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# FCC TEST REPORT

## (PART 22)

**REPORT NO.:** RF990507C09

**MODEL NO.:** TR-206

**FCC ID:** RIDTR-206

**RECEIVED:** May 07, 2010

**TESTED:** May 24 ~ May 28, 2010

**ISSUED:** Jun. 03, 2010

**APPLICANT:** Globalsat Technology Corporation

**ADDRESS:** 16F., No. 186, Jian-Yi Road, Chung-Ho City, Taipei Hsien 235, Taiwan

**ISSUED BY:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

**LAB ADDRESS:** No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang, Taipei Hsien 244, Taiwan, R.O.C.

**TEST LOCATION:** No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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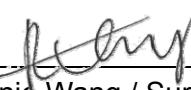


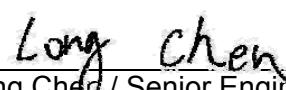
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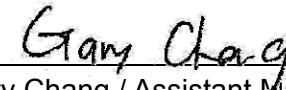
## 1 CERTIFICATION

**PRODUCT:** GPS Tracker  
**MODEL NO.:** TR-206  
**BRAND:** GS.TRAQ  
**APPLICANT:** Globalsat Technology Corporation  
**TESTED:** May 24 ~ May 28, 2010  
**TEST SAMPLE :** ENGINEERING SAMPLE  
**STANDARDS :** FCC Part 22, Subpart H  
ANSI C63.4-2003

The above equipment (model: TR-206) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

**PREPARED BY** :  , DATE: Jun. 03, 2010  
Rennie Wang / Supervisor

**TECHNICAL  
ACCEPTANCE** :  , DATE: Jun. 03, 2010  
Responsible for RF Long Chen / Senior Engineer

**APPROVED BY** :  , DATE: Jun. 03, 2010  
Gary Chang / Assistant Manager



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## 2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

| APPLIED STANDARD: FCC Part 22 & Part 2 |                                                                                                                    |        |                                                                                      |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------|--------|--------------------------------------------------------------------------------------|
| STANDARD SECTION                       | TEST TYPE AND LIMIT                                                                                                | RESULT | REMARK                                                                               |
| 2.1046<br>22.913 (a)                   | Maximum Peak Output Power Limit:<br>max. 7 watts e.r.p peak power                                                  | PASS   | Meet the requirement of limit.<br>Minimum passing margin is<br>26.9dBm at 848.8MHz.  |
| 2.1055                                 | Frequency Stability<br>AFC Freq. Error vs. Voltage<br>AFC Freq. Error vs. Temperature<br>Limit: max. $\pm 2.5$ ppm | PASS   | Meet the requirement of limit.                                                       |
| 2.1049 (h)                             | Occupied Bandwidth                                                                                                 | PASS   | Meet the requirement of limit.                                                       |
| 22.917                                 | Band Edge Measurements                                                                                             | PASS   | Meet the requirement of limit.                                                       |
| 2.1051<br>22.917                       | Conducted Spurious Emissions                                                                                       | PASS   | Meet the requirement of limit.                                                       |
| 2.1053<br>22.917                       | Radiated Spurious Emissions                                                                                        | PASS   | Meet the requirement of limit.<br>Minimum passing margin is<br>-16.4dB at 974.73MHz. |

### 2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

| MEASUREMENT         | FREQUENCY       | UNCERTAINTY |
|---------------------|-----------------|-------------|
| Conducted emissions | 150kHz~30MHz    | 2.44 dB     |
| Radiated emissions  | 30MHz ~ 200MHz  | 3.34 dB     |
|                     | 200MHz ~1000MHz | 3.35 dB     |
|                     | 1GHz ~ 18GHz    | 2.26 dB     |
|                     | 18GHz ~ 40GHz   | 1.94 dB     |

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.



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### 3 GENERAL INFORMATION

#### 3.1 GENERAL DESCRIPTION OF EUT

|                            |                                                                     |
|----------------------------|---------------------------------------------------------------------|
| <b>EUT</b>                 | GPS Tracker                                                         |
| <b>MODEL NO.</b>           | TR-206                                                              |
| <b>FCC ID</b>              | RIDTR-206                                                           |
| <b>POWER SUPPLY</b>        | 3.7Vdc (battery)<br>5.0Vdc (adapter)                                |
| <b>MODULATION TYPE</b>     | GMSK                                                                |
| <b>OPERATING FREQUENCY</b> | 824MHz ~ 849MHz                                                     |
| <b>NUMBER OF CHANNEL</b>   | 124                                                                 |
| <b>MAX. ERP POWER</b>      | GSM Mode: 26.9dBm (0.4898Watts)<br>GPRS Mode: 26.8dBm (0.4786Watts) |
| <b>ANTENNA TYPE</b>        | PIFA                                                                |
| <b>MAX. ANTENNA GAIN</b>   | -4dBi                                                               |
| <b>ANTENNA CONNECTOR</b>   | NA                                                                  |
| <b>DATA CABLE</b>          | 1m shielded USB cable without core                                  |
| <b>I/O PORTS</b>           | Refer to user's manual                                              |
| <b>ACCESSORY DEVICES</b>   | Adapter, Battery                                                    |

**NOTE:**

1. The communicated functions of EUT listed as below:

|    |      | 850MHz | 1900MHz | With GPS function |
|----|------|--------|---------|-------------------|
| 2G | GSM  | √      | √       |                   |
|    | GPRS | √      | √       |                   |

2. The EUT was tested with the following lithium battery and adapter:

| LITHIUM BATTERY |                                      |
|-----------------|--------------------------------------|
| MODEL :         | BL-5C                                |
| RATING :        | 3.7Vdc, 1100mAh                      |
| ADAPTER         |                                      |
| BRAND :         | Touch Electronic Co., Ltd.           |
| MODEL :         | SA01-6USG05R-A                       |
| INPUT :         | 100-240Vac, 50/60Hz, 0.2A            |
| OUTPUT :        | 5Vdc, 1.2A (6W MAX)                  |
| POWER LINE      | 1.8m non-shielded cable without core |



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3. The EUT is a GPS Tracker. The test data are separated into following test reports.

|                 | TEST STANDARD | REFERENCE REPORT |
|-----------------|---------------|------------------|
| <b>GSM 850</b>  | FCC Part 22   | RF990507C09      |
| <b>PCS 1900</b> | FCC Part 24   | RF990507C09-1    |

4. IMEI Code: 357938020314076.
5. Software vision: F-0TR-206STD-10061052.
6. Hardware vision: GS-EB-TR206-V1.1.
7. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

### 3.2 DESCRIPTION OF TEST MODES

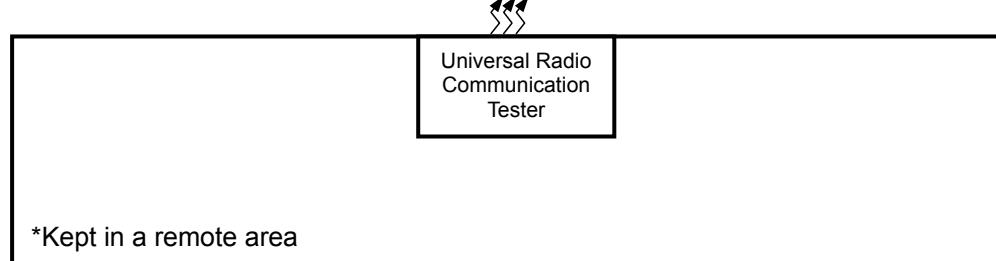
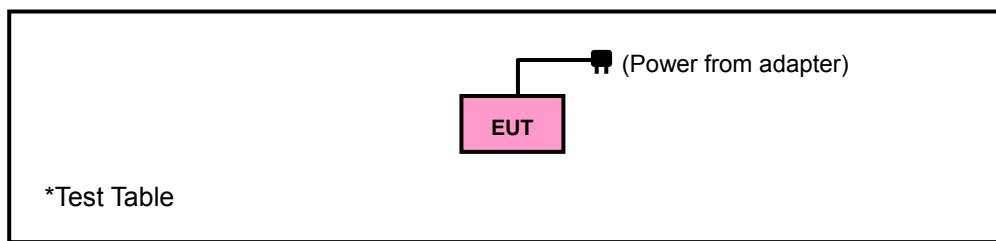
124 channels are provided to this EUT. Therefore, the low, middle and high channels are chosen for testing.

|        | CHANNEL | FREQUENCY | TX MODE   |
|--------|---------|-----------|-----------|
| LOW    | 128     | 824.2 MHz | GSM, GPRS |
| MIDDLE | 190     | 836.6 MHz | GSM, GPRS |
| HIGH   | 251     | 848.8 MHz | GSM, GPRS |

**NOTE:**

1. Below 1 GHz, the channel 128, 190, and 251 were pre-tested in chamber. The channel 128 was chosen for final test.
2. Above 1 GHz, the channel 128, 190, and 251 were tested individually.
3. The worst case for final test is chosen when the power control level set 5.
4. The channel space is 0.2MHz.
5. The EUT is a GPRS class 10 device (Multislot class: 10, Mobile Terminal B), which provide 2 up-link. After pre-tested both functions, found up-link with 1 time slot is worse, therefore, test results of output power, frequency stability, occupied bandwidth and band edge tests came out from this.
6. The EUT has GSM & GPRS functions. After pre-testing, GSM function is the worst case for all the emission tests.

#### 3.2.1 CONFIGURATION OF SYSTEM UNDER TEST





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### 3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

| EUT<br>CONFIGURE<br>MODE | APPLICABLE TO |    |    |    |    |       |       | DESCRIPTION |
|--------------------------|---------------|----|----|----|----|-------|-------|-------------|
|                          | OP            | FS | OB | BE | CE | RE<1G | RE≥1G |             |
| -                        | √             | √  | √  | √  | √  | √     | √     | -           |

Where

OP: Output power

FS: Frequency stability

OB: Occupied bandwidth

BE: Band edge

CE: Conducted spurious emissions

RE&lt;1G: Radiated emission below 1GHz

RE≥1G: Radiated emission above 1GHz

#### OUTPUT POWER MEASUREMENT:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

| AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | AXIS |
|-------------------|----------------|-----------------------|------|
| 128 to 251        | 128, 190, 251  | GSM, GPRS             | X    |

#### FREQUENCY STABILITY MEASUREMENT:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

| AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY |
|-------------------|----------------|-----------------------|
| 128 to 251        | 190            | GSM                   |

#### OCCUPIED BANDWIDTH MEASUREMENT:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and antenna ports (if EUT with antenna diversity architecture).
- This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- Following channel(s) was (were) selected for the final test as listed below.

| AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY |
|-------------------|----------------|-----------------------|
| 128 to 251        | 128, 190, 251  | GSM, GPRS             |

#### BAND EDGE MEASUREMENT:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

| AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY |
|-------------------|----------------|-----------------------|
| 128 to 251        | 128, 251       | GSM, GPRS             |



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#### **CONDUCTED SPURIOUS EMISSIONS MEASUREMENT:**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

| AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY |
|-------------------|----------------|-----------------------|
| 128 to 251        | 128, 190, 251  | GSM                   |

#### **RADIATED EMISSION MEASUREMENT (BELOW 1 GHz):**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

| AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | AXIS |
|-------------------|----------------|-----------------------|------|
| 128 to 251        | 128            | GSM                   | X    |

#### **RADIATED EMISSION MEASUREMENT (ABOVE 1 GHz):**

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, XYZ axis and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

| AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY | AXIS |
|-------------------|----------------|-----------------------|------|
| 128 to 251        | 128, 190, 251  | GSM                   | X    |

#### **TEST CONDITION:**

| APPLICABLE TO | ENVIRONMENTAL CONDITIONS  | INPUT POWER  | TESTED BY |
|---------------|---------------------------|--------------|-----------|
| OP            | 26deg. C, 66%RH, 1010 hPa | 120Vac, 60Hz | Dean Wang |
| FS            | 26deg. C, 66%RH, 1010 hPa | 120Vac, 60Hz | Dean Wang |
| OB            | 26deg. C, 66%RH, 1010 hPa | 120Vac, 60Hz | Dean Wang |
| EM            | 26deg. C, 66%RH, 1010 hPa | 120Vac, 60Hz | Dean Wang |
| BE            | 26deg. C, 66%RH, 1010 hPa | 120Vac, 60Hz | Dean Wang |
| CE            | 26deg. C, 66%RH, 1010 hPa | 120Vac, 60Hz | Dean Wang |
| RE < 1G       | 26deg. C, 66%RH, 1001 hPa | 120Vac, 60Hz | Dean Wang |
| RE ≥ 1G       | 26deg. C, 66%RH, 1001 hPa | 120Vac, 60Hz | Dean Wang |



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### 3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

**FCC 47 CFR Part 2**  
**FCC 47 CFR Part 22**  
**ANSI C63.4-2003**  
**ANSI/TIA/EIA-603-C 2004**

**NOTE:** All test items have been performed and recorded as per the above standards.

### 3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| NO. | PRODUCT                                    | BRAND | MODEL NO. | SERIAL NO. | FCC ID |
|-----|--------------------------------------------|-------|-----------|------------|--------|
| 1   | UNIVERSAL RADIO<br>COMMUNICATION<br>TESTER | R&S   | CMU200    | 104484     | NA     |

| NO. | SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS |
|-----|-----------------------------------------------------|
| 1   | NA                                                  |

**NOTE 1:** All power cords of the above support units are non shielded (1.8m).

**NOTE 2:** Item 1 acted as a communication partner to transfer data.



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## 4 TEST TYPES AND RESULTS

### 4.1 OUTPUT POWER MEASUREMENT

#### 4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

The radiated peak output power shall be according to the specific rule Part 22.913 (a) that "Mobile / Portable station are limited to 7 watts e.r.p".



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#### 4.1.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER              | MODEL NO.                    | SERIAL NO.  | DATE OF CALIBRATION | DUe DATE OF CALIBRATION |
|-----------------------------------------|------------------------------|-------------|---------------------|-------------------------|
| Test Receiver<br>ROHDE & SCHWARZ        | ESI7                         | 100033      | Jul. 06, 2009       | Jul. 05, 2010           |
| Spectrum Analyzer<br>ROHDE & SCHWARZ    | FSP40                        | 100269      | Dec 31, 2009        | Dec 30, 2010            |
| BILOG Antenna<br>SCHWARZBECK            | VULB9168                     | 9168-160    | Apr. 27, 2010       | Apr. 26, 2011           |
| HORN Antenna<br>SCHWARZBECK             | 9120D                        | 9120D-209   | Jul. 01, 2009       | Jun. 30, 2010           |
| HORN Antenna<br>SCHWARZBECK             | BBHA 9170                    | BBHA9170243 | Dec. 25, 2009       | Dec. 24, 2010           |
| Preamplifier<br>Agilent                 | 8447D                        | 2944A10633  | Nov. 10, 2009       | Nov. 09, 2010           |
| Preamplifier<br>Agilent                 | 8449B                        | 3008A01964  | Nov. 09, 2009       | Nov. 08, 2010           |
| RF signal cable<br>HUBER+SUHNNER        | SUCOFLEX 104                 | 238141/4    | May 14, 2010        | May 13, 2011            |
| RF signal cable<br>HUBER+SUHNNER        | SUCOFLEX 104                 | 12738/6     | May 14, 2010        | May 13, 2011            |
| Software<br>ADT.                        | ADT_Radiated_<br>V7.6.15.9.2 | NA          | NA                  | NA                      |
| Antenna Tower<br>inn-co GmbH            | MA 4000                      | 013303      | NA                  | NA                      |
| Antenna Tower Controller<br>inn-co GmbH | CO2000                       | 017303      | NA                  | NA                      |
| Turn Table<br>ADT.                      | TT100.                       | TT93021703  | NA                  | NA                      |
| Turn Table Controller<br>ADT.           | SC100.                       | SC93021703  | NA                  | NA                      |

**NOTE:**

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in HwaYa Chamber 3.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 988962.
5. The IC Site Registration No. is IC 7450F-3.

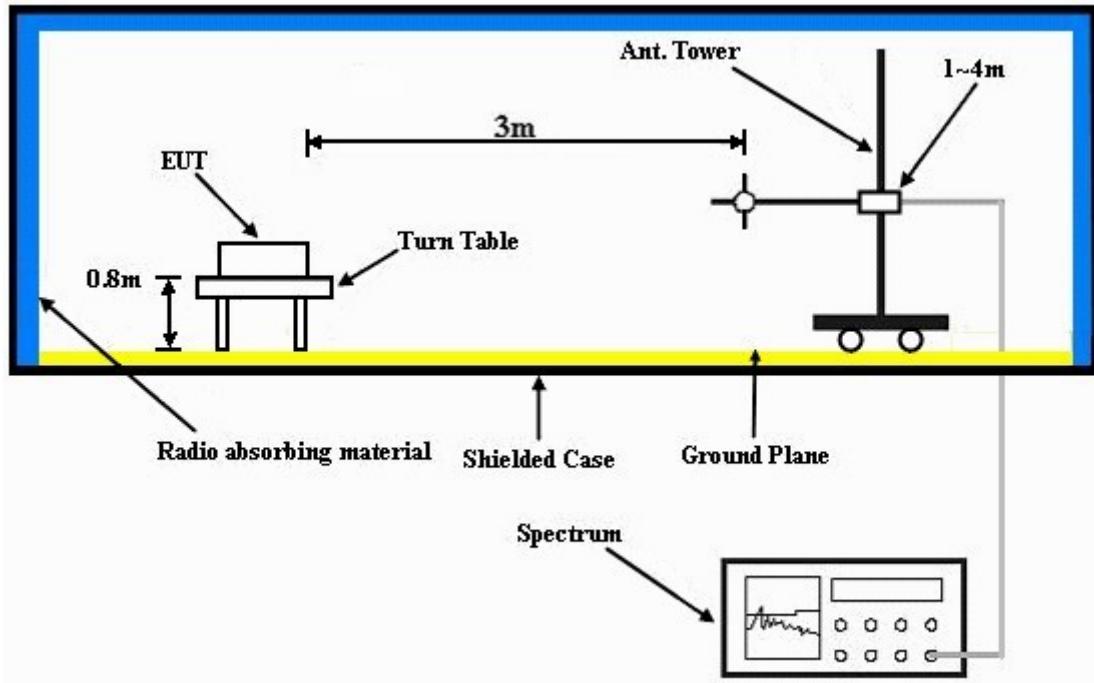


#### 4.1.3 TEST PROCEDURES

- a. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels, 128, 190 and 251 (low, middle and high operational frequency range.)
- b. The conducted peak output power used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. The path loss included the splitter loss, cable loss and 20dB pad loss. The spectrum set RB/VB 1MHz then read peak power value and record to the test. (All transmitted path loss shall be considered in the test report data.)
- c. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
- d. The substitution antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable . Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value “ of step c. Record the power level of S.G
- e. 
$$\text{EIRP} = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn.}$$
- f. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, 
$$\text{E.R.P power} = \text{E.I.R.P power} - 2.15\text{dBi}.$$

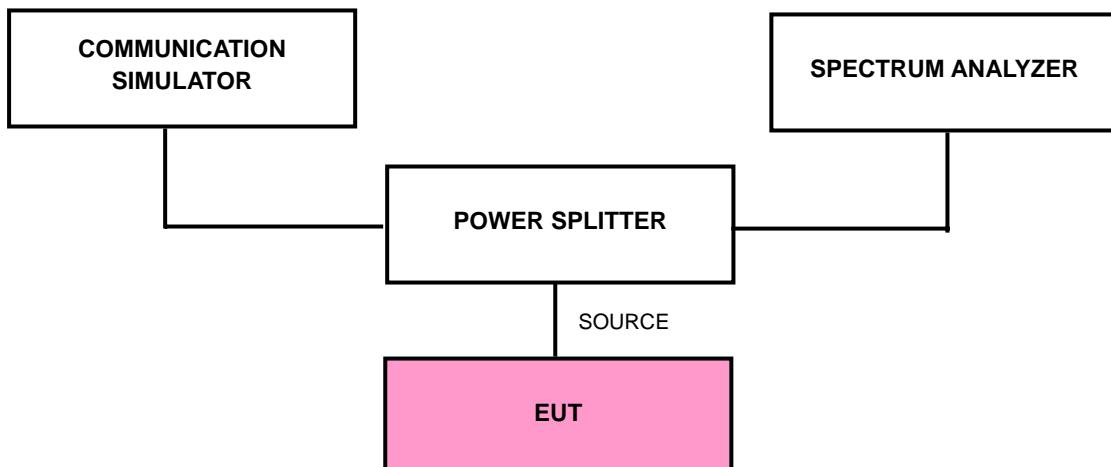
#### 4.1.4 TEST SETUP

##### EIRP POWER MEASUREMENT:



For the actual test configuration, please refer to the attached file (Test Setup Photo).

##### CONDUCTED POWER MEASUREMENT:



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

#### 4.1.5 EUT OPERATING CONDITIONS

- The EUT makes a phone call to the communication simulator.
- The communication simulator station system controlled an EUT to export maximum output power under transmission mode and specific channel frequency.



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#### 4.1.6 TEST RESULTS

##### FOR GSM MODE

| CONDUCTED OUTPUT POWER |                 |                 |                        |              |        |
|------------------------|-----------------|-----------------|------------------------|--------------|--------|
| CHANNEL NO.            | FREQUENCY (MHz) | RAW VALUE (dBm) | CORRECTION FACTOR (dB) | OUTPUT POWER |        |
|                        |                 |                 |                        | dBm          | Watt   |
| 128                    | 824.2           | 27.6            | 4.3                    | 31.9         | 1.5488 |
| 190                    | 836.6           | 28.0            | 4.3                    | 32.3         | 1.6982 |
| 251                    | 848.8           | 27.6            | 4.3                    | 31.9         | 1.5488 |

##### FOR GPRS MODE (UP-LINK WITH 1 TIME SLOT)

| CONDUCTED OUTPUT POWER |                 |                 |                        |              |        |
|------------------------|-----------------|-----------------|------------------------|--------------|--------|
| CHANNEL NO.            | FREQUENCY (MHz) | RAW VALUE (dBm) | CORRECTION FACTOR (dB) | OUTPUT POWER |        |
|                        |                 |                 |                        | dBm          | Watt   |
| 128                    | 824.2           | 27.6            | 4.3                    | 31.9         | 1.5488 |
| 190                    | 836.6           | 27.9            | 4.3                    | 32.2         | 1.6596 |
| 251                    | 848.8           | 27.6            | 4.3                    | 31.9         | 1.5488 |

**REMARKS:** 1. Peak Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).

2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB).



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**FOR GSM MODE**

| ERP POWER   |                 |                 |                        |              |               |
|-------------|-----------------|-----------------|------------------------|--------------|---------------|
| CHANNEL NO. | FREQUENCY (MHz) | S.G VALUE (dBm) | CORRECTION FACTOR (dB) | OUTPUT POWER |               |
|             |                 |                 |                        | dBm          | Watt          |
| 128         | 824.2           | 32.6            | -8.6                   | 24.0         | 0.2512        |
| 190         | 836.6           | 34.4            | -8.6                   | 25.8         | 0.3802        |
| <b>251</b>  | <b>848.8</b>    | <b>35.6</b>     | <b>-8.7</b>            | <b>26.9</b>  | <b>0.4898</b> |

**FOR GPRS MODE (UP-LINK WITH 1 TIME SLOT)**

| ERP POWER   |                 |                 |                        |              |               |
|-------------|-----------------|-----------------|------------------------|--------------|---------------|
| CHANNEL NO. | FREQUENCY (MHz) | S.G VALUE (dBm) | CORRECTION FACTOR (dB) | OUTPUT POWER |               |
|             |                 |                 |                        | dBm          | Watt          |
| 128         | 824.2           | 32.5            | -8.6                   | 23.9         | 0.2455        |
| 190         | 836.6           | 34.2            | -8.6                   | 25.6         | 0.3631        |
| <b>251</b>  | <b>848.8</b>    | <b>35.5</b>     | <b>-8.7</b>            | <b>26.8</b>  | <b>0.4786</b> |

**REMARKS:** 1. Peak Output Power (dBm) = S.G Value (dBm) + Correction Factor (dB).

2. Correction Factor (dB) = Substitution Antenna Gain (dB) + Cable Loss (dB).



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## 4.2 FREQUENCY STABILITY MEASUREMENT

### 4.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

According to the FCC part 22.863 shall be tested the frequency stability. The rule is defined that "The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block." The frequency error rate is according to the JTC standard that the frequency error rate shall be accurate to within 2.5ppm of the received frequency from the base station. The test extreme voltage is according to the 2.1055(d)(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment and the extreme temperature rule is comply with the 2.1055(a)(1)  $-20^{\circ}\text{C} \sim 60^{\circ}\text{C}$ .

### 4.2.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER                  | MODEL NO.   | SERIAL NO. | CALIBRATED UNTIL | CALIBRATED UNTIL |
|---------------------------------------------|-------------|------------|------------------|------------------|
| ROHDE & SCHWARZ Spectrum Analyzer           | FSP40       | 100040     | Jul. 07, 2009    | Jul. 06, 2010    |
| Hewlett Packard RF cable                    | 8120-6192   | 01428251   | NA               | NA               |
| Suhner RF cable                             | Sucoflex104 | 204850/4   | NA               | NA               |
| WIT Standard Temperature & Humidity Chamber | TH-4S-C     | W981030    | Jun. 29, 2009    | Jun. 28, 2010    |

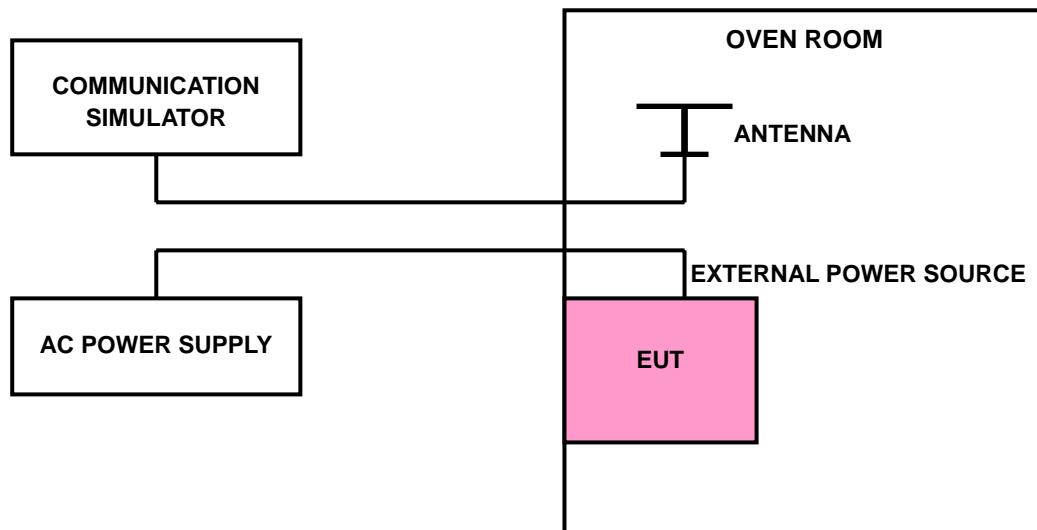
**NOTE:** The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

#### 4.2.3 TEST PROCEDURE

- a. Because of the measure the carrier frequency under the condition of the AFC lock, it shall be used the mobile station in the GSM link mode. This is accomplished with the use of the R&S CMU200 simulator station. The oven room could control the temperatures and humidity. The GSM link channel is the 190.
- b. Power must be removed when changing from one temperature to another or one voltage to another voltage. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- c. EUT is connected the external power supply to control the AC power. The various Volts from the minimum 3.3Volts to 5.0Volts. Each step shall be record the frequency error rate.
- d. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the  $\pm 0.5^{\circ}\text{C}$  during the measurement testing.
- e. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

**NOTE:** The frequency error was recorded frequency error from the communication simulator.

#### 4.2.4 TEST SETUP





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#### 4.2.5 TEST RESULTS

| AFC FREQUENCY ERROR vs. VOLTAGE |                      |                       |             |
|---------------------------------|----------------------|-----------------------|-------------|
| VOLTAGE (Volts)                 | FREQUENCY ERROR (Hz) | FREQUENCY ERROR (ppm) | LIMIT (ppm) |
| 3.3                             | 10                   | 0.012                 | 2.5         |
| 5.0                             | -22                  | -0.026                | 2.5         |

**NOTE:** The applicant defined the normal working voltage of the battery is from 3.3Vdc to 5.0Vdc.

| AFC FREQUENCY ERROR vs. TEMP. |                      |                       |             |
|-------------------------------|----------------------|-----------------------|-------------|
| TEMP. (°C)                    | FREQUENCY ERROR (Hz) | FREQUENCY ERROR (ppm) | LIMIT (ppm) |
| 60                            | -12                  | -0.014                | 2.5         |
| 50                            | -9                   | -0.011                | 2.5         |
| 40                            | -6                   | -0.007                | 2.5         |
| 30                            | -1                   | -0.001                | 2.5         |
| 20                            | -3                   | -0.004                | 2.5         |
| 10                            | 3                    | 0.004                 | 2.5         |
| 0                             | 4                    | 0.005                 | 2.5         |
| -10                           | 7                    | 0.008                 | 2.5         |
| -20                           | 11                   | 0.013                 | 2.5         |



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## 4.3 OCCUPIED BANDWIDTH MEASUREMENT

### 4.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

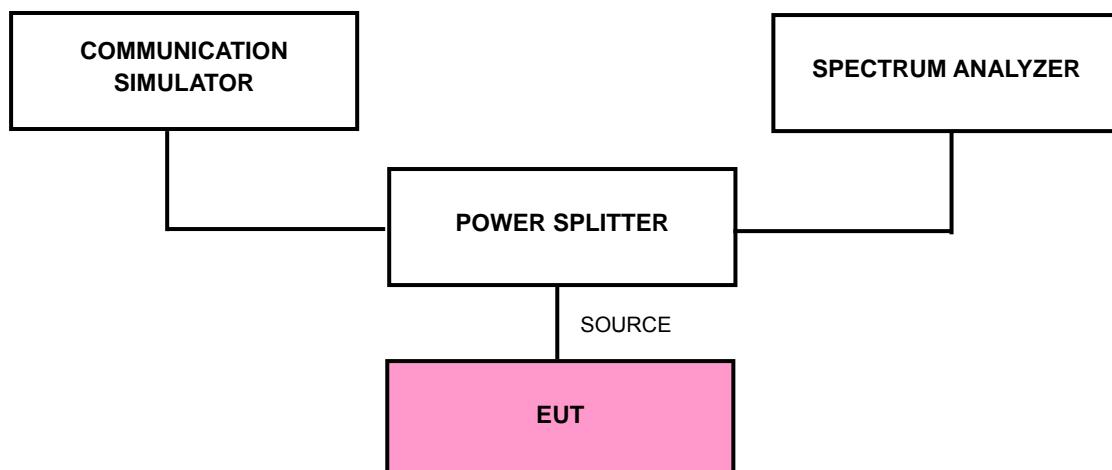
According to FCC 2.1049 (h) specified that emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

### 4.3.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER        | MODEL NO.    | SERIAL NO. | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|-----------------------------------|--------------|------------|---------------------|-------------------------|
| ROHDE & SCHWARZ Spectrum Analyzer | FSP40        | 100040     | Jul. 07, 2009       | Jul. 06, 2010           |
| Mini-Circuits Power Splitter      | ZN2PD-9G     | NA         | Jun. 26, 2009       | Jun. 25, 2010           |
| RF cable                          | SUCOFLEX 104 | 274403/4   | Aug. 21, 2009       | Aug. 20, 2010           |
| RF cable                          | SUCOFLEX 104 | 250729/4   | Aug. 20, 2009       | Aug. 19, 2010           |
| RF cable                          | SUCOFLEX 104 | 214377/4   | Aug. 20, 2009       | Aug. 19, 2010           |
| JFW 20dB attenuation              | 50HF-020-SMA | NA         | NA                  | NA                      |

**NOTE:** The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

### 4.3.3 TEST SETUP





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#### 4.3.4 TEST PROCEDURES

- a. The EUT makes a phone call to the communication simulator. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels, 128, 190 and 251 (low, middle and high operational frequency range.)
- b. The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. This splitter loss and cable loss is the worst loss 23.3dB in the transmitted path track.
- c. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

#### 4.3.5 EUT OPERATING CONDITION

- a. The EUT makes a phone call to the communication simulator.
- b. The communication simulator station system controlled an EUT to export maximum and minimum output power under transmission mode and specific channel frequency.



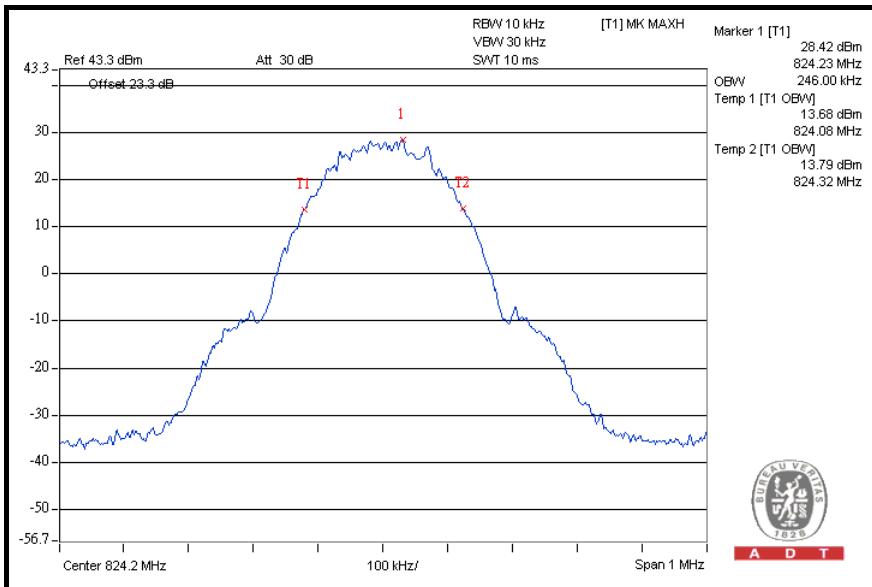
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#### 4.3.6 TEST RESULTS

##### FOR GSM MODE

| CHANNEL | FREQUENCY (MHz) | 99% OCCUPIED BANDWIDTH (kHz) |
|---------|-----------------|------------------------------|
| 128     | 824.2           | 246                          |
| 190     | 836.6           | 242                          |
| 251     | 848.8           | 244                          |

##### CH 128



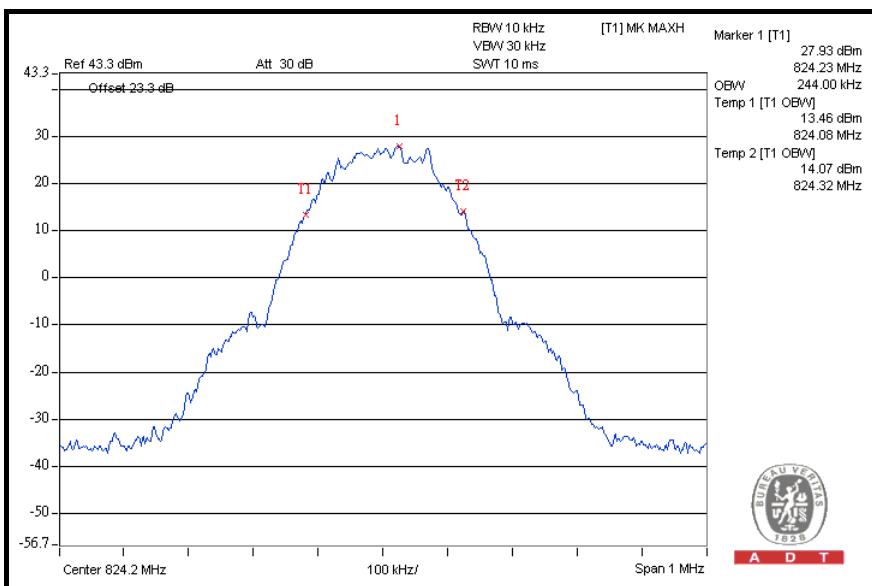


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**FOR GPRS MODE (UP-LINK WITH 1 TIME SLOT)**

| CHANNEL | FREQUENCY (MHz) | 99% OCCUPIED BANDWIDTH (kHz) |
|---------|-----------------|------------------------------|
| 128     | 824.2           | 244                          |
| 190     | 836.6           | 242                          |
| 251     | 848.8           | 242                          |

**CH 128**





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## 4.4 BAND EDGE MEASUREMENT

### 4.4.1 LIMITS OF BAND EDGE MEASUREMENT

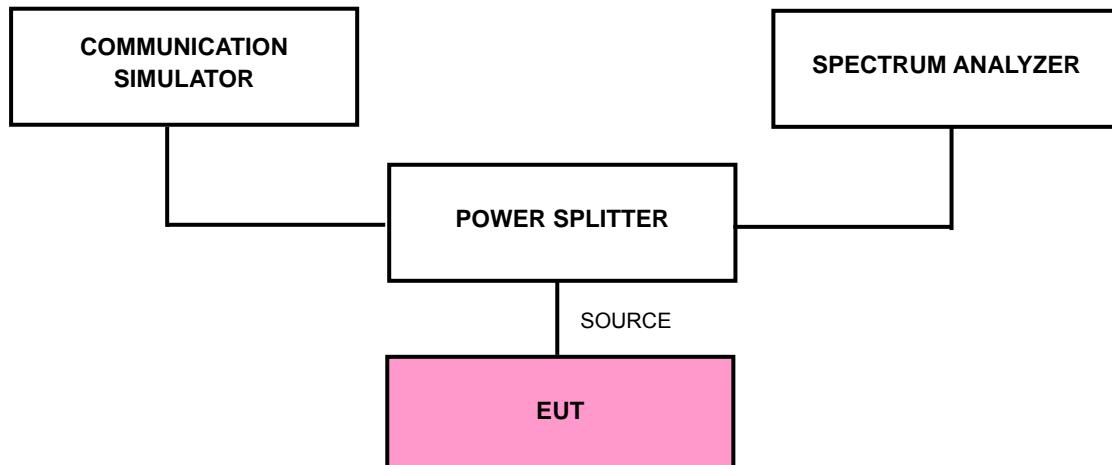
According to FCC 22.917 specified that power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log(P)$  dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

### 4.4.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER           | MODEL NO.    | SERIAL NO. | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|--------------------------------------|--------------|------------|---------------------|-------------------------|
| ROHDE & SCHWARZ<br>Spectrum Analyzer | E4446A       | MY44360128 | Feb. 23, 2010       | Feb. 22, 2011           |
| Mini-Circuits Power Splitter         | ZN2PD-9G     | NA         | Jun. 26, 2009       | Jun. 25, 2010           |
| RF cable                             | SUCOFLEX 104 | 274403/4   | Aug. 21, 2009       | Aug. 20, 2010           |
| RF cable                             | SUCOFLEX 104 | 250729/4   | Aug. 20, 2009       | Aug. 19, 2010           |
| RF cable                             | SUCOFLEX 104 | 214377/4   | Aug. 20, 2009       | Aug. 19, 2010           |
| JFW 20dB attenuation                 | 50HF-020-SMA | NA         | NA                  | NA                      |

**NOTE:** The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

### 4.4.3 TEST SETUP





#### 4.4.4 TEST PROCEDURES

- a. The EUT makes a phone call to the communication simulator. The power was measured with R&S Spectrum Analyzer. All measurements were done at 2 channels, 128 and 251 (low and high operational frequency range.)
- b. The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. This splitter loss and cable loss is the worst loss 23.3dB in the transmitted path track.
- c. The center frequency of spectrum is the band edge frequency and span is 1.5 MHz. RB of the spectrum is 3kHz and VB of the spectrum is 10kHz.
- d. Record the max trace plot into the test report.

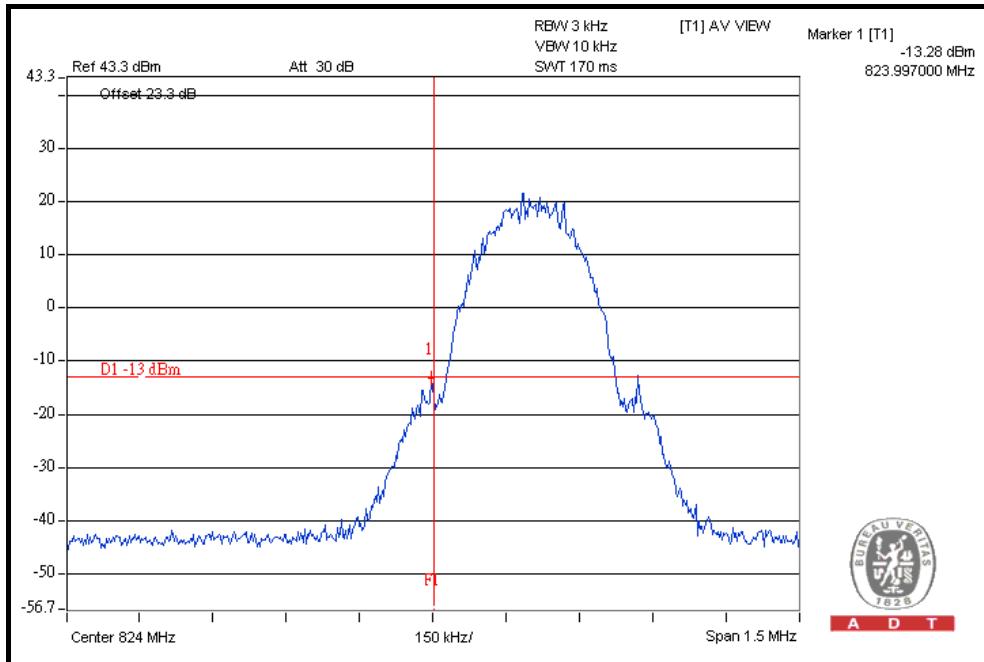
#### 4.4.5 EUT OPERATING CONDITION

- a. The EUT makes a phone call to the communication simulator.
- b. The communication simulator station system controlled an EUT to export maximum output power under transmission mode and specific channel frequency.

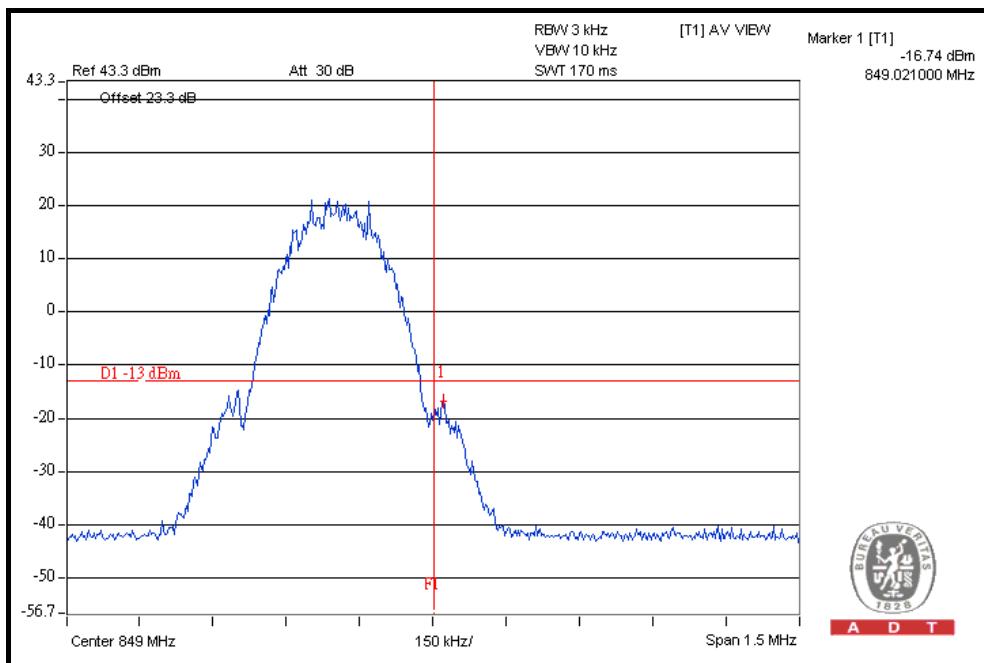
## 4.4.6 TEST RESULTS

### FOR GSM MODE

#### LOWER BAND EDGE



#### HIGHER BAND EDGE

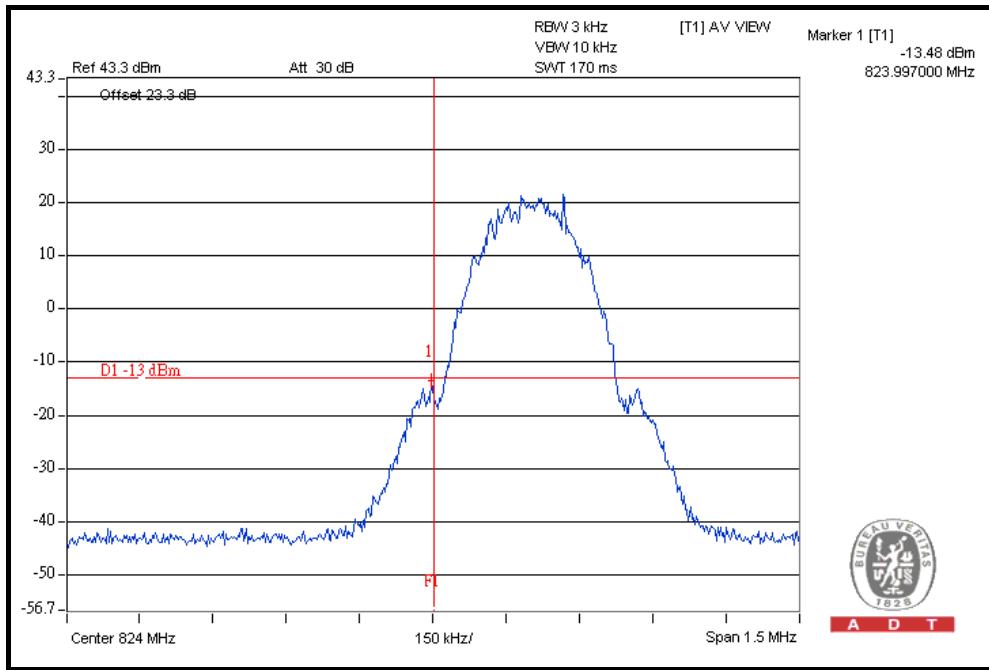




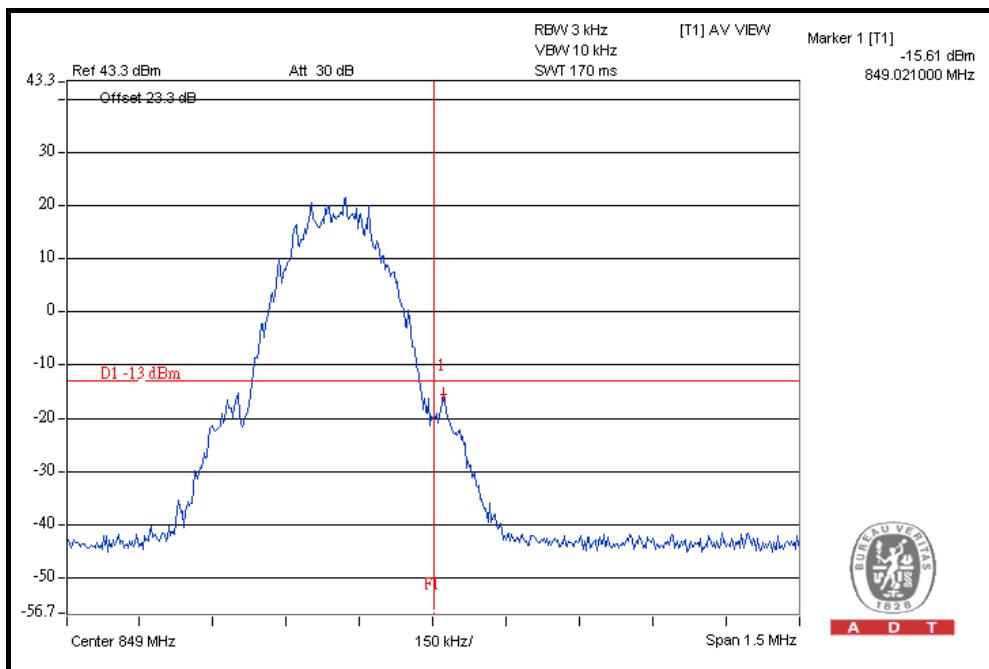
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### FOR GPRS MODE (UP-LINK WITH 1 TIME SLOT)

#### LOWER BAND EDGE



#### HIGHER BAND EDGE





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## 4.5 CONDUCTED SPURIOUS EMISSIONS

### 4.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

In the FCC 22.917, On any frequency outside a licensee's frequency block within GSM spectrum, the power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB. The emission limit equal to  $-13$  dBm.

### 4.5.2 TEST INSTRUMENTS

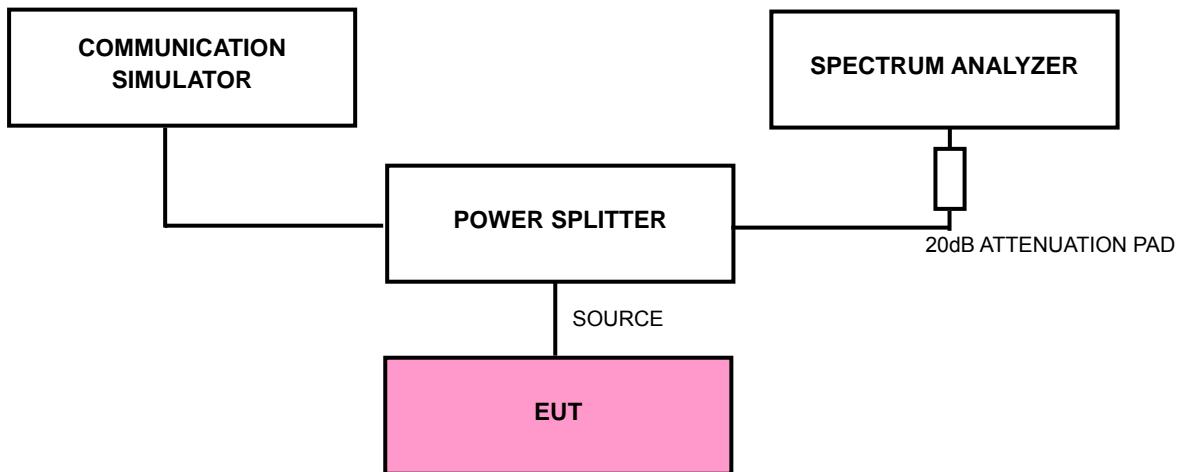
| DESCRIPTION & MANUFACTURER                | MODEL NO.                   | SERIAL NO. | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|-------------------------------------------|-----------------------------|------------|---------------------|-------------------------|
| ROHDE & SCHWARZ Spectrum Analyzer         | FSP40                       | 100040     | Jul. 07, 2009       | Jul. 06, 2010           |
| Wainwright Instruments Band Reject Filter | WRCG 824/849-810/863-60/9SS | SN1        | Mar. 25, 2010       | Mar. 24, 2011           |
| WI Highpass filter                        | WHK1.5/15G-10ST             | SN1        | Mar. 30, 2010       | Mar. 29, 2011           |
| Mini-Circuits Power Splitter              | ZN2PD-9G                    | NA         | Jun. 26, 2009       | Jun. 25, 2010           |
| RF cable                                  | SUCOFLEX 104                | 274403/4   | Aug. 21, 2009       | Aug. 20, 2010           |
| RF cable                                  | SUCOFLEX 104                | 250729/4   | Aug. 20, 2009       | Aug. 19, 2010           |
| RF cable                                  | SUCOFLEX 104                | 214377/4   | Aug. 20, 2009       | Aug. 19, 2010           |
| JFW 20dB attenuation                      | 50HF-020-SMA                | NA         | NA                  | NA                      |

**NOTE:** The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

#### 4.5.3 TEST PROCEDURE

- a. The EUT makes a phone call to the communication simulator. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels, 128, 190 and 251 (low, middle and high operational frequency range.)
- b. The conducted spurious emission used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. This splitter loss and cable loss are the worst loss 23.3dB in the transmitted path track.
- c. When the spectrum scanned from 9kHz to 9GHz, it shall be connected to 20dB Pad. The spectrum set RB=1MHz, VB=3MHz.

#### 4.5.4 TEST SETUP



#### 4.5.5 EUT OPERATING CONDITIONS

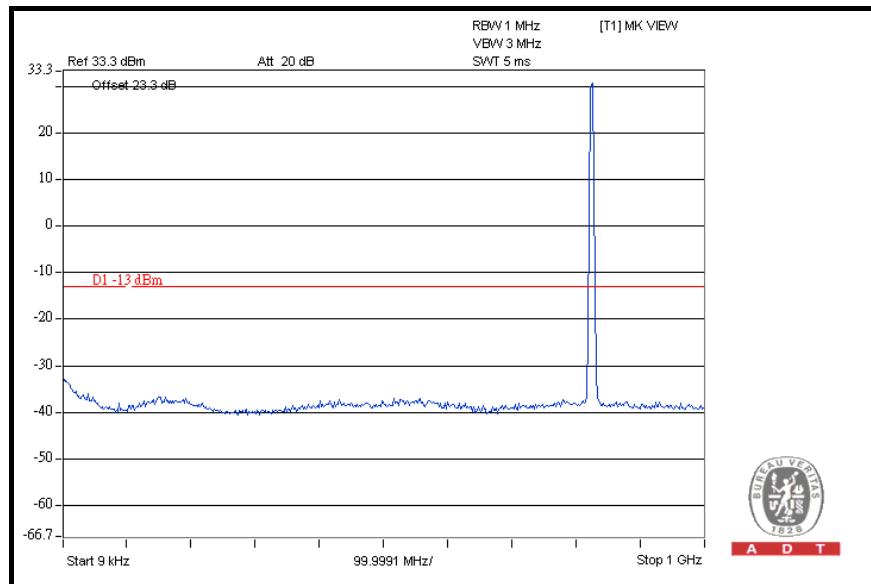
- a. The EUT makes a phone call to the communication simulator.
- b. The communication simulator station system controlled an EUT to export maximum output power under transmission mode and specific channel frequency.



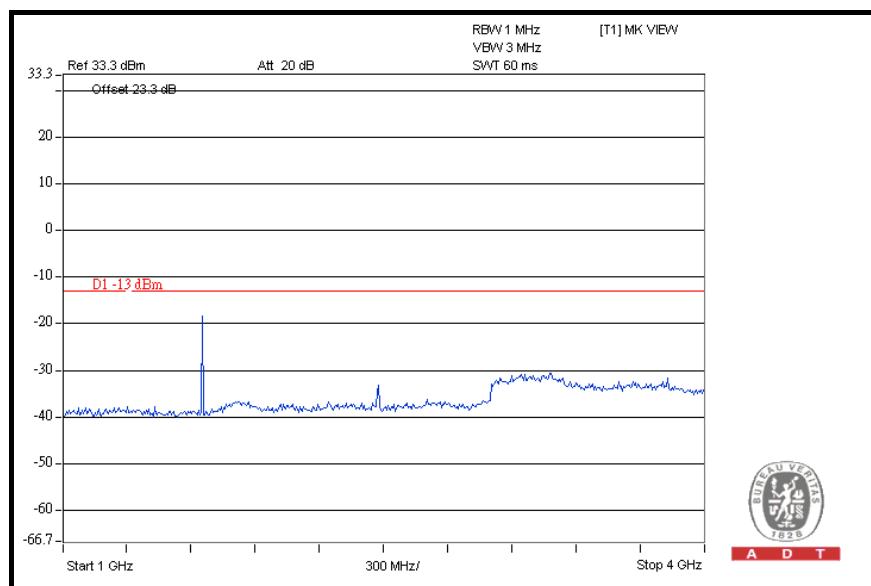
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#### 4.5.6 TEST RESULTS

##### CH 128: 9kHz ~ 1GHz



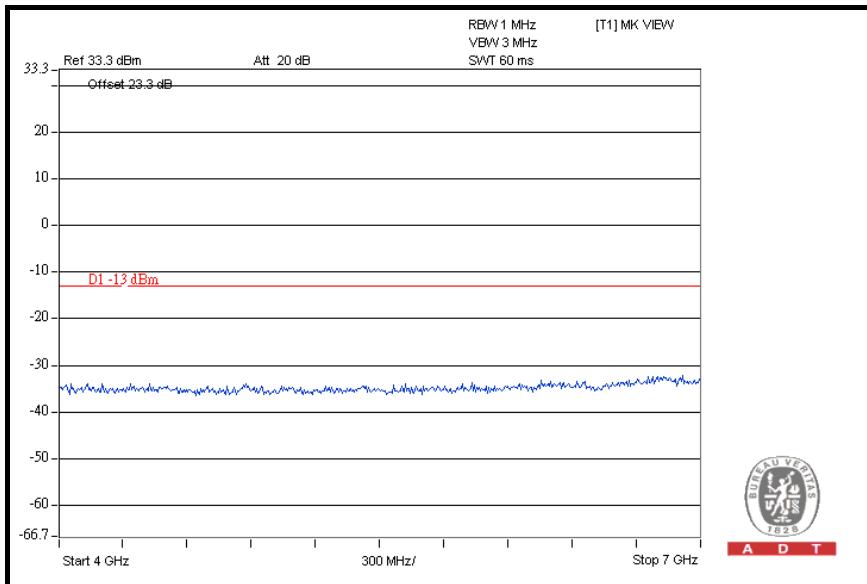
##### 1GHz ~ 4GHz



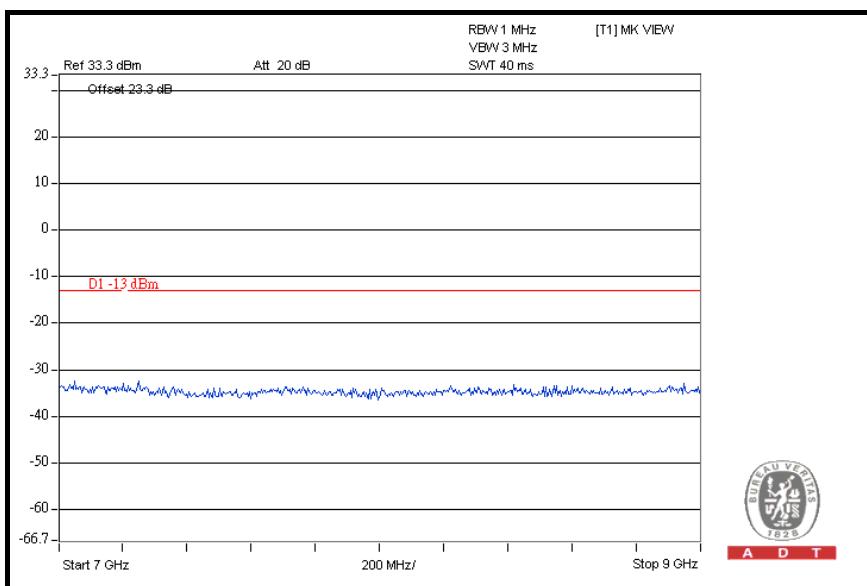


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4GHz ~ 7GHz



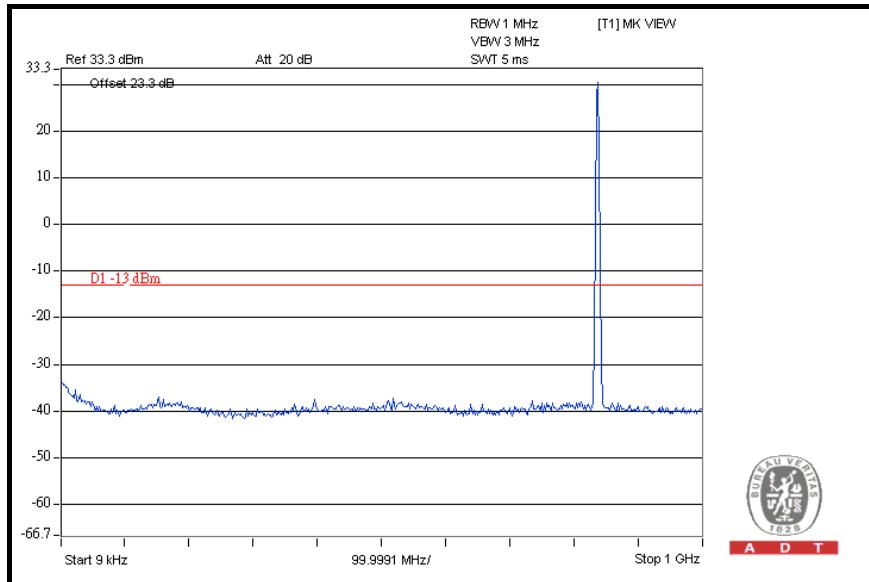
7GHz ~ 9GHz



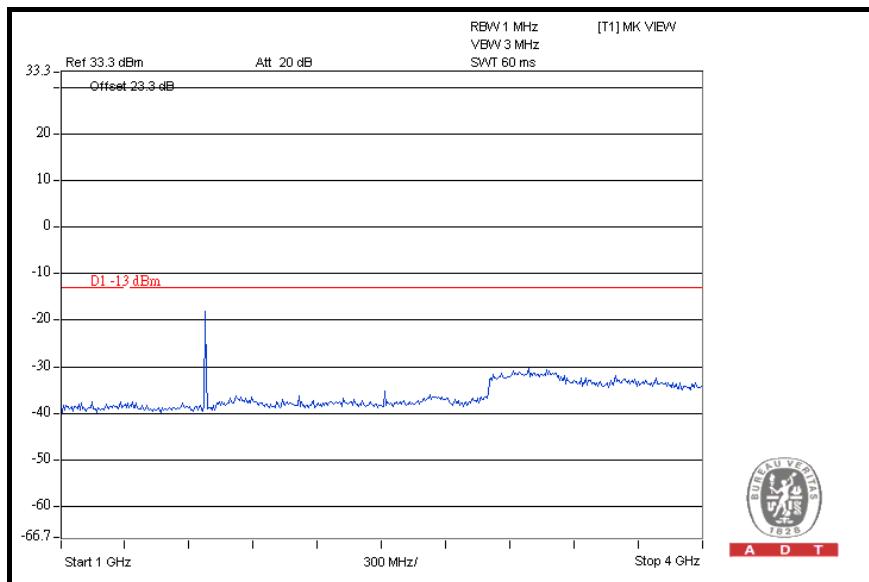


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### CH 190: 9kHz ~ 1GHz



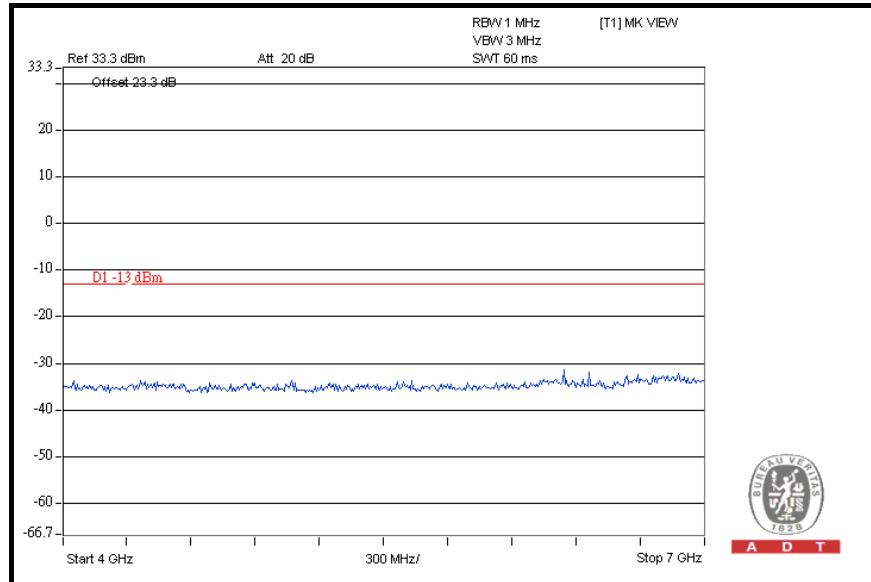
### 1GHz ~ 4GHz



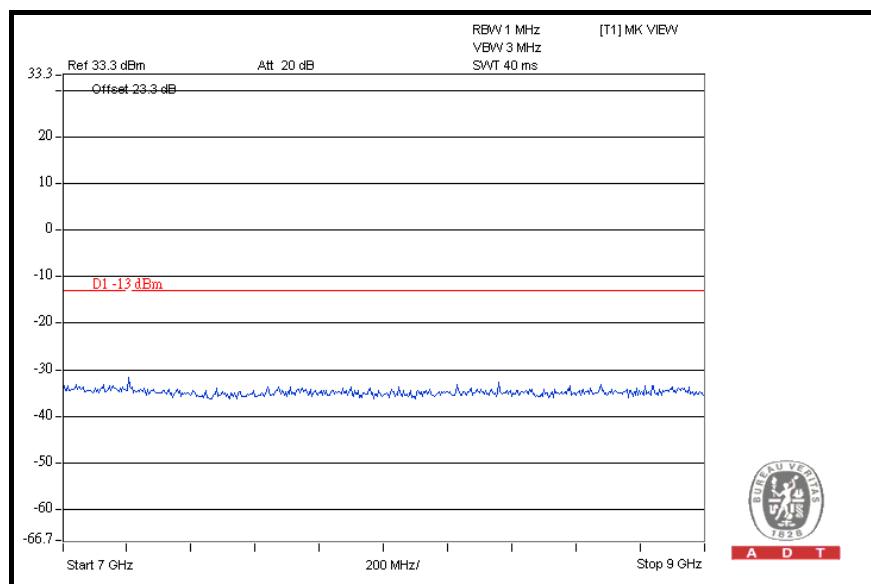


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### 4GHz ~ 7GHz



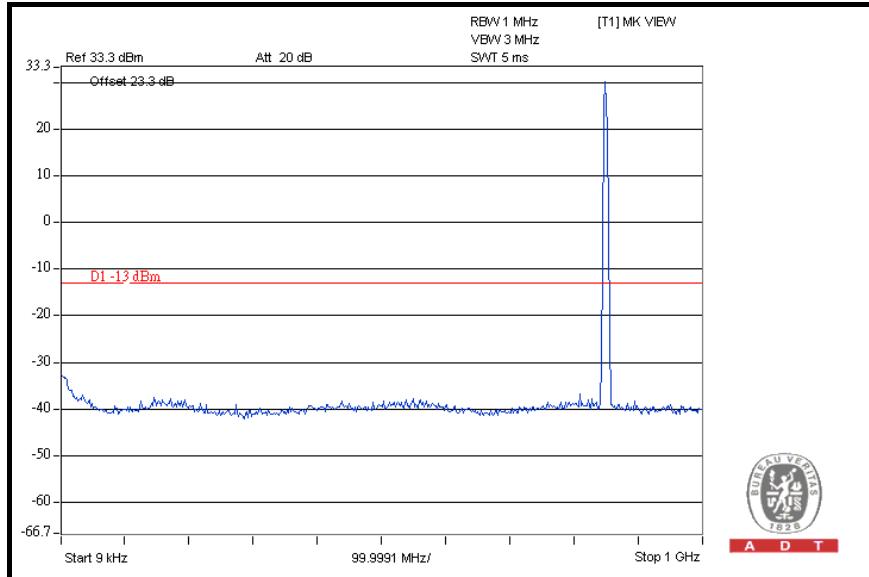
### 7GHz ~ 9GHz



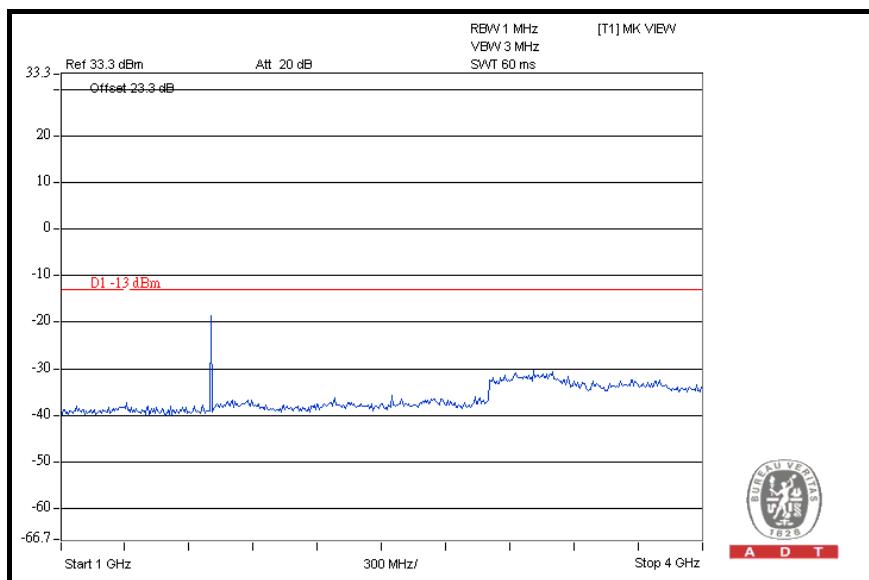


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### CH 251: 9kHz ~ 1GHz



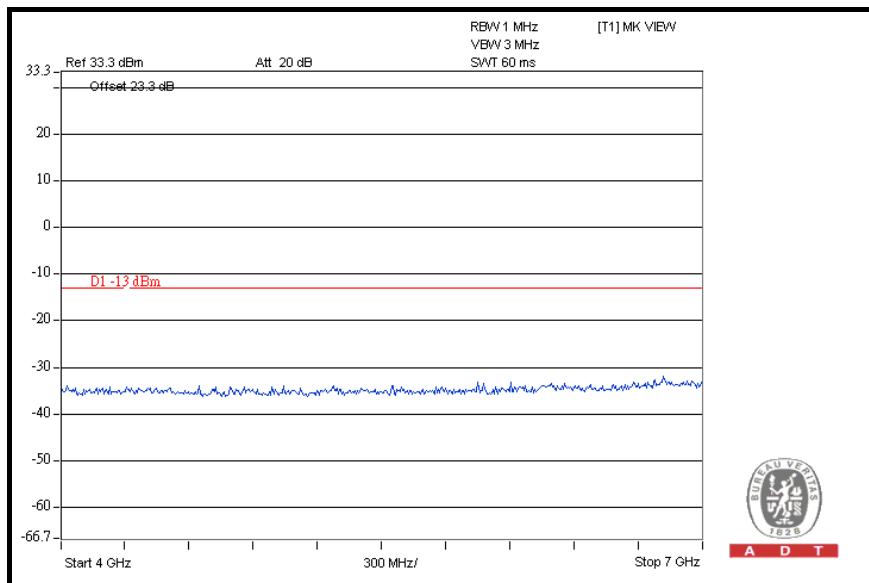
### 1GHz ~ 4GHz





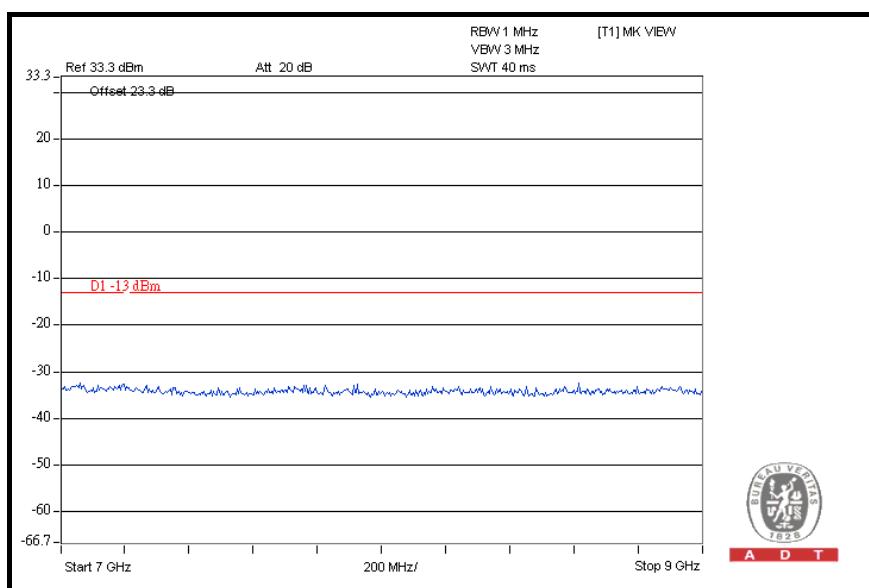
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4GHz ~ 7GHz



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7GHz ~ 9GHz



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## 4.6 RADIATED EMISSION MEASUREMENT (BELOW 1GHz)

### 4.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

In the FCC 24.238(a), On any frequency outside a licensee's frequency block within USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB. The emission limit equal to  $-13\text{dBm}$ . So the limit of emission is the same absolute specified line.

| LIMIT (dBm) | EQUIVALENT FIELD STRENGTH AT 3m (dBuV/m) (NOTE) |
|-------------|-------------------------------------------------|
| -13         | 82.2                                            |

**NOTE:** The following formula is used to convert the equipment radiated power to field strength.

$$E = [1000000 \sqrt{30P}] / 3 \text{ uV/m, where P is Watts.}$$

### 4.6.2 TEST INSTRUMENTS

Same as 4.1.2.



#### 4.6.3 TEST PROCEDURES

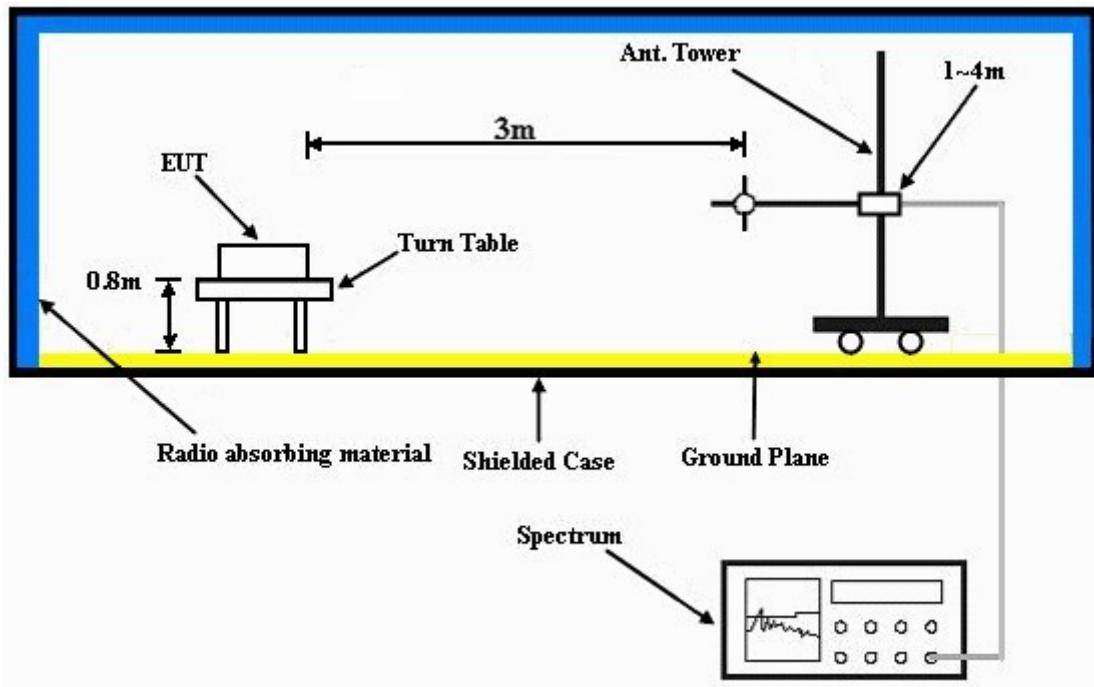
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. 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 polarizations of the antenna are set to make the measurement.
- d. 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 rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

**NOTE:** The resolution bandwidth of spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz.

#### 4.6.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.6.5 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

#### 4.6.6 EUT OPERATING CONDITIONS

- a. The EUT makes a phone call to the communication simulator.
- b. The communication simulator station system controlled an EUT to export maximum output power under transmission mode and specific channel frequency.



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#### 4.6.7 TEST RESULTS

| MODE | TX channel 128 | DETECTOR FUNCTION | Peak |
|------|----------------|-------------------|------|
|------|----------------|-------------------|------|

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                         |                |             |                    |                      |                  |                          |
|-----------------------------------------------------|-------------|-------------------------|----------------|-------------|--------------------|----------------------|------------------|--------------------------|
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 129.14      | 52.1                    | 82.2           | -30.1       | 1.50 H             | 91                   | 40.00            | 12.10                    |
| 2                                                   | 226.33      | 51.4                    | 82.2           | -30.8       | 1.25 H             | 88                   | 39.10            | 12.30                    |
| 3                                                   | 844.49      | 60.9                    | 82.2           | -21.3       | 1.00 H             | 10                   | 34.00            | 26.90                    |
| 4                                                   | 863.93      | 63.5                    | 82.2           | -18.7       | 1.00 H             | 28                   | 36.20            | 27.30                    |
| 5                                                   | 961.12      | 65.5                    | 82.2           | -16.7       | 1.25 H             | 142                  | 36.80            | 28.70                    |
| 6                                                   | 974.73      | 65.8                    | 82.2           | -16.4       | 1.25 H             | 295                  | 37.10            | 28.70                    |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                         |                |             |                    |                      |                  |                          |
| NO.                                                 | FREQ. (MHz) | EMISSION LEVEL (dBuV/m) | LIMIT (dBuV/m) | MARGIN (dB) | ANTENNA HEIGHT (m) | TABLE ANGLE (Degree) | RAW VALUE (dBuV) | CORRECTION FACTOR (dB/m) |
| 1                                                   | 31.94       | 50.3                    | 82.2           | -31.9       | 1.50 V             | 202                  | 37.10            | 13.20                    |
| 2                                                   | 117.47      | 49.2                    | 82.2           | -33.0       | 1.00 V             | 349                  | 37.80            | 11.40                    |
| 3                                                   | 838.66      | 57.5                    | 82.2           | -24.7       | 1.25 V             | 52                   | 30.70            | 26.80                    |
| 4                                                   | 860.04      | 59.4                    | 82.2           | -22.8       | 1.00 V             | 10                   | 32.20            | 27.20                    |
| 5                                                   | 957.23      | 63.6                    | 82.2           | -18.6       | 1.00 V             | 136                  | 35.00            | 28.60                    |
| 6                                                   | 980.56      | 65.2                    | 82.2           | -17.0       | 1.00 V             | 142                  | 36.50            | 28.70                    |

**NOTE:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. This is valid for all 3 channels.



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## 4.7 RADIATED EMISSION MEASUREMENT (ABOVE 1GHz)

### 4.7.1 LIMITS OF RADIATED EMISSION MEASUREMENT

In the FCC 22.917 (a), On any frequency outside a licensee's frequency block within GSM spectrum, the power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log (P)$  dB. The emission limit equal to  $-13$ dBm.

### 4.7.2 TEST INSTRUMENTS

Same as 4.1.2.



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#### 4.7.3 TEST PROCEDURES

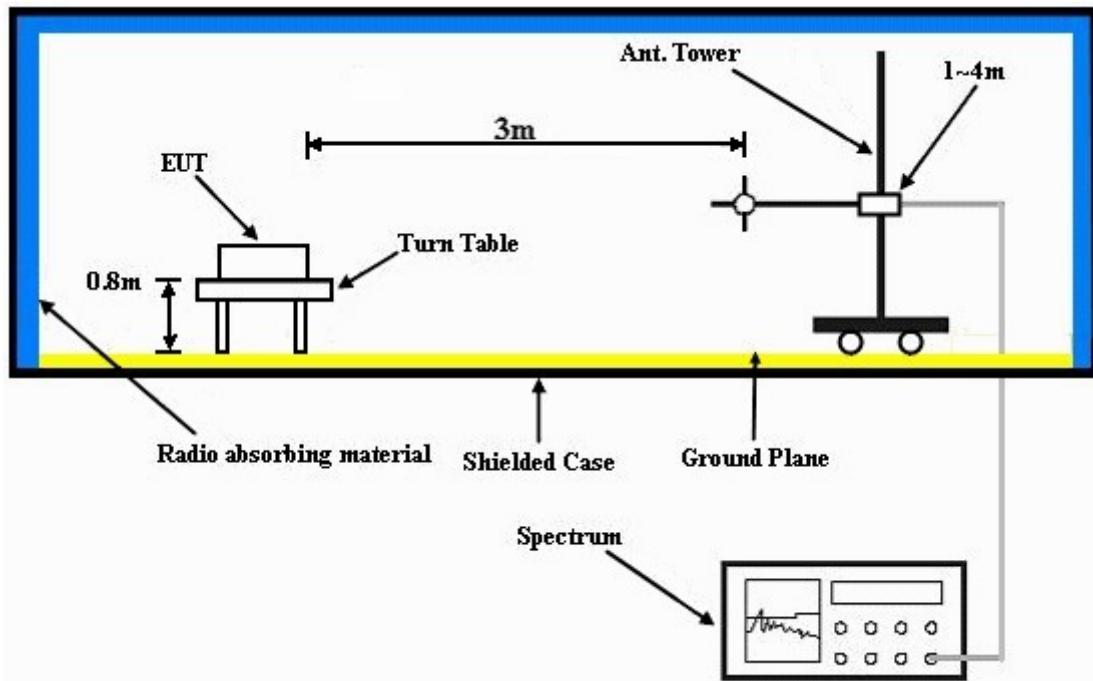
- a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
- b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value” of step a. Record the power level of S.G
- c. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution horn.
- d. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole, E.R.P power = E.I.P.R power - 2.15dBi.

**NOTE:** The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

#### 4.7.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.7.5 TEST SETUP



For the actual test configuration, please refer to the attached file (Test Setup Photo).

#### 4.7.6 EUT OPERATING CONDITIONS

- The EUT makes a phone call to the communication simulator.
- The communication simulator station system controlled an EUT to export maximum output power under transmission mode and specific channel frequency.



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#### 4.7.7 TEST RESULTS

| MODE | TX channel 128 | FREQUENCY RANGE | Above 1000 MHz |
|------|----------------|-----------------|----------------|
|------|----------------|-----------------|----------------|

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                       |             |                       |                        |                   |
|-----------------------------------------------------|-------------|-----------------------|-------------|-----------------------|------------------------|-------------------|
| No.                                                 | Freq. (MHz) | Emission Level (dBuV) | Limit (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | Power Value (dBm) |
| 1                                                   | 1648.4      | 58.4                  | -13.0       | -44.0                 | 7.6                    | -36.4             |
| 2                                                   | 2472.6      | 55.5                  | -13.0       | -47.4                 | 8.4                    | -39.0             |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                       |             |                       |                        |                   |
| No.                                                 | Freq. (MHz) | Emission Level (dBuV) | Limit (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | Power Value (dBm) |
| 1                                                   | 1648.4      | 53.1                  | -13.0       | -48.5                 | 7.6                    | -40.9             |
| 2                                                   | 2472.6      | 50.9                  | -13.0       | -51.7                 | 8.4                    | -43.3             |

**NOTE:** Power Value (dBum) = S.G Power Value (dBm) + Correction Factor (dB).



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|      |                |                 |                |
|------|----------------|-----------------|----------------|
| MODE | TX channel 190 | FREQUENCY RANGE | Above 1000 MHz |
|------|----------------|-----------------|----------------|

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                       |             |                       |                        |                   |
|-----------------------------------------------------|-------------|-----------------------|-------------|-----------------------|------------------------|-------------------|
| No.                                                 | Freq. (MHz) | Emission Level (dBuV) | Limit (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | Power Value (dBm) |
| 1                                                   | 1673.2      | 58.8                  | -13.0       | -43.1                 | 7.7                    | -35.4             |
| 2                                                   | 2509.8      | 55.9                  | -13.0       | -46.4                 | 8.4                    | -38.0             |
| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M   |             |                       |             |                       |                        |                   |
| No.                                                 | Freq. (MHz) | Emission Level (dBuV) | Limit (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | Power Value (dBm) |
| 1                                                   | 1673.2      | 54.2                  | -13.0       | -48.3                 | 7.7                    | -40.6             |
| 2                                                   | 2509.8      | 52.2                  | -13.0       | -51.1                 | 8.4                    | -42.7             |

**NOTE:** Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).



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|      |                |                 |                |
|------|----------------|-----------------|----------------|
| MODE | TX channel 251 | FREQUENCY RANGE | Above 1000 MHz |
|------|----------------|-----------------|----------------|

| ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M |             |                       |             |                       |                        |                   |
|-----------------------------------------------------|-------------|-----------------------|-------------|-----------------------|------------------------|-------------------|
| No.                                                 | Freq. (MHz) | Emission Level (dBuV) | Limit (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | Power Value (dBm) |
| 1                                                   | 1697.6      | 59.4                  | -13.0       | -42.9                 | 7.9                    | -35.0             |
| 2                                                   | 2546.4      | 56.5                  | -13.0       | -46.1                 | 8.5                    | -37.6             |

| ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M |             |                       |             |                       |                        |                   |
|---------------------------------------------------|-------------|-----------------------|-------------|-----------------------|------------------------|-------------------|
| No.                                               | Freq. (MHz) | Emission Level (dBuV) | Limit (dBm) | S.G Power Value (dBm) | Correction Factor (dB) | Power Value (dBm) |
| 1                                                 | 1697.6      | 54.6                  | -13.0       | -48.0                 | 7.9                    | -40.1             |
| 2                                                 | 2546.4      | 52.6                  | -13.0       | -50.0                 | 8.5                    | -41.5             |

**NOTE:** Power Value (dBm) = S.G Power Value (dBm) + Correction Factor (dB).



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## 5 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).



## 6 INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: [www.adt.com.tw/index.5/phtml](http://www.adt.com.tw/index.5/phtml). If you have any comments, please feel free to contact us at the following:

**Linko EMC/RF Lab:**

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**Web Site:** [www.adt.com.tw](http://www.adt.com.tw)

The address and road map of all our labs can be found in our web site also.



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## 7 APPENDIX A – MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

---END---