTION CAPABILITY MEASUREMENT

11.1 LIMIT

Item	Limits
Identification code	≥ 48 bits

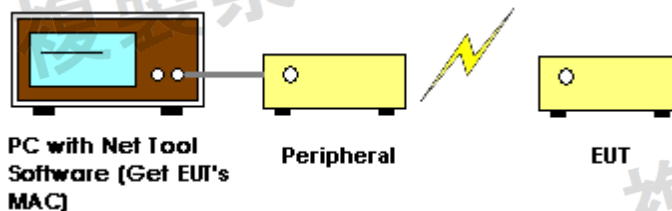
11.2 MEASURING ID CODE SOFTWARE

Item	Limits
MAC IP List	MAC Scan

11.3 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.

11.4 TEST SETUP



11.5 TEST DEVIATION

There is no deviation with the original standard.

11.6 EUT OPERATION DURING TEST

The EUT was programmed to be in normal transmitting mode.



11.7 TEST RESULT OF RADIO INTERFERENCE PREVENTION CAPABILITY



Note: The MAC Address is L:C2:1E:A0:61:18:0F ; R:C2:07:78:20:88:7F.

12. CARRIER SENSE CAPABILITY

12.1 INTERFERENCE PREVENTION FUNCTION

12.2 TEST REQUIREMENT

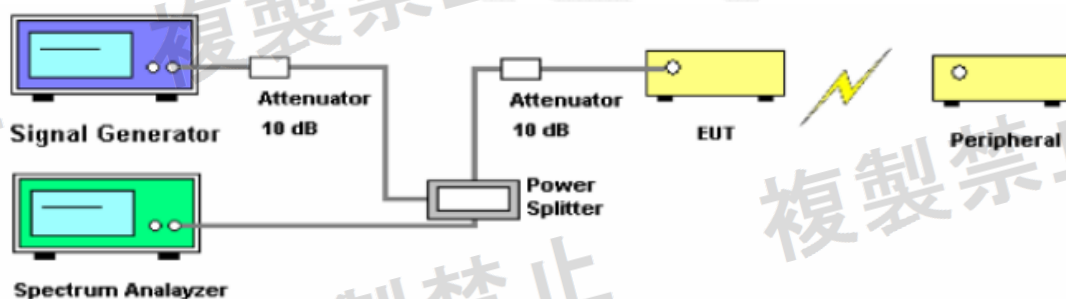
MIC Notice No.88 Appendix No.43

Article 2, Paragraph 1, Item 19 Rules Section 10

12.3 TEST PROCEDURE

1. SG adjusted the frequency as same as the EUT transmitted signal and emitted the absence of modulation from SG and power level is (on $22.79 + G - 20 \cdot \log(f)$ dBm)(G is the antenna gain, f is the test Frequency).
2. Turn off the RF signal of the SG.
3. EUT have transmitted the maximum modulation signal and fixed channelize.
4. Setting of SA :RBW/VBW=1MHz/1MHz, Span=0MHz, Sweep time=auto, Sweep mode=continuous, Detect mode=positive peak
5. SG RF signal on.

❖ Measurement System Diagram



❖ Conditions of Application Equipment (EUT)

- The EUT state shall be “normal mode link with wireless router”.

12.4 TEST RESULT

Note: no requirement.

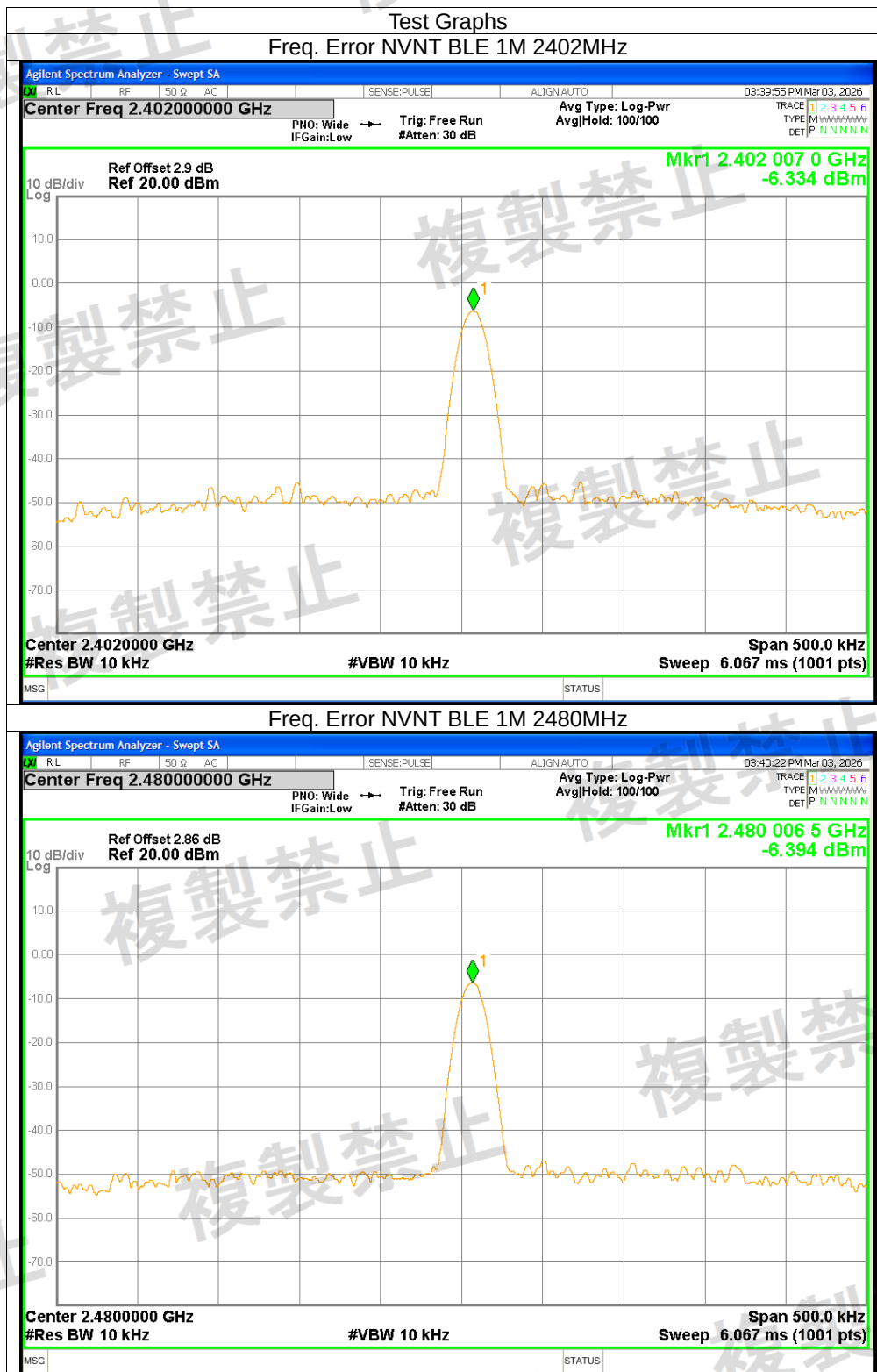


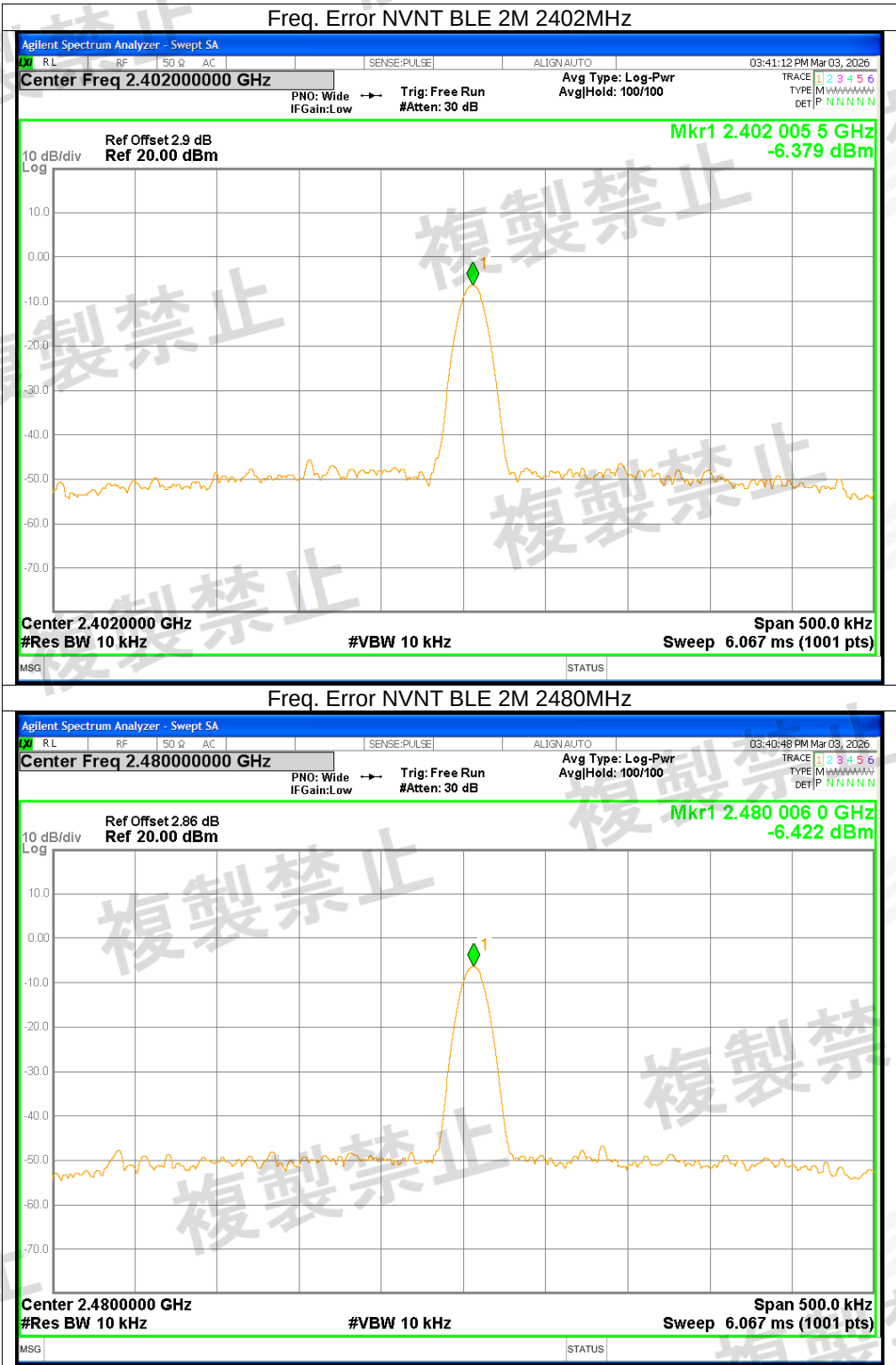
APPENDIX 1-TEST DATA

Left

Frequency Error

Condition	Mode	Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
NVNT	BLE 1M	2402	2402.007	7000	2.91	+50	Pass
NVNT	BLE 1M	2480	2480.0065	6500	2.62	+50	Pass
NVNT	BLE 2M	2402	2402.0055	5500	2.29	+50	Pass
NVNT	BLE 2M	2480	2480.006	6000	2.42	+50	Pass







Antenna Power

Condition	Mode	Frequency (MHz)	Power (dBm)	Antenna Power (mW)	Limit (mW)	Declared Power (mW)	Tolerance (%)	Upper Limit (%)	Verdict
NVNT	BLE 1M	2402	0.65	1.161	10	2	-41.95	20	Pass
NVNT	BLE 1M	2480	0.65	1.161	10	2	-41.95	20	Pass
NVNT	BLE 2M	2402	0.77	1.194	10	2	-40.3	20	Pass
NVNT	BLE 2M	2480	0.78	1.197	10	2	-40.15	20	Pass



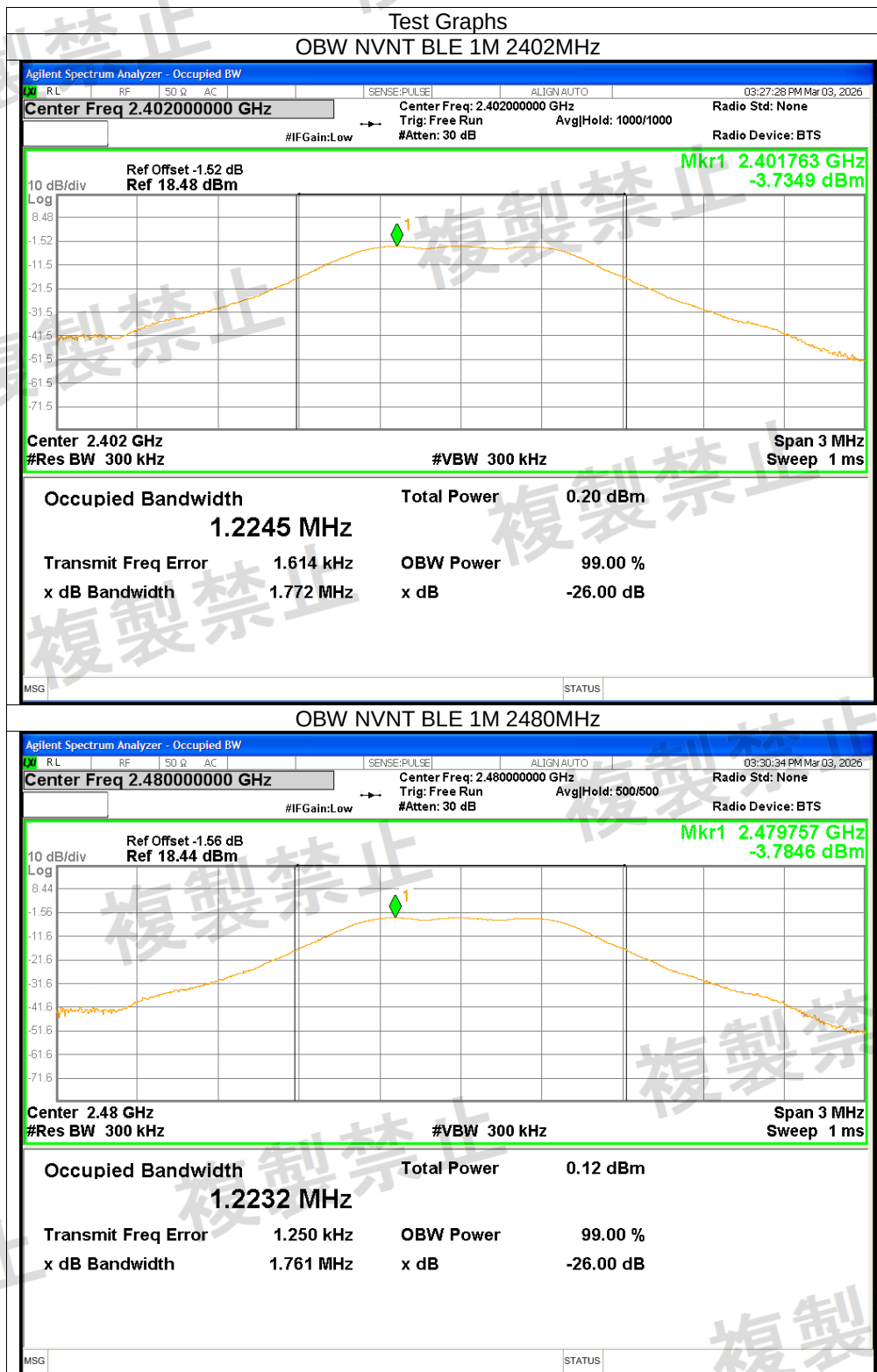
EIRP Power

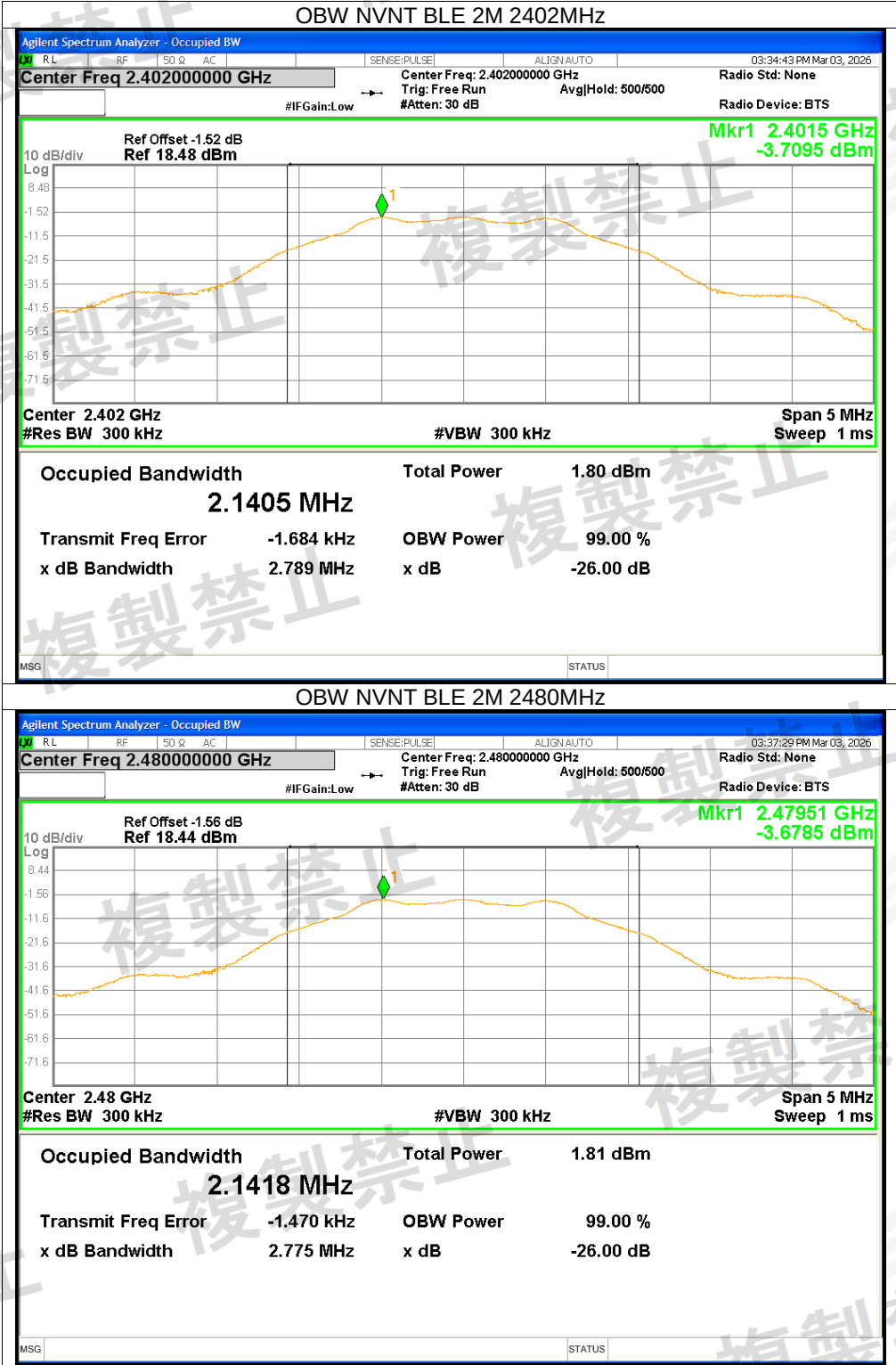
Condition	Mode	Frequency (MHz)	Antenna Power (dBm)	Gain (dBi)	EIRP Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	0.65	-4.42	-3.77	12.14	Pass
NVNT	BLE 1M	2480	0.65	-4.42	-3.77	12.14	Pass
NVNT	BLE 2M	2402	0.77	-4.42	-3.65	12.14	Pass
NVNT	BLE 2M	2480	0.78	-4.42	-3.64	12.14	Pass



Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	99% OBW (MHz)	Lower Limit (MHz)	Upper Limit (MHz)	Verdict
NVNT	BLE 1M	2402	1.2245	N/A	26	Pass
NVNT	BLE 1M	2480	1.2232	N/A	26	Pass
NVNT	BLE 2M	2402	2.1405	N/A	26	Pass
NVNT	BLE 2M	2480	2.1418	N/A	26	Pass

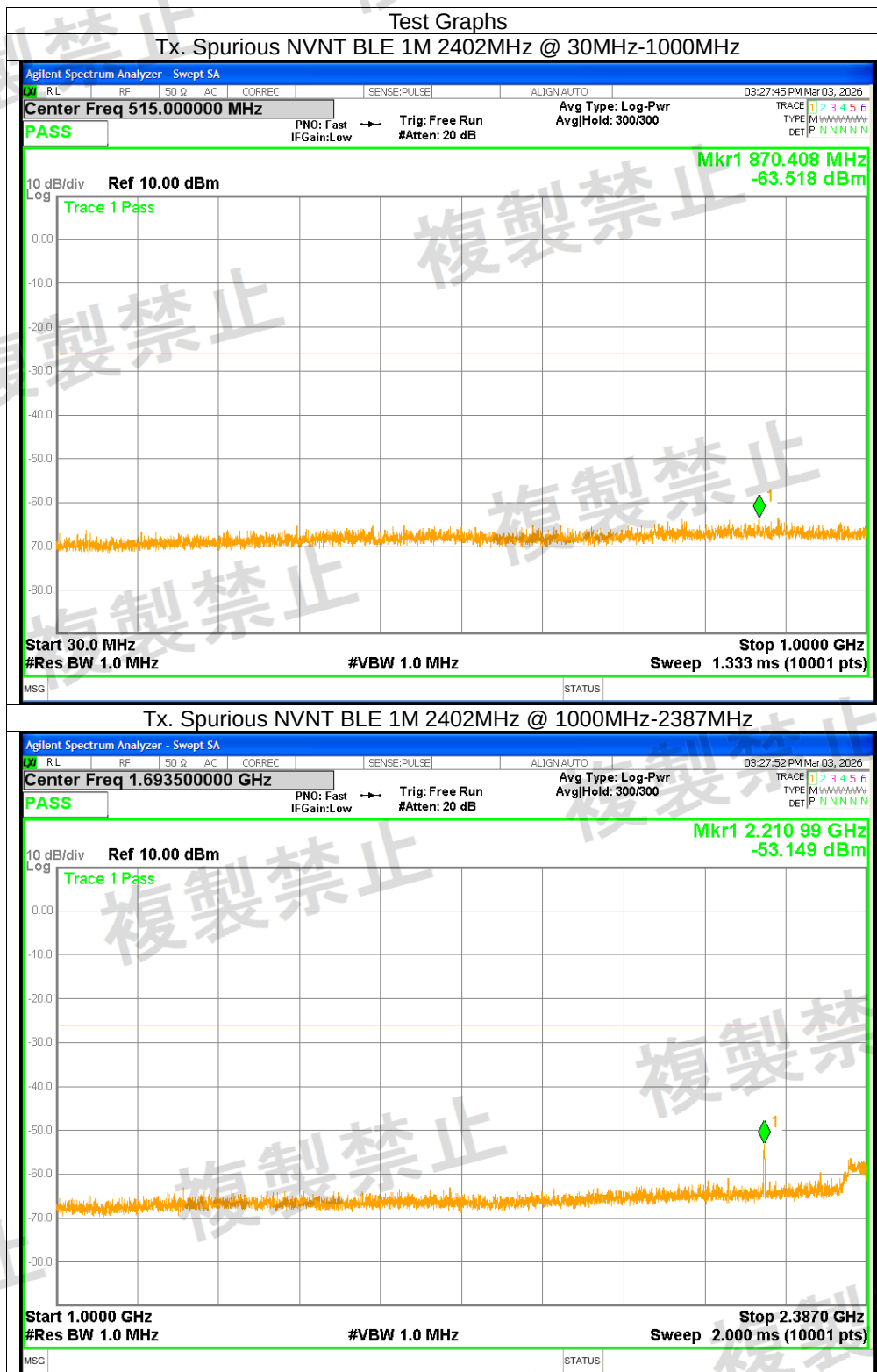


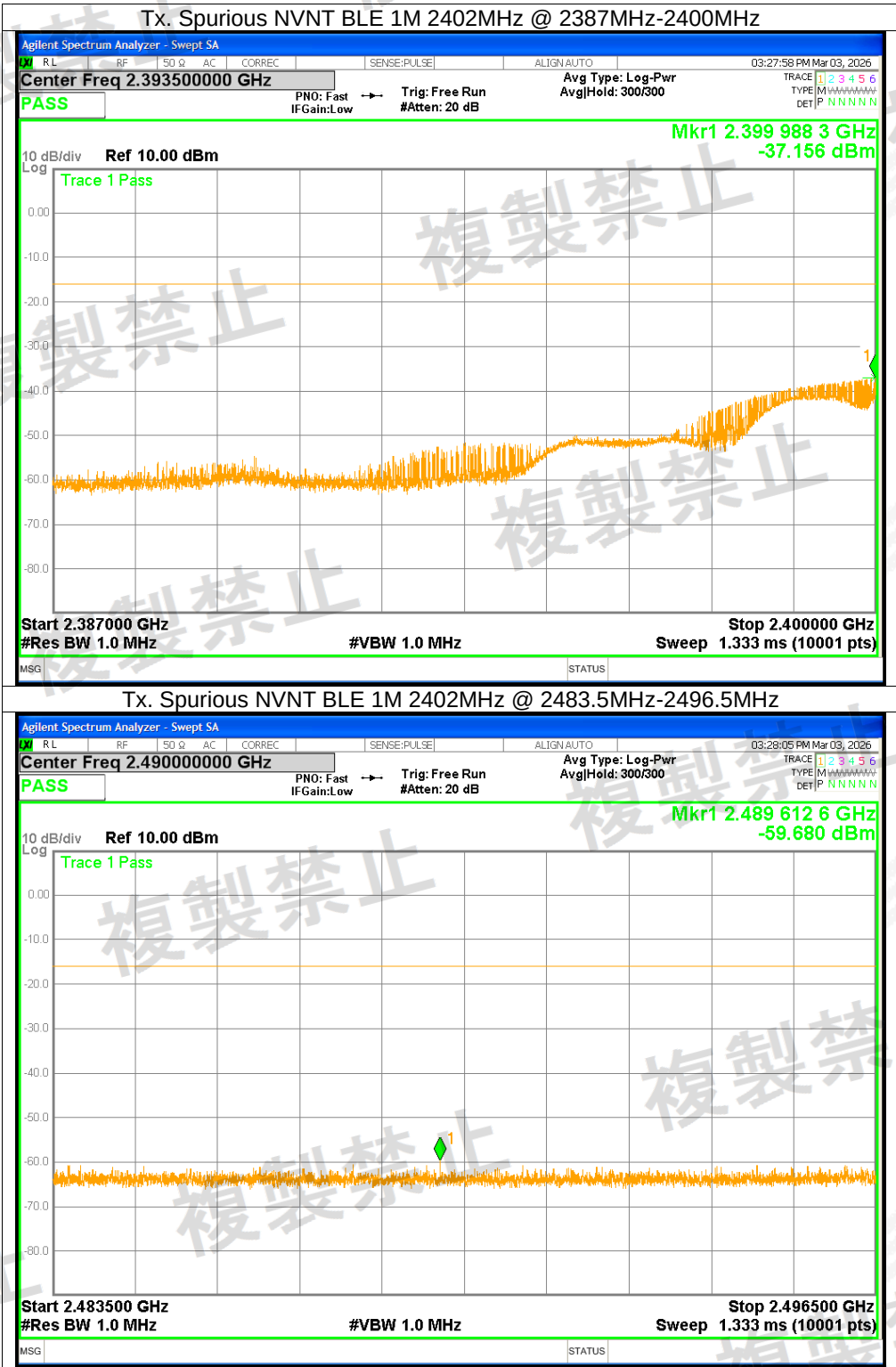


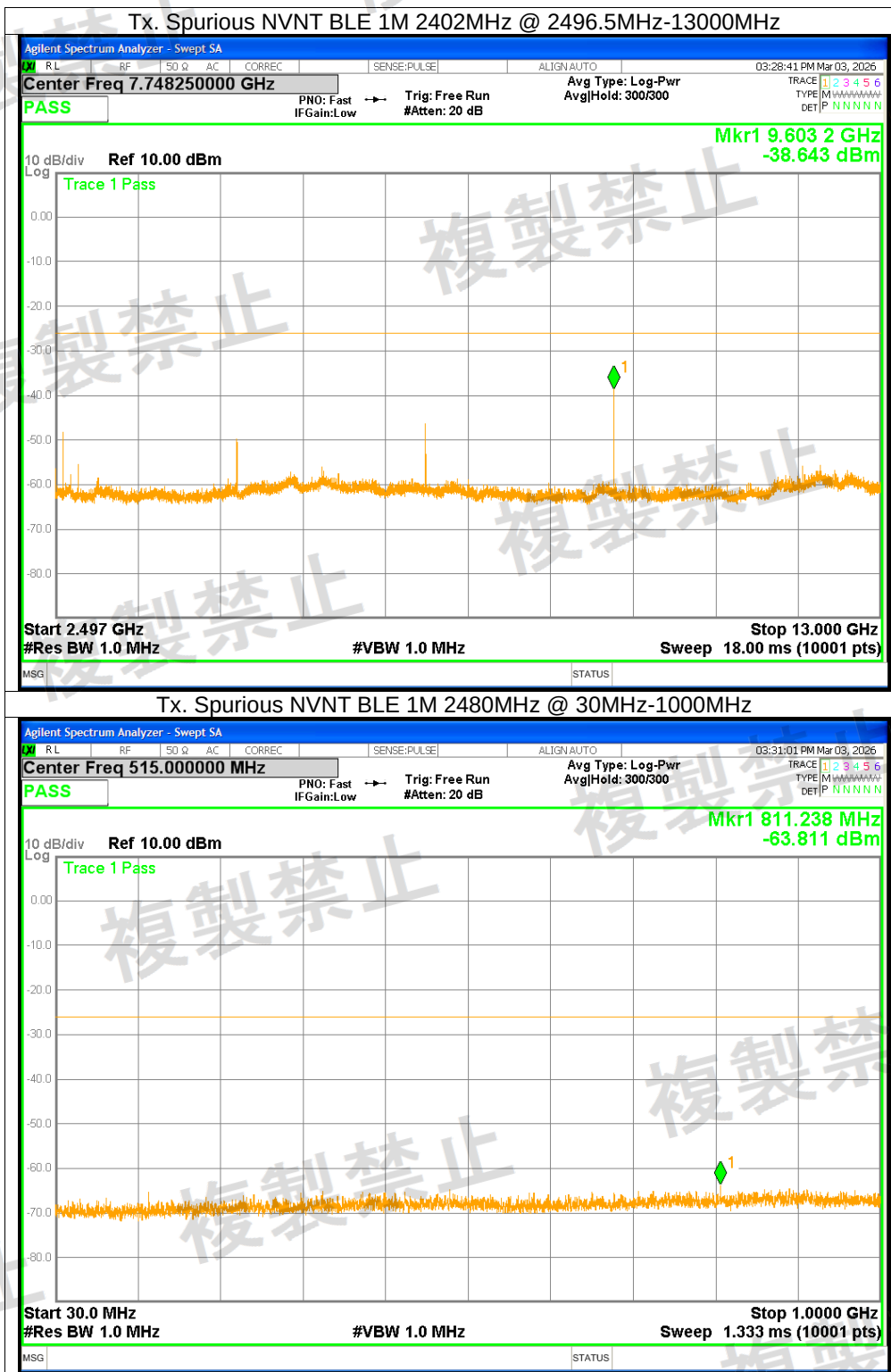


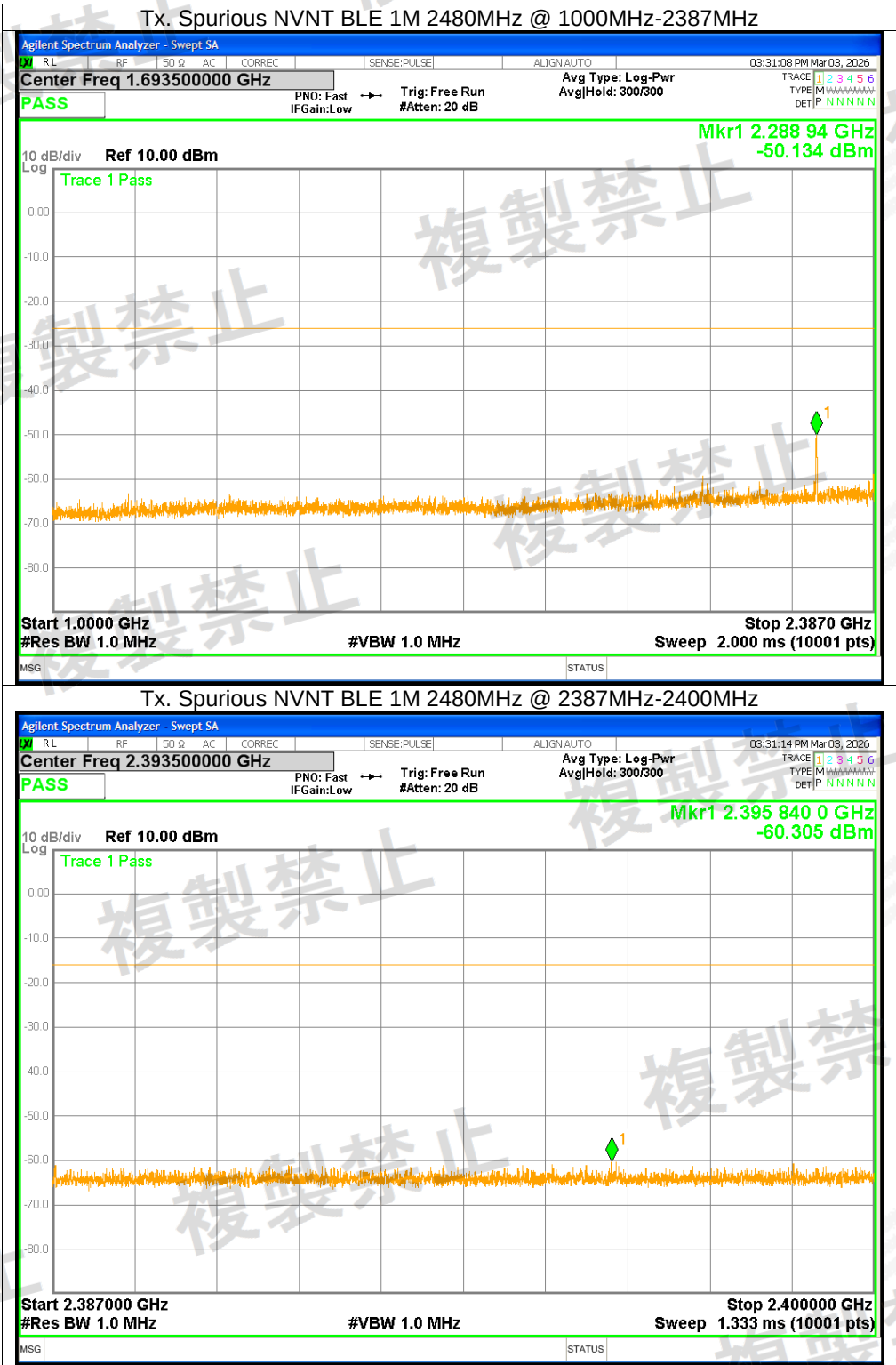
Tx Spurious Emission

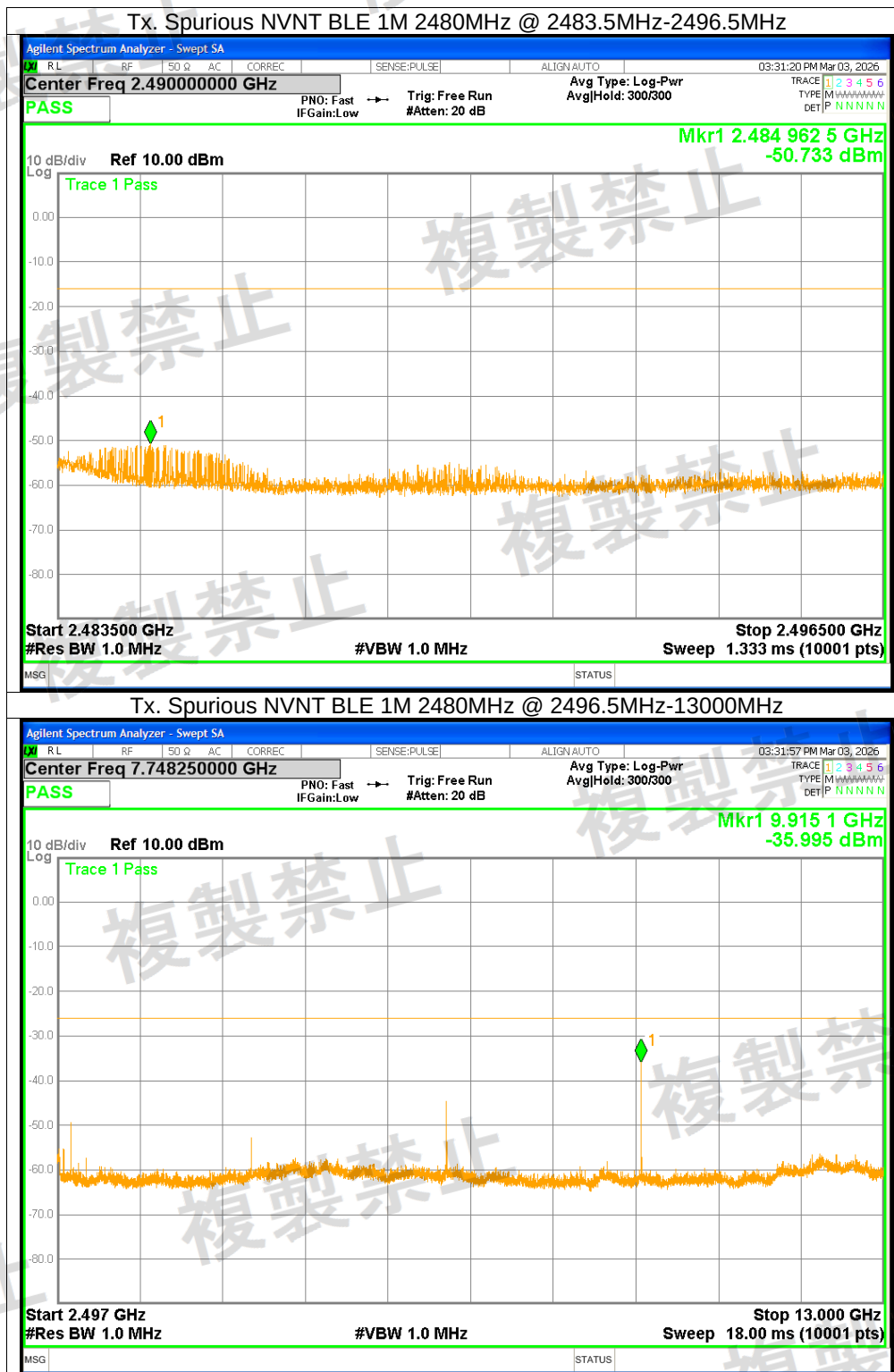
Condition	Mode	Frequency (MHz)	Range (MHz)	Emission Frequency (MHz)	Max Value (dBm/MHz)	Max Value (uW/MHz)	Limit Start(uW/MHz)	Limit Stop (uW/MHz)	Verdict
NVNT	BLE 1M	2402	30-1000	870.41	-63.52	0.0004	2.5	2.5	Pass
NVNT	BLE 1M	2402	1000-2387	2210.99	-53.15	0.0048	2.5	2.5	Pass
NVNT	BLE 1M	2402	2387-2400	2399.99	-37.16	0.1923	25	25	Pass
NVNT	BLE 1M	2402	2483.5-2496.5	2489.61	-59.68	0.0011	25	25	Pass
NVNT	BLE 1M	2402	2496.5-13000	9603.17	-38.64	0.1368	2.5	2.5	Pass
NVNT	BLE 1M	2480	30-1000	811.24	-63.81	0.0004	2.5	2.5	Pass
NVNT	BLE 1M	2480	1000-2387	2288.94	-50.13	0.0097	2.5	2.5	Pass
NVNT	BLE 1M	2480	2387-2400	2395.84	-60.31	0.0009	25	25	Pass
NVNT	BLE 1M	2480	2483.5-2496.5	2484.96	-50.73	0.0085	25	25	Pass
NVNT	BLE 1M	2480	2496.5-13000	9915.12	-35.99	0.2518	2.5	2.5	Pass
NVNT	BLE 2M	2402	30-1000	869.49	-64.23	0.0004	2.5	2.5	Pass
NVNT	BLE 2M	2402	1000-2387	2210.5	-53.32	0.0047	2.5	2.5	Pass
NVNT	BLE 2M	2402	2387-2400	2400	-26.36	2.3121	25	25	Pass
NVNT	BLE 2M	2402	2483.5-2496.5	2494.54	-60.32	0.0009	25	25	Pass
NVNT	BLE 2M	2402	2496.5-13000	9602.64	-39.09	0.1233	2.5	2.5	Pass
NVNT	BLE 2M	2480	30-1000	509.42	-64.37	0.0004	2.5	2.5	Pass
NVNT	BLE 2M	2480	1000-2387	2288.52	-50.06	0.0099	2.5	2.5	Pass
NVNT	BLE 2M	2480	2387-2400	2391.69	-61.01	0.0008	25	25	Pass
NVNT	BLE 2M	2480	2483.5-2496.5	2485.06	-50.52	0.0089	25	25	Pass
NVNT	BLE 2M	2480	2496.5-13000	9914.6	-35.99	0.2518	2.5	2.5	Pass

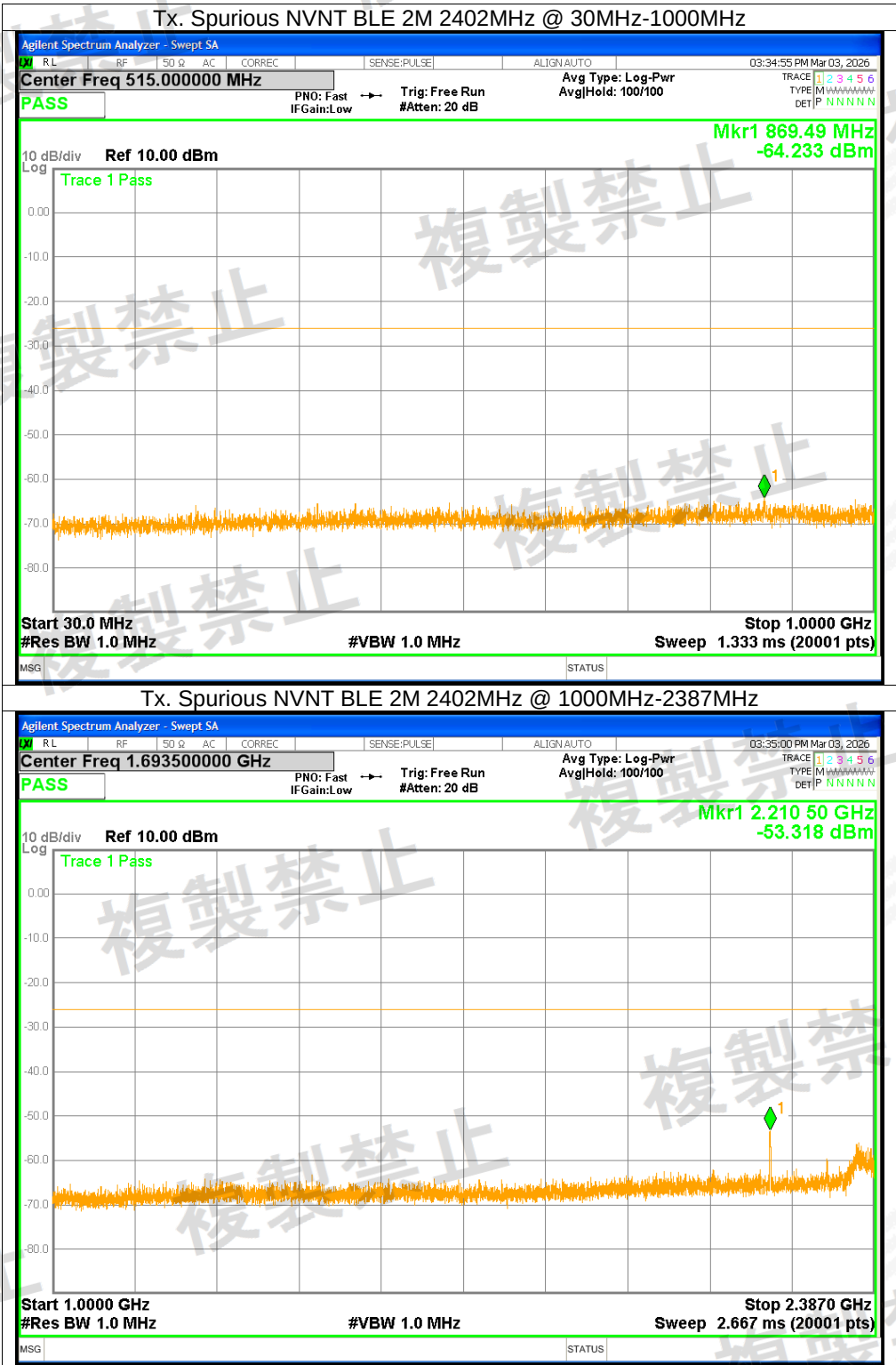


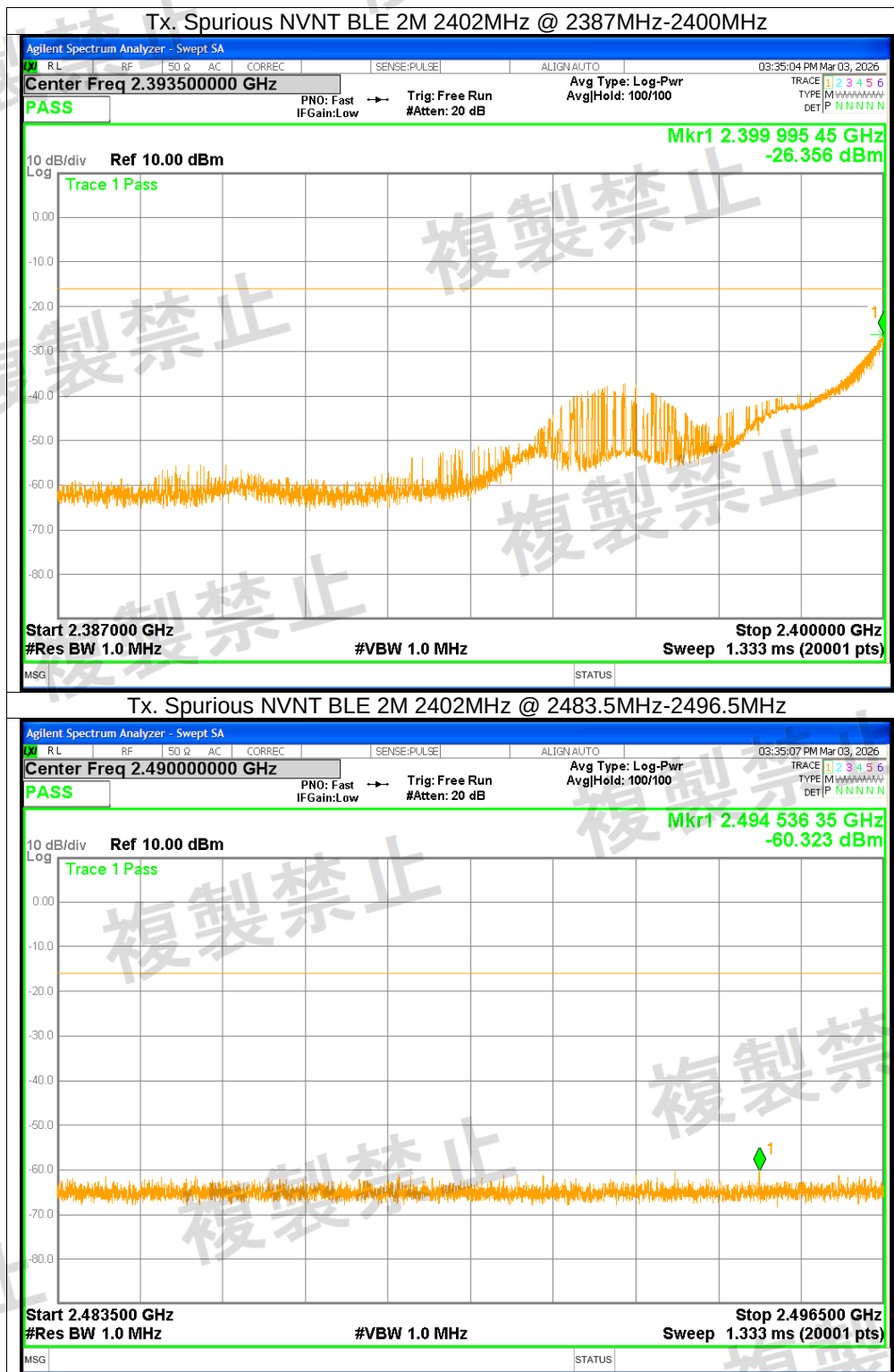


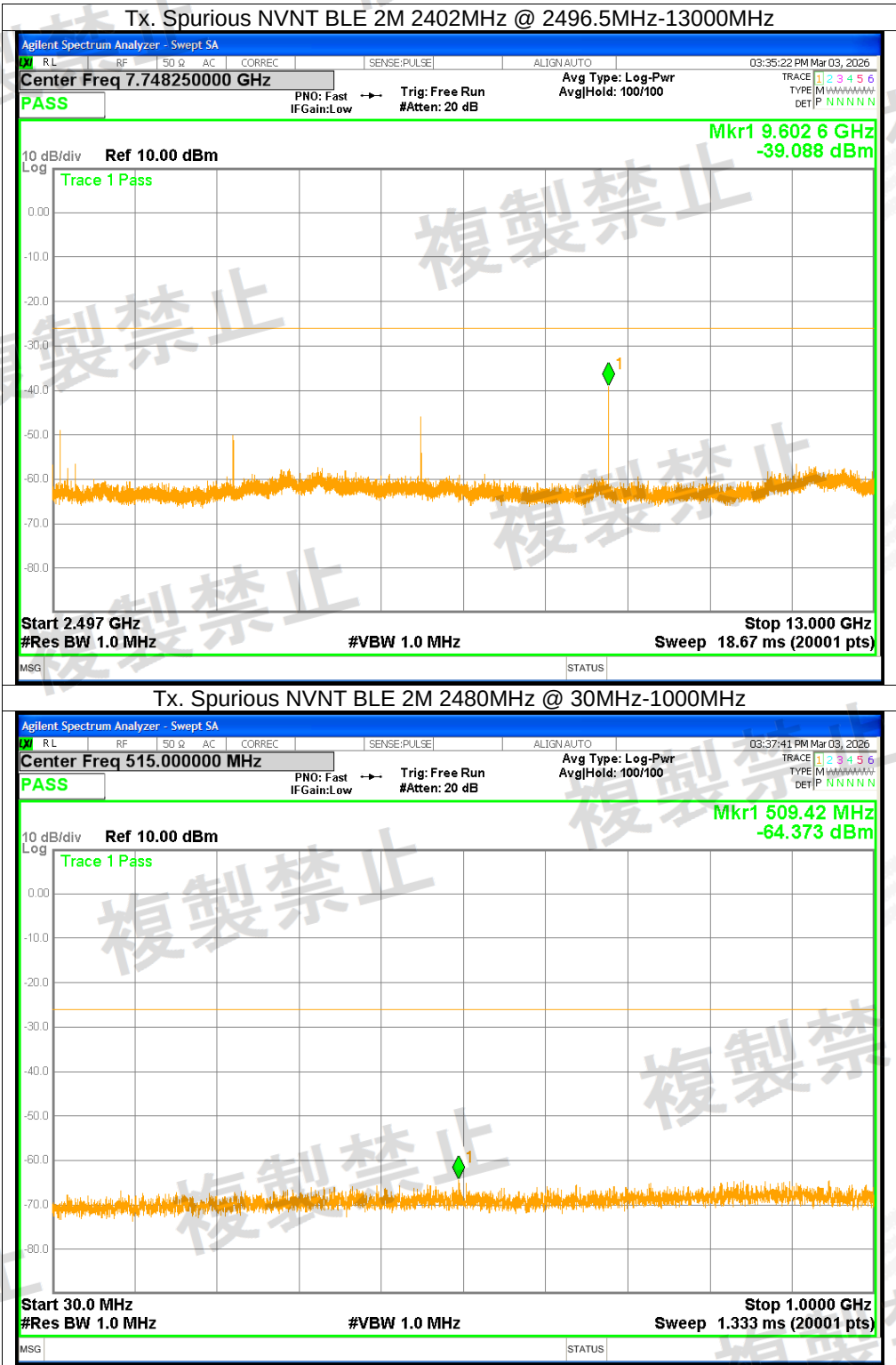


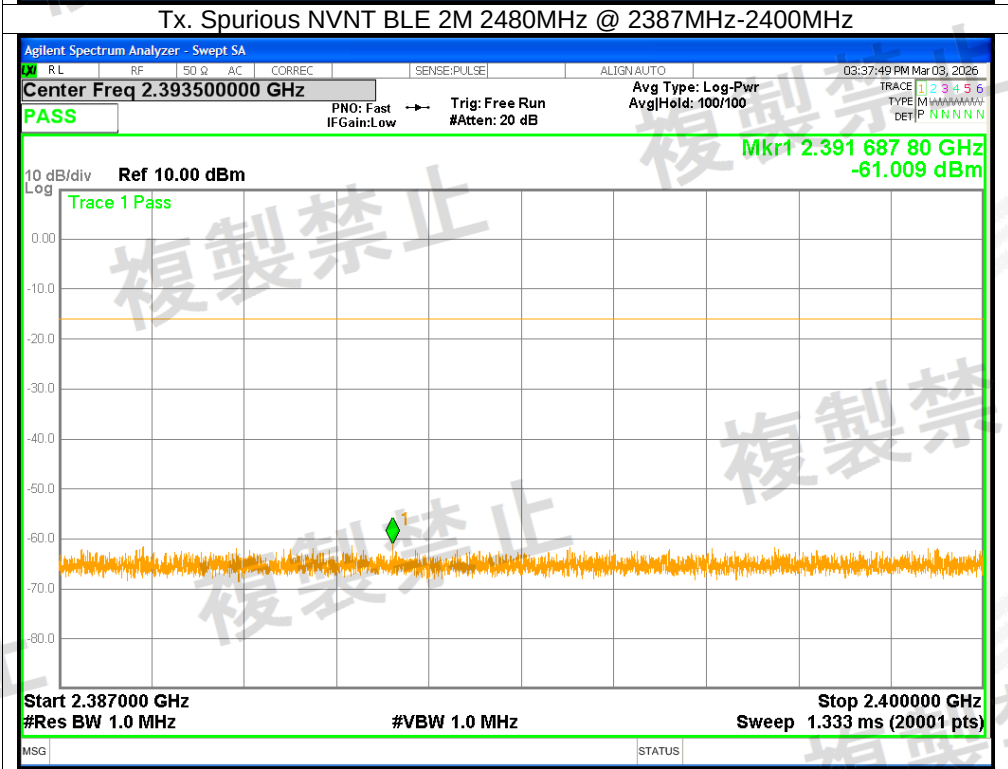
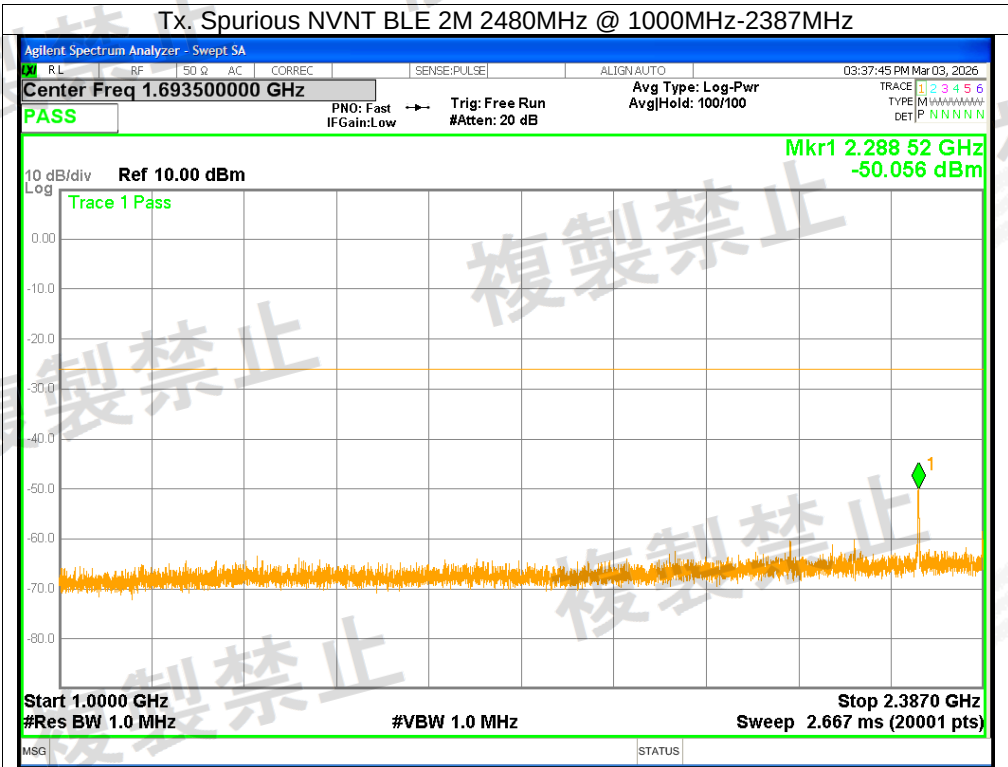


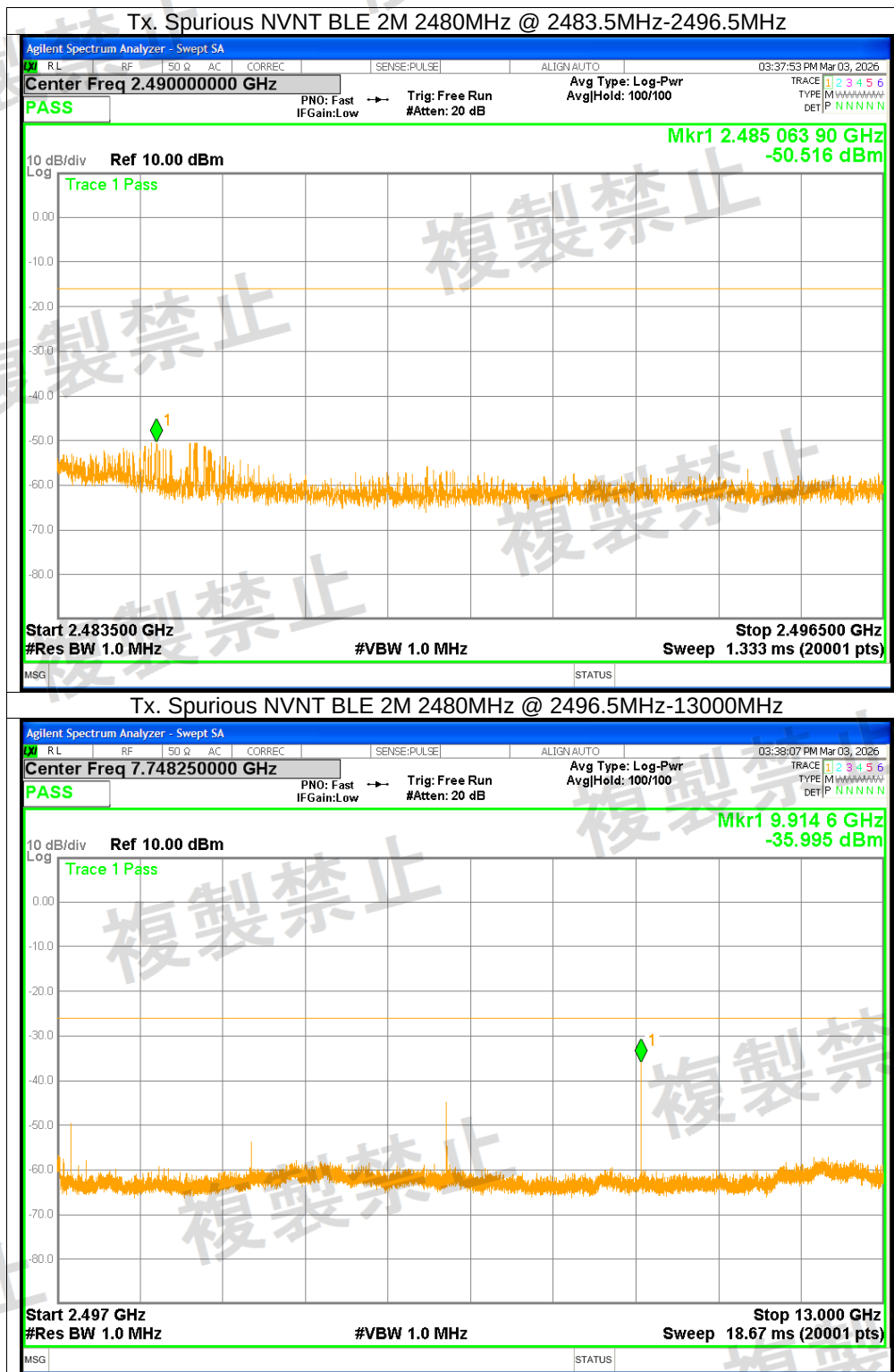














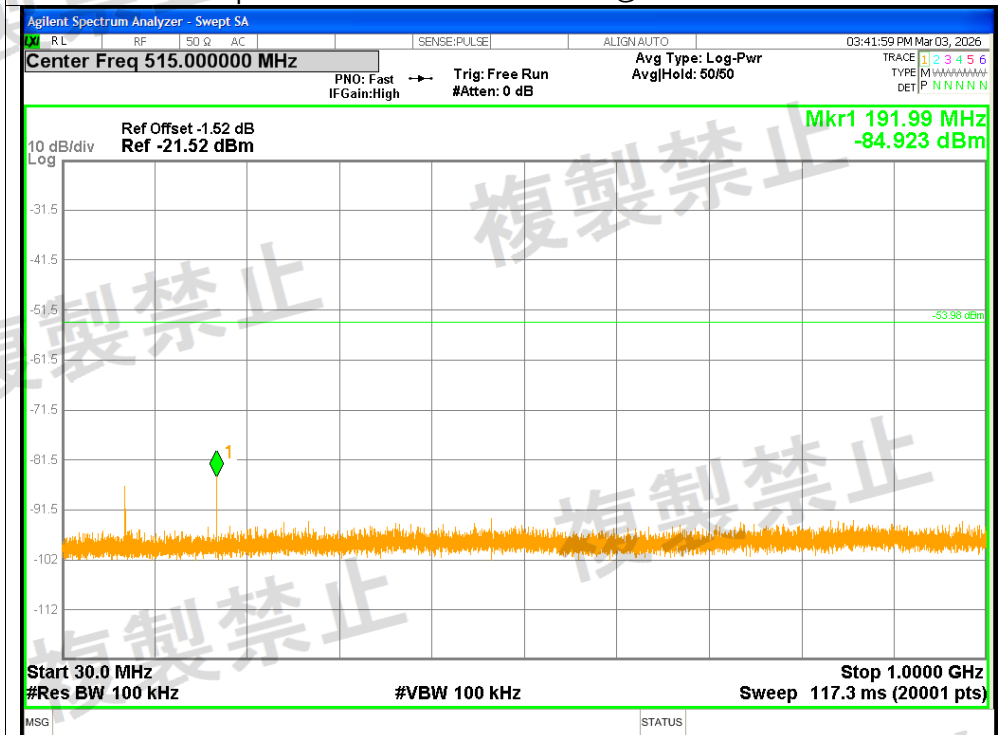
Rx Spurious Emission

Condition	Mode	Frequency (MHz)	Range (MHz)	Emission Frequency (MHz)	Max Value (dBm)	Max Value (nW)	Limit (nW)	Verdict
NVNT	BLE 1M	2402	30-1000	191.99	-84.92	0.0032	4	Pass
NVNT	BLE 1M	2402	1000-13000	4801.6	-62.21	0.6012	20	Pass
NVNT	BLE 1M	2480	30-1000	191.99	-85.9	0.0026	4	Pass
NVNT	BLE 1M	2480	1000-13000	4801.6	-62.2	0.6026	20	Pass
NVNT	BLE 2M	2402	30-1000	191.99	-85.76	0.0027	4	Pass
NVNT	BLE 2M	2402	1000-13000	4801.6	-62.13	0.6124	20	Pass
NVNT	BLE 2M	2480	30-1000	191.99	-85.54	0.0028	4	Pass
NVNT	BLE 2M	2480	1000-13000	4801.6	-62.11	0.6152	20	Pass

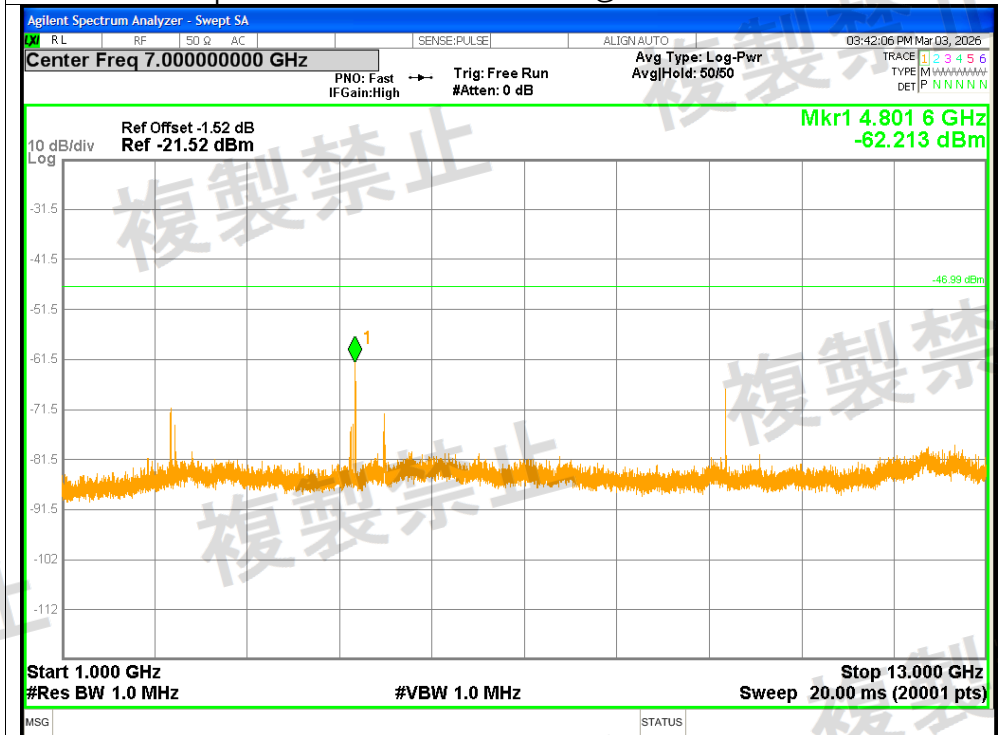


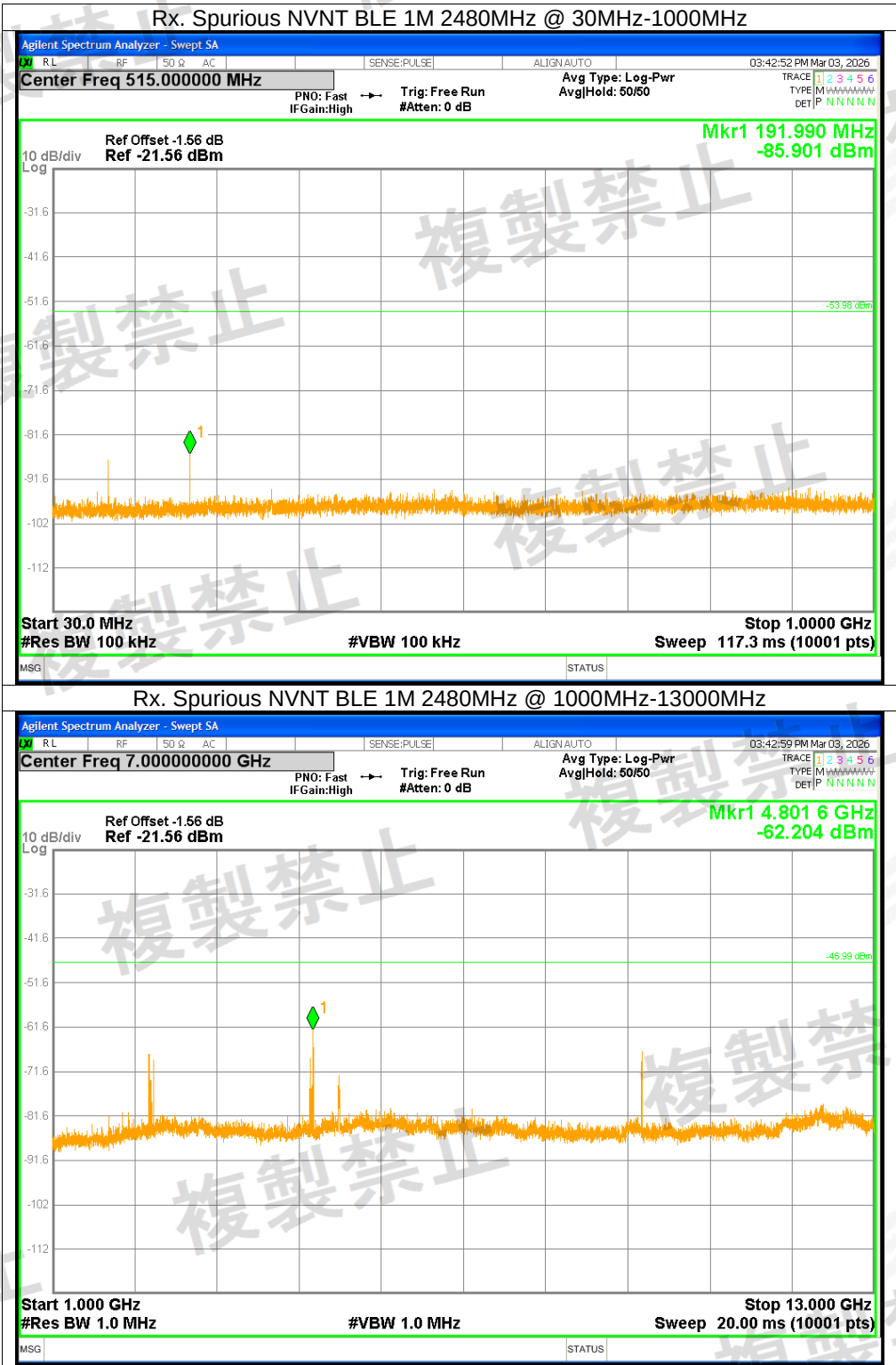
Test Graphs

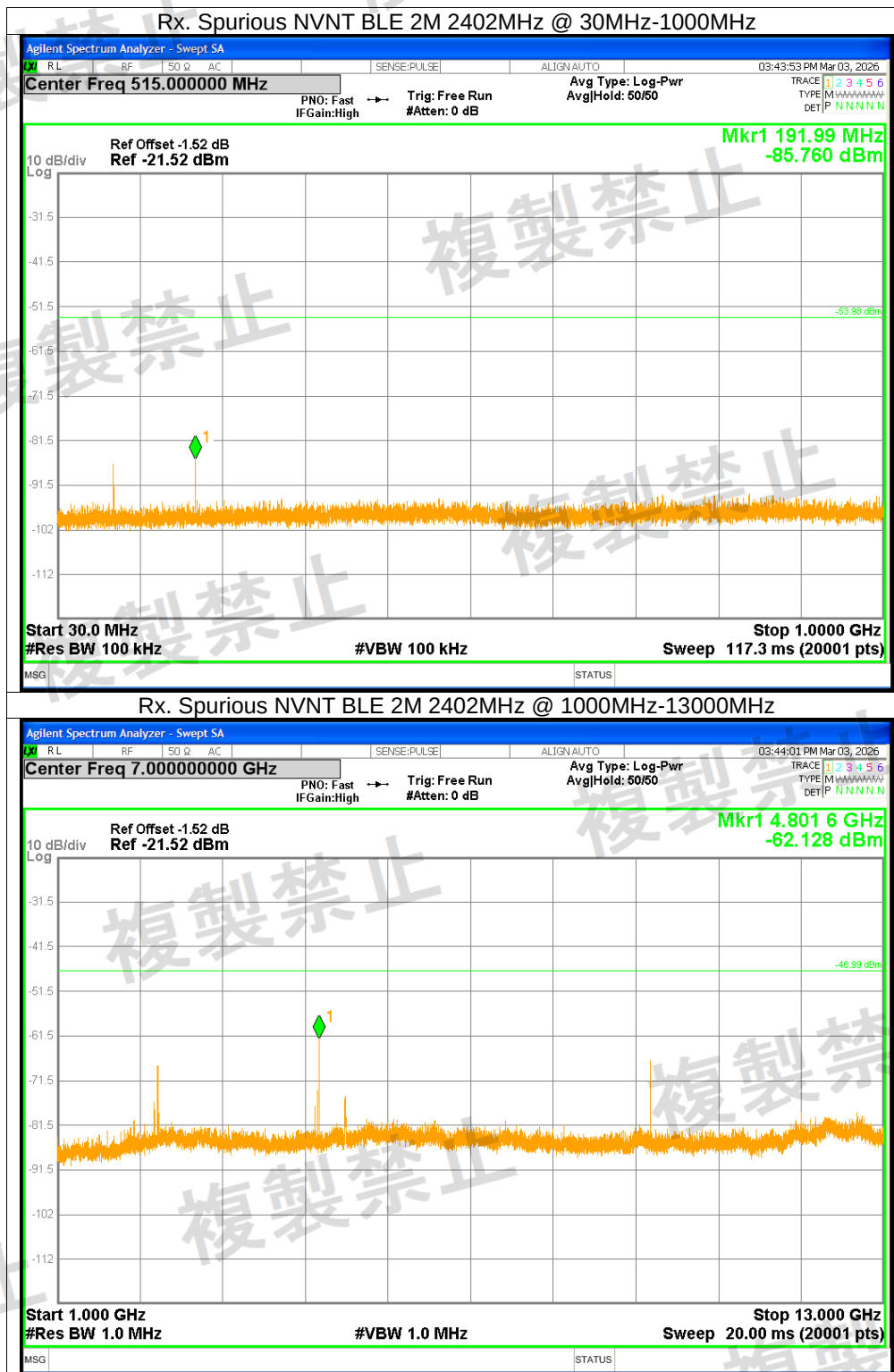
Rx. Spurious NVNT BLE 1M 2402MHz @ 30MHz-1000MHz

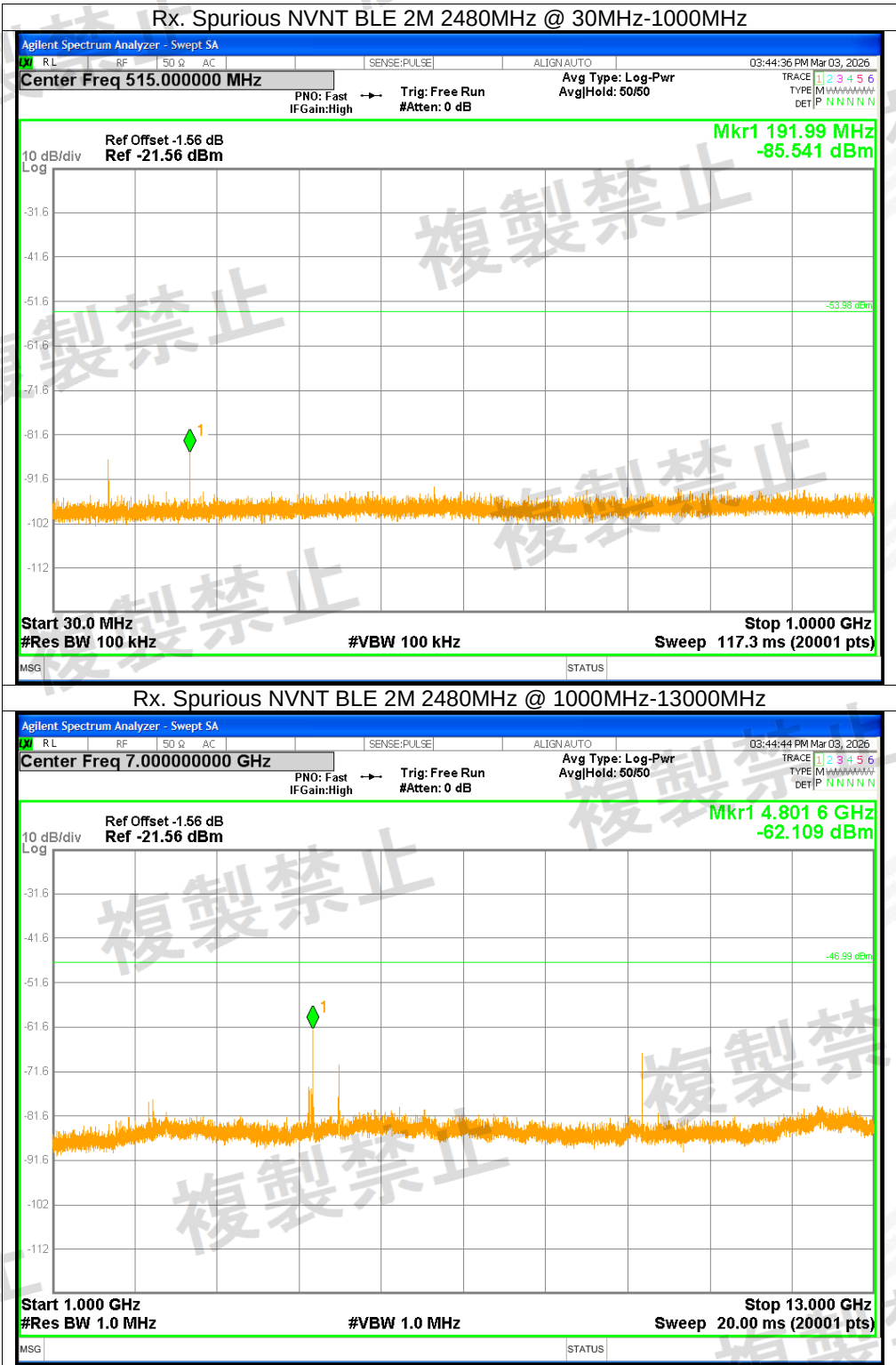


Rx. Spurious NVNT BLE 1M 2402MHz @ 1000MHz-13000MHz







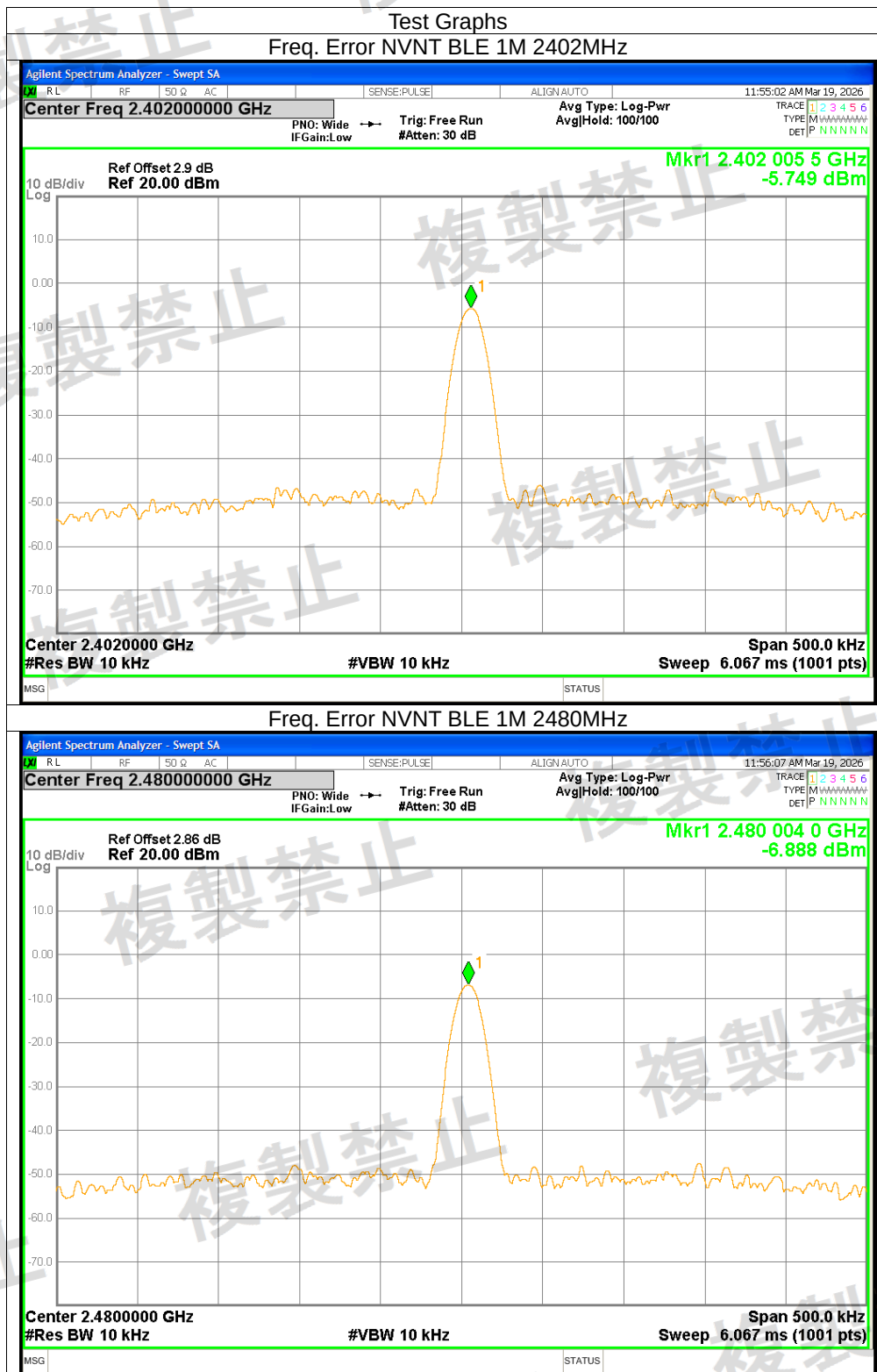


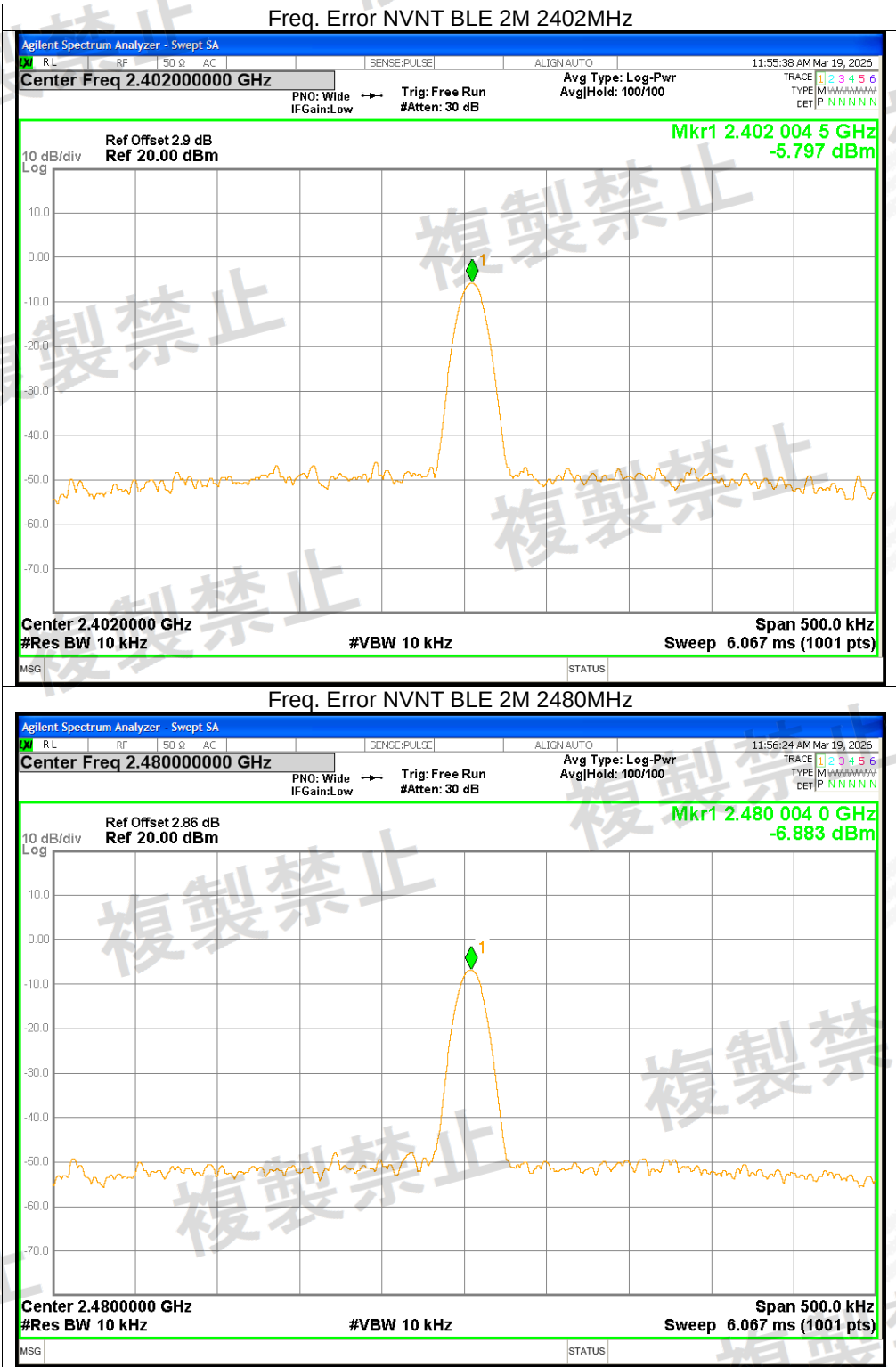


Right

Frequency Error

Condition	Mode	Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
NVNT	BLE 1M	2402	2402.0055	5500	2.29	+50	Pass
NVNT	BLE 1M	2480	2480.004	4000	1.61	+50	Pass
NVNT	BLE 2M	2402	2402.0045	4500	1.87	+50	Pass
NVNT	BLE 2M	2480	2480.004	4000	1.61	+50	Pass







Antenna Power

Condition	Mode	Frequency (MHz)	Power (dBm)	Antenna Power (mW)	Limit (mW)	Declared Power (mW)	Tolerance (%)	Upper Limit (%)	Verdict
NVNT	BLE 1M	2402	1.41	1.384	10	3	-53.87	20	Pass
NVNT	BLE 1M	2480	0.36	1.086	10	3	-63.8	20	Pass
NVNT	BLE 2M	2402	1.44	1.393	10	3	-53.57	20	Pass
NVNT	BLE 2M	2480	0.48	1.117	10	3	-62.77	20	Pass



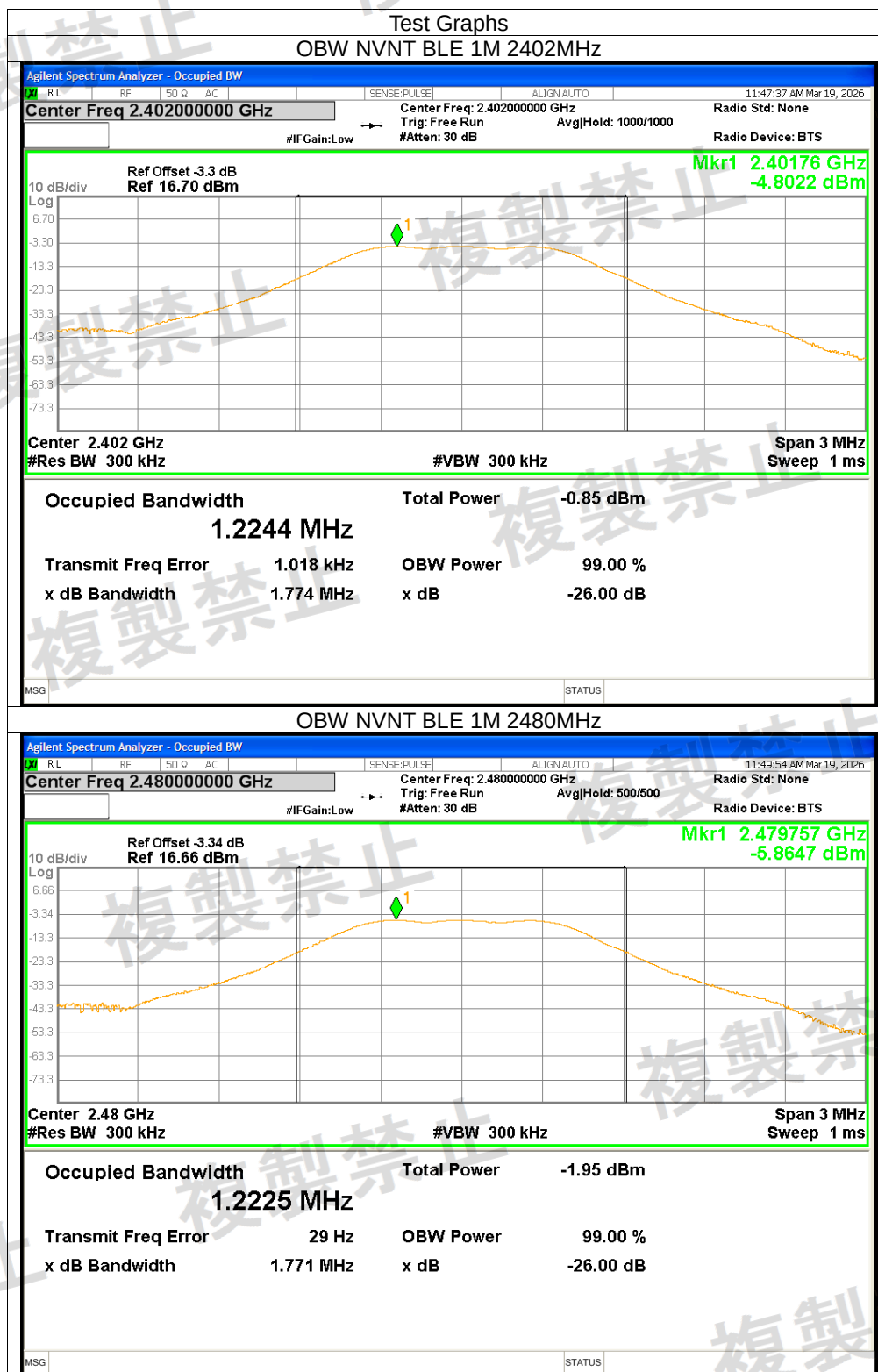
EIRP Power

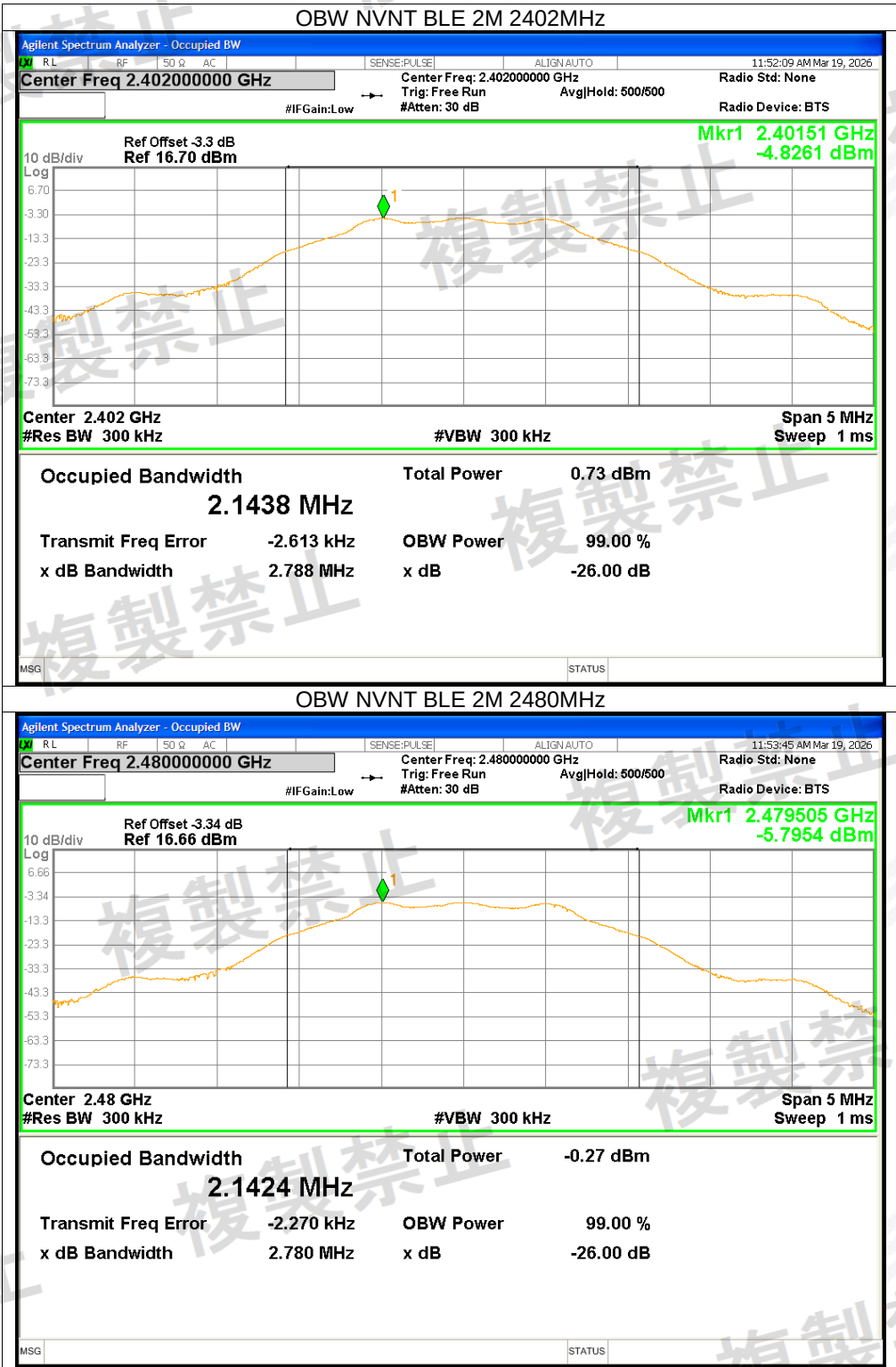
Condition	Mode	Frequency (MHz)	Antenna Power (dBm)	Gain (dBi)	EIRP Power (dBm)	Limit (dBm)	Verdict
NVNT	BLE 1M	2402	1.41	-6.2	-4.79	12.14	Pass
NVNT	BLE 1M	2480	0.36	-6.2	-5.83	12.14	Pass
NVNT	BLE 2M	2402	1.44	-6.2	-4.76	12.14	Pass
NVNT	BLE 2M	2480	0.48	-6.2	-5.72	12.14	Pass



Occupied Channel Bandwidth

Condition	Mode	Frequency (MHz)	99% OBW (MHz)	Lower Limit (MHz)	Upper Limit (MHz)	Verdict
NVNT	BLE 1M	2402	1.2244	N/A	26	Pass
NVNT	BLE 1M	2480	1.2225	N/A	26	Pass
NVNT	BLE 2M	2402	2.1438	N/A	26	Pass
NVNT	BLE 2M	2480	2.1424	N/A	26	Pass

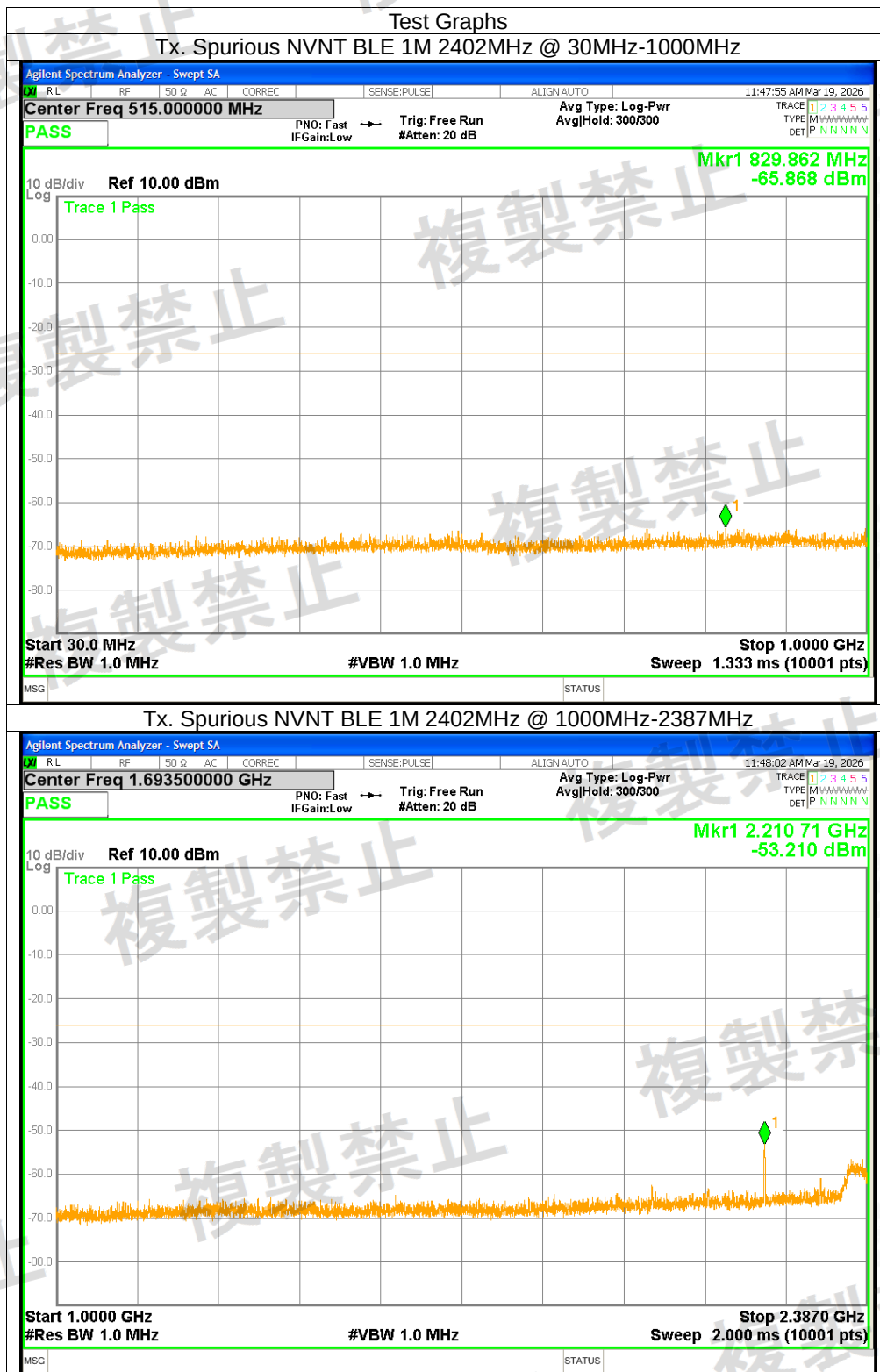


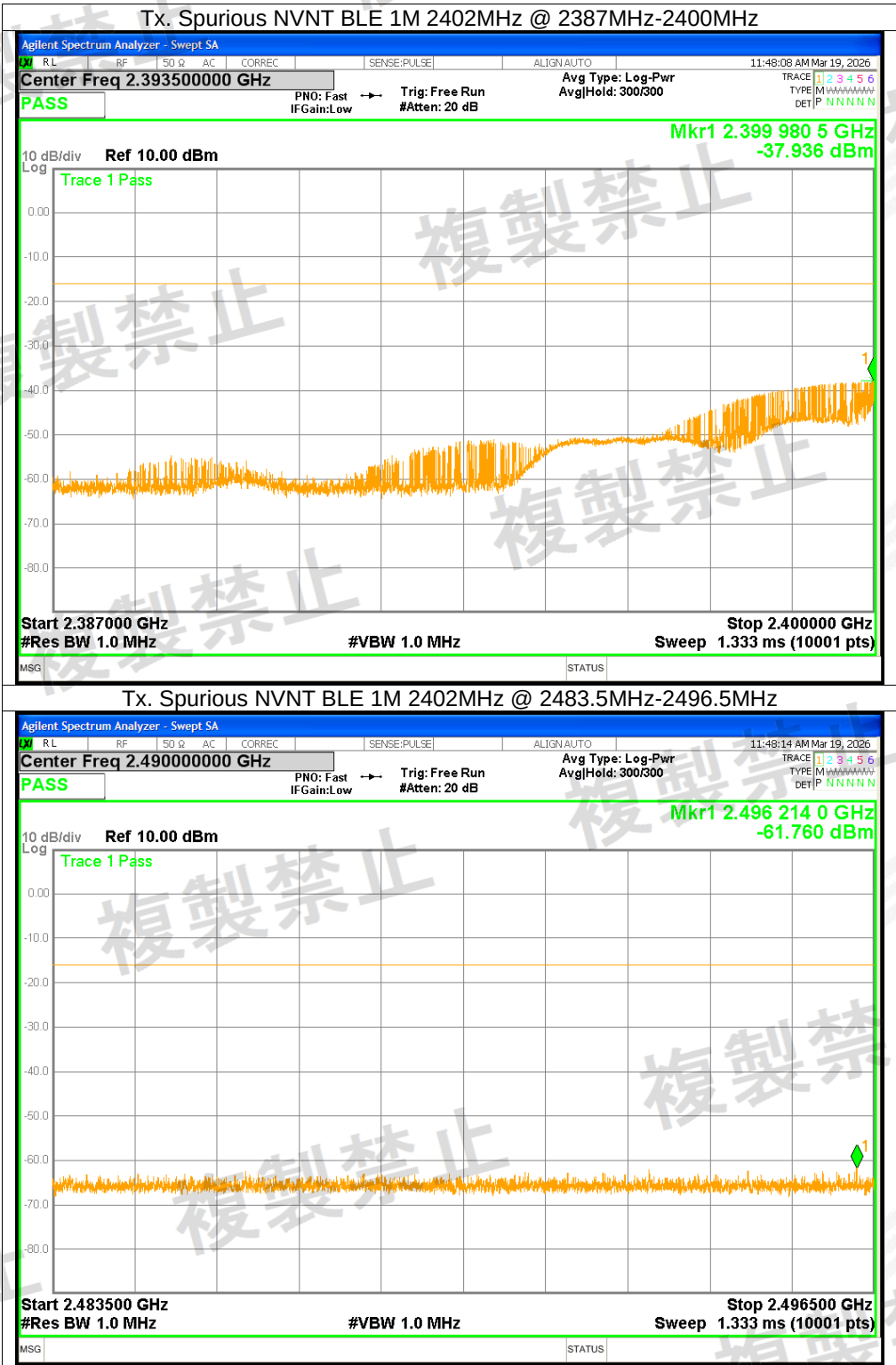


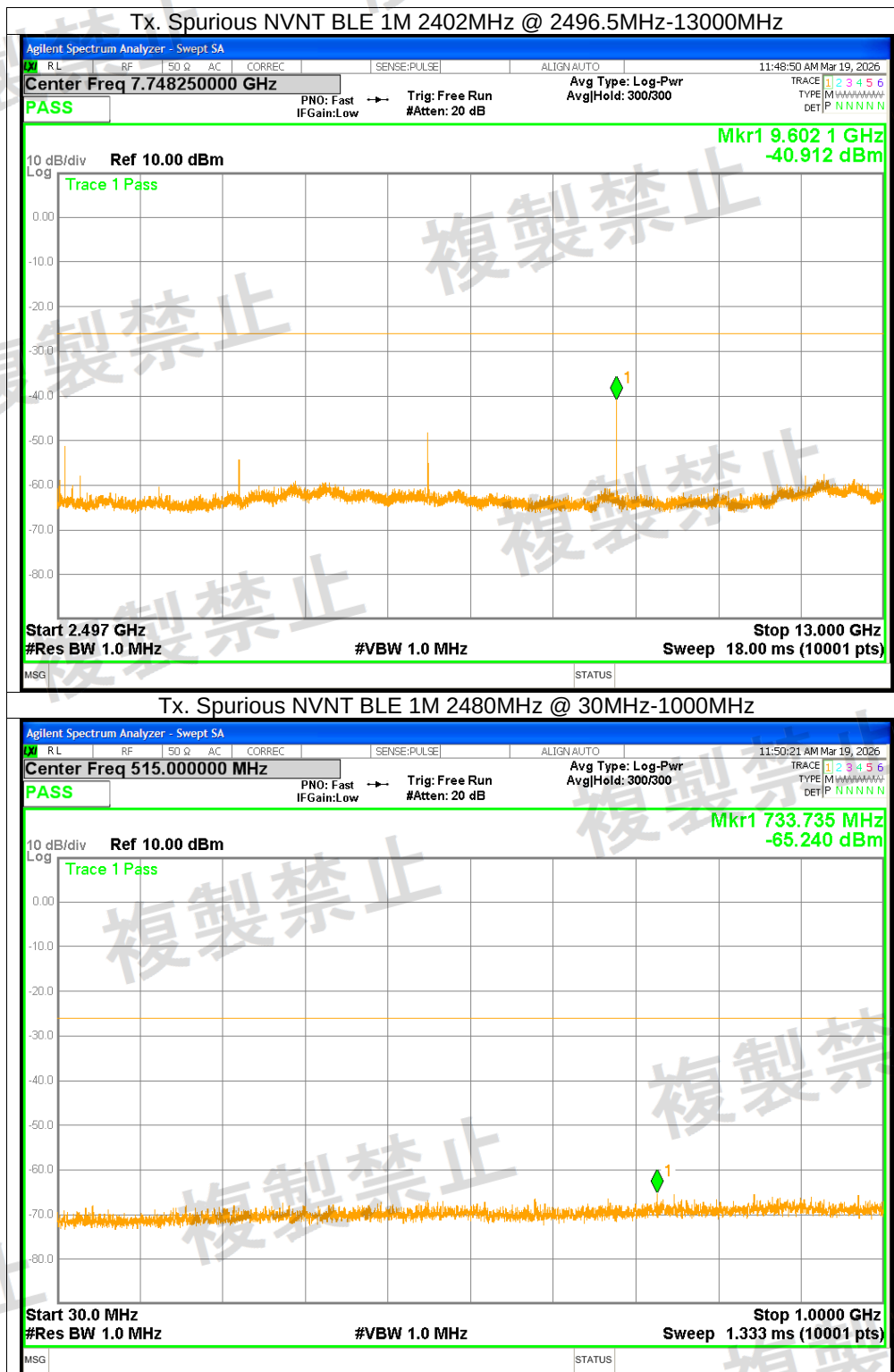


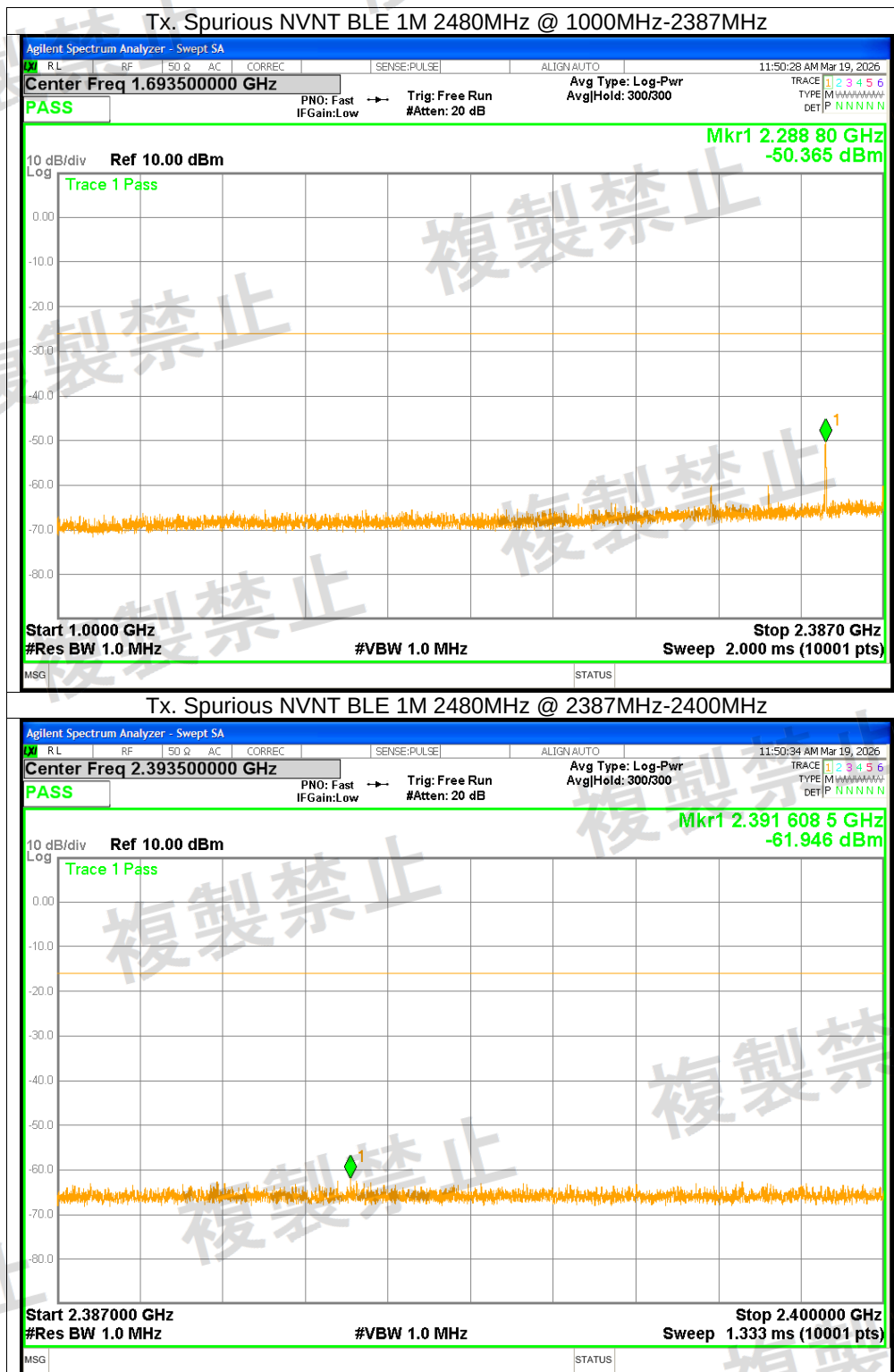
Tx Spurious Emission

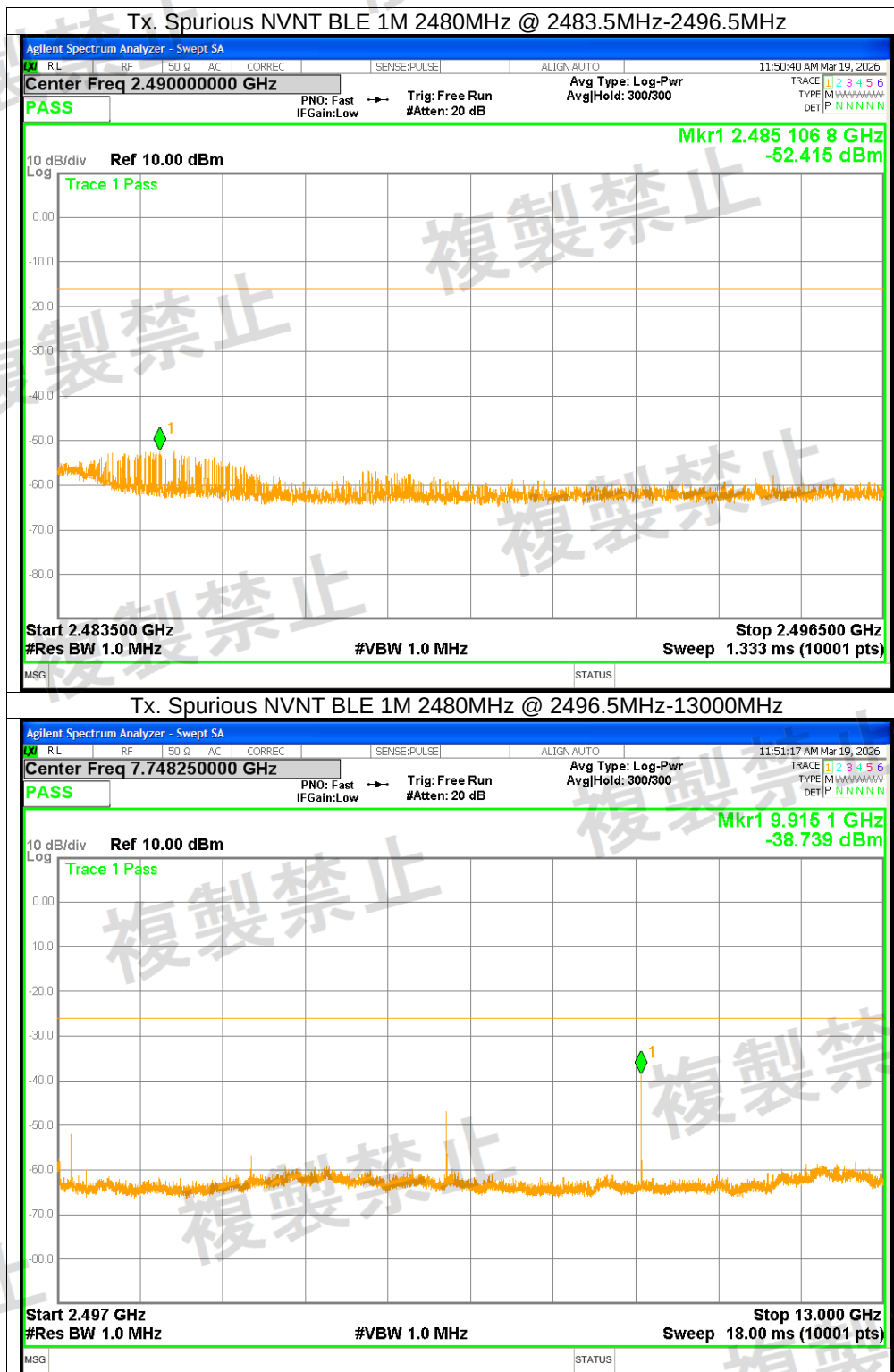
Condition	Mode	Frequency (MHz)	Range (MHz)	Emission Frequency (MHz)	Max Value (dBm/MHz)	Max Value (uW/MHz)	Limit Start(uW/MHz)	Limit Stop (uW/MHz)	Verdict
NVNT	BLE 1M	2402	30-1000	829.86	-65.87	0.0003	2.5	2.5	Pass
NVNT	BLE 1M	2402	1000-2387	2210.71	-53.21	0.0048	2.5	2.5	Pass
NVNT	BLE 1M	2402	2387-2400	2399.98	-37.94	0.1607	25	25	Pass
NVNT	BLE 1M	2402	2483.5 - 2496.5	2496.21	-61.76	0.0007	25	25	Pass
NVNT	BLE 1M	2402	2496.5 -13000	9602.12	-40.91	0.0811	2.5	2.5	Pass
NVNT	BLE 1M	2480	30-1000	733.74	-65.24	0.0003	2.5	2.5	Pass
NVNT	BLE 1M	2480	1000-2387	2288.8	-50.37	0.0092	2.5	2.5	Pass
NVNT	BLE 1M	2480	2387-2400	2391.61	-61.95	0.0006	25	25	Pass
NVNT	BLE 1M	2480	2483.5 - 2496.5	2485.11	-52.42	0.0057	25	25	Pass
NVNT	BLE 1M	2480	2496.5 -13000	9915.12	-38.74	0.1337	2.5	2.5	Pass
NVNT	BLE 2M	2402	30-1000	917.84	-65.35	0.0003	2.5	2.5	Pass
NVNT	BLE 2M	2402	1000-2387	2210.37	-53.64	0.0043	2.5	2.5	Pass
NVNT	BLE 2M	2402	2387-2400	2399.99	-27.34	1.845	25	25	Pass
NVNT	BLE 2M	2402	2483.5 - 2496.5	2484.41	-62.19	0.0006	25	25	Pass
NVNT	BLE 2M	2402	2496.5 -13000	9602.64	-41.16	0.0766	2.5	2.5	Pass
NVNT	BLE 2M	2480	30-1000	776.22	-65.79	0.0003	2.5	2.5	Pass
NVNT	BLE 2M	2480	1000-2387	2288.59	-50.63	0.0086	2.5	2.5	Pass
NVNT	BLE 2M	2480	2387-2400	2392.53	-62.17	0.0006	25	25	Pass
NVNT	BLE 2M	2480	2483.5 - 2496.5	2484.83	-51.85	0.0065	25	25	Pass
NVNT	BLE 2M	2480	2496.5 -13000	9914.6	-38.76	0.133	2.5	2.5	Pass

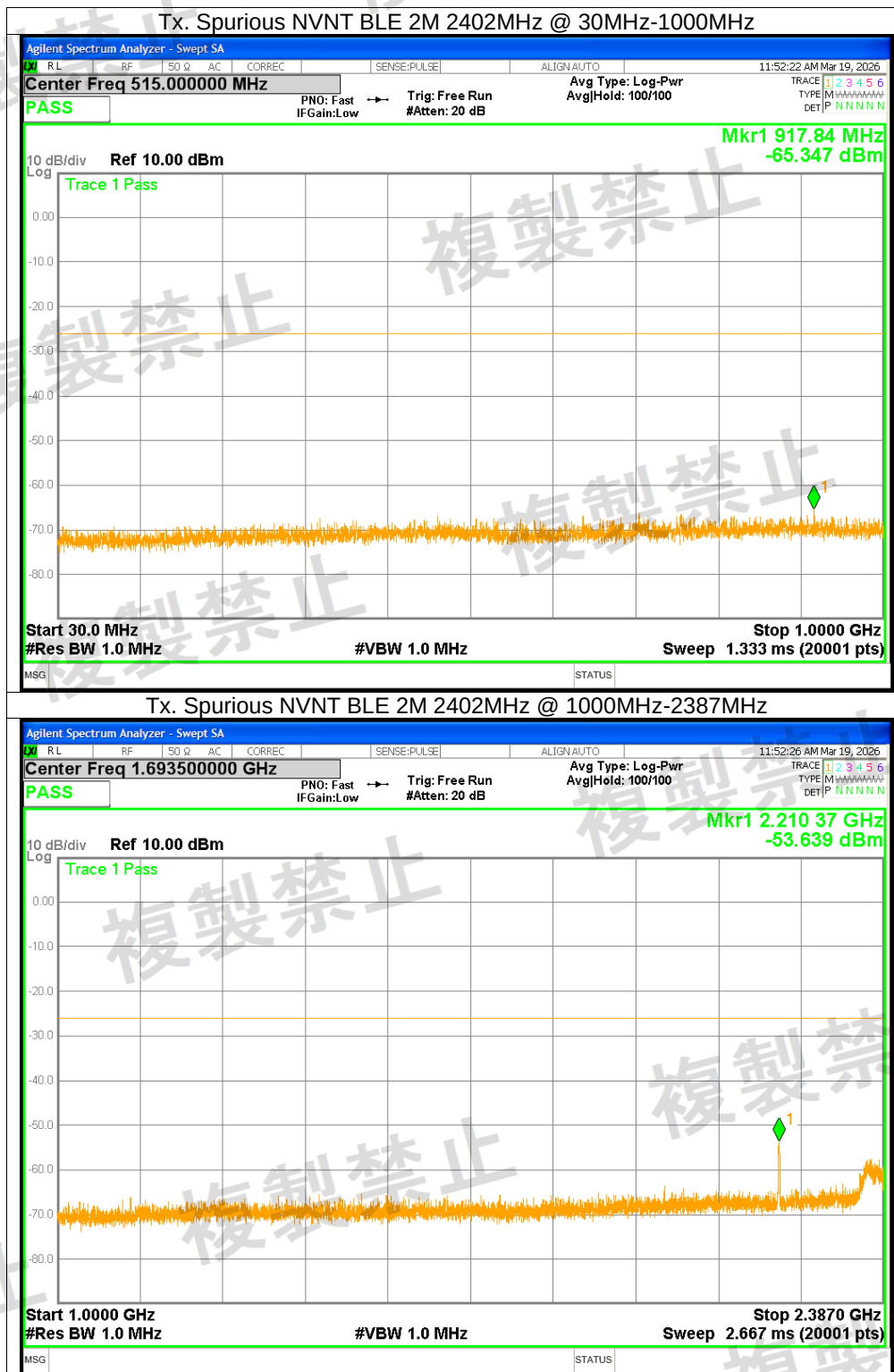


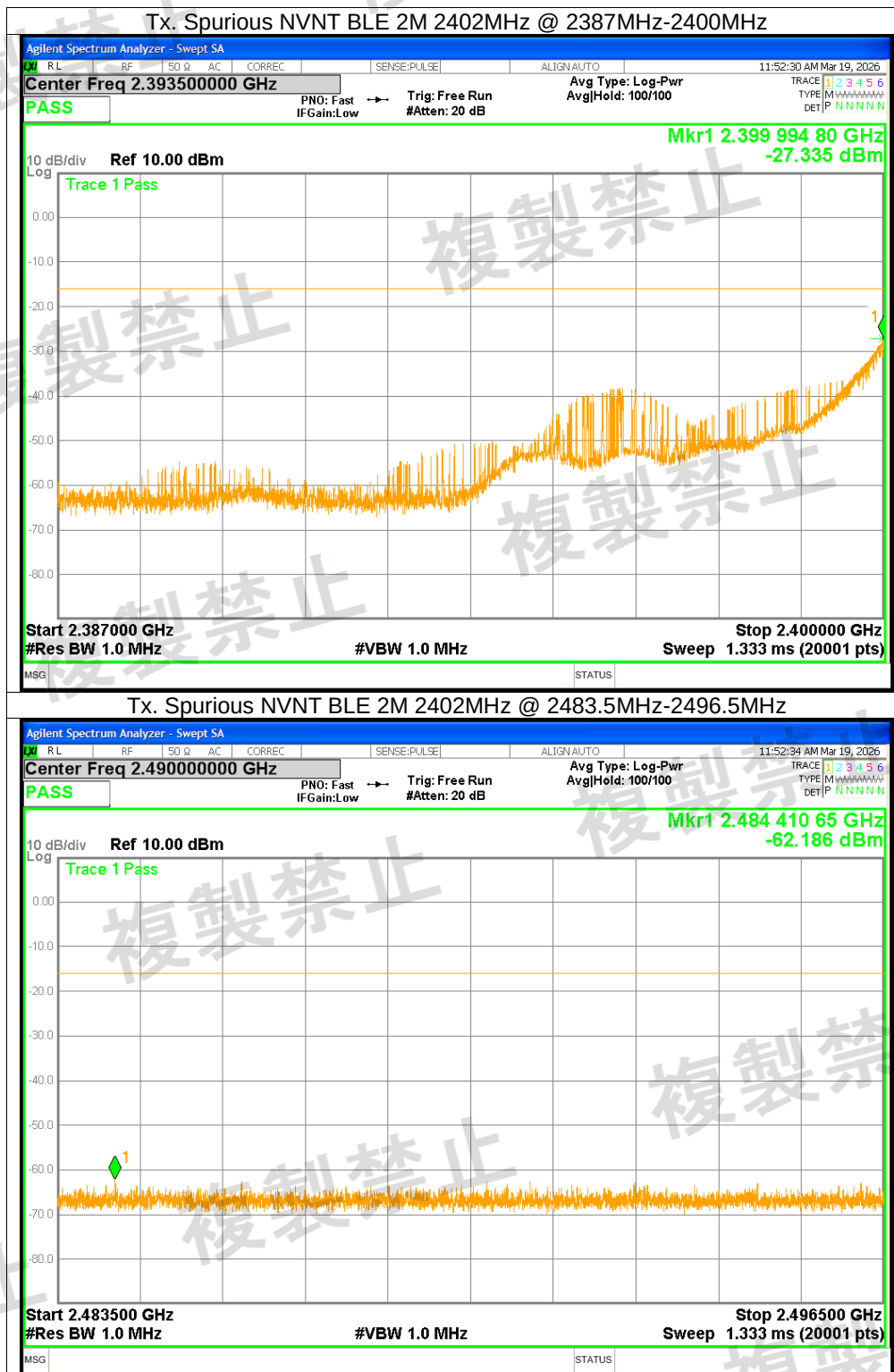


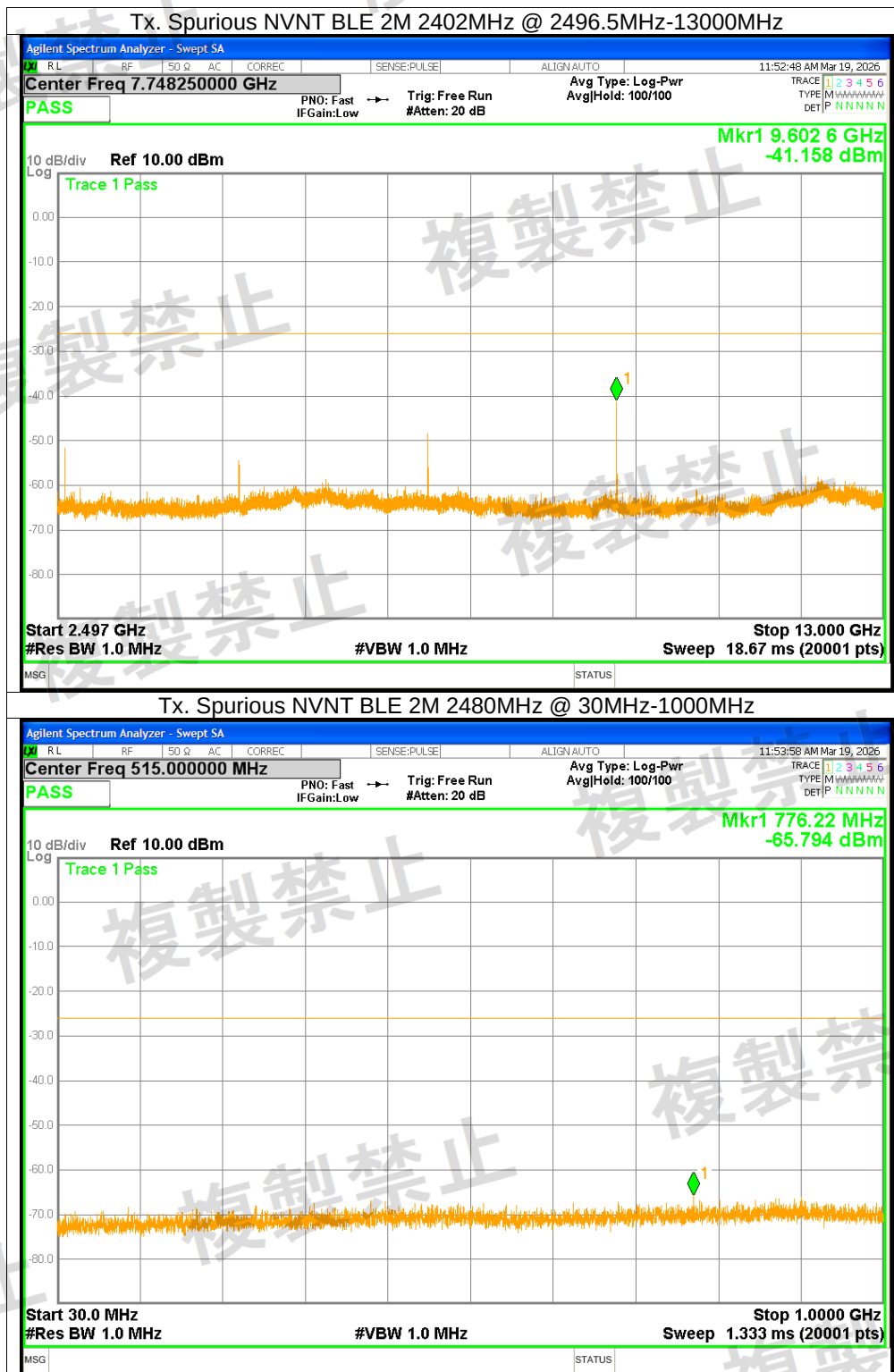


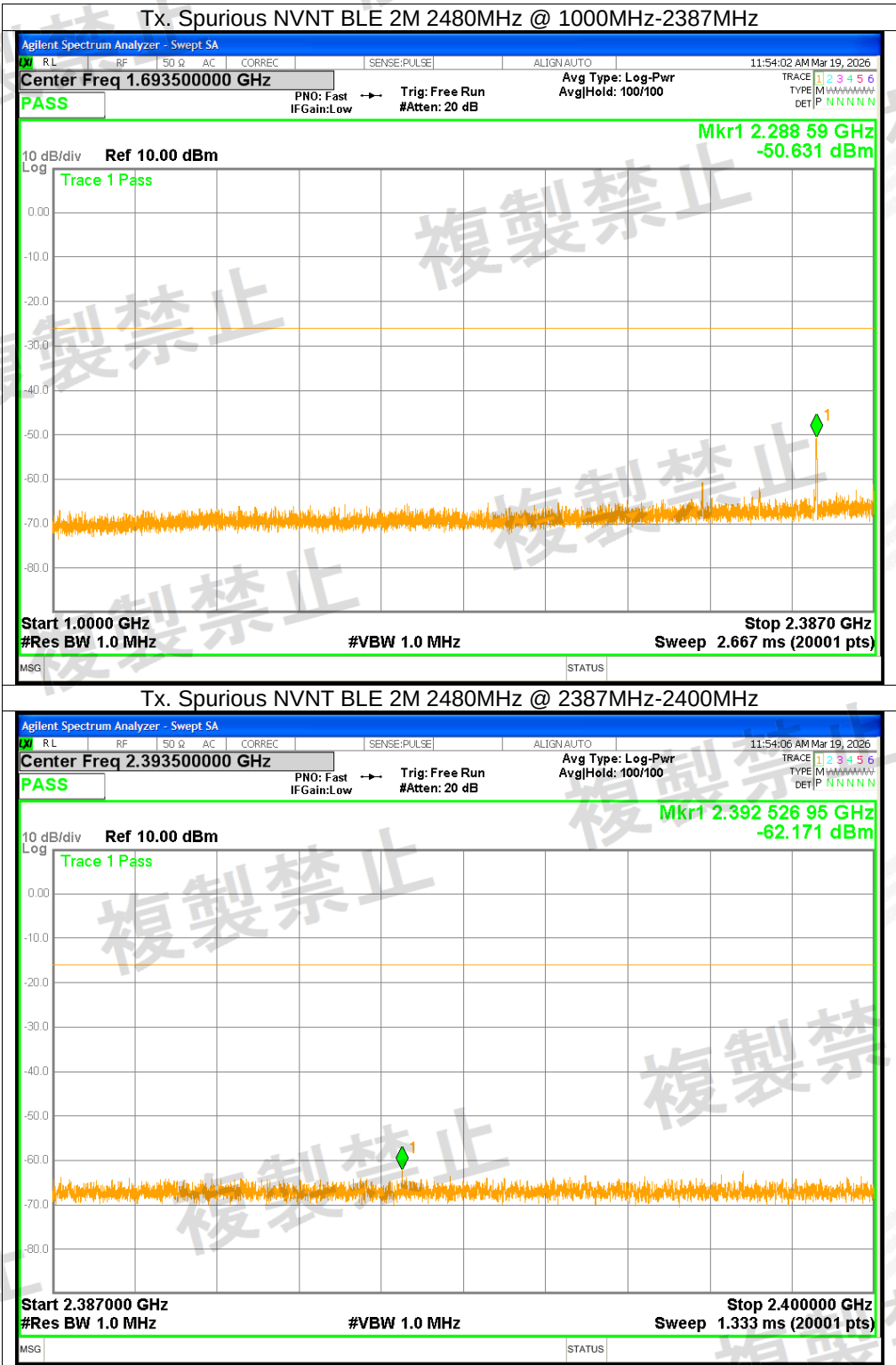


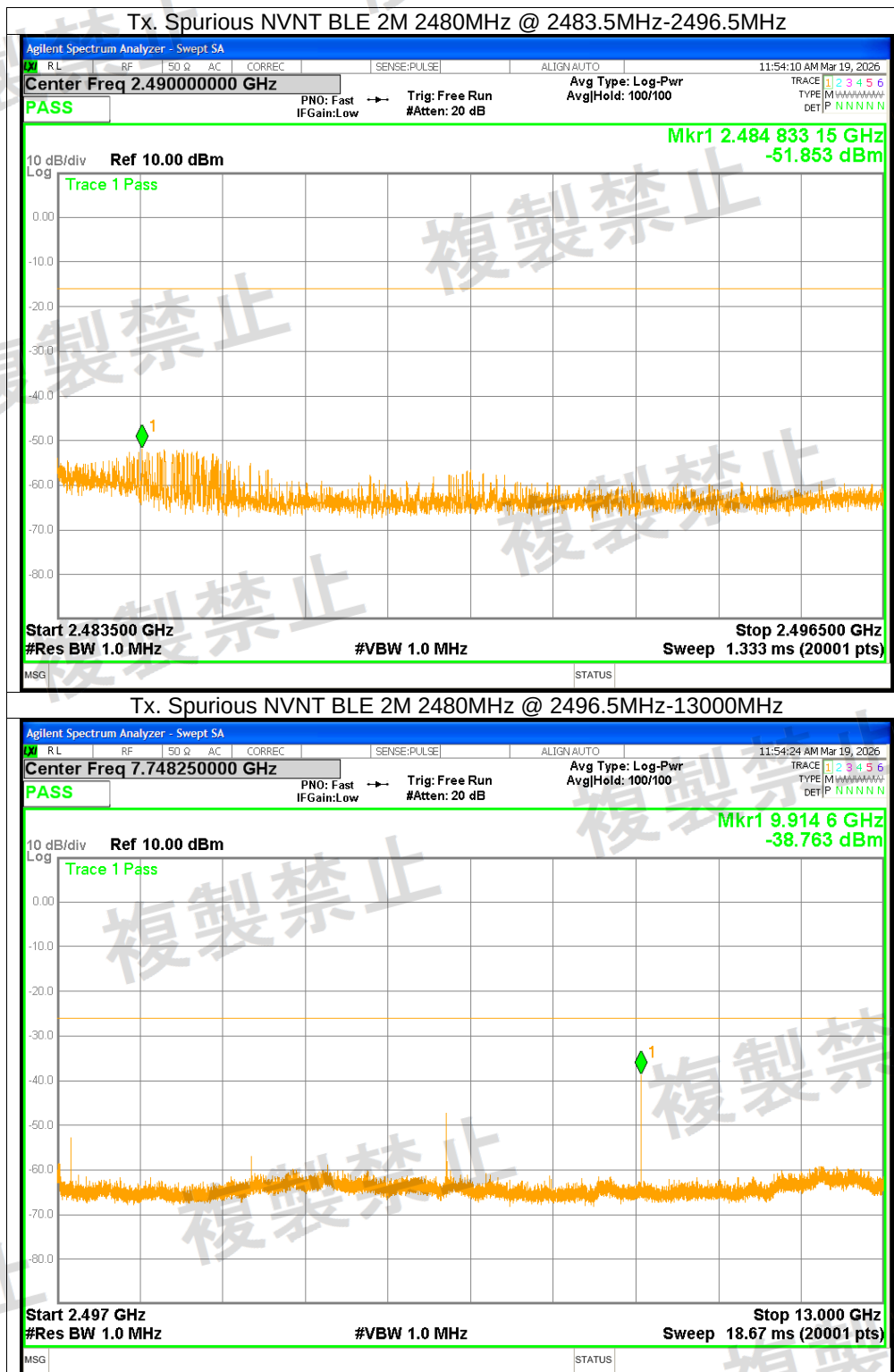














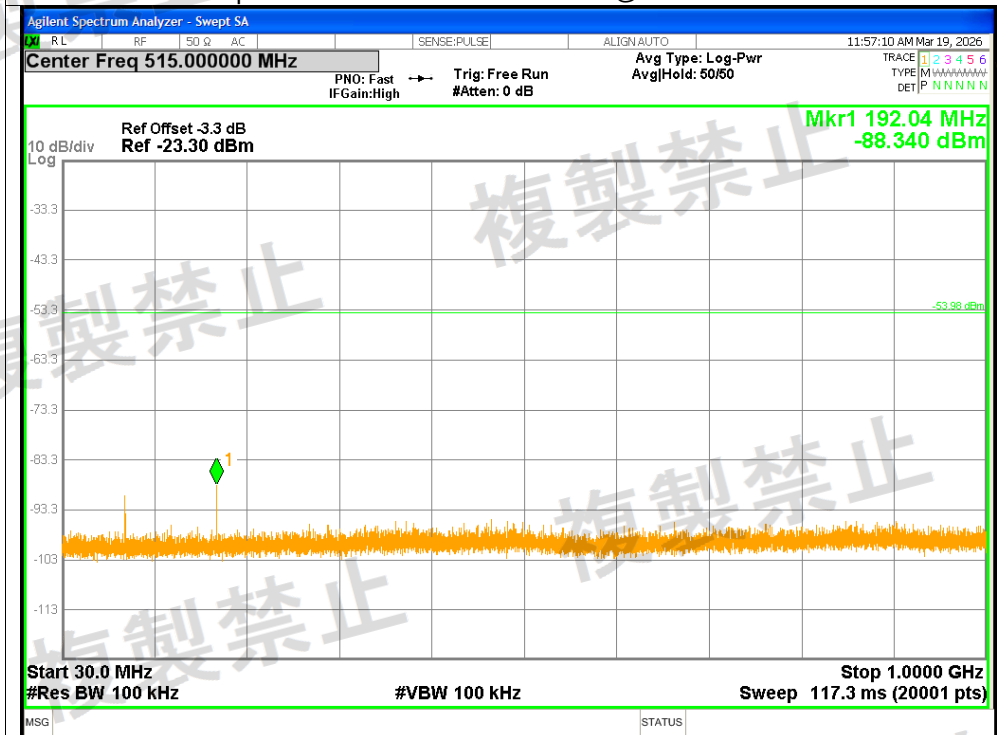
Rx Spurious Emission

Condition	Mode	Frequency (MHz)	Range (MHz)	Emission Frequency (MHz)	Max Value (dBm)	Max Value (nW)	Limit (nW)	Verdict
NVNT	BLE 1M	2402	30-1000	192.04	-88.34	0.0015	4	Pass
NVNT	BLE 1M	2402	1000-13000	4957.6	-66.93	0.2028	20	Pass
NVNT	BLE 1M	2480	30-1000	191.99	-88.73	0.0013	4	Pass
NVNT	BLE 1M	2480	1000-13000	3511.6	-63.32	0.4656	20	Pass
NVNT	BLE 2M	2402	30-1000	192.04	-88.24	0.0015	4	Pass
NVNT	BLE 2M	2402	1000-13000	4957.6	-66.88	0.2051	20	Pass
NVNT	BLE 2M	2480	30-1000	191.99	-88.37	0.0015	4	Pass
NVNT	BLE 2M	2480	1000-13000	4957.6	-66.79	0.2094	20	Pass

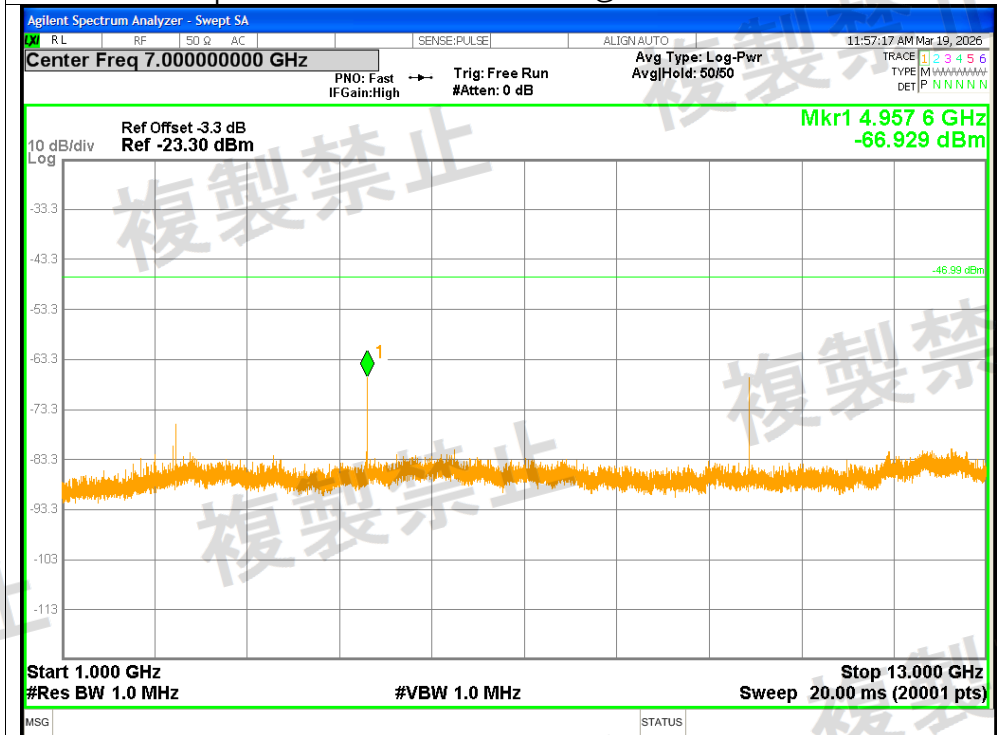


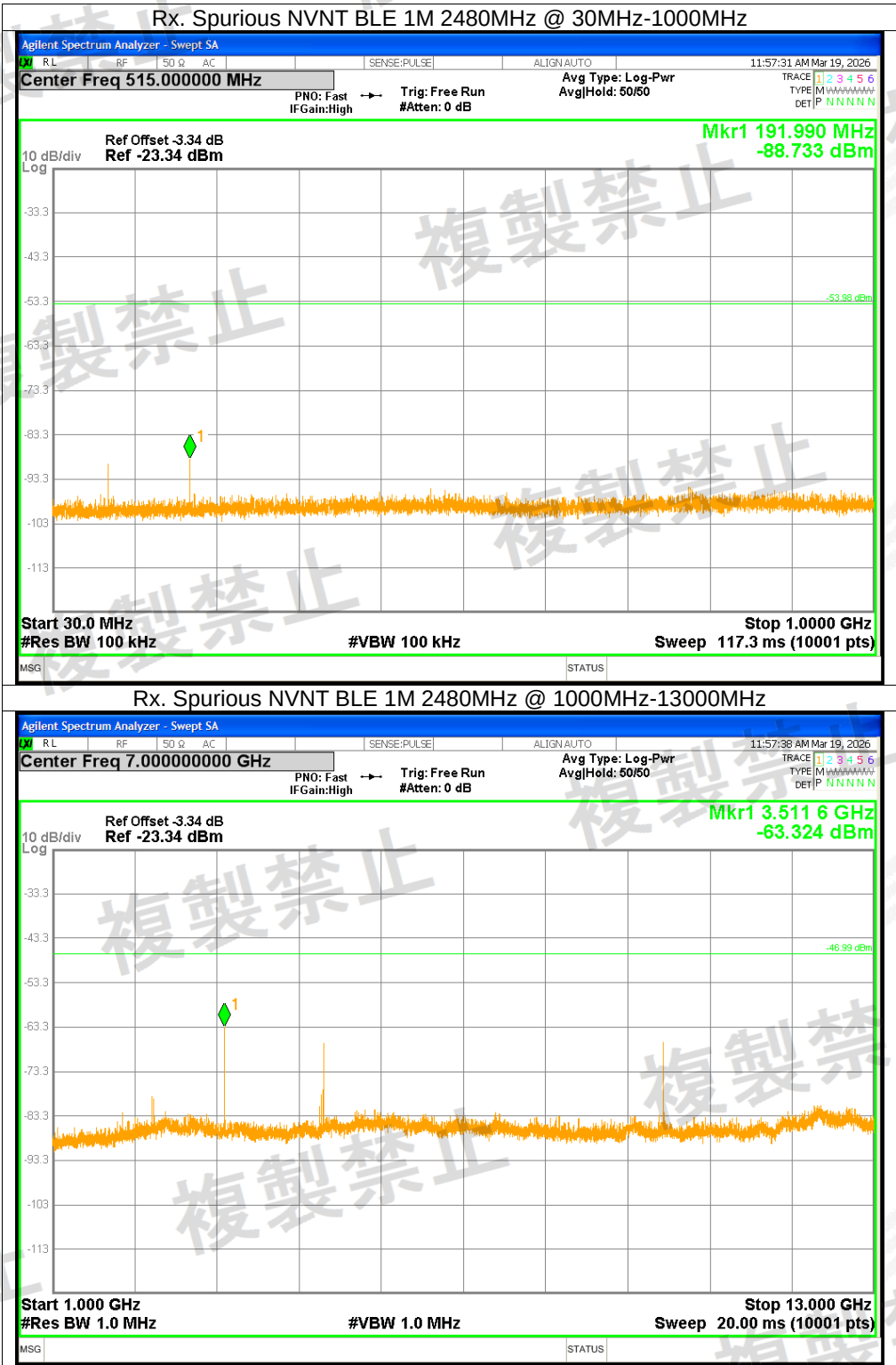
Test Graphs

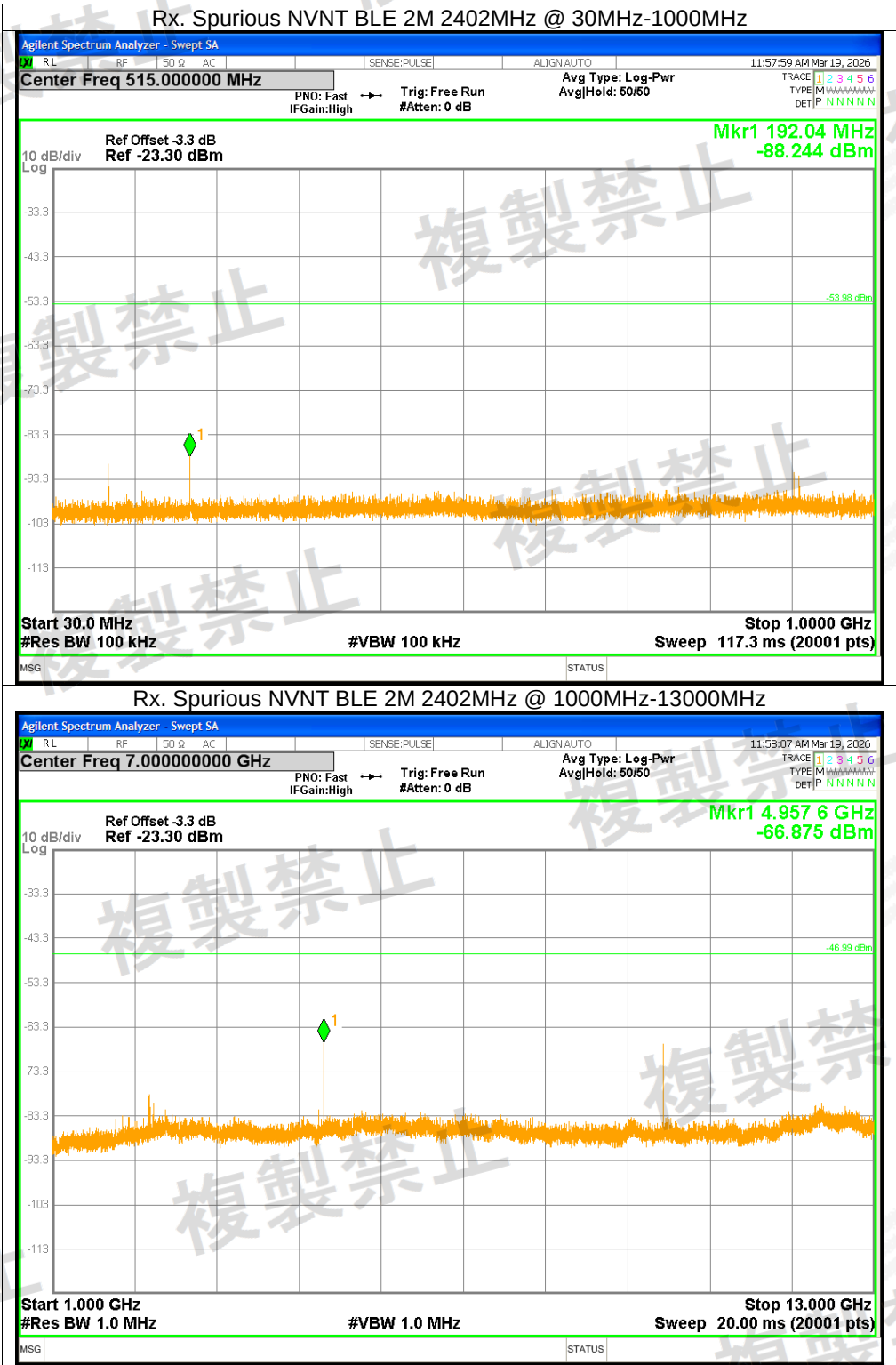
Rx. Spurious NVNT BLE 1M 2402MHz @ 30MHz-1000MHz

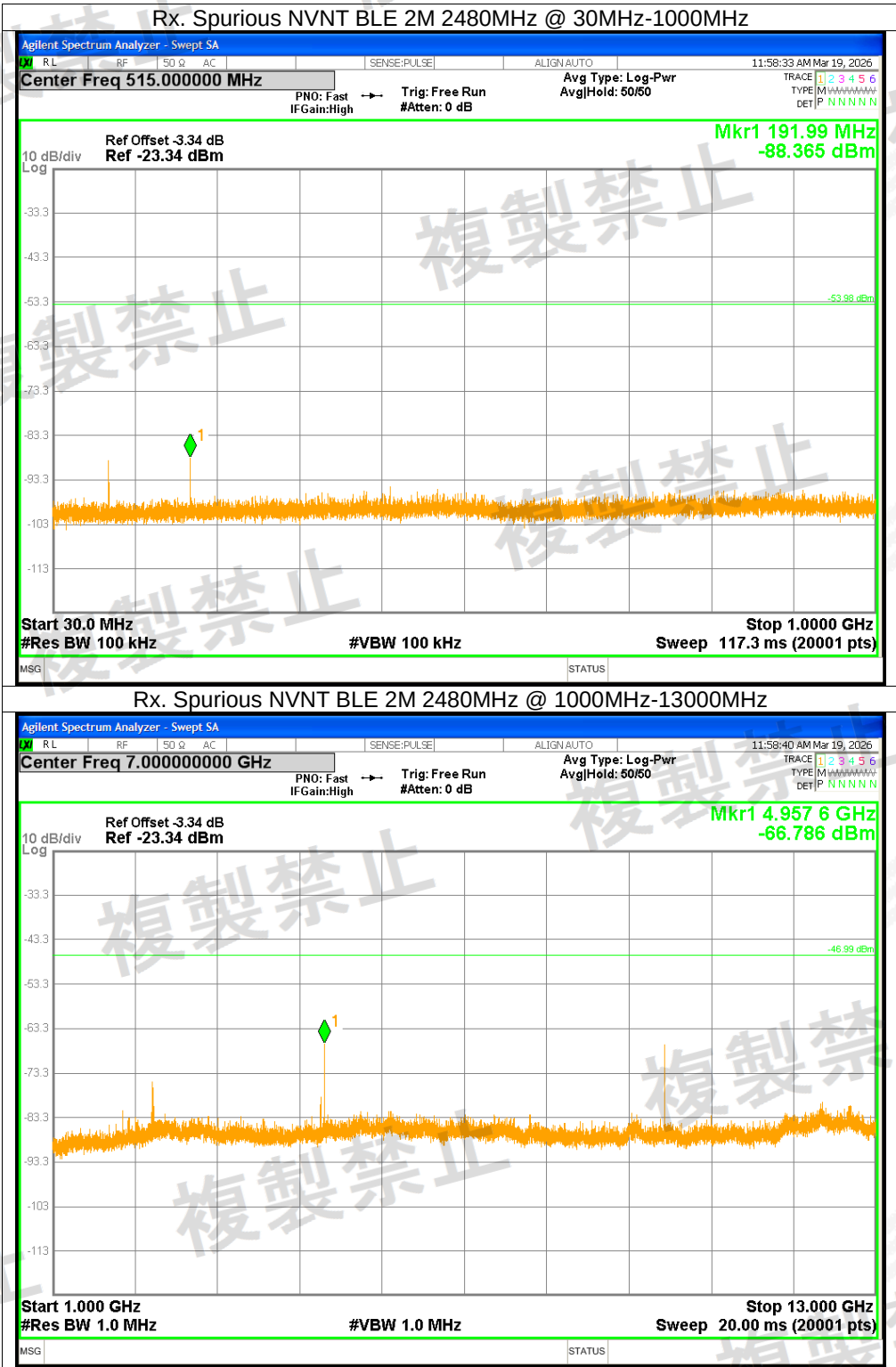


Rx. Spurious NVNT BLE 1M 2402MHz @ 1000MHz-13000MHz











APPENDIX 2-EUT TEST PHOTO

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

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