

# FCC RF Test Report

APPLICANT : ZTE CORPORATION  
EQUIPMENT : CDMA-LTE Dual-Mode Digital Mobile Phone  
BRAND NAME : ZTE  
MODEL NAME : Z932L  
FCC ID : Q78-Z932L  
STANDARD : 47 CFR Part 2, 27F  
CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Apr. 27, 2013 and completely tested on Jun. 02, 2013. 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:



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Jones Tsai / Manager



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

## TABLE OF CONTENTS

|                                                                           |           |
|---------------------------------------------------------------------------|-----------|
| REVISION HISTORY.....                                                     | 3         |
| SUMMARY OF TEST RESULT .....                                              | 4         |
| <b>1 GENERAL DESCRIPTION .....</b>                                        | <b>5</b>  |
| 1.1 Applicant.....                                                        | 5         |
| 1.2 Manufacturer.....                                                     | 5         |
| 1.3 Feature of Equipment Under Test .....                                 | 5         |
| 1.4 Emission Designator and Maximum ERP Power .....                       | 6         |
| 1.5 Testing Site.....                                                     | 7         |
| 1.6 Applied Standards .....                                               | 7         |
| 1.7 Ancillary Equipment List .....                                        | 7         |
| <b>2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST .....</b>                 | <b>8</b>  |
| 2.1 Test Mode.....                                                        | 8         |
| 2.2 Connection Diagram of Test System.....                                | 9         |
| <b>3 TEST RESULT.....</b>                                                 | <b>10</b> |
| 3.1 Conducted Output Power and Effective Radiated Power Measurement ..... | 10        |
| 3.2 Peak-to-Average Ratio .....                                           | 16        |
| 3.3 Occupied Bandwidth and 26dB Bandwidth Measurement .....               | 20        |
| 3.4 Band Edge Measurement.....                                            | 26        |
| 3.5 Conducted Spurious Emission Measurement .....                         | 31        |
| 3.6 Field Strength of Spurious Radiation Measurement.....                 | 40        |
| 3.7 Frequency Stability Measurement.....                                  | 46        |
| <b>4 LIST OF MEASURING EQUIPMENT .....</b>                                | <b>49</b> |
| <b>5 UNCERTAINTY OF EVALUATION .....</b>                                  | <b>50</b> |
| <b>APPENDIX A. PHOTOGRAPHS OF EUT</b>                                     |           |
| <b>APPENDIX B. SETUP PHOTOGRAPHS</b>                                      |           |

## REVISION HISTORY

| REPORT NO. | VERSION | DESCRIPTION             | ISSUED DATE   |
|------------|---------|-------------------------|---------------|
| FG342701B  | Rev. 01 | Initial issue of report | Jun. 07, 2013 |
|            |         |                         |               |
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## SUMMARY OF TEST RESULT

| Report Section | FCC Rule                                | Description                                  | Limit                                                                                                    | Result | Remark                                     |
|----------------|-----------------------------------------|----------------------------------------------|----------------------------------------------------------------------------------------------------------|--------|--------------------------------------------|
| 3.1            | §2.1046                                 | Conducted Output Power                       | NA                                                                                                       | PASS   | -                                          |
| 3.1            | §27.50(b)(10)                           | Effective Radiated Power                     | < 3 Watts                                                                                                | PASS   | -                                          |
| 3.2            | §27.50(d)(5)                            | Peak-to-Average Ratio                        | < 13 dB                                                                                                  | PASS   |                                            |
| 3.3            | §2.1049                                 | Occupied Bandwidth                           | NA                                                                                                       | PASS   | -                                          |
| 3.4            | §2.1049<br>§27.53(c)(4)                 | Conducted Band Edge Measurement              | < $65 + 10 \log_{10}(P[\text{Watts}])$ in a 6.25 KHz bandwidth for emissions in the 763 ~ 805 MHz bands. | PASS   | -                                          |
| 3.5            | §2.1051<br>§27.53(c)                    | Conducted Spurious Emission                  | < $43 + 10 \log_{10}(P[\text{Watts}])$                                                                   | PASS   | -                                          |
| 3.6            | §2.1053<br>§27.53(c)(2)<br>§27.53(c)(4) | Field Strength of Spurious Radiation         | < $43 + 10 \log_{10}(P[\text{Watts}])$                                                                   | PASS   | Under limit<br>40.95 dB at<br>3128.000 MHz |
| 3.7            | §2.1055<br>§27.54                       | Frequency Stability<br>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, 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-LTE Dual-Mode Digital Mobile Phone                        |
| Brand Name                      | ZTE                                                            |
| Model Name                      | Z932L                                                          |
| FCC ID                          | Q78-Z932L                                                      |
| EUT supports Radios application | CDMA/EV-DO/LTE/WLAN 11bgn/ Bluetooth EDR/<br>Bluetooth v4.0-LE |
| HW Version                      | Z932LHWV1.1                                                    |
| SW Version                      | Z932LV3.0                                                      |
| 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 Range                                | 779.5 MHz ~ 784.5 MHz |
| Rx Frequency Range                                | 748.5 MHz ~ 753.5 MHz |
| Bandwidth                                         | 5MHz / 10MHz          |
| Maximum Output Power to Antenna                   | 23.37 dBm             |
| Antenna Type                                      | PIFA Antenna          |
| Type of Modulation                                | QPSK / 16QAM          |

## 1.4 Emission Designator and Maximum ERP Power

| FCC Rule | System      | Type of Modulation | BW    | Maximum ERP (W) | Frequency Tolerance (% , Hz, ppm) | Emission Designator |
|----------|-------------|--------------------|-------|-----------------|-----------------------------------|---------------------|
| Part 27F | LTE Band 13 | QPSK               | 5MHz  | 0.1807          | 0.015 ppm                         | 4M50G7D             |
| Part 27F | LTE Band 13 | 16QAM              | 5MHz  | 0.1400          | 0.015 ppm                         | 4M52D7W             |
| Part 27F | LTE Band 13 | QPSK               | 10MHz | 0.1694          | 0.013 ppm                         | 9M16G7D             |
| Part 27F | LTE Band 13 | 16QAM              | 10MHz | 0.1387          | 0.014 ppm                         | 9M12D7W             |

## 1.5 Testing Site

|                           |                                                                                                                  |           |                                |
|---------------------------|------------------------------------------------------------------------------------------------------------------|-----------|--------------------------------|
| <b>Test Site</b>          | SPORTON INTERNATIONAL (KUNSHAN) INC.                                                                             |           |                                |
| <b>Test Site Location</b> | No. 3-2, PingXiang Road, Kunshan, Jiangsu Province, P.R.C.<br>TEL: +86-0512-5790-0158<br>FAX: +86-0512-5790-0958 |           |                                |
| <b>Test Site No.</b>      | <b>Sporton Site No.</b>                                                                                          |           | <b>FCC/IC Registration No.</b> |
|                           | 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:

- ♦ 47 CFR Part 2, 27F
- ♦ ANSI / TIA / EIA-603-C-2004
- ♦ FCC KDB 971168 D01 Power Meas. License Digital Systems v01

### 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 | Anritsu    | MT-8820C  | 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

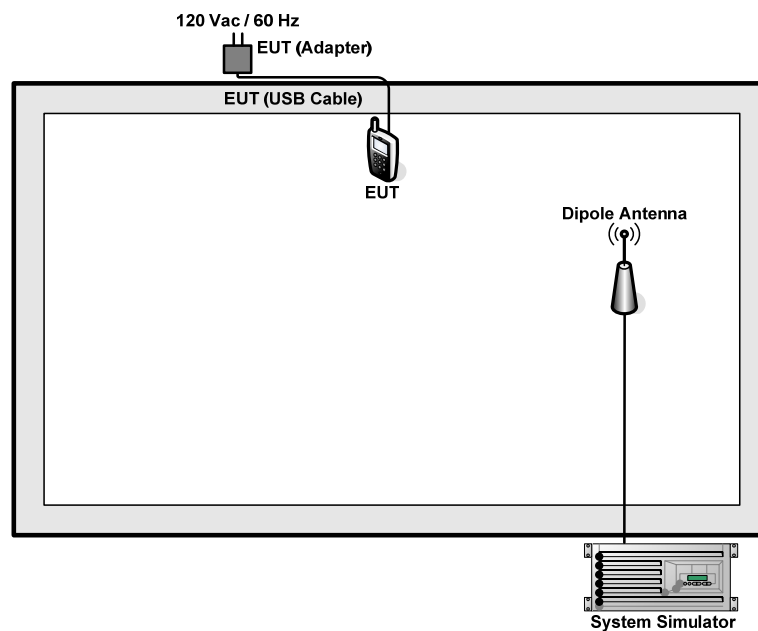
### 2.1 Test Mode

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.

1. 30 MHz to 9000 MHz LTE Band 13.

| Test Modes     |             |                                                                                            |                                                                                                                                                                                                                                                                                                                                                                             |
|----------------|-------------|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Band           |             | Radiated TCs                                                                               | Conducted TCs                                                                                                                                                                                                                                                                                                                                                               |
| LTE<br>Band 13 | BW<br>5MHz  | <ul style="list-style-type: none"> <li>■ LTE (RB Size 1, RB Offset 0) QPSK Link</li> </ul> | <ul style="list-style-type: none"> <li>■ LTE (RB Size 1, RB Offset 0) Link</li> <li>■ LTE (RB Size 1, RB Offset 12) Link</li> <li>■ LTE (RB Size 1, RB Offset 24) Link</li> <li>■ LTE (RB Size 12, RB Offset 0) Link</li> <li>■ LTE (RB Size 12, RB Offset 6) Link</li> <li>■ LTE (RB Size 12, RB Offset 11) Link</li> <li>■ LTE (RB Size 25, RB Offset 0) Link</li> </ul>  |
|                | BW<br>10MHz | <ul style="list-style-type: none"> <li>■ LTE (RB Size 1, RB Offset 0) QPSK Link</li> </ul> | <ul style="list-style-type: none"> <li>■ LTE (RB Size 1, RB Offset 0) Link</li> <li>■ LTE (RB Size 1, RB Offset 24) Link</li> <li>■ LTE (RB Size 1, RB Offset 49) Link</li> <li>■ LTE (RB Size 25, RB Offset 0) Link</li> <li>■ LTE (RB Size 25, RB Offset 12) Link</li> <li>■ LTE (RB Size 25, RB Offset 24) Link</li> <li>■ LTE (RB Size 50, RB Offset 0) Link</li> </ul> |

## 2.2 Connection Diagram of Test System



### 3 Test Result

#### 3.1 Conducted Output Power and Effective Radiated Power Measurement

##### 3.1.1 Maximum Output Power and Effective Radiated Power Measurement

Effective radiated power output measurements by substitution method according to ANSI / TIA / EIA-603-C-2004, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v01. Mobile and portable (hand-held) stations operating in the 777~787 MHz band are limited to a peak ERP of 3 watt.

##### 3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.1.3 Test Procedures

#### For Conducted Power Measurement:

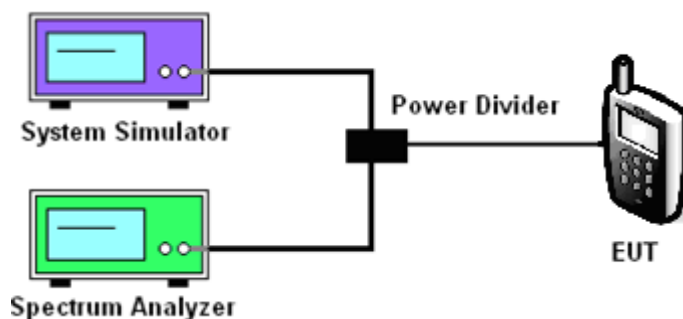
1. The RF output of the transmitter was connected to base station simulator.
2. Set EUT at maximum average power by base station simulator.
3. Measure lowest, middle, and highest channels for each bandwidth and different modulation.

#### For Effective Radiated Power Measurement:

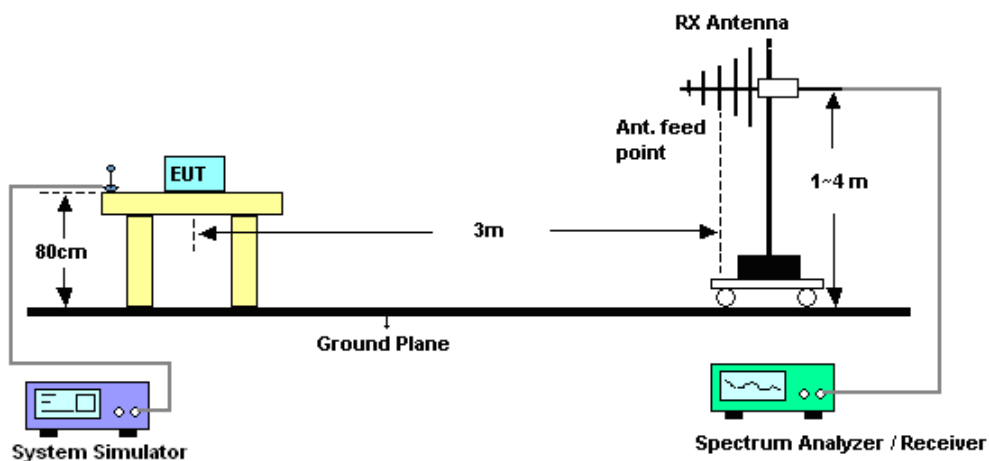
1. The EUT was placed on a turntable with 1.5 meter height in a fully anechoic chamber.
2. The EUT was set at 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. GSM operating modes: Set RBW= 1MHz, VBW= 3MHz, RMS detector over burst;  
UMTS operating modes: Set RBW= 100 KHz, 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.

### 3.1.4 Test Setup

#### <Conducted Power and Band Edge Measurement>



#### <Effective Radiated Power Measurement>



**3.1.5 Test Result of Conducted Output Power**

| Mode           | Band Width | Channel | Frequency (MHz) | Modulation | RB Configuration |           | Average Power (dBm) | Average Power (Watts) |
|----------------|------------|---------|-----------------|------------|------------------|-----------|---------------------|-----------------------|
|                |            |         |                 |            | RB Size          | RB Offset |                     |                       |
| LTE<br>Band 13 | 5MHz       | 23205   | 779.5           | QPSK       | 1                | 0         | 23.28               | 0.2128                |
|                |            |         |                 |            | 1                | 12        | 23.21               | 0.2094                |
|                |            |         |                 |            | 1                | 24        | 23.12               | 0.2051                |
|                |            |         |                 |            | 12               | 0         | 22.28               | 0.1690                |
|                |            |         |                 |            | 12               | 6         | 22.23               | 0.1671                |
|                |            |         |                 |            | 12               | 11        | 22.17               | 0.1648                |
|                |            |         |                 |            | 25               | 0         | 22.22               | 0.1667                |
|                |            |         |                 | 16-QAM     | 1                | 0         | 22.38               | 0.1730                |
|                |            |         |                 |            | 1                | 12        | 22.22               | 0.1667                |
|                |            |         |                 |            | 1                | 24        | 22.36               | 0.1722                |
|                |            |         |                 |            | 12               | 0         | 21.36               | 0.1368                |
|                |            |         |                 |            | 12               | 6         | 21.26               | 0.1337                |
|                |            |         |                 |            | 12               | 11        | 21.19               | 0.1315                |
|                |            |         |                 |            | 25               | 0         | 21.15               | 0.1303                |
|                |            | 23230   | 782             | QPSK       | 1                | 0         | 23.20               | 0.2089                |
|                |            |         |                 |            | 1                | 12        | 23.16               | 0.2070                |
|                |            |         |                 |            | 1                | 24        | 23.15               | 0.2065                |
|                |            |         |                 |            | 12               | 0         | 22.20               | 0.1660                |
|                |            |         |                 |            | 12               | 6         | 22.18               | 0.1652                |
|                |            |         |                 |            | 12               | 11        | 22.11               | 0.1626                |
|                |            |         |                 |            | 25               | 0         | 22.15               | 0.1641                |
|                |            |         |                 | 16-QAM     | 1                | 0         | 22.03               | 0.1596                |
|                |            |         |                 |            | 1                | 12        | 21.99               | 0.1581                |
|                |            |         |                 |            | 1                | 24        | 21.90               | 0.1549                |
|                |            |         |                 |            | 12               | 0         | 21.14               | 0.1300                |
|                |            |         |                 |            | 12               | 6         | 21.22               | 0.1324                |
|                |            |         |                 |            | 12               | 11        | 21.26               | 0.1337                |
|                |            |         |                 |            | 25               | 0         | 21.05               | 0.1274                |
|                |            | 23255   | 784.5           | QPSK       | 1                | 0         | 23.16               | 0.2070                |
|                |            |         |                 |            | 1                | 12        | 23.11               | 0.2046                |
|                |            |         |                 |            | 1                | 24        | 23.05               | 0.2018                |
|                |            |         |                 |            | 12               | 0         | 22.16               | 0.1644                |
|                |            |         |                 |            | 12               | 6         | 22.19               | 0.1656                |
|                |            |         |                 |            | 12               | 11        | 22.24               | 0.1675                |
|                |            |         |                 |            | 25               | 0         | 22.08               | 0.1614                |
|                |            |         |                 | 16-QAM     | 1                | 0         | 22.18               | 0.1652                |
|                |            |         |                 |            | 1                | 12        | 22.15               | 0.1641                |
|                |            |         |                 |            | 1                | 24        | 22.10               | 0.1622                |
|                |            |         |                 |            | 12               | 0         | 21.20               | 0.1318                |
|                |            |         |                 |            | 12               | 6         | 21.17               | 0.1309                |
|                |            |         |                 |            | 12               | 11        | 21.23               | 0.1327                |
|                |            |         |                 |            | 25               | 0         | 21.16               | 0.1306                |

| Mode           | Band Width | Channel | Frequency (MHz) | Modulation | RB Configuration |           | Average Power (dBm) | Average Power (Watts) |
|----------------|------------|---------|-----------------|------------|------------------|-----------|---------------------|-----------------------|
|                |            |         |                 |            | RB Size          | RB Offset |                     |                       |
| LTE<br>Band 13 | 10MHz      | 23230   | 782             | QPSK       | 1                | 0         | 23.37               | 0.2173                |
|                |            |         |                 |            | 1                | 24        | 23.24               | 0.2109                |
|                |            |         |                 |            | 1                | 49        | 23.25               | 0.2113                |
|                |            |         |                 |            | 25               | 0         | 22.26               | 0.1683                |
|                |            |         |                 |            | 25               | 12        | 22.17               | 0.1648                |
|                |            |         |                 |            | 25               | 24        | 22.24               | 0.1675                |
|                |            |         |                 |            | 50               | 0         | 22.15               | 0.1641                |
|                |            |         |                 | 16-QAM     | 1                | 0         | 22.33               | 0.1710                |
|                |            |         |                 |            | 1                | 24        | 22.16               | 0.1644                |
|                |            |         |                 |            | 1                | 49        | 22.25               | 0.1679                |
|                |            |         |                 |            | 25               | 0         | 21.20               | 0.1318                |
|                |            |         |                 |            | 25               | 12        | 21.19               | 0.1315                |
|                |            |         |                 |            | 25               | 24        | 21.08               | 0.1282                |
|                |            |         |                 |            | 50               | 0         | 21.03               | 0.1268                |

**3.1.6 Test Result of ERP**

| LTE Band 13 Radiated Power ERP |                  |            |                  |           |             |           |         |     |
|--------------------------------|------------------|------------|------------------|-----------|-------------|-----------|---------|-----|
| LTE BAND                       | Channel BW (MHz) | Modulation | RB Configuration |           | Freq. (MHz) | ERP (dBm) | ERP (W) | H/V |
|                                |                  |            | RB Size          | RB Offset |             |           |         |     |
| 13                             | 5                | QPSK       | 1                | 0         | 779.5       | 22.30     | 0.1698  | H   |
| 13                             | 5                | QPSK       | 1                | 0         | 782         | 22.20     | 0.1660  | H   |
| 13                             | 5                | QPSK       | 1                | 0         | 784.5       | 22.57     | 0.1807  | H   |
| 13                             | 5                | QPSK       | 1                | 0         | 779.5       | 12.61     | 0.0182  | V   |
| 13                             | 5                | QPSK       | 1                | 0         | 782         | 13.74     | 0.0237  | V   |
| 13                             | 5                | QPSK       | 1                | 0         | 784.5       | 13.36     | 0.0217  | V   |
| 13                             | 5                | 16QAM      | 1                | 0         | 779.5       | 21.04     | 0.1271  | H   |
| 13                             | 5                | 16QAM      | 1                | 0         | 782         | 21.26     | 0.1337  | H   |
| 13                             | 5                | 16QAM      | 1                | 0         | 784.5       | 21.46     | 0.1400  | H   |
| 13                             | 5                | 16QAM      | 1                | 0         | 779.5       | 11.37     | 0.0137  | V   |
| 13                             | 5                | 16QAM      | 1                | 0         | 782         | 12.03     | 0.0160  | V   |
| 13                             | 5                | 16QAM      | 1                | 0         | 784.5       | 12.09     | 0.0162  | V   |
| 13                             | 10               | QPSK       | 1                | 0         | 782         | 22.29     | 0.1694  | H   |
| 13                             | 10               | QPSK       | 1                | 0         | 782         | 12.97     | 0.0198  | V   |
| 13                             | 10               | 16QAM      | 1                | 0         | 782         | 21.42     | 0.1387  | H   |
| 13                             | 10               | 16QAM      | 1                | 0         | 782         | 11.90     | 0.0155  | V   |

## 3.2 Peak-to-Average Ratio

### 3.2.1 Description of the PAR Measurement

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. The following guidelines are offered for performing a CCDF measurement.

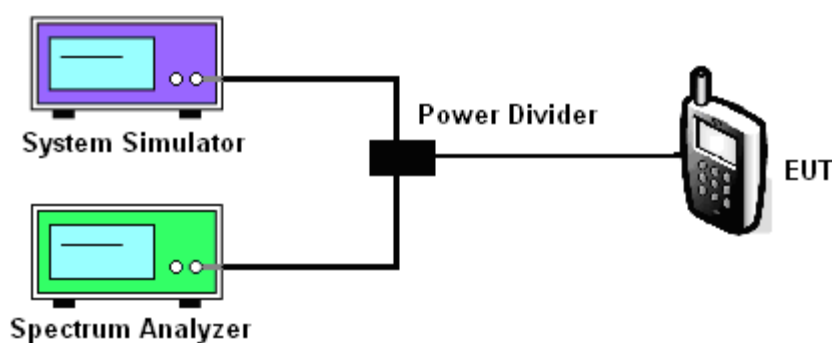
### 3.2.2 Measuring Instruments

See list of measuring instruments 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 CCDF (Complementary Cumulative Distribution Function) of the middle channel for the highest RF powers were measured.

### 3.2.4 Test Setup

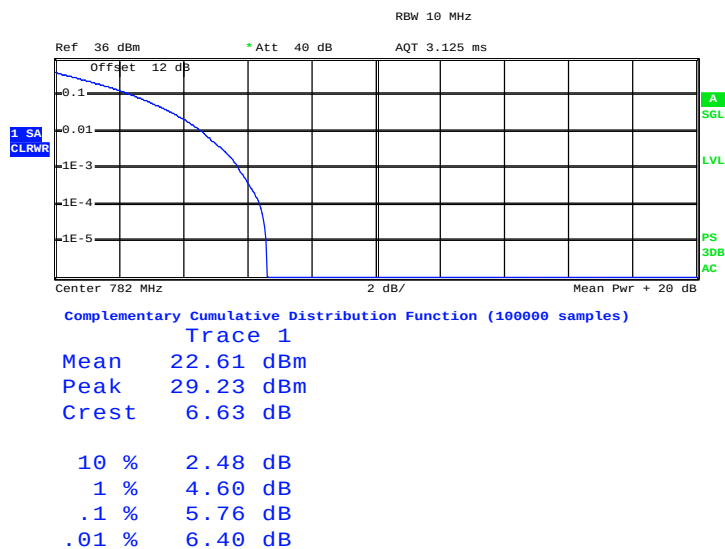


**3.2.5 Test Result of Peak-to-Average Ratio**

| Band        | Band Width | Channel | Frequency (MHz) | Modulation | PAR (dB) |
|-------------|------------|---------|-----------------|------------|----------|
| LTE Band 13 | 5MHz       | 23230   | 782             | QPSK       | 5.76     |
|             |            |         |                 | 16-QAM     | 6.36     |
|             | 10MHz      | 23230   | 782             | QPSK       | 5.52     |
|             |            |         |                 | 16-QAM     | 6.24     |

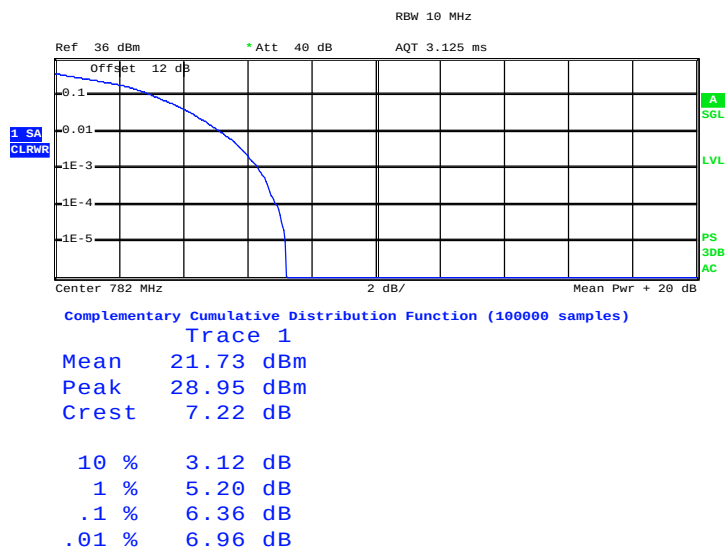
## 3.2.6 Peak to Average Power Ratio

### Peak-to-Average Ratio for QPSK-RB Size 25, RB Offset 0

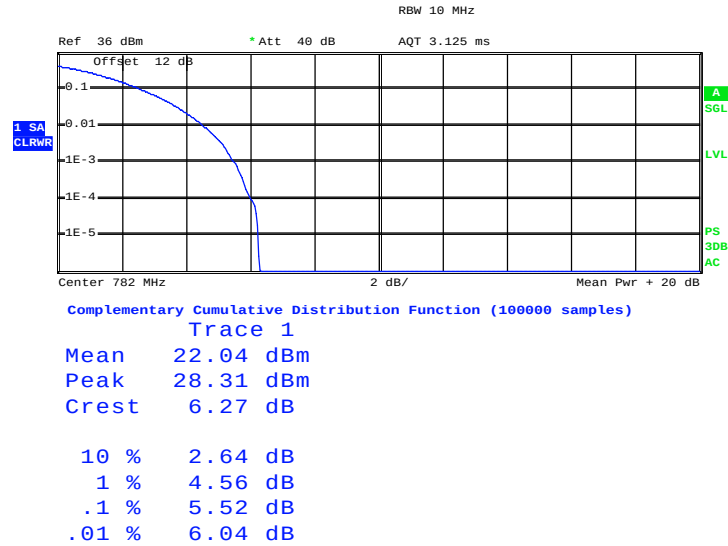


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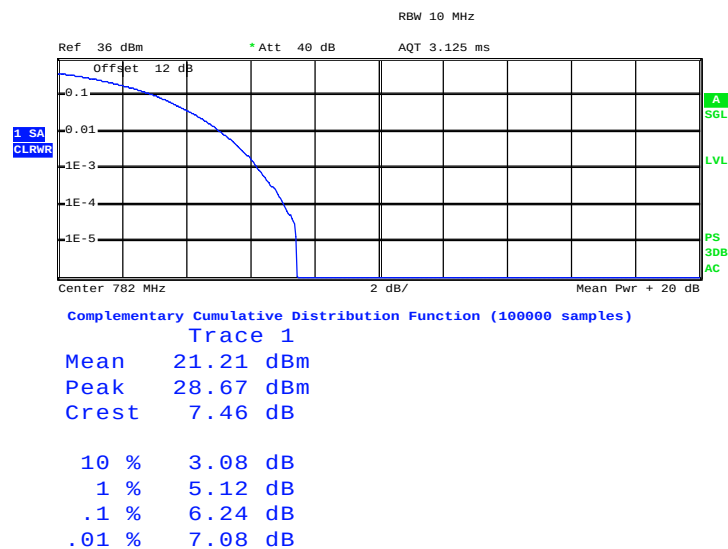
### Peak-to-Average Ratio for 16QAM-RB Size 25, RB Offset 0



Date: 31.MAY.2013 17:15:54

**Peak-to-Average Ratio for QPSK-RB Size 50, RB Offset 0**


Date: 31.MAY.2013 17:16:39

**Peak-to-Average Ratio for 16QAM-RB Size 50, RB Offset 0**


Date: 31.MAY.2013 17:17:03

### 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.

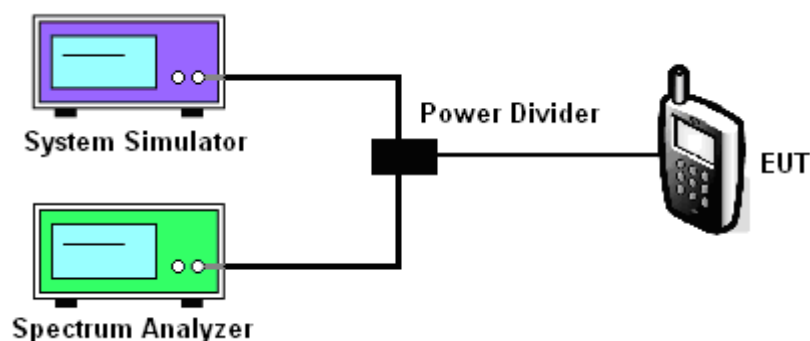
#### 3.3.2 Measuring Instruments

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



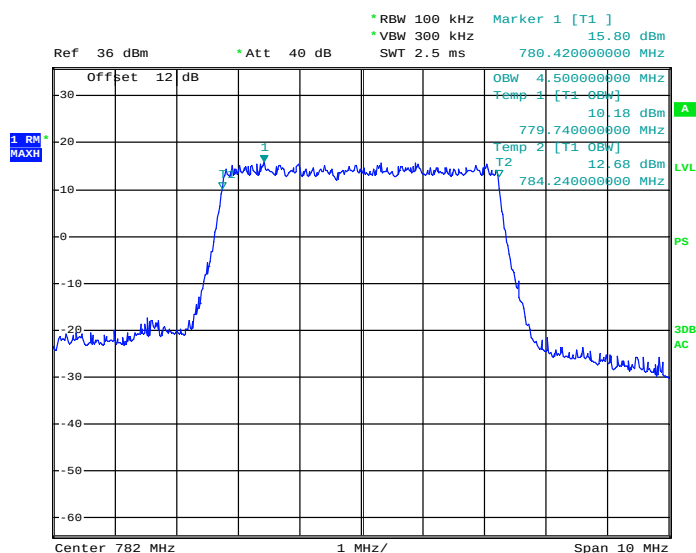
**3.3.5 Test Result of Occupied Bandwidth and 26dB Bandwidth**

| Band        | Band Width | Channel | Frequency (MHz) | Modulation | 99% Bandwidth (MHz) | 26dB Bandwidth (MHz) |
|-------------|------------|---------|-----------------|------------|---------------------|----------------------|
| LTE Band 13 | 5MHz       | 23230   | 782             | QPSK       | 4.50                | 5.14                 |
|             |            |         |                 | 16-QAM     | 4.52                | 5.12                 |
|             | 10MHz      | 23230   | 782             | QPSK       | 9.16                | 10.16                |
|             |            |         |                 | 16-QAM     | 9.12                | 10.04                |

### 3.3.6 Test Result (Plots) of Occupied Bandwidth

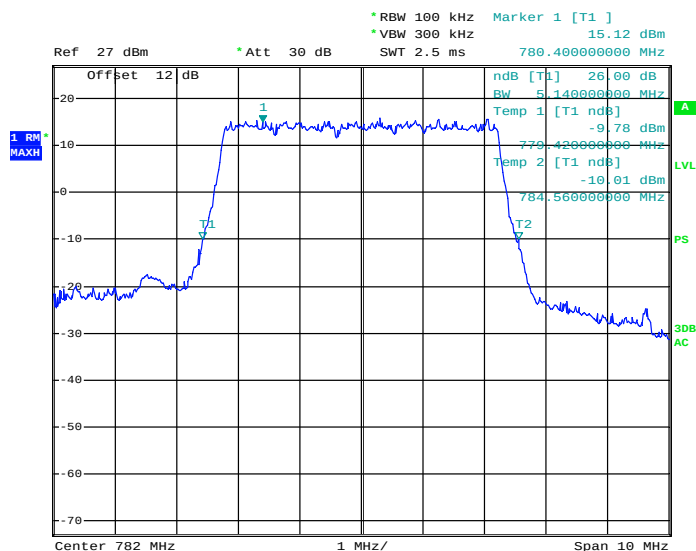
|               |             |                    |             |
|---------------|-------------|--------------------|-------------|
| <b>Band :</b> | LTE Band 13 | <b>BW / Mod. :</b> | 5MHz / QPSK |
|---------------|-------------|--------------------|-------------|

#### 99% Occupied Bandwidth Plot on Channel 23230 for RB Size 25, RB Offset 0



Date: 31.MAY.2013 17:10:35

#### 26dB Bandwidth Plot on Channel 23230 for RB Size 25, RB Offset 0

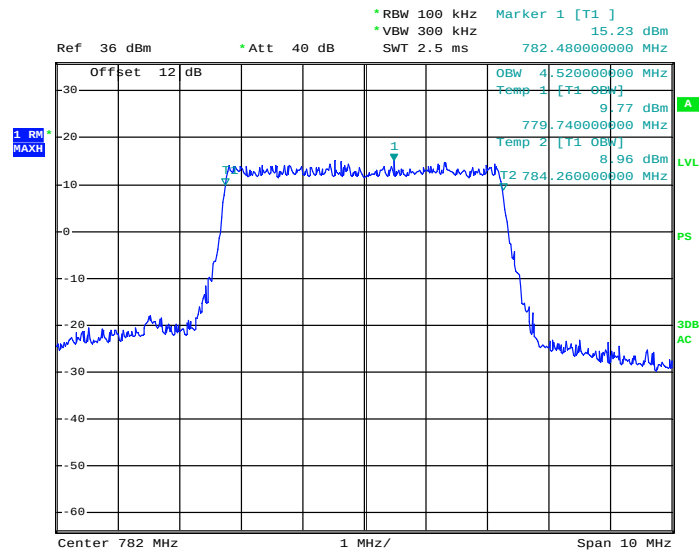


Date: 31.MAY.2013 16:21:52



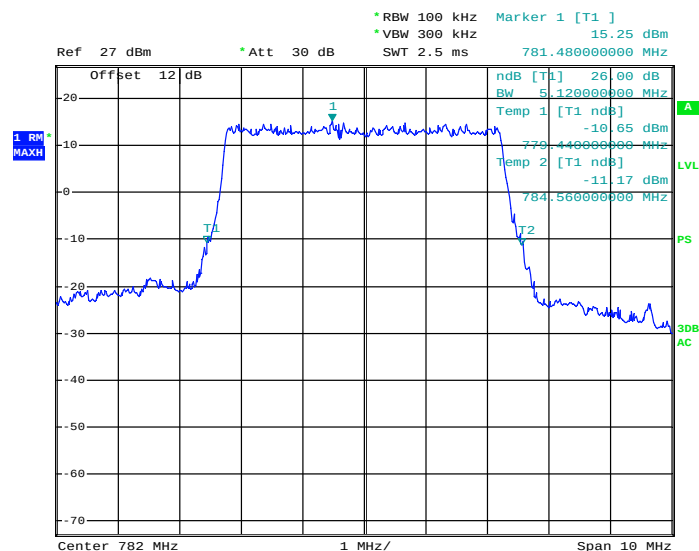
|        |             |             |              |
|--------|-------------|-------------|--------------|
| Band : | LTE Band 13 | BW / Mod. : | 5MHz / 16QAM |
|--------|-------------|-------------|--------------|

99% Occupied Bandwidth Plot on Channel 23230  
for RB Size 25, RB Offset 0



Date: 31.MAY.2013 17:10:54

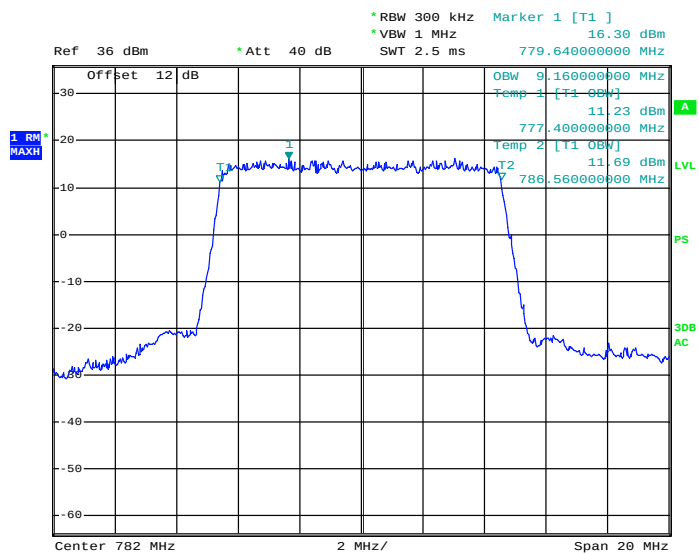
26dB Bandwidth Plot on Channel 23230  
for RB Size 25, RB Offset 0



Date: 31.MAY.2013 16:22:49

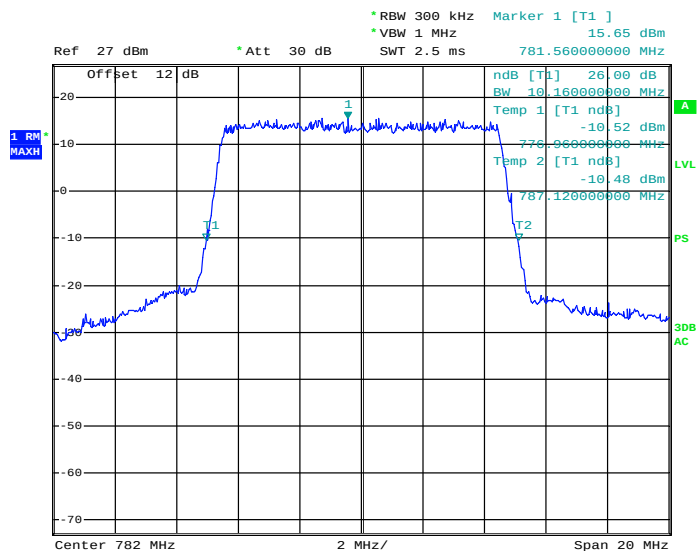
|        |             |             |              |
|--------|-------------|-------------|--------------|
| Band : | LTE Band 13 | BW / Mod. : | 10MHz / QPSK |
|--------|-------------|-------------|--------------|

## 99% Occupied Bandwidth Plot on Channel 23230 for RB Size 50, RB Offset 0



Date: 31.MAY.2013 17:14:09

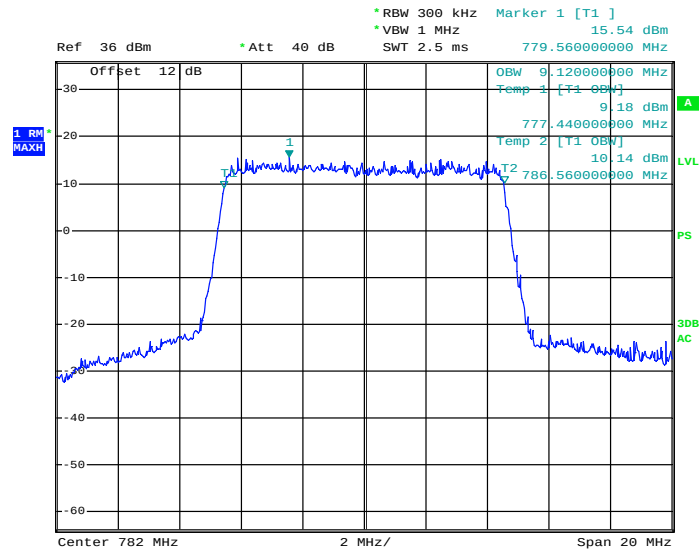
## 26dB Bandwidth Plot on Channel 23230 for RB Size 50, RB Offset 0



Date: 31.MAY.2013 16:24:10

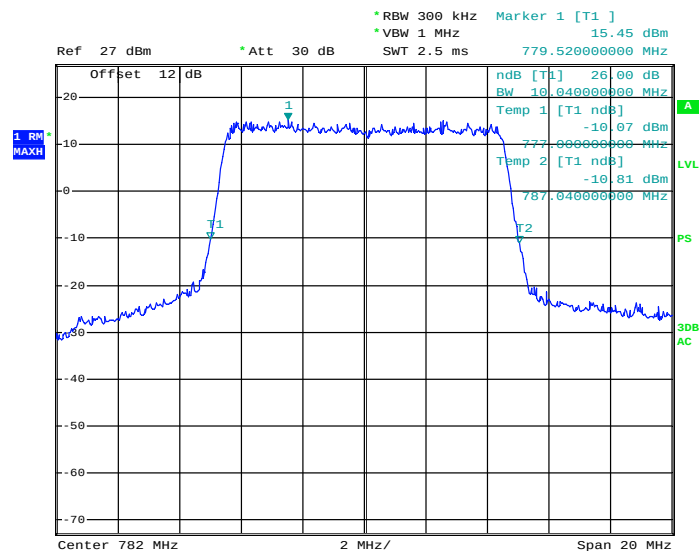
|               |             |                    |               |
|---------------|-------------|--------------------|---------------|
| <b>Band :</b> | LTE Band 13 | <b>BW / Mod. :</b> | 10MHz / 16QAM |
|---------------|-------------|--------------------|---------------|

**99% Occupied Bandwidth Plot on Channel 23230  
for RB Size 50, RB Offset 0**



Date: 31.MAY.2013 17:14:26

**26dB Bandwidth Plot on Channel 23230  
for RB Size 50, RB Offset 0**



Date: 31.MAY.2013 16:23:46

## 3.4 Band Edge Measurement

### 3.4.1 Limit

For operations in band 13, the FCC limit is  
 $65 + 10\log_{10}(P[\text{Watts}]) = -35 \text{ dBm}$  in a 6.25kHz bandwidth.

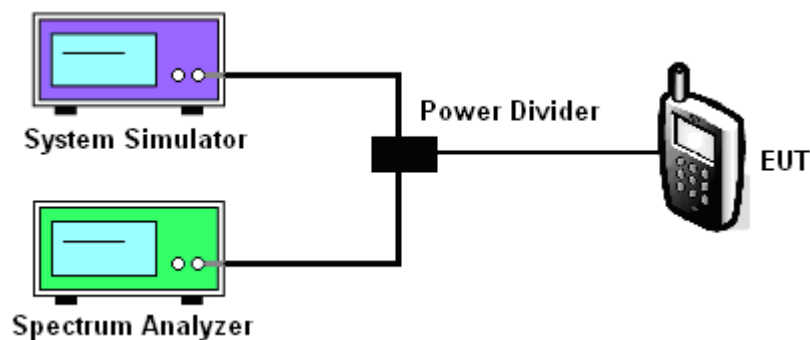
### 3.4.2 Measuring Instruments

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.

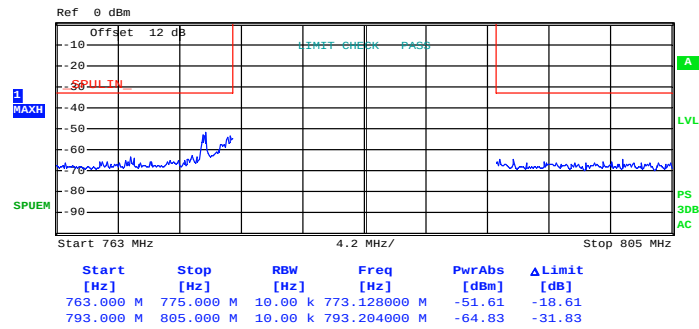
### 3.4.4 Test Setup



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

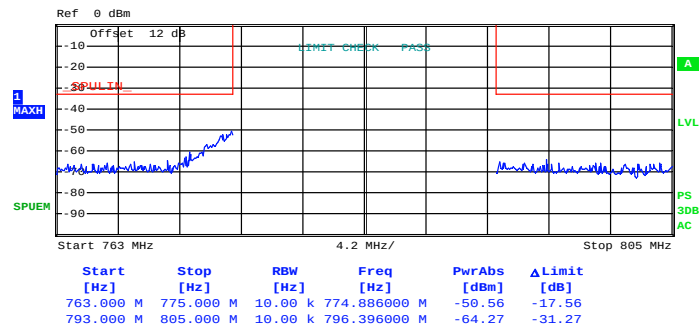
|               |             |                   |             |
|---------------|-------------|-------------------|-------------|
| <b>Band :</b> | LTE Band 13 | <b>Band Width</b> | 5MHz / QPSK |
|---------------|-------------|-------------------|-------------|

**Lower Band Edge Plot for QPSK-RB Size 1, RB Offset 0**



Date: 31.MAY.2013 18:23:27

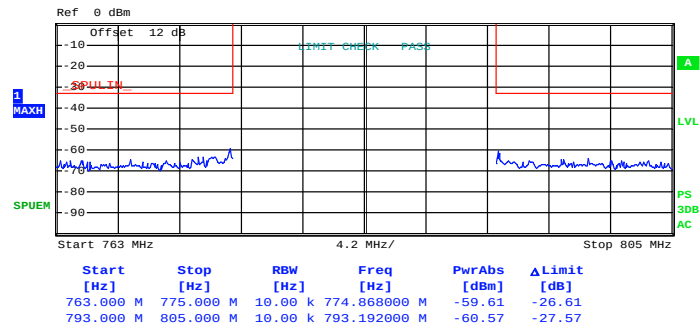
**Lower Band Edge Plot for QPSK-RB Size 25, RB Offset 0**



Date: 31.MAY.2013 18:23:43

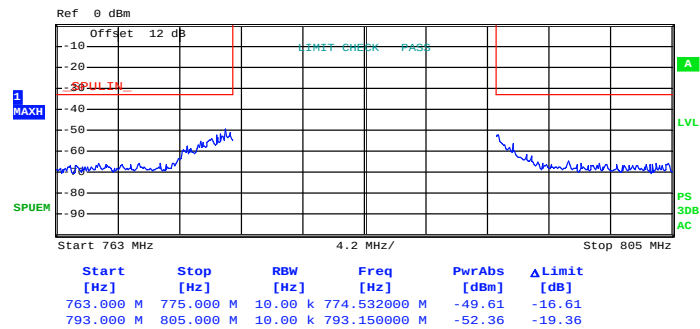


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 24



Date: 31.MAY.2013 18:33:13

Higher Band Edge Plot for QPSK-RB Size 25, RB Offset 0

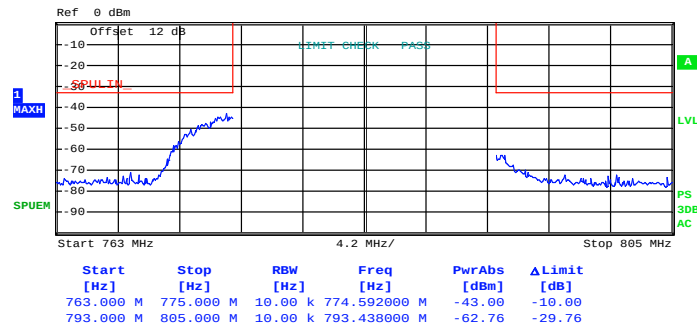


Date: 31.MAY.2013 18:33:32



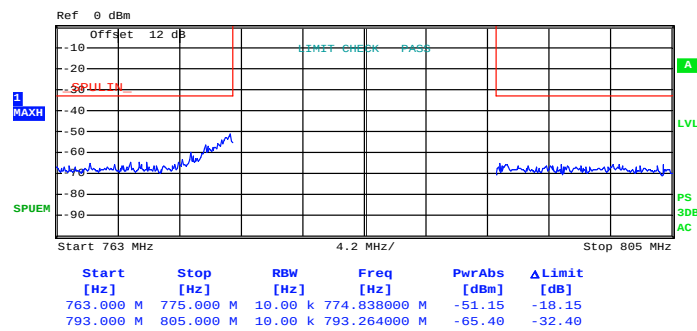
|        |             |            |              |
|--------|-------------|------------|--------------|
| Band : | LTE Band 13 | Band Width | 5MHz / 16QAM |
|--------|-------------|------------|--------------|

Lower Band Edge Plot for 16QAM-RB Size 1, RB Offset 0

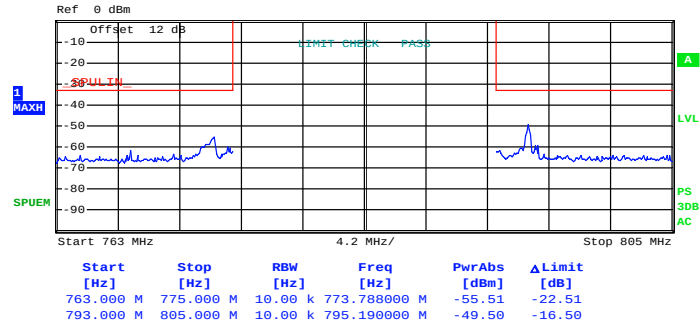


Date: 31.MAY.2013 18:15:14

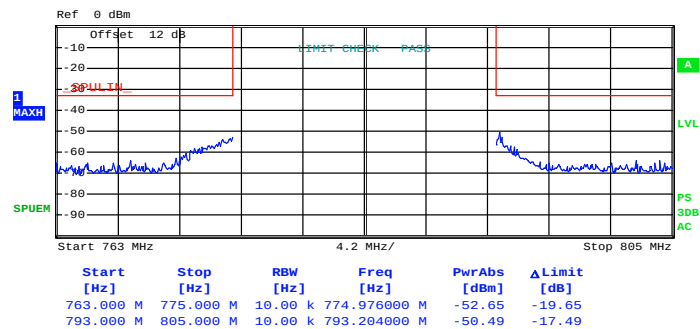
Lower Band Edge Plot for 16QAM-RB Size 25, RB Offset 0



Date: 31.MAY.2013 18:24:00

**Higher Band Edge Plot for 16QAM-RB Size 1, RB Offset 24**


Date: 31.MAY.2013 18:32:56

**Higher Band Edge Plot for 16QAM-RB Size 25, RB Offset 0**


Date: 31.MAY.2013 18:33:44

## 3.5 Conducted Spurious Emission Measurement

### 3.5.1 Description of Conducted Spurious 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.

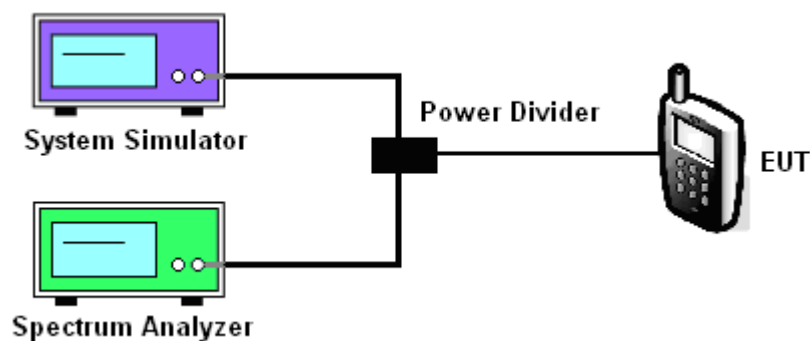
### 3.5.2 Measuring Instruments

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.

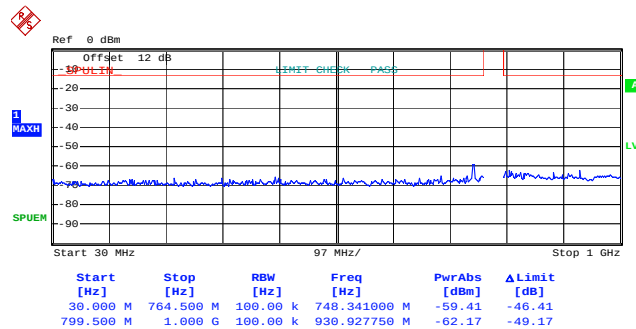
### 3.5.4 Test Setup



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

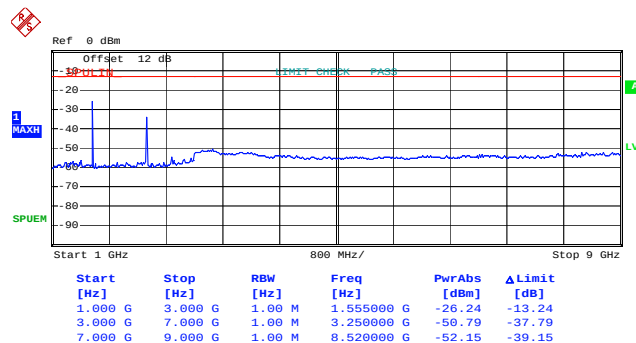
|                    |             |                    |             |
|--------------------|-------------|--------------------|-------------|
| <b>Band :</b>      | LTE Band 13 | <b>BW / Mod. :</b> | 5MHz / QPSK |
| <b>Frequency :</b> | 779.5       | <b>Channel :</b>   | 23205       |

**Conducted Emission Plot (30MHz ~ 1GHz) for  
QPSK (RB Size 1, RB Offset 0)**



Date: 2.JUN.2013 09:57:45

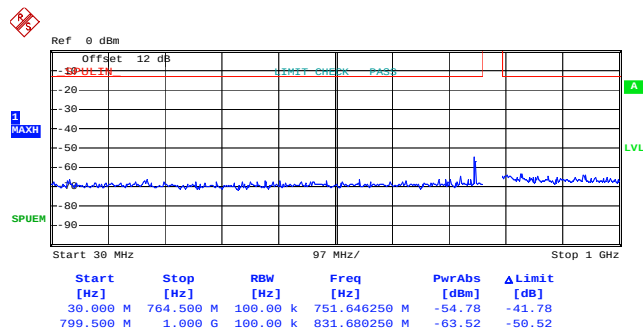
**Conducted Emission Plot (1GHz ~ 9GHz) for  
QPSK (RB Size 1, RB Offset 0)**



Date: 2.JUN.2013 09:56:54

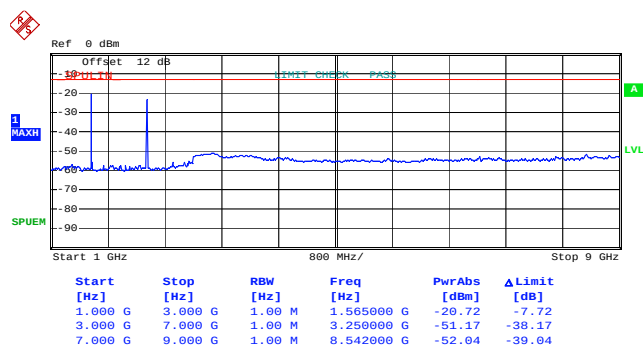
|                    |             |                    |             |
|--------------------|-------------|--------------------|-------------|
| <b>Band :</b>      | LTE Band 13 | <b>BW / Mod. :</b> | 5MHz / QPSK |
| <b>Frequency :</b> | 782         | <b>Channel :</b>   | 23230       |

**Conducted Emission Plot (30MHz ~ 1GHz) for  
QPSK (RB Size 1, RB Offset 0)**



Date: 2.JUN.2013 09:58:07

**Conducted Emission Plot (1GHz ~ 9GHz) for  
QPSK (RB Size 1, RB Offset 0)**

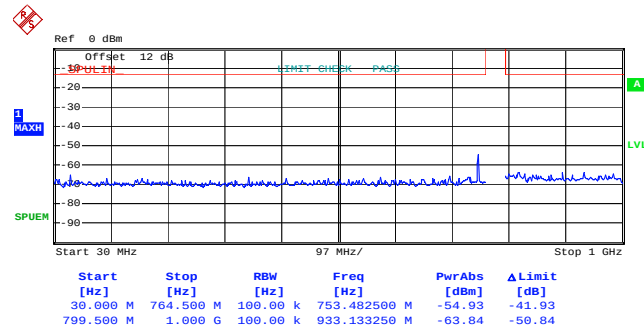


Date: 2.JUN.2013 09:59:44



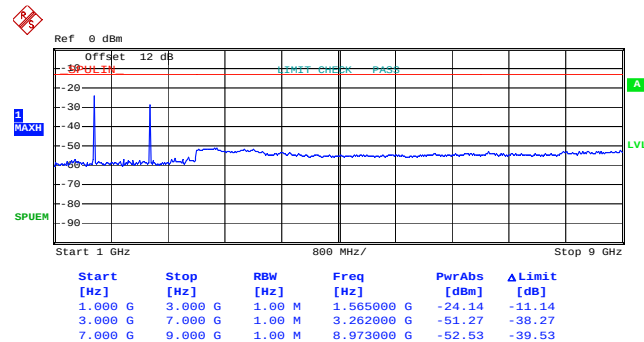
|             |             |             |             |
|-------------|-------------|-------------|-------------|
| Band :      | LTE Band 13 | BW / Mod. : | 5MHz / QPSK |
| Frequency : | 784.5       | Channel :   | 23255       |

Conducted Emission Plot (30MHz ~ 1GHz) for  
QPSK (RB Size 1, RB Offset 0)



Date: 2.JUN.2013 09:53:40

Conducted Emission Plot (1GHz ~ 9GHz) for  
QPSK (RB Size 1, RB Offset 0)

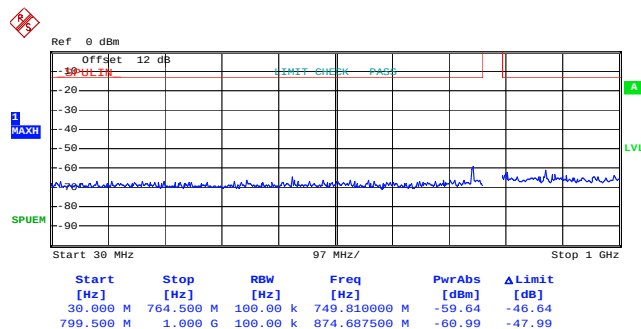


Date: 2.JUN.2013 09:55:05



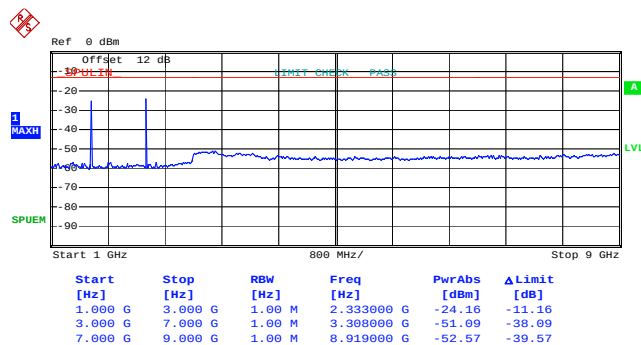
|             |             |             |              |
|-------------|-------------|-------------|--------------|
| Band :      | LTE Band 13 | BW / Mod. : | 5MHz / 16QAM |
| Frequency : | 779.5       | Channel :   | 23205        |

Conducted Emission Plot (30MHz ~ 1GHz) for  
16-QAM (RB Size 1, RB Offset 0)



Date: 2.JUN.2013 09:57:31

Conducted Emission Plot (1GHz ~ 9GHz) for  
16-QAM (RB Size 1, RB Offset 0)

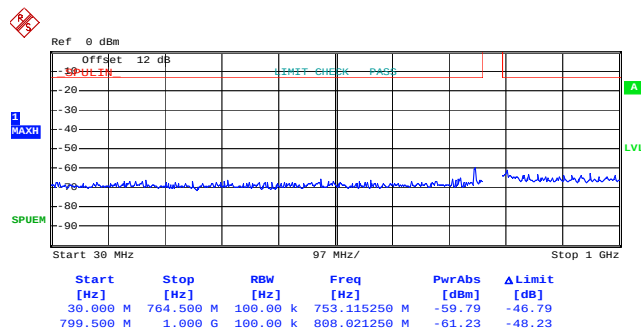


Date: 2.JUN.2013 09:57:09



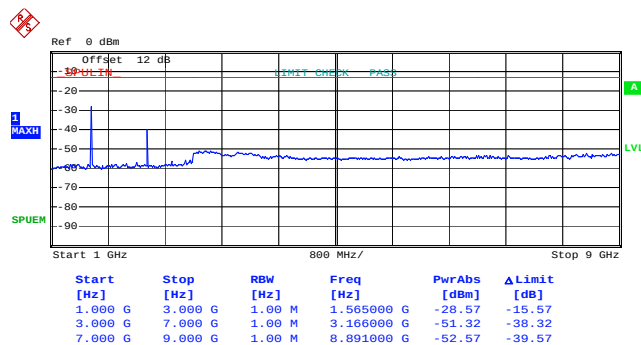
|             |             |             |              |
|-------------|-------------|-------------|--------------|
| Band :      | LTE Band 13 | BW / Mod. : | 5MHz / 16QAM |
| Frequency : | 782         | Channel :   | 23230        |

Conducted Emission Plot (30MHz ~ 1GHz) for  
16-QAM (RB Size 1, RB Offset 0)



Date: 2.JUN.2013 09:58:22

Conducted Emission Plot (1GHz ~ 9GHz) for  
16-QAM (RB Size 1, RB Offset 0)

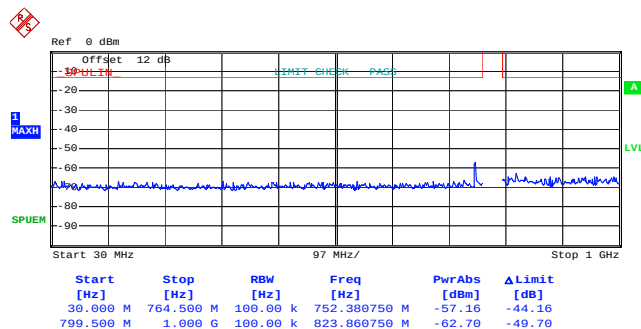


Date: 2.JUN.2013 09:59:26



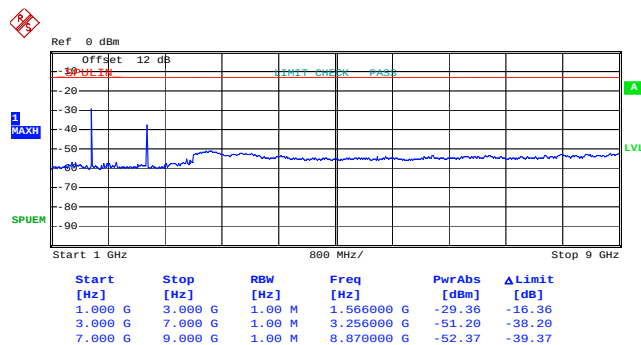
|             |             |             |              |
|-------------|-------------|-------------|--------------|
| Band :      | LTE Band 13 | BW / Mod. : | 5MHz / 16QAM |
| Frequency : | 784.5       | Channel :   | 23255        |

Conducted Emission Plot (30MHz ~ 1GHz) for  
16-QAM (RB Size 1, RB Offset 0)



Date: 2.JUN.2013 09:53:59

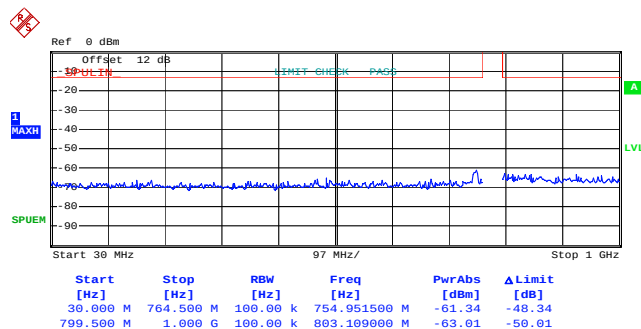
Conducted Emission Plot (1GHz ~ 9GHz) for  
16-QAM (RB Size 1, RB Offset 0)



Date: 2.JUN.2013 09:54:34

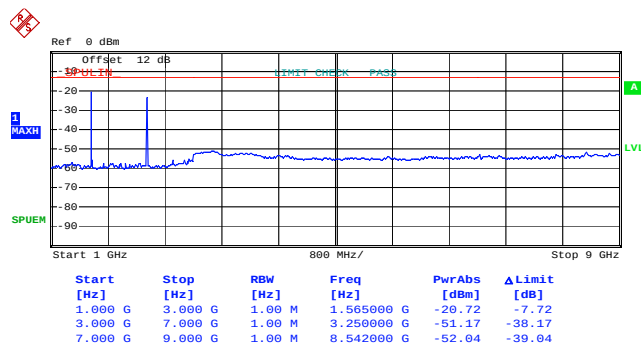
|             |             |             |              |
|-------------|-------------|-------------|--------------|
| Band :      | LTE Band 13 | BW / Mod. : | 10MHz / QPSK |
| Frequency : | 782         | Channel :   | 23230        |

## Conducted Emission Plot (30MHz ~ 1GHz) for QPSK (RB Size 1, RB Offset 0)



Date: 2.JUN.2013 10:02:47

## Conducted Emission Plot (1GHz ~ 9GHz) for QPSK (RB Size 1, RB Offset 0)

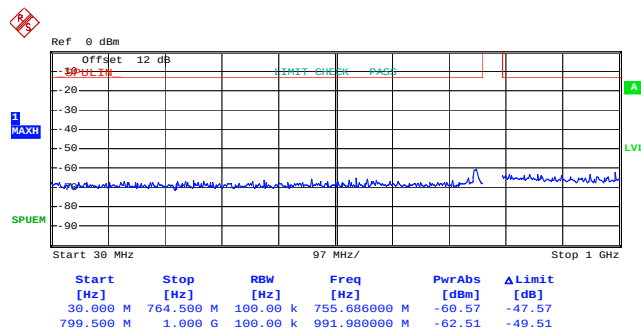


Date: 2.JUN.2013 10:01:47



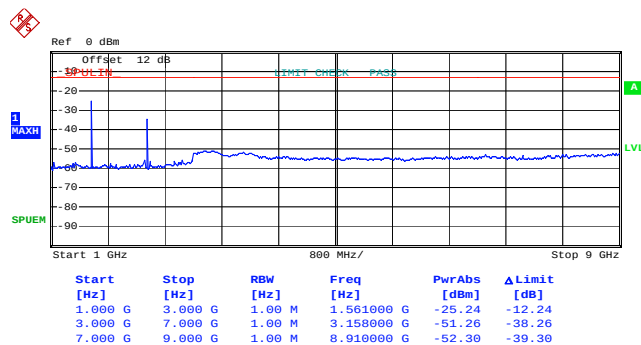
|             |             |             |               |
|-------------|-------------|-------------|---------------|
| Band :      | LTE Band 13 | BW / Mod. : | 10MHz / 16QAM |
| Frequency : | 782         | Channel :   | 23230         |

Conducted Emission Plot (30MHz ~ 1GHz) for  
QPSK (RB Size 1, RB Offset 0)



Date: 2.JUN.2013 10:02:35

Conducted Emission Plot (1GHz ~ 9GHz) for  
QPSK (RB Size 1, RB Offset 0)



Date: 2.JUN.2013 10:02:10

## 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  $43 + 10 \log (P)$  dB. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

### 3.6.2 Measuring Instruments

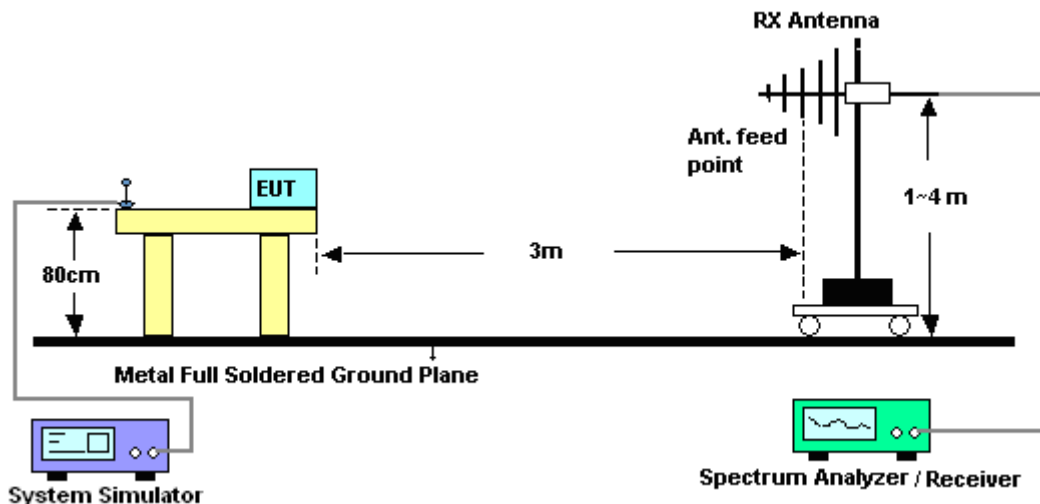
See list of measuring instruments of this test report.

### 3.6.3 Test Procedures

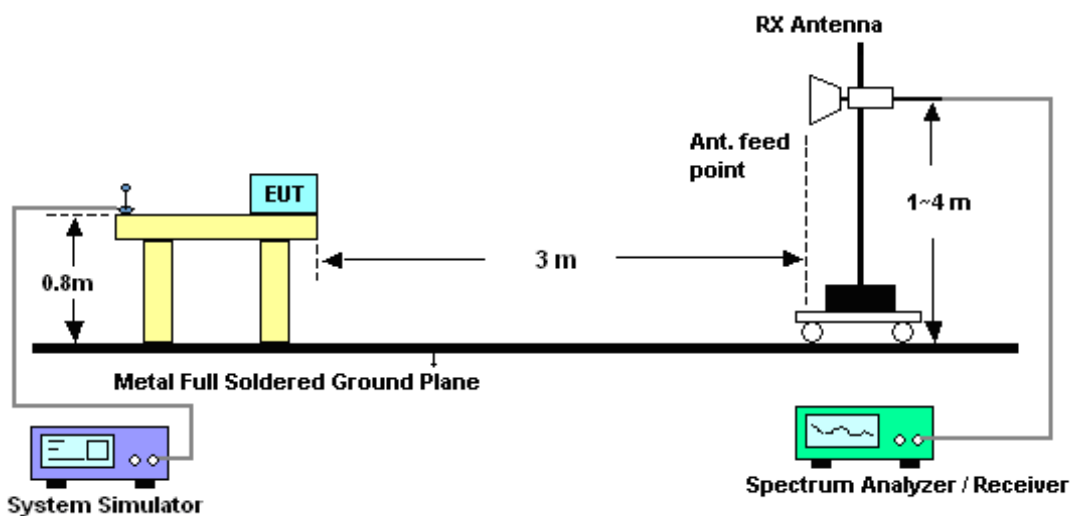
1. The EUT was placed on a rotatable wooden table with 0.8 meter above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving 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, 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. Emission level (dBm) = output power + substitution Gain.

### 3.6.4 Test Setup

For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz

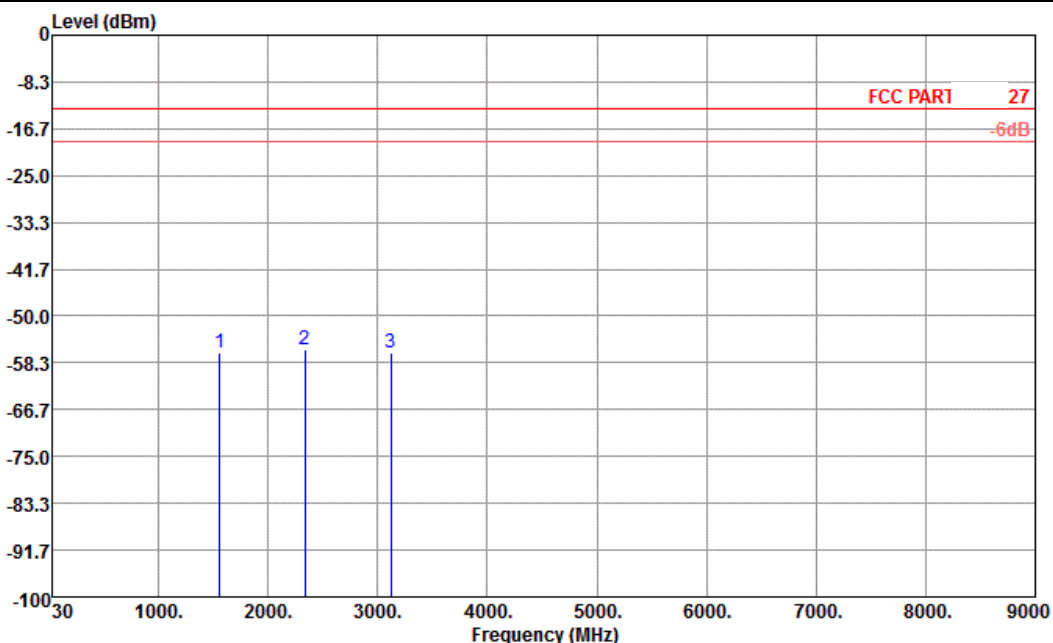


### 3.6.5 Test Results of Radiated Emissions (9 KHz ~ 30 MHz)

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**

|                        |                                                                |                            |            |
|------------------------|----------------------------------------------------------------|----------------------------|------------|
| <b>Band :</b>          | LTE Band 13                                                    | <b>Temperature :</b>       | 23~24°C    |
| <b>Test Mode :</b>     | 5MHz, QPSK, RB Size 1, RB Offset 0                             | <b>Relative Humidity :</b> | 41~43%     |
| <b>Test Engineer :</b> | Steven Hao                                                     | <b>Polarization :</b>      | Horizontal |
| <b>Remark :</b>        | Spurious emissions were found more than 20dB below limit line. |                            |            |

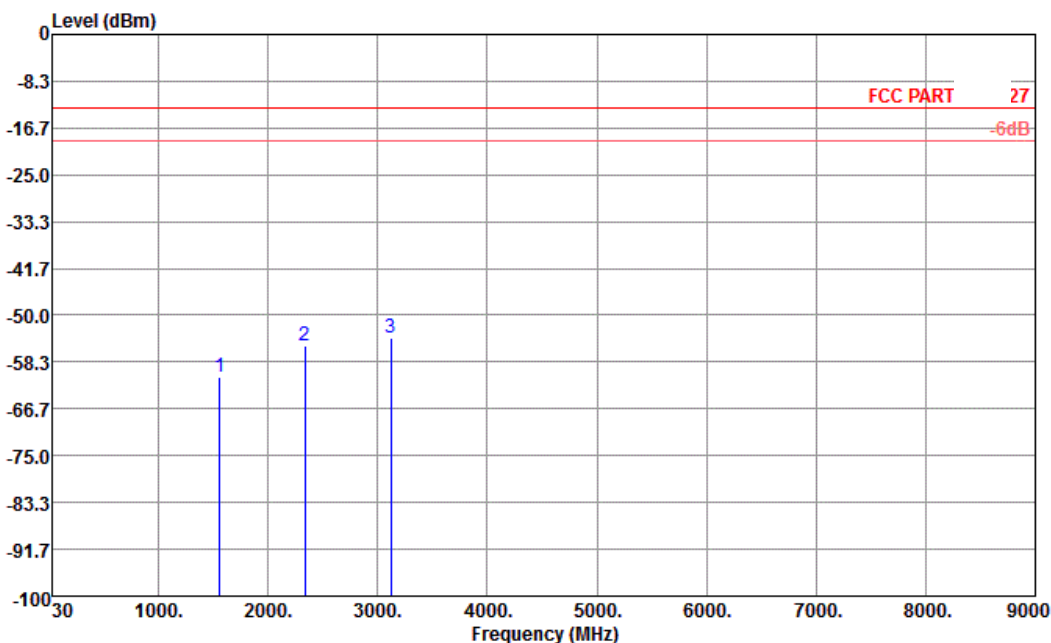


Site : 03CH01-KS  
 Condition : FCC PART 27 HF EIRP FACTOR HORIZONTAL  
 EUT : (FG) 342701

Plane : E2

| Frequency<br>( MHz ) | ERP<br>( dBm ) | Limit<br>( dBm ) | Over<br>Limit<br>( dB ) | SPA<br>Reading<br>( dBm ) | S.G.<br>Power<br>( dBm ) | TX Cable<br>loss<br>( dB ) | TX Antenna<br>Gain<br>( dBi ) | Polarization<br>( H/V ) | Result |
|----------------------|----------------|------------------|-------------------------|---------------------------|--------------------------|----------------------------|-------------------------------|-------------------------|--------|
| 1564                 | -56.64         | -13              | -43.64                  | -57.06                    | -57.29                   | 0.57                       | 3.37                          | H                       | Pass   |
| 2346                 | -55.95         | -13              | -42.95                  | -61.66                    | -58.18                   | 0.78                       | 5.16                          | H                       | Pass   |
| 3128                 | -56.62         | -13              | -43.62                  | -63.26                    | -60.26                   | 0.87                       | 6.66                          | H                       | Pass   |

|                        |                                                                |                            |          |
|------------------------|----------------------------------------------------------------|----------------------------|----------|
| <b>Band :</b>          | LTE Band 13                                                    | <b>Temperature :</b>       | 23~24°C  |
| <b>Test Mode :</b>     | 5MHz, QPSK, RB Size 1, RB Offset 0                             | <b>Relative Humidity :</b> | 41~43%   |
| <b>Test Engineer :</b> | Steven Hao                                                     | <b>Polarization :</b>      | Vertical |
| <b>Remark :</b>        | Spurious emissions were found more than 20dB below limit line. |                            |          |



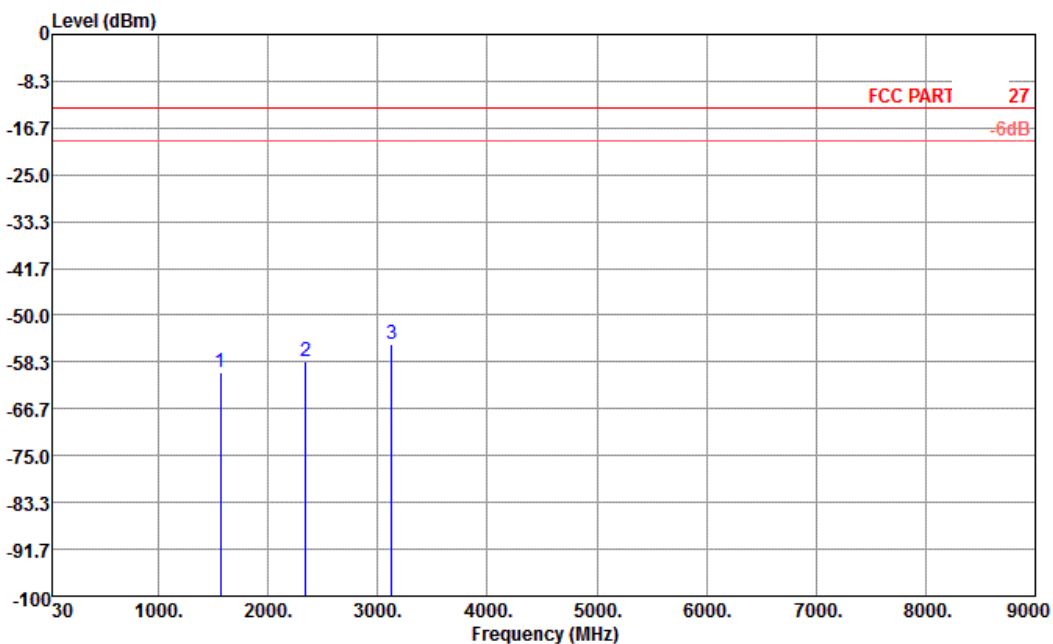
Site : 03CH01-KS  
 Condition : FCC PART 27 HF EIRP FACTOR VERTICAL  
 EUT : (FG) 342701

Plane : E2

| Frequency<br>( MHz ) | ERP<br>( dBm ) | Limit<br>( dBm ) | Over<br>Limit<br>( dB ) | SPA<br>Reading<br>(dBm) | S.G.<br>Power<br>( dBm ) | TX Cable<br>loss<br>( dB ) | TX Antenna<br>Gain<br>(dBi) | Polarization<br>(H/V) | Result |
|----------------------|----------------|------------------|-------------------------|-------------------------|--------------------------|----------------------------|-----------------------------|-----------------------|--------|
| 1564                 | -60.94         | -13              | -47.94                  | -61.56                  | -61.59                   | 0.57                       | 3.37                        | V                     | Pass   |
| 2346                 | -55.54         | -13              | -42.54                  | -63.73                  | -57.77                   | 0.78                       | 5.16                        | V                     | Pass   |
| 3128                 | -53.95         | -13              | -40.95                  | -62.40                  | -57.59                   | 0.87                       | 6.66                        | V                     | Pass   |



|                 |                                                                |                     |            |
|-----------------|----------------------------------------------------------------|---------------------|------------|
| Band :          | LTE Band 13                                                    | Temperature :       | 23~24°C    |
| Test Mode :     | 10MHz, QPSK, RB Size 1, RB Offset 0                            | Relative Humidity : | 41~43%     |
| Test Engineer : | Steven Hao                                                     | Polarization :      | Horizontal |
| Remark :        | Spurious emissions were found more than 20dB below limit line. |                     |            |

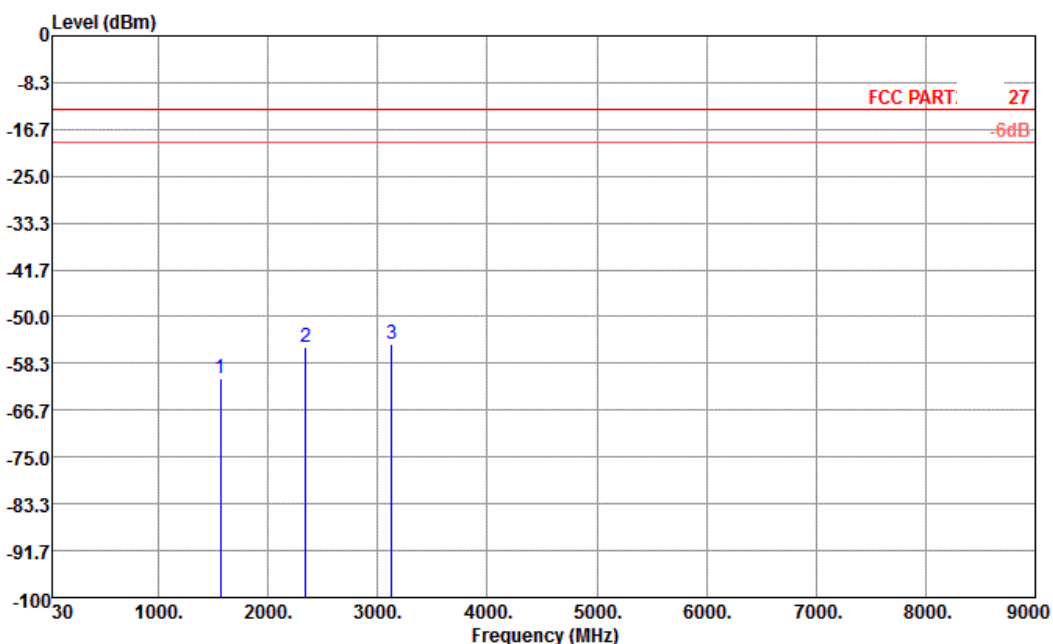


Site : 03CH01-KS  
Condition : FCC PART 27 HF EIRP FACTOR HORIZONTAL  
EUT : (FG) 342701

Plane : E2

| Frequency<br>( MHz ) | ERP<br>( dBm ) | Limit<br>( dBm ) | Over<br>Limit<br>( dB ) | SPA<br>Reading<br>(dBm) | S.G.<br>Power<br>( dBm ) | TX Cable<br>loss<br>( dB ) | TX Antenna<br>Gain<br>(dBi) | Polarization<br>(H/V) | Result |
|----------------------|----------------|------------------|-------------------------|-------------------------|--------------------------|----------------------------|-----------------------------|-----------------------|--------|
| 1564                 | -60.08         | -13              | -47.08                  | -59.24                  | -60.73                   | 0.57                       | 3.37                        | H                     | Pass   |
| 2346                 | -58.30         | -13              | -45.30                  | -64.01                  | -60.53                   | 0.78                       | 5.16                        | H                     | Pass   |
| 3128                 | -55.24         | -13              | -42.24                  | -61.88                  | -58.88                   | 0.87                       | 6.66                        | H                     | Pass   |

|                        |                                                                |                            |          |
|------------------------|----------------------------------------------------------------|----------------------------|----------|
| <b>Band :</b>          | LTE Band 13                                                    | <b>Temperature :</b>       | 23~24°C  |
| <b>Test Mode :</b>     | 10MHz, QPSK, RB Size 1, RB Offset 0                            | <b>Relative Humidity :</b> | 41~43%   |
| <b>Test Engineer :</b> | Steven Hao                                                     | <b>Polarization :</b>      | Vertical |
| <b>Remark :</b>        | Spurious emissions were found more than 20dB below limit line. |                            |          |



Site : 03CH01-KS  
 Condition : FCC PART 27 HF EIRP FACTOR VERTICAL  
 EUT : (FG) 342701  
 Plane : E2

| Frequency<br>( MHz ) | ERP<br>( dBm ) | Limit<br>( dBm ) | Over<br>Limit<br>( dB ) | SPA<br>Reading<br>(dBm) | S.G.<br>Power<br>( dBm ) | TX Cable<br>loss<br>( dB ) | TX Antenna<br>Gain<br>(dBi) | Polarization<br>(H/V) | Result |
|----------------------|----------------|------------------|-------------------------|-------------------------|--------------------------|----------------------------|-----------------------------|-----------------------|--------|
| 1564                 | -61.11         | -13              | -48.11                  | -61.73                  | -61.76                   | 0.57                       | 3.37                        | V                     | Pass   |
| 2346                 | -55.51         | -13              | -42.51                  | -63.70                  | -57.74                   | 0.78                       | 5.16                        | V                     | Pass   |
| 3128                 | -54.79         | -13              | -41.79                  | -63.24                  | -58.43                   | 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.

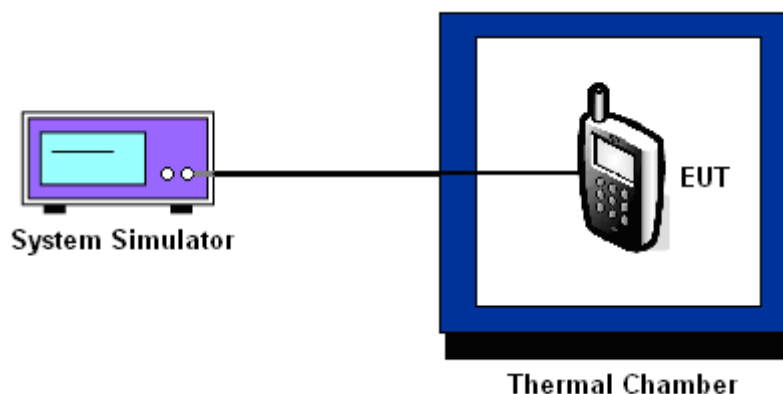
### 3.7.3 Test Procedures for Temperature Variation

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 85% 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**

| <b>Band :</b>    | LTE Band 13 (QPSK) |                 |                 | <b>Limit (ppm) :</b> | 2.5    |
|------------------|--------------------|-----------------|-----------------|----------------------|--------|
| Temperature (°C) | BW 5MHz            |                 | BW 10MHz        |                      | Result |
|                  | Freq. Dev. (Hz)    | Deviation (ppm) | Freq. Dev. (Hz) | Deviation (ppm)      |        |
| -30              | -2.3               | -0.003          | 5.0             | 0.007                | PASS   |
| -20              | 3.6                | 0.005           | 6.2             | 0.009                |        |
| -10              | 4.1                | 0.006           | 7.7             | 0.011                |        |
| 0                | 6.0                | 0.008           | 5.3             | 0.007                |        |
| 10               | -7.0               | -0.010          | -8.0            | -0.011               |        |
| 20               | -9.0               | -0.013          | -7.2            | -0.010               |        |
| 30               | 8.0                | 0.011           | -7.6            | -0.011               |        |
| 40               | 11.0               | 0.015           | -3.1            | -0.004               |        |
| 50               | -10.0              | -0.014          | 4.9             | 0.007                |        |
| 55               | -5.0               | -0.007          | 6.7             | 0.009                |        |

**Note:** The manufacturer declared that the EUT could work properly between temperatures 55°C.

| <b>Band :</b>    | LTE Band 13 (16QAM) |                 |                 | <b>Limit (ppm) :</b> | 2.5    |
|------------------|---------------------|-----------------|-----------------|----------------------|--------|
| Temperature (°C) | BW 5MHz             |                 | BW 10MHz        |                      | Result |
|                  | Freq. Dev. (Hz)     | Deviation (ppm) | Freq. Dev. (Hz) | Deviation (ppm)      |        |
| -30              | -8.0                | -0.011          | -4.0            | -0.006               | PASS   |
| -20              | -11.0               | -0.015          | -5.5            | -0.008               |        |
| -10              | -6.0                | -0.008          | -6.8            | -0.010               |        |
| 0                | 10.0                | 0.014           | 7.9             | 0.011                |        |
| 10               | 9.0                 | 0.013           | -5.0            | -0.007               |        |
| 20               | 3.5                 | 0.005           | -8.9            | -0.013               |        |
| 30               | -9.8                | -0.014          | -1.3            | -0.002               |        |
| 40               | -6.2                | -0.009          | -2.0            | -0.003               |        |
| 50               | -7.0                | -0.010          | -3.6            | -0.005               |        |
| 55               | -5.5                | -0.008          | -9.0            | -0.013               |        |

**Note:** The manufacturer declared that the EUT could work properly between temperatures 55°C.

**3.7.7 Test Result of Voltage Variation**

| Band               | Bandwidth | Voltage (Volt) | Freq. Dev. (Hz) | Deviation (ppm) | Limit (ppm) | Result |
|--------------------|-----------|----------------|-----------------|-----------------|-------------|--------|
| LTE Band 13 (QPSK) | 5MHz      | Normal         | 3.5             | 0.005           | 2.5         | PASS   |
|                    |           | 3.6            | 6.9             | 0.010           |             |        |
|                    |           | 4.35           | -9.2            | -0.013          |             |        |
|                    | 10MHz     | Normal         | 6.7             | 0.009           |             |        |
|                    |           | 3.6            | -8.6            | -0.012          |             |        |
|                    |           | 4.35           | -9.5            | -0.013          |             |        |

| Band                | Bandwidth | Voltage (Volt) | Freq. Dev. (Hz) | Deviation (ppm) | Limit (ppm) | Result |
|---------------------|-----------|----------------|-----------------|-----------------|-------------|--------|
| LTE Band 13 (16QAM) | 5MHz      | Normal         | -10.0           | -0.014          | 2.5         | PASS   |
|                     |           | 3.6            | 8.0             | 0.011           |             |        |
|                     |           | 4.35           | 6.5             | 0.009           |             |        |
|                     | 10MHz     | Normal         | 8.6             | 0.012           |             |        |
|                     |           | 3.6            | 4.0             | 0.006           |             |        |
|                     |           | 4.35           | -9.0            | -0.013          |             |        |

**Remark:**

1. Normal Voltage = 3.8V
2. The manufacturer declared that the EUT could work properly between voltage 3.6V ~ 4.35V.

## 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. 29, 2012    | May 31, 2013~<br>Jun. 02, 2013 | Dec. 28, 2013 | Conducted (TH01-KS)   |
| Power Meter               | Agilent      | E4416A    | MY45101555 | N/A               | Aug. 22, 2012    | May 31, 2013~<br>Jun. 02, 2013 | Aug. 21, 2013 | Conducted (TH01-KS)   |
| DC Power Supply           | GWINSTEK     | GPS-3030D | E1884515   | N/A               | Aug. 22, 2012    | May 31, 2013~<br>Jun. 02, 2013 | Aug. 21, 2013 | Conducted (TH01-KS)   |
| Thermal Chamber           | Ten Billion  | TTC-B3S   | TBN-960502 | N/A               | Dec. 29, 2012    | May 31, 2013~<br>Jun. 02, 2013 | Dec. 28, 2013 | Conducted (TH01-KS)   |
| EMI Test Receiver         | R&S          | ESCI      | 100534     | 9kHz~3GHz         | Nov. 08, 2012    | May 29, 2013                   | Nov. 07, 2013 | Radiation (03CH01-KS) |
| Spectrum Analyzer         | R&S          | FSP30     | 100400     | 9kHz~30GHz        | Jun. 01, 2012    | May 29, 2013                   | May 31, 2013  | Radiation (03CH01-KS) |
| Bilog Antenna             | SCHAFFNER    | CBL6112D  | 23182      | 25MHz~2GHz        | Dec. 07, 2012    | May 29, 2013                   | Dec. 06, 2013 | Radiation (03CH01-KS) |
| Loop Antenna              | R&S          | HFH2-Z2   | 100321     | 9KHZ-30MHZ        | Oct. 22, 2012    | May 29, 2013                   | Oct. 21, 2013 | Radiation (03CH01-KS) |
| Double Ridge Horn Antenna | EMCO         | 3117      | 00075959   | 1GHz~18GHz        | Jan. 06, 2013    | May 29, 2013                   | Jan. 05, 2014 | Radiation (03CH01-KS) |
| Amplifier                 | com-power    | PA-103A   | 161069     | 1MHz~1GHz         | Jun. 01, 2012    | May 29, 2013                   | May 31, 2013  | Radiation (03CH01-KS) |
| Amplifier                 | Agilent      | 8449B     | 3008A02370 | 1GHz~26.5GHz      | Dec. 29, 2012    | May 29, 2013                   | Dec. 28, 2013 | Radiation (03CH01-KS) |
| Active Horn Antenna       | com-power    | AHA-118   | 701023     | 1GHz~18GHz        | Nov. 07, 2012    | May 29, 2013                   | Nov. 06, 2013 | Radiation (03CH01-KS) |
| SHF-EHF Horn              | Schwarzbeck  | BBHA 9170 | 9170249    | 15GHz~40GHz       | Nov. 23, 2012    | May 29, 2013                   | Nov. 22, 2013 | Radiation (03CH01-KS) |
| LTE Base Station          | Anritsu      | MT8820C   | 6201074235 | LTE_FDD full band | Nov. 29, 2012    | May 29, 2013                   | Nov. 28, 2012 | Radiation (03CH01-KS) |

## 5 Uncertainty of Evaluation

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

|                                                                             |      |
|-----------------------------------------------------------------------------|------|
| Measuring Uncertainty for a Level of<br>Confidence of 95% ( $U = 2U_c(y)$ ) | 2.54 |
|-----------------------------------------------------------------------------|------|

### Uncertainty of Radiated Emission Measurement (1 GHz ~ 40 GHz)

|                                                                                |      |
|--------------------------------------------------------------------------------|------|
| Measuring Uncertainty for a Level of<br>Confidence of 95%<br>( $U = 2U_c(y)$ ) | 4.72 |
|--------------------------------------------------------------------------------|------|



## **Appendix A. Photographs of EUT**

Please refer to Sporton report number EP342701 as below.