

# FCC Part 22H 24E

## Measurement And Test Report For

### **weeCONOMY ASIA LIMITED.**

Unit B, 11 Floor, Silvercorp International Tower, 707-713 Nathan Road, Kowloon HongKong

**FCC ID: 2AFSQWP11**

**May 18, 2015**

|   |  |
|---|--|
| <b>This Report Concerns:</b><br><input checked="" type="checkbox"/> Original Report | <b>Equipment Type:</b><br>weePHONE   |
| <b>Report Number:</b>   | MTI150410001RF-1   |
| <b>Test Engineer:</b>   | Bill Chen <i>Bill Chen</i>   |
| <b>Reviewed By:</b>   | Jason Zheng <i>Jason Zheng</i>   |
| <b>Approved &amp; Authorized By:</b>  | Hebe Lee <i>Hebe Lee</i>   |
| <b>Test Date:</b>   | May 05, 2015 – May 18, 2015  |
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**Note:** This test report is limited to the above client company and the product model only. It may not be duplicated without prior written consent of Shenzhen Microtest Technology Co.,Ltd.

| TEST RESULT CERTIFICATION       |  |
|---------------------------------|--|
| <b>Applicant's name</b> .....   | weeCONOMY ASIA LIMITED.  |
| Address.....                    | Unit B, 11 Floor, Silvercorp International Tower, 707-713 Nathan Road,<br>KowLoon HongKong |
| <b>Manufacture's Name</b> ..... | weeCONOMY ASIA LIMITED.  |
| Address.....                    | Unit B, 11 Floor, Silvercorp International Tower, 707-713 Nathan Road,<br>KowLoon HongKong |
| <b>Product description</b>      |  |
| Product name .....              | weePHONE   |
| Model and/or type reference :   | WP11   |
| Serial Model.....               | N/A  |
| <b>Standards</b> .....          | FCC Part22 & FCC P24   |
| Test procedure.....             | ANSI C63.4-2009  |

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## 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

| Description of Test Item                          | Standard   | Results |
|---|--|---------|
| Conducted Output power                            | FCC PART 2: 2.1046<br>FCC PART 22H: 22.913 (a)<br>FCC PART 24E: 24.232 (c) | PASS    |
| Radiated Output power(erp/eirp)                   | FCC PART 22H:22.913 (a)<br>FCC PART 24E:24.232(c)                          | PASS    |
| Occupied bandwidth                                | FCC PART 2: 2.1049<br>FCC PART 22H: 22.917 (b)<br>FCC PART 24E: 24.238 (b) | PASS    |
| Frequency stability                               | FCC PART 2: 2.1055<br>FCC PART 22H: 22.355<br>FCC PART 24E: 24.235         | PASS    |
| Conducted spurious emission<br>(Antenna terminal) | FCC PART 2: 2.1051<br>FCC PART 22H: 22.917<br>FCC PART 24E: 24.238         | PASS    |
| Radiated spurious emissions                       | FCC PART 2: 2.1053<br>FCC PART 22H: 22.917<br>FCC PART 24E: 24.238         | PASS    |
| Band edge compliance                              | FCC PART 22H: 22.917 (b)<br>FCC PART 24E: 24.238 (b)                       | PASS    |
| Power Line Conducted Emission<br>Test             | FCC Part 15: 15.207<br>ANSI C63.4: 2009                                    | PASS    |

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report

### 1.1 TEST FACILITY

Shenzhen Toby Technology Co., Ltd.

Add.: 10/F.,A Block, Jiada R&D Bldg., No.5 Songpingshan, Road, Science&Technology Park,  
Shenzhen, 518057

FCC Registration No.:811562

## 1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately **95 %**.

| No. | Item                         | Uncertainty               |
|-----|------------------------------|---------------------------|
| 1   | Conducted Emission Test      | $\pm 1.38\text{dB}$       |
| 2   | RF power,conducted           | $\pm 0.16\text{dB}$       |
| 3   | Spurious emissions,conducted | $\pm 0.21\text{dB}$       |
| 4   | All emissions,radiated(<1G)  | $\pm 4.68\text{dB}$       |
| 5   | All emissions,radiated(>1G)  | $\pm 4.89\text{dB}$       |
| 6   | Temperature                  | $\pm 0.5^{\circ}\text{C}$ |
| 7   | Humidity                     | $\pm 2\%$                 |

## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

|                        |  |                    |
|------------------------|--|--------------------|
| Equipment              | weePHONE   |                    |
| Trade Name             | weeCONOMY  |                    |
| Model Name             | WP11   |                    |
| Serial Model           | N/A  |                    |
| Model Difference       | N/A  |                    |
| Product Description    | The EUT is a weePHONE  |                    |
|                        | Operation Frequency:   | GSM 850/GSM1900    |
|                        | Modulation Type:   | GMSK, 8PSK         |
|                        | Antenna Designation:   | Please see Note 3. |
|                        | Output Power(Conducted):   | 32.98dBm           |
|                        | Antenna Gain (dBi)   | 1dbi               |
|                        | Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual. |                    |
| Channel List           | Please refer to the Note 2.  |                    |
| Adapter                | Model: GE0061U-05100<br>AC Power Input: 100-240V~50/60Hz 0.2A<br>Output: 5.0V - -1V  |                    |
| Battery                | DC 3.8V, 2000mAh (7.6Wh)   |                    |
| Connecting I/O Port(s) | Please refer to the User's Manual  |                    |

Note:

- For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- Test Mode

| Mode     | Channel | Frequency(MHz) |
|----------|---------|----------------|
| GSM 850  | 128     | 824.2          |
|          | 190     | 836.6          |
|          | 251     | 848.8          |
| PCS 1900 | 512     | 1850.2         |
|          | 661     | 1880.0         |
|          | 810     | 1909.8         |

### 3. Table for Filed Antenna

| Ant | Brand | Model Name | Antenna Type     | Connector | Gain (dBi) | NOTE        |
|-----|-------|------------|------------------|-----------|------------|-------------|
| A   | N/A   | N/A        | internal antenna | Pifa-type | 1dbi       | GSM Antenna |

## 2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

| Pretest Mode | Description              |
|--------------|--------------------------|
| Mode 1       | GSM 850, GMSK modulation |
| Mode 2       | GSM 850, 8PSK modulation |
| Mode 3       | GSM1900, GMSK modulation |
| Mode 4       | GSM1900, 8PSK modulation |
| Mode 5       | Link Mode                |

| For Conducted Emission |             |
|------------------------|-------------|
| Final Test Mode        | Description |
| Mode5                  | Link Mode   |

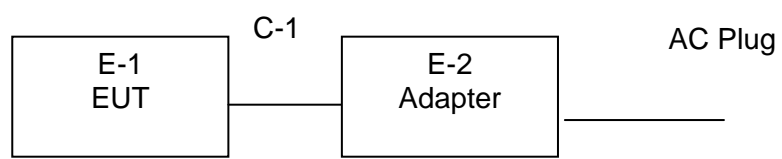
| For Radiated Emission |             |
|-----------------------|-------------|
| Final Test Mode       | Description |
| Mode 1/2              | GSM850      |
| Mode 3/4              | GSM1900     |

Note:

- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported



2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



## 2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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.

| Item | Equipment | Brand     | Model/Type No. | Series No. | Note |
|------|-----------|-----------|----------------|------------|------|
| E-1  | weePHONE  | weeCONOMY | WP11           | N/A        | EUT  |
| E-2  | Adapter   | N/A       | GE0061U-05100  | N/A        |      |
|      |           |           |                |            |      |
|      |           |           |                |            |      |
|      |           |           |                |            |      |
|      |           |           |                |            |      |

| Item | Shielded Type | Ferrite Core | Length | Note |
|------|---------------|--------------|--------|------|
| C-1  | NO            | NO           | 1.0m   |      |
| C-2  | NO            | NO           | 0.8m   |      |
|      |               |              |        |      |
|      |               |              |        |      |
|      |               |              |        |      |

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

## 2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

### Radiation Test equipment

| Equipment              | Manufacturer  | Model No. | Serial No. | Last Cal      | Cal.Due Date  |
|------------------------|---------------|-----------|------------|---------------|---------------|
| Spectrum Analyzer      | Agilent       | E4407B    | MY45106456 | Mar. 20, 2015 | Mar. 19, 2016 |
| Spectrum Analyzer      | ROHDE&SCHWARZ | FSP30     | DE25181    | Aug. 10, 2014 | Aug. 09, 2015 |
| EMI Test Receiver      | ROHDE&SCHWARZ | ESCI      | 101165     | Aug. 10, 2014 | Aug. 09, 2015 |
| Bilog Antenna          | ETS-LINDGREN  | 3142E     | 00117537   | Mar. 07, 2015 | Mar. 06, 2016 |
| Bilog Antenna          | ETS-LINDGREN  | 3142E     | 00117542   | Mar. 07, 2015 | Mar. 06, 2016 |
| Hom Antenna            | ETS-LINDGREN  | 3117      | 00143207   | Mar. 07, 2015 | Mar. 06, 2016 |
| Hom Antenna            | ETS-LINDGREN  | 3117      | 00143209   | Mar. 07, 2015 | Mar. 06, 2016 |
| Pre-amplifier          | HP            | 11909A    | 185903     | Mar. 07, 2015 | Mar. 06, 2016 |
| Pre-amplifier          | HP            | 8447B     | 3008A00849 | Mar. 07, 2015 | Mar. 06, 2016 |
| Cable                  | HUBER+SUHNER  | 100       | SUCOFLEX   | Mar. 07, 2015 | Mar. 06, 2016 |
| Signal Generator       | ROHDE&SCHWARZ | SML03     | IKW682-054 | Feb. 11, 2015 | Feb. 10, 2016 |
| Positioning Controller | ETS-LINDGREN  | 2090      | N/A        | N/A           | N/A           |

### Conduction Test equipment

| Equipment          | Manufacturer  | Model No.   | Serial No. | Last Cal   | Cal.Due Date |
|--------------------|---------------|-------------|------------|------------|--------------|
| EMI Test Receiver  | ROHDE&SCHWARZ | ESCI        | 1000321    | 2014-08-10 | 2015-08-09   |
| 50Ω Coaxial Switch | Anntsu        | MP59B       | X10321     | 2014-08-10 | 2015-08-09   |
| LISN               | ROHDE&SCHWARZ | ENV216      | 101131     | 2014-08-10 | 2015-08-09   |
| LISN               | SCHWARZBECK   | NNBL 8226-2 | 8226-2/164 | 2014-08-10 | 2015-08-09   |

### 3. CONDUCTED OUTPUT POWER

#### 3.1 APPLIED PROCEDURES / LIMIT

| Section                  | Test Item                 | Limit  | Result |
|--------------------------|---------------------------|--|--------|
| 22.913 (a)<br>24.232 (c) | Conducted<br>Output power | 38.5dBm(ERP) for GSM850<br>33dBm for GSM1900 | PASS   |

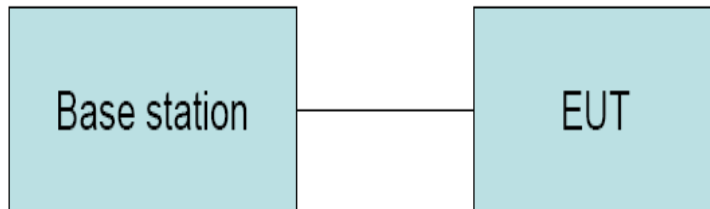
##### 3.1.1 TEST PROCEDURE

- (1) The EUT's RF output port was connected to base station.
- (2) A call is set up by the SS according to the generic call set up procedure
- (3) Set EUT at maximum power level through base station by power level command
- (4) Measure the maximum output power of EUT at each frequency band and mode by base station.

##### 3.1.2 DEVIATION FROM STANDARD

No deviation.

##### 3.1.3 TEST SETUP



##### 3.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

### 3.1.5 TEST RESULTS

|               |                |                     |                   |
|---------------|----------------|---------------------|-------------------|
| EUT :         | weePHONE       | Model Name :        | WP11              |
| Temperature : | 25 °C          | Relative Humidity : | 60%               |
| Pressure :    | 1012 hPa       | Test Voltage :      | DC 5Vfrom adapter |
| Test Mode :   | GSM850/GSM1900 |                     |                   |

| Mode        | Channel | PK Output<br>Power(dBm) | Limit    |           |
|-------------|---------|-------------------------|----------|-----------|
|             |         |                         | ERP(dBm) | EIRP(dBm) |
| GSM 850 TM1 | 128     | 32.25                   | 38.5     | /         |
|             | 190     | 32.61                   | 38.5     | /         |
|             | 251     | 32.98                   | 38.5     | /         |
| GSM 850 TM2 | 128     | 26.52                   | 38.5     | /         |
|             | 190     | 26.5                    | 38.5     | /         |
|             | 251     | 26.48                   | 38.5     | /         |
| GSM1900TM1  | 512     | 29.43                   | /        | 33        |
|             | 661     | 29.54                   | /        | 33        |
|             | 810     | 29.51                   | /        | 33        |
| GSM1900 TM2 | 512     | 25.2                    | /        | 33        |
|             | 661     | 25.16                   | /        | 33        |
|             | 810     | 25.2                    | /        | 33        |

## 4. RADIATED OUTPUT POWER

### 4.1 APPLIED PROCEDURES / LIMIT

| Section                  | Test Item                 | Limit  | Result |
|--------------------------|---------------------------|--|--------|
| 22.913 (a)<br>24.232 (c) | Conducted<br>Output power | 38.5dBm(ERP) for GSM850<br>33dBm for GSM1900 | PASS   |

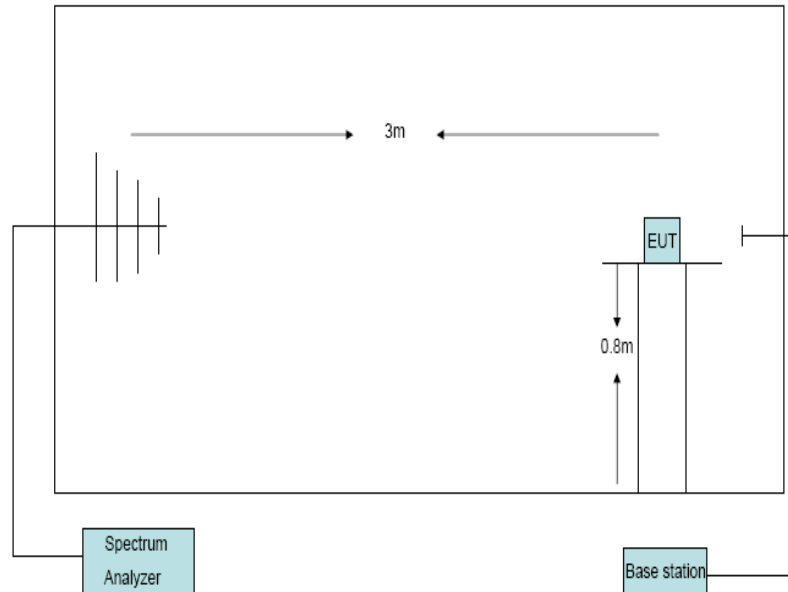
#### 4.1.1 TEST PROCEDURE

1. The EUT was placed on an non-conductive rotating platform with 0.8 meter height in an anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RBW= 3MHz,VBW= 3MHz and peak detector settings.
2. During the measurement, the EUT was enforced in maximum power and linked with a base station. The highest emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations
3. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to TIA/EIA-603-C. The EUT was replaced by dipole antenna (for frequency below 1GHz) or Horn antenna(for frequency above 1GHz) at same location with same polarize of receiver antenna and then a known power of each measure frequency from S.G. was applied into the dipole antenna or Horn antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. The correction factor (in dB) = S.G. - Tx Cable loss + Substitution antenna gain -Substitution antenna Loss(only for Dipole antenna) - Analyzer reading. Then the EUT's EIRP was calculated with the correction factor,  $EIRP = LVL + \text{Correction factor}$  and  $ERP = EIRP - 2.15$

#### 4.1.2 DEVIATION FROM STANDARD

No deviation.

### 4.1.3 TEST SETUP



### 4.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

#### 4.1.5 TEST RESULTS

|               |                |                     |                   |
|---------------|----------------|---------------------|-------------------|
| EUT :         | weePHONE       | Model Name :        | WP11              |
| Temperature : | 25 °C          | Relative Humidity : | 60%               |
| Pressure :    | 1012 hPa       | Test Voltage :      | DC 5Vfrom adapter |
| Test Mode :   | GSM850/GSM1900 |                     |                   |

| Mode                             | Channel | LVL<br>(dBm) | Correction<br>factor(dB) | ERP<br>(dBm) | EIRP<br>(dBm) | Limit    |           |
|----------------------------------|---------|--------------|--------------------------|--------------|---------------|----------|-----------|
|                                  |         |              |                          |              |               | ERP(dBm) | EIRP(dBm) |
| GSM 850<br>TM1                   | 128     | 4.3          | 26.27                    | 30.57        | /             | 38.5     | /         |
|                                  | 190     | 4.5          | 26.28                    | 30.78        | /             | 38.5     | /         |
|                                  | 251     | 4.4          | 26.31                    | 30.71        | /             | 38.5     | /         |
| GSM 850<br>TM2                   | 128     | 2.5          | 26.27                    | 28.77        | /             | 38.5     | /         |
|                                  | 190     | 2.6          | 26.28                    | 28.88        | /             | 38.5     | /         |
|                                  | 251     | 2.3          | 26.31                    | 28.61        | /             | 38.5     | /         |
| GSM1900<br>TM1                   | 512     | 4.4          | 22.58                    | /            | 26.98         | /        | 33        |
|                                  | 661     | 4.6          | 22.6                     | /            | 27.2          | /        | 33        |
|                                  | 810     | 4.7          | 22.62                    | /            | 27.32         | /        | 33        |
| GSM1900<br>TM2                   | 512     | 3.5          | 22.58                    | /            | 26.08         | /        | 33        |
|                                  | 661     | 3.6          | 22.6                     | /            | 26.2          | /        | 33        |
|                                  | 810     | 3.4          | 22.62                    | /            | 26.02         | /        | 33        |
| Note: EIRP=LVL+Correction factor |         |              |                          |              |               |          |           |



## 5. OCCUPY BANDWIDTH

### 5.1 APPLIED PROCEDURES / LIMIT

| Section                  | Test Item          | Limit | Result |
|--------------------------|--------------------|-------|--------|
| 22.917 (b)<br>24.238 (b) | Occupied bandwidth | /     | PASS   |

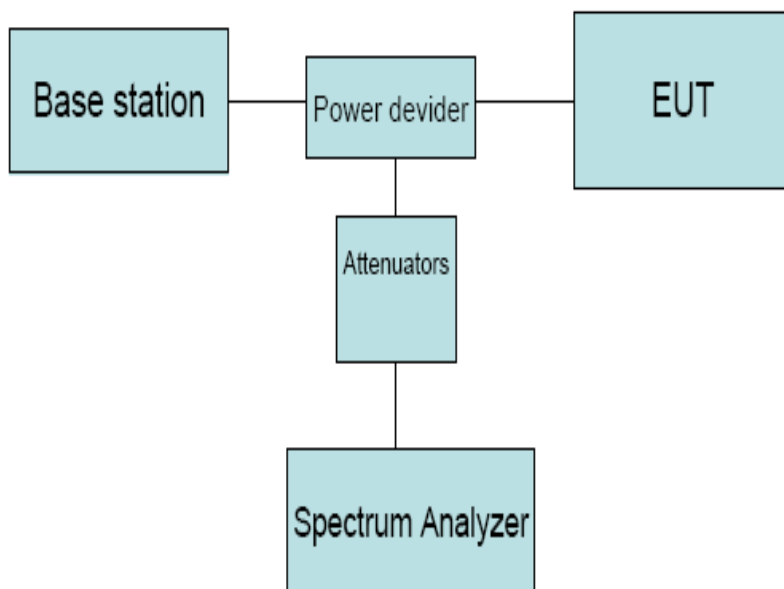
#### 5.1.1 TEST PROCEDURE

1. The EUT' RF output port was connected to Spectrum Analyzer and Base Station via power divider.
2. Spectrum analyzer's occupied bandwidth measure function was used to measure 99% bandwidth and -26dBc bandwidth

#### 5.1.2 DEVIATION FROM STANDARD

No deviation.

#### 5.1.3 TEST SETUP



#### 5.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

### 5.1.5 TEST RESULTS

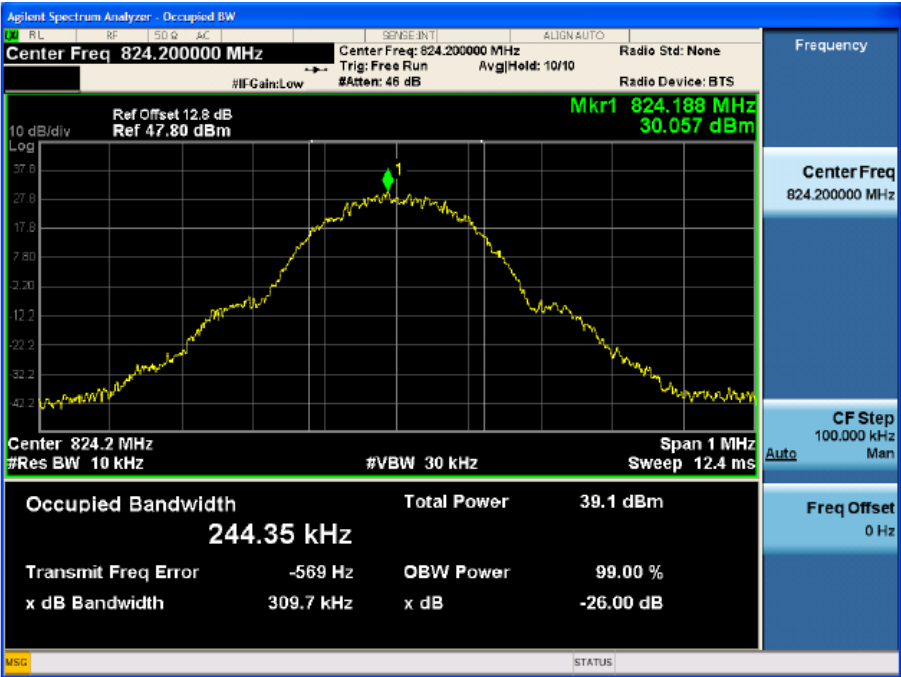
|               |                  |                     |                   |
|---------------|------------------|---------------------|-------------------|
| EUT :         | weePHONE         | Model Name :        | WP11              |
| Temperature : | 25 °C            | Relative Humidity : | 60%               |
| Pressure :    | 1015 hPa         | Test Voltage :      | DC 5Vfrom adapter |
| Test Mode :   | GSM 850/GSM 1900 |                     |                   |

| Mode           | Channel | -26dBc<br>bandwidth<br>(KHz) | 99% bandwidth<br>(KHz) | Limit |
|----------------|---------|------------------------------|------------------------|-------|
| GSM 850 TM1    | 128     | 309.7                        | 244.35                 | /     |
|                | 190     | 316.6                        | 247.81                 | /     |
|                | 251     | 318.5                        | 245.13                 | /     |
| GSM1900<br>TM1 | 512     | 316.2                        | 247.31                 | /     |
|                | 661     | 316.3                        | 251.75                 | /     |
|                | 810     | 321.8                        | 248.21                 | /     |

| Mode           | Channel | -26dBc<br>bandwidth<br>(KHz) | 99% bandwidth<br>(KHz) | Limit |
|----------------|---------|------------------------------|------------------------|-------|
| GSM 850 TM2    | 128     | 250.48                       | 318.99                 | /     |
|                | 190     | 245.90                       | 302.16                 | /     |
|                | 251     | 243.85                       | 303.05                 | /     |
| GSM1900<br>TM2 | 512     | 251.92                       | 314.59                 | /     |
|                | 661     | 248.74                       | 323.34                 | /     |
|                | 810     | 243.92                       | 310.02                 | /     |

TM1

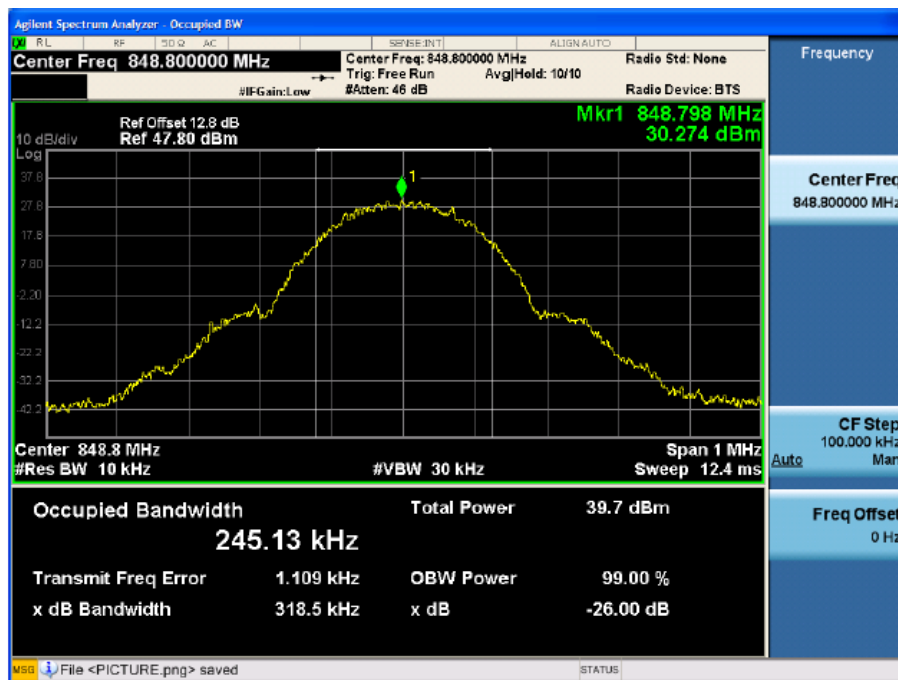
GSM 850 CH128



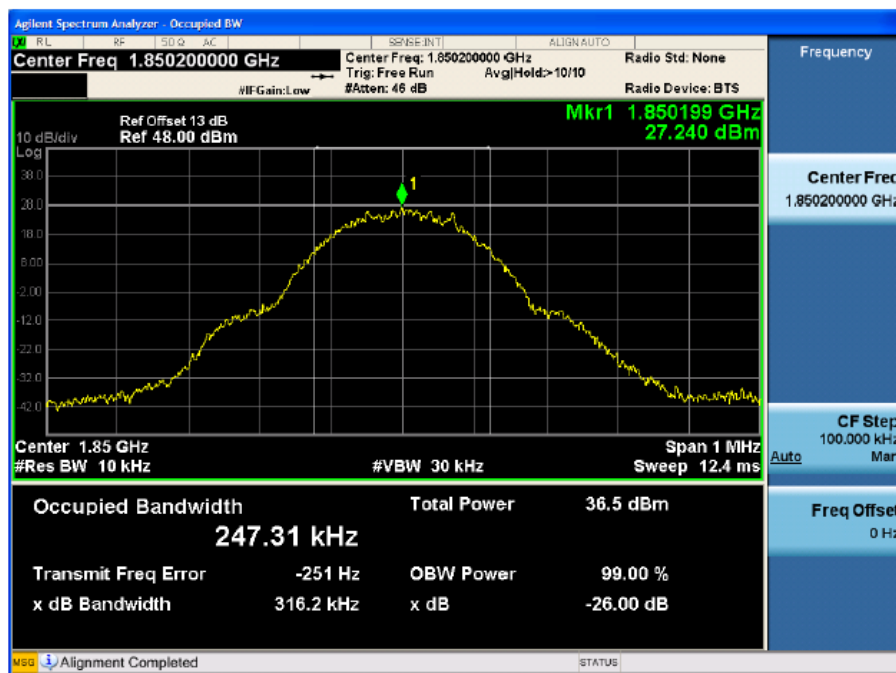
GSM 850 CH190



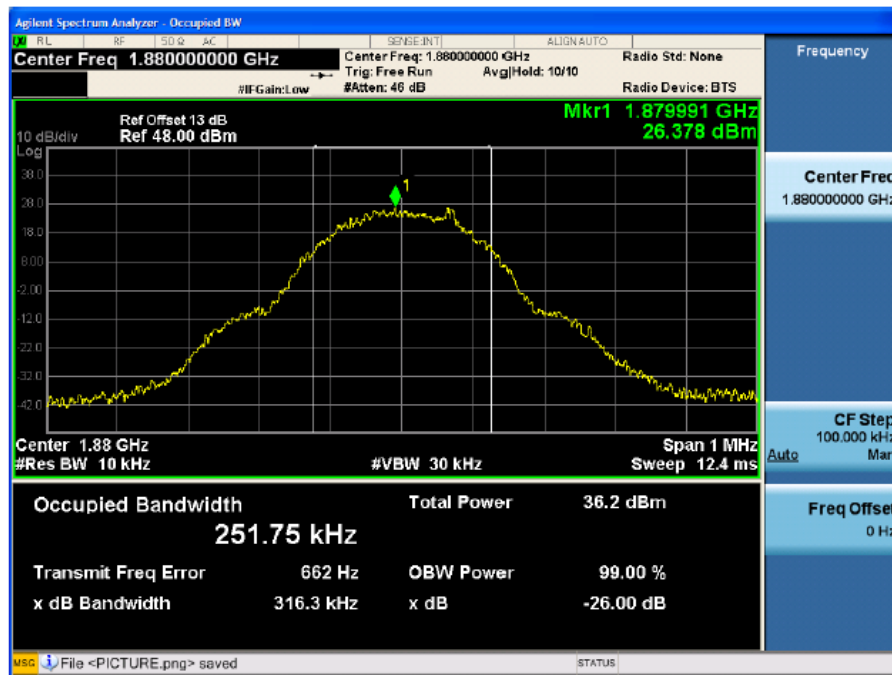
## GSM 850 CH251



## PCS 1900 CH512



# PCS 1900 CH661



# PCS 1900 CH810



TM2

GSM 850 CH128



GSM 850 CH190



## GSM 850 CH251



## PCS 1900 CH512



## PCS 1900 CH661



## PCS 1900 CH810





## 6. FREQUENCY STABILITY

### 6.1 APPLIED PROCEDURES / LIMIT

| Section          | Test Item           | Limit         | Result |
|------------------|---------------------|---------------|--------|
| 22.355<br>24.235 | Frequency stability | $\pm 2.5$ ppm | PASS   |

#### 6.1.1 TEST PROCEDURE

Test Procedures for Temperature Variation:

1. The EUT was set up in the thermal chamber and connected with the base station.
2. With power OFF, the temperature was decreased to -10°C and the EUT was stabilized for three hours. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in 10°C step up to 45°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.
4. If the EUT can not be turned on at -10°C, the testing lowest temperature will be raised in 10°C step until the EUT can be turned on.

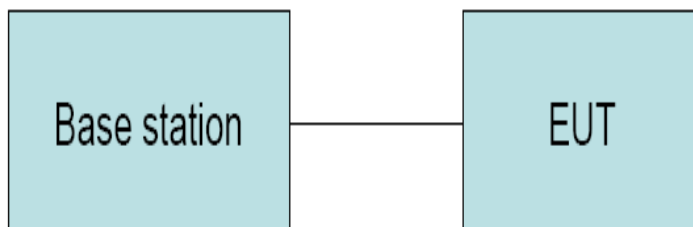
Test Procedures for Voltage Variation

1. The EUT was placed in a temperature chamber at 25±5° C and connected with the base station.
2. The power supply voltage to the EUT was varied from DC 5V to 3.5V
3. The variation in frequency was measured for the worst case.

#### 6.1.2 DEVIATION FROM STANDARD

No deviation.

#### 6.1.3 TEST SETUP



#### 6.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

### 6.1.5 TEST RESULTS

|               |                  |                     |                   |
|---------------|------------------|---------------------|-------------------|
| EUT :         | weePHONE         | Model Name :        | WP11              |
| Temperature : | 25 °C            | Relative Humidity : | 60%               |
| Pressure :    | 1015 hPa         | Test Voltage :      | DC 5Vfrom adapter |
| Test Mode :   | GSM 850/GSM 1900 |                     |                   |

TM1

Frequency Stability VS Voltage

| Mode              | Voltage (V) | Frequency error (Hz) | frequency error (ppm) |
|-------------------|-------------|----------------------|-----------------------|
| GSM 850<br>CH 190 | 4.2         | 17.78                | 0.02                  |
|                   | 3.7         | -18.42               | -0.02                 |
|                   | 3.5         | 15.24                | 0.02                  |
| PCS 1900<br>CH661 | 4.2         | -26.35               | -0.01                 |
|                   | 3.7         | 36.32                | 0.02                  |
|                   | 3.5         | -29.18               | -0.02                 |

Frequency Stability VS Temperature

| Mode              | Temperature (°C) | Frequency error (Hz) | frequency error (ppm) |
|-------------------|------------------|----------------------|-----------------------|
| GSM 850<br>CH 190 | -30              | 20.18                | 0.02                  |
|                   | -20              | 19.74                | 0.02                  |
|                   | -10              | -18.76               | -0.02                 |
|                   | 0                | -19.13               | -0.02                 |
|                   | 10               | 17.55                | 0.02                  |
|                   | 20               | -16.32               | -0.02                 |
|                   | 30               | 17.28                | 0.02                  |
|                   | 40               | 17.44                | 0.02                  |
|                   | 50               | 19.17                | 0.02                  |
|                   |                  |                      |                       |
| PCS 1900<br>CH661 | -30              | -26.35               | -0.01                 |
|                   | -20              | 26.25                | 0.01                  |
|                   | -10              | -22.25               | -0.01                 |
|                   | 0                | 23.54                | 0.01                  |
|                   | 10               | 21.57                | 0.01                  |
|                   | 20               | 23.61                | 0.01                  |
|                   | 30               | 36.32                | 0.02                  |
|                   | 40               | 22.55                | 0.01                  |
|                   | 50               | -29.18               | -0.02                 |
|                   |                  |                      |                       |

TM2

Frequency Stability VS Voltage

| Mode              | Voltage (V) | Frequency error (Hz) | frequency error (ppm) |
|-------------------|-------------|----------------------|-----------------------|
| GSM 850<br>CH 190 | 4.2         | 16.77                | 0.02                  |
|                   | 3.7         | -17.26               | -0.02                 |
|                   | 3.5         | 16.48                | 0.02                  |
| PCS 1900<br>CH661 | 4.2         | -25.83               | -0.01                 |
|                   | 3.7         | 33.27                | 0.02                  |
|                   | 3.5         | -28.91               | -0.02                 |

Frequency Stability VS Temperature

| Mode              | Temperature (°C) | Frequency error (Hz) | frequency error (ppm) |
|-------------------|------------------|----------------------|-----------------------|
| GSM 850<br>CH 190 | -30              | 19.27                | 0.02                  |
|                   | -20              | -19.42               | -0.02                 |
|                   | -10              | -18.57               | -0.02                 |
|                   | 0                | -12.56               | -0.02                 |
|                   | 10               | -15.28               | -0.02                 |
|                   | 20               | -15.27               | -0.02                 |
|                   | 30               | 16.78                | 0.02                  |
|                   | 40               | -17.49               | -0.02                 |
|                   | 50               | 19.25                | 0.02                  |
| PCS 1900<br>CH661 | -30              | -25.28               | -0.01                 |
|                   | -20              | 23.18                | 0.01                  |
|                   | -10              | -21.15               | -0.01                 |
|                   | 0                | -23.25               | -0.01                 |
|                   | 10               | 21.24                | 0.01                  |
|                   | 20               | -20.38               | -0.01                 |
|                   | 30               | 35.75                | 0.02                  |
|                   | 40               | -22.48               | -0.01                 |
|                   | 50               | -29.59               | -0.02                 |

## 7. CONDUCTED SPURIOUS EMISSIONS

### 7.1 APPLIED PROCEDURES / LIMIT

| Section          | Test Item                    | Limit  | Result |
|------------------|------------------------------|--------|--------|
| 22.917<br>24.238 | Conducted spurious emissions | -13dBm | PASS   |

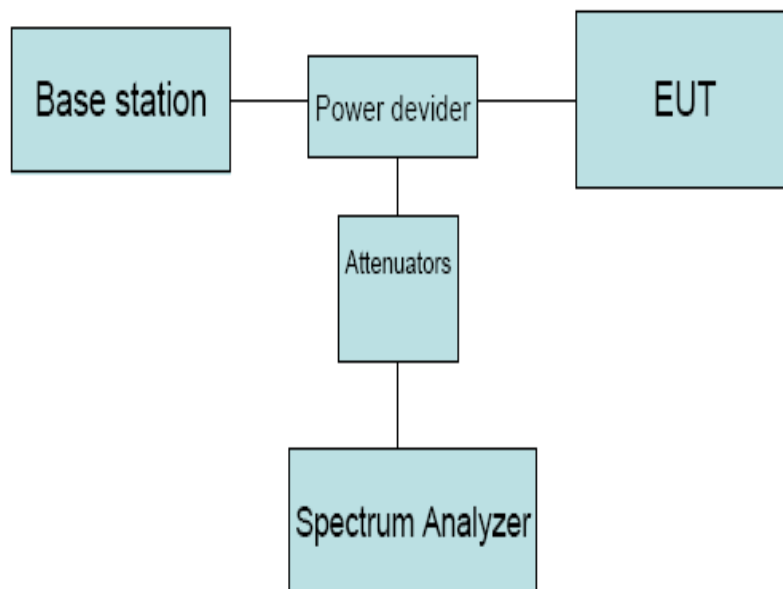
#### 7.1.1 TEST PROCEDURE

1. The EUT was connected to spectrum analyzer and base station via power divider.
2. The low, middle and high channels of each band and mode's spurious emissions for 30MHz to 10th Harmonic were measured by Spectrum analyzer.

#### 7.1.2 DEVIATION FROM STANDARD

No deviation.

#### 7.1.3 TEST SETUP



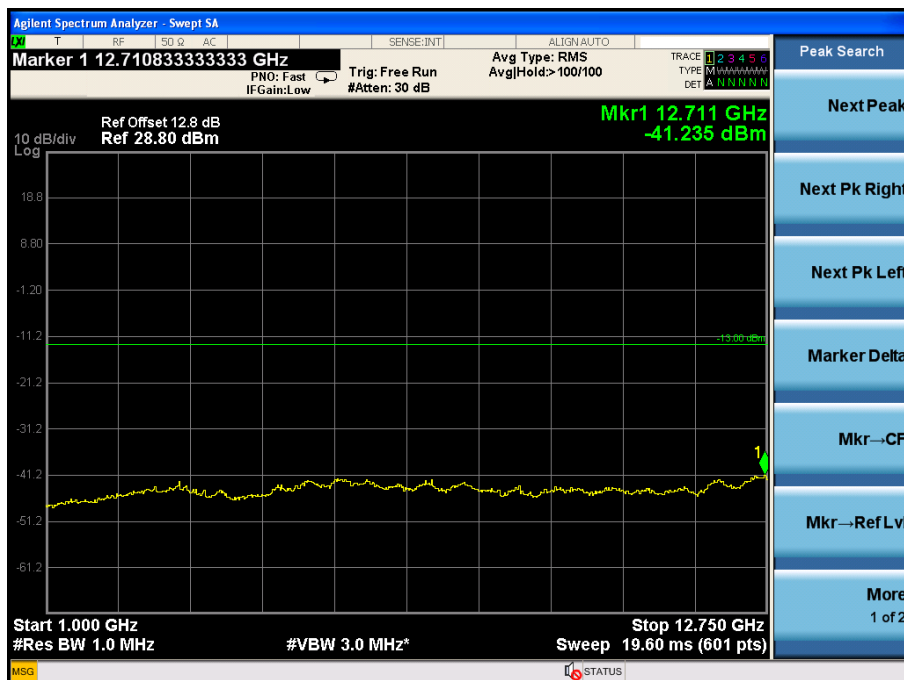
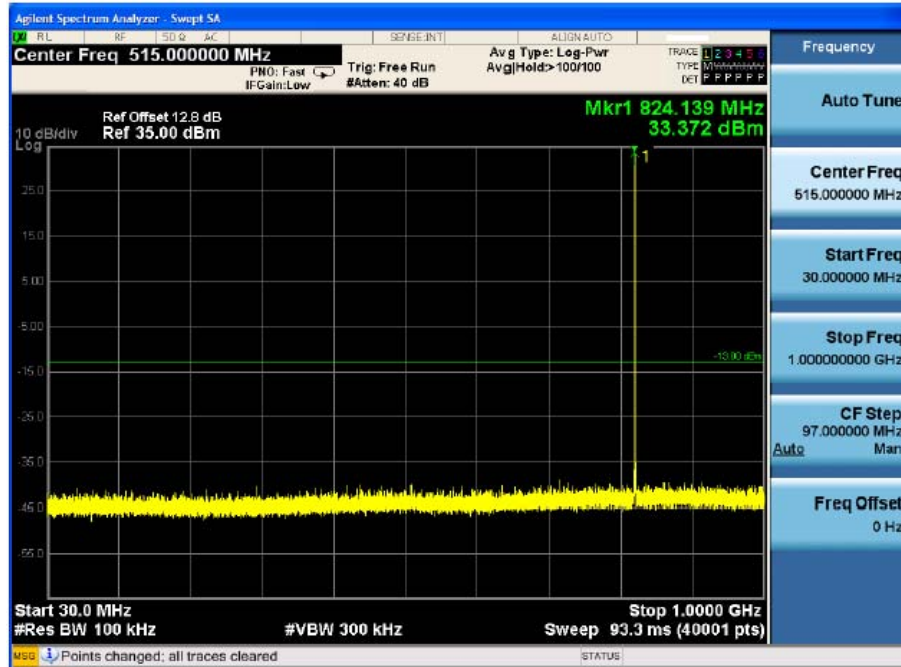
#### 7.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

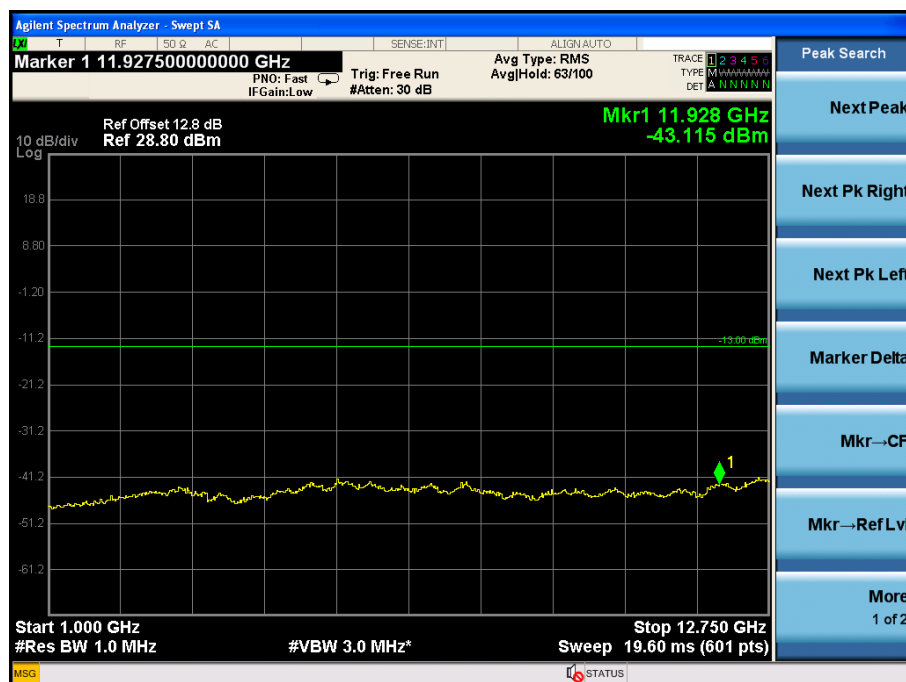
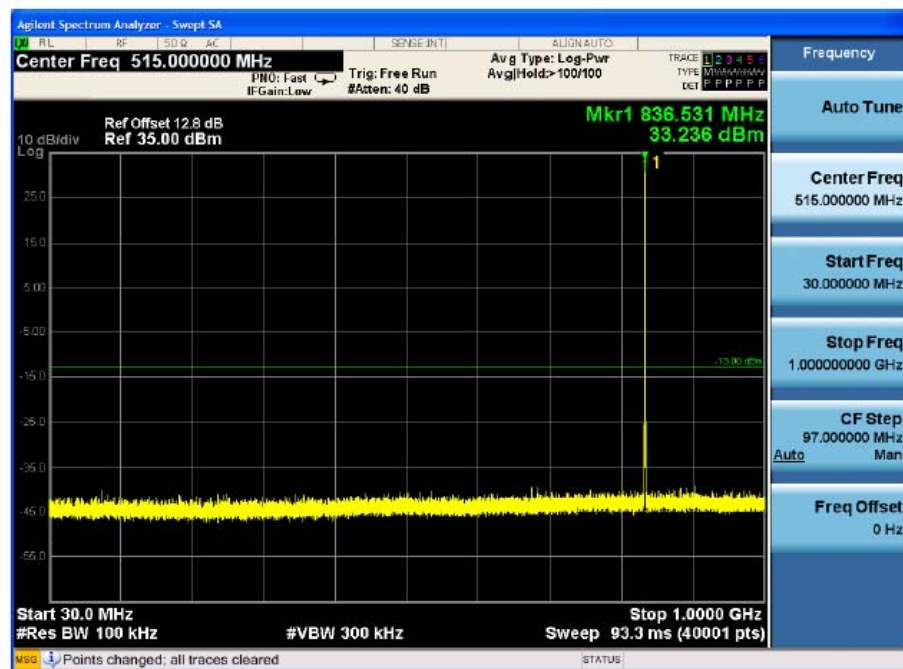
### 7.1.5 TEST RESULTS

NOTE: ALL MODE HAS BEEN TESTED, ONLY WORST DATA SHOWN IN THIS REPORT.

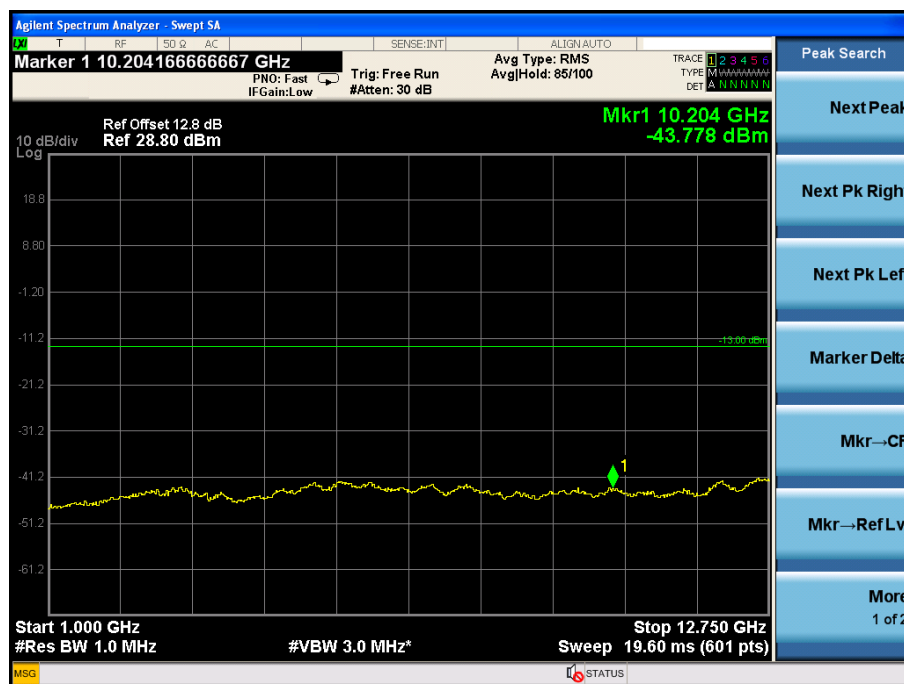
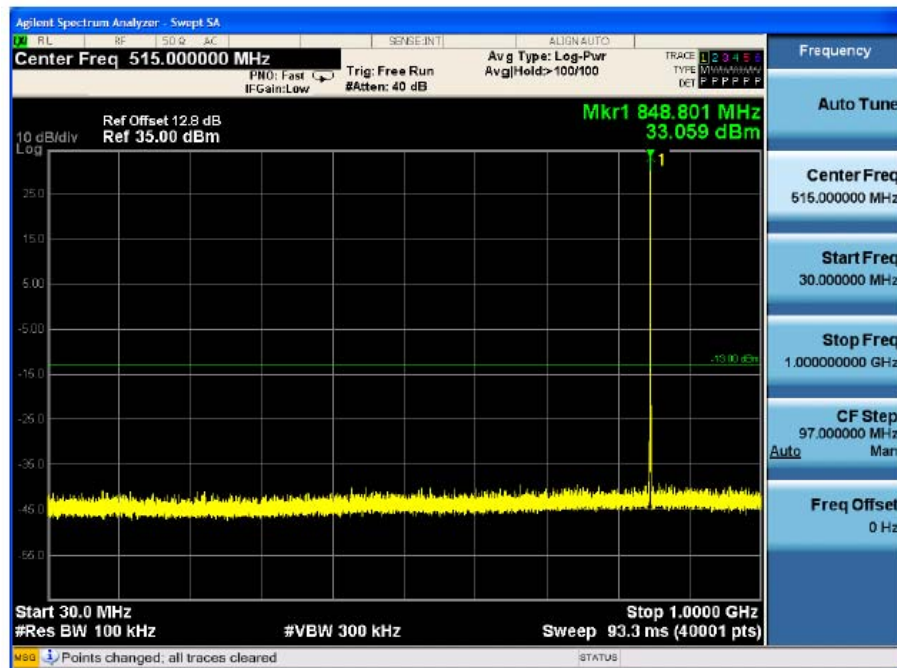
Test Mode: GSM 850 CH 128



Test Mode: GSM 850 CH 190



Test Mode: GSM 850 CH 251



Test Mode: GSM 1900 CH 512

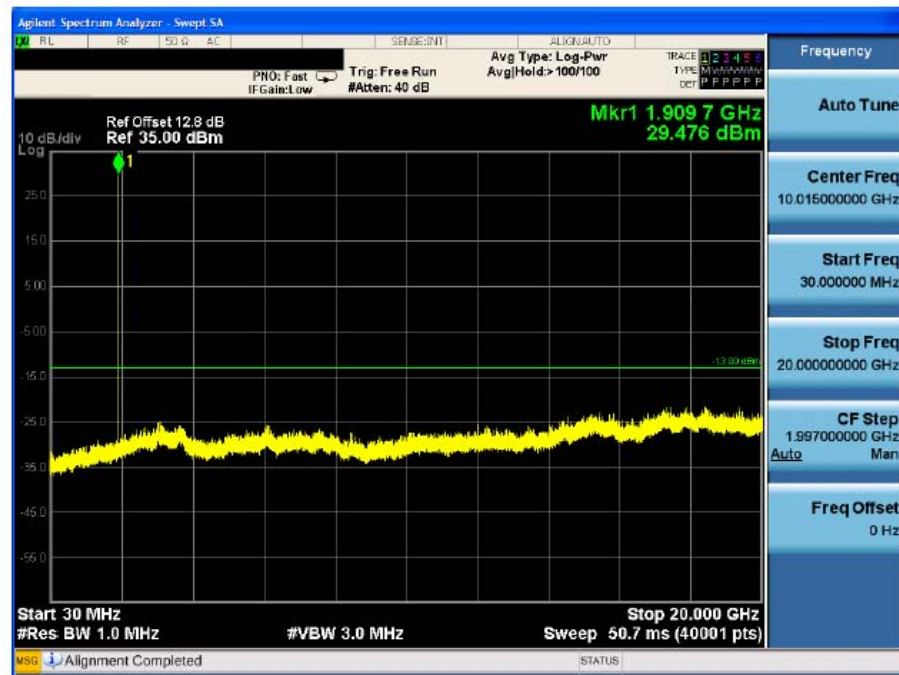


Test Mode: GSM 1900 CH 661





Test Mode: GSM 1900 CH 810



## 8. RADIATED SPURIOUS EMISSIONS

### 8.1 APPLIED PROCEDURES / LIMIT

| Section          | Test Item                   | Limit  | Result |
|------------------|-----------------------------|--------|--------|
| 22.917<br>24.238 | Radiated Spurious emissions | -13dBm | PASS   |

#### 8.1.1 TEST PROCEDURE

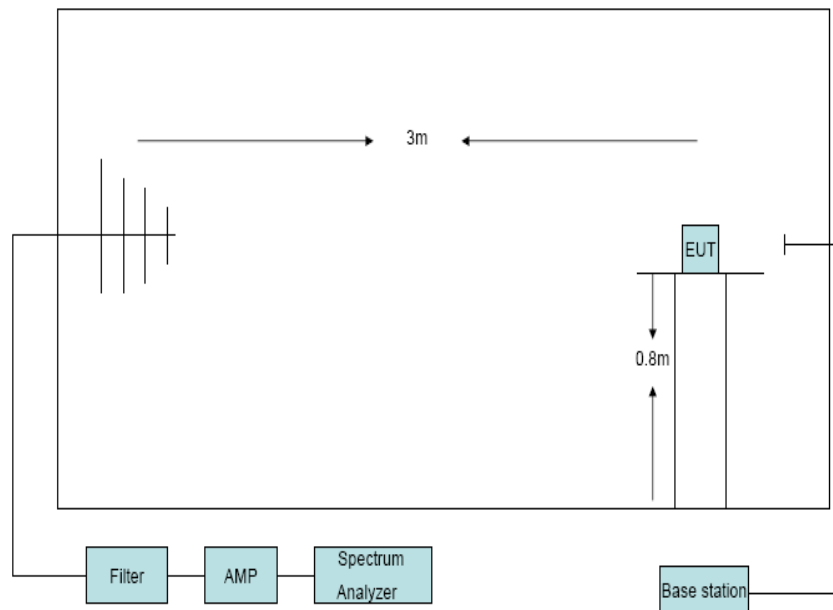
1. The EUT was placed on a non-conductive rotating platform with 0.8 meter height in an anechoic chamber. The radiated spurious emissions from 30MHz to 10<sup>th</sup> harmonics of fundamental frequency were measured at 3m with a test antenna and a spectrum analyzer with RBW= 1MHz, VBW= 1MHz, peak detector settings.
2. During the measurement, the EUT was enforced in maximum power and linked with a base station. All the spurious emissions (record as LVL) at 3m were measured by rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.
3. Final spurious emissions levels were measured by substitution method according to TIA/EIA-603-C. The EUT was replaced by dipole antenna (for frequency below 1GHz) or Horn antenna (for frequency above 1GHz) at same location with same polarization of receiver antenna and then a known power of each measure frequency from S.G. was applied into the dipole antenna or Horn antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. The correction factor (in dB) = S.G. - Tx Cable loss + Substitution antenna gain - Substitution antenna Loss (only for Dipole antenna) - Analyzer reading. Then final

spurious emissions were calculated with the correction factor,  $EIRP = LVL + \text{Correction factor}$  and  $ERP = EIRP - 2.15$

#### 8.1.2 DEVIATION FROM STANDARD

No deviation.

#### 8.1.3 TEST SETUP



#### 8.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

### 8.1.5 TEST RESULTS

NOTE: ALL MODE HAS BEEN TESTED, ONLY WORST DATA SHOWN IN THIS REPORT.

| Test Mode : GSM 850 CH128 |                      |           |                       |                   |             |             |
|---------------------------|----------------------|-----------|-----------------------|-------------------|-------------|-------------|
| Frequency (MHz)           | Antenna polarization | LVL (dBm) | Correction factor(dB) | Result (ERP)(dBm) | Limit (dBm) | Margin (dB) |
| 689.32                    | H                    | -58.01    | -6.53                 | -64.54            | -13.00      | 51.54       |
| 689.32                    | V                    | -61.27    | -6.53                 | -67.80            | -13.00      | 54.80       |
| 1648.4                    | H                    | -56.32    | 11.50                 | -44.82            | -13.00      | 31.82       |
| 1648.4                    | V                    | -46.48    | 10.56                 | -35.92            | -13.00      | 22.92       |
| Test Mode : GSM 850 CH190 |                      |           |                       |                   |             |             |
| 1673.2                    | H                    | -55.76    | 10.94                 | -44.82            | -13.00      | 31.82       |
| 1673.2                    | V                    | -52.18    | 10.90                 | -41.28            | -13.00      | 28.28       |
| Test mode: GSM 850 CH251  |                      |           |                       |                   |             |             |
| 1697.6                    | H                    | -48.94    | 11.67                 | -37.27            | -13.00      | 24.27       |
| 1697.6                    | V                    | -44.63    | 11.13                 | -33.5             | -13.00      | 20.5        |

| Test Mode : GSM 1900 CH512 |                      |           |                       |                   |             |             |
|----------------------------|----------------------|-----------|-----------------------|-------------------|-------------|-------------|
| Frequency (MHz)            | Antenna polarization | LVL (dBm) | Correction factor(dB) | Result (ERP)(dBm) | Limit (dBm) | Margin (dB) |
| 689.32                     | H                    | -58.36    | -6.53                 | -64.89            | -13.00      | 51.89       |
| 689.32                     | V                    | -57.36    | -6.53                 | -63.89            | -13.00      | 50.89       |
| 3700.4                     | H                    | -54.37    | 8.57                  | -45.8             | -13.00      | 32.8        |
| 3700.4                     | V                    | -53.69    | 8.37                  | -45.32            | -13.00      | 32.32       |
| Test Mode : GSM 1900 CH661 |                      |           |                       |                   |             |             |
| 3760                       | H                    | -55.87    | 8.75                  | -47.12            | -13.00      | 34.12       |
| 3760                       | V                    | -53.46    | 8.55                  | -44.91            | -13.00      | 31.91       |
| Test mode: GSM 1900 CH810  |                      |           |                       |                   |             |             |
| 3819.6                     | H                    | -58.63    | 8.94                  | -49.69            | -13.00      | 36.69       |
| 3819.6                     | V                    | -55.32    | 8.72                  | -46.6             | -13.00      | 33.6        |

## 9. BAND EDGE

### 9.1 APPLIED PROCEDURES / LIMIT

| Section                  | Test Item | Limit  | Result |
|--------------------------|-----------|--------|--------|
| 22.917 (b)<br>24.238 (b) | Band edge | -13dBm | PASS   |

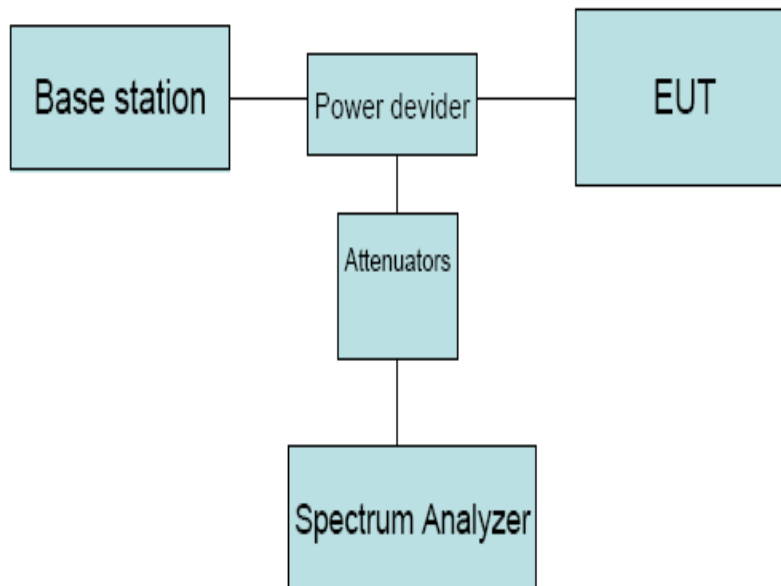
#### 9.1.1 TEST PROCEDURE

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The band edges of low and high channels for the highest RF powers were measured.

#### 9.1.2 DEVIATION FROM STANDARD

No deviation.

#### 9.1.3 TEST SETUP



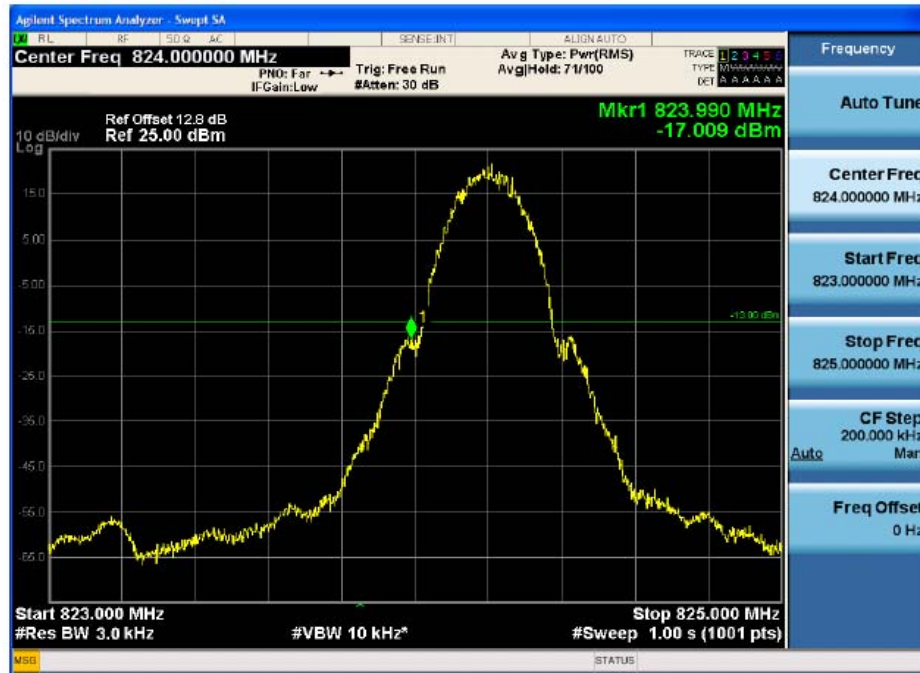
#### 9.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

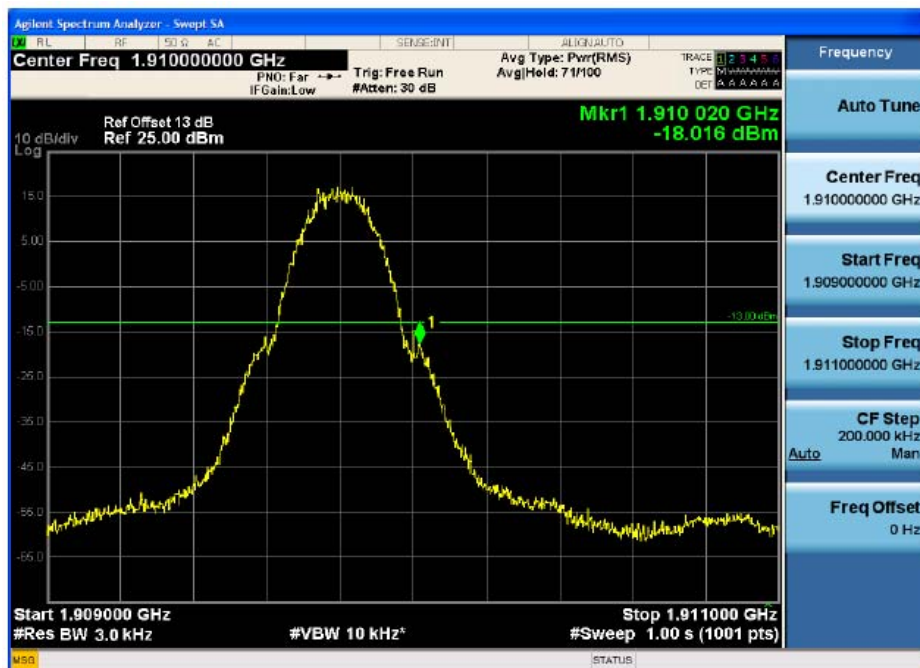
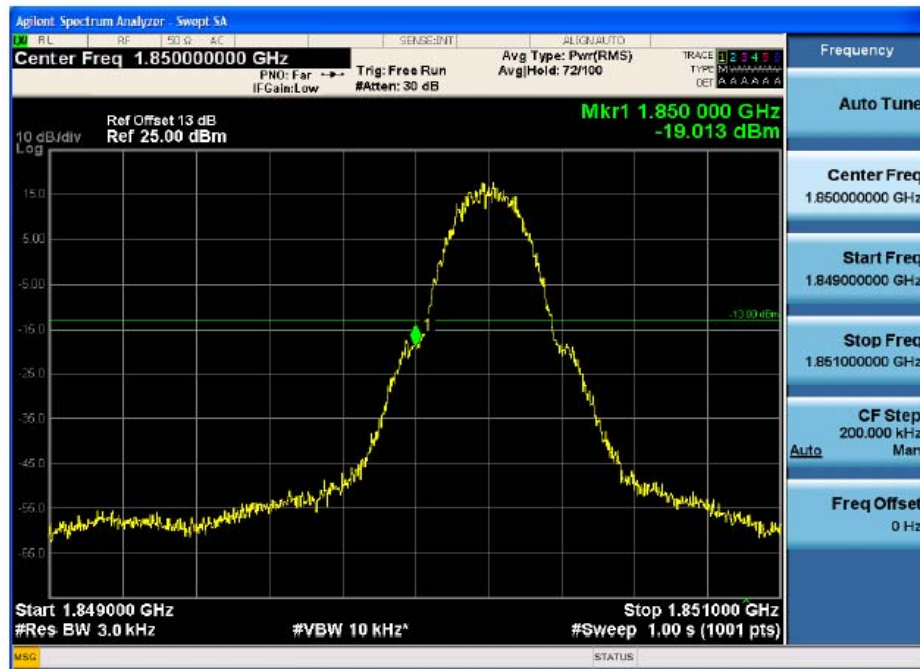
### 9.1.5 TEST RESULTS

NOTE: ALL MODE HAS BEEN TESTED, ONLY WORST DATA SHOWN IN THIS REPORT.

Test Mode: GSM 850



Test Mode: GSM 1900



## 10. CONDUCTED EMISSION MEASUREMENT

### 10.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

| FREQUENCY (MHz) | Class A (dBuV) |         | Class B (dBuV) |           | Standard |
|-----------------|----------------|---------|----------------|-----------|----------|
|                 | Quasi-peak     | Average | Quasi-peak     | Average   |          |
| 0.15 -0.5       | 79.00          | 66.00   | 66 - 56 *      | 56 - 46 * | CISPR    |
| 0.50 -5.0       | 73.00          | 60.00   | 56.00          | 46.00     | CISPR    |
| 5.0 -30.0       | 73.00          | 60.00   | 60.00          | 50.00     | CISPR    |

|           |       |       |           |           |     |
|-----------|-------|-------|-----------|-----------|-----|
| 0.15 -0.5 | 79.00 | 66.00 | 66 - 56 * | 56 - 46 * | FCC |
| 0.50 -5.0 | 73.00 | 60.00 | 56.00     | 46.00     | FCC |
| 5.0 -30.0 | 73.00 | 60.00 | 60.00     | 50.00     | FCC |

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

| Receiver Parameters | Setting  |
|---------------------|----------|
| Attenuation         | 10 dB    |
| Start Frequency     | 0.15 MHz |
| Stop Frequency      | 30 MHz   |
| IF Bandwidth        | 9 kHz    |



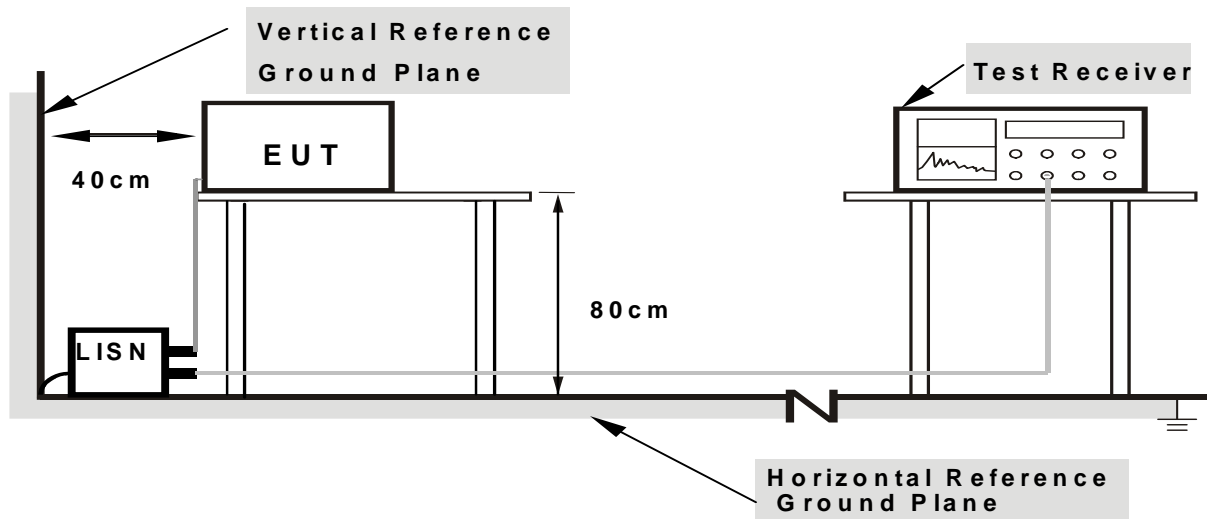
## 10.2 TEST PROCEDURE

- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

## 10.3 DEVIATION FROM TEST STANDARD

No deviation

## 10.4 TEST SETUP



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

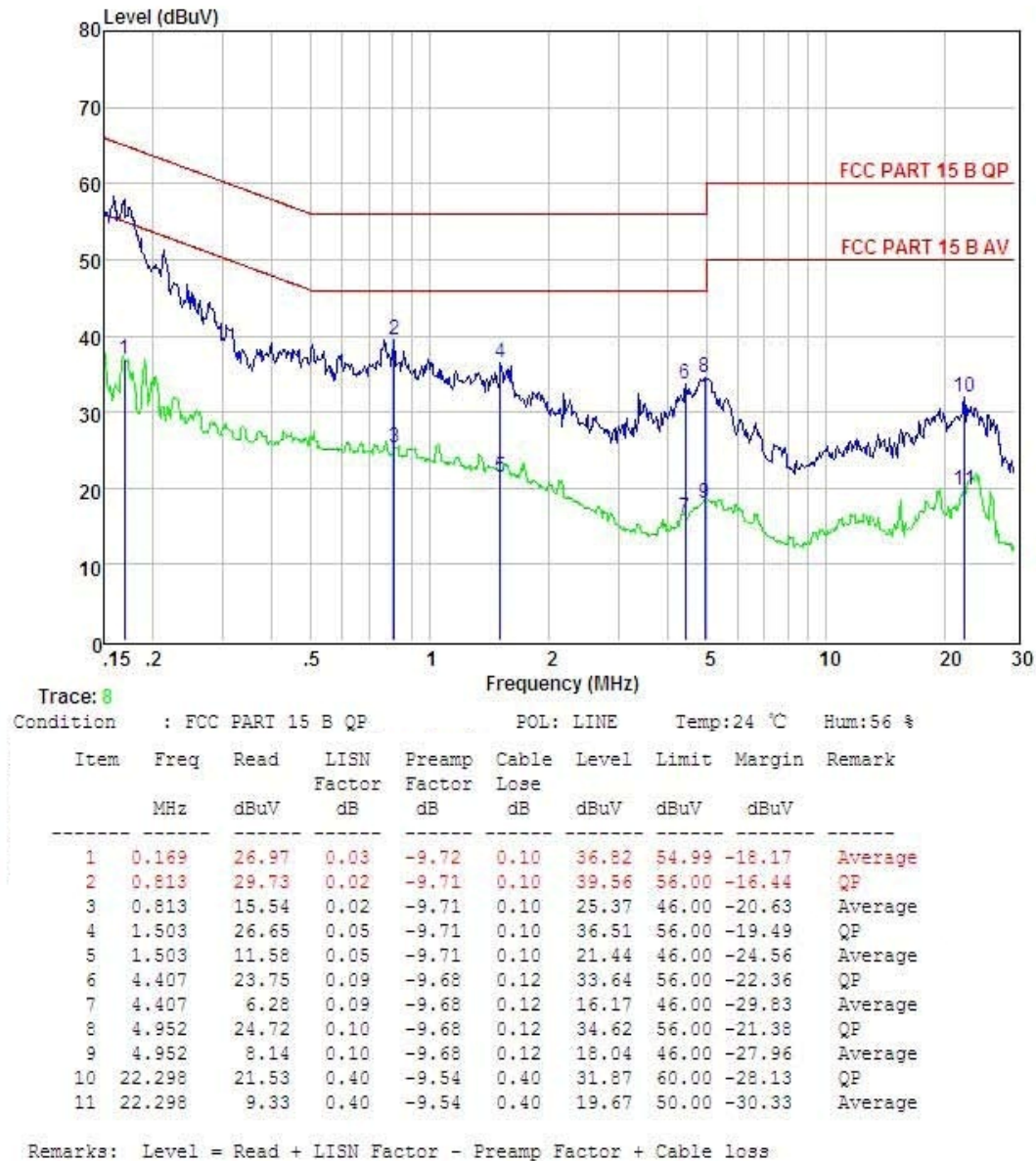
**2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes**

## 10.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

## 10.6 TEST RESULTS

|                |                                   |                     |        |
|----------------|-----------------------------------|---------------------|--------|
| EUT :          | weePHONE                          | Model Name. :       | WP11   |
| Temperature :  | 26 °C                             | Relative Humidity : | 54%    |
| Pressure :     | 1010hPa                           | Phase :             | L      |
| Test Voltage : | DC 5Vfrom adapter AC<br>120V/60Hz | Test Mode :         | Mode 4 |



|                |                                   |                     |        |
|----------------|-----------------------------------|---------------------|--------|
| EUT :          | weePHONE                          | Model Name. :       | WP11   |
| Temperature :  | 26 °C                             | Relative Humidity : | 54%    |
| Pressure :     | 1010hPa                           | Phase :             | N      |
| Test Voltage : | DC 5Vfrom adapter AC<br>120V/60Hz | Test Mode :         | Mode 4 |

