

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: Certification Ordinance Article 2-1-19
Report No.: RJBDKG-WTW-P25040022
Product: Wireless Mouse
Brand: Logicoool, logi, logicoool
Model No.: MR0121
Received Date: 2025/10/29
Test Date: 2025/11/21
Issued Date: 2025/12/18
Applicant: Logitech Far East Ltd.
Address: #2 Creation Rd. 4, Science-Based Ind. Park Hsinchu Taiwan, R.O.C.
Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Hsin Chu Laboratory
Lab Address: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
Test Location: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan

Approved by: _____

Wen Yu / Assistant Manager

, Date: _____

2025/12/18

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Prepared by : Phoenix Huang / Specialist



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Release Control Record

Issue No.	Description	Date Issued
RJBDKG-WTW-P25040022	Original release.	2025/12/18

1 Certificate

Product: Wireless Mouse

Brand: Logicoool, logi, logicoool

Test Model: MR0121

Sample Status: Engineering sample

Applicant: Logitech Far East Ltd.

Test Date: 2025/11/21

Standard: Certification Ordinance Article 2-1-19

Measurement procedure: MIC notice 88 Appendix 43

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

2 Summary of Test Results

Certification Ordinance Article 2-1-19		
Clause	Test Item	Result
OR: Article 5 OR: Annex 1 table 7-8	Frequency Tolerance	Pass
OR: Article 6 Annex 2.30	Occupied Bandwidth	Pass
OR: Article 7. Annex 3.26	Spurious Emissions	Pass
OR: Article 49-20	Antenna Specifications	Pass
OR: Article 24.2	Spurious Emissions of Receiver	Pass
OR: Article 49-20	Housing Requirements	Pass (Refer to Note 1)
OR: Article 49-20	Antenna Power	Pass
OR: Article 49-20	Absolute Gain of Transmitting Antenna	Pass
OR: Article 49-20	Angular Width of Principal Radiation (AWPR)	N/A
OR: Article 49-20	Number of Carriers within 1 MHz Bandwidth in OFDM	N/A
OR: Article 49-20	Dwell Time (FH employed)	N/A
OR: Article 9-4.5 RE: Article 6-2.3 RE: Article 6-2.5	Interference Prevention Function	Pass
OR: Article 49-20	Carrier Sense Capability	N/A

Notes:

1. The relative information refer section 3.1 of this report.
2. OR: Ordinance Regulating Radio Equipment
3. RE: Regulations for Enforcement of the radio law
4. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in ETSI TR 100 028-1 and ETSI TR 100 028-2:

Parameter	Uncertainty (±)
Occupied Bandwidth	1050.00 Hz
Spurious Emissions	2.5 dB
Output Power Density	1.2 dB
Frequency Tolerance	960 Hz

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

3 General Information

3.1 General Description

Product	Wireless Mouse
Brand	Logicoool, logi, logicoool
Test Model	MR0121
Test Software Version	RF Sample with Receiver [Number Lock]
Status of EUT	Engineering sample
Power Supply Rating	5 Vdc from USB interface or 3.8 Vdc from battery
Modulation Type	GFSK
Modulation Technology	DTS
Transfer Rate	Up to 2 Mbps (*Note 1)
Operating Frequency	2.402 GHz ~ 2.48 GHz (*Note 1)
Number of Channel	40 (*Note 1)
Housing Requirements	The housing consists of two plastic parts, and the plastic enclosure was fixed together with screws and covered under battery. So the screws cannot be observed directly. Also it won't be easy to be opened.

Note:

1. BT-LE technique supports 1 Mbps and 2 Mbps data rates, both have been evaluated in this test report. Refer to **"section 3.4 Channel List"** for more detail specification.
2. The EUT uses following accessory.

Item	Brand	Model	Specification
Rechargeable Battery 1	SYNERGY	AHB391323H Hard Pack	Rating: 3.8 Vdc, 100 mAh

3. This device has BT-LE and Logi Bolt functions. Logi Bolt is the same technology as BT-LE then enhancement secure protocol. The worst case was found in BT-LE function. Therefore only the test data of the type recorded in the report.
4. The EUT may have a lot of colors for marketing requirement.
5. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 Output Power Description of EUT

Operation Mode	Rated Output Power (mW)	Maximum Conducted RF Output Power (mW)	Maximum Radiated RF Output Power (mW)
BT-LE 1M	5	4.055	6.194
BT-LE 2M	5	4.121	6.295

3.3 Antenna Description of EUT

1. The antenna information is listed as below.

Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type
1.84	2.4~2.4835	Ceramic	None

* Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

2. Antenna Pattern:

Please refer to the attached file (Antenna pattern).

3.4 Channel List

40 channels are provided for BT-LE, Logi Bolt:

RF Channel	RF Center Frequency	Channel Index	Channels Type for BT 5.x		Channels Type for BT 4.x
			Maximum Data Rate 2Mbps	Maximum Data Rate 1Mbps	Maximum Data Rate 1Mbps
0	2402 MHz	37		●	●
1	2404 MHz	0	●		●
2	2406 MHz	1	●		●
3	2408 MHz	2	●		●
4	2410 MHz	3	●		●
5	2412 MHz	4	●		●
6	2414 MHz	5	●		●
7	2416 MHz	6	●		●
8	2418 MHz	7	●		●
9	2420 MHz	8	●		●
10	2422 MHz	9	●		●
11	2424 MHz	10	●		●
12	2426 MHz	38		●	●
13	2428 MHz	11	●		●
14	2430 MHz	12	●		●
15	2432 MHz	13	●		●
16	2434 MHz	14	●		●
17	2436 MHz	15	●		●
18	2438 MHz	16	●		●
19	2440 MHz	17	●		●
20	2442 MHz	18	●		●
21	2444 MHz	19	●		●
22	2446 MHz	20	●		●
23	2448 MHz	21	●		●
24	2450 MHz	22	●		●
25	2452 MHz	23	●		●
26	2454 MHz	24	●		●
27	2456 MHz	25	●		●
28	2458 MHz	26	●		●
29	2460 MHz	27	●		●
30	2462 MHz	28	●		●
31	2464 MHz	29	●		●
32	2466 MHz	30	●		●
33	2468 MHz	31	●		●
34	2470 MHz	32	●		●
35	2472 MHz	33	●		●
36	2474 MHz	34	●		●
37	2476 MHz	35	●		●
38	2478 MHz	36	●		●
39	2480 MHz	39		●	●

3.5 Power Setting

Power Setting			
Channel	BT-LE 1M	Channel	BT-LE 2M
0	Default	1	Default
19	Default	19	Default
39	Default	38	Default

3.6 Test Mode Applicability and Tested Channel Detail

Test Conditions	Voltage (Vdc)
V_{normal}	5
$V_{max.}$	5.5
$V_{min.}$	4.5

Pre-Scan:	For EUT input voltage has 5 Vdc/ 3.8 Vdc conditions. Pre-scan these ways and find the worst case as a representative test condition.
Worst Case:	EUT input voltage worst condition: 5 Vdc

Following channel(s) was (were) selected for the final test as listed below:

Test Item	Mode	Tested Channel	Modulation	Data Rate Parameter
Frequency Tolerance	BT-LE 1M	0, 19, 39	unmodulated	-
	BT-LE 2M	1, 19, 38	unmodulated	-
Occupied Bandwidth	BT-LE 1M	0, 19, 39	GFSK	1Mb/s
	BT-LE 2M	1, 19, 38	GFSK	2Mb/s
Spurious Emissions	BT-LE 1M	0, 19, 39	GFSK	1Mb/s
	BT-LE 2M	1, 19, 38	GFSK	2Mb/s
Spurious Emissions of Receiver	BT-LE 1M	0, 19, 39	-	-
	BT-LE 2M	1, 19, 38	-	-
Antenna Power	BT-LE 1M	0, 19, 39	GFSK	1Mb/s
	BT-LE 2M	1, 19, 38	GFSK	2Mb/s
Interference Prevention Function	Normal Operation			

Test Item	Operation Description
Frequency Tolerance	BLE1M TX Unmodulated 2402MHz BLE1M TX Unmodulated 2440MHz BLE1M TX Unmodulated 2480MHz BLE2M TX Unmodulated 2404MHz BLE2M TX Unmodulated 2440MHz BLE2M TX Unmodulated 2478MHz
Occupied Bandwidth / Spurious Emissions / Antenna Power	BLE1M TX Modulated 2402MHz BLE1M TX Modulated 2440MHz BLE1M TX Modulated 2480MHz BLE2M TX Modulated 2404MHz BLE2M TX Modulated 2440MHz BLE2M TX Modulated 2478MHz
Spurious Emissions of Receiver	BLE1M RX 2402MHz BLE1M RX 2440MHz BLE1M RX 2480MHz BLE2M RX 2404MHz BLE2M RX 2440MHz BLE2M RX 2478MHz
Interference Prevention Function	Normal mode

4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1 Frequency Tolerance

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until	Calibration Authority	Calibration Method
DC Power Supply GOOD WILL INSTRUMENT CO. LTD	GPC-3030D	E847076	Note 2	Note 2	BV CPS E&E	(d)
EXA Signal Analyzer Agilent	N9010A	MY52220207	2024/12/30	2025/12/29	ETC	(c)
Fixed Attenuator Woken	00800A1K01A-10	00800A1K01A-10- 01	2025/5/23	2026/5/22	BV CPS E&E	(d)
Software	ADT_RF Test Software V8	N/A	N/A	N/A	N/A	N/A
True RMS Clamp Meter FLUKE	325	31130711WS	2025/6/12	2026/6/11	ETC	(c)

Notes:

- Calibration method:
 - Calibration conducted by the National Institute of Information and Communications Technology (NICT) or a designated calibration agency under Article 102-18 paragraph (1).
 - Calibration conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992) Japan Calibration Service System.
 - Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1).
 - Calibration conducted by using other equipment that listed above from a) to c).
- The power supply no evaluation calibrated, which used the FLUKE meter to verify before each testing.
- The test was performed in Oven room 2.
- Tested Date: 2025/11/21

4.2 Occupied Bandwidth

Refer to section 4.1 to get the tested date and information of the instruments.

4.3 Spurious Emissions

Refer to section 4.1 to get the tested date and information of the instruments.

4.4 Spurious Emissions of Receiver

Refer to section 4.1 to get the tested date and information of the instruments.

4.5 Antenna Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until	Calibration Authority	Calibration Method
DC Power Supply GOOD WILL INSTRUMENT CO. LTD	GPC-3030D	E847076	Note 2	Note 2	BV CPS E&E	(d)
Fixed Attenuator Woken	00800A1K01A-20	00800A1K01A-20- 02	2025/5/23	2026/5/22	BV CPS E&E	(d)
Pulse Power Sensor Anritsu	MA2411B	1726434	2025/6/3	2026/6/2	ETC	(c)
RF Power Meter Anritsu	ML2495A	1529002	2025/6/3	2026/6/2	ETC	(c)
True RMS Clamp Meter FLUKE	325	31130711WS	2025/6/12	2026/6/11	ETC	(c)

Notes:

- Calibration method:
 - Calibration conducted by the National Institute of Information and Communications Technology (NICT) or a designated calibration agency under Article 102-18 paragraph (1).
 - Calibration conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992) Japan Calibration Service System.
 - Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1).
 - Calibration conducted by using other equipment that listed above from a) to c).
- The power supply no evaluation calibrated, which used the FLUKE meter to verify before each testing.
- The test was performed in Oven room 2.
- Tested Date: 2025/11/21

4.6 Interference Prevention Function

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until	Calibration Authority	Calibration Method
Bluetooth Simulator Anritsu	MT8852B	1218002	2025/5/16	2026/5/15	ETC	(c)
DC Power Supply GOOD WILL INSTRUMENT CO. LTD	GPC-3030D	E847076	Note 2	Note 2	BV CPS E&E	(d)
True RMS Clamp Meter FLUKE	325	31130711WS	2025/6/12	2026/6/11	ETC	(c)

Notes:

- Calibration method:
 - Calibration conducted by the National Institute of Information and Communications Technology (NICT) or a designated calibration agency under Article 102-18 paragraph (1).
 - Calibration conducted pursuant to the provisions of Article 135 or Article 144 of the Measurement Law (Law No. 51 of 1992) Japan Calibration Service System.
 - Calibration conducted in foreign countries, which shall be equivalent to the calibration conducted by the NICT or a designated calibration agency under Article 102-18 paragraph (1).
 - Calibration conducted by using other equipment that listed above from a) to c).
- The power supply no evaluation calibrated, which used the FLUKE meter to verify before each testing.
- The test was performed in Oven room 2.
- Tested Date: 2025/11/21

5 Limits of Test Items

5.1 Frequency Tolerance

Tolerance of frequency shall be +/- 50ppm.

5.2 Occupied Bandwidth

Modulation Method	Limit
DSSS	<26 MHz
OFDM	<26 MHz
	26 – 40 MHz
FHSS	<83.5 MHz
Other Digital	<26 MHz

5.3 Spurious Emissions

Frequencies	Limit
Operating frequency 2400 to 2483.5 MHz	
30.0 MHz to 1000.0 MHz	$\leq 0.25 \text{ uW/100 kHz}$
1000.0 MHz to 2387 MHz	$\leq 2.5 \text{ uW/MHz}$
2387.0 MHz to 2400.0 MHz	$\leq 25 \text{ uW/MHz}$
2483.5 MHz to 2496.5 MHz	$\leq 25 \text{ uW/MHz}$
2496.5 MHz to 12500.0 MHz	$\leq 2.5 \text{ uW/MHz}$

5.4 Spurious Emissions of Receiver

Frequencies	Limit
Below 1 GHz	$\leq 4 \text{ nW}$
Above 1 GHz	$\leq 20 \text{ nW}$

5.5 Antenna Power

Modulation System	Frequency Band Used	Antenna Power (Max.)	E.I.R.P. Limit (Note 3)
DSSS	2400 – 2483.5 MHz	10 mW/MHz	12.14 dBm/MHz ~ 22.14 dBm/MHz (16.368 mW/MHz ~ 163.68 mW/MHz)
OFDM (Note 1)	2400 – 2483.5 MHz	10 mW/MHz	12.14 dBm/MHz ~ 22.14 dBm/MHz (16.368 mW/MHz ~ 163.68 mW/MHz)
OFDM (Note 2)	2400 – 2483.5 MHz	5 mW/MHz	9.13 dBm/MHz ~ 19.13 dBm/MHz (8.184 mW/MHz ~ 81.84 mW/MHz)
FHSS	2400 – 2483.5 MHz	3 mW/MHz	6.91 dBm/MHz ~ 16.91 dBm/MHz (4.91 mW/MHz ~ 49.10 mW/MHz)
Other Digital	2400 – 2483.5 MHz	10 mW	12.14 dBm ~ 22.14 dBm (16.368 mW ~ 163.68 mW)

Notes:

- Occupied bandwidth is less than 26 MHz.
- Occupied bandwidth is more than 26 MHz and less than 40 MHz.
- E.I.R.P. limit is variable by the HPBA, the HPBA (half-power beam width) of the antenna shall be 360 / A degrees or less, where A = E.I.R.P. / (2.14 dB + "Antenna Power (limit)").
- Tolerance of antenna power shall be +20% (upper value).

5. When an E.I.R.P. is less than 2.14 dBi + antenna power limit. The shortage can be compensated for by the antenna power. (Application to transmitting devices using "Other method" is Limited to "GFSK")

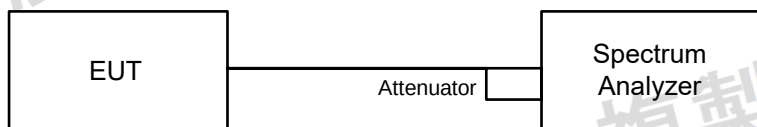
5.6 Interference Prevention Function

When conducting wireless communications that transmit data or other information: A function that automatically sends or receives an identification code.

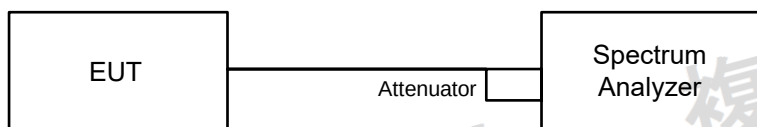
When performing radiolocation work: A function that allows you to distinguish between reflected waves of radio waves transmitted by your own station and radio waves transmitted by other radio stations by identifying the modulation method and other characteristics of received radio waves. (However, if it also has the function of transmitting signals for data transmission, both functions shall be included.)

6 Test Arrangements

6.1 Frequency Tolerance



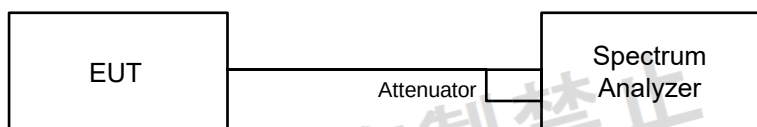
6.2 Occupied Bandwidth



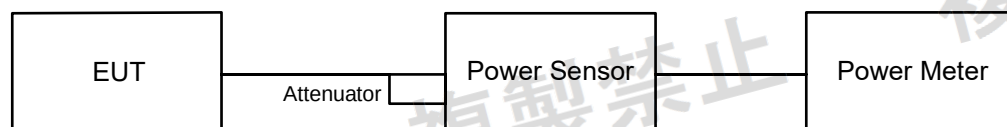
6.3 Spurious Emissions



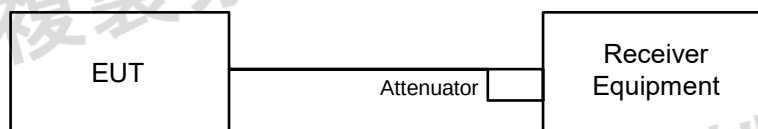
6.4 Spurious Emissions of Receiver



6.5 Antenna Power



6.6 Interference Prevention Function



7 Test Results of Test Item

7.1 Frequency Tolerance

Environmental Conditions:	21°C, 68% RH	Tested By:	Kevin Ko
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BT-LE 1M

Channel	Frequency (MHz)	V_{normal}		$V_{max.}$		$V_{min.}$	
		Carrier frequency (MHz)	Frequency tolerance (ppm)	Carrier frequency (MHz)	Frequency tolerance (ppm)	Carrier frequency (MHz)	Frequency tolerance (ppm)
0	2402	2401.996180	-1.590	2401.996020	-1.657	2401.996240	-1.565
19	2440	2439.996120	-1.590	2439.996080	-1.607	2439.996100	-1.598
39	2480	2479.996000	-1.613	2479.996000	-1.613	2479.995900	-1.653

BT-LE 2M

Channel	Frequency (MHz)	V_{normal}		$V_{max.}$		$V_{min.}$	
		Carrier frequency (MHz)	Frequency tolerance (ppm)	Carrier frequency (MHz)	Frequency tolerance (ppm)	Carrier frequency (MHz)	Frequency tolerance (ppm)
1	2404	2403.996180	-1.589	2403.996040	-1.647	2403.996040	-1.647
19	2440	2439.996040	-1.623	2439.996100	-1.598	2439.996100	-1.598
38	2478	2477.995880	-1.663	2477.995880	-1.663	2477.995960	-1.630

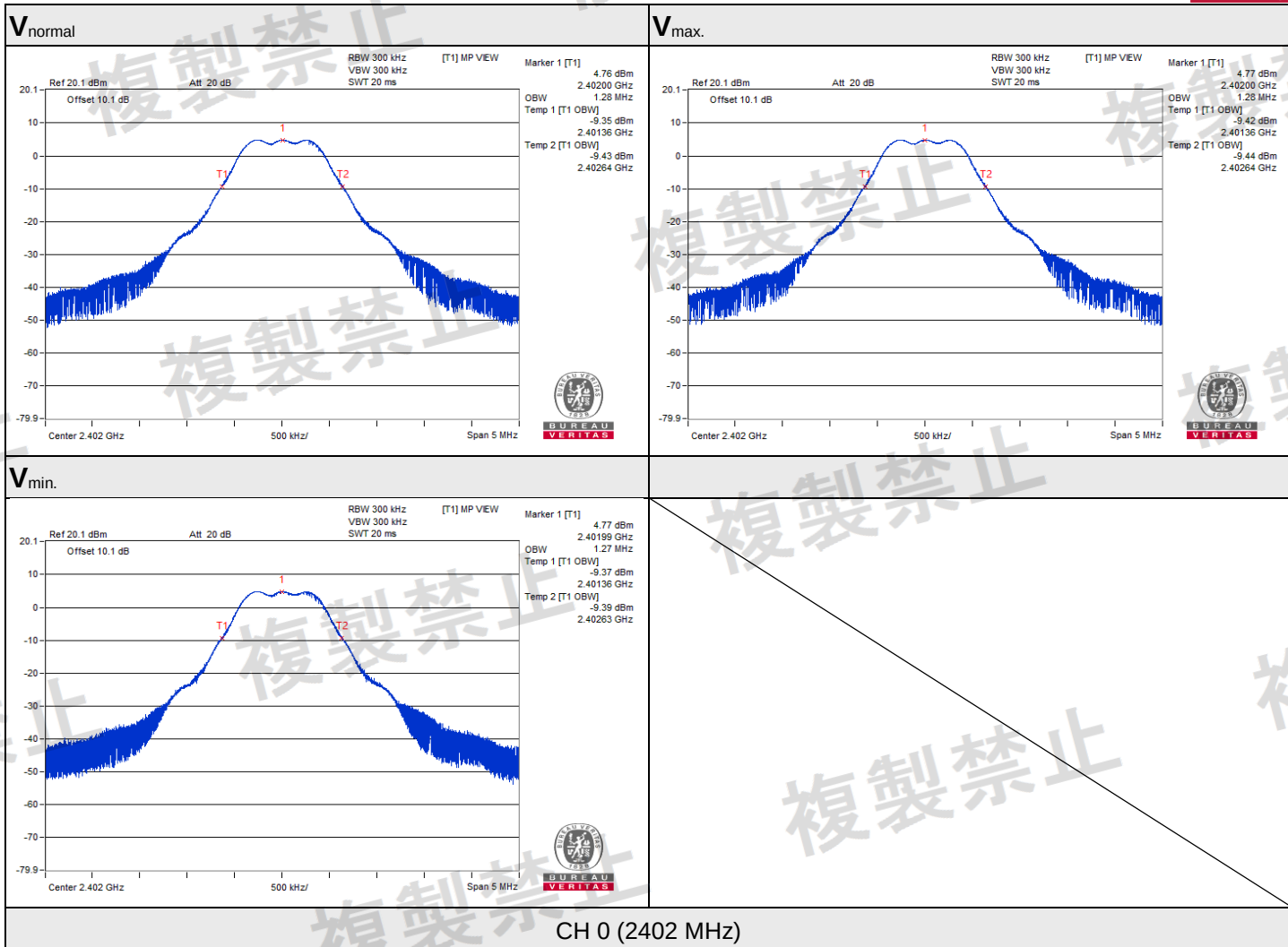
7.2 Occupied Bandwidth

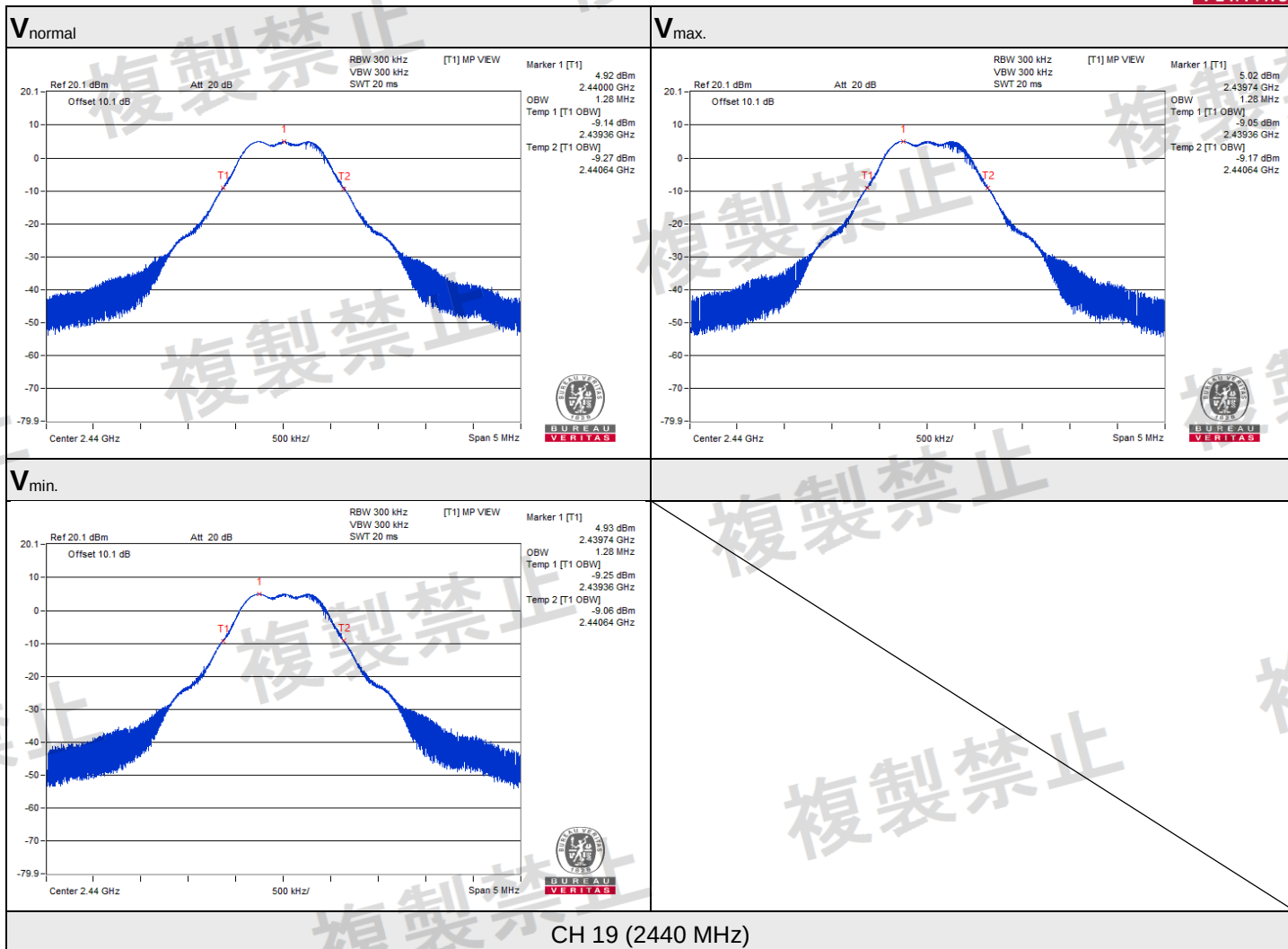
Environmental Conditions:	21°C, 68% RH	Tested By:	Kevin Ko
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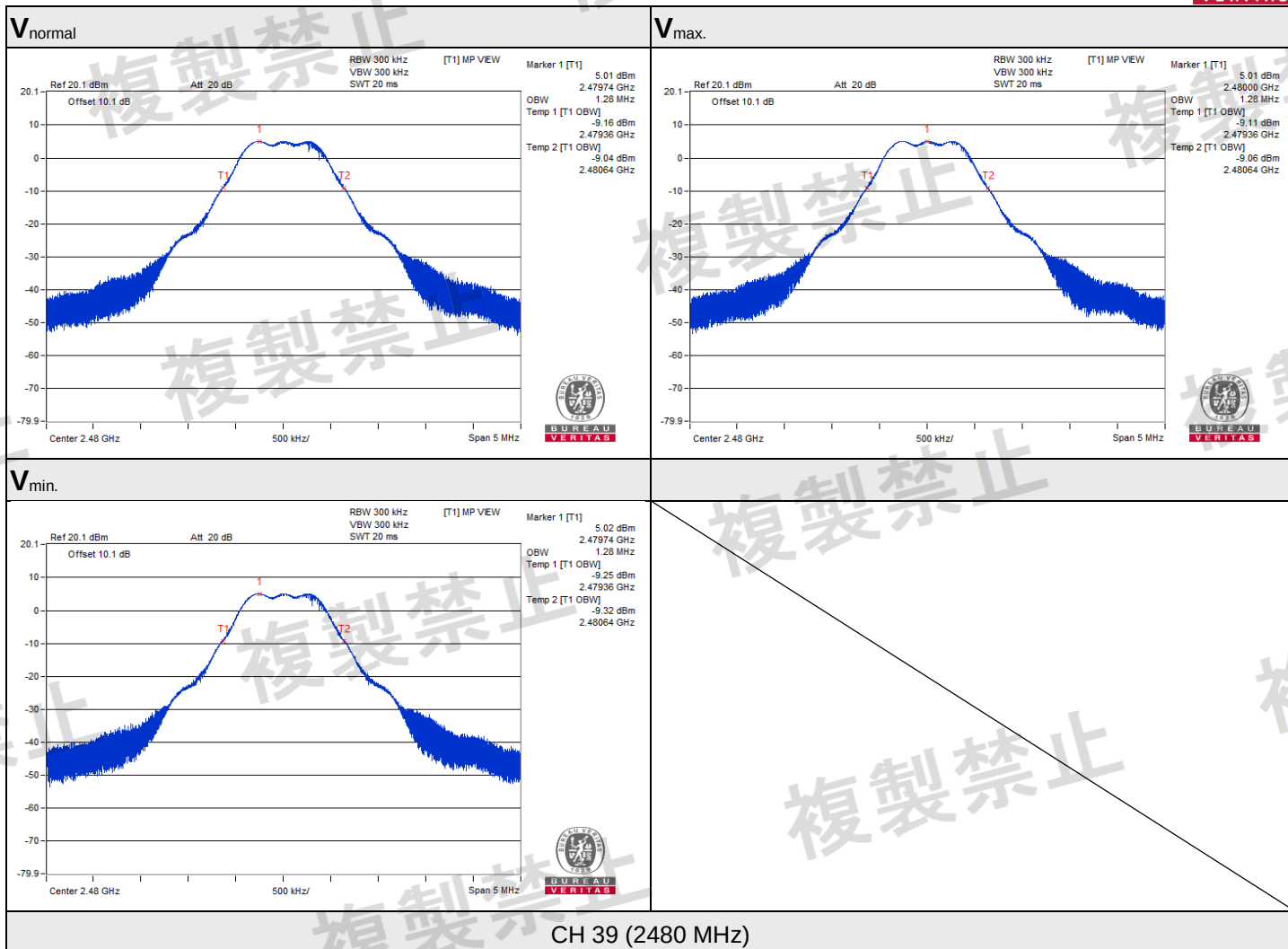
BT-LE 1M

Channel	Frequency (MHz)	V_{normal}	$V_{max.}$	$V_{min.}$
		Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)
0	2402	1.28	1.28	1.27
19	2440	1.28	1.28	1.28
39	2480	1.28	1.28	1.28

NOTE: For the test plots please refer to the below pages.







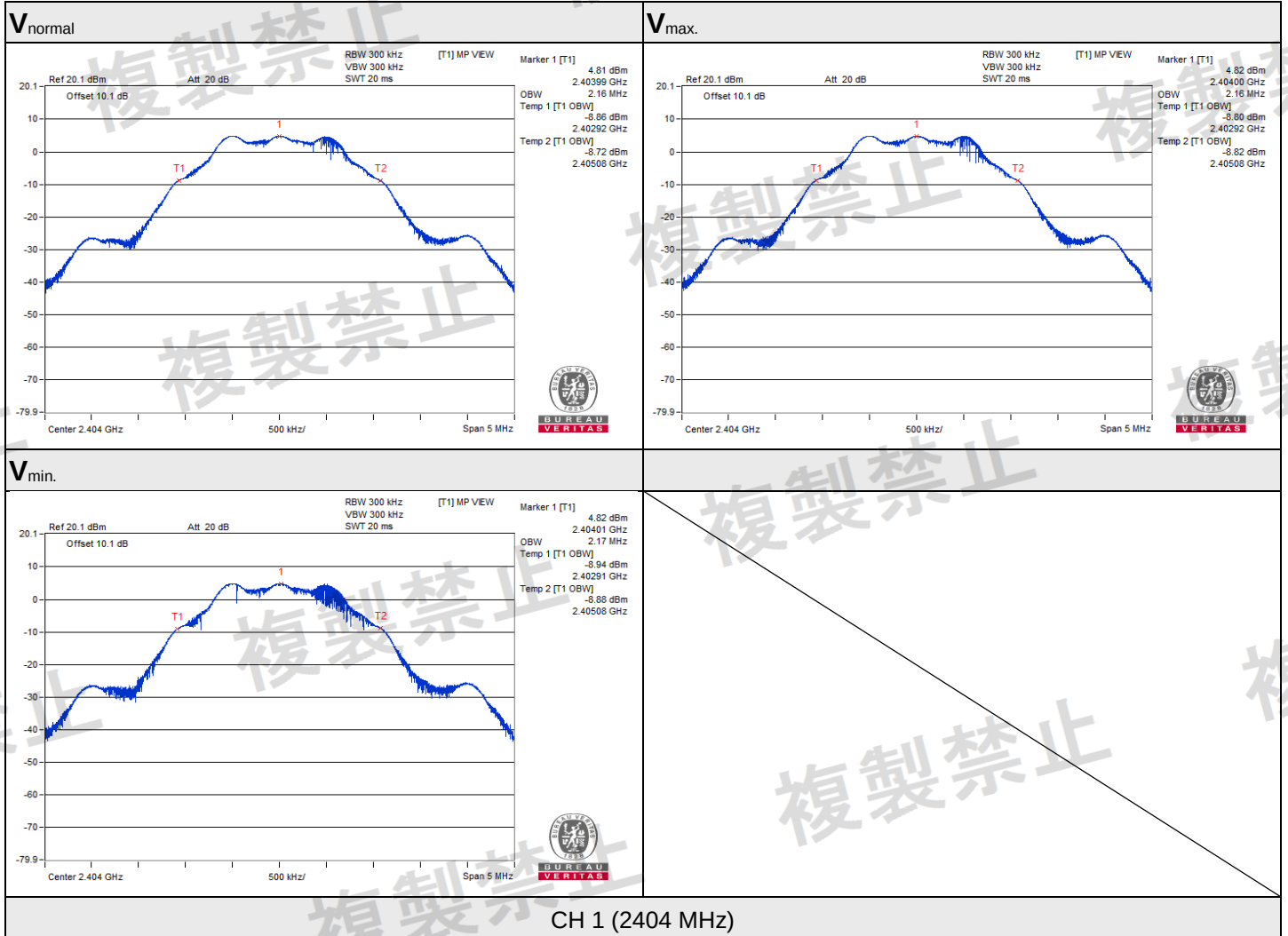
BT-LE 2M

Channel	Frequency (MHz)	V_{normal}	$V_{max.}$	$V_{min.}$
		Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)
1	2404	2.16	2.16	2.17
19	2440	2.17	2.17	2.17
38	2478	2.17	2.17	2.17

NOTE: For the test plots please refer to the below pages.

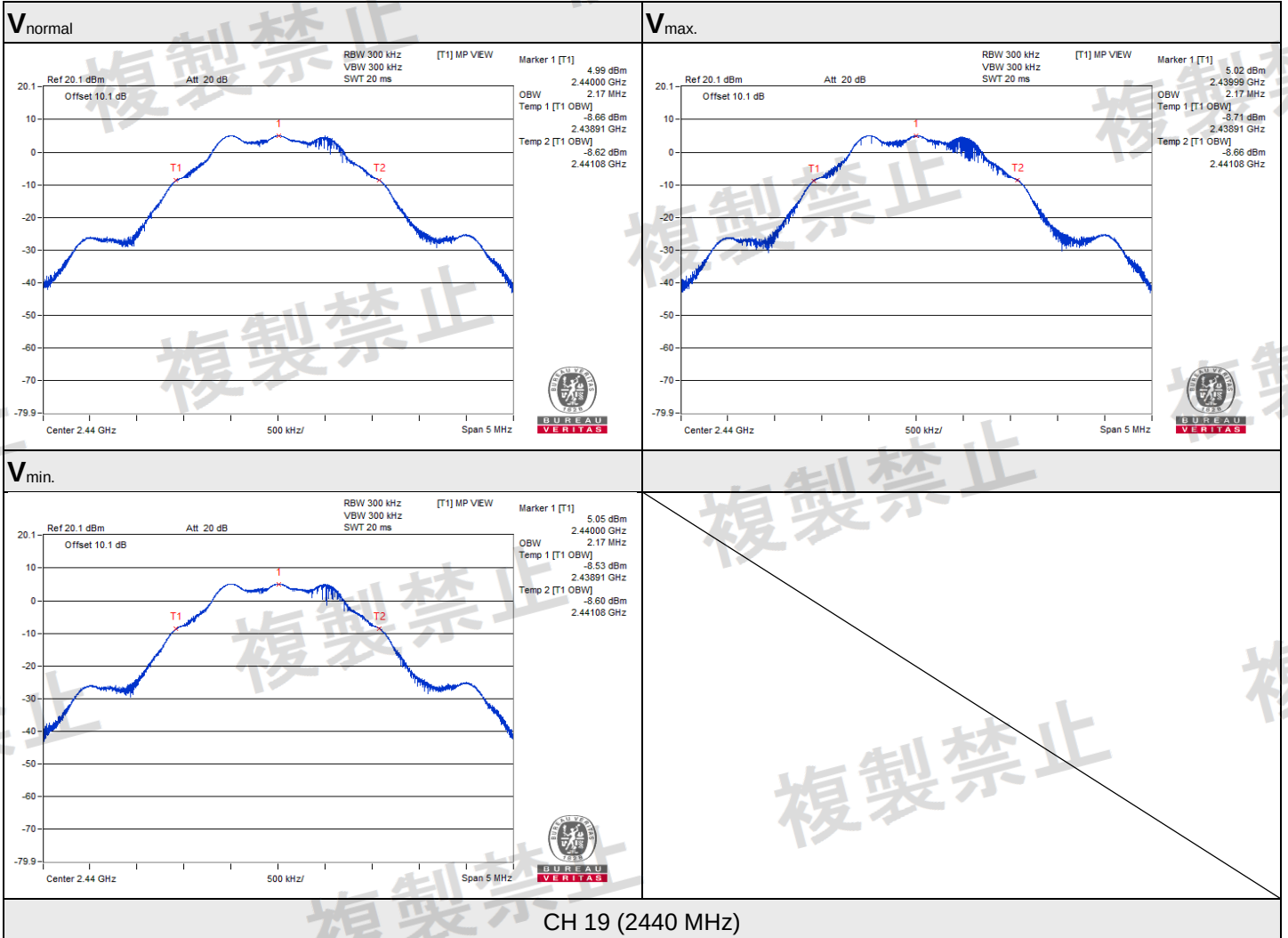


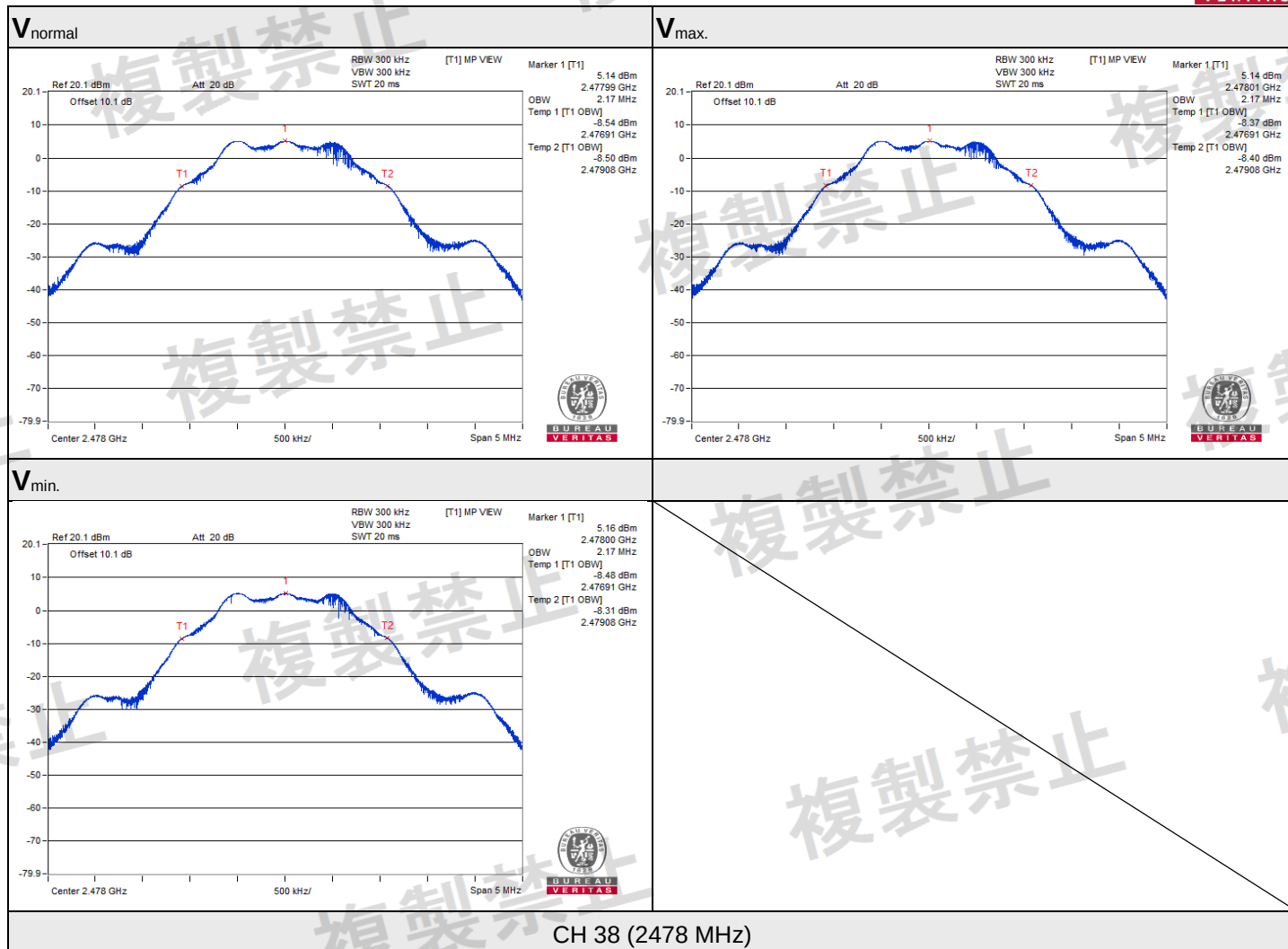
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7.3 Spurious Emissions

Environmental Conditions:	21°C, 68% RH	Tested By:	Kevin Ko
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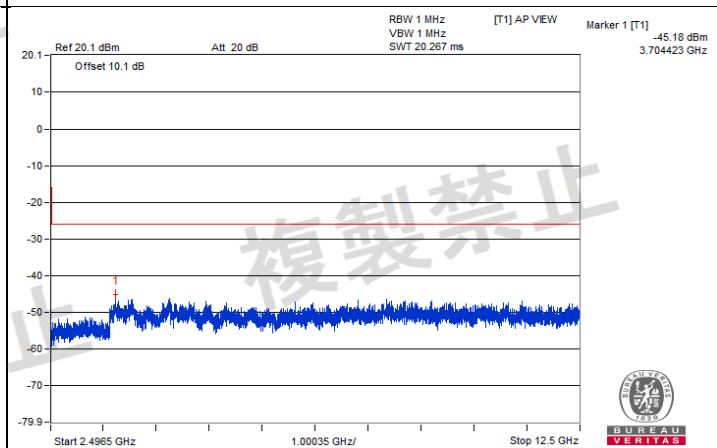
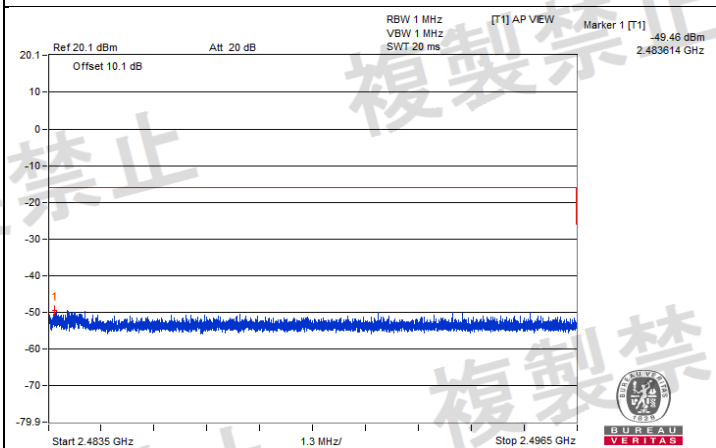
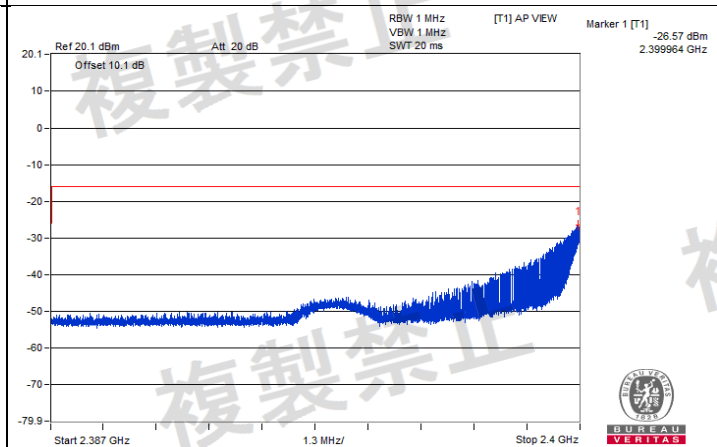
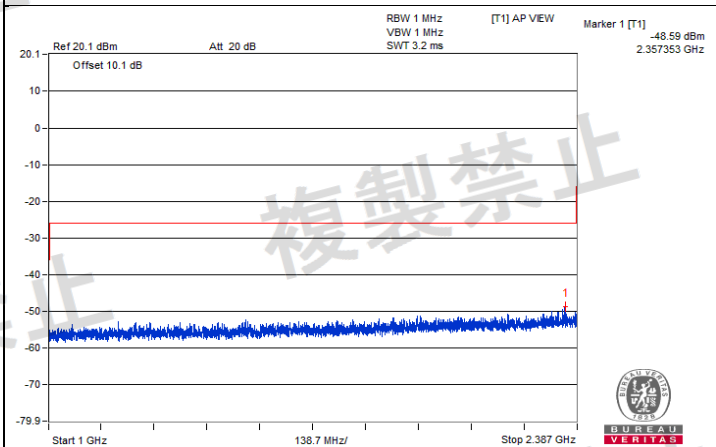
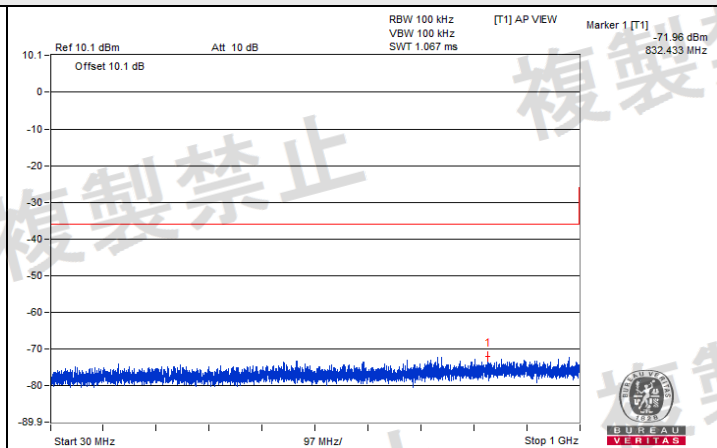
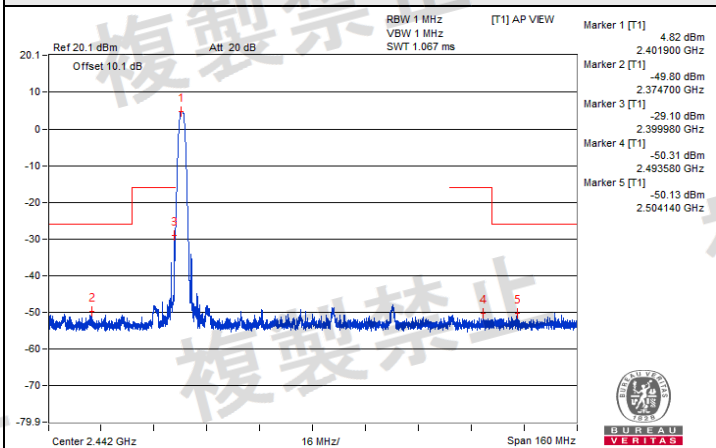
BT-LE 1M

TEST CHANNEL		CH 0 (2402 MHz)			
TEST CONDITION	FREQUENCY RANGE(MHz)	FREQUENCY (MHz)	MEASUREMENT VALUE	LIMIT	RESULT
V_{normal}	30.0 to 1000.0	832.433	0.000064 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2357.353	0.013836 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2399.964	2.202926 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2483.614	0.011324 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	3704.423	0.030339 uW/MHz	2.5 uW/MHz	PASS
V_{max.}	30.0 to 1000.0	747.072	0.000076 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2385.613	0.011858 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2399.994	2.552701 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2483.867	0.010864 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	4007.028	0.028445 uW/MHz	2.5 uW/MHz	PASS
V_{min.}	30.0 to 1000.0	844.072	0.000057 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2357.700	0.011194 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2399.985	2.460368 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2484.142	0.014962 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	4722.279	0.040738 uW/MHz	2.5 uW/MHz	PASS
TEST CHANNEL		CH 19 (2440 MHz)			
V_{normal}	30.0 to 1000.0	522.518	0.000055 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2377.464	0.011376 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2393.817	0.014997 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2485.601	0.017378 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	4732.282	0.02884 uW/MHz	2.5 uW/MHz	PASS
V_{max.}	30.0 to 1000.0	747.194	0.00007 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2377.464	0.012303 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2394.049	0.01888 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2485.716	0.020941 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	8827.465	0.027797 uW/MHz	2.5 uW/MHz	PASS
V_{min.}	30.0 to 1000.0	867.231	0.00006 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2377.464	0.009484 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2393.859	0.017865 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2486.188	0.02023 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	10575.577	0.024491 uW/MHz	2.5 uW/MHz	PASS

TEST CHANNEL		CH 39 (2480 MHz)			
TEST CONDITION	FREQUENCY RANGE(MHz)	FREQUENCY (MHz)	MEASUREMENT VALUE	LIMIT	RESULT
V_{normal}	30.0 to 1000.0	730.461	0.000078 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2288.696	0.008974 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2397.371	0.009441 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2483.601	0.202302 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	3678.163	0.028249 uW/MHz	2.5 uW/MHz	PASS
V_{max.}	30.0 to 1000.0	910.033	0.000063 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2181.724	0.010593 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2397.845	0.010351 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2483.506	0.149968 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	5159.932	0.026182 uW/MHz	2.5 uW/MHz	PASS
V_{min.}	30.0 to 1000.0	825.643	0.000067 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2301.179	0.011066 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2397.896	0.010914 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2483.675	0.143549 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	4721.028	0.024491 uW/MHz	2.5 uW/MHz	PASS

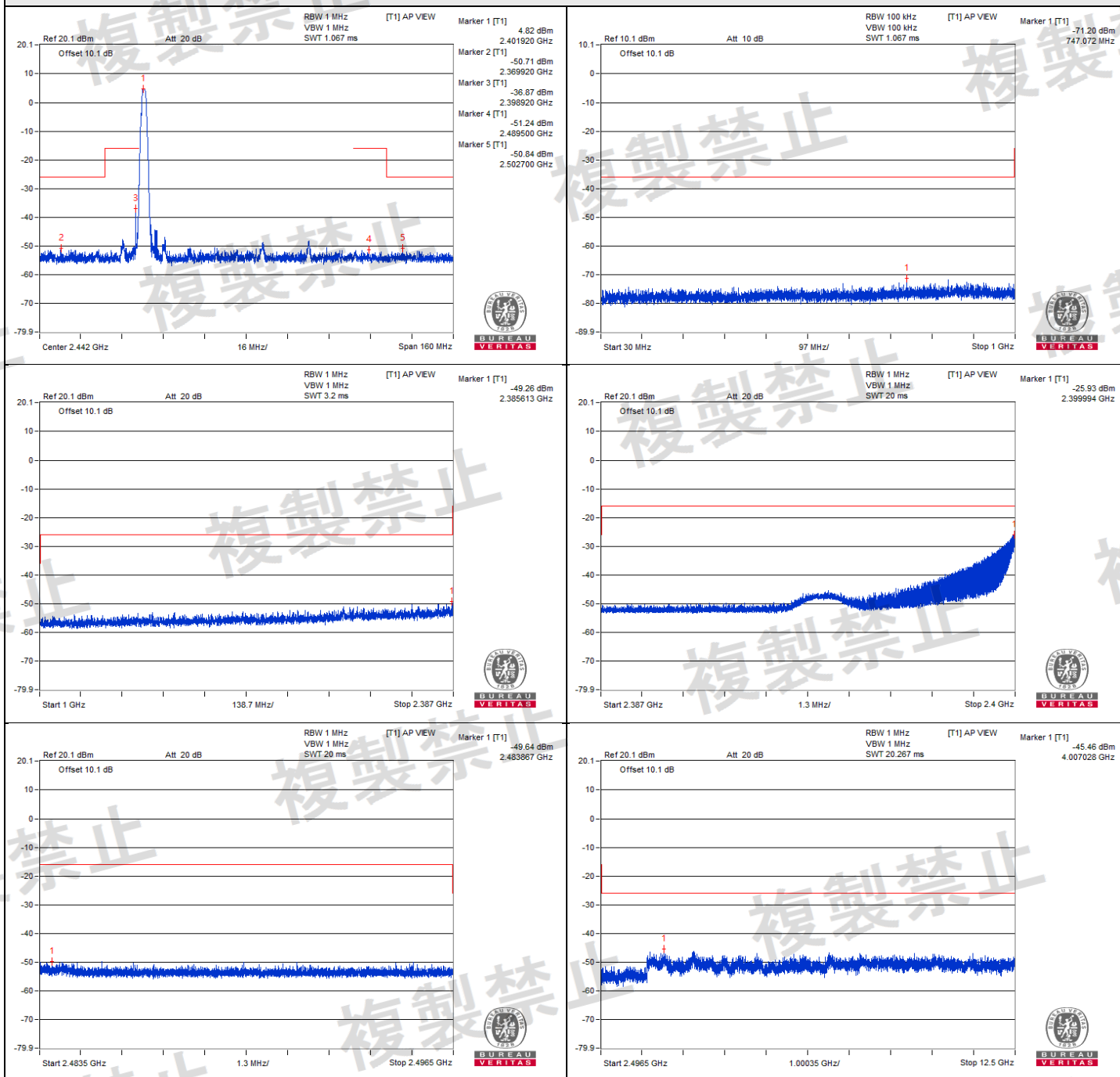
NOTE: 1. The spectrum plots are attached on the following pages.

Vnormal



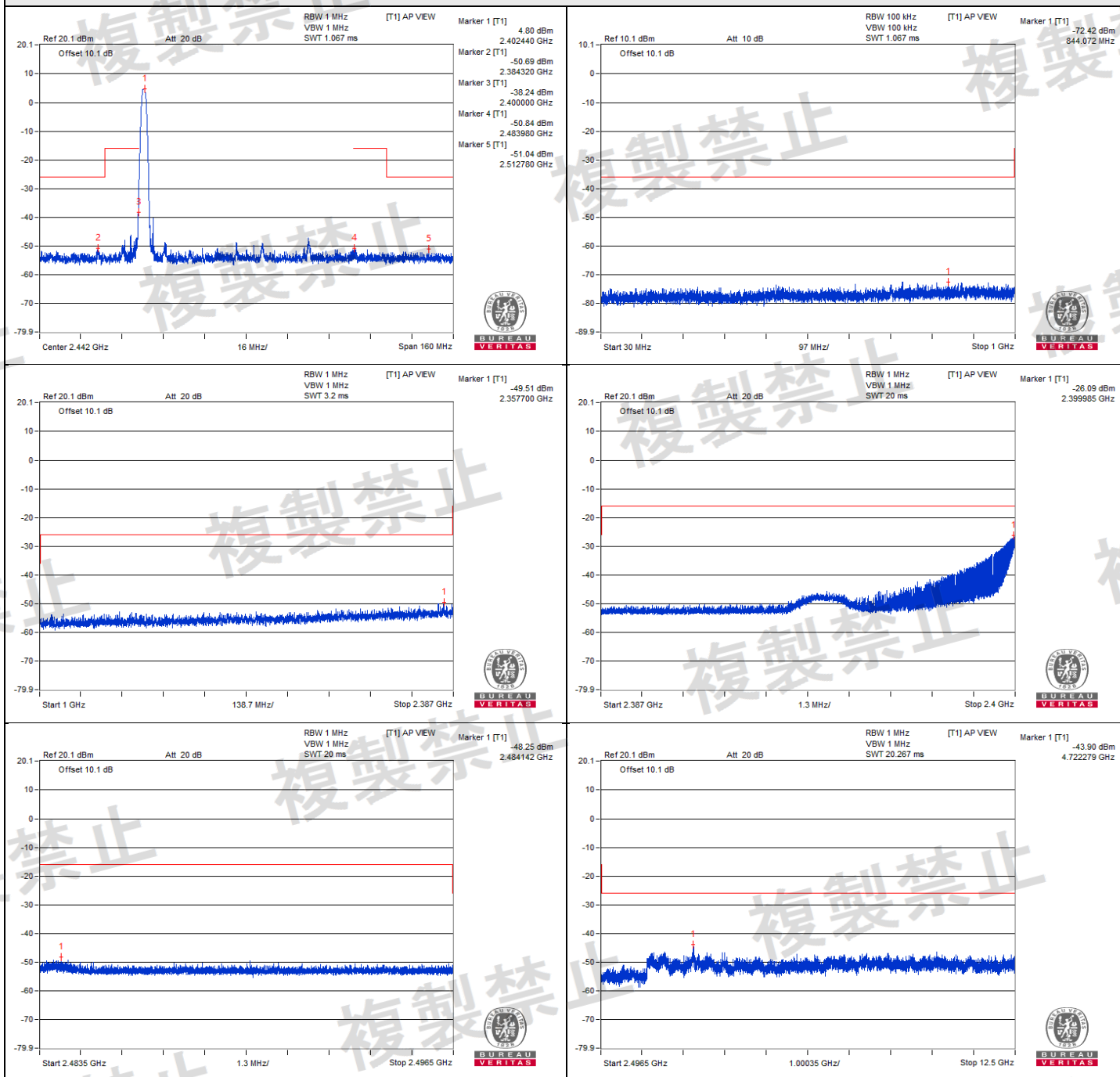
CH 0 (2402 MHz)

Vmax.



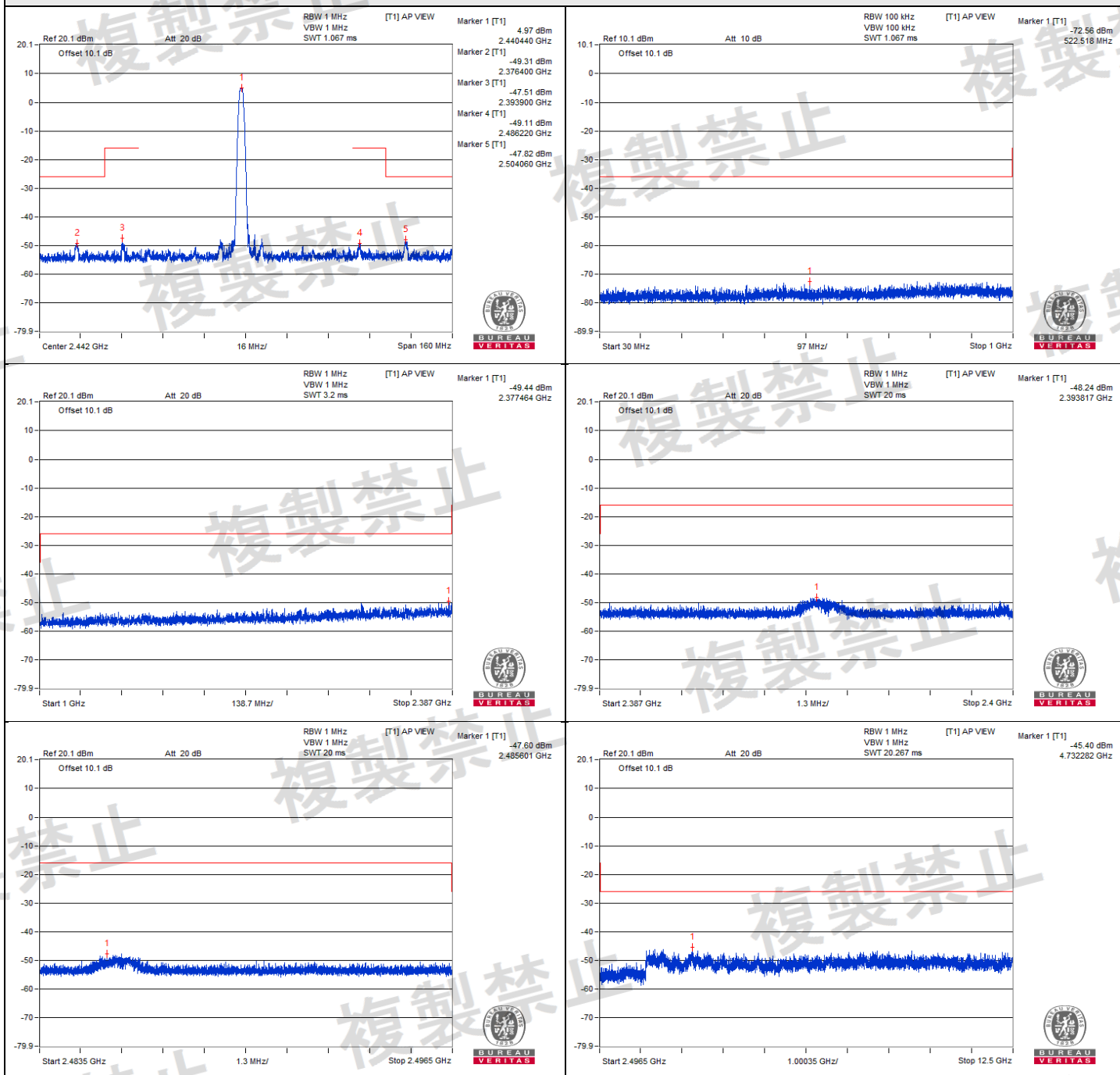
CH 0 (2402 MHz)

Vmin.



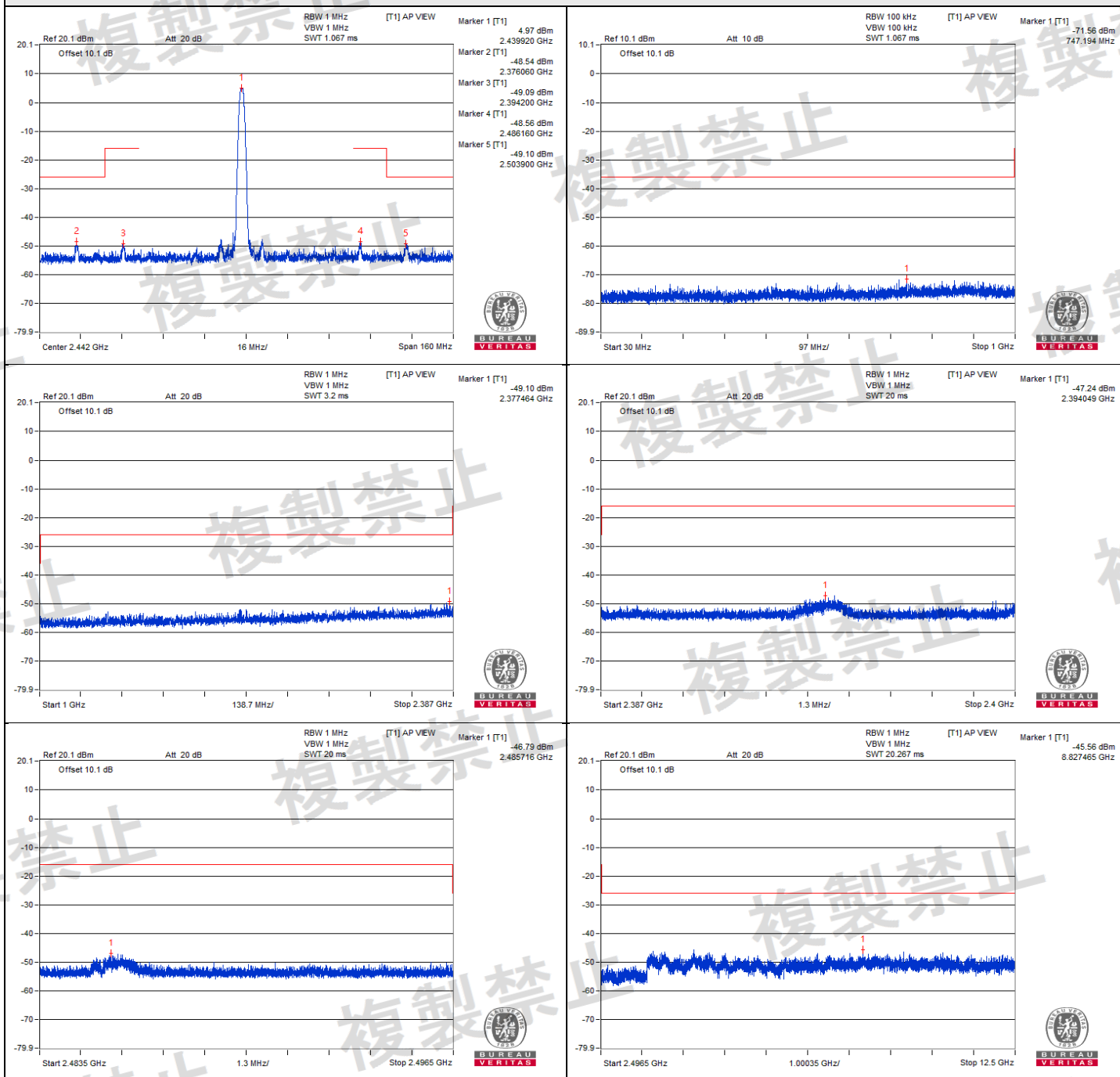
CH 0 (2402 MHz)

Vnormal



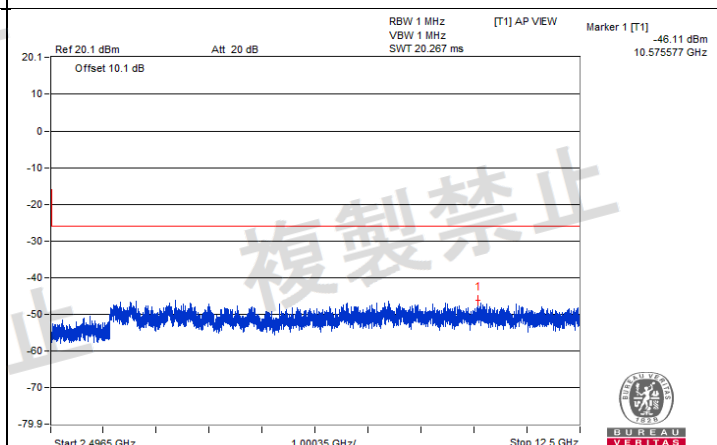
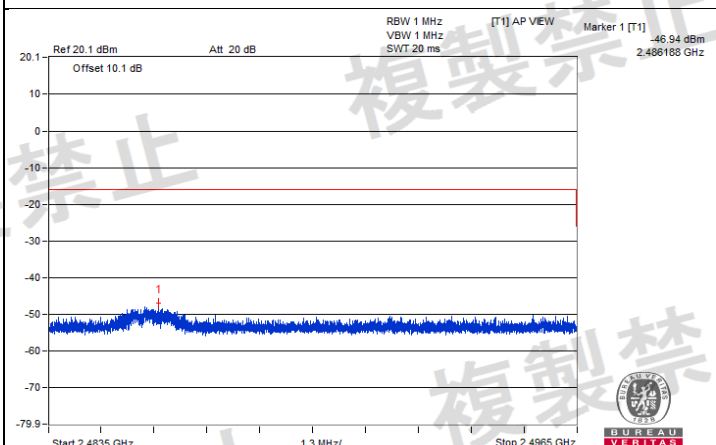
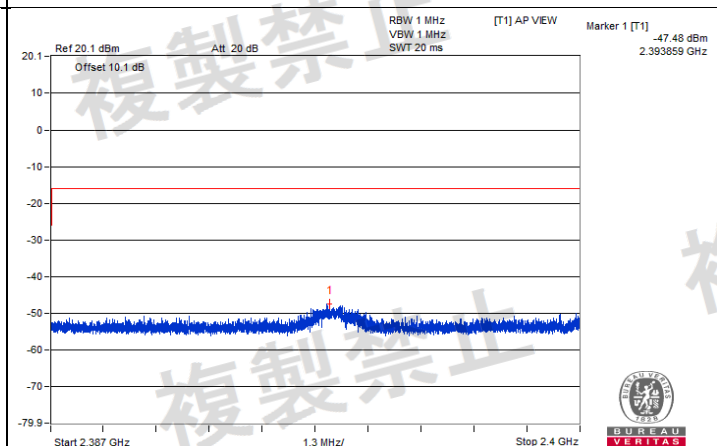
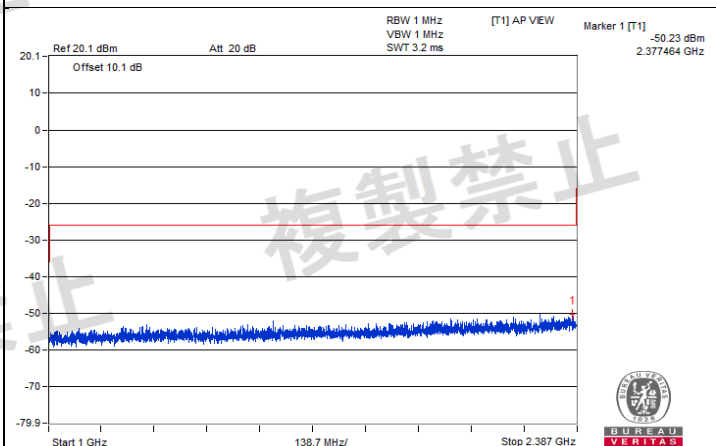
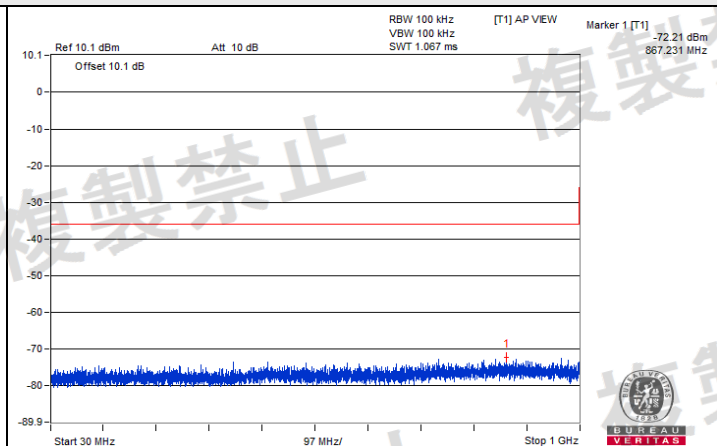
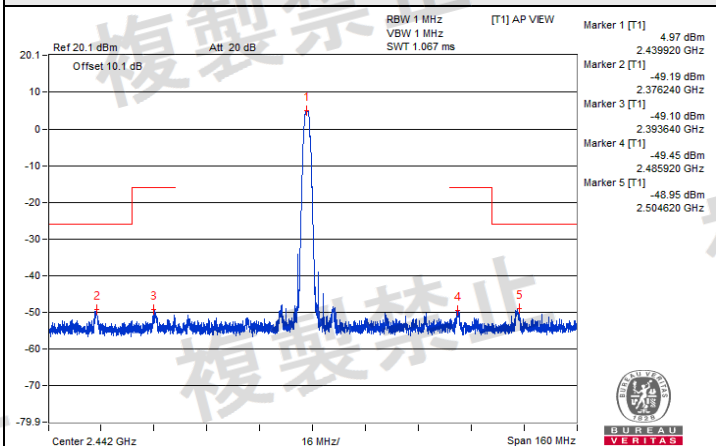
CH 19 (2440 MHz)

Vmax.



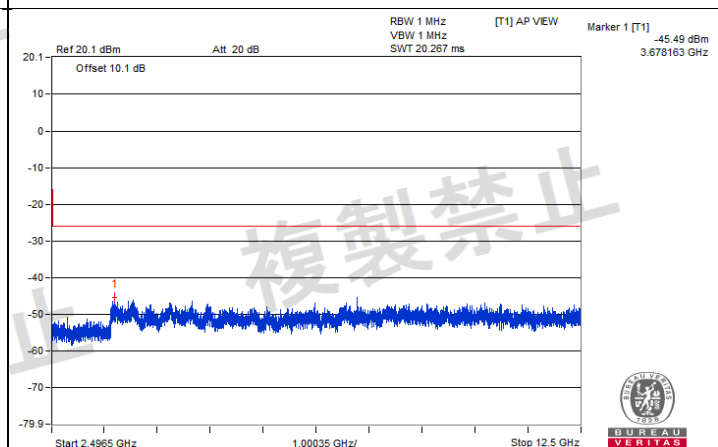
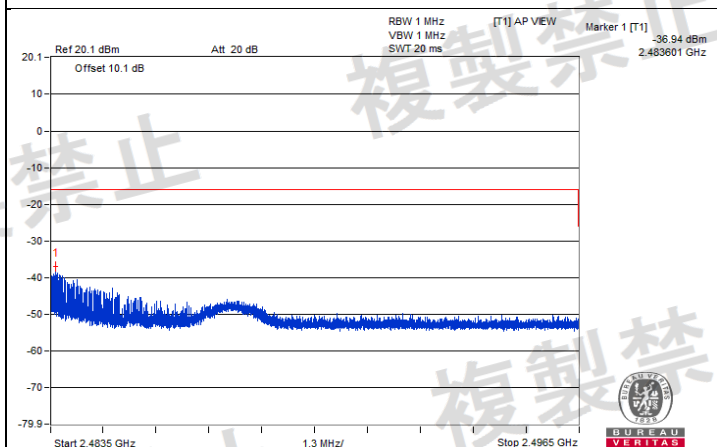
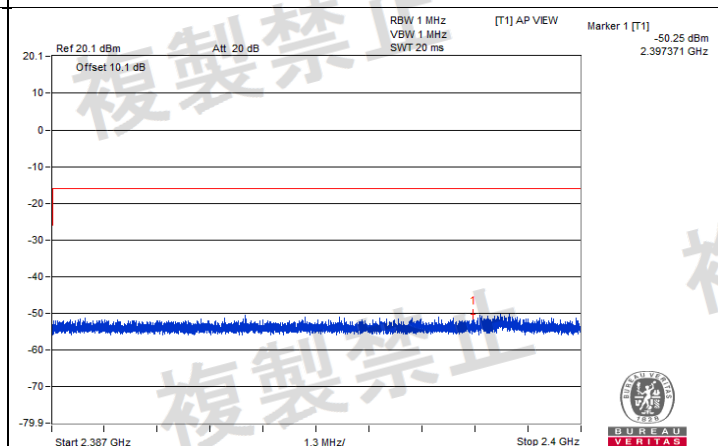
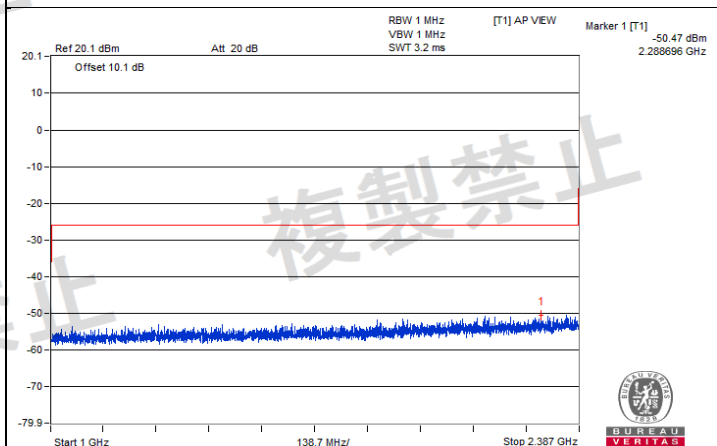
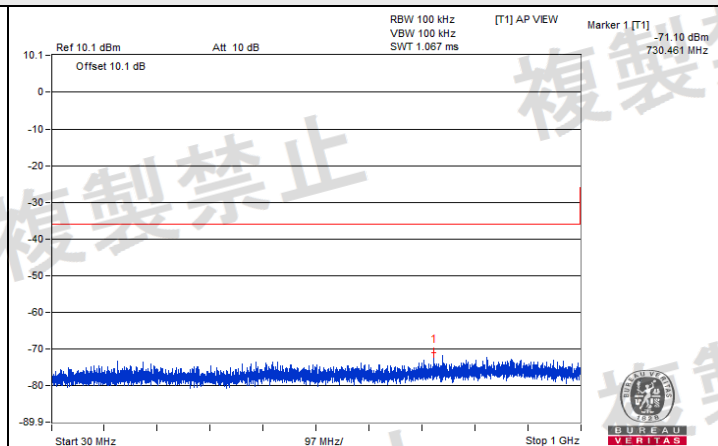
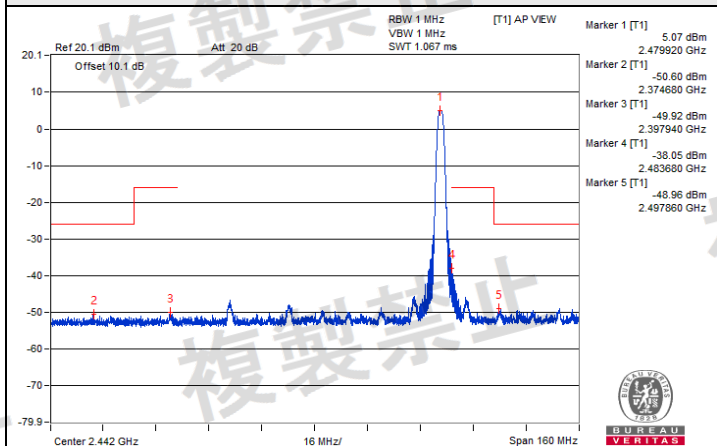
CH 19 (2440 MHz)

V_{min}.



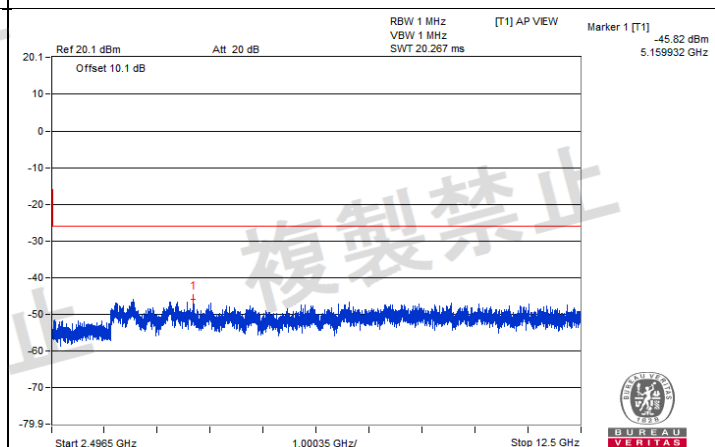
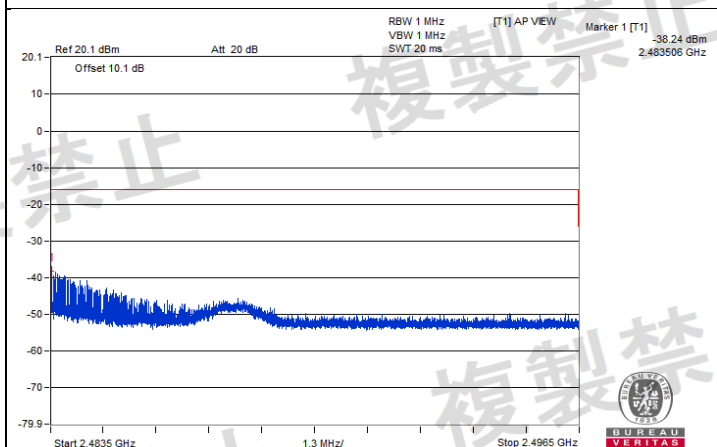
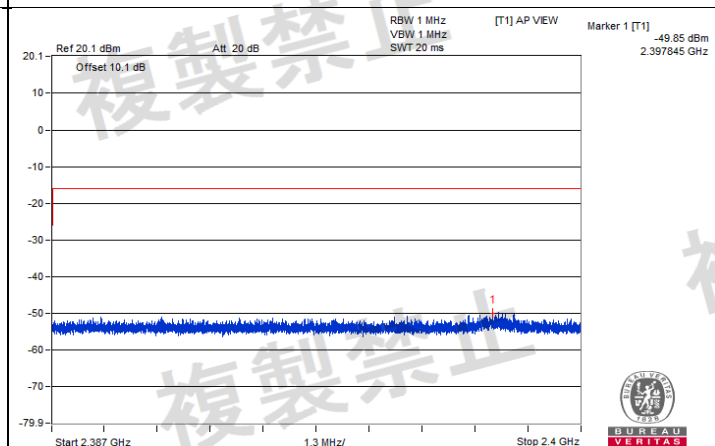
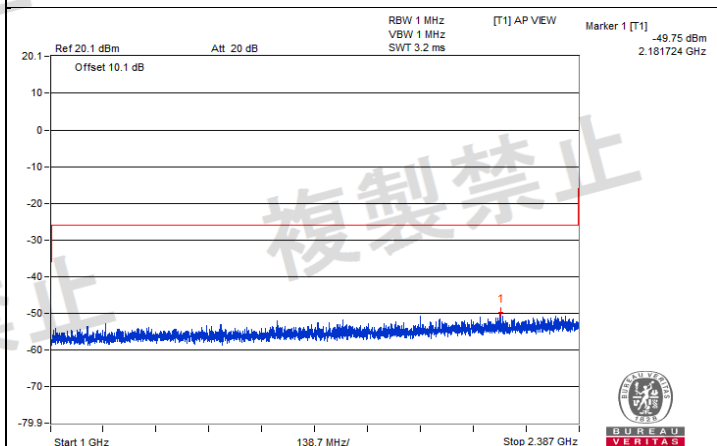
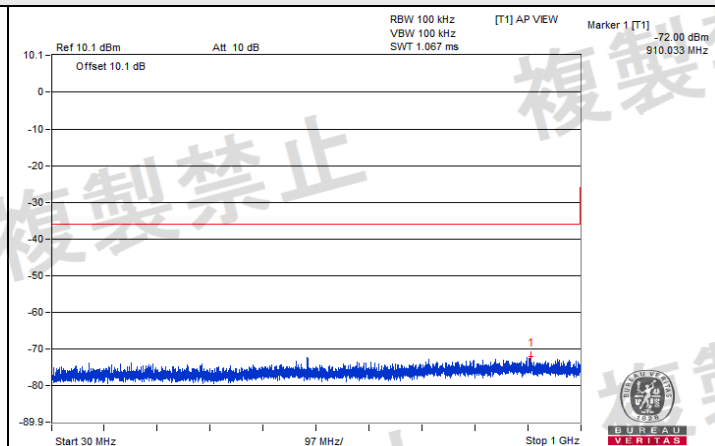
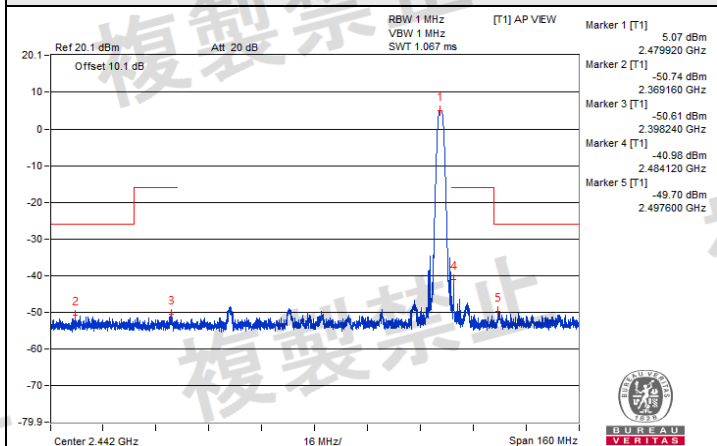
CH 19 (2440 MHz)

Vnormal

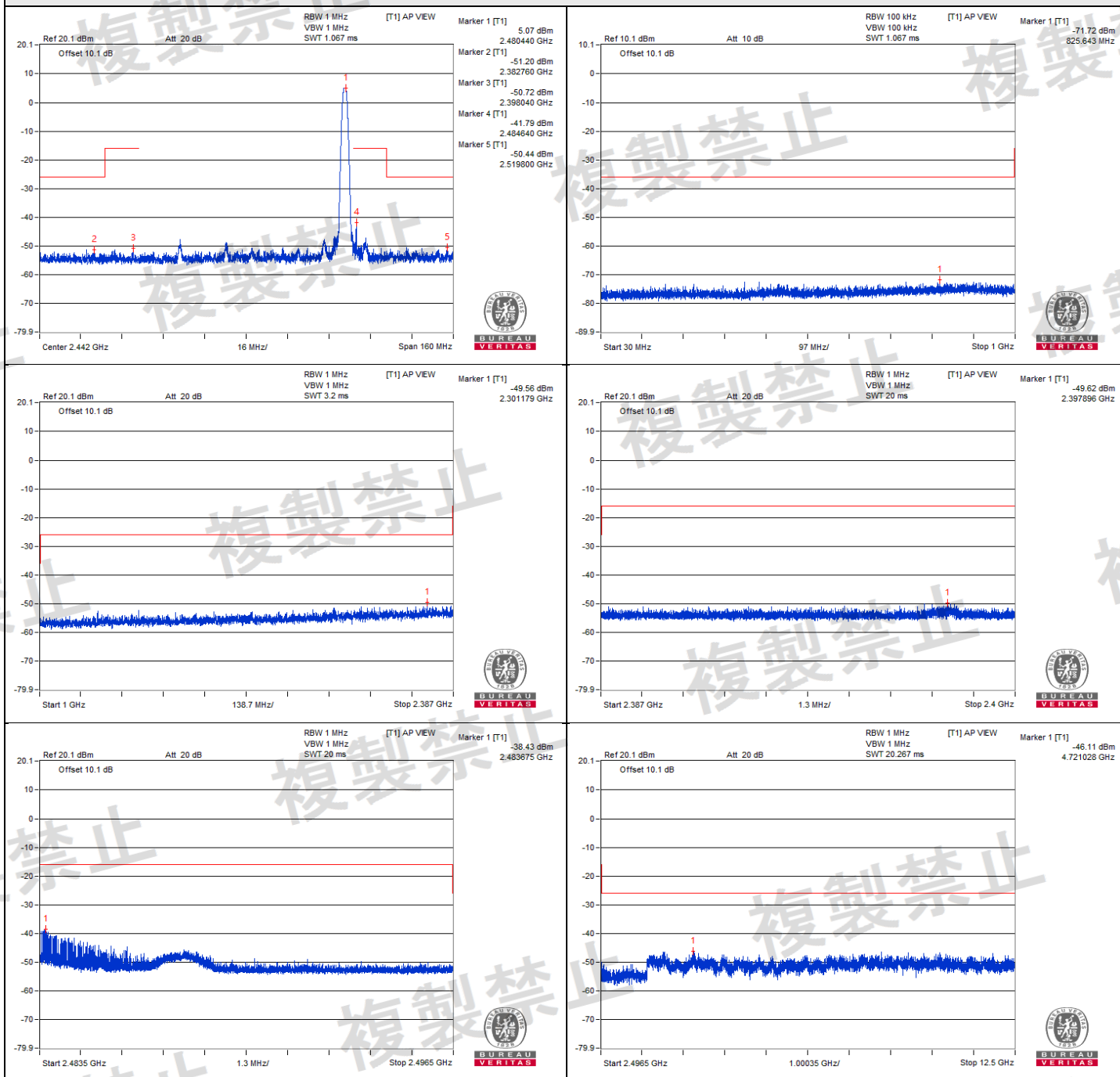


CH 39 (2480 MHz)

V max.



CH 39 (2480 MHz)

V_{min}.

CH 39 (2480 MHz)

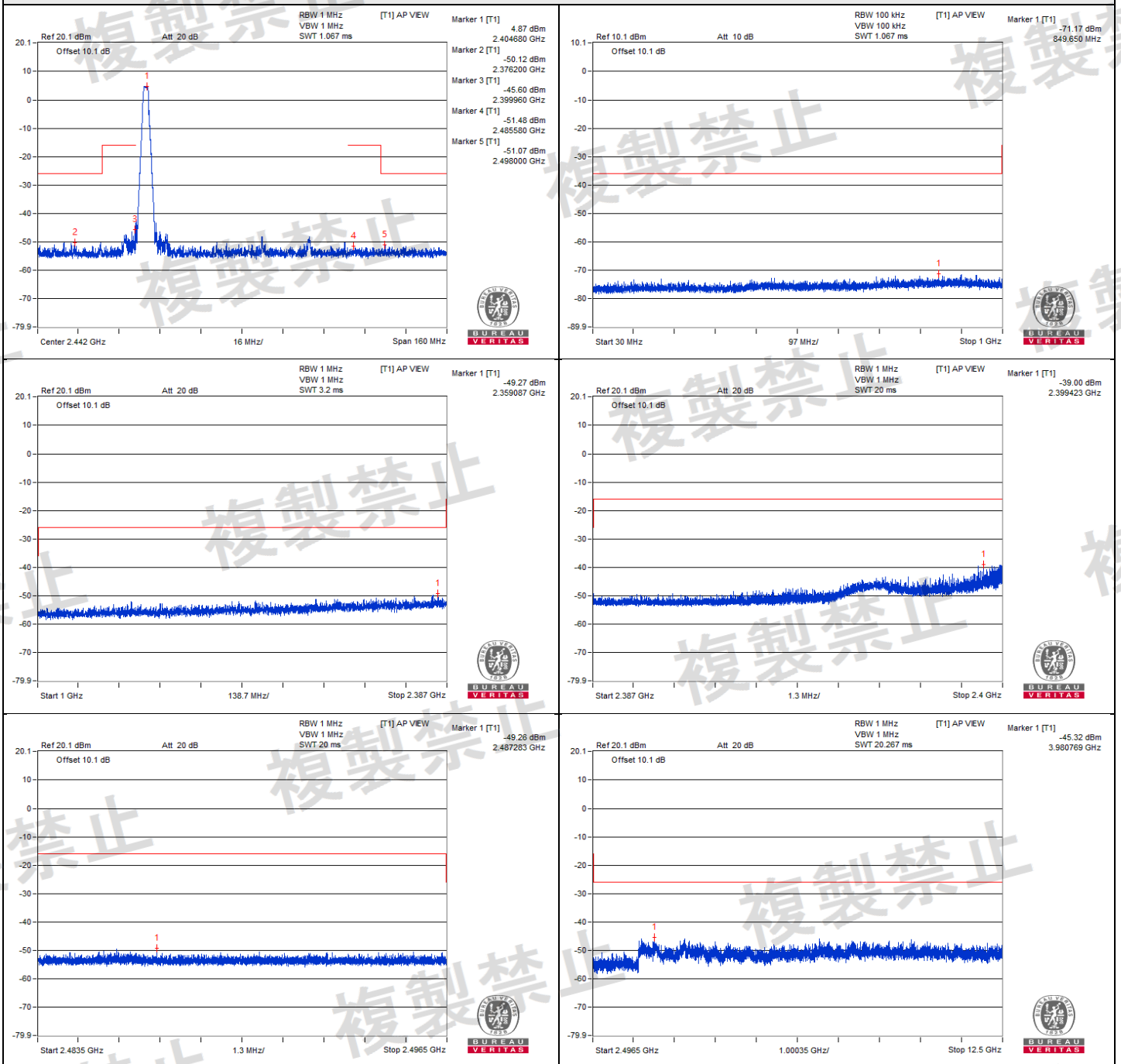
BT-LE 2M

TEST CHANNEL		CH 1 (2404 MHz)			
TEST CONDITION	FREQUENCY RANGE(MHz)	FREQUENCY (MHz)	MEASUREMENT VALUE	LIMIT	RESULT
V_{normal}	30.0 to 1000.0	849.650	0.000076 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2359.087	0.01183 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2399.423	0.125893 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2487.283	0.011858 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	3980.769	0.029376 uW/MHz	2.5 uW/MHz	PASS
V_{max.}	30.0 to 1000.0	785.872	0.000071 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2359.433	0.01183 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2399.641	0.169044 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2486.131	0.014825 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	10616.841	0.026915 uW/MHz	2.5 uW/MHz	PASS
V_{min.}	30.0 to 1000.0	746.951	0.000085 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2341.749	0.012503 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2399.959	0.165959 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2485.783	0.013459 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	4008.279	0.030269 uW/MHz	2.5 uW/MHz	PASS
TEST CHANNEL		CH 19 (2440 MHz)			
V_{normal}	30.0 to 1000.0	765.987	0.000068 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2360.647	0.010544 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2394.116	0.015959 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2486.030	0.014488 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	8000.926	0.028774 uW/MHz	2.5 uW/MHz	PASS
V_{max.}	30.0 to 1000.0	721.852	0.000069 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2358.046	0.010399 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2394.467	0.015996 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2485.572	0.016672 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	4742.286	0.030832 uW/MHz	2.5 uW/MHz	PASS
V_{min.}	30.0 to 1000.0	879.356	0.000066 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2313.142	0.013804 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2394.017	0.015922 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2485.957	0.016106 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	4723.529	0.028774 uW/MHz	2.5 uW/MHz	PASS

TEST CHANNEL		CH 38 (2478 MHz)			
TEST CONDITION	FREQUENCY RANGE(MHz)	FREQUENCY (MHz)	MEASUREMENT VALUE	LIMIT	RESULT
V_{normal}	30.0 to 1000.0	837.161	0.000061 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2258.702	0.009795 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2396.085	0.009772 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2483.568	0.048529 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	4721.028	0.031477 uW/MHz	2.5 uW/MHz	PASS
V_{max.}	30.0 to 1000.0	929.554	0.000059 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2351.458	0.011376 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2396.256	0.009931 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2483.900	0.080724 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	4033.288	0.030974 uW/MHz	2.5 uW/MHz	PASS
V_{min.}	30.0 to 1000.0	708.394	0.000093 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2384.399	0.00879 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2395.704	0.009863 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2483.768	0.064121 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	3992.023	0.035892 uW/MHz	2.5 uW/MHz	PASS

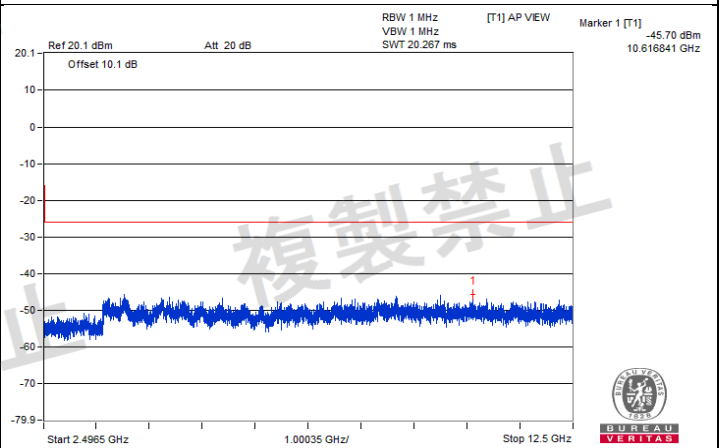
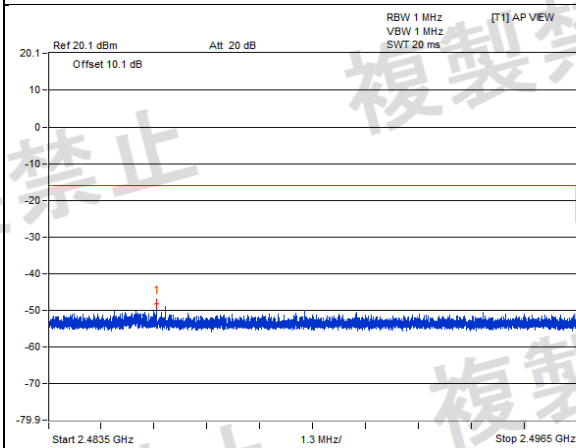
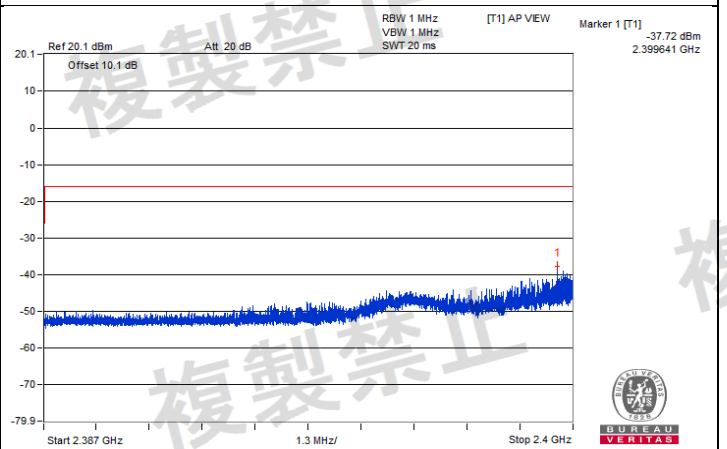
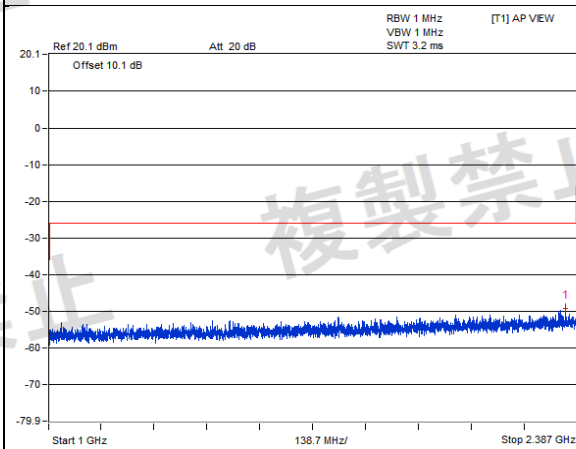
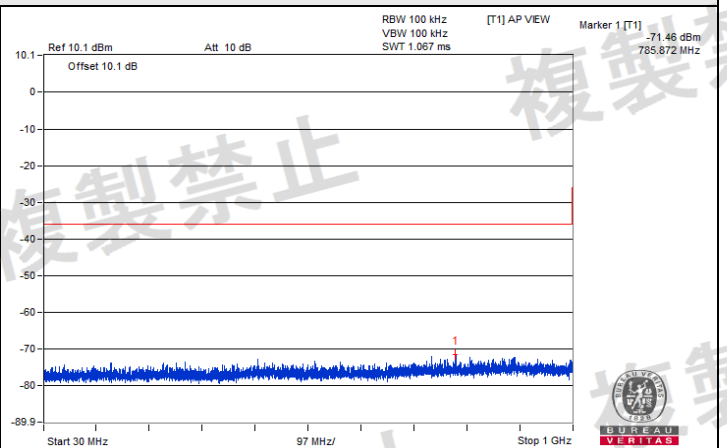
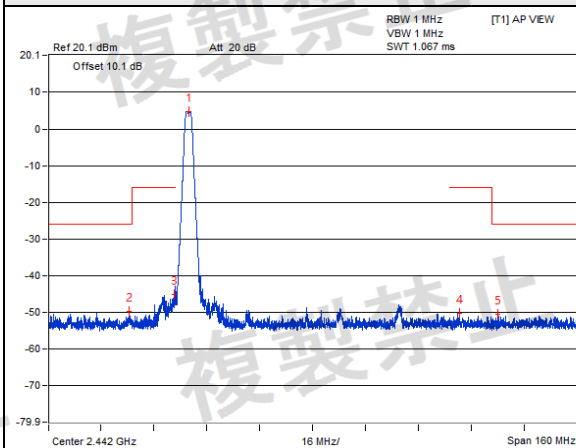
NOTE: 1. The spectrum plots are attached on the following pages.

Vnormal



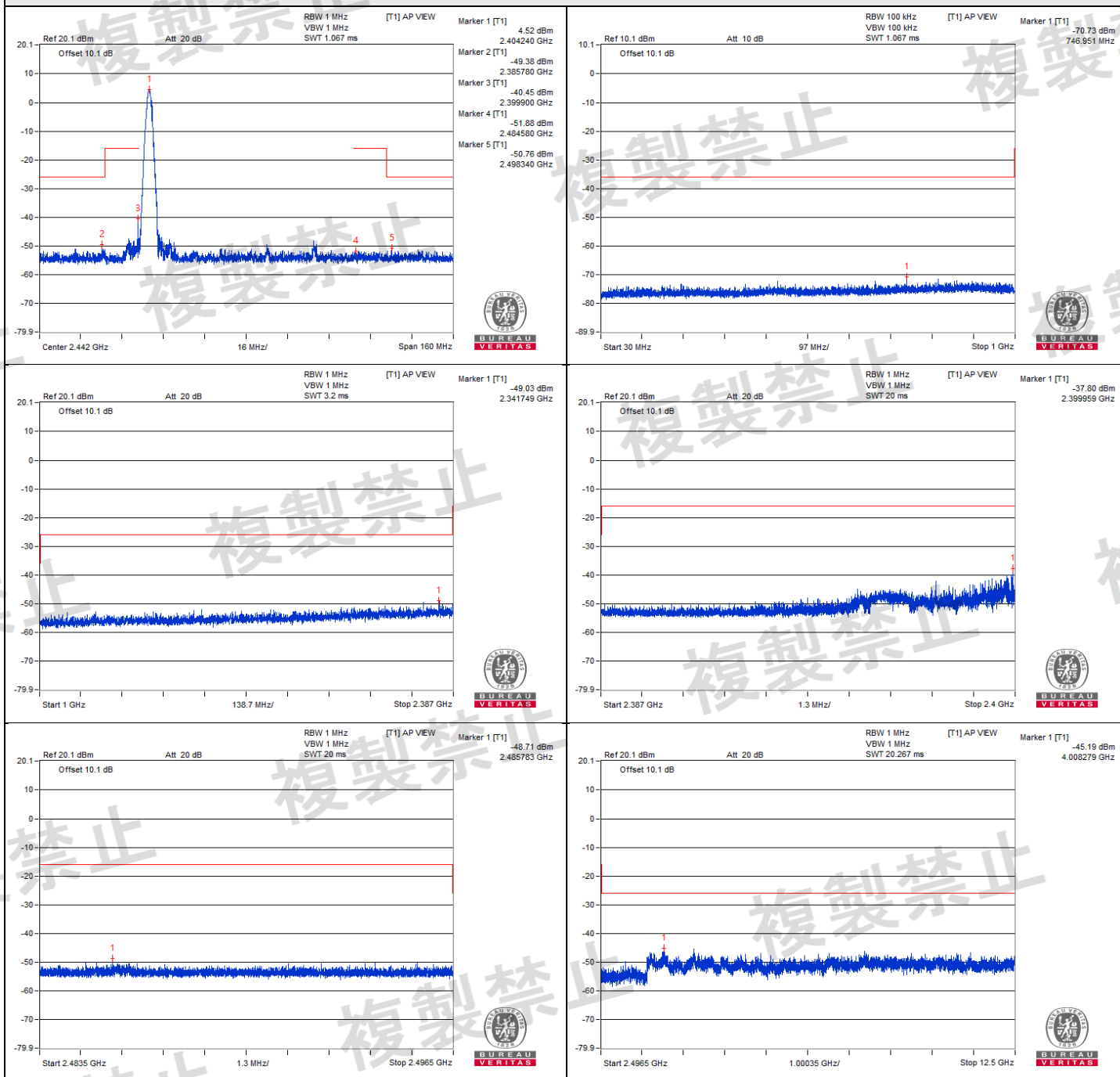
CH 1 (2404 MHz)

Vmax.



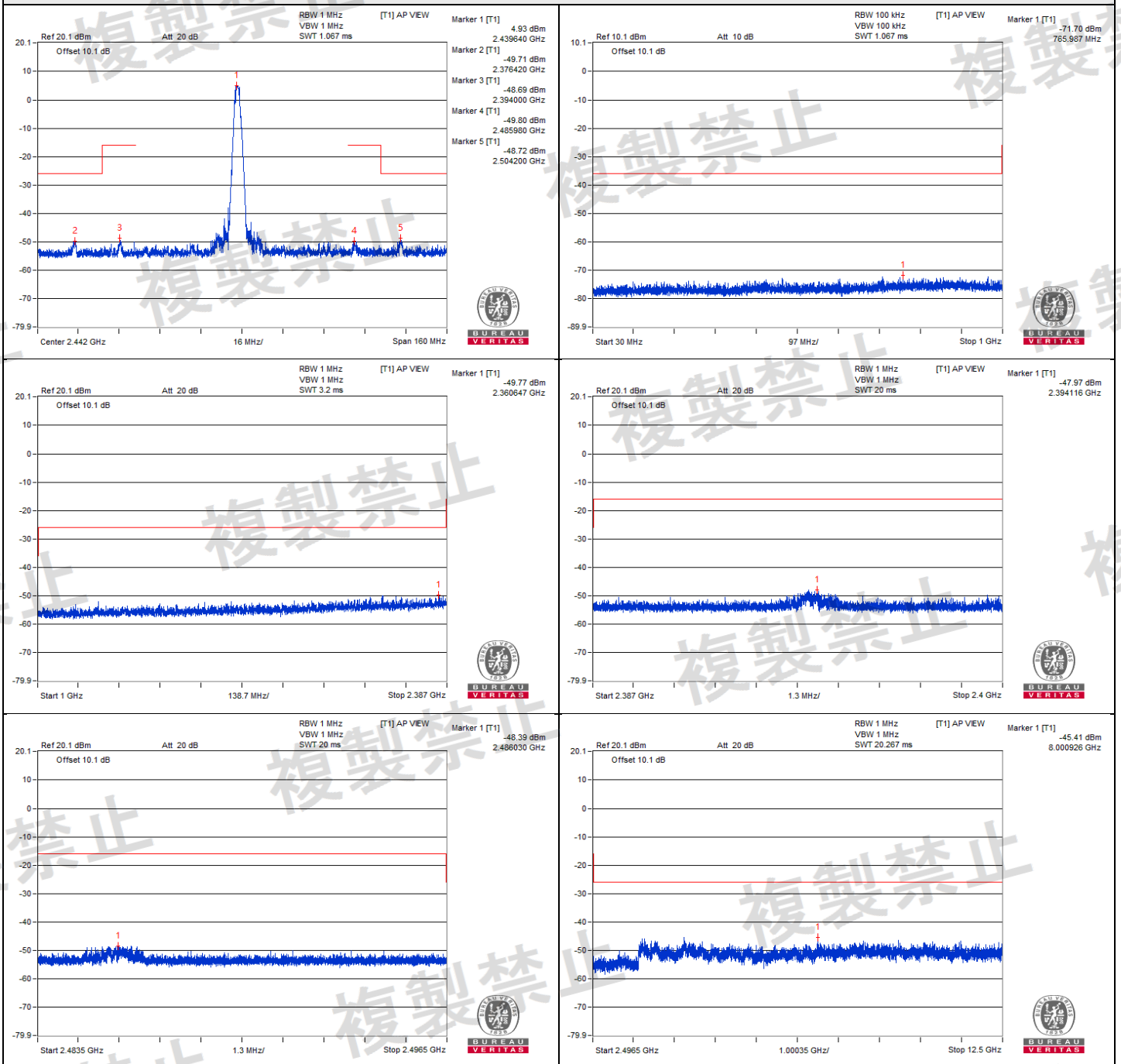
CH 1 (2404 MHz)

Vmin.



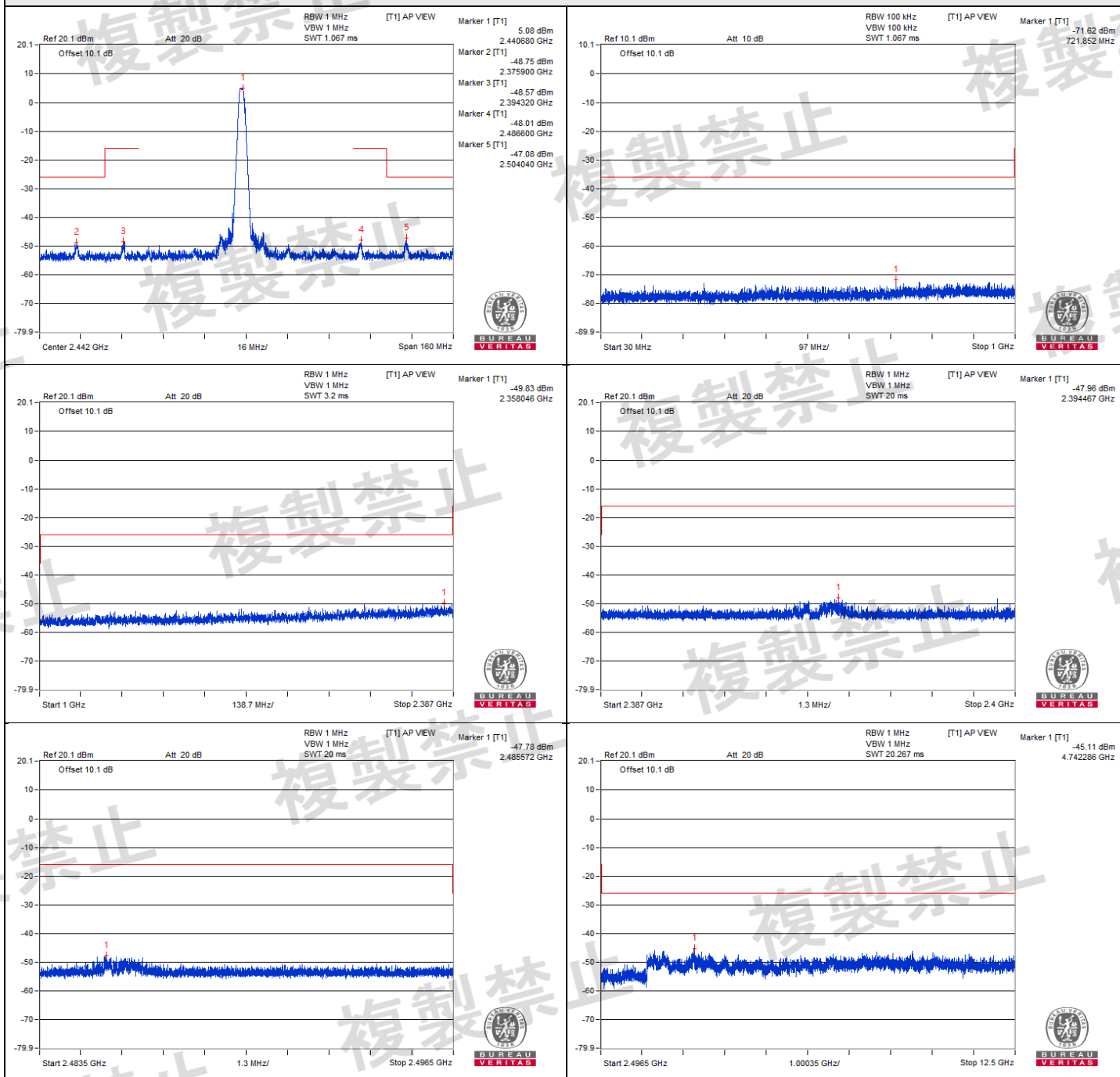
CH 1 (2404 MHz)

Vnormal



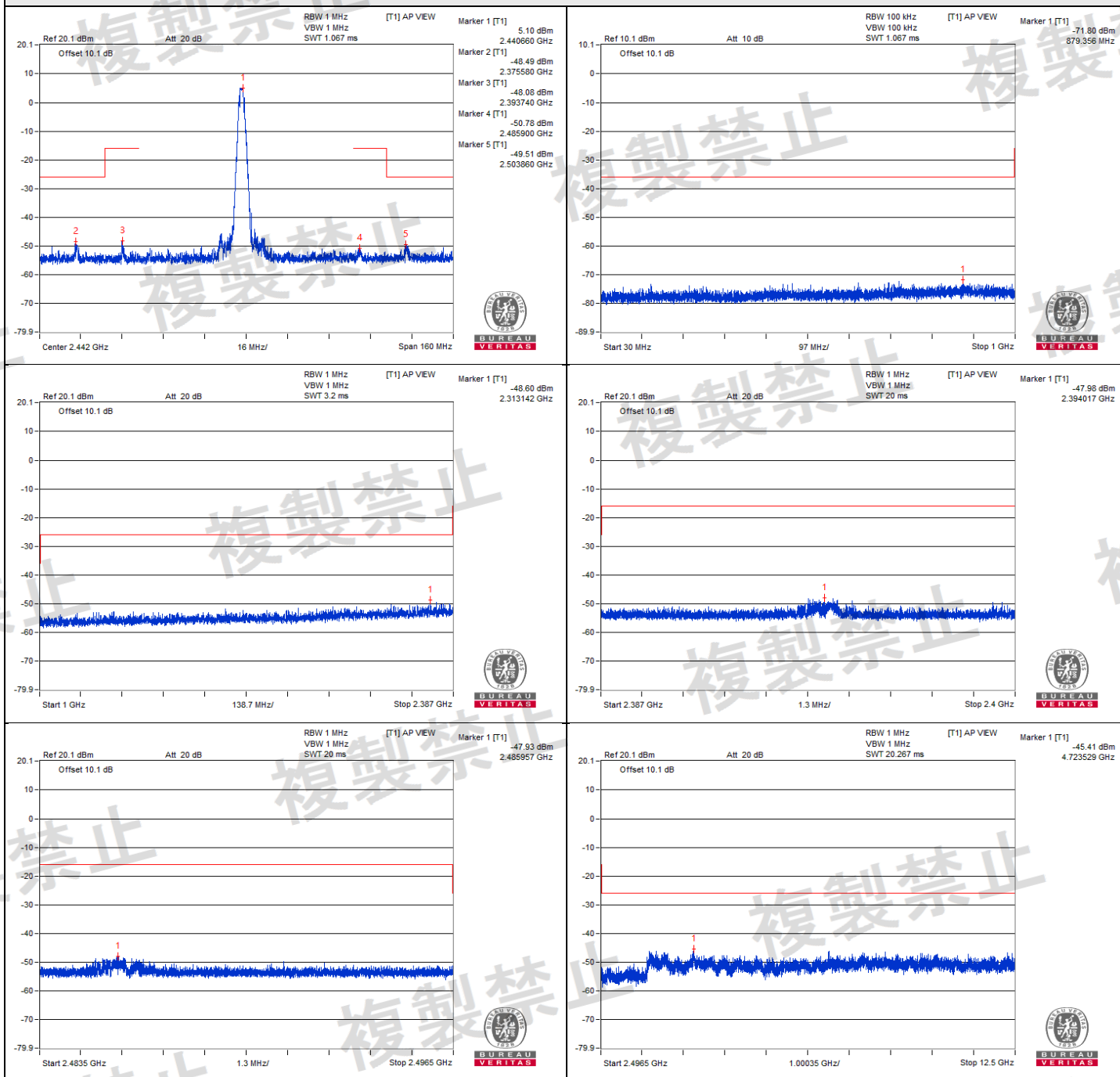
CH 19 (2440 MHz)

Vmax.



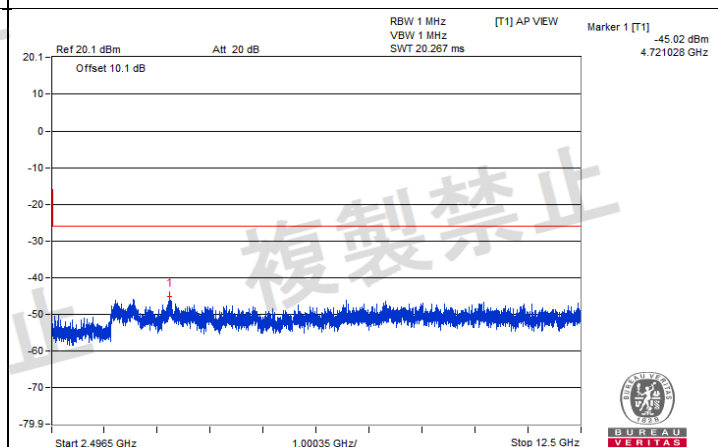
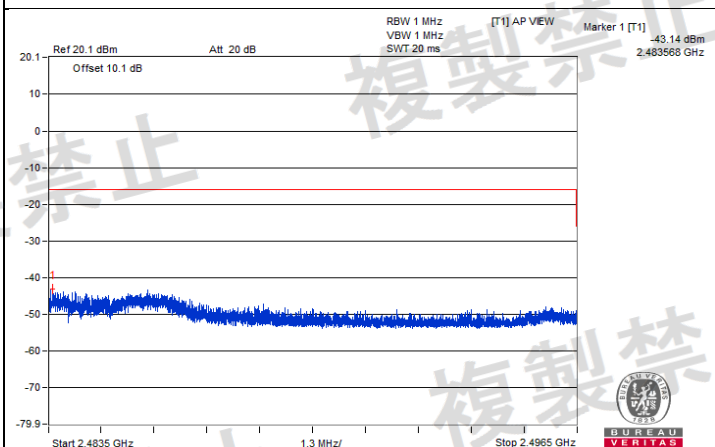
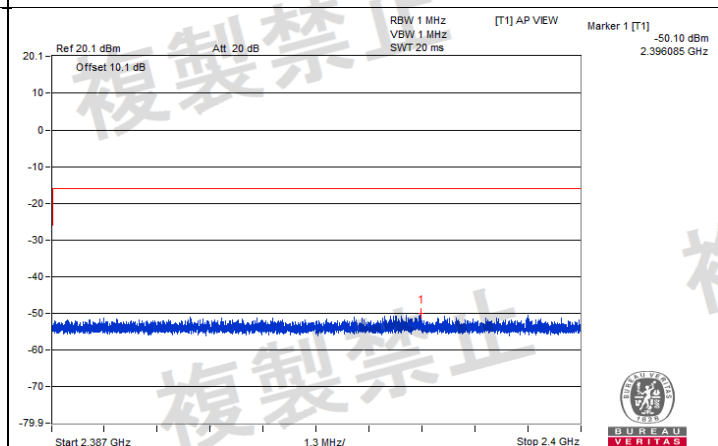
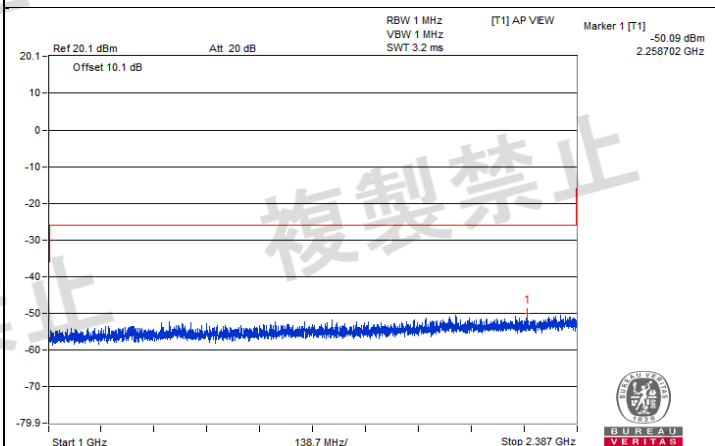
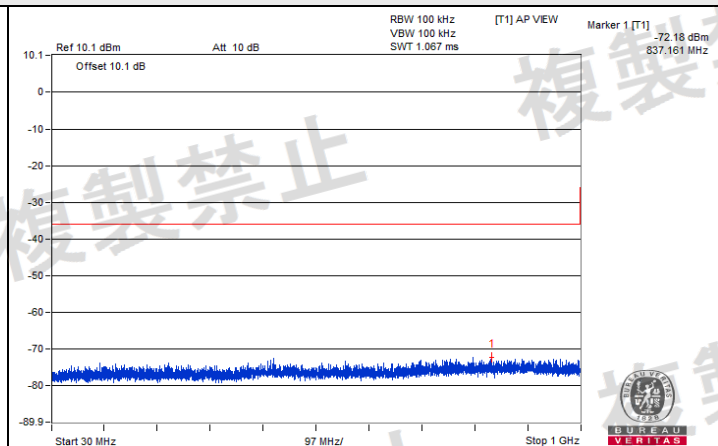
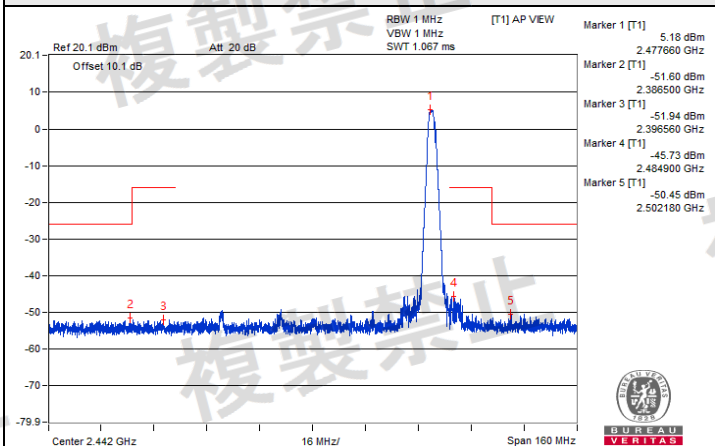
CH 19 (2440 MHz)

Vmin.



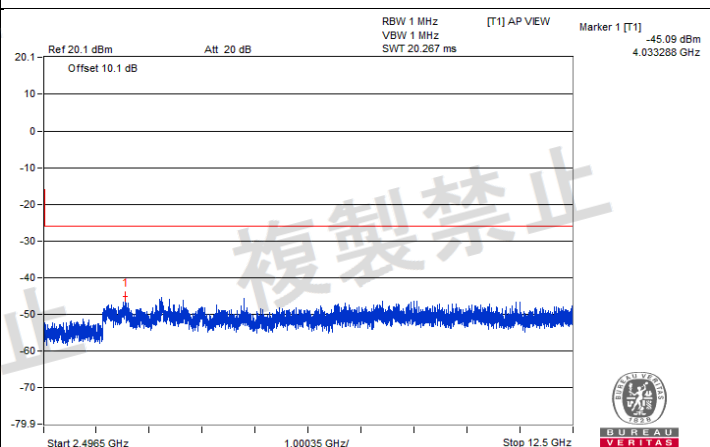
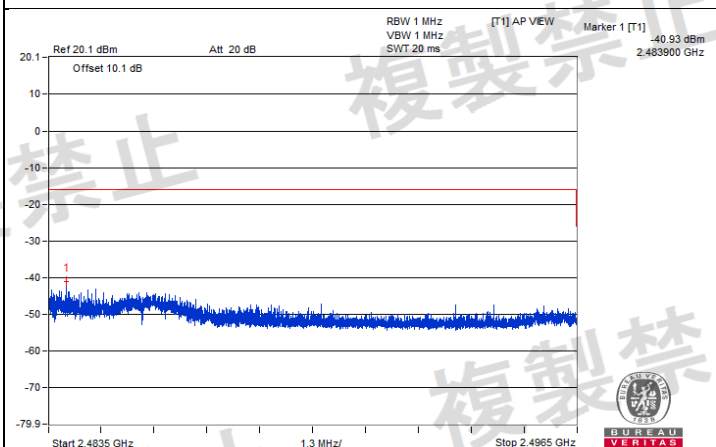
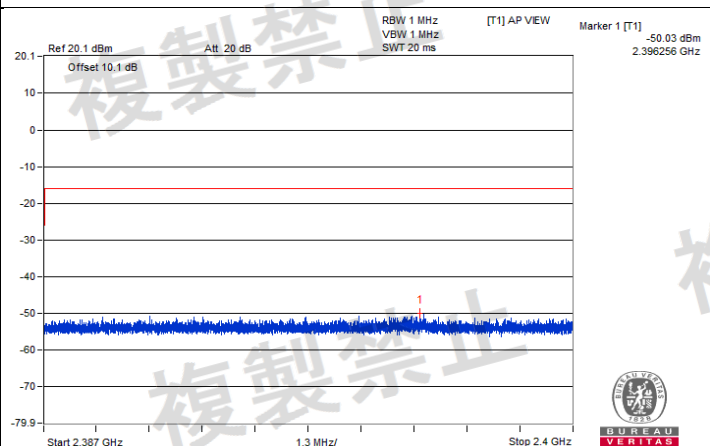
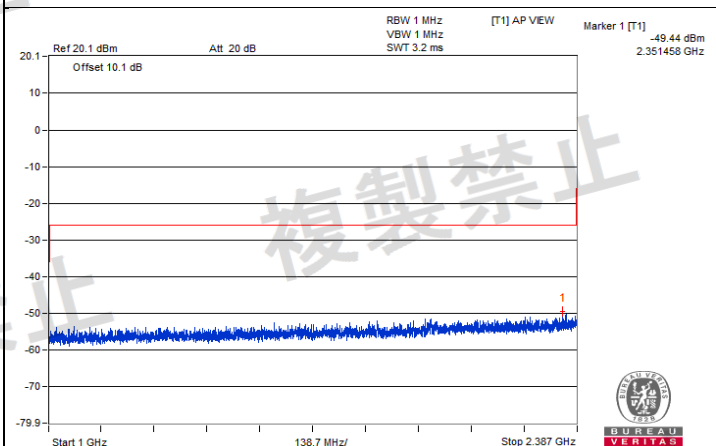
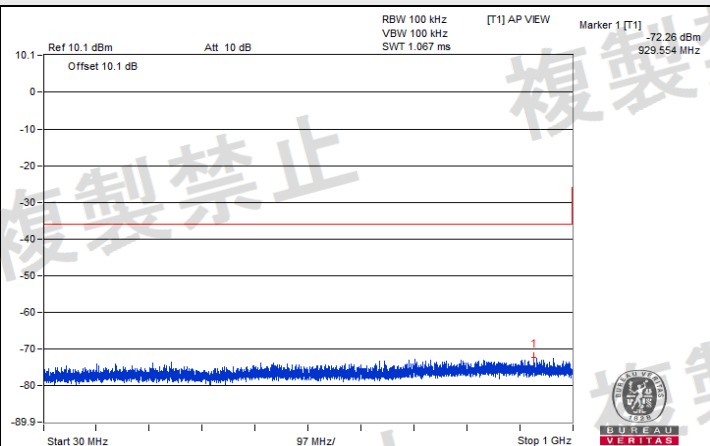
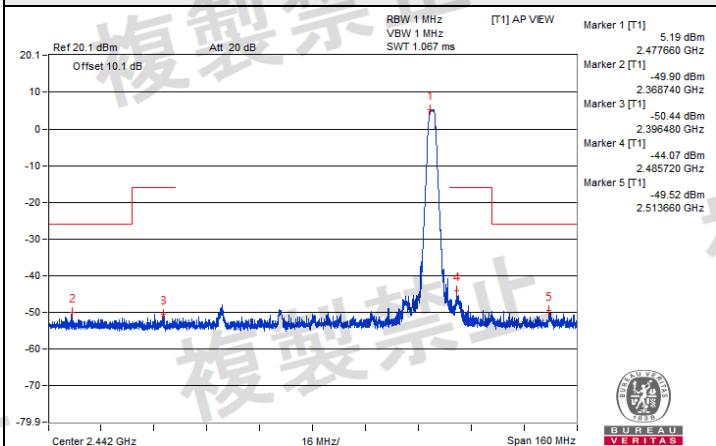
CH 19 (2440 MHz)

Vnormal



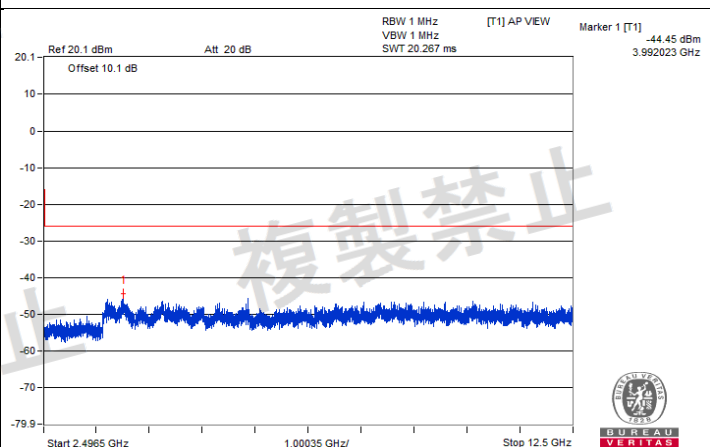
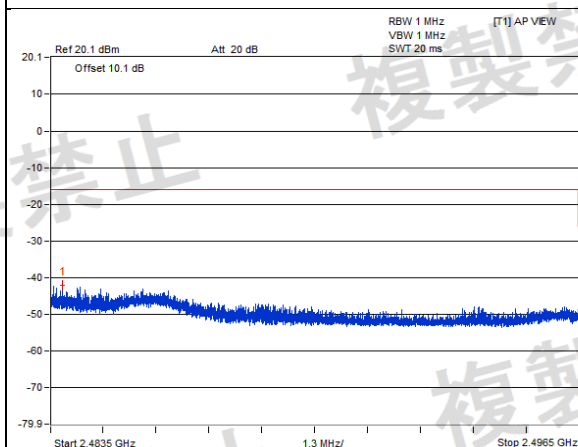
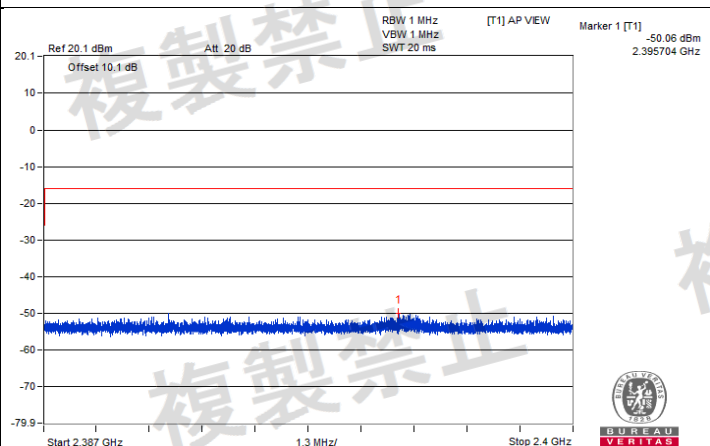
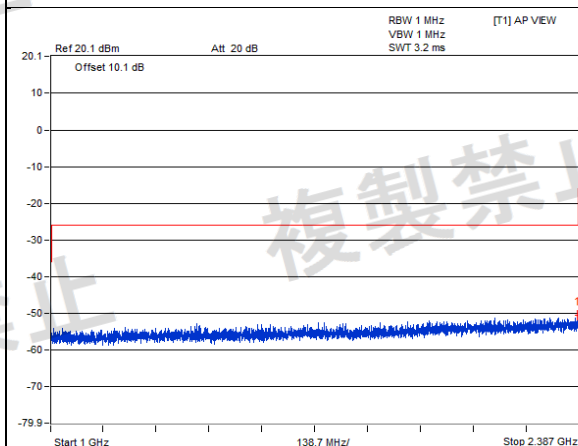
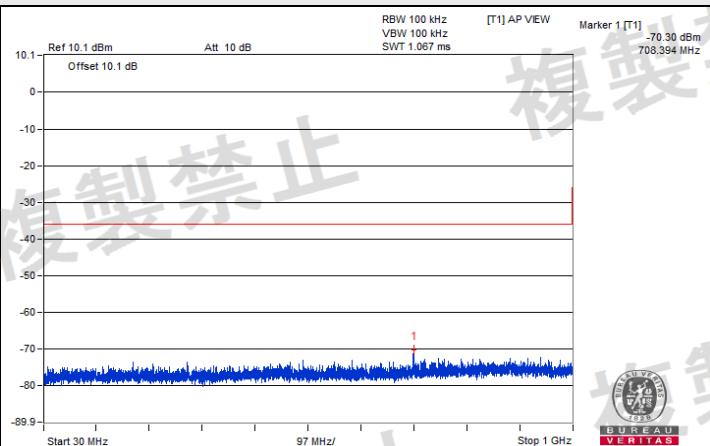
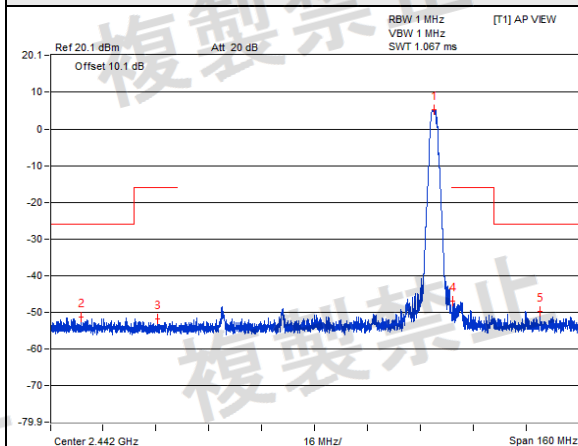
CH 38 (2478 MHz)

Vmax.



CH 38 (2478 MHz)

V_{min}.



CH 38 (2478 MHz)

7.4 Spurious Emissions of Receiver

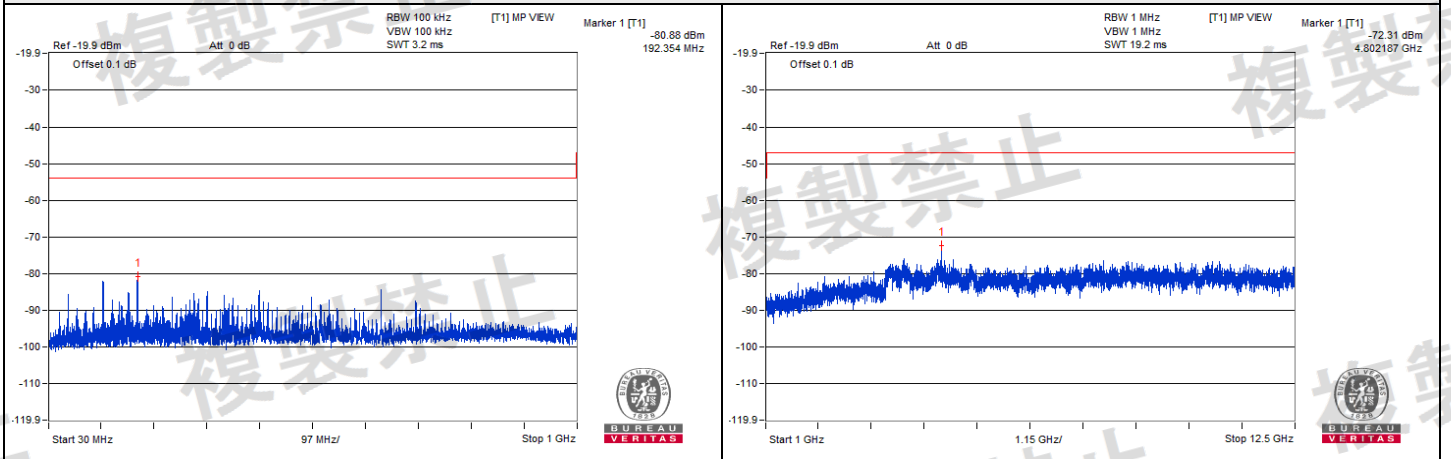
Environmental Conditions:	21°C, 68% RH	Tested By:	Kevin Ko
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BT-LE 1M

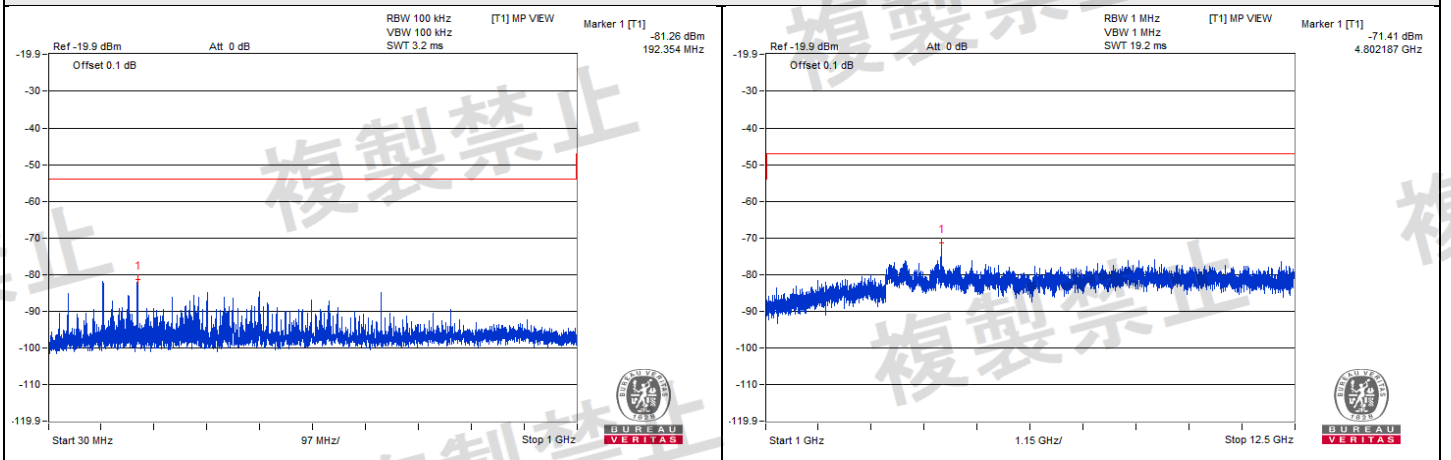
TEST CHANNEL		CH 0 (2402 MHz)			
TEST CONDITION	FREQUENCY RANGE(MHz)	FREQUENCY (MHz)	MEASUREMENT VALUE(nW)	LIMIT (nW)	RESULT
V_{normal}	30.0 to 1000.0	192.354	0.008166	4	PASS
	1000.0 to 12500.0	4802.187	0.058749	20	PASS
V_{max.}	30.0 to 1000.0	192.354	0.007482	4	PASS
	1000.0 to 12500.0	4802.187	0.072277	20	PASS
V_{min.}	30.0 to 1000.0	192.354	0.007499	4	PASS
	1000.0 to 12500.0	4802.187	0.066834	20	PASS
TEST CHANNEL		CH 19 (2440 MHz)			
V_{normal}	30.0 to 1000.0	192.354	0.007798	4	PASS
	1000.0 to 12500.0	4878.375	0.121899	20	PASS
V_{max.}	30.0 to 1000.0	192.354	0.008433	4	PASS
	1000.0 to 12500.0	4878.375	0.111429	20	PASS
V_{min.}	30.0 to 1000.0	192.354	0.00857	4	PASS
	1000.0 to 12500.0	4878.375	0.124165	20	PASS
TEST CHANNEL		CH 39 (2480 MHz)			
V_{normal}	30.0 to 1000.0	192.354	0.007816	4	PASS
	1000.0 to 12500.0	4958.875	0.119124	20	PASS
V_{max.}	30.0 to 1000.0	192.354	0.006982	4	PASS
	1000.0 to 12500.0	4958.875	0.086298	20	PASS
V_{min.}	30.0 to 1000.0	192.354	0.008072	4	PASS
	1000.0 to 12500.0	4958.875	0.108393	20	PASS

NOTE: 1. The spectrum plots are attached on the following pages.

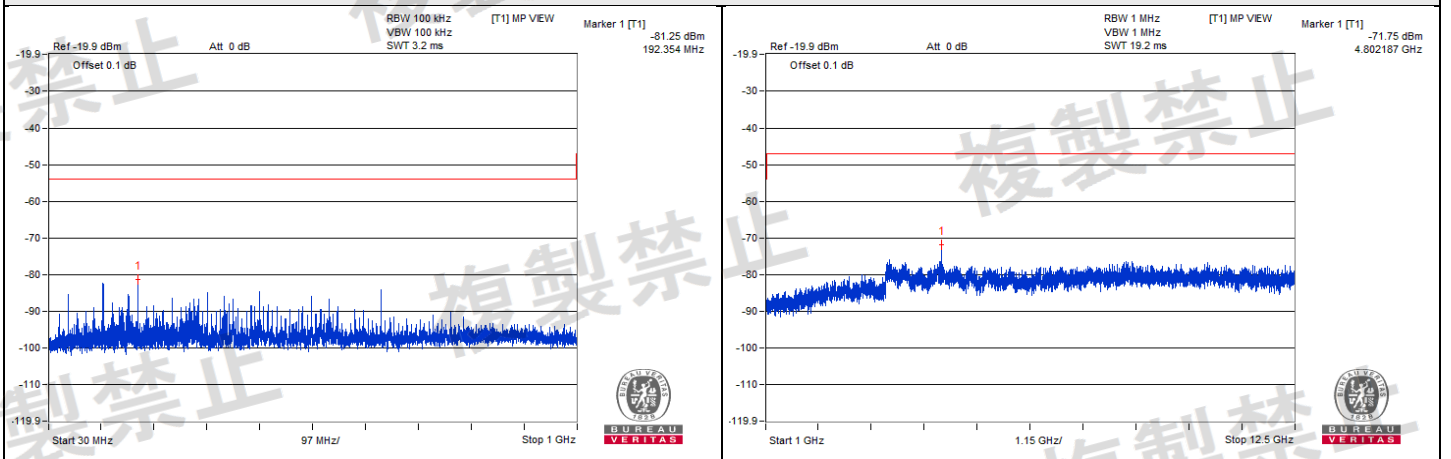
V_{normal}



V_{max}

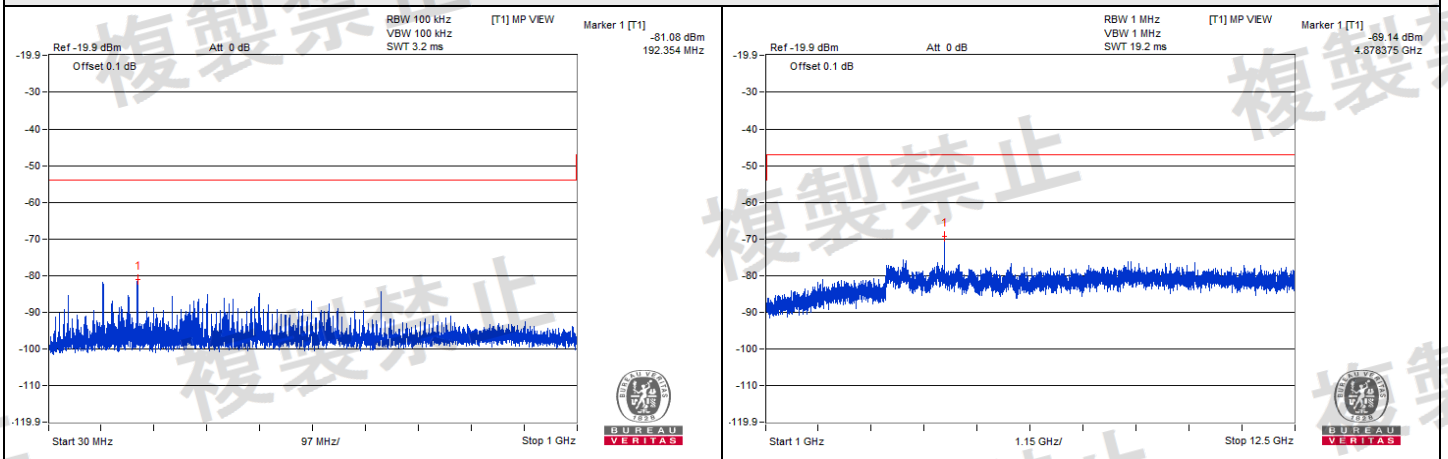


V_{min}

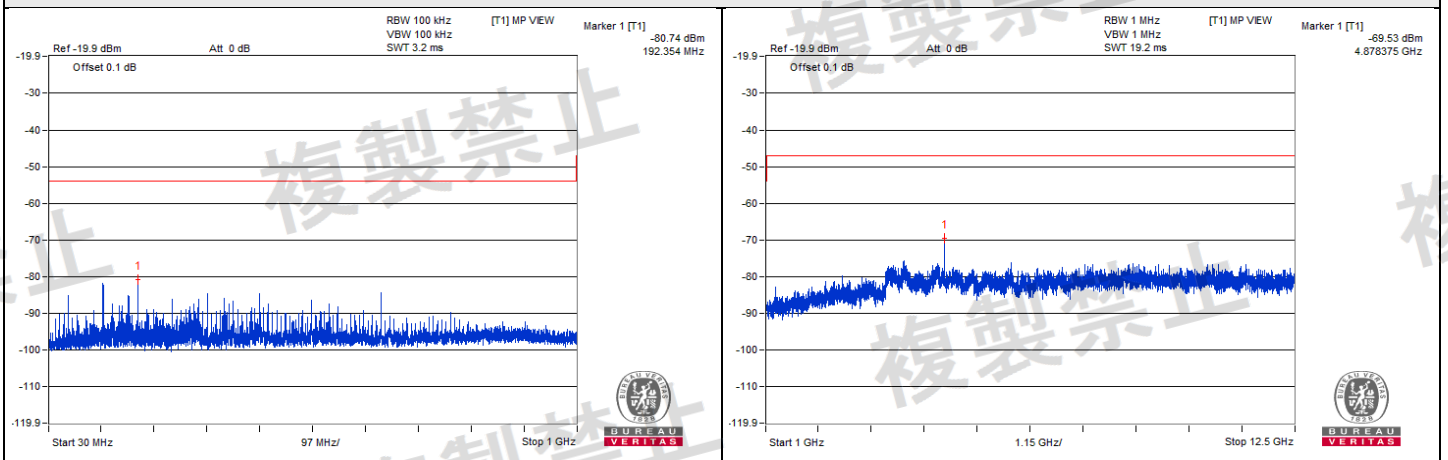


CH 0 (2402 MHz)

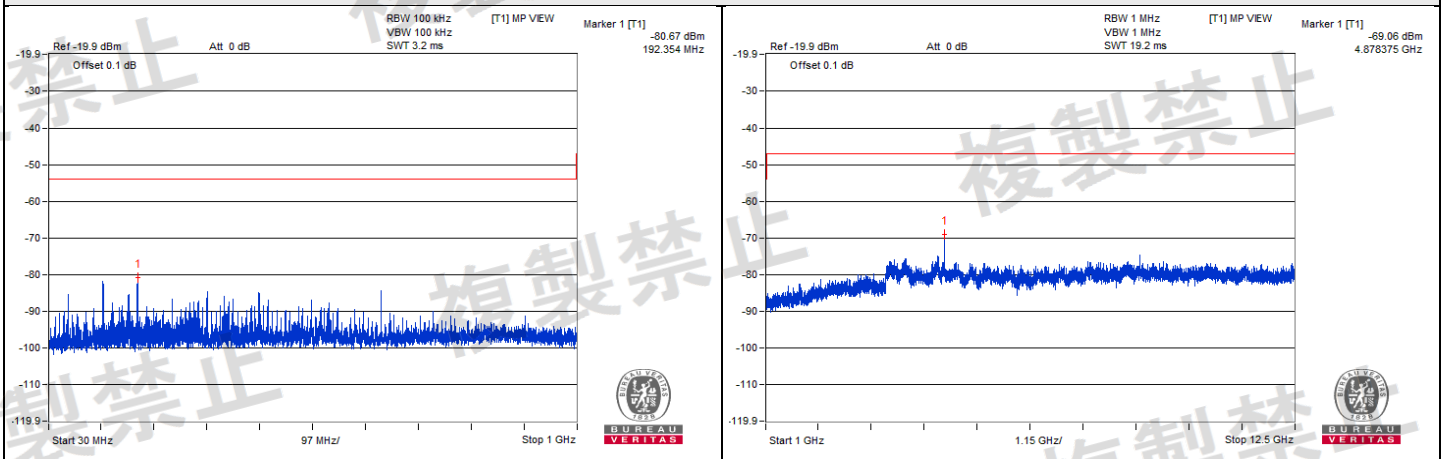
V_{normal}



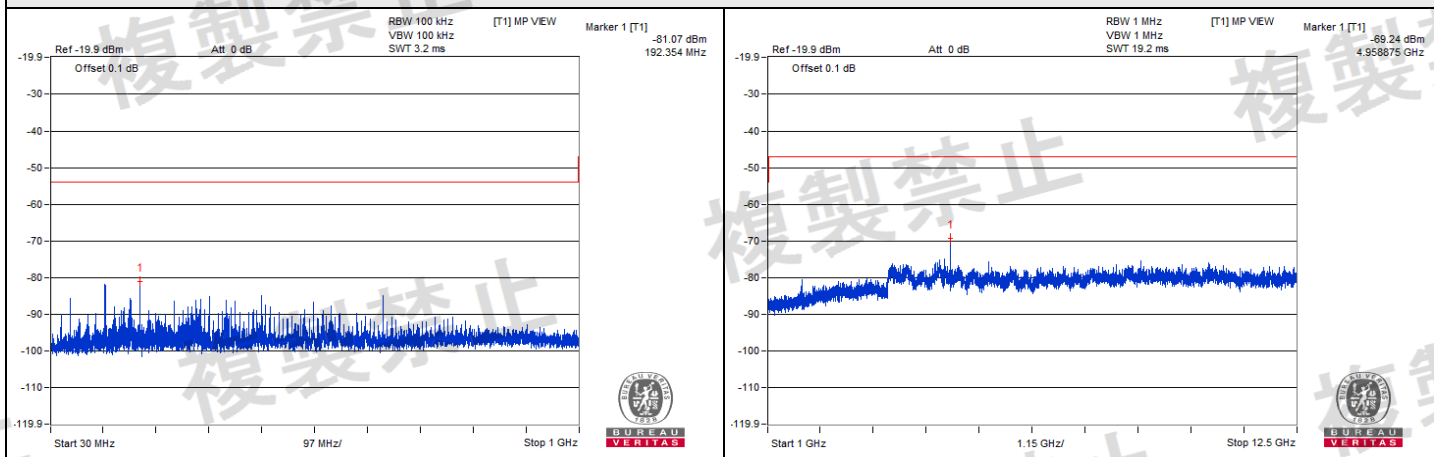
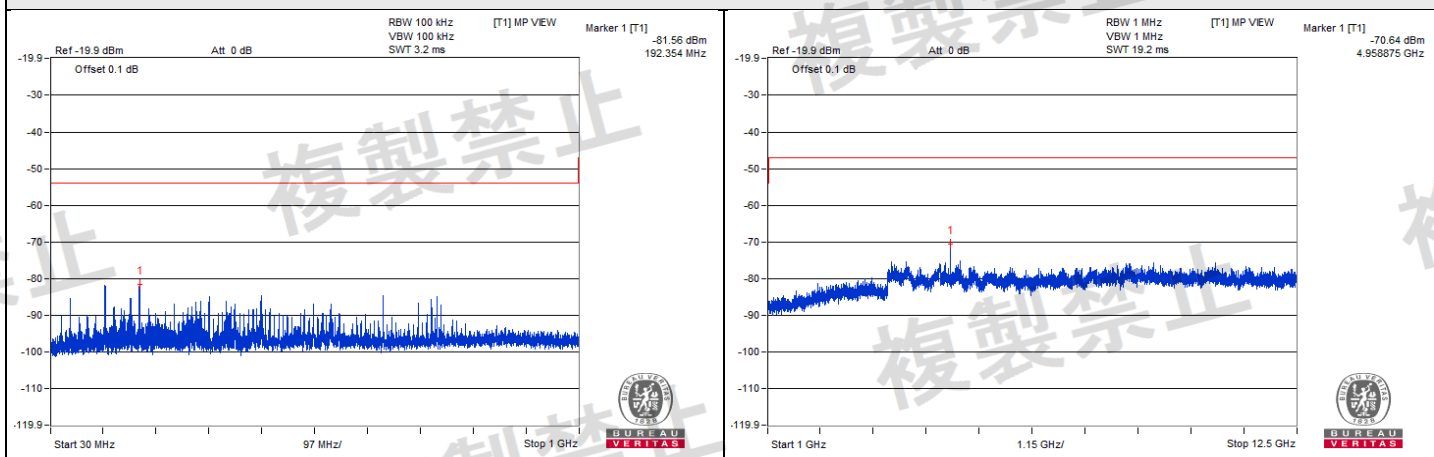
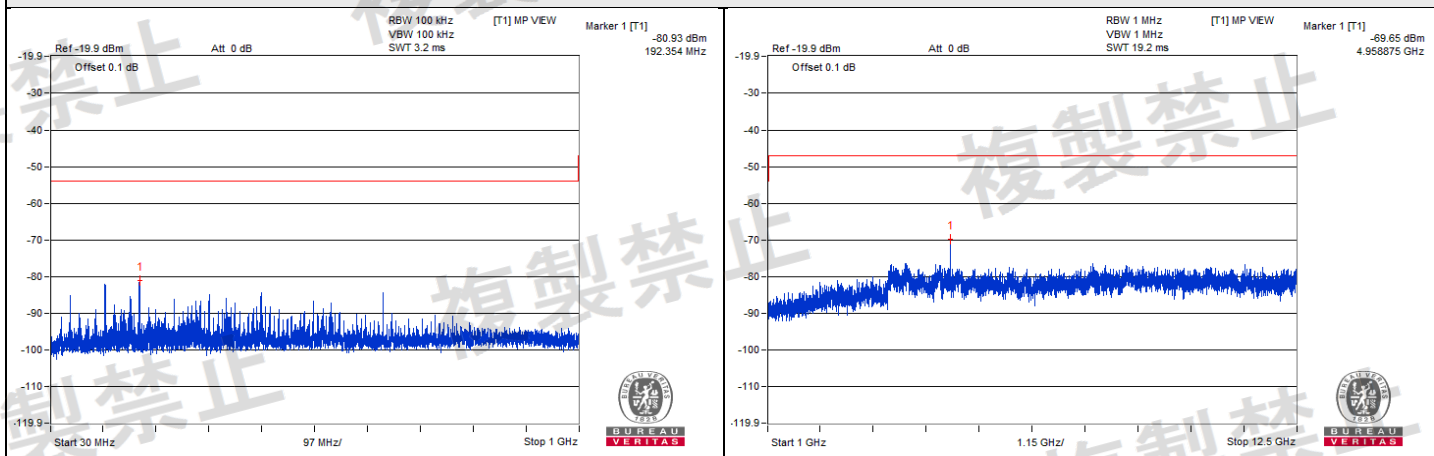
V_{max}



V_{min}



CH 19 (2440 MHz)

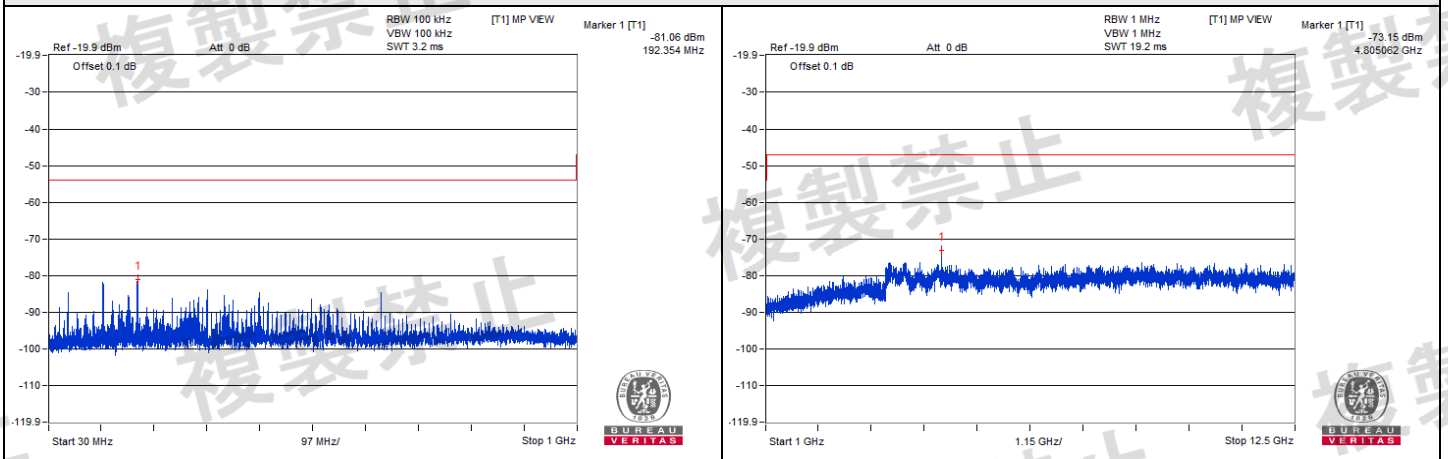
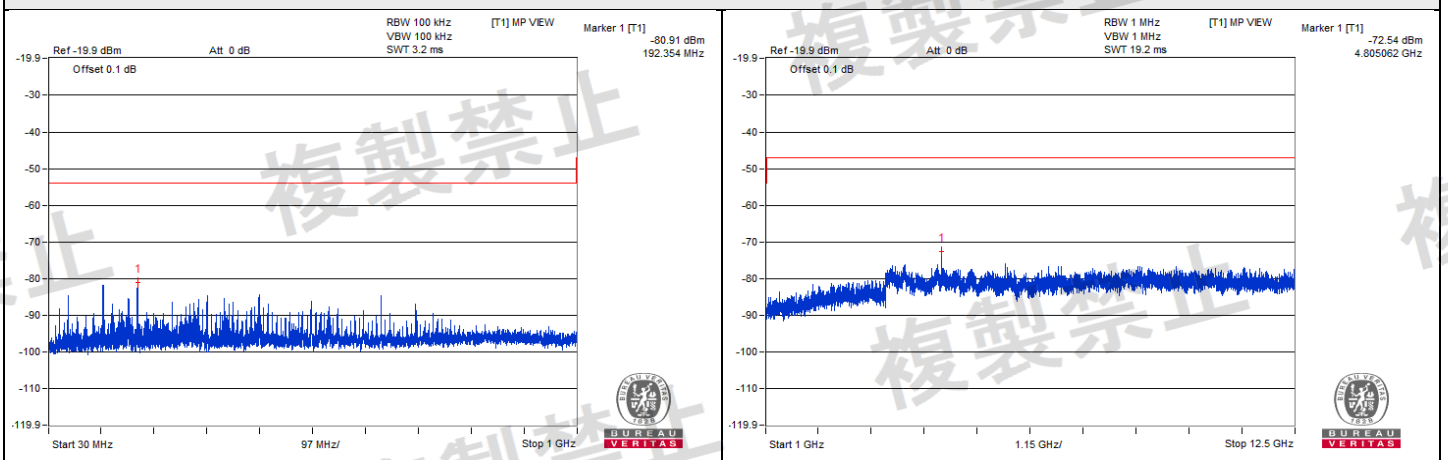
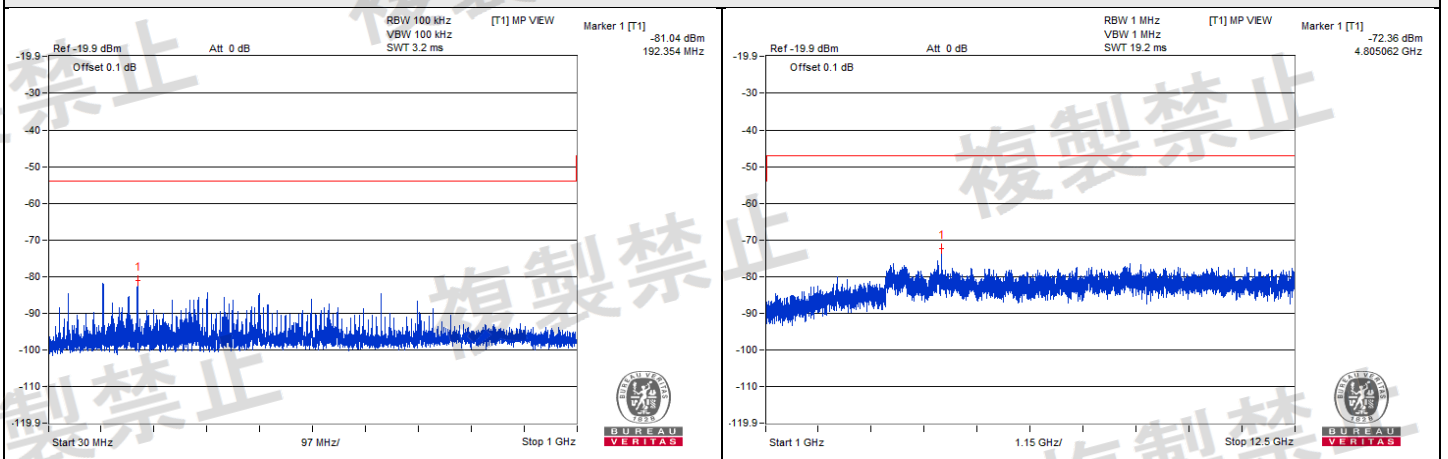
V_{normal}**V_{max}****V_{min}**

CH 39 (2480 MHz)

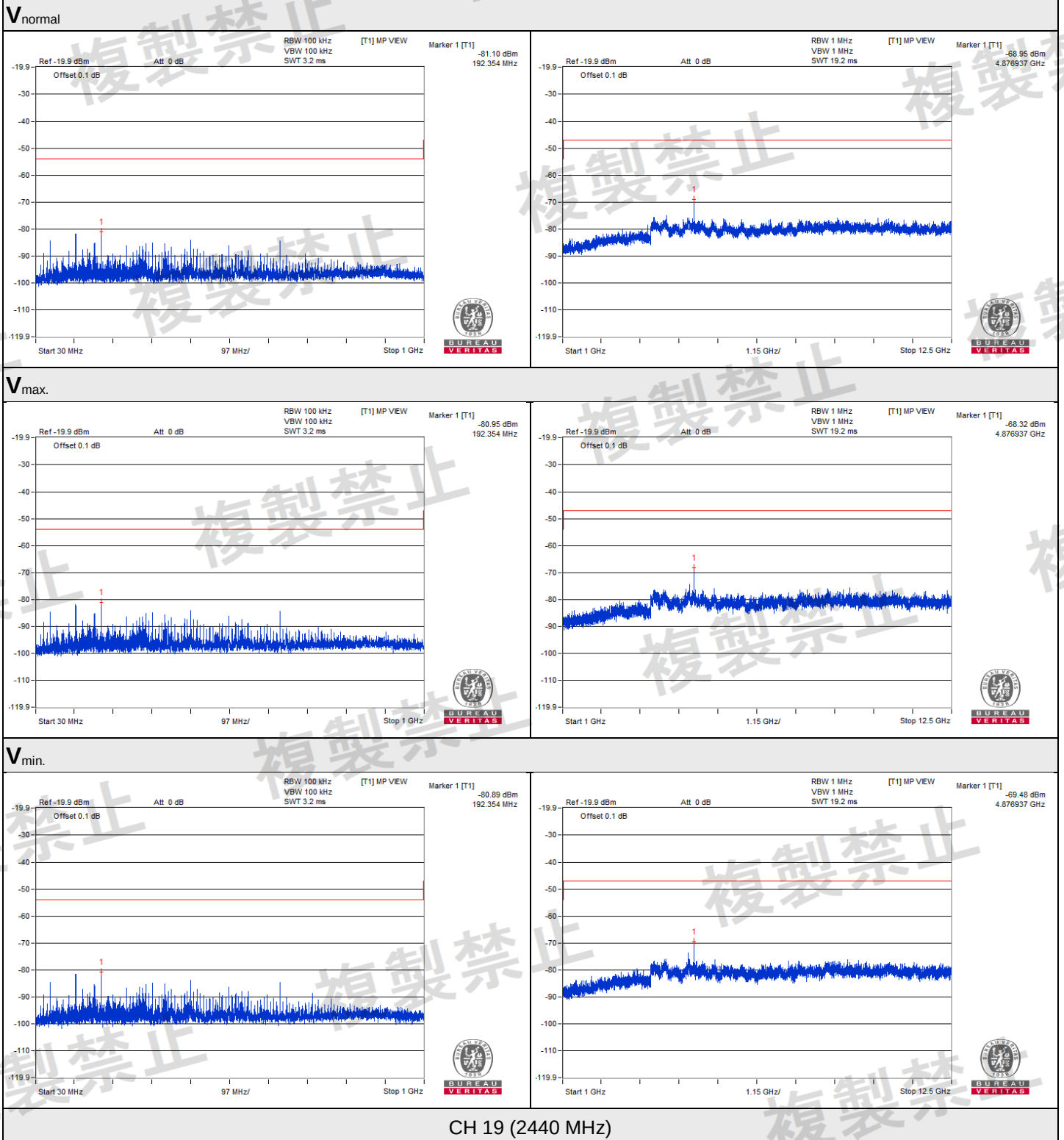
BT-LE 2M

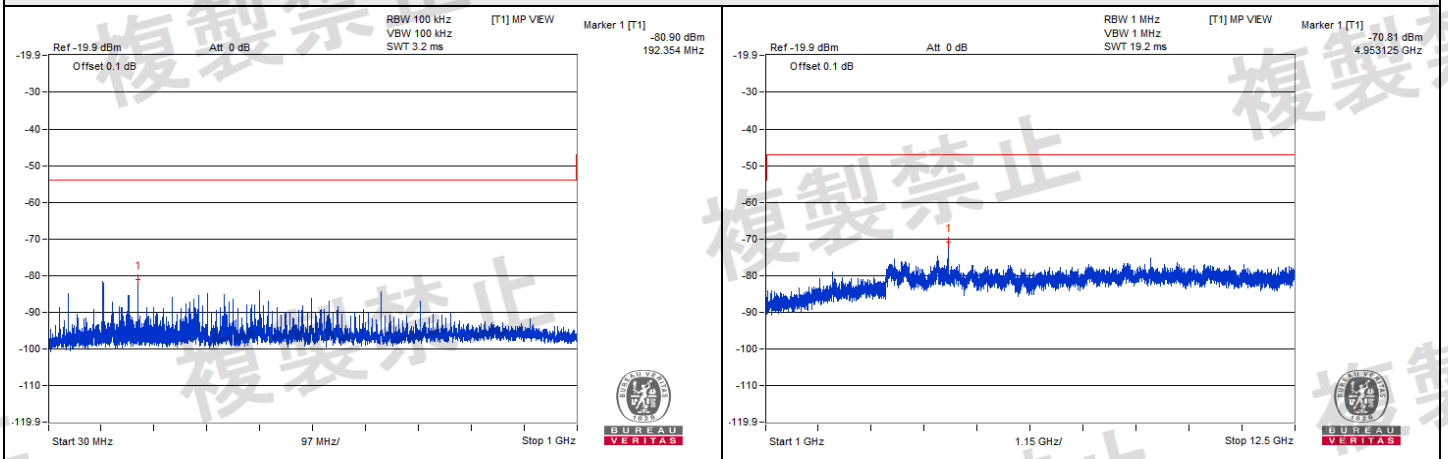
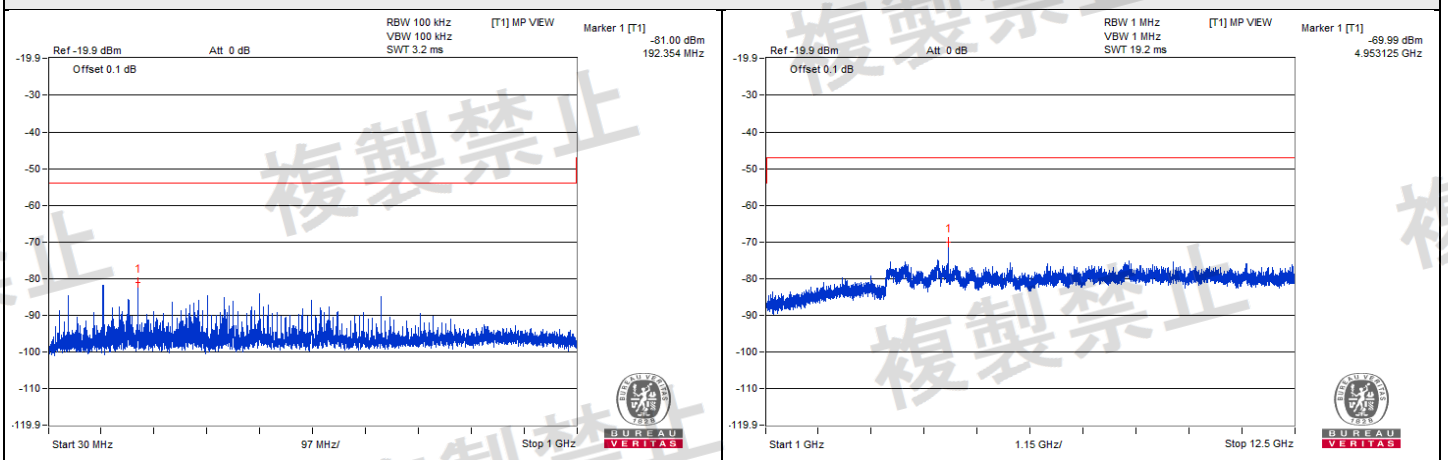
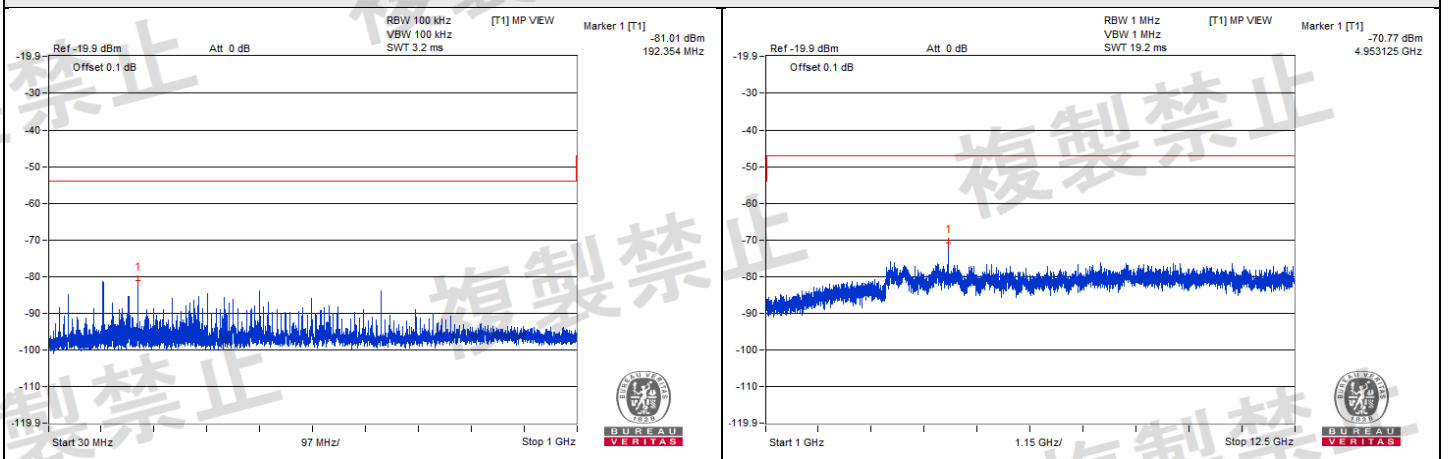
TEST CHANNEL		CH 1 (2404 MHz)			
TEST CONDITION	FREQUENCY RANGE(MHz)	FREQUENCY (MHz)	MEASUREMENT VALUE(nW)	LIMIT (nW)	RESULT
V_{normal}	30.0 to 1000.0	192.354	0.007834	4	PASS
	1000.0 to 12500.0	4805.062	0.048417	20	PASS
V_{max.}	30.0 to 1000.0	192.354	0.00811	4	PASS
	1000.0 to 12500.0	4805.062	0.055719	20	PASS
V_{min.}	30.0 to 1000.0	192.354	0.00787	4	PASS
	1000.0 to 12500.0	4805.062	0.058076	20	PASS
TEST CHANNEL		CH 19 (2440 MHz)			
V_{normal}	30.0 to 1000.0	192.354	0.007762	4	PASS
	1000.0 to 12500.0	4876.937	0.12735	20	PASS
V_{max.}	30.0 to 1000.0	192.354	0.008035	4	PASS
	1000.0 to 12500.0	4876.937	0.147231	20	PASS
V_{min.}	30.0 to 1000.0	192.354	0.008147	4	PASS
	1000.0 to 12500.0	4876.937	0.11272	20	PASS
TEST CHANNEL		CH 38 (2478 MHz)			
V_{normal}	30.0 to 1000.0	192.354	0.008128	4	PASS
	1000.0 to 12500.0	4953.125	0.082985	20	PASS
V_{max.}	30.0 to 1000.0	192.354	0.007943	4	PASS
	1000.0 to 12500.0	4953.125	0.100231	20	PASS
V_{min.}	30.0 to 1000.0	192.354	0.007925	4	PASS
	1000.0 to 12500.0	4953.125	0.083753	20	PASS

NOTE: 1. The spectrum plots are attached on the following pages.

V_{normal}**V_{max}****V_{min}**

CH 1 (2404 MHz)



V_{normal}**V_{max}****V_{min}**

CH 38 (2478 MHz)

7.5 Antenna Power

Environmental Conditions:	23°C, 56% RH	Tested By:	Kevin Ko
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BT-LE 1M

Voltage (Vdc)	Channel Number	Frequency (MHz)	Conducted RF Output Power (mW)	Radiated RF Output Power (mW)
5	0	2402	3.443	5.259
	19	2440	3.776	5.768
	39	2480	4.055	6.194
5.5	0	2402	3.556	5.432
	19	2440	3.733	5.702
	39	2480	3.926	5.997
4.5	0	2402	3.532	5.395
	19	2440	3.846	5.875
	39	2480	4.027	6.152
Maximum Limit (mW):			10	-
Rated Power (mW):			5	-
Maximum Tolerance of Antenna Power (mW):			6	-
Maximum EIRP Limit (mW):			-	16.368

Notes:

1. Antenna gain is 1.84 dBi.
2. The radiated RF output power is a "calculated" value derived from the conducted value.
3. Formula: Radiated RF output power = Conducted RF output power + Antenna gain

BT-LE 2M

Voltage (Vdc)	Channel Number	Frequency (MHz)	Conducted RF Output Power (mW)	Radiated RF Output Power (mW)
5	1	2404	3.428	5.236
	19	2440	3.767	5.754
	38	2478	4.036	6.165
5.5	1	2404	3.491	5.333
	19	2440	3.698	5.649
	38	2478	3.999	6.109
4.5	1	2404	3.483	5.321
	19	2440	3.926	5.997
	38	2478	4.121	6.295
Maximum Limit (mW):			10	-
Rated Power (mW):			5	-
Maximum Tolerance of Antenna Power (mW):			6	-
Maximum EIRP Limit (mW):			-	16.368

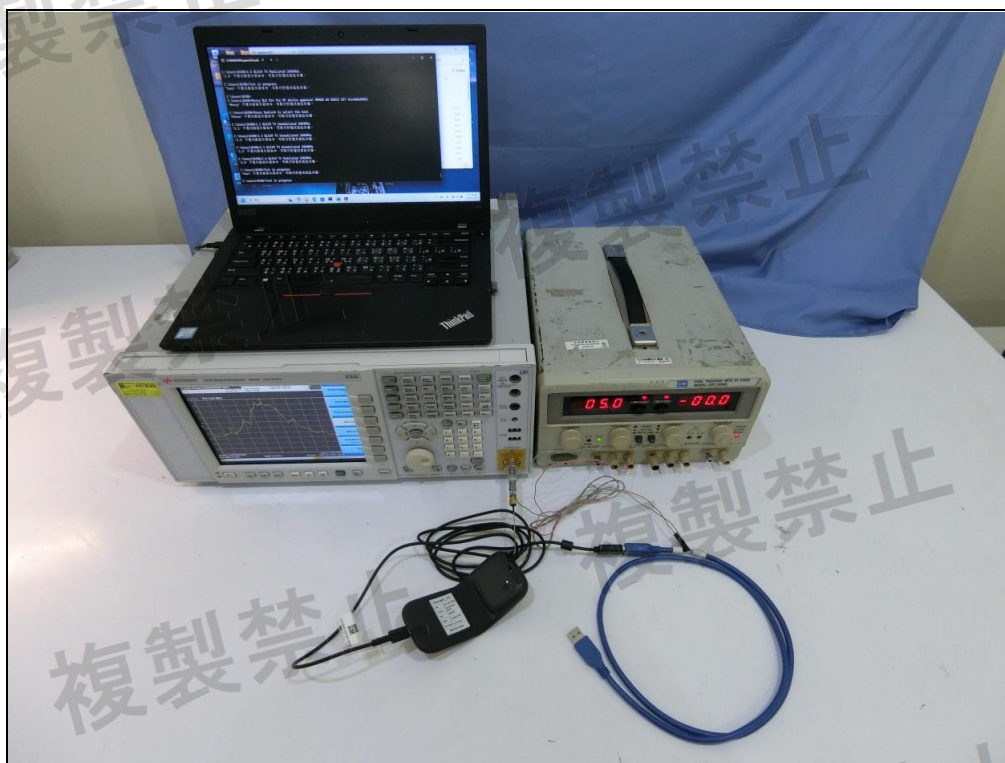
Notes:

1. Antenna gain is 1.84 dBi.
2. The radiated RF output power is a "calculated" value derived from the conducted value.
3. Formula: Radiated RF output power = Conducted RF output power + Antenna gain

7.6 Interference Prevention Function

Environmental Conditions:	21°C, 68% RH	Tested By:	Kevin Ko
Link Mode		Test Result	
BT-LE		Pass	

8 Pictures of Test Arrangements



9 Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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Web Site: <http://ee.bureauveritas.com.tw>

The address and road map of all our labs can be found in our web site also.

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