

# FCC C2PC Test Report

**FCC ID** : QTG-ZKMS  
**Equipment** : BT3GMD-B47P  
**Model No.** : ID6ZFN-BK0  
**Multiple Listing** : Please refer to section 1.1.1  
**Brand Name** : ZAGG  
**Applicant** : ZAGG Inc.  
**Address** : 3855 South 500 West Salt Lake City, UT 84115  
USA  
**Standard** : 47 CFR FCC Part 15.247  
**Received Date** : May 08, 2015  
**Tested Date** : May 08 ~ May 12, 2015

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Approved & Reviewed by:

  
\_\_\_\_\_  
Gary Chang / Manager



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## Table of Contents

|          |  |           |
|----------|--|-----------|
| <b>1</b> | <b>GENERAL DESCRIPTION .....</b>                         | <b>5</b>  |
| 1.1      | Information.....   | 5         |
| 1.2      | Local Support Equipment List .....                       | 8         |
| 1.3      | Test Setup Chart .....                                   | 8         |
| 1.4      | The Equipment List .....                                 | 9         |
| 1.5      | Test Standards .....                                     | 9         |
| 1.6      | Measurement Uncertainty .....                            | 10        |
| <b>2</b> | <b>TEST CONFIGURATION .....</b>                          | <b>11</b> |
| 2.1      | Testing Condition .....                                  | 11        |
| 2.2      | The Worst Test Modes and Channel Details .....           | 11        |
| <b>3</b> | <b>TRANSMITTER TEST RESULTS.....</b>                     | <b>12</b> |
| 3.1      | Conducted Emissions.....                                 | 12        |
| 3.2      | Unwanted Emissions into Restricted Frequency Bands ..... | 15        |
| <b>4</b> | <b>TEST LABORATORY INFORMATION .....</b>                 | <b>25</b> |

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## Release Record

| Report No. | Version | Description   | Issued Date   |
|------------|---------|---------------|---------------|
| FR550803   | Rev. 01 | Initial issue | Jun. 01, 2015 |

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## Summary of Test Results

| FCC Rules           | Test Items          | Measured   | Result |
|---------------------|---------------------|--|--------|
| 15.207              | Conducted Emissions | [dBuV]: 0.160MHz<br>41.04 (Margin -14.41dB) - AV         | Pass   |
| 15.247(d)<br>15.209 | Radiated Emissions  | [dBuV/m at 3m]: 752.65MHz<br>41.67 (Margin -4.33dB) - PK | Pass   |

# 1 General Description

## 1.1 Information

This report is issued as a FCC Class II Permissive Change for adding new specific platform (refer to section 1.1.3). In this report, conducted emission and radiated emission had been tested and only its data was presented in the following sections.

### 1.1.1 Product Details

The following models are provided to this EUT.

| Brand Name | Model Name |            | Product Name |
|------------|------------|------------|--------------|
| ZAGG       | ID6ZFN-BK0 | ID6ZF2-BB0 | BT3GMD-B47P  |
|            | ID6ZFN-PU0 | ID6ZF2-WW0 |              |
|            | ID6ZFN-RD0 | ID6ZFN-BBU |              |
|            | ID6ZFN-BL0 | ID6ZFN-BBN |              |
|            | ID6ZFN-GY0 | ID6ZFN-BBG |              |
|            | ID6ZFN-WW0 | ID6ZFN-BBF |              |
|            | ID6ZFK-BB0 | ID6ZFN-BBS |              |
|            | ID6ZFK-PU0 | ID6ZFN-BBZ |              |
|            | ID6ZFK-RD0 | ID6ZFK-BBU |              |
|            | ID6ZFK-BL0 | ID6ZFK-BBG |              |
|            | ID6ZFK-GY0 | ID6ZFK-BBN |              |
|            | ID6ZFK-WW0 | ID6ZFK-BBS |              |
|            | IM2ZF2-BB0 | ID6ZFK-BBF |              |
|            | IM2ZF2-WW0 | ID6ZFK-BBZ |              |

† All models are electrically identical, different model names are for marketing purpose.  
 † The above models, model **ID6ZFN-BK0** was selected as a representative one for the final test and only its data was recorded in this report.

### 1.1.2 Specification of the Equipment under Test (EUT)

| RF General Information |                |                     |                |           |
|------------------------|----------------|---------------------|----------------|-----------|
| Frequency Range (MHz)  | Bluetooth Mode | Ch. Frequency (MHz) | Channel Number | Data Rate |
| 2400-2483.5            | BR V3.0        | 2402-2480           | 0-78 [79]      | 1 Mbps    |

Note 1: RF output power specifies that Maximum Peak Conducted Output Power.  
 Note 2: Bluetooth BR uses a GFSK only.  
 Note 3: The module is certified as limited module that is limited to specific host.

### 1.1.3 Specific Platform Information

| Brand Name | Model Name             | Product Name        |
|------------|------------------------|---------------------|
| ZAGG       | Slimfolio-V-G83SLK-BB0 | Slim Folio LG X 8.3 |

| Accessories for Platform |           |                         |
|--------------------------|-----------|-------------------------|
| No.                      | Equipment | Description             |
| 1                        | USB cable | 0.5m shielded w/o core. |

### 1.1.4 Antenna Details

| Ant. No. | Type | Gain (dBi) | Connector | Remark |
|----------|------|------------|-----------|--------|
| 1        | PCB  | 2          | N/A       | ---    |

### 1.1.5 Power Supply Type

|                              |                                       |
|------------------------------|---------------------------------------|
| Power Supply Type (EUT)      | 3.7Vdc from host                      |
| Power Supply Type (Platform) | 3.7Vdc from battery<br>5Vdc from host |

### 1.1.6 Channel List

| Frequency band (MHz) |                 |         |                 | 2400~2483.5 |                 |         |                 |
|----------------------|-----------------|---------|-----------------|-------------|-----------------|---------|-----------------|
| 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            | ---     | ---             |

### 1.1.7 Test Tool and Duty Cycle

|                  |                             |
|------------------|-----------------------------|
| <b>Test Tool</b> | Blue Tool, Version: 1.8.8.6 |
|------------------|-----------------------------|

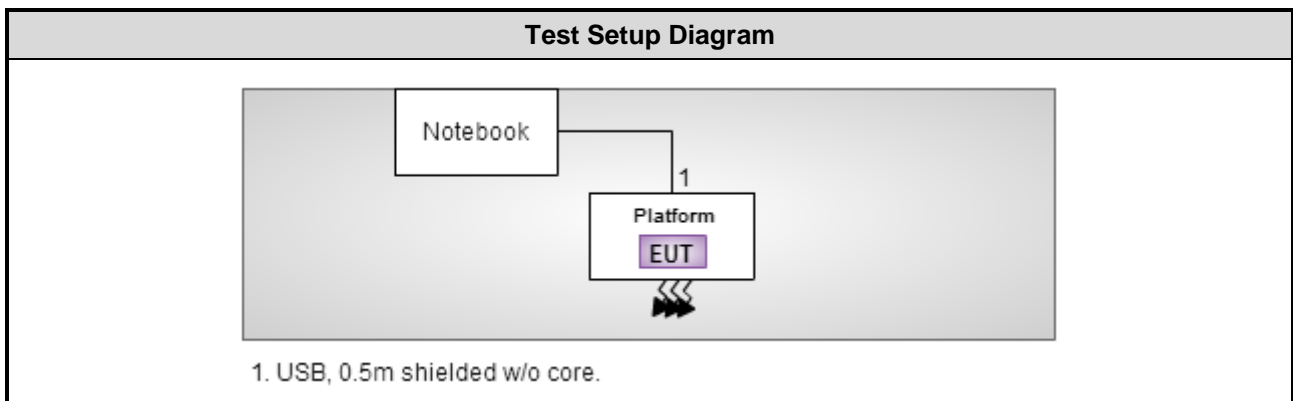
### 1.1.8 Power Setting

| Modulation Mode | Test Frequency (MHz) |      |      |
|-----------------|----------------------|------|------|
|                 | 2402                 | 2441 | 2480 |
| GFSK/1Mbps      | 1                    | 1    | 1    |

## 1.2 Local Support Equipment List

| Support Equipment List |           |       |                |        |                               |
|------------------------|-----------|-------|----------------|--------|-------------------------------|
| No.                    | Equipment | Brand | Model          | FCC ID | Signal cable / Length (m)     |
| 1                      | Notebook  | DELL  | Latitude E6440 | DoC    | USB, 0.5m shielded w/o core.. |

## 1.3 Test Setup Chart





## 1.4 The Equipment List

|                         |                               |                  |                   |                         |                          |
|-------------------------|-------------------------------|------------------|-------------------|-------------------------|--------------------------|
| <b>Test Item</b>        | Conducted Emission            |                  |                   |                         |                          |
| <b>Test Site</b>        | Conduction room 1 / (CO01-WS) |                  |                   |                         |                          |
| <b>Test Date</b>        | May 12, 2015                  |                  |                   |                         |                          |
| <b>Instrument</b>       | <b>Manufacturer</b>           | <b>Model No.</b> | <b>Serial No.</b> | <b>Calibration Date</b> | <b>Calibration Until</b> |
| EMC Receiver            | R&S                           | ESCS 30          | 100169            | Oct. 17, 2014           | Oct. 16, 2015            |
| LISN                    | SCHWARZBECK                   | Schwarzbeck 8127 | 8127-667          | Nov. 17, 2014           | Nov. 16, 2015            |
| LISN<br>(Support Unit)  | SCHWARZBECK                   | Schwarzbeck 8127 | 8127-666          | Nov. 26, 2014           | Nov. 25, 2015            |
| RF Cable-CON            | Woken                         | CFD200-NL        | CFD200-NL-001     | Dec. 31, 2014           | Dec. 30, 2015            |
| Measurement<br>Software | AUDIX                         | e3               | 6.120210k         | NA                      | NA                       |

Note: Calibration Interval of instruments listed above is one year.

|                         |                             |                  |                   |                         |                          |
|-------------------------|-----------------------------|------------------|-------------------|-------------------------|--------------------------|
| <b>Test Item</b>        | Radiated Emission           |                  |                   |                         |                          |
| <b>Test Site</b>        | 966 chamber 2 / (03CH02-WS) |                  |                   |                         |                          |
| <b>Test Date</b>        | May 08, 2015                |                  |                   |                         |                          |
| <b>Instrument</b>       | <b>Manufacturer</b>         | <b>Model No.</b> | <b>Serial No.</b> | <b>Calibration Date</b> | <b>Calibration Until</b> |
| Spectrum Analyzer       | R&S                         | FSV40            | 101499            | Dec. 31, 2014           | Dec. 30, 2015            |
| Receiver                | R&S                         | ESR3             | 101657            | Jan. 15, 2015           | Jan. 14, 2016            |
| Bilog Antenna           | SCHWARZBECK                 | VULB9168         | VULB9168-524      | Oct. 16, 2014           | Oct. 15, 2015            |
| Horn Antenna<br>1G-18G  | SCHWARZBECK                 | BBHA 9120 D      | BBHA 9120 D 1095  | Oct. 14, 2014           | Oct. 13, 2015            |
| Horn Antenna<br>18G-40G | SCHWARZBECK                 | BBHA 9170        | BBHA 9170517      | Nov. 10, 2014           | Nov. 09, 2015            |
| Loop Antenna            | R&S                         | HFH2-Z2          | 11900             | Nov. 10, 2014           | Nov. 09, 2015            |
| Preamplifier            | Burgeon                     | BPA-530          | 100218            | Nov. 10, 2014           | Nov. 09, 2015            |
| Preamplifier            | Agilent                     | 83017A           | MY39501309        | Sep. 29, 2014           | Sep. 28, 2015            |
| Preamplifier            | EMC                         | EMC184045B       | 980192            | Aug. 26, 2014           | Aug. 25, 2015            |
| RF Cable                | HUBER+SUHNER                | SUCOFLEX104      | MY16140/4         | Dec. 16, 2014           | Dec. 15, 2015            |
| RF Cable                | HUBER+SUHNER                | SUCOFLEX104      | MY16018/4         | Dec. 16, 2014           | Dec. 15, 2015            |
| RF Cable                | HUBER+SUHNER                | SUCOFLEX104      | MY16015/4         | Dec. 16, 2014           | Dec. 15, 2015            |
| LF cable 3M             | Woken                       | CFD400NL-LW      | CFD400NL-003      | Dec. 16, 2014           | Dec. 15, 2015            |
| LF cable 10M            | Woken                       | CFD400NL-LW      | CFD400NL-004      | Dec. 16, 2014           | Dec. 15, 2015            |
| Measurement<br>Software | AUDIX                       | e3               | 6.120210g         | NA                      | NA                       |

Note: Calibration Interval of instruments listed above is one year.

## 1.5 Test Standards

According to the specification of EUT, the EUT must comply with following standards and KDB documents.

47 CFR FCC Part 15.247

FCC Public notice DA 00-705

ANSI C63.10-2009

Note: FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014

## 1.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

| Measurement Uncertainty  |             |
|--------------------------|-------------|
| Parameters               | Uncertainty |
| AC conducted emission    | ±2.92 dB    |
| Radiated emission ≤ 1GHz | ±3.62 dB    |
| Radiated emission > 1GHz | ±5.6 dB     |

## 2 Test Configuration

### 2.1 Testing Condition

| Test Item          | Test Site | Ambient Condition | Tested By  |
|--------------------|-----------|-------------------|------------|
| AC Conduction      | CO01-WS   | 22°C / 63%        | Kevin Ma   |
| Radiated Emissions | 03CH02-WS | 25°C / 65%        | Aska Huang |

➤ FCC site registration No.: 657002

➤ IC site registration No.: 10807A-2

### 2.2 The Worst Test Modes and Channel Details

| Test item                 | Mode | Test Frequency (MHz) | Data Rate (Mbps) | Test Configuration |
|---------------------------|------|----------------------|------------------|--------------------|
| Conducted Emissions       | GFSK | 2402                 | 1Mbps            | ---                |
| Radiated Emissions ≤ 1GHz | GFSK | 2402                 | 1Mbps            | ---                |
| Radiated Emissions > 1GHz | GFSK | 2402, 2441, 2480     | 1Mbps            | ---                |

## 3 Transmitter Test Results

### 3.1 Conducted Emissions

#### 3.1.1 Limit of Conducted Emissions

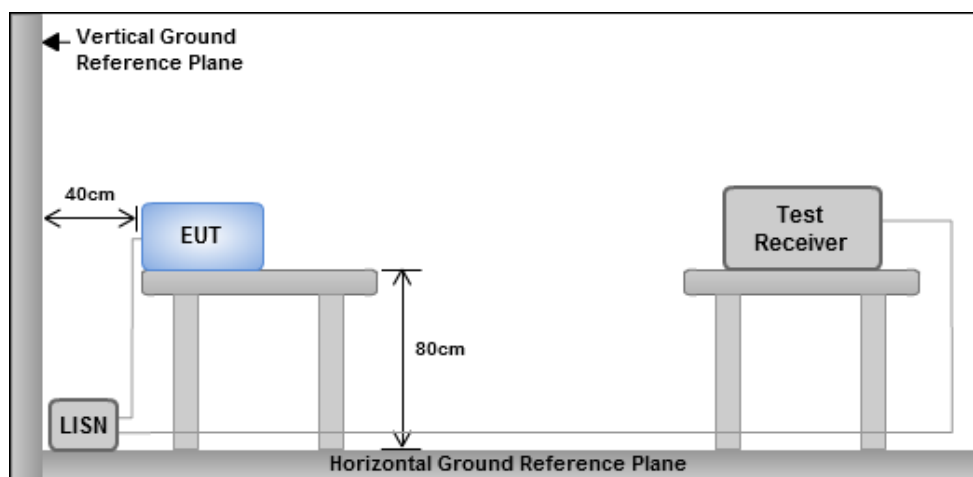
| Conducted Emissions Limit |            |           |
|---------------------------|------------|-----------|
| Frequency Emission (MHz)  | Quasi-Peak | Average   |
| 0.15-0.5                  | 66 - 56 *  | 56 - 46 * |
| 0.5-5                     | 56         | 46        |
| 5-30                      | 60         | 50        |

Note 1: \* Decreases with the logarithm of the frequency.

#### 3.1.2 Test Procedures

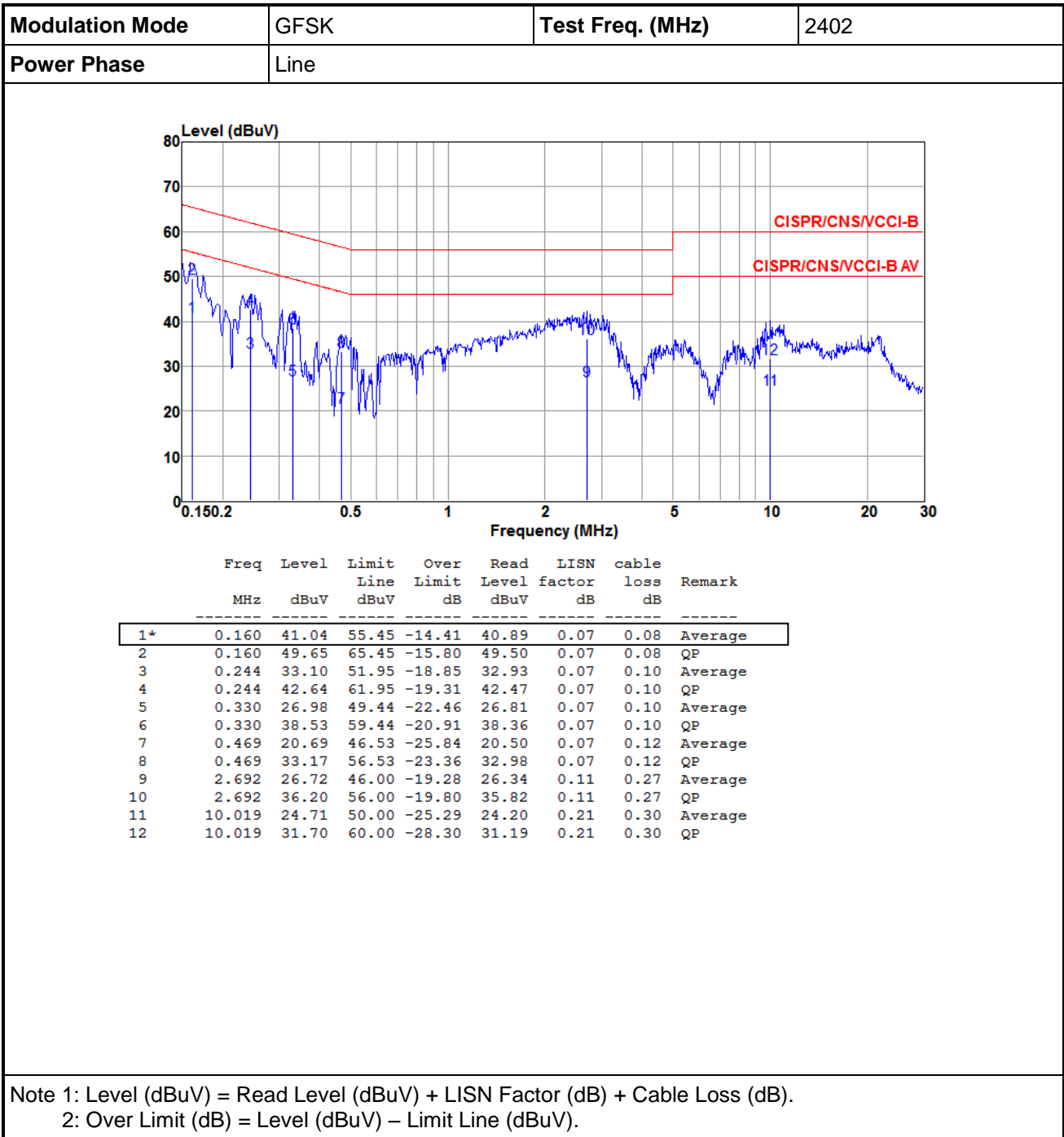
1. The device is placed on a test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rear of the device.
2. The device is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50  $\Omega$  LISN port.
3. AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.
4. This measurement was performed with AC 120V/60Hz

#### 3.1.3 Test Setup

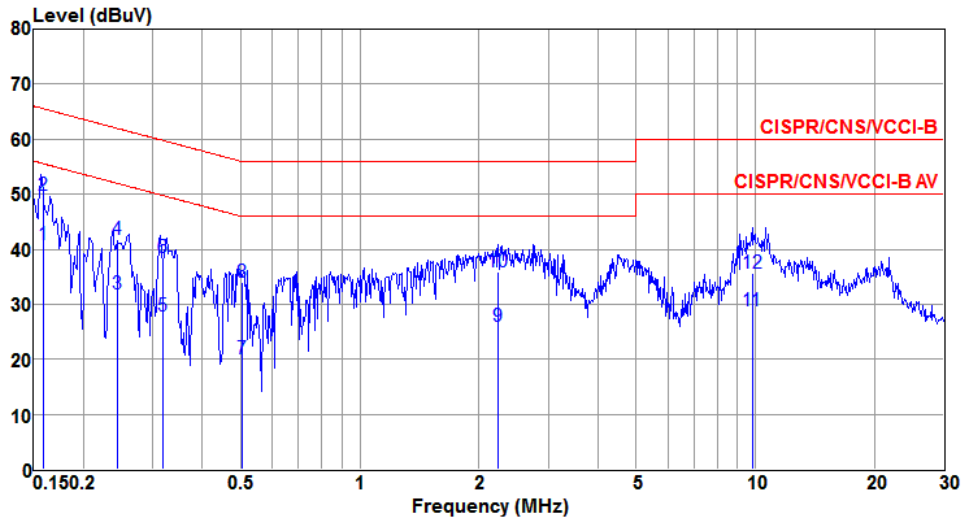


- Note: 1. Support units were connected to second LISN.  
 2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

### 3.1.4 Test Result of Conducted Emissions



|                        |         |                         |      |
|------------------------|---------|-------------------------|------|
| <b>Modulation Mode</b> | GFSK    | <b>Test Freq. (MHz)</b> | 2402 |
| <b>Power Phase</b>     | Neutral |                         |      |



|    | Freq<br>MHz | Level<br>dBuV | Limit<br>Line<br>dBuV | Over<br>Limit<br>dB | Read<br>Level<br>dBuV | LISN<br>factor<br>dB | cable<br>loss<br>dB | Remark  |
|----|-------------|---------------|-----------------------|---------------------|-----------------------|----------------------|---------------------|---------|
| 1* | 0.159       | 40.94         | 55.51                 | -14.57              | 40.79                 | 0.07                 | 0.08                | Average |
| 2  | 0.159       | 49.78         | 65.51                 | -15.73              | 49.63                 | 0.07                 | 0.08                | QP      |
| 3  | 0.244       | 31.98         | 51.95                 | -19.97              | 31.81                 | 0.07                 | 0.10                | Average |
| 4  | 0.244       | 41.80         | 61.95                 | -20.15              | 41.63                 | 0.07                 | 0.10                | QP      |
| 5  | 0.317       | 27.81         | 49.78                 | -21.97              | 27.64                 | 0.07                 | 0.10                | Average |
| 6  | 0.317       | 38.56         | 59.78                 | -21.22              | 38.39                 | 0.07                 | 0.10                | QP      |
| 7  | 0.503       | 20.03         | 46.00                 | -25.97              | 19.84                 | 0.07                 | 0.12                | Average |
| 8  | 0.503       | 33.87         | 56.00                 | -22.13              | 33.68                 | 0.07                 | 0.12                | QP      |
| 9  | 2.237       | 25.96         | 46.00                 | -20.04              | 25.61                 | 0.10                 | 0.25                | Average |
| 10 | 2.237       | 35.97         | 56.00                 | -20.03              | 35.62                 | 0.10                 | 0.25                | QP      |
| 11 | 9.809       | 28.89         | 50.00                 | -21.11              | 28.36                 | 0.23                 | 0.30                | Average |
| 12 | 9.809       | 35.59         | 60.00                 | -24.41              | 35.06                 | 0.23                 | 0.30                | QP      |

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).  
 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

## 3.2 Unwanted Emissions into Restricted Frequency Bands

### 3.2.1 Limit of Unwanted Emissions into Restricted Frequency Bands

| Restricted Band Emissions Limit |                       |                         |                      |
|---------------------------------|-----------------------|-------------------------|----------------------|
| Frequency Range (MHz)           | Field Strength (uV/m) | Field Strength (dBuV/m) | Measure Distance (m) |
| 0.009~0.490                     | 2400/F(kHz)           | 48.5 - 13.8             | 300                  |
| 0.490~1.705                     | 24000/F(kHz)          | 33.8 - 23               | 30                   |
| 1.705~30.0                      | 30                    | 29                      | 30                   |
| 30~88                           | 100                   | 40                      | 3                    |
| 88~216                          | 150                   | 43.5                    | 3                    |
| 216~960                         | 200                   | 46                      | 3                    |
| Above 960                       | 500                   | 54                      | 3                    |

**Note 1:**  
Qusai-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit

**Note 2:**  
Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

### 3.2.2 Test Procedures

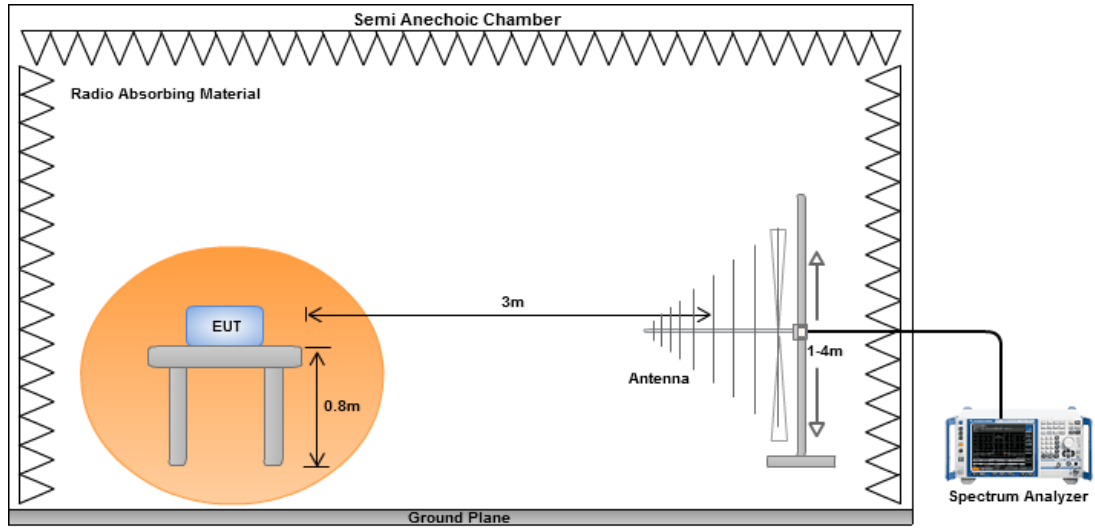
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at test table. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m
2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
3. This investigation is performed with the EUT rotated 360°, the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

**Note:**

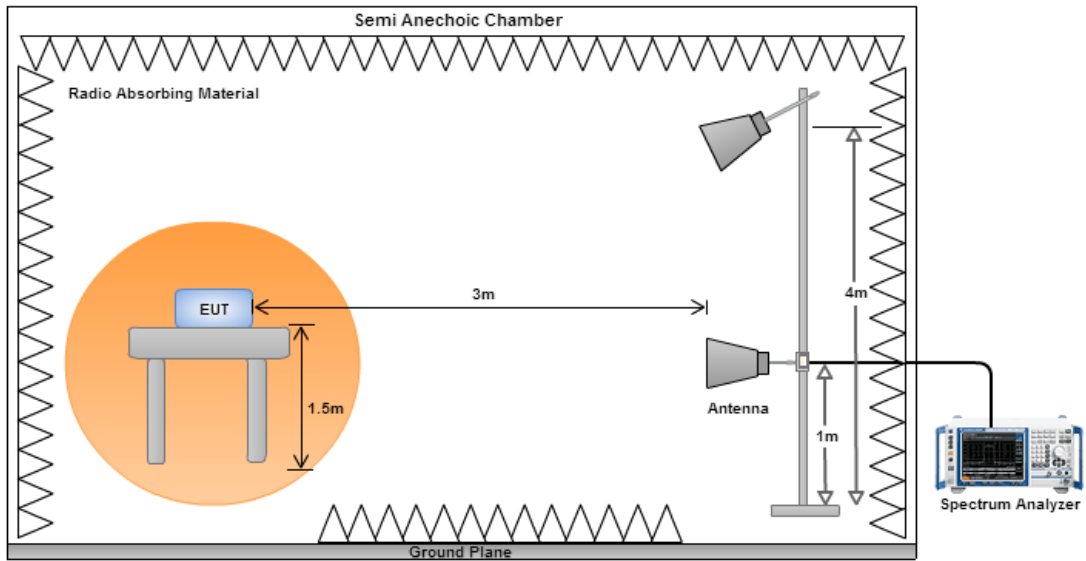
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. Radiated emission above 1GHz / Peak value  
RBW=1MHz, VBW=3MHz and Peak detector  
Radiated emission above 1GHz / Average value for harmonics  
The average value is: Average = Peak value + 20log(Duty cycle) Where the duty factor is calculated from following formula for DH5 packet type which has worst duty factor:
3.
$$20\log (\text{Duty cycle}) = 20\log \frac{1\text{s} / 1600 * 5}{100 \text{ ms}} = -30.1\text{dB}$$
4. Radiated emission above 1GHz / Average value for other emissions  
RBW=1MHz, VBW=1/T and Peak detector

### 3.2.3 Test Setup

#### Radiated Emissions below 1 GHz

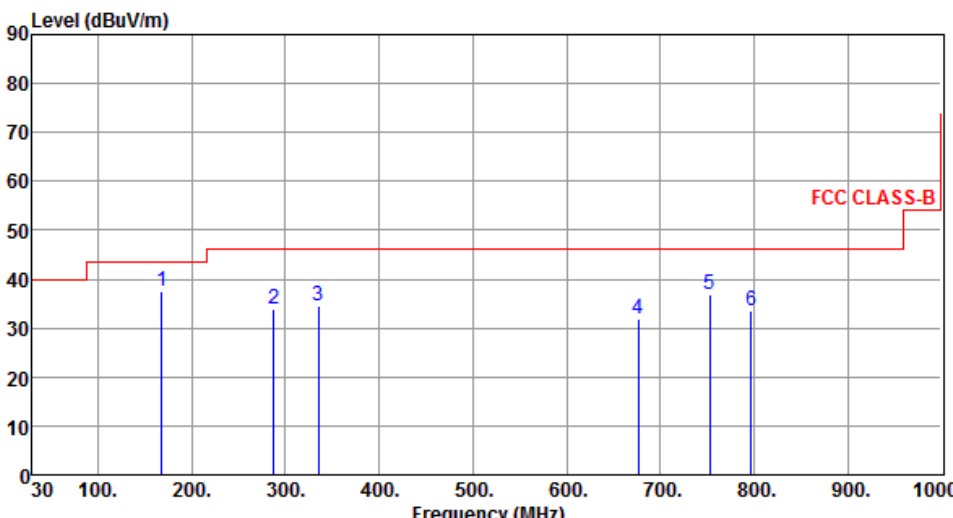


#### Radiated Emissions above 1 GHz

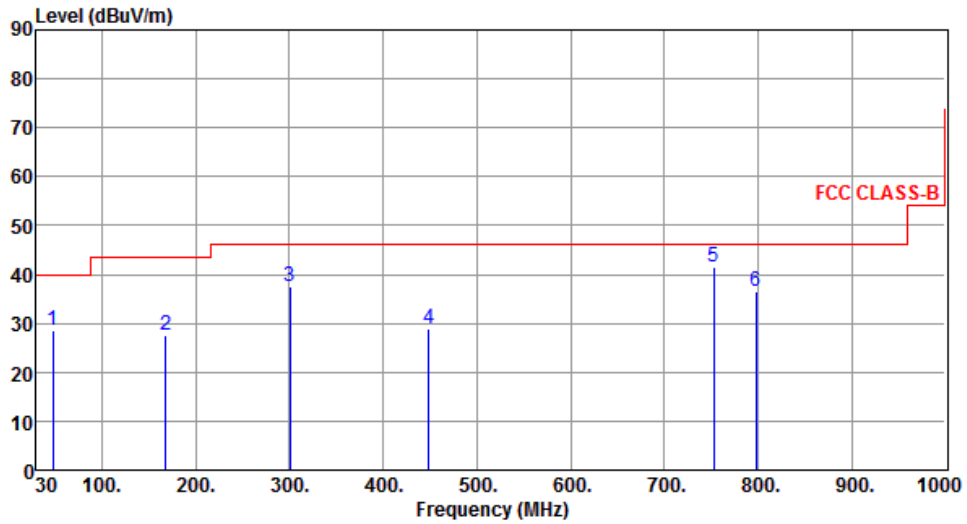




### 3.2.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

| Modulation   | GFSK   | Test Freq. (MHz) | 2402   |        |        |   |   |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |       |        |       |       |       |       |       |       |        |        |        |       |       |       |      |      |      |      |      |      |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|--|--|------------------|--------|--------|--------|---|---|--------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|--------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|------|------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|
| Polarization   | Horizontal   |                  |        |        |        |   |   |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |       |        |       |       |       |       |       |       |        |        |        |       |       |       |      |      |      |      |      |      |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|  <p>The graph plots Level (dBuV/m) on the y-axis (0 to 90) against Frequency (MHz) on the x-axis (30 to 1000). A red line represents the FCC CLASS-B limit, which is 40 dBuV/m from 30 to 100 MHz, 45 dBuV/m from 100 to 300 MHz, and 55 dBuV/m from 300 to 1000 MHz. Six blue vertical lines indicate emission peaks at 167.74, 288.02, 335.55, 676.99, 752.65, and 797.27 MHz, with their respective levels and margins from the limit.</p> |  |                  |        |        |        |   |   |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |       |        |       |       |       |       |       |       |        |        |        |       |       |       |      |      |      |      |      |      |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
|  | <table border="1"> <thead> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> </tr> </thead> <tbody> <tr> <td>167.74</td> <td>288.02</td> <td>335.55</td> <td>676.99</td> <td>752.65</td> <td>797.27</td> </tr> <tr> <td>37.68</td> <td>33.97</td> <td>34.39</td> <td>31.90</td> <td>36.72</td> <td>33.55</td> </tr> <tr> <td>43.50</td> <td>46.00</td> <td>46.00</td> <td>46.00</td> <td>46.00</td> <td>46.00</td> </tr> <tr> <td>-5.82</td> <td>-12.03</td> <td>-11.61</td> <td>-14.10</td> <td>-9.28</td> <td>-12.45</td> </tr> <tr> <td>54.99</td> <td>50.34</td> <td>49.56</td> <td>40.31</td> <td>43.79</td> <td>40.26</td> </tr> <tr> <td>-17.31</td> <td>-16.37</td> <td>-15.17</td> <td>-8.41</td> <td>-7.07</td> <td>-6.71</td> </tr> <tr> <td>Peak</td> <td>Peak</td> <td>Peak</td> <td>Peak</td> <td>Peak</td> <td>Peak</td> </tr> <tr> <td>---</td> <td>---</td> <td>---</td> <td>---</td> <td>---</td> <td>---</td> </tr> <tr> <td>---</td> <td>---</td> <td>---</td> <td>---</td> <td>---</td> <td>---</td> </tr> </tbody> </table> | 1                | 2      | 3      | 4      | 5 | 6 | 167.74 | 288.02 | 335.55 | 676.99 | 752.65 | 797.27 | 37.68 | 33.97 | 34.39 | 31.90 | 36.72 | 33.55 | 43.50 | 46.00 | 46.00 | 46.00 | 46.00 | 46.00 | -5.82 | -12.03 | -11.61 | -14.10 | -9.28 | -12.45 | 54.99 | 50.34 | 49.56 | 40.31 | 43.79 | 40.26 | -17.31 | -16.37 | -15.17 | -8.41 | -7.07 | -6.71 | Peak | Peak | Peak | Peak | Peak | Peak | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |  |  |
| 1  | 2  | 3                | 4      | 5      | 6      |   |   |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |       |        |       |       |       |       |       |       |        |        |        |       |       |       |      |      |      |      |      |      |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| 167.74   | 288.02   | 335.55           | 676.99 | 752.65 | 797.27 |   |   |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |       |        |       |       |       |       |       |       |        |        |        |       |       |       |      |      |      |      |      |      |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| 37.68  | 33.97  | 34.39            | 31.90  | 36.72  | 33.55  |   |   |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |       |        |       |       |       |       |       |       |        |        |        |       |       |       |      |      |      |      |      |      |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| 43.50  | 46.00  | 46.00            | 46.00  | 46.00  | 46.00  |   |   |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |       |        |       |       |       |       |       |       |        |        |        |       |       |       |      |      |      |      |      |      |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| -5.82  | -12.03   | -11.61           | -14.10 | -9.28  | -12.45 |   |   |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |       |        |       |       |       |       |       |       |        |        |        |       |       |       |      |      |      |      |      |      |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| 54.99  | 50.34  | 49.56            | 40.31  | 43.79  | 40.26  |   |   |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |       |        |       |       |       |       |       |       |        |        |        |       |       |       |      |      |      |      |      |      |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| -17.31   | -16.37   | -15.17           | -8.41  | -7.07  | -6.71  |   |   |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |       |        |       |       |       |       |       |       |        |        |        |       |       |       |      |      |      |      |      |      |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| Peak   | Peak   | Peak             | Peak   | Peak   | Peak   |   |   |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |       |        |       |       |       |       |       |       |        |        |        |       |       |       |      |      |      |      |      |      |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| ---  | ---  | ---              | ---    | ---    | ---    |   |   |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |       |        |       |       |       |       |       |       |        |        |        |       |       |       |      |      |      |      |      |      |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| ---  | ---  | ---              | ---    | ---    | ---    |   |   |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |       |        |       |       |       |       |       |       |        |        |        |       |       |       |      |      |      |      |      |      |     |     |     |     |     |     |     |     |     |     |     |     |  |  |
| <p>Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)<br/>           *Factor includes antenna factor , cable loss and amplifier gain<br/>           Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).<br/>           Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.</p>   |  |                  |        |        |        |   |   |        |        |        |        |        |        |       |       |       |       |       |       |       |       |       |       |       |       |       |        |        |        |       |        |       |       |       |       |       |       |        |        |        |       |       |       |      |      |      |      |      |      |     |     |     |     |     |     |     |     |     |     |     |     |  |  |

|                     |          |                         |      |
|---------------------|----------|-------------------------|------|
| <b>Modulation</b>   | GFSK     | <b>Test Freq. (MHz)</b> | 2402 |
| <b>Polarization</b> | Vertical |                         |      |



|   | Freq.<br>MHz | Emission<br>level<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | SA<br>reading<br>dBuV | Factor<br>dB | Remark | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|--------|-------------------|----------------------|
| 1 | 47.46        | 28.50                       | 40.00           | -11.50       | 45.13                 | -16.63       | Peak   | ---               | ---                  |
| 2 | 167.74       | 27.53                       | 43.50           | -15.97       | 44.84                 | -17.31       | Peak   | ---               | ---                  |
| 3 | 300.63       | 37.52                       | 46.00           | -8.48        | 53.47                 | -15.95       | Peak   | ---               | ---                  |
| 4 | 449.04       | 28.87                       | 46.00           | -17.13       | 41.23                 | -12.36       | Peak   | ---               | ---                  |
| 5 | 752.65       | 41.67                       | 46.00           | -4.33        | 48.74                 | -7.07        | Peak   | ---               | ---                  |
| 6 | 798.24       | 36.62                       | 46.00           | -9.38        | 43.32                 | -6.70        | Peak   | ---               | ---                  |

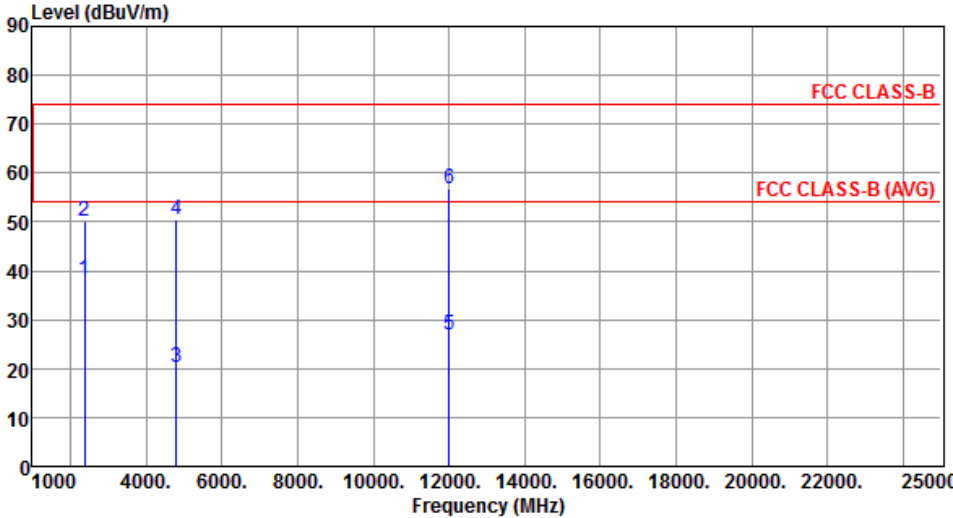
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

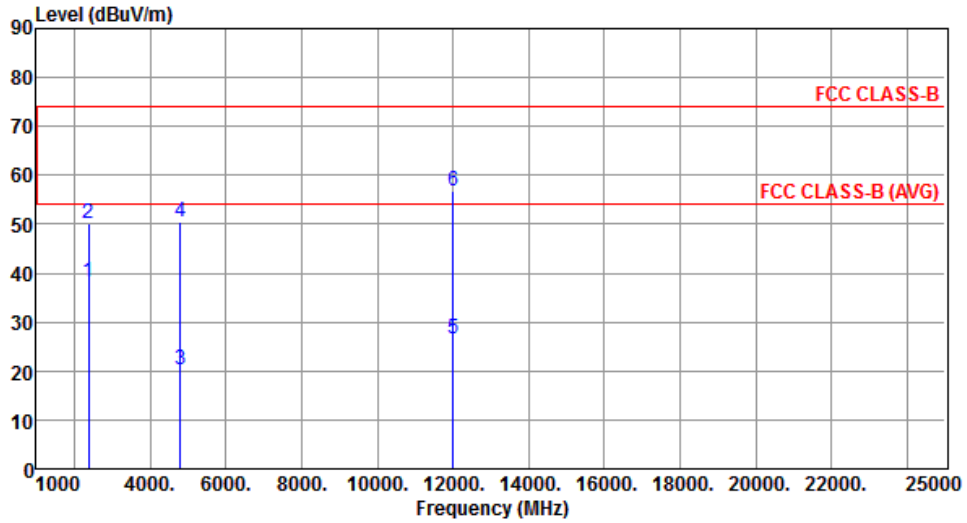
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

### 3.2.5 Transmitter Radiated Unwanted Emissions (Above 1GHz) for GFSK

| Modulation  | GFSK       | Test Freq. (MHz) | 2402   |        |            |        |         |          |            |
|---|------------|------------------|--------|--------|------------|--------|---------|----------|------------|
| Polarization  | Horizontal |                  |        |        |            |        |         |          |            |
|    |            |                  |        |        |            |        |         |          |            |
|   | Freq.      | Emission level   | Limit  | Margin | SA reading | Factor | Remark  | ANT High | Turn Table |
|   | MHz        | dBuV/m           | dBuV/m | dB     | dBuV       | dB     |         | cm       | deg        |
| 1   | 2390.00    | 38.20            | 54.00  | -15.80 | 40.85      | -2.65  | Average | ---      | ---        |
| 2   | 2390.00    | 50.24            | 74.00  | -23.76 | 52.89      | -2.65  | Peak    | ---      | ---        |
| 3   | 4804.00    | 20.33            | 54.00  | -33.67 | 15.40      | 4.93   | Average | ---      | ---        |
| 4   | 4804.00    | 50.43            | 74.00  | -23.57 | 45.50      | 4.93   | Peak    | ---      | ---        |
| 5   | 12010.00   | 26.76            | 54.00  | -27.24 | 11.23      | 15.53  | Average | ---      | ---        |
| 6   | 12010.00   | 56.86            | 74.00  | -17.14 | 41.33      | 15.53  | Peak    | ---      | ---        |
| <p>Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)<br/>           *Factor includes antenna factor , cable loss and amplifier gain<br/>           Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).</p> |            |                  |        |        |            |        |         |          |            |

|                     |          |                         |      |
|---------------------|----------|-------------------------|------|
| <b>Modulation</b>   | GFSK     | <b>Test Freq. (MHz)</b> | 2402 |
| <b>Polarization</b> | Vertical |                         |      |



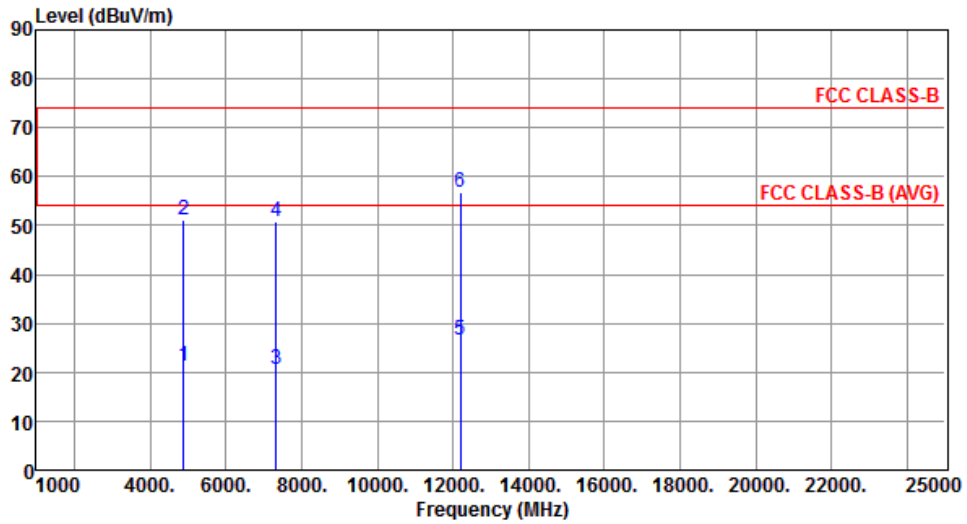
|   | Freq.<br>MHz | Emission<br>level<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | SA<br>reading<br>dBuV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2390.00      | 38.06                       | 54.00           | -15.94       | 40.71                 | -2.65        | Average | ---               | ---                  |
| 2 | 2390.00      | 50.20                       | 74.00           | -23.80       | 52.85                 | -2.65        | Peak    | ---               | ---                  |
| 3 | 4804.00      | 20.42                       | 54.00           | -33.58       | 15.49                 | 4.93         | Average | ---               | ---                  |
| 4 | 4804.00      | 50.52                       | 74.00           | -23.48       | 45.59                 | 4.93         | Peak    | ---               | ---                  |
| 5 | 12010.00     | 26.68                       | 54.00           | -27.32       | 11.15                 | 15.53        | Average | ---               | ---                  |
| 6 | 12010.00     | 56.78                       | 74.00           | -17.22       | 41.25                 | 15.53        | Peak    | ---               | ---                  |

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

|                     |            |                         |      |
|---------------------|------------|-------------------------|------|
| <b>Modulation</b>   | GFSK       | <b>Test Freq. (MHz)</b> | 2441 |
| <b>Polarization</b> | Horizontal |                         |      |



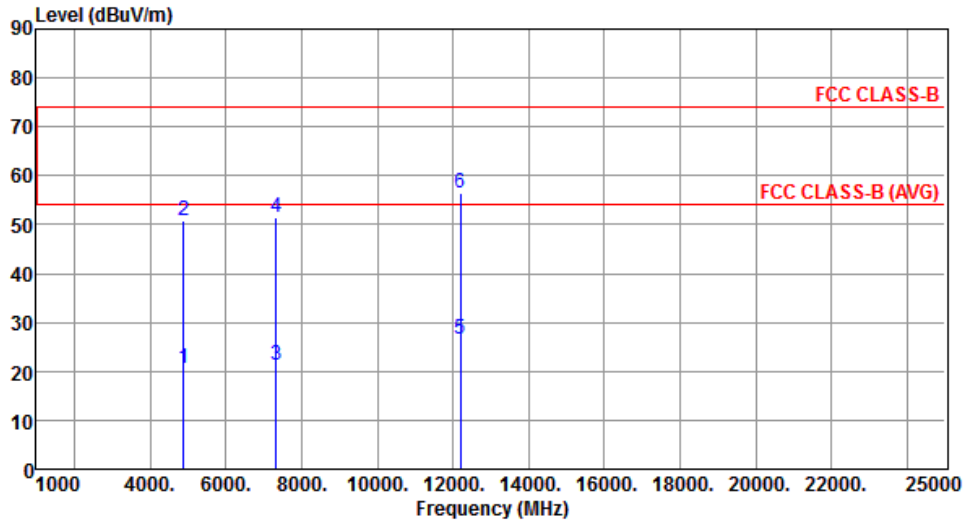
|   | Freq.<br>MHz | Emission<br>level<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | SA<br>reading<br>dBuV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 4882.00      | 21.13                       | 54.00           | -32.87       | 16.02                 | 5.11         | Average | ---               | ---                  |
| 2 | 4882.00      | 51.23                       | 74.00           | -22.77       | 46.12                 | 5.11         | Peak    | ---               | ---                  |
| 3 | 7323.00      | 20.62                       | 54.00           | -33.38       | 10.48                 | 10.14        | Average | ---               | ---                  |
| 4 | 7323.00      | 50.72                       | 74.00           | -23.28       | 40.58                 | 10.14        | Peak    | ---               | ---                  |
| 5 | 12205.00     | 26.73                       | 54.00           | -27.27       | 11.36                 | 15.37        | Average | ---               | ---                  |
| 6 | 12205.00     | 56.83                       | 74.00           | -17.17       | 41.46                 | 15.37        | Peak    | ---               | ---                  |

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

|                     |          |                         |      |
|---------------------|----------|-------------------------|------|
| <b>Modulation</b>   | GFSK     | <b>Test Freq. (MHz)</b> | 2441 |
| <b>Polarization</b> | Vertical |                         |      |



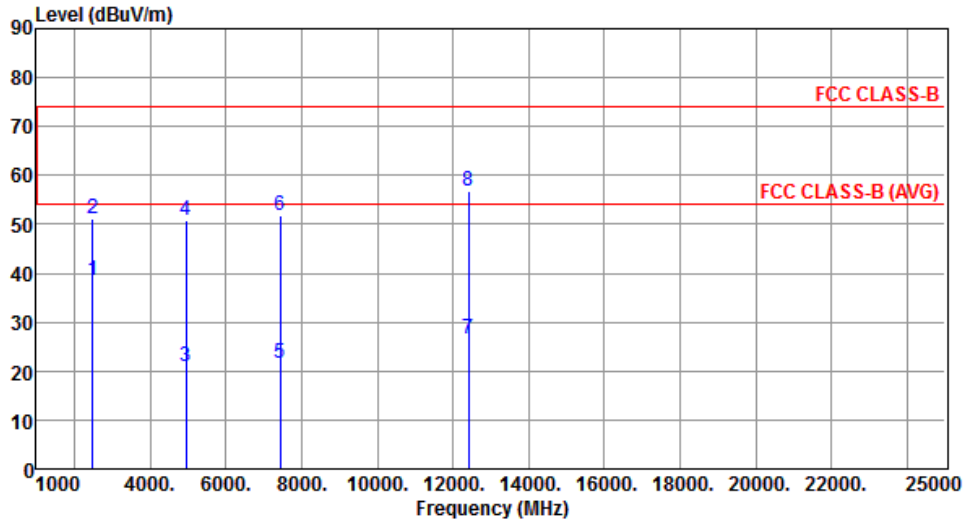
|   | Freq.<br>MHz | Emission<br>level<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | SA<br>reading<br>dBuV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 4882.00      | 20.71                       | 54.00           | -33.29       | 15.60                 | 5.11         | Average | ---               | ---                  |
| 2 | 4882.00      | 50.81                       | 74.00           | -23.19       | 45.70                 | 5.11         | Peak    | ---               | ---                  |
| 3 | 7323.00      | 21.29                       | 54.00           | -32.71       | 11.15                 | 10.14        | Average | ---               | ---                  |
| 4 | 7323.00      | 51.39                       | 74.00           | -22.61       | 41.25                 | 10.14        | Peak    | ---               | ---                  |
| 5 | 12205.00     | 26.50                       | 54.00           | -27.50       | 11.13                 | 15.37        | Average | ---               | ---                  |
| 6 | 12205.00     | 56.60                       | 74.00           | -17.40       | 41.23                 | 15.37        | Peak    | ---               | ---                  |

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

|                     |            |                         |      |
|---------------------|------------|-------------------------|------|
| <b>Modulation</b>   | GFSK       | <b>Test Freq. (MHz)</b> | 2480 |
| <b>Polarization</b> | Horizontal |                         |      |



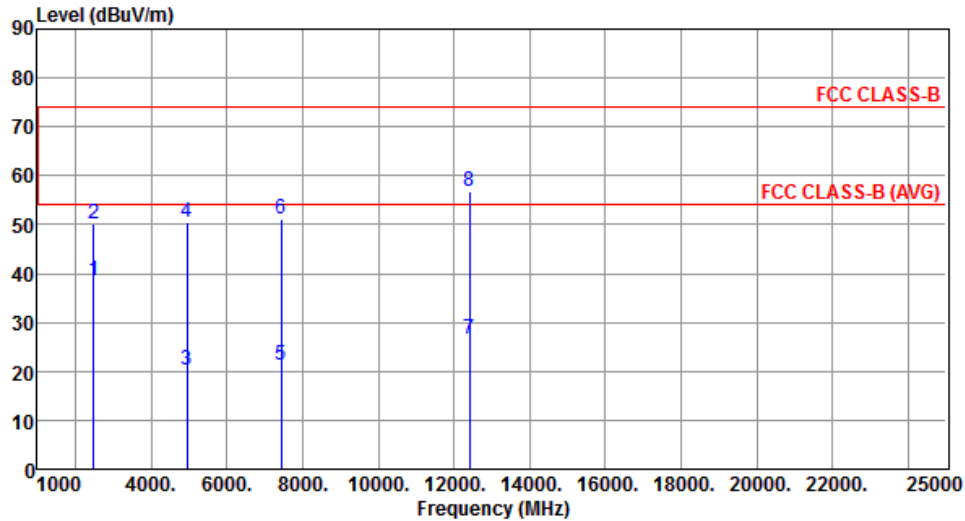
|   | Freq.<br>MHz | Emission<br>level<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | SA<br>reading<br>dBuV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2483.50      | 38.46                       | 54.00           | -15.54       | 40.80                 | -2.34        | Average | ---               | ---                  |
| 2 | 2483.50      | 51.26                       | 74.00           | -22.74       | 53.60                 | -2.34        | Peak    | ---               | ---                  |
| 3 | 4960.00      | 20.84                       | 54.00           | -33.16       | 15.56                 | 5.28         | Average | ---               | ---                  |
| 4 | 4960.00      | 50.94                       | 74.00           | -23.06       | 45.66                 | 5.28         | Peak    | ---               | ---                  |
| 5 | 7440.00      | 21.59                       | 54.00           | -32.41       | 11.18                 | 10.41        | Average | ---               | ---                  |
| 6 | 7440.00      | 51.69                       | 74.00           | -22.31       | 41.28                 | 10.41        | Peak    | ---               | ---                  |
| 7 | 12400.00     | 26.56                       | 54.00           | -27.44       | 11.34                 | 15.22        | Average | ---               | ---                  |
| 8 | 12400.00     | 56.66                       | 74.00           | -17.34       | 41.44                 | 15.22        | Peak    | ---               | ---                  |

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

|                     |          |                         |      |
|---------------------|----------|-------------------------|------|
| <b>Modulation</b>   | GFSK     | <b>Test Freq. (MHz)</b> | 2480 |
| <b>Polarization</b> | Vertical |                         |      |



|   | Freq.<br>MHz | Emission<br>level<br>dBuV/m | Limit<br>dBuV/m | Margin<br>dB | SA<br>reading<br>dBuV | Factor<br>dB | Remark  | ANT<br>High<br>cm | Turn<br>Table<br>deg |
|---|--------------|-----------------------------|-----------------|--------------|-----------------------|--------------|---------|-------------------|----------------------|
| 1 | 2483.50      | 38.36                       | 54.00           | -15.64       | 40.70                 | -2.34        | Average | ---               | ---                  |
| 2 | 2483.50      | 50.24                       | 74.00           | -23.76       | 52.58                 | -2.34        | Peak    | ---               | ---                  |
| 3 | 4960.00      | 20.41                       | 54.00           | -33.59       | 15.13                 | 5.28         | Average | ---               | ---                  |
| 4 | 4960.00      | 50.51                       | 74.00           | -23.49       | 45.23                 | 5.28         | Peak    | ---               | ---                  |
| 5 | 7440.00      | 21.17                       | 54.00           | -32.83       | 10.76                 | 10.41        | Average | ---               | ---                  |
| 6 | 7440.00      | 51.27                       | 74.00           | -22.73       | 40.86                 | 10.41        | Peak    | ---               | ---                  |
| 7 | 12400.00     | 26.54                       | 54.00           | -27.46       | 11.32                 | 15.22        | Average | ---               | ---                  |
| 8 | 12400.00     | 56.64                       | 74.00           | -17.36       | 41.42                 | 15.22        | Peak    | ---               | ---                  |

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor\* (dB)

\*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).



## 4 Test laboratory information

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==END==