



# FCC RF Test Report

APPLICANT : ZTE CORPORATION  
EQUIPMENT : CDMA/LTE Digital Mobile Handset  
BRAND NAME : ZTE  
MODEL NAME : ZTE N9100/ZTE Aurora  
FCC ID : Q78-ZTEN9100  
STANDARD : 47 CFR Part 2, 24(E)  
CLASSIFICATION : PCS Licensed Transmitter Held to Ear (PCE)

The product was received on Aug. 17, 2012 and completely tested on Sep. 13, 2012. We, SPORTON INTERNATIONAL (KUNSHAN) INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI / TIA / EIA-603-C-2004 and shown compliance with the applicable technical standards.

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

Reviewed by:

Jones Tsai / Manager



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



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### SUMMARY OF TEST RESULT

| Report Section | FCC Rule              | IC Rule                          | Description                                  | Limit                               | Result | Remark                                     |
|----------------|-----------------------|----------------------------------|--|-------------------------------------|--------|--|
| 3.1            | §2.1046               | NA                               | Conducted Output Power                       | NA                                  | PASS   | -  |
| 3.1            | §24.232(c)            | RSS-133 (6.4)<br>SRSP-510(5.1.2) | Equivalent Isotropic Radiated Power          | EIRP < 2 Watt                       | PASS   | -  |
| 3.2            | §24.232(d)            | RSS-133(6.4)                     | Peak-to-Average Ratio                        | <13 dB                              | PASS   | -  |
| 3.3            | §2.1049<br>§24.238(a) | N/A                              | Occupied Bandwidth                           | NA                                  | PASS   | -  |
| 3.4            | §2.1051<br>§24.238(a) | RSS-133 (6.5.1)                  | Emission Mask Measurement                    | < 43+10log <sub>10</sub> (P[Watts]) | PASS   | -  |
| 3.4            | §2.1051<br>§24.238(a) | RSS-133 (6.5.1)                  | Conducted Spurious Emission                  | < 43+10log <sub>10</sub> (P[Watts]) | PASS   | -  |
| 3.5            | §2.1053<br>§24.238(a) | RSS-133 (6.5.1)                  | Undesirable Out of Band Emissions            | < 43+10log <sub>10</sub> (P[Watts]) | PASS   | Under limit<br>34.33 dB at<br>7512.000 MHz |
| 3.6            | §2.1055<br>§24.235    | RSS-133 (6.3)                    | 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                 |   |
|---------------------------------|---|
| Equipment                       | CDMA/LTE Digital Mobile Handset                               |
| Brand Name                      | ZTE   |
| Model Name                      | ZTE N9100/ZTE Aurora  |
| FCC ID                          | Q78-ZTEN9100  |
| EUT supports Radios application | CDMA/EV-DO/LTE/WLAN 11bgn/<br>Bluetooth/Bluetooth4.0 – LE/NFC |
| HW Version                      | N9100.H02   |
| SW Version                      | N9100V1.0.0B04  |
| 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                                      | 1850.7 MHz ~ 1914.3 MHz     |
| Rx Frequency                                      | 1930.7 MHz ~ 1994.3 MHz     |
| Bandwidth   | 1.4MHz / 3MHz / 5MHz/ 10MHz |
| Maximum Output Power to Antenna                   | 23.38 dBm                   |
| Antenna Type                                      | PIFA Antenna                |
| Type of Modulation                                | QPSK / 16QAM                |

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

### 1.4 Emission Designator and Maximum EIRP

| FCC Rule | System      | Type of Modulation | BW     | Maximum EIRP (W) | Frequency Tolerance (% , Hz, ppm) | Emission Designator |
|----------|-------------|--------------------|--------|------------------|-----------------------------------|---------------------|
| Part 24E | LTE Band 25 | QPSK               | 1.4MHz | 0.3097 W         | 0.017                             | 1M10G7D             |
| Part 24E | LTE Band 25 | 16QAM              | 1.4MHz | 0.2630 W         | 0.017                             | 1M10D7W             |
| Part 24E | LTE Band 25 | QPSK               | 3MHz   | 0.2582 W         | 0.020                             | 2M74G7D             |
| Part 24E | LTE Band 25 | 16QAM              | 3MHz   | 0.2506 W         | 0.020                             | 2M75D7W             |
| Part 24E | LTE Band 25 | QPSK               | 5MHz   | 0.1963 W         | 0.016                             | 4M50G7D             |
| Part 24E | LTE Band 25 | 16QAM              | 5MHz   | 0.1663 W         | 0.016                             | 4M52D7W             |
| Part 24E | LTE Band 25 | QPSK               | 10MHz  | 0.2000 W         | 0.020                             | 9M16G7D             |
| Part 24E | LTE Band 25 | 16QAM              | 10MHz  | 0.1671 W         | 0.020                             | 9M08D7W             |

## 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, 24(E)
- ANSI / TIA / EIA-603-C-2004
- FCC KDB 971168 D01 Power Meas. License Digital Systems v01
- IC RSS-133 Issue 5

**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.   | LTE Base Station | Anritsu    | MT8820C   | N/A    | N/A        | Unshielded, 1.8 m |
| 2.   | DC Power Supply  | GWINSTEK   | GPS-3030D | N/A    | N/A        | Unshielded, 1.8 m |

## 2 Test Configuration of Equipment Under Test

### 2.1 Test Mode

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

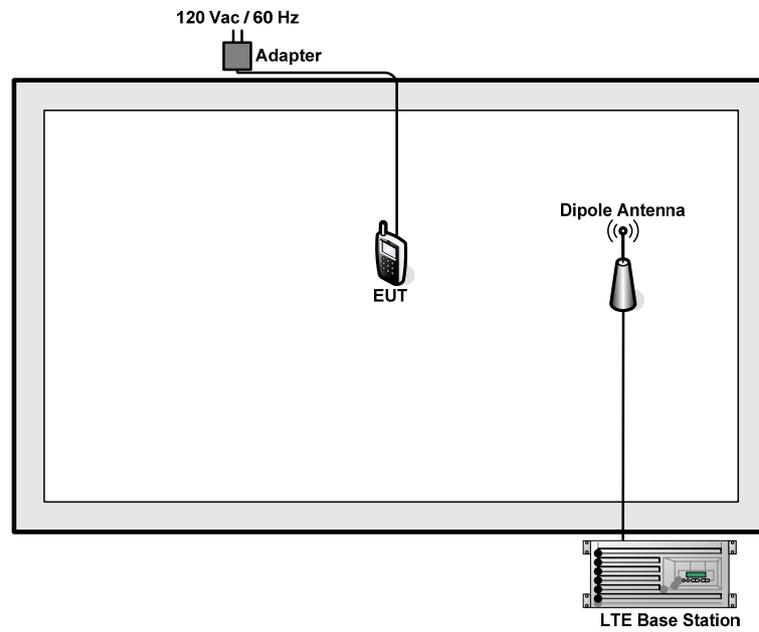
Frequency range investigated for radiated emission is: 30 MHz to 19000 MHz.

| Test Modes     |              |  |  |
|----------------|--------------|--|--|
| Band           |              | Radiated TCs                             | Conducted TCs  |
| LTE<br>Band 25 | BW<br>1.4MHz | ■ LTE (RB Size 1, RB Offset 0) QPSK Link | <ul style="list-style-type: none"> <li>■ LTE (RB Size 1, RB Offset 0)Link</li> <li>■ LTE (RB Size 1, RB Offset 5)Link</li> <li>■ LTE (RB Size 3, RB Offset 2)Link</li> <li>■ LTE (RB Size 6, RB Offset 0)Link</li> </ul>     |
|                | BW<br>3MHz   | ■ LTE (RB Size 1, RB Offset 0) QPSK Link | <ul style="list-style-type: none"> <li>■ LTE (RB Size 1, RB Offset 0)Link</li> <li>■ LTE (RB Size 1, RB Offset 14)Link</li> <li>■ LTE (RB Size 8, RB Offset 4)Link</li> <li>■ LTE (RB Size 15, RB Offset 0)Link</li> </ul>   |
|                | BW<br>5MHz   | ■ LTE (RB Size 1, RB Offset 0) QPSK Link | <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 12, RB Offset 6)Link</li> <li>■ LTE (RB Size 25, RB Offset 0)Link</li> </ul>  |
|                | BW<br>10MHz  | ■ LTE (RB Size 1, RB Offset 0) QPSK Link | <ul style="list-style-type: none"> <li>■ LTE (RB Size 1, RB Offset 0)Link</li> <li>■ LTE (RB Size 1, RB Offset 49)Link</li> <li>■ LTE (RB Size 25, RB Offset 13)Link</li> <li>■ LTE (RB Size 50, RB Offset 0)Link</li> </ul> |

**Note:**

1. For conducted test, both two Modulations (QPSK and 16QAM) are tested. For RSE, only the maximum RF output power level is chosen.
2. From conducted spurious emission measurement, the modulation related spurious emission out of the band is not identified. Since MPR is implemented, 1RB-QPSK results in highest RF power, therefore it's chosen for RSE measurement.

## 2.2 Connection Diagram of Test System



### 3 Test Result

#### 3.1 Maximum Output Power and Effective Isotropic Radiated Power Measurement

##### 3.1.1 Limit

Equivalent isotropic radiated power output measurements by substitution method according to ANSI / TIA / EIA-603-C-2004. Mobile and portable (hand-held) stations operating in each channel are limited to average EIRP of 2 watts.

##### 3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

##### 3.1.3 Test Procedures

###### For Conducted Power Measurement:

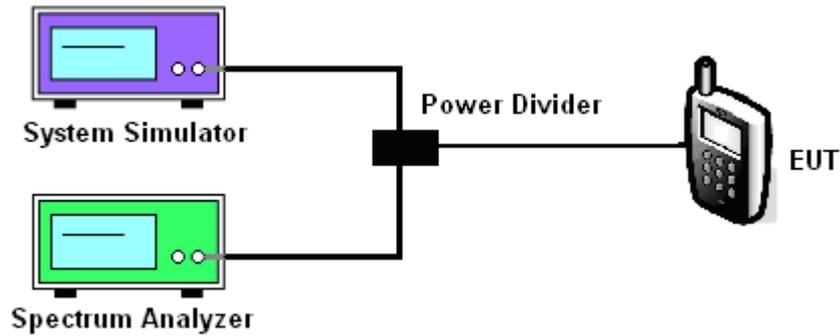
1. The RF output of the transmitter was connected to base station simulator.
2. Set EUT at maximum average power by base station simulator.
3. Measure lowest, middle, and highest channels for each bandwidth and different modulation.

###### For Effective Isotropic Radiated Power Measurement:

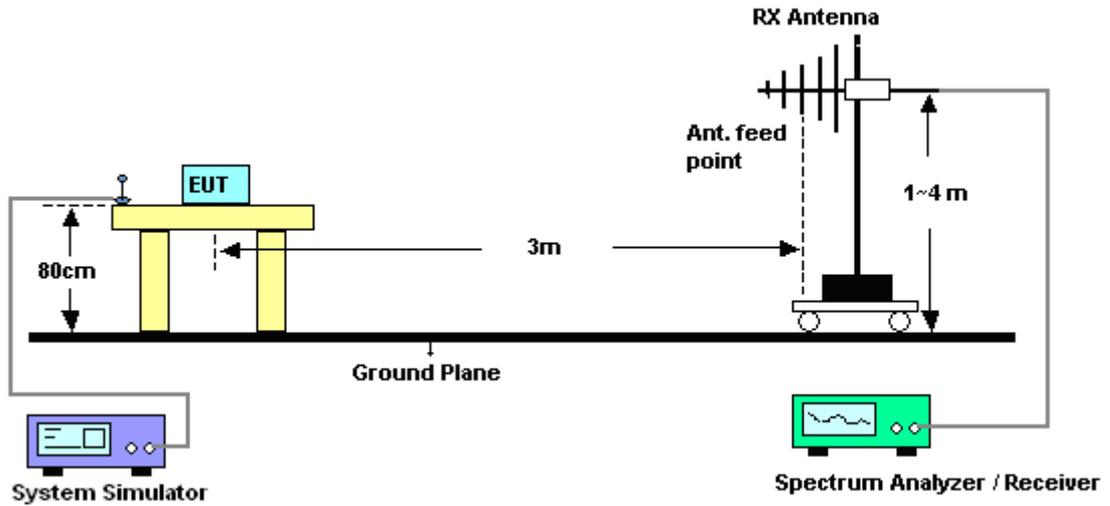
1. The EUT was placed on a non-conductive rotating platform with 0.8 meter height in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m.
2. During the measurement, the EUT was enforced in maximum power. The highest emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna raised and lowered over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.
3. Effective Radiated Power (ERP) and Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to TIA/EIA-603-C. The EUT was replaced by dipole antenna (substitution antenna) at same location, and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. The correction factor (in dB) = S.G. - Tx Cable loss + Substitution antenna gain - Analyzer reading. Then the EUT's EIRP was calculated with the correction factor,  $EIRP = LVL + \text{Correction factor}$ .

### 3.1.4 Test Setup

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



#### < Effective Isotropic 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 Band 25 | 1.4MHz     | 26047   | 1850.7          | QPSK       | 1                | 0         | 23.20               | 0.2089                |
|             |            |         |                 |            | 1                | 5         | 23.17               | 0.2075                |
|             |            |         |                 |            | 3                | 2         | 23.15               | 0.2065                |
|             |            |         |                 |            | 6                | 0         | 22.06               | 0.1607                |
|             |            |         |                 | 16-QAM     | 1                | 0         | 22.27               | 0.1687                |
|             |            |         |                 |            | 1                | 5         | 22.05               | 0.1603                |
|             |            |         |                 |            | 3                | 2         | 22.17               | 0.1648                |
|             |            |         |                 |            | 6                | 0         | 20.98               | 0.1253                |
|             |            | 26365   | 1882.5          | QPSK       | 1                | 0         | 23.23               | 0.2104                |
|             |            |         |                 |            | 1                | 5         | 23.15               | 0.2065                |
|             |            |         |                 |            | 3                | 2         | 23.03               | 0.2009                |
|             |            |         |                 |            | 6                | 0         | 22.32               | 0.1706                |
|             |            |         |                 | 16-QAM     | 1                | 0         | 22.41               | 0.1742                |
|             |            |         |                 |            | 1                | 5         | 22.24               | 0.1675                |
|             |            |         |                 |            | 3                | 2         | 22.13               | 0.1633                |
|             |            |         |                 |            | 6                | 0         | 21.36               | 0.1368                |
|             |            | 26683   | 1914.3          | QPSK       | 1                | 0         | 22.79               | 0.1901                |
|             |            |         |                 |            | 1                | 5         | 22.70               | 0.1862                |
|             |            |         |                 |            | 3                | 2         | 22.66               | 0.1845                |
|             |            |         |                 |            | 6                | 0         | 21.68               | 0.1472                |
|             |            |         |                 | 16-QAM     | 1                | 0         | 22.02               | 0.1592                |
|             |            |         |                 |            | 1                | 5         | 21.84               | 0.1528                |
|             |            |         |                 |            | 3                | 2         | 21.69               | 0.1476                |
|             |            |         |                 |            | 6                | 0         | 20.80               | 0.1202                |



| Mode        | Band Width | Channel | Frequency (MHz) | Modulation | RB Configuration |           | Average Power (dBm) | Average Power (Watts) |
|-------------|------------|---------|-----------------|------------|------------------|-----------|---------------------|-----------------------|
|             |            |         |                 |            | RB Size          | RB Offset |                     |                       |
| LTE Band 25 | 3MHz       | 26055   | 1851.5          | QPSK       | 1                | 0         | 23.13               | 0.2056                |
|             |            |         |                 |            | 1                | 14        | 23.04               | 0.2014                |
|             |            |         |                 |            | 8                | 4         | 22.19               | 0.1656                |
|             |            |         |                 |            | 15               | 0         | 22.06               | 0.1607                |
|             |            |         |                 | 16-QAM     | 1                | 0         | 22.16               | 0.1644                |
|             |            |         |                 |            | 1                | 14        | 22.04               | 0.1600                |
|             |            |         |                 |            | 8                | 4         | 21.18               | 0.1312                |
|             |            |         |                 |            | 15               | 0         | 21.06               | 0.1276                |
|             |            | 26365   | 1882.5          | QPSK       | 1                | 0         | 23.16               | 0.2070                |
|             |            |         |                 |            | 1                | 14        | 23.04               | 0.2014                |
|             |            |         |                 |            | 8                | 4         | 22.18               | 0.1652                |
|             |            |         |                 |            | 15               | 0         | 21.98               | 0.1578                |
|             |            |         |                 | 16-QAM     | 1                | 0         | 22.45               | 0.1758                |
|             |            |         |                 |            | 1                | 14        | 22.27               | 0.1687                |
|             |            |         |                 |            | 8                | 4         | 21.19               | 0.1315                |
|             |            |         |                 |            | 15               | 0         | 21.04               | 0.1271                |
|             |            | 26675   | 1913.5          | QPSK       | 1                | 0         | 22.97               | 0.1982                |
|             |            |         |                 |            | 1                | 14        | 22.65               | 0.1841                |
|             |            |         |                 |            | 8                | 4         | 21.71               | 0.1483                |
|             |            |         |                 |            | 15               | 0         | 21.62               | 0.1452                |
|             |            |         |                 | 16-QAM     | 1                | 0         | 22.01               | 0.1589                |
|             |            |         |                 |            | 1                | 14        | 21.68               | 0.1472                |
|             |            |         |                 |            | 8                | 4         | 20.69               | 0.1172                |
|             |            |         |                 |            | 15               | 0         | 20.51               | 0.1125                |



| Mode        | Band Width | Channel | Frequency (MHz) | Modulation | RB Configuration |           | Average Power (dBm) | Average Power (Watts) |
|-------------|------------|---------|-----------------|------------|------------------|-----------|---------------------|-----------------------|
|             |            |         |                 |            | RB Size          | RB Offset |                     |                       |
| LTE Band 25 | 5MHz       | 26065   | 1852.5          | QPSK       | 1                | 0         | 23.14               | 0.2061                |
|             |            |         |                 |            | 1                | 24        | 23.05               | 0.2018                |
|             |            |         |                 |            | 12               | 6         | 22.09               | 0.1618                |
|             |            |         |                 |            | 25               | 0         | 21.93               | 0.1560                |
|             |            |         |                 | 16-QAM     | 1                | 0         | 22.25               | 0.1679                |
|             |            |         |                 |            | 1                | 24        | 22.10               | 0.1622                |
|             |            |         |                 |            | 12               | 6         | 21.23               | 0.1327                |
|             |            |         |                 |            | 25               | 0         | 20.97               | 0.1250                |
|             |            | 26365   | 1882.5          | QPSK       | 1                | 0         | 23.29               | 0.2133                |
|             |            |         |                 |            | 1                | 24        | 23.17               | 0.2075                |
|             |            |         |                 |            | 12               | 6         | 22.21               | 0.1663                |
|             |            |         |                 |            | 25               | 0         | 21.96               | 0.1570                |
|             |            |         |                 | 16-QAM     | 1                | 0         | 22.46               | 0.1762                |
|             |            |         |                 |            | 1                | 24        | 22.32               | 0.1706                |
|             |            |         |                 |            | 12               | 6         | 21.21               | 0.1321                |
|             |            |         |                 |            | 25               | 0         | 20.98               | 0.1253                |
|             |            | 26665   | 1912.5          | QPSK       | 1                | 0         | 23.17               | 0.2075                |
|             |            |         |                 |            | 1                | 24        | 22.71               | 0.1866                |
|             |            |         |                 |            | 12               | 6         | 21.98               | 0.1578                |
|             |            |         |                 |            | 25               | 0         | 21.71               | 0.1483                |
|             |            |         |                 | 16-QAM     | 1                | 0         | 22.21               | 0.1663                |
|             |            |         |                 |            | 1                | 24        | 21.68               | 0.1472                |
|             |            |         |                 |            | 12               | 6         | 20.93               | 0.1239                |
|             |            |         |                 |            | 25               | 0         | 20.68               | 0.1169                |



| Mode        | Band Width | Channel | Frequency (MHz) | Modulation | RB Configuration |           | Average Power (dBm) | Average Power (Watts) |
|-------------|------------|---------|-----------------|------------|------------------|-----------|---------------------|-----------------------|
|             |            |         |                 |            | RB Size          | RB Offset |                     |                       |
| LTE Band 25 | 10MHz      | 26090   | 1855            | QPSK       | 1                | 0         | 23.19               | 0.2084                |
|             |            |         |                 |            | 1                | 49        | 23.09               | 0.2037                |
|             |            |         |                 |            | 25               | 13        | 21.98               | 0.1578                |
|             |            |         |                 |            | 50               | 0         | 21.77               | 0.1503                |
|             |            |         |                 | 16-QAM     | 1                | 0         | 22.24               | 0.1675                |
|             |            |         |                 |            | 1                | 49        | 22.15               | 0.1641                |
|             |            |         |                 |            | 25               | 13        | 21.05               | 0.1274                |
|             |            |         |                 |            | 50               | 0         | 20.76               | 0.1191                |
|             |            | 26365   | 1882.5          | QPSK       | 1                | 0         | 23.38               | 0.2178                |
|             |            |         |                 |            | 1                | 49        | 23.12               | 0.2051                |
|             |            |         |                 |            | 25               | 13        | 22.09               | 0.1618                |
|             |            |         |                 |            | 50               | 0         | 21.93               | 0.1560                |
|             |            |         |                 | 16-QAM     | 1                | 0         | 22.42               | 0.1746                |
|             |            |         |                 |            | 1                | 49        | 22.25               | 0.1679                |
|             |            |         |                 |            | 25               | 13        | 21.06               | 0.1276                |
|             |            |         |                 |            | 50               | 0         | 20.91               | 0.1233                |
|             |            | 26640   | 1910            | QPSK       | 1                | 0         | 23.15               | 0.2065                |
|             |            |         |                 |            | 1                | 49        | 22.78               | 0.1897                |
|             |            |         |                 |            | 25               | 13        | 21.93               | 0.1560                |
|             |            |         |                 |            | 50               | 0         | 21.73               | 0.1489                |
|             |            |         |                 | 16-QAM     | 1                | 0         | 22.34               | 0.1714                |
|             |            |         |                 |            | 1                | 49        | 21.85               | 0.1531                |
|             |            |         |                 |            | 25               | 13        | 20.94               | 0.1242                |
|             |            |         |                 |            | 50               | 0         | 20.65               | 0.1161                |

3.1.6 Test Result of EIRP

| LTE Band 25 Radiated Power EIRP |                  |            |                  |           |             |           |                        |            |          |     |
|---------------------------------|------------------|------------|------------------|-----------|-------------|-----------|------------------------|------------|----------|-----|
| LTE Band                        | Channel BW (MHz) | Modulation | RB Configuration |           | Freq. (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) | H/V |
|                                 |                  |            | RB Size          | RB Offset |             |           |                        |            |          |     |
| 25                              | 1.4              | QPSK       | 1                | 0         | 1850.7      | -12.25    | 37.16                  | 24.91      | 0.3097   | H   |
| 25                              | 1.4              | QPSK       | 1                | 0         | 1882.5      | -12.11    | 35.61                  | 23.50      | 0.2239   | H   |
| 25                              | 1.4              | QPSK       | 1                | 0         | 1914.3      | -13.79    | 36.04                  | 22.25      | 0.1679   | H   |
| 25                              | 1.4              | QPSK       | 1                | 0         | 1850.7      | -20.65    | 36.1                   | 15.45      | 0.0351   | V   |
| 25                              | 1.4              | QPSK       | 1                | 0         | 1882.5      | -19.59    | 37.44                  | 17.85      | 0.0610   | V   |
| 25                              | 1.4              | QPSK       | 1                | 0         | 1914.3      | -21.29    | 39.12                  | 17.83      | 0.0607   | V   |
| 25                              | 1.4              | 16QAM      | 1                | 0         | 1850.7      | -12.96    | 37.16                  | 24.20      | 0.2630   | H   |
| 25                              | 1.4              | 16QAM      | 1                | 0         | 1882.5      | -12.95    | 35.61                  | 22.66      | 0.1845   | H   |
| 25                              | 1.4              | 16QAM      | 1                | 0         | 1914.3      | -15.04    | 36.04                  | 21.00      | 0.1259   | H   |
| 25                              | 1.4              | 16QAM      | 1                | 0         | 1850.7      | -20.50    | 36.1                   | 15.60      | 0.0363   | V   |
| 25                              | 1.4              | 16QAM      | 1                | 0         | 1882.5      | -19.78    | 37.44                  | 17.66      | 0.0583   | V   |
| 25                              | 1.4              | 16QAM      | 1                | 0         | 1914.3      | -20.70    | 39.12                  | 18.42      | 0.0695   | V   |
| 25                              | 3                | QPSK       | 1                | 0         | 1851.5      | -13.04    | 37.16                  | 24.12      | 0.2582   | H   |
| 25                              | 3                | QPSK       | 1                | 0         | 1882.5      | -12.77    | 35.61                  | 22.84      | 0.1923   | H   |
| 25                              | 3                | QPSK       | 1                | 0         | 1913.5      | -14.06    | 36.04                  | 21.98      | 0.1578   | H   |
| 25                              | 3                | QPSK       | 1                | 0         | 1851.5      | -20.56    | 36.1                   | 15.54      | 0.0358   | V   |
| 25                              | 3                | QPSK       | 1                | 0         | 1882.5      | -21.32    | 37.44                  | 16.12      | 0.0409   | V   |
| 25                              | 3                | QPSK       | 1                | 0         | 1913.5      | -23.21    | 39.12                  | 15.91      | 0.0390   | V   |
| 25                              | 3                | 16QAM      | 1                | 0         | 1851.5      | -13.17    | 37.16                  | 23.99      | 0.2506   | H   |
| 25                              | 3                | 16QAM      | 1                | 0         | 1882.5      | -13.15    | 35.61                  | 22.46      | 0.1762   | H   |
| 25                              | 3                | 16QAM      | 1                | 0         | 1913.5      | -14.84    | 36.04                  | 21.20      | 0.1318   | H   |
| 25                              | 3                | 16QAM      | 1                | 0         | 1851.5      | -20.55    | 36.1                   | 15.55      | 0.0359   | V   |
| 25                              | 3                | 16QAM      | 1                | 0         | 1882.5      | -20.30    | 37.44                  | 17.14      | 0.0518   | V   |
| 25                              | 3                | 16QAM      | 1                | 0         | 1913.5      | -22.92    | 39.12                  | 16.20      | 0.0417   | V   |



| LTE Band 25 Radiated Power EIRP |                  |            |                  |           |             |           |                        |            |          |     |
|---------------------------------|------------------|------------|------------------|-----------|-------------|-----------|------------------------|------------|----------|-----|
| LTE Band                        | Channel BW (MHz) | Modulation | RB Configuration |           | Freq. (MHz) | LVL (dBm) | Correction Factor (dB) | EIRP (dBm) | EIRP (W) | H/V |
|                                 |                  |            | RB Size          | RB Offset |             |           |                        |            |          |     |
| 25                              | 5                | QPSK       | 1                | 0         | 1852.5      | -14.23    | 37.16                  | 22.93      | 0.1963   | H   |
| 25                              | 5                | QPSK       | 1                | 0         | 1882.5      | -13.63    | 35.61                  | 21.98      | 0.1578   | H   |
| 25                              | 5                | QPSK       | 1                | 0         | 1912.5      | -14.31    | 36.04                  | 21.73      | 0.1488   | H   |
| 25                              | 5                | QPSK       | 1                | 0         | 1852.5      | -20.70    | 36.1                   | 15.40      | 0.0347   | V   |
| 25                              | 5                | QPSK       | 1                | 0         | 1882.5      | -20.67    | 37.44                  | 16.77      | 0.0475   | V   |
| 25                              | 5                | QPSK       | 1                | 0         | 1912.5      | -20.15    | 39.12                  | 18.97      | 0.0789   | V   |
| 25                              | 5                | 16QAM      | 1                | 0         | 1852.5      | -14.95    | 37.16                  | 22.21      | 0.1663   | H   |
| 25                              | 5                | 16QAM      | 1                | 0         | 1882.5      | -14.45    | 35.61                  | 21.16      | 0.1306   | H   |
| 25                              | 5                | 16QAM      | 1                | 0         | 1912.5      | -15.01    | 36.04                  | 21.03      | 0.1268   | H   |
| 25                              | 5                | 16QAM      | 1                | 0         | 1852.5      | -21.41    | 36.1                   | 14.69      | 0.0294   | V   |
| 25                              | 5                | 16QAM      | 1                | 0         | 1882.5      | -21.41    | 37.44                  | 16.03      | 0.0401   | V   |
| 25                              | 5                | 16QAM      | 1                | 0         | 1912.5      | -20.96    | 39.12                  | 18.16      | 0.0655   | V   |
| 25                              | 10               | QPSK       | 1                | 0         | 1855.0      | -14.15    | 37.16                  | 23.01      | 0.2000   | H   |
| 25                              | 10               | QPSK       | 1                | 0         | 1882.5      | -13.81    | 35.61                  | 21.80      | 0.1514   | H   |
| 25                              | 10               | QPSK       | 1                | 0         | 1910.0      | -14.14    | 36.04                  | 21.90      | 0.1549   | H   |
| 25                              | 10               | QPSK       | 1                | 0         | 1855.0      | -20.86    | 36.1                   | 15.24      | 0.0334   | V   |
| 25                              | 10               | QPSK       | 1                | 0         | 1882.5      | -20.93    | 37.44                  | 16.51      | 0.0448   | V   |
| 25                              | 10               | QPSK       | 1                | 0         | 1910.0      | -20.40    | 39.12                  | 18.72      | 0.0745   | V   |
| 25                              | 10               | 16QAM      | 1                | 0         | 1855.0      | -14.93    | 37.16                  | 22.23      | 0.1671   | H   |
| 25                              | 10               | 16QAM      | 1                | 0         | 1882.5      | -14.20    | 35.61                  | 21.41      | 0.1384   | H   |
| 25                              | 10               | 16QAM      | 1                | 0         | 1910.0      | -14.99    | 36.04                  | 21.05      | 0.1274   | H   |
| 25                              | 10               | 16QAM      | 1                | 0         | 1855.0      | -21.14    | 36.1                   | 14.96      | 0.0313   | V   |
| 25                              | 10               | 16QAM      | 1                | 0         | 1882.5      | -21.54    | 37.44                  | 15.90      | 0.0389   | V   |
| 25                              | 10               | 16QAM      | 1                | 0         | 1910.0      | -21.08    | 39.12                  | 18.04      | 0.0637   | 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.

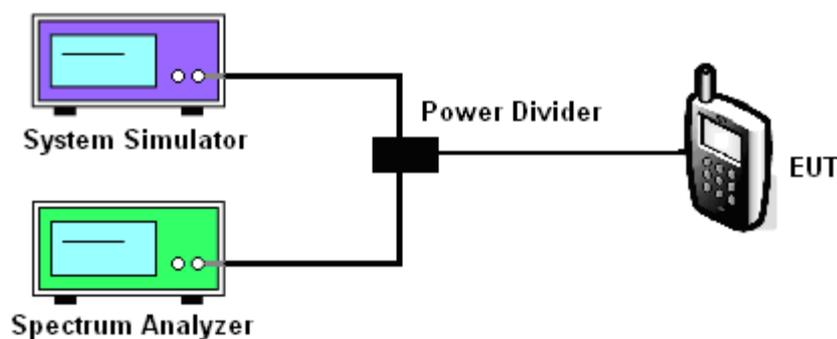
### 3.2.2 Measuring Instruments

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





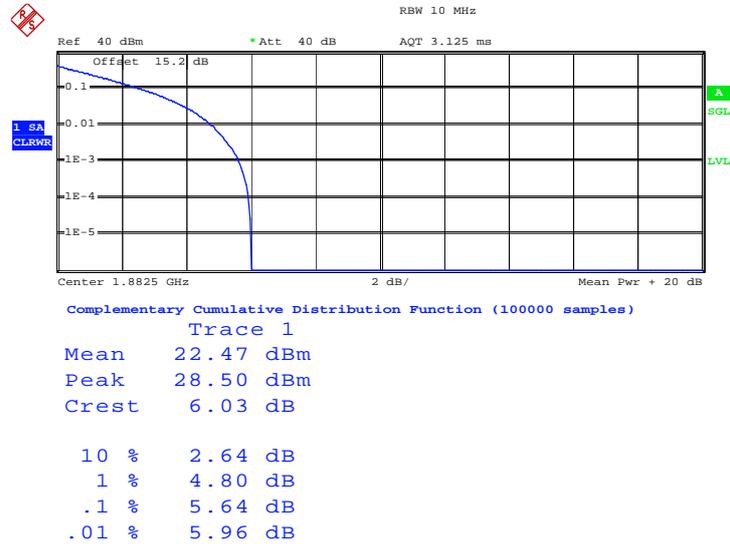
3.2.5 Test Result of Peak-to-Average Ratio

| Band        | Band Width | Channel | Frequency (MHz) | Modulation | PAR (dB) |
|-------------|------------|---------|-----------------|------------|----------|
| LTE Band 25 | 1.4MHz     | 26365   | 1882.5          | QPSK       | 5.64     |
|             |            |         |                 | 16-QAM     | 6.48     |
|             | 3MHz       | 26365   | 1882.5          | QPSK       | 5.60     |
|             |            |         |                 | 16-QAM     | 6.52     |
|             | 5MHz       | 26365   | 1882.5          | QPSK       | 5.84     |
|             |            |         |                 | 16-QAM     | 6.48     |
|             | 10MHz      | 26365   | 1882.5          | QPSK       | 5.64     |
|             |            |         |                 | 16-QAM     | 6.52     |



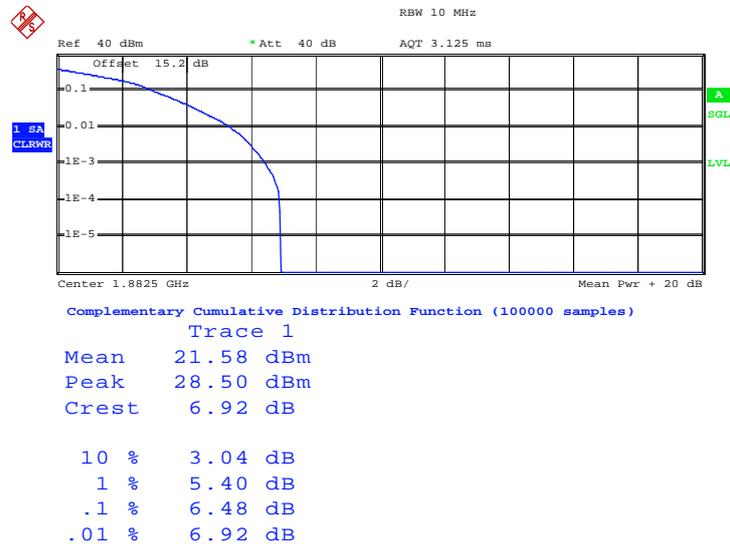
|              |             |                   |        |
|--------------|-------------|-------------------|--------|
| <b>Band:</b> | LTE Band 25 | <b>Bandwidth:</b> | 1.4MHz |
|--------------|-------------|-------------------|--------|

Peak-to-Average Ratio for QPSK-RB Size 6, RB Offset 0



Date: 27.AUG.2012 20:46:37

Peak-to-Average Ratio for 16QAM-RB Size 6, RB Offset 0

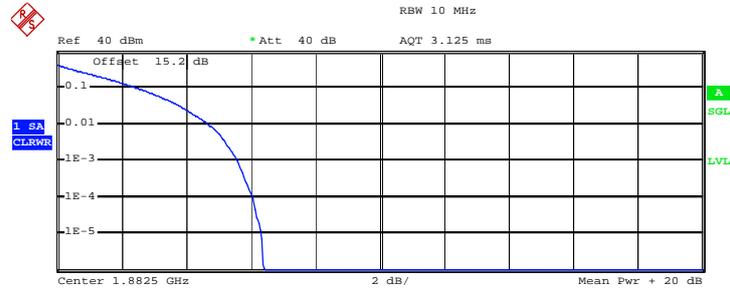


Date: 27.AUG.2012 20:46:25



|              |             |                   |      |
|--------------|-------------|-------------------|------|
| <b>Band:</b> | LTE Band 25 | <b>Bandwidth:</b> | 3MHz |
|--------------|-------------|-------------------|------|

Peak-to-Average Ratio for QPSK-RB Size 15, RB Offset 0



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean 22.31 dBm  
 Peak 28.71 dBm  
 Crest 6.40 dB

10 % 2.56 dB  
 1 % 4.72 dB  
 .1 % 5.60 dB  
 .01 % 6.08 dB

Date: 27.AUG.2012 20:47:35

Peak-to-Average Ratio for 16QAM-RB Size 15, RB Offset 0



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean 21.24 dBm  
 Peak 28.43 dBm  
 Crest 7.19 dB

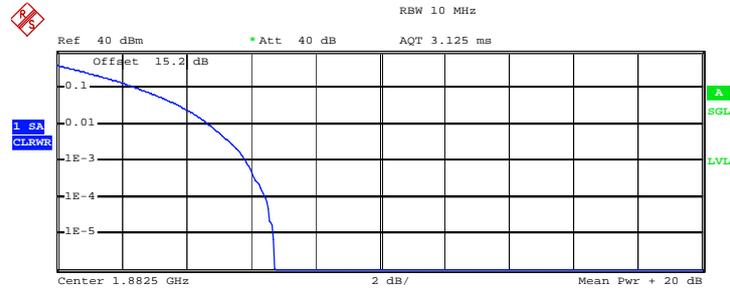
10 % 3.08 dB  
 1 % 5.44 dB  
 .1 % 6.52 dB  
 .01 % 7.04 dB

Date: 27.AUG.2012 20:47:53



|              |             |                   |      |
|--------------|-------------|-------------------|------|
| <b>Band:</b> | LTE Band 25 | <b>Bandwidth:</b> | 5MHz |
|--------------|-------------|-------------------|------|

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



Complementary Cumulative Distribution Function (100000 samples)

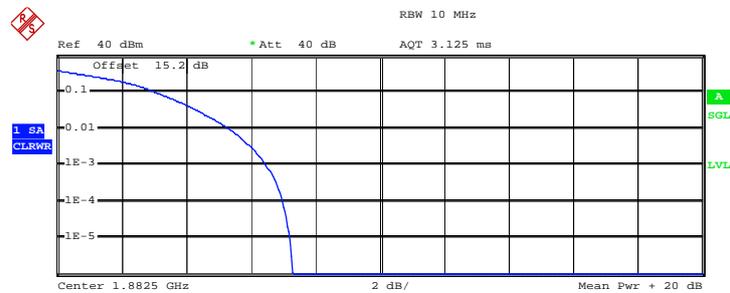
Trace 1

Mean 22.12 dBm  
 Peak 28.85 dBm  
 Crest 6.73 dB

10 % 2.56 dB  
 1 % 4.72 dB  
 .1 % 5.84 dB  
 .01 % 6.48 dB

Date: 27.AUG.2012 20:48:52

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



Complementary Cumulative Distribution Function (100000 samples)

Trace 1

Mean 21.14 dBm  
 Peak 28.43 dBm  
 Crest 7.29 dB

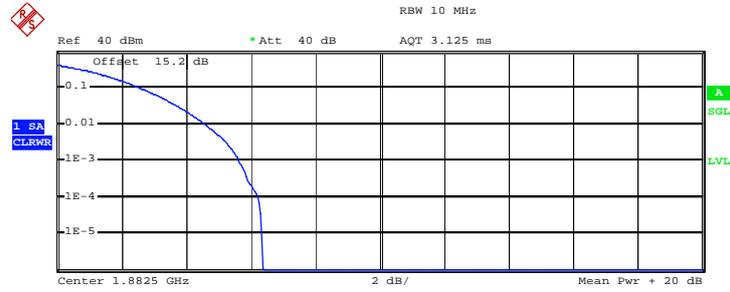
10 % 3.12 dB  
 1 % 5.36 dB  
 .1 % 6.48 dB  
 .01 % 7.00 dB

Date: 27.AUG.2012 20:48:18



|              |             |                   |       |
|--------------|-------------|-------------------|-------|
| <b>Band:</b> | LTE Band 25 | <b>Bandwidth:</b> | 10MHz |
|--------------|-------------|-------------------|-------|

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



Center 1.8825 GHz 2 dB/ Mean Pwr + 20 dB

Complementary Cumulative Distribution Function (100000 samples)  
 Trace 1  
 Mean 21.79 dBm  
 Peak 28.15 dBm  
 Crest 6.36 dB

|       |         |
|-------|---------|
| 10 %  | 2.64 dB |
| 1 %   | 4.60 dB |
| .1 %  | 5.64 dB |
| .01 % | 6.24 dB |

Date: 27.AUG.2012 20:49:38

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



Center 1.8825 GHz 2 dB/ Mean Pwr + 20 dB

Complementary Cumulative Distribution Function (100000 samples)  
 Trace 1  
 Mean 20.83 dBm  
 Peak 28.50 dBm  
 Crest 7.67 dB

|       |         |
|-------|---------|
| 10 %  | 3.12 dB |
| 1 %   | 5.24 dB |
| .1 %  | 6.52 dB |
| .01 % | 7.28 dB |

Date: 27.AUG.2012 20:50:02

### 3.3 Emission Bandwidth

#### 3.3.1 Description of Emission 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.

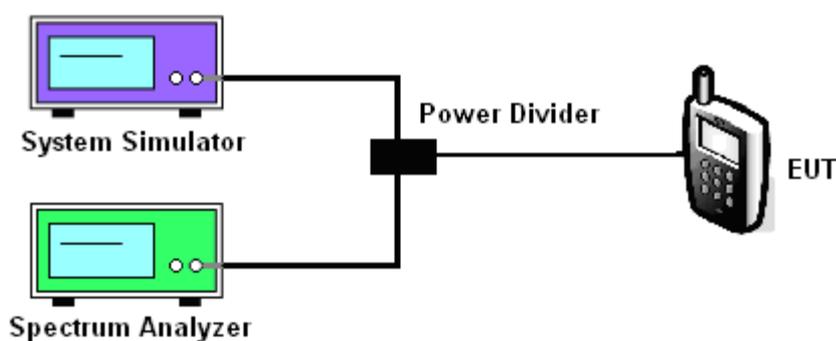
#### 3.3.2 Measuring Instruments

See list of measuring instruments of this test report.

#### 3.3.3 Test Procedures

1. The EUT was connected to Spectrum Analyzer and System Simulator 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





3.3.6 Test Result of 99% Occupied Bandwidth and 26dB Bandwidth

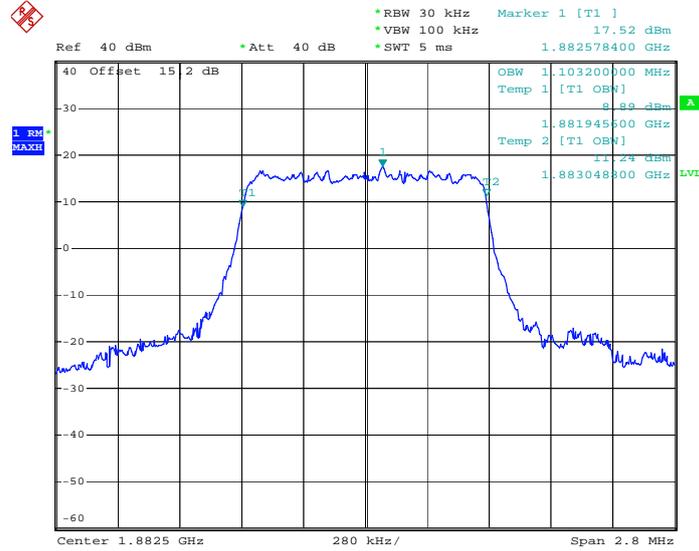
| Band        | Band Width | Channel | Frequency (MHz) | Modulation | 99%Bandwidth (MHz) | 26dB Bandwidth (MHz) |
|-------------|------------|---------|-----------------|------------|--------------------|----------------------|
| LTE Band 25 | 1.4MHz     | 26365   | 1882.5          | QPSK       | 1.1032             | 1.3104               |
|             |            |         |                 | 16-QAM     | 1.1032             | 1.3160               |
|             | 3MHz       | 26365   | 1882.5          | QPSK       | 2.7360             | 3.1320               |
|             |            |         |                 | 16-QAM     | 2.7480             | 3.1560               |
|             | 5MHz       | 26365   | 1882.5          | QPSK       | 4.5000             | 5.1200               |
|             |            |         |                 | 16-QAM     | 4.5200             | 5.1400               |
|             | 10MHz      | 26365   | 1882.5          | QPSK       | 9.1600             | 10.3600              |
|             |            |         |                 | 16-QAM     | 9.0800             | 10.2400              |



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

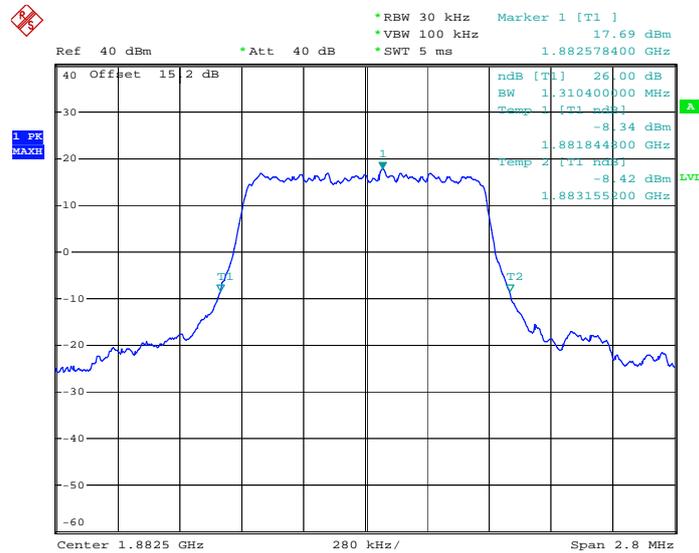
|        |             |             |               |
|--------|-------------|-------------|---------------|
| Band : | LTE Band 25 | BW / Mod. : | 1.4MHz / QPSK |
|--------|-------------|-------------|---------------|

99% Occupied Bandwidth Plot on Channel 26365



Date: 27.AUG.2012 19:09:05

26dB Bandwidth Plot on Channel 26365

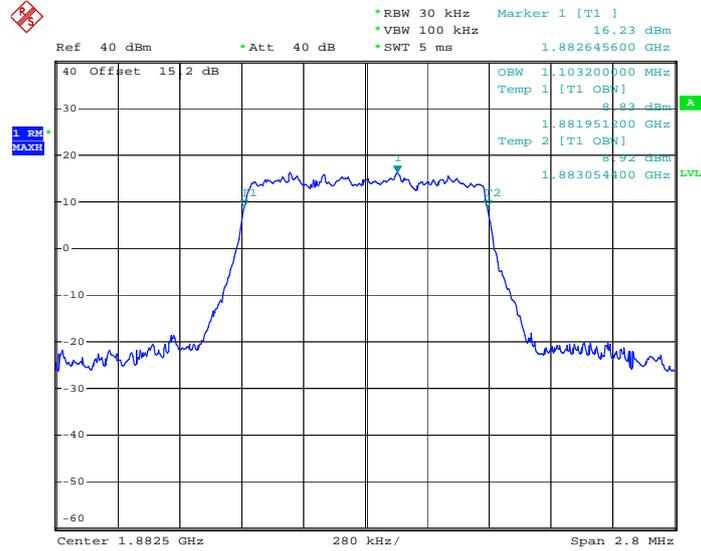


Date: 27.AUG.2012 18:46:47



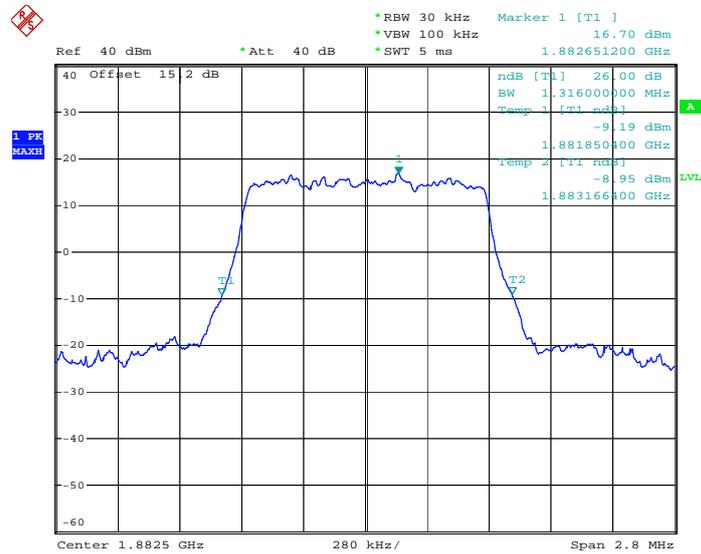
|               |             |                    |                |
|---------------|-------------|--------------------|----------------|
| <b>Band :</b> | LTE Band 25 | <b>BW / Mod. :</b> | 1.4MHz / 16QAM |
|---------------|-------------|--------------------|----------------|

99% Occupied Bandwidth Plot on Channel 26365



Date: 27.AUG.2012 19:08:11

26dB Bandwidth Plot on Channel 26365

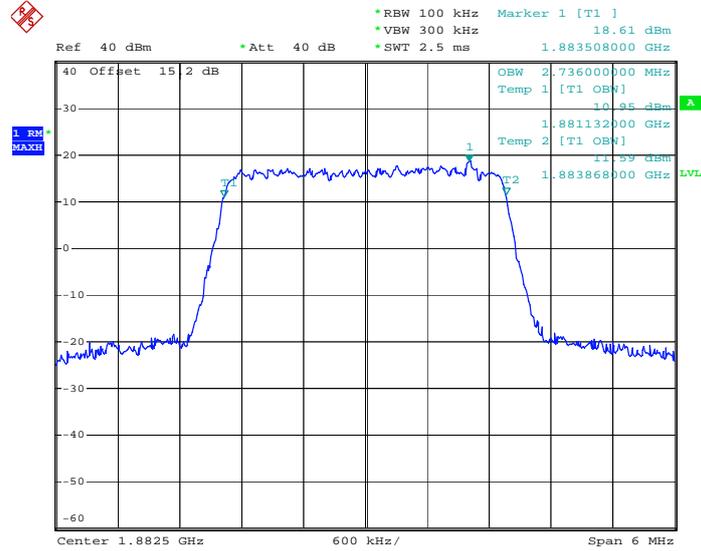


Date: 27.AUG.2012 18:48:06



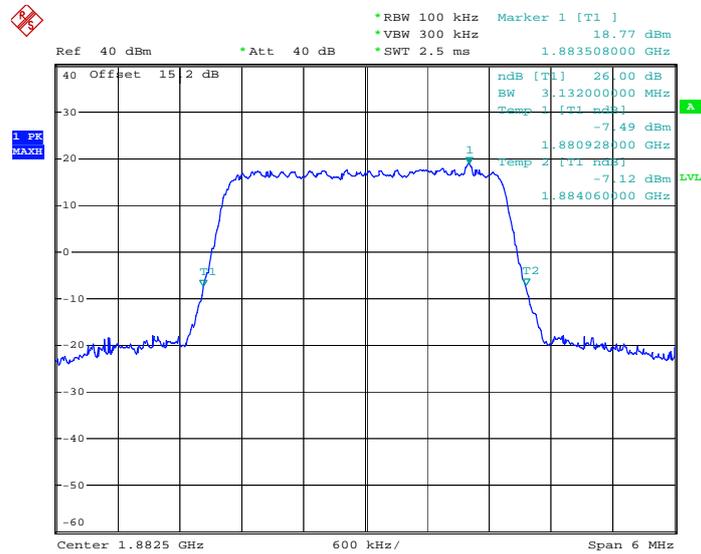
|        |             |             |             |
|--------|-------------|-------------|-------------|
| Band : | LTE Band 25 | BW / Mod. : | 3MHz / QPSK |
|--------|-------------|-------------|-------------|

99% Occupied Bandwidth Plot on Channel 26365



Date: 27.AUG.2012 19:18:28

26dB Bandwidth Plot on Channel 26365

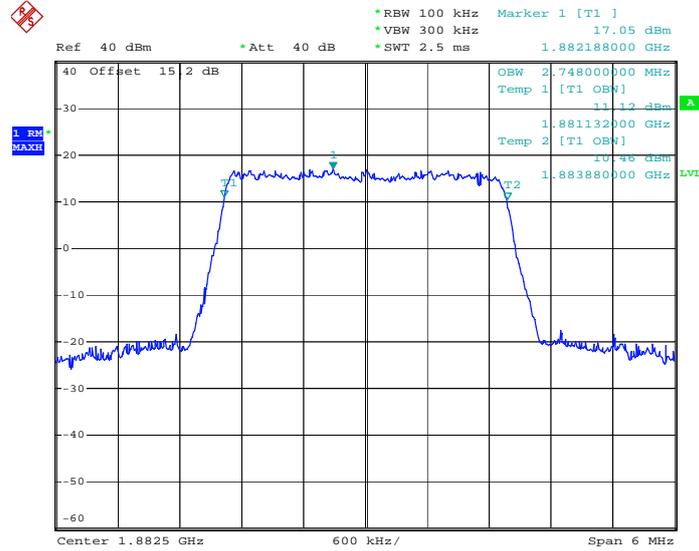


Date: 27.AUG.2012 18:50:49



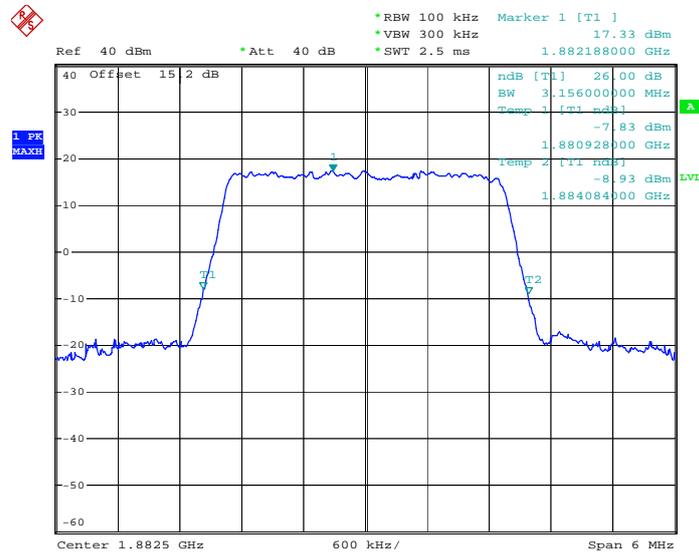
|        |             |             |              |
|--------|-------------|-------------|--------------|
| Band : | LTE Band 25 | BW / Mod. : | 3MHz / 16QAM |
|--------|-------------|-------------|--------------|

99% Occupied Bandwidth Plot on Channel 26365



Date: 27.AUG.2012 19:17:21

26dB Bandwidth Plot on Channel 26365

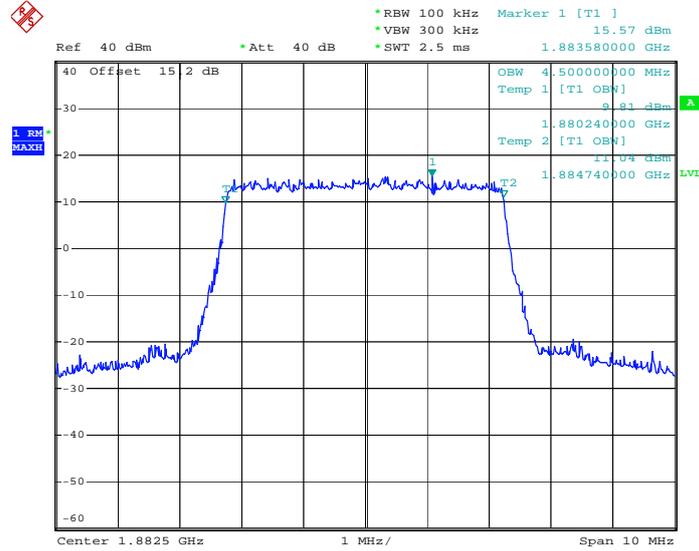


Date: 27.AUG.2012 18:50:14



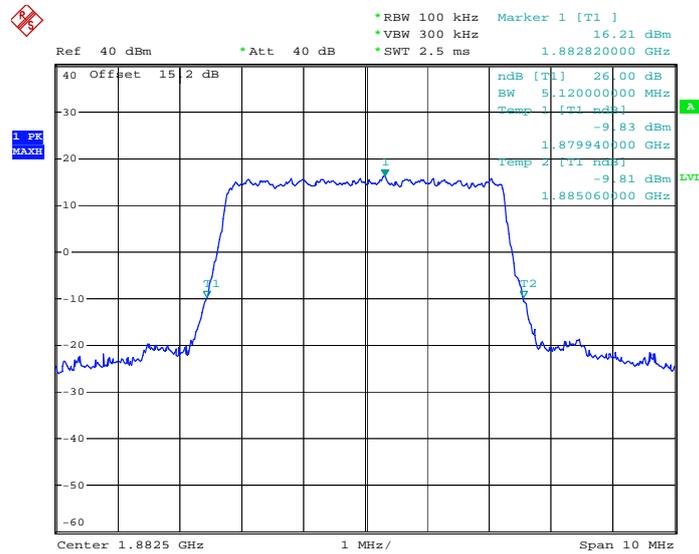
|               |             |                    |             |
|---------------|-------------|--------------------|-------------|
| <b>Band :</b> | LTE Band 25 | <b>BW / Mod. :</b> | 5MHz / QPSK |
|---------------|-------------|--------------------|-------------|

99% Occupied Bandwidth Plot on Channel 26365



Date: 27.AUG.2012 19:25:43

26dB Bandwidth Plot on Channel 26365

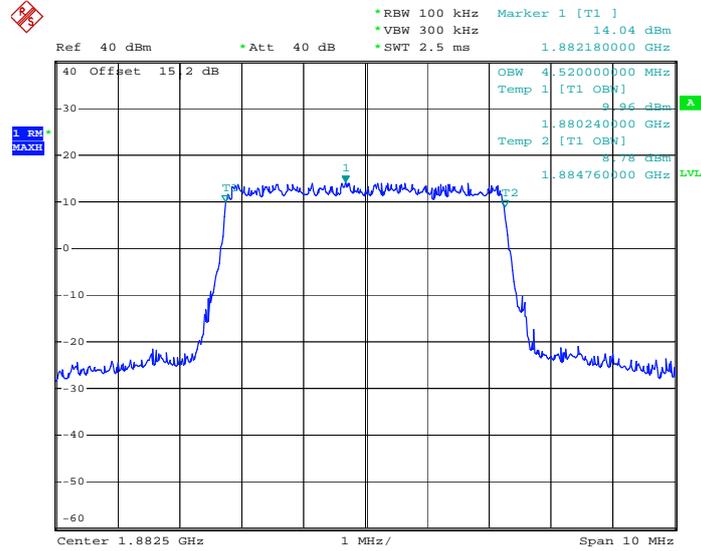


Date: 27.AUG.2012 18:52:29



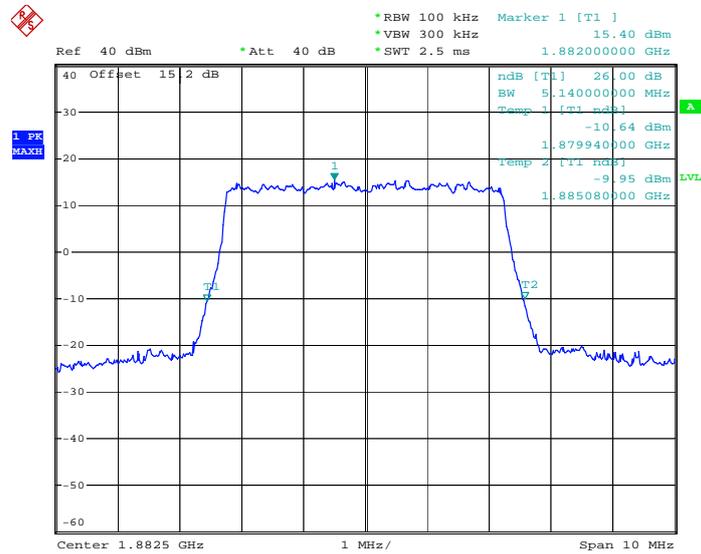
|               |             |                    |              |
|---------------|-------------|--------------------|--------------|
| <b>Band :</b> | LTE Band 25 | <b>BW / Mod. :</b> | 5MHz / 16QAM |
|---------------|-------------|--------------------|--------------|

99% Occupied Bandwidth Plot on Channel 26365



Date: 27.AUG.2012 19:25:18

26dB Bandwidth Plot on Channel 26365

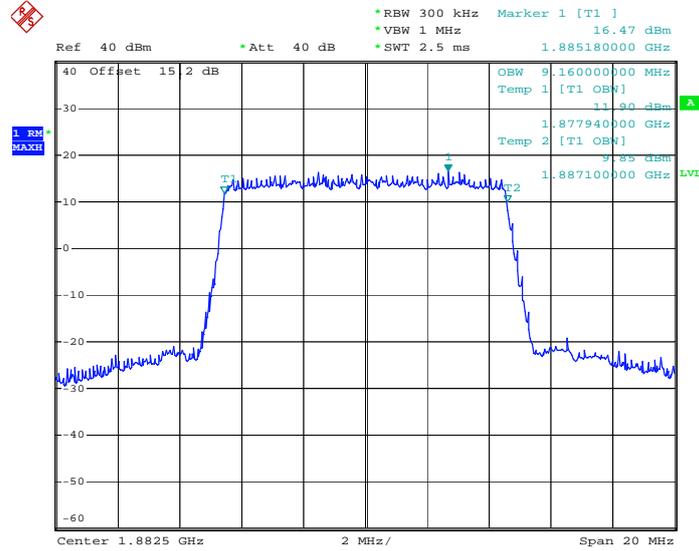


Date: 27.AUG.2012 18:53:50



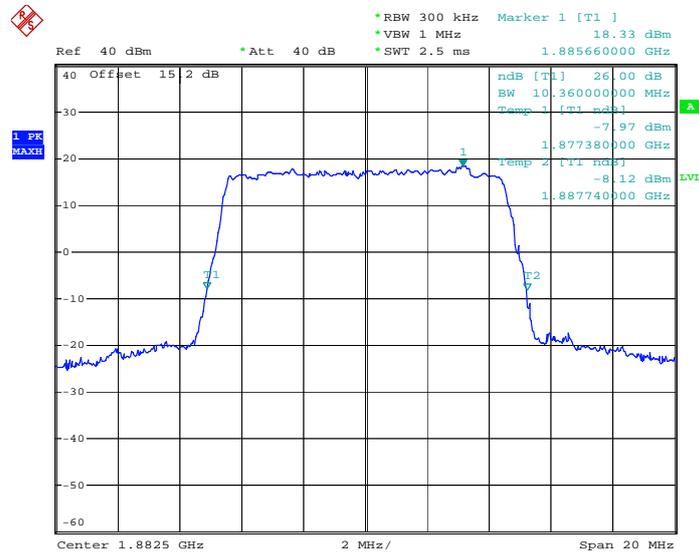
|        |             |             |              |
|--------|-------------|-------------|--------------|
| Band : | LTE Band 25 | BW / Mod. : | 10MHz / QPSK |
|--------|-------------|-------------|--------------|

99% Occupied Bandwidth Plot on Channel 26365



Date: 27.AUG.2012 19:35:30

26dB Bandwidth Plot on Channel 26365

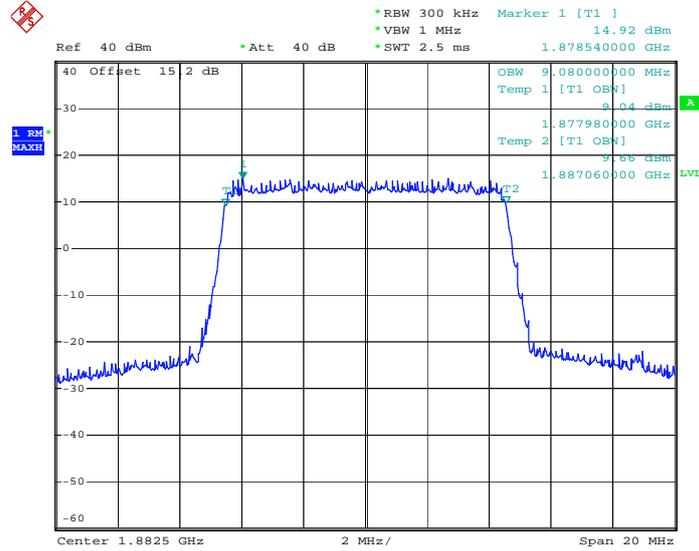


Date: 27.AUG.2012 18:56:14



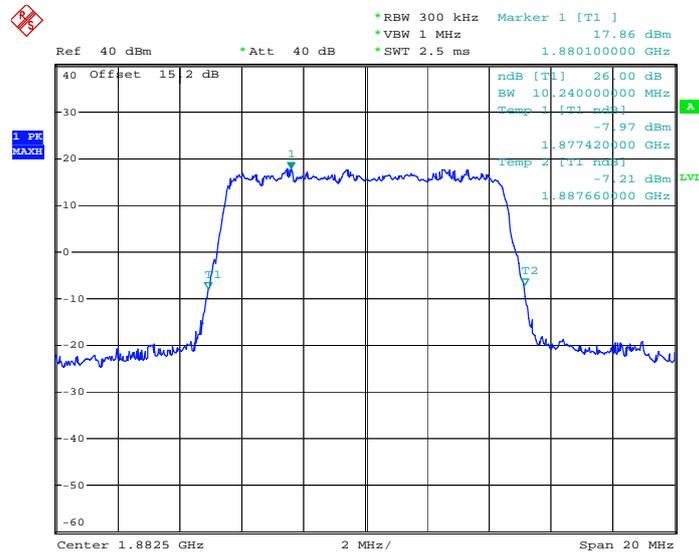
|               |             |                    |               |
|---------------|-------------|--------------------|---------------|
| <b>Band :</b> | LTE Band 25 | <b>BW / Mod. :</b> | 10MHz / 16QAM |
|---------------|-------------|--------------------|---------------|

99% Occupied Bandwidth Plot on Channel 26365



Date: 27.AUG.2012 19:34:27

26dB Bandwidth Plot on Channel 26365



Date: 27.AUG.2012 18:54:48

### 3.4 Conducted Band Edge and Spurious Emission Measurement

#### 3.4.1 Limit

For operations in band 25, the FCC limit is

$43 + 10\log_{10}(P[\text{Watts}]) \text{ dB} = -13 \text{ dBm}$  in a 1 MHz bandwidth.

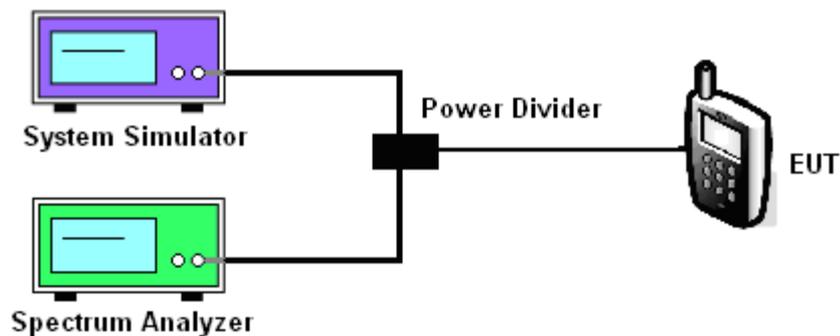
#### 3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

#### 3.4.3 Test Procedures

1. The EUT was connected to spectrum analyzer and system simulator via power divider.
2. The conducted spurious emission for the whole frequency range was taken.

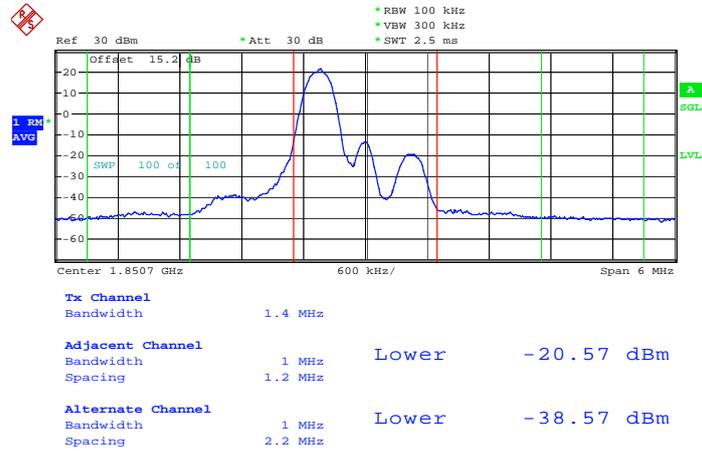
#### 3.4.4 Test Setup



### 3.4.5 Test Plots of Conducted Band-Edge Emission

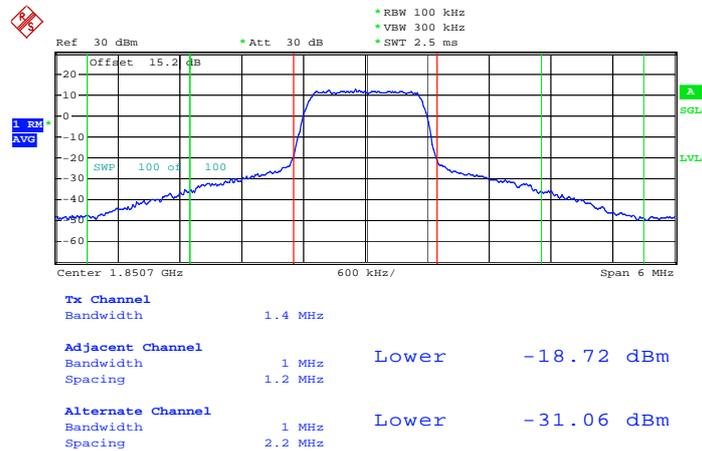
|               |             |                    |               |
|---------------|-------------|--------------------|---------------|
| <b>Band :</b> | LTE Band 25 | <b>BW / Mod. :</b> | 1.4MHz / QPSK |
|---------------|-------------|--------------------|---------------|

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



Date: 27.AUG.2012 20:09:03

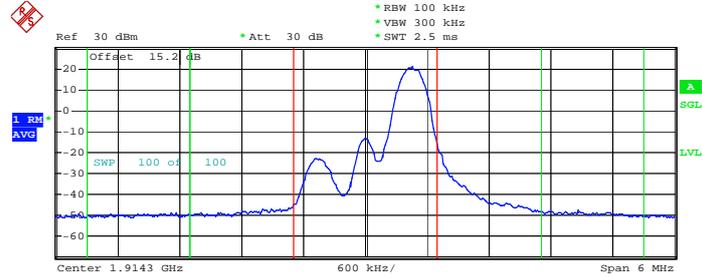
Lower Band Edge Plot for QPSK-RB Size 6, RB Offset 0



Date: 27.AUG.2012 20:10:51



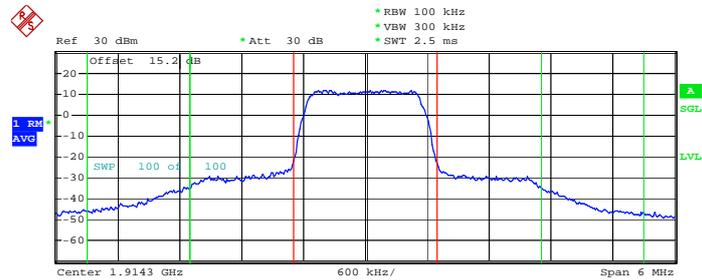
Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 5



|                          |         |       |            |
|--------------------------|---------|-------|------------|
| <b>Tx Channel</b>        |         |       |            |
| Bandwidth                | 1.4 MHz |       |            |
| <b>Adjacent Channel</b>  |         |       |            |
| Bandwidth                | 1 MHz   |       |            |
| Spacing                  | 1.2 MHz | Upper | -20.53 dBm |
| <b>Alternate Channel</b> |         |       |            |
| Bandwidth                | 1 MHz   |       |            |
| Spacing                  | 2.2 MHz | Upper | -39.36 dBm |

Date: 27.AUG.2012 20:13:37

Higher Band Edge Plot for QPSK-RB Size 6, RB Offset 0



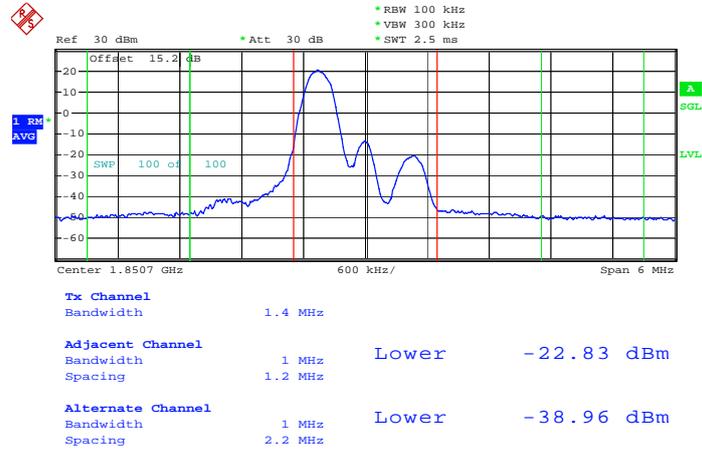
|                          |         |       |            |
|--------------------------|---------|-------|------------|
| <b>Tx Channel</b>        |         |       |            |
| Bandwidth                | 1.4 MHz |       |            |
| <b>Adjacent Channel</b>  |         |       |            |
| Bandwidth                | 1 MHz   |       |            |
| Spacing                  | 1.2 MHz | Upper | -19.93 dBm |
| <b>Alternate Channel</b> |         |       |            |
| Bandwidth                | 1 MHz   |       |            |
| Spacing                  | 2.2 MHz | Upper | -31.15 dBm |

Date: 27.AUG.2012 20:14:01



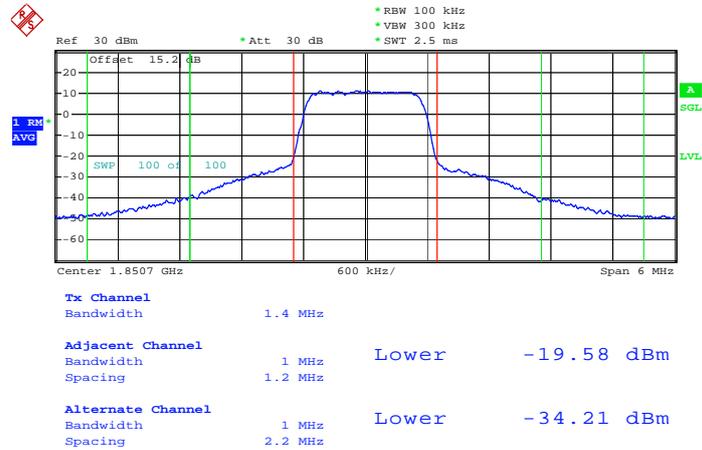
|               |             |                    |                |
|---------------|-------------|--------------------|----------------|
| <b>Band :</b> | LTE Band 25 | <b>BW / Mod. :</b> | 1.4MHz / 16QAM |
|---------------|-------------|--------------------|----------------|

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



Date: 27.AUG.2012 20:08:49

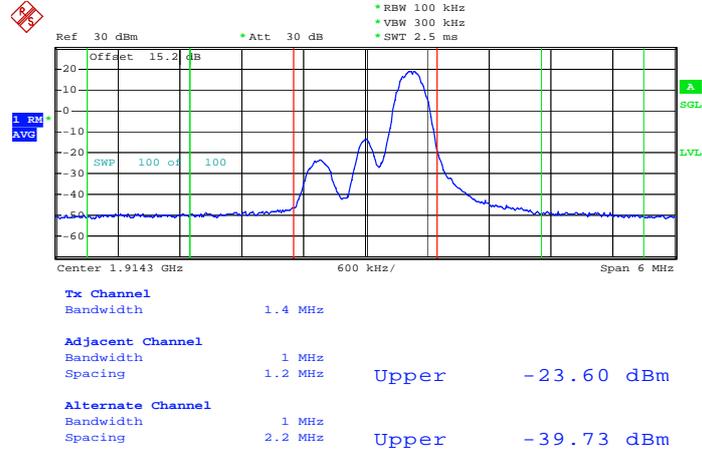
**Lower Band Edge Plot for 16QAM -RB Size 6, RB Offset 0**



Date: 27.AUG.2012 20:11:12

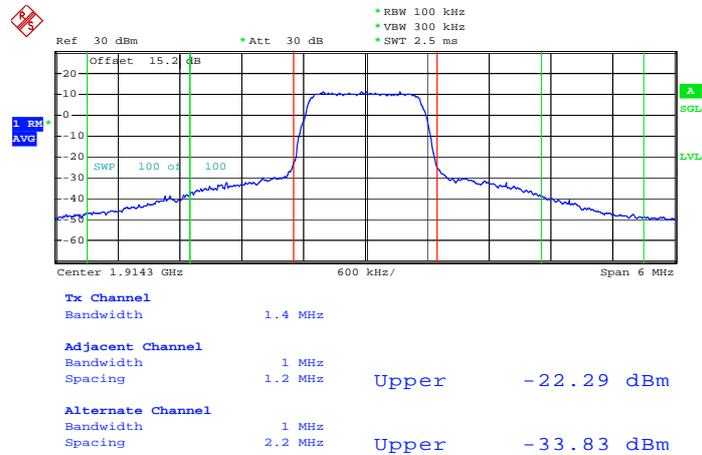


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 5



Date: 27.AUG.2012 20:13:10

Higher Band Edge Plot for 16QAM -RB Size 6, RB Offset 0

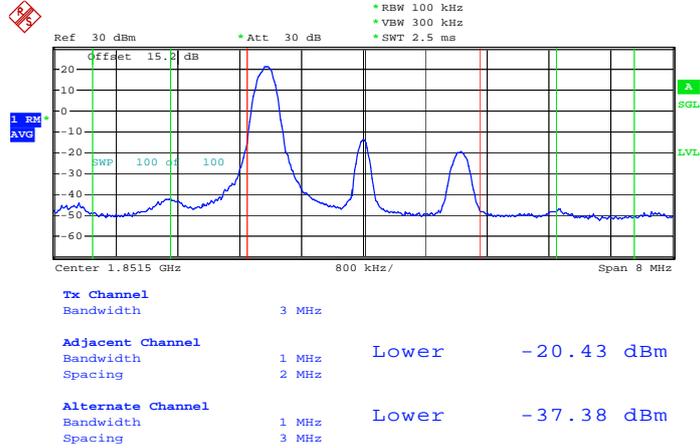


Date: 27.AUG.2012 20:14:24



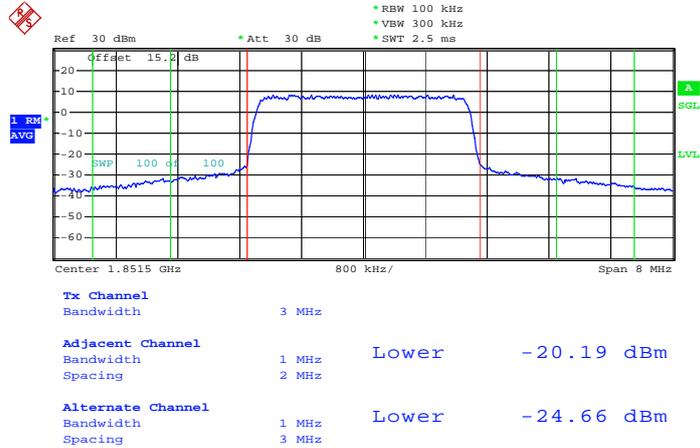
|               |             |                    |             |
|---------------|-------------|--------------------|-------------|
| <b>Band :</b> | LTE Band 25 | <b>BW / Mod. :</b> | 3MHz / QPSK |
|---------------|-------------|--------------------|-------------|

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



Date: 27.AUG.2012 20:18:00

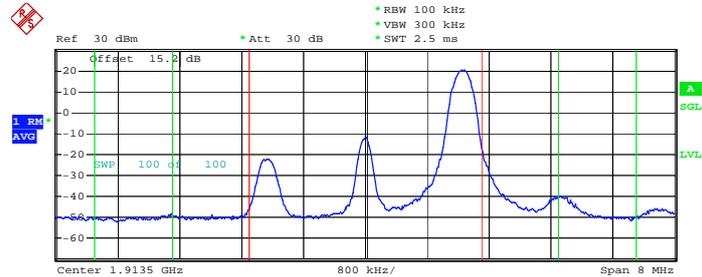
Lower Band Edge Plot for QPSK-RB Size 15, RB Offset 0



Date: 27.AUG.2012 20:18:51



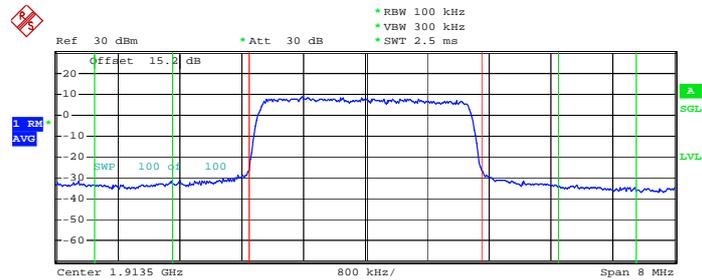
Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 14



|                          |       |       |            |
|--------------------------|-------|-------|------------|
| <b>Tx Channel</b>        |       |       |            |
| Bandwidth                | 3 MHz |       |            |
| <b>Adjacent Channel</b>  |       |       |            |
| Bandwidth                | 1 MHz |       |            |
| Spacing                  | 2 MHz | Upper | -19.43 dBm |
| <b>Alternate Channel</b> |       |       |            |
| Bandwidth                | 1 MHz |       |            |
| Spacing                  | 3 MHz | Upper | -36.11 dBm |

Date: 27.AUG.2012 20:20:49

Higher Band Edge Plot for QPSK-RB Size 15, RB Offset 0



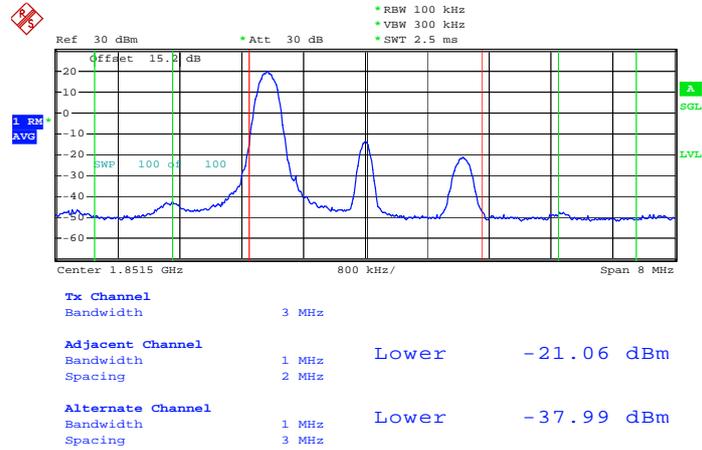
|                          |       |       |            |
|--------------------------|-------|-------|------------|
| <b>Tx Channel</b>        |       |       |            |
| Bandwidth                | 3 MHz |       |            |
| <b>Adjacent Channel</b>  |       |       |            |
| Bandwidth                | 1 MHz |       |            |
| Spacing                  | 2 MHz | Upper | -21.80 dBm |
| <b>Alternate Channel</b> |       |       |            |
| Bandwidth                | 1 MHz |       |            |
| Spacing                  | 3 MHz | Upper | -25.05 dBm |

Date: 27.AUG.2012 20:21:14



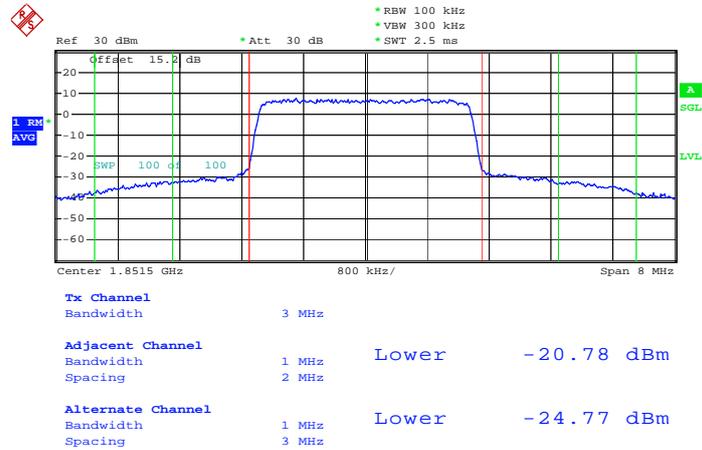
|               |             |                    |              |
|---------------|-------------|--------------------|--------------|
| <b>Band :</b> | LTE Band 25 | <b>BW / Mod. :</b> | 3MHz / 16QAM |
|---------------|-------------|--------------------|--------------|

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



Date: 27.AUG.2012 20:17:37

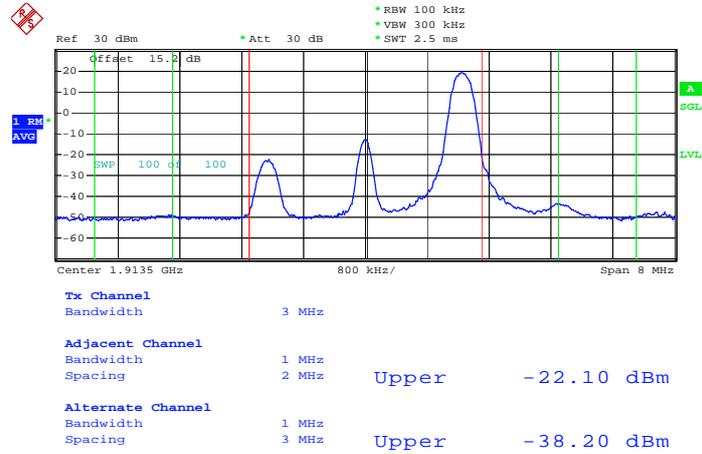
Lower Band Edge Plot for 16QAM -RB Size 15, RB Offset 0



Date: 27.AUG.2012 20:19:16

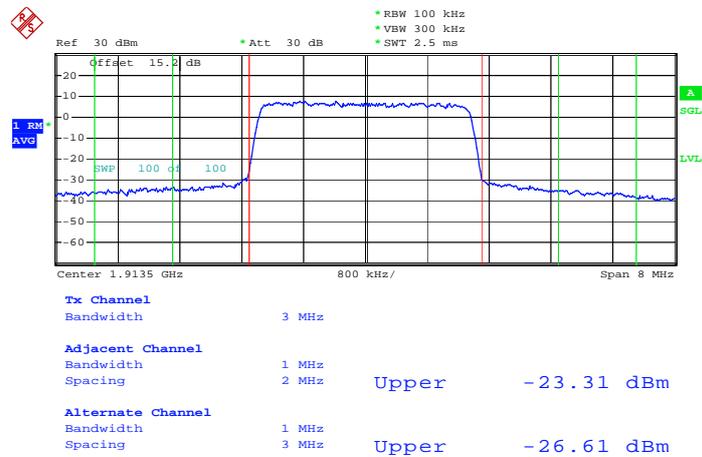


### Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 14



Date: 27.AUG.2012 20:20:31

### Higher Band Edge Plot for 16QAM -RB Size 15, RB Offset 0

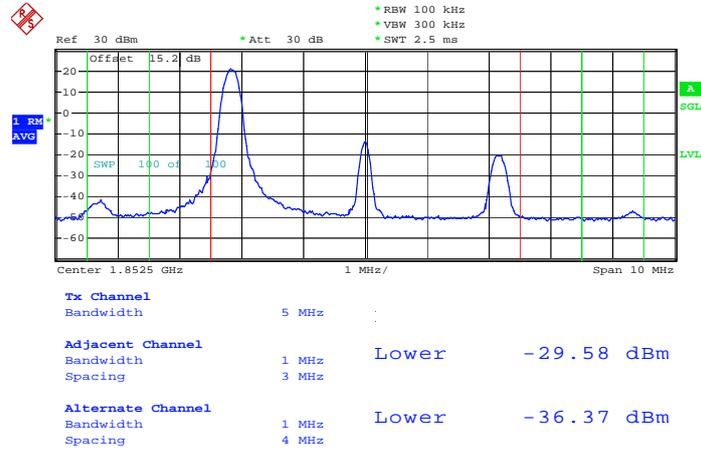


Date: 27.AUG.2012 20:21:30



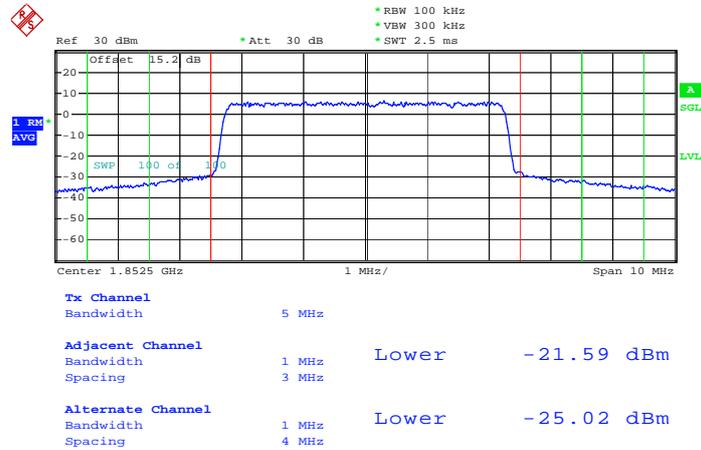
|               |             |                    |             |
|---------------|-------------|--------------------|-------------|
| <b>Band :</b> | LTE Band 25 | <b>BW / Mod. :</b> | 5MHz / QPSK |
|---------------|-------------|--------------------|-------------|

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



Date: 27.AUG.2012 20:25:59

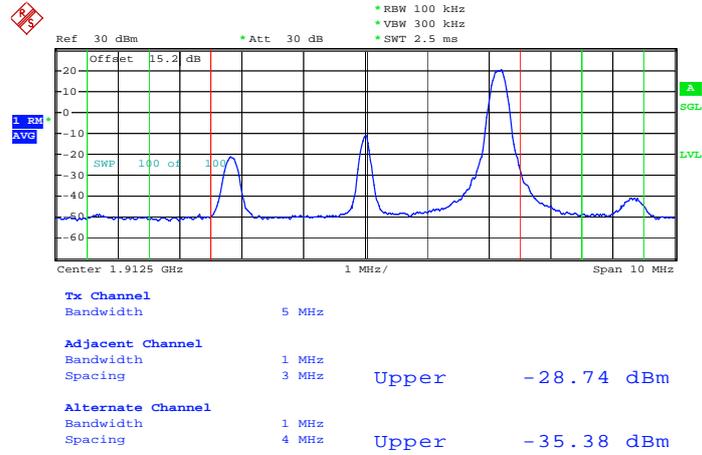
Lower Band Edge Plot for QPSK-RB Size 25, RB Offset 0



Date: 27.AUG.2012 20:26:19

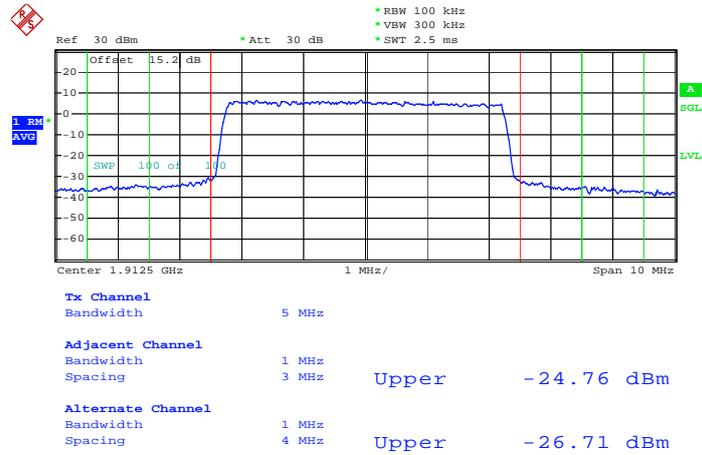


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 24



Date: 27.AUG.2012 20:28:57

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

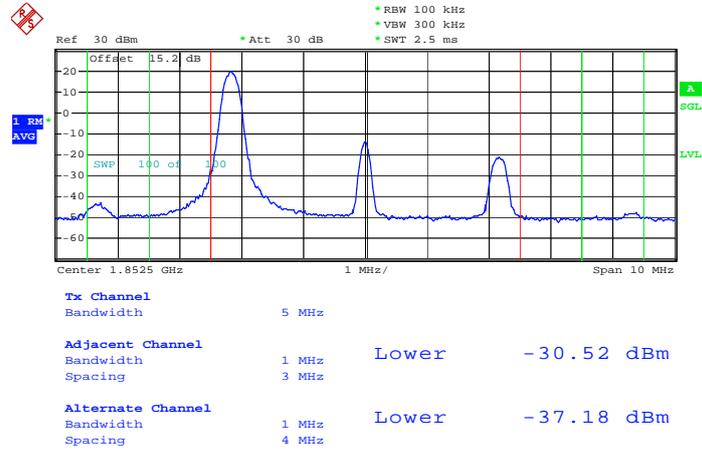


Date: 27.AUG.2012 20:29:44



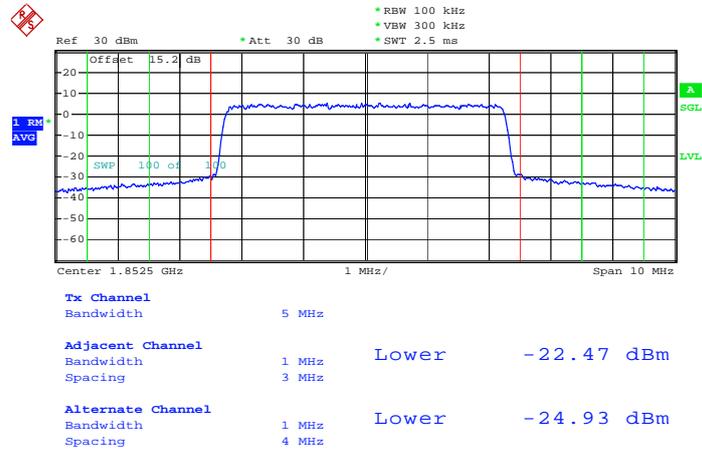
|               |             |                    |              |
|---------------|-------------|--------------------|--------------|
| <b>Band :</b> | LTE Band 25 | <b>BW / Mod. :</b> | 5MHz / 16QAM |
|---------------|-------------|--------------------|--------------|

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



Date: 27.AUG.2012 20:25:21

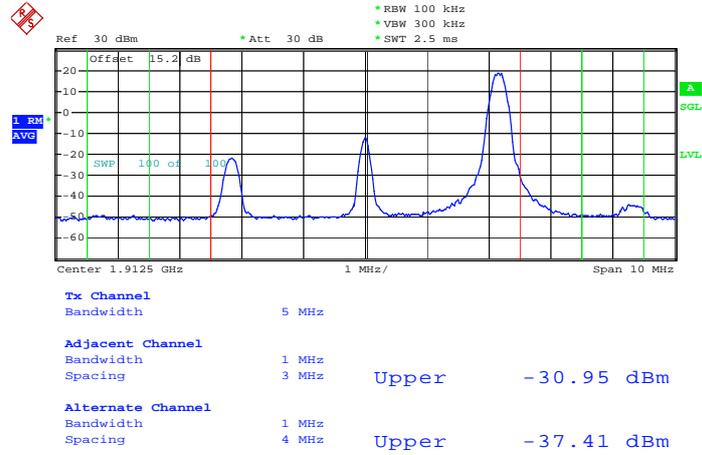
**Lower Band Edge Plot for 16QAM -RB Size 25, RB Offset 0**



Date: 27.AUG.2012 20:26:34

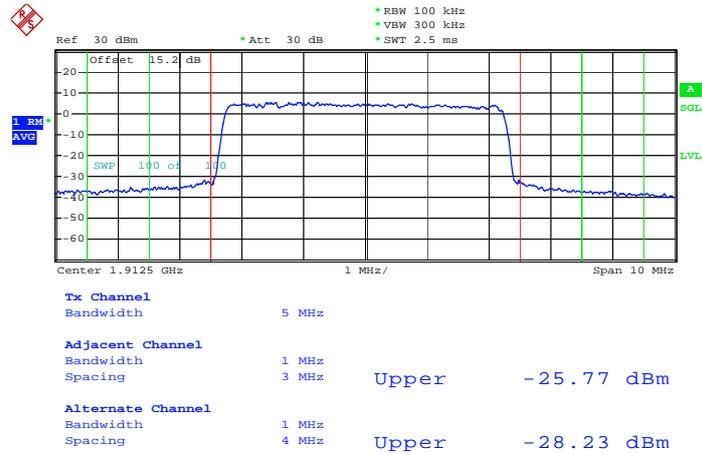


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 24



Date: 27.AUG.2012 20:28:42

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

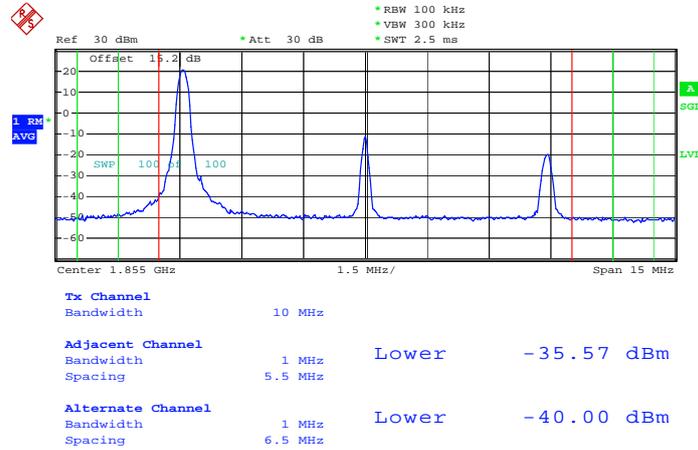


Date: 27.AUG.2012 20:30:00



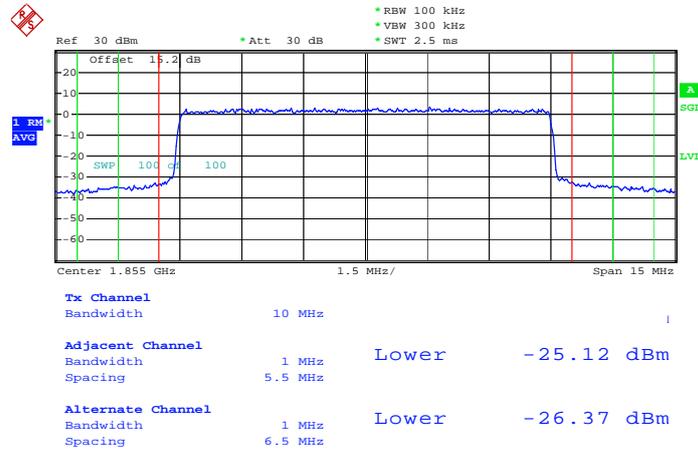
|               |             |                    |              |
|---------------|-------------|--------------------|--------------|
| <b>Band :</b> | LTE Band 25 | <b>BW / Mod. :</b> | 10MHz / QPSK |
|---------------|-------------|--------------------|--------------|

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



Date: 27.AUG.2012 20:33:38

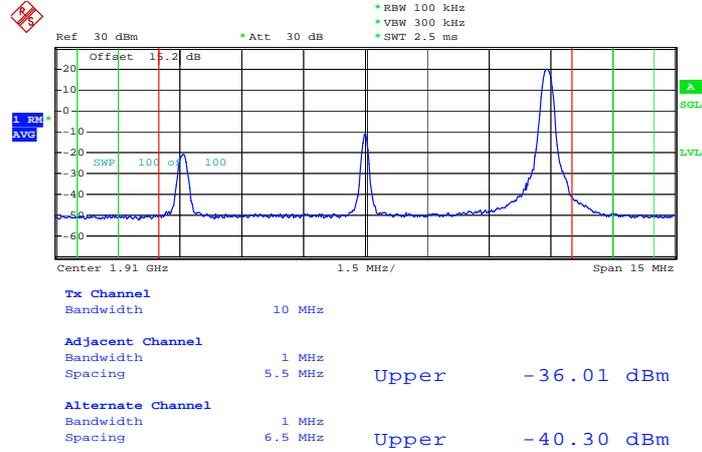
Lower Band Edge Plot for QPSK-RB Size 50, RB Offset 0



Date: 27.AUG.2012 20:33:59

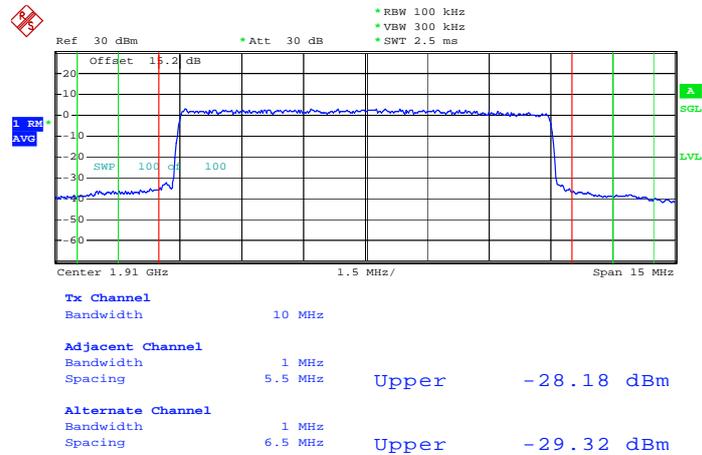


Higher Band Edge Plot for QPSK-RB Size 1, RB Offset 49



Date: 27.AUG.2012 20:36:32

Higher Band Edge Plot for QPSK-RB Size 50, RB Offset 0

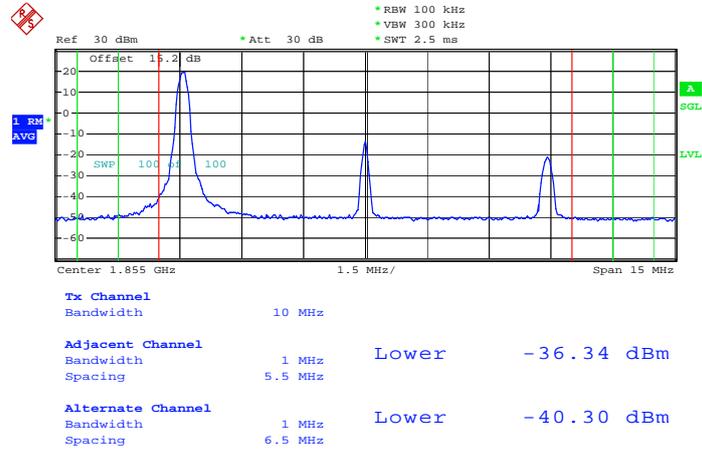


Date: 27.AUG.2012 20:36:57



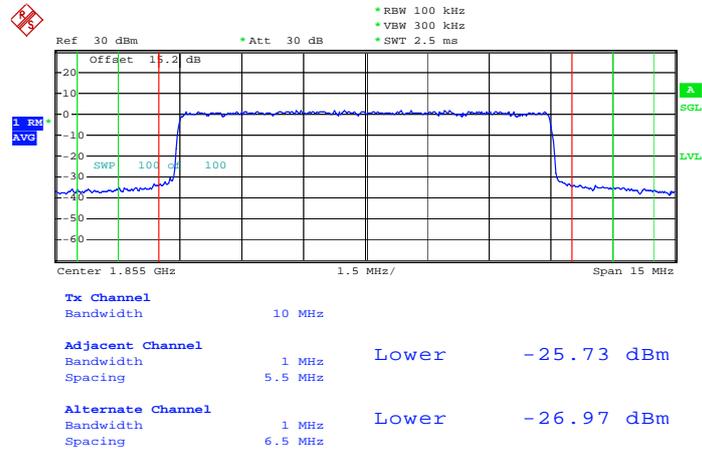
|               |             |                    |               |
|---------------|-------------|--------------------|---------------|
| <b>Band :</b> | LTE Band 25 | <b>BW / Mod. :</b> | 10MHz / 16QAM |
|---------------|-------------|--------------------|---------------|

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



Date: 27.AUG.2012 20:33:19

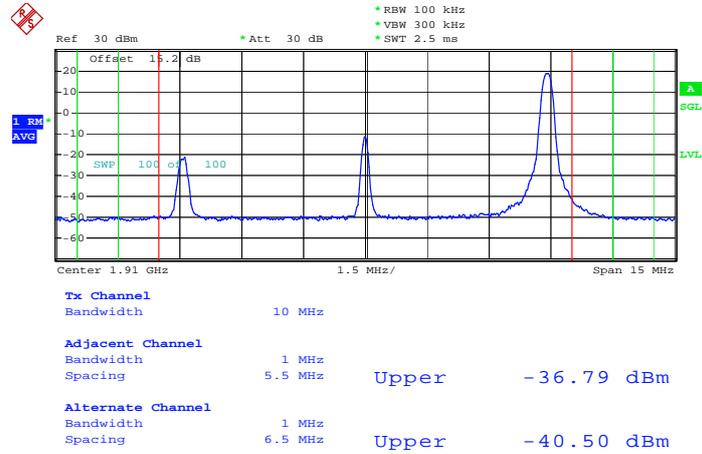
Lower Band Edge Plot for 16QAM -RB Size 50, RB Offset 0



Date: 27.AUG.2012 20:34:19

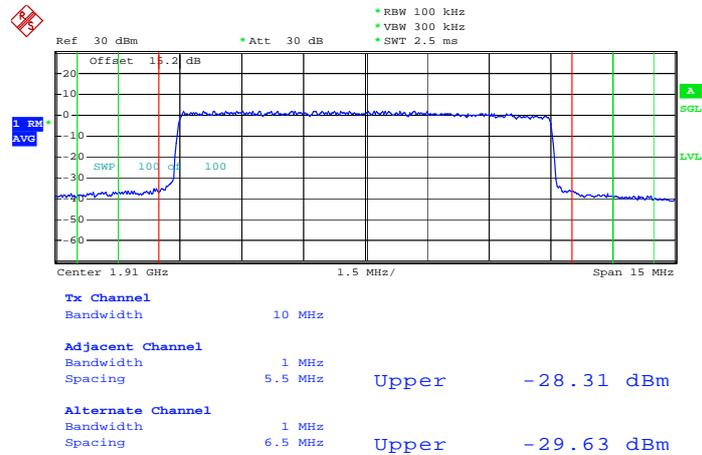


Higher Band Edge Plot for 16QAM -RB Size 1, RB Offset 49



Date: 27.AUG.2012 20:36:19

Higher Band Edge Plot for 16QAM -RB Size 50, RB Offset 0



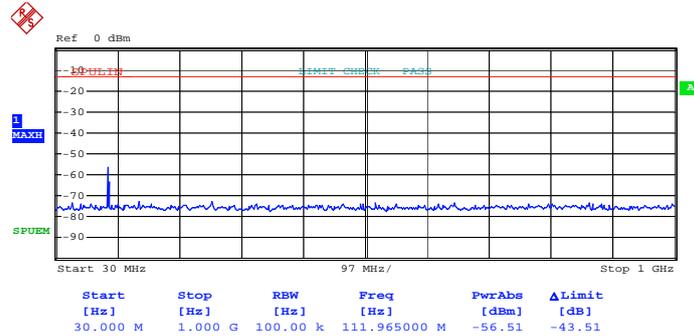
Date: 27.AUG.2012 20:40:03



3.4.6 Test Plots of Spurious Emission

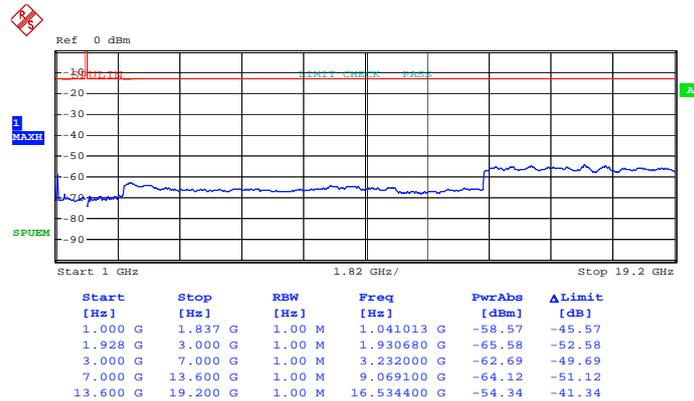
|             |             |             |               |
|-------------|-------------|-------------|---------------|
| Band :      | LTE Band 25 | BW / Mod. : | 1.4MHz / QPSK |
| Frequency : | 1850.7      | Channel :   | 26047         |

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



Date: 5.SEP.2012 20:32:27

Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)

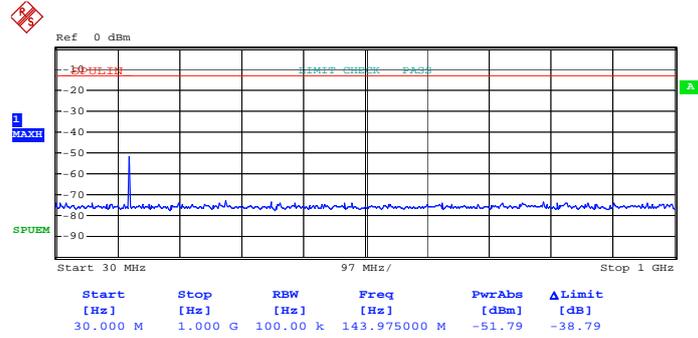


Date: 5.SEP.2012 20:27:59



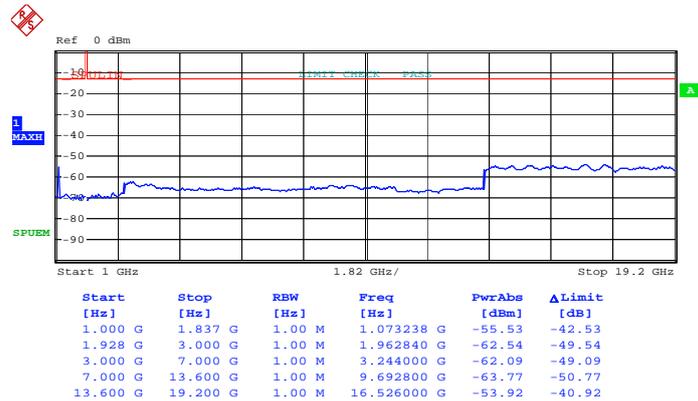
|                    |             |                    |               |
|--------------------|-------------|--------------------|---------------|
| <b>Band :</b>      | LTE Band 25 | <b>BW / Mod. :</b> | 1.4MHz / QPSK |
| <b>Frequency :</b> | 1882.5      | <b>Channel :</b>   | 26365         |

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



Date: 5.SEP.2012 20:22:59

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

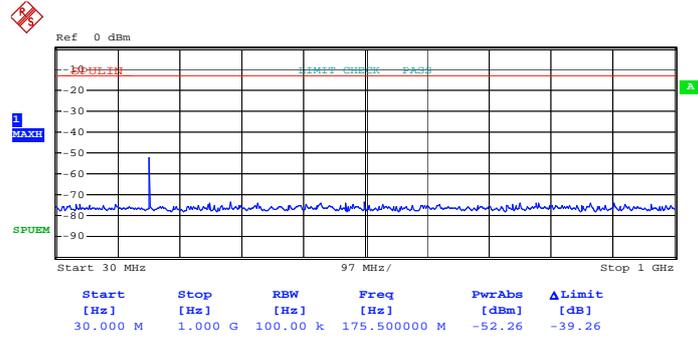


Date: 5.SEP.2012 20:24:40



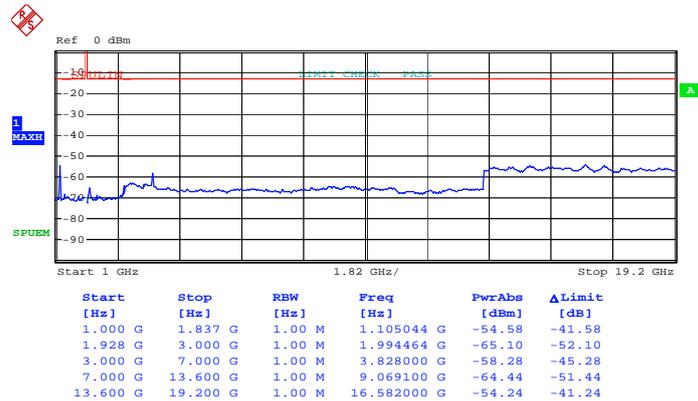
|                    |             |                    |               |
|--------------------|-------------|--------------------|---------------|
| <b>Band :</b>      | LTE Band 25 | <b>BW / Mod. :</b> | 1.4MHz / QPSK |
| <b>Frequency :</b> | 1914.3      | <b>Channel :</b>   | 26683         |

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



Date: 5.SEP.2012 20:33:05

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

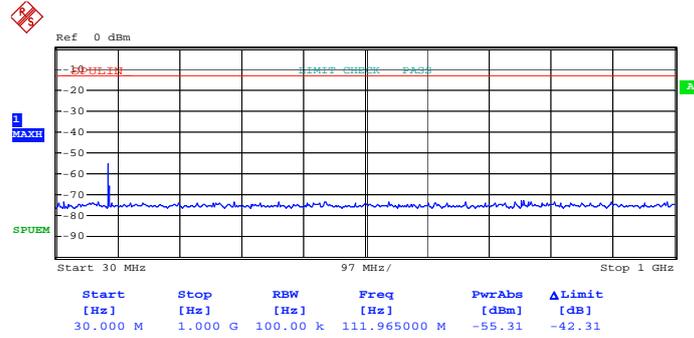


Date: 5.SEP.2012 20:34:07



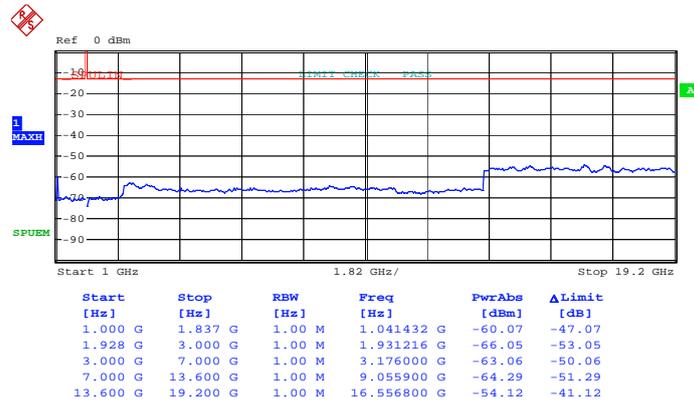
|                    |             |                    |                |
|--------------------|-------------|--------------------|----------------|
| <b>Band :</b>      | LTE Band 25 | <b>BW / Mod. :</b> | 1.4MHz / 16QAM |
| <b>Frequency :</b> | 1850.7      | <b>Channel :</b>   | 26047          |

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



Date: 5.SEP.2012 20:29:21

**Conducted Emission Plot (1GHz ~ 19.2GHz) for 16-QAM (RB Size 1, RB Offset 0)**

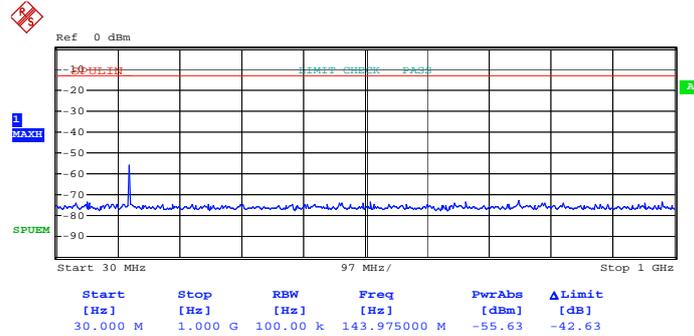


Date: 5.SEP.2012 20:28:14



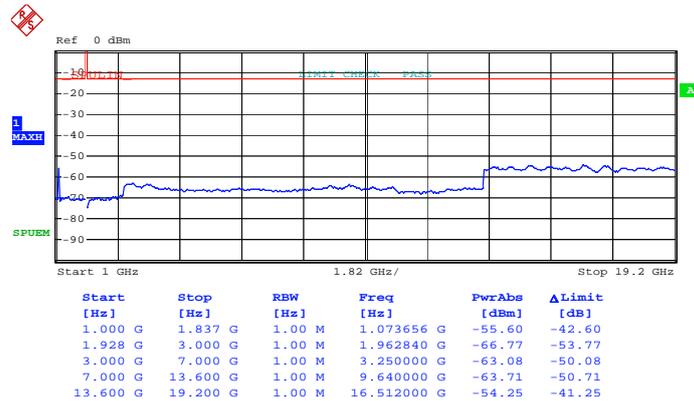
|                    |             |                    |                |
|--------------------|-------------|--------------------|----------------|
| <b>Band :</b>      | LTE Band 25 | <b>BW / Mod. :</b> | 1.4MHz / 16QAM |
| <b>Frequency :</b> | 1882.5      | <b>Channel :</b>   | 26365          |

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



Date: 5.SEP.2012 20:23:14

**Conducted Emission Plot (1GHz ~ 19.2GHz) for 16-QAM (RB Size 1, RB Offset 0)**

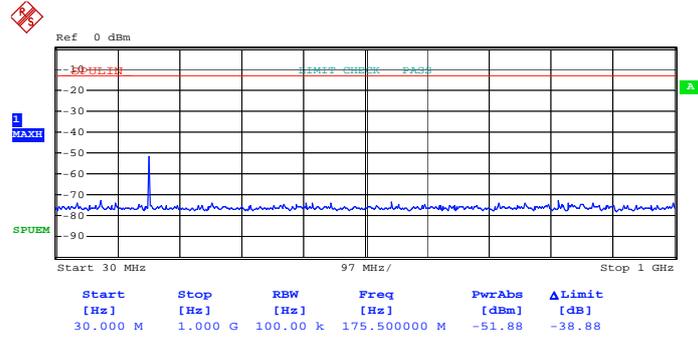


Date: 5.SEP.2012 20:23:38



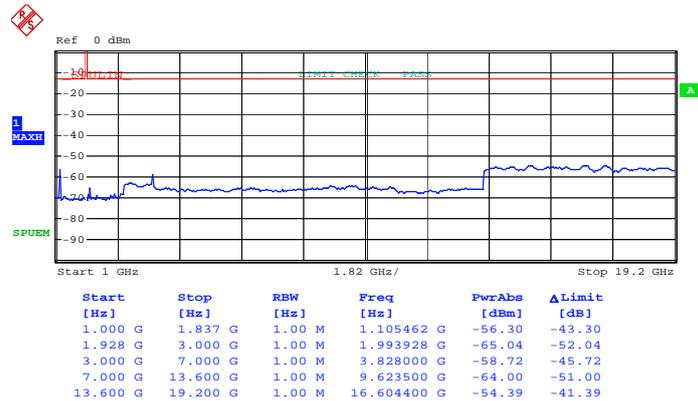
|                    |             |                    |                |
|--------------------|-------------|--------------------|----------------|
| <b>Band :</b>      | LTE Band 25 | <b>BW / Mod. :</b> | 1.4MHz / 16QAM |
| <b>Frequency :</b> | 1914.3      | <b>Channel :</b>   | 26683          |

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



Date: 5.SEP.2012 20:33:19

**Conducted Emission Plot (1GHz ~ 19.2GHz) for 16-QAM (RB Size 1, RB Offset 0)**

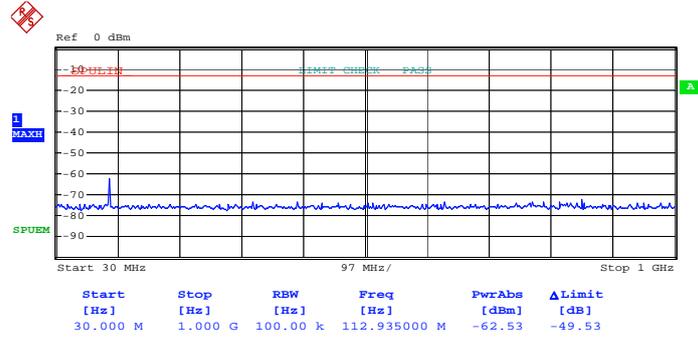


Date: 5.SEP.2012 20:33:47



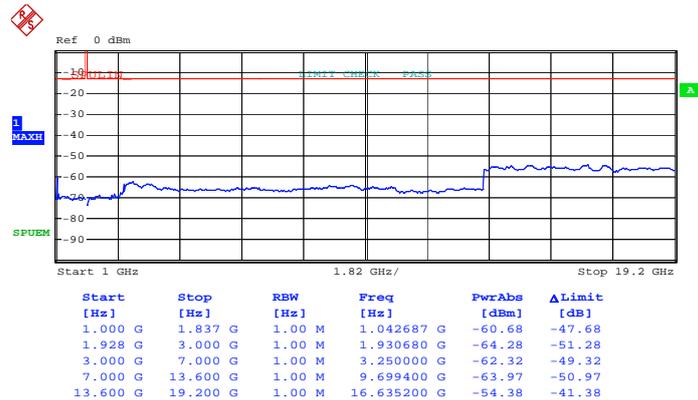
|                    |             |                    |             |
|--------------------|-------------|--------------------|-------------|
| <b>Band :</b>      | LTE Band 25 | <b>BW / Mod. :</b> | 3MHz / QPSK |
| <b>Frequency :</b> | 1851.5      | <b>Channel :</b>   | 26055       |

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



Date: 5.SEP.2012 20:37:36

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

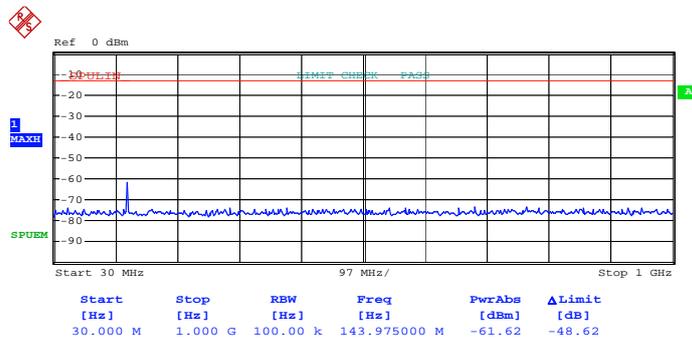


Date: 5.SEP.2012 20:36:41



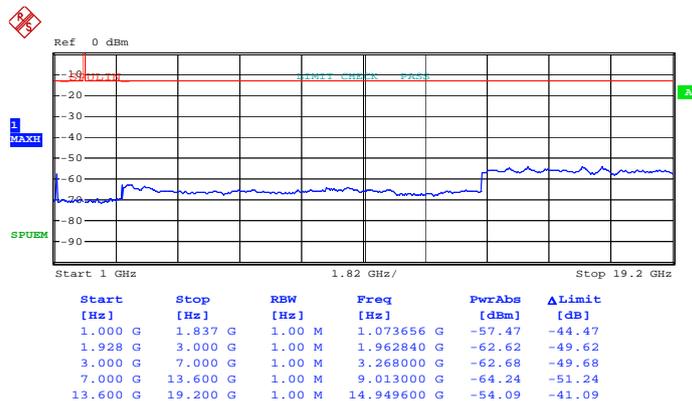
|                    |             |                    |             |
|--------------------|-------------|--------------------|-------------|
| <b>Band :</b>      | LTE Band 25 | <b>BW / Mod. :</b> | 3MHz / QPSK |
| <b>Frequency :</b> | 1882.5      | <b>Channel :</b>   | 26365       |

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



Date: 5.SEP.2012 20:39:04

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

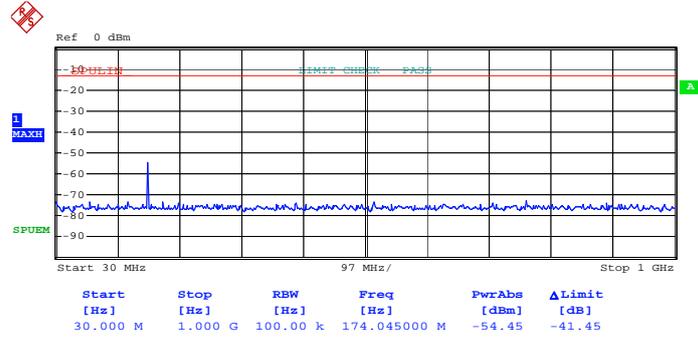


Date: 5.SEP.2012 20:40:03



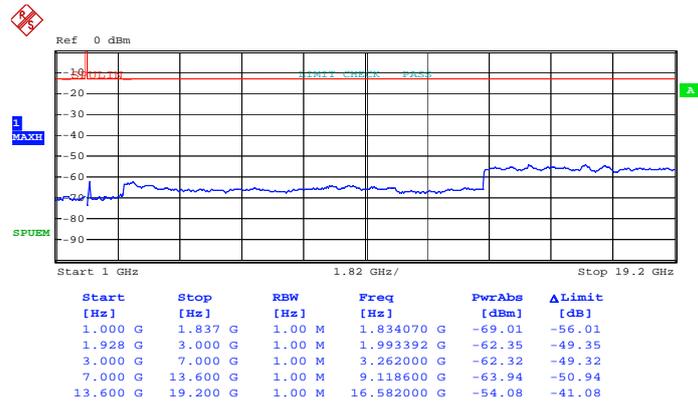
|                    |             |                    |             |
|--------------------|-------------|--------------------|-------------|
| <b>Band :</b>      | LTE Band 25 | <b>BW / Mod. :</b> | 3MHz / QPSK |
| <b>Frequency :</b> | 1913.5      | <b>Channel :</b>   | 26675       |

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



Date: 5.SEP.2012 20:49:42

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

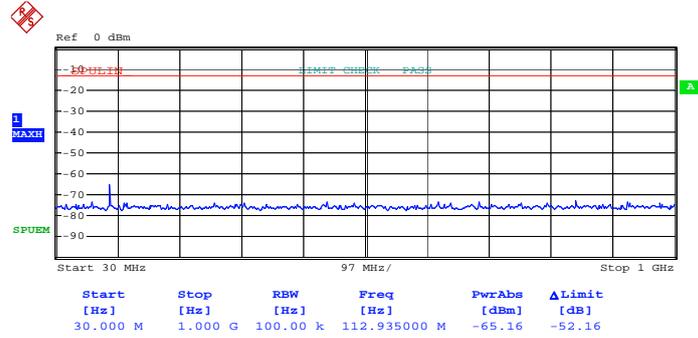


Date: 5.SEP.2012 20:41:01



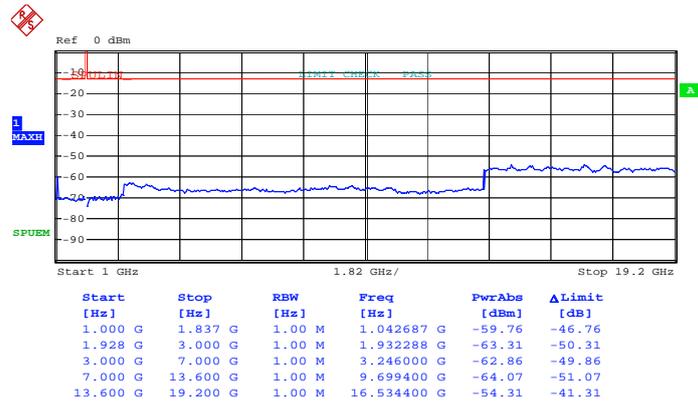
|                    |             |                    |              |
|--------------------|-------------|--------------------|--------------|
| <b>Band :</b>      | LTE Band 25 | <b>BW / Mod. :</b> | 3MHz / 16QAM |
| <b>Frequency :</b> | 1851.5      | <b>Channel :</b>   | 26055        |

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



Date: 5.SEP.2012 20:37:20

**Conducted Emission Plot (1GHz ~ 19.2GHz) for 16-QAM (RB Size 1, RB Offset 0)**

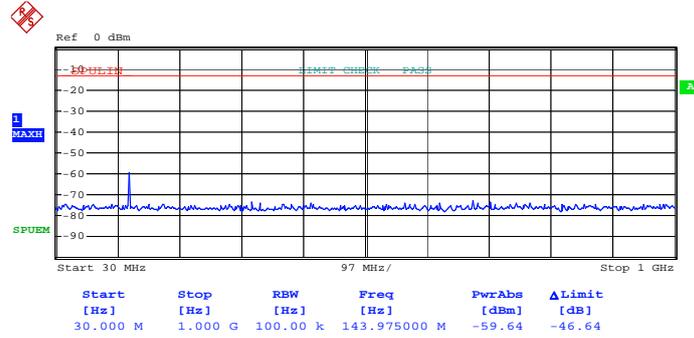


Date: 5.SEP.2012 20:37:00



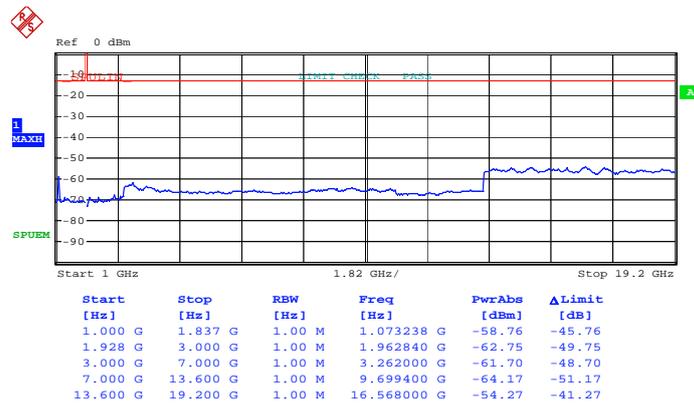
|                    |             |                    |              |
|--------------------|-------------|--------------------|--------------|
| <b>Band :</b>      | LTE Band 25 | <b>BW / Mod. :</b> | 3MHz / 16QAM |
| <b>Frequency :</b> | 1882.5      | <b>Channel :</b>   | 26365        |

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



Date: 5.SEP.2012 20:39:20

**Conducted Emission Plot (1GHz ~ 19.2GHz) for 16-QAM (RB Size 1, RB Offset 0)**

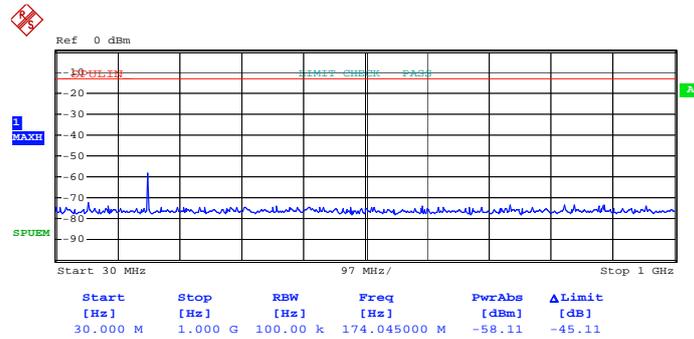


Date: 5.SEP.2012 20:39:42



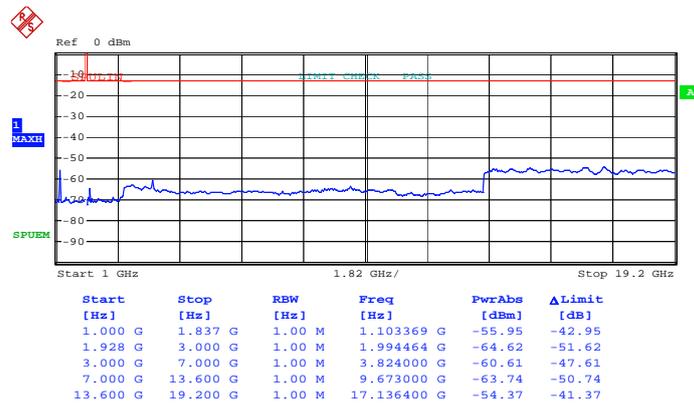
|                    |             |                    |              |
|--------------------|-------------|--------------------|--------------|
| <b>Band :</b>      | LTE Band 25 | <b>BW / Mod. :</b> | 3MHz / 16QAM |
| <b>Frequency :</b> | 1913.5      | <b>Channel :</b>   | 26675        |

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



Date: 5.SEP.2012 20:49:27

**Conducted Emission Plot (1GHz ~ 19.2GHz) for 16-QAM (RB Size 1, RB Offset 0)**

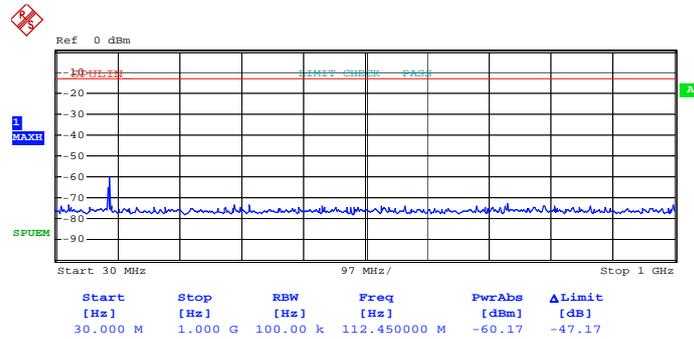


Date: 5.SEP.2012 20:49:10



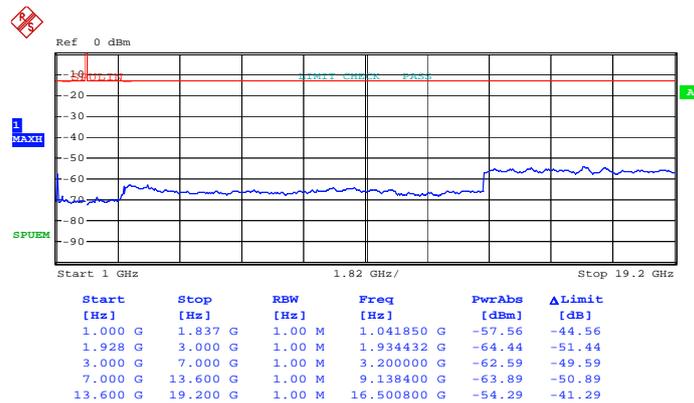
|             |             |             |             |
|-------------|-------------|-------------|-------------|
| Band :      | LTE Band 25 | BW / Mod. : | 5MHz / QPSK |
| Frequency : | 1852.5      | Channel :   | 26065       |

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



Date: 5.SEP.2012 20:52:37

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

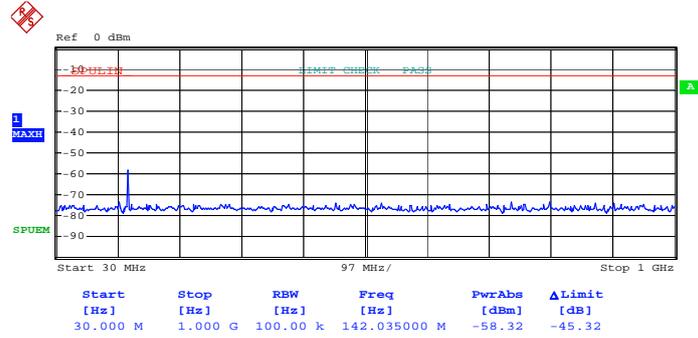


Date: 5.SEP.2012 20:53:54



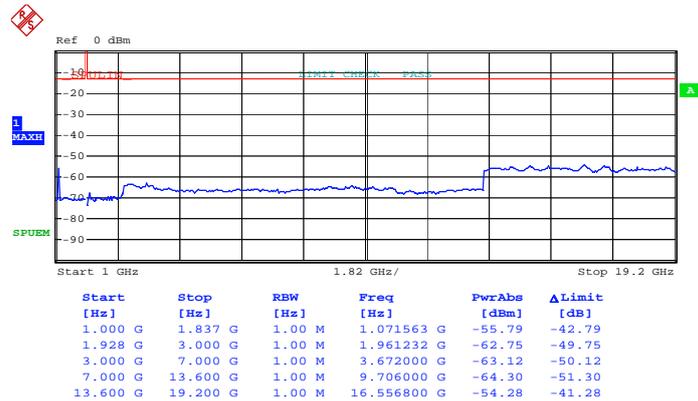
|                    |             |                    |             |
|--------------------|-------------|--------------------|-------------|
| <b>Band :</b>      | LTE Band 25 | <b>BW / Mod. :</b> | 5MHz / QPSK |
| <b>Frequency :</b> | 1882.5      | <b>Channel :</b>   | 26365       |

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



Date: 5.SEP.2012 20:56:52

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

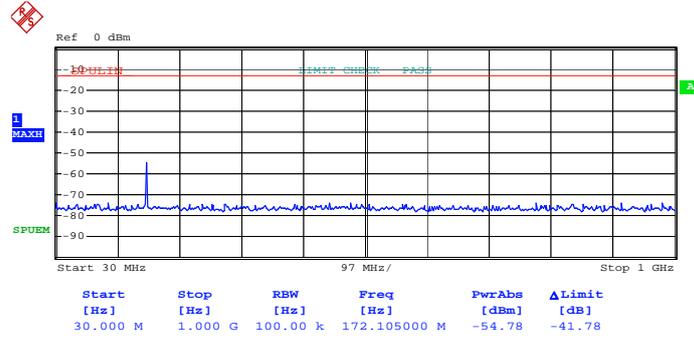


Date: 5.SEP.2012 20:56:05



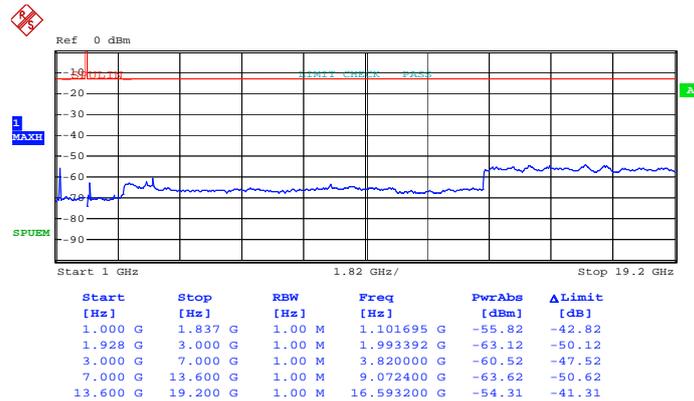
|                    |             |                    |             |
|--------------------|-------------|--------------------|-------------|
| <b>Band :</b>      | LTE Band 25 | <b>BW / Mod. :</b> | 5MHz / QPSK |
| <b>Frequency :</b> | 1912.5      | <b>Channel :</b>   | 26665       |

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



Date: 5.SEP.2012 20:57:34

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

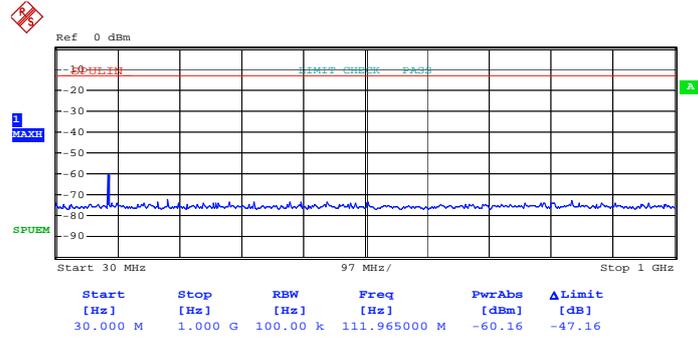


Date: 5.SEP.2012 20:58:24



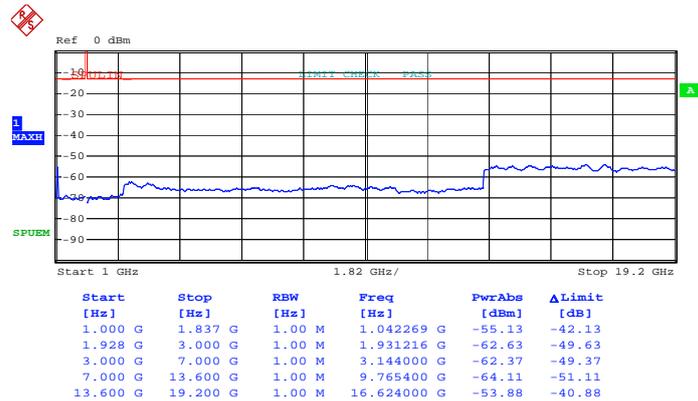
|                    |             |                    |              |
|--------------------|-------------|--------------------|--------------|
| <b>Band :</b>      | LTE Band 25 | <b>BW / Mod. :</b> | 5MHz / 16QAM |
| <b>Frequency :</b> | 1852.5      | <b>Channel :</b>   | 26065        |

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



Date: 5.SEP.2012 20:52:52

**Conducted Emission Plot (1GHz ~ 19.2GHz) for 16-QAM (RB Size 1, RB Offset 0)**

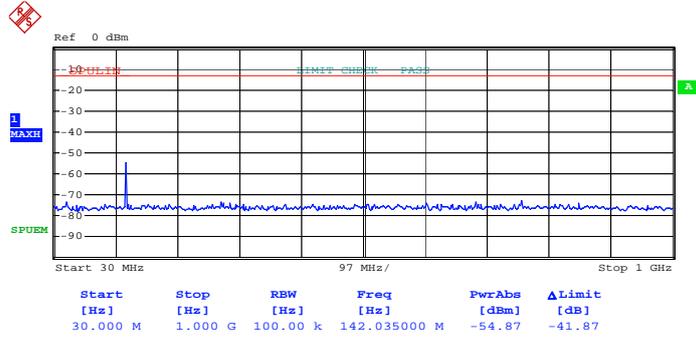


Date: 5.SEP.2012 20:53:30



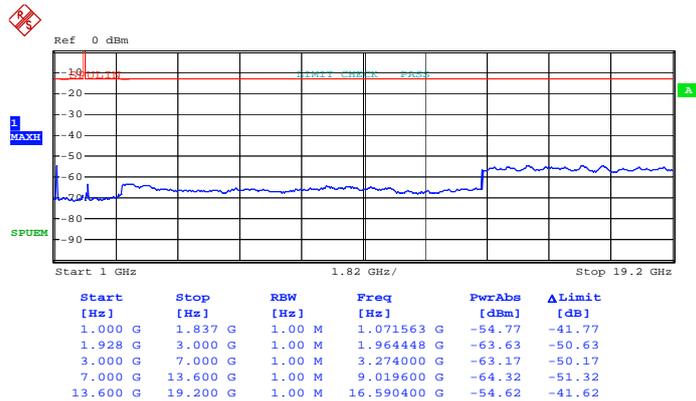
|                    |             |                    |              |
|--------------------|-------------|--------------------|--------------|
| <b>Band :</b>      | LTE Band 25 | <b>BW / Mod. :</b> | 5MHz / 16QAM |
| <b>Frequency :</b> | 1882.5      | <b>Channel :</b>   | 26365        |

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



Date: 5.SEP.2012 20:56:36

**Conducted Emission Plot (1GHz ~ 19.2GHz) for 16-QAM (RB Size 1, RB Offset 0)**

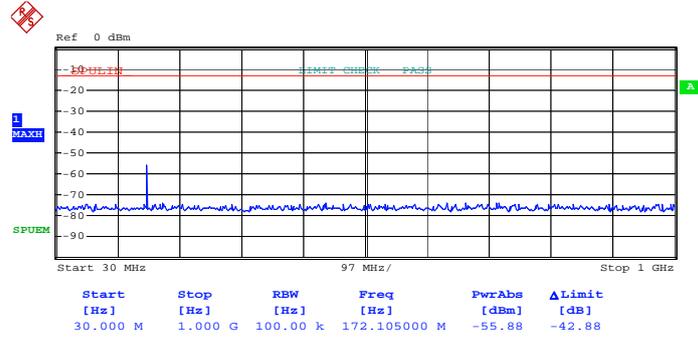


Date: 5.SEP.2012 20:56:22



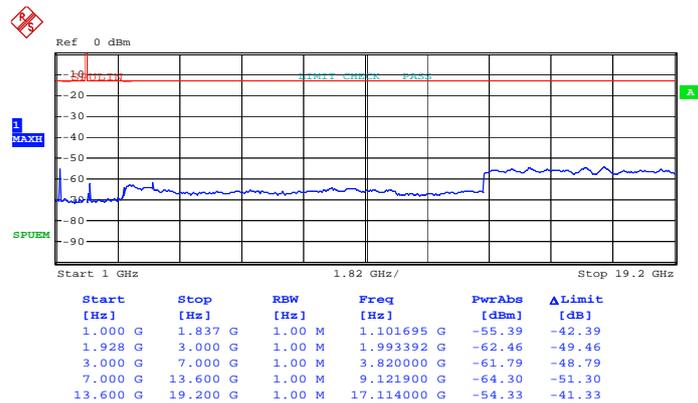
|                    |             |                    |              |
|--------------------|-------------|--------------------|--------------|
| <b>Band :</b>      | LTE Band 25 | <b>BW / Mod. :</b> | 5MHz / 16QAM |
| <b>Frequency :</b> | 1912.5      | <b>Channel :</b>   | 26665        |

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



Date: 5.SEP.2012 20:57:47

**Conducted Emission Plot (1GHz ~ 19.2GHz) for 16-QAM (RB Size 1, RB Offset 0)**

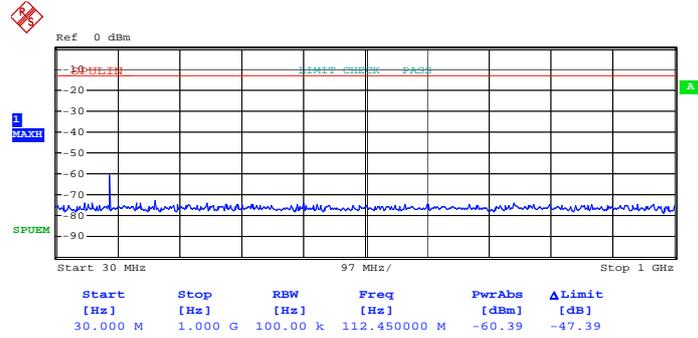


Date: 5.SEP.2012 20:58:08



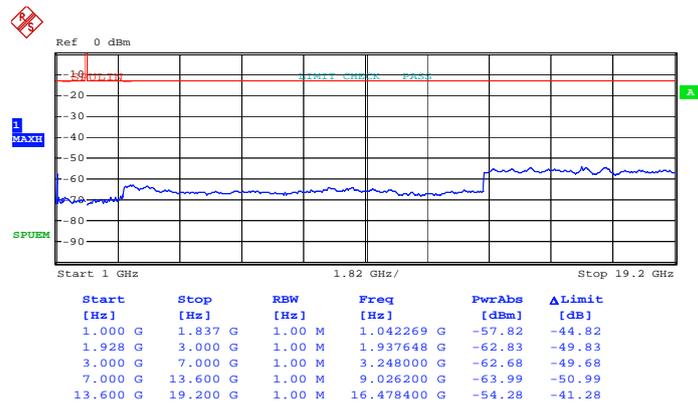
|             |             |             |              |
|-------------|-------------|-------------|--------------|
| Band :      | LTE Band 25 | BW / Mod. : | 10MHz / QPSK |
| Frequency : | 1855        | Channel :   | 26090        |

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



Date: 5.SEP.2012 21:00:06

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

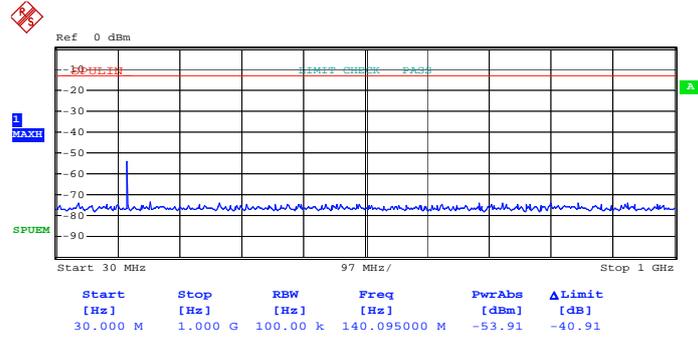


Date: 5.SEP.2012 20:59:23



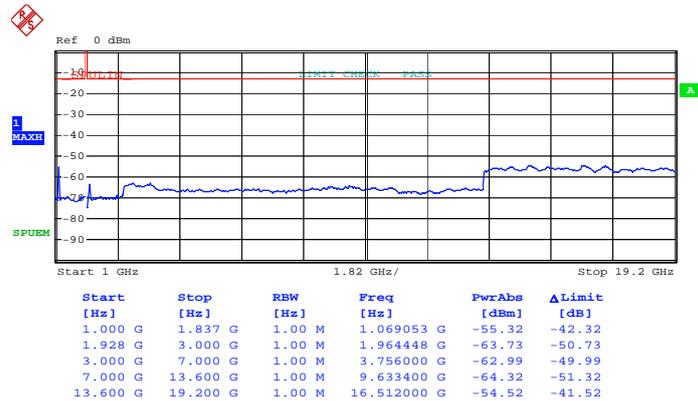
|                    |             |                    |              |
|--------------------|-------------|--------------------|--------------|
| <b>Band :</b>      | LTE Band 25 | <b>BW / Mod. :</b> | 10MHz / QPSK |
| <b>Frequency :</b> | 1882.5      | <b>Channel :</b>   | 26365        |

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



Date: 5.SEP.2012 21:00:37

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

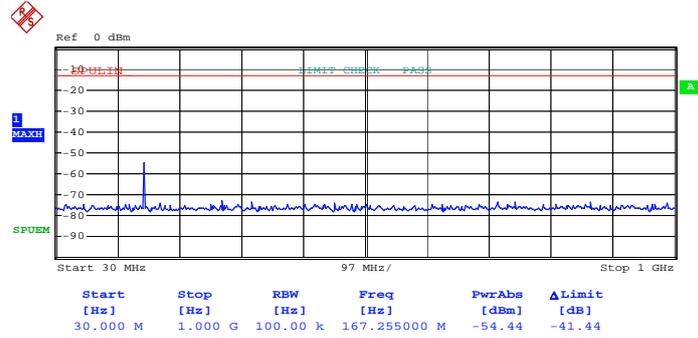


Date: 5.SEP.2012 21:01:53



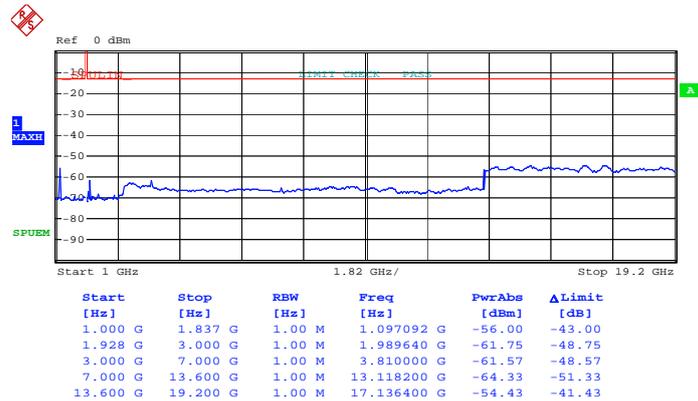
|                    |             |                    |              |
|--------------------|-------------|--------------------|--------------|
| <b>Band :</b>      | LTE Band 25 | <b>BW / Mod. :</b> | 10MHz / QPSK |
| <b>Frequency :</b> | 1910        | <b>Channel :</b>   | 26640        |

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



Date: 5.SEP.2012 21:03:24

**Conducted Emission Plot (1GHz ~ 19.2GHz) for QPSK (RB Size 1, RB Offset 0)**

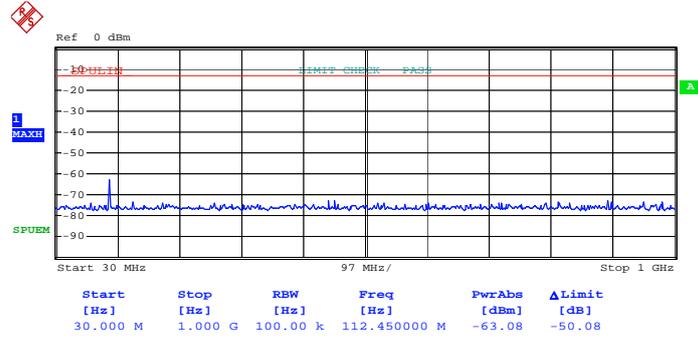


Date: 5.SEP.2012 21:02:34



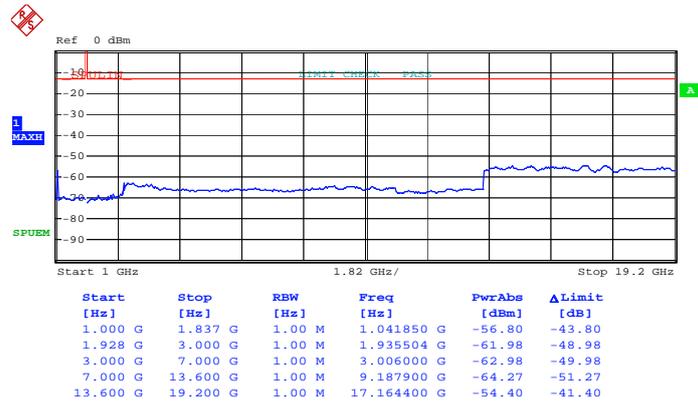
|                    |             |                    |               |
|--------------------|-------------|--------------------|---------------|
| <b>Band :</b>      | LTE Band 25 | <b>BW / Mod. :</b> | 10MHz / 16QAM |
| <b>Frequency :</b> | 1855        | <b>Channel :</b>   | 26090         |

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



Date: 5.SEP.2012 20:59:54

**Conducted Emission Plot (1GHz ~ 19.2GHz) for 16-QAM (RB Size 1, RB Offset 0)**

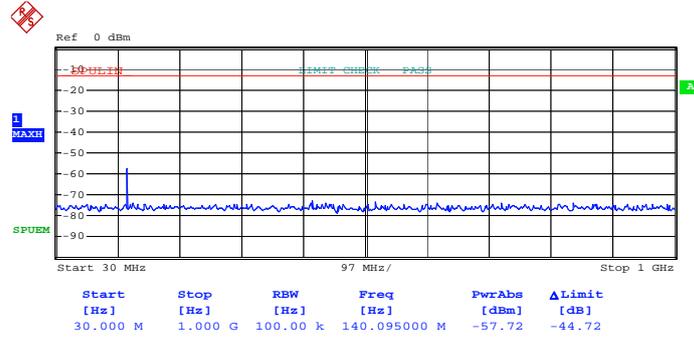


Date: 5.SEP.2012 20:59:40



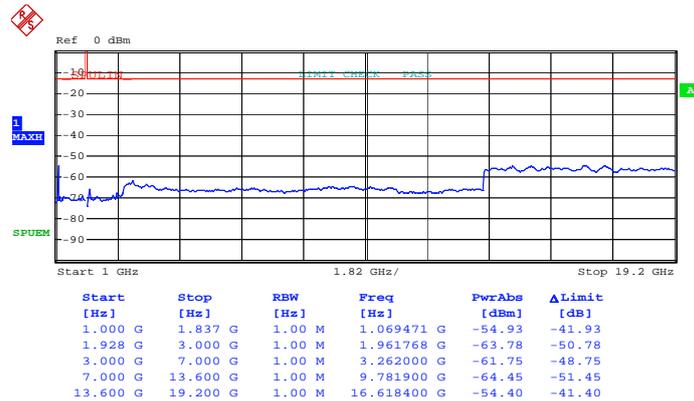
|                    |             |                    |               |
|--------------------|-------------|--------------------|---------------|
| <b>Band :</b>      | LTE Band 25 | <b>BW / Mod. :</b> | 10MHz / 16QAM |
| <b>Frequency :</b> | 1882.5      | <b>Channel :</b>   | 26365         |

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



Date: 5.SEP.2012 21:00:57

**Conducted Emission Plot (1GHz ~ 19.2GHz) for 16-QAM (RB Size 1, RB Offset 0)**

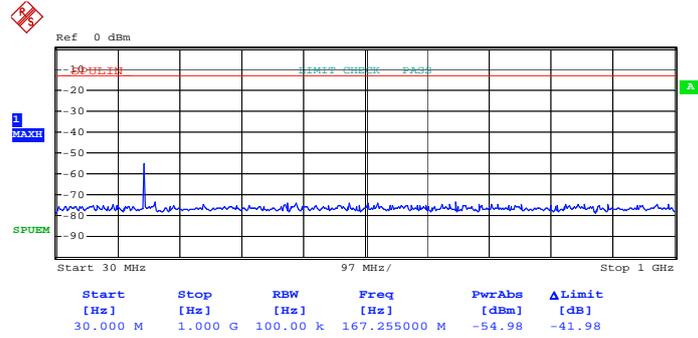


Date: 5.SEP.2012 21:01:37



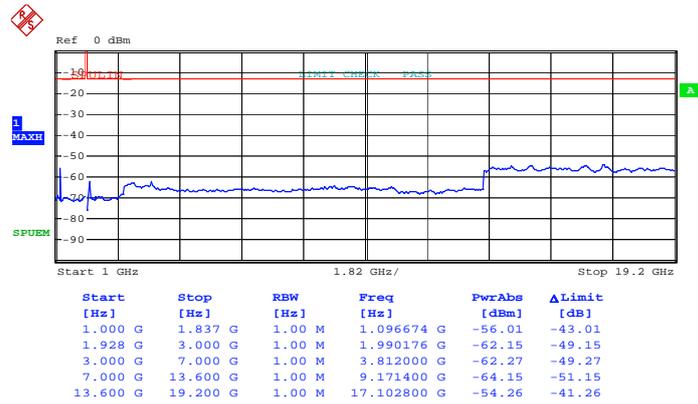
|                    |             |                    |               |
|--------------------|-------------|--------------------|---------------|
| <b>Band :</b>      | LTE Band 25 | <b>BW / Mod. :</b> | 10MHz / 16QAM |
| <b>Frequency :</b> | 1910        | <b>Channel :</b>   | 26640         |

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



Date: 5.SEP.2012 21:03:09

**Conducted Emission Plot (1GHz ~ 19.2GHz) for 16-QAM (RB Size 1, RB Offset 0)**



Date: 5.SEP.2012 21:02:51

## 3.5 Radiated Emissions Measurement

### 3.5.1 Description of Radiated Emissions 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.

### 3.5.2 Measuring Instruments

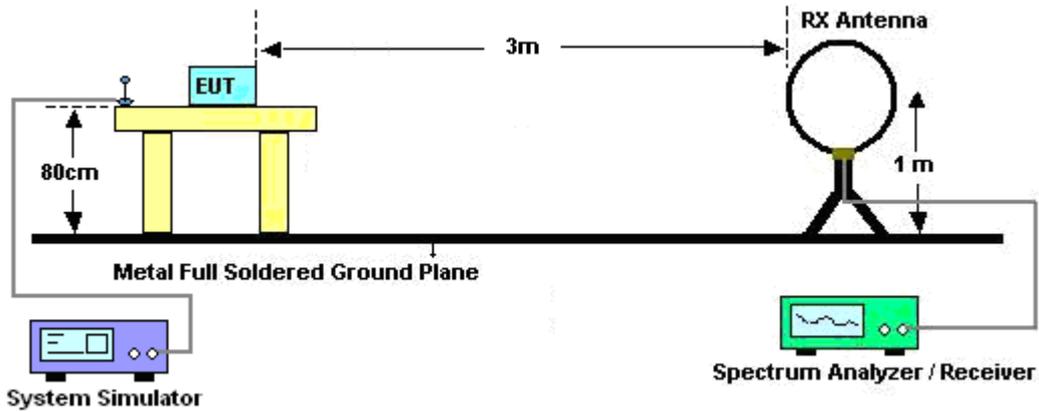
See list of measuring instruments of this test report.

### 3.5.3 Test Procedures

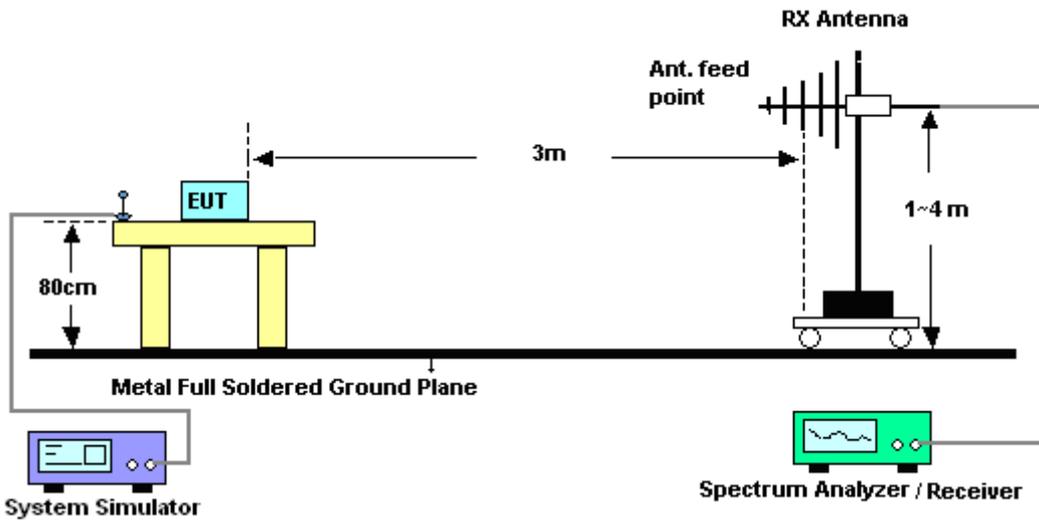
1. The EUT was placed on a rotatable wooden table with 0.8 meter above ground.
2. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. The table was rotated 360 degrees to determine the position of the highest spurious emission.
4. The height of the receiving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

### 3.5.4 Test Setup

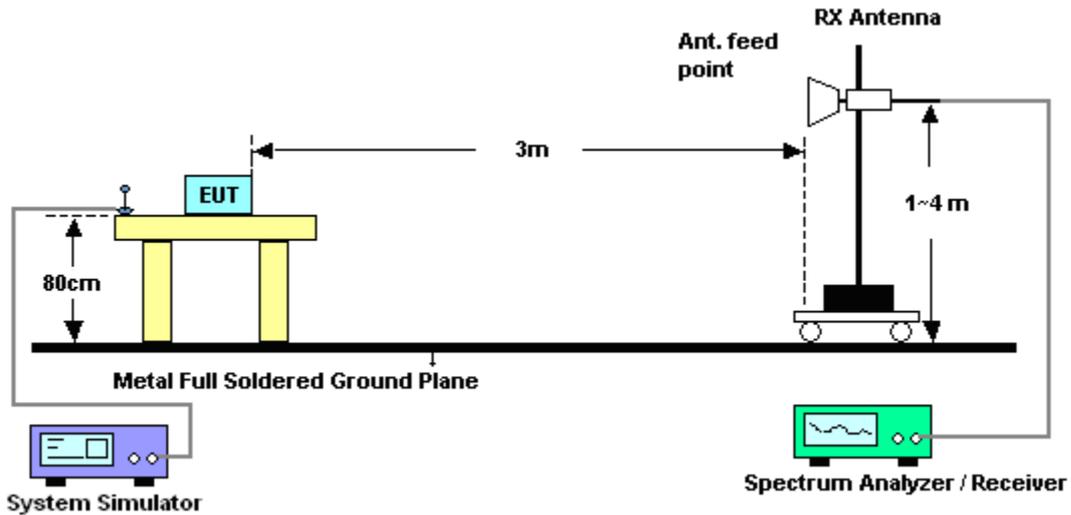
For radiated emissions below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



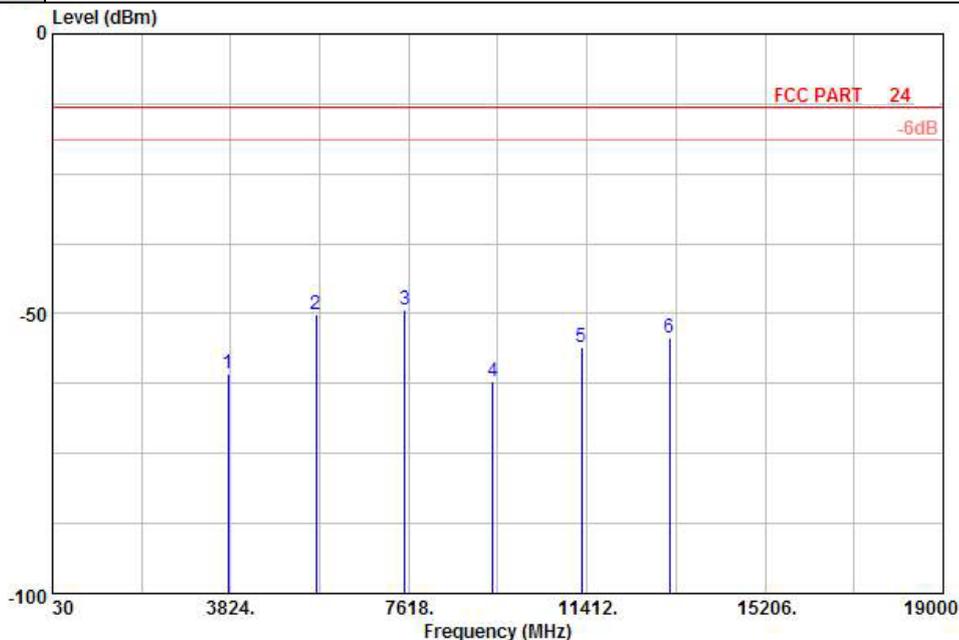
### 3.5.5 Test Results of Radiated Emissions (9 KHz ~ 30 MHz)

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.



3.5.6 Test Result of Radiated Emissions

|                 |  |                     |            |
|-----------------|--|---------------------|------------|
| Band :          | LTE Band 25  | Temperature :       | 21~22°C    |
| Test Mode :     | 1.4MHz, QPSK, RB Size 1, RB Offset 0   | Relative Humidity : | 46~47%     |
| Test Engineer : | Chenmy Cheng   | Polarization :      | Horizontal |
| Remark :        | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |                     |            |



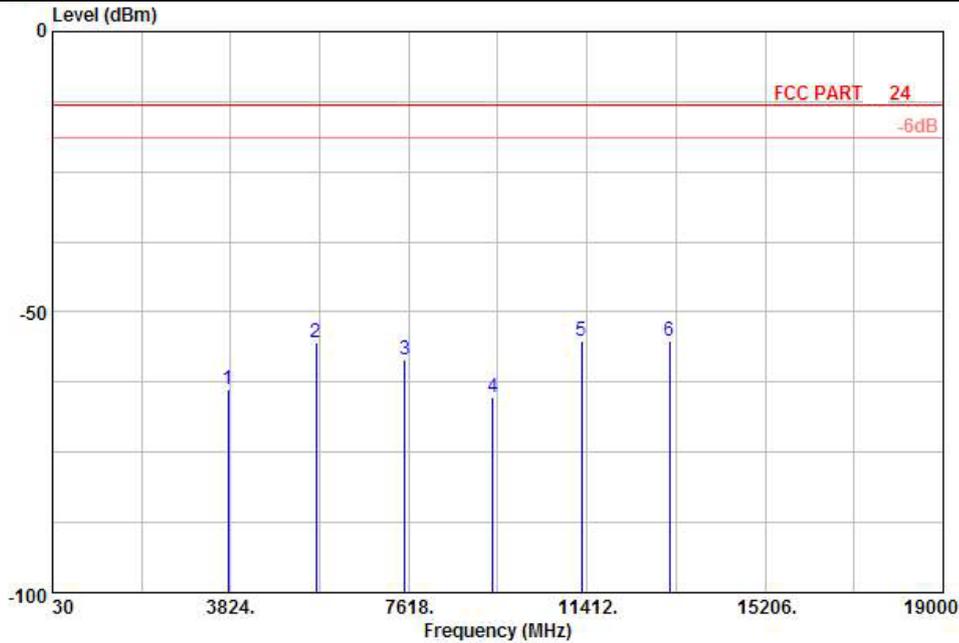
Site : 03CH01-KS  
 Condition: FCC PART 24 HF EIRP FACTOR-09020 HORIZONTAL

Plan : H

| Frequency ( MHz ) | EIRP ( dBm ) | Limit ( dBm ) | Over Limit ( dB ) | SPA Reading ( dBm ) | S.G. Power ( dBm ) | TX Cable loss ( dB ) | TX Antenna Gain ( dBi ) | Polarization ( H/V ) | Result |
|-------------------|--------------|---------------|-------------------|---------------------|--------------------|----------------------|-------------------------|----------------------|--------|
| 3764              | -60.85       | -13           | -47.85            | -61.82              | -67.23             | 0.78                 | 7.16                    | H                    | Pass   |
| 5646              | -50.19       | -13           | -37.19            | -56.76              | -58.73             | 1.04                 | 9.58                    | H                    | Pass   |
| 7528              | -49.39       | -13           | -36.39            | -57.57              | -59.50             | 1.35                 | 11.46                   | H                    | Pass   |
| 9412.5            | -62.06       | -13           | -49.06            | -65.32              | -73.12             | 1.75                 | 12.81                   | H                    | Pass   |
| 11295             | -56.12       | -13           | -43.12            | -67.61              | -67.21             | 2                    | 13.09                   | H                    | Pass   |
| 13177.5           | -54.32       | -13           | -41.32            | -65.62              | -66.03             | 2.04                 | 13.75                   | H                    | Pass   |



|                        |  |                            |          |
|------------------------|--|----------------------------|----------|
| <b>Band :</b>          | LTE Band 25  | <b>Temperature :</b>       | 21~22°C  |
| <b>Test Mode :</b>     | 1.4MHz, QPSK, RB Size 1, RB Offset 0   | <b>Relative Humidity :</b> | 46~47%   |
| <b>Test Engineer :</b> | Chenmy Cheng   | <b>Polarization :</b>      | Vertical |
| <b>Remark :</b>        | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |                            |          |



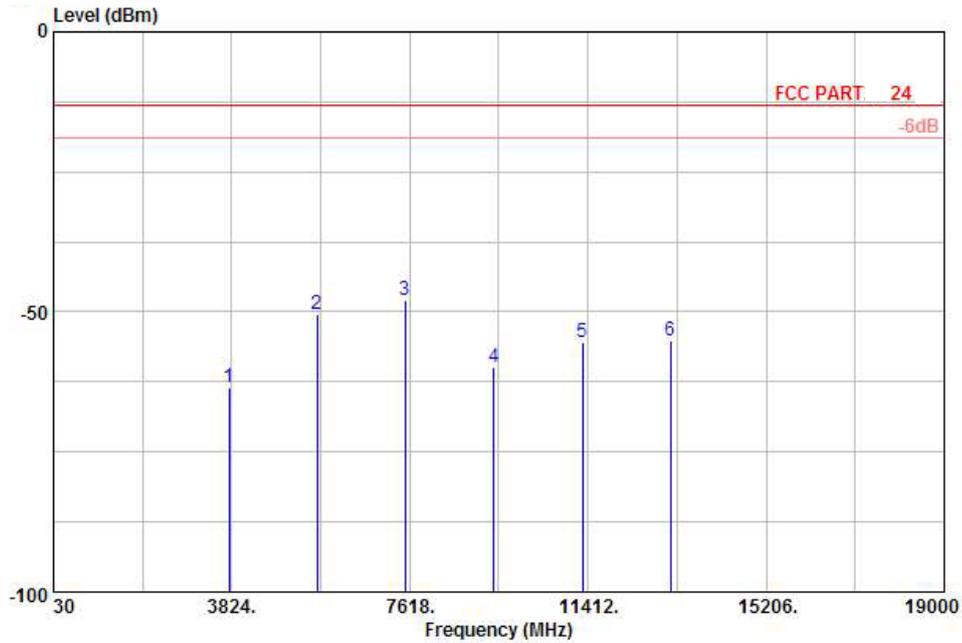
Site : 03CH01-KS  
 Condition: FCC PART 24 HF EIRP FACTOR-09020 VERTICAL

Plan : H

| Frequency ( MHz ) | EIRP ( dBm ) | Limit ( dBm ) | Over Limit ( dB ) | SPA Reading ( dBm ) | S.G. Power ( dBm ) | TX Cable loss ( dB ) | TX Antenna Gain ( dBi ) | Polarization ( H/V ) | Result |
|-------------------|--------------|---------------|-------------------|---------------------|--------------------|----------------------|-------------------------|----------------------|--------|
| 3765              | -63.80       | -13           | -50.80            | -65.17              | -70.18             | 0.78                 | 7.16                    | V                    | Pass   |
| 5646              | -55.53       | -13           | -42.53            | -58.75              | -64.07             | 1.04                 | 9.58                    | V                    | Pass   |
| 7528              | -58.61       | -13           | -45.61            | -63.1               | -68.72             | 1.35                 | 11.46                   | V                    | Pass   |
| 9412.5            | -65.32       | -13           | -52.32            | -66.54              | -76.38             | 1.75                 | 12.81                   | V                    | Pass   |
| 11295             | -55.18       | -13           | -42.18            | -66.42              | -66.27             | 2                    | 13.09                   | V                    | Pass   |
| 13177.5           | -55.19       | -13           | -42.19            | -66.38              | -66.90             | 2.04                 | 13.75                   | V                    | Pass   |



|                        |  |                            |            |
|------------------------|--|----------------------------|------------|
| <b>Band :</b>          | LTE Band 25  | <b>Temperature :</b>       | 21~22°C    |
| <b>Test Mode :</b>     | 3MHz, QPSK, RB Size 1, RB Offset 0   | <b>Relative Humidity :</b> | 46~47%     |
| <b>Test Engineer :</b> | Chenmy Cheng   | <b>Polarization :</b>      | Horizontal |
| <b>Remark :</b>        | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |                            |            |



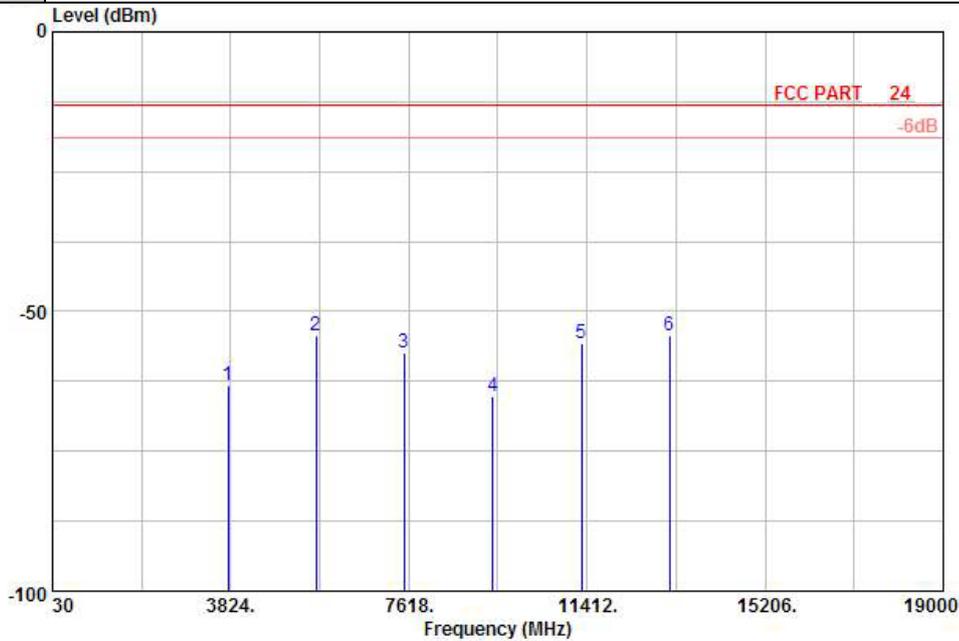
Site : 03CH01-KS  
 Condition: FCC PART 24 HF EIRP FACTOR-09020 HORIZONTAL

Plan : H

| Frequency ( MHz ) | EIRP ( dBm ) | Limit ( dBm ) | Over Limit ( dB ) | SPA Reading ( dBm ) | S.G. Power ( dBm ) | TX Cable loss ( dB ) | TX Antenna Gain ( dBi ) | Polarization ( H/V ) | Result |
|-------------------|--------------|---------------|-------------------|---------------------|--------------------|----------------------|-------------------------|----------------------|--------|
| 3765              | -63.54       | -13           | -50.54            | -64.51              | -69.92             | 0.78                 | 7.16                    | H                    | Pass   |
| 5644              | -50.32       | -13           | -37.32            | -56.84              | -58.86             | 1.04                 | 9.58                    | H                    | Pass   |
| 7524              | -47.85       | -13           | -34.85            | -57.15              | -57.96             | 1.35                 | 11.46                   | H                    | Pass   |
| 9412.5            | -59.89       | -13           | -46.89            | -63.15              | -70.95             | 1.75                 | 12.81                   | H                    | Pass   |
| 11295             | -55.40       | -13           | -42.40            | -66.89              | -66.49             | 2                    | 13.09                   | H                    | Pass   |
| 13177.5           | -55.26       | -13           | -42.26            | -66.56              | -66.97             | 2.04                 | 13.75                   | H                    | Pass   |



|                        |  |                            |          |
|------------------------|--|----------------------------|----------|
| <b>Band :</b>          | LTE Band 25  | <b>Temperature :</b>       | 21~22°C  |
| <b>Test Mode :</b>     | 3MHz, QPSK, RB Size 1, RB Offset 0   | <b>Relative Humidity :</b> | 46~47%   |
| <b>Test Engineer :</b> | Chenmy Cheng   | <b>Polarization :</b>      | Vertical |
| <b>Remark :</b>        | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |                            |          |



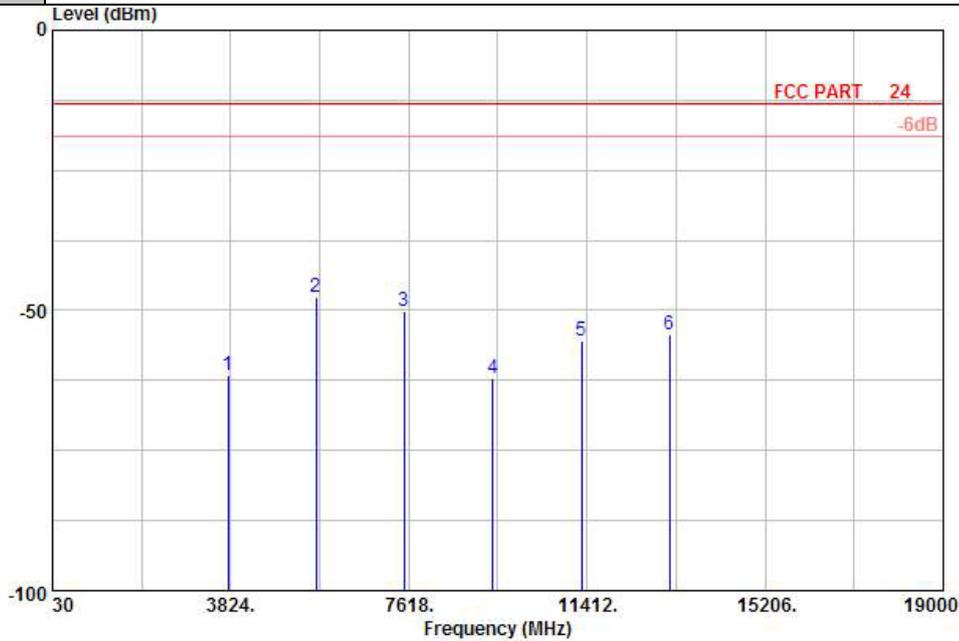
Site : 03CH01-KS  
 Condition: FCC PART 24 HF EIRP FACTOR-09020 VERTICAL

Plan : H

| Frequency ( MHz ) | EIRP ( dBm ) | Limit ( dBm ) | Over Limit ( dB ) | SPA Reading ( dBm ) | S.G. Power ( dBm ) | TX Cable loss ( dB ) | TX Antenna Gain ( dBi ) | Polarization ( H/V ) | Result |
|-------------------|--------------|---------------|-------------------|---------------------|--------------------|----------------------|-------------------------|----------------------|--------|
| 3765              | -63.25       | -13           | -50.25            | -64.62              | -69.63             | 0.78                 | 7.16                    | V                    | Pass   |
| 5644              | -54.32       | -13           | -41.32            | -57.54              | -62.86             | 1.04                 | 9.58                    | V                    | Pass   |
| 7524              | -57.43       | -13           | -44.43            | -61.92              | -67.54             | 1.35                 | 11.46                   | V                    | Pass   |
| 9412.5            | -65.29       | -13           | -52.29            | -66.51              | -76.35             | 1.75                 | 12.81                   | V                    | Pass   |
| 11295             | -55.80       | -13           | -42.80            | -67.04              | -66.89             | 2                    | 13.09                   | V                    | Pass   |
| 13177.5           | -54.41       | -13           | -41.41            | -65.6               | -66.12             | 2.04                 | 13.75                   | V                    | Pass   |



|                        |  |                            |            |
|------------------------|--|----------------------------|------------|
| <b>Band :</b>          | LTE Band 25  | <b>Temperature :</b>       | 21~22°C    |
| <b>Test Mode :</b>     | 5MHz, QPSK, RB Size 1, RB Offset 0   | <b>Relative Humidity :</b> | 46~47%     |
| <b>Test Engineer :</b> | Chenmy Cheng   | <b>Polarization :</b>      | Horizontal |
| <b>Remark :</b>        | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |                            |            |



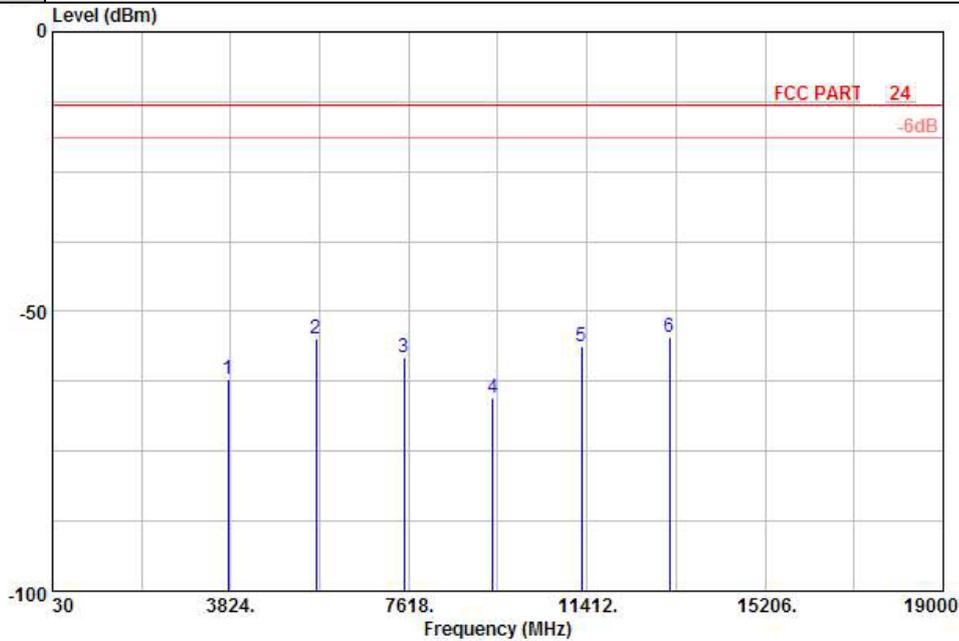
Site : 03CH01-KS  
 Condition: FCC PART 24 HF EIRP FACTOR-09020 HORIZONTAL

Plan : H

| Frequency ( MHz ) | EIRP ( dBm ) | Limit ( dBm ) | Over Limit ( dB ) | SPA Reading ( dBm ) | S.G. Power ( dBm ) | TX Cable loss ( dB ) | TX Antenna Gain ( dBi ) | Polarization ( H/V ) | Result |
|-------------------|--------------|---------------|-------------------|---------------------|--------------------|----------------------|-------------------------|----------------------|--------|
| 3765              | -61.63       | -13           | -48.63            | -62.60              | -68.01             | 0.78                 | 7.16                    | H                    | Pass   |
| 5642              | -47.74       | -13           | -34.74            | -55.80              | -56.28             | 1.04                 | 9.58                    | H                    | Pass   |
| 7522              | -50.02       | -13           | -37.02            | -57.78              | -60.13             | 1.35                 | 11.46                   | H                    | Pass   |
| 9412.5            | -62.09       | -13           | -49.09            | -65.35              | -73.15             | 1.75                 | 12.81                   | H                    | Pass   |
| 11295             | -55.53       | -13           | -42.53            | -67.02              | -66.62             | 2                    | 13.09                   | H                    | Pass   |
| 13177.5           | -54.37       | -13           | -41.37            | -65.67              | -66.08             | 2.04                 | 13.75                   | H                    | Pass   |



|                        |  |                            |          |
|------------------------|--|----------------------------|----------|
| <b>Band :</b>          | LTE Band 25  | <b>Temperature :</b>       | 21~22°C  |
| <b>Test Mode :</b>     | 5MHz, QPSK, RB Size 1, RB Offset 0   | <b>Relative Humidity :</b> | 46~47%   |
| <b>Test Engineer :</b> | Chenmy Cheng   | <b>Polarization :</b>      | Vertical |
| <b>Remark :</b>        | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |                            |          |

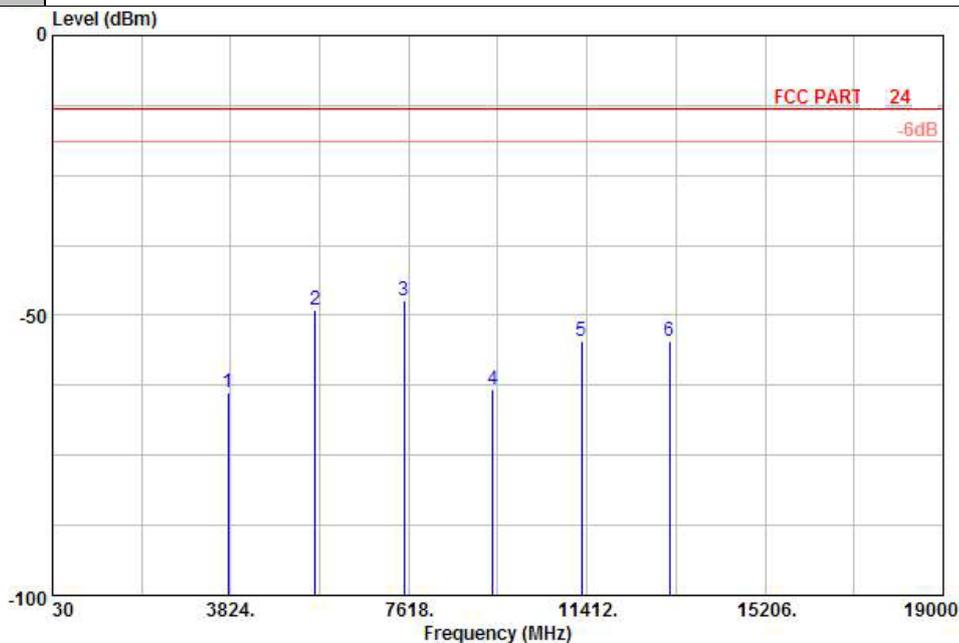


Site : 03CH01-K<sup>2</sup>  
 Condition: FCC PART 24 HF EIRP FACTOR-09020 VERTICAL  
 Plan : H

| Frequency ( MHz ) | EIRP ( dBm ) | Limit ( dBm ) | Over Limit ( dB ) | SPA Reading ( dBm ) | S.G. Power ( dBm ) | TX Cable loss ( dB ) | TX Antenna Gain ( dBi ) | Polarization ( H/V ) | Result |
|-------------------|--------------|---------------|-------------------|---------------------|--------------------|----------------------|-------------------------|----------------------|--------|
| 3765              | -62.03       | -13           | -49.03            | -63.4               | -68.41             | 0.78                 | 7.16                    | V                    | Pass   |
| 5642              | -54.97       | -13           | -41.97            | -58.19              | -63.51             | 1.04                 | 9.58                    | V                    | Pass   |
| 7522              | -58.34       | -13           | -45.34            | -62.83              | -68.45             | 1.35                 | 11.46                   | V                    | Pass   |
| 9412.5            | -65.56       | -13           | -52.56            | -66.78              | -76.62             | 1.75                 | 12.81                   | V                    | Pass   |
| 11295             | -56.23       | -13           | -43.23            | -67.47              | -67.32             | 2                    | 13.09                   | V                    | Pass   |
| 13177.5           | -54.52       | -13           | -41.52            | -65.71              | -66.23             | 2.04                 | 13.75                   | V                    | Pass   |



|                        |  |                            |            |
|------------------------|--|----------------------------|------------|
| <b>Band :</b>          | LTE Band 25  | <b>Temperature :</b>       | 21~22°C    |
| <b>Test Mode :</b>     | 10MHz, QPSK, RB Size 1, RB Offset 0  | <b>Relative Humidity :</b> | 46~47%     |
| <b>Test Engineer :</b> | Chenmy Cheng   | <b>Polarization :</b>      | Horizontal |
| <b>Remark :</b>        | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |                            |            |



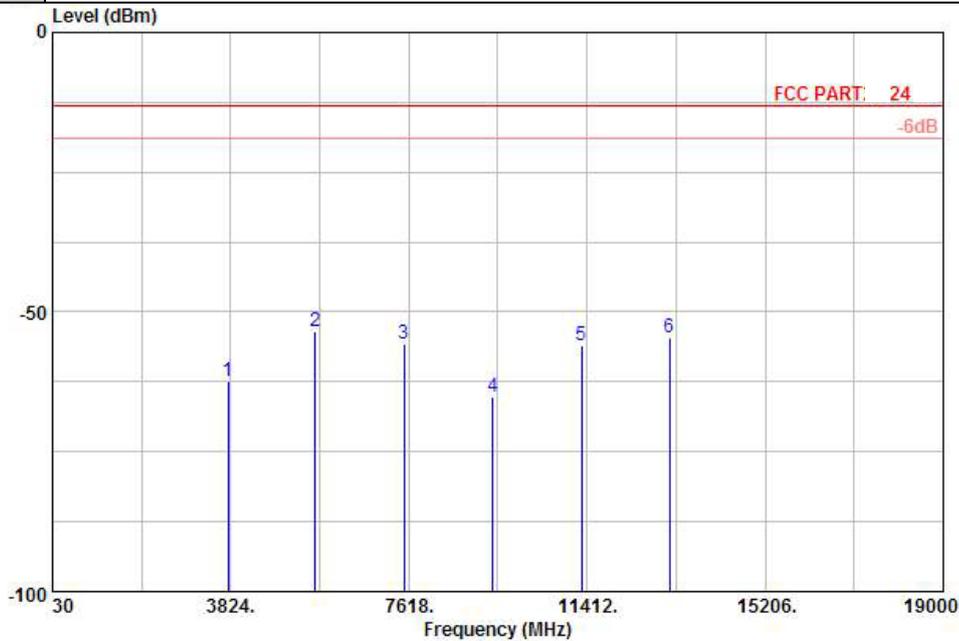
Site : 03CH01-KS  
 Condition: FCC PART: 24 HF EIRP FACTOR-09020 HORIZONTAL

Plan : H

| Frequency<br>( MHz ) | EIRP<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 |
|----------------------|-----------------|------------------|-------------------------|---------------------------|--------------------------|----------------------------|-------------------------------|-------------------------|--------|
| 3765                 | -63.66          | -13              | -50.66                  | -64.63                    | -70.04                   | 0.78                       | 7.16                          | H                       | Pass   |
| 5634                 | -48.90          | -13              | -35.90                  | -55.98                    | -57.44                   | 1.04                       | 9.58                          | H                       | Pass   |
| 7512                 | -47.33          | -13              | -34.33                  | -57.04                    | -57.44                   | 1.35                       | 11.46                         | H                       | Pass   |
| 9412.5               | -63.11          | -13              | -50.11                  | -66.37                    | -74.17                   | 1.75                       | 12.81                         | H                       | Pass   |
| 11295                | -54.59          | -13              | -41.59                  | -66.08                    | -65.68                   | 2                          | 13.09                         | H                       | Pass   |
| 13177.5              | -54.60          | -13              | -41.60                  | -65.90                    | -66.31                   | 2.04                       | 13.75                         | H                       | Pass   |



|                        |  |                            |          |
|------------------------|--|----------------------------|----------|
| <b>Band :</b>          | LTE Band 25  | <b>Temperature :</b>       | 21~22°C  |
| <b>Test Mode :</b>     | 10MHz, QPSK, RB Size 1, RB Offset 0  | <b>Relative Humidity :</b> | 46~47%   |
| <b>Test Engineer :</b> | Chenmy Cheng   | <b>Polarization :</b>      | Vertical |
| <b>Remark :</b>        | Spurious emissions within 30-1000MHz were found more than 20dB below limit line. |                            |          |



Site : 03CH01-KS  
 Condition: FCC PART 24 HF EIRP FACTOR-09020 VERTICAL

Plan : H

| Frequency (MHz) | EIRP (dBm) | Limit (dBm) | Over Limit (dB) | SPA Reading (dBm) | S.G. Power (dBm) | TX Cable loss (dB) | TX Antenna Gain (dBi) | Polarization (H/V) | Result |
|-----------------|------------|-------------|-----------------|-------------------|------------------|--------------------|-----------------------|--------------------|--------|
| 3765            | -62.49     | -13         | -49.49          | -63.86            | -68.87           | 0.78               | 7.16                  | V                  | Pass   |
| 5634            | -53.56     | -13         | -40.56          | -57.04            | -62.10           | 1.04               | 9.58                  | V                  | Pass   |
| 7512            | -55.78     | -13         | -42.78          | -60.27            | -65.89           | 1.35               | 11.46                 | V                  | Pass   |
| 9412.5          | -65.14     | -13         | -52.14          | -66.36            | -76.20           | 1.75               | 12.81                 | V                  | Pass   |
| 11295           | -55.90     | -13         | -42.90          | -67.14            | -66.99           | 2                  | 13.09                 | V                  | Pass   |
| 13177.5         | -54.53     | -13         | -41.53          | -65.72            | -66.24           | 2.04               | 13.75                 | V                  | Pass   |

### 3.6 Frequency Stability Measurement

#### 3.6.1 Description of Frequency Stability Measurement

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized frequency band. For equipment authorization purposes, this is a reporting requirement only.

#### 3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

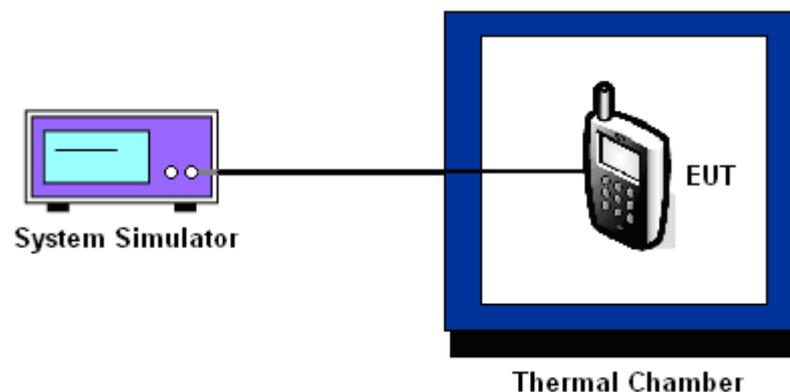
#### 3.6.3 Test Procedures for Temperature Variation

1. The EUT was set up in the thermal chamber and connected with the system simulator.
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.

#### 3.6.4 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 system simulator.
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

#### 3.6.5 Test Setup



3.6.6 Test Result of Temperature Variation

| Band :           | LTE Band 25     |                 | Limit (ppm) :   | 2.5             |        |
|------------------|-----------------|-----------------|-----------------|-----------------|--------|
| Temperature (°C) | 1.4MHz          |                 | 3MHz            |                 | Result |
|                  | Freq. Dev. (Hz) | Deviation (ppm) | Freq. Dev. (Hz) | Deviation (ppm) |        |
| -30              | 0.6             | 0.001           | -10.1           | -0.014          | PASS   |
| -20              | -1.6            | -0.002          | -7.4            | -0.010          |        |
| -10              | -5.2            | -0.007          | -5.1            | -0.007          |        |
| 0                | -11.9           | -0.017          | 8.0             | 0.011           |        |
| 10               | -6.1            | -0.009          | 5.7             | 0.008           |        |
| 20               | -6.3            | -0.009          | -14.1           | -0.020          |        |
| 30               | -8.1            | -0.011          | -10.0           | -0.014          |        |
| 40               | -6.0            | -0.008          | 6.9             | 0.010           |        |
| 50               | -3.8            | -0.005          | 8.4             | 0.012           |        |
| 55               | -5.4            | -0.008          | 2.4             | 0.003           |        |

Note: The manufacturer declared that the EUT could work properly at temperature 55°C.

| Band :           | LTE Band 25     |                 | Limit (ppm) :   | 2.5             |        |
|------------------|-----------------|-----------------|-----------------|-----------------|--------|
| Temperature (°C) | 5MHz            |                 | 10MHz           |                 | Result |
|                  | Freq. Dev. (Hz) | Deviation (ppm) | Freq. Dev. (Hz) | Deviation (ppm) |        |
| -30              | 8.7             | 0.012           | 12.6            | 0.018           | PASS   |
| -20              | -10.4           | -0.015          | -6.7            | -0.009          |        |
| -10              | 4.4             | 0.006           | -3.5            | -0.005          |        |
| 0                | 7.3             | 0.010           | -13.2           | -0.019          |        |
| 10               | -11.1           | -0.016          | 11.7            | 0.016           |        |
| 20               | 5.4             | 0.008           | -5.6            | -0.008          |        |
| 30               | 1.6             | 0.002           | 4.4             | 0.006           |        |
| 40               | 1.7             | 0.002           | 7.9             | 0.011           |        |
| 50               | -9.5            | -0.013          | -5.7            | -0.008          |        |
| 55               | 8.7             | 0.012           | -5.1            | -0.007          |        |

Note: The manufacturer declared that the EUT could work properly at temperature 55°C.

3.6.7 Test Result of Voltage Variation

| Band        | Band Width & Channel | Voltage (Volt) | Freq. Dev. (Hz) | Deviation (ppm) | Limit (ppm) | Result |
|-------------|----------------------|----------------|-----------------|-----------------|-------------|--------|
| LTE Band 25 | 1.4MHz               | 3.8            | -12.1           | -0.017          | 2.5         | PASS   |
|             |                      | 3.6            | -0.1            | 0.000           |             |        |
|             |                      | 4.35           | -3.5            | -0.005          |             |        |
|             | 3MHz                 | 3.8            | -5.8            | -0.008          |             |        |
|             |                      | 3.6            | -14.0           | -0.020          |             |        |
|             |                      | 4.35           | -3.8            | -0.005          |             |        |
|             | 5MHz                 | 3.8            | -2.0            | -0.003          |             |        |
|             |                      | 3.6            | -0.5            | -0.001          |             |        |
|             |                      | 4.35           | -5.1            | -0.007          |             |        |
|             | 10MHz                | 3.8            | 0.9             | 0.001           |             |        |
|             |                      | 3.6            | 14.0            | 0.020           |             |        |
|             |                      | 4.35           | -0.3            | 0.000           |             |        |

Remark:

1. Normal Voltage = 3.8V.
2. Battery End Point (BEP) = 3.6 V.



3.6.8 List of Measuring Equipment

| Instrument                | Manufacturer | Model No. | Serial No. | Characteristics   | Calibration Date | Test Date                       | Due Date      | Remark                   |
|---------------------------|--------------|-----------|------------|-------------------|------------------|---------------------------------|---------------|--------------------------|
| Spectrum Analyzer         | R&S          | FSP40     | 100319     | 9kHz~40GHz        | Dec. 30, 2011    | Aug. 27, 2012~<br>Sep. 05, 2012 | Dec. 29, 2012 | Conducted<br>(TH01-KS)   |
| DC Power Supply           | GWINSTEK     | GPS-3030D | E1884515   | N/A               | Aug. 22, 2012    | Aug. 27, 2012~<br>Sep. 05, 2012 | Aug. 21, 2013 | Conducted<br>(TH01-KS)   |
| Thermal Chamber           | Ten Billion  | TTC-B3S   | TBN-960502 | N/A               | Dec. 30, 2011    | Aug. 27, 2012~<br>Sep. 05, 2012 | Dec. 29, 2012 | Conducted<br>(TH01-KS)   |
| EMI Test Receiver         | R&S          | ESCI      | 100534     | 9kHz~3GHz         | Nov. 09, 2011    | Sep. 05, 2012~<br>Sep. 13, 2012 | Nov. 08, 2012 | Radiation<br>(03CH01-KS) |
| Spectrum Analyzer         | R&S          | FSP40     | 100319     | 9kHz~40GHz        | Dec. 30, 2011    | Sep. 05, 2012~<br>Sep. 13, 2012 | Dec. 29, 2012 | Radiation<br>(03CH01-KS) |
| Bilog Antenna             | SCHAFFNER    | CBL6112D  | 23182      | 25MHz~2GHz        | Dec. 08, 2011    | Sep. 05, 2012~<br>Sep. 13, 2012 | Dec. 07, 2012 | Radiation<br>(03CH01-KS) |
| Double Ridge Horn Antenna | EMCO         | 3117      | 00075959   | 1GHz~18GHz        | Jan. 06, 2012    | Sep. 05, 2012~<br>Sep. 13, 2012 | Jan. 05, 2013 | Radiation<br>(03CH01-KS) |
| Amplifier                 | Wireless     | FPA-6592G | 060007     | 30MHz~2GHz        | Dec. 30, 2011    | Sep. 05, 2012~<br>Sep. 13, 2012 | Dec. 29, 2012 | Radiation<br>(03CH01-KS) |
| Amplifier                 | Agilent      | 8449B     | 3008A02370 | 1GHz~26.5GHz      | Dec. 30, 2011    | Sep. 05, 2012~<br>Sep. 13, 2012 | Dec. 29, 2012 | Radiation<br>(03CH01-KS) |
| SHE-EHF Horn              | Schwarzbeck  | BBHA9170  | BBHA170249 | 15GHz-40GHz       | Oct. 11, 2011    | Sep. 05, 2012~<br>Sep. 13, 2012 | Oct. 10, 2012 | Radiation<br>(03CH01-KS) |
| Loop Antenna              | R&S          | HFH2-Z2   | 860004/00  | 9kHz~30 MHz       | Jul. 28, 2012    | Sep. 05, 2012~<br>Sep. 13, 2012 | Jul. 27, 2013 | Radiation<br>(03CH01-KS) |
| Signal Generator          | R&S          | SMR40     | 100455     | 10MHz-40GHz       | Dec. 30, 2011    | Sep. 05, 2012~<br>Sep. 13, 2012 | Dec. 29, 2012 | Radiation<br>(03CH01-KS) |
| LTE Base Station          | Anritsu      | MT8820C   | 6201074235 | LTE_FDD full band | Dec. 30, 2011    | Aug. 27, 2012~<br>Sep. 13, 2012 | Dec. 29, 2012 | -                        |



## 4 Uncertainty of Evaluation

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

|   |      |
|---|------|
| Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y)) | 2.54 |
|---|------|

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

|  |      |
|--|------|
| Measuring Uncertainty for a Level of Confidence of 95%(U = 2Uc(y)) | 4.72 |
|--|------|



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

Please refer to Sporton report number EP281701 as below.