



# FCC RF Test Report

APPLICANT : ZTE CORPORATION  
EQUIPMENT : CDMA 1X & EVDO Dual-Mode Digital Mobile Phone  
BRAND NAME : ZTE  
MODEL NAME : ZTE N817  
FCC ID : SRQ-ZTEN817  
STANDARD : FCC 47 CFR Part 2, and 90(S)  
CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)

The product was received on May 28, 2015 and testing was completed on Jul. 23, 2015. We, SPORTON INTERNATIONAL (SHENZHEN) 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 (SHENZHEN) INC., the test report shall not be reproduced except in full.

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Reviewed by: Joseph Lin / Supervisor

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Approved by: Jones Tsai / Manager

**SPORTON INTERNATIONAL (SHENZHEN) INC.**

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## REVISION HISTORY

| REPORT NO. | VERSION | DESCRIPTION             | ISSUED DATE   |
|------------|---------|-------------------------|---------------|
| FW552801   | Rev. 01 | Initial issue of report | Aug. 07, 2015 |
|            |         |                         |               |
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|            |         |                         |               |

## SUMMARY OF TEST RESULT

| Report Section | FCC Rule           | Description                                      | Limit                                  | Result | Remark                                     |
|----------------|--------------------|--------------------------------------------------|----------------------------------------|--------|--------------------------------------------|
| 3.1            | §2.1046            | Conducted Output Power                           | Reporting only                         | PASS   | -                                          |
| 3.2            | §2.1049<br>§90.209 | 99% Occupied Bandwidth<br>and 26dB Bandwidth     | Reporting only                         | PASS   | -                                          |
| 3.3            | §2.1051<br>§90.691 | Emission masks –<br>In-band emissions            | $< 50 + 10 \log_{10}(P[\text{Watts}])$ | PASS   | -                                          |
| 3.4            | §2.1051<br>§90.691 | Emission masks –<br>Out of band emissions        | $< 43 + 10 \log_{10}(P[\text{Watts}])$ | PASS   | -                                          |
| 3.5            | §2.1053<br>§90.691 | Field Strength of Spurious<br>Radiation          | $< 43 + 10 \log_{10}(P[\text{Watts}])$ | PASS   | Under limit<br>27.53 dB at<br>1641.000 MHz |
| 3.6            | §2.1055<br>§90.213 | Frequency Stability for<br>Temperature & Voltage | $< 2.5 \text{ ppm}$                    | PASS   | -                                          |

# 1 General Description

## 1.1 Applicant

**ZTE CORPORATION**

ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P. R. China

## 1.2 Manufacturer

**ZTE CORPORATION**

ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P. R. China

## 1.3 Feature of Equipment Under Test

| Product Feature & Specification |                                                                                      |
|---------------------------------|--------------------------------------------------------------------------------------|
| Equipment                       | CDMA 1X & EVDO Dual-Mode Digital Mobile Phone                                        |
| Brand Name                      | ZTE                                                                                  |
| Model Name                      | ZTE N817                                                                             |
| FCC ID                          | SRQ-ZTEN817                                                                          |
| EUT supports Radios application | CDMA/EV-DO/<br>WLAN 2.4GHz 802.11b/g/n HT20/<br>Bluetooth v3.0+EDR/Bluetooth v4.0 LE |
| MEID Code                       | Conducted: A000004E99191A<br>Radiated: A000004E99198D                                |
| HW Version                      | 2.0                                                                                  |
| SW Version                      | N817V1.0.0B01                                                                        |
| EUT Stage                       | Identical Prototype                                                                  |

## 1.4 Product Specification of Equipment Under Test

| Product Specification subjective to this standard |                                                  |
|---------------------------------------------------|--------------------------------------------------|
| Tx Frequency                                      | CDMA2000 BC10 : 817.9 MHz ~ 823.1 MHz            |
| Rx Frequency                                      | CDMA2000 BC10 : 862.9 MHz ~ 868.1 MHz            |
| Maximum Output Power to Antenna                   | CDMA2000 BC10 : 24.16 dBm                        |
| Antenna Type                                      | Fixed Internal Antenna                           |
| Type of Modulation                                | CDMA2000 1xRTT : QPSK<br>CDMA2000 1xEV-DO : 8PSK |

**Remark:** This test report recorded only product characteristics and test results of PCS Licensed Transmitter Held to Ear (PCE).

## 1.5 Modification of EUT

No modifications are made to the EUT during all test items.

## 1.6 Maximum Frequency Tolerance and Emission Designator

| FCC Rule | System              | Type of Modulation | Frequency Tolerance (ppm) | Emission Designator |
|----------|---------------------|--------------------|---------------------------|---------------------|
| Part 90S | CDMA2000 BC10 1xRTT | QPSK               | 0.0085 ppm                | 1M27F9W             |

## 1.7 Testing Site

|                           |                                                                                                                                                                                    |  |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <b>Test Site</b>          | SPORTON INTERNATIONAL (SHENZHEN) INC.                                                                                                                                              |  |
| <b>Test Site Location</b> | 1F & 2F,Building A, Morning Business Center, No. 4003 ShiGu Rd., Xili Town, Nanshan District, Shenzhen, Guangdong, P. R. China<br>TEL: +86-755-8637-9589<br>FAX: +86-755-8637-9595 |  |
| <b>Test Site No.</b>      | <b>Sporton Site No.</b>                                                                                                                                                            |  |
|                           | TH01-SZ                                                                                                                                                                            |  |

|                           |                                                                                                                                                                 |                             |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| <b>Test Site</b>          | SPORTON INTERNATIONAL (SHENZHEN) INC.                                                                                                                           |                             |
| <b>Test Site Location</b> | No. 3 Building, the third floor of south, Shahe River west, Fengzeyuan warehouse, Nanshan District, Shenzhen, Guangdong, P. R. China<br>TEL: +86-755- 3320-2398 |                             |
| <b>Test Site No.</b>      | <b>Sporton Site No.</b>                                                                                                                                         | <b>FCC Registration No.</b> |
|                           | 03CH01-SZ                                                                                                                                                       | 831040                      |

**Note:** The test site complies with ANSI C63.4 2009 requirement.

## 1.8 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, 90
- ♦ ANSI / TIA / EIA-603-C-2004

### 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.

## 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 (Y Plane).

Frequency range investigated for radiated emission: 30MHz to 10<sup>th</sup> harmonic.

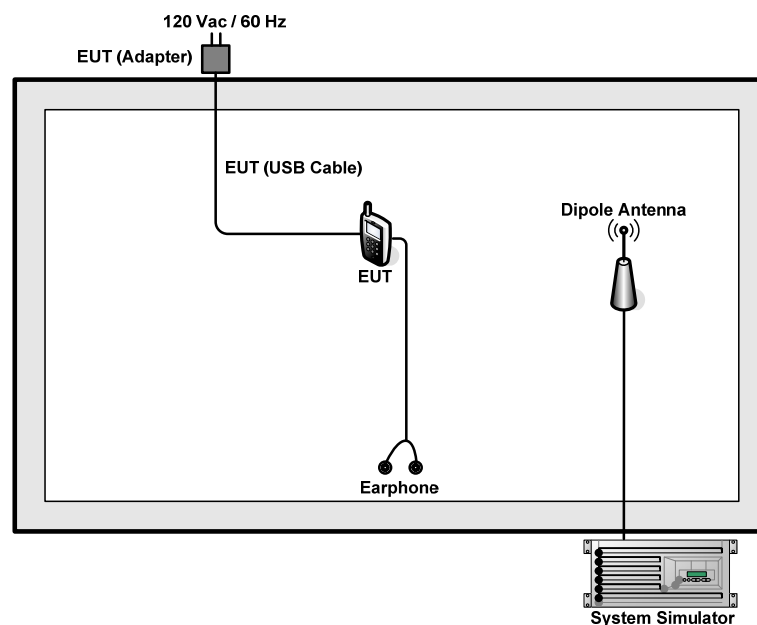
| Test Modes    |              |               |
|---------------|--------------|---------------|
| Band          | Radiated TCs | Conducted TCs |
| CDMA2000 BC10 | ■ 1xRTT Link | ■ 1xRTT Link  |

**Note:** The maximum RF output power levels are 1xRTT RC3+SO55 mode for CDMA2000 BC10 on QPSK Link; only these modes were used for all tests.

The conducted power table is as follows:

| Conducted Power (*Unit: dBm) |               |       |       |
|------------------------------|---------------|-------|-------|
| Band                         | CDMA2000 BC10 |       |       |
| Channel                      | 476           | 580   | 684   |
| Frequency                    | 817.9         | 820.5 | 823.1 |
| 1xRTT RC1+SO55               | 23.84         | 23.98 | 23.99 |
| 1xRTT RC3+SO55               | 23.90         | 24.07 | 24.16 |
| 1xRTT RC3 SO32(+ F-SCH)      | 23.84         | 23.98 | 24.04 |
| 1xRTT RC3 SO32 (+SCH)        | 23.82         | 23.96 | 24.03 |
| 1xEVDO RTAP 153.6Kbps        | 23.87         | 24.06 | 24.13 |
| 1xEVDO RETAP 4096Bits        | 23.84         | 24.05 | 24.07 |

## 2.2 Connection Diagram of Test System



## 2.3 Support Unit used in test configuration and system

| 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  | GW INSTEK  | GPS-3030D | N/A     | N/A        | Unshielded, 1.8 m |
| 3.   | Earphone         | Apple      | MC690ZP/A | FCC Doc | N/A        | N/A               |

## 2.4 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

*Offset = RF cable loss + attenuator factor.*

Following shows an offset computation example with cable loss 4.5 dB and 10dB attenuator.

$$\begin{aligned}\text{Offset (dB)} &= \text{RF cable loss (dB)} + \text{attenuator factor (dB)} \\ &= 4.5 + 10 = 14.5 \text{ (dB)}\end{aligned}$$

### 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.

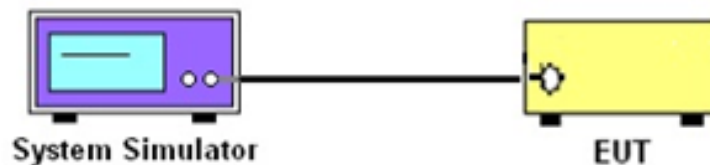
##### 3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 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.

##### 3.1.4 Test Setup



**3.1.5 Test Result of Conducted Output Power**

| CDMA 2000 BC10        |                 |           |            |
|-----------------------|-----------------|-----------|------------|
| Modes                 | CDMA 2000 1xRTT |           |            |
| Test Status           | RC3+SO55        |           |            |
| Channel               | 476 (Low)       | 580 (Mid) | 684 (High) |
| Frequency (MHz)       | 817.9           | 820.5     | 823.1      |
| Conducted Power (dBm) | 23.90           | 24.07     | 24.16      |

**Note:** Maximum burst average power for CDMA.

## 3.2 99% Occupied Bandwidth and 26dB Bandwidth Measurement

### 3.2.1 Description of (Occupied) Bandwidth Limitations Measurement

The 99% 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.

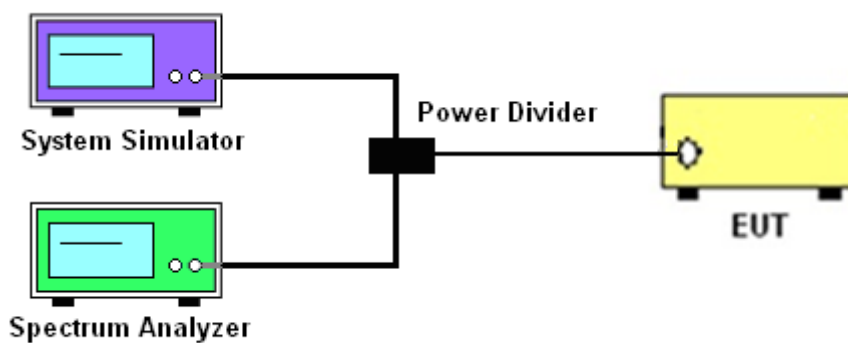
### 3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

### 3.2.3 Test Procedures

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

### 3.2.4 Test Setup



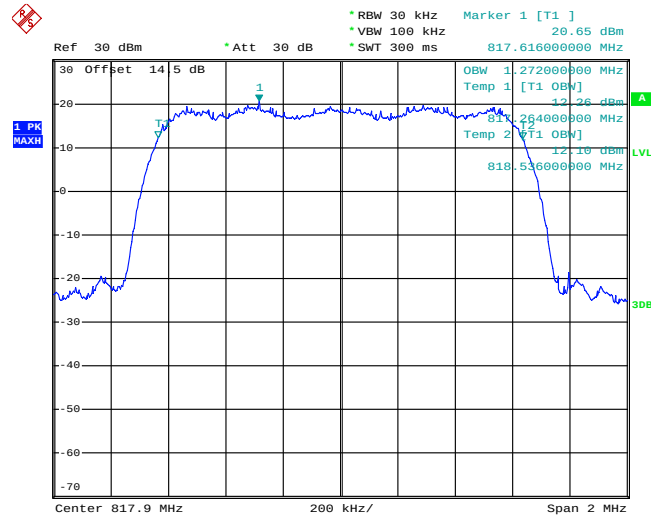
### 3.2.5 Test Result of 99% Occupied Bandwidth and 26dB Bandwidth

| CDMA2000 BC10   |                 |           |            |
|-----------------|-----------------|-----------|------------|
| Test Mode       | CDMA 2000 1xRTT |           |            |
| Test Status     | RC3+SO55        |           |            |
| Channel         | 476 (Low)       | 580 (Mid) | 684 (High) |
| Frequency (MHz) | 817.9           | 820.5     | 823.1      |
| 99% OBW (MHz)   | 1.272           | 1.272     | 1.272      |
| 26dB BW (MHz)   | 1.420           | 1.420     | 1.428      |

### 3.2.6 Test Result (Plots) of 99% Occupied Bandwidth and 26dB Bandwidth

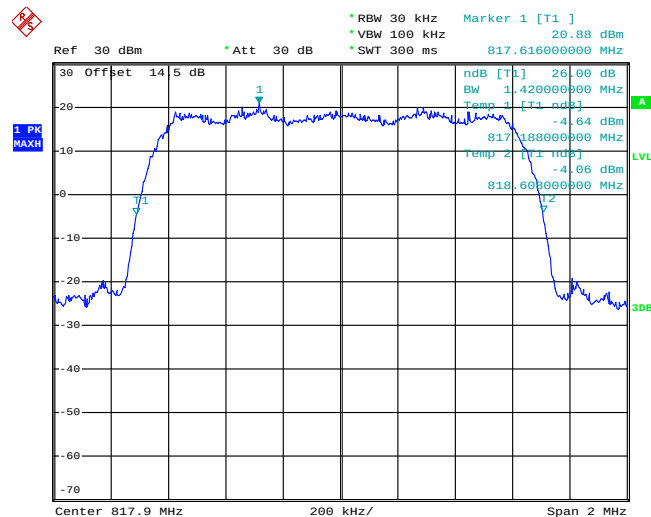
|               |                |                    |                |
|---------------|----------------|--------------------|----------------|
| <b>Band :</b> | CDMA2000 BC 10 | <b>Test Mode :</b> | 1xRTT_RC3+SO55 |
|---------------|----------------|--------------------|----------------|

**99% Occupied Bandwidth Plot on Channel 476 (817.9MHz)**

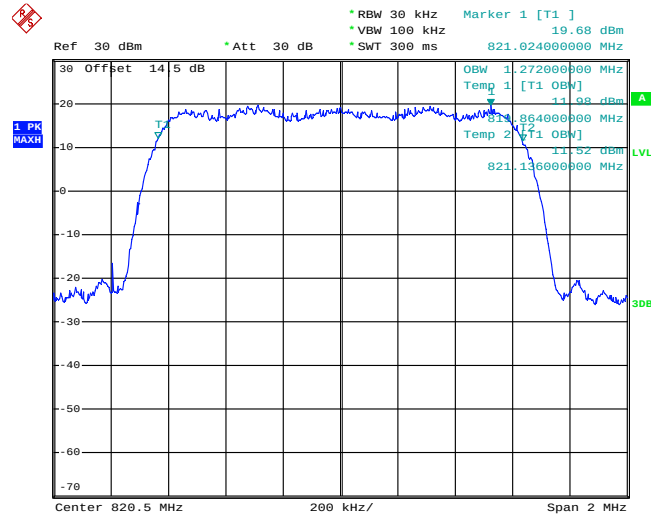


Date: 1.JUL.2015 18:50:32

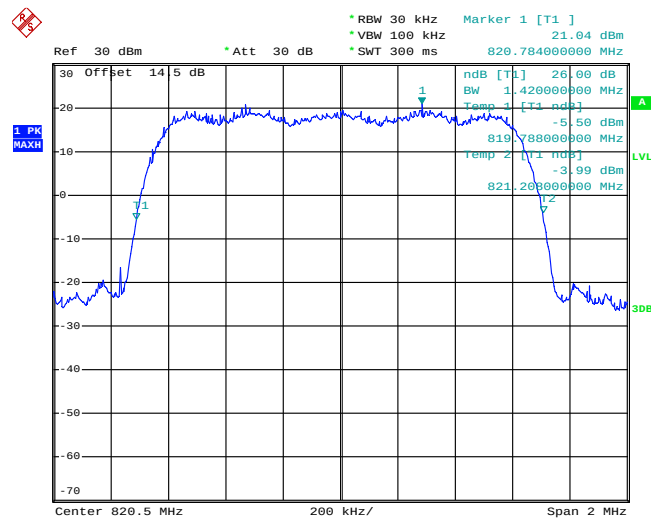
**26dB Bandwidth Plot on Channel 476 (817.9MHz)**



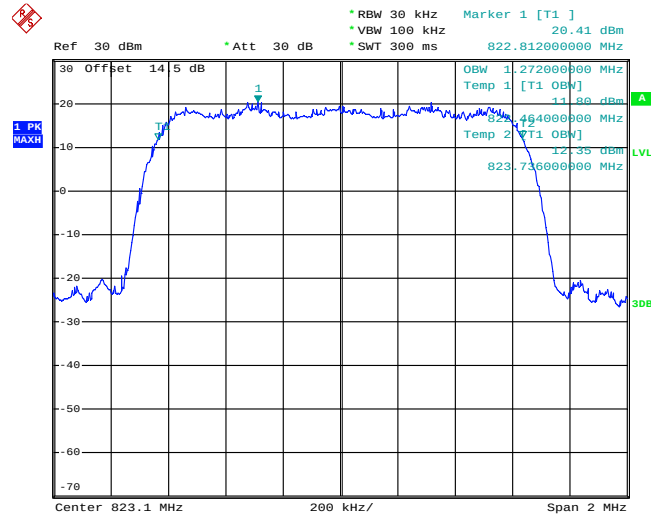
Date: 1.JUL.2015 19:00:53

**99% Occupied Bandwidth Plot on Channel 580 (820.5MHz)**


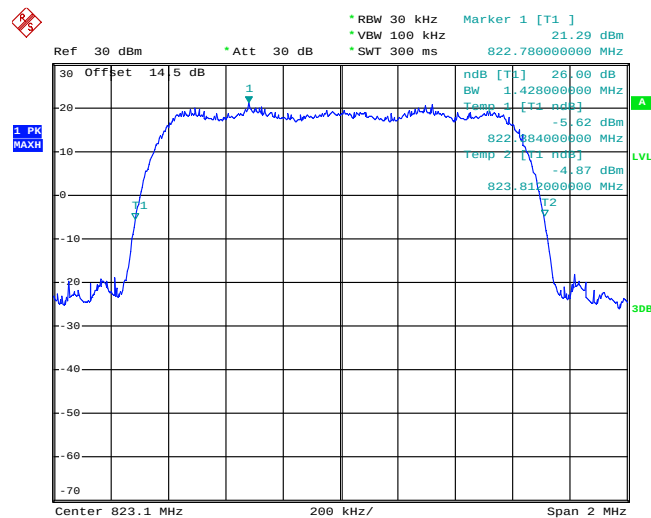
Date: 1.JUL.2015 18:57:20

**26dB Bandwidth Plot on Channel 580 (820.5MHz)**


Date: 1.JUL.2015 19:00:14

**99% Occupied Bandwidth Plot on Channel 684 (823.1MHz)**


Date: 1.JUL.2015 18:58:05

**26dB Bandwidth Plot on Channel 684 (823.1MHz)**


Date: 1.JUL.2015 18:59:33

### 3.3 Emissions Mask Measurement

#### 3.3.1 Description of Emissions Mask Measurement

Equipment used in this licensed to EA or non-EA systems shall comply with the emission mask provisions of FCC Part 90.691.(a)(1)

(a). Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

- (1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least  $116 \log_{10}(f/6.1)$  decibels or  $50 + 10 \log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

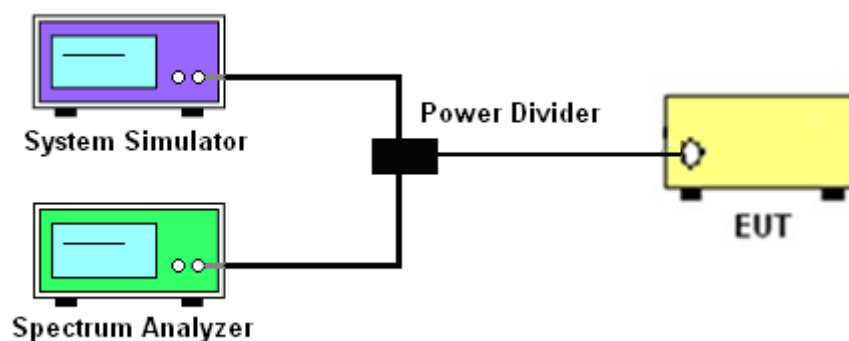
#### 3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 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 emissions mask of low and high channels for the highest RF powers were measured.
3. The RBW was set 1% of 99% Occupied Bandwidth, and VBW was set 3 times of RBW.
4. The final test results were shown below plots with a correction offset factor including cable loss, insertion loss of power divider.

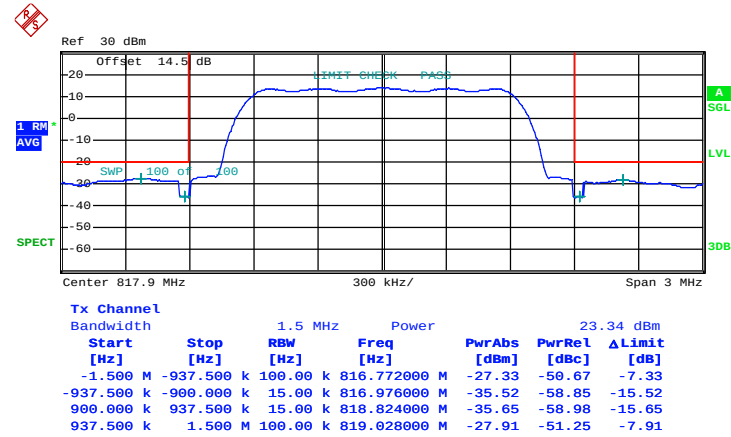
#### 3.3.4 Test Setup



## 3.3.5 Test Result (Plots) of Conducted Emissions Mask

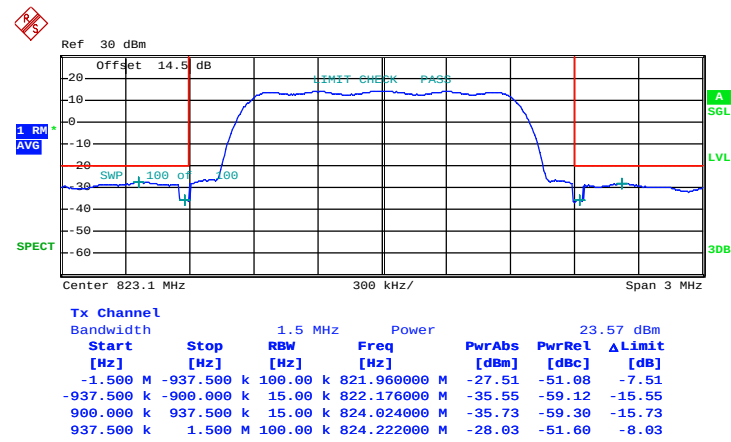
|        |               |             |                |
|--------|---------------|-------------|----------------|
| Band : | CDMA2000 BC10 | Test Mode : | 1xRTT_RC3+SO55 |
|--------|---------------|-------------|----------------|

### Lower Band Edge Plot on Channel 476 (817.9MHz)



Date: 1.JUL.2015 18:36:09

## Higher Band Edge Plot on Channel 684 (823.1MHz)



Date: 1.JUL.2015 18:37:20

### 3.4 Emissions Mask – Out Of Band Emissions Measurement

#### 3.4.1 Description of Conducted Emissions Out of band emissions measurement

The power of any emission FCC Part 90.691 (a)(2) on any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth 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  $10^{\text{th}}$  harmonic.

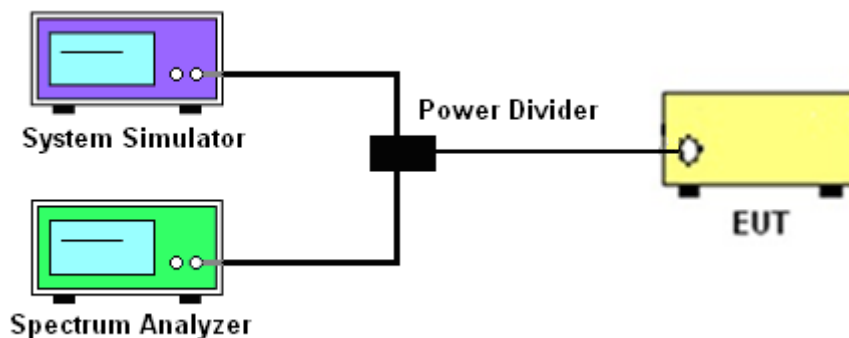
#### 3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 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 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.
4. The final test results were shown below plots with a correction offset factor including cable loss, insertion loss of power divider.

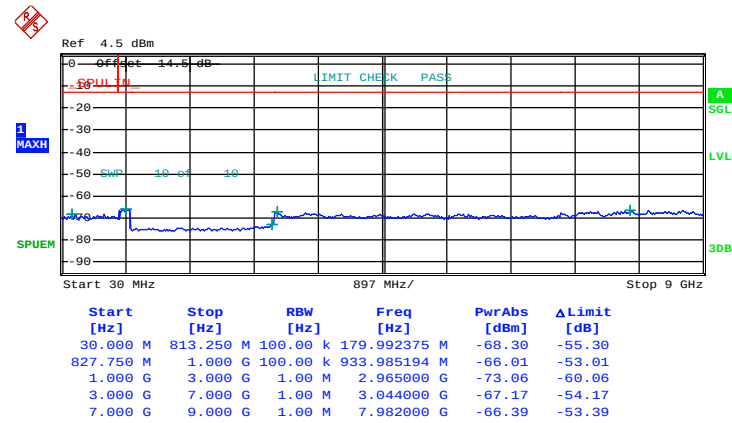
#### 3.4.4 Test Setup



### 3.4.5 Test Result (Plots) of Conducted Emission

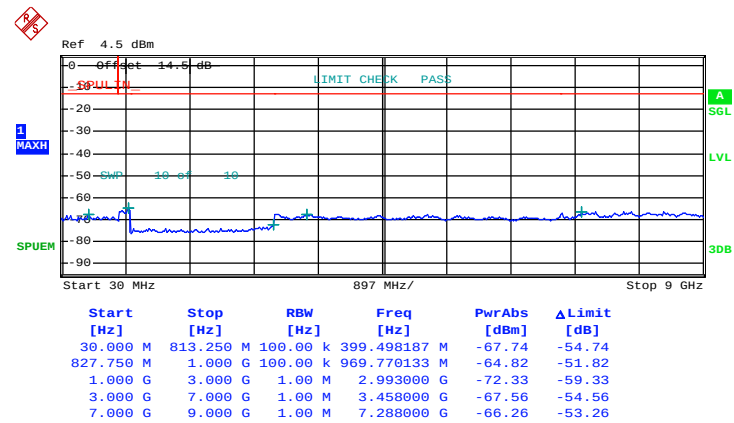
|        |               |             |                |
|--------|---------------|-------------|----------------|
| Band : | CDMA2000 BC10 | Test Mode : | 1xRTT_RC3+SO55 |
|--------|---------------|-------------|----------------|

Conducted Emission Plot between on Channel 476 (817.9MHz)



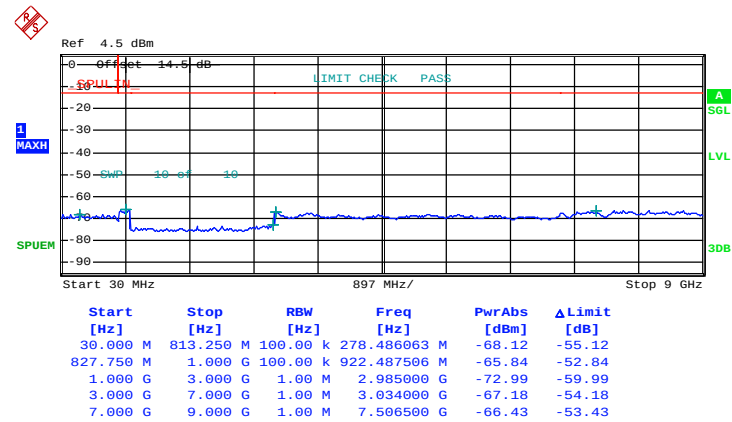
Date: 23.JUL.2015 10:42:05

## Conducted Emission Plot between on Channel 580 (820.5MHz)



Date: 23.JUL.2015 10:42:57

## Conducted Emission Plot between on Channel 684 (823.1MHz)



Date: 23.JUL.2015 10:43:40

### 3.5 Field Strength of Spurious Radiation Measurement

#### 3.5.1 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 FCC Part 90.691 on any frequency removed from the assigned frequency by more than 250 percent of the authorized bandwidth at least  $43 + 10 \log (P)$  dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

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.

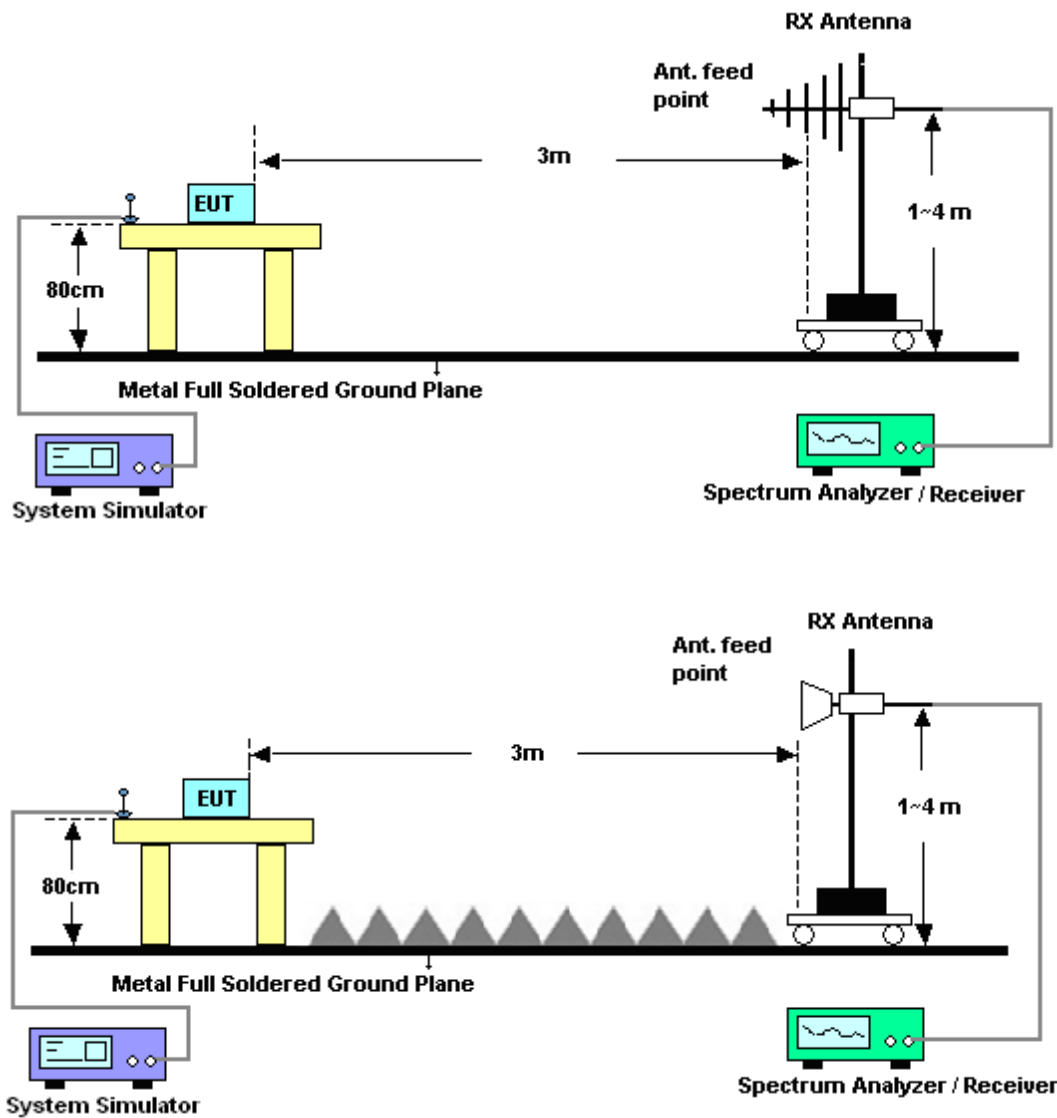
#### 3.5.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

#### 3.5.3 Test Procedures

1. The EUT was placed on a rotatable wooden table with 0.8 meter about 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, Sweep = 500ms, 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.  $\text{ERP (dBm)} = \text{EIRP} - 2.15$
12. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
13. The limit line is derived from  $43 + 10 \log(P)$  dB below the transmitter power P(Watts)  
 $= P(W) - [43 + 10 \log(P)] \text{ (dB)}$   
 $= [30 + 10 \log(P)] \text{ (dBm)} - [43 + 10 \log(P)] \text{ (dB)}$   
 $= -13 \text{ dBm}.$

### 3.5.4 Test Setup



**3.5.5 Test Result of Field Strength of Spurious Radiated**

|                 |                                                                                  |                     |            |         |         |          |            |              |        |
|-----------------|----------------------------------------------------------------------------------|---------------------|------------|---------|---------|----------|------------|--------------|--------|
| Band :          | CDMA2000 BC10                                                                    | Temperature :       | 23~25°C    |         |         |          |            |              |        |
| Test Mode :     | 1xRTT_RC3+SO55                                                                   | Relative Humidity : | 48~52%     |         |         |          |            |              |        |
| Test Engineer : | Sam Li                                                                           | Polarization :      | Horizontal |         |         |          |            |              |        |
| Remark :        | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |                     |            |         |         |          |            |              |        |
| Frequency       | ERP                                                                              | Limit               | Over       | SPA     | S.G.    | TX Cable | TX Antenna | Polarization | Result |
| ( MHz )         | ( dBm )                                                                          | ( dBm )             | Limit      | Reading | Power   | loss     | Gain       | (H/V)        |        |
| ( dB )          | ( dB )                                                                           | ( dB )              | ( dB )     | (dBm)   | ( dBm ) | ( dB )   | (dBi)      |              |        |
| 1641            | -40.89                                                                           | -13                 | -27.89     | -57.49  | -43.86  | 0.88     | 6.00       | H            | Pass   |
| 2461.5          | -46.41                                                                           | -13                 | -33.41     | -69.13  | -49.02  | 1.08     | 5.84       | H            | Pass   |
| 3282            | -58.03                                                                           | -13                 | -45.03     | -68.63  | -62.40  | 1.14     | 7.66       | H            | Pass   |

|                 |                                                                                  |                     |          |         |         |          |            |              |        |
|-----------------|----------------------------------------------------------------------------------|---------------------|----------|---------|---------|----------|------------|--------------|--------|
| Band :          | CDMA2000 BC10                                                                    | Temperature :       | 23~25°C  |         |         |          |            |              |        |
| Test Mode :     | 1xRTT_RC3+SO55                                                                   | Relative Humidity : | 48~52%   |         |         |          |            |              |        |
| Test Engineer : | Sam Li                                                                           | Polarization :      | Vertical |         |         |          |            |              |        |
| Remark :        | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |                     |          |         |         |          |            |              |        |
| Frequency       | ERP                                                                              | Limit               | Over     | SPA     | S.G.    | TX Cable | TX Antenna | Polarization | Result |
| ( MHz )         | ( dBm )                                                                          | ( dBm )             | Limit    | Reading | Power   | loss     | Gain       |              |        |
|                 |                                                                                  |                     | ( dB )   | (dBm)   | ( dBm ) | ( dB )   | (dBi)      | (H/V)        |        |
| 1641            | -40.53                                                                           | -13                 | -27.53   | -54.10  | -43.50  | 0.88     | 6.00       | V            | Pass   |
| 2461.5          | -47.28                                                                           | -13                 | -34.28   | -68.06  | -49.89  | 1.08     | 5.84       | V            | Pass   |
| 3282            | -57.10                                                                           | -13                 | -44.10   | -68.93  | -61.47  | 1.14     | 7.66       | V            | Pass   |

### 3.6 Frequency Stability Measurement

#### 3.6.1 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 according to FCC Part 90.213.

#### 3.6.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

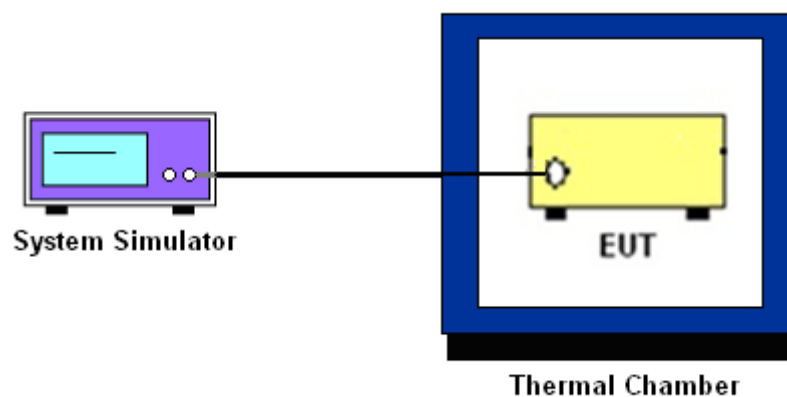
#### 3.6.3 Test Procedures for Temperature Variation

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 for three hours. 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.

#### 3.6.4 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.

### 3.6.5 Test Setup



### 3.6.6 Test Result of Temperature Variation

|                    |                |                      |     |
|--------------------|----------------|----------------------|-----|
| <b>Band :</b>      | CDMA2000 BC10  | <b>Channel :</b>     | 580 |
| <b>Test Mode :</b> | 1xRTT_RC3+SO55 | <b>Limit (ppm) :</b> | 2.5 |

| Temperature (°C) | Deviation (ppm) | Result |
|------------------|-----------------|--------|
| 50               | 0.0073          | PASS   |
| 40               | 0.0037          |        |
| 30               | 0.0024          |        |
| 20(Ref.)         | 0.0000          |        |
| 10               | 0.0024          |        |
| 0                | 0.0012          |        |
| -10              | 0.0037          |        |
| -20              | 0.0049          |        |
| -30              | 0.0085          |        |

**3.6.7 Test Result of Voltage Variation**

| Band & Channel         | Mode           | Voltage (Volt) | Deviation (ppm) | Limit (ppm) | Result |
|------------------------|----------------|----------------|-----------------|-------------|--------|
| CDMA2000 BC10<br>CH580 | 1xRTT_RC3+SO55 | 4.2            | 0.0012          | 2.5         | PASS   |
|                        |                | 3.7            | 0.0000          |             |        |
|                        |                | BEP            | 0.0012          |             |        |

**Note:**

1. Normal Voltage = 3.7V.
2. Battery End Point (BEP) = 3.6 V.
3. The manufacturer declared that the EUT could work properly between voltage 3.6V ~ 4.2V.

## 4 List of Measuring Equipment

| Instrument                | Manufacturer         | Model No. | Serial No.   | Characteristics           | Calibration Date | Test Date                       | Due Date      | Remark                |
|---------------------------|----------------------|-----------|--------------|---------------------------|------------------|---------------------------------|---------------|-----------------------|
| Spectrum Analyzer         | R&S                  | FSP30     | 101400       | 9kHz~40GHz                | Jan. 28, 2015    | Jul. 01, 2015~<br>Jul. 23, 2015 | Jan. 27, 2016 | Conducted (TH01-SZ)   |
| Thermal Chamber           | Hongzhangroup        | LP-150U   | H2014081803  | -40~+150°C                | Sep. 16, 2014    | Jul. 01, 2015~<br>Jul. 23, 2015 | Sep. 15, 2015 | Conducted (TH01-SZ)   |
| EMI Test Receiver&SA      | Agilent Technologies | N9038A    | MY52260185   | 20Hz~26.5GHz              | May 26, 2015     | Jul. 09, 2015                   | May 25, 2016  | Radiation (03CH01-SZ) |
| Spectrum Analyzer         | R&S                  | FSV40     | 101041       | 10kHz~40GHz;Ma<br>x 30dBm | Sep. 25, 2014    | Jul. 09, 2015                   | Sep. 24, 2015 | Radiation (03CH01-SZ) |
| Bilog Antenna             | TeseQ                | CBL6112D  | 23188        | 30MHz~2GHz                | Nov. 07, 2014    | Jul. 09, 2015                   | Nov. 06, 2015 | Radiation (03CH01-SZ) |
| Double Ridge Horn Antenna | ETS-Lindgren         | 3117      | 00119436     | 1GHz~18GHz                | Oct. 15, 2014    | Jul. 09, 2015                   | Oct. 14, 2015 | Radiation (03CH01-SZ) |
| SHF-EHF Horn              | com-power            | AH-840    | 101071       | 18GHz~40GHz               | Sep. 04, 2014    | Jul. 09, 2015                   | Sep. 03, 2015 | Radiation (03CH01-SZ) |
| Amplifier                 | ADVANTEST            | BB525C    | E9007003     | 9kHz~3000MHz /<br>30 dB   | Jan. 28, 2015    | Jul. 09, 2015                   | Jan. 27, 2016 | Radiation (03CH01-SZ) |
| Amplifier                 | Yiai                 | AV3860B   | 04030        | 2GHz~26.5GHz              | May 05, 2015     | Jul. 09, 2015                   | May 04, 2016  | Radiation (03CH01-SZ) |
| Amplifier                 | Agilent Technologies | 83017A    | MY39501302   | 500MHz~26.5GHz            | Jan. 28, 2015    | Jul. 09, 2015                   | Jan. 27, 2016 | Radiation (03CH01-SZ) |
| AC Power Source           | Chroma               | 61601     | 616010001985 | N/A                       | NCR              | Jul. 09, 2015                   | NCR           | Radiation (03CH01-SZ) |
| Turn Table                | EM                   | EM1000    | N/A          | 0~360 degree              | NCR              | Jul. 09, 2015                   | NCR           | Radiation (03CH01-SZ) |
| Antenna Mast              | EM                   | EM1000    | N/A          | 1 m~4 m                   | NCR              | Jul. 09, 2015                   | NCR           | Radiation (03CH01-SZ) |

## 5 Uncertainty of Evaluation

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

|                                                                             |       |
|-----------------------------------------------------------------------------|-------|
| Measuring Uncertainty for a Level of<br>Confidence of 95% ( $U = 2U_c(y)$ ) | 3.9dB |
|-----------------------------------------------------------------------------|-------|