



# **FCC RF Test Report**

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

**Model Number: HUAWEI U8800 Pro /U8800 Pro**

**Report No: SYBH(Z-RF)020092011-2002  
FCC ID: QISU8800PRO**

**Reliability Laboratory of Huawei Technologies Co., Ltd.**

Huawei Base, Bantian, Longgang District, Shenzhen 518129, P.R. China

Tel: +86 755 28780808 Fax: +86 755 89652518

## Notice

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## Notice 2

### Modification Information:

Table 1 Modification Information

|                             |   |                        |
|-----------------------------|---|------------------------|
| Modification<br>Information | 1 |                        |
|                             | 2 |                        |
|                             | 3 | <i>Not Applicable!</i> |
|                             | 4 |                        |
|                             | 5 |                        |
|                             | 6 |                        |
|                             | 7 |                        |



|                  |                               |
|------------------|-------------------------------|
| REGULATION       | FCC CFR47 Part 2: Subpart J;  |
|                  | FCC CFR47 Part 24: Subpart E; |
|                  |                               |
|                  |                               |
|                  |                               |
|                  |                               |
| START OF TEST    | Sep.15. 2011                  |
| END OF TEST      | Sep.18, 2011                  |
|                  |                               |
| Final Judgement: | Pass                          |

Approved By

Sep.22, 2011  
Date

Dai Linjun  
Name

Signature

Reviewed By

Sep.22, 2011  
Date

Cousy Xu  
Name

Signature

Operator

Sep.22, 2011  
Date

Huang qiuliang  
Name

Signature

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## 1 Summary

The table below summarizes the measurements and results for the Mobile Phone. Detailed results and descriptions are shown in the following pages.

Table 2 Summary of results

| FCC Measurement Specification | FCC Limits Part(s) | Description                                       | Result |
|-------------------------------|--------------------|---------------------------------------------------|--------|
| 2.1046                        | 24.232             | Effective Isotropic radiated power of Transmitter | PASS   |
| 2.1046                        | 24.232             | Conducted Power of Transmitter                    | PASS   |
| 2.1047                        |                    | Modulation Characteristics                        | PASS   |
| 2.1049                        |                    | Occupied Bandwidth                                | PASS   |
| 2.1051                        | 24.238             | Band Edges Compliance                             | PASS   |
| 2.1051                        | 24.238             | Spurious Emission at Antenna Terminal             | PASS   |
| 2.1053                        | 24.238             | Radiated Spurious Emissions                       | PASS   |
| 2.1055                        | 24.235             | Frequency Stability                               | PASS   |

## 2 Product Description

### 2.1 Production Information

#### 2.1.1 General Description

HUAWEI U8800 Pro /U8800 Pro is subscriber equipment in the WCDMA/GSM system. The HSPA+/UMTS frequency band is Band I and Band VIII. The GSM/GPRS/EDGE frequency band includes GSM850 and GSM900 and DCS1800 and PCS1900, but only PCS1900 band test data included in this report. The Mobile Phone implements such functions as RF signal receiving/transmitting, HSPA+/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.

#### 2.1.2 Support function and Service

The EUT support the function and service as follows:

Table 3 Service and Test mode List

| Service Name | Characteristic   | Corresponding Test Mode | Note     |
|--------------|------------------|-------------------------|----------|
| Data         | Modulation: GMSK | TM1                     | GPRS/GSM |
| Data         | Modulation: 8PSK | TM2                     | EDGE     |

Note: \* The specified GPRS test conditions & settings are defined in 3GPP TS51.010 V5.4.0 and the EDGE test conditions & settings are defined in 3GPP TS51.010 V5.4.0. The WCDMA test condition & settings are defined in 3GPP TS 34.121 V8.7.0:2009.

### 2.2 Modification Information

For original equipment, following table is not application.

Table 4 Modification Information

| Model Number   | Board/Module | Original Version | New Version | Modify Information |
|----------------|--------------|------------------|-------------|--------------------|
| Not applicable |              |                  |             |                    |
|                |              |                  |             |                    |
|                |              |                  |             |                    |
|                |              |                  |             |                    |

### **3 Test Site Description**

The test site of:

***Huawei Technologies Co. Ltd.  
P.O. Box 518129  
Huawei base, bantian,  
Longgang District, Shenzhen, China***

#### **3.1 Testing Period**

The test have been performed during the period of

**Sep.15, 2011 –Sep.18, 2011**

#### **3.2 General Set up Description**

**TM1:** GSM/GPRS Mode with GMSK Modulation

**TM2:** EDGE Mode with 8PSK Modulation

## 4 Product Description

### 4.1 Technical Characteristics

#### 4.1.1 Frequency Range

Table 5 Frequency Range

|                |                  |
|----------------|------------------|
| Uplink band:   | 1850 to 1910 MHz |
| Downlink band: | 1930 to 1990 MHz |

#### 4.1.2 Channel Spacing / Separation

Table 6 Channel Spacing / Separation

|                  |               |
|------------------|---------------|
|                  | EDGE/GPRS/GSM |
| Channel raster   | 200k Hz       |
| Channel spacing: | 200k Hz       |

#### 4.1.3 Type of Emission

Table 7 Type of Emission

|                       |          |         |
|-----------------------|----------|---------|
|                       | GPRS/GSM | EDGE    |
| Emission Designation: | 300KGXW  | 300KG7W |

According to CFR 47 (FCC) part 2, subpart C, section 2.201 and 2.202

#### 4.1.4 Environmental Requirements

Table 8 Environmental Requirements

|                      |          |
|----------------------|----------|
| Minimum temperature: | - 10 °C  |
| Maximum temperature: | + 55 °C  |
| Relative Humidity:   | 5%-95%RH |

#### 4.1.5 Power Source

Table 9 Power Source

|                     |                    |
|---------------------|--------------------|
| AC voltage nominal: | ~ 120 V            |
| AC voltage range    | ~ 100 V to ~ 240 V |
| AC current maximal: | 0.2A               |

#### 4.1.6 Tune-up Procedure

According to CFR (FCC) part 2, subpart 2, section 2.1033(c) (9).

Please reference the document Tune-up Procedure in TCF.

#### 4.1.7 Applied DC Voltages and Currents

According to CFR (FCC) part 2, subpart 2, section 2.1033(c) (8).

The voltage and current in the final RF stage is:

Table 10 Applied RF Module Voltages and Currents

|          |                                                                       |
|----------|-----------------------------------------------------------------------|
| Voltage: | == +3.7V                                                              |
| Current: | 100mA According to CFR (FCC) part 2, subpart 2, section 2.1033(c) (8) |

## 4.2 EUT Identification List

### 4.2.1 Board Information

Table 11 Board Information

|                                                      |                                  |                  |
|------------------------------------------------------|----------------------------------|------------------|
| HSPA+/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth |                                  |                  |
| HUAWEI U8800 Pro /U8800 Pro                          |                                  |                  |
| Main board                                           |                                  |                  |
| Description                                          | Software Version                 | Hardware Version |
| Main board of Mobile Phone                           | U8800PV100R001C00B032CUSTC02D001 | HD3U880M         |

### 4.2.1 Adapter Technical Data

|                    |                                                                                           |
|--------------------|-------------------------------------------------------------------------------------------|
| AC/DCAdapter Model | HW-050100U1W                                                                              |
| Manufacturer       | Huawei Technologies Co., Ltd.                                                             |
| Input Voltage      | ~100-240V 50/60Hz 0.2A                                                                    |
| Output Voltage     | 5V  1A |
| Rated Power        | 5W                                                                                        |

### 4.2.2 Battery Technical Data

|                     |                               |                                                                                                                                                                                                                                                                              |
|---------------------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Name                | Manufacture                   | Description                                                                                                                                                                                                                                                                  |
| Rechargeable Li-ion | Huawei Technologies Co., Ltd. | Battery Model: HB4F1<br>Rated capacity: 1500mAh<br>Nominal Voltage:  +3.7V<br>Charging Voltage:  +4.2V |

### 4.2.3 FCC Identification

Grantee Code: QIS  
Product Code: U8800 Pro  
FCC Identification: QISU8800PRO

## 5 Main Test Instruments

Table 12 Main Test Equipments

| Equipment Description                | Manufacturer | Model                   | Serial Number | Calibrated until |
|--------------------------------------|--------------|-------------------------|---------------|------------------|
| Power supply                         | KEITHLEY     | 2303                    | 1288003       | Sep.27,2011      |
| Universal Radio Communication Tester | R&S          | CMU200                  | 105822        | Oct.24,2011      |
| Universal Radio Communication Tester | Agilent      | E5515C                  | MY50260239    | Aug.04,2012      |
| Spectrum Analyzer                    | Agilent      | E4440A                  | MY49420179    | Apr.24,2012      |
| Signal Analyzer                      | R&S          | FSQ40                   | 100025        | Oct.09,2011      |
| Signal Analyzer                      | R&S          | FSQ31                   | 200021        | Sep.27,2011      |
| Temperature Chamber                  | ESPEC        | MW3030                  | 611403        | May.12,2012      |
| Signal Generator                     | R&S          | SMR40                   | 100325        | May.12,2012      |
| Vector Signal Generator              | R&S          | SMU200A                 | 104162        | Sep.07,2012      |
| Spectrum Analyzer                    | R&S          | FSU26                   | EG26725       | Mar.07,2012      |
| Tunable Dipole                       | Schwarzbeck  | D69250-UHAP/D69250-VHAP | 919/1009      | Dec.13.2011      |
| Tunable Dipole                       | Schwarzbeck  | D69250-UHAP/D69250-VHAP | 979/917       | Dec.13.2011      |
| Horn Antenna                         | R & S        | HF906                   | 359287/005    | May.07, 2012     |
| Horn Antenna                         | R & S        | HF906                   | 359287/006    | April.27, 2012   |
| Broadband Antenna                    | SCHAFFNER    | CBL 6112B               | 2536          | Sep.21, 2011     |
| Broadband Antenna                    | SCHAFFNER    | CBL 6112B               | 2941          | Jun.11, 2012     |
| Test receiver                        | R&S          | ESU26                   | 36090302083   | Jun.17.2012      |
| Horn Antenna                         | ETS-LINDGREN | 3160                    | 60008         | Sep.20.2011      |
| Horn Antenna                         | ETS-LINDGREN | 3160                    | 60006         | Oct.27.2011      |

## 6 Transmitter Measurements

### 6.1 Effective Isotropic radiated power of Transmitter (EIRP)

#### 6.1.1 Test Conditions

Table 13 Test Conditions

|                      |                              |
|----------------------|------------------------------|
| Preconditioning:     | 0.5 hour                     |
| Measured at:         | enclosure                    |
| Ambient temperature: | 25°C                         |
| Relative humidity:   | 55%                          |
| Test Configurations: | TM1/TM2 at frequency B, M, T |

#### 6.1.2 Test Specifications and Limits

##### 6.1.2.1 Specification

CFR 47 (FCC) part 2.1046 and part 24 subpart E

##### 6.1.2.2 Supporting Standards

Table 14 Supporting Standards:

|                             |                                                                                                                                            |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| ANSI/TIA-603-C:2004         | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards                                                        |
| 3GPP TS51.010 V5.4.0.0:2005 | Digital cellular telecommunications system Mobile Station (MS) conformance specification;                                                  |
| 3GPP TS 34.121 V8.7.0:2009  | Technical Specification Group Radio Access Network; User Equipment (UE) conformance specification; Radio transmission and reception (FDD); |

##### 6.1.2.3 Limits

Compliance with part 24.232, mobile/portable stations are limited to 2 watts EIRP peak power.  
 $W(\text{dBm}) = 10 \cdot \log(W_{\text{in mW}})$ .

Table 15 Limits

|                              |           |
|------------------------------|-----------|
| Maximum Output Power (Watts) | < 2 Watts |
| Maximum Output Power (dBm)   | < 33 dBm  |

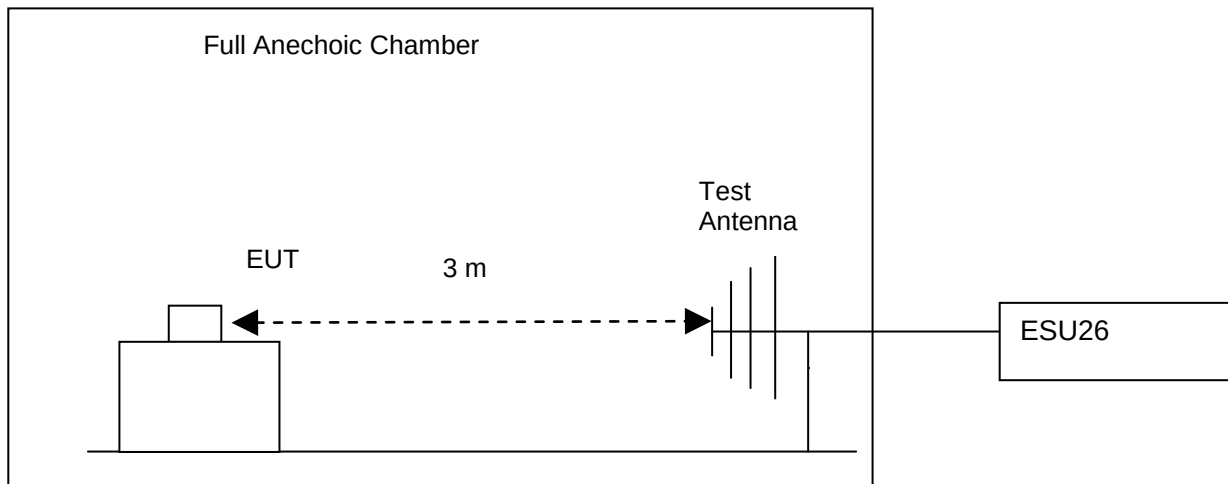
#### 6.1.3 Test Method and Setup

- For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, EIRP shall be measured when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in 2.1033(c)(8). Connect the Mobile Phone to the wireless communication tester CMU200 via the air interface. The band is set as PCS.
- Test the Radiated maximum output power by the CMU200 received from test antenna.

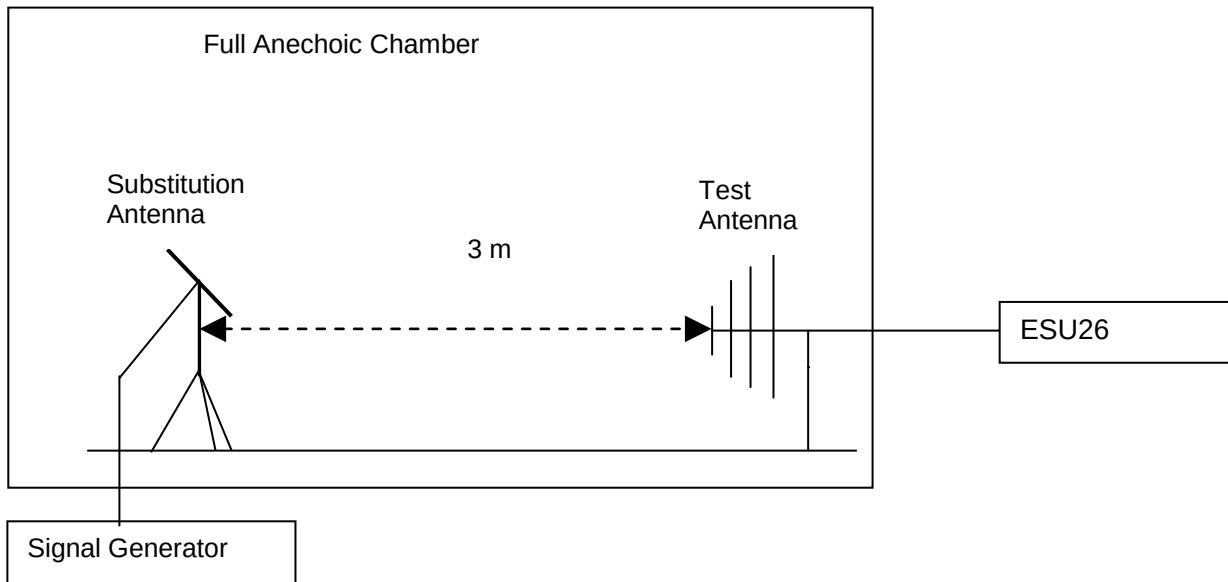
- (c) Use substitution method to verify the maximum output power. The EUT is substituted by a horn antenna. The horn is connected to a signal generator. And then adjust the output level of the signal generator to get the same received power recorded in step (b) on CMU200, and record the power level of Signal Generator. Of course, the cable loss at the test frequency should be compensated.

## **Test setup**

### **Step 1: Pre-test**



### **Step 2: Substitution method to verify the maximum EIRP**



**Figure 1. Test Set-up**

NOTE: Effective Isotropic radiated power (EIRP) refers to the radiation power output of the EUT, assuming all emissions are radiated from half-wave horn antennas. There is a constant difference of 2.15 dB between EIRP and ERP.  
 $EIRP \text{ (dBm)} = ERP \text{ (dBm)} + 2.15$  (ITU-R Recommendation SM.329-10).

## 6.1.4 Measurement Results

### 6.1.4.1 Pre-test Results

Table 16 Measurement Results

| TEST CONDITIONS                                   | RF Output Power (EIRP) |       |               |       |               |       |
|---------------------------------------------------|------------------------|-------|---------------|-------|---------------|-------|
|                                                   | Channel512(B)          |       | Channel661(M) |       | Channel810(T) |       |
|                                                   | 1850.2MHz              |       | 1880.0MHz     |       | 1909.8MHz     |       |
|                                                   | dBm                    |       | dBm           |       | dBm           |       |
| T <sub>nom</sub> (25 °C)/ V <sub>nom</sub> (3.7V) | Measure d              | Limit | Measure d     | Limit | Measure d     | Limit |
| TM1                                               | 29.21                  | 33    | 29.32         | 33    | 29.38         | 33    |
| TM2                                               | 25.11                  | 33    | 25.14         | 33    | 25.12         | 33    |

### 6.1.4.2 Substitution Results

Table 17 Substitution Results

| Test Mode | Freq. [MHz] | Meas. Level [dBm] | Substituti on Antenna Type | SGP [dBm ] | Substitutio n Gain [dBi] | Cabl e Loss [dB] | Substitutio n Level (EIRP) [dBm] | FCC limit [dBm ] | Resul t |
|-----------|-------------|-------------------|----------------------------|------------|--------------------------|------------------|----------------------------------|------------------|---------|
| TM1       | 1850.2      | 29.21             | Horn Ant.                  | 25.76      | 4.5                      | 1                | 29.26                            | 33               | Pass    |
| TM1       | 1880.0      | 29.32             | Horn Ant.                  | 25.81      | 4.5                      | 1                | 29.31                            | 33               | Pass    |
| TM1       | 1909.8      | 29.38             | Horn Ant.                  | 25.03      | 4.8                      | 1                | 29.33                            | 33               | Pass    |
| TM2       | 1850.2      | 25.11             | Horn Ant.                  | 21.67      | 4.5                      | 1                | 25.17                            | 33               | Pass    |
| TM2       | 1880.0      | 25.14             | Horn Ant.                  | 21.66      | 4.5                      | 1                | 25.16                            | 33               | Pass    |
| TM2       | 1909.8      | 25.12             | Horn Ant.                  | 21.33      | 4.8                      | 1                | 25.13                            | 33               | Pass    |

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

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

NOTE: SGP- Signal Generator Level

b, Measurement the EIRP with RMS detector.

c, RBW=10kHz, VBW=300kHz, and integrated by the instrument to 250kHz for TM1 and TM2.



### 6.1.5 Conclusion

The equipment **PASSED** the requirement of this clause.

## 6.2 Conducted Power of Transmitter

### 6.2.1 Test Conditions

Table 18 Test Conditions

|                      |                              |
|----------------------|------------------------------|
| Preconditioning:     | 0.5 hour                     |
| Measured at:         | Antenna connector            |
| Ambient temperature: | 25 °C                        |
| Relative humidity:   | 55 %                         |
| Test Configurations: | TM1/TM2 at frequency B, M, T |

### 6.2.2 Test Specifications and Limits

#### 6.2.2.1 Specification

CFR 47 (FCC) part 2.1047 and part 24 subpart E

#### 6.2.2.2 Supporting Standards

Table 19 Supporting Standards:

|                             |                                                                                                                                            |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| ANSI/TIA-603-C: 2004        | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards                                                        |
| 3GPP TS51.010 V5.4.0.0:2005 | Digital cellular telecommunications system Mobile Station (MS) conformance specification;                                                  |
| 3GPP TS 34.121 V8.7.0:2009  | Technical Specification Group Radio Access Network; User Equipment (UE) conformance specification; Radio transmission and reception (FDD); |

#### 6.2.2.3 Limits

Compliance with part 24.232, in no any case may the peak power of a mobile station transmitter exceed 2 W. The calculated longitude EIRP by following formula:

$$\text{EIRP(dBm)} = 10 \cdot \log (\text{EIRP}_{\text{in mW}}).$$

And for conducted power, we can use Antenna Gain to calculate the limit. So the conducted power:

$$\text{P}_{\text{cod}}(\text{dBm}) = \text{EIRP}(\text{dBm}) - \text{Gain}(\text{dBi}).$$

and  $\text{Gain}(\text{dBi}) = \text{Gain}(\text{dBd}) + 2.15\text{dB}$

Table 20 Limits

|                                      |                    |
|--------------------------------------|--------------------|
| Maximum Output Power (Watts)         | < 2 Watts (33 dBm) |
| Antenna Gain(dBi):                   | 0                  |
| Antenna Gain(dBd):                   | -2.15              |
| Maximum Conducted Output Power (dBm) | < 33               |

## 6.2.3 Test Method and Setup

- (a) For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, Conducted maximum power shall be measured when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in 2.1033(c)(8). Connect the Mobile Phone to the wireless communication tester CMU200 via the antenna connector. The band class is set as PCS.
- (b) Test the Conducted maximum output power by the CMU200.

### Test setup

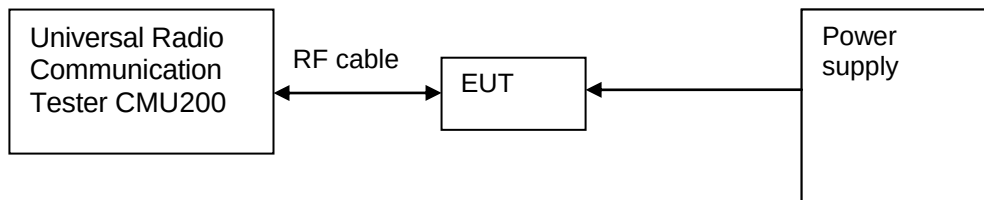


Figure 2. Test Set-up

## 6.2.4 Measurement Results

Table 21 Measurement Results

| TEST CONDITIONS           | RF Output Power (Conducted) |       |               |       |               |       |
|---------------------------|-----------------------------|-------|---------------|-------|---------------|-------|
|                           | Channel512(B)               |       | Channel661(M) |       | Channel810(T) |       |
|                           | 1850.2MHz                   |       | 1880.0MHz     |       | 1909.8MHz     |       |
|                           | dBm                         |       | dBm           |       | dBm           |       |
| Tnom (25 °C)/ Vnom (3.7V) | Measured                    | Limit | Measured      | Limit | Measured      | Limit |
| TM1                       | 29.21                       | 33    | 29.32         | 33    | 29.38         | 33    |
| TM2                       | 25.11                       | 33    | 25.14         | 33    | 25.12         | 33    |

Note: Measurement the Conducted output power with RMS detector.

## 6.2.5 Conclusion

The equipment **PASSED** the requirement of this clause.

## 6.3 Modulation Characteristics

### 6.3.1 Test Conditions

Table 22 Test Conditions

|                      |                        |
|----------------------|------------------------|
| Preconditioning:     | 0.5 hour               |
| Measured at:         | Antenna connector      |
| Ambient temperature: | 25 °C                  |
| Relative humidity:   | 55 %                   |
| Test Configurations: | TM1/TM2 at frequency M |

### 6.3.2 Test Specifications and Limits

#### 6.3.2.1 Specification

CFR 47 (FCC) part 2.1047 and part 24 subpart E

#### 6.3.2.2 Supporting Standards

Table 23 Supporting Standards:

|                             |                                                                                                                                            |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| ANSI/TIA-603-C: 2004        | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards                                                        |
| 3GPP TS51.010 V5.4.0.0:2005 | Digital cellular telecommunications system Mobile Station (MS) conformance specification;                                                  |
| 3GPP TS 34.121 V8.7.0:2009  | Technical Specification Group Radio Access Network; User Equipment (UE) conformance specification; Radio transmission and reception (FDD); |

#### 6.3.2.3 Limits

No specific modulation characteristics requirement limits in part 2.1047 and part 24 subpart E.

Table 24 Limits

|        |                |
|--------|----------------|
| Limits | Not applicable |
|--------|----------------|

### 6.3.3 Test Method and Setup

Connect the Mobile Phone to Universal Radio Communication Tester CMU200 via the antenna connector. The frequency band is set as PCS; the Mobile Phone's output is matched with 50  $\Omega$  load, test method was according to 3GPP TS 51.010 and 3GPP TS 34.121. The waveform quality and constellation of the Mobile Phone was tested.

#### Test setup

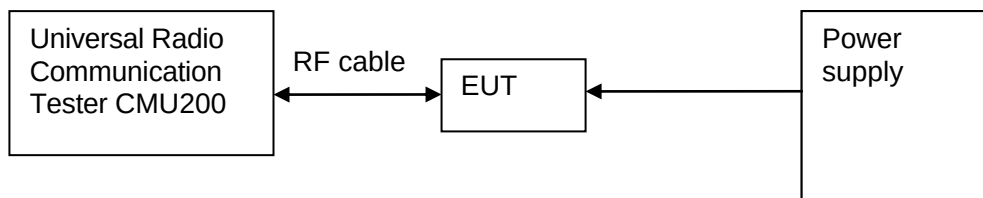


Figure 3. Test Set-up

### 6.3.4 Measurement Results

Table 25 Measurement Results

|                   |                  | Modulation Characteristic   |                     |
|-------------------|------------------|-----------------------------|---------------------|
| TEST CONDITIONS   |                  | Channel 661(M)<br>1880.0MHz |                     |
|                   |                  | Measured                    |                     |
|                   |                  | TM1                         | TM2                 |
| $T_{nom}$ (25 °C) | $V_{nom}$ (3.7V) | Refer to Appendix A         | Refer to Appendix A |

### 6.3.5 Conclusion

The equipment **PASSED** the requirement of this clause.

For the measurement results refer to appendix A.

## 6.4 Occupied Bandwidth

### 6.4.1 Test Conditions

Table 26 Test Conditions

|                      |                              |
|----------------------|------------------------------|
| Preconditioning:     | 0.5 hour                     |
| Measured at:         | Antenna connector            |
| Ambient temperature: | 25 °C                        |
| Relative humidity:   | 55 %                         |
| Test Configurations: | TM1/TM2 at frequency B, M, T |

### 6.4.2 Test Specifications and Limits

#### 6.4.2.1 Specification

CFR 47 (FCC) part 2.1049 and part 24 subpart E

#### 6.4.2.2 Supporting Standards

Table 27 Supporting Standards:

|                             |                                                                                                                                            |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| ANSI/TIA-603-C: 2004        | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards                                                        |
| 3GPP TS51.010 V5.4.0.0:2005 | Digital cellular telecommunications system Mobile Station (MS) conformance specification;                                                  |
| 3GPP TS 34.121 V8.7.0:2009  | Technical Specification Group Radio Access Network; User Equipment (UE) conformance specification; Radio transmission and reception (FDD); |

#### 6.4.2.3 Limits

No specific occupied bandwidth requirement in part 24 subpart E, but the occupied bandwidth was defined in part 2.1049: the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured.

Table 28 Limits

|                               |                        |
|-------------------------------|------------------------|
| Upper /lower frequency limits | 0.5% of the mean power |
|-------------------------------|------------------------|

### 6.4.3 Test Method and Setup

Mobile Phone was connected to the wireless signal analyzer R&S FSQ31 via the one RF connector. The band class is set as PCS; Mobile Phone was controlled to transmit maximum power. Measure and record the occupied bandwidth of the Mobile Phone by the R&S FSQ31.

The OBW, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the following conditions as applicable:

Refer to 47CFR part2.1049 section (g)&(h).

(g) Transmitter in which the modulating base band comprises not more than three independent channels - when modulated by the full complement of signals for which the transmitter is rated. The level of modulation for each channel should be set to that prescribed in rule parts applicable to the services for which the transmitter is intended. If specific modulation levels are not set forth in the rules, the tests should provide the manufacturer's maximum rated condition.

(h) Transmitters employing digital modulation techniques - when modulated by an input signal such that its amplitude and symbol rate represent the maximum rated conditions under which the equipment will be operated. The signal shall be applied through any filter networks, pseudorandom generators or other devices required in normal service. Additionally, the occupied bandwidth shall be shown for operation with any devices used for modifying the spectrum when such devices are optional at discretion of the user.

For TM1/TM2 following RBW and VBW are employed:

Measurement bandwidth (RBW): 3 kHz (Resolution bandwidth)

Video bandwidth (VBW): 10 kHz

For TM3 following RBW and VBW are employed:

Measurement bandwidth (RBW): 50 kHz (Resolution bandwidth)

Video bandwidth (VBW): 500 kHz

## Test Set-up

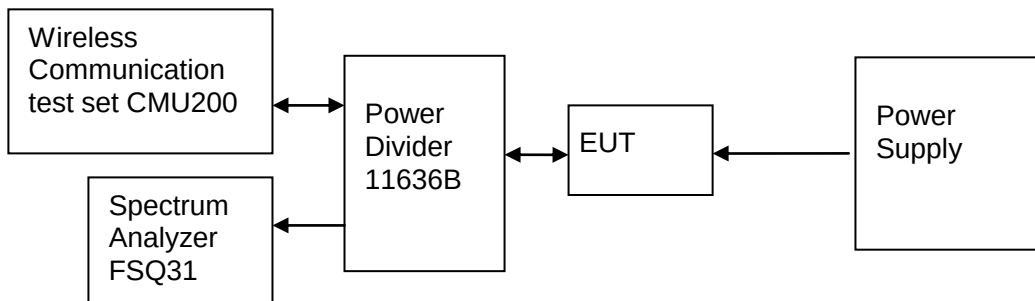


Figure 4. Test Set-up

## 6.4.4 Measurement Results

Table 29 Measurement Results

| TEST CONDITIONS                                     |     | Occupied Bandwidth         |        |                            |        |                            |        |
|-----------------------------------------------------|-----|----------------------------|--------|----------------------------|--------|----------------------------|--------|
| Center Frequency                                    |     | Channel512(B)<br>1850.2MHz |        | Channel661(M)<br>1880.0MHz |        | Channel810(T)<br>1909.8MHz |        |
|                                                     |     | Measured<br>(kHz)          |        | Measured<br>(kHz)          |        | Measured<br>(kHz)          |        |
|                                                     |     | TM1                        | TM2    | TM1                        | TM2    | TM1                        | TM2    |
| T <sub>nom</sub> (25 °C)<br>V <sub>nom</sub> (3.7V) | 99% | 248.40                     | 250.00 | 246.79                     | 245.19 | 246.79                     | 248.40 |



## 6.4.5 Conclusion

The equipment **PASSED** the requirement of this clause.  
For the measurement results refer to appendix B.

## 6.5 Band Edges Compliance

### 6.5.1 Test Conditions

Table 30 Test Conditions

|                      |                           |
|----------------------|---------------------------|
| Preconditioning:     | 0.5 hour                  |
| Measured at:         | Antenna connector         |
| Ambient temperature: | 25°C                      |
| Relative humidity:   | 55 %                      |
| Test Configurations: | TM1/TM2 at frequency B, T |

### 6.5.2 Test Specifications and Limits

#### 6.5.2.1 Specification

CFR 47 (FCC) part 2.1051 and Part24 Subpart E

#### 6.5.2.2 Supporting Standards

Table 31 Supporting Standards:

|                             |                                                                                                                                            |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| ANSI/TIA-603-C: 2004        | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards                                                        |
| 3GPP TS51.010 V5.4.0.0:2005 | Digital cellular telecommunications system Mobile Station (MS) conformance specification;                                                  |
| 3GPP TS 34.121 V8.7.0:2009  | Technical Specification Group Radio Access Network; User Equipment (UE) conformance specification; Radio transmission and reception (FDD); |

#### 6.5.2.3 Limits

Compliance with part 24.238, all spurious emission must be attenuated below the transmitter power by at least  $43 + 10 \log_{10} P(W)$ . (Whereas P is the rated power of the EUT).

Table 32 Limits

|                       | TM1                                     | TM2                                       |
|-----------------------|-----------------------------------------|-------------------------------------------|
| Rated Power:          | 30 dBm                                  | 26 dBm                                    |
| Required attenuation: | $43 + 10 \log(1) = 43$ , 30 dBm - 43 dB | $43 + 10 \log(0.4) = 39$ , 26 dBm - 39 dB |
| Absolute level        | - 13 dBm                                | - 13 dBm                                  |

### 6.5.3 Test Method and Setup

Mobile Phone was connected to the wireless signal analyzer R&S FSQ31 via the one RF connector, the band class is set as PCS. Mobile Phone was controlled to transmit maximum power. Measure and record band edges compliance of the Mobile Phone by the R&S FSQ31.

For TM1/TM2 following RBW and VBW are employed:

Measurement bandwidth (RBW): 3 kHz (Resolution bandwidth)

Video bandwidth (VBW): 10 kHz

For TM3 following RBW and VBW are employed:

Measurement bandwidth (RBW): 50 kHz (Resolution bandwidth)

Video bandwidth (VBW): 200 kHz

## Test Set-up

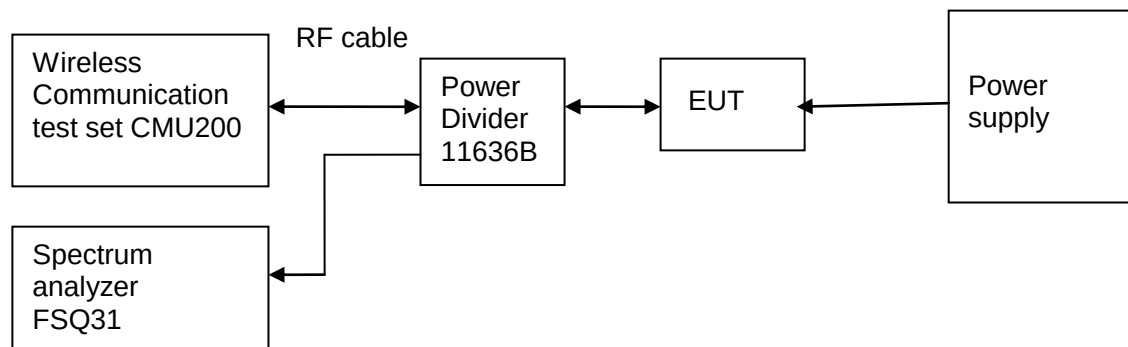


Figure 5. Test Set-up

## 6.5.4 Measurement Results

Table 33

Measurement Results outside Band Edges-- Single Carrier

| Band | Frequency of Band edges [MHz]       | Channel Number | Test Mode | Spurious Level measured [dBm] | FCC limit | Result |
|------|-------------------------------------|----------------|-----------|-------------------------------|-----------|--------|
| PCS  | $T_{nom}$ (25 °C), $V_{nom}$ (3.7V) |                |           |                               |           |        |
|      | 1850.2                              | 512            | TM1       | <-13(See appendix C)          | - 13 dBm  | Pass   |
|      | 1909.8                              | 810            | TM1       | <-13(See appendix C)          | - 13 dBm  | Pass   |
|      | 1850.2                              | 512            | TM2       | <-13(See appendix C)          | - 13 dBm  | Pass   |
|      | 1909.8                              | 810            | TM2       | <-13(See appendix C)          | - 13 dBm  | Pass   |

## 6.5.5 Conclusion

The equipment **PASSED** the requirement of this clause.

For the measurement results refer to appendix C.

## 6.6 Spurious Emission at Antenna Terminal

### 6.6.1 Test Conditions

Table 34 Test Conditions

|                      |                              |
|----------------------|------------------------------|
| Preconditioning:     | 0.5 hour                     |
| Measured at:         | Antenna connector            |
| Ambient temperature: | 25°C                         |
| Relative humidity:   | 55 %                         |
| Test Configurations: | TM1/TM2 at frequency B, M ,T |

### 6.6.2 Test Specifications and Limits

#### 6.6.2.1 Specification

CFR 47 (FCC) part 2.1051 and Part24 Subpart E

#### 6.6.2.2 Supporting Standards

Table 35 Supporting Standards:

|                             |                                                                                                                                            |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| ANSI/TIA-603-C: 2004        | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards                                                        |
| 3GPP TS51.010 V5.4.0.0:2005 | Digital cellular telecommunications system Mobile Station (MS) conformance specification;                                                  |
| 3GPP TS 34.121 V8.7.0:2009  | Technical Specification Group Radio Access Network; User Equipment (UE) conformance specification; Radio transmission and reception (FDD); |

#### 6.6.2.3 Limits

Compliance with part 24.238, all spurious emission must be attenuated below the transmitter power by at least  $43 + 10 \log_{10} P$ . (Whereas P is the rated power of the EUT).

Table 36 Limits

|                       | TM1                                         | TM2                                           |
|-----------------------|---------------------------------------------|-----------------------------------------------|
| Rated Power:          | 30 dBm                                      | 26 dBm                                        |
| Required attenuation: | $43 + 10 \log (1) = 43$ ,<br>30 dBm - 43 dB | $43 + 10 \log (0.4) = 39$ ,<br>26 dBm - 39 dB |
| Absolute level        | - 13 dBm                                    | - 13 dBm                                      |

### 6.6.3 Test Method and Setup

The EUT was connected to the wireless signal analyzer R&S FSQ31 via the one RF connector, the

band class is set as PCS. The EUT was controlled to transmit maximum power. Measure and record the Conducted Spurious Emission of the EUT by the R&S FSQ31.

According to part 24.238, the defined measurement bandwidth as following:

24.238 (b) Measurement procedure: Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater.

Measurement bandwidth (RBW) for 9 kHz up to 150 kHz: 1 kHz;  
Measurement bandwidth (RBW) for 150 kHz up to 30MHz: 10 kHz;  
Measurement bandwidth (RBW) for 30 MHz up to 20GHz: 1MHz;

## Test Set-up

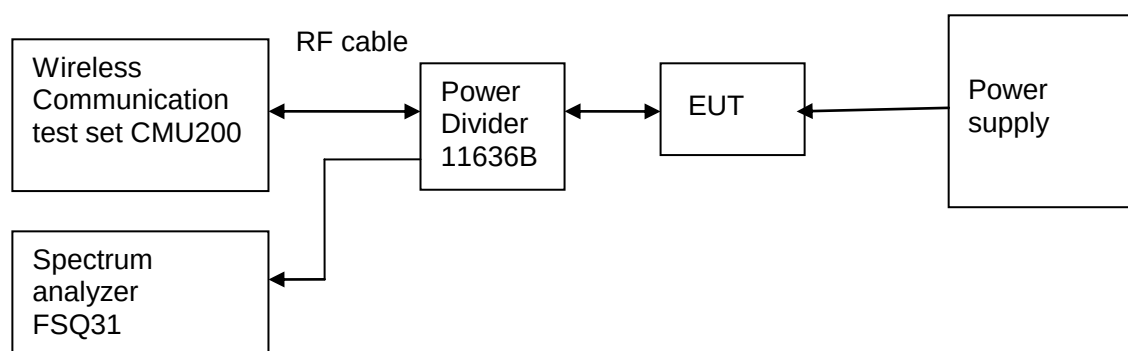


Figure 6. Test Set-up

## 6.6.4 Measurement Results

Table 37 Measurement Results

| Channel Number | Test Mode | Test Range (Frequency) | Output Power [dBm] | Spurious Level measured [dBm] | FCC limit | Result |
|----------------|-----------|------------------------|--------------------|-------------------------------|-----------|--------|
| Channel 512(B) | TM1       | 9 kHz~20GHz            | 30                 | <- 13 dBm<br>(See appendix D) | - 13 dBm  | Pass   |
|                | TM2       | 9 kHz~20GHz            | 26                 | <- 13 dBm<br>(See appendix D) | - 13 dBm  | Pass   |
| Channel 661(M) | TM1       | 9 kHz~20GHz            | 30                 | <- 13 dBm<br>(See appendix D) | - 13 dBm  | Pass   |
|                | TM2       | 9 kHz~20GHz            | 26                 | <- 13 dBm<br>(See appendix D) | - 13 dBm  | Pass   |
| Channel 810(T) | TM1       | 9 kHz~20GHz            | 30                 | <- 13 dBm<br>(See appendix D) | - 13 dBm  | Pass   |
|                | TM2       | 9 kHz~20GHz            | 26                 | <- 13 dBm<br>(See appendix D) | - 13 dBm  | Pass   |



### 6.6.5 Conclusion

The equipment **PASSED** the requirement of this clause.  
For the measurement results refer to appendix D.

## 6.7 Radiated Spurious Emissions

### 6.7.1 Test Conditions

Table 38 Test Conditions

|                      |                        |
|----------------------|------------------------|
| Preconditioning:     | 0.5 hour               |
| Measured at:         | enclosure              |
| Ambient temperature: | 25°C                   |
| Relative humidity:   | 55%                    |
| Test Configurations: | TM1/TM2 at frequency M |

### 6.7.2 Test Specifications and Limits

#### 6.7.2.1 Specification

CFR 47 (FCC) part 2.1053 and part 24.238

#### 6.7.2.2 Supporting Standards

Table 39 Supporting Standards:

|                             |                                                                                                                                            |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| ANSI/TIA-603-C: 2004        | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards                                                        |
| 3GPP TS51.010 V5.4.0.0:2005 | Digital cellular telecommunications system Mobile Station (MS) conformance specification;                                                  |
| 3GPP TS 34.121 V8.7.0:2009  | Technical Specification Group Radio Access Network; User Equipment (UE) conformance specification; Radio transmission and reception (FDD); |

#### 6.7.2.3 Limits

Compliance with part 24.238, all spurious emission must be attenuated below the transmitter power by at least  $43 + 10 \log_{10} P$ . (Whereas P is the rated power of the EUT).

Table 40 Limits

|                       |                                             |
|-----------------------|---------------------------------------------|
| Rated Power:          | 24 dBm                                      |
| Required attenuation: | $43 + 10 \log (0.25) = 37$ , 24 dBm – 37 dB |
| Absolute level        | - 13 dBm                                    |

### 6.7.3 Test Method and Setup

A test site fulfilling the requirements of ITU-R Recommendation SM329-11 was used. The EUT was placed on a non-conducting support in the anechoic chamber and was operated from a power source via an RF filter to avoid radiation from the power leads.

According to part 24.238, the defined measurement bandwidth as following:

24.238(b) Measurement procedure: Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1MHz or greater.

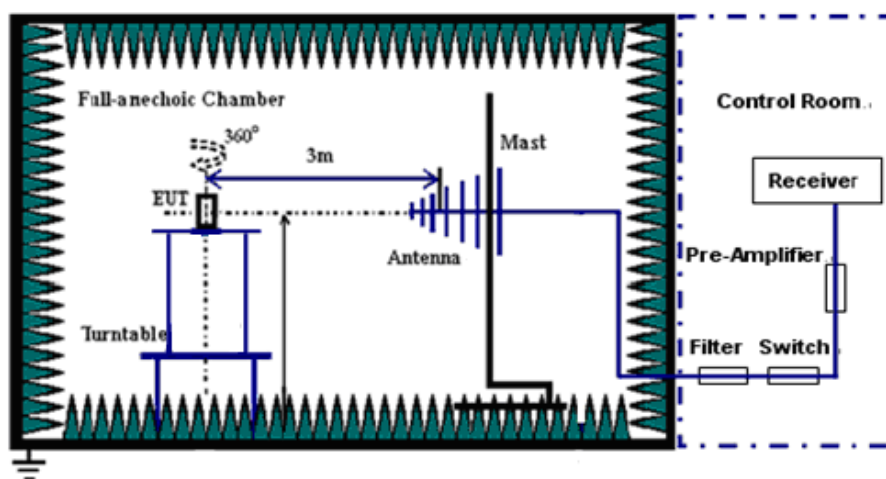
Measurement bandwidth (RBW) for 9 kHz up to 150 kHz: 1 kHz;  
Measurement bandwidth (RBW) for 150 kHz up to 30 MHz: 10 kHz;  
Measurement bandwidth (RBW) for 30MHz up to 26.5GHz: 1MHz;

## Test Set-up

### Step 1:

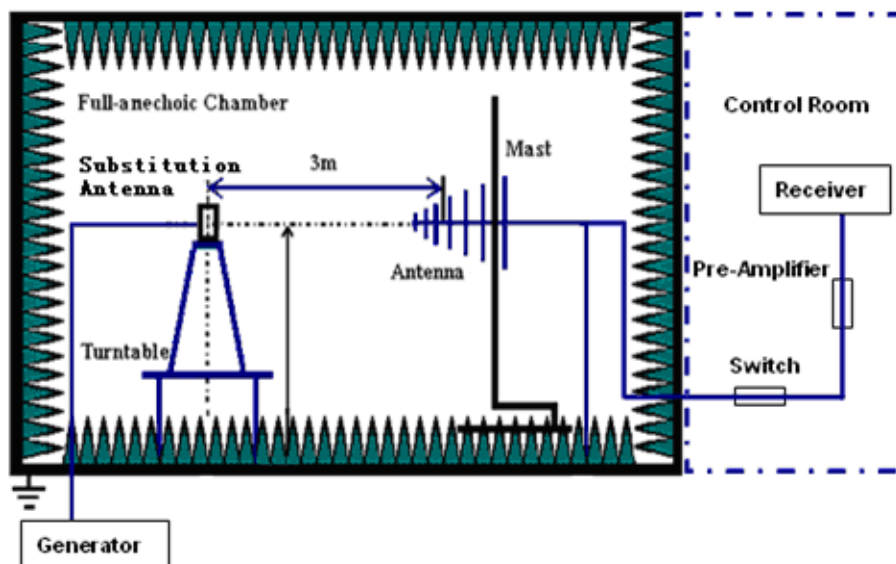
For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, EIRP shall be measured when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in 2.1033(c)(8). Connect the EUT to the BTS simulator via the air interface.

Test the Radiated maximum output power by the Test Receiver from test antenna.



### Step 2:

Use substitution method to verify the maximum output power. The EUT is substituted by a dipole antenna. The dipole is connected to a signal generator. And then adjust the output level of the signal generator to get the same received power recorded in step1 on Test Receiver, and record the power level of Signal Generator. Of course, the cable loss at the test frequency should be compensated.



Test should be performed in normal voltage condition.

No peak found in pre- test. All frequency points' margin is bigger than 20dB, so the substitution method isn't used.

Calculation Sample:

Table 41 Substitution Results

| Freq.<br>[MHz] | Measure<br>ment<br>Value<br>[dBm] | Substitution<br>Antenna<br>Type | Gain<br>[dBd] | Cable<br>Loss [dB] | Signal<br>Generator<br>Level [dBm] | Substitution<br>Level<br>[dBm] | FCC<br>limit<br>[dBm] | Result |
|----------------|-----------------------------------|---------------------------------|---------------|--------------------|------------------------------------|--------------------------------|-----------------------|--------|
|                |                                   |                                 |               |                    |                                    |                                |                       |        |

Note: For get the E.R.P. (Efficient Radiated Power) in substitution method, the following formula should take to calculate it,

$$\text{E.R.P. [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBd]}$$

NOTE: SGP- Signal Generator Level

#### 6.7.4 Conclusion

The equipment **PASSED** the requirement of this clause.

For the measurement results refer to appendix\_E

## 6.8 Frequency Stability

### 6.8.1 Test Conditions

Table 42 Test Conditions

|                      |                        |
|----------------------|------------------------|
| Preconditioning:     | 0.5 hour               |
| Measured at:         | Antenna connector      |
| Ambient temperature: | See below              |
| Relative humidity:   | 55 %                   |
| Test Configurations: | TM1/TM2 at frequency M |

### 6.8.2 Test Specifications and Limits

#### 6.8.2.1 Specification

CFR 47 (FCC) part 2.1055 and Part24 Subpart E

#### 6.8.2.2 Supporting Standards

Table 43 Supporting Standards:

|                             |                                                                                                                                            |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| ANSI/TIA-603-C: 2004        | Land Mobile FM or PM Communications Equipment Measurement and Performance Standards                                                        |
| 3GPP TS51.010 V5.4.0.0:2005 | Digital cellular telecommunications system Mobile Station (MS) conformance specification;                                                  |
| 3GPP TS 34.121 V8.7.0:2009  | Technical Specification Group Radio Access Network; User Equipment (UE) conformance specification; Radio transmission and reception (FDD); |

#### 6.8.2.3 Limits

No specific frequency stability requirement in part 2.1055 and part 24.235.

### 6.8.3 Test Method and Setup

The frequency stability shall be measured with variation of ambient temperature as follows:

- (1) From -30 ° to +50 ° centigrade for all equipment except that specified in subparagraphs
- (2) and (3) of paragraph 2.1055

(a) Frequency measurements shall be made at the extremes of the specified temperature range and at intervals of not more than 10° centigrade through the range. A period of time sufficient to stabilize all of the components of the oscillator circuit at each temperature level shall be allowed prior to frequency measurement. The short-term transient effects on the frequency of the transmitter due to keying (except for broadcast transmitters) and any heating element cycling normally occurring at each ambient temperature level also shall be shown. Only the portion or portions of the transmitter containing the frequency determining and stabilizing circuitry need be subjected to the temperature variation test.

(b) The frequency stability shall be measured with variation of primary supply voltage as follows:

- (1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.
- (2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point, which shall be specified by the manufacturer.

(3) The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided. Effects on frequency of transmitter keying (except for broadcast transmitters) and any heating element cycling at the nominal supply voltage and at each extreme also shall be shown.

(c) When deemed necessary, the Commission may require tests of frequency stability under conditions in addition to those specifically set out in paragraphs (a), (b), (c) of this section. (For example, measurements showing the effect of proximity to large metal objects, or of various types of antennas, may be required for portable equipment.)

Note: The EUT can only work in such extreme voltage 3.6V and 4.2V, so here the EUT is tested in the 3.6V and 4.2V.

## Test Set up

Connect the EUT to the Wireless Communication test set CMU200 via the connector. Then measure the frequency error by the Wireless Communication test set CMU200. The EUT's output is matched with a 50  $\Omega$  load.

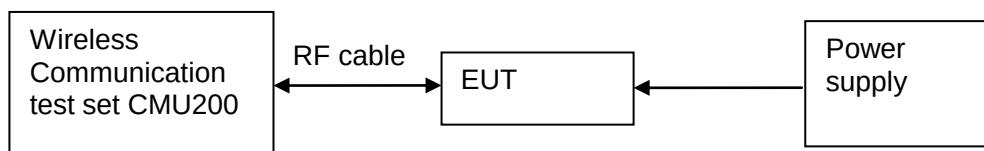


Figure 7. Test Set up

## 6.8.4 Measurement Results

### 6.8.4.1 Measurement Results vs. Variation of Temperature

- **TM1, 3.7V DC Channel No.661(1880.0MHz)**

Table 44

Measurement Results vs. Variation of Temperature—TM1

| Temperature | Nominal Frequency<br>(MHz) | Measured Frequency Error(Hz) | Result |
|-------------|----------------------------|------------------------------|--------|
| -30 °C      | 1880.0                     | -13                          | Pass   |
| -20 °C      | 1880.0                     | -19                          | Pass   |
| -10 °C      | 1880.0                     | -15                          | Pass   |
| 0 °C        | 1880.0                     | 11                           | Pass   |
| +10 °C      | 1880.0                     | 19                           | Pass   |
| +20 °C      | 1880.0                     | -15                          | Pass   |
| +30 °C      | 1880.0                     | 11                           | Pass   |
| +40 °C      | 1880.0                     | -17                          | Pass   |

|        |        |    |      |
|--------|--------|----|------|
| +50 °C | 1880.0 | 15 | Pass |
|--------|--------|----|------|

● **TM2, 3.7V DC Channel No.661(1880.0MHz)**

Table 45 Measurement Results vs. Variation of Temperature—TM2

| Temperature | Nominal Frequency<br>(MHz) | Measured Frequency Error(Hz) | Result |
|-------------|----------------------------|------------------------------|--------|
| -30 °C      | 1880.0                     | 18                           | Pass   |
| -20 °C      | 1880.0                     | -15                          | Pass   |
| -10 °C      | 1880.0                     | -14                          | Pass   |
| 0 °C        | 1880.0                     | 15                           | Pass   |
| +10 °C      | 1880.0                     | -11                          | Pass   |
| +20 °C      | 1880.0                     | -19                          | Pass   |
| +30 °C      | 1880.0                     | 12                           | Pass   |
| +40 °C      | 1880.0                     | -7                           | Pass   |
| +50 °C      | 1880.0                     | -10                          | Pass   |

**6.8.4.2 Measurement Results vs. Variation of Voltage**

● **TM1, 25 °C ,Channel No. 661(1880.0MHz)**

Table 46 Measurement Results vs. Variation of Voltage—TM1

| Voltage | Nominal Frequency<br>(MHz) | Measured Frequency Error(Hz) | Result |
|---------|----------------------------|------------------------------|--------|
| 4.2V    | 1880.0                     | -19                          | Pass   |
| 3.7V    | 1880.0                     | -12                          | Pass   |
| 3.6 V   | 1880.0                     | -15                          | Pass   |

● **TM2, 25 °C ,Channel No. 661(1880.0MHz)**

Table 47 Measurement Results vs. Variation of Voltage—TM2

| Voltage | Nominal Frequency<br>(MHz) | Measured Frequency Error(Hz) | Result |
|---------|----------------------------|------------------------------|--------|
| 4.2V    | 1880.0                     | -16                          | Pass   |
| 3.7 V   | 1880.0                     | -15                          | Pass   |



|       |        |     |      |
|-------|--------|-----|------|
| 3.6 V | 1880.0 | -17 | Pass |
|-------|--------|-----|------|

### 6.8.5 Conclusion

The equipment **PASSED** the requirement of this clause.

## 7 System Measurement Uncertainty

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

Table 48 System Measurement Uncertainty

| Items                                             |                         | Extended Uncertainty |
|---------------------------------------------------|-------------------------|----------------------|
| Effective Isotropic radiated power of Transmitter | EIRP (dBm)              | U=3dB; k=2           |
| Band Width                                        | Magnitude (%)           | U=0.2%; k=2          |
| Band Edge Compliance                              | Disturbance Power(dBm)  | U=2.0dB; k=2         |
| Conducted Spurious Emission at Antenna Terminal   | Disturbance Power(dBm)  | U=2.0dB; k=2         |
| Frequency Stability                               | Frequency Accuracy(ppm) | U=0.21ppm; k=2       |

## 8 Appendices

|            |                                                           |
|------------|-----------------------------------------------------------|
| Appendix A | Measurement Results Modulation Characteristics            |
| Appendix B | Measurement Results Occupied Bandwidth                    |
| Appendix C | Measurement Results Band Edges                            |
| Appendix D | Measurement Results Spurious Emission at Antenna Terminal |
| Appendix E | Measurement Results Radiated Spurious Emissions           |
| Appendix F | Photos of Radiated Spurious Emissions                     |



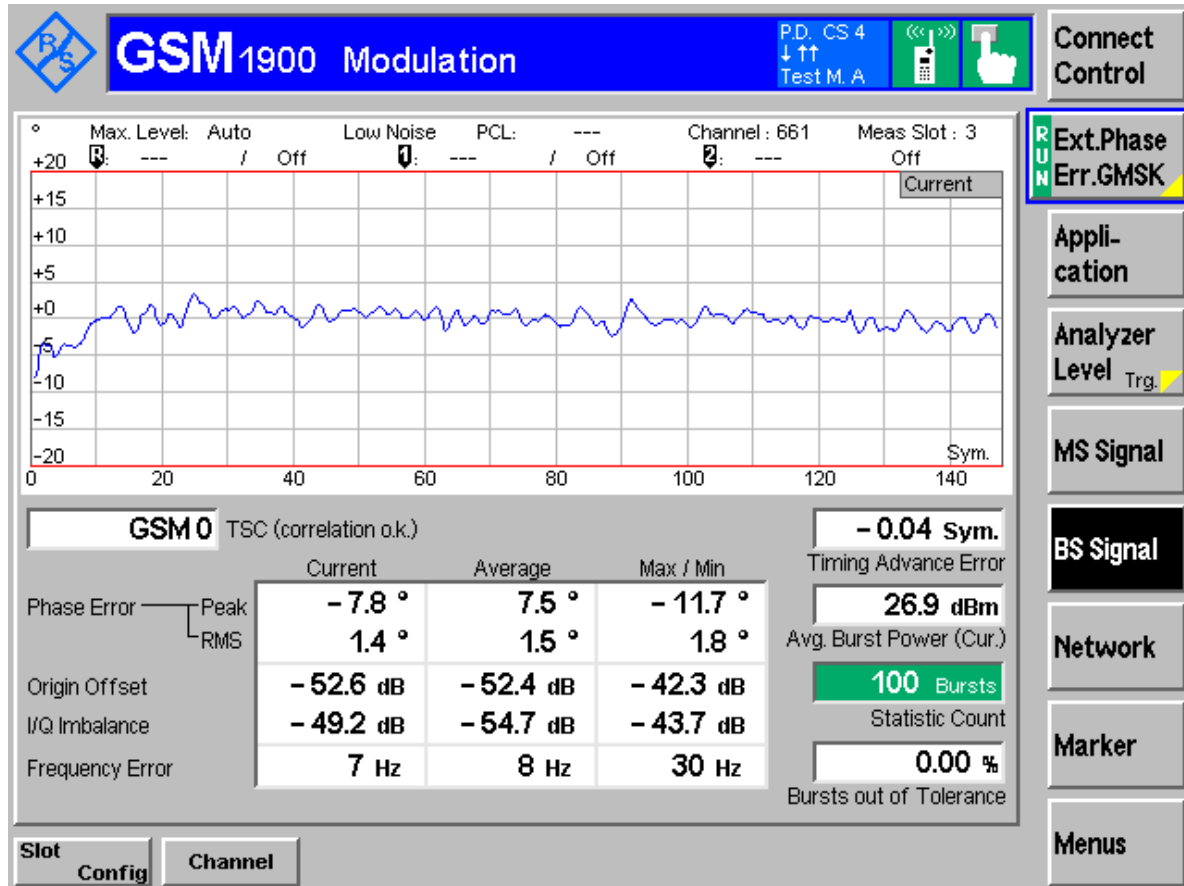
## **Appendix A**

### **Modulation Characteristics**

According to FCC Part 2.1047 & Part24 Subpart E

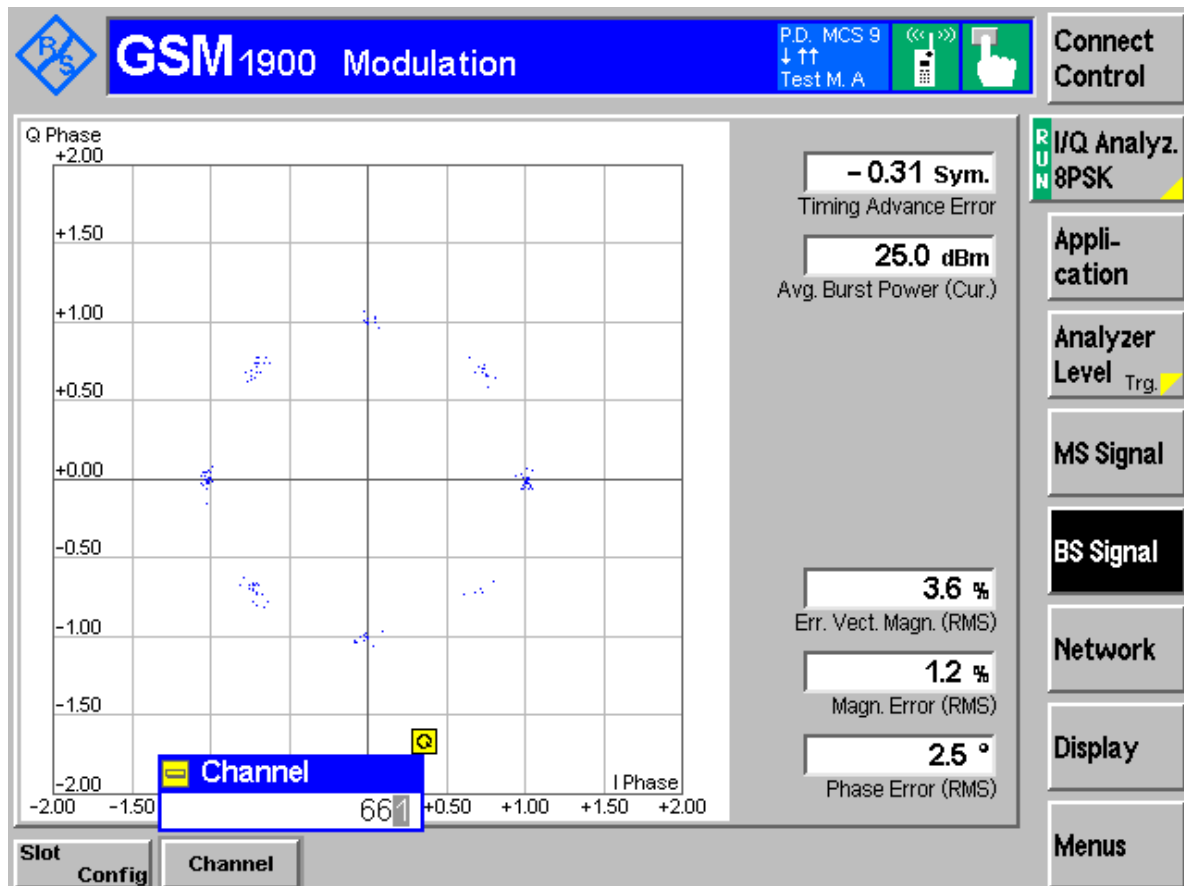


## TM1:GPRS/GSM Channel 661





## TM2:EDGE Channel 661



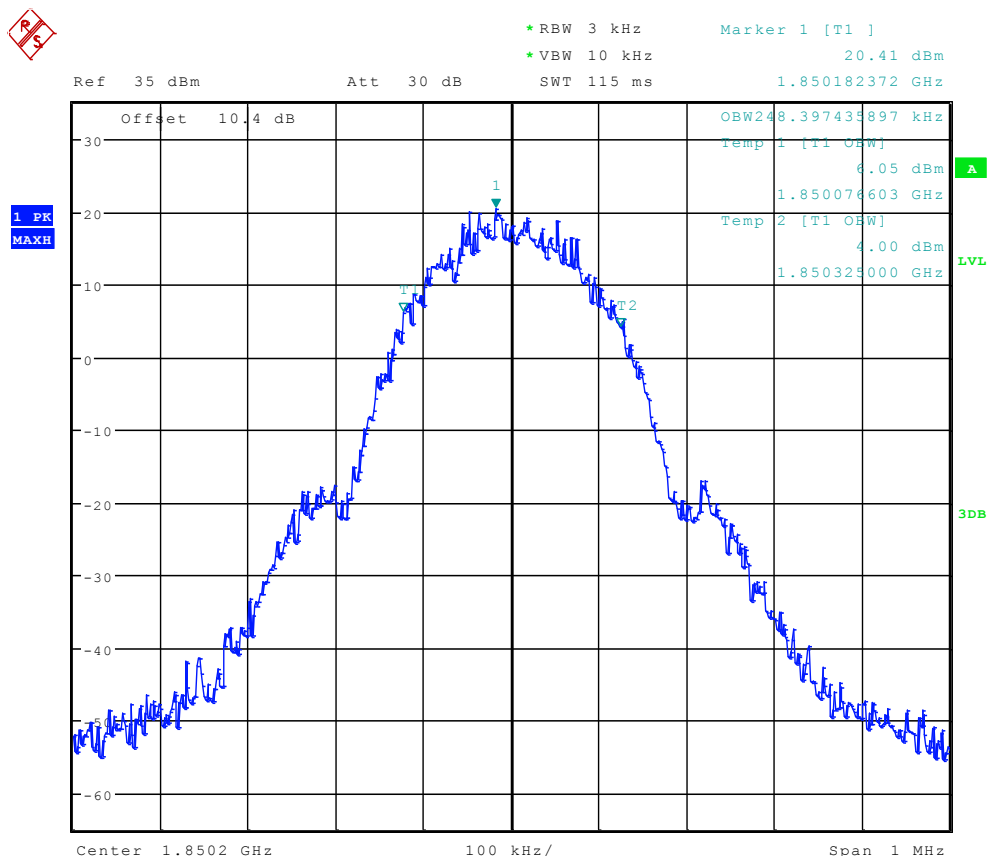


## **Appendix B**

### **Occupied Bandwidth** According to FCC Part 2.1049 & Part 24 Subpart E



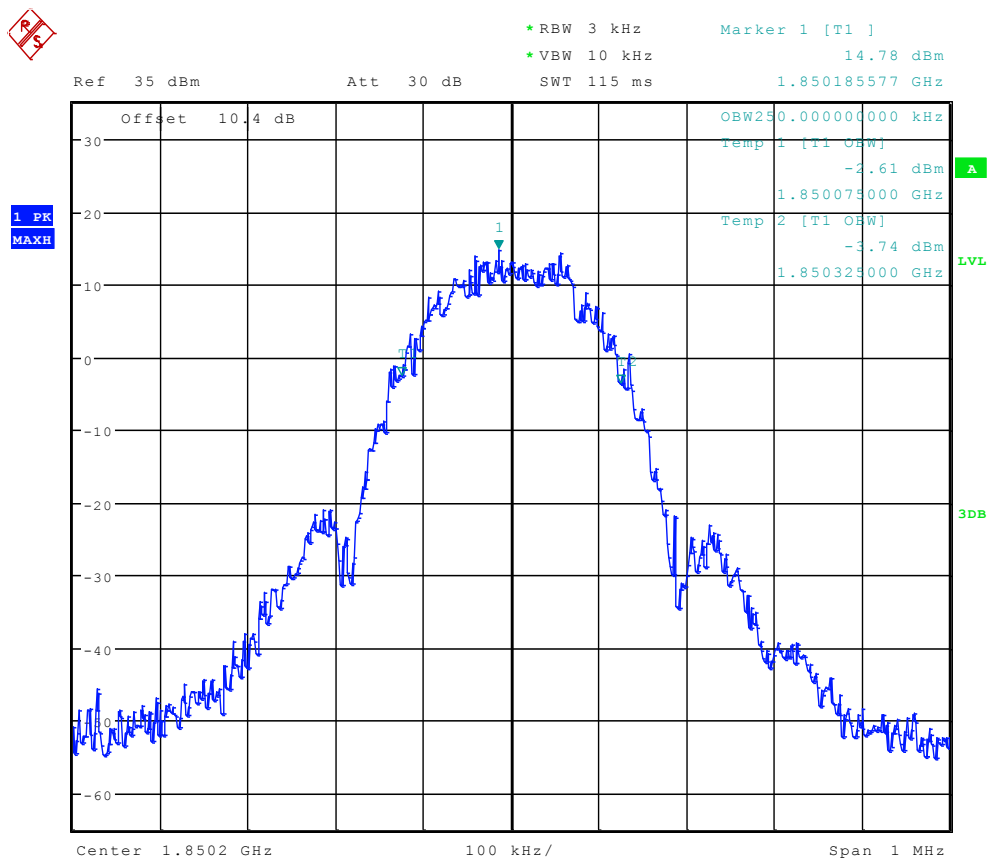
## TM1:GPRS/GSM Channel 512



Date: 17.SEP.2011 00:00:18



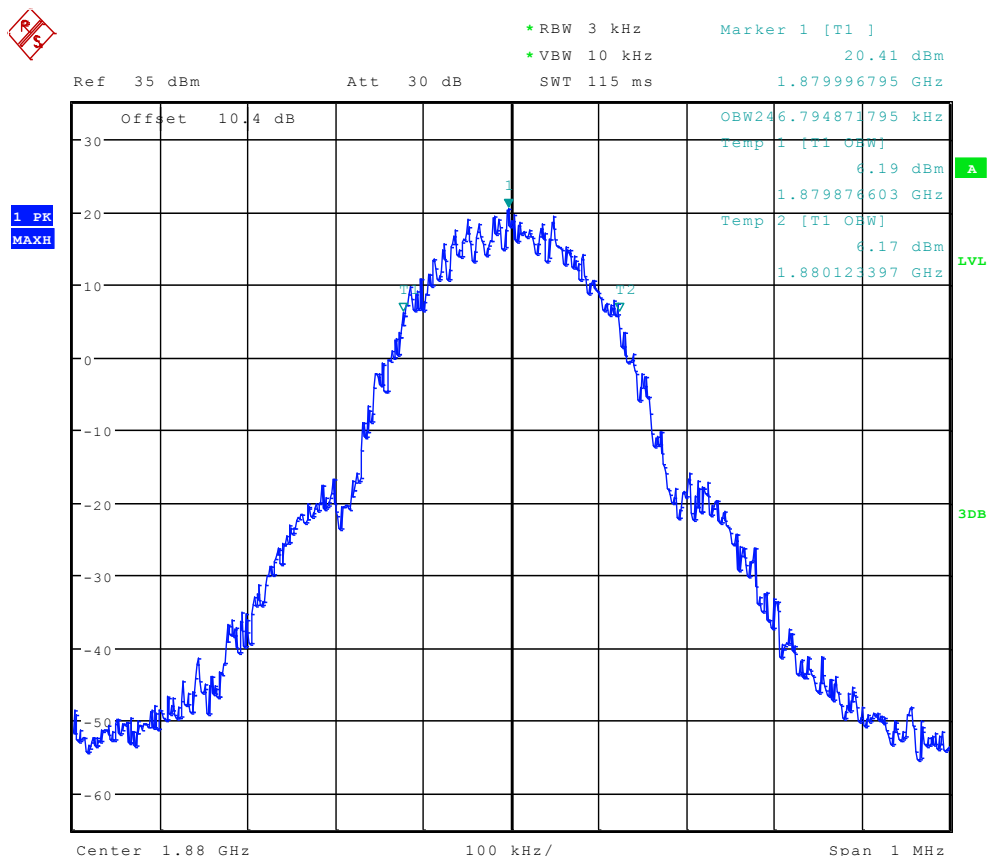
## TM2:EDGE Channel 512



Date: 17.SEP.2011 00:32:38



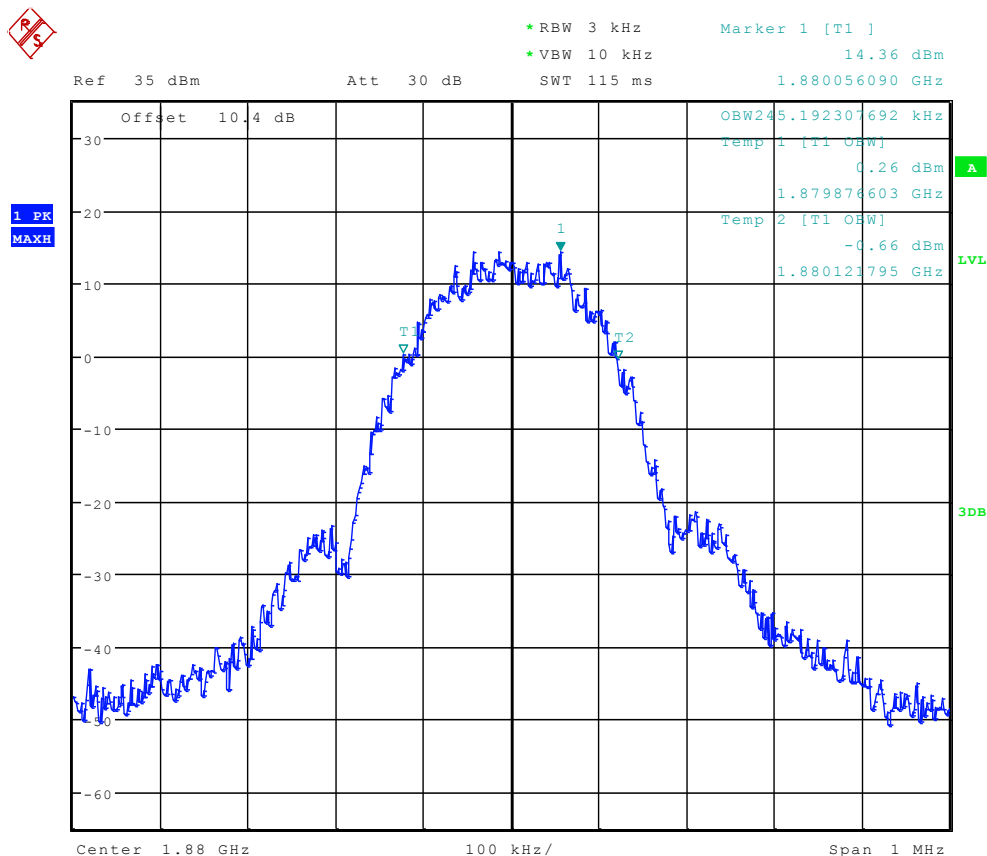
## TM1:GPRS/GSM Channel 661



Date: 17.SEP.2011 00:00:32



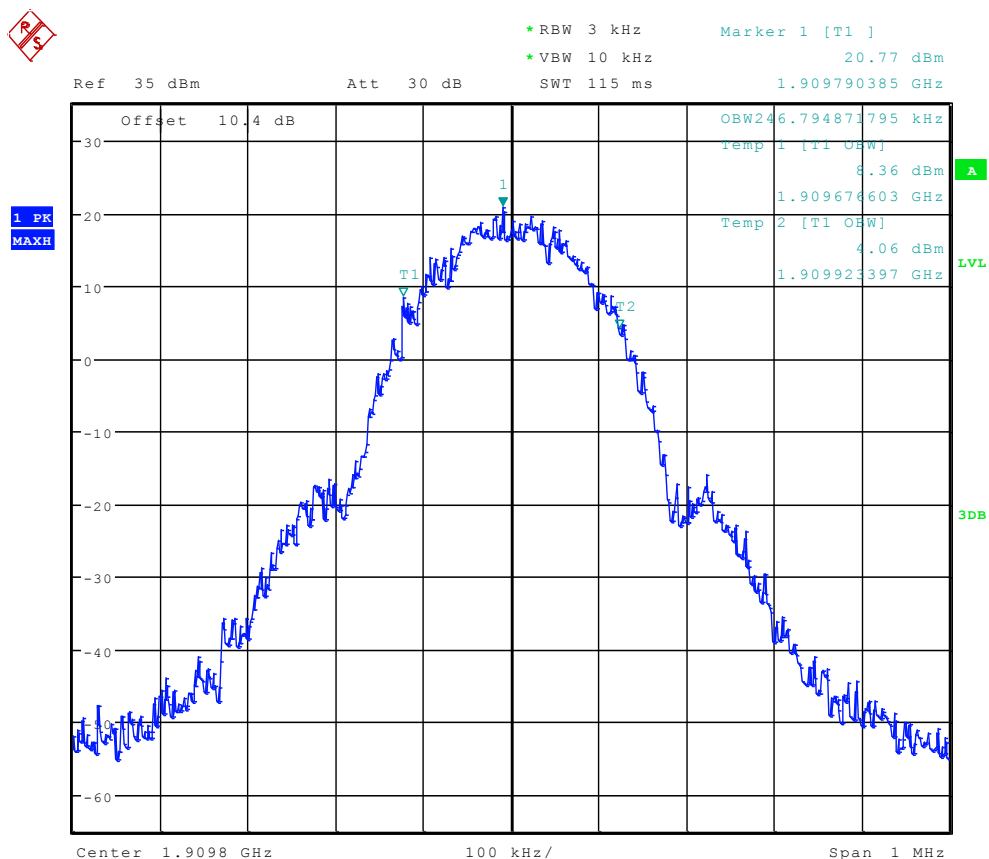
## TM2:EDGE Channel 661



Date: 17.SEP.2011 00:32:51



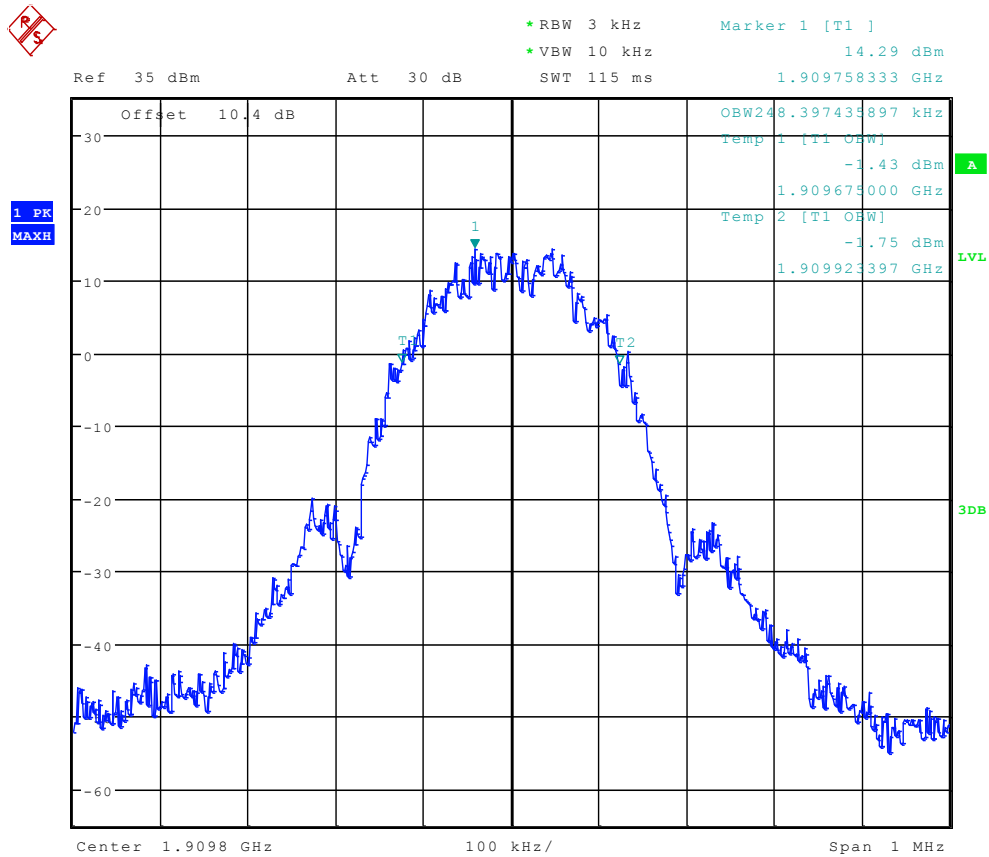
## TM1:GPRS/GSM Channel 810



Date: 17.SEP.2011 00:00:45



## TM2:EDGE Channel 810



Date: 17.SEP.2011 00:33:05



## **Appendix C**

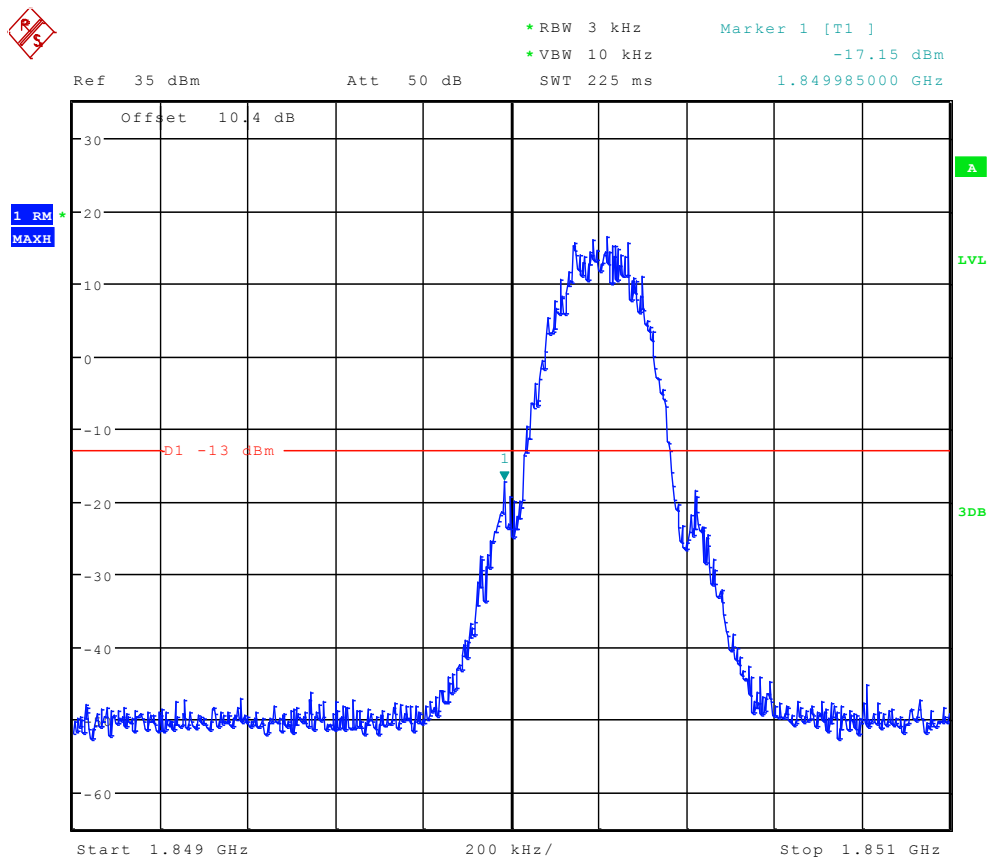
### **Band Edges Compliance** According to FCC Part 2.1051 & 24.238



# TM1:GPRS/GSM

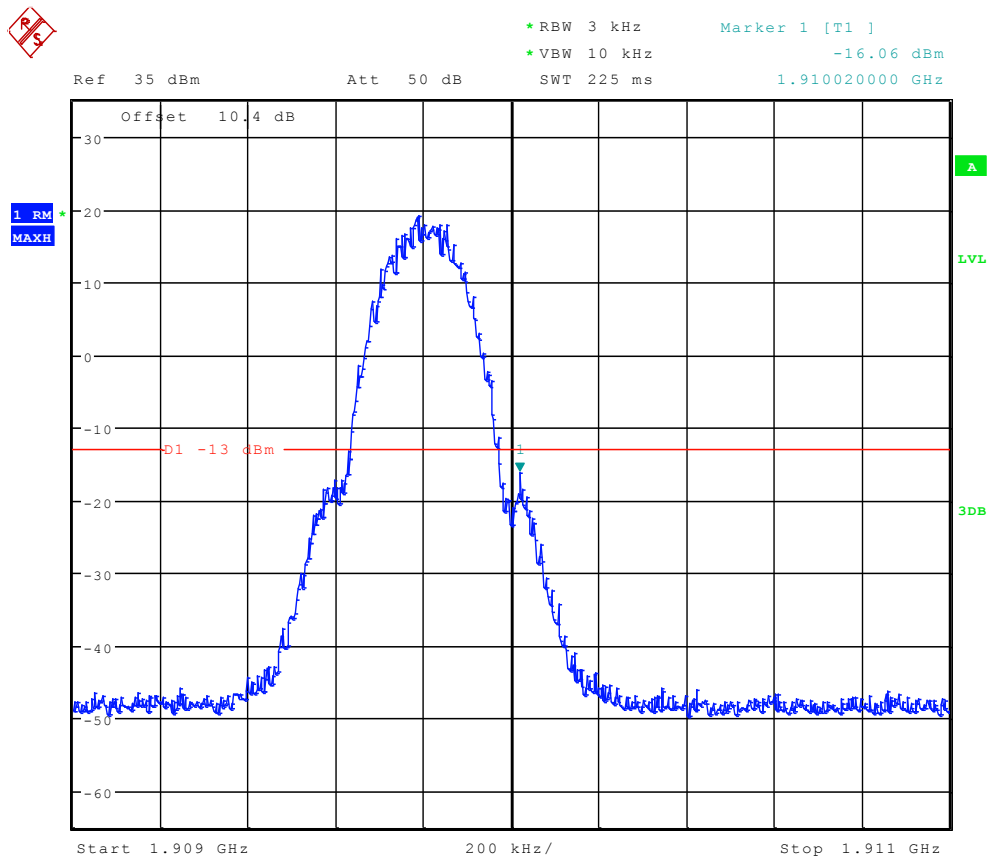
## Left Edge

### Channel 512



Date: 17.SEP.2011 01:39:16

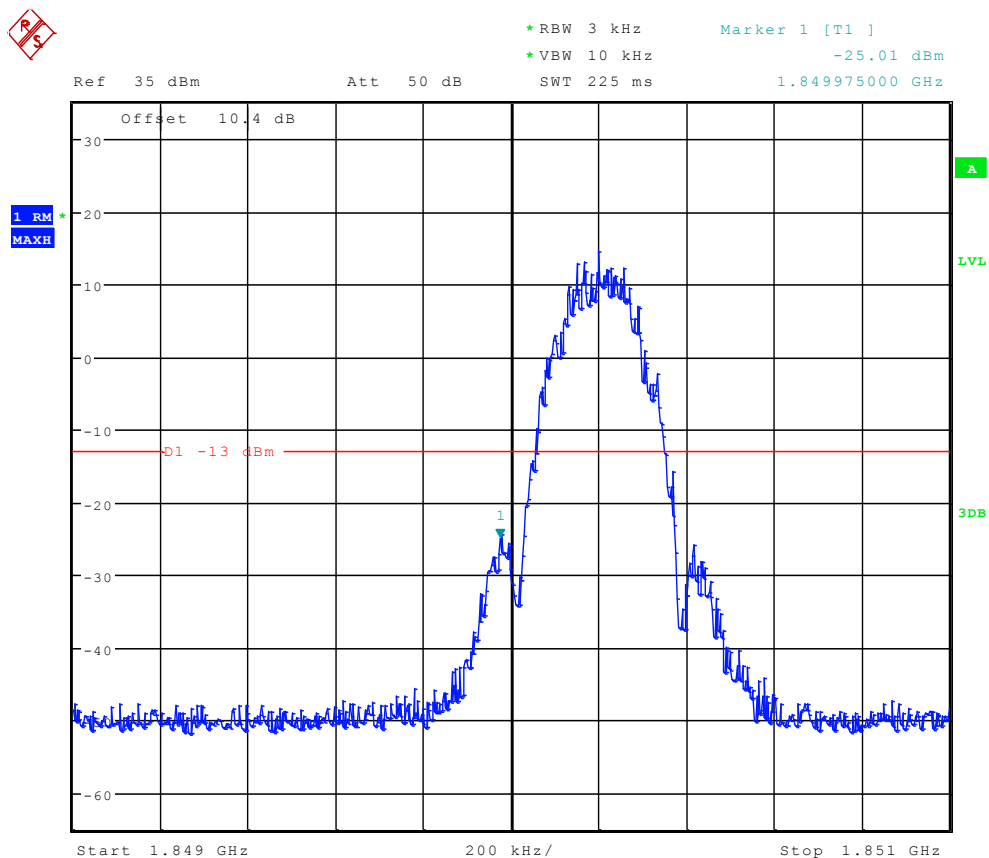
Right Edge  
Channel 810



Date: 17.SEP.2011 01:41:07



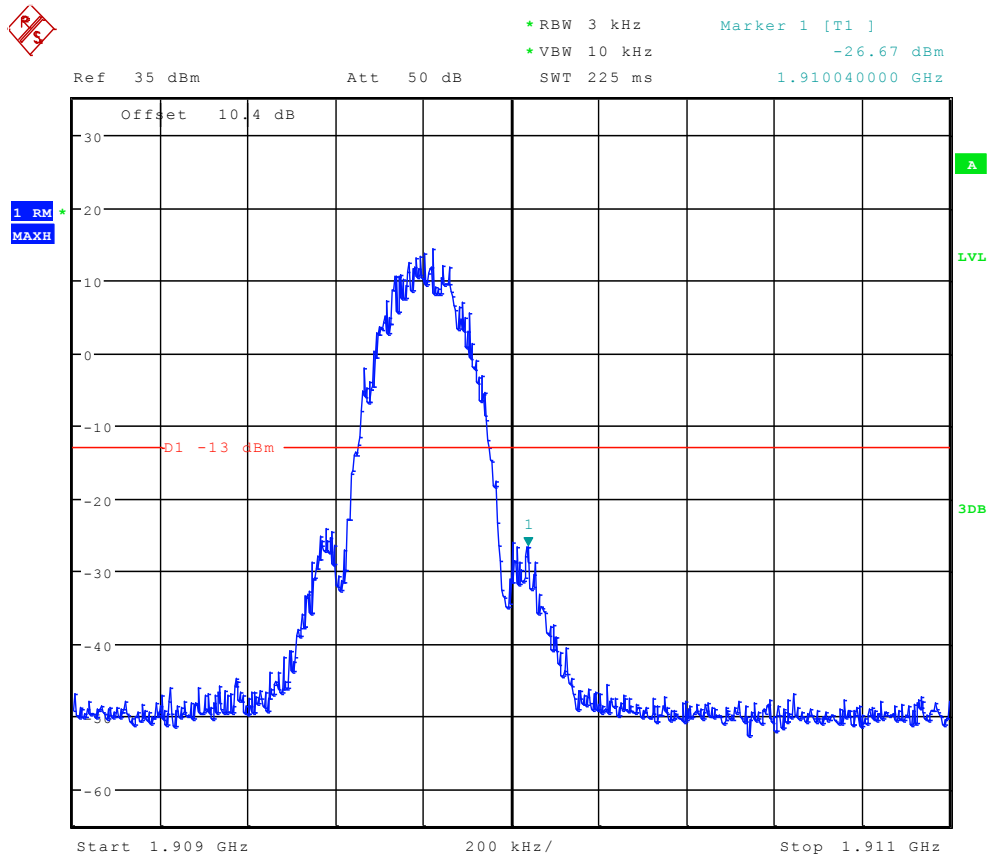
## EDGE Left Edge Channel 512



Date: 17.SEP.2011 01:28:52



## Right Edge Channel 810



Date: 17.SEP.2011 01:29:12



## **Appendix D**

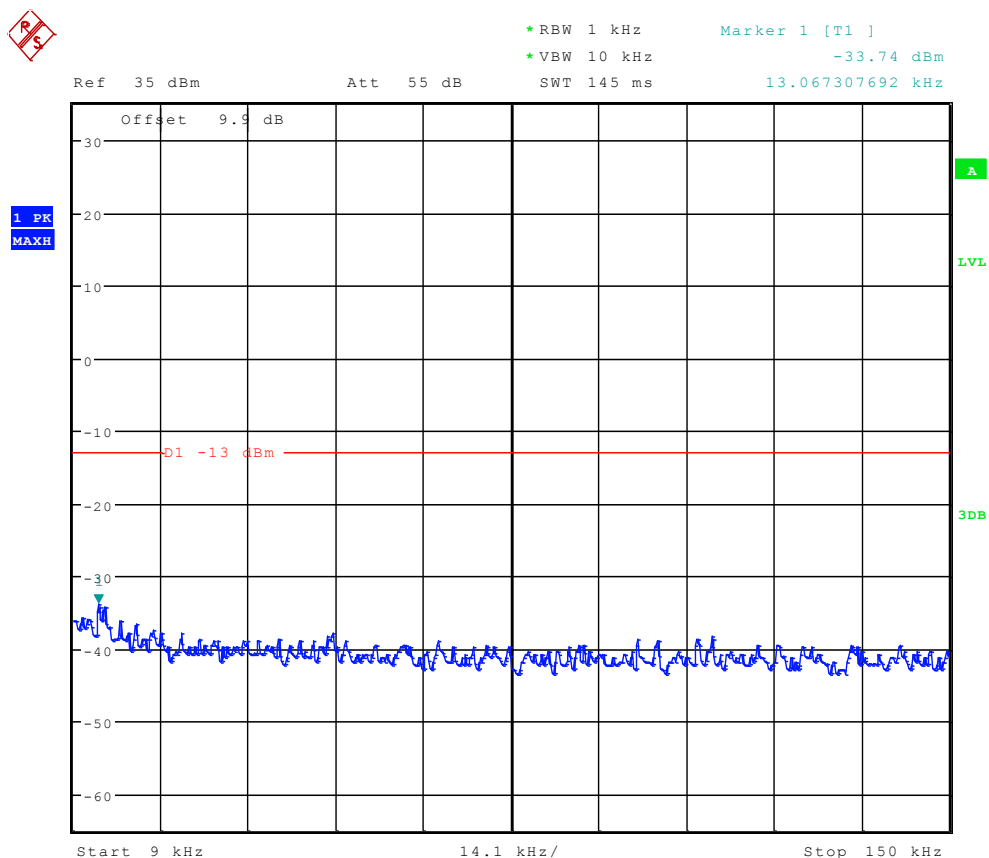
# Spurious Emission at Antenna Terminal

According to FCC Part 2.1051 & 24.238

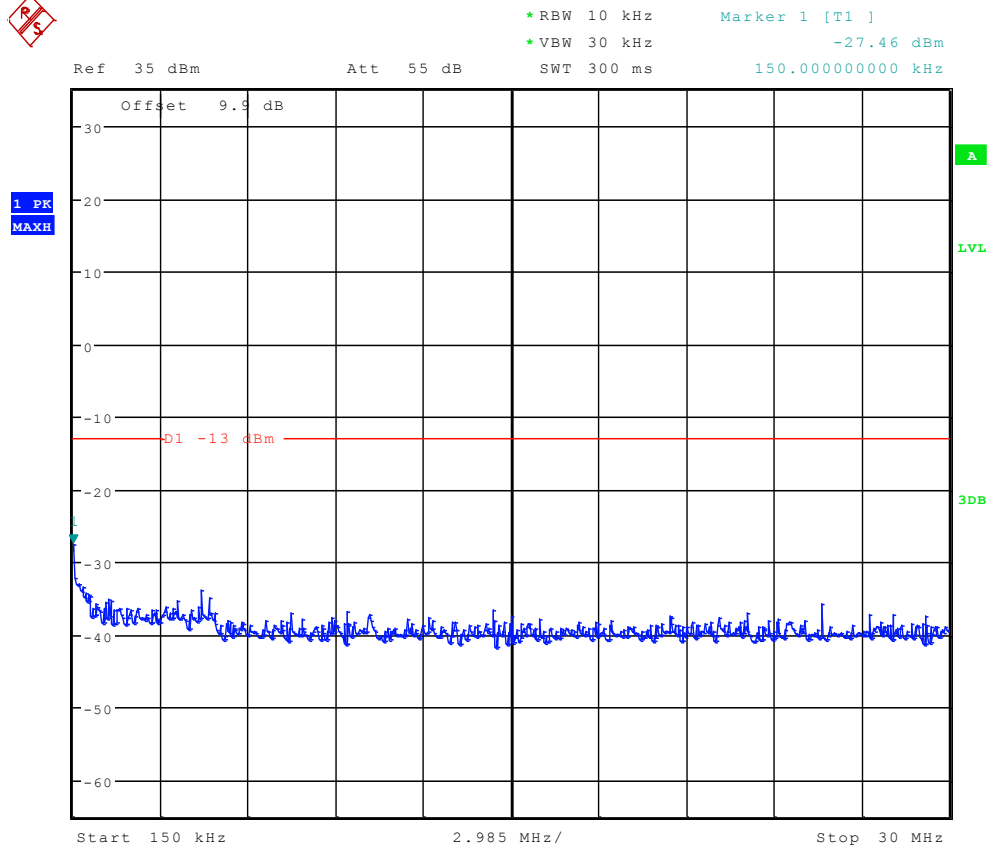


## TM1:GPRS/GSM

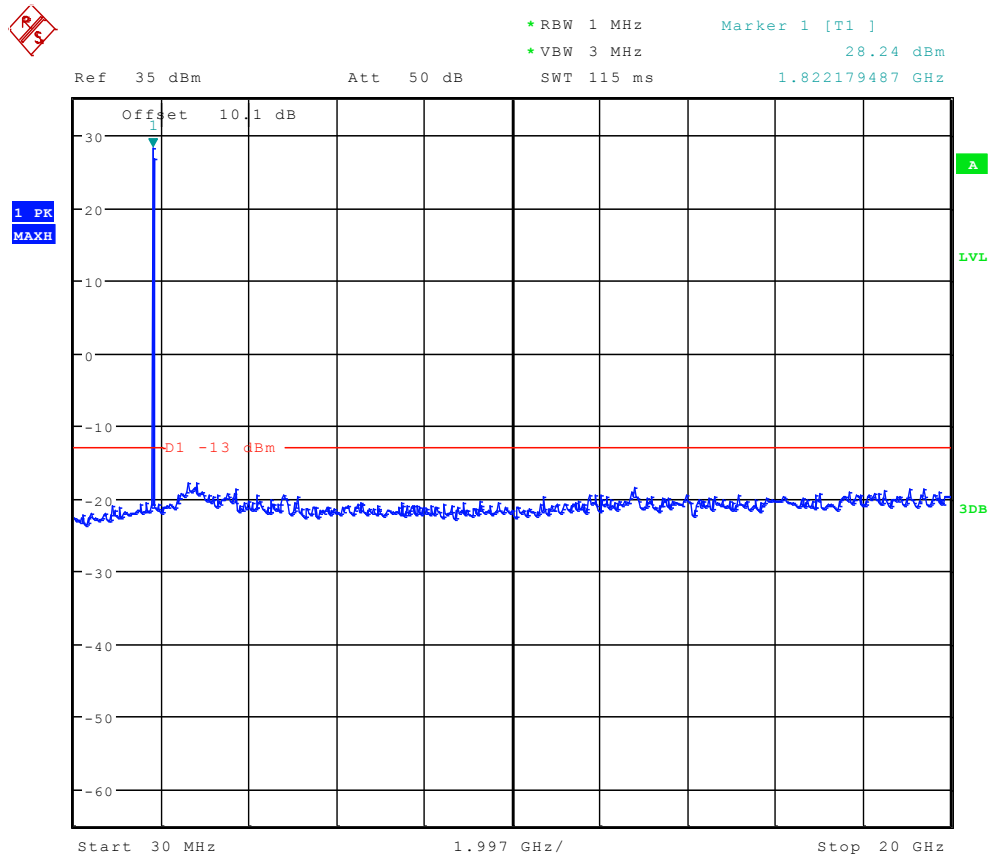
### Channel 512



Date: 17.SEP.2011 00:20:45



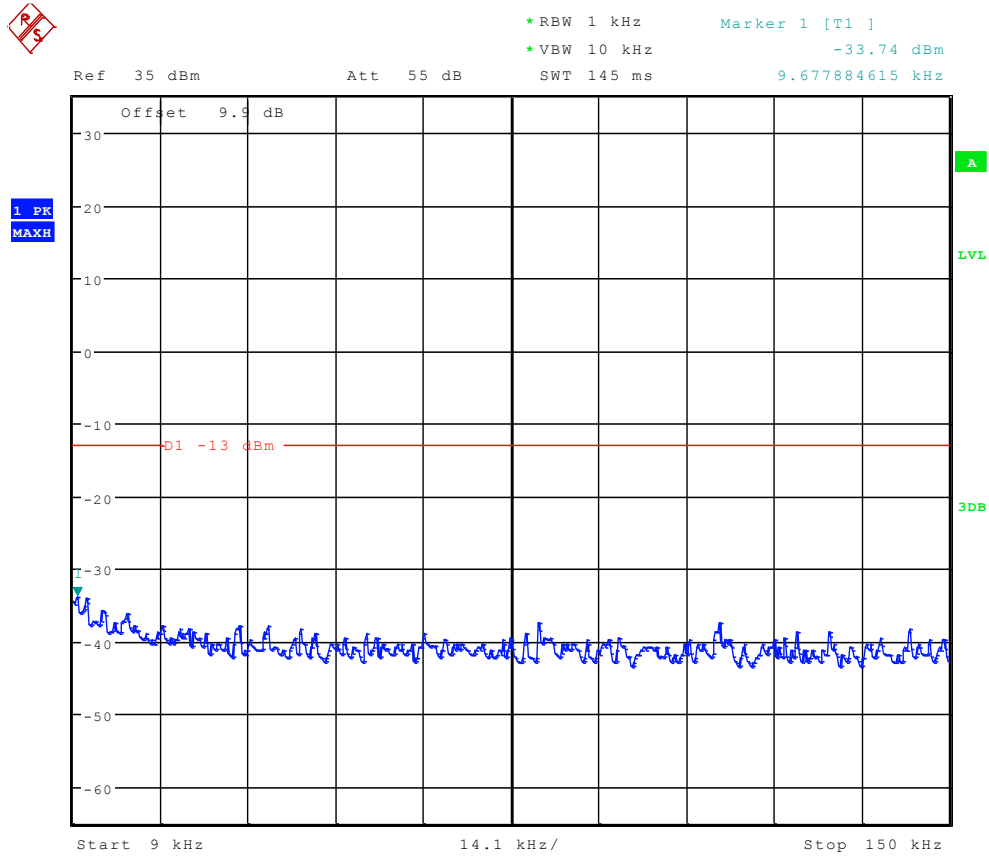
Date: 17.SEP.2011 00:21:29



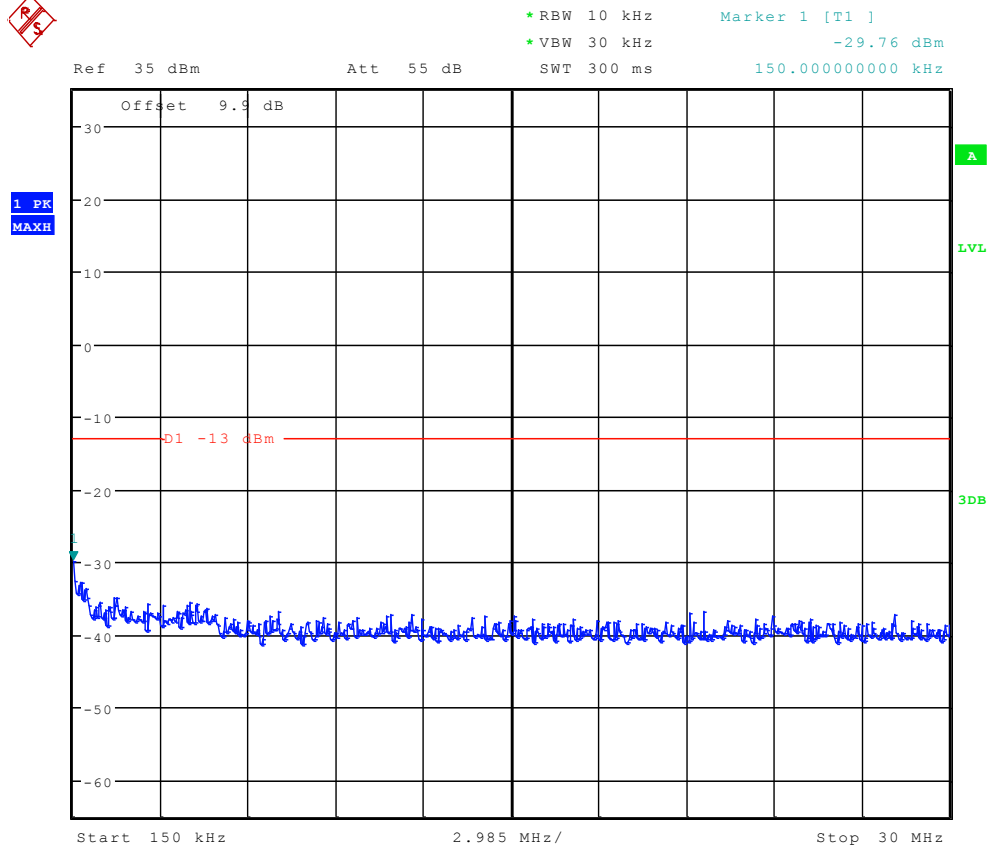
Date: 17.SEP.2011 00:22:12



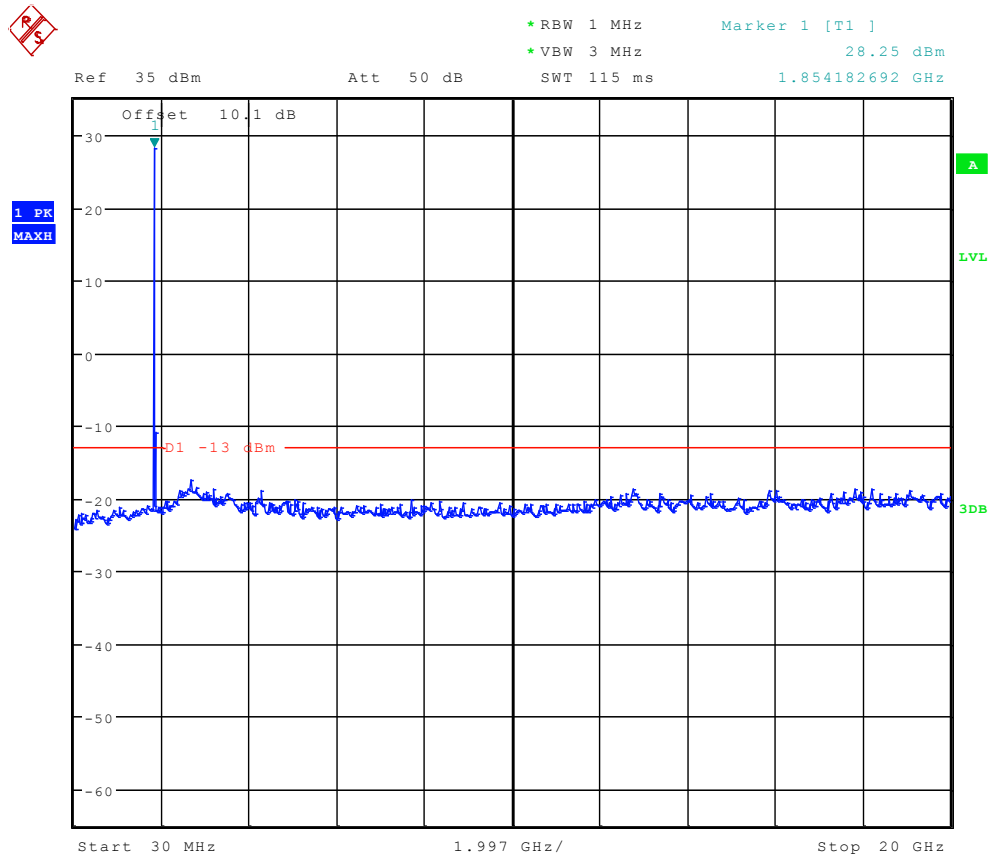
## Channel 661



Date: 17.SEP.2011 00:20:59



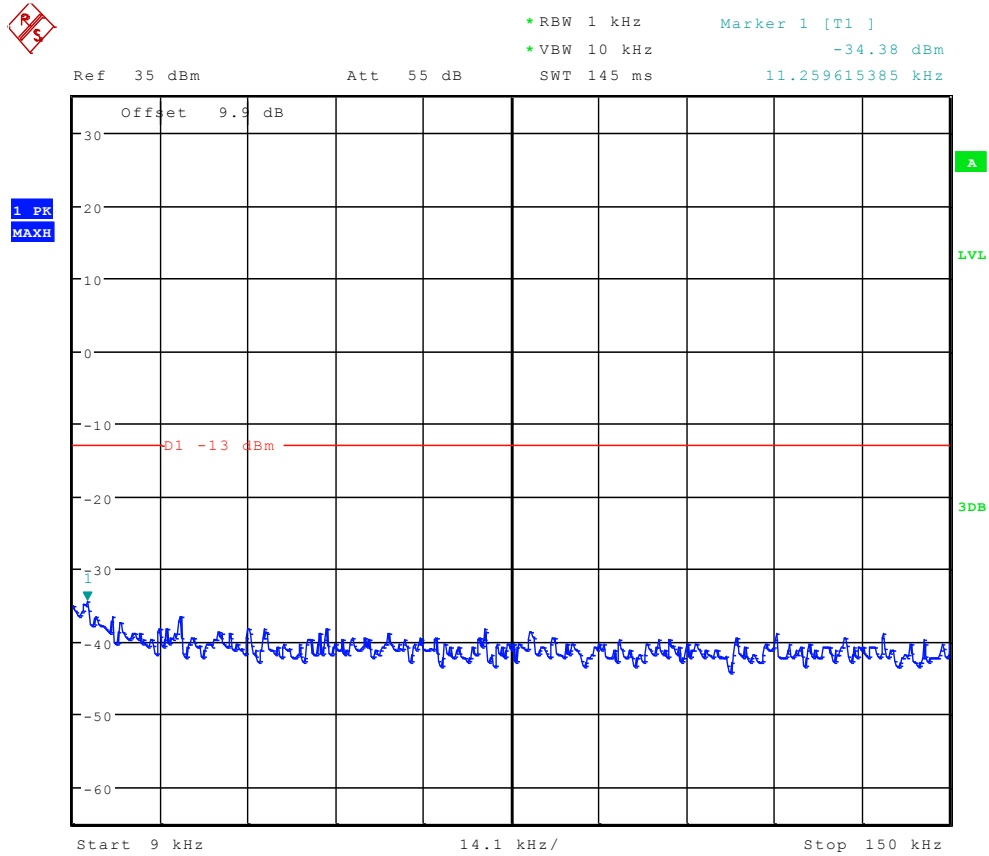
Date: 17.SEP.2011 00:21:43



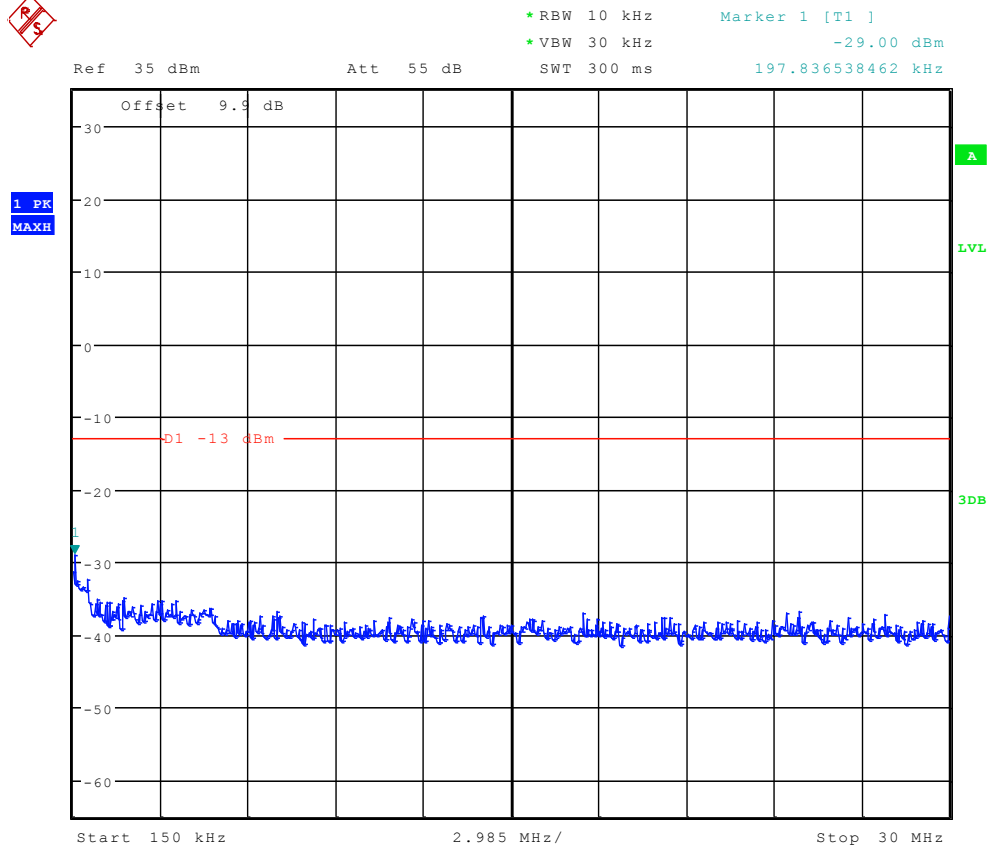
Date: 17.SEP.2011 00:22:27



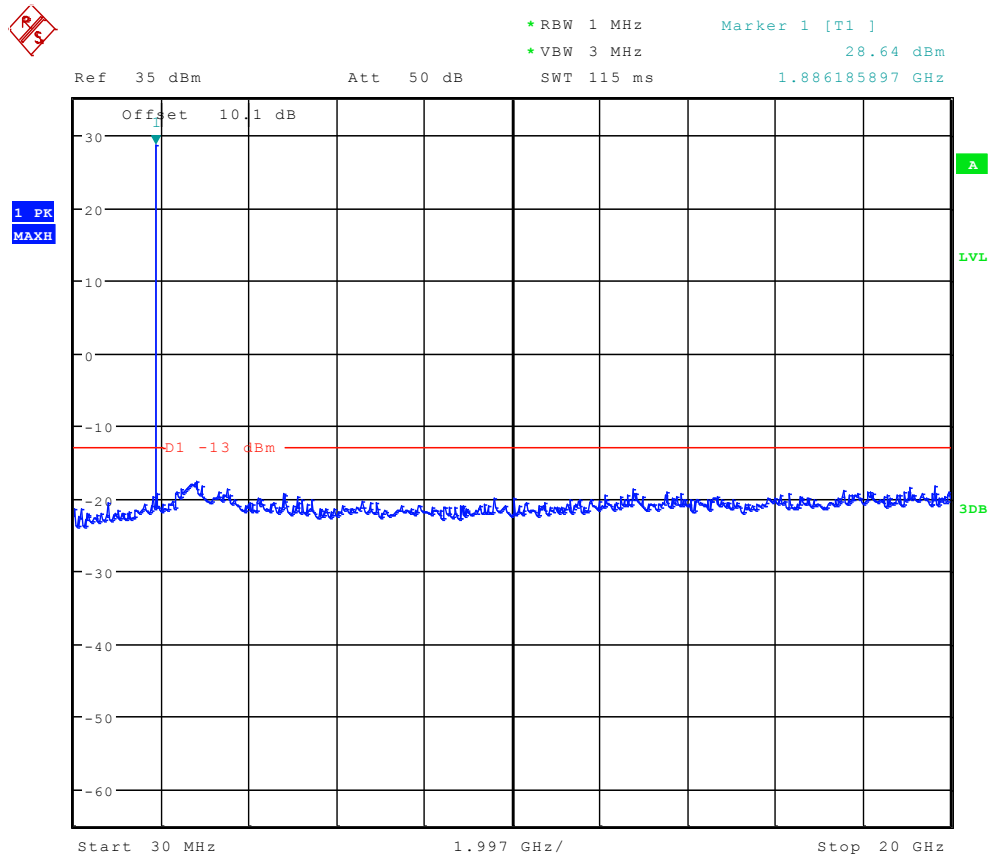
## Channel 810



Date: 17.SEP.2011 00:21:14



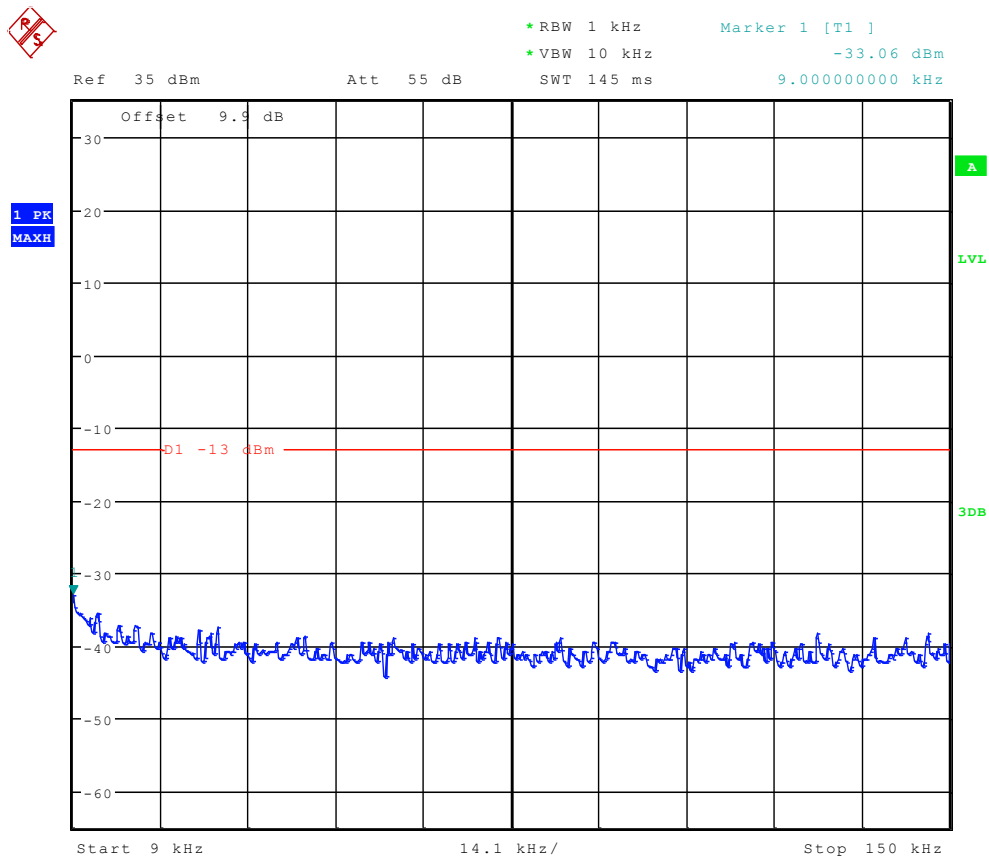
Date: 17.SEP.2011 00:21:57



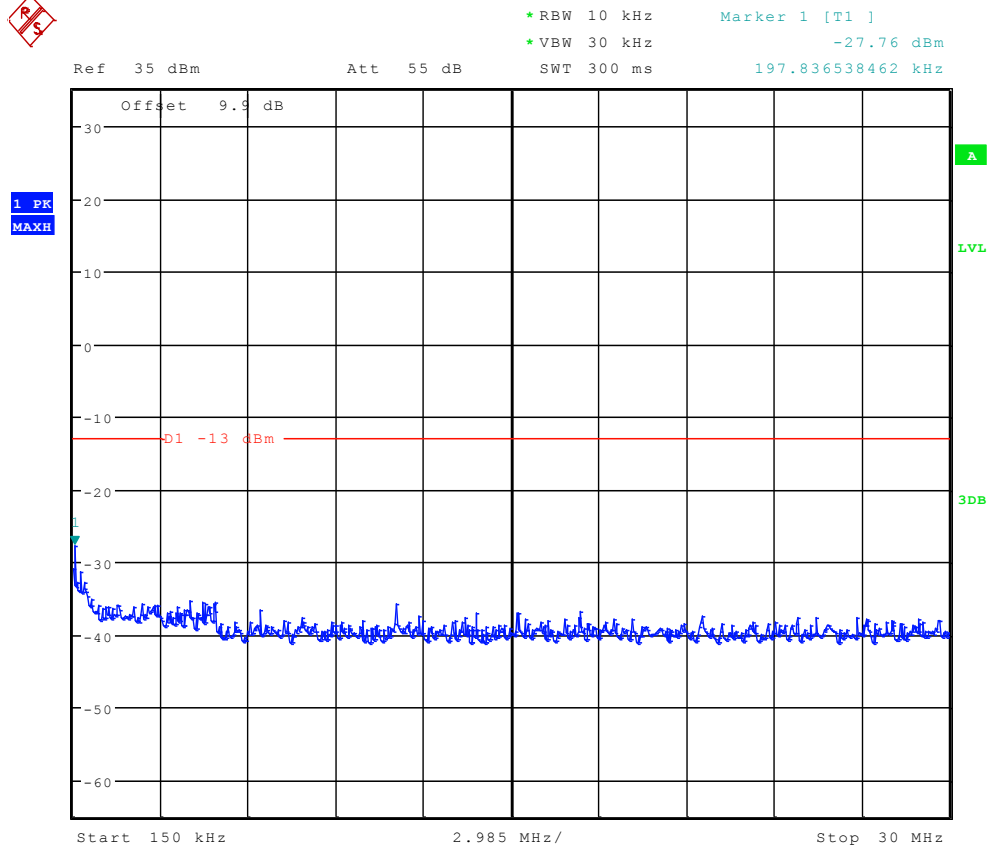
Date: 17.SEP.2011 00:22:41



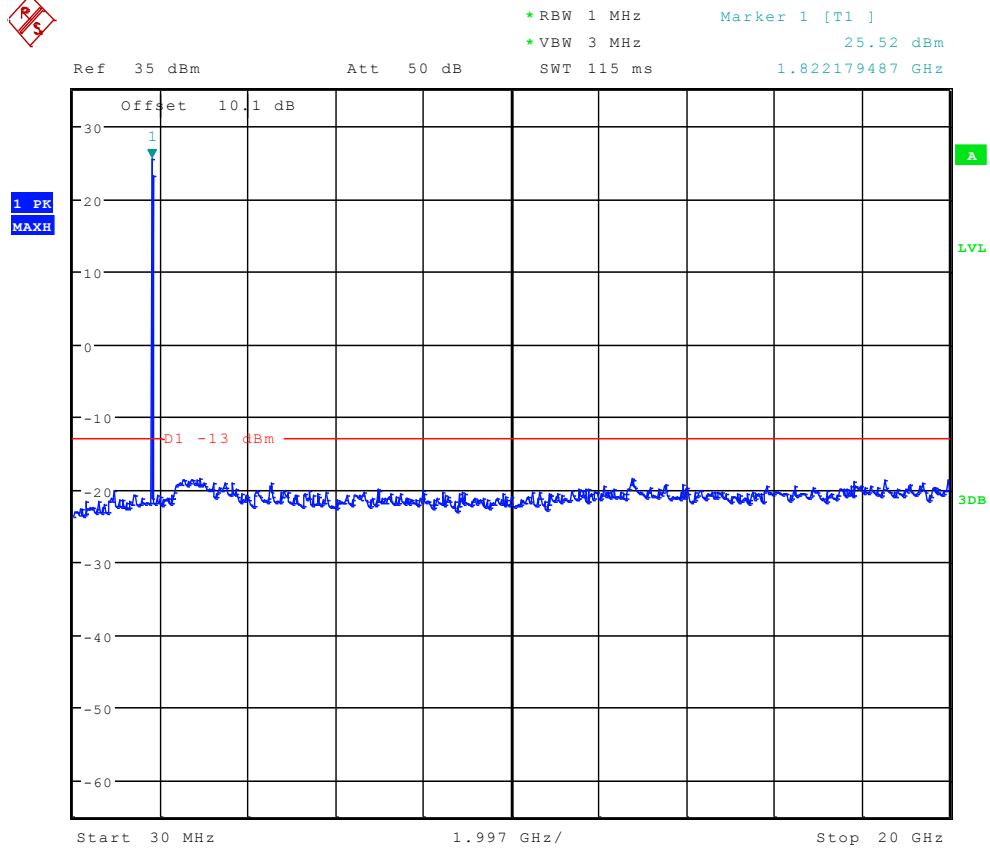
## TM2:EDGE Channel 512



Date: 17.SEP.2011 00:09:30



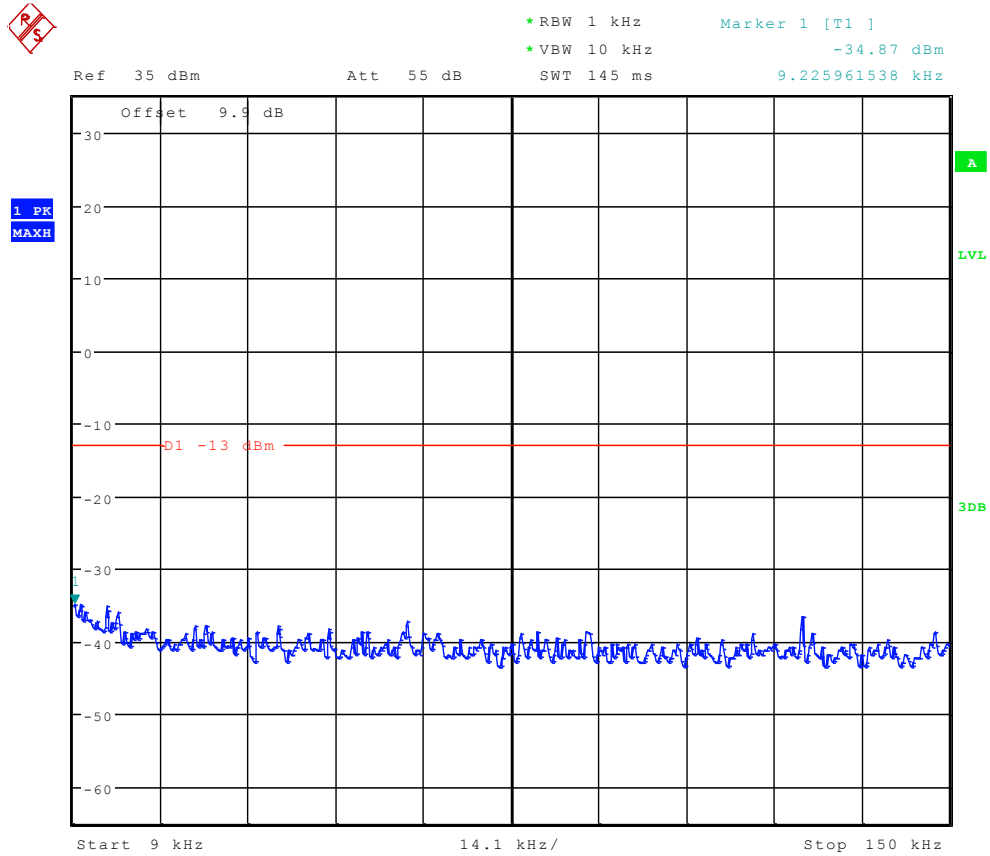
Date: 17.SEP.2011 00:10:13



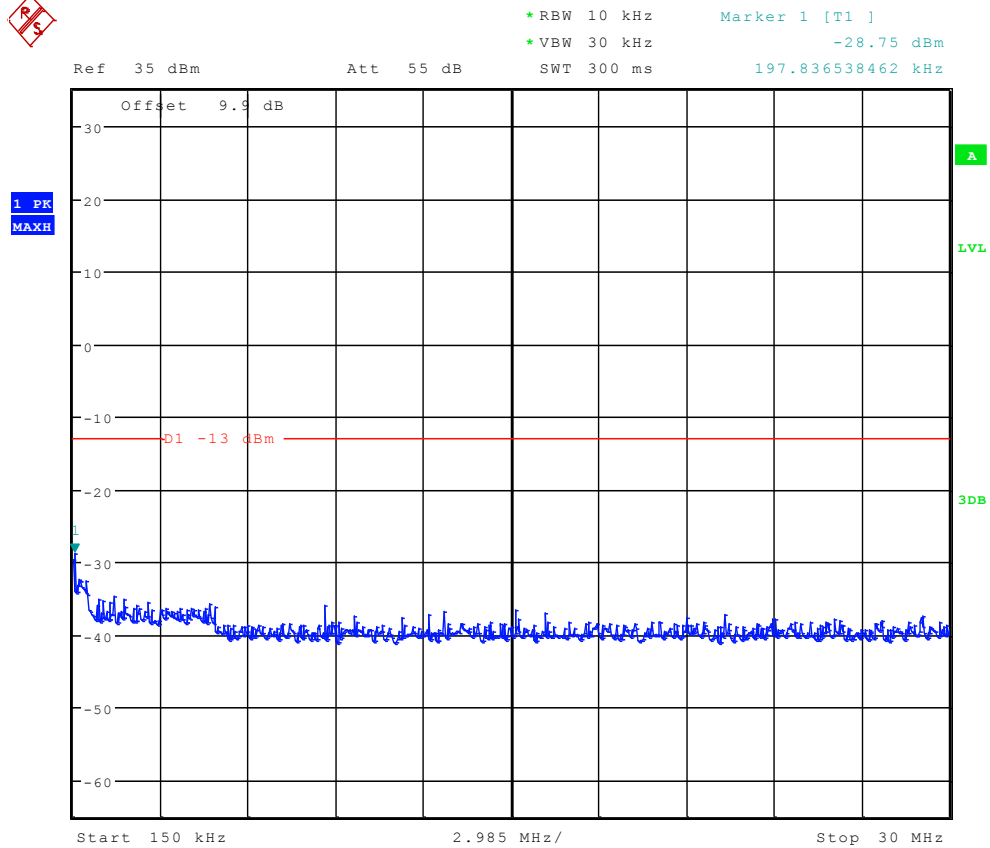
Date: 17.SEP.2011 00:10:57



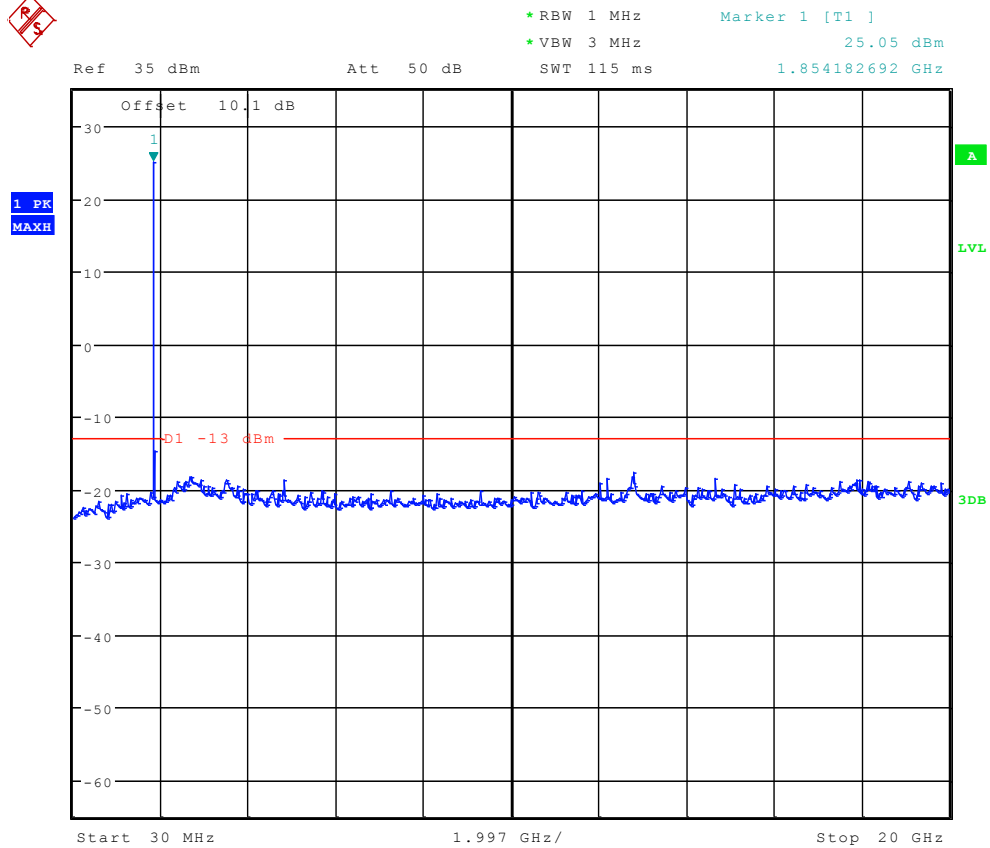
## Channel 661



Date: 17.SEP.2011 00:09:44



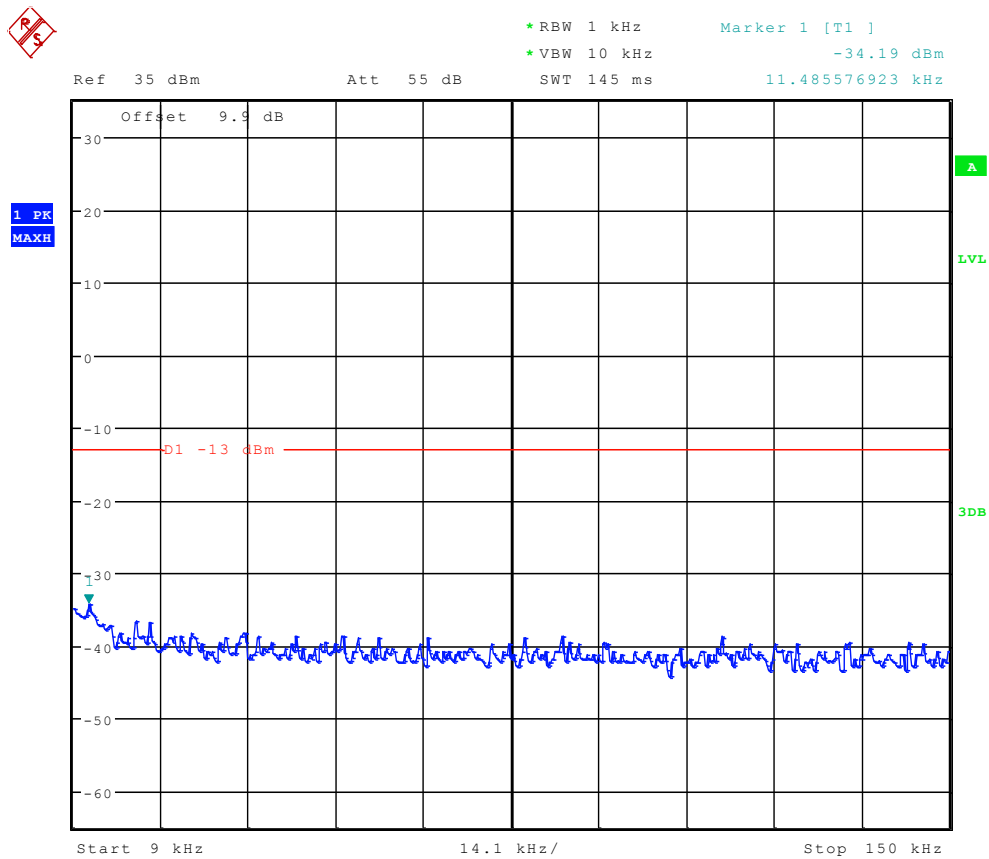
Date: 17.SEP.2011 00:10:28



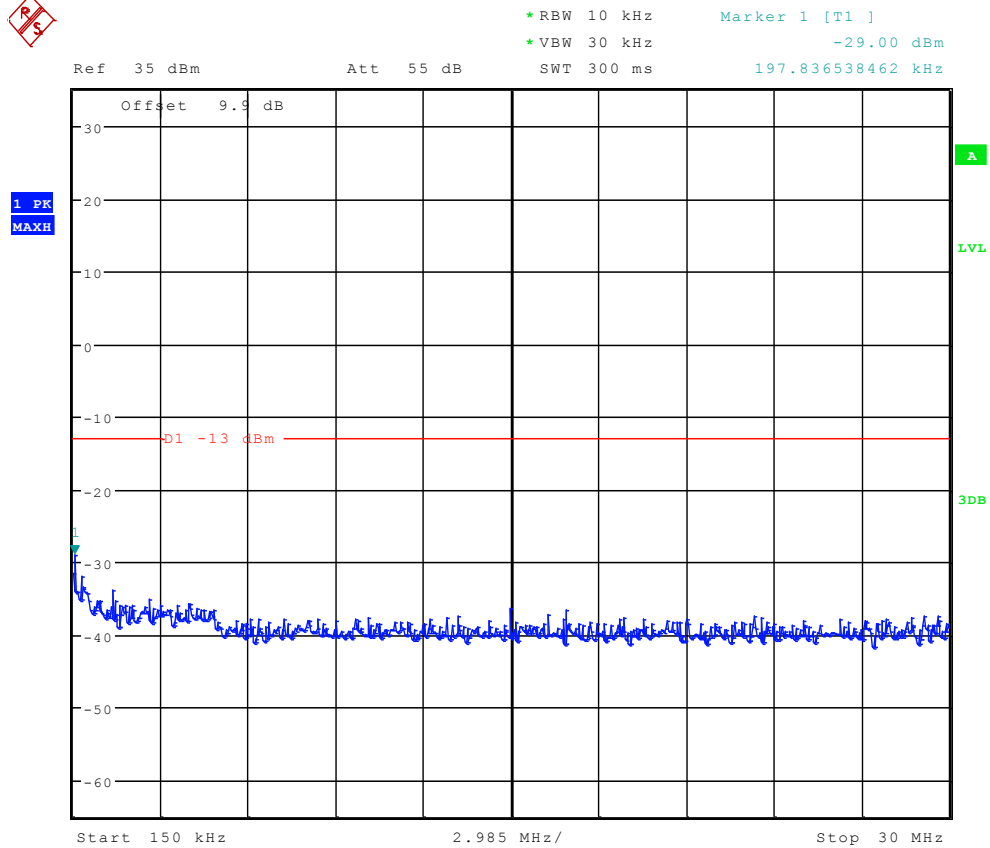
Date: 17.SEP.2011 00:11:11



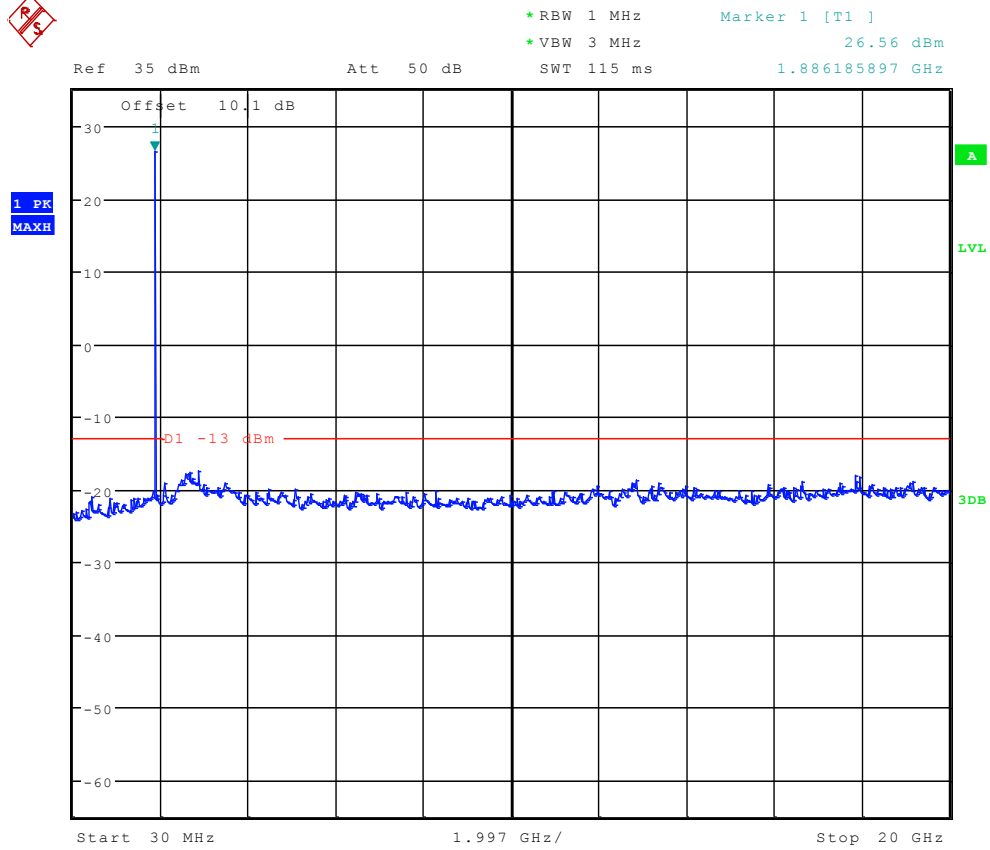
## Channel 810



Date: 17.SEP.2011 00:09:58



Date: 17.SEP.2011 00:10:42



Date: 17.SEP.2011 00:11:26



# **AppendixE**

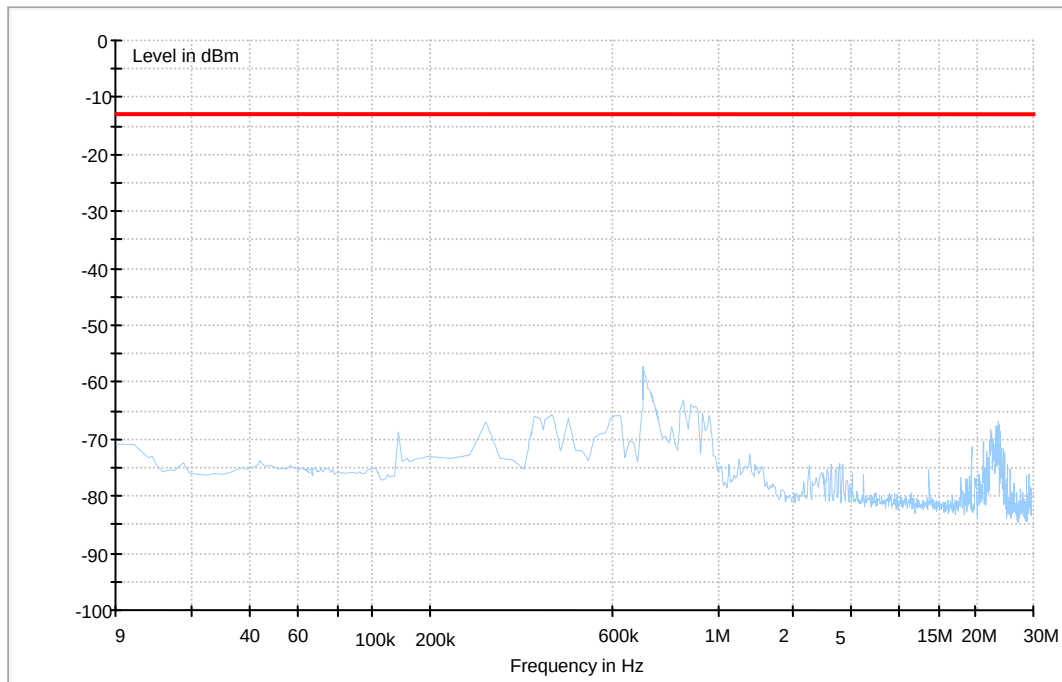
## **Field Strength of Spurious Emissions**

According to FCC Part 2.1053 & Part24.238



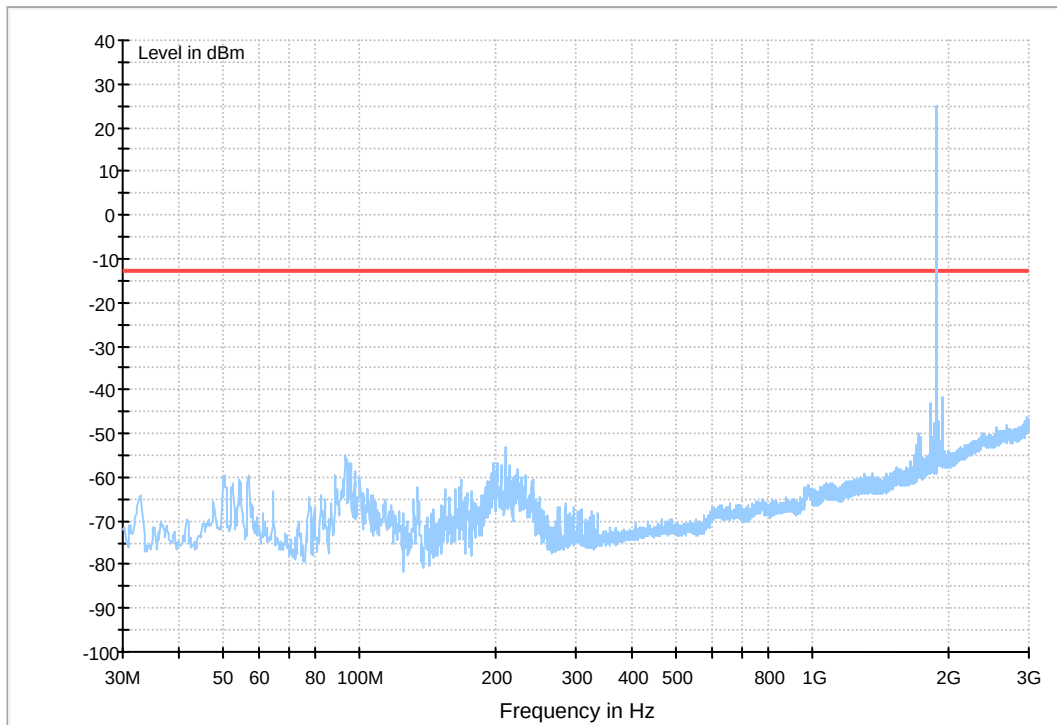
## GSM 1900

Traffic Mode (9kHz-30MHz)





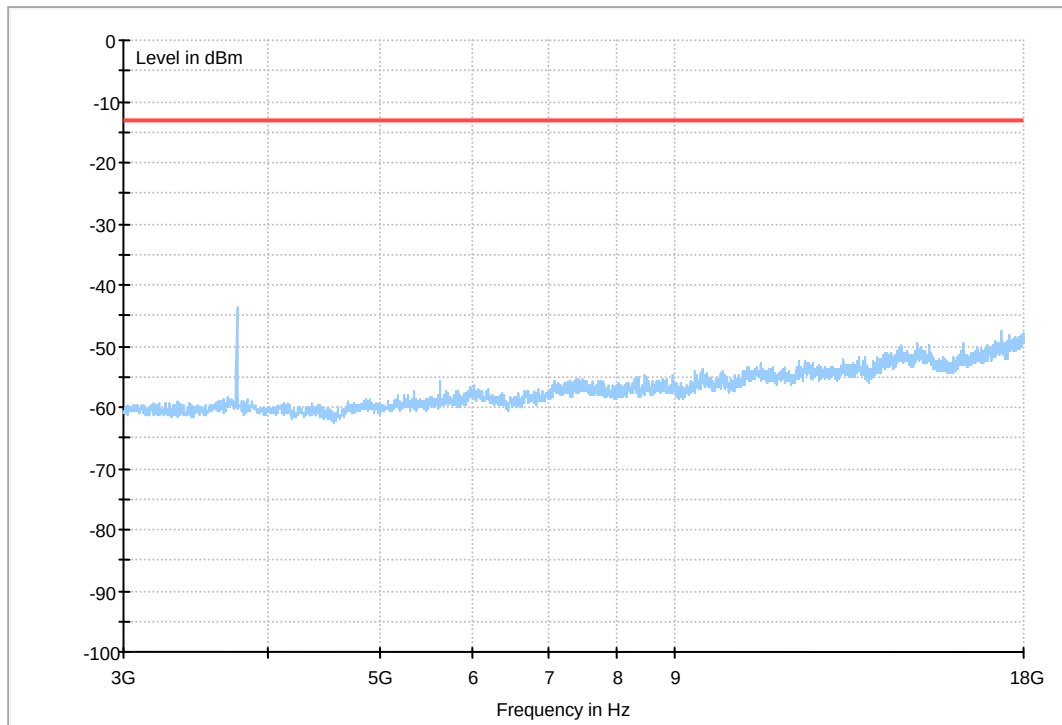
## Traffic Mode (30MHz-3GHz)



7

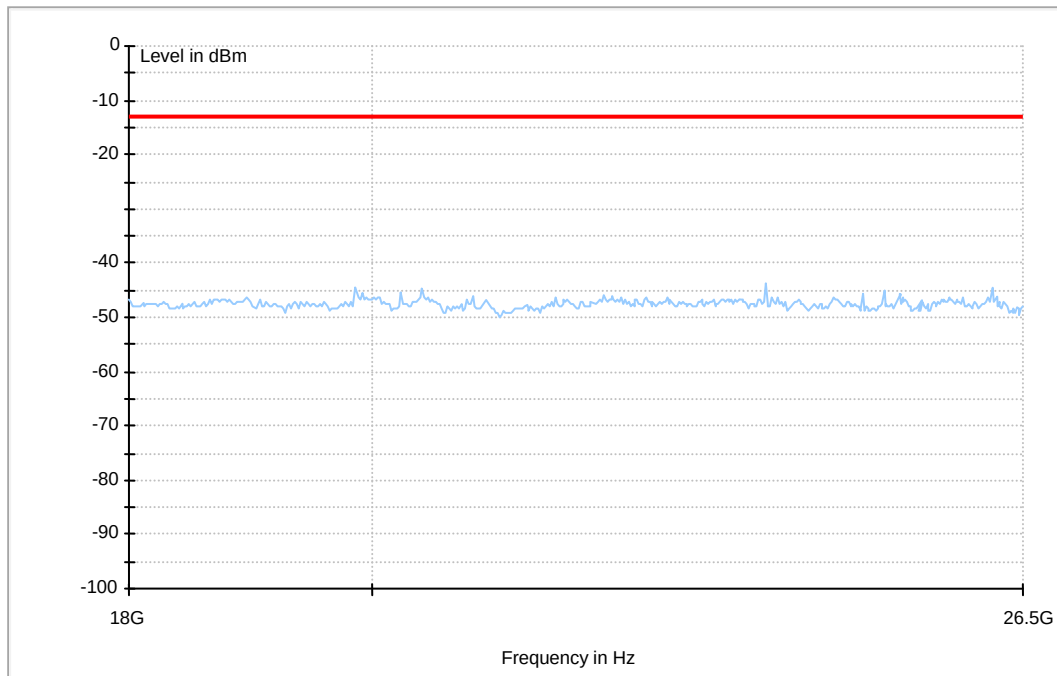


## Traffic Mode (3GHz-18GHz)





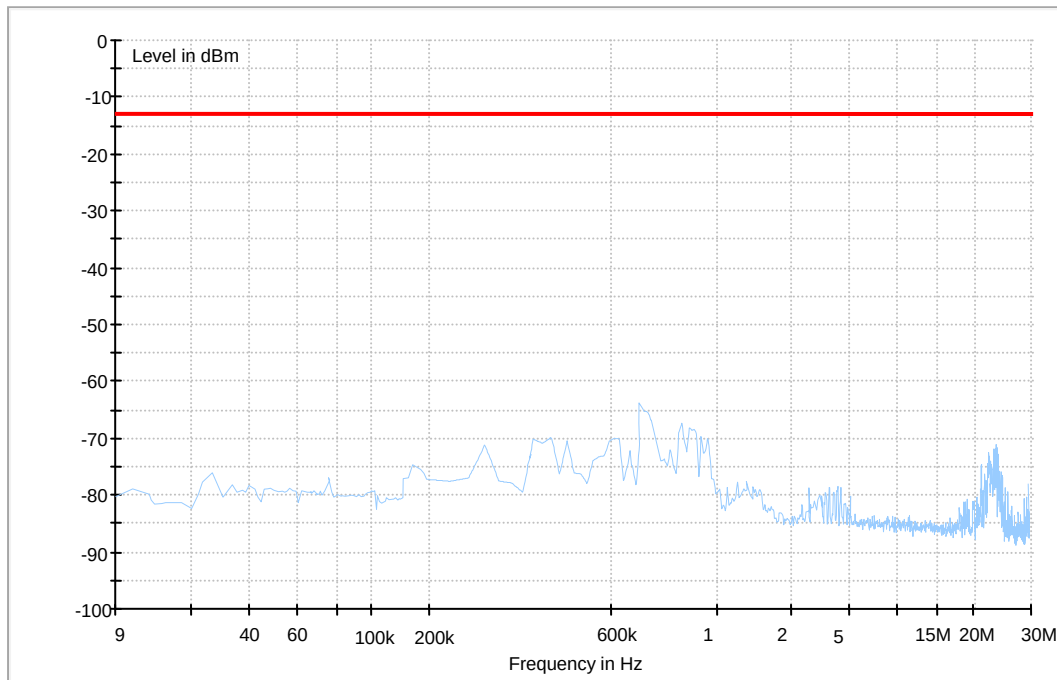
## Traffic Mode (18GHz-26.5GHz)





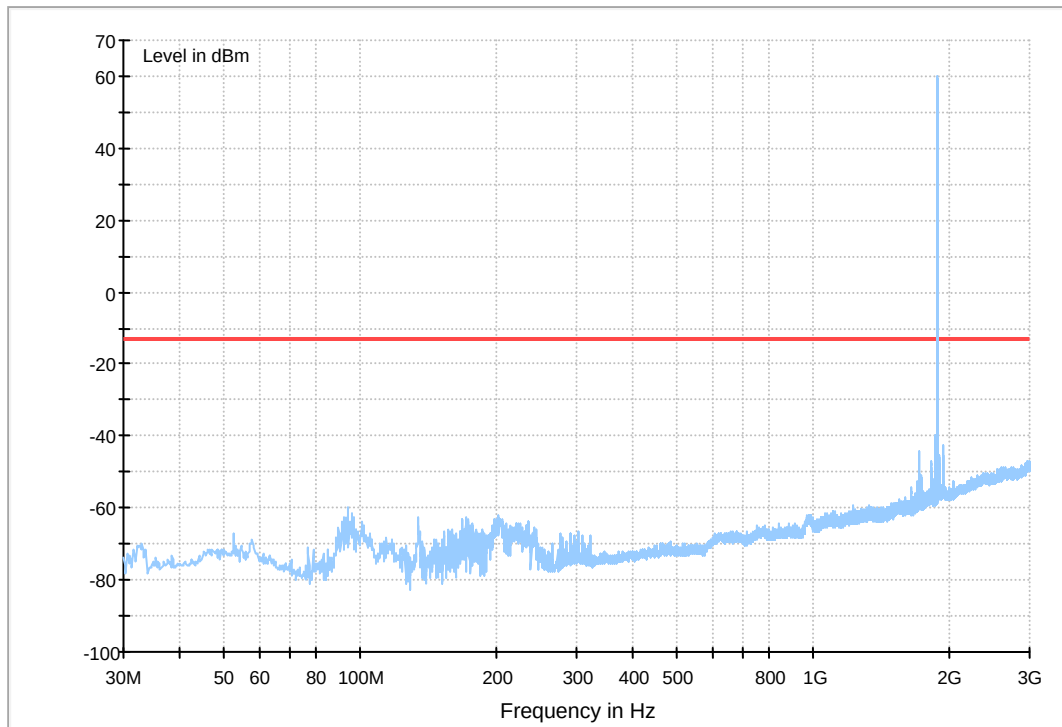
## GPRS1900

Traffic Mode (9kHz-30MHz)



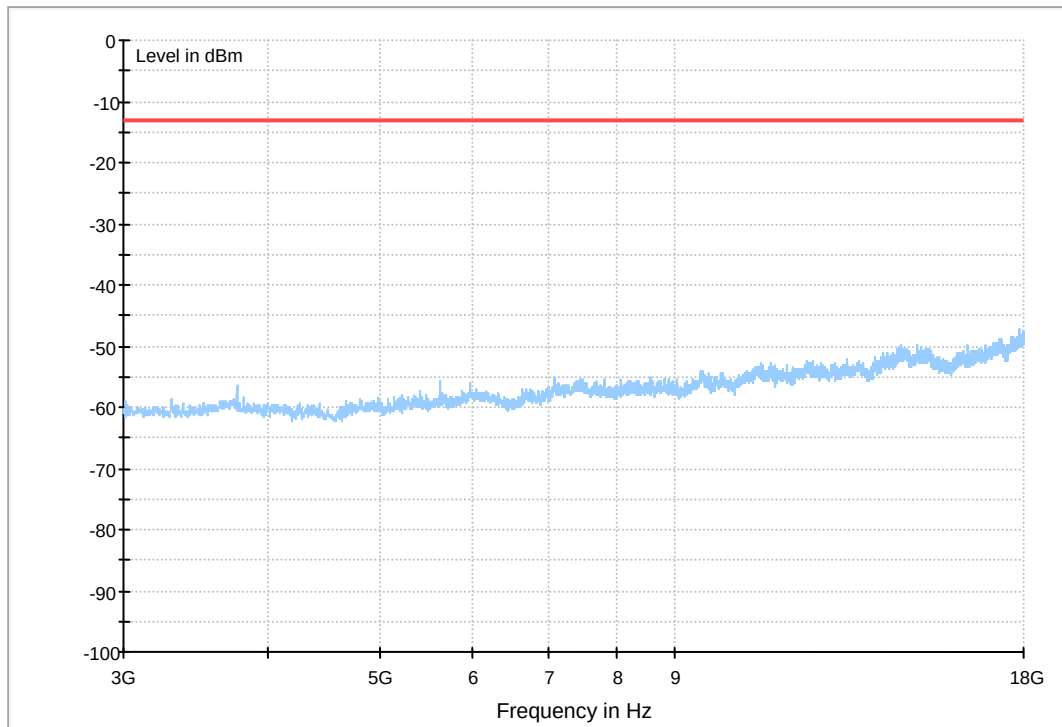


## Traffic Mode (30MHz-3GHz)



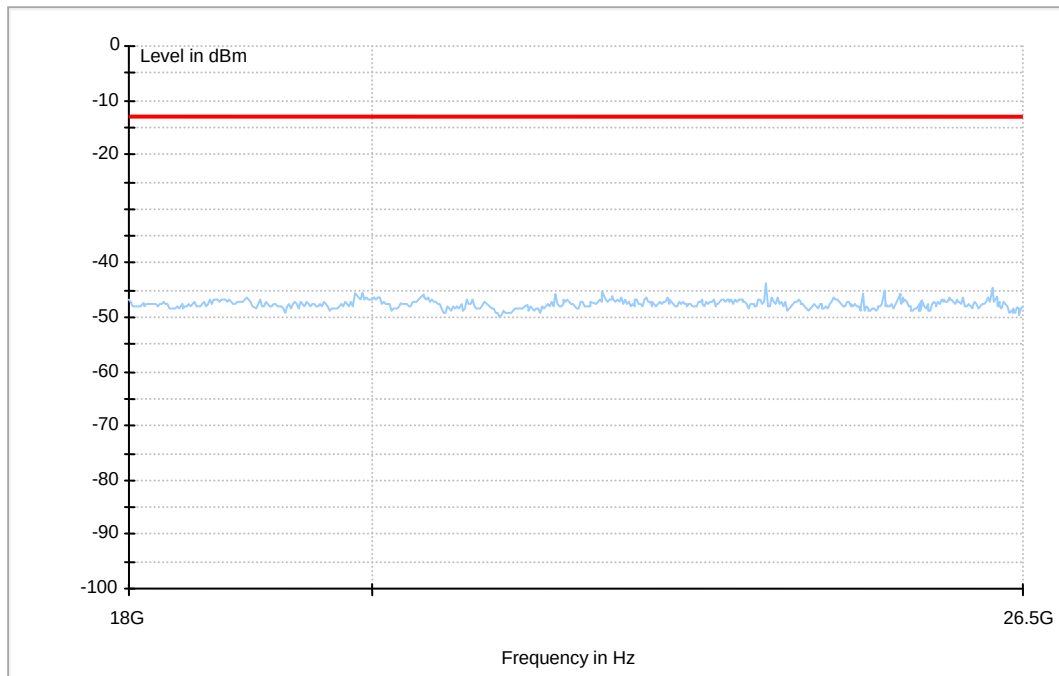


## Traffic Mode (3GHz-18GHz)





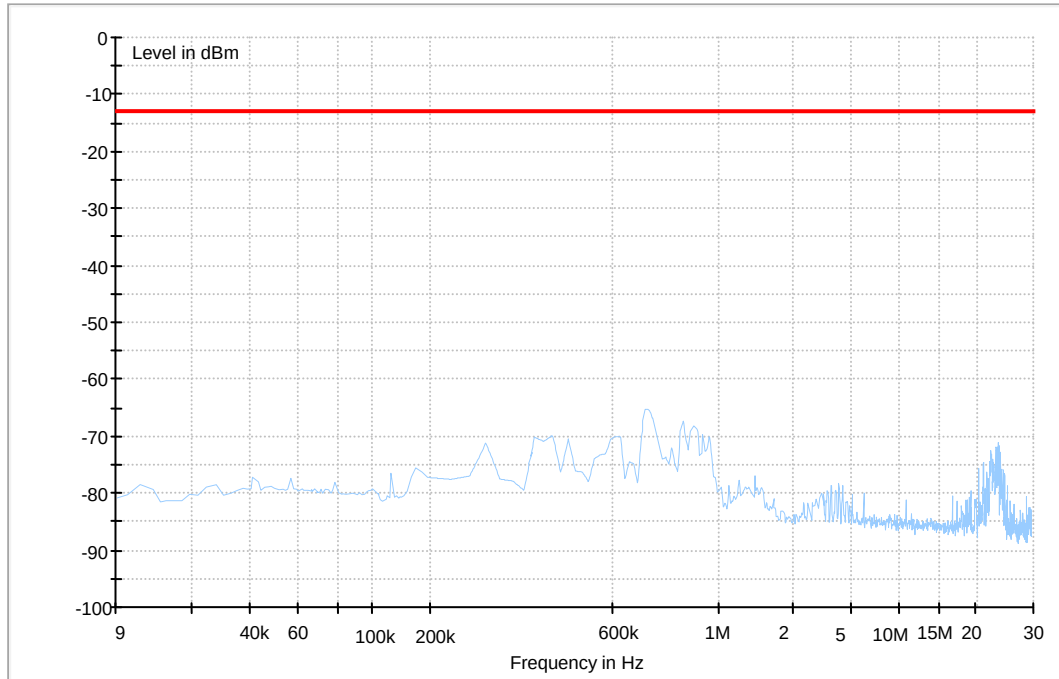
## Traffic Mode (18GHz-26.5GHz)





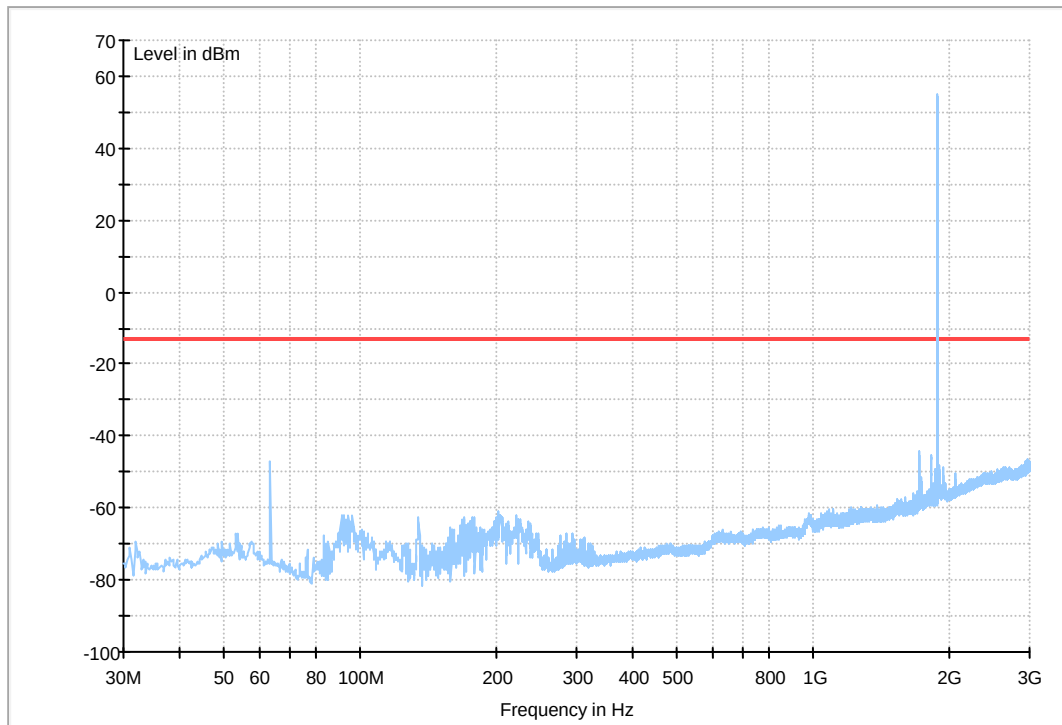
## EDGE 1900

Traffic Mode (9kHz-30MHz)



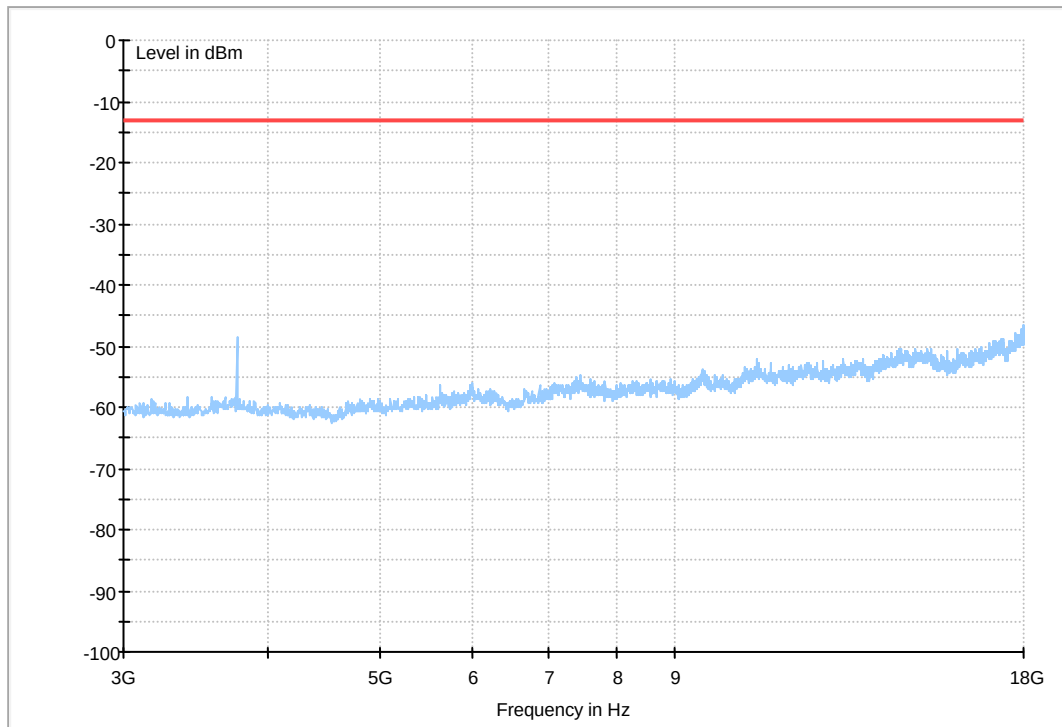


## Traffic Mode (30MHz-3GHz)



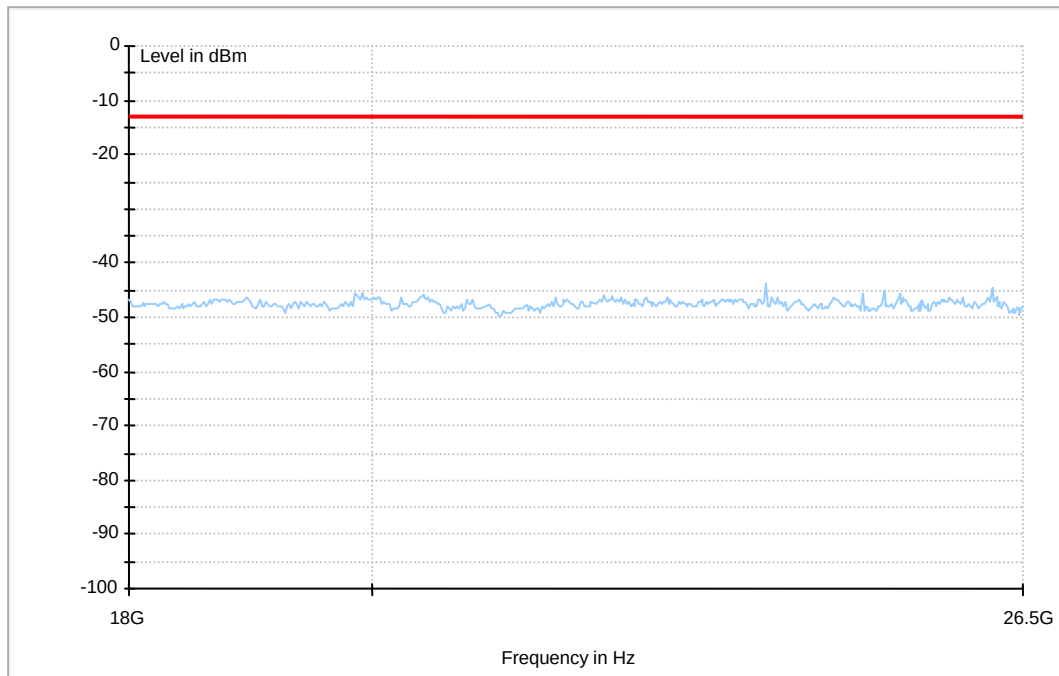


## Traffic Mode (3GHz-18GHz)





## Traffic Mode (18GHz-26.5GHz)





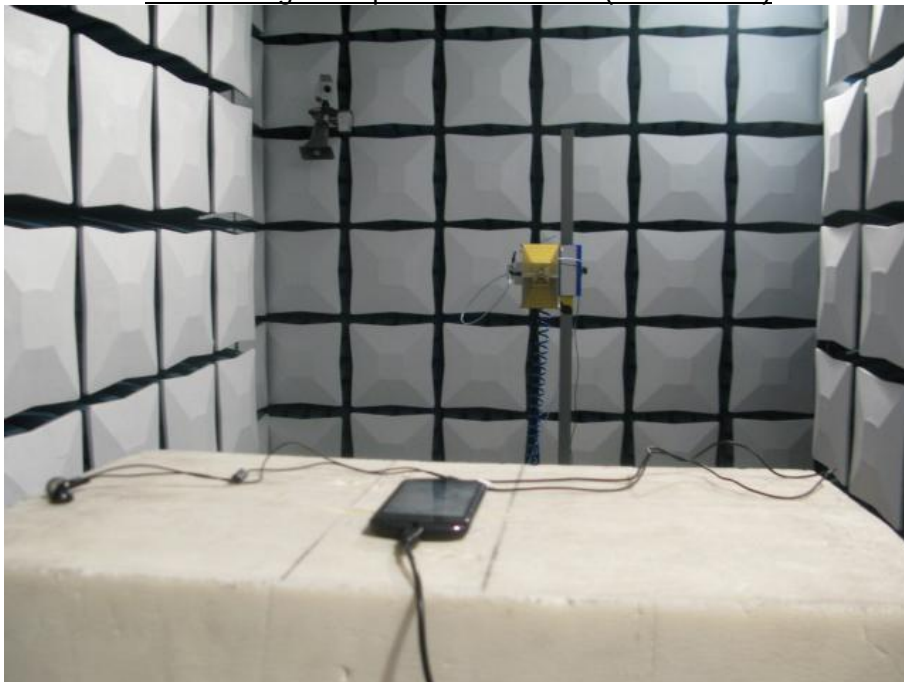
# **Appendix F**

## Photos of Test Setup

## Field Strength of Spurious Emissions



Field Strength of Spurious Emissions (below 3GHz)



Field Strength of Spurious Emissions (3GHz to18GHz)



Field Strength of Spurious Emissions (18GHz to26.5GHz)