

## FCC Test Report

**Report No.:** RF150907C14A

**FCC ID:** D87-UZB3-HSG

**Test Model:** ACC-UZB3-HSG

**Received Date:** May 26, 2016

**Test Date:** Jun. 02 ~ Jun. 04, 2016

**Issued Date:** Jun. 06, 2016

**Applicant:** Sigma Designs, Inc.

**Address:** 47467 Fremont Blvd., Fremont, CA 94538 USA

**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

**Lab Address:** No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan (R.O.C.)

**Test Location:** No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)



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### Release Control Record

| Issue No.    | Description       | Date Issued   |
|--------------|-------------------|---------------|
| RF150907C14A | Original release. | Jun. 06, 2016 |

## 1 Certificate of Conformity

**Product:** Z-Wave USB Stick

**Brand:** Sigma Designs

**Test Model:** ACC-UZB3-HSG

**Sample Status:** Engineering sample

**Applicant:** Sigma Designs, Inc.

**Test Date:** Jun. 02 ~ Jun. 04, 2016

**Standards:** 47 CFR FCC Part 15, Subpart C (Section 15.249)  
ANSI C63.10:2013

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**Prepared by :** Celine Chou , **Date:** Jun. 06, 2016  
Celine Chou / Specialist

**Approved by :** Ken Liu , **Date:** Jun. 06, 2016  
Ken Liu / Senior Manager

## 2 Summary of Test Results

| 47 CFR FCC Part 15, Subpart C (Section 15.249) |                                                                                                                                                                 |        |                                                                                  |
|------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|----------------------------------------------------------------------------------|
| FCC Clause                                     | Test Item                                                                                                                                                       | Result | Remarks                                                                          |
| 15.207                                         | AC Power Conducted Emission                                                                                                                                     | Pass   | Meet the requirement of limit. Minimum passing margin is -14.82dB at 1.95703MHz. |
| 15.209<br>15.249<br>15.249 (d)                 | Radiated Emission Test Band Edge Measurement<br>Limit: 50dB less than the peak value of fundamental frequency or meet radiated emission limit in section 15.209 | Pass   | Meet the requirement of limit. Minimum passing margin is -1.0dB at 923.10MHz.    |

### 2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

| Measurement                        | Frequency        | Expanded Uncertainty (k=2) ( $\pm$ ) |
|------------------------------------|------------------|--------------------------------------|
| Conducted Emissions at mains ports | 150kHz ~ 30MHz   | 2.44 dB                              |
| Radiated Emissions up to 1 GHz     | 30MHz ~ 200MHz   | 3.86 dB                              |
|                                    | 200MHz ~ 1000MHz | 3.87 dB                              |
| Radiated Emissions above 1 GHz     | 1GHz ~ 18GHz     | 2.29 dB                              |
|                                    | 18GHz ~ 40GHz    | 2.29 dB                              |

### 2.2 Modification Record

There were no modifications required for compliance.

### 3 General Information

#### 3.1 General Description of EUT

|                     |                                    |
|---------------------|------------------------------------|
| Product             | Z-Wave USB Stick                   |
| Brand               | Sigma Designs                      |
| Test Model          | ACC-UZB3-HSG                       |
| Status of EUT       | Engineering sample                 |
| Power Supply Rating | 5Vdc (Host equipment)              |
| Modulation Type     | 2GFSK                              |
| Transfer Rate       | 100kbps                            |
| Operating Frequency | 920.90MHz, 921.70MHz, 923.10MHz    |
| Number of Channel   | 3                                  |
| Antenna Type        | Helical antenna with -1.13dBi gain |
| Accessory Device    | N/A                                |
| Data Cable Supplied | N/A                                |

Note: The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

#### 3.2 Description of Test Modes

3 channels are provided for EUT:

| Channel | Frequency (MHz) | Transfer Rate (kbps) |
|---------|-----------------|----------------------|
| 1       | 920.90          | 100                  |
| 2       | 921.70          | 100                  |
| 3       | 923.10          | 100                  |

### 3.2.1 Test Mode Applicability and Tested Channel Detail

| EUT CONFIGURE MODE | APPLICABLE TO |       |     | DESCRIPTION |
|--------------------|---------------|-------|-----|-------------|
|                    | RE $\geq$ 1G  | RE<1G | PLC |             |
| -                  | √             | √     | √   | -           |

Where **RE $\geq$ 1G**: Radiated Emission above 1GHz & Bandedge Measurement  
**RE<1G**: Radiated Emission below 1GHz  
**PLC**: Power Line Conducted Emission

**NOTE:** The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.

#### **Radiated Emission Test (Above 1GHz):**

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

| TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE |
|----------------|-----------------------|-----------------|
| 1              | 920.90MHz             | 2GFSK           |
| 2              | 921.70MHz             | 2GFSK           |
| 3              | 923.10MHz             | 2GFSK           |

#### **Radiated Emission Test (Below 1GHz):**

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

| TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE |
|----------------|-----------------------|-----------------|
| 1              | 920.90MHz             | 2GFSK           |
| 2              | 921.70MHz             | 2GFSK           |
| 3              | 923.10MHz             | 2GFSK           |

#### **Power Line Conducted Emission Test:**

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

| TESTED CHANNEL | MODULATION TECHNOLOGY | MODULATION TYPE |
|----------------|-----------------------|-----------------|
| 1              | 920.90MHz             | 2GFSK           |
| 2              | 921.70MHz             | 2GFSK           |
| 3              | 923.10MHz             | 2GFSK           |

#### **Test Condition:**

| APPLICABLE TO | ENVIRONMENTAL CONDITIONS | INPUT POWER (SYSTEM) | TESTED BY |
|---------------|--------------------------|----------------------|-----------|
| RE $\geq$ 1G  | 16deg. C, 70%RH          | 120Vac, 60Hz         | Nick Hsu  |
| RE<1G         | 16deg. C, 70%RH          | 120Vac, 60Hz         | Nick Hsu  |
| PLC           | 28deg. C, 66%RH          | 120Vac, 60Hz         | Alan Wu   |

### 3.3 Description of Support Units

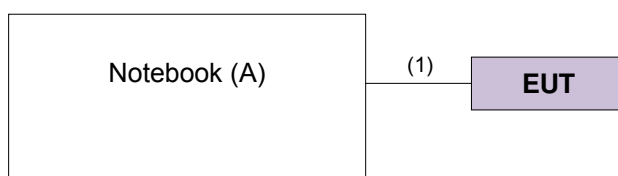
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| ID | Product  | Brand | Model No. | Serial No.      | FCC ID           | Remarks |
|----|----------|-------|-----------|-----------------|------------------|---------|
| A. | Notebook | ASUS  | P2420L    | FCNXCV16385351D | FCC DoC Approved | -       |

Note: All power cords of the above support units are non-shielded (1.8m).

| ID | Descriptions | Qty. | Length (m) | Shielding (Yes/No) | Cores (Qty.) | Remarks |
|----|--------------|------|------------|--------------------|--------------|---------|
| 1. | USB cable    | 1    | 1.8        | Y                  | 0            | -       |

#### 3.3.1 Configuration of System under Test



### 3.4 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

#### FCC Part 15, Subpart C (15.249)

#### ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

Note: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

## 4 Test Types and Results

### 4.1 Radiated Emission Measurement

#### 4.1.1 Limits of Radiated Emission Measurement

The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following

| Fundamental Frequency | Field Strength of Fundamental (millivolts/meter) | Field Strength of Harmonics (microvolts/meter) |
|-----------------------|--------------------------------------------------|------------------------------------------------|
| 902 ~ 928 MHz         | 50                                               | 500                                            |
| 2400 ~ 2483.5 MHz     | 50                                               | 500                                            |
| 5725 ~ 5875 MHz       | 50                                               | 500                                            |
| 24 ~ 24.25 GHz        | 250                                              | 2500                                           |

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits as below table, whichever is the lesser attenuation

| Frequencies (MHz) | Field Strength (microvolts/meter) | Measurement Distance (meters) |
|-------------------|-----------------------------------|-------------------------------|
| 0.009 ~ 0.490     | 2400/F(kHz)                       | 300                           |
| 0.490 ~ 1.705     | 24000/F(kHz)                      | 30                            |
| 1.705 ~ 30.0      | 30                                | 30                            |
| 30 ~ 88           | 100                               | 3                             |
| 88 ~ 216          | 150                               | 3                             |
| 216 ~ 960         | 200                               | 3                             |
| Above 960         | 500                               | 3                             |

#### NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

#### 4.1.2 Test Instruments

| Description & Manufacturer           | Model No.                    | Serial No.                     | Cal. Date     | Cal. Due      |
|--------------------------------------|------------------------------|--------------------------------|---------------|---------------|
| Test Receiver<br>ROHDE & SCHWARZ     | ESIB7                        | 100187                         | Apr. 18, 2016 | Apr. 17, 2017 |
| Spectrum Analyzer<br>ROHDE & SCHWARZ | FSP40                        | 100041                         | Sep. 02, 2015 | Sep. 01, 2016 |
| BILOG Antenna<br>SCHWARZBECK         | VULB9168                     | 9168-171                       | Jan. 07, 2016 | Jan. 06, 2017 |
| HORN Antenna<br>SCHWARZBECK          | 9120D                        | 209                            | Jan. 20, 2016 | Jan. 19, 2017 |
| HORN Antenna<br>SCHWARZBECK          | BBHA 9170                    | BBHA9170241                    | Jan. 18, 2016 | Jan. 17, 2017 |
| Preamplifier<br>Agilent              | 8447D                        | 2944A10738                     | Oct. 18, 2015 | Oct. 17, 2016 |
| Preamplifier<br>Agilent              | 8449B                        | 3008A01964                     | Aug. 22, 2015 | Aug. 21, 2016 |
| RF signal cable<br>HUBER+SUHNER      | SUCOFLEX 104                 | Cable-CH3-03 (214378)          | Aug. 22, 2015 | Aug. 21, 2016 |
| RF signal cable<br>HUBER+SUHNER      | SUCOFLEX 106                 | Cable-CH3-03<br>(309224+12738) | Aug. 22, 2015 | Aug. 21, 2016 |
| Software<br>BV ADT                   | ADT_Radiated_<br>V7.6.15.9.4 | NA                             | NA            | NA            |
| Antenna Tower<br>inn-co GmbH         | MA 4000                      | 013303                         | NA            | NA            |
| Antenna Tower Controller<br>BV ADT   | AT100                        | AT93021702                     | NA            | NA            |
| Turn Table<br>BV ADT                 | TT100                        | TT93021702                     | NA            | NA            |
| Turn Table Controller<br>BV ADT      | SC100                        | SC93021702                     | NA            | NA            |

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.  
2. The test was performed in HwaYa Chamber 3.  
3. The horn antenna and preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.  
4. The FCC Site Registration No. is 988962.  
5. The IC Site Registration No. is IC 7450F-3.

#### 4.1.3 Test Procedures

- a. The EUT was placed on the top of a rotating table 0.8 meters (for below 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna 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.
- d. 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 rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

**Note:**

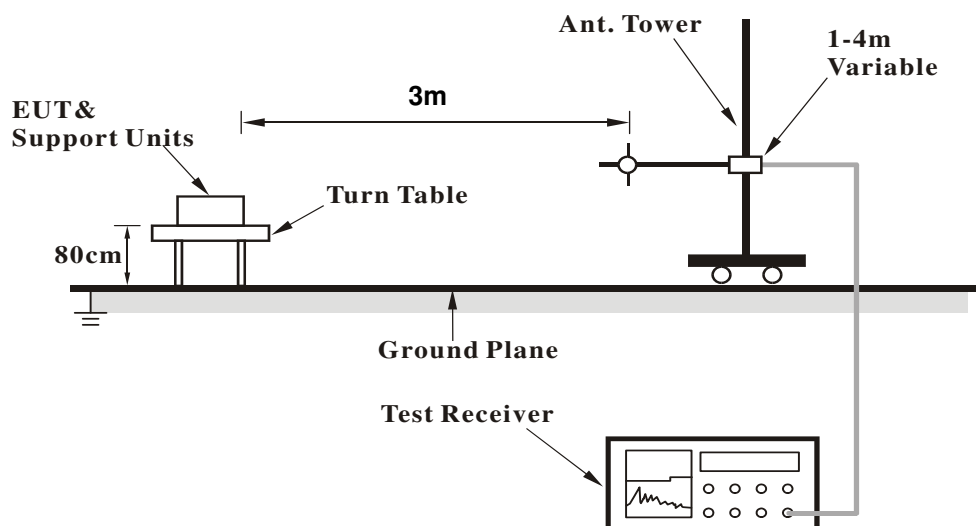
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is  $\geq 1/T$  (Duty cycle < 98%) or 10Hz (Duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

#### 4.1.4 Deviation from Test Standard

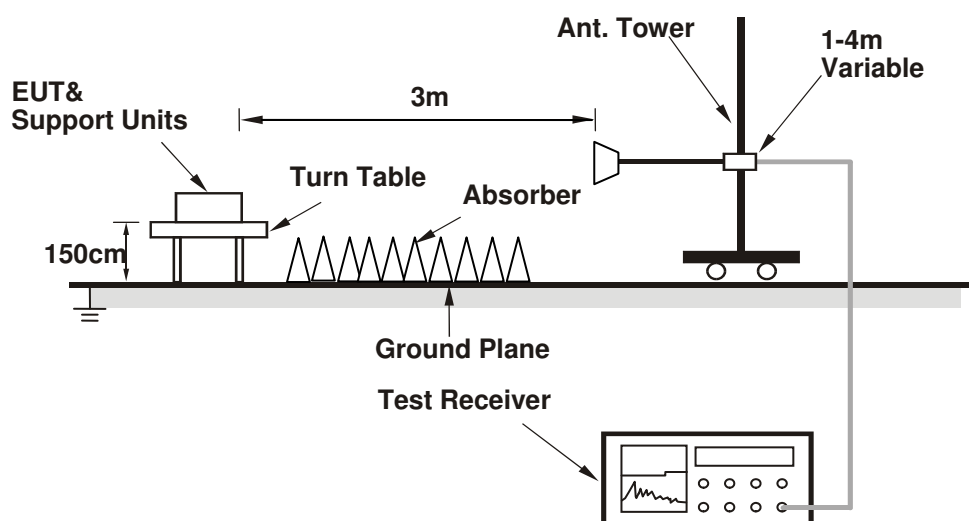
No deviation.

#### 4.1.5 Test Set Up

##### <Frequency Range below 1GHz>



##### <Frequency Range above 1GHz>



For the actual test configuration, please refer to the attached file (Test Setup Photo).

#### 4.1.6 EUT Operating Conditions

Set the EUT under transmission condition continuously at specific channel frequency.

#### 4.1.7 Test Results

| EUT TEST CONDITION       |                        | MEASUREMENT DETAIL |                           |
|--------------------------|------------------------|--------------------|---------------------------|
| CHANNEL                  | Channel 1 (920.90MHz)  | FREQUENCY RANGE    | Below 1000MHz             |
| INPUT POWER              | 120Vac, 60 Hz (System) | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 16deg. C, 70%RH        | TESTED BY          | Nick Hsu                  |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | *920.90     | 93.1 PK                 | 114.0          | -20.9       | 1.53 H             | 136                  | 64.6             | 28.5                     |
| 2                                                   | *920.90     | 92.9 AV                 | 94.0           | -1.1        | 1.53 H             | 136                  | 64.4             | 28.5                     |
| 3                                                   | 928.00      | 37.7 PK                 | 43.1           | -5.4        | 1.53 H             | 136                  | 9.0              | 28.7                     |
| 4                                                   | 928.00      | 33.8 AV                 | 42.9           | -9.1        | 1.53 H             | 136                  | 5.1              | 28.7                     |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | *920.90     | 92.7 PK                 | 114.0          | -21.3       | 1.03 V             | 164                  | 64.2             | 28.5                     |
| 2                                                   | *920.90     | 92.2 AV                 | 94.0           | -1.8        | 1.03 V             | 164                  | 63.7             | 28.5                     |
| 3                                                   | 928.00      | 37.8 PK                 | 42.7           | -4.9        | 1.03 V             | 164                  | 9.1              | 28.7                     |
| 4                                                   | 928.00      | 33.5 AV                 | 42.2           | -8.7        | 1.03 V             | 164                  | 4.8              | 28.7                     |

#### Remarks:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)  
– Pre-Amplifier Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ \* ” : Fundamental frequency

| EUT TEST CONDITION       |                        | MEASUREMENT DETAIL |                           |
|--------------------------|------------------------|--------------------|---------------------------|
| CHANNEL                  | Channel 2 (921.70MHz)  | FREQUENCY RANGE    | Below 1000MHz             |
| INPUT POWER              | 120Vac, 60 Hz (System) | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 16deg. C, 70%RH        | TESTED BY          | Nick Hsu                  |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | *921.70     | 92.6 PK                 | 114.0          | -21.4       | 1.52 H             | 133                  | 64.1             | 28.5                     |
| 2                                                   | *921.70     | 92.4 AV                 | 94.0           | -1.6        | 1.52 H             | 133                  | 63.9             | 28.5                     |
| 3                                                   | 928.00      | 39.6 PK                 | 42.6           | -3.0        | 1.52 H             | 133                  | 10.9             | 28.7                     |
| 4                                                   | 928.00      | 34.6 AV                 | 42.4           | -7.8        | 1.52 H             | 133                  | 5.9              | 28.7                     |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | *921.70     | 91.6 PK                 | 114.0          | -22.4       | 1.00 V             | 163                  | 63.1             | 28.5                     |
| 2                                                   | *921.70     | 91.3 AV                 | 94.0           | -2.7        | 1.00 V             | 163                  | 62.8             | 28.5                     |
| 3                                                   | 928.00      | 37.7 PK                 | 41.6           | -3.9        | 1.00 V             | 163                  | 9.0              | 28.7                     |
| 4                                                   | 928.00      | 33.4 AV                 | 41.3           | -7.9        | 1.00 V             | 163                  | 4.7              | 28.7                     |

Remarks:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)  
– Pre-Amplifier Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ \* ” : Fundamental frequency

| EUT TEST CONDITION       |                        | MEASUREMENT DETAIL |                           |
|--------------------------|------------------------|--------------------|---------------------------|
| CHANNEL                  | Channel 3 (923.10MHz)  | FREQUENCY RANGE    | Below 1000MHz             |
| INPUT POWER              | 120Vac, 60 Hz (System) | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 16deg. C, 70%RH        | TESTED BY          | Nick Hsu                  |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | *923.10     | 93.3 PK                 | 114.0          | -20.7       | 1.48 H             | 132                  | 64.8             | 28.5                     |
| 2                                                   | *923.10     | 93.0 AV                 | 94.0           | -1.0        | 1.48 H             | 132                  | 64.5             | 28.5                     |
| 3                                                   | 928.00      | 37.8 PK                 | 43.3           | -5.5        | 1.48 H             | 132                  | 9.1              | 28.7                     |
| 4                                                   | 928.00      | 33.9 AV                 | 43.0           | -9.1        | 1.48 H             | 132                  | 5.2              | 28.7                     |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | *923.10     | 92.6 PK                 | 114.0          | -21.4       | 1.01 V             | 163                  | 64.1             | 28.5                     |
| 2                                                   | *923.10     | 92.3 AV                 | 94.0           | -1.7        | 1.01 V             | 163                  | 63.8             | 28.5                     |
| 3                                                   | 928.00      | 38.1 PK                 | 42.6           | -4.5        | 1.01 V             | 163                  | 9.4              | 28.7                     |
| 4                                                   | 928.00      | 34.8 AV                 | 42.3           | -7.5        | 1.01 V             | 163                  | 6.1              | 28.7                     |

Remarks:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)  
– Pre-Amplifier Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ \* ” : Fundamental frequency

# Above 1GHz Worst-Case Data:

| EUT TEST CONDITION       |                        | MEASUREMENT DETAIL |                           |
|--------------------------|------------------------|--------------------|---------------------------|
| CHANNEL                  | Channel 1 (920.90MHz)  | FREQUENCY RANGE    | 1 ~ 10GHz                 |
| INPUT POWER              | 120Vac, 60 Hz (System) | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 16deg. C, 70%RH        | TESTED BY          | Nick Hsu                  |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 1841.80     | 38.2 PK                 | 74.0           | -35.8       | 1.83 H             | 69                   | 41.8             | -3.6                     |
| 2                                                   | 1841.80     | 25.2 AV                 | 54.0           | -28.8       | 1.83 H             | 69                   | 28.8             | -3.6                     |
| 3                                                   | 2762.70     | 45.5 PK                 | 74.0           | -28.5       | 1.46 H             | 76                   | 45.7             | -0.2                     |
| 4                                                   | 2762.70     | 41.7 AV                 | 54.0           | -12.3       | 1.46 H             | 76                   | 41.9             | -0.2                     |
| 5                                                   | 4604.50     | 46.5 PK                 | 74.0           | -27.5       | 3.20 H             | 74                   | 41.8             | 4.7                      |
| 6                                                   | 4604.50     | 38.0 AV                 | 54.0           | -16.0       | 3.20 H             | 74                   | 33.3             | 4.7                      |
| 7                                                   | 8288.10     | 55.7 PK                 | 74.0           | -18.3       | 2.64 H             | 60                   | 42.1             | 13.6                     |
| 8                                                   | 8288.10     | 45.4 AV                 | 54.0           | -8.6        | 2.64 H             | 60                   | 31.8             | 13.6                     |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 1841.80     | 37.9 PK                 | 74.0           | -36.1       | 1.83 V             | 69                   | 41.5             | -3.6                     |
| 2                                                   | 1841.80     | 25.8 AV                 | 54.0           | -28.2       | 1.83 V             | 69                   | 29.4             | -3.6                     |
| 3                                                   | 2762.70     | 47.8 PK                 | 74.0           | -26.2       | 1.46 V             | 76                   | 48.0             | -0.2                     |
| 4                                                   | 2762.70     | 44.5 AV                 | 54.0           | -9.5        | 1.46 V             | 76                   | 44.7             | -0.2                     |
| 5                                                   | 4604.50     | 48.2 PK                 | 74.0           | -25.8       | 3.20 V             | 74                   | 43.5             | 4.7                      |
| 6                                                   | 4604.50     | 42.2 AV                 | 54.0           | -11.8       | 3.20 V             | 74                   | 37.5             | 4.7                      |
| 7                                                   | 8288.10     | 56.2 PK                 | 74.0           | -17.8       | 2.64 V             | 60                   | 42.6             | 13.6                     |
| 8                                                   | 8288.10     | 47.9 AV                 | 54.0           | -6.1        | 2.64 V             | 60                   | 34.3             | 13.6                     |

## Remarks:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)  
– Pre-Amplifier Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

| EUT TEST CONDITION       |                        | MEASUREMENT DETAIL |                           |
|--------------------------|------------------------|--------------------|---------------------------|
| CHANNEL                  | Channel 2 (921.70MHz)  | FREQUENCY RANGE    | 1 ~ 10GHz                 |
| INPUT POWER              | 120Vac, 60 Hz (System) | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 16deg. C, 70%RH        | TESTED BY          | Nick Hsu                  |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 1843.40     | 38.9 PK                 | 74.0           | -35.1       | 2.57 H             | 49                   | 42.5             | -3.6                     |
| 2                                                   | 1843.40     | 27.7 AV                 | 54.0           | -26.3       | 2.57 H             | 49                   | 31.3             | -3.6                     |
| 3                                                   | 2765.10     | 48.0 PK                 | 74.0           | -26.0       | 2.72 H             | 168                  | 48.2             | -0.2                     |
| 4                                                   | 2765.10     | 44.7 AV                 | 54.0           | -9.3        | 2.72 H             | 168                  | 44.9             | -0.2                     |
| 5                                                   | 4608.50     | 46.8 PK                 | 74.0           | -27.2       | 2.33 H             | 153                  | 42.1             | 4.7                      |
| 6                                                   | 4608.50     | 37.9 AV                 | 54.0           | -16.1       | 2.33 H             | 153                  | 33.2             | 4.7                      |
| 7                                                   | 8295.30     | 55.8 PK                 | 74.0           | -18.2       | 2.46 H             | 352                  | 42.2             | 13.6                     |
| 8                                                   | 8295.30     | 44.8 AV                 | 54.0           | -9.2        | 2.46 H             | 352                  | 31.2             | 13.6                     |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 1843.40     | 38.1 PK                 | 74.0           | -35.9       | 2.57 V             | 49                   | 41.7             | -3.6                     |
| 2                                                   | 1843.40     | 25.8 AV                 | 54.0           | -28.2       | 2.57 V             | 49                   | 29.4             | -3.6                     |
| 3                                                   | 2765.10     | 48.4 PK                 | 74.0           | -25.6       | 2.72 V             | 168                  | 48.6             | -0.2                     |
| 4                                                   | 2765.10     | 45.2 AV                 | 54.0           | -8.8        | 2.72 V             | 168                  | 45.4             | -0.2                     |
| 5                                                   | 4608.50     | 48.3 PK                 | 74.0           | -25.7       | 2.33 V             | 153                  | 43.6             | 4.7                      |
| 6                                                   | 4608.50     | 41.1 AV                 | 54.0           | -12.9       | 2.33 V             | 153                  | 36.4             | 4.7                      |
| 7                                                   | 8295.30     | 56.8 PK                 | 74.0           | -17.2       | 2.46 V             | 352                  | 43.2             | 13.6                     |
| 8                                                   | 8295.30     | 48.0 AV                 | 54.0           | -6.0        | 2.46 V             | 352                  | 34.4             | 13.6                     |

Remarks:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)  
– Pre-Amplifier Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

| EUT TEST CONDITION       |                        | MEASUREMENT DETAIL |                           |
|--------------------------|------------------------|--------------------|---------------------------|
| CHANNEL                  | Channel 3 (923.10MHz)  | FREQUENCY RANGE    | 1 ~ 10GHz                 |
| INPUT POWER              | 120Vac, 60 Hz (System) | DETECTOR FUNCTION  | Peak (PK)<br>Average (AV) |
| ENVIRONMENTAL CONDITIONS | 16deg. C, 70%RH        | TESTED BY          | Nick Hsu                  |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 1846.20     | 37.6 PK                 | 74.0           | -36.4       | 3.70 H             | 205                  | 41.2             | -3.6                     |
| 2                                                   | 1846.20     | 24.9 AV                 | 54.0           | -29.1       | 3.70 H             | 205                  | 28.5             | -3.6                     |
| 3                                                   | 2769.30     | 46.3 PK                 | 74.0           | -27.7       | 2.89 H             | 90                   | 46.5             | -0.2                     |
| 4                                                   | 2769.30     | 42.2 AV                 | 54.0           | -11.8       | 2.89 H             | 90                   | 42.4             | -0.2                     |
| 5                                                   | 4615.50     | 46.6 PK                 | 74.0           | -27.4       | 3.22 H             | 92                   | 41.9             | 4.7                      |
| 6                                                   | 4615.50     | 35.4 AV                 | 54.0           | -18.6       | 3.22 H             | 92                   | 30.7             | 4.7                      |
| 7                                                   | 8307.90     | 55.4 PK                 | 74.0           | -18.6       | 3.35 H             | 42                   | 41.8             | 13.6                     |
| 8                                                   | 8307.90     | 43.0 AV                 | 54.0           | -11.0       | 3.35 H             | 42                   | 29.4             | 13.6                     |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 1846.20     | 37.6 PK                 | 74.0           | -36.4       | 3.70 V             | 205                  | 41.2             | -3.6                     |
| 2                                                   | 1846.20     | 24.9 AV                 | 54.0           | -29.1       | 3.70 V             | 205                  | 28.5             | -3.6                     |
| 3                                                   | 2769.30     | 47.0 PK                 | 74.0           | -27.0       | 2.89 V             | 90                   | 47.2             | -0.2                     |
| 4                                                   | 2769.30     | 43.5 AV                 | 54.0           | -10.5       | 2.89 V             | 90                   | 43.7             | -0.2                     |
| 5                                                   | 4615.50     | 47.2 PK                 | 74.0           | -26.8       | 3.22 V             | 92                   | 42.5             | 4.7                      |
| 6                                                   | 4615.50     | 39.4 AV                 | 54.0           | -14.6       | 3.22 V             | 92                   | 34.7             | 4.7                      |
| 7                                                   | 8307.90     | 56.0 PK                 | 74.0           | -18.0       | 3.35 V             | 42                   | 42.4             | 13.6                     |
| 8                                                   | 8307.90     | 46.3 AV                 | 54.0           | -7.7        | 3.35 V             | 42                   | 32.7             | 13.6                     |

Remarks:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB)  
– Pre-Amplifier Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

Below 1GHz Worst-Case Data:

| EUT TEST CONDITION       |                        | MEASUREMENT DETAIL |               |
|--------------------------|------------------------|--------------------|---------------|
| CHANNEL                  | Channel 1 (920.90MHz)  | FREQUENCY RANGE    | Below 1000MHz |
| INPUT POWER              | 120Vac, 60 Hz (System) | DETECTOR FUNCTION  | Quasi-Peak    |
| ENVIRONMENTAL CONDITIONS | 16deg. C, 70%RH        | TESTED BY          | Nick Hsu      |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 191.34      | 34.7 QP                 | 43.5           | -8.8        | 1.50 H             | 220                  | 51.1             | -16.4                    |
| 2                                                   | 214.67      | 35.6 QP                 | 43.5           | -7.9        | 1.01 H             | 117                  | 51.6             | -16.0                    |
| 3                                                   | 359.77      | 41.5 QP                 | 46.0           | -4.5        | 1.00 H             | 176                  | 52.6             | -11.1                    |
| 4                                                   | 383.79      | 38.6 QP                 | 46.0           | -7.4        | 1.01 H             | 155                  | 49.1             | -10.5                    |
| 5                                                   | 611.22      | 35.6 QP                 | 46.0           | -10.4       | 1.50 H             | 183                  | 41.2             | -5.6                     |
| 6                                                   | 928.00      | 39.9 QP                 | 46.0           | -6.1        | 1.50 H             | 191                  | 39.4             | 0.5                      |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 39.72       | 35.1 QP                 | 40.0           | -4.9        | 1.00 V             | 280                  | 50.4             | -15.3                    |
| 2                                                   | 74.71       | 29.8 QP                 | 40.0           | -10.2       | 1.00 V             | 138                  | 47.3             | -17.5                    |
| 3                                                   | 142.75      | 31.0 QP                 | 43.5           | -12.5       | 1.00 V             | 231                  | 45.3             | -14.3                    |
| 4                                                   | 226.33      | 33.9 QP                 | 46.0           | -12.1       | 1.49 V             | 215                  | 49.9             | -16.0                    |
| 5                                                   | 358.52      | 37.9 QP                 | 46.0           | -8.1        | 1.49 V             | 139                  | 49.1             | -11.2                    |
| 6                                                   | 928.00      | 36.8 QP                 | 46.0           | -9.2        | 1.49 V             | 15                   | 36.3             | 0.5                      |

Remarks:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

| EUT TEST CONDITION       |                        | MEASUREMENT DETAIL |               |
|--------------------------|------------------------|--------------------|---------------|
| CHANNEL                  | Channel 2 (921.70MHz)  | FREQUENCY RANGE    | Below 1000MHz |
| INPUT POWER              | 120Vac, 60 Hz (System) | DETECTOR FUNCTION  | Quasi-Peak    |
| ENVIRONMENTAL CONDITIONS | 16deg. C, 70%RH        | TESTED BY          | Nick Hsu      |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 80.54       | 33.2 QP                 | 40.0           | -6.8        | 2.00 H             | 149                  | 51.9             | -18.7                    |
| 2                                                   | 101.92      | 33.8 QP                 | 43.5           | -9.7        | 2.00 H             | 137                  | 52.3             | -18.5                    |
| 3                                                   | 156.35      | 22.2 QP                 | 43.5           | -21.3       | 2.00 H             | 106                  | 36.0             | -13.8                    |
| 4                                                   | 226.33      | 19.8 QP                 | 46.0           | -26.2       | 1.51 H             | 118                  | 35.8             | -16.0                    |
| 5                                                   | 746.50      | 41.8 QP                 | 46.0           | -4.2        | 1.51 H             | 106                  | 44.6             | -2.8                     |
| 6                                                   | 928.00      | 42.1 QP                 | 46.0           | -3.9        | 1.00 H             | 143                  | 41.6             | 0.5                      |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 39.72       | 32.4 QP                 | 40.0           | -7.6        | 1.00 V             | 10                   | 47.7             | -15.3                    |
| 2                                                   | 80.54       | 26.5 QP                 | 40.0           | -13.5       | 1.00 V             | 76                   | 45.2             | -18.7                    |
| 3                                                   | 101.92      | 25.3 QP                 | 43.5           | -18.2       | 2.00 V             | 189                  | 43.8             | -18.5                    |
| 4                                                   | 148.58      | 24.0 QP                 | 43.5           | -19.5       | 1.00 V             | 235                  | 37.9             | -13.9                    |
| 5                                                   | 162.18      | 23.4 QP                 | 43.5           | -20.1       | 1.00 V             | 114                  | 37.2             | -13.8                    |
| 6                                                   | 746.95      | 42.9 QP                 | 46.0           | -3.1        | 1.00 V             | 334                  | 45.7             | -2.8                     |
| 7                                                   | 928.00      | 40.5 QP                 | 46.0           | -5.5        | 1.50 V             | 146                  | 40.0             | 0.5                      |

Remarks:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

| EUT TEST CONDITION       |                        | MEASUREMENT DETAIL |               |
|--------------------------|------------------------|--------------------|---------------|
| CHANNEL                  | Channel 3 (923.10MHz)  | FREQUENCY RANGE    | Below 1000MHz |
| INPUT POWER              | 120Vac, 60 Hz (System) | DETECTOR FUNCTION  | Quasi-Peak    |
| ENVIRONMENTAL CONDITIONS | 16deg. C, 70%RH        | TESTED BY          | Nick Hsu      |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 74.65       | 37.0 QP                 | 40.0           | -3.0        | 1.00 H             | 148                  | 54.5             | -17.5                    |
| 2                                                   | 191.34      | 39.7 QP                 | 43.5           | -3.8        | 1.49 H             | 214                  | 56.1             | -16.4                    |
| 3                                                   | 203.01      | 39.2 QP                 | 43.5           | -4.3        | 1.49 H             | 220                  | 55.7             | -16.5                    |
| 4                                                   | 360.46      | 43.2 QP                 | 46.0           | -2.8        | 1.00 H             | 171                  | 54.3             | -11.1                    |
| 5                                                   | 605.39      | 36.8 QP                 | 46.0           | -9.2        | 1.49 H             | 209                  | 42.5             | -5.7                     |
| 6                                                   | 928.00      | 38.8 QP                 | 46.0           | -7.2        | 2.00 H             | 19                   | 38.3             | 0.5                      |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 39.72       | 37.6 QP                 | 40.0           | -2.4        | 1.00 V             | 231                  | 52.9             | -15.3                    |
| 2                                                   | 72.77       | 37.1 QP                 | 40.0           | -2.9        | 1.00 V             | 113                  | 54.3             | -17.2                    |
| 3                                                   | 203.01      | 38.6 QP                 | 43.5           | -4.9        | 1.00 V             | 181                  | 55.1             | -16.5                    |
| 4                                                   | 335.19      | 40.1 QP                 | 46.0           | -5.9        | 1.50 V             | 145                  | 51.5             | -11.4                    |
| 5                                                   | 657.88      | 32.6 QP                 | 46.0           | -13.4       | 1.00 V             | 64                   | 37.5             | -4.9                     |
| 6                                                   | 928.00      | 40.0 QP                 | 46.0           | -6.0        | 2.00 V             | 19                   | 39.5             | 0.5                      |

Remarks:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.

## 4.2 Conducted Emission Measurement

### 4.2.1 Limits of Conducted Emission Measurement

| Frequency (MHz) | Conducted Limit (dBuV) |         |
|-----------------|------------------------|---------|
|                 | Quasi-peak             | Average |
| 0.15 - 0.5      | 66 - 56                | 56 - 46 |
| 0.50 - 5.0      | 56                     | 46      |
| 5.0 - 30.0      | 60                     | 50      |

Note: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

### 4.2.2 Test Instruments

| Description & Manufacturer               | Model No.                | Serial No.     | Cal. Date     | Cal. Due      |
|------------------------------------------|--------------------------|----------------|---------------|---------------|
| Test Receiver<br>ROHDE & SCHWARZ         | ESCI                     | 100424         | Oct. 12, 2015 | Oct. 11, 2016 |
| RF signal cable (with 10dB PAD)<br>Woken | 5D-FB                    | Cable-cond2-01 | Dec. 26, 2015 | Dec. 25, 2016 |
| LISN<br>ROHDE & SCHWARZ<br>(EUT)         | ESH2-Z5                  | 100100         | Jan. 11, 2016 | Jan. 10, 2017 |
| LISN<br>ROHDE & SCHWARZ<br>(Peripheral)  | ESH3-Z5                  | 100312         | Jul. 21, 2015 | Jul. 20, 2016 |
| Software<br>ADT                          | BV ADT_Cond_<br>V7.3.7.3 | NA             | NA            | NA            |

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

2. The test was performed in HwaYa Shielded Room 2.

3. The VCCI Site Registration No. is C-2047.

### 4.2.3 Test Procedures

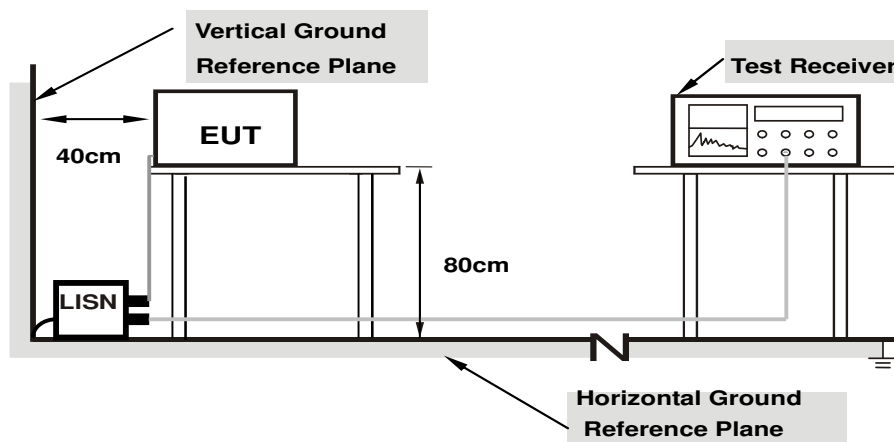
- The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

Note: The resolution bandwidth and video bandwidth of test receiver is 9kHz for quasi-peak detection (QP) and average detection (AV) at frequency 0.15MHz-30MHz.

### 4.2.4 Deviation from Test Standard

No deviation.

#### 4.2.5 Test Setup



**Note:** 1.Support units were connected to second LISN.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

#### 4.2.6 EUT Operating Conditions

Same as 4.1.6.

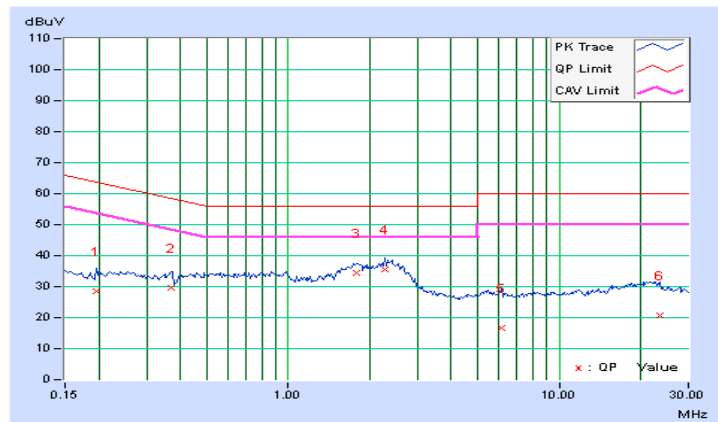
#### 4.2.7 Test Results

|         |                       |                   |                                |
|---------|-----------------------|-------------------|--------------------------------|
| Phase   | Line (L)              | Detector Function | Quasi-Peak (QP) / Average (AV) |
| Channel | Channel 1 (920.90MHz) |                   |                                |

| No | Freq.<br>[MHz] | Corr.<br>Factor<br>(dB) | Reading Value<br>[dB (uV)] |       | Emission Level<br>[dB (uV)] |       | Limit<br>[dB (uV)] |       | Margin<br>(dB) |        |
|----|----------------|-------------------------|----------------------------|-------|-----------------------------|-------|--------------------|-------|----------------|--------|
|    |                |                         |                            |       |                             |       |                    |       |                |        |
|    |                |                         | Q.P.                       | AV.   | Q.P.                        | AV.   | Q.P.               | AV.   | Q.P.           | AV.    |
| 1  | 0.19687        | 10.16                   | 18.46                      | 13.94 | 28.62                       | 24.10 | 63.74              | 53.74 | -35.12         | -29.64 |
| 2  | 0.36875        | 10.19                   | 19.26                      | 14.72 | 29.45                       | 24.91 | 58.53              | 48.53 | -29.08         | -23.62 |
| 3  | 1.78125        | 10.27                   | 24.32                      | 20.28 | 34.59                       | 30.55 | 56.00              | 46.00 | -21.41         | -15.45 |
| 4  | 2.28516        | 10.29                   | 25.26                      | 20.38 | 35.55                       | 30.67 | 56.00              | 46.00 | -20.45         | -15.33 |
| 5  | 6.08984        | 10.40                   | 6.20                       | 2.06  | 16.60                       | 12.46 | 60.00              | 50.00 | -43.40         | -37.54 |
| 6  | 23.45313       | 10.54                   | 10.38                      | 6.20  | 20.92                       | 16.74 | 60.00              | 50.00 | -39.08         | -33.26 |

#### Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

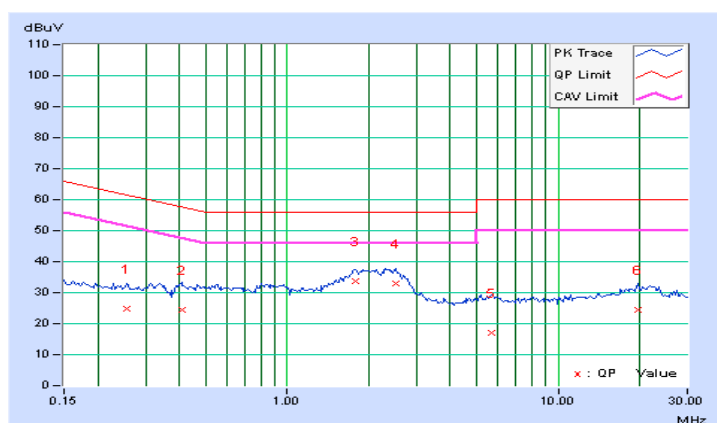


|         |                       |                   |                                |
|---------|-----------------------|-------------------|--------------------------------|
| Phase   | Neutral (N)           | Detector Function | Quasi-Peak (QP) / Average (AV) |
| Channel | Channel 1 (920.90MHz) |                   |                                |

| No | Freq.<br>[MHz] | Corr.<br>Factor<br>(dB) | Reading Value<br>[dB (uV)] |       | Emission Level<br>[dB (uV)] |       | Limit<br>[dB (uV)] |       | Margin<br>(dB) |        |
|----|----------------|-------------------------|----------------------------|-------|-----------------------------|-------|--------------------|-------|----------------|--------|
|    |                |                         |                            |       |                             |       |                    |       |                |        |
|    |                |                         | Q.P.                       | AV.   | Q.P.                        | AV.   | Q.P.               | AV.   | Q.P.           | AV.    |
| 1  | 0.25547        | 10.17                   | 14.78                      | 11.34 | 24.95                       | 21.51 | 61.58              | 51.58 | -36.63         | -30.07 |
| 2  | 0.40781        | 10.19                   | 14.08                      | 9.42  | 24.27                       | 19.61 | 57.69              | 47.69 | -33.42         | -28.08 |
| 3  | 1.77734        | 10.28                   | 23.50                      | 20.10 | 33.78                       | 30.38 | 56.00              | 46.00 | -22.22         | -15.62 |
| 4  | 2.52344        | 10.32                   | 22.56                      | 18.82 | 32.88                       | 29.14 | 56.00              | 46.00 | -23.12         | -16.86 |
| 5  | 5.68359        | 10.44                   | 6.76                       | 3.66  | 17.20                       | 14.10 | 60.00              | 50.00 | -42.80         | -35.90 |
| 6  | 19.77734       | 10.78                   | 13.50                      | 8.78  | 24.28                       | 19.56 | 60.00              | 50.00 | -35.72         | -30.44 |

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

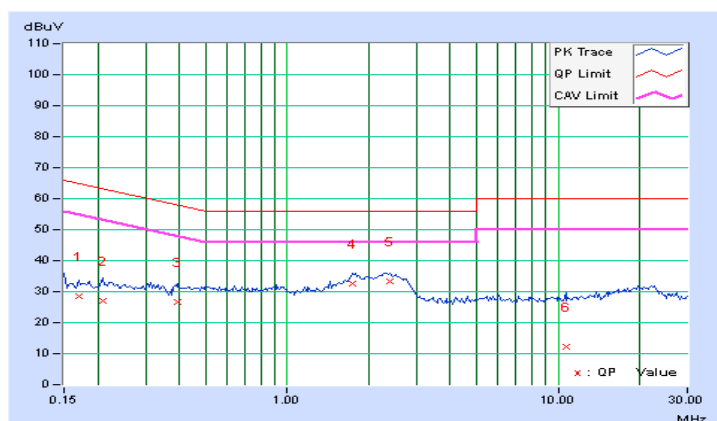


|         |                       |                   |                                |
|---------|-----------------------|-------------------|--------------------------------|
| Phase   | Line (L)              | Detector Function | Quasi-Peak (QP) / Average (AV) |
| Channel | Channel 2 (921.70MHz) |                   |                                |

| No | Freq.<br>[MHz] | Corr.<br>Factor<br>(dB) | Reading Value<br>[dB (uV)] |       | Emission Level<br>[dB (uV)] |       | Limit<br>[dB (uV)] |       | Margin<br>(dB) |        |
|----|----------------|-------------------------|----------------------------|-------|-----------------------------|-------|--------------------|-------|----------------|--------|
|    |                |                         |                            |       |                             |       |                    |       |                |        |
|    |                |                         | Q.P.                       | AV.   | Q.P.                        | AV.   | Q.P.               | AV.   | Q.P.           | AV.    |
| 1  | 0.16953        | 10.14                   | 18.30                      | 13.12 | 28.44                       | 23.26 | 64.98              | 54.98 | -36.55         | -31.73 |
| 2  | 0.20859        | 10.16                   | 17.04                      | 12.74 | 27.20                       | 22.90 | 63.26              | 53.26 | -36.06         | -30.36 |
| 3  | 0.39219        | 10.19                   | 16.66                      | 13.90 | 26.85                       | 24.09 | 58.02              | 48.02 | -31.17         | -23.93 |
| 4  | 1.75000        | 10.27                   | 22.32                      | 18.10 | 32.59                       | 28.37 | 56.00              | 46.00 | -23.41         | -17.63 |
| 5  | 2.39453        | 10.29                   | 23.00                      | 18.98 | 33.29                       | 29.27 | 56.00              | 46.00 | -22.71         | -16.73 |
| 6  | 10.66406       | 10.50                   | 1.84                       | -1.08 | 12.34                       | 9.42  | 60.00              | 50.00 | -47.66         | -40.58 |

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

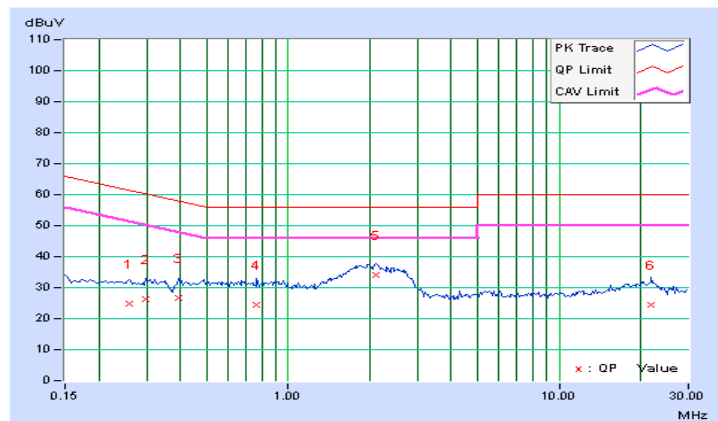


|         |                       |                   |                                |
|---------|-----------------------|-------------------|--------------------------------|
| Phase   | Neutral (N)           | Detector Function | Quasi-Peak (QP) / Average (AV) |
| Channel | Channel 2 (921.70MHz) |                   |                                |

| No | Freq.<br>[MHz] | Corr.<br>Factor<br>(dB) | Reading Value<br>[dB (uV)] |       | Emission Level<br>[dB (uV)] |       | Limit<br>[dB (uV)] |       | Margin<br>(dB) |        |
|----|----------------|-------------------------|----------------------------|-------|-----------------------------|-------|--------------------|-------|----------------|--------|
|    |                |                         |                            |       |                             |       |                    |       |                |        |
|    |                |                         | Q.P.                       | AV.   | Q.P.                        | AV.   | Q.P.               | AV.   | Q.P.           | AV.    |
| 1  | 0.25938        | 10.17                   | 14.68                      | 11.54 | 24.85                       | 21.71 | 61.45              | 51.45 | -36.60         | -29.74 |
| 2  | 0.29844        | 10.17                   | 15.98                      | 11.06 | 26.15                       | 21.23 | 60.29              | 50.29 | -34.13         | -29.05 |
| 3  | 0.39219        | 10.19                   | 16.58                      | 13.34 | 26.77                       | 23.53 | 58.02              | 48.02 | -31.25         | -24.49 |
| 4  | 0.76719        | 10.20                   | 14.30                      | 10.54 | 24.50                       | 20.74 | 56.00              | 46.00 | -31.50         | -25.26 |
| 5  | 2.11328        | 10.31                   | 23.94                      | 20.40 | 34.25                       | 30.71 | 56.00              | 46.00 | -21.75         | -15.29 |
| 6  | 21.94141       | 10.74                   | 13.64                      | 9.28  | 24.38                       | 20.02 | 60.00              | 50.00 | -35.62         | -29.98 |

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

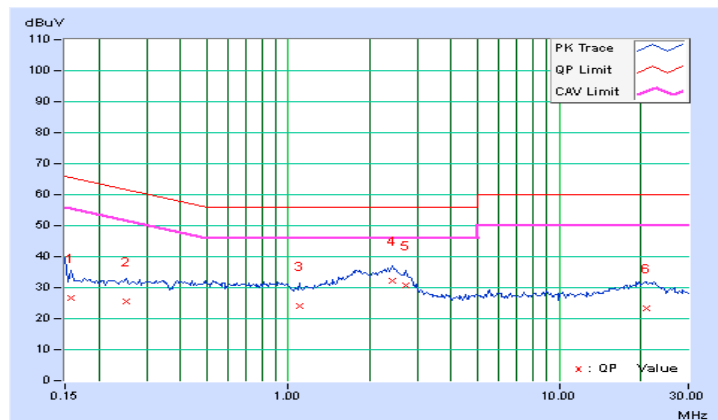


|         |                       |                   |                                |
|---------|-----------------------|-------------------|--------------------------------|
| Phase   | Line (L)              | Detector Function | Quasi-Peak (QP) / Average (AV) |
| Channel | Channel 3 (923.10MHz) |                   |                                |

| No | Freq.<br>[MHz] | Corr.<br>Factor<br>(dB) | Reading Value<br>[dB (uV)] |       | Emission Level<br>[dB (uV)] |       | Limit<br>[dB (uV)] |       | Margin<br>(dB) |        |
|----|----------------|-------------------------|----------------------------|-------|-----------------------------|-------|--------------------|-------|----------------|--------|
|    |                |                         |                            |       |                             |       |                    |       |                |        |
|    |                |                         | Q.P.                       | AV.   | Q.P.                        | AV.   | Q.P.               | AV.   | Q.P.           | AV.    |
| 1  | 0.15781        | 10.13                   | 16.72                      | 12.56 | 26.85                       | 22.69 | 65.58              | 55.58 | -38.73         | -32.89 |
| 2  | 0.25156        | 10.17                   | 15.32                      | 11.88 | 25.49                       | 22.05 | 61.71              | 51.71 | -36.22         | -29.66 |
| 3  | 1.10547        | 10.23                   | 13.98                      | 10.68 | 24.21                       | 20.91 | 56.00              | 46.00 | -31.79         | -25.09 |
| 4  | 2.43359        | 10.30                   | 21.88                      | 18.44 | 32.18                       | 28.74 | 56.00              | 46.00 | -23.82         | -17.26 |
| 5  | 2.70703        | 10.30                   | 20.38                      | 16.64 | 30.68                       | 26.94 | 56.00              | 46.00 | -25.32         | -19.06 |
| 6  | 20.89453       | 10.60                   | 12.58                      | 8.14  | 23.18                       | 18.74 | 60.00              | 50.00 | -36.82         | -31.26 |

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.

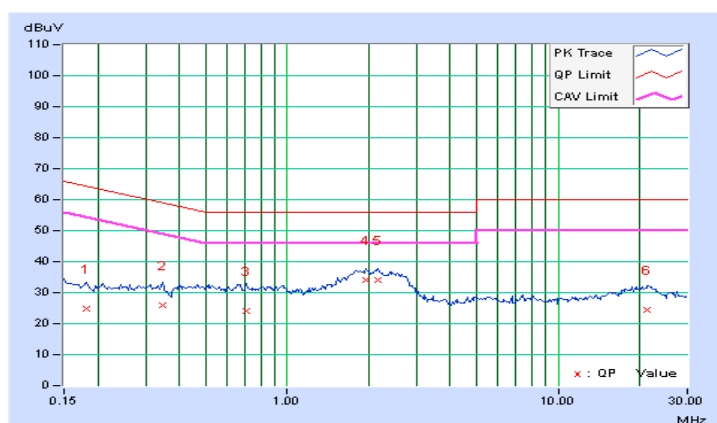


|         |                       |                   |                                |
|---------|-----------------------|-------------------|--------------------------------|
| Phase   | Neutral (N)           | Detector Function | Quasi-Peak (QP) / Average (AV) |
| Channel | Channel 3 (923.10MHz) |                   |                                |

| No       | Freq.<br>[MHz] | Corr.<br>Factor<br>(dB) | Reading Value<br>[dB (uV)] |              | Emission Level<br>[dB (uV)] |              | Limit<br>[dB (uV)] |              | Margin<br>(dB) |               |
|----------|----------------|-------------------------|----------------------------|--------------|-----------------------------|--------------|--------------------|--------------|----------------|---------------|
|          |                |                         |                            |              |                             |              |                    |              |                |               |
|          |                |                         | Q.P.                       | AV.          | Q.P.                        | AV.          | Q.P.               | AV.          | Q.P.           | AV.           |
| 1        | 0.18125        | 10.15                   | 14.84                      | 11.82        | 24.99                       | 21.97        | 64.43              | 54.43        | -39.44         | -32.46        |
| 2        | 0.34531        | 10.18                   | 15.86                      | 12.76        | 26.04                       | 22.94        | 59.07              | 49.07        | -33.03         | -26.13        |
| 3        | 0.70859        | 10.20                   | 13.84                      | 11.06        | 24.04                       | 21.26        | 56.00              | 46.00        | -31.96         | -24.74        |
| <b>4</b> | <b>1.95703</b> | <b>10.30</b>            | <b>23.86</b>               | <b>20.88</b> | <b>34.16</b>                | <b>31.18</b> | <b>56.00</b>       | <b>46.00</b> | <b>-21.84</b>  | <b>-14.82</b> |
| 5        | 2.15625        | 10.31                   | 23.72                      | 20.40        | 34.03                       | 30.71        | 56.00              | 46.00        | -21.97         | -15.29        |
| 6        | 21.40625       | 10.75                   | 13.82                      | 9.14         | 24.57                       | 19.89        | 60.00              | 50.00        | -35.43         | -30.11        |

Remarks:

1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. The emission levels of other frequencies were very low against the limit.
3. Margin value = Emission level - Limit value
4. Correction factor = Insertion loss + Cable loss
5. Emission Level = Correction Factor + Reading Value.



### 4.3 Band Edge Measurement

#### 4.3.1 Limits of Band Edge Measurement

The field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following

| Fundamental Frequency | Field Strength of Fundamental (millivolts/meter) | Field Strength of Harmonics (microvolts/meter) |
|-----------------------|--------------------------------------------------|------------------------------------------------|
| 902 ~ 928 MHz         | 50                                               | 500                                            |
| 2400 ~ 2483.5 MHz     | 50                                               | 500                                            |
| 5725 ~ 5875 MHz       | 50                                               | 500                                            |
| 24 ~ 24.25 GHz        | 250                                              | 2500                                           |

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits as below table, whichever is the lesser attenuation

| Frequencies (MHz) | Field Strength (microvolts/meter) | Measurement Distance (meters) |
|-------------------|-----------------------------------|-------------------------------|
| 0.009 ~ 0.490     | 2400/F(kHz)                       | 300                           |
| 0.490 ~ 1.705     | 24000/F(kHz)                      | 30                            |
| 1.705 ~ 30.0      | 30                                | 30                            |
| 30 ~ 88           | 100                               | 3                             |
| 88 ~ 216          | 150                               | 3                             |
| 216 ~ 960         | 200                               | 3                             |
| Above 960         | 500                               | 3                             |

#### NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

#### 4.3.2 Test Instruments

| Description & Manufacturer           | Model No.                    | Serial No.                     | Cal. Date     | Cal. Due      |
|--------------------------------------|------------------------------|--------------------------------|---------------|---------------|
| Test Receiver<br>ROHDE & SCHWARZ     | ESIB7                        | 100187                         | Apr. 18, 2016 | Apr. 17, 2017 |
| Spectrum Analyzer<br>ROHDE & SCHWARZ | FSP40                        | 100041                         | Sep. 02, 2015 | Sep. 01, 2016 |
| BILOG Antenna<br>SCHWARZBECK         | VULB9168                     | 9168-171                       | Jan. 07, 2016 | Jan. 06, 2017 |
| HORN Antenna<br>SCHWARZBECK          | 9120D                        | 209                            | Jan. 20, 2016 | Jan. 19, 2017 |
| HORN Antenna<br>SCHWARZBECK          | BBHA 9170                    | BBHA9170241                    | Jan. 18, 2016 | Jan. 17, 2017 |
| Preamplifier<br>Agilent              | 8447D                        | 2944A10738                     | Oct. 18, 2015 | Oct. 17, 2016 |
| Preamplifier<br>Agilent              | 8449B                        | 3008A01964                     | Aug. 22, 2015 | Aug. 21, 2016 |
| RF signal cable<br>HUBER+SUHNER      | SUCOFLEX 104                 | Cable-CH3-03 (214378)          | Aug. 22, 2015 | Aug. 21, 2016 |
| RF signal cable<br>HUBER+SUHNER      | SUCOFLEX 106                 | Cable-CH3-03<br>(309224+12738) | Aug. 22, 2015 | Aug. 21, 2016 |
| Software<br>BV ADT                   | ADT_Radiated_<br>V7.6.15.9.4 | NA                             | NA            | NA            |
| Antenna Tower<br>inn-co GmbH         | MA 4000                      | 013303                         | NA            | NA            |
| Antenna Tower Controller<br>BV ADT   | AT100                        | AT93021702                     | NA            | NA            |
| Turn Table<br>BV ADT                 | TT100                        | TT93021702                     | NA            | NA            |
| Turn Table Controller<br>BV ADT      | SC100                        | SC93021702                     | NA            | NA            |

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.  
 2. The test was performed in HwaYa Chamber 3.  
 3. The horn antenna and preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.  
 4. The FCC Site Registration No. is 988962.  
 5. The IC Site Registration No. is IC 7450F-3.

#### 4.3.3 Test Procedures

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna 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.
- d. 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 rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

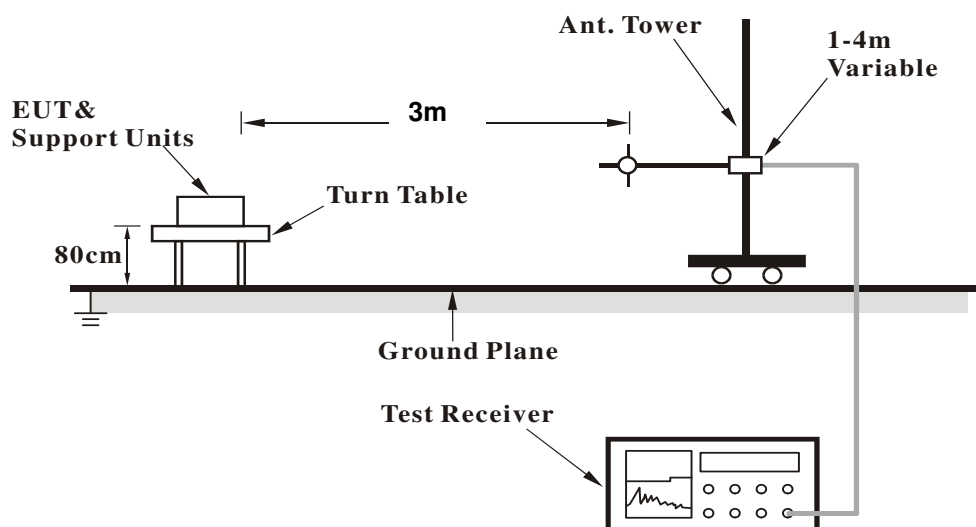
**Note:**

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is  $\geq 1/T$  (Duty cycle < 98%) or 10Hz(Duty cycle > 98%) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

#### 4.3.4 Deviation from Test Standard

No deviation.

#### 4.3.5 Test Set Up



For the actual test configuration, please refer to the attached file (Test Setup Photo).

#### 4.3.6 EUT Operating Conditions

Same as 4.1.6.

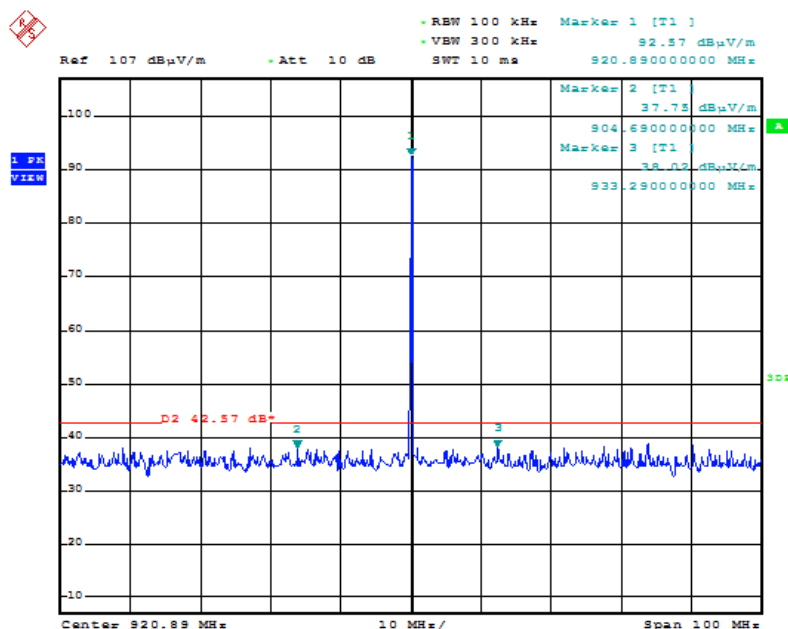
#### 4.3.7 Test Results

| EUT TEST CONDITION       |                        | MEASUREMENT DETAIL |               |
|--------------------------|------------------------|--------------------|---------------|
| CHANNEL                  | Channel 1 (920.90MHz)  | FREQUENCY RANGE    | Below 1000MHz |
| INPUT POWER              | 120Vac, 60 Hz (System) | DETECTOR FUNCTION  | Peak (PK)     |
| ENVIRONMENTAL CONDITIONS | 16deg. C, 70%RH        | TESTED BY          | Nick Hsu      |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 904.69      | 37.75 PK                | 42.6           | -4.85       | 1.53 H             | 136                  | 9.45             | 28.3                     |
| 2                                                   | *920.90     | 92.57 PK                |                |             | -                  | -                    | 64.07            | 28.5                     |
| 3                                                   | 933.29      | 38.02 PK                | 42.6           | -4.58       | 1.53 H             | 136                  | 9.32             | 28.7                     |

#### Remarks:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ \* ” : Fundamental frequency



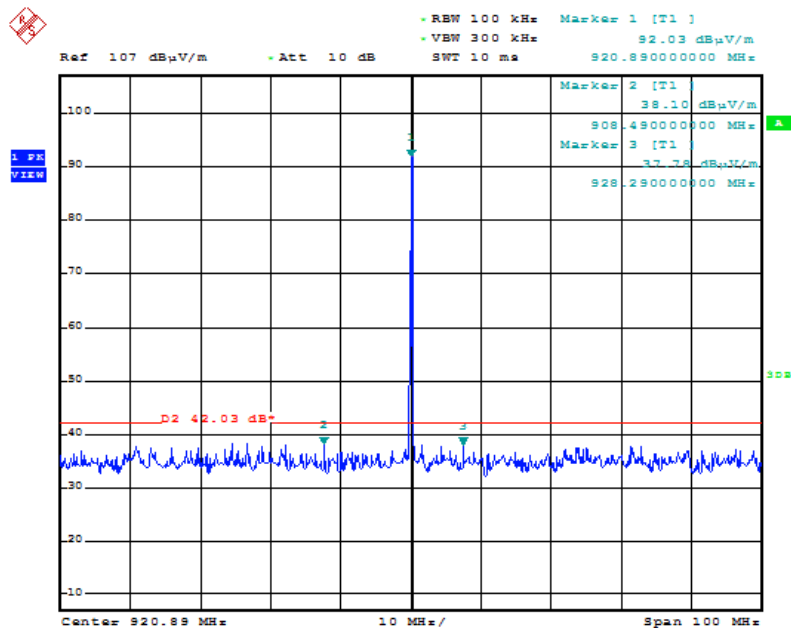
Date: 3.JUN.2016 12:44:10

| EUT TEST CONDITION       |                        | MEASUREMENT DETAIL |               |
|--------------------------|------------------------|--------------------|---------------|
| CHANNEL                  | Channel 1 (920.90MHz)  | FREQUENCY RANGE    | Below 1000MHz |
| INPUT POWER              | 120Vac, 60 Hz (System) | DETECTOR FUNCTION  | Peak (PK)     |
| ENVIRONMENTAL CONDITIONS | 16deg. C, 70%RH        | TESTED BY          | Nick Hsu      |

| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|---------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                               | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                 | 908.49      | 38.10 PK                | 42.0           | -3.90       | 1.03 V             | 164                  | 9.80             | 28.3                     |
| 2                                                 | *920.90     | 92.03 PK                |                |             | -                  | -                    | 63.53            | 28.5                     |
| 3                                                 | 928.29      | 37.78 PK                | 42.0           | -4.22       | 1.03 V             | 164                  | 9.08             | 28.7                     |

Remarks:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “\*”: Fundamental frequency



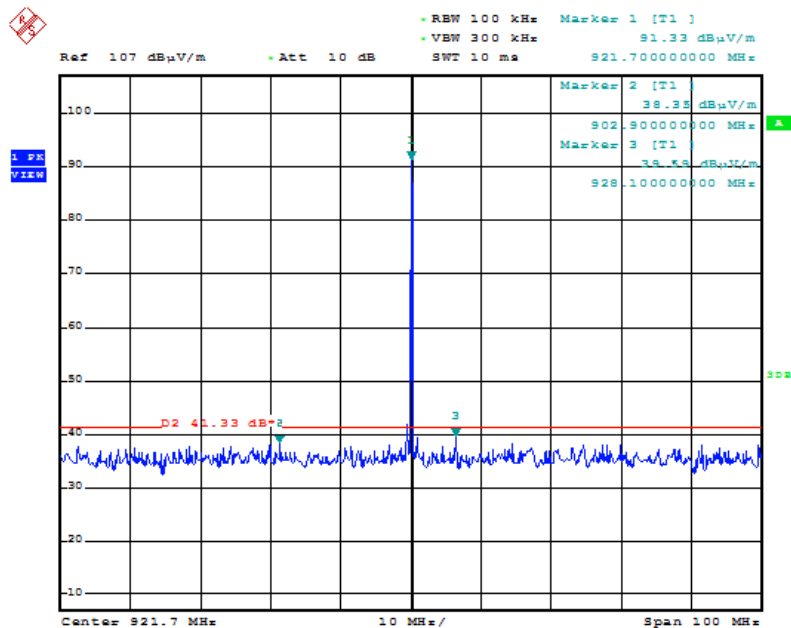
Date: 3.JUN.2016 12:49:29

| EUT TEST CONDITION       |                        | MEASUREMENT DETAIL |               |
|--------------------------|------------------------|--------------------|---------------|
| CHANNEL                  | Channel 2 (921.70MHz)  | FREQUENCY RANGE    | Below 1000MHz |
| INPUT POWER              | 120Vac, 60 Hz (System) | DETECTOR FUNCTION  | Peak (PK)     |
| ENVIRONMENTAL CONDITIONS | 16deg. C, 70%RH        | TESTED BY          | Nick Hsu      |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 902.90      | 38.35 PK                | 41.3           | -2.95       | 1.52 H             | 133                  | 10.05            | 28.3                     |
| 2                                                   | *921.70     | 91.33 PK                |                |             | -                  | -                    | 62.83            | 28.5                     |
| 3                                                   | 928.10      | 39.59 PK                | 41.3           | -1.71       | 1.52 H             | 133                  | 10.89            | 28.7                     |

Remarks:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “\*”: Fundamental frequency



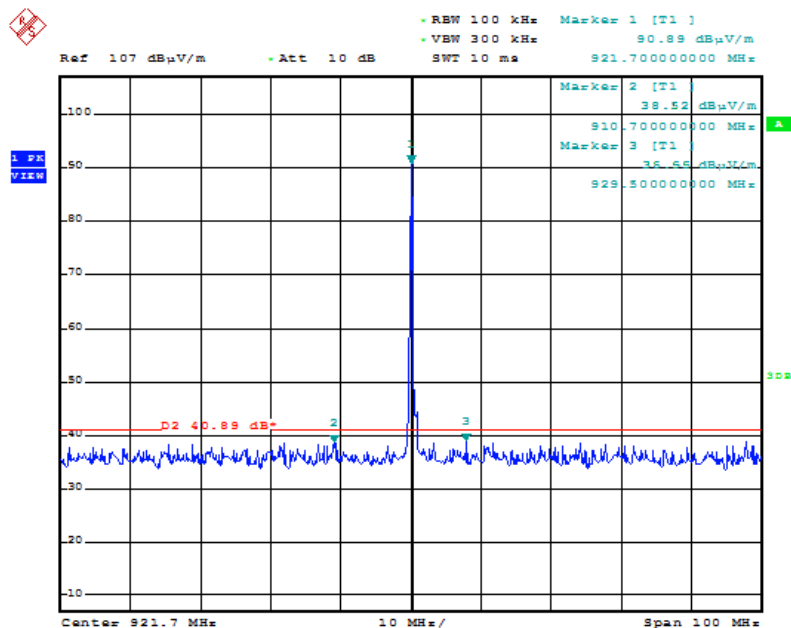
Date: 3.JUN.2016 13:01:17

| EUT TEST CONDITION       |                        | MEASUREMENT DETAIL |               |
|--------------------------|------------------------|--------------------|---------------|
| CHANNEL                  | Channel 2 (921.70MHz)  | FREQUENCY RANGE    | Below 1000MHz |
| INPUT POWER              | 120Vac, 60 Hz (System) | DETECTOR FUNCTION  | Peak (PK)     |
| ENVIRONMENTAL CONDITIONS | 16deg. C, 70%RH        | TESTED BY          | Nick Hsu      |

| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|---------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                               | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                 | 910.70      | 38.52 PK                | 40.9           | -2.38       | 1.00 V             | 163                  | 10.22            | 28.3                     |
| 2                                                 | *921.70     | 90.89 PK                |                |             | -                  | -                    | 62.39            | 28.5                     |
| 3                                                 | 929.50      | 38.95 PK                | 40.9           | -1.95       | 1.00 V             | 163                  | 10.25            | 28.7                     |

Remarks:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “\*”: Fundamental frequency



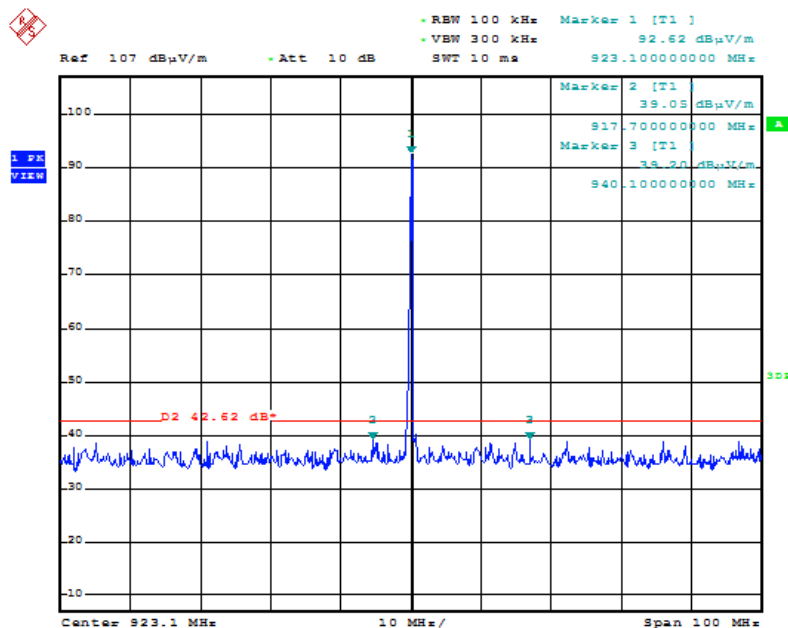
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| EUT TEST CONDITION       |                        | MEASUREMENT DETAIL |               |
|--------------------------|------------------------|--------------------|---------------|
| CHANNEL                  | Channel 3 (923.10MHz)  | FREQUENCY RANGE    | Below 1000MHz |
| INPUT POWER              | 120Vac, 60 Hz (System) | DETECTOR FUNCTION  | Peak (PK)     |
| ENVIRONMENTAL CONDITIONS | 16deg. C, 70%RH        | TESTED BY          | Nick Hsu      |

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 917.70      | 39.05 PK                | 42.6           | -3.55       | 1.48 H             | 132                  | 10.65            | 28.4                     |
| 2                                                   | *923.10     | 92.62 PK                |                |             | -                  | -                    | 64.12            | 28.5                     |
| 3                                                   | 940.10      | 39.20 PK                | 42.6           | -3.40       | 1.48 H             | 132                  | 10.60            | 28.6                     |

Remarks:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “\*”: Fundamental frequency

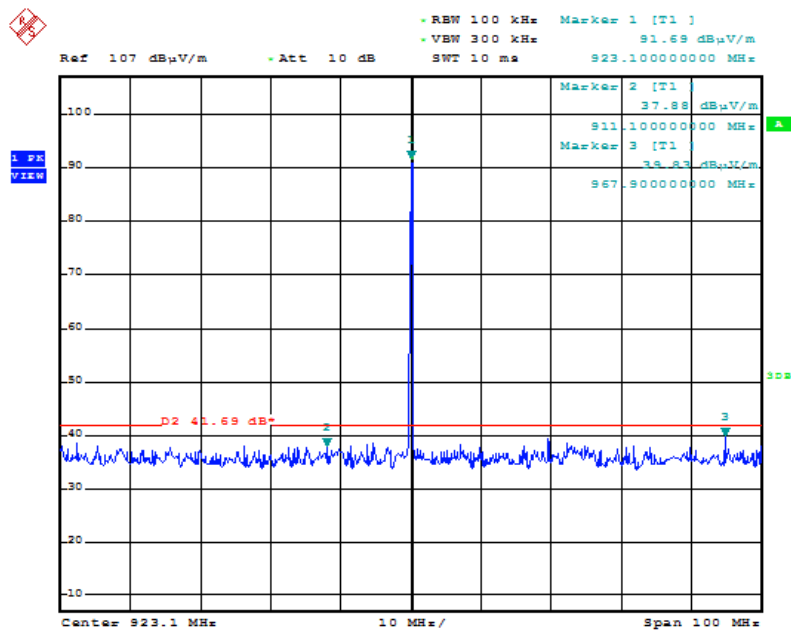


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| EUT TEST CONDITION       |                        | MEASUREMENT DETAIL |               |
|--------------------------|------------------------|--------------------|---------------|
| CHANNEL                  | Channel 3 (923.10MHz)  | FREQUENCY RANGE    | Below 1000MHz |
| INPUT POWER              | 120Vac, 60 Hz (System) | DETECTOR FUNCTION  | Peak (PK)     |
| ENVIRONMENTAL CONDITIONS | 16deg. C, 70%RH        | TESTED BY          | Nick Hsu      |

| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|---------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                               | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                 | 911.10      | 37.88 PK                | 41.7           | -3.82       | 1.01 V             | 163                  | 9.58             | 28.3                     |
| 2                                                 | *923.10     | 91.69 PK                |                |             | -                  | -                    | 63.19            | 28.5                     |
| 3                                                 | 967.90      | 39.83 PK                | 41.7           | -1.87       | 1.01 V             | 163                  | 10.93            | 28.9                     |

- REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).  
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB).  
3. The other emission levels were very low against the limit.  
4. Margin value = Emission level – Limit value.  
5. “ \* ” : Fundamental frequency



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## 5 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

## Appendix – Information on the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

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**Web Site:** [www.bureauveritas-adt.com](http://www.bureauveritas-adt.com)

The address and road map of all our labs can be found in our web site also.

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