

TEST REPORT

OF

FCC Part 22, 24, 15 Subpart B

FCC ID: SS4BIP1300

Equipment Under Test : PDA
Model Name : BIP-1300
Serial No. : N/A
Applicant : BluebirdSoft., Inc.
Manufacturer : BluebirdSoft., Inc.
Date of Test(s) : 2007-08-26 ~ 2007-09-19
Date of Issue : 2007-10-15

In the configuration tested, the EUT complied with the standards specified above.

Tested By:



Date

2007-10-15

Feel Jeong

Approved By



Date

2007-10-15

Denny Ham

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1. General Information

1.1. Testing Laboratory

SGS Testing Korea Co., Ltd.
 Wireless Div. 2FL, 18-34, Sanbon-dong, Gunpo-si, Gyeonggi-do, Korea 435-040
www.electrolab.kr.sgs.com
 Telephone : +82 +31 428 5700
 FAX : +82 +31 427 2371

1.2. Details of Applicant

Applicant : BluebirdSoft., Inc
 Address : 558-5, Sinsa-dong, Kangnam-gu, Seoul, Korea
 Contact Person : Kyoung Jin Park
 Phone No. : +82 +2 548 0740
 Fax No. : +82 +2 548 0870

1.3. Description of EUT

| | |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Kind of Product | PDA |
| Model Name | BIP-1300 |
| Serial Number | N/A |
| GSM module FCC ID | O9EQ2687 |
| Power Supply | DC 7.4 V(Li-Polymer Battery) |
| Frequency Range | 2412 MHz ~ 2462 MHz(11b/g), 2402 MHz ~ 2480 MHz(Bluetooth) 824.2 MHz ~ 848.8 MHz(GSM 850), 1850.2 MHz ~ 1909.8 MHz(GSM 1900) |
| Modulation Technique | DSSS(11b), OFDM(11g), FHSS(Bluetooth), GMSK, 8-PSK |
| Number of Channels | 11 CH(11b/g), 79 CH(Bluetooth), 300(GSM 1900), 125(GSM 850) |
| Operating Conditions | -20 ~ 55 |
| Antenna Type | Inverted_L Type(11b/g), Fixed Type (Bluetooth) Inverted_L Type(GSM) |
| Antenna Gain | -1.42 dBi(WLAN), -8.86dBi(Bluetooth), -2.34dBi(GSM 850), -0.08 dBi(GSM1900) |

1.4. Details of modification

-N/A

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1.5. Test Equipment List

| EQUIPMENT | MANUFACTURER | MODEL | CAL DUE. |
|-------------------------|-----------------|----------------------------|-----------|
| Signal Generator | Agilent | E4438C | May 2008 |
| Spectrum Analyzer | Agilent | E4440A | May 2008 |
| Spectrum Analyzer | H.P | 8593E | Sep. 2008 |
| DC Power Supply | Agilent | 6674A | May 2008 |
| DC Power Supply | Agilent | E3631A | May 2008 |
| Attenuator | Agilent | 8494B | May 2008 |
| Two-Line V-Network | NNB 41 | Schaffner | Sep. 2008 |
| Test Receiver | Rohde & Schwarz | ESVS10 | May 2008 |
| Test Receiver | Rohde & Schwarz | ESHS10 | Aug. 2008 |
| Ultra-Broadband Antenna | Rohde & Schwarz | HL562 | Sep. 2008 |
| Horn Antenna | Electro-Metrics | RGA-60 | Dec. 2007 |
| Dipole Antenna | VHAP/UHAP | 975/958 | Jun. 2008 |
| Communication Antenna | AR | AT 4002 | N.C.R |
| Band Reject Filter | Wainwright | WRCG824/849-814/85960/10SS | May 2008 |

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| EQUIPMENT | MANUFACTURER | MODEL | CAL DUE. |
|----------------------|----------------|----------------------|-----------|
| Highpass Filter | Wainwright | WHK3.0/18G-10SS | Dec.2007 |
| Biconcai Antenna | R&S | HK116 | May 2009 |
| Log-Periodic Antenna | R&S | HL223 | May 2009 |
| Mobile Test Unit | Agilent | E5515C | May 2008 |
| Anechoic Chamber | SY Corporation | L W H 6.5 3.5 3.5 | Aug. 2008 |

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1.6. Summary of Test Results

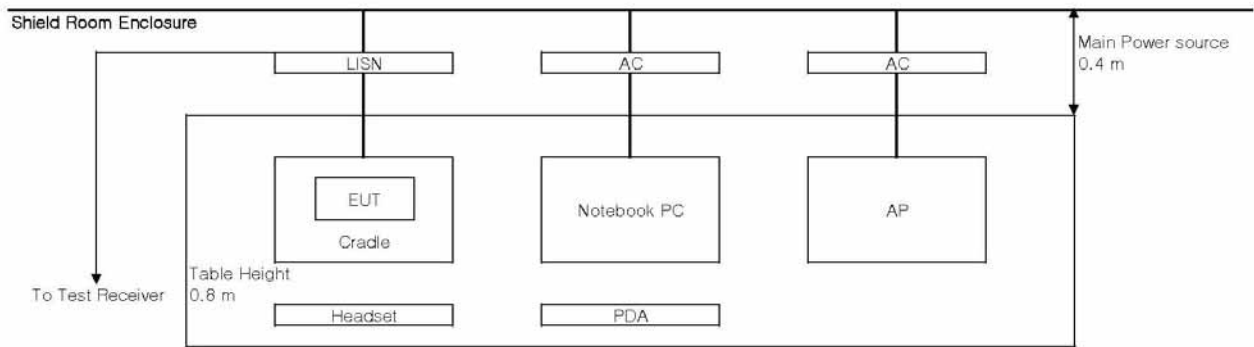
The EUT has been tested according to the following specifications:

| APPLIED STANDARD:FCC Part 22, 24,15 Subpart B | | |
|-----------------------------------------------|-------------------------------------|----------|
| Standard Section | Test Item | Result |
| 15.107(a) | AC Power Conducted Emission | Complied |
| 15.109(a) | Field Strength of Radiated Emission | Complies |
| 22.913(a) 24.232(c) | RF Radiated Output Power | Complied |
| 22.917(a) 24.238(a) | Spurious Radiated Emission | Complied |

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2. Conducted Power Line Test

2.1. Test Setup



2.2. Limit

According to §15.107(a) 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 uH/50 ohm line impedance stabilization network(LISN).

Compliance with the provision of this paragraph shall on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower applies at the boundary between the frequency ranges.

| Frequency of Emission (MHz) | Conducted limit (dBµV) | |
|-----------------------------|------------------------|---------|
| | Quasi-peak | Average |
| 0.15 – 0.50 | 66-56* | 56-46* |
| 0.50 – 5.00 | 56 | 46 |
| 5.00 – 30.0 | 60 | 50 |

* Decreases with the logarithm of the frequency.

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2.3. Test Procedures

Radiated emissions from the EUT were measured according to the dictates of ANSI C63.4:2003

1. The test procedure is performed in a 6.5m × 3.6m × 3.6m (L×W×H) shielded room. The EUT along with its peripherals were placed on a 1.0m(W)× 1.5m(L) and 0.8m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane.
2. The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room.
3. All peripherals were connected to the second LISN and the chassis ground also bounded to the horizontal ground plane of shielded room.
4. The excess power cable between the EUT and the LISN was bundled. The power cables of peripherals were unbundled. All connecting cables of EUT and peripherals were moved to find the maximum emission.

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2.4. Test Results

The following table shows the highest levels of conducted emissions on both phase of Hot and Neutral line.

Ambient temperature : 22 Relative humidity : 43 %

Frequency range : 0.15 MHz – 30 MHz

Measured Bandwidth : 9 kHz

| FREQ. (MHz) | LEVEL(dBuV) | | LINE | LIMIT(dBuV) | | MARGIN(dB) | |
|----------------|-------------|---------|------|-------------|---------|------------|---------|
| | Q-Peak | Average | | Q-Peak | Average | Q-Peak | Average |
| 0.20 | 49.80 | 35.70 | N | 63.61 | 53.61 | 13.81 | 17.91 |
| 0.40 | 45.50 | 40.60 | N | 57.96 | 47.96 | 12.46 | 7.36 |
| 0.60 | 46.20 | 41.30 | N | 56.00 | 46.00 | 9.80 | 4.70 |
| 0.66 | 45.50 | 41.10 | N | 56.00 | 46.00 | 10.50 | 4.90 |
| 4.37 | 49.20 | 42.90 | N | 56.00 | 46.00 | 6.80 | 3.10 |
| 4.96 | 50.70 | 43.20 | N | 56.00 | 46.00 | 5.30 | 2.80 |
| 0.20 | 50.20 | 36.80 | H | 63.61 | 53.61 | 13.41 | 16.81 |
| 0.40 | 45.80 | 41.20 | H | 57.96 | 47.96 | 12.16 | 6.76 |
| 0.60 | 44.80 | 39.50 | H | 56.00 | 46.00 | 11.20 | 6.50 |
| 3.45 | 44.50 | 39.50 | H | 56.00 | 46.00 | 11.50 | 6.50 |
| 4.24 | 46.20 | 40.00 | H | 56.00 | 46.00 | 9.80 | 6.00 |
| 4.90 | 49.40 | 42.50 | H | 56.00 | 46.00 | 6.60 | 3.50 |

Note ;

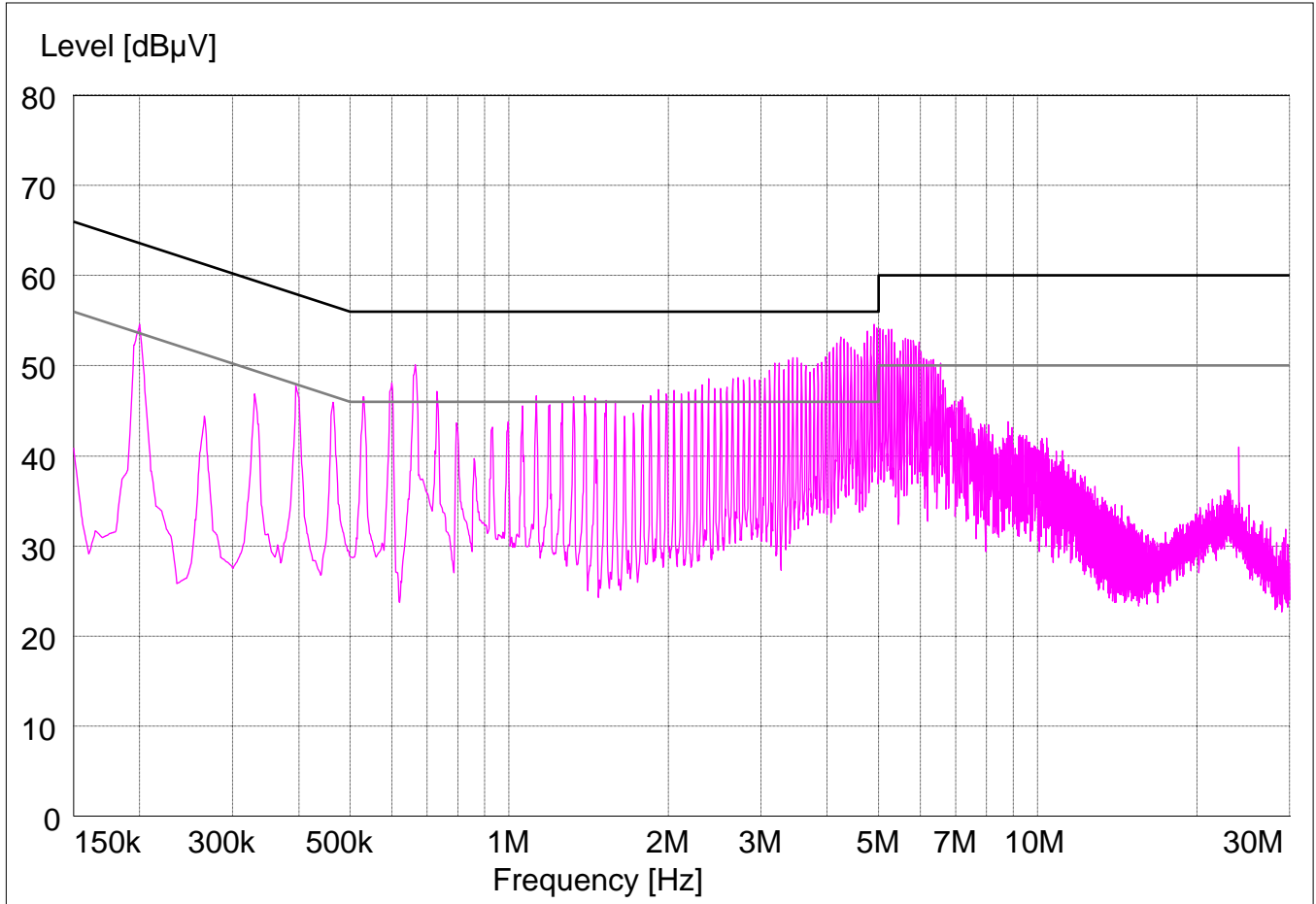
Line (H) : Hot

Line (N) : Neutral

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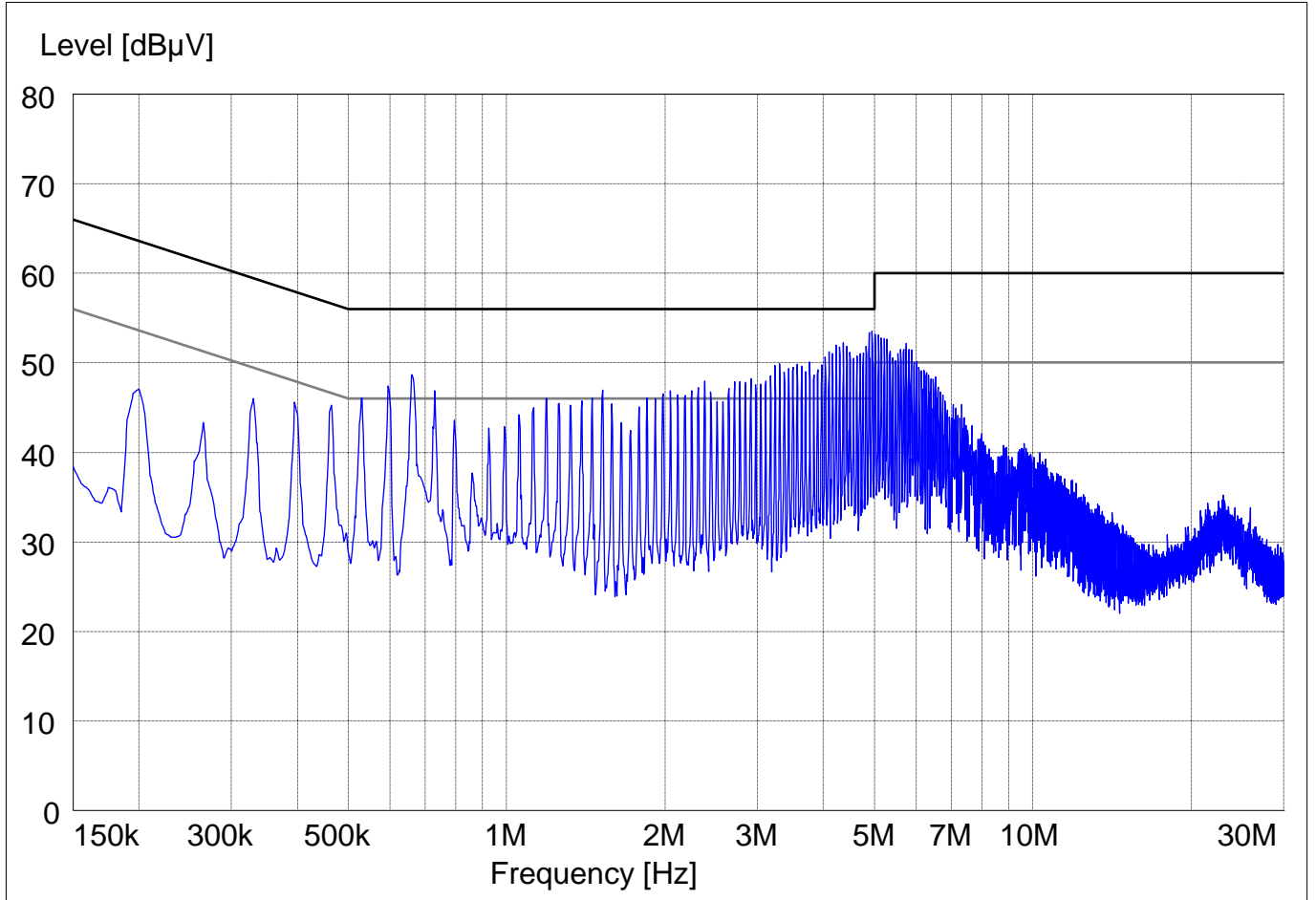
Plot of Conducted Power line

Test mode : (Hot)



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Test mode : (Neutral)

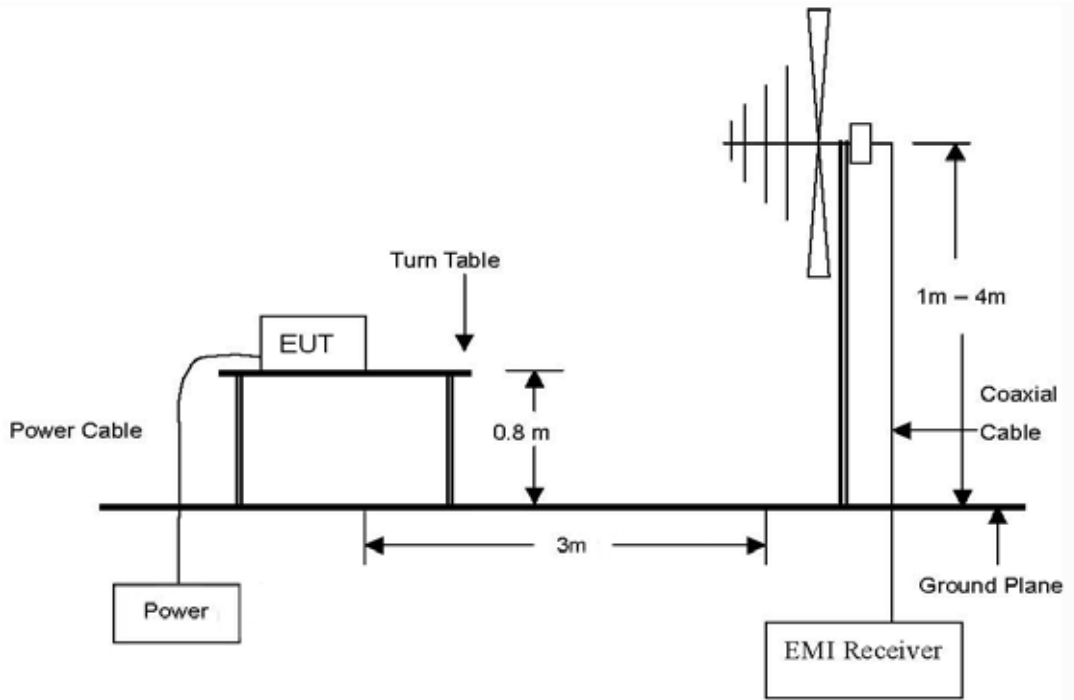


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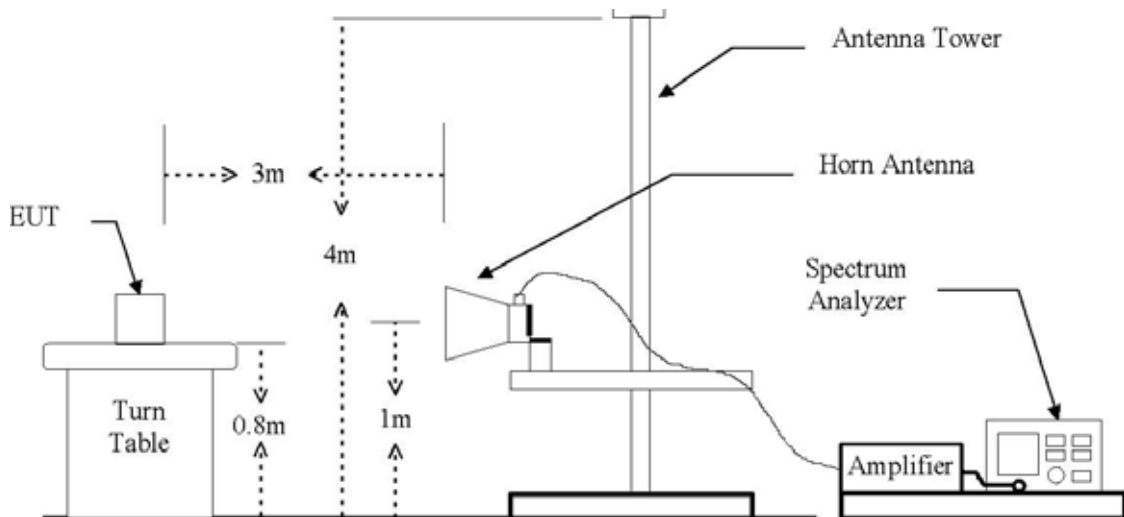
3. RF Radiated Output Power

3.1. Test Setup

The diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 1 GHz Emissions.

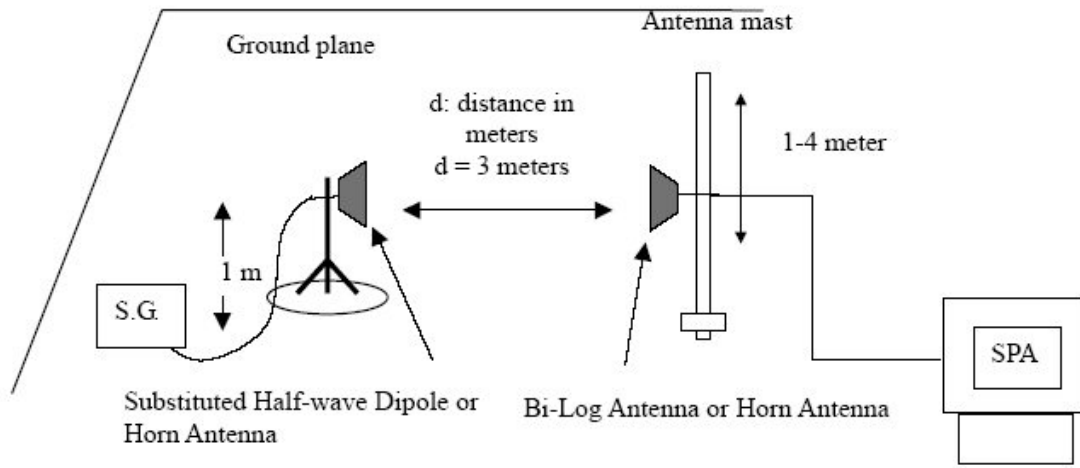


The diagram below shows the test setup that is utilized to make the measurements for emission from 1 GHz to 18 GHz Emissions.



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The diagram below shows the test setup for substituted method



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3.2. Limit

FCC §22.913(a), the ERP of mobile transmitters must not exceed 7 watts. FCC §24.232(c) Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

3.3. Test Procedure

1. On a test site, the EUT shall be placed at 80cm height on a turn table, and in the position closest to normal use as declared by the applicant.
2. The test antenna shall be oriented initially for vertical polarization located 3m from EUT to correspond to the fundamental frequency of the transmitter.
3. The output of the test antenna shall be connected to the measuring receiver and the peak detector is used for the measurement.
4. During the measurement of the EUT, the resolution bandwidth was to 1 MHz and the average bandwidth was set to 1 MHz.
5. The transmitter shall be switched on, the measuring receiver shall be tuned to the frequency of the transmitter under test.
6. The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
7. The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
8. The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
9. The maximum signal level detected by the measuring receiver shall be noted.
10. The EUT was replaced by half-wave dipole(824~829 MHz) or horn antenna(1851.25~1910 MHz) connected to a signal generator.
11. In necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
12. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
13. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, which is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
14. The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
15. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
16. The spectrum analyzer reading was recorded and ERP/EIRP was calculated as follows:
ERP = S.G.output(dBm) + Antenna Gain(dBd) - Cable(dB)
EIRP = S.G.output(dBm) + Antenna Gain(dBi) - Cable(dB)

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3.4. Test Results

Ambient temperature : 20 Relative humidity : 50 %

GSM 850

| Frequency (MHz) | Ant. Pol. (H/V) | Amp- C.L (dB) | S.G Power Level (dBm) | Antenna Gain (dBd) | E. R. P. | |
|--------------------|-----------------------|---------------------|-----------------------------|--------------------------|----------|------|
| | | | | | (dBm) | (mW) |
| 824.2 | H | 28.11 | 11.47 | -8.53 | 31.05 | 1274 |
| 836.6 | H | 28.11 | 9.85 | -8.52 | 29.44 | 879 |
| 848.8 | H | 28.11 | 11.79 | -8.50 | 31.40 | 1380 |

GPRS 850

| Frequency (MHz) | Ant. Pol. (H/V) | Amp- C.L (dB) | S.G Power Level (dBm) | Antenna Gain (dBd) | E. R. P. | |
|--------------------|-----------------------|---------------------|-----------------------------|--------------------------|----------|------|
| | | | | | (dBm) | (mW) |
| 824.2 | H | 28.11 | 12.82 | -8.53 | 32.40 | 1738 |
| 836.6 | H | 28.11 | 9.61 | -8.52 | 29.20 | 832 |
| 848.8 | H | 28.11 | 11.32 | -8.50 | 30.93 | 1239 |

EGPRS 850

| Frequency (MHz) | Ant. Pol. (H/V) | Amp- C.L (dB) | S.G Power Level (dBm) | Antenna Gain (dBd) | E. R. P. | |
|--------------------|-----------------------|---------------------|-----------------------------|--------------------------|----------|------|
| | | | | | (dBm) | (mW) |
| 824.2 | H | 28.11 | 12.82 | -8.53 | 32.40 | 1738 |
| 836.6 | H | 28.11 | 9.79 | -8.52 | 29.38 | 867 |
| 848.8 | H | 28.11 | 11.72 | -8.50 | 31.33 | 1358 |

Remake: 1. ERP= SG Power Level +Amp-C.L. +Antenna Gain

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GSM 1900

| Frequency (MHz) | Ant. Pol. (H/V) | Amp- C.L (dB) | S.G Power Level (dBm) | Antenna Gain (dBi) | E. I. R. P. | |
|--------------------|-----------------------|---------------------|-----------------------------|--------------------------|-------------|------|
| | | | | | (dBm) | (mW) |
| 1850.2 | V | 35.12 | -16.95 | 9.02 | 27.19 | 524 |
| 1880.0 | V | 35.12 | -15.89 | 9.06 | 28.29 | 757 |
| 1909.8 | V | 35.12 | -16.53 | 9.09 | 27.68 | 536 |

GPRS 1900

| Frequency (MHz) | Ant. Pol. (H/V) | Amp- C.L (dB) | S.G Power Level (dBm) | Antenna Gain (dBi) | E. I. R. P. | |
|--------------------|-----------------------|---------------------|-----------------------------|--------------------------|-------------|------|
| | | | | | (dBm) | (mW) |
| 1850.2 | V | 35.12 | -16.25 | 9.02 | 27.89 | 615 |
| 1880.0 | V | 35.12 | -15.39 | 9.06 | 28.79 | 757 |
| 1909.8 | V | 35.12 | -15.83 | 9.09 | 28.38 | 689 |

EGPRS 1900

| Frequency (MHz) | Ant. Pol. (H/V) | Amp- C.L (dB) | S.G Power Level (dBm) | Antenna Gain (dBi) | E. I. R. P. | |
|--------------------|-----------------------|---------------------|-----------------------------|--------------------------|-------------|------|
| | | | | | (dBm) | (mW) |
| 1850.2 | V | 35.12 | -16.23 | 9.02 | 27.91 | 618 |
| 1880.0 | V | 35.12 | -15.38 | 9.06 | 28.80 | 759 |
| 1909.8 | V | 35.12 | -15.80 | 9.09 | 28.41 | 693 |

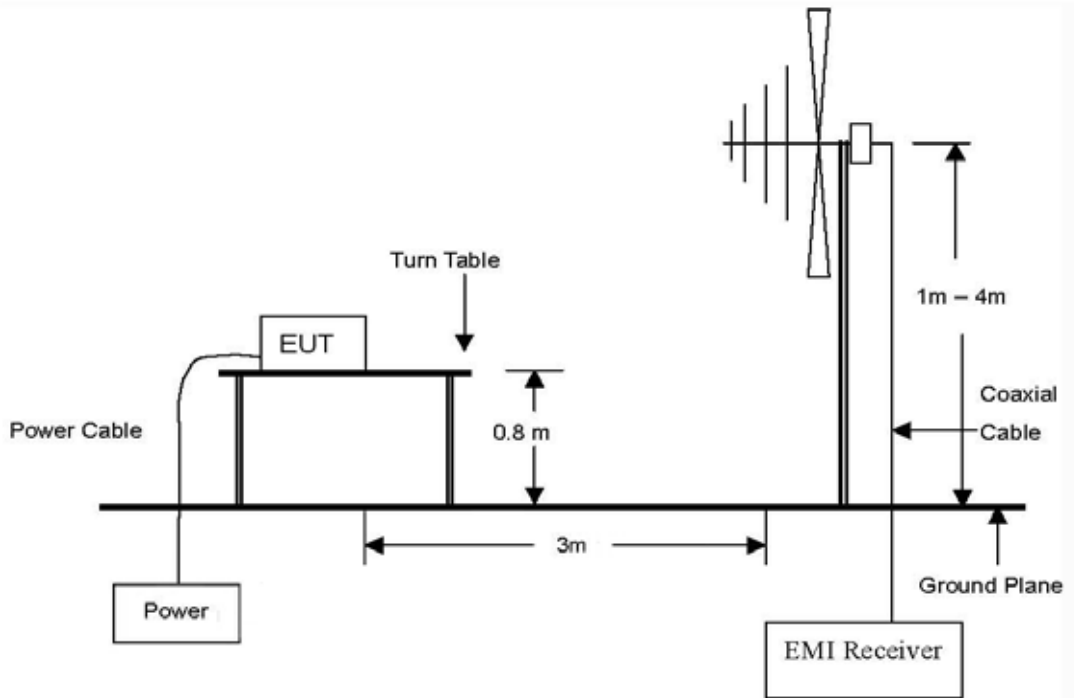
Remake: 1. E.I.R.P.= S.G. Power Level +Amp-C.L. +Antenna Gain

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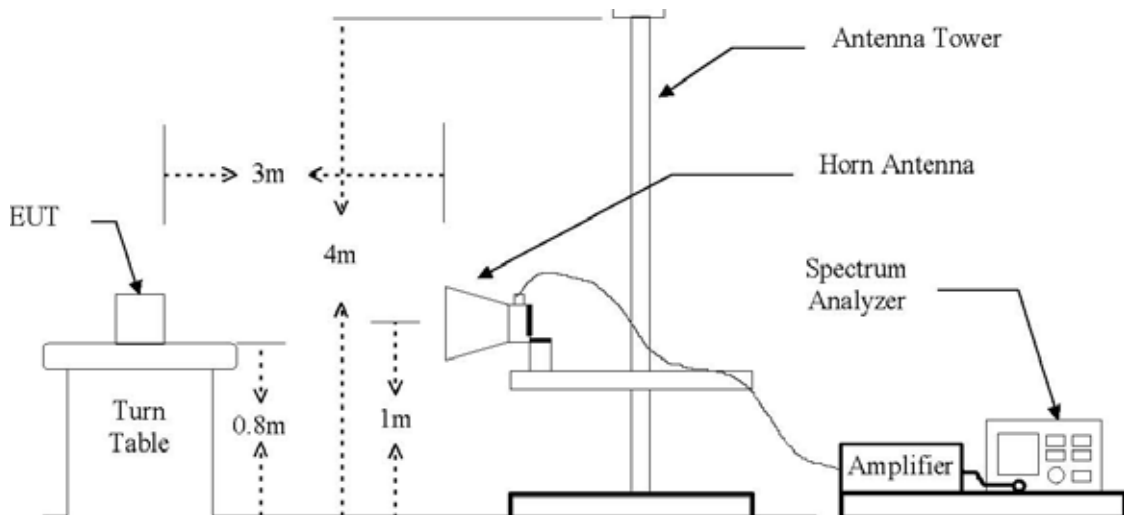
4. Spurious Radiated Emission

4.1. Test Setup

The diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 1 GHz Emissions.

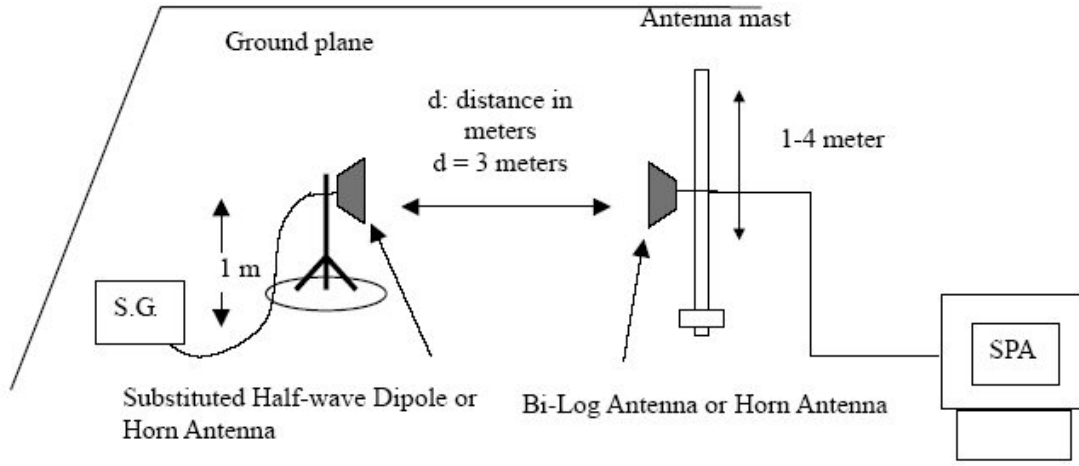


The diagram below shows the test setup that is utilized to make the measurements for emission from 1 GHz to 18 GHz Emissions.



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The diagram below shows the test setup for substituted method



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4.2. Limit

§ 22.917(a) and §24.238 (a) Out of band emissions. The power of any emission outside of the authorized operating frequency must be attenuated below the transmitting (P) by a factor of at least $43+10\log(P)$ dB.

4.3. Test Procedure

1. On a test site, the EUT shall be placed at 80cm height on a turn table, and in the position closest to normal use as declared by the applicant.
2. The test antenna shall be oriented initially for vertical polarization located 3m from EUT to correspond to the frequency of the transmitter.
3. The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle, high channels).
4. The output of the test antenna shall be connected to the measuring receiver and the peak detector is used for the measurement.
5. During the measurement of the EUT, the resolution bandwidth was to 0.1 MHz(<1 GHz) or 1 MHz(>1 GHz)
7. The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
8. The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
9. The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
10. The maximum signal level detected by the measuring receiver shall be noted.
11. The EUT was replaced by half-wave dipole or horn antenna connected to a signal generator.
12. In necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
13. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
14. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, which is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
15. The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.
16. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
16. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emission frequency.

$$\text{ERP} = \text{S.G.output(dBm)} + \text{Antenna Gain(dBd)} - \text{Cable(dB)}$$

$$\text{EIRP} = \text{S.G.output(dBm)} + \text{Antenna Gain(dBi)} - \text{Cable(dB)}$$

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4.4. Test Results

Ambient temperature : 20 Relative humidity : 50 %

GSM 850

| Frequency (MHz) | Ant.Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBi) | Gain (dBd) | E.R.P. (dBm) | Limit (dBm) | Margin (dB) |
|------------------------------------|----------------|------------------|---------|------------|------------|--------------|-------------|-------------|
| TX LOW channel (824.2 MHz) | | | | | | | | |
| 1648.4 | H | -22.55 | 1.02 | 8.22 | 6.07 | -17.50 | -13.00 | 4.50 |
| 2472.6 | V | -23.41 | 1.06 | 10.03 | 7.88 | -16.59 | -13.00 | 3.59 |
| TX MID Channel (836.6 MHz) | | | | | | | | |
| 1673.2 | H | -21.43 | 1.02 | 8.30 | 6.15 | -16.30 | -13.00 | 3.30 |
| 2509.8 | V | -23.70 | 1.06 | 10.70 | 8.55 | -16.21 | -13.00 | 3.21 |
| TX HIGH Channel (848.8 MHz) | | | | | | | | |
| 1697.6 | H | -23.26 | 1.02 | 8.39 | 6.24 | -18.04 | -13.00 | 5.04 |
| 2546.4 | V | -23.56 | 1.06 | 10.11 | 7.96 | -16.66 | -13.00 | 3.66 |

Remake: 1. No more harmonic above 3rd harmonic for all channel.

2. E.R.P.= SG Reading –Cable Loss +Gain

3. The effective radiated power record the largest level between the two levels with Ant.Pol.(H/V)

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GPRS 850

| Frequency (MHz) | Ant.Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBi) | Gain (dBd) | E.R.P. (dBm) | Limit (dBm) | Margin (dB) |
|------------------------------------|----------------|------------------|---------|------------|------------|--------------|-------------|-------------|
| TX LOW channel (824.2 MHz) | | | | | | | | |
| 1648.4 | H | -22.36 | 1.02 | 8.22 | 6.07 | -17.31 | -13.00 | 4.31 |
| 2472.6 | V | -23.14 | 1.06 | 10.03 | 7.88 | -16.32 | -13.00 | 3.32 |
| TX MID Channel (836.6 MHz) | | | | | | | | |
| 1673.2 | H | -21.25 | 1.02 | 8.30 | 6.15 | -16.12 | -13.00 | 3.12 |
| 2509.8 | V | -23.80 | 1.06 | 10.70 | 8.55 | -16.31 | -13.00 | 3.31 |
| TX HIGH Channel (848.8 MHz) | | | | | | | | |
| 1697.6 | H | -23.63 | 1.02 | 8.39 | 6.24 | -18.41 | -13.00 | 5.41 |
| 2546.4 | V | -23.20 | 1.06 | 10.11 | 7.96 | -16.30 | -13.00 | 3.30 |

Remake: 1. No more harmonic above 3rd harmonic for all channel.

2. E.R.P.= SG Reading –Cable Loss +Gain

3. The effective radiated power record the largest level between the two levels with Ant.Pol.(H/V)

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EGPRS 850

| Frequency (MHz) | Ant.Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBi) | Gain (dBd) | E.R.P. (dBm) | Limit (dBm) | Margin (dB) |
|------------------------------------|----------------|------------------|---------|------------|------------|--------------|-------------|-------------|
| TX LOW channel (824.2 MHz) | | | | | | | | |
| 1648.4 | H | -22.16 | 1.02 | 8.22 | 6.07 | -17.11 | -13.00 | 4.11 |
| 2472.6 | V | -23.35 | 1.06 | 10.03 | 7.88 | -16.53 | -13.00 | 3.53 |
| TX MID Channel (836.6 MHz) | | | | | | | | |
| 1673.2 | H | -21.40 | 1.02 | 8.30 | 6.15 | -16.27 | -13.00 | 3.27 |
| 2509.8 | V | -24.10 | 1.06 | 10.70 | 8.55 | -16.61 | -13.00 | 3.61 |
| TX HIGH Channel (848.8 MHz) | | | | | | | | |
| 1697.6 | H | -23.23 | 1.02 | 8.39 | 6.24 | -18.01 | -13.00 | 5.01 |
| 2546.4 | V | -23.09 | 1.06 | 10.11 | 7.96 | -16.19 | -13.00 | 3.19 |

Remake: 1. No more harmonic above 3rd harmonic for all channel.

2. E.R.P.= SG Reading –Cable Loss +Gain

3. The effective radiated power record the largest level between the two levels with Ant.Pol.(H/V)

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GSM 1900

| Frequency (MHz) | Ant.Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBi) | Gain (dBd) | E.R.P. (dBm) | Limit (dBm) | Margin (dB) |
|-------------------------------------|----------------|------------------|---------|------------|------------|--------------|-------------|-------------|
| TX LOW channel (1850.2 MHz) | | | | | | | | |
| 3700.4 | H | -46.37 | 1.53 | 11.14 | 8.99 | -38.91 | -13.00 | 25.91 |
| 5550.6 | H | -59.60 | 2.20 | 11.56 | 9.41 | -52.39 | -13.00 | 39.39 |
| TX MID Channel (1880.0 MHz) | | | | | | | | |
| 3760 | H | -45.00 | 1.53 | 11.18 | 9.03 | -37.50 | -13.00 | 24.50 |
| 5640 | H | -59.72 | 2.20 | 11.62 | 9.47 | -52.45 | -13.00 | 39.45 |
| TX HIGH Channel (1909.8 MHz) | | | | | | | | |
| 3819.6 | H | -45.79 | 1.53 | 11.23 | 9.08 | -38.24 | -13.00 | 25.24 |
| 5729.4 | H | -60.89 | 2.20 | 11.68 | 9.53 | -53.56 | -13.00 | 40.56 |

Remake: 1. No more harmonic above 3rd harmonic for all channel.

2. E.R.P.= SG Reading –Cable Loss +Gain

3. The effective radiated power record the largest level between the two levels with Ant.Pol.(H/V)

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GPRS 1900

| Frequency (MHz) | Ant.Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBi) | Gain (dBd) | E.R.P. (dBm) | Limit (dBm) | Margin (dB) |
|-------------------------------------|----------------|------------------|---------|------------|------------|--------------|-------------|-------------|
| TX LOW channel (1850.2 MHz) | | | | | | | | |
| 3700.4 | H | -45.59 | 1.53 | 11.14 | 8.99 | -38.13 | -13.00 | 25.13 |
| 5550.6 | H | -59.34 | 2.20 | 11.56 | 9.41 | -52.13 | -13.00 | 39.13 |
| TX MID Channel (1880.0 MHz) | | | | | | | | |
| 3760 | H | -44.83 | 1.53 | 11.18 | 9.03 | -37.33 | -13.00 | 24.33 |
| 5640 | H | -60.94 | 2.20 | 11.62 | 9.47 | -53.67 | -13.00 | 40.67 |
| TX HIGH Channel (1909.8 MHz) | | | | | | | | |
| 3819.6 | H | -46.10 | 1.53 | 11.23 | 9.08 | -38.55 | -13.00 | 25.55 |
| 5729.4 | H | -60.56 | 2.20 | 11.68 | 9.53 | -53.23 | -13.00 | 40.23 |

Remake: 1. No more harmonic above 3rd harmonic for all channel.

2. E.R.P.= SG Reading –Cable Loss +Gain

3. The effective radiated power record the largest level between the two levels with Ant.Pol.(H/V)

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EGPRS 1900

| Frequency (MHz) | Ant.Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBi) | Gain (dBd) | E.R.P. (dBm) | Limit (dBm) | Margin (dB) |
|-------------------------------------|----------------|------------------|---------|------------|------------|--------------|-------------|-------------|
| TX LOW channel (1850.2 MHz) | | | | | | | | |
| 3700.4 | H | -46.05 | 1.53 | 11.14 | 8.99 | -38.59 | -13.00 | 25.59 |
| 5550.6 | H | -60.61 | 2.20 | 11.56 | 9.41 | -53.40 | -13.00 | 40.40 |
| TX MID Channel (1880.0 MHz) | | | | | | | | |
| 3760 | H | -45.36 | 1.53 | 11.18 | 9.03 | -37.86 | -13.00 | 24.86 |
| 5640 | H | -59.72 | 2.20 | 11.62 | 9.47 | -52.45 | -13.00 | 39.45 |
| TX HIGH Channel (1909.8 MHz) | | | | | | | | |
| 3819.6 | H | -45.55 | 1.53 | 11.23 | 9.08 | -38.00 | -13.00 | 25.00 |
| 5729.4 | H | -60.98 | 2.20 | 11.68 | 9.53 | -53.65 | -13.00 | 40.65 |

Remake: 1. No more harmonic above 3rd harmonic for all channel.

2. E.R.P.= SG Reading –Cable Loss +Gain

3. The effective radiated power record the largest level between the two levels with Ant.Pol.(H/V)

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5. Field Strength of Radiated Emissions

5.1. Limit

According to §15.109(a), Except for Class A digital devices, the field strength of radiated emission from unintentional radiator at a distance of 3 m shall not exceed the following values:

| Frequency (MHz) | Distance (Meters) | Radiated (dB μ V/m) | Radiated (μ V/m) |
|-----------------|-------------------|-------------------------|-----------------------|
| 30 - 88 | 3 | 40.0 | 100 |
| 88 – 216 | 3 | 43.5 | 150 |
| 216 – 960 | 3 | 46.0 | 200 |
| Above 960 | 3 | 54.0 | 500 |

5.2. Test Procedure

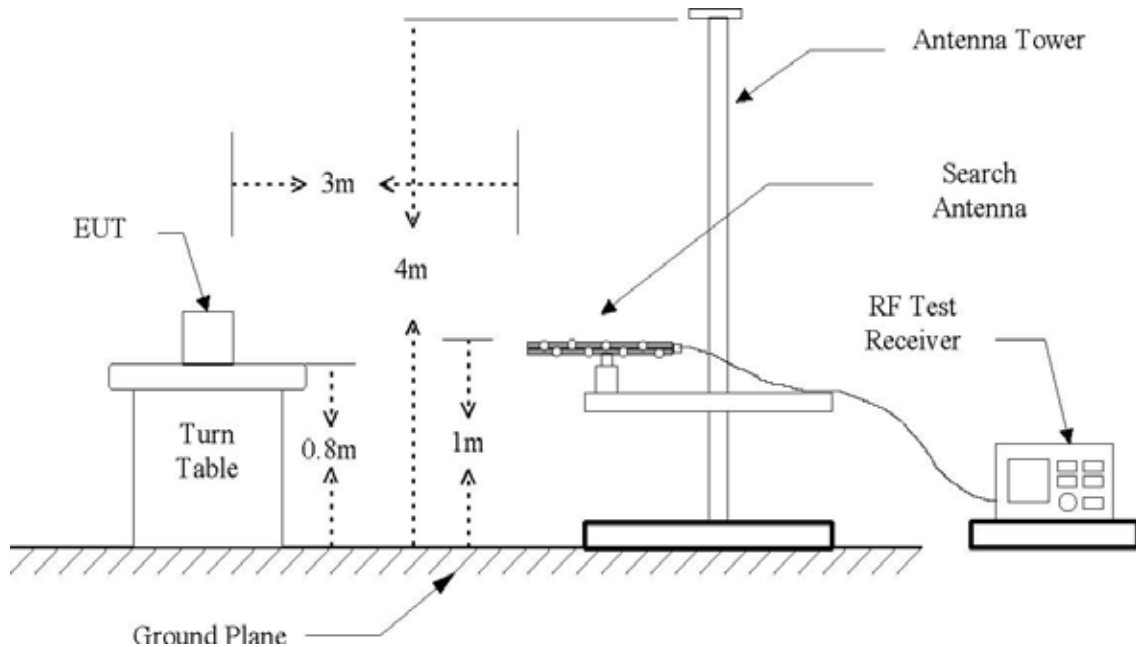
1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
2. During performing radiated emission below 1 GHz, the EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. During performing radiated emission above 1 GHz, the EUT was set 1 meter away from the interference-receiving antenna.
3. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarization of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE :

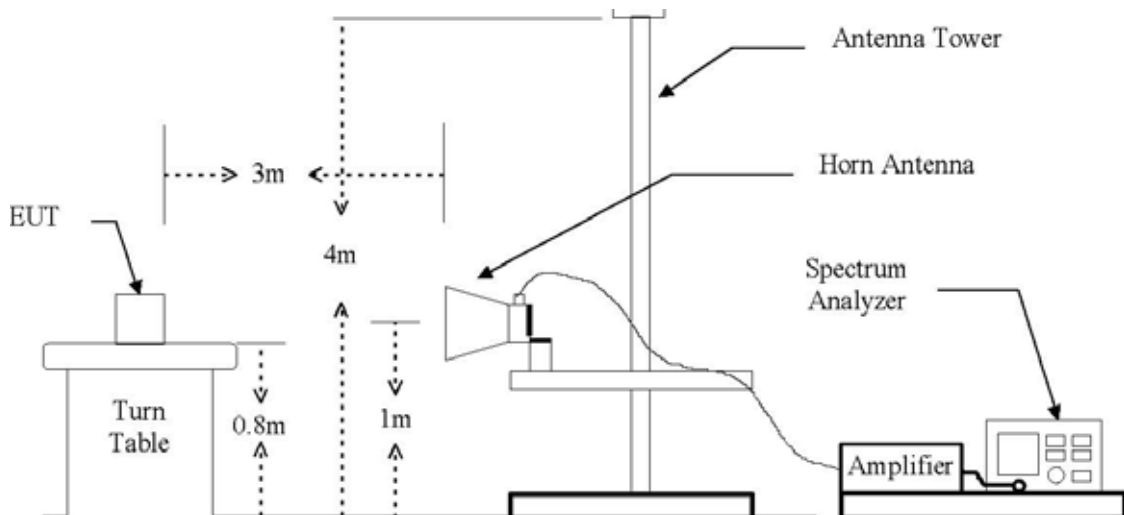
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1 GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz for Peak detection and frequency above 1 GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1 GHz.

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The diagram below shows the test setup that is utilized to make the measurements for emission from 30 MHz to 40 GHz Emissions.



Frequencies measured below 1 GHz configuration



Frequencies measured above 1 GHz configuration

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5.3. Test Results

Ambient temperature : 20

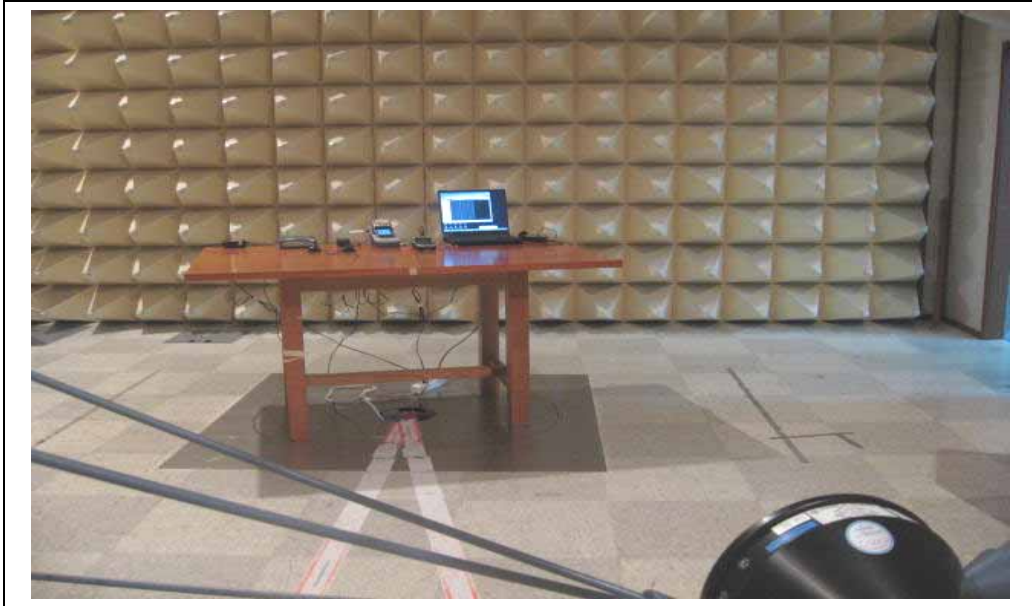
Relative humidity : 50 %

| Radiated Emissions | | | Ant | Correction Factors | | Total | FCC Limit | |
|--------------------|----------------|-------------|------|--------------------|------------|-----------------|---------------------|-------------|
| Frequency (MHz) | Reading (dBuV) | Detect Mode | Pol. | Ant. (dB/m) | Cable (dB) | Actual (dBuV/m) | Q.P. Limit (dBuV/m) | Margin (dB) |
| 86.73 | 13.70 | Q.P. | V | 8.54 | 1.57 | 23.80 | 30 | 6.20 |
| 131.96 | 12.90 | Q.P. | H | 11.70 | 1.89 | 26.49 | 30 | 3.51 |
| 186.00 | 15.00 | Q.P. | H | 8.61 | 2.30 | 25.91 | 30 | 4.09 |
| 200.20 | 15.80 | Q.P. | H | 8.42 | 2.30 | 26.52 | 30 | 3.48 |
| Above 210 | - | - | - | - | - | - | - | - |

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Appendix A. Photo of Radiated Emission Test

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Appendix B. Photos of Field Strength Test**Rear View**

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Appendix C. Photos of Conducted Power Line Test



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Appendix D. Photos of the EUT

Front View of EUT



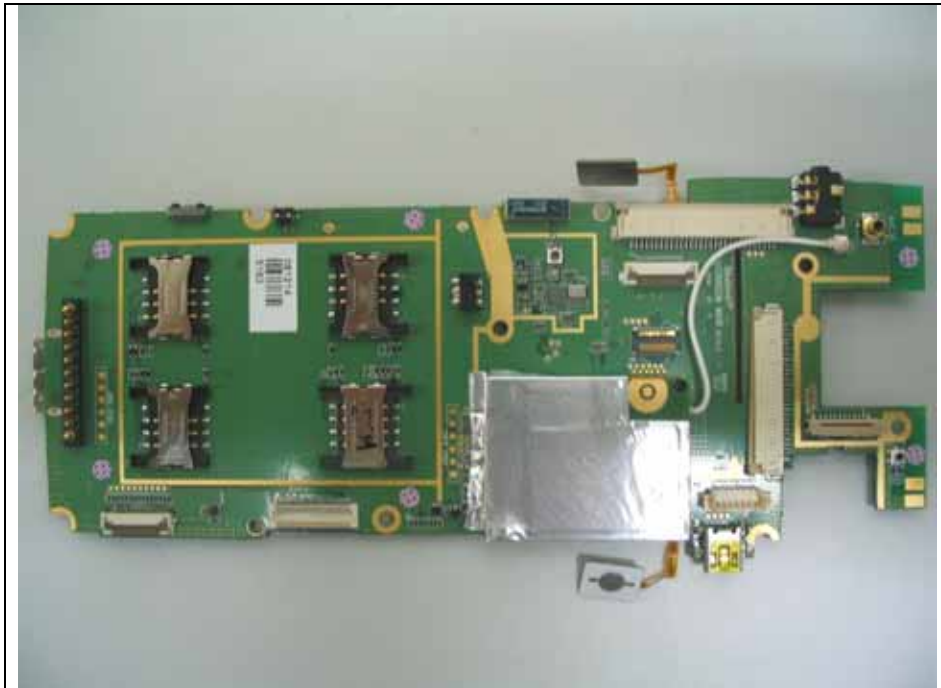
Rear View of EUT



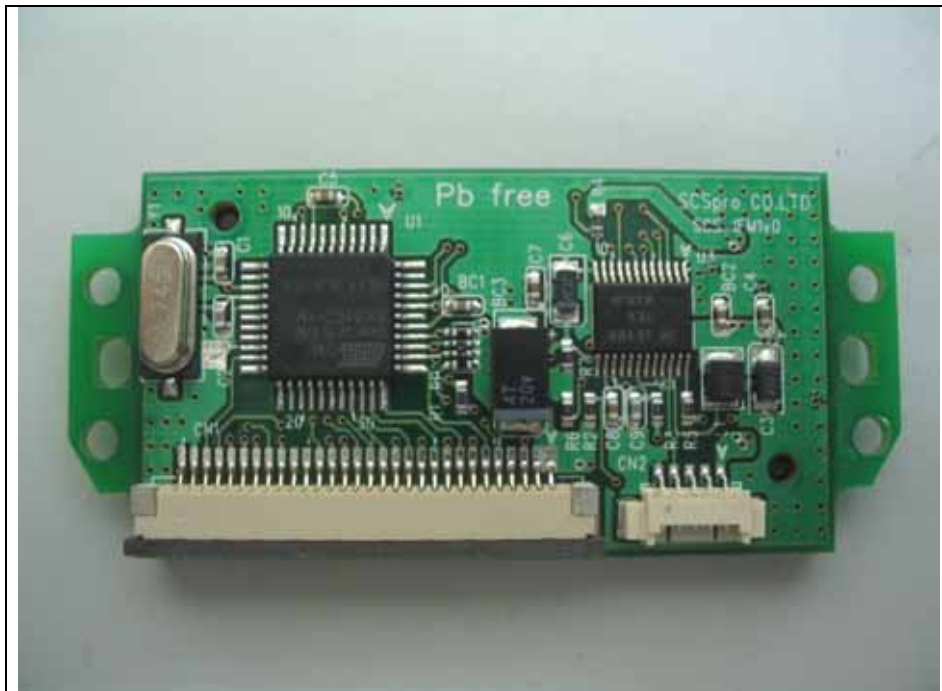
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Right View of EUT**Left View of EUT**

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Inner of EUT**Top View of Main-board**

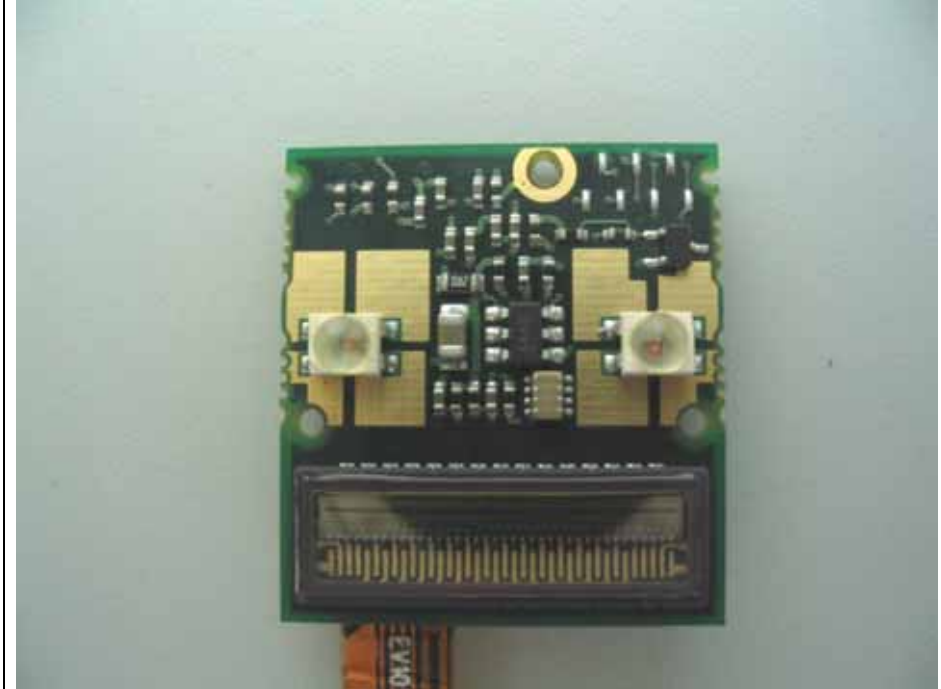
The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report cannot be reproduced, except in full, without prior written permission of the Company.

Bottom View of Main-board**Top View of Controller**

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Bottom View of Controller**Top View of Camera**

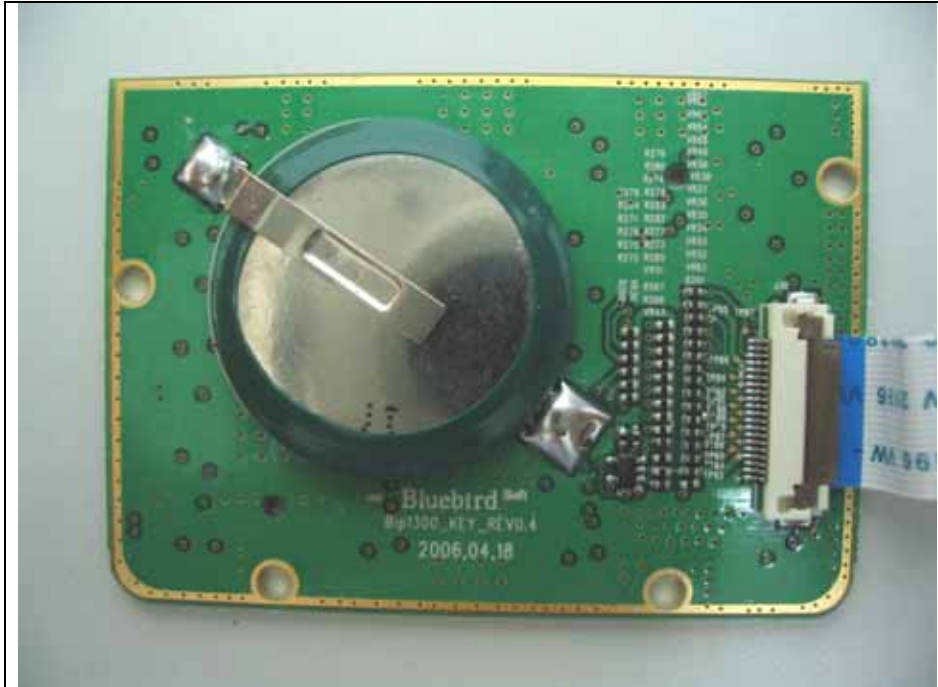
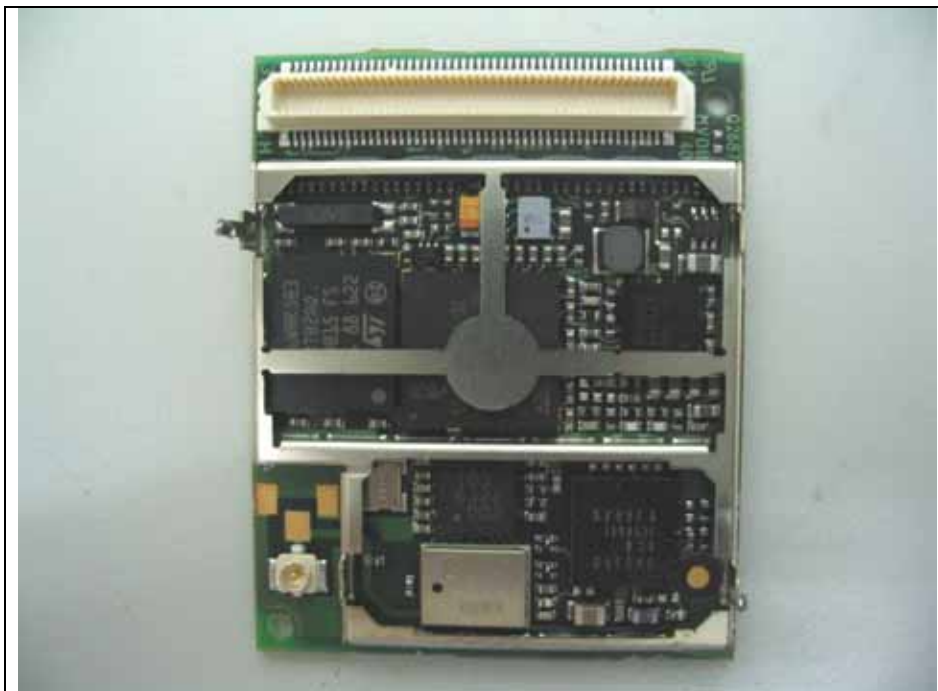
The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report cannot be reproduced, except in full, without prior written permission of the Company.

Bottom View of Camera**Top View of LCD**

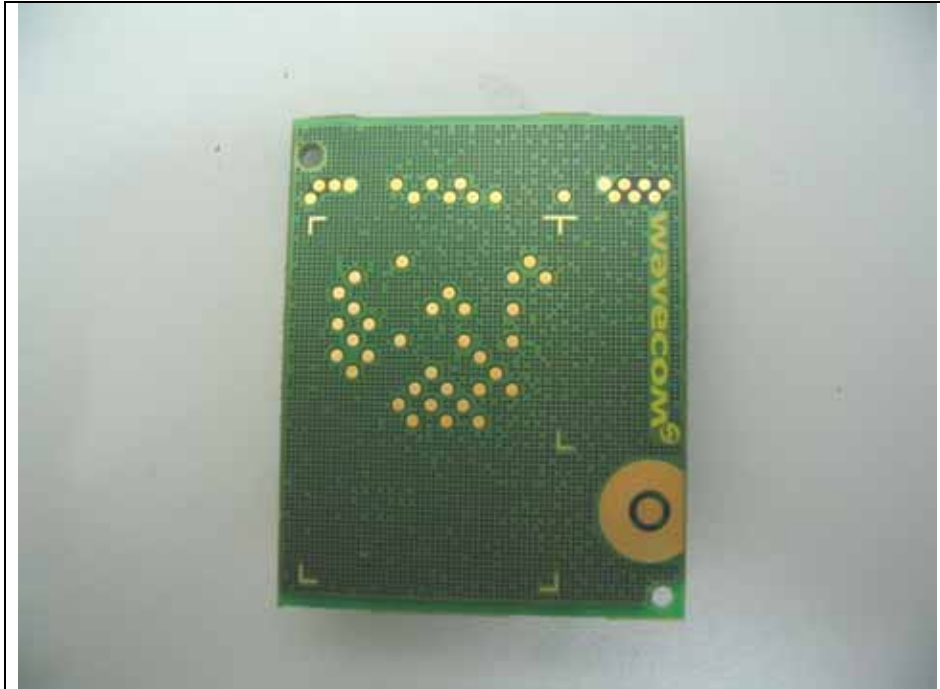
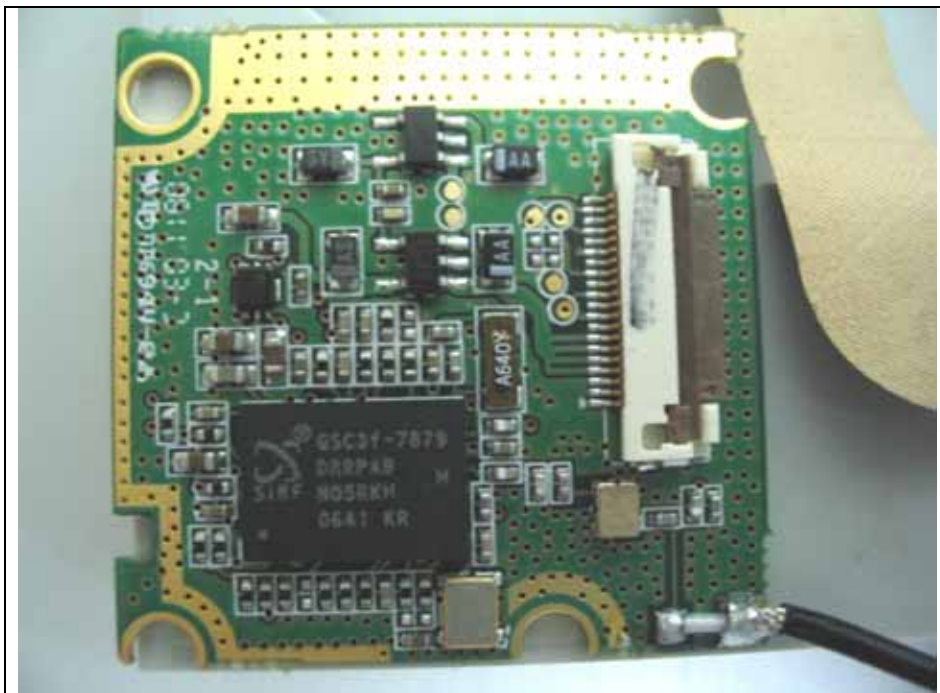
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Bottom View of LCD**Top View of Keyboard**

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Bottom View of Keyboard**Top View of GSM**

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Bottom View of GSM**Top View of GPS**

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View of Antenna(BT)**View of Antenna(WLAN)**

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View of Antenna(GSM)**View of Antenna(GPS)**

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