



# FCC TEST REPORT

## FCC ID:2A96I-GTW8103

Report Number..... : ZKT-260724L1709E-2

Date of Test..... : June 09, 2026 ~ July 06, 2026

Date of issue ..... : July 06, 2026

Total number of pages ..... : 23

Test Result ..... : PASS

Testing Laboratory..... : Shenzhen ZKT Technology Co., Ltd.

Address ..... : 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

Applicant's name ..... : Shanghai UniOne Science&Technology CO., Ltd.

Address ..... : Building 4, No. 651 Wanfang Road, Pujiang Town, Minhang District, Shanghai, China.

Manufacturer's name ..... : Shanghai UniOne Science&Technology CO., Ltd.

Address ..... : Building 4, No. 651 Wanfang Road, Pujiang Town, Minhang District, Shanghai, China.

Test specification:

Standard..... : FCC CFR Title 47 Part 15 Subpart C Section 15.247  
ANSI C63.10-2020+Cor 1-2023

Test procedure..... : /

Non-standard test method ..... : N/A

Test Report Form No. .... : TRF-EL-111\_V0

Test Report Form(s) Originator .... : ZKT Testing

Master TRF ..... : Dated: 2020-01-06

This device described above has been tested by ZKT, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Product name..... : Rugged Windows Tablet

Trademark ..... : N/A

Model/Type reference ..... : GTW8103(Standard)

Ratings..... : Input: DC 19V 3.42A



Testing procedure and testing location:

Testing Laboratory .....: Shenzhen ZKT Technology Co., Ltd.

Address .....: 1/F, No. 101, Building B, No. 6, Tangwei Community  
Industrial Avenue, Fuhai Street, Bao'an District,  
Shenzhen, China

Tested by (name + signature) .....: Jim Liu

Reviewer (name + signature).....: Jackson Fang

Approved (name + signature) .....: Lake Xie





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1. VERSION

| Report No.                                                                                                                                                                                                         | Version | Description              | Approved      |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------------------------|---------------|
| STS2407338W09                                                                                                                                                                                                      | Rev.01  | Initial issue of report  | Aug. 27, 2024 |
| ZKT-260724L1709E-2                                                                                                                                                                                                 | Rev.02  | Add series model GTW8103 | July 06, 2026 |
| Remark: The differences in the additional models do not affect the RF performance, so there is no need to test the RF conduction items. The relevant data can be referred to in the original report STS2407338W09. |         |                          |               |



## 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

| FCC Part15 (15.247) , Subpart C |                                                  |          |        |
|---------------------------------|--------------------------------------------------|----------|--------|
| Standard Section                | Test Item                                        | Judgment | Remark |
| FCC part 15.203/15.247(c)       | Antenna requirement                              | PASS     |        |
| FCC part 15.207                 | AC Power Line Conducted Emission                 | N/A      |        |
| FCC part 15.247 (b)(3)          | Conducted Peak Output Power                      | N/A      |        |
| FCC part 15.247 (a)(2)          | 6DB Occupied Bandwidth                           | N/A      |        |
| FCC part 15.247 (e)             | Power Spectral Density                           | N/A      |        |
| FCC part 15.247 (d)             | Conducted Band Edge & Unwanted Spurious Emission | N/A      |        |
| FCC part 15.205/15.209          | Radiated Band Edge & Unwanted Spurious Emission  | PASS     |        |
| ANSI C63.10-2020+Cor 1-2023     | Duty Cycle                                       | N/A      |        |

### NOTE:

- 1) "N/A" denotes test is not applicable in this Test Report
- 2) The differences in the additional models do not affect the RF performance, so there is no need to test the RF conduction items. The relevant data can be referred to in the original report.



## 2.1 TEST FACILITY

Shenzhen ZKT Technology Co., Ltd.

Add. : 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

FCC Test Firm Registration Number: 927491

Designation Number: CN1431

IC Registered No.: 27033

CAB identifier: CN0110

Designation Number: CN0110

## 2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

| No. | Item                                               | Uncertainty |
|-----|----------------------------------------------------|-------------|
| 1   | 3m chamber Radiated spurious emission (9KHz-30MHz) | U=4.5dB     |
| 2   | 3m chamber Radiated spurious emission (30MHz-1GHz) | U=4.8dB     |
| 3   | 3m chamber Radiated spurious emission (1GHz-6GHz)  | U=4.9dB     |
| 4   | 3m chamber Radiated spurious emission (6GHz-40GHz) | U=5.0dB     |
| 5   | Conducted Disturbance                              | U=3.2dB     |
| 6   | RF Band Edge                                       | U=1.68dB    |
| 7   | RF Power Conducted                                 | U=1.86dB    |
| 8   | RF Conducted Spurious Emission                     | U=2.2dB     |
| 9   | RF Occupied Bandwidth                              | U=1.8MHz    |
| 10  | RF Power Spectral Density                          | U=1.75dB    |
| 11  | Humidity Uncertainty                               | U=5.3%      |
| 12  | Temperature Uncertainty                            | U=0.59°C    |



### 3. GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

|                        |                                                                                                                                                                                                                                                                                                                             |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product Name:          | Rugged Windows Tablet                                                                                                                                                                                                                                                                                                       |
| Trade Mark:            | N/A                                                                                                                                                                                                                                                                                                                         |
| Model No.:             | GTW8103(Standard)                                                                                                                                                                                                                                                                                                           |
| Serial No.:            | GTW8103(Handle), GTW8103(RJ45A), GTW8103(RJ45AH) , GTW8103                                                                                                                                                                                                                                                                  |
| Model Different.:      | GTW8103(Standard) Only the host; GTW8103(Handle) Host with handle; GTW8103(RJ45A) Host with RJ45+USB 2 in 1 module; GTW8103(RJ45AH) Host with handle and RJ45+USB 2 in 1 module; The USB interface of GTW8103 is modified to an aviation connector form based on GTW8103(RJ45AH), while all other aspects remain unchanged. |
| Hardware Version:      | E7255_MB_PCB_V20                                                                                                                                                                                                                                                                                                            |
| Software Version:      | R.NB.00.00.02                                                                                                                                                                                                                                                                                                               |
| Sample(s) Status:      | Engineer sample                                                                                                                                                                                                                                                                                                             |
| Operation Frequency:   | 2402MHz~2480MHz                                                                                                                                                                                                                                                                                                             |
| Channel Numbers:       | 40 Channels                                                                                                                                                                                                                                                                                                                 |
| Channel Spacing:       | 2MHz                                                                                                                                                                                                                                                                                                                        |
| Modulation Technology: | GFSK                                                                                                                                                                                                                                                                                                                        |
| Antenna Type:          | FPC Antenna                                                                                                                                                                                                                                                                                                                 |
| Antenna Gain:          | 2.01dBi                                                                                                                                                                                                                                                                                                                     |
| Power Supply:          | Input: DC 19V 3.42A                                                                                                                                                                                                                                                                                                         |
| Battery Capacity:      | Model: BA6000<br>Rated Voltage:11.01V<br>Charge Limit Voltage: 12.6V<br>Capacity: 6000mAh<br><br>Model: BA880<br>Rated Voltage:7.4V<br>Charge Limit Voltage: 8.4V<br>Capacity: 880mAh                                                                                                                                       |

Note1: For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

Note2: The EUT's all information provided by client.



| Operation Frequency each of channel |           |         |           |         |           |         |           |
|-------------------------------------|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel                             | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 1                                   | 2402 MHz  | 11      | 2422 MHz  | 21      | 2442 MHz  | 31      | 2462 MHz  |
| 2                                   | 2404 MHz  | 12      | 2424 MHz  | 22      | 2444 MHz  | 32      | 2464 MHz  |
| 3                                   | 2406 MHz  | 13      | 2426 MHz  | 23      | 2446 MHz  | 33      | 2466 MHz  |
| 4                                   | 2408 MHz  | 14      | 2428 MHz  | 24      | 2448 MHz  | 34      | 2468 MHz  |
| 5                                   | 2410 MHz  | 15      | 2430 MHz  | 25      | 2450 MHz  | 35      | 2470 MHz  |
| 6                                   | 2412 MHz  | 16      | 2432 MHz  | 26      | 2452 MHz  | 36      | 2472 MHz  |
| 7                                   | 2414 MHz  | 17      | 2434 MHz  | 27      | 2454 MHz  | 37      | 2474 MHz  |
| 8                                   | 2416 MHz  | 18      | 2436 MHz  | 28      | 2456 MHz  | 38      | 2476 MHz  |
| 9                                   | 2418 MHz  | 19      | 2438 MHz  | 29      | 2458 MHz  | 39      | 2478 MHz  |
| 10                                  | 2420 MHz  | 20      | 2440 MHz  | 30      | 2460 MHz  | 40      | 2480 MHz  |

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

| Channel             | Frequency |
|---------------------|-----------|
| The lowest channel  | 2402MHz   |
| The middle channel  | 2440MHz   |
| The Highest channel | 2480MHz   |

### 3.2 DESCRIPTION OF TEST MODES

|                                                                                                                                                                                                                                                                                                                                      |                                                |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| Transmitting mode                                                                                                                                                                                                                                                                                                                    | Keep the EUT in continuously transmitting mode |
| Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.<br>For battery operated equipment, the equipment tests shall be performed using a new battery. |                                                |

|                         |               |
|-------------------------|---------------|
| Test Software & Version | DRTU          |
| Mode                    | Power setting |
| BLE 1M/2M - GFSK        | Default       |



### 3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Emission



### 3.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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.

Necessary accessories

| Item | Equipment | Mfr/Brand | Model/Type No. | Length | Note |
|------|-----------|-----------|----------------|--------|------|
| N/A  | N/A       | N/A       | N/A            | N/A    | N/A  |
|      |           |           |                |        |      |
|      |           |           |                |        |      |

Support units

| Item | Equipment | Mfr/Brand | Model/Type No. | Length | Note |
|------|-----------|-----------|----------------|--------|------|
| N/A  | N/A       | N/A       | N/A            | N/A    | N/A  |
|      |           |           |                |        |      |
|      |           |           |                |        |      |

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.



### 3.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

#### Radiation Emissions & Radiation Spurious Emissions Test

| Item | Equipment                         | Manufacturer   | Type No.        | Serial No.         | Firmware Version | Last calibration | Calibrated until |
|------|-----------------------------------|----------------|-----------------|--------------------|------------------|------------------|------------------|
| 1    | Spectrum Analyzer (9kHz-26.5GHz)  | KEYSIGHT       | N9020A          | MY55370835         | A.17.05          | Sep. 20, 2025    | Sep. 19, 2026    |
| 2    | Spectrum Analyzer (10kHz-39.9GHz) | R&S            | FSV40-N         | 100363             | 1.71 SP2         | Sep. 20, 2025    | Sep. 19, 2026    |
| 3    | EMI Test Receiver (9kHz-7GHz)     | R&S            | ESC17           | 100969             | 4.32             | Oct. 24, 2025    | Oct. 23, 2026    |
| 4    | Bilog Antenna (30MHz-1500MHz)     | Schwarzbeck    | VULB9168        | 00877              | N/A              | Sep. 20, 2025    | Sep. 19, 2026    |
| 5    | Horn Antenna (1GHz-18GHz)         | Agilent        | AH-118          | 071145             | N/A              | Sep. 20, 2025    | Sep. 19, 2026    |
| 6    | Horn Antenna (15GHz-40GHz)        | A.H.System     | SAS-574         | 588                | N/A              | Sep. 30, 2025    | Sep. 29, 2026    |
| 7    | Loop Antenna                      | TESEQ          | HLA6121         | 58357              | N/A              | Sep. 20, 2025    | Sep. 19, 2026    |
| 8    | Amplifier (30-1000MHz)            | EM Electronics | EM330 Amplifier | 60747              | N/A              | Sep. 19, 2025    | Sep. 18, 2026    |
| 9    | Amplifier (1GHz-26.5GHz)          | HuiPu          | 8449B           | 3008A00315         | N/A              | Sep. 19, 2025    | Sep. 18, 2026    |
| 10   | Amplifier (500MHz-40GHz)          | QuanJuDa       | DLE-161         | 097                | N/A              | Oct. 24, 2025    | Oct. 23, 2026    |
| 11   | Test Cable                        | N/A            | R-01            | N/A                | N/A              | May 25, 2026     | May 24, 2027     |
| 12   | Test Cable                        | N/A            | R-02            | N/A                | N/A              | May 25, 2026     | May 24, 2027     |
| 13   | Test Cable                        | N/A            | R-03            | N/A                | N/A              | May 25, 2026     | May 24, 2027     |
| 14   | D.C. Power Supply                 | LongWei        | TPR-6405D       | N/A                | N/A              | \                | \                |
| 15   | EMC Software                      | Frad           | EZ-EMC          | Ver.EMC-CO N 3A1.1 | N/A              | \                | \                |
| 16   | Turntable                         | MF             | MF-7802BS       | N/A                | N/A              | \                | \                |
| 17   | Antenna tower                     | MF             | MF-7802BS       | N/A                | N/A              | \                | \                |



#### 4. EMC EMISSION TEST

##### 4.1 RADIATED EMISSION MEASUREMENT

|                       |                             |            |        |        |            |
|-----------------------|-----------------------------|------------|--------|--------|------------|
| Test Requirement:     | FCC Part15 C Section 15.209 |            |        |        |            |
| Test Method:          | ANSI C63.10-2020+Cor 1-2023 |            |        |        |            |
| Test Frequency Range: | 9kHz to 25GHz               |            |        |        |            |
| Test site:            | Measurement Distance: 3m    |            |        |        |            |
| Receiver setup:       | Frequency                   | Detector   | RBW    | VBW    | Value      |
|                       | 9KHz-150KHz                 | Quasi-peak | 200Hz  | 600Hz  | Quasi-peak |
|                       | 150KHz-30MHz                | Quasi-peak | 9KHz   | 30KHz  | Quasi-peak |
|                       | 30MHz-1GHz                  | Quasi-peak | 120KHz | 300KHz | Quasi-peak |
|                       | Above 1GHz                  | Peak       | 1MHz   | 3MHz   | Peak       |
|                       |                             | Average    | 1MHz   | 3MHz   | Average    |

##### 4.1.1 RADIATED EMISSION LIMITS

| Frequencies<br>(MHz) | Field Strength<br>(microvolts/meter) | Measurement Distance<br>(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                                |

##### LIMITS OF RADIATED EMISSION MEASUREMENT

| Frequency<br>(MHz) | Limit (dBuV/m) (at 3M) |         |
|--------------------|------------------------|---------|
|                    | Peak                   | Average |
| Above 1000         | 74                     | 54      |

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).



#### 4.1.2 TEST PROCEDURE

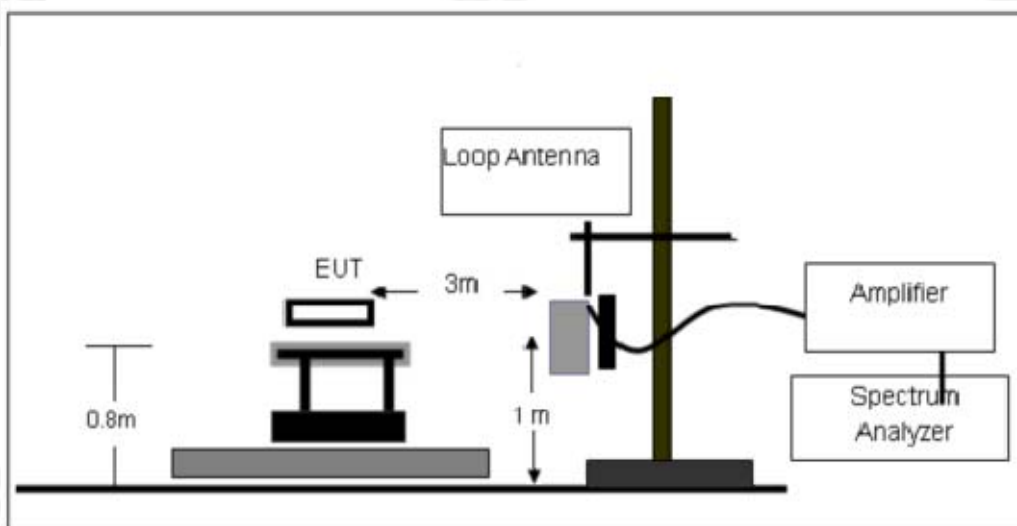
- The measuring distance of at 3 m shall be used for measurements at frequency up to 25GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-chamber test. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment or of the substitution antenna shall be 0.8m; above 1GHz, the height was 1.5m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.
- For the radiated emission test above 1GHz:  
Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response.  
The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.  
Note:  
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

#### 4.1.3 DEVIATION FROM TEST STANDARD

No deviation

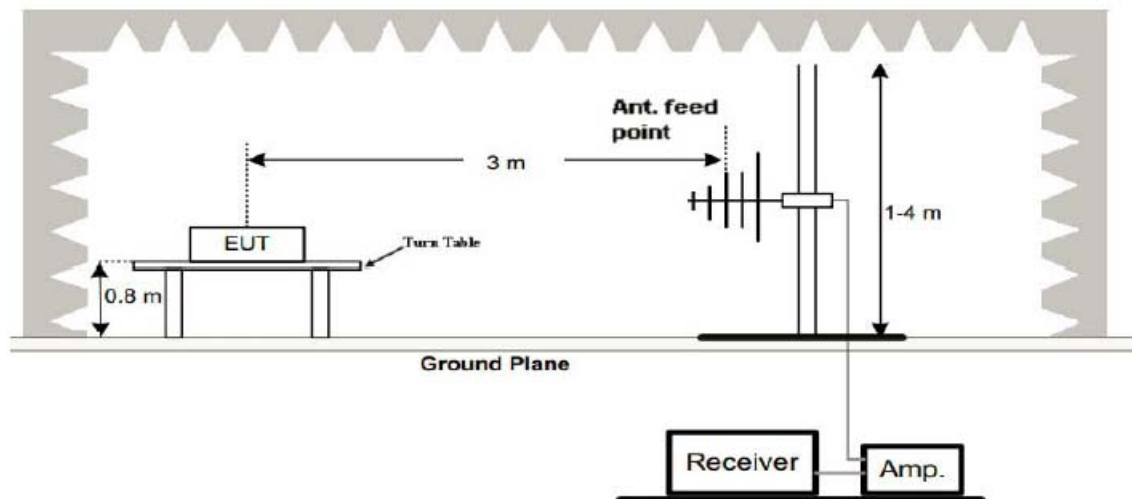
#### 4.1.4 TEST SETUP

##### (A) Radiated Emission Test-Up Frequency Below 30MHz

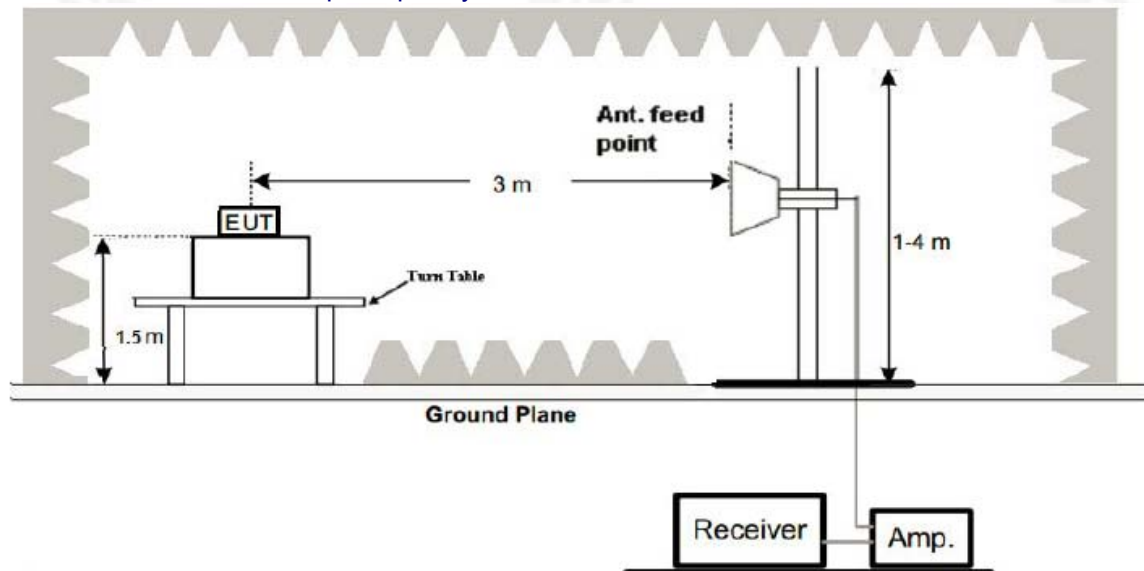




(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz



#### 4.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

#### 4.1.6 TEST RESULTS

a, Between 9KHz – 30 MHz

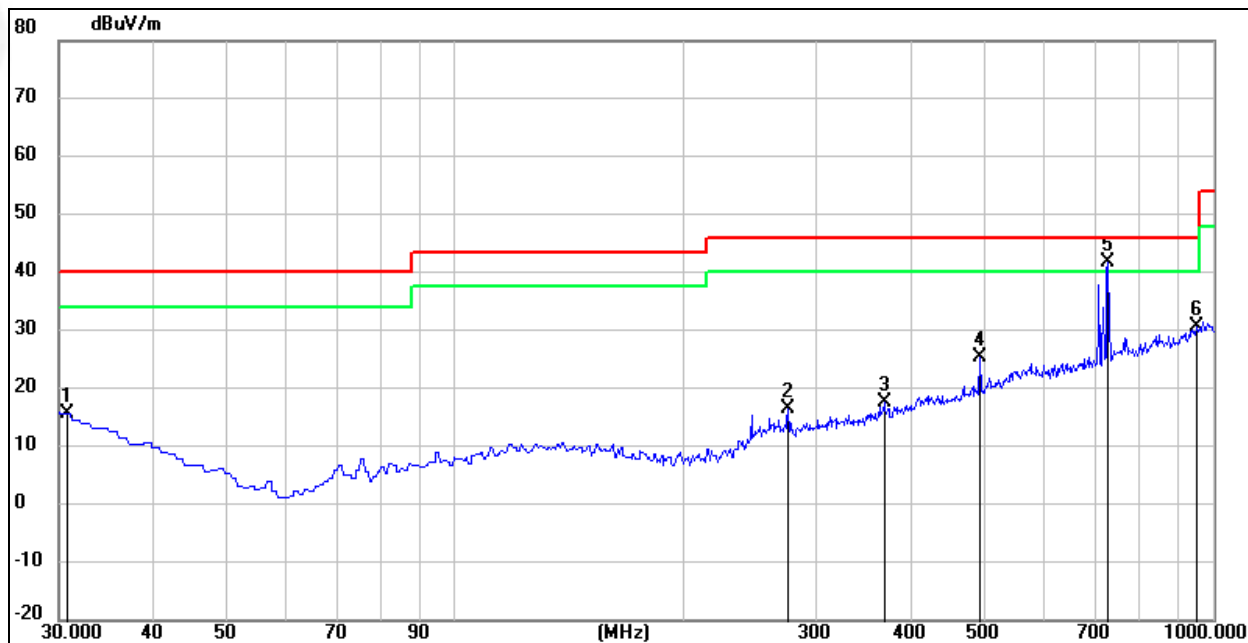
The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o), the test result no need to reported.



b. Between 30MHz – 1GHz

Series Model: GTW8103  
1M PHY

|               |           |                    |                   |
|---------------|-----------|--------------------|-------------------|
| Temperature:  | 24.1°C    | Relative Humidity: | 55%               |
| Pressure:     | 101 kPa   | Polarization:      | Horizontal        |
| Test Voltage: | DC 11.01V | Test Mode :        | TX GFSK - 2480MHz |



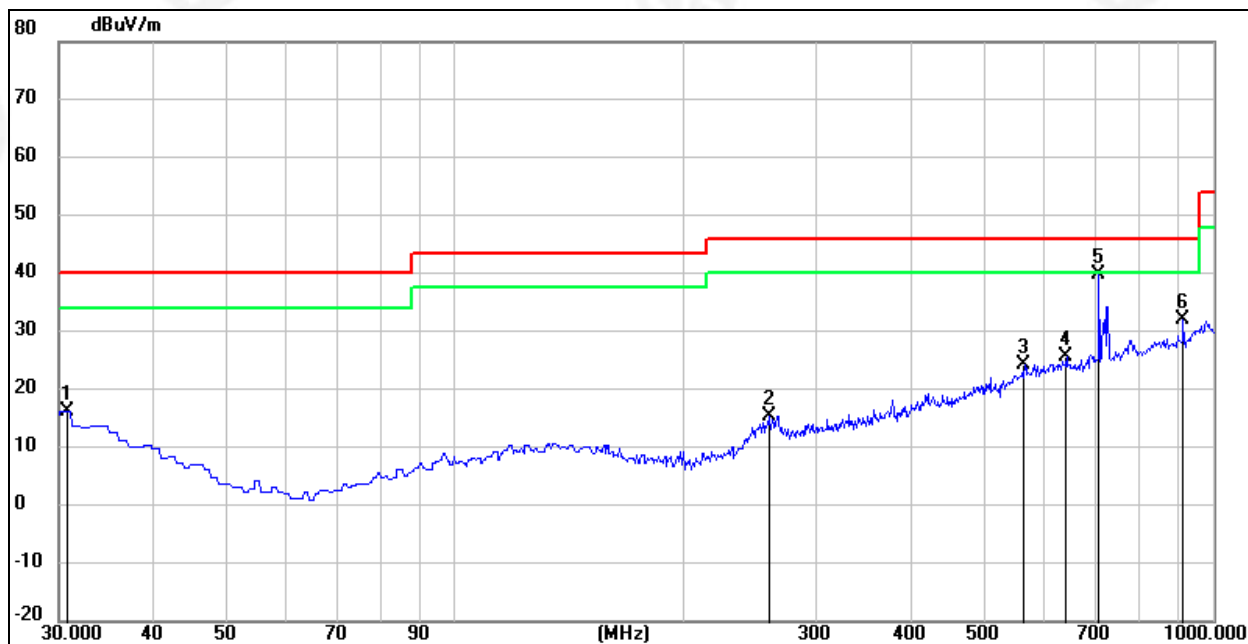
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 30.8535            | 28.97             | -13.29                  | 15.68              | 40.00             | -24.32         | QP     |
| 2   | 274.4400           | 31.99             | -15.43                  | 16.56              | 46.00             | -29.44         | QP     |
| 3   | 367.5600           | 30.20             | -12.58                  | 17.62              | 46.00             | -28.38         | QP     |
| 4   | 490.7500           | 33.69             | -8.20                   | 25.49              | 46.00             | -20.51         | QP     |
| 5   | 725.4900           | 44.50             | -2.82                   | 41.68              | 46.00             | -4.32          | QP     |
| 6   | 951.5000           | 29.16             | 1.62                    | 30.78              | 46.00             | -15.22         | QP     |

Remarks:

1. An initial pre-scan was performed on the peak detector.
2. Quasi - Peak measurement were performed at the frequencies with maximized peak emission.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. Final Level = Reading level + Correct Factor.
5. Correct Factor = Antenna factor+ Cable loss factor - Amplifier factor.
6. Margin = Measurement Level-Limit.
7. The test data shows only the worst case TX GFSK - 2480MHz.



|               |           |                    |                   |
|---------------|-----------|--------------------|-------------------|
| Temperature:  | 24.1°C    | Relative Humidity: | 55%               |
| Pressure:     | 101kPa    | Polarization:      | Vertical          |
| Test Voltage: | DC 11.01V | Test Mode :        | TX GFSK - 2480MHz |



| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 30.8535            | 29.51             | -13.29                  | 16.22              | 40.00             | -23.78         | QP     |
| 2   | 258.9200           | 30.37             | -14.90                  | 15.47              | 46.00             | -30.53         | QP     |
| 3   | 564.4699           | 29.98             | -5.54                   | 24.44              | 46.00             | -21.56         | QP     |
| 4   | 639.1599           | 30.51             | -4.86                   | 25.65              | 46.00             | -20.35         | QP     |
| 5   | 705.1200           | 44.00             | -4.01                   | 39.99              | 46.00             | -6.01          | QP     |
| 6   | 912.7000           | 32.09             | -0.14                   | 31.95              | 46.00             | -14.05         | QP     |

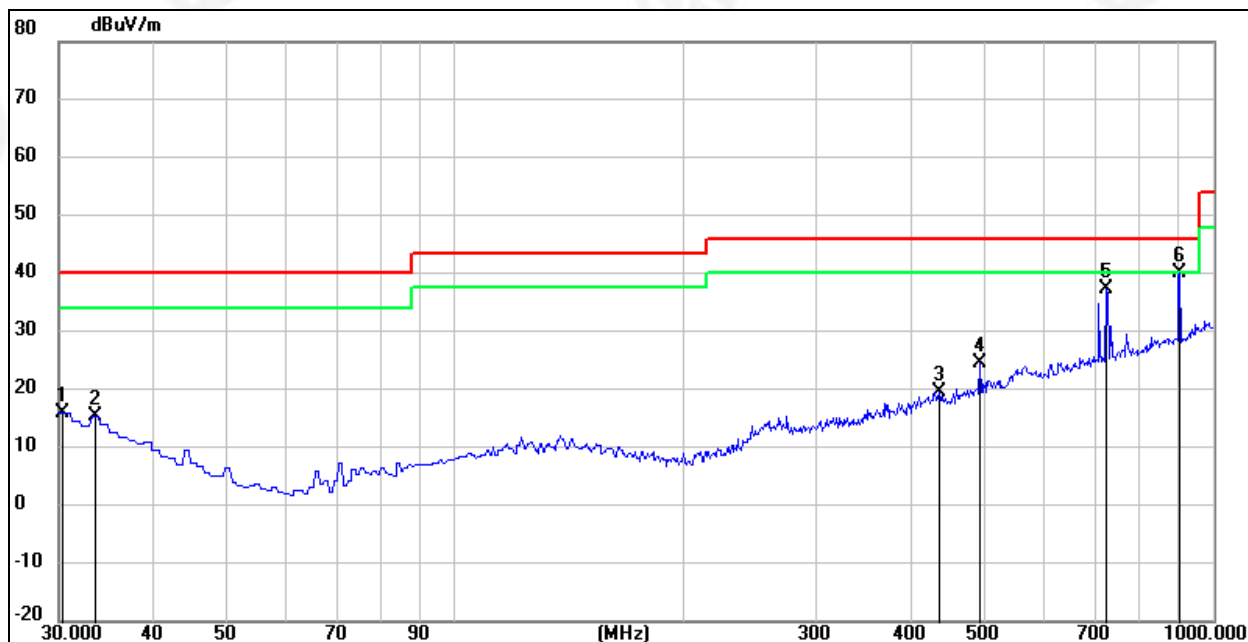
Remarks:

1. An initial pre-scan was performed on the peak detector.
2. Quasi - Peak measurement were performed at the frequencies with maximized peak emission.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. Final Level = Reading level + Correct Factor.
5. Correct Factor= Antenna factor+ Cable loss factor - Amplifier factor.
6. Margin= Measurement Level-Limit.
7. The test data shows only the worst case TX GFSK - 2480MHz.



2M PHY

|               |           |                    |                   |
|---------------|-----------|--------------------|-------------------|
| Temperature:  | 24.1°C    | Relative Humidity: | 55%               |
| Pressure:     | 101 kPa   | Polarization:      | Horizontal        |
| Test Voltage: | DC 11.01V | Test Mode :        | TX GFSK - 2480MHz |



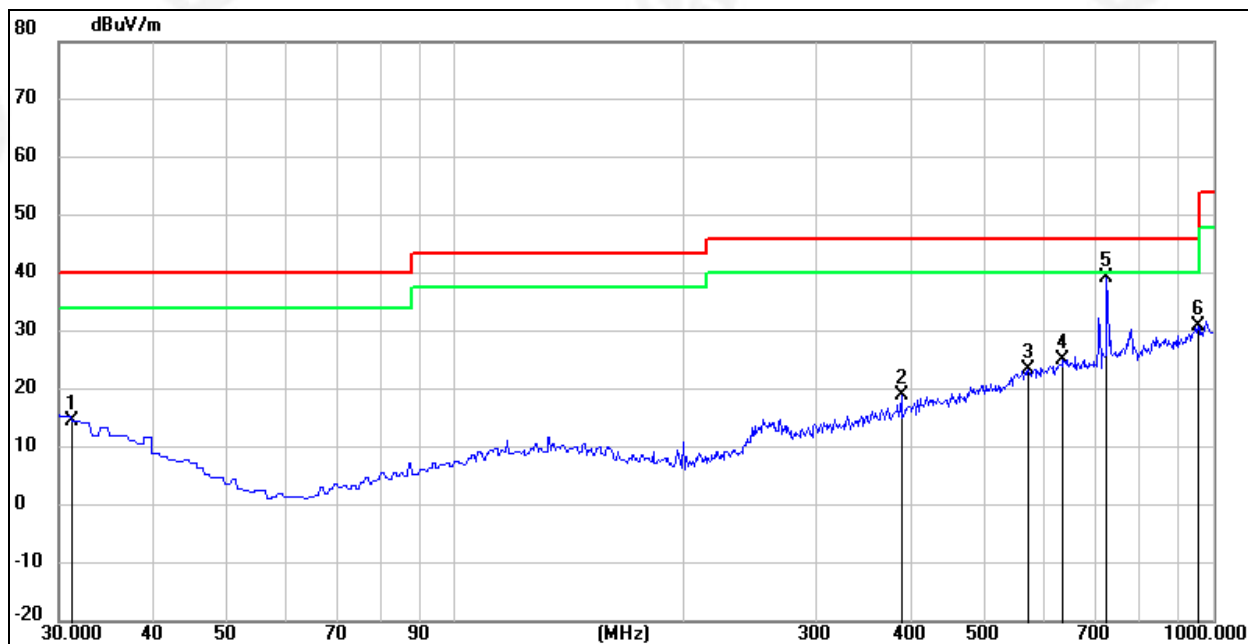
| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 30.4238            | 29.04             | -13.06                  | 15.98              | 40.00             | -24.02         | QP     |
| 2   | 33.6802            | 30.12             | -14.70                  | 15.42              | 40.00             | -24.58         | QP     |
| 3   | 435.4600           | 29.74             | -10.12                  | 19.62              | 46.00             | -26.38         | QP     |
| 4   | 490.7500           | 32.68             | -8.20                   | 24.48              | 46.00             | -21.52         | QP     |
| 5   | 721.6100           | 40.61             | -3.12                   | 37.49              | 46.00             | -8.51          | QP     |
| 6   | 901.0600           | 40.53             | -0.43                   | 40.10              | 46.00             | -5.90          | QP     |

Remarks:

1. An initial pre-scan was performed on the peak detector.
2. Quasi - Peak measurement were performed at the frequencies with maximized peak emission.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. Final Level = Reading level + Correct Factor.
5. Correct Factor = Antenna factor+ Cable loss factor - Amplifier factor.
6. Margin = Measurement Level-Limit.
7. The test data shows only the worst case TX GFSK - 2480MHz.



|               |           |                    |                   |
|---------------|-----------|--------------------|-------------------|
| Temperature:  | 24.1°C    | Relative Humidity: | 55%               |
| Pressure:     | 101kPa    | Polarization:      | Vertical          |
| Test Voltage: | DC 11.01V | Test Mode :        | TX GFSK - 2480MHz |



| No. | Frequency<br>(MHz) | Reading<br>(dBuV) | Correct<br>Factor(dB/m) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Remark |
|-----|--------------------|-------------------|-------------------------|--------------------|-------------------|----------------|--------|
| 1   | 31.1798            | 28.08             | -13.46                  | 14.62              | 40.00             | -25.38         | QP     |
| 2   | 387.9300           | 30.85             | -11.73                  | 19.12              | 46.00             | -26.88         | QP     |
| 3   | 570.2900           | 29.18             | -5.61                   | 23.57              | 46.00             | -22.43         | QP     |
| 4   | 633.3400           | 30.25             | -4.98                   | 25.27              | 46.00             | -20.73         | QP     |
| 5   | 722.5800           | 42.23             | -3.04                   | 39.19              | 46.00             | -6.81          | QP     |
| 6   | 954.4100           | 29.32             | 1.67                    | 30.99              | 46.00             | -15.01         | QP     |

Remarks:

1. An initial pre-scan was performed on the peak detector.
2. Quasi - Peak measurement were performed at the frequencies with maximized peak emission.
3. The emission levels of other frequencies are very lower than the limit and not show in test report.
4. Final Level = Reading level + Correct Factor.
5. Correct Factor= Antenna factor+ Cable loss factor - Amplifier factor.
6. Margin= Measurement Level-Limit.
7. The test data shows only the worst case TX GFSK - 2480MHz.



1GHz~25GHz

1M PHY  
GFSK

| Frequency                      | Meter Reading | Amplifier | Loss  | Antenna Factor | Corrected Factor | Emission Level | Limits   | Margin | Detector | Comment    |
|--------------------------------|---------------|-----------|-------|----------------|------------------|----------------|----------|--------|----------|------------|
| (MHz)                          | (dBμV)        | (dB)      | (dB)  | (dB/m)         | (dB)             | (dBμV/m)       | (dBμV/m) | (dB)   | Type     |            |
| Low Channel (GFSK/2402 MHz)    |               |           |       |                |                  |                |          |        |          |            |
| 3264.84                        | 61.65         | 44.70     | 6.70  | 28.20          | -9.80            | 51.85          | 74.00    | -22.15 | PK       | Vertical   |
| 3264.84                        | 51.23         | 44.70     | 6.70  | 28.20          | -9.80            | 41.43          | 54.00    | -12.57 | AV       | Vertical   |
| 3264.66                        | 61.58         | 44.70     | 6.70  | 28.20          | -9.80            | 51.78          | 74.00    | -22.22 | PK       | Horizontal |
| 3264.66                        | 50.99         | 44.70     | 6.70  | 28.20          | -9.80            | 41.19          | 54.00    | -12.81 | AV       | Horizontal |
| 4804.43                        | 58.93         | 44.20     | 9.04  | 31.60          | -3.56            | 55.37          | 74.00    | -18.63 | PK       | Vertical   |
| 4804.43                        | 49.98         | 44.20     | 9.04  | 31.60          | -3.56            | 46.42          | 54.00    | -7.58  | AV       | Vertical   |
| 4804.33                        | 58.81         | 44.20     | 9.04  | 31.60          | -3.56            | 55.25          | 74.00    | -18.75 | PK       | Horizontal |
| 4804.33                        | 49.72         | 44.20     | 9.04  | 31.60          | -3.56            | 46.16          | 54.00    | -7.84  | AV       | Horizontal |
| 5359.63                        | 48.15         | 44.20     | 9.86  | 32.00          | -2.34            | 45.81          | 74.00    | -28.19 | PK       | Vertical   |
| 5359.63                        | 39.54         | 44.20     | 9.86  | 32.00          | -2.34            | 37.20          | 54.00    | -16.80 | AV       | Vertical   |
| 5359.58                        | 47.66         | 44.20     | 9.86  | 32.00          | -2.34            | 45.31          | 74.00    | -28.69 | PK       | Horizontal |
| 5359.58                        | 38.33         | 44.20     | 9.86  | 32.00          | -2.34            | 35.99          | 54.00    | -18.01 | AV       | Horizontal |
| 7205.76                        | 54.44         | 43.50     | 11.40 | 35.50          | 3.40             | 57.84          | 74.00    | -16.16 | PK       | Vertical   |
| 7205.76                        | 44.44         | 43.50     | 11.40 | 35.50          | 3.40             | 47.84          | 54.00    | -6.16  | AV       | Vertical   |
| 7205.71                        | 53.63         | 43.50     | 11.40 | 35.50          | 3.40             | 57.03          | 74.00    | -16.97 | PK       | Horizontal |
| 7205.71                        | 44.19         | 43.50     | 11.40 | 35.50          | 3.40             | 47.59          | 54.00    | -6.41  | AV       | Horizontal |
| Middle Channel (GFSK/2440 MHz) |               |           |       |                |                  |                |          |        |          |            |
| 3263.03                        | 61.07         | 44.70     | 6.70  | 28.20          | -9.80            | 51.27          | 74.00    | -22.73 | PK       | Vertical   |
| 3263.03                        | 50.94         | 44.70     | 6.70  | 28.20          | -9.80            | 41.14          | 54.00    | -12.86 | AV       | Vertical   |
| 3263.10                        | 61.19         | 44.70     | 6.70  | 28.20          | -9.80            | 51.39          | 74.00    | -22.61 | PK       | Horizontal |
| 3263.10                        | 50.09         | 44.70     | 6.70  | 28.20          | -9.80            | 40.29          | 54.00    | -13.71 | AV       | Horizontal |
| 4879.95                        | 58.83         | 44.20     | 9.04  | 31.60          | -3.56            | 55.27          | 74.00    | -18.73 | PK       | Vertical   |
| 4879.95                        | 50.01         | 44.20     | 9.04  | 31.60          | -3.56            | 46.45          | 54.00    | -7.55  | AV       | Vertical   |
| 4879.92                        | 59.42         | 44.20     | 9.04  | 31.60          | -3.56            | 55.86          | 74.00    | -18.14 | PK       | Horizontal |
| 4879.92                        | 50.59         | 44.20     | 9.04  | 31.60          | -3.56            | 47.03          | 54.00    | -6.97  | AV       | Horizontal |
| 5357.27                        | 48.19         | 44.20     | 9.86  | 32.00          | -2.34            | 45.85          | 74.00    | -28.15 | PK       | Vertical   |
| 5357.27                        | 39.43         | 44.20     | 9.86  | 32.00          | -2.34            | 37.09          | 54.00    | -16.91 | AV       | Vertical   |
| 5357.39                        | 47.21         | 44.20     | 9.86  | 32.00          | -2.34            | 44.87          | 74.00    | -29.13 | PK       | Horizontal |
| 5357.01                        | 38.10         | 44.20     | 9.86  | 32.00          | -2.34            | 35.76          | 54.00    | -18.24 | AV       | Horizontal |
| 7320.85                        | 54.01         | 43.50     | 11.40 | 35.50          | 3.40             | 57.41          | 74.00    | -16.59 | PK       | Vertical   |
| 7320.85                        | 43.61         | 43.50     | 11.40 | 35.50          | 3.40             | 47.01          | 54.00    | -6.99  | AV       | Vertical   |
| 7320.39                        | 54.29         | 43.50     | 11.40 | 35.50          | 3.40             | 57.69          | 74.00    | -16.31 | PK       | Horizontal |
| 7320.39                        | 44.07         | 43.50     | 11.40 | 35.50          | 3.40             | 47.47          | 54.00    | -6.53  | AV       | Horizontal |



| High Channel (GFSK/2480 MHz) |       |       |       |       |       |       |       |        |    |            |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|----|------------|
| 3264.88                      | 61.98 | 44.70 | 6.70  | 28.20 | -9.80 | 52.18 | 74.00 | -21.82 | PK | Vertical   |
| 3264.88                      | 51.40 | 44.70 | 6.70  | 28.20 | -9.80 | 41.60 | 54.00 | -12.40 | AV | Vertical   |
| 3264.59                      | 61.81 | 44.70 | 6.70  | 28.20 | -9.80 | 52.01 | 74.00 | -21.99 | PK | Horizontal |
| 3264.59                      | 50.64 | 44.70 | 6.70  | 28.20 | -9.80 | 40.84 | 54.00 | -13.16 | AV | Horizontal |
| 4960.29                      | 58.76 | 44.20 | 9.04  | 31.60 | -3.56 | 55.20 | 74.00 | -18.80 | PK | Vertical   |
| 4960.29                      | 49.46 | 44.20 | 9.04  | 31.60 | -3.56 | 45.90 | 54.00 | -8.10  | AV | Vertical   |
| 4960.61                      | 58.29 | 44.20 | 9.04  | 31.60 | -3.56 | 54.73 | 74.00 | -19.27 | PK | Horizontal |
| 4960.61                      | 50.02 | 44.20 | 9.04  | 31.60 | -3.56 | 46.46 | 54.00 | -7.54  | AV | Horizontal |
| 5359.65                      | 49.04 | 44.20 | 9.86  | 32.00 | -2.34 | 46.70 | 74.00 | -27.30 | PK | Vertical   |
| 5359.65                      | 39.82 | 44.20 | 9.86  | 32.00 | -2.34 | 37.48 | 54.00 | -16.52 | AV | Vertical   |
| 5359.69                      | 47.10 | 44.20 | 9.86  | 32.00 | -2.34 | 44.75 | 74.00 | -29.25 | PK | Horizontal |
| 5359.69                      | 39.22 | 44.20 | 9.86  | 32.00 | -2.34 | 36.88 | 54.00 | -17.12 | AV | Horizontal |
| 7439.77                      | 54.55 | 43.50 | 11.40 | 35.50 | 3.40  | 57.95 | 74.00 | -16.05 | PK | Vertical   |
| 7439.77                      | 43.87 | 43.50 | 11.40 | 35.50 | 3.40  | 47.27 | 54.00 | -6.73  | AV | Vertical   |
| 7439.95                      | 53.91 | 43.50 | 11.40 | 35.50 | 3.40  | 57.31 | 74.00 | -16.69 | PK | Horizontal |
| 7439.95                      | 44.21 | 43.50 | 11.40 | 35.50 | 3.40  | 47.61 | 54.00 | -6.39  | AV | Horizontal |

Note:

- 1) Factor = Antenna Factor + Cable Loss – Pre-amplifier.  
Emission Level = Reading + Factor.
- 2) The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.



2M PHY  
GFSK

| Frequency                      | Meter Reading | Amplifier | Loss  | Antenna Factor | Corrected Factor | Emission Level | Limits   | Margin | Detector | Comment    |
|--------------------------------|---------------|-----------|-------|----------------|------------------|----------------|----------|--------|----------|------------|
| (MHz)                          | (dBμV)        | (dB)      | (dB)  | (dB/m)         | (dB)             | (dBμV/m)       | (dBμV/m) | (dB)   | Type     |            |
| Low Channel (GFSK/2402 MHz)    |               |           |       |                |                  |                |          |        |          |            |
| 3264.77                        | 61.64         | 44.70     | 6.70  | 28.20          | -9.80            | 51.84          | 74.00    | -22.16 | PK       | Vertical   |
| 3264.77                        | 51.72         | 44.70     | 6.70  | 28.20          | -9.80            | 41.92          | 54.00    | -12.08 | AV       | Vertical   |
| 3264.65                        | 60.82         | 44.70     | 6.70  | 28.20          | -9.80            | 51.02          | 74.00    | -22.98 | PK       | Horizontal |
| 3264.65                        | 50.71         | 44.70     | 6.70  | 28.20          | -9.80            | 40.91          | 54.00    | -13.09 | AV       | Horizontal |
| 4804.51                        | 58.82         | 44.20     | 9.04  | 31.60          | -3.56            | 55.26          | 74.00    | -18.74 | PK       | Vertical   |
| 4804.51                        | 50.54         | 44.20     | 9.04  | 31.60          | -3.56            | 46.98          | 54.00    | -7.02  | AV       | Vertical   |
| 4804.32                        | 58.84         | 44.20     | 9.04  | 31.60          | -3.56            | 55.28          | 74.00    | -18.72 | PK       | Horizontal |
| 4804.32                        | 49.11         | 44.20     | 9.04  | 31.60          | -3.56            | 45.55          | 54.00    | -8.45  | AV       | Horizontal |
| 5359.62                        | 48.99         | 44.20     | 9.86  | 32.00          | -2.34            | 46.65          | 74.00    | -27.35 | PK       | Vertical   |
| 5359.62                        | 39.97         | 44.20     | 9.86  | 32.00          | -2.34            | 37.62          | 54.00    | -16.38 | AV       | Vertical   |
| 5359.71                        | 48.56         | 44.20     | 9.86  | 32.00          | -2.34            | 46.21          | 74.00    | -27.79 | PK       | Horizontal |
| 5359.71                        | 38.84         | 44.20     | 9.86  | 32.00          | -2.34            | 36.50          | 54.00    | -17.50 | AV       | Horizontal |
| 7205.76                        | 54.44         | 43.50     | 11.40 | 35.50          | 3.40             | 57.84          | 74.00    | -16.16 | PK       | Vertical   |
| 7205.76                        | 44.25         | 43.50     | 11.40 | 35.50          | 3.40             | 47.65          | 54.00    | -6.35  | AV       | Vertical   |
| 7205.88                        | 53.87         | 43.50     | 11.40 | 35.50          | 3.40             | 57.27          | 74.00    | -16.73 | PK       | Horizontal |
| 7205.88                        | 44.89         | 43.50     | 11.40 | 35.50          | 3.40             | 48.29          | 54.00    | -5.71  | AV       | Horizontal |
| Middle Channel (GFSK/2440 MHz) |               |           |       |                |                  |                |          |        |          |            |
| 3262.99                        | 61.32         | 44.70     | 6.70  | 28.20          | -9.80            | 51.52          | 74.00    | -22.48 | PK       | Vertical   |
| 3262.99                        | 51.68         | 44.70     | 6.70  | 28.20          | -9.80            | 41.88          | 54.00    | -12.12 | AV       | Vertical   |
| 3262.93                        | 61.70         | 44.70     | 6.70  | 28.20          | -9.80            | 51.90          | 74.00    | -22.10 | PK       | Horizontal |
| 3262.93                        | 50.09         | 44.70     | 6.70  | 28.20          | -9.80            | 40.29          | 54.00    | -13.71 | AV       | Horizontal |
| 4880.06                        | 58.48         | 44.20     | 9.04  | 31.60          | -3.56            | 54.92          | 74.00    | -19.08 | PK       | Vertical   |
| 4880.06                        | 50.41         | 44.20     | 9.04  | 31.60          | -3.56            | 46.85          | 54.00    | -7.15  | AV       | Vertical   |
| 4879.92                        | 58.75         | 44.20     | 9.04  | 31.60          | -3.56            | 55.19          | 74.00    | -18.81 | PK       | Horizontal |
| 4879.92                        | 49.29         | 44.20     | 9.04  | 31.60          | -3.56            | 45.73          | 54.00    | -8.27  | AV       | Horizontal |
| 5357.15                        | 48.11         | 44.20     | 9.86  | 32.00          | -2.34            | 45.77          | 74.00    | -28.23 | PK       | Vertical   |
| 5357.15                        | 39.60         | 44.20     | 9.86  | 32.00          | -2.34            | 37.26          | 54.00    | -16.74 | AV       | Vertical   |
| 5357.39                        | 47.75         | 44.20     | 9.86  | 32.00          | -2.34            | 45.41          | 74.00    | -28.59 | PK       | Horizontal |
| 5357.09                        | 39.04         | 44.20     | 9.86  | 32.00          | -2.34            | 36.69          | 54.00    | -17.31 | AV       | Horizontal |
| 7320.85                        | 53.99         | 43.50     | 11.40 | 35.50          | 3.40             | 57.39          | 74.00    | -16.61 | PK       | Vertical   |
| 7320.85                        | 43.99         | 43.50     | 11.40 | 35.50          | 3.40             | 47.39          | 54.00    | -6.61  | AV       | Vertical   |
| 7320.35                        | 53.62         | 43.50     | 11.40 | 35.50          | 3.40             | 57.02          | 74.00    | -16.98 | PK       | Horizontal |
| 7320.35                        | 44.85         | 43.50     | 11.40 | 35.50          | 3.40             | 48.25          | 54.00    | -5.75  | AV       | Horizontal |



| High Channel (GFSK/2480 MHz) |       |       |       |       |       |       |       |        |    |            |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|--------|----|------------|
| 3264.68                      | 61.01 | 44.70 | 6.70  | 28.20 | -9.80 | 51.21 | 74.00 | -22.79 | PK | Vertical   |
| 3264.68                      | 50.21 | 44.70 | 6.70  | 28.20 | -9.80 | 40.41 | 54.00 | -13.59 | AV | Vertical   |
| 3264.68                      | 62.18 | 44.70 | 6.70  | 28.20 | -9.80 | 52.38 | 74.00 | -21.62 | PK | Horizontal |
| 3264.68                      | 50.18 | 44.70 | 6.70  | 28.20 | -9.80 | 40.38 | 54.00 | -13.62 | AV | Horizontal |
| 4960.39                      | 58.10 | 44.20 | 9.04  | 31.60 | -3.56 | 54.54 | 74.00 | -19.46 | PK | Vertical   |
| 4960.39                      | 49.15 | 44.20 | 9.04  | 31.60 | -3.56 | 45.59 | 54.00 | -8.41  | AV | Vertical   |
| 4960.48                      | 59.21 | 44.20 | 9.04  | 31.60 | -3.56 | 55.65 | 74.00 | -18.35 | PK | Horizontal |
| 4960.48                      | 49.80 | 44.20 | 9.04  | 31.60 | -3.56 | 46.24 | 54.00 | -7.76  | AV | Horizontal |
| 5359.65                      | 48.35 | 44.20 | 9.86  | 32.00 | -2.34 | 46.01 | 74.00 | -27.99 | PK | Vertical   |
| 5359.65                      | 39.15 | 44.20 | 9.86  | 32.00 | -2.34 | 36.81 | 54.00 | -17.19 | AV | Vertical   |
| 5359.58                      | 48.06 | 44.20 | 9.86  | 32.00 | -2.34 | 45.71 | 74.00 | -28.29 | PK | Horizontal |
| 5359.58                      | 38.04 | 44.20 | 9.86  | 32.00 | -2.34 | 35.70 | 54.00 | -18.30 | AV | Horizontal |
| 7439.95                      | 54.19 | 43.50 | 11.40 | 35.50 | 3.40  | 57.59 | 74.00 | -16.41 | PK | Vertical   |
| 7439.95                      | 43.74 | 43.50 | 11.40 | 35.50 | 3.40  | 47.14 | 54.00 | -6.86  | AV | Vertical   |
| 7439.92                      | 53.99 | 43.50 | 11.40 | 35.50 | 3.40  | 57.39 | 74.00 | -16.61 | PK | Horizontal |
| 7439.92                      | 44.00 | 43.50 | 11.40 | 35.50 | 3.40  | 47.40 | 54.00 | -6.60  | AV | Horizontal |

Note:

- 1) Factor = Antenna Factor + Cable Loss – Pre-amplifier.  
Emission Level = Reading + Factor.
- 2) The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.



## 5. ANTENNA REQUIREMENT

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|
| Standard requirement:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | FCC Part15 C Section 15.203 /247(c) |
| <p>15.203 requirement:<br/>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.</p> <p>15.247(c) (1)(i) requirement:<br/>(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.</p> |                                     |
| EUT Antenna:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     |
| The antenna is FPC antenna, the best case gain of the antennas is 2.01dBi, reference to the appendix II for details.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                     |



## 6. TEST SETUP PHOTO

Reference to the appendix I for details.

## 7. EUT CONSTRUCTIONAL DETAILS

Reference to the appendix II for details.

\*\*\*\*\* END OF REPORT \*\*\*\*\*