# Appendix A

## Transmitter Output Power

According to FCC Part 2.1046 & Part22.913

## Conducted Power of Transmitter

| | RF Output Power (Conducted) | | | | | |
|---|---|---|---|---|---|---|
| TEST CONDITIONS | Channel128(B) 824.2MHz | | Channel192(M) 837.0MHz | | Channel251(T) 848.8MHz | |
| | dBm | | dBm | | dBm | |
| $T_{nom}$ / $V_{nom}$ | Measured | Limit | Measured | Limit | Measured | Limit |
| TM1 | 32.36 | 38.5 | 32.19 | 38.5 | 32.10 | 38.5 |

## Effective Radiated Power of Transmitter (ERP)

| Test Mode | Freq. [MHz] | Meas. Level [dBm] | Substitution Antenna Type | SGP [dBm] | Substitution Gain [dBi] | Cable Loss [dB] | Substitution Level (ERP) [dBm] | FCC limit [dBm] | Result |
|---|---|---|---|---|---|---|---|---|---|
| TM1 | 824.2 | 32.43 | Dipole Ant. | 35.80 | -2.75 | 0.6 | 32.45 | 38.5 | Pass |
| TM1 | 837.0 | 32.26 | Dipole Ant. | 35.69 | -2.87 | 0.6 | 32.22 | 38.5 | Pass |
| TM1 | 848.8 | 32.17 | Dipole Ant. | 35.60 | -2.85 | 0.6 | 32.15 | 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 [dBi]

b, SGP=Signal Generator Level

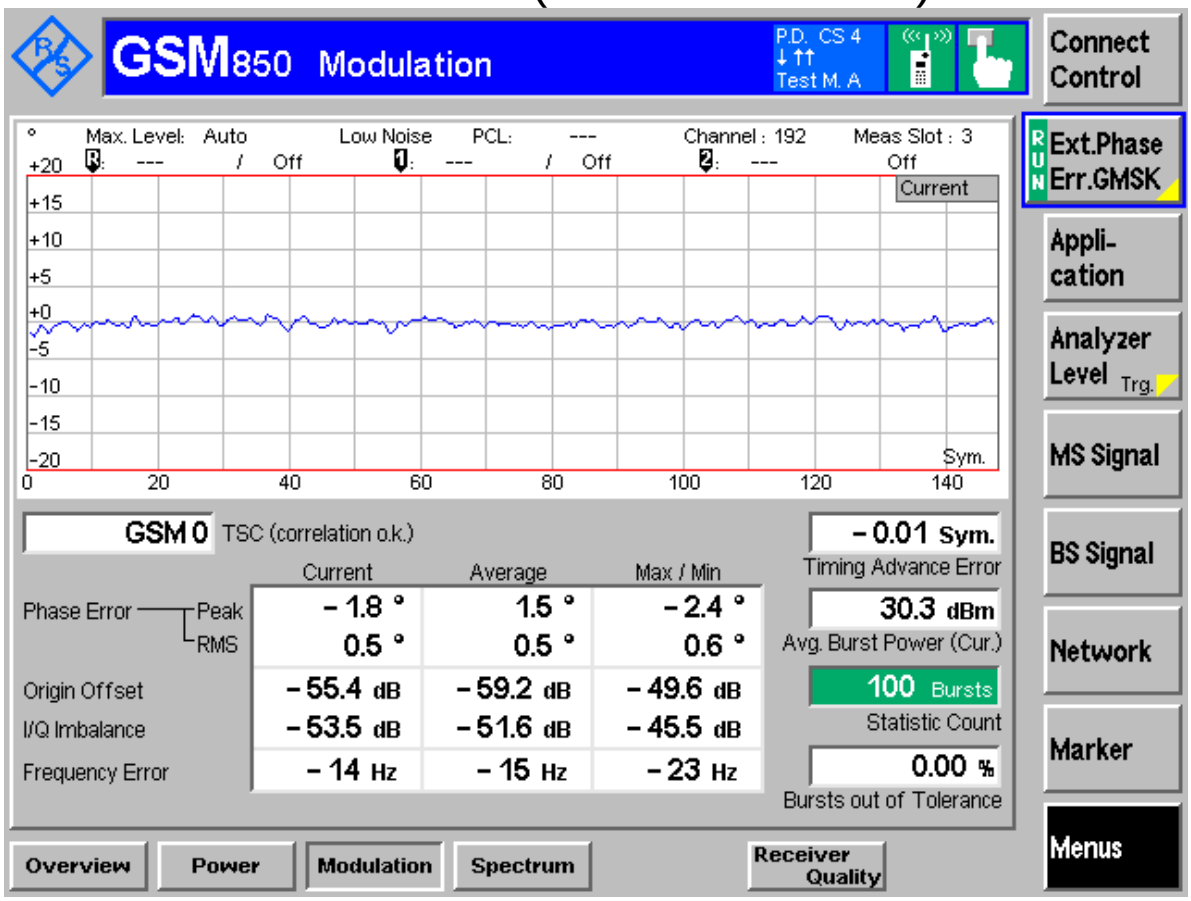
----------The END----------

# Appendix B

## Modulation Characteristics

According to FCC Part 2.1047 & Part22 Subpart H

# Channel 192(TM1:GPRS/GSM)




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

# Appendix C

## Occupied Bandwidth

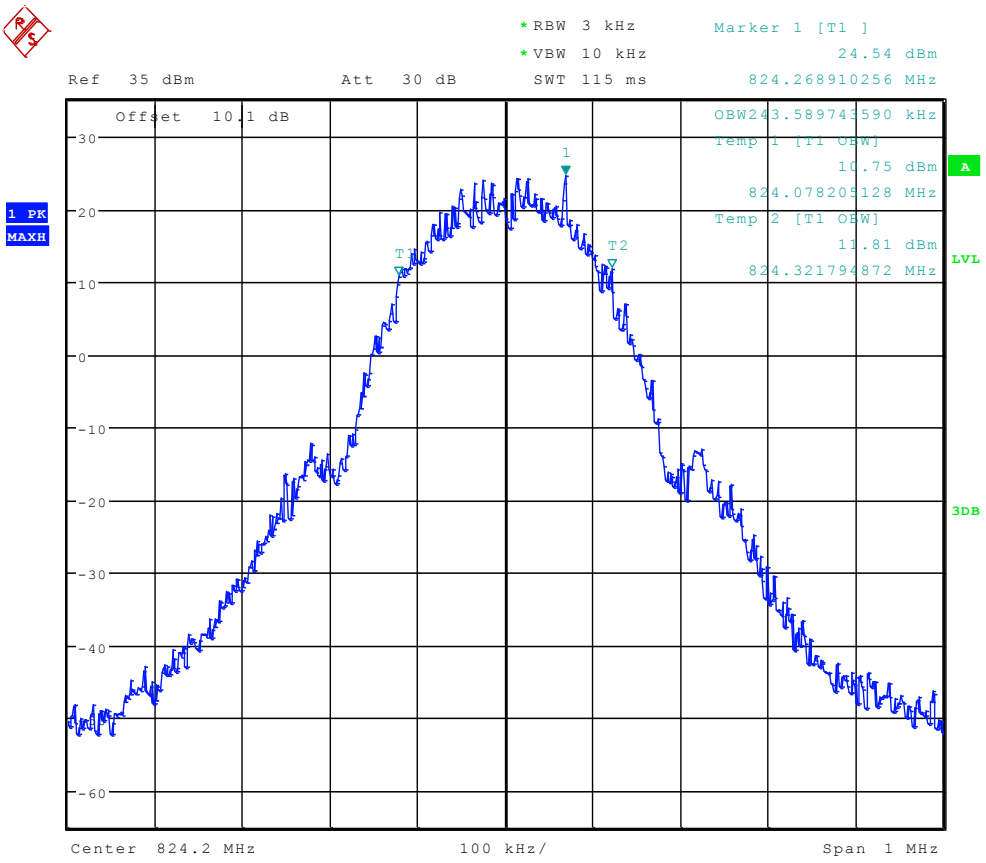
According to FCC Part 2.1049 & Part 22 Subpart H

Result Table

Table 1 Measurement Results

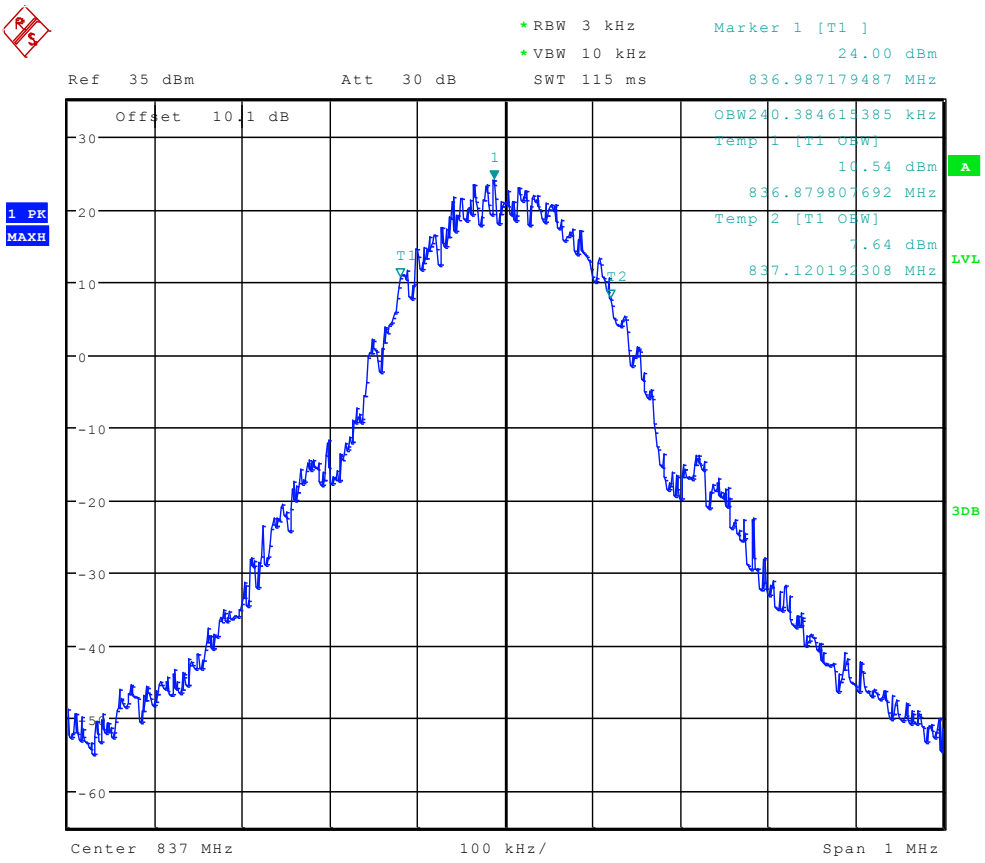
| Test Mode | RF Channel | Occupied Bandwidth [kHz] | Verdict |
|---|---|---|---|
| TM1 | 128 | 243.59 | Pass |
| | 192 | 240.38 | Pass |
| | 251 | 245.19 | Pass |

# Channel 128（TM1:GPRS/GSM）



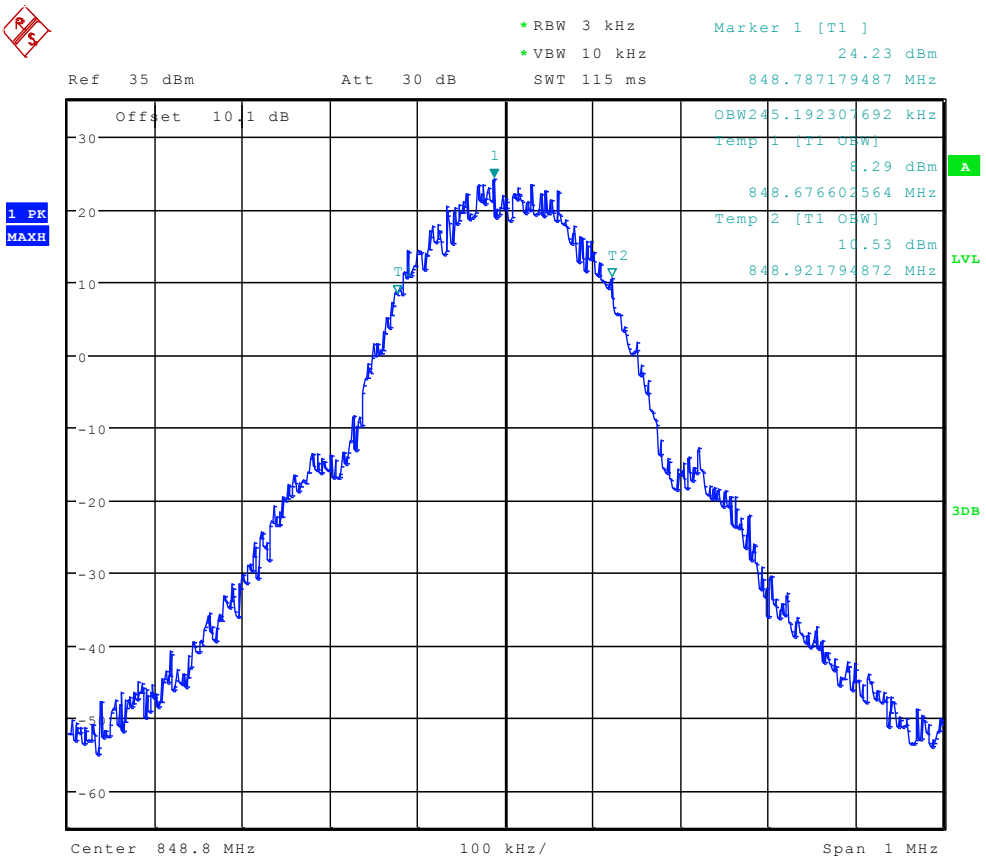

Date: 14.FEB.2012 02:40:40

# Channel 192（TM1:GPRS/GSM）




Date: 14.FEB.2012 02:40:54

# Channel 251（TM1:GPRS/GSM）




Date: 14.FEB.2012 02:41:07

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

# Appendix D

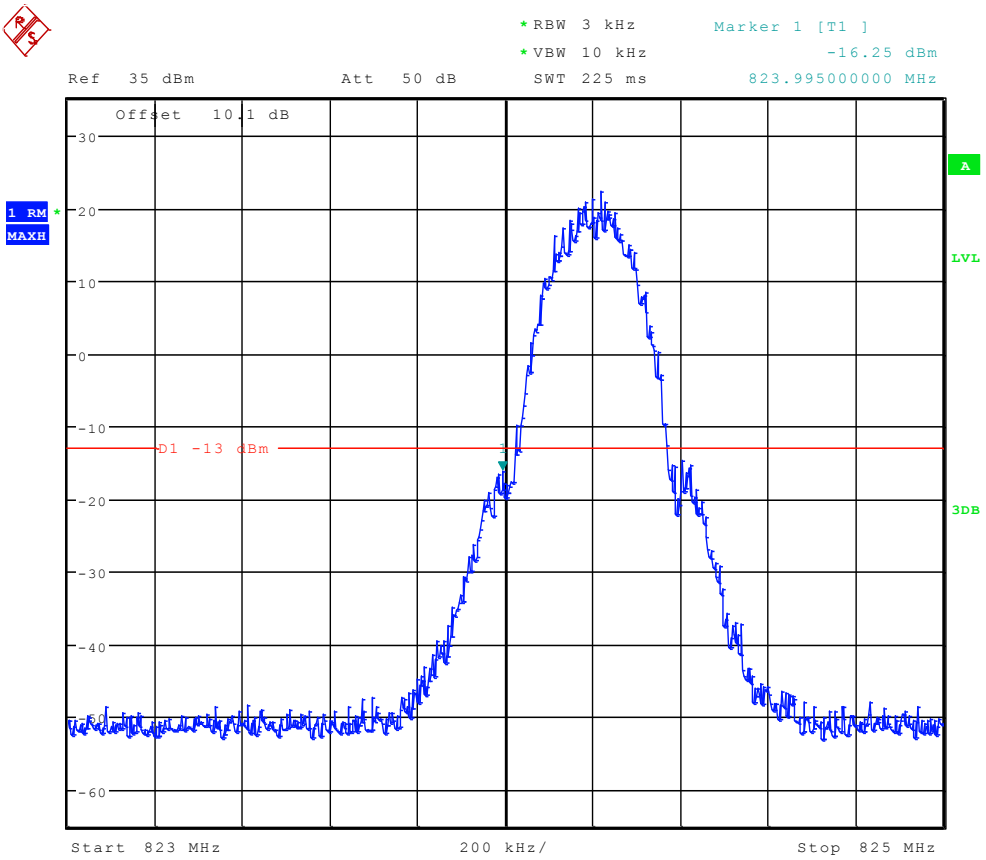
## Band Edges Compliance

According to FCC Part 2.1051 & Part22 Subpart H

# TM1:GPRS/GSM

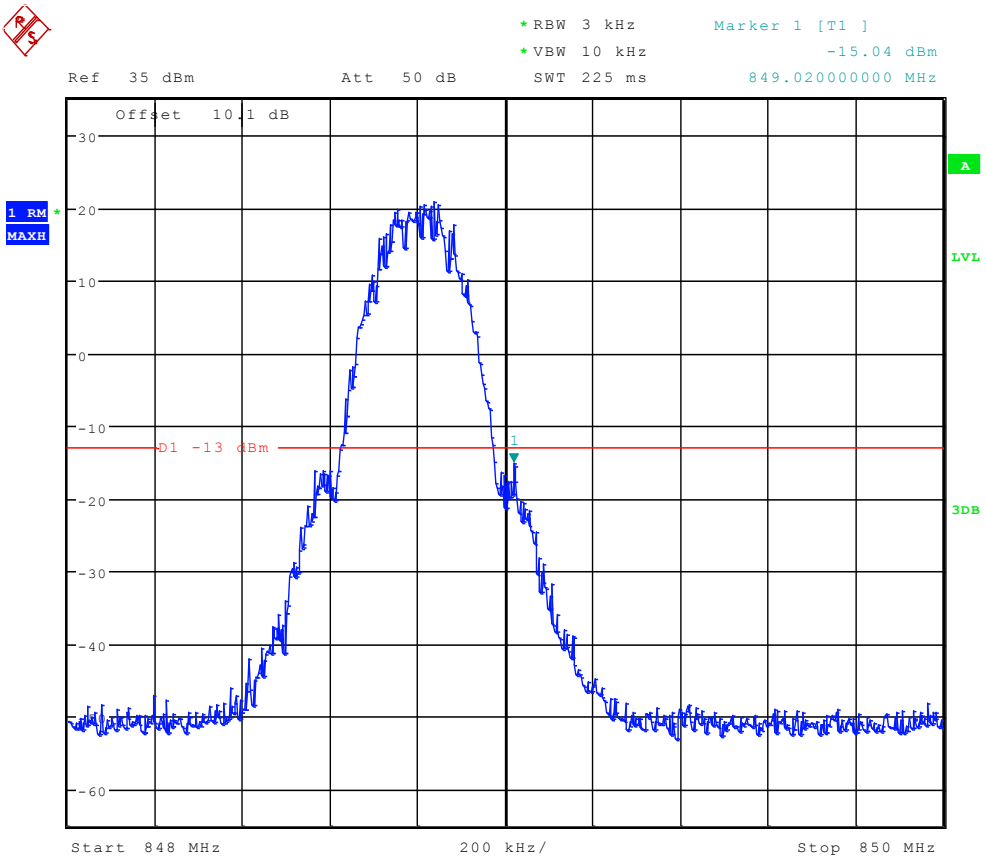
## Left Edge

## Channel 128




Date: 14.FEB.2012 02:44:24

# Right Edge
# Channel 251




Date: 14.FEB.2012 02:44:50

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

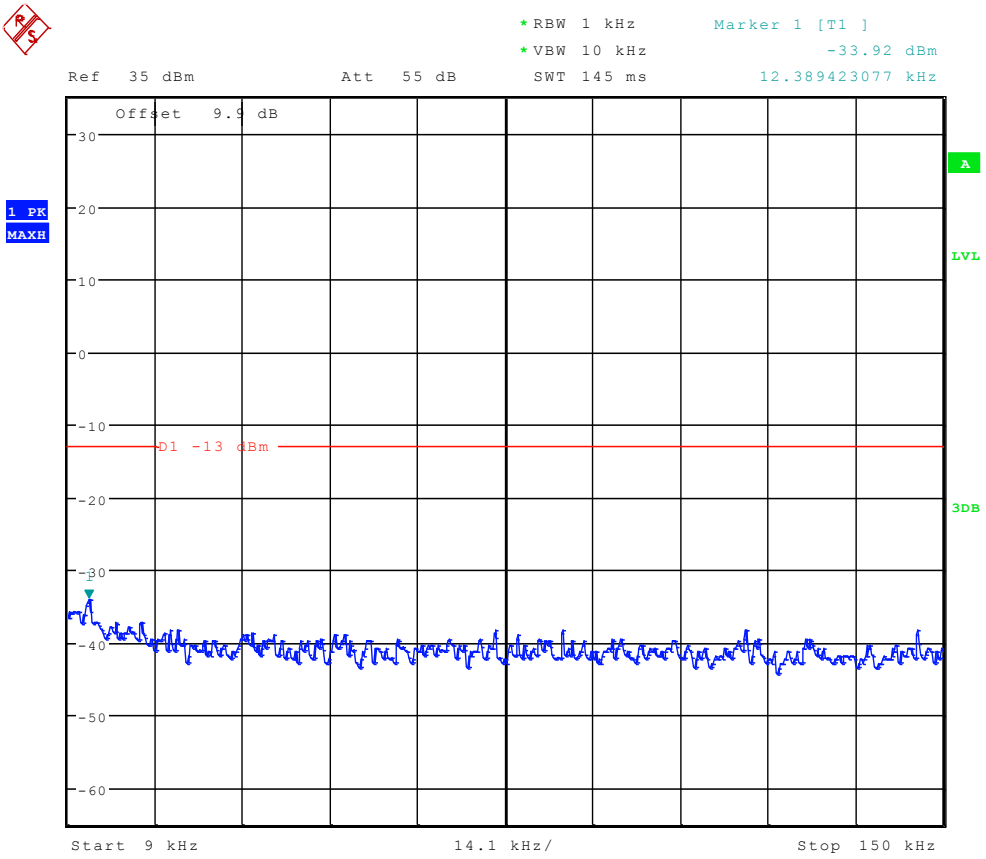
# Appendix E

## Spurious Emission at Antenna Terminal

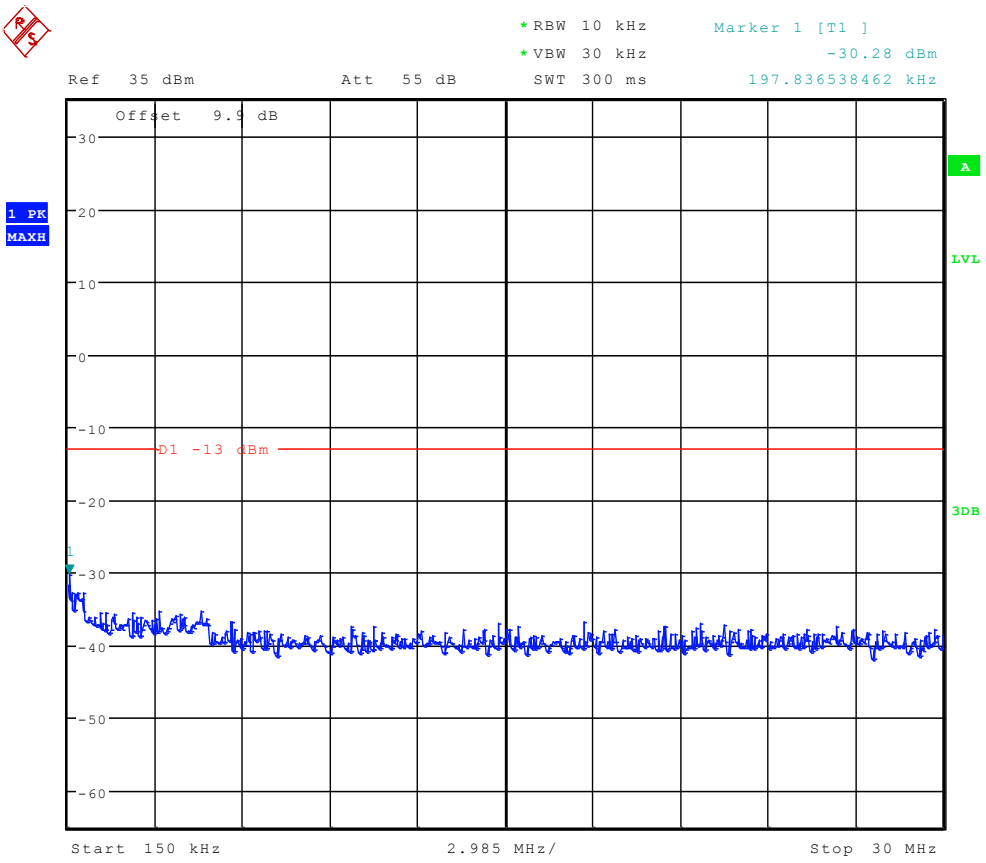
According to FCC Part 2.1051 & Part22 Subpart H

TM1:GPRS/GSM

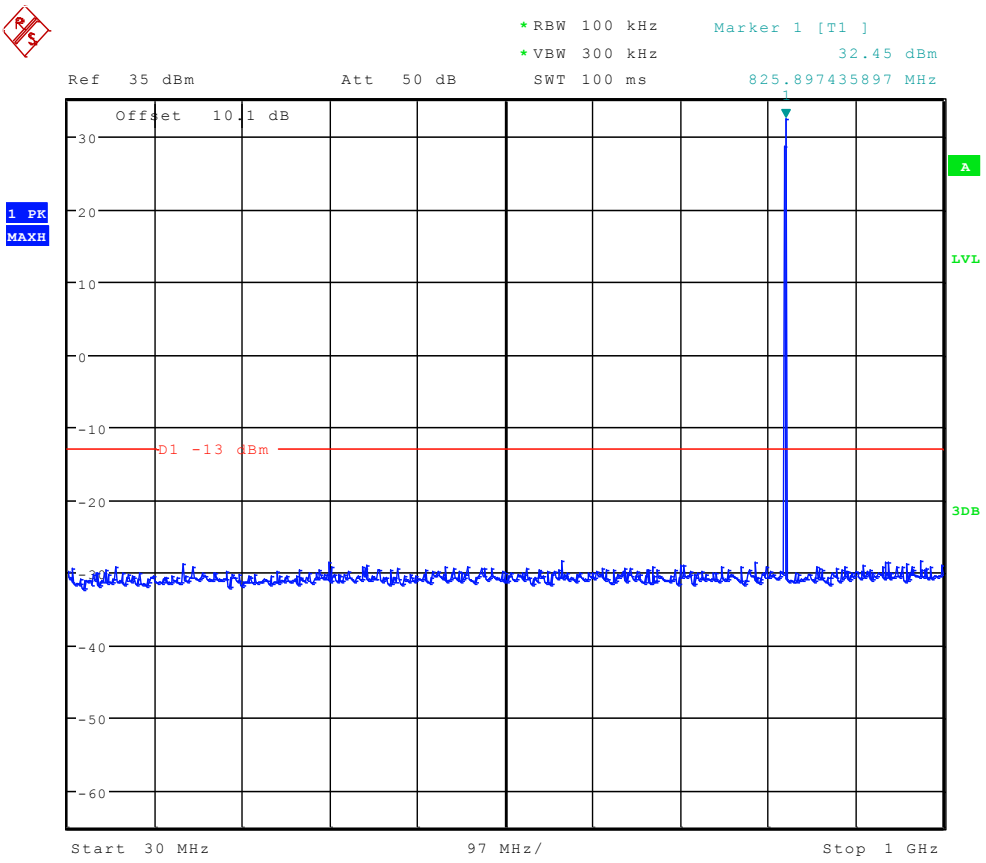
# Channel 128



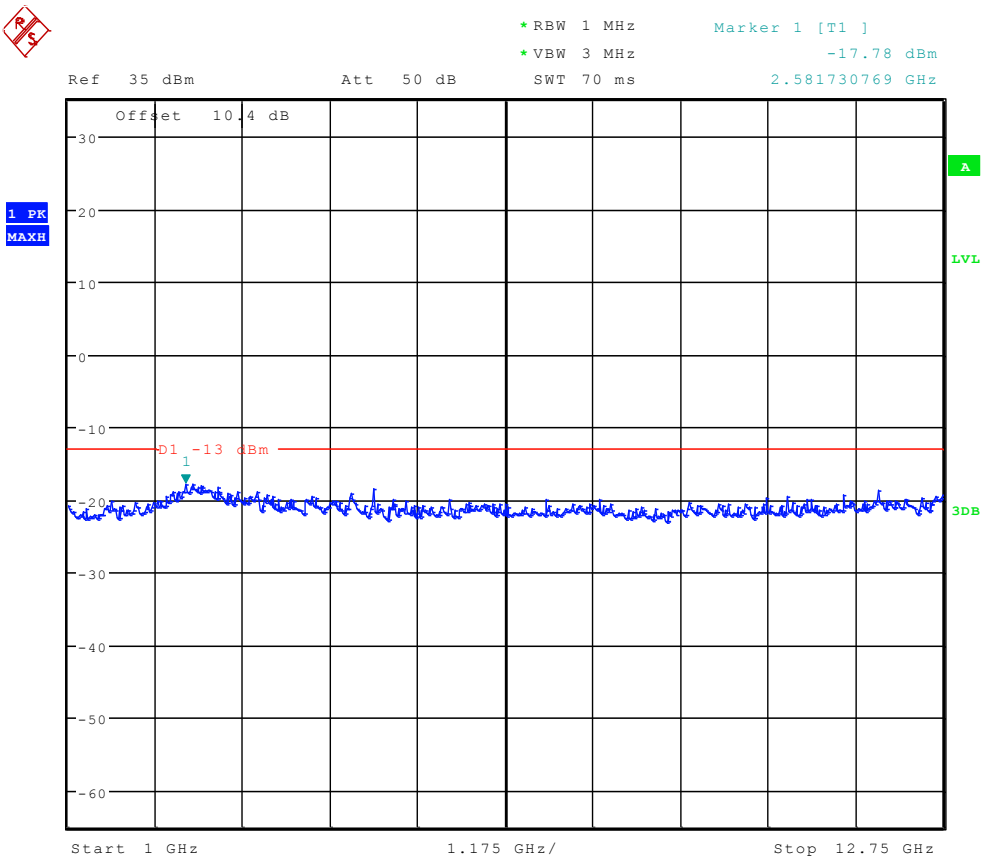

Date: 14.FEB.2012 02:41:22




Date: 14.FEB.2012 02:42:06

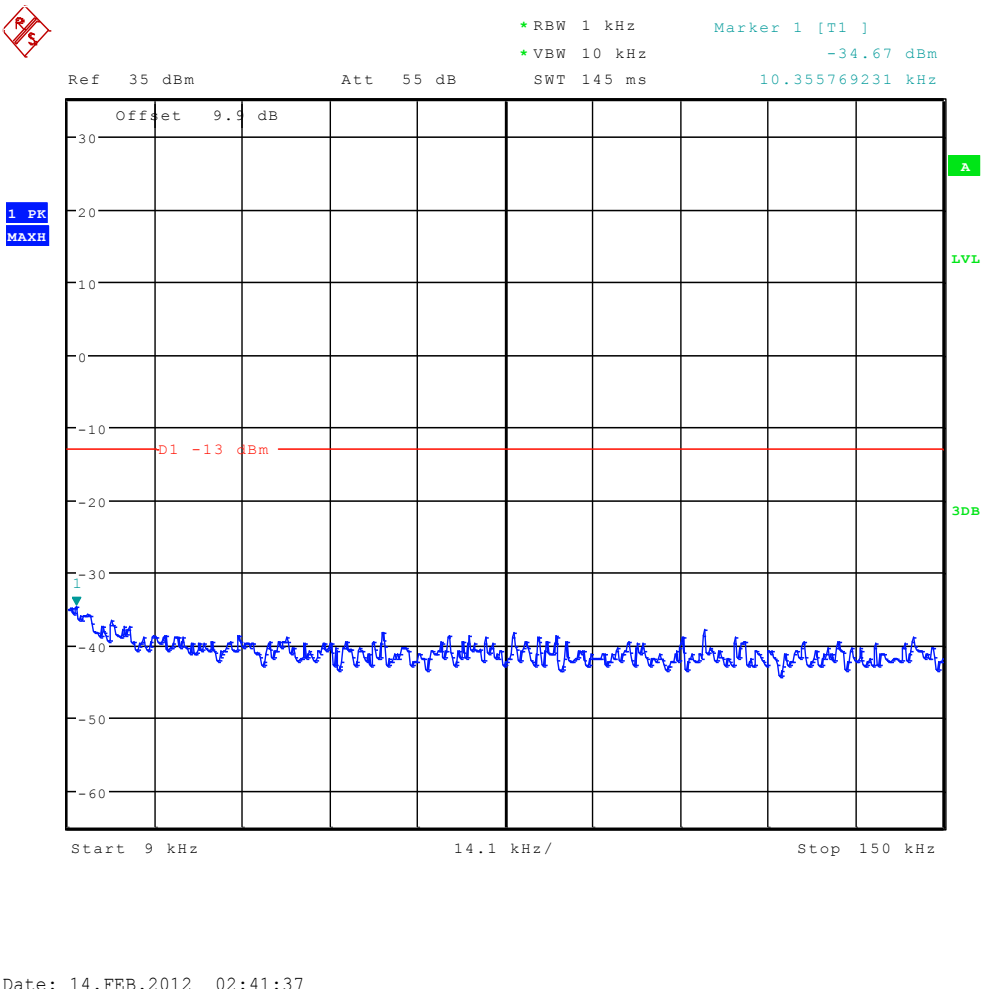


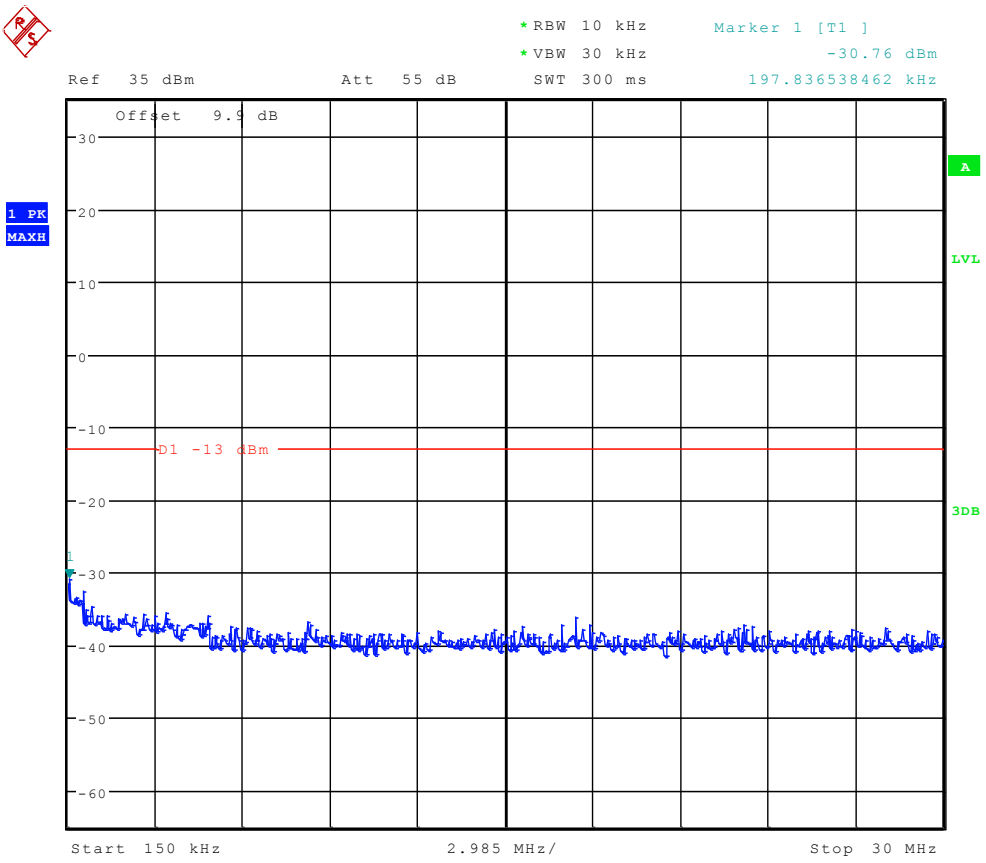

Date: 14.FEB.2012 02:42:50



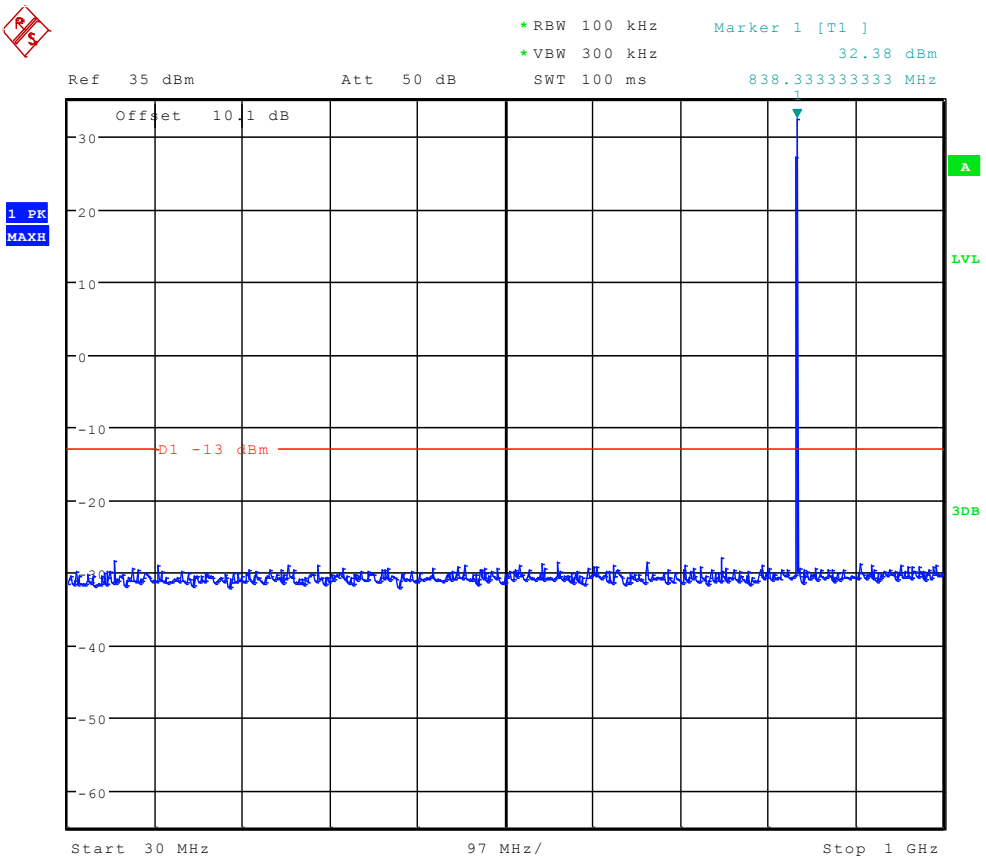

Date: 14.FEB.2012 02:43:34

# Channel 192

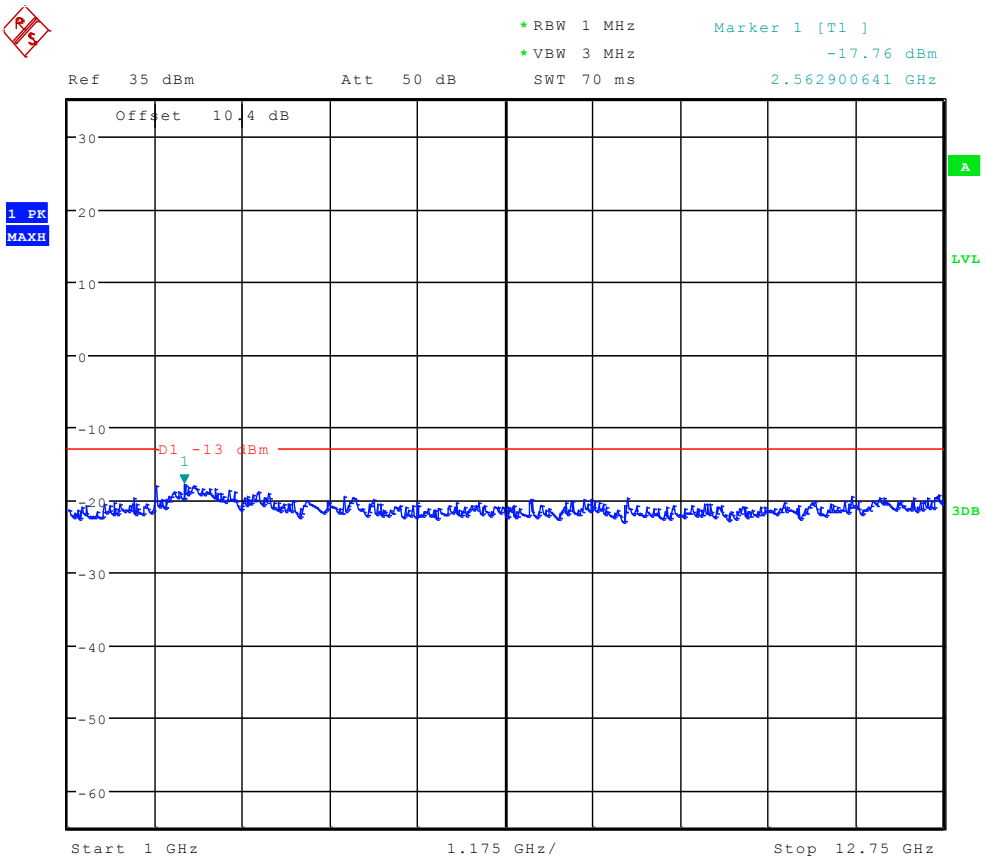

RBW 1 kHz
VBW 10 kHz
SWT 145 ms
Marker 1 [T1 ]
-34.67 dBm
10.355769231 kHz
Ref 35 dBm
Att 55 dB
Offset 9.9 dB
1 PK
MAXH
A
LVL
3DB
D1 -13 dBm
30
20
10
0
-10
-20
-30
-40
-50
-60
Start 9 kHz
14.1 kHz/
Stop 150 kHz
Date: 14.FEB.2012 02:41:37




Date: 14.FEB.2012 02:42:21

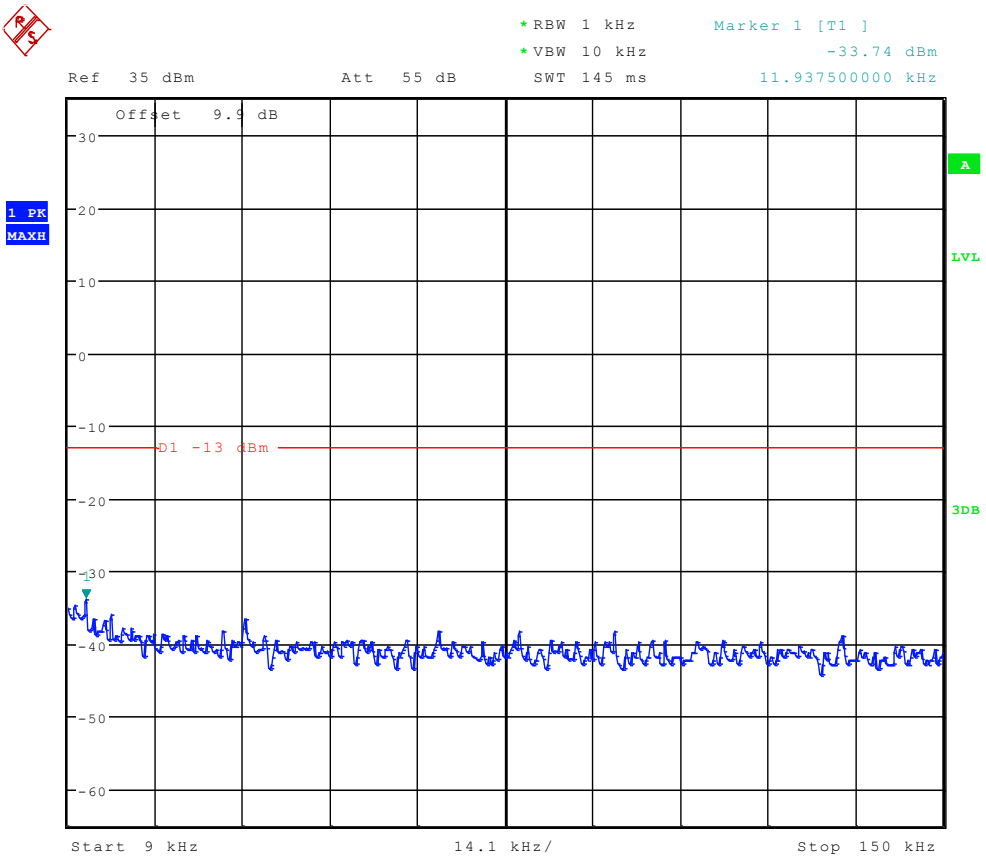



Date: 14.FEB.2012 02:43:04

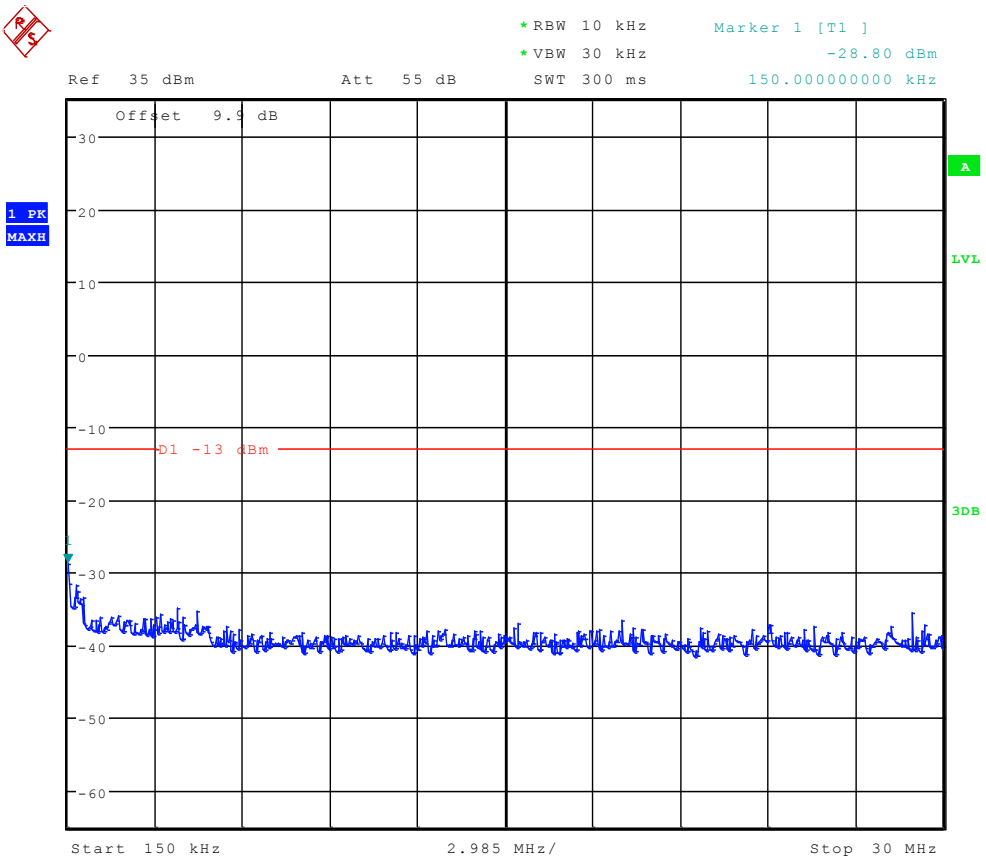



Date: 14.FEB.2012 02:43:48

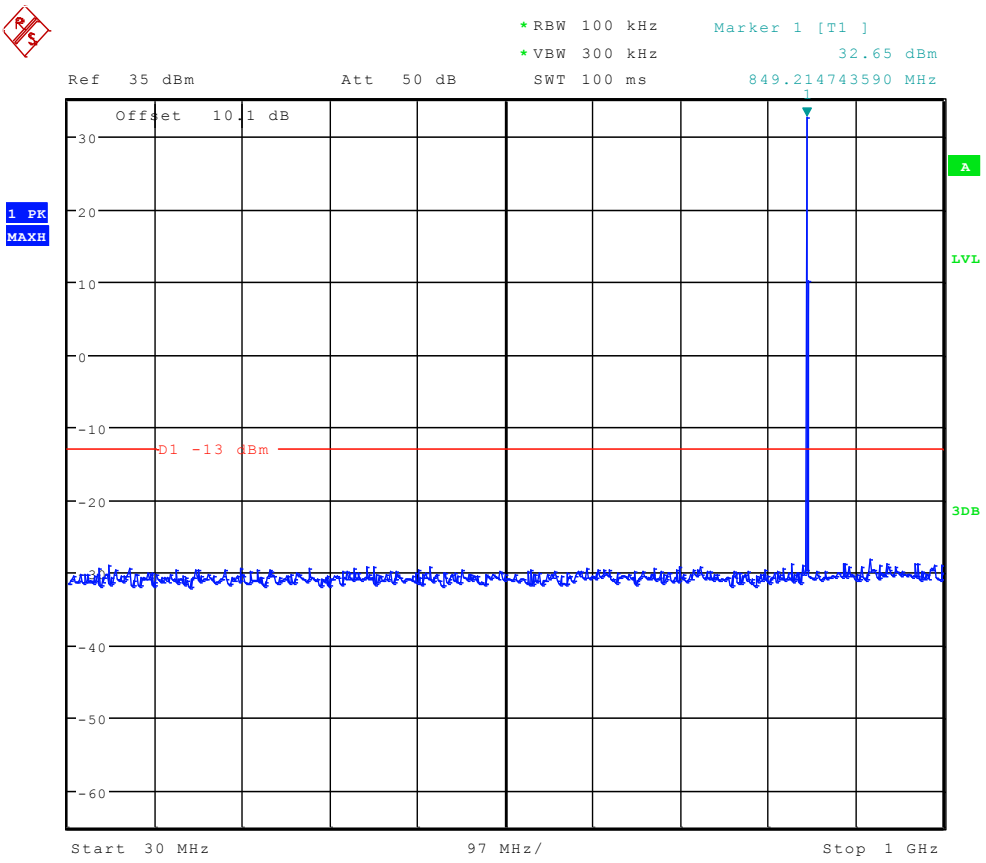
# Channel 251



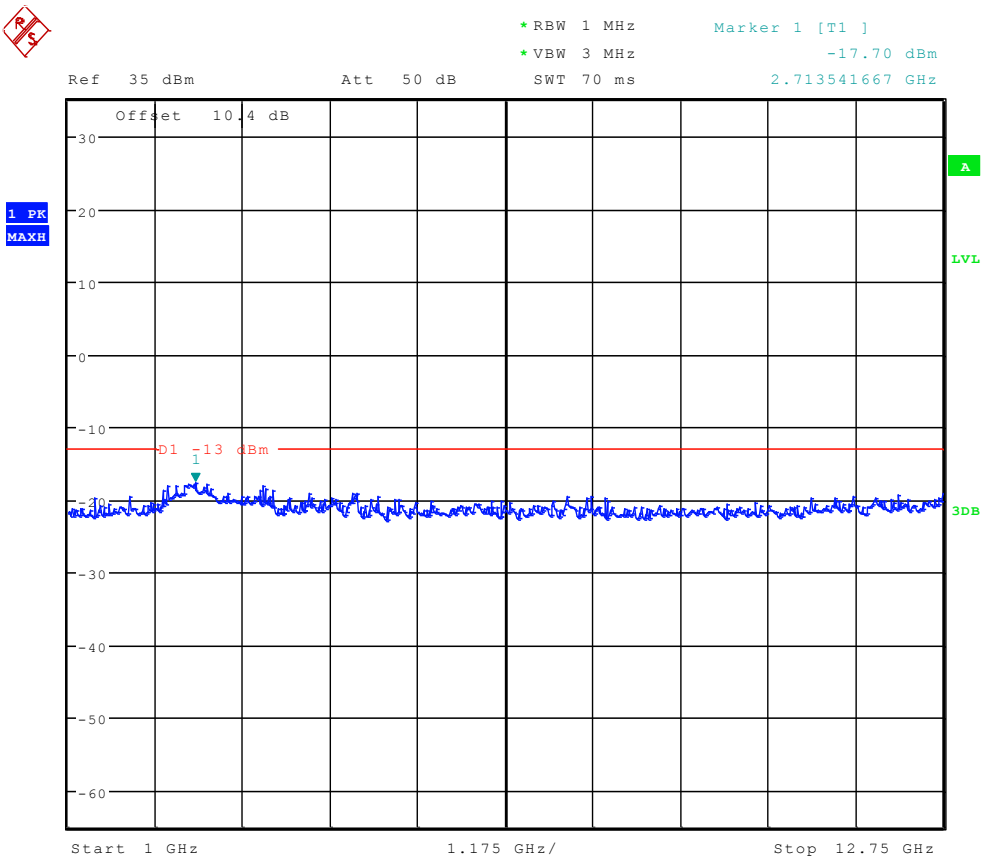

Date: 14.FEB.2012 02:41:51




Date: 14.FEB.2012 02:42:35




Date: 14.FEB.2012 02:43:19




Date: 14.FEB.2012 02:44:03

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

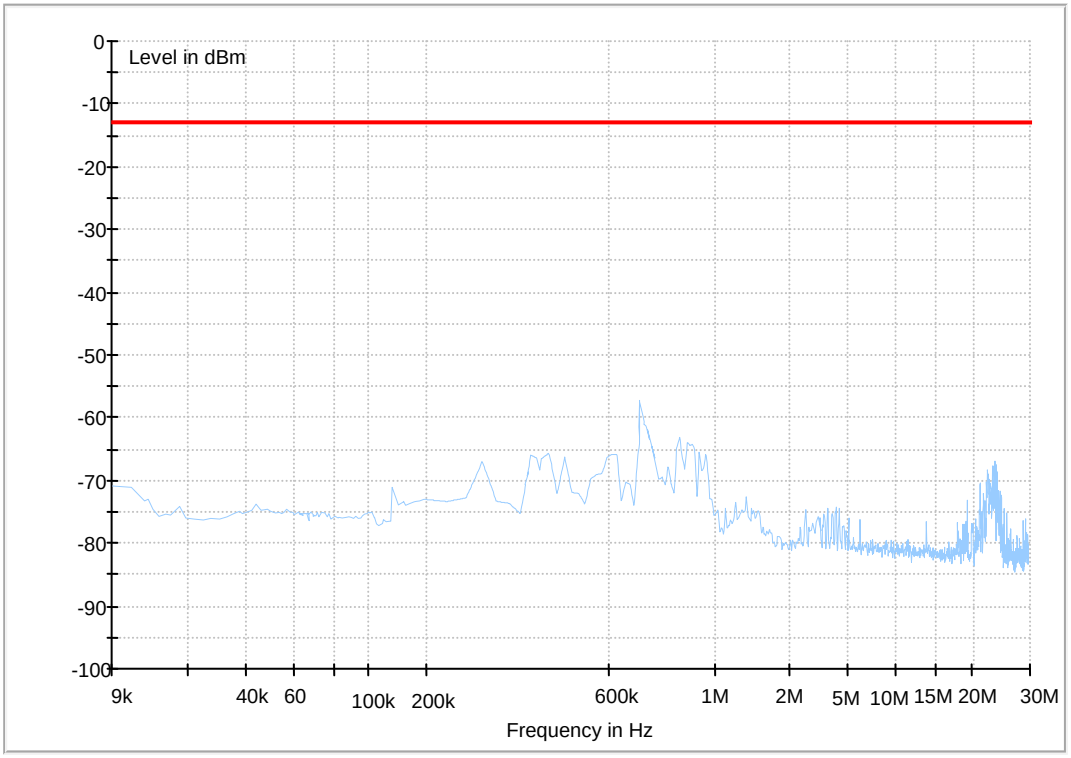
# Appendix F

## Radiated spurious emission

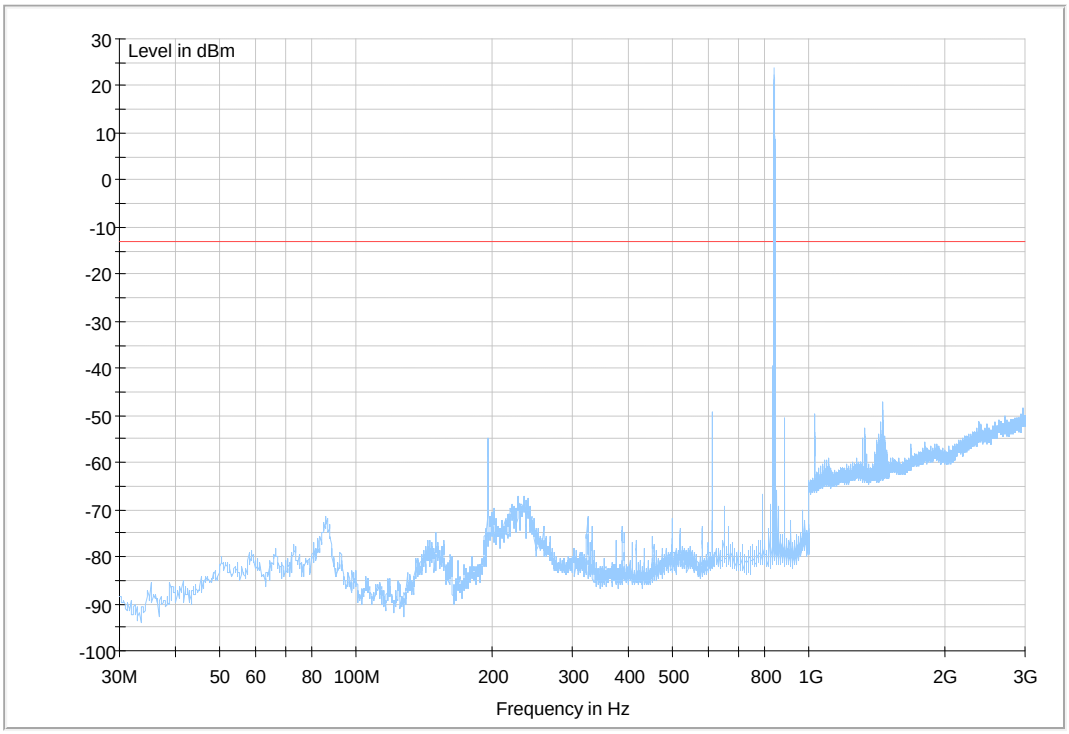
According to FCC Part 2.1053& Part 22.917

# GPRS 850

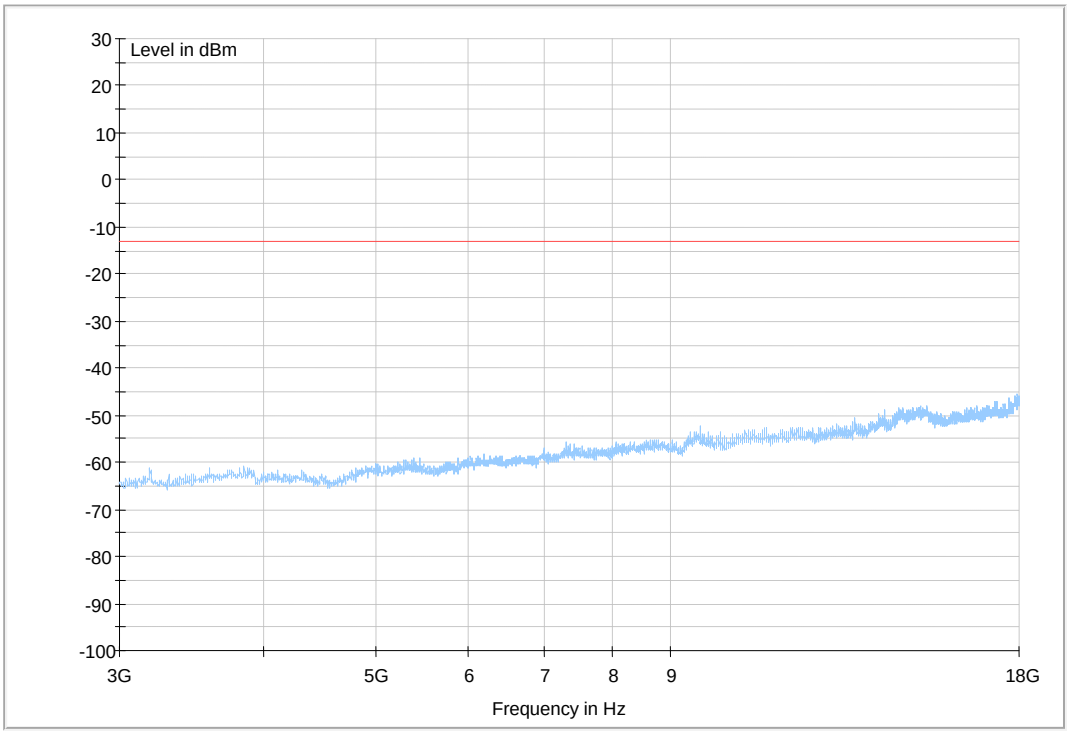
(9kHz~30MHz)




(30MHz~3GHz)



(3GHz~18GHz)




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

# Appendix G

## Frequency Stability

According to FCC Part 2.1055 & Part 22.355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# 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 | 45 | 0.0538 | --- | ±2.5 | Pass |
| | | | -20 °C | 26 | 0.0311 | --- | ±2.5 | Pass |
| | | | -10 °C | -55 | -0.0657 | --- | ±2.5 | Pass |
| | | | 0 °C | -10 | -0.0119 | --- | ±2.5 | Pass |
| | | | 10 °C | 12 | 0.0143 | --- | ±2.5 | Pass |
| | | | 20 °C | -35 | -0.0418 | --- | ±2.5 | Pass |
| | | | 30 °C | 60 | 0.0717 | --- | ±2.5 | Pass |
| | | | 40 °C | 55 | 0.0657 | --- | ±2.5 | Pass |
| | | | 50 °C | -52 | -0.0621 | --- | ±2.5 | Pass |


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No Distribution without Written Permission

# 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 % | 8 | 0.0096 | --- | ±2.5 | Pass |
| | | | 115 % | -12 | -0.0143 | --- | ±2.5 | Pass |

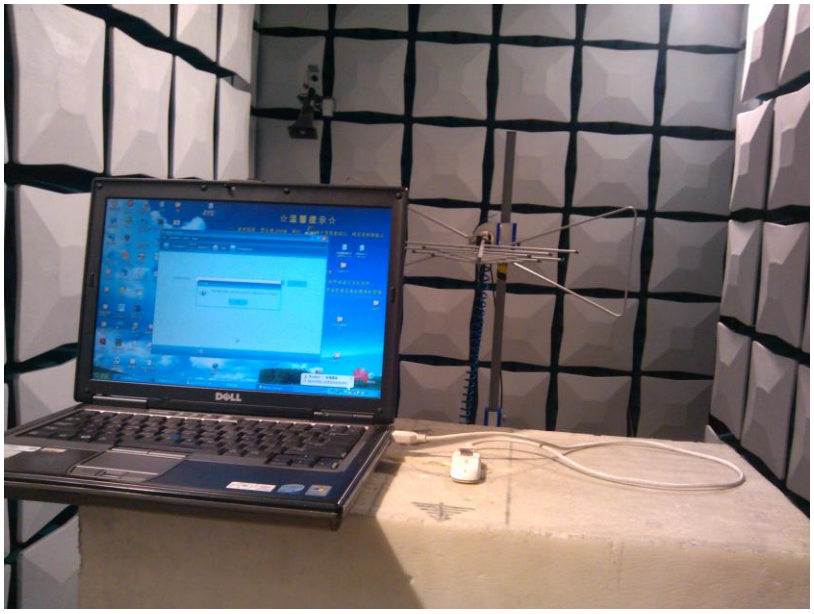
----------The END----------

# Appendix H

## Photos of Radiated Spurious Emissions

# Photos of Test Setup

# 1 Radiated Spurious Emissions



Radiated Spurious Emission (below 3GHz)

Radiated Spurious Emission (3GHz to18GHz)

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