

FCC PART 15 CLASS B  
EMI MEASUREMENT AND TEST REPORT  
For  
PEGA LIMITED

Unit 10A, 12/F, Tower 2, China Hong Kong City, No.33 Canton Road, Tsim Sha Tsui, Hong Kong

**FCC ID: OF5PG-IH119RX**

July 6, 2012

|   |  |
|---|--|
| This Report Concerns:<br>Original Report  | Equipment Type:<br>2.4G Wireless Home Theater Audio<br>and Charger Dock (RX)   |
| Test Engineer:<br>Eric Li   | <i>Eric Li</i>   |
| Report No.:   | BST12060251Y-1ER-3   |
| Receive EUT<br>Date/Test Date:  | June 29, 2012/ July 2-5, 2012  |
| Reviewed By:<br>Christina Deng  | <i>Christina Deng</i>  |
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## 1. GENERAL INFORMATION

### 1.1. Report information

1.1.1. This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that BST approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that BST in any way guarantees the later performance of the product/equipment.

1.1.2. The sample/s mentioned in this report is/are supplied by Applicant, BST therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through BST, unless the applicant has authorized BST in writing to do so.

Test Facility -

The test site used to collect the radiated data is located on the address of  
Shenzhen Certification Technology Service Co., Ltd  
(FCC Registered Test Site Number: 197647) on  
2F, Building B, East Area of Nanchang Second Industrial Zone, Gushu 2nd Road,  
Bao'an District, shenzhen 518126, China  
The Test Site is constructed and calibrated to meet the FCC requirements.

### 1.2. Measurement Uncertainty

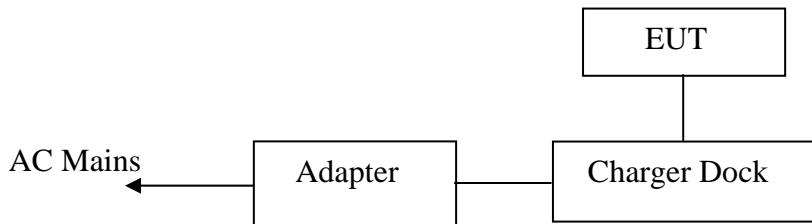
Available upon request.

## 2. PRODUCT DESCRIPTION

### 2.1. EUT Description

Applicant : PEGA LIMITED  
Address : Unit 10A, 12/F, Tower 2, China Hong Kong City, No.33 Canton Road, Tsim Sha Tsui, Hong Kong  
Manufacturer : PEGA LIMITED  
Address : Haibin Industrial Zone, Xinye Road, 65<sup>TH</sup> Block Xixiang Town, Bao'an District, ShenZhen City, China  
EUT Description : 2.4G Wireless Home Theater Audio and Charger Dock (RX)  
Trade Name : iPega, Promate  
Model Number : PG-IH119, proCube  
Power Supply : DC 3.7V Li-ion Battery

### 2.2. Block Diagram of EUT Configuration



### 2.3. Support Equipment List

| Name | Model No | S/N | Manufacturer | Used<br>" " |
|------|----------|-----|--------------|-------------|
| --   | --       | --  | --           | --          |
| --   | --       | --  | --           | --          |
| --   | --       | --  | --           | --          |

### 2.4. Test Conditions

Temperature: 20~25

Relative Humidity: 50~63 %

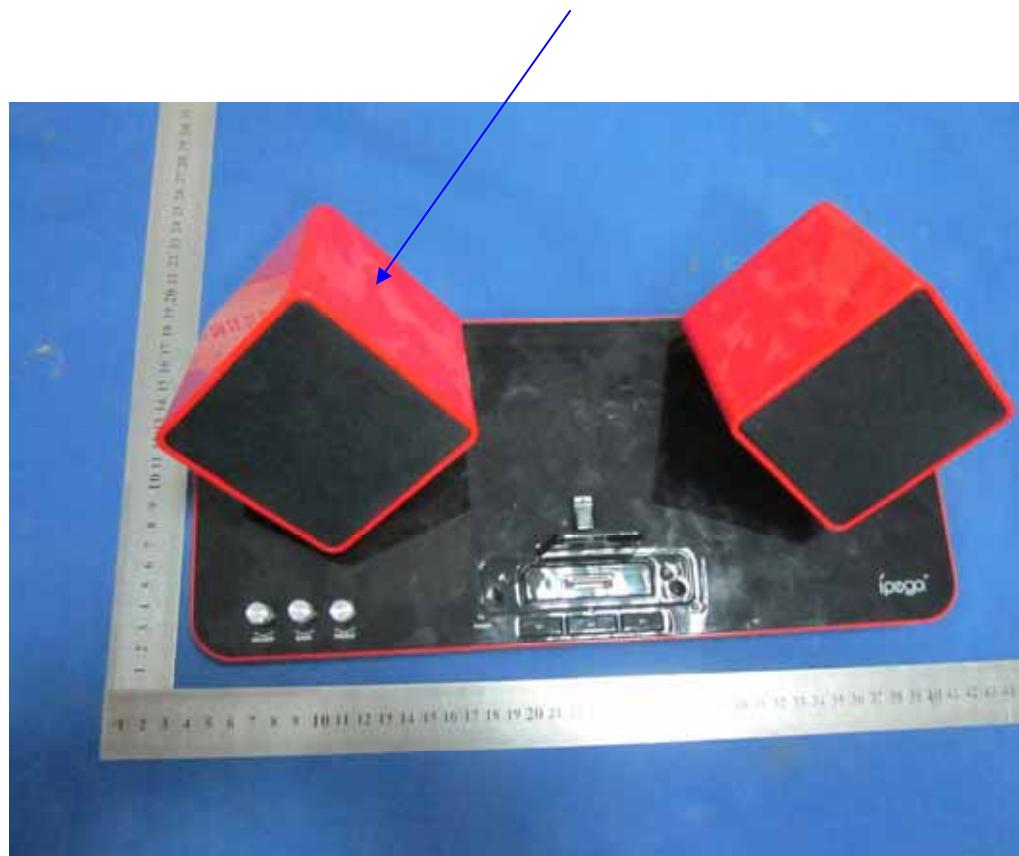
### 3. FCC ID LABEL

**FCC ID: OF5PG-IH119RX**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: 1. This device may not cause harmful interference, and 2. This device must accept any interference received, including interference that may cause undesired operation.

#### Label Location on EUT

#### EUT View/ FCC ID Label Location



#### 4. TEST RESULTS SUMMARY

**Table 1 Test Results Summary**

| Test Items            | Test Results |
|-----------------------|--------------|
| Conducted disturbance | Pass         |
| Radiated disturbance  | Pass         |

Statement: All testing was performed using the test procedures found in ANSI C63.4-20003.

#### Modifications

No modification was made.

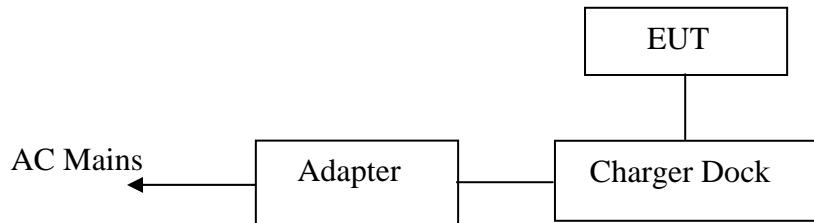
## 5. TEST EQUIPMENT USED

| Equipment/Facilities            | Manufacturer       | Model #      | serial no. | Last Calibrated | Calibrated until |
|---------------------------------|--------------------|--------------|------------|-----------------|------------------|
| Cable                           | Resenberger        | N/A          | NO.1       | Mar 10 , 2012   | Mar 10 , 2013    |
| Cable                           | SCHWARZBECK        | N/A          | NO.2       | Mar 10 , 2012   | Mar 10 , 2013    |
| Cable                           | SCHWARZBECK        | N/A          | NO.3       | Mar 10 , 2012   | Mar 10 , 2013    |
| LISN                            | Rohde & Schwarz    | ESH3-Z5      | 100305     | Mar 10 , 2012   | Mar 10 , 2013    |
| 50 Coaxial Switch               | ANRITSU CORP       | MP59B        | 6200283933 | Mar 10 , 2012   | Mar 10 , 2013    |
| EMI Test Receiver               | Rohde & Schwarz    | ESP13        | 100180     | Oct.11,2011     | Oct.11,2012      |
| Spectrum Analyzer               | Rohde & Schwarz    | FSP40        | 100273     | Sep.10,2011     | Sep.10,2012      |
| 3m Semi-Anechoic Chamber        | Albatross Projects | 9mx6mx6m     | N/A        | Feb.20,2012     | Feb.20,2013      |
| Signal Generator                | FLUKE              | PM5418 + Y/C | LO747012   | Feb.20,2012     | Feb.20,2013      |
| Signal Generator                | FLUKE              | PM5418TX     | LO738007   | Feb.20,2012     | Feb.20,2013      |
| Loop Antenna                    | SCHWARZBECK        | FMZB1516     | 113        | Jan.30,2012     | Jan.30,2013      |
| Trilog-Super Broadband Antenna  | SCHWARZBECK        | VULB9161     | 9161-4079  | Sep.22,2011     | Sep.22,2012      |
| Broad-Band Horn Antenna         | SCHWARZBECK        | BBHA9120D    | 9120D-564  | Sep.22,2011     | Sep.22,2012      |
| Ultra Broadband Antenna         | Rohde & Schwarz    | HL-562       | 100110     | June.15,2012    | June.15,2013     |
| AMN                             | Rohde & Schwarz    | ESH3-Z5      | 100196     | Oct.11,2011     | Oct.11,2012      |
| AMN                             | Rohde & Schwarz    | ESH3-Z5      | 100197     | Oct.11,2011     | Oct.11,2012      |
| Pulse Limiter                   | Rohde & Schwarz    | ESH3-Z2      | N/A        | N/A             | N/A              |
| Power Meter                     | Rohde & Schwarz    | NRVD         | 100041     | Feb.20,2012     | Feb.20,2013      |
| EMI Test Receiver               | Rohde & Schwarz    | ESCS30       | 100003     | Feb.20,2012     | Feb.20,2013      |
| Coaxial Cable with N-connectors | SCHWARZBECK        | AK9515H      | 95549      | Sep.22,2011     | Sep.22,2012      |
| Radio Communication Test Set    | Rohde & Schwarz    | CMS 54       | 846621/024 | Feb.20,2012     | Feb.20,2013      |
| Modulation Analyzer             | Hewlett-Packard    | 8901B        | 2303A00362 | Feb.20,2012     | Feb.20,2013      |
| Absorbing clamp                 | Rohde & Schwarz    | MDS-21       | N/A        | Oct.11,2011     | Oct.11,2012      |

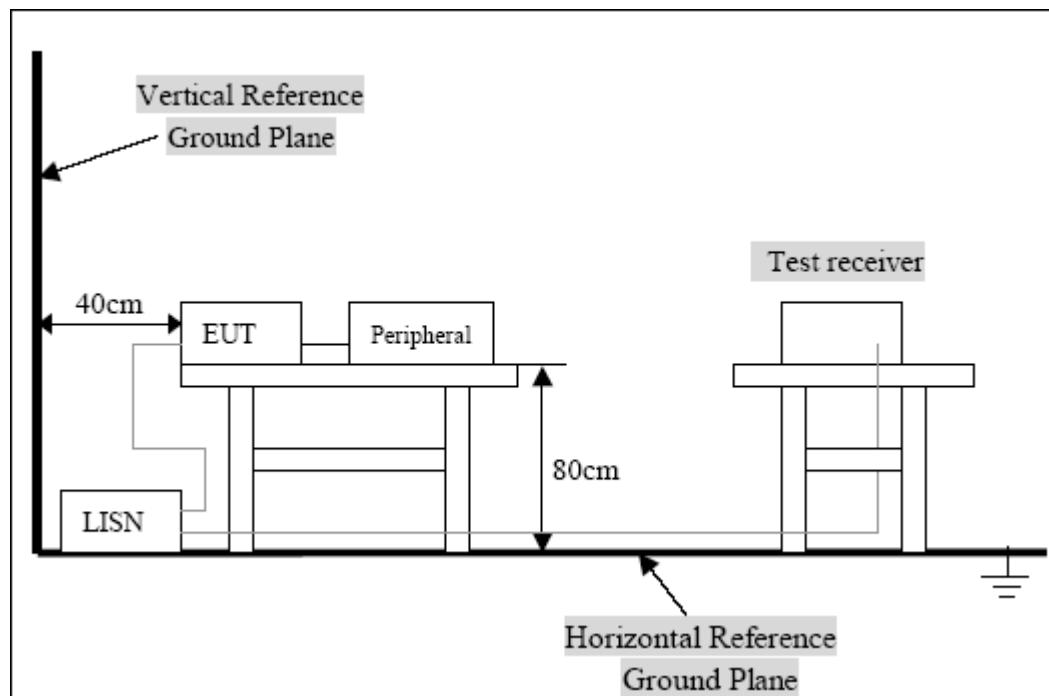
## 6. CONDUCTED EMISSION TEST

### 6.1. Block Diagram of Test Setup

6.1.1. Block Diagram of connection between the EUT and the simulators



6.1.2. Test Setup Diagram



### 6.2. Test Standard

FCC Part 15 CLASS B

ANSI C63.4-2003

### 6.3. Conducted Emission Limit(Class B)

| Frequency<br>MHz | Limits dB( $\mu$ V) |               |
|------------------|---------------------|---------------|
|                  | Quasi-peak Level    | Average Level |
| 0.15 ~ 0.50      | 66 ~ 56*            | 56 ~ 46*      |
| 0.50 ~ 5.00      | 56                  | 46            |
| 5.00 ~ 30.00     | 60                  | 50            |

Notes: 1. \*Decreasing linearly with logarithm of frequency.

### 6.4. EUT Configuration on Test

The following equipments are installed on conducted emission test to meet FCC Part 15 requirement and operating in a manner, which tends to maximize its emission characteristics in a normal application.

#### 6.4.1. EUT Information

Model Number: PG-IH119, proCube

Serial Number: N/A

### 6.5. Operating Condition of EUT

6.5.1. Setup the EUT and simulators as shown in Section 6.1.

6.5.2. Turn on the power of all equipments.

6.5.3. Let the EUT work in test mode (RX) and test it.

### 6.6. Test Procedure

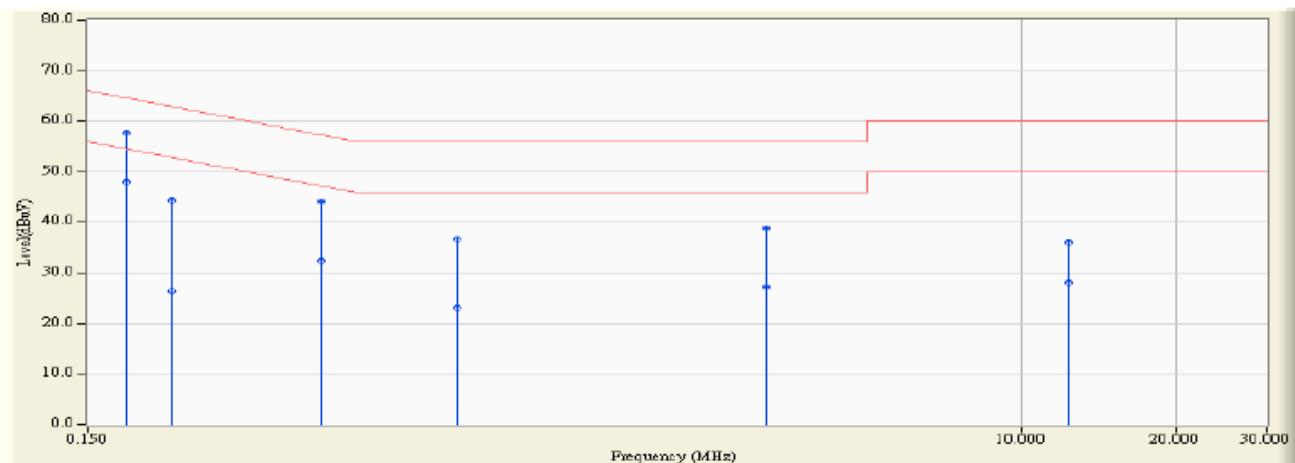
The EUT is put on a table of non-conducting material that is 80cm high. The vertical conducting wall of shielding is located 40cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI test receiver (R&S Test Receiver ESCS30) is used to test the emissions form both sides of AC line. The bandwidth of EMI test receiver is set at 9kHz.

### 6.7. Test Result

**Pass**

|               |   |                |             |
|---------------|---|----------------|-------------|
| Date of Test: | July 3, 2012  | Temperature:   | 25oC        |
| EUT:          | 2.4G Wireless Home Theater<br>Audio and Charger Dock (RX) | Humidity:      | 53%         |
| Model No.:    | PG-IH119, proCube   | Power Supply:  | AC120V/60Hz |
| Test Mode:    | RX  | Test Engineer: | Eric Li     |

## L Line

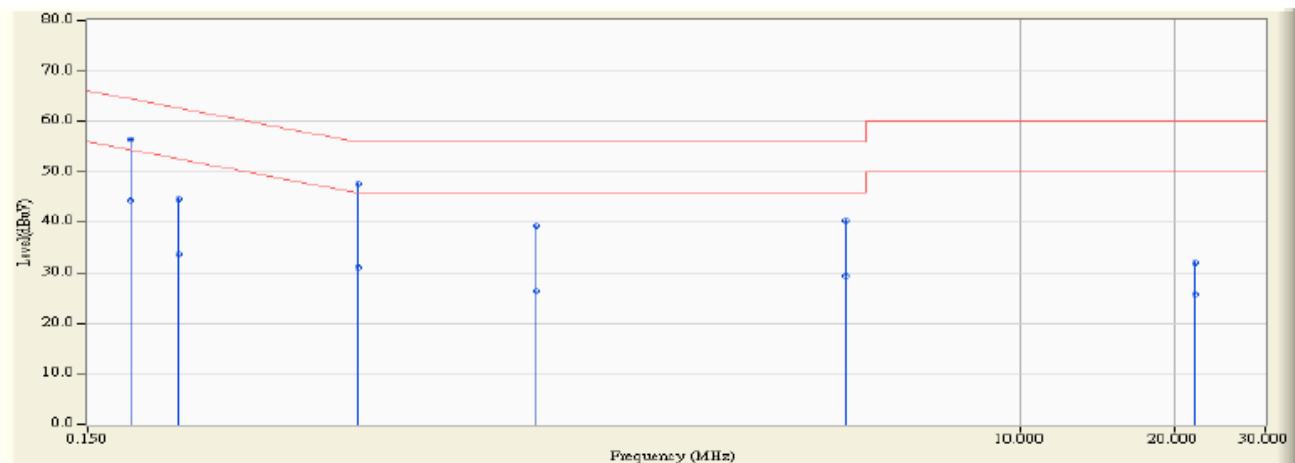


|    |   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV) | Margin (dB) | Limit (dBuV) | Detector Type |
|----|---|-----------------|---------------------|----------------------|----------------------|-------------|--------------|---------------|
| 1  |   | 0.178           | 9.600               | 48.143               | 57.743               | -6.836      | 64.578       | QUASIPEAK     |
| 2  | * | 0.178           | 9.600               | 38.376               | 47.976               | -6.602      | 54.578       | AVERAGE       |
| 3  |   | 0.218           | 9.600               | 34.899               | 44.499               | -18.396     | 62.895       | QUASIPEAK     |
| 4  |   | 0.218           | 9.600               | 16.716               | 26.316               | -26.579     | 52.895       | AVERAGE       |
| 5  |   | 0.426           | 9.610               | 34.578               | 44.188               | -13.142     | 57.330       | QUASIPEAK     |
| 6  |   | 0.426           | 9.610               | 22.882               | 32.492               | -14.838     | 47.330       | AVERAGE       |
| 7  |   | 0.786           | 9.629               | 27.055               | 36.684               | -19.316     | 56.000       | QUASIPEAK     |
| 8  |   | 0.786           | 9.629               | 13.508               | 23.137               | -22.863     | 46.000       | AVERAGE       |
| 9  |   | 3.158           | 9.819               | 28.970               | 38.789               | -17.211     | 56.000       | QUASIPEAK     |
| 10 |   | 3.158           | 9.819               | 17.526               | 27.345               | -18.655     | 46.000       | AVERAGE       |
| 11 |   | 12.302          | 10.141              | 25.931               | 36.073               | -23.927     | 60.000       | QUASIPEAK     |
| 12 |   | 12.302          | 10.141              | 17.991               | 28.132               | -21.868     | 50.000       | AVERAGE       |

## Note:

1. All Reading Levels are Quasi-Peak and Average detection.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

## N Line



|    |   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV) | Margin (dB) | Limit (dBuV) | Detector Type |
|----|---|-----------------|---------------------|----------------------|----------------------|-------------|--------------|---------------|
| 1  | * | 0.182           | 9.600               | 46.823               | 56.423               | -7.971      | 64.394       | QUASIPEAK     |
| 2  |   | 0.182           | 9.600               | 34.837               | 44.437               | -9.957      | 54.394       | AVERAGE       |
| 3  |   | 0.226           | 9.600               | 34.990               | 44.590               | -18.006     | 62.595       | QUASIPEAK     |
| 4  |   | 0.226           | 9.600               | 24.151               | 33.751               | -18.844     | 52.595       | AVERAGE       |
| 5  |   | 0.506           | 9.600               | 38.120               | 47.720               | -8.280      | 56.000       | QUASIPEAK     |
| 6  |   | 0.506           | 9.600               | 21.478               | 31.078               | -14.922     | 46.000       | AVERAGE       |
| 7  |   | 1.126           | 9.686               | 29.615               | 39.301               | -16.699     | 56.000       | QUASIPEAK     |
| 8  |   | 1.126           | 9.686               | 16.633               | 26.319               | -19.681     | 46.000       | AVERAGE       |
| 9  |   | 4.526           | 9.872               | 30.500               | 40.372               | -15.628     | 56.000       | QUASIPEAK     |
| 10 |   | 4.526           | 9.872               | 19.607               | 29.478               | -16.522     | 46.000       | AVERAGE       |
| 11 |   | 21.910          | 10.654              | 21.396               | 32.051               | -27.949     | 60.000       | QUASIPEAK     |
| 12 |   | 21.910          | 10.654              | 15.027               | 25.681               | -24.319     | 50.000       | AVERAGE       |

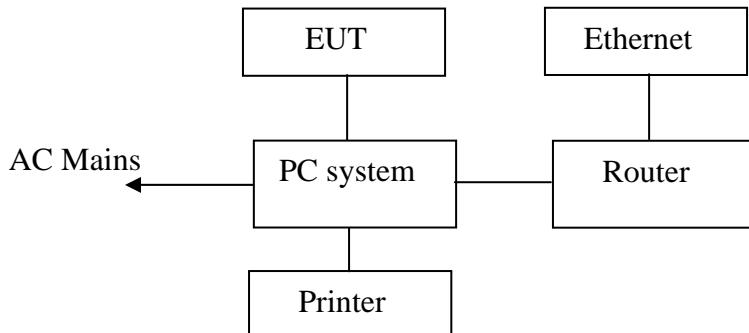
## Note:

1. All Reading Levels are Quasi-Peak and Average detection.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

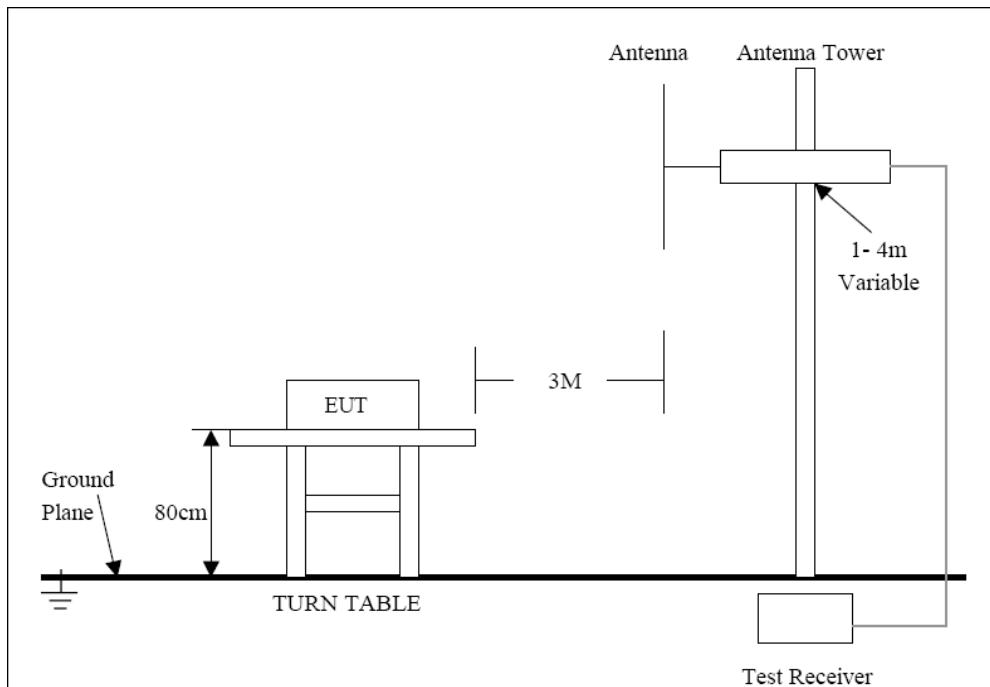
## 7. RADIATED EMISSION MEASUREMENT

### 7.1. Block Diagram of EUT Configuration

7.1.1. Block Diagram of connection between the EUT and the simulators



7.1.2. Semi-anechoic Chamber Test Setup Diagram



### 7.2. Test Standard

FCC Part 15 CLASS B  
ANSI C63.4-2003

### 7.3. Radiated Emission Limit(Class B)

| Frequency<br>(MHz) | Limit   |   |                             |  |
|--------------------|---|---|-----------------------------|--|
|                    | Field Strength of<br>Quasi-peak Value<br>(microvolts/m) | Field Strength of<br>Quasi-peak Value<br>(dB $\mu$ V/m) | Measurement<br>distance (m) | The final<br>measurement in band<br>9-90kHz,<br>110-490kHz and<br>above 1000MHz is<br>performed with<br>Average detector.<br>Except those<br>frequency bands<br>mention above, the<br>final measurement<br>for frequencies<br>below 1000MHz is<br>performed with<br>Quasi Peak detector. |
| 0.009 - 0.490      | 2400/F(kHz)   | /   | 300                         |  |
| 0.490 - 1.705      | 24000/F(kHz)  | /   | 30                          |  |
| 1.705-30           | 30  | 29.5  | 30                          |  |
| 30 - 88            | 100   | 40  | 3                           |  |
| 88 - 216           | 150   | 43.5  | 3                           |  |
| 216 - 960          | 200   | 46  | 3                           |  |
| Above 960          | 500   | 54  | 3                           |  |

Note: (1) RF Voltage (dB $\mu$ V)=20 log Voltage(uV)

(2) In the Above Table, the tighter limit applies at the band edges.

(3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

### 7.4. EUT Configuration on Test

The following equipment are installed on Radiated Emission Measurement to meet the Commission requirements and operating regulations in a manner which tends to maximize Its emission characteristics in normal application.

### 7.5. Operating Condition of EUT

7.5.1. Setup the EUT as shown on Section 7.1

7.5.2. Turn on the power of all equipments.

7.5.3. Let the EUT work in test mode (RX) and measure it.

## 7.6. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Calibrated Loop antenna is used as receiving antenna for frequencies below 30MHz, Calibrated Bilog antenna is used as receiving antenna for frequencies between 30 MHz and 1 GHz, Calibrated Horn antenna is used as receiving antenna for frequencies above 1000MHz. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2003 on radiated emission measurement.

The bandwidth of test receiver is set at 9kHz in below 30MHz and set at 120kHz in 30-1000MHz and 1000kHz in above 1G.

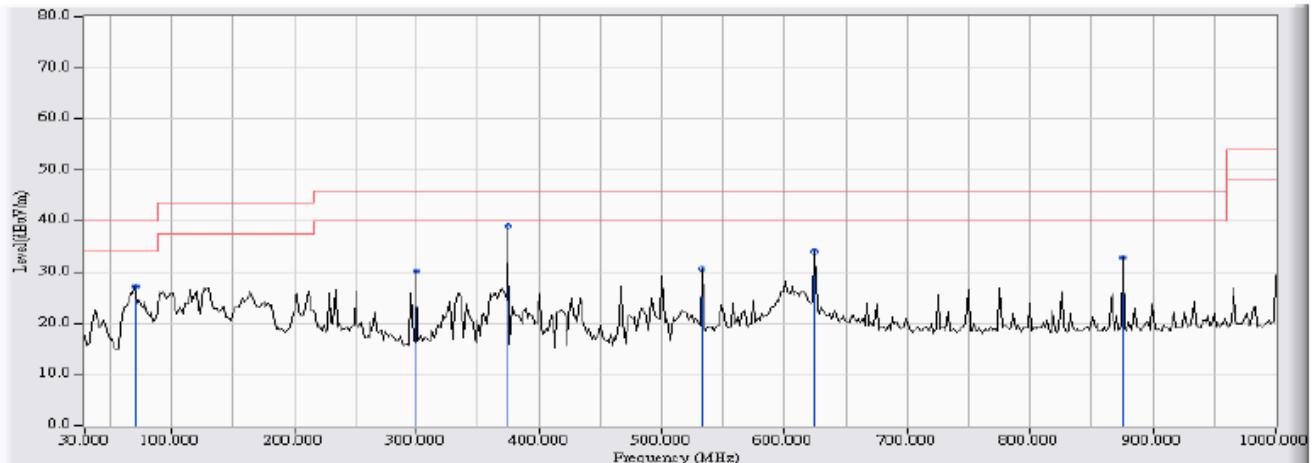
The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Peak detector and Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

The measurements greater than 20dB below the limit are not report.

## 7.7. Test Result

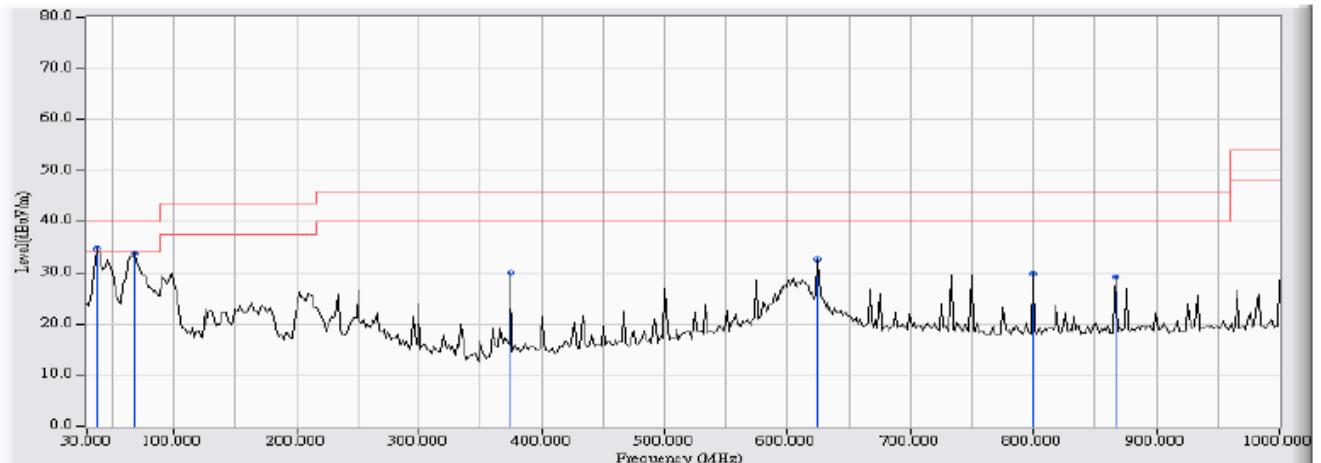
PASS

### Horizontal polarization



|     | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|-----|-----------------|---------------------|----------------------|------------------------|-------------|----------------|---------------|
| 1   | 70.417          | -18.120             | 45.262               | 27.142                 | -12.858     | 40.000         | QUASIPEAK     |
| 2   | 299.983         | -10.671             | 40.827               | 30.156                 | -15.844     | 46.000         | QUASIPEAK     |
| 3 * | 374.350         | -8.586              | 47.712               | 39.127                 | -6.873      | 46.000         | QUASIPEAK     |
| 4   | 532.783         | -5.652              | 36.304               | 30.652                 | -15.348     | 46.000         | QUASIPEAK     |
| 5   | 624.933         | -4.882              | 38.896               | 34.014                 | -11.986     | 46.000         | QUASIPEAK     |
| 6   | 875.517         | -3.015              | 35.809               | 32.794                 | -13.206     | 46.000         | QUASIPEAK     |

## Vertical polarization



|   | Frequency (MHz) | Correct Factor (dB) | Reading Level (dBuV) | Measure Level (dBuV/m) | Margin (dB) | Limit (dBuV/m) | Detector Type |
|---|-----------------|---------------------|----------------------|------------------------|-------------|----------------|---------------|
| 1 | 38.083          | -12.172             | 46.824               | 34.653                 | -5.347      | 40.000         | QUASIPEAK     |
| 2 | 68.800          | -18.159             | 52.058               | 33.898                 | -6.102      | 40.000         | QUASIPEAK     |
| 3 | 374.350         | -8.586              | 38.557               | 29.972                 | -16.028     | 46.000         | QUASIPEAK     |
| 4 | 624.933         | -4.882              | 37.455               | 32.573                 | -13.427     | 46.000         | QUASIPEAK     |
| 5 | 799.533         | -3.355              | 33.221               | 29.866                 | -16.134     | 46.000         | QUASIPEAK     |
| 6 | 867.433         | -3.049              | 32.301               | 29.252                 | -16.748     | 46.000         | QUASIPEAK     |