



# FCC 47 CFR PART 15 SUBPART C

## TEST REPORT

*For*

**Applicant:** Cybercell Communications

**Address:** Room 1023, Gelin Wangyuan Zhenxing Road, Futian District,  
Shenzhen City, China.

**Product Name:** GSM Mobile Phone

**Model Name:** CYA35, CYA43, CYA45, CYA32, CYA47, CYA35, CYA50, CYA60,  
CYA61, CYA34, CYA52

**Brand Name:** Cybercell

**FCC ID:** 2AA5Y-CYA35

**Report No.:** DPH20130931F05

**Date of Issue:** October 15, 2013

**Issued by:** Shenzhen Top-cert Service Co., Ltd.

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| Revision History |                  |                     |
|------------------|------------------|---------------------|
| Issue            | Date             | Reason for Revision |
| 1.0              | October 15, 2013 | First edition       |
|                  |                  |                     |

**1. VERIFICATION OF CONFORMITY**

|                                  |   |
|----------------------------------|---|
| <b>Equipment Under Test:</b>     | GSM Mobile Phone  |
| <b>Brand Name:</b>               | Cybercell   |
| <b>Model Number:</b>             | CYA35   |
| <b>Series Model Name:</b>        | CYA43, CYA45, CYA32, CYA47, CYA35, CYA50, CYA60, CYA61, CYA34, CYA5   |
| <b>Difference description:</b>   | Only the model name is different.   |
| <b>FCC ID:</b>                   | 2AA5Y-CYA35   |
| <b>Applicant:</b>                | Cybercell Communications<br>Room 1023, Gelin Wangyuan Zhenxing Road, Futian District, Shenzhen City, China. |
| <b>Manufacturer:</b>             | Cybercell Communications<br>Room 1023, Gelin Wangyuan Zhenxing Road, Futian District, Shenzhen City, China. |
| <b>Technical Standards:</b>      | 47 CFR Part 15 Subpart C  |
| <b>File Number:</b>              | DPH130093F05  |
| <b>Date of test:</b>             | September 10, 2013 ~ October 15, 2013   |
| <b>Deviation:</b>                | October 15, 2013  |
| <b>Condition of Test Sample:</b> | Normal  |
| <b>Test Result:</b>              | PASS  |

The above equipment was tested by Shenzhen Top-cert Service Co., Ltd. for compliance with the requirement 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):

*Rex Luo*

Rex Luo

Test Engineer



Approved by (+ signature):

*Joe Jia*

Joe Jia

Manager

## 2. GENERAL INFORMATION

### 2.1 Product Information

|                          |   |
|--------------------------|---|
| <b>Product</b>           | GSM Mobile Phone  |
| <b>Trade Name</b>        | Cybercell   |
| <b>Model Number</b>      | CYA35   |
| <b>Power Supply</b>      | DC 5V by AC/DC adapter 100-240V~50/60Hz<br>DC 3.7V by battery |
| <b>Frequency Range</b>   | 2402MHz -2480MHz  |
| <b>Modulation Type</b>   | FHSS  |
| <b>Antenna Type:</b>     | Internal Fixed  |
| <b>Channel Spacing:</b>  | 1MHz  |
| <b>Channel Number</b>    | 79(CH Low: 2402MHz, CH Mid: 2441MHz, CH High: 2480MHz)        |
| <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(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   | 2013-09-21   |
| 2   | 15.249(a) | Band Edge                          | PASS   | 2013-09-21   |
| 3   | 15.207    | Power Line Conducted Emission Test | PASS   | 2013-09-21   |

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:            | BZT Testing Technology Co., Ltd.  |
| Location:             | 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street,<br>Bao'an District, Shenzhen P.R. 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.<br><br>The FCC Registration Number is <b>701733</b>   |
| Site Filing:          | The site description is on file with the Federal Communications<br>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.

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      | FCC ID | Series No.    | Data Cable                        | Power Cord           |
|------------------|----------|------------|--------|---------------|-----------------------------------|----------------------|
| PC               | Dell     | V270-R326  | N/A    | D110928479    | N/A                               | 2.5m<br>Un-shielding |
| Printer          | Epson    | CB14       | N/A    | NCCCY99984    | 1.5m<br>Un-shielding              | 2.5m<br>Un-shielding |
| Mouse            | Dell     | MS111      | N/A    | 5213020169    | 1.6m<br>Un-shielding              |                      |
| Keyboard         | Dell     | KB212-B    | N/A    | KB47-5130028  | 1.6m<br>Un-shielding              |                      |
| Monitor          | Lenovo   | TH-P42C33C | N/A    | CW864BCH      | VGA<br>Cable                      | 2.5m<br>Un-shielding |
| Memory<br>Reader | SSK      | SCRM010    | N/A    | A081200177100 | 1.0m<br>Un-shielding<br>USB Cabel | N/A                  |
| T-Flash          | Kingston | N/A        | N/A    | N/A           | 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          | Calibration due date |
|-----|--------------------------------|--------------|-------------|--------------|----------------------|
| 1   | Spectrum Analyzer              | Agilent      | E4407B      | 160400005    | Jul. 06. 2014        |
| 2   | Test Receiver                  | R&S          | ESPI        | 101318       | Jul. 06. 2014        |
| 3   | Bilog Antenna                  | TESEQ        | CBL6111D    | 31216        | Jul. 06. 2014        |
| 4   | 50Ω Coaxial Switch             | Anritsu      | MP59B       | 6200264416   | Jul. 06. 2014        |
| 5   | Spectrum Analyzer              | ADVANTEST    | R3132       | 150900201    | Jul. 06. 2014        |
| 6   | Horn Antenna                   | EM           | EM-AH-20180 | 2011071402   | Jul. 06. 2014        |
| 7   | Horn Ant                       | Schwarzbeck  | BBHA 9170   | 9170-181     | Jul. 06. 2014        |
| 8   | Amplifier                      | EM           | EM-30180    | 060538       | Jul. 06. 2014        |
| 9   | Loop Antenna                   | ARA          | PLA-2030/B  | 1029         | Jul. 06. 2014        |
| 10  | Power Meter                    | R&S          | NRVS        | 100696       | Jul. 06. 2014        |
| 11  | Signal Generator               | R&S          | SMT 06      | 832080/007   | Jul. 31, 2014        |
| 12  | Temperature & Humidity Chamber | GIANT FORCE  | GTH-056P    | GF-94454-1   | Jul. 22, 2014        |
| 13  | Power Sensor (AV)              | R&S          | URV5-Z4     | 0395.1619.05 | Feb. 09, 2014        |
| 14  | EMI Test Receiver              | R&S          | ESCI-7      | 101318       | Jul. 06, 2014        |
| 15  | Antenna Mast                   | EM           | SC100_1     | N/A          | N/A                  |
| 16  | Turn Table                     | EM           | SC100       | 060531       | N/A                  |
|     |                                |              |             |              |                      |

**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                        |

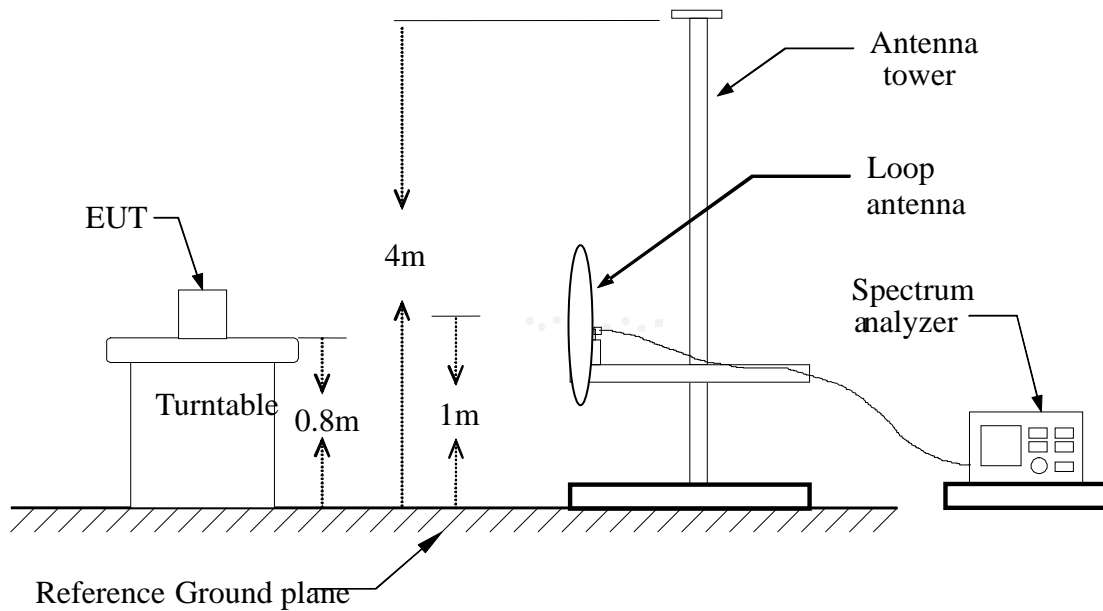
**Remark:** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections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

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

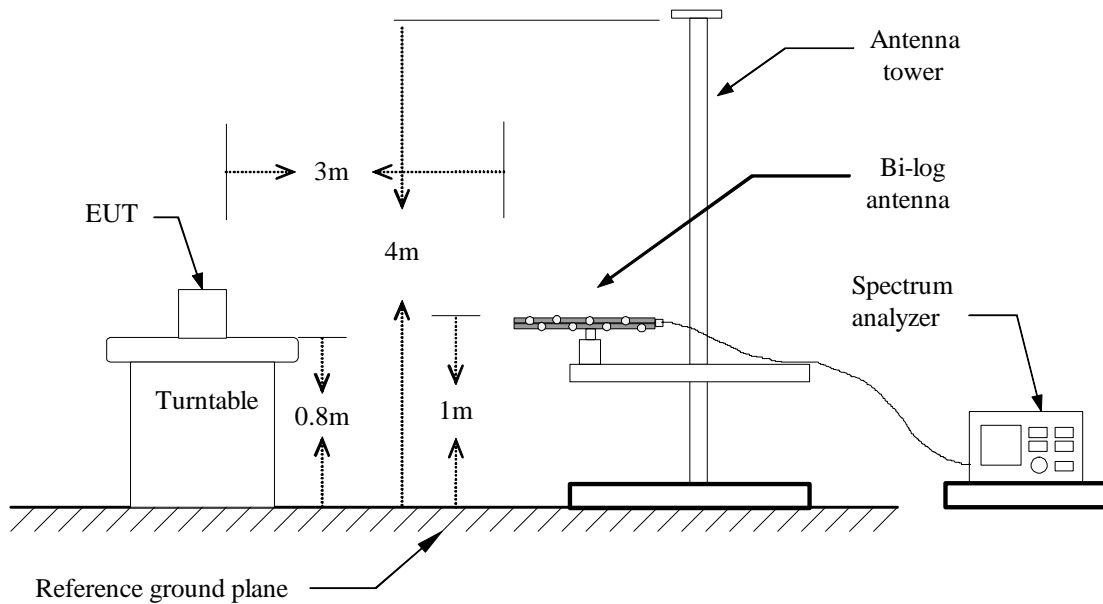
| Frequency (MHz) | Field Strength (μV/m) | Measurement Distance (m) |
|-----------------|-----------------------|--------------------------|
| 30 - 88         | 100                   | 3                        |
| 88 - 216        | 150                   | 3                        |
| 216 - 960     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

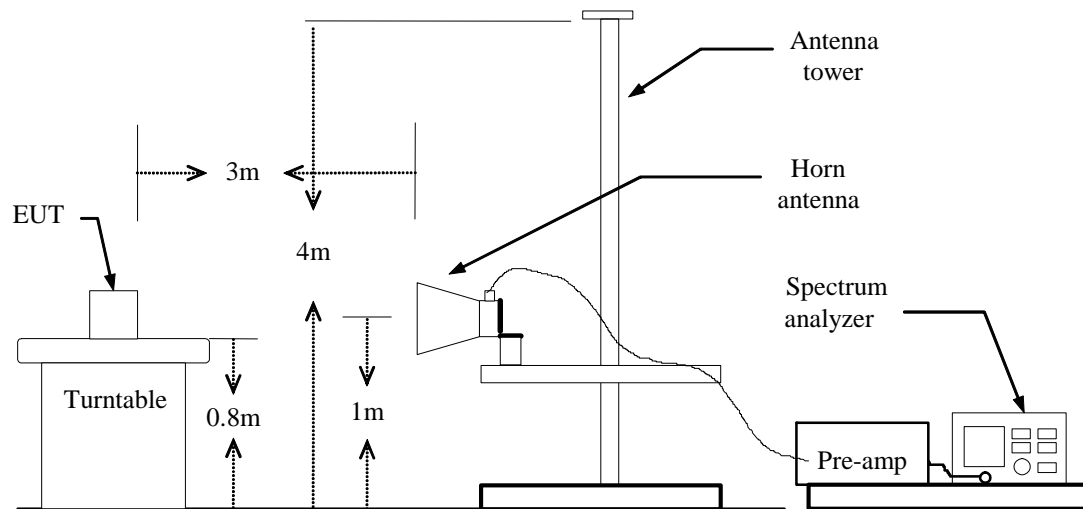
### 5.1.2 TEST DESCRIPTION

#### 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=1MHz / Sweep=AUTO
7. Repeat above procedures until the measurements for all frequencies are complete.

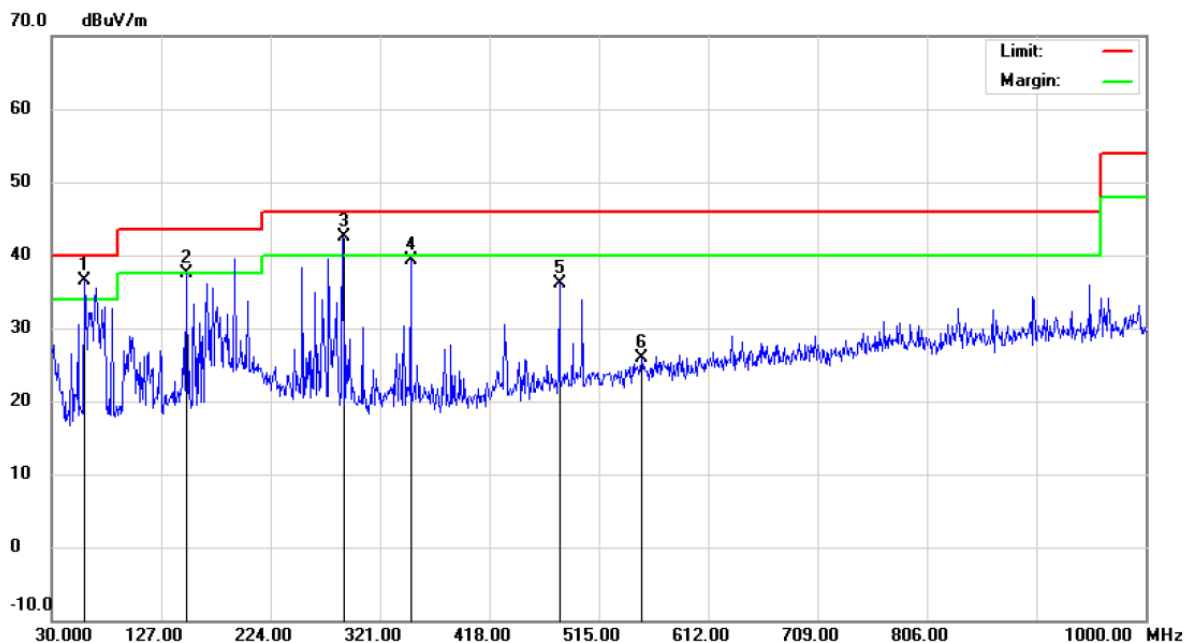
**5.1.4 TEST RESULT****Form 9 KHz to 30MHz:**

| Freq. | Ant. Pol | Peak    | Ant. / CL | Actual Fs | Peak     | Peak   |
|-------|----------|---------|-----------|-----------|----------|--------|
| (MHz) | H/V      | Reading | CF        |           | Limit    | Margin |
|       |          | (dBuV)  | (dB)      | Peak      | (dBuV/m) | (dB)   |
|       |          |         |           | (dBuV/m)  |          |        |
|       | H        |         |           |           |          |        |
|       | H        |         |           |           |          |        |
|       | H        |         |           |           |          |        |
| N/A   |          |         |           |           |          | >20    |
|       | V        |         |           |           |          |        |
|       | V        |         |           |           |          |        |
|       | V        |         |           |           |          |        |
| N/A   |          |         |           |           |          | >20    |

**-Note: No test data was detected in below 30MHz.**

## Form 30 MHz to 1GHz:

## Radiated Emission Measurement



Site site #1

Polarization: *Horizontal*

Temperature: 26

Limit: FCC Part15 B 3M Radiation

Power: AC 120V/60Hz

Humidity: 61 %

EUT: GSM Mobile Phone

Distance:

M/N: CYA35

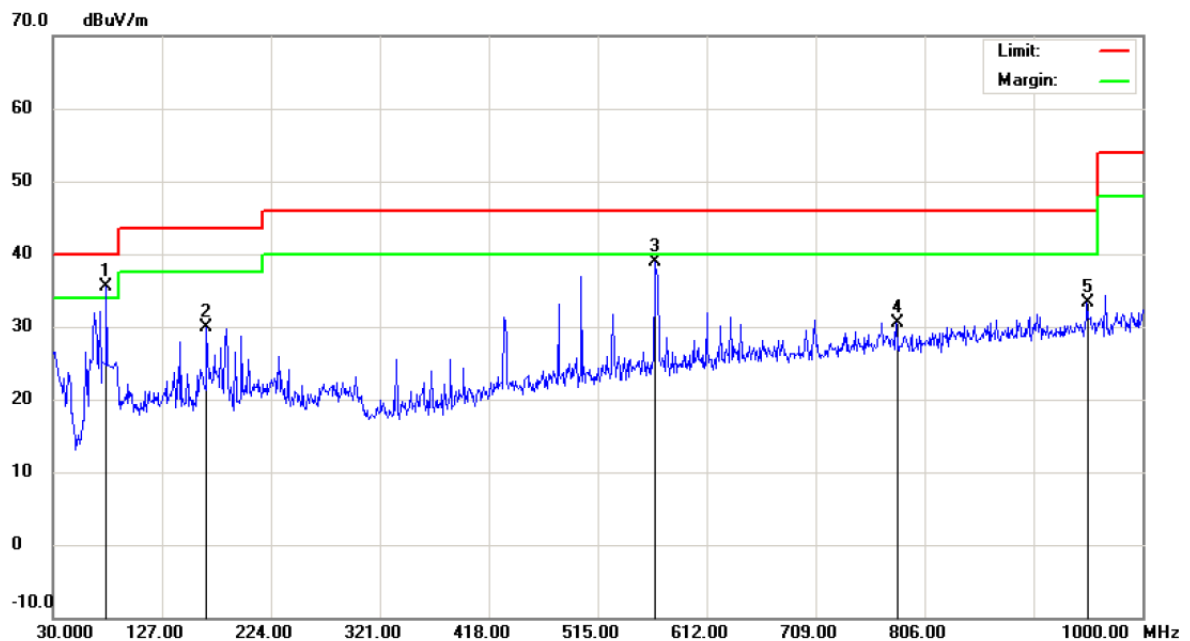
Mode: BT

Note:

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measure-ment | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|--------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m       | dBuV/m | dB     | cm             | degree       | Comment |
| 1   | *   | 59.1000  | 25.82         | 10.78          | 36.60        | 40.00  | -3.40  | QP             |              |         |
| 2   | !   | 149.3100 | 21.02         | 16.56          | 37.58        | 43.50  | -5.92  | QP             |              |         |
| 3   | !   | 288.0200 | 23.06         | 19.42          | 42.48        | 46.00  | -3.52  | QP             |              |         |
| 4   |     | 348.1600 | 21.70         | 17.65          | 39.35        | 46.00  | -6.65  | QP             |              |         |
| 5   |     | 480.0800 | 14.42         | 21.70          | 36.12        | 46.00  | -9.88  | QP             |              |         |
| 6   |     | 552.8300 | 3.27          | 22.61          | 25.88        | 46.00  | -20.12 | QP             |              |         |

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

## Radiated Emission Measurement



Site site #1

Polarization: **Vertical**

Temperature: 26

Limit: FCC Part15 B 3M Radiation

Power: AC 120V/60Hz

Humidity: 61 %

EUT: GSM Mobile Phone

Distance:

M/N: CYA35

Mode: BT

Note:

| No. | Mk. | Freq.    | Reading Level | Correct Factor | Measure-ment | Limit  | Over   | Antenna Height | Table Degree |         |
|-----|-----|----------|---------------|----------------|--------------|--------|--------|----------------|--------------|---------|
|     |     | MHz      | dBuV          | dB             | dBuV/m       | dBuV/m | dB     | cm             | degree       | Comment |
| 1   | *   | 77.5300  | 24.08         | 11.52          | 35.60        | 40.00  | -4.40  | QP             |              |         |
| 2   |     | 166.7700 | 12.75         | 17.20          | 29.95        | 43.50  | -13.55 | QP             |              |         |
| 3   |     | 566.4099 | 16.02         | 22.79          | 38.81        | 46.00  | -7.19  | QP             |              |         |
| 4   |     | 780.7800 | 4.37          | 26.18          | 30.55        | 46.00  | -15.45 | QP             |              |         |
| 5   |     | 950.5300 | 5.37          | 27.92          | 33.29        | 46.00  | -12.71 | QP             |              |         |

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

**Above 1 GHz****Operation Mode:** CH Low**Test Date:** 2013-09-21**Temperature:** 20°C**Humidity:** 70 % RH

| Freq.   | Ant. Pol | Peak    | AV      | Ant. / CL | Actual Fs |          | Peak     | AV       | AV     |
|---------|----------|---------|---------|-----------|-----------|----------|----------|----------|--------|
| (MHz)   | H/V      | Reading | Reading | CF        |           |          | Limit    | Limit    | Margin |
|         |          | (dBuV)  | (dBuV)  | (dB)      | Peak      | AV       | (dBuV/m) | (dBuV/m) | (dB)   |
|         |          |         |         |           | (dBuV/m)  | (dBuV/m) |          |          |        |
| 2402.00 | H        | 89.24   | 77.18   | 9.08      | 98.32     | 86.26    | 114.00   | 94.00    | -7.74  |
| 4805.00 | H        | 48.16   | 28.52   | 16.54     | 64.70     | 45.06    | 74.00    | 54.00    | -8.94  |
| N/A     |          |         |         |           |           |          |          |          | >20    |
| 2402.00 | V        | 91.38   | 78.51   | 9.08      | 100.46    | 87.59    | 114.00   | 94.00    | -6.41  |
| 4805.00 | V        | 49.41   | 28.53   | 16.54     | 65.95     | 45.07    | 74.00    | 54.00    | -8.93  |
| 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. Spectrum setting:
  - a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 1MHz, Sweep time = *auto*.
  - b. AV Setting 1GHz- 26GHz, RBW = 1MHz, VBW = 1MHz, Sweep time = *auto*.



Operation Mode: CH Mid

Test Date: 2013-09-21

Temperature: 20°C

Humidity: 70 % RH

| Freq.   | Ant. Pol | Peak    | AV      | Ant. / CL | Actual Fs |          | Peak     | AV       | AV     |
|---------|----------|---------|---------|-----------|-----------|----------|----------|----------|--------|
| (MHz)   | H/V      | Reading | Reading | CF        | Peak      | AV       | Limit    | Limit    | Margin |
|         |          | (dBuV)  | (dBuV)  | (dB)      | (dBuV/m)  | (dBuV/m) | (dBuV/m) | (dBuV/m) | (dB)   |
| 2441.00 | H        | 90.47   | 78.52   | 9.31      | 99.78     | 87.83    | 114.00   | 94.00    | -6.17  |
| 4892.50 | H        | 48.33   | 29.75   | 17.09     | 65.42     | 46.84    | 74.00    | 54.00    | -7.16  |
| N/A     |          |         |         |           |           |          |          |          | >20    |
| 2441.00 | V        | 91.69   | 78.42   | 9.31      | 101.00    | 87.73    | 114.00   | 94.00    | -6.27  |
| 4892.50 | V        | 49.05   | 30.46   | 17.09     | 66.14     | 47.55    | 74.00    | 54.00    | -6.45  |
| 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. Spectrum setting:
  - a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 1MHz, Sweep time = *auto*.
  - b. AV Setting 1GHz- 26GHz, RBW = 1MHz, VBW = 1MHz, Sweep time = *auto*.

Operation Mode: CH High

Test Date: 2013-09-21

Temperature: 20°C

Humidity: 70 % RH

| Freq.   | Ant. Pol | Peak    | AV      | Ant. / CL | Actual Fs |          | Peak     | AV       | AV     |
|---------|----------|---------|---------|-----------|-----------|----------|----------|----------|--------|
| (MHz)   | H/V      | Reading | Reading | CF        |           |          | Limit    | Limit    | Margin |
|         |          | (dBuV)  | (dBuV)  | (dB)      | Peak      | AV       | (dBuV/m) | (dBuV/m) | (dB)   |
|         |          |         |         |           | (dBuV/m)  | (dBuV/m) |          |          |        |
| 2480.00 | H        | 89.73   | 79.04   | 9.47      | 99.20     | 88.51    | 114.00   | 94.00    | -5.49  |
| 4960.50 | H        | 50.24   | 29.17   | 17.49     | 67.73     | 46.66    | 74.00    | 54.00    | -7.34  |
| N/A     |          |         |         |           |           |          |          |          | >20    |
| 2480.00 | V        | 90.36   | 78.11   | 9.47      | 99.83     | 87.58    | 114.00   | 94.00    | -6.42  |
| 4960.50 | V        | 49.62   | 28.53   | 17.49     | 67.11     | 46.02    | 74.00    | 54.00    | -7.98  |
| N/A     |          |         |         |           |           |          |          |          | >20    |

**Notes:**

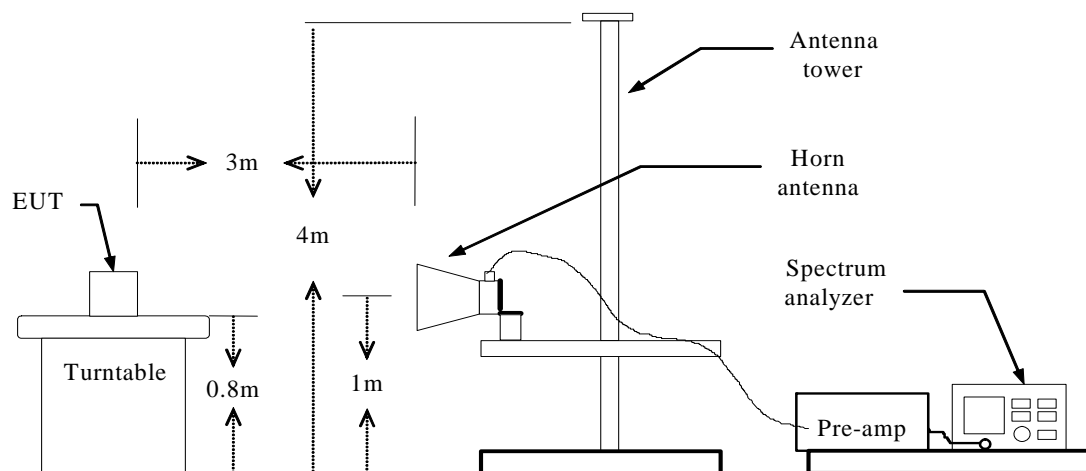
1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond 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. Spectrum setting:
  - a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 1MHz, Sweep time = *auto*.
  - b. AV Setting 1GHz- 26GHz, RBW = 1MHz, VBW = 1MHz, Sweep time = *auto*.

## 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

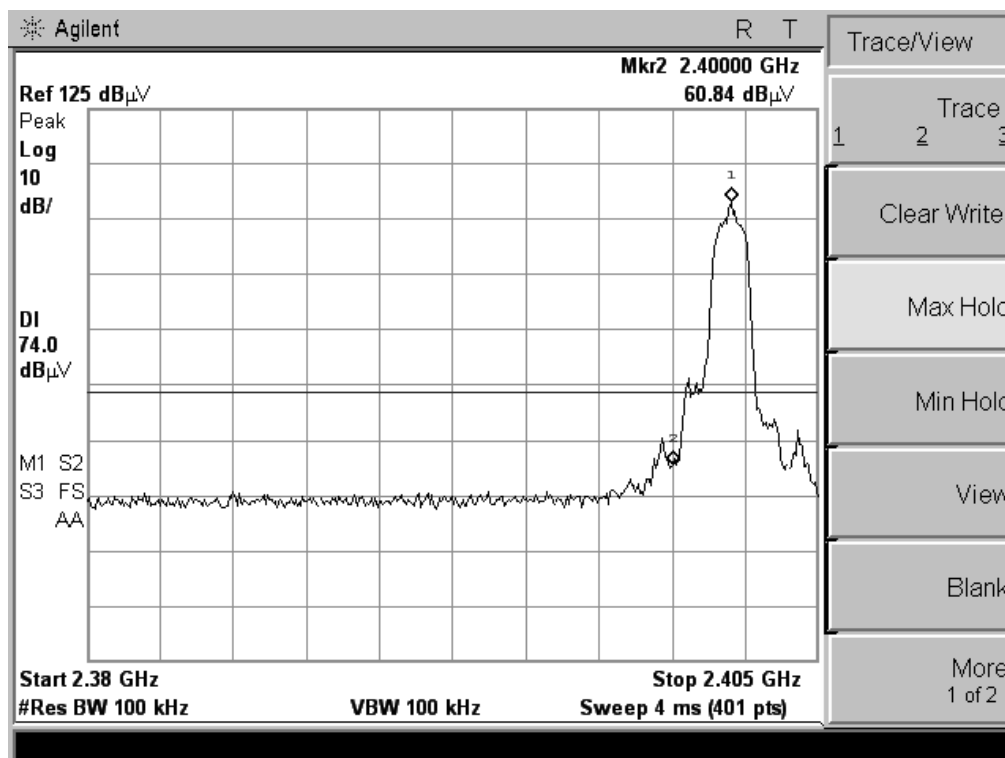


### 5.2.3 TEST RESULT

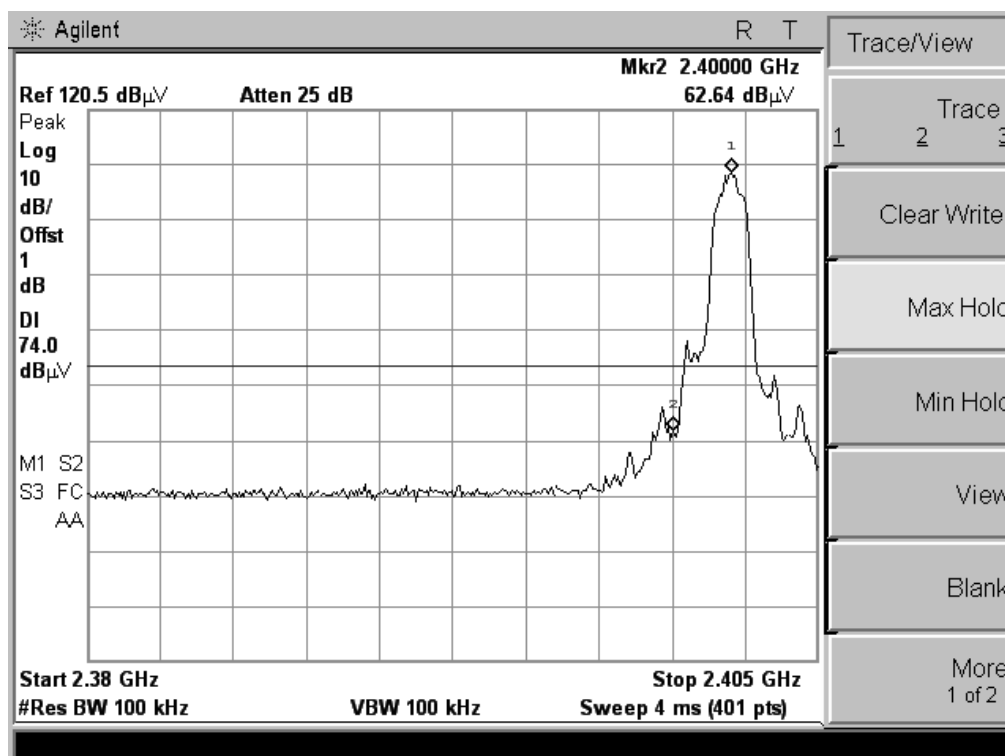
The EUT operates at hopping-off test mode. The lowest and highest channels are tested to verify the band edge emissions.

| Test Mode |              | Channel Marked Frequency | Limit (dBuv/m)          | Test Result Highest Emission (dBuv/m) |         |            |         |
|-----------|--------------|--------------------------|-------------------------|---------------------------------------|---------|------------|---------|
|           |              |                          |                         | Vertical                              |         | Horizontal |         |
|           |              |                          |                         | Peak                                  | Average | Peak       | Average |
| Bluetooth | Low Channel  | 2400MHz                  | 74(Peak)<br>54(Average) | 60.84                                 | 48.32   | 62.64      | 49.17   |
|           | High Channel | 2483.5MHz                |                         | 55.84                                 | 44.75   | 52.43      | 43.26   |

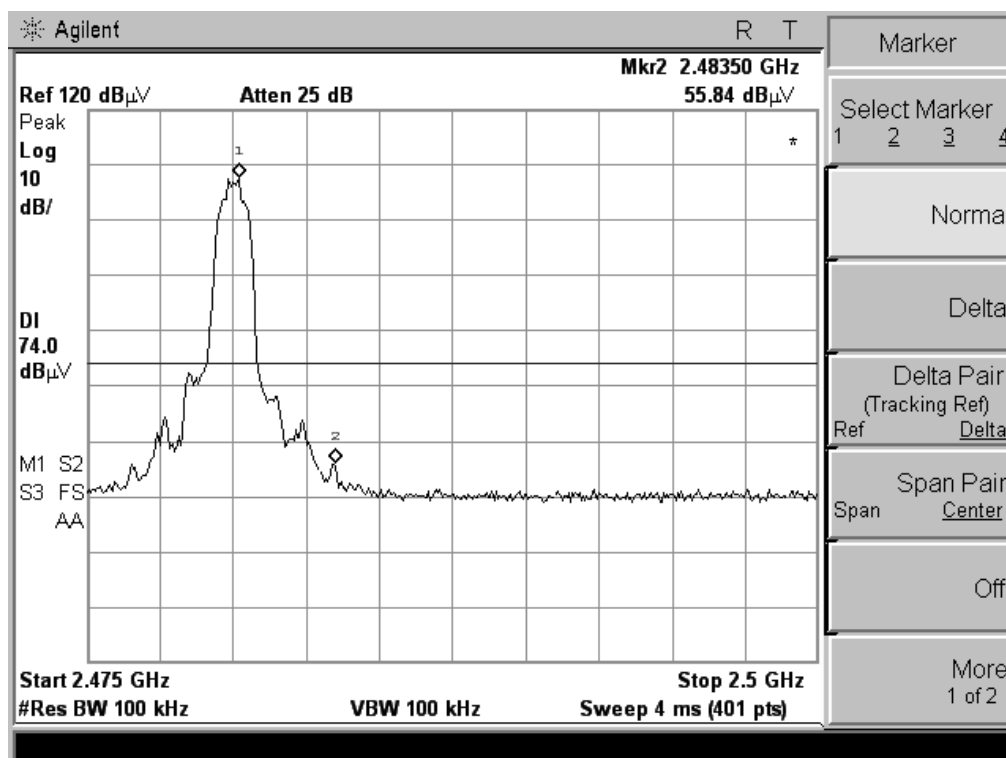
## Test Plot:



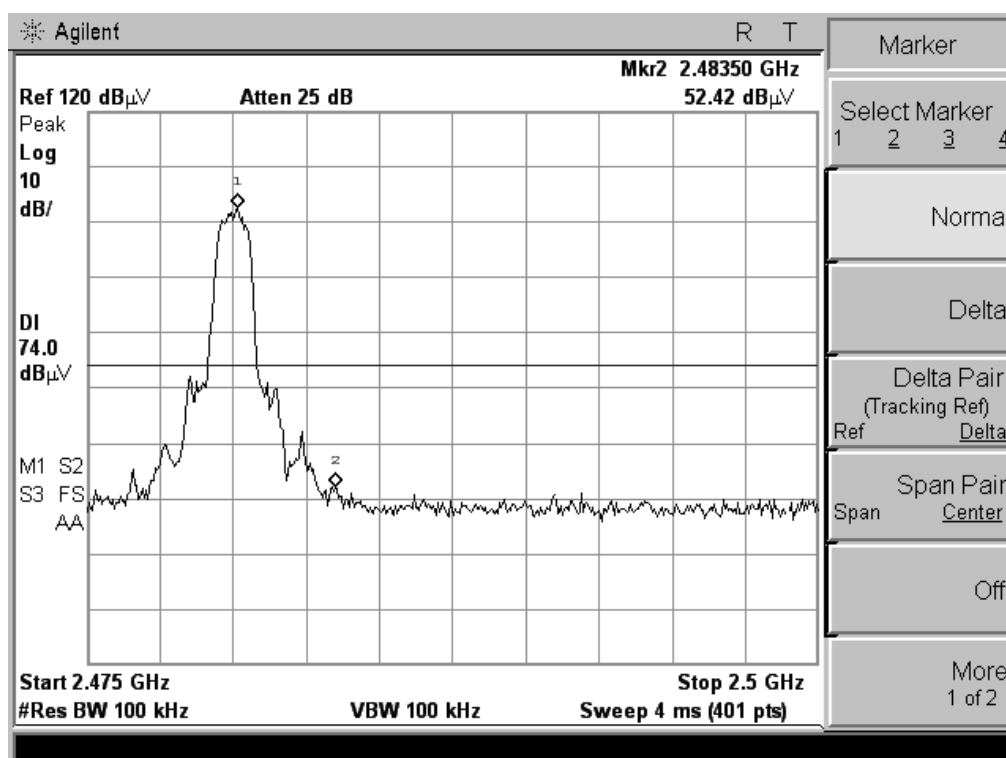
(CH Low, Vertical)



(CH Low, Horizontal)



(CH High, Vertical)



(CH High, Horizontal)

### 5.3 LINE CONDUCTED EMISSION TEST

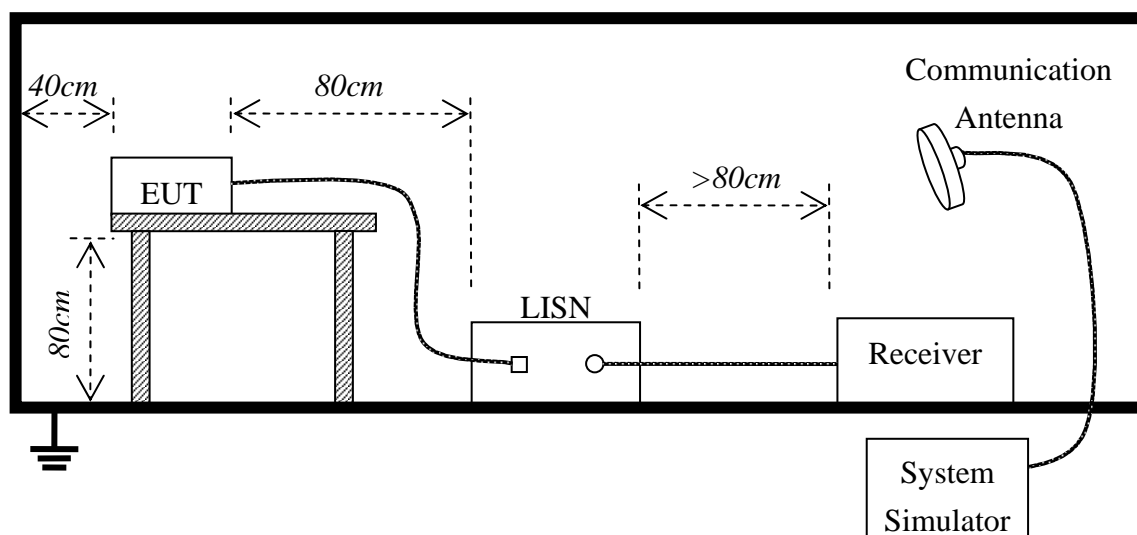
#### 5.3.1 LIMITS OF LINE CONDUCTED EMISSION TEST

| 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 BLOCK DIAGRAM OF TEST SETUP



### 5.3.3 PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

- 1) The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per FCC Part 15 (see Test Facility for the dimensions of the ground plane used). When the EUT is floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2) Support equipment, if needed, was placed as per FCC Part 15.
- 3) All I/O cables were positioned to simulate typical actual usage as per FCC Part 15.
- 4) The EUT received DC 5V power by AC/DC adapter which through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
- 5) All support equipments received power from a second LISN supplying power of AC 120V/60Hz, if any.
- 6) The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7) Analyzer / Receiver scanned from 150 kHz to 30 MHz for emissions in each of the test modes.
- 8) During the above scans, the emissions were maximized by cable manipulation.

### 5.3.4 FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

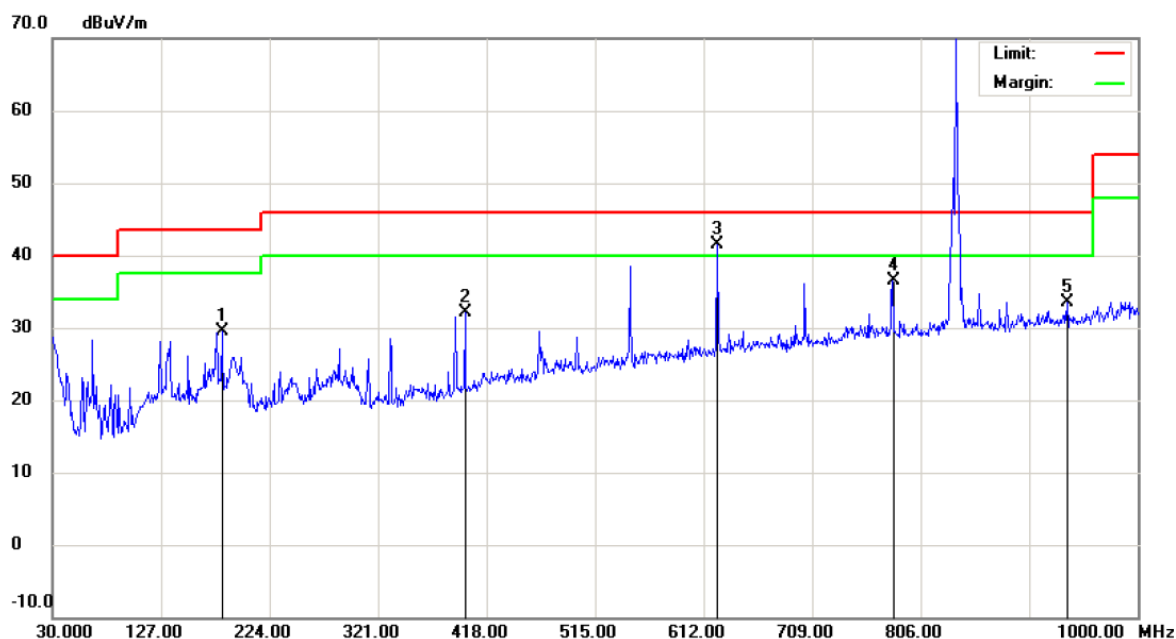
EUT and support equipment was set up on the test bench as per step 9 of the preliminary test.

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.

The test data of the worst case condition(s) was reported on the Summary Data page.

### 5.3.5 TEST RESULT OF LINE CONDUCTED EMISSION TEST

#### Radiated Emission Measurement



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:

M/N: CYA35

Mode: BT

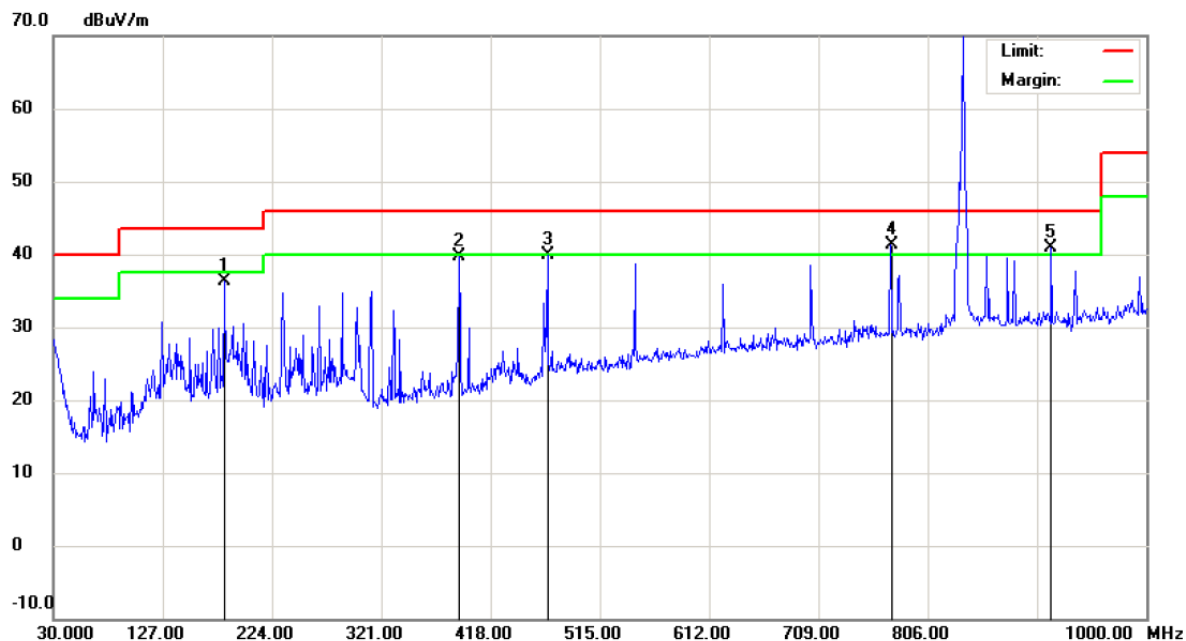
Note:

| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Antenna<br>Height<br>cm | Table<br>Degree<br>degree | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|-------------------------|---------------------------|---------|
| 1   |     | 181.3200     | 12.89                    | 16.67                   | 29.56                      | 43.50           | -13.94     | peak                    |                           |         |
| 2   |     | 398.6000     | 13.49                    | 18.66                   | 32.15                      | 46.00           | -13.85     | peak                    |                           |         |
| 3   | *   | 624.6100     | 17.91                    | 23.59                   | 41.50                      | 46.00           | -4.50      | peak                    |                           |         |
| 4   |     | 780.7800     | 10.24                    | 26.18                   | 36.42                      | 46.00           | -9.58      | peak                    |                           |         |
| 5   |     | 936.9500     | 6.05                     | 27.48                   | 33.53                      | 46.00           | -12.47     | peak                    |                           |         |

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



## Radiated Emission Measurement



Site: site MOST 3M

Polarization: *Horizontal*

Temperature: 26

Limit: FCC Part15 B 3M Radiation

Power: AC 120V/60Hz

Humidity: 61 %

EUT: GSM mobile phone

Distance:

M/N: CYA35

Mode: BT

Note:

| No. | Mk. | Freq.<br>MHz | Reading<br>Level<br>dBuV | Correct<br>Factor<br>dB | Measure-<br>ment<br>dBuV/m | Limit<br>dBuV/m | Over<br>dB | Detector | Antenna<br>Height<br>cm | Table<br>Degree<br>degree | Comment |
|-----|-----|--------------|--------------------------|-------------------------|----------------------------|-----------------|------------|----------|-------------------------|---------------------------|---------|
| 1   |     | 181.3200     | 19.68                    | 16.67                   | 36.35                      | 43.50           | -7.15      | peak     |                         |                           |         |
| 2   |     | 389.8700     | 21.36                    | 18.30                   | 39.66                      | 46.00           | -6.34      | peak     |                         |                           |         |
| 3   |     | 468.4400     | 18.78                    | 21.12                   | 39.90                      | 46.00           | -6.10      | peak     |                         |                           |         |
| 4   | *   | 773.0200     | 15.28                    | 25.99                   | 41.27                      | 46.00           | -4.73      | peak     |                         |                           |         |
| 5   | !   | 915.6100     | 13.28                    | 27.70                   | 40.98                      | 46.00           | -5.02      | peak     |                         |                           |         |

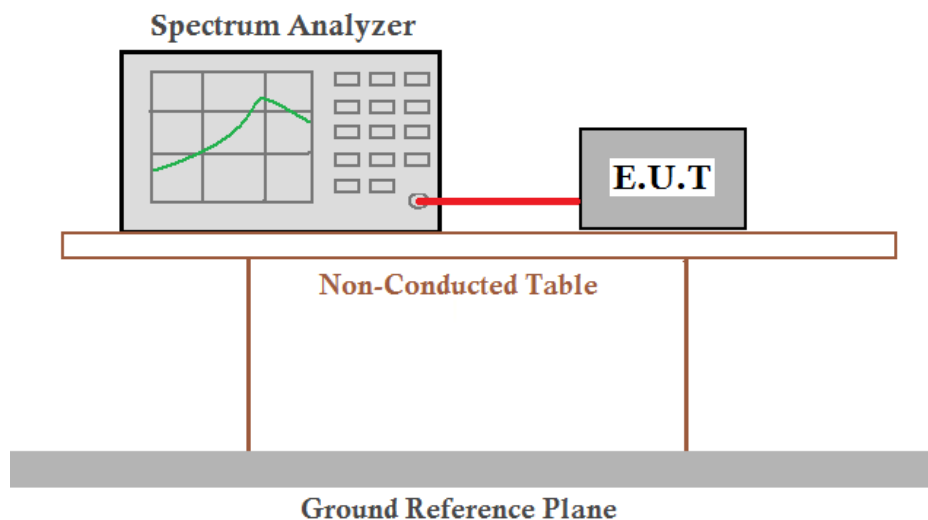
\*:Maximum data    x:Over limit    !:over margin

## 5.4 20dB Bandwidth

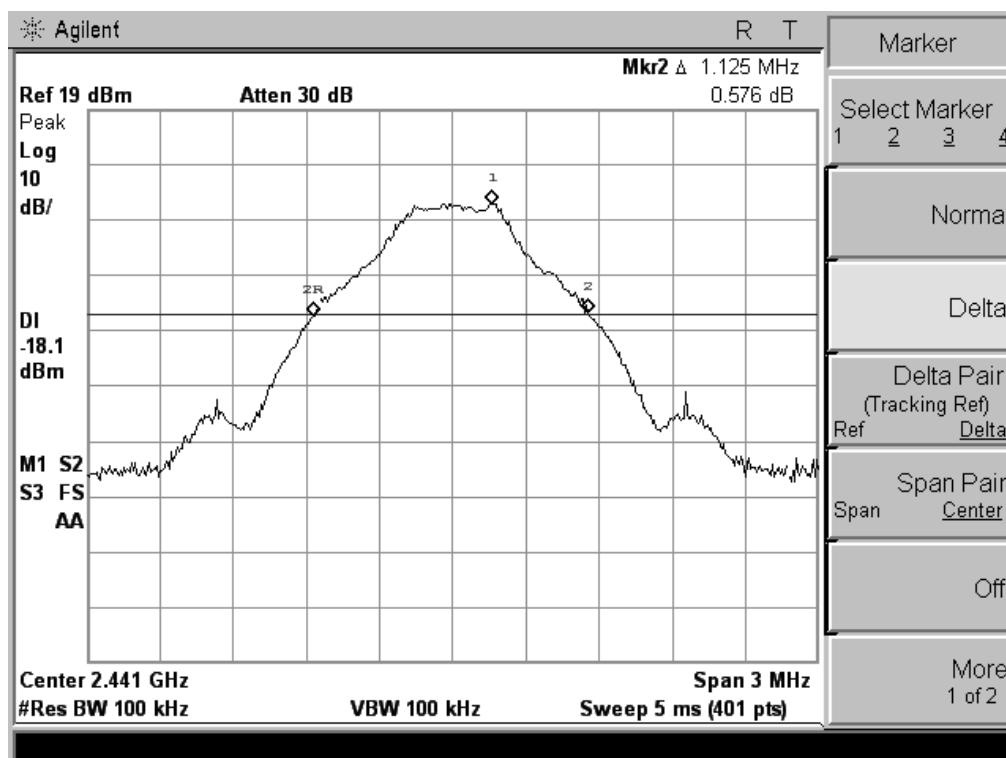
### 5.4.1 Definition

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

### 5.4.2 Test Description



### 5.4.3 Test Result



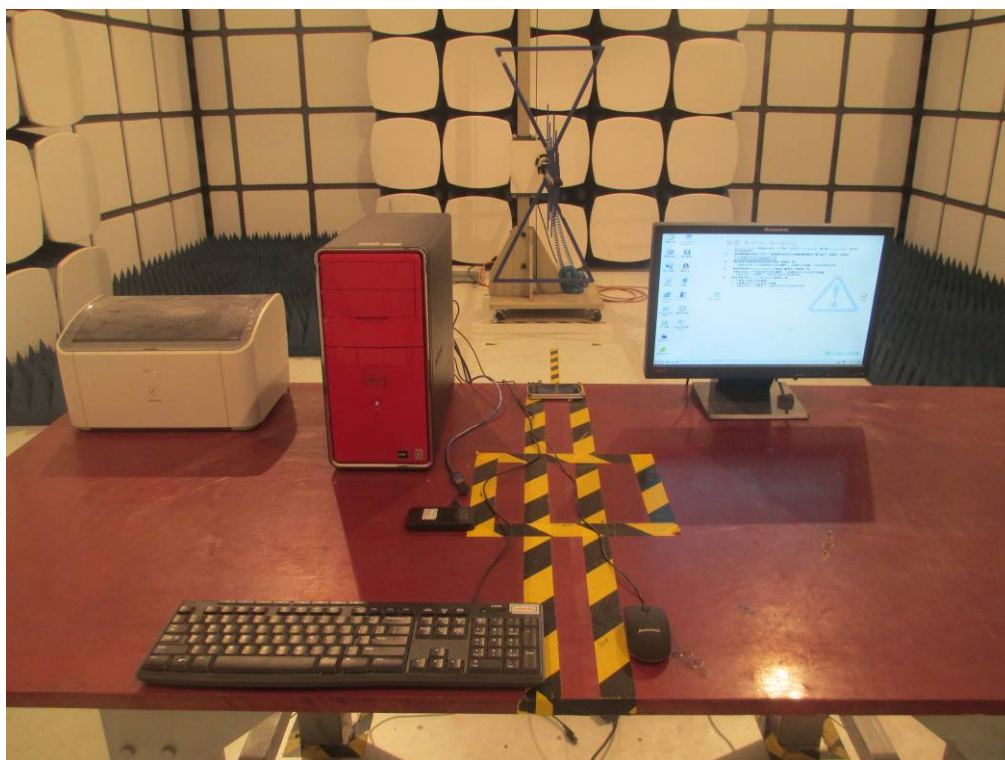
(CH Mid)

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

### CE TEST SETUP



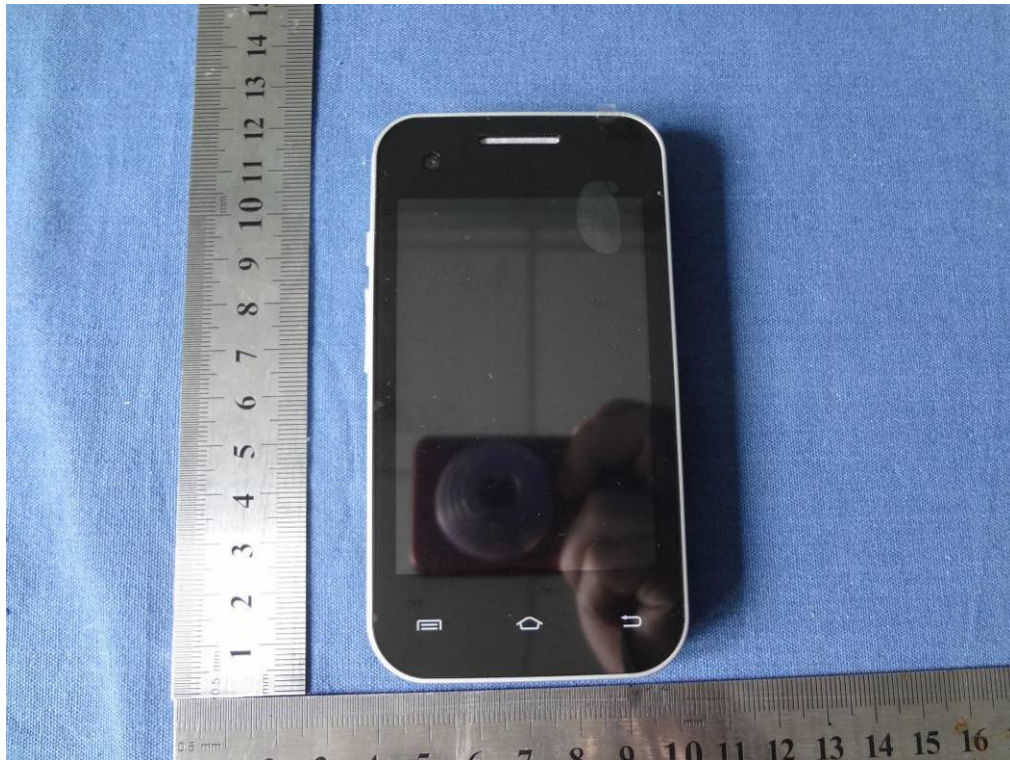
# RE TEST SETUP



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



FRONT VIEW OF SAMPLE



RIGHT VIEW OF SAMPLE



UP VIEW OF SAMPLE



DOWN VIEW OF SAMPLE





PHOTO OF CHARGER



PHOTO OF BATTERY



PHOTO OF EUT FULL VIEW





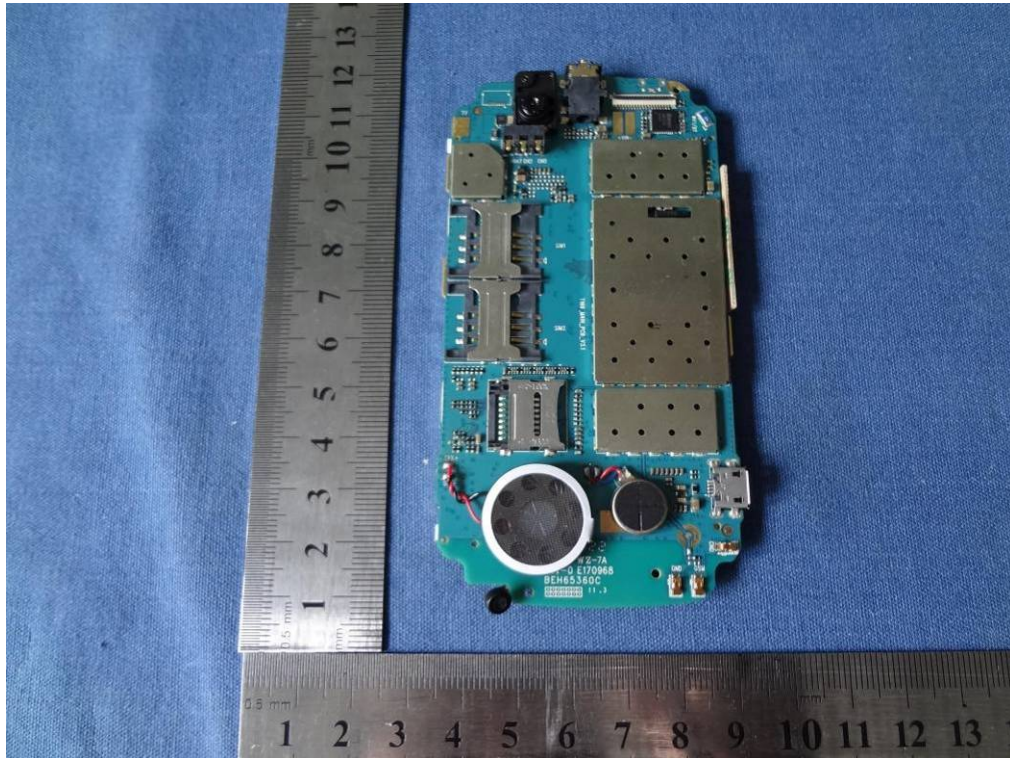
INTERNAL PHOTO OF SAMPLE - 1



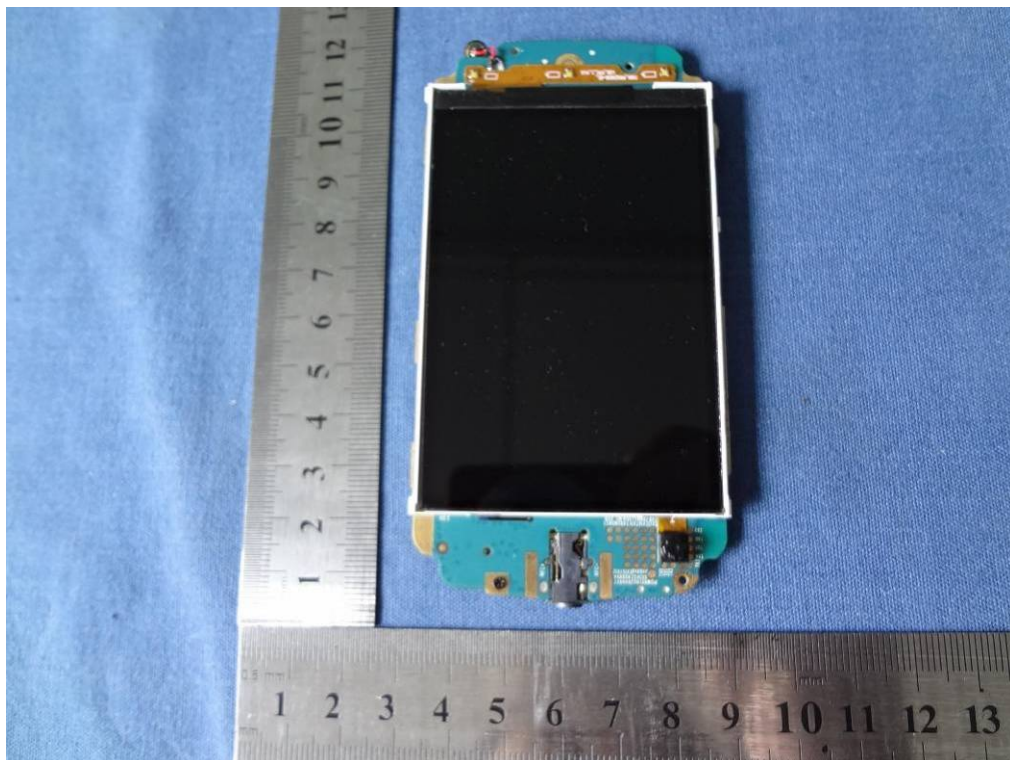
INTERNAL PHOTO OF SAMPLE -2



INTERNAL PHOTO OF SAMPLE - 3

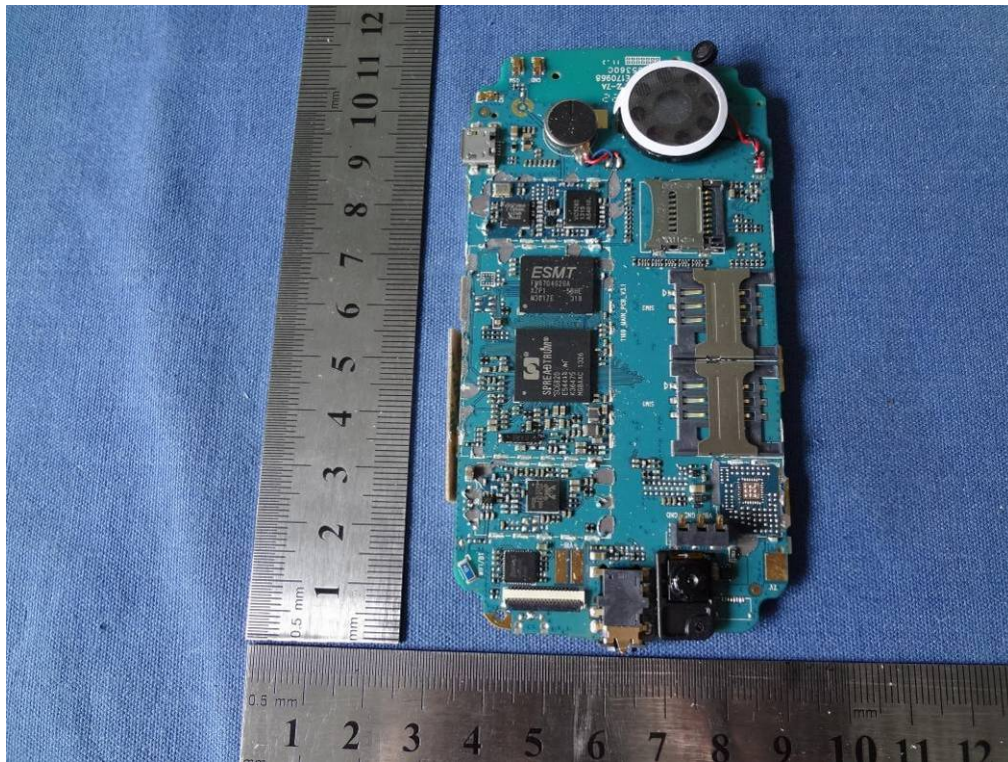


INTERNAL PHOTO OF SAMPLE – 4

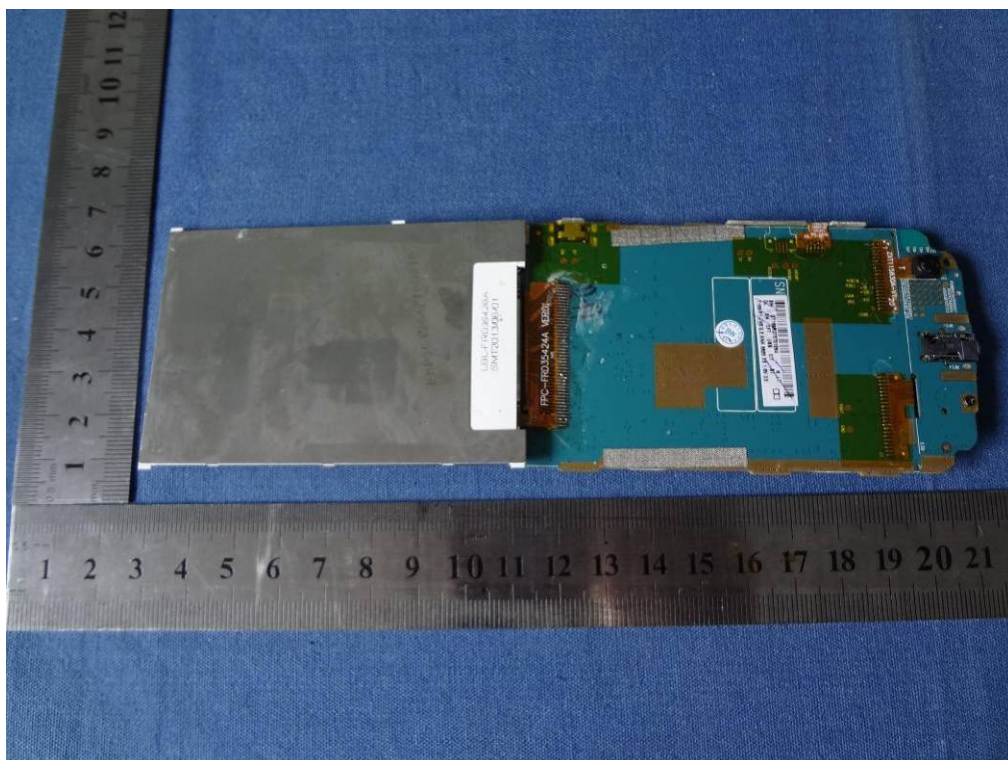




INTERNAL PHOTO OF SAMPLE - 5



INTERNAL PHOTO OF SAMPLE – 6



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