

TEST REPORT

CERTIFICATE OF CONFORMITY

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

Report No.: RFCFQC-WTW-P25050598

FCC ID: 2A3ULBTA1

Product Name: BTA1 TV Transmitter

Brand Name: SENNHEISER

Model No.: BTA1

Received Date: 2025/5/27

Test Date: 2025/6/5 ~ 2025/6/12

Issued Date: 2025/7/24

Applicant: Sonova Consumer Hearing GmbH

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
Lin Kou Laboratories

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FCC Registration / 281270 / TW0032 for Test Location(1)

Designation Number: 788550 / TW0003 for Test Location(2)

Approved by:

Jeremy Lin

Date:

2025/7/24

Jeremy Lin / Project Engineer

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Prepared by : Celine Chou / Senior Specialist

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Release Control Record

Issue No.	Description	Date Issued
RFCFQC-WTW-P25050598	Original release.	2025/7/24

1 Certificate

Product Name: BTA1 TV Transmitter
Brand Name: SENNHEISER
Model No.: BTA1
Sample Status: Engineering sample
Applicant: Sonova Consumer Hearing GmbH
Test Date: 2025/6/5 ~ 2025/6/12
Standard: 47 CFR FCC Part 15, Subpart C (Section 15.247)
Measurement procedure: ANSI C63.10-2013
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 -13.99 dB at 4.26600 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions below 1 GHz	Pass	Minimum passing margin is -8.7 dB at 384.05 MHz
15.205 / 15.209 / 15.247(d)	Unwanted Emissions above 1 GHz	Pass	Minimum passing margin is -4.3 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	-	1.371 dB
Power Spectral Density	-	1.017 dB
6 dB Bandwidth	-	206.5 Hz
Conducted Out of Band Emissions	9 kHz ~ 40 GHz	2.79 dB
AC Power Conducted Emissions	9 kHz ~ 30 MHz	2.90 dB
Unwanted Emissions below 1 GHz	9 kHz ~ 30 MHz	3.00 dB
	30 MHz ~ 1 GHz	2.93 dB
Unwanted Emissions above 1 GHz	1 GHz ~ 18 GHz	1.76 dB
	18 GHz ~ 40 GHz	1.77 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

Test Item Description	TV Transmitter
Product Name	BTA1 TV Transmitter
Brand Name	SENNHEISER
Model No.	BTA1
Status of EUT	Engineering sample
Power Ratings	Input: 5 Vdc, 1000 mA (from Type C - USB interface) Output: 5 Vdc, 500 mA (USB-C for charging port)
Power Supply (Nominal & Testing)	5 Vdc, 1000 mA (from Type C - USB interface)
Operating Temperature Range	0 °C – +40 °C
Modulation Type	BLE: GFSK
Transmission Technology	BLE: DSSS
Technology	Bluetooth
Operating Frequency	BLE 1M: 2402 – 2480 MHz BLE 2M: 2404 – 2478 MHz (excluding 2426 MHz) (for Frequency Band: 2400-2483.5 MHz)
Number of Channel	BLE 1M: 40 BLE 2M: 37
Channel Spacing	BLE: 2 MHz
Channel Bandwidth	BLE 1M: 80 MHz BLE 2M: 74 MHz
Data Transfer Rate	BLE 4.0: 1 Mbps BLE 5.4: 2 Mbps
HW Version	A2
SW Version	V6.2.3
Output Power	2.564 mW (4.09 dBm)
Cable Supplied / Device Ports	1.2m shielded USB cable without core 1.2m unshielded audio cable without core 1.2m optical cable without core

Note: The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

3.2 Antenna Description of EUT

1. The antenna information is listed as below.

Brand	Model	Antenna Net Gain (dBi)	Frequency Range	Antenna Type	Connector Type
SENNHEISER	MX338 Antenna	1.69	2402~2480MHz	PIFA	NA

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

3.3 Channel List

40 channels are provided for BLE 1M:

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

37 channels are provided for BLE 2M:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2404	11	2424	21	2444	31	2464
2	2406	-	-	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		
10	2422	20	2442	30	2462		

3.4 Test Mode Applicability and Tested Channel Detail

Pre-Scan:	1. For AC power conducted emission and Unwanted Emission (below 1GHz) items: Powered by AC Adapter / Powered by host equipment. Pre-scan these modes and find the worst case as a representative test condition. 2. EUT TV Audio Port can connected Audio Cable or Optical Cable. Pre-scan these cables and find the worst case as a representative test condition. 3. EUT can be used in the following ways: X-axis/ Y-axis/ Z-axis. Pre-scan these ways and find the worst case as a representative test condition.
Worst Case:	1. For AC power conducted emission and Unwanted Emission (below 1GHz) items Worst Condition: Powered by host equipment 2. Audio Cable or Optical Cable Worst Condition: Audio Cable 3. X-axis/ Y-axis/ Z-axis Worst Condition: X-axis

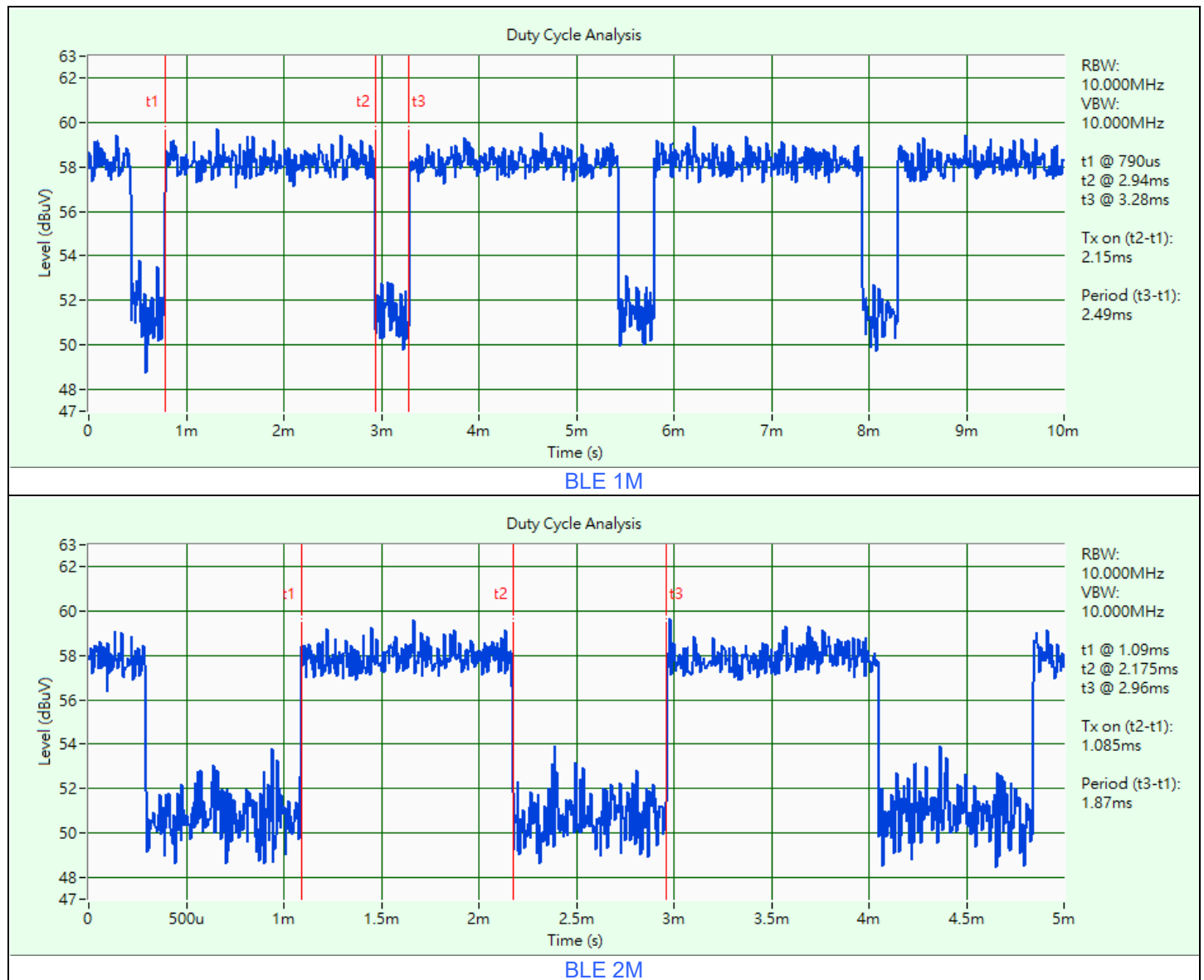
Following channel(s) was (were) selected for the final test as listed below:

Test Item	Mode	Tested Channel	Modulation	Data Rate Parameter
RF Output Power	BLE 1M	0, 19, 39	GFSK	1Mb/s
	BLE 2M	1, 19, 38	GFSK	2Mb/s
Power Spectral Density	BLE 1M	0, 19, 39	GFSK	1Mb/s
	BLE 2M	1, 19, 38	GFSK	2Mb/s
6 dB Bandwidth / Conducted Out of Band Emissions	BLE 1M	0, 19, 39	GFSK	1Mb/s
	BLE 2M	1, 19, 38	GFSK	2Mb/s
AC Power Conducted Emissions	BLE 2M	1	GFSK	2Mb/s
Unwanted Emissions below 1 GHz	BLE 2M	1	GFSK	2Mb/s
Unwanted Emissions above 1 GHz	BLE 1M	0, 19, 39	GFSK	1Mb/s
	BLE 2M	1, 19, 38	GFSK	2Mb/s

3.5 Duty Cycle of Test Signal

BLE 1M: Duty cycle = $2.15 \text{ ms} / 2.49 \text{ ms} \times 100\% = 86.3\%$, duty factor = $10 * \log (1/\text{Duty cycle}) = 0.64 \text{ dB}$

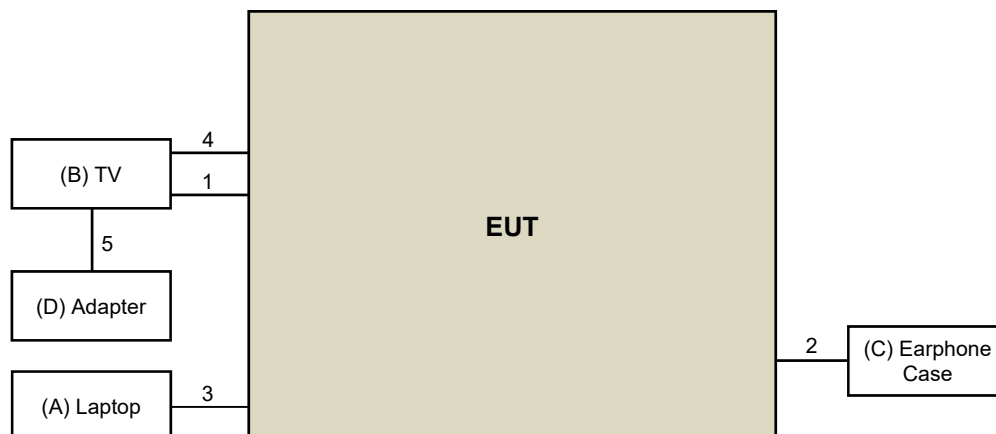
BLE 2M: Duty cycle = $1.085 \text{ ms} / 1.87 \text{ ms} \times 100\% = 58.0\%$, duty factor = $10 * \log (1/\text{Duty cycle}) = 2.36 \text{ dB}$



3.6 Test Program Used and Operation Descriptions

Controlling software Blue Test 3 has been activated to set the EUT under transmission condition continuously at specific channel frequency.

3.7 Connection Diagram of EUT and Peripheral Devices



3.8 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Laptop	Lenovo	L470	PF11CSQA	N/A	Provided by Lab
B	TV	Sony	KD-32W830L	N/A	N/A	Supplied by applicant
C	Earphone Case	Sonova	MTW4 C	N/A	N/A	Supplied by applicant
D	Adapter	Sony	ACDP-060-D01	N/A	N/A	Supplied by applicant

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	Audio Cable	1	1.2	No	0	Accessory of EUT
2	USB Type C to C Cable	1	1.0	Yes	0	Provided by Lab
3	USB Type C to A cable	1	1.2	Yes	0	Accessory of EUT
4	HDMI Cable	1	1.5	Yes	0	Provided by Lab
5	DC Cable	1	0.5	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-10	00800A1K01A-10-01	2025/5/23	2026/5/22
Peak Power Analyzer Keysight	8990B	MY51000485	2025/1/20	2026/1/19
Wideband Power Sensor Keysight	N1923A	MY58020002	2025/1/21	2026/1/20
		MY58140009	2025/1/21	2026/1/20

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2025/6/9

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
Signal & Spectrum Analyzer R&S	FSV3044	101504	2024/6/18	2025/6/17
Software BV	ADT_RF Test Software V7.6.5.4	N/A	N/A	N/A

Notes:

1. The test was performed in Oven room.
2. Tested Date: 2025/6/9

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	E1-011279	04	2024/11/28	2025/11/27
	E1-011280	05	2024/11/28	2025/11/27
	E1-011311	09	2024/11/28	2025/11/27
DC-LISN Schwarzbeck	NNBM 8126G	8126G-069	2024/11/5	2025/11/4
EMI Test Receiver R&S	ESCI	100613	2024/11/25	2025/11/24
Fixed Attenuator Mini-Circuits	HAT-10+	PAD-COND1-01	2025/1/5	2026/1/4
LISN R&S	ENV216	101826	2025/3/24	2026/3/23
	ESH3-Z5	100311	2024/9/5	2025/9/4
RF Coaxial Cable Woken	5D-FB	Cable-cond1-01	2025/1/5	2026/1/4
Software BVADT	BVADT_Cond_ V7.4.1.0	N/A	N/A	N/A
V-LISN Schwarzbeck	NNBL 8226-2	8226-142	2024/8/28	2025/8/27

Notes:

1. The test was performed in HY - Conduction 1.
2. Tested Date: 2025/6/12

4.6 Unwanted Emissions below 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower Max-Full	MFT-151SS-0.5T	N/A	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-1213	2024/10/14	2025/10/13
EXA Signal Analyzer Agilent	N9010A	MY52220207	2024/12/30	2025/12/29
Loop Antenna TESEQ	HLA 6121	45745	2024/8/21	2025/8/20
MXE EMI Receiver Keysight	N9038B	MY60180019	2025/1/15	2026/1/14
Preamplifier EMCI	EMC330N	980782	2025/1/14	2026/1/13
RF Coaxial Cable EMCI	EMCCFD400-NM-NM-500	201233	2025/1/14	2026/1/13
	EMCCFD400-NM-NM-3000	201235	2025/1/14	2026/1/13
	EMCCFD400-NM-NM-9000	201236(with PAD)	2025/1/14	2026/1/13
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table Max-Full	MF-7802BS	N/A	N/A	N/A
Turn Table Controller Max-Full	MF-7802BS	MF780208674	N/A	N/A

Notes:

1. The test was performed in WM - 966 chamber 8.
2. Tested Date: 2025/6/5

4.7 Unwanted Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower Max-Full	MFT-151SS-0.5T	N/A	N/A	N/A
EXA Signal Analyzer Agilent	N9010A	MY52220207	2024/12/30	2025/12/29
Horn Antenna RFSPIN	DRH18-E	210103A18E	2024/11/10	2025/11/9
Horn Antenna Schwarzbeck	BBHA 9170	9170-1049	2024/11/10	2025/11/9
MXE EMI Receiver Keysight	N9038B	MY60180019	2025/1/15	2026/1/14
Preamplifier EMCI	EMC118A45SE	980808	2024/12/26	2025/12/25
	EMC184045SE	980788	2025/1/14	2026/1/13
RF Coaxial Cable EMCI	EMC101G-KM-KM-2000	201254	2025/1/14	2026/1/13
	EMC101G-KM-KM-3000	201258	2025/1/14	2026/1/13
	EMC101G-KM-KM-5000	201261	2025/1/14	2026/1/13
	EMC104-SM-SM-1000	210102	2025/1/14	2026/1/13
	EMC104-SM-SM-3000	201231	2025/1/14	2026/1/13
	EMC104-SM-SM-9000	201243	2025/1/14	2026/1/13
Software BV ADT	ADT_Radiated_ V7.6.15.9.5	N/A	N/A	N/A
Turn Table Max-Full	MF-7802BS	N/A	N/A	N/A
Turn Table Controller Max-Full	MF-7802BS	MF780208674	N/A	N/A

Notes:

1. The test was performed in WM - 966 chamber 8.
2. Tested Date: 2025/6/5

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

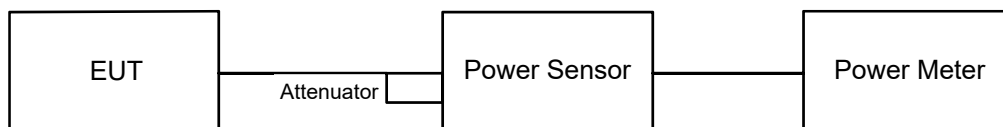
Notes:

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:

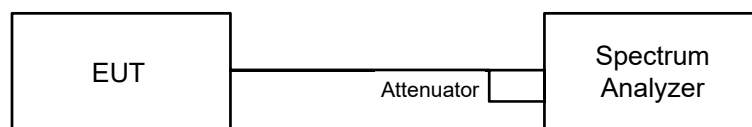
A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

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

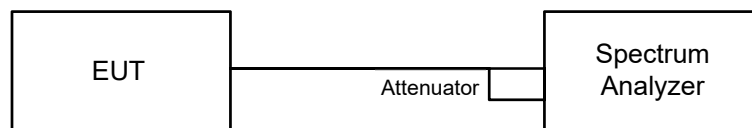


6.2.2 Test Procedure

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

6.3 6 dB Bandwidth

6.3.1 Test Setup

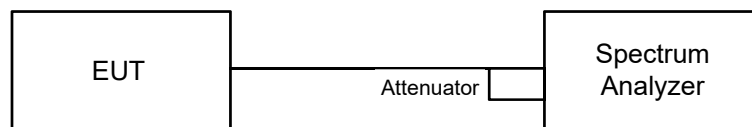


6.3.2 Test Procedure

- 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

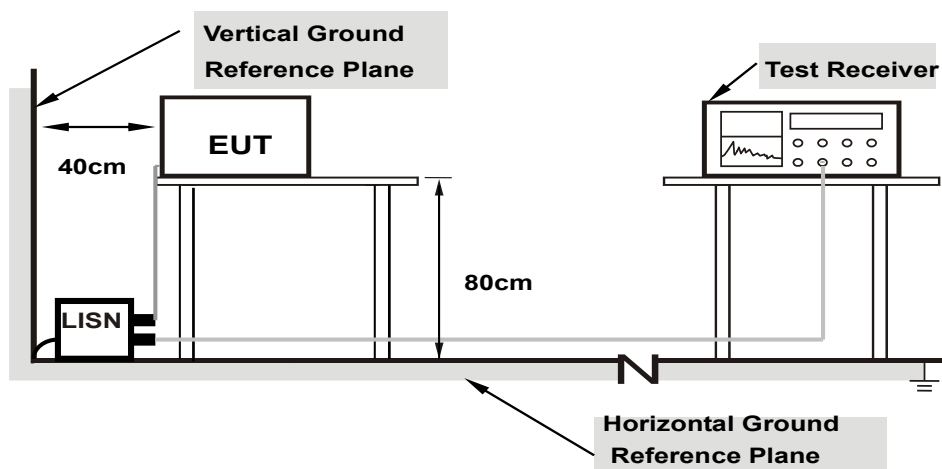
- Set the RBW = 100 kHz.
- Set the VBW ≥ 300 kHz.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.

MEASUREMENT PROCEDURE OOB

- 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

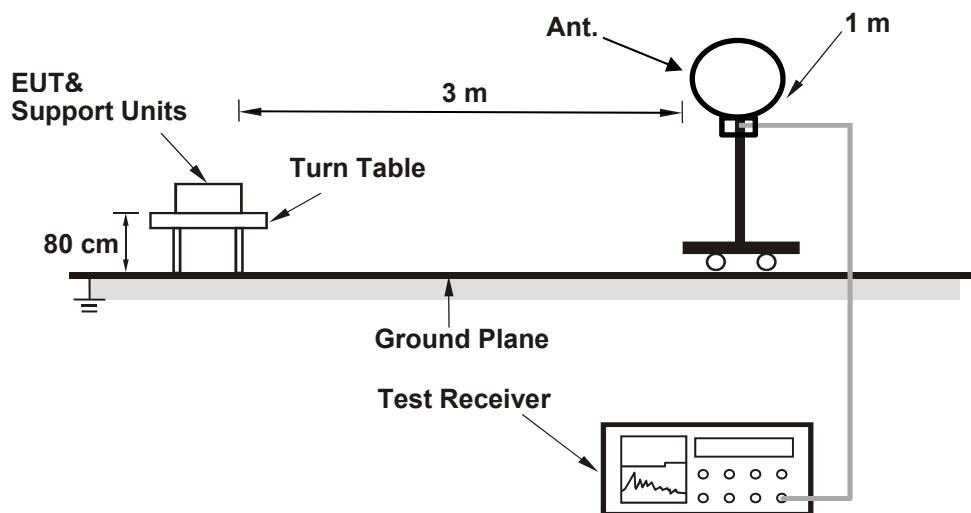
- The EUT was placed on a 0.8 meter to the top of table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The 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.

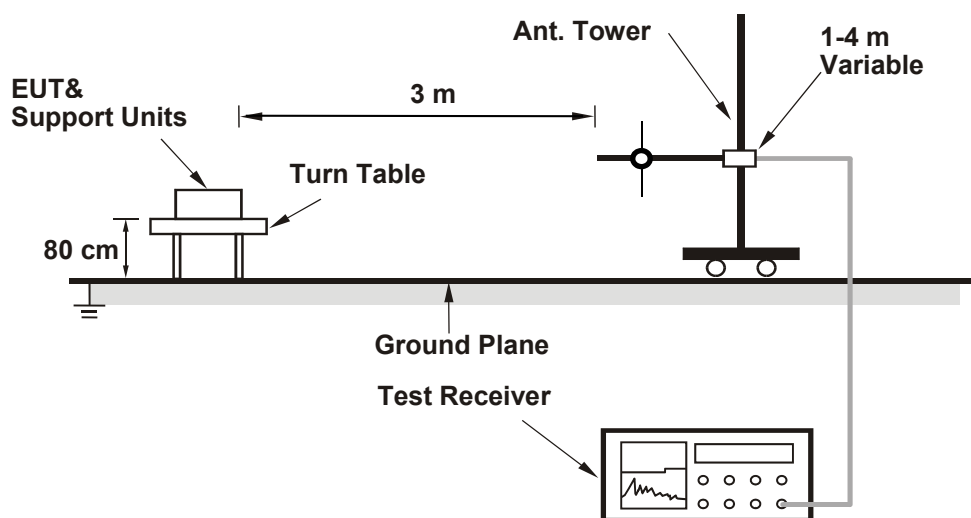
6.6 Unwanted Emissions below 1 GHz

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

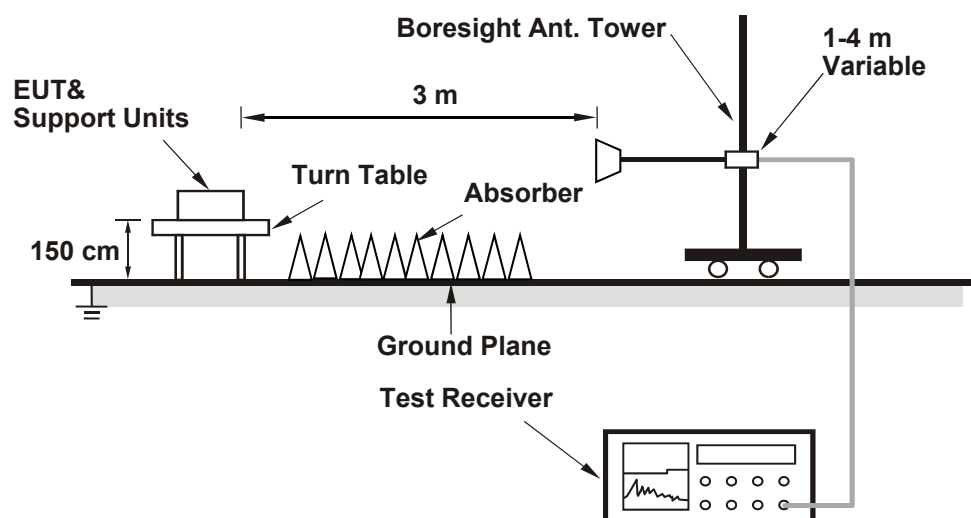
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the 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/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:	5 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Match Tsui
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For Peak Power

BLE 1M

Chan.	Chan. Freq. (MHz)	Peak Power (mW)	Peak Power (dBm)	Power Limit (dBm)	Test Result
0	2402	2.518	4.01	30	Pass
19	2440	2.360	3.73	30	Pass
39	2480	2.203	3.43	30	Pass

Note: The antenna gain is 1.69 dBi < 6 dBi, so the output power limit shall not be reduced.

BLE 2M

Chan.	Chan. Freq. (MHz)	Peak Power (mW)	Peak Power (dBm)	Power Limit (dBm)	Test Result
1	2404	2.564	4.09	30	Pass
19	2440	2.399	3.80	30	Pass
38	2478	2.213	3.45	30	Pass

Note: The antenna gain is 1.69 dBi < 6 dBi, so the output power limit shall not be reduced.

For Average Power

BLE 1M

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
0	2402	2.438	3.87
19	2440	2.280	3.58
39	2480	2.128	3.28

BLE 2M

Chan.	Chan. Freq. (MHz)	Average Power (mW)	Average Power (dBm)
1	2404	2.477	3.94
19	2440	2.317	3.65
38	2478	2.138	3.30

7.2 Power Spectral Density

Input Power:	5 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Match Tsui
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BLE 1M

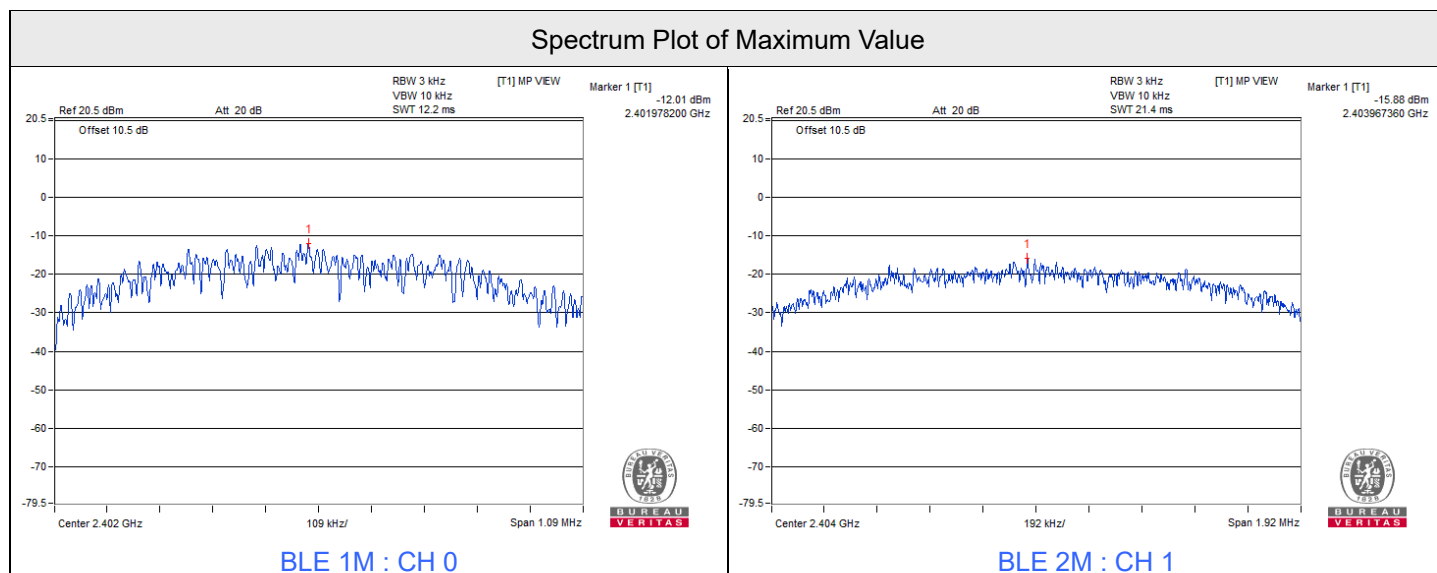
Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
0	2402	-12.01	8	Pass
19	2440	-12.79	8	Pass
39	2480	-13.06	8	Pass

Note: The antenna gain is 1.69 dBi < 6 dBi, so the power density limit shall not be reduced.

BLE 2M

Chan.	Chan. Freq. (MHz)	PSD (dBm/3kHz)	PSD Limit (dBm/3kHz)	Test Result
1	2404	-15.88	8	Pass
19	2440	-16.66	8	Pass
38	2478	-16.85	8	Pass

Note: The antenna gain is 1.69 dBi < 6 dBi, so the power density limit shall not be reduced.



7.3 6 dB Bandwidth

Input Power:	5 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Match Tsui
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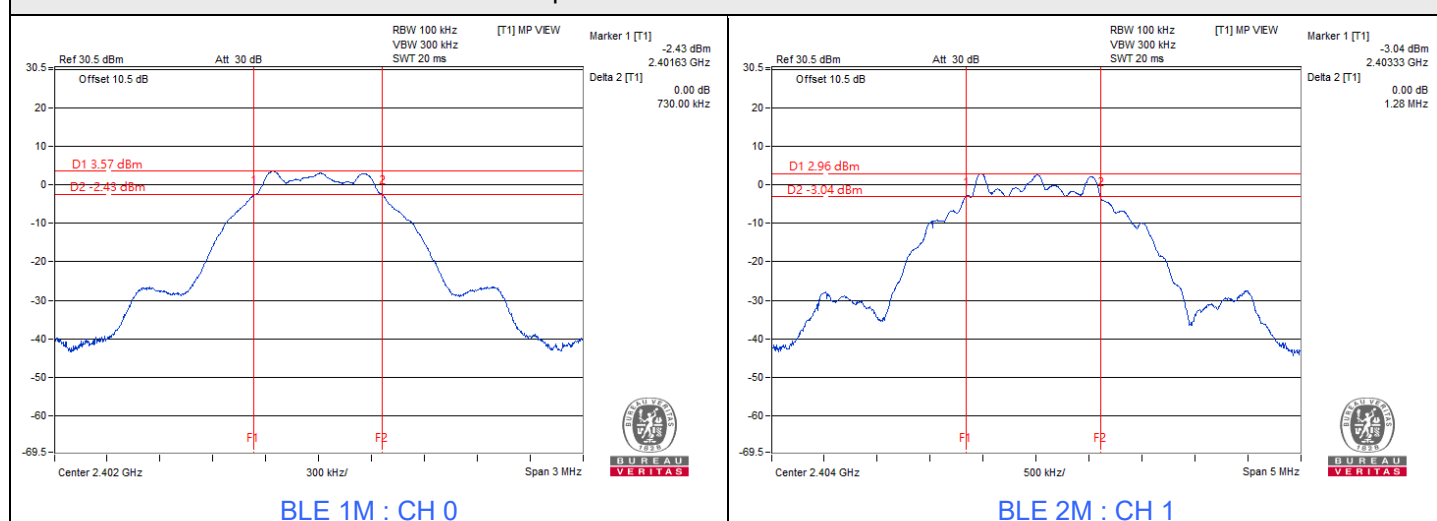
BLE 1M

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

BLE 2M

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Test Result
1	2404	1.28	0.5	Pass
19	2440	1.28	0.5	Pass
38	2478	1.28	0.5	Pass

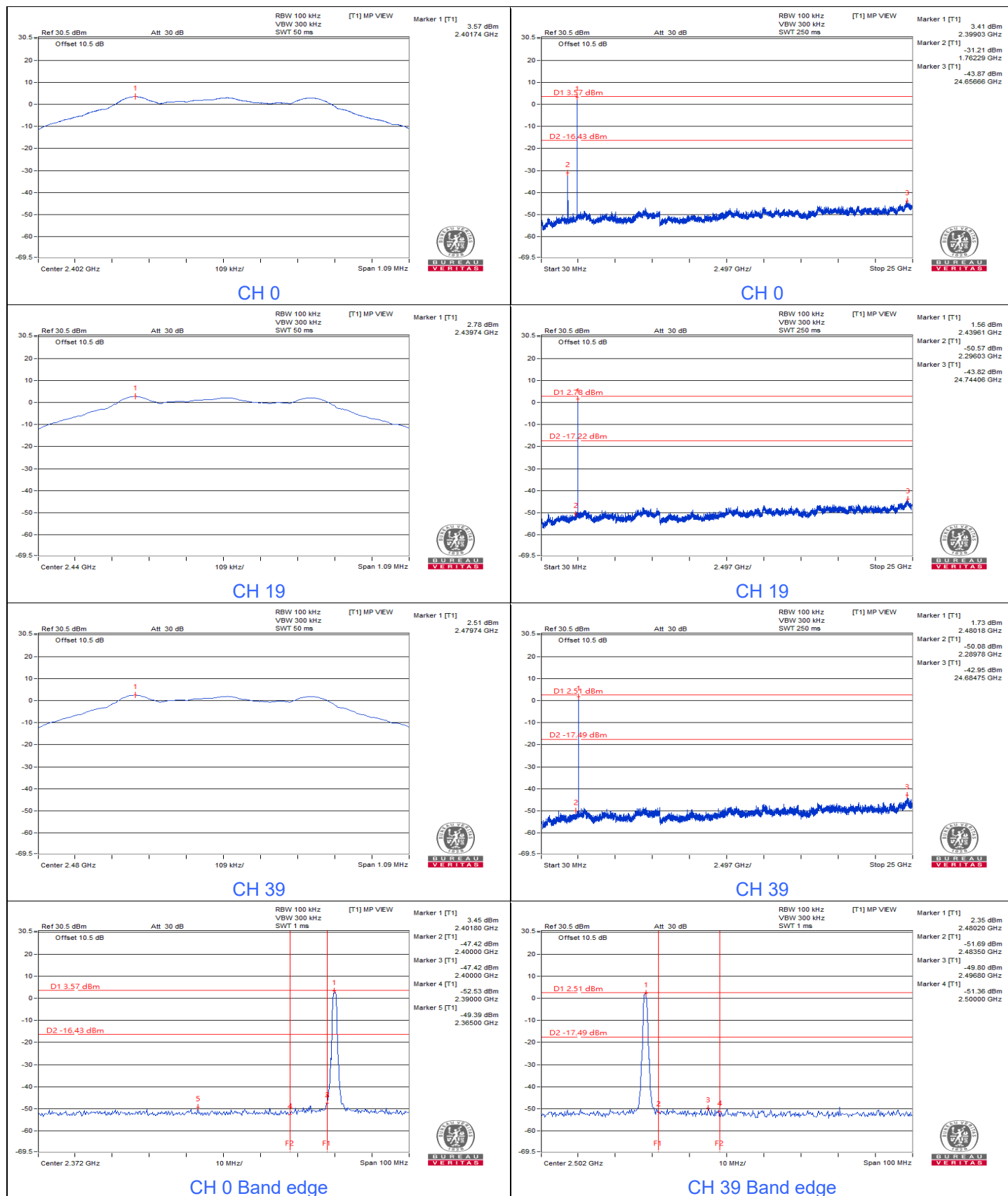
Spectrum Plot of Minimum Value



7.4 Conducted Out of Band Emissions

Input Power:	5 Vdc	Environmental Conditions:	25°C, 60% RH	Tested By:	Match Tsui
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BLE 1M



BLE 2M



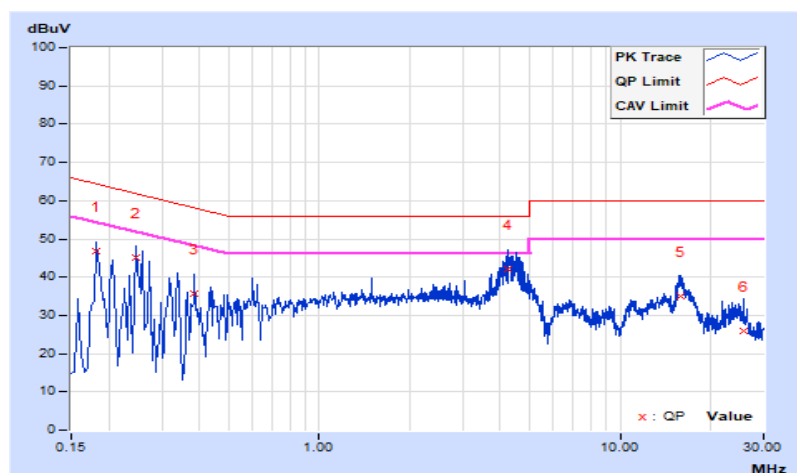
7.5 AC Power Conducted Emissions

RF Mode	BLE 2M	Channel	CH 1 : 2404 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz (System)	Environmental Conditions	23 °C, 68% RH
Tested By	Edison Lee		

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	0.18200	9.70	37.04	24.79	46.74	34.49	64.39	54.39	-17.65	-19.90
2	0.24600	9.71	35.57	20.35	45.28	30.06	61.89	51.89	-16.61	-21.83
3	0.38600	9.72	25.97	12.50	35.69	22.22	58.15	48.15	-22.46	-25.93
4	4.26600	9.86	32.15	20.91	42.01	30.77	56.00	46.00	-13.99	-15.23
5	15.88200	10.03	25.07	18.15	35.10	28.18	60.00	50.00	-24.90	-21.82
6	25.76600	10.09	15.74	8.72	25.83	18.81	60.00	50.00	-34.17	-31.19

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

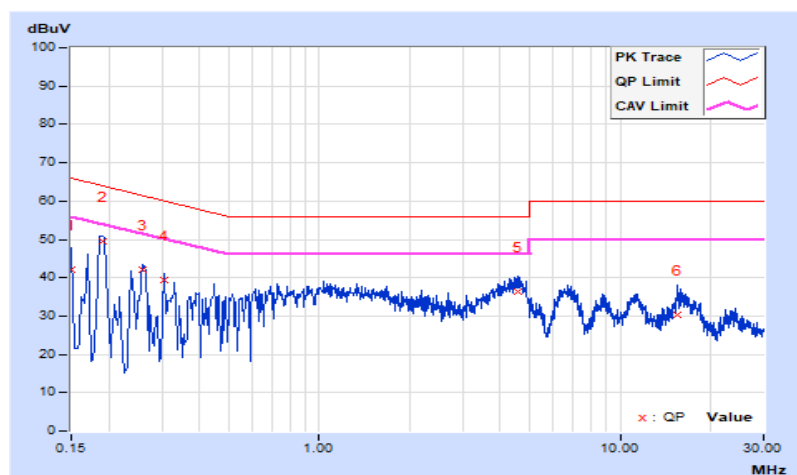


RF Mode	BLE 2M	Channel	CH 1 : 2404 MHz
Frequency Range	150 kHz ~ 30 MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP) / Average (AV), 9 kHz
Input Power	120 Vac, 60 Hz (System)	Environmental Conditions	23 °C, 68% RH
Tested By	Edison Lee		

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	0.15000	9.66	32.27	6.51	41.93	16.17	66.00	56.00	-24.07	-39.83
2	0.19000	9.66	39.79	25.35	49.45	35.01	64.04	54.04	-14.59	-19.03
3	0.25800	9.68	32.30	18.26	41.98	27.94	61.50	51.50	-19.52	-23.56
4	0.30600	9.70	29.68	15.76	39.38	25.46	60.08	50.08	-20.70	-24.62
5	4.56200	9.87	26.42	18.43	36.29	28.30	56.00	46.00	-19.71	-17.70
6	15.58200	10.16	20.13	13.38	30.29	23.54	60.00	50.00	-29.71	-26.46

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



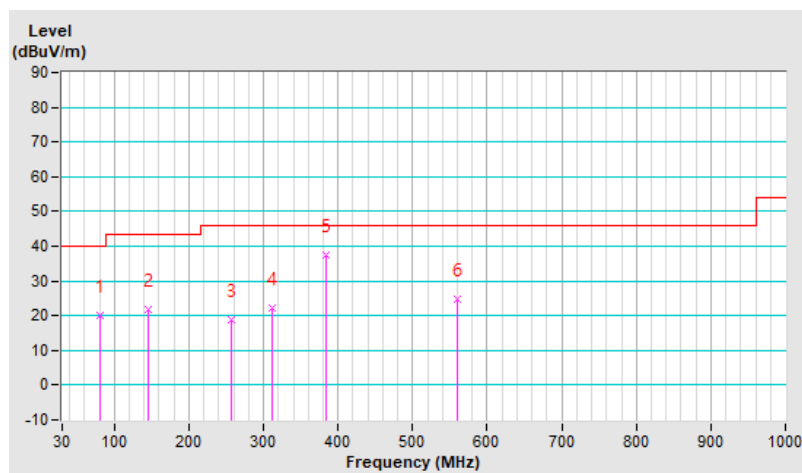
7.6 Unwanted Emissions below 1 GHz

RF Mode	BLE 2M	Channel	CH 1 : 2404 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120 kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz (System)	Environmental Conditions	23 °C, 67% RH
Tested By	Karl Lee		

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	80.44	20.0 QP	40.0	-20.0	1.28 H	225	38.1	-18.1
2	144.46	21.6 QP	43.5	-21.9	1.96 H	334	34.4	-12.8
3	256.01	18.7 QP	46.0	-27.3	1.50 H	164	32.5	-13.8
4	312.27	22.2 QP	46.0	-23.8	1.38 H	105	33.9	-11.7
5	384.05	37.3 QP	46.0	-8.7	1.85 H	161	47.3	-10.0
6	560.59	24.6 QP	46.0	-21.4	2.48 H	102	30.5	-5.9

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.

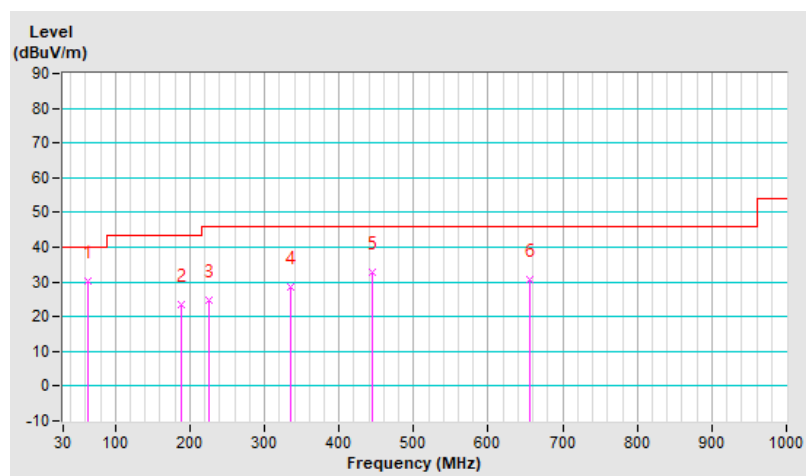


RF Mode	BLE 2M	Channel	CH 1 : 2404 MHz
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Bandwidth	QP: RB=120 kHz, DET=Quasi-Peak
Input Power	120 Vac, 60 Hz (System)	Environmental Conditions	23 °C, 67% RH
Tested By	Karl Lee		

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	63.95	30.1 QP	40.0	-9.9	1.43 V	228	44.3	-14.2
2	188.11	23.6 QP	43.5	-19.9	1.54 V	204	39.0	-15.4
3	224.97	24.9 QP	46.0	-21.1	1.79 V	206	40.9	-16.0
4	335.55	28.7 QP	46.0	-17.3	1.69 V	33	39.7	-11.0
5	445.16	32.9 QP	46.0	-13.1	2.21 V	152	40.9	-8.0
6	656.62	30.5 QP	46.0	-15.5	1.08 V	248	34.3	-3.8

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	BLE 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=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz (System)	Environmental Conditions	23 °C, 67% RH
Tested By	Karl Lee		

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	56.6 PK	74.0	-17.4	1.41 H	173	24.8	31.8
2	2390.00	42.8 AV	54.0	-11.2	1.41 H	173	11.0	31.8
3	*2402.00	98.2 PK			1.41 H	173	66.4	31.8
4	*2402.00	97.1 AV			1.41 H	173	65.3	31.8
5	4804.00	51.3 PK	74.0	-22.7	1.53 H	205	48.4	2.9
6	4804.00	37.1 AV	54.0	-16.9	1.53 H	205	34.2	2.9
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	55.5 PK	74.0	-18.5	1.09 V	269	23.7	31.8
2	2390.00	43.3 AV	54.0	-10.7	1.09 V	269	11.5	31.8
3	*2402.00	103.8 PK			1.09 V	269	72.0	31.8
4	*2402.00	102.6 AV			1.09 V	269	70.8	31.8
5	4804.00	50.2 PK	74.0	-23.8	1.71 V	42	47.3	2.9
6	4804.00	36.1 AV	54.0	-17.9	1.71 V	42	33.2	2.9

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	BLE 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=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz (System)	Environmental Conditions	23 °C, 67% RH
Tested By	Karl Lee		

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	98.6 PK			1.34 H	175	66.8	31.8
2	*2440.00	97.5 AV			1.34 H	175	65.7	31.8
3	4880.00	51.6 PK	74.0	-22.4	1.47 H	208	48.6	3.0
4	4880.00	37.4 AV	54.0	-16.6	1.47 H	208	34.4	3.0
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	*2440.00	104.1 PK			1.12 V	255	72.3	31.8
2	*2440.00	103.0 AV			1.12 V	255	71.2	31.8
3	4880.00	50.5 PK	74.0	-23.5	1.68 V	44	47.5	3.0
4	4880.00	36.4 AV	54.0	-17.6	1.68 V	44	33.4	3.0

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	BLE 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=1 kHz, DET=Peak
Input Power	120 Vac, 60 Hz (System)	Environmental Conditions	23 °C, 67% RH
Tested By	Karl Lee		

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	98.2 PK			1.29 H	184	66.3	31.9
2	*2480.00	96.6 AV			1.29 H	184	64.7	31.9
3	2483.50	57.1 PK	74.0	-16.9	1.29 H	184	25.2	31.9
4	2483.50	44.9 AV	54.0	-9.1	1.29 H	184	13.0	31.9
5	4960.00	51.1 PK	74.0	-22.9	1.42 H	211	47.9	3.2
6	4960.00	36.9 AV	54.0	-17.1	1.42 H	211	33.7	3.2
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	*2480.00	103.4 PK			1.03 V	268	71.5	31.9
2	*2480.00	102.2 AV			1.03 V	268	70.3	31.9
3	2483.50	59.3 PK	74.0	-14.7	1.03 V	268	27.4	31.9
4	2483.50	45.7 AV	54.0	-8.3	1.03 V	268	13.8	31.9
5	4960.00	50.0 PK	74.0	-24.0	1.73 V	48	46.8	3.2
6	4960.00	35.9 AV	54.0	-18.1	1.73 V	48	32.7	3.2

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	BLE 2M	Channel	CH 1 : 2404 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 (System)	Environmental Conditions	23 °C, 67% RH
Tested By	Karl Lee		

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	56.6 PK	74.0	-17.4	1.41 H	173	24.8	31.8
2	2390.00	42.7 AV	54.0	-11.3	1.41 H	173	10.9	31.8
3	*2404.00	98.2 PK			1.41 H	173	66.4	31.8
4	*2404.00	94.8 AV			1.41 H	173	63.0	31.8
5	4808.00	51.1 PK	74.0	-22.9	1.53 H	202	48.1	3.0
6	4808.00	36.8 AV	54.0	-17.2	1.53 H	202	33.8	3.0
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	58.2 PK	74.0	-15.8	1.09 V	269	26.4	31.8
2	2390.00	44.6 AV	54.0	-9.4	1.09 V	269	12.8	31.8
3	*2404.00	103.6 PK			1.09 V	269	71.8	31.8
4	*2404.00	100.3 AV			1.09 V	269	68.5	31.8
5	4808.00	50.2 PK	74.0	-23.8	1.74 V	42	47.2	3.0
6	4808.00	36.0 AV	54.0	-18.0	1.74 V	42	33.0	3.0

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	BLE 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 (System)	Environmental Conditions	23 °C, 67% RH
Tested By	Karl Lee		

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	98.5 PK			1.34 H	175	66.7	31.8
2	*2440.00	95.2 AV			1.34 H	175	63.4	31.8
3	4880.00	51.2 PK	74.0	-22.8	1.47 H	208	48.2	3.0
4	4880.00	37.2 AV	54.0	-16.8	1.47 H	208	34.2	3.0
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	*2440.00	103.9 PK			1.12 V	255	72.1	31.8
2	*2440.00	100.6 AV			1.12 V	255	68.8	31.8
3	4880.00	50.4 PK	74.0	-23.6	1.68 V	44	47.4	3.0
4	4880.00	36.2 AV	54.0	-17.8	1.68 V	44	33.2	3.0

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	BLE 2M	Channel	CH 38 : 2478 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 (System)	Environmental Conditions	23 °C, 67% RH
Tested By	Karl Lee		

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	*2478.00	98.3 PK			1.29 H	184	66.4	31.9
2	*2478.00	94.7 AV			1.29 H	184	62.8	31.9
3	2483.50	58.3 PK	74.0	-15.7	1.29 H	184	26.4	31.9
4	2483.50	47.3 AV	54.0	-6.7	1.29 H	184	15.4	31.9
5	4956.00	50.8 PK	74.0	-23.2	1.45 H	208	47.6	3.2
6	4956.00	36.6 AV	54.0	-17.4	1.45 H	208	33.4	3.2
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	*2478.00	103.3 PK			1.03 V	268	71.4	31.9
2	*2478.00	100.1 AV			1.03 V	268	68.2	31.9
3	2483.50	60.9 PK	74.0	-13.1	1.03 V	268	29.0	31.9
4	2483.50	49.7 AV	54.0	-4.3	1.03 V	268	17.8	31.9
5	4956.00	50.5 PK	74.0	-23.5	1.73 V	49	47.3	3.2
6	4956.00	36.3 AV	54.0	-17.7	1.73 V	49	33.1	3.2

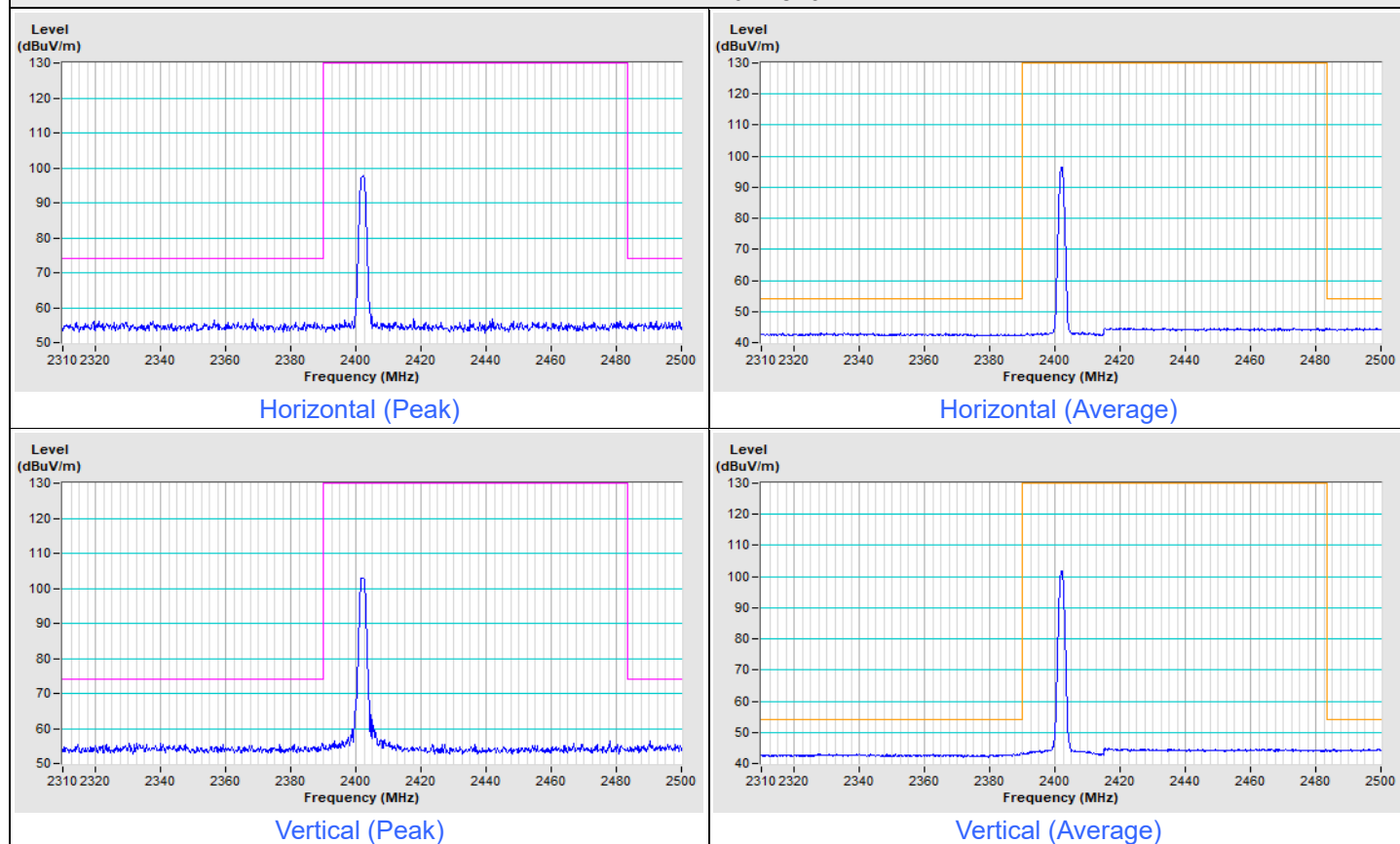
Remarks:

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.

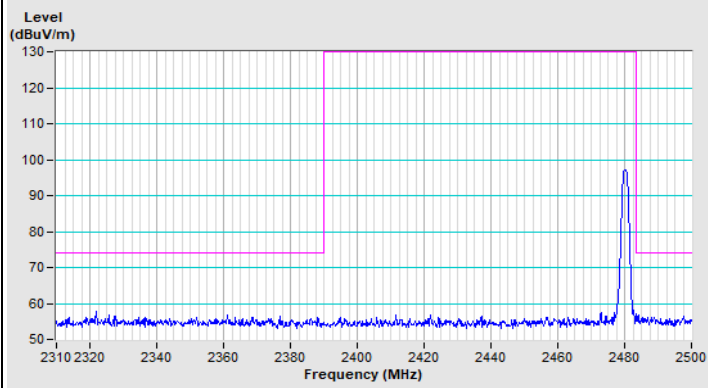
Plot of Band Edge

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=1 kHz, DET=Peak
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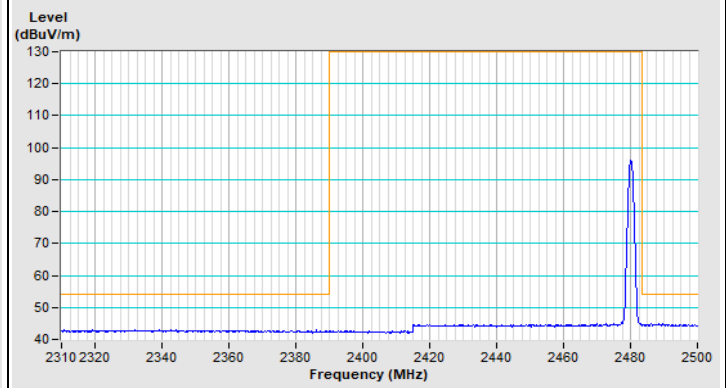
BLE 1M Channel 0



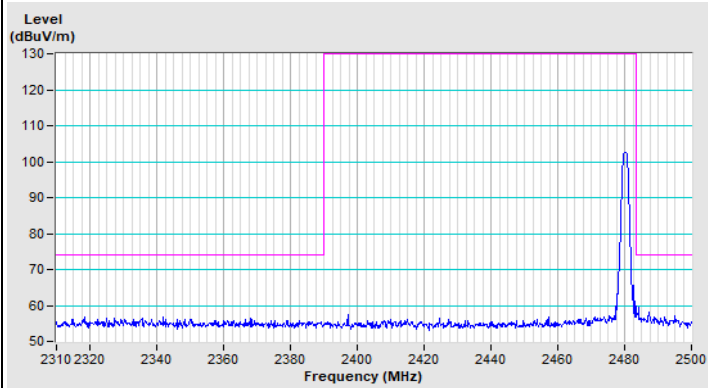
BLE 1M Channel 39



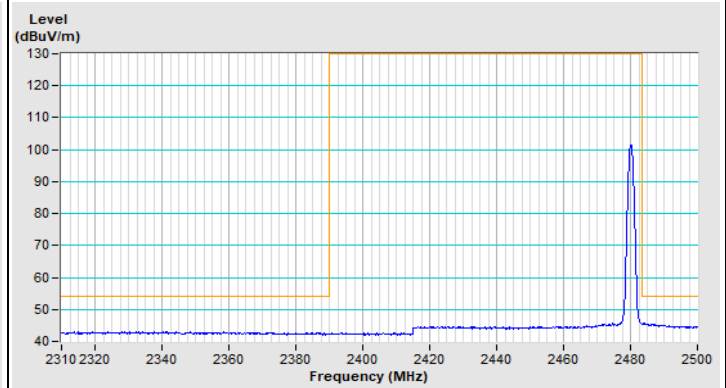
Horizontal (Peak)



Horizontal (Average)



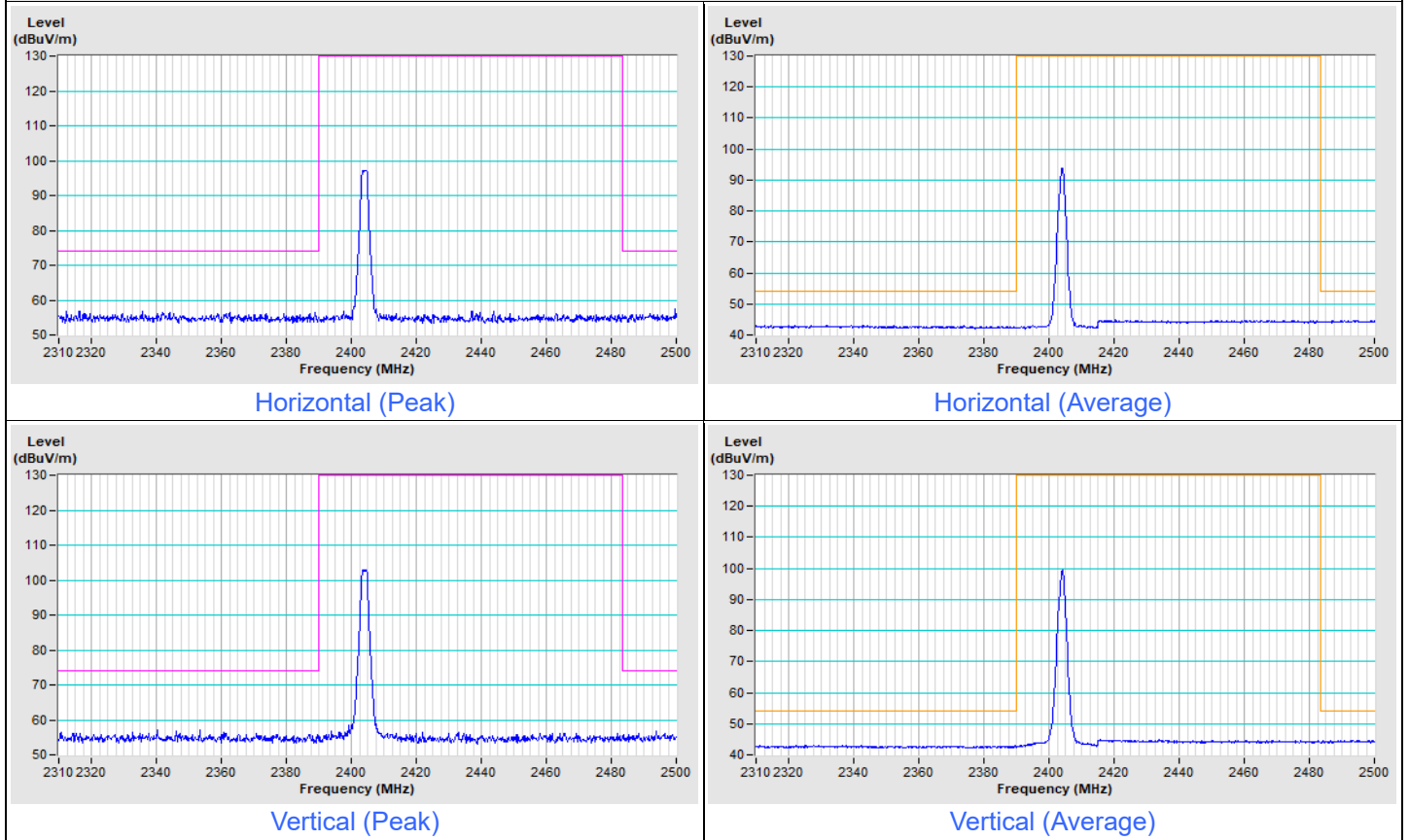
Vertical (Peak)

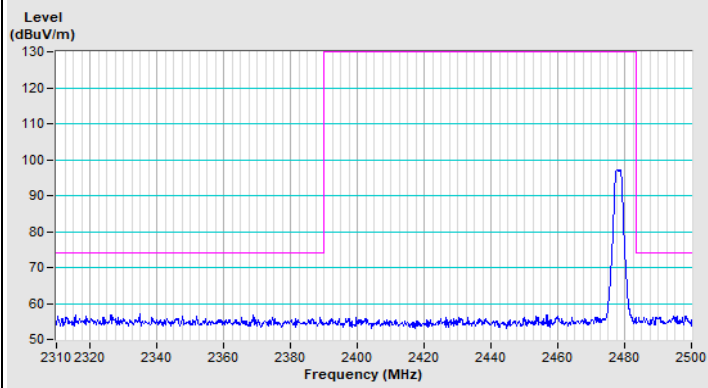


Vertical (Average)

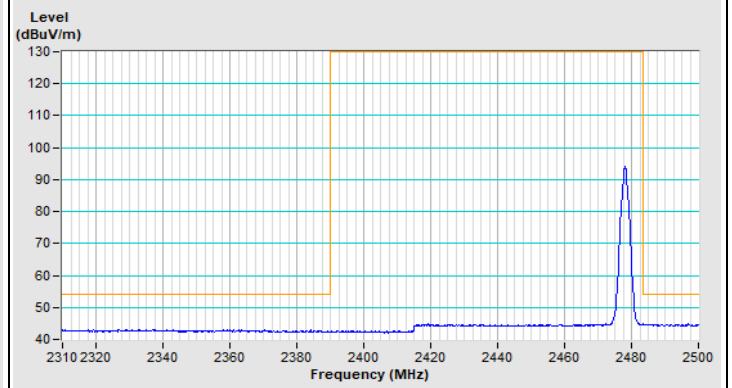
Frequency Range	2.31 GHz ~ 2.5 GHz	Detector Function & Bandwidth	PK: RB=1 MHz, VB=3 MHz, DET=Peak AV: RB=1 MHz, VB=1 kHz, DET=Peak
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BLE 2M Channel 1

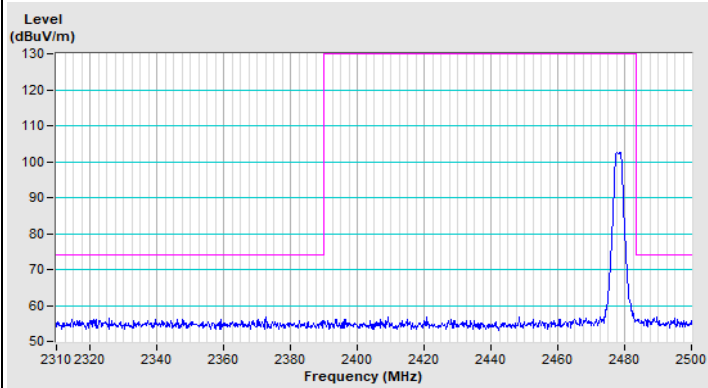


BLE 2M Channel 38

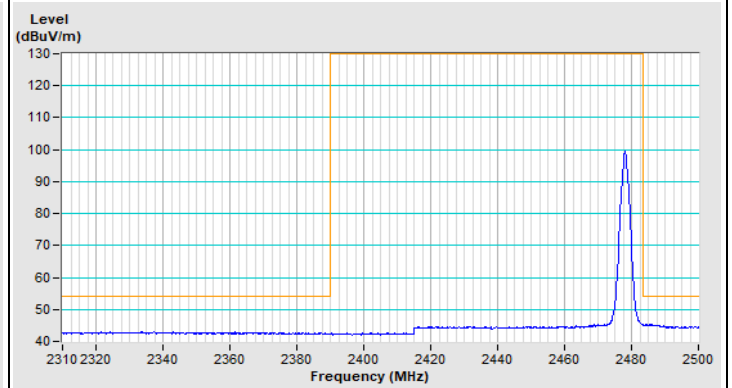
Horizontal (Peak)



Horizontal (Average)



Vertical (Peak)



Vertical (Average)

8 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)

9 Construction Photos of EUT

Please refer to the attached file (CFQC-WTW-P25050598 (EUT photo)).

10 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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