

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 15, Subpart C (Section 15.247)
Report No.: RFBAOZ-WTW-P25060017A-1
FCC ID: U4Y-LX-7200
Product: LANCOM LX-7200 2x2x2 Indoor 11be AP
Brand: LANCOM
Model No.: LANCOM LX-7200
Received Date: 2025/12/8
Test Date: 2026/1/15 ~ 2026/1/26
Issued Date: 2026/3/31
Applicant: LANCOM Systems GmbH
Address: Adenauerstraße 20 / B2, 52146 Wuersele, Germany
Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Hsin Chu Laboratory
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Test Location: E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan
FCC Registration / 723255 / TW2022
Designation Number:

Approved by: _____

Wen Yu / Assistant Manager

, Date: _____

2026/3/31

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Prepared by : Claire Kuan / Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFBAOZ-WTW-P25060017A-1	Original release.	2026/3/31

1 Certificate

Product: LANCOM LX-7200 2x2x2 Indoor 11be AP

Brand: LANCOM

Test Model: LANCOM LX-7200

Sample Status: Engineering sample

Applicant: LANCOM Systems GmbH

Test Date: 2026/1/15 ~ 2026/1/26

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

Measurement ANSI C63.10-2020

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 -3.01 dB at 0.39219 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -4.3 dB at 39.53 MHz and 372.97 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -0.2 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) (±)
RF Output Power	-	1.1 dB
Power Spectral Density	-	1.3 dB
6 dB Bandwidth	-	1050.00 Hz
Conducted Out of Band Emissions	9 kHz ~ 40 GHz	2.6 dB
AC Power Conducted Emissions	150 kHz ~ 30 MHz	1.9 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3.1 dB
	30 MHz ~ 1 GHz	5.1 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	5.0 dB
	18 GHz ~ 40 GHz	5.3 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	LANCOM LX-7200 2x2x2 Indoor 11be AP
Brand	LANCOM
Test Model	LANCOM LX-7200
Status of EUT	Engineering sample
Power Supply Rating	12 Vdc from adapter or 56 Vdc from PoE adapter
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	145.546 mW (21.63 dBm)

Note:

1. There are Bluetooth and WLAN (2.4 GHz & 5 GHz & 6 GHz) technology used for the EUT.
2. The device of WLAN (2.4 GHz), Bluetooth technology can't transmit simultaneously, it was used timely shared coexistence technology.
3. Simultaneously transmission combination.

Combination	Technology		
1	WLAN (2.4 GHz) / Bluetooth	WLAN (5 GHz)	WLAN (6 GHz)

Note: The emission of the simultaneous operation has been evaluated and no non-compliance was found.

4. 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.	RF Chain NO.	Brand	Model	Antenna Net Gain(dBi)	Frequency range (GHz)	Antenna Type	Connector Type	Cable length (cm)
1 A1-2G4	0	AOT	ANT-LX7200-AL03	2.49	2.4 ~ 2.5	PIFA	ipex(MHF)	15.5
2 A2-2G4	1	AOT	ANT-LX7200-AL03	3.96	2.4 ~ 2.5	PIFA	ipex(MHF)	14
3 A3-BLE	0	AOT	ANT-LX7200-AL03	7	2.4 ~ 2.5	Dipole	ipex(MHF)	6
4 A4-5GV	0	AOT	ANT-LX7200-AL03	4.19	5.15 ~ 5.25	PIFA	ipex(MHF)	11.5
				4.74	5.25 ~ 5.35			
				5.37	5.47 ~ 5.725			
				5.73	5.725 ~ 5.85			
5 A5-5GV	1	AOT	ANT-LX7200-AL03	4.52	5.15 ~ 5.25	PIFA	ipex(MHF)	17.8
				4.73	5.25 ~ 5.35			
				4.33	5.47 ~ 5.725			
				4.55	5.725 ~ 5.85			
6 A6-6GH	0	AOT	ANT-LX7200-AL03	6.6	5.925 ~ 7.125	Dipole	ipex(MHF)	18
7 A7-6GH	1	AOT	ANT-LX7200-AL03	6.7	5.925 ~ 7.125	Dipole	ipex(MHF)	9.5

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

2. The directional antenna gain, please refer to the following table:

Frequency range	Directional Gain (dBi)
2.4~2.5GHz	6.27
5.15~5.25GHz	6.8
5.25~5.35GHz	6.8
5.47~5.725GHz	7.07
5.725~5.85GHz	6.94

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

Pre-Scan:	1. EUT can be used in the following ways: Ceiling/ Wall Mount. Pre-scan these ways and find the worst case as a representative test condition. 2. EUT can be powered by: POE/ AC Adapter. Pre-scan these modes and find the worst case as a representative test condition. 3. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
Worst Case:	1. EUT Worst Condition of placement: Unwanted Emission: Wall Mount AC Power Conducted Emission: Wall Mount 2. EUT Worst Condition of powered: Unwanted Emission: POE Mode AC Power Conducted Emission: AC Adapter

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

Test Item	Mode	Tested Channel	Modulation	Data Rate Parameter
RF Output Power	BT-LE 125k	0, 19, 39	GFSK	125kb/s
	BT-LE 500k	0, 19, 39	GFSK	500kb/s
	BT-LE 1M	0, 19, 39	GFSK	1Mb/s
	BT-LE 2M	0, 19, 39	GFSK	2Mb/s
Power Spectral Density	BT-LE 125k	0, 19, 39	GFSK	125kb/s
	BT-LE 500k	0, 19, 39	GFSK	500kb/s
	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	BT-LE 1M	0, 19, 39	GFSK	1Mb/s
	BT-LE 2M	0, 19, 39	GFSK	2Mb/s
AC Power Conducted Emissions	BT-LE 1M	0	GFSK	1Mb/s
Unwanted Emissions below 1 GHz	BT-LE 1M	0	GFSK	1Mb/s
Unwanted Emissions above 1 GHz	BT-LE 1M	0, 19, 39	GFSK	1Mb/s
	BT-LE 2M	0, 19, 39	GFSK	2Mb/s

Note: BT LE-1M, LE-125k, LE-500k of these modes under the same 1 Msym/s modulation scheme, but the data rates are different; based on the same modulation scheme to find the worst case as a representative test mode.

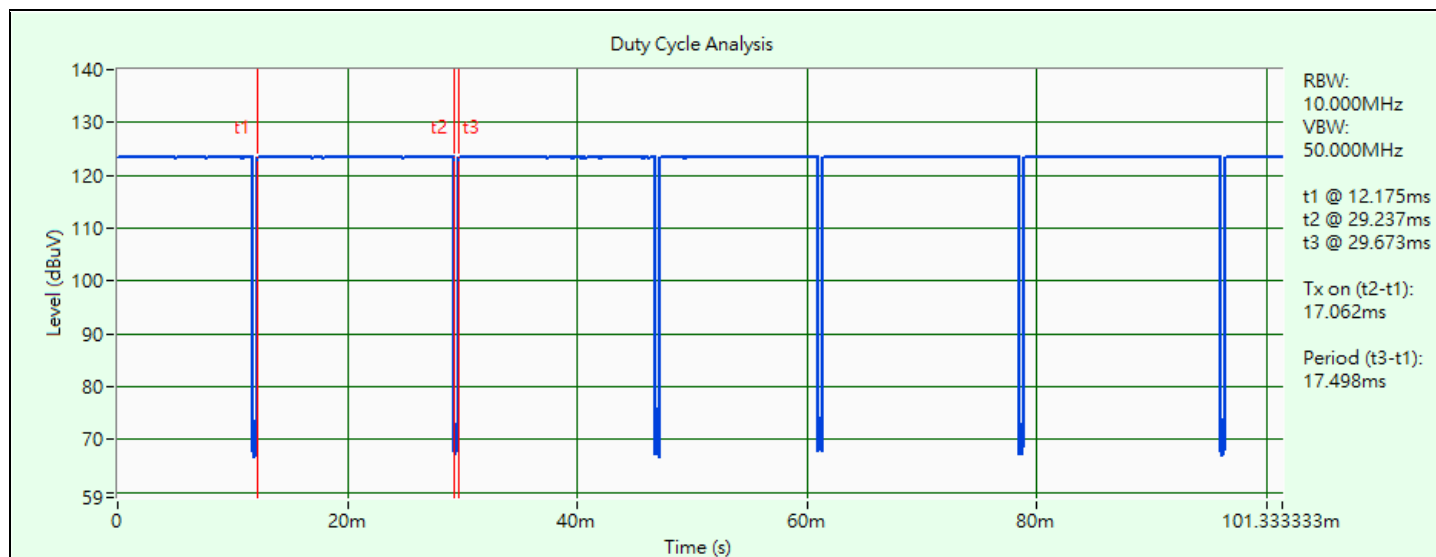
3.5 Duty Cycle of Test Signal

BT-LE 125k: Duty cycle = 17.062 ms / 17.498 ms x 100% = 97.5%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.11 \text{ dB}$

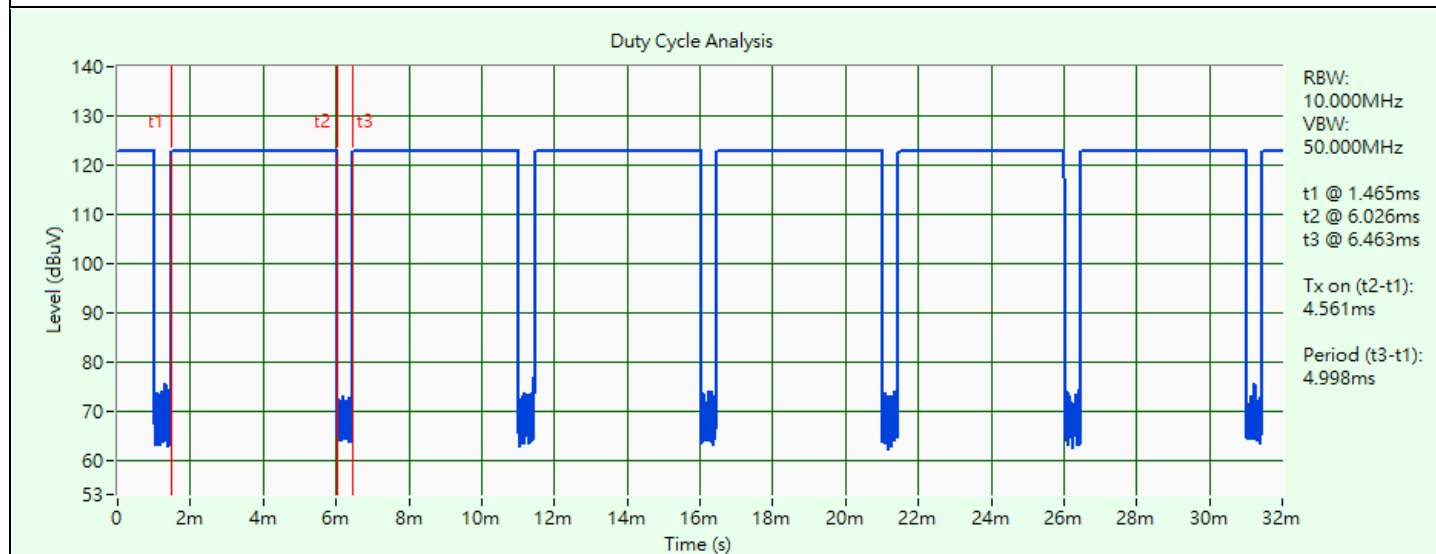
BT-LE 500k: Duty cycle = 4.561 ms / 4.998 ms x 100% = 91.3%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 0.40 \text{ dB}$

BT-LE 1M: Duty cycle = 0.394 ms / 0.624 ms x 100% = 63.1%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 2.00 \text{ dB}$

BT-LE 2M: Duty cycle = 1.083 ms / 1.875 ms x 100% = 57.8%, duty factor = $10 \cdot \log(1/\text{Duty cycle}) = 2.38 \text{ dB}$

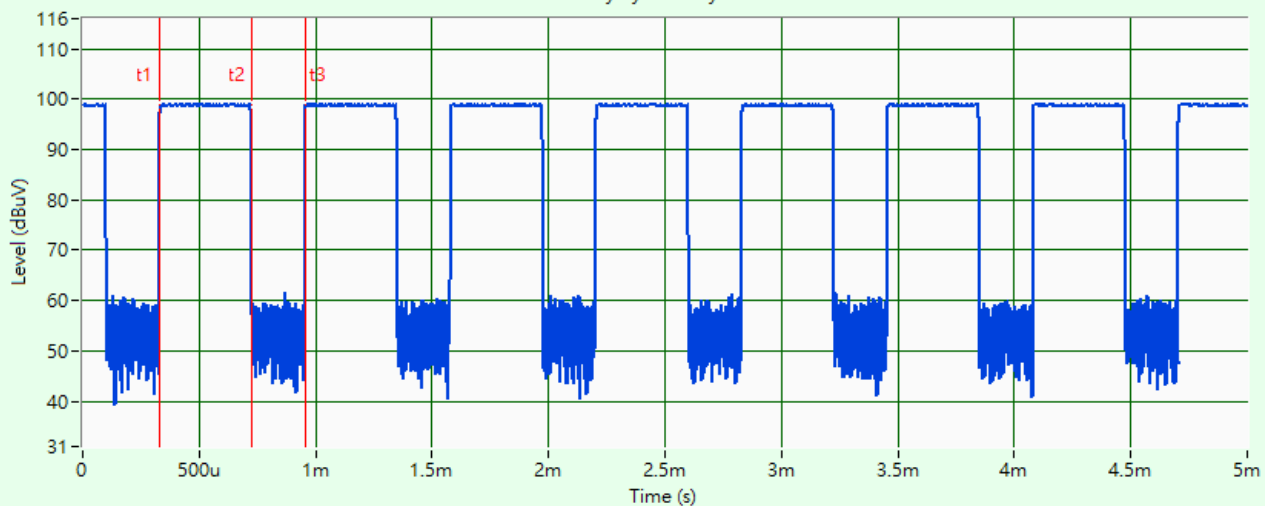


BT-LE 125k



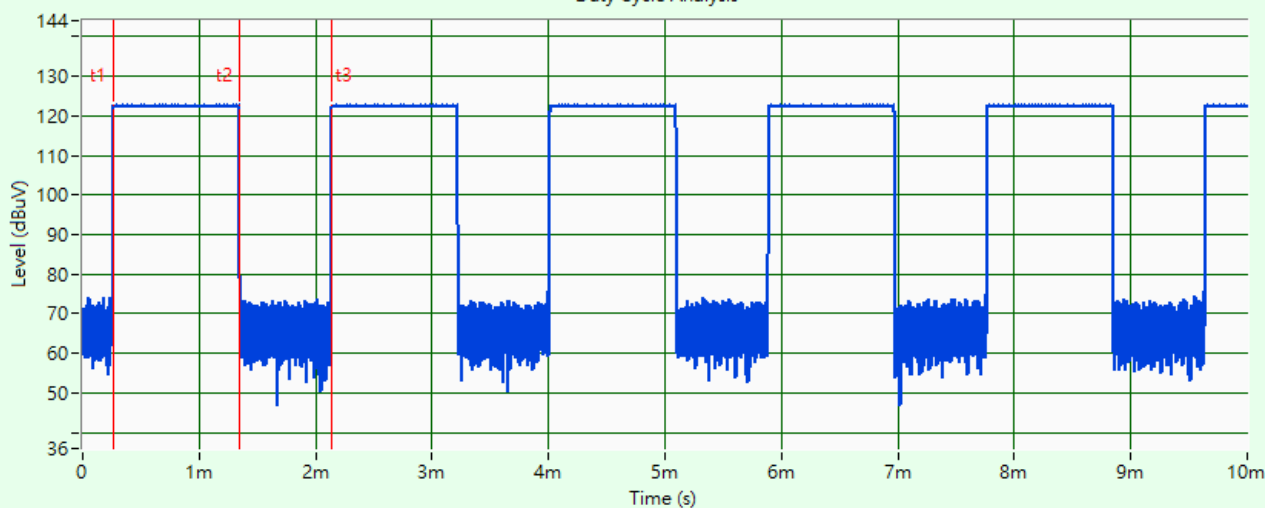
BT-LE 500k

Duty Cycle Analysis



BT-LE 1M

Duty Cycle Analysis



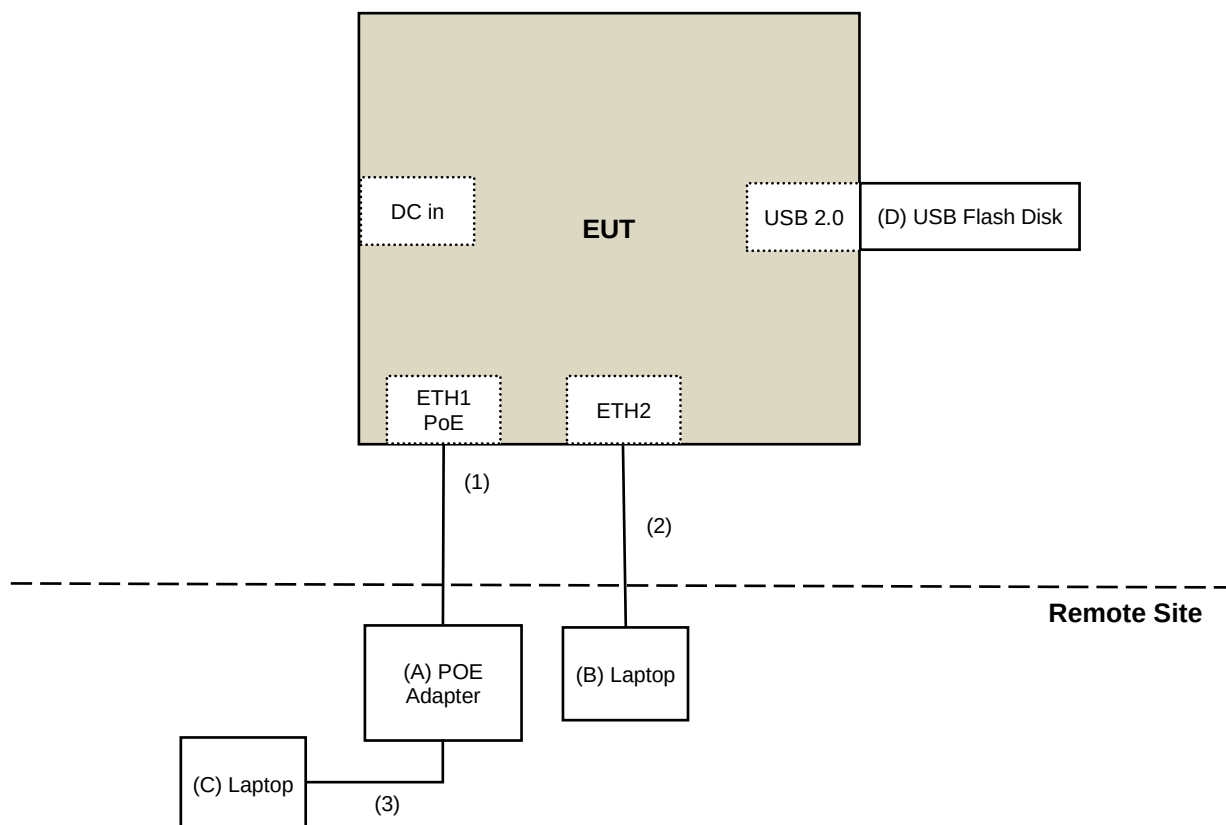
BT-LE 2M

3.6 Test Program Used and Operation Descriptions

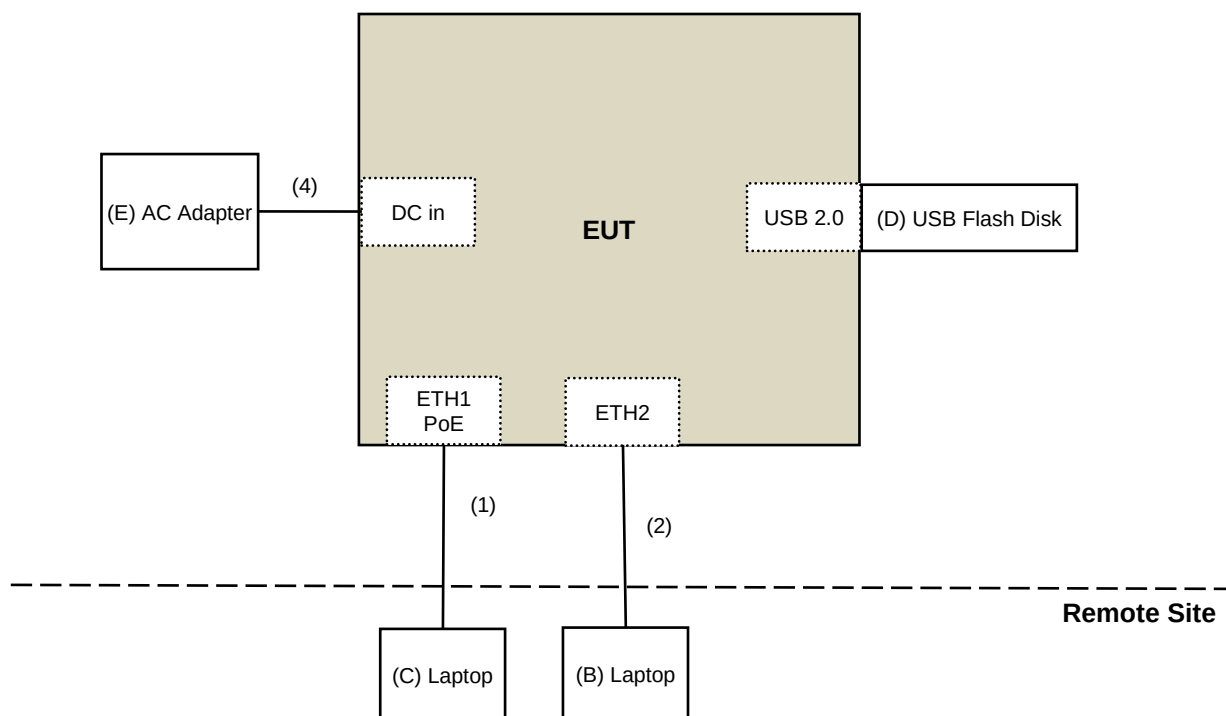
Controlling software (Terminal v 2.10) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices

For Unwanted Emissions test:



For AC Power Conducted Emission test:



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	POE Adapter	DELTA	ADH-65AR N	N/A	N/A	Supplied by applicant
B	Laptop	HP	TPN-Q186	5CD8212YYK	DoC	Provided by Lab
C	Laptop	DELL	E6230	5XTGWW1	N/A	Provided by Lab
D	USB Flash Disk	Sandisk	Ultra Go	N/A	N/A	Provided by Lab
E	AC Adapter	AMIGO	AMS340-1205000FU	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	RJ-45 Cable	1	10	No	0	Provided by Lab
2	RJ-45 Cable	1	10	No	0	Provided by Lab
3	RJ-45 Cable	1	3	No	0	Provided by Lab
4	DC Cable	1	1.5	No	0	Supplied by applicant

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
Fixed Attenuator Woken	00800A1K01A-20	00800A1K01A-20-02	2025/5/23	2026/5/22
Pulse Power Sensor Anritsu	MA2411B	1726434	2025/6/3	2026/6/2
RF Power Meter Anritsu	ML2495A	1529002	2025/6/3	2026/6/2

Notes:

1. The test was performed in HC - Oven room 2(Hsinchu).
2. Tested Date: 2026/1/26

4.2 Power Spectral Density

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Fixed Attenuator Woken	00800A1K01A-10	00800A1K01A-10-01	2025/5/23	2026/5/22
MXA Signal Analyzer Keysight	N9020B	MY60112408	2025/3/12	2026/3/11
Software	ADT_RF Test Software V8	N/A	N/A	N/A

Notes:

1. The test was performed in HC - Oven room 2(Hsinchu).
2. Tested Date: 2026/1/26

4.3 6 dB Bandwidth

Refer to section 4.2 to get the tested date and information of the instruments.

4.4 Conducted Out of Band Emissions

Refer to section 4.2 to get the tested date and information of the instruments.

4.5 AC Power Conducted Emissions

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
50 ohm terminal resistance Telegartner	50 ohm	3	2025/10/29	2026/10/28
EMI Test Receiver R&S	ESCS 30	100375	2025/5/21	2026/5/20
Fixed Attenuator STI	STI02-2200-10	005	2025/2/17	2026/2/16
LISN R&S	ESH3-Z5	835239/001	2025/3/27	2026/3/26
		848773/004	2025/10/3	2026/10/2
RF Coaxial Cable JYEBAO	5D-FB	COCCAB-001	2025/2/17	2026/2/16
Software BVADT	BVADT_Cond_V7.3.7.4	N/A	N/A	N/A

Notes:

1. The test was performed in HC - Conduction 1(Hsinchu).
2. Tested Date: 2026/1/20

4.6 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-0942	2025/9/16	2026/9/15
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	N/A	N/A
Fixed Attenuator Mini-Circuits	UNAT-5+	PAD-ATT5-01	2025/5/15	2026/5/14
Loop Antenna TESEQ	HLA 6121	63620	2025/10/20	2026/10/19
MXA Signal Analyzer Keysight	N9020B	MY60112410	2025/3/17	2026/3/16
MXE EMI Receiver Keysight	N9038A	MY59050100	2025/6/25	2026/6/24
Preamplifier EMCI	EMC330N	980852	2025/2/8	2026/2/7
RF Coaxial Cable PEWC	8D	966-6-1	2025/5/15	2026/5/14
		966-6-2	2025/5/15	2026/5/14
		966-6-3	2025/5/15	2026/5/14
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A

Notes:

1. The test was performed in HC - 966 Chamber No. 6(Hsinchu).
2. Tested Date: 2026/1/20

4.7 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Boresight Antenna Tower & Turn Table Max-Full	MF-7802BS	MF780208530	N/A	N/A
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-2035	2025/11/9	2026/11/8
	BBHA 9170	BBHA9170519	2025/11/9	2026/11/8
MXA Signal Analyzer Keysight	N9020B	MY60112410	2025/3/17	2026/3/16
MXE EMI Receiver Keysight	N9038A	MY59050100	2025/6/25	2026/6/24
Preamplifier EMCI	EMC12630SE	980385	2025/5/24	2026/5/23
	EMC184045SE	980387	2025/8/7	2026/8/6
RF Coaxial Cable EMCI	EMC104-SM-SM-1300	210205	2025/5/24	2026/5/23
	EMC104-SM-SM-2000	210203	2025/5/24	2026/5/23
	EMC104-SM-SM-8000	221015	2025/5/24	2026/5/23
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A

Notes:

1. The test was performed in HC - 966 Chamber No. 6(Hsinchu).
2. Tested Date: 2026/1/15 ~ 2026/1/19

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 30 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 30 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 30 dB below the highest level of the desired power:

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

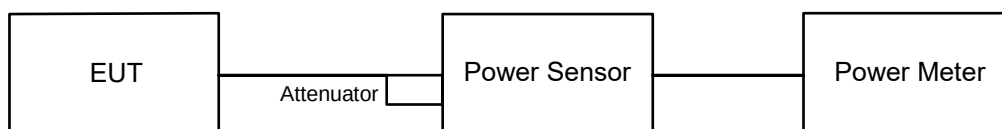
Notes:

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



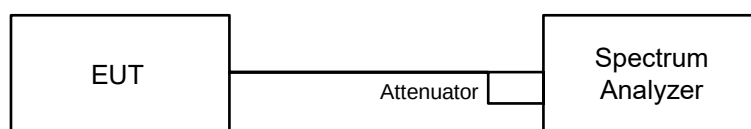
6.1.2 Test Procedure

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



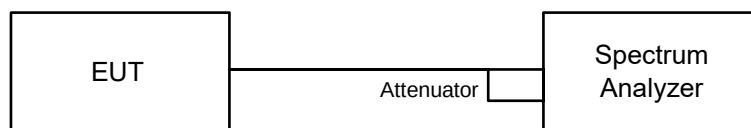
6.2.2 Test Procedure

- Measure the duty cycle (x).
- Set instrument center frequency to DTS channel center frequency.
- Set span to > 1.5 times the OBW.
- Set RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- Set VBW $\geq 3 \times \text{RBW}$.
- Detector = power averaging (RMS) or sample detector (when RMS not available).
- Ensure that the number of measurement points in the sweep $\geq 2 \times \text{span/RBW}$.
- Sweep time = auto couple.
- Do not use sweep triggering. Allow sweep to "free run".
- Employ trace averaging (RMS) mode over a minimum of 100 traces.
- Use the peak marker function to determine the maximum amplitude level.

Note: If Duty cycle < 98%, Add $10 \log (1/x)$, where x is the duty cycle measured in step (a), to the measured PSD to compute the average PSD during the actual transmission time.

6.3 6 dB Bandwidth

6.3.1 Test Setup

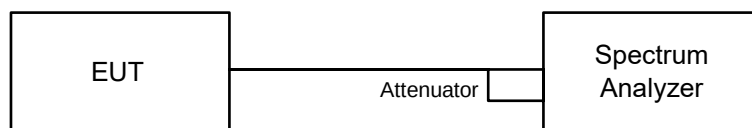


6.3.2 Test Procedure

- a. Set RBW = shall be in the range of 1% to 5% of the OBW but not less than 100 kHz.
- b. Set the VBW $\geq [3 \times \text{RBW}]$.
- c. Detector = peak.
- d. Trace mode = max-hold.
- e. Sweep = No faster than coupled (auto) time.
- f. Allow the trace to stabilize.
- g. Measure the maximum width of the emission by placing two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the “-6 dB down amplitude”. If a marker is below this “-6 dB down amplitude” value, then it shall be as close as possible to this value.

6.4 Conducted Out of Band Emissions

6.4.1 Test Setup



6.4.2 Test Procedure

MEASUREMENT PROCEDURE REF

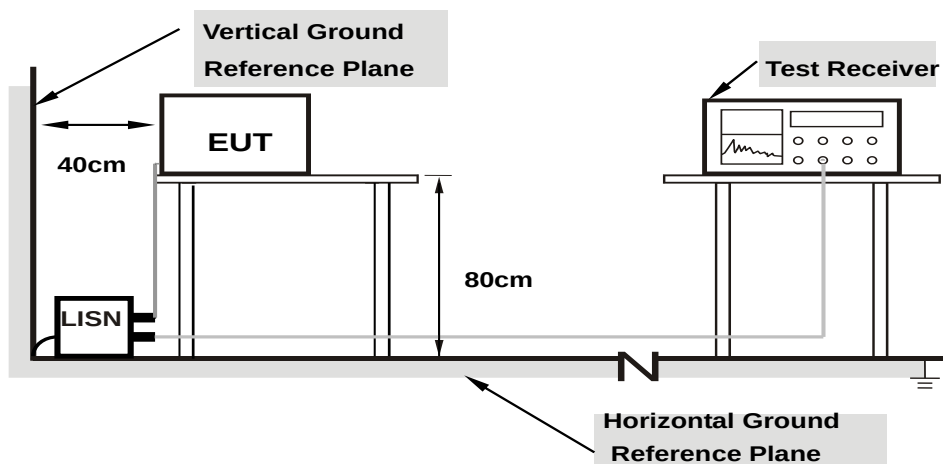
- Set instrument center frequency to DTS channel center frequency.
- Set the span to ≥ 1.5 times the DTS bandwidth.
- Set the RBW = 100 kHz.
- Set the VBW ≥ 300 kHz.
- Detector = peak.
- Sweep time = No faster than coupled (auto) time.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum PSD level.

MEASUREMENT PROCEDURE OOB

- Set the center frequency and span to encompass frequency range to be measured. Note that the frequency range might need to be divided into multiple frequency ranges to retain frequency resolution.
- Set RBW = 100 kHz.
- Set VBW ≥ 300 kHz.
- Detector = peak.
- Sweep = No faster than coupled (auto) time.
- 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

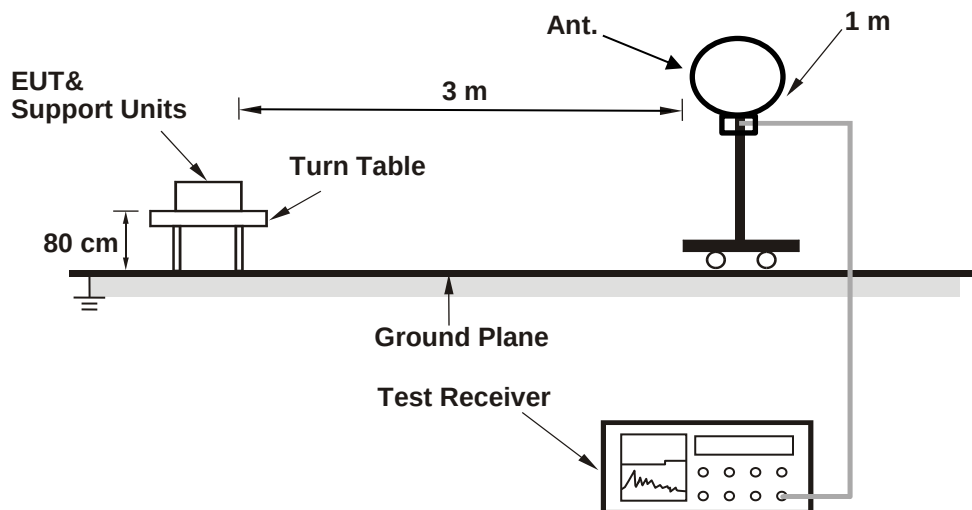
- Exploratory ac power-line conducted emission measurements: The EUT shall be operated on the mid channel and in the mode with highest output power unless the fundamental operates in the AC power-line emission test range then the EUT shall be operated in the range of typical modes of operation.
- The 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.

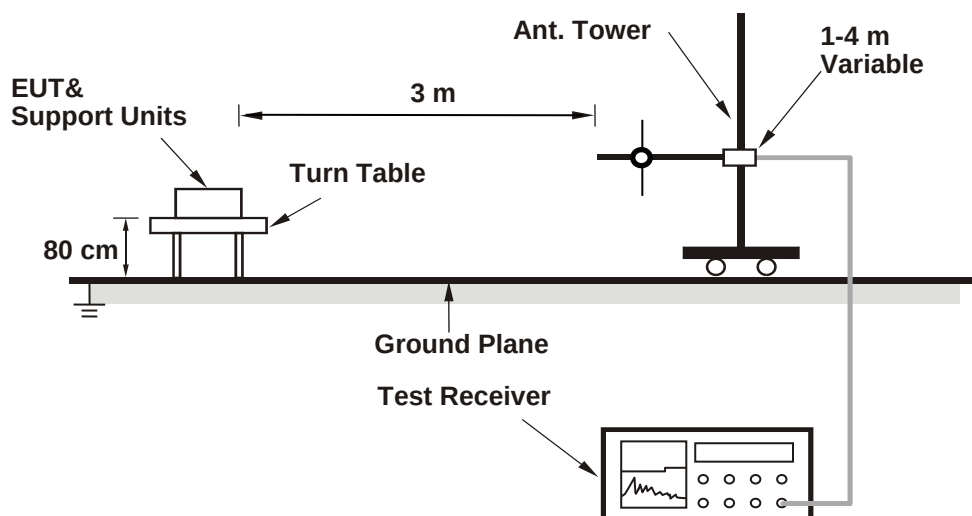
6.6 Unwanted Emissions below 1 GHz

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 (however, peak detector measurements may be used to determine compliance with QP requirements), 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

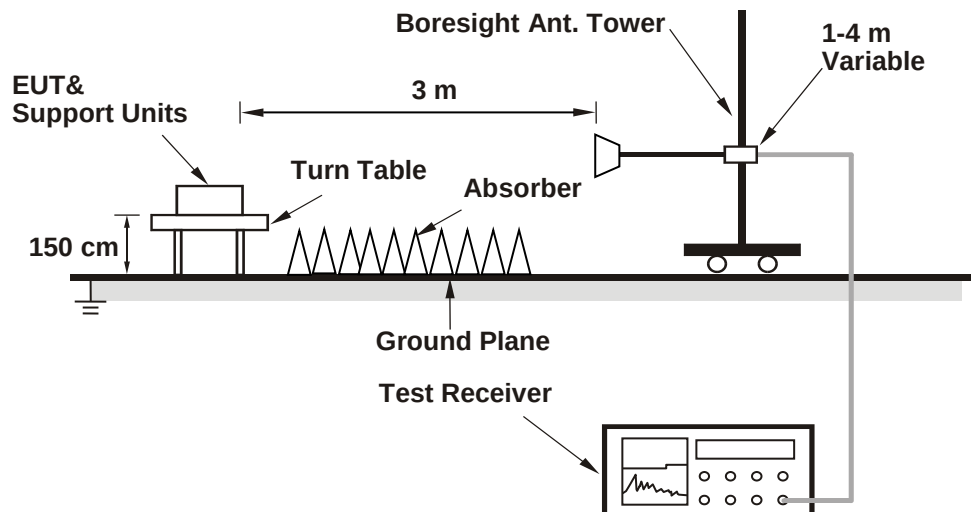
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the 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(QP) detect function, Average(AV) detect function, Peak(PK) detect function and specified bandwidth with maximum hold mode when the test frequencies less than or equal to 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 (however, peak detector measurements may be used to determine compliance with QP requirements).
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/spectrum analyzer 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:	12 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Chris Lin
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BT-LE 125k

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
0	2402	143.219	21.56	29	Pass
19	2440	143.219	21.56	29	Pass
39	2480	34.041	15.32	29	Pass

Note: The antenna gain is 7 dBi > 6 dBi, so the output power limit shall be reduced to $30-(7-6) = 29$ dBm.

BT-LE 500k

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
0	2402	143.219	21.56	29	Pass
19	2440	141.906	21.52	29	Pass
39	2480	26.607	14.25	29	Pass

Note: The antenna gain is 7 dBi > 6 dBi, so the output power limit shall be reduced to $30-(7-6) = 29$ dBm.

BT-LE 1M

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
0	2402	145.546	21.63	29	Pass
19	2440	144.544	21.60	29	Pass
39	2480	19.055	12.80	29	Pass

Note: The antenna gain is 7 dBi > 6 dBi, so the output power limit shall be reduced to $30-(7-6) = 29$ dBm.

BT-LE 2M

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)	Power Limit (dBm)	Test Result
0	2402	145.546	21.63	29	Pass
19	2440	136.773	21.36	29	Pass
39	2480	13.305	11.24	29	Pass

Note: The antenna gain is 7 dBi > 6 dBi, so the output power limit shall be reduced to $30-(7-6) = 29$ dBm.

7.2 Power Spectral Density

Input Power:	12 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Chris Lin
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BT-LE 125k

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)	Duty Factor (dB)	Conducted PSD (dBm/3kHz)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
0	2402	6.41	0.11	6.41	6.52	7	Pass
19	2440	6.68	0.11	6.68	6.79	7	Pass
39	2480	2.72	0.11	2.72	2.83	7	Pass

Note: The antenna gain is 7 dBi > 6 dBi, so the power density limit shall be reduced to $8-(7-6) = 7$ dBm/3kHz.

BT-LE 500k

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)	Duty Factor (dB)	Conducted PSD (dBm/3kHz)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
0	2402	1.87	0.40	1.87	2.27	7	Pass
19	2440	1.02	0.40	1.02	1.42	7	Pass
39	2480	-6.29	0.40	-6.29	-5.89	7	Pass

Note: The antenna gain is 7 dBi > 6 dBi, so the power density limit shall be reduced to $8-(7-6) = 7$ dBm/3kHz.

BT-LE 1M

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)	Duty Factor (dB)	Conducted PSD (dBm/3kHz)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
0	2402	1.88	2.00	1.88	3.88	7	Pass
19	2440	2.67	2.00	2.67	4.67	7	Pass
39	2480	-6.04	2.00	-6.04	-4.04	7	Pass

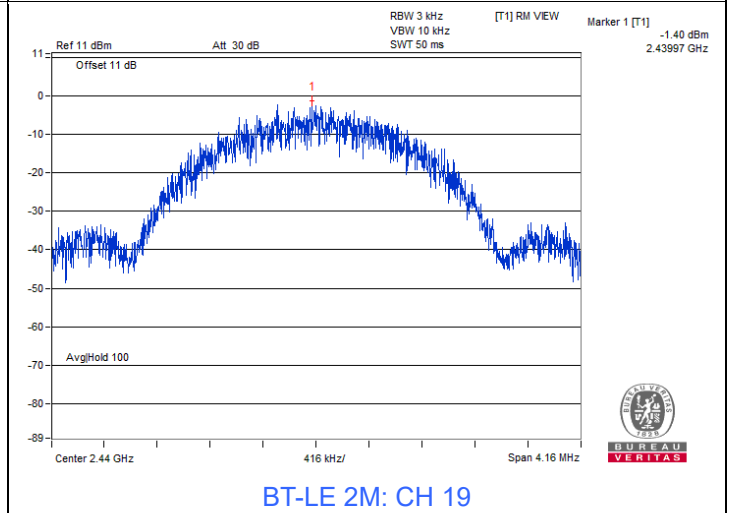
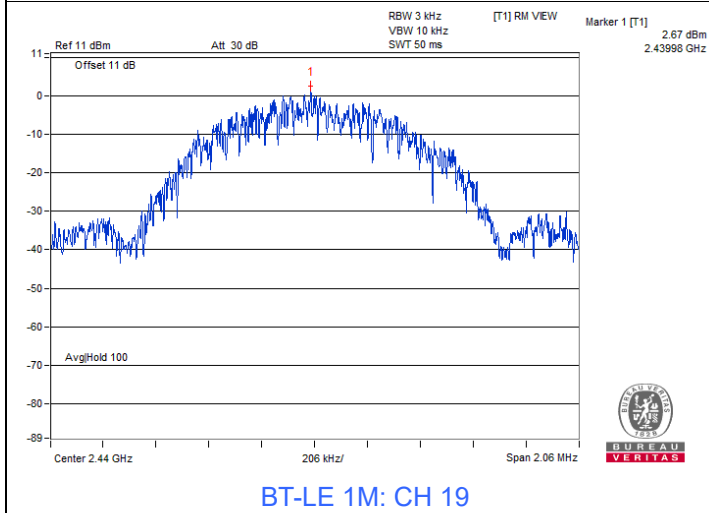
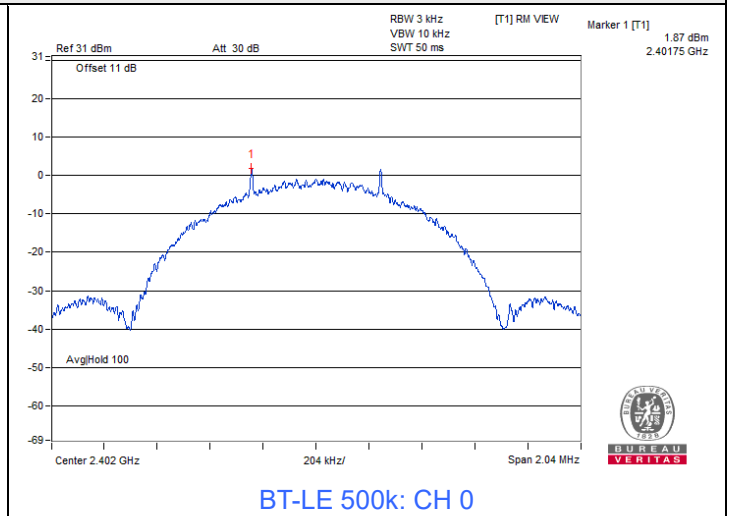
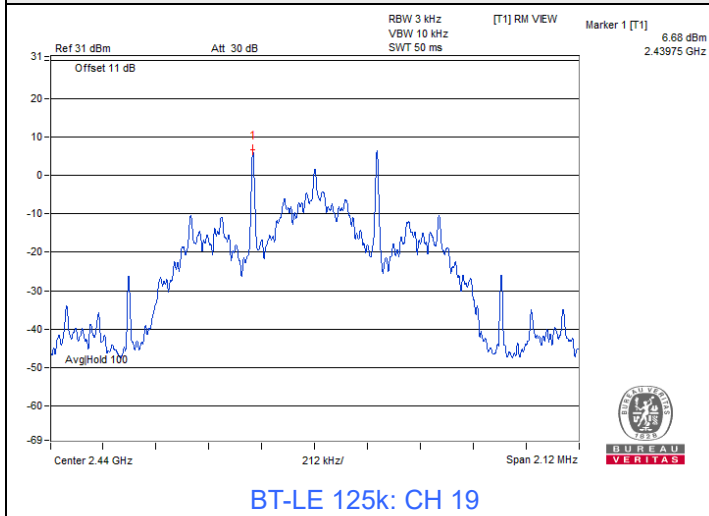
Note: The antenna gain is 7 dBi > 6 dBi, so the power density limit shall be reduced to $8-(7-6) = 7$ dBm/3kHz.

BT-LE 2M

Chan.	Chan. Freq. (MHz)	PSD w/o Duty Factor (dBm/3kHz)	Duty Factor (dB)	Conducted PSD (dBm/3kHz)	Total PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
0	2402	-1.86	2.38	-1.86	0.52	7	Pass
19	2440	-1.4	2.38	-1.40	0.98	7	Pass
39	2480	-12.44	2.38	-12.44	-10.06	7	Pass

Note: The antenna gain is 7 dBi > 6 dBi, so the power density limit shall be reduced to $8-(7-6) = 7$ dBm/3kHz.

Spectrum Plot of Maximum Value



7.3 6 dB Bandwidth

Input Power:	12 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Chris Lin
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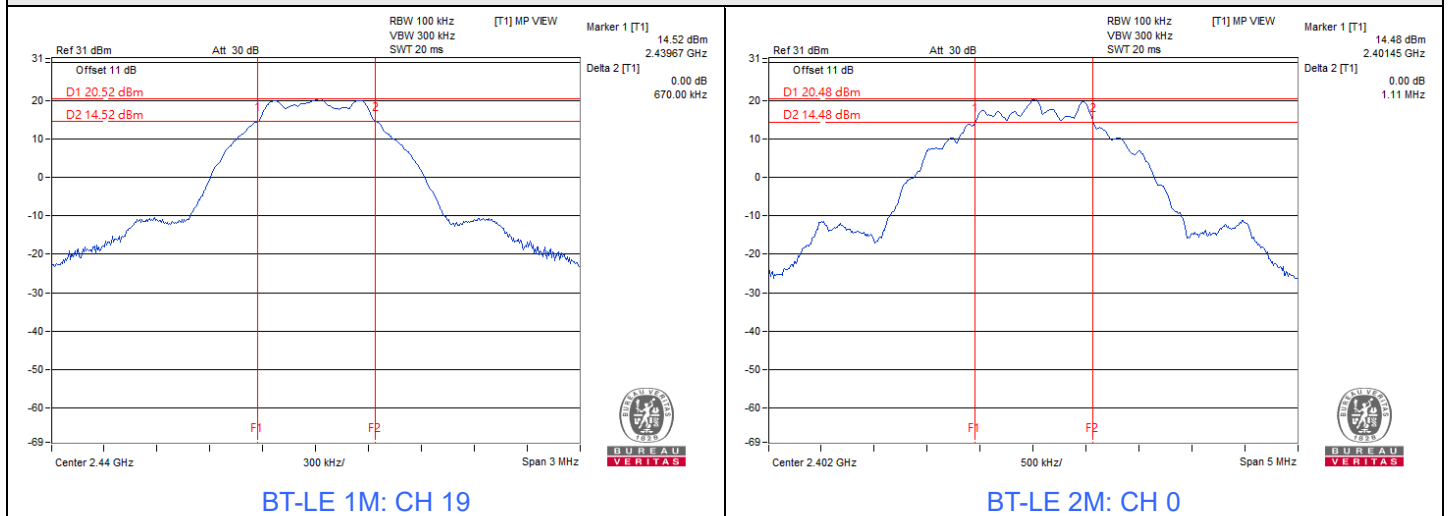
BT-LE 1M

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Test Result
0	2402	0.68	0.5	Pass
19	2440	0.67	0.5	Pass
39	2480	0.68	0.5	Pass

BT-LE 2M

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Test Result
0	2402	1.11	0.5	Pass
19	2440	1.12	0.5	Pass
39	2480	1.11	0.5	Pass

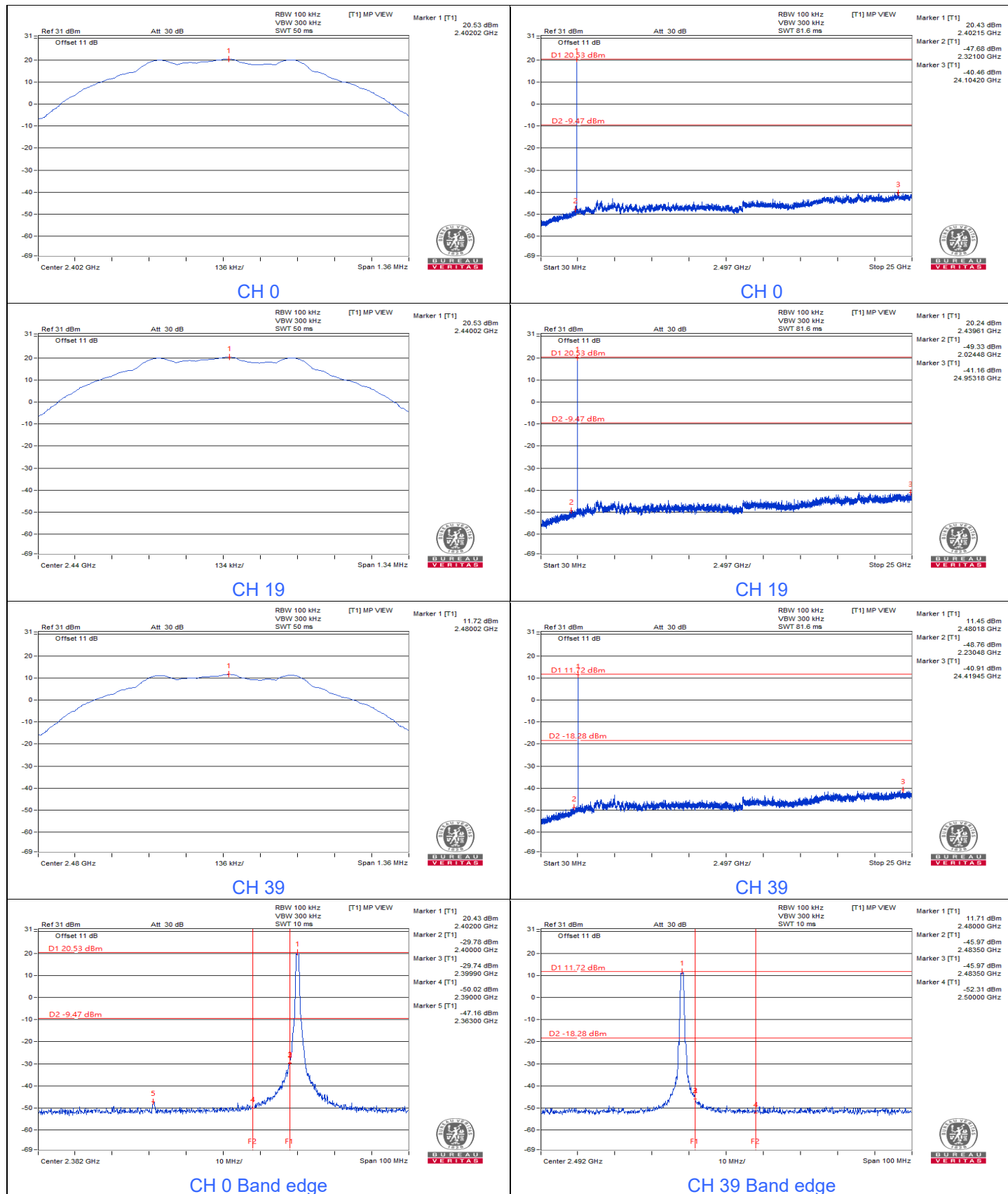
Spectrum Plot of Minimum Value



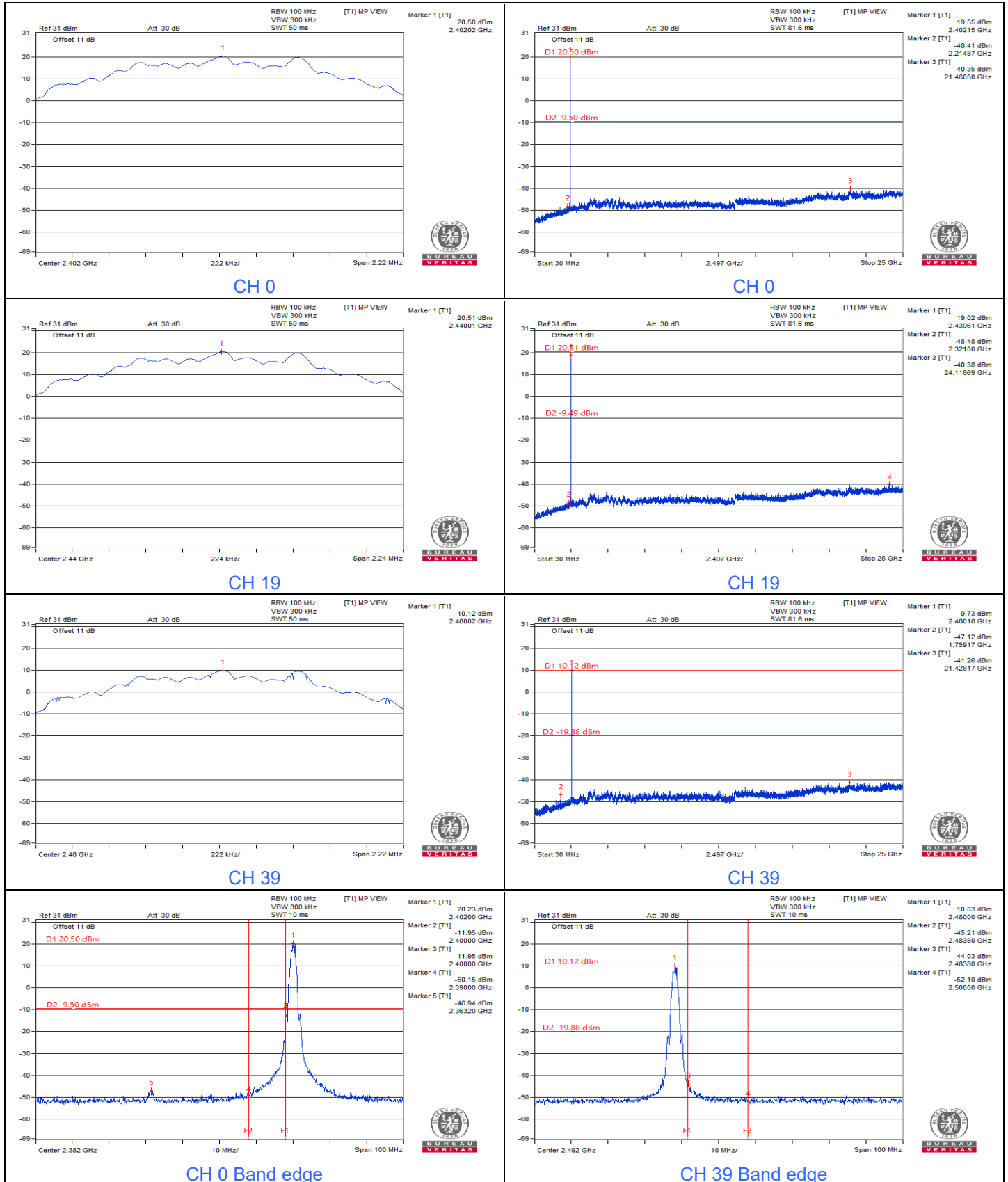
7.4 Conducted Out of Band Emissions

Input Power:	12 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Chris Lin
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BT-LE 1M



BT-LE 2M



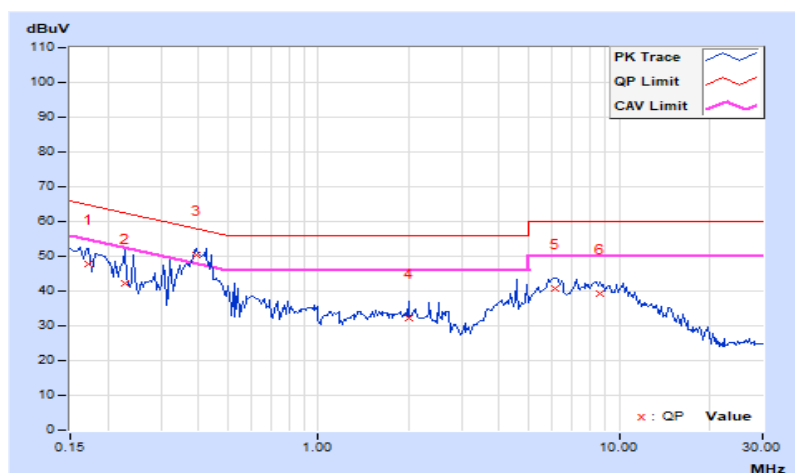
7.5 AC Power Conducted Emissions

RF Mode	BT LE-1M	Channel	CH 0 : 2402 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	25 °C, 75% RH
Tested By	Louis Yang		

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	0.17344	10.00	37.76	25.76	47.76	35.76	64.79	54.79	-17.03	-19.03
2	0.22812	10.01	32.21	24.69	42.22	34.70	62.52	52.52	-20.30	-17.82
3	0.39219	10.04	40.21	34.97	50.25	45.01	58.02	48.02	-7.77	-3.01
4	1.99609	10.17	21.91	16.68	32.08	26.85	56.00	46.00	-23.92	-19.15
5	6.10938	10.54	30.11	24.10	40.65	34.64	60.00	50.00	-19.35	-15.36
6	8.62891	10.75	28.49	22.75	39.24	33.50	60.00	50.00	-20.76	-16.50

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

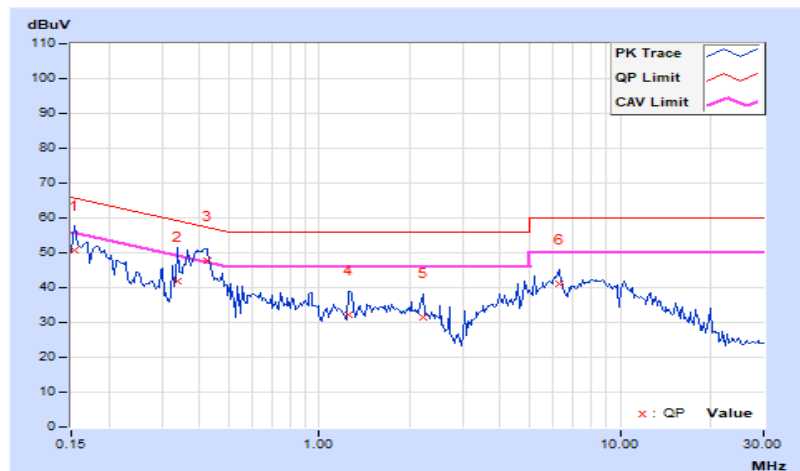


RF Mode	BT LE-1M	Channel	CH 0 : 2402 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75% RH
Tested By	Louis Yang		

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	0.15391	9.99	40.75	27.43	50.74	37.42	65.79	55.79	-15.05	-18.37
2	0.33750	9.96	31.81	24.27	41.77	34.23	59.26	49.26	-17.49	-15.03
3	0.42344	9.95	37.80	30.55	47.75	40.50	57.38	47.38	-9.63	-6.88
4	1.25391	10.04	22.03	15.87	32.07	25.91	56.00	46.00	-23.93	-20.09
5	2.21094	10.12	21.54	16.40	31.66	26.52	56.00	46.00	-24.34	-19.48
6	6.26563	10.40	30.83	24.73	41.23	35.13	60.00	50.00	-18.77	-14.87

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



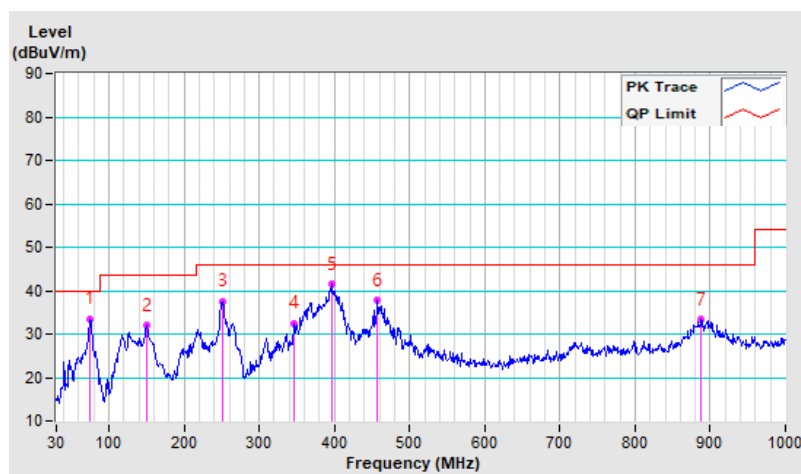
7.6 Unwanted Emissions below 1 GHz

RF Mode	BT LE-1M	Channel	CH 0 : 2402 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	PK: RB=120 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	24.6 °C, 69.7% RH
Tested By	Louis Yang		

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	75.06	33.5 PK	40.0	-6.5	2.00 H	106	50.0	-16.5
2	150.86	31.9 PK	43.5	-11.6	2.00 H	256	44.9	-13.0
3	250.77	37.4 PK	46.0	-8.6	1.00 H	221	51.8	-14.4
4	346.39	32.4 PK	46.0	-13.6	2.00 H	166	44.0	-11.6
5	395.98	41.4 PK	46.0	-4.6	2.00 H	163	51.5	-10.1
6	457.19	37.7 PK	46.0	-8.3	2.00 H	2	46.3	-8.6
7	886.80	33.3 PK	46.0	-12.7	1.00 H	353	34.6	-1.3

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 of frequency range 30 MHz ~ 1 GHz.
5. The frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this report.

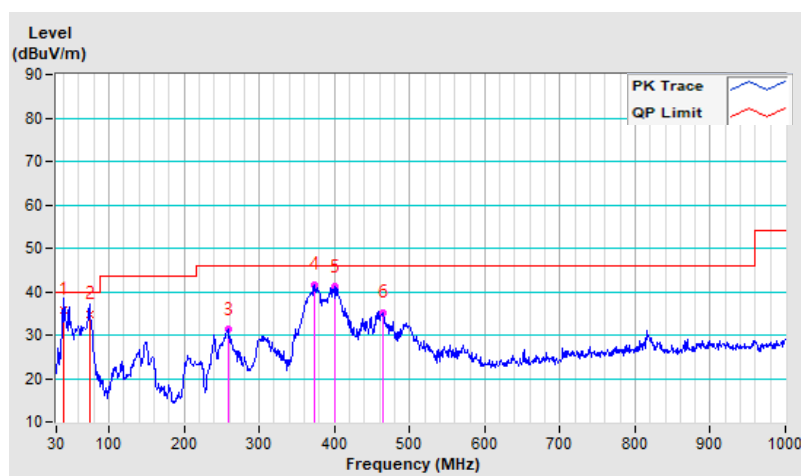


RF Mode	BT LE-1M	Channel	CH 0 : 2402 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	PK: RB=120 kHz, DET=Peak QP: RB=120 kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	24.6 °C, 69.7% RH
Tested By	Louis Yang		

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	39.53	35.7 QP	40.0	-4.3	1.00 V	197	49.3	-13.6
2	75.06	34.7 QP	40.0	-5.3	1.00 V	289	51.2	-16.5
3	258.29	31.2 PK	46.0	-14.8	3.00 V	360	45.4	-14.2
4	372.97	41.7 PK	46.0	-4.3	2.00 V	1	52.4	-10.7
5	400.03	41.1 PK	46.0	-4.9	1.50 V	160	51.2	-10.1
6	464.22	35.1 PK	46.0	-10.9	1.00 V	1	43.7	-8.6

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 frequency range 9 kHz ~ 30 MHz: all emissions are more than 20 dB below the limit, therefore do not be recorded in this 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, DET=Peak AV: RB=1 MHz, VB=3 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75% RH
Tested By	Louis Yang		

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	2362.87	60.7 PK	74.0	-13.3	2.89 H	11	62.0	-1.3
2	2362.87	50.1 AV	54.0	-3.9	2.89 H	11	51.4	-1.3
3	2390.00	50.1 PK	74.0	-23.9	2.89 H	11	51.5	-1.4
4	2390.00	48.5 AV	54.0	-5.5	2.89 H	11	49.9	-1.4
5	*2402.00	123.7 PK			2.89 H	11	125.1	-1.4
6	*2402.00	122.8 AV			2.89 H	11	124.2	-1.4
7	4804.00	41.0 PK	74.0	-33.0	1.38 H	300	38.3	2.7
8	4804.00	31.9 AV	54.0	-22.1	1.38 H	300	29.2	2.7
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	56.4 PK	74.0	-17.6	1.35 V	284	57.8	-1.4
2	2390.00	45.0 AV	54.0	-9.0	1.35 V	284	46.4	-1.4
3	*2402.00	110.3 PK			1.35 V	284	111.7	-1.4
4	*2402.00	109.4 AV			1.35 V	284	110.8	-1.4
5	4804.00	40.5 PK	74.0	-33.5	1.34 V	303	37.8	2.7
6	4804.00	31.3 AV	54.0	-22.7	1.34 V	303	28.6	2.7

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, DET=Peak AV: RB=1 MHz, VB=3 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75% RH
Tested By	Louis Yang		

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	122.7 PK			3.15 H	15	124.1	-1.4
2	*2440.00	121.8 AV			3.15 H	15	123.2	-1.4
3	4880.00	41.0 PK	74.0	-33.0	1.34 H	297	38.3	2.7
4	4880.00	31.7 AV	54.0	-22.3	1.34 H	297	29.0	2.7
5	7320.00	44.4 PK	74.0	-29.6	3.08 H	294	35.3	9.1
6	7320.00	32.6 AV	54.0	-21.4	3.08 H	294	23.5	9.1
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	112.3 PK			3.08 V	29	113.7	-1.4
2	*2440.00	111.3 AV			3.08 V	29	112.7	-1.4
3	4880.00	40.8 PK	74.0	-33.2	1.29 V	312	38.1	2.7
4	4880.00	31.9 AV	54.0	-22.1	1.29 V	312	29.2	2.7
5	7320.00	44.2 PK	74.0	-29.8	3.16 V	291	35.1	9.1
6	7320.00	32.4 AV	54.0	-21.6	3.16 V	291	23.3	9.1

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.
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, DET=Peak AV: RB=1 MHz, VB=3 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75% RH
Tested By	Louis Yang		

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	113.4 PK			2.82 H	20	114.9	-1.5
2	*2480.00	112.5 AV			2.82 H	20	114.0	-1.5
3	2483.50	63.4 PK	74.0	-10.6	2.82 H	20	64.9	-1.5
4	2483.50	53.2 AV	54.0	-0.8	2.82 H	20	54.7	-1.5
5	4960.00	40.4 PK	74.0	-33.6	1.29 H	312	37.4	3.0
6	4960.00	31.4 AV	54.0	-22.6	1.29 H	312	28.4	3.0
7	7440.00	44.4 PK	74.0	-29.6	3.07 H	302	34.7	9.7
8	7440.00	32.6 AV	54.0	-21.4	3.07 H	302	22.9	9.7
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	104.1 PK			3.70 V	311	105.6	-1.5
2	*2480.00	103.2 AV			3.70 V	311	104.7	-1.5
3	2483.50	58.0 PK	74.0	-16.0	3.70 V	311	59.5	-1.5
4	2483.50	47.0 AV	54.0	-7.0	3.70 V	311	48.5	-1.5
5	4960.00	40.4 PK	74.0	-33.6	1.35 V	301	37.4	3.0
6	4960.00	31.3 AV	54.0	-22.7	1.35 V	301	28.3	3.0
7	7440.00	44.7 PK	74.0	-29.3	3.12 V	291	35.0	9.7
8	7440.00	32.5 AV	54.0	-21.5	3.12 V	291	22.8	9.7

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, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75% RH
Tested By	Louis Yang		

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	2363.33	61.1 PK	74.0	-12.9	2.93 H	11	62.4	-1.3
2	2363.33	50.3 AV	54.0	-3.7	2.93 H	11	51.6	-1.3
3	2390.00	58.4 PK	74.0	-15.6	2.82 H	20	59.8	-1.4
4	2390.00	48.8 AV	54.0	-5.2	2.82 H	20	50.2	-1.4
5	*2402.00	122.5 PK			2.93 H	11	123.9	-1.4
6	*2402.00	119.8 AV			2.93 H	11	121.2	-1.4
7	4804.00	40.8 PK	74.0	-33.2	1.36 H	314	38.1	2.7
8	4804.00	31.8 AV	54.0	-22.2	1.36 H	314	29.1	2.7
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	56.2 PK	74.0	-17.8	1.34 V	300	57.6	-1.4
2	2390.00	45.2 AV	54.0	-8.8	1.34 V	300	46.6	-1.4
3	*2402.00	109.2 PK			1.34 V	300	110.6	-1.4
4	*2402.00	106.6 AV			1.34 V	300	108.0	-1.4
5	4804.00	39.7 PK	74.0	-34.3	1.29 V	317	37.0	2.7
6	4804.00	31.0 AV	54.0	-23.0	1.29 V	317	28.3	2.7

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, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75% RH
Tested By	Louis Yang		

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	122.5 PK			2.83 H	18	123.9	-1.4
2	*2440.00	119.3 AV			2.83 H	18	120.7	-1.4
3	4880.00	41.0 PK	74.0	-33.0	1.32 H	302	38.3	2.7
4	4880.00	31.8 AV	54.0	-22.2	1.32 H	302	29.1	2.7
5	7320.00	44.2 PK	74.0	-29.8	3.08 H	309	35.1	9.1
6	7320.00	32.4 AV	54.0	-21.6	3.08 H	309	23.3	9.1
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	110.5 PK			3.10 V	328	111.9	-1.4
2	*2440.00	107.6 AV			3.10 V	328	109.0	-1.4
3	4880.00	40.3 PK	74.0	-33.7	1.27 V	289	37.6	2.7
4	4880.00	31.3 AV	54.0	-22.7	1.27 V	289	28.6	2.7
5	7320.00	43.6 PK	74.0	-30.4	3.13 V	285	34.5	9.1
6	7320.00	31.7 AV	54.0	-22.3	3.13 V	285	22.6	9.1

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.
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, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz	Environmental Conditions	25 °C, 75% RH
Tested By	Louis Yang		

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	110.6 PK			1.77 H	24	112.1	-1.5
2	*2480.00	107.8 AV			1.77 H	24	109.3	-1.5
3	2483.50	64.9 PK	74.0	-9.1	1.77 H	24	66.4	-1.5
4	2483.50	53.8 AV	54.0	-0.2	1.77 H	24	55.3	-1.5
5	4960.00	40.1 PK	74.0	-33.9	1.33 H	300	37.1	3.0
6	4960.00	31.1 AV	54.0	-22.9	1.33 H	300	28.1	3.0
7	7440.00	43.6 PK	74.0	-30.4	3.16 H	310	33.9	9.7
8	7440.00	32.0 AV	54.0	-22.0	3.16 H	310	22.3	9.7
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	102.8 PK			3.73 V	307	104.3	-1.5
2	*2480.00	100.3 AV			3.73 V	307	101.8	-1.5
3	2483.50	58.6 PK	74.0	-15.4	3.73 V	307	60.1	-1.5
4	2483.50	48.1 AV	54.0	-5.9	3.73 V	307	49.6	-1.5
5	4960.00	41.1 PK	74.0	-32.9	1.31 V	305	38.1	3.0
6	4960.00	31.9 AV	54.0	-22.1	1.31 V	305	28.9	3.0
7	7440.00	44.1 PK	74.0	-29.9	3.07 V	315	34.4	9.7
8	7440.00	32.1 AV	54.0	-21.9	3.07 V	315	22.4	9.7

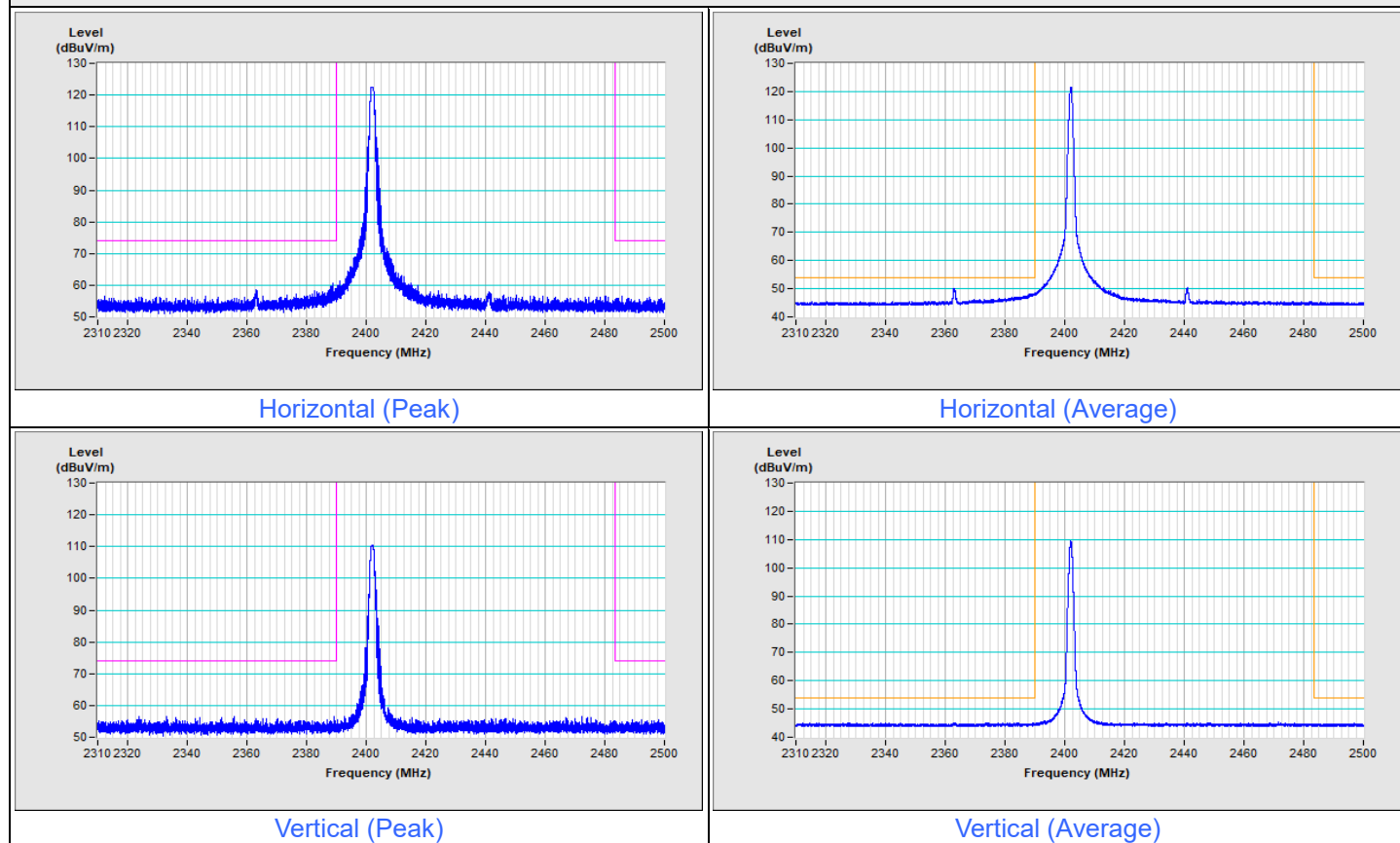
Remarks:

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.

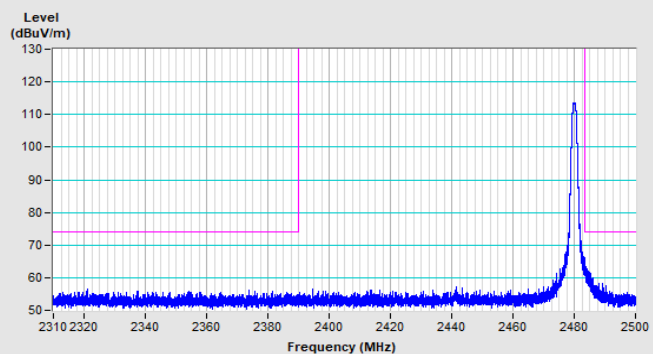
Plot of Band Edge

Frequency Range	2.31 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=3 kHz, DET=Peak
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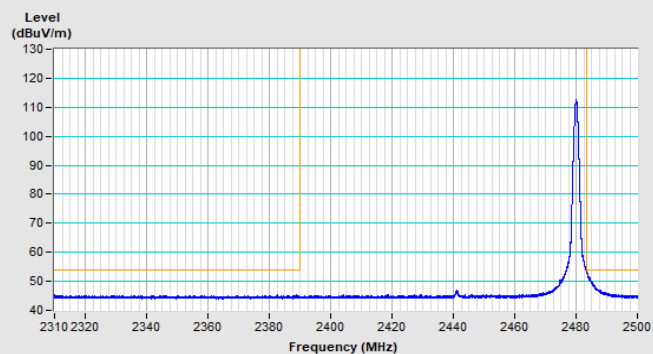
BT LE-1M Channel 0



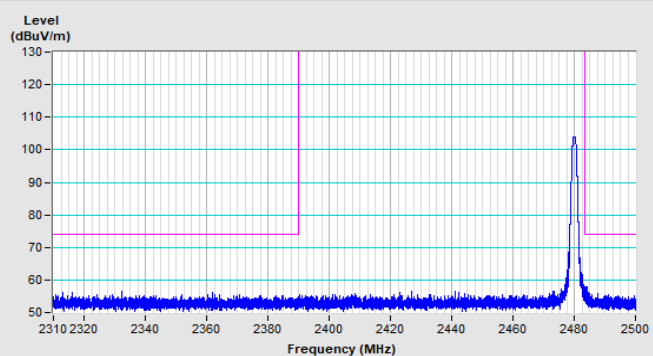
BT LE-1M Channel 39



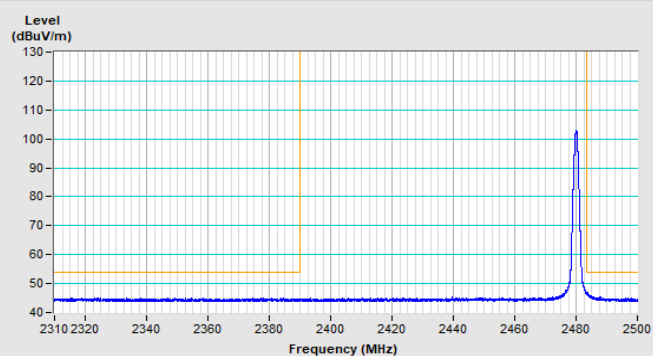
Horizontal (Peak)



Horizontal (Average)



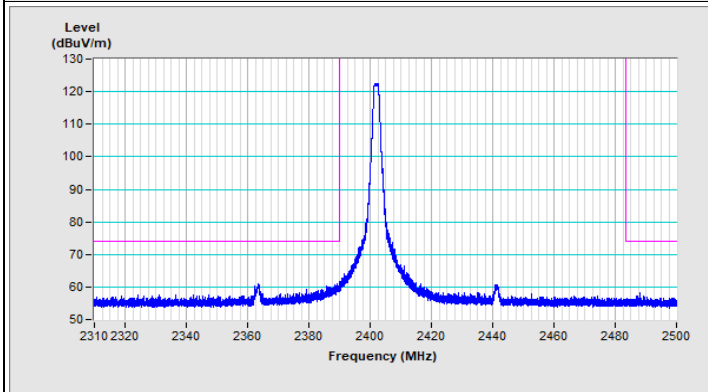
Vertical (Peak)



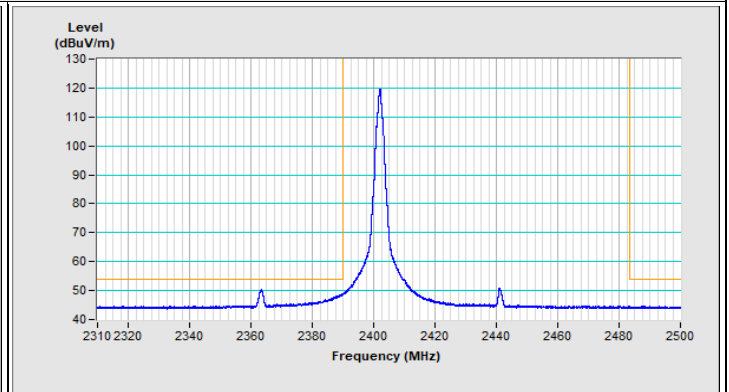
Vertical (Average)

Frequency Range	2.31 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
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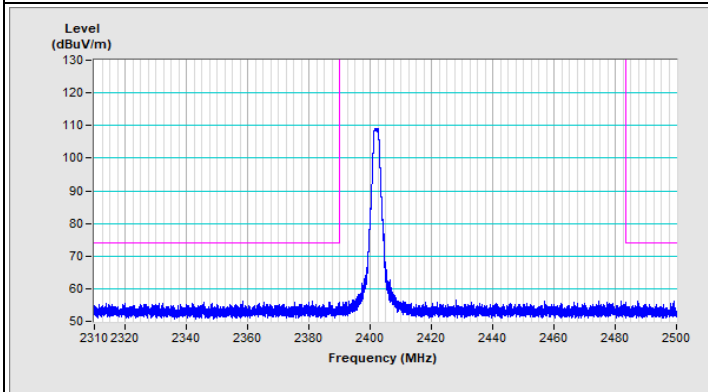
BT LE-2M Channel 0



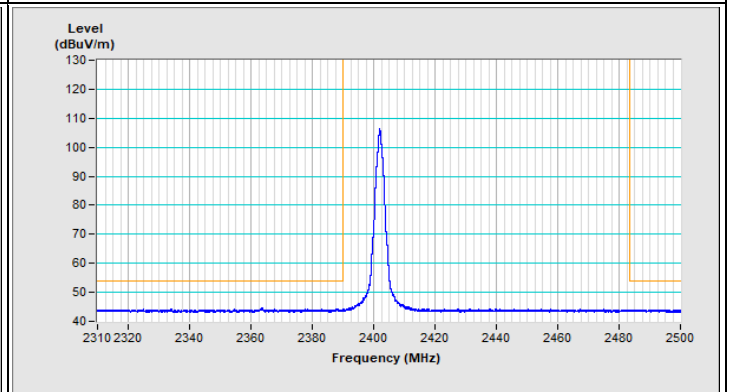
Horizontal (Peak)



Horizontal (Average)

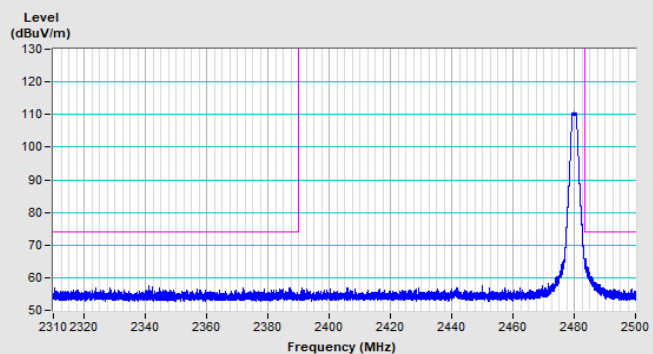


Vertical (Peak)

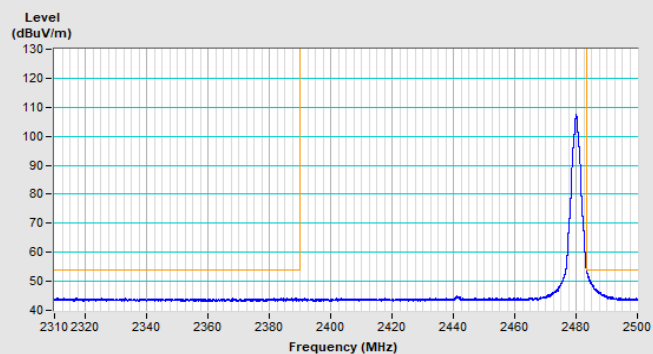


Vertical (Average)

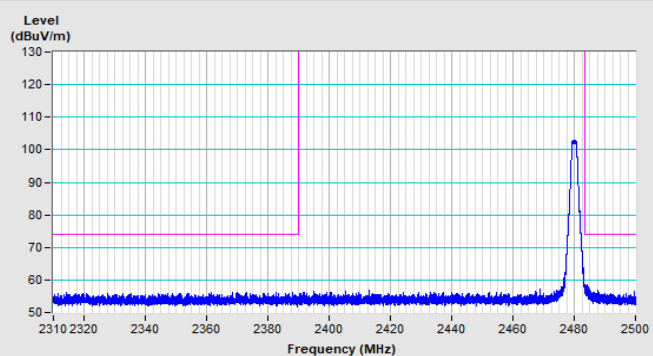
BT LE-2M Channel 39



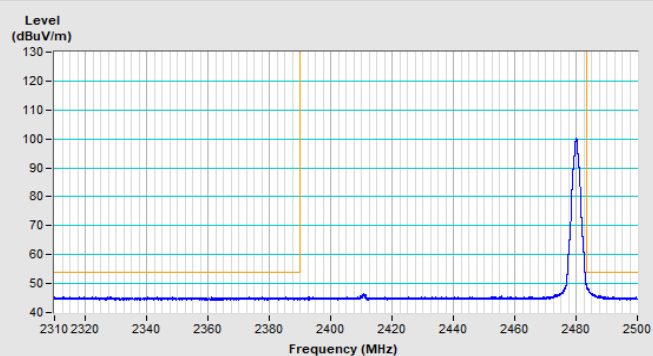
Horizontal (Peak)



Horizontal (Average)



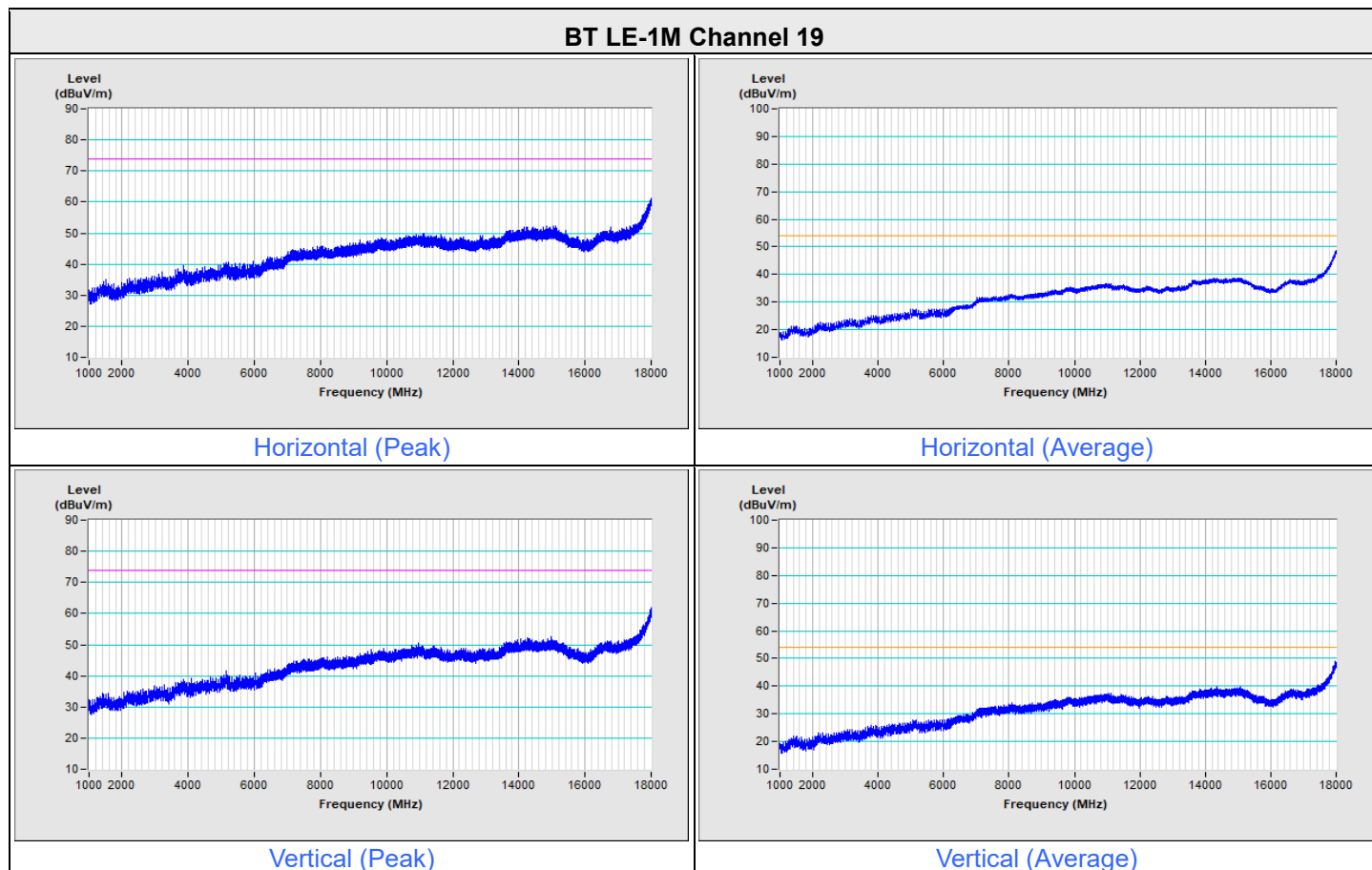
Vertical (Peak)



Vertical (Average)

Plot of Other Emission

Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=3 MHz, DET=RMS
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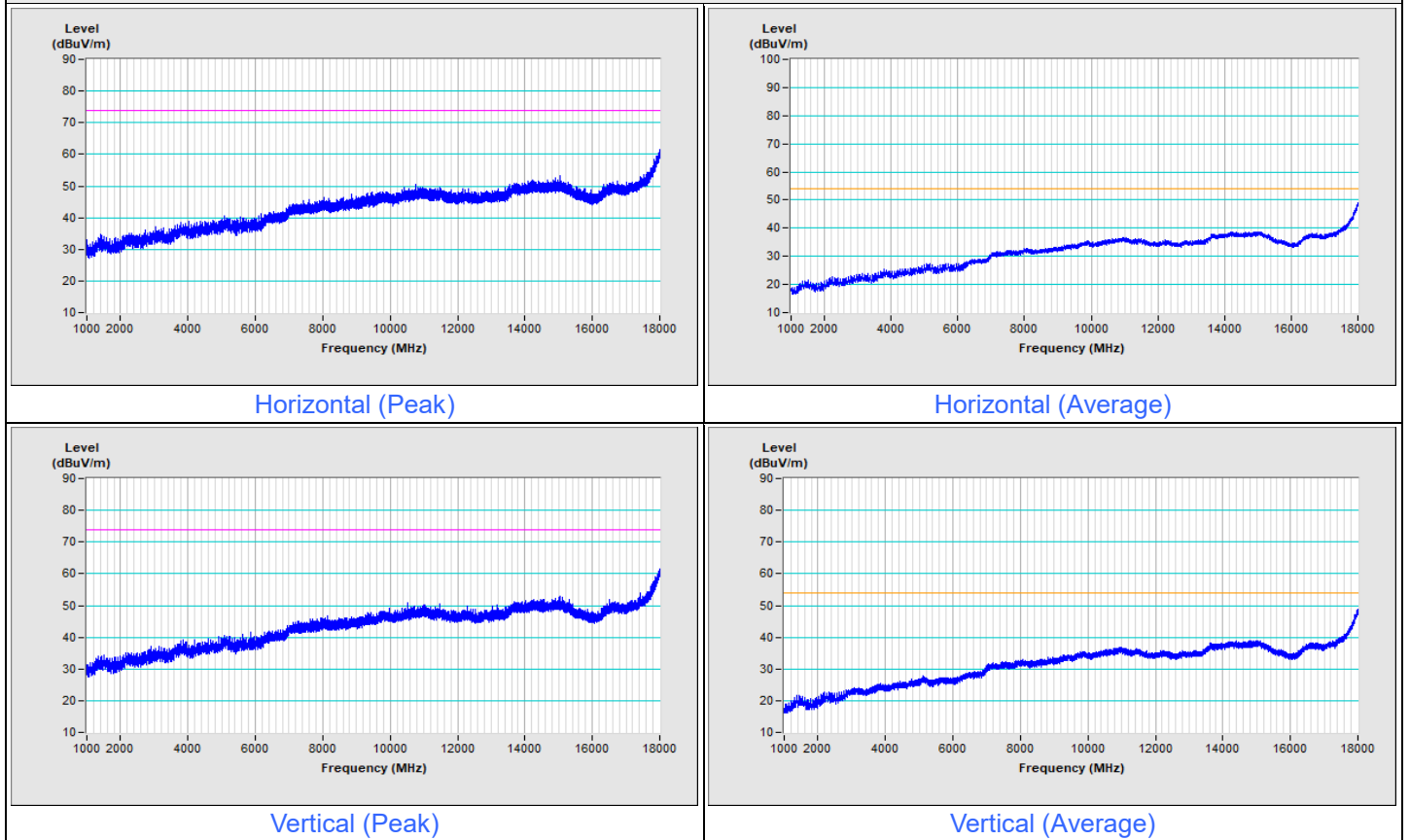


Notes:

1. For radiated emission test data, complete spectral plots shall be presented in the report only for the worst-case scenarios of each mode within each operating frequency band.
2. The frequency range 18 GHz ~ 25 GHz: After investigation, no any emissions were found to exist, therefore they are not recorded in this report.

Frequency Range	1 GHz ~ 18 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=3 MHz, DET=RMS
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BT LE-2M Channel 19



Notes:

1. For radiated emission test data, complete spectral plots shall be presented in the report only for the worst-case scenarios of each mode within each operating frequency band.
2. The frequency range 18 GHz ~ 25 GHz: After investigation, no any emissions were found to exist, therefore they are not recorded in this report.

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:

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

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

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