



# FCC 47 CFR PART 15 SUBPART C

## TEST REPORT

*For*

**Applicant : COSMOCOM, SAC**

**Address : LUIS ARIAS SCHEREIBER, 215-LIMA-PERU**

**Product Name : Mobile Phone**

**Model Name : TZ3182**

**Brand Name : TZONTZEN**

**FCC ID : ZKB-TZ3182**

**Report No. : STS110422F2**

**Date of Issue : May. 17, 2011**

**Issued by : Shenzhen Super Test Service Technology Co., Ltd.**

**Address : No.5, Langshan 2nd Rd., North Hi-Tech Industrial park, Nanshan, Shenzhen, Guangdong, China**

**Tel : 86-755-2795 8522**

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## 1. VERIFICATION OF CONFORMITY

|                                  |                                      |
|----------------------------------|--------------------------------------|
| <b>Equipment Under Test:</b>     | Mobile Phone                         |
| <b>Brand Name:</b>               | TZONTZEN                             |
| <b>Model Number:</b>             | TZ3182                               |
| <b>FCC ID:</b>                   | ZKB-TZ3182                           |
| <b>Applicant:</b>                | COSMOCOM, SAC                        |
|                                  | LUIS ARIAS SCHEREIBER, 215-LIMA-PERU |
| <b>Manufacturer:</b>             | COSMOCOM, SAC                        |
|                                  | LUIS ARIAS SCHEREIBER, 215-LIMA-PERU |
| <b>Technical Standards:</b>      | 47 CFR Part 15 Subpart C             |
| <b>File Number:</b>              | STS110422F2                          |
| <b>Date of test:</b>             | May. 10 ~ May. 16, 2011              |
| <b>Deviation:</b>                | None                                 |
| <b>Condition of Test Sample:</b> | Normal                               |
| <b>Test Result:</b>              | PASS                                 |

The above equipment was tested by Shenzhen Super Test Service Technology Co., Ltd. for compliance with the requirements set forth in FCC rules and the Technical Standards mentioned above. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment and the level of the immunity endurance of the equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report.

Tested by (+ signature):

Peter ping

Petter Ping May. 17, 2011

Review by (+ signature):

July 1968

July Wen May, 17, 2011

Approved by (+ signature):

Tony Pang

Terry Yang May. 17, 2011

## 2. GENERAL INFORMATION

### 2.1 Product Information

|                                    |  |
|------------------------------------|--|
| <b>Product</b>                     | Mobile Phone   |
| <b>Trade Name</b>                  | TZONTZEN   |
| <b>Model Number</b>                | TZ3182   |
| <b>Series Number:</b>              | N/A  |
| <b>Description of Differences:</b> | N/A  |
| <b>Power Supply</b>                | DC 5V by AC/DC adapter 100~240V 50/60Hz<br>DC 3.7V by battery; |
| <b>Frequency Range</b>             | 2402 MHz -2480MHz  |
| <b>Modulation Type</b>             | FHSS   |
| <b>Antenna Type:</b>               | Internal Fixed   |
| <b>Channel Number</b>              | 79   |
| <b>Temperature Range</b>           | -20°C ~ 50°C   |

**NOTE:**

1. Please refer to Appendix I for the photographs of the EUT. For a more detailed features description about the EUT, please refer to User's Manual.

## 2.2 Objective

The objective of the report is to perform tests according to 47 CFR Part 15 Subpart C for the EUT FCC ID Certification:

| No. | Identity                            | Document Title          |
|-----|-------------------------------------|-------------------------|
| 1   | 47 CFR Part 15<br>(10-1-05 Edition) | Radio Frequency Devices |

## 2.3 Test Standards and Results

Test items and the results are as bellow:

| No. | Section   | Description                        | Result | Date of Test |
|-----|-----------|------------------------------------|--------|--------------|
| 1   | 15.249(a) | Spurious Emission                  | PASS   | 2011-05-10   |
| 2   | 15.249(a) | Band Edge                          | PASS   | 2011-05-10   |
| 3   | 15.207    | Power Line Conducted Emission Test | PASS   | 2011-05-12   |

*Note:* 1. The test result judgment is decided by the limit of measurement standard  
2. The information of measurement uncertainty is available upon the customer's request.

## 2.4 Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

- Temperature: 15-35°C
- Humidity: 30-60 %
- Atmospheric pressure: 86-106 kPa

### 3. TEST FACILITY

#### 3.1 TEST FACILITY

Test Site: Most Technology Service Co., Ltd.

Location: No.5, Langshan 2nd Rd., North Hi-Tech Industrial park, Nanshan, Shenzhen, Guangdong, China

Description: There is one 3m semi-anechoic an area test sites and two line conducted labs for final test. The Open Area Test Sites and the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2009 and CISPR 16 requirements.

The FCC Registration Number is **490827**.

The IC Registration Number is **46405-7103**.

The CNAS Registration Number is **CNAS L3573**.

Site Filing: The site description is on file with the Federal Communications Commission, 7435 Oakland Mills Road, Columbia, MD 21046.

Instrument Tolerance: All measuring equipment is in accord with ANSI C63.4:2009 and CISPR 16 requirements that meet industry regulatory agency and accreditation agency requirement.

Ground Plane: Two conductive reference ground planes were used during the Line Conducted Emission, one in vertical and the other in horizontal. The dimensions of these ground planes are as below. The vertical ground plane was placed distancing 40 cm to the rear of the wooden test table on where the EUT and the support equipment were placed during test. The horizontal ground plane projected 50 cm beyond the footprint of the EUT system and distanced 80 cm to the wooden test table. For Radiated Emission Test, one horizontal conductive ground plane extended at least 1m beyond the periphery of the EUT and the largest measuring antenna, and covered the entire area between the EUT and the antenna.

#### 3.2 GENERAL TEST PROCEDURES

##### EUT Function and Test Mode

The EUT has been tested under normal operating (TX) and standby (RX) condition.

The field strength of radiation emission was measured in the following position: EUT stand-up position (Y axis), lie-down position (X, Z axis).

The following data show only with the worst case setup.

The worst case of Y axis was reported.

Based on client request, all normal using modes of the normal function were tested but only the worst test data of the worst mode is reported by this report.

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4:2009, Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4:2009.

**3.3 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS**

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

| MHz                        | MHz                   | MHz             | GHz              |
|----------------------------|-----------------------|-----------------|------------------|
| 0.090 - 0.110              | 16.42 - 16.423        | 399.9 - 410     | 4.5 - 5.15       |
| <sup>1</sup> 0.495 - 0.505 | 16.69475 - 16.69525   | 608 - 614       | 5.35 - 5.46      |
| 2.1735 - 2.1905            | 16.80425 - 16.80475   | 960 - 1240      | 7.25 - 7.75      |
| 4.125 - 4.128              | 25.5 - 25.67          | 1300 - 1427     | 8.025 - 8.5      |
| 4.17725 - 4.17775          | 37.5 - 38.25          | 1435 - 1626.5   | 9.0 - 9.2        |
| 4.20725 - 4.20775          | 73 - 74.6             | 1645.5 - 1646.5 | 9.3 - 9.5        |
| 6.215 - 6.218              | 74.8 - 75.2           | 1660 - 1710     | 10.6 - 12.7      |
| 6.26775 - 6.26825          | 108 - 121.94          | 1718.8 - 1722.2 | 13.25 - 13.4     |
| 6.31175 - 6.31225          | 123 - 138             | 2200 - 2300     | 14.47 - 14.5     |
| 8.291 - 8.294              | 149.9 - 150.05        | 2310 - 2390     | 15.35 - 16.2     |
| 8.362 - 8.366              | 156.52475 - 156.52525 | 2483.5 - 2500   | 17.7 - 21.4      |
| 8.37625 - 8.38675          | 156.7 - 156.9         | 2655 - 2900     | 22.01 - 23.12    |
| 8.41425 - 8.41475          | 162.0125 - 167.17     | 3260 - 3267     | 23.6 - 24.0      |
| 12.29 - 12.293             | 167.72 - 173.2        | 3332 - 3339     | 31.2 - 31.8      |
| 12.51975 - 12.52025        | 240 - 285             | 3345.8 - 3358   | 36.43 - 36.5     |
| 12.57675 - 12.57725        | 322 - 335.4           | 3600 - 4400     | ( <sup>2</sup> ) |
| 13.36 - 13.41              |                       |                 |                  |

<sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup> Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

**4. SETUP OF EQUIPMENT UNDER TEST****4.1 SUPPORT EQUIPMENT**

| Device Type | Brand     | Model | Series No. | Data Cable | Power Cable |
|-------------|-----------|-------|------------|------------|-------------|
| SD Card     | Transcend | 1.0G  | N/A        |            | N/A         |

*Remark:*

*All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

## 4.2 TEST EQUIPMENT LIST

**Instrumentation:** The following list contains equipment used at Most for testing. The equipment conforms to the CISPR 16-1 / ANSI C63.2 Specifications for Electromagnetic Interference and Field Strength Instrumentation from 10 kHz to 1.0 GHz or above.

| No. | Equipment                            | Manufacturer      | Model No.      | S/N         | Calculator due date |
|-----|--------------------------------------|-------------------|----------------|-------------|---------------------|
| 1   | Test Receiver                        | Rohde & Schwarz   | ESCI           | 100492      | 201203/14           |
| 2   | L.I.S.N.                             | Rohde & Schwarz   | ENV216         | 100093      | 201203/14           |
| 3   | Coaxial Switch                       | Anritsu Corp      | MP59B          | 6200283933  | 201203/14           |
| 4   | Terminator                           | Hubersuhner       | 50Ω            | No.1        | 201203/14           |
| 5   | RF Cable                             | SchwarzBeck       | N/A            | No.1        | 201203/14           |
| 6   | Test Receiver                        | Rohde & Schwarz   | ESPI           | 101202      | 201203/14           |
| 7   | Bilog Antenna                        | SCHWARZBECK       | BBHA9120D      | D69250      | 201203/14           |
| 8   | Cable                                | Resenberger       | N/A            | NO.1        | 201203/14           |
| 9   | Cable                                | SchwarzBeck       | N/A            | NO.2        | 201203/14           |
| 10  | Cable                                | SchwarzBeck       | N/A            | NO.3        | 201203/14           |
| 11  | DC Power Filter                      | DuoJi             | DL2×30B        | N/A         | 201203/14           |
| 12  | Single Phase Power Line Filter       | DuoJi             | FNF 202B30     | N/A         | 201203/14           |
| 13  | 3 Phase Power Line Filter            | DuoJi             | FNF 402B30     | N/A         | 201203/14           |
| 14  | Test Receiver                        | Rohde & Schwarz   | ESCI           | 100492      | 201203/14           |
| 15  | Absorbing Clamp                      | Luthi             | MDS21          | 3635        | 201203/14           |
| 16  | Coaxial Switch                       | Anritsu Corp      | MP59B          | 6200283933  | 201203/14           |
| 17  | AC Power Source                      | Kikusui           | AC40MA         | LM003232    | 201203/14           |
| 18  | Test Analyzer                        | Kikusui           | KHA1000        | LM003720    | 201203/14           |
| 19  | Line Impedance Network               | Kikusui           | LIN40MA-PCR-L  | LM002352    | 201203/14           |
| 20  | ESD Tester                           | Kikusui           | KES4021        | LM003537    | 201203/14           |
| 21  | EMCPRO System                        | EM Test           | UCS-500-M4     | V0648102026 | 201203/14           |
| 22  | Signal Generator                     | IFR               | 2032           | 203002/100  | 201203/14           |
| 23  | Amplifier                            | A&R               | 150W1000       | 301584      | 201203/14           |
| 24  | CDN                                  | FCC               | FCC-801-M2-25  | 47          | 201203/14           |
| 25  | CDN                                  | FCC               | FCC-801-M3-25  | 107         | 201203/14           |
| 26  | EM Injection Clamp                   | FCC               | F-203I-23mm    | 403         | 201203/14           |
| 27  | RF Cable                             | MIYAZAKI          | N/A            | No.1/No.2   | 201203/14           |
| 28  | Universal Radio Communication Tester | ROHDE&SCHWARZ     | CMU200         | 0304789     | 201203/14           |
| 29  | Telecommunication Antenna            | European Antennas | PSA 75301R/170 | 0304213     | 201203/14           |
| 30  | Telecommunication Test Equipment     | R&S               | CMU200         | N/A         | 201203/14           |
| 31  | Loop Antenna                         | SCHWARZBECK       | BBHA9120D      | D69250      | 201203/14           |

**NOTE:** Equipments listed above have been calibrated and are in the period of validation.

## 5. 47 CFR Part 15C 15.249 Requirements

### 5.1 Spurious Emission Test

#### 5.1.1 Requirement

According to FCC section 15.249(a):

Except as provided in paragraph (a) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

| Fundamental Frequency (MHz) | Field Strength of Fundamental (mV/m) | Field Strength of Harmonics (μV/m) |
|-----------------------------|--------------------------------------|------------------------------------|
| 902-928                     | 50                                   | 500                                |
| 2400-2483.5                 | 50                                   | 500                                |
| 5725-5875                   | 50                                   | 500                                |
| 24000-24250                 | 250                                  | 2500                               |

According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

| Frequency (MHz) | Field Strength (μV/m) | Measurement Distance (m) |
|-----------------|-----------------------|--------------------------|
| 1.705 - 30.0    | 30                    | 30                       |
| 30 - 88         | 100                   | 3                        |
| 88 - 216        | 150                   | 3                        |
| 216 - 960       | 200                   | 3                        |
| Above 960       | 500                   | 3                        |

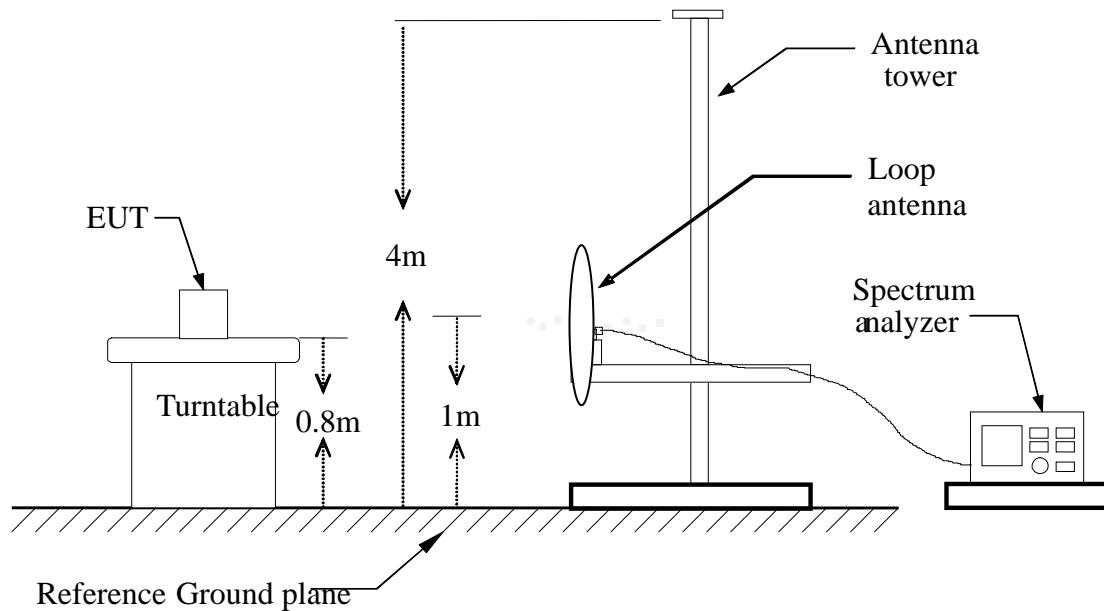
**Remark:** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

In the above emission table, the tighter limit applies at the band edges.

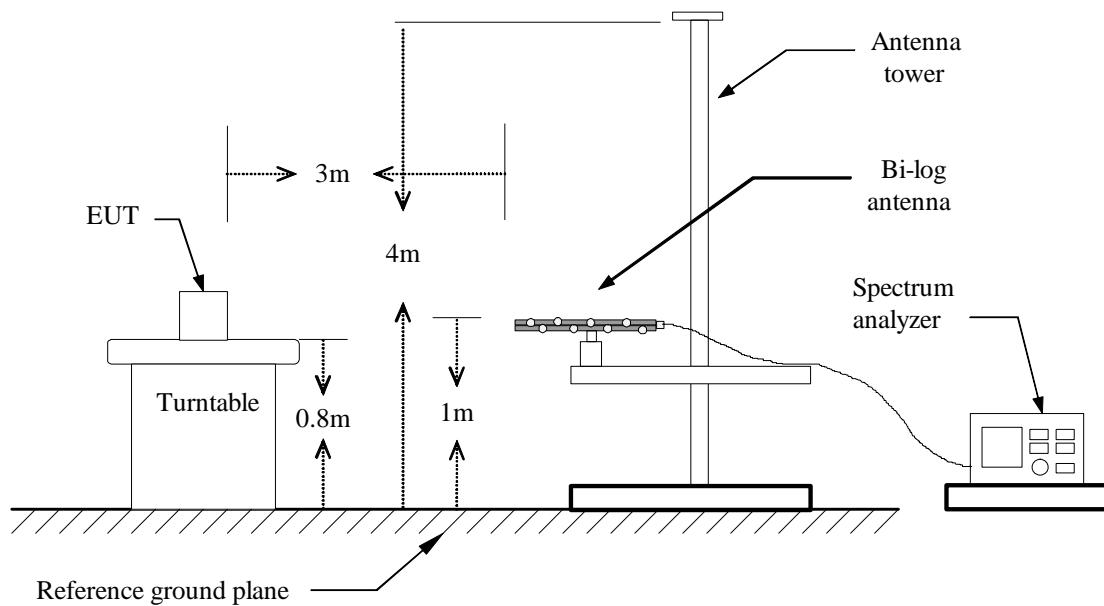
| Frequency (MHz) | Field Strength (μV/m) | Measurement Distance (m) |
|-----------------|-----------------------|--------------------------|
| 30 - 88         | 100                   | 3                        |
| 88 - 216        | 150                   | 3                        |
| 216 - 960       | 200                   | 3                        |
| Above 960       | 500                   | 3                        |

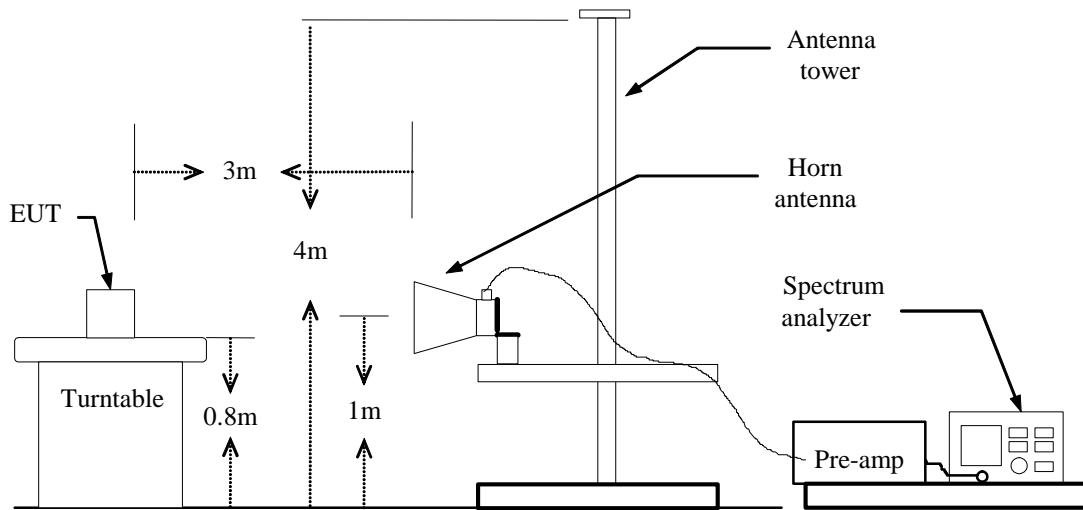
### 5.1.2 Test Description

#### Test Setup:



#### Blow 1GHz:



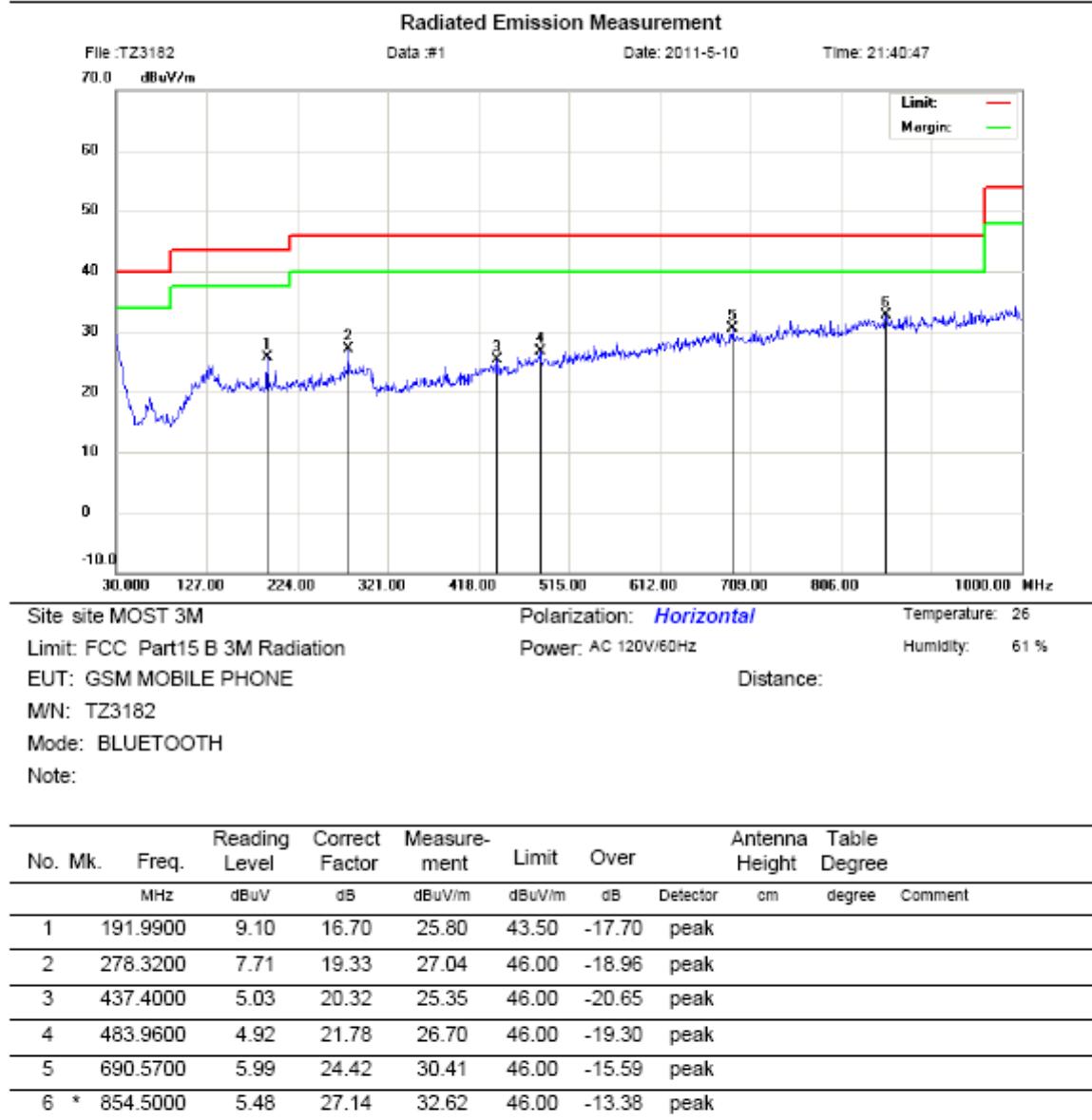
**Above 1GHz:****5.1.3 Test Description**

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:  
 Below 1GHz: RBW=100 kHz / VBW=300 kHz / Sweep=AUTO  
 Above 1GHz : ( a) PEAK: RBW=VBW=1MHz / Sweep=AUTO  
 (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
7. Repeat above procedures until the measurements for all frequencies are complete.

### 5.1.4 Test Result



Address: No.5, Langshan 2nd Rd., North Hi-Tech Industrial park  
Guangdong, China  
Tel: 0755-86170306 Fax: 0755-86170310



\*:Maximum data    x:Over limit    l:over margin



Address: No.5, Langshan 2nd Rd., North Hi-Tech Industrial park  
Guangdong, China  
Tel: 0755-86170306 Fax: 0755-86170310

#### Radiated Emission Measurement

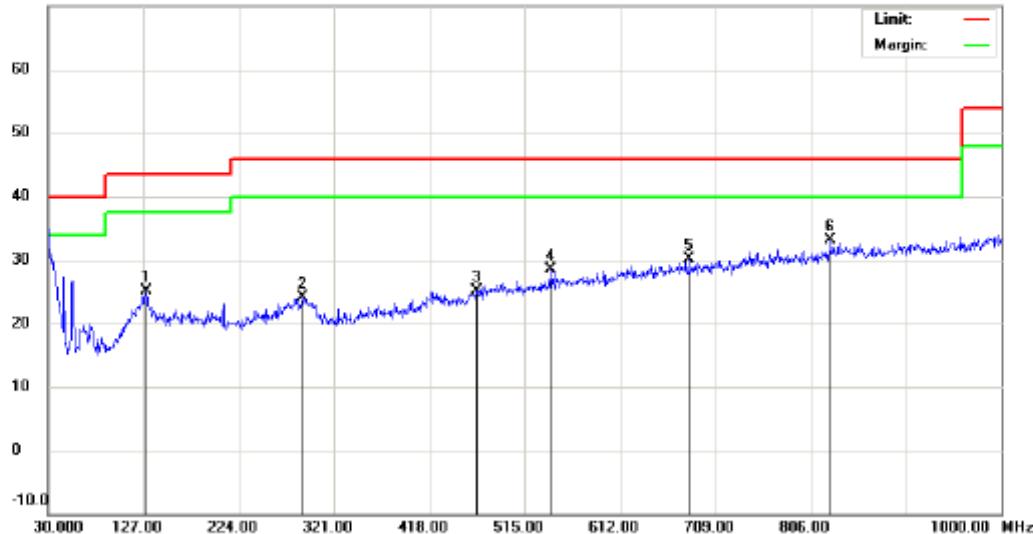
File : TZ3182

Data #2

Date: 2011-5-10

Time: 21:42:21

70.0 dBuV/m



Site site MOST 3M

Polarization: **Vertical**

Temperature: 26

Limit: FCC Part15 B 3M Radiation

Power: AC 120V/60Hz

Humidity: 61 %

EUT: GSM MOBILE PHONE

Distance:

MN: TZ3182

Mode: BLUETOOTH

Note:

| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit      |          | Antenna<br>Height<br>cm | Table<br>Degree<br>degree | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|------------|----------|-------------------------|---------------------------|---------|
|     |     |              |                          |                         |                            | Over<br>dB | Detector |                         |                           |         |
| 1   |     | 128.9400     | 7.31                     | 17.70                   | 25.01                      | 43.50      | -18.49   | peak                    |                           |         |
| 2   |     | 288.9900     | 4.79                     | 19.41                   | 24.20                      | 46.00      | -21.80   | peak                    |                           |         |
| 3   |     | 466.5000     | 4.07                     | 21.03                   | 25.10                      | 46.00      | -20.90   | peak                    |                           |         |
| 4   |     | 541.1900     | 6.38                     | 22.22                   | 28.60                      | 46.00      | -17.40   | peak                    |                           |         |
| 5   |     | 681.8400     | 5.61                     | 24.46                   | 30.07                      | 46.00      | -15.93   | peak                    |                           |         |
| 6   | *   | 826.3700     | 6.29                     | 26.85                   | 33.14                      | 46.00      | -12.86   | peak                    |                           |         |

\*:Maximum data x:Over limit !:over margin

**Above 1 GHz****Operation Mode:** CH Low**Test Date:** 2011-05-10**Temperature:** 20°C**Tested by:** Petter Ping**Humidity:** 70 % RH**Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | AV<br>Margin<br>(dB) |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                      |
| 2402.50        | H               | 90.46                     | 76.94                   | 9.08                    | 99.54            | 86.02          | 114.00                    | 94.00                   | -7.98                |
| <hr/>          |                 |                           |                         |                         |                  |                |                           |                         |                      |
| 4805.00        | H               | 36.82                     | ---                     | 16.54                   | 53.36            | ---            | 74.00                     | 54.00                   | ---                  |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         | >20                  |
| <hr/>          |                 |                           |                         |                         |                  |                |                           |                         |                      |
| 2402.50        | V               | 77.55                     | 74.35                   | 9.08                    | 96.74            | 83.43          | 114.00                    | 94.00                   | -10.57               |
| <hr/>          |                 |                           |                         |                         |                  |                |                           |                         |                      |
| 4805.00        | V               | 35.42                     | ---                     | 16.54                   | 51.96            | ---            | 74.00                     | 54.00                   | ---                  |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         | >20                  |

**Notes:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
5. Data of measurement within this frequency range shown “ --- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
6. Spectrum setting:
  - a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 1MHz, Sweep time = 200 ms.
  - b. AV Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 10Hz, Sweep time = 200 ms.
7. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

**Operation Mode:** CH Mid      **Test Date:** 2011-05-10  
**Temperature:** 20°C      **Tested by:** Petter Ping  
**Humidity:** 70 % RH      **Polarity:** Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak              | AV                | Ant. / CL<br>CF | Actual Fs |       | Peak             | AV             | AV            |
|----------------|-----------------|-------------------|-------------------|-----------------|-----------|-------|------------------|----------------|---------------|
|                |                 | Reading<br>(dBuV) | Reading<br>(dBuV) | (dB)            |           |       | Peak<br>(dBuV/m) | AV<br>(dBuV/m) | Limit<br>(dB) |
| 2441.50        | H               | 92.14             | 78.16             | 9.12            | 101.26    | 87.28 | 114.00           | 94.00          | -6.72         |
| 1741.50        | H               | 43.40             | ---               | 7.17            | 50.57     | ---   | 74.00            | 54.00          | ---           |
| 4892.50        | H               | 35.64             | ---               | 17.09           | 52.73     | ---   | 74.00            | 54.00          | ---           |
| N/A            |                 |                   |                   |                 |           |       |                  |                | >20           |
| 2441.50        | V               | 89.16             | 76.63             | 9.12            | 98.28     | 85.75 | 114.00           | 94.00          | -8.25         |
| 1741.50        | V               | 44.04             | ---               | 7.17            | 51.21     | ---   | 74.00            | 54.00          | ---           |
| 4892.50        | V               | 36.57             | ---               | 17.09           | 53.66     | ---   | 74.00            | 54.00          | ---           |
| N/A            |                 |                   |                   |                 |           |       |                  |                | >20           |

**Notes:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
5. Data of measurement within this frequency range shown “ --- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
6. Spectrum setting:
  - a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 1MHz, Sweep time = 200 ms.
  - b. AV Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 10Hz, Sweep time = 200 ms.
7. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

Operation Mode: CH High

Test Date: 2011-05-10

Temperature: 20°C

Tested by: Petter Ping

Humidity: 70 % RH

Polarity: Ver. / Hor.

| Freq.<br>(MHz) | Ant. Pol<br>H/V | Peak<br>Reading<br>(dBuV) | AV<br>Reading<br>(dBuV) | Ant. / CL<br>CF<br>(dB) | Actual Fs        |                | Peak<br>Limit<br>(dBuV/m) | AV<br>Limit<br>(dBuV/m) | AV<br>Margin<br>(dB) |
|----------------|-----------------|---------------------------|-------------------------|-------------------------|------------------|----------------|---------------------------|-------------------------|----------------------|
|                |                 |                           |                         |                         | Peak<br>(dBuV/m) | AV<br>(dBuV/m) |                           |                         |                      |
| 2480.00        | H               | 94.16                     | 79.55                   | 9.15                    | 103.31           | 88.70          | 114.00                    | 94.00                   | -5.30                |
| <hr/>          |                 |                           |                         |                         |                  |                |                           |                         |                      |
| 4960.50        | H               | 46.64                     | 28.63                   | 17.49                   | 64.13            | 46.12          | 74.00                     | 54.00                   | -7.88                |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         | >20                  |
| <hr/>          |                 |                           |                         |                         |                  |                |                           |                         |                      |
| 2480.00        | V               | 91.23                     | 78.42                   | 9.15                    | 100.38           | 87.57          | 114.00                    | 94.00                   | -6.43                |
| <hr/>          |                 |                           |                         |                         |                  |                |                           |                         |                      |
| 4960.50        | V               | 47.84                     | 29.48                   | 17.49                   | 65.33            | 46.97          | 74.00                     | 54.00                   | -7.03                |
| N/A            |                 |                           |                         |                         |                  |                |                           |                         | >20                  |

**Notes:**

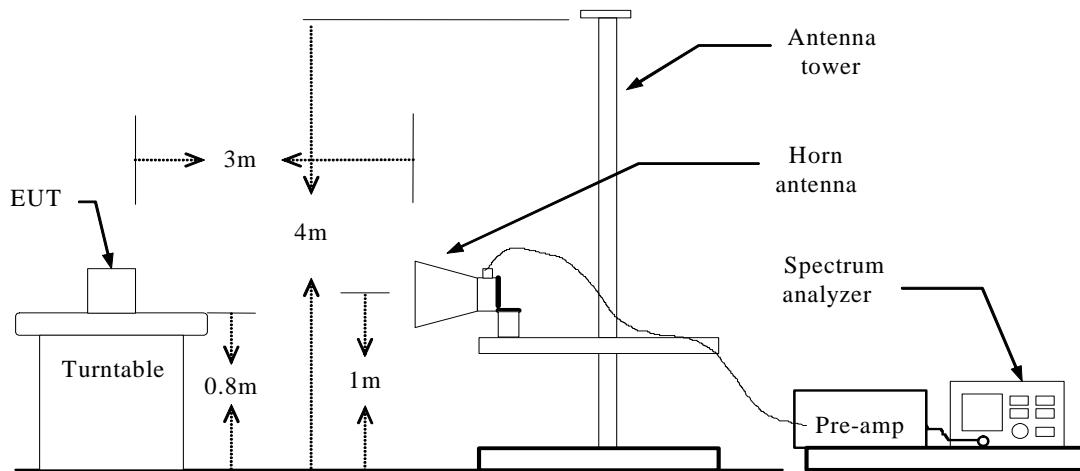
1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
5. Data of measurement within this frequency range shown “ --- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
6. Spectrum setting:
  - a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 1MHz, Sweep time = 200 ms.
  - b. AV Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 10Hz, Sweep time = 200 ms.
7. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

## 5.2 Band Edge

### 5.2.1 Requirement

According to FCC section 15.249(a), in any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

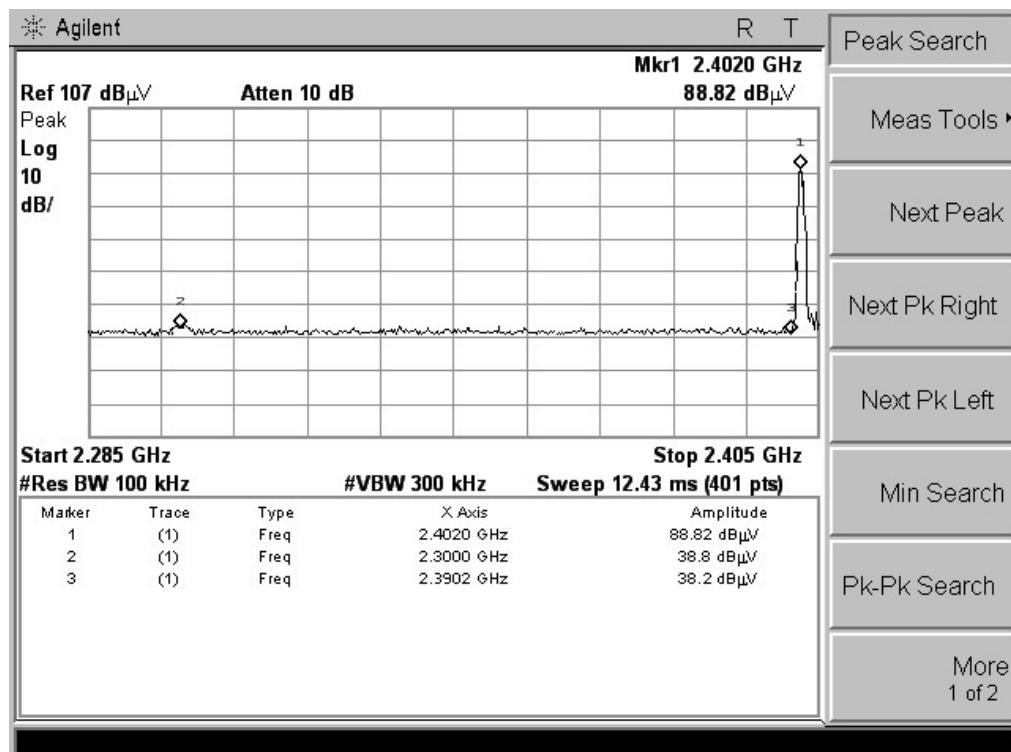
### 5.2.2 Test Description



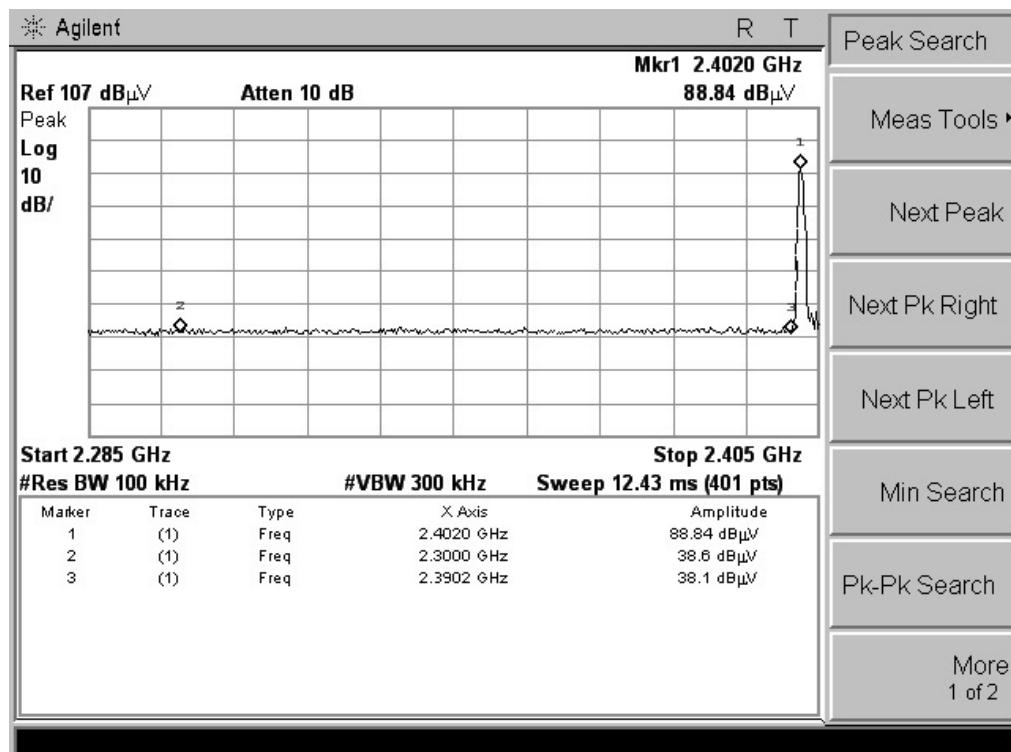
### 5.2.3 Test Result

The EUT operates at hopping-off test mode. The lowest and highest channels are tested to verify the band edge emissions.

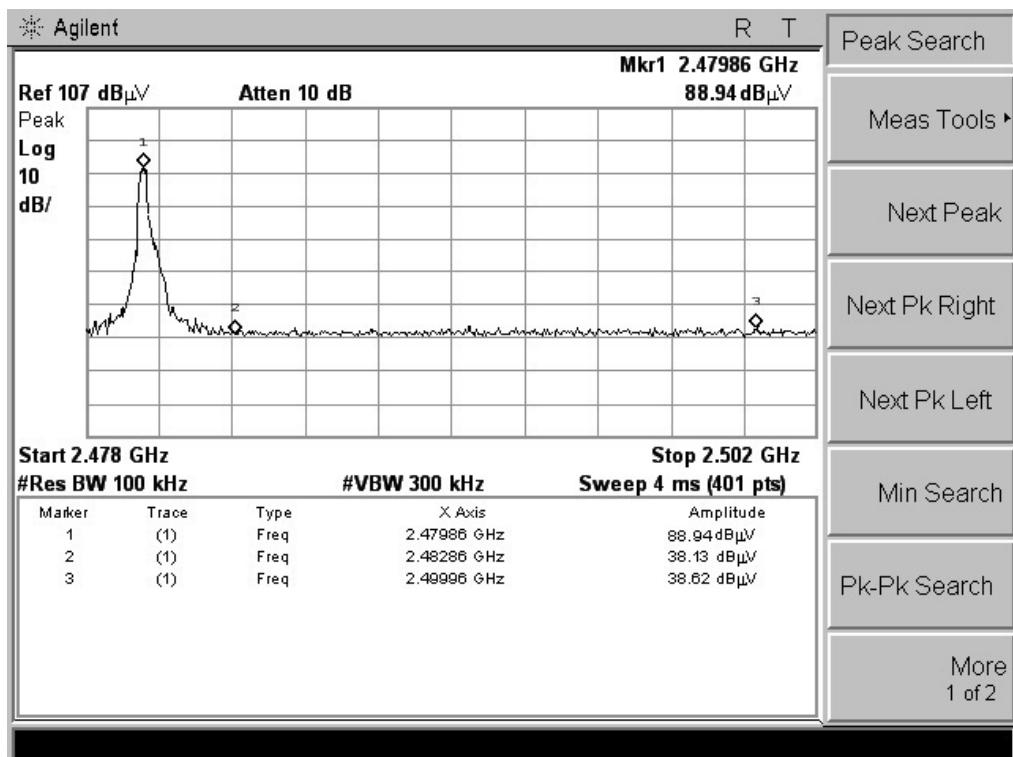
| Test Mode<br>(MHz)   | Marked<br>Spurious Frequency | Test Result<br>Highest Emission<br>(dBuv/m) |         |          |         |
|----------------------|------------------------------|---|---------|----------|---------|
|                      |                              | Horizontal                                  |         | Vertical |         |
|                      |                              | Peak  | Average | Peak     | Average |
| Low Channel<br>2402  | 2300MHz                      | 38.80                                       | 30.15   | 38.60    | 30.12   |
|                      | 2390MHz                      | 38.20                                       | 30.11   | 38.10    | 30.10   |
| High Channel<br>2480 | 2483.5MHz                    | 38.13                                       | 30.08   | 38.12    | 30.10   |
|                      | 2500MHz                      | 38.62                                       | 30.12   | 38.49    | 30.11   |

**Test Plot:**

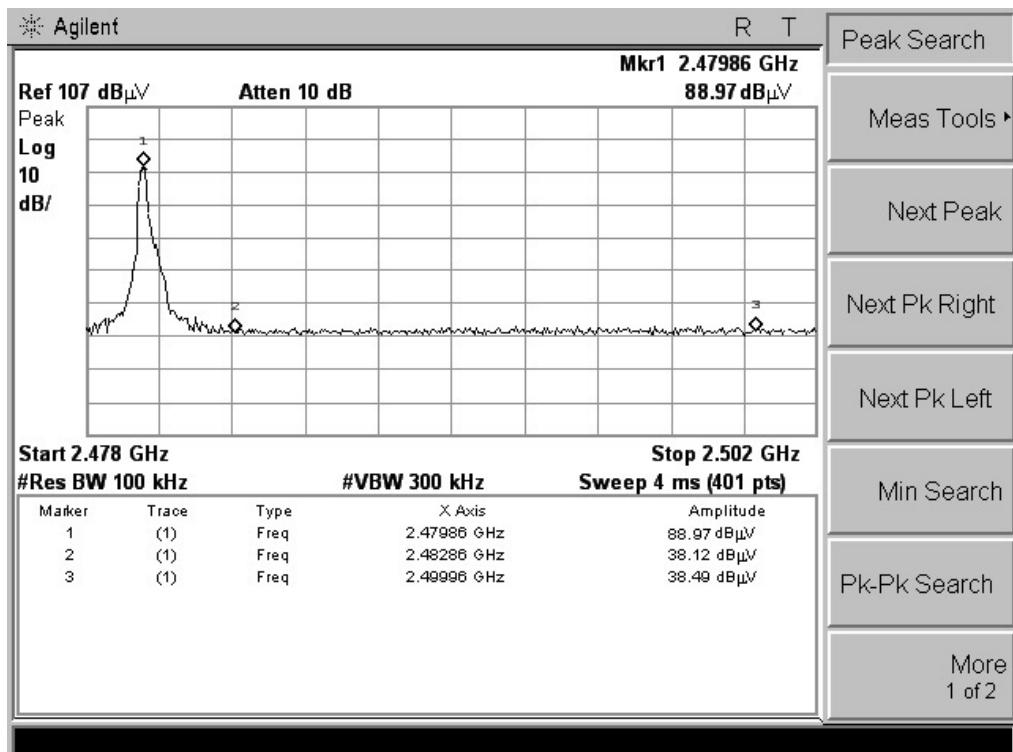
(CH Low, Horizontal)



(CH Low, Vertical)



(CH High, Horizontal)



(CH High, Vertical)

## 5.3 Conducted Emission

### 5.3.1 Definition

According to FCC section 15.207, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN).

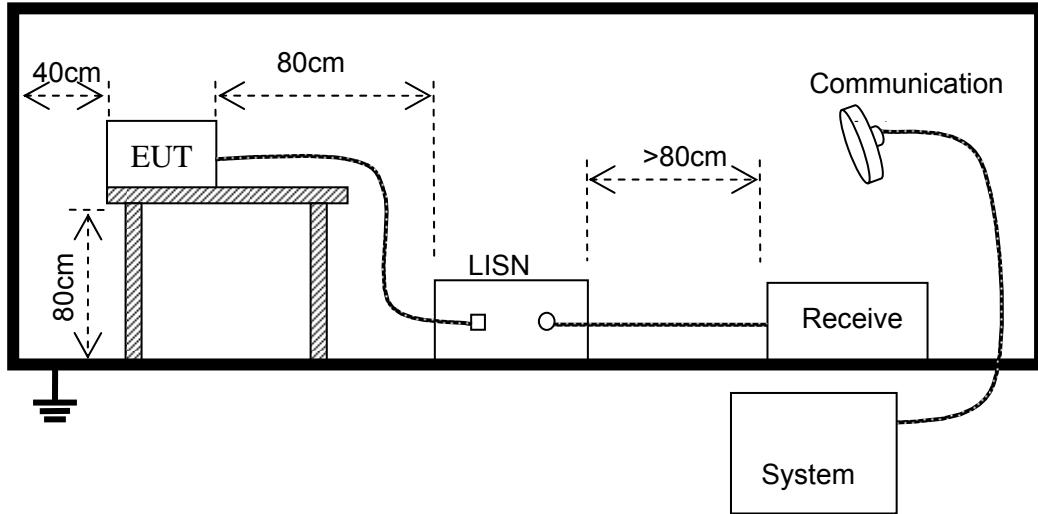
| Frequency     | Maximum RF Line Voltage |                |
|---------------|-------------------------|----------------|
|               | Q.P. (dBuV)             | Average (dBuV) |
| 150kHz-500kHz | 66-56                   | 56-46          |
| 500kHz-5MHz   | 56                      | 46             |
| 5MHz-30MHz    | 60                      | 50             |

**Note:**

1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

### 5.3.2 Test Description

The EUT is powered by the Battery charged with the AC Adapter which is powered by 120V, 60Hz AC mains supply. The path loss as the factor is calibrated to correct the reading. During the measurement, the EUT is activated and is set to operate at maximum power.



### 5.3.3 Test Result

A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less -2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.



Address: No.5, Langshan 2nd Rd., North Hi-Tech Industrial park  
Guangdong, China  
Tel: 0755-86170306 Fax: 0755-86170310

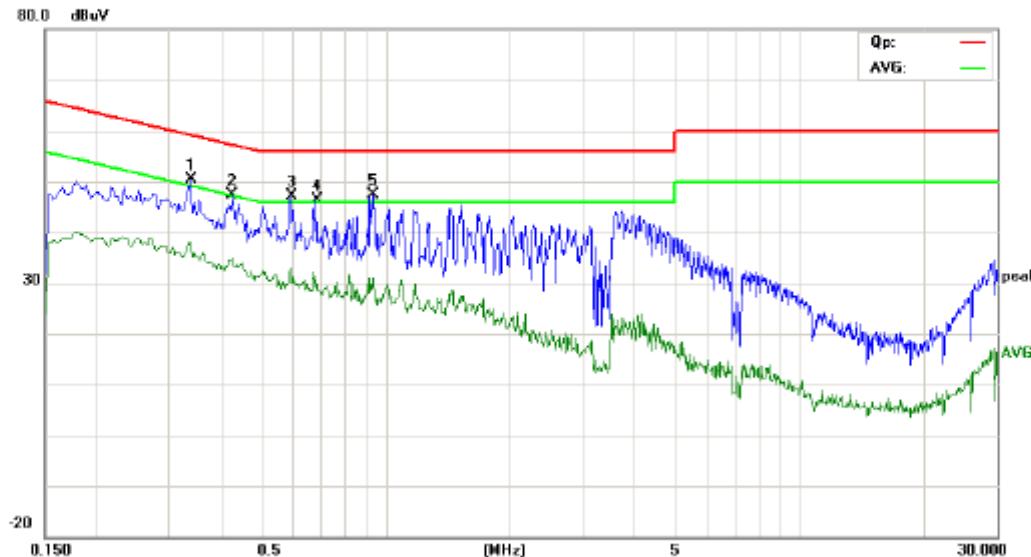
#### Conducted Emission Measurement

File: TZ3182

Data: #5

Date: 2011/05/12

Time: 19:47:51



Site: site #1

Phase: **N**

Temperature: 26

Limit: FCC Part15 B Class B QP

Power: AC 120V/60Hz

Humidity: 60 %

EUT: GSM MOBILE PHONE

M/N: TZ3182

Mode: BLUETOOTH

Note:

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measure-<br>ment | Limit | Over     |         |
|-----|-----|--------|---------------|----------------|------------------|-------|----------|---------|
|     |     | MHz    | dBuV          | dB             | dBuV             | dB    | Detector | Comment |
| 1   |     | 0.3380 | 39.25         | 11.08          | 50.33            | 59.25 | -8.92    | peak    |
| 2   |     | 0.4260 | 36.97         | 10.49          | 47.46            | 57.33 | -9.87    | peak    |
| 3   |     | 0.5900 | 37.04         | 10.00          | 47.04            | 56.00 | -8.96    | peak    |
| 4   |     | 0.6820 | 36.29         | 10.00          | 46.29            | 56.00 | -9.71    | peak    |
| 5   | *   | 0.9300 | 37.42         | 10.00          | 47.42            | 56.00 | -8.58    | peak    |

\*:Maximum data x:Over limit !:over margin



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Guangdong, China  
Tel: 0755-86170306 Fax: 0755-86170310

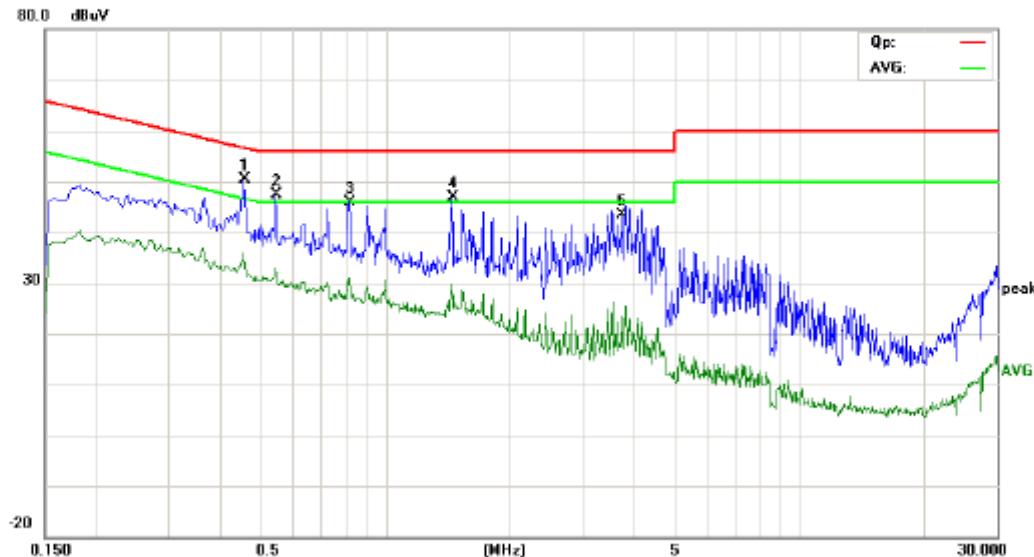
#### Conducted Emission Measurement

File: TZ3182

Data #: 6

Date: 2011/05/12

Time: 19:50:55



Site: site #1

Phase: *L1*

Temperature: 26

Limit: FCC Part15 B Class B QP

Power: AC 120V/60Hz

Humidity: 60 %

EUT: GSM MOBILE PHONE

M/N: TZ3182

Mode: BLUETOOTH

Note:

| No. | Mk. | Freq.  | Reading Level | Correct Factor | Measure-<br>ment | Limit | Over     |         |
|-----|-----|--------|---------------|----------------|------------------|-------|----------|---------|
|     |     | MHz    | dBuV          | dB             | dBuV             | dB    | Detector | Comment |
| 1   | *   | 0.4540 | 40.16         | 10.31          | 50.47            | 56.80 | -6.33    | peak    |
| 2   |     | 0.5420 | 37.46         | 10.00          | 47.46            | 56.00 | -8.54    | peak    |
| 3   |     | 0.8140 | 35.96         | 10.00          | 45.96            | 56.00 | -10.04   | peak    |
| 4   |     | 1.4420 | 37.41         | 9.56           | 46.97            | 56.00 | -9.03    | peak    |
| 5   |     | 3.7060 | 32.72         | 10.71          | 43.43            | 56.00 | -12.57   | peak    |

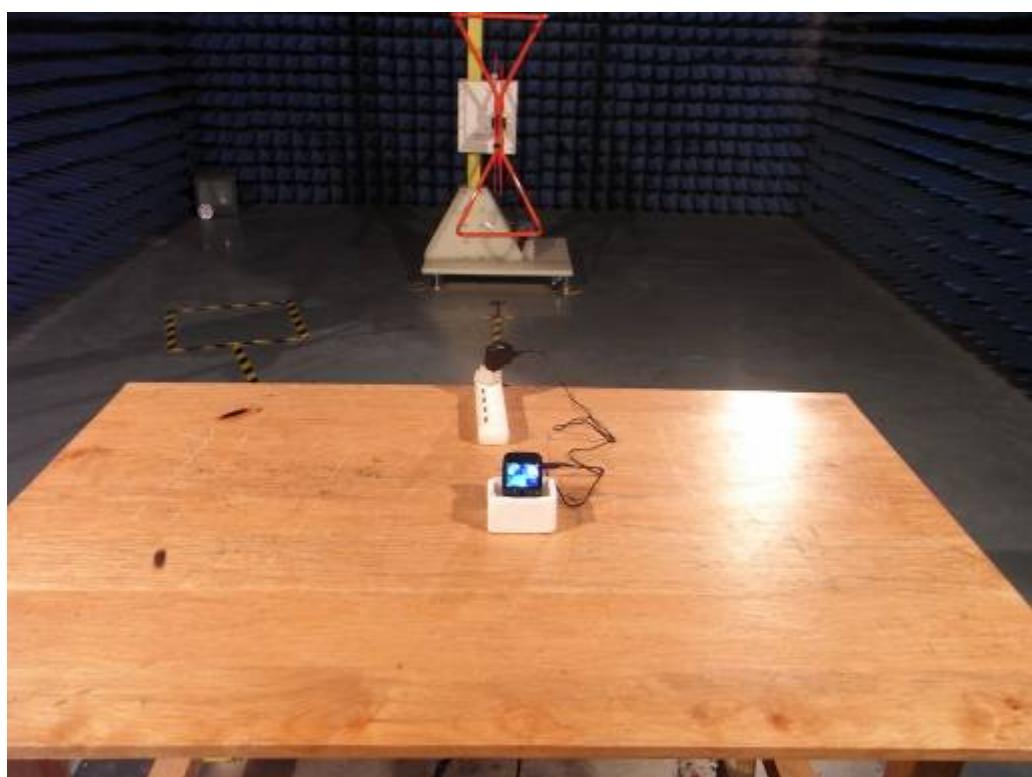
\*:Maximum data x:Over limit !:over margin

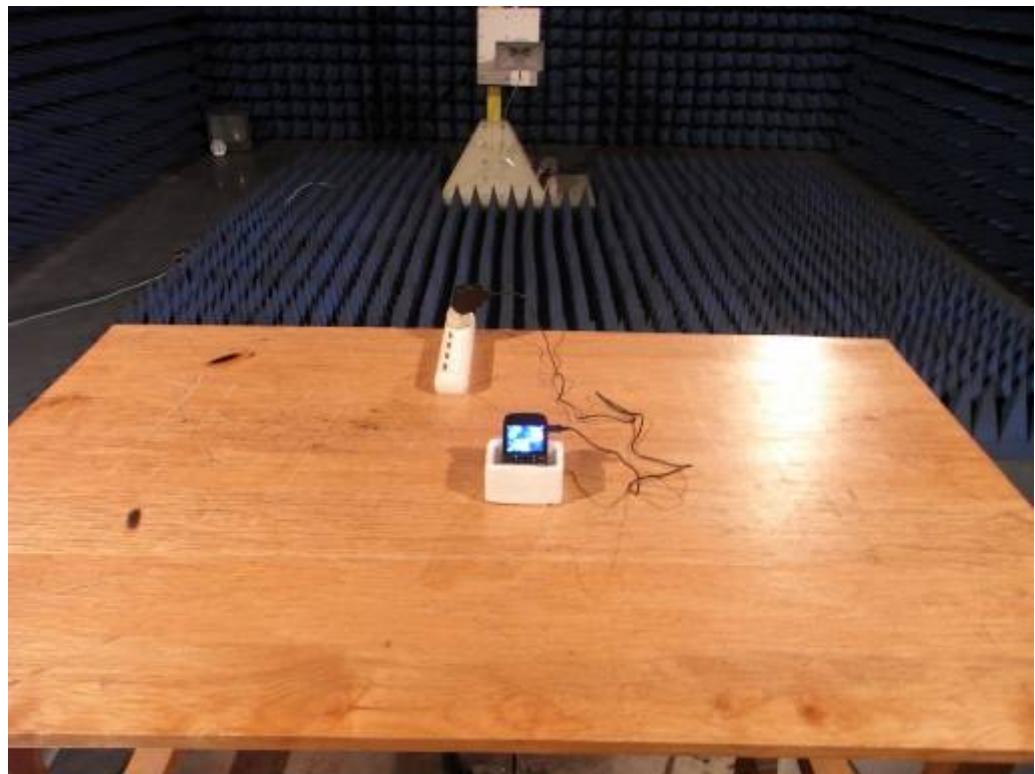
**APPENDIX 1**  
**PHOTOGRAPHS OF TEST SETUP**

CE TEST SETUP



RE TEST SETUP





**APPENDIX 2**  
**PHOTOGRAPHS OF EUT**

FRONT VIEW OF SAMPLE



BACK VIEW OF SAMPLE



LEFT VIEW OF SAMPLE



RIGHT VIEW OF SAMPLE



TOP VIEW OF SAMPLE



BOTTOM VIEW OF SAMPLE



PHOTO OF USB LINE



PHOTO OF EARPHONE



PHOTO OF POWER SUPPLY



PHOTO OF BATTERY



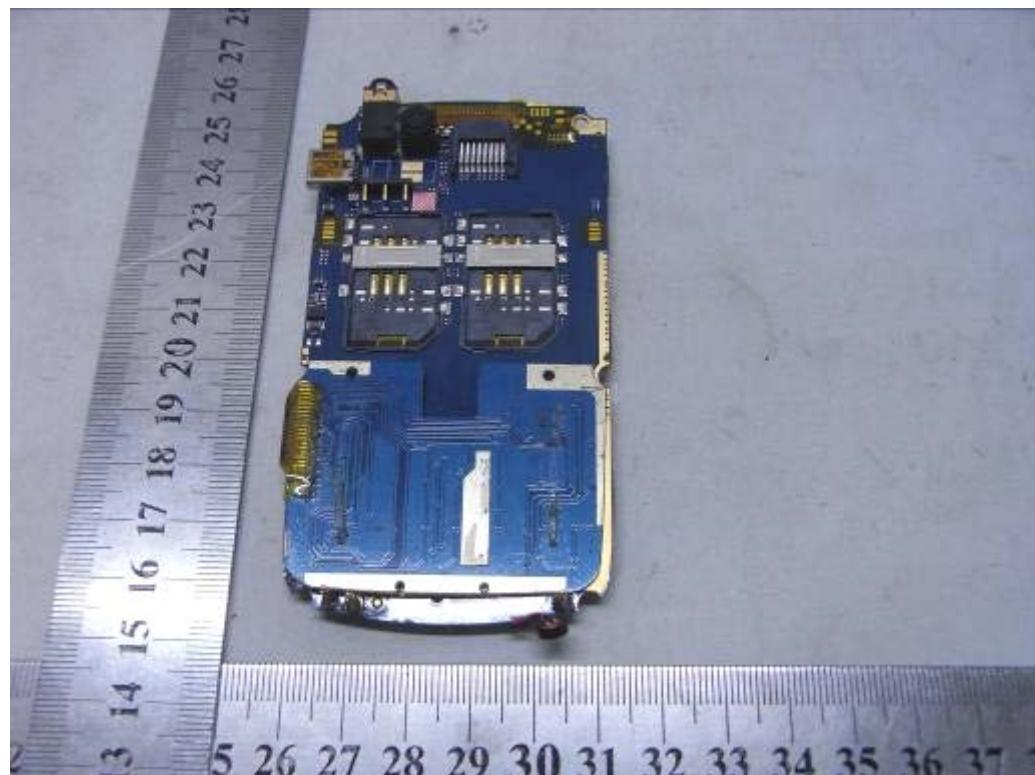
## PHOTO OF THE ENTIRE SAMPLE



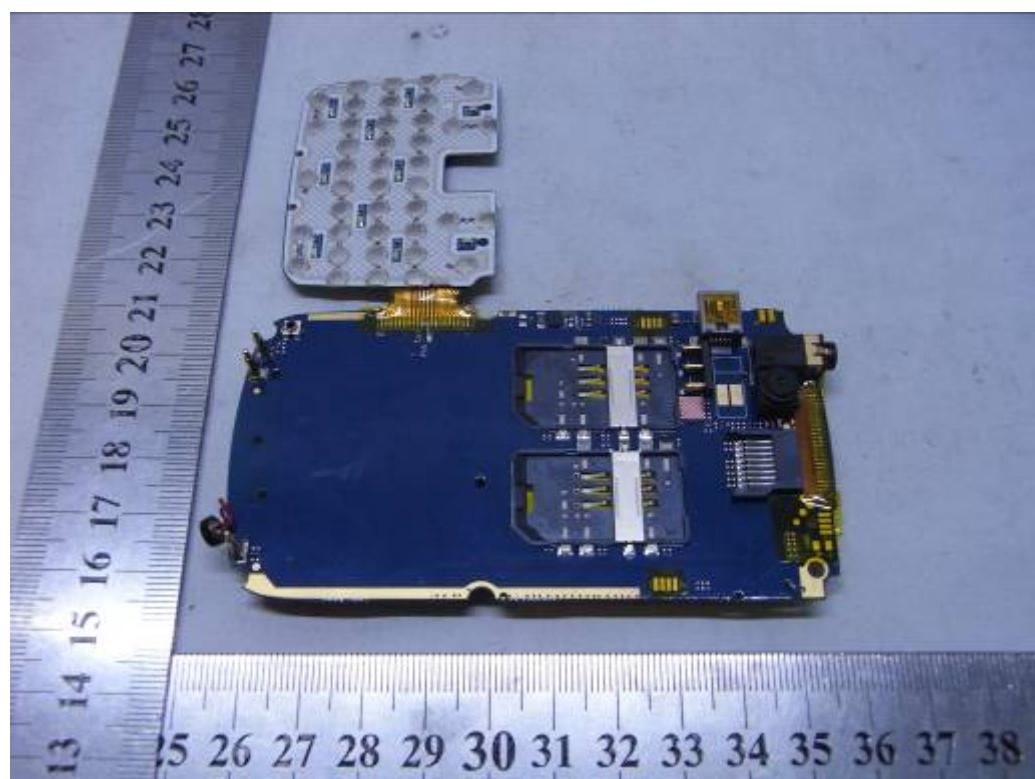
## INTERNAL PHOTO OF SAMPLE – 1



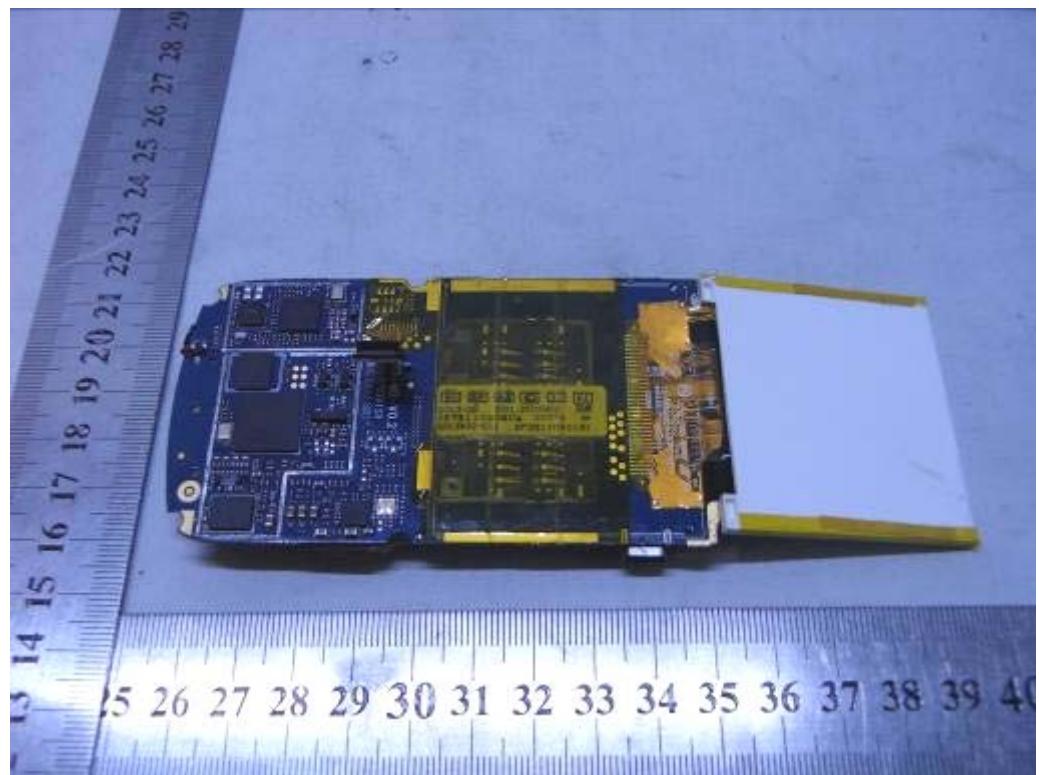
INTERNAL PHOTO OF SAMPLE – 2



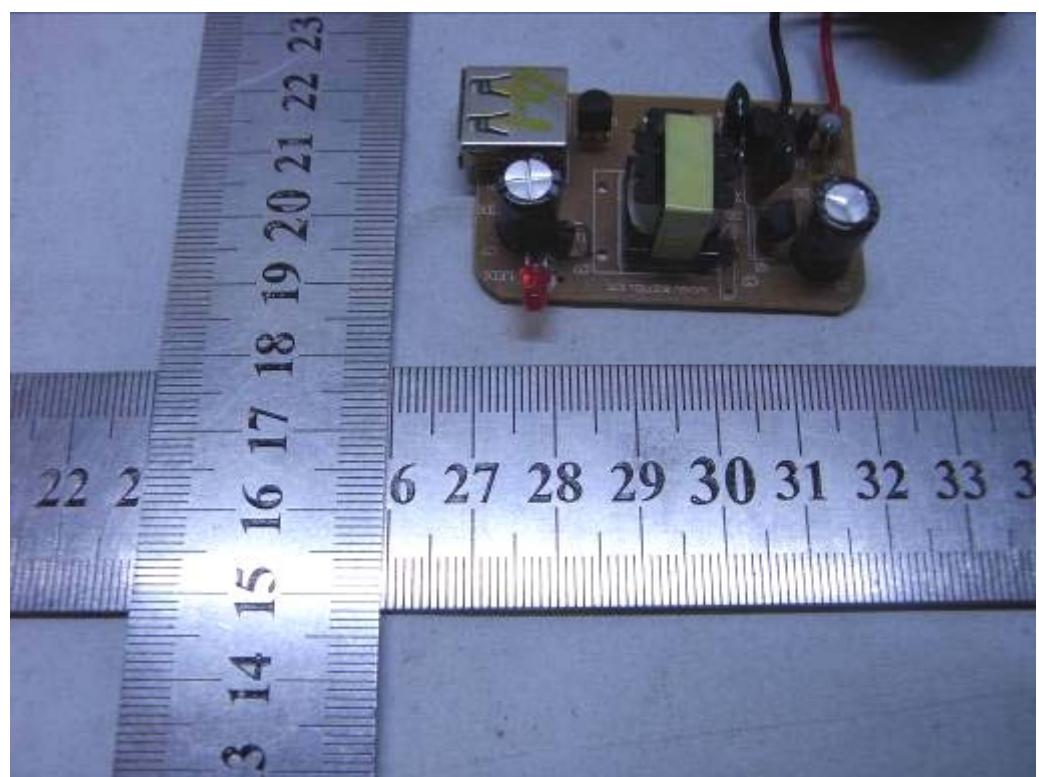
INTERNAL PHOTO OF SAMPLE –3



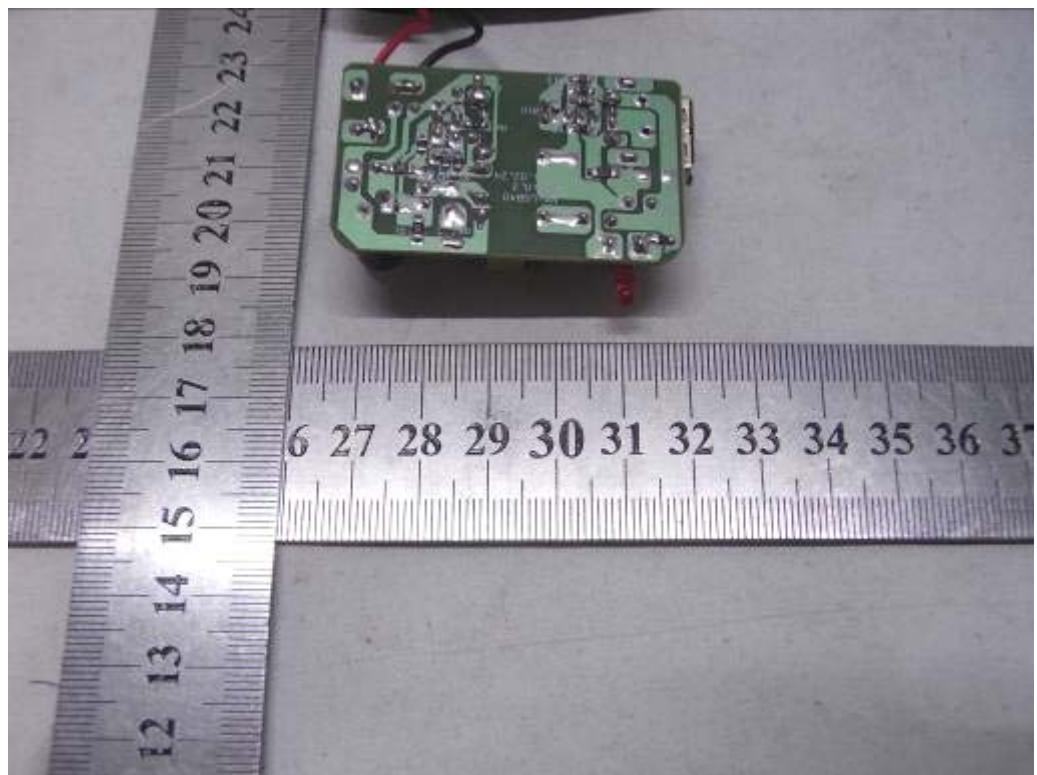
INTERNAL PHOTO OF SAMPLE -4



INTERNAL PHOTO OF POWER SUPPLY-1



INTERNAL PHOTO OF POWER SUPPLY-2



-----END OF REPORT-----