TEST REPORT

CERTIFICATE OF CONFORMITY

Standard:	**Certification Ordinance Article 2-1-19**
Report No.:	RJBEMI-WTW-P23040655-1
Product:	Electronic Display Device
Brand:	Rakuten kobo
Model No.:	N428
Received Date:	2023/5/4
Test Date:	2023/6/1 ~ 2023/6/10
Issued Date:	2023/10/6
Applicant:	NETRONIX, INC.
Address:	No. 945, Boai St., Jubei City, Hsin-Chu, 30265, Taiwan
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. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kewi Shan Dist., Taoyuan City 33383, Taiwan

Approved by: Jeremy Lin , **Date:** 2023/10/6

Jeremy Lin / Project Engineer

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Prepared by : Vera Huang / Specialist

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Table of Contents

Release Control Record

Issue No.	Description	Date Issued
RJBEMI-WTW-P23040655-1	Original Release	2023/10/6

1 Certificate

Product:	Electronic Display Device
Brand:	Rakuten kobo
Test Model:	N428
Sample Status:	Engineering Sample
Applicant:	NETRONIX, INC.
Test Date:	2023/6/1 ~ 2023/6/10
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 3)
OR: Article 49-20	Communication Method	Pass (Refer to Note 3)
OR: Article 49-20	Modulation Mehtod	Pass (Refer to Note 3)
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	Spreading Bandwidth	N/A
OR: Article 49-20	Dwell Time (FH employed)	N/A
OR: Article 9-4.8	Interference Prevention Function	Pass
OR: Article 49-20	Carrier Sense Capability	N/A

Notes:

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

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:

Parameter	Uncertainty (±)
Occupied Bandwidth	491.896 Hz
Spurious Emissions	2.208 dB
Output Power Density	2.889 dB
Out of Band Radiated Power	3.93 dB
Frequency Tolerance	6805.18 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	Electronic Display Device
Brand	Rakuten kobo
Test Model	N428
Test Software Version	Tera Term Version 4.106
Status of EUT	Engineering Sample
Power Supply Rating	3.87Vdc from Battery or 5Vdc from USB port
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 is constructed as an Electronic Display Device. The housing consists of two parts, and the plastic enclosure was assembled with glue and covered by rubbers, separating the two parts was only possible by means of brute force.

Note:

1. The EUT has black & white, which are electrically identical to each other except for exterior color.
2. The EUT must be supplied with a battery as the following table:

Brand	Model	Spec.
EVE Energy Co., Ltd.	EVE188595QH	3.87Vdc, 2050mAh

3. The EUT could be supplied with USB cable and different models could be chosen:

Brand	Model	Material	Color	Specification
LUXSHARE-ICT	LB93US002-1R	PVC	Black	Shielded : Y, 1M, Core: N/A
	LB93US003-1R		White	
Yih Fone	SH-0422		Black	
	SH-0424		White	

4. The EUT could be supplied with eMMC as below following:

No.	Model	Remark
1	PTE7A0YJ-32GE	1st source eMMC
2	MKEMF032GT1E-C	2nd source eMMC

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)	Conducted RF Output Power (mW)	Radiated RF Output Power (mW)
BT-LE 1M	3	2.014	4.955

3.3 Antenna Description of EUT

1. The antenna information is listed as below.

Antenna No.	Gain (dBi)	Antenna Type	Connector Type
	2400~2483.5 MHz		
1	3.91	Chip	N/A

* 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

Power Setting	
Channel	BT-LE 1M
0	6
19	6
39	6

3.6 Test Mode Applicability and Tested Channel Detail

Test Conditions	Voltage (Vdc)
V_{normal}	3.87
$V_{max.}$ (+10%)	4.257
$V_{min.}$ (-10%)	3.483

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	un-modulation	-
Occupied Bandwidth / Spurious Emissions	BT-LE 1M	0, 19, 39	GFSK	1Mb/s
Spurious Emissions of Receiver	BT-LE 1M	0, 19, 39	-	-
Antenna Power	BT-LE 1M	0, 19, 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
3-channel DC power supply JIN YIH Technology	ODP3033	ODP30332128138	Note 2	Note 2	BV CPS E&E	(d)
Digital Multimeter Fluke	87-III	70360742	2022/6/23	2023/6/22	OCL	(c)
PXA Signal Analyzer Keysight	N9030B	MY57140488	2023/3/6	2024/3/5	ETC	(c)
Signal Analyzer R&S	FSV40	100980	2023/5/3	2024/5/2	ETC	(c)
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A	N/A	N/A

Notes:

1. Calibration method:
   (a): Calibration conducted by the National Institute of Information and Communications Technology (NICT) or a designated calibration agency under Article 102-18 paragraph (1).
   (b): 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.
   (c): 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).
   (d): Calibration conducted by using other equipment that listed above from a) to c).
2. The power supply no evaluation calibrated, which used the RMS clamp meter to verify before each testing.
3. The test was performed in Oven room.
4. Tested Date: 2023/6/1

4.2 Occupied Bandwidth

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until	Calibration Authority	Calibration Method
3-channel DC power supply JIN YIH Technology	ODP3033	ODP30332128138	Note 2	Note 2	BV CPS E&E	(d)
Digital Multimeter Fluke	87-III	70360742	2022/6/23	2023/6/22	OCL	(c)
Signal Analyzer R&S	FSV40	100980	2023/5/3	2024/5/2	ETC	(c)
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A	N/A	N/A

Notes:

1. Calibration method:
   (a): Calibration conducted by the National Institute of Information and Communications Technology (NICT) or a designated calibration agency under Article 102-18 paragraph (1).
   (b): 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.
   (c): 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).
   (d): Calibration conducted by using other equipment that listed above from a) to c).
2. The power supply no evaluation calibrated, which used the RMS clamp meter to verify before each testing.
3. The test was performed in Oven room.
4. Tested Date: 2023/6/1

4.3 Spurious Emissions

Refer to section 4.2 to get information of the instruments.

4.4 Spurious Emissions of Receiver

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until	Calibration Authority	Calibration Method
3-channel DC power supply JIN YIH Technology	ODP3033	ODP30332128138	Note 2	Note 2	BV CPS E&E	(d)
Digital Multimeter Fluke	87-III	70360742	2022/6/23	2023/6/22	OCL	(c)
Signal Analyzer R&S	FSV40	100980	2023/5/3	2024/5/2	ETC	(c)
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A	N/A	N/A

Notes:

1. Calibration method:
   (a): Calibration conducted by the National Institute of Information and Communications Technology (NICT) or a designated calibration agency under Article 102-18 paragraph (1).
   (b): 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.
   (c): 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).
   (d): Calibration conducted by using other equipment that listed above from a) to c).
2. The power supply no evaluation calibrated, which used the RMS clamp meter to verify before each testing.
3. The test was performed in Oven room.
4. Tested Date: 2023/6/1

4.5 Antenna Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until	Calibration Authority	Calibration Method
3-channel DC power supply JIN YIH Technology	ODP3033	ODP30332128138	Note 2	Note 2	BV CPS E&E	(d)
Digital Multimeter Fluke	87-III	70360742	2022/6/23	2023/6/22	OCL	(c)
USB Wideband Power Sensor Keysight	U2021XA	MY55050005/MY55190004/ MY55190007/MY55210005	2022/7/13	2023/7/12	ETC	(c)

Notes:

1. Calibration method:
   (a): Calibration conducted by the National Institute of Information and Communications Technology (NICT) or a designated calibration agency under Article 102-18 paragraph (1).
   (b): 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.
   (c): 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).
   (d): Calibration conducted by using other equipment that listed above from a) to c).
2. The power supply no evaluation calibrated, which used the RMS clamp meter to verify before each testing.
3. The test was performed in Oven room.
4. Tested Date: 2023/6/2

4.6 Interference Prevention Function

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until	Calibration Authority	Calibration Method
3-channel DC power supply JIN YIH Technology	ODP3033	ODP30332128138	Note 2	Note 2	BV CPS E&E	(d)
Bluetooth Simulator Anritsu	MT8852B	1218002	2023/5/21	2024/5/20	ETC	(c)
Digital Multimeter Fluke	87-III	70360742	2022/6/23	2023/6/22	OCL	(c)

Notes:

1. Calibration method:
   (a): Calibration conducted by the National Institute of Information and Communications Technology (NICT) or a designated calibration agency under Article 102-18 paragraph (1).
   (b): 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.
   (c): 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).
   (d): Calibration conducted by using other equipment that listed above from a) to c).
2. The power supply no evaluation calibrated, which used the RMS clamp meter to verify before each testing.
3. The test was performed in Oven room.
4. Tested Date: 2023/6/10

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	≦ 0.25 uW/100 kHz
1000.0 MHz to 2387 MHz	≦ 2.5 uW/MHz
2387.0 MHz to 2400.0 MHz	≦ 25 uW/MHz
2483.5 MHz to 2496.5 MHz	≦ 25 uW/MHz
2496.5 MHz to 12500.0 MHz	≦ 2.5 uW/MHz

5.4 Spurious Emissions of Receiver

Frequencies	Limit
Below 1 GHz	≦4 nW
Above 1 GHz	≦20 nW

5.5 Antenna Power

Modulation System	Frequency Band Used	Antenna Power (Max.)	EIRP 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)

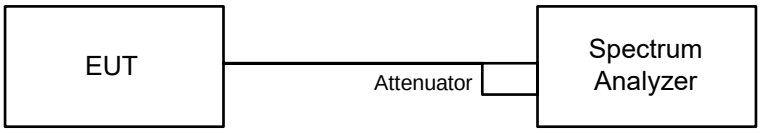
Notes:
1. Occupied bandwidth is less than 26MHz
2. Occupied bandwidth is more that 26MHz and less than 40MHz
3. EIRP limit is variable by the HPBA, the HPBA (half-power beam width) of the antenna shall be 360/A degrees or less, where A = EIRP/(2.14 dBi + “Antenna Power (limit)).
4. Tolerance of antenna power shall be +20% (upper value) and –80% (lower value).

5.6 Interference Prevention Function

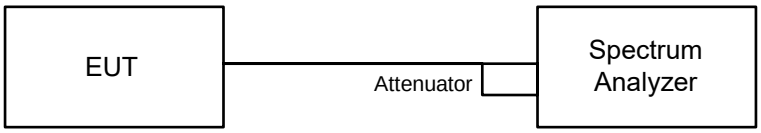
Radio equipment used mainly on the same premises and automatically transmits or receives identification code.

6 Test Arrangements

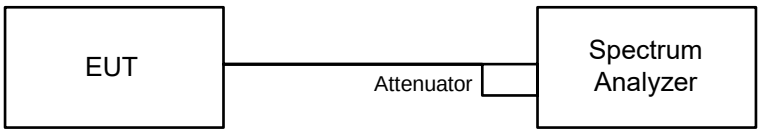
6.1 Frequency Tolerance



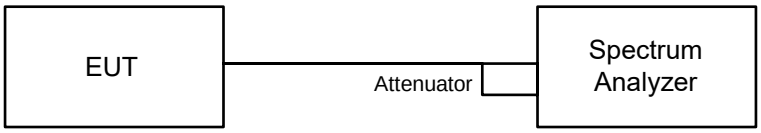
6.2 Occupied Bandwidth



6.3 Spurious Emissions

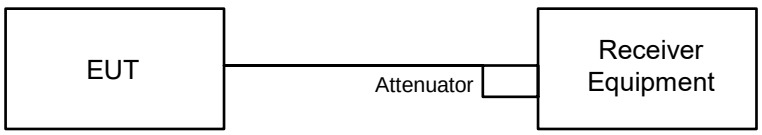


6.4 Spurious Emissions of Receiver



6.5 Antenna Power

6.6 Interference Prevention Function



7 Test Results of Test Item

7.1 Frequency Tolerance

Environmental Conditions:	24°C, 61% RH	Tested By:	Gary Lin

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	2401.999992	-0.003	2401.999992	-0.003	2401.999963	-0.015
19	2440	2439.999992	-0.003	2439.999991	-0.003	2439.999962	-0.015
39	2480	2479.999963	-0.014	2479.999963	-0.014	2479.999963	-0.014

7.2 Occupied Bandwidth

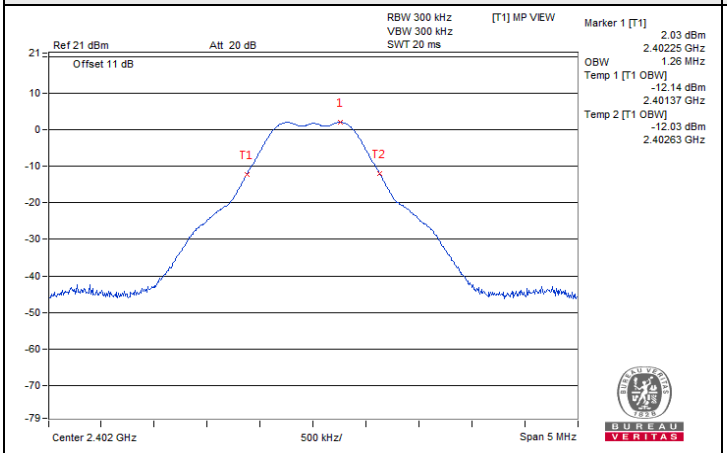
Environmental Conditions:	23°C, 61% RH	Tested By:	Gary Lin

BT-LE 1M

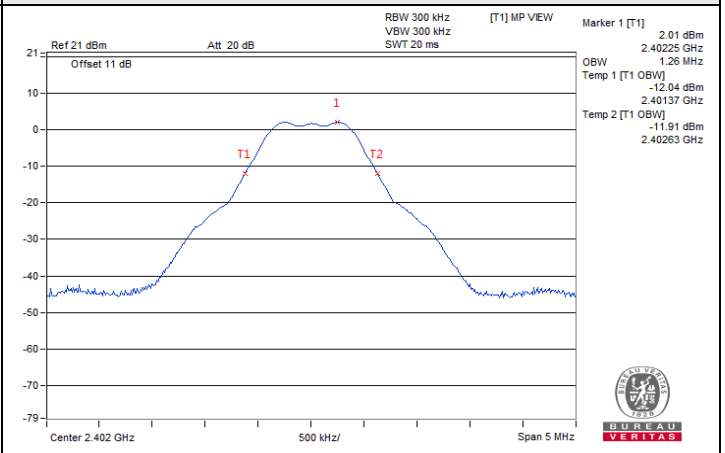
Channel	Frequency (MHz)	V_{normal}	$V_{max.}$	$V_{min.}$
		Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)	Occupied Bandwidth (MHz)
0	2402	1.26	1.26	1.26
19	2440	1.26	1.26	1.26
39	2480	1.26	1.26	1.26

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

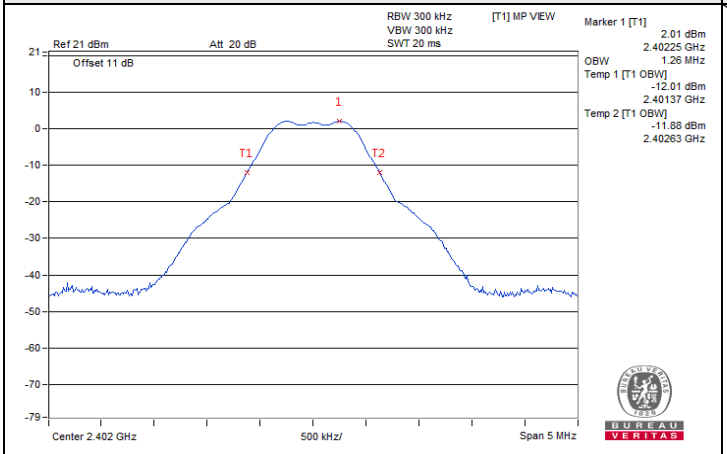
V_{normal}



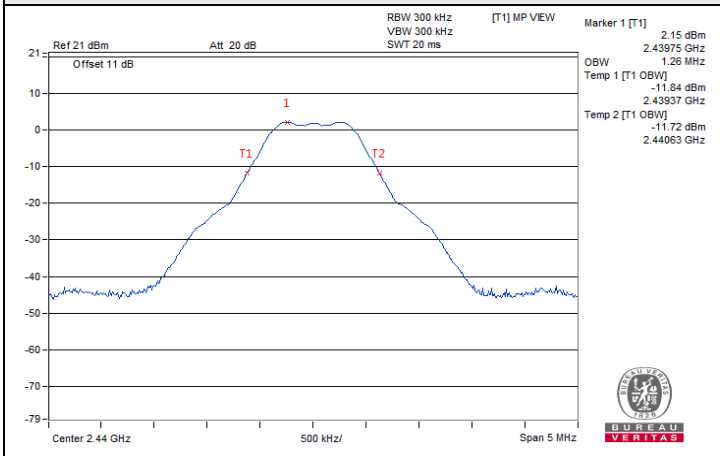
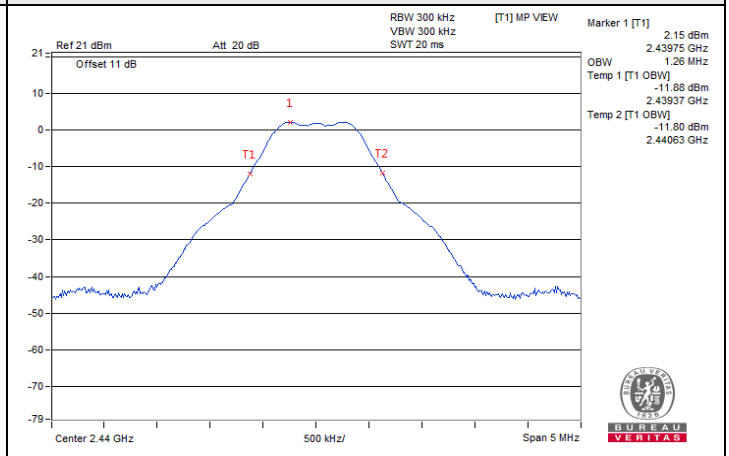
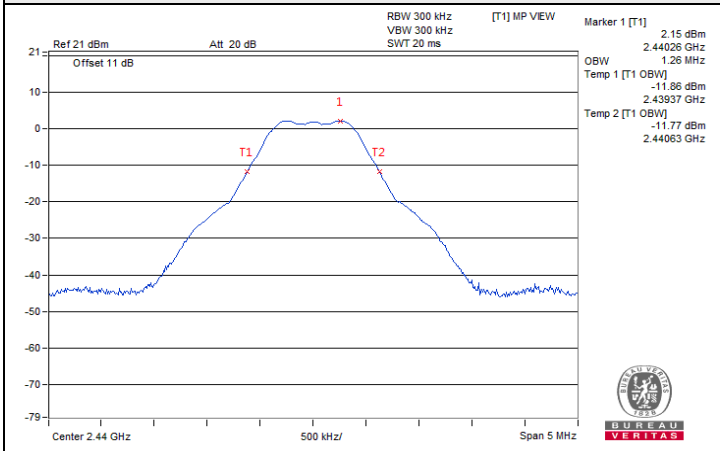
$V_{max.}$

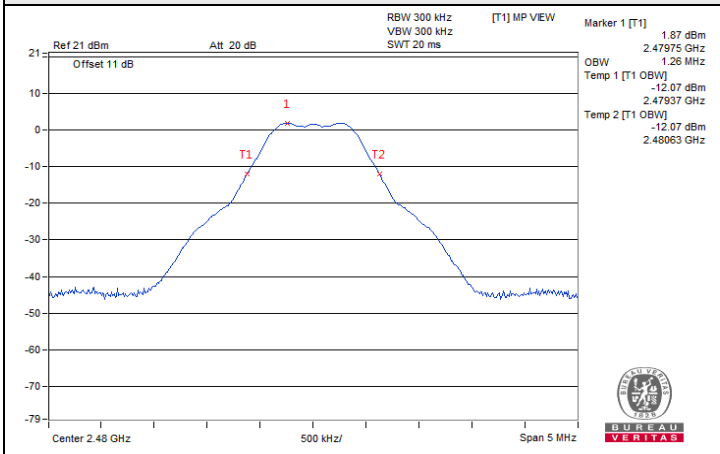
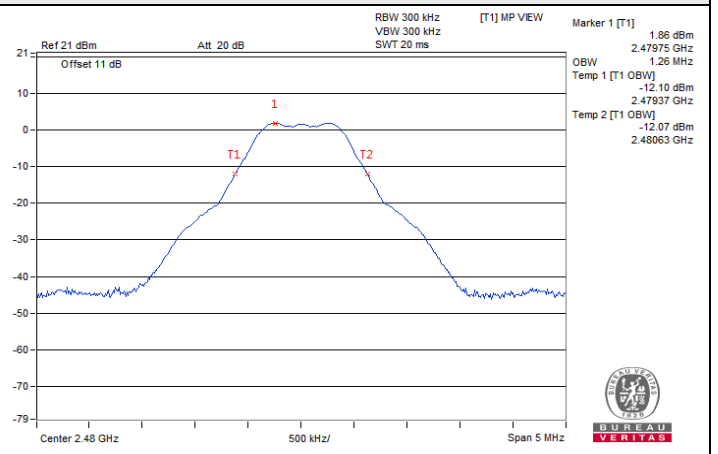
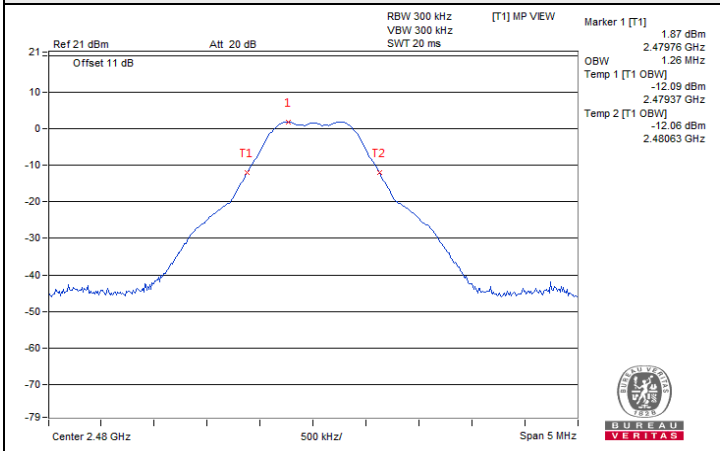


$V_{min.}$



CH 0 (2402 MHz)

V_{normal}	$V_{max.}$
	
$V_{min.}$	
	
CH 19 (2440 MHz)	

V_{normal}	$V_{max.}$
	
$V_{min.}$	
	
CH 39 (2480 MHz)	

7.3 Spurious Emissions

Environmental Conditions:	23°C, 61% RH	Tested By:	Gary Lin

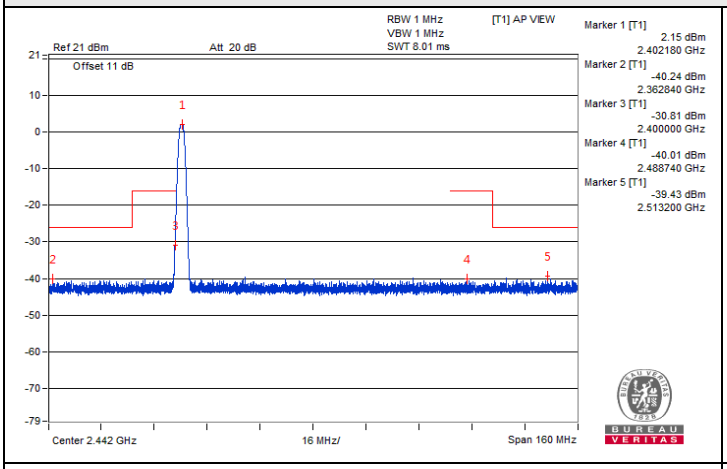
BT-LE 1M

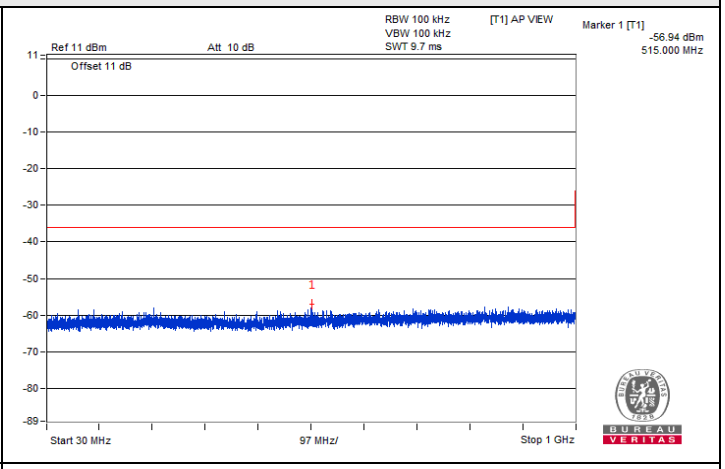
TEST CHANNEL		CH 0 (2402 MHz)			
TEST CONDITION	FREQUENCY RANGE(MHz)	FREQUENCY (MHz)	MEASUREMENT VALUE	LIMIT	RESULT
V_{normal}	30.0 to 1000.0	515.000	0.002023 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2169.934	0.103753 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2399.996	0.912011 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2495.664	0.128529 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	6924.299	0.258821 uW/MHz	2.5 uW/MHz	PASS
$V_{max.}$	30.0 to 1000.0	950.045	0.001734 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2337.414	0.103276 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2399.995	0.954993 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2495.632	0.124738 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	6916.796	0.301995 uW/MHz	2.5 uW/MHz	PASS
$V_{min.}$	30.0 to 1000.0	974.537	0.002037 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2327.012	0.11246 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2399.991	0.946237 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2494.395	0.120226 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	6989.321	0.275423 uW/MHz	2.5 uW/MHz	PASS
TEST CHANNEL		CH 19 (2440 MHz)			
V_{normal}	30.0 to 1000.0	822.975	0.001694 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2337.761	0.102802 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2399.405	0.111429 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2484.531	0.120781 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	11242.059	0.25527 uW/MHz	2.5 uW/MHz	PASS
$V_{max.}$	30.0 to 1000.0	950.045	0.001963 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2267.891	0.098855 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2387.838	0.111429 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2487.179	0.117761 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	6938.054	0.279898 uW/MHz	2.5 uW/MHz	PASS
$V_{min.}$	30.0 to 1000.0	793.511	0.001828 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2257.835	0.106905 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2389.907	0.126765 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2493.266	0.138676 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	6966.814	0.290402 uW/MHz	2.5 uW/MHz	PASS

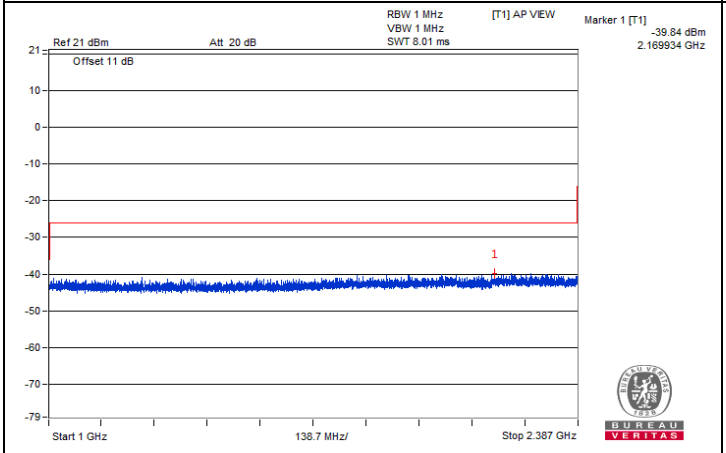
TEST CHANNEL		CH 39 (2480 MHz)			
TEST CONDITION	FREQUENCY RANGE(MHz)	FREQUENCY (MHz)	MEASUREMENT VALUE	LIMIT	RESULT
V_{normal}	30.0 to 1000.0	892.451	0.001936 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2230.269	0.113763 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2388.405	0.110408 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2488.826	0.11885 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	6918.047	0.275423 uW/MHz	2.5 uW/MHz	PASS
$V_{max.}$	30.0 to 1000.0	825.157	0.00169 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2258.875	0.103514 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2398.739	0.126183 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2485.446	0.139637 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	6898.040	0.246037 uW/MHz	2.5 uW/MHz	PASS
$V_{min.}$	30.0 to 1000.0	869.777	0.001854 uW/100kHz	0.25 uW/100kHz	PASS
	1000.0 to 2387.0	2373.823	0.104954 uW/MHz	2.5 uW/MHz	PASS
	2387.0 to 2400.0	2395.781	0.123595 uW/MHz	25 uW/MHz	PASS
	2483.5 to 2496.5	2484.881	0.121899 uW/MHz	25 uW/MHz	PASS
	2496.5 to 12500.0	5463.788	0.27227 uW/MHz	2.5 uW/MHz	PASS

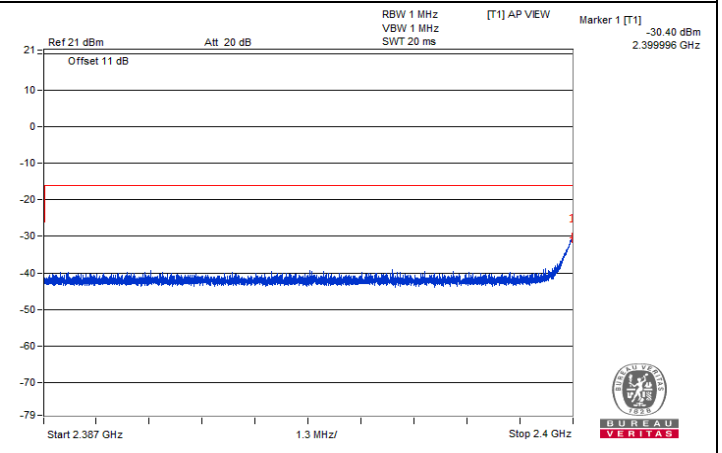
NOTE: 1. The spectrum plots are attached on the following pages.

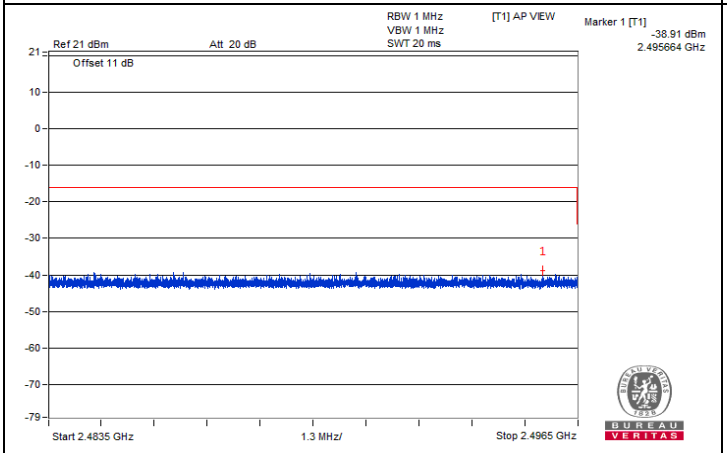
Vnormal

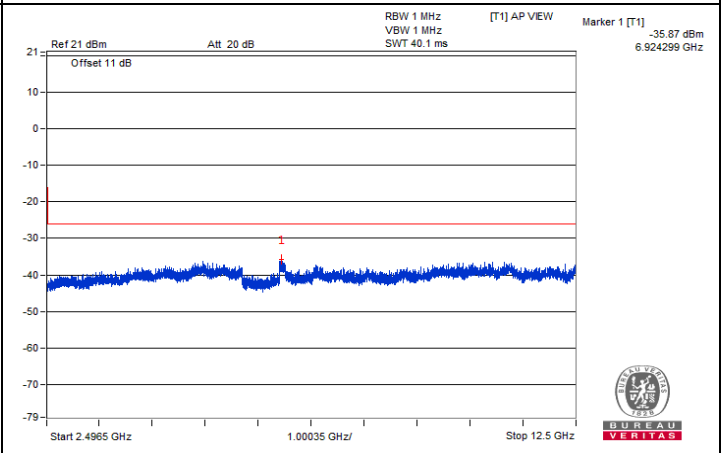






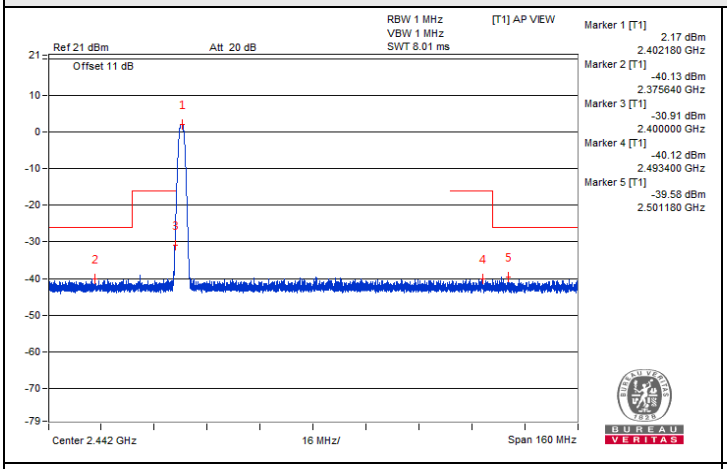


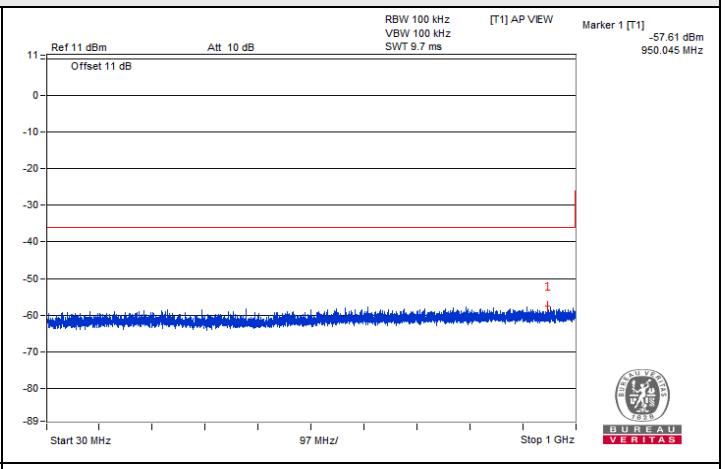


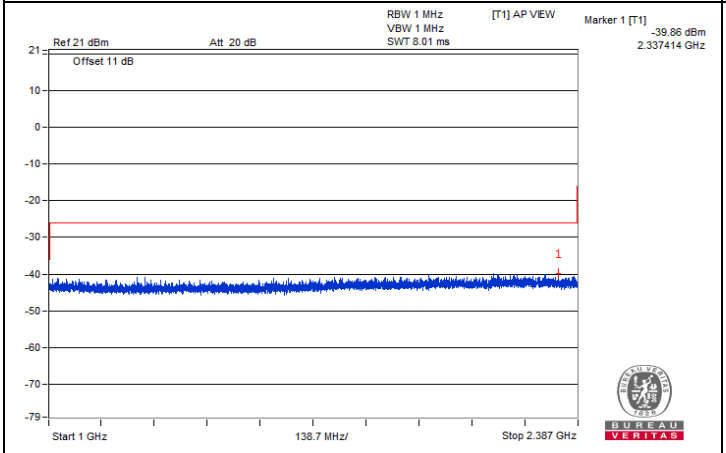


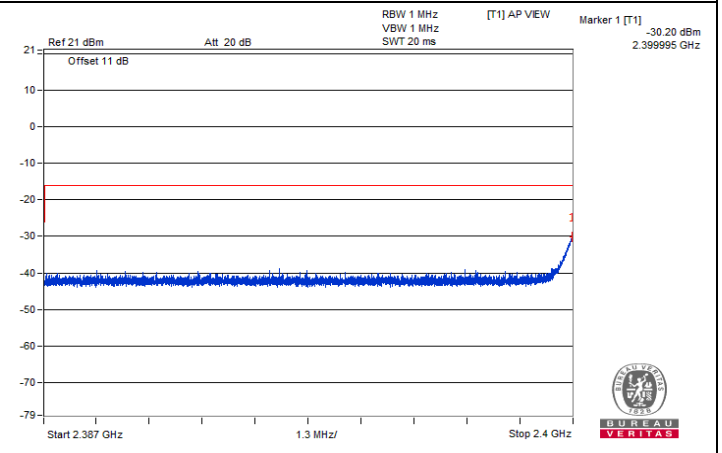
CH 0 (2402 MHz)

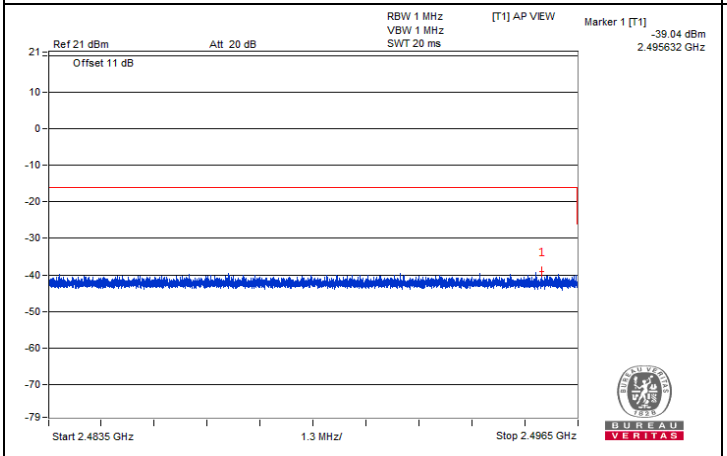
Vmax.

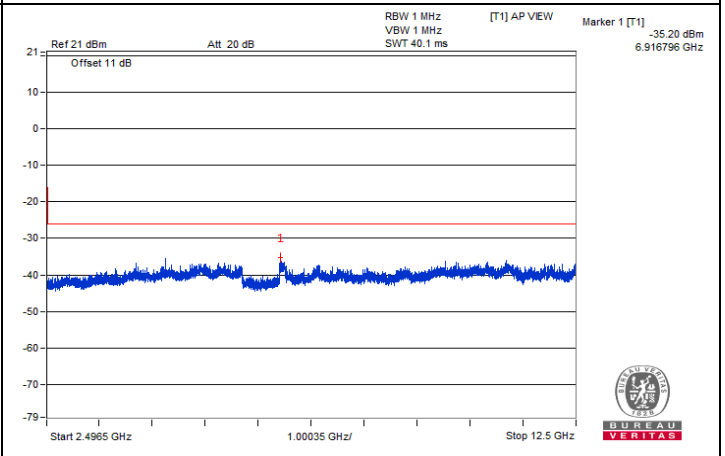






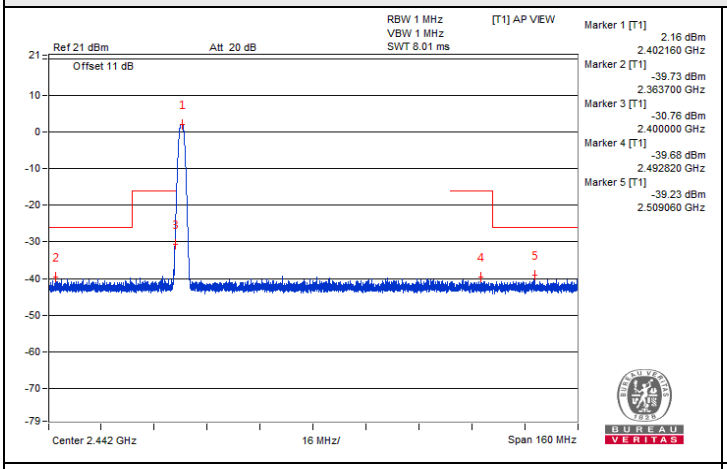


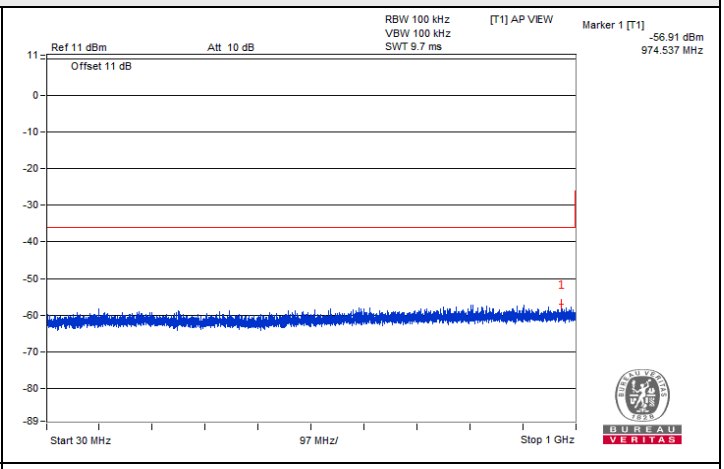


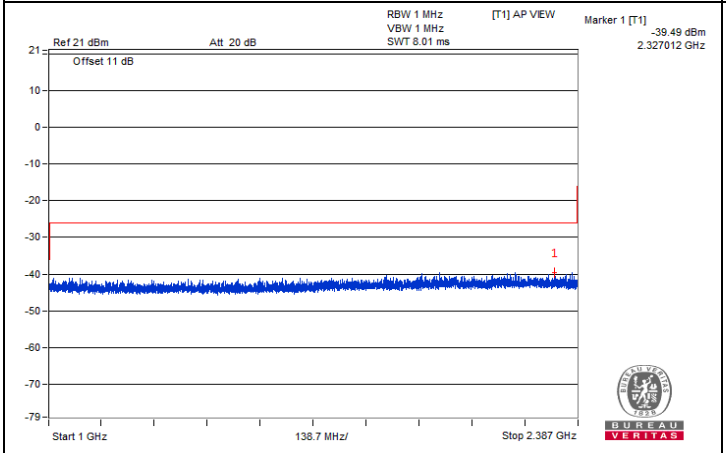


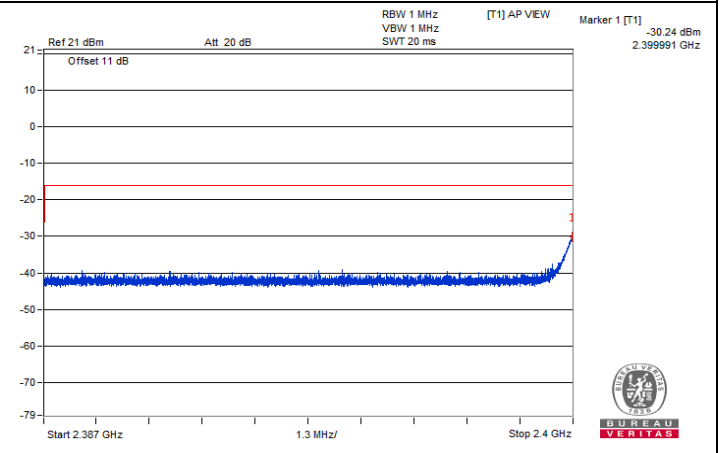
CH 0 (2402 MHz)

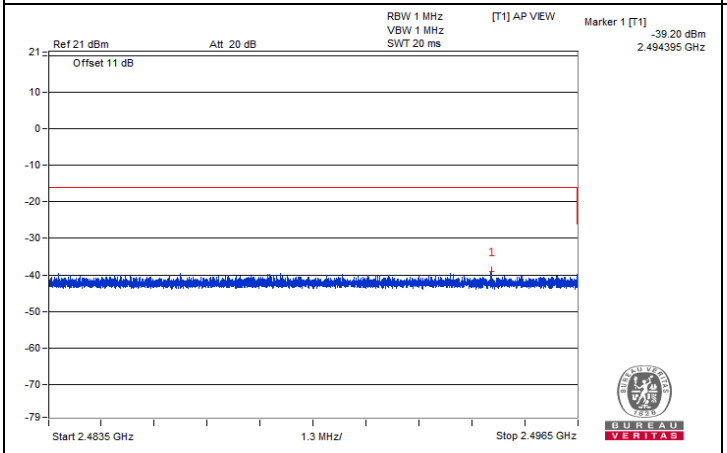
Vmin.

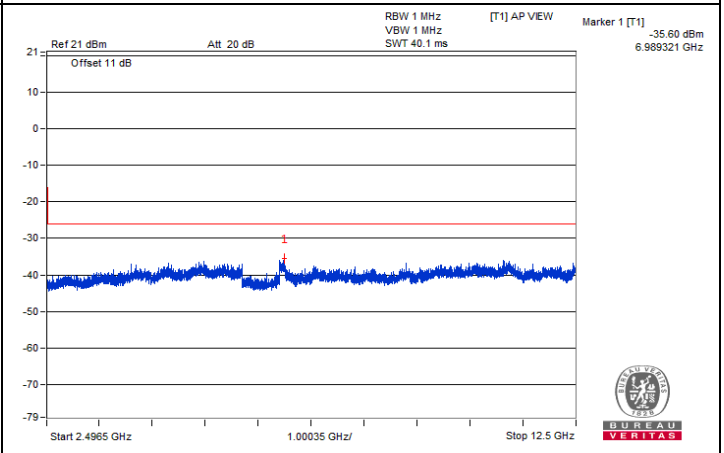






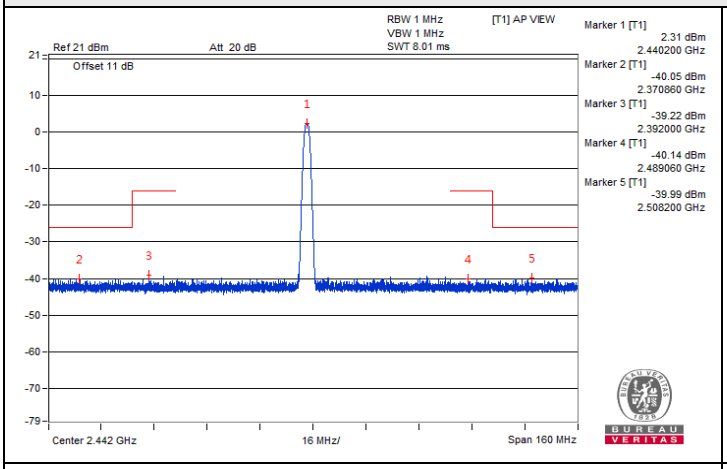


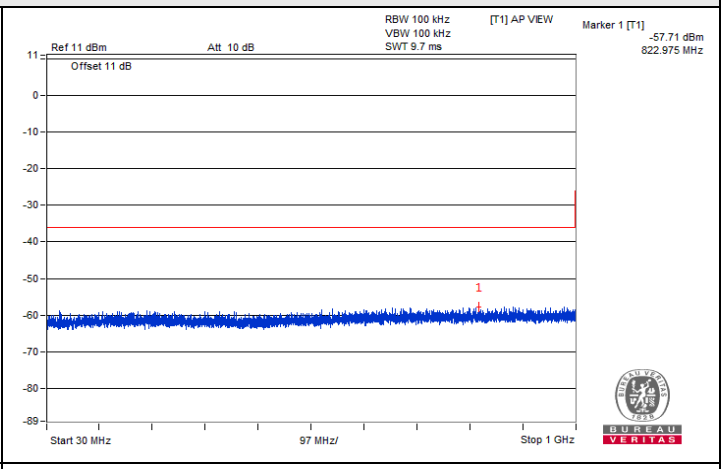


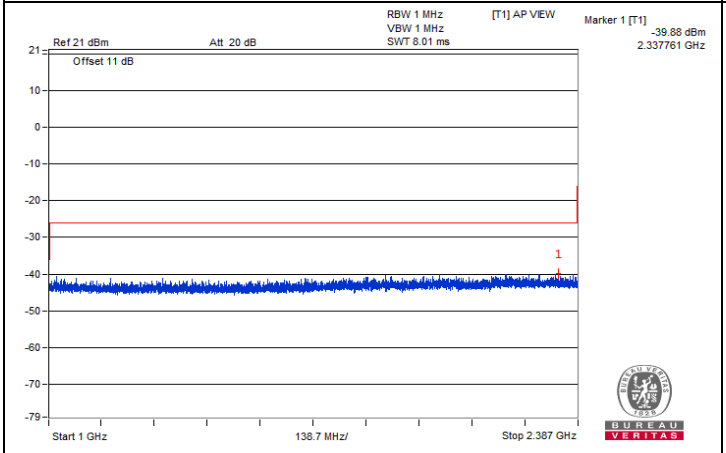


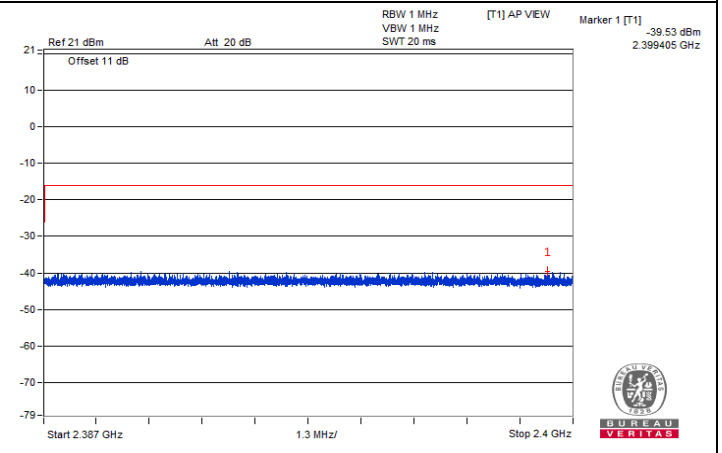
CH 0 (2402 MHz)

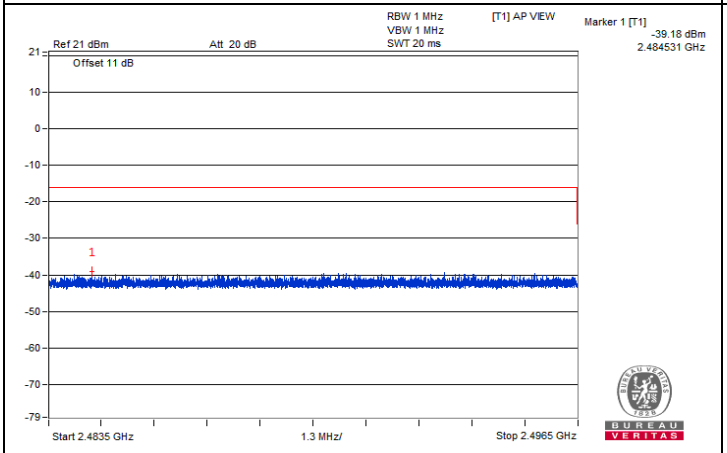
Vnormal

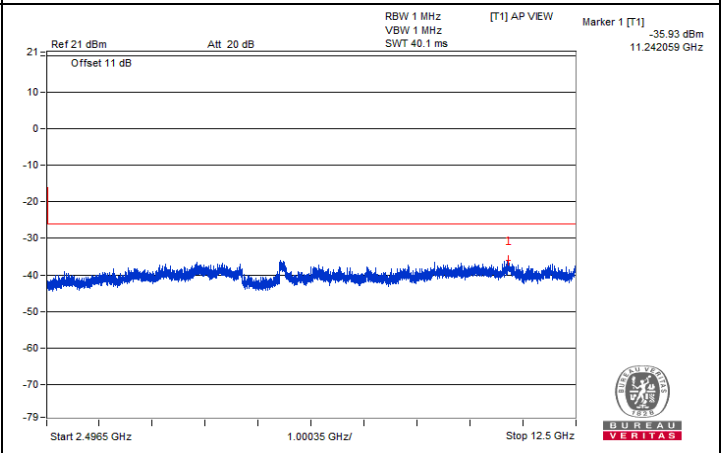






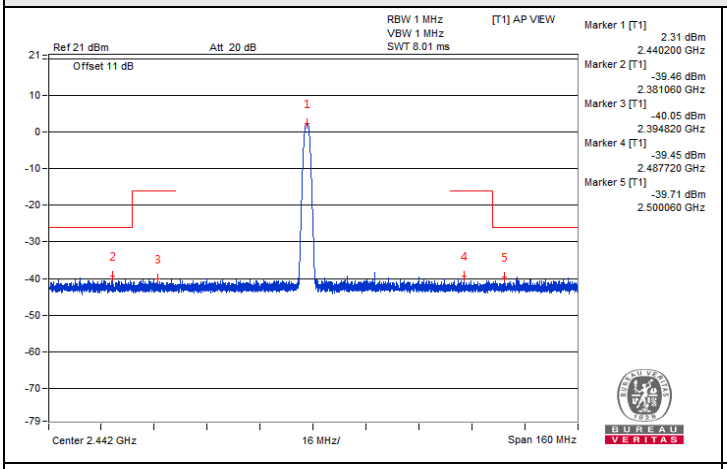


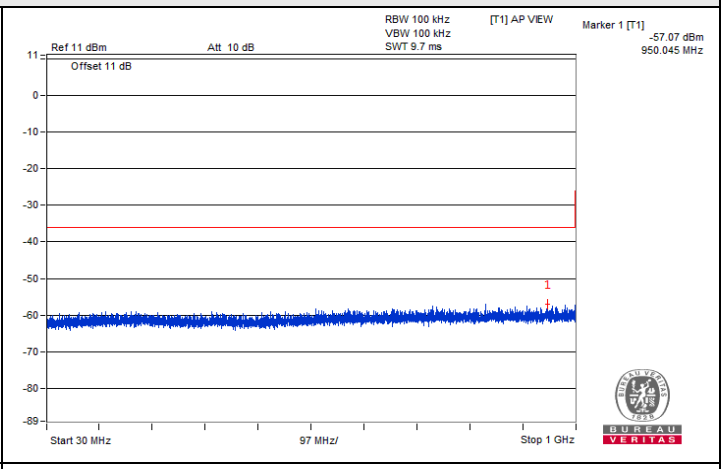


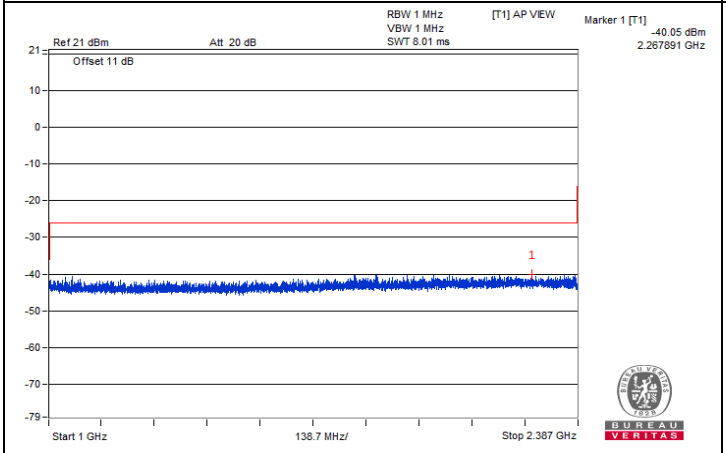


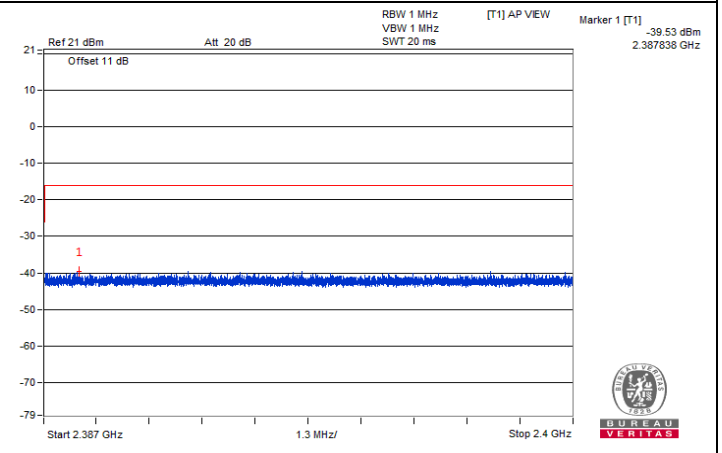
CH 19 (2440 MHz)

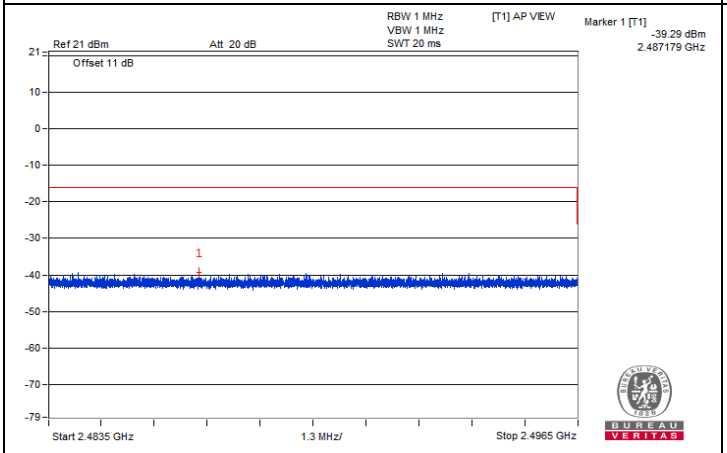
Vmax.

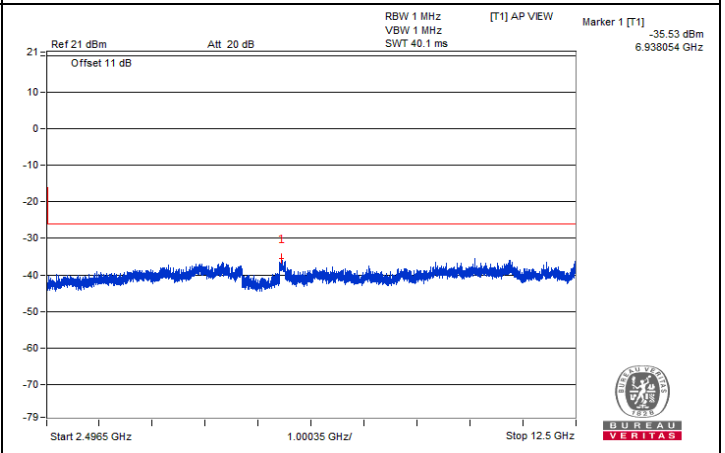






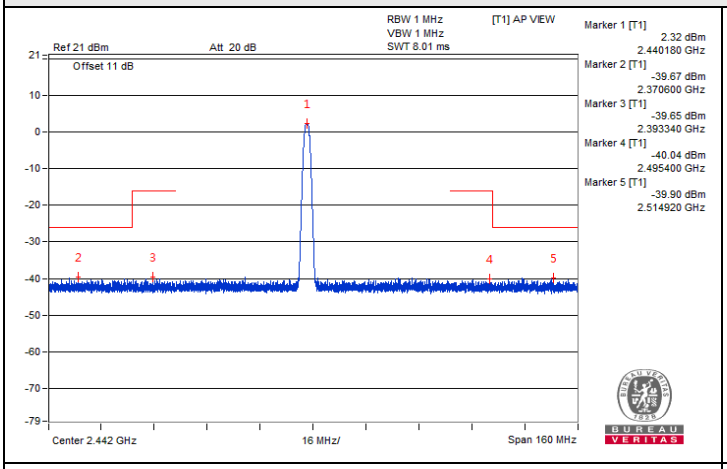


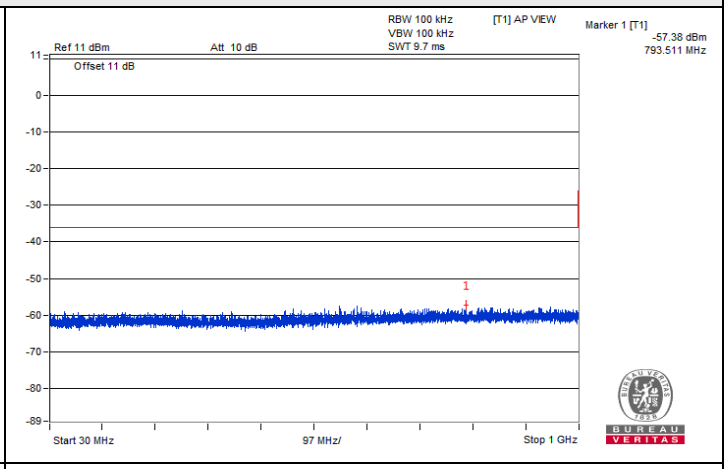


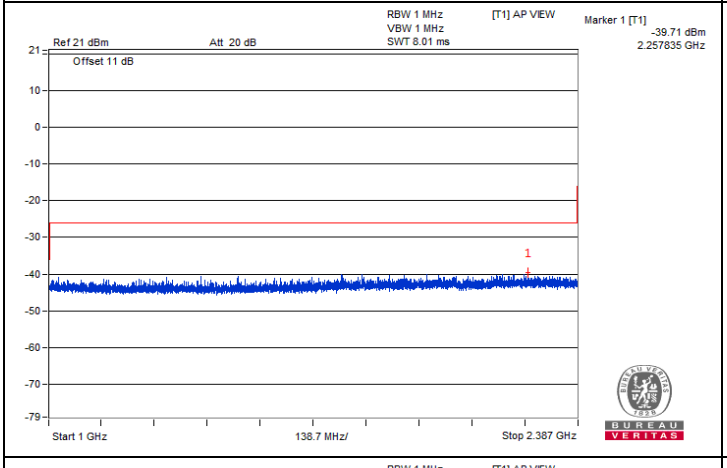


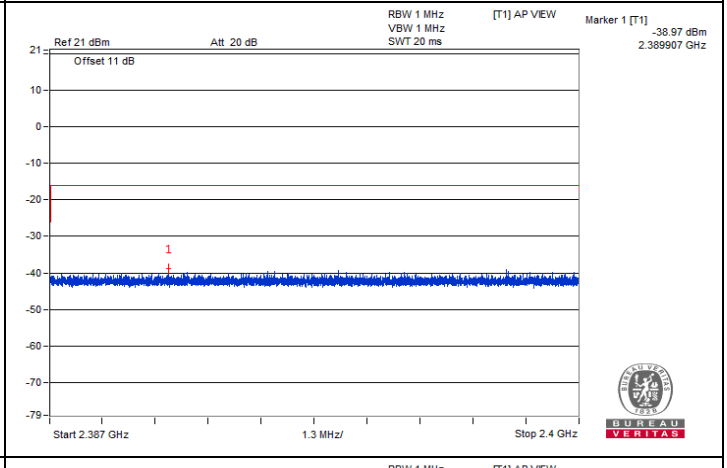
CH 19 (2440 MHz)

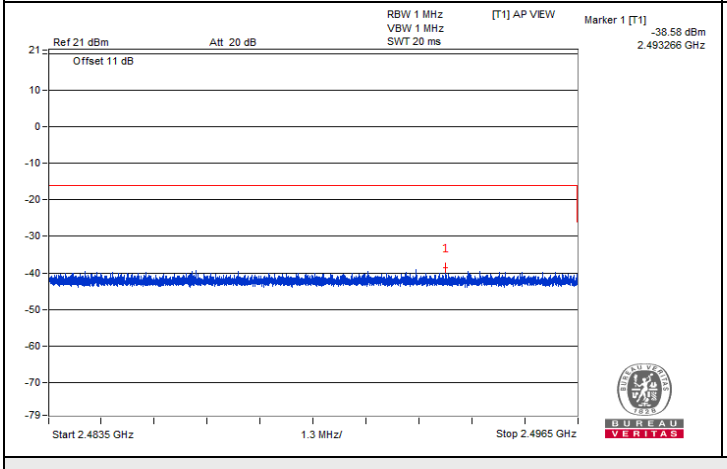
Vmin.

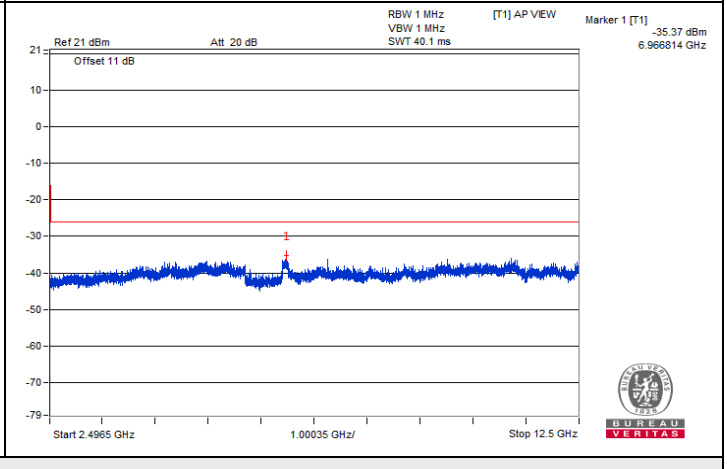






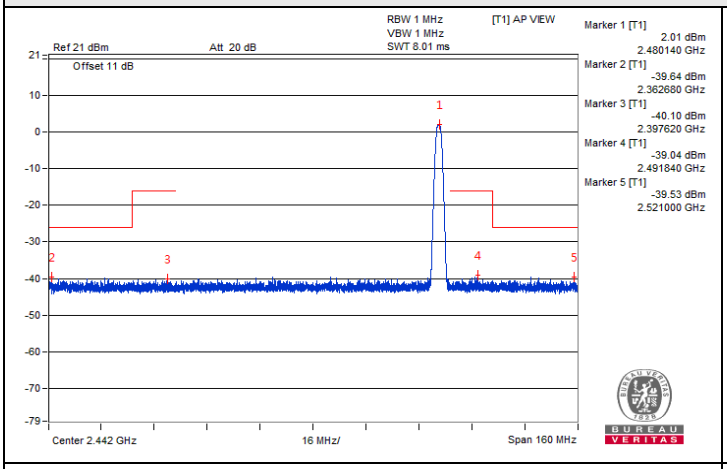


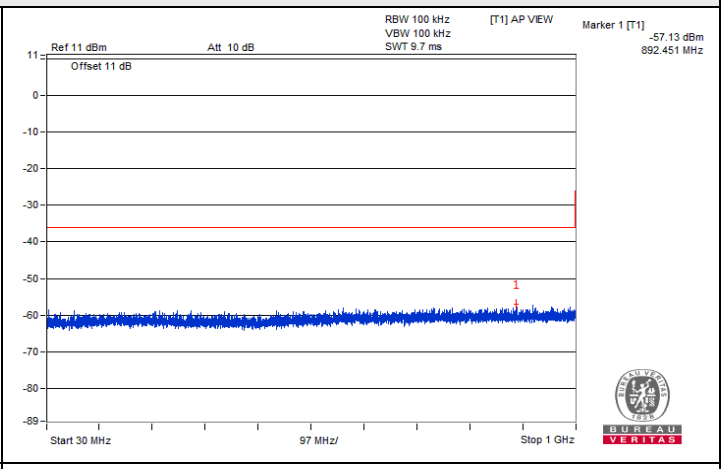


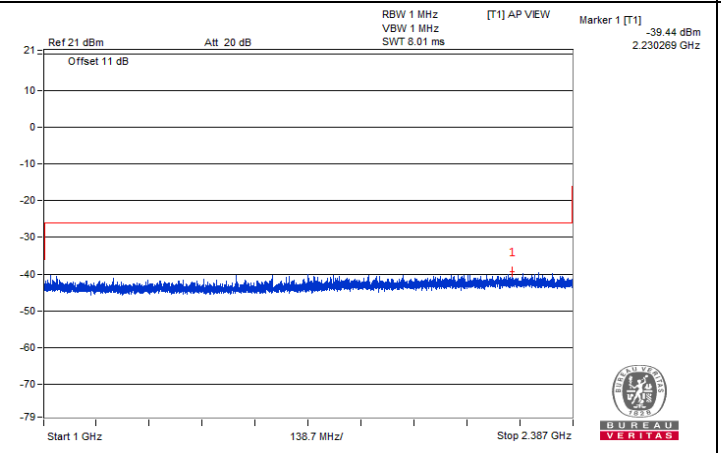


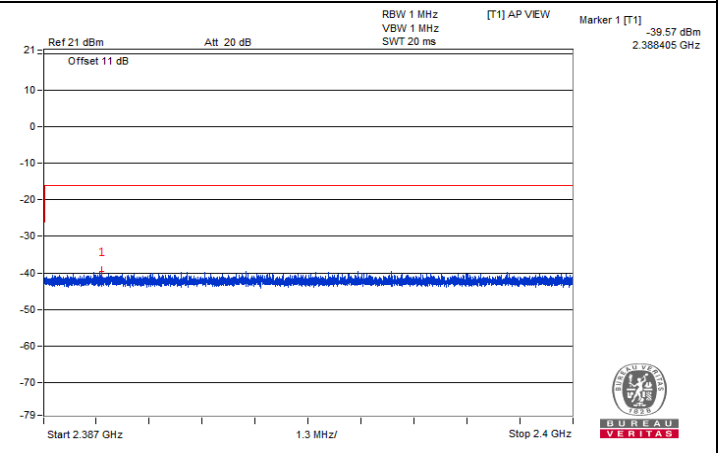
CH 19 (2440 MHz)

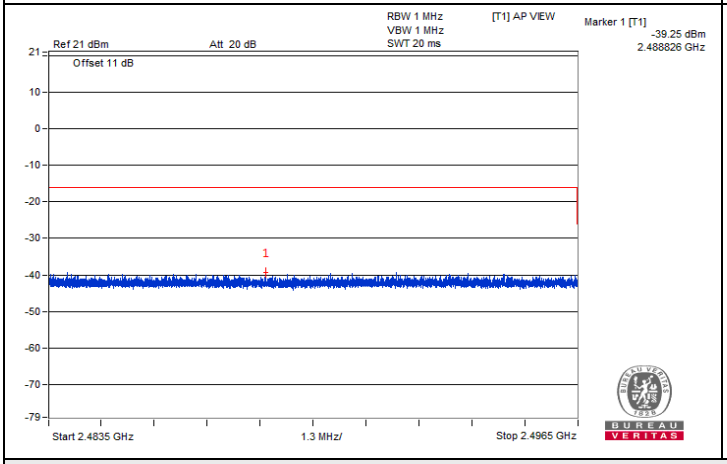
Vnormal

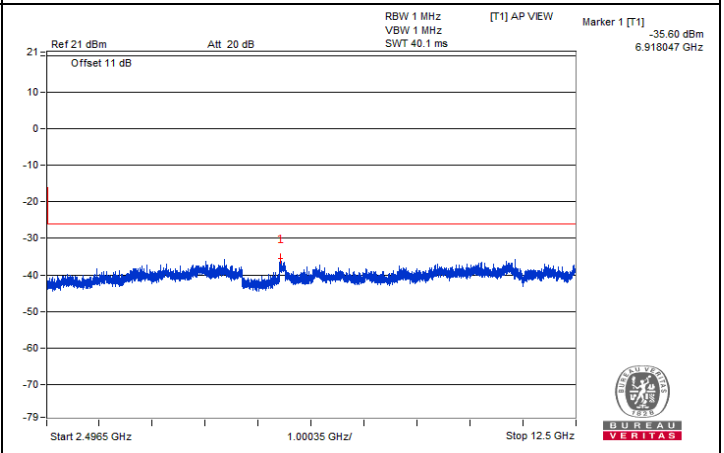






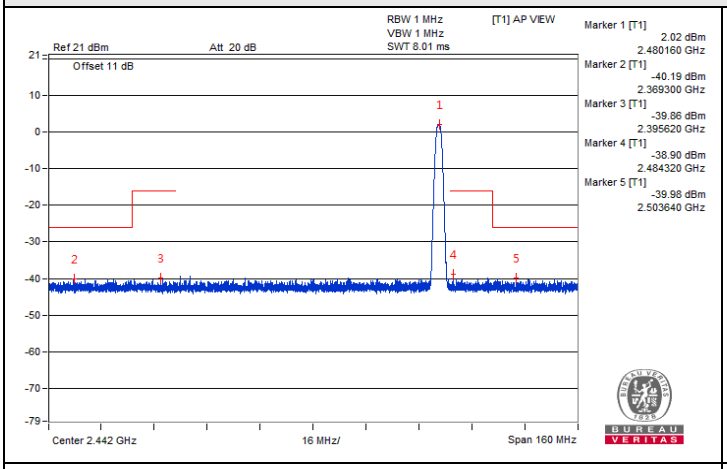


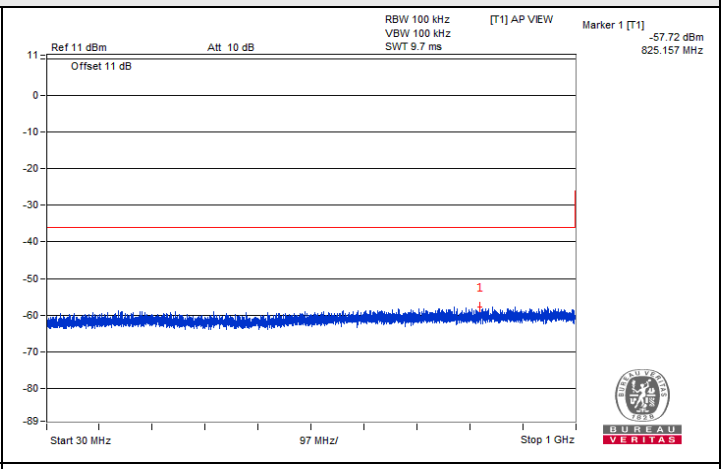


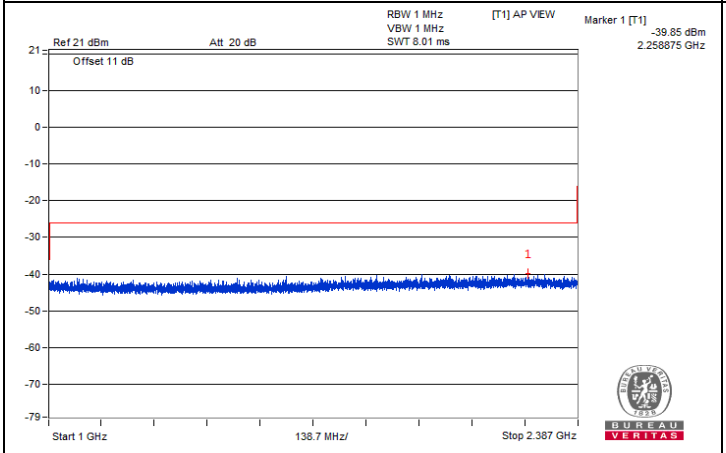


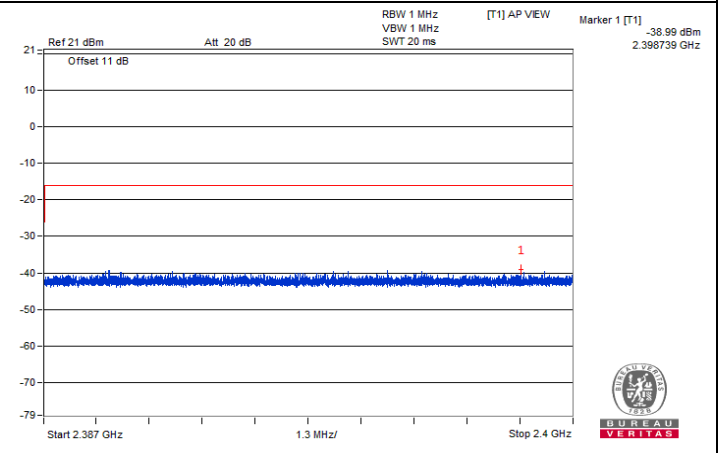
CH 39 (2480 MHz)

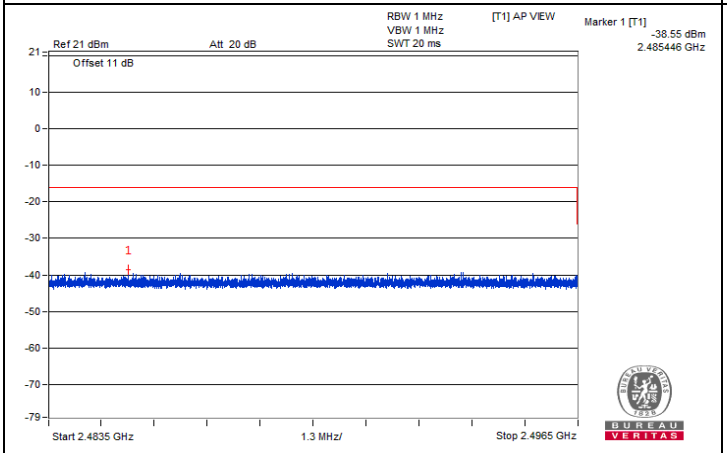
Vmax.

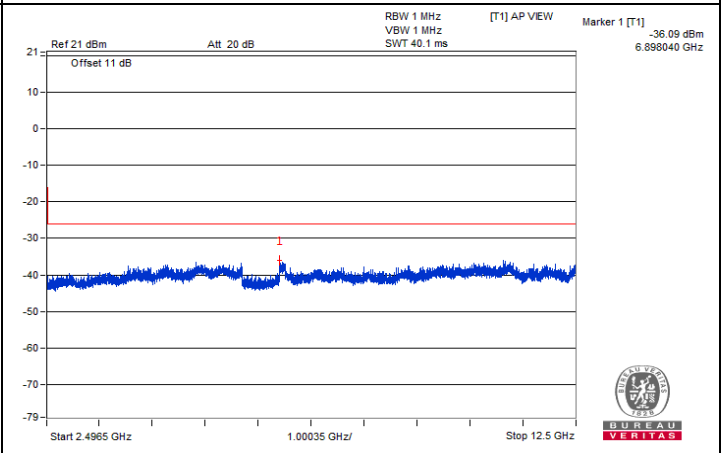






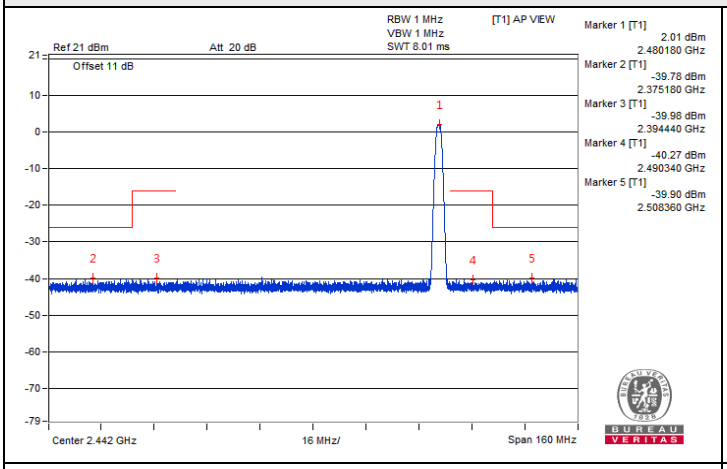


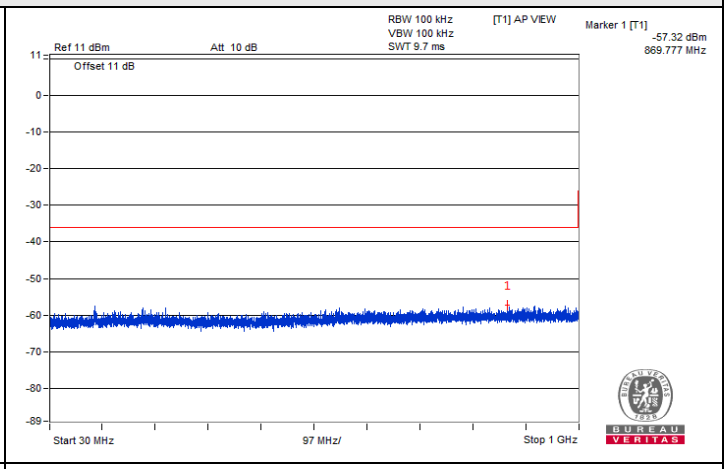


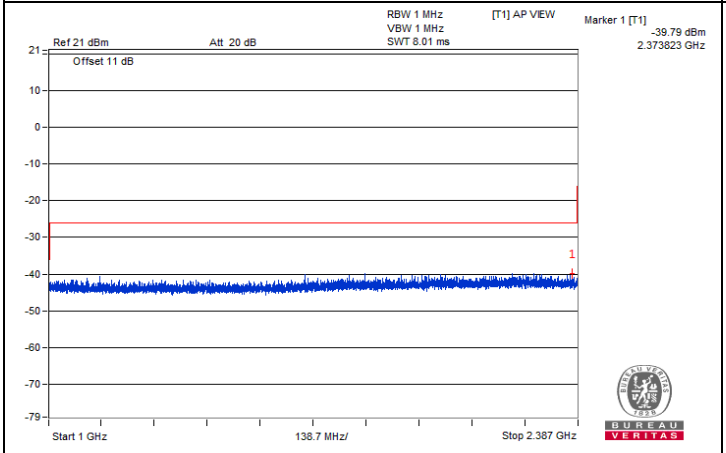


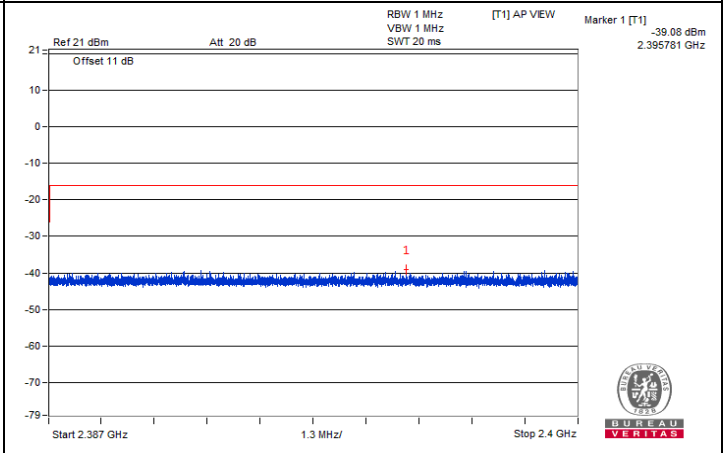
CH 39 (2480 MHz)

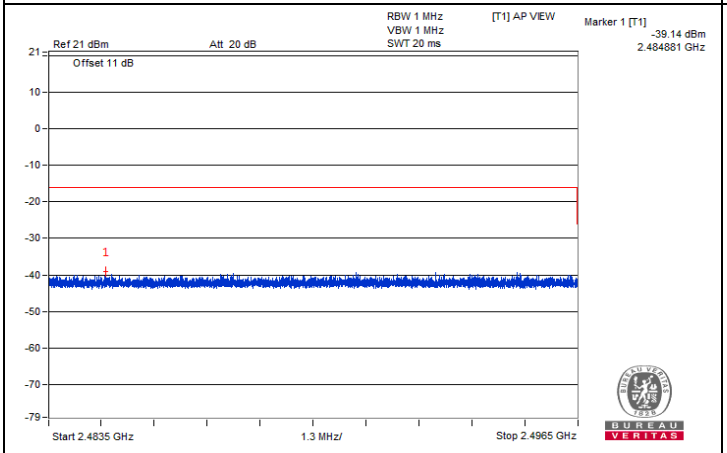
Vmin.

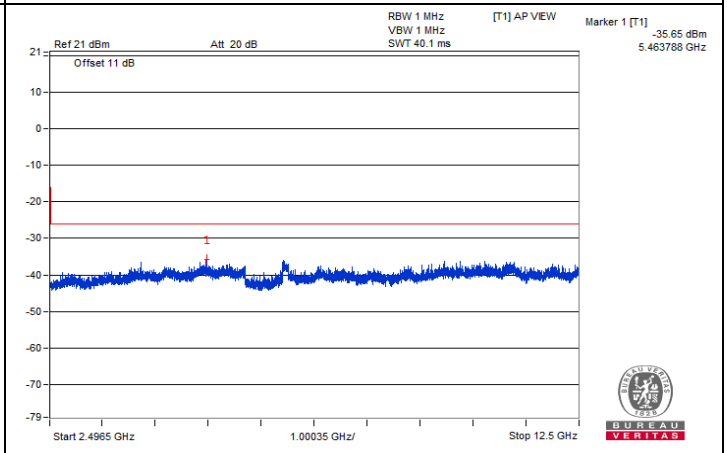












CH 39 (2480 MHz)

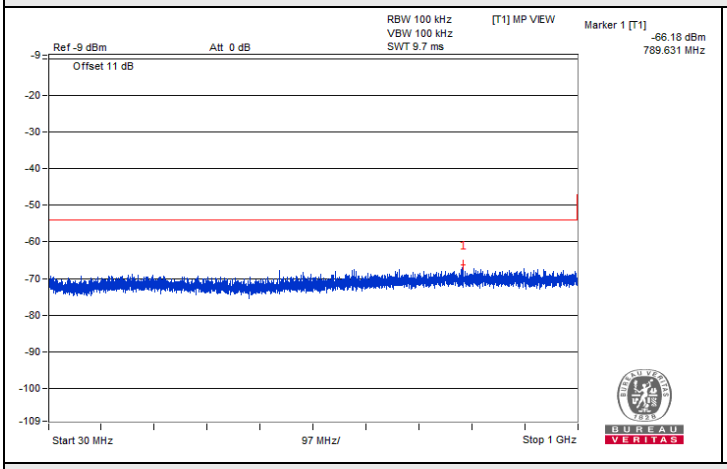
7.4 Spurious Emissions of Receiver

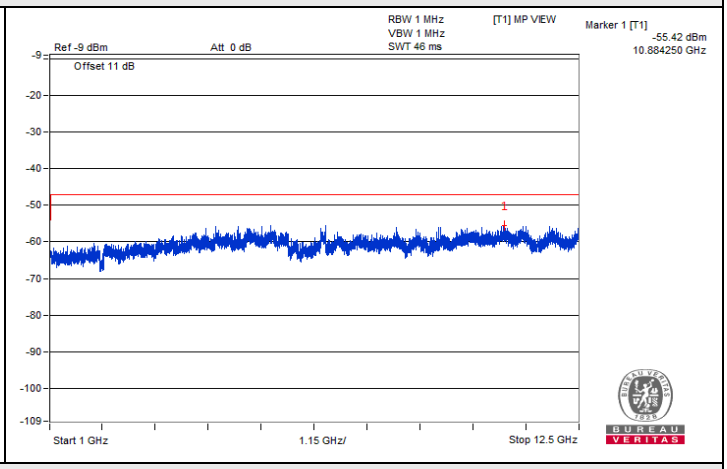
Environmental Conditions:	24°C, 61% RH	Tested By:	Gary Lin

BT-LE 1M

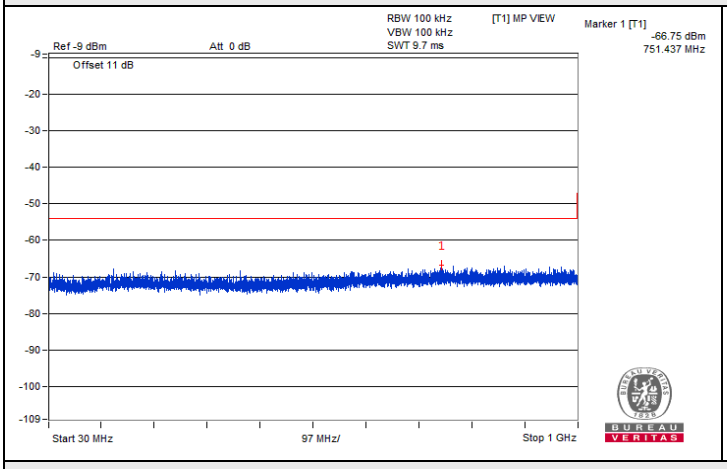
TEST CHANNEL		CH 0 (2402 MHz)			
TEST CONDITION	FREQUENCY RANGE(MHz)	FREQUENCY (MHz)	MEASUREMENT VALUE(nW)	LIMIT (nW)	RESULT
V_{normal}	30.0 to 1000.0	789.631	0.240991	4	PASS
	1000.0 to 12500.0	10884.250	2.870781	20	PASS
$V_{max.}$	30.0 to 1000.0	751.437	0.211349	4	PASS
	1000.0 to 12500.0	10839.687	3.365116	20	PASS
$V_{min.}$	30.0 to 1000.0	974.416	0.196789	4	PASS
	1000.0 to 12500.0	11266.625	2.779713	20	PASS
TEST CHANNEL		CH 19 (2440 MHz)			
V_{normal}	30.0 to 1000.0	722.822	0.224388	4	PASS
	1000.0 to 12500.0	11357.187	2.964831	20	PASS
$V_{max.}$	30.0 to 1000.0	884.206	0.250611	4	PASS
	1000.0 to 12500.0	11883.312	3.483373	20	PASS
$V_{min.}$	30.0 to 1000.0	683.295	0.218273	4	PASS
	1000.0 to 12500.0	6919.625	2.904023	20	PASS
TEST CHANNEL		CH 39 (2480 MHz)			
V_{normal}	30.0 to 1000.0	987.753	0.238232	4	PASS
	1000.0 to 12500.0	10856.937	3.258367	20	PASS
$V_{max.}$	30.0 to 1000.0	831.826	0.211349	4	PASS
	1000.0 to 12500.0	10090.750	3.459394	20	PASS
$V_{min.}$	30.0 to 1000.0	866.018	0.199067	4	PASS
	1000.0 to 12500.0	10319.312	3.176874	20	PASS

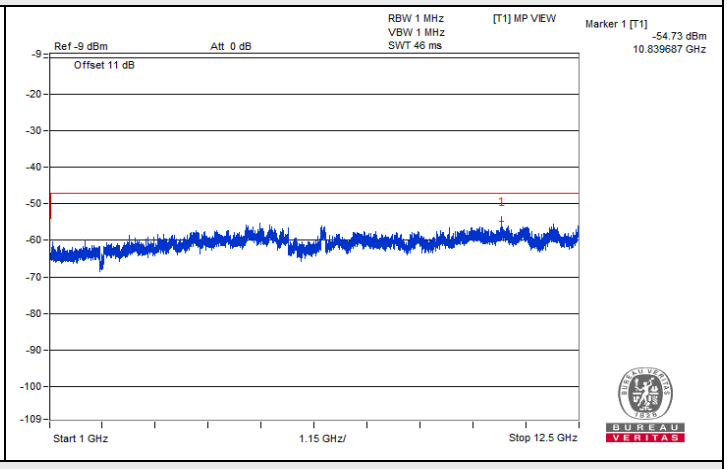
Vnormal



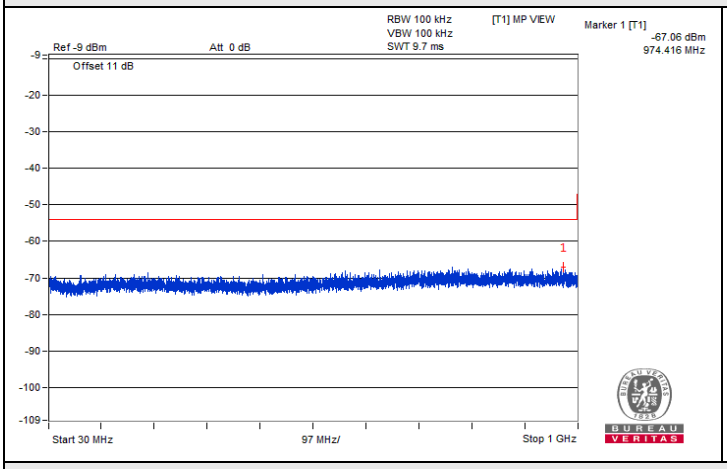


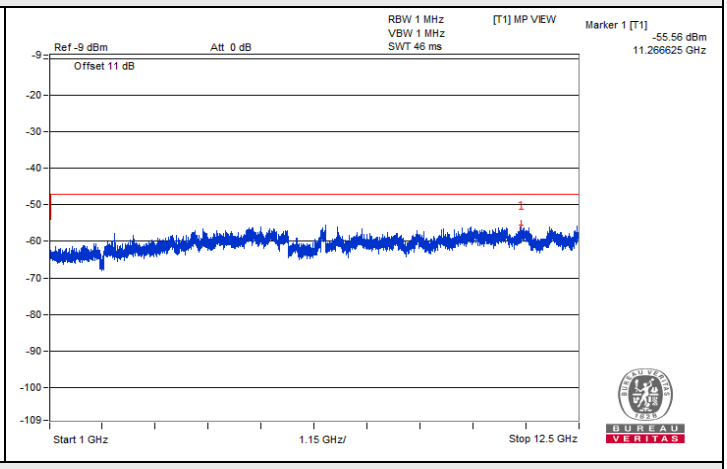
Vmax.





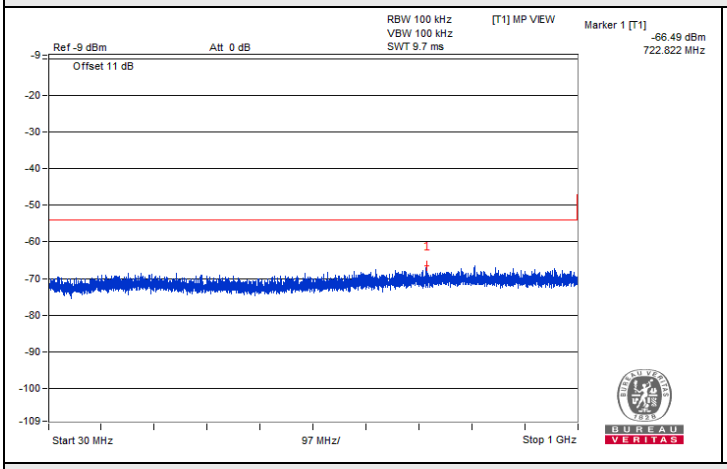
Vmin.

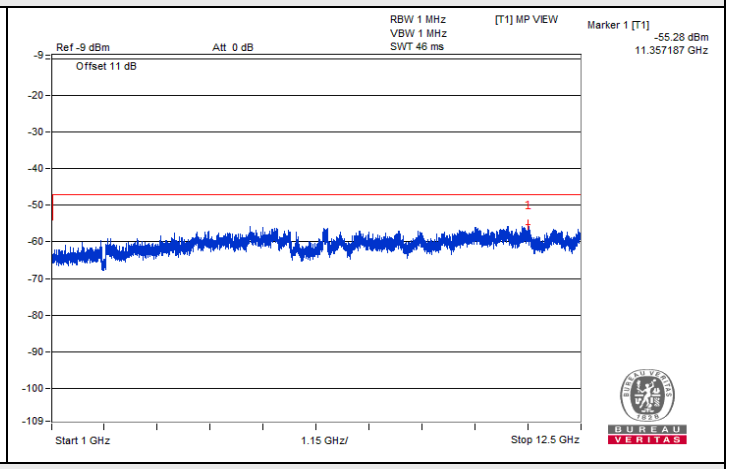




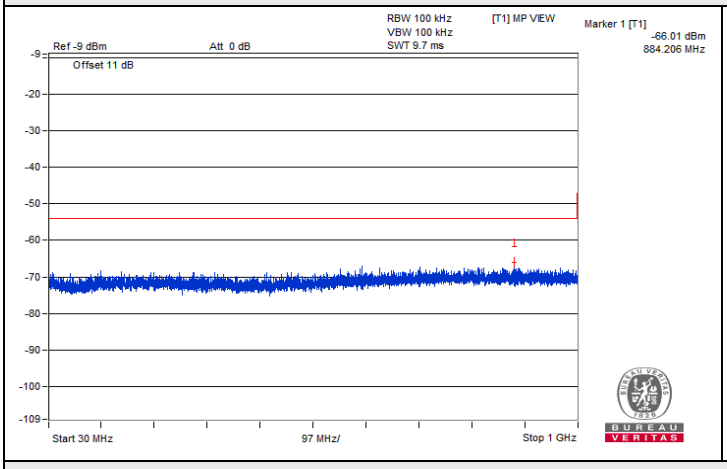
CH 0 (2402 MHz)

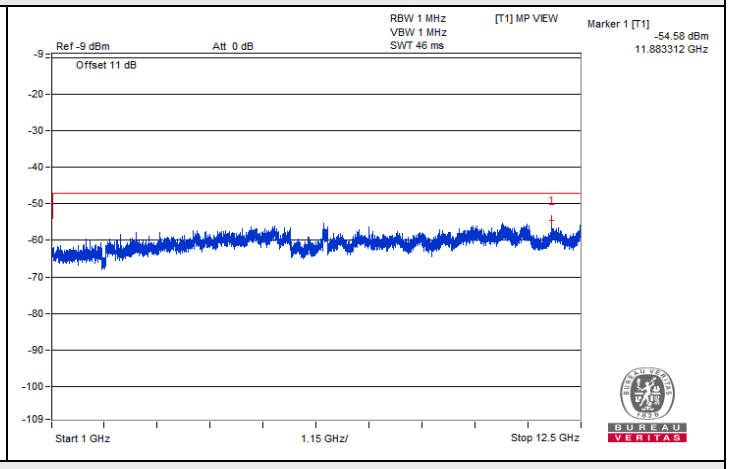
Vnormal



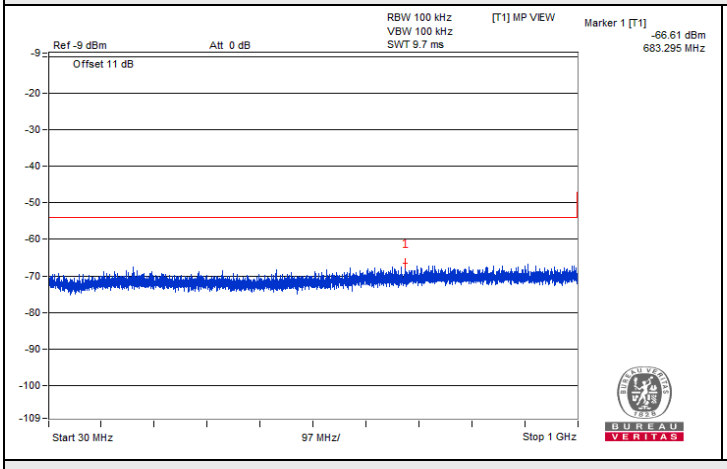


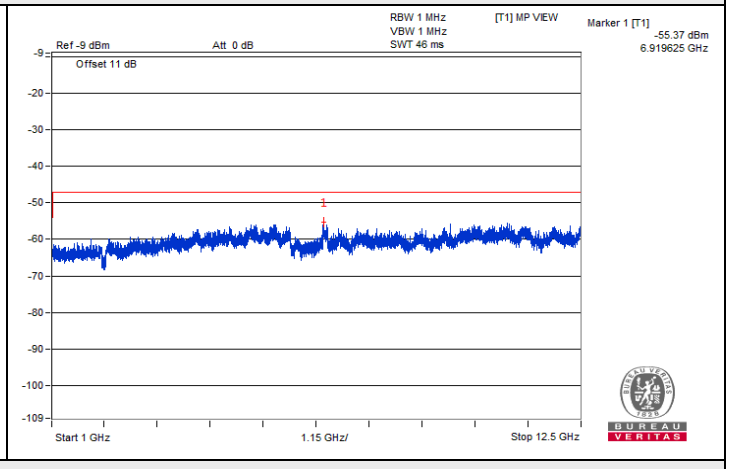
Vmax.





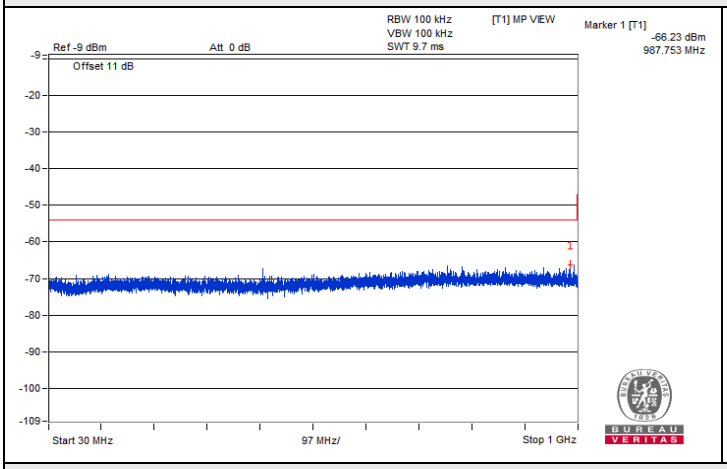
Vmin.

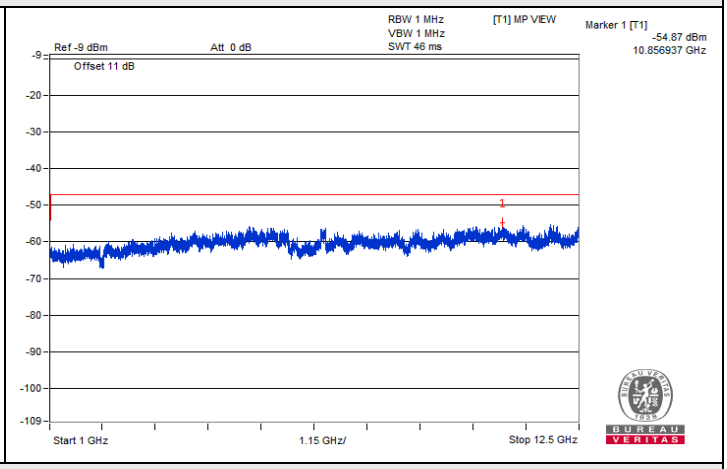




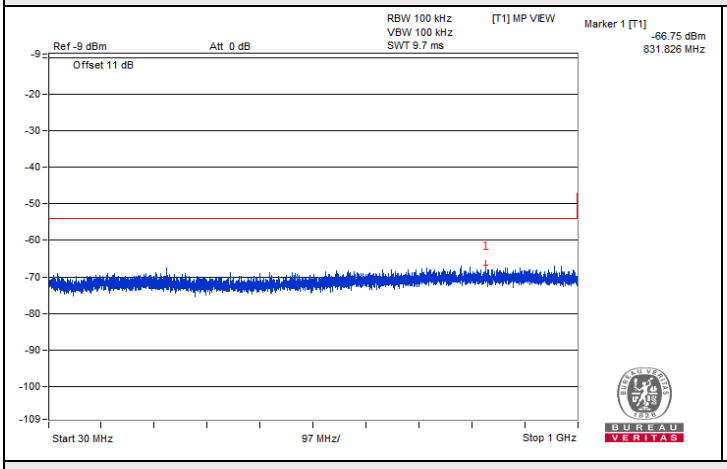
CH 19 (2440 MHz)

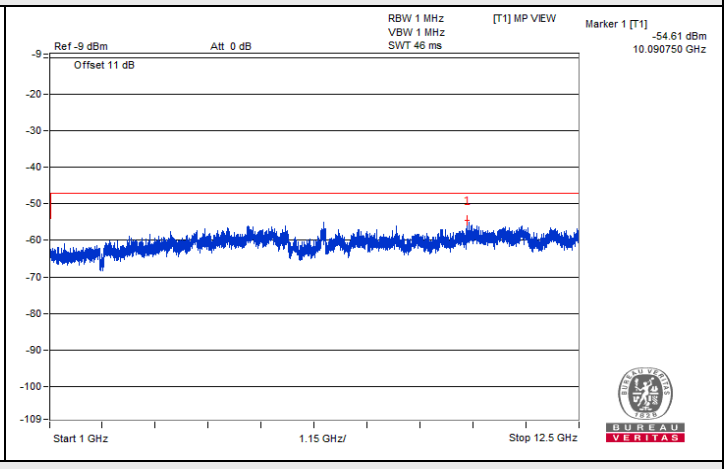
Vnormal



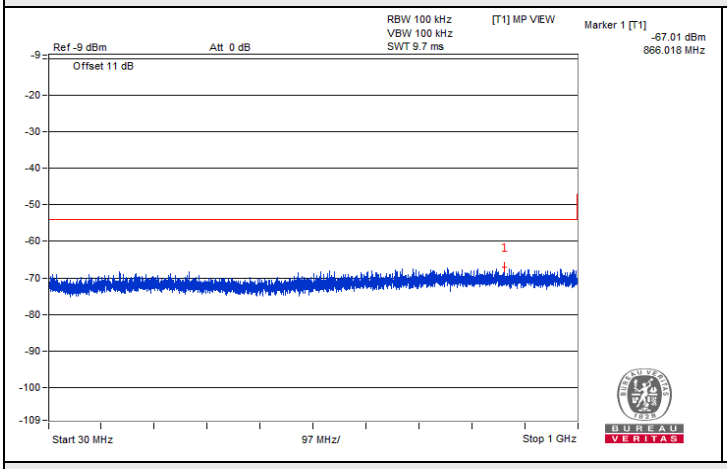


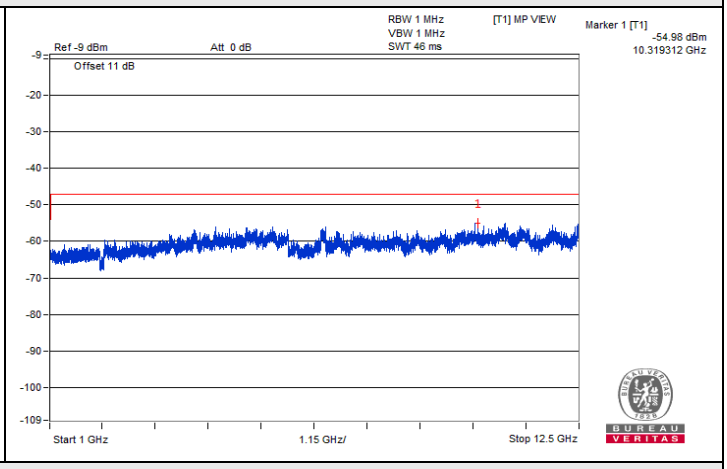
Vmax.





Vmin.





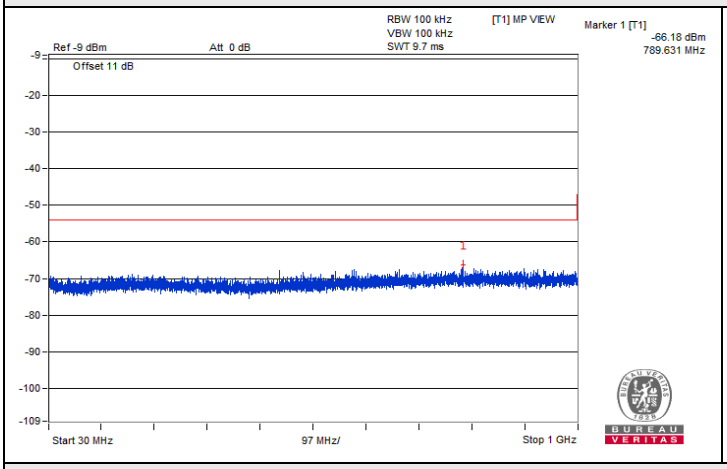
CH 39 (2480 MHz)

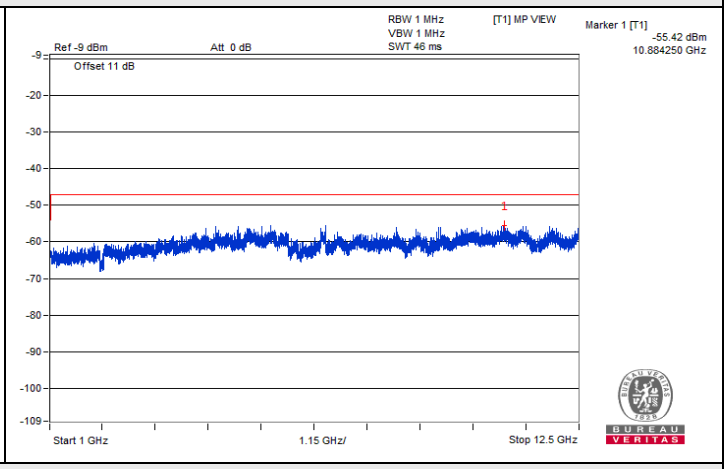
Environmental Conditions:	24°C, 61% RH	Tested By:	Gary Lin

BT-LE 1M

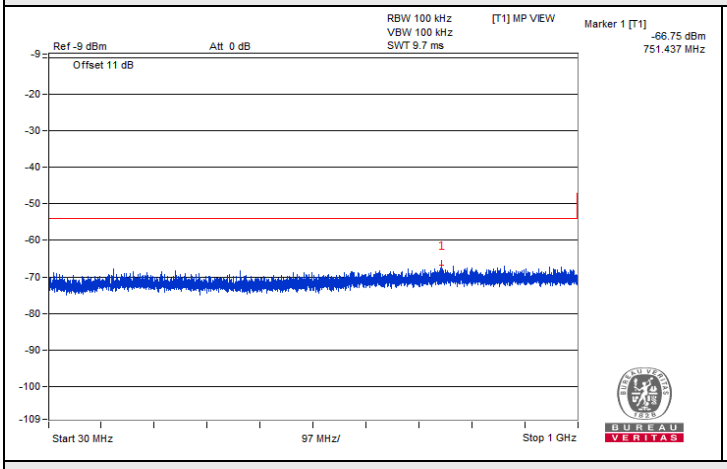
TEST CHANNEL		CH 0 (2402 MHz)			
TEST CONDITION	FREQUENCY RANGE(MHz)	FREQUENCY (MHz)	MEASUREMENT VALUE(nW)	LIMIT (nW)	RESULT
V_{normal}	30.0 to 1000.0	789.631	0.240991	4	PASS
	1000.0 to 12500.0	10884.250	2.870781	20	PASS
$V_{max.}$	30.0 to 1000.0	751.437	0.211349	4	PASS
	1000.0 to 12500.0	10839.687	3.365116	20	PASS
$V_{min.}$	30.0 to 1000.0	974.416	0.196789	4	PASS
	1000.0 to 12500.0	11266.625	2.779713	20	PASS
TEST CHANNEL		CH 19 (2440 MHz)			
V_{normal}	30.0 to 1000.0	722.822	0.224388	4	PASS
	1000.0 to 12500.0	11357.187	2.964831	20	PASS
$V_{max.}$	30.0 to 1000.0	884.206	0.250611	4	PASS
	1000.0 to 12500.0	11883.312	3.483373	20	PASS
$V_{min.}$	30.0 to 1000.0	683.295	0.218273	4	PASS
	1000.0 to 12500.0	6919.625	2.904023	20	PASS
TEST CHANNEL		CH 39 (2480 MHz)			
V_{normal}	30.0 to 1000.0	987.753	0.238232	4	PASS
	1000.0 to 12500.0	10856.937	3.258367	20	PASS
$V_{max.}$	30.0 to 1000.0	831.826	0.211349	4	PASS
	1000.0 to 12500.0	10090.750	3.459394	20	PASS
$V_{min.}$	30.0 to 1000.0	866.018	0.199067	4	PASS
	1000.0 to 12500.0	10319.312	3.176874	20	PASS

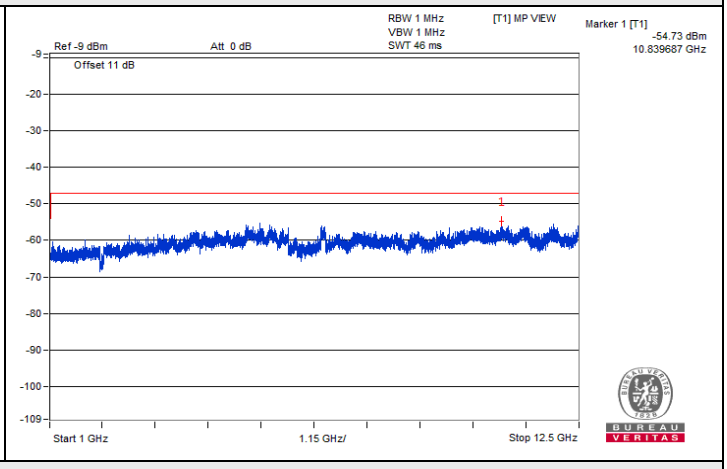
Vnormal



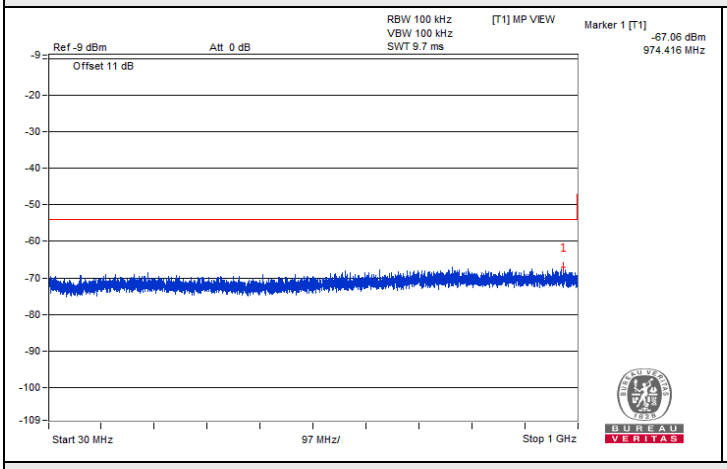


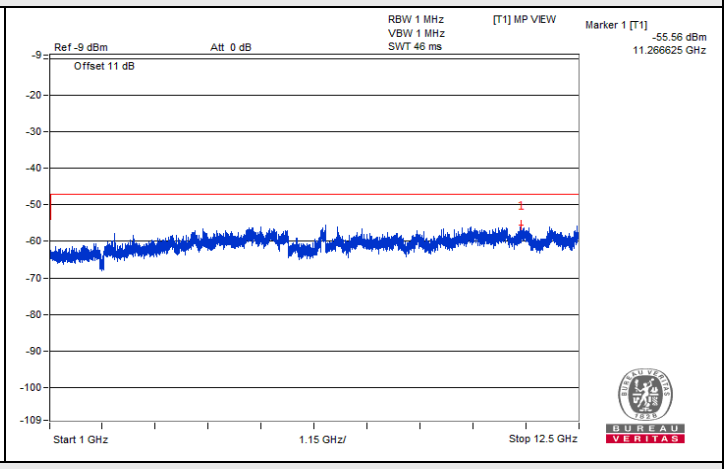
Vmax.





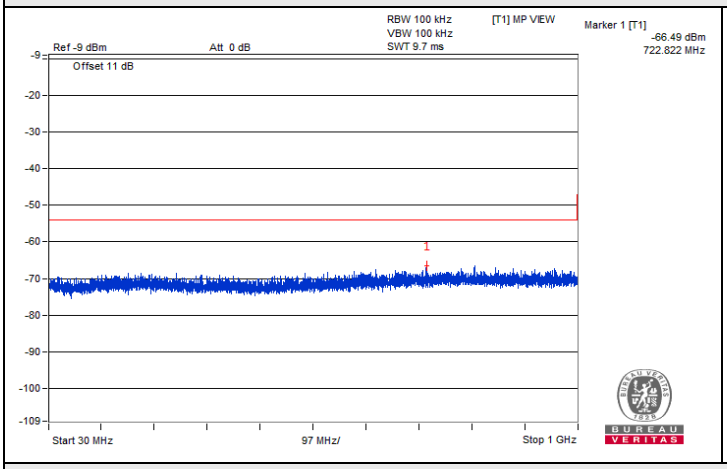
Vmin.

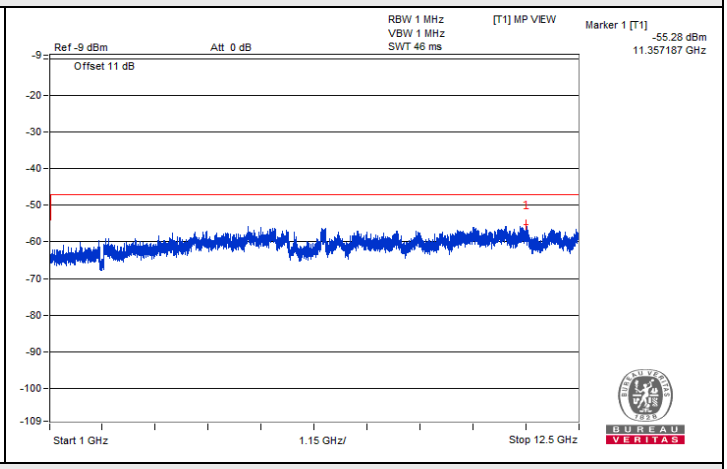




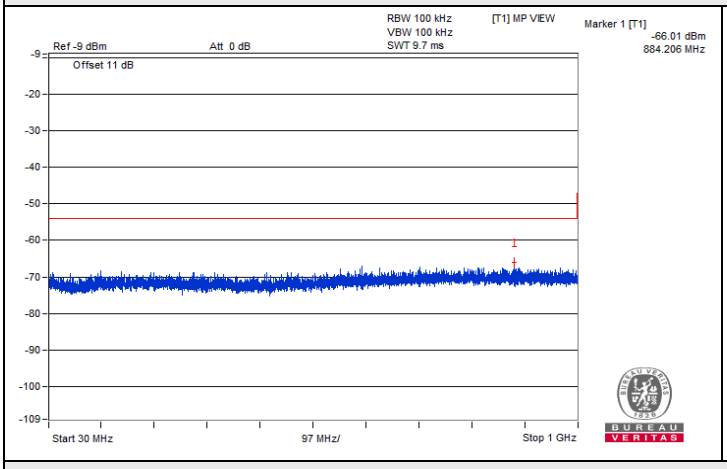
CH 0 (2402 MHz)

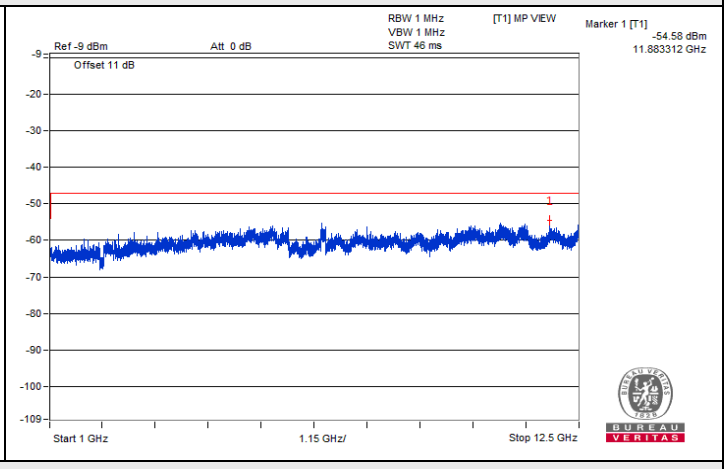
Vnormal



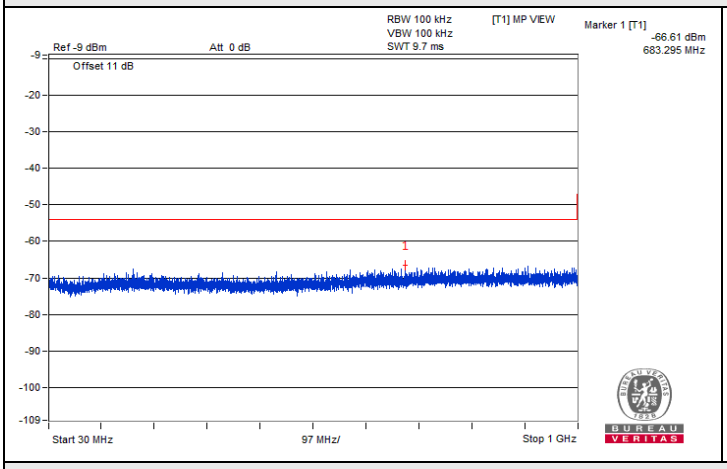


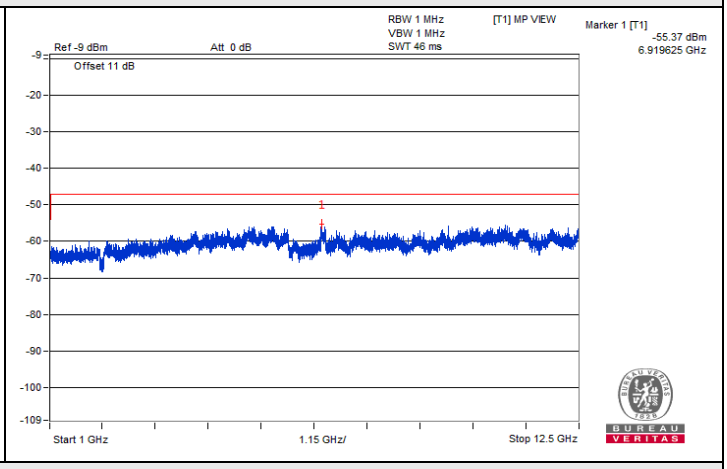
Vmax.





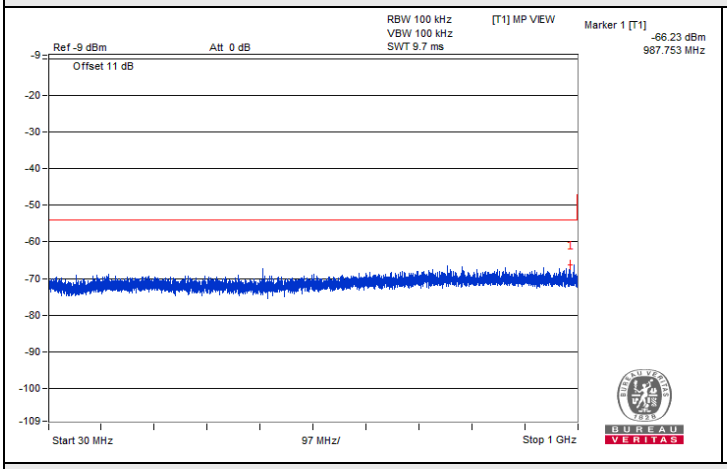
Vmin.

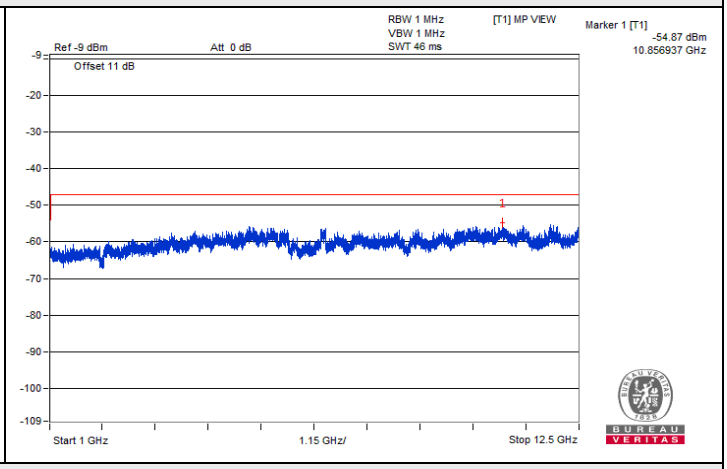




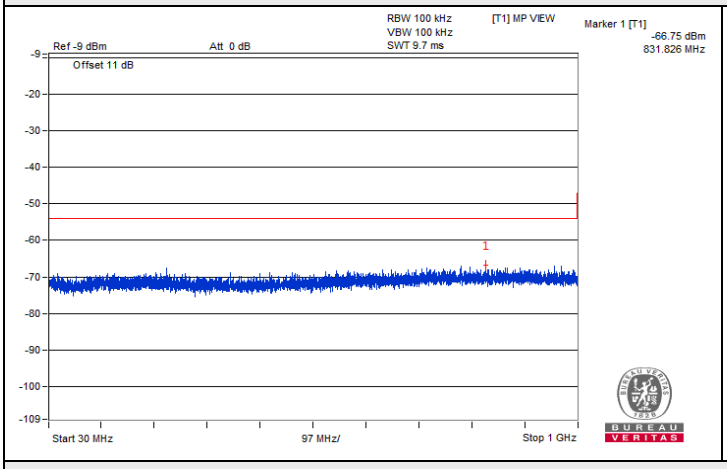
CH 19 (2440 MHz)

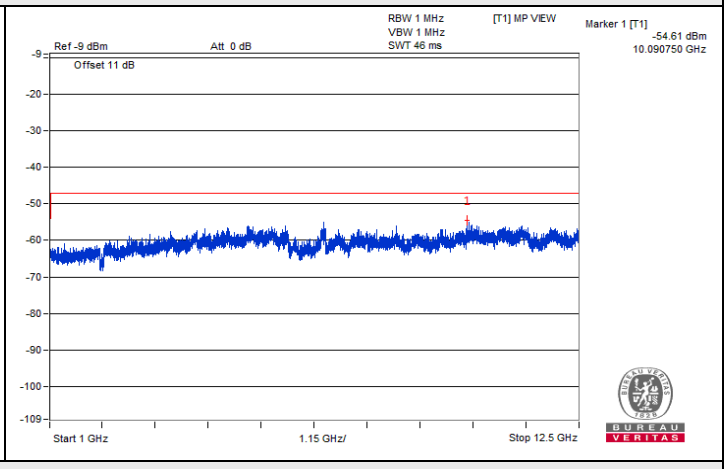
Vnormal



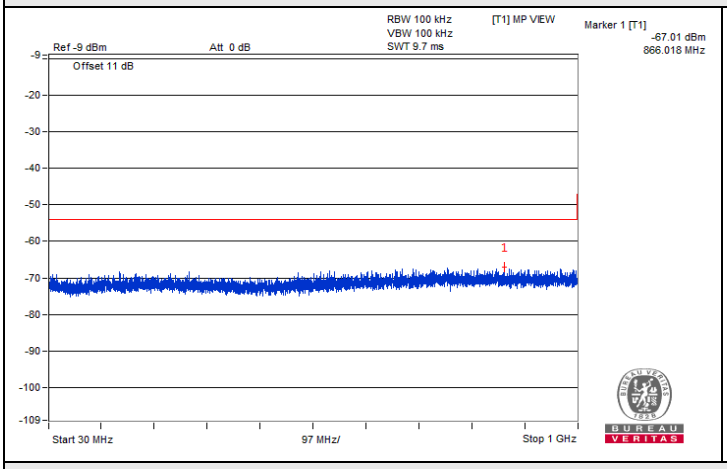


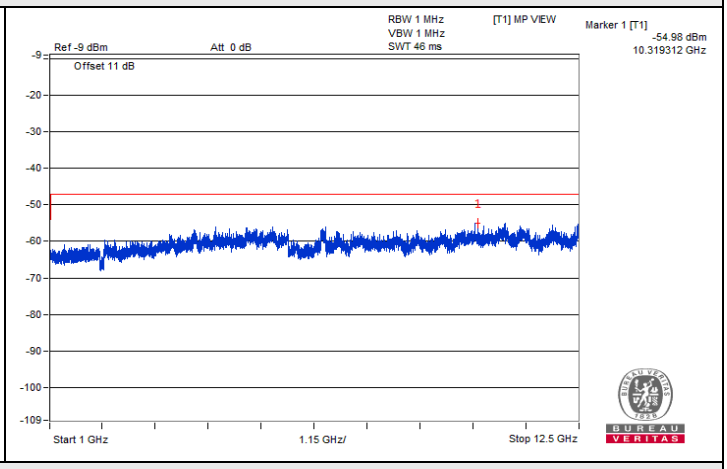
Vmax.





Vmin.





CH 39 (2480 MHz)

7.5 Antenna Power

Environmental Conditions:	25°C, 60% RH	Tested By:	Gary Lin

For BT LE-1M

Voltage (Vdc)	Channel Number	Frequency (MHz)	Conducted RF Output Power (mW)	Radiated RF Output Power (mW)
3.87	0	2402	1.897	4.667
	19	2440	1.95	4.798
	39	2480	1.875	4.613
4.257	0	2402	1.919	4.721
	19	2440	2.014	4.955
	39	2480	1.963	4.83
3.483	0	2402	1.905	4.687
	19	2440	1.95	4.798
	39	2480	1.841	4.53
Maximum Limit (mW):			10	-
Rated Power (mW):			3	-
Tolerance of Antenna Power (mW):			0.6 ~ 3.6	-
Maximum EIRP Limit (mW):			-	16.368

Notes:

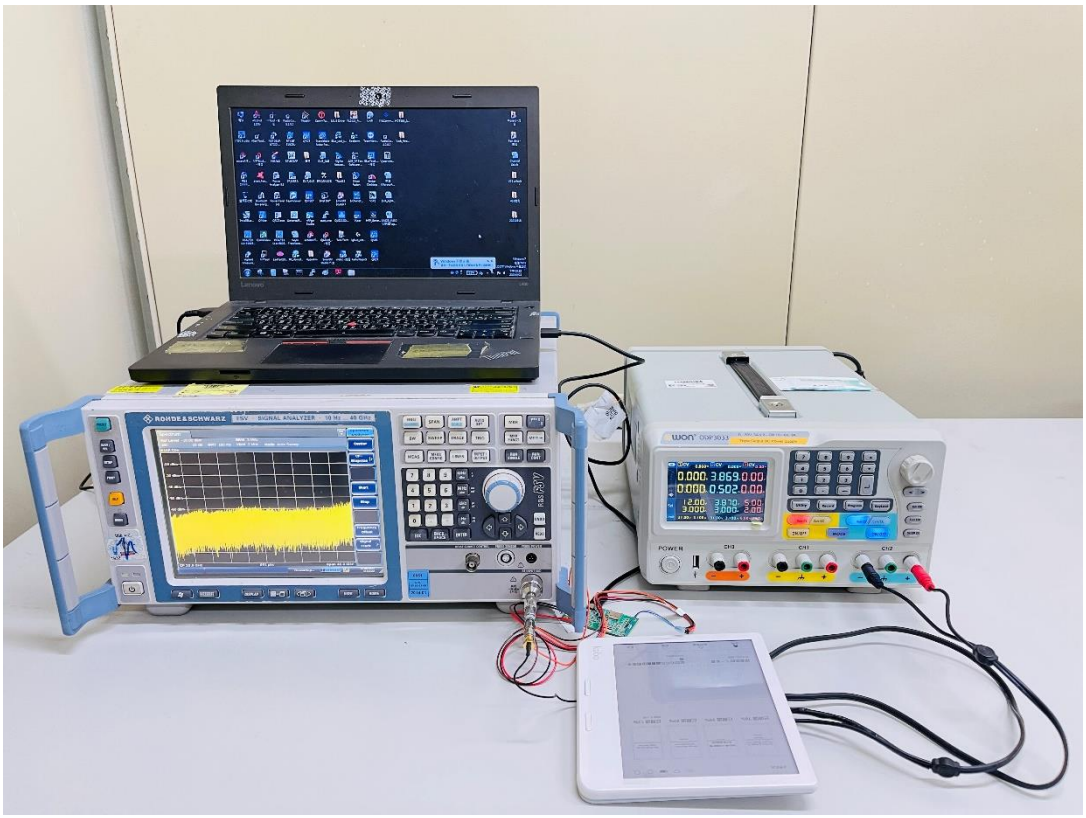
1. Antenna gain is 3.91 dBi.
2. The radiated RF output power is a “calculated” value derived from the conducted value.
3. Formula: Radiated RF output power = Conducted RF output power + Antenna gain

7.6 Interference Prevention Function

Environmental Conditions:	23°C, 61% RH	Tested By:	Gary Lin

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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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
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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