

# TEST REPORT

## CERTIFICATE OF CONFORMITY

**Standard:** Certification Ordinance Article 2-1-19  
**Report No.:** RJBKX-WTW-P23120494  
**Product:** Wireless Mouse  
**Brand:** hp  
**Model No.:** TPA-P008M  
**Received Date:** 2023/12/20  
**Test Date:** 2023/12/27 ~ 2024/1/4  
**Issued Date:** 2024/1/12  
**Applicant:** PRIMAX ELECTRONICS LTD.  
**Address:** No. 669, Ruey Kuang Road, Neihu, Taipei, Taiwan, R.O.C.  
**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Lin Kou Laboratories  
**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan  
**Test Location:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

Approved by:

Jeremy Lin

Date:

2024/1/12

Jeremy Lin / Project Engineer

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Prepared by : Jessica Cheng / Senior Specialist



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Release Control Record

Issue No.	Description	Date Issued
RJBDKX-WTW-P23120494	Original release.	2024/1/12

## 1 Certificate

**Product:** Wireless Mouse

**Brand:** hp

**Test Model:** TPA-P008M

**Sample Status:** Engineering sample

**Applicant:** PRIMAX ELECTRONICS LTD.

**Test Date:** 2023/12/27 ~ 2024/1/4

**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	960 Hz
Spurious Emissions	2.7 dB
Output Power Density	1.2 dB
Frequency Tolerance	97.75 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	hp
Test Model	TPA-P008M
Test Software Version	N/A
Status of EUT	Engineering sample
Power Supply Rating	1.5Vdc from battery
Modulation Type	GFSK
Modulation Technology	DTS
Transfer Rate	Up to 1 Mbps
Operating Frequency	2.402 GHz ~ 2.48 GHz
Number of Channel	40
Assembly	The EUT used a kind of particular screw, which could not operated by a tool bought in the market. Only means of brute force will be able to opened

Note: 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)	Conducted RF Output Power (mW)	Radiated RF Output Power (mW)
BT-LE 1M	3	2.679	4.385

### 3.3 Antenna Description of EUT

1. The antenna information is listed as below.

Gain (dBi)	Antenna Type	Connector Type
2.14	Chip	NA

\* 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:

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
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

### 3.5 Power Setting

Channel	Power Setting
0	0
20	0
39	0

### 3.6 Test Mode Applicability and Tested Channel Detail

Test Conditions	Voltage (Vdc)
$V_{normal}$	1.5
$V_{max. (+10\%)}$	1.65
$V_{min. (-10\%)}$	1.35

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, 20, 39	unmodulated	-
Occupied Bandwidth / Spurious Emissions	BT-LE 1M	0, 20, 39	GFSK	1Mb/s
Spurious Emissions of Receiver	BT-LE 1M	0, 20, 39	-	-
Antenna Power	BT-LE 1M	0, 20, 39	GFSK	1Mb/s
Interference Prevention Function	Normal Operation			

## 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
Programmable DC Power Supply IDRC	DSP80-180WE	701217	Note 2	Note 2	BV CPS E&E	(d)
PXA Signal Analyzer Keysight	N9030A	MY54490260	2023/7/13	2024/7/12	ETC	(c)
Signal Analyzer R&S	FSV40	101042	2023/9/5	2024/9/4	ETC	(c)
		101544	2023/5/9	2024/5/8	ETC	(c)
Software	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A	N/A	N/A

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 RMS clamp meter to verify before each testing.
- The test was performed in LK - Oven
- Tested Date: 2023/12/27

### 4.2 Occupied Bandwidth

Refer to section 4.1 to get information of the instruments.

### 4.3 Spurious Emissions

Refer to section 4.1 to get information of the instruments.

### 4.4 Spurious Emissions of Receiver

Refer to section 4.1 to get information of the instruments.

#### 4.5 Antenna Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until	Calibration Authority	Calibration Method
Power Meter Anritsu	ML2495A	0842014	2023/5/5	2024/5/4	ETC	(c)
Programmable DC Power Supply IDRC	DSP80-180WE	701217	Note 2	Note 2	BV CPS E&E	(d)
Pulse Power Sensor Anritsu	MA2411B	0738404	2023/5/5	2024/5/4	ETC	(c)
USB Wideband Power Sensor Keysight	U2021XA	U2021XA_001	2023/6/6	2024/6/5	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 RMS clamp meter to verify before each testing.
- The test was performed in LK - Oven
- Tested Date: 2023/12/27

#### 4.6 Interference Prevention Function

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until	Calibration Authority	Calibration Method
WLAN Test Set Anritsu	MT8860C	1705001	2023/2/25	2024/2/24	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 test was performed in LK - Oven
- Tested Date: 2024/1/4

## 5 Limits of Test Items

### 5.1 Frequency Tolerance

Tolerance of frequency shall be +/- 50ppm.

### 5.2 Occupied Bandwidth

Modulation Method	Limit	Remark
DSSS	<26 MHz	
OFDM	<26 MHz	Antenna power limitation is 10 mW/MHz
	26 – 40 MHz	Antenna power limitation is 5 mW/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  $A = \text{E.I.R.P.} / (2.14 \text{ dBi} + \text{"Antenna Power (limit)"})$ .
- 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")

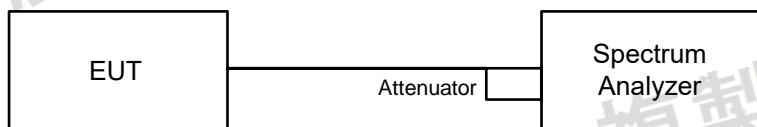
#### 5.6 Interference Prevention Function

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

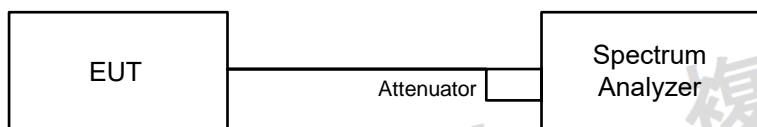
When performing radiolocation work: A function that allows you to distinguish between reflected waves of radio waves transmitted by your own station and radio waves transmitted by other radio stations by identifying the modulation method and other characteristics of received radio waves. (However, if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

## 6 Test Arrangements

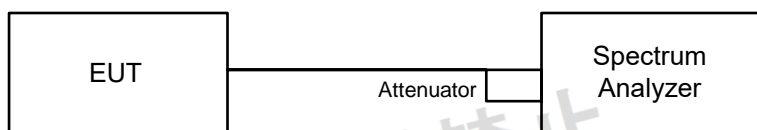
### 6.1 Frequency Tolerance



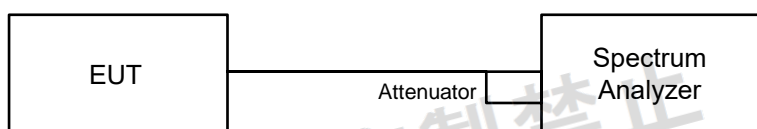
### 6.2 Occupied Bandwidth



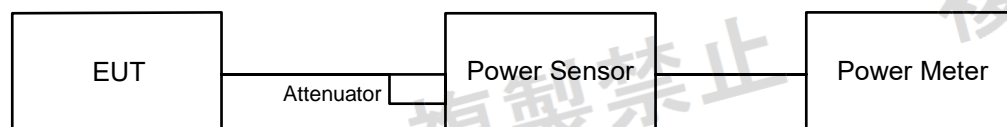
### 6.3 Spurious Emissions



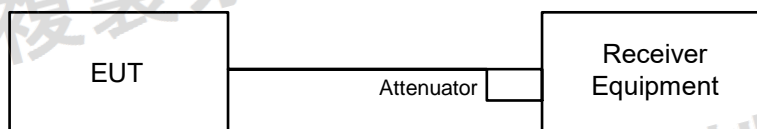
### 6.4 Spurious Emissions of Receiver



### 6.5 Antenna Power



## 6.6 Interference Prevention Function



## 7 Test Results of Test Item

### 7.1 Frequency Tolerance

Environmental Conditions:	25°C, 76% RH	Tested By:	Waydi Tuan
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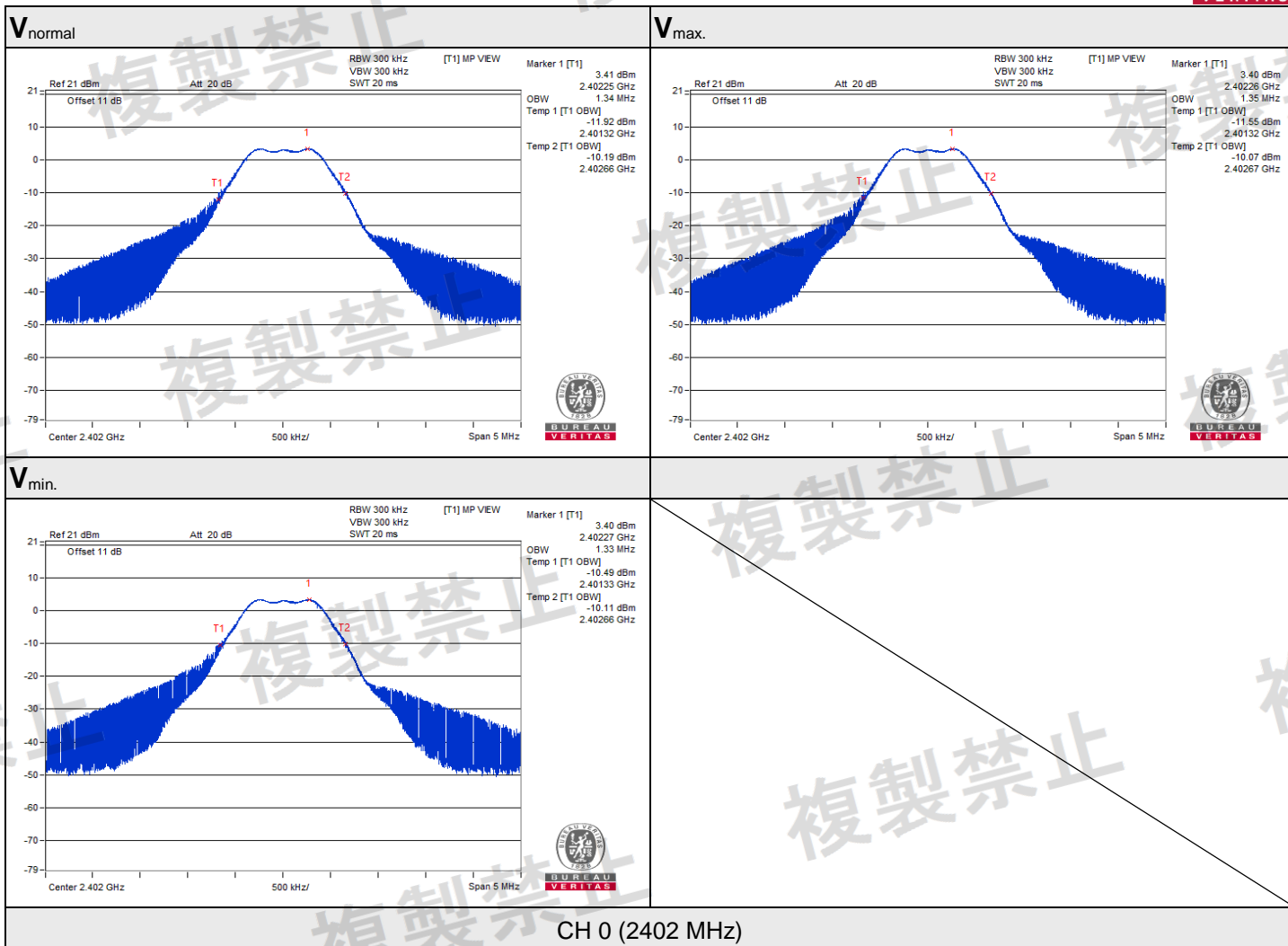
Channel	Frequency (MHz)	$V_{normal}$		$V_{max.}$		$V_{min.}$	
		Carrier frequency (MHz)	Frequency tolerance (ppm)	Carrier frequency (MHz)	Frequency tolerance (ppm)	Carrier frequency (MHz)	Frequency tolerance (ppm)
0	2402	2402.009560	3.980	2402.009600	3.996	2402.009560	3.980
20	2442	2442.009651	3.952	2442.009651	3.952	2442.009622	3.940
39	2480	2480.009802	3.952	2480.009802	3.952	2480.009830	3.963

## 7.2 Occupied Bandwidth

Environmental Conditions:	25°C, 76% RH	Tested By:	Waydi Tuan
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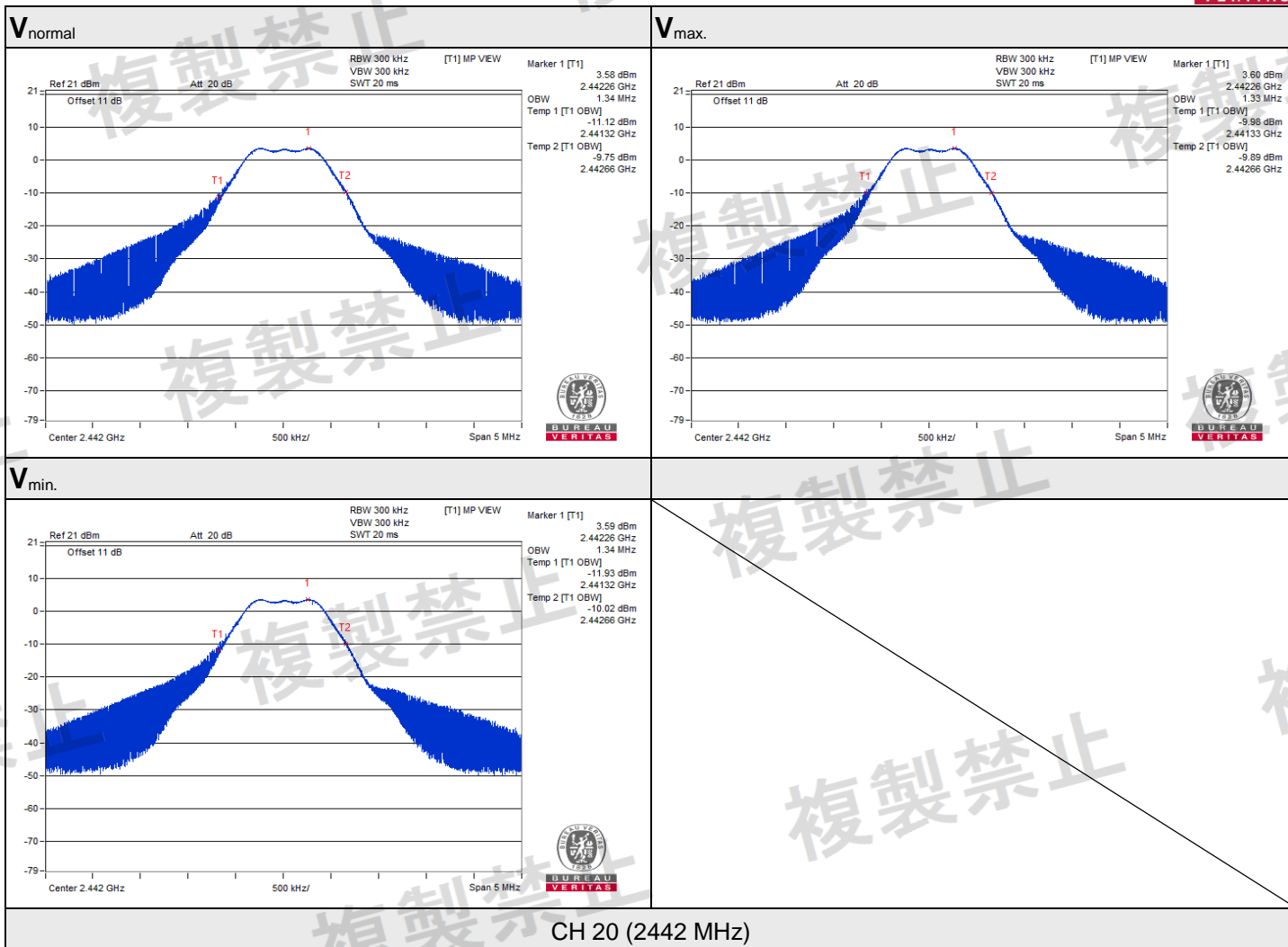
Channel	Frequency (MHz)	$V_{normal}$	$V_{max.}$	$V_{min.}$
		Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)
0	2402	1.34	1.35	1.33
20	2442	1.34	1.33	1.34
39	2480	1.33	1.34	1.34

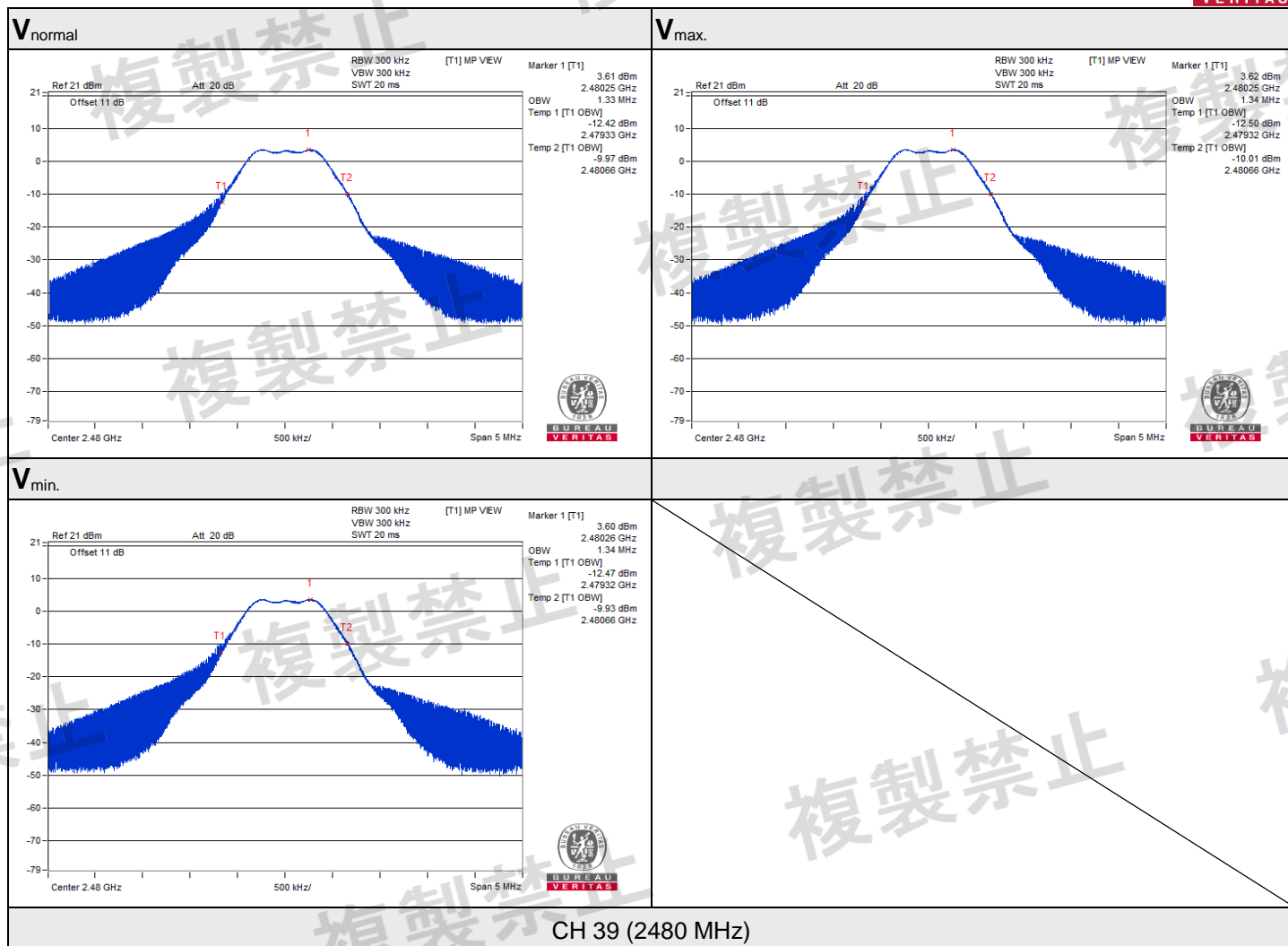
**NOTE:** For the test plots please refer to the below pages.





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### 7.3 Spurious Emissions

Environmental Conditions:	25°C, 76% RH	Tested By:	Waydi Tuan
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TEST CHANNEL		CH 0 (2402 MHz)			
TEST CONDITION	FREQUENCY RANGE(MHz)	FREQUENCY (MHz)	MEASUREMENT VALUE	LIMIT	RESULT
<b>V<sub>normal</sub></b>	30.0 to 1000.0	765.503	0.001045 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2029.848	0.061944 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2399.998	0.284598uW/MHz	25 uW/MHz	PASS(1)
	2483.5 to 2496.5	2494.940	0.083753 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	11280.823	0.192752 uW/MHz	2.5 uW/MHz	PASS
<b>V<sub>max.</sub></b>	30.0 to 1000.0	892.451	0.001016 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2330.306	0.060954 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2399.997	0.253196uW/MHz	25 uW/MHz	PASS(2)
	2483.5 to 2496.5	2490.461	0.081658 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	6899.290	0.184927 uW/MHz	2.5 uW/MHz	PASS
<b>V<sub>min.</sub></b>	30.0 to 1000.0	784.054	0.001084 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2041.984	0.064714 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2399.995	0.241818uW/MHz	25 uW/MHz	PASS(3)
	2483.5 to 2496.5	2486.568	0.079616 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	6960.562	0.236048 uW/MHz	2.5 uW/MHz	PASS
TEST CHANNEL		CH 20 (2442 MHz)			
<b>V<sub>normal</sub></b>	30.0 to 1000.0	905.425	0.001045 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2381.279	0.05821 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2395.400	0.062806 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2496.305	0.083368 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	12229.906	0.194984 uW/MHz	2.5 uW/MHz	PASS
<b>V<sub>max.</sub></b>	30.0 to 1000.0	926.401	0.001054 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2308.981	0.058076 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2389.964	0.063826 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2492.766	0.083946 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	12312.434	0.177419 uW/MHz	2.5 uW/MHz	PASS
<b>V<sub>min.</sub></b>	30.0 to 1000.0	914.398	0.000877 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2067.470	0.067608 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2395.960	0.062373 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2484.293	0.082224 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	10921.948	0.184502 uW/MHz	2.5 uW/MHz	PASS

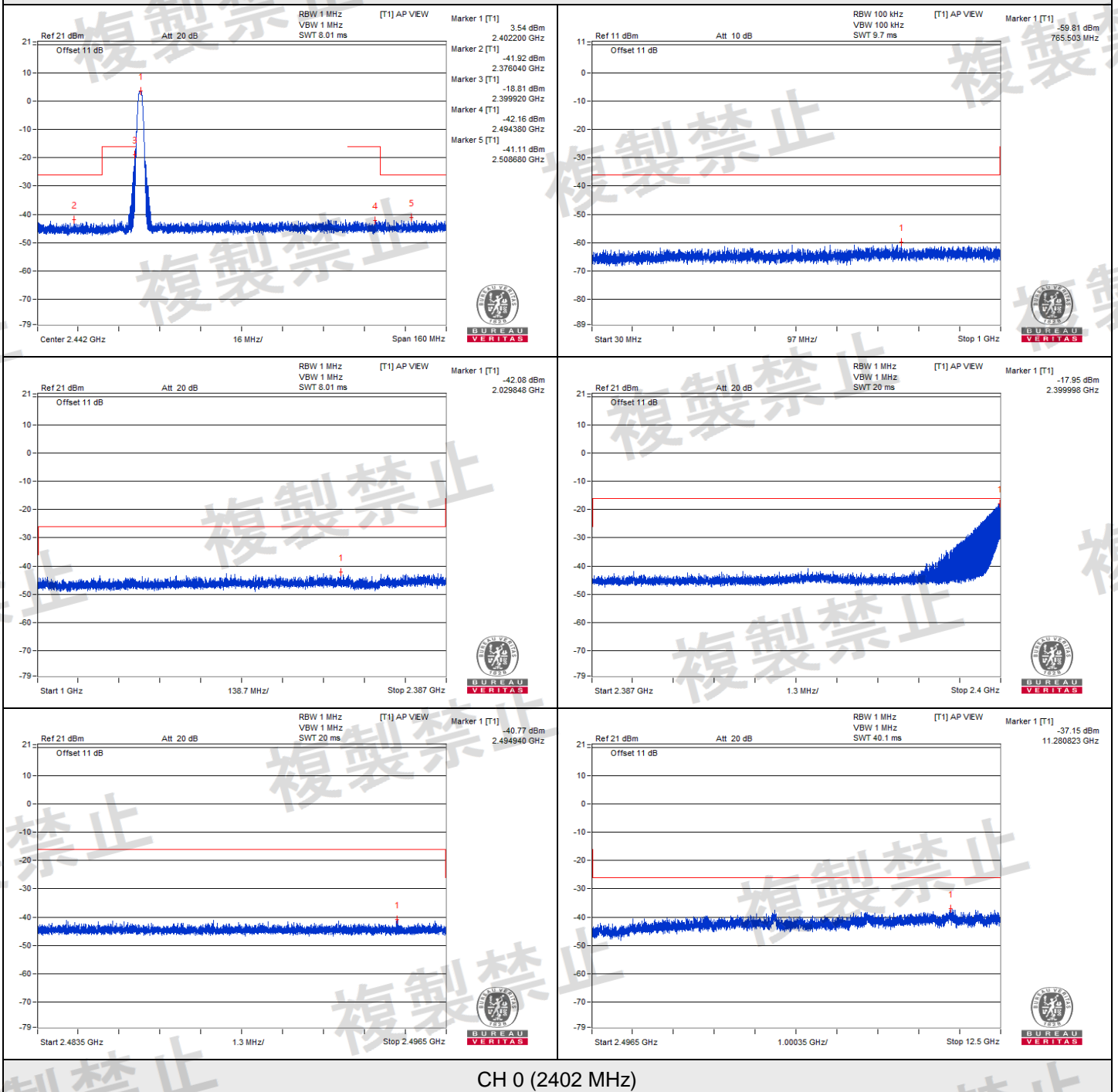


TEST CHANNEL		CH 39 (2480 MHz)			
TEST CONDITION	FREQUENCY RANGE(MHz)	FREQUENCY (MHz)	MEASUREMENT VALUE	LIMIT	RESULT
<b>V<sub>normal</sub></b>	30.0 to 1000.0	532.824	0.001102 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2300.139	0.053333 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2391.014	0.061376 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2483.526	0.355631 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	11387.111	0.194984 uW/MHz	2.5 uW/MHz	PASS
<b>V<sub>max.</sub></b>	30.0 to 1000.0	862.745	0.001014 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2333.427	0.061094 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2392.233	0.062661 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2483.547	0.423643 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	12381.208	0.192309 uW/MHz	2.5 uW/MHz	PASS
<b>V<sub>min.</sub></b>	30.0 to 1000.0	708.758	0.001312 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2311.409	0.057544 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2395.130	0.059841 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2483.544	0.398107 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	6955.560	0.20893 uW/MHz	2.5 uW/MHz	PASS

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

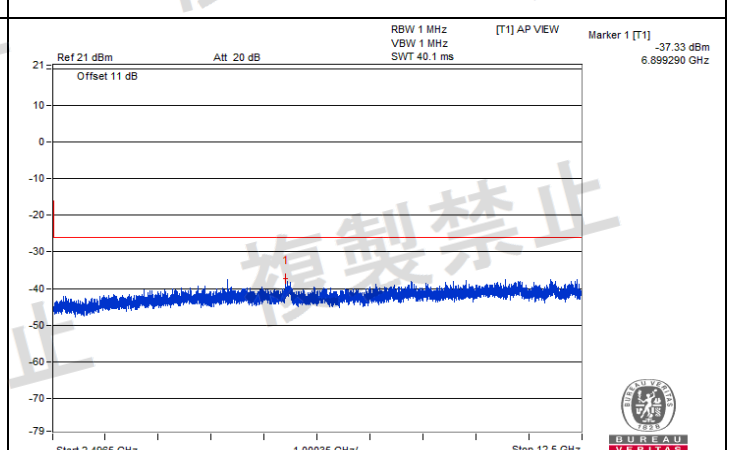
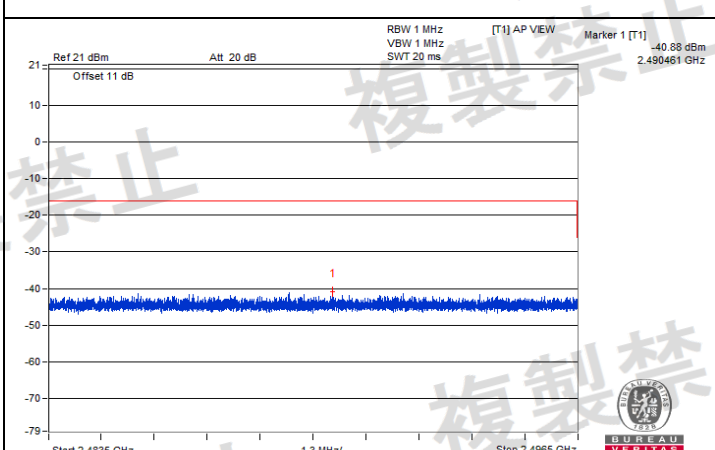
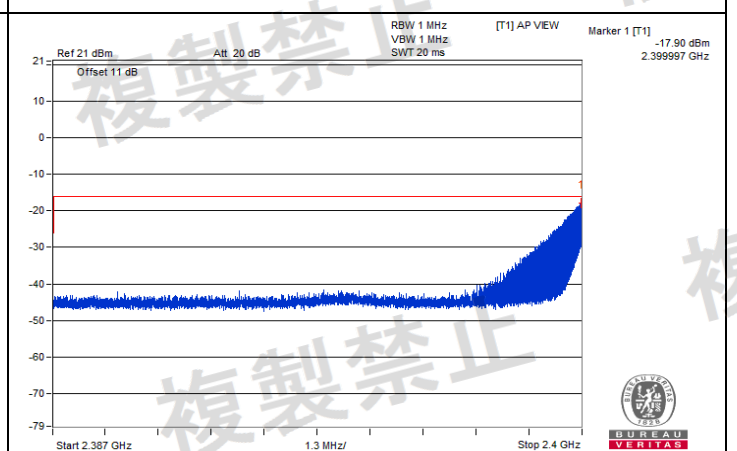
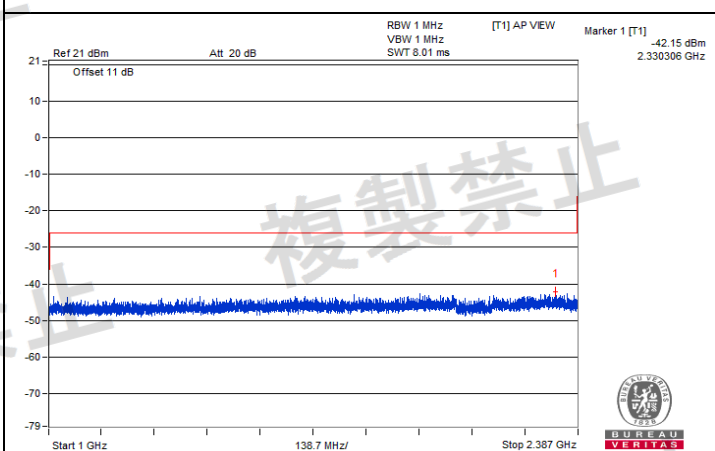
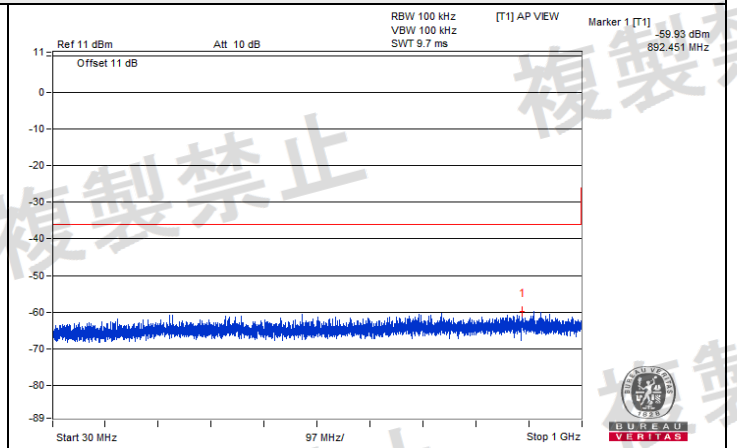
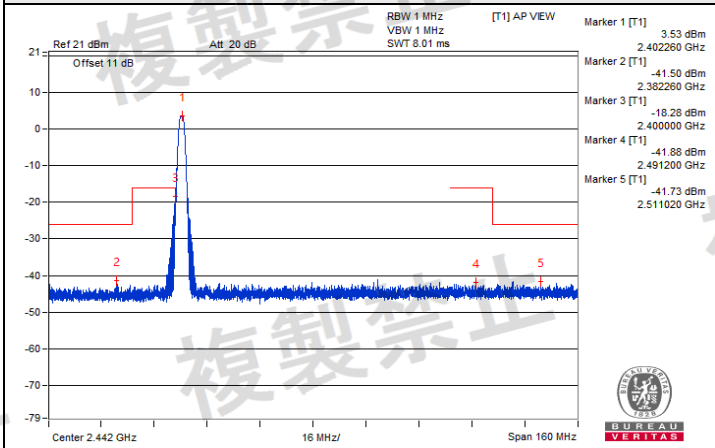
2. (No.): The value was tested under Measuring Mode \*Zero Span.

Vnormal



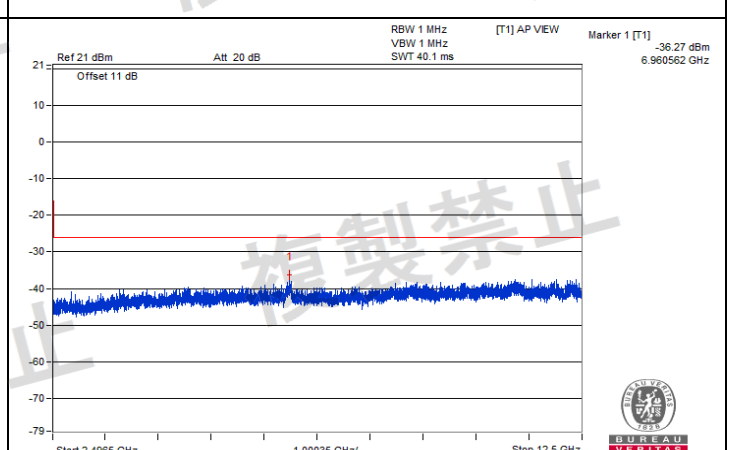
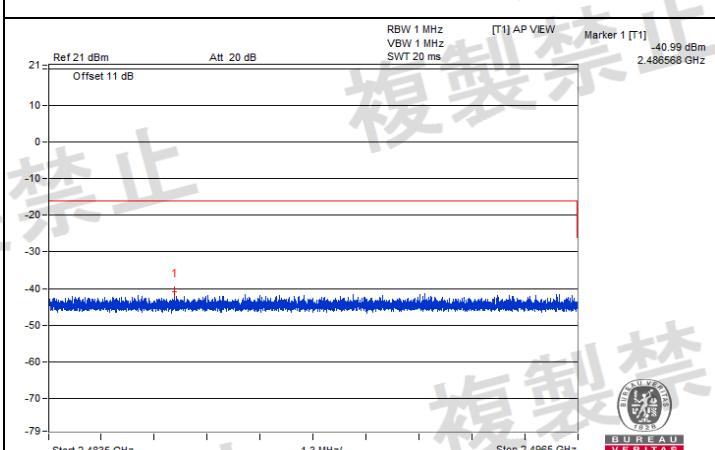
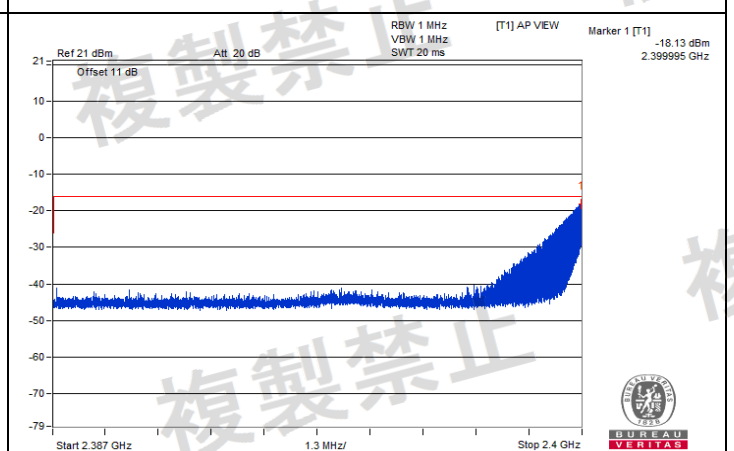
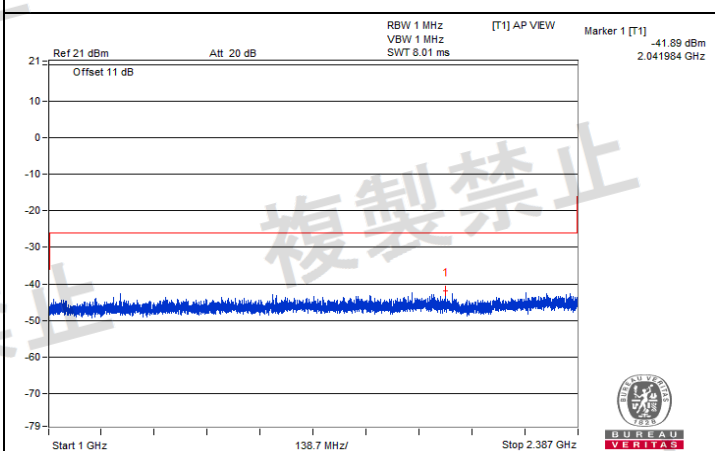
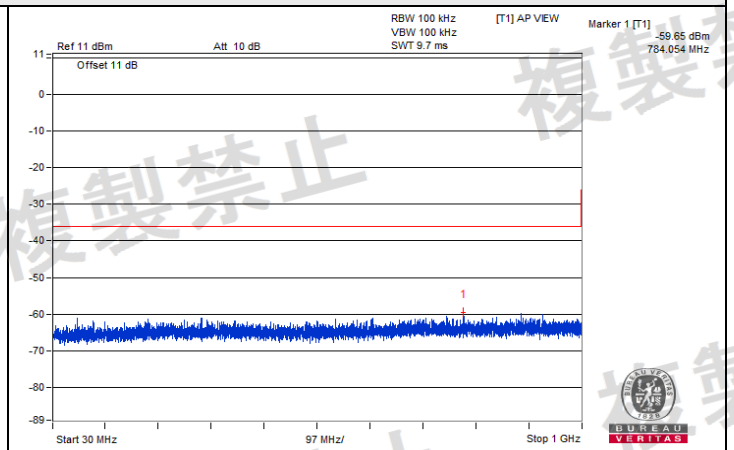
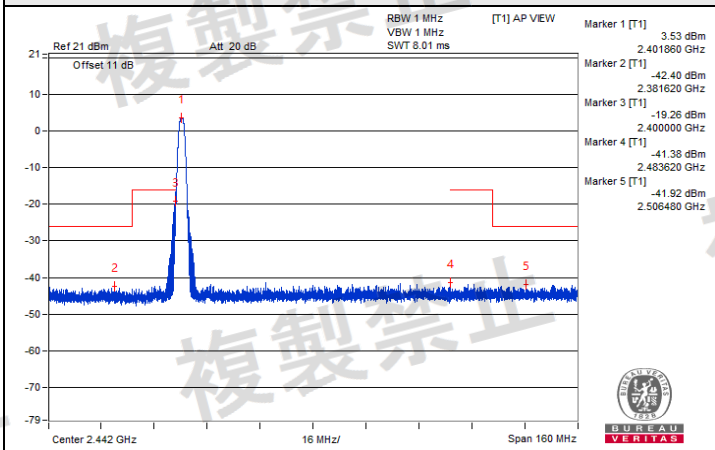
CH 0 (2402 MHz)

V max.



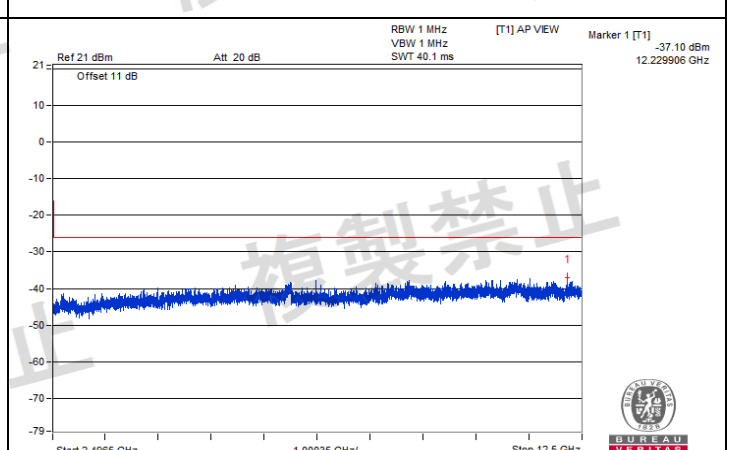
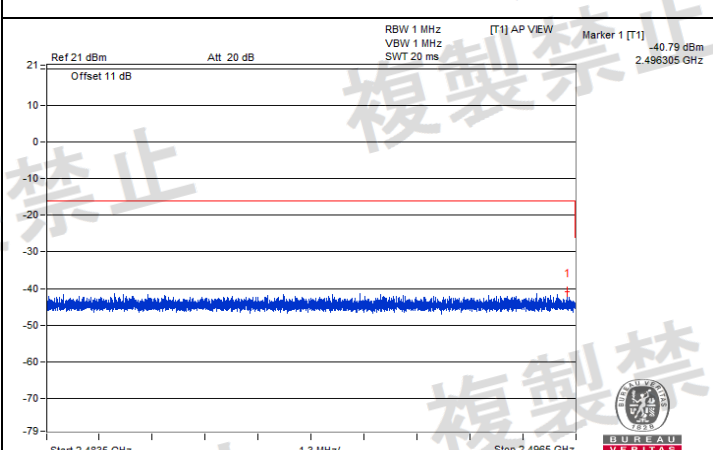
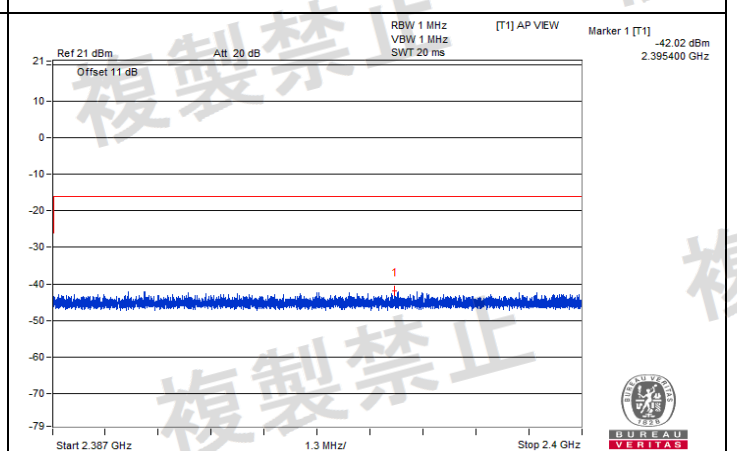
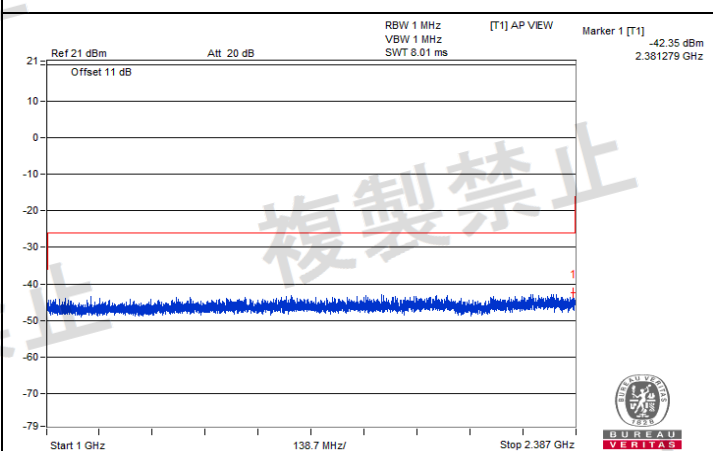
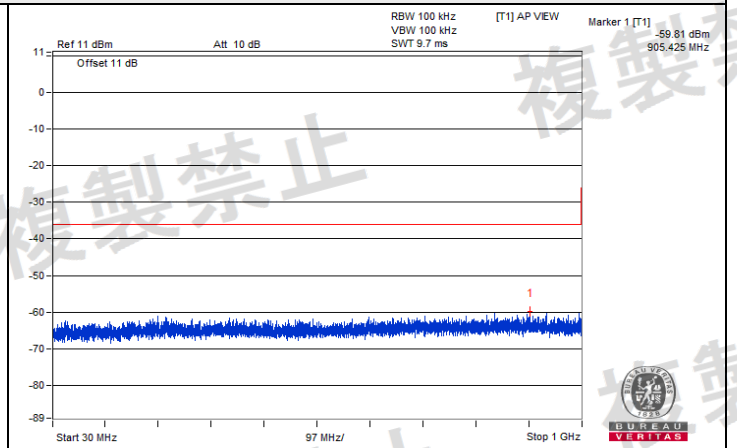
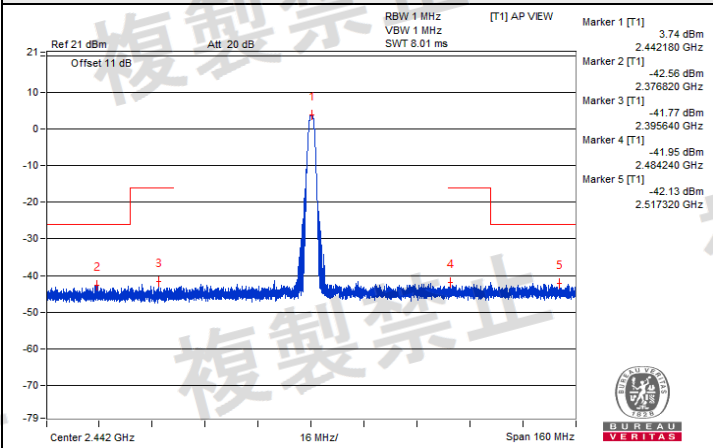
CH 0 (2402 MHz)

V min.



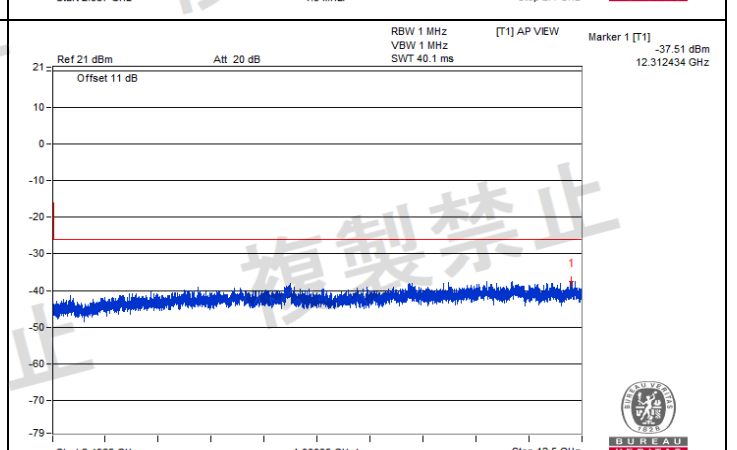
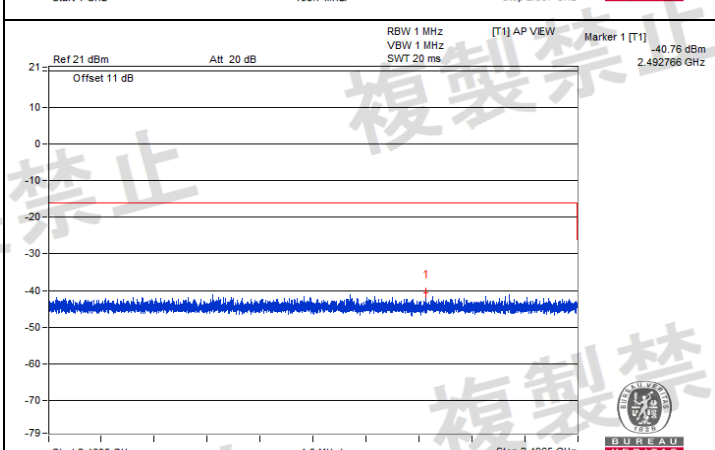
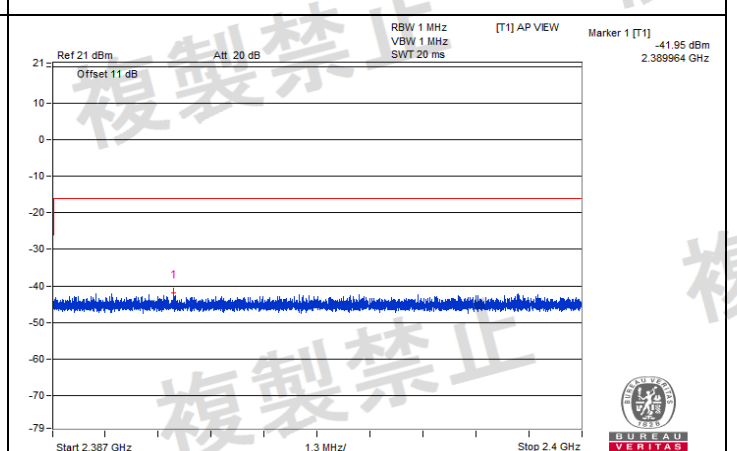
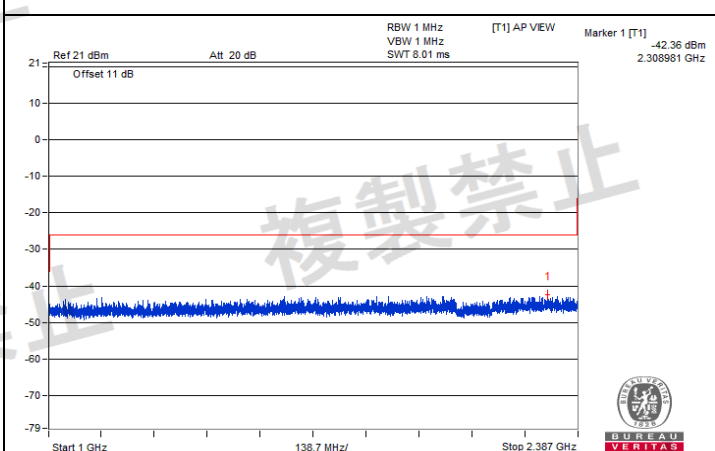
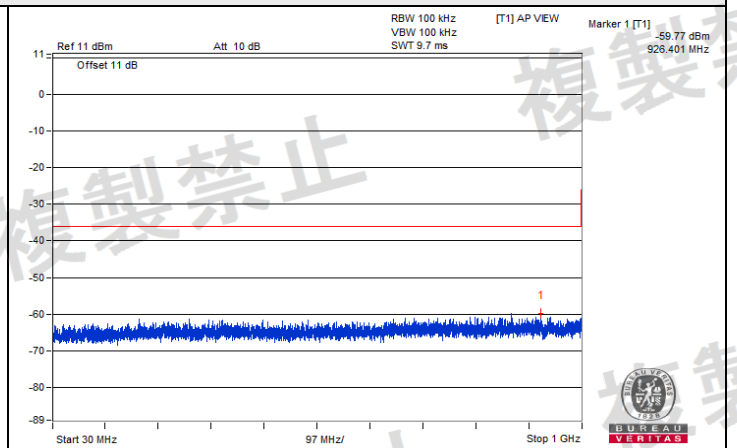
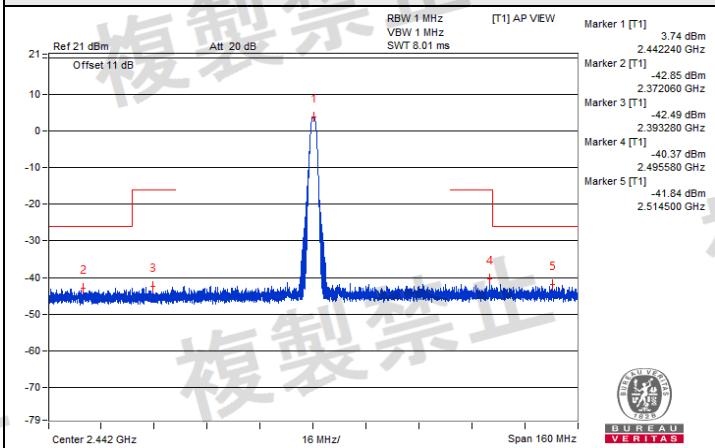
CH 0 (2402 MHz)

Vnormal



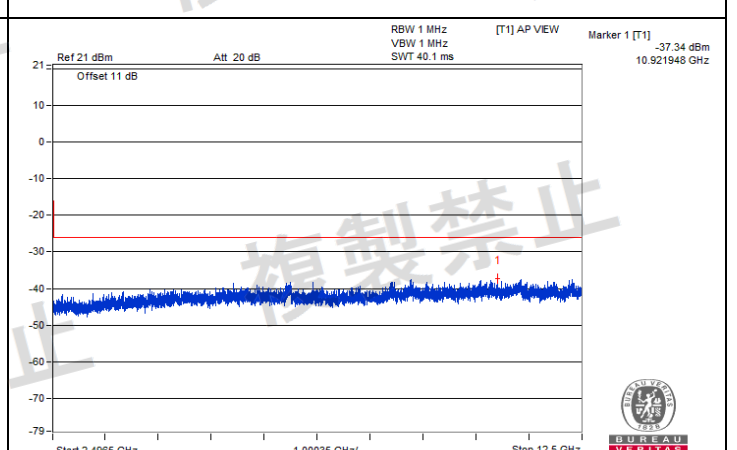
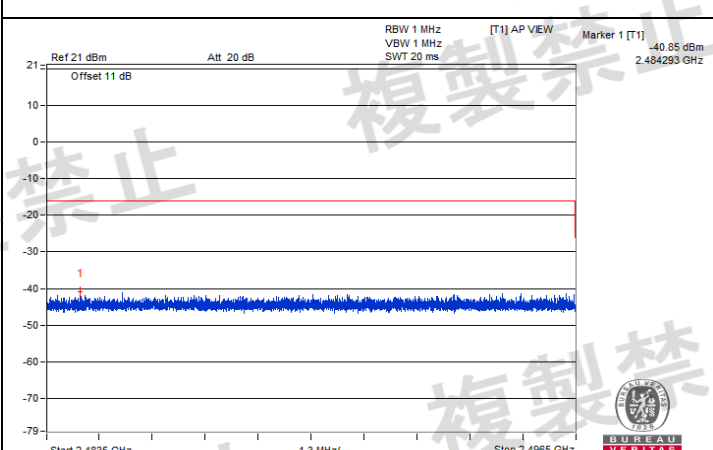
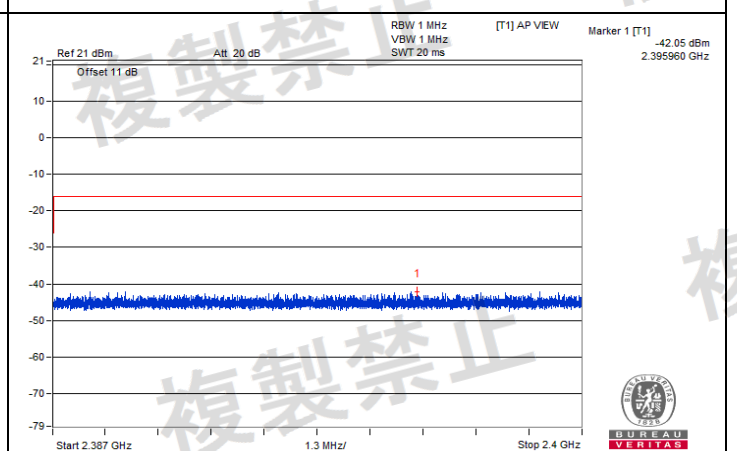
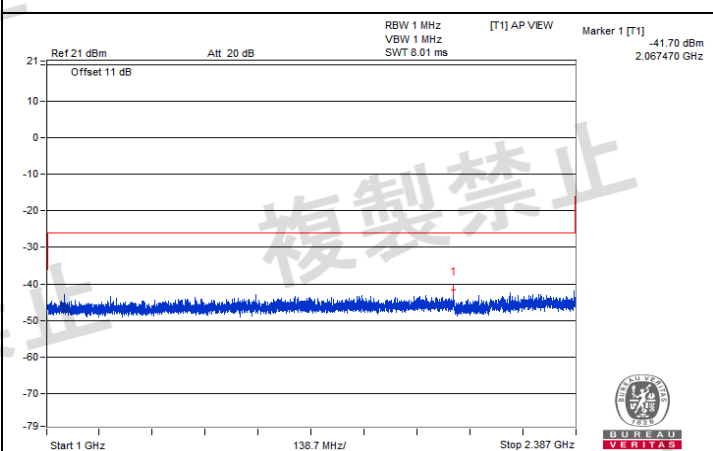
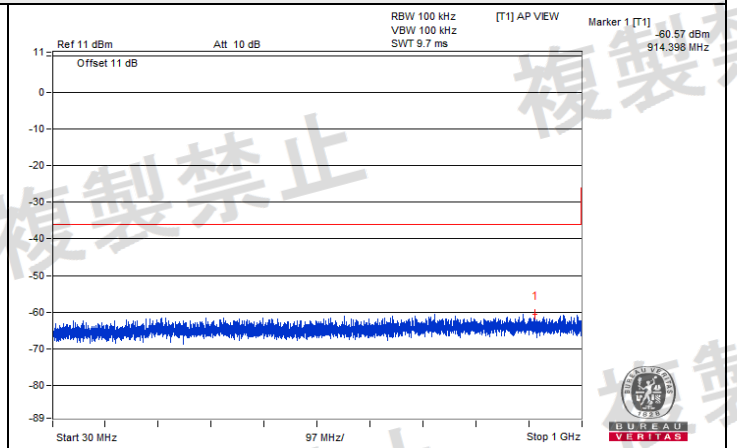
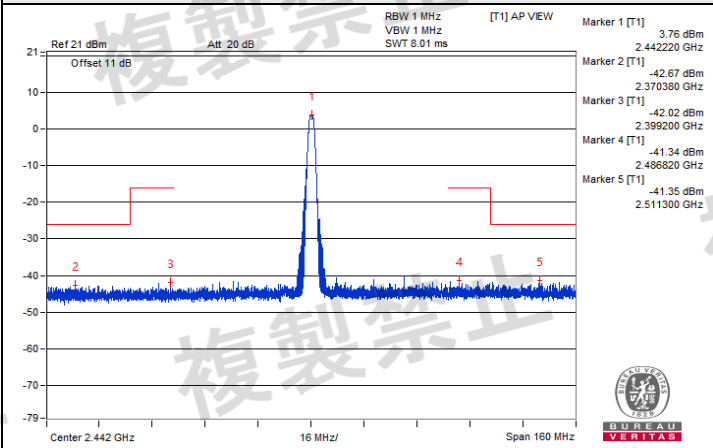
CH 20 (2442 MHz)

V max.



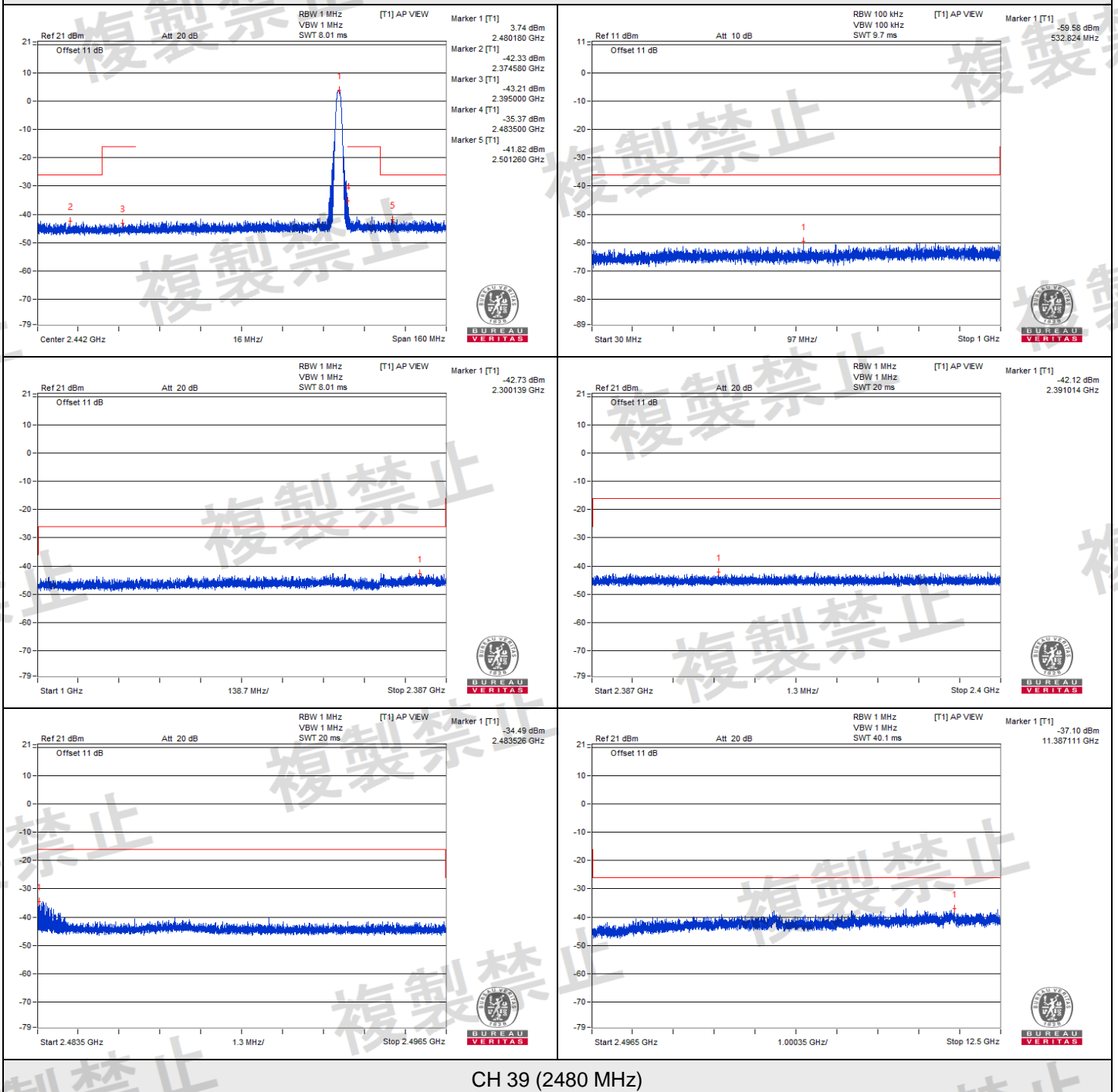
CH 20 (2442 MHz)

V<sub>min</sub>.



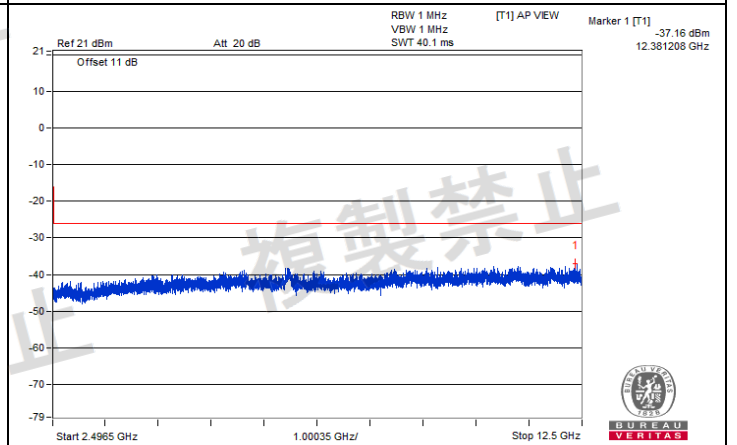
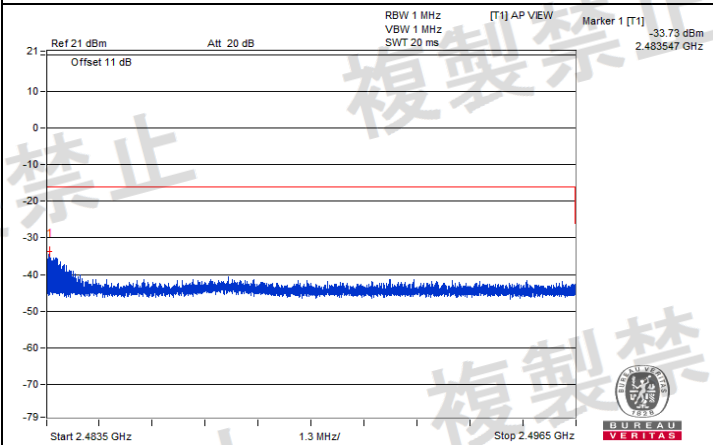
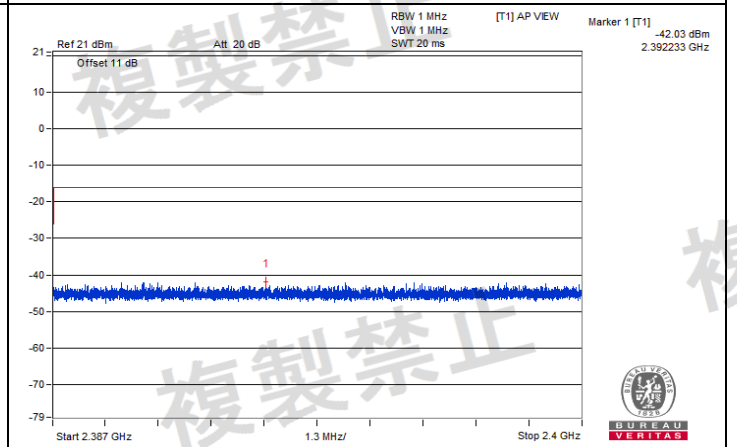
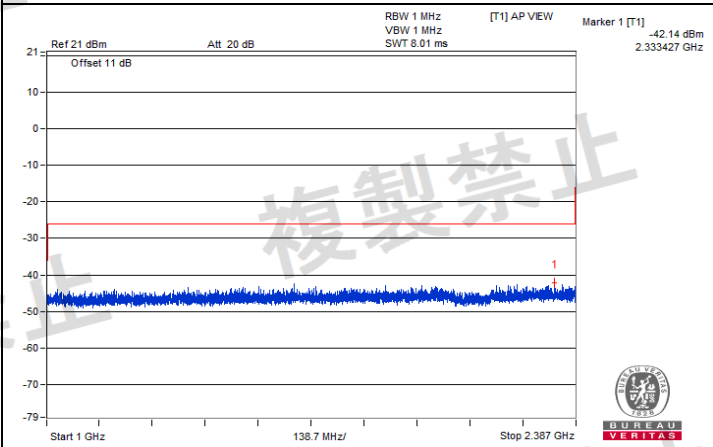
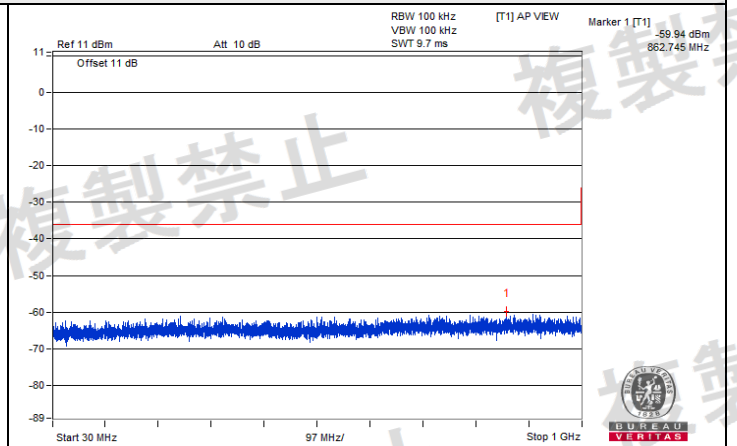
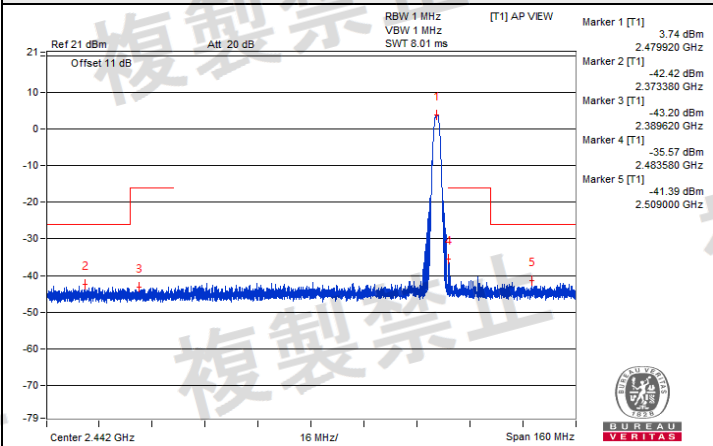
CH 20 (2442 MHz)

Vnormal



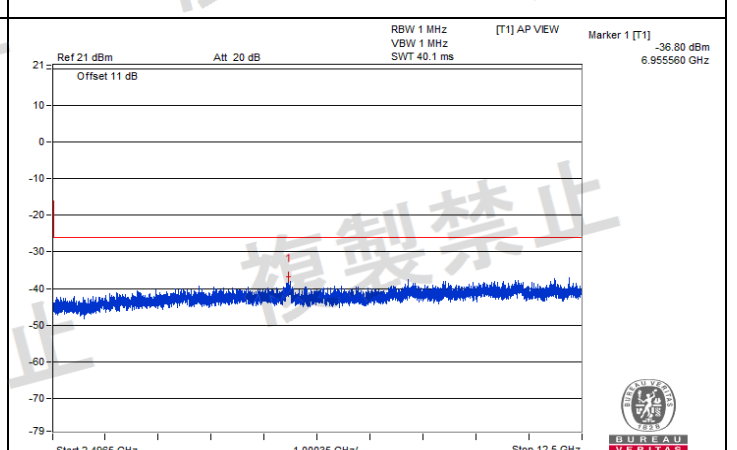
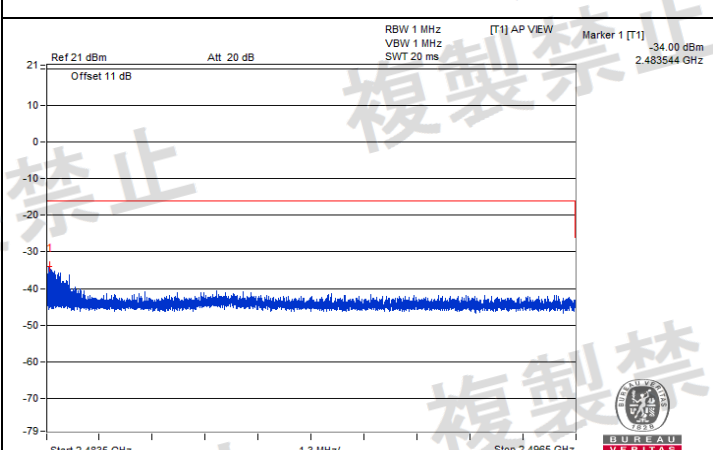
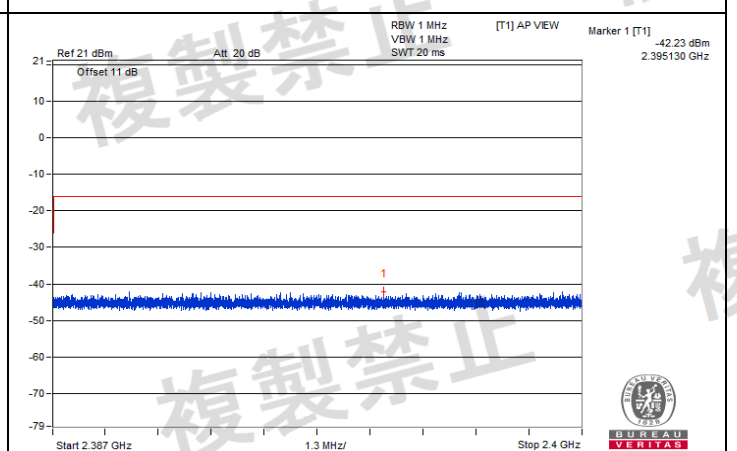
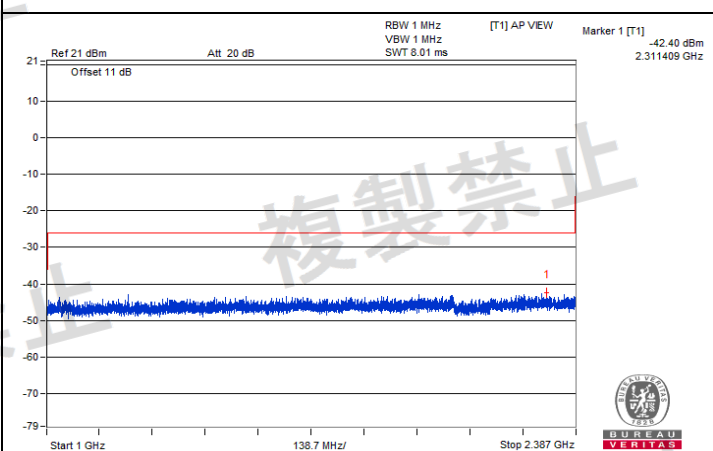
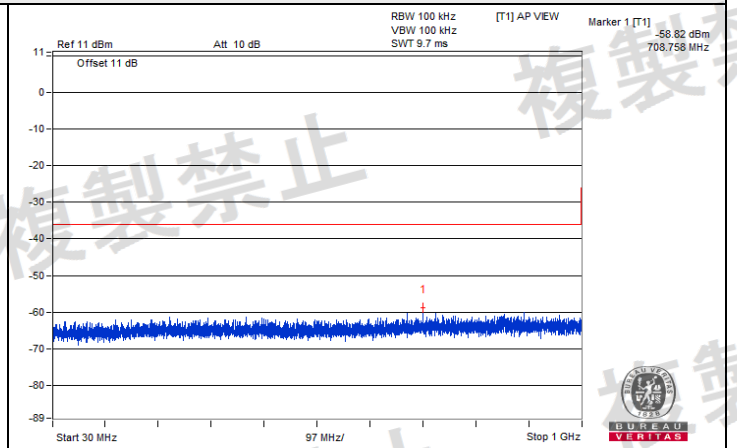
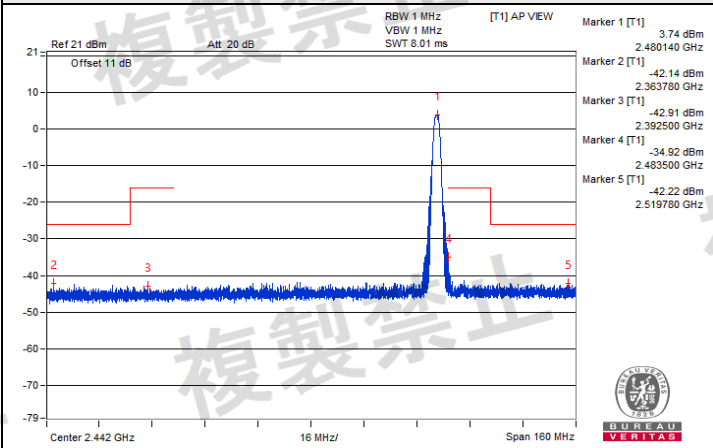
CH 39 (2480 MHz)

V max.



CH 39 (2480 MHz)

V min.

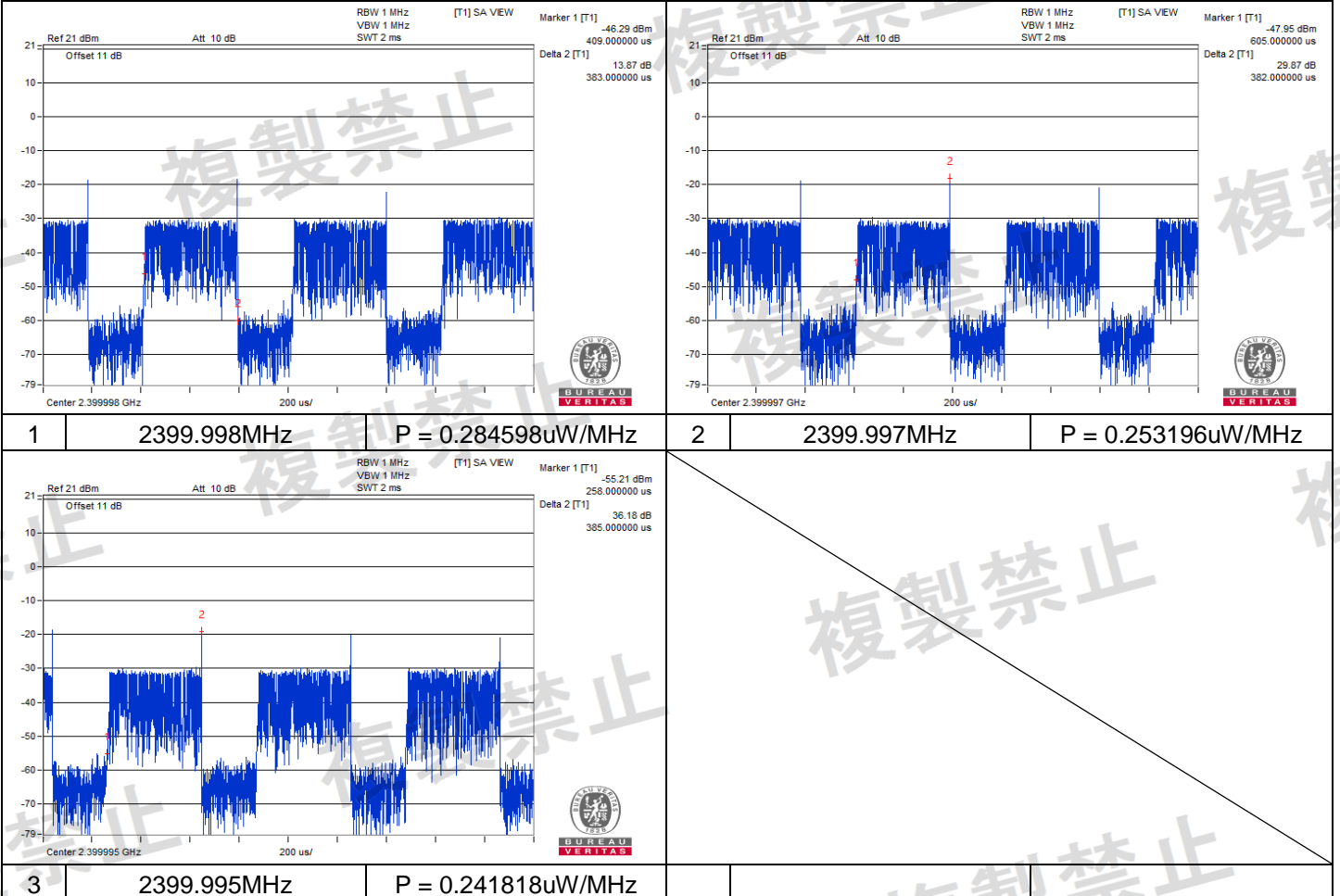


CH 39 (2480 MHz)



### Measuring Mode \*Zero Span

1. Set the spectrum analyzer as below and it takes in a value of all data point.
2. Regarding the all data value, it transforms the "dBm" value into "uW" value.
3. It adds the all values and calculates a grand total. Define a grand total as "P".
4. It divides "P" by sample data point (ex.501) and calculates the mean value.
5. It reports the mean value.

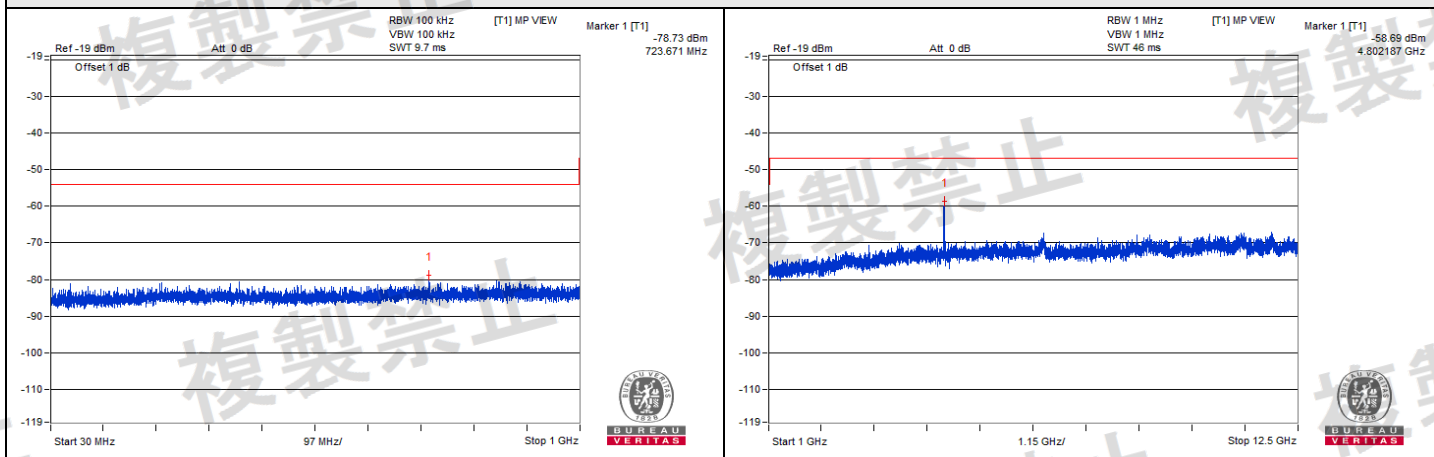
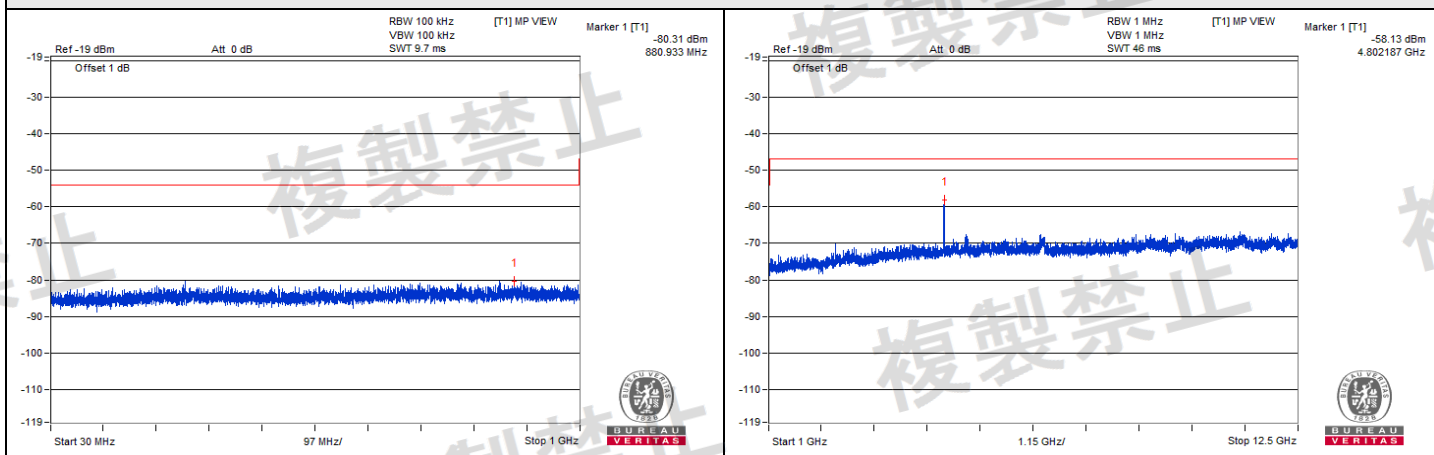
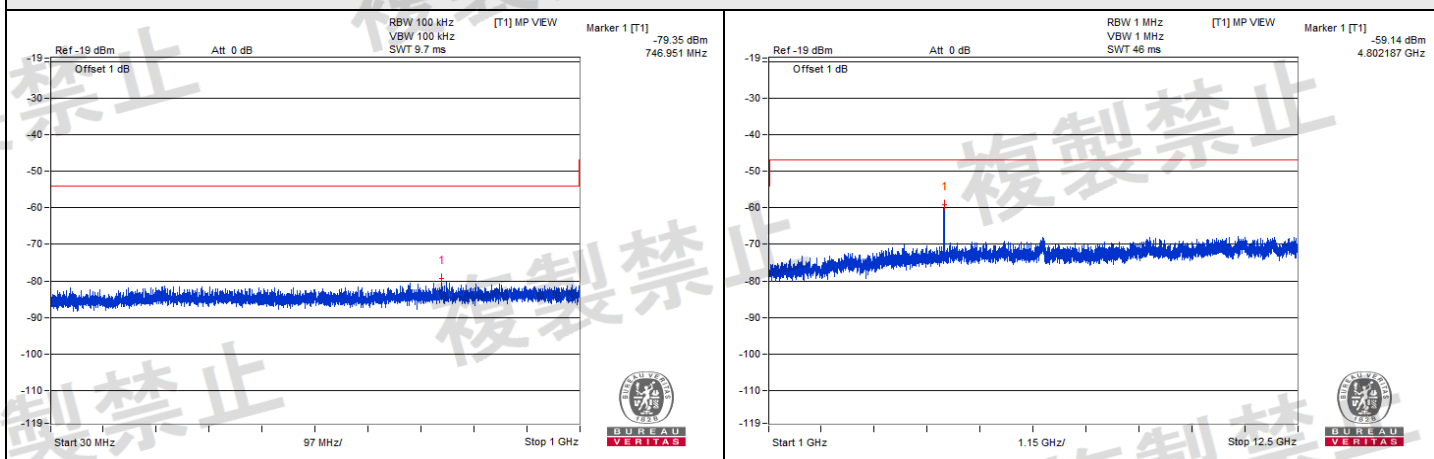


#### 7.4 Spurious Emissions of Receiver

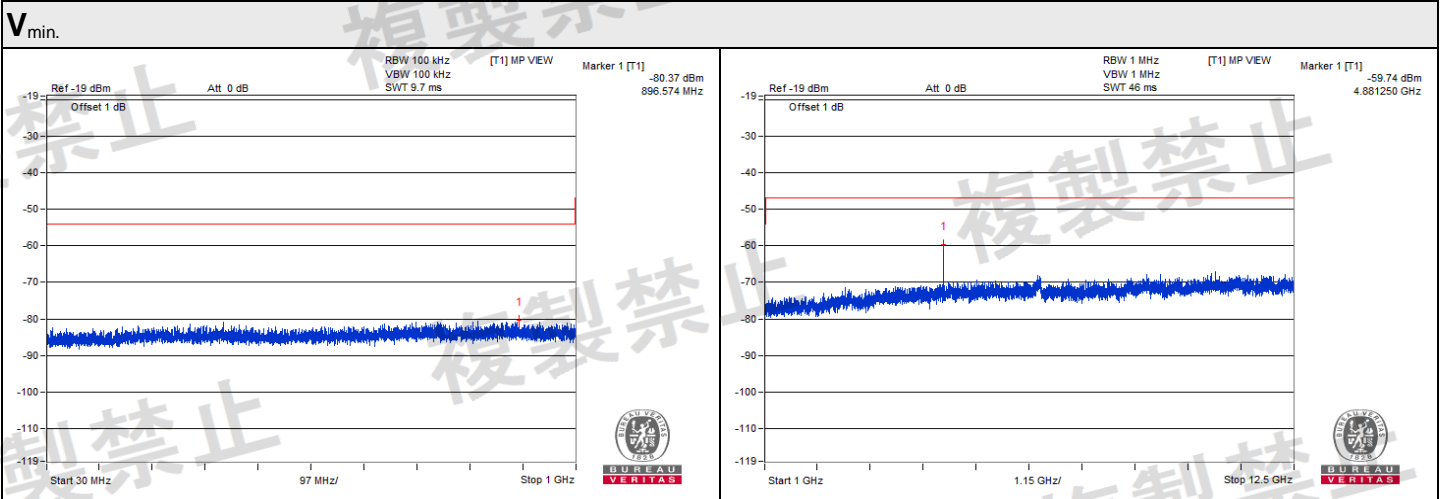
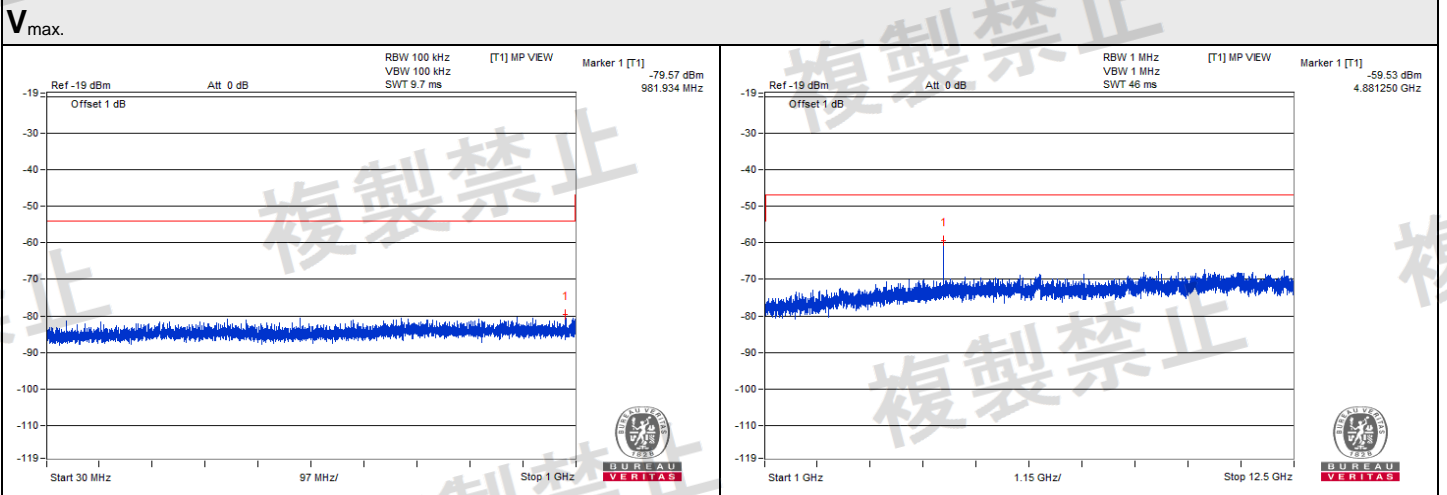
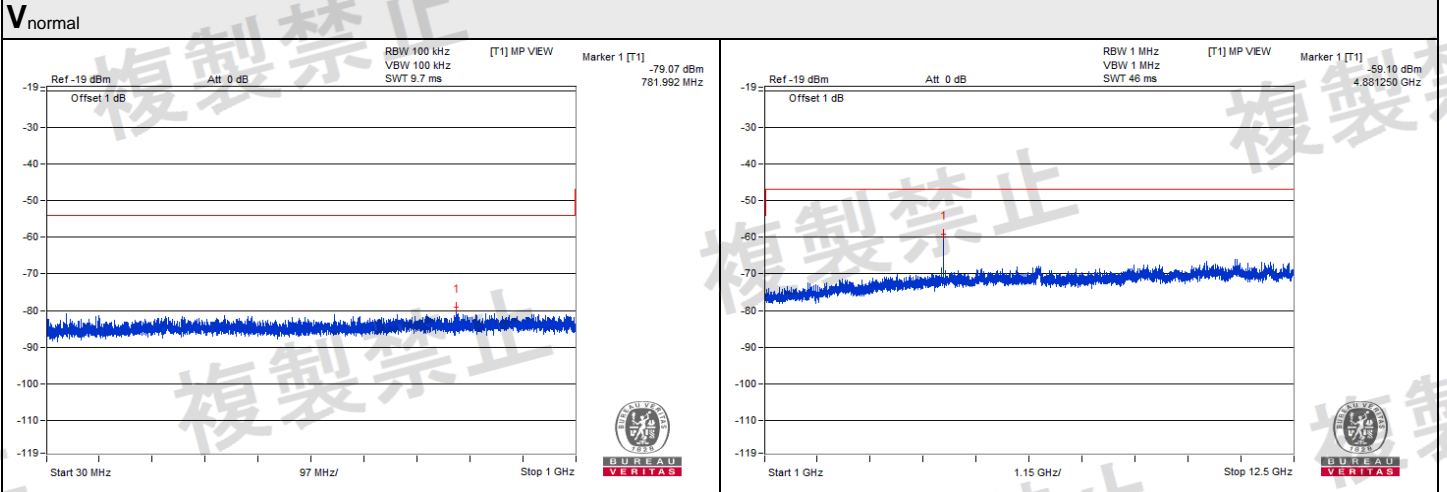
Environmental Conditions:	25°C, 76% RH	Tested By:	Waydi Tuan
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TEST CHANNEL		CH 0 (2402 MHz)			
TEST CONDITION	FREQUENCY RANGE(MHz)	FREQUENCY (MHz)	MEASUREMENT VALUE(nW)	LIMIT (nW)	RESULT
<b>V<sub>normal</sub></b>	30.0 to 1000.0	723.671	0.013397	4	PASS
	1000.0 to 12500.0	4802.187	1.352073	20	PASS
<b>V<sub>max.</sub></b>	30.0 to 1000.0	880.933	0.009311	4	PASS
	1000.0 to 12500.0	4802.187	1.538155	20	PASS
<b>V<sub>min.</sub></b>	30.0 to 1000.0	746.951	0.011614	4	PASS
	1000.0 to 12500.0	4802.187	1.21899	20	PASS
TEST CHANNEL		CH 20 (2442 MHz)			
<b>V<sub>normal</sub></b>	30.0 to 1000.0	781.992	0.012388	4	PASS
	1000.0 to 12500.0	4881.250	1.230269	20	PASS
<b>V<sub>max.</sub></b>	30.0 to 1000.0	981.934	0.011041	4	PASS
	1000.0 to 12500.0	4881.250	1.114295	20	PASS
<b>V<sub>min.</sub></b>	30.0 to 1000.0	896.574	0.009183	4	PASS
	1000.0 to 12500.0	4881.250	1.061696	20	PASS
TEST CHANNEL		CH 39 (2480 MHz)			
<b>V<sub>normal</sub></b>	30.0 to 1000.0	930.039	0.00984	4	PASS
	1000.0 to 12500.0	4957.437	1.358313	20	PASS
<b>V<sub>max.</sub></b>	30.0 to 1000.0	795.209	0.009204	4	PASS
	1000.0 to 12500.0	4957.437	1.406048	20	PASS
<b>V<sub>min.</sub></b>	30.0 to 1000.0	884.691	0.009817	4	PASS
	1000.0 to 12500.0	4957.437	1.409289	20	PASS

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

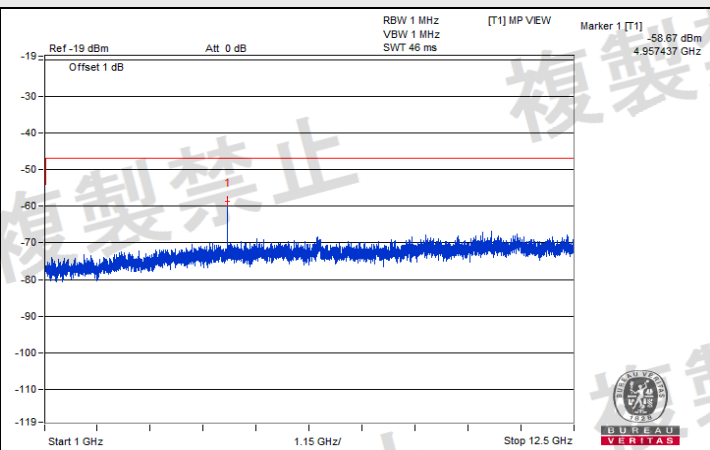
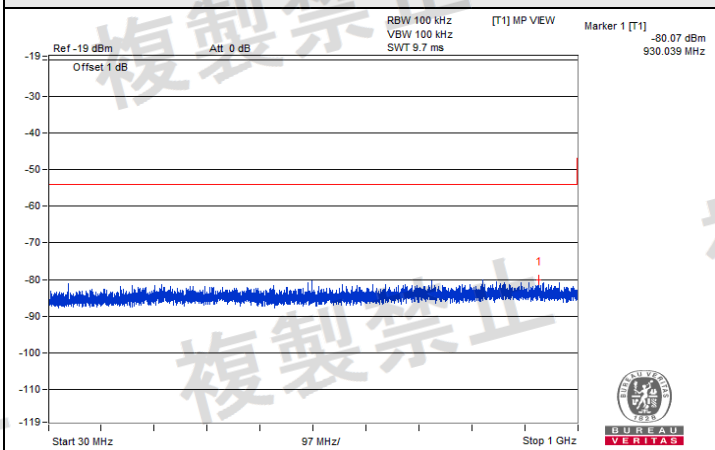
**V<sub>normal</sub>****V<sub>max</sub>****V<sub>min</sub>**

CH 0 (2402 MHz)

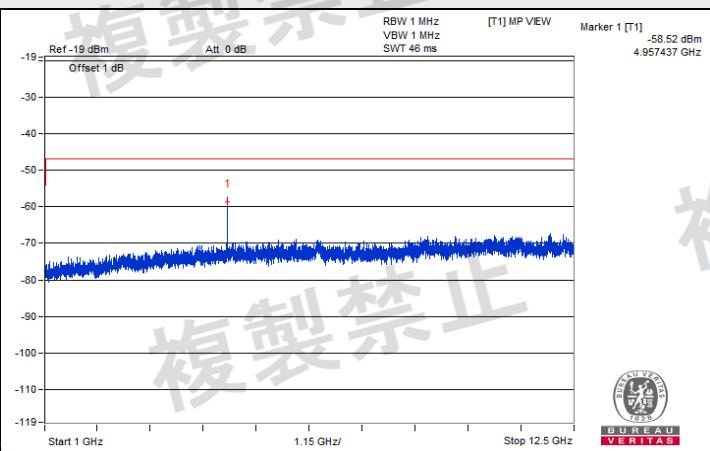
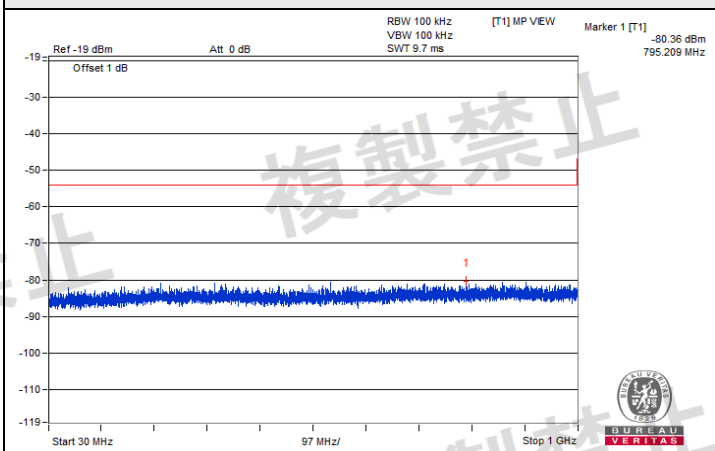


CH 20 (2442 MHz)

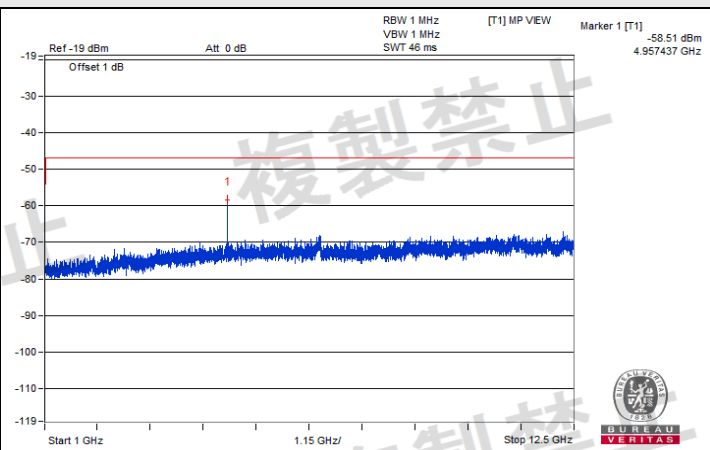
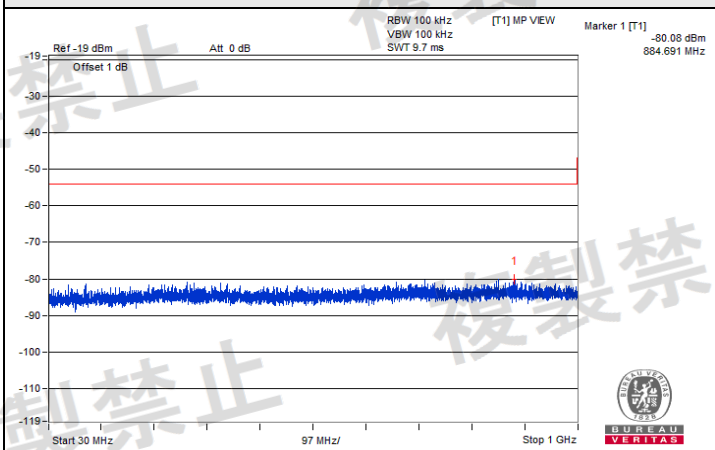
# V<sub>normal</sub>



# V<sub>max</sub>



# V<sub>min</sub>



CH 39 (2480 MHz)

## 7.5 Antenna Power

Environmental Conditions:	25°C, 76% RH	Tested By:	Dalen Dai
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### For BT-LE 1M

Voltage (Vdc)	Channel Number	Frequency (MHz)	Conducted RF Output Power (mW)	Radiated RF Output Power (mW)
1.5	0	2402	2.535	4.149
	20	2442	2.576	4.216
	39	2480	2.582	4.226
1.65	0	2402	2.432	3.981
	20	2442	2.679	4.385
	39	2480	2.649	4.336
1.35	0	2402	2.649	4.336
	20	2442	2.518	4.122
	39	2480	2.477	4.054
Maximum Limit (mW):			10	-
Rated Power (mW):			3	-
Tolerance of Antenna Power (mW):			3.6	-
Maximum EIRP Limit (mW):			-	16.368

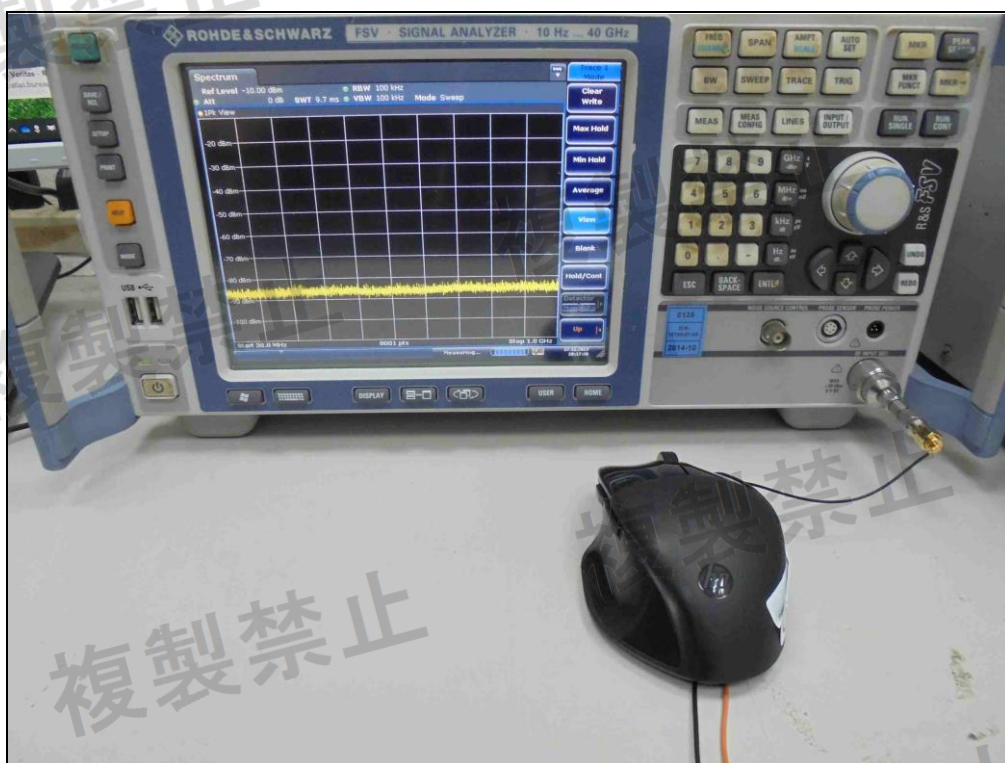
#### Notes:

1. Antenna gain is 2.14 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:	25°C, 60% RH	Tested By:	Pirar Hsieh
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:

### Lin Kou EMC/RF Lab

Tel: 886-2-26052180

Fax: 886-2-26051924

### Hsin Chu EMC/RF/Telecom Lab

Tel: 886-3-6668565

Fax: 886-3-6668323

### Hwa Ya EMC/RF/Safety Lab

Tel: 886-3-3183232

Fax: 886-3-3270892

Email: [service.adt@bureauveritas.com](mailto:service.adt@bureauveritas.com)

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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