

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 15, Subpart C (Section 15.247)
Report No.: RFBAYG-WTW-P22100345
FCC ID: WKP-CSCB-01IP
Product: IPEVO VOCAL
Brand: IPEVO
Model No.: CSCB-01IP
Received Date: 2022/10/13
Test Date: 2023/1/11 ~ 2023/1/13
Issued Date: 2023/3/13
Applicant: IPEVO CORP.
Address: 1F, NO.348 Section 6, Nanjing E. Rd., Neihu Dist., Taipei 11470, 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
FCC Registration / 788550 / TW0003
Designation Number:

Approved by: _____

Jeremy Lin
Jeremy Lin / Project Engineer

, Date: _____

2023/3/13

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Prepared by : Vida Chen / Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBAYG-WTW-P22100345	Original release.	2023/3/13

1 Certificate

Product: IPEVO VOCAL

Brand: IPEVO

Test Model: CSCB-01IP

Sample Status: Engineering sample

Applicant: IPEVO CORP.

Test Date: 2023/1/11 ~ 2023/1/13

Standard: 47 CFR FCC Part 15, Subpart C (Section 15.247)

Measurement ANSI C63.10-2013

procedure: KDB 558074 D01 15.247 Meas Guidance v05r02

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

47 CFR FCC Part 15, Subpart C (Section 15.247)			
Standard / Clause	Test Item	Result	Remark
15.247(b)	RF Output Power	Pass	Meet the requirement of limit.
15.247(e)	Power Spectral Density	Pass	Meet the requirement of limit.
15.247(a)(2)	6 dB Bandwidth	Pass	Meet the requirement of limit.
15.247(d)	Conducted Out of Band Emissions	Pass	Meet the requirement of limit.
15.207	AC Power Conducted Emissions	Pass	Minimum passing margin is -16.05 dB at 0.15800 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -7.3 dB at 53.28 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -1.0 dB at 2483.50 MHz
15.203	Antenna Requirement	Pass	No antenna connector is used.

Note: 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 CISPR 16-4-2:

Measurement	Specification	Expanded Uncertainty (k=2) (±)
Conducted Out of Band Emissions	9 kHz ~ 40 GHz	2.79 dB
AC Power Conducted Emissions	9 kHz ~ 30 MHz	2.99 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	2.44 dB
	30 MHz ~ 1 GHz	2.95 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	2.26 dB
	18 GHz ~ 40 GHz	1.94 dB

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	IPEVO VOCAL
Brand	IPEVO
Test Model	CSCB-01IP
Status of EUT	Engineering sample
Power Supply Rating	3.7Vdc from battery
Modulation Type	GFSK
Modulation Technology	DTS
Transfer Rate	Up to 2 Mbps
Operating Frequency	2.402 GHz ~ 2.48 GHz
Number of Channel	40
Output Power	8.892 mW (9.49 dBm)

Note:

1. The EUT uses following accessories.

Battery 1		
Brand	Model	Specification
Apower Electronics Co., Ltd.	892861-1S2P	Power Rating : 3.7 Vdc ; 3640 mAh
USB-C to C cable		
Brand	Model	Specification
YiChenXing Electronics Co., Ltd.	YCX-A02900011A	Signal Line : 1.2m,shielded

2. 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 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	4.62	Printed	NA

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

3.3 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

3.4 Test Mode Applicability and Tested Channel Detail

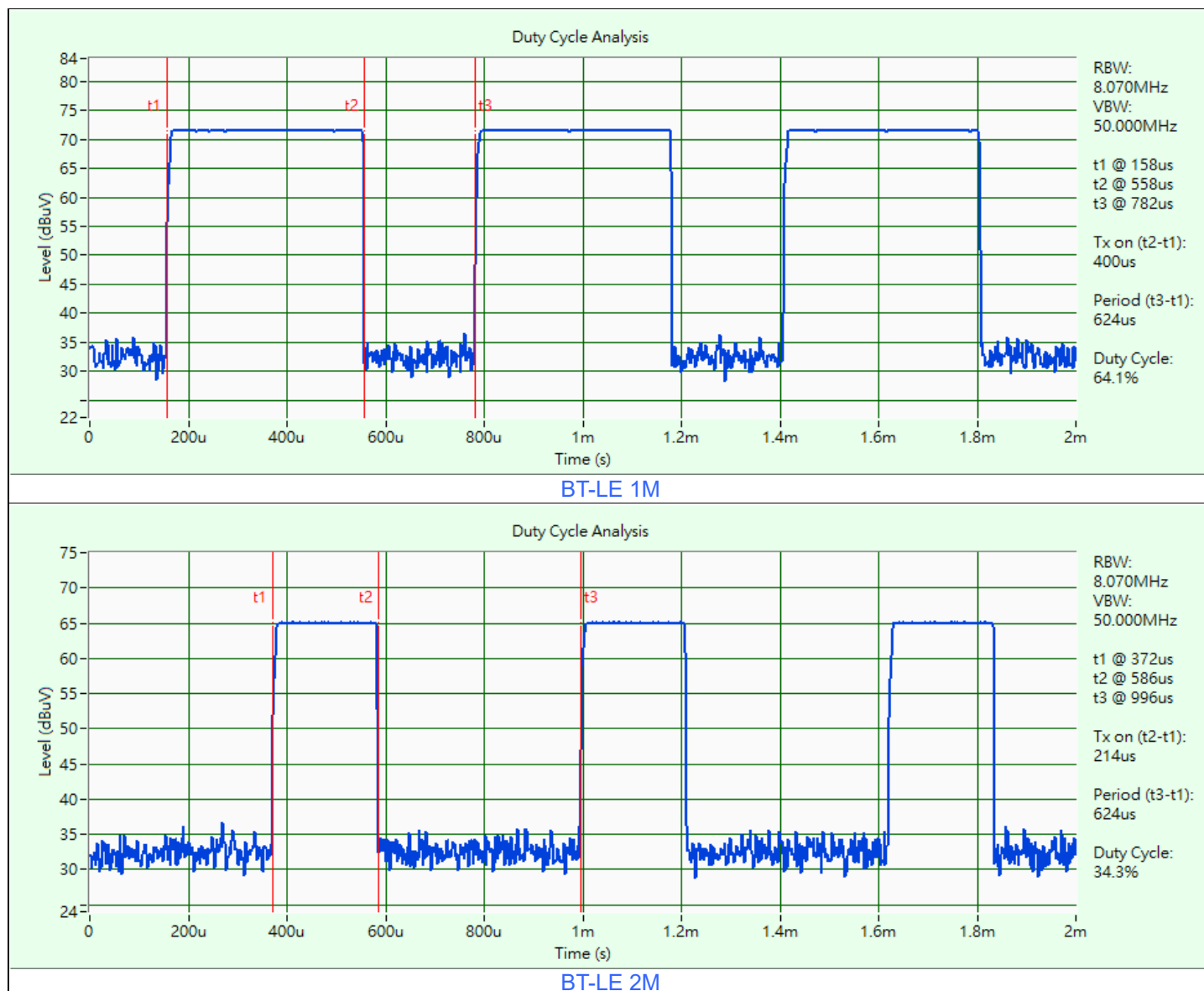
Following channel(s) was (were) selected for the final test as listed below:

Test Item	EUT Configure Mode	Mode	Tested Channel	Modulation	Data Rate Parameter
RF Output Power / Power Spectral Density	EUT with NB	BT-LE 1M	0, 19, 39	GFSK	1Mb/s
		BT-LE 2M	0, 19, 39	GFSK	2Mb/s
6 dB Bandwidth / Conducted Out of Band Emissions	EUT with NB	BT-LE 1M	0, 19, 39	GFSK	1Mb/s
		BT-LE 2M	0, 19, 39	GFSK	2Mb/s
AC Power Conducted Emissions	EUT with NB	BT-LE 1M	39	GFSK	1Mb/s
	EUT with adapter	BT-LE 1M	39	GFSK	1Mb/s
Unwanted Emissions below 1 GHz	EUT with NB	BT-LE 1M	39	GFSK	1Mb/s
	EUT with adapter	BT-LE 1M	39	GFSK	1Mb/s
Unwanted Emissions above 1 GHz	EUT with NB	BT-LE 1M	0, 19, 39	GFSK	1Mb/s
		BT-LE 2M	0, 19, 39	GFSK	2Mb/s

3.5 Duty Cycle of Test Signal

BT-LE 1M: Duty cycle = $0.4 \text{ ms} / 0.624 \text{ ms} \times 100\% = 64.1\%$, duty factor = $10 * \log (1/\text{Duty cycle}) = 1.93 \text{ dB}$

BT-LE 2M: Duty cycle = $0.214 \text{ ms} / 0.624 \text{ ms} \times 100\% = 34.3\%$, duty factor = $10 * \log (1/\text{Duty cycle}) = 4.65 \text{ dB}$

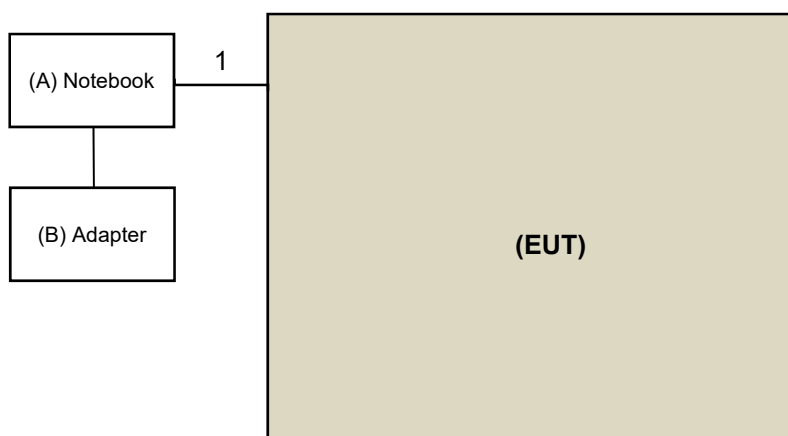


3.6 Test Program Used and Operation Descriptions

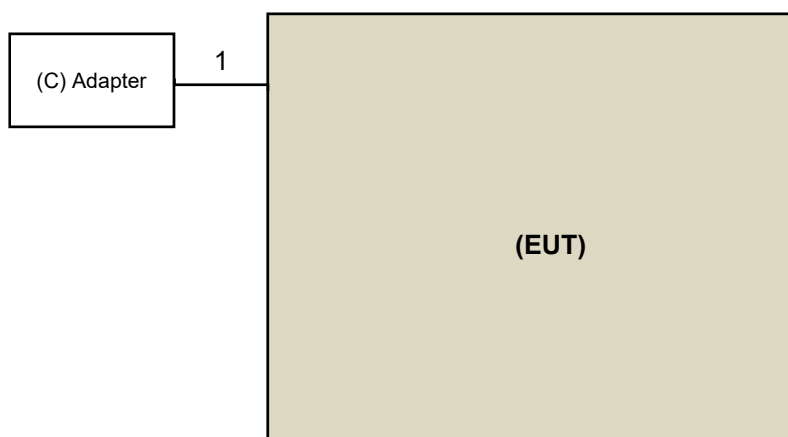
Controlling software BlueSuite 3.3.6 has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices

EUT with NB Mode



EUT with Adapter Mode



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Notebook	Lenovo	X250ALT5	PC06HPSE	N/A	Provided by Lab
B	Adapter	LENOVO	PA-1650-74	NA	NA	Provided by Lab
C	Adapter	mi	AD201TW	NA	NA	Provided by Lab

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	USB typeC Cable	1	1.2	Y	0	Accessory of EUT

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 RF Output Power

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Peak Power Analyzer KEYSIGHT	8990B	MY51000485	2022/1/18	2023/1/17
Power sensor Keysight	U2021XA	MY55380009	2022/3/23	2023/3/22
Wideband Power Sensor(N1923A) KEYSIGHT	N1923A	MY58020002	2022/1/17	2023/1/16

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2023/1/13

4.2 Power Spectral Density

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Software BV	ADT_RF Test Software V6.6.5.4	N/A	N/A	N/A
Spectrum Analyzer R&S	FSV40	100979	2022/3/25	2023/3/24

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2023/1/13

4.3 6 dB Bandwidth

Refer to section 4.2 to get information of the instruments.

4.4 Conducted Out of Band Emissions

Refer to section 4.2 to get information of the instruments.

4.5 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
LISN R&S	ESH3-Z5	100311	2022/9/12	2023/9/11
LISN ROHDE & SCHWARZ	ENV216	101826	2022/3/14	2023/3/13
Receiver R&S	ESCI	100412	2022/8/22	2023/8/21
RF Coaxial Cable WOKEN	5D-FB	Cable-cond1-01	2023/1/7	2024/1/6
Software BVADT	BVADT_Conc_ V7.3.7.4	N/A	N/A	N/A
V-LISN Schwarzbeck	NNBL 8226-2	8226-142	2022/8/31	2023/8/30

Notes:

1. The test was performed in HY - Conduction 1.
2. Tested Date: 2023/1/11 ~ 2023/1/12

4.6 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Max-Full	MFA-440H	AT93021705	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB9168	9168-472	2022/10/21	2023/10/20
Loop Antenna EMCI	EM-6879	269	2022/9/19	2023/9/18
Loop Antenna TESEQ	HLA 6121	45745	2022/7/27	2023/7/26
Pre-Amplifier EMCI	EMC 330H	980112	2022/10/1	2023/9/30
Pre-amplifier EMCI	EMC001340	980201	2022/9/23	2023/9/22
RF Coaxial Cable EMCI	5D-NM-BM	140903+140902	2022/1/15	2023/1/14
RF Coaxial Cable WORKEN	8D-FB	Cable-Ch10-01	2022/10/1	2023/9/30
Signal Analyzer Agilent	N9010A	MY52220207	2023/1/3	2024/1/2
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Test Receiver KEYSIGHT	N9038A	MY55420137	2022/4/27	2023/4/26
Turn Table Max-Full	MFT-201SS	N/A	N/A	N/A
Turn Table Controller Max-Full	MG-7802	N/A	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 5.
2. Tested Date: 2023/1/11

4.7 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower & Turn Max-Full	MFA-440H	AT93021705	N/A	N/A
Boresight antenna tower fixture BV	BAF-02	7	N/A	N/A
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-969	2022/11/13	2023/11/12
	BBHA 9170	148	2022/11/13	2023/11/12
Pre-Amplifier EMCI	EMC 184045	980116	2022/10/1	2023/9/30
Pre-Amplifier EMCI	EMC 012645	980115	2022/10/1	2023/9/30
RF Coaxial Cable EMCI	EMC102-KM-KM-600	150928	2022/7/9	2023/7/8
	EMC102-KM-KM-3000	150929	2022/7/9	2023/7/8
	EMC104-SM-SM- 8000+3000	171005	2022/10/1	2023/9/30
RF Coaxial Cable HUBER SUHNER	SUCOFLEX 104	EMC104-SM-SM- 1000(140807)	2022/10/1	2023/9/30
Signal Analyzer Agilent	N9010A	MY52220207	2023/1/3	2024/1/2
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Test Receiver KEYSIGHT	N9038A	MY55420137	2022/4/27	2023/4/26
Turn Table Max-Full	MFT-201SS	N/A	N/A	N/A
Turn Table Controller Max-Full	MG-7802	N/A	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 5.
2. Tested Date: 2023/1/11

5 Limits of Test Items

5.1 RF Output Power

For systems using digital modulation in the 2400–2483.5 MHz bands: 1 Watt (30 dBm)

5.2 Power Spectral Density

The Maximum of Power Spectral Density Measurement is 8 dBm in any 3 kHz.

5.3 6 dB Bandwidth

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

5.4 Conducted Out of Band Emissions

Below 20 dB of the highest emission level of operating band (in 100 kHz Resolution Bandwidth).

5.5 AC Power Conducted Emissions

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Notes:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

5.6 Unwanted Emissions below 1 GHz

Radiated emissions up to 1 GHz which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).

5.7 Unwanted Emissions above 1 GHz

Radiated emissions above 1 GHz which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20 dB below the highest level of the desired power:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
Above 960	500	3

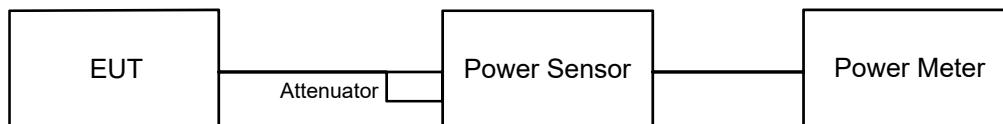
Notes:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = $20 \log$ Emission level (uV/m).
3. For frequencies above 1000 MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

6 Test Arrangements

6.1 RF Output Power

6.1.1 Test Setup



6.1.2 Test Procedure

Peak Power:

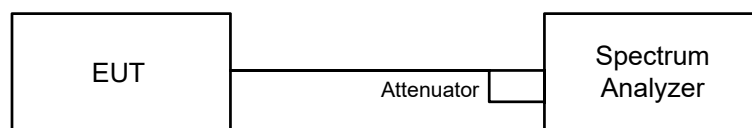
A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

Average Power:

Average power sensor was used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

6.2 Power Spectral Density

6.2.1 Test Setup

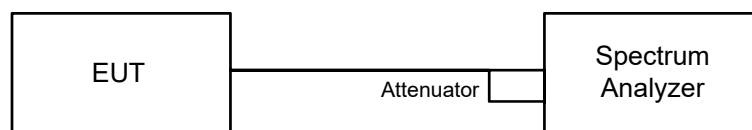


6.2.2 Test Procedure

- a. Set analyzer center frequency to DTS channel center frequency.
- b. Set the span to 1.5 times the DTS bandwidth.
- c. Set the RBW to: 3 kHz.
- d. Set the VBW $\geq 3 \times$ RBW.
- e. Detector = peak.
- f. Sweep time = auto couple.
- g. Trace mode = max hold.
- h. Allow trace to fully stabilize.
- i. Use the peak marker function to determine the maximum amplitude level within the RBW.

6.3 6 dB Bandwidth

6.3.1 Test Setup

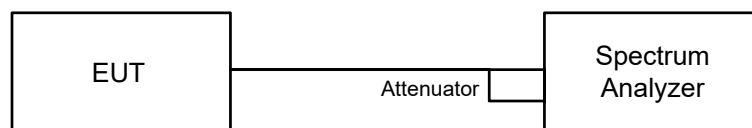


6.3.2 Test Procedure

- Set resolution bandwidth (RBW) = 100 kHz.
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW, Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.4 Conducted Out of Band Emissions

6.4.1 Test Setup



6.4.2 Test Procedure

MEASUREMENT PROCEDURE REF

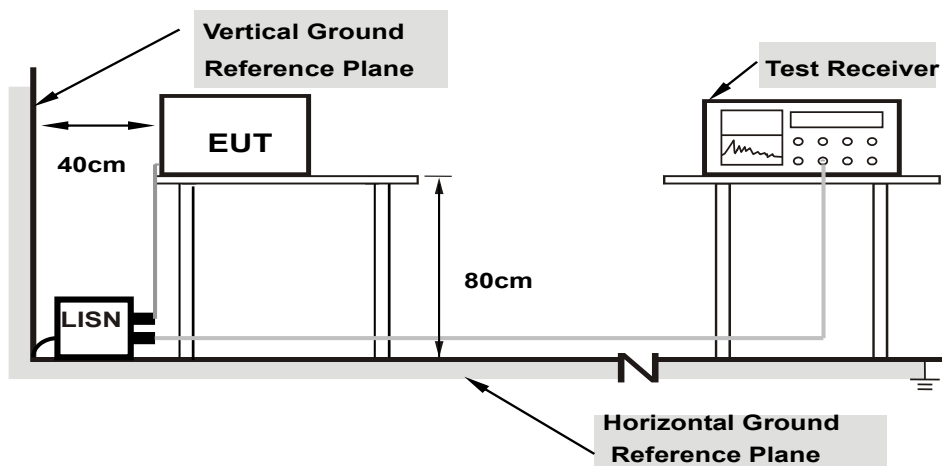
- Set the RBW = 100 kHz.
- Set the VBW ≥ 300 kHz.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOBE

- Set RBW = 100 kHz.
- Set VBW ≥ 300 kHz.
- Detector = peak.
- Sweep = auto couple.
- Trace Mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level.

6.5 AC Power Conducted Emissions

6.5.1 Test Setup



Note: 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.5.2 Test Procedure

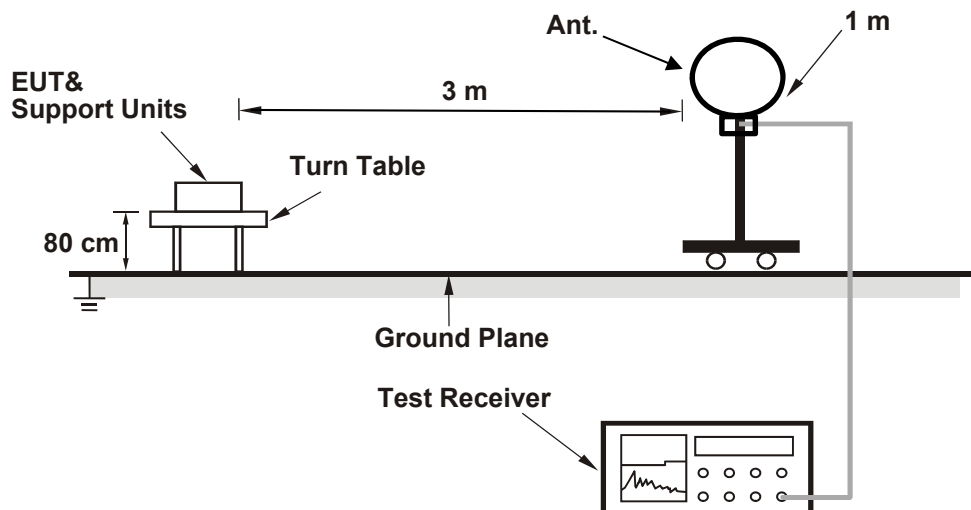
- The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50 uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched. Emission levels under (Limit – 20 dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9 kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15 MHz-30 MHz.

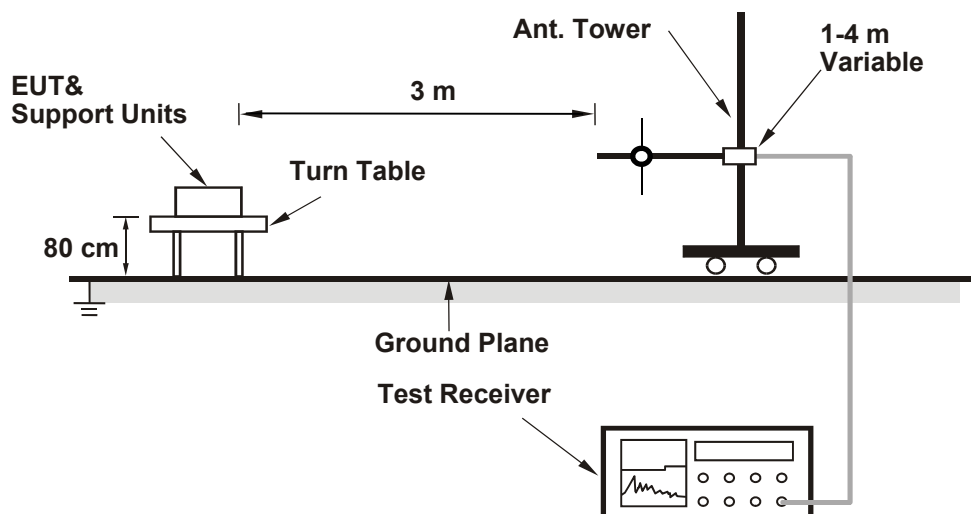
6.6 Unwanted Emissions below 1 GHz

6.6.1 Test Setup

For Radiated emission below 30 MHz



For Radiated emission above 30 MHz



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.6.2 Test Procedure

For Radiated emission below 30 MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode, except for the frequency band (9 kHz to 90 kHz and 110 kHz to 490 kHz) set to average detect function and peak detect function.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 200 Hz at frequency below 150 kHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz or 10 kHz at frequency (150 kHz to 30 MHz).
3. All modes of operation were investigated and the worst-case emissions are reported.

For Radiated emission above 30 MHz

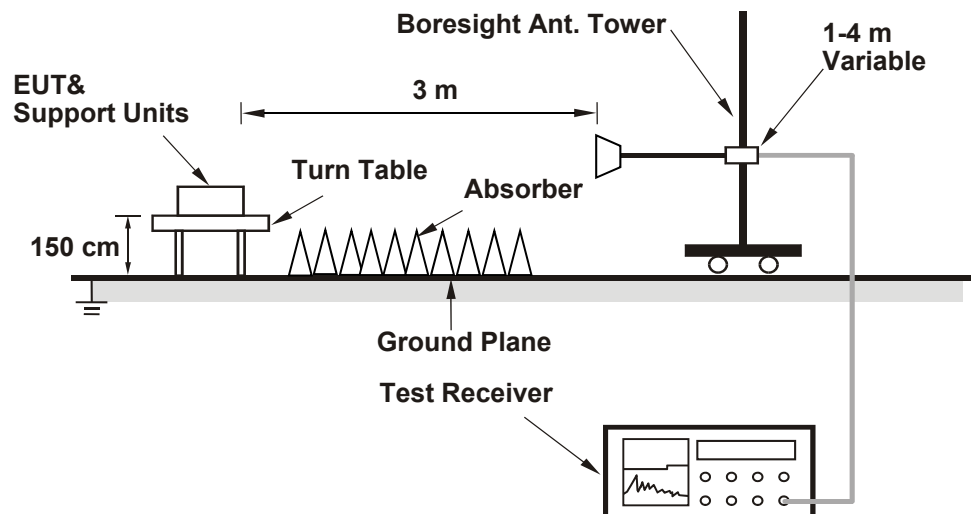
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

Notes:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) at frequency below 1 GHz.
2. All modes of operation were investigated and the worst-case emissions are reported.

6.7 Unwanted Emissions above 1 GHz

6.7.1 Test Setup



For the actual test configuration, please refer to the attached file (Test Setup Photo).

6.7.2 Test Procedure

- The EUT was placed on the top of a rotating table 1.5 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Notes:

- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) and Average detection (AV) at frequency above 1 GHz.
- For fundamental and harmonic signal measurement, the resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10 Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1 GHz.
- All modes of operation were investigated and the worst-case emissions are reported.

7 Test Results of Test Item

7.1 RF Output Power

Input Power:	3.7 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Jisyong Wang
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For Peak Power

BT-LE 1M

Chan.	Chan. Freq. (MHz)	Peak Power (mW)	Peak Power (dBm)	Power Limit (dBm)	Test Result
0	2402	8.65	9.37	30	Pass
19	2440	8.69	9.39	30	Pass
39	2480	8.851	9.47	30	Pass

Note: The antenna gain is 4.62 dBi < 6 dBi, so the output power limit shall not be reduced.

BT-LE 2M

Chan.	Chan. Freq. (MHz)	Peak Power (mW)	Peak Power (dBm)	Power Limit (dBm)	Test Result
0	2402	8.63	9.36	30	Pass
19	2440	8.73	9.41	30	Pass
39	2480	8.892	9.49	30	Pass

Note: The antenna gain is 4.62 dBi < 6 dBi, so the output power limit shall not be reduced.

For Average Power

BT-LE 1M

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
0	2402	8.472	9.28
19	2440	8.551	9.32
39	2480	8.69	9.39

BT-LE 2M

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
0	2402	8.472	9.28
19	2440	8.59	9.34
39	2480	8.73	9.41

7.2 Power Spectral Density

Input Power:	3.7 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Jisyong Wang
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BT-LE 1M

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
0	2402	-5.79	8	Pass
19	2440	-5.78	8	Pass
39	2480	-5.70	8	Pass

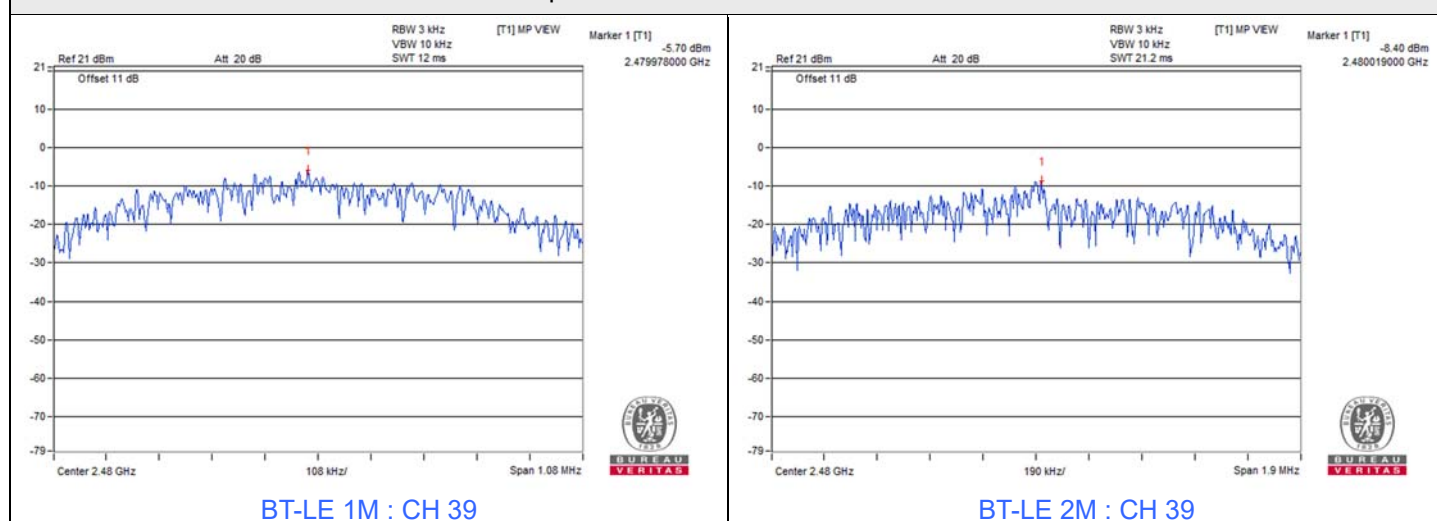
Note: The antenna gain is 4.62 dBi < 6 dBi, so the power density limit shall not be reduced.

BT-LE 2M

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
0	2402	-8.48	8	Pass
19	2440	-8.45	8	Pass
39	2480	-8.40	8	Pass

Note: The antenna gain is 4.62 dBi < 6 dBi, so the power density limit shall not be reduced.

Spectrum Plot of Maximum Value



7.3 6 dB Bandwidth

Input Power:	3.7 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Jisyong Wang
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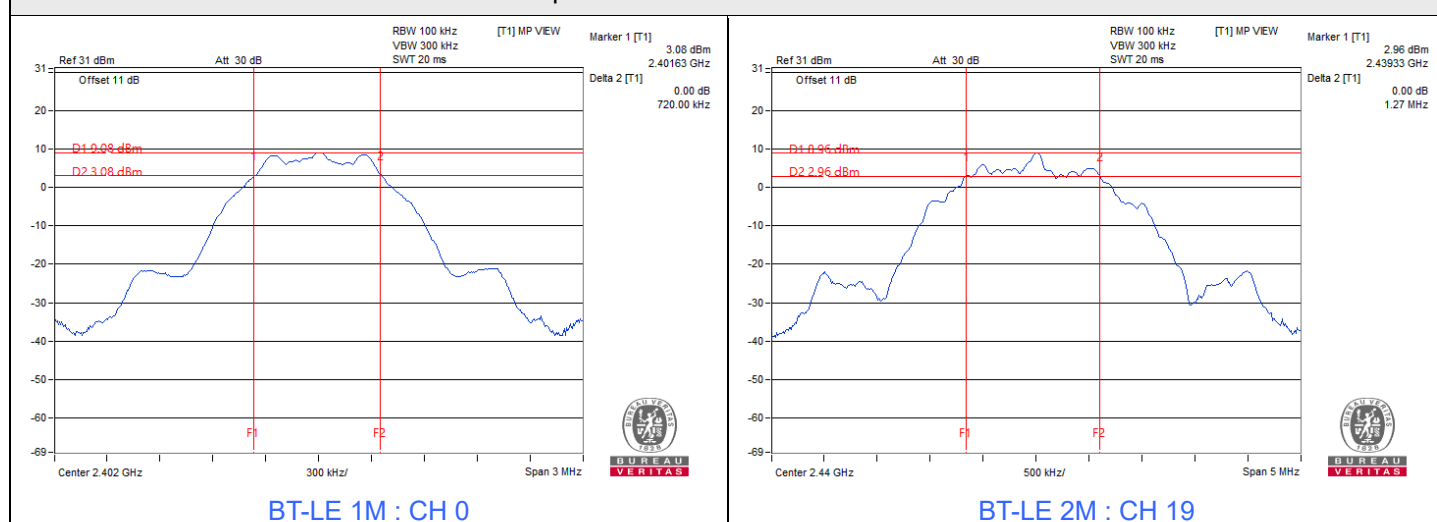
BT-LE 1M

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Test Result
0	2402	0.72	0.5	Pass
19	2440	0.73	0.5	Pass
39	2480	0.72	0.5	Pass

BT-LE 2M

Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Minimum Limit (MHz)	Test Result
0	2402	1.28	0.5	Pass
19	2440	1.27	0.5	Pass
39	2480	1.27	0.5	Pass

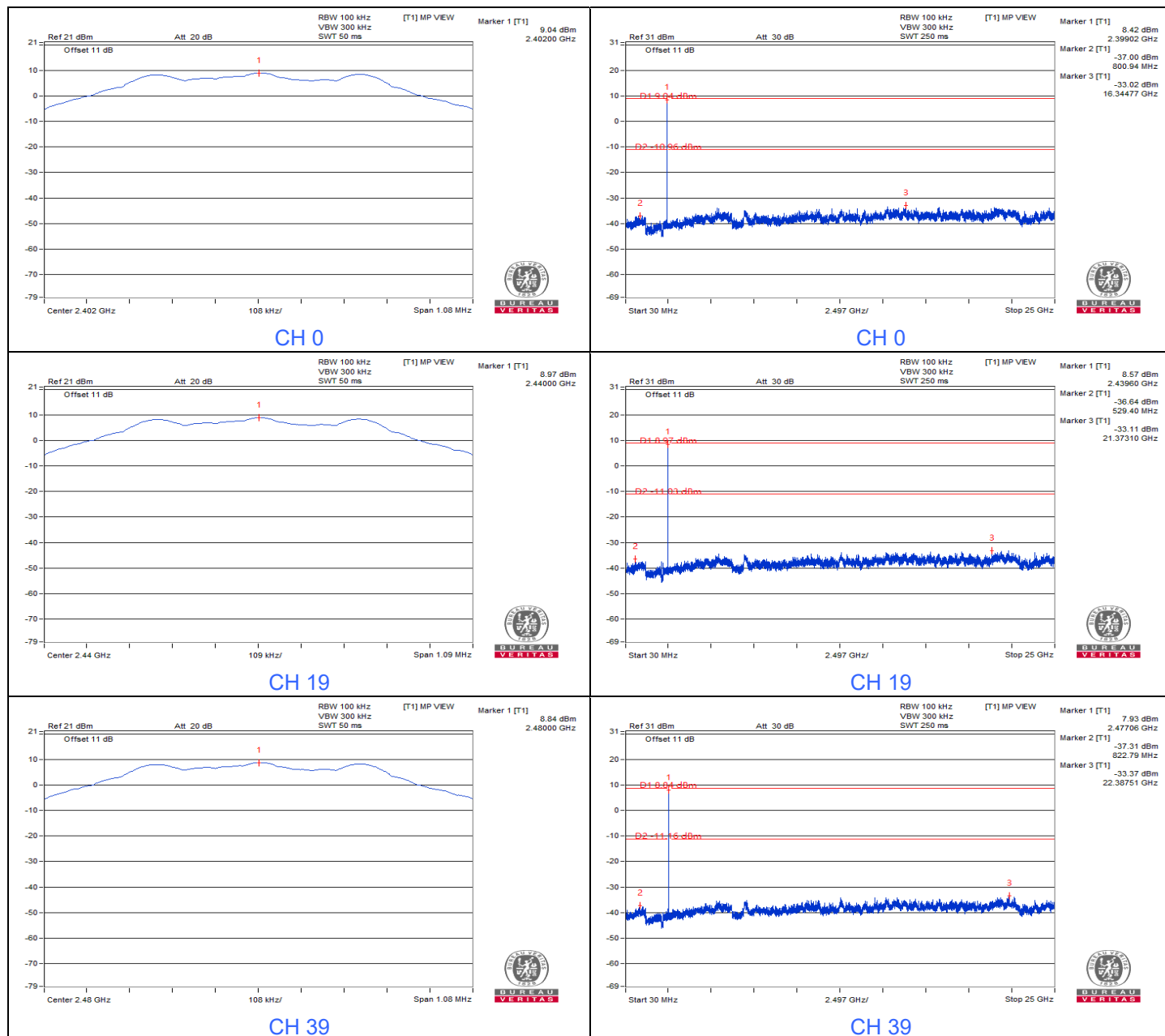
Spectrum Plot of Minimum Value

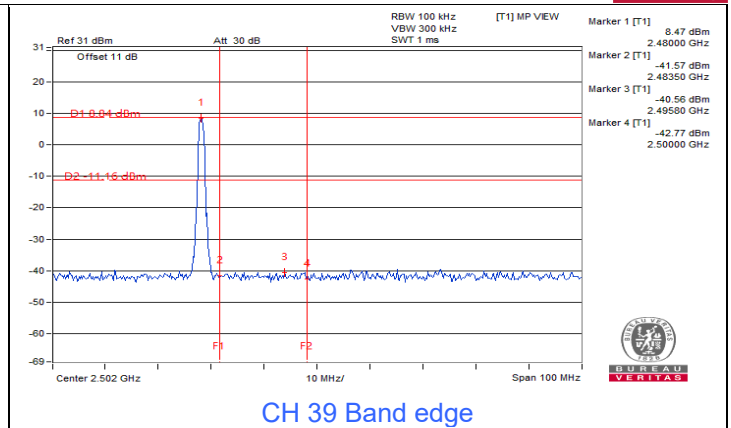
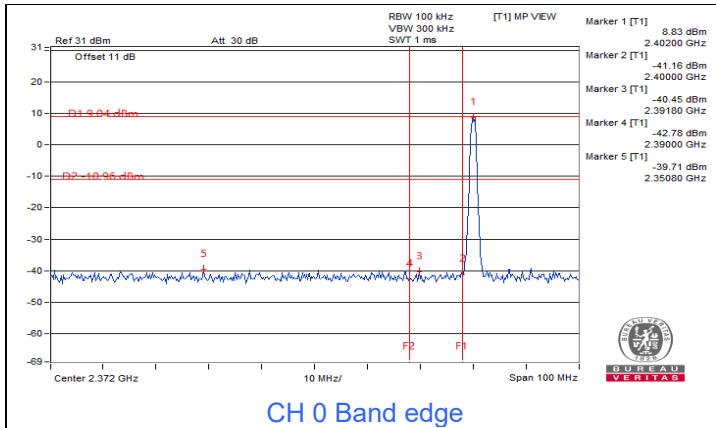


7.4 Conducted Out of Band Emissions

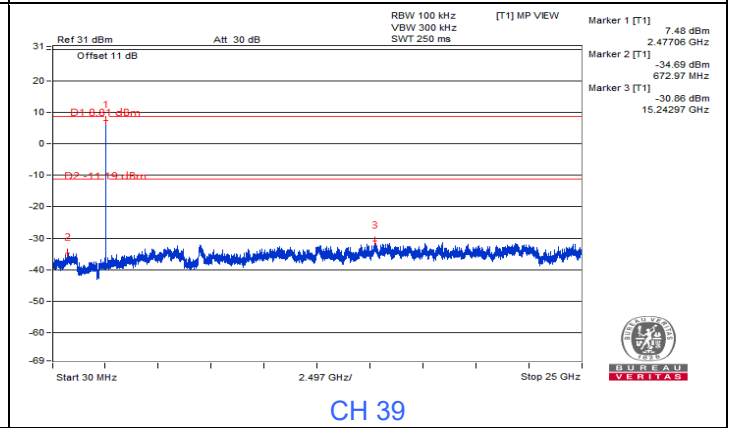
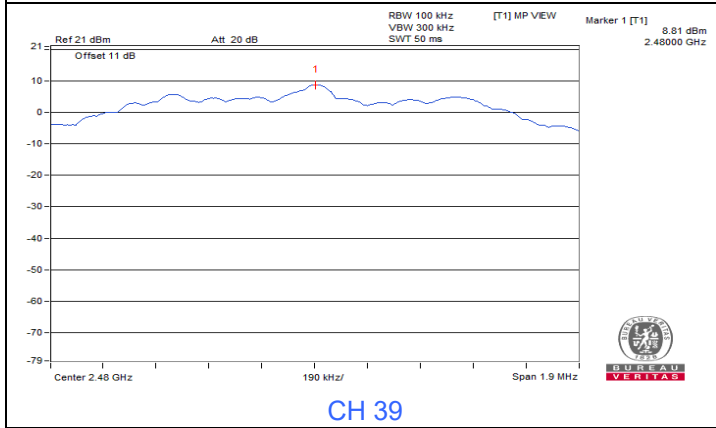
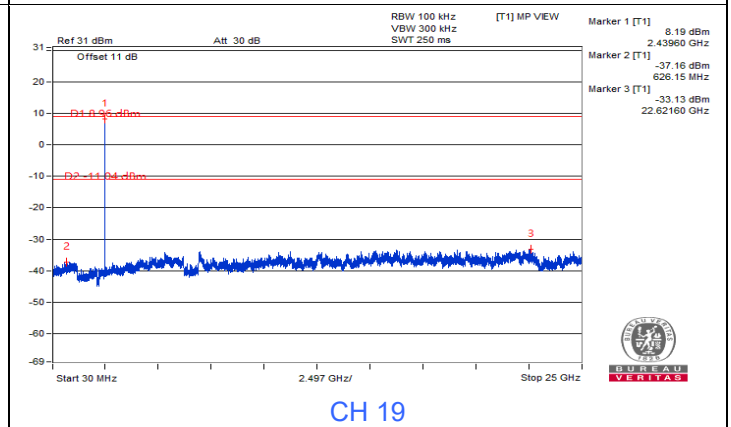
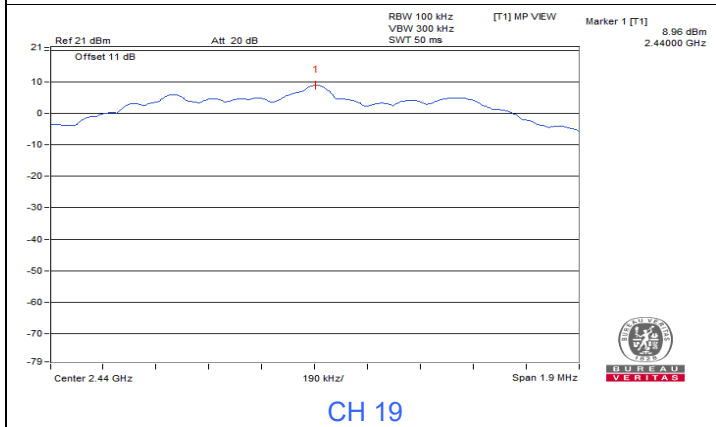
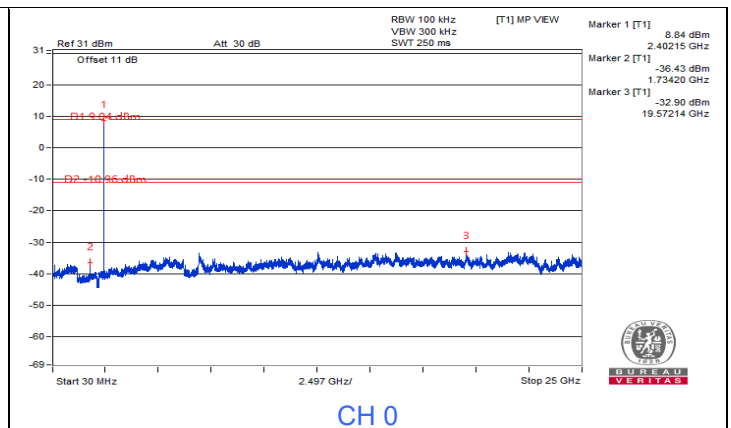
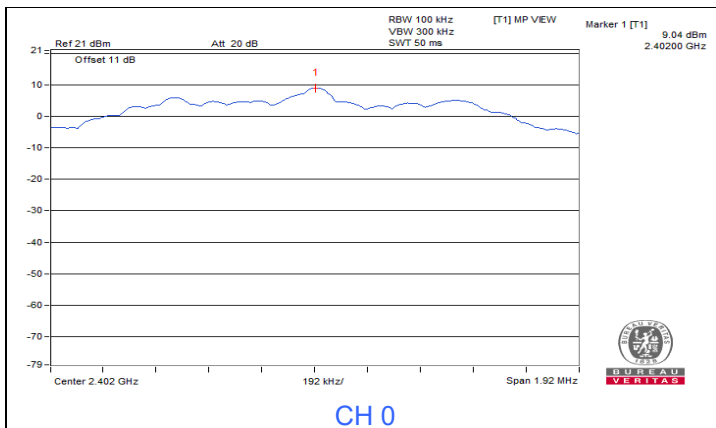
Input Power:	3.7 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Jisyoung Wang
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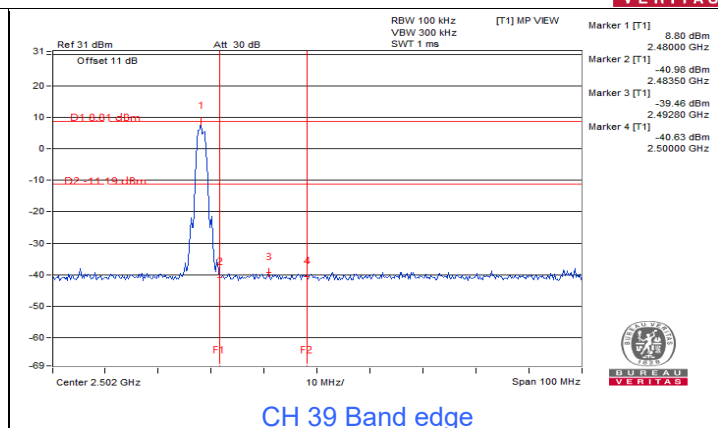
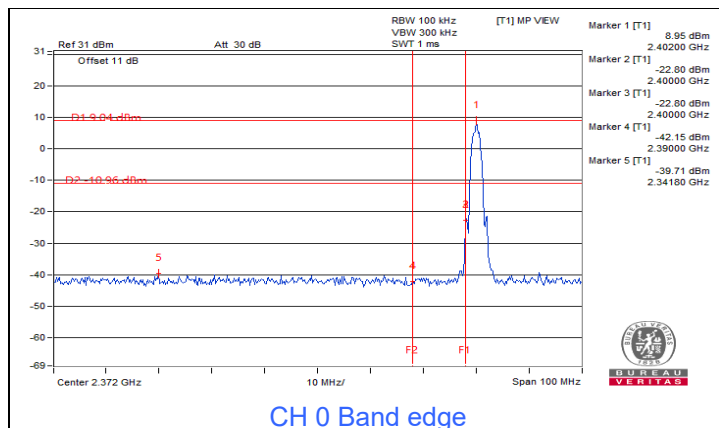
BT-LE 1M





BT-LE 2M





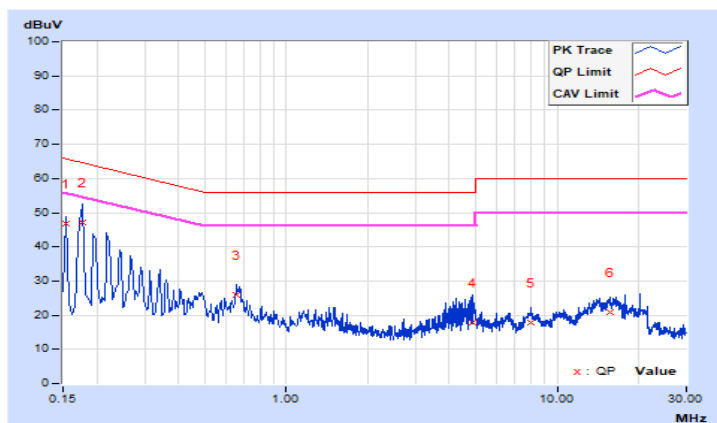
7.5 AC Power Conducted Emissions

RF Mode	BT-LE 1M	Channel	CH 39 : 2480 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20.2°C, 63.9% RH
Tested By	Thomas Cheng	Test Mode	EUT with NB Mode

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBUV)		Emission Level (dBUV)		Limit (dBUV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15400	9.62	37.33	21.93	46.95	31.55	65.78	55.78	-18.83	-24.23
2	0.17800	9.63	37.55	20.34	47.18	29.97	64.58	54.58	-17.40	-24.61
3	0.65800	9.69	16.23	10.98	25.92	20.67	56.00	46.00	-30.08	-25.33
4	4.90600	9.76	8.18	1.49	17.94	11.25	56.00	46.00	-38.06	-34.75
5	7.97400	9.79	8.15	2.48	17.94	12.27	60.00	50.00	-42.06	-37.73
6	15.60200	9.85	10.93	4.12	20.78	13.97	60.00	50.00	-39.22	-36.03

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

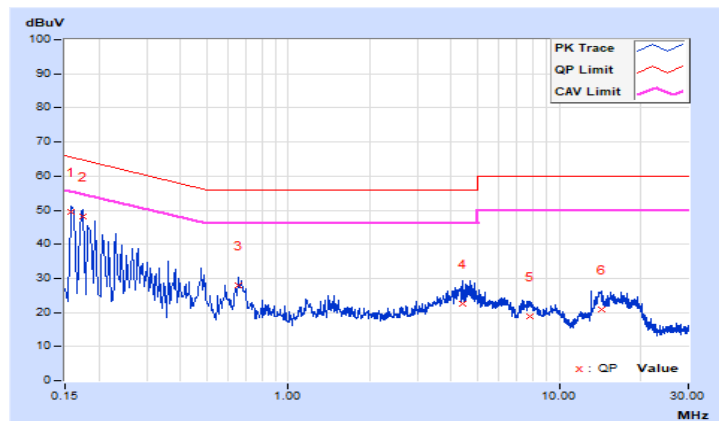


RF Mode	BT-LE 1M	Channel	CH 39 : 2480 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	20.2°C, 63.9% RH
Tested By	Thomas Cheng	Test Mode	EUT with NB Mode

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15800	9.62	39.90	22.16	49.52	31.78	65.57	55.57	-16.05	-23.79
2	0.17384	9.63	38.39	21.63	48.02	31.26	64.77	54.77	-16.75	-23.51
3	0.65400	9.69	18.41	11.43	28.10	21.12	56.00	46.00	-27.90	-24.88
4	4.41000	9.75	12.97	6.72	22.72	16.47	56.00	46.00	-33.28	-29.53
5	7.79000	9.79	9.07	4.14	18.86	13.93	60.00	50.00	-41.14	-36.07
6	14.34200	9.85	11.18	6.12	21.03	15.97	60.00	50.00	-38.97	-34.03

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

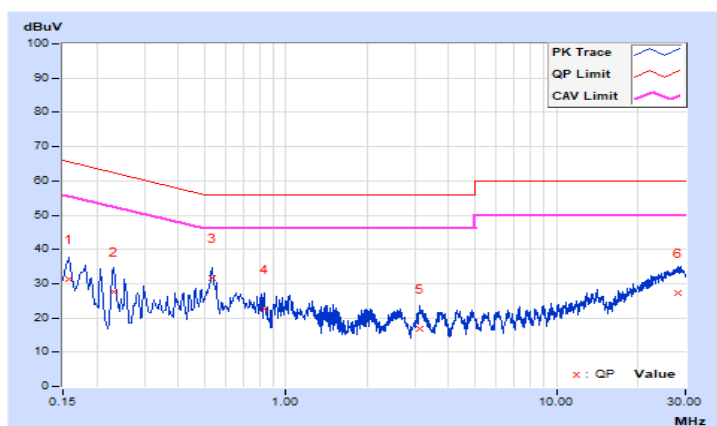


RF Mode	BT-LE 1M	Channel	CH 39 : 2480 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	110 Vac, 60 Hz	Environmental Conditions	23°C, 72% RH
Tested By	Vincent Chen	Test Mode	EUT with adapter Mode

Phase Of Power : Line (L)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15800	10.18	21.07	9.89	31.25	20.07	65.57	55.57	-34.32	-35.50
2	0.22985	10.21	17.40	2.03	27.61	12.24	62.46	52.46	-34.85	-40.22
3	0.53400	10.22	21.47	7.92	31.69	18.14	56.00	46.00	-24.31	-27.86
4	0.83000	10.23	12.29	1.98	22.52	12.21	56.00	46.00	-33.48	-33.79
5	3.13400	10.36	6.36	5.40	16.72	15.76	56.00	46.00	-39.28	-30.24
6	28.01000	11.22	16.18	3.80	27.40	15.02	60.00	50.00	-32.60	-34.98

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value

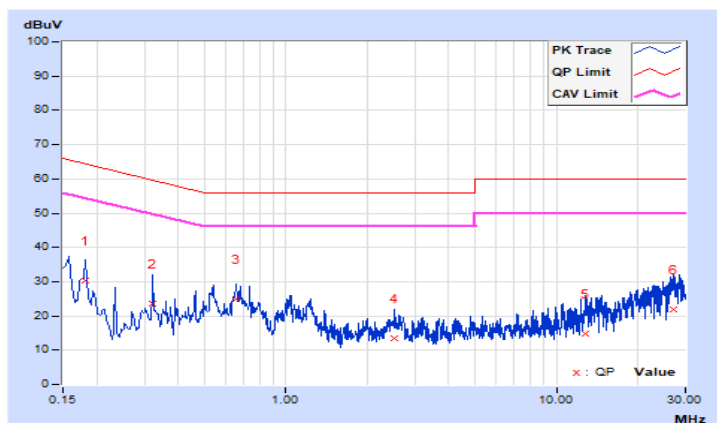


RF Mode	BT-LE 1M	Channel	CH 39 : 2480 MHz
Frequency Range	150kHz ~ 30MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	110 Vac, 60 Hz	Environmental Conditions	23°C, 72% RH
Tested By	Vincent Chen	Test Mode	EUT with adapter Mode

Phase Of Power : Neutral (N)										
No	Frequency (MHz)	Correction Factor (dB)	Reading Value (dBuV)		Emission Level (dBuV)		Limit (dBuV)		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.18180	10.21	20.00	7.03	30.21	17.24	64.40	54.40	-34.19	-37.16
2	0.32200	10.24	13.21	3.96	23.45	14.20	59.66	49.66	-36.21	-35.46
3	0.65800	10.26	14.77	8.83	25.03	19.09	56.00	46.00	-30.97	-26.91
4	2.51000	10.37	3.10	2.66	13.47	13.03	56.00	46.00	-42.53	-32.97
5	12.85800	10.70	4.07	2.33	14.77	13.03	60.00	50.00	-45.23	-36.97
6	27.07400	10.92	11.11	5.02	22.03	15.94	60.00	50.00	-37.97	-34.06

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level – Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value



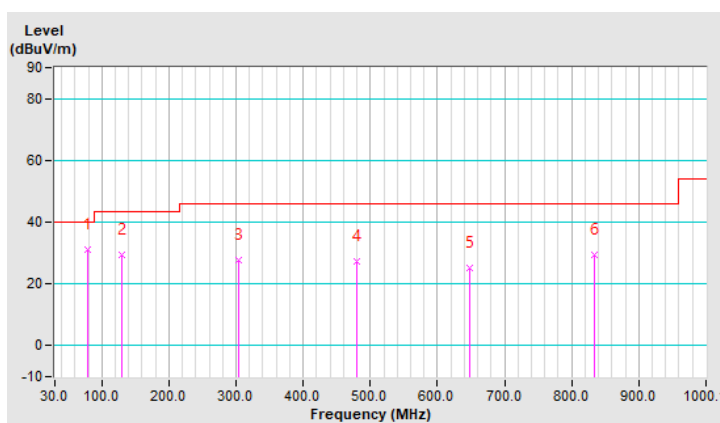
7.6 Unwanted Emissions below 1 GHz

RF Mode	BT-LE 1M	Channel	CH 39 : 2480 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 67% RH
Tested By	Thomas Cheng	Test Mode	EUT with NB Mode

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	78.50	30.9 QP	40.0	-9.1	2.75 H	118	47.3	-16.4
2	129.92	29.2 QP	43.5	-14.3	2.69 H	2	42.6	-13.4
3	304.54	27.8 QP	46.0	-18.2	1.05 H	66	39.4	-11.6
4	480.13	27.4 QP	46.0	-18.6	2.51 H	149	34.8	-7.4
5	647.95	25.3 QP	46.0	-20.7	2.22 H	94	29.7	-4.4
6	834.21	29.2 QP	46.0	-16.8	2.78 H	220	30.8	-1.6

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

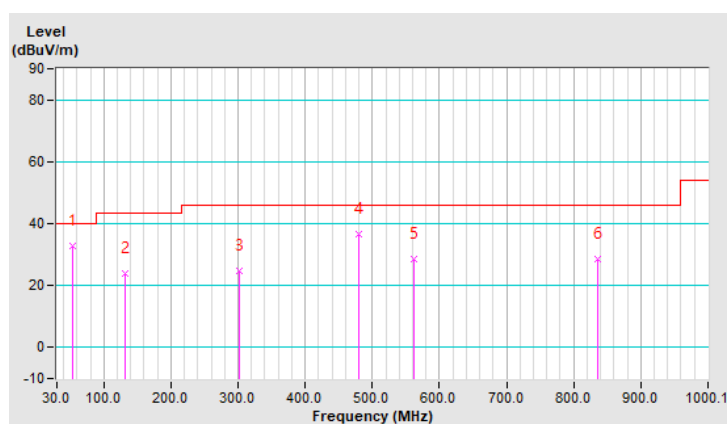


RF Mode	BT-LE 1M	Channel	CH 39 : 2480 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	21°C, 67% RH
Tested By	Thomas Cheng	Test Mode	EUT with NB Mode

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	53.28	32.7 QP	40.0	-7.3	1.77 V	335	45.1	-12.4
2	130.89	23.8 QP	43.5	-19.7	1.57 V	246	37.2	-13.4
3	302.60	24.9 QP	46.0	-21.1	1.94 V	124	36.5	-11.6
4	480.13	36.5 QP	46.0	-9.5	1.89 V	130	43.9	-7.4
5	562.58	28.5 QP	46.0	-17.5	2.09 V	118	34.7	-6.2
6	835.18	28.4 QP	46.0	-17.6	1.56 V	43	29.9	-1.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

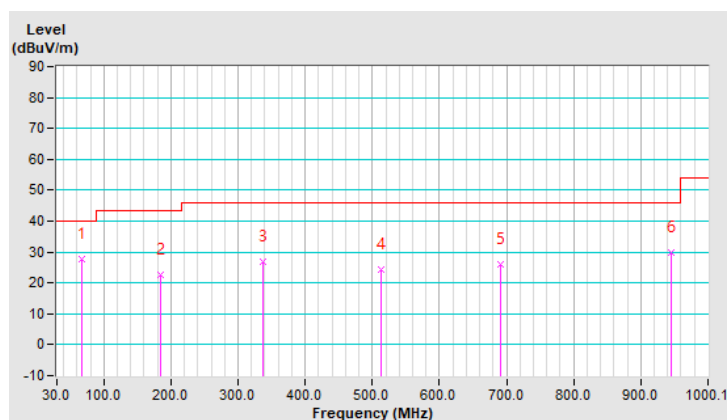


RF Mode	BT-LE 1M	Channel	CH 39 : 2480 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	110Vac,60Hz	Environmental Conditions	21°C, 67% RH
Tested By	Thomas Cheng	Test Mode	EUT with adapter Mode

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	66.86	27.5 QP	40.0	-12.5	1.50 H	201	41.3	-13.8
2	185.22	22.8 QP	43.5	-20.7	1.00 H	181	37.4	-14.6
3	337.52	26.7 QP	46.0	-19.3	2.00 H	60	37.6	-11.0
4	512.14	24.5 QP	46.0	-21.5	1.00 H	220	31.0	-6.5
5	690.64	26.1 QP	46.0	-19.9	2.00 H	14	30.0	-3.9
6	944.80	29.8 QP	46.0	-16.2	1.50 H	131	30.4	-0.5

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

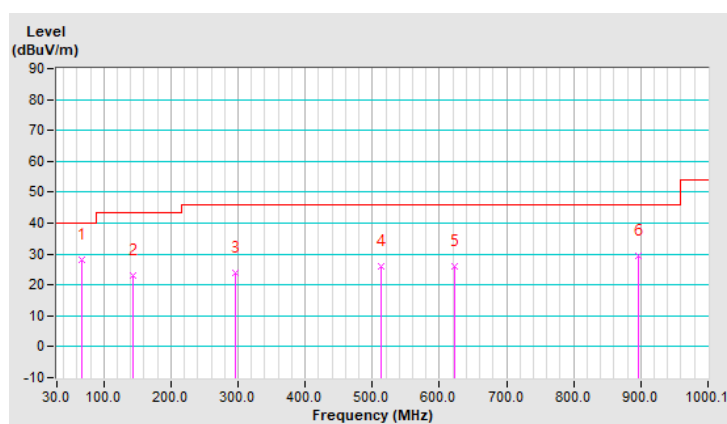


RF Mode	BT-LE 1M	Channel	CH 39 : 2480 MHz
Frequency Range	9 kHz ~ 1 GHz	Detector Function & Bandwidth	(QP) RB = 120kHz
Input Power	110Vac,60Hz	Environmental Conditions	21°C, 67% RH
Tested By	Thomas Cheng	Test Mode	EUT with adapter Mode

Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	66.86	28.2 QP	40.0	-11.8	2.00 V	18	42.0	-13.8
2	143.50	23.2 QP	43.5	-20.3	1.00 V	24	35.8	-12.6
3	296.78	23.8 QP	46.0	-22.2	1.50 V	18	35.7	-11.9
4	512.14	25.9 QP	46.0	-20.2	1.00 V	13	32.4	-6.5
5	622.73	26.0 QP	46.0	-20.0	1.50 V	348	30.8	-4.8
6	896.30	29.3 QP	46.0	-16.7	2.00 V	271	30.4	-1.1

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit of frequency range 30 MHz ~ 1 GHz.
5. The emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



7.7 Unwanted Emissions above 1 GHz

RF Mode	BT-LE 1M	Channel	CH 0 : 2402 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 3 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67.7% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	52.7 PK	74.0	-21.3	3.69 H	254	55.2	-2.5
2	2390.00	42.6 AV	54.0	-11.4	3.69 H	254	45.1	-2.5
3	*2402.00	102.7 PK			3.69 H	254	68.6	34.1
4	*2402.00	101.8 AV			3.69 H	254	67.7	34.1
5	4804.00	53.1 PK	74.0	-20.9	3.60 H	255	57.1	-4.0
6	4804.00	44.6 AV	54.0	-9.4	3.60 H	255	48.6	-4.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	52.6 PK	74.0	-21.4	3.30 V	140	55.1	-2.5
2	2390.00	42.6 AV	54.0	-11.4	3.30 V	140	45.1	-2.5
3	*2402.00	105.6 PK			3.30 V	140	71.5	34.1
4	*2402.00	104.7 AV			3.30 V	140	70.6	34.1
5	4804.00	55.5 PK	74.0	-18.5	3.48 V	277	59.5	-4.0
6	4804.00	47.8 AV	54.0	-6.2	3.48 V	277	51.8	-4.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	BT-LE 1M	Channel	CH 19 : 2440 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 3 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67.7% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2440.00	102.0 PK			3.29 H	269	67.7	34.3
2	*2440.00	101.1 AV			3.29 H	269	66.8	34.3
3	4880.00	52.6 PK	74.0	-21.4	2.41 H	165	56.8	-4.2
4	4880.00	44.0 AV	54.0	-10.0	2.41 H	165	48.2	-4.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2440.00	105.9 PK			3.27 V	171	71.6	34.3
2	*2440.00	105.1 AV			3.27 V	171	70.8	34.3
3	4880.00	53.8 PK	74.0	-20.2	2.74 V	156	58.0	-4.2
4	4880.00	46.2 AV	54.0	-7.8	2.74 V	156	50.4	-4.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	BT-LE 1M	Channel	CH 39 : 2480 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 3 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67.7% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	102.1 PK			4.00 H	275	67.7	34.4
2	*2480.00	101.3 AV			4.00 H	275	66.9	34.4
3	2487.86	54.6 PK	74.0	-19.4	4.00 H	275	56.5	-1.9
4	2487.86	44.6 AV	54.0	-9.4	4.00 H	275	46.5	-1.9
5	4960.00	52.2 PK	74.0	-21.8	2.31 H	167	56.5	-4.3
6	4960.00	43.7 AV	54.0	-10.3	2.31 H	167	48.0	-4.3
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	106.9 PK			3.36 V	145	72.5	34.4
2	*2480.00	106.0 AV			3.36 V	145	71.6	34.4
3	2488.02	56.3 PK	74.0	-17.7	3.36 V	145	58.2	-1.9
4	2488.02	46.8 AV	54.0	-7.2	3.36 V	145	48.7	-1.9
5	4960.00	54.0 PK	74.0	-20.0	3.02 V	283	58.3	-4.3
6	4960.00	46.7 AV	54.0	-7.3	3.02 V	283	51.0	-4.3

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	BT-LE 2M	Channel	CH 0 : 2402 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 5.1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67.7% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	52.6 PK	74.0	-21.4	3.42 H	273	55.1	-2.5
2	2390.00	42.9 AV	54.0	-11.1	3.42 H	273	45.4	-2.5
3	*2402.00	103.1 PK			3.42 H	273	69.0	34.1
4	*2402.00	100.8 AV			3.42 H	273	66.7	34.1
5	4804.00	52.6 PK	74.0	-21.4	1.07 H	220	56.6	-4.0
6	4804.00	44.8 AV	54.0	-9.2	1.07 H	220	48.8	-4.0
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	2390.00	52.7 PK	74.0	-21.3	3.26 V	140	55.2	-2.5
2	2390.00	43.4 AV	54.0	-10.6	3.26 V	140	45.9	-2.5
3	*2402.00	105.6 PK			3.26 V	140	71.5	34.1
4	*2402.00	103.1 AV			3.26 V	140	69.0	34.1
5	4804.00	53.9 PK	74.0	-20.1	3.70 V	292	57.9	-4.0
6	4804.00	46.2 AV	54.0	-7.8	3.70 V	292	50.2	-4.0

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

RF Mode	BT-LE 2M	Channel	CH 19 : 2440 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 5.1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67.7% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2440.00	103.2 PK			3.70 H	270	68.9	34.3
2	*2440.00	100.9 AV			3.70 H	270	66.6	34.3
3	4880.00	52.1 PK	74.0	-21.9	3.41 H	117	56.3	-4.2
4	4880.00	44.3 AV	54.0	-9.7	3.41 H	117	48.5	-4.2
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2440.00	106.2 PK			3.92 V	148	71.9	34.3
2	*2440.00	104.0 AV			3.92 V	148	69.7	34.3
3	4880.00	55.9 PK	74.0	-18.1	2.35 V	197	60.1	-4.2
4	4880.00	46.1 AV	54.0	-7.9	2.35 V	197	50.3	-4.2

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

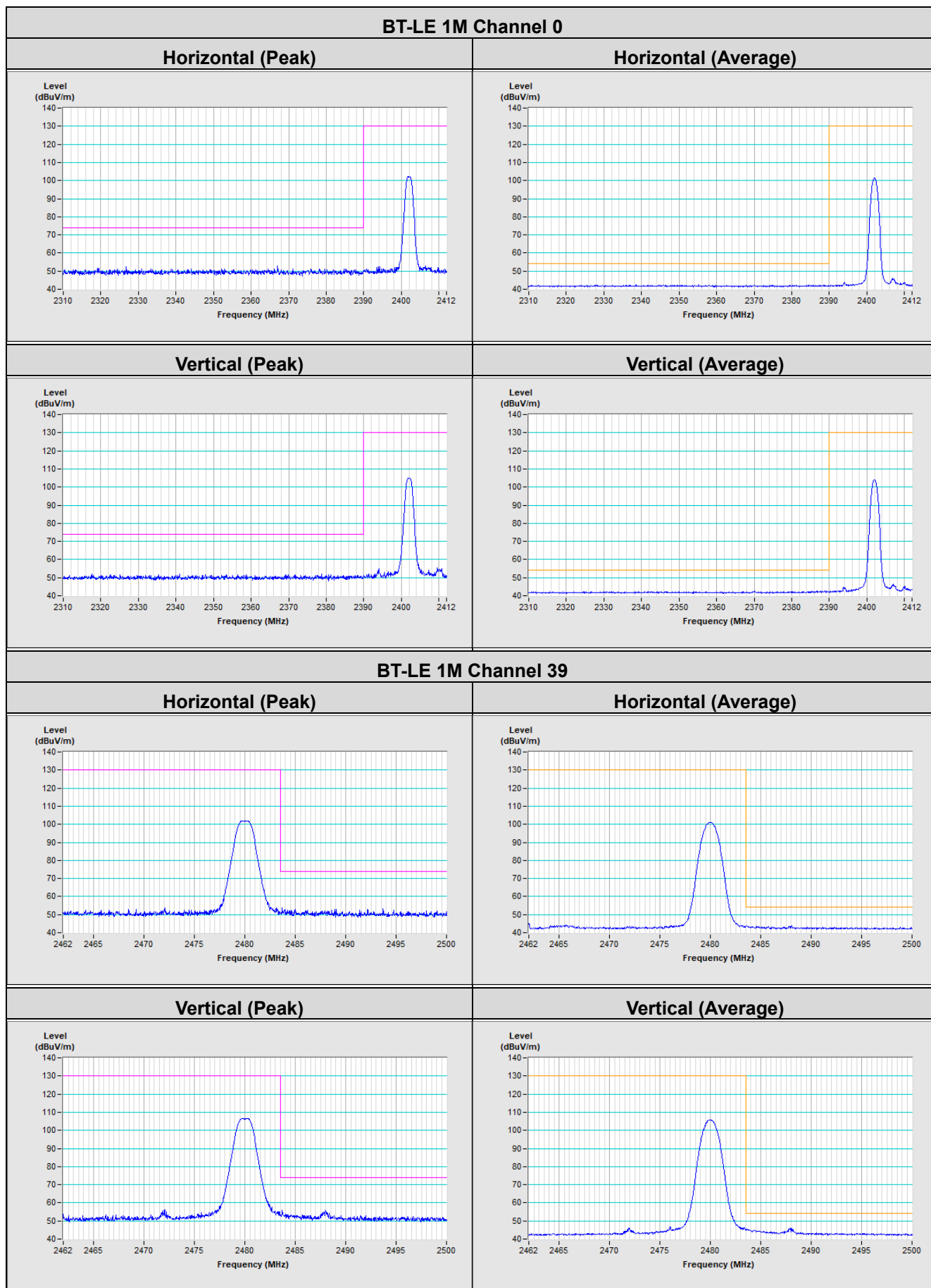
RF Mode	BT-LE 2M	Channel	CH 39 : 2480 MHz
Frequency Range	1 GHz ~ 25 GHz	Detector Function & Bandwidth	(PK) RB = 1 MHz, VB = 3 MHz (AV) RB = 1 MHz, VB = 5.1 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	23°C, 67.7% RH
Tested By	Vincent Chen		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	102.0 PK			3.99 H	273	67.6	34.4
2	*2480.00	99.8 AV			3.99 H	273	65.4	34.4
3	2483.50	57.2 PK	74.0	-16.8	3.99 H	273	59.1	-1.9
4	2483.50	48.9 AV	54.0	-5.1	3.99 H	273	50.8	-1.9
5	4960.00	52.1 PK	74.0	-21.9	3.32 H	158	56.4	-4.3
6	4960.00	44.4 AV	54.0	-9.6	3.32 H	158	48.7	-4.3
Antenna Polarity & Test Distance : Vertical at 3 m								
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Correction Factor (dB/m)
1	*2480.00	107.3 PK			3.84 V	135	72.9	34.4
2	*2480.00	105.1 AV			3.84 V	135	70.7	34.4
3	2483.50	60.3 PK	74.0	-13.7	3.84 V	135	62.2	-1.9
4	2483.50	53.0 AV	54.0	-1.0	3.84 V	135	54.9	-1.9
5	4960.00	55.4 PK	74.0	-18.6	3.52 V	278	59.7	-4.3
6	4960.00	45.7 AV	54.0	-8.3	3.52 V	278	50.0	-4.3

Remarks:

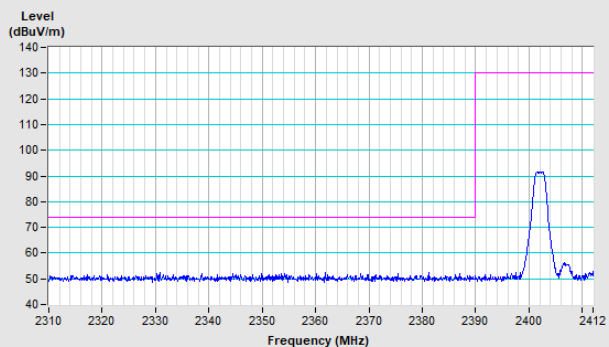
1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " * ": Fundamental frequency, the limit was restricted at the RF Output Power.

Plot of Band Edge

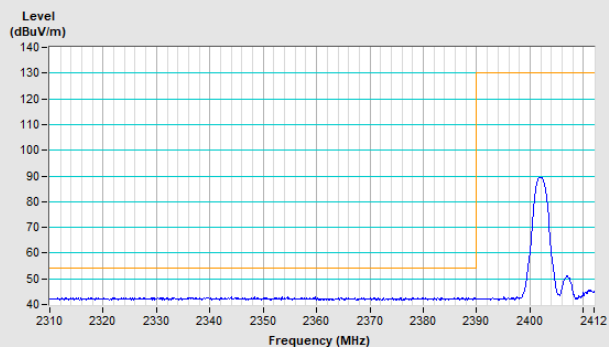


BT-LE 2M Channel 0

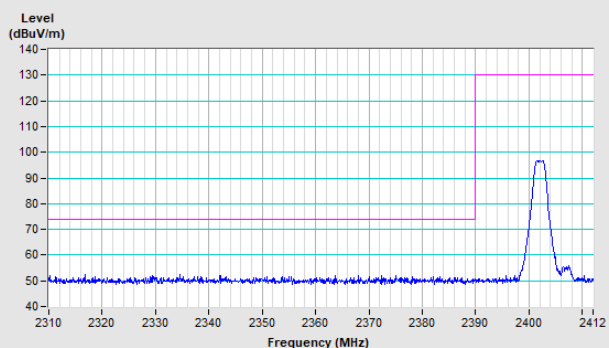
Horizontal (Peak)



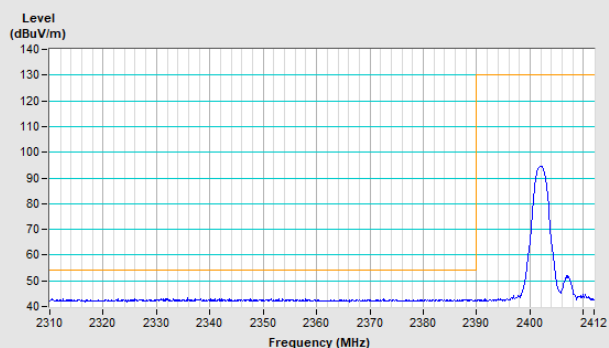
Horizontal (Average)



Vertical (Peak)

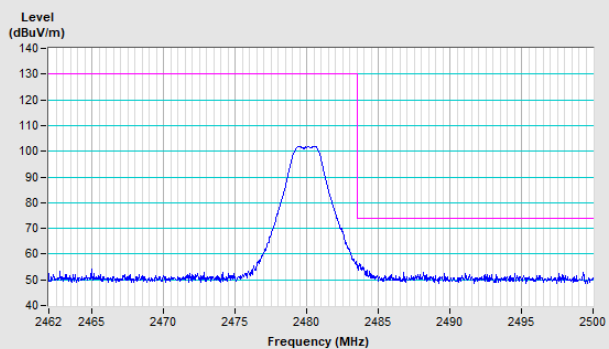


Vertical (Average)

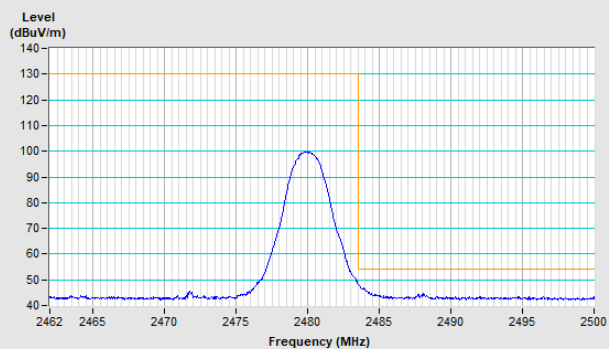


BT-LE 2M Channel 39

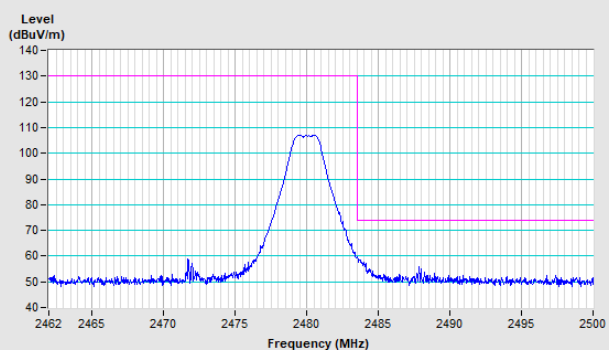
Horizontal (Peak)



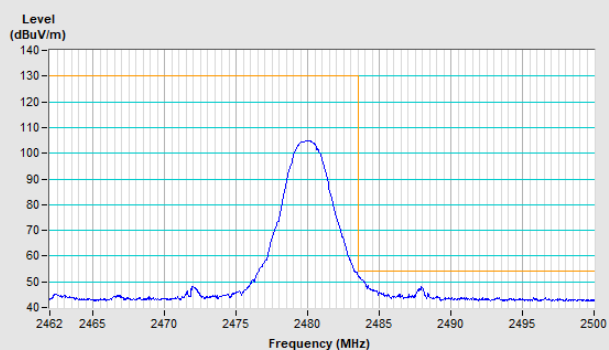
Horizontal (Average)



Vertical (Peak)



Vertical (Average)



8 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)

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

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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