

# TEST REPORT

Reference No..... : WTS15S1035965E  
FCC ID ..... : 2AEE8LAVAIRIS600  
Applicant..... : LAVA INTERNATIONAL (H.K) LIMITED  
Address..... : UNIT L 1/F MAU LAM COMM BLDG 16-18 MAU LAM ST,  
JORDAN KL, HK  
Manufacturer ..... : The same as above  
Address..... : The same as above  
Product Name..... : Mobile Phone  
Model No..... : iris 600  
Brand..... : LAVA  
Standards ..... : FCC PART15 SUBPART B: 2014  
Date of Receipt sample .... : Oct. 26, 2015  
Date of Test ..... : Oct. 27, 2015 – Nov. 04, 2015  
Date of Issue..... : Nov.14, 2015  
Test Result..... : Pass

Remarks:

The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

**Prepared By:**

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## 1 Test Summary

| Test Item                                          | Test Requirement                | Class   | Test Method      | Test Result |
|----------------------------------------------------|---------------------------------|---------|------------------|-------------|
| Power Line Conducted Emission<br>(150kHz to 30MHz) | FCC PART 15,<br>SUBPART B: 2014 | Class B | ANSI C63.4: 2009 | Pass        |
| Radiated Emission<br>30MHz to 1GHz)                | FCC PART 15,<br>SUBPART B: 2014 | Class B | ANSI C63.4: 2009 | Pass        |
| Radiated Emission<br>(Above 1GHz)                  | FCC PART 15,<br>SUBPART B: 2014 | Class B | ANSI C63.4: 2009 | Pass        |

Remark:

Pass Test item meets the requirement

Fail Test item does not meet the requirement

N/A Test case does not apply to the test object

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### 3 General Information

#### 3.1 General Description of E.U.T.

|                     |                                 |
|---------------------|---------------------------------|
| Product Name        | : Mobile Phone                  |
| Model No.           | : iris 600                      |
| Model Description   | : N/A                           |
| GSM Band(s)         | : GSM 850/900/1800/1900MHz      |
| GPRS/EGPRS Class    | : 12                            |
| WCDMA Band(s)       | : FDD Band II/V                 |
| LTE Bnad(s)         | : N/A                           |
| Wi-Fi Specification | : 2.4G: 802.11b/g/n HT20/n HT40 |
| Bluetooth Version   | : Bluetooth v4.0 with BLE       |
| GPS                 | : Support                       |
| NFC                 | : N/A                           |
| Hardware Version    | : V2.0                          |
| Software Version    | : Lava_iris600_MX_S101_20151013 |

#### 3.2 Details of E.U.T.

|                |                                                                                                            |
|----------------|------------------------------------------------------------------------------------------------------------|
| Technical Data | :Battery DC 3.7V, 1750mAh<br>DC 5V,500mA, Charging form adapter<br>(Adapter Input:100-300V~50/60Hz, 0.15A) |
| Adapter        | ::Manufacturer: LAVA<br>Model No.: CLV-3                                                                   |

#### 3.3 Standards Applicable for Testing

The tests were performed according to following standards:

FCC PART 15, SUBPART B: Electronic Code of Federal Regulations- Unintentional Radiators  
2014

### 3.4 Test Facility

The test facility has a test site registered with the following organizations:

- **IC – Registration No.: 7760A-1**

Waltek Services (Shenzhen) Co., Ltd. has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration 7760A-1, October 15, 2015.

- **FCC Test Site 1#– Registration No.: 880581**

Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory `has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 880581, April 29, 2014.

- **FCC Test Site 2#– Registration No.: 328995**

Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory `has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 328995, December 3, 2014.

### 3.5 Subcontracted

Whether parts of tests for the product have been subcontracted to other labs:

☐ Yes      ☒ No

If Yes, list the related test items and lab information:

Test Lab:      N/A

Lab address: N/A

Test items:      N/A

### 3.6 Abnormalities from Standard Conditions

None.

## 4 Equipment Used during Test

### 4.1 Equipment List

| Conducted Emissions Test Site 1#                              |                            |                                  |              |                 |                       |                      |
|---------------------------------------------------------------|----------------------------|----------------------------------|--------------|-----------------|-----------------------|----------------------|
| Item                                                          | Equipment                  | Manufacturer                     | Model No.    | Serial No.      | Last Calibration Date | Calibration Due Date |
| 1.                                                            | EMI Test Receiver          | R&S                              | ESCI         | 100947          | Sep.15,2015           | Sep.14,2016          |
| 2.                                                            | LISN                       | R&S                              | ENV216       | 101215          | Sep.15,2015           | Sep.14,2016          |
| 3.                                                            | Cable                      | Top                              | TYPE16(3.5M) | -               | Sep.15,2015           | Sep.14,2016          |
| Conducted Emissions Test Site 2#                              |                            |                                  |              |                 |                       |                      |
| Item                                                          | Equipment                  | Manufacturer                     | Model No.    | Serial No.      | Last Calibration Date | Calibration Due Date |
| 1.                                                            | EMI Test Receiver          | R&S                              | ESCI         | 101155          | Sep.15,2015           | Sep.14,2016          |
| 2.                                                            | LISN                       | SCHWARZBECK                      | NSLK 8128    | 8128-289        | Sep.15,2015           | Sep.14,2016          |
| 3.                                                            | Limiter                    | York                             | MTS-IMP-136  | 261115-001-0024 | Sep.15,2015           | Sep.14,2016          |
| 4.                                                            | Cable                      | LARGE                            | RF300        | -               | Sep.15,2015           | Sep.14,2016          |
| 3m Semi-anechoic Chamber for Radiation Emissions Test site 1# |                            |                                  |              |                 |                       |                      |
| Item                                                          | Equipment                  | Manufacturer                     | Model No.    | Serial No.      | Last Calibration Date | Calibration Due Date |
| 1                                                             | EMC Analyzer               | Agilent                          | E7405A       | MY45114943      | Sep.15,2015           | Sep.14,2016          |
| 2                                                             | Active Loop Antenna        | Beijing Dazhi                    | ZN30900A     | -               | Sep.15,2015           | Sep.14,2016          |
| 3                                                             | Trilog Broadband Antenna   | SCHWARZBECK                      | VULB9163     | 336             | Apr.19,2015           | Apr.18,2016          |
| 4                                                             | Coaxial Cable (below 1GHz) | Top                              | TYPE16(13M)  | -               | Sep.15,2015           | Sep.14,2016          |
| 5                                                             | Broad-band Horn Antenna    | SCHWARZBECK                      | BBHA 9120 D  | 667             | Apr.19,2015           | Apr.18,2016          |
| 6                                                             | Broad-band Horn Antenna    | SCHWARZBECK                      | BBHA 9170    | 335             | Apr.19,2015           | Apr.18,2016          |
| 7                                                             | Broadband Pre-amplifier    | COMPLIANCE DIRECTION             | PAP-1G18     | 2004            | Mar.17,2015           | Mar.16,2016          |
| 8                                                             | Coaxial Cable (above 1GHz) | Top                              | 1GHz-25GHz   | EW02014-7       | Apr.10,2015           | Apr.09,2016          |
| 3m Semi-anechoic Chamber for Radiation Emissions Test site 2# |                            |                                  |              |                 |                       |                      |
| Item                                                          | Equipment                  | Manufacturer                     | Model No.    | Serial No       | Last Calibration Date | Calibration Due Date |
| 1                                                             | Test Receiver              | R&S                              | ESCI         | 101296          | Sep.15,2015           | Sep.14,2016          |
| 2                                                             | Trilog Broadband Antenna   | SCHWARZBECK                      | VULB9160     | 9160-3325       | Sep.15,2015           | Sep.14,2016          |
| 3                                                             | Amplifier                  | Compliance pirection systems inc | PAP-0203     | 22024           | Sep.15,2015           | Sep.14,2016          |

| 4                           | Cable                           | HUBER+SUHNER | CBL2      | 525178     | Sep.15,2015           | Sep.14,2016          |
|-----------------------------|---------------------------------|--------------|-----------|------------|-----------------------|----------------------|
| <b>RF Conducted Testing</b> |                                 |              |           |            |                       |                      |
| Item                        | Equipment                       | Manufacturer | Model No. | Serial No. | Last Calibration Date | Calibration Due Date |
| 1.                          | EMC Analyzer<br>(9k~26.5GHz)    | Agilent      | E7405A    | MY45114943 | Sep.15,2015           | Sep.14,2016          |
| 2.                          | Spectrum Analyzer<br>(9k~6GHz)  | R&S          | FSL6      | 100959     | Sep.15,2015           | Sep.14,2016          |
| 3.                          | Signal Analyzer<br>(9k~26.5GHz) | Agilent      | N9010A    | MY50520207 | Sep.15,2015           | Sep.14,2016          |

#### 4.2 Description of Support Units

| Equipment   | Manufacturer | Model No. | Series No.   |
|-------------|--------------|-----------|--------------|
| MacBook Air | APPLE        | A1465     | C17KTQDNF5N7 |

#### 4.3 Measurement Uncertainty

| Test Item              | Frequency Range | Uncertainty         | Note |
|------------------------|-----------------|---------------------|------|
| Conduction disturbance | 150kHz~30MHz    | $\pm 3.64\text{dB}$ | (1)  |
| Radiation Emission     | 30MHz~1000MHz   | $\pm 5.03\text{dB}$ | (1)  |
|                        | 1GHz~6GHz       | $\pm 5.47\text{dB}$ | (1)  |

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k=2$ .

## 5 Emission Test Results

### 5.1 Power Line Conducted Emission, 150kHz to 30MHz

Test Requirement ..... : FCC PART 15, SUBPART B

Test Method ..... : ANSI C63.4

Test Result ..... : Pass

Frequency Range ..... : 150kHz to 30MHz

Class ..... : Class B

Limit ..... :

| Frequency (MHz) | Limit (dB $\mu$ V) |           |
|-----------------|--------------------|-----------|
|                 | Quasi-peak         | Average   |
| 0.15 to 0.5     | 66 to 56*          | 56 to 46* |
| 0.5 to 5        | 56                 | 46        |
| 5 to 30         | 60                 | 50        |

#### 5.1.1 E.U.T. Operation

Operating Environment:

Temperature ..... : 23°C

Humidity ..... : 53.6%RH

Atmospheric Pressure..... : 101kPa

EUT Operation:

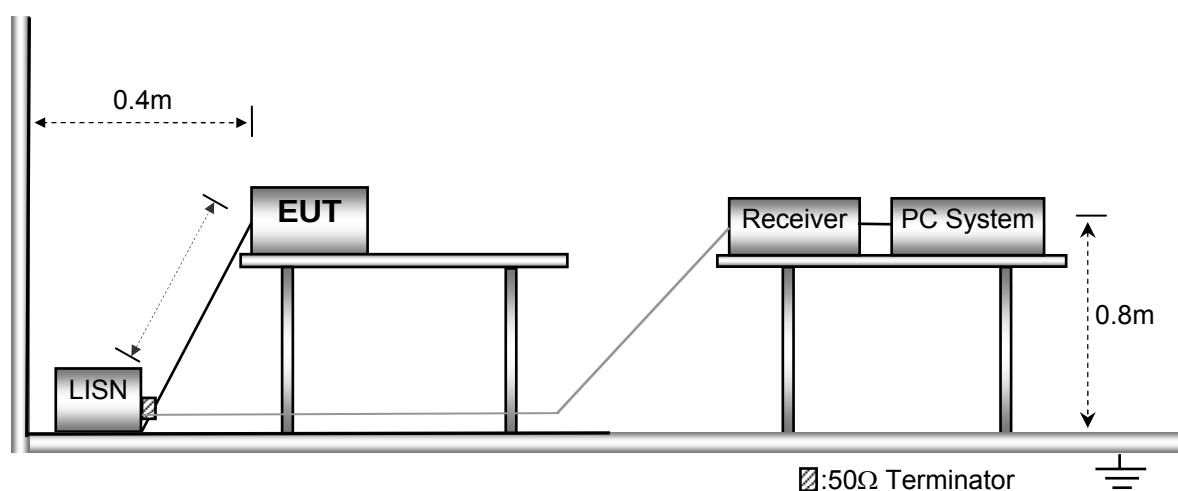
Input Voltage..... : DC 5V by Adapter Input AC 120V/60Hz

Operating Mode ..... : Data transmitting

Remark ..... : The worse case(Data transmitting mode) is under the condition of AC 120V/60Hz adapter input and the data is shown as follow.

#### 5.1.2 Block Diagram of Test Setup

The Mains Terminals Disturbance Voltage tests were performed in accordance with the ANSI C63.4 .

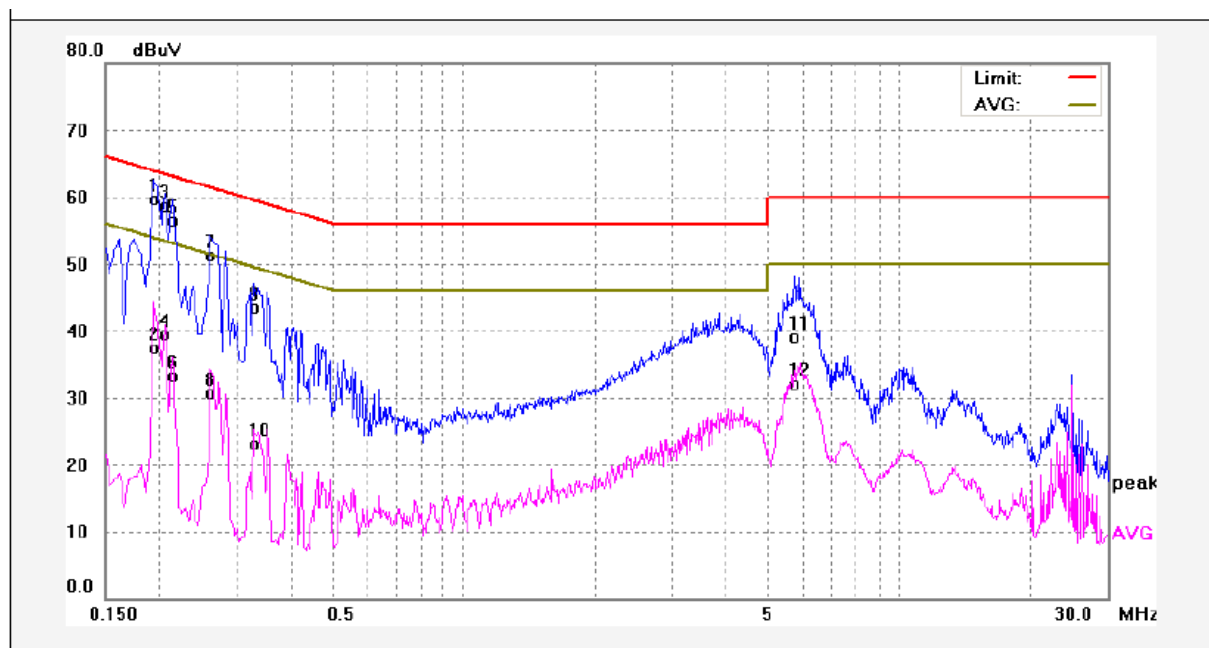


### 5.1.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line. According to the data in section 5.1.4, the EUT complied with the FCC PART 15, SUBPART B standards.

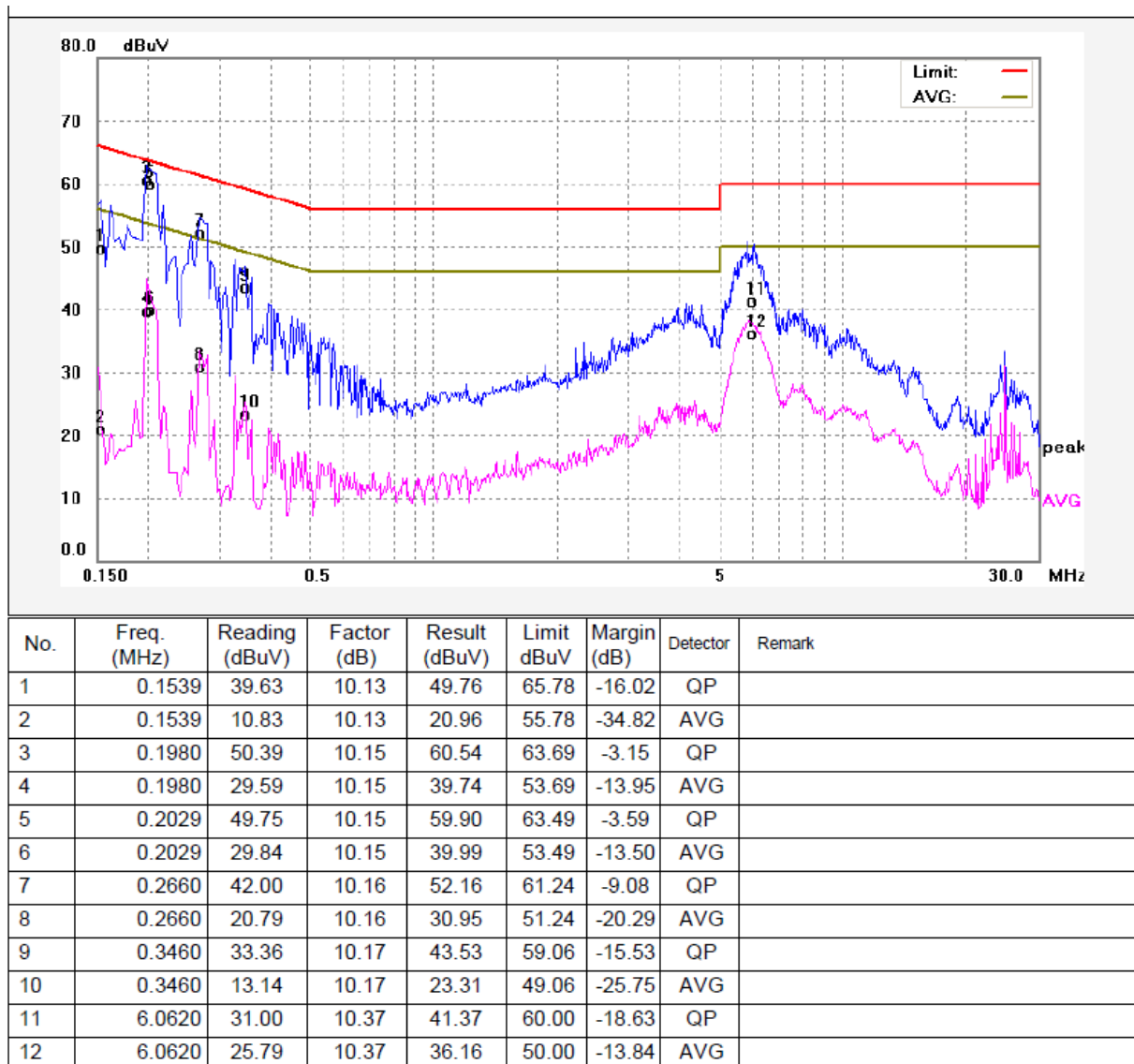
### 5.1.4 Power Line Conducted Emission Test Data

Live Line:



| No. | Freq. (MHz) | Reading (dBuV) | Factor (dB) | Result (dBuV) | Limit dBuV | Margin (dB) | Detector | Remark |
|-----|-------------|----------------|-------------|---------------|------------|-------------|----------|--------|
| 1   | 0.1940      | 49.64          | 10.15       | 59.79         | 63.86      | -4.07       | QP       |        |
| 2   | 0.1940      | 27.36          | 10.15       | 37.51         | 53.86      | -16.35      | AVG      |        |
| 3   | 0.2060      | 48.62          | 10.15       | 58.77         | 63.36      | -4.59       | QP       |        |
| 4   | 0.2060      | 29.40          | 10.15       | 39.55         | 53.36      | -13.81      | AVG      |        |
| 5   | 0.2140      | 46.38          | 10.15       | 56.53         | 63.04      | -6.51       | QP       |        |
| 6   | 0.2140      | 23.12          | 10.15       | 33.27         | 53.04      | -19.77      | AVG      |        |
| 7   | 0.2620      | 41.22          | 10.16       | 51.38         | 61.36      | -9.98       | QP       |        |
| 8   | 0.2620      | 20.55          | 10.16       | 30.71         | 51.36      | -20.65      | AVG      |        |
| 9   | 0.3300      | 33.36          | 10.17       | 43.53         | 59.45      | -15.92      | QP       |        |
| 10  | 0.3300      | 12.87          | 10.17       | 23.04         | 49.45      | -26.41      | AVG      |        |
| 11  | 5.7380      | 28.80          | 10.36       | 39.16         | 60.00      | -20.84      | QP       |        |
| 12  | 5.7380      | 21.73          | 10.36       | 32.09         | 50.00      | -17.91      | AVG      |        |

Neutral Line:



## 5.2 Radiation Emission, 30MHz to 1000MHz

Test Requirement ..... : FCC PART 15, SUBPART B  
 Test Method ..... : ANSI C63.4  
 Test Result ..... : Pass  
 Frequency Range ..... : 30MHz to 1000MHz  
 Class. .... : Class B  
 Limit..... :

| Frequency (MHz) | Distance (Meter) | Limit (dB $\mu$ V/m) |
|-----------------|------------------|----------------------|
|                 |                  | Quasi-peak           |
| 30 to 88        | 3                | 40                   |
| 88 to 216       | 3                | 43.5                 |
| 216 to 960      | 3                | 46                   |
| 960 to 1000     | 3                | 54                   |

### 5.2.1 E.U.T. Operation

Operating Environment:

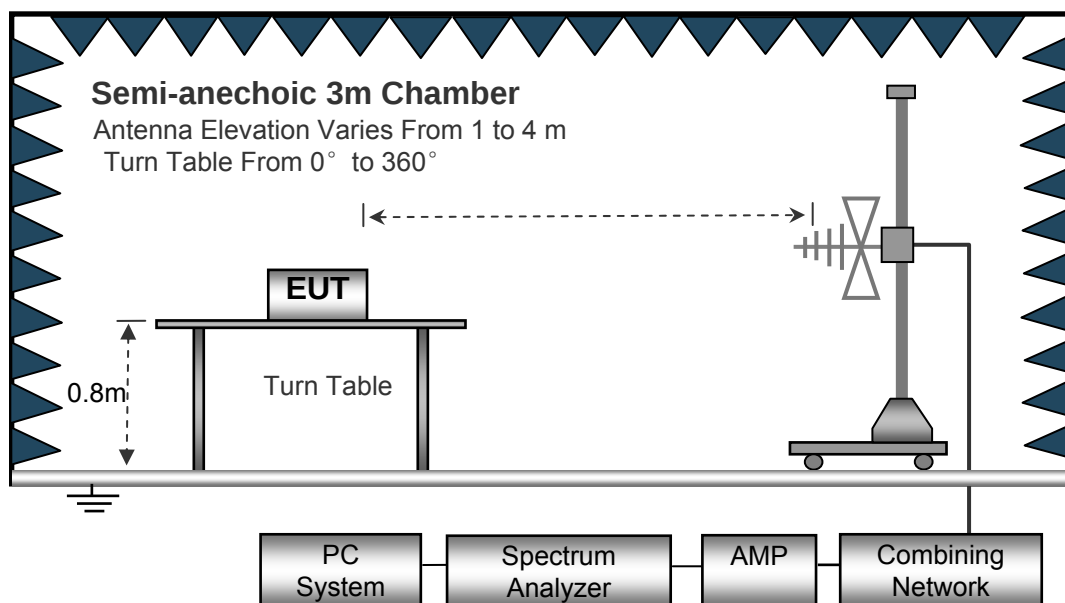
Temperature ..... : 22.5°C  
 Humidity ..... : 52.6%RH  
 Atmospheric Pressure..... : 101.2kPa

EUT Operation:

Input Voltage..... : DC 5V by Adapter Input AC 120V/60Hz  
 Operating Mode ..... : Data transmitting  
 Remark ..... : The worse case(Data transmitting) is under the condition of AC 120V/60Hz adapter input and the data is shown as follow.

### 5.2.2 Block Diagram of Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4.

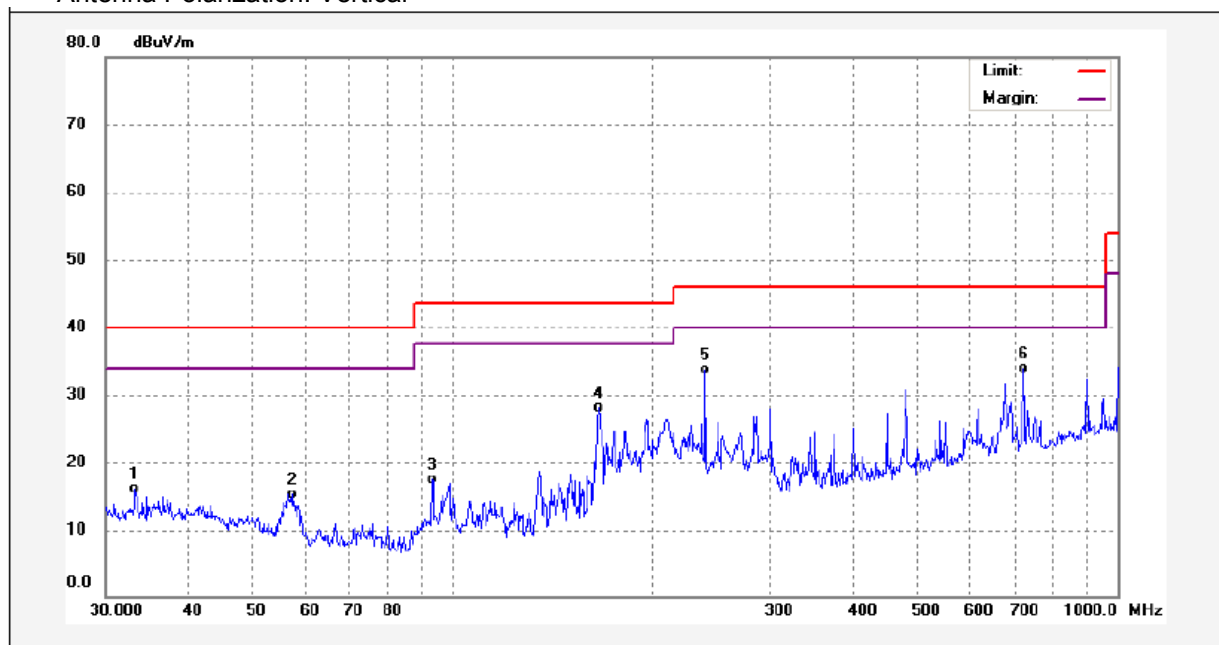


### 5.2.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for both the Antenna Vertical Polarization and Antenna Horizontal Polarization. Quasi-peak measurements were performed if peak emissions were within 6dB of the Quasi-peak limit line.

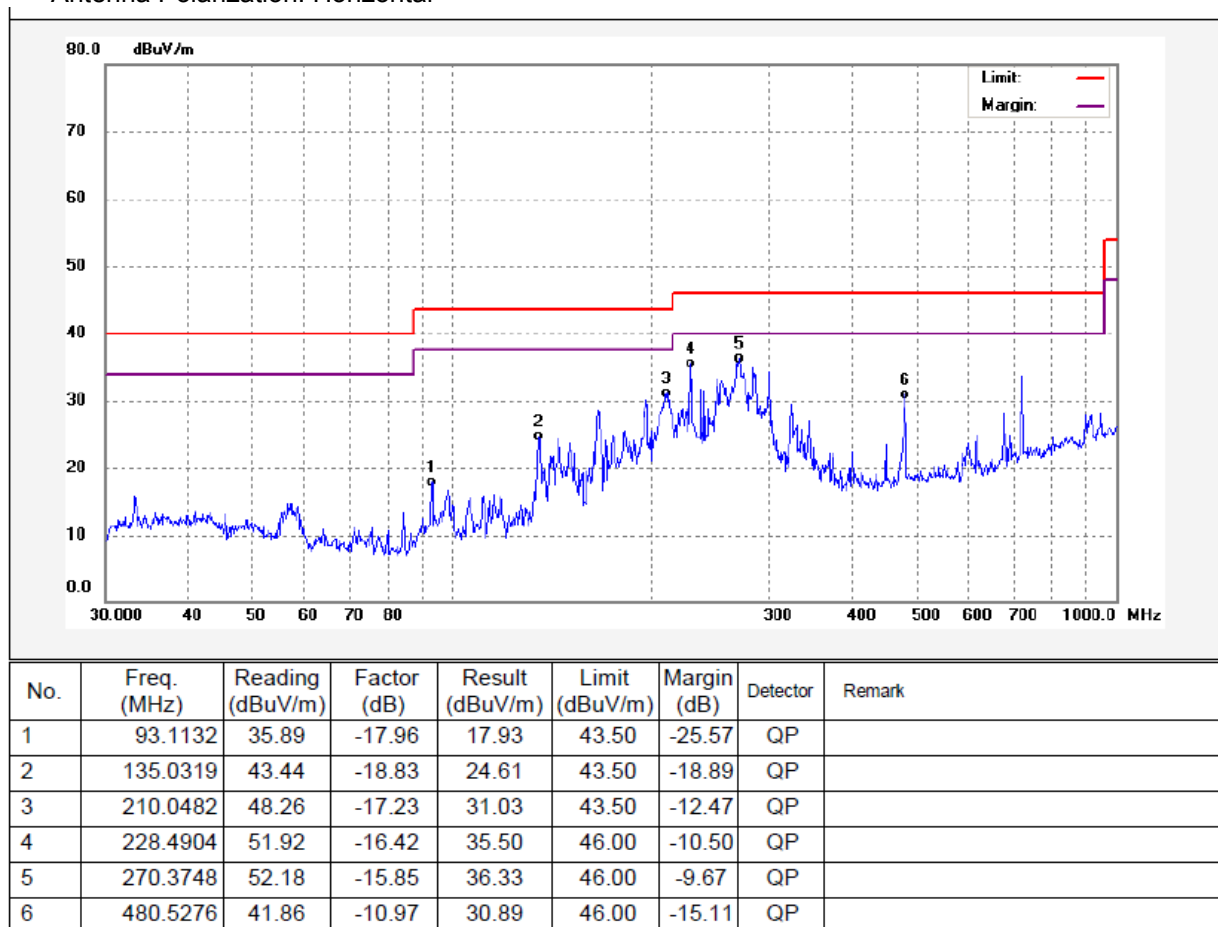
### 5.2.4 Radiated Emission Test Data, 30MHz to 1000MHz

Antenna Polarization: Vertical



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 33.2112     | 32.48            | -16.36      | 16.12           | 40.00          | -23.88      | QP       |        |
| 2   | 57.3923     | 33.82            | -18.42      | 15.40           | 40.00          | -24.60      | QP       |        |
| 3   | 93.1132     | 35.52            | -17.96      | 17.56           | 43.50          | -25.94      | QP       |        |
| 4   | 165.4866    | 46.75            | -18.70      | 28.05           | 43.50          | -15.45      | QP       |        |
| 5   | 239.9873    | 49.77            | -16.10      | 33.67           | 46.00          | -12.33      | QP       |        |
| 6   | 721.7259    | 41.13            | -7.21       | 33.92           | 46.00          | -12.08      | QP       |        |

Antenna Polarization: Horizontal



### 5.3 Radiation Emission, Above 1000MHz

Test Requirement ..... : FCC PART 15, SUBPART B  
 Test Method ..... : ANSI C63.4  
 Test Result ..... : Pass  
 Frequency Range ..... : 1GHz~6GHz  
 Class. .... : Class B  
 Limit. .... :

| Frequency Range (MHz) | Distance (Meter) | Average Limit dB(uV/m) | Peak Limit (dBuV/m) |
|-----------------------|------------------|------------------------|---------------------|
| Above 1GHz            | 3                | 54                     | 74                  |

#### 5.3.1 E.U.T. Operation

Operating Environment:

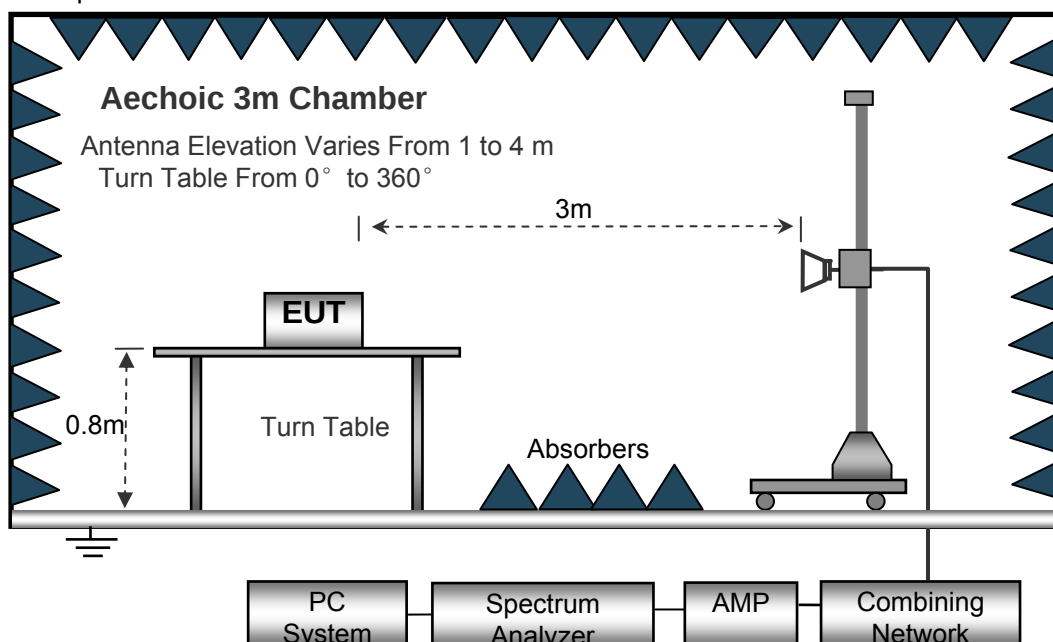
Temperature ..... : 22.4°C  
 Humidity ..... : 52.3%RH  
 Atmospheric Pressure ..... : 101.3kPa

EUT Operation:

Input Voltage ..... : DC 5V by Adapter Input AC 120V/60Hz  
 Operating Mode ..... : Data transmitting  
 Remark ..... : The worse case(Data transmitting mode) is under the condition of AC 120V/60Hz adapter input and the data is shown as follow.

#### 5.3.2 Block Diagram of Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4.

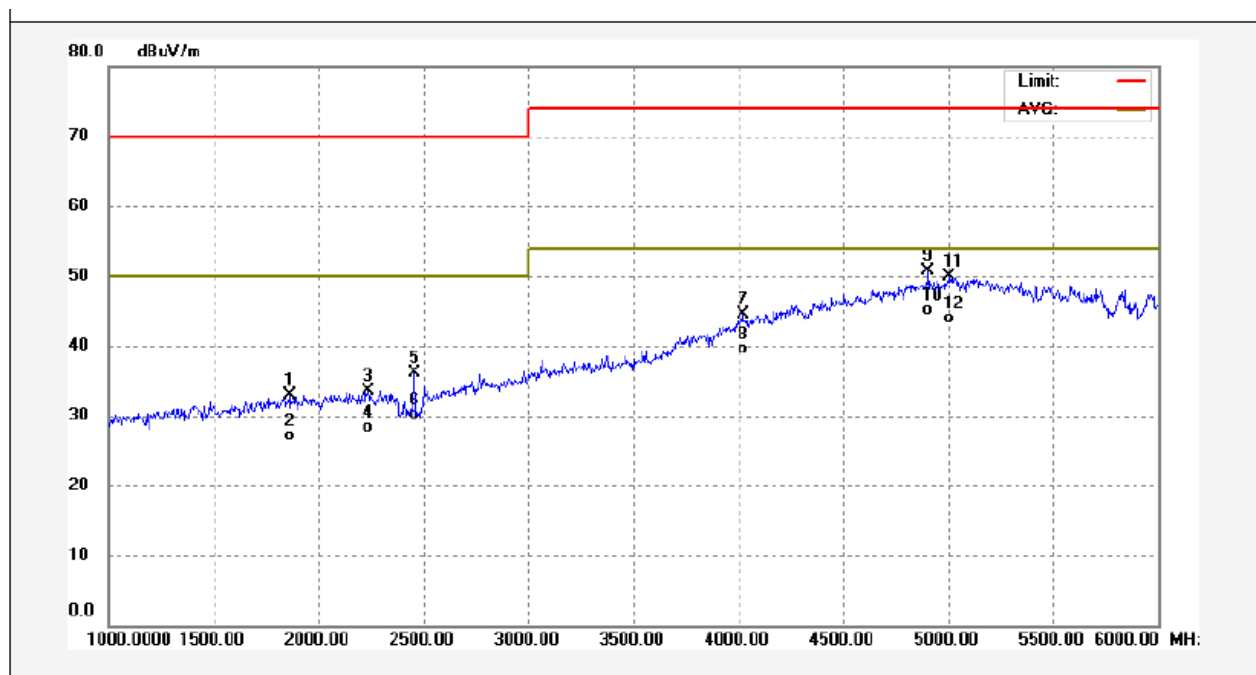


### 5.3.3 Measurement Data

The maximised peak emissions from the EUT was scanned and measured for both the Antenna Vertical Polarization and Antenna Horizontal Polarization. Average measurements were performed if peak emissions were within 6dB of the average limit line

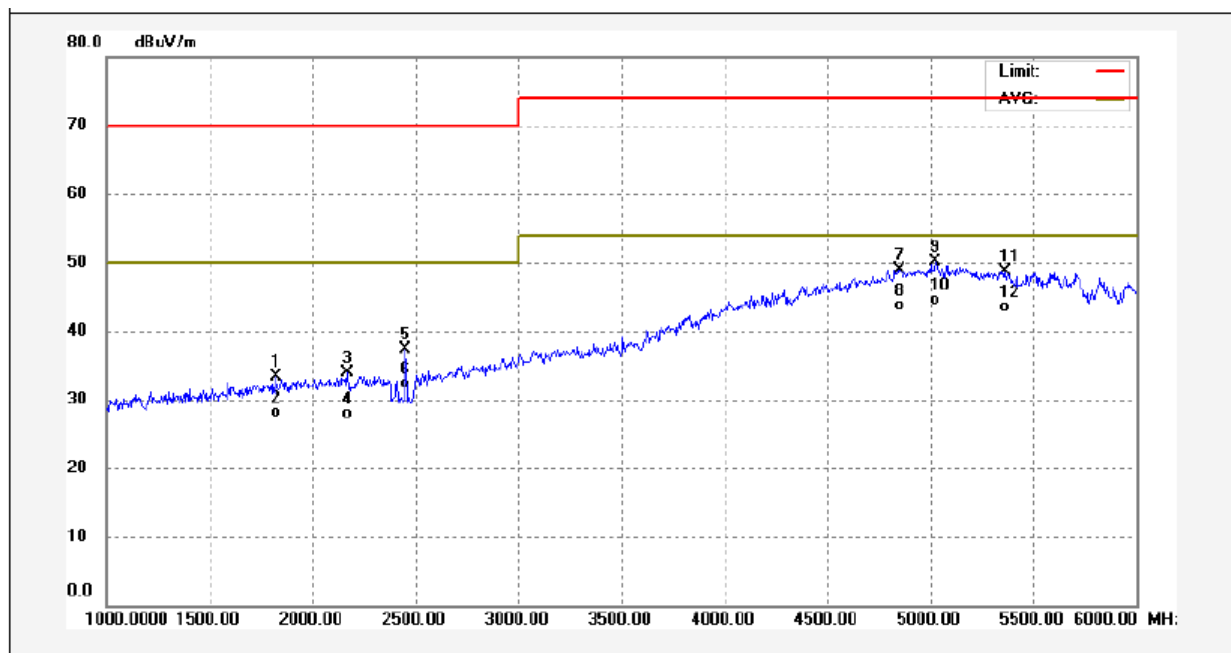
### 5.3.4 Radiated Emission Test Data, Above 1000MHz

Antenna Polarization: Vertical



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 1860.000    | 49.58            | -16.76      | 32.82           | 70.00          | -37.18      | peak     |        |
| 2   | 1860.000    | 43.86            | -16.76      | 27.10           | 50.00          | -22.90      | AVG      |        |
| 3   | 2235.000    | 49.60            | -16.13      | 33.47           | 70.00          | -36.53      | peak     |        |
| 4   | 2235.000    | 44.48            | -16.13      | 28.35           | 50.00          | -21.65      | AVG      |        |
| 5   | 2455.000    | 52.09            | -15.95      | 36.14           | 70.00          | -33.86      | peak     |        |
| 6   | 2455.000    | 46.12            | -15.95      | 30.17           | 50.00          | -19.83      | AVG      |        |
| 7   | 4020.000    | 50.56            | -5.99       | 44.57           | 74.00          | -29.43      | peak     |        |
| 8   | 4020.000    | 45.52            | -5.99       | 39.53           | 54.00          | -14.47      | AVG      |        |
| 9   | 4905.000    | 51.47            | -0.79       | 50.68           | 74.00          | -23.32      | peak     |        |
| 10  | 4905.000    | 45.91            | -0.79       | 45.12           | 54.00          | -8.88       | AVG      |        |
| 11  | 5005.000    | 50.13            | -0.26       | 49.87           | 74.00          | -24.13      | peak     |        |
| 12  | 5005.000    | 44.20            | -0.26       | 43.94           | 54.00          | -10.06      | AVG      |        |

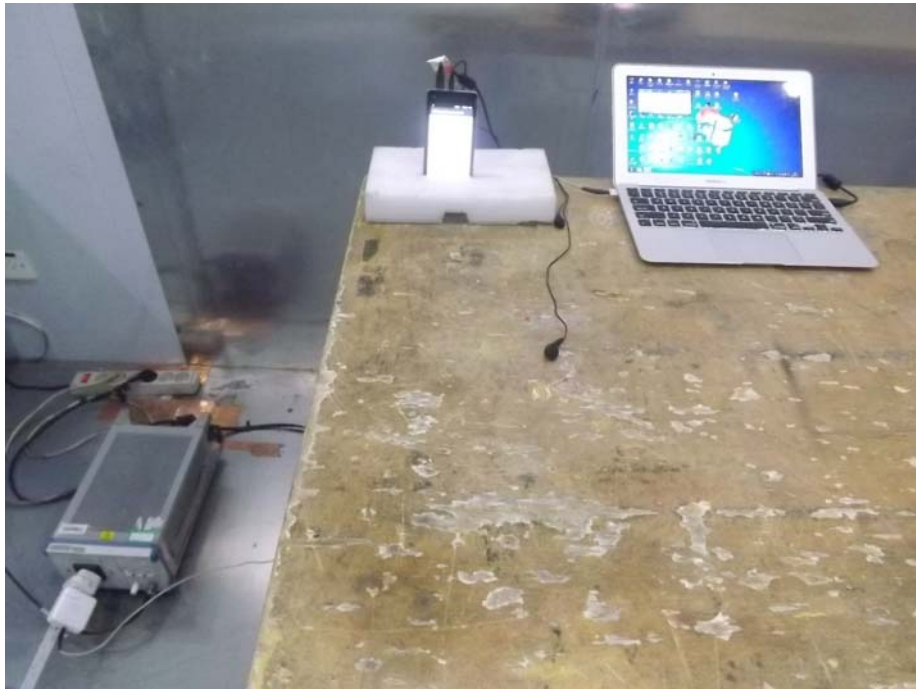
Antenna Polarization: Horizontal



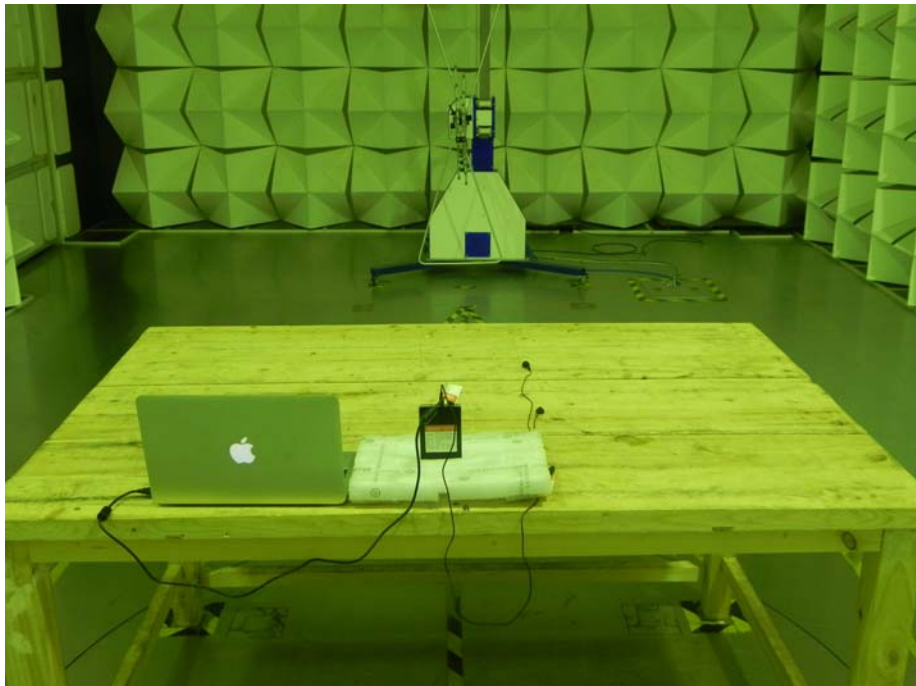
| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|--------|
| 1   | 1825.000    | 50.08            | -16.87      | 33.21           | 70.00          | -36.79      | peak     |        |
| 2   | 1825.000    | 45.00            | -16.87      | 28.13           | 50.00          | -21.87      | AVG      |        |
| 3   | 2170.000    | 50.09            | -16.18      | 33.91           | 70.00          | -36.09      | peak     |        |
| 4   | 2170.000    | 44.14            | -16.18      | 27.96           | 50.00          | -22.04      | AVG      |        |
| 5   | 2450.000    | 53.23            | -15.96      | 37.27           | 70.00          | -32.73      | peak     |        |
| 6   | 2450.000    | 48.29            | -15.96      | 32.33           | 50.00          | -17.67      | AVG      |        |
| 7   | 4850.000    | 50.06            | -1.11       | 48.95           | 74.00          | -25.05      | peak     |        |
| 8   | 4850.000    | 44.73            | -1.11       | 43.62           | 54.00          | -10.38      | AVG      |        |
| 9   | 5020.000    | 50.34            | -0.30       | 50.04           | 74.00          | -23.96      | peak     |        |
| 10  | 5020.000    | 44.81            | -0.30       | 44.51           | 54.00          | -9.49       | AVG      |        |
| 11  | 5360.000    | 50.08            | -1.33       | 48.75           | 74.00          | -25.25      | peak     |        |
| 12  | 5360.000    | 44.90            | -1.33       | 43.57           | 54.00          | -10.43      | AVG      |        |

## **6 Photographs – Test Setup model iris 600**

### **6.1 Photograph –Power Line Conducted Emission Test Setup at Test Site 1#**



### **6.2 Photograph – Radiated Emission Test Setup for 30~1000MHz at Test Site 2#**



### 6.3 Photograph – Radiated Emission Test Setup for Above 1GHz at Test Site 1#



=====End of Report=====