

### 6.6.3. Test Data

#### Test Result of ERP

| GSM850 (GSM) Radiated Power ERP |           |                        |           |         |
|---------------------------------|-----------|------------------------|-----------|---------|
| Horizontal Polarization         |           |                        |           |         |
| Frequency (MHz)                 | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (W) |
| 824.20                          | 11.73     | 21.66                  | 31.24     | 1.33    |
| 836.60                          | 12.2      | 21.54                  | 31.59     | 1.44    |
| 848.80                          | 12.3      | 21.46                  | 31.61     | 1.45    |
| Vertical Polarization           |           |                        |           |         |
| Frequency (MHz)                 | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (W) |
| 824.20                          | 11.34     | 21.66                  | 30.85     | 1.22    |
| 836.60                          | 11.57     | 21.54                  | 30.96     | 1.25    |
| 848.80                          | 11.36     | 21.46                  | 30.67     | 1.17    |

\* ERP = LVL (dBm) + Correction Factor (dB) – 2.15

| GSM850 (GPRS class 8) Radiated Power ERP |           |                        |           |         |
|------------------------------------------|-----------|------------------------|-----------|---------|
| Horizontal Polarization                  |           |                        |           |         |
| Frequency (MHz)                          | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (W) |
| 824.20                                   | 10.86     | 21.66                  | 30.37     | 1.09    |
| 836.60                                   | 10.97     | 21.54                  | 30.36     | 1.09    |
| 848.80                                   | 11.16     | 21.46                  | 30.47     | 1.11    |
| Vertical Polarization                    |           |                        |           |         |
| Frequency (MHz)                          | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (W) |
| 824.20                                   | 10.41     | 21.66                  | 29.92     | 0.98    |
| 836.60                                   | 10.13     | 21.54                  | 29.52     | 0.90    |
| 848.80                                   | 10.30     | 21.46                  | 29.61     | 0.91    |

\* ERP = LVL (dBm) + Correction Factor (dB) – 2.15

| WCDMA Band V (RMC 12.2Kbps) Radiated Power ERP |           |                        |           |         |
|------------------------------------------------|-----------|------------------------|-----------|---------|
| Horizontal Polarization                        |           |                        |           |         |
| Frequency (MHz)                                | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (W) |
| 826.40                                         | 3.12      | 21.62                  | 22.59     | 0.18    |
| 836.60                                         | 3.24      | 21.57                  | 22.66     | 0.18    |
| 846.60                                         | 3.16      | 21.44                  | 22.45     | 0.18    |
| Vertical Polarization                          |           |                        |           |         |
| Frequency (MHz)                                | LVL (dBm) | Correction Factor (dB) | ERP (dBm) | ERP (W) |
| 826.40                                         | 2.15      | 21.62                  | 21.62     | 0.15    |
| 836.60                                         | 2.24      | 21.57                  | 21.66     | 0.15    |
| 846.60                                         | 2.17      | 21.44                  | 21.46     | 0.14    |

\* ERP = LVL (dBm) + Correction Factor (dB) – 2.15

Correction Factor= S.G. Power - Cable loss + Antenna Gain- SPA. Reading

**Test Result of EIRP**

**GSM1900 (GSM) Radiated Power EIRP**

**Horizontal Polarization**

| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
|-----------------|-----------|------------------------|------------|----------|
| 1850.20         | 7.65      | 21.66                  | 29.31      | 0.85     |
| 1880.00         | 7.92      | 21.54                  | 29.46      | 0.88     |
| 1909.80         | 7.59      | 21.46                  | 29.05      | 0.80     |

**Vertical Polarization**

| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
|-----------------|-----------|------------------------|------------|----------|
| 1850.20         | 6.53      | 21.66                  | 28.19      | 0.66     |
| 1880.00         | 6.46      | 21.54                  | 28.00      | 0.63     |
| 1909.80         | 7.23      | 21.46                  | 27.69      | 0.59     |

*EIRP = LVL (dBm) + Correction Factor (dB)*

**GSM1900 (GPRS class 8) Radiated Power EIRP**

**Horizontal Polarization**

| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
|-----------------|-----------|------------------------|------------|----------|
| 1850.20         | 7.55      | 21.66                  | 29.21      | 0.83     |
| 1880.00         | 7.80      | 21.54                  | 29.34      | 0.86     |
| 1909.80         | 7.85      | 21.46                  | 29.31      | 0.85     |

**Vertical Polarization**

| Frequency (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
|-----------------|-----------|------------------------|------------|----------|
| 1850.20         | 5.64      | 21.66                  | 27.30      | 0.54     |
| 1880.00         | 5.28      | 21.54                  | 26.82      | 0.48     |
| 1909.80         | 5.49      | 21.46                  | 26.95      | 0.50     |

*\* EIRP = LVL (dBm) + Correction Factor (dB)*

**WCDMA Band II (RMC 12.2Kbps) Radiated Power EIRP**

| Horizontal Polarization |           |                        |            |          |
|-------------------------|-----------|------------------------|------------|----------|
| Frequency (MHz)         | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1852.40                 | 10.93     | 11.23                  | 22.16      | 0.16     |
| 1880.00                 | 10.58     | 11.56                  | 22.14      | 0.16     |
| 1907.60                 | 11.08     | 11.39                  | 22.47      | 0.17     |
| Vertical Polarization   |           |                        |            |          |
| Frequency (MHz)         | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1852.40                 | 10.03     | 11.23                  | 21.26      | 0.13     |
| 1880.00                 | 9.86      | 11.56                  | 21.42      | 0.14     |
| 1907.60                 | 10.30     | 11.39                  | 21.69      | 0.15     |

\* EIRP = LVL (dBm) + Correction Factor (dB)

Correction Factor= S.G. Power - Cable loss + Antenna Gain- SPA. Reading

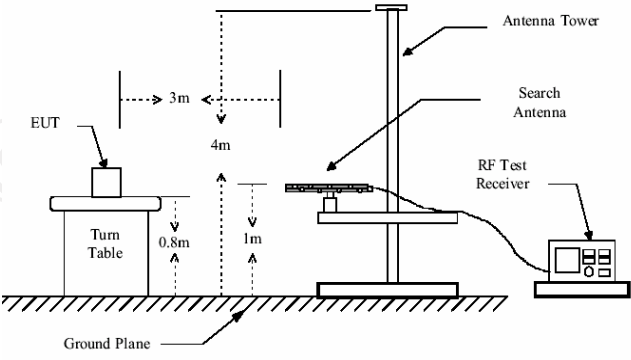
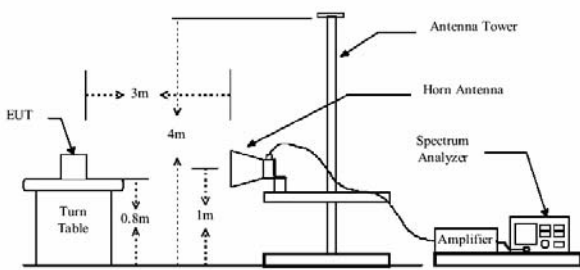
| WCDMA Band IV (RMC 12.2Kbps) Radiated Power EIRP |           |                        |            |          |
|--------------------------------------------------|-----------|------------------------|------------|----------|
| Horizontal Polarization                          |           |                        |            |          |
| Frequency (MHz)                                  | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1712.4                                           | 4.15      | 18.33                  | 22.48      | 0.18     |
| 1732.6                                           | 4.39      | 18.15                  | 22.54      | 0.18     |
| 1752.6                                           | 4.57      | 18.24                  | 22.81      | 0.19     |
| Vertical Polarization                            |           |                        |            |          |
| Frequency (MHz)                                  | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) |
| 1712.4                                           | 3.98      | 18.33                  | 22.31      | 0.17     |
| 1732.6                                           | 4.06      | 18.15                  | 22.21      | 0.17     |
| 1752.6                                           | 4.10      | 18.24                  | 22.34      | 0.17     |

\* EIRP = LVL (dBm) + Correction Factor (dB)

Correction Factor= S.G. Power - Cable loss + Antenna Gain- SPA. Reading

## 6.7. Field Strength of Spurious Radiation Measurement

### 6.7.1. Test Specification

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Requirement:</b> | FCC part 22.917(a) ;FCC part 24.238(a); FCC part 27.53(g)<br>RSS-132 (4.5.1); RSS-133 (6.5.1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Test Method:</b>      | FCC part 2.1053                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Limit:</b>            | 30MHz~20GHz -13dBm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Test setup:</b>       | <p>For 30MHz~1GHz</p>  <p>1GHz ~20GHz</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Test Procedure:</b>   | <ol style="list-style-type: none"> <li>1. The testing follows FCC KDB 971168 v02r02 Section 5.8 and ANSI / TIA-603-D-2010Section 2.2.12.</li> <li>2. The EUT was placed on a rotatable wooden table 0.8 meters above the ground.</li> <li>3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.</li> <li>4. The table was rotated 360 degrees to determine the position of the highest spurious emission.</li> <li>5. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.</li> <li>6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.</li> <li>7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.</li> <li>8. Tune the output power of signal generator to the</li> </ol> |

|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               | <p>same emission level with EUT maximum spurious emission.</p> <p>9. Taking the record of output power at antenna port.</p> <p>10. Repeat step 7 to step 8 for another polarization.</p> <p>11. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain</p> <p>12. ERP (dBm) = EIRP - 2.15</p> <p>13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.</p> <p>14. The limit line is derived from <math>43 + 10\log(P)</math> dB below the transmitter power P(Watts)</p> <p>= <math>P(W) - [43 + 10\log(P)]</math> (dB)</p> <p>= <math>[30 + 10\log(P)]</math> (dBm) - <math>[43 + 10\log(P)]</math> (dB)</p> <p>= -13dBm.</p> |
| Test results: | PASS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

#### 6.7.2. Test Instruments

| Radiated Emission Test Site (966) |                                    |            |               |                 |
|-----------------------------------|------------------------------------|------------|---------------|-----------------|
| Name of Equipment                 | Manufacturer                       | Model      | Serial Number | Calibration Due |
| ESPI Test Receiver                | ROHDE&SCHWARZ                      | ESVD       | 100008        | Sep. 11, 2016   |
| Spectrum Analyzer                 | ROHDE&SCHWARZ                      | FSEM       | 848597/001    | Sep. 11, 2016   |
| Pre-Amplifier                     | HP                                 | 8447D      | 2727A05017    | Sep. 11, 2016   |
| Pre-Amplifier                     | EM Electronics Corporation CO.,LTD | EM30265    | 07032613      | Sep. 11, 2016   |
| Broadband Antenna                 | Schwarzbeck                        | VULB9163   | 351           | Sep. 13, 2016   |
| Broadband Antenna                 | Schwarzbeck                        | VULB9163   | 340           | Sep. 13, 2016   |
| Horn Antenna                      | Schwarzbeck                        | BBHA 9120D | 631           | Sep. 13, 2016   |
| Horn Antenna                      | Schwarzbeck                        | BBHA 9120D | 629           | Sep. 13, 2016   |
| Coax cable                        | TCT                                | N/A        | N/A           | Sep. 11, 2016   |
| Coax cable                        | TCT                                | N/A        | N/A           | Sep. 11, 2016   |
| EMI Test Software                 | Shurple Technology                 | EZ-EMC     | N/A           | N/A             |
| Signal Generator                  | Maconi                             | 2022D      | N/A           | Sep. 12, 2016   |

**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

### 6.7.3. Test Data

| Band            | GSM850                                                                           |             | Test channel:      | Lowest  |
|-----------------|----------------------------------------------------------------------------------|-------------|--------------------|---------|
| Test mode:      | GSM Link (GMSK)                                                                  |             | Temperature :      | 25°C    |
|                 |                                                                                  |             | Relative Humidity: | 56%     |
| Note:           | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |             |                    |         |
| Frequency (MHz) | Spurious Emission                                                                |             | Limit (dBm)        | Result  |
|                 | Polarization                                                                     | Level (dBm) |                    |         |
| 1648.40         | Vertical                                                                         | -38.57      | -13.00             | PASS    |
| 2472.60         | V                                                                                | -41.62      |                    |         |
| 3296.80         | V                                                                                | -50.63      |                    |         |
| 1648.40         | Horizontal                                                                       | -43.22      |                    |         |
| 2472.60         | H                                                                                | -39.59      |                    |         |
| 3296.80         | H                                                                                | -51.14      |                    |         |
| Test mode:      | GSM850                                                                           |             | Test channel:      | Middle  |
| Test mode:      | GSM Link (GMSK)                                                                  |             | Temperature :      | 25°C    |
|                 |                                                                                  |             | Relative Humidity: | 56%     |
| Note:           | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |             |                    |         |
| Frequency (MHz) | Spurious Emission                                                                |             | Limit (dBm)        | Result  |
|                 | Polarization                                                                     | Level (dBm) |                    |         |
| 1673.20         | Vertical                                                                         | -40.47      | -13.00             | PASS    |
| 2509.80         | V                                                                                | -43.42      |                    |         |
| 3346.40         | V                                                                                | -51.06      |                    |         |
| 1673.20         | Horizontal                                                                       | -41.13      |                    |         |
| 2509.80         | H                                                                                | -39.14      |                    |         |
| 3346.40         | H                                                                                | -52.70      |                    |         |
| Test mode:      | GSM850                                                                           |             | Test channel:      | Highest |
| Test mode:      | GSM Link (GMSK)                                                                  |             | Temperature :      | 25°C    |
|                 |                                                                                  |             | Relative Humidity: | 56%     |
| Note:           | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |             |                    |         |
| Frequency (MHz) | Spurious Emission                                                                |             | Limit (dBm)        | Result  |
|                 | Polarization                                                                     | Level (dBm) |                    |         |
| 1697.60         | Vertical                                                                         | -40.80      | -13.00             | PASS    |
| 2546.40         | V                                                                                | -41.34      |                    |         |
| 3395.20         | V                                                                                | -56.36      |                    |         |
| 1697.60         | Horizontal                                                                       | -45.14      |                    |         |
| 2546.40         | H                                                                                | -43.06      |                    |         |
| 3395.20         | H                                                                                | -55.80      |                    |         |

| Band            | GSM 1900                                                                         |             | Test channel:      | Lowest  |
|-----------------|----------------------------------------------------------------------------------|-------------|--------------------|---------|
| Test mode:      | GSM Link (GMSK)                                                                  |             | Temperature :      | 25°C    |
|                 |                                                                                  |             | Relative Humidity: | 56%     |
| Note:           | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |             |                    |         |
| Frequency (MHz) | Spurious Emission                                                                |             | Limit (dBm)        | Result  |
|                 | Polarization                                                                     | Level (dBm) |                    |         |
| 3700.40         | Vertical                                                                         | -49.31      | -13.00             | PASS    |
| 5550.60         | V                                                                                | -45.41      |                    |         |
| 7400.80         | V                                                                                | -52.04      |                    |         |
| 3700.40         | Horizontal                                                                       | -48.26      |                    |         |
| 5550.60         | H                                                                                | -50.19      |                    |         |
| 7400.80         | H                                                                                | -48.90      |                    |         |
| Test mode:      | GSM 1900                                                                         |             | Test channel:      | Middle  |
| Test mode:      | GSM Link (GMSK)                                                                  |             | Temperature :      | 25°C    |
|                 |                                                                                  |             | Relative Humidity: | 56%     |
| Note:           | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |             |                    |         |
| Frequency (MHz) | Spurious Emission                                                                |             | Limit (dBm)        | Result  |
|                 | Polarization                                                                     | Level (dBm) |                    |         |
| 3760.00         | Vertical                                                                         | -49.12      | -13.00             | PASS    |
| 5640.00         | V                                                                                | -53.02      |                    |         |
| 7520.00         | V                                                                                | -47.55      |                    |         |
| 3760.00         | Horizontal                                                                       | -47.70      |                    |         |
| 5640.00         | H                                                                                | -50.85      |                    |         |
| 7520.00         | H                                                                                | -51.20      |                    |         |
| Test mode:      | GSM 1900                                                                         |             | Test channel:      | Highest |
| Test mode:      | GSM Link (GMSK)                                                                  |             | Temperature :      | 25°C    |
|                 |                                                                                  |             | Relative Humidity: | 56%     |
| Note:           | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |             |                    |         |
| Frequency (MHz) | Spurious Emission                                                                |             | Limit (dBm)        | Result  |
|                 | Polarization                                                                     | Level (dBm) |                    |         |
| 3819.60         | Vertical                                                                         | -46.24      | -13.00             | PASS    |
| 5729.40         | V                                                                                | -50.64      |                    |         |
| 7639.20         | V                                                                                | -54.29      |                    |         |
| 3819.60         | Horizontal                                                                       | -48.31      |                    |         |
| 5729.40         | H                                                                                | -50.79      |                    |         |
| 7639.20         | H                                                                                | -52.69      |                    |         |

| Band       | WCDMA Band II            | Test channel: | Lowest  |
|------------|--------------------------|---------------|---------|
| Test mode: | RMC 12.2Kbps Link (QPSK) | Temperature : | 23~24°C |

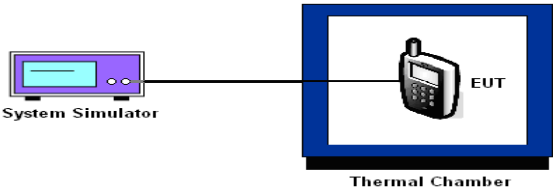
|                   |                                                                                  |             | <b>Relative Humidity:</b> | <b>46~48%</b>  |
|-------------------|----------------------------------------------------------------------------------|-------------|---------------------------|----------------|
| <b>Note:</b>      | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |             |                           |                |
| Frequency (MHz)   | Spurious Emission                                                                |             | Limit (dBm)               | Result         |
|                   | Polarization                                                                     | Level (dBm) |                           |                |
| 3704.80           | Vertical                                                                         | -52.98      | -13.00                    | PASS           |
| 5557.20           | V                                                                                | -51.32      |                           |                |
| 7409.60           | V                                                                                | -58.69      |                           |                |
| 3704.80           | Horizontal                                                                       | -53.63      |                           |                |
| 5557.20           | H                                                                                | -55.52      |                           |                |
| 7409.60           | H                                                                                | -58.43      |                           |                |
| <b>Test mode:</b> | <b>WCDMA Band II</b>                                                             |             | <b>Test channel:</b>      | <b>Middle</b>  |
| <b>Test mode:</b> | <b>RMC 12.2Kbps Link (QPSK)</b>                                                  |             | <b>Temperature :</b>      | <b>23~24°C</b> |
|                   |                                                                                  |             | <b>Relative Humidity:</b> | <b>46~48%</b>  |
| <b>Note:</b>      | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |             |                           |                |
| Frequency (MHz)   | Spurious Emission                                                                |             | Limit (dBm)               | Result         |
|                   | Polarization                                                                     | Level (dBm) |                           |                |
| 3760.00           | Vertical                                                                         | -51.74      | -13.00                    | PASS           |
| 5640.00           | V                                                                                | -54.63      |                           |                |
| 7520.00           | V                                                                                | -57.56      |                           |                |
| 3760.00           | Horizontal                                                                       | -52.41      |                           |                |
| 5640.00           | H                                                                                | -56.92      |                           |                |
| 7520.00           | H                                                                                | -58.67      |                           |                |
| <b>Test mode:</b> | <b>WCDMA Band II</b>                                                             |             | <b>Test channel:</b>      | <b>Highest</b> |
| <b>Test mode:</b> | <b>RMC 12.2Kbps Link (QPSK)</b>                                                  |             | <b>Temperature :</b>      | <b>23~24°C</b> |
|                   |                                                                                  |             | <b>Relative Humidity:</b> | <b>46~48%</b>  |
| <b>Note:</b>      | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |             |                           |                |
| Frequency (MHz)   | Spurious Emission                                                                |             | Limit (dBm)               | Result         |
|                   | Polarization                                                                     | Level (dBm) |                           |                |
| 3815.20           | Vertical                                                                         | -51.12      | -13.00                    | PASS           |
| 5722.80           | V                                                                                | -54.30      |                           |                |
| 7630.40           | V                                                                                | -53.82      |                           |                |
| 3815.20           | Horizontal                                                                       | -53.82      |                           |                |
| 5722.80           | H                                                                                | -56.96      |                           |                |
| 7630.40           | H                                                                                | -56.93      |                           |                |

| Band            | WCDMA Band V                                                                     |             | Test channel:      | Lowest  |
|-----------------|----------------------------------------------------------------------------------|-------------|--------------------|---------|
| Test mode:      | RMC 12.2Kbps Link (QPSK)                                                         |             | Temperature :      | 23~24°C |
|                 |                                                                                  |             | Relative Humidity: | 46~48%  |
| Note:           | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |             |                    |         |
| Frequency (MHz) | Spurious Emission                                                                |             | Limit (dBm)        | Result  |
|                 | Polarization                                                                     | Level (dBm) |                    |         |
| 1652.80         | Vertical                                                                         | -53.36      | -13.00             | PASS    |
| 2479.20         | V                                                                                | -52.72      |                    |         |
| 3305.60         | V                                                                                | -52.52      |                    |         |
| 1652.80         | Horizontal                                                                       | -53.57      |                    |         |
| 2479.20         | H                                                                                | -52.43      |                    |         |
| 3305.60         | H                                                                                | -52.31      |                    |         |
| Test mode:      | WCDMA Band V                                                                     |             | Test channel:      | Middle  |
| Test mode:      | RMC 12.2Kbps Link (QPSK)                                                         |             | Temperature :      | 23~24°C |
|                 |                                                                                  |             | Relative Humidity: | 46~48%  |
| Note:           | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |             |                    |         |
| Frequency (MHz) | Spurious Emission                                                                |             | Limit (dBm)        | Result  |
|                 | Polarization                                                                     | Level (dBm) |                    |         |
| 1673.20         | Vertical                                                                         | -56.24      | -13.00             | PASS    |
| 2509.80         | V                                                                                | -55.45      |                    |         |
| 3346.40         | V                                                                                | -58.42      |                    |         |
| 1673.20         | Horizontal                                                                       | -55.62      |                    |         |
| 2509.80         | H                                                                                | -58.76      |                    |         |
| 3346.40         | H                                                                                | -59.94      |                    |         |
| Test mode:      | WCDMA Band V                                                                     |             | Test channel:      | Highest |
| Test mode:      | RMC 12.2Kbps Link (QPSK)                                                         |             | Temperature :      | 23~24°C |
|                 |                                                                                  |             | Relative Humidity: | 46~48%  |
| Note:           | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |             |                    |         |
| Frequency (MHz) | Spurious Emission                                                                |             | Limit (dBm)        | Result  |
|                 | Polarization                                                                     | Level (dBm) |                    |         |
| 1693.20         | Vertical                                                                         | -56.62      | -13.00             | PASS    |
| 2539.80         | V                                                                                | -56.75      |                    |         |
| 3386.40         | V                                                                                | -58.32      |                    |         |
| 1693.20         | Horizontal                                                                       | -55.42      |                    |         |
| 2539.80         | H                                                                                | -59.76      |                    |         |
| 3386.40         | H                                                                                | -59.94      |                    |         |

| <b>Band</b>       | <b>WCDMA Band IV</b>                                                             |             | <b>Test channel:</b>      | <b>Lowest</b>  |
|-------------------|----------------------------------------------------------------------------------|-------------|---------------------------|----------------|
| <b>Test mode:</b> | <b>RMC 12.2Kbps Link (QPSK)</b>                                                  |             | <b>Temperature :</b>      | <b>23~24°C</b> |
|                   |                                                                                  |             | <b>Relative Humidity:</b> | <b>46~48%</b>  |
| <b>Note:</b>      | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |             |                           |                |
| Frequency (MHz)   | Spurious Emission                                                                |             | Limit (dBm)               | Result         |
|                   | Polarization                                                                     | Level (dBm) |                           |                |
| 2452.3            | Vertical                                                                         | --          | -13.00                    | PASS           |
| 3424.8            | V                                                                                | -51.41      |                           |                |
| 5137.2            | V                                                                                | -55.60      |                           |                |
| 2452.3            | Horizontal                                                                       | --          |                           |                |
| 3424.8            | H                                                                                | -54.62      |                           |                |
| 5137.2            | H                                                                                | -52.45      |                           |                |
| <b>Test mode:</b> | <b>WCDMA Band IV</b>                                                             |             | <b>Test channel:</b>      | <b>Middle</b>  |
| <b>Test mode:</b> | <b>RMC 12.2Kbps Link (QPSK)</b>                                                  |             | <b>Temperature :</b>      | <b>23~24°C</b> |
|                   |                                                                                  |             | <b>Relative Humidity:</b> | <b>46~48%</b>  |
| <b>Note:</b>      | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |             |                           |                |
| Frequency (MHz)   | Spurious Emission                                                                |             | Limit (dBm)               | Result         |
|                   | Polarization                                                                     | Level (dBm) |                           |                |
| 2641.3            | Vertical                                                                         | -52.46      | -13.00                    | PASS           |
| 3465.2            | V                                                                                | -51.50      |                           |                |
| 5197.8            | V                                                                                | -55.79      |                           |                |
| 2641.3            | Horizontal                                                                       | -50.43      |                           |                |
| 3465.2            | H                                                                                | -57.10      |                           |                |
| 5197.8            | H                                                                                | -56.78      |                           |                |
| <b>Test mode:</b> | <b>WCDMA Band IV</b>                                                             |             | <b>Test channel:</b>      | <b>Highest</b> |
| <b>Test mode:</b> | <b>RMC 12.2Kbps Link (QPSK)</b>                                                  |             | <b>Temperature :</b>      | <b>23~24°C</b> |
|                   |                                                                                  |             | <b>Relative Humidity:</b> | <b>46~48%</b>  |
| <b>Note:</b>      | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |             |                           |                |
| Frequency (MHz)   | Spurious Emission                                                                |             | Limit (dBm)               | Result         |
|                   | Polarization                                                                     | Level (dBm) |                           |                |
| 3102.2            | Vertical                                                                         | -50.22      | -13.00                    | PASS           |
| 3505.2            | V                                                                                | -53.94      |                           |                |
| 5257.8            | V                                                                                | -51.82      |                           |                |
| 3102.2            | Horizontal                                                                       | -52.69      |                           |                |
| 3505.2            | H                                                                                | -53.76      |                           |                |
| 5257.8            | H                                                                                | -56.81      |                           |                |

## 6.8. Frequency Stability Measurement

### 6.8.1. Test Specification

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Requirement:</b> | FCC Part 2.1055 ; FCC Part 22.355 ; FCC Part 24.235<br>FCC Part 27.54 ;RSS-132(4.3);RSS-133(6.3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Test Method:</b>      | FCC Part 2.1055(a)(1)(b)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Limit:</b>            | $\pm 2.5$ ppm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Test Setup:</b>       |  <p>The diagram shows a System Simulator connected via a cable to a Thermal Chamber. Inside the Thermal Chamber, the EUT (Equipment Under Test) is shown.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Test Procedure:</b>   | <p><b>Test Procedures for Temperature Variation</b></p> <ol style="list-style-type: none"> <li>1. The testing follows FCC KDB 971168 v02r02 Section 9.0.</li> <li>2. The EUT was set up in the thermal chamber and connected with the system simulator.</li> <li>3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.</li> <li>4. With power OFF, the temperature was raised in 10°C steps up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.</li> </ol> <p><b>Test Procedures for Voltage Variation</b></p> <ol style="list-style-type: none"> <li>1. The testing follows FCC KDB 971168 v02r02 Section 9.0.</li> <li>2. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simulator.</li> <li>3. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.</li> <li>4. The variation in frequency was measured for the worst case.</li> </ol> |
| <b>Test Result:</b>      | PASS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

### 6.8.2. Test Instruments

| Equipment         | Manufacturer | Model   | Serial Number | Calibration Due |
|-------------------|--------------|---------|---------------|-----------------|
| System simulator  | R&S          | CMU200  | 111382        | Sep. 11, 2016   |
| Spectrum Analyzer | Agilent      | N9020A  | MY49100060    | Sep. 12, 2016   |
| Thermal chamber   | JQ           | JQ-2000 | N/A           | Sep. 12, 2016   |

**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to

international system unit (SI).

### 6.8.3. Test Data

#### Test Result of Temperature Variation

| <b>Band :</b>        | <b>GSM 850</b>      | <b>Channel:</b>             | <b>189</b>   |
|----------------------|---------------------|-----------------------------|--------------|
| <b>Limit (ppm) :</b> | <b>2.5ppm</b>       | <b>Frequency:</b>           | <b>836.6</b> |
| Temperature (°C)     | GSM Deviation (ppm) | GPRS Class8 Deviation (ppm) | Result       |
| 50                   | +0.010              | +0.009                      | PASS         |
| 40                   | +0.013              | +0.012                      |              |
| 30                   | +0.013              | +0.011                      |              |
| 20                   | +0.008              | +0.007                      |              |
| 10                   | +0.012              | +0.011                      |              |
| 0                    | +0.013              | +0.012                      |              |
| -10                  | +0.009              | +0.008                      |              |
| -20                  | +0.011              | +0.009                      |              |
| -30                  | +0.012              | +0.011                      |              |

| <b>Band :</b>        | <b>GSM 1900</b>     | <b>Channel:</b>             | <b>661</b>  |
|----------------------|---------------------|-----------------------------|-------------|
| <b>Limit (ppm) :</b> | <b>2.5ppm</b>       | <b>Frequency:</b>           | <b>1880</b> |
| Temperature (°C)     | GSM Deviation (ppm) | GPRS Class8 Deviation (ppm) | Result      |
| 50                   | +0.023              | +0.019                      | PASS        |
| 40                   | +0.025              | +0.022                      |             |
| 30                   | +0.021              | +0.018                      |             |
| 20                   | +0.019              | +0.017                      |             |
| 10                   | +0.023              | +0.021                      |             |
| 0                    | +0.025              | +0.023                      |             |
| -10                  | +0.019              | +0.018                      |             |
| -20                  | +0.018              | +0.016                      |             |
| -30                  | +0.023              | +0.021                      |             |

**Note:** The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

|                  |                              |            |       |
|------------------|------------------------------|------------|-------|
| Band :           | WCDMA Band V                 | Channel:   | 4183  |
| Limit (ppm) :    | 2.5ppm                       | Frequency: | 836.6 |
| Temperature (°C) | RMC 12.2Kbps Deviation (ppm) | Result     |       |
| 50               | -0.005                       | PASS       |       |
| 40               | -0.007                       |            |       |
| 30               | -0.007                       |            |       |
| 20               | -0.006                       |            |       |
| 10               | -0.005                       |            |       |
| 0                | -0.007                       |            |       |
| -10              | -0.006                       |            |       |
| -20              | -0.007                       |            |       |
| -30              | -0.005                       |            |       |

|                  |                              |            |      |
|------------------|------------------------------|------------|------|
| Band :           | WCDMA Band II                | Channel:   | 9400 |
| Limit (ppm) :    | 2.5ppm                       | Frequency: | 1880 |
| Temperature (°C) | RMC 12.2Kbps Deviation (ppm) | Result     |      |
| 50               | -0.005                       | PASS       |      |
| 40               | -0.004                       |            |      |
| 30               | -0.004                       |            |      |
| 20               | -0.005                       |            |      |
| 10               | -0.004                       |            |      |
| 0                | -0.005                       |            |      |
| -10              | -0.004                       |            |      |
| -20              | -0.005                       |            |      |
| -30              | -0.005                       |            |      |

**Note:** The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

|                  |                              |            |        |
|------------------|------------------------------|------------|--------|
| Band :           | WCDMA Band IV                | Channel:   | 1413   |
| Limit (ppm) :    | 2.5ppm                       | Frequency: | 1732.6 |
| Temperature (°C) | RMC 12.2Kbps Deviation (ppm) | Result     |        |
| 50               | -0.003                       | PASS       |        |
| 40               | -0.005                       |            |        |
| 30               | -0.004                       |            |        |
| 20               | -0.005                       |            |        |
| 10               | -0.005                       |            |        |
| 0                | -0.003                       |            |        |
| -10              | -0.004                       |            |        |
| -20              | -0.005                       |            |        |
| -30              | -0.003                       |            |        |

**Note:** The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

### Test Result of Voltage Variation

| Band & Channel       | Mode         | Voltage (Volt) | Deviation (ppm) | Limit (ppm) | Result |
|----------------------|--------------|----------------|-----------------|-------------|--------|
| GSM 850 CH189        | GSM          | 4.2            | +0.011          | 2.5         | PASS   |
|                      |              | 3.8            | +0.009          |             |        |
|                      |              | BEP            | +0.012          |             |        |
|                      | GPRS class 8 | 4.2            | +0.027          |             |        |
|                      |              | 3.8            | +0.029          |             |        |
|                      |              | BEP            | +0.031          |             |        |
| GSM 1900 CH661       | GSM          | 4.2            | +0.022          | (Note 3.)   |        |
|                      |              | 3.8            | +0.021          |             |        |
|                      |              | BEP            | +0.023          |             |        |
|                      | GPRS class 8 | 4.2            | +0.024          |             |        |
|                      |              | 3.8            | +0.024          |             |        |
|                      |              | BEP            | +0.025          |             |        |
| WCDMA Band V CH4183  | RMC 12.2Kbps | 4.2            | -0.007          | 2.5         |        |
|                      |              | 3.8            | -0.005          |             |        |
|                      |              | BEP            | -0.006          |             |        |
| WCDMA Band II CH9400 | RMC 12.2Kbps | 4.2            | -0.005          | (Note 3.)   |        |
|                      |              | 3.8            | -0.004          |             |        |
|                      |              | BEP            | -0.005          |             |        |
| WCDMA Band IV CH1413 | RMC 12.2Kbps | 4.2            | -0.008          | 2.5         |        |
|                      |              | 3.8            | -0.014          |             |        |
|                      |              | BEP            | -0.016          |             |        |

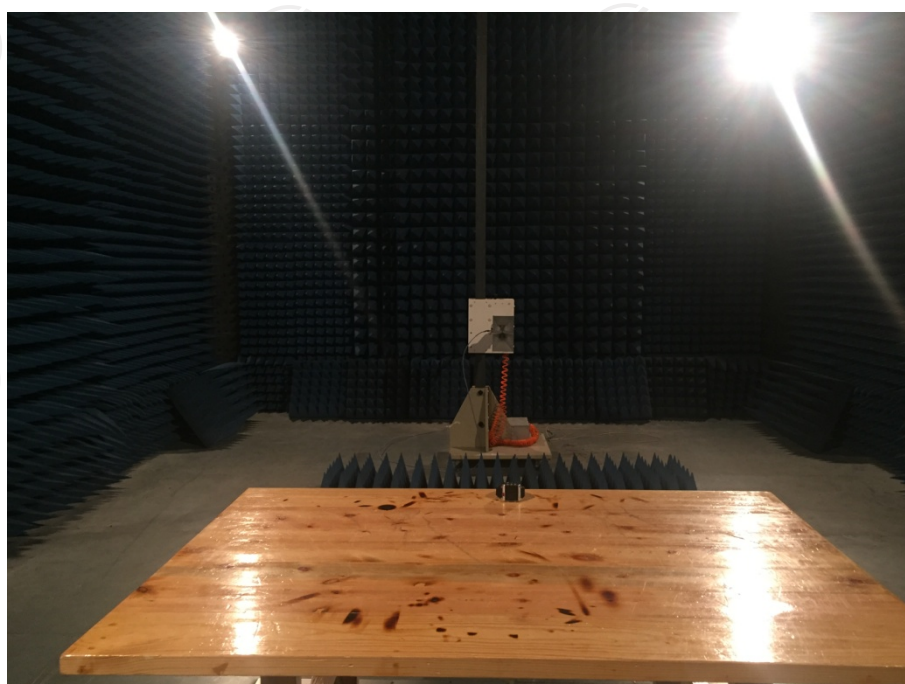
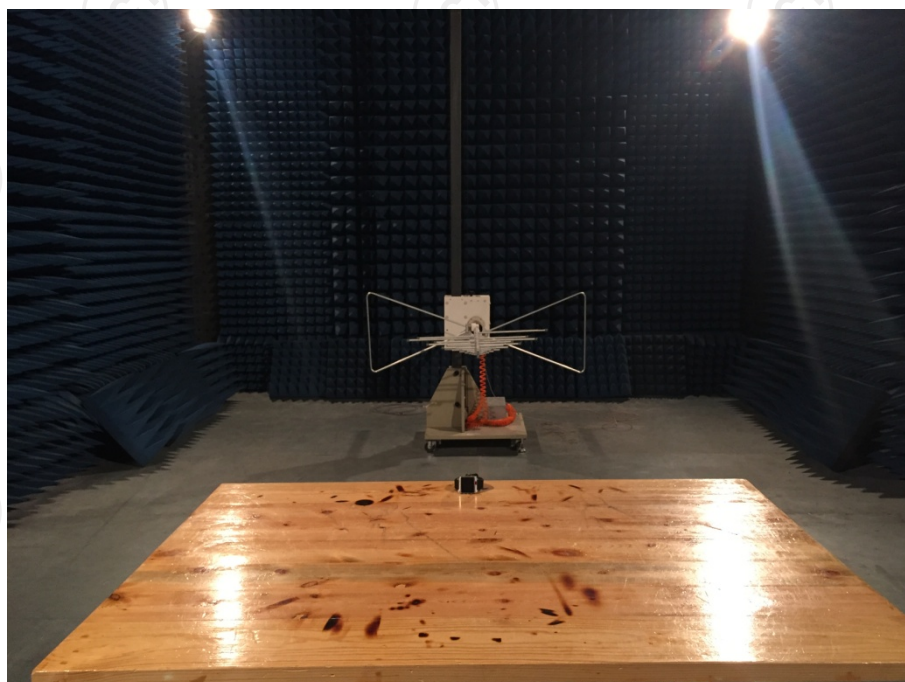
**Note:**

1. Normal Voltage = 3.8V.
2. Battery End Point (BEP) = 3.40 V.
3. The frequency fundamental emissions stay within the authorized frequency block based on the frequency deviation measured is small.

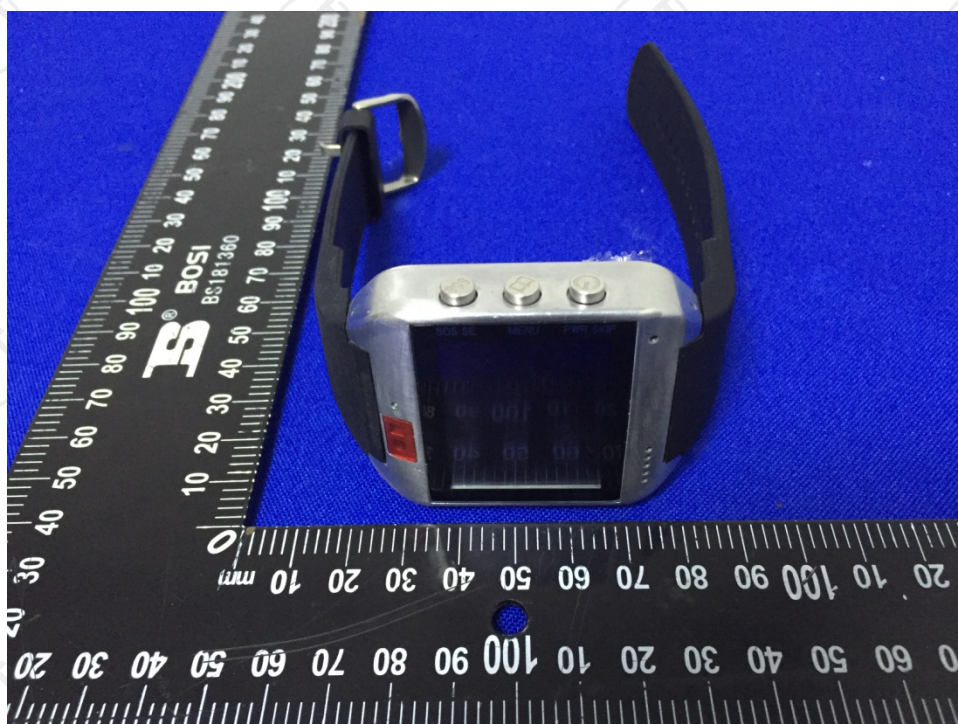
**\*\*\*\*\*END OF REPORT\*\*\*\*\***

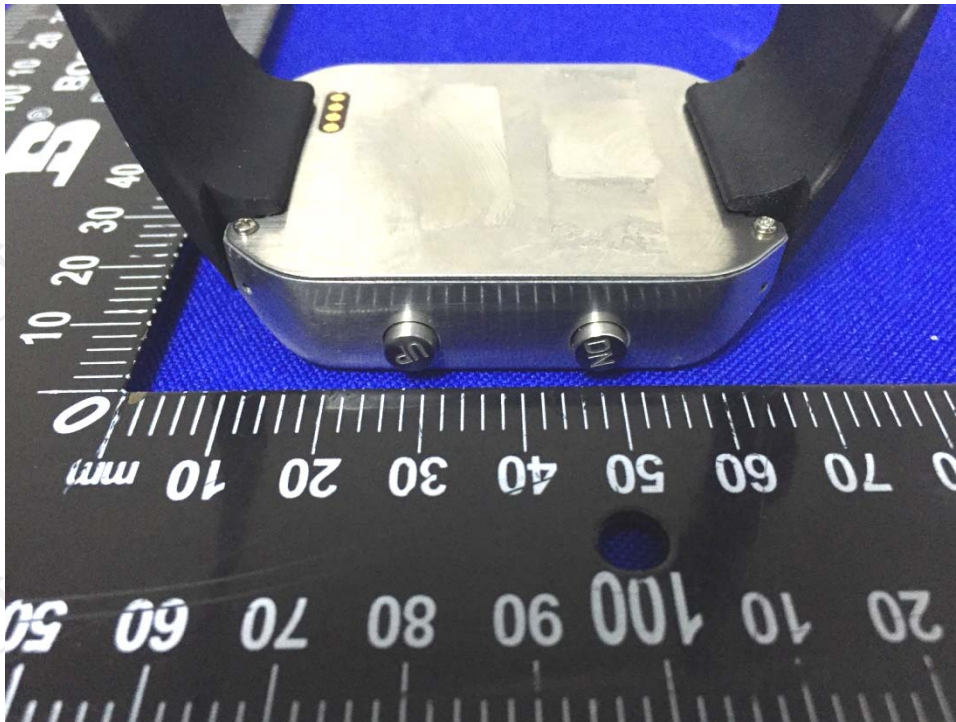
## Appendix A: Photographs of Test Setup

### Radiated Emission



**Appendix B: Photographs of EUT**  
**Model: ADWAT102G**  
**External Photos**









**Model: ADWAT102G**  
**Internal Photos**

