

# TEST REPORT (SPOT CHECK)

## CERTIFICATE OF CONFORMITY

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

**Report No.:** RFBFBE-WTW-P21118016A-2

**FCC ID:** YAW539848-Z

**Original FCC ID:** YAW539848

**Model No.:** PVS6

**Received Date:** 2022/6/16

**Test Date:** 2022/6/28 ~ 2022/7/5

**Issued Date:** 2022/7/20

**Applicant:** SunPower Corporation

**Address:** 1414 Harbour Way South Suite 1901, Richmond, CA 94804, USA

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
Hsin Chu Laboratory

**Lab Address:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan

**Test Location:** E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan

**FCC Registration /** 723255 / TW2022

**Designation Number:**

**Approved by:** \_\_\_\_\_

May Chen / Manager

**Date:** \_\_\_\_\_

2022/7/20

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Prepared by : Vivian Huang / Specialist

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## Release Control Record

| Issue No.               | Description       | Date Issued |
|-------------------------|-------------------|-------------|
| RFBFBE-WTW-P21118016A-2 | Original release. | 2022/7/20   |

## 1 Certificate

**Product:** SunPower Monitoring System with PVS6

**Brand:** SUNPOWER

**Test Model:** PVS6

**Sample Status:** Engineering sample

**Applicant:** SunPower Corporation

**Test Date:** 2022/6/28 ~ 2022/7/5

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

**Measurement** ANSI C63.10-2013

**procedure:** KDB 558074 D01 15.247 Meas Guidance v05r02

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

## 2 Summary of Test Results

| 47 CFR FCC Part 15, Subpart C (Section 15.247) |                                  |        |  |
|--|----------------------------------|--------|--|
| Standard / Clause                              | Test Item                        | Result | Remark   |
| 15.247 (a)(1)                                  | RF Output Power                  | Pass   | Meet the requirement of limit.                                   |
| 15.247(a)(1) (iii)                             | Number of Hopping Frequency Used | NA     | Refer to Note 1 below  |
| 15.247(a)(1) (iii)                             | Dwell Time on Each Channel       | NA     | Refer to Note 1 below  |
| 15.247(a)(1)                                   | Hopping Channel Separation       | NA     | Refer to Note 1 below  |
| 15.247(a)(1)                                   | 20 dB Bandwidth                  | NA     | Refer to Note 1 below  |
| 15.247(d)                                      | Conducted Out of Band Emissions  | NA     | Refer to Note 1 below  |
| 15.207   | AC Power Conducted Emissions     | Pass   | Minimum passing margin is -5.38 dB at 4.76172 MHz                |
| 15.205 /<br>15.209 /<br>15.247(d)              | Unwanted Emissions below 1 GHz   | Pass   | Minimum passing margin is -0.5 dB at 297.04 MHz                  |
| 15.205 /<br>15.209 /<br>15.247(d)              | Unwanted Emissions above 1 GHz   | Pass   | Minimum passing margin is -8.5 dB at 2390.00 MHz and 2483.50 MHz |
| 15.203   | Antenna Requirement              | Pass   | Antenna connector is i-pex not a standard connector.             |

### Notes:

1. RF Output Power & AC Power Conducted Emissions & Unwanted Emissions Measurement were performed for this addendum. The others testing data refer to original test report.
2. 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:

| Parameter                      | Specification    | Expanded Uncertainty<br>(k=2)<br>(±) |
|--------------------------------|------------------|--------------------------------------|
| AC Power Conducted Emissions   | 150 kHz ~ 30 MHz | 1.9 dB                               |
| Unwanted Emissions below 1 GHz | 9 kHz ~ 30 MHz   | 3.1 dB                               |
|                                | 30 MHz ~ 1 GHz   | 5.4 dB                               |
| Unwanted Emissions above 1 GHz | 1 GHz ~ 18 GHz   | 5.0 dB                               |
|                                | 18 GHz ~ 40 GHz  | 5.3 dB                               |

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

### 2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

### 3 General Information

#### 3.1 General Description

|                       |   |
|-----------------------|---|
| Product               | SunPower Monitoring System with PVS6                                    |
| Brand                 | SUNPOWER  |
| Test Model            | PVS6  |
| Status of EUT         | Engineering sample  |
| Power Supply Rating   | AC100-240V, 0.75A , 50/60Hz   |
| Modulation Type       | GFSK, $\pi/4$ -DQPSK, 8DPSK   |
| Modulation Technology | FHSS  |
| Transfer Rate         | Up to 3 Mbps  |
| Operating Frequency   | 2.402 GHz ~ 2.48 GHz  |
| Number of Channel     | 79  |
| Output Power          | 11.967 mW (10.78 dBm)   |
| Accessory Device      | -Hole Plugs x2<br>-Ethernet Cable x1: non-shielded, 1.5m<br>-Bracket x1 |

Note:

- Exhibit prepared and modification information is provided by the customer, the laboratory assists in evaluating the test conditions and Spot Check Verification report, for more details please refer to the declaration letter exhibit need to be performed. And all data was verified to meet the requirements. (Original FCC ID: YAW539848, Report No.: RFBFBE-WTW-P21118016-2)
- The EUT contains certified WWAN module which FCC ID: XMR2020BG95M1 (Brand: Quectel; Model: BG95-M1)
- There are WLAN, Bluetooth and WWAN technology used for the EUT.
- The EUT has two radios as following table:

| Radio 1                | Radio 2    |
|------------------------|------------|
| WLAN (2.4GHz+5GHz)+ BT | WWAN (LTE) |

- Simultaneously transmission condition.

| Condition | Technology   |    |      |
|-----------|--------------|----|------|
| 1         | WLAN(2.4GHz) | BT | WWAN |
| 2         | WLAN(5GHz)   | BT | WWAN |

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

- The EUT needs to be supplied from an Internal power supply, the information is as below table:

| Brand     | Model No. | Spec.   |
|-----------|-----------|---|
| WLAN WELL | IRM-30-12 | AC Input: 100-240V, 0.75A , 50/60Hz<br>DC Output: 12V, 2.5A |

- 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.

| WLAN / Bluetooth |                            |         |                |                        |                      |              |                |
|------------------|----------------------------|---------|----------------|------------------------|----------------------|--------------|----------------|
| Ant No.          | Chain No.                  | Brand   | Model          | Antenna Net Gain (dBi) | Frequency rang (GHz) | Antenna type | Connector type |
| 1                | Chain 0<br>(Including BT)  | airgain | 65-031-212002B | 2.2                    | 2.4~2.4835           | PCB          | I-PEX          |
|                  |                            |         |                | 3.8                    | 5.15~5.25            |              |                |
|                  |                            |         |                | 4.2                    | 5.725~5.85           |              |                |
| 2                | Chain 1<br>(WLAN use only) | airgain | 65-031-212003B | 4.2                    | 2.4~2.4835           | PCB          | I-PEX          |
|                  |                            |         |                | 4.1                    | 5.15~5.25            |              |                |
|                  |                            |         |                | 4.8                    | 5.725~5.85           |              |                |

\*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.

### 3.3 Channel List

79 channels are provided for BT-EDR:

| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|---------|-----------------|---------|-----------------|
| 0       | 2402            | 20      | 2422            | 40      | 2442            | 60      | 2462            |
| 1       | 2403            | 21      | 2423            | 41      | 2443            | 61      | 2463            |
| 2       | 2404            | 22      | 2424            | 42      | 2444            | 62      | 2464            |
| 3       | 2405            | 23      | 2425            | 43      | 2445            | 63      | 2465            |
| 4       | 2406            | 24      | 2426            | 44      | 2446            | 64      | 2466            |
| 5       | 2407            | 25      | 2427            | 45      | 2447            | 65      | 2467            |
| 6       | 2408            | 26      | 2428            | 46      | 2448            | 66      | 2468            |
| 7       | 2409            | 27      | 2429            | 47      | 2449            | 67      | 2469            |
| 8       | 2410            | 28      | 2430            | 48      | 2450            | 68      | 2470            |
| 9       | 2411            | 29      | 2431            | 49      | 2451            | 69      | 2471            |
| 10      | 2412            | 30      | 2432            | 50      | 2452            | 70      | 2472            |
| 11      | 2413            | 31      | 2433            | 51      | 2453            | 71      | 2473            |
| 12      | 2414            | 32      | 2434            | 52      | 2454            | 72      | 2474            |
| 13      | 2415            | 33      | 2435            | 53      | 2455            | 73      | 2475            |
| 14      | 2416            | 34      | 2436            | 54      | 2456            | 74      | 2476            |
| 15      | 2417            | 35      | 2437            | 55      | 2457            | 75      | 2477            |
| 16      | 2418            | 36      | 2438            | 56      | 2458            | 76      | 2478            |
| 17      | 2419            | 37      | 2439            | 57      | 2459            | 77      | 2479            |
| 18      | 2420            | 38      | 2440            | 58      | 2460            | 78      | 2480            |
| 19      | 2421            | 39      | 2441            | 59      | 2461            |         |                 |



### 3.4 Power Setting

| Modulation Mode | Frequency (MHz) | Power Setting | Frequency (MHz) | Power Setting | Frequency (MHz) | Power Setting |
|-----------------|-----------------|---------------|-----------------|---------------|-----------------|---------------|
| GFSK            | 2402            | Default       | 2441            | Default       | 2480            | Default       |
| 8DPSK           | 2402            | Default       | 2441            | Default       | 2480            | Default       |

### 3.5 Test Mode Applicability and Tested Channel Detail

|             |  |
|-------------|--|
| Worst Case: | 1. 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). |
|-------------|--|

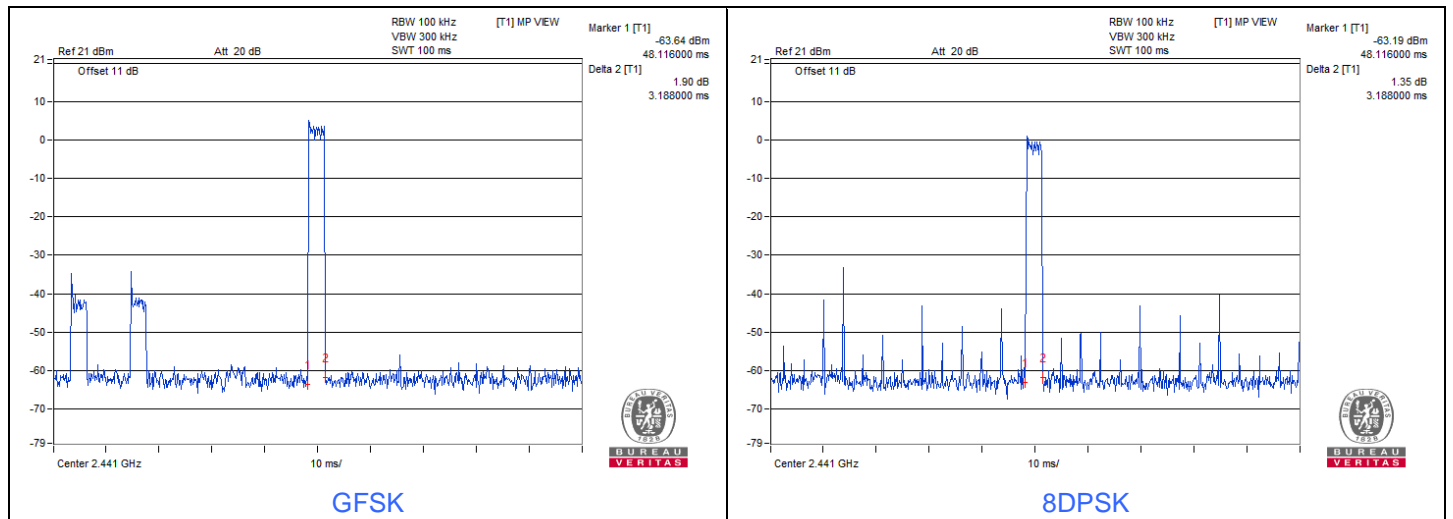
Following channel(s) was (were) selected for the final test as listed below:

| Test Item                      | Mode  | Tested Channel | Modulation | Data Rate Parameter |
|--------------------------------|-------|----------------|------------|---------------------|
| AC Power Conducted Emissions   | GFSK  | 78             | GFSK       | DH5                 |
| Unwanted Emissions below 1 GHz | GFSK  | 78             | GFSK       | DH5                 |
| Unwanted Emissions above 1 GHz | GFSK  | 0, 39, 78      | GFSK       | DH5                 |
|                                | 8DPSK | 0, 39, 78      | 8DPSK      | 3DH5                |
| RF Output Power                | GFSK  | 0, 39, 78      | GFSK       | DH5                 |
|                                | 8DPSK | 0, 39, 78      | 8DPSK      | 3DH5                |

### 3.6 Duty Cycle of Test Signal

**GFSK:** Duty cycle = 3.188 ms / 100 ms x 100% = 3.2%

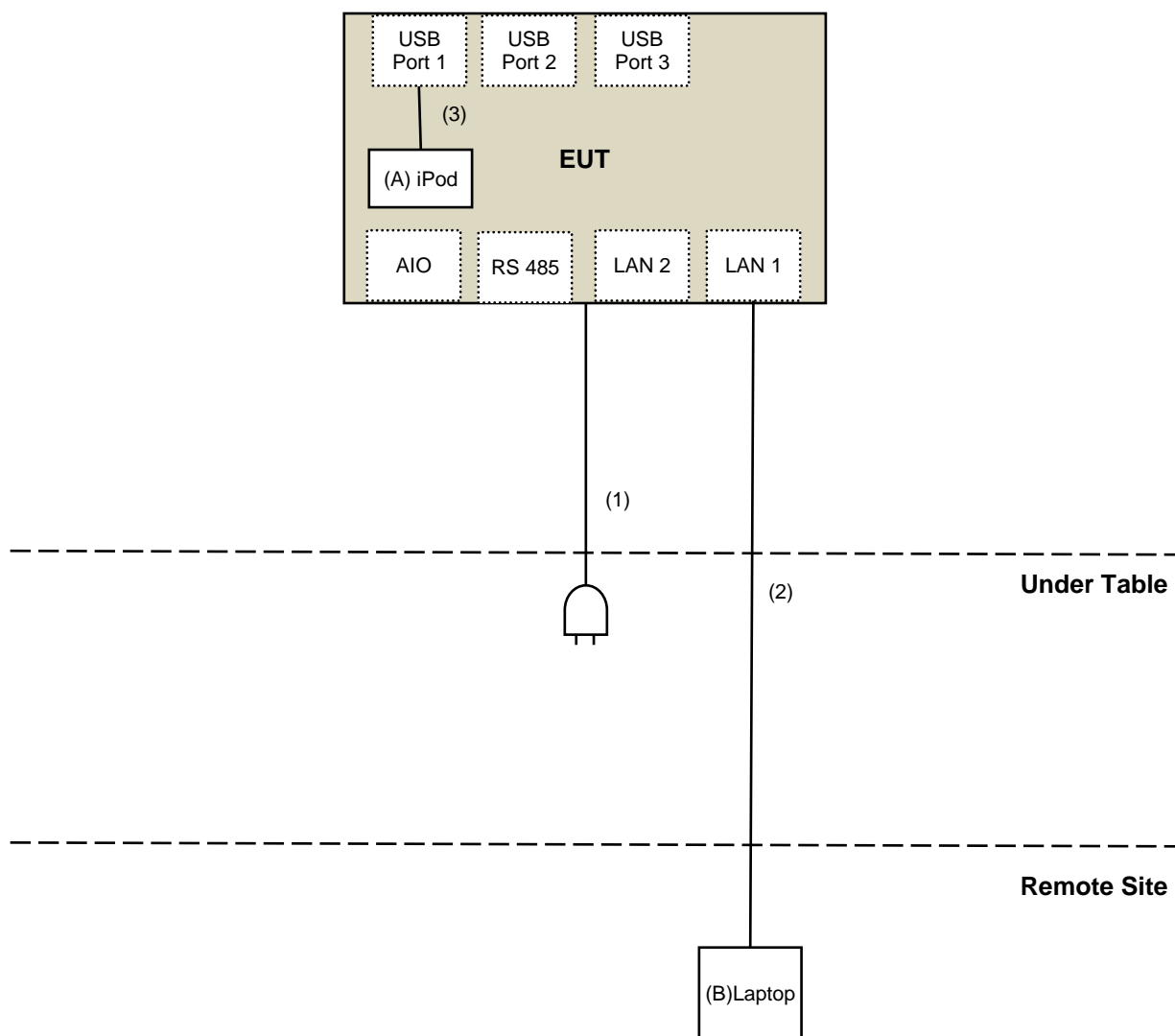
**8DPSK:** Duty cycle = 3.188 ms / 100 ms x 100% = 3.2%



### 3.7 Test Program Used and Operation Descriptions

Controlling software (Run Putty.exe paste PVS6\_WiFi+BT+BLE SOP.docx command) has been activated to set the EUT under transmission condition continuously at specific channel frequency.

### 3.8 Connection Diagram of EUT and Peripheral Devices



NOTE: The test configuration was defined by the applicant requirement.

### 3.9 Configuration of Peripheral Devices and Cable Connections

| ID | Product | Brand  | Model No.      | Serial No.   | FCC ID | Remarks         |
|----|---------|--------|----------------|--------------|--------|-----------------|
| A  | iPod    | Apple  | MC749TA/A      | CC4DMFJUDFDM | N/A    | Provided by Lab |
| B  | Laptop  | Lenovo | 20U5S01X00 L14 | PF-28LKK7    | N/A    | Provided by Lab |

| ID | Cable Descriptions | Qty. | Length (m) | Shielding (Yes/No) | Cores (Qty.) | Remarks               |
|----|--------------------|------|------------|--------------------|--------------|-----------------------|
| 1  | AC Cable           | 1    | 1.8        | No                 | 0            | Supplied by Applicant |
| 2  | RJ-45 Cable        | 1    | 10         | No                 | 0            | Provided by Lab       |
| 3  | USB Cable          | 1    | 0.1        | Yes                | 0            | Provided by Lab       |

## 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<br>Manufacturer   | Model No.                        | Serial No.    | Calibrated<br>Date | Calibrated<br>Until |
|-------------------------------|----------------------------------|---------------|--------------------|---------------------|
| Attenuator<br>WOKEN           | MDCS18N-10                       | MDCS18N-10-01 | 2022/4/5           | 2023/4/4            |
| Power Meter<br>Anritsu        | ML2495A                          | 1529002       | 2022/6/22          | 2023/6/21           |
| Pulse Power Sensor<br>Anritsu | MA2411B                          | 1726434       | 2022/6/22          | 2023/6/21           |
| Software                      | ADT_RF Test Software<br>V6.6.5.4 | N/A           | N/A                | N/A                 |

Notes:

1. The test was performed in Oven room 2.
2. Tested Date: 2022/7/1

### 4.2 AC Power Conducted Emissions

| Description<br>Manufacturer | Model No.           | Serial No. | Calibrated<br>Date | Calibrated<br>Until |
|-----------------------------|---------------------|------------|--------------------|---------------------|
| 50 ohms Terminator          | 50                  | 3          | 2021/10/27         | 2022/10/26          |
| Fixed attenuator<br>STI     | STI02-2200-10       | 005        | 2021/8/27          | 2022/8/26           |
| LISN<br>R&S                 | ESH3-Z5             | 848773/004 | 2021/10/29         | 2022/10/28          |
| RF Coaxial Cable<br>JYEBO   | 5D-FB               | COCCAB-001 | 2021/9/25          | 2022/9/24           |
| Software<br>BVADT           | BVADT_Cond_V7.3.7.4 | N/A        | N/A                | N/A                 |
| TEST RECEIVER<br>R&S        | ESCS 30             | 847124/029 | 2021/10/13         | 2022/10/12          |

Notes:

1. The test was performed in Conduction 1
2. Tested Date: 2022/6/28

### 4.3 Unwanted Emissions below 1 GHz

| Description<br>Manufacturer                      | Model No.            | Serial No.  | Calibrated<br>Date | Calibrated<br>Until |
|--|----------------------|-------------|--------------------|---------------------|
| Antenna Tower & Turn Table<br>Max-Full           | MF-7802              | MF780208406 | N/A                | N/A                 |
| Fixed attenuator<br>Mini-Circuits                | UNAT-5+              | PAD-3m-3-01 | 2021/9/23          | 2022/9/22           |
| LOOP ANTENNA<br>Electro-Metrics                  | EM-6879              | 264         | 2022/3/18          | 2023/3/17           |
| MXE EMI Receiver(20 Hz to 44<br>GHz)<br>Keysight | N9038A               | MY54450088  | 2021/7/6           | 2022/7/5            |
| Pre_Amplifier<br>Agilent                         | 8447D                | 2944A10636  | 2022/3/19          | 2023/3/18           |
| Pre_Amplifier<br>Mini-Circuits                   | ZFL-1000VH2          | QA0838008   | 2021/10/19         | 2022/10/18          |
| RF Coaxial Cable<br>JYEBO                        | 5D-FB                | LOOPCAB-001 | 2022/1/6           | 2023/1/5            |
|  |                      | LOOPCAB-002 | 2022/1/6           | 2023/1/5            |
| RF Coaxial Cable<br>COMMATE/PEWC                 | 8D                   | 966-4-1     | 2022/3/8           | 2023/3/7            |
|  |                      | 966-3-2     | 2022/2/26          | 2023/2/25           |
|  |                      | 966-3-3     | 2022/2/26          | 2023/2/25           |
| Software   | ADT_Radiated_V8.7.08 | N/A         | N/A                | N/A                 |
| Trilog Broadband Antenna<br>Schwarzbeck          | VULB 9168            | 9168-361    | 2021/10/26         | 2022/10/25          |

Notes:

1. The test was performed in 966 Chamber No. 3.
2. Tested Date: 2022/6/28

#### 4.4 Unwanted Emissions above 1 GHz

| Description<br>Manufacturer                      | Model No.            | Serial No.  | Calibrated<br>Date | Calibrated<br>Until |
|--|----------------------|-------------|--------------------|---------------------|
| Antenna Tower & Turn Table<br>Max-Full           | MF-7802              | MF780208406 | N/A                | N/A                 |
| Fix tool for Boresight antenna tower<br>BV       | FBA-01               | FBA_SIP01   | N/A                | N/A                 |
| Horn Antenna<br>Schwarzbeck                      | BBHA9120-D           | 9120D-406   | 2021/11/14         | 2022/11/13          |
|  | BBHA 9170            | 9170-739    | 2021/11/14         | 2022/11/13          |
| MXE EMI Receiver(20 Hz to 44<br>GHz)<br>Keysight | N9038A               | MY54450088  | 2021/7/6           | 2022/7/5            |
| Pre_Amplifier<br>EMCI                            | EMC12630SE           | 980384      | 2022/1/10          | 2023/1/9            |
|  | EMC184045SE          | 980387      | 2022/1/10          | 2023/1/9            |
| RF Cable<br>EMCI                                 | EMC104-SM-SM-6000    | 210201      | 2022/5/10          | 2023/5/9            |
| RF Cable-Frequency range: 1-<br>40GHz<br>EMCI    | EMC102-KM-KM-1200    | 160924      | 2022/1/10          | 2023/1/9            |
| RF Coaxial Cable<br>EMCI                         | EMC104-SM-SM-1500    | 180504      | 2022/4/25          | 2023/4/24           |
|  | EMC104-SM-SM-2000    | 180601      | 2022/6/6           | 2023/6/5            |
|  | EMC-KM-KM-4000       | 200214      | 2022/3/8           | 2023/3/7            |
| Software   | ADT_Radiated_V8.7.08 | N/A         | N/A                | N/A                 |
| Spectrum Analyzer<br>Keysight                    | N9030A               | MY54490679  | 2021/7/9           | 2022/7/8            |

Notes:

1. The test was performed in 966 Chamber No. 3.
2. Tested Date: 2022/7/5



## 5 Limits of Test Items

### 5.1 RF Output Power

The Maximum Output Power Measurement is 125 mW (21 dBm).

### 5.2 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.

### 5.3 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).

### 5.4 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                             |

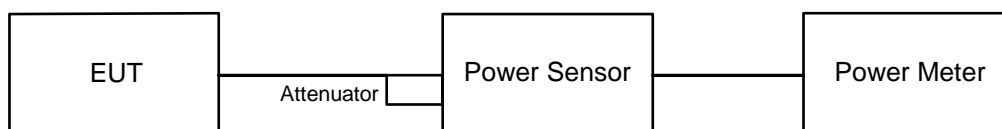
Notes:

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:

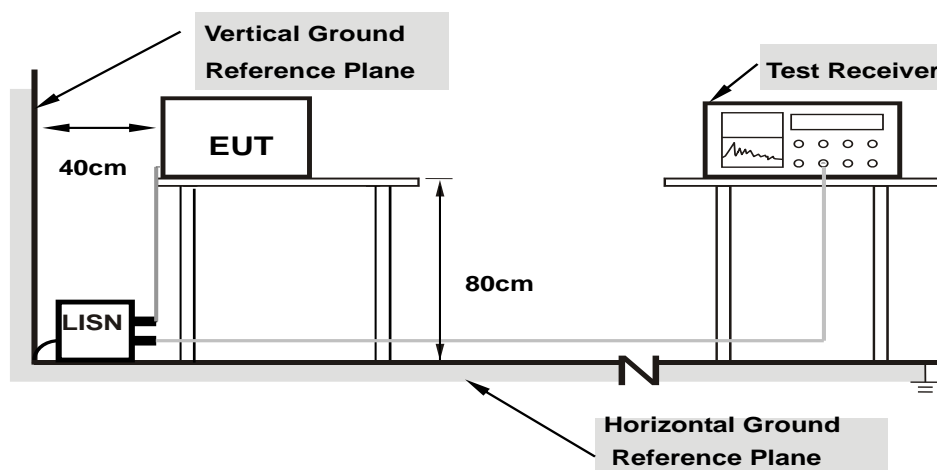
A peak power sensor was used on the output port of the EUT. A power meter was used to read the response of the peak power sensor. Record the power level.

##### 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 AC Power Conducted Emissions

#### 6.2.1 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).

#### 6.2.2 Test Procedure

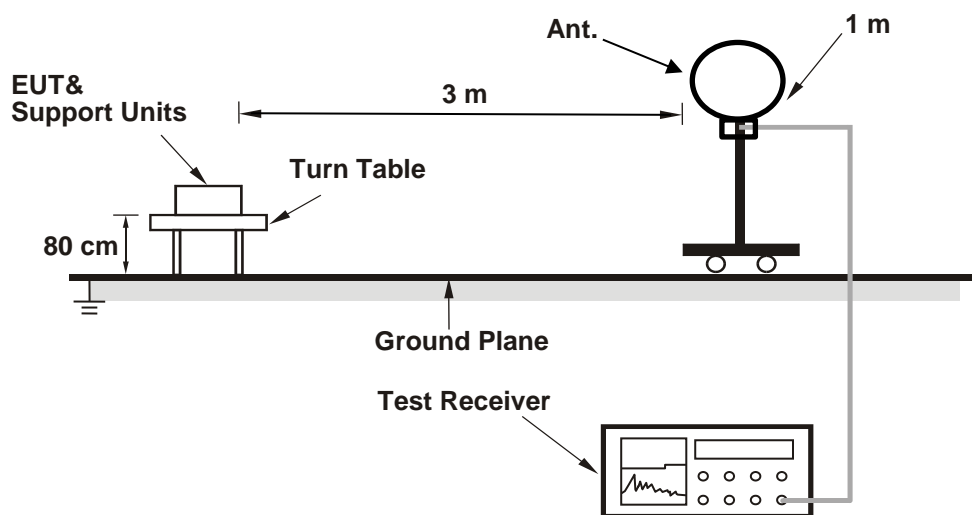
- The EUT was placed on a 0.8 meter to the top of rotating table and placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another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

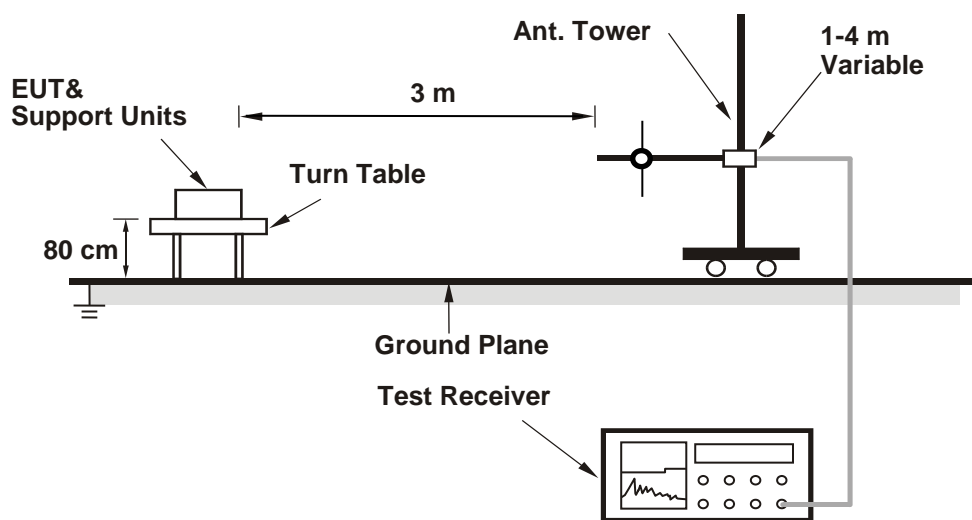
### 6.3 Unwanted Emissions below 1 GHz

#### 6.3.1 Test Setup

##### For Radiated emission below 30 MHz



##### For Radiated emission above 30 MHz



### 6.3.2 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.

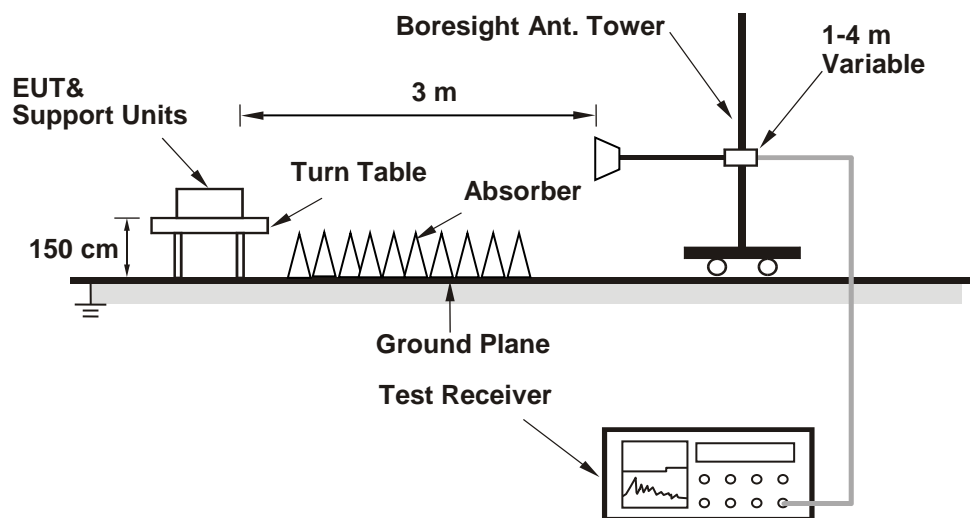
#### Notes:

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.

## 6.4 Unwanted Emissions above 1 GHz

### 6.4.1 Test Setup

#### For Radiated emission above 1 GHz



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

### 6.4.2 Test Procedure

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

#### Notes:

- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) and Average detection (AV) at frequency above 1 GHz.
- According to ANSI C63.10 section 6.6.4 and 4.1.4.2.2. For fundamental and harmonic signal measurement, according to ANSI C63.10 section 7.5, the average value = peak value + duty cycle correction factor. For duty cycle correction factor values, see the Test Signal Duty Cycle section in this report.
- 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: | 120 Vac, 60 Hz | Environmental Conditions: | 25°C, 60% RH | Tested By: | Eric Peng |
|--------------|----------------|---------------------------|--------------|------------|-----------|

#### For Peak Power

##### GFSK

| Chan. | Chan. Freq. (MHz) | Peak Power (mW) | Peak Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|-----------------|------------------|-------------------|-------------|
| 0     | 2402              | 6.138           | 7.88             | 21                | Pass        |
| 39    | 2441              | 7.516           | 8.76             | 21                | Pass        |
| 78    | 2480              | 9.683           | 9.86             | 21                | Pass        |

Note: The antenna gain is 2.2 dBi < 6 dBi, so the output power limit shall not be reduced.

##### 8DPSK

| Chan. | Chan. Freq. (MHz) | Peak Power (mW) | Peak Power (dBm) | Power Limit (dBm) | Test Result |
|-------|-------------------|-----------------|------------------|-------------------|-------------|
| 0     | 2402              | 8.995           | 9.54             | 21                | Pass        |
| 39    | 2441              | 9.311           | 9.69             | 21                | Pass        |
| 78    | 2480              | 11.967          | 10.78            | 21                | Pass        |

Note: The antenna gain is 2.2 dBi < 6 dBi, so the output power limit shall not be reduced.

#### For Average Power

##### GFSK

| Chan. | Chan. Freq. (MHz) | Average Power (mW) | Average Power (dBm) |
|-------|-------------------|--------------------|---------------------|
| 0     | 2402              | 5.408              | 7.33                |
| 39    | 2441              | 6.668              | 8.24                |
| 78    | 2480              | 8.933              | 9.51                |

##### 8DPSK

| Chan. | Chan. Freq. (MHz) | Average Power (mW) | Average Power (dBm) |
|-------|-------------------|--------------------|---------------------|
| 0     | 2402              | 4.581              | 6.61                |
| 39    | 2441              | 4.989              | 6.98                |
| 78    | 2480              | 6.823              | 8.34                |

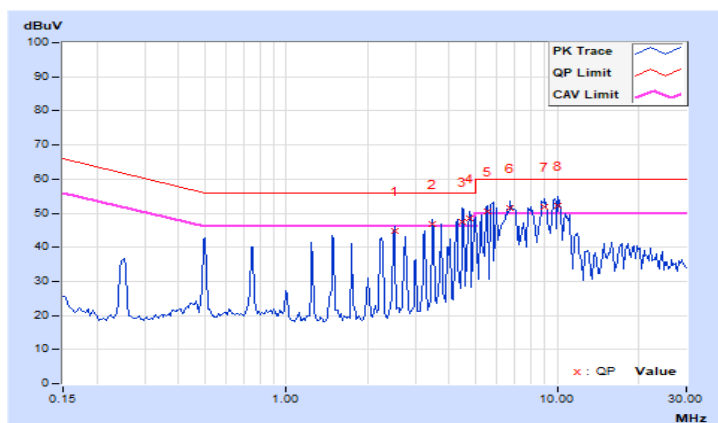
## 7.2 AC Power Conducted Emissions

|                 |                  |  |                                       |
|-----------------|------------------|--|---------------------------------------|
| RF Mode         | TX BT GFSK       | Channel                                  | CH 78 : 2480 MHz                      |
| Frequency Range | 150 kHz ~ 30 MHz | Detector Function & Resolution Bandwidth | Quasi-Peak (QP) / Average (AV), 9 kHz |
| Input Power     | 120 Vac, 60 Hz   | Environmental Conditions                 | 25°C, 75% RH                          |
| Tested By       | Ryan Du          |  |                                       |

| 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                         | 2.51563         | 10.19                  | 34.50                | 24.31 | 44.69                 | 34.50 | 56.00        | 46.00 | -11.31      | -11.50 |
| 2                         | 3.48047         | 10.23                  | 36.51                | 27.36 | 46.74                 | 37.59 | 56.00        | 46.00 | -9.26       | -8.41  |
| 3                         | 4.46484         | 10.29                  | 37.11                | 25.38 | 47.40                 | 35.67 | 56.00        | 46.00 | -8.60       | -10.33 |
| 4                         | 4.75000         | 10.30                  | 38.26                | 29.60 | 48.56                 | 39.90 | 56.00        | 46.00 | -7.44       | -6.10  |
| 5                         | 5.53906         | 10.35                  | 40.22                | 27.82 | 50.57                 | 38.17 | 60.00        | 50.00 | -9.43       | -11.83 |
| 6                         | 6.72266         | 10.42                  | 41.02                | 30.69 | 51.44                 | 41.11 | 60.00        | 50.00 | -8.56       | -8.89  |
| 7                         | 9.01563         | 10.55                  | 41.20                | 31.82 | 51.75                 | 42.37 | 60.00        | 50.00 | -8.25       | -7.63  |
| 8                         | 10.01953        | 10.61                  | 41.59                | 31.52 | 52.20                 | 42.13 | 60.00        | 50.00 | -7.80       | -7.87  |

### Remarks:

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

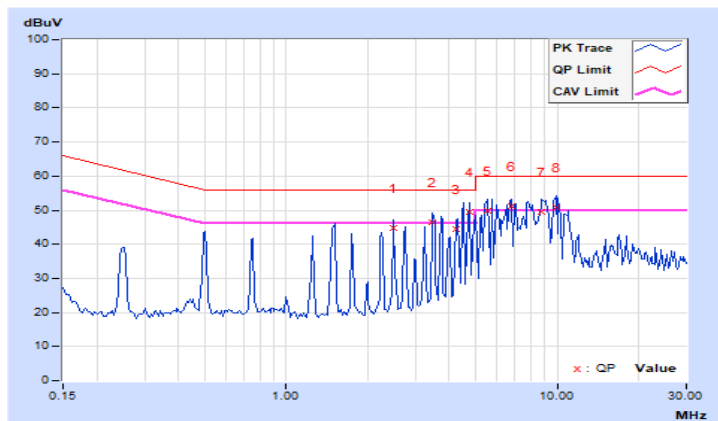


|                 |                  |  |                                       |
|-----------------|------------------|--|---------------------------------------|
| RF Mode         | TX BT GFSK       | Channel                                  | CH 78 : 2480 MHz                      |
| Frequency Range | 150 kHz ~ 30 MHz | Detector Function & Resolution Bandwidth | Quasi-Peak (QP) / Average (AV), 9 kHz |
| Input Power     | 120 Vac, 60 Hz   | Environmental Conditions                 | 25°C, 75% RH                          |
| Tested By       | Ryan Du          |  |                                       |

| 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                            | 2.50000         | 10.15                  | 34.65                | 27.09        | 44.80                 | 37.24        | 56.00        | 46.00        | -11.20       | -8.76        |
| 2                            | 3.47656         | 10.19                  | 36.33                | 27.10        | 46.52                 | 37.29        | 56.00        | 46.00        | -9.48        | -8.71        |
| 3                            | 4.23438         | 10.22                  | 34.26                | 25.79        | 44.48                 | 36.01        | 56.00        | 46.00        | -11.52       | -9.99        |
| <b>4</b>                     | <b>4.76172</b>  | <b>10.24</b>           | <b>39.24</b>         | <b>30.38</b> | <b>49.48</b>          | <b>40.62</b> | <b>56.00</b> | <b>46.00</b> | <b>-6.52</b> | <b>-5.38</b> |
| 5                            | 5.50781         | 10.28                  | 39.72                | 30.54        | 50.00                 | 40.82        | 60.00        | 50.00        | -10.00       | -9.18        |
| 6                            | 6.79688         | 10.34                  | 40.92                | 27.81        | 51.26                 | 38.15        | 60.00        | 50.00        | -8.74        | -11.85       |
| 7                            | 8.76953         | 10.43                  | 39.11                | 30.16        | 49.54                 | 40.59        | 60.00        | 50.00        | -10.46       | -9.41        |
| 8                            | 9.96875         | 10.49                  | 40.46                | 30.51        | 50.95                 | 41.00        | 60.00        | 50.00        | -9.05        | -9.00        |

**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





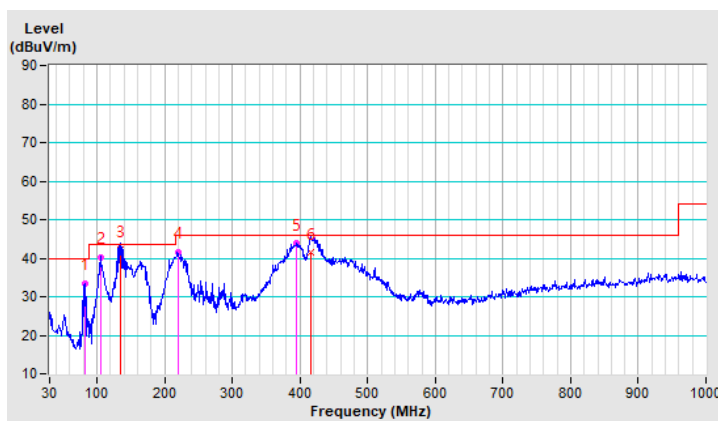
### 7.3 Unwanted Emissions below 1 GHz

|                        |                |  |                  |
|------------------------|----------------|--|------------------|
| <b>RF Mode</b>         | TX BT GFSK     | <b>Channel</b>                           | CH 78 : 2480 MHz |
| <b>Frequency Range</b> | 9 kHz ~ 1 GHz  | <b>Detector Function &amp; Bandwidth</b> | (QP) RB = 120kHz |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 22°C, 70% RH     |
| <b>Tested By</b>       | Ryan Du        |  |                  |

| 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  | 82.12           | 33.4 QP                 | 40.0           | -6.6        | 2.00 H             | 53                   | 46.9             | -13.5                    |
| 2  | 105.22          | 40.3 QP                 | 43.5           | -3.2        | 1.50 H             | 56                   | 51.9             | -11.6                    |
| 3  | 135.52          | 42.1 QP                 | 43.5           | -1.4        | 1.50 H             | 127                  | 50.9             | -8.8                     |
| 4  | 219.16          | 41.5 QP                 | 46.0           | -4.5        | 2.00 H             | 282                  | 52.8             | -11.3                    |
| 5  | 395.33          | 43.8 QP                 | 46.0           | -2.2        | 2.00 H             | 226                  | 49.2             | -5.4                     |
| 6  | 416.29          | 41.4 QP                 | 46.0           | -4.6        | 2.00 H             | 153                  | 46.3             | -4.9                     |

#### 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 emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.

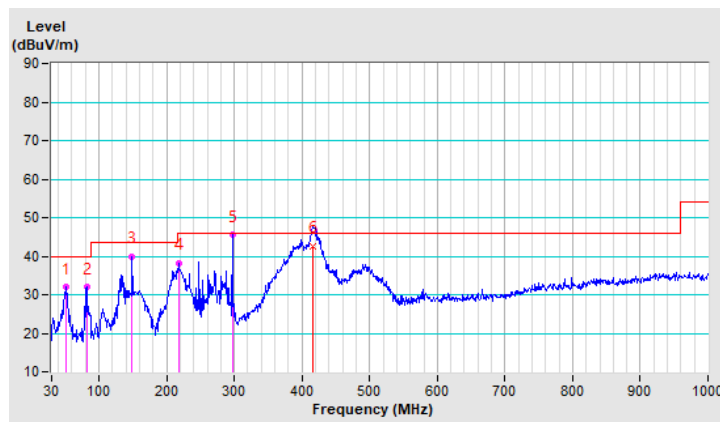


|                        |                |  |                  |
|------------------------|----------------|--|------------------|
| <b>RF Mode</b>         | TX BT GFSK     | <b>Channel</b>                           | CH 78 : 2480 MHz |
| <b>Frequency Range</b> | 9 kHz ~ 1 GHz  | <b>Detector Function &amp; Bandwidth</b> | (QP) RB = 120kHz |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 22°C, 70% RH     |
| <b>Tested By</b>       | Ryan Du        |  |                  |

| 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  | 50.41           | 31.9 QP                 | 40.0           | -8.1        | 1.50 V             | 34                   | 40.1             | -8.2                     |
| 2  | 82.04           | 31.9 QP                 | 40.0           | -8.1        | 1.50 V             | 289                  | 45.4             | -13.5                    |
| 3  | 148.56          | 39.8 QP                 | 43.5           | -3.7        | 1.50 V             | 298                  | 47.9             | -8.1                     |
| 4  | 217.51          | 38.1 QP                 | 46.0           | -7.9        | 2.00 V             | 55                   | 49.3             | -11.2                    |
| <b>5</b>   | <b>297.04</b>   | <b>45.5 QP</b>          | <b>46.0</b>    | <b>-0.5</b> | <b>1.50 V</b>      | <b>302</b>           | <b>53.3</b>      | <b>-7.8</b>              |
| 6  | 416.02          | 42.5 QP                 | 46.0           | -3.5        | 2.00 V             | 262                  | 47.4             | -4.9                     |

**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 emission levels were very low against the limit of frequency range 9 kHz ~ 30 MHz: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value to be report.



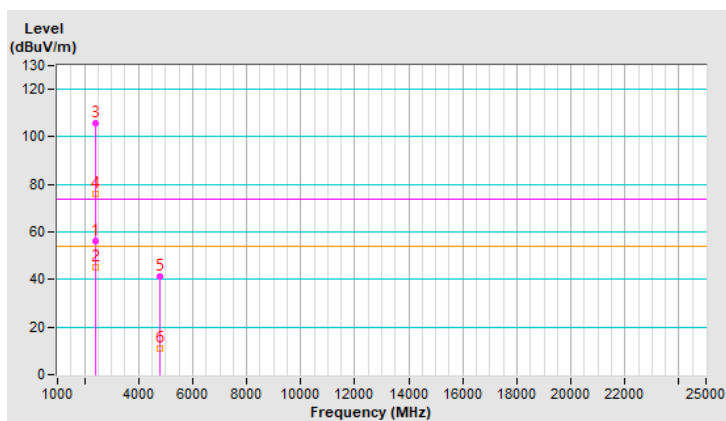
#### 7.4 Unwanted Emissions above 1 GHz

|                        |                |  |  |
|------------------------|----------------|--|--|
| <b>RF Mode</b>         | TX BT GFSK     | <b>Channel</b>                           | CH 0 : 2402 MHz  |
| <b>Frequency Range</b> | 1 GHz ~ 25 GHz | <b>Detector Function &amp; Bandwidth</b> | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 3 MHz |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 20°C, 70% RH   |
| <b>Tested By</b>       | Ryan Du        |  |  |

| 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         | 56.3 PK                 | 74.0           | -17.7       | 1.62 H             | 244                  | 57.1             | -0.8                     |
| 2  | 2390.00         | 45.2 AV                 | 54.0           | -8.8        | 1.62 H             | 244                  | 46.0             | -0.8                     |
| 3  | *2402.00        | 105.7 PK                |                |             | 1.62 H             | 244                  | 106.5            | -0.8                     |
| 4  | *2402.00        | 75.8 AV                 |                |             | 1.62 H             | 244                  | 76.6             | -0.8                     |
| 5  | 4804.00         | 41.1 PK                 | 74.0           | -32.9       | 1.43 H             | 72                   | 37.2             | 3.9                      |
| 6  | 4804.00         | 11.2 AV                 | 54.0           | -42.8       | 1.43 H             | 72                   | 7.3              | 3.9                      |

#### Remarks:

- Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
- Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
- Margin value = Emission Level – Limit value
- The other emission levels were very low against the limit.
- " \* ": Fundamental frequency, the limit was restricted at the RF Output Power.
- The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:  
 $20 \log(\text{Duty cycle}) = 20 \log(3.188 \text{ ms} / 100 \text{ ms}) = -29.9 \text{ dB}$



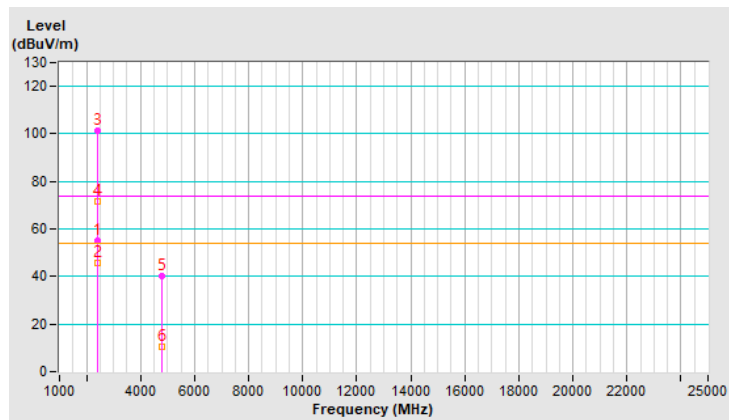
|                        |                |  |  |
|------------------------|----------------|--|--|
| <b>RF Mode</b>         | TX BT GFSK     | <b>Channel</b>                           | CH 0 : 2402 MHz  |
| <b>Frequency Range</b> | 1 GHz ~ 25 GHz | <b>Detector Function &amp; Bandwidth</b> | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 3 MHz |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 20°C, 70% RH   |
| <b>Tested By</b>       | Ryan Du        |  |  |

**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         | 55.0 PK                 | 74.0           | -19.0       | 3.21 V             | 337                  | 55.8             | -0.8                     |
| 2  | <b>2390.00</b>  | <b>45.5 AV</b>          | <b>54.0</b>    | <b>-8.5</b> | <b>3.21 V</b>      | <b>337</b>           | <b>46.3</b>      | <b>-0.8</b>              |
| 3  | *2402.00        | 101.3 PK                |                |             | 3.21 V             | 337                  | 102.1            | -0.8                     |
| 4  | *2402.00        | 71.4 AV                 |                |             | 3.21 V             | 337                  | 72.2             | -0.8                     |
| 5  | 4804.00         | 40.1 PK                 | 74.0           | -33.9       | 1.62 V             | 303                  | 36.2             | 3.9                      |
| 6  | 4804.00         | 10.2 AV                 | 54.0           | -43.8       | 1.62 V             | 303                  | 6.3              | 3.9                      |

**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.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:  
 $20 \log(\text{Duty cycle}) = 20 \log(3.188 \text{ ms} / 100 \text{ ms}) = -29.9 \text{ dB}$



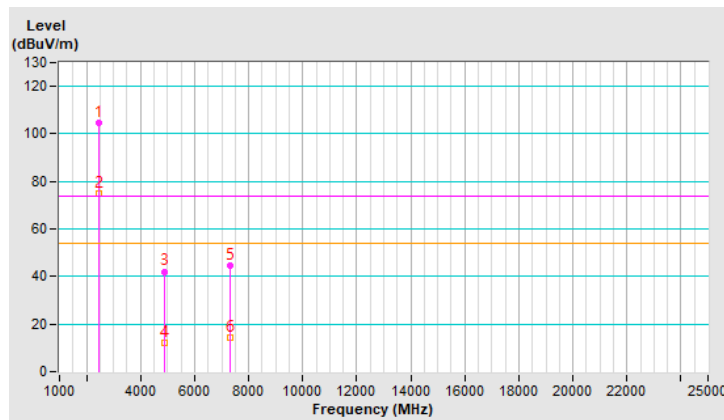
|                        |                |  |  |
|------------------------|----------------|--|--|
| <b>RF Mode</b>         | TX BT GFSK     | <b>Channel</b>                           | CH 39 : 2441 MHz   |
| <b>Frequency Range</b> | 1 GHz ~ 25 GHz | <b>Detector Function &amp; Bandwidth</b> | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 3 MHz |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 20°C, 70% RH   |
| <b>Tested By</b>       | Ryan Du        |  |  |

**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  | #2441.00        | 104.7 PK                |                |             | 1.64 H             | 201                  | 105.6            | -0.9                     |
| 2  | #2441.00        | 74.8 AV                 |                |             | 1.64 H             | 201                  | 75.7             | -0.9                     |
| 3  | 4882.00         | 42.1 PK                 | 74.0           | -31.9       | 1.49 H             | 81                   | 38.2             | 3.9                      |
| 4  | 4882.00         | 12.2 AV                 | 54.0           | -41.8       | 1.49 H             | 81                   | 8.3              | 3.9                      |
| 5  | 7323.00         | 44.4 PK                 | 74.0           | -29.6       | 1.64 H             | 68                   | 34.3             | 10.1                     |
| 6  | 7323.00         | 14.5 AV                 | 54.0           | -39.5       | 1.64 H             | 68                   | 4.4              | 10.1                     |

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:  
 $20 \log(\text{Duty cycle}) = 20 \log(3.188 \text{ ms} / 100 \text{ ms}) = -29.9 \text{ dB}$

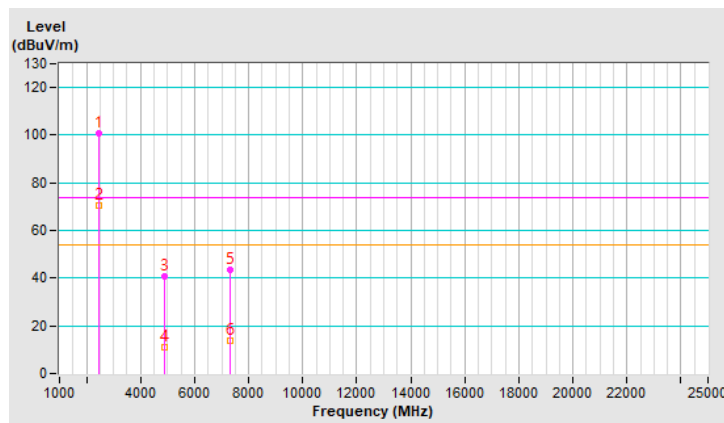


|                        |                |  |  |
|------------------------|----------------|--|--|
| <b>RF Mode</b>         | TX BT GFSK     | <b>Channel</b>                           | CH 39 : 2441 MHz   |
| <b>Frequency Range</b> | 1 GHz ~ 25 GHz | <b>Detector Function &amp; Bandwidth</b> | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 3 MHz |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 20°C, 70% RH   |
| <b>Tested By</b>       | Ryan Du        |  |  |

| 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  | #2441.00        | 100.6 PK                |                |             | 3.24 V             | 211                  | 101.5            | -0.9                     |
| 2  | #2441.00        | 70.7 AV                 |                |             | 3.24 V             | 211                  | 71.6             | -0.9                     |
| 3  | 4882.00         | 40.7 PK                 | 74.0           | -33.3       | 1.55 V             | 360                  | 36.8             | 3.9                      |
| 4  | 4882.00         | 10.8 AV                 | 54.0           | -43.2       | 1.55 V             | 360                  | 6.9              | 3.9                      |
| 5  | 7323.00         | 43.6 PK                 | 74.0           | -30.4       | 1.61 V             | 284                  | 33.5             | 10.1                     |
| 6  | 7323.00         | 13.7 AV                 | 54.0           | -40.3       | 1.61 V             | 284                  | 3.6              | 10.1                     |

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:  
 $20 \log(\text{Duty cycle}) = 20 \log(3.188 \text{ ms} / 100 \text{ ms}) = -29.9 \text{ dB}$

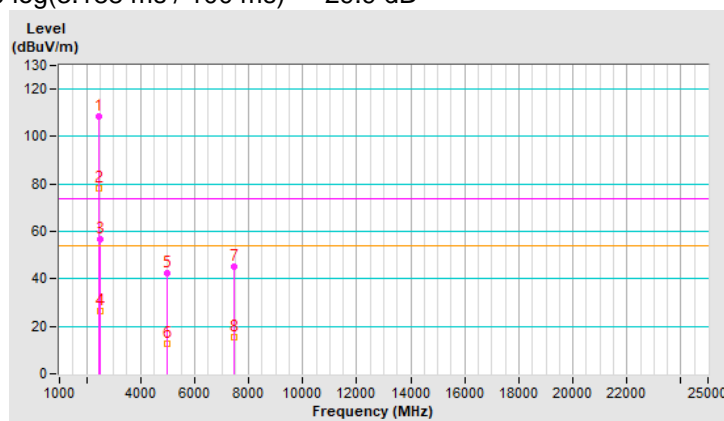


|                        |                |  |  |
|------------------------|----------------|--|--|
| <b>RF Mode</b>         | TX BT GFSK     | <b>Channel</b>                           | CH 78 : 2480 MHz   |
| <b>Frequency Range</b> | 1 GHz ~ 25 GHz | <b>Detector Function &amp; Bandwidth</b> | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 3 MHz |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 20°C, 70% RH   |
| <b>Tested By</b>       | Ryan Du        |  |  |

| 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        | 108.3 PK                |                |             | 1.67 H             | 89                   | 109.2            | -0.9                     |
| 2  | *2480.00        | 78.4 AV                 |                |             | 1.67 H             | 89                   | 79.3             | -0.9                     |
| 3  | 2483.50         | 56.5 PK                 | 74.0           | -17.5       | 1.67 H             | 89                   | 57.5             | -1.0                     |
| 4  | 2483.50         | 26.6 AV                 | 54.0           | -27.4       | 1.67 H             | 89                   | 27.6             | -1.0                     |
| 5  | 4960.00         | 42.6 PK                 | 74.0           | -31.4       | 1.49 H             | 85                   | 38.6             | 4.0                      |
| 6  | 4960.00         | 12.7 AV                 | 54.0           | -41.3       | 1.49 H             | 85                   | 8.7              | 4.0                      |
| 7  | 7440.00         | 45.1 PK                 | 74.0           | -28.9       | 1.64 H             | 80                   | 34.6             | 10.5                     |
| 8  | 7440.00         | 15.2 AV                 | 54.0           | -38.8       | 1.64 H             | 80                   | 4.7              | 10.5                     |

#### Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:  
 $20 \log(\text{Duty cycle}) = 20 \log(3.188 \text{ ms} / 100 \text{ ms}) = -29.9 \text{ dB}$

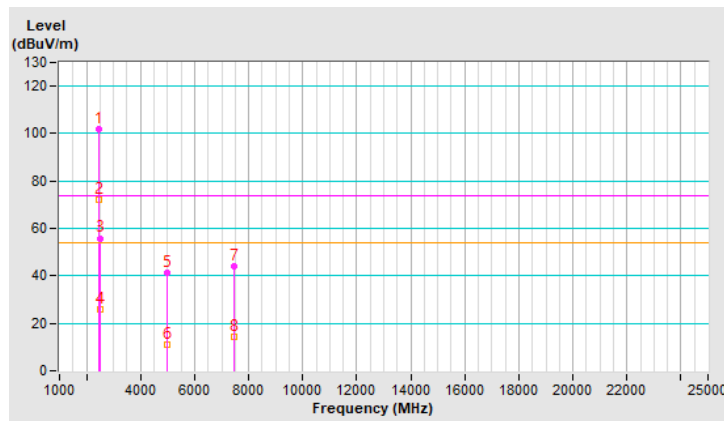


|                        |                |  |  |
|------------------------|----------------|--|--|
| <b>RF Mode</b>         | TX BT GFSK     | <b>Channel</b>                           | CH 78 : 2480 MHz   |
| <b>Frequency Range</b> | 1 GHz ~ 25 GHz | <b>Detector Function &amp; Bandwidth</b> | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 3 MHz |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 20°C, 70% RH   |
| <b>Tested By</b>       | Ryan Du        |  |  |

| Antenna Polarity & Test Distance : Vertical at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|--|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No   | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1  | *2480.00        | 102.1 PK                |                |             | 3.40 V             | 183                  | 103.0            | -0.9                     |
| 2  | *2480.00        | 72.2 AV                 |                |             | 3.40 V             | 183                  | 73.1             | -0.9                     |
| 3  | 2483.50         | 55.9 PK                 | 74.0           | -18.1       | 3.40 V             | 183                  | 56.9             | -1.0                     |
| 4  | 2483.50         | 26.0 AV                 | 54.0           | -28.0       | 3.40 V             | 183                  | 27.0             | -1.0                     |
| 5  | 4960.00         | 41.1 PK                 | 74.0           | -32.9       | 1.58 V             | 358                  | 37.1             | 4.0                      |
| 6  | 4960.00         | 11.2 AV                 | 54.0           | -42.8       | 1.58 V             | 358                  | 7.2              | 4.0                      |
| 7  | 7440.00         | 44.2 PK                 | 74.0           | -29.8       | 1.58 V             | 297                  | 33.7             | 10.5                     |
| 8  | 7440.00         | 14.3 AV                 | 54.0           | -39.7       | 1.58 V             | 297                  | 3.8              | 10.5                     |

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:  
 $20 \log(\text{Duty cycle}) = 20 \log(3.188 \text{ ms} / 100 \text{ ms}) = -29.9 \text{ dB}$





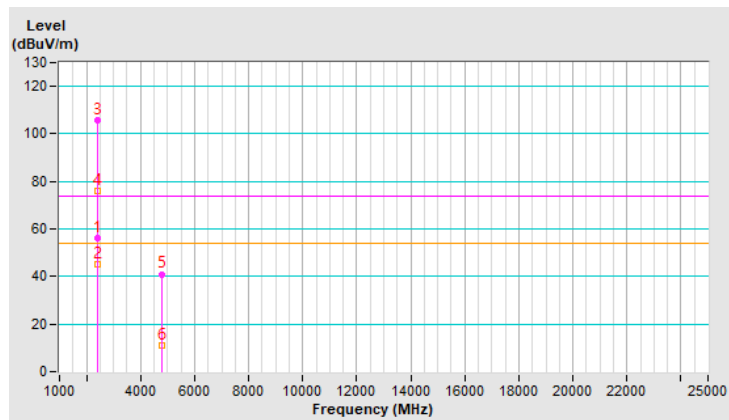
|                        |                |  |  |
|------------------------|----------------|--|--|
| <b>RF Mode</b>         | TX BT 8DPSK    | <b>Channel</b>                           | CH 0 : 2402 MHz  |
| <b>Frequency Range</b> | 1 GHz ~ 25 GHz | <b>Detector Function &amp; Bandwidth</b> | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 3 MHz |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 20°C, 70% RH   |
| <b>Tested By</b>       | Ryan Du        |  |  |

**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         | 56.3 PK                 | 74.0           | -17.7       | 1.73 H             | 103                  | 57.1             | -0.8                     |
| 2  | 2390.00         | 45.2 AV                 | 54.0           | -8.8        | 1.73 H             | 103                  | 46.0             | -0.8                     |
| 3  | *2402.00        | 105.9 PK                |                |             | 1.73 H             | 103                  | 106.7            | -0.8                     |
| 4  | *2402.00        | 76.0 AV                 |                |             | 1.73 H             | 103                  | 76.8             | -0.8                     |
| 5  | 4804.00         | 41.0 PK                 | 74.0           | -33.0       | 1.46 H             | 81                   | 37.1             | 3.9                      |
| 6  | 4804.00         | 11.1 AV                 | 54.0           | -42.9       | 1.46 H             | 81                   | 7.2              | 3.9                      |

**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.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:  
 $20 \log(\text{Duty cycle}) = 20 \log(3.188 \text{ ms} / 100 \text{ ms}) = -29.9 \text{ dB}$

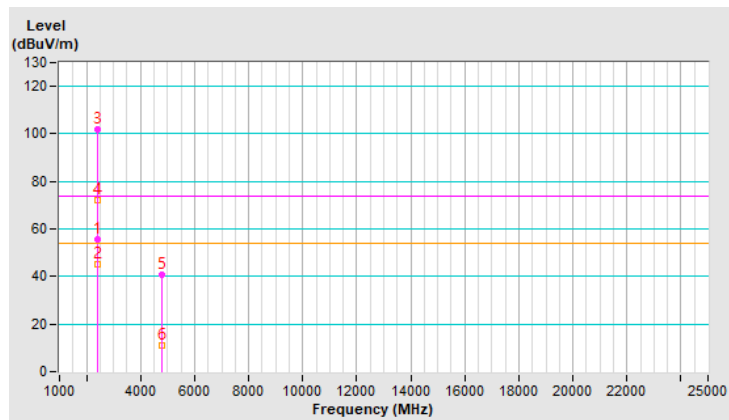


|                        |                |  |  |
|------------------------|----------------|--|--|
| <b>RF Mode</b>         | TX BT 8DPSK    | <b>Channel</b>                           | CH 0 : 2402 MHz  |
| <b>Frequency Range</b> | 1 GHz ~ 25 GHz | <b>Detector Function &amp; Bandwidth</b> | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 3 MHz |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 20°C, 70% RH   |
| <b>Tested By</b>       | Ryan Du        |  |  |

| 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         | 55.4 PK                 | 74.0           | -18.6       | 3.39 V             | 188                  | 56.2             | -0.8                     |
| 2  | 2390.00         | 45.1 AV                 | 54.0           | -8.9        | 3.39 V             | 188                  | 45.9             | -0.8                     |
| 3  | *2402.00        | 101.9 PK                |                |             | 3.39 V             | 188                  | 102.7            | -0.8                     |
| 4  | *2402.00        | 72.0 AV                 |                |             | 3.39 V             | 188                  | 72.8             | -0.8                     |
| 5  | 4804.00         | 40.7 PK                 | 74.0           | -33.3       | 1.73 V             | 351                  | 36.8             | 3.9                      |
| 6  | 4804.00         | 10.8 AV                 | 54.0           | -43.2       | 1.73 V             | 351                  | 6.9              | 3.9                      |

**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.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:  
 $20 \log(\text{Duty cycle}) = 20 \log(3.188 \text{ ms} / 100 \text{ ms}) = -29.9 \text{ dB}$



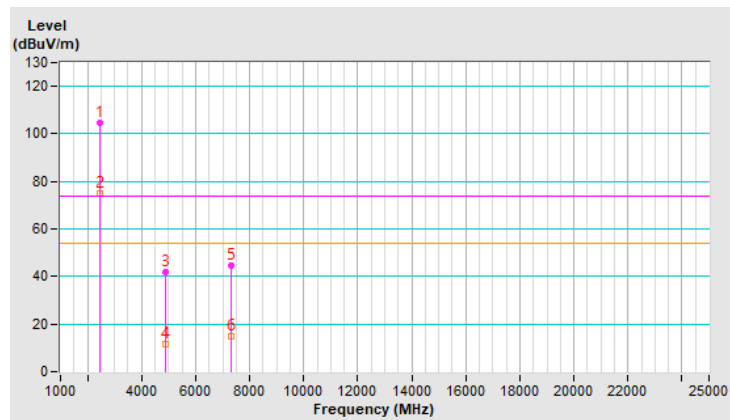
|                        |                |  |  |
|------------------------|----------------|--|--|
| <b>RF Mode</b>         | TX BT 8DPSK    | <b>Channel</b>                           | CH 39 : 2441 MHz   |
| <b>Frequency Range</b> | 1 GHz ~ 25 GHz | <b>Detector Function &amp; Bandwidth</b> | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 3 MHz |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 20°C, 70% RH   |
| <b>Tested By</b>       | Ryan Du        |  |  |

**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  | #2441.00        | 104.7 PK                |                |             | 1.65 H             | 74                   | 105.6            | -0.9                     |
| 2  | #2441.00        | 74.8 AV                 |                |             | 1.65 H             | 74                   | 75.7             | -0.9                     |
| 3  | 4882.00         | 41.7 PK                 | 74.0           | -32.3       | 1.45 H             | 78                   | 37.8             | 3.9                      |
| 4  | 4882.00         | 11.8 AV                 | 54.0           | -42.2       | 1.45 H             | 78                   | 7.9              | 3.9                      |
| 5  | 7323.00         | 44.8 PK                 | 74.0           | -29.2       | 1.58 H             | 90                   | 34.7             | 10.1                     |
| 6  | 7323.00         | 14.9 AV                 | 54.0           | -39.1       | 1.58 H             | 90                   | 4.8              | 10.1                     |

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:  
 $20 \log(\text{Duty cycle}) = 20 \log(3.188 \text{ ms} / 100 \text{ ms}) = -29.9 \text{ dB}$

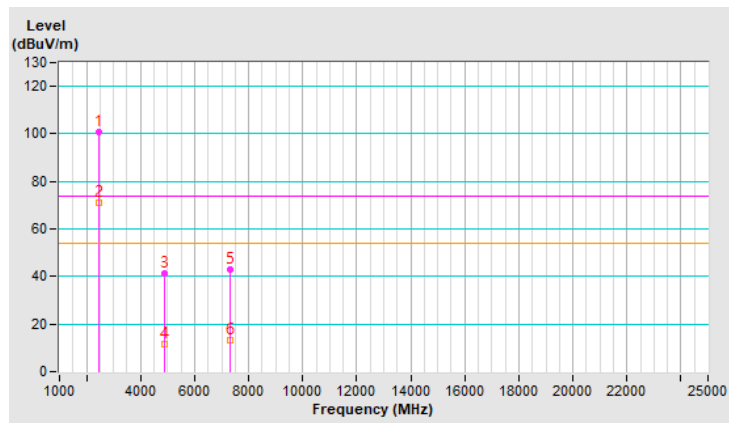


|                        |                |  |  |
|------------------------|----------------|--|--|
| <b>RF Mode</b>         | TX BT 8DPSK    | <b>Channel</b>                           | CH 39 : 2441 MHz   |
| <b>Frequency Range</b> | 1 GHz ~ 25 GHz | <b>Detector Function &amp; Bandwidth</b> | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 3 MHz |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 20°C, 70% RH   |
| <b>Tested By</b>       | Ryan Du        |  |  |

| 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  | #2441.00        | 101.0 PK                |                |             | 3.38 V             | 178                  | 101.9            | -0.9                     |
| 2  | #2441.00        | 71.1 AV                 |                |             | 3.38 V             | 178                  | 72.0             | -0.9                     |
| 3  | 4882.00         | 41.2 PK                 | 74.0           | -32.8       | 1.56 V             | 342                  | 37.3             | 3.9                      |
| 4  | 4882.00         | 11.3 AV                 | 54.0           | -42.7       | 1.56 V             | 342                  | 7.4              | 3.9                      |
| 5  | 7323.00         | 43.0 PK                 | 74.0           | -31.0       | 1.55 V             | 284                  | 32.9             | 10.1                     |
| 6  | 7323.00         | 13.1 AV                 | 54.0           | -40.9       | 1.55 V             | 284                  | 3.0              | 10.1                     |

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:  
 $20 \log(\text{Duty cycle}) = 20 \log(3.188 \text{ ms} / 100 \text{ ms}) = -29.9 \text{ dB}$



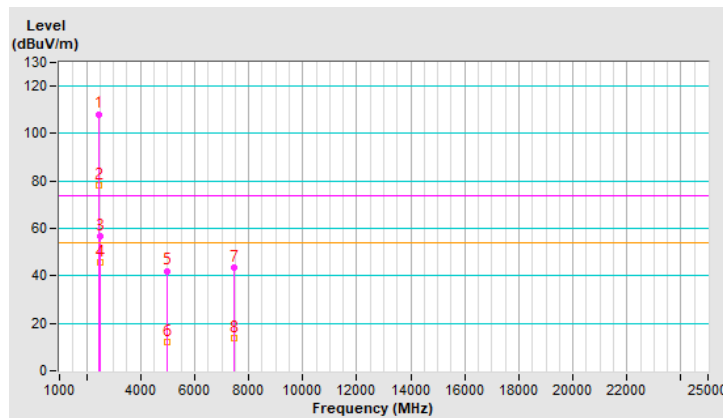
|                        |                |  |  |
|------------------------|----------------|--|--|
| <b>RF Mode</b>         | TX BT 8DPSK    | <b>Channel</b>                           | CH 78 : 2480 MHz   |
| <b>Frequency Range</b> | 1 GHz ~ 25 GHz | <b>Detector Function &amp; Bandwidth</b> | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 3 MHz |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 20°C, 70% RH   |
| <b>Tested By</b>       | Ryan Du        |  |  |

**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        | 108.2 PK                |                |             | 1.72 H             | 99                   | 109.1            | -0.9                     |
| 2        | *2480.00        | 78.3 AV                 |                |             | 1.72 H             | 99                   | 79.2             | -0.9                     |
| 3        | 2483.50         | 56.5 PK                 | 74.0           | -17.5       | 1.72 H             | 99                   | 57.5             | -1.0                     |
| <b>4</b> | <b>2483.50</b>  | <b>45.5 AV</b>          | <b>54.0</b>    | <b>-8.5</b> | <b>1.72 H</b>      | <b>99</b>            | <b>46.5</b>      | <b>-1.0</b>              |
| 5        | 4960.00         | 42.1 PK                 | 74.0           | -31.9       | 1.48 H             | 90                   | 38.1             | 4.0                      |
| 6        | 4960.00         | 12.2 AV                 | 54.0           | -41.8       | 1.48 H             | 90                   | 8.2              | 4.0                      |
| 7        | 7440.00         | 43.6 PK                 | 74.0           | -30.4       | 1.69 H             | 65                   | 33.1             | 10.5                     |
| 8        | 7440.00         | 13.7 AV                 | 54.0           | -40.3       | 1.69 H             | 65                   | 3.2              | 10.5                     |

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:  
 $20 \log(\text{Duty cycle}) = 20 \log(3.188 \text{ ms} / 100 \text{ ms}) = -29.9 \text{ dB}$

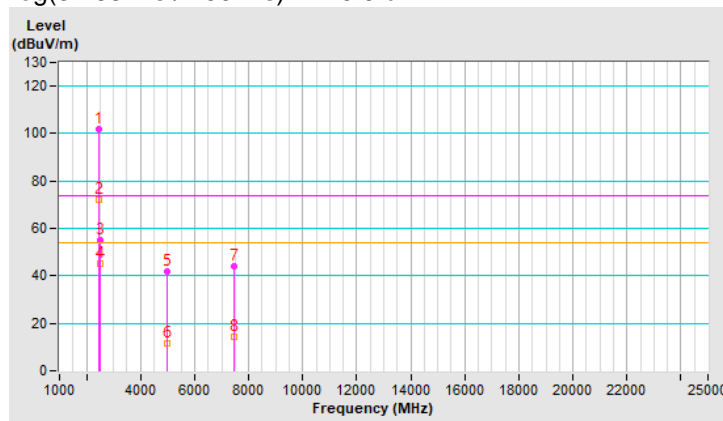


|                        |                |  |  |
|------------------------|----------------|--|--|
| <b>RF Mode</b>         | TX BT 8DPSK    | <b>Channel</b>                           | CH 78 : 2480 MHz   |
| <b>Frequency Range</b> | 1 GHz ~ 25 GHz | <b>Detector Function &amp; Bandwidth</b> | (PK) RB = 1 MHz, VB = 3 MHz<br>(AV) RB = 1 MHz, VB = 3 MHz |
| <b>Input Power</b>     | 120 Vac, 60 Hz | <b>Environmental Conditions</b>          | 20°C, 70% RH   |
| <b>Tested By</b>       | Ryan Du        |  |  |

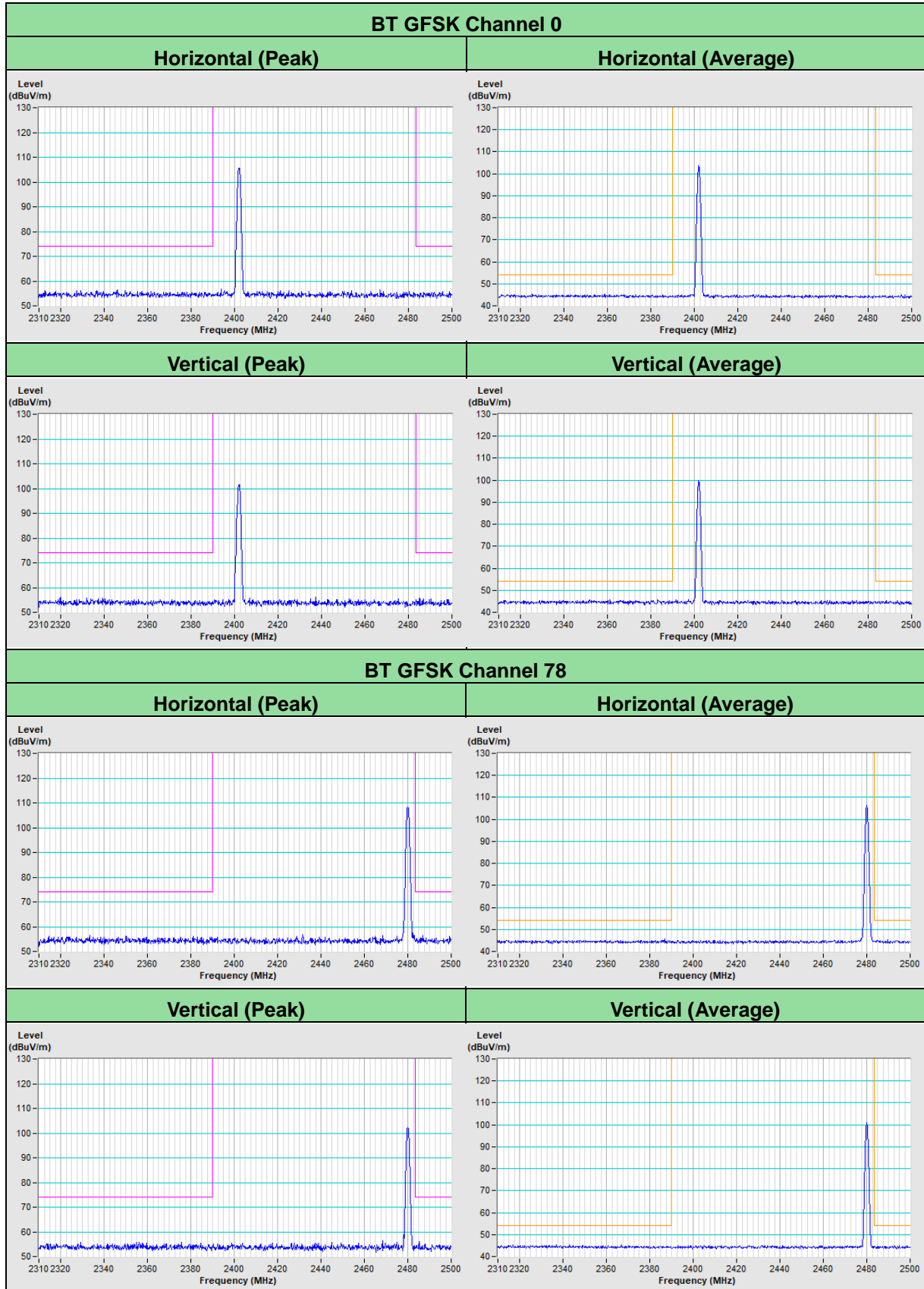
| Antenna Polarity & Test Distance : Vertical at 3 m |                 |                         |                |             |                    |                      |                  |                          |
|--|-----------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| No   | Frequency (MHz) | Emission Level (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Antenna Height (m) | Table Angle (Degree) | Raw Value (dBuV) | Correction Factor (dB/m) |
| 1  | *2480.00        | 102.1 PK                |                |             | 3.44 V             | 196                  | 103.0            | -0.9                     |
| 2  | *2480.00        | 72.2 AV                 |                |             | 3.44 V             | 196                  | 73.1             | -0.9                     |
| 3  | 2483.50         | 55.1 PK                 | 74.0           | -18.9       | 3.44 V             | 196                  | 56.1             | -1.0                     |
| 4  | 2483.50         | 45.1 AV                 | 54.0           | -8.9        | 3.44 V             | 196                  | 46.1             | -1.0                     |
| 5  | 4960.00         | 41.7 PK                 | 74.0           | -32.3       | 1.60 V             | 360                  | 37.7             | 4.0                      |
| 6  | 4960.00         | 11.8 AV                 | 54.0           | -42.2       | 1.60 V             | 360                  | 7.8              | 4.0                      |
| 7  | 7440.00         | 44.0 PK                 | 74.0           | -30.0       | 1.56 V             | 283                  | 33.5             | 10.5                     |
| 8  | 7440.00         | 14.1 AV                 | 54.0           | -39.9       | 1.56 V             | 283                  | 3.6              | 10.5                     |

**Remarks:**

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor(dB/m) + Cable Factor(dB) – Pre-Amplifier Factor(dB)
3. Margin value = Emission Level – Limit value
4. The other emission levels were very low against the limit.
5. " \* ": Fundamental frequency, the limit was restricted at the RF Output Power.
6. The average value of fundamental and harmonic frequency is: Average = Peak value + 20 log(Duty cycle) Where the duty cycle correction factor is calculated from following formula:  
 $20 \log(\text{Duty cycle}) = 20 \log(3.188 \text{ ms} / 100 \text{ ms}) = -29.9 \text{ dB}$



### Plot of Band Edge







## 8 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo)

## 9 Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

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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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