

## Partial FCC Test Report (BT LE)

**Report No.:** RFBBGM-WTW-P21120093-4

**FCC ID:** WIYSLM500QA

**Test Model:** SLM500

**Received Date:** Dec. 24, 2021

**Test Date:** Feb. 25 ~ Mar. 02, 2022

**Issued Date:** Mar. 17, 2022

**Applicant:** CASTLES TECHNOLOGY CO., LTD.

**Address:** 6F, NO. 207-5, SEC. 3, BEIXIN RD., XINDIAN DISTRICT, NEW TAIPEI CITY 23143, TAIWAN (R. O. C.)

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

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan

**Test Location:** No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan

**FCC Registration /**

**Designation Number:** 788550 / TW0003



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### Release Control Record

| Issue No.              | Description      | Date Issued   |
|------------------------|------------------|---------------|
| RFBBGM-WTW-P21120093-4 | Original Release | Mar. 17, 2022 |

## 1 Certificate of Conformity

**Product:** Smart module

**Brand:**  **CASTLES  
TECHNOLOGY**

**Test Model:** SLM500

**Sample Status:** Identical Prototype

**Applicant:** CASTLES TECHNOLOGY CO., LTD.

**Test Date:** Feb. 25 ~ Mar. 02, 2022

**Standards:** 47 CFR FCC Part 15, Subpart C (Section 15.247)  
ANSI C63.10:2013

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.

**Prepared by :** Pettie Chen, **Date:** Mar. 17, 2022  
Pettie Chen / Senior Specialist

**Approved by :** Jeremy Lin, **Date:** Mar. 17, 2022  
Jeremy Lin / Project Engineer

## 2 Summary of Test Results

| 47 CFR FCC Part 15, Subpart C (Section 15.247) |                                |        |                                                                                      |
|------------------------------------------------|--------------------------------|--------|--------------------------------------------------------------------------------------|
| FCC Clause                                     | Test Item                      | Result | Remarks                                                                              |
| 15.207                                         | AC Power Conducted Emission    | Pass   | Meet the requirement of limit.<br>Minimum passing margin is -8.80 dB at 0.67000MHz.  |
| 15.205 & 209                                   | Radiated Emissions             | Pass   | Meet the requirement of limit.<br>Minimum passing margin is -7.56 dB at 2483.50 MHz. |
| 15.247(d)                                      | Band Edge Measurement          | N/A    | Refer to Note 1                                                                      |
| 15.247(d)                                      | Antenna Port Emission          | N/A    | Refer to Note 1                                                                      |
| 15.247(a)(2)                                   | 6 dB Bandwidth                 | N/A    | Refer to Note 1                                                                      |
| ---                                            | Occupied Bandwidth Measurement | N/A    | Refer to Note 1                                                                      |
| 15.247(b)                                      | Conducted Power                | Pass   | Meet the requirement of limit.                                                       |
| 15.247(e)                                      | Power Spectral Density         | N/A    | Refer to Note 1                                                                      |
| 15.203                                         | Antenna Requirement            | Pass   | Antenna connector is ipex(MHF)<br>connector not a standard connector.                |

Note:

1. This report is a partial report. Therefore, only AC Power Conducted Emission, Conducted Power and radiated emissions were verified and recorded in this report. Other testing data please refer to the original SGS report no.: SZCR210300003002.
2. For 2.4G band compliance with rule 15.247(d) of the band-edge items, the test plots were recorded in Annex A. Test Procedures refer to report 4.1.3.
3. 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                        | Frequency          | Expanded Uncertainty (k=2) (±) |
|------------------------------------|--------------------|--------------------------------|
| Conducted Emissions at mains ports | 150kHz ~ 30MHz     | 2.79 dB                        |
| Radiated Emissions up to 1 GHz     | 9 kHz ~ 30 MHz     | 3.00 dB                        |
|                                    | 30 MHz ~ 200 MHz   | 2.91 dB                        |
|                                    | 200 MHz ~ 1000 MHz | 2.93 dB                        |
| Radiated Emissions above 1 GHz     | 1GHz ~ 18GHz       | 2.29 dB                        |
|                                    | 18GHz ~ 40GHz      | 2.29 dB                        |

### 2.2 Modification Record

There were no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT

|                            |                                                                                   |
|----------------------------|-----------------------------------------------------------------------------------|
| <b>Product</b>             | Smart module                                                                      |
| <b>Brand</b>               |  |
| <b>Test Model</b>          | SLM500                                                                            |
| <b>Status of EUT</b>       | Identical Prototype                                                               |
| <b>Power Supply Rating</b> | 5.0 Vdc (host equipment)<br>3.65 or 3.7 Vdc                                       |
| <b>Modulation Type</b>     | GFSK                                                                              |
| <b>Transfer Rate</b>       | 1 Mbps                                                                            |
| <b>Operating Frequency</b> | 2402 ~ 2480 MHz                                                                   |
| <b>Number of Channel</b>   | 40                                                                                |
| <b>Output Power</b>        | 1.180 mW                                                                          |
| <b>Antenna Type</b>        | Refer to Note as below                                                            |
| <b>Antenna Connector</b>   | Refer to Note as below                                                            |
| <b>Accessory Device</b>    | Refer to Note as below                                                            |
| <b>Data Cable Supplied</b> | N/A                                                                               |

Note:

1. This report is prepared for FCC class II permissive change. This report is issued as a supplementary report of SGS report no.: SZCR210300003002. The differences from the original report are adding an End-product (POS Terminal (Brand:  , Model: SATURN1000)) and using software to reduce power. Only AC Power Conducted Emission, Conducted Power and radiated emissions were verified and recorded in this report. Other testing data please refer to the original SGS report no.: SZCR210300003002.
2. The EUT was installed in POS Terminal (Brand:  , Model: SATURN1000).
3. The antenna information of POS Terminal is listed as below.

| Antenna                   |           |              |                      |
|---------------------------|-----------|--------------|----------------------|
| <b>Antenna Type</b>       | Dipole    | <b>Brand</b> | ARISTOTLE            |
| <b>Antenna Connector</b>  | ipex(MHF) | <b>Model</b> | RFA-25GPSJP32370B105 |
| <b>Antenna Gain (dBi)</b> | 0.76      |              |                      |

\*The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

4. The battery and adapter information of POS Terminal is listed as below.

| Battery 1 (Support unit) |                                                                                     |
|--------------------------|-------------------------------------------------------------------------------------|
| <b>Brand</b>             |  |
| <b>Model</b>             | SATURN1000                                                                          |
| <b>Rating</b>            | 3.65Vdc, 5840mAh                                                                    |

| Battery 2 (Support unit) |                                                                                     |
|--------------------------|-------------------------------------------------------------------------------------|
| <b>Brand</b>             |  |
| <b>Model</b>             | SATURN1000                                                                          |
| <b>Rating</b>            | 3.7Vdc, 5840mAh                                                                     |

\*Battery 2 was the worst for the final tests.

| Adapter 1 (Support unit) |                              |
|--------------------------|------------------------------|
| Brand                    | LUCENT TRANS                 |
| Model                    | 1A52-UB52A                   |
| Input Power              | 100-240 Vac; 50/60 Hz; 0.3 A |
| Output Power             | 5Vdc; 2A                     |

| Adapter 2 (Support unit) |                              |
|--------------------------|------------------------------|
| Brand                    | LUCENT TRANS                 |
| Model                    | 1A52-SR52A                   |
| Input Power              | 100-240 Vac; 50/60 Hz; 0.3 A |
| Output Power             | 5Vdc; 2A                     |
| Power Cord               | 1.5m                         |

5. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

### 3.2 Description of Test Modes

40 channels are provided to this EUT:

| Channel | Freq. (MHz) | Channel | Freq. (MHz) | Channel | Freq. (MHz) | Channel | Freq. (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        |

### 3.2.1 Test Mode Applicability and Tested Channel Detail

| EUT Configure Mode | Applicable To |       |     |       | Description          |
|--------------------|---------------|-------|-----|-------|----------------------|
|                    | RE $\geq$ 1G  | RE<1G | PLC | Power |                      |
| A                  | √             | √     | √   | √     | Power from adapter 1 |
| B                  | -             | √     | √   | -     | Power from adapter 2 |

Where RE $\geq$ 1G: Radiated Emission above 1GHz & Bandedge Measurement  
RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission Power: Maximum Output Power

Note:

- The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **Z-plane**.

#### **Radiated Emission Test (Above 1GHz):**

- ☒ 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).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

| EUT Configure Mode | Available Channel | Tested Channel | Modulation Type | Data Rate (Mbps) |
|--------------------|-------------------|----------------|-----------------|------------------|
| A                  | 0 to 39           | 0, 19, 39      | GFSK            | 1                |

#### **Radiated Emission Test (Below 1 GHz):**

- ☒ 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).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

| EUT Configure Mode | Available Channel | Tested Channel | Modulation Type | Data Rate (Mbps) |
|--------------------|-------------------|----------------|-----------------|------------------|
| A, B               | 0 to 39           | 0              | GFSK            | 1                |

#### **Power Line Conducted Emission Test:**

- ☒ 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).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

| EUT Configure Mode | Available Channel | Tested Channel | Modulation Type | Data Rate (Mbps) |
|--------------------|-------------------|----------------|-----------------|------------------|
| A, B               | 0 to 39           | 0              | GFSK            | 1                |



### **Maximum Output Power**

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ 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).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

| EUT Configure Mode | Available Channel | Tested Channel | Modulation Type | Data Rate (Mbps) |
|--------------------|-------------------|----------------|-----------------|------------------|
| A                  | 0 to 39           | 0, 19, 39      | GFSK            | 1                |

### **Test Condition:**

| Applicable To | Environmental Conditions | Input Power    | Tested by  |
|---------------|--------------------------|----------------|------------|
| RE $\geq$ 1G  | 21 deg. C, 71 % RH       | 120 Vac, 60 Hz | Rex Wang   |
| RE<1G         | 21 deg. C, 71 % RH       | 120 Vac, 60 Hz | Rex Wang   |
| PLC           | 25 deg. C, 75 % RH       | 120 Vac, 60 Hz | Rex Wang   |
| Power         | 25 deg. C, 60 % RH       | 120 Vac, 60 Hz | Ivan Tseng |

### 3.3 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| ID | Product      | Brand                                                                             | Model No.  | Serial No. | FCC ID | Remarks         |
|----|--------------|-----------------------------------------------------------------------------------|------------|------------|--------|-----------------|
| A. | Earphone     | APPLE                                                                             | MB77PFEB   | NA         | NA     | -               |
| B. | POS Terminal |  | SATURN1000 | NA         | NA     | -               |
| C. | Adapter      | LUCENT TRANS                                                                      | 1A52-UB52A | NA         | NA     | For Test Mode A |
|    |              |                                                                                   | 1A52-SR52A | NA         | NA     | For Test Mode B |

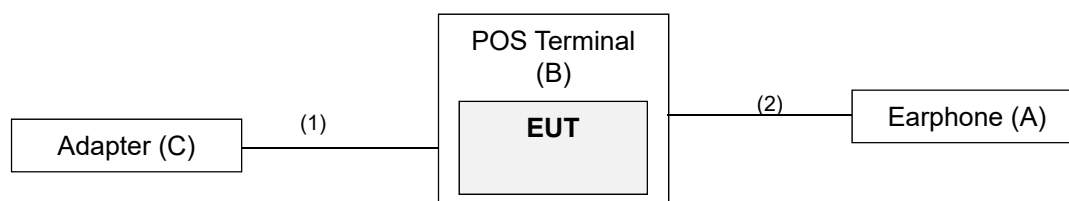
Note:

1. All power cords of the above support units are non-shielded (1.8m).

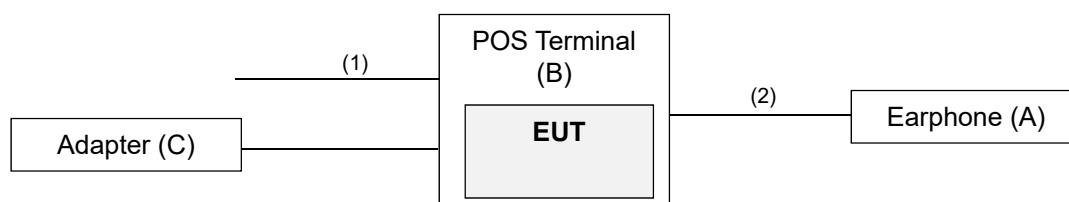
| ID | Descriptions | Qty. | Length (m) | Shielding (Yes/No) | Cores (Qty.) | Remarks            |
|----|--------------|------|------------|--------------------|--------------|--------------------|
| 1. | USB cable    | 1    | 0.95       | Y                  | 0            | Provided by client |
| 2. | Audio cable  | 1    | 1.5        | Y                  | 0            | -                  |

#### 3.3.1 Configuration of System under Test

##### Test Mode A



##### Test Mode B



### 3.4 General Description of Applied Standards and References

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards and references:

#### Test Standard:

##### **FCC Part 15, Subpart C (15.247)**

ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

#### References Test Guidance:

##### **KDB 558074 D01 15.247 Meas Guidance v05r02**

All test items have been performed as a reference to the above KDB test guidance.

## 4 Test Types and Results

### 4.1 Radiated Emission and Bandedge Measurement

#### 4.1.1 Limits of Radiated Emission and Bandedge Measurement

Radiated emissions 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                             |

**Note:**

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.

#### 4.1.2 Test Instruments

| Description & Manufacturer               | Model No.                              | Serial No.                                          | Cal. Date     | Cal. Due      |
|------------------------------------------|----------------------------------------|-----------------------------------------------------|---------------|---------------|
| Test Receiver<br>KEYSIGHT                | N9038A                                 | MY55420137                                          | Apr. 09, 2021 | Apr. 08, 2022 |
| Spectrum Analyzer<br>ROHDE & SCHWARZ     | FSP40                                  | 100039                                              | Jun. 10, 2021 | Jun. 09, 2022 |
| BILOG Antenna<br>SCHWARZBECK             | VULB9168                               | 9168-160                                            | Oct. 28, 2021 | Oct. 27, 2022 |
| HORN Antenna<br>SCHWARZBECK              | BBHA 9120 D                            | 9120D-1169                                          | Nov. 14, 2021 | Nov. 13, 2022 |
| HORN Antenna<br>SCHWARZBECK              | BBHA 9170                              | BBHA9170241                                         | Oct. 26, 2021 | Oct. 25, 2022 |
| Preamplifier<br>Agilent<br>(Below 1GHz)  | 8447D                                  | 2944A10638                                          | Jun. 05, 2021 | Jun. 04, 2022 |
| Preamplifier<br>Agilent<br>(Above 1GHz)  | 8449B                                  | 3008A01963                                          | Jul. 24, 2021 | Jul. 23, 2022 |
| RF signal cable<br>HUBER+SUHNER&EMCI     | SUCOFLEX 104 &<br>EMC104-SM-<br>SM8000 | CABLE-CH9-02<br>(248780+171006)                     | Jan. 16, 2021 | Jan. 15, 2022 |
|                                          |                                        |                                                     | Jan. 15, 2022 | Jan. 14, 2023 |
| RF signal cable<br>HUBER+SUHNER          | SUCOFLEX 104                           | CABLE-CH9-(250795/4)                                | Jan. 16, 2021 | Jan. 15, 2022 |
|                                          |                                        |                                                     | Jan. 15, 2022 | Jan. 14, 2023 |
| RF signal cable<br>Woken                 | 8D-FB                                  | Cable-CH9-01                                        | Jun. 05, 2021 | Jun. 04, 2022 |
| Software<br>BV ADT                       | ADT_Radiated_<br>V7.6.15.9.5           | NA                                                  | NA            | NA            |
| Antenna Tower & Turn<br>BV ADT           | AT100                                  | AT93021705                                          | NA            | NA            |
| Turn Table<br>BV ADT                     | TT100                                  | TT93021705                                          | NA            | NA            |
| Turn Table Controller<br>BV ADT          | SC100                                  | SC93021705                                          | NA            | NA            |
| Boresight Antenna Fixture                | FBA-01                                 | FBA-SIP01                                           | NA            | NA            |
| USB Wideband Power<br>Sensor<br>KEYSIGHT | U2021XA                                | MY55050005/MY5519000<br>4/MY55190007/MY55210<br>005 | Jul. 12, 2021 | Jul. 11, 2022 |

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.  
 2. The test was performed in HwaYa Chamber 9.

#### 4.1.3 Test Procedures

##### **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 a 3 meter chamber room. 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.

##### **Note:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9 kHz at frequency below 30 MHz.

##### **For Radiated Emission above 30 MHz**

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30 MHz ~ 1 GHz) / 1.5 meters (for above 1 GHz) 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.
- f. The test-receiver system was set to peak and average detected 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.

##### **Note:**

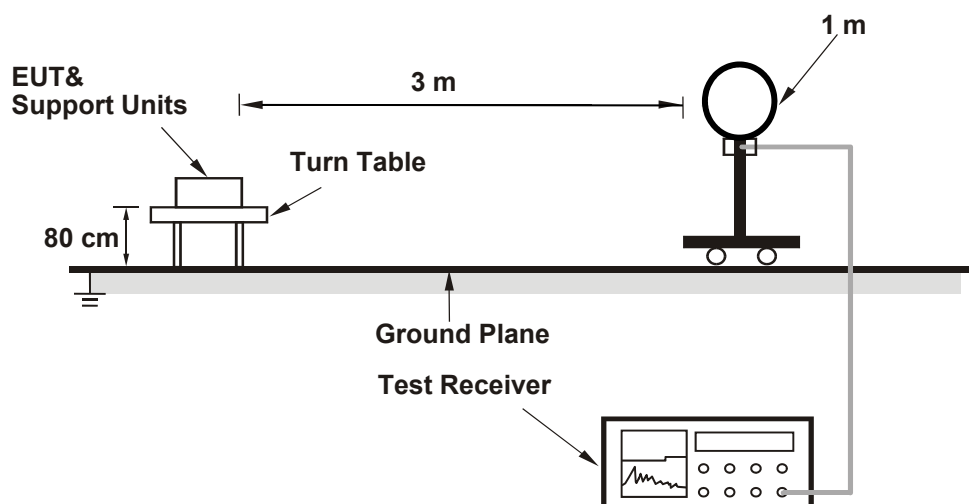
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection (QP) or Peak detection (PK) at frequency below 1 GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1 GHz.
3. 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. (RBW = 1 MHz, VBW = 3 kHz)
4. All modes of operation were investigated and the worst-case emissions are reported.

#### 4.1.4 Deviation from Test Standard

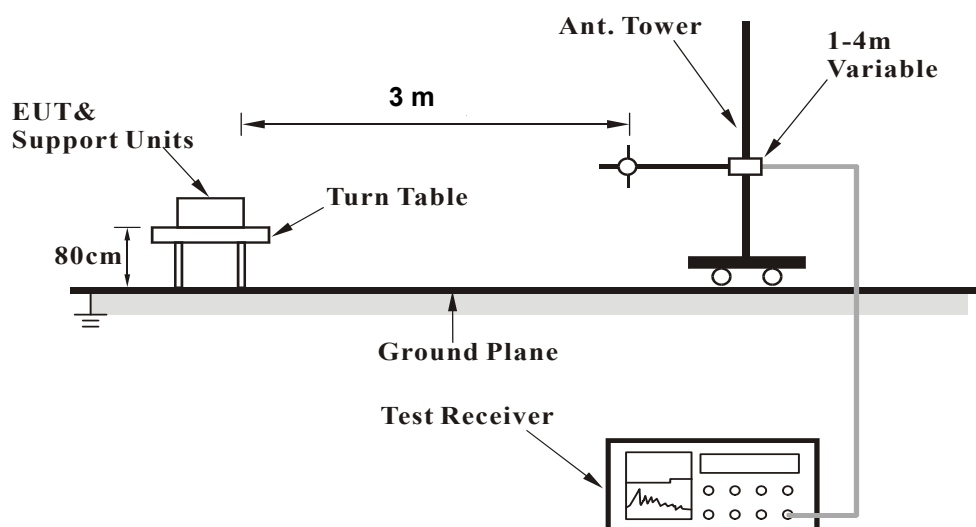
No deviation.

#### 4.1.5 Test Set Up

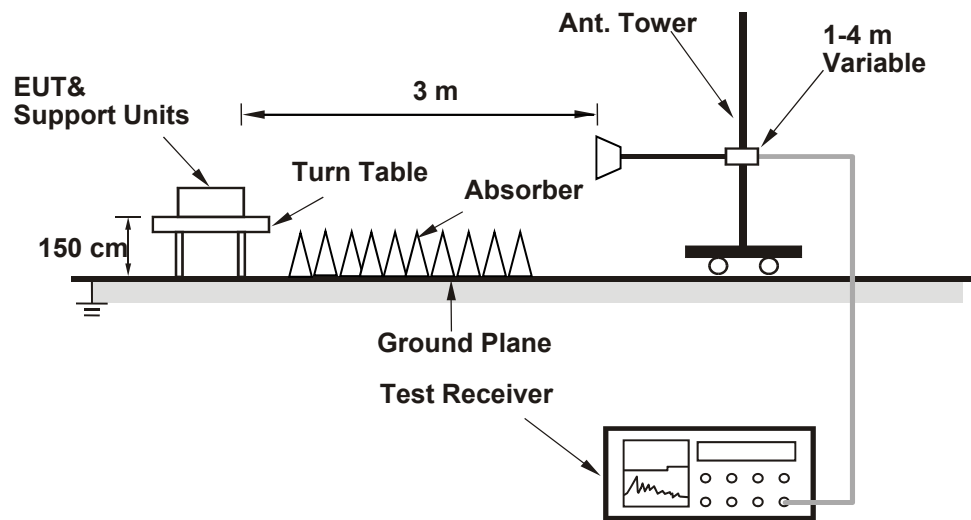
##### <Radiated Emission below 30 MHz>



##### <Radiated Emission 30 MHz to 1 GHz>



# <Radiated Emission above 1 GHz>



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

## 4.1.6 EUT Operating Conditions

Set the EUT under transmission condition continuously at specific channel frequency.



#### 4.1.7 Test Results

##### Above 1 GHz Data:

|                 |              |                   |                           |
|-----------------|--------------|-------------------|---------------------------|
| RF Mode         | TX BT-LE 1M  | Channel           | CH 0 : 2402 MHz           |
| Frequency Range | 1GHz ~ 25GHz | Detector Function | Peak (PK)<br>Average (AV) |

| 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         | 58.37 PK                | 74.00          | -15.63      | 1.51 H             | 335                  | 25.50            | 32.87                    |
| 2                                                    | 2390.00         | 45.50 AV                | 54.00          | -8.50       | 1.51 H             | 335                  | 12.63            | 32.87                    |
| 3                                                    | *2402.00        | 95.25 PK                |                |             | 1.51 H             | 335                  | 62.41            | 32.84                    |
| 4                                                    | *2402.00        | 94.19 AV                |                |             | 1.51 H             | 335                  | 61.35            | 32.84                    |
| 5                                                    | 4804.00         | 47.48 PK                | 74.00          | -26.52      | 2.00 H             | 198                  | 41.79            | 5.69                     |
| 6                                                    | 4804.00         | 34.03 AV                | 54.00          | -19.97      | 2.00 H             | 198                  | 28.34            | 5.69                     |
| 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         | 58.81 PK                | 74.00          | -15.19      | 1.92 V             | 221                  | 25.94            | 32.87                    |
| 2                                                    | 2390.00         | 45.75 AV                | 54.00          | -8.25       | 1.92 V             | 221                  | 12.88            | 32.87                    |
| 3                                                    | *2402.00        | 96.41 PK                |                |             | 1.92 V             | 221                  | 63.57            | 32.84                    |
| 4                                                    | *2402.00        | 95.50 AV                |                |             | 1.92 V             | 221                  | 62.66            | 32.84                    |
| 5                                                    | 4804.00         | 47.54 PK                | 74.00          | -26.46      | 1.52 V             | 194                  | 41.85            | 5.69                     |
| 6                                                    | 4804.00         | 34.10 AV                | 54.00          | -19.90      | 1.52 V             | 194                  | 28.41            | 5.69                     |

##### 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.

|                 |              |                   |                           |
|-----------------|--------------|-------------------|---------------------------|
| RF Mode         | TX BT-LE 1M  | Channel           | CH 19 : 2440 MHz          |
| Frequency Range | 1GHz ~ 25GHz | Detector Function | Peak (PK)<br>Average (AV) |

| 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        | 96.94 PK                |                |             | 1.49 H             | 330                  | 64.13            | 32.81                    |
| 2                                                    | *2440.00        | 95.77 AV                |                |             | 1.49 H             | 330                  | 62.96            | 32.81                    |
| 3                                                    | 4880.00         | 47.19 PK                | 74.00          | -26.81      | 1.99 H             | 203                  | 41.68            | 5.51                     |
| 4                                                    | 4880.00         | 33.83 AV                | 54.00          | -20.17      | 1.99 H             | 203                  | 28.32            | 5.51                     |
| 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        | 98.15 PK                |                |             | 1.80 V             | 219                  | 65.34            | 32.81                    |
| 2                                                    | *2440.00        | 97.01 AV                |                |             | 1.80 V             | 219                  | 64.20            | 32.81                    |
| 3                                                    | 4880.00         | 47.48 PK                | 74.00          | -26.52      | 1.49 V             | 196                  | 41.97            | 5.51                     |
| 4                                                    | 4880.00         | 34.04 AV                | 54.00          | -19.96      | 1.49 V             | 196                  | 28.53            | 5.51                     |

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.

|                 |              |                   |                           |
|-----------------|--------------|-------------------|---------------------------|
| RF Mode         | TX BT-LE 1M  | Channel           | CH 39 : 2480 MHz          |
| Frequency Range | 1GHz ~ 25GHz | Detector Function | Peak (PK)<br>Average (AV) |

| 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        | 94.68 PK                |                |              | 1.32 H             | 332                  | 61.85            | 32.83                    |
| 2                                                    | *2480.00        | 93.54 AV                |                |              | 1.32 H             | 332                  | 60.71            | 32.83                    |
| 3                                                    | 2483.50         | 58.80 PK                | 74.00          | -15.20       | 1.32 H             | 332                  | 25.96            | 32.84                    |
| 4                                                    | 2483.50         | 46.35 AV                | 54.00          | -7.65        | 1.32 H             | 332                  | 13.51            | 32.84                    |
| 5                                                    | 4960.00         | 47.32 PK                | 74.00          | -26.68       | 1.98 H             | 199                  | 41.68            | 5.64                     |
| 6                                                    | 4960.00         | 33.96 AV                | 54.00          | -20.04       | 1.98 H             | 199                  | 28.32            | 5.64                     |
| 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        | 97.81 PK                |                |              | 1.96 V             | 220                  | 64.98            | 32.83                    |
| 2                                                    | *2480.00        | 96.33 AV                |                |              | 1.96 V             | 220                  | 63.50            | 32.83                    |
| 3                                                    | 2483.50         | 59.54 PK                | 74.00          | -14.46       | 1.96 V             | 220                  | 26.70            | 32.84                    |
| <b>4</b>                                             | <b>2483.50</b>  | <b>46.44 AV</b>         | <b>54.00</b>   | <b>-7.56</b> | <b>1.96 V</b>      | <b>220</b>           | <b>13.60</b>     | <b>32.84</b>             |
| 5                                                    | 4960.00         | 47.38 PK                | 74.00          | -26.62       | 1.47 V             | 192                  | 41.74            | 5.64                     |
| 6                                                    | 4960.00         | 34.13 AV                | 54.00          | -19.87       | 1.47 V             | 192                  | 28.49            | 5.64                     |

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.

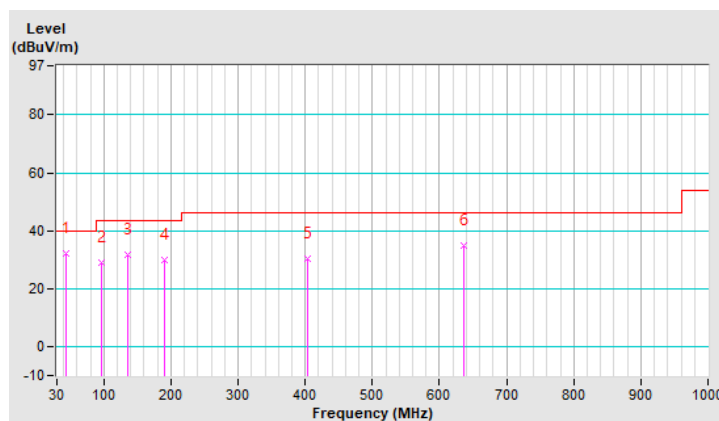
Below 1GHz worst-case data:

|                 |              |                   |                 |
|-----------------|--------------|-------------------|-----------------|
| RF Mode         | TX BT-LE 1M  | Channel           | CH 0 : 2402 MHz |
| Frequency Range | 30MHz ~ 1GHz | Detector Function | Quasi-Peak (QP) |
| Test Mode       | A            |                   |                 |

| 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                                                    | 43.58           | 32.14 QP                | 40.00          | -7.86       | 1.00 H             | 353                  | 41.46            | -9.32                    |
| 2                                                    | 96.93           | 28.86 QP                | 43.50          | -14.64      | 1.50 H             | 79                   | 43.10            | -14.24                   |
| 3                                                    | 135.73          | 31.59 QP                | 43.50          | -11.91      | 1.25 H             | 219                  | 41.22            | -9.63                    |
| 4                                                    | 190.05          | 29.94 QP                | 43.50          | -13.56      | 1.00 H             | 175                  | 41.28            | -11.34                   |
| 5                                                    | 404.42          | 30.47 QP                | 46.00          | -15.53      | 1.00 H             | 46                   | 35.34            | -4.87                    |
| 6                                                    | 636.25          | 35.04 QP                | 46.00          | -10.96      | 1.00 H             | 277                  | 34.82            | 0.22                     |

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. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

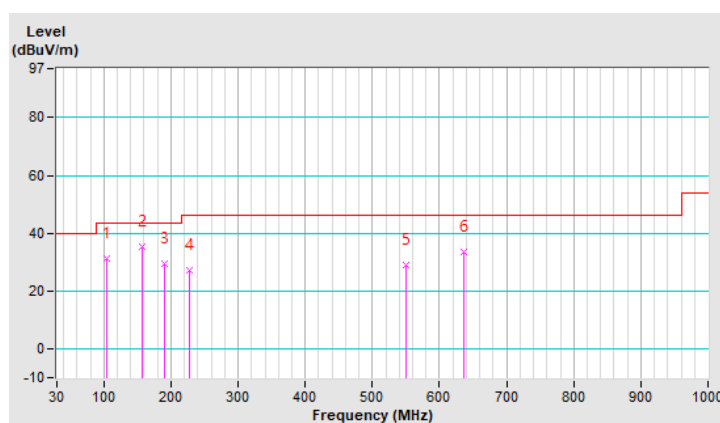


|                 |              |                   |                 |
|-----------------|--------------|-------------------|-----------------|
| RF Mode         | TX BT-LE 1M  | Channel           | CH 0 : 2402 MHz |
| Frequency Range | 30MHz ~ 1GHz | Detector Function | Quasi-Peak (QP) |
| Test Mode       | A            |                   |                 |

| 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                                                  | 103.72          | 31.47 QP                | 43.50          | -12.03      | 1.50 V             | 145                  | 44.50            | -13.03                   |
| 2                                                  | 158.04          | 35.53 QP                | 43.50          | -7.97       | 1.00 V             | 147                  | 44.15            | -8.62                    |
| 3                                                  | 190.05          | 29.46 QP                | 43.50          | -14.04      | 1.50 V             | 5                    | 40.80            | -11.34                   |
| 4                                                  | 227.88          | 27.39 QP                | 46.00          | -18.61      | 1.00 V             | 7                    | 38.44            | -11.05                   |
| 5                                                  | 549.92          | 28.85 QP                | 46.00          | -17.15      | 2.00 V             | 9                    | 30.53            | -1.68                    |
| 6                                                  | 636.25          | 33.75 QP                | 46.00          | -12.25      | 1.00 V             | 178                  | 33.53            | 0.22                     |

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. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

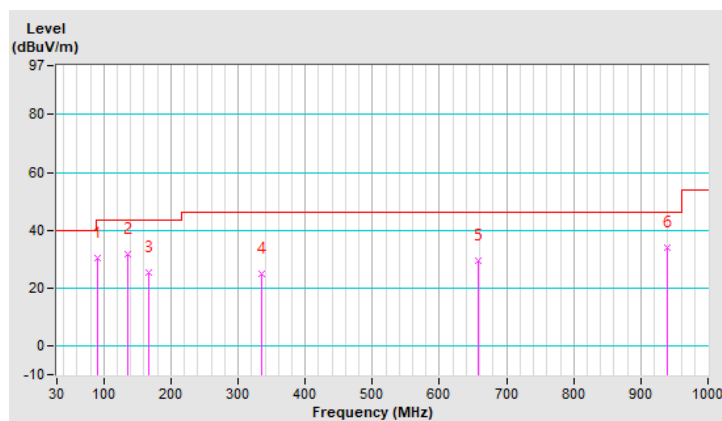


|                 |              |                   |                 |
|-----------------|--------------|-------------------|-----------------|
| RF Mode         | TX BT-LE 1M  | Channel           | CH 0 : 2402 MHz |
| Frequency Range | 30MHz ~ 1GHz | Detector Function | Quasi-Peak (QP) |
| Test Mode       | B            |                   |                 |

| 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                                                    | 91.11           | 30.54 QP                | 43.50          | -12.96      | 1.00 H             | 164                  | 45.23            | -14.69                   |
| 2                                                    | 135.73          | 31.87 QP                | 43.50          | -11.63      | 1.00 H             | 17                   | 41.50            | -9.63                    |
| 3                                                    | 167.74          | 25.31 QP                | 43.50          | -18.19      | 1.25 H             | 115                  | 34.24            | -8.93                    |
| 4                                                    | 335.55          | 24.95 QP                | 46.00          | -21.05      | 1.25 H             | 11                   | 30.99            | -6.04                    |
| 5                                                    | 658.56          | 29.56 QP                | 46.00          | -16.44      | 1.00 H             | 222                  | 29.22            | 0.34                     |
| 6                                                    | 939.86          | 33.92 QP                | 46.00          | -12.08      | 1.50 H             | 70                   | 27.68            | 6.24                     |

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. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

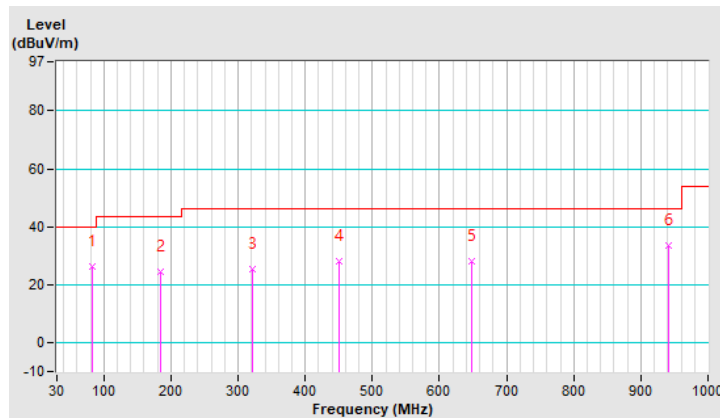


|                 |              |                   |                 |
|-----------------|--------------|-------------------|-----------------|
| RF Mode         | TX BT-LE 1M  | Channel           | CH 0 : 2402 MHz |
| Frequency Range | 30MHz ~ 1GHz | Detector Function | Quasi-Peak (QP) |
| Test Mode       | B            |                   |                 |

| 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                                                  | 83.35           | 26.46 QP                | 40.00          | -13.54      | 1.25 V             | 13                   | 40.64            | -14.18                   |
| 2                                                  | 184.23          | 24.36 QP                | 43.50          | -19.14      | 1.25 V             | 46                   | 35.05            | -10.69                   |
| 3                                                  | 321.00          | 25.37 QP                | 46.00          | -20.63      | 1.00 V             | 165                  | 31.75            | -6.38                    |
| 4                                                  | 450.98          | 28.07 QP                | 46.00          | -17.93      | 1.50 V             | 123                  | 31.53            | -3.46                    |
| 5                                                  | 648.86          | 27.95 QP                | 46.00          | -18.05      | 1.00 V             | 119                  | 27.68            | 0.27                     |
| 6                                                  | 940.83          | 33.40 QP                | 46.00          | -12.60      | 1.50 V             | 310                  | 27.19            | 6.21                     |

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. The other emission levels were very low against the limit of frequency range 30MHz ~ 1000MHz.
4. Margin value = Emission Level – Limit value.
5. The emission levels were very low against the limit of frequency range 9kHz ~ 30MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



## 4.2 Conducted Emission Measurement

### 4.2.1 Limits of Conducted Emission Measurement

| 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      |

Note: 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 0.50MHz.

### 4.2.2 Test Instruments

| Description & Manufacturer              | Model No.                | Serial No.     | Cal. Date     | Cal. Due      |
|-----------------------------------------|--------------------------|----------------|---------------|---------------|
| Test Receiver<br>ROHDE & SCHWARZ        | ESCI                     | 100613         | Dec. 03, 2021 | Dec. 02, 2022 |
| RF signal cable<br>Woken                | 5D-FB                    | Cable-cond1-01 | Jan. 15, 2022 | Jan. 14, 2023 |
| LISN/AMN<br>ROHDE & SCHWARZ<br>(EUT)    | ESH2-Z5                  | 100100         | Feb. 17, 2022 | Feb. 16, 2023 |
| LISN<br>ROHDE & SCHWARZ<br>(Peripheral) | ESH3-Z5                  | 100311         | Sep. 07, 2021 | Sep. 06, 2022 |
| Software<br>ADT                         | BV ADT_Conc_<br>V7.3.7.4 | NA             | NA            | NA            |

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Shielded Room 1 (Conduction 1).

3. The VCCI Site Registration No. is C-12040.



#### 4.2.3 Test Procedures

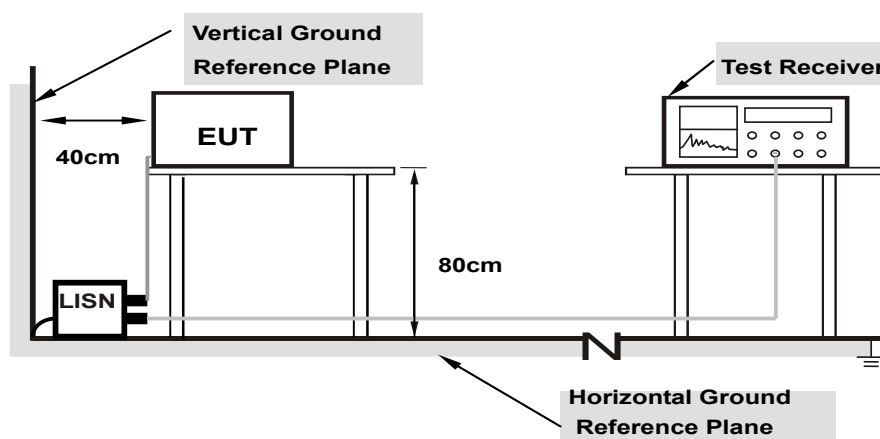
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance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

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

#### 4.2.4 Deviation from Test Standard

No deviation.

#### 4.2.5 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).

#### 4.2.6 EUT Operating Conditions

Same as 4.1.6.

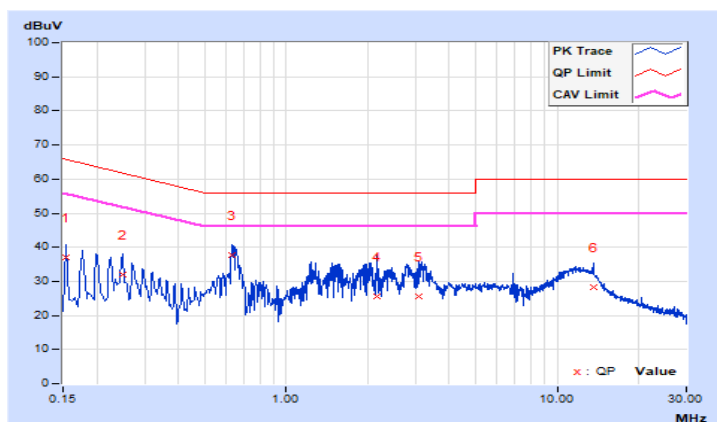
#### 4.2.7 Test Results

|           |          |                   |                                |
|-----------|----------|-------------------|--------------------------------|
| Phase     | Line (L) | Detector Function | Quasi-Peak (QP) / Average (AV) |
| Test Mode | A        |                   |                                |

| No | Freq.<br>[MHz] | Corr.<br>Factor<br>(dB) | Reading Value |       | Emission Level |       | Limit     |       | Margin |        |
|----|----------------|-------------------------|---------------|-------|----------------|-------|-----------|-------|--------|--------|
|    |                |                         | [dB (uV)]     |       | [dB (uV)]      |       | [dB (uV)] |       | (dB)   |        |
|    |                |                         | Q.P.          | AV.   | Q.P.           | AV.   | Q.P.      | AV.   | Q.P.   | AV.    |
| 1  | 0.15400        | 9.77                    | 27.28         | 13.91 | 37.05          | 23.68 | 65.78     | 55.78 | -28.73 | -32.10 |
| 2  | 0.25000        | 9.82                    | 22.12         | 12.79 | 31.94          | 22.61 | 61.76     | 51.76 | -29.82 | -29.15 |
| 3  | 0.63379        | 9.89                    | 27.87         | 22.73 | 37.76          | 32.62 | 56.00     | 46.00 | -18.24 | -13.38 |
| 4  | 2.16600        | 9.97                    | 15.56         | 10.48 | 25.53          | 20.45 | 56.00     | 46.00 | -30.47 | -25.55 |
| 5  | 3.08600        | 9.99                    | 15.57         | 10.49 | 25.56          | 20.48 | 56.00     | 46.00 | -30.44 | -25.52 |
| 6  | 13.59400       | 10.13                   | 18.06         | 12.26 | 28.19          | 22.39 | 60.00     | 50.00 | -31.81 | -27.61 |

#### 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.

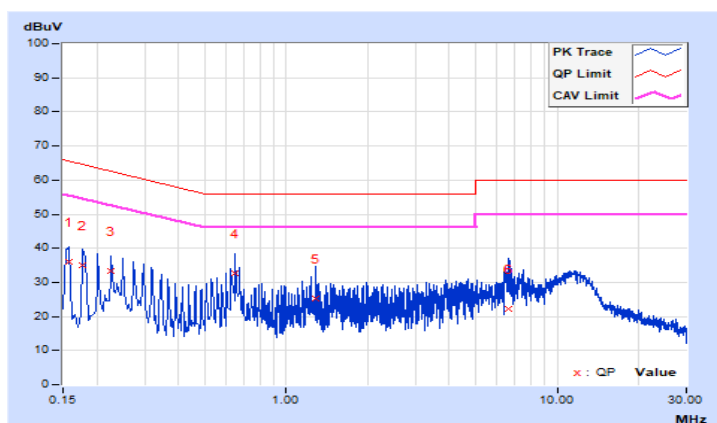


|           |             |                   |                                |
|-----------|-------------|-------------------|--------------------------------|
| Phase     | Neutral (N) | Detector Function | Quasi-Peak (QP) / Average (AV) |
| Test Mode | A           |                   |                                |

| No | Freq.<br>[MHz] | Corr.<br>Factor<br>(dB) | Reading Value<br>[dB (uV)] |       | Emission Level<br>[dB (uV)] |       | Limit<br>[dB (uV)] |       | Margin<br>(dB) |        |
|----|----------------|-------------------------|----------------------------|-------|-----------------------------|-------|--------------------|-------|----------------|--------|
|    |                |                         |                            |       |                             |       |                    |       |                |        |
|    |                |                         | Q.P.                       | AV.   | Q.P.                        | AV.   | Q.P.               | AV.   | Q.P.           | AV.    |
| 1  | 0.15728        | 9.83                    | 26.31                      | 11.14 | 36.14                       | 20.97 | 65.61              | 55.61 | -29.47         | -34.64 |
| 2  | 0.17800        | 9.84                    | 25.09                      | 9.61  | 34.93                       | 19.45 | 64.58              | 54.58 | -29.65         | -35.13 |
| 3  | 0.22600        | 9.87                    | 23.35                      | 11.12 | 33.22                       | 20.99 | 62.60              | 52.60 | -29.38         | -31.61 |
| 4  | 0.65000        | 9.96                    | 22.59                      | 14.18 | 32.55                       | 24.14 | 56.00              | 46.00 | -23.45         | -21.86 |
| 5  | 1.28600        | 10.00                   | 15.25                      | 4.77  | 25.25                       | 14.77 | 56.00              | 46.00 | -30.75         | -31.23 |
| 6  | 6.62200        | 10.13                   | 12.17                      | 1.07  | 22.30                       | 11.20 | 60.00              | 50.00 | -37.70         | -38.80 |

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.

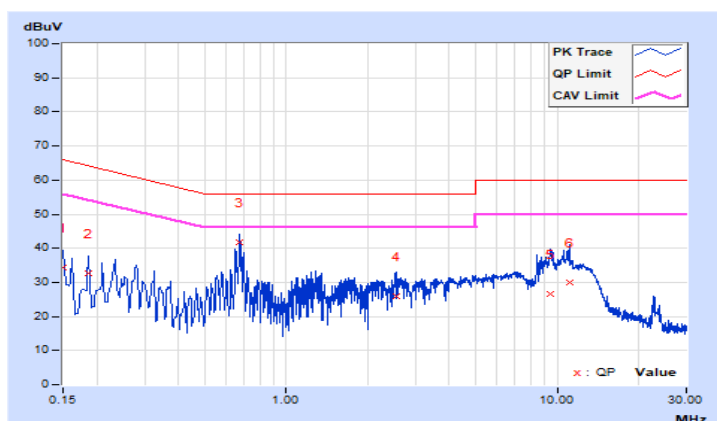


|           |          |                   |                                |
|-----------|----------|-------------------|--------------------------------|
| Phase     | Line (L) | Detector Function | Quasi-Peak (QP) / Average (AV) |
| Test Mode | B        |                   |                                |

| No       | Freq.<br>[MHz] | Corr.<br>Factor<br>(dB) | Reading Value<br>[dB (uV)] |              | Emission Level<br>[dB (uV)] |              | Limit<br>[dB (uV)] |              | Margin<br>(dB) |              |
|----------|----------------|-------------------------|----------------------------|--------------|-----------------------------|--------------|--------------------|--------------|----------------|--------------|
|          |                |                         |                            |              |                             |              |                    |              |                |              |
|          |                |                         | Q.P.                       | AV.          | Q.P.                        | AV.          | Q.P.               | AV.          | Q.P.           | AV.          |
| 1        | 0.15000        | 9.77                    | 24.74                      | 12.69        | 34.51                       | 22.46        | 66.00              | 56.00        | -31.49         | -33.54       |
| 2        | 0.18600        | 9.79                    | 22.77                      | 11.42        | 32.56                       | 21.21        | 64.21              | 54.21        | -31.65         | -33.00       |
| <b>3</b> | <b>0.67000</b> | <b>9.89</b>             | <b>31.97</b>               | <b>27.31</b> | <b>41.86</b>                | <b>37.20</b> | <b>56.00</b>       | <b>46.00</b> | <b>-14.14</b>  | <b>-8.80</b> |
| 4        | 2.54600        | 9.98                    | 16.01                      | 9.27         | 25.99                       | 19.25        | 56.00              | 46.00        | -30.01         | -26.75       |
| 5        | 9.39000        | 10.11                   | 16.34                      | 9.19         | 26.45                       | 19.30        | 60.00              | 50.00        | -33.55         | -30.70       |
| 6        | 11.10600       | 10.12                   | 19.86                      | 12.91        | 29.98                       | 23.03        | 60.00              | 50.00        | -30.02         | -26.97       |

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.

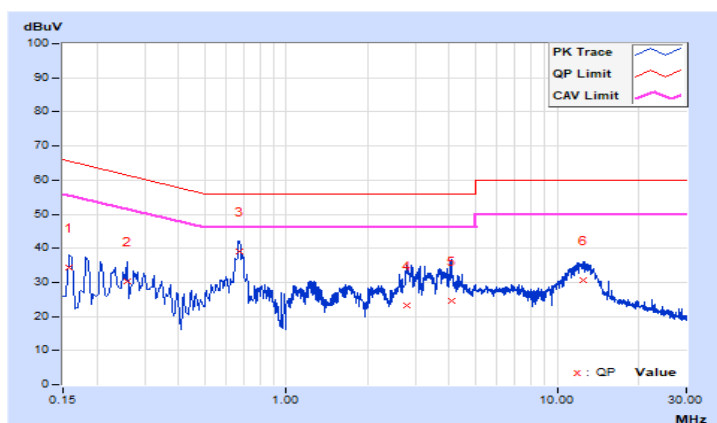


|           |             |                   |                                |
|-----------|-------------|-------------------|--------------------------------|
| Phase     | Neutral (N) | Detector Function | Quasi-Peak (QP) / Average (AV) |
| Test Mode | B           |                   |                                |

| No | Freq.<br>[MHz] | Corr.<br>Factor<br>(dB) | Reading Value<br>[dB (uV)] |       | Emission Level<br>[dB (uV)] |       | Limit<br>[dB (uV)] |       | Margin<br>(dB) |        |
|----|----------------|-------------------------|----------------------------|-------|-----------------------------|-------|--------------------|-------|----------------|--------|
|    |                |                         |                            |       |                             |       |                    |       |                |        |
|    |                |                         | Q.P.                       | AV.   | Q.P.                        | AV.   | Q.P.               | AV.   | Q.P.           | AV.    |
| 1  | 0.15800        | 9.83                    | 24.36                      | 11.71 | 34.19                       | 21.54 | 65.57              | 55.57 | -31.38         | -34.03 |
| 2  | 0.25800        | 9.88                    | 20.55                      | 12.49 | 30.43                       | 22.37 | 61.50              | 51.50 | -31.07         | -29.13 |
| 3  | 0.67000        | 9.96                    | 29.08                      | 25.70 | 39.04                       | 35.66 | 56.00              | 46.00 | -16.96         | -10.34 |
| 4  | 2.79000        | 10.06                   | 13.16                      | 8.52  | 23.22                       | 18.58 | 56.00              | 46.00 | -32.78         | -27.42 |
| 5  | 4.06600        | 10.09                   | 14.37                      | 10.39 | 24.46                       | 20.48 | 56.00              | 46.00 | -31.54         | -25.52 |
| 6  | 12.55400       | 10.22                   | 20.52                      | 7.54  | 30.74                       | 17.76 | 60.00              | 50.00 | -29.26         | -32.24 |

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.

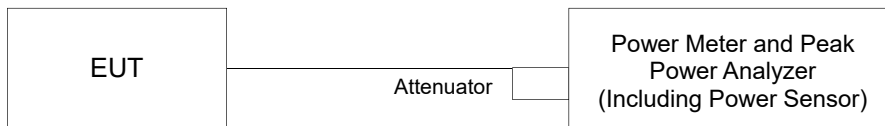


### 4.3 Conducted Output Power Measurement

#### 4.3.1 Limits of Conducted Output Power Measurement

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

#### 4.3.2 Test Setup



#### 4.3.3 Test Instruments

Refer to section 4.1.2 to get information of above instrument.

#### 4.3.4 Test Procedures

For 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.

For 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.

#### 4.3.5 Deviation from Test Standard

No deviation.

#### 4.3.6 EUT Operating Conditions

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

#### 4.3.7 Test Results

For Peak Power

| Channel | Frequency (MHz) | Peak Power (mW) | Peak Power (dBm) | Limit (dBm) | Pass/Fail |
|---------|-----------------|-----------------|------------------|-------------|-----------|
| 0       | 2402            | 1.180           | 0.72             | 30.00       | Pass      |
| 19      | 2440            | 0.986           | -0.06            | 30.00       | Pass      |
| 39      | 2480            | 0.879           | -0.56            | 30.00       | Pass      |

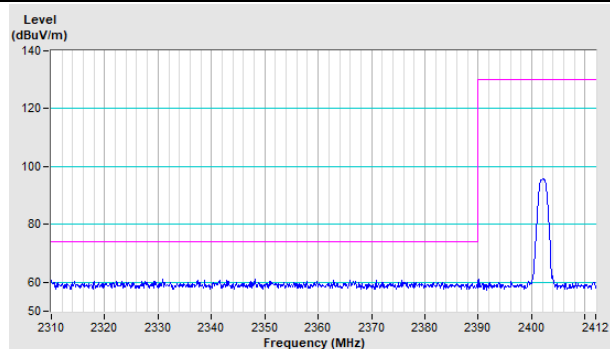
For Average Power

| Channel | Frequency (MHz) | Average Power (mW) | Average Power (dBm) |
|---------|-----------------|--------------------|---------------------|
| 0       | 2402            | 1.125              | 0.51                |
| 19      | 2440            | 0.953              | -0.21               |
| 39      | 2480            | 0.830              | -0.81               |

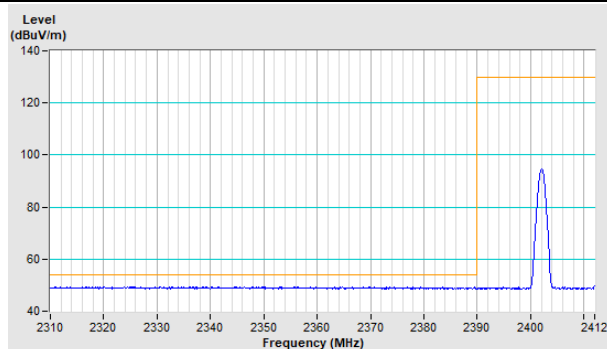
## Annex A - Band Edge Measurement

### BT-LE 1M Channel 0

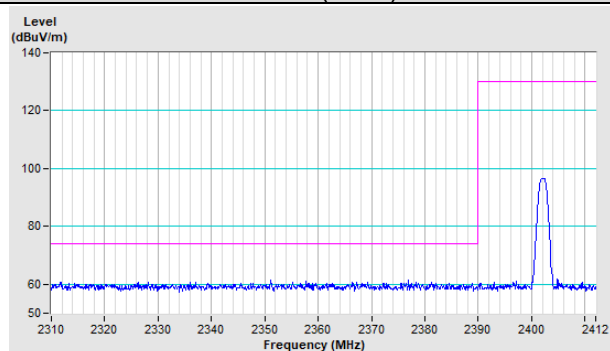
Horizontal (Peak)



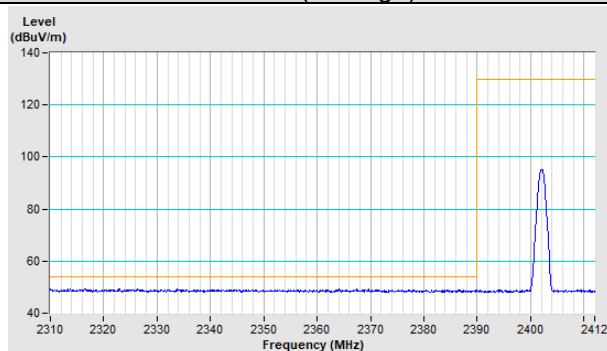
Horizontal (Average)



Vertical (Peak)

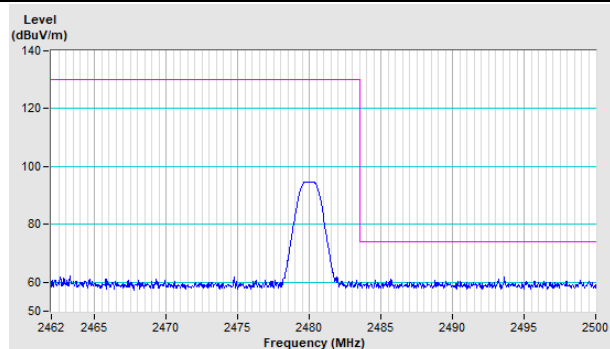


Vertical (Average)

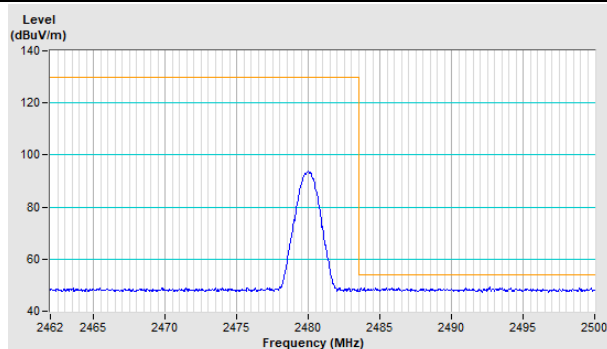


### BT-LE 1M Channel 39

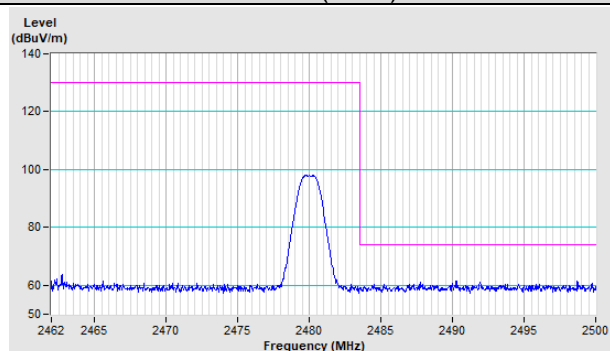
Horizontal (Peak)



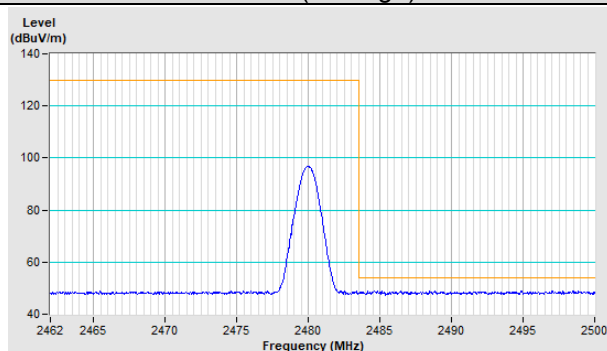
Horizontal (Average)



Vertical (Peak)



Vertical (Average)



## Appendix – 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.

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

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