

Test Report

Report No. : MTi260615011-0101E2
Date of issue : 2026-06-30
Applicant : Guangzhou FiiO Electronics Technology CO.,
LTD
Product : Bluetooth and DAC Headphone Amplifier
Model(s) : F3087B, BTR25

Shenzhen Microtest Co., Ltd.

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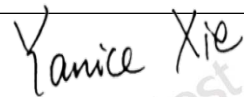
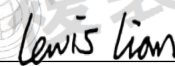
Test Result Certification

Applicant	Guangzhou FiiO Electronics Technology CO., LTD
Applicant Address	No.21, Longliang Road, Xialiang Village, Longgui Street, Baiyun District, Guangzhou
Manufacturer	Guangzhou FiiO Electronics Technology CO., LTD
Manufacturer Address	No.21, Longliang Road, Xialiang Village, Longgui Street, Baiyun District, Guangzhou
Factory	Guangzhou FiiO Electronics Technology CO., LTD
Factory Address	No.21, Longliang Road, Xialiang Village, Longgui Street, Baiyun District, Guangzhou

Product description

Product name	Bluetooth and DAC Headphone Amplifier
Trademark	FIIO
Model name	F3087B
Series Model(s)	BTR25
Standards	Article 2-1, Item 19-MIC Notice No. 88 Appendix No. 43

Testing Information

Date of test	2026-06-18 to 2026-06-24	
Test result	Pass	
Prepared by:	Yanice Xie	
Reviewed by:	David Lee	
Approved by:	Lewis Lian	

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1 General Description

1.1 Description of the EUT

Product name:	Bluetooth and DAC Headphone Amplifier
Model name:	F3087B
Series Model(s):	BTR25
Model difference:	All the models are the same circuit and module, except the model name.
Electrical rating:	Input: DC 5V/1A Battery:DC 3.8V 570mAh
Accessories:	Cable: USB-C to USB-C 0.1m*1
Hardware version:	V00
Software version:	1.2.0
Test sample(s) number:	MTi260615011-01-R001
RF specification	
Bluetooth version:	V6.2
Operating frequency range:	2402MHz - 2480MHz
Channel number:	40
Modulation type:	GFSK
Antenna(s) type:	FPC Antenna
Antenna(s) gain:	-3.86 dBi

1.2 Description of test modes

No.	Emission test modes
Mode1	TX-GFSK-1Mbps
Mode2	TX-GFSK-2Mbps
Mode3	unmodulated carrier
Mode4	RX

1.2.1 Operation channel list

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468

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4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

Test Channel List Operation Band:

Bandwidth (MHz)	Lowest Channel (LCH) (MHz)	Middle Channel (MCH) (MHz)	Highest Channel (HCH) (MHz)
2	2402	2440	2480

Note: The test software provided by manufacturer is used to control EUT for working in engineering mode, that enables selectable channel, and capable of continuous transmitting mode.

Test Software: BlueTest3

For power setting, refer to below table.

Mode	2402MHz	2440MHz	2480MHz
1M	Default	Default	Default
2M	Default	Default	Default

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1.3 Environmental Conditions

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

Temperature:	15°C ~ 35°C
Humidity:	20% RH ~ 75% RH
Atmospheric pressure:	98 kPa ~ 101 kPa

Test Conditions		Power Supply (VDC)	Input Voltage to the circuit of RF unit (VDC)
NTNV (V_{normal})	/	3.8	3.3
NTHV ($V_{\text{max.}}$)	+10%	4.18	3.3
NTLV ($V_{\text{min.}}$)	-10%	3.42	3.3

Note: If the fluctuation of input voltage to the circuit of RF unit (except power supply) of test equipment is under $\pm 1\%$, when input voltage from external power supply to the test equipment is fluctuated by $\pm 10\%$: conduct the test with the rated voltage only

1.4 Description of 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.

Support equipment list

Description	Model	Serial No.	Manufacturer
Laptop	e485	0E20AC5E-BE55-4970-8F1E-152D2E4549B1	Lenovo

Support cable list

Description	Length (m)	From	To
/	/	/	/

1.5 Measurement uncertainty

Parameter	Measurement uncertainty
Frequency tolerance	± 10 ppm
Occupied channel bandwidth	± 3 %
RF output power, conducted	± 1 dB
Power Spectral Density, conducted	± 1 dB
Unwanted Emissions, conducted	± 1 dB
All emissions, radiated	± 4.7 dB
Temperature	± 1 °C
Supply voltages	± 1 %
Time	± 1 %

Note: the measurement uncertainty is calculated and correspond to a factor $k=2$ (which provide confidence levels of 95.45%)

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2 Summary of Test Result

No.	Item	Standard	Requirement	Result
1	Tolerance of Frequency	Article 2-1, Item 19-MIC Notice No. 88 Appendix No. 43	Article 2-1, Item 19	Pass
2	Occupied Bandwidth (99%)	Article 2-1, Item 19-MIC Notice No. 88 Appendix No. 43	Article 2-1, Item 19	Pass
3	Antenna Power and Tolerance	Article 2-1, Item 19-MIC Notice No. 88 Appendix No. 43	Article 2-1, Item 19	Pass
4	Spurious Emission Intensity	Article 2-1, Item 19-MIC Notice No. 88 Appendix No. 43	Article 2-1, Item 19	Pass
5	Secondary Radiated Emissions	Article 2-1, Item 19-MIC Notice No. 88 Appendix No. 43	Article 2-1, Item 19	Pass
6	Carrier Sensing 1	Article 2-1, Item 19-MIC Notice No. 88 Appendix No. 43	Article 2-1, Item 19	N/A
7	Carrier Sensing 2	Article 2-1, Item 19-MIC Notice No. 88 Appendix No. 43	Article 2-1, Item 19	N/A
8	Interference Prevention Function	Article 2-1, Item 19-MIC Notice No. 88 Appendix No. 43	Article 2-1, Item 19	Pass

Notes:

N/A means not applicable

Carrier Sensing 1: Application to transmitting devices which EIRP is less than 2.14dBi and the shortage of EIRP is compensated by the antenna power. Not applicable to this product.

Carrier Sensing 2: Application to transmitting devices with OFDM modulation and the occupied bandwidth greater than 26MHz.

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3 Test Facilities and accreditations

3.1 Test laboratory

Test laboratory:	Shenzhen Microtest Co., Ltd.
Test site location:	101, No.7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China
Telephone:	(86-755)88850135
Fax:	(86-755)88850136
CNAS Registration No.:	CNAS L5868
FCC Registration No.:	448573
IC Registration No.:	21760
CABID:	CN0093

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4 List of test equipment

No.	Equipment	Manufacturer	Model	Serial No.	Cal. date	Cal. Due	Calibration method
Antenna Power and Tolerance Spurious Emission Intensity Secondary Radiated Emissions Tolerance of Frequency Occupied Bandwidth (99%)							
1	Wideband Radio Communication Tester	Rohde&schwarz	CMW500	149155	2026-03-09	2027-03-08	C
2	ESG Series Analog Ssignal Generator	Agilent	E4421B	GB40051240	2026-03-09	2027-03-08	C
3	PXA Signal Analyzer	Agilent	N9030A	MY51350296	2026-03-10	2027-03-09	C
4	Synthesized Sweeper	Agilent	83752A	3610A01957	2026-03-10	2027-03-09	C
5	MXA Signal Analyzer	Agilent	N9020A	MY50143483	2026-03-09	2027-03-08	C
6	RF Control Unit	Tonscend	JS0806-1	19D8060152	2026-03-11	2027-03-10	C
7	Band Reject Filter Group	Tonscend	JS0806-F	19D8060160	2026-03-11	2027-03-10	C
8	ESG Vector Signal Generator	Agilent	N5182A	MY50143762	2026-03-10	2027-03-09	C
9	DC Power Supply	Agilent	E3632A	MY40027695	2026-03-09	2027-03-08	C
10	RF Test System	Tonscend	JS1120-3 Test System	V3.6.21	/	/	C

Remark:

(a) 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.

(b) Correction conducted pursuant 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 (1).

(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)

From JRL Article 24-2, paragraph 4, Item 2

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5 Evaluation Results (Evaluation)

5.1 Interference Prevention Function

Test Requirement:	The EUT shall support one of the following functions: - Automatic identification transmission - Automatic identification reception
Test Method:	Notification No.88 of MIC, 2004
Procedure:	(1) For EUTs capable of automatically transmitting identification data a. Transmit identification data from EUT to Demodulator b. Confirm identification data is correctly received by Demodulator (2) For EUTs capable of automatically receiving identification data a. Transmit identification data from Link Partner to EUT b. Confirm communication link is established c. Link Partner shall respond by transmitting different identification data back to the EUT d. Confirm EUT stops transmitting, or confirm EUT recognizes that the two identification data are different

5.1.1 Conclusion:

The detected ID of the device is below: 0600 FF02 0000

Test result: The device meet the requirements
PASS

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6 Radio Spectrum Matter Test Results (RF)

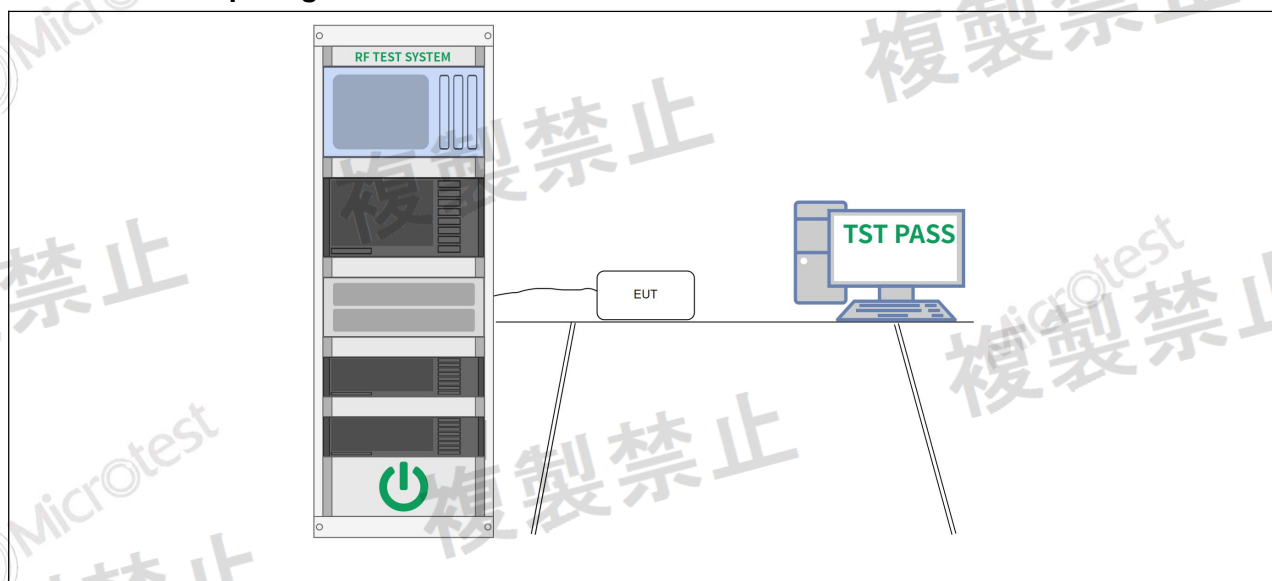
6.1 Tolerance of Frequency

Test Requirement:	Article 2-1, Item 19	
Test Limit:	±50ppm or less.	
Test Method:	Notification No.88 of MIC, 2004	
Procedure:	Center frequency:	Test frequency
	Span:	1 MHz
	RBW:	10 kHz (unmodulated)
	VBW:	10 kHz (unmodulated)
	Sweep data points:	1001 or greater
	Sweep time:	Auto
	Detector mode:	Positive peak
	Indication mode:	Max hold
(1) Find the peak carrier signal and measure its frequency		
(2) For multiple antenna systems each antenna shall be measured		
(3) For an EUT with multiple antennas it is permissible to test a single antenna only, provided all the antenna measurement values are expected to be same for either of the following reasons:		
a) The frequency of all antenna transmissions are phase-synchronized to a common (fundamental) oscillator		
b) The antenna transmissions share a common clock signal		

6.1.1 E.U.T. Operation:

Operating Environment:					
Temperature:	25.6 °C	Humidity:	45.2 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode3				
Final test mode:	Mode3				

6.1.2 Test Setup Diagram:



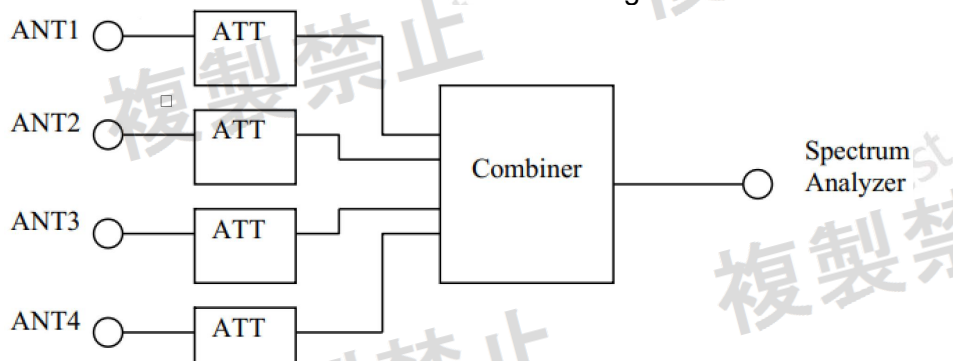
6.1.3 Test Data:

Please Refer to Appendix for Details.

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6.2 Occupied Bandwidth (99%)

Test Requirement:	Article 2-1, Item 19																		
Test Limit:	<p>For DSSS or other modulation: The measured bandwidth at the low and high channels shall meet the following requirements:</p> <ul style="list-style-type: none"> - The lowest frequency of the measured bandwidth shall not be less than 2400 MHz - The highest frequency of the measured bandwidth shall not be greater than 2483.5 MHz <p>[Occupied Bandwidth] 26 MHz or less</p>																		
Test Method:	Notification No.88 of MIC, 2004																		
Procedure:	<table border="1"> <tr> <td>Center Frequency:</td><td>Test frequency</td></tr> <tr> <td>Span:</td><td>2 - 3.5 times the technical standard</td></tr> <tr> <td>RBW:</td><td>Within 3% of the technical standard</td></tr> <tr> <td>VBW:</td><td>Same as RBW</td></tr> <tr> <td>Sweep time:</td><td>Auto</td></tr> <tr> <td>Sweep data points:</td><td>1001 or greater</td></tr> <tr> <td>Detector mode:</td><td>Positive peak</td></tr> <tr> <td>Indication mode:</td><td>Max hold</td></tr> <tr> <td>BW setting:</td><td>99%</td></tr> </table> <p>(1) Measure the signal bandwidth using a spectrum analyzer</p> <p>(2) For multiple antenna systems:</p> <p>a) Each antenna shall be individually measured</p> <p>b) If the measured occupied bandwidth for any antenna exceeds [(Occupied Bandwidth Limit) – 100kHz] then, in addition, the occupied bandwidth shall be measured with all antennas combined – see diagram below:</p>  <p style="text-align: center;">System with four Antennas</p>	Center Frequency:	Test frequency	Span:	2 - 3.5 times the technical standard	RBW:	Within 3% of the technical standard	VBW:	Same as RBW	Sweep time:	Auto	Sweep data points:	1001 or greater	Detector mode:	Positive peak	Indication mode:	Max hold	BW setting:	99%
Center Frequency:	Test frequency																		
Span:	2 - 3.5 times the technical standard																		
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VBW:	Same as RBW																		
Sweep time:	Auto																		
Sweep data points:	1001 or greater																		
Detector mode:	Positive peak																		
Indication mode:	Max hold																		
BW setting:	99%																		

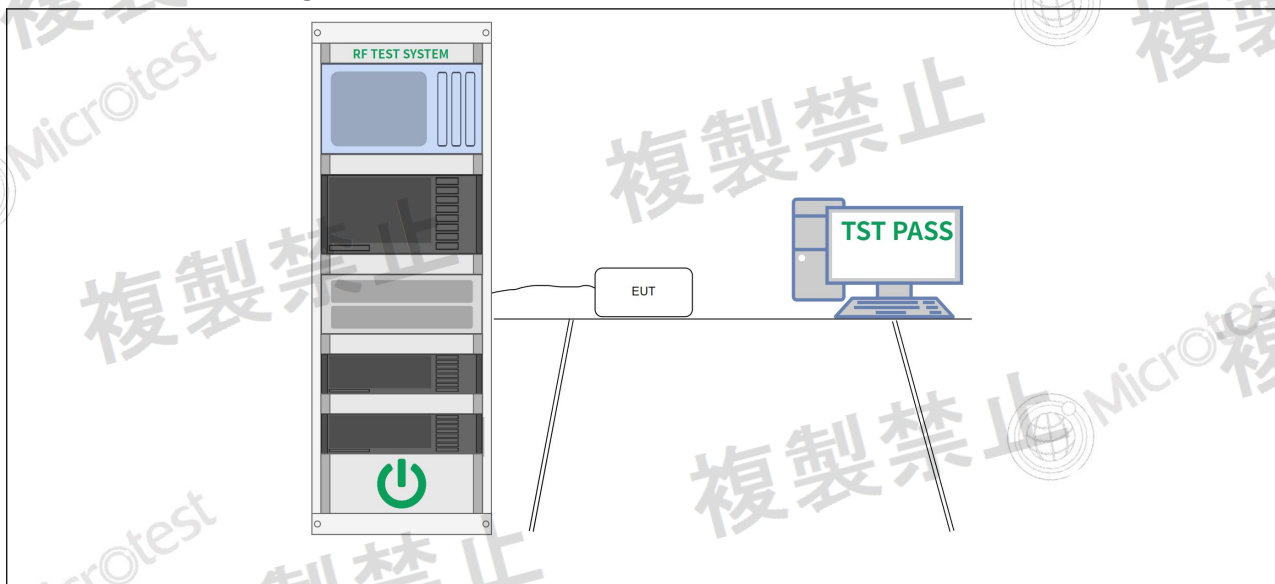
6.2.1 E.U.T. Operation:

Operating Environment:					
Temperature:	25.6 °C	Humidity:	45.2 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1, Mode2				
Final test mode:	Mode1, Mode2				

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6.2.2 Test Setup Diagram:



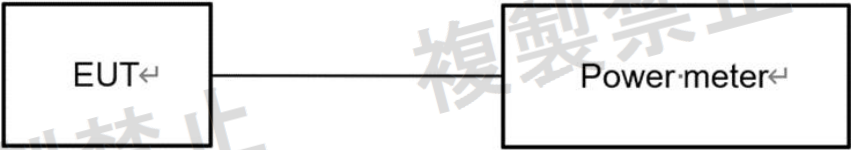
6.2.3 Test Data:

Please Refer to Appendix for Details.

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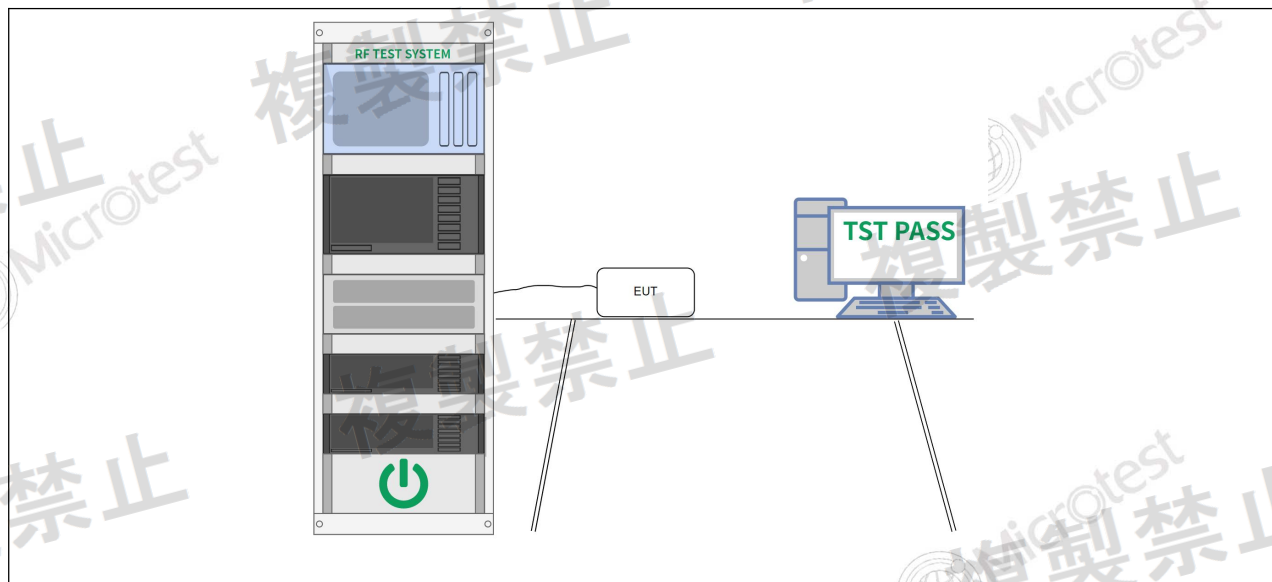
6.3 Antenna Power and Tolerance

Test Requirement:	Article 2-1, Item 19
Test Limit:	Antenna Power: 10 mW or less Tolerance: +20% or less EIRP: 12.14dBm
Test Method:	Notification No.88 of MIC, 2004
Procedure:	Connect high frequency power meter to the RF output of the EUT with a suitable attenuator and measure the total electric power. <div style="text-align: center;">  </div>

6.3.1 E.U.T. Operation:

Operating Environment:					
Temperature:	25.6 °C	Humidity:	45.2 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode1, Mode2				
Final test mode:	Mode1, Mode2				

6.3.2 Test Setup Diagram:



6.3.3 Test Data:

Please Refer to Appendix for Details.

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6.4 Spurious Emission Intensity

Test Requirement:	Article 2-1, Item 19																																															
Test Limit:	(1) Below 2387 MHz: 2.5 μ W (-26 dBm)/MHz or less (2) 2387 to 2400 MHz: 25.0 μ W (-16 dBm)/MHz or less (3) 2483.5 to 2496.5 MHz: 25.0 μ W (-16 dBm)/MHz or less (4) Over 2496.5 MHz: 2.5 μ W (-26 dBm)/MHz or less																																															
Test Method:	Notification No.88 of MIC, 2004																																															
Procedure:	<table><tr><td colspan="2">[Setting 1]</td></tr><tr><td>Frequency range:</td><td>(see Note 1)</td></tr><tr><td>RBW:</td><td>1 MHz</td></tr><tr><td>VBW:</td><td>1 MHz</td></tr><tr><td>Sweep time:</td><td>Minimum time required to make an accurate measurement</td></tr><tr><td>Sweep Data Points:</td><td>1001 or greater</td></tr><tr><td>Detector mode:</td><td>Positive peak</td></tr><tr><td>Indication mode:</td><td>Max hold (see Note 2)</td></tr><tr><td>Note 1:</td><td>Measurement range shall be 30 MHz to 12.5 GHz, except for the following cases: -FHSS, FHSS+DSSS, FHSS+OFDM:2374 MHz to 2509.5 MHz -Other than FHSS, FHSS+DSSS, FHSS+OFDM: 2400 MHz to 2483.5 MHz</td></tr><tr><td>Note 2:</td><td>Sweep shall be repeated until the max hold waveform is stable.</td></tr><tr><td colspan="2">[Setting 2]</td></tr><tr><td>Center frequency:</td><td>Frequency of spurious emission found using [Setting 1]</td></tr><tr><td>Span:</td><td>0 Hz</td></tr><tr><td>RBW:</td><td>1 MHz</td></tr><tr><td>VBW:</td><td>1 MHz</td></tr><tr><td>Sweep time:</td><td>Minimum time required to make an accurate measurement. For burst type (intermittent) spurious emissions, sweep time shall be greater than one burst interval</td></tr><tr><td>Sweep Data Points:</td><td>1001 or greater</td></tr><tr><td>Detector mode:</td><td>Sample</td></tr><tr><td colspan="2">[Setting 3]</td></tr><tr><td>Frequency range:</td><td>2374 MHz to 2400 MHz 2483.5 MHz to 2509.5 MHz</td></tr><tr><td>RBW:</td><td>30 kHz</td></tr><tr><td>VBW:</td><td>30 kHz</td></tr><tr><td>Sweep time:</td><td>Minimum time required to make an accurate measurement.</td></tr></table>		[Setting 1]		Frequency range:	(see Note 1)	RBW:	1 MHz	VBW:	1 MHz	Sweep time:	Minimum time required to make an accurate measurement	Sweep Data Points:	1001 or greater	Detector mode:	Positive peak	Indication mode:	Max hold (see Note 2)	Note 1:	Measurement range shall be 30 MHz to 12.5 GHz, except for the following cases: -FHSS, FHSS+DSSS, FHSS+OFDM:2374 MHz to 2509.5 MHz -Other than FHSS, FHSS+DSSS, FHSS+OFDM: 2400 MHz to 2483.5 MHz	Note 2:	Sweep shall be repeated until the max hold waveform is stable.	[Setting 2]		Center frequency:	Frequency of spurious emission found using [Setting 1]	Span:	0 Hz	RBW:	1 MHz	VBW:	1 MHz	Sweep time:	Minimum time required to make an accurate measurement. For burst type (intermittent) spurious emissions, sweep time shall be greater than one burst interval	Sweep Data Points:	1001 or greater	Detector mode:	Sample	[Setting 3]		Frequency range:	2374 MHz to 2400 MHz 2483.5 MHz to 2509.5 MHz	RBW:	30 kHz	VBW:	30 kHz	Sweep time:	Minimum time required to make an accurate measurement.
[Setting 1]																																																
Frequency range:	(see Note 1)																																															
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Sweep time:	Minimum time required to make an accurate measurement.																																															

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Sweep data points:	1001 or greater
Detector mode:	Positive peak
Indication mode:	Max hold

(1) After configuring the spectrum analyzer to [Setting 1], search for spurious emissions from 30 MHz to 12.5 GHz. If the sweep range does not cover the required measurement frequency range then the measurement range will need to be divided into sufficient sections of size [RBW x Sweep Data Points]. If spurious emissions greater than [Limit - 3dB] are found, then more detailed measurements are required, go to step (2)

(2) Configure the spectrum analyzer using [Setting 2] and measure the average signal amplitude.

If the spurious emission is burst type (intermittent), then the average value shall not include signal OFF time.

If spurious emissions ranging from 30 MHz to 2374 MHz and from 2509.5MHz to 12.5GHz are over the limit, then the test result is Fail.

If spurious emissions ranging from 2374 MHz to 2400 MHz and from 2483.5 MHz to 2509.5 MHz are over the limit, then further detailed measurements are required, go to step (3)

(3) In the following cases, measure the spurious emissions using [Setting 3]

- Case1: FHSS, FHSS+DSSS, FHSS+OFDM

- Case2: Other than FHSS, FHSS+DSSS, FHSS+OFDM, and the spurious emissions in step (2) are over the limit

(4) Calculate the spurious emission value (Calculated Value) using following the formula below:

Calculated Value = (Measured Value using (3) + 15.2dB)

Note: 15.2dB adjustment is derived from the Conversion Factor of RBW

Conversion Factor of RBW = $10 \times \log(\text{Reference Bandwidth} / \text{RBW of measurement}) = 15.2 \text{ [dB]}$ Where: Reference Bandwidth = 1 MHz

RBW of measurement = 30 kHz

(5) If the calculated value using (4) is over the Limit (section 6.7), go to (6)

(6) Configure the spectrum analyzer to [Setting 3] then make the following changes: Frequency: Frequency of spurious emission

Span: 1 MHz

(7) After sweep, send the span data set to the PC

(8) Convert measured data from dBm to Watts

(9) Sum all the data using the formula below. If the sum is within the limit, the test result is Pass, otherwise, Fail

$$P_s = \left(\sum_{i=1}^n E_i \right) \times \frac{S_w}{RBW \times k \times n}$$

Ps: Sum (Watts)

Ei: Measured value at each point in the Span (Watts) Sw: Span (1MHz)

n: Number of measurement points in the Span

k: Correction factor for Equivalent Noise Bandwidth, specific to each spectrum analyzer, check the instrument user guide

RBW: Resolution Bandwidth (MHz).

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(10) If the EUT has multiple antennas, measure the spurious emission from each individual antenna using steps (1) through (9)
(11) Convert the individual antenna spurious level measurements (step (10)) from dB to absolute values
(12) Combine (sum) the absolute values of the spurious measurements at each frequency for each antenna (to create a single composite spectrum of spurious emissions)
(13) Ensure that the composite spectrum does not exceed the Limit defined in 6.7 (Technical Standard)
(14) Configuring the spectrum analyzer using [Setting 3] and measure the spurious emissions with all the antennas electrically combined

6.4.1 E.U.T. Operation:

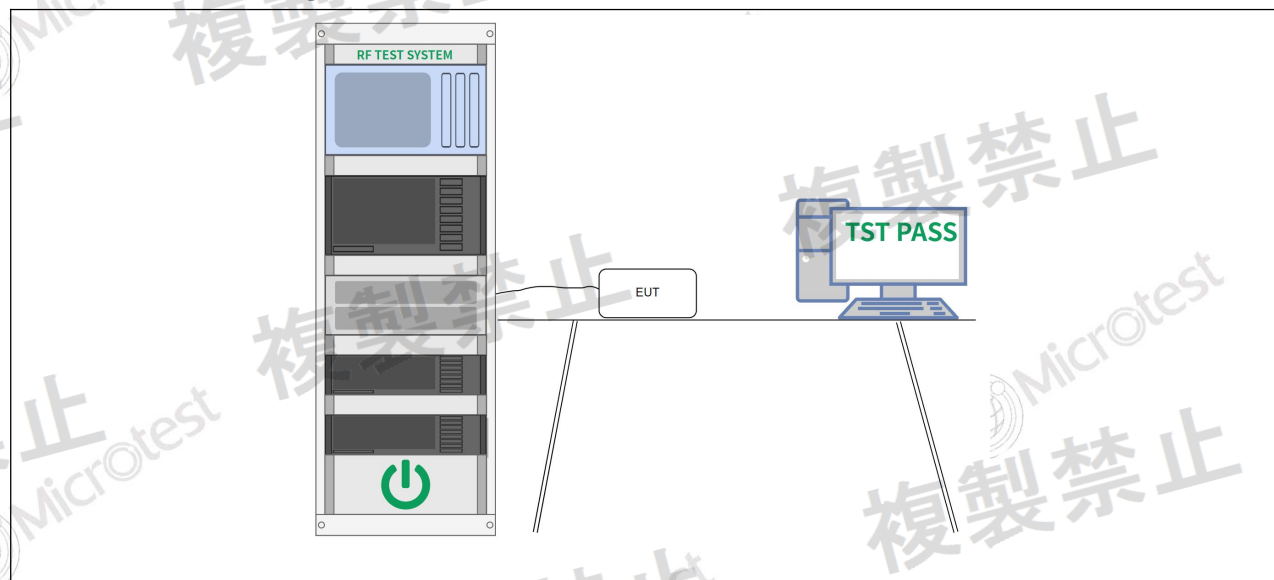
Operating Environment:

Temperature:	25.6 °C	Humidity:	45.2 %	Atmospheric Pressure:	101 kPa
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Pre test mode:	Mode1, Mode2
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Final test mode:	Mode1, Mode2
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6.4.2 Test Setup Diagram:



6.4.3 Test Data:

Please Refer to Appendix for Details.

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6.5 Secondary Radiated Emissions

Test Requirement:	Article 2-1, Item 19		
Test Limit:	(1) Below 1 GHz: 4 nW (-54dBm) or less (2) Above 1 GHz: 20 nW (-47dBm) or less		
Test Method:	Notification No.88 of MIC, 2004		
Procedure:	[Setting 1]		
	Frequency range:	30 MHz ~ 12.5 GHz	
	RBW:	Below 1 GHz:100 kHz	
		Above 1 GHz:1 MHz	
	VBW:	Below 1 GHz:100 kHz	
		Above 1 GHz:1 MHz	
	Sweep time:	Auto	
	Sweep data points:	1001 or greater	
	Detector mode:	Positive peak	
	Indication mode:	Max hold	
	[Setting 2]		
	Center Frequency:	Frequency of spurious emission found using [Setting 1]	
	Span:	0 Hz	
	RBW:	Below 1 GHz:100 kHz	
		Above 1 GHz:1 MHz	
	VBW:	Below 1 GHz:100 kHz	
		Above 1 GHz:1 MHz	
	Sweep time:	Auto	
	Sweep data points:	1001 or greater	
	Detector mode:	Sample	
		(1) Configure the spectrum analyzer to [Setting 1] and then search for spurious emissions in the range 30 MHz to 12.5GHz. If the sweep range does not cover the required measurement frequency range then the measurement range will need to be divided into sufficient sections of size [RBW x Sweep Data Points].	
		(2) If spurious emissions are found with an amplitude greater than [Limit - 10dB] then perform further detailed measurements as described in (3)	
		(3) Configure the spectrum analyzer using [Setting 2] and measure the average signal amplitude.	
		If the spurious emission is burst type (intermittent), then the average value shall not include signal OFF time	
		Multiple Antenna Systems	
		If the EUT has multiple antennas then emissions from each antenna shall be measured individually, as described below	
	(4) For each antenna repeat steps (1) through (3). Convert all spurious level measurements from dB to absolute value		
	(5) Combine (sum) the absolute values of the spurious measurements at each frequency for each antenna (to create a single composite spectrum of spurious emissions)		
	(6) Ensure that the composite spectrum does not exceed the Limit		

6.5.1 E.U.T. Operation:

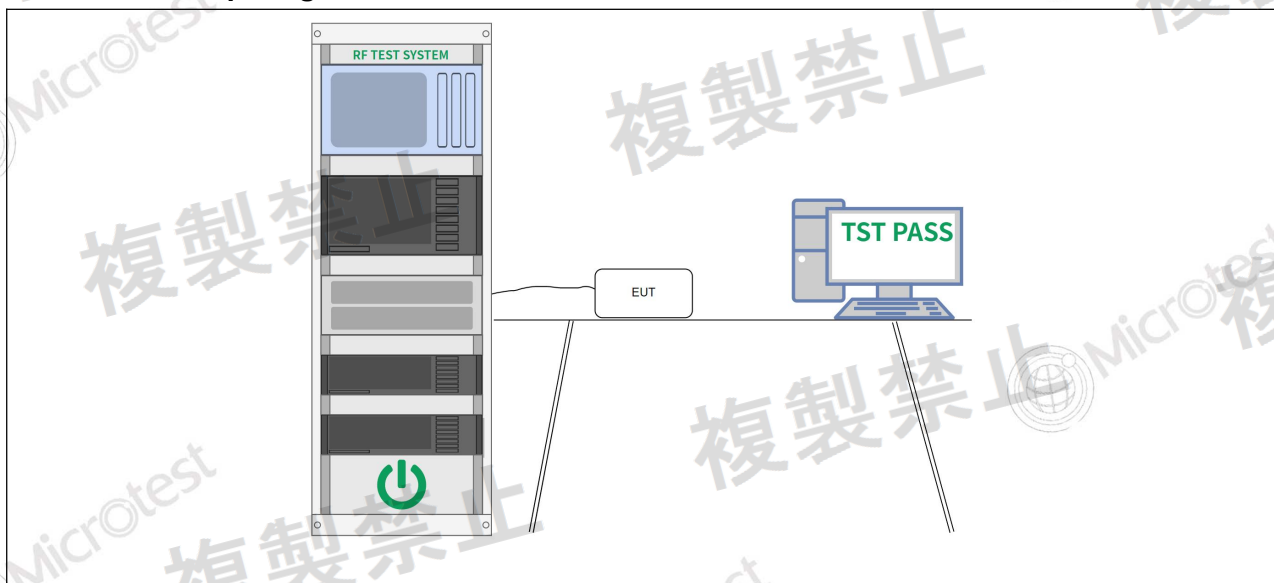
Operating Environment:					
Temperature:	25.6 °C	Humidity:	45.2 %	Atmospheric Pressure:	101 kPa
Pre test mode:	Mode4				

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Final test mode:	Mode4
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6.5.2 Test Setup Diagram:



6.5.3 Test Data:

Please Refer to Appendix for Details.

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Photographs of the test setup

Refer to Appendix - Test Setup Photos

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Photographs of the EUT

Refer to Appendix - EUT Photos

Appendix

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Appendix A: Deviation of frequency

Test Result

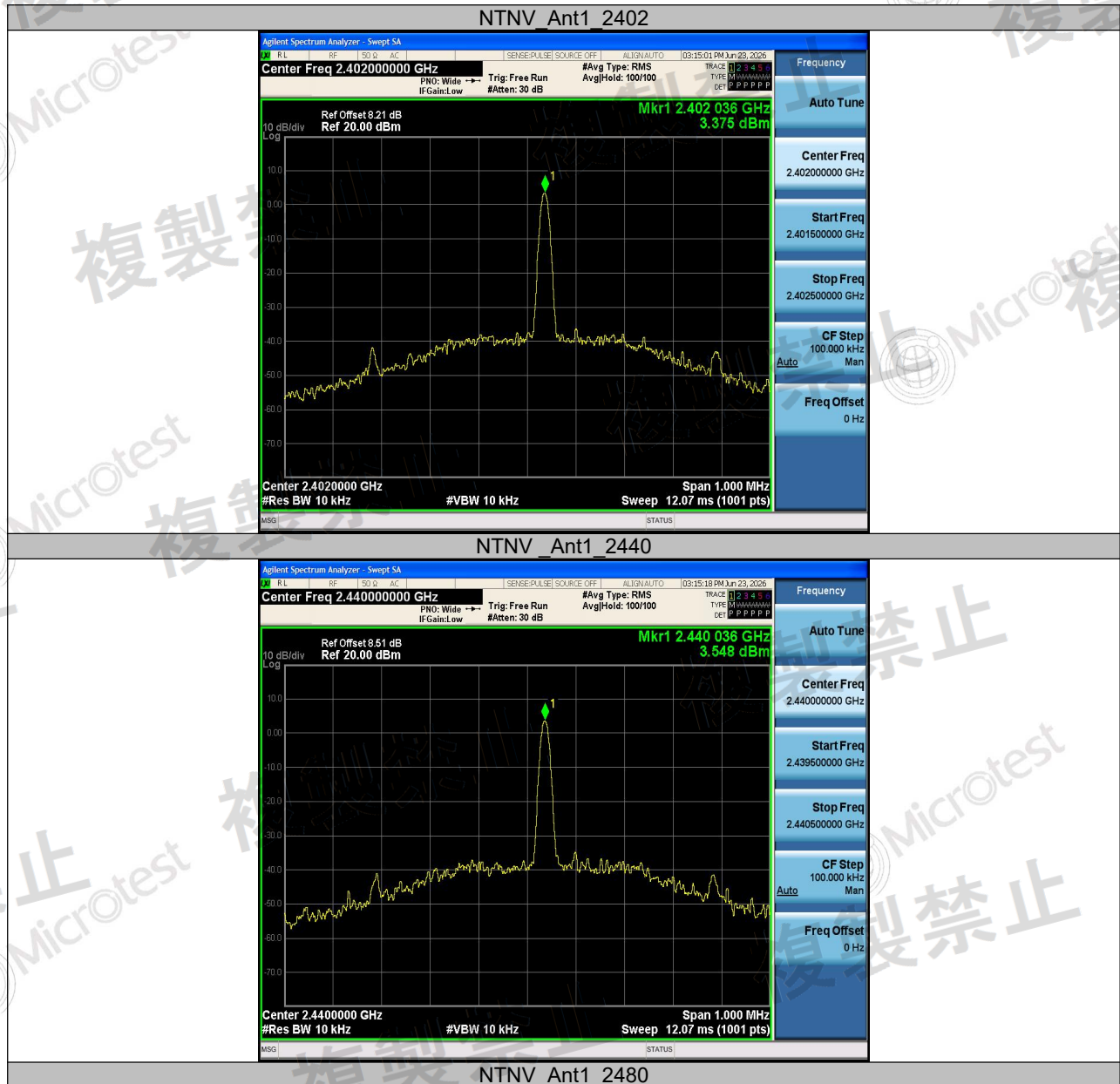
Test Condition	Test Mode	Antenna	Freq. [MHz]	CenterFreq [MHz]	Result [ppm]	Limit [ppm]	Verdict
NTNV	unmodulated carrier	Ant1	2402	2402.036	14.98751	±50	PASS
			2440	2440.036	14.75410	±50	PASS
			2480	2480.037	14.91936	±50	PASS

Note: Result [ppm] = (CenterFreq [MHz] – Freq. [MHz]) / Freq. [MHz] * 1000000

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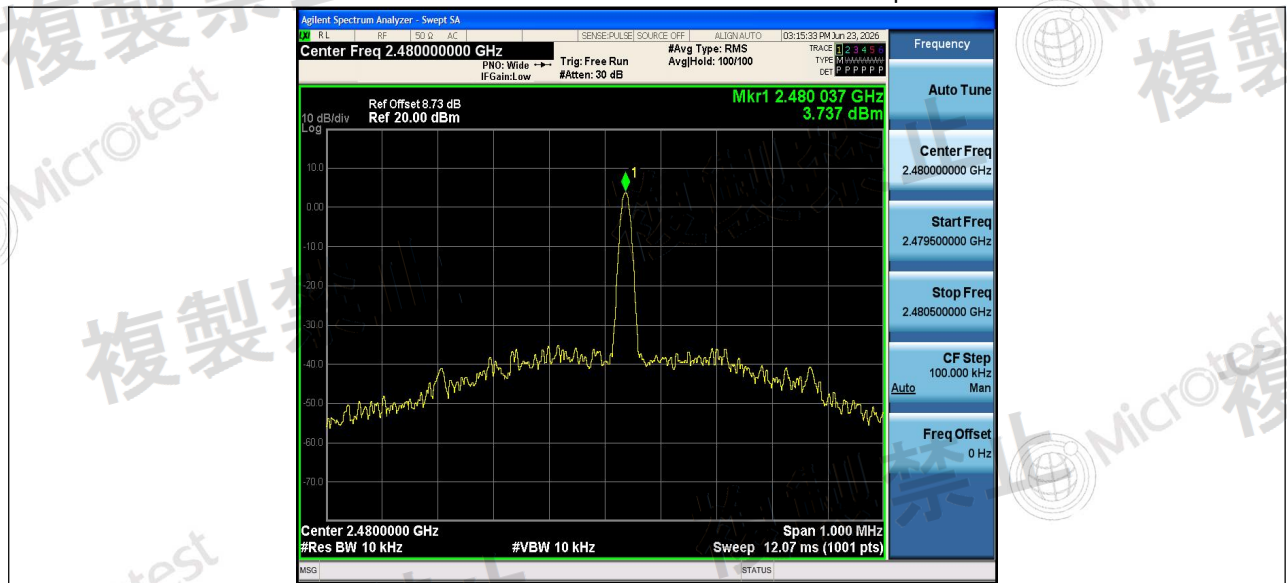
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Test Graphs



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Appendix B: Deviation of antenna power

Test Result

Antenna Power							
Test Condition	Test Mode	Antenna	Freq. [MHz]	Result [dBm]	Result [mW]	Limit [mW]	Verdict
NTNV	BLE_1M	Ant1	2402	5.43	3.4914	≤10	PASS
			2440	5.52	3.5645	≤10	PASS
			2480	5.83	3.8282	≤10	PASS
	BLE_2M	Ant1	2402	5.26	3.3574	≤10	PASS
			2440	5.37	3.4435	≤10	PASS
			2480	5.81	3.8107	≤10	PASS

Note:

The EUT is set to be in continuously transmitting mode.

Tolerance								
Test Condition	Test Mode	Antenna	Freq. [MHz]	Power [mW]	RatedPower _r [mW]	Result [%]	Limit [%]	Verdict
NTNV	BLE_1M	Ant1	2402	3.4914	4	-12.71	≤20	PASS
			2440	3.5645	4	-10.89	≤20	PASS
			2480	3.8282	4	-4.29	≤20	PASS
	BLE_2M	Ant1	2402	3.3574	4	-16.07	≤20	PASS
			2440	3.4435	4	-13.91	≤20	PASS
			2480	3.8107	4	-4.73	≤20	PASS

Notes:

$$\text{Result} = (\text{Power [mW]} - \text{RatedPower [mW]}) / \text{RatedPower [mW]} * 100$$

The rated power is 4 mW for BLE_1M, which is declared by the manufacturer.

The rated power is 4 mW for BLE_2M, which is declared by the manufacturer.

EIRP							
Test Condition	Test Mode	Antenna	Freq. [MHz]	Result [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
NTNV	BLE_1M	Ant1	2402	5.43	1.57	≤12.14	PASS
			2440	5.52	1.66	≤12.14	PASS
			2480	5.83	1.97	≤12.14	PASS
	BLE_2M	Ant1	2402	5.26	1.40	≤12.14	PASS
			2440	5.37	1.51	≤12.14	PASS
			2480	5.81	1.95	≤12.14	PASS

Notes:

The antenna gain is -3.86 dBi.

$$\text{EIRP} = \text{Conducted Peak Power} + \text{antenna gain.}$$

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Appendix C: Occupied Bandwidth

Test Result

Test Condition	Test Mode	Antenna	Freq. [MHz]	Result [MHz]	Limit [MHz]	Verdict
NTNV	BLE_1M	Ant1	2402	1.076	≤ 26	PASS
			2440	1.064	≤ 26	PASS
			2480	1.071	≤ 26	PASS
	BLE_2M	Ant1	2402	2.090	≤ 26	PASS
			2440	2.088	≤ 26	PASS
			2480	2.074	≤ 26	PASS

TEST REPORT

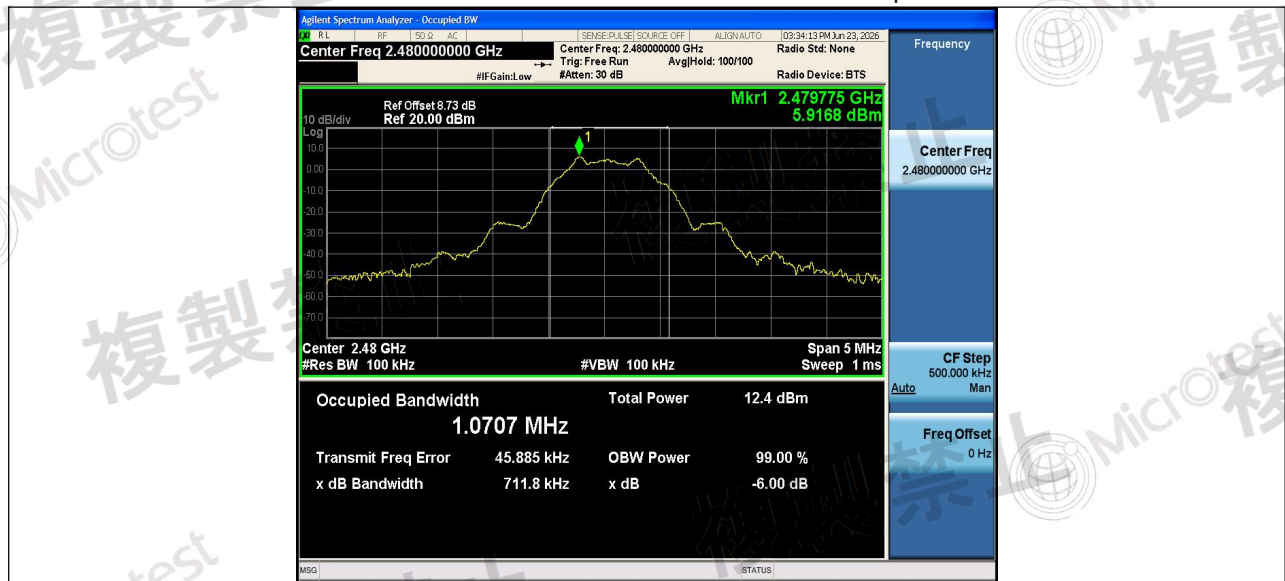
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Test Graphs



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NTVN_BLE_2M_Ant1_2402

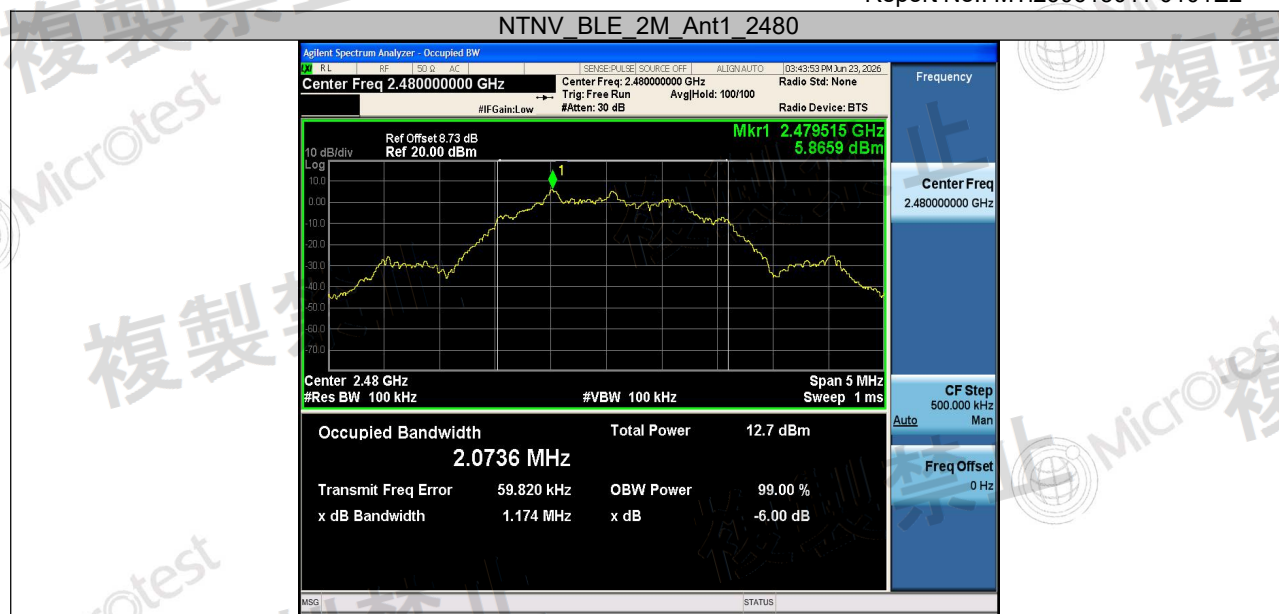


NTVN_BLE_2M_Ant1_2440



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Appendix D: Spurious Emission of TX

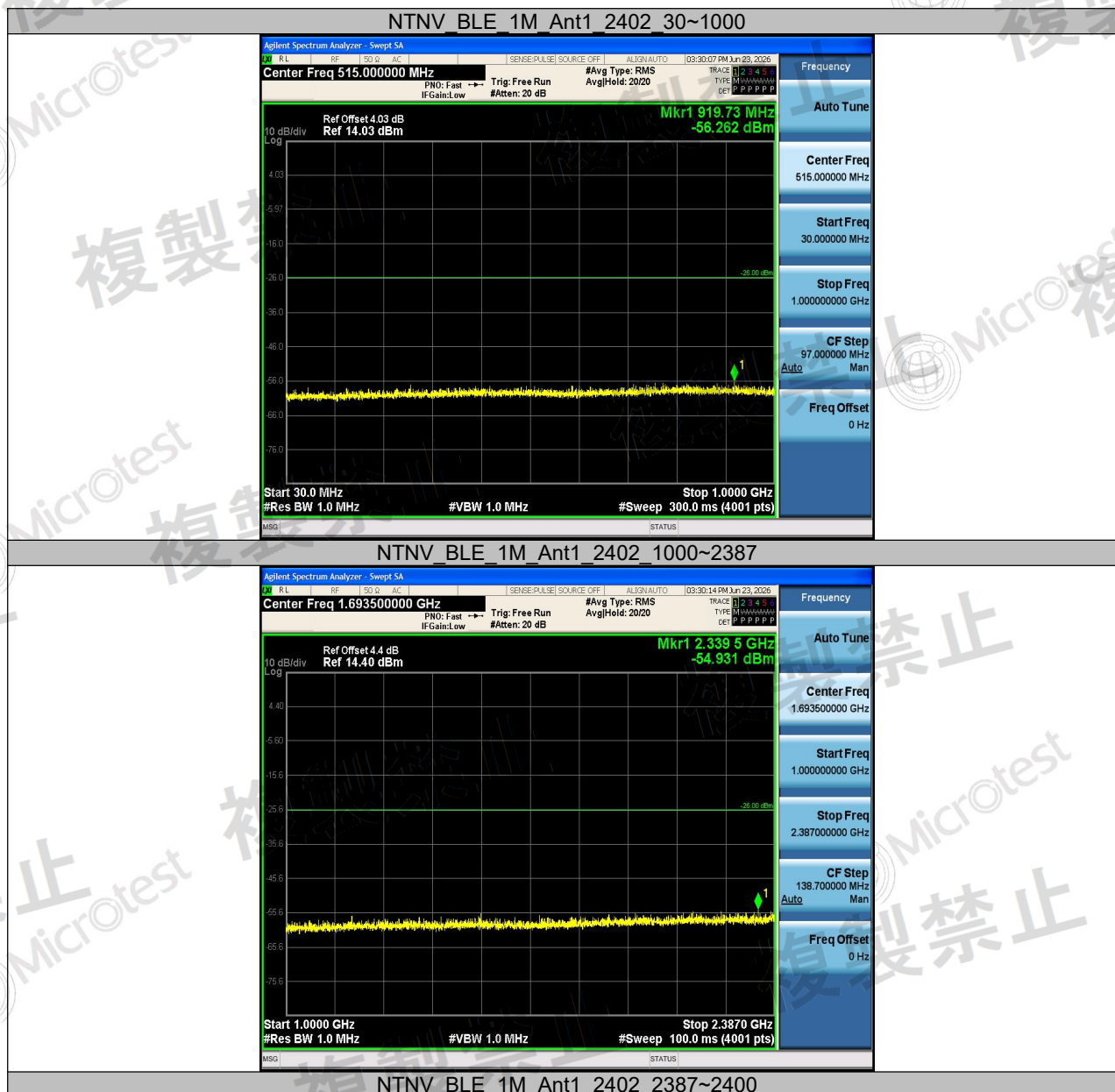
Test Result

Test Condition	Test Mode	Antenna	Freq. [MHz]	Freq.Range [MHz]	Result [dBm/MHz]	Limit [dBm/MHz]	Result [μW/MHz]	Limit [μW/MHz]	Verdict
NTNV	BLE_1M	Ant1	2402	30~1000	-56.26	≤-26	0.00237	≤2.5	PASS
				1000~2387	-54.93	≤-26	0.00321	≤2.5	PASS
				2387~2400	-30.39	≤-16	0.91411	≤25	PASS
				2483.5~2496.5	-44.72	≤-16	0.03373	≤25	PASS
				2496.5~13000	-49.30	≤-26	0.01175	≤2.5	PASS
			2440	30~1000	-56.32	≤-26	0.00233	≤2.5	PASS
				1000~2387	-54.48	≤-26	0.00356	≤2.5	PASS
				2387~2400	-45.93	≤-16	0.02553	≤25	PASS
				2483.5~2496.5	-44.59	≤-16	0.03475	≤25	PASS
				2496.5~13000	-47.75	≤-26	0.01679	≤2.5	PASS
			2480	30~1000	-55.99	≤-26	0.00252	≤2.5	PASS
				1000~2387	-55.13	≤-26	0.00307	≤2.5	PASS
				2387~2400	-45.70	≤-16	0.02692	≤25	PASS
				2483.5~2496.5	-39.47	≤-16	0.11298	≤25	PASS
				2496.5~13000	-47.32	≤-26	0.01854	≤2.5	PASS
	BLE_2M	Ant1	2402	30~1000	-43.01	≤-26	0.05000	≤2.5	PASS
				1000~2387	-50.24	≤-26	0.00946	≤2.5	PASS
				2387~2400	-20.11	≤-16	9.74990	≤25	PASS
				2483.5~2496.5	-45.08	≤-16	0.03105	≤25	PASS
				2496.5~13000	-49.10	≤-26	0.01230	≤2.5	PASS
			2440	30~1000	-56.39	≤-26	0.00230	≤2.5	PASS
				1000~2387	-55.19	≤-26	0.00303	≤2.5	PASS
				2387~2400	-45.61	≤-16	0.02748	≤25	PASS
				2483.5~2496.5	-44.99	≤-16	0.03170	≤25	PASS
				2496.5~13000	-48.12	≤-26	0.01542	≤2.5	PASS
			2480	30~1000	-56.38	≤-26	0.00230	≤2.5	PASS
				1000~2387	-54.89	≤-26	0.00324	≤2.5	PASS
				2387~2400	-45.51	≤-16	0.02812	≤25	PASS
				2483.5~2496.5	-39.28	≤-16	0.11803	≤25	PASS
				2496.5~13000	-48.05	≤-26	0.01567	≤2.5	PASS

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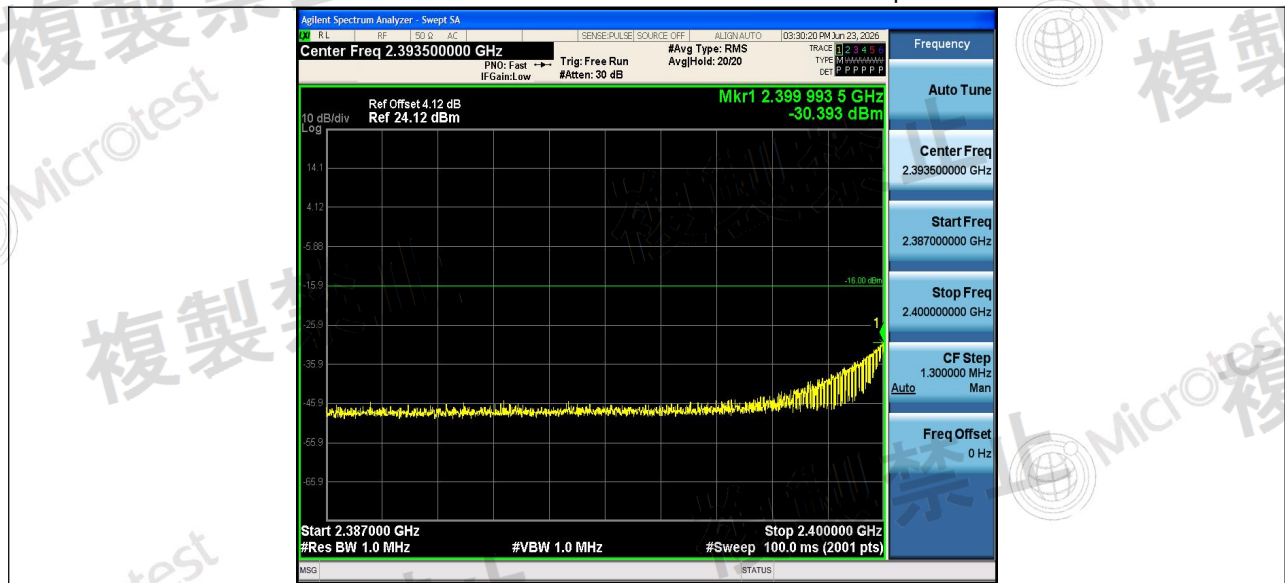
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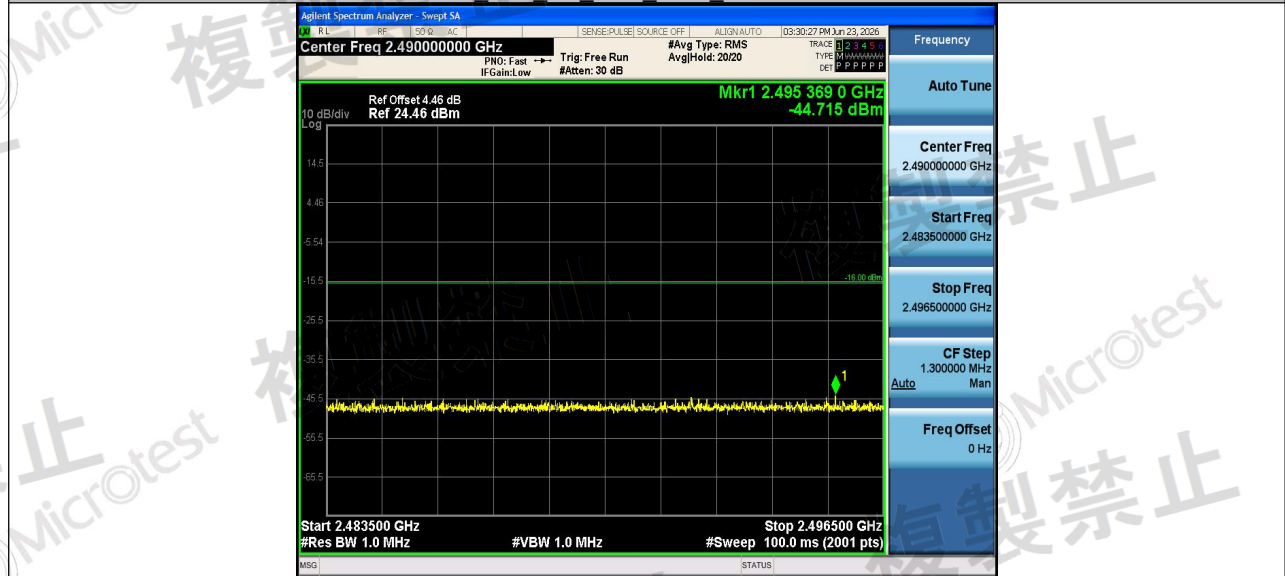


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NTNV_BLE_1M_Ant1_2402_2483.5~2496.5

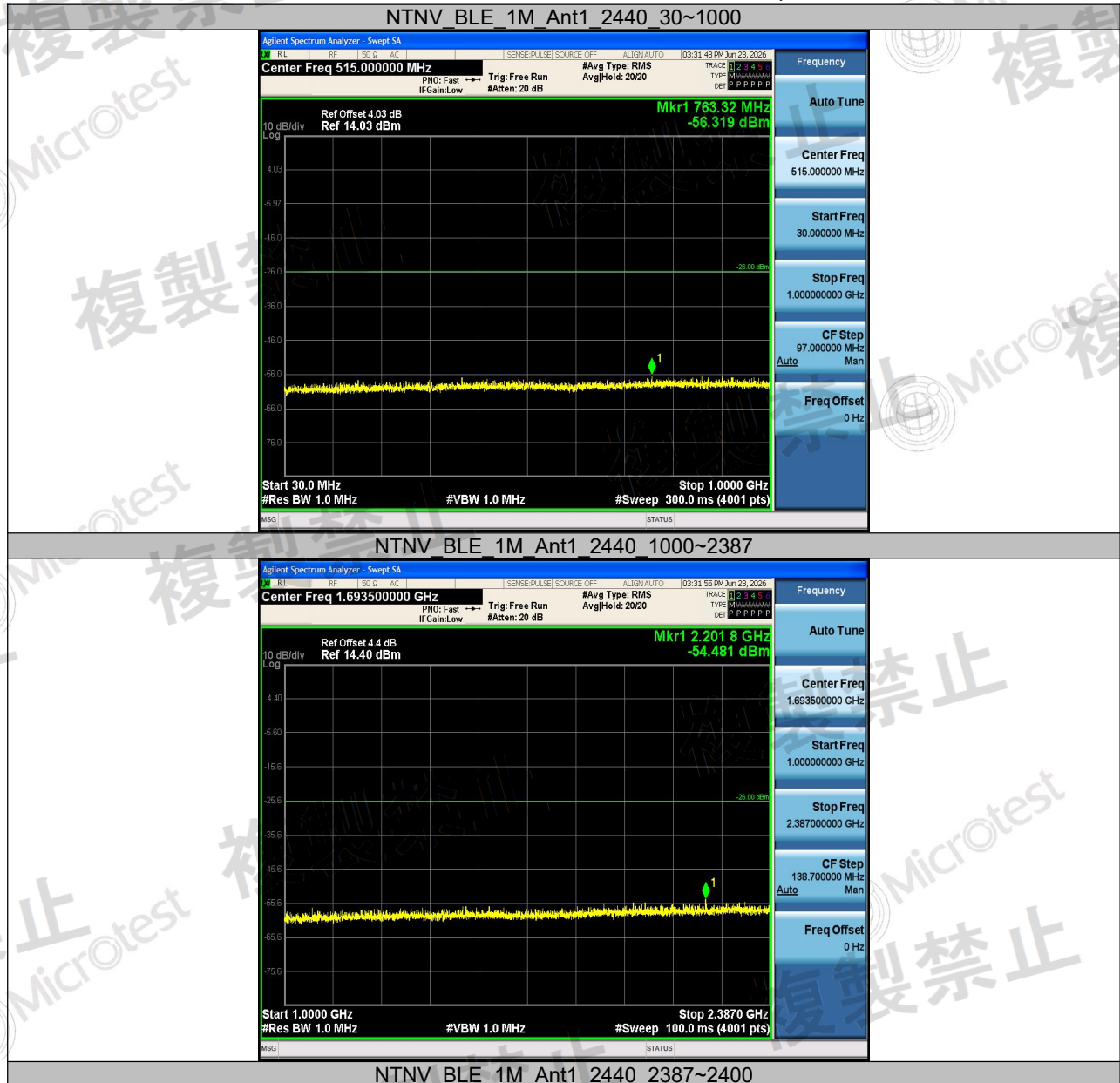


NTNV_BLE_1M_Ant1_2402_2496.5~13000



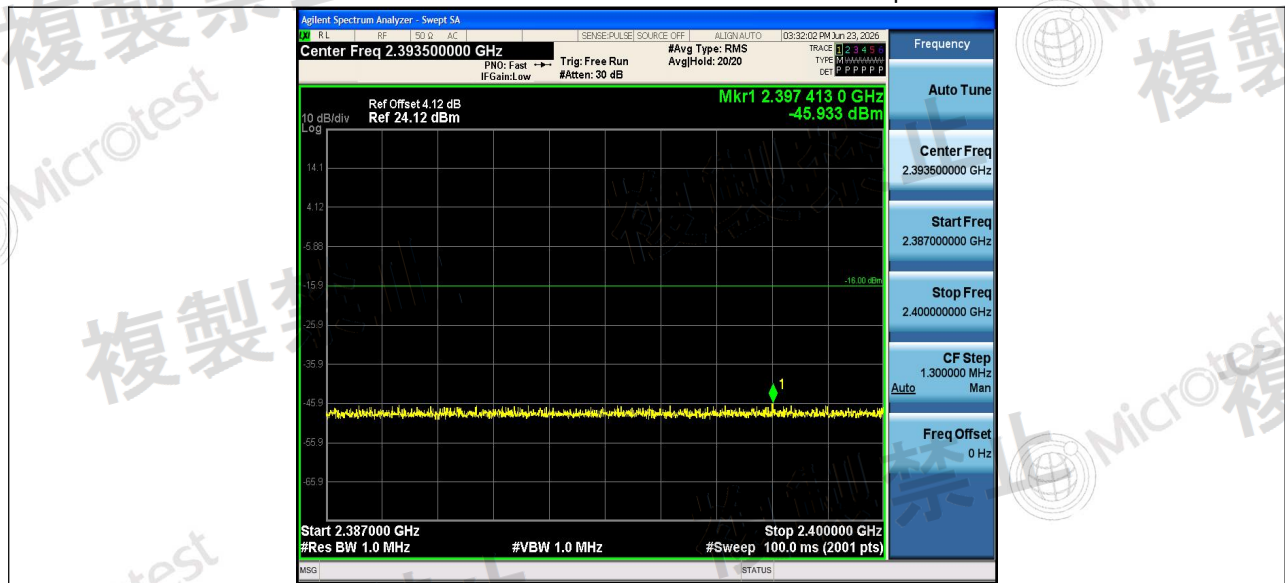
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Report No.: MTi260615011-0101E2

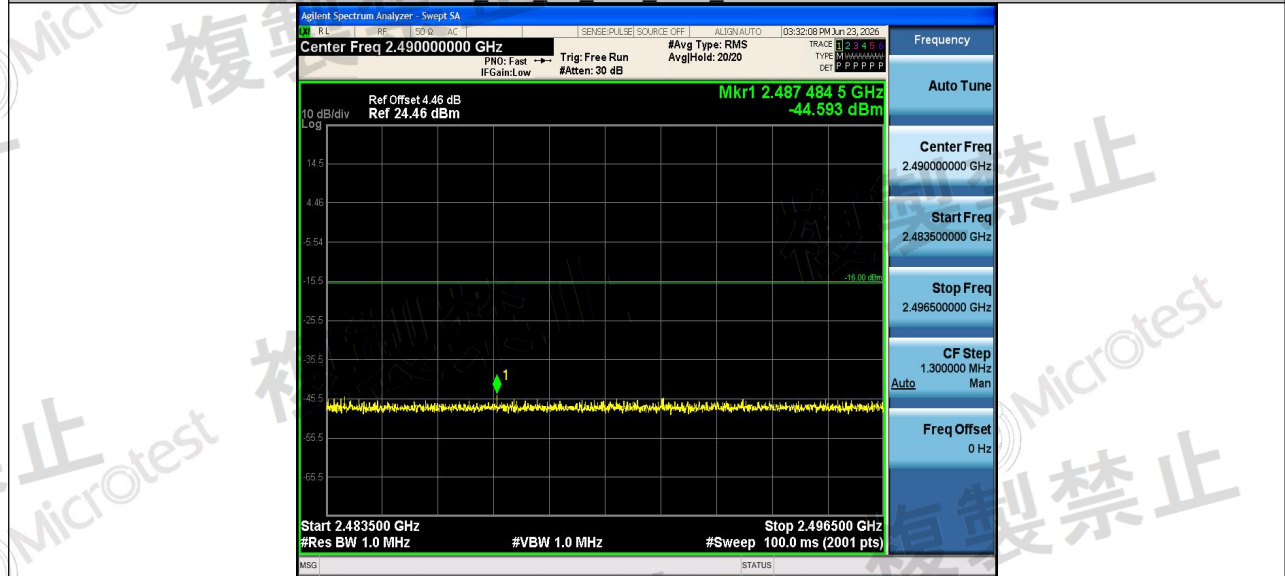


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NTNV_BLE_1M_Ant1_2440_2483.5~2496.5

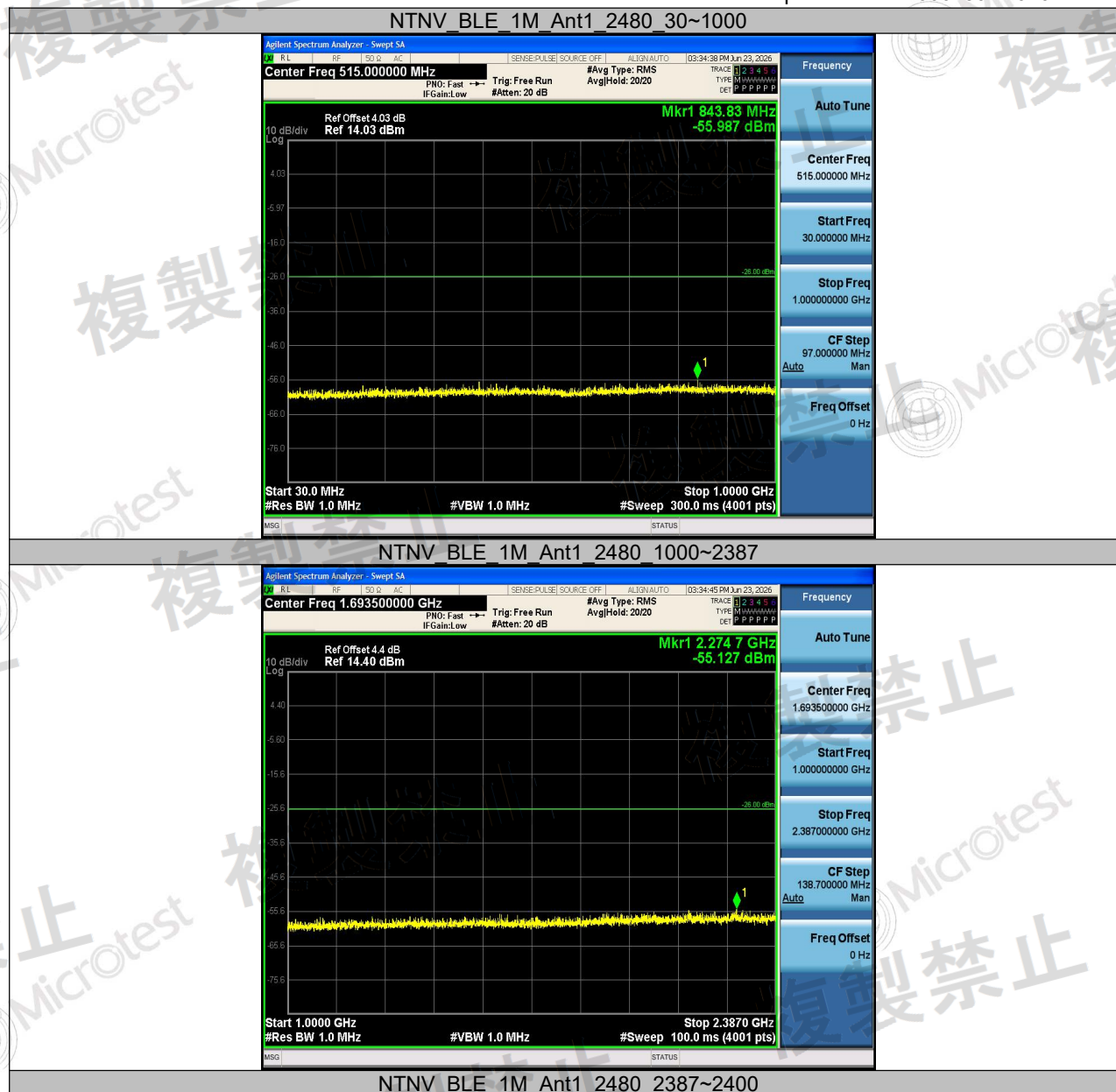


NTNV_BLE_1M_Ant1_2440_2496.5~13000



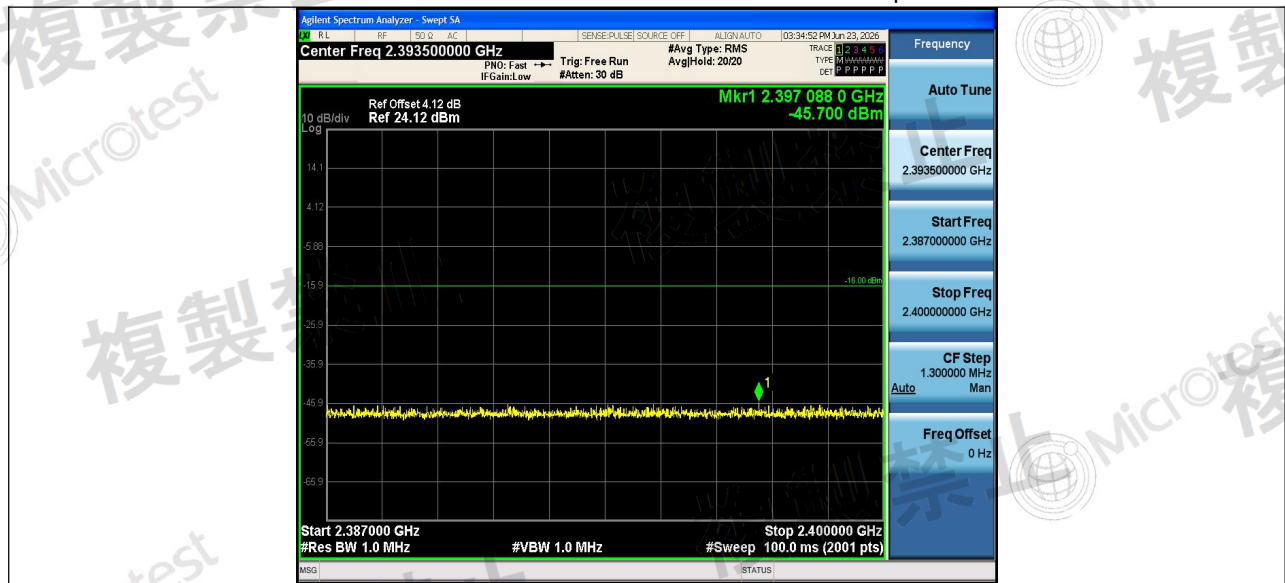
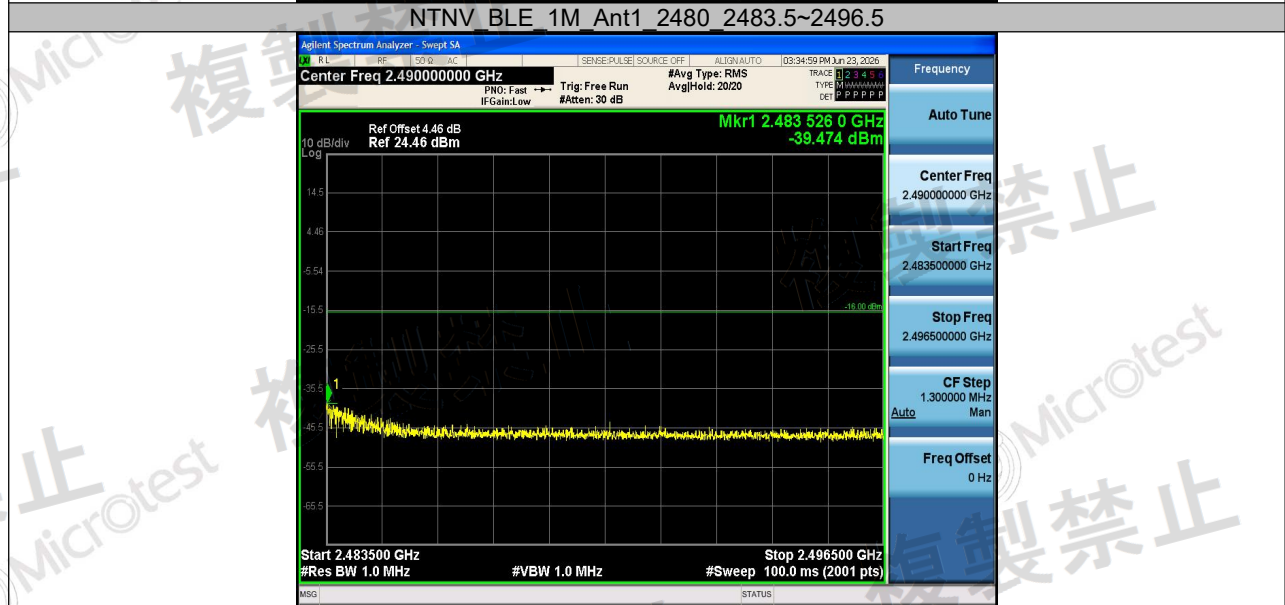
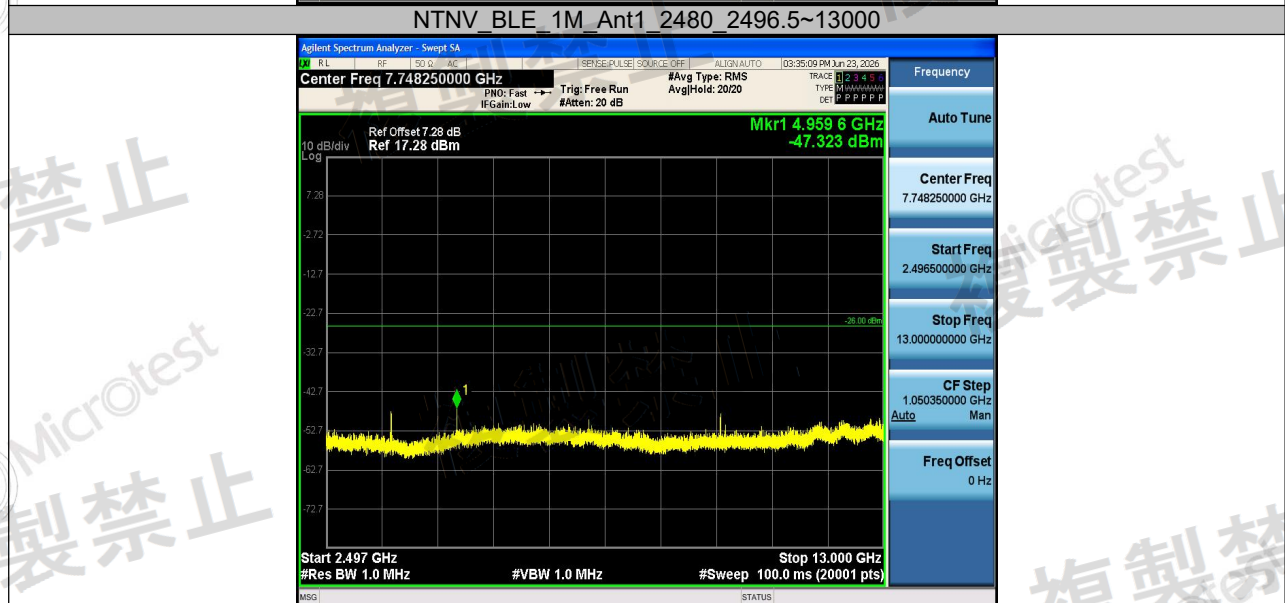
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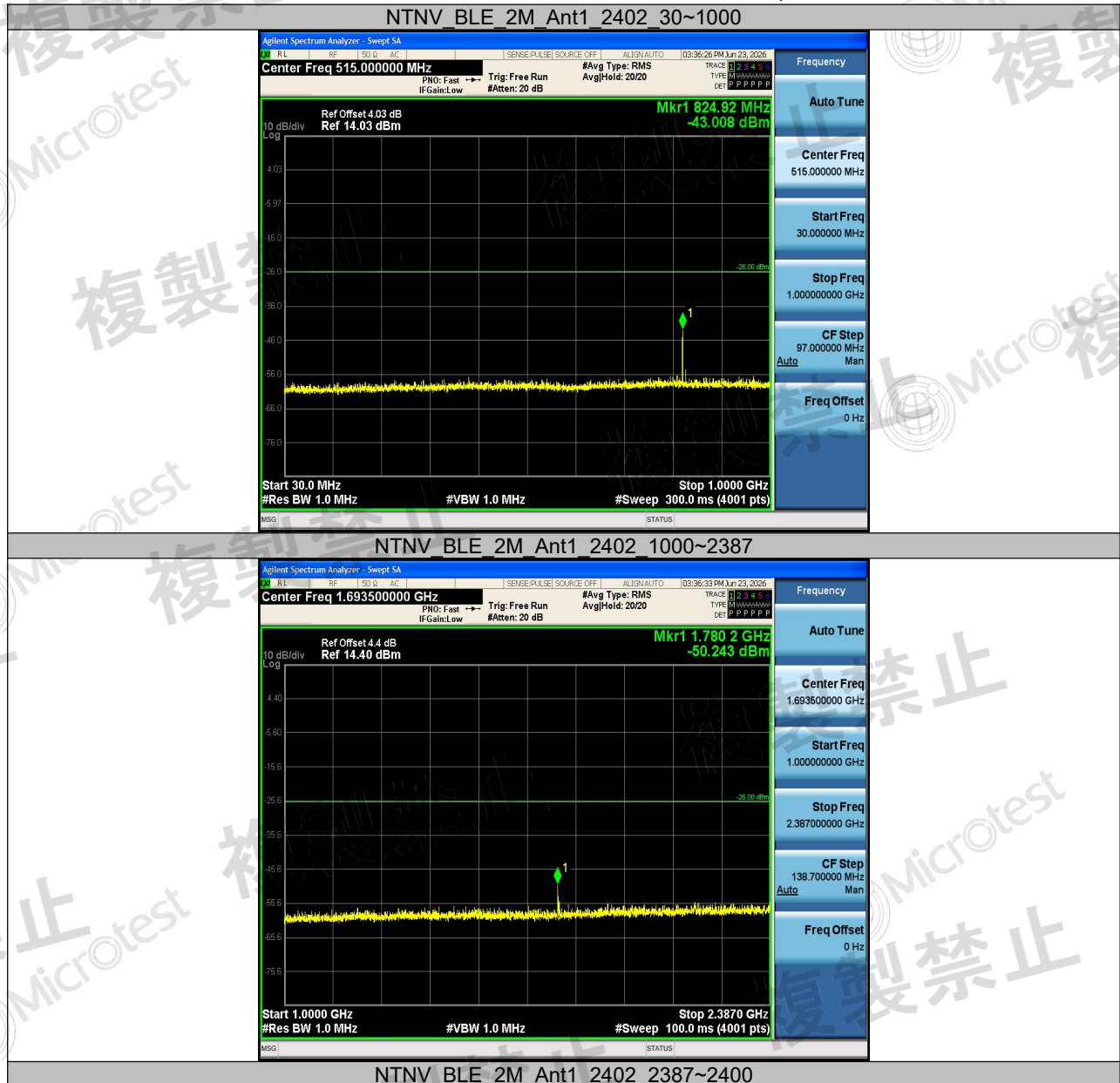
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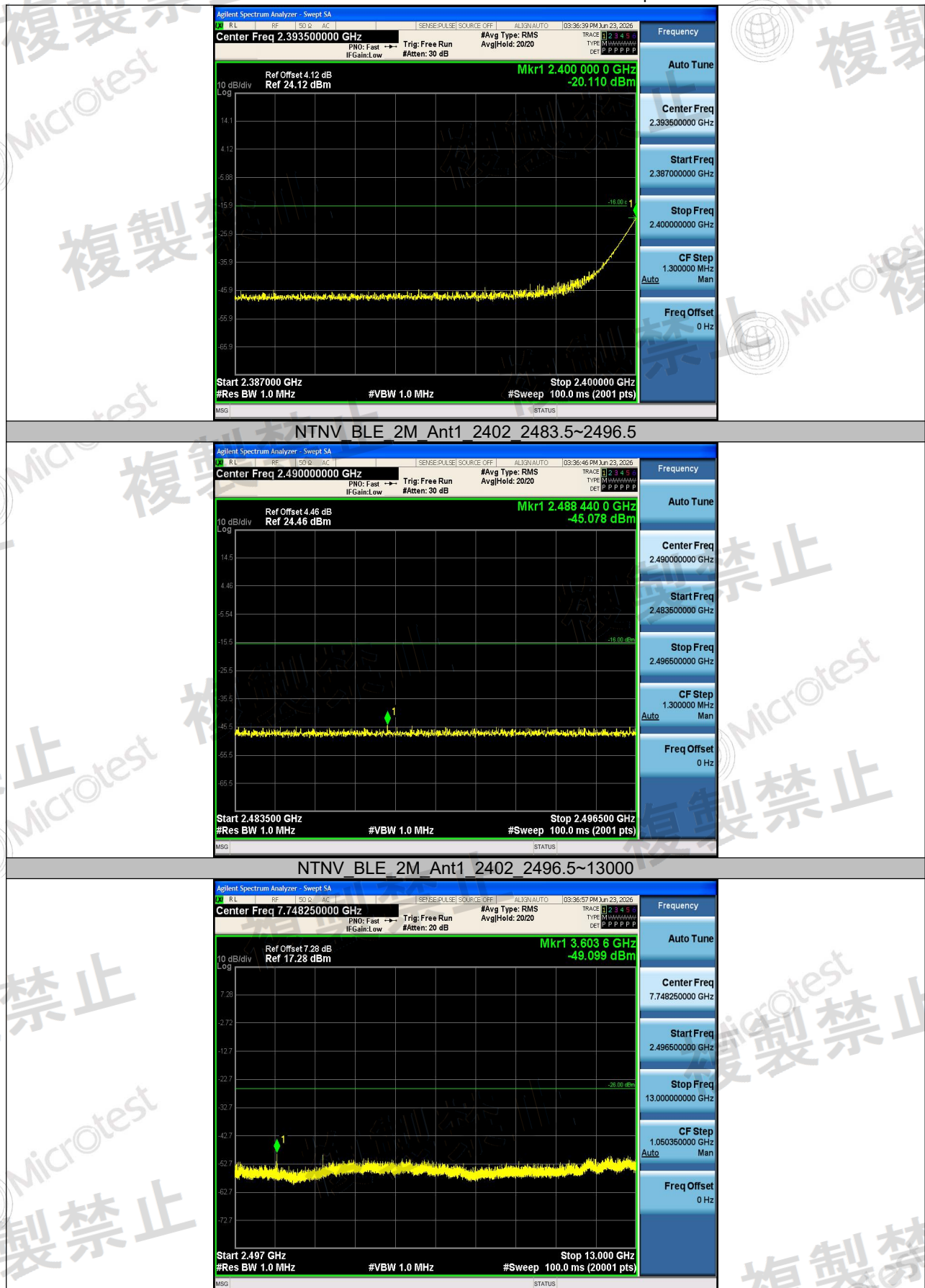
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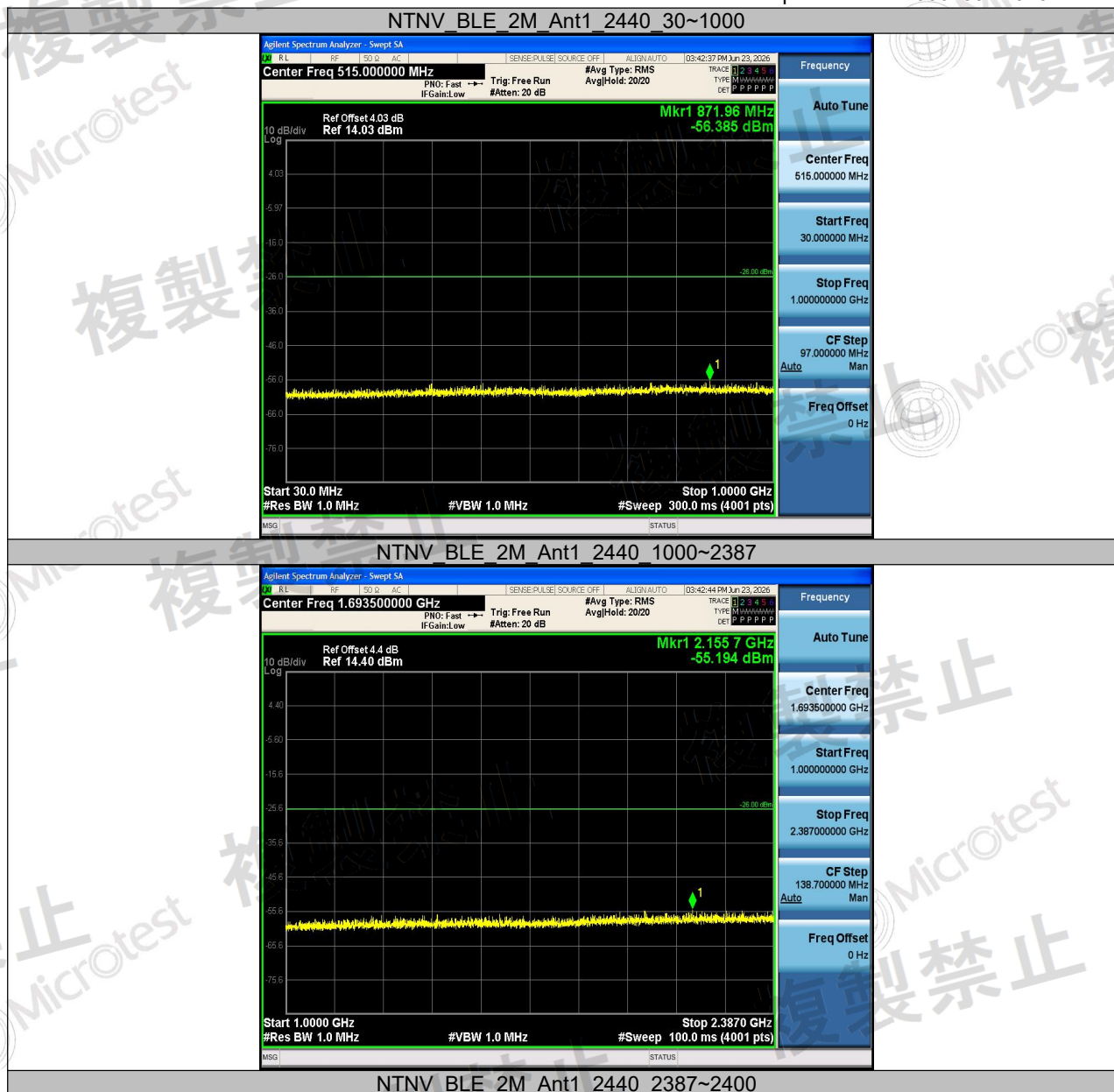
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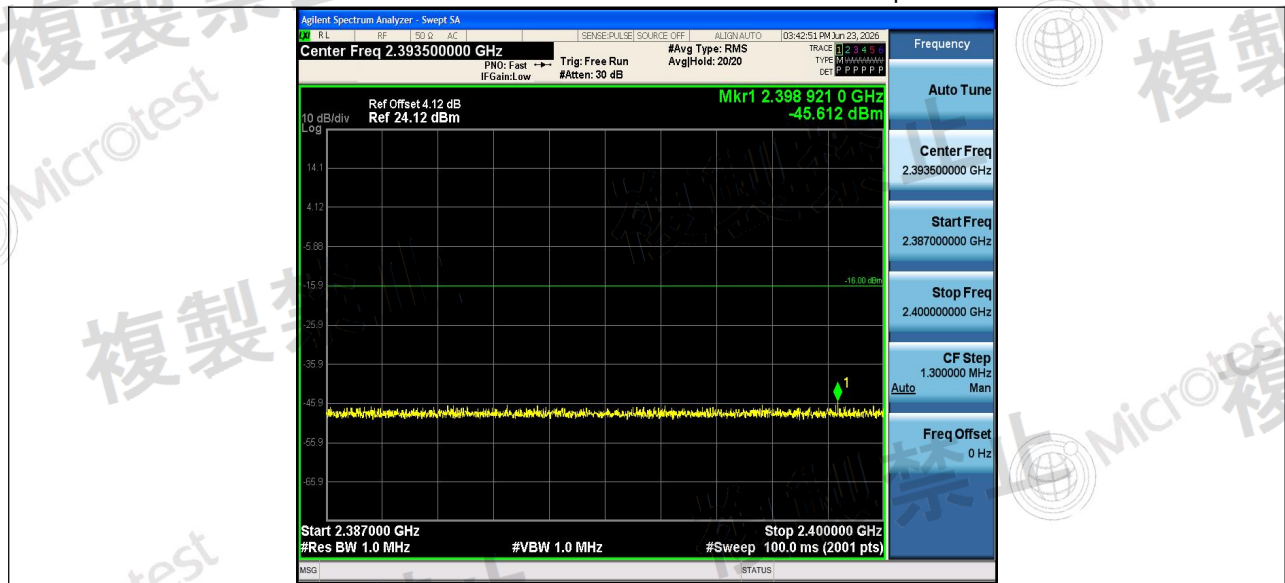
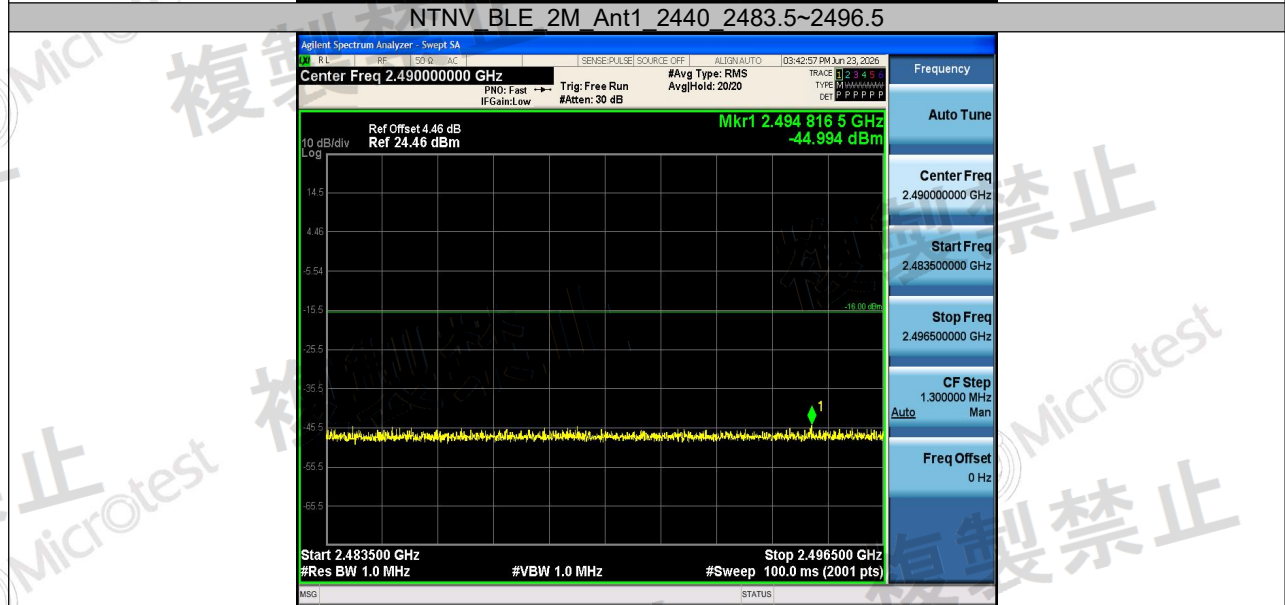
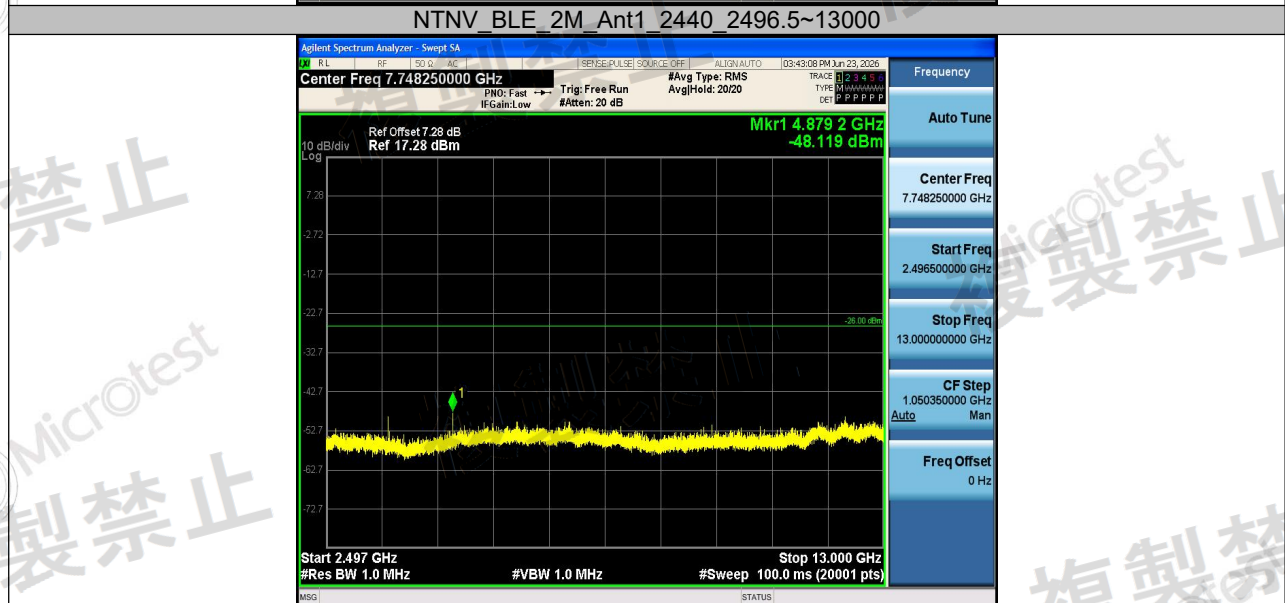
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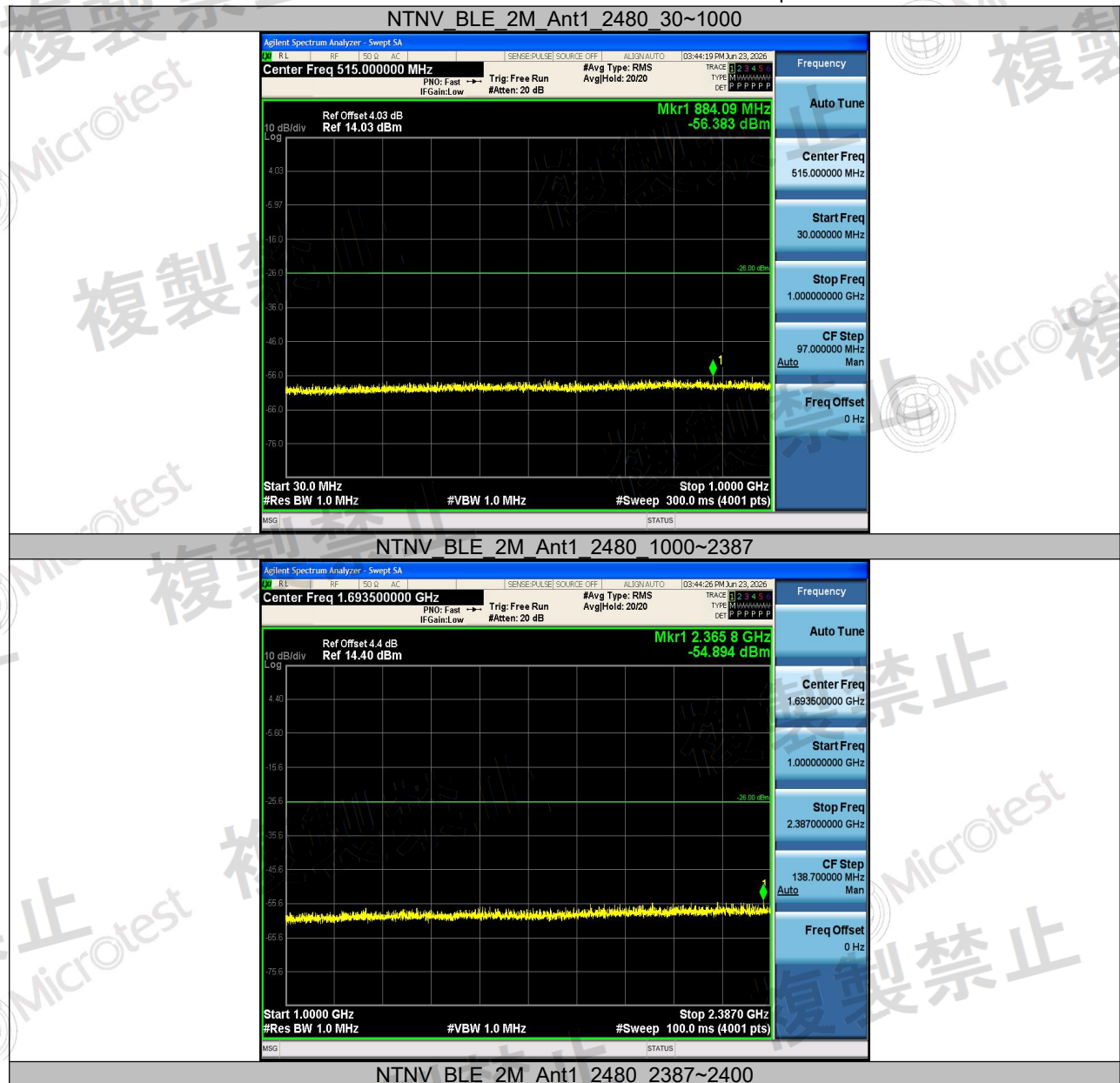
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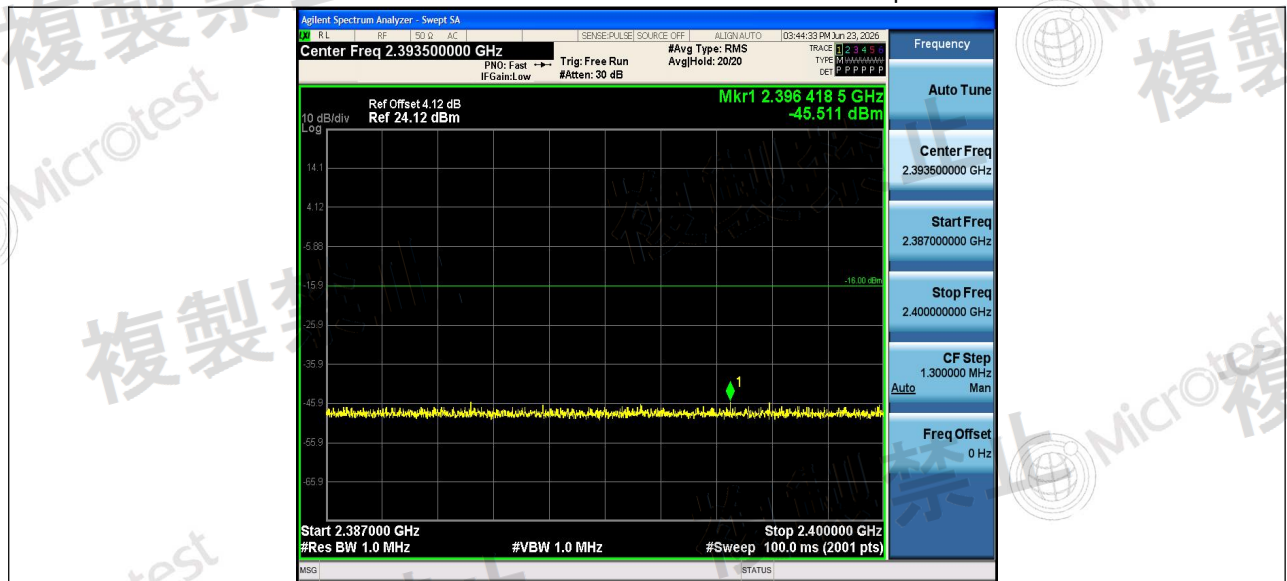
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NTNV_BLE_2M_Ant1_2480_2483.5~2496.5



NTNV_BLE_2M_Ant1_2480_2496.5~13000



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Appendix E: Spurious Emission of RX

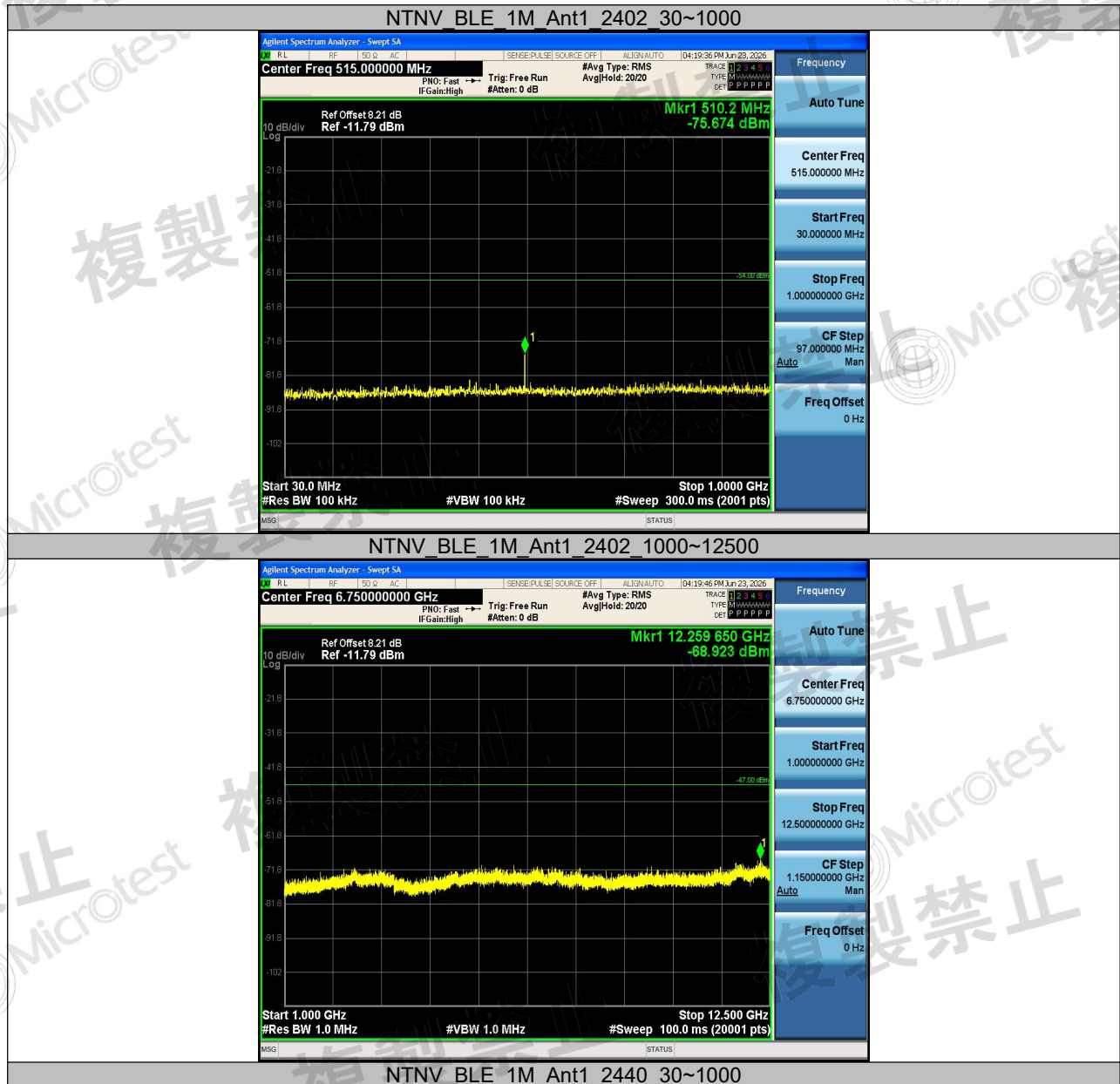
Test Result

Test Condition	Test Mode	Antenna	Freq. [MHz]	Freq.Range [MHz]	Result [dBm]	Limit [dBm]	Result [nW]	Limit [nW]	Verdict
NTNV	BLE_1M	Ant1	2402	30~1000	-75.67	≤-54	0.02710	≤4	PASS
				1000~12500	-68.92	≤-47	0.12823	≤20	PASS
			2440	30~1000	-74.75	≤-54	0.03350	≤4	PASS
				1000~12500	-68.85	≤-47	0.13032	≤20	PASS
			2480	30~1000	-74.83	≤-54	0.03289	≤4	PASS
				1000~12500	-68.65	≤-47	0.13646	≤20	PASS
	BLE_2M	Ant1	2402	30~1000	-74.8	≤-54	0.03311	≤4	PASS
				1000~12500	-69.6	≤-47	0.10965	≤20	PASS
			2440	30~1000	-74.82	≤-54	0.03296	≤4	PASS
				1000~12500	-69.41	≤-47	0.11455	≤20	PASS
			2480	30~1000	-75.02	≤-54	0.03148	≤4	PASS
				1000~12500	-68.63	≤-47	0.13709	≤20	PASS

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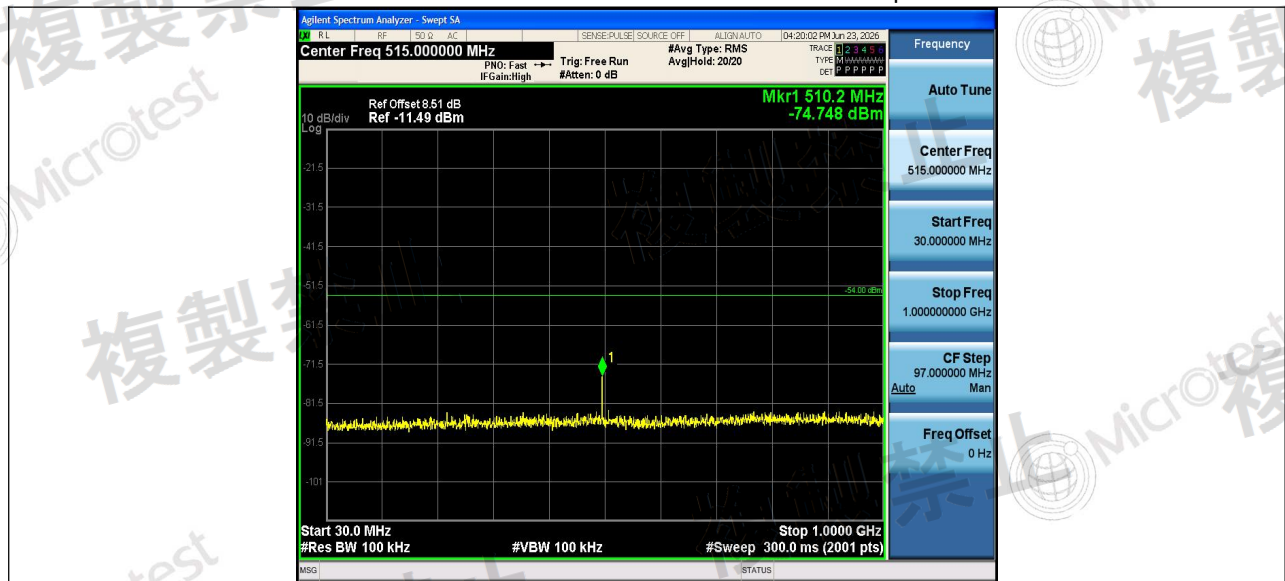
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Test Graphs



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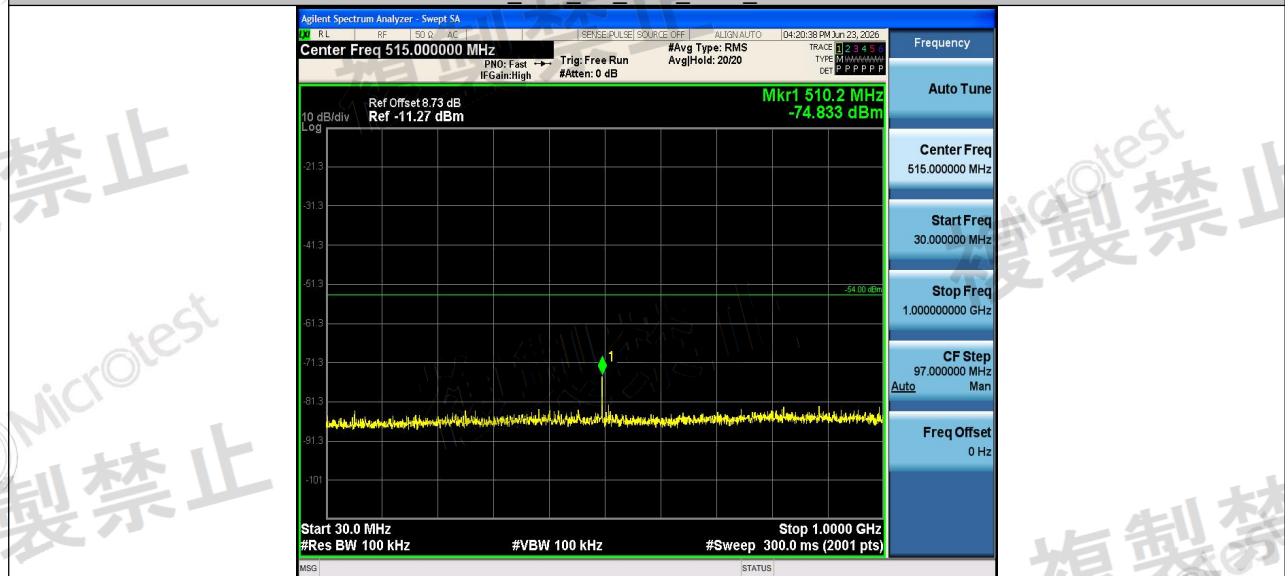
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NTNV BLE 1M Ant1 2440 1000~12500

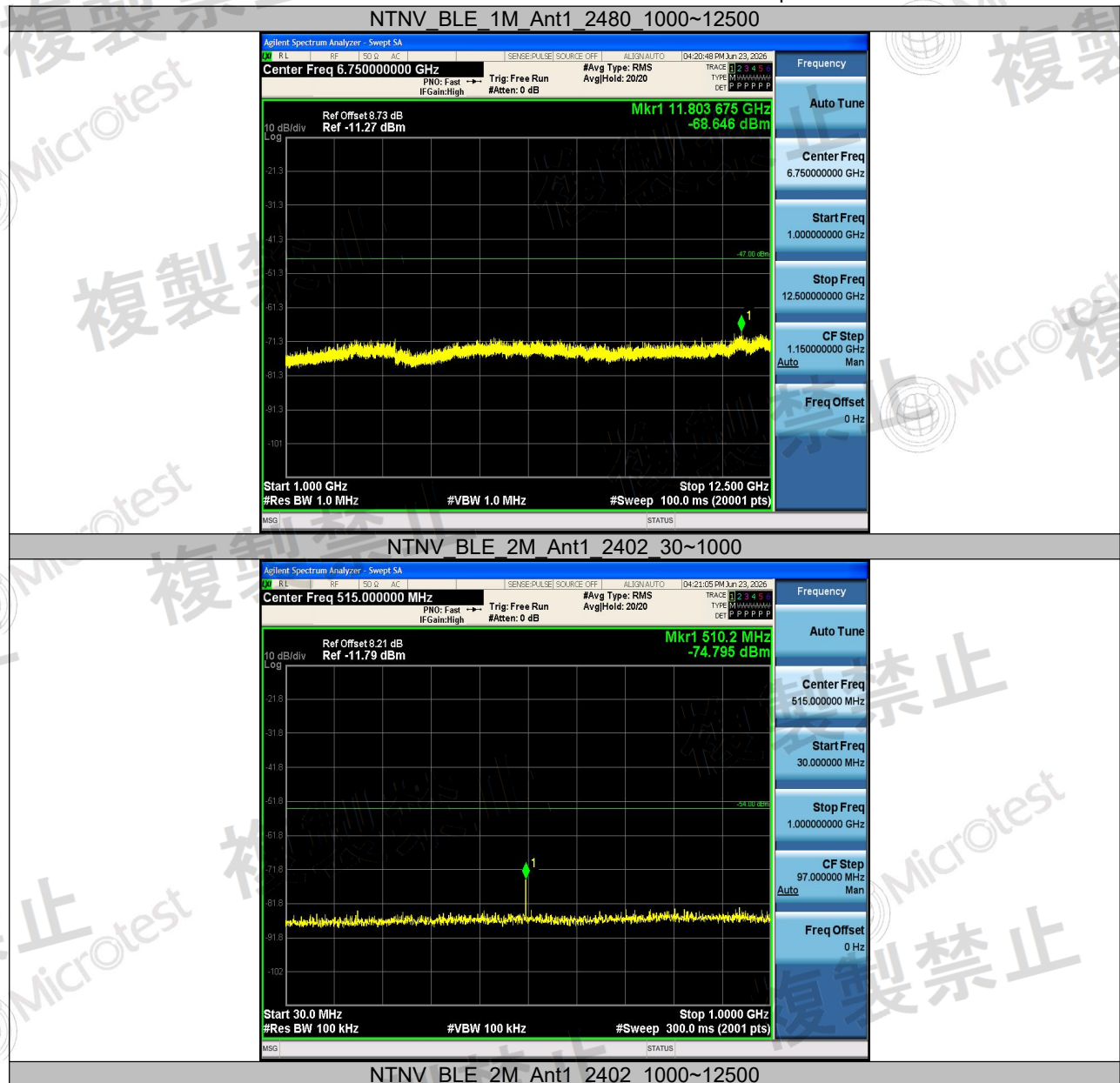


NTNV BLE 1M Ant1 2480 30~1000



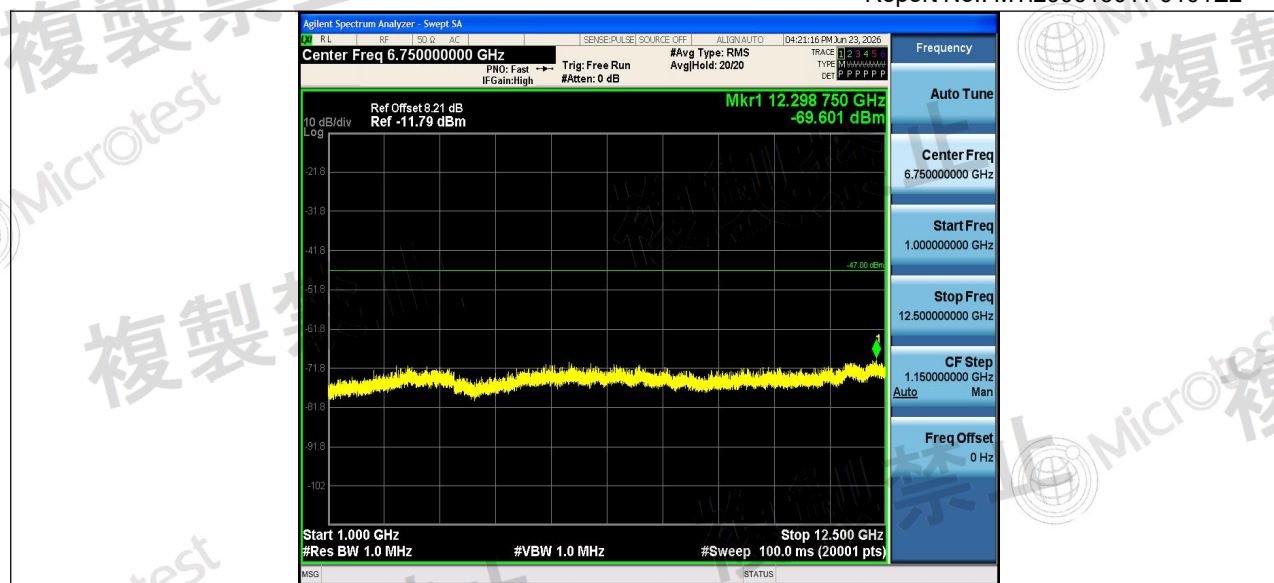
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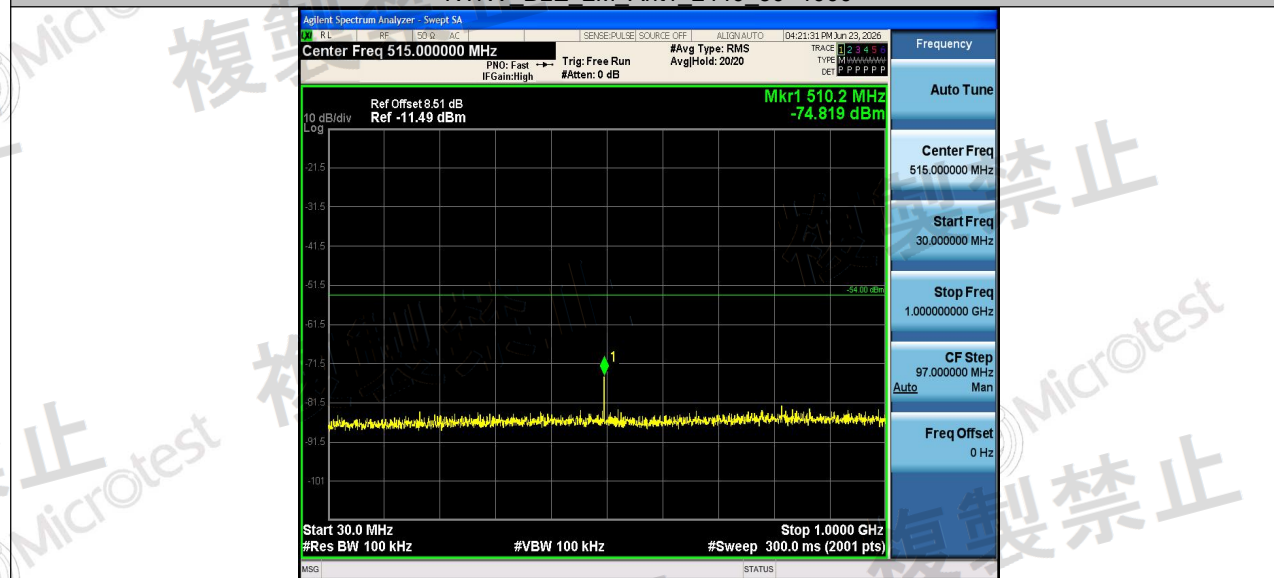


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NTNV BLE 2M Ant1 2440 30~1000

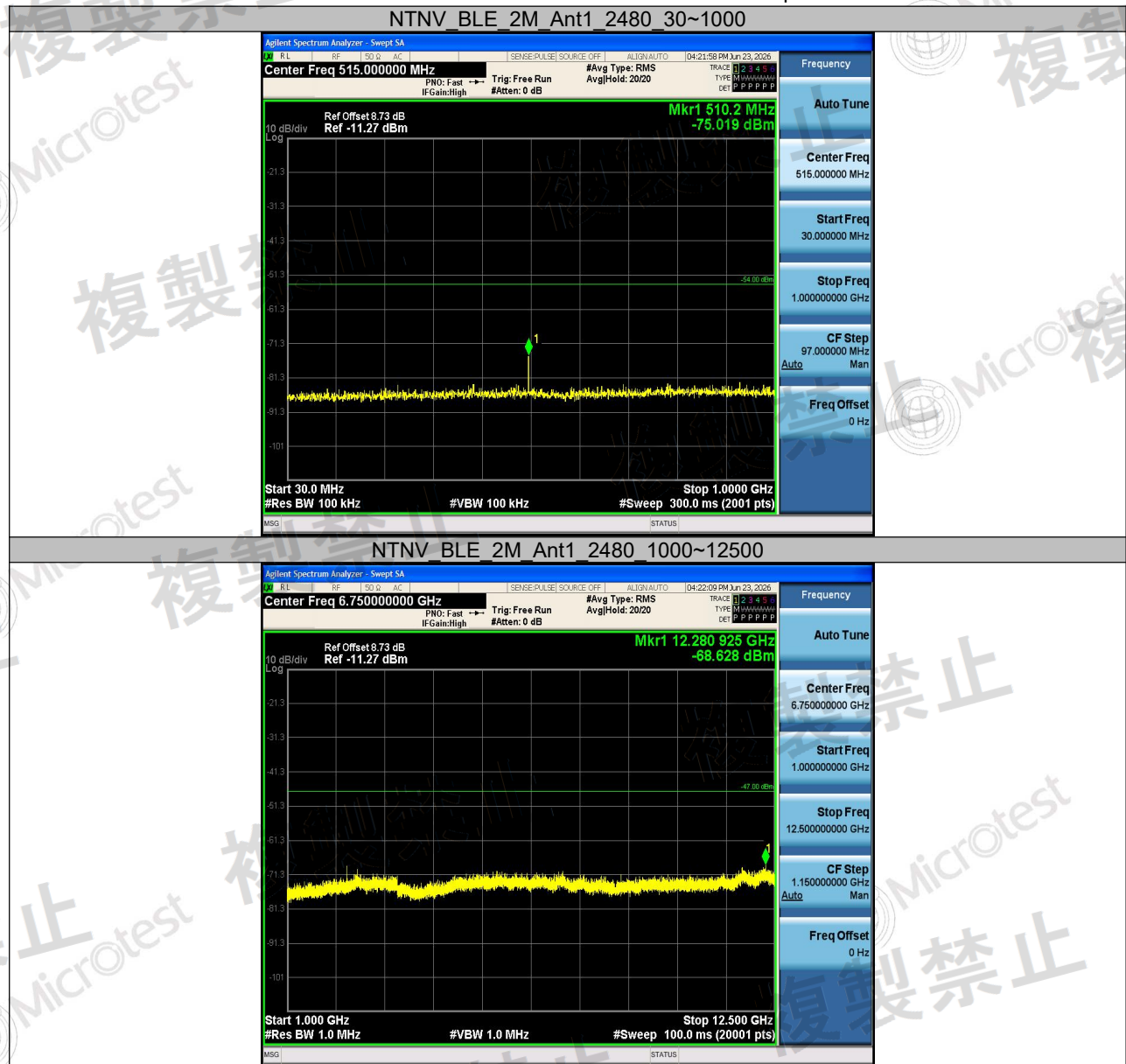


NTNV BLE 2M Ant1 2440 1000~12500



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Statement

1. This report is invalid without the seal and signature of the laboratory.
2. The test results of this report are only responsible for the samples submitted. Client shall be responsible for representativeness of the sample and authenticity of the material.
3. The report shall not be partially reproduced without the written consent of the Laboratory.
4. This report is invalid if transferred, altered or tampered with in any form without authorization.
5. The observations or tests with special mark fall outside the scope of accreditation, and are only used for purpose of commission, research, training, internal quality control etc.
6. Any objection to this report shall be submitted to the laboratory within 15 days from the date of receipt of the report.

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