RADIO TEST REPORT-BLE

Article 2 paragraph 1 item (19)

MIC Notice No.88 Appendix No.43

Product: Smart Digital Signage

Trade Mark: N/A

Model No.: YA-OD5508ZX

Family Model: YA-OD1008ZX, YA-OD2158ZX, YA-OD2708ZX, YA-OD3208ZX, YA-OD4308ZX, YA-OD4608ZX, YA-OD4908ZX, YA-OD6508ZX, YA-OD7508ZX, YA-OD8608ZX

Report No.: N26050711403E

Prepared for

Yamato Agency Inc.

Doujima Bld.605,2-6-8 Nishitemma Kita-ku,Osaka-shi, Osaka-fu ZIP:530-0047

Prepared by

Shenzhen NTEK Testing Technology Co., Ltd.

No. 24 Xinfa East Road, Xiangshan Community, Xinqiao Street, Baoan District, Shenzhen, Guangdong, People's Republic of China

Tel. 0755-23200050 Website:http://www.ntek.org.cn

複製禁止

TEST RESULTCERTIFICATION

Applicant's name..... Yamato Agency Inc.

Address ..... Doujima Bld.605,2-6-8 Nishitemma Kita-ku,Osaka-shi, Osaka-fu ZIP:530-0047

Manufacturer's Name..... GUANGZHOU ZEMSO ELECTRON CO., LTD

Address ..... 4F | Building C1 | Guanhua Emergency Industrial Park | Nanjian Road | Zengcheng District | Guangzhou | Guangdong | China

Test specification:

Standard ..... Article 2 paragraph 1 item (19)
MIC Notice No.88 Appendix No.43

Test item description

Product name ..... Smart Digital Signage

Trade Mark.....: N/A

Model and/or type reference YA-OD5508ZX, YA-OD1008ZX, YA-OD2158ZX, YA-OD2708ZX, YA-OD3208ZX, YA-OD4308ZX, YA-OD4608ZX, YA-OD4908ZX, YA-OD6508ZX, YA-OD7508ZX, YA-OD8608ZX

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with MICrequirements. And it is applicable only to the tested sample identified in the report.

This report shall not be reproduced except in full, without the written approval of NTEK, this document may be altered or revised by Shenzhen NTEK Testing Technology Co., Ltd. personnel only, and shall be noted in the revision of the document

Test Sample Number.....: S2603090210-1#

Date (s) of performance of tests.....: Feb. 02, 2026 ~ Apr. 14, 2026

Date of Issue.....: May. 13, 2026

Test Result.....: **Pass**

Note: All test data of this report are based on the original test report N26020203803E, dated by Apr. 14, 2026

Prepared By:	Reviewed By:	Approved By:
Allen Liu	Aaron Cheng	Alex Li
Allen Liu	Aaron Cheng	Alex Li
(Project Engineer)	(Supervisor)	(Manager)

複製禁止

※※Revision History※※

REV.	REPORT NO.	Page Revised	ISSUED DATE	Contents
Original	N26020203803E	Rev.01	Apr. 14, 2026	N/A
--	N26050711403E	Rev.02	May. 13, 2026	Update the applicant and model.

複製禁止

Table of Contents

	Page
1 . SUMMARY OF TEST RESULTS	7
1.1 TEST FACILITY	8
1.2 MEASUREMENT UNCERTAINTY	8
2 . GENERAL INFORMATION	9
2.1 GENERAL DESCRIPTION OF EUT	9
2.2 DESCRIPTION OF TEST MODES	10
2.3 TEST CONDITIONS	11
2.4 BLOCKDIGRAMSHOWINGTHECONFIGURATIONOFSYSTEMTESTED	12
2.5 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)	12
2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS	13
3 .TEST RESULT FOR BT	14
3.1 FREQUENCY ERROR	14
3.2 LIMIT	14
3.3 MEASURING INSTRUMENTS AND SETTING	14
3.4 TEST PROCEDURES	14
3.5 TEST SETUP LAYOUT	14
4 . ANTENNA POWER	16
4.1 LIMIT	16
4.2 TEST SETUP LAYOUT	16
4.3 TEST DEVIATION	16
4.4 TEST RESULT	17
5 . OCCUPIED BANDWITH	18
5.1 LIMIT	18
5.2 TEST RESULT	19
6 . UNWANTED EMISSION INTENSITY MEASUREMENT	20
6.1 LIMIT	20
6.2 MEASURING INSTRUMENTS AND SETTING	20
6.3 TEST PROCEDURES	20
6.4 TEST SETUP LAYOUT	21
6.5 TEST DEVIATION	21

複製禁止

Table of Contents

Page

6.6 TEST RESULT 22
7 . IMITATION OF COLLATERAL EMISSION OF RECEIVER MEASUREMENT 23
7.1 LIMIT 23
7.2 MEASURING INSTRUMENTS AND SETTING 23
7.3 TEST PROCEDURES 23
7.4 TEST RESULT 24
8 . TRANSMISSION ANTENNA GAIN (EIRP ANTENNA POWER) MEASUREMENT 25
8.1 LIMIT 25
8.2 TEST SETUP LAYOUT 25
8.3 TEST DEVIATION 25
8.4 EUT OPERATION DURING TEST 25
8.5 RESULTS OF TRANSMISSION ANTENNA GAIN 25
9 . TRANSMISSION RADIATION ANGLE WIDTH (3DB BEAMWIDTH) MEASUREMENT 26
9.1 LIMIT 26
9.2 MEASURING INSTRUMENTS AND SETTING 26
9.3 TEST PROCEDURES 26
9.4 TEST SETUP LAYOUT 27
9.5 TEST DEVIATION 27
9.6 EUT OPERATION DURING TEST 27
9.7 TEST RESULT OF TRANSMISSION RADIATION ANGLE WIDTH (3DB BEAMWIDTH) 27
10 . RADIO INTERFERENCE PREVENTION CAPABILITY MEASUREMENT 28
10.1 LIMIT 28
10.2 MEASURING ID CODE SOFTWARE 28
10.3 TEST PROCEDURES 28
10.4 TEST SETUP LAYOUT 28
10.5 TEST DEVIATION 28
10.6 EUT OPERATION DURING TEST 28
10.7 TEST RESULT OF RADIO INTERFERENCE PREVENTION CAPABILIT 28
11. CARRIER SENSE CAPABILITY 29

複製禁止

Table of Contents

	Page
12. TEST RESUL	30
12.1 1M	30
12.1.1 FREQUENCY ERROR	30
12.1.2 ANTENNA AND EIRP POWER	32
12.1.3 EIRP POWER	32
12.1.4 OCCUPIED CHANNEL BANDWIDTH	32
12.1.5 TX SPURIOUS EMISSION	34
12.1.6 RX SPURIOUS EMISSION	42
12.2 2M	46
12.2.1 ANTENNA AND EIRP POWER	46
12.2.2 EIRP POWER	46
12.2.3 OCCUPIED CHANNEL BANDWIDTH	46
12.2.4 TX SPURIOUS EMISSION	48
12.2.5 RX SPURIOUS EMISSION	56

複製禁止

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

Standard	Method	Description of Test	Result
Article 2 paragraph 1 item (19)	MIC Notice No.88 Appendix No.43.3	Frequency Error	Complies
	MIC Notice No.88 Appendix No.43.4	Occupied Bandwidth (99%) and	Complies
	MIC Notice No.88 Appendix No.43.5	Unwanted Emission Intensity	Complies
	MIC Notice No.88 Appendix No.43.6	Antenna Power Error	Complies
	MIC Notice No.88 Appendix No.43.7	Limitation of Collateral Emission of Receiver	Complies
	MIC Notice No.88 Annex No.43.10	Transmission Antenna Gain (EIRP Antenna Power)	Complies
	MIC Notice No.88 Annex No.43.11	Transmission Radiation Angle Width (3dB Beamwidth)	N/A
	MIC Notice No.88 Annex No.43.12	Radio Interference Prevention Capability	Complies
	MIC Notice No.88 Appendix No.43.13	Spreading Factor	N/A
	MIC Notice No.88 Appendix No.43.8	Carrier Sense Capability Note(3)	N/A
		Carrier Sense Capability Note (4)	N/A
	Note 2	Construction Protection Confirmation	Please refer to Japan Radio Protection Declaration

NOTE:

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

(2) MIC Ordinance Regulating Radio Equipment Section 1.A of Article 49.20

(3) Not apply to this device, since EIRP does not require compensation through Antenna Power.

(4) Apply for 802.11n40 which the Occupied bandwidth within26MHz-40MHz

複製禁止

1.1 TEST FACILITY

Shenzhen NTEK Testing Technology Co., Ltd
Add. : No. 24 Xinfa East Road, Xiangshan Community, Xinqiao Street, Baoan District, Shenzhen, Guangdong, People's Republic of China
FCC RegistrationNo.:463705; IC RegistrationNo.:9270A
CNAS Registration No.:L5516

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y ±U**, where expended uncertainty **U** is based on astandard uncertainty multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately **95**%.

No.	Item	Uncertainty
1	Conducted Emission Test	±3.2dB
2	Radiated Emission Test	±4.7dB
3	RF power,conducted	±0.16dB
4	Spurious emissions,conducted	±0.21dB
5	All emissions,radiated(<1G)	±4.68dB
6	All emissions,radiated(>1G)	±5.0dB
7	Radio Frequency	$\pm 1\times 10^{-6}$

複製禁止

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Smart Digital Signage
Trade Mark	N/A
Model Name.	YA-OD5508ZX
Family Model	YA-OD1008ZX, YA-OD2158ZX, YA-OD2708ZX, YA-OD3208ZX, YA-OD4308ZX, YA-OD4608ZX, YA-OD4908ZX, YA-OD6508ZX, YA-OD7508ZX, YA-OD8608ZX
Model Difference	All models are the same circuit and RF module, except for the models name.
Product Description	The EUT is Smart Digital Signage Operation Frequency: 2402~2480MHz Modulation Type: GFSK Number Of Channel 40CH Antenna Designation: PCB Antenna AntennaGain (dBi) 3.43 dBi
Channel List	Please refer to the Note 2.
Adapter	N/A
Battery	N/A
Rating(s)	AC 100V 50Hz
Hardware Version	N/A
Firmware version:	N/A
Software Version	N/A

Note:

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

2.

Channel	Frequency (MHz)
00	2402
01	2404
……	……
……	…….
…	…
……	……
38	2478
39	2480

複製禁止

2.2 DESCRIPTION OF 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.

Pretest Mode	Description
Mode 1	CH00
Mode 2	CH19
Mode 3	CH39

For Radiated Emission	
Final Test Mode	Description
Mode 1	CH00
Mode 2	CH19
Mode 3	CH39

複製禁止

2.3TEST CONDITIONS

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

Power Supply Voltage Fluctuation Test

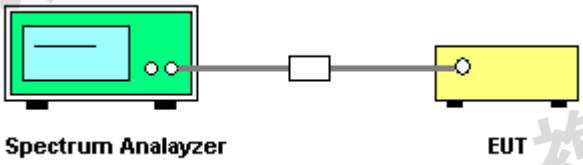
Voltage Fluctuation Test	Normal Voltage	High Voltage + 10% of Normal Voltage	Low Voltage - 10% of Normal Voltage
AC Power	AC 100V	AC 110V	AC 90V
RF Chip	DC 3.3V	DC 3.3V	DC 3.3V

Note:
Voltage Variation (%)
= (Output high or Low Voltage -Output Normal Voltage)/ Output Normal Voltage* 100

During the input supply voltage to the EUT from the external power source is varied by +/- 10%, + / - 10% of the external power change, will not affect the voltage of the RF, so onlyoperated in normalvoltage to test all regulations.

複製禁止

2.4BLOCKDIGRAMSHOWINGTHECONFIGURATIONOFSYSTEMTESTED



2.5DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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	Model/Type No.	Series No.	Note
	Smart Digital Signage	YA-OD5508ZX	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
(3) “YES” is means “shielded”“with core”; “NO” is means “unshielded”“without core”.

複製禁止

2.6EQUIPMENTS LIST FOR ALL TEST ITEMS

Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	SPECTRUM ANALYZER	AGLIENT	E4440A	MY41000130	2025.04.24	2026.04.23	1 year
2	SPECTRUM ANALYZER	AGILENT	N9020A	MY49100060	2025.04.17	2026.04.16	1 year
3	TEST RECEIVER	R&S	ESPI7	101318	2025.04.17	2026.04.16	1 year
4	50Ω COAXIAL SWITCH	ANRITSU	MP59B	6200983705	2024.04.26	2027.04.25	3 year
5	HORN ANTENNA	EM	EM-AH-10180	2011071402	2024.05.12	2027.05.11	3 year
6	HORN ANT	SCHWARZBECK	BBHA 9170	803	2024.05.12	2027.05.11	3 year
7	PRE-AMPLIFIER	EMC	EMC051835SE	980246	2025.04.17	2026.04.16	1 year
8	POWER METER	DARE	RPR3006W	15I00041SNO84	2025.04.17	2026.04.16	1 year
9	TEMPORARY ANTENNA CONNECTOR (NOTE)	NTS	R001	N/A	N/A	N/A	N/A
10	DC POWER SUPPLY	ZHAOXIN	PS-6005D	20170402923	2024.04.25	2027.04.24	3 year
11	ESG VETCTOR SIGNAL GENERAROR	AGILENT	E4438C	MY45093347	2025.04.17	2026.04.16	1 year
12	PSG ANALOG SIGNAL GENERATOR	AGILENT	E8257D	MY51110112	2025.05.06	2026.05.05	1 year

Note:
Calibration Method:
(a) Calibration conducted by the National Institte of Information and Communicationsa)Technology (NICT) or a designated calibration agency under Article 102-18 paragraph (1)
(b) Correction conducted ours ant to the provisions of Article 135 or Article 144 of the Measurement Act(Act No. 51 of 1992)
(c) Calibration conducted in countries except Japan, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph
(d) Calibration, etc. conducted by using measuring instruments and other equipment listed in the right column of appended table No. 3, which shall have been given any type of calibration, etc.listed above from (a) to (c).
The calibration corresponds to c described above.
All the equipments for Guangzhou Lisai Calibration.

複製禁止

3.TEST RESULT FOR BT

3.1FREQUENCY ERROR

3.2 LIMIT

Item	Limits
Frequency Error	±50ppm

3.3 MEASURING INSTRUMENTS AND SETTING

The following table is the setting of Spectrum Analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
RB / VB	10/30KHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

3.4 TEST PROCEDURES

(1)In the case of unmodulated signal (continuous or continuous burst), measure the frequency directly by a frequency meter.

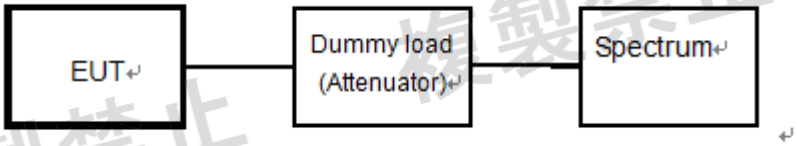
(2)In the case of burst waves, the measurement shall be done for enough time in order to obtain the enough measuring accuracy, and the average of the measured values becomes the final value.

(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.

3.5 TEST SETUP LAYOUT



4.1.5. EUT OPERATION DURING TEST

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

複製禁止

.

3.5.1TEST RESULT

EUT：	Smart Digital Signage	Model:	YA-OD5508ZX
Temperature:	25℃	Tested by:	Allen Liu
Humidity:	55 % RH	Test Voltage	AC 100V
Operation Mode:	unmodulated		

Test data reference attachment

複製禁止

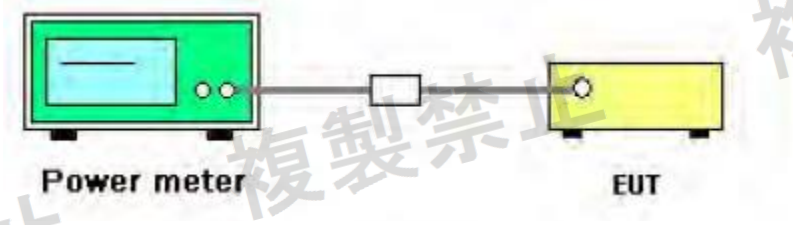
4. ANTENNA POWER

4.1 LIMIT

Modulation	Frequency band	Antenna power	Max EIRP		Antenna power Tolerance
			Non-directional	Beam directional Note1	
DS	2,400-2,483.5MHz	10mW/MHz	12.14dBm/MHz	22.14dBm/MHz	+20% No lower limit
OFDM1 Note2	2,400-2,483.5MHz	10mW/MHz	12.14dBm/MHz	22.14dBm/MHz	
OFDM2	2,400-2,483.5MHz	5mW/MHz	9.13dBm/MHz	19.13dBm/MHz	
FH,DS-FH,FH-OFDM	2,400-2,483.5MHz	3mW/MHz	6.91dBm/MHz	16.91dBm/MHz	
	2,427-2,470.75MHz	10mW/MHz	12.14dBm/MHz	22.14dBm/MHz	
Other than those above	2,400-2,483.5MHz	10mW	12.14dBm	22.14dBm	

Note 1: The half-value angle of the beam directivity must be less than 360 ÷ A degrees. A shall be the rate at which the EIRP exceeds the upper limit of the omnidirectional EIRP.
Note 2:OFDM 1 in the modulation method column indicates that the occupied frequency band width is 26 MHz or less, and OFDM 2 indicates the occupied frequency bandwidth exceeding 26 MHz and 40 MHz or less.

4.2 TEST SETUP LAYOUT



4.3 TEST DEVIATION

There is no deviation with the original standard.

4.4TEST RESULT

EUT：	Smart Digital Signage	Model:	YA-OD5508ZX
Temperature:	25℃	Tested by:	Allen Liu
Humidity:	55 % RH	Test Voltage	AC 100V
Operation Mode:	Transmit-GFSK		

Test data reference attachment

複製禁止

5. OCCUPIED BANDWITH

5.1LIMIT

Item	Limits
Occupied Band Width:	FH 83.5MHz; OFDM1,DS ≦26MHz; 26MHz≦OFDM 40MHz system≦40MHz.; Others≦26MHz

6.1.2. MEASURING INSTRUMENTS AND SETTING

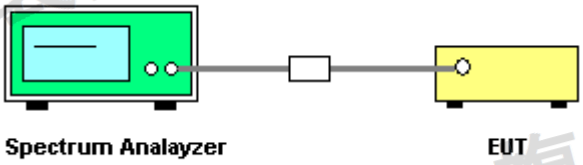
6.1.3. TEST PROCEDURES

Set the spectrum analyzer as follows :

Center frequency:	Test frequency
Frequency sweep width:	About 2~3.5 times of the Nominal bandwidth
Resolution bandwidth:	3% or less of the Nominal bandwidth
Video bandwidth:	Equal to RBW
Sweep time:	Minimum time to ensure the measuring accuracy (In the case of burst wave, one burst shall be included per data point.)
Sweep mode:	Continuous sweep
Detection mode:	Positive peak
Display mode:	Maximum hold

Note: 1. Spread Spectrum Factor = Spread Spectrum Bandwidth / modulation rate of EUT.

6.1.4. TEST SETUP LAYOUT



6.1.5. TEST DEVIATION

There is no deviation with the original standard.

6.1.6. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

複製禁止

5.2TEST RESULT

EUT：	Smart Digital Signage	Model:	YA-OD5508ZX
Temperature:	25℃	Tested by:	Allen Liu
Humidity:	55 % RH	Test Voltage	AC 100V
Operation Mode:	Transmit-GFSK		

Test data reference attachment

複製禁止

6. UNWANTED EMISSION INTENSITY MEASUREMENT

6.1 LIMIT

Item	Limits
TX Spurious Emission	≦2.5 μW (30MHz≦f≦1000MHz)
	≦ 2.5 μW (1000MHz<f≦ 2387MHz)
	≦ 25 μW (2387MHz<f≦ 2400MHz)
	≦ 25 μW (2483.5MHz≦ f<2496.5MHz)
	≦ 2.5 μW (2496.5MHz≦ f<12500MHz)

6.2 MEASURING INSTRUMENTS AND SETTING

Please refer to section 5 in this report. The following table is the setting of Spectrum Analyzer.

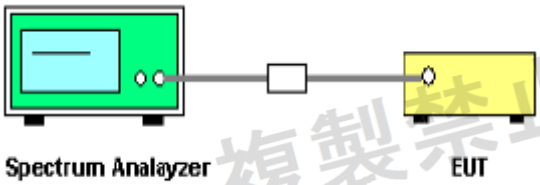
Spectrum Parameter	Setting
Attenuation	Auto
RB / VB	1 MHz
Detector	Average
Trace	Max Hold
Sweep Time	Auto

6.3TEST PROCEDURES

1. EUT have transmitted the maximum modulation signal and fixed channelize.
2. Setting of SA is following as: Below 1GHz RB:100kHz / VB:100kHz
   Above 1GHz RB:1MHz / VB:1MHz / AT: 10dB Ref: 0dBm / Sweep time: Auto
   Sweep Mode: Continuous sweep / Detect mode: Average
   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 2.5μW.
4. Setting of SA is following as 1000MHz and stop frequency 2387MHz Then to mark peak reading value + cable loss shall be less than 2.5μW.
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. Measure side band spurious as follows: For 2.4GHz band: 2374MHz~2400MHz and 2483.5MHz~2509.5MHz RBW = VBW = 30kHz, Result_Value = Meaured_ Value + 15.2 [dBm]
9. 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.

複製禁止

6.4TEST SETUP LAYOUT



6.5 TEST DEVIATION

There is no deviation with the original standard.

複製禁止

6.6 TEST RESULT

EUT：	Smart Digital Signage	Model:	YA-OD5508ZX
Temperature:	25℃	Tested by:	Allen Liu
Humidity:	55 % RH	Test Voltage	AC 100V
Operation Mode:	Transmit-GFSK (CH00, CH19,CH39)		

Test data reference attachment

複製禁止

7. IMITATION OF COLLATERAL EMISSION OF RECEIVER MEASUREMENT

7.1LIMIT

Item	Limits
RX Spurious Emission:	≦ 4nW (f<1GHz)
	≦ 20nW (1GHz≦ f)

7.2 MEASURING INSTRUMENTS AND SETTING

Please refer to section 5 in this report. The following table is the setting of Spectrum Analyzer.

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	Average
Trace	Max Hold
Sweep Time	Auto

7.3 TEST PROCEDURES

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) /
   AT: 10dB / Ref: 0dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Average / 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 < 1GHz, 2nW for f >= 1GHz), 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.

複製禁止

7.4TEST RESULT

EUT：	Smart Digital Signage	Model:	YA-OD5508ZX
Temperature:	25℃	Tested by:	Allen Liu
Humidity:	55 % RH	Test Voltage	AC 100V
Operation Mode:	Receiver-GFSK (CH00, CH19,CH39)		

Test data reference attachment

複製禁止

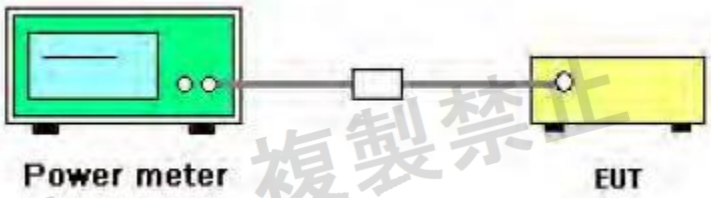
8. TRANSMISSION ANTENNA GAIN (EIRP ANTENNA POWER) MEASUREMENT

8.1 LIMIT

Modulation	Frequency band	Antenna power	Max EIRP	
			Non-directional	Beam directional[Note1]
DS	2,400-2,483.5MHz	10mW/MHz	12.14dBm/MHz	22.14dBm/MHz
OFDM1[Note2]	2,400-2,483.5MHz	10mW/MHz	12.14dBm/MHz	22.14dBm/MHz
OFDM2	2,400-2,483.5MHz	5mW/MHz	9.13dBm/MHz	19.13dBm/MHz
FH,DS-FH,FH-OFDM	2,400-2,483.5MHz	3mW/MHz	6.91dBm/MHz	16.91dBm/MHz
	2,427-2,470.75MHz	10mW/MHz	12.14dBm/MHz	22.14dBm/MHz
Other than those above	2,400-2,483.5MHz	10mW	12.14dBm	22.14dBm

Note 1: The half-value angle of the beam directivity must be less than 360 ÷ A degrees. A shall be the rate at which the EIRP exceeds the upper limit of the omnidirectional EIRP.
Note 2: OFDM 1 in the modulation method column indicates that the occupied frequency band width is 26 MHz or less, and OFDM 2 indicates the occupied frequency bandwidth exceeding 26 MHz and 40 MHz or less.

8.2TEST SETUP LAYOUT



8.3 TEST DEVIATION

There is no deviation with the original standard.

8.4 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

8.5RESULTS OF TRANSMISSION ANTENNA GAIN

EUT :	Smart Digital Signage	Model:	YA-OD5508ZX
Temperature:	25℃	Tested by:	Allen Liu
Humidity:	55 % RH	Test Voltage	AC 100V
Operation Mode:	Receiver-GFSK (CH00, CH19,CH39)		

Test data reference attachment

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

9.1LIMIT

Item	Limits
3dB antenna beam width	360/A (If A<1; then A=1) A = {EIRP Power [mW] / 16.36 for DS, OFDM} or A = {EIRP Power [mW] / 4.9 for FH}
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 of2.14dBi or less	

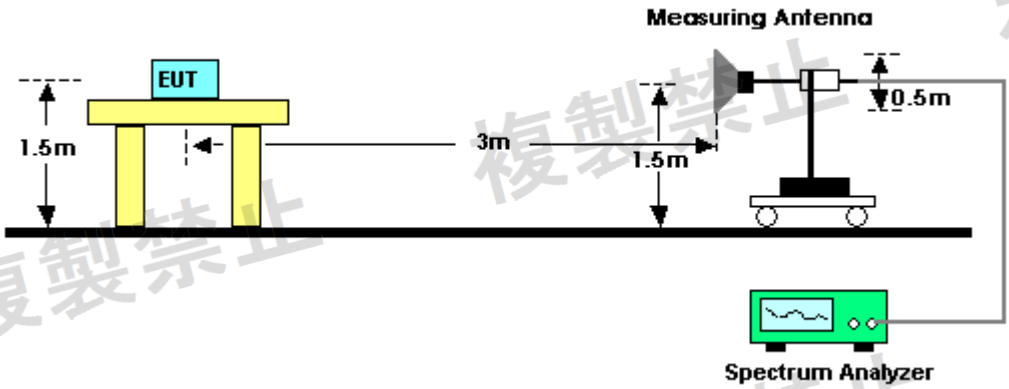
9.2MEASURING INSTRUMENTS AND SETTING

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

9.3TEST PROCEDURES

1. Set EUT and measuring antenna at the same height and roughly facing each other.
2. Set spectrum analyzer with condition in section 4.7.2 and tune reference level to observe receving signal position.
3. Rotate directions of the EUT horizontally and ertically to find the maximum receiving power.
4. Move the measuring antenna height up and down within ± 50cm of EUT height and swing it to find the maximum output of measuing 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 = {EIRP Power [mW] / 16.36 for DS, OFDM} or
   A = {EIRP Power [mW] / 4.9 for FH}

9.4TEST SETUP LAYOUT



9.5TEST DEVIATION

There is no deviation with the original standard.

9.6EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

9.7TEST RESULT OF TRANSMISSION RADIATION ANGLE WIDTH (3DB BEAMWIDTH)

EUT：	Smart Digital Signage	Model:	YA-OD5508ZX
Temperature:	25℃	Tested by:	N/A
Humidity:	55 % RH	Test Voltage	N/A
Operation Mode:	N/A		

Note:This item is not applicable, when EIRP power is lower than the limit of 12.14dBm.

複製禁止

10. RADIO INTERFERENCE PREVENTION CAPABILITY MEASUREMENT

10.1LIMIT

Item	Limits
Identification code	≧ 48 bits

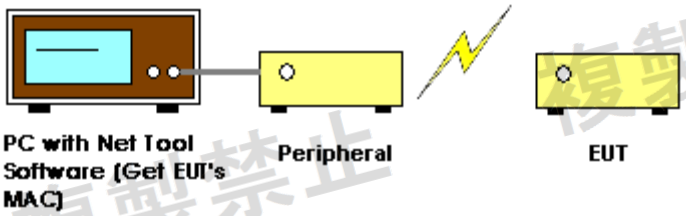
10.2MEASURING ID CODE SOFTWARE

Item	Limits
MAC IP List	MAC Scan

10.3TEST 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 ocde: 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 idnetification codes are different from the predetermined ones.

10.4TEST SETUP LAYOUT



10.5TEST DEVIATION

There is no deviation with the original standard.

10.6EUT OPERATION DURING TEST

The EUT was programmed to be in normal transmitting mode.

10.7TEST RESULT OF RADIO INTERFERENCE PREVENTION CAPABILIT

	Normal voltage	Low voltage	High voltage
Result	OK	N/A	N/A

Mac address: 3C:22:7F:88:28:A8

Result: OK

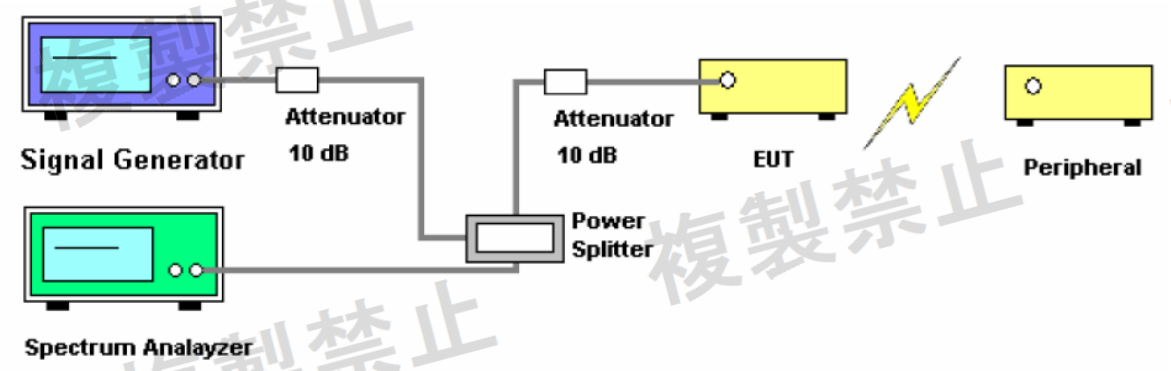
11. CARRIER SENSE CAPABILITY

Limit

EUT stop RF transmission signal after carrier inject to EUT

Test Procedure

Measurement System Diagram



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*log(f)dBm)(G is the antenna gain, f is the testfrequency).
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=50MHz,Sweep time=auto, Sweep mode=continuous,Detect mode=positive peak
5. SG RF signal on.
6. EUT shall be stop the transmitted any signal and SG RF signal off, the EUT will be continuous transmitted signal.

7. Result:
   not applicable

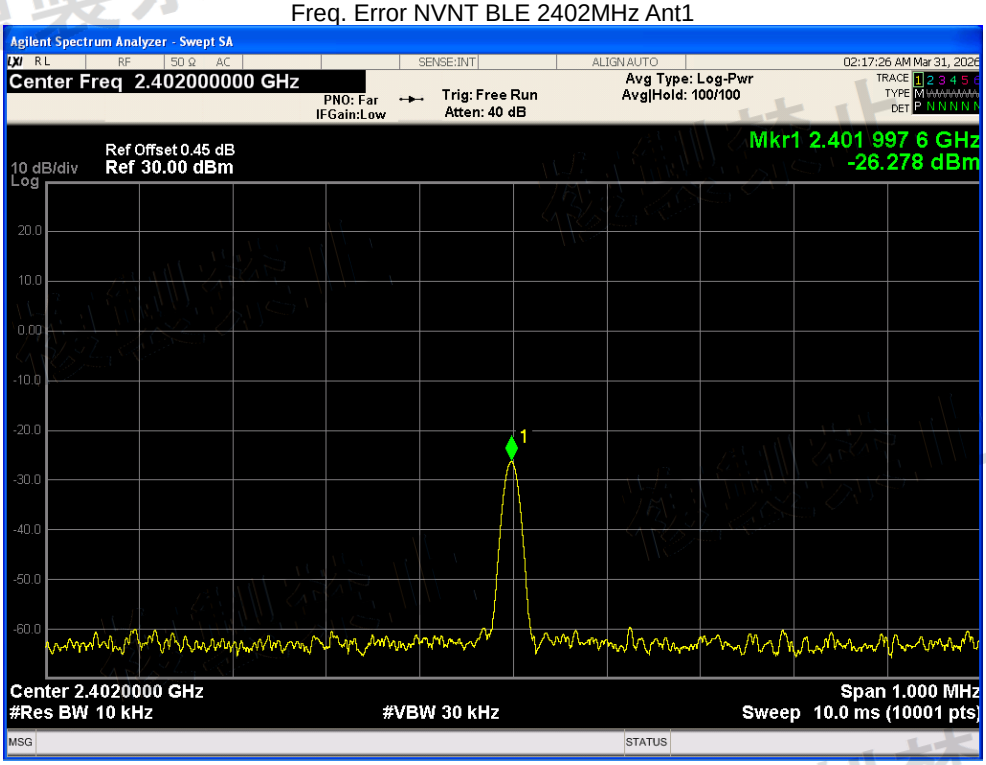
12. TEST RESUL

12.1 1M

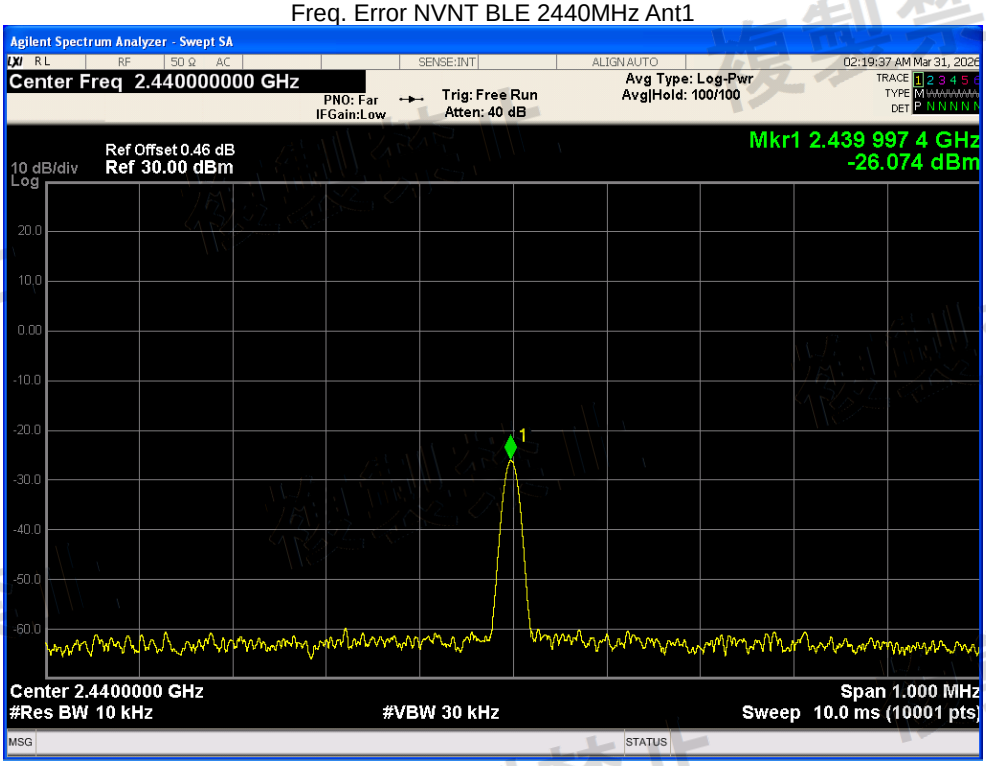
12.1.1 FREQUENCY ERROR

Condition	Mode	Frequency (MHz)	Antenna	Measured Frequency (MHz)	Deviation (ppm)	Limit (ppm)	Verdict
NVNT	BLE	2402	Ant1	2401.9976	-1	50	Pass
NVNT	BLE	2440	Ant1	2439.9974	-1.07	50	Pass
NVNT	BLE	2480	Ant1	2479.9975	-1.01	50	Pass

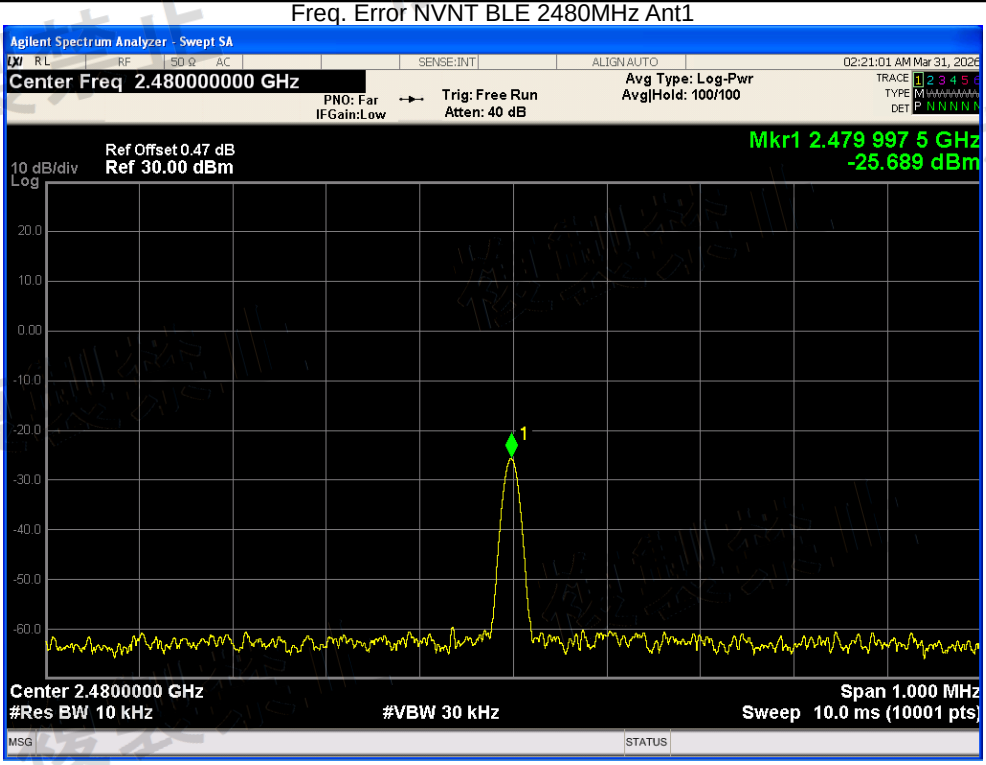
Freq. Error NVNT BLE 2402MHz Ant1



Freq. Error NVNT BLE 2440MHz Ant1



Freq. Error NVNT BLE 2480MHz Ant1



12.1.2 ANTENNA AND EIRP POWER

Condition	Mode	Frequency (MHz)	Antenna	Antenna Power (mW)	Declared Power (mW)	Tolerance (%)	Upper Limit (%)	Verdict
NVNT	BLE	2402	Ant1	2.015	2	0.73	20	Pass
NVNT	BLE	2440	Ant1	2.153	2	7.64	20	Pass
NVNT	BLE	2480	Ant1	2.133	2	6.65	20	Pass

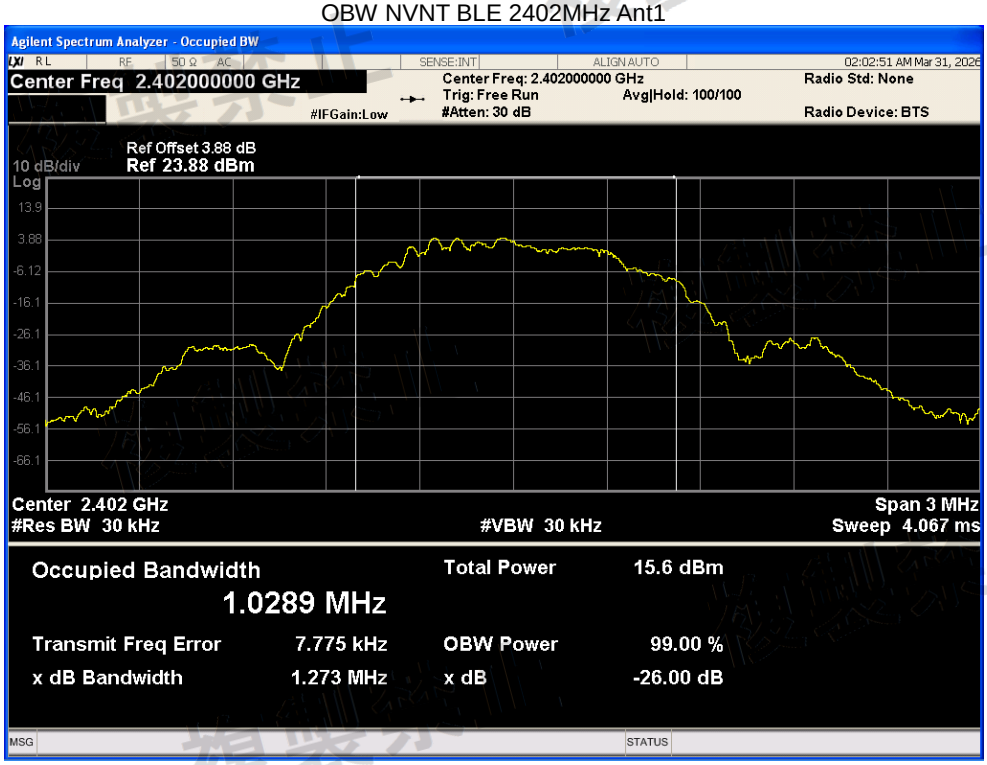
12.1.3 EIRP POWER

Condition	Mode	Frequency (MHz)	Antenna	Antenna Power (mW)	Gain (dBi)	EIRP Power (dBm)	Limit (dBm/MHz)	Verdict
NVNT	BLE	2402	Ant1	2.015	3.43	6.472	12.14	Pass
NVNT	BLE	2440	Ant1	2.153	3.43	6.76	12.14	Pass
NVNT	BLE	2480	Ant1	2.133	3.43	6.72	12.14	Pass

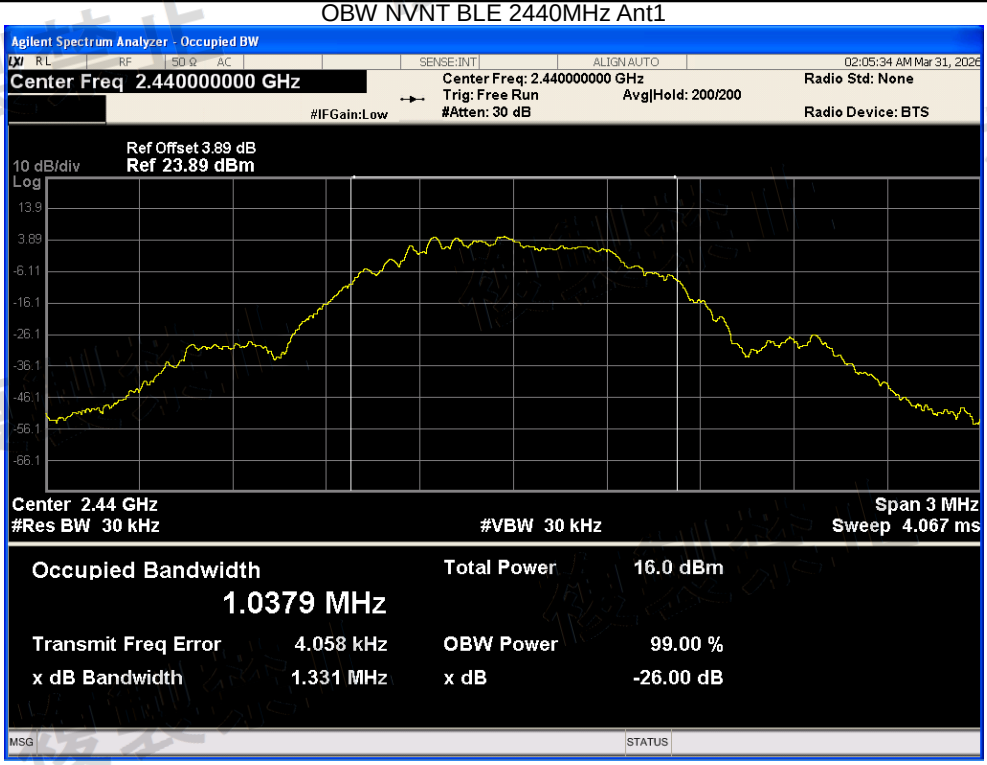
12.1.4 OCCUPIED CHANNEL BANDWIDTH

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	BLE	2402	Ant1	1.029
NVNT	BLE	2440	Ant1	1.038
NVNT	BLE	2480	Ant1	1.036

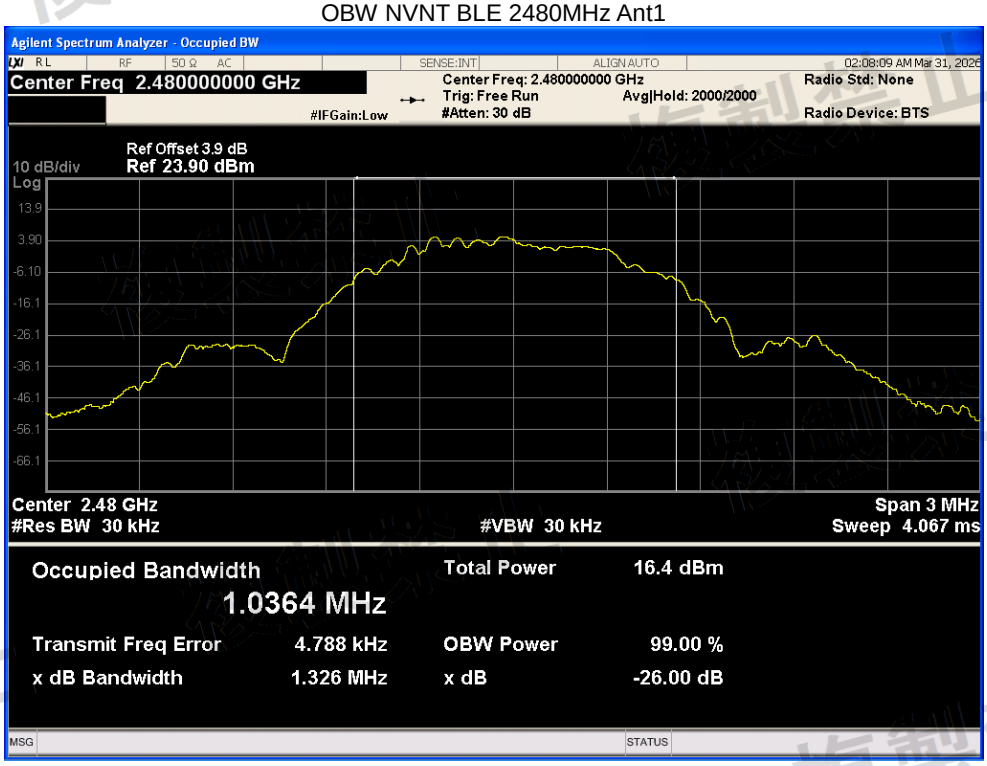
OBW NVNT BLE 2402MHz Ant1



OBW NVNT BLE 2440MHz Ant1



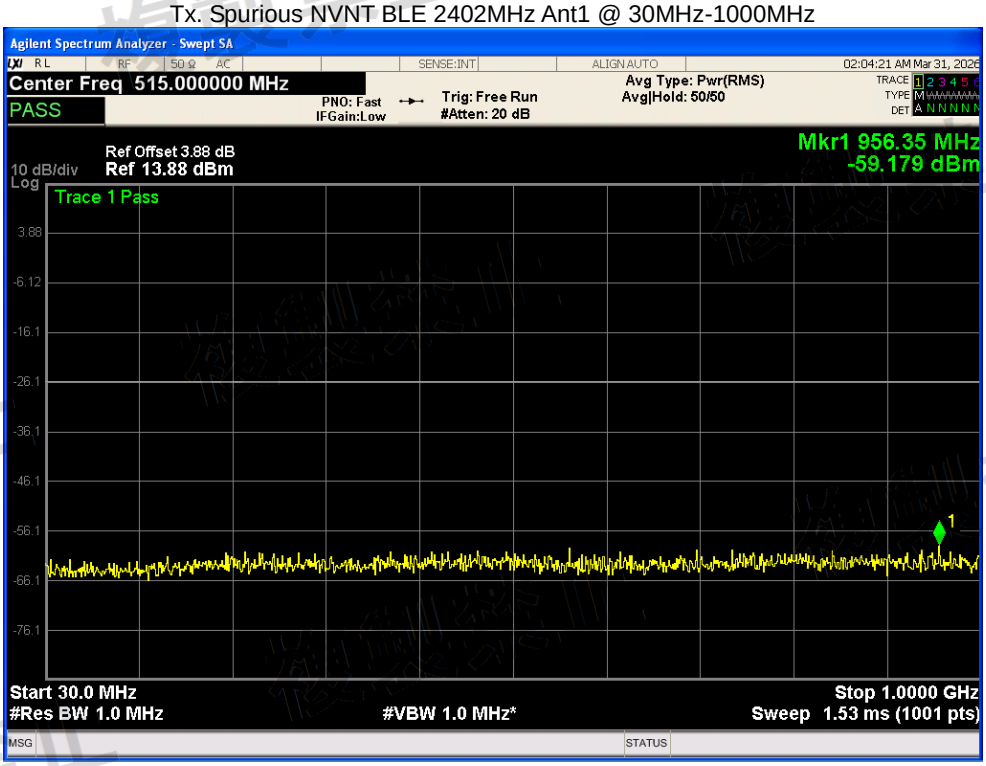
OBW NVNT BLE 2480MHz Ant1



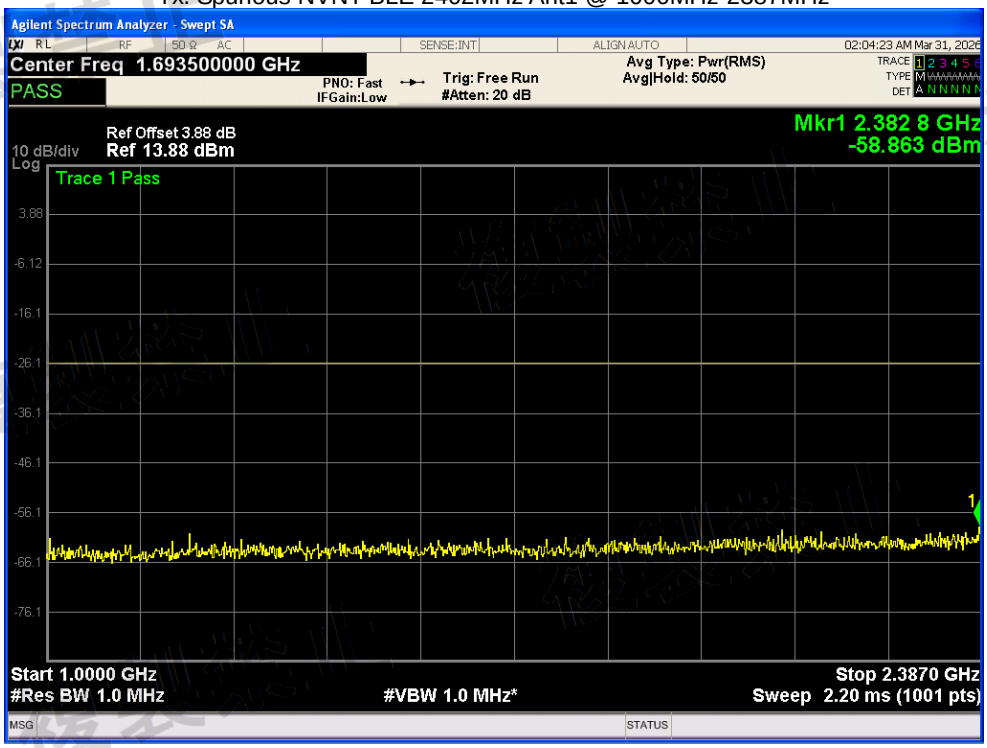
12.1.5 TX SPURIOUS EMISSION

Condition	Mode	Frequency (MHz)	Antenna	Range (MHz)	Emission Frequency (MHz)	Max Value (dBm)	Max Value (uW)	Limit Start(uW)	Limit Stop (uW)	Verdict
NVNT	BLE	2402	Ant1	30-1000	956.35	-59.17	0.0012	2.5	2.5	Pass
NVNT	BLE	2402	Ant1	1000-2387	2382.84	-58.86	0.0013	2.5	2.5	Pass
NVNT	BLE	2402	Ant1	2387-2400	2400	-28.91	1.2853	25	25	Pass
NVNT	BLE	2402	Ant1	2483.5-2496.5	2487.17	-58.41	0.0014	25	25	Pass
NVNT	BLE	2402	Ant1	2496.5-13000	7202.07	-49.27	0.0118	2.5	2.5	Pass
NVNT	BLE	2440	Ant1	30-1000	950.53	-59.66	0.0011	2.5	2.5	Pass
NVNT	BLE	2440	Ant1	1000-2387	1761.46	-59.36	0.0012	2.5	2.5	Pass
NVNT	BLE	2440	Ant1	2387-2400	2399.39	-56.74	0.0021	25	25	Pass
NVNT	BLE	2440	Ant1	2483.5-2496.5	2491.91	-57.58	0.0017	25	25	Pass
NVNT	BLE	2440	Ant1	2496.5-13000	7317.61	-54.08	0.0039	2.5	2.5	Pass
NVNT	BLE	2480	Ant1	30-1000	866.14	-59.31	0.0012	2.5	2.5	Pass
NVNT	BLE	2480	Ant1	1000-2387	1299.59	-59.42	0.0011	2.5	2.5	Pass
NVNT	BLE	2480	Ant1	2387-2400	2394.86	-58.4	0.0014	25	25	Pass
NVNT	BLE	2480	Ant1	2483.5-2496.5	2483.97	-51.92	0.0064	25	25	Pass
NVNT	BLE	2480	Ant1	2496.5-13000	7443.65	-57.45	0.0018	2.5	2.5	Pass

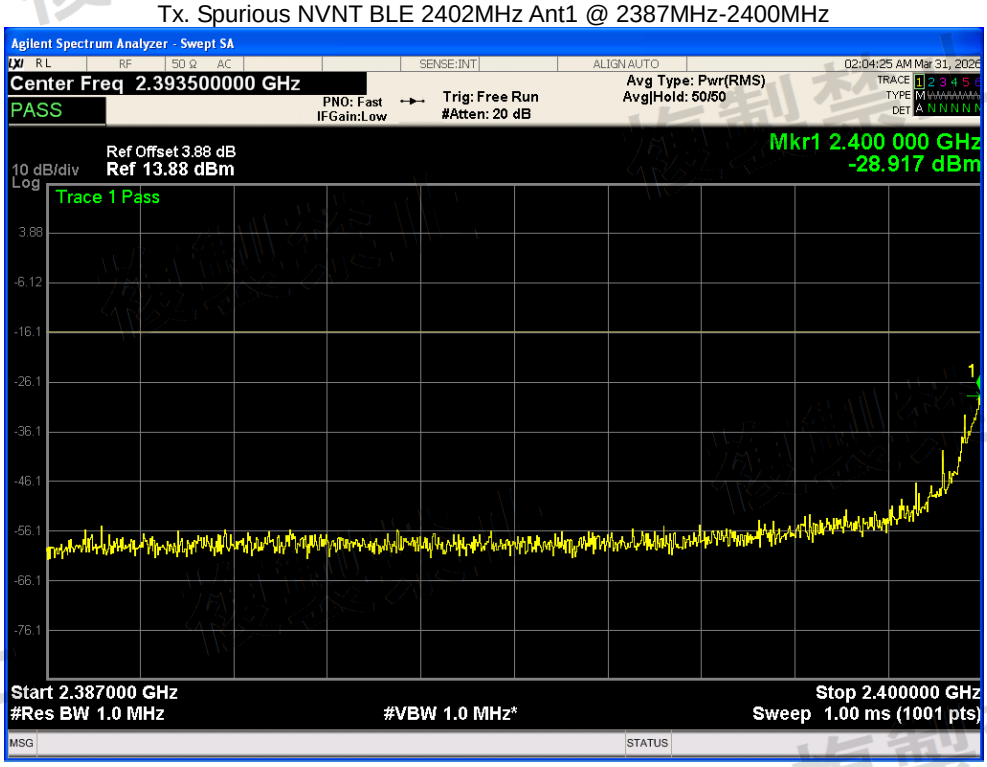
Tx. Spurious NVNT BLE 2402MHz Ant1 @ 30MHz-1000MHz



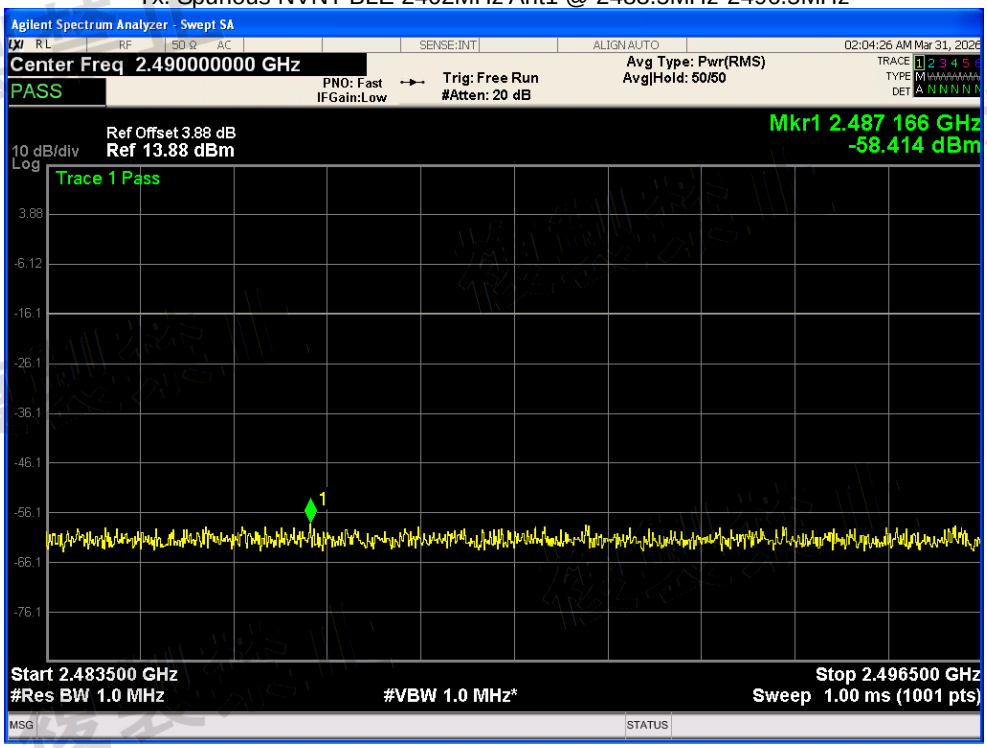
Tx. Spurious NVNT BLE 2402MHz Ant1 @ 1000MHz-2387MHz



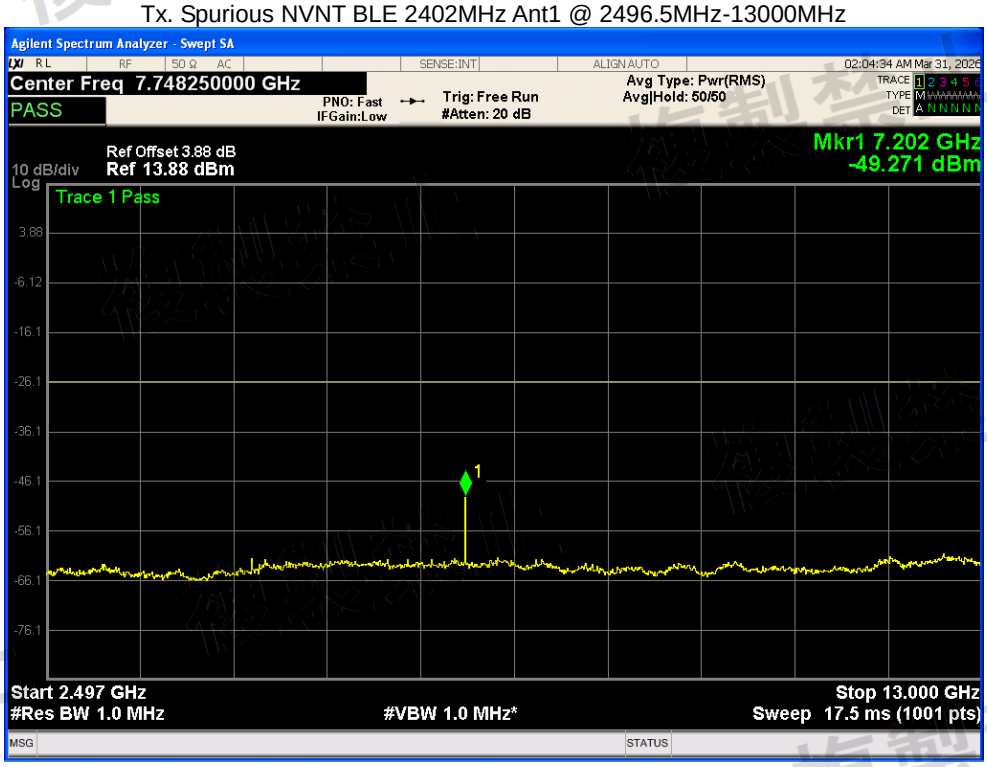
Tx. Spurious NVNT BLE 2402MHz Ant1 @ 2387MHz-2400MHz



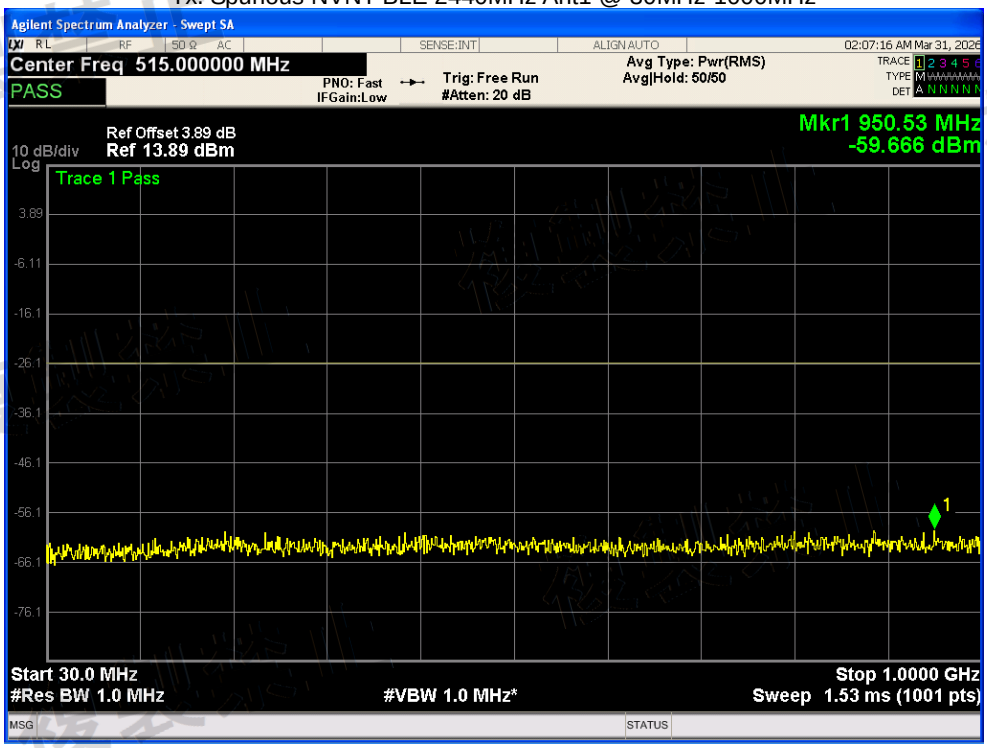
Tx. Spurious NVNT BLE 2402MHz Ant1 @ 2483.5MHz-2496.5MHz



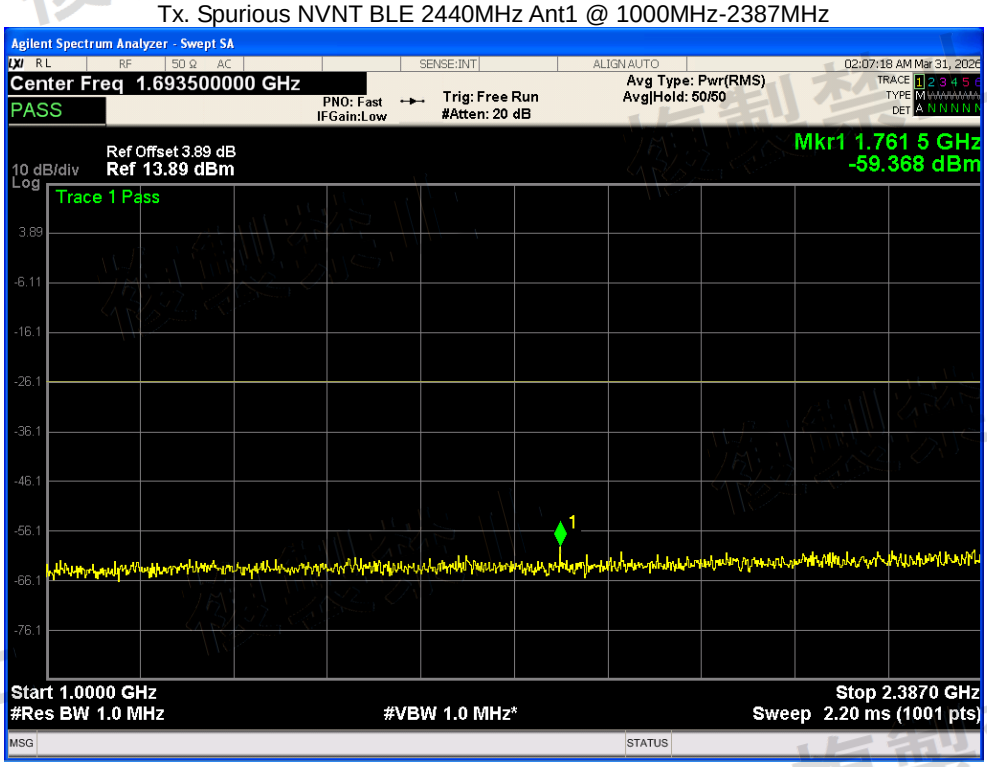
Tx. Spurious NVNT BLE 2402MHz Ant1 @ 2496.5MHz-13000MHz



Tx. Spurious NVNT BLE 2440MHz Ant1 @ 30MHz-1000MHz

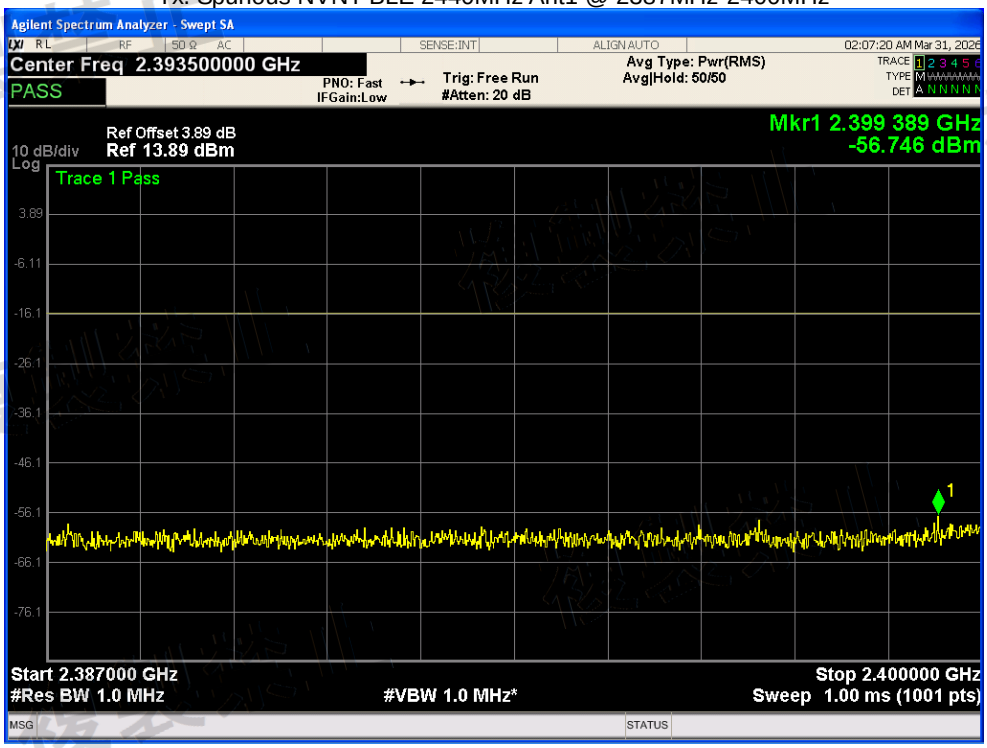


Tx. Spurious NVNT BLE 2440MHz Ant1 @ 1000MHz-2387MHz

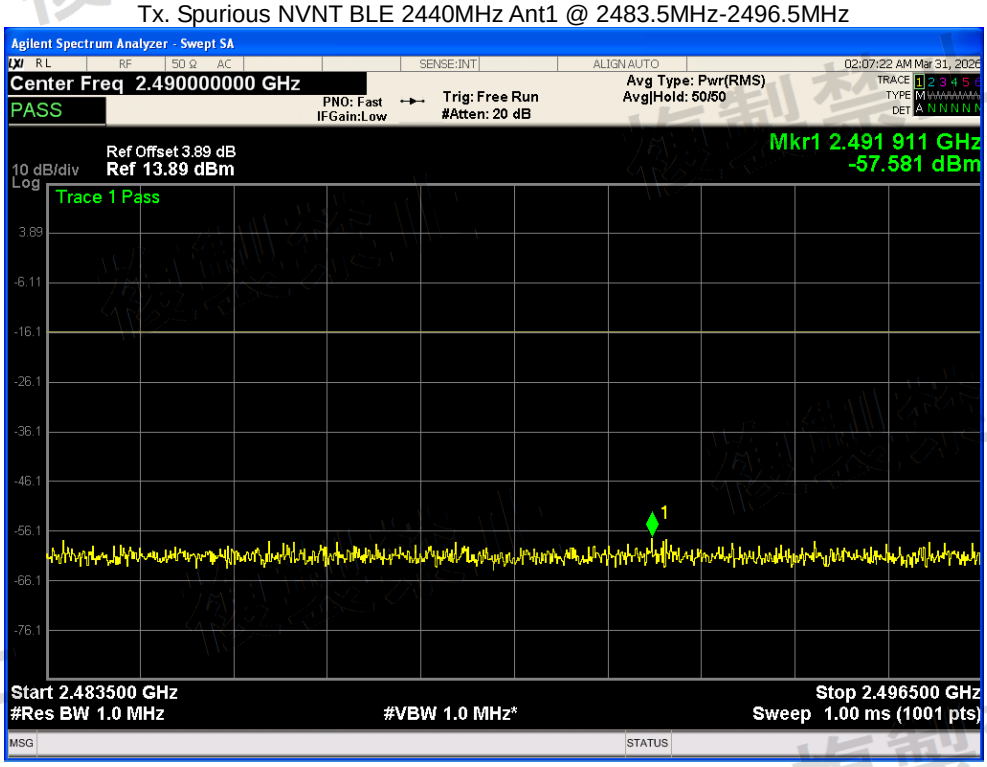


複製禁止

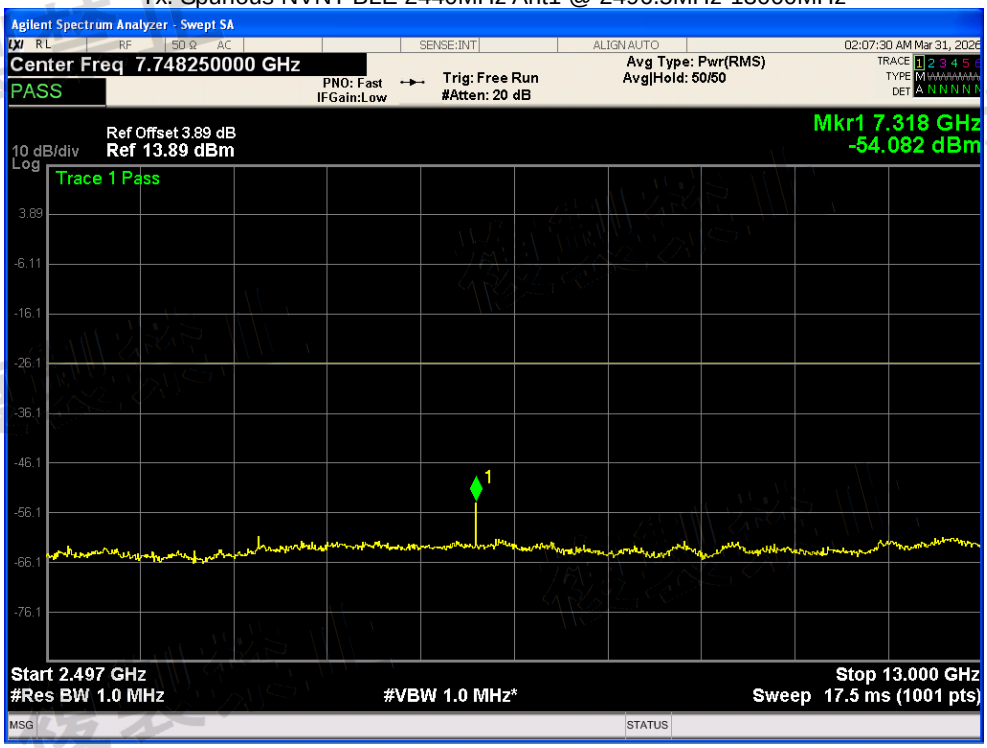
Tx. Spurious NVNT BLE 2440MHz Ant1 @ 2387MHz-2400MHz



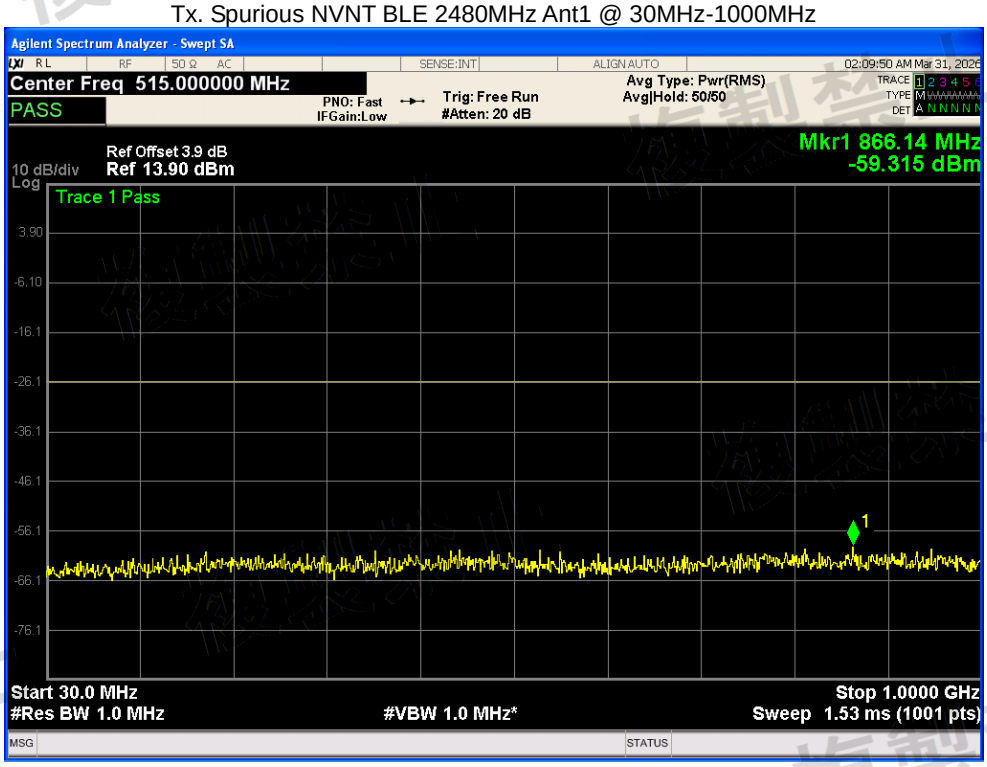
Tx. Spurious NVNT BLE 2440MHz Ant1 @ 2483.5MHz-2496.5MHz



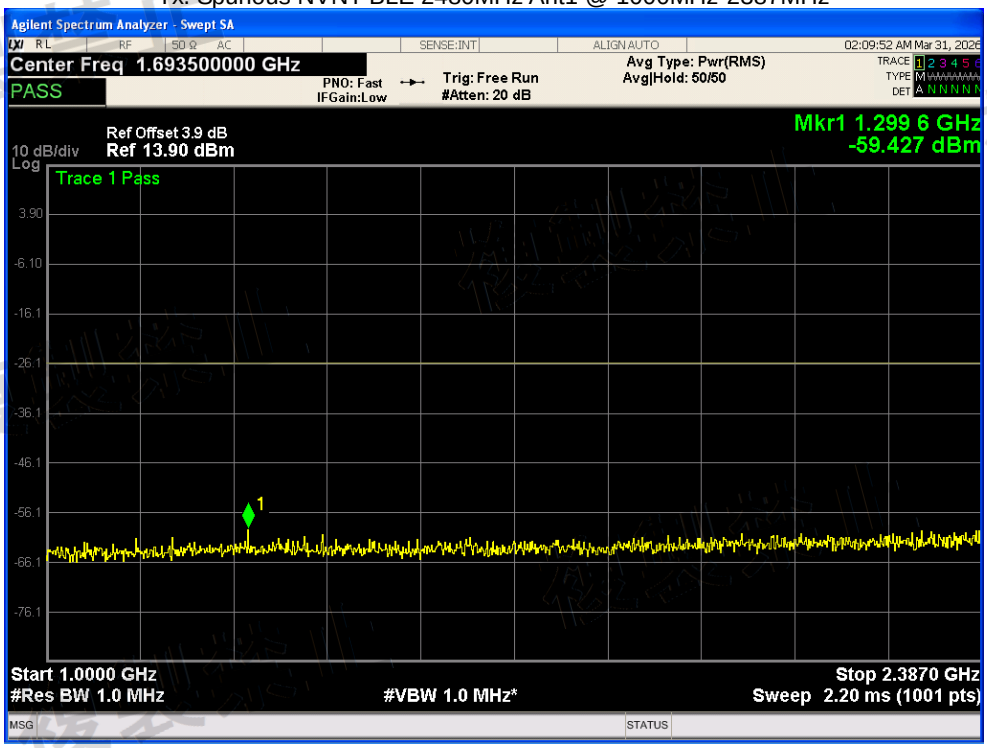
Tx. Spurious NVNT BLE 2440MHz Ant1 @ 2496.5MHz-13000MHz



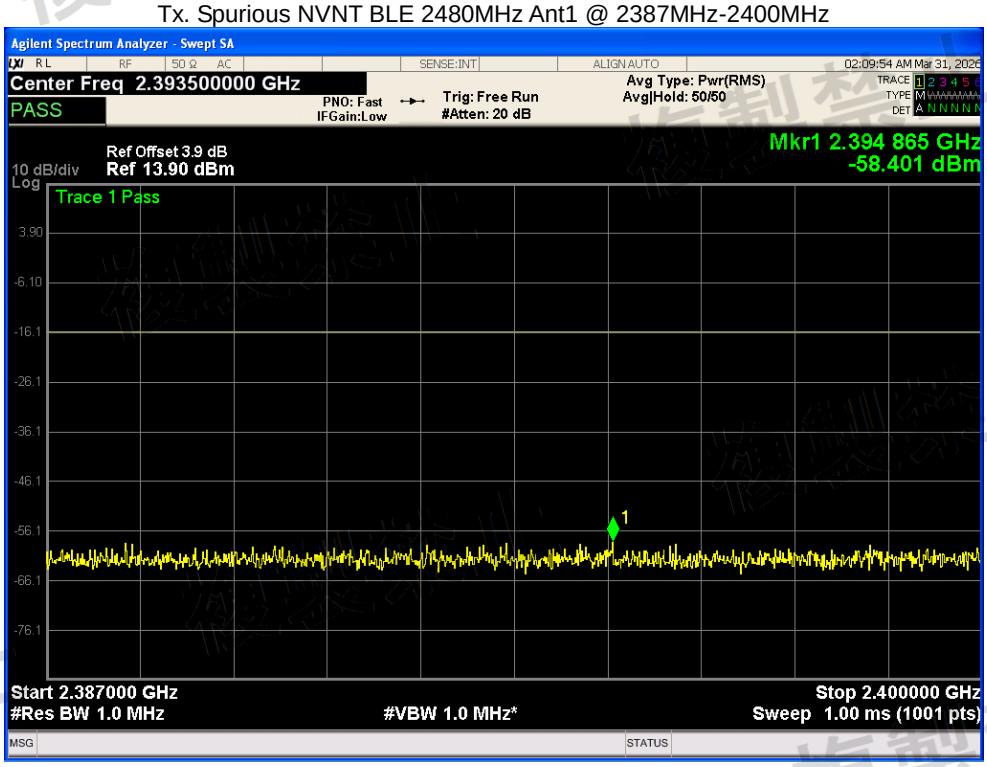
Tx. Spurious NVNT BLE 2480MHz Ant1 @ 30MHz-1000MHz



Tx. Spurious NVNT BLE 2480MHz Ant1 @ 1000MHz-2387MHz

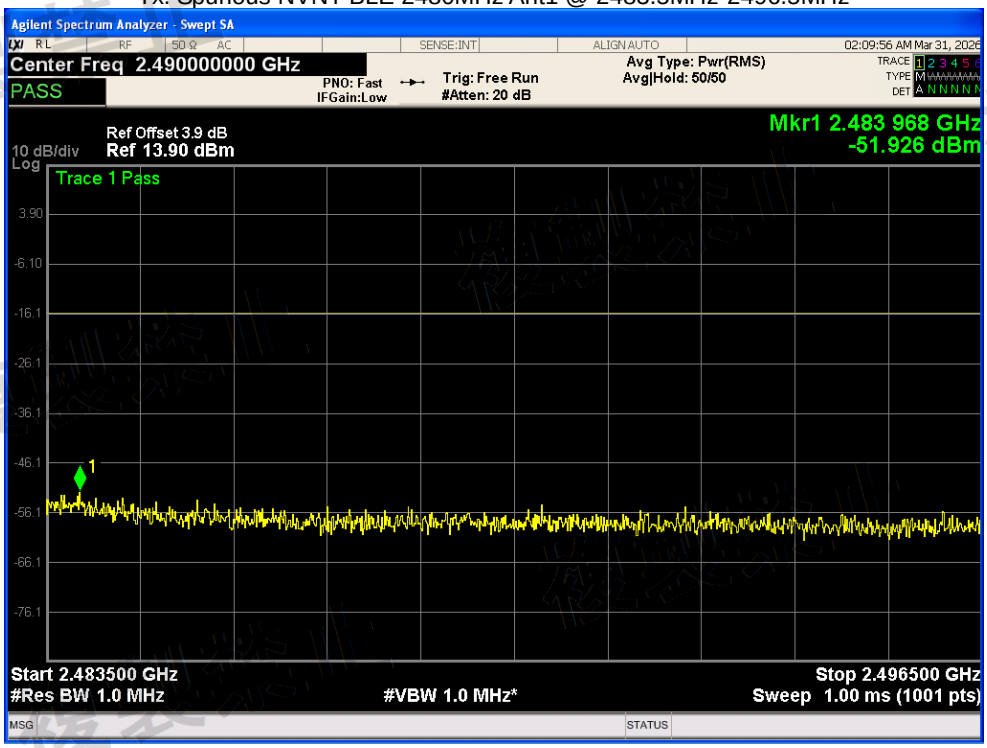


Tx. Spurious NVNT BLE 2480MHz Ant1 @ 2387MHz-2400MHz

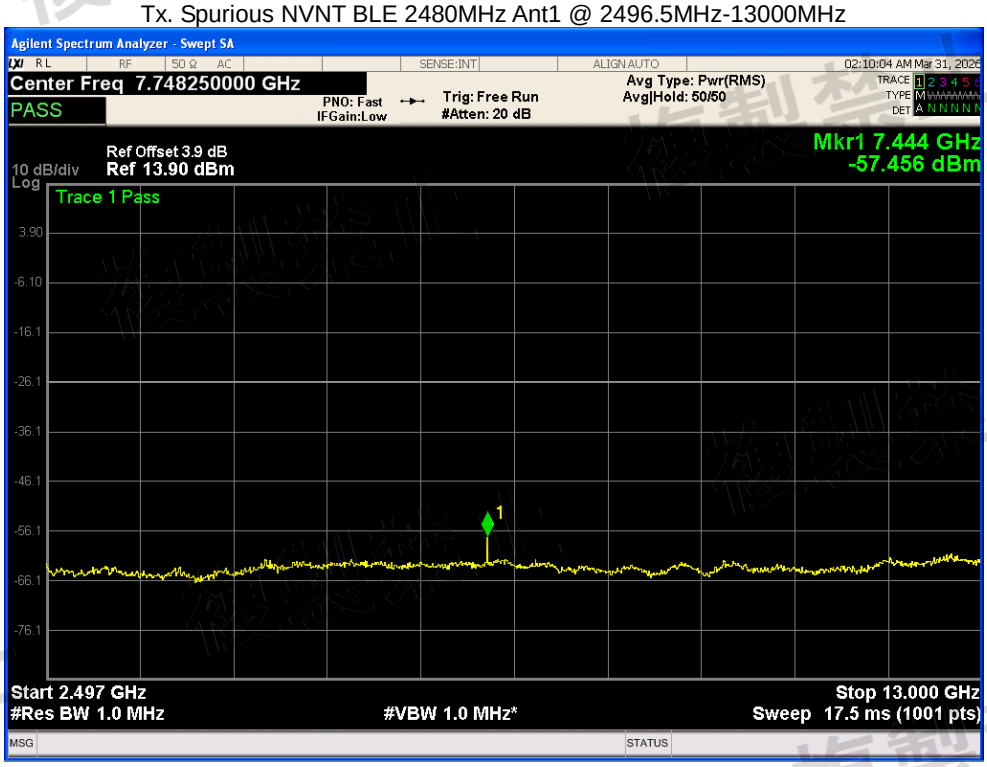


複製禁止

Tx. Spurious NVNT BLE 2480MHz Ant1 @ 2483.5MHz-2496.5MHz



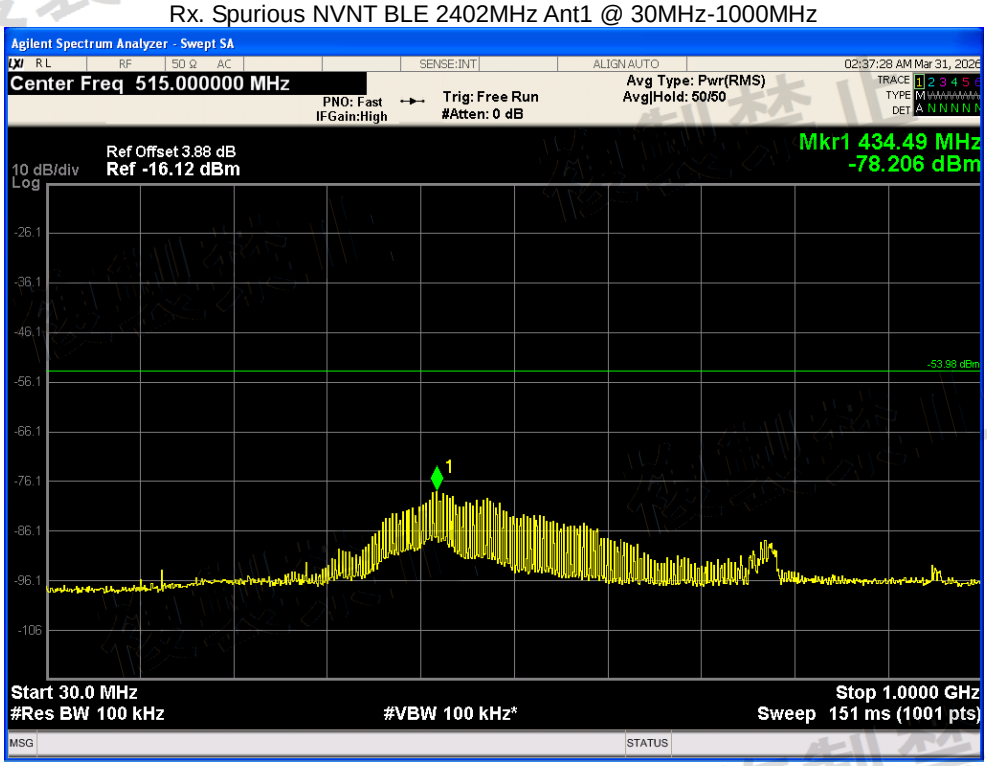
Tx. Spurious NVNT BLE 2480MHz Ant1 @ 2496.5MHz-13000MHz



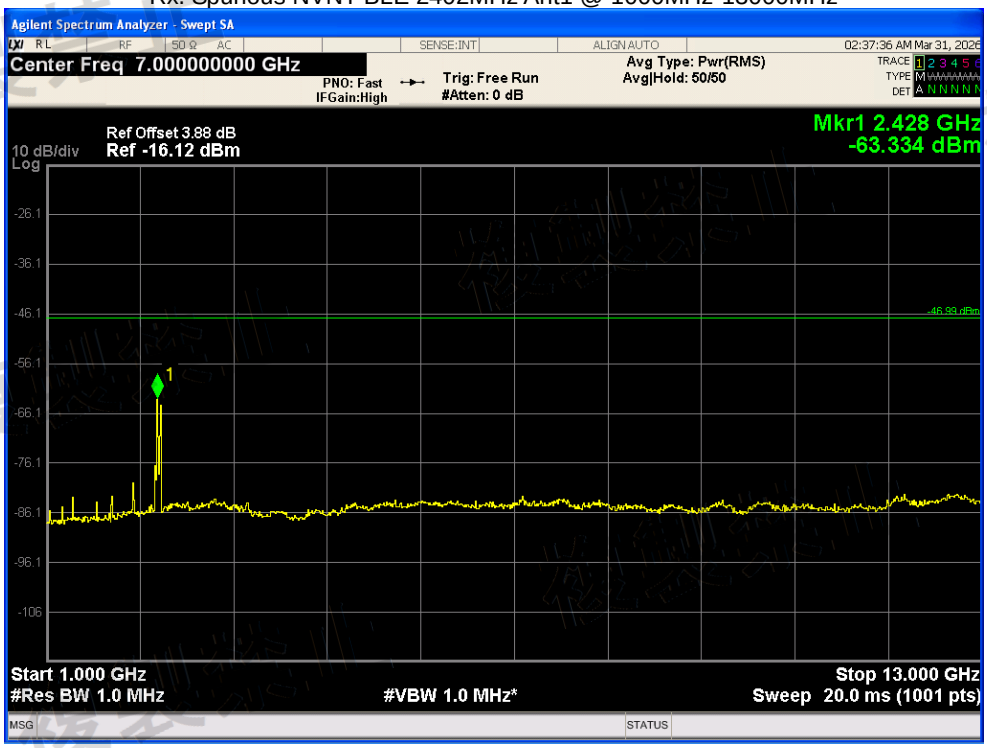
12.1.6 RX SPURIOUS EMISSION

Condition	Mode	Frequency (MHz)	Antenna	Range (MHz)	Emission Frequency (MHz)	Max Value (dBm)	Max Value (nW)	Limit (nW)	Verdict
NVNT	BLE	2402	Ant1	30-1000	434.49	-78.21	0.0151	4	Pass
NVNT	BLE	2402	Ant1	1000-13000	2428	-63.33	0.4645	20	Pass
NVNT	BLE	2440	Ant1	30-1000	434.49	-78.08	0.0156	4	Pass
NVNT	BLE	2440	Ant1	1000-13000	3568	-69.32	0.1169	20	Pass
NVNT	BLE	2480	Ant1	30-1000	434.49	-78.24	0.015	4	Pass
NVNT	BLE	2480	Ant1	1000-13000	2464	-65.99	0.2518	20	Pass

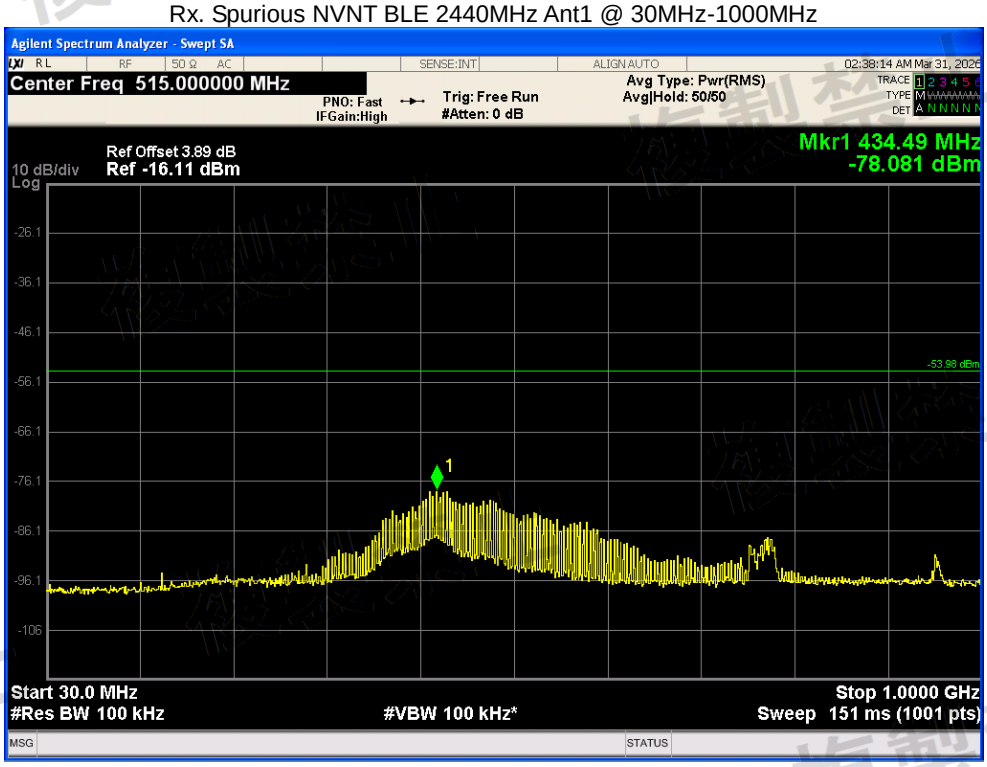
Rx. Spurious NVNT BLE 2402MHz Ant1 @ 30MHz-1000MHz



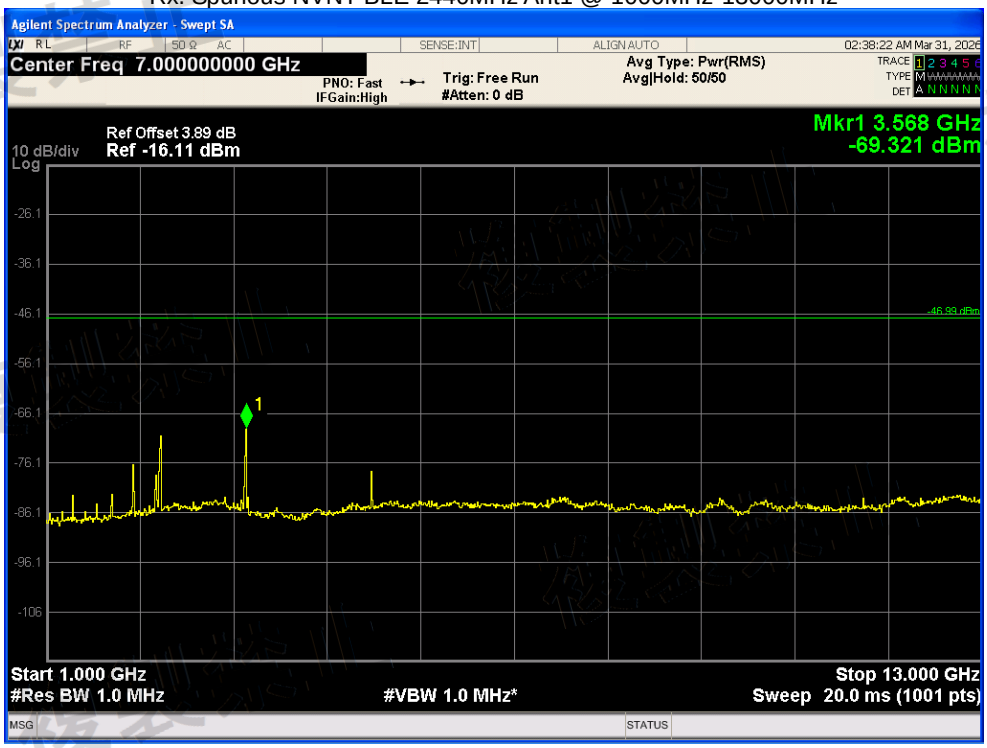
Rx. Spurious NVNT BLE 2402MHz Ant1 @ 1000MHz-13000MHz



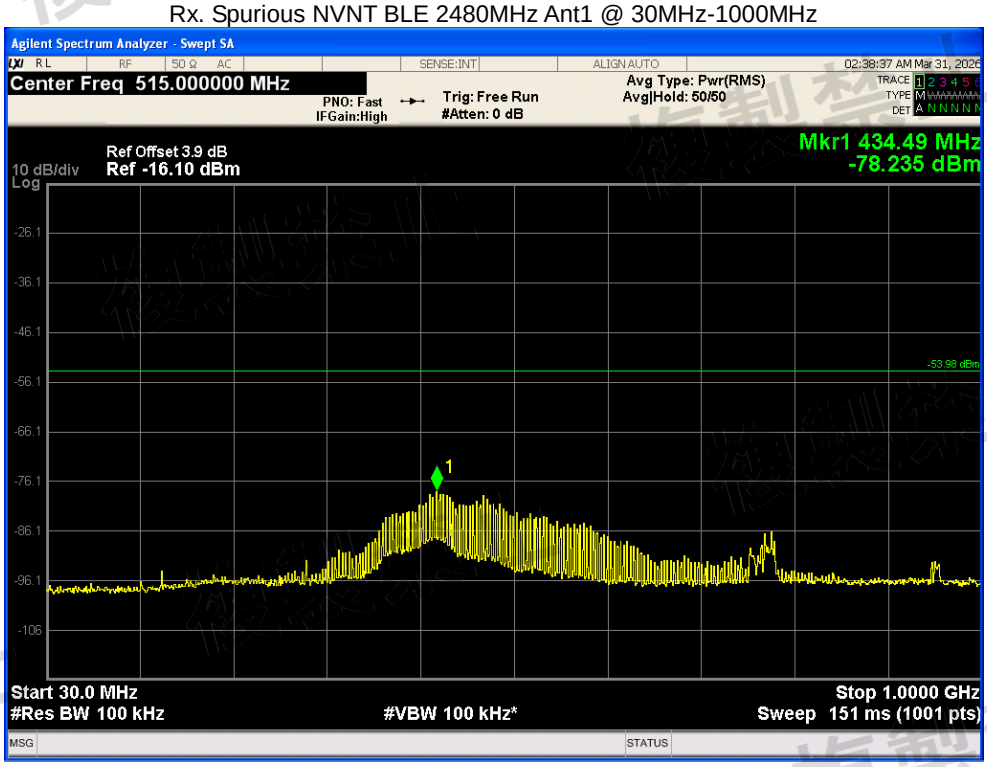
Rx. Spurious NVNT BLE 2440MHz Ant1 @ 30MHz-1000MHz



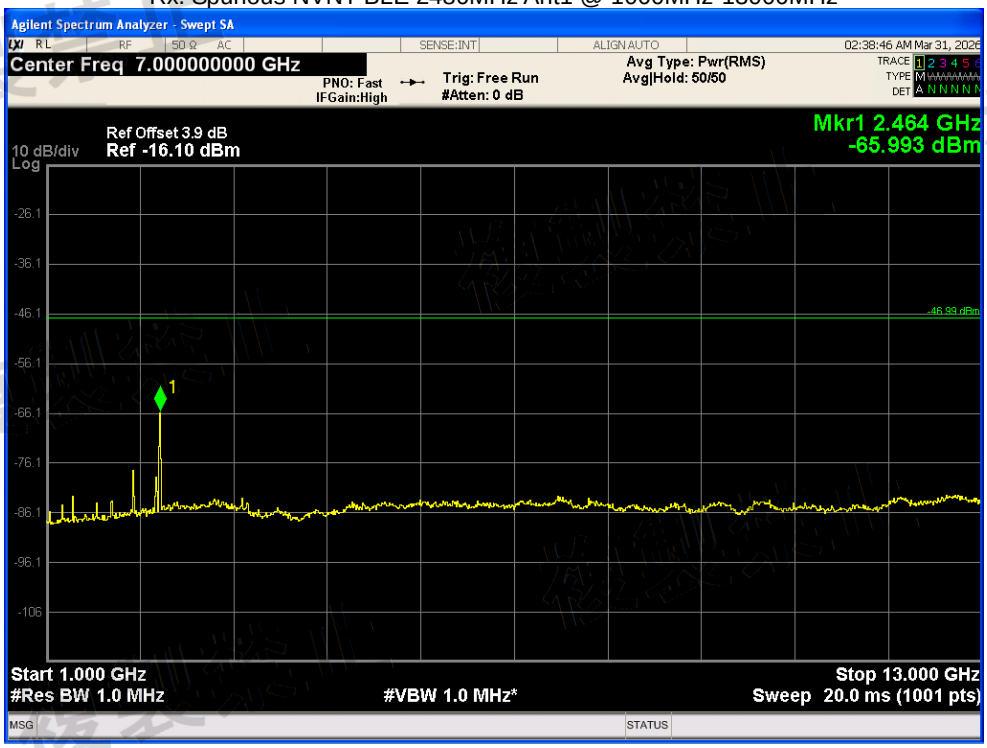
Rx. Spurious NVNT BLE 2440MHz Ant1 @ 1000MHz-13000MHz



Rx. Spurious NVNT BLE 2480MHz Ant1 @ 30MHz-1000MHz



Rx. Spurious NVNT BLE 2480MHz Ant1 @ 1000MHz-13000MHz



12.2 2M

12.2.1 ANTENNA AND EIRP POWER

Condition	Mode	Frequency (MHz)	Antenna	Antenna Power (mW)	Declared Power (mW)	Tolerance (%)	Upper Limit (%)	Lower Limit (%)	Verdict
NVNT	BLE 2M	2402	Ant1	0.931	2	-53.43	20	-80	Pass
NVNT	BLE 2M	2440	Ant1	0.959	2	-52.04	20	-80	Pass
NVNT	BLE 2M	2480	Ant1	1.03	2	-48.52	20	-80	Pass

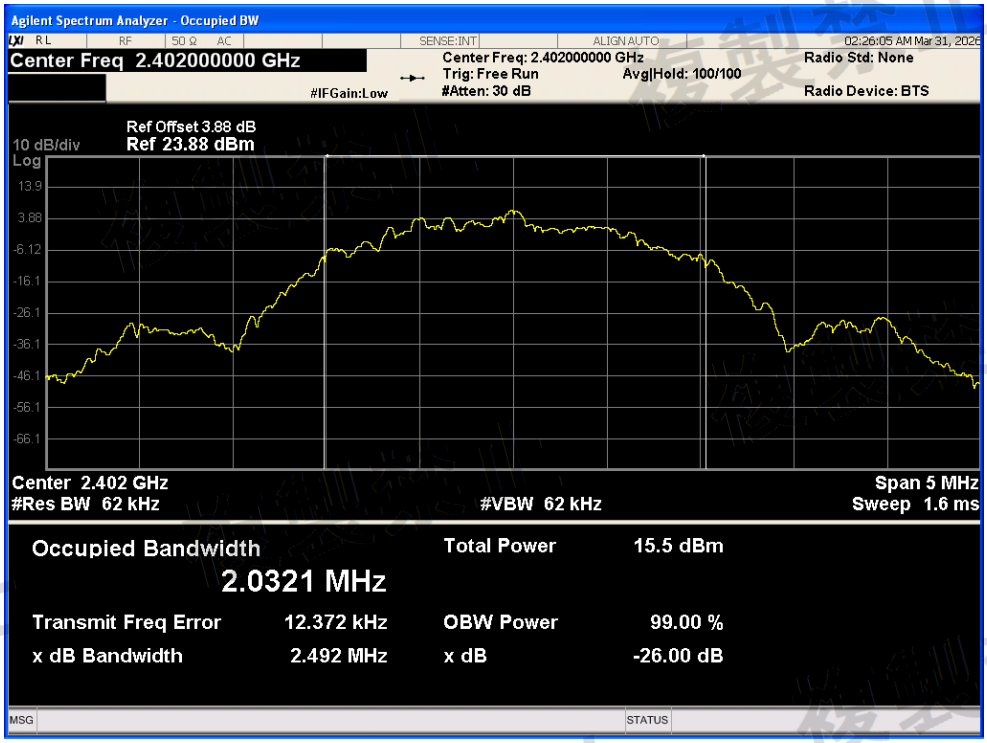
12.2.2 EIRP POWER

Condition	Mode	Frequency (MHz)	Antenna	Antenna Power (mW)	Gain (dBi)	EIRP Power (dBm)	Limit (dBm/MHz)	Verdict
NVNT	BLE 2M	2402	Ant1	0.931	3.43	3.121	12.14	Pass
NVNT	BLE 2M	2440	Ant1	0.959	3.43	3.249	12.14	Pass
NVNT	BLE 2M	2480	Ant1	1.03	3.43	3.557	12.14	Pass

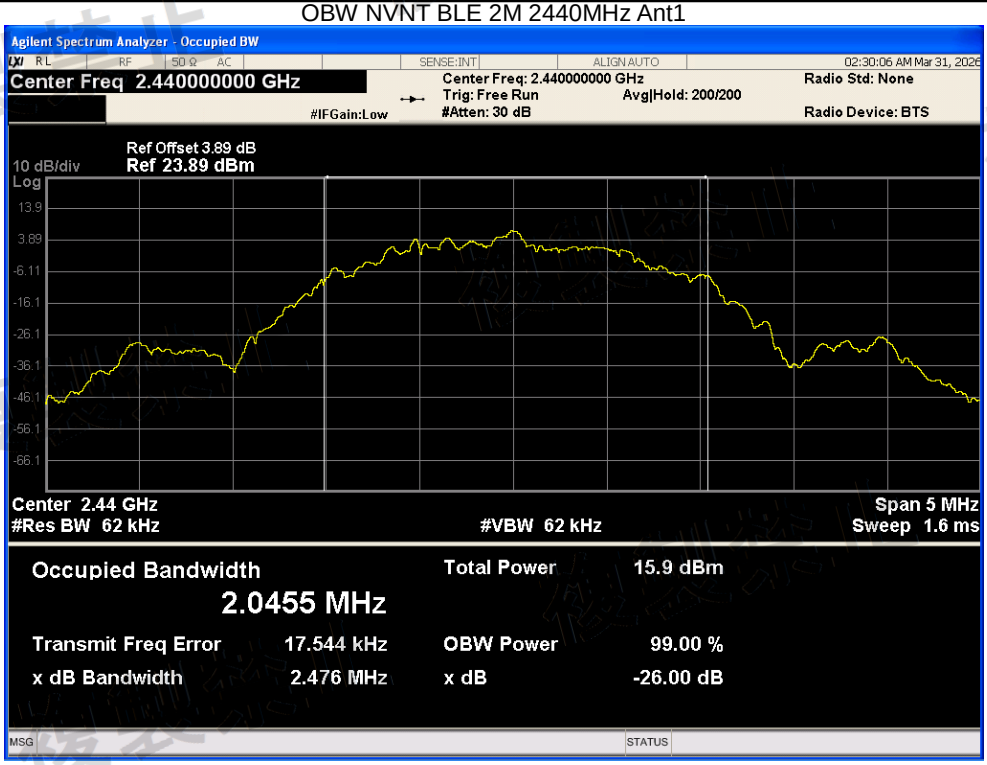
12.2.3 OCCUPIED CHANNEL BANDWIDTH

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	BLE 2M	2402	Ant1	2.032
NVNT	BLE 2M	2440	Ant1	2.045
NVNT	BLE 2M	2480	Ant1	2.051

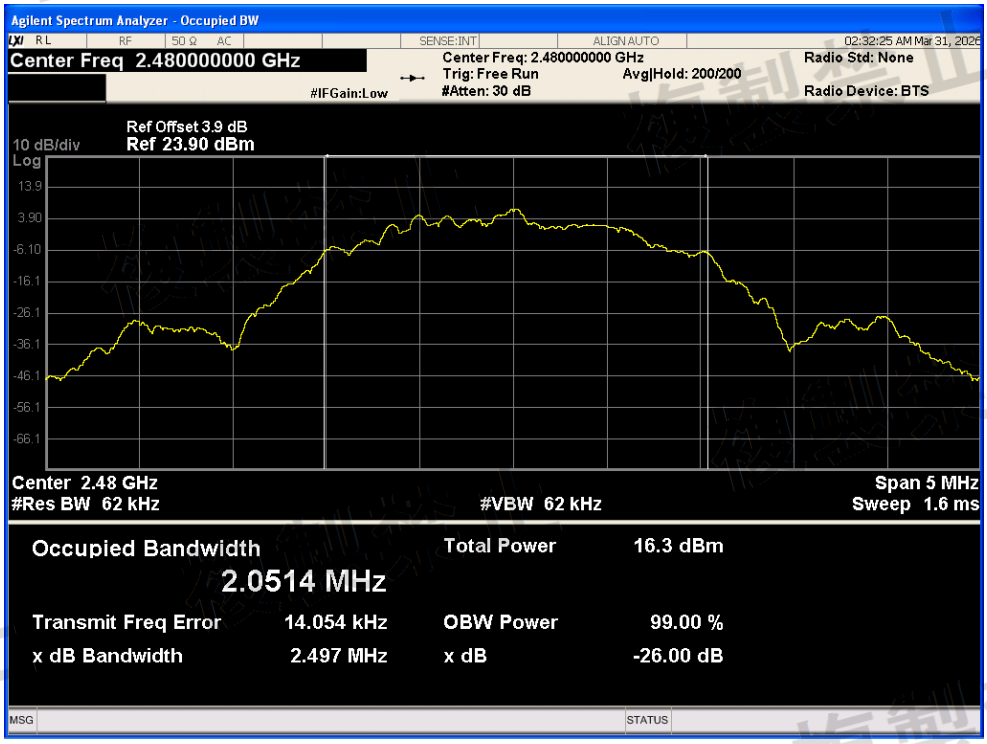
OBW NVNT BLE 2M 2402MHz Ant1



OBW NVNT BLE 2M 2440MHz Ant1



OBW NVNT BLE 2M 2480MHz Ant1

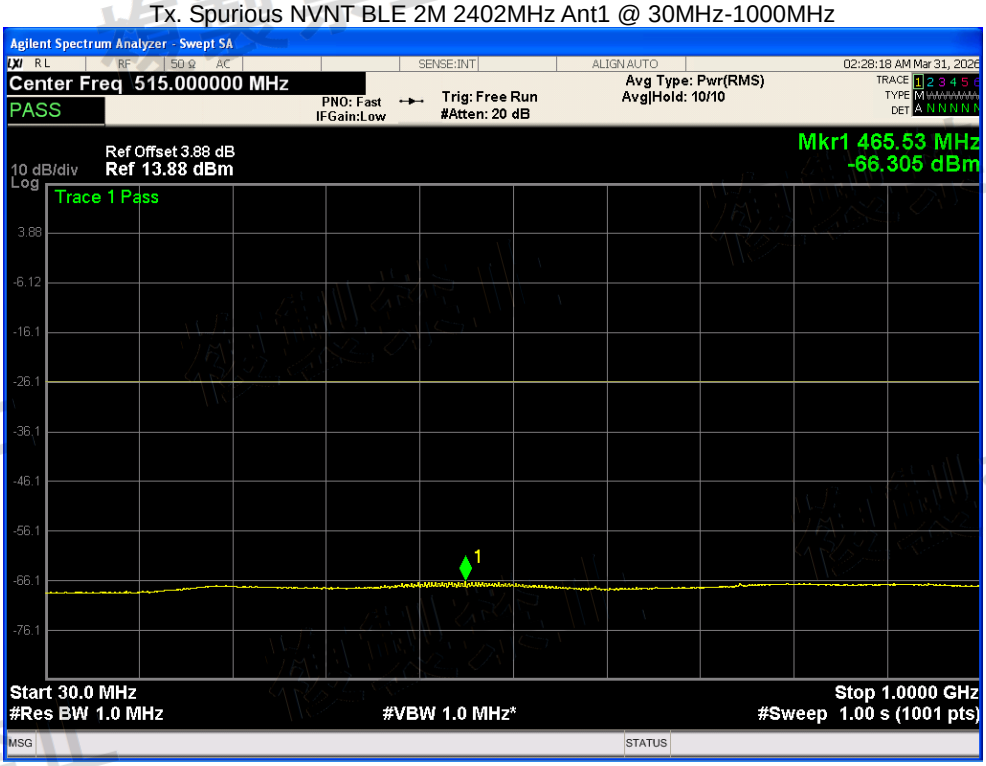


複製禁止

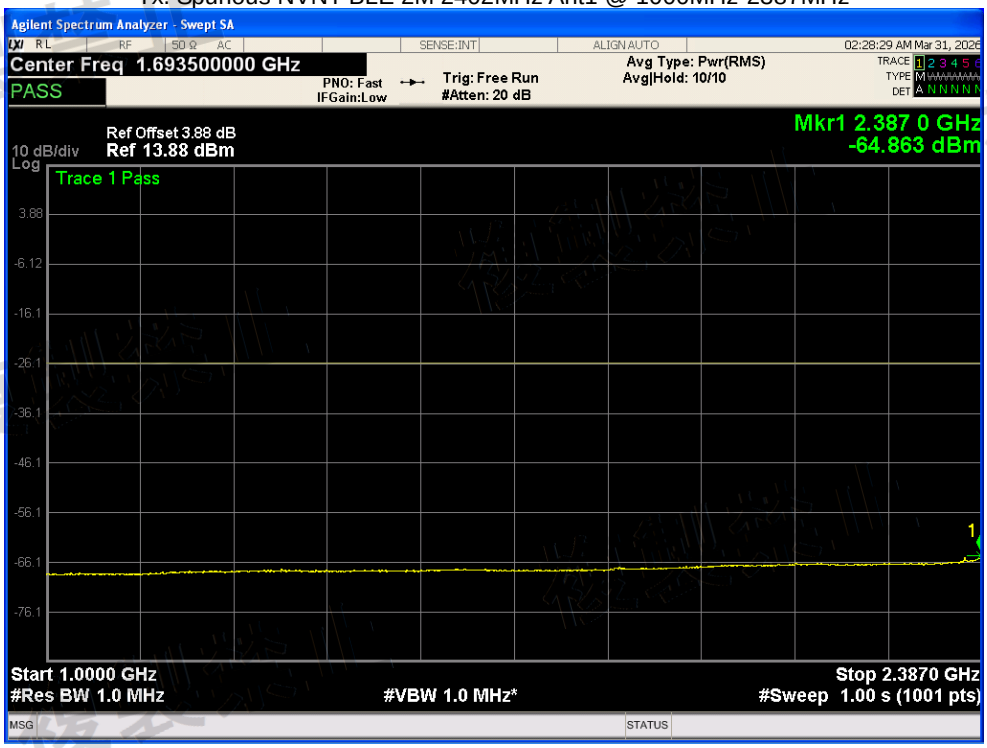
12.2.4 TX SPURIOUS EMISSION

Condition	Mode	Frequency (MHz)	Antenna	Range (MHz)	Emission Frequency (MHz)	Max Value (dBm)	Max Value (uW)	Limit Start(uW)	Limit Stop (uW)	Verdict
NVNT	BLE 2M	2402	Ant1	30-1000	465.53	-66.3	0.0002	2.5	2.5	Pass
NVNT	BLE 2M	2402	Ant1	1000-2387	2387	-64.86	0.0003	2.5	2.5	Pass
NVNT	BLE 2M	2402	Ant1	2387-2400	2400	-21.9	6.4565	25	25	Pass
NVNT	BLE 2M	2402	Ant1	2483.5-2496.5	2485.11	-66.22	0.0002	25	25	Pass
NVNT	BLE 2M	2402	Ant1	2496.5-13000	7202.07	-52.77	0.0053	2.5	2.5	Pass
NVNT	BLE 2M	2440	Ant1	30-1000	779.81	-58.53	0.0014	2.5	2.5	Pass
NVNT	BLE 2M	2440	Ant1	1000-2387	2244.14	-59.09	0.0012	2.5	2.5	Pass
NVNT	BLE 2M	2440	Ant1	2387-2400	2399.66	-57.72	0.0017	25	25	Pass
NVNT	BLE 2M	2440	Ant1	2483.5-2496.5	2491.66	-56.61	0.0022	25	25	Pass
NVNT	BLE 2M	2440	Ant1	2496.5-13000	7317.61	-54.24	0.0038	2.5	2.5	Pass
NVNT	BLE 2M	2480	Ant1	30-1000	398.6	-59.48	0.0011	2.5	2.5	Pass
NVNT	BLE 2M	2480	Ant1	1000-2387	2267.72	-60.28	0.0009	2.5	2.5	Pass
NVNT	BLE 2M	2480	Ant1	2387-2400	2392.29	-57.93	0.0016	25	25	Pass
NVNT	BLE 2M	2480	Ant1	2483.5-2496.5	2483.59	-41.42	0.0721	25	25	Pass
NVNT	BLE 2M	2480	Ant1	2496.5-13000	7443.65	-57.37	0.0018	2.5	2.5	Pass

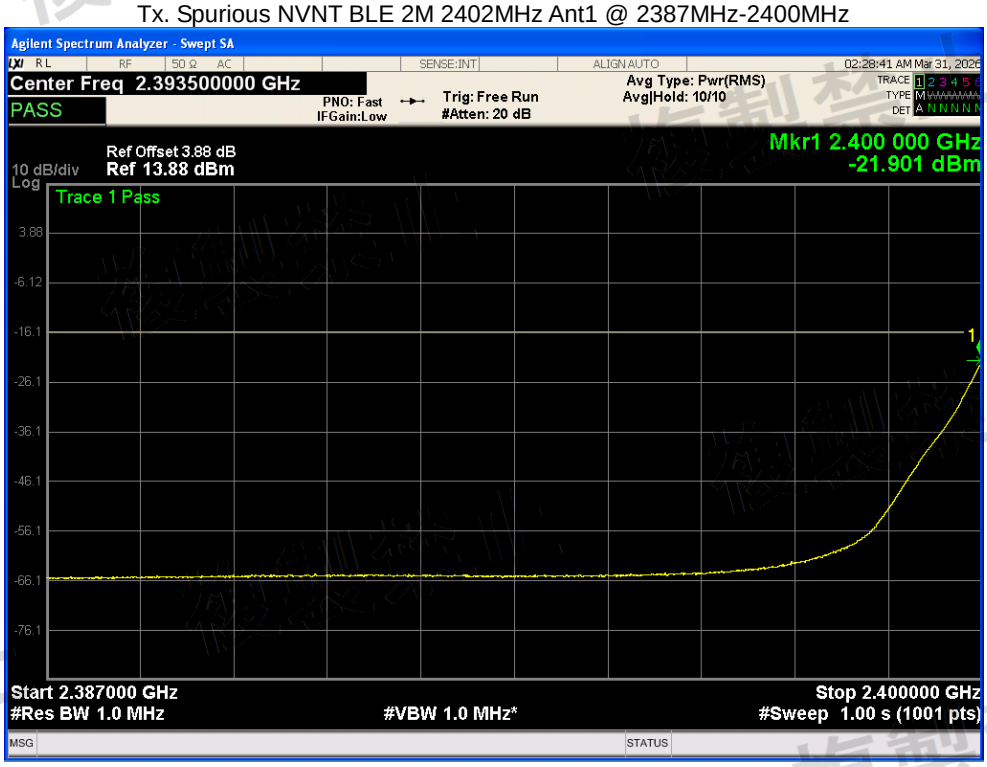
Tx. Spurious NVNT BLE 2M 2402MHz Ant1 @ 30MHz-1000MHz



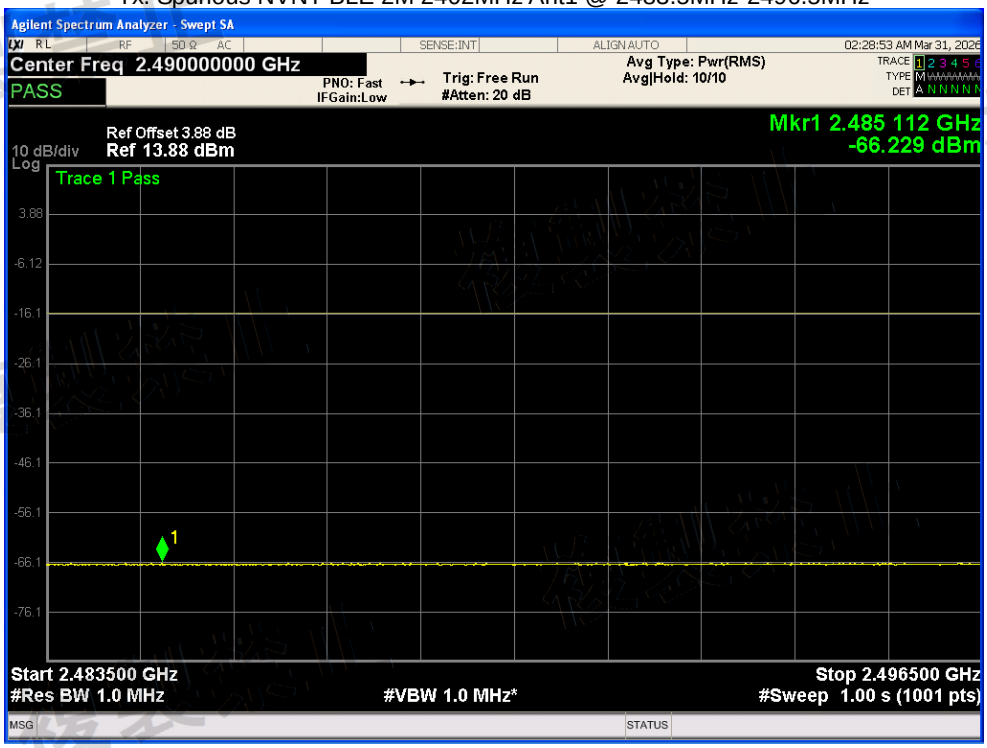
Tx. Spurious NVNT BLE 2M 2402MHz Ant1 @ 1000MHz-2387MHz



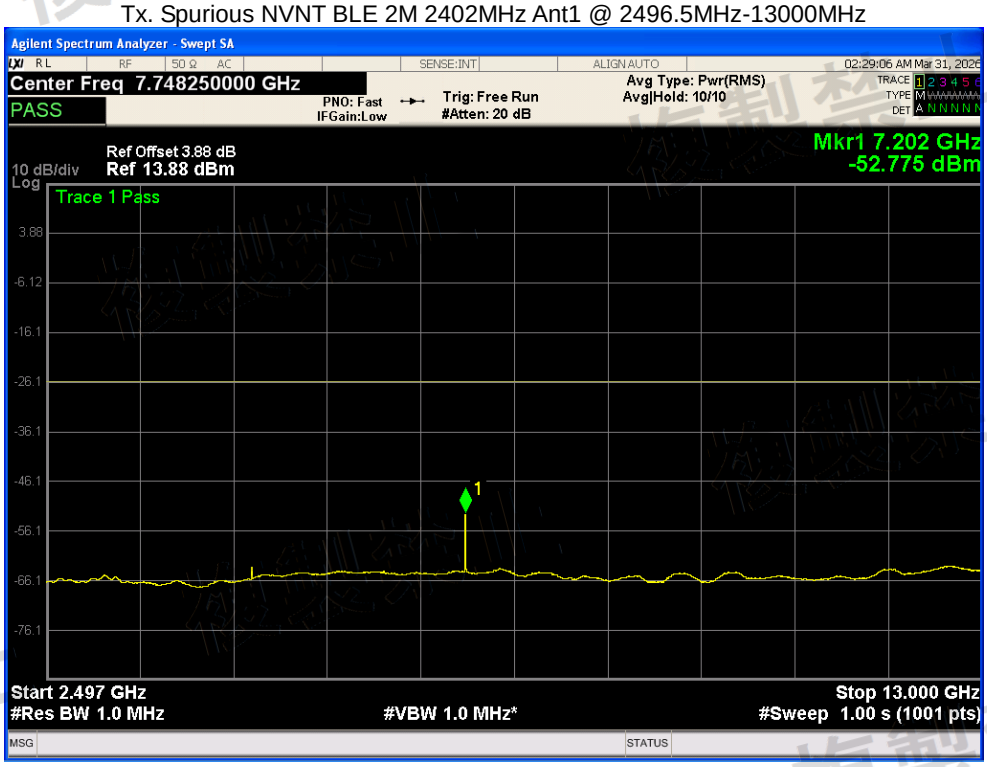
Tx. Spurious NVNT BLE 2M 2402MHz Ant1 @ 2387MHz-2400MHz



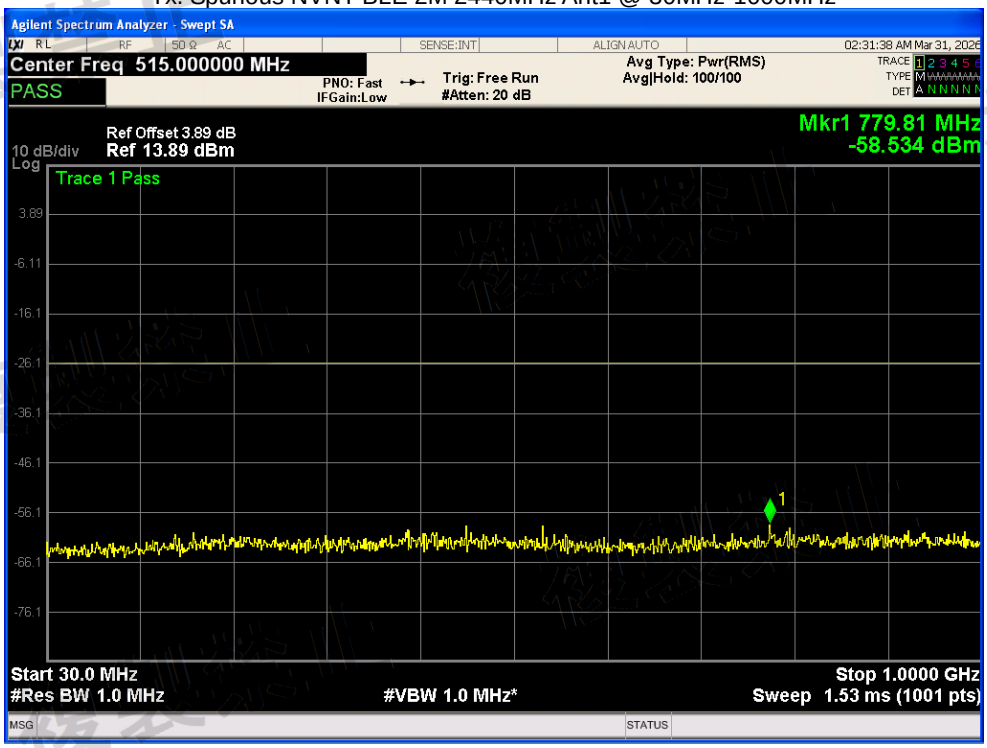
Tx. Spurious NVNT BLE 2M 2402MHz Ant1 @ 2483.5MHz-2496.5MHz



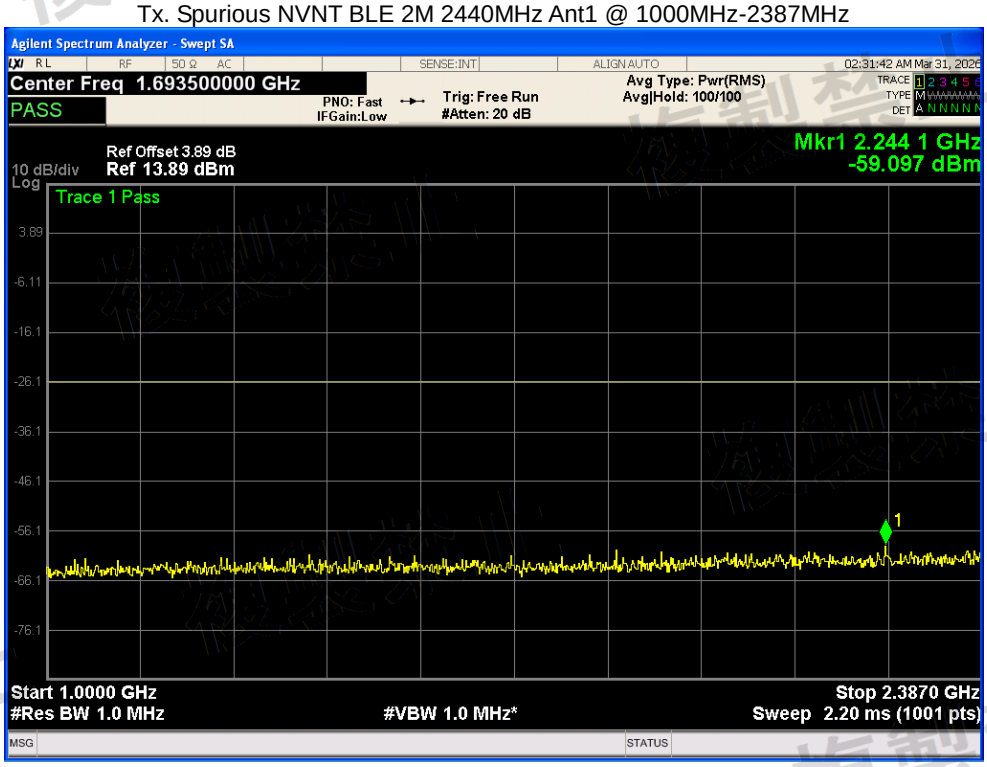
Tx. Spurious NVNT BLE 2M 2402MHz Ant1 @ 2496.5MHz-13000MHz



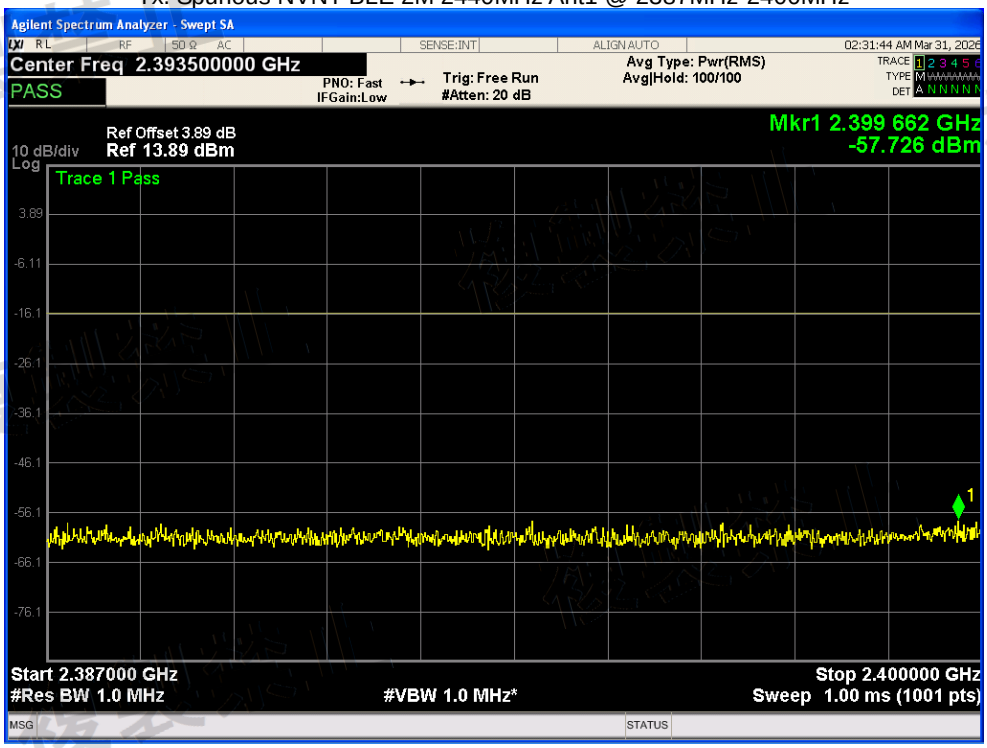
Tx. Spurious NVNT BLE 2M 2440MHz Ant1 @ 30MHz-1000MHz



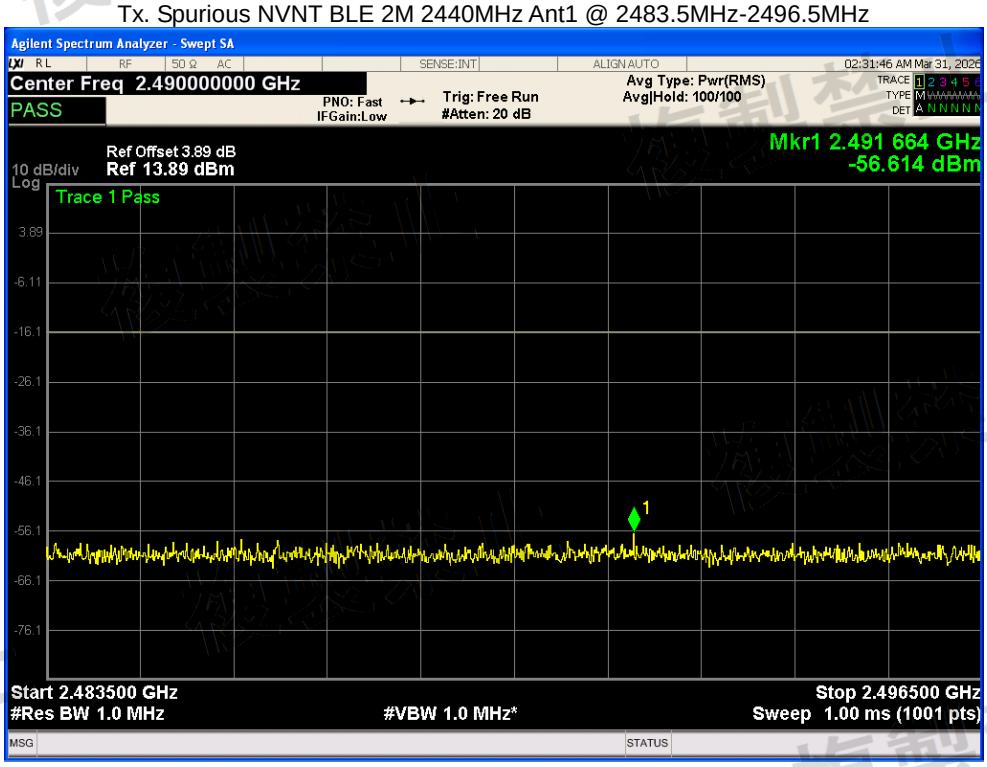
Tx. Spurious NVNT BLE 2M 2440MHz Ant1 @ 1000MHz-2387MHz



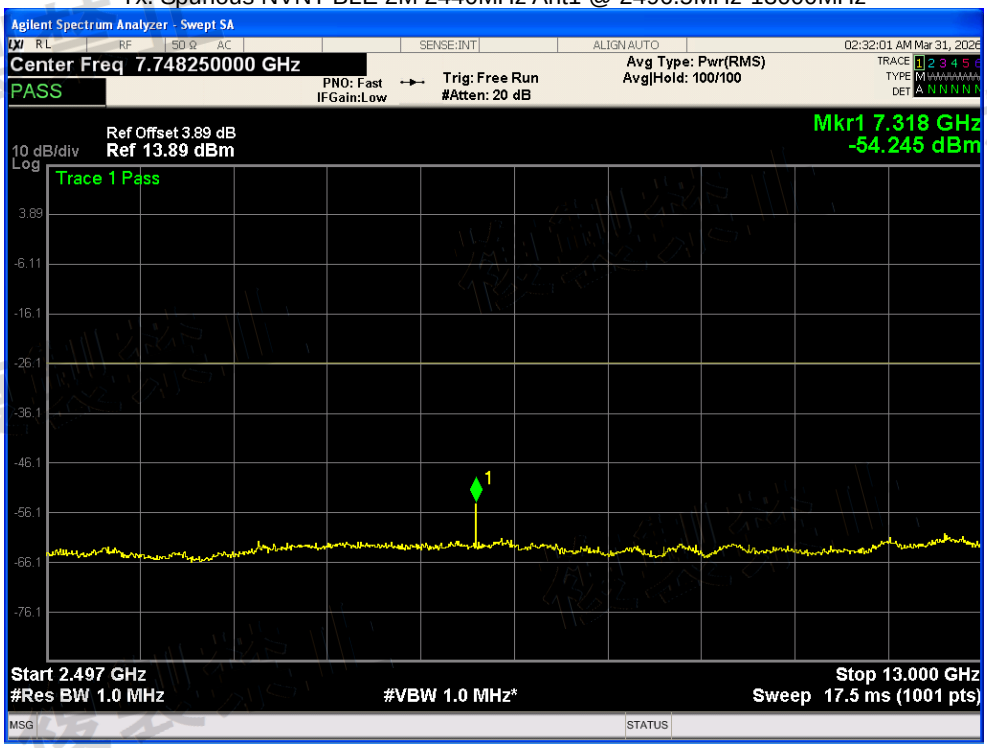
Tx. Spurious NVNT BLE 2M 2440MHz Ant1 @ 2387MHz-2400MHz



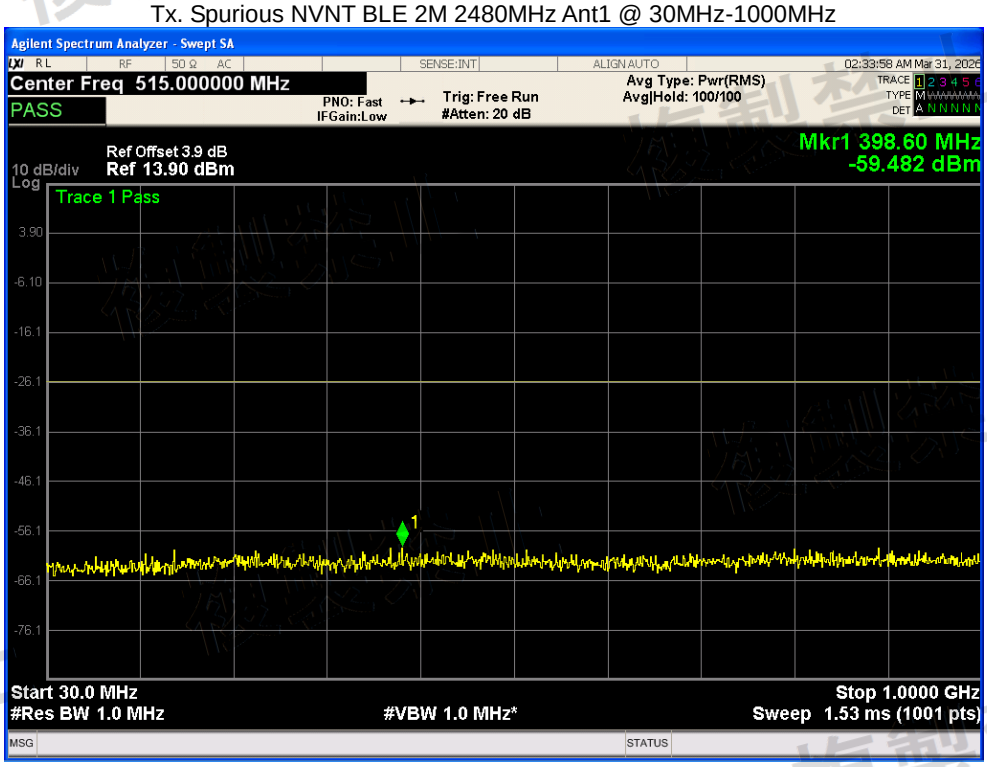
Tx. Spurious NVNT BLE 2M 2440MHz Ant1 @ 2483.5MHz-2496.5MHz



Tx. Spurious NVNT BLE 2M 2440MHz Ant1 @ 2496.5MHz-13000MHz

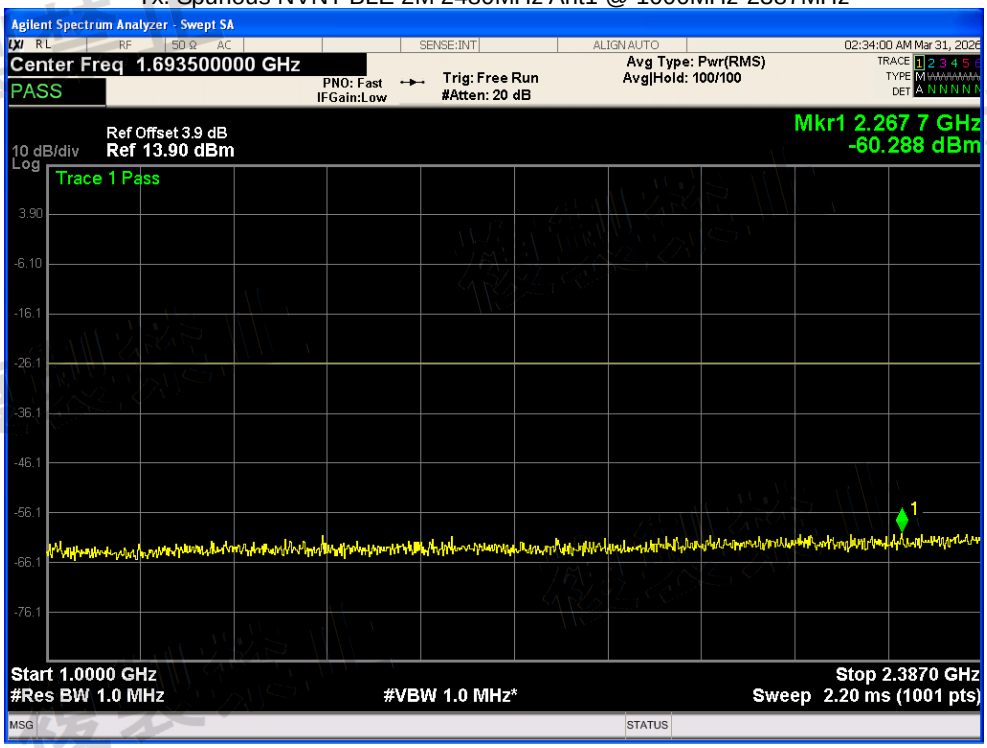


Tx. Spurious NVNT BLE 2M 2480MHz Ant1 @ 30MHz-1000MHz

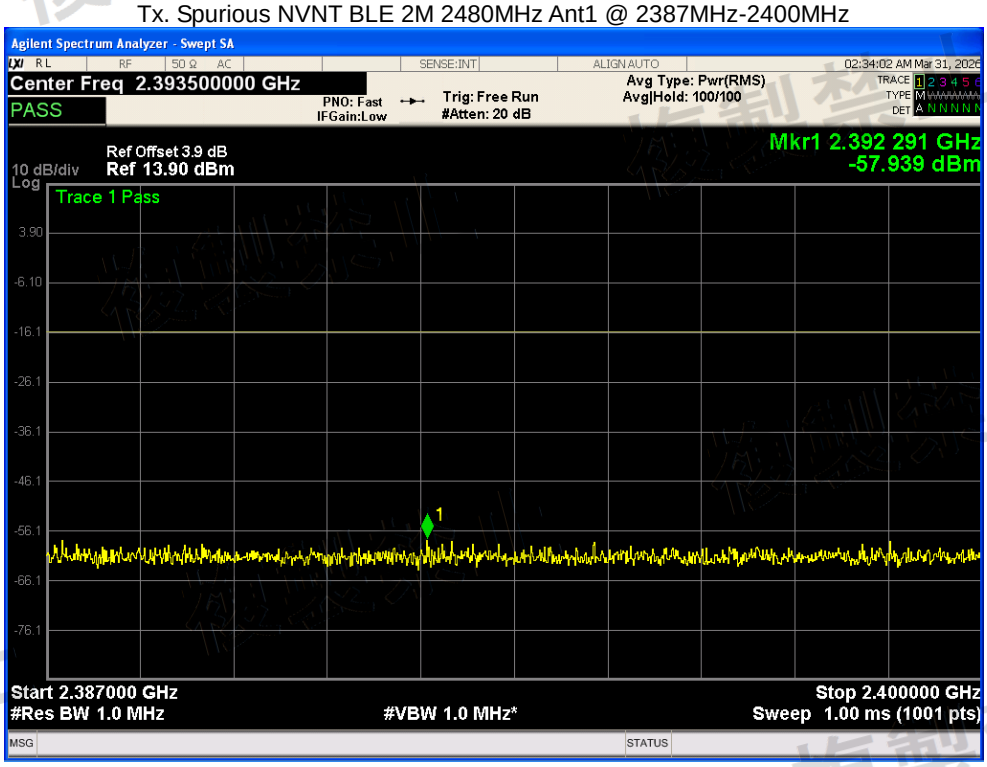


複製禁止

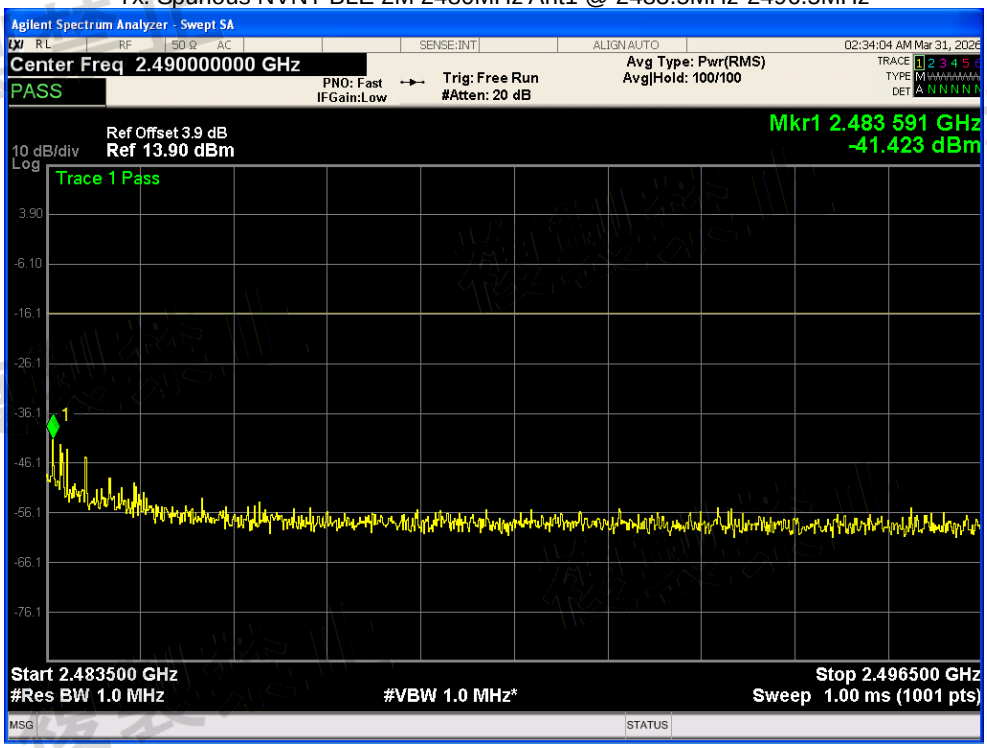
Tx. Spurious NVNT BLE 2M 2480MHz Ant1 @ 1000MHz-2387MHz



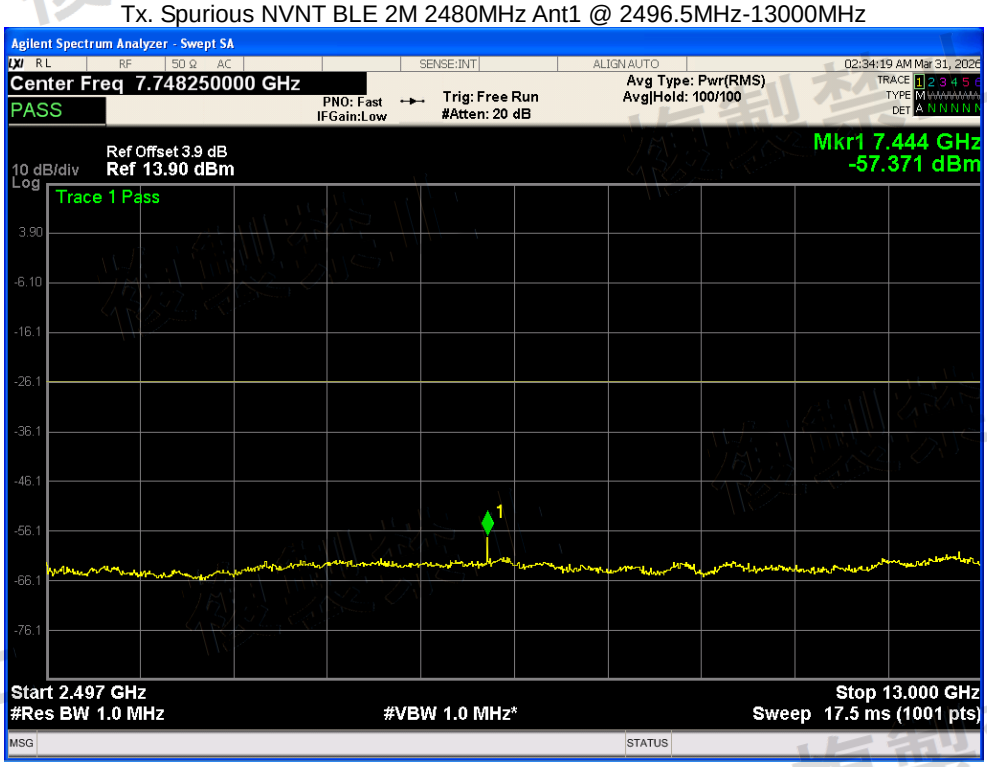
Tx. Spurious NVNT BLE 2M 2480MHz Ant1 @ 2387MHz-2400MHz



Tx. Spurious NVNT BLE 2M 2480MHz Ant1 @ 2483.5MHz-2496.5MHz



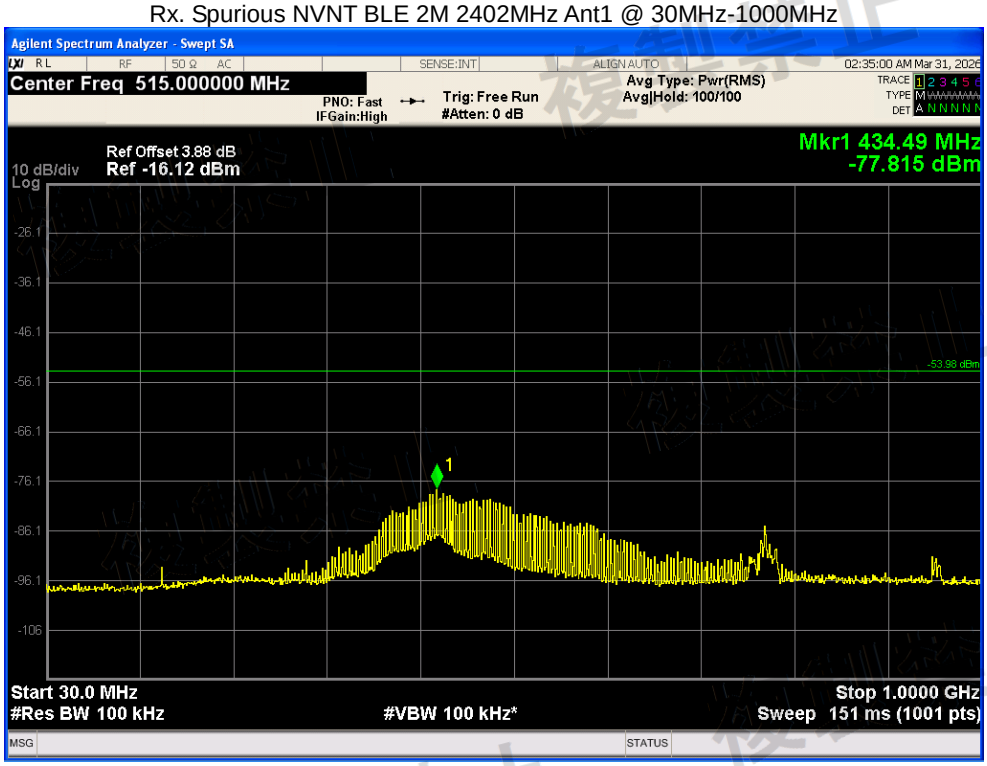
Tx. Spurious NVNT BLE 2M 2480MHz Ant1 @ 2496.5MHz-13000MHz



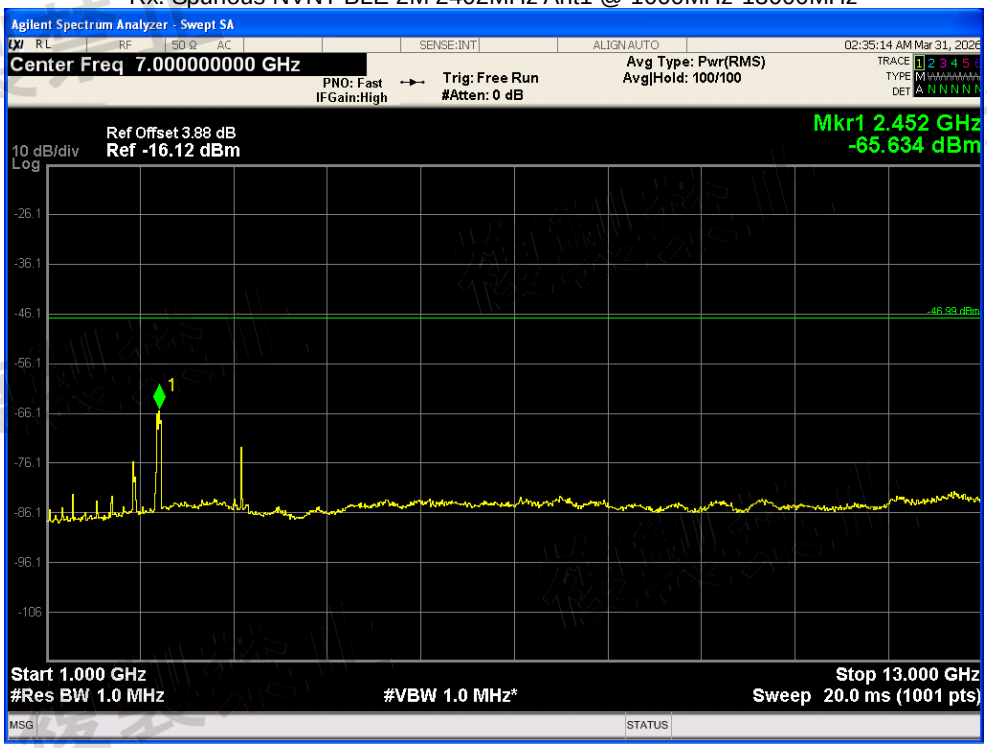
12.2.5 RX SPURIOUS EMISSION

Condition	Mode	Frequency (MHz)	Antenna	Range (MHz)	Emission Frequency (MHz)	Max Value (dBm)	Max Value (nW)	Limit (nW)	Verdict
NVNT	BLE 2M	2402	Ant1	30-1000	434.49	-77.82	0.0165	4	Pass
NVNT	BLE 2M	2402	Ant1	1000-13000	2452	-65.63	0.2735	20	Pass
NVNT	BLE 2M	2440	Ant1	30-1000	434.49	-77.76	0.0167	4	Pass
NVNT	BLE 2M	2440	Ant1	1000-13000	2428	-64.67	0.3412	20	Pass
NVNT	BLE 2M	2480	Ant1	30-1000	445.16	-78.19	0.0152	4	Pass
NVNT	BLE 2M	2480	Ant1	1000-13000	2428	-65.55	0.2786	20	Pass

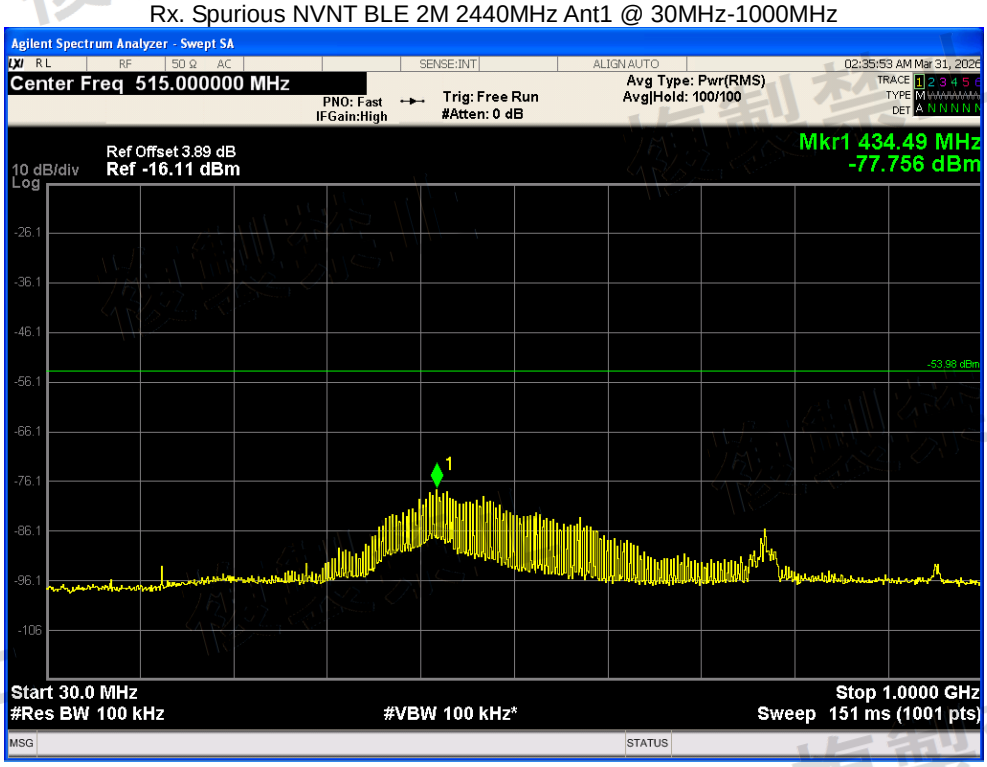
Rx. Spurious NVNT BLE 2M 2402MHz Ant1 @ 30MHz-1000MHz



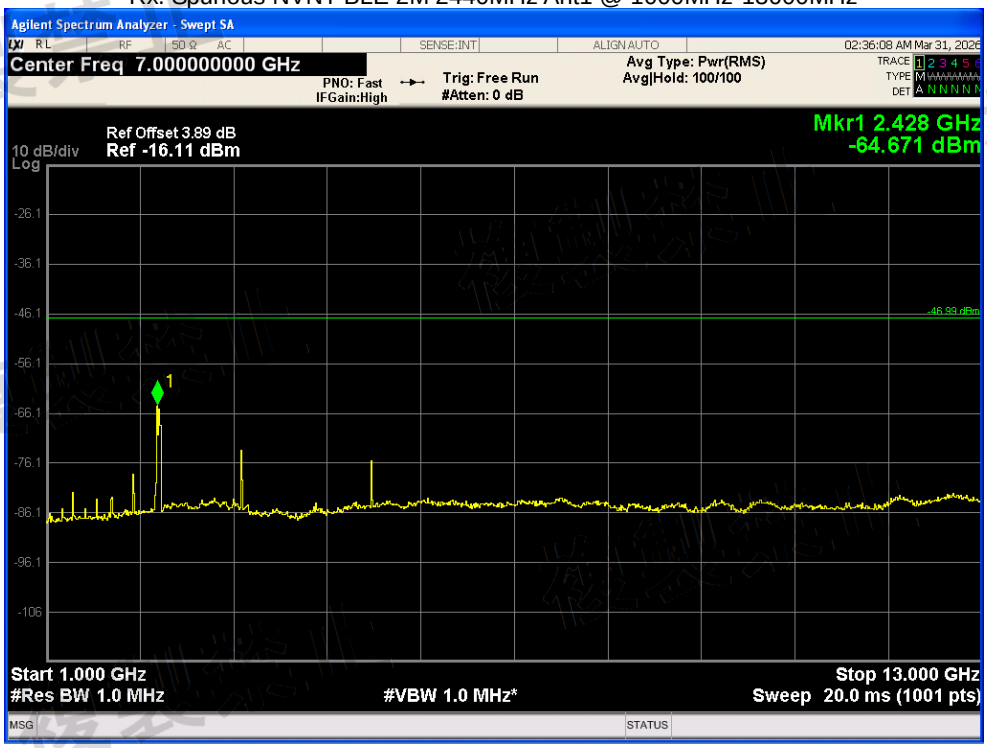
Rx. Spurious NVNT BLE 2M 2402MHz Ant1 @ 1000MHz-13000MHz



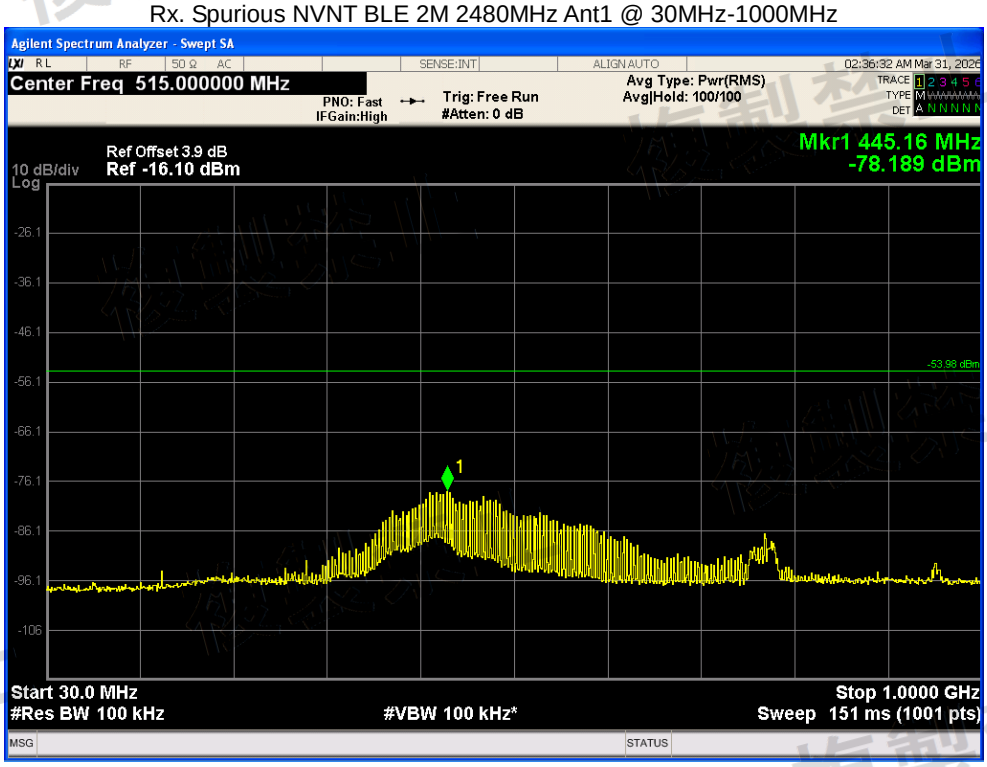
Rx. Spurious NVNT BLE 2M 2440MHz Ant1 @ 30MHz-1000MHz



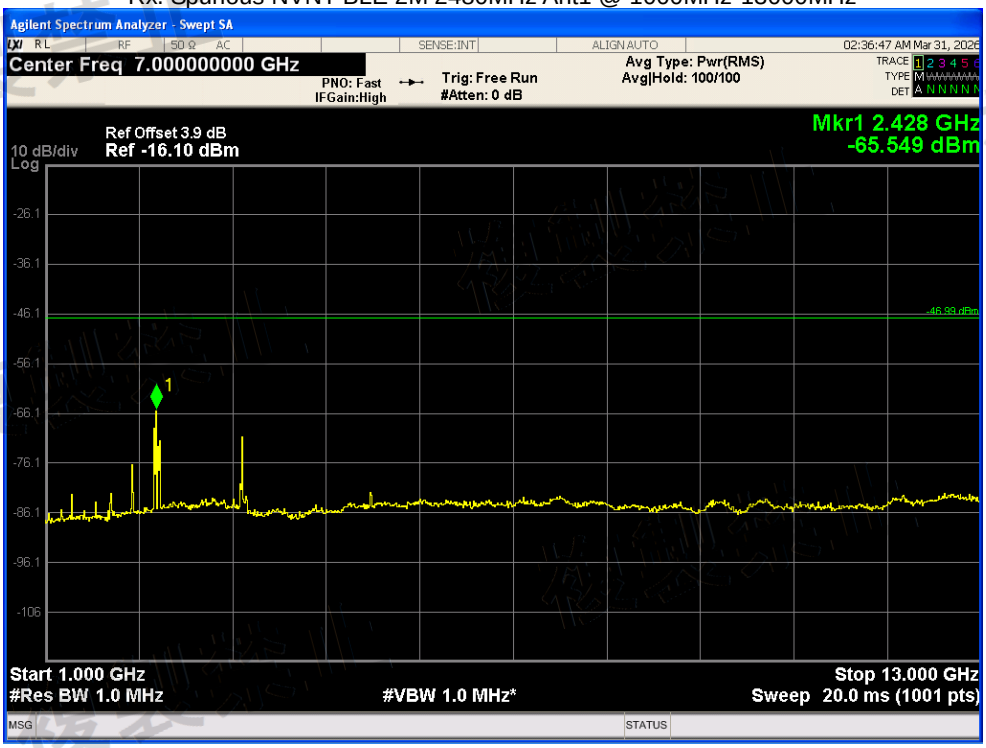
Rx. Spurious NVNT BLE 2M 2440MHz Ant1 @ 1000MHz-13000MHz



Rx. Spurious NVNT BLE 2M 2480MHz Ant1 @ 30MHz-1000MHz



Rx. Spurious NVNT BLE 2M 2480MHz Ant1 @ 1000MHz-13000MHz



REPORT IS FINISHED.