



# FCC RF Test Report

**Product Name: HSPA+/HSUPA/HSDPA/UMTS/GSM/GPRS/EDGE  
Mobile Phone with Bluetooth**

**Model Number: HUAWEI U9510, U9510**

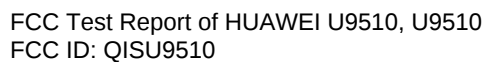
**Report No: SYBH(Z-RF)012092012-2003  
FCC ID:QISU9510**

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3. The laboratory has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements. The site recognition number is 97456.
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|             |                        |                       |                       |
|-------------|------------------------|-----------------------|-----------------------|
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|             | Date                   | Name                  | Signature             |



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## 1 General Information

### 1.1 Applied Standard

Applied Rules: 47 CFR FCC Part 02 (10-1-11 Edition)  
47 CFR FCC Part 27 (10-1-11 Edition)

Test Method: FCC KDB 971168 D01 Power Meas License Digital Systems v01  
FCC KDB 662911 D01 Multiple Transmitter Output v01

### 1.2 Test Location

Test Location 1: Reliability Laboratory of Huawei Technologies Co., Ltd.  
Address: Administration Building, Headquarters of Huawei Technologies Co., Ltd.,  
Bantian, Longgang District, Shenzhen, 518129, P.R.C

### 1.3 Test Environment Condition

Ambient Temperature: 19.5 to 25 °C  
Ambient Relative Humidity: 45to 55%  
Atmospheric Pressure: Not applicable

## 2 Summary

Table 1 Summary of results

| Test Case                              | FCC Part No.      | Requirements                                                                                                                                  | Result |
|----------------------------------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------|
| AWS Band                               |                   |                                                                                                                                               |        |
| Transmitter Output Power               | 2.1046 & 27.50(d) | Peak EIRP not exceed 1 W<br>Peak-to-average ratio not exceed 13 dB                                                                            | Pass   |
| Modulation Characteristics             | 2.1047            | Digital modulation                                                                                                                            | Pass   |
| Occupied Bandwidth                     | 2.1049            | (Not specified)                                                                                                                               | Pass   |
| Band Edges Compliance                  | 2.1051 & 27.53(h) | Below -13 dBm/1%*EBW, in 1 MHz range                                                                                                          | Pass   |
| Spurious Emission at Antenna Terminals | 2.1051 & 27.53(h) | Below -13 dBm/1 kHz, 9 kHz to 150 kHz<br>Below -13 dBm/10 kHz, 150 kHz to 30 MHz<br>Below -13 dBm/1 MHz, 30 MHz to 10 <sup>th</sup> harmonics | Pass   |
| Field Strength of Spurious Radiation   | 2.1053 & 27.53(h) | Below -13 dBm/1 MHz                                                                                                                           | Pass   |
| Frequency Stability                    | 2.1055 & 27.54    | Stay within the authorized bands of operation                                                                                                 | Pass   |

### 3 Product Description

#### 3.1 Product Information

##### 3.1.1 General Description

HUAWEI U9510, U9510 is subscriber equipment in the WCDMA/GSM system. The HSPA+/HSUPA/HSDPA/UMTS frequency band is Band I, Band II, Band IV, Band V and Band VIII. Band IV can be used in this report. The GSM/GPRS/EDGE frequency band includes GSM850 and GSM900 and DCS1800 and PCS1900. The Mobile Phone implements such functions as RF signal receiving/transmitting, HSPA+/HSUPA/HSDPA/UMTS and GSM/GPRS/EDGE protocol processing, voice, video, MMS service, GPS, AGPS and WIFI etc. Externally it provides micro SD card interface, earphone port (to provide voice service) and USIM card interface. It also provides Bluetooth module to synchronize data between a PC and the phone, or to use the built-in modem of the phone to access the Internet with a PC, or to exchange data with other Bluetooth devices.

U9510E is a HSUPA/HSDPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth. The GSM supports GSM850, GSM900, DCS1800 and PCS1900. The WCDMA supports WCDMA 2100M, WCDMA 1900M ,WCDMA 850M, WCDMA 900M,AWS.

U9510 is a HSUPA/HSDPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth. The GSM supports GSM850, GSM900, DCS1800 and PCS1900. The WCDMA supports WCDMA 2100M, WCDMA 1900M ,WCDMA 850M, WCDMA 900M,AWS. The PCB is the same. The differences between U9510E and U9510 as following table.

|             | U9510E  | U9510   |
|-------------|---------|---------|
| GSM 850M    | support | support |
| GSM 900M    | support | support |
| GSM 1800M   | support | support |
| GSM 1900M   | support | support |
| WCDMA 2100M | support | support |
| WCDMA 1900M | support | support |
| WCDMA 850M  | support | support |
| WCDMA 900M  | support | support |

|                 |           |           |
|-----------------|-----------|-----------|
| AWS             | support   | support   |
| Bluetooth       | support   | support   |
| WIFI            | support   | support   |
| PCB             | the same  | the same  |
| ID              | Common ID | Common ID |
| Main Antenna    | Different | Different |
| BT/WIFI Antenna | Different | Different |

So U9510 tested RSE case only, the other cases test data refer to U9510E RF test report..

### 3.1.2 Board Information

Table 2 Board Information

|                                                                  |                          |                            |
|------------------------------------------------------------------|--------------------------|----------------------------|
| HSPA+/HSUPA/HSDPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth |                          |                            |
| HUAWEI U9510, U9510                                              |                          |                            |
| Board and Module                                                 |                          |                            |
| Hardware Version                                                 | Software Version         | Description                |
| Ver.C                                                            | U9510V100R001C00B110SP01 | Main board of Mobile Phone |

### 3.1.3 Adapter Technical Data

|                    |                                                                                         |
|--------------------|-----------------------------------------------------------------------------------------|
| AC/DCAdapter Model | HW-050100U3W                                                                            |
| Input Voltage      | ~100-240V 50/60Hz 0.2A                                                                  |
| Output Voltage     | 5V  1A |
| Rated Power        | 5W                                                                                      |

### 3.1.4 Battery Technical Data

| Name                | Manufacture                   | Description                                                                                                                                                                                                                                                                     |
|---------------------|-------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rechargeable Li-ion | Huawei Technologies Co., Ltd. | Battery Model: HB4Q1HV<br>Rated capacity: 1800mAh<br>Nominal Voltage:  +3.8V<br>Charging Voltage:  +4.35V |

## 4 Test Description

### 4.1 Supported Frequency Range

| Characteristics | Description      |
|-----------------|------------------|
| Downlink        | 2110 to 2155 MHz |
| Uplink          | 1710 to 1755 MHz |

### 4.2 Transmitter / Receiver Characteristics

| Characteristics                    | Description          |
|------------------------------------|----------------------|
| System Type                        | UMTS                 |
| TX Output Power (per Antenna Port) | UMTS system: 24dBm   |
| Channel Spacing(s) / Bandwidth(s)  | UMTS system: 5 MHz   |
| Designation of Emissions           | UMTS system: 4M07F9W |

### 4.3 Antenna Gain

|                   |    |
|-------------------|----|
| Antenna Gain(dBi) | -1 |
|-------------------|----|

### 4.4 Power Supply

| Specification           | Description                                                                                                                                                                                                                        |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power Supply Type       | Directly Connected to DC /AC Power Supply                                                                                                                                                                                          |
| Input to EUT (DC power) | DC Voltage Nominal:  3.8 V<br>DC Voltage Range:  3.5 V to 4.35 V |
| Input to EUT (AC power) | AC Voltage Nominal: ~ 120 V (50/60 Hz)<br>AC Voltage Range: ~ 100 V to 240 V                                                                                                                                                       |

## 5 General Test Conditionss / Configurations

### 5.1 RF Channels under Test

| Test Mode   | TX / RX | RF Channel   |              |              |
|-------------|---------|--------------|--------------|--------------|
|             |         | Low (L)      | Middle (M)   | High (H)     |
| TM1/TM2/TM3 | TX      | Channel1312  | Channel1412  | Channel1513  |
|             |         | 1712.4MHz    | 1732.4MHz    | 1752.6MHz    |
|             | RX      | Channel 1537 | Channel 1637 | Channel 1738 |
|             |         | 2112.4 MHz   | 2132.4 MHz   | 2152.6 MHz   |

### 5.2 Test Modes

| Test Mode | Test Modes Description |
|-----------|------------------------|
| TM1       | WCDMA, QPSK modulation |
| TM2       | HSDPA, QPSK modulation |
| TM3       | HSUPA, QPSK modulation |

Note:

HSPA+ implementation of this device, 16QAM is not used for uplink. The uplink Category and release number is same as HSUPA, RF test is evaluation is not required.

### 5.3 Test Environment

| Environment Parameter | Selected Values During Tests |         |
|-----------------------|------------------------------|---------|
| Relative Humidity     | Ambient                      |         |
| Temperature           | TN                           | Ambient |
| Voltage               | VL                           | 3.5V    |
|                       | VN                           | 3.8V    |
|                       | VH                           | 4.35V   |

NOTE: VL= lower extreme test voltage

VN= nominal voltage

VH= upper extreme test voltage

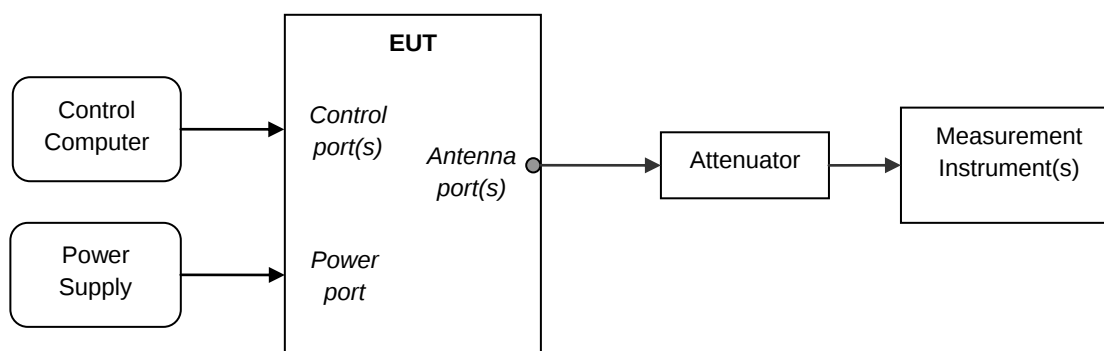
TN= normal temperature

## 5.4 Test Setup

### 5.4.1 General Test Setup Configurations

| Configuration       | Description                                                                                                                                                                                                                                        |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Antenna Ports  | Until otherwise declared, all TX tests are ONLY performed at the main Transmitter antenna port (e.g. TRXA, TXA and so on) of the EUT, and all RX tests are ONLY performed at the main Receiver antenna port (e.g. TRXA, RXA and so on) of the EUT. |
| Multiple RF Sources | Other than the tested RF source of the EUT, other RF source(s) are disabled or shutdown during measurements.                                                                                                                                       |

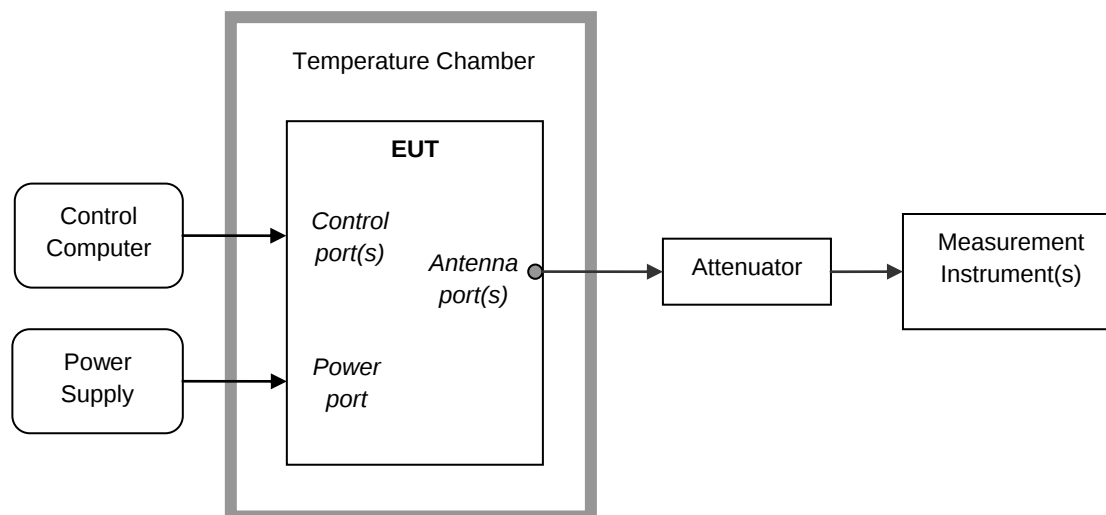
### 5.4.2 Test Setup 1



Note:

A peak to average ratio measurement is performed at the conducted port of the EUT. For WCDMA signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level. For GSM signals, an average and a peak trace are used on a spectrum analyzer to determine the largest deviation between the average and the peak power of the EUT in a bandwidth greater than the emission bandwidth. The traces are generated with the spectrum analyzer set to zero span mode.

### 5.4.3 Test Setup 2



### 5.4.4 Test Setup 3

NOTE1: Effective radiated power (ERP) or Effective Isotropic radiated power (EIRP) refers to the EUT radiation power output, assuming all emissions are radiated from half-wave dipole antennas or horn antennas.

NOTE2: The EUT was set on insulator 80cm above the Ground Plane. The setup and test methods were according to ANSI-TIA-603C 2004. The measurements were carried through with a Rohde and Schwarz Test Receiver and control software.

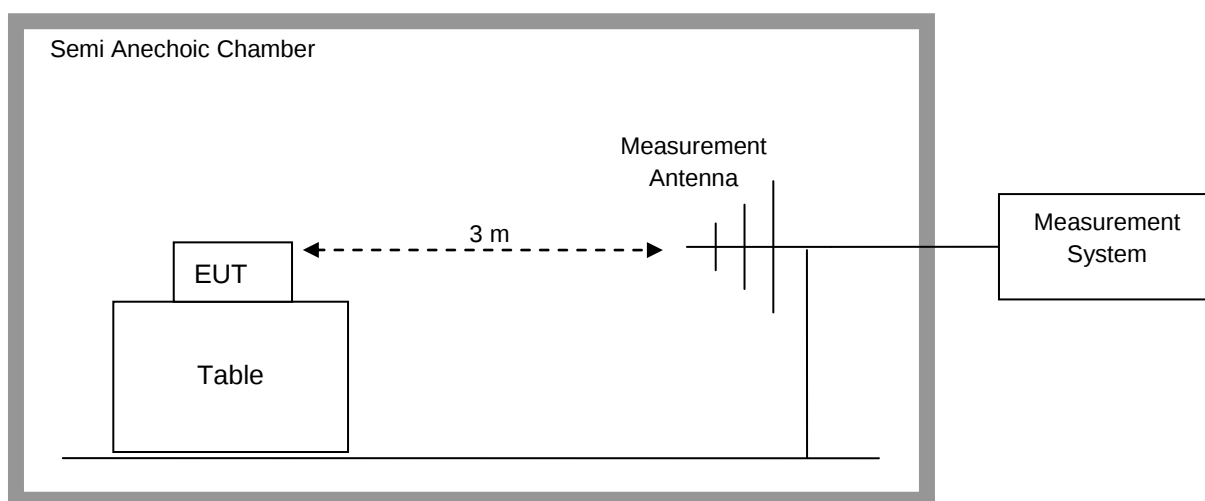
#### Step 1: Pre-test to find the Maximum ERP or EIRP

1. Connect the test system according to the following figure. EUT is running for 30 minutes before test, and measurement instruments are warming-up for 30 minutes.
2. Set up communication link between Universal radio communication tester and EUT, set EUT working frequency, and control EUT to transmit at maximum power.
3. Set the center frequency of the signal analyzer or receiver to the EUT's operating frequency, the RBW is equal to the emission bandwidth of the signal. Set RMS detector for the test, and the span is

equal to 2 times of emission bandwidth, the other settings should remain automatic. Normally, the height range of antenna was 1m to 4m, the azimuth range of turntable was 0° to 360°. The receiver antenna has two polarizations V and H. A portable or small unlicensed wireless device shall be placed on a non-metallic test fixture or other non-metallic support during testing. The supporting fixture shall permit orientation of the EUT in each of three orthogonal (x, y, z) axis positions such that emissions from the EUT are maximized. Measure the EUT maximum RF power and record the result.

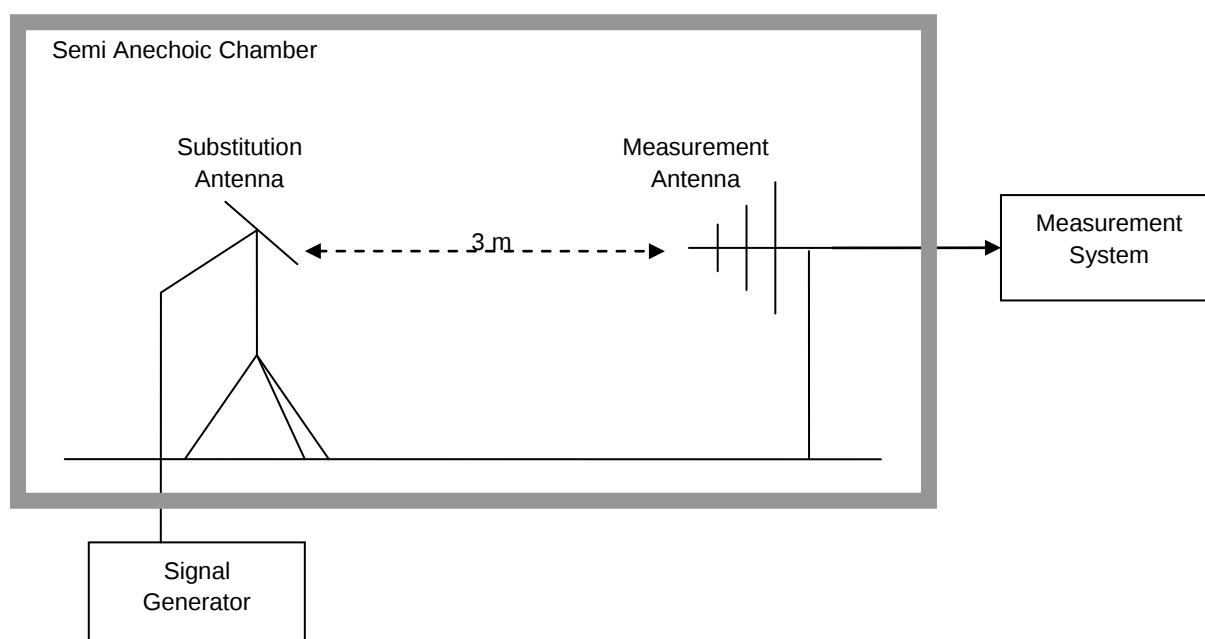
4. Changing EUT working frequency and measuring the RF power at channel L, M, H respectively.

Complete the test data.



## Step 2: Substitution method to verify the maximum ERP or EIRP

1. Measurement setup is according to the following figure. EUT was substituted by antenna, and the polarization is identical with the test antenna; the signal generator was connected to the substitution antenna.
2. The radiated output power, measured by signal analyzer set, is the same as recorded in above. Then this power level is matched by a signal from a calibrated signal generator which is substituted for EUT. The power supplied by the generator is then equal to the ERP or EIRP after corrected by the antenna gain and cable loss.



## 5.5 Test Conditions

| Test Case                              | Test Conditions    |                                                                                                             |
|----------------------------------------|--------------------|-------------------------------------------------------------------------------------------------------------|
| Transmitter Output Power               | Test Configuration | Ambient Temperature & Rated Voltage                                                                         |
|                                        | Test Setup         | Test Setup 1 & Test Setup 3                                                                                 |
|                                        | Detector           | RMS                                                                                                         |
|                                        | RF Channels (TX)   | L, M, H                                                                                                     |
|                                        | Test Mode          | TM1/TM2/TM3                                                                                                 |
| Modulation Characteristics             | Test Configuration | Ambient Temperature & Rated Voltage                                                                         |
|                                        | Test Setup         | Test Setup 1                                                                                                |
|                                        | RF Channels (TX)   | M                                                                                                           |
|                                        | Test Mode          | TM1                                                                                                         |
| Occupied Bandwidth                     | Test Configuration | Ambient Temperature & Rated Voltage                                                                         |
|                                        | Test Setup         | Test Setup 1                                                                                                |
|                                        | Detector           | PK                                                                                                          |
|                                        | RF Channels (TX)   | L, M, H                                                                                                     |
|                                        | Test Mode          | TM1                                                                                                         |
| Band Edges Compliance                  | Test Configuration | Ambient Temperature & Rated Voltage                                                                         |
|                                        | Test Setup         | Test Setup 1                                                                                                |
|                                        | Detector           | RMS                                                                                                         |
|                                        | RF Channels (TX)   | B, T                                                                                                        |
|                                        | Test Mode          | TM1                                                                                                         |
| Spurious Emission at Antenna Terminals | Test Configuration | Ambient Temperature & Rated Voltage                                                                         |
|                                        | Test Setup         | Test Setup 1                                                                                                |
|                                        | Detector           | PK                                                                                                          |
|                                        | RF Channels (TX)   | L, M, H                                                                                                     |
|                                        | Test Mode          | TM1                                                                                                         |
| Field Strength of Spurious Radiation   | Test Configuration | Ambient Temperature & Rated Voltage                                                                         |
|                                        | Test Setup         | Test Setup 3                                                                                                |
|                                        | Detector           | PK                                                                                                          |
|                                        | RF Channels (TX)   | M                                                                                                           |
|                                        | Test Mode          | TM1/TM2/TM3                                                                                                 |
| Frequency Stability                    | Test Configuration | (1) -30 °C to +50 °C with step 10 °C at Rated Voltage;<br>(2) VL, VH and VN Voltage at Ambient Temperature. |
|                                        | Test Setup         | Test Setup 2                                                                                                |
|                                        | RF Channels (TX)   | M                                                                                                           |
|                                        | Test Mode          | TM1                                                                                                         |

## 6 Main Test Instruments

Table 3 Main Test Equipments

| Equipment Description                           | Manufacturer | Model     | Serial Number | Calibrated until |
|-------------------------------------------------|--------------|-----------|---------------|------------------|
| Power supply                                    | KEITHLEY     | 2303      | 1288003       | Sept., 27,2012   |
| Universal Radio Communication Tester            | R&S          | CMU200    | 117341        | Jan., 12,2013    |
| Universal Radio Communication Tester            | Agilent      | E5515C    | MY50260239    | Aug., 31,2012    |
| Spectrum Analyzer                               | Agilent      | E4440A    | MY49420179    | Jul., 17,2013    |
| Signal Analyzer                                 | R&S          | FSQ31     | 200021        | Sept., 27,2012   |
| Temperature Chamber                             | WEISS        | WKL64     | 24600294      | Feb.,13,2013     |
| Signal generator                                | Agilent      | E8257D    | MY49281095    | Jul.,09,2013     |
| Spectrum analyzer                               | R&S          | FSU3      | 200474        | Mar., 05, 2013   |
| Spectrum analyzer                               | R&S          | FSU43     | 100144        | Mar., 05, 2013   |
| Double-Ridged Waveguide Horn Antenna (1G~18GHz) | R&S          | HF907     | 100304        | Apr., 05, 2013   |
| Double-Ridged Waveguide Horn Antenna (1G~18GHz) | R&S          | HF907     | 100391        | Apr., 05, 2013   |
| Trilog Broadband Antenna (30M~3GHz)             | SCHWARZBECK  | VULB 9163 | 9163-521      | Jul., 07, 2013   |
| Pyramidal Horn Antenna(26GHz-40GHz)             | ETS-Lindgren | 3160-10   | 00123940      | Feb., 27, 2013   |
| Pyramidal Horn Antenna(18GHz-26.5GHz)           | ETS-Lindgren | 3160-09   | 00125912      | Feb., 27, 2013   |

## 7 Test Results

| No. | Test Item                              | Test Result |
|-----|----------------------------------------|-------------|
| 1   | Transmitter Output Power               | Appendix A  |
| 2   | Modulation Characteristics             | Appendix B  |
| 3   | Occupied Bandwidth                     | Appendix C  |
| 4   | Band Edges Compliance                  | Appendix D  |
| 5   | Spurious Emission at Antenna Terminals | Appendix E  |
| 6   | Field Strength of Spurious Radiation   | Appendix F  |
| 7   | Frequency Stability                    | Appendix G  |
| 8   | Photos of Test Setup                   | Appendix H  |

NOTE: There is no test data in Appendix H, only Photos of Test Setup for Field Strength of Spurious Radiation.

## 8 Measurement Uncertainty

For a 95% confidence level ( $k=2$ ), the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 as following:

| Test Item                            |                          | Extended Uncertainty                               |
|--------------------------------------|--------------------------|----------------------------------------------------|
| Transmitter Output Power             | Power (dBm)              | U =0.39 dB                                         |
| Occupied Bandwidth                   | Magnitude (%)            | U=0.2%                                             |
| Band Edge Compliance                 | Disturbance Power (dBm)  | U=2.0 dB                                           |
| Conducted Spurious Emissions         | Disturbance Power (dBm)  | U=2.0 dB                                           |
| Field Strength of Spurious Radiation | ERP (dBm)                | U=4.6 dB (30 MHz – 1GHz)<br>U=3.0 dB (above 1 GHz) |
| Frequency Stability                  | Frequency Accuracy (ppm) | U=0.21 ppm                                         |

-----The END-----



## Appendix A

### Transmitter Output Power According to FCC Part 2.1046 & Part 27 Subpart C&L

## Conducted Power of Transmitter

Table 1 Measurement Results

| TEST CONDITIONS     |       | RF Output Power (Conducted) |       |                 |       |                 |       |
|---------------------|-------|-----------------------------|-------|-----------------|-------|-----------------|-------|
|                     |       | Channel 1312(L)             |       | Channel 1412(M) |       | Channel 1513(H) |       |
|                     |       | 1712.4MHz                   |       | 1732.4MHz       |       | 1752.6MHz       |       |
|                     |       | dBm                         |       | dBm             |       | dBm             |       |
| $T_{nom} / V_{nom}$ |       | Measured                    | Limit | Measured        | Limit | Measured        | Limit |
| TM1                 |       | 23.77                       | 30    | 23.65           | 30    | 23.71           | 30    |
| TM2                 | Case1 | 23.48                       | 30    | 23.36           | 30    | 23.45           | 30    |
|                     | Case2 | 22.15                       | 30    | 22.08           | 30    | 22.11           | 30    |
|                     | Case3 | 21.82                       | 30    | 21.76           | 30    | 21.81           | 30    |
|                     | Case4 | 21.55                       | 30    | 21.49           | 30    | 21.53           | 30    |
| TM3                 | Case1 | 22.36                       | 30    | 22.27           | 30    | 22.31           | 30    |
|                     | Case2 | 20.08                       | 30    | 20.00           | 30    | 20.05           | 30    |
|                     | Case3 | 21.22                       | 30    | 21.13           | 30    | 21.19           | 30    |
|                     | Case4 | 20.68                       | 30    | 20.59           | 30    | 20.64           | 30    |
|                     | Case5 | 22.72                       | 30    | 22.64           | 30    | 22.67           | 30    |



## Peak-to-Average Ratio

| TEST CONDITIONS     |       | RF Output Power (Conducted) |       |                 |       |                 |       |
|---------------------|-------|-----------------------------|-------|-----------------|-------|-----------------|-------|
|                     |       | Channel 1312(L)             |       | Channel 1412(M) |       | Channel 1513(H) |       |
|                     |       | 1712.4MHz                   |       | 1732.4MHz       |       | 1752.6MHz       |       |
|                     |       | dB                          |       | dB              |       | dB              |       |
| $T_{nom} / V_{nom}$ |       | Measured                    | Limit | Measured        | Limit | Measured        | Limit |
| TM1                 |       | 2.93                        | 13    | 3.04            | 13    | 2.75            | 13    |
| TM2                 | Case1 | 2.62                        | 13    | 2.72            | 13    | 2.66            | 13    |
|                     | Case2 | 2.53                        | 13    | 2.55            | 13    | 2.48            | 13    |
|                     | Case3 | 2.33                        | 13    | 2.32            | 13    | 2.26            | 13    |
|                     | Case4 | 2.28                        | 13    | 2.34            | 13    | 2.30            | 13    |
| TM3                 | Case1 | 2.39                        | 13    | 2.53            | 13    | 2.45            | 13    |
|                     | Case2 | 2.22                        | 13    | 2.13            | 13    | 2.35            | 13    |
|                     | Case3 | 2.38                        | 13    | 2.45            | 13    | 2.47            | 13    |
|                     | Case4 | 2.10                        | 13    | 2.22            | 13    | 2.31            | 13    |
|                     | Case5 | 2.55                        | 13    | 2.61            | 13    | 2.49            | 13    |



## Efficient Isotropic Radiated Power (EIRP)

Table 2 Substitution Results

| Test Mode | Freq. [MHz] | Meas. Level [dBm] | Substitution Antenna Type | SGP [dBm] | Substitution Gain [dBi] | Cable Loss [dB] | Substitution Level (EIRP) [dBm] | Limit [dBm] | Result |
|-----------|-------------|-------------------|---------------------------|-----------|-------------------------|-----------------|---------------------------------|-------------|--------|
| TM1       | 1712.4      | 22.77             | Horn Ant.                 | 19.17     | 4.5                     | 1               | 22.67                           | 30          | Pass   |
| TM1       | 1732.4      | 22.65             | Horn Ant.                 | 19.30     | 4.5                     | 1               | 22.80                           | 30          | Pass   |
| TM1       | 1752.6      | 22.71             | Horn Ant.                 | 19.06     | 4.8                     | 1               | 22.86                           | 30          | Pass   |

Note: a, For getting the EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should take to calculate it,

$$\text{EIRP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBi]}$$

b, SGP=Signal Generator Level

-----The END-----



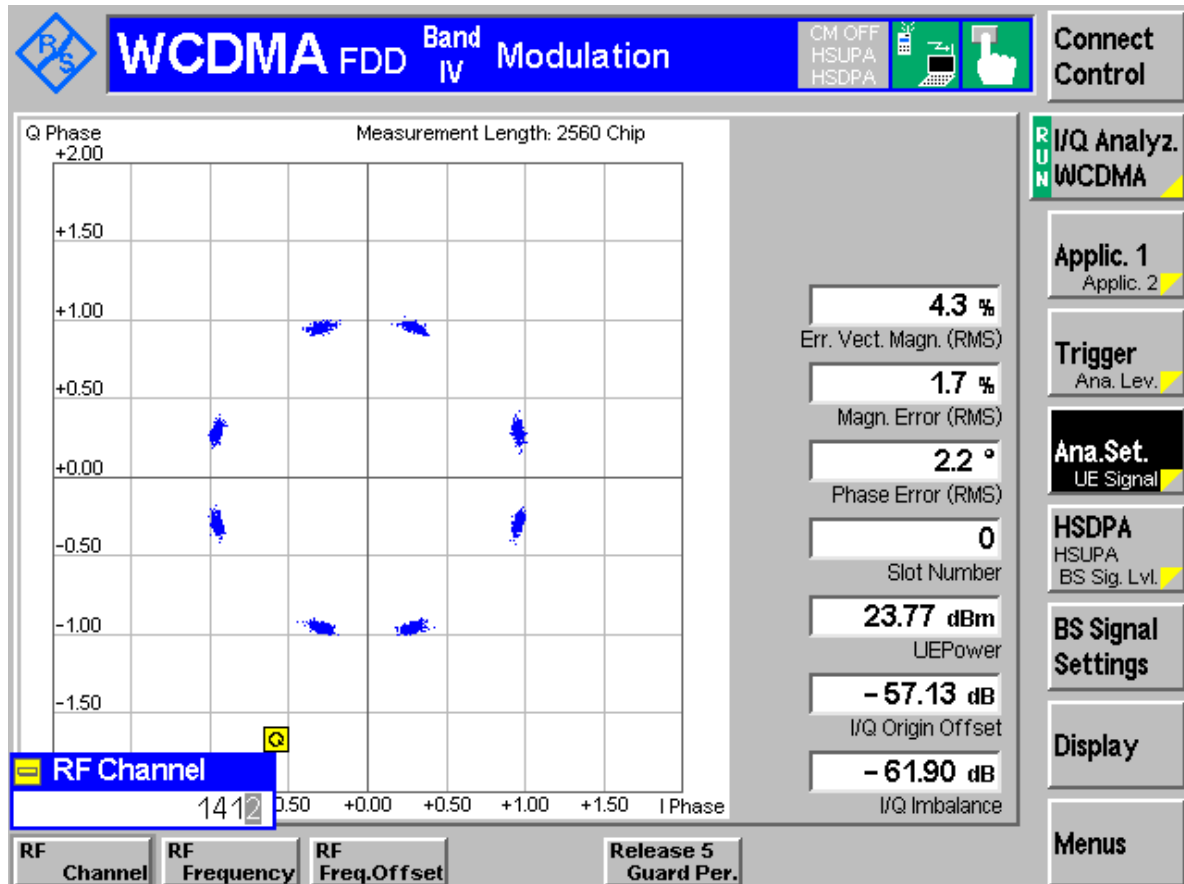
## **Appendix B**

### **Modulation Characteristics**

According to FCC Part 2.1047 & Part 27 Subpart C&L



## TM1: WCDMA Channel 1412



-----The END-----



## Appendix C

### Occupied Bandwidth

According to FCC Part 2.1049 & Part 27 Subpart C&L



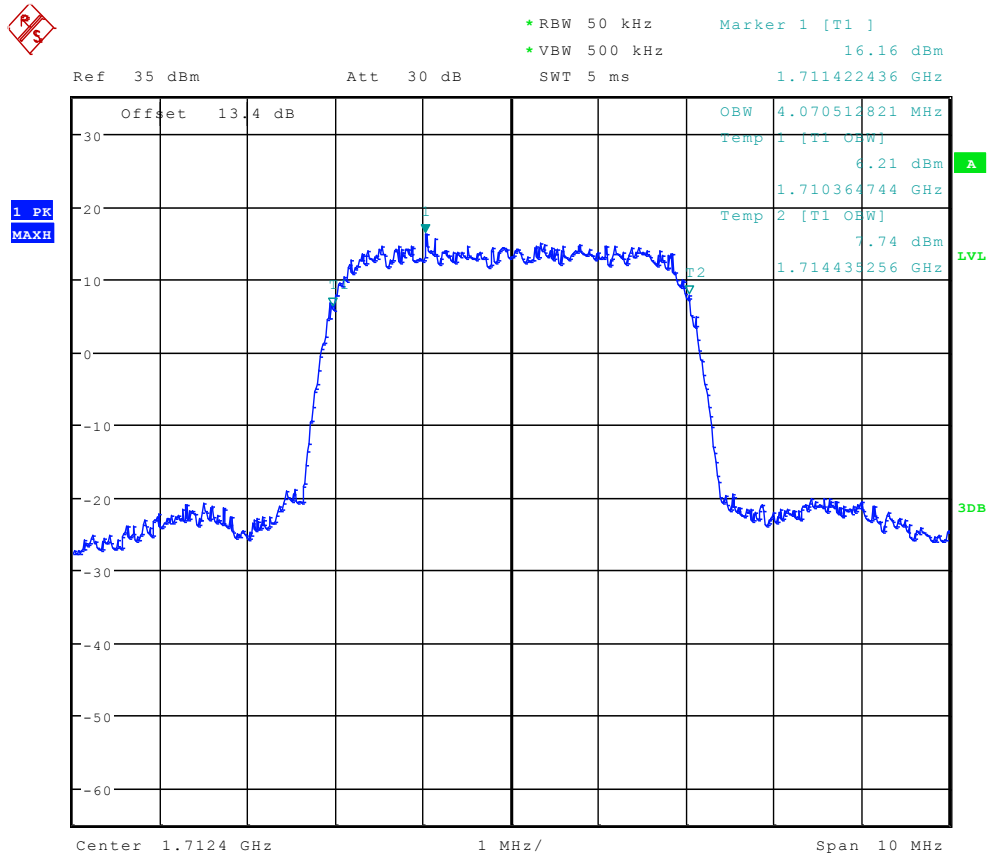
Result Table

Table 1 Measurement Results

| Test Mode | RF Channel | Occupied Bandwidth [MHz] | Verdict |
|-----------|------------|--------------------------|---------|
| TM1       | 1312       | 4.07                     | Pass    |
|           | 1412       | 4.07                     | Pass    |
|           | 1513       | 4.07                     | Pass    |



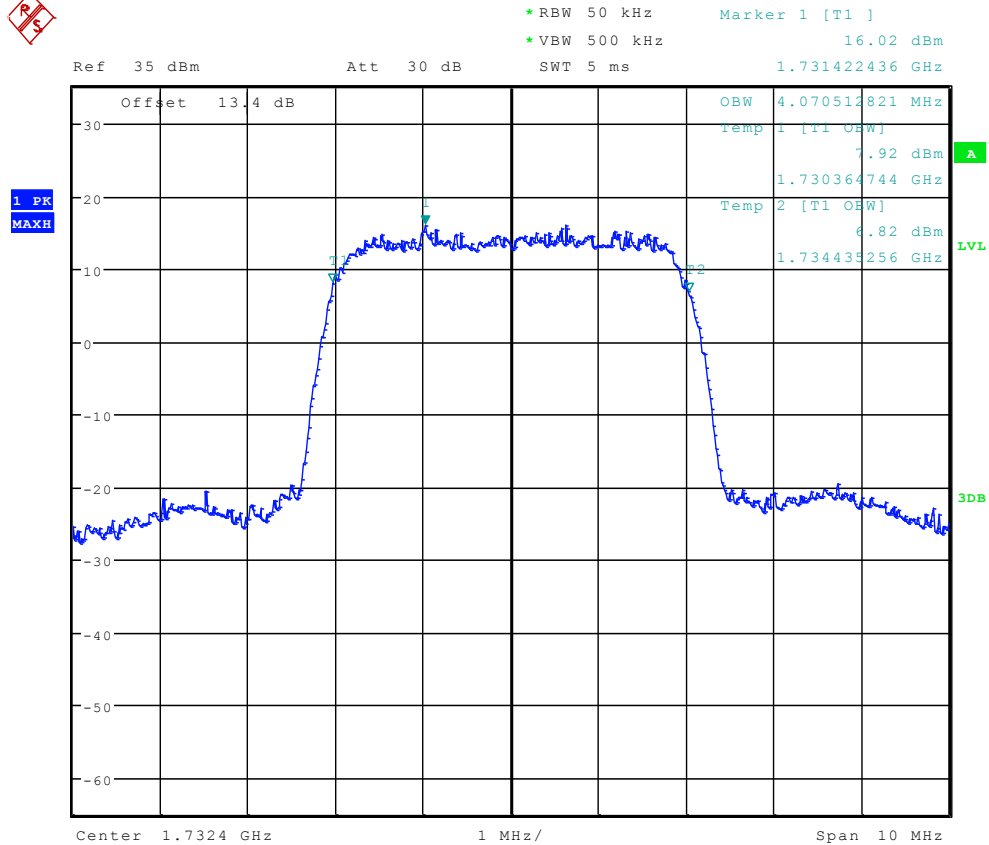
## TM1: WCDMA Channel 1312



Date: 2.AUG.2012 10:49:44



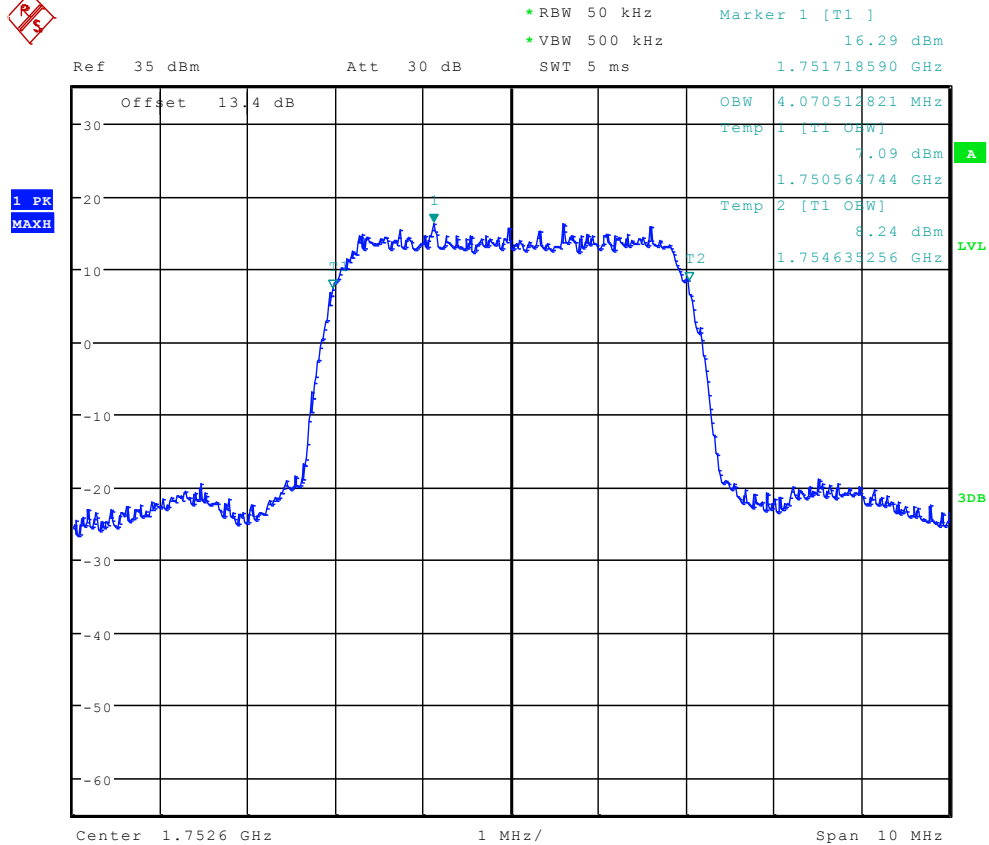
## Channel 1412



Date: 2.AUG.2012 10:49:58



## Channel 1513



Date: 2.AUG.2012 10:50:11

-----END-----



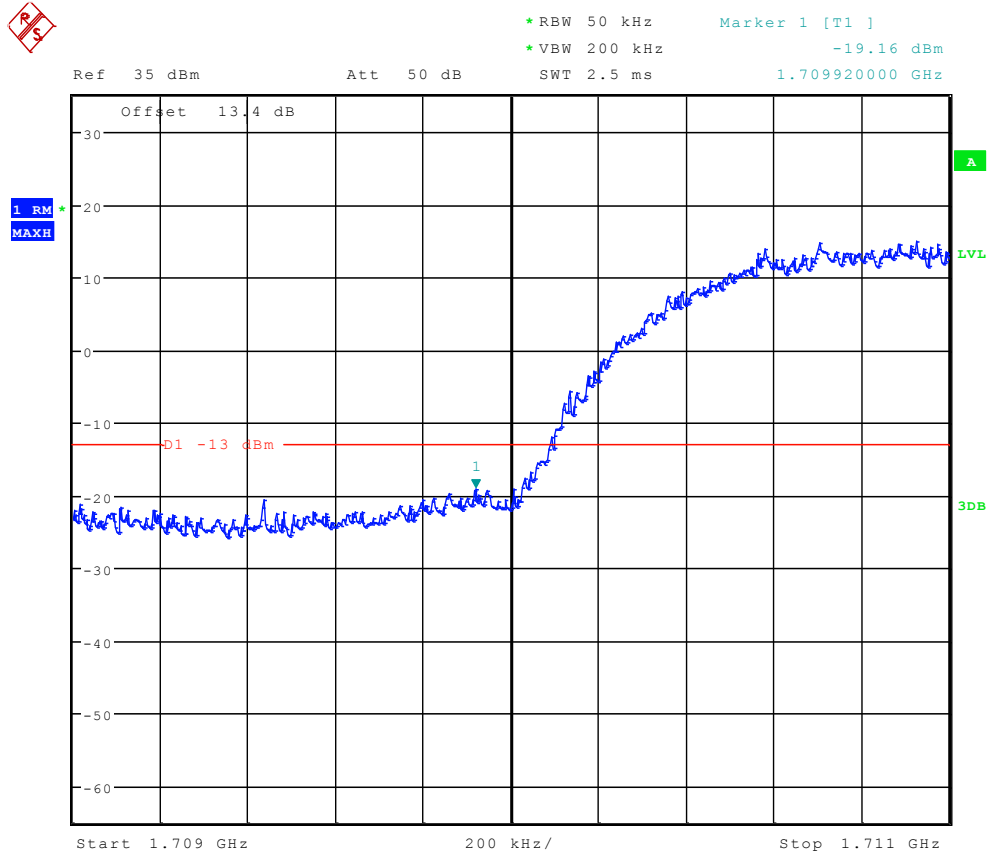
## Appendix C

### Band Edges Compliance

According to FCC Part 2.1051 & Part 27 Subpart C&L



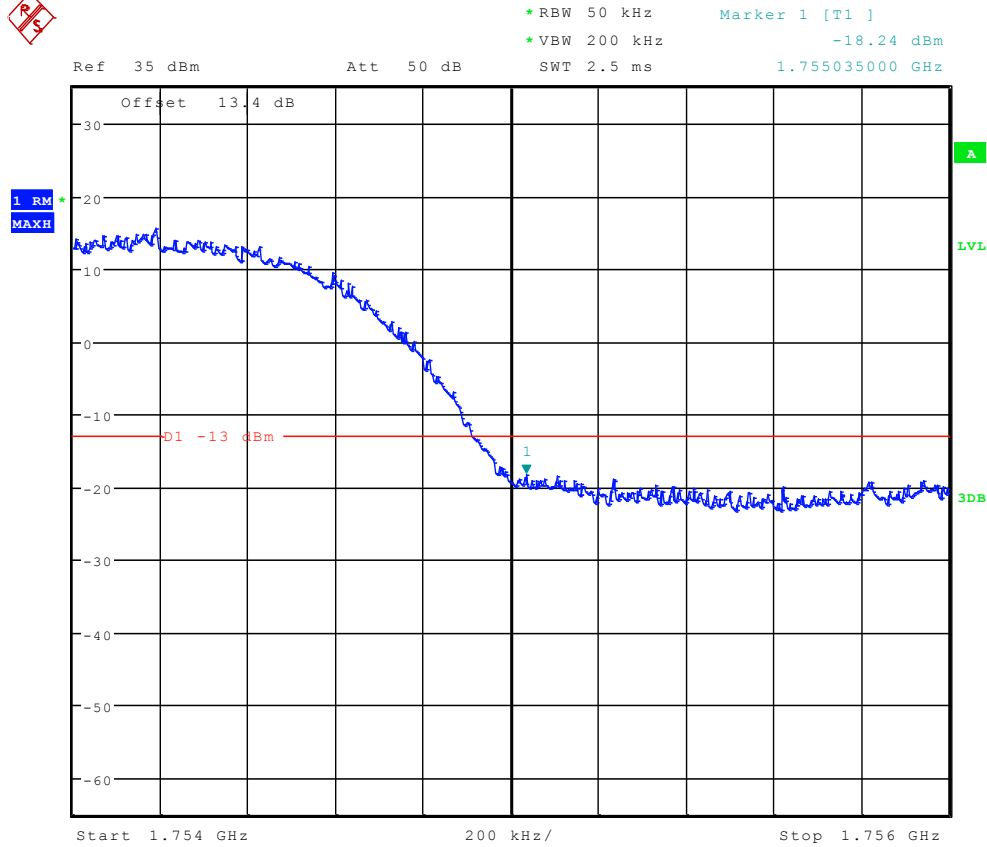
## TM1: WCDMA Left Edge Channel 1312



Date: 2.AUG.2012 10:50:26



## Right Edge Channel 1513



Date: 2.AUG.2012 10:50:39

-----END-----



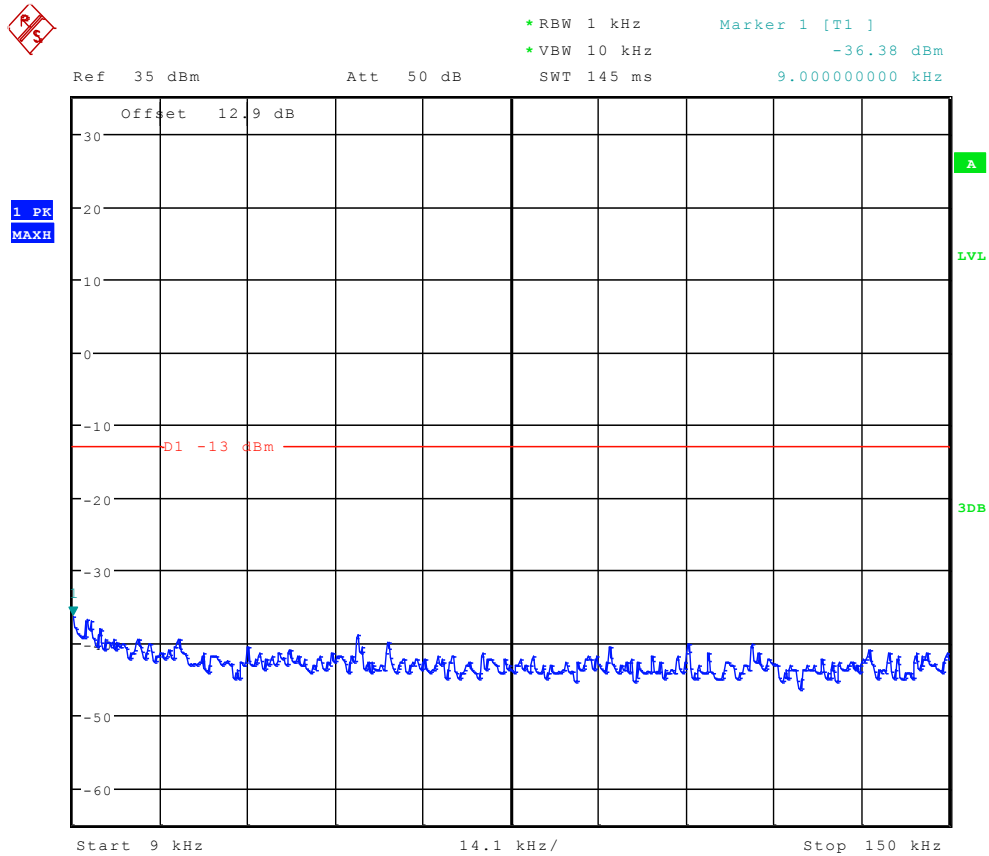
## **Appendix D**

# Spurious Emission at Antenna Terminal

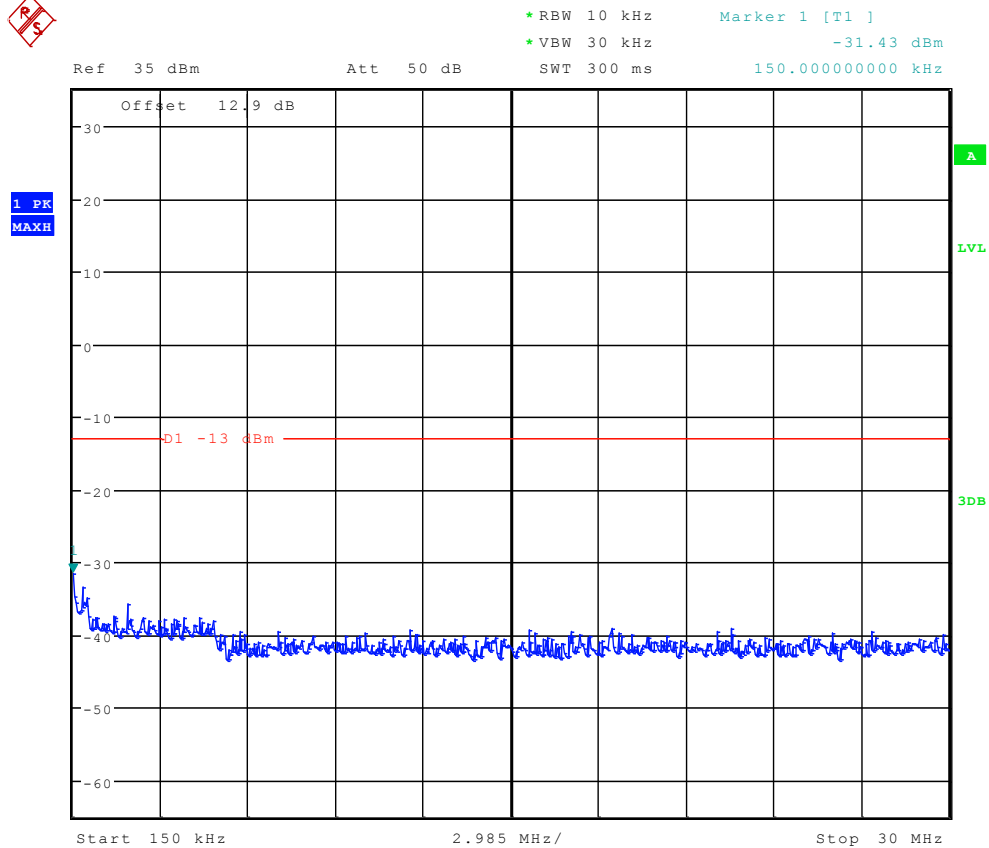
According to FCC Part 2.1051 & Part 27 Subpart C&L



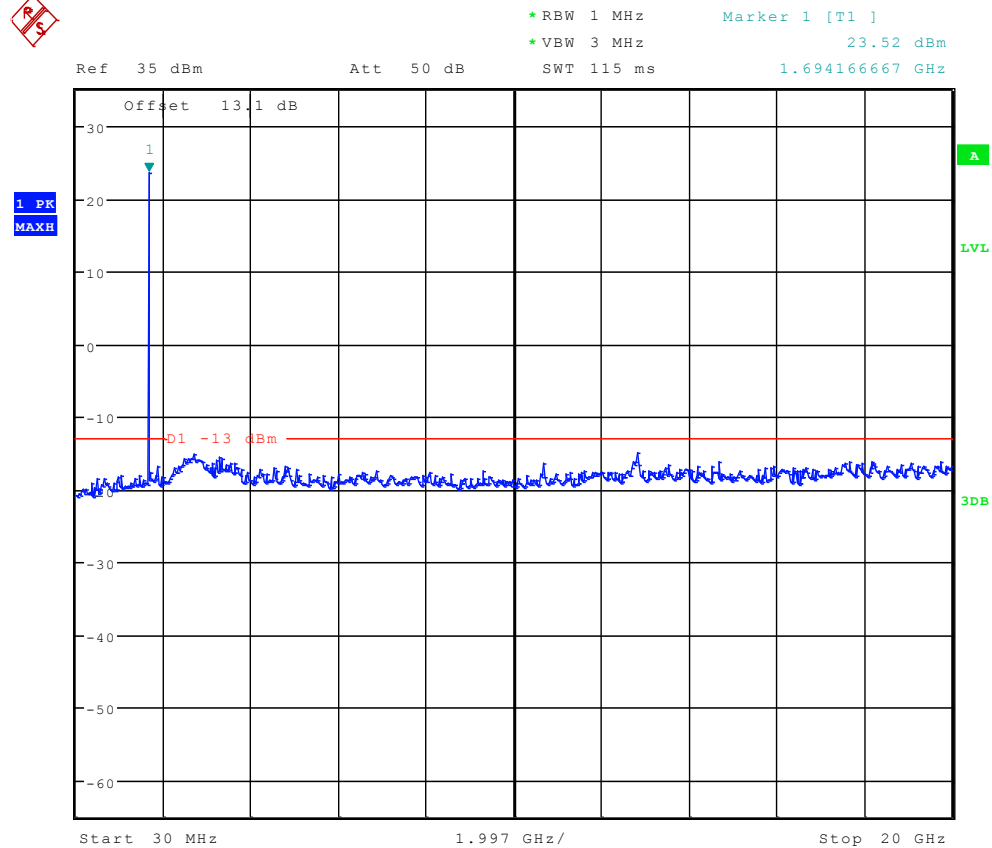
## TM1: WCDMA Channel 1312



Date: 2.AUG.2012 10:50:54



Date: 2.AUG.2012 10:51:37



Date: 2.AUG.2012 10:52:21

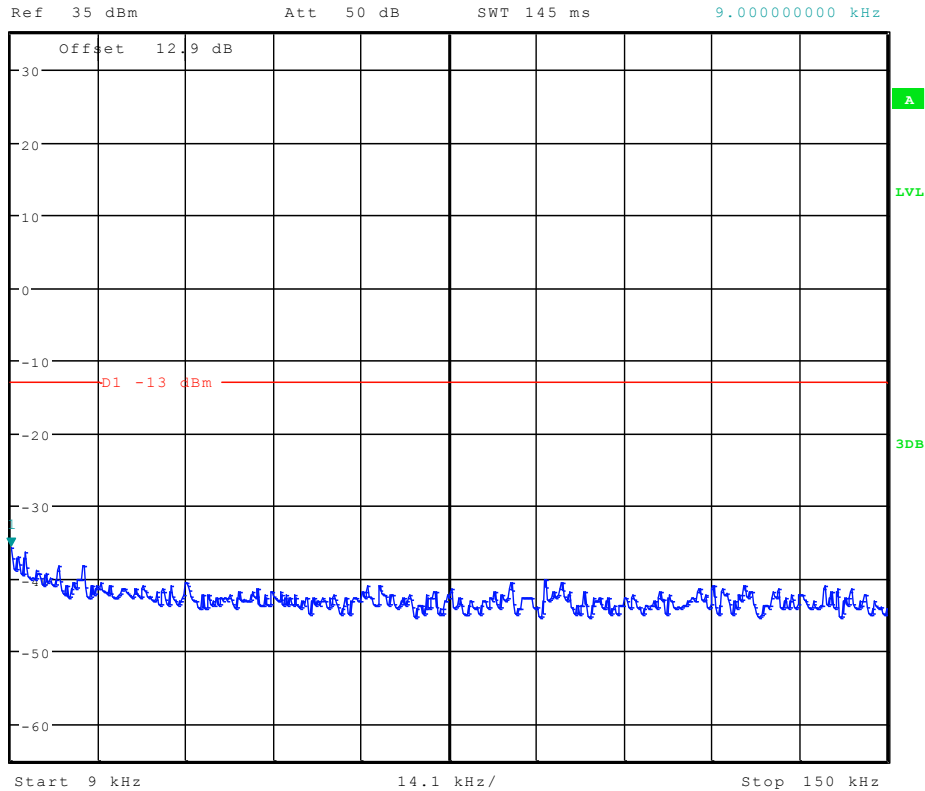


## Channel 1412

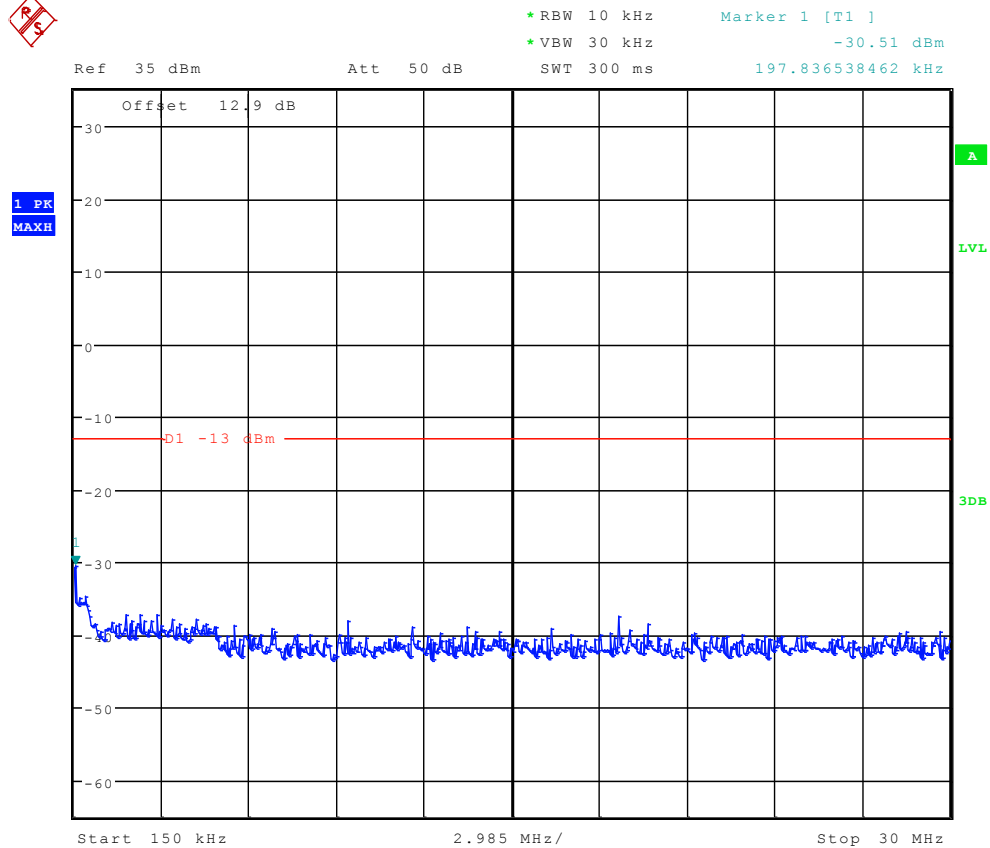


1 PK  
MAXH

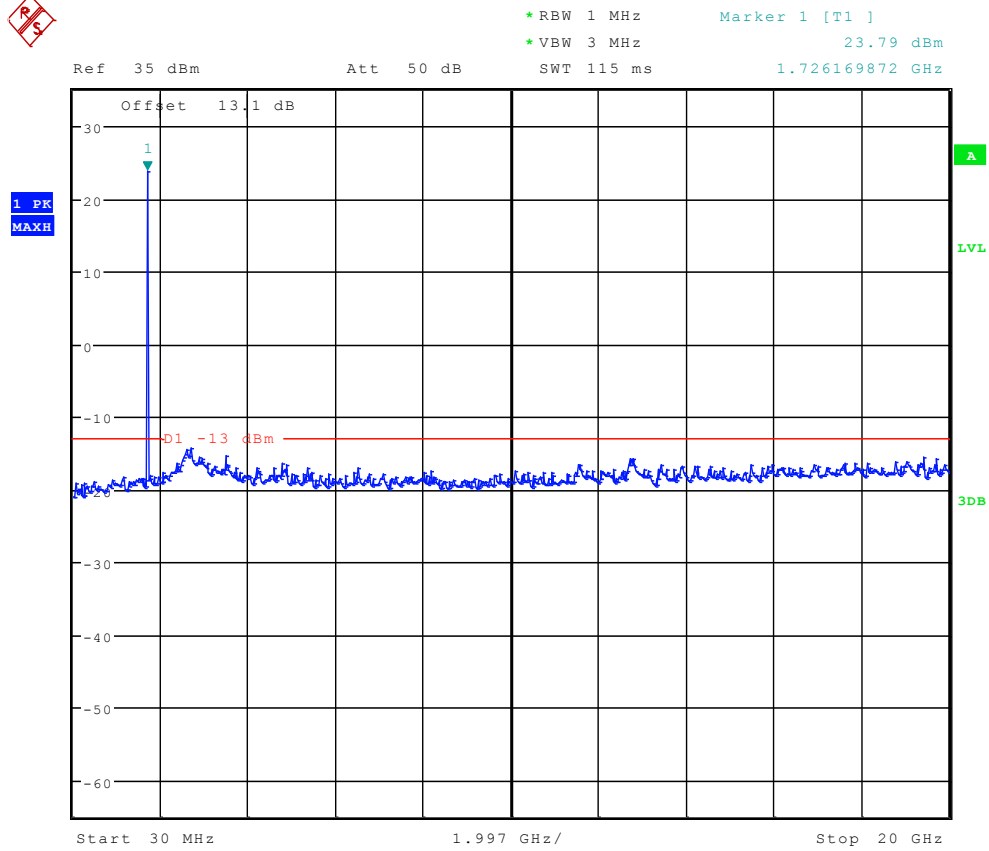
\* RBW 1 kHz  
\* VBW 10 kHz  
SWT 145 ms  
Marker 1 [T1]  
-35.74 dBm  
9.000000000 kHz



Date: 2.AUG.2012 10:51:08



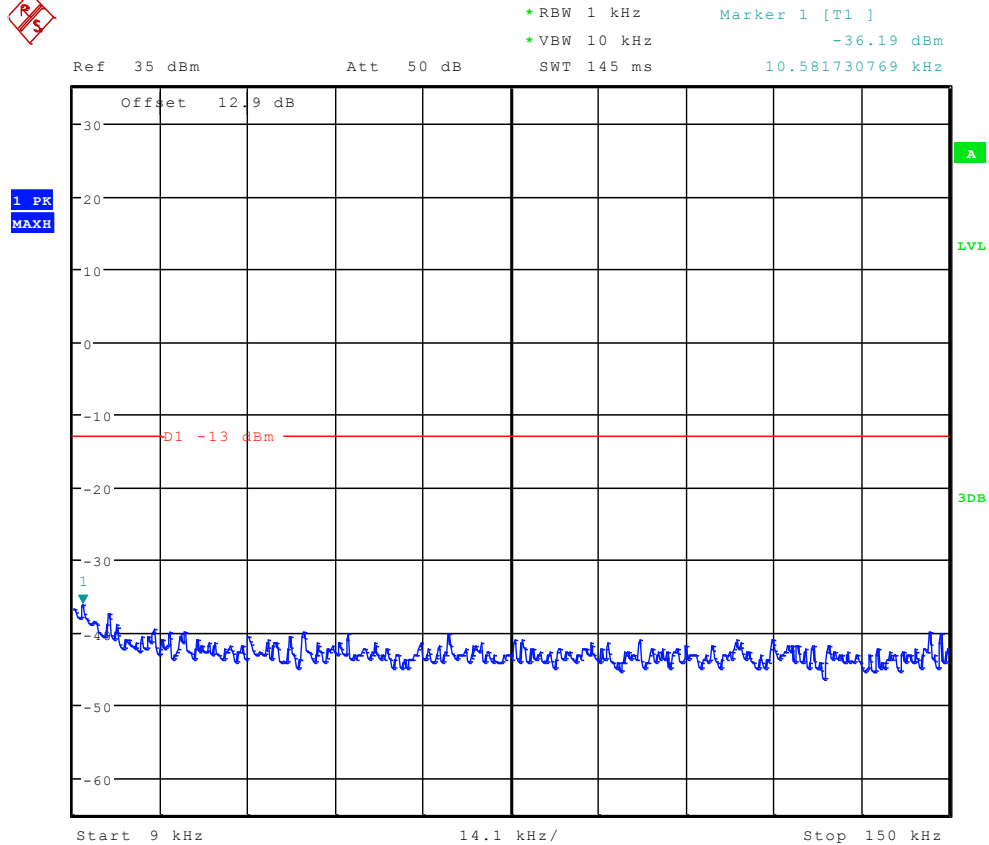
Date: 2.AUG.2012 10:51:52



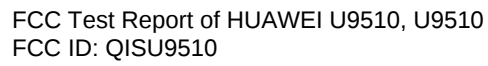
Date: 2.AUG.2012 10:52:36



## Channel 1513

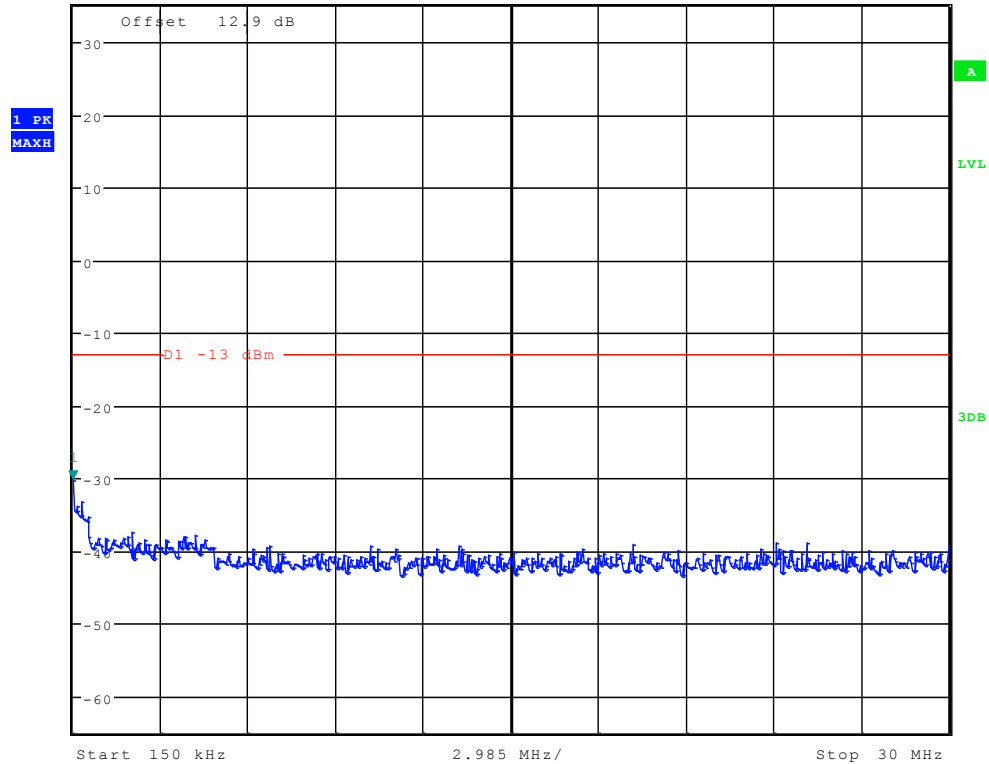


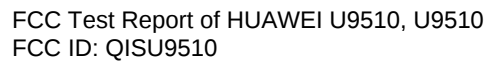
Date: 2.AUG.2012 10:51:23



```
* RBW 10 kHz      Marker 1 [T1 ]
* VBW 30 kHz      -30.22 dBm
  SWT 300 ms      150.000000000 kHz
```

150.000000000 kHz





Ref 35 dBm Att 50 dB SWT 115 ms 1.726169872 GHz



-----END-----



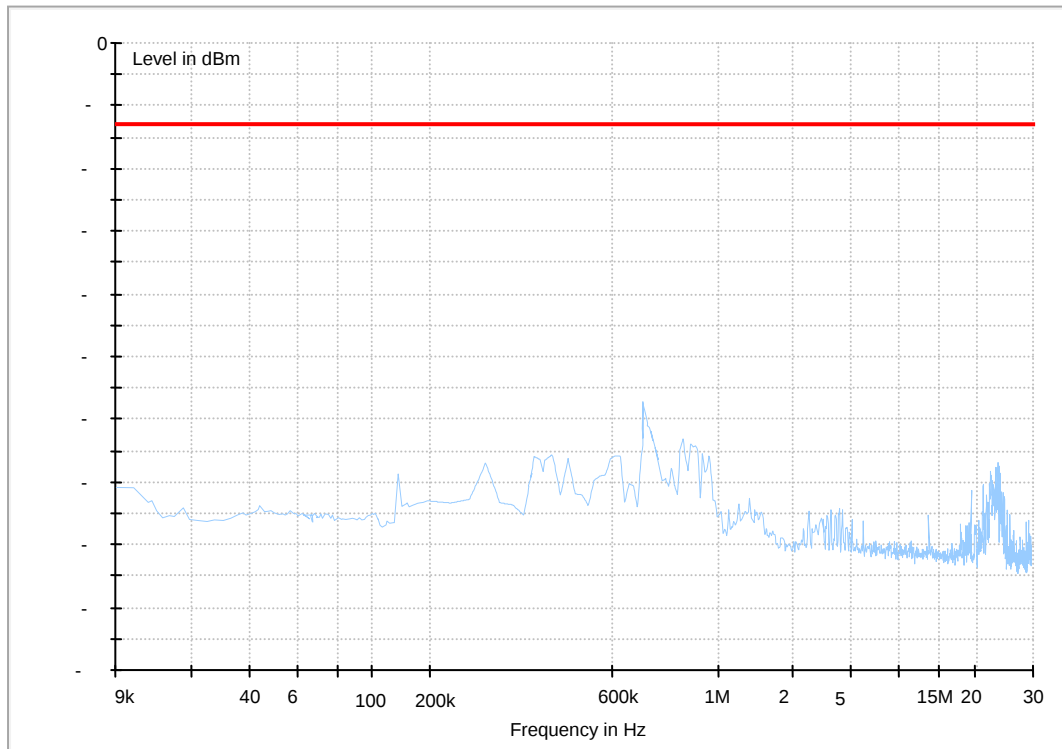
## **Appendix F**

### **Radiated spurious emission**

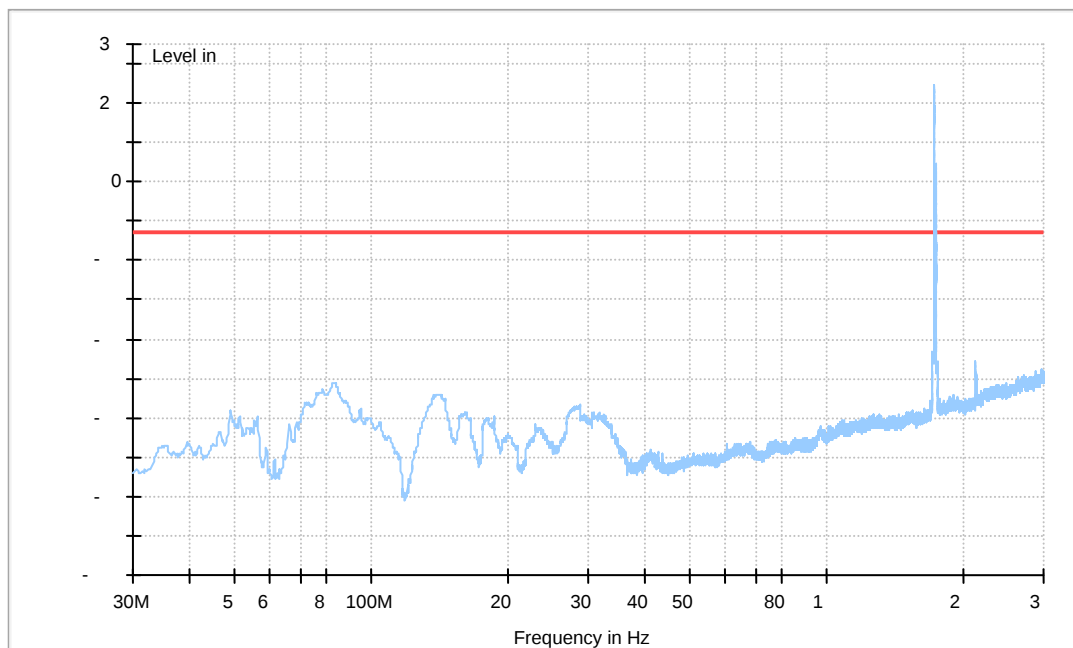
According to FCC Part 2.1053& Part 27.53(g)

## WCDMA AWS

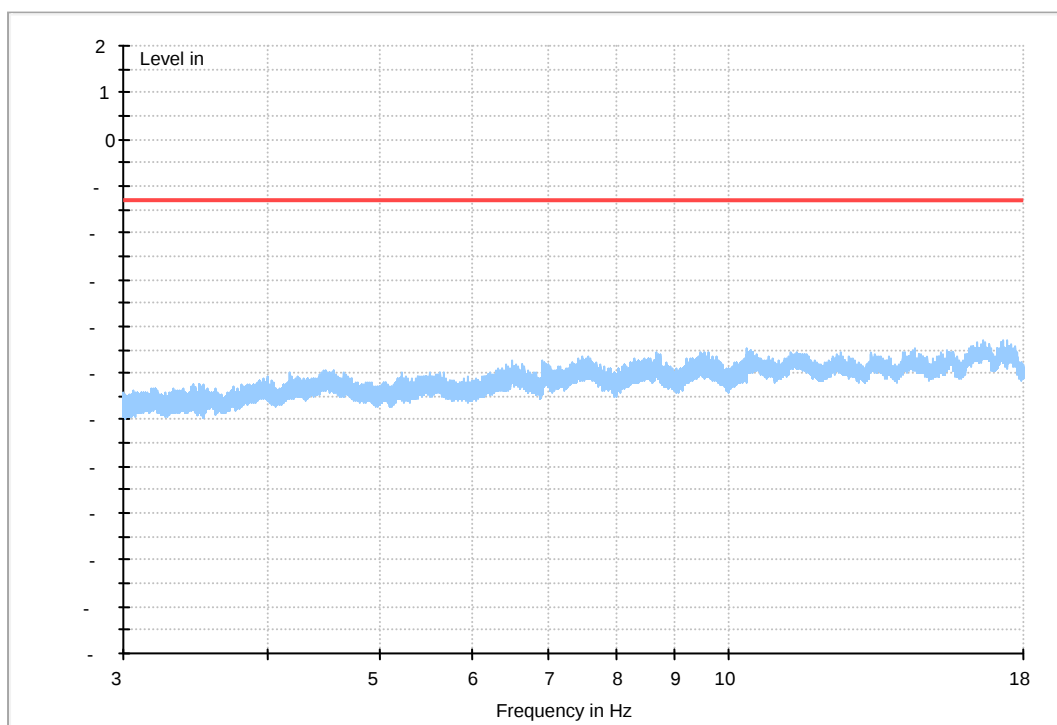
### Traffic Mode (9kHz-30MHz)



### Traffic Mode (30MHz-3GHz)

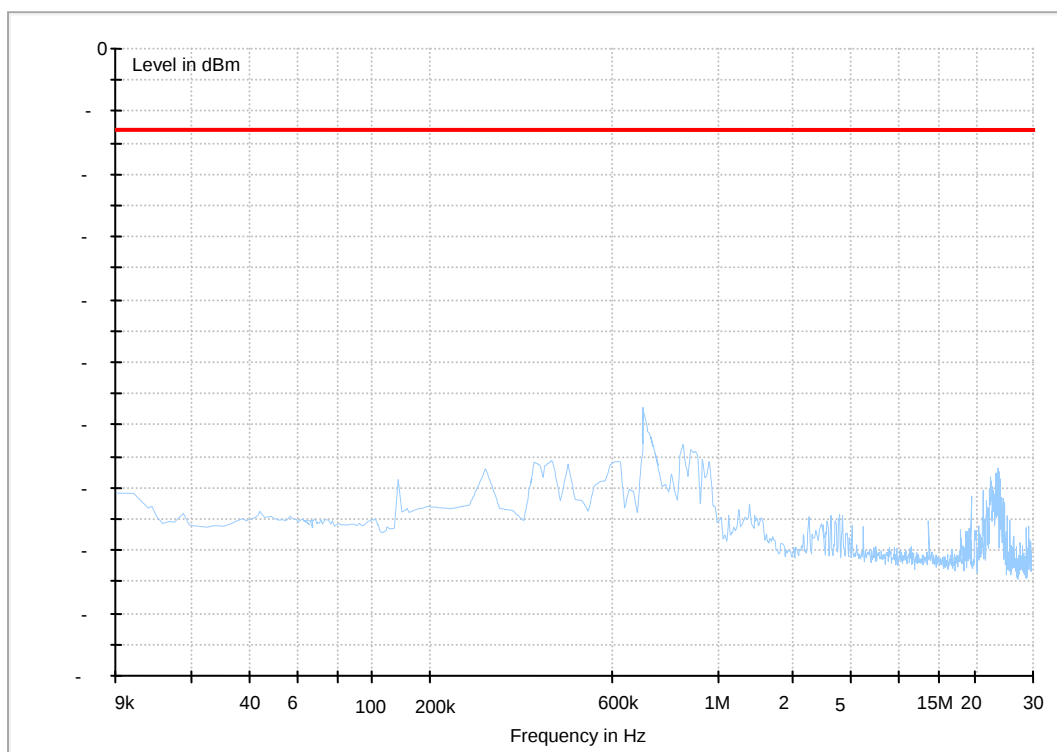


## Traffic Mode (3GHz-18GHz)

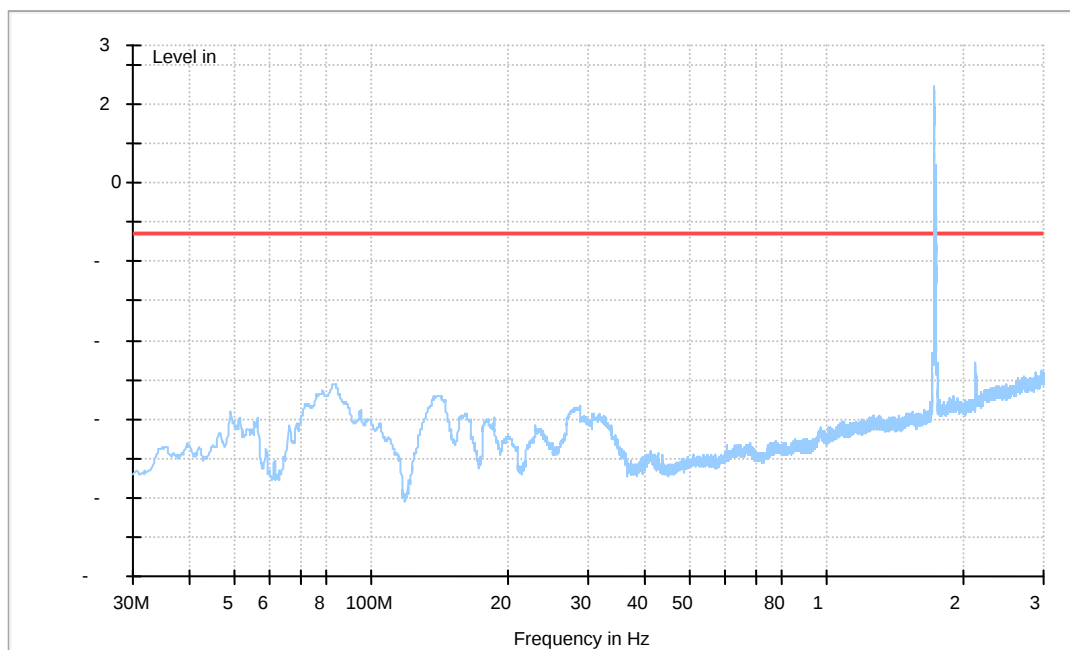


## HSDPA AWS

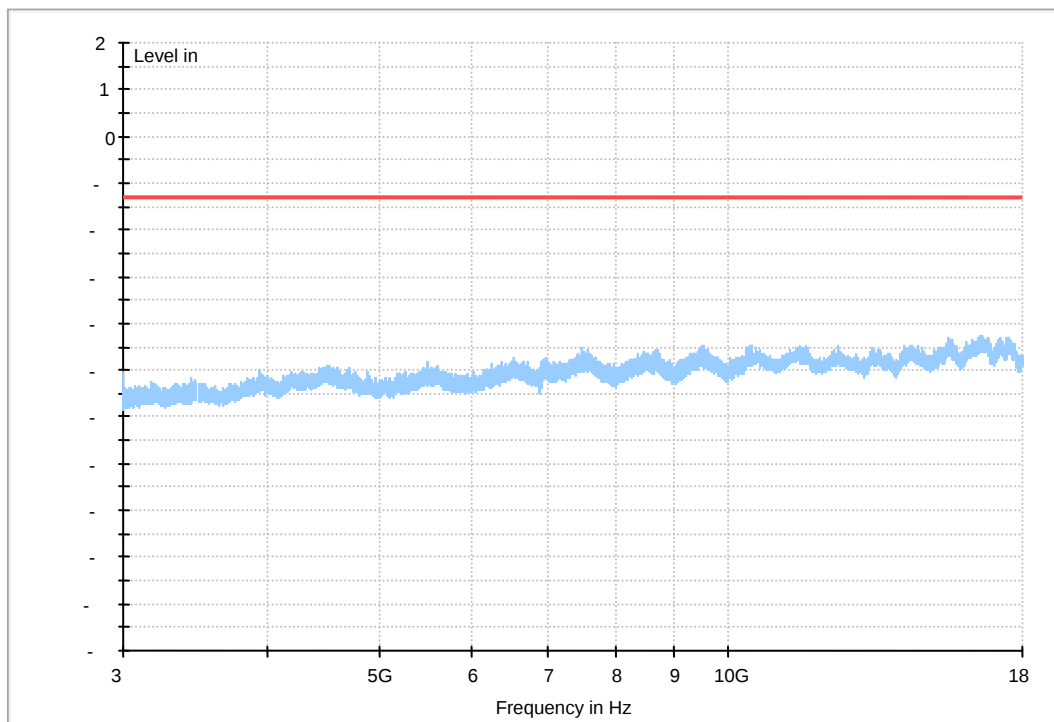
### Traffic Mode (9kHz-30MHz)



### Traffic Mode (30MHz-3GHz)

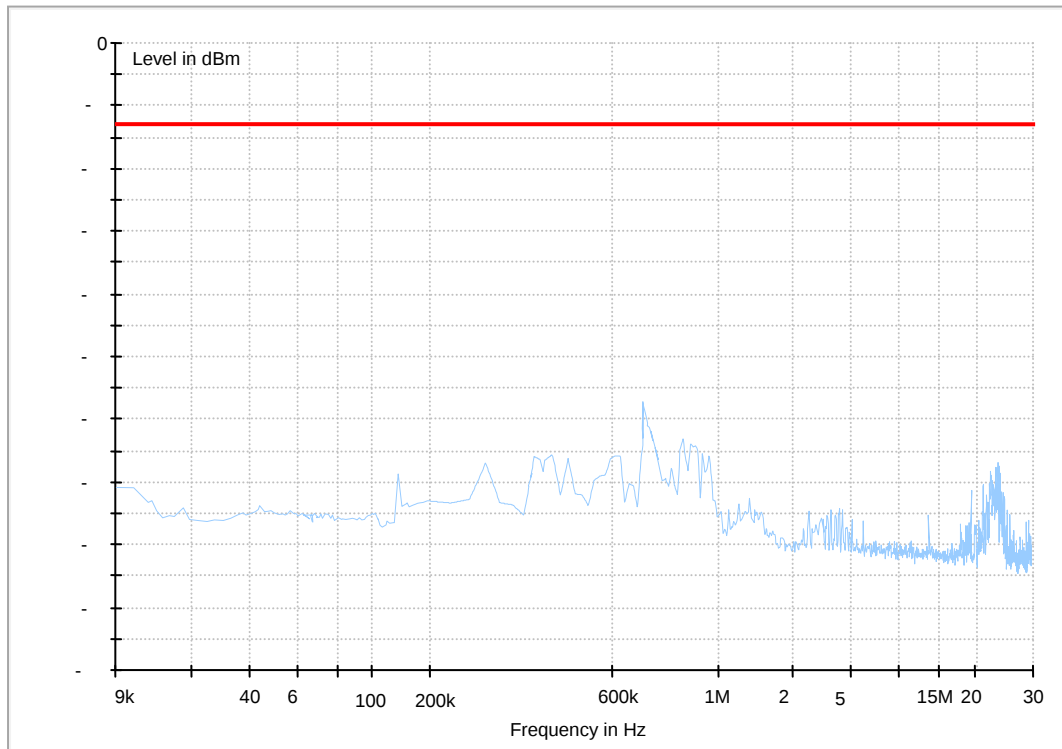


### Traffic Mode (3GHz-18GHz)

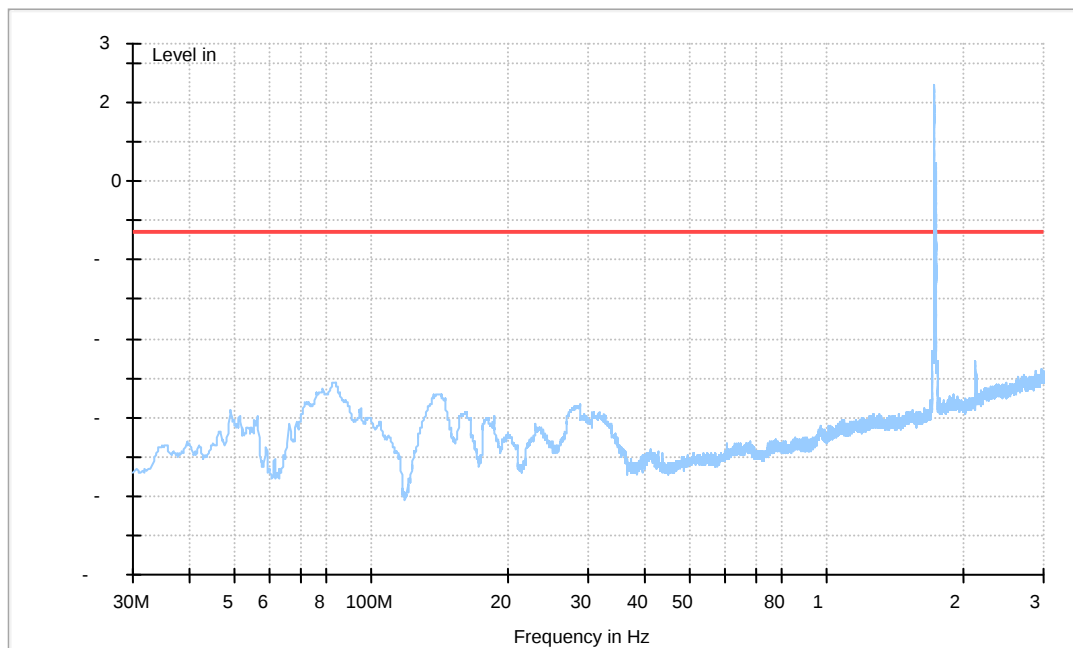


## HSUPA AWS

### Traffic Mode (9kHz-30MHz)

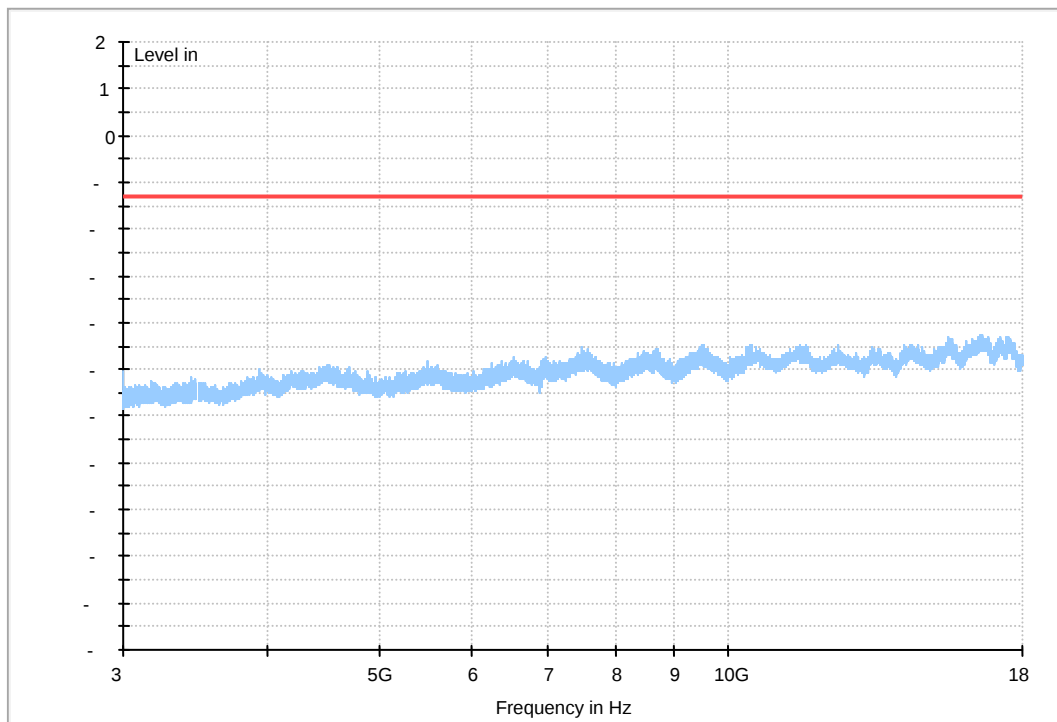


### Traffic Mode (30MHz-3GHz)





## Traffic Mode (3GHz-18GHz)



-----END-----



## **Appendix G**

### **Frequency Stability**

According to FCC Part 2.1055 & Part 27.54



## **Frequency Error vs. Temperature:**

| Test Mode | RF Ch. | Volt. | Temp.  | Freq. Error [Hz] | Freq. vs. rated [ppm] | Freq. vs. 20 °C [ppm] | Limit [ppm] | Verdict |
|-----------|--------|-------|--------|------------------|-----------------------|-----------------------|-------------|---------|
| TM 1      | M      | VN    | -30 °C | 9                | 0.00520               | ---                   | ±2.5        | Pass    |
|           |        |       | -20 °C | -15              | -0.00866              | ---                   | ±2.5        | Pass    |
|           |        |       | -10 °C | -14              | -0.00808              | ---                   | ±2.5        | Pass    |
|           |        |       | 0 °C   | 10               | 0.00577               | ---                   | ±2.5        | Pass    |
|           |        |       | 10 °C  | -9               | -0.00520              | ---                   | ±2.5        | Pass    |
|           |        |       | 20 °C  | -23              | -0.01328              | ---                   | ±2.5        | Pass    |
|           |        |       | 30 °C  | 13               | 0.00750               | ---                   | ±2.5        | Pass    |
|           |        |       | 40 °C  | -21              | -0.01212              | ---                   | ±2.5        | Pass    |
|           |        |       | 50 °C  | -18              | -0.01039              | ---                   | ±2.5        | Pass    |

## **Frequency Error vs. Voltage:**

| Test Mode | RF Ch. | Temp. | Volt. | Freq. Error [Hz] | Freq. vs. rated [ppm] | Freq. vs. 20 °C [ppm] | Limit [ppm] | Verdict |
|-----------|--------|-------|-------|------------------|-----------------------|-----------------------|-------------|---------|
| TM 1      | M      | 20 °C | VL    | -15              | -0.00866              | ---                   | ±2.5        | Pass    |
|           |        |       | VN    | 21               | 0.01212               | ---                   | ±2.5        | Pass    |
|           |        |       | VH    | -8               | -0.00462              | ---                   | ±2.5        | Pass    |

-----The END-----