

# FCC Report

**Applicant:** Shanghai Sunmi Technology Co.,Ltd.

**Address of Applicant:** Room 605, Block 7, KIC Plaza, No.388 Song Hu Road Yang Pu District, Shanghai 200433, China

**Equipment Under Test (EUT)**

Product Name: POS System

Model No.: W1403

**FCC ID:** 2AH25W1403

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart B:2015

**Date of sample receipt:** September 19, 2016

**Date of Test:** September 20-October 13, 2016

**Date of report issue:** October 17, 2016

**Test Result :** PASS \*

\* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

A circular logo for GTS Global United Technology Services Co., Ltd. with the text 'GLOBAL TESTING' in the center. A handwritten signature is written over the logo.

**Robinson Lo**

**Laboratory Manager**

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the GTS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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## 2 Version

| Version No. | Date             | Description |
|-------------|------------------|-------------|
| 00          | October 17, 2016 | Original    |
|             |                  |             |
|             |                  |             |
|             |                  |             |
|             |                  |             |

**Prepared By:**

*Edward.Pan*

**Date:**

*October 17, 2016*

**Project Engineer**

**Check By:**

*Andy. Wu*

**Date:**

*October 17, 2016*

**Reviewer**

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## 4 Test Summary

| Test Item          | Section in CFR 47 | Result |
|--------------------|-------------------|--------|
| Conducted Emission | Part15.107        | PASS   |
| Radiated Emissions | Part15.109        | PASS   |

*PASS: The EUT complies with the essential requirements in the standard.*

*Remark: Test according to ANSI C63.4:2014*

### Measurement Uncertainty

| Test Item                                                                                             | Frequency Range | Measurement Uncertainty | Notes |
|-------------------------------------------------------------------------------------------------------|-----------------|-------------------------|-------|
| Radiated Emission                                                                                     | 9kHz ~ 30MHz    | $\pm 4.34\text{dB}$     | (1)   |
| Radiated Emission                                                                                     | 30MHz ~ 1000MHz | $\pm 4.24\text{dB}$     | (1)   |
| Radiated Emission                                                                                     | 1GHz ~ 26.5GHz  | $\pm 4.68\text{dB}$     | (1)   |
| AC Power Line Conducted Emission                                                                      | 0.15MHz ~ 30MHz | $\pm 3.45\text{dB}$     | (1)   |
| Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%. |                 |                         |       |

## 5 General Information

### 5.1 Client Information

|                          |                                                                                            |
|--------------------------|--------------------------------------------------------------------------------------------|
| Applicant:               | Shanghai Sunmi Technology Co.,Ltd.                                                         |
| Address of Applicant:    | Room 605, Block 7, KIC Plaza, No.388 Song Hu Road Yang Pu District, Shanghai 200433, China |
| Manufacturer:            | Shanghai Sunmi Technology Co.,Ltd.                                                         |
| Address of Manufacturer: | Room 605, Block 7, KIC Plaza, No.388 Song Hu Road Yang Pu District, Shanghai 200433, China |
| Factory:                 | Huizhou BYD Electronics Co.,Ltd.                                                           |
| Address of Factory:      | Xiangshui River,Economic Development Zone,Daya Bay, Huizhou,Guangdong,P.R.China            |

### 5.2 General Description of EUT

|               |                                                                                                   |
|---------------|---------------------------------------------------------------------------------------------------|
| Product Name: | POS System                                                                                        |
| Model No.:    | W1401                                                                                             |
| Power supply: | AC Adaptor<br>Model No.:EA10681P-240<br>Input: AC 100-240V, 50/60Hz, 2.0A<br>Output: DC 24V, 2.5A |

### 5.3 Test mode

|                      |                                                      |
|----------------------|------------------------------------------------------|
| Test mode:           |                                                      |
| LAN mode             | Keep the EUT in Ping with PC mode                    |
| TF card Playing mode | Keep the EUT in TF card playing mode                 |
| Print mode           | Keep the EUT in print status                         |
| USB mode             | Keep the EUT in storage data in USB flash disk mode. |

## 5.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **FCC —Registration No.: 600491**

Global United Technology Services Co., Ltd., Shenzhen 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 files. Registration 600491, June 22, 2016.

• **Industry Canada (IC) —Registration No.: 9079A-2**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, August 15, 2016.

## 5.5 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 301-309, 3/F., Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

## 5.6 Description of Support Units

| Manufacturer | Description | Model     | Serial Number | FCC Approval |
|--------------|-------------|-----------|---------------|--------------|
| Apple        | PC          | A1278     | C1MN99ERDTY3  | FCC DoC      |
| DELL         | KEYBOARD    | SK-8115   | N/A           | FCC DoC      |
| DELL         | MOUSE       | MOC5UO    | N/A           | FCC DoC      |
| DELTA        | ADAPTER     | ADP-60ADT | N/A           | FCC DoC      |

## 5.7 Deviation from Standards

Biconical, log.per. antenna and horn antenna were used instead of dipole antenna.  
Semi-anechoic Chamber was used as alternation of open air test sites, and all test suites were performed with radiated method in it.

## 5.8 Abnormalities from Standard Conditions

None.

## 5.9 Other Information Requested by the Customer

None.

## 6 Test Instruments list

| Radiated Emission: |                               |                  |                       |               |                     |                         |
|--------------------|-------------------------------|------------------|-----------------------|---------------|---------------------|-------------------------|
| Item               | Test Equipment                | Manufacturer     | Model No.             | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1                  | 3m Semi- Anechoic Chamber     | ZhongYu Electron | 9.0(L)*6.0(W)* 6.0(H) | GTS250        | July. 03 2015       | July. 02 2020           |
| 2                  | Control Room                  | ZhongYu Electron | 6.2(L)*2.5(W)* 2.4(H) | GTS251        | N/A                 | N/A                     |
| 3                  | ESU EMI Test Receiver         | R&S              | ESU26                 | GTS203        | June 29 2016        | June 28 2017            |
| 4                  | BiConiLog Antenna             | SCHWARZBECK      | VULB9163              | GTS214        | June 29 2016        | June 28 2017            |
| 5                  | Double -ridged waveguide horn | SCHWARZBECK      | 9120D                 | GTS208        | June 29 2016        | June 28 2017            |
| 6                  | RF Amplifier                  | HP               | 8347A                 | GTS204        | June 29 2016        | June 28 2017            |
| 7                  | Broadband Preamplifier        | SCHWARZBECK      | BBV9718               | GTS535        | June 29 2016        | June 28 2017            |
| 8                  | EMI Test Software             | AUDIX            | E3                    | N/A           | N/A                 | N/A                     |
| 9                  | Coaxial cable                 | GTS              | N/A                   | GTS210        | June 29 2016        | June 28 2017            |
| 10                 | Coaxial Cable                 | GTS              | N/A                   | GTS211        | June 29 2016        | June 28 2017            |
| 11                 | Thermo meter                  | N/A              | N/A                   | GTS256        | June 29 2016        | June 28 2017            |

| Conducted Emission: |                          |                     |                      |               |                     |                         |
|---------------------|--------------------------|---------------------|----------------------|---------------|---------------------|-------------------------|
| Item                | Test Equipment           | Manufacturer        | Model No.            | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1                   | Shielding Room           | ZhongYu Electron    | 7.3(L)x3.1(W)x2.9(H) | GTS252        | May. 16 2014        | May. 15 2019            |
| 2                   | EMI Test Receiver        | R&S                 | ESCI 7               | GTS552        | June 29 2016        | June 28 2017            |
| 3                   | Pulse Limiter            | R&S                 | ESH3-Z2              | GTS224        | June 29 2016        | June 28 2017            |
| 4                   | Coaxial Switch           | ANRITSU CORP        | MP59B                | GTS225        | June 29 2016        | June 28 2017            |
| 5                   | Artificial Mains Network | SCHWARZBECK<br>MESS | NSLK8127             | GTS226        | June 29 2016        | June 28 2017            |
| 6                   | Coaxial Cable            | GTS                 | N/A                  | GTS227        | June 29 2016        | June 28 2017            |
| 7                   | EMI Test Software        | AUDIX               | E3                   | N/A           | N/A                 | N/A                     |
| 8                   | Thermo meter             | KTJ                 | TA328                | GTS233        | June 29 2016        | June 28 2017            |

| General used equipment: |                |              |           |               |                     |                         |
|-------------------------|----------------|--------------|-----------|---------------|---------------------|-------------------------|
| Item                    | Test Equipment | Manufacturer | Model No. | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1                       | Barometer      | ChangChun    | DYM3      | GTS257        | June 29 2016        | June 28 2017            |

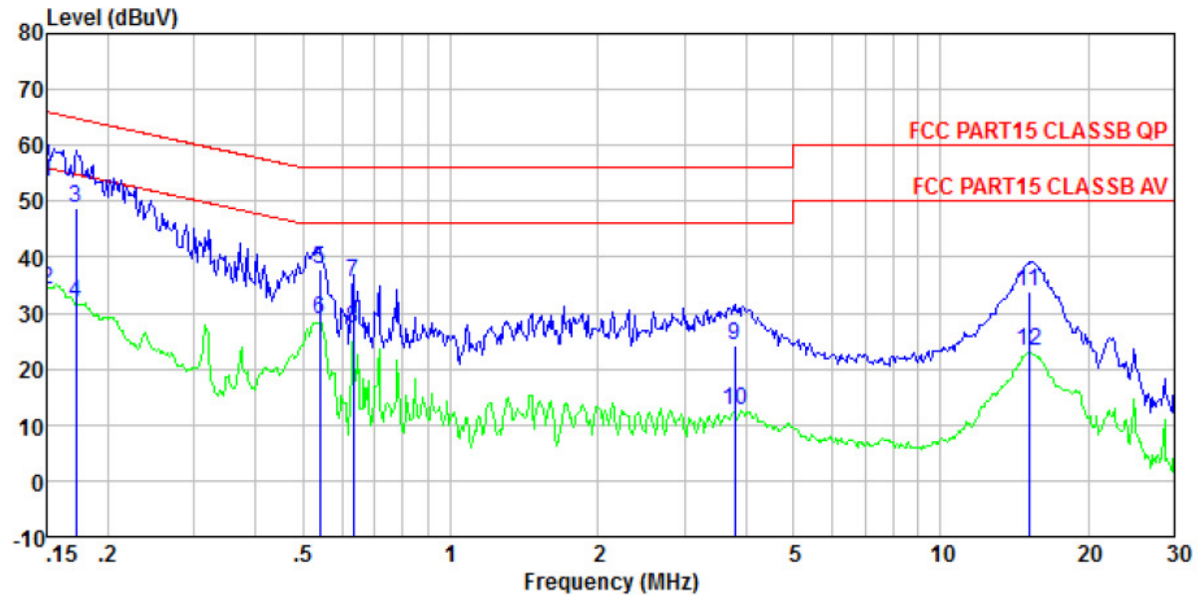
## 7 Test Results and Measurement Data

### 7.1 Conducted Emissions

| Test Requirement:     | FCC Part15 B Section 15.107                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |           |  |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|--|-----------------------|--------------|--|------------|---------|----------|-----------|-----------|-------|----|----|------|----|----|
| Test Method:          | ANSI C63.4:2014                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |  |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
| Test Frequency Range: | 150KHz to 30MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |           |  |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
| Class / Severity:     | Class B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |           |  |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
| Receiver setup:       | RBW=9KHz, VBW=30KHz, Sweep time=auto                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |  |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
| Limit:                | <table><tr><th rowspan="2">Frequency range (MHz)</th><th colspan="2">Limit (dBuV)</th></tr><tr><th>Quasi-peak</th><th>Average</th></tr><tr><td>0.15-0.5</td><td>66 to 56*</td><td>56 to 46*</td></tr><tr><td>0.5-5</td><td>56</td><td>46</td></tr><tr><td>5-30</td><td>60</td><td>50</td></tr></table> <p>* Decreases with the logarithm of the frequency.</p>                                                                                                                                                                                                                                                                                                                                                                                            |           |  | Frequency range (MHz) | Limit (dBuV) |  | Quasi-peak | Average | 0.15-0.5 | 66 to 56* | 56 to 46* | 0.5-5 | 56 | 46 | 5-30 | 60 | 50 |
| Frequency range (MHz) | Limit (dBuV)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |  |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
|                       | Quasi-peak                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Average   |  |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
| 0.15-0.5              | 66 to 56*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 56 to 46* |  |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
| 0.5-5                 | 56                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 46        |  |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
| 5-30                  | 60                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 50        |  |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
| Test setup:           | <div><p style="text-align: center;"><b>Reference Plane</b></p></div> <p><i>Remark:<br/>E.U.T: Equipment Under Test<br/>LISN: Line Impedance Stabilization Network<br/>Test table height=0.8m</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |  |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
| Test procedure:       | <ol style="list-style-type: none"><li>1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.</li><li>2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).</li><li>3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4:2014 on conducted measurement.</li></ol> |           |  |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
| Test Instruments:     | Refer to section 6 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |           |  |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
| Test mode:            | Pre-scan all modes in section 5.3, and found the PC mode which is the worst mode, so only the data of worst mode was show on the test report.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |           |  |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |
| Test results:         | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |  |                       |              |  |            |         |          |           |           |       |    |    |      |    |    |

## Measurement Data

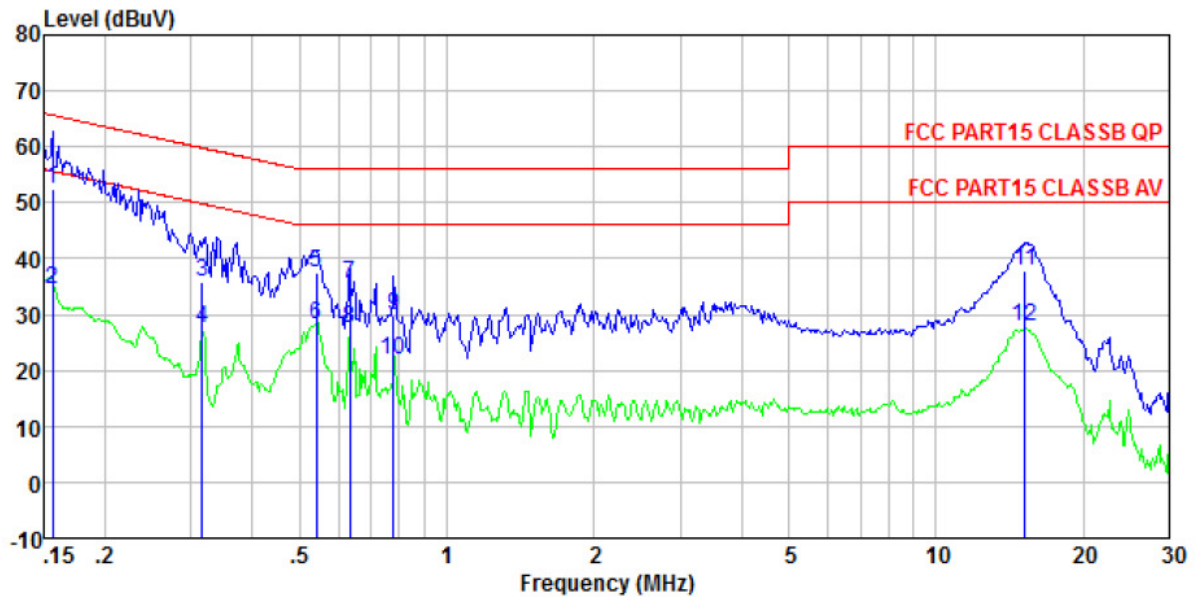
Line:



Site : Shielded room  
Condition : FCC PART15 CLASSB QP LINE  
Job No. : 0124  
Test mode : LAN mode  
Test Engineer: Boy

|    | Freq   | Read Level | LISN Factor | Cable Loss | Level | Limit Line | Over Limit | Remark  |
|----|--------|------------|-------------|------------|-------|------------|------------|---------|
|    | MHz    | dBuV       | dB          | dB         | dBuV  | dBuV       | dB         |         |
| 1  | 0.150  | 52.89      | 0.42        | 0.12       | 53.43 | 66.00      | -12.57     | QP      |
| 2  | 0.150  | 33.65      | 0.42        | 0.12       | 34.19 | 56.00      | -21.81     | Average |
| 3  | 0.172  | 48.28      | 0.42        | 0.12       | 48.82 | 64.86      | -16.04     | QP      |
| 4  | 0.172  | 31.14      | 0.42        | 0.12       | 31.68 | 54.86      | -23.18     | Average |
| 5  | 0.541  | 37.21      | 0.35        | 0.11       | 37.67 | 56.00      | -18.33     | QP      |
| 6  | 0.541  | 28.35      | 0.35        | 0.11       | 28.81 | 46.00      | -17.19     | Average |
| 7  | 0.634  | 35.10      | 0.30        | 0.13       | 35.53 | 56.00      | -20.47     | QP      |
| 8  | 0.634  | 26.68      | 0.30        | 0.13       | 27.11 | 46.00      | -18.89     | Average |
| 9  | 3.799  | 23.87      | 0.21        | 0.15       | 24.23 | 56.00      | -31.77     | QP      |
| 10 | 3.799  | 12.33      | 0.21        | 0.15       | 12.69 | 46.00      | -33.31     | Average |
| 11 | 15.146 | 33.47      | 0.22        | 0.22       | 33.91 | 60.00      | -26.09     | QP      |
| 12 | 15.146 | 22.66      | 0.22        | 0.22       | 23.10 | 50.00      | -26.90     | Average |

## Neutral:



Site : Shielded room  
 Condition : FCC PART15 CLASSB QP NEUTRAL  
 Job No. : 0124  
 Test mode : LAN mode  
 Test Engineer: Boy

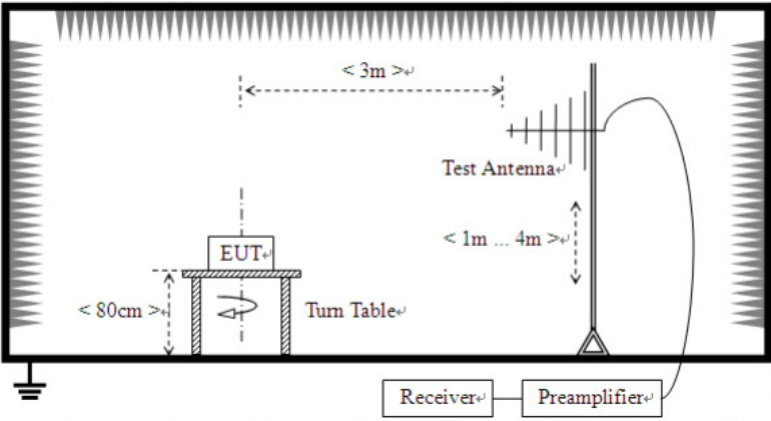
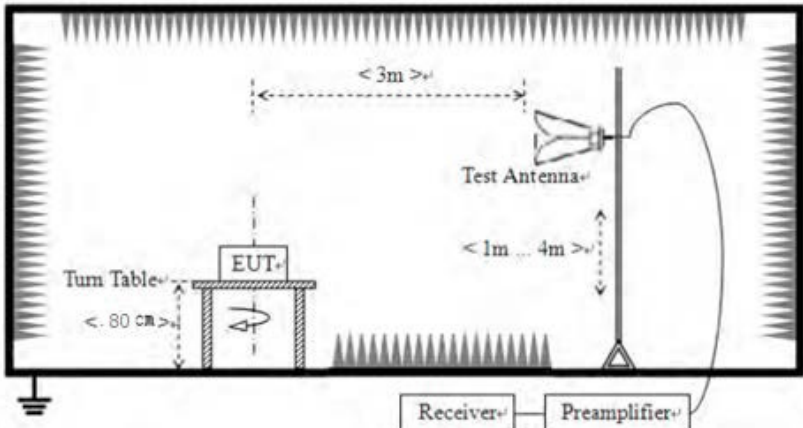
|    | Freq   | Read Level | LISN Factor | Cable Loss | Level | Limit Line | Over Limit | Remark  |
|----|--------|------------|-------------|------------|-------|------------|------------|---------|
|    | MHz    | dBuV       | dB          | dB         | dBuV  | dBuV       | dB         |         |
| 1  | 0.156  | 52.01      | 0.41        | 0.12       | 52.54 | 65.65      | -13.11     | QP      |
| 2  | 0.156  | 34.07      | 0.41        | 0.12       | 34.60 | 55.65      | -21.05     | Average |
| 3  | 0.317  | 35.37      | 0.42        | 0.10       | 35.89 | 59.80      | -23.91     | QP      |
| 4  | 0.317  | 27.01      | 0.42        | 0.10       | 27.53 | 49.80      | -22.27     | Average |
| 5  | 0.541  | 37.01      | 0.32        | 0.11       | 37.44 | 56.00      | -18.56     | QP      |
| 6  | 0.541  | 27.89      | 0.32        | 0.11       | 28.32 | 46.00      | -17.68     | Average |
| 7  | 0.634  | 35.17      | 0.26        | 0.13       | 35.56 | 56.00      | -20.44     | QP      |
| 8  | 0.634  | 27.01      | 0.26        | 0.13       | 27.40 | 46.00      | -18.60     | Average |
| 9  | 0.779  | 29.51      | 0.23        | 0.13       | 29.87 | 56.00      | -26.13     | QP      |
| 10 | 0.779  | 21.63      | 0.23        | 0.13       | 21.99 | 46.00      | -24.01     | Average |
| 11 | 15.226 | 37.21      | 0.23        | 0.22       | 37.66 | 60.00      | -22.34     | QP      |
| 12 | 15.226 | 27.26      | 0.23        | 0.22       | 27.71 | 50.00      | -22.29     | Average |

## Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Receiver Read level + LISN Factor + Cable Loss
4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.

## 7.2 Radiated Emission

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |                  |                  |  |           |          |                    |        |        |             |            |        |                  |                  |              |      |       |                  |            |               |      |       |                  |  |             |  |       |                  |  |            |  |       |               |  |       |            |  |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------|------------------|--|-----------|----------|--------------------|--------|--------|-------------|------------|--------|------------------|------------------|--------------|------|-------|------------------|------------|---------------|------|-------|------------------|--|-------------|--|-------|------------------|--|------------|--|-------|---------------|--|-------|------------|--|
| Test Requirement:     | FCC Part15 B Section 15.109                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                    |                  |                  |  |           |          |                    |        |        |             |            |        |                  |                  |              |      |       |                  |            |               |      |       |                  |  |             |  |       |                  |  |            |  |       |               |  |       |            |  |
| Test Method:          | ANSI C63.4:2014                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                    |                  |                  |  |           |          |                    |        |        |             |            |        |                  |                  |              |      |       |                  |            |               |      |       |                  |  |             |  |       |                  |  |            |  |       |               |  |       |            |  |
| Test Frequency Range: | 30MHz to 25GHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                  |                  |  |           |          |                    |        |        |             |            |        |                  |                  |              |      |       |                  |            |               |      |       |                  |  |             |  |       |                  |  |            |  |       |               |  |       |            |  |
| Test site:            | Measurement Distance: 3m (Semi-Anechoic Chamber)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                  |                  |  |           |          |                    |        |        |             |            |        |                  |                  |              |      |       |                  |            |               |      |       |                  |  |             |  |       |                  |  |            |  |       |               |  |       |            |  |
| Receiver setup:       | <table><tr><td>Frequency</td><td>Detector</td><td>RBW</td><td>VBW</td><td>Remark</td></tr><tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>120kHz</td><td>300kHz</td><td>Quasi-peak Value</td></tr><tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak Value</td></tr><tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average Value</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                    |                  |                  |  | Frequency | Detector | RBW                | VBW    | Remark | 30MHz-1GHz  | Quasi-peak | 120kHz | 300kHz           | Quasi-peak Value | Above 1GHz   | Peak | 1MHz  | 3MHz             | Peak Value | Peak          | 1MHz | 10Hz  | Average Value    |  |             |  |       |                  |  |            |  |       |               |  |       |            |  |
| Frequency             | Detector                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | RBW                | VBW              | Remark           |  |           |          |                    |        |        |             |            |        |                  |                  |              |      |       |                  |            |               |      |       |                  |  |             |  |       |                  |  |            |  |       |               |  |       |            |  |
| 30MHz-1GHz            | Quasi-peak                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 120kHz             | 300kHz           | Quasi-peak Value |  |           |          |                    |        |        |             |            |        |                  |                  |              |      |       |                  |            |               |      |       |                  |  |             |  |       |                  |  |            |  |       |               |  |       |            |  |
| Above 1GHz            | Peak                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1MHz               | 3MHz             | Peak Value       |  |           |          |                    |        |        |             |            |        |                  |                  |              |      |       |                  |            |               |      |       |                  |  |             |  |       |                  |  |            |  |       |               |  |       |            |  |
|                       | Peak                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1MHz               | 10Hz             | Average Value    |  |           |          |                    |        |        |             |            |        |                  |                  |              |      |       |                  |            |               |      |       |                  |  |             |  |       |                  |  |            |  |       |               |  |       |            |  |
| Limit:                | <table><tr><td colspan="2">Frequency</td><td>Limit (dBuV/m @3m)</td><td colspan="2">Remark</td></tr><tr><td colspan="2">30MHz-88MHz</td><td>40.00</td><td colspan="2">Quasi-peak Value</td></tr><tr><td colspan="2">88MHz-216MHz</td><td>43.50</td><td colspan="2">Quasi-peak Value</td></tr><tr><td colspan="2">216MHz-960MHz</td><td>46.00</td><td colspan="2">Quasi-peak Value</td></tr><tr><td colspan="2">960MHz-1GHz</td><td>54.00</td><td colspan="2">Quasi-peak Value</td></tr><tr><td colspan="2" rowspan="2">Above 1GHz</td><td>54.00</td><td colspan="2">Average Value</td></tr><tr><td>74.00</td><td colspan="2">Peak Value</td></tr></table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                    |                  |                  |  | Frequency |          | Limit (dBuV/m @3m) | Remark |        | 30MHz-88MHz |            | 40.00  | Quasi-peak Value |                  | 88MHz-216MHz |      | 43.50 | Quasi-peak Value |            | 216MHz-960MHz |      | 46.00 | Quasi-peak Value |  | 960MHz-1GHz |  | 54.00 | Quasi-peak Value |  | Above 1GHz |  | 54.00 | Average Value |  | 74.00 | Peak Value |  |
| Frequency             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Limit (dBuV/m @3m) | Remark           |                  |  |           |          |                    |        |        |             |            |        |                  |                  |              |      |       |                  |            |               |      |       |                  |  |             |  |       |                  |  |            |  |       |               |  |       |            |  |
| 30MHz-88MHz           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 40.00              | Quasi-peak Value |                  |  |           |          |                    |        |        |             |            |        |                  |                  |              |      |       |                  |            |               |      |       |                  |  |             |  |       |                  |  |            |  |       |               |  |       |            |  |
| 88MHz-216MHz          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 43.50              | Quasi-peak Value |                  |  |           |          |                    |        |        |             |            |        |                  |                  |              |      |       |                  |            |               |      |       |                  |  |             |  |       |                  |  |            |  |       |               |  |       |            |  |
| 216MHz-960MHz         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 46.00              | Quasi-peak Value |                  |  |           |          |                    |        |        |             |            |        |                  |                  |              |      |       |                  |            |               |      |       |                  |  |             |  |       |                  |  |            |  |       |               |  |       |            |  |
| 960MHz-1GHz           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 54.00              | Quasi-peak Value |                  |  |           |          |                    |        |        |             |            |        |                  |                  |              |      |       |                  |            |               |      |       |                  |  |             |  |       |                  |  |            |  |       |               |  |       |            |  |
| Above 1GHz            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 54.00              | Average Value    |                  |  |           |          |                    |        |        |             |            |        |                  |                  |              |      |       |                  |            |               |      |       |                  |  |             |  |       |                  |  |            |  |       |               |  |       |            |  |
|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 74.00              | Peak Value       |                  |  |           |          |                    |        |        |             |            |        |                  |                  |              |      |       |                  |            |               |      |       |                  |  |             |  |       |                  |  |            |  |       |               |  |       |            |  |
| Test Procedure:       | <div>1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</div> <div>2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</div> <div>3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</div> <div>4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.</div> <div>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</div> <div>6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</div> |                    |                  |                  |  |           |          |                    |        |        |             |            |        |                  |                  |              |      |       |                  |            |               |      |       |                  |  |             |  |       |                  |  |            |  |       |               |  |       |            |  |
| Test setup:           | Below 1GHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                    |                  |                  |  |           |          |                    |        |        |             |            |        |                  |                  |              |      |       |                  |            |               |      |       |                  |  |             |  |       |                  |  |            |  |       |               |  |       |            |  |

|                                                                                                                                                                                          |                                                                                                                                               |        |       |         |     |         |           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|---------|-----|---------|-----------|
|  <p>Above 1GHz</p>  |                                                                                                                                               |        |       |         |     |         |           |
|                                                                                                                                                                                          |                                                                                                                                               | Temp.: | 25 °C | Humid.: | 52% | Press.: | 1 012mbar |
| Measurement Record:                                                                                                                                                                      | Uncertainty: ± 4.5dB                                                                                                                          |        |       |         |     |         |           |
| Test Instruments:                                                                                                                                                                        | Refer to section 6 for details                                                                                                                |        |       |         |     |         |           |
| Test mode:                                                                                                                                                                               | Pre-scan all modes in section 5.3, and found the PC mode which is the worst mode, so only the data of worst mode was show on the test report. |        |       |         |     |         |           |
| Test results:                                                                                                                                                                            | Pass                                                                                                                                          |        |       |         |     |         |           |

**Note:**

The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

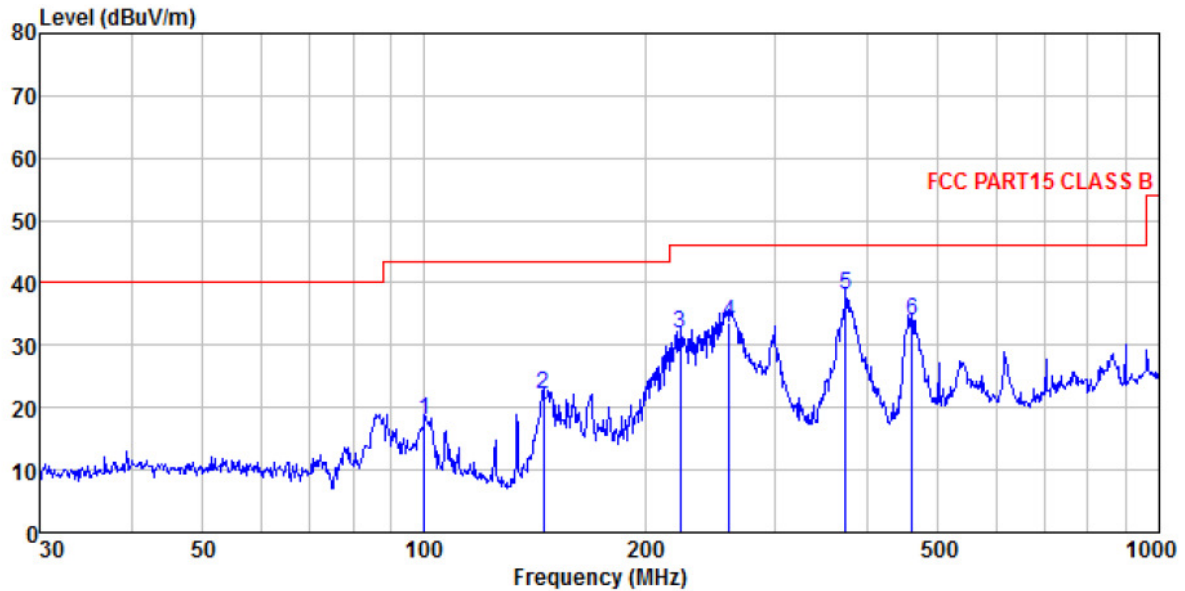
$$\text{Final Test Level} = \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Preamplifier Factor}$$

For above 1GHz test, 1GHz to 25GHz all have been tested, only worse case 1GHz to 6GHz is reported, from 6GHz to 25GHz, no emission is found

## Measurement Data

Below 1GHz

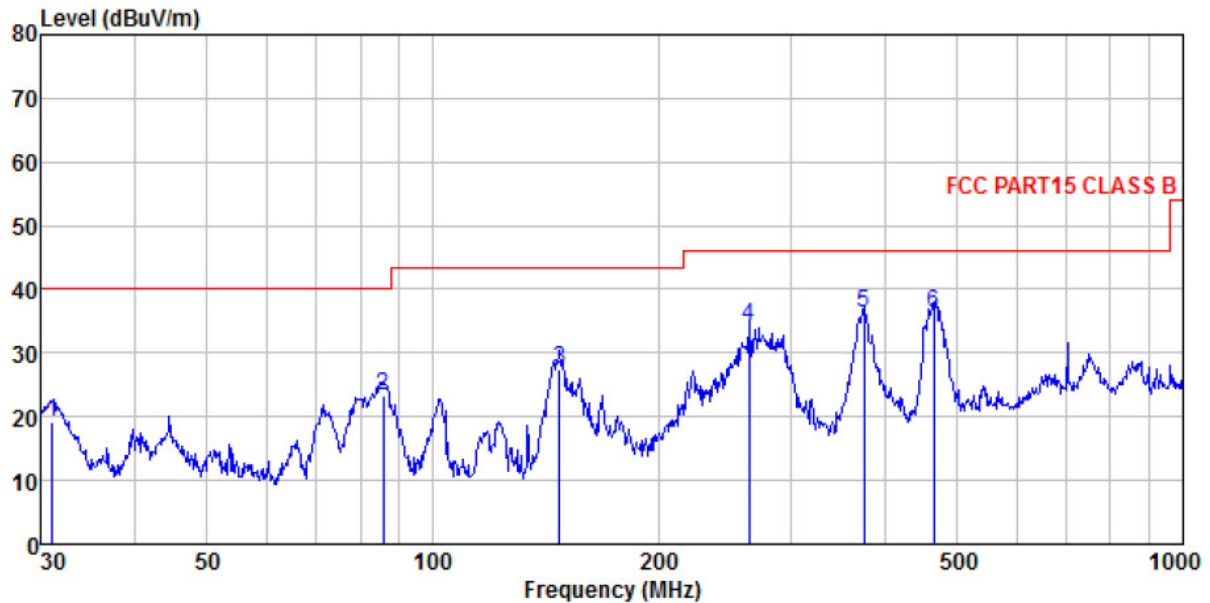
Horizontal:



Site : 3m chamber  
Condition : FCC PART15 CLASS B 3m HORIZONTAL  
Job No. : 0124  
Test Mode : LAN mode  
Test Engineer: Sky

|   | Freq    | Read  | Antenna | Cable | Preamp | Level  | Limit  | Over   |        |
|---|---------|-------|---------|-------|--------|--------|--------|--------|--------|
|   | MHz     | Level | Factor  | Loss  | Factor | dBuV/m | Line   | Limit  | Remark |
|   | MHz     | dBuV  | dB/m    | dB    | dB     | dBuV/m | dBuV/m | dB     |        |
| 1 | 100.229 | 31.38 | 15.11   | 1.19  | 29.70  | 17.98  | 43.50  | -25.52 | QP     |
| 2 | 145.351 | 39.85 | 10.23   | 1.54  | 29.43  | 22.19  | 43.50  | -21.31 | QP     |
| 3 | 222.950 | 46.11 | 13.30   | 1.98  | 29.41  | 31.98  | 46.00  | -14.02 | QP     |
| 4 | 260.144 | 47.12 | 14.09   | 2.18  | 29.72  | 33.67  | 46.00  | -12.33 | QP     |
| 5 | 374.623 | 48.29 | 16.54   | 2.74  | 29.62  | 37.95  | 46.00  | -8.05  | QP     |
| 6 | 460.727 | 42.71 | 17.59   | 3.14  | 29.37  | 34.07  | 46.00  | -11.93 | QP     |

Vertical:

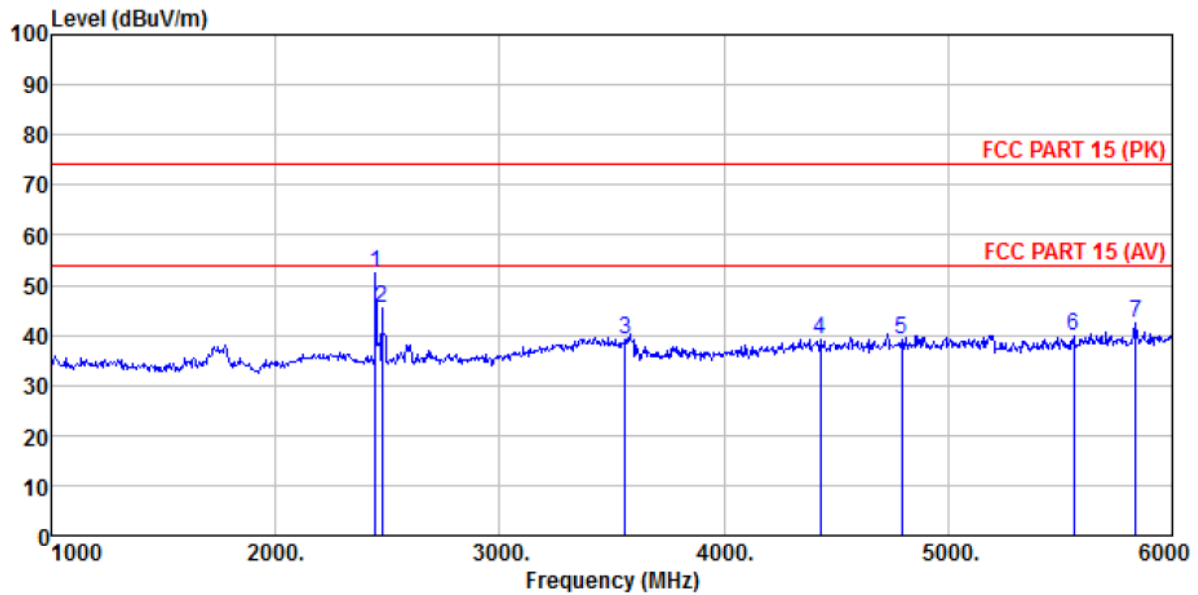


Site : 3m chamber  
 Condition : FCC PART15 CLASS B 3m VERTICAL  
 Job No. : 0124  
 Test Mode : LAN mode  
 Test Engineer: Sky

|   | Freq    | ReadAntenna | Cable  | Preamp | Level  | Limit  | Over   |           |
|---|---------|-------------|--------|--------|--------|--------|--------|-----------|
|   |         | Level       | Factor | Loss   | Factor | Line   | Limit  | Remark    |
|   | MHz     | dBuV        | dB/m   | dB     | dB     | dBuV/m | dBuV/m | dB        |
| 1 | 31.071  | 34.53       | 14.32  | 0.56   | 30.09  | 19.32  | 40.00  | -20.68 QP |
| 2 | 85.898  | 39.52       | 12.60  | 1.08   | 29.77  | 23.43  | 40.00  | -16.57 QP |
| 3 | 147.404 | 44.94       | 10.24  | 1.55   | 29.42  | 27.31  | 43.50  | -16.19 QP |
| 4 | 263.819 | 47.50       | 14.17  | 2.19   | 29.75  | 34.11  | 46.00  | -11.89 QP |
| 5 | 375.939 | 46.51       | 16.56  | 2.75   | 29.61  | 36.21  | 46.00  | -9.79 QP  |
| 6 | 465.599 | 44.73       | 17.71  | 3.16   | 29.37  | 36.23  | 46.00  | -9.77 QP  |

Above 1GHz

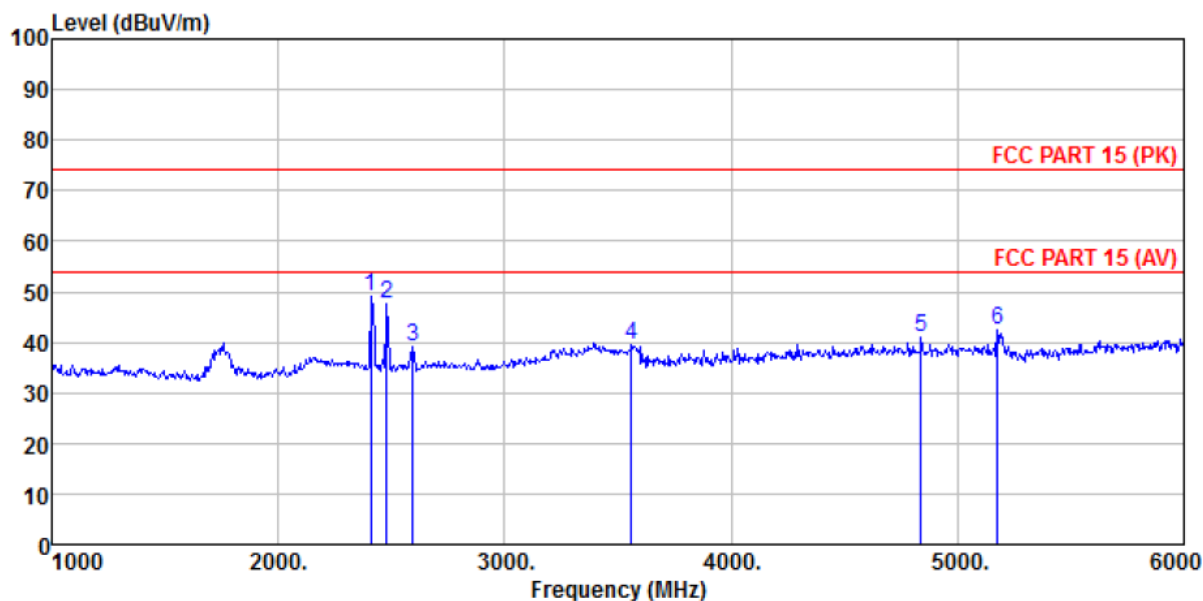
Horizontal:



Site : 3m chamber  
 Condition : FCC PART 15 (PK) 3m HORIZONTAL  
 Job No. : 0124  
 Test Mode : LAN mode  
 Test Engineer: Sky

|   | Freq     | Read<br>Level | Antenna<br>Factor | Cable<br>Loss | Preamplifier<br>Factor | Level  | Limit  | Over<br>Limit | Remark |
|---|----------|---------------|-------------------|---------------|------------------------|--------|--------|---------------|--------|
|   | MHz      | dBuV          | dB/m              | dB            | dB                     | dBuV/m | dBuV/m | dB            |        |
| 1 | 2445.000 | 19.62         | 27.48             | 5.43          | 0.00                   | 52.53  | 74.00  | -21.47        | Peak   |
| 2 | 2475.000 | 12.35         | 27.52             | 5.47          | 0.00                   | 45.34  | 74.00  | -28.66        | Peak   |
| 3 | 3560.000 | 3.07          | 29.09             | 7.07          | 0.00                   | 39.23  | 74.00  | -34.77        | Peak   |
| 4 | 4430.000 | -0.43         | 31.16             | 8.27          | 0.00                   | 39.00  | 74.00  | -35.00        | Peak   |
| 5 | 4795.000 | -1.33         | 31.76             | 8.59          | 0.00                   | 39.02  | 74.00  | -34.98        | Peak   |
| 6 | 5560.000 | -1.82         | 32.13             | 9.61          | 0.00                   | 39.92  | 74.00  | -34.08        | Peak   |
| 7 | 5835.000 | -0.20         | 32.70             | 9.97          | 0.00                   | 42.47  | 74.00  | -31.53        | Peak   |

Vertical:

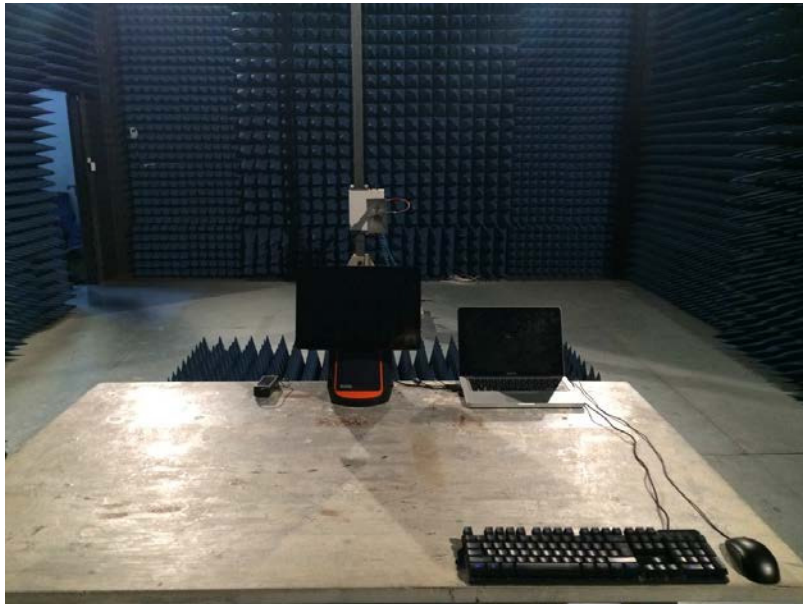
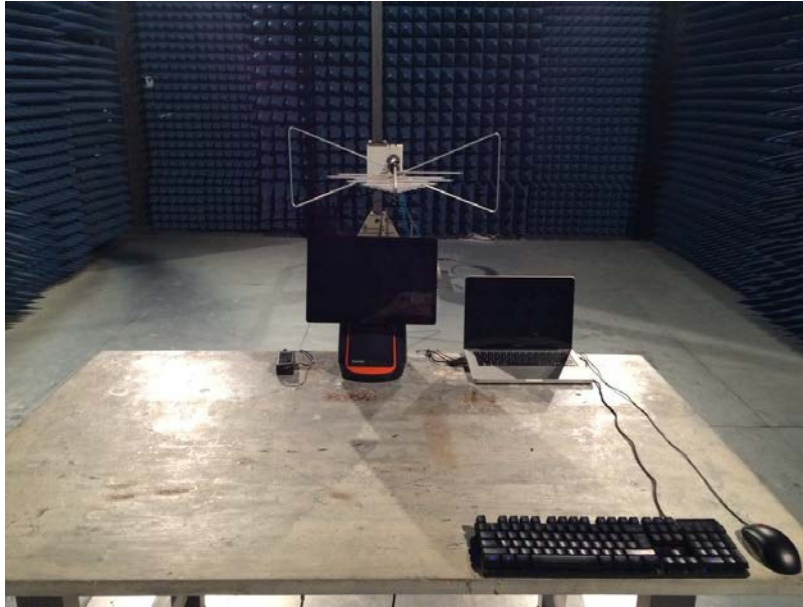


Site : 3m chamber  
 Condition : FCC PART 15 (PK) 3m VERTICAL  
 Job No. : 0124  
 Test Mode : LAN mode  
 Test Engineer: Sky

|   | Freq     | Read Level | Antenna Factor | Cable Loss | Preamplifier | Level  | Limit  | Over Limit | Remark |
|---|----------|------------|----------------|------------|--------------|--------|--------|------------|--------|
|   | MHz      | dBuV       | dB/m           | dB         | dB           | dBuV/m | dBuV/m | dB         |        |
| 1 | 2410.000 | 50.83      | 27.57          | 5.40       | 34.59        | 49.21  | 74.00  | -24.79     | Peak   |
| 2 | 2480.000 | 14.69      | 27.52          | 5.47       | 0.00         | 47.68  | 74.00  | -26.32     | Peak   |
| 3 | 2595.000 | 5.76       | 27.80          | 5.58       | 0.00         | 39.14  | 74.00  | -34.86     | Peak   |
| 4 | 3560.000 | 3.49       | 29.09          | 7.07       | 0.00         | 39.65  | 74.00  | -34.35     | Peak   |
| 5 | 4840.000 | 0.38       | 31.81          | 8.63       | 0.00         | 40.82  | 74.00  | -33.18     | Peak   |
| 6 | 5175.000 | 1.25       | 32.04          | 9.03       | 0.00         | 42.32  | 74.00  | -31.68     | Peak   |

## 8 Test Setup Photo

Radiated Emission



Conducted Emission



## 9 EUT Constructional Details

Reference to the test report No. GTS201609000124E01

----- end-----