



RADIO TEST REPORT-BLE
Article 2 paragraph 1 item (19)
MIC Notice No.88 Appendix No.43

Product : Smart Access Controller

Trade Mark : BYD

Model Name : K3CD

Family Model : N/A

Report No. : S25021905614001

Prepared for

FinDreams Technology Company Limited
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China

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name FinDreams Technology Company Limited

Address NO.3001-3009,Hengping Road,Pingshan New District,Shenzhen,Guangdong,China

Manufacturer's Name FinDreams Technology Company Limited

Address NO.3001-3009,Hengping Road,Pingshan New District,Shenzhen,Guangdong,China

Test specification:

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

Test item description

Product name Smart Access Controller

Model and/or type reference : K3CD

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

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Test sample number S250219056015

Testing

Date (s) of performance of tests Mar. 19, 2025 ~ Apr. 17, 2025

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Test Result Pass

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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%)	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.43.8	Carrier Sense Capability	Complies
	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) Not apply to this device, since EIRP does not require compensation through Antenna Power.

1.1 TEST FACILITY

Shenzhen NTEK Testing Technology Co., Ltd

Add. : No. 24 Xinfu East Road, Xiangshan Community, Xinqiao Street, Baoan District,

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FCC Registration No.:463705; IC Registration No.:9270A-1

CNAS Registration No.:L5516

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	Conducted Emission Test	$\pm 3.2\text{dB}$
2	Radiated Emission Test	$\pm 4.7\text{dB}$
3	RF power,conducted	$\pm 0.16\text{dB}$
4	Spurious emissions,conducted	$\pm 0.21\text{dB}$
5	All emissions,radiated(<1G)	$\pm 4.68\text{dB}$
6	All emissions,radiated(>1G)	$\pm 5.0\text{dB}$
7	Radio Frequency	$\pm 1 \times 10^{-6}$
8	Occupied bandwidth	$\pm 3.7\text{dB}$

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Smart Access Controller	
Trade Mark	BYD	
Model Name	K3CD	
Family Model	N/A	
Model Difference	N/A	
Product Description	The EUT is a Smart Access Controller	
	Operation Frequency:	2402~2480MHz
	Modulation Type:	GFSK
	Number Of Channel	40CH
	Antenna Designation:	Metal antenna
	Antenna Gain (dBi)	4.8 dBi
Channel List	Please refer to the Note 2.	
Adapter	N/A	
Battery	N/A	
Power Supply	DC 5V	
Hardware Version	01.24.11.13.00	
Firmware Version	N/A	
Software Version	1.00.00.25.01.17.01	

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

3. Table for Filed Antenna

Antenna	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	N/A	N/A	Metal antenna	N/A	4.8	BT Antenna

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

2.3 TEST CONDITIONS

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.

Power Supply Voltage Fluctuation Test

Voltage Fluctuation Test	Normal Voltage	High Voltage + 10% of Normal Voltage	Low Voltage - 10% of Normal Voltage
DC Power	DC 5V	DC 5.5V	DC 4.5V
RF Chip	DC 3.3V	DC 3.3V	DC 3.3V

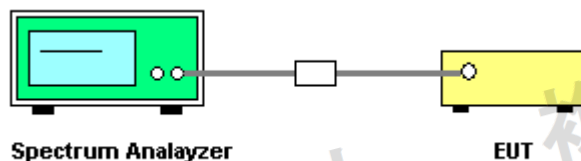
NOTE:

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 only operated in normal voltage to test all regulations.

2.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.5 DESCRIPTION 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
E-1	Smart Access Controller	K3CD	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”.

2.6 EQUIPMENTS 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	2024.04.26	2025.04.25	1 year
2	SPECTRUM ANALYZER	AGILENT	N9020A	MY49100060	2024.04.25	2025.04.24	1 year
3	TEST RECEIVER	R&S	ESPI7	101318	2024.04.26	2025.04.25	1 year
4	50Ω COAXIAL SWITCH	ANRITSU	MP59B	6200983705	2024.04.26	2027.04.25	3 year
5	HORN ANTENNA	SCHWARZBECK	BBHA 9120 D	2816	2024.05.18	2027.05.17	3 year
6	HORN ANT	SCHWARZBECK	BBHA 9170	803	2024.05.12	2027.05.11	3 year
7	PRE-AMPLIFIER	EMC	EMC0518 35SE	980246	2024.04.25	2025.04.24	1 year
8	POWER METER	DARE	RPR3006 W	15100041SN O84	2024.04.25	2025.04.24	1 year
9	TEMPORARY ANTENNA CONNECTOR (NOTE)	NTS	R001	N/A	N/A	N/A	N/A

Note:

- (1) All the equipments for Guangzhou Lisai Calibration.
- (2) Calibration conducted by the National institute of information and Communications Technology (NICT) in Japan (hereinafter referred to as "NICT") or a designated calibration agency under Article 102-18 paragraph (1) in JRL.
- (3) Correction conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Act (Act No. 51 of 1992).
- (4) 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 (1).
- (5) 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) From JRL Article 24-2, paragraph 4, Item 2

Measurement Software

Item	Manufacturer	Software Name	Software Version	Description
1	MWRFTest	MTS 8310 2.4GHz/5GHz	2.0	RF Conducted Test
2	Farad	EZ-EMC_RE	AIT-03A	Radiated Test
3	Farad	EZ-EMC_CE	AIT-03A	AC Conducted Test

3. TEST RESULT FOR BT

3.1 FREQUENCY ERROR

3.2 LIMIT

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

3.3 MEASURING INSTRUMENTS AND SETTING

The following table is the setting of Spectrum Analyzer.

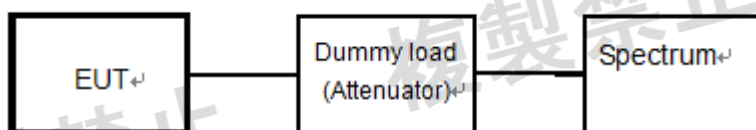
Spectrum Parameter	Setting
Attenuation	Auto
RB / VB	10/30KHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

3.4 TEST PROCEDURES

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

3.5.1 TEST RESULT

EUT :	Smart Access Controller	Model:	K3CD
Temperature:	25°C	Tested by:	Yoyo Liang
Humidity:	55 % RH	Test Voltage	DC 5V
Operation Mode:	unmodulated	Pressure :	1012 hPa

Test data reference attachment

4. ANTENNA POWER

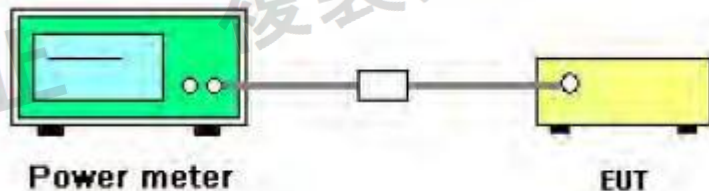
4.1 LIMIT

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-O FDM	2,400-2,483.5MHz	3mW/MHz	6.91dBm/MHz	16.91dBm/MHz
	2,427-2,470.75MHz z	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 $360 \div A$ 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.

4.4 TEST RESULT

EUT :	Smart Access Controller	Model:	K3CD
Temperature:	25 ⁰ C	Tested by:	Yoyo Liang
Humidity:	55 % RH	Test Voltage	DC 5V
Operation Mode:	Transmit-GFSK	Pressure :	1012 hPa

Test data reference attachment

5. OCCUPIED BANDWIDTH

5.1 LIMIT

Item	Limits
Occupied Band Width:	FH 83.5MHz; OFDM1,DS $\leq 26\text{MHz}$; 26MHz $\leq$ OFDM 40MHz system $\leq 40\text{MHz}$. ; Others $\leq 26\text{MHz}$
Spreading Bandwidth:	N/A

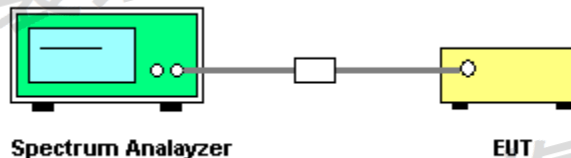
5.2 MEASURING INSTRUMENTS AND SETTING

5.3 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

5.4 TEST SETUP LAYOUT



5.5 TEST DEVIATION

There is no deviation with the original standard.

5.6. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

5.7 TEST RESULT

EUT:	Smart Access Controller	Model:	K3CD
Temperature:	25°C	Tested by:	Yoyo Liang
Humidity:	55 % RH	Test Voltage	DC 5V
Operation Mode:	Transmit-GFSK	Pressure :	1012 hPa

Test data reference attachment

6. UNWANTED EMISSION INTENSITY MEASUREMENT

6.1 LIMIT

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

6.2 MEASURING INSTRUMENTS AND SETTING

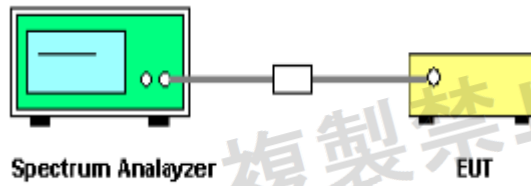
Please refer to section 5 in this report. The following table is the setting of Spectrum Analyzer.

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

6.3 TEST PROCEDURES

1. EUT have transmitted the maximum modulation signal and fixed channelize.
2. Setting of SA is following as: Below 1GHz RB: 1MHz / VB: 1MHz
Above 1GHz RB: 1MHz / VB: 1MHz / AT: 10dB Ref: 0dBm / Sweep time: Auto
Sweep Mode: Continuous sweep / Detect mode: AVG
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 = Measured_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.

6.4 TEST SETUP LAYOUT



6.5 TEST DEVIATION

There is no deviation with the original standard.

6.6 TEST RESULT

EUT :	Smart Access Controller	Model:	K3CD
Temperature:	25°C	Tested by:	Yoyo Liang
Humidity:	55 % RH	Test Voltage	DC 5V
Operation Mode:	Transmit-GFSK (CH00, CH19, CH39)	Pressure:	1012 hPa

Test data reference attachment

7. IMITATION OF COLLATERAL EMISSION OF RECEIVER MEASUREMENT

7.1 LIMIT

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

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	AVG
Trace	Max Hold
Sweep Time	Auto

7.3 TEST PROCEDURES

- EUT have the continuous reception mode and fixed only one channelize.
- 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: AVG / Trace mode: Max hold
- 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
- 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
- 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.

7.4 TEST RESULT

EUT :	Smart Access Controller	Model:	K3CD
Temperature:	25°C	Tested by:	Yoyo Liang
Humidity:	55 % RH	Test Voltage	DC 5V
Operation Mode:	Receiver-GFSK (CH00, CH19, CH39)	Pressure :	1012 hPa

Test data reference attachment

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-O FDM	2,400-2,483.5MHz	3mW/MHz	6.91dBm/MHz	16.91dBm/MHz
	2,427-2,470.75MHz z	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 $360 \div A$ 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.

8.2 TEST 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.

8.5 RESULTS OF TRANSMISSION ANTENNA GAIN

EUT :	Smart Access Controller	Model:	K3CD
Temperature:	25 ⁰ C	Tested by:	Yoyo Liang
Humidity:	55 % RH	Test Voltage	DC 5V
Operation Mode:	N/A	Pressure :	1012 hPa

Note: EIRP= Peak Output Power+ ANT Gain
Test data reference attachment

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

9.1 LIMIT

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

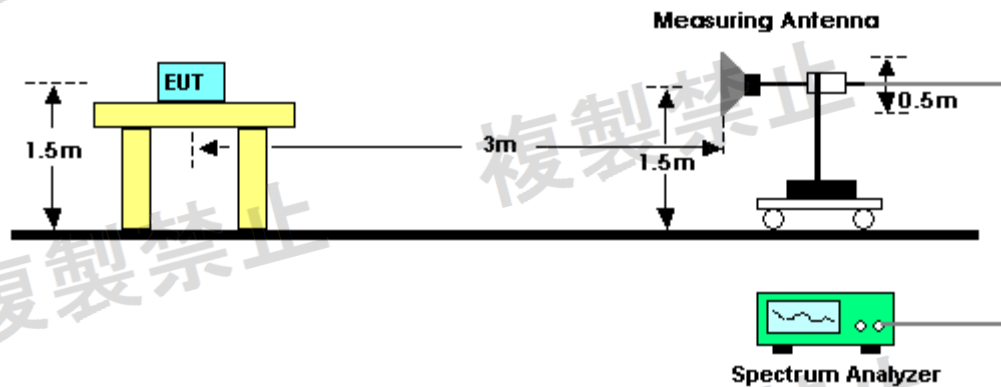
9.2 MEASURING INSTRUMENTS AND SETTING

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

9.3 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 4.7.2 and tune reference level to observe receiving signal position.
3. Rotate directions of the EUT horizontally and vertically to find the maximum receiving power.
4. Move the measuring antenna height up and down within $\pm 50\text{cm}$ of EUT height and swing it to find the maximum output of measuring antenna. The output level at the spectrum analyzer is read as "E"
5. Calculate permitted radiation angle in horizontal and vertical using EIRP measured in another test method.
6. Calculate 3dB antenna beam width by the formula below $360/A$ (If $A < 1$; then $A=1$).
 $A = \{\text{EIRP Power [mW]} / 16.36 \text{ for DS, OFDM}\}$ or
 $A = \{\text{EIRP Power [mW]} / 4.9 \text{ for FH}\}$

9.4 TEST SETUP LAYOUT



9.5 TEST DEVIATION

There is no deviation with the original standard.

9.6 EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting mode.

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

EUT :	Smart Access Controller	Model:	K3CD
Temperature:	25°C	Tested by:	N/A
Humidity:	55 % RH	Test Voltage	N/A
Operation Mode:	N/A	Pressure:	1012 hPa

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

10. RADIO INTERFERENCE PREVENTION CAPABILITY MEASUREMENT

10.1 LIMIT

Item	Limits
Identification code	≥ 48 bits

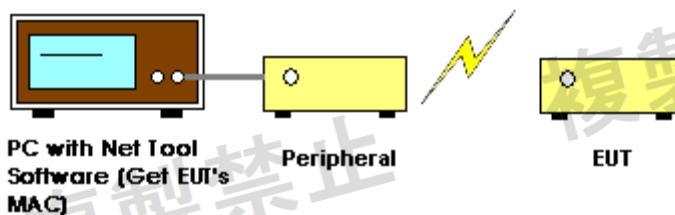
10.2 MEASURING ID CODE SOFTWARE

Item	Limits
MAC IP List	MAC Scan

10.3 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.

10.4 TEST SETUP LAYOUT



10.5 TEST DEVIATION

There is no deviation with the original standard.

10.6 EUT OPERATION DURING TEST

The EUT was programmed to be in normal transmitting mode.

10.7 TEST RESULT OF RADIO INTERFERENCE PREVENTION CAPABILITY

	Normal voltage
Result	OK

Mac address: 2A:51:37:4C:16:5F

Result: OK

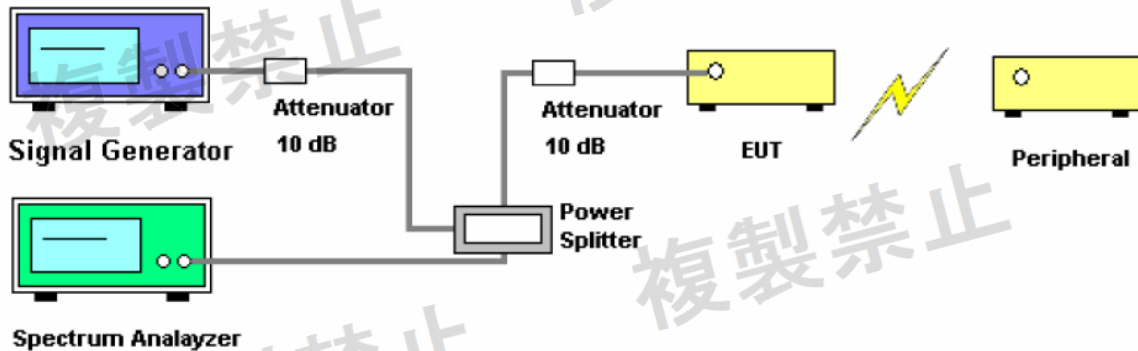
11. CARRIER SENSE CAPABILITY

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 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=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:

Note: Not Applicable

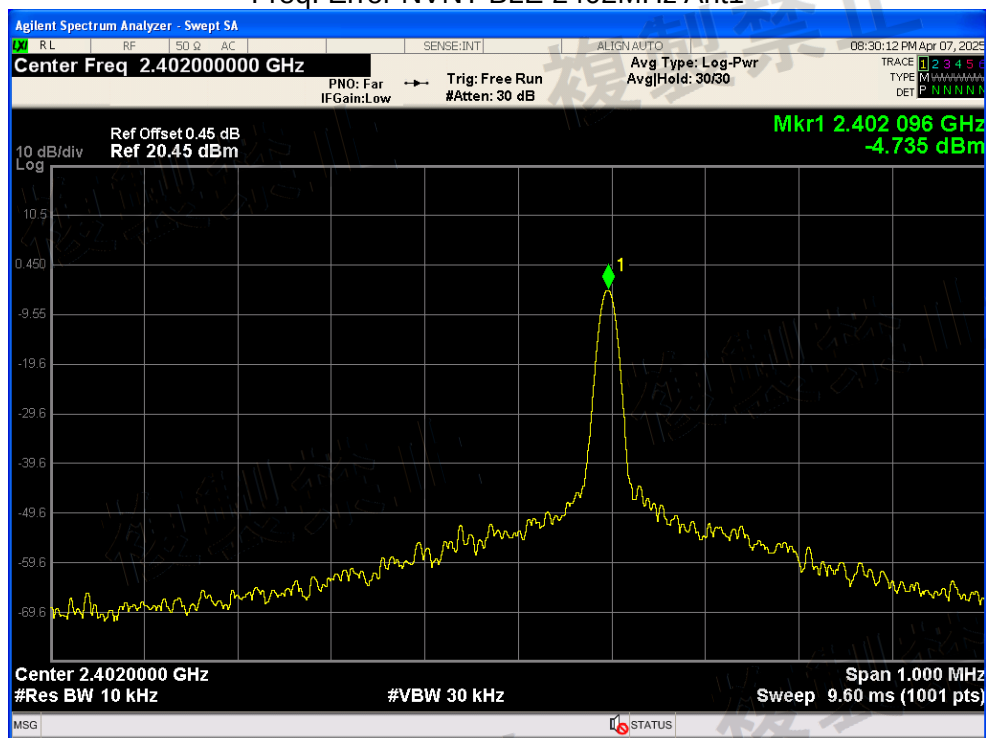
12. TEST RESULTS

12.1 1M

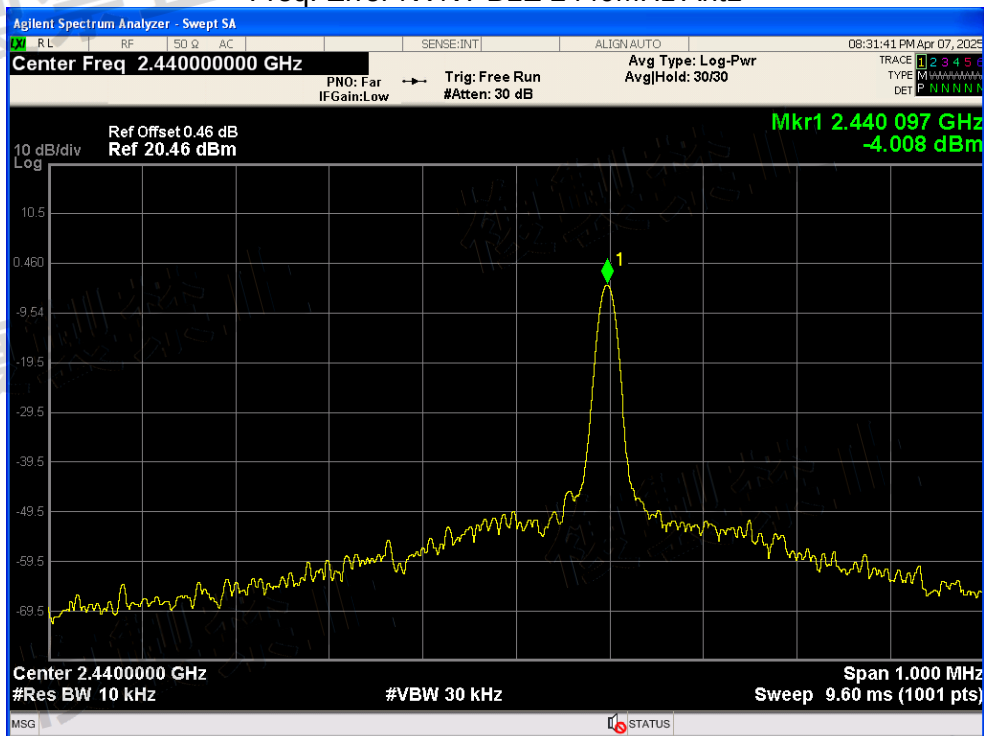
12.1.1 FREQUENCY ERROR

Condition	Mode	Frequency (MHz)	Antenna	Measured Frequency (MHz)	Deviation (ppm)	Limit (ppm)	Verdict
NVNT	BLE	2402	Ant1	2402.096	39.97	50	Pass
NVNT	BLE	2440	Ant1	2440.097	39.75	50	Pass
NVNT	BLE	2480	Ant1	2480.099	39.92	50	Pass

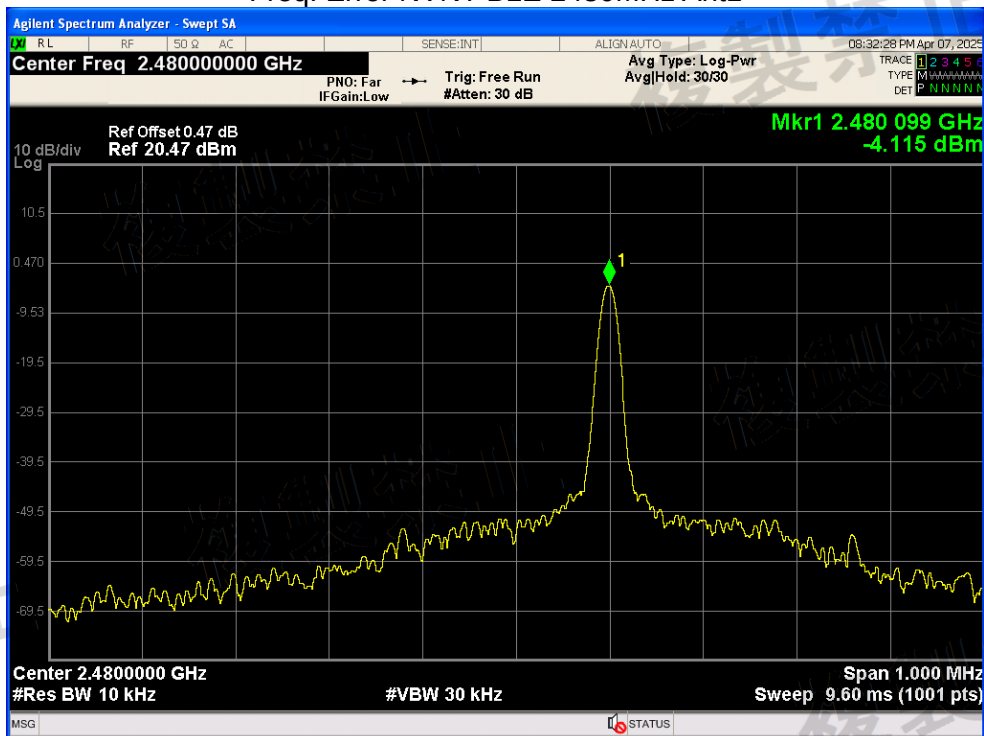
Freq. Error NVNT BLE 2402MHz Ant1



Freq. Error NVNT BLE 2440MHz Ant1



Freq. Error NVNT BLE 2480MHz Ant1



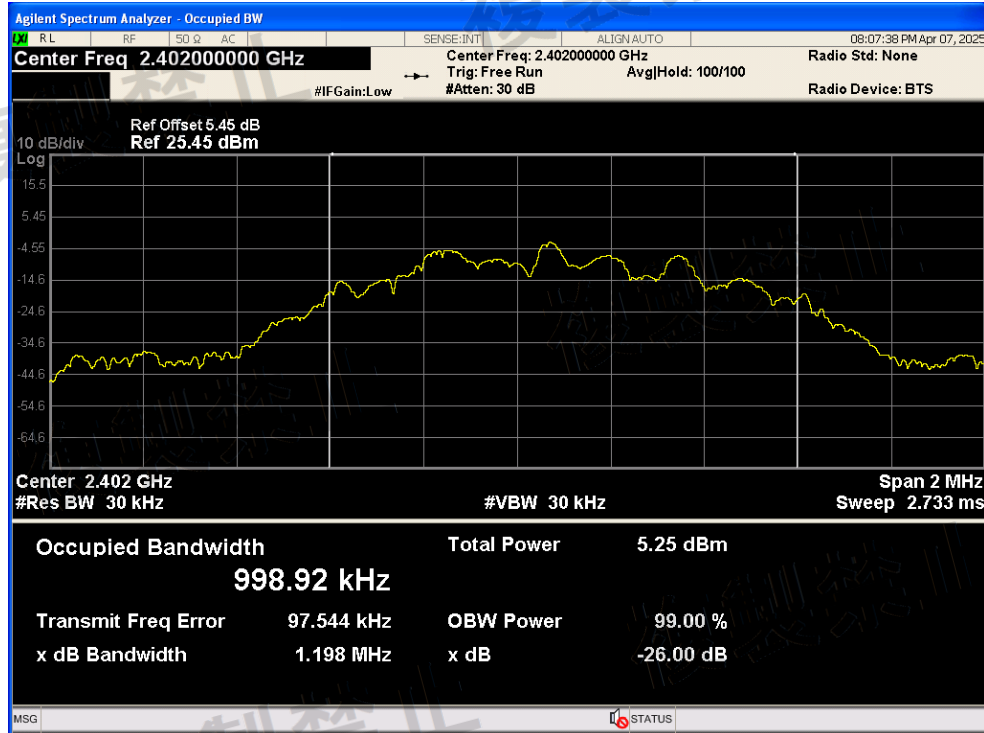
12.1.2 ANTENNA AND EIRP POWER

Condition	Mode	Frequency (MHz)	Antenna	Antenna Power (mW)	Declared Power (mW)	Tolerance (%)	Upper Limit (%)	Verdict
NVNT	BLE	2402	Ant1	0.255	0.3	-14.97	20	Pass
NVNT	BLE	2440	Ant1	0.295	0.3	-1.67	20	Pass
NVNT	BLE	2480	Ant1	0.297	0.3	-0.88	20	Pass

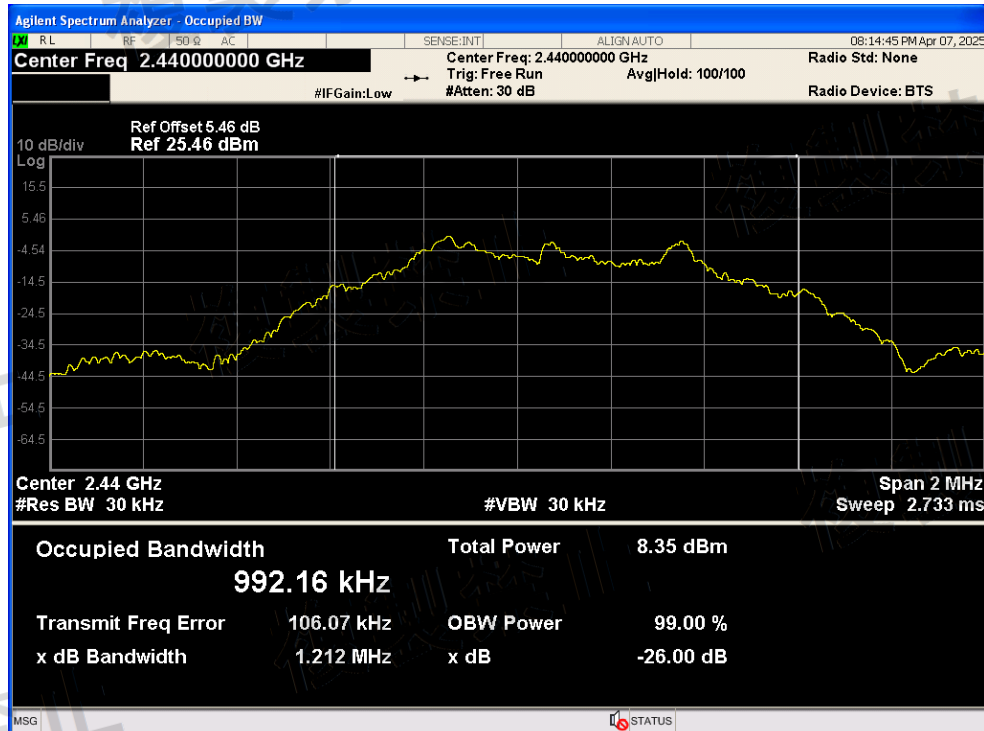
12.1.3 OCCUPIED CHANNEL BANDWIDTH

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	BLE	2402	Ant1	0.999
NVNT	BLE	2440	Ant1	0.992
NVNT	BLE	2480	Ant1	0.973

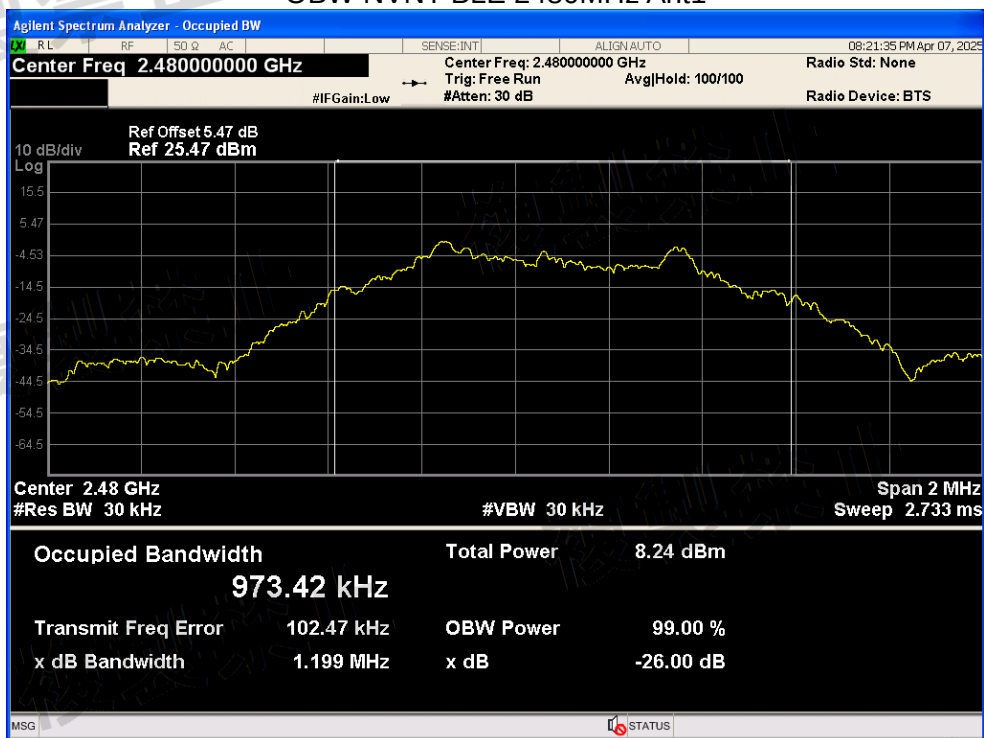
OBW NVNT BLE 2402MHz Ant1



OBW NVNT BLE 2440MHz Ant1



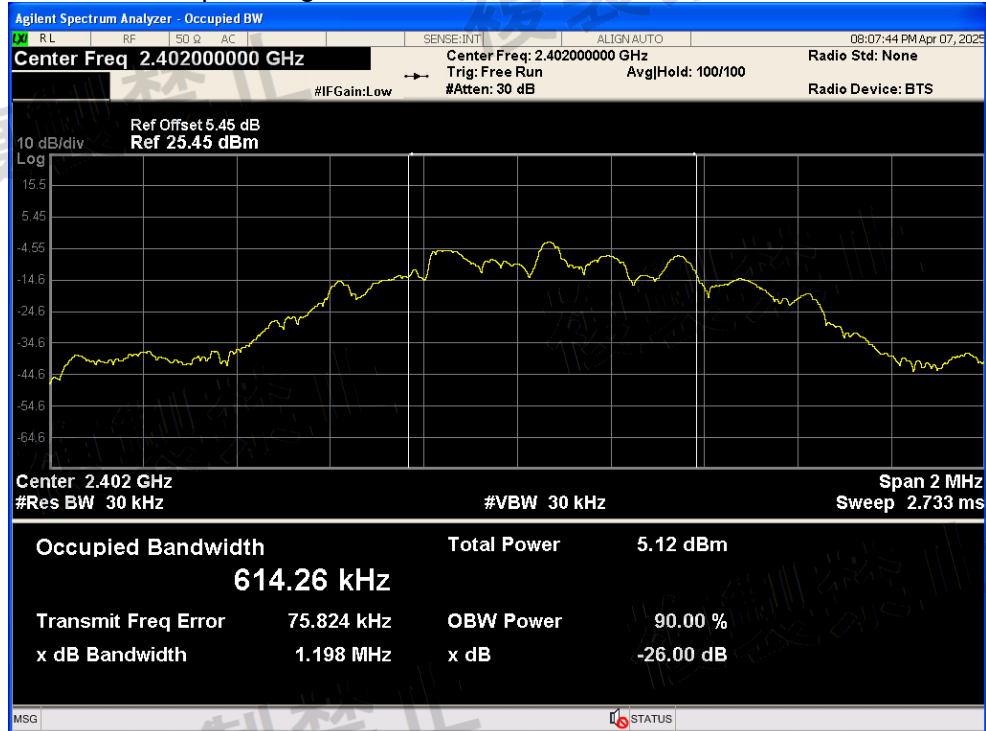
OBW NVNT BLE 2480MHz Ant1



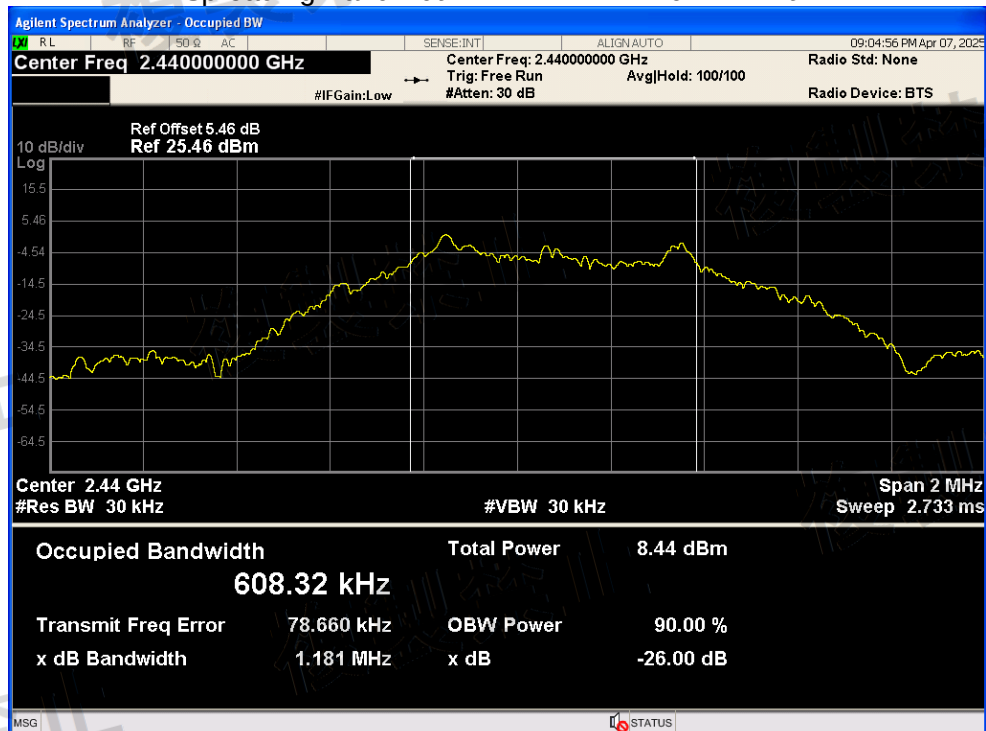
12.1.4 SPREADING BANDWIDTH

Condition	Mode	Frequency (MHz)	Antenna	90% OBW (MHz)	Verdict
NVNT	BLE	2402	Ant1	0.614	Pass
NVNT	BLE	2440	Ant1	0.608	Pass
NVNT	BLE	2480	Ant1	0.612	Pass

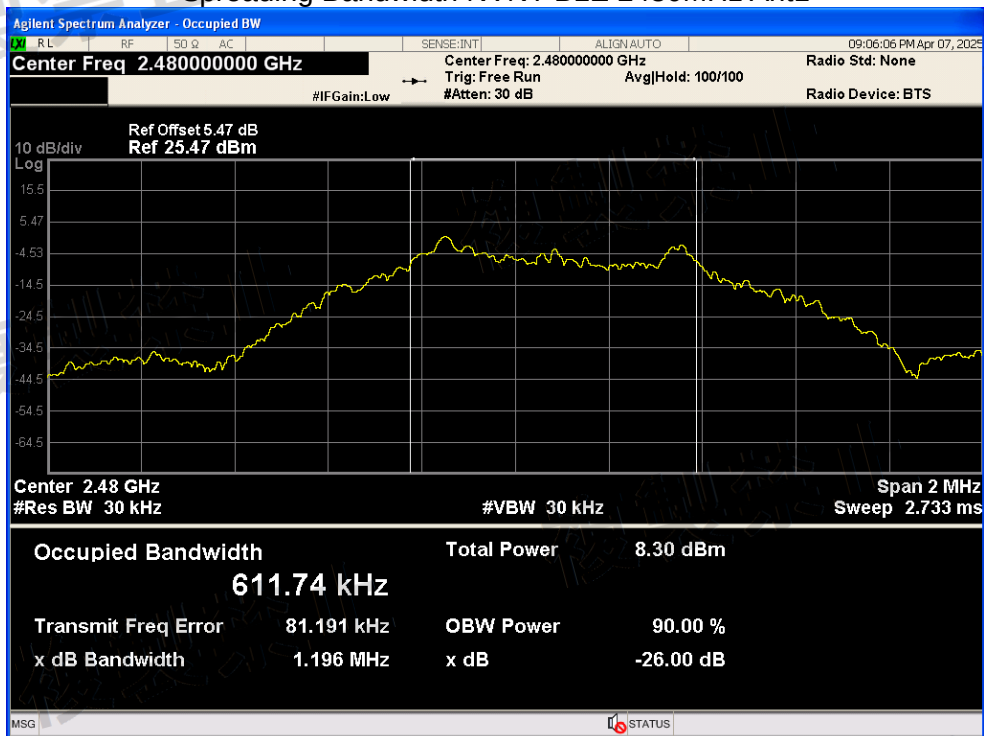
Spreading Bandwidth NVNT BLE 2402MHz Ant1



Spreading Bandwidth NVNT BLE 2440MHz Ant1



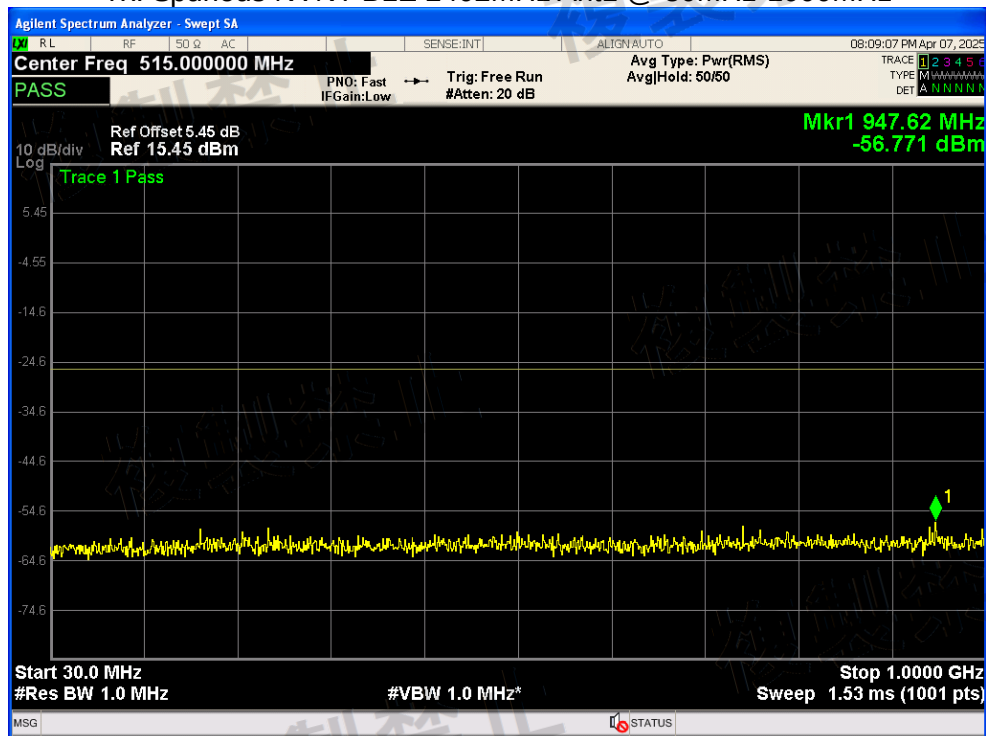
Spreading Bandwidth NVNT BLE 2480MHz Ant1



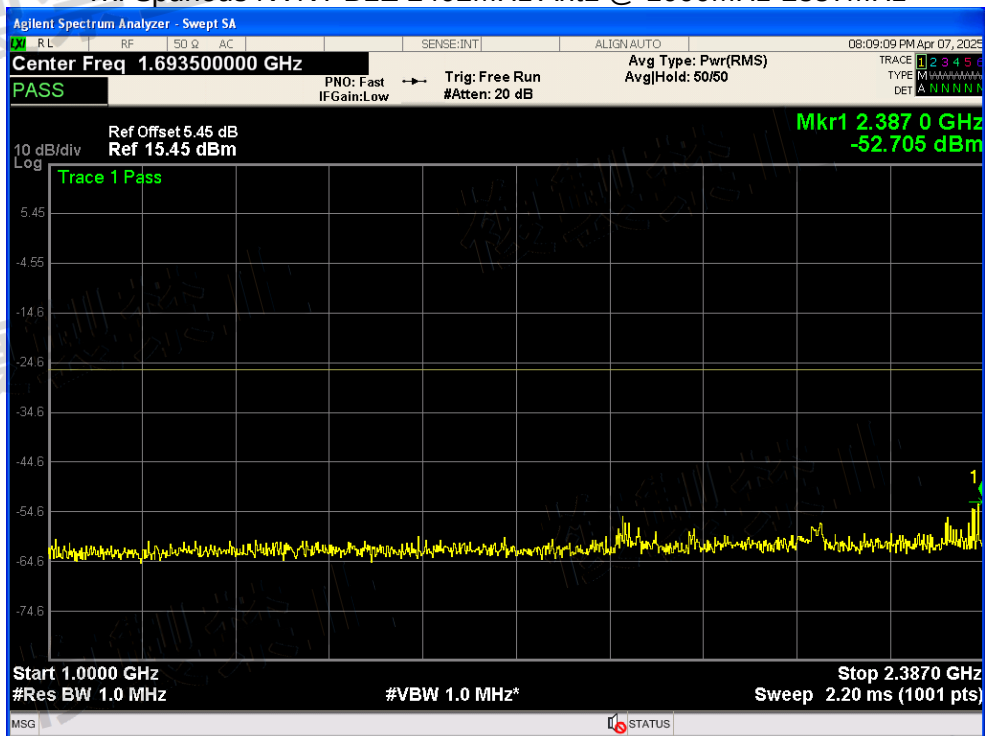
12.1.5 TX SPURIOUS EMISSION

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	947.62	-56.77	0.0021	2.5	2.5	Pass
NVNT	BLE	2402	Ant1	1000-2387	2387	-52.71	0.0054	2.5	2.5	Pass
NVNT	BLE	2402	Ant1	2387-2400	2399.84	-35.02	0.3148	25	25	Pass
NVNT	BLE	2402	Ant1	2483.5-2496.5	2493.26	-50.14	0.0097	25	25	Pass
NVNT	BLE	2402	Ant1	2496.5-13000	12674.39	-59.19	0.0012	2.5	2.5	Pass
NVNT	BLE	2440	Ant1	30-1000	947.62	-57.12	0.0019	2.5	2.5	Pass
NVNT	BLE	2440	Ant1	1000-2387	1954.26	-46.92	0.0203	2.5	2.5	Pass
NVNT	BLE	2440	Ant1	2387-2400	2388.64	-49.36	0.0116	25	25	Pass
NVNT	BLE	2440	Ant1	2483.5-2496.5	2487.41	-47.78	0.0167	25	25	Pass
NVNT	BLE	2440	Ant1	2496.5-13000	12201.73	-57.47	0.0018	2.5	2.5	Pass
NVNT	BLE	2480	Ant1	30-1000	947.62	-56.34	0.0023	2.5	2.5	Pass
NVNT	BLE	2480	Ant1	1000-2387	2137.34	-55.08	0.0031	2.5	2.5	Pass
NVNT	BLE	2480	Ant1	2387-2400	2388.16	-52.6	0.0055	25	25	Pass
NVNT	BLE	2480	Ant1	2483.5-2496.5	2495.53	-40.59	0.0873	25	25	Pass
NVNT	BLE	2480	Ant1	2496.5-13000	12401.3	-55.09	0.0031	2.5	2.5	Pass

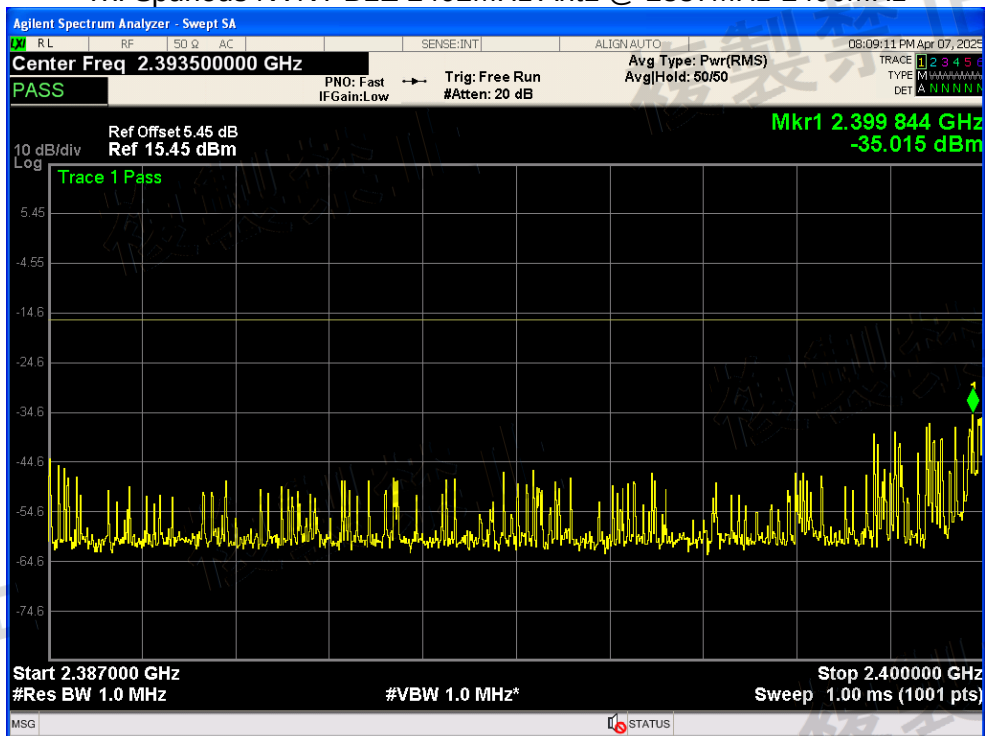
Tx. Spurious NVNT BLE 2402MHz Ant1 @ 30MHz-1000MHz



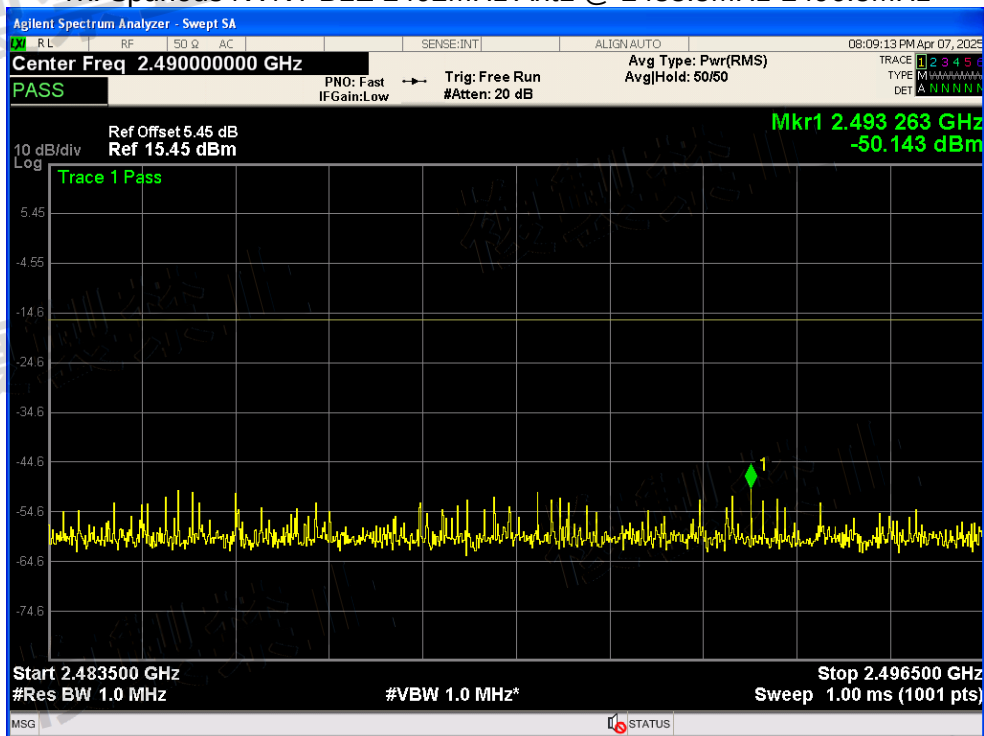
Tx. Spurious NVNT BLE 2402MHz Ant1 @ 1000MHz-2387MHz



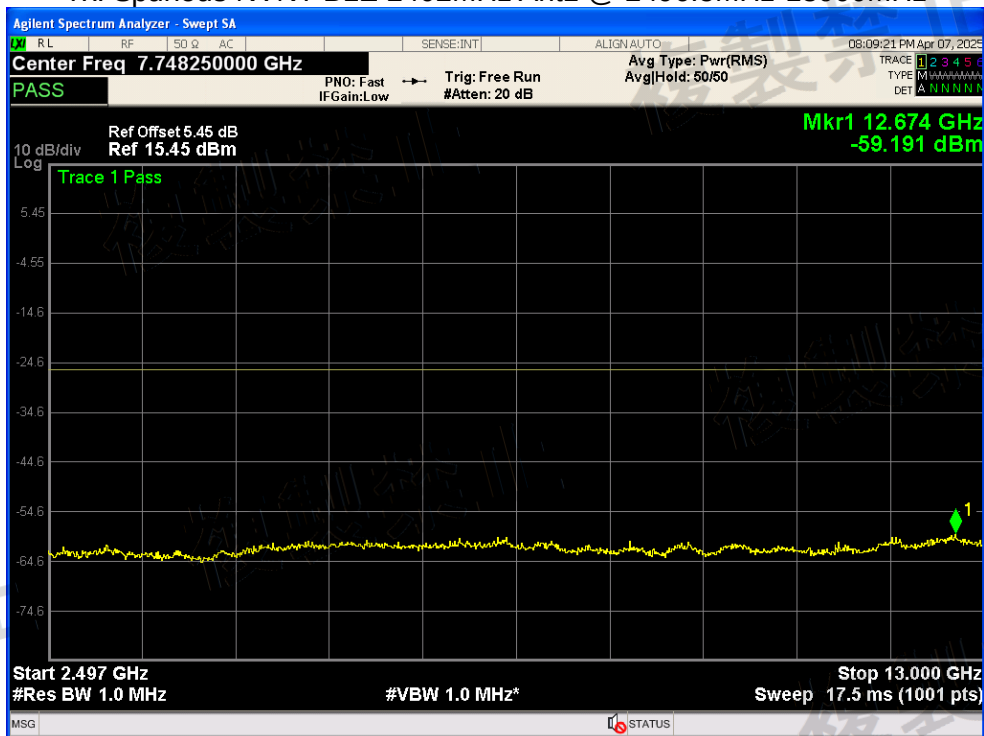
Tx. Spurious NVNT BLE 2402MHz Ant1 @ 2387MHz-2400MHz



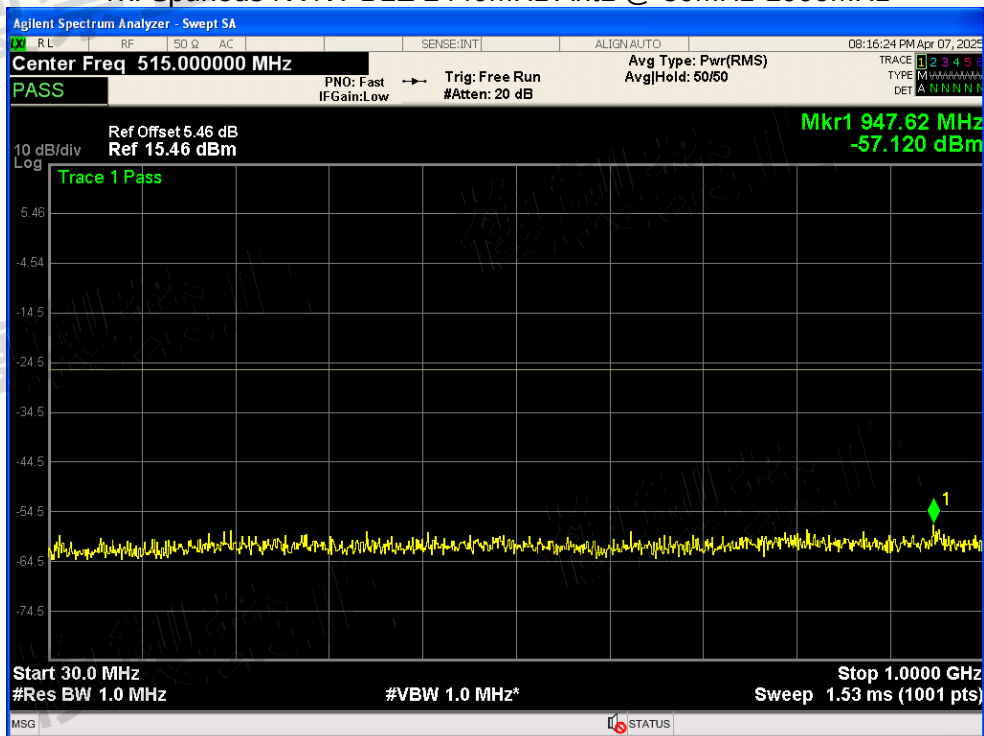
Tx. Spurious NVNT BLE 2402MHz Ant1 @ 2483.5MHz-2496.5MHz



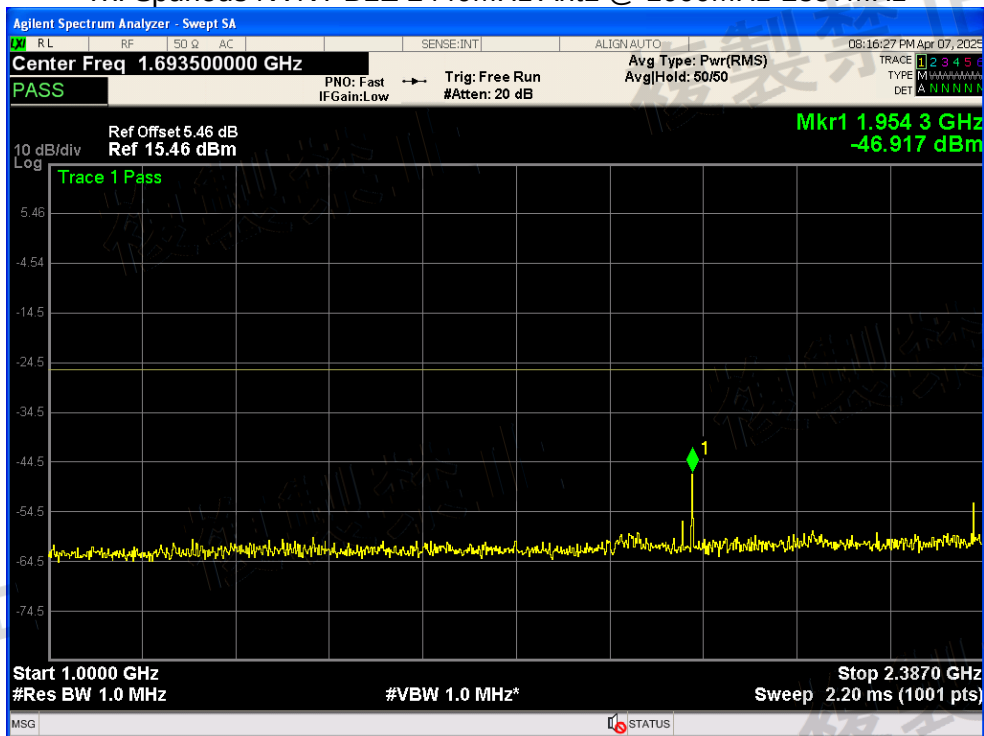
Tx. Spurious NVNT BLE 2402MHz Ant1 @ 2496.5MHz-13000MHz



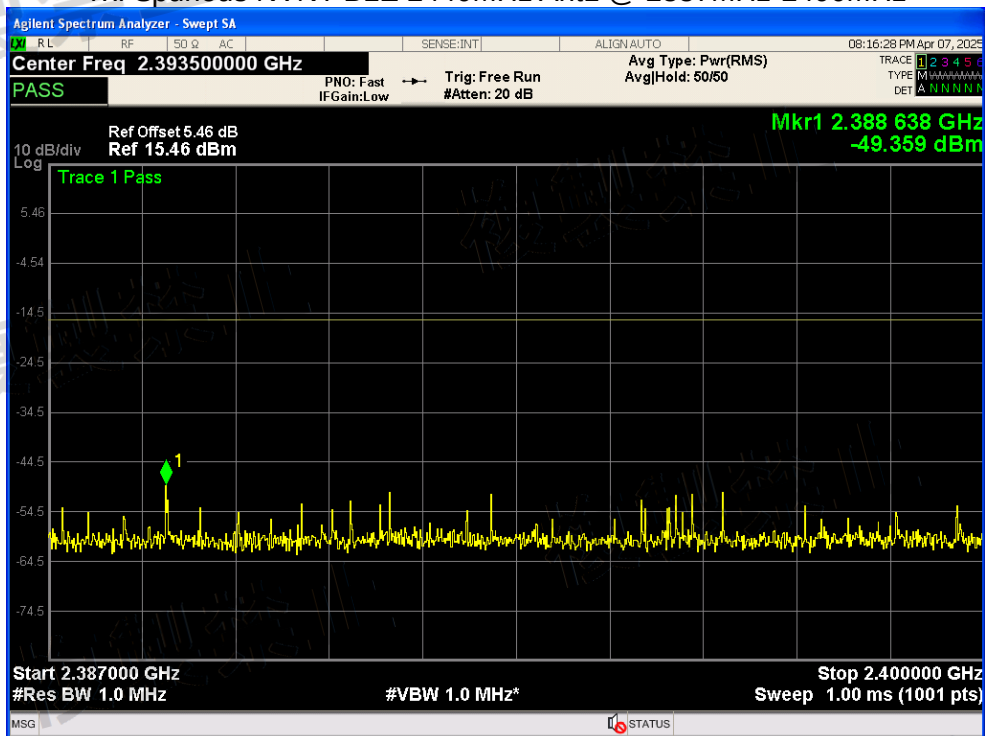
Tx. Spurious NVNT BLE 2440MHz Ant1 @ 30MHz-1000MHz



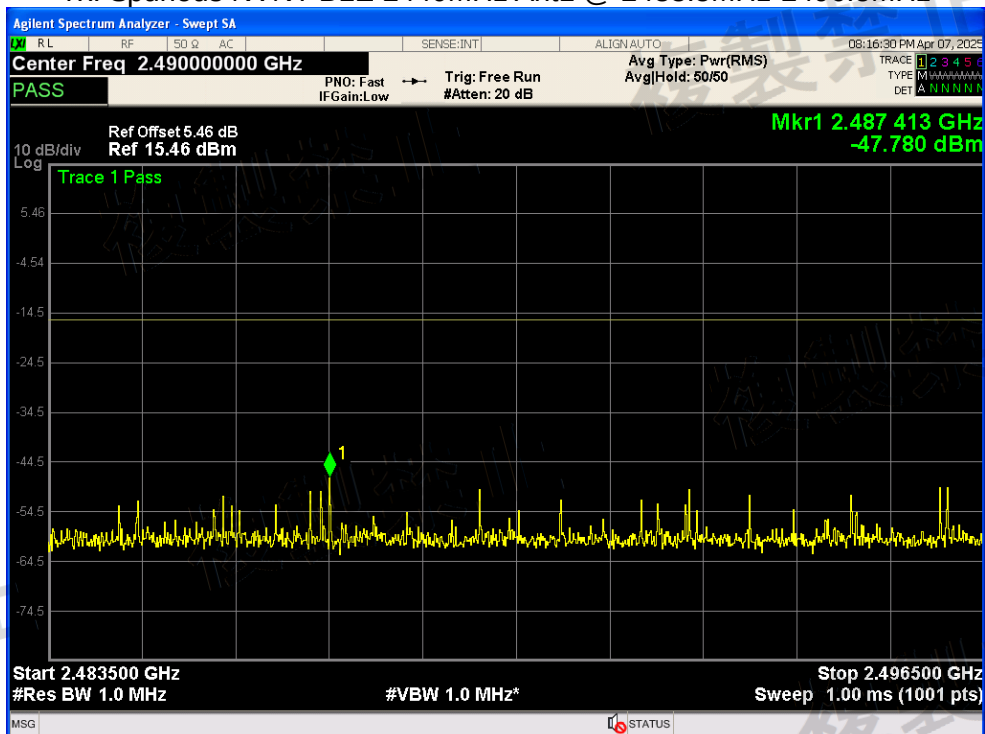
Tx. Spurious NVNT BLE 2440MHz Ant1 @ 1000MHz-2387MHz



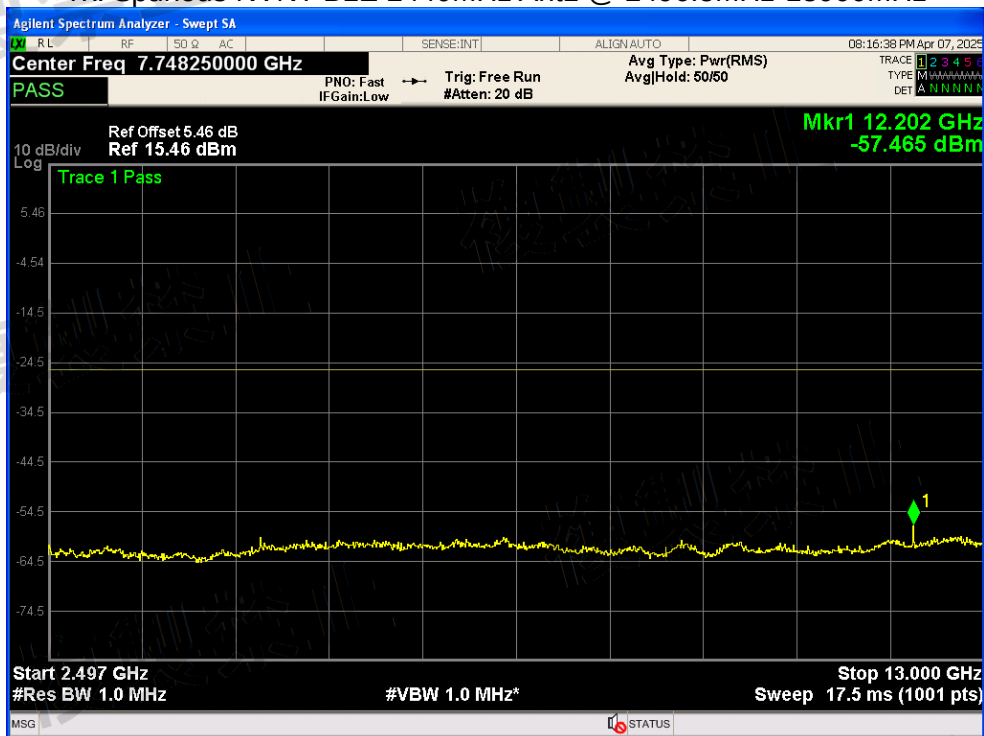
Tx. Spurious NVNT BLE 2440MHz Ant1 @ 2387MHz-2400MHz



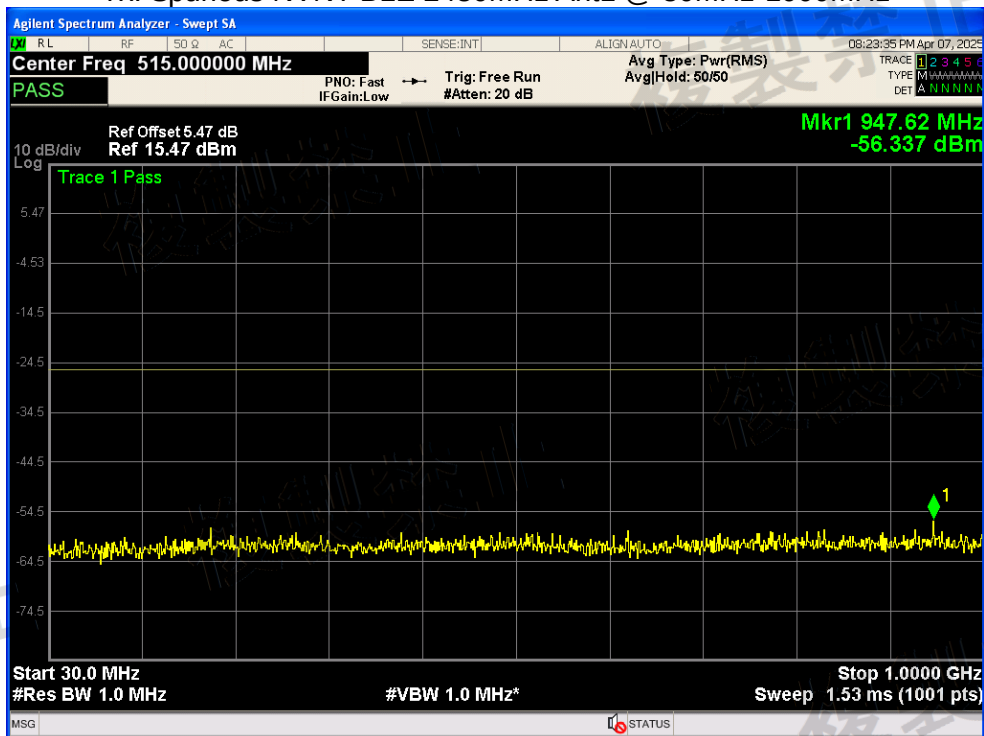
Tx. Spurious NVNT BLE 2440MHz Ant1 @ 2483.5MHz-2496.5MHz



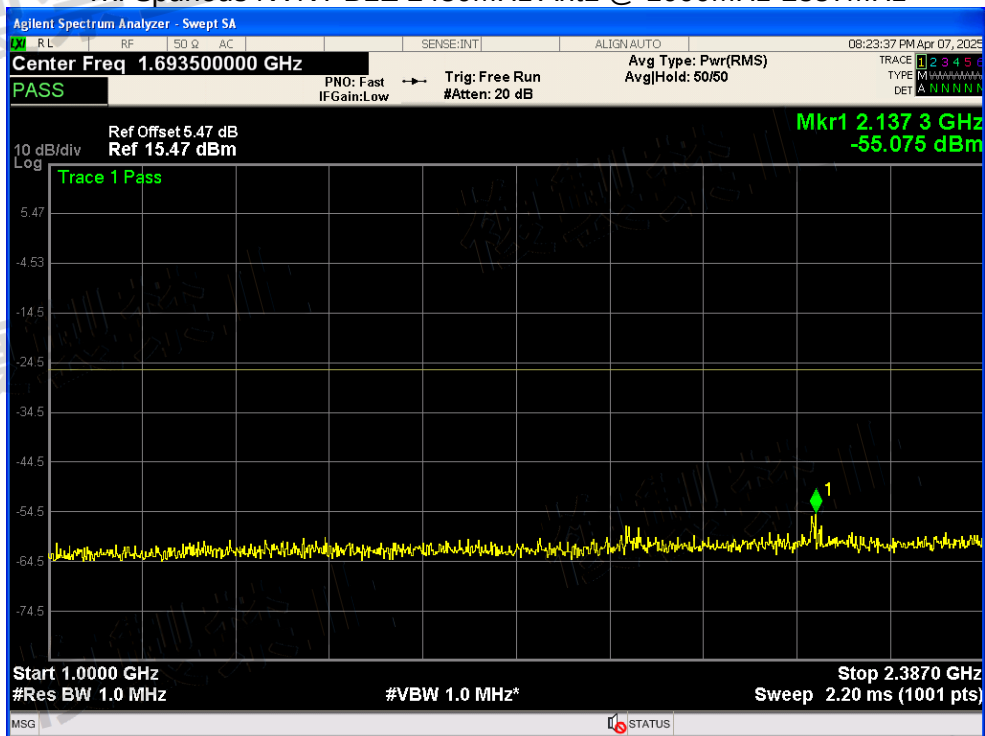
Tx. Spurious NVNT BLE 2440MHz Ant1 @ 2496.5MHz-13000MHz



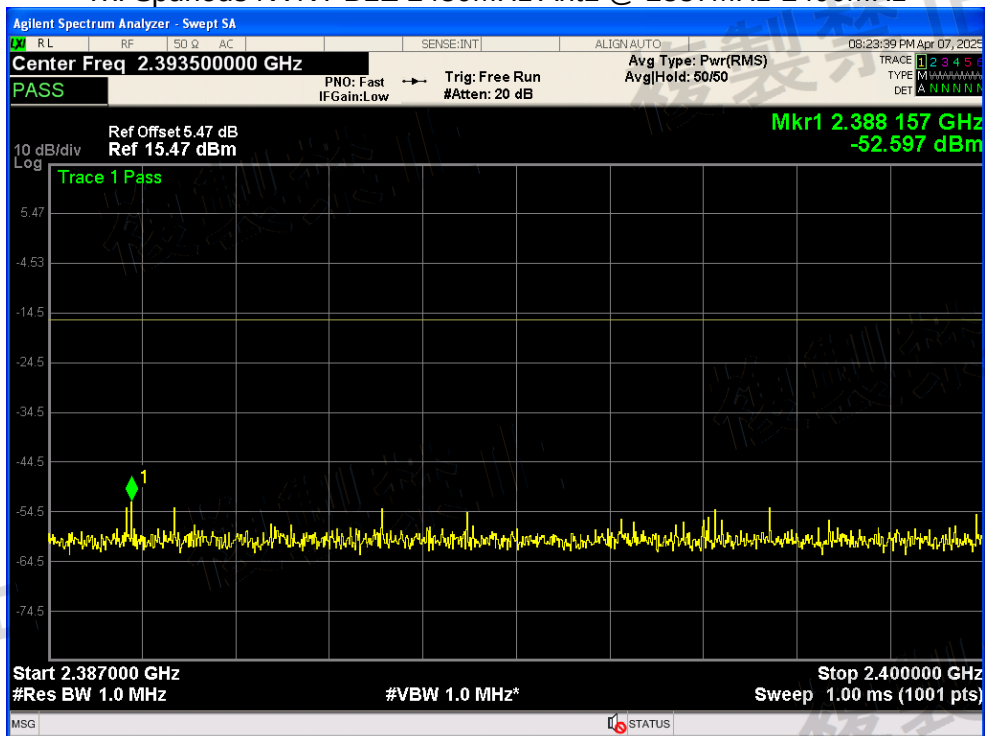
Tx. Spurious NVNT BLE 2480MHz Ant1 @ 30MHz-1000MHz



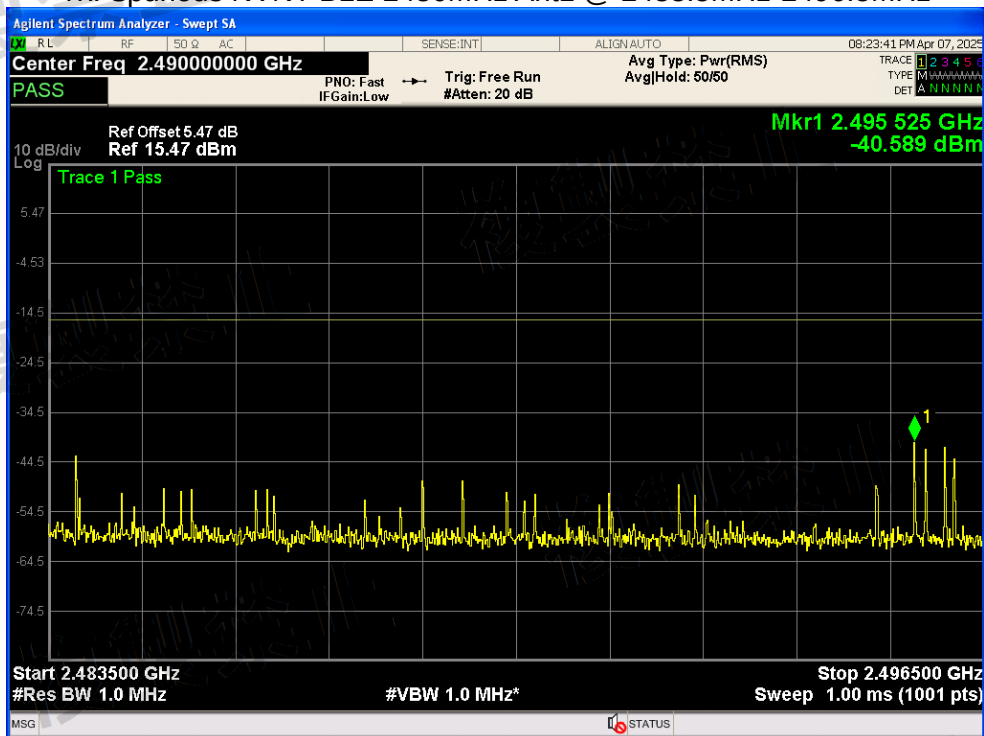
Tx. Spurious NVNT BLE 2480MHz Ant1 @ 1000MHz-2387MHz



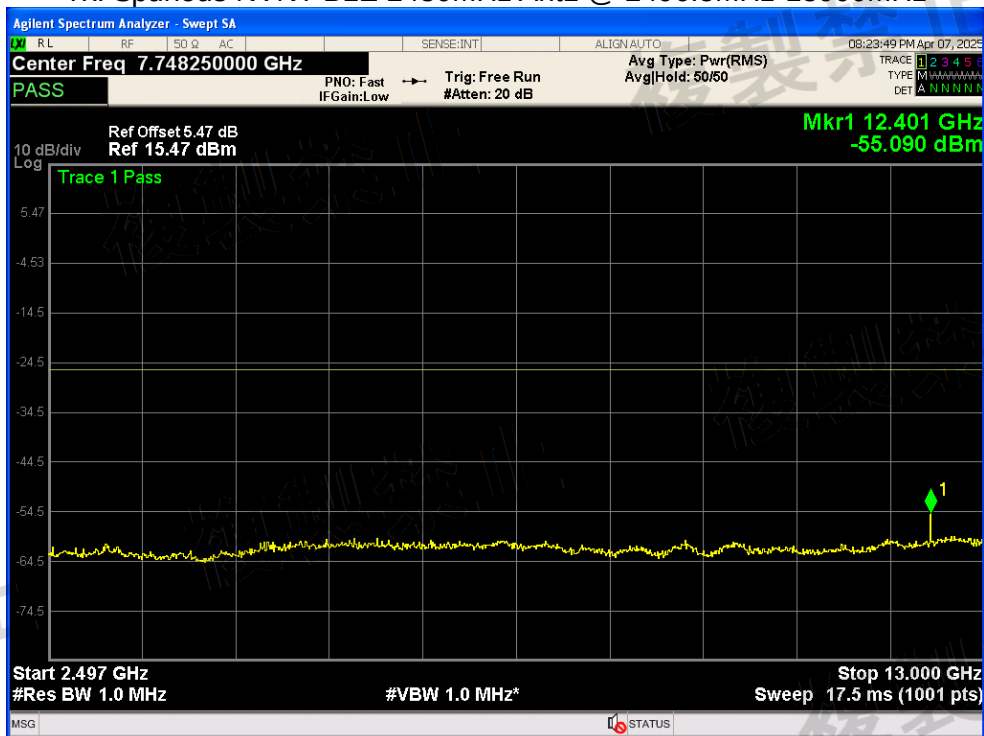
Tx. Spurious NVNT BLE 2480MHz Ant1 @ 2387MHz-2400MHz



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



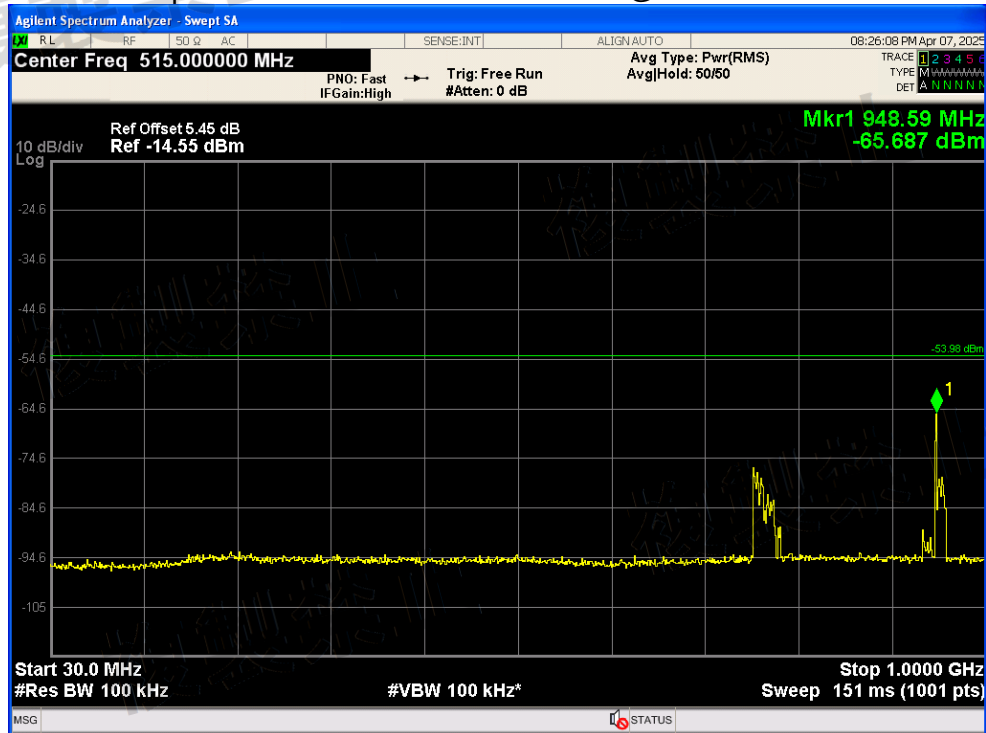
Tx. Spurious NVNT BLE 2480MHz Ant1 @ 2496.5MHz-13000MHz



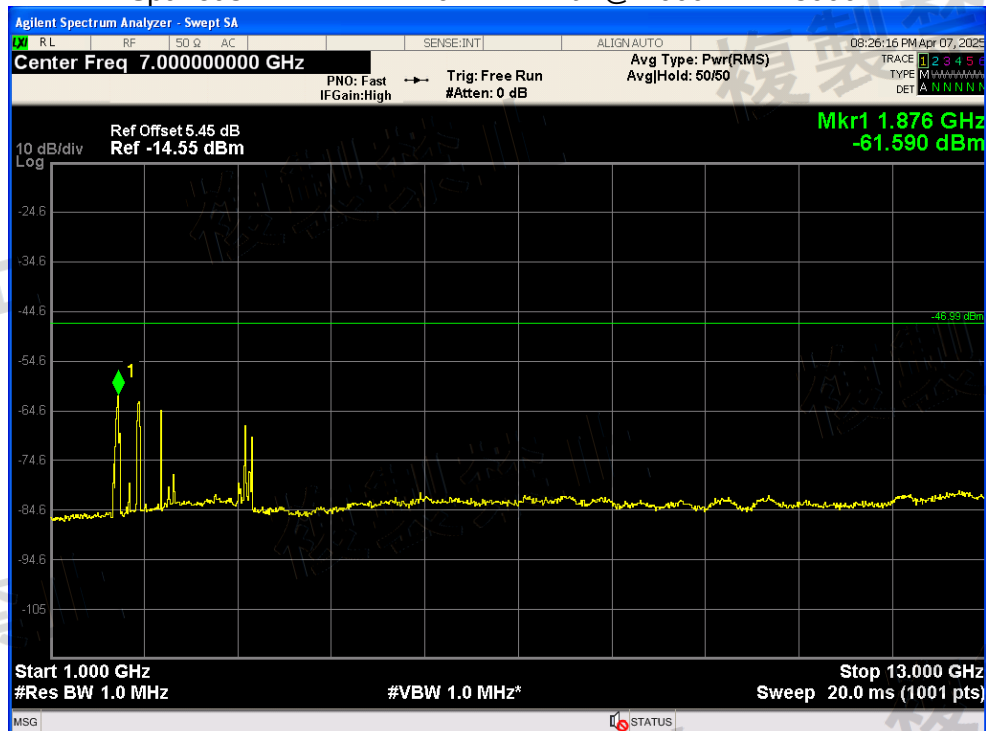
12.1.6 RX SPURIOUS EMISSION

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	948.59	-65.69	0.2698	4	Pass
NVNT	BLE	2402	Ant1	1000-13000	1876	-61.59	0.6934	20	Pass
NVNT	BLE	2440	Ant1	30-1000	948.59	-64.44	0.3597	4	Pass
NVNT	BLE	2440	Ant1	1000-13000	2140	-62.2	0.6026	20	Pass
NVNT	BLE	2480	Ant1	30-1000	948.59	-66.39	0.2296	4	Pass
NVNT	BLE	2480	Ant1	1000-13000	1876	-60.51	0.8892	20	Pass

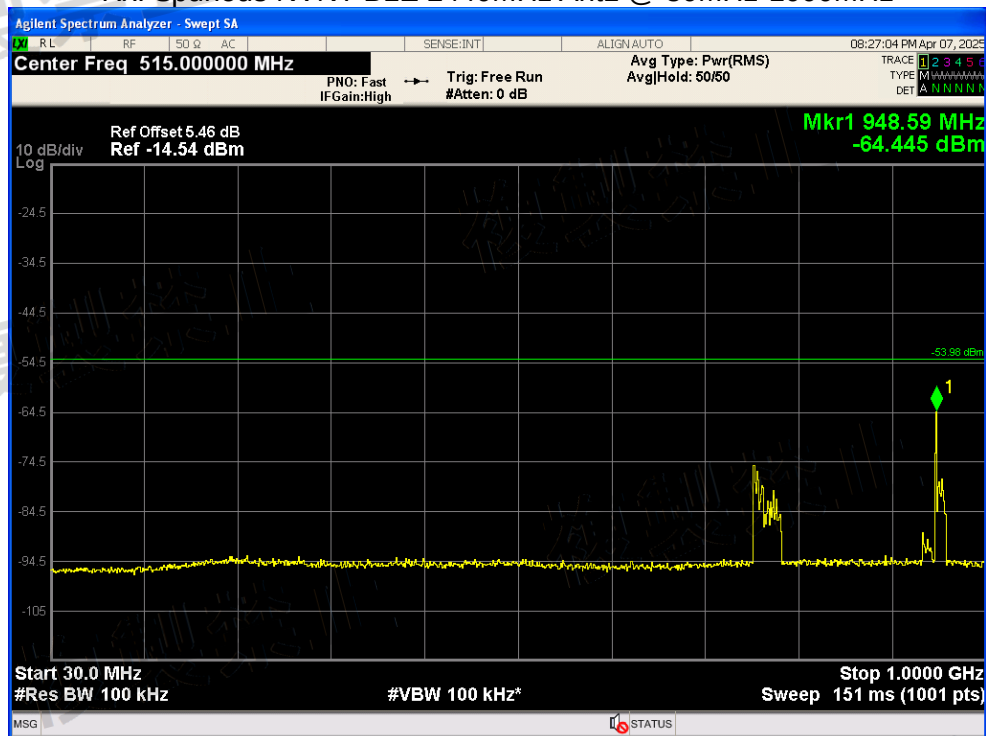
Rx. Spurious NVNT BLE 2402MHz Ant1 @ 30MHz-1000MHz



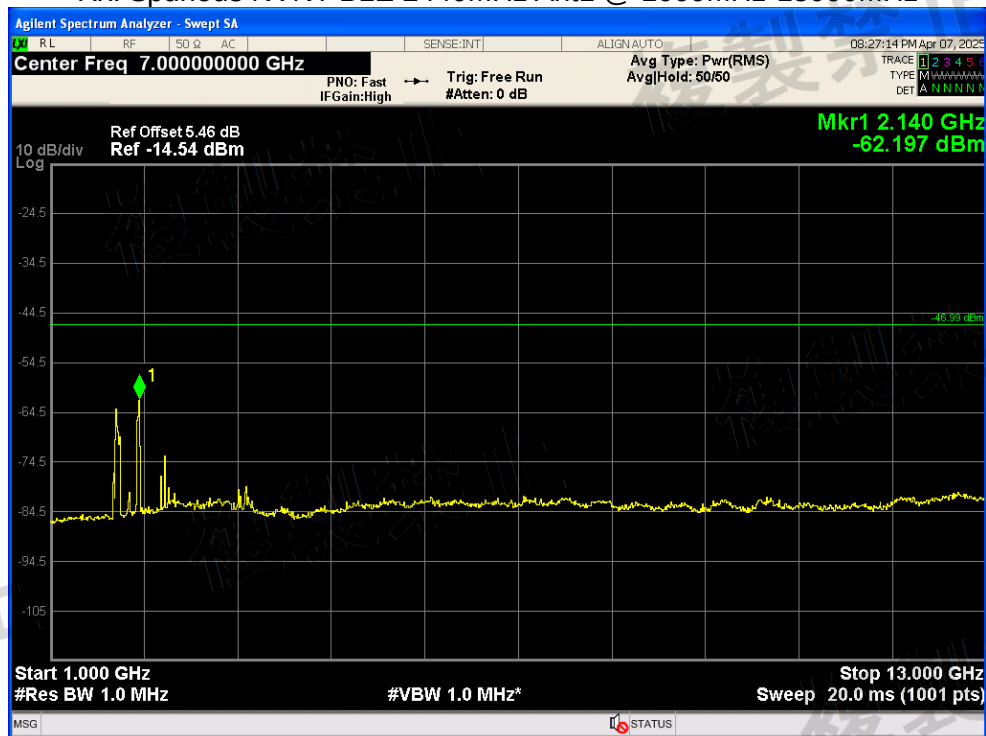
Rx. Spurious NVNT BLE 2402MHz Ant1 @ 1000MHz-13000MHz



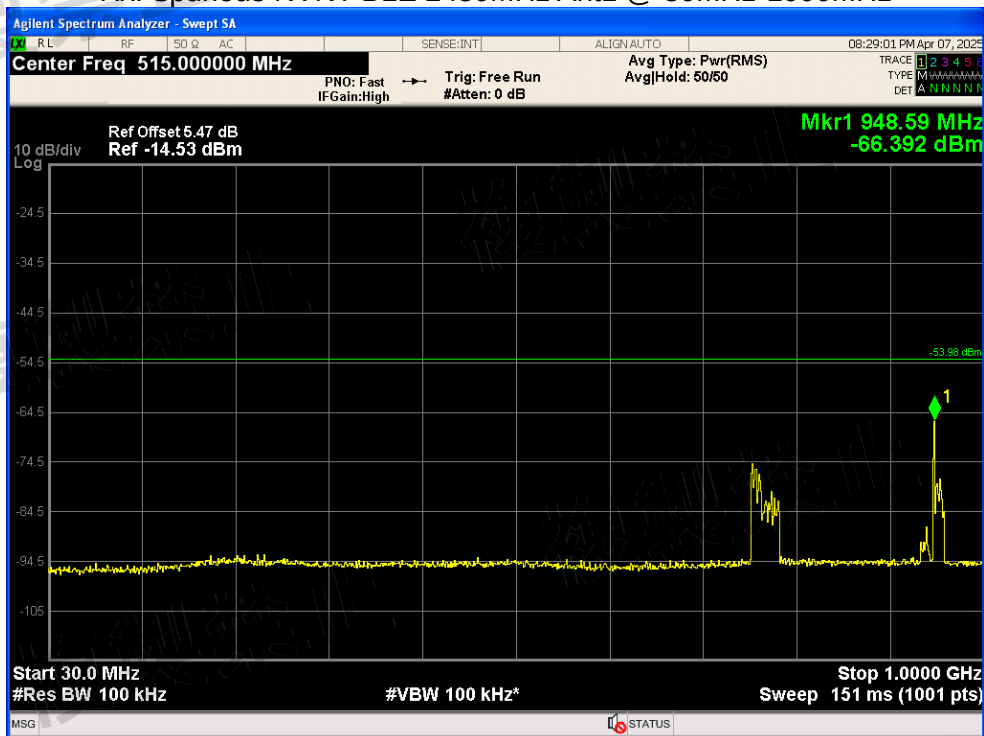
Rx. Spurious NVNT BLE 2440MHz Ant1 @ 30MHz-1000MHz



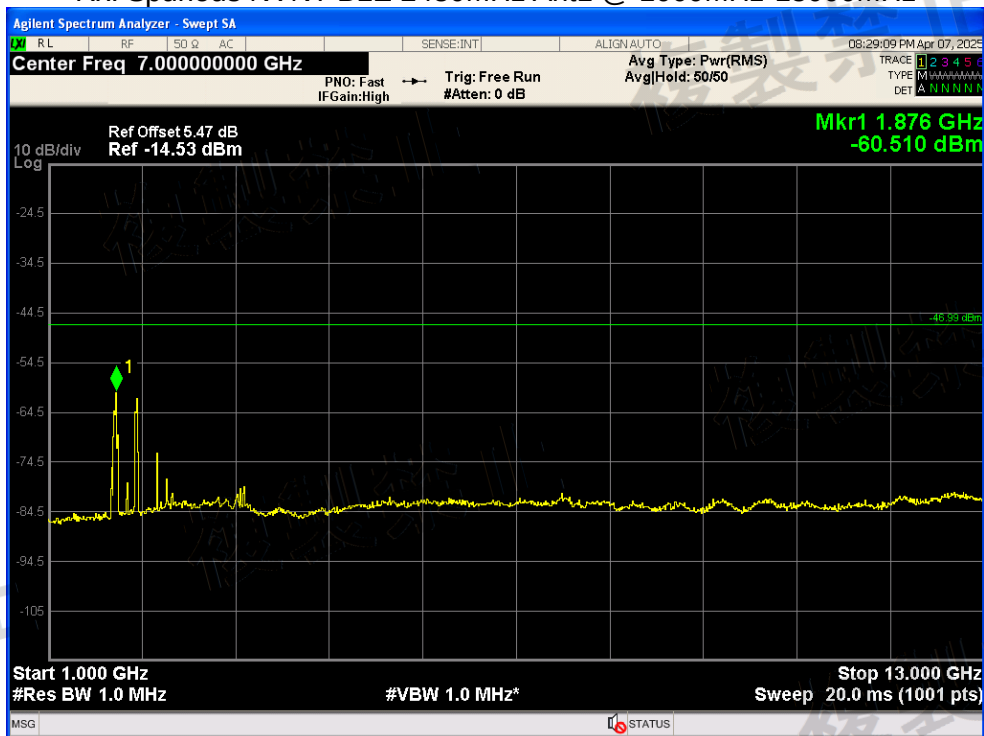
Rx. Spurious NVNT BLE 2440MHz Ant1 @ 1000MHz-13000MHz



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



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

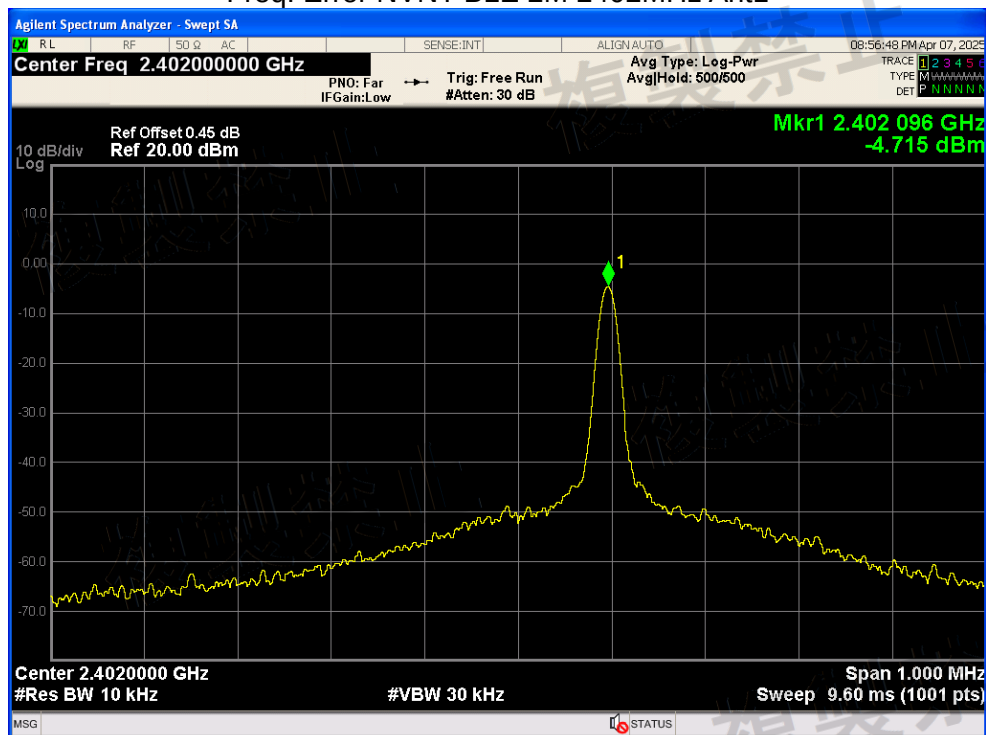


12.2 2M

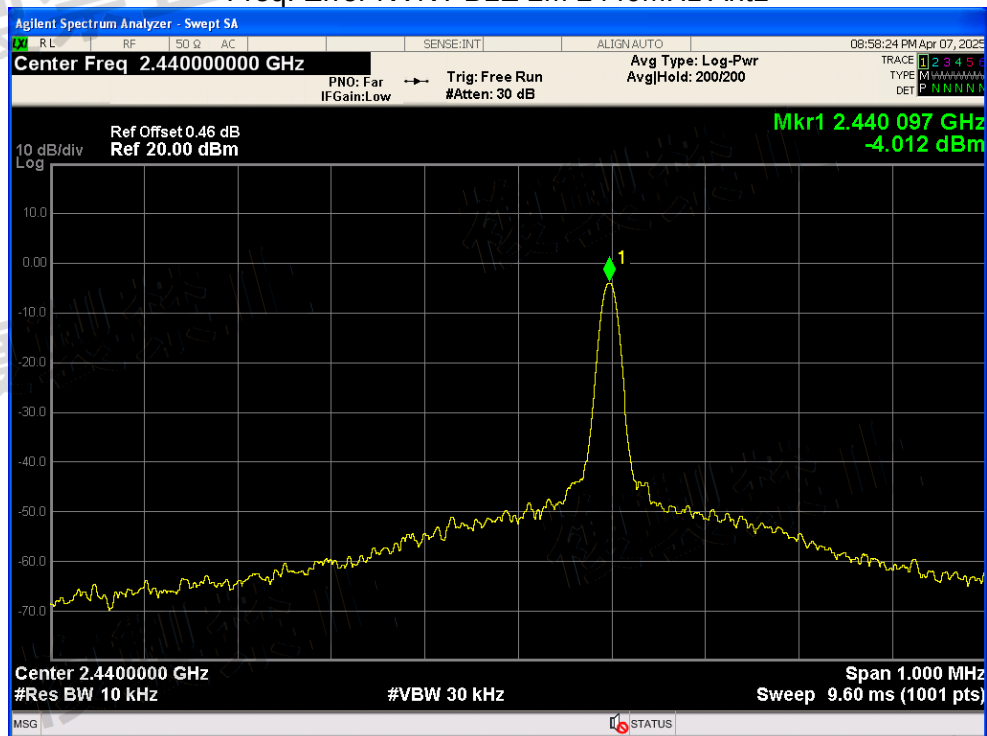
12.2.1 FREQUENCY ERROR

Condition	Mode	Frequency (MHz)	Antenna	Measured Frequency (MHz)	Deviation (ppm)	Limit (ppm)	Verdict
NVNT	BLE 2M	2402	Ant1	2402.096	39.97	50	Pass
NVNT	BLE 2M	2440	Ant1	2440.097	39.75	50	Pass
NVNT	BLE 2M	2480	Ant1	2480.099	39.92	50	Pass

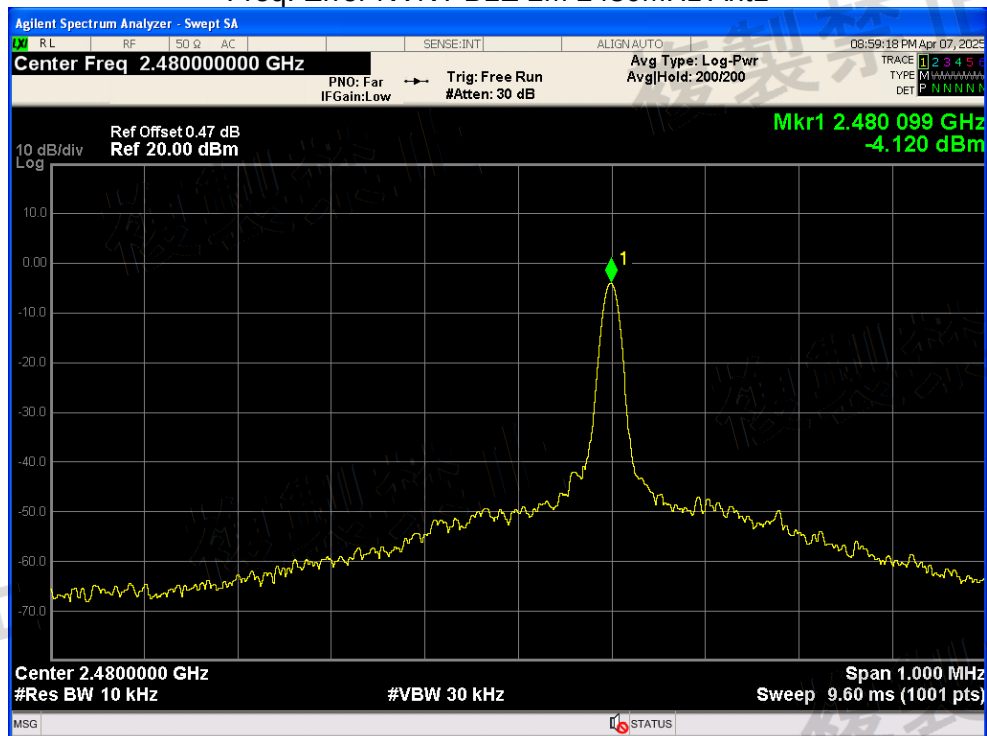
Freq. Error NVNT BLE 2M 2402MHz Ant1



Freq. Error NVNT BLE 2M 2440MHz Ant1



Freq. Error NVNT BLE 2M 2480MHz Ant1



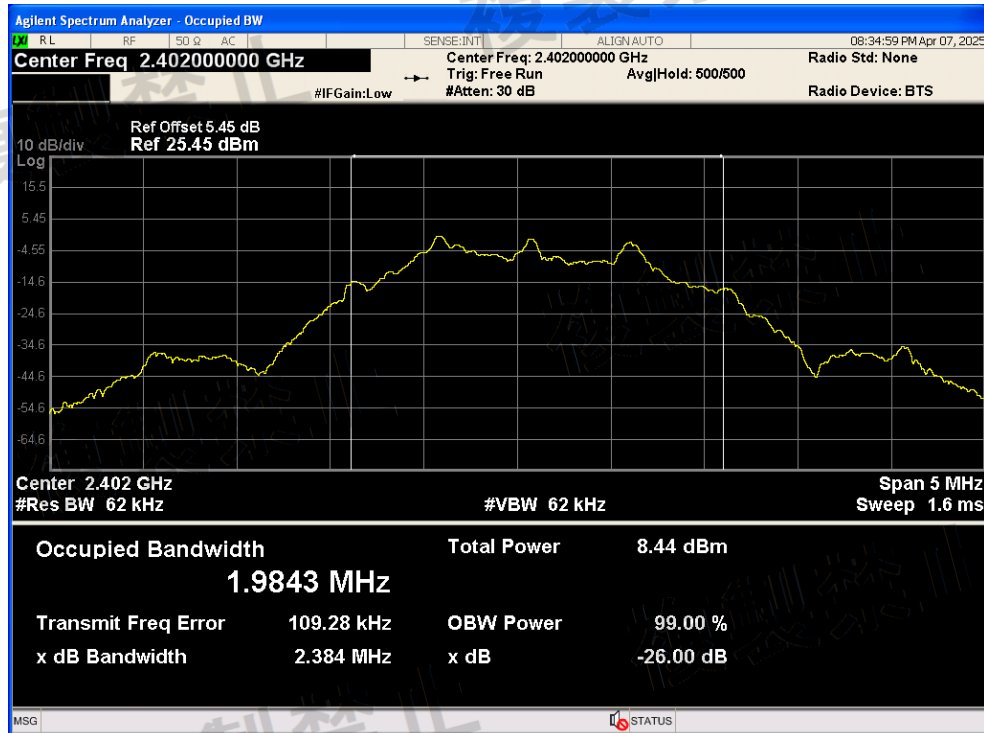
12.2.2 ANTENNA AND EIRP POWER

Condition	Mode	Frequency (MHz)	Antenna	Antenna Power (mW)	Declared Power (mW)	Tolerance (%)	Upper Limit (%)	Verdict
NVNT	BLE 2M	2402	Ant1	0.116	0.3	-61.48	20	Pass
NVNT	BLE 2M	2440	Ant1	0.072	0.3	-75.89	20	Pass
NVNT	BLE 2M	2480	Ant1	0.156	0.3	-47.91	20	Pass

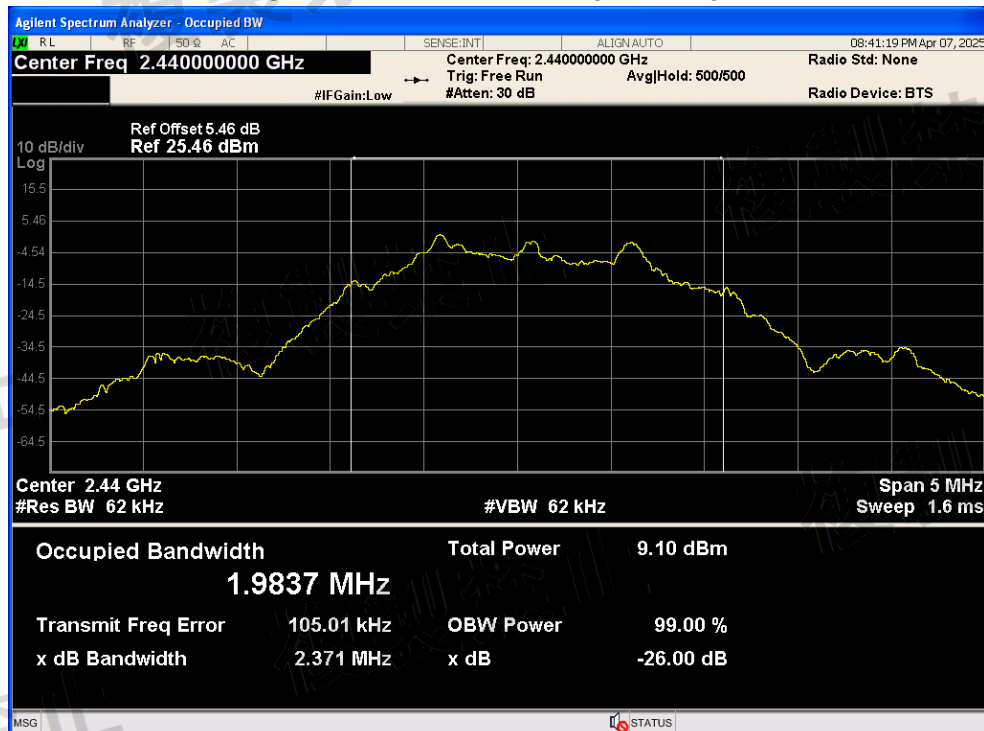
12.2.3 OCCUPIED CHANNEL BANDWIDTH

Condition	Mode	Frequency (MHz)	Antenna	99% OBW (MHz)
NVNT	BLE 2M	2402	Ant1	1.984
NVNT	BLE 2M	2440	Ant1	1.984
NVNT	BLE 2M	2480	Ant1	1.968

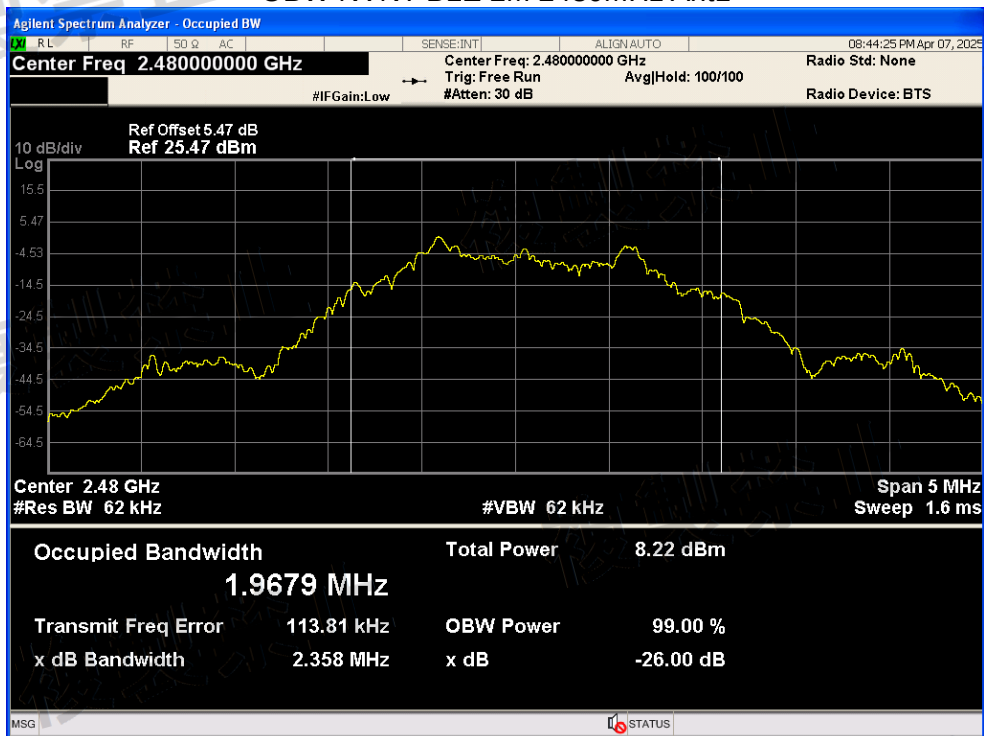
OBW NVNT BLE 2M 2402MHz Ant1



OBW NVNT BLE 2M 2440MHz Ant1



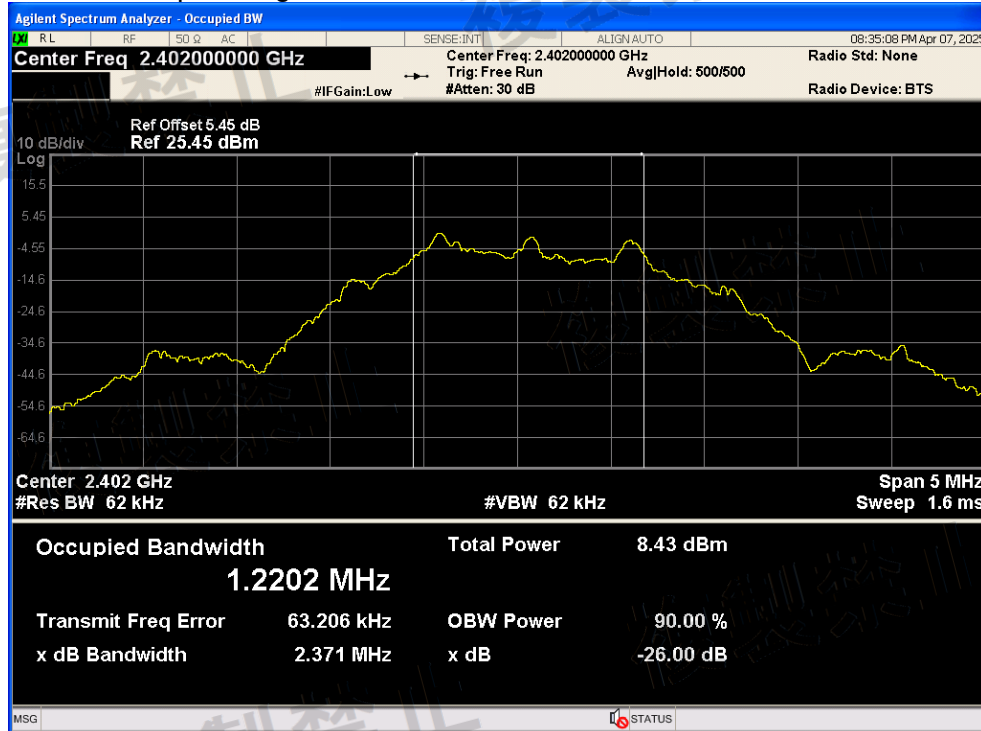
OBW NVNT BLE 2M 2480MHz Ant1



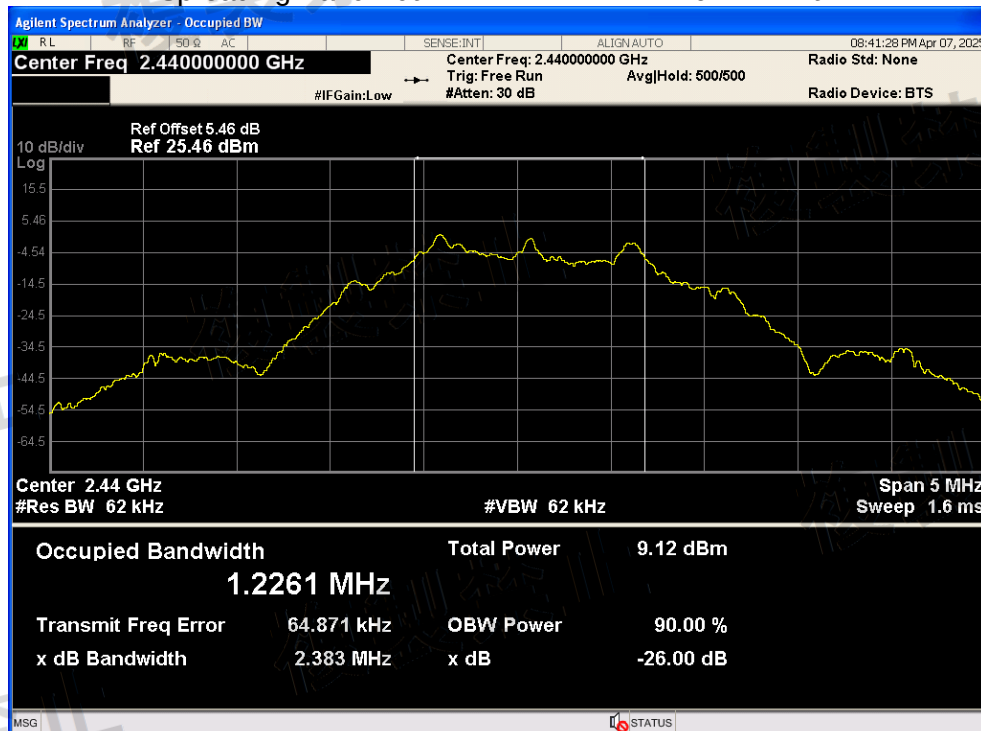
12.2.4 SPREADING BANDWIDTH

Condition	Mode	Frequency (MHz)	Antenna	90% OBW (MHz)	Verdict
NVNT	BLE 2M	2402	Ant1	1.22	Pass
NVNT	BLE 2M	2440	Ant1	1.226	Pass
NVNT	BLE 2M	2480	Ant1	1.243	Pass

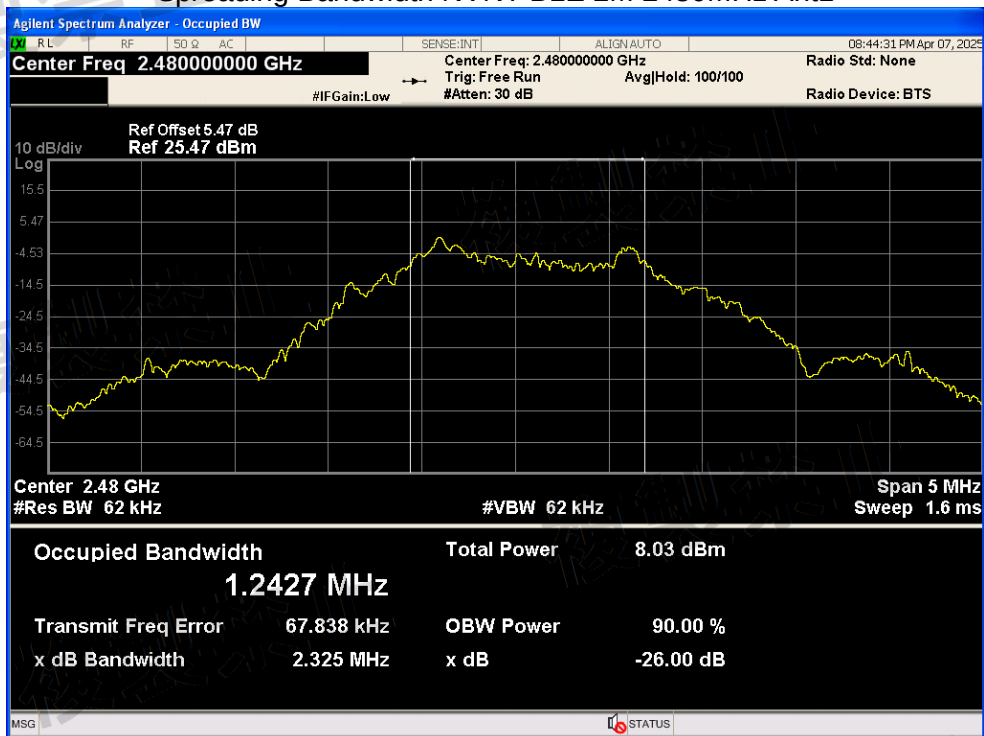
Spreading Bandwidth NVNT BLE 2M 2402MHz Ant1



Spreading Bandwidth NVNT BLE 2M 2440MHz Ant1



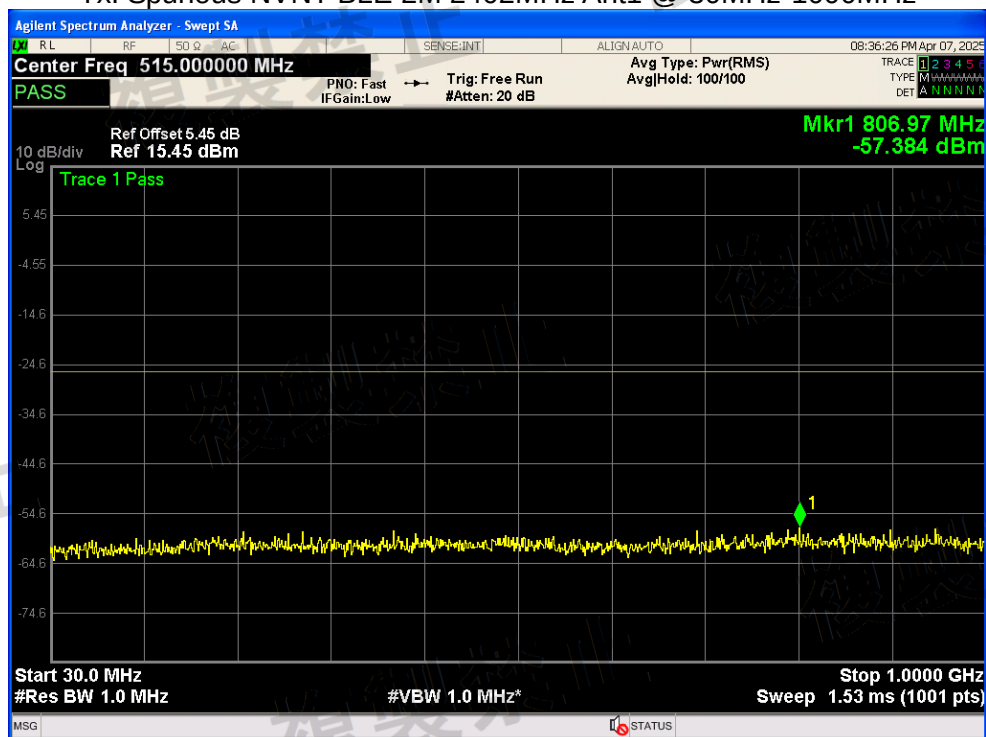
Spreading Bandwidth NVNT BLE 2M 2480MHz Ant1



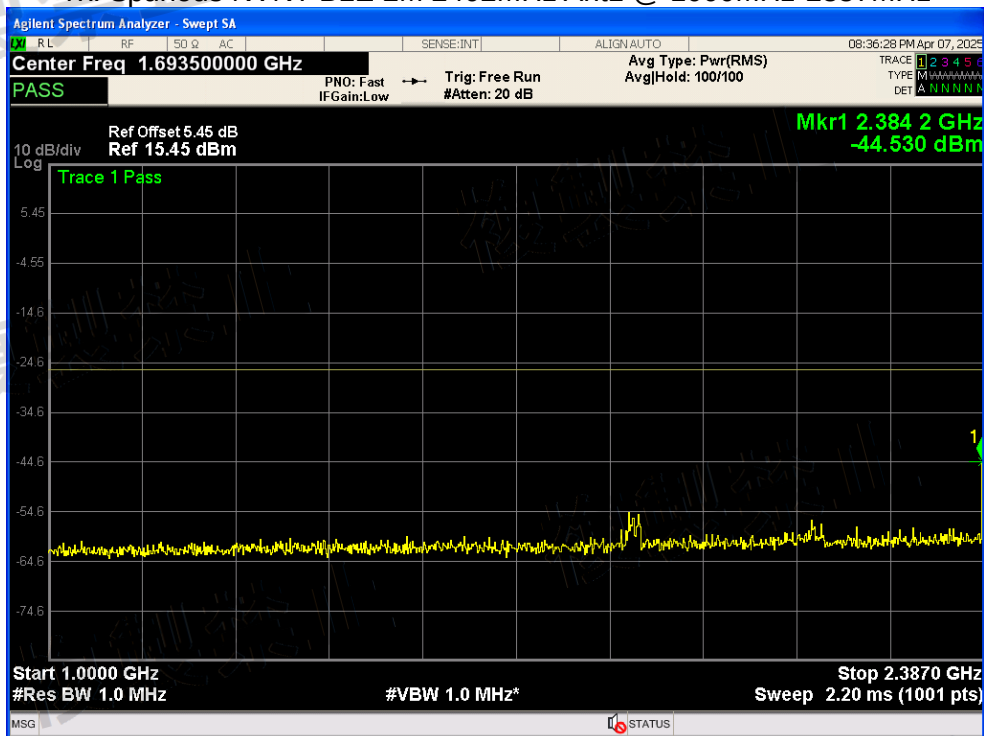
12.2.5 TX SPURIOUS EMISSION

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 2M	2402	Ant1	30-1000	806.97	-57.38	0.0018	2.5	2.5	Pass
NVNT	BLE 2M	2402	Ant1	1000-2387	2384.23	-44.53	0.0352	2.5	2.5	Pass
NVNT	BLE 2M	2402	Ant1	2387-2400	2399.99	-26.07	2.4717	25	25	Pass
NVNT	BLE 2M	2402	Ant1	2483.5-2496.5	2485.18	-50.83	0.0083	25	25	Pass
NVNT	BLE 2M	2402	Ant1	2496.5-13000	12012.67	-58.58	0.0014	2.5	2.5	Pass
NVNT	BLE 2M	2440	Ant1	30-1000	947.62	-55.72	0.0027	2.5	2.5	Pass
NVNT	BLE 2M	2440	Ant1	1000-2387	1782.27	-51.59	0.0069	2.5	2.5	Pass
NVNT	BLE 2M	2440	Ant1	2387-2400	2397.04	-48.46	0.0143	25	25	Pass
NVNT	BLE 2M	2440	Ant1	2483.5-2496.5	2487.87	-46.88	0.0205	25	25	Pass
NVNT	BLE 2M	2440	Ant1	2496.5-13000	12201.73	-57.32	0.0019	2.5	2.5	Pass
NVNT	BLE 2M	2480	Ant1	30-1000	947.62	-55.6	0.0028	2.5	2.5	Pass
NVNT	BLE 2M	2480	Ant1	1000-2387	2145.66	-55.08	0.0031	2.5	2.5	Pass
NVNT	BLE 2M	2480	Ant1	2387-2400	2391.91	-52.11	0.0062	25	25	Pass
NVNT	BLE 2M	2480	Ant1	2483.5-2496.5	2495.41	-40.64	0.0863	25	25	Pass
NVNT	BLE 2M	2480	Ant1	2496.5-13000	12401.3	-55.05	0.0031	2.5	2.5	Pass

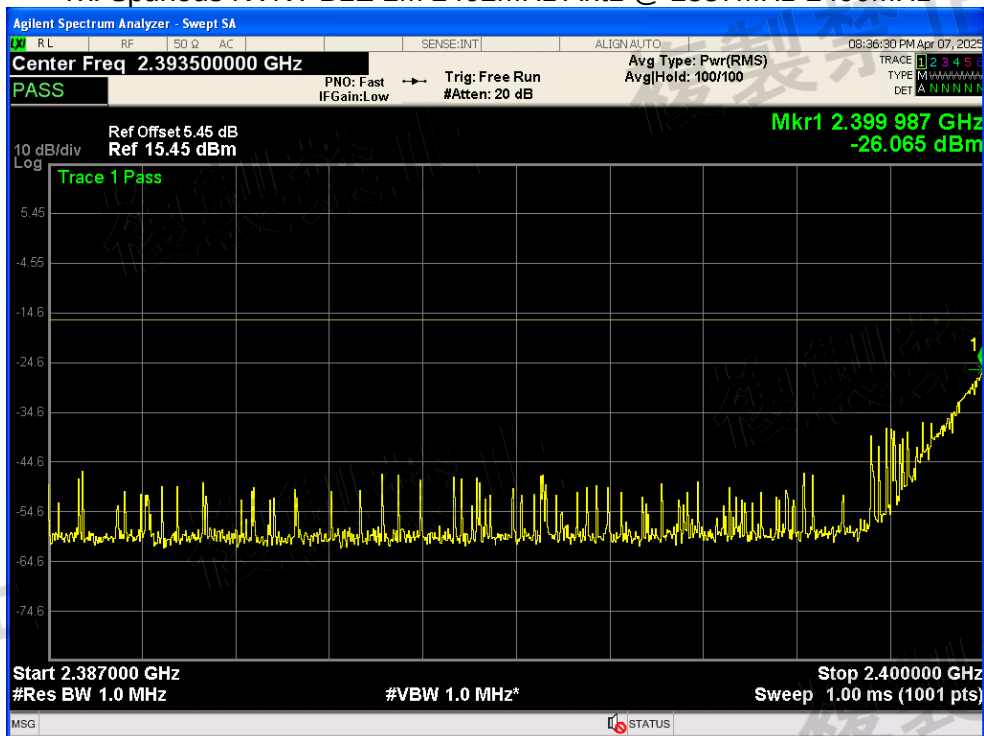
Tx. Spurious NVNT BLE 2M 2402MHz Ant1 @ 30MHz-1000MHz



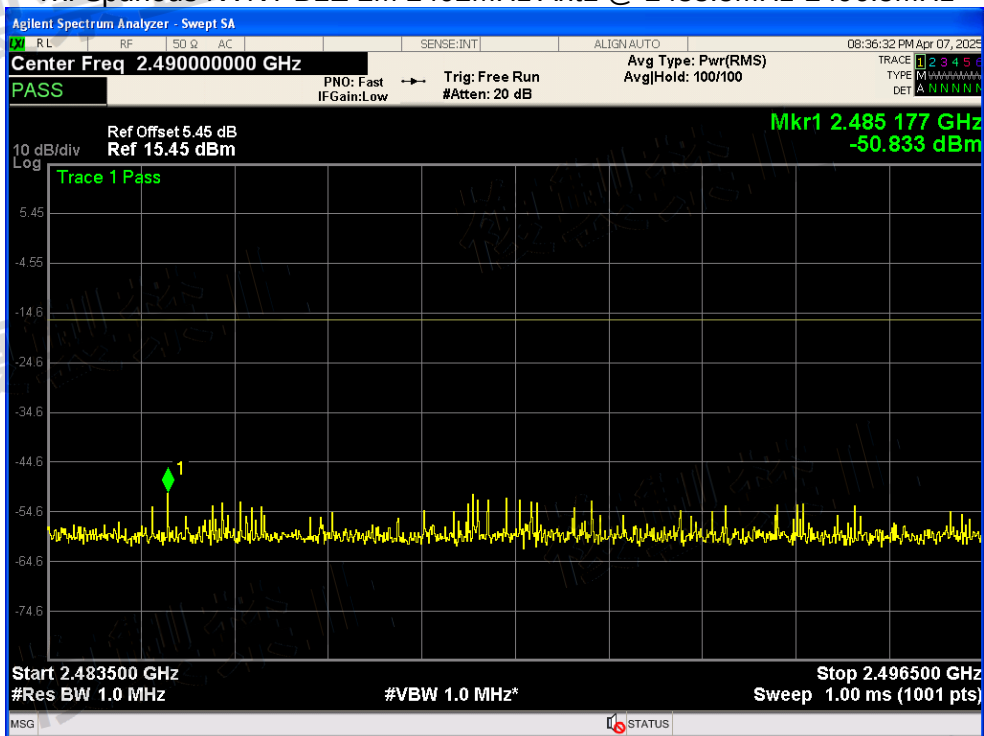
Tx. Spurious NVNT BLE 2M 2402MHz Ant1 @ 1000MHz-2387MHz



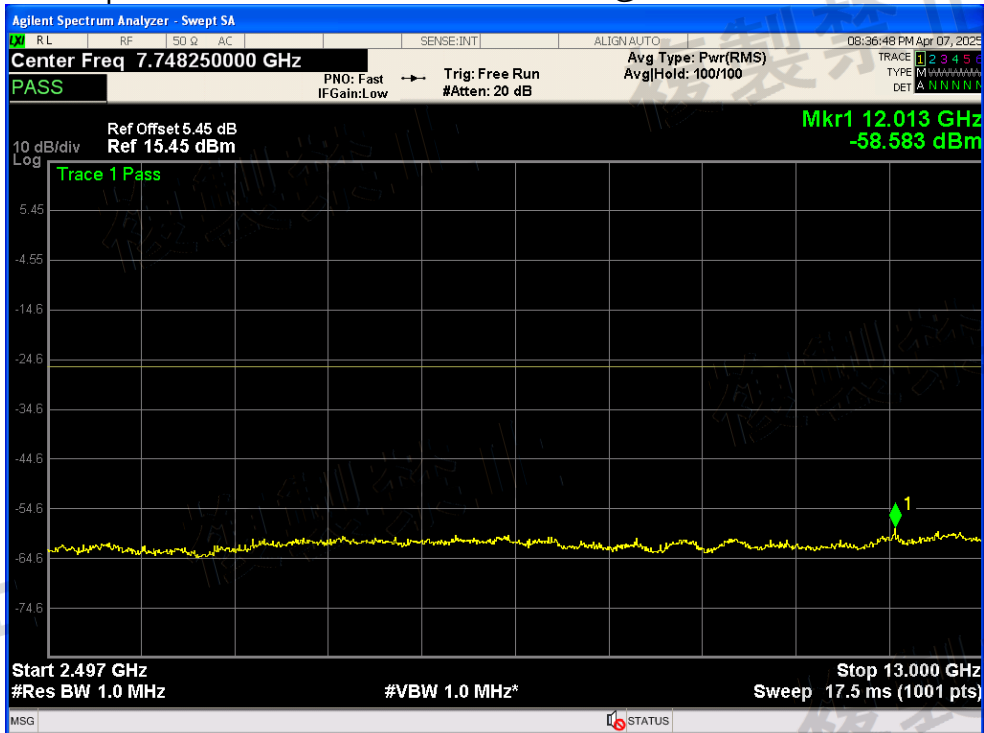
Tx. Spurious NVNT BLE 2M 2402MHz Ant1 @ 2387MHz-2400MHz



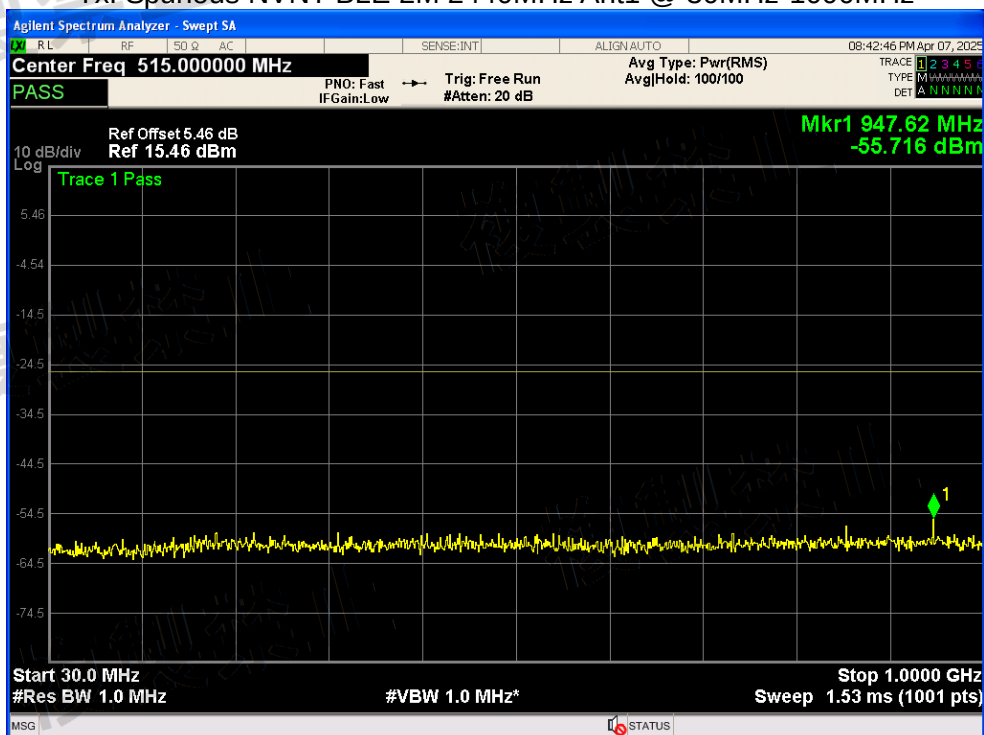
Tx. Spurious NVNT BLE 2M 2402MHz Ant1 @ 2483.5MHz-2496.5MHz



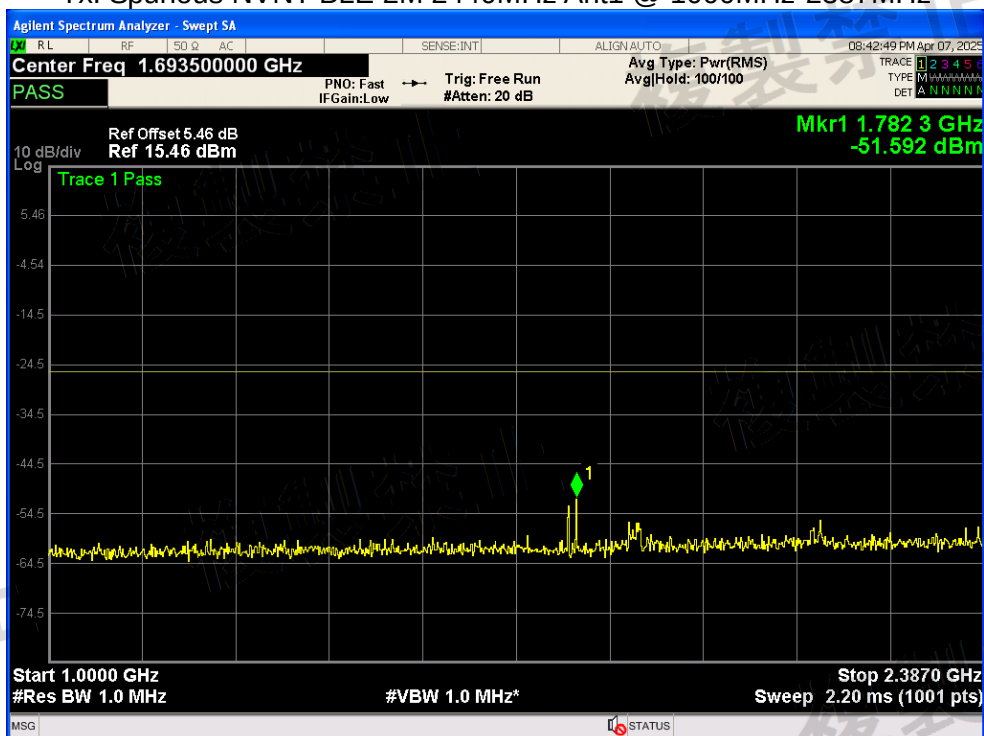
Tx. Spurious NVNT BLE 2M 2402MHz Ant1 @ 2496.5MHz-13000MHz



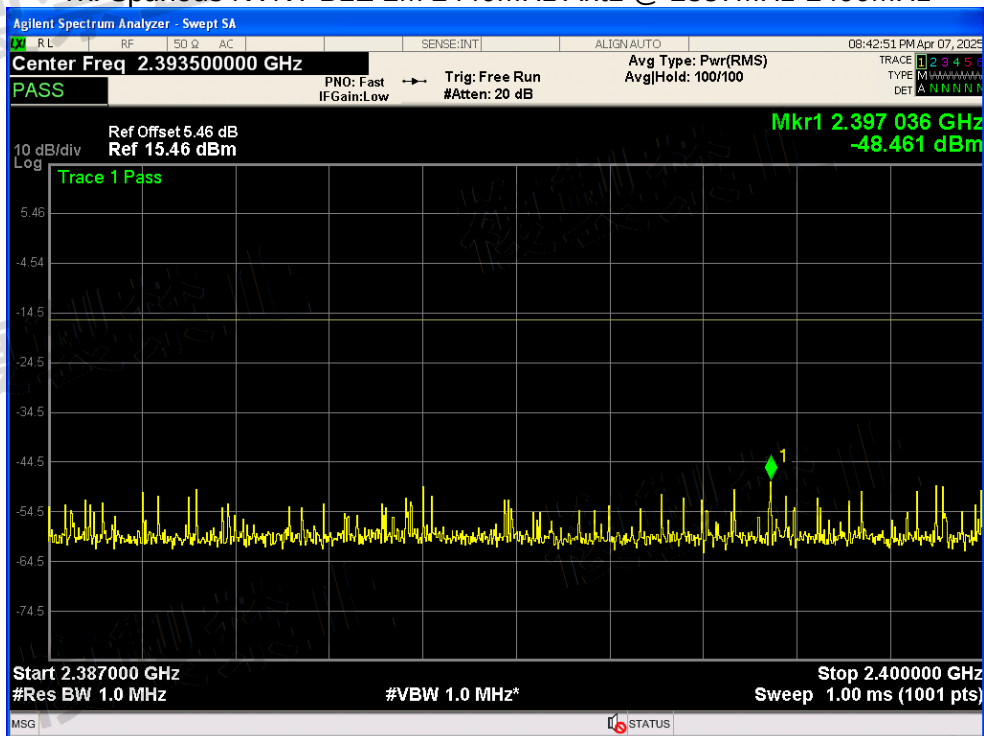
Tx. Spurious NVNT BLE 2M 2440MHz Ant1 @ 30MHz-1000MHz



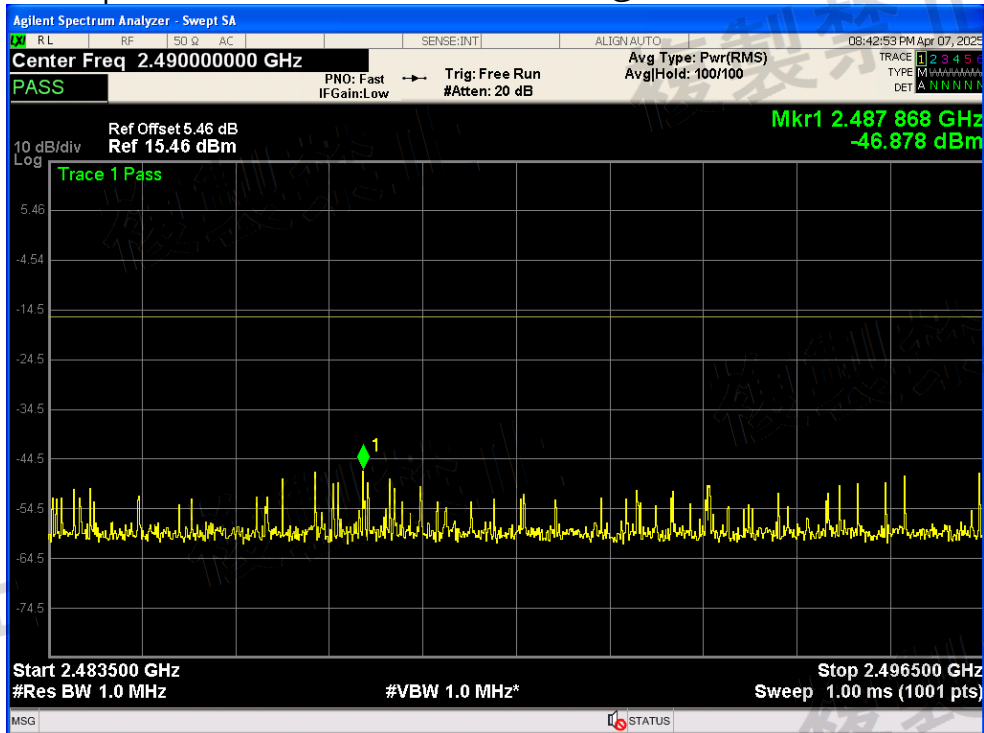
Tx. Spurious NVNT BLE 2M 2440MHz Ant1 @ 1000MHz-2387MHz



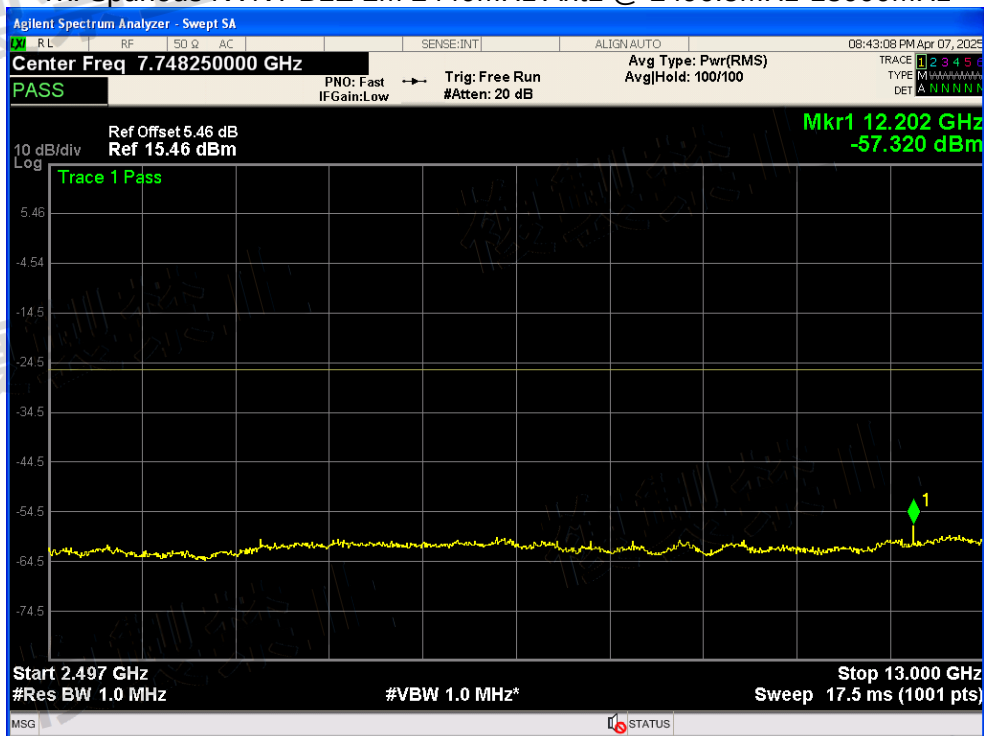
Tx. Spurious NVNT BLE 2M 2440MHz Ant1 @ 2387MHz-2400MHz



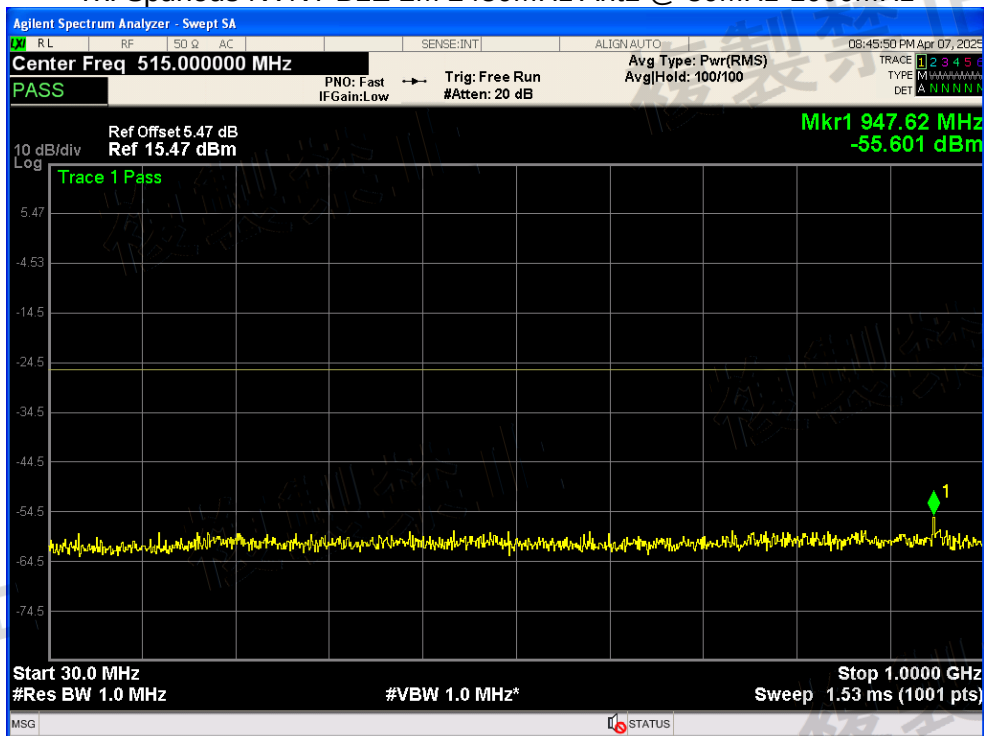
Tx. Spurious NVNT BLE 2M 2440MHz Ant1 @ 2483.5MHz-2496.5MHz



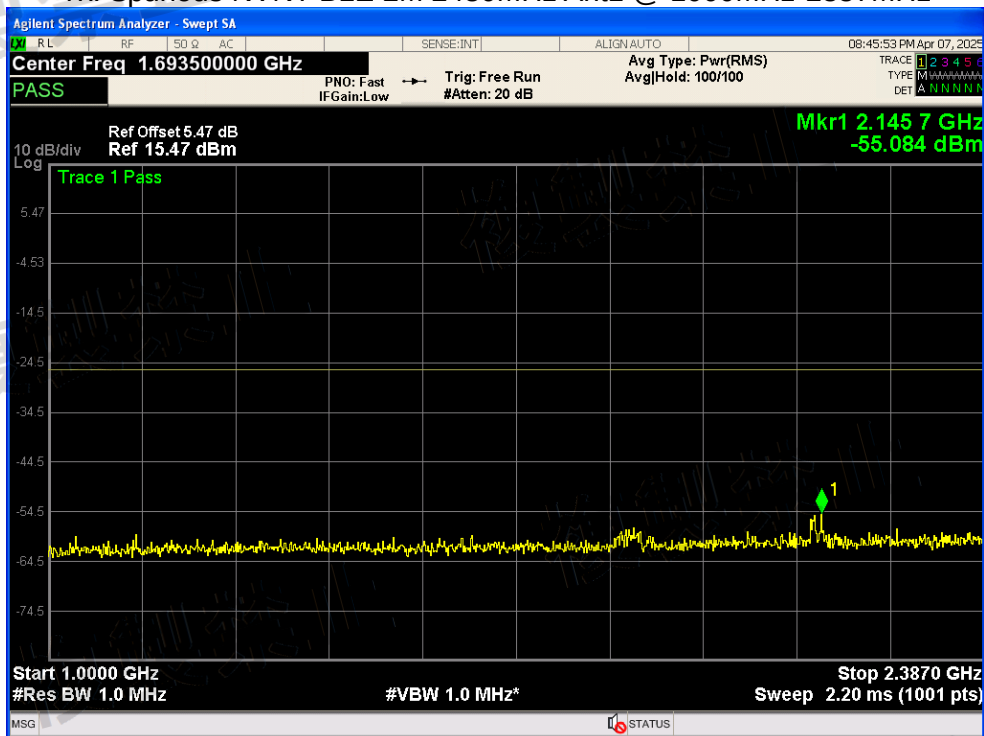
Tx. Spurious NVNT BLE 2M 2440MHz Ant1 @ 2496.5MHz-13000MHz



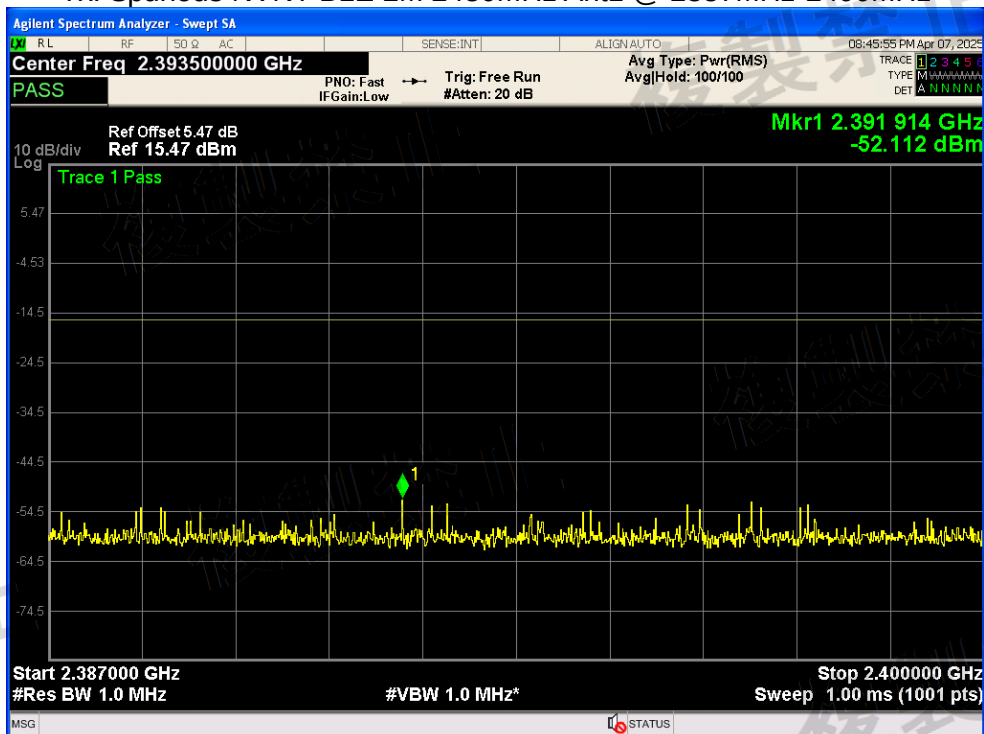
Tx. Spurious NVNT BLE 2M 2480MHz Ant1 @ 30MHz-1000MHz



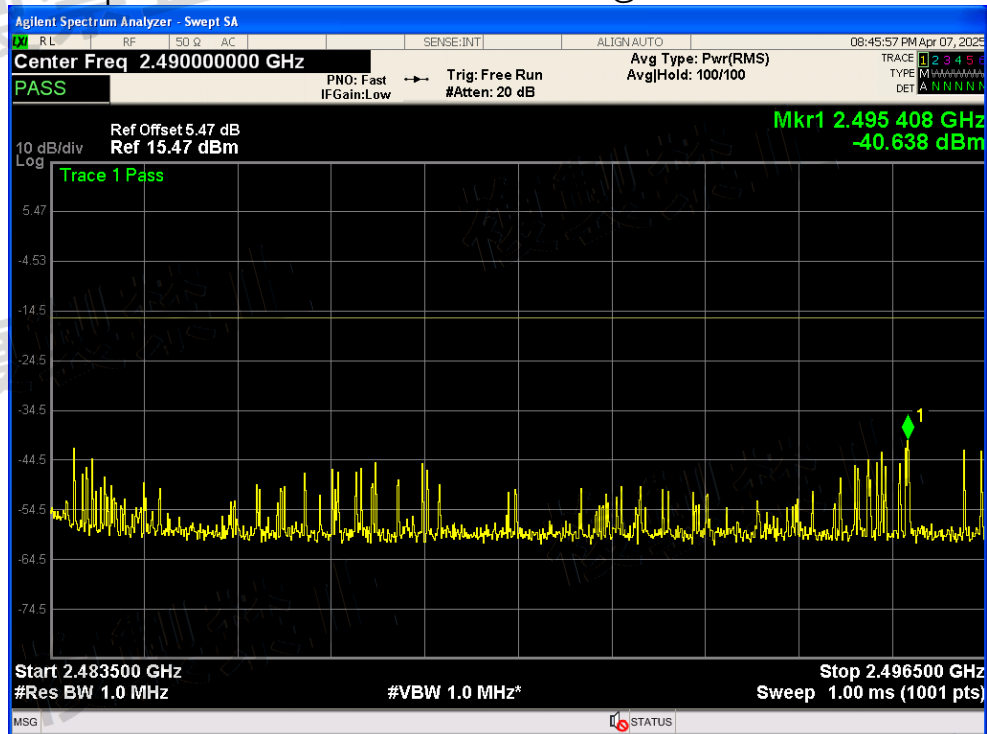
Tx. Spurious NVNT BLE 2M 2480MHz Ant1 @ 1000MHz-2387MHz



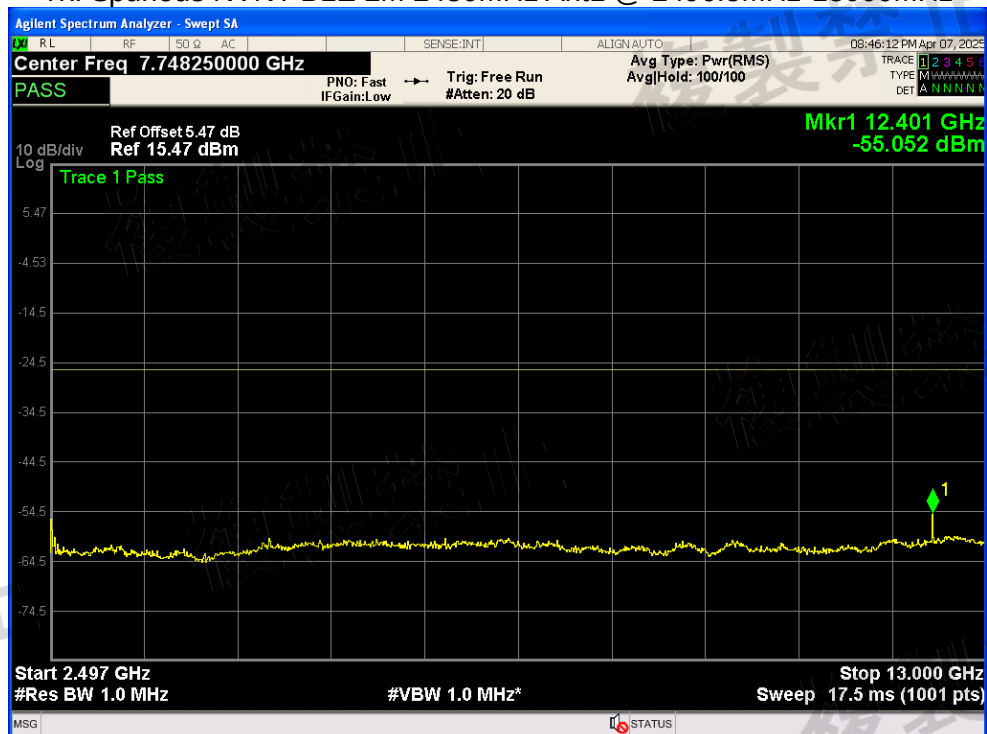
Tx. Spurious NVNT BLE 2M 2480MHz Ant1 @ 2387MHz-2400MHz



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



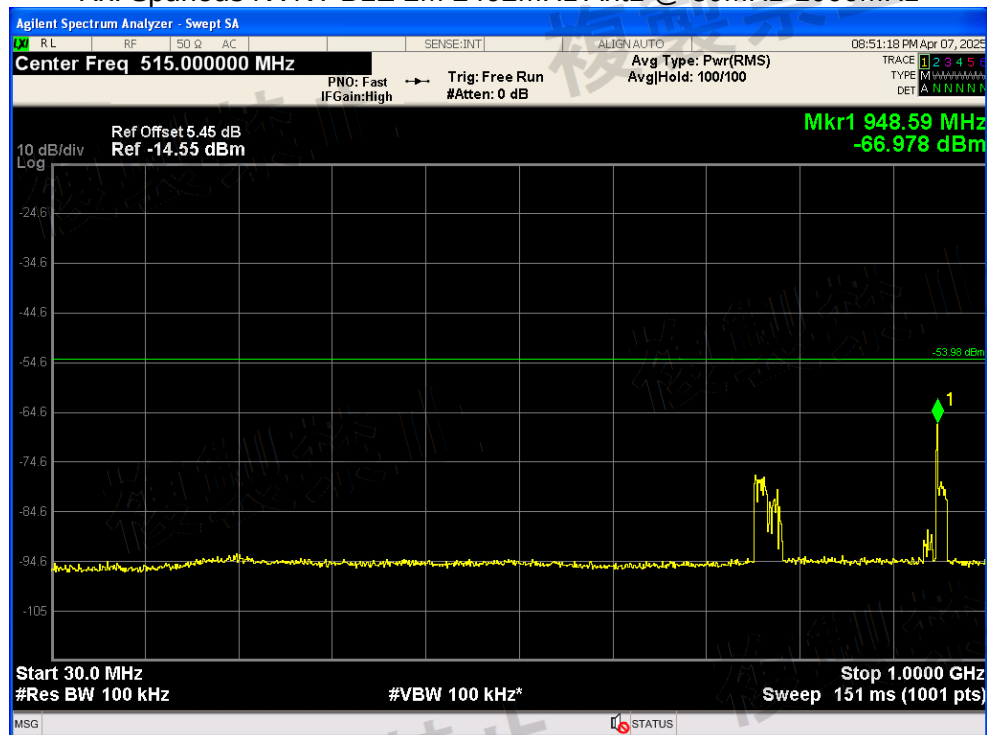
Tx. Spurious NVNT BLE 2M 2480MHz Ant1 @ 2496.5MHz-13000MHz



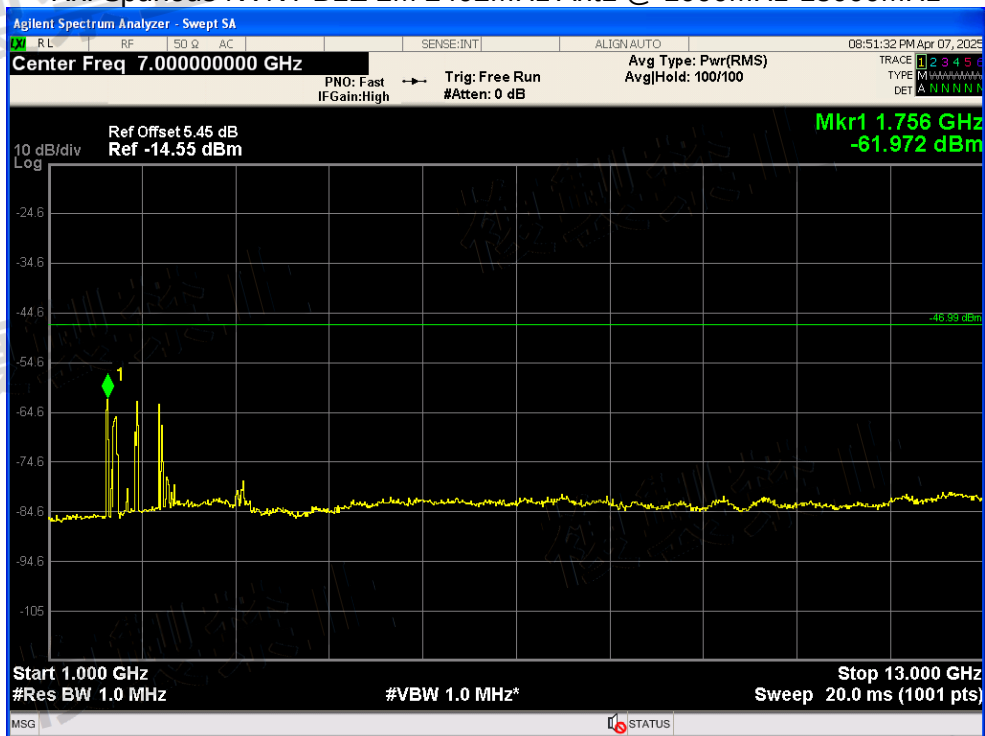
12.2.6 RX SPURIOUS EMISSION

Condition	Mode	Frequency (MHz)	Antenna	Range (MHz)	Emission Frequency (MHz)	Max Value (dBm)	Max Value (nW)	Limit (nW)	Verdict
NVNT	BLE 2M	2402	Ant1	30-1000	948.59	-66.98	0.2004	4	Pass
NVNT	BLE 2M	2402	Ant1	1000-13000	1756	-61.97	0.6353	20	Pass
NVNT	BLE 2M	2440	Ant1	30-1000	948.59	-78.16	0.0153	4	Pass
NVNT	BLE 2M	2440	Ant1	1000-13000	1756	-59.97	1.0069	20	Pass
NVNT	BLE 2M	2480	Ant1	30-1000	776.9	-77.9	0.0162	4	Pass
NVNT	BLE 2M	2480	Ant1	1000-13000	1744	-57.23	1.8923	20	Pass

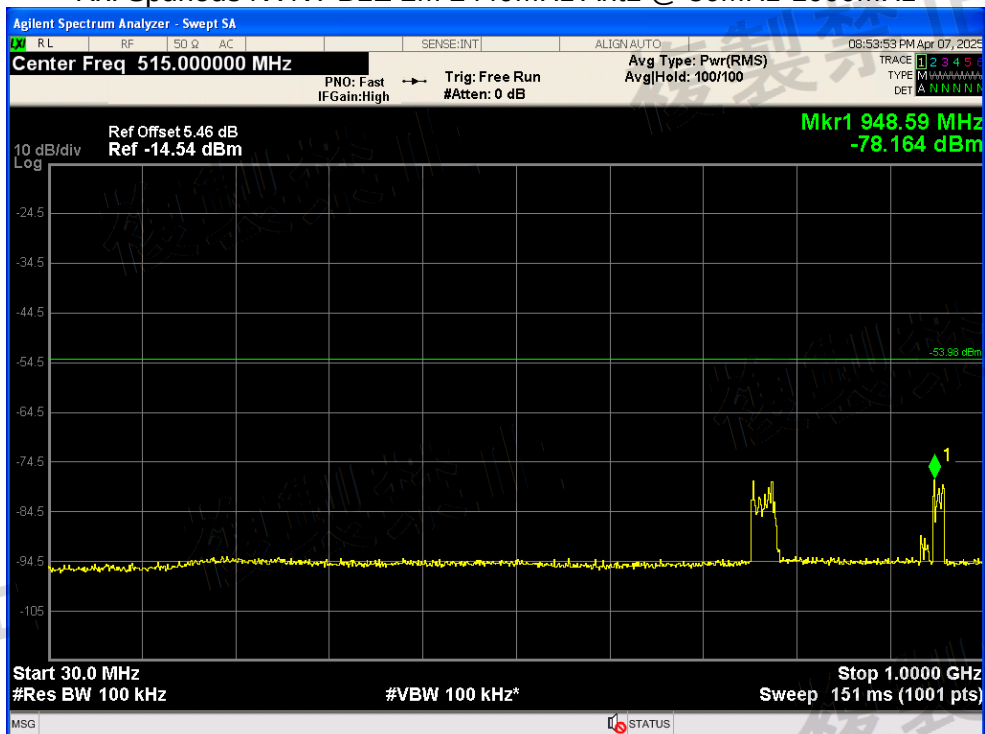
Rx. Spurious NVNT BLE 2M 2402MHz Ant1 @ 30MHz-1000MHz



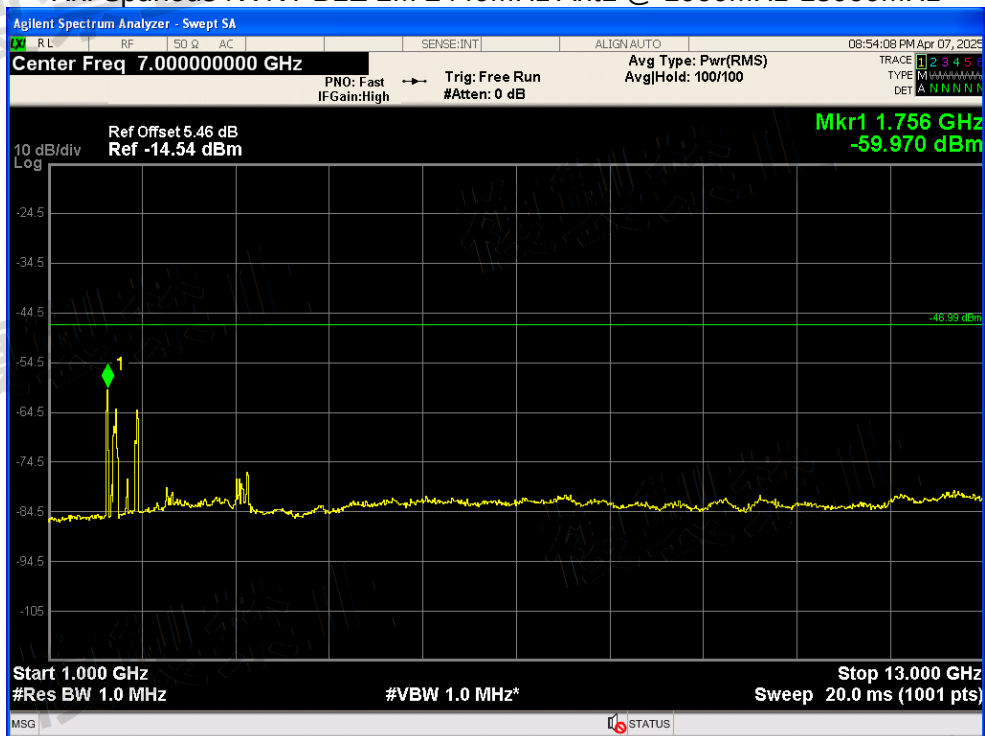
Rx. Spurious NVNT BLE 2M 2402MHz Ant1 @ 1000MHz-13000MHz



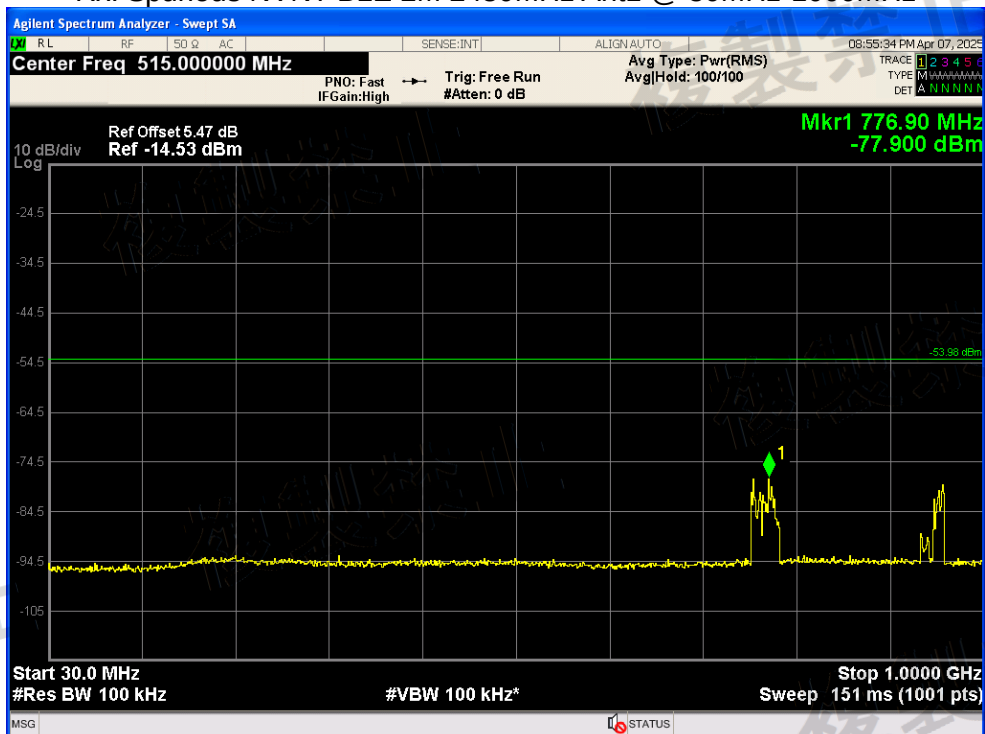
Rx. Spurious NVNT BLE 2M 2440MHz Ant1 @ 30MHz-1000MHz



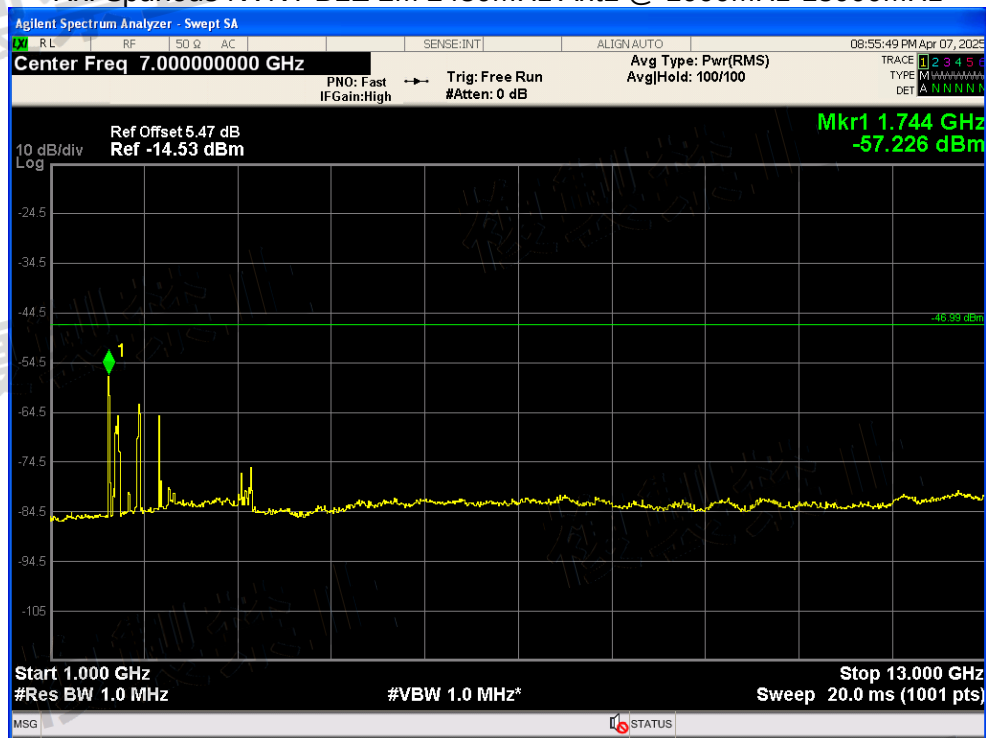
Rx. Spurious NVNT BLE 2M 2440MHz Ant1 @ 1000MHz-13000MHz



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



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



REPORT IS FINISHED.