

# FCC RF Test Report

APPLICANT : ZTE CORPORATION  
EQUIPMENT : CDMA 1X Digital Mobile Phone  
BRAND NAME : ZTE  
MODEL NAME : ZTE S133  
FCC ID : Q78-S133  
STANDARD : FCC 47 CFR Part 2, 22(H)  
CLASSIFICATION : Licensed Non-Broadcast Transmitter Held to Ear (TNE)

The product was received on Nov. 12, 2012 and completely tested on Nov. 16, 2012. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI / TIA / EIA-603-C-2004 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL (KUNSHAN) INC., the test report shall not be reproduced except in full.

Reviewed by:



Jones Tsai / Manager



**SPORTON INTERNATIONAL (KUNSHAN) INC.**  
**No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C.**



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**SUMMARY OF TEST RESULT**

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	§2.1046	N/A	Conducted Output Power	N/A	PASS	-
3.2	§22.913(a)(2)	RSS-132(4.4) SRSP-503(5.1.3)	Effective Radiated Power	< 7 Watts	PASS	-
3.3	§2.1049 §22.917(a)	N/A	Occupied Bandwidth	N/A	PASS	-
3.4	§2.1051 §22.917(a)	RSS-132 (4.5.1)	Band Edge Measurement	< $43+10\log_{10}(P[\text{Watts}])$	PASS	-
3.5	§2.1051 §22.917(a)	RSS-132 (4.5.1)	Conducted Spurious Emission	< $43+10\log_{10}(P[\text{Watts}])$	PASS	-
3.6	§2.1053 §22.917(a)	RSS-132 (4.5.1)	Field Strength of Spurious Radiation	< $43+10\log_{10}(P[\text{Watts}])$	PASS	Under limit 46.50 dB at 2509.000 MHz
3.7	§2.1055 §22.355	RSS-132(4.3)	Frequency Stability for Temperature & Voltage	< 2.5 ppm	PASS	-

# 1 General Description

## 1.1 Applicant

**ZTE CORPORATION**

ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, P.R.China

## 1.2 Manufacturer

**ZTE CORPORATION**

ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, P.R.China

## 1.3 Feature of Equipment Under Test

Product Feature	
Equipment	CDMA 1X Digital Mobile Phone
Brand Name	ZTE
Model Name	ZTE S133
FCC ID	Q78-S133
EUT supports Radios application	CDMA/Bluetooth
HW Version	S133_V1AMB_A
SW Version	S133_S_MH8J3007
EUT Stage	Identical Prototype

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

Product Specification subjective to this standard	
Tx Frequency	824.70 MHz ~ 848.31 MHz
Rx Frequency	869.70 MHz ~ 893.31 MHz
Maximum Output Power to Antenna	24.02 dBm
Antenna Type	PIFA Antenna
Type of Modulation	QPSK

### 1.4 Maximum ERP Power, Frequency Tolerance, and Emission Designator

FCC Rule	System	Type of Modulation	Maximum ERP (W)	Frequency Tolerance (% , Hz, ppm)	Emission Designator
Part 22	CDMA2000 BC0 1xRTT	QPSK	0.0778	0.02 ppm	1M27F9W

### 1.5 Testing Site

Test Site	SPORTON INTERNATIONAL (KUNSHAN) INC.				
Test Site Location	No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C. TEL: +86-0512-5790-0158 FAX: +86-0512-5790-0958				
Test Site No.	Sporton Site No.		FCC/IC Registration No.		
	TH01-KS	03CH01-KS	149928/4086E-1		

### 1.6 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- Preliminary Guidance for Receiving Applications for Certification of 3G Device. May 9, 2006.
- FCC 47 CFR Part 2, 22(H)
- ANSI / TIA / EIA-603-C-2004
- FCC KDB 971168 D01 Power Meas. License Digital Systems v01
- IC RSS-132 Issue 2

**Remark:**

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.



### 1.7 Ancillary Equipment List

Item	Equipment	Trade Name	Model No.	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	DC Power Supply	GWINSTEK	GPS-3030D	N/A	N/A	Unshielded, 1.8 m

## 2 Test Configuration of Equipment Under Test

### 2.1 Test Mode

During all testing, EUT is in link mode with base station emulator at maximum power level. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range, and EUT is rotated on three test planes to find out the worst emission.

Frequency range investigated for radiated emission is as follows:

1. 30 MHz to 9000 MHz for CDMA2000 BC0.

Test Modes		
Band	Radiated TCs	Conducted TCs
CDMA2000 BC0	■ 1xRTT Link Mode	■ 1xRTT Link Mode

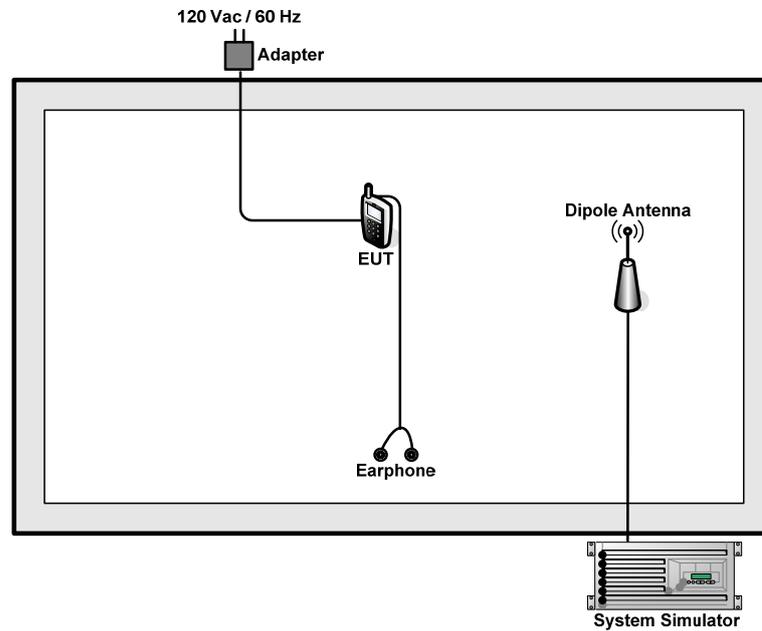
**Note:**

1. The maximum RF output power level is 1xRTT RC3+SO55 mode for CDMA2000 BC0 on QPSK Link; only this mode was used for all tests.
2. Because there are individual antennas for each WWAN and Bluetooth, the co-location test modes are not required.

The conducted power table is as follows:

Conducted Power (*Unit: dBm)			
Band	CDMA2000 BC0		
Channel	1013	384	777
Frequency	824.7	836.52	848.31
1xRTT RC1 SO55	23.49	23.47	23.89
1xRTT RC3 SO55	23.58	23.57	24.02
1xRTT RC3 SO32(+ F-SCH)	23.58	23.55	24.01
1xRTT RC3 SO32(+SCH)	23.56	23.53	24.00

## 2.2 Connection Diagram of Test System



### 3 Test Result

#### 3.1 Conducted Output Power Measurement

##### 3.1.1 Description of the Conducted Output Power Measurement

A base station simulator was used to establish communication with the EUT. Its parameters were set to transmit the maximum power on the EUT. The measured power in the radio frequency on the transmitter output terminals shall be reported.

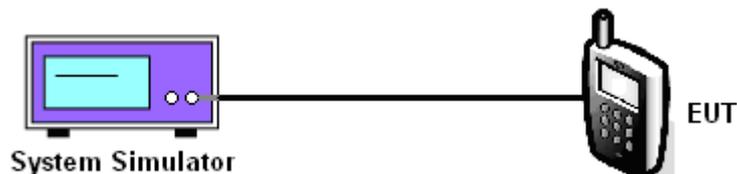
##### 3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

##### 3.1.3 Test Procedures

1. The transmitter output port was connected to base station.
2. Set EUT at maximum power through base station.
3. Select lowest, middle, and highest channels for each band and different modulation.
4. Compare each band and different modulation combination to show the worst data rate.

##### 3.1.4 Test Setup



##### 3.1.5 Test Result of Conducted Output Power

CDMA2000 BC0			
Test Mode	CDMA 2000 1xRTT		
Test Status	RC3+SO55		
Channel	1013 (Low)	384 (Mid)	777 (High)
Frequency (MHz)	824.7	836.52	848.31
Conducted Power (dBm)	23.58	23.57	24.02
Conducted Power (Watts)	0.23	0.23	0.25

**Note:** maximum average power for CDMA2000.

## 3.2 Effective Radiated Power Measurement

### 3.2.1 Description of the ERP Measurement

The substitution method, in ANSI / TIA / EIA-603-C-2004, was used for ERP measurement, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v01. The ERP of mobile transmitters must not exceed 7 Watts.

### 3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.2.3 Test Procedures

1. The EUT was placed on a turntable with 1.5 meter height in a fully anechoic chamber.
2. The EUT was set at 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. GSM operating modes: Set RBW= 1MHz, VBW= 3MHz, RMS detector over burst;  
UMTS operating modes: Set RBW= 100 KHz, VBW= 300 KHz, RMS detector over frame, and use channel power option with bandwidth=5MHz, per section 4.0 of KDB 971168 D01.
4. The table was rotated 360 degrees to determine the position of the highest radiated power.
5. The height of the receiving antenna is adjusted to look for the maximum ERP.
6. Taking the record of maximum ERP.
7. A dipole antenna was substituted in place of the EUT and was driven by a signal generator.
8. The conducted power at the terminal of the dipole antenna is measured.
9. Repeat step 3 to step 5 to get the maximum ERP of the substitution antenna.
10.  $ERP = P_s + E_t - E_s + G_s = P_s + R_t - R_s + G_s$

$P_s$  (dBm) : Input power to substitution antenna.

$G_s$  (dBi or dBd) : Substitution antenna Gain.

$E_t = R_t + AF$

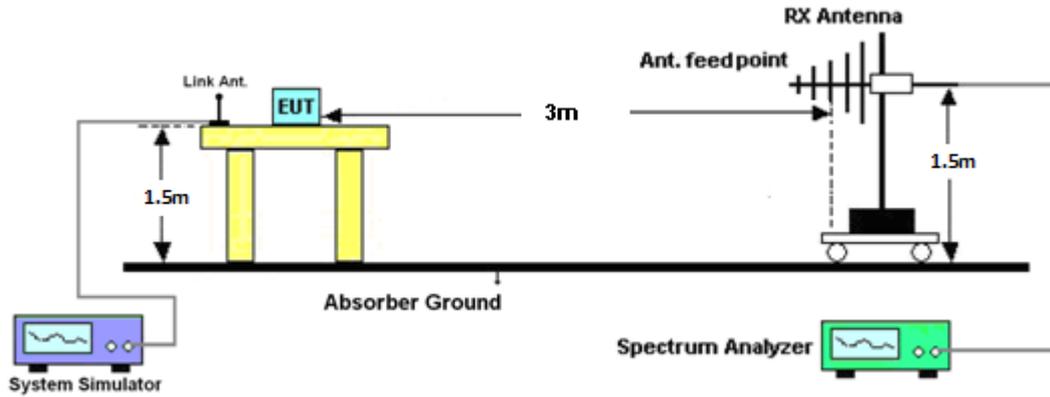
$E_s = R_s + AF$

AF (dB/m) : Receive antenna factor

$R_t$  : The highest received signal in spectrum analyzer for EUT.

$R_s$  : The highest received signal in spectrum analyzer for substitution antenna.

### 3.2.4 Test Setup



### 3.2.5 Test Result of ERP

CDMA2000 BC0 1xRTT_RC3+SO55 Radiated Power ERP						
Horizontal Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.70	-28.25	-48.12	0.00	-1.08	18.79	0.0757
836.52	-29.01	-48.28	0.00	-0.93	18.34	0.0682
848.31	-28.68	-48.35	0.00	-0.76	18.91	0.0778
Vertical Polarization						
Frequency (MHz)	Rt (dBm)	Rs (dBm)	Ps (dBm)	Gs (dBd)	ERP (dBm)	ERP (W)
824.70	-41.42	-47.97	0.00	-1.08	5.47	0.0035
836.52	-41.91	-48.01	0.00	-0.93	5.17	0.0033
848.31	-41.86	-48.05	0.00	-0.76	5.43	0.0035

### 3.3 Occupied Bandwidth and 26dB Bandwidth Measurement

#### 3.3.1 Description of Occupied Bandwidth and 26dB Bandwidth Measurement

The occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The emission bandwidth is defined as the width of the signal between two points, located at the 2 sides of the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

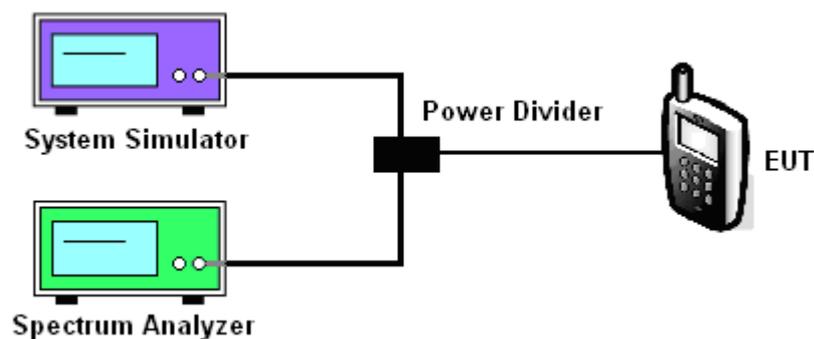
#### 3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

#### 3.3.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The 99% occupied bandwidth and 26 dB bandwidth of the middle channel for the highest RF powers were measured.

#### 3.3.4 Test Setup





3.3.5 Test Result of Occupied Bandwidth and 26dB Bandwidth

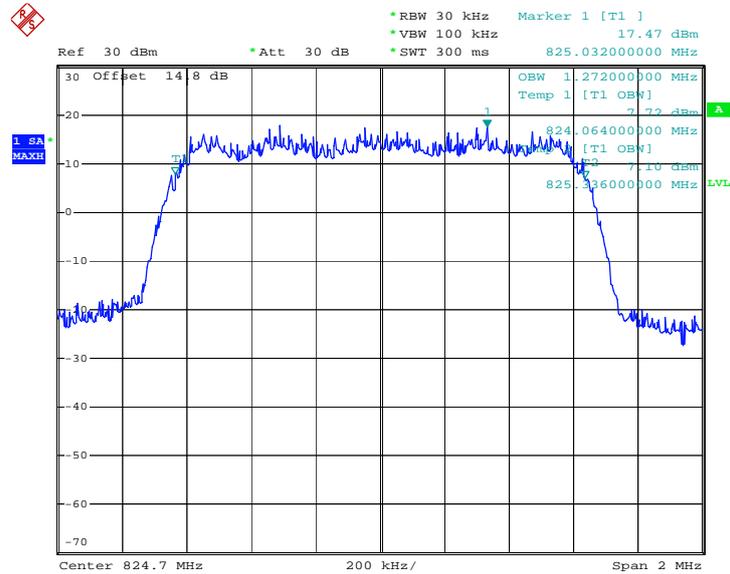
CDMA2000 BC0			
Test Mode	CDMA 2000 1xRTT		
Test Status	RC3+SO55		
Channel	1013 (Low)	384 (Mid)	777 (High)
Frequency (MHz)	824.70	836.52	848.31
99% OBW (MHz)	1.272	1.268	1.268
26dB BW (MHz)	1.424	1.420	1.424



### 3.3.6 Test Result (Plots) of Occupied Bandwidth and 26dB Bandwidth

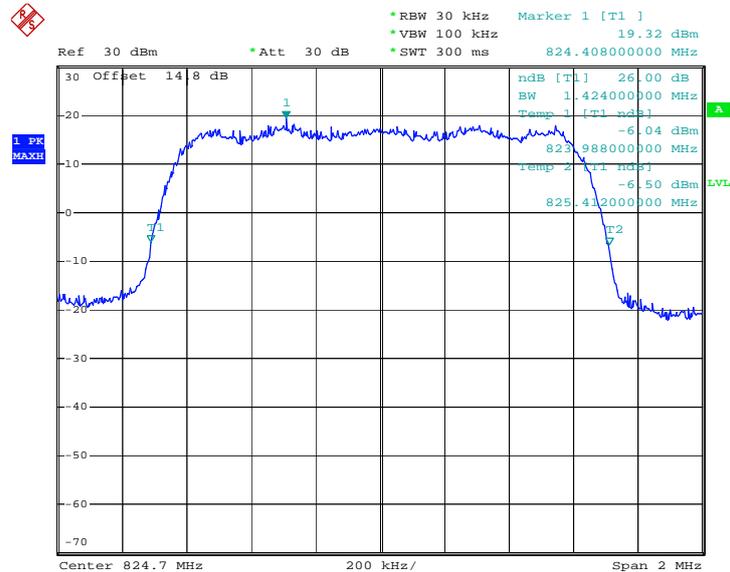
Band :	CDMA2000 BC0	Test Mode :	1xRTT_RC3+SO55
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99% Occupied Bandwidth Plot on Channel 1013 (824.7 MHz)



Date: 16.NOV.2012 17:20:00

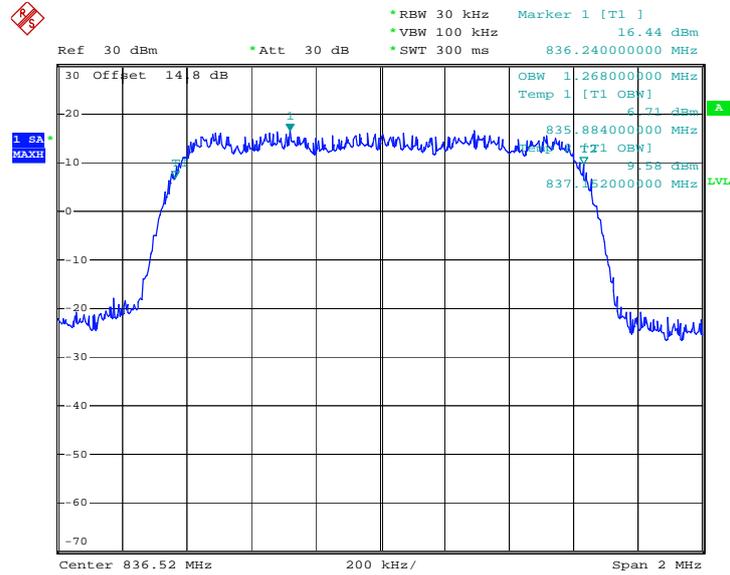
26dB Bandwidth Plot on Channel 1013 (824.7 MHz)



Date: 16.NOV.2012 17:11:02

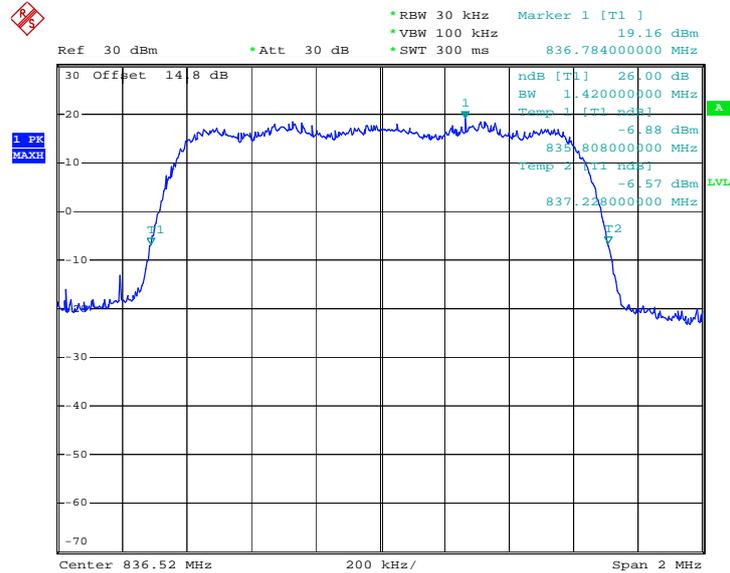


99% Occupied Bandwidth Plot on Channel 384 (836.52 MHz)



Date: 16.NOV.2012 17:16:31

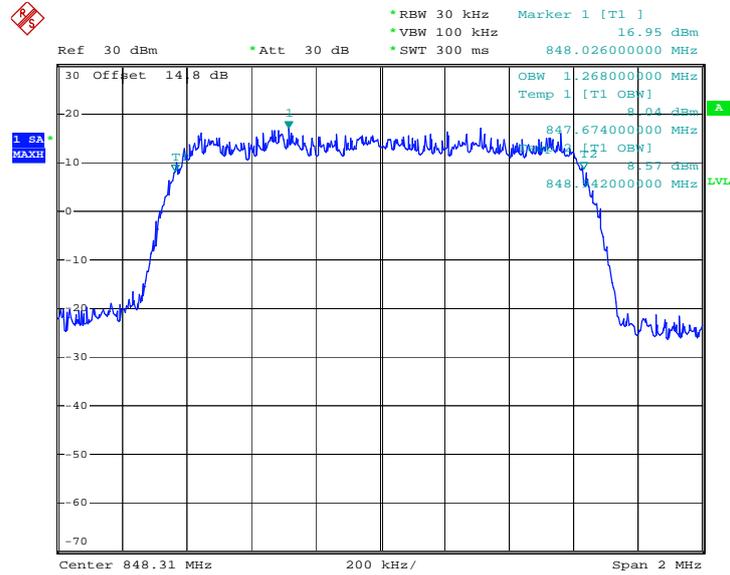
26dB Bandwidth Plot on Channel 384 (836.52 MHz)



Date: 16.NOV.2012 17:11:32

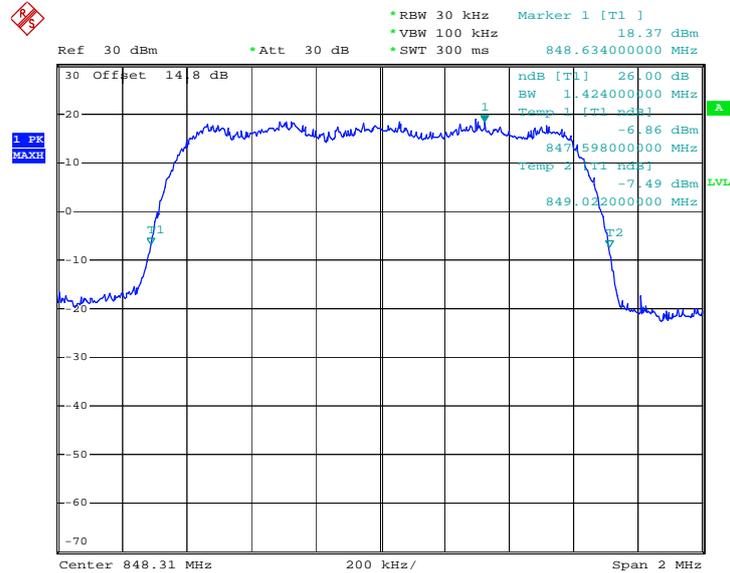


99% Occupied Bandwidth Plot on Channel 777 (848.31 MHz)



Date: 16.NOV.2012 17:18:40

26dB Bandwidth Plot on Channel 777 (848.31 MHz)



Date: 16.NOV.2012 17:10:30

### 3.4 Band Edge Measurement

#### 3.4.1 Description of Band Edge Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least  $43 + 10 \log (P)$  dB.

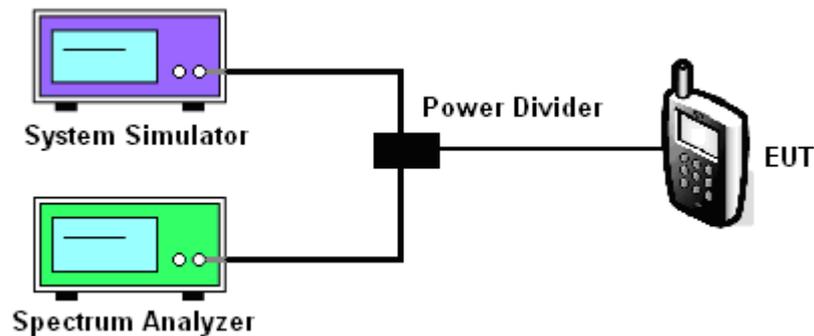
#### 3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

#### 3.4.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The band edges of low and high channels for the highest RF powers were measured. Setting RBW as roughly  $BW/100$ .
3. The RBW was replaced by 10 kHz, slightly smaller than the value in (2), due to the spectrum analyzer limitation to set the exact value. A worst case correction factor of  $10 \cdot \log (1\% \text{ emission-BW}/\text{measurement RBW})$  was compensated.

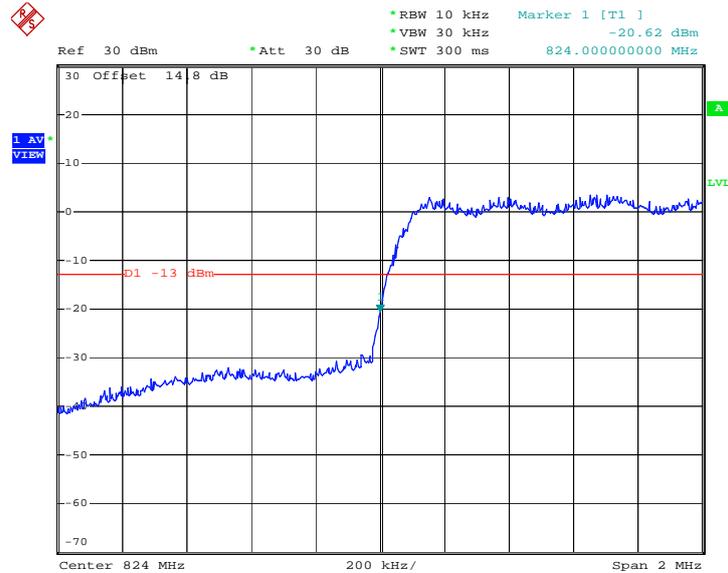
#### 3.4.4 Test Setup



### 3.4.5 Test Result (Plots) of Conducted Band Edge

Band :	CDMA2000 BC0	Test Mode :	1xRTT_RC3+SO55
Correction Factor :	1.54dB	Maximum 26dB Bandwidth :	1.424MHz
Band Edge :	-19.08dBm	Measurement Value :	-20.62dBm

Lower Band Edge Plot on Channel 1013 (824.7 MHz)



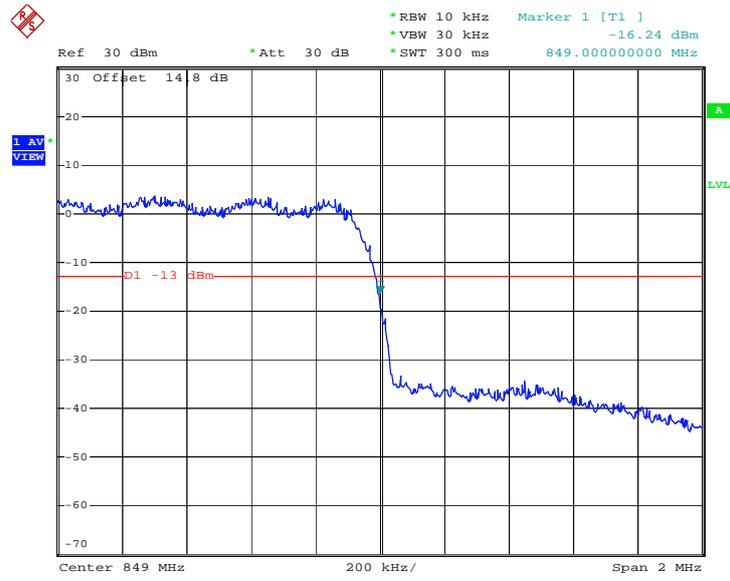
Date: 16.NOV.2012 16:38:54

1. Correction Factor(dB)=  $10\log(1\% \text{ Emission BW/RBW})$
2. Band Edge= Measurement Value + Correction Factor(dB)



Band :	CDMA2000 BC0	Test Mode :	1xRTT_RC3+SO55
Correction Factor :	1.54dB	Maximum 26dB Bandwidth:	1.424MHz
Band Edge :	-14.70dBm	Measurement Value :	-16.24dBm

Higher Band Edge Plot on Channel 777 (848.31 MHz)



Date: 16.NOV.2012 16:37:58

1. Correction Factor(dB)=  $10\log(1\% \text{ Emission BW/RBW})$
2. Band Edge= Measurement Value + Correction Factor(dB)

### 3.5 Conducted Spurious Emission Measurement

#### 3.5.1 Description of Conducted Emission Measurement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least  $43 + 10 \log (P)$  dB.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10<sup>th</sup> harmonic.

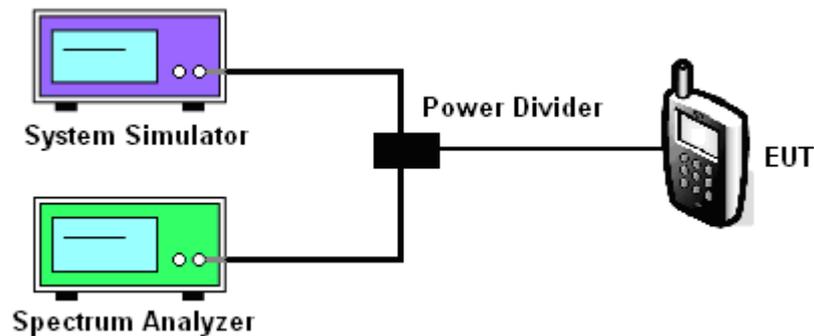
#### 3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

#### 3.5.3 Test Procedures

1. The EUT was connected to spectrum analyzer and base station via power divider.
2. The middle channel for the highest RF power within the transmitting frequency was measured.
3. The conducted spurious emission for the whole frequency range was taken.

#### 3.5.4 Test Setup

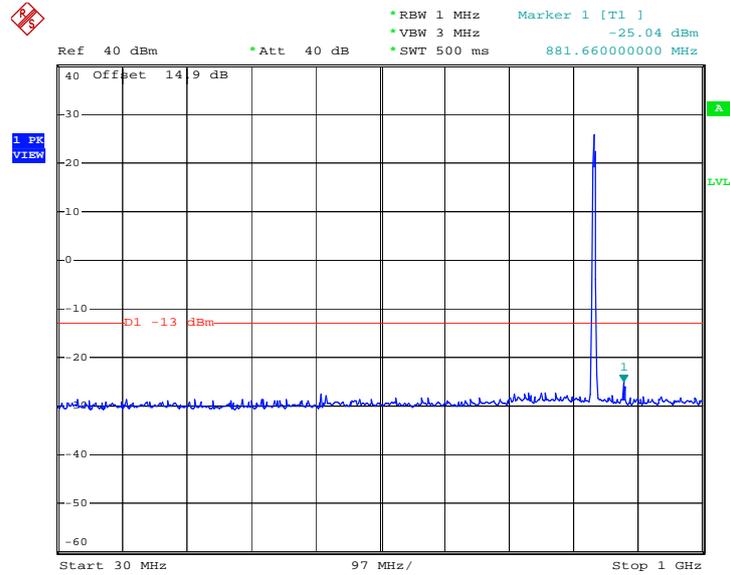




### 3.5.5 Test Result (Plots) of Conducted Spurious Emission

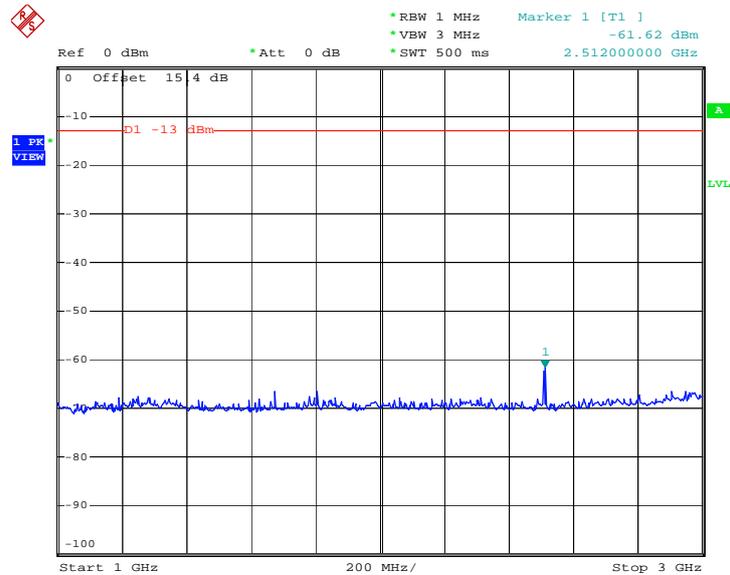
Band :	CDMA2000 BC0	Channel	384
Test Mode :	1xRTT_RC3+SO55	Frequency :	836.52 MHz

Conducted Spurious Emission Plot between 30MHz ~ 1GHz



Date: 16.NOV.2012 17:23:38

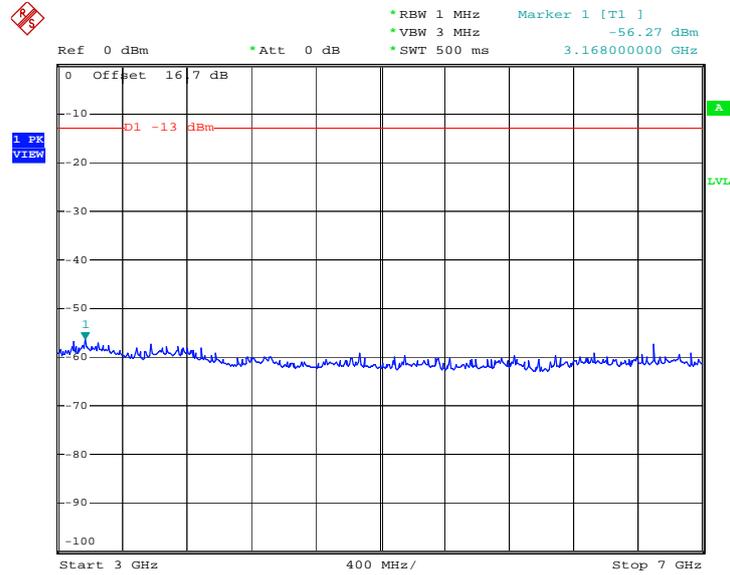
Conducted Spurious Emission Plot between 1GHz ~ 3GHz



Date: 16.NOV.2012 17:25:03

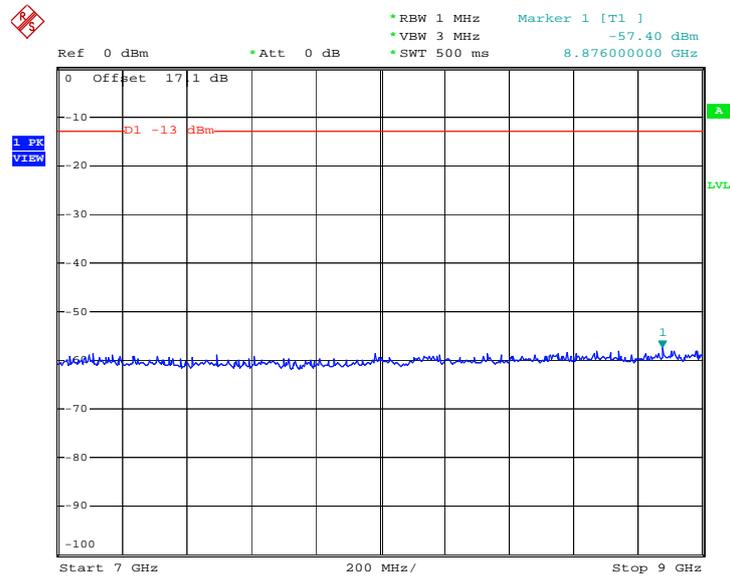


### Conducted Spurious Emission Plot between 3GHz ~ 7GHz



Date: 16.NOV.2012 17:25:36

### Conducted Spurious Emission Plot between 7GHz ~ 9GHz



Date: 16.NOV.2012 17:26:09

## 3.6 Field Strength of Spurious Radiation Measurement

### 3.6.1 Description of Field Strength of Spurious Radiated Measurement

The radiated spurious emission was measured by substitution method according to ANSI / TIA / EIA-603-C-2004. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least  $43+10\log_{10}(P[\text{Watts}])$  dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

### 3.6.2 Measuring Instruments

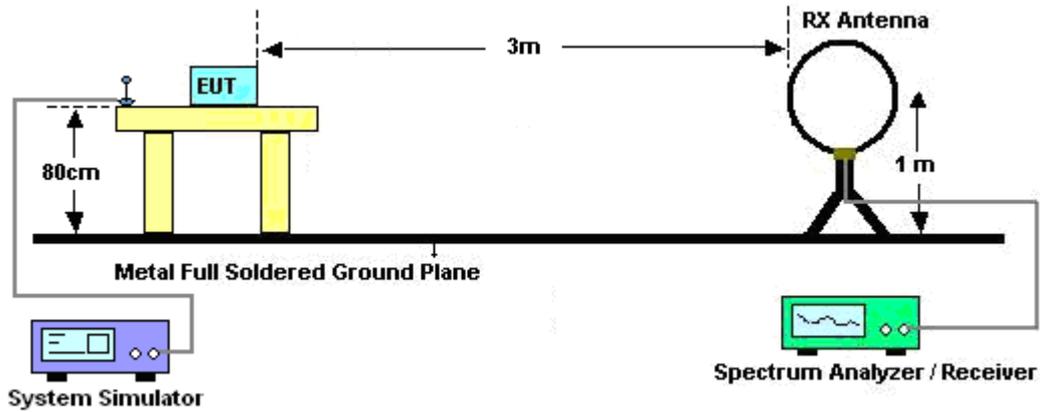
See list of measuring instruments of this test report.

### 3.6.3 Test Procedures

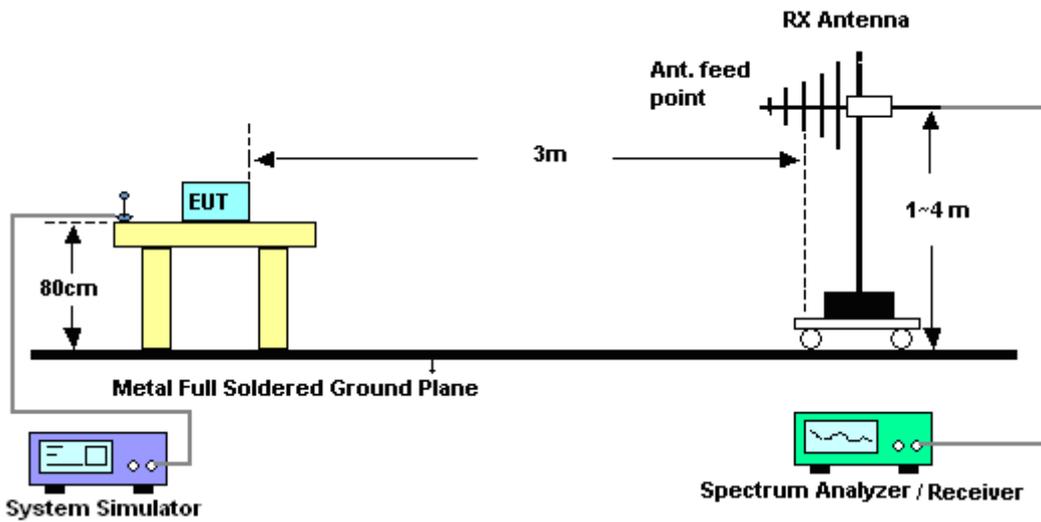
1. The EUT was placed on a rotatable wooden table with 0.8 meter above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
5. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking the record of maximum spurious emission.
6. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
7. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
8. Taking the record of output power at antenna port.
9. Repeat step 7 to step 8 for another polarization.
10.  $\text{EIRP (dBm)} = \text{S.G. Power} - \text{Tx Cable Loss} + \text{Tx Antenna Gain}$
11.  $\text{ERP (dBm)} = \text{EIRP} - 2.15$

### 3.6.4 Test Setup

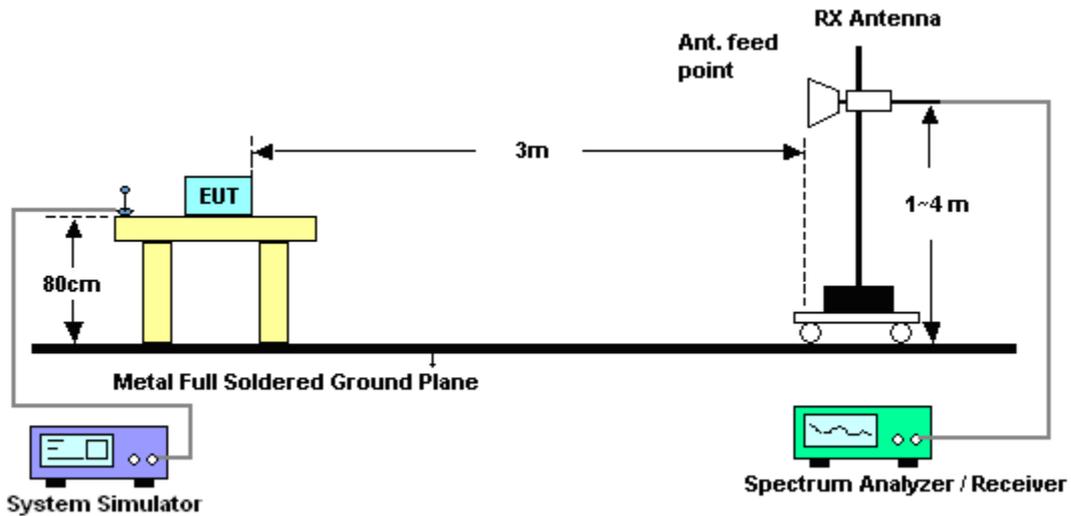
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



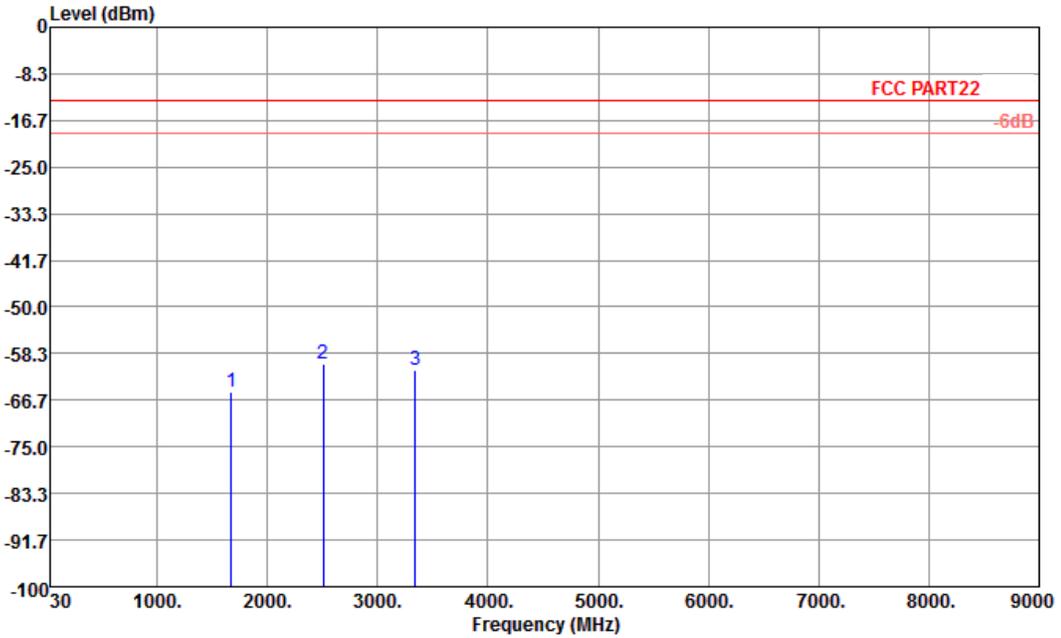
### 3.6.5 Test Results of Radiated Emissions (9 KHz ~ 30 MHz)

The low frequency, which started from 9 KHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.



3.6.6 Test Result of Field Strength of Spurious Radiated

Band :	CDMA2000 BC0	Temperature :	21~22°C
Test Mode :	1xRTT_RC3+SO55	Relative Humidity :	46~47%
Test Engineer :	Allen Cheng	Polarization :	Horizontal
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		

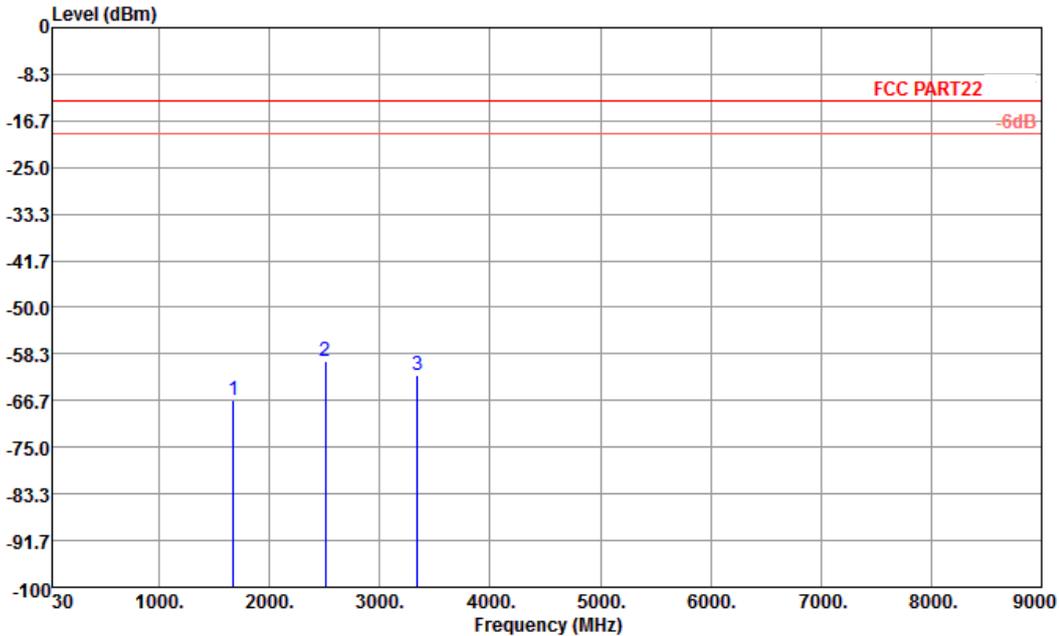


Site : 03CH01-KS  
 Condition : FCC PART22 HF EIRP FACTOR-09020 HORIZONTAL  
 Project : (FG) 2N1201  
 Plan : H

Frequency ( MHz )	ERP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
1672	-65.32	-13	-52.32	-61.10	-65.97	0.57	3.37	H	Pass
2509	-60.15	-13	-47.15	-62.40	-62.38	0.78	5.16	H	Pass
3345	-61.31	-13	-48.31	-63.25	-64.95	0.87	6.66	H	Pass



Band :	CDMA2000 BC0	Temperature :	21~22°C
Test Mode :	1xRTT_RC3+SO55	Relative Humidity :	46~47%
Test Engineer :	Allen Cheng	Polarization :	Vertical
Remark :	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.		



Site : 03CH01-KS  
 Condition : FCC PART22 HF EIRP FACTOR-09020 VERTICAL  
 Project : (FG) 2N1201  
 Plan : H

Frequency ( MHz )	ERP ( dBm )	Limit ( dBm )	Over Limit ( dB )	SPA Reading ( dBm )	S.G. Power ( dBm )	TX Cable loss ( dB )	TX Antenna Gain ( dBi )	Polarization ( H/V )	Result
1672	-66.70	-13	-53.70	-62.35	-67.35	0.57	3.37	V	Pass
2509	-59.50	-13	-46.50	-62.61	-61.73	0.78	5.16	V	Pass
3345	-62.09	-13	-49.09	-64.07	-65.73	0.87	6.66	V	Pass

## 3.7 Frequency Stability Measurement

### 3.7.1 Description of Frequency Stability Measurement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within  $\pm 0.00025\%$  ( $\pm 2.5\text{ppm}$ ) of the center frequency.

### 3.7.2 Measuring Instruments

See list of measuring instruments of this test report.

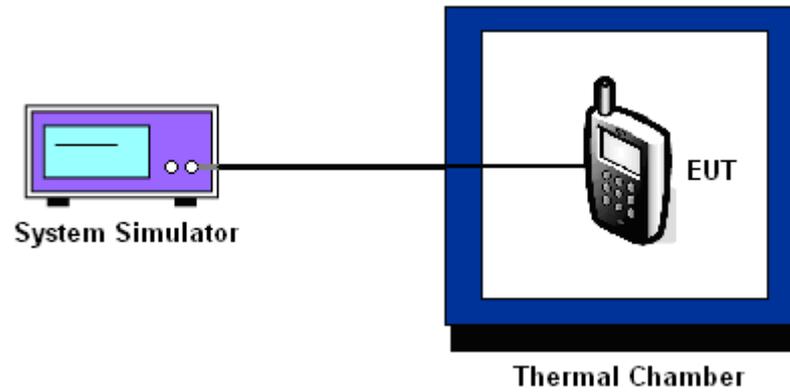
### 3.7.3 Test Procedures for Temperature Variation

1. The EUT was set up in the thermal chamber and connected with the base station.
2. With power OFF, the temperature was decreased to  $-30^{\circ}\text{C}$  and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
3. With power OFF, the temperature was raised in  $10^{\circ}\text{C}$  step up to  $50^{\circ}\text{C}$ . The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.
4. If the EUT cannot be turned on at  $-30^{\circ}\text{C}$ , the testing lowest temperature will be raised in  $10^{\circ}\text{C}$  step until the EUT can be turned on.

### 3.7.4 Test Procedures for Voltage Variation

1. The EUT was placed in a temperature chamber at  $25\pm 5^{\circ}\text{C}$  and connected with the base station.
2. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

### 3.7.5 Test Setup



### 3.7.6 Test Result of Temperature Variation

Band :	CDMA2000 BC0 1xRTT_RC3+SO55	Channel :	384
Limit (ppm) :	2.5	Frequency :	836.52 MHz

Temperature (°C)	Freq. Dev. (Hz)	Deviation (ppm)	Result
-30	-6	-0.01	PASS
-20	-5	-0.01	
-10	-7	-0.01	
0	-11	-0.01	
10	-9	-0.01	
20	-5	-0.01	
30	-10	-0.01	
40	-13	-0.02	
50	-11	-0.01	
60	-12	-0.01	

Note: The manufacturer declared that the EUT could work properly at temperature 60°C.

### 3.7.7 Test Result of Voltage Variation

Band & Channel	Mode	Voltage (Volt)	Freq. Dev. (Hz)	Deviation (ppm)	Limit (ppm)	Result
CDMA2000 BC0 CH384	1xRTT RC3+SO55	3.7	-9	-0.01	2.5	PASS
		BEP	-5	-0.01		
		4.2	7	0.01		

Note:

1. Normal Voltage = 3.7V.
2. Battery End Point (BEP) = 3.36 V.



## 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	Nov. 16, 2012	Dec. 29, 2012	Conducted (TH01-KS)
System Simulator	R&S	CMU200	837587/066	2G Full-Band	Dec. 30, 2011	Nov. 16, 2012	Dec. 29, 2012	Conducted (TH01-KS)
DC Power Supply	GWINSTEK	GPS-3030D	E1884515	N/A	Aug. 22, 2012	Nov. 16, 2012	Aug. 21, 2013	Conducted (TH01-KS)
Thermal Chamber	Ten Billion	TTC-B3S	TBN-960502	N/A	Dec. 30, 2011	Nov. 16, 2012	Dec. 29, 2012	Conducted (TH01-KS)
EMI Test Receiver	R&S	ESCI	100534	9kHz~3GHz	Nov. 08, 2012	Nov. 16, 2012	Nov. 07, 2013	Radiation (03CH01-KS)
Spectrum Analyzer	R&S	FSP40	100319	9kHz~40GHz	Dec. 30, 2011	Nov. 16, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
Bilog Antenna	SCHAFFNER	CBL6112D	23182	25MHz~2GHz	Dec. 08, 2011	Nov. 16, 2012	Dec. 07, 2012	Radiation (03CH01-KS)
Double Ridge Horn	EMCO	3117	00075959	1GHz~18GHz	Jan. 06, 2012	Nov. 16, 2012	Jan. 05, 2013	Radiation (03CH01-KS)
Amplifier	com-power	PA-103A	161069	1MHz~1GHz	Jun. 01, 2012	Nov. 16, 2012	May 31, 2013	Radiation (03CH01-KS)
Amplifier	Agilent	8449B	3008A02370	1GHz~26.5GHz	Dec. 30, 2011	Nov. 16, 2012	Dec. 29, 2012	Radiation (03CH01-KS)
SHF-EHF Horn	Schwarzbeck	BBHA 9170	9170249	15GHz-40GHz	Oct. 10, 2012	Nov. 16, 2012	Oct. 09, 2013	Radiation (03CH01-KS)
Loop Antenna	R&S	HFH2-Z2	860004/001	9KHz ~ 30MHz	Jul. 03, 2012	Nov. 16, 2012	Jul. 02, 2014	Radiation (03CH01-KS)
System Simulator	R&S	CMU200	116456	Full-Band	Sep. 19, 2012	Nov. 16, 2012	Sep. 18, 2013	Radiation (03CH01-KS)

## 5 Uncertainty of Evaluation

### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	2.54
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### Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence of 95% ( $U = 2Uc(y)$ )	4.72
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## **Appendix A. Photographs of EUT**

Please refer to Sporton report number EP2N1201 as below.