

**FCC PART 15B**  
**MEASUREMENT AND TEST REPORT**  
For

**AirSelfie Limited**

20F,Central Town,28 Queens Road ,Hong Kong

**FCC ID: 2ALIT-AS01**

|   |                                   |
|---|-----------------------------------|
| <b>Report Type:</b><br>Original Report  | <b>Product Type:</b><br>AirSelfie |
| <b>Test Engineer:</b> Phil Zhu  | <i>Phil Zhu</i>                   |
| <b>Report Number:</b> RKS170301001-00A  |                                   |
| <b>Report Date:</b> 2017-03-27<br>Kamp Chen   |                                   |
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## GENERAL INFORMATION

### Product Description for Equipment under Test (EUT)

|                     |  |
|---------------------|--|
| Applicant           | AirSelfie Limited  |
| Model               | AS01   |
| Product             | AirSelfie  |
| Rate Voltage        | DC 7.4V power supply by Battery, rated power: 37W, rated current: 5A |
| Operating Frequency | 2462MHz  |
| Dimension           | 94.5 mm (L) × 67.4mm (W) × 10.6 mm (H)                               |

*\* All measurement and test data in this report was gathered from production sample serial number: 20170217004 (Assigned by BACL, Kunshan). The EUT supplied by the applicant was received on 2017-02-17.*

### Objective

This report is prepared on behalf of AirSelfie Limited in accordance with Part 2-Subpart J, and Part 15-Subparts A and B of the Federal Communication Commissions rules.

The objective of the manufacturer is to determine the compliance of EUT with FCC Part 15, Class B.

### Related Submittal(s)/Grant(s)

FCC Part 15.247 DTS submission with FCC ID: 2ALIT-AS01.

### Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Kunshan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

## **Test Facility**

The test site A used by Bay Area Compliance Laboratories Corp. (Kunshan) to collect test data is located on the No.248 Chenghu Road, Kunshan, Jiangsu province, China

Test site at Bay Area Compliance Laboratories Corp. (Kunshan) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on November 06, 2014. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 815570. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

## SYSTEM TEST CONFIGURATION

### Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

Test Mode: Data Transmission

### EUT Exercise Software

Through the App “Airsselfie” to aevial photo.

Notebook executive software “Winthrax” to do R/W

### Special Accessories

No special accessory was used.

### Equipment Modifications

No modification was made to the EUT tested.

### Support Equipment List and Details

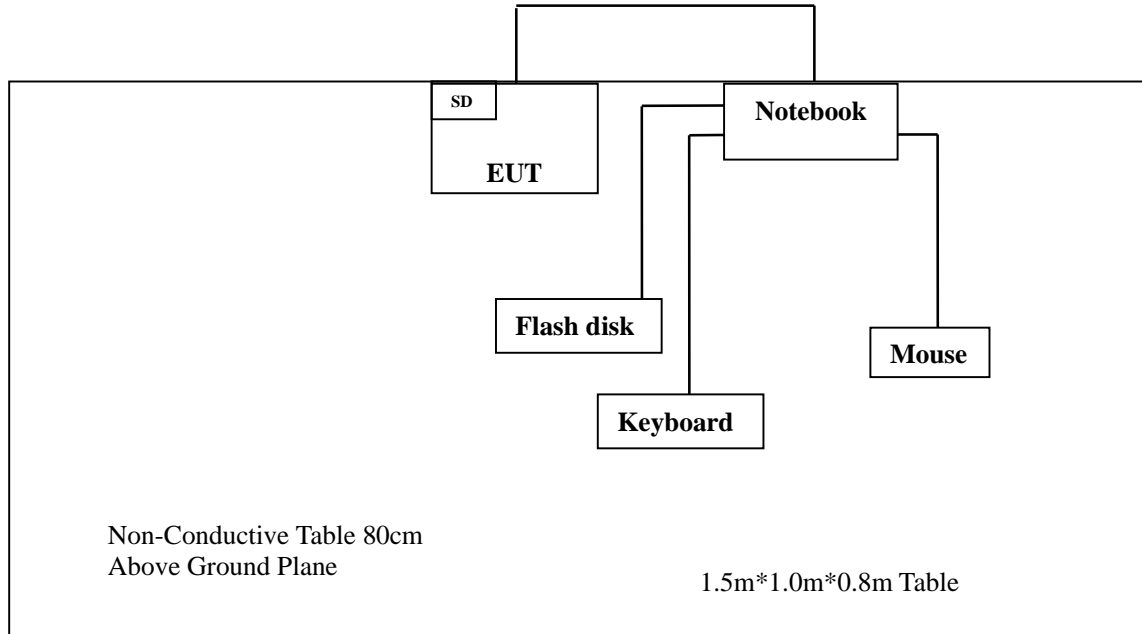
| Manufacturer | Description    | Model   | Serial Number   |
|--------------|----------------|---------|-----------------|
| DELL         | Notebook       | E6410   | 3094742521      |
| Logitech     | Keyboard       | Y-U0009 | 1648MG010SV8    |
| Logitech     | Mouse          | M-U0026 | HS529HB         |
| Sandisk      | Micro SD       | 8G      | /               |
| Lenovo       | USB flash disk | T180    | 0A1266865200521 |

### External I/O Cable

| Cable Description | Length (m) | From/Port | To             |
|-------------------|------------|-----------|----------------|
| USB Cable         | 0.8        | Notebook  | Mouse          |
| USB Cable         | 0.8        | Notebook  | Keyboard       |
| USB Cable         | 0.5        | Notebook  | USB flash disk |
| USB Cable         | 1.0        | EUT       | Notebook       |

## Block Diagram of Radiated Test Setup

*Test Mode: Data Transmission*



## SUMMARY OF TEST RESULTS

| FCC Rules | Description of Test | Results    |
|-----------|---------------------|------------|
| §15.107   | Conducted Emissions | Compliance |
| §15.109   | Radiated Emissions  | Compliance |

## FCC §15.107 –CONDUCTED EMISSIONS

### Applicable Standard

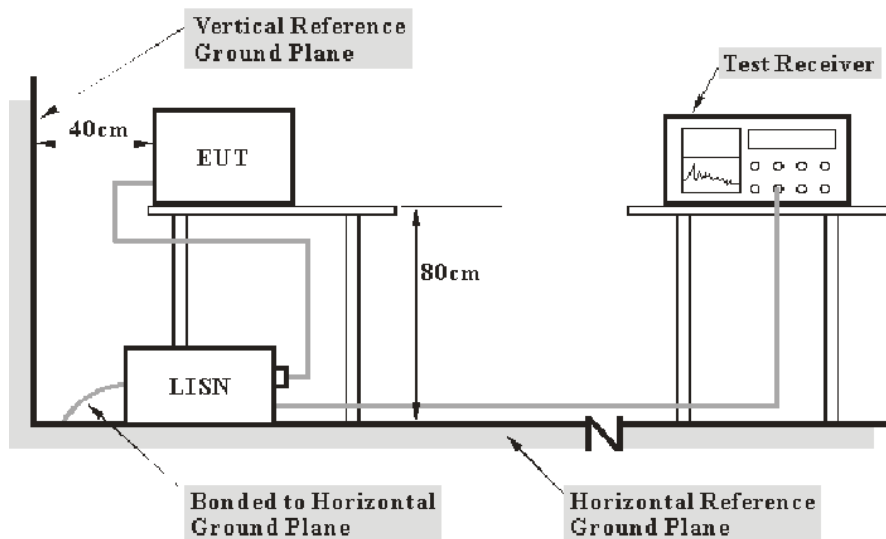
According to FCC§15.107

### Measurement Uncertainty

Input quantities to be considered for conducted disturbance measurements may be receiver reading, attenuation of the connection between LISN and receiver, LISN voltage division factor, LISN VDF frequency interpolation and receiver related input quantities, etc.

| Item |            | Measurement Uncertainty | $U_{\text{cispr}}$ |
|------|------------|-------------------------|--------------------|
| AMN  | 9kHz~30MHz | 3.19 dB                 | 3.4~3.8 dB         |

### EUT Setup



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

The measurement procedure of EUT setup is according with ANSI C63.4-2014. The related limit was specified in FCC Part 15.107 Class B.



### EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

| Frequency Range  | IF B/W |
|------------------|--------|
| 150 kHz – 30 MHz | 9 kHz  |

### Test Procedure

During the conducted emission test, the EUT was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

### Test Equipment List and Details

| Manufacturer    | Description       | Model   | Serial Number | Calibration Date | Calibration Due Date |
|-----------------|-------------------|---------|---------------|------------------|----------------------|
| Rohde & Schwarz | EMI Test Receiver | ESCI    | 100195        | 2016-11-25       | 2017-11-25           |
| Rohde & Schwarz | LISN              | ESH3-Z5 | 862770/011    | 2016-10-10       | 2017-10-09           |
| ROHDE&SCHWARZ   | LISN              | ENV216  | 3560655016    | 2016-11-25       | 2017-11-24           |
| Rohde & Schwarz | CE Test software  | EMC 32  | 100357        | --               | --                   |
| MICRO-COAX      | Coaxial Cable     | Cable-6 | 006           | 2016-09-08       | 2017-09-07           |

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

### Corrected Factor & Margin Calculation

The Corrected factor is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

**Test Data****Environmental Conditions**

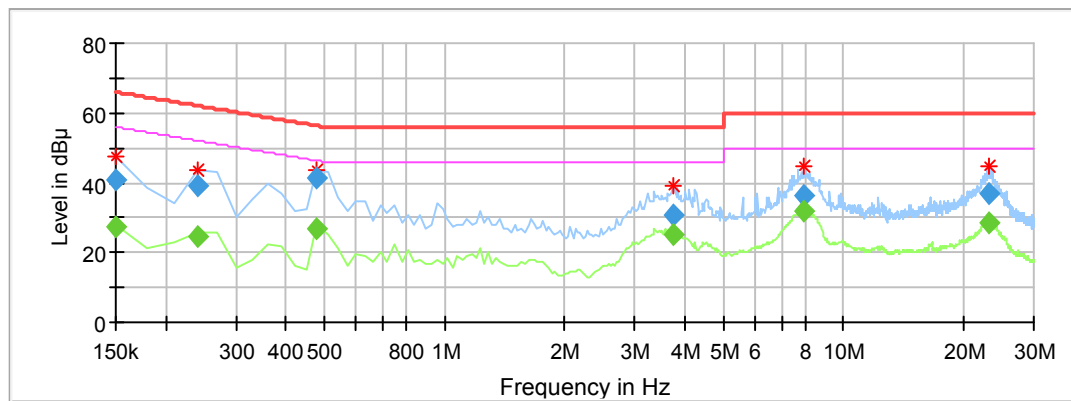
|                           |           |
|---------------------------|-----------|
| <b>Temperature:</b>       | 22°C      |
| <b>Relative Humidity:</b> | 50 %      |
| <b>ATM Pressure:</b>      | 101.0 kPa |

The testing was performed by Phil Zhu on 2017-03-27.

Test Mode : Data Transmission

**Line**

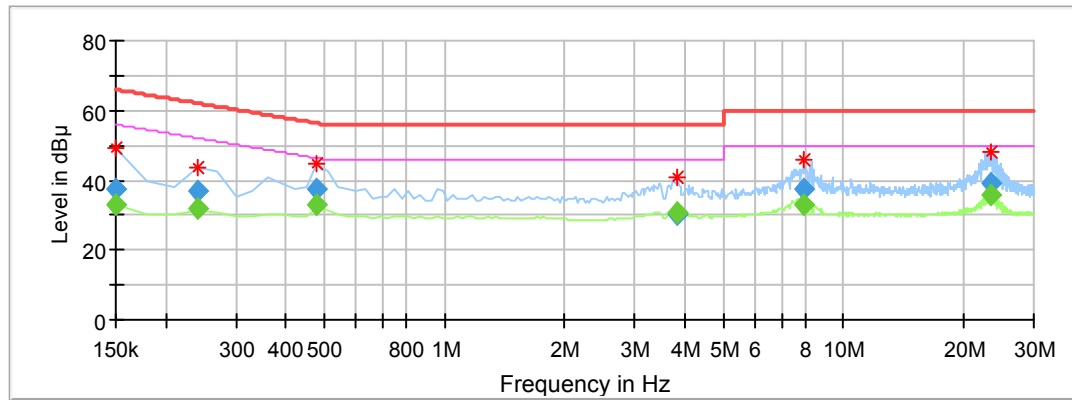
Full Spectrum



| Frequency (MHz) | QuasiPeak (dB $\mu$ V) | Average (dB $\mu$ V) | Limit (dB $\mu$ V) | Margin (dB) | Line | Corr. (dB) |
|-----------------|------------------------|----------------------|--------------------|-------------|------|------------|
| 0.150000        | ---                    | 27.42                | 56.00              | 28.58       | L1   | 10.1       |
| 0.150000        | 41.07                  | ---                  | 66.00              | 24.93       | L1   | 10.1       |
| 0.240000        | ---                    | 24.87                | 52.10              | 27.23       | L1   | 10.0       |
| 0.240000        | 39.19                  | ---                  | 62.10              | 22.91       | L1   | 10.0       |
| 0.480000        | ---                    | 27.02                | 46.34              | 19.32       | L1   | 10.1       |
| 0.480000        | 41.35                  | ---                  | 56.34              | 14.99       | L1   | 10.1       |
| 3.750000        | ---                    | 25.43                | 46.00              | 20.57       | L1   | 9.9        |
| 3.750000        | 30.63                  | ---                  | 56.00              | 25.37       | L1   | 9.9        |
| 7.980000        | ---                    | 31.98                | 50.00              | 18.02       | L1   | 10.0       |
| 7.980000        | 36.27                  | ---                  | 60.00              | 23.73       | L1   | 10.0       |
| 23.250000       | ---                    | 28.62                | 50.00              | 21.38       | L1   | 10.5       |
| 23.250000       | 37.06                  | ---                  | 60.00              | 22.94       | L1   | 10.5       |

**Neutral**

Full Spectrum



| Frequency (MHz) | QuasiPeak (dB $\mu$ V) | Average (dB $\mu$ V) | Limit (dB $\mu$ V) | Margin (dB) | Line | Corr. (dB) |
|-----------------|------------------------|----------------------|--------------------|-------------|------|------------|
| 0.150000        | ---                    | 32.81                | 56.00              | 23.19       | N    | 10.1       |
| 0.150000        | 37.52                  | ---                  | 66.00              | 28.48       | N    | 10.1       |
| 0.240000        | ---                    | 32.12                | 52.10              | 19.98       | N    | 10.1       |
| 0.240000        | 37.04                  | ---                  | 62.10              | 25.06       | N    | 10.1       |
| 0.480000        | ---                    | 32.75                | 46.34              | 13.59       | N    | 10.1       |
| 0.480000        | 37.49                  | ---                  | 56.34              | 18.85       | N    | 10.1       |
| 3.840000        | ---                    | 30.37                | 46.00              | 15.63       | N    | 9.9        |
| 3.840000        | 30.64                  | ---                  | 56.00              | 25.36       | N    | 9.9        |
| 7.950000        | ---                    | 32.87                | 50.00              | 17.13       | N    | 9.9        |
| 7.950000        | 37.38                  | ---                  | 60.00              | 22.62       | N    | 9.9        |
| 23.400000       | ---                    | 35.69                | 50.00              | 14.31       | N    | 10.2       |
| 23.400000       | 39.14                  | ---                  | 60.00              | 20.86       | N    | 10.2       |

# FCC §15.109 - RADIATED EMISSIONS

## Applicable Standard

FCC §15.109

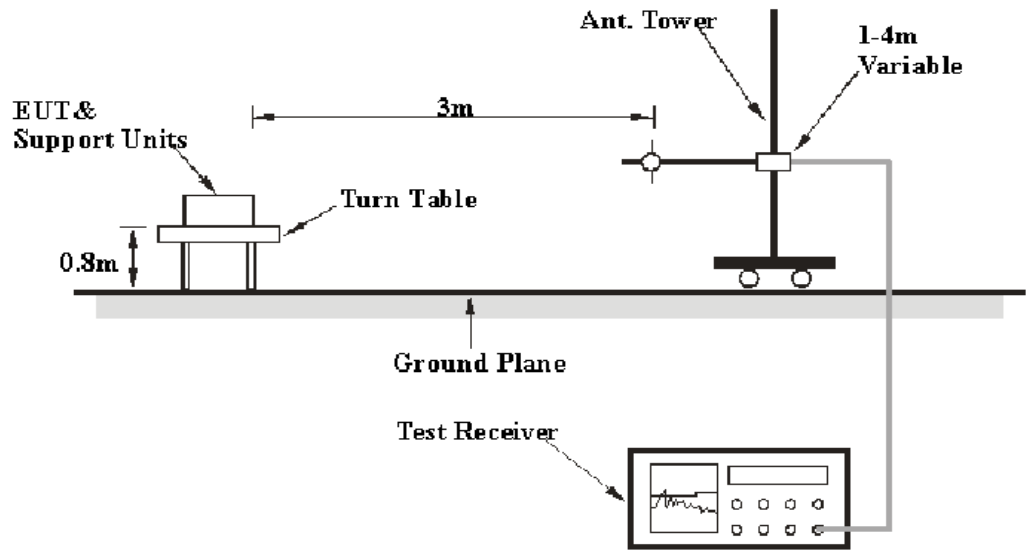
## Measurement Uncertainty

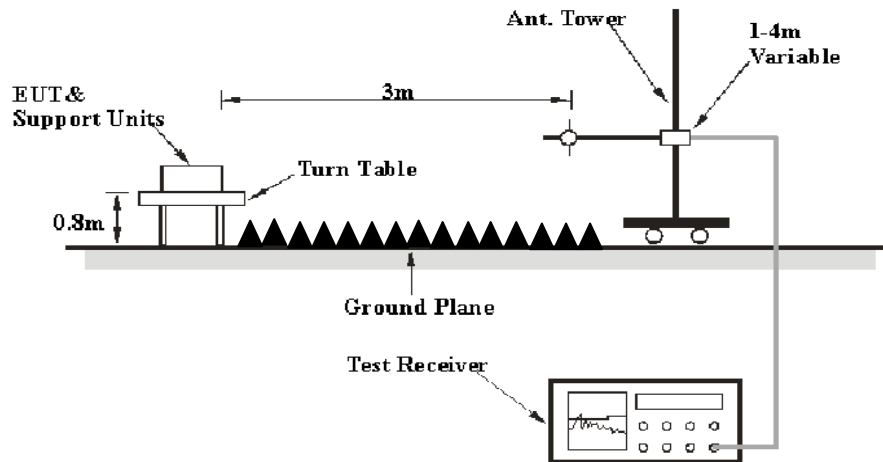
All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

| Item              |               | Measurement Uncertainty | $U_{\text{cisp}}r$ |
|-------------------|---------------|-------------------------|--------------------|
| Radiated Emission | 30MHz~1GHz    | 6.11dB                  | 6.3 dB             |
|                   | 1GHz~6GHz     | 4.45dB                  | 5.2 dB             |
|                   | 6 GHz ~18 GHz | 5.23dB                  | 5.5 dB             |

## EUT Setup

Below 1GHz:



**Above 1GHz:**

The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2014. The specification used was the FCC Part 15.109 Class B limits.

**EMI Test Receiver Setup**

The system was investigated from 30 MHz to 13 GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

| Frequency Range  | RBW     | Video B/W | IF B/W | Detector |
|------------------|---------|-----------|--------|----------|
| 30MHz – 1000 MHz | 120 kHz | 300 kHz   | 120kHz | QP       |
| Above 1 GHz      | 1MHz    | 3 MHz     | /      | Peak     |
|                  | 1MHz    | 1 Hz      | /      | Av       |

**Test Procedure**

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the Quasi-peak detector mode from 30 MHz to 1 GHz, Peak and average detection mode above 1 GHz.

**Test Equipment List and Details**

| Manufacturer      | Description        | Model          | Serial Number | Calibration Date | Calibration Due Date |
|-------------------|--------------------|----------------|---------------|------------------|----------------------|
| Sonoma Instrument | Amplifier          | 330            | 171377        | 2016-12-12       | 2017-12-11           |
| Rohde & Schwarz   | EMI Test Receiver  | ESCI           | 100195        | 2016-11-25       | 2017-11-24           |
| Sunol Sciences    | Broadband Antenna  | JB3            | A090314-2     | 2016-01-09       | 2019-01-08           |
| Champrotek        | Chamber            | Chamber A      | T-KSEMC049    | -                | -                    |
| R&S               | Auto test Software | EMC32          | 100361        | -                | -                    |
| ETS               | Horn Antenna       | 3115           | 6229          | 2016-01-11       | 2019-01-10           |
| Rohde & Schwarz   | Signal Analyzer    | FSIQ26         | 100048        | 2016-11-25       | 2017-11-25           |
| Narda             | Pre-amplifier      | AFS42-00101800 | 2001270       | 2016-12-12       | 2017-12-11           |
| haojintech        | Coaxial Cable      | Cable-1        | 001           | 2016-12-12       | 2017-12-11           |
| haojintech        | Coaxial Cable      | Cable-2        | 002           | 2016-12-12       | 2017-12-11           |
| haojintech        | Coaxial Cable      | Cable-3        | 003           | 2016-12-12       | 2017-12-11           |
| MICRO-COAX        | Coaxial Cable      | Cable-4        | 004           | 2016-12-12       | 2017-12-11           |
| MICRO-COAX        | Coaxial Cable      | Cable-5        | 005           | 2016-12-12       | 2017-12-11           |

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

**Corrected Amplitude & Margin Calculation**

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

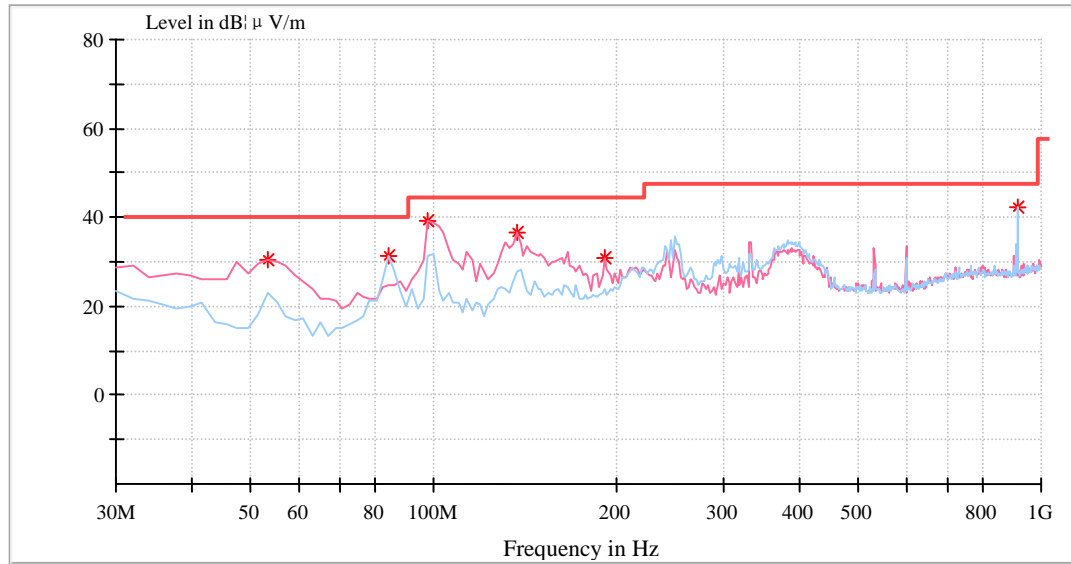
**Test Data****Environmental Conditions**

|                           |           |
|---------------------------|-----------|
| <b>Temperature:</b>       | 27 °C     |
| <b>Relative Humidity:</b> | 56 %      |
| <b>ATM Pressure:</b>      | 101.0 kPa |

*The testing was performed by Phil Zhu on 2017-03-27.*

Test Mode : Data Transmission

30MHz ~ 1GHz:



| Frequency (MHz) | QuasiPeak (dB $\mu$ V/m) | Limit (dB $\mu$ V/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB/m) |
|-----------------|--------------------------|----------------------|-------------|-------------|-----|---------------|--------------|
| 53.326653       | 26.17                    | 40.00                | 13.83       | 100.0       | V   | 222.0         | -10.9        |
| 84.428858       | 23.86                    | 40.00                | 16.14       | 200.0       | H   | 152.0         | -10.8        |
| 98.036072       | 32.29                    | 43.50                | 11.21       | 100.0       | V   | 290.0         | -10.9        |
| 136.913828      | 29.68                    | 43.50                | 13.82       | 100.0       | V   | 254.0         | -6.1         |
| 191.342685      | 25.14                    | 43.50                | 18.36       | 100.0       | V   | 190.0         | -5.8         |
| 914.468938      | 29.34                    | 46.00                | 16.66       | 100.0       | H   | 309.0         | 6.2          |

**Above 1 GHz:**

| Frequency<br>(MHz) | MaxPeak<br>(dB $\mu$ V/m) | Average<br>(dB $\mu$ V/m) | Limit<br>(dB $\mu$ V/m) | Margin<br>(dB) | Height<br>(cm) | Pol | Azimuth<br>(deg) | Corr.<br>(dB/m) |
|--------------------|---------------------------|---------------------------|-------------------------|----------------|----------------|-----|------------------|-----------------|
| 1284.619238        | ---                       | 20.82                     | 54.00                   | 33.18          | 101.0          | V   | 234.0            | -10.4           |
| 1284.619238        | 34.81                     | ---                       | 74.00                   | 39.19          | 101.0          | V   | 234.0            | -10.4           |
| 1757.565130        | 35.13                     | ---                       | 74.00                   | 38.87          | 101.0          | V   | 307.0            | -7.7            |
| 1757.565130        | ---                       | 22.60                     | 54.00                   | 31.40          | 101.0          | V   | 307.0            | -7.7            |
| 2449.148297        | 38.26                     | ---                       | 74.00                   | 35.74          | 101.0          | H   | 317.0            | -5.7            |
| 2449.148297        | ---                       | 24.35                     | 54.00                   | 29.65          | 101.0          | H   | 317.0            | -5.7            |
| 3961.813628        | ---                       | 30.77                     | 54.00                   | 23.23          | 101.0          | V   | 148.0            | 0.3             |
| 3961.813628        | 44.80                     | ---                       | 74.00                   | 29.20          | 101.0          | V   | 148.0            | 0.3             |
| 5507.184369        | 46.86                     | ---                       | 74.00                   | 27.14          | 101.0          | V   | 117.0            | 3.0             |
| 5507.184369        | ---                       | 32.50                     | 54.00                   | 21.50          | 101.0          | V   | 117.0            | 3.0             |
| 6959.348698        | 50.89                     | ---                       | 74.00                   | 23.11          | 101.0          | V   | 86.0             | 8.1             |
| 6959.348698        | ---                       | 37.34                     | 54.00                   | 16.66          | 101.0          | V   | 86.0             | 8.1             |

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