



FCC RF Test Report

**Product Name: HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone
with Bluetooth; HUAWEI Ascend G 300; Ascend G 300**

Model Number: HUAWEI U8815,U8815

**Report No: SYBH(Z-RF)007012012-2001
FCC ID: QISU8815**

Reliability Laboratory of Huawei Technologies Co., Ltd.

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

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Notice

1. The laboratory has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS), and accreditation number: L0310.
2. 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.
3. The laboratory has been listed by industry Canada to perform electromagnetic emission measurement. The site recognition number is 6369A-2.
4. The test report is invalid if not marked with "exclusive stamp for the test report".
5. The test report is invalid if not marked with the stamps or the signatures of the persons responsible for performing, revising and approving the test report.
6. The test report is invalid if there is any evidence of erasure and/or falsification.
7. If there is any dissidence for the test report, please file objection to the test centre within 15 days from the date of receiving the test report.
8. Normally, the test report is only responsible for the samples that have undergone the test.
9. Context of the test report cannot be used partially or in full for publicity and/or promotional purposes without previous written approval of the laboratory.



Applicant: Huawei Technologies Co., Ltd.
Address: Huawei Base, Bantian, Longgang District, Shenzhen
518129, P.R. China
Date of Receipt Test Item: Jan.12, 2012
Start Date of Test: Jan.13, 2012
End Date of Test: Jan.18, 2012

Test Result: Pass

Approved by Senior Engineer: Jan.19, 2012 Dai Linjun *Dai Linjun*
Date Name Signature

Reviewed By Jan.19, 2012 Cousy Xu *Cousy XU*
Date Name Signature

Operator Jan.19, 2012 Huang Qiuliang *Huang Qiuliang*
Date Name Signature



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1 General Information

1.1 Applied Standard

Applied Rules: 47 CFR FCC Part 2:2010, Subpart J
47 CFR FCC Part 22:2010, Subpart H
ANSI/TIA 603C:2004

1.2 Test Location

Test Location 1: Reliability Laboratory of Huawei Technologies Co., Ltd.
Address: Huawei Base, Bantian, Longgang District, Shenzhen 518129, P.R.
China

1.3 Test Environment Condition

Ambient Temperature: 20 – 25 °C
Ambient Relative Humidity: 45 – 55 %
Atmospheric Pressure: 101 kPa

2 Summary

Table 1 Summary of results

| Test Case | FCC Part No. | Requirements | Result |
|--|-----------------|---|--------|
| Cellular Band | | | |
| Transmitter Output Power | 2.1046 & 22.913 | ERP not exceed 7 W 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 & 917 | Below -13 dBm/1%*EBW, in 1 MHz range | Pass |
| Spurious Emission at Antenna Terminals | 2.1051 & 2.917 | Below -13 dBm/1 kHz, 9 kHz to 150 kHz Below -13 dBm/10 kHz, 150 kHz to 30 MHz Below -13 dBm/100 kHz, 30 MHz to 10 th harmonics | Pass |
| Field Strength of Spurious Radiation | 2.1053 & 22.917 | Below -13 dBm/100 kHz | Pass |
| Frequency Stability | 2.1055 & 22.355 | Maintained within the tolerances of ± 2.5 ppm | Pass |

3 Product Description

3.1 Production Information

3.1.1 General Description

HUAWEI U8815, U8815 is subscriber equipment in the WCDMA/GSM system. The HSDPA/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 GSM850 and PCS1900 bands test data included in this report. The Mobile Phone implements such functions as RF signal receiving/transmitting, 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.

3.1.2 Board

Table 2 Board Information

| | | |
|---|----------------------|------------------|
| HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth; HUAWEI Ascend G 300; Ascend G 300 | | |
| HUAWEI U8815,U8815 | | |
| Board and Module | | |
| Hardware Version | Software Version | Serial Number |
| HD1U8815M | U8815V100R001C00B867 | F8L01A11C1900211 |

3.1.3 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 |

| | |
|--------------------|---|
| AC/DCAdapter Model | HW-050100A1W |
| Manufacturer | Huawei Technologies Co., Ltd. |
| Input Voltage | ~100-240V 50/60Hz 0.2A |
| Output Voltage | 5V  1A |
| Rated Power | 5W |

| | |
|--------------------|---|
| AC/DCAdapter Model | HW-050100E1W |
| Manufacturer | Huawei Technologies Co., Ltd. |
| Input Voltage | ~100-240V 50/60Hz 0.2A |
| Output Voltage | 5V  1A |
| Rated Power | 5W |



| | |
|--------------------|-------------------------------|
| AC/DCAdapter Model | HW-050100B1W |
| Manufacturer | Huawei Technologies Co., Ltd. |
| 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: HB5N1 Rated capacity: 1350mAh Nominal Voltage: +3.7V Charging Voltage: +4.2V |

| Name | Manufacture | Description |
|---------------------|-------------------------------|---|
| Rechargeable Li-ion | Huawei Technologies Co., Ltd. | Battery Model: HB5N1H Rated capacity: 1500mAh Nominal Voltage: +3.7V Charging Voltage: +4.2V |

4 Test Description

4.1 Supported Frequency Range

| Characteristics | Description |
|-----------------|-----------------|
| Downlink | 869 to 894 MHz; |
| Uplink | 824 to 849 MHz |

4.2 Transmitter / Receiver Characteristics

| Characteristics | Description |
|------------------------------------|---|
| System Type | GSM |
| TX Output Power (per Antenna Port) | GSM system: 33dBm; |
| Channel Spacing(s) / Bandwidth(s) | GSM system: 200 kHz |
| Designation of Emissions | GSM system: 247KGXW (GMSK modulation), 246KG7W (8PSK modulation) |

4.3 Antenna Gain

| | |
|-------------------|-------|
| Antenna Gain(dBi) | -6.5 |
| Antenna Gain(dBd) | -8.65 |

4.4 Power Supply

| Specification | Description |
|-------------------------|---|
| Power Supply Type | Directly Connected to DC /AC Power Supply |
| Input to EUT (DC power) | DC Voltage Nominal: \approx 3.7 V DC Voltage Range: \approx 3.6 V to 4.2 V |
| Input to EUT (AC power) | AC Voltage Nominal: ~ 230 V (50/60 Hz) AC Voltage Range: ~100-240V |

5 General Test Conditions / Configurations

5.1 RF Channels under Test

| Test Mode | TX / RX | RF Channel | | |
|-----------|---------|-------------|-------------|-------------|
| | | Bottom (B) | Middle (M) | Top (T) |
| TM1/TM2 | TX | Channel 128 | Channel 192 | Channel 251 |
| | | 824.2MHz | 837.0MHz | 848.8MHz |
| | RX | Channel 128 | Channel 192 | Channel 251 |
| | | 869.2MHz | 882.0MHz | 893.8MHz |

5.2 Test Modes

| Test Mode | Test Modes Description |
|-----------|---------------------------|
| TM1 | GSM/GPRS, GMSK modulation |
| TM2 | EDGE, 8PSK modulation |

5.3 Test Environments

| Environment Parameter | Selected Values During Tests | |
|-----------------------|------------------------------|---------|
| Relative Humidity | Ambient | |
| Temperature | TN | Ambient |
| Voltage | VL | 3.6V |
| | VN | 3.7V |
| | VH | 4.2V |

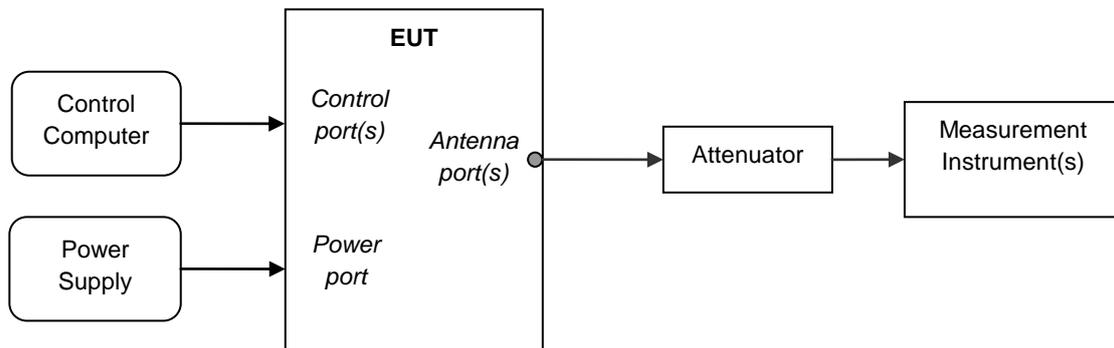
NOTE: VL= lower extreme test voltages
VN= nominal voltage
VH= upper extreme test voltage
TN= normal temperature

5.4 Test Setups

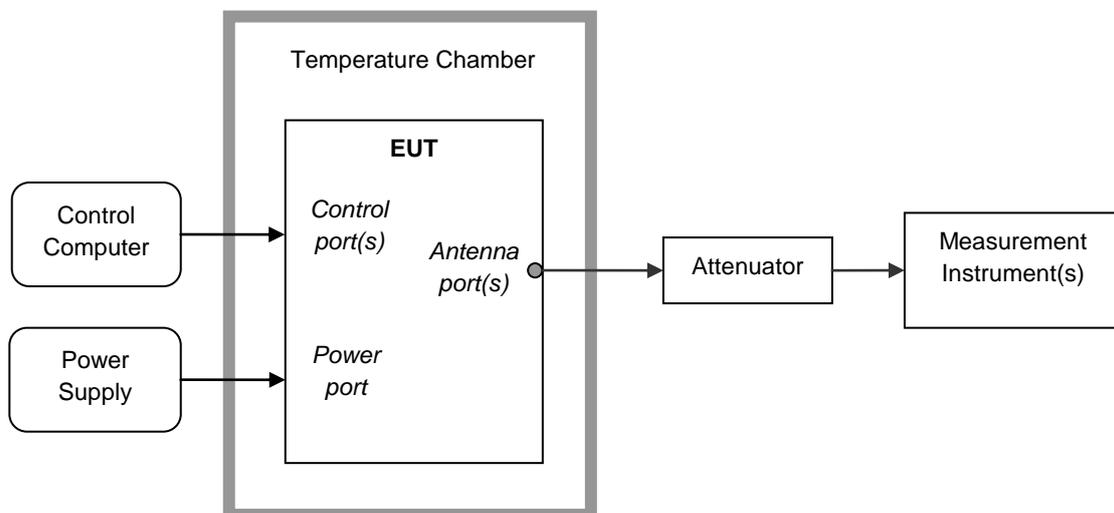
5.4.1 General Test Setup Configurations

| 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



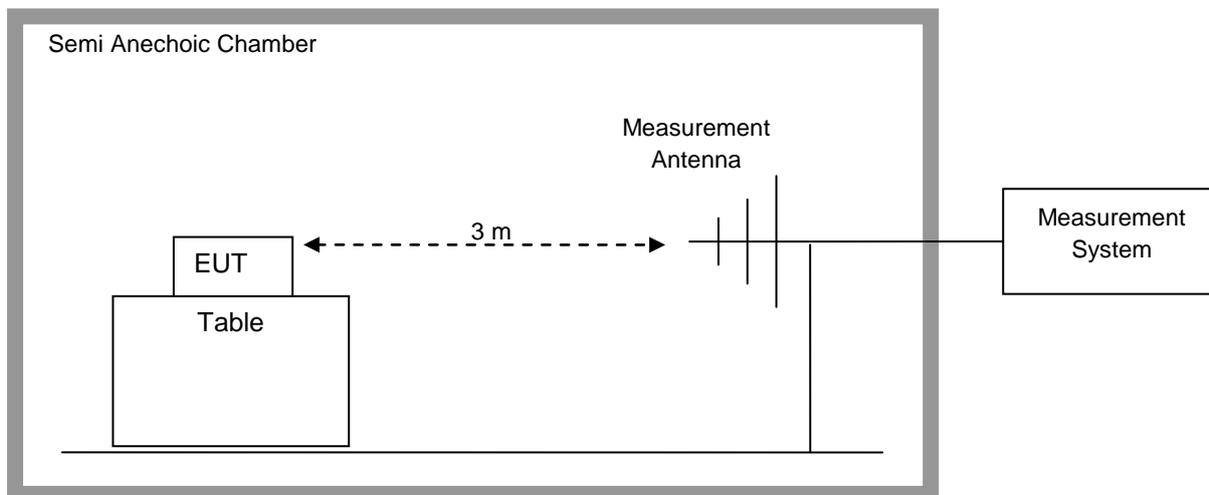
5.4.3 Test Setup 2



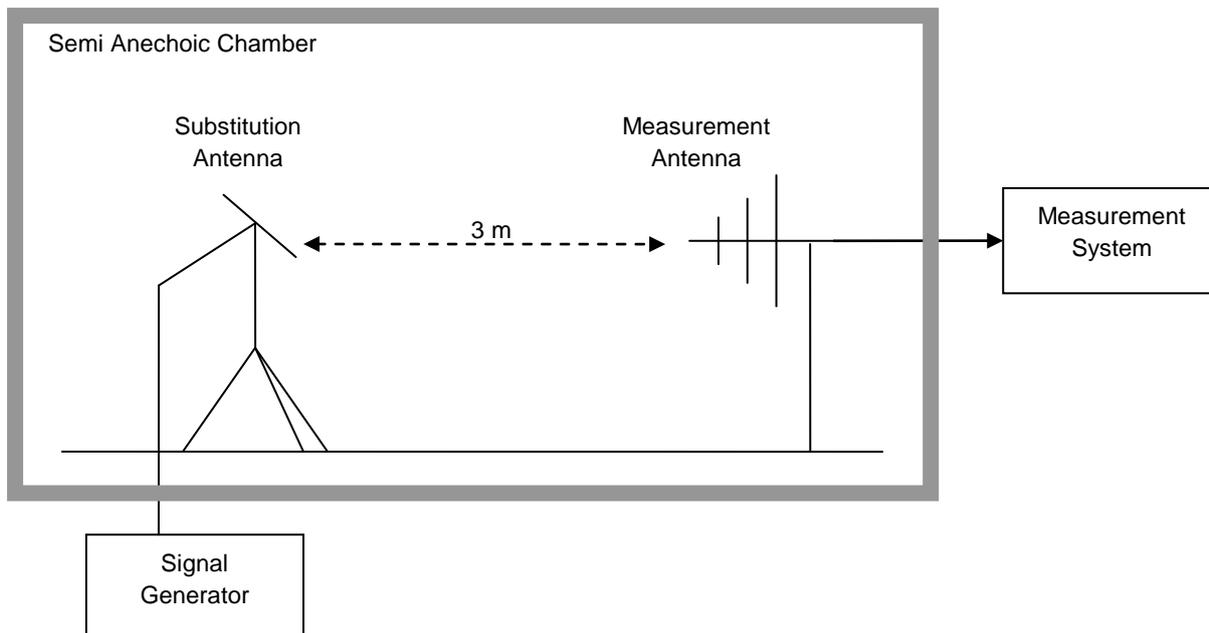
5.4.4 Test Setup 3

NOTE: Effective radiated power (ERP) refers to the radiation power output of the EUT, assuming all emissions are radiated from half-wave dipole antennas.

Step 1: Pre-test



Step 2: Substitution method to verify the maximum ERP



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) | B, M, T |
| | Test Mode | TM1/TM2 |
| Modulation Characteristics | Test Configuration | Ambient Temperature & Rated Voltage |
| | Test Setup | Test Setup 1 |
| | RF Channels (TX) | M |
| | Test Mode | TM1/TM2 |
| Occupied Bandwidth | Test Configuration | Ambient Temperature & Rated Voltage |
| | Test Setup | Test Setup 1 |
| | Detector | PK |
| | RF Channels (TX) | B, M, T |
| | Test Mode | TM1/TM2 |
| Band Edges Compliance | Test Configuration | Ambient Temperature & Rated Voltage |
| | Test Setup | Test Setup 1 |
| | Detector | RMS |
| | RF Channels (TX) | B, T |
| | Test Mode | TM1/TM2 |
| Spurious Emission at Antenna Terminals | Test Configuration | Ambient Temperature & Rated Voltage |
| | Test Setup | Test Setup 1 |
| | Detector | PK |
| | RF Channels (TX) | B, M, T |
| | Test Mode | TM1/TM2 |
| 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 |
| Frequency Stability | Test Configuration | (1) -30 °C to +50 °C with step 10 °C at Rated Voltage; (2) 85%, 100% and 115% of Rated Voltage at Ambient Temperature. |
| | Test Setup | Test Setup 2 |



| Test Case | Test Conditions | |
|-----------|------------------|---------|
| | RF Channels (TX) | M |
| | Test Mode | TM1/TM2 |

6 Main Test Instruments

Table 3 Main Test Equipments

| Equipment Description | Manufacturer | Model | Serial Number | Calibrated until |
|--------------------------------------|--------------|-------------------------|---------------|------------------|
| Power supply | KEITHLEY | 2303 | 1288003 | Sep.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 | Apr.20,2012 |
| Signal Analyzer | R&S | FSQ31 | 200021 | Sep.27,2012 |
| Temperature Chamber | WEISS | WKL64 | 24600294 | Jan.03,2013 |
| Signal generator | Agilent | E8257D | MY49281095 | Jul.9.2012 |
| Test receiver | R&S | ESU26 | 100150 | May.29.2012 |
| Tunable Dipole | Schwarzbeck | D69250-UHAP/D69250-VHAP | 919/1009 | Jan.29.2012 |
| Tunable Dipole | Schwarzbeck | D69250-UHAP/D69250-VHAP | 979/917 | Jan.29.2012 |
| Horn Antenna | R & S | HF906 | 100683 | May.15, 2012 |
| Horn Antenna | R & S | HF906 | 100684 | Jul.01, 2012 |
| Broadband Antenna | Schwarzbeck | VULB 9163 | 9163-357 | May.15, 2012 |
| Broadband Antenna | Schwarzbeck | VULB 9163 | 9163-356 | May.15, 2012 |

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 Field Strength of Spurious Radiation | Appendix H |

NOTE: The Appendix H only photos of Field Strength of Spurious Radiation, no test data.

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) 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 &Part22.913



Conducted Power of Transmitter

Table 1 Measurement Results

| TEST CONDITIONS | RF Output Power (Conducted) | | | | | |
|---------------------|-----------------------------|-------|---------------|-------|---------------|-------|
| | Channel128(B) | | Channel192(M) | | Channel251(T) | |
| | 824.2MHz | | 837.0MHz | | 848.8MHz | |
| | dBm | | dBm | | dBm | |
| T_{nom} / V_{nom} | Measured | Limit | Measured | Limit | Measured | Limit |
| TM1 | 32.31 | 38.50 | 32.43 | 38.50 | 32.32 | 38.50 |
| TM2 | 26.68 | 38.50 | 26.74 | 38.50 | 26.72 | 38.50 |

Effective Radiated Power of Transmitter (ERP)

Table 2 Substitution Results

| Test Mode | Freq. [MHz] | Meas. Level [dBm] | Substitution Antenna Type | SGP [dBm] | Substitution Gain [dBd] | Cable Loss [dB] | Substitution Level (ERP) [dBm] | FCC limit [dBm] | Result |
|-----------|-------------|-------------------|---------------------------|-----------|-------------------------|-----------------|--------------------------------|-----------------|--------|
| TM1 | 824.2 | 23.66 | Dipole Ant. | 27.03 | -2.75 | 0.6 | 23.68 | 38.5 | Pass |
| TM1 | 837.0 | 23.78 | Dipole Ant. | 27.19 | -2.87 | 0.6 | 23.72 | 38.5 | Pass |
| TM1 | 848.8 | 23.67 | Dipole Ant. | 27.14 | -2.85 | 0.6 | 23.69 | 38.5 | Pass |
| TM2 | 824.2 | 18.03 | Dipole Ant. | 21.42 | -2.75 | 0.6 | 18.07 | 38.5 | Pass |
| TM2 | 837.0 | 18.09 | Dipole Ant. | 21.49 | -2.87 | 0.6 | 18.02 | 38.5 | Pass |
| TM2 | 848.8 | 18.07 | Dipole Ant. | 21.48 | -2.85 | 0.6 | 18.03 | 38.5 | Pass |

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

$$ERP [dBm] = SGP [dBm] - Cable Loss [dB] + Gain [dBd]$$

b, SGP=Signal Generator Level

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



Appendix B

Modulation Characteristics

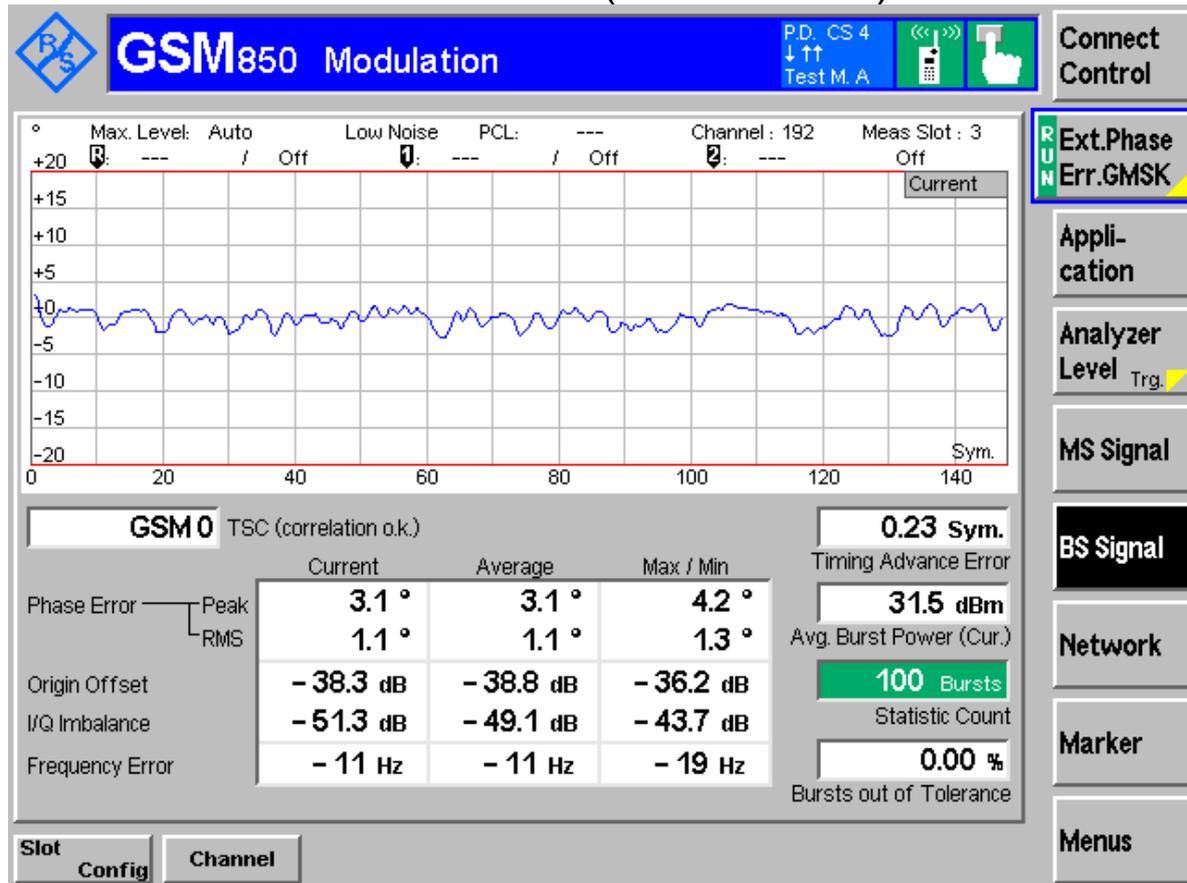
According to FCC Part 2.1047 & Part22 Subpart H



1 Test Plot

1.1 Test Mode = TM 1

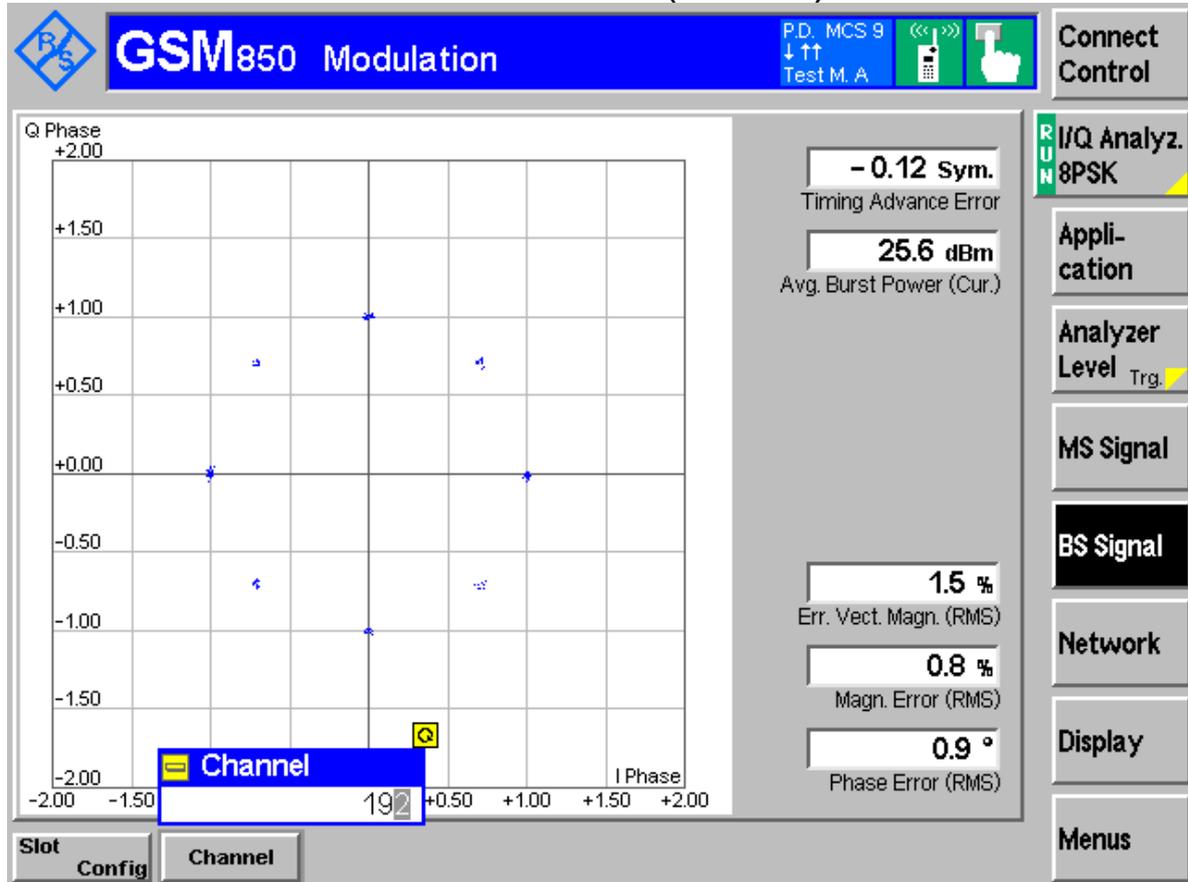
Channel 192 (GPRS/GSM)





1.2 Test Mode = TM 2

Channel 192 (EDGE)



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



Appendix C

Occupied Bandwidth

According to FCC Part 2.1049 & Part 22 Subpart H



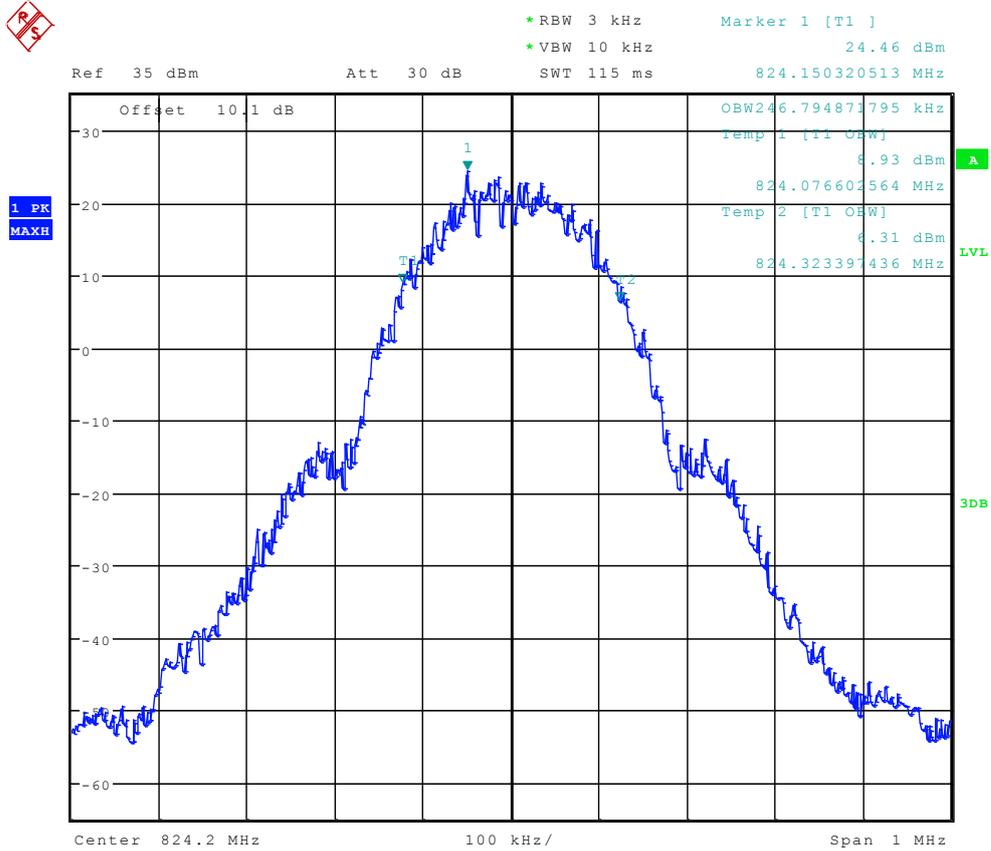
Result Table

Table 1 Measurement Results

| Test Mode | RF Channel | Occupied Bandwidth [kHz] | Verdict |
|-----------|------------|--------------------------|---------|
| TM1 | 128 | 246.79 | Pass |
| | 192 | 245.19 | Pass |
| | 251 | 245.19 | Pass |
| TM2 | 128 | 243.59 | Pass |
| | 192 | 243.59 | Pass |
| | 251 | 245.19 | Pass |



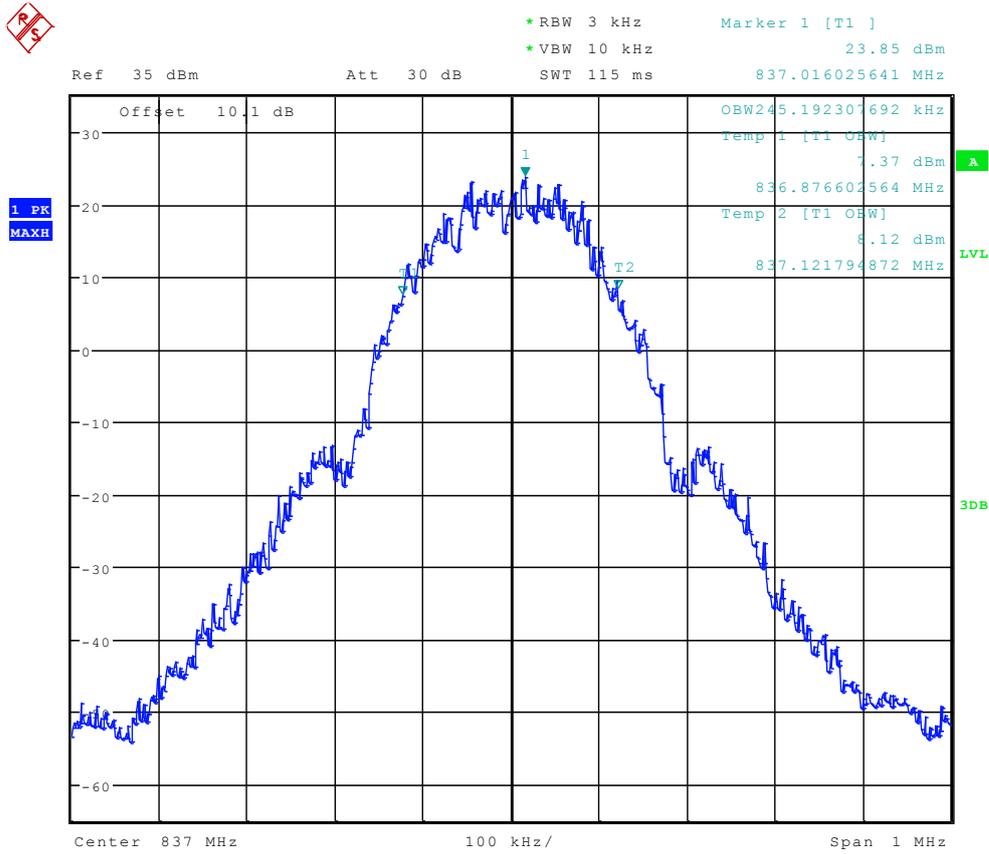
Channel 128 (TM1:GPRS/GSM)



Date: 17.JAN.2012 20:19:29



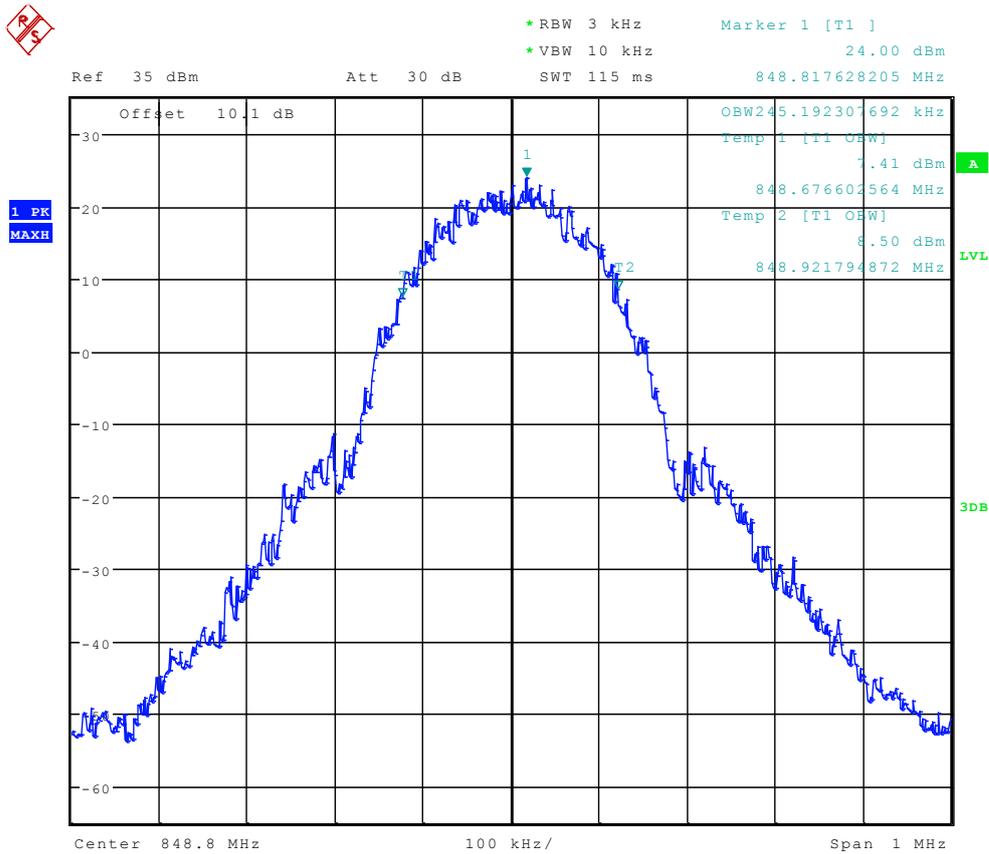
Channel 192 (TM1:GPRS/GSM)



Date: 17.JAN.2012 20:19:43



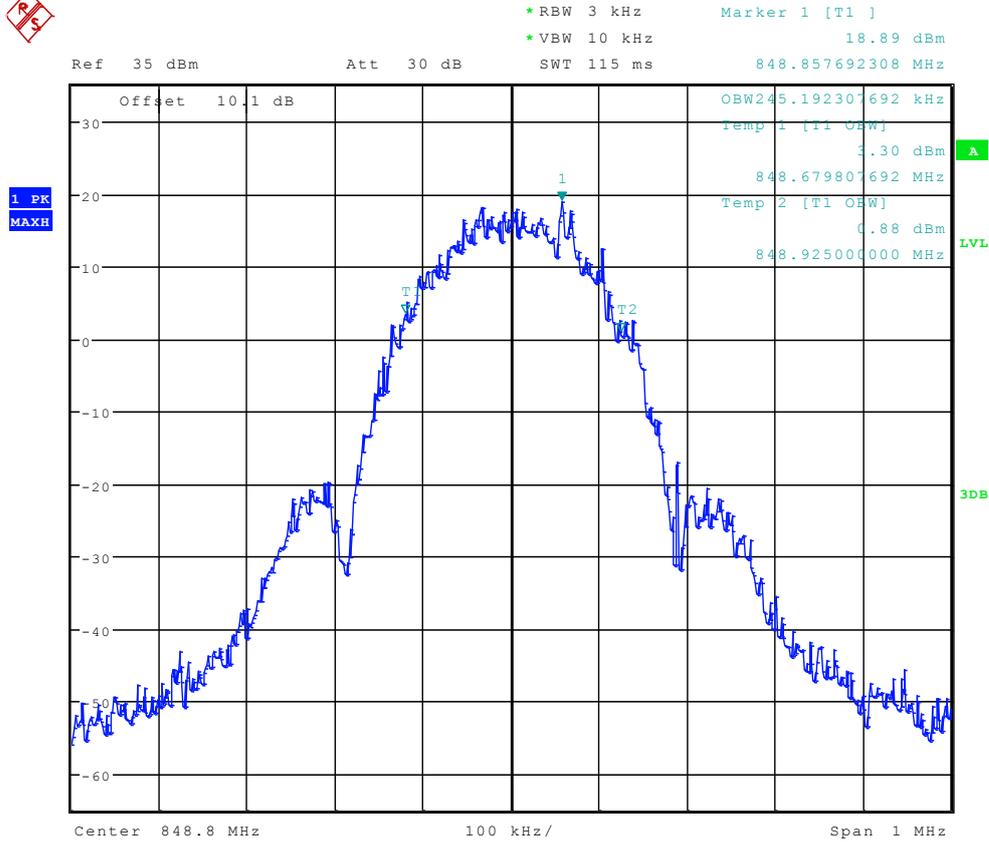
Channel 251 (TM1:GPRS/GSM)



Date: 17.JAN.2012 20:19:57



Channel 251 (TM2:EDGE)



Date: 17.JAN.2012 20:26:39

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



AppendixD

Band Edges Compliance

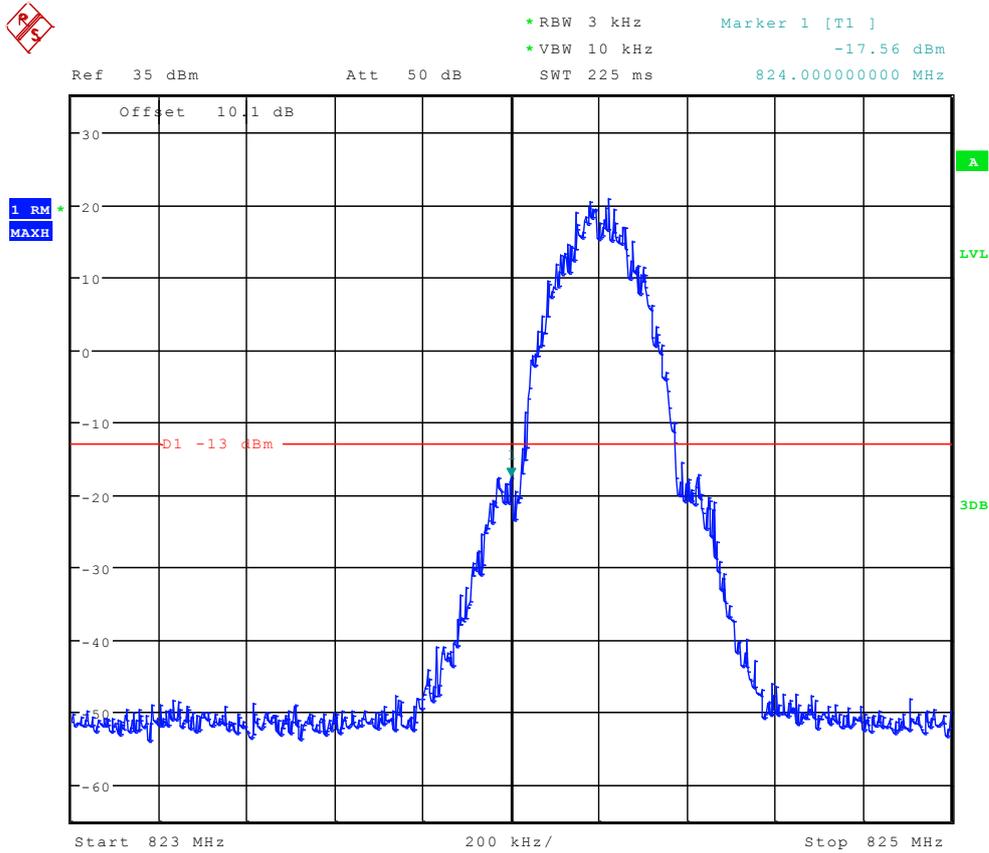
According to FCC Part 2.1051 & Part22 Subpart H



TM1:GPRS/GSM

Left Edge

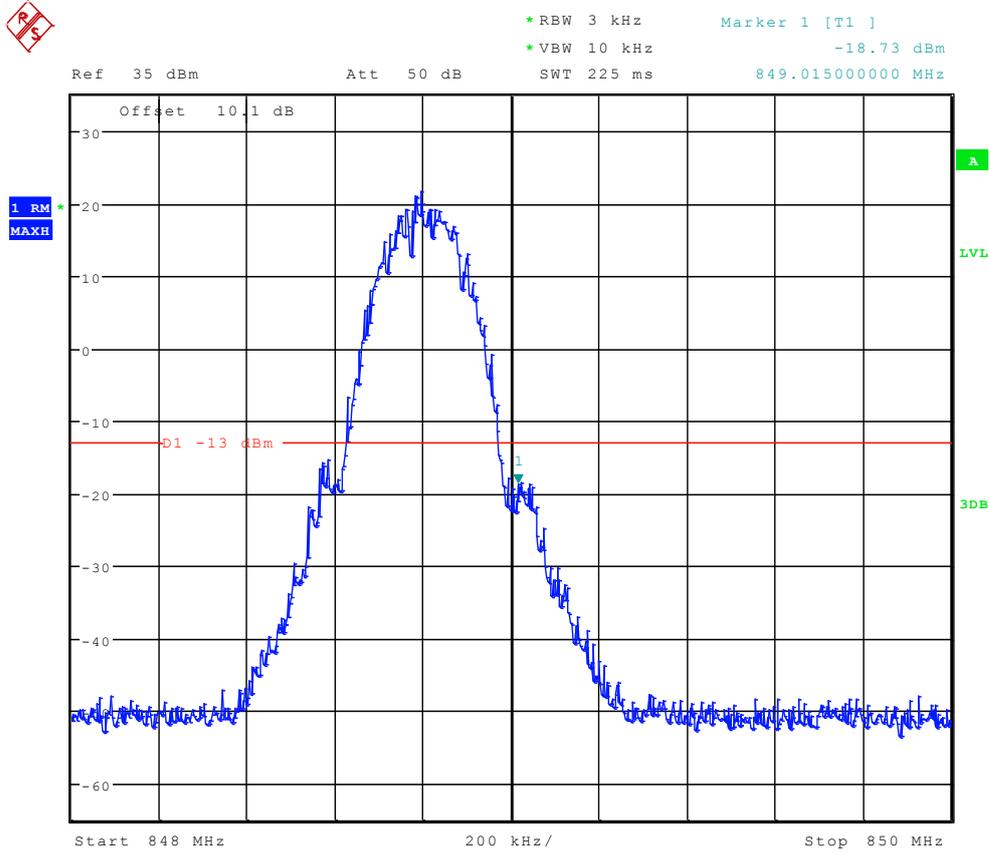
Channel 128



Date: 17.JAN.2012 20:23:16



Right Edge Channel 251



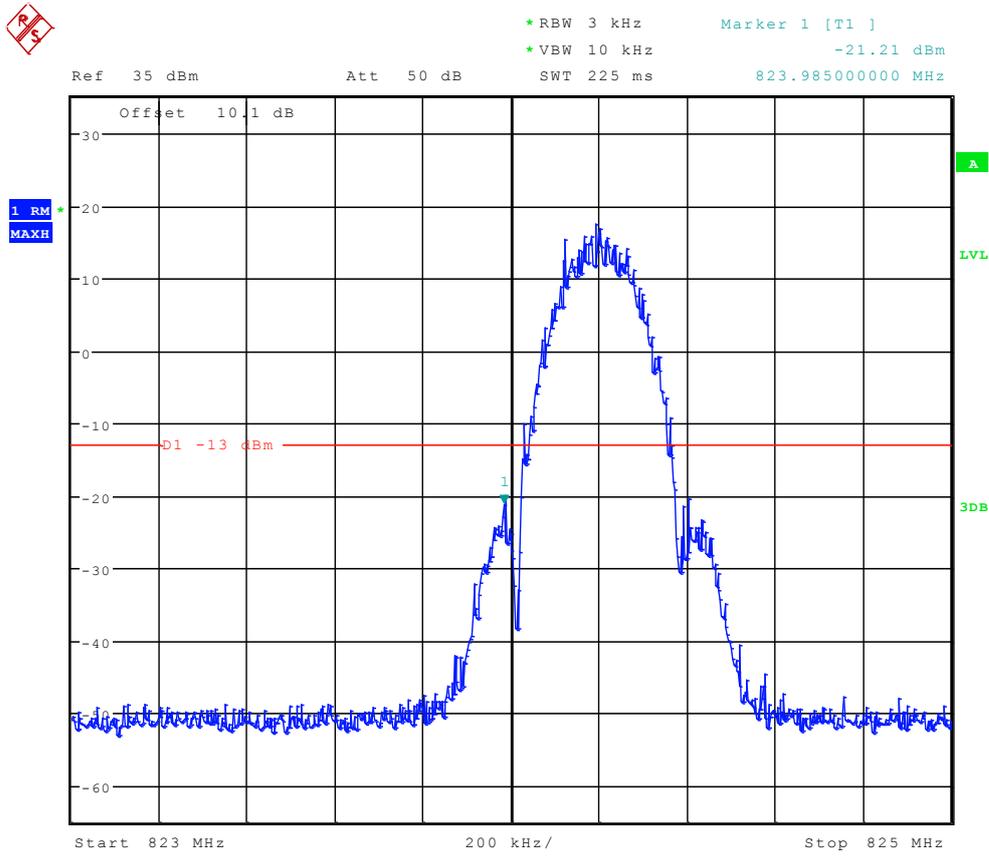
Date: 17.JAN.2012 20:23:39



TM2:EDGE

Left Edge

Channel 128



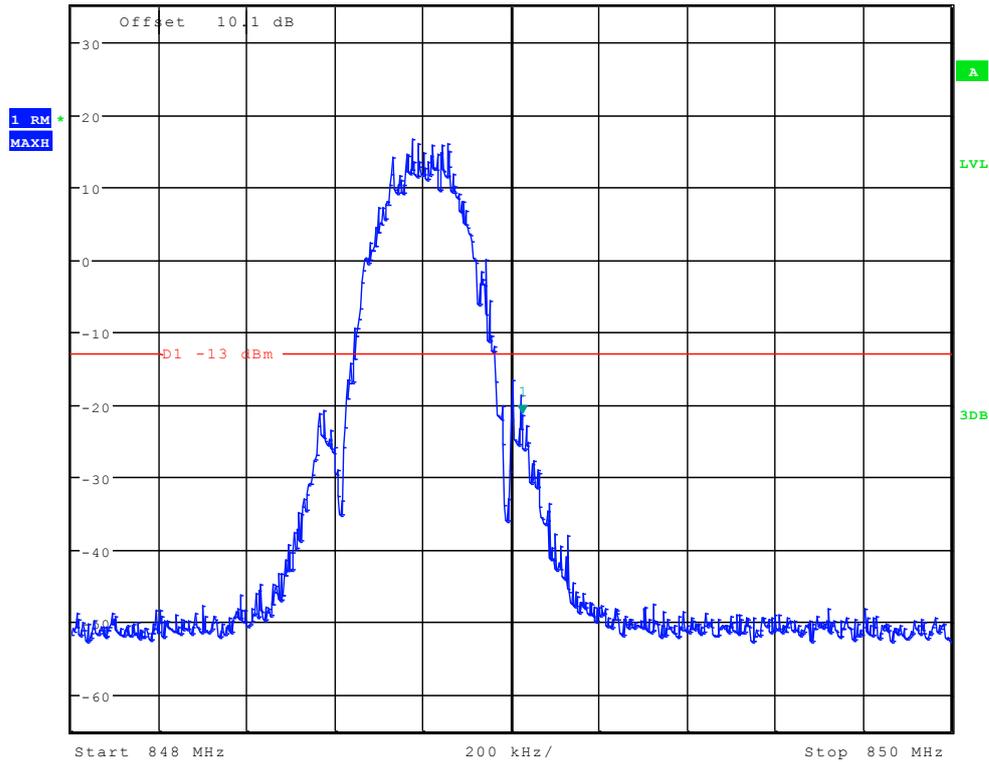
Date: 17.JAN.2012 20:25:31



Right Edge Channel 251



Ref 35 dBm Att 50 dB SWT 225 ms Marker 1 [T1] 849.02500000 MHz
 * RBW 3 kHz -21.39 dBm
 * VBW 10 kHz



Date: 17.JAN.2012 20:25:57

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



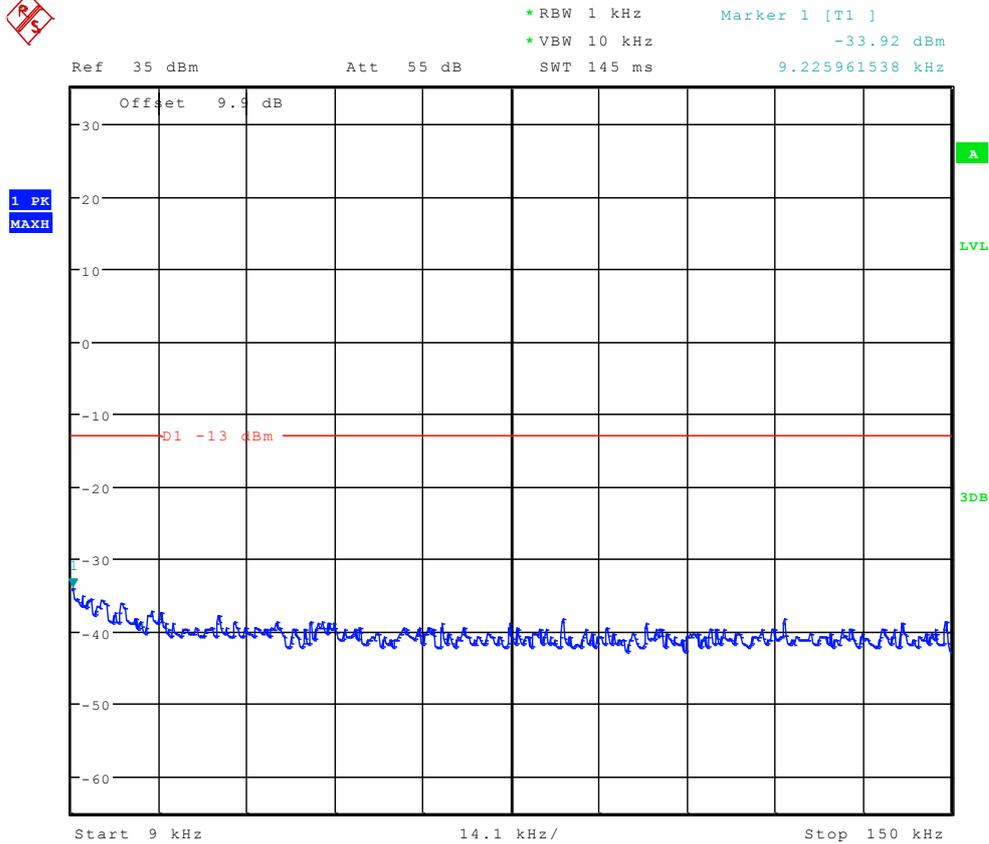
Appendix E

Spurious Emission at Antenna Terminal

According to FCC Part 2.1051 & Part22 Subpart H



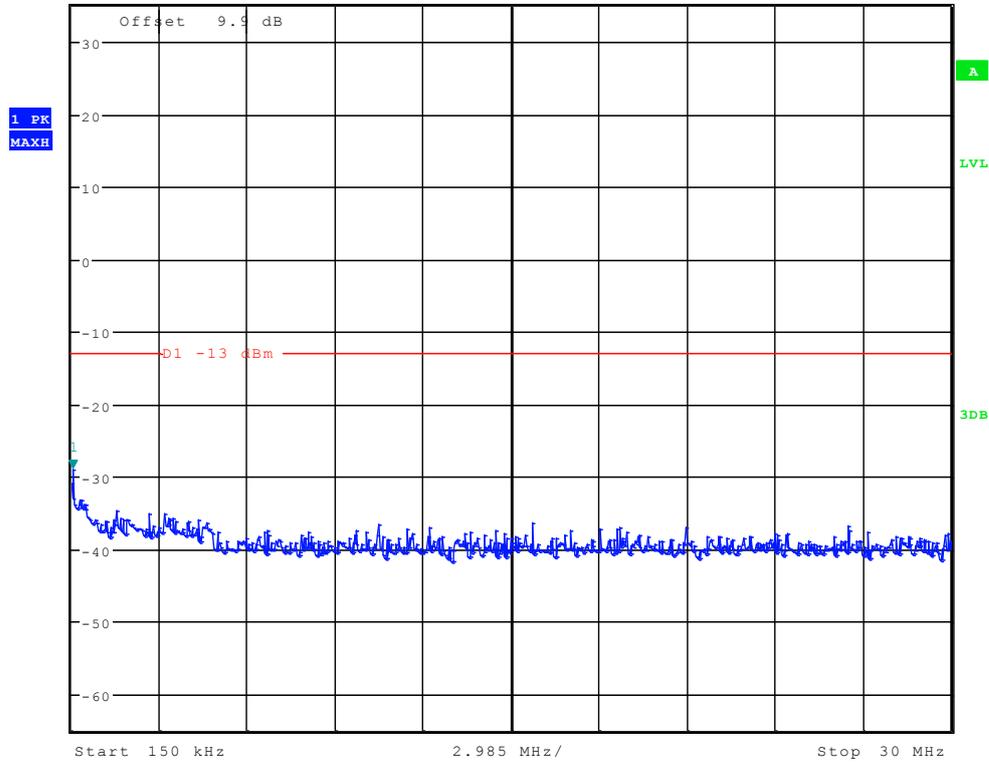
TM1:GPRS/GSM Channel 128



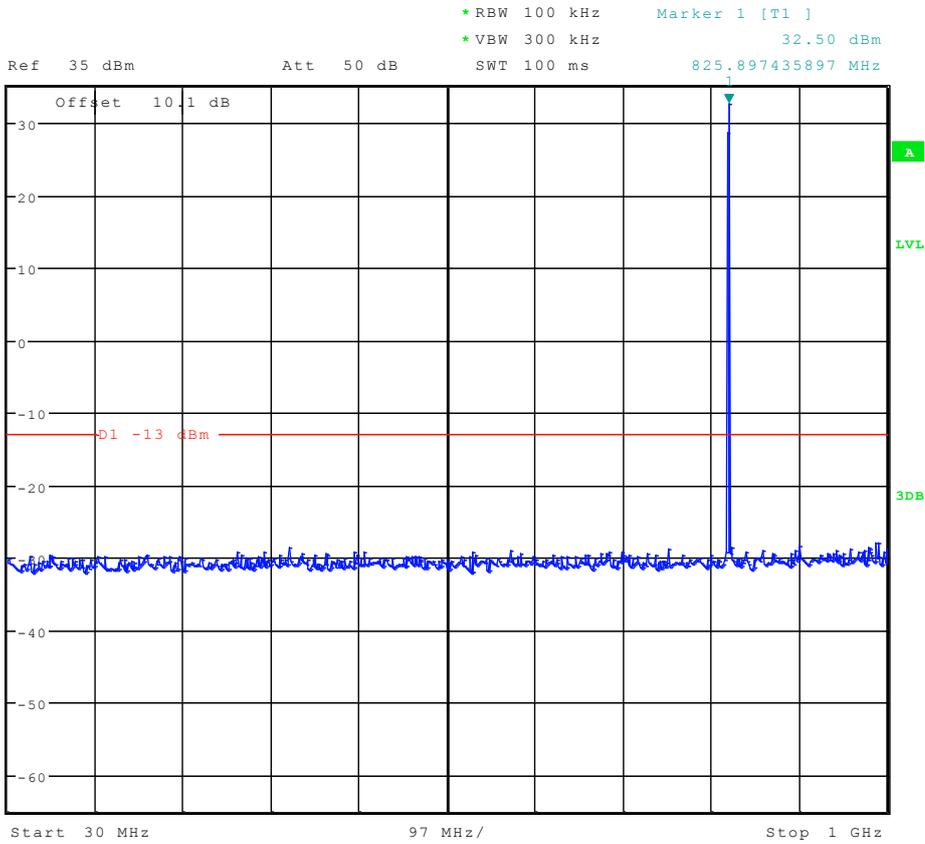
Date: 17.JAN.2012 20:20:21



Ref 35 dBm Att 55 dB SWT 300 ms 197.836538462 kHz
 *RBW 10 kHz Marker 1 [T1]
 *VBW 30 kHz -29.06 dBm



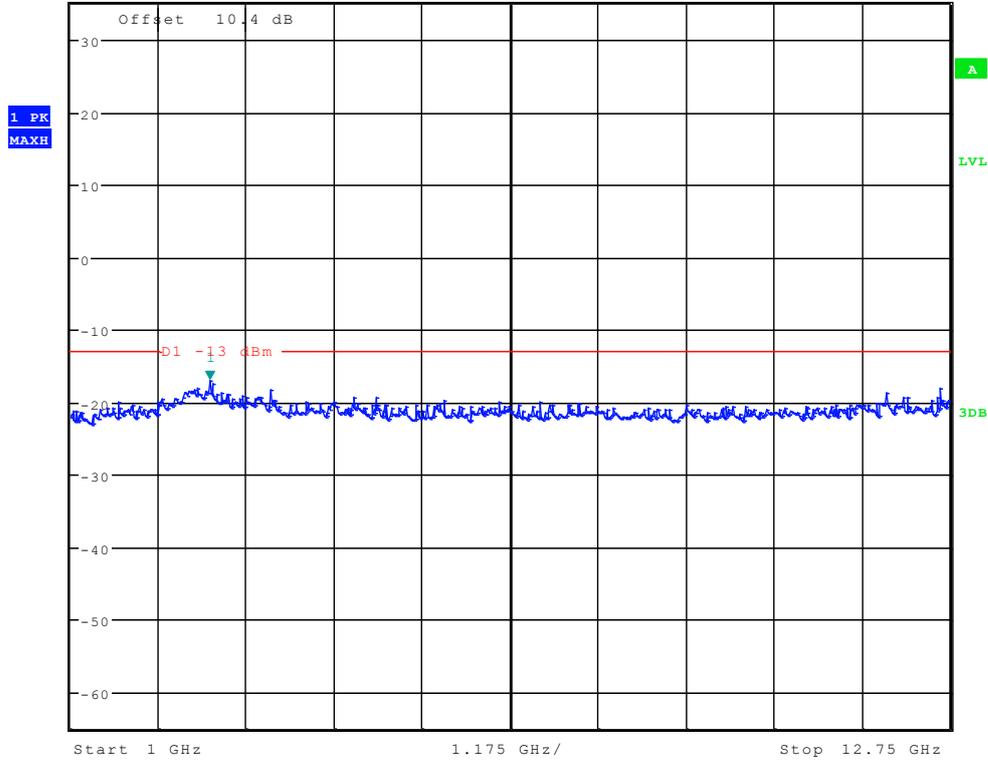
Date: 17.JAN.2012 20:21:04



Date: 17.JAN.2012 20:21:48



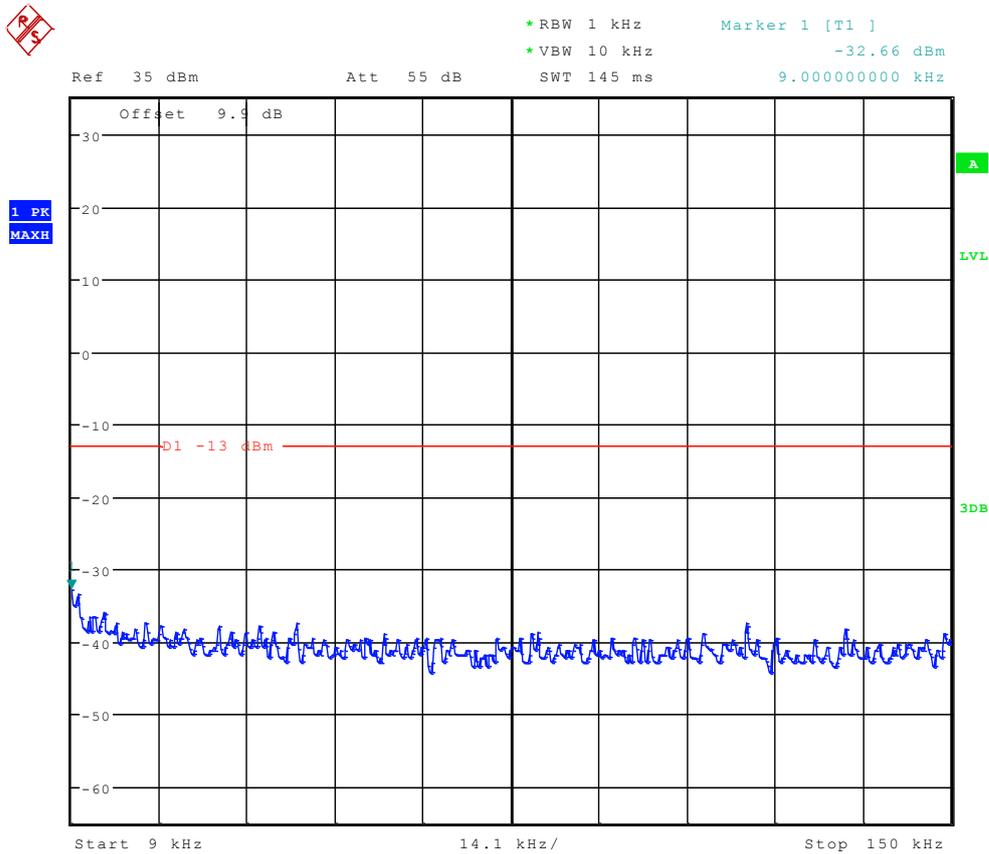
Ref 35 dBm Att 50 dB SWT 70 ms
*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -17.10 dBm
2.864182692 GHz



Date: 17.JAN.2012 20:22:32



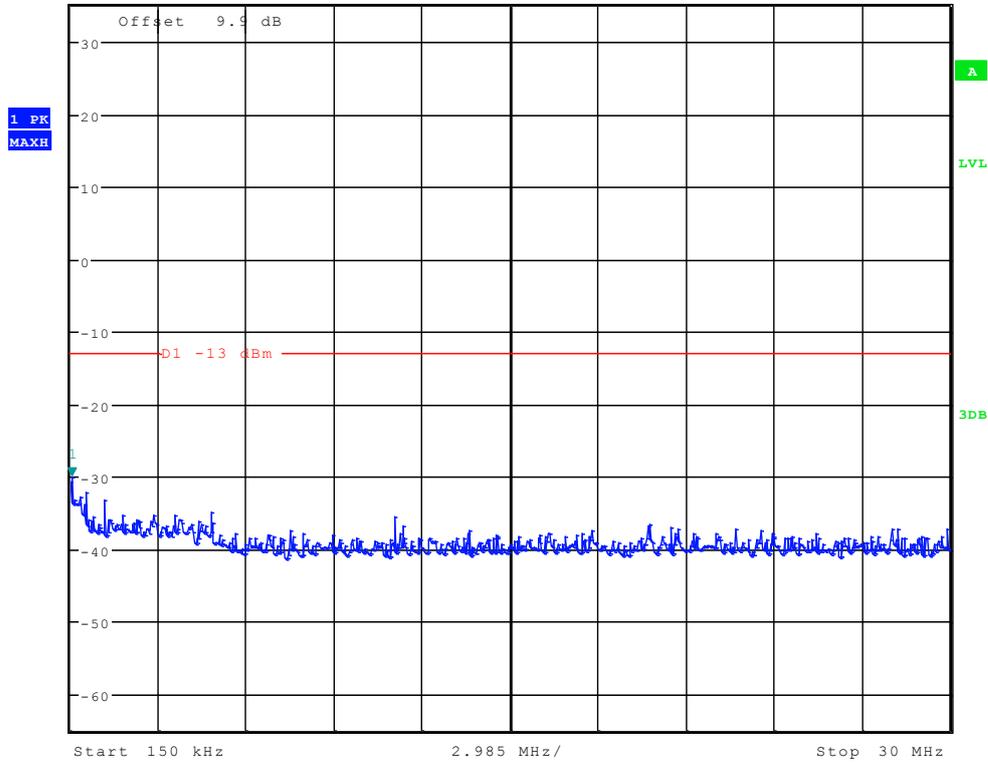
Channel 192



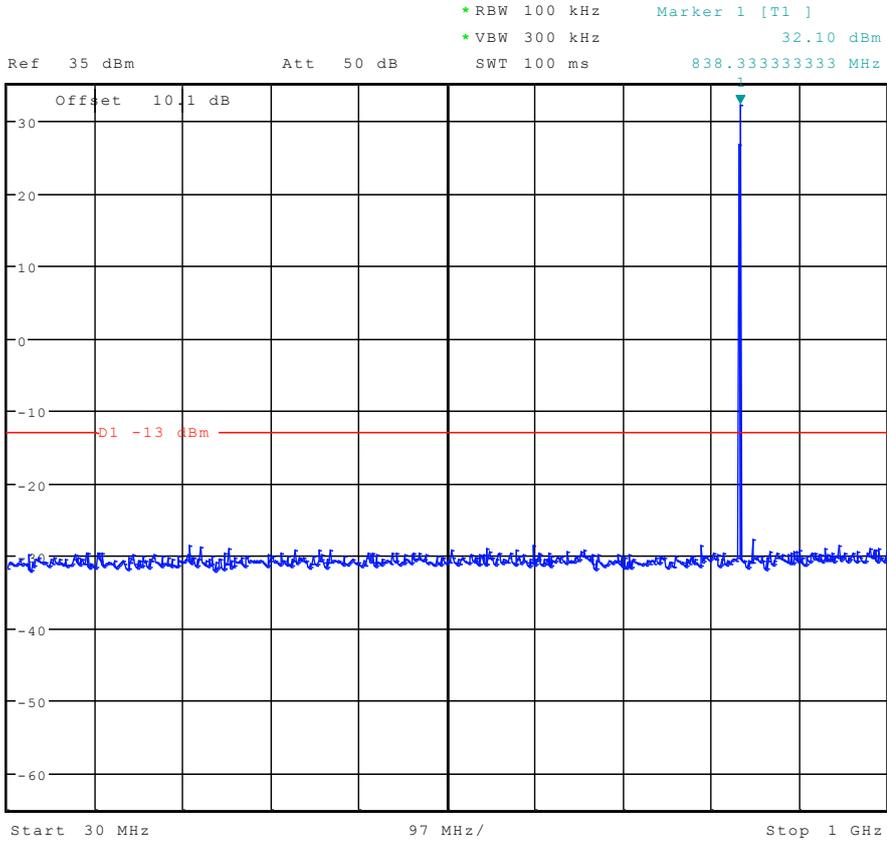
Date: 17.JAN.2012 20:20:35



*RBW 10 kHz Marker 1 [T1]
 *VBW 30 kHz -30.04 dBm
 Ref 35 dBm Att 55 dB SWT 300 ms 197.836538462 kHz



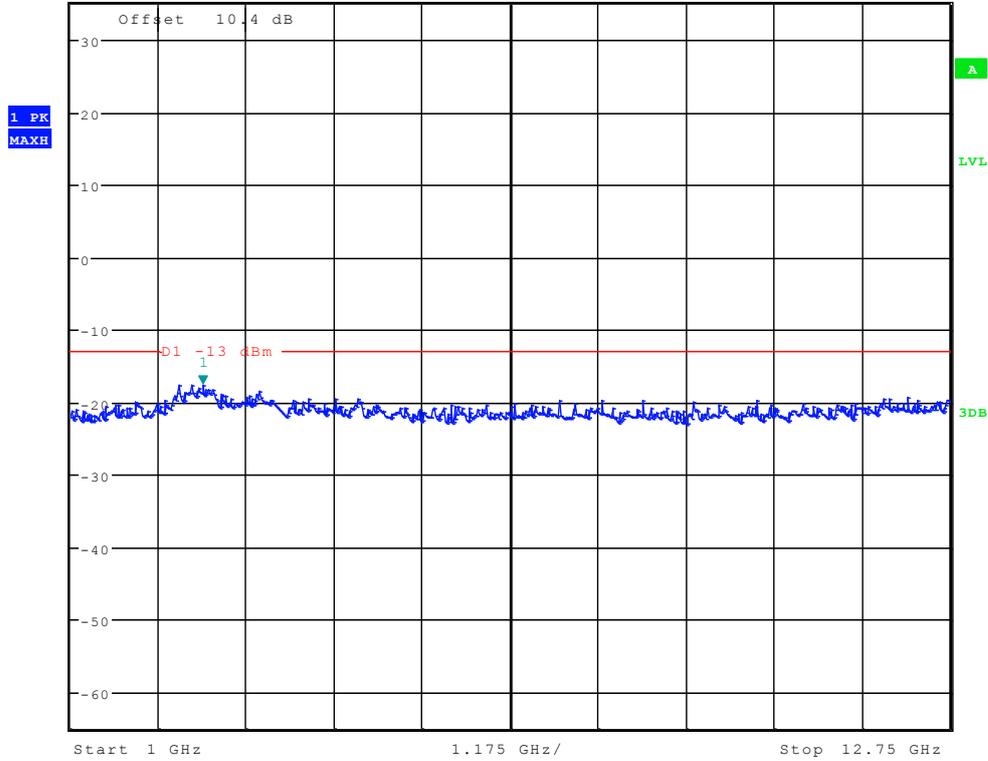
Date: 17.JAN.2012 20:21:19



Date: 17.JAN.2012 20:22:02



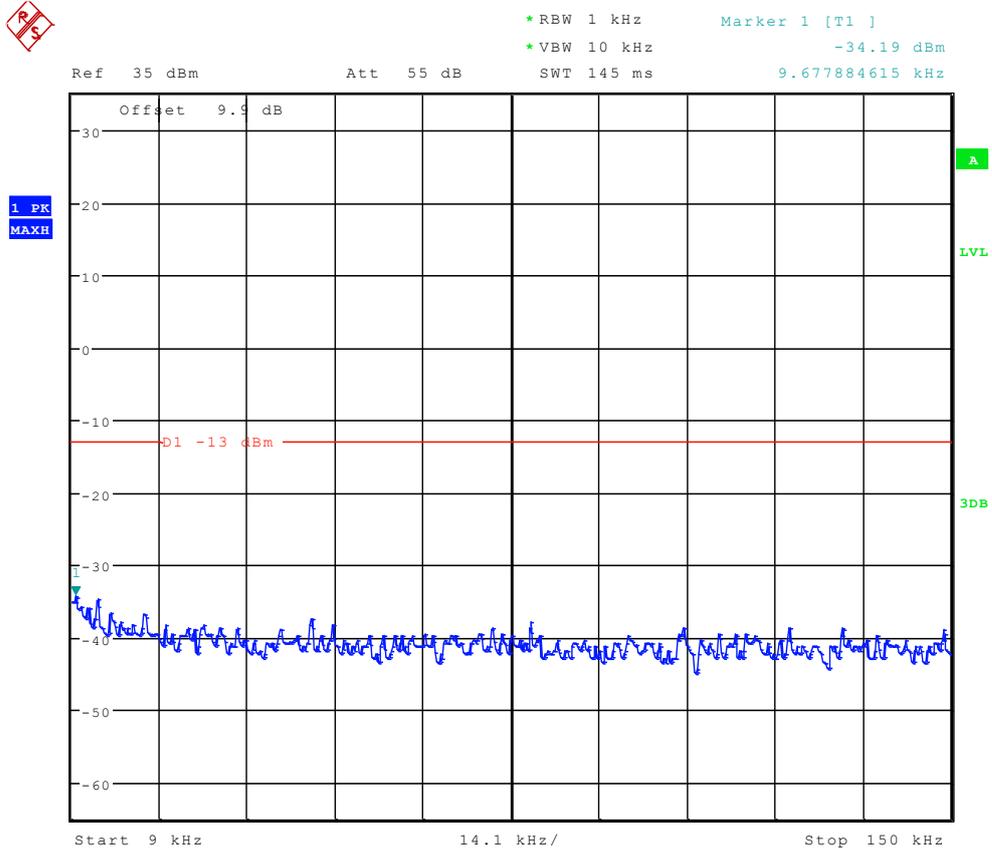
*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -17.56 dBm
Ref 35 dBm Att 50 dB SWT 70 ms 2.770032051 GHz



Date: 17.JAN.2012 20:22:46



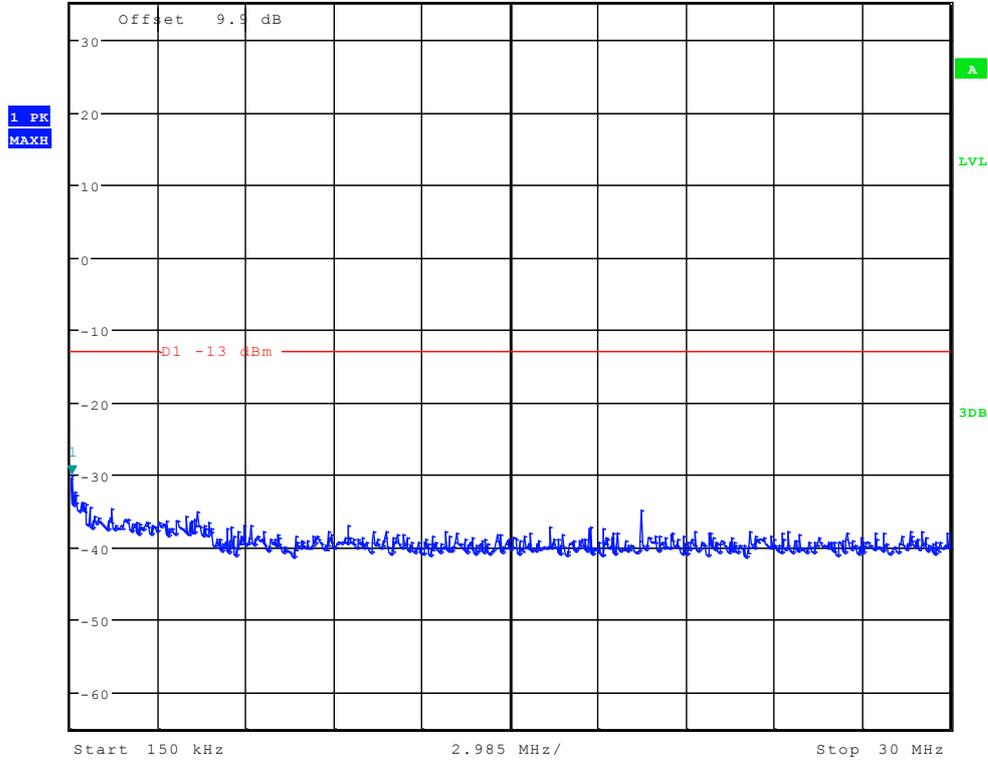
Channel 251



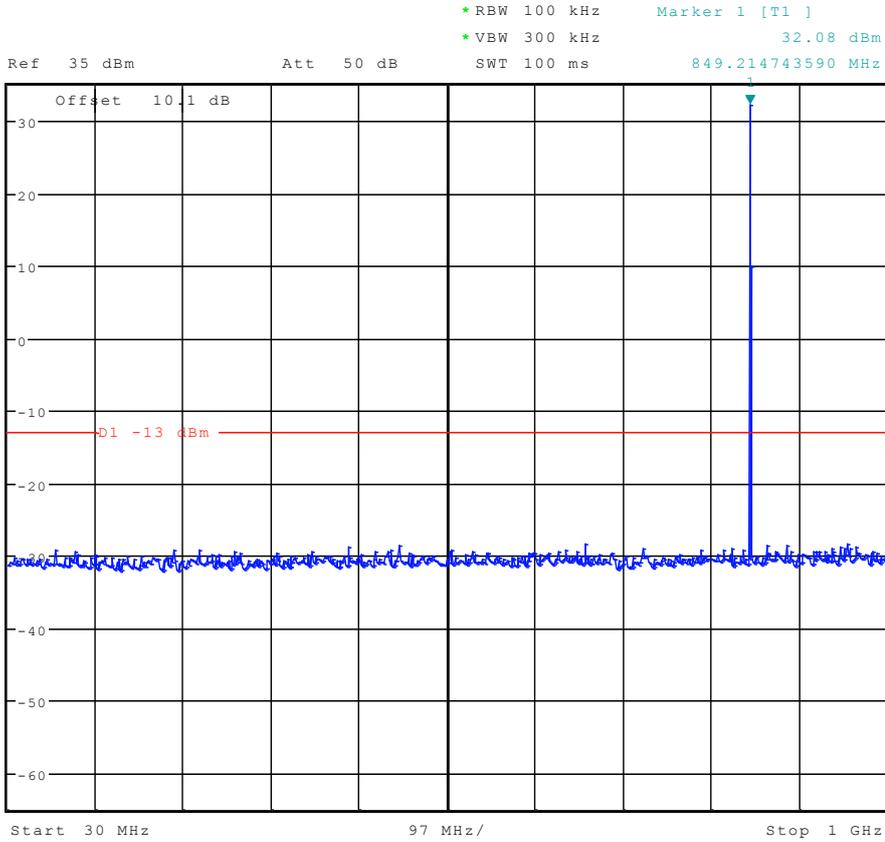
Date: 17.JAN.2012 20:20:49



Ref 35 dBm Att 55 dB SWT 300 ms 197.836538462 kHz
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -30.10 dBm



Date: 17.JAN.2012 20:21:33

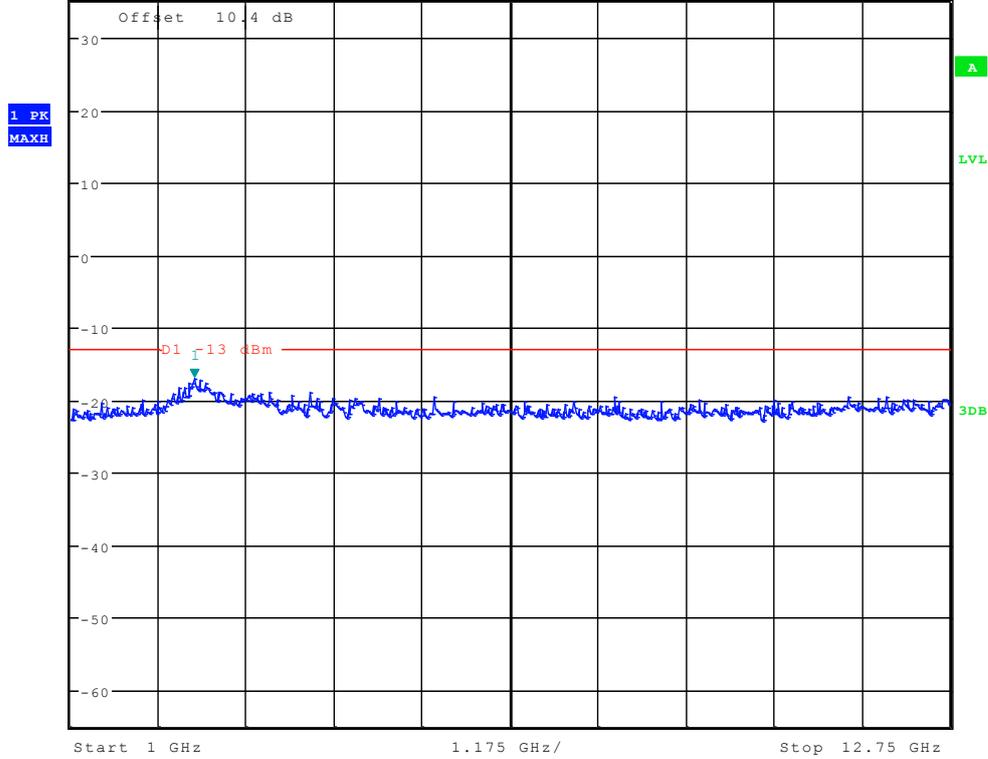


Date: 17.JAN.2012 20:22:17



*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -17.09 dBm
2.657051282 GHz

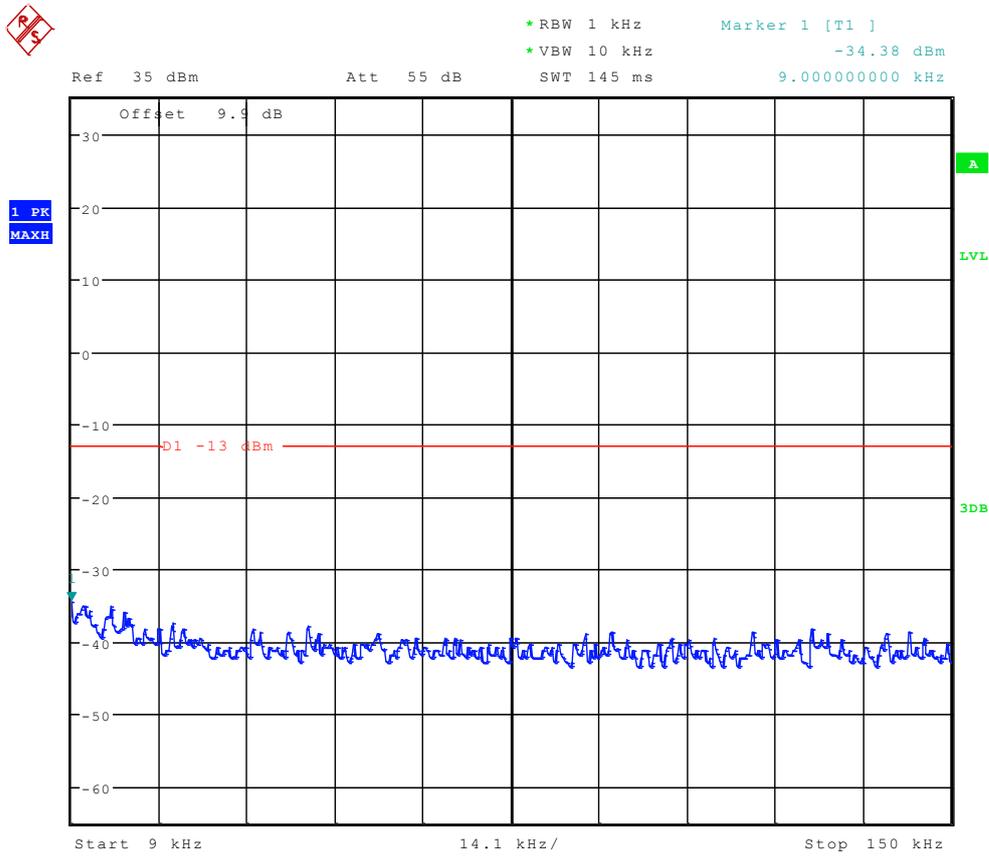
Ref 35 dBm Att 50 dB SWT 70 ms



Date: 17.JAN.2012 20:23:01



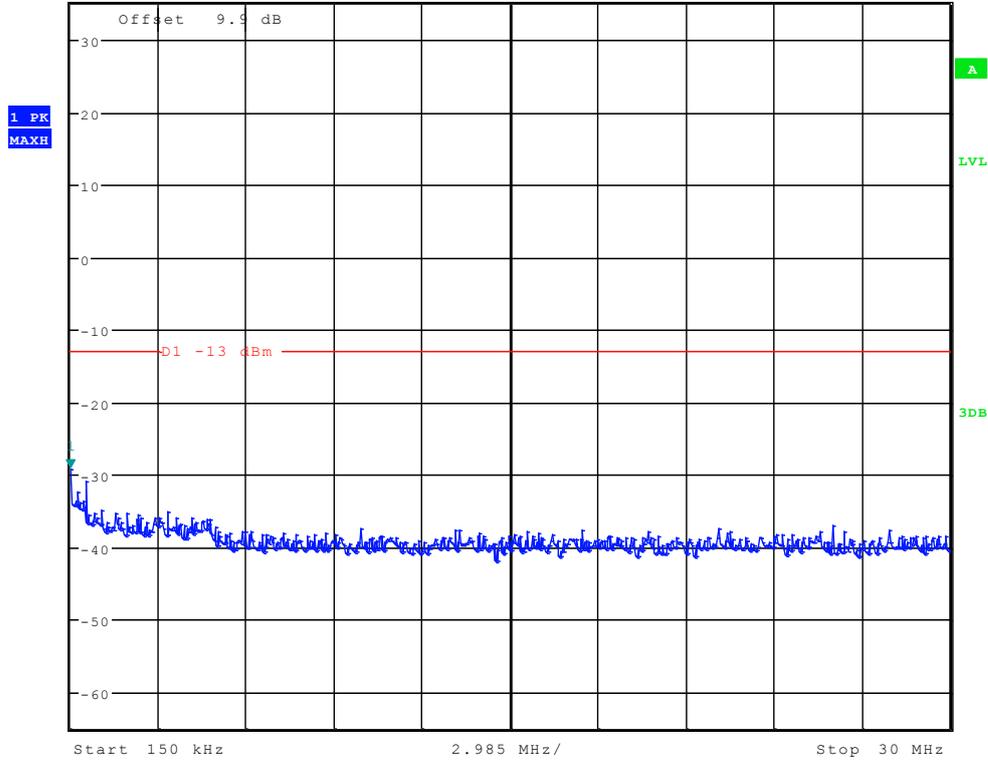
TM2:EDGE Channel 128



Date: 17.JAN.2012 20:26:53



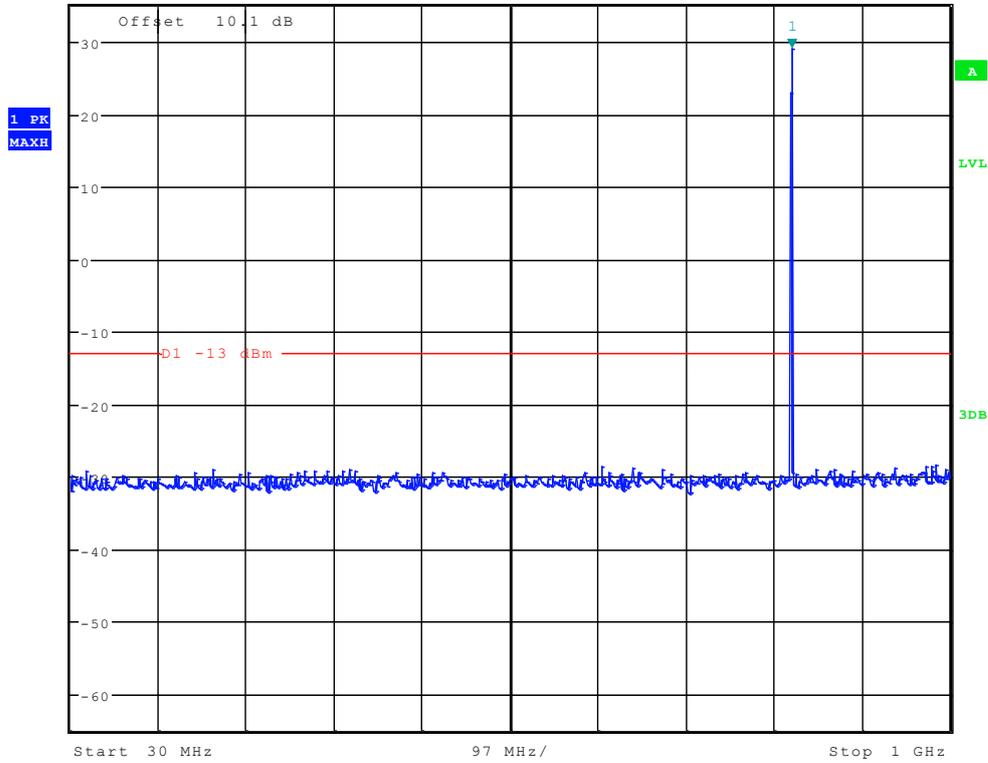
Ref 35 dBm Att 55 dB SWT 300 ms 150.00000000 kHz
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -29.21 dBm



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



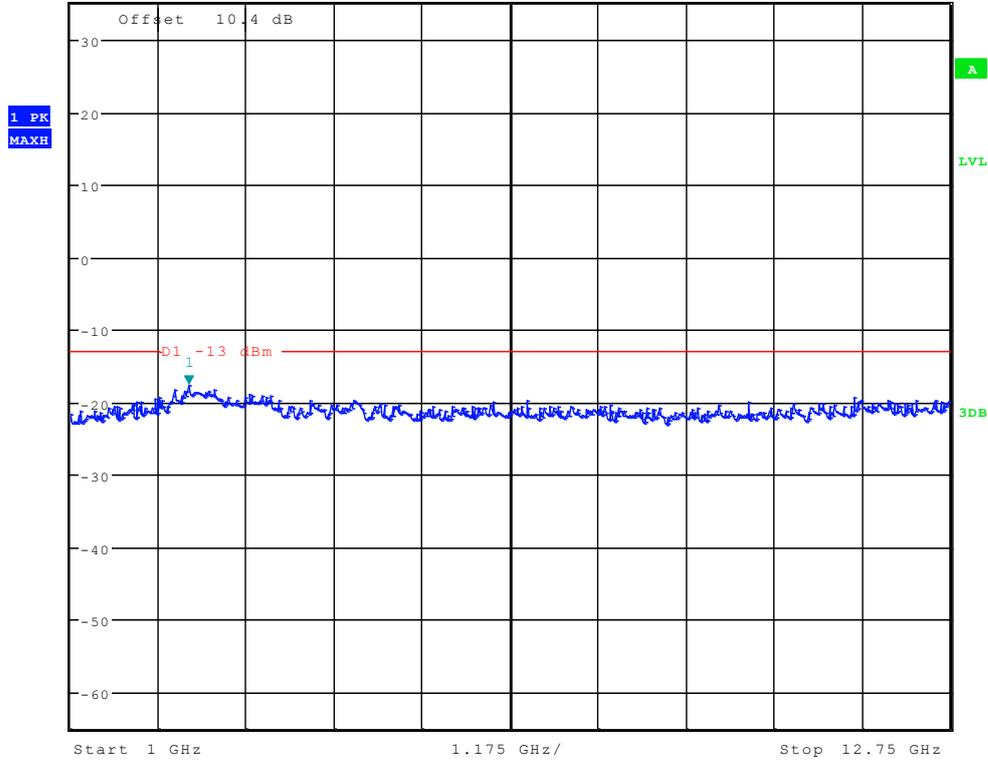
Ref 35 dBm Att 50 dB SWT 100 ms
*RBW 100 kHz Marker 1 [T1] 29.06 dBm
*VBW 300 kHz 825.897435897 MHz



Date: 17.JAN.2012 20:28:21



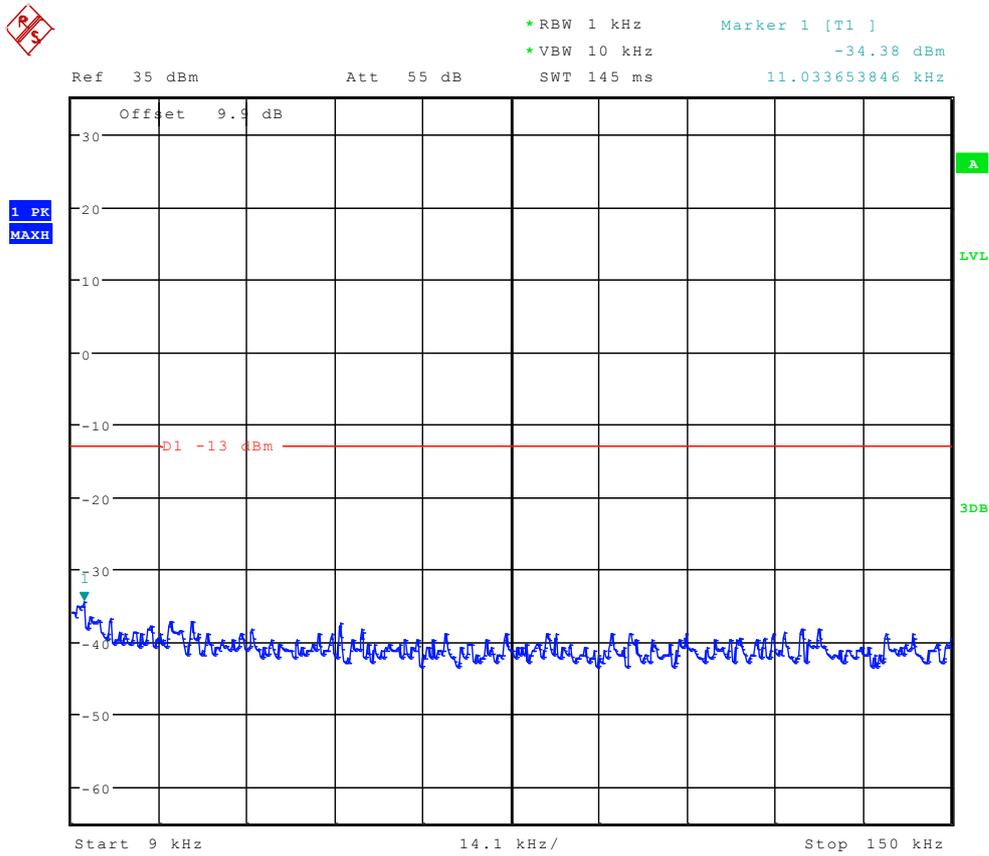
*RBW 1 MHz Marker 1 [T1]
 *VBW 3 MHz -17.72 dBm
 Ref 35 dBm Att 50 dB SWT 70 ms 2.581730769 GHz



Date: 17.JAN.2012 20:29:05



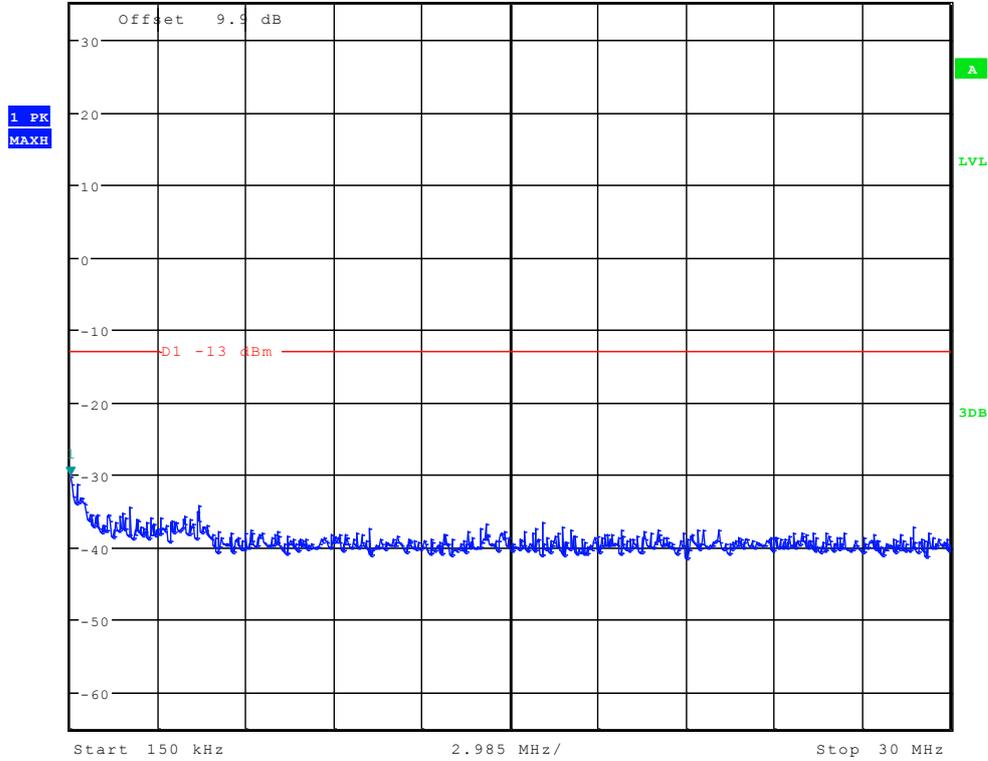
Channel 192



Date: 17.JAN.2012 20:27:08



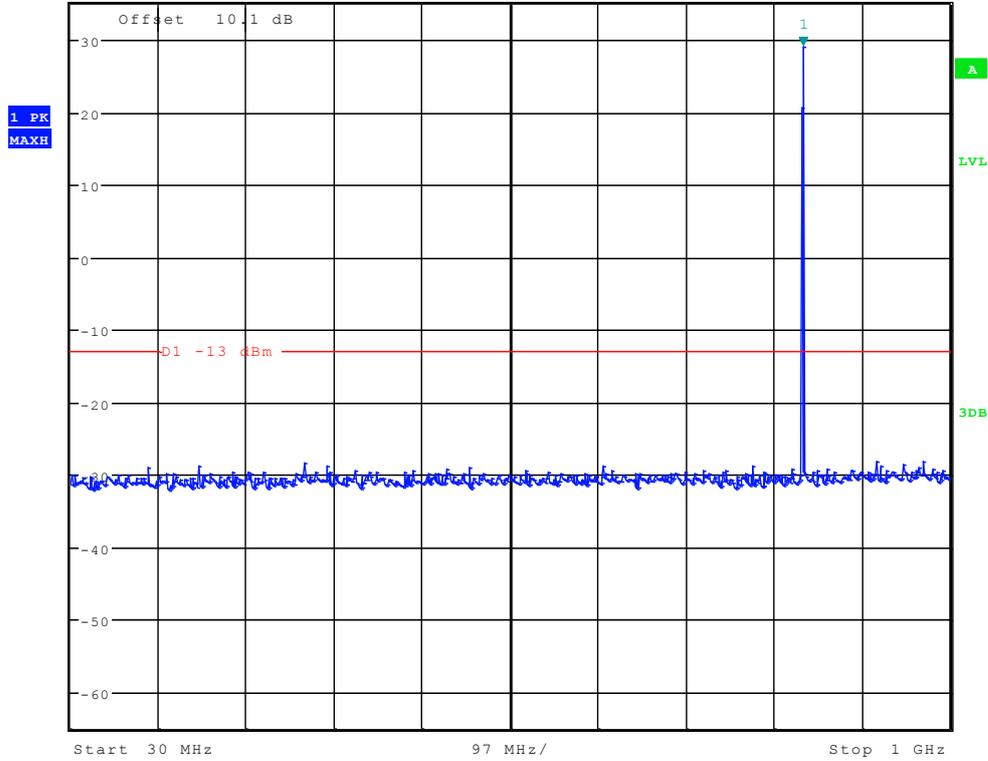
Ref 35 dBm Att 55 dB SWT 300 ms 150.00000000 kHz
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -30.22 dBm



Date: 17.JAN.2012 20:27:51



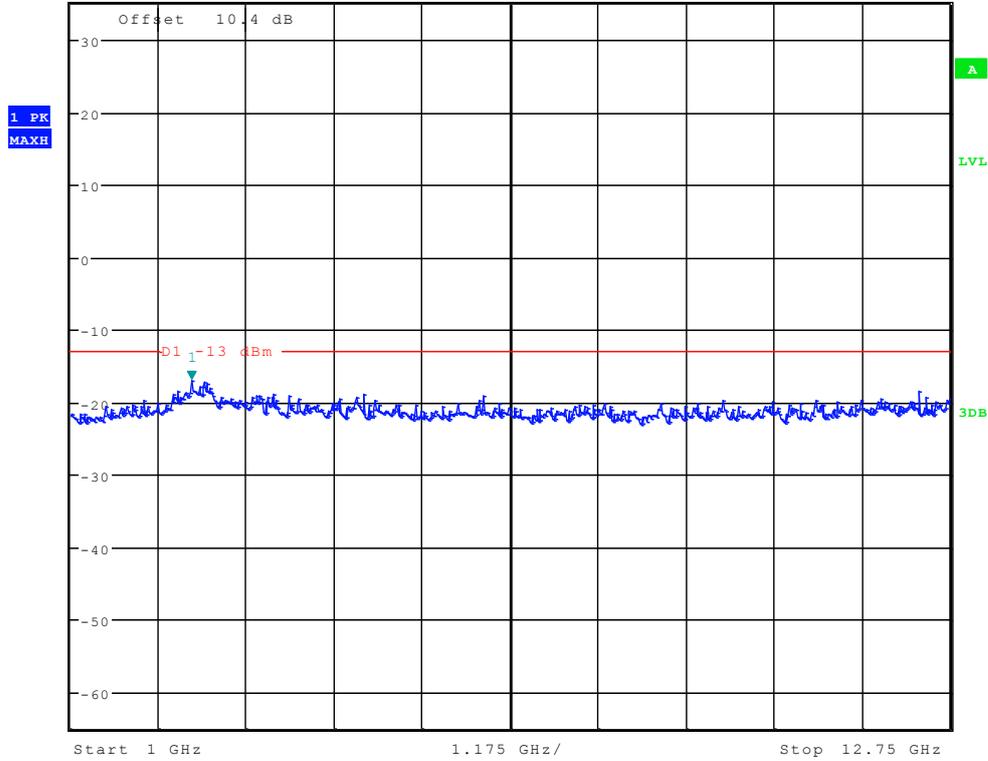
Ref 35 dBm Att 50 dB SWT 100 ms
 *RBW 100 kHz Marker 1 [T1] 28.93 dBm
 *VBW 300 kHz 838.3333333333 MHz



Date: 17.JAN.2012 20:28:35



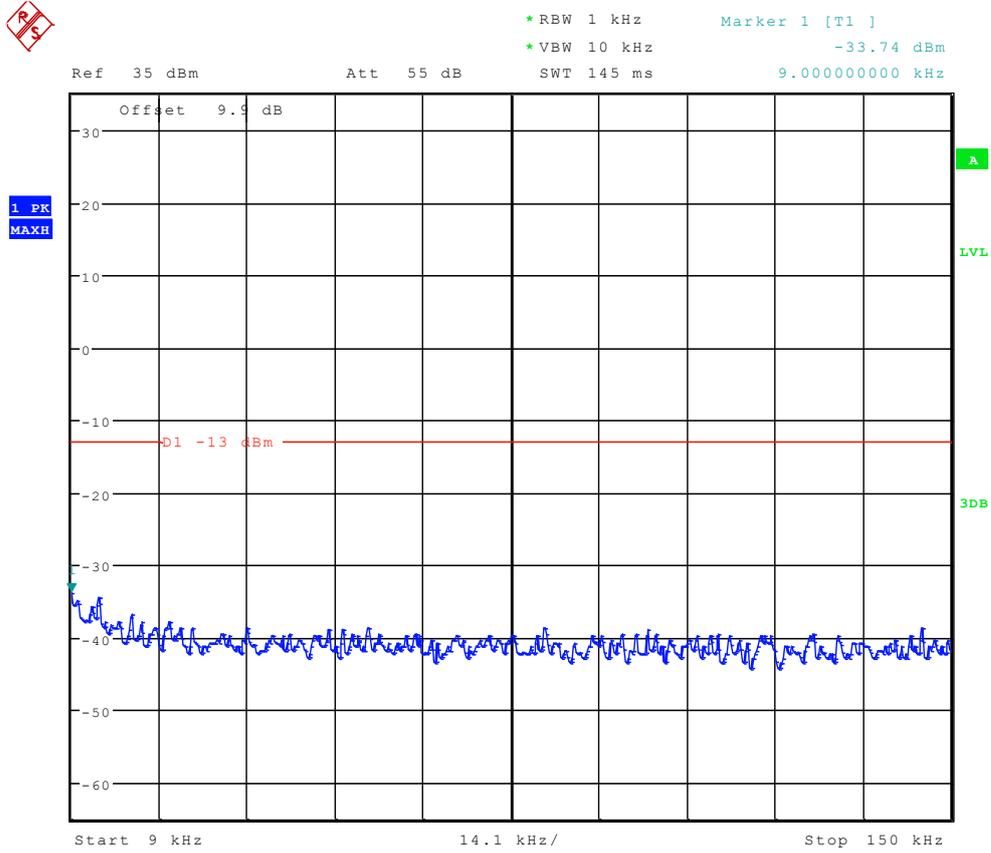
*RBW 1 MHz Marker 1 [T1]
*VBW 3 MHz -17.00 dBm
Ref 35 dBm Att 50 dB SWT 70 ms 2.619391026 GHz



Date: 17.JAN.2012 20:29:19



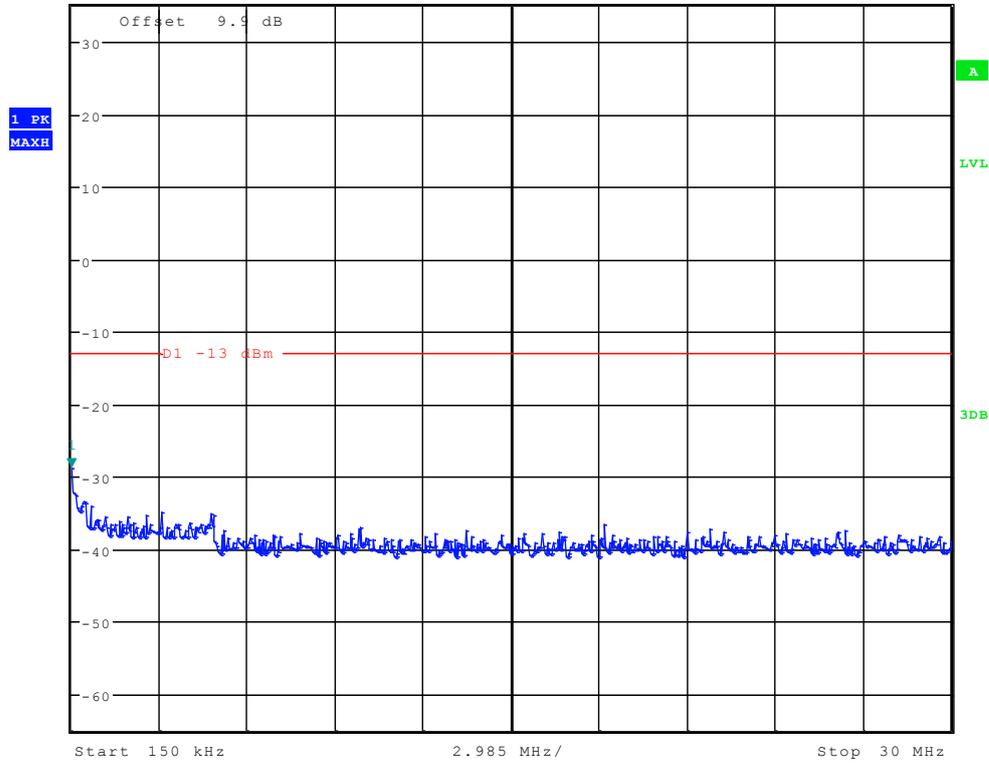
Channel 251



Date: 17.JAN.2012 20:27:22



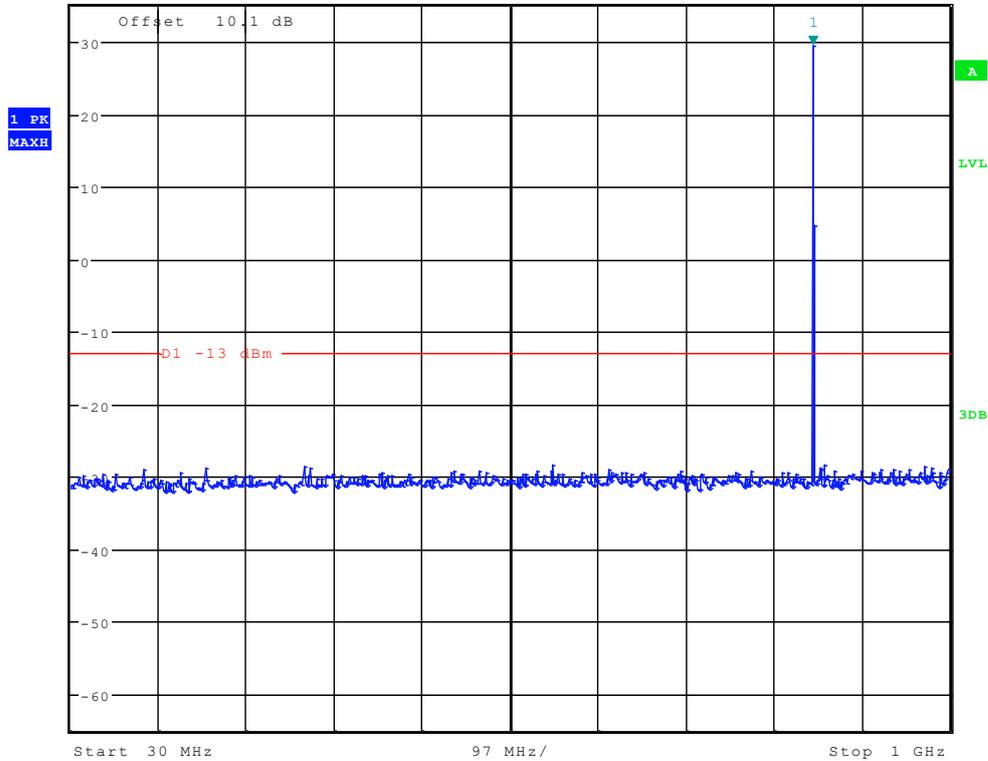
Ref 35 dBm Att 55 dB SWT 300 ms 150.00000000 kHz
 *RBW 10 kHz Marker 1 [T1]
 *VBW 30 kHz -28.85 dBm



Date: 17.JAN.2012 20:28:06



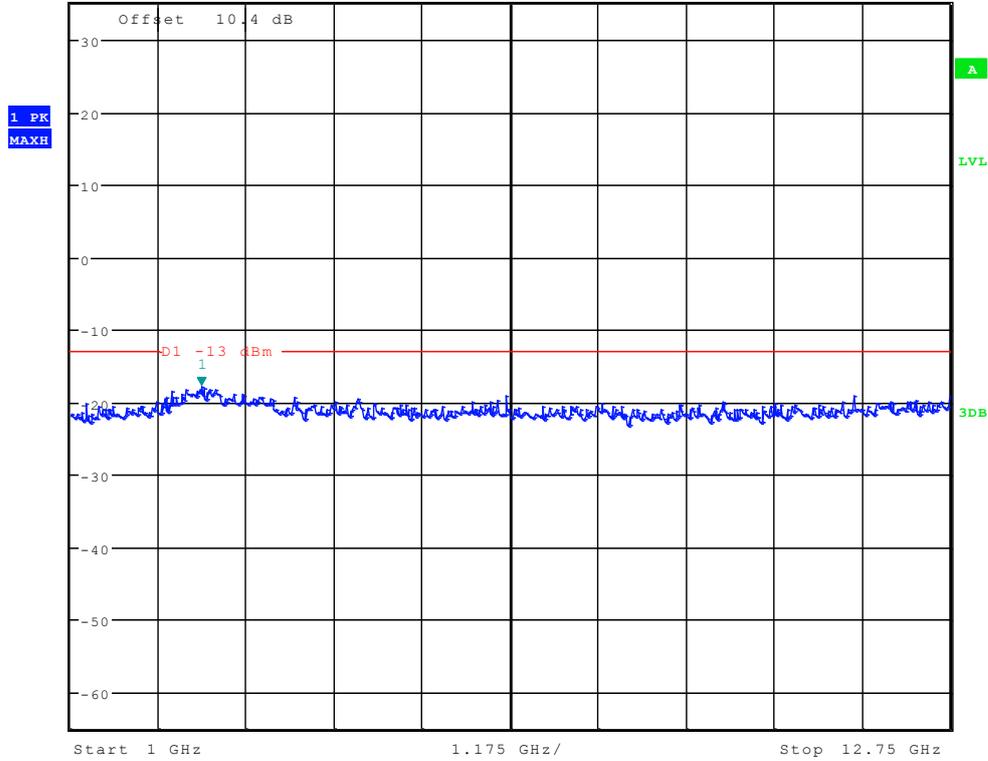
Ref 35 dBm Att 50 dB SWT 100 ms
 *RBW 100 kHz Marker 1 [T1] 29.47 dBm
 *VBW 300 kHz 849.214743590 MHz



Date: 17.JAN.2012 20:28:50



*RBW 1 MHz Marker 1 [T1]
 *VBW 3 MHz -17.89 dBm
 Ref 35 dBm Att 50 dB SWT 70 ms 2.751201923 GHz



Date: 17.JAN.2012 20:29:34

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



Appendix F

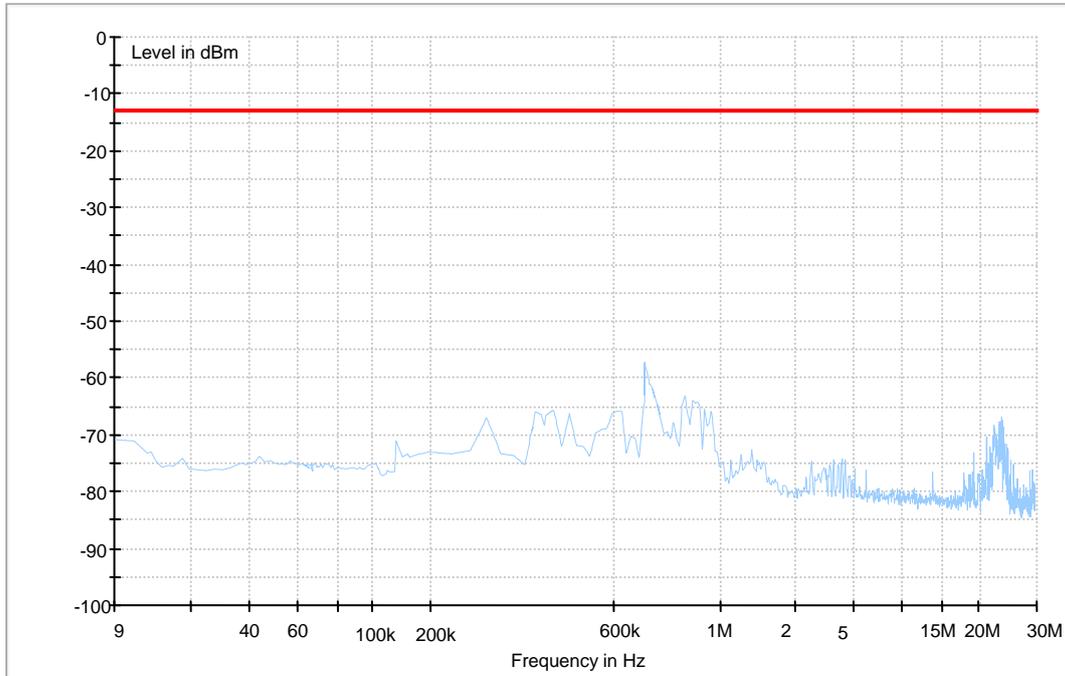
Field Strength of Spurious Emissions

According to FCC Part 2.1053 & Part22.917



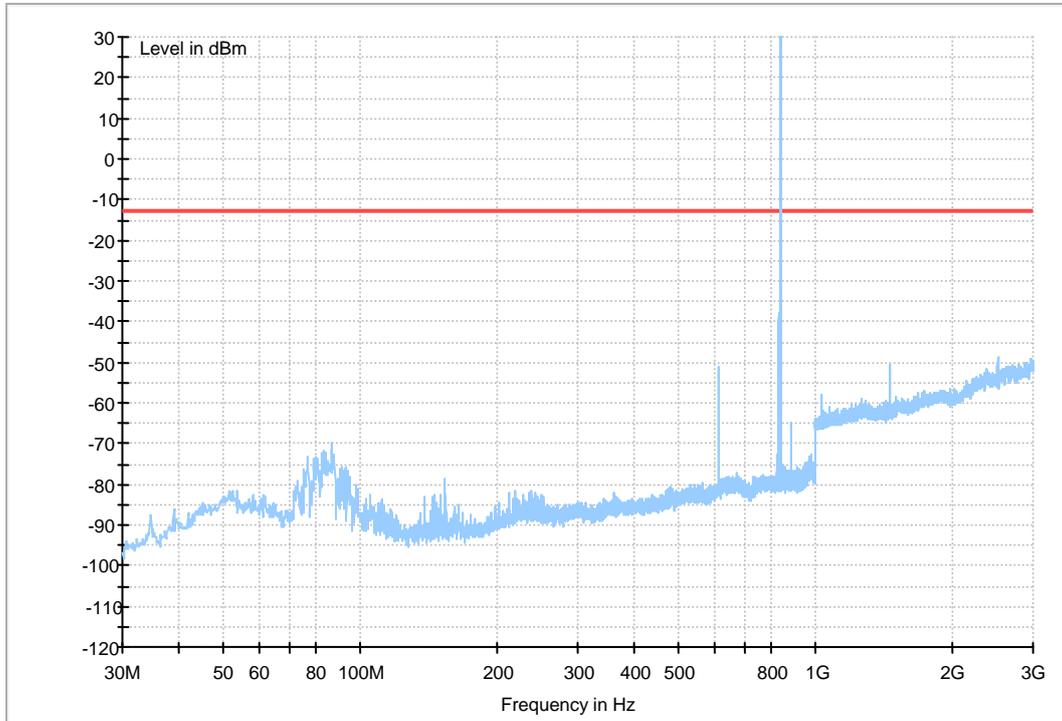
GSM 850

Traffic Mode (9kHz-30MHz)



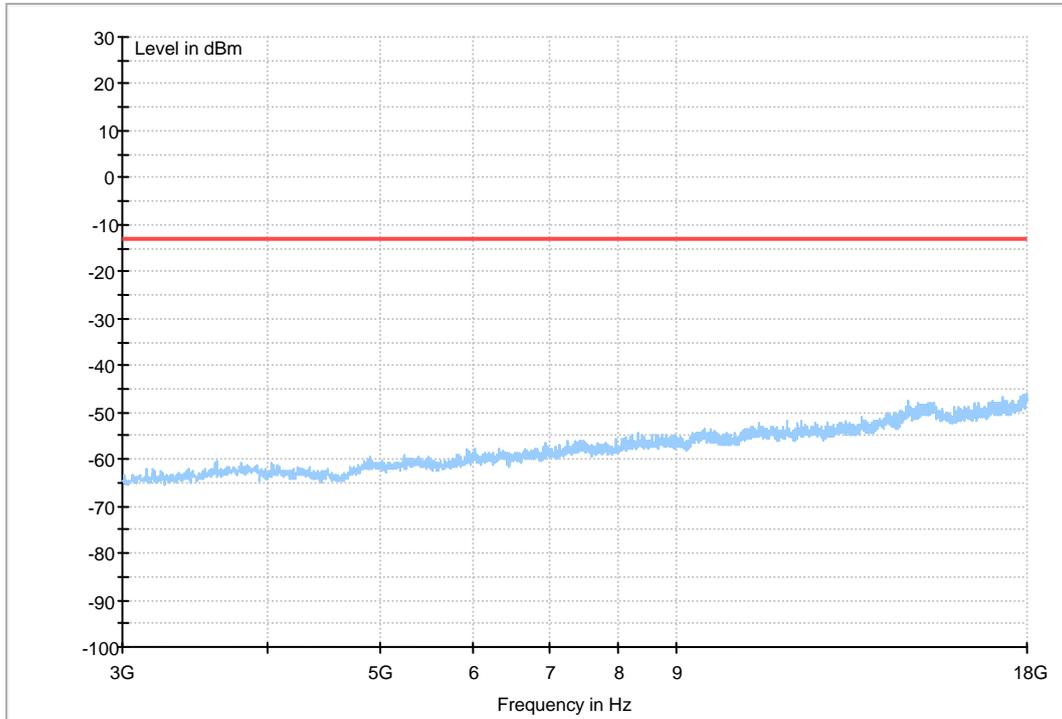


Traffic Mode (30MHz-3GHz)





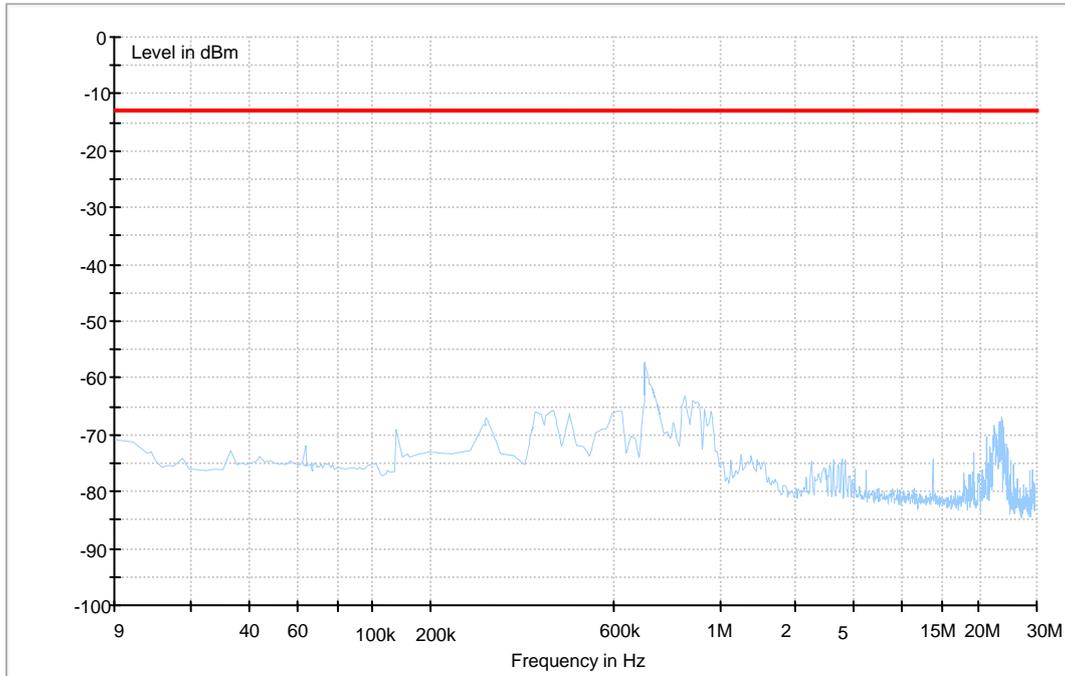
Traffic Mode (3GHz-18GHz)





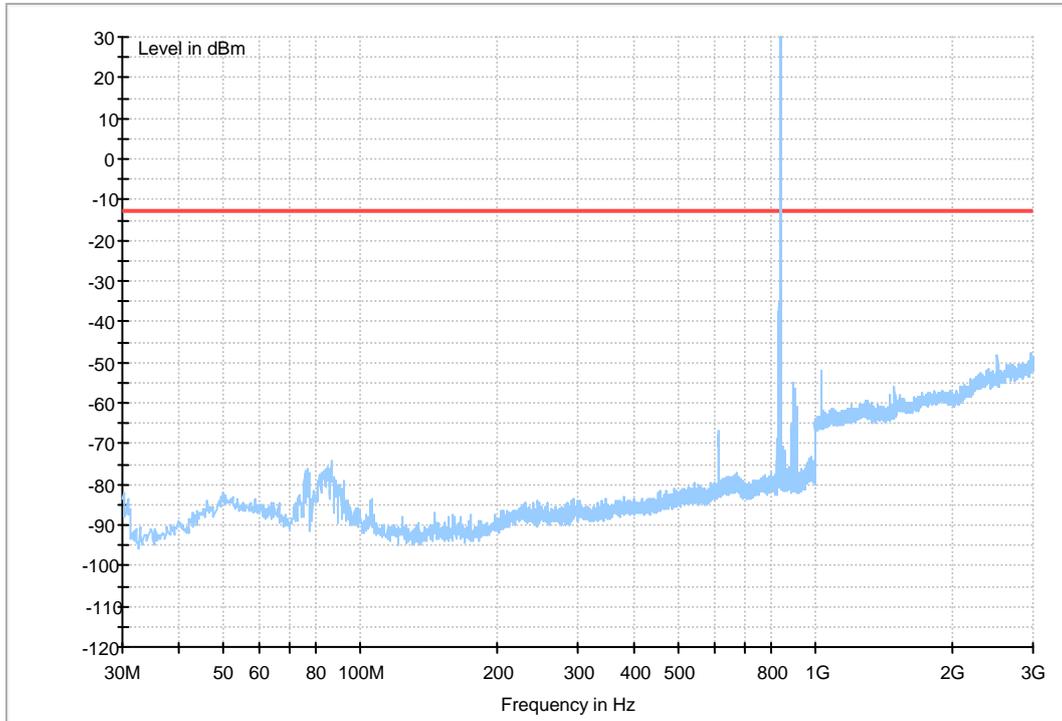
GPRS 850

Traffic Mode (9kHz-30MHz)



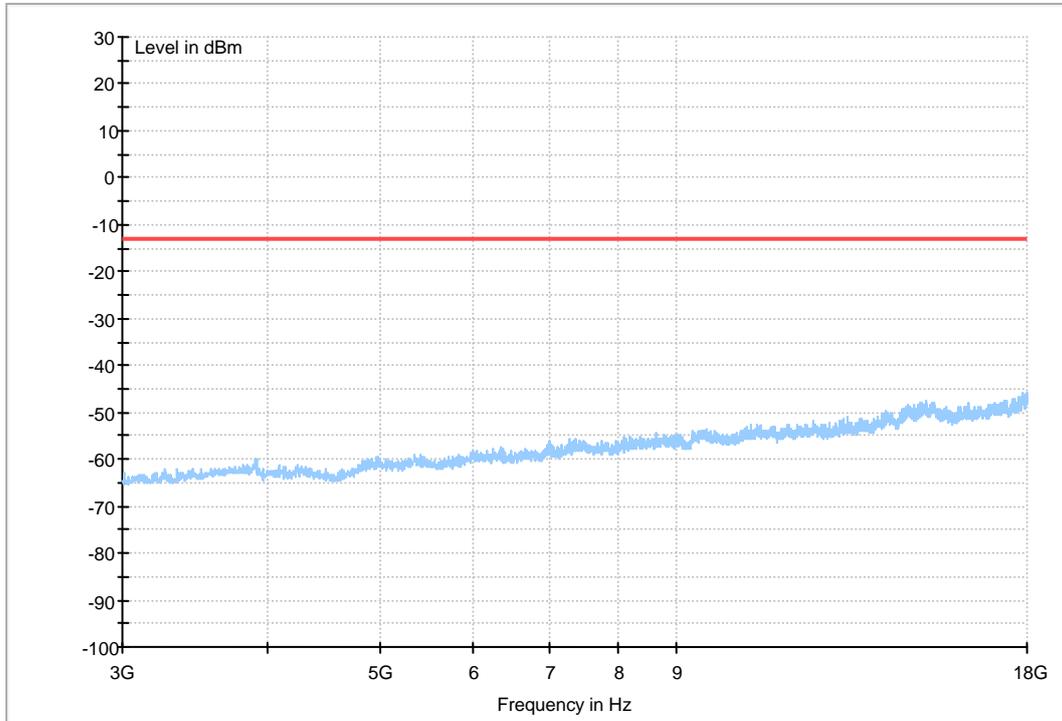


Traffic Mode (30MHz-3GHz)





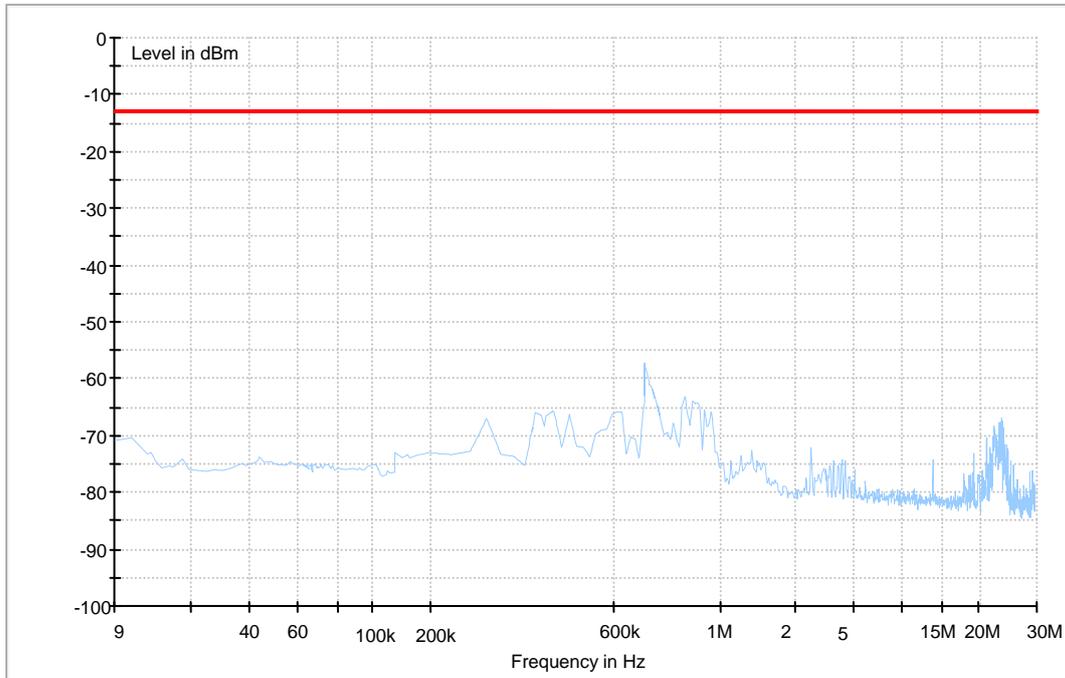
Traffic Mode (3GHz-18GHz)





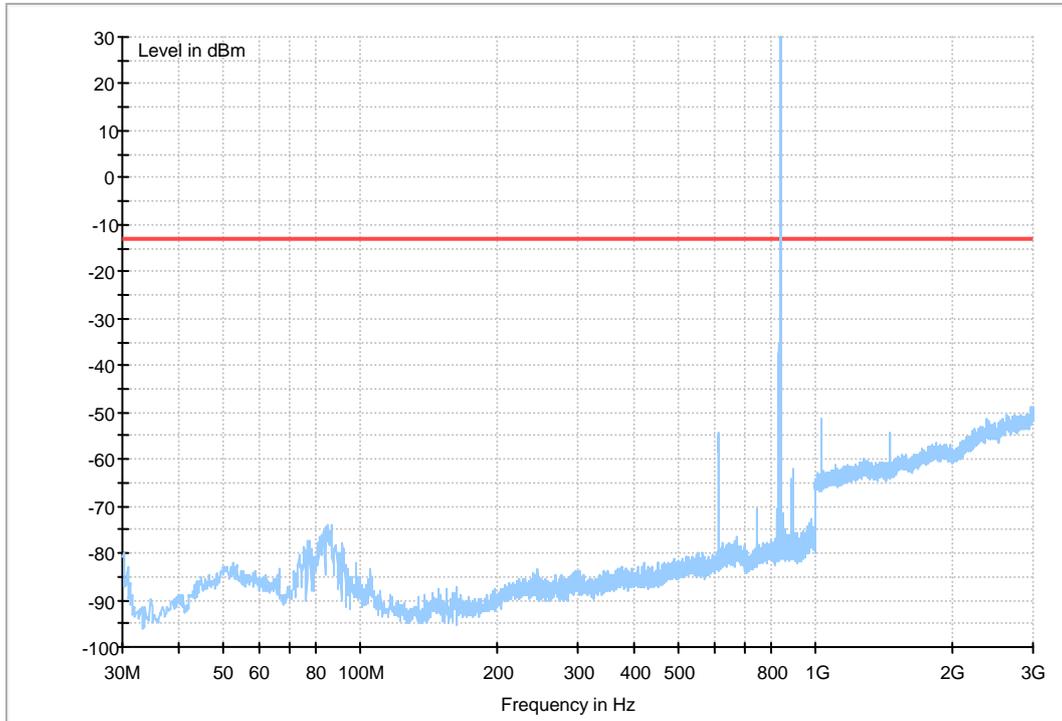
EDGE 850

Traffic Mode (9kHz-30MHz)



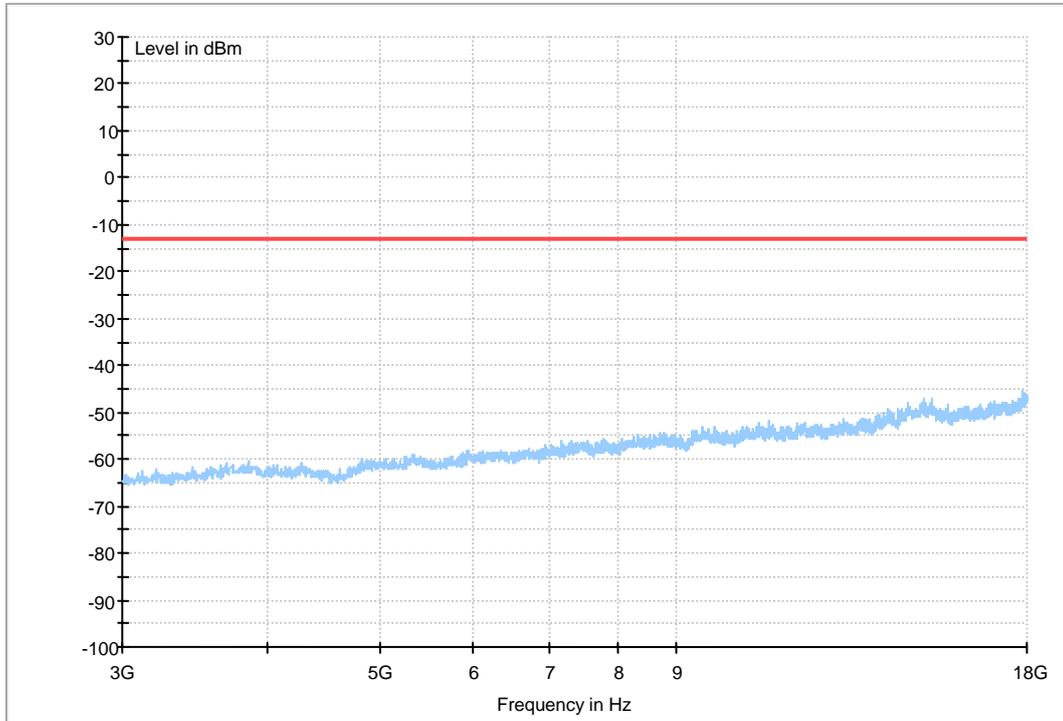


Traffic Mode (30MHz-3GHz)





Traffic Mode (3GHz-18GHz)



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



Appendix G

Frequency Stability According to FCC Part 2.1055&Part 22.355



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 | 100% | -30 °C | 15 | 0.0179 | --- | ±2.5 | Pass |
| | | | -20 °C | 20 | 0.0239 | --- | ±2.5 | Pass |
| | | | -10 °C | -17 | -0.0203 | --- | ±2.5 | Pass |
| | | | 0 °C | 13 | 0.0155 | --- | ±2.5 | Pass |
| | | | 10 °C | 12 | 0.0143 | --- | ±2.5 | Pass |
| | | | 20 °C | -19 | -0.0227 | --- | ±2.5 | Pass |
| | | | 30 °C | -17 | -0.0203 | --- | ±2.5 | Pass |
| | | | 40 °C | 16 | 0.0191 | --- | ±2.5 | Pass |
| | | | 50 °C | -21 | -0.0251 | --- | ±2.5 | Pass |
| TM 2 | M | 100% | -30 °C | 18 | 0.0215 | --- | ±2.5 | Pass |
| | | | -20 °C | -13 | -0.0155 | --- | ±2.5 | Pass |
| | | | -10 °C | -14 | -0.0167 | --- | ±2.5 | Pass |
| | | | 0 °C | -17 | -0.0203 | --- | ±2.5 | Pass |
| | | | 10 °C | 23 | 0.0275 | --- | ±2.5 | Pass |
| | | | 20 °C | -15 | -0.0179 | --- | ±2.5 | Pass |
| | | | 30 °C | -16 | -0.0191 | --- | ±2.5 | Pass |
| | | | 40 °C | 19 | 0.0227 | --- | ±2.5 | Pass |
| | | | 50 °C | 17 | 0.0203 | --- | ±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 | 85 % | -17 | -0.0203 | --- | ±2.5 | Pass |
| | | | 100 % | 18 | 0.0215 | --- | ±2.5 | Pass |
| | | | 115 % | 21 | 0.0251 | --- | ±2.5 | Pass |
| TM 2 | M | 20 °C | 85 % | 17 | 0.0203 | --- | ±2.5 | Pass |
| | | | 100 % | -13 | -0.0155 | --- | ±2.5 | Pass |
| | | | 115 % | 14 | 0.0167 | --- | ±2.5 | Pass |

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