

FCC TEST REPORT

(PART 22)

REPORT NO.: RF980505L11

MODEL NO.: WHIT100

RECEIVED: May 05, 2009

TESTED: Jun. 18 ~ Jul. 08, 2009

ISSUED: Jul. 13, 2009

APPLICANT: HTC Corporation

ADDRESS: No. 23, Xinghua Rd., Taoyuan City, Taiwan, R.O.C.

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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1 CERTIFICATION

PRODUCT: Pocket PC Phone

MODEL: WHIT100

APPLICANT: HTC Corporation

TESTED: Jun. 18 ~ Jul. 08, 2009

TEST SAMPLE: ENGINEERING SAMPLE

TEST STANDARDS: FCC Part 22, Subpart H
ANSI C63.4-2003

The above equipment (model: WHIT100) 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 : Andrea Hsia , **DATE:** Jul. 13, 2009
Andrea Hsia / Specialist

TECHNICAL
ACCEPTANCE : Long Chen , **DATE:** Jul. 13, 2009
Responsible for RF Long Chen / Senior Engineer

APPROVED BY : Gary Chang , **DATE:** Jul. 13, 2009
Gary Chang / Assistant Manager

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

| APPLIED STANDARD: FCC Part 22 & Part 2 / IC RSS-132 | | | |
|---|--|--------|--|
| STANDARD SECTION | TEST TYPE AND LIMIT | RESULT | REMARK |
| 2.1046 22.913 (a) | Maximum Peak Output Power Limit: max. 7 watts e.r.p peak power | PASS | Meet the requirement of limit. Minimum passing margin is 20.78dBm at 824.70MHz. |
| 2.1055 | Frequency Stability AFC Freq. Error vs. Voltage AFC Freq. Error vs. Temperature Limit: max. ± 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 22.917 | Conducted Spurious Emissions | PASS | Meet the requirement of limit. |
| 2.1053 22.917 | Radiated Spurious Emissions | PASS | Meet the requirement of limit. Minimum passing margin is -7.08dB at 1649.40MHz. |

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 | 3.19 dB |
| | 200MHz ~1000MHz | 3.21 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.

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

| | |
|-------------------------------|---|
| PRODUCT | Pocket PC Phone |
| MODEL NO. | WHIT100 |
| FCC ID | NM8WHIT100 |
| POWER SUPPLY | 3.7Vdc from rechargeable lithium battery 5.0Vdc from power adapter 5.0Vdc from host equipment |
| MODULATION TYPE | OQPSK, HPSK |
| OPERATING FREQUENCY | 824.70MHz ~ 848.31MHz |
| NUMBER OF CHANNEL | 788 |
| MAX. ERP POWER | 20.78dBm (0.120Watts) |
| ANTENNA TYPE | PIFA antenna with -1dBi gain |
| DATA CABLE | 1.25m non-shielded USB cable without core (Brand: MEC & Foxlink) |
| I/O PORTS | Refer to user's manual |
| ACCESSORY DEVICES | Adapter, Battery, USB cable |
| EUT EXTREME VOL. RANGE | 3.6Vdc to 4.2Vdc |

NOTE:

1. The applicant defined the normal working voltage of the battery is from 3.6Vdc to 4.2Vdc.
2. The EUT is a Pocket PC Phone. The functions of EUT listed as below:

| | TEST STANDARD | REFERENCE REPORT |
|-----------------------|---------------------------------|------------------|
| CDMA 850 | FCC Part 22 | RF980505L11 |
| CDMA 1900 | FCC Part 24 | RF980505L11-1 |
| WLAN 802.11b/g | FCC Part 15 (Section 15.247) | RF980505L11-2 |
| BLUETOOTH | | RF980505L11-3 |

3. The communicated functions of EUT listed as below:

| | | 850MHz | 1900MHz | |
|----|---------------------|--------|---------|--|
| 3G | CDMA | √ | √ | With WLAN 802.11b/g + BT 2.0 with EDR + GPS |
| | 1*EVDO Release A | √ | √ | |

4. The following accessory is for support units only.

| PRODUCT | MODEL | DESCRIPTION |
|----------|---------|--|
| Earphone | RC E150 | 3.5mm connector 1.3m non-shielded without core |

5. The EUT has following accessories.

| NO. | PRODUCT | BRAND | MODEL | DESCRIPTION |
|-----|---------------|---------|-------------------|---|
| 1 | Power Adapter | hTC | TC P300 | I/P: 100-240Vac, 50-60Hz, 0.2A O/P: 5Vdc, 1A 1.25m non-shielded cable without core Manufacturer: Delta |
| 2 | | | | I/P: 100-240Vac, 50-60Hz, 0.2A O/P: 5Vdc, 1A 1.25m non-shielded cable without core Manufacturer: Foxlink |
| 3 | Battery | hTC | RHOD160 | Rating: 3.7Vdc, 1500mAh, 5.55Whr P/N: 35H00123-00M Manufacturer: HT |
| 4 | | | | Rating: 3.7Vdc, 1500mAh, 5.55Whr P/N: 35H00123-02M Manufacturer: Formosa |
| 5 | USB cable | MEC | DC U200 | 1.25m shielded cable without core |
| 6 | | Foxlink | | |
| 7 | Camera | Foxconn | CER968-5M_AF_ASSY | - |
| 8 | | Liteon | 08PM15 | |
| 9 | LCM | EID | L4F00390T00 | - |
| 10 | | AUO | H361VL01V0 | - |

* Item 3, 7, 9 were the worst for the final test.

6. Refer to following table for MEID no.:

| MEID NO. |
|---------------|
| 35191703***** |

7. Hardware version: NA

8. Software version: NA

9. 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

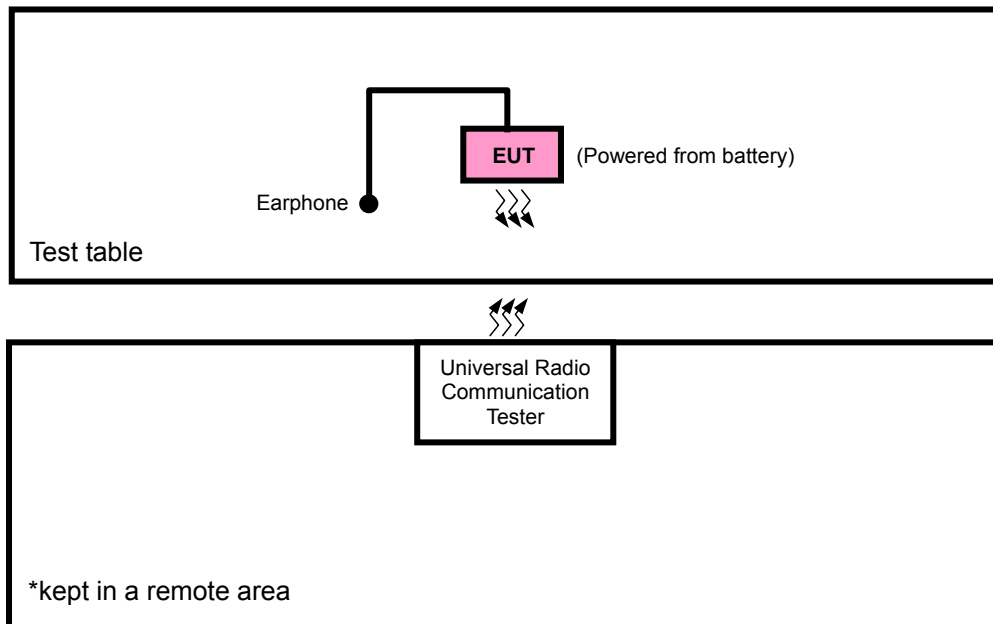
788 channels are provided to this EUT in the CDMA850 band. Therefore, the low, middle and high channels are chosen for testing.

| | CHANNEL | FREQUENCY | TX MODE |
|--------|---------|------------|---------|
| LOW | 1013 | 824.70 MHz | SO32 |
| MIDDLE | 384 | 836.52 MHz | SO32 |
| HIGH | 777 | 848.31 MHz | SO32 |

NOTE:

1. Below 1 GHz, the channel 1013, 384 and 777 were pre-tested in chamber. The channel 1013 was the worst case and chosen for final test.
2. Above 1 GHz, the channel 1013, 384 and 777 were tested individually.
3. The channel space is 0.03MHz.
4. In this report, CDMA2000 (TDSO/SO32) was the worst case for all test items, therefore, only the data was recorded in the following section.

3.2.1 CONFIGURATION OF SYSTEM UNDER TEST



3.2.2 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

| EUT CONFIGURE 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<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 |
|-------------------|----------------|-----------------------|------|
| 1013 to 777 | 1013, 384, 777 | CDMA | Y |

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 |
|-------------------|----------------|-----------------------|
| 1013 to 777 | 384 | CDMA |

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).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

| AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION TECHNOLOGY |
|-------------------|----------------|-----------------------|
| 1013 to 777 | 1013, 384, 777 | CDMA |

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 |
|-------------------|----------------|-----------------------|
| 1013 to 777 | 1013, 777 | CDMA |

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 |
|-------------------|----------------|-----------------------|
| 1013 to 777 | 1013, 384, 777 | CDMA |

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 |
|-------------------|----------------|-----------------------|------|
| 1013 to 777 | 1013 | CDMA | Y |

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 |
|-------------------|----------------|-----------------------|------|
| 1013 to 777 | 1013, 384, 777 | CDMA | Y |

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. | CAL. DATE |
|-----|--------------------------------------|-------|-----------|------------|---------------|
| 1 | EARPHONE | NA | RC E150 | NA | NA |
| 2 | UNIVERSAL RADIO COMMUNICATION TESTER | R&S | CMU200 | 104484 | Feb. 02, 2010 |

| NO. | SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS |
|-----|---|
| 1 | 1.3m non-shielded without core |
| 2 | NA |

NOTE:

1. All power cords of the above support units are non shielded (1.8m).
2. Item 2 acted as a communication partners to transfer data.
3. Item 1 was supplied from the client.

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”.

4.1.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|--|------------------------------|-------------|---------------------|-------------------------|
| Test Receiver ROHDE & SCHWARZ | ESI7 | 838496/016 | Dec. 29, 2008 | Dec. 28, 2009 |
| Spectrum Analyzer ROHDE & SCHWARZ | FSP40 | 100039 | Dec. 08, 2008 | Dec. 07, 2009 |
| BILOG Antenna SCHWARZBECK | VULB9168 | 9168-155 | Apr. 30, 2008 | Apr. 28, 2010 |
| HORN Antenna SCHWARZBECK | BBHA 9120D | 9120D-408 | Dec. 29, 2008 | Dec. 28, 2009 |
| HORN Antenna SCHWARZBECK | BBHA 9170 | BBHA9170242 | Jan. 06, 2009 | Jan. 05, 2010 |
| Preamplifier Agilent | 8449B | 3008A01960 | Nov. 03, 2008 | Nov. 02, 2009 |
| Preamplifier Agilent | 8447D | 2944A10631 | Nov. 03, 2008 | Nov. 02, 2009 |
| RF signal cable HUBER+SUHNNER | SUCOFLEX 104 | 274041/4 | Aug. 21, 2008 | Aug. 20, 2009 |
| RF signal cable HUBER+SUHNNER | SUCOFLEX 104 | 283397/4 | Aug. 21, 2008 | Aug. 20, 2009 |
| Software ADT. | ADT_Radiated_ V7.6.15.9.2 | NA | NA | NA |
| Antenna Tower inn-co GmbH | MA 4000 | 010303 | NA | NA |
| Antenna Tower Controller inn-co GmbH | CO2000 | 019303 | NA | NA |
| Turn Table ADT. | TT100. | TT93021704 | NA | NA |
| Turn Table Controller ADT. | SC100. | SC93021704 | 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 4.
 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 IC7450F-4.

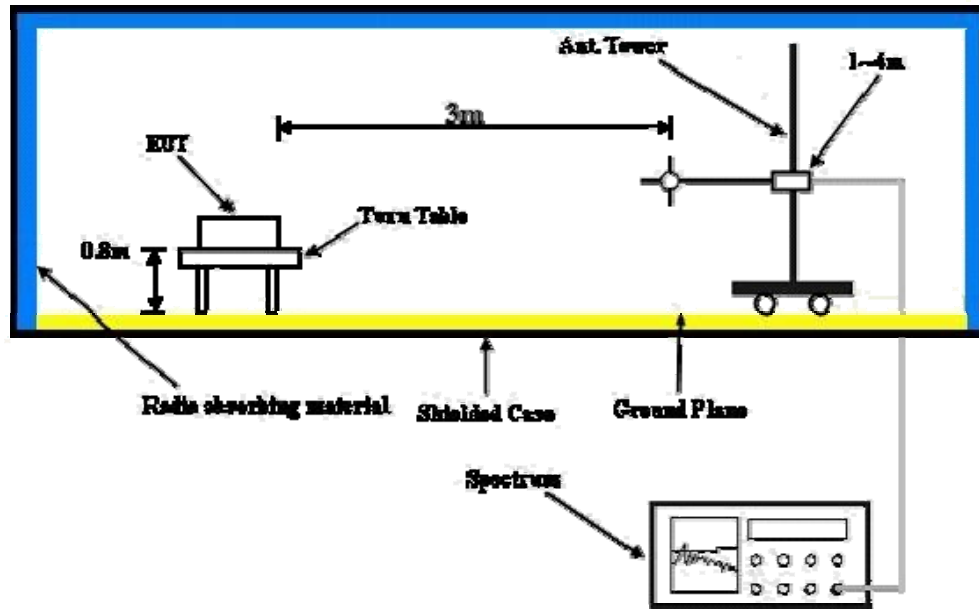
4.1.3 TEST PROCEDURES

- a. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels: 1013, 384 and 777 (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 3MHz, 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 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 b. Record the power level of S.G
- e. EIRP = Output power level of S.G – TX cable loss + 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,
$$\text{E.R.P power} = \text{E.I.P.R power} - 2.15\text{dBi}.$$

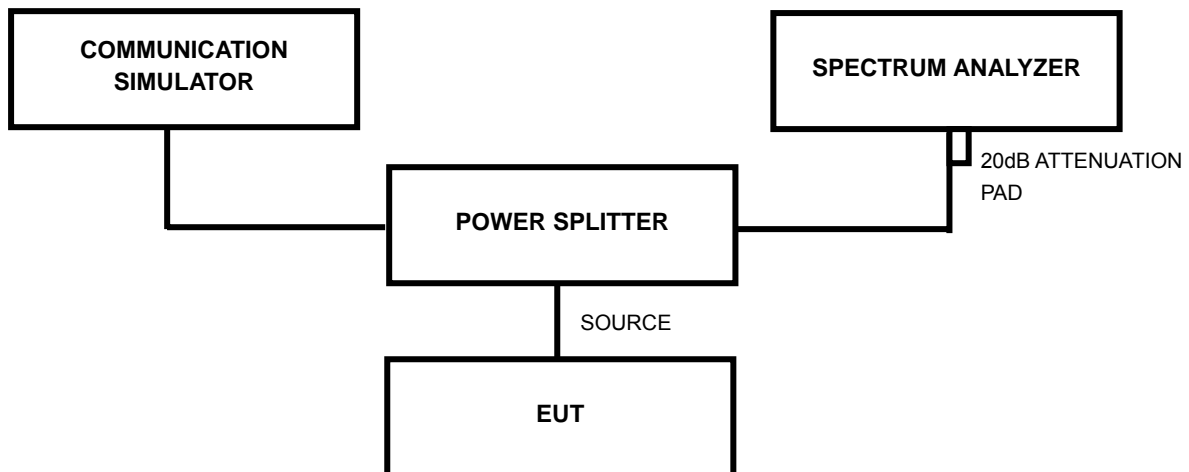
NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 3MHz/10MHz.

4.1.4 TEST SETUP

EIRP POWER MEASUREMENT:



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



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

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

| | | | |
|----------------------|--------------|--------------------------|-------------------------|
| MODE | TX connected | DETECTOR FUNCTION | Average |
| INPUT POWER (SYSTEM) | 120Vac, 60Hz | ENVIRONMENTAL CONDITIONS | 23deg. C, 63%RH, 982hPa |
| TESTED BY | Mark Liao | | |

| WORST CASE CONDUCTED POWER OF 1x EV-DO | | | | | | | | |
|--|----------------|-----------------|-------|----------------------|--------------|-------|-------|-------|
| CHANNEL | FREQ. (MHz) | RTAP | FTAP | CORR. FACTOR (dB) | RTAP | | FTAP | |
| | | | | | OUTPUT POWER | | | |
| | | RAW VALUE (dBm) | | | dBm | Watt | dBm | Watt |
| 1013 | 824.70 | 19.01 | 18.79 | 4.20 | 23.21 | 0.209 | 22.99 | 0.199 |
| 384 | 836.52 | 19.28 | 19.15 | 4.20 | 23.48 | 0.223 | 23.35 | 0.216 |
| 777 | 848.31 | 19.10 | 18.95 | 4.20 | 23.30 | 0.214 | 23.15 | 0.207 |

| CONDUCTED POWER (1x EV-DO) | | | | | | | |
|----------------------------|-------------|----------------------|-----------------------|------------------------|------------------------|-------------------------|--------------------------|
| CHANNEL | FREQ. (MHz) | Rev. A | | | Rev. 0 | | |
| | | RETAP: 128kbps (dBm) | RETAP: 2048kbps (dBm) | RETAP: 12288kbps (dBm) | EVDO-UL: 9.6kbps (dBm) | EVDO-UL: 38.4kbps (dBm) | EVDO-UL: 153.6kbps (dBm) |
| 1013 | 824.70 | 22.98 | 23.22 | 23.21 | 22.94 | 22.90 | 22.99 |
| 384 | 836.52 | 23.29 | 23.44 | 23.48 | 23.26 | 23.23 | 23.35 |
| 777 | 848.31 | 23.08 | 23.35 | 23.30 | 23.01 | 23.02 | 23.15 |

| CDMA 2000 CONDUCTED POWER | | | | | | | | | | | | | |
|---------------------------|----------------|--------------|-----------------|-------|-----------------------|-------------------------------|-------|-------------------------|--------------------|-------|-----------------------|-------------------------------|-------|
| CHAN. | FREQ. (MHz) | CDMA 2000 | RAW VALUE (dBm) | | | | | CORR. FACTOR (dB) | OUTPUT POWER (dBm) | | | | |
| | | RC | SO2 | SO55 | TDSO SO32 (FCH) | TDSO SO32 (FCH+ SCH) | SO3 | | SO2 | SO55 | TDSO SO32 (FCH) | TDSO SO32 (FCH+ SCH) | SO3 |
| 1013 | 824.70 | RC1 | 19.01 | 19.07 | - | - | 18.69 | 4.20 | 23.21 | 23.27 | - | - | 22.89 |
| | | RC3 | 18.91 | 19.29 | 19.31 | 18.83 | 18.78 | 4.20 | 23.11 | 23.49 | 23.51 | 23.03 | 22.98 |
| 384 | 836.52 | RC1 | 19.20 | 19.09 | - | - | 18.95 | 4.20 | 23.40 | 23.29 | - | - | 23.15 |
| | | RC3 | 19.13 | 19.30 | 19.38 | 19.01 | 19.15 | 4.20 | 23.33 | 23.50 | 23.58 | 23.21 | 23.35 |
| 777 | 848.31 | RC1 | 19.02 | 19.21 | - | - | 18.75 | 4.20 | 23.22 | 23.41 | - | - | 22.95 |
| | | RC3 | 19.03 | 19.49 | 19.51 | 19.25 | 18.93 | 4.20 | 23.23 | 23.69 | 23.71 | 23.45 | 23.13 |

REMARKS: 1. Peak Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
 2. Correction Factor (dB) = Power Splitter Loss (dB) + Cable Loss (dB).
 3. The value in bold is the worst.



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| | | | |
|----------------------|--------------|--------------------------|-------------------------|
| MODE | TX connected | DETECTOR FUNCTION | Average |
| INPUT POWER (SYSTEM) | 120Vac, 60Hz | ENVIRONMENTAL CONDITIONS | 23deg. C, 63%RH, 982hPa |
| TESTED BY | Dean Wang | | |

| ERP POWER (1x EV-DO) | | | | | | | | |
|----------------------|----------------|------------------|--------|----------------------|--------------|-------|--------|-------|
| CHANNEL | FREQ. (MHz) | S.G. VALUE (dBm) | | CORR. FACTOR (dB) | OUTPUT POWER | | | |
| | | | | | Rev. A | | Rev. 0 | |
| | | Rev. A | Rev. 0 | | dBm | Watt | dBm | Watt |
| 1013 | 824.70 | 28.07 | 27.87 | -8.62 | 19.45 | 0.088 | 19.25 | 0.084 |
| 384 | 836.52 | 28.37 | 28.23 | -8.64 | 19.73 | 0.094 | 19.59 | 0.091 |
| 777 | 848.31 | 28.17 | 27.89 | -8.65 | 19.52 | 0.090 | 19.24 | 0.084 |

| ERP POWER (SO32) | | | | | |
|------------------|-----------------|------------------|------------------------|--------------|-------|
| CHANNEL NO. | FREQUENCY (MHz) | S.G. VALUE (dBm) | CORRECTION FACTOR (dB) | OUTPUT POWER | |
| | | | | dBm | Watt |
| 1013 | 824.70 | 29.40 | -8.62 | 20.78 | 0.120 |
| 384 | 836.52 | 28.53 | -8.64 | 19.89 | 0.097 |
| 777 | 848.31 | 29.43 | -8.65 | 20.78 | 0.120 |

REMARKS: 1. Peak Output Power (dBm) = Raw Value (dBm) + Correction Factor (dB).
 2. Correction Factor (dB) = Receiver Antenna Gain (dBi) + Cable Loss (dB) + Free Space Loss (dB).
 3. The value in bold is the worst.

4.2 FREQUENCY STABILITY MEASUREMENT

4.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

According to the FCC part 22.355 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) $-30^{\circ}\text{C} \sim 50^{\circ}\text{C}$.

4.2.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | CALIBRATED UNTIL | CALIBRATED UNTIL |
|---|-------------|------------|------------------|------------------|
| * ROHDE & SCHWARZ Spectrum Analyzer | FSP40 | 100041 | May 13, 2009 | May 12, 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:

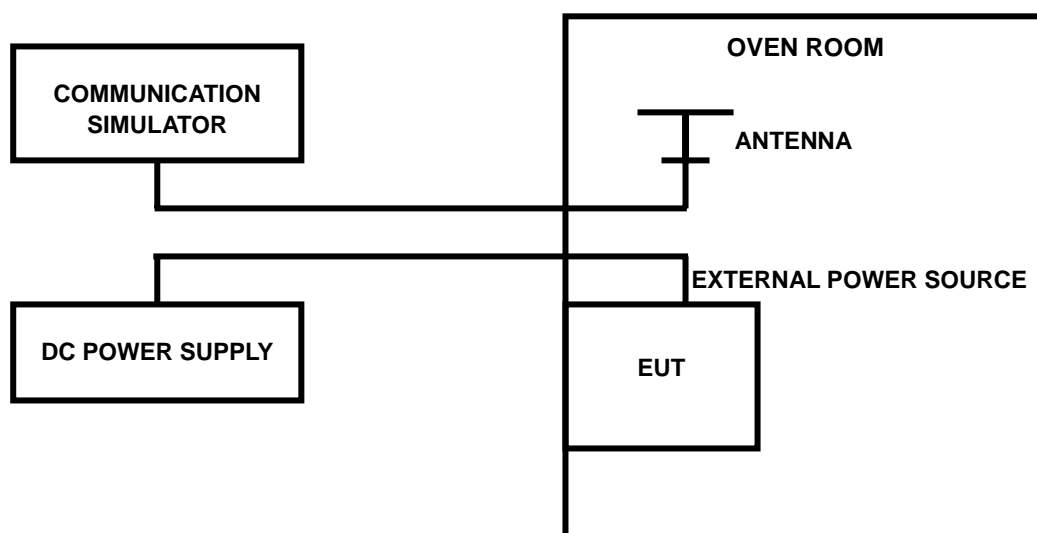
1. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.
2. "*" = These equipments are used for the final measurement.
3. The test was performed in ADT RF OVEN room.

4.2.3 TEST PROCEDURE

- Because of the measure the carrier frequency under the condition of the AFC lock, it shall be used the mobile station in the CDMA link mode. This is accomplished with the use of the communication simulator station. The oven room could control the temperatures and humidity. The CDMA link channel is the 384.
- 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.
- EUT is connected the external power supply to control the DC input power. The various Volts from the minimum 3.6 Volts to 4.2 Volts. Each step shall be record the frequency error rate.
- 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.
- 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



4.2.5 TEST RESULTS

| | | | |
|-----------------------------|--------------|---------------------------------|-------------------------|
| MODE | Channel 384 | ENVIRONMENTAL CONDITIONS | 23deg. C, 63%RH, 982hPa |
| INPUT POWER (SYSTEM) | 120Vac, 60Hz | TESTED BY | Dean Wang |

| AFC FREQUENCY ERROR vs. VOLTAGE | | | |
|---------------------------------|----------------------|-----------------------|-------------|
| VOLTAGE (Volts) | FREQUENCY ERROR (Hz) | FREQUENCY ERROR (ppm) | LIMIT (ppm) |
| 4.2 | 1 | 0.001 | 2.5 |
| 3.6 | -1 | -0.001 | 2.5 |

NOTE: The applicant defined the normal working voltage of the battery is from 3.6Vdc to 4.2Vdc.

| AFC FREQUENCY ERROR vs. TEMP. | | | |
|-------------------------------|----------------------|-----------------------|-------------|
| TEMP. (°C) | FREQUENCY ERROR (Hz) | FREQUENCY ERROR (ppm) | LIMIT (ppm) |
| 50 | 1 | 0.001 | 2.5 |
| 40 | 5 | 0.006 | 2.5 |
| 30 | 8 | 0.010 | 2.5 |
| 20 | 9 | 0.011 | 2.5 |
| 10 | 2 | 0.002 | 2.5 |
| 0 | 6 | 0.007 | 2.5 |
| -10 | 7 | 0.008 | 2.5 |
| -20 | 3 | 0.004 | 2.5 |
| -30 | -1 | -0.001 | 2.5 |

4.3 OCCUPIED BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF OCCUPIED BANDWIDTH MEASUREMENT

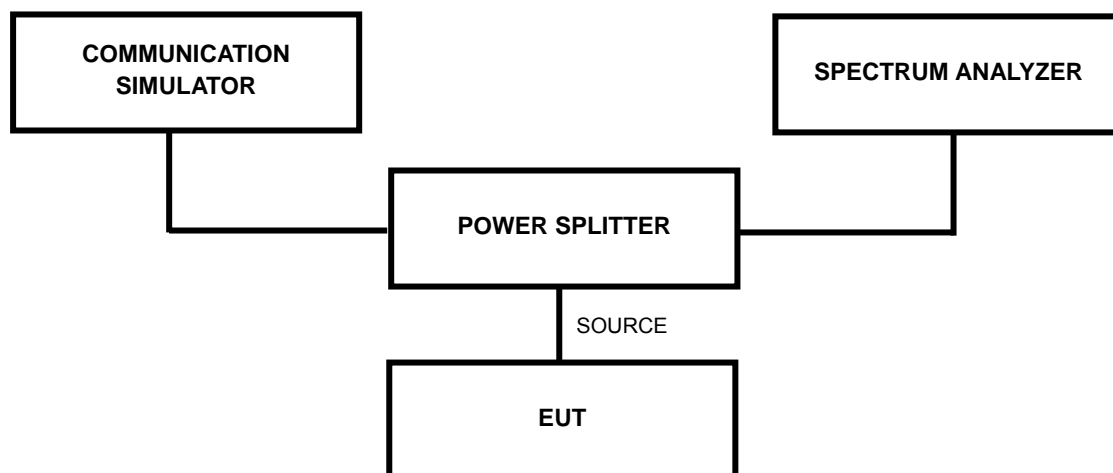
According to FCC 2.1049 (h) specified that emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power.

4.3.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|-------------------------------------|--------------|------------|---------------------|-------------------------|
| * ROHDE & SCHWARZ Spectrum Analyzer | FSP40 | 100041 | May 13, 2009 | May 12, 2010 |
| * Mini-Circuits Power Splitter | ZN2PD-9G | NA | Jun. 26, 2009 | Jun. 25, 2010 |
| * RF cable | SUCOFLEX 104 | 274403/4 | Aug. 22, 2008 | Aug. 21, 2009 |
| * RF cable | SUCOFLEX 104 | 250729/4 | Aug. 21, 2008 | Aug. 20, 2009 |
| * RF cable | SUCOFLEX 104 | 214377/4 | Aug. 21, 2008 | Aug. 20, 2009 |
| * JFW 20dB attenuation | 50HF-020-SMA | NA | 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. "*" = These equipments are used for the final measurement.

4.3.3 TEST SETUP



4.3.4 TEST PROCEDURES

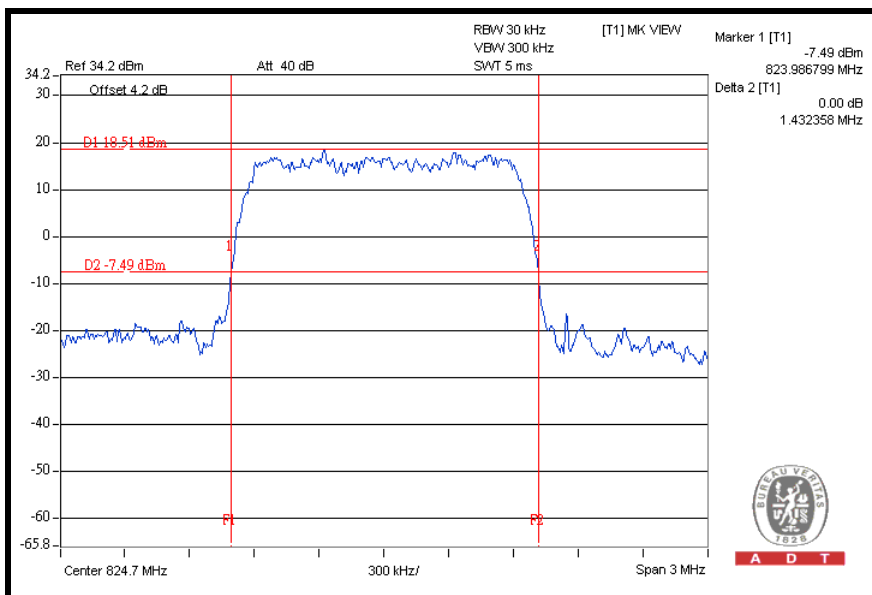
- a. The EUT makes a phone call to the communication simulator. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels: 1013, 384 and 777 (low, middle and high operational frequency range.)
- b. The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer. This splitter loss and cable loss is the worst loss 4.2dB 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. FCC 2.1049 (h) required a measurement bandwidth is the fundamental emission below 26dB bandwidth.

4.3.5 TEST RESULTS

FOR SO32:

| CHANNEL | FREQUENCY (MHz) | MAX. OUTPUT POWER -26 dBc BANDWIDTH (MHz) |
|---------|-----------------|---|
| 1013 | 824.70 | 1.432 |
| 384 | 836.52 | 1.430 |
| 777 | 848.31 | 1.427 |

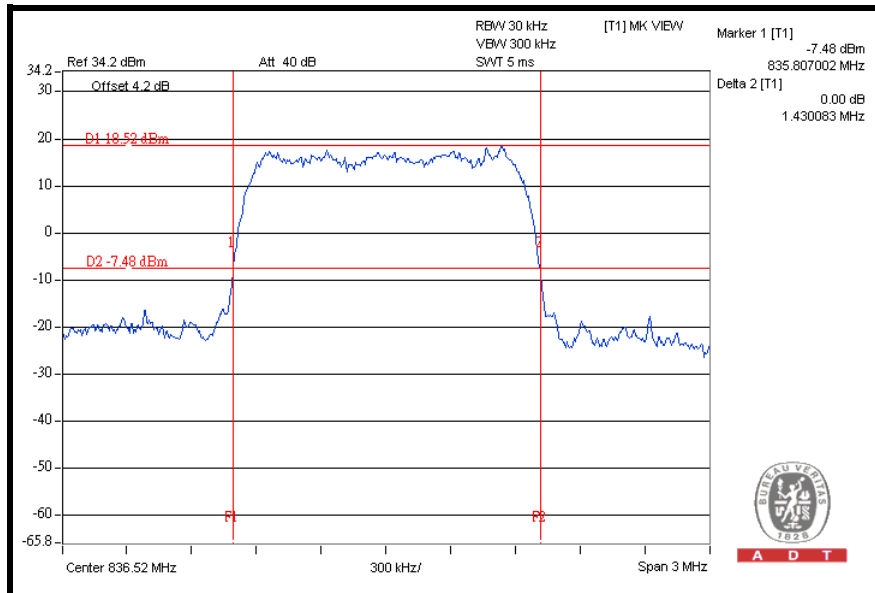
CH 1013



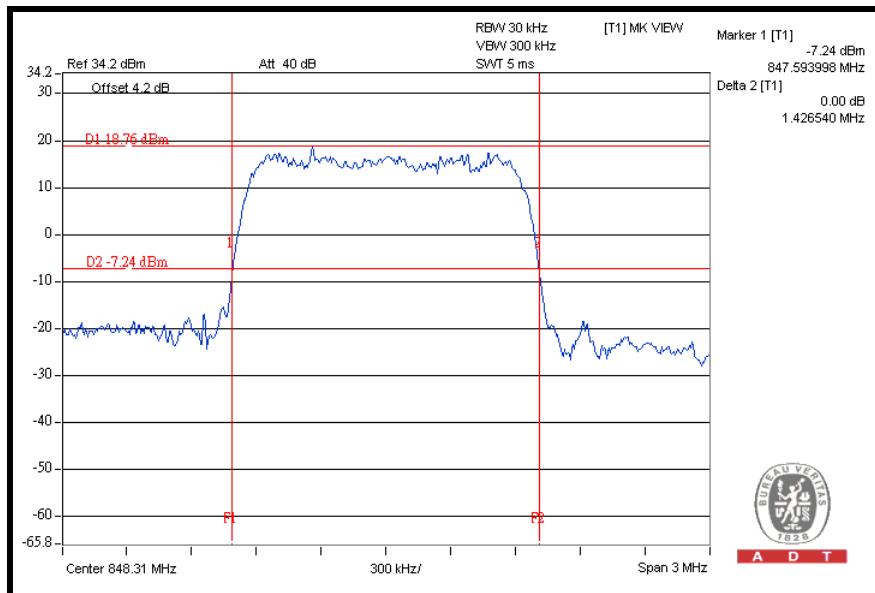


A D T

CH 384



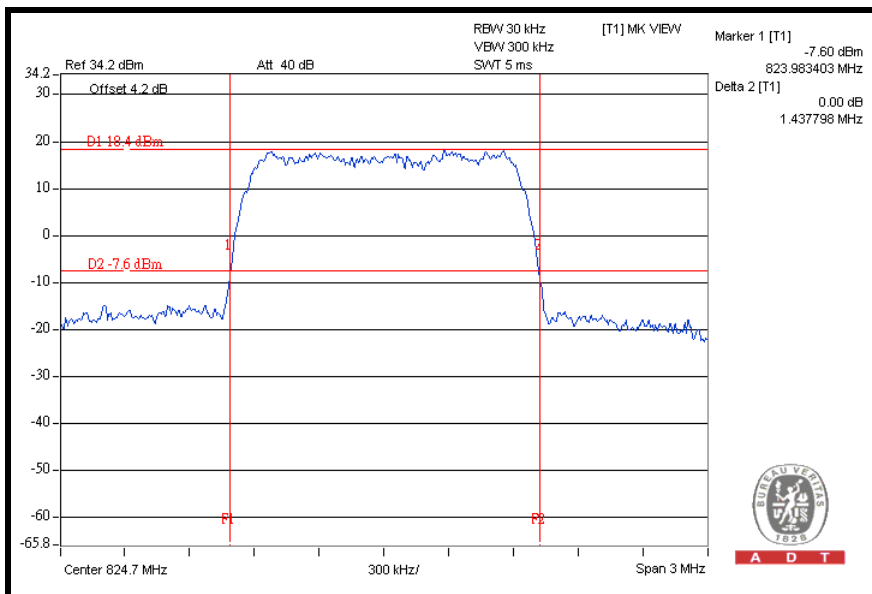
CH 777



FOR EV-DO Rev. A:

| CHANNEL | FREQUENCY (MHz) | MAX. OUTPUT POWER -26 dBc BANDWIDTH (MHz) |
|---------|-----------------|---|
| 1013 | 824.70 | 1.438 |
| 384 | 836.52 | 1.439 |
| 777 | 848.31 | 1.434 |

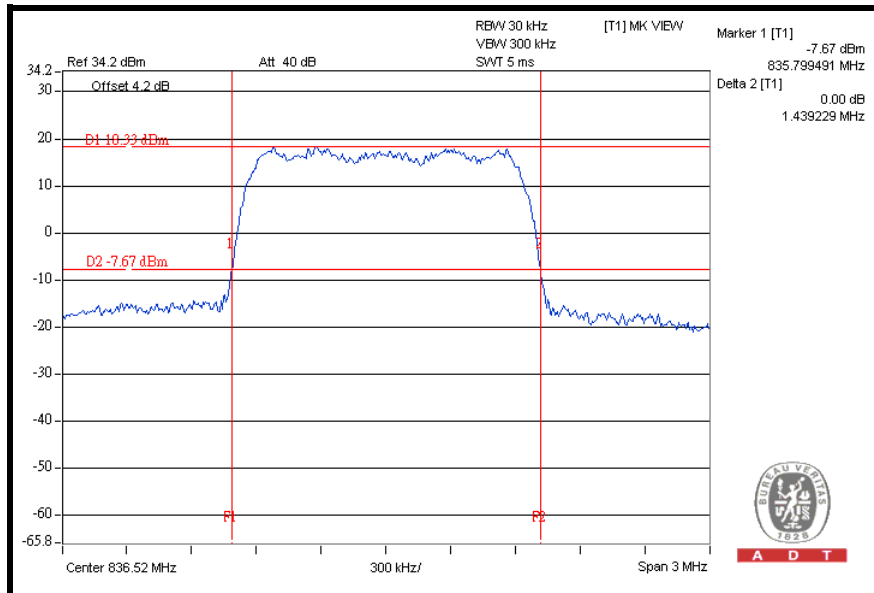
CH 1013



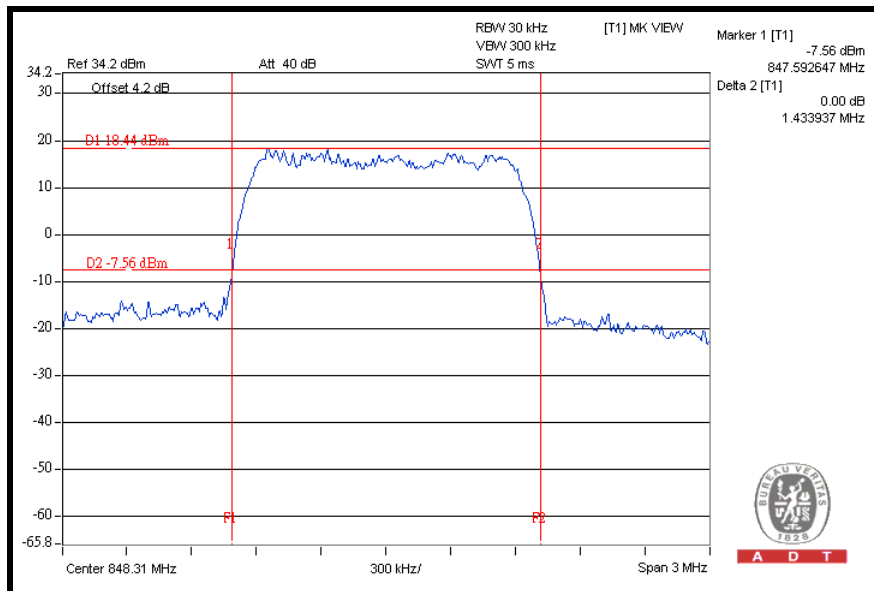


A D T

CH 384



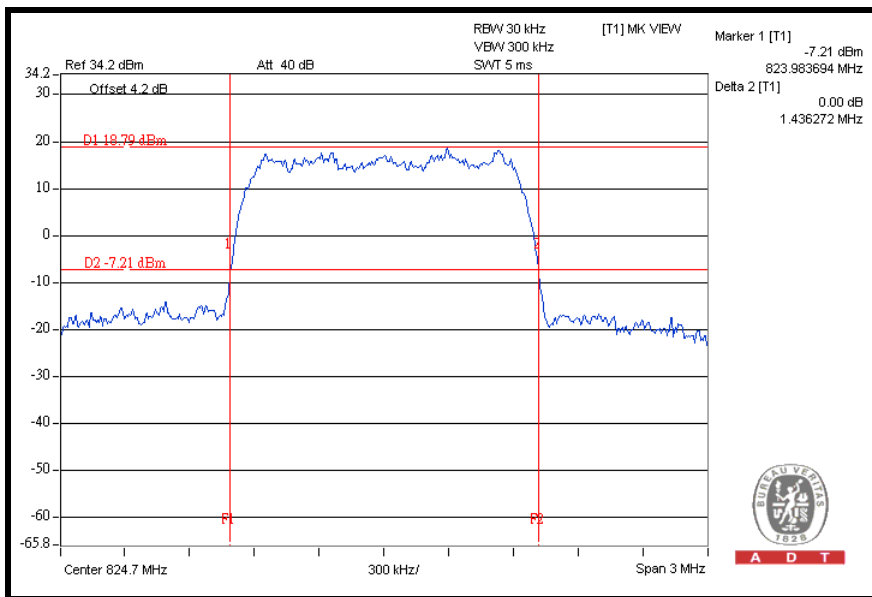
CH 777



FOR EV-DO Rev. 0

| CHANNEL | FREQUENCY (MHz) | MAX. OUTPUT POWER -26 dBc BANDWIDTH (MHz) |
|---------|-----------------|---|
| 1013 | 824.70 | 1.436 |
| 384 | 836.52 | 1.434 |
| 777 | 848.31 | 1.443 |

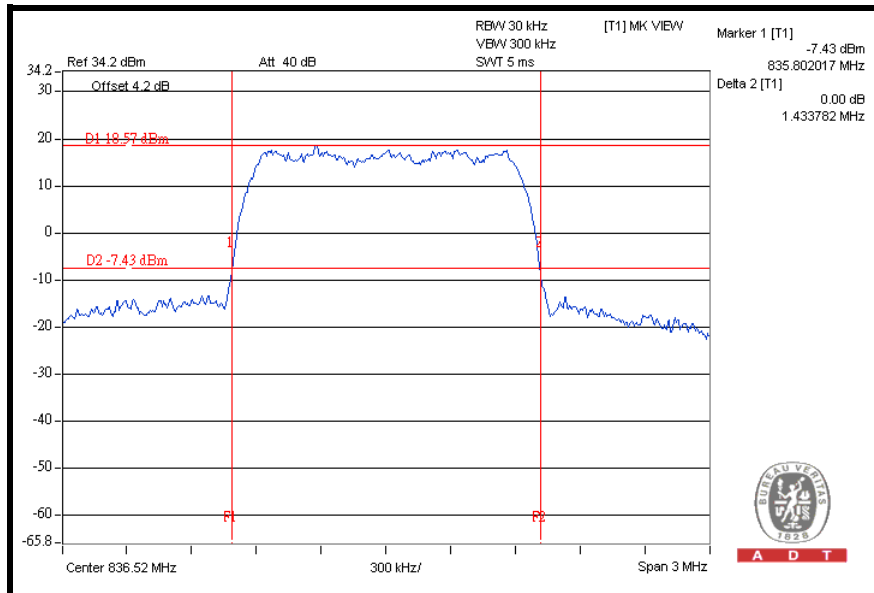
CH 1013



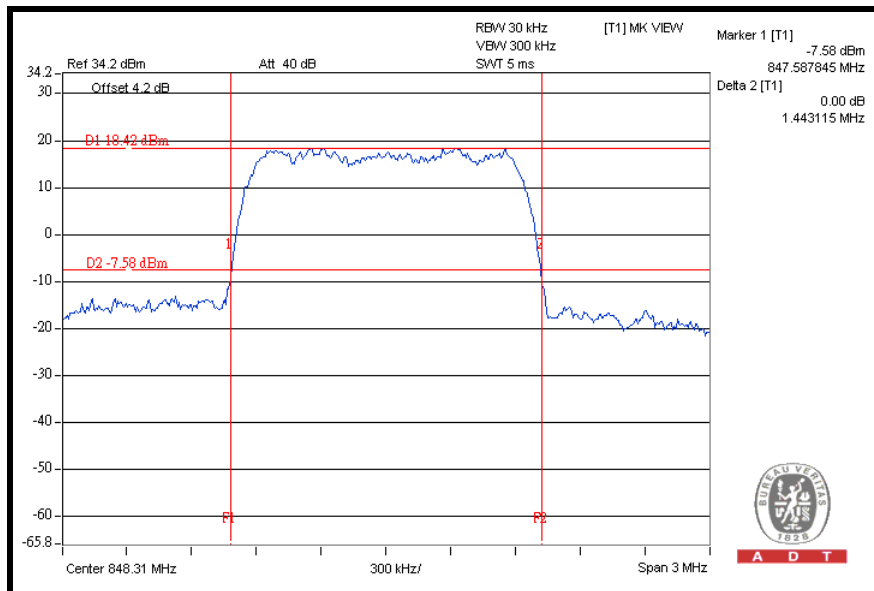


A D T

CH 384



CH 777



4.4 BAND EDGE MEASUREMENT

4.4.1 LIMITS OF BAND EDGE MEASUREMENT

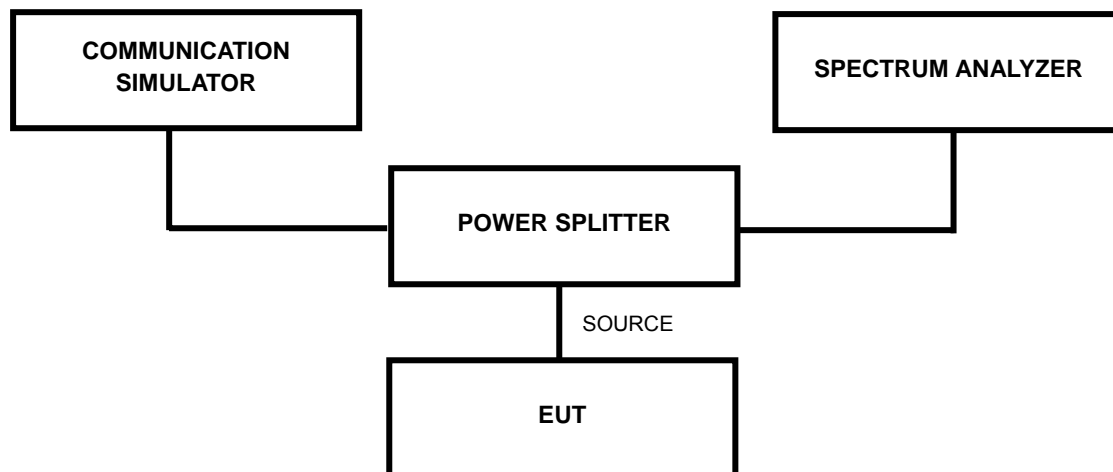
According to FCC 22.917 specified that power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. In the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth 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 Spectrum Analyzer | E4446A | MY44360128 | Dec. 06, 2008 | Dec. 07, 2009 |
| * Mini-Circuits Power Splitter | ZN2PD-9G | NA | Jun. 26, 2009 | Jun. 25, 2010 |
| * RF cable | SUCOFLEX 104 | 274403/4 | Aug. 22, 2008 | Aug. 21, 2009 |
| * RF cable | SUCOFLEX 104 | 250729/4 | Aug. 21, 2008 | Aug. 20, 2009 |
| * RF cable | SUCOFLEX 104 | 214377/4 | Aug. 21, 2008 | Aug. 20, 2009 |
| * JFW 20dB attenuation | 50HF-020-SMA | NA | 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. “*” = These equipments are used for the final measurement.

4.4.3 TEST SETUP



4.4.4 TEST PROCEDURES

- a. The EUT was set up for the maximum peak power with CDMA link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 2 channels: 1013 and 777 (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 4.2dB in the transmitted path track.
- c. The center frequency of spectrum is the band edge frequency and span is 3MHz. RB of the spectrum is 15kHz and VB of the spectrum is 15kHz.
- d. Record the max trace plot into the test report.

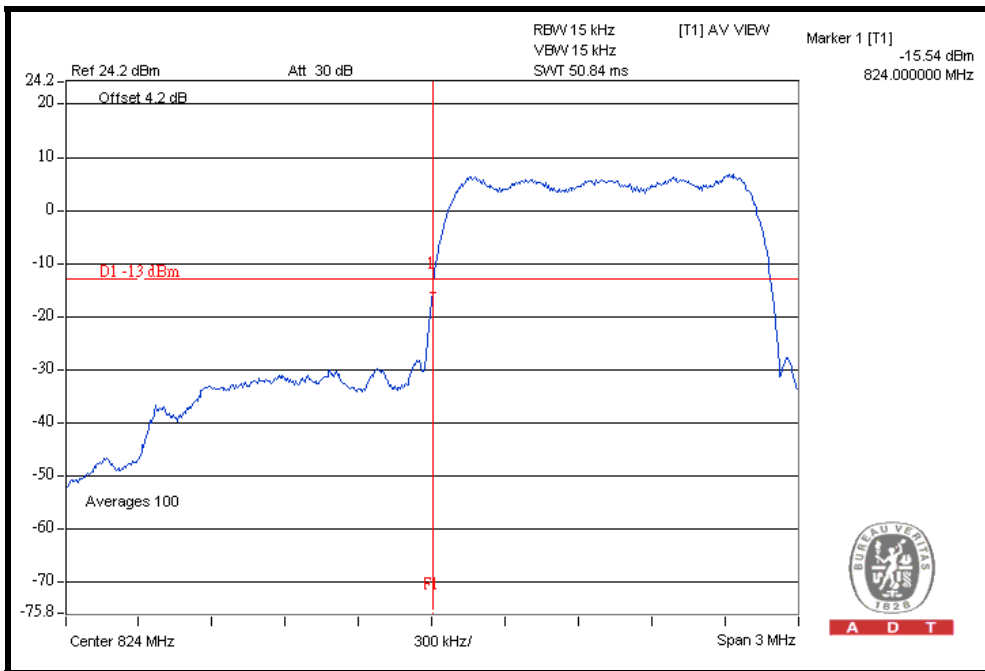
4.4.5 EUT OPERATING CONDITION

- 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.

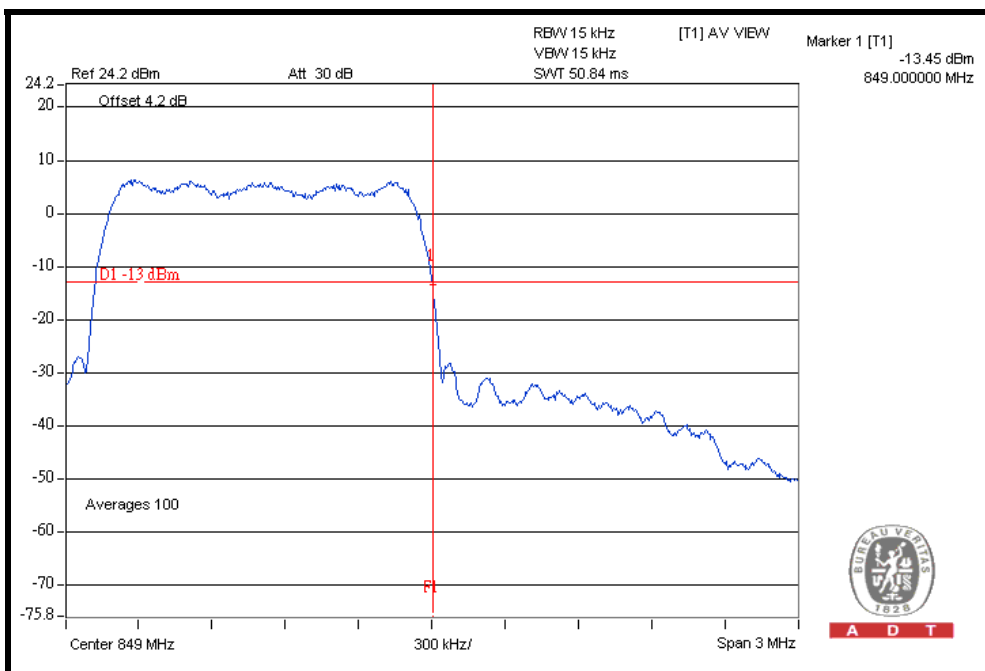
4.4.6 TEST RESULTS

FOR SO32:

LOWER BAND EDGE



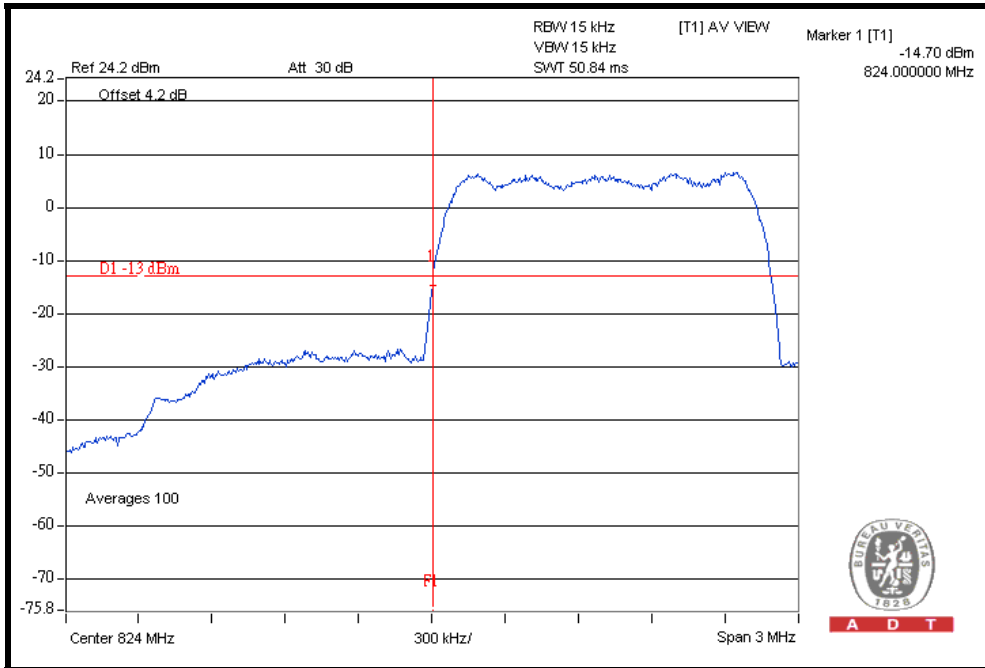
HIGHER BAND EDGE



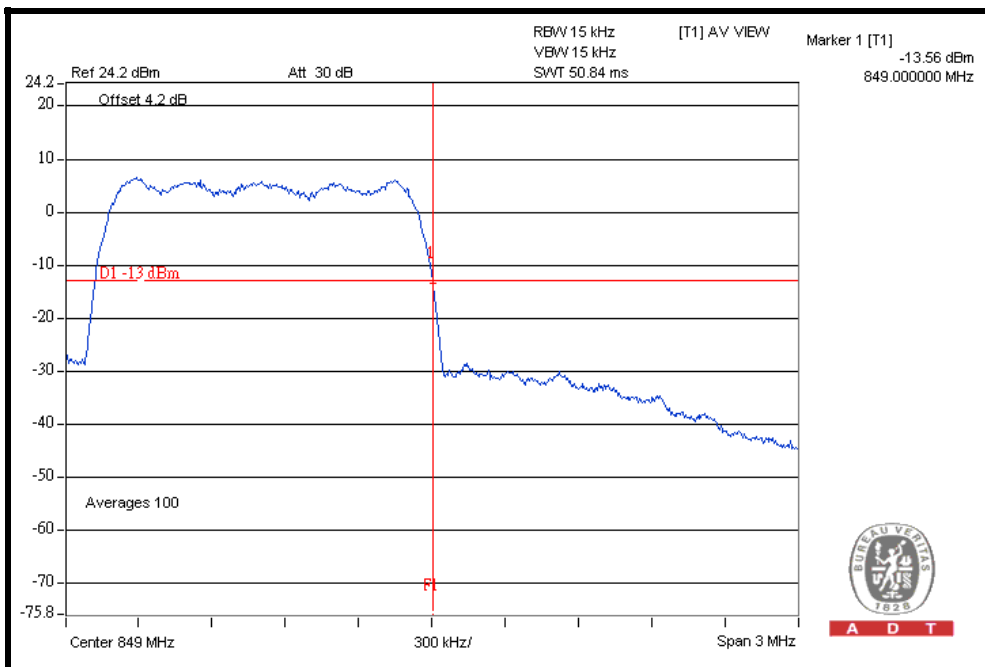


A D T

FOR EV-DO Rev. A:
LOWER BAND EDGE



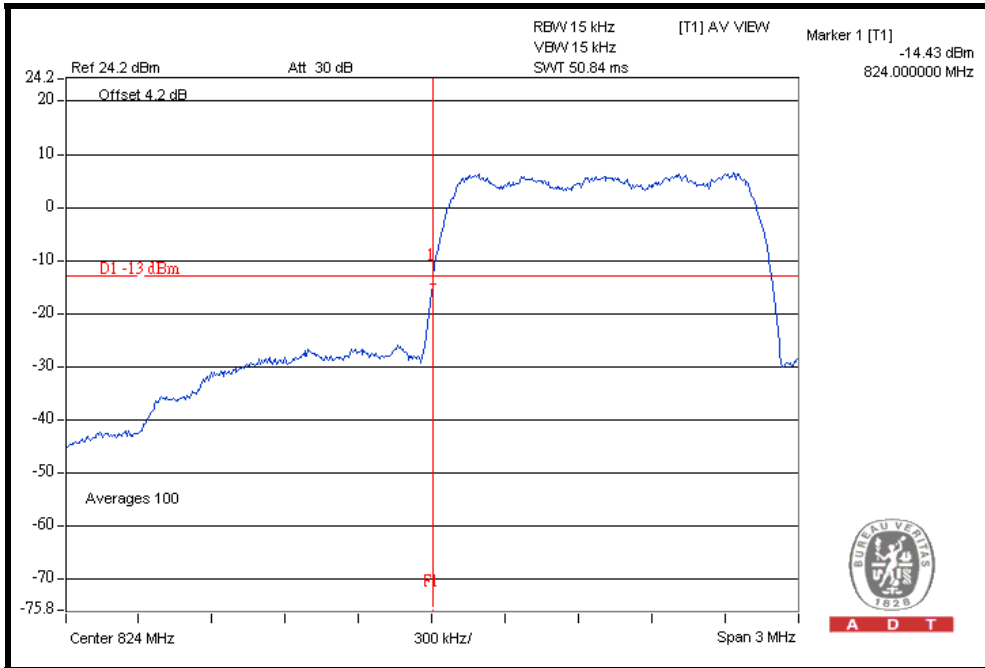
HIGHER BAND EDGE





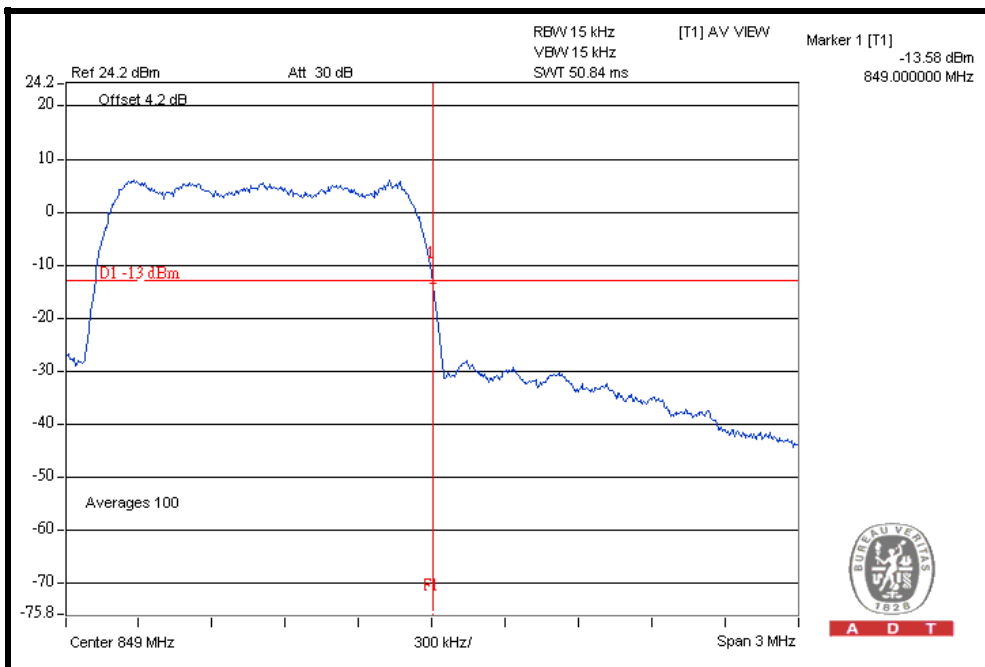
A D T

FOR EV-DO Rev. 0:
LOWER BAND EDGE



A D T

HIGHER BAND EDGE



A D T

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 GSM850 spectrum, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log (P)$ dB. The limit of emission equal to -13dBm .

4.5.2 TEST INSTRUMENTS

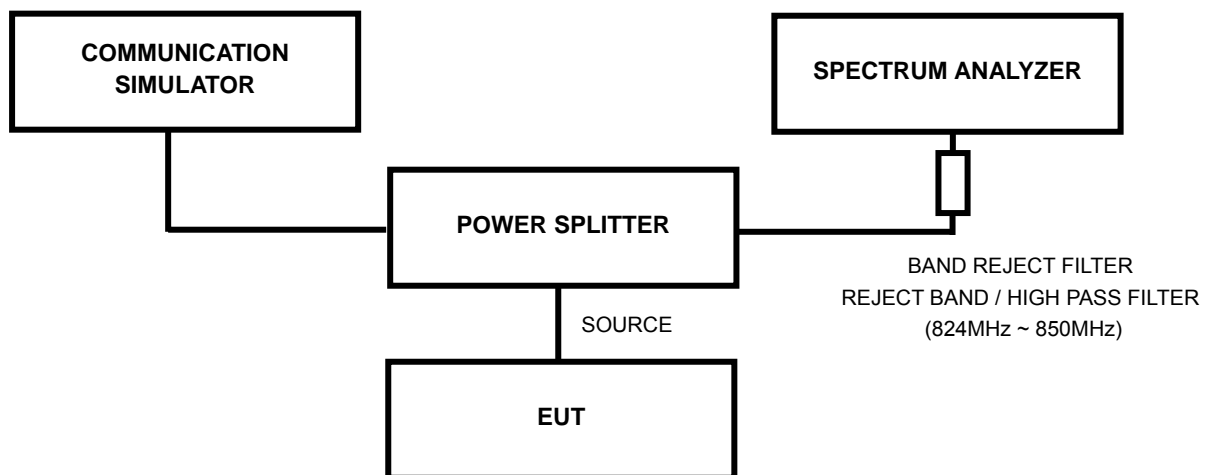
| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|--|---------------------------------|------------|---------------------|-------------------------|
| * ROHDE & SCHWARZ Spectrum Analyzer | FSP40 | 100041 | May 13, 2009 | May 12, 2010 |
| * Wainwright Instruments Band Reject Filter | WRCG 824/849-810/ 863-60/9SS | SN1 | Mar. 26, 2009 | Mar. 25, 2010 |
| * WI Highpass filter | WHK1.5/15G-10ST | SN1 | Mar. 31, 2009 | Mar. 30, 2010 |
| * Mini-Circuits Power Splitter | ZN2PD-9G | NA | Jun. 26, 2009 | Jun. 25, 2010 |
| * RF cable | SUCOFLEX 104 | 274403/4 | Aug. 22, 2008 | Aug. 21, 2009 |
| * RF cable | SUCOFLEX 104 | 250729/4 | Aug. 21, 2008 | Aug. 20, 2009 |
| * RF cable | SUCOFLEX 104 | 214377/4 | Aug. 21, 2008 | Aug. 20, 2009 |
| * JFW 20dB attenuation | 50HF-020-SMA | NA | 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. "*" = These equipments are used for the final measurement.

4.5.3 TEST PROCEDURE

- a. The EUT was set up for the maximum peak power with CDMA link data modulation. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels, 1013, 384 and 777 (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 4.2dB in the transmitted path track.
- c. When the spectrum scanned from 9kHz to 1GHz, it shall be connected to the band reject filter attenuated the carried frequency. The spectrum set RB=1MHz, VB=3MHz.
- d. When the spectrum scanned from 1GHz to 9GHz, it shall be connected to the high pass filter attenuated the carried frequency. The spectrum set RB=1MHz, VB=3MHz.

4.5.4 TEST SETUP

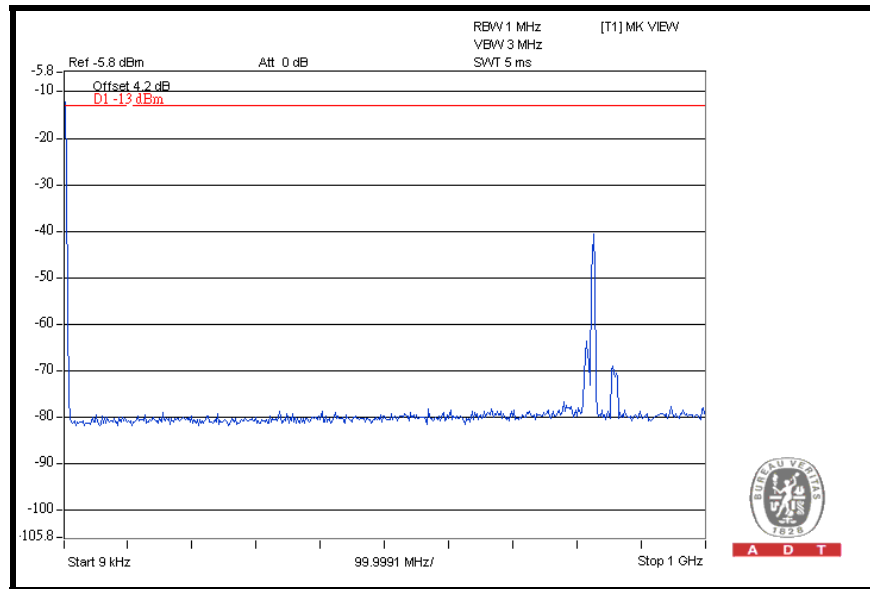


4.5.5 EUT OPERATING CONDITIONS

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

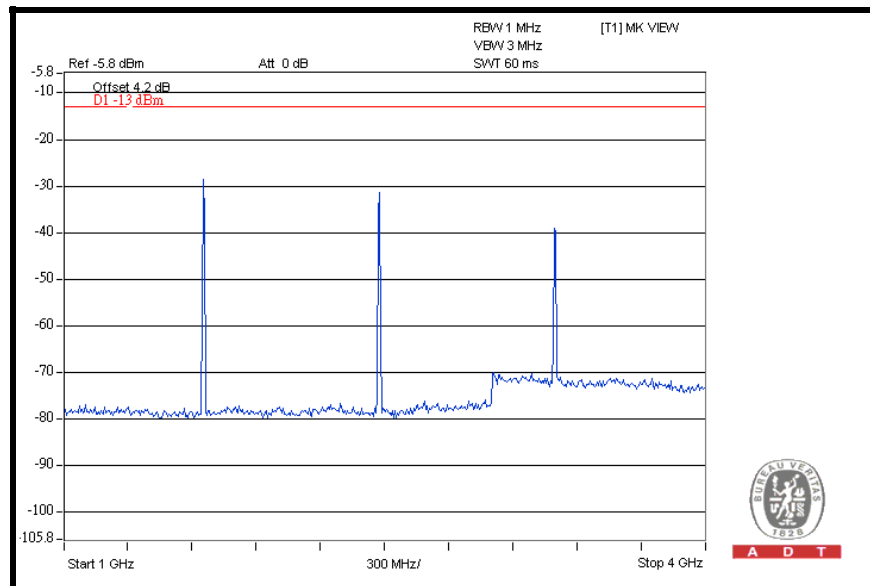
4.5.6 TEST RESULTS

CH 1013: 9kHz ~ 1GHz



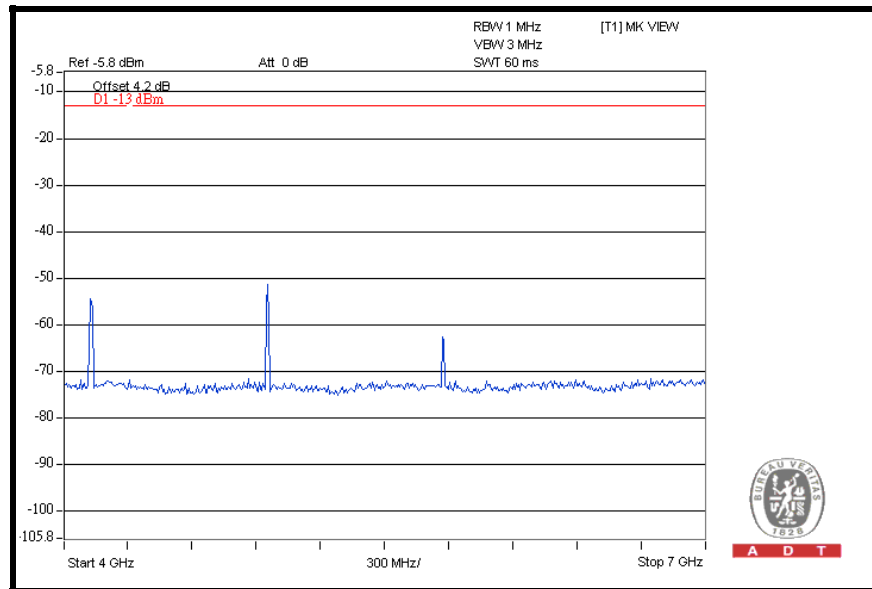
A D T

1GHz ~ 4GHz

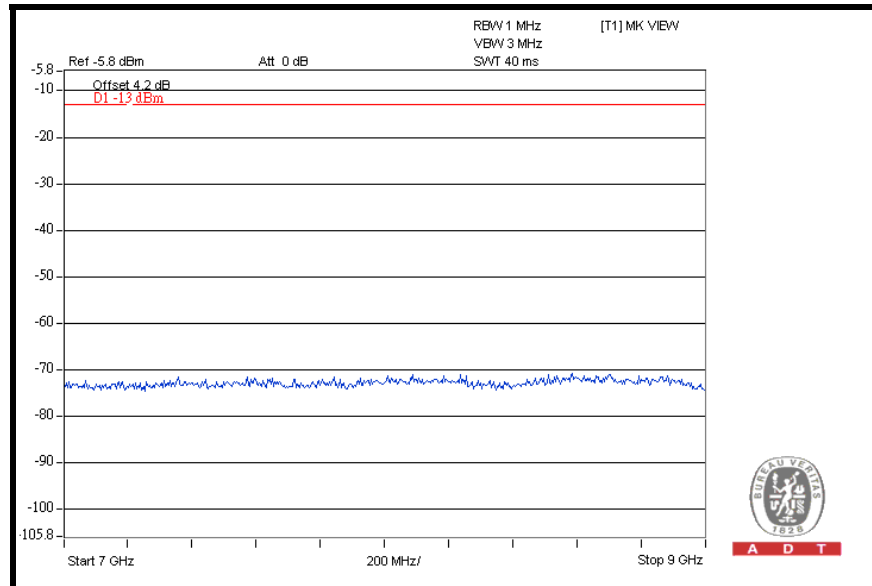


A D T

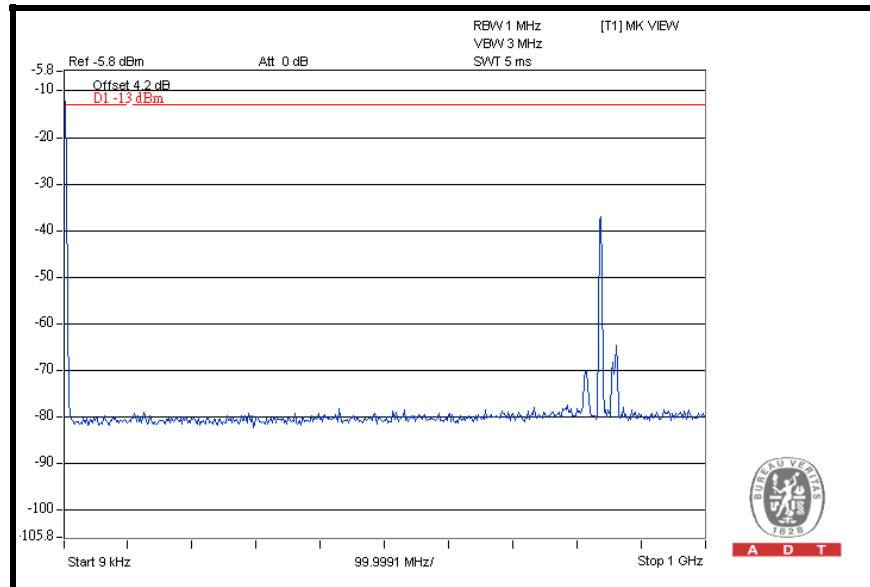
4GHz ~ 7GHz



7GHz ~ 9GHz

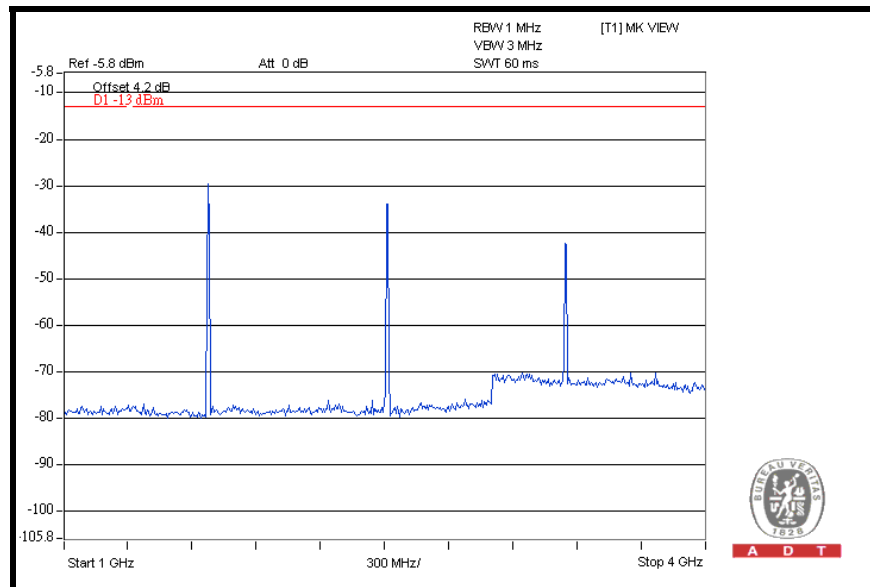


CH 384: 9kHz ~ 1GHz



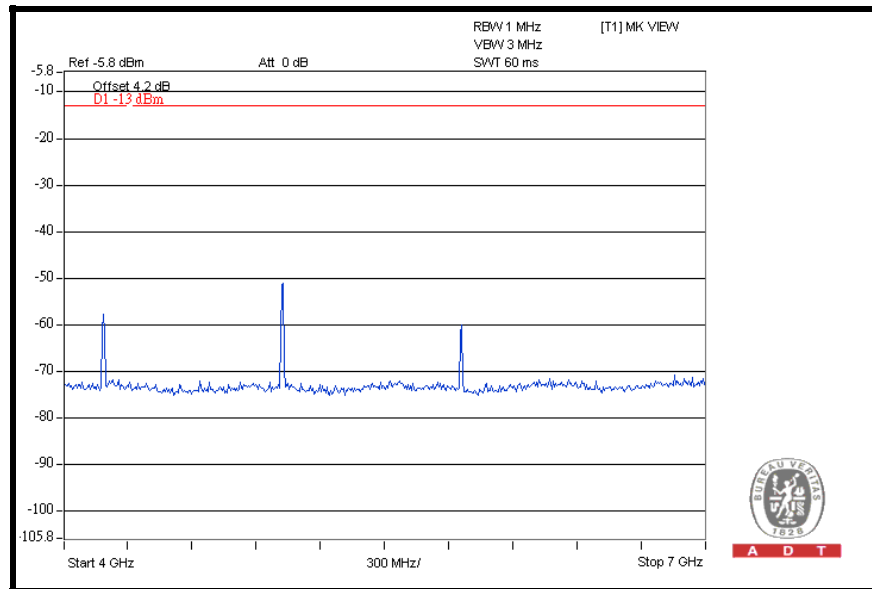
A D T

1GHz ~ 4GHz

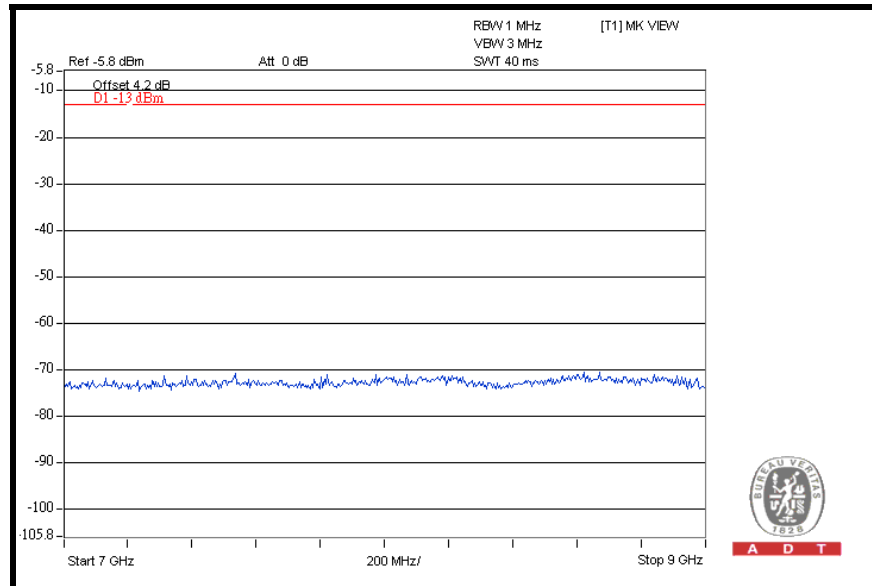


A D T

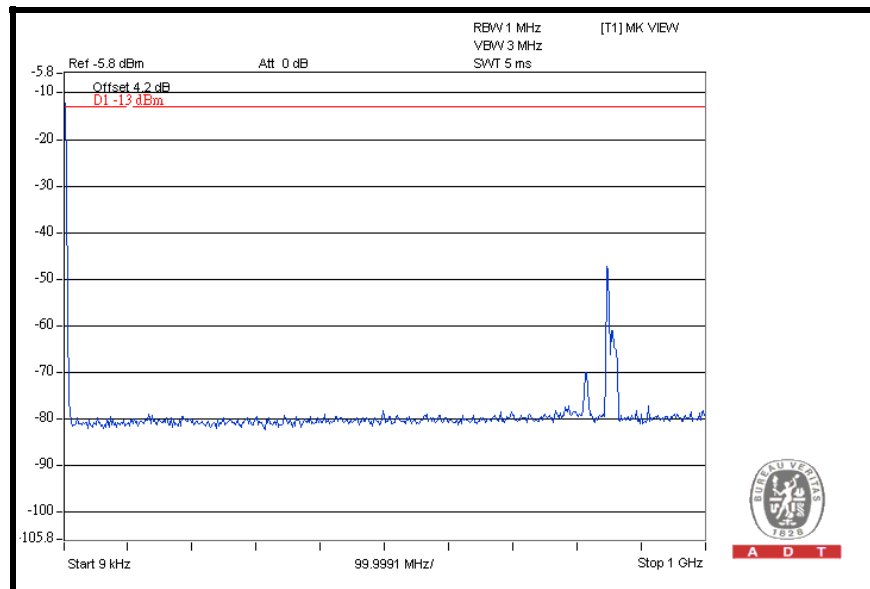
4GHz ~ 7GHz



7GHz ~ 9GHz

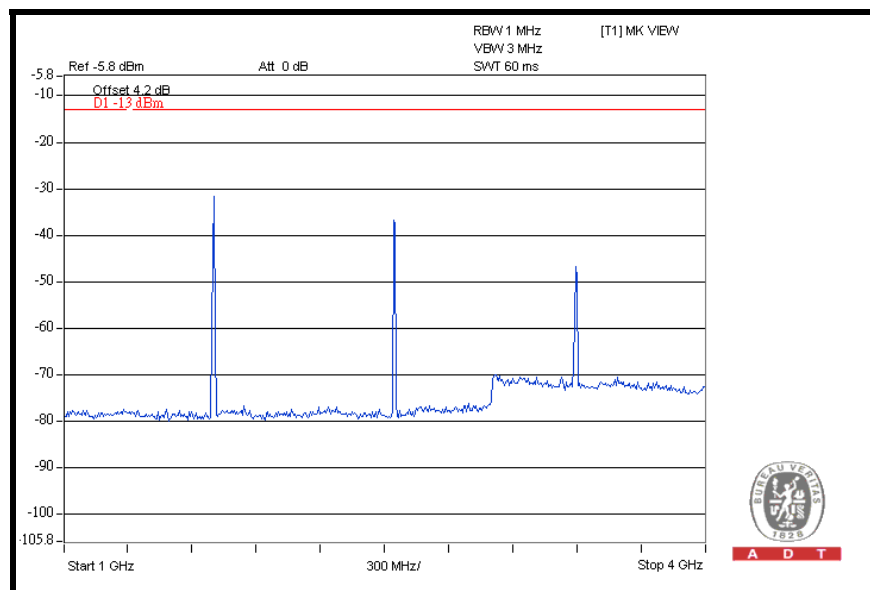


CH 777: 9kHz ~ 1GHz



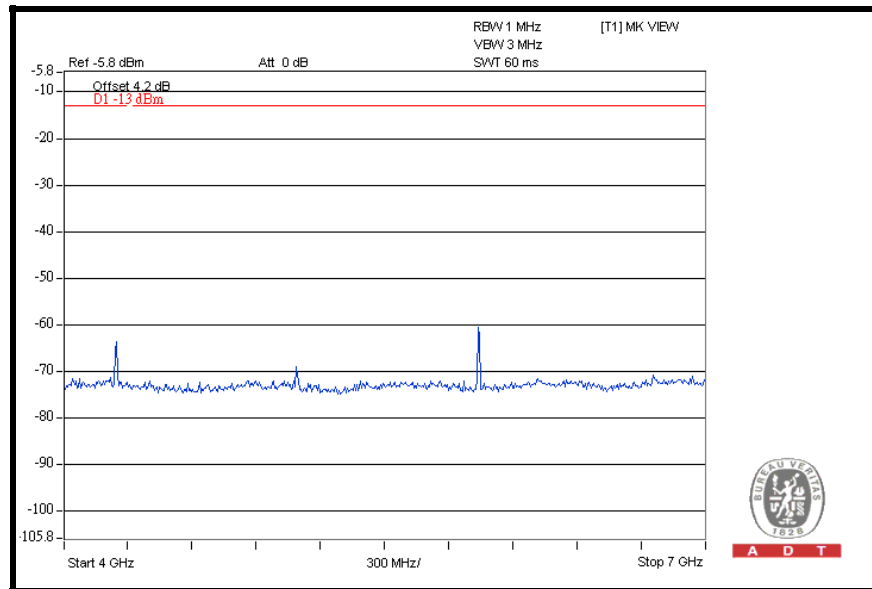
A D T

1GHz ~ 4GHz



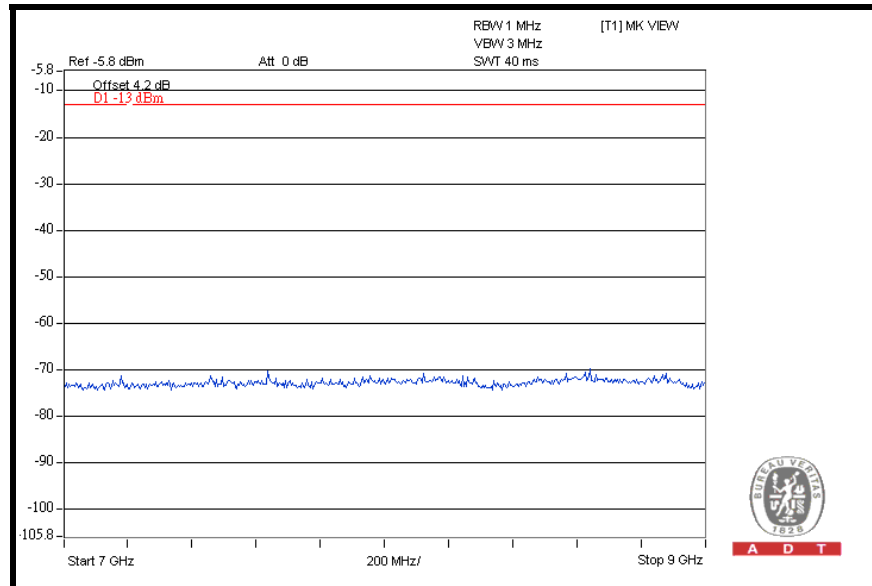
A D T

4GHz ~ 7GHz



A D T

7GHz ~ 9GHz



A D T

4.6 RADIATED EMISSION MEASUREMENT (BELOW 1GHz)

4.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

In the FCC 22.917, On any frequency outside a licensee's frequency block within GSM850 spectrum, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log (P)$ dB. The limit of emission equal to -13 dBm. So the limit of emission is the same absolute specified line.

| LIMIT (dBm) | EQUIVALENT FIELD STRENGTH AT 3m (dBuV/m) (NOTE) |
|-------------|--|
| -13 | 82.22 |

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

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|--|------------------------------|-------------|---------------------|-------------------------|
| Test Receiver ROHDE & SCHWARZ | ESI7 | 838496/016 | Dec. 29, 2008 | Dec. 28, 2009 |
| Spectrum Analyzer ROHDE & SCHWARZ | FSP40 | 100039 | Dec. 08, 2008 | Dec. 07, 2009 |
| BILOG Antenna SCHWARZBECK | VULB9168 | 9168-155 | Apr. 30, 2008 | Apr. 28, 2010 |
| HORN Antenna SCHWARZBECK | BBHA 9120D | 9120D-408 | Dec. 29, 2008 | Dec. 28, 2009 |
| HORN Antenna SCHWARZBECK | BBHA 9170 | BBHA9170242 | Jan. 06, 2009 | Jan. 05, 2010 |
| Preamplifier Agilent | 8449B | 3008A01960 | Nov. 03, 2008 | Nov. 02, 2009 |
| Preamplifier Agilent | 8447D | 2944A10631 | Nov. 03, 2008 | Nov. 02, 2009 |
| RF signal cable HUBER+SUHNNER | SUCOFLEX 104 | 274041/4 | Aug. 21, 2008 | Aug. 20, 2009 |
| RF signal cable HUBER+SUHNNER | SUCOFLEX 104 | 283397/4 | Aug. 21, 2008 | Aug. 20, 2009 |
| Software ADT. | ADT_Radiated_ V7.6.15.9.2 | NA | NA | NA |
| Antenna Tower inn-co GmbH | MA 4000 | 010303 | NA | NA |
| Antenna Tower Controller inn-co GmbH | CO2000 | 019303 | NA | NA |
| Turn Table ADT. | TT100. | TT93021704 | NA | NA |
| Turn Table Controller ADT. | SC100. | SC93021704 | 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 4.
 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 IC7450F-4.

4.6.3 TEST PROCEDURES

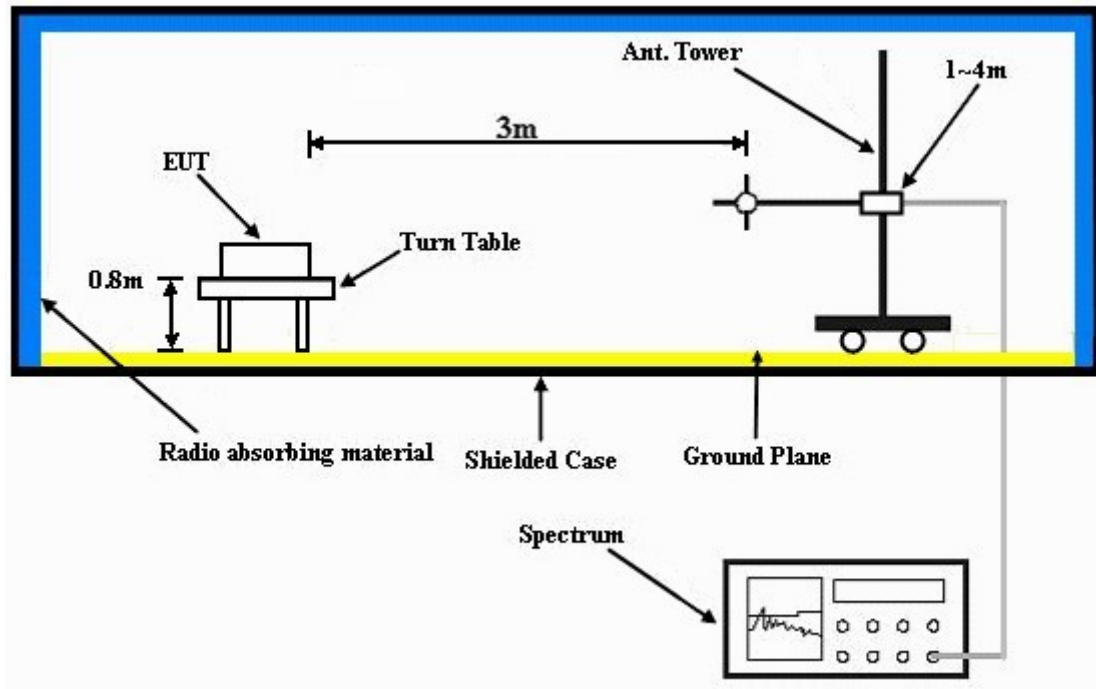
- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on 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 and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

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

- 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.

4.6.7 TEST RESULTS

| | | | |
|---------------------------------|-------------------------|-----------------------------|---------------|
| MODE | TX channel 1013 | FREQUENCY RANGE | Below 1000MHz |
| ENVIRONMENTAL CONDITIONS | 23deg. C, 63%RH, 980hPa | INPUT POWER (SYSTEM) | 120Vac, 60Hz |
| TESTED BY | Mark Liao | | |

| 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 | 64.99 | 41.09 | 82.22 | -41.13 | 2.00 H | 253 | 28.35 | 12.75 |
| 2 | 274.93 | 38.42 | 82.22 | -43.80 | 1.25 H | 37 | 24.08 | 14.35 |
| 3 | 865.87 | 37.19 | 82.22 | -45.03 | 1.50 H | 220 | 9.56 | 27.63 |
| 4 | 889.20 | 38.16 | 82.22 | -44.06 | 1.50 H | 127 | 10.12 | 28.03 |
| 5 | 935.85 | 37.42 | 82.22 | -44.80 | 1.25 H | 262 | 8.88 | 28.54 |
| 6 | 959.18 | 38.68 | 82.22 | -43.54 | 1.50 H | 61 | 9.88 | 28.80 |
| 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 | 53.33 | 49.06 | 82.22 | -33.16 | 1.00 V | 349 | 36.08 | 12.99 |
| 2 | 63.05 | 46.20 | 82.22 | -36.02 | 1.00 V | 10 | 33.36 | 12.85 |
| 3 | 125.25 | 43.86 | 82.22 | -38.36 | 1.00 V | 157 | 31.82 | 12.04 |
| 4 | 274.93 | 41.92 | 82.22 | -40.30 | 1.00 V | 301 | 27.57 | 14.35 |
| 5 | 865.87 | 38.49 | 82.22 | -43.73 | 1.25 V | 253 | 10.86 | 27.63 |
| 6 | 900.86 | 39.29 | 82.22 | -42.93 | 1.00 V | 88 | 11.06 | 28.23 |
| 7 | 945.57 | 38.66 | 82.22 | -43.56 | 1.50 V | 22 | 10.03 | 28.63 |

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.

4.7 EFFECTIVE RADIATED POWER 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 limit of emission equal to -13dBm .

4.7.2 TEST INSTRUMENTS

| DESCRIPTION & MANUFACTURER | MODEL NO. | SERIAL NO. | DATE OF CALIBRATION | DUE DATE OF CALIBRATION |
|--|------------------------------|-------------|---------------------|-------------------------|
| Test Receiver ROHDE & SCHWARZ | ESI7 | 838496/016 | Dec. 29, 2008 | Dec. 28, 2009 |
| Spectrum Analyzer ROHDE & SCHWARZ | FSP40 | 100039 | Dec. 08, 2008 | Dec. 07, 2009 |
| BILOG Antenna SCHWARZBECK | VULB9168 | 9168-155 | Apr. 30, 2008 | Apr. 28, 2010 |
| HORN Antenna SCHWARZBECK | BBHA 9120D | 9120D-408 | Dec. 29, 2008 | Dec. 28, 2009 |
| HORN Antenna SCHWARZBECK | BBHA 9170 | BBHA9170242 | Jan. 06, 2009 | Jan. 05, 2010 |
| Preamplifier Agilent | 8449B | 3008A01960 | Nov. 03, 2008 | Nov. 02, 2009 |
| Preamplifier Agilent | 8447D | 2944A10631 | Nov. 03, 2008 | Nov. 02, 2009 |
| RF signal cable HUBER+SUHNNER | SUCOFLEX 104 | 274041/4 | Aug. 21, 2008 | Aug. 20, 2009 |
| RF signal cable HUBER+SUHNNER | SUCOFLEX 104 | 283397/4 | Aug. 21, 2008 | Aug. 20, 2009 |
| Software ADT. | ADT_Radiated_ V7.6.15.9.2 | NA | NA | NA |
| Antenna Tower inn-co GmbH | MA 4000 | 010303 | NA | NA |
| Antenna Tower Controller inn-co GmbH | CO2000 | 019303 | NA | NA |
| Turn Table ADT. | TT100. | TT93021704 | NA | NA |
| Turn Table Controller ADT. | SC100. | SC93021704 | 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 4.
 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 IC7450F-4.

4.7.3 TEST PROCEDURES

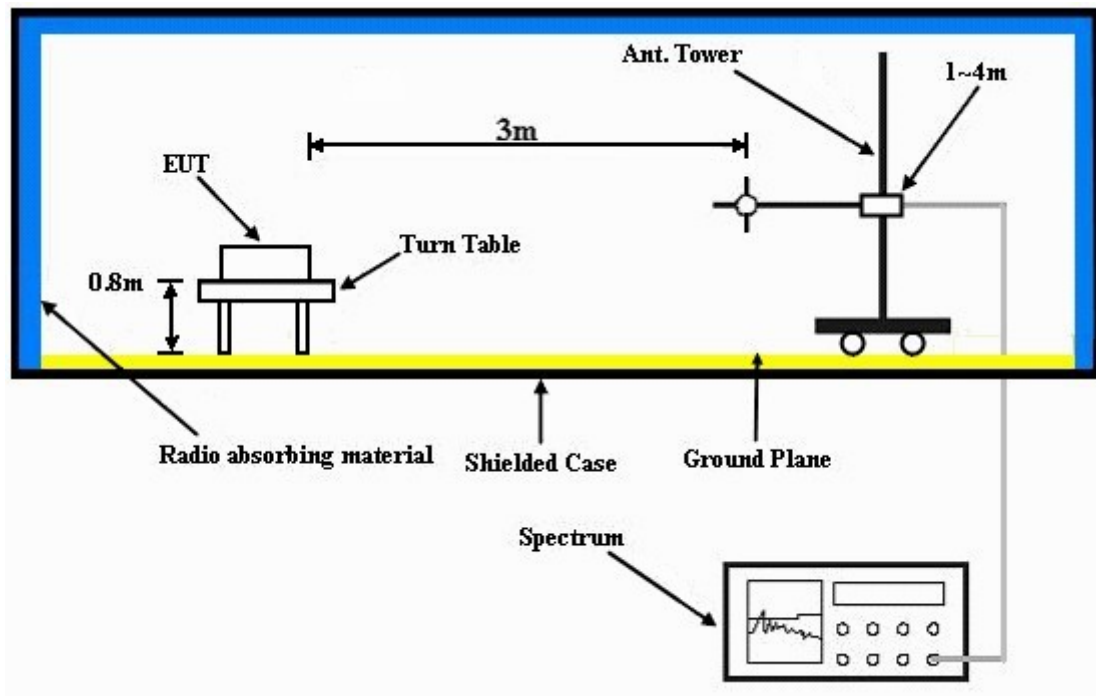
- a. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels: 1013, 384 and 777 (low, middle and high operational frequency range.)
- b. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, 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.
- c. 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 b. Record the power level of S.G
- d. $EIRP = \text{Output power level of S.G} - \text{TX cable loss} + \text{Antenna gain of substitution horn.}$
- e. E.R.P power can be calculated form E.I.R.P power by subtracting the gain of dipole,
 $E.R.P \text{ power} = E.I.P.R \text{ power} - 2.15dBi.$

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.

4.7.7 TEST RESULTS

| | | | |
|-----------------------------|--------------|---------------------------------|------------------------|
| MODE | Channel 1013 | FREQUENCY RANGE | Above 1000MHz |
| INPUT POWER (SYSTEM) | 120Vac, 60Hz | ENVIRONMENTAL CONDITIONS | 23deg°C, 63%RH, 988hPa |
| TESTED BY | Mark Liao | | |

| 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 | 1649.40 | 67.41 | -13.00 | -35.06 | 7.63 | -27.43 |
| 2 | 2474.10 | 60.64 | -13.00 | -42.54 | 8.35 | -34.19 |
| 3 | 3298.80 | 53.38 | -13.00 | -51.28 | 9.85 | -41.43 |
| 4 | 4123.50 | 50.38 | -13.00 | -54.11 | 9.72 | -44.39 |

| 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 | 1649.40 | 74.73 | -13.00 | -27.71 | 7.63 | -20.08 |
| 2 | 2474.10 | 62.74 | -13.00 | -40.46 | 8.35 | -32.11 |
| 3 | 3298.80 | 50.22 | -13.00 | -54.47 | 9.85 | -44.62 |
| 4 | 4123.50 | 46.36 | -13.00 | -58.14 | 9.72 | -48.42 |

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



A D T

| | | | |
|----------------------|--------------|--------------------------|------------------------|
| MODE | Channel 384 | FREQUENCY RANGE | Above 1000MHz |
| INPUT POWER (SYSTEM) | 120Vac, 60Hz | ENVIRONMENTAL CONDITIONS | 23deg°C, 60%RH, 988hPa |
| TESTED BY | Mark Liao | | |

| 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 | 1673.04 | 66.82 | -13.00 | -35.75 | 7.72 | -28.03 |
| 2 | 2509.56 | 59.48 | -13.00 | -43.72 | 8.38 | -35.34 |
| 3 | 3346.08 | 52.19 | -13.00 | -52.51 | 9.88 | -42.63 |
| 4 | 4182.60 | 49.26 | -13.00 | -55.23 | 9.71 | -45.52 |

| 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 | 1673.04 | 73.35 | -13.00 | -29.24 | 7.72 | -21.52 |
| 2 | 2509.56 | 61.63 | -13.00 | -41.59 | 8.38 | -33.21 |
| 3 | 3346.08 | 49.81 | -13.00 | -54.88 | 9.88 | -45.00 |
| 4 | 4182.60 | 45.81 | -13.00 | -58.66 | 9.71 | -48.95 |

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

| | | | |
|-----------------------------|--------------|---------------------------------|------------------------|
| MODE | Channel 777 | FREQUENCY RANGE | Above 1000MHz |
| INPUT POWER (SYSTEM) | 120Vac, 60Hz | ENVIRONMENTAL CONDITIONS | 23deg°C, 60%RH, 988hPa |
| TESTED BY | Mark Liao | | |

| 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 | 1696.62 | 65.72 | -13.00 | -36.99 | 7.87 | -29.12 |
| 2 | 2544.93 | 58.61 | -13.00 | -44.73 | 8.45 | -36.28 |
| 3 | 3393.24 | 51.26 | -13.00 | -53.53 | 9.91 | -43.62 |
| 4 | 4241.55 | 48.11 | -13.00 | -56.43 | 9.72 | -46.71 |

| 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 | 1696.62 | 72.43 | -13.00 | -30.26 | 7.87 | -22.39 |
| 2 | 2544.93 | 60.43 | -13.00 | -42.87 | 8.45 | -34.42 |
| 3 | 3393.24 | 49.13 | -13.00 | -55.64 | 9.91 | -45.73 |
| 4 | 4241.55 | 46.93 | -13.00 | -57.60 | 9.72 | -47.88 |

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

5 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 by the following approval agencies according to ISO/IEC 17025.

| | |
|--------------------|-----------------------|
| USA | FCC, NVLAP |
| GERMANY | TUV Rheinland |
| JAPAN | VCCI |
| NORWAY | NEMKO |
| CANADA | INDUSTRY CANADA , CSA |
| R.O.C. | TAF, BSMI, NCC |
| NETHERLANDS | Telefication |
| SINGAPORE | GOST-ASIA (MOU) |
| RUSSIA | CERTIS (MOU) |

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.
If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3185050

Web Site: www.adt.com.tw

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

6 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---