



FCC

RF Test Report

**Product Name1: HSPA/UMTS/GPRS/GSM/EDGE Mobile Phone
with Bluetooth; HUAWEI Ascend Y210**

Model Number1: HUAWEI Y210-0151, Y210-0151

**Product Name2: HSPA/UMTS/GPRS/GSM/EDGE Mobile Phone
with Bluetooth; HUAWEI Ascend Y210D**

Model Number2: HUAWEI Y210-0251, Y210-0251

**Report No: SYBH(Z-RF)006092012-2001
FCC ID: QISY210-0151**

Reliability Laboratory of Huawei Technologies Co., Ltd.

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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.
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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.
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1 General Information

1.1 Applied Standard	
Applied Rules:	47 CFR FCC Part 2:2011, Subpart J 47 CFR FCC Part 22:2011, Subpart H ANSI/TIA 603C:2004
1.2 Test Location	
Test Location 1:	Reliability Laboratory of Huawei Technologies Co., Ltd.
Address:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
1.3 Test Environmental 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	Pass
Modulation Characteristics	2.1047	Digital modulation	Pass
Occupied Bandwidth	2.1049	(Not specified)	Pass
Band Edges Compliance	2.1051 & 22.917	Below -13 dBm/1%*EBW, in 1 MHz range	Pass
Spurious Emission at Antenna Terminals	2.1051 & 22.917	Below -33 dBm/1 kHz, 9 kHz to 150 kHz Below -23 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 Product Information

3.1.1 General Description

HUAWEI Y210-0151, Y210-0151, HUAWEI Y210-0251, Y210-0251 is subscriber equipment in the WCDMA/GSM system. The HSPA/UMTS frequency band is Band I and Band II and Band V. The GSM/GPRS/EDGE frequency band includes GSM850 and GSM900 and DCS1800 and PCS1900, but only Band V and GSM850 bands 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.

NOTE: Y210-0151 and Y210-0251 are HSDPA/UMTS/GPRS/GSM/EDGE mobile phones with Bluetooth, which supports GMS 850/900/1800/1900 and WCDMA 850/1900/2100, they are exactly the same except for the number of sim-card slot, Y210-0151 have one sim-card slot, while Y210-0251 have two.

3.1.2 Board Information

Table 2 Board Information

HSPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth; HUAWEI Ascend Y210, HSPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth; HUAWEI Ascend Y210D		
HUAWEI Y210-0151, Y210-0151, HUAWEI Y210-0251, Y210-0251		
Board and Module		
Hardware Version	Software Version	Description
HD1U8685M	Y210-0151V100R001C00B815(HUAWEI Y210-0151, Y210-0151); Y210-0251V100R001C00B801(HUAWEI Y210-0251, Y210-0251)	Main board of Mobile Phone

3.1.3 Adapter Technical Data

AC/DCAdapter Model	HS-050040U5
Manufacturer	Huawei Technologies Co., Ltd.
Input Voltage	~100-240V 50/60Hz 0.2A
Output Voltage	5V  400mA
Rated Power	2W

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-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-050100Z1W
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: HB4W1 Rated capacity: 1700mAh Nominal Voltage:  +3.7V Charging Voltage:  +4.2V

Name	Manufacture	Description
Rechargeable Li-ion	Huawei Technologies Co., Ltd.	Battery Model: HB4W1H Rated capacity: 1750mAh 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 UMTS
TX Output Power (per Antenna Port)	GSM system: 31.5dBm UMTS system: 23dBm
Channel Spacing(s) / Bandwidth(s)	GSM system: 200 kHz UMTS system: 5 MHz
Designation of Emissions	GSM system: 249KGXW (GMSK modulation), 246KG7W (8PSK modulation) UMTS system: 4M18F9W

4.3 Antenna Gain

Antenna Gain(dBi)	1.47
Antenna Gain(dBd)	-0.68

4.4 Power Supply

Specification	Description
Power Supply Type	Directly Connected to DC /AC Power Supply
Input to EUT (DC power)	DC Voltage Nominal: \equiv 3.7 V DC Voltage Range: \equiv 3.6 V to 4.2 V
Input to EUT (AC power)	AC Voltage Nominal: ~ 120 V (50/60 Hz)

5 General Test Conditions / Configurations

5.1 RF Channels under Test

Test Mode	TX / RX	RF Channel		
		Low (L)	Middle (M)	High (H)
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
TM3/TM4/TM5	TX	Channel 4132	Channel 4182	Channel 4233
		826.4MHz	836.4MHz	846.6MHz
	RX	Channel 4357	Channel 4407	Channel 4458
		871.4MHz	881.4MHz	891.6MHz

5.2 Test Modes

Test Mode	Test Modes Description
TM1	GSM/GPRS, GMSK modulation
TM2	EDGE, 8PSK modulation
TM3	WCDMA, QPSK modulation
TM4	HSDPA, QPSK modulation
TM5	HSUPA, QPSK modulation

5.3 Test Environment

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

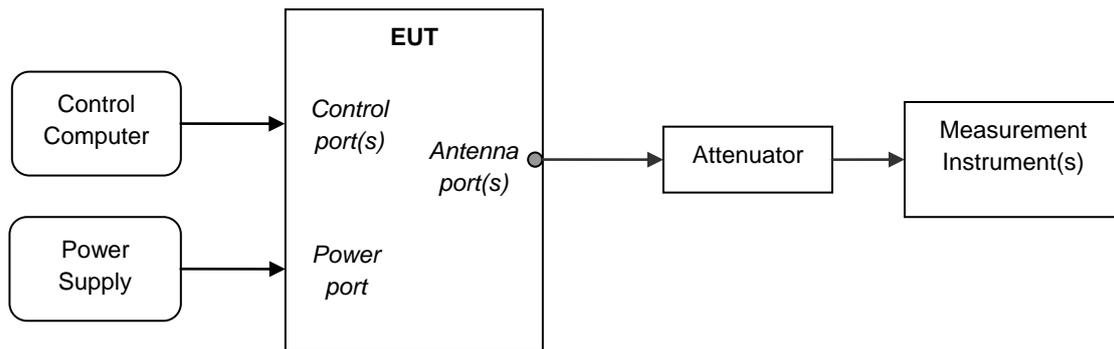
NOTE: VL= lower extreme test voltage
 VN= nominal voltage
 VH= upper extreme test voltage
 TN= normal temperature

5.4 Test Setup

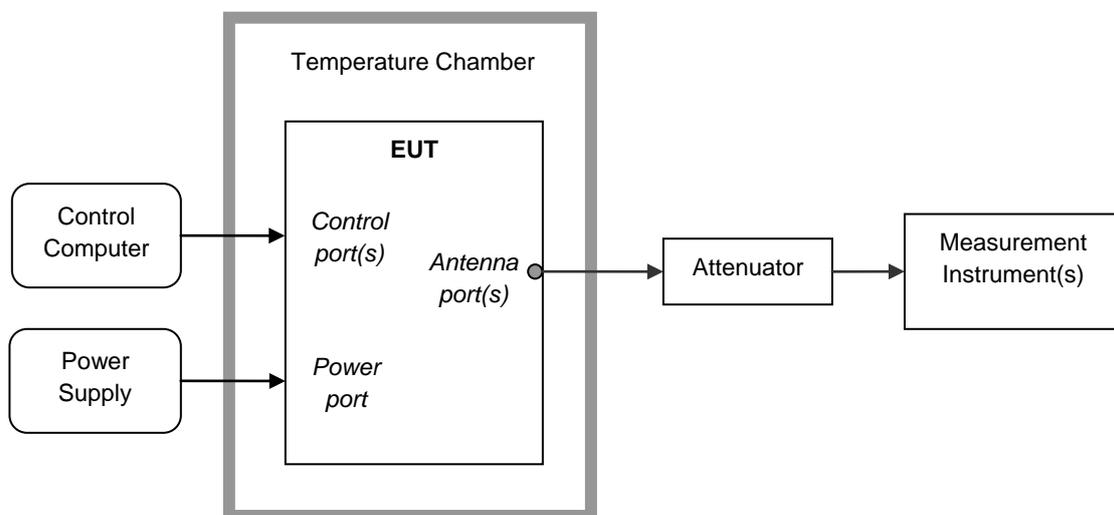
5.4.1 General Test Setup Configurations

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

5.4.2 Test Setup 1



5.4.3 Test Setup 2



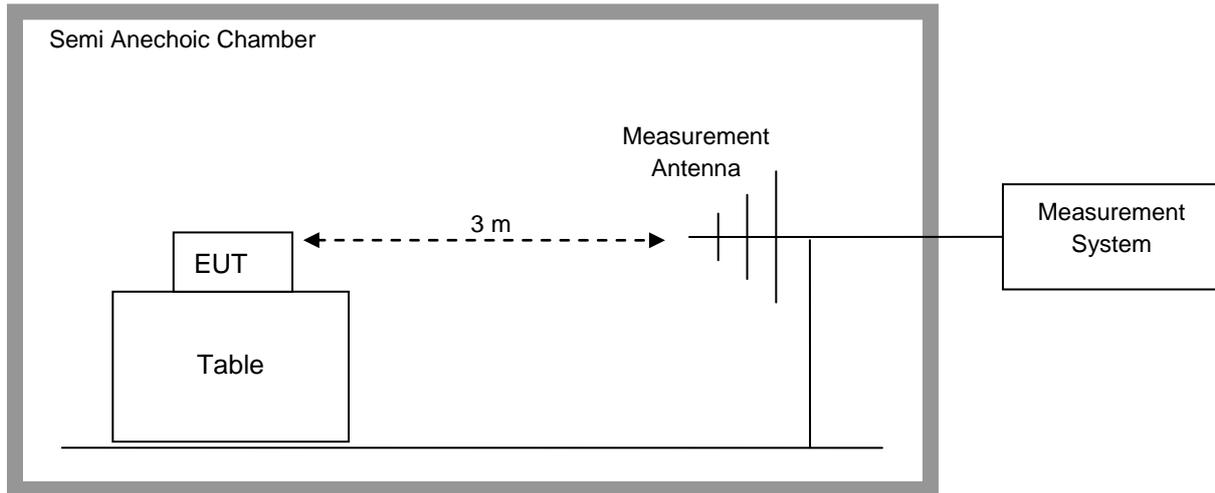
5.4.4 Test Setup 3

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

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

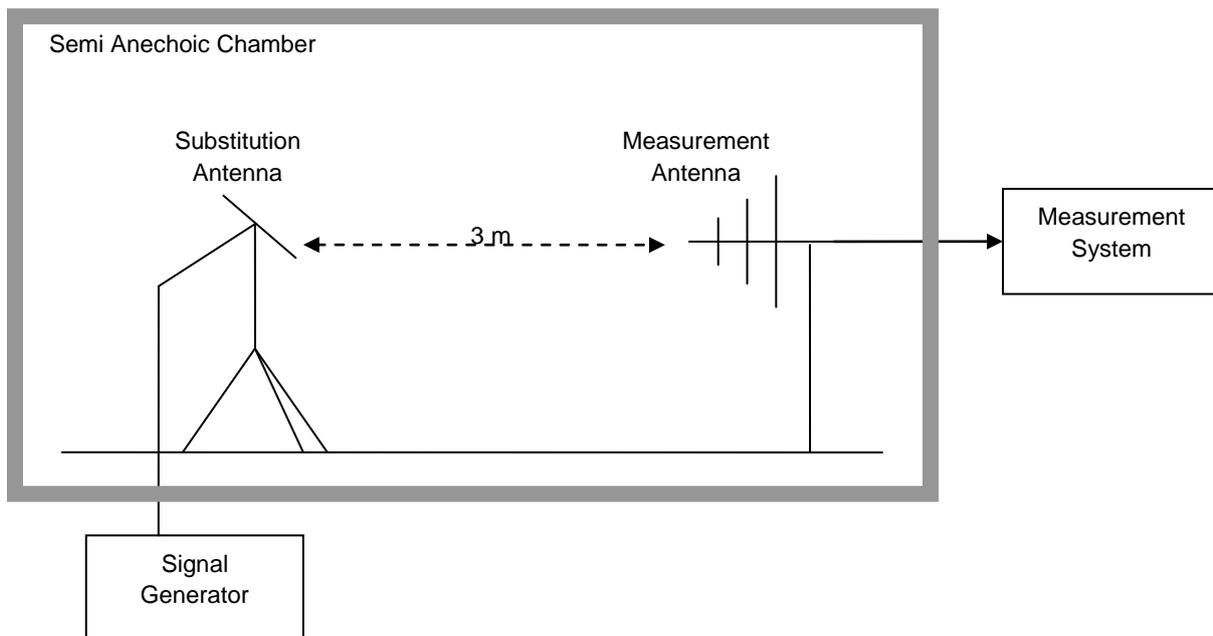
Step 1: Pre-test to find the Maximum ERP or EIRP

1. Connect the test system according to the following figure. EUT is running for 30 minutes before test, and measurement instruments are warming-up for 30 minutes.
2. Set up communication link between Universal radio communication tester and EUT, set EUT working frequency, and control EUT to transmit at maximum power.
3. Set the center frequency of the signal analyzer or receiver to the EUT's operating frequency, the RBW is equal to the emission bandwidth of the signal. Set RMS detector for the test, and the span is equal to 2 times of emission bandwidth, the other settings should remain automatic. Normally, the height range of antenna was 1m to 4m, the azimuth range of turntable was 0° to 360°. The receiver antenna has two polarizations V and H. A portable or small unlicensed wireless device shall be placed on a non-metallic test fixture or other non-metallic support during testing. The supporting fixture shall permit orientation of the EUT in each of three orthogonal (x, y, z) axis positions such that emissions from the EUT are maximized. Measure the EUT maximum RF power and record the result.
4. Changing EUT working frequency and measuring the RF power at channel T, M, B respectively.
Complete the test data.



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

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



5.5 Test Conditions

Test Case	Test Conditions	
Transmitter Output Power	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 1 & Test Setup 3
	Detector	RMS
	RF Channels (TX)	L, M, H
	Test Mode	TM1/TM2/TM3/TM4/TM5
Modulation Characteristics	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 1
	RF Channels (TX)	M
	Test Mode	TM1/TM2/TM3
Occupied Bandwidth	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 1
	Detector	RMS
	RF Channels (TX)	L, M, H
	Test Mode	TM1/TM2/TM3
Band Edges Compliance	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 1
	Detector	RMS
	RF Channels (TX)	L, H
	Test Mode	TM1/TM2/TM3
Spurious Emission at Antenna Terminals	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 1
	Detector	PK
	RF Channels (TX)	L, M, H
	Test Mode	TM1/TM2/TM3
Field Strength of Spurious Radiation	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 3
	Detector	PK
	RF Channels (TX)	M
	Test Mode	TM1/TM2/TM3/TM4/TM5
Frequency Stability	Test Configuration	(1) -30 °C to +50 °C with step 10 °C at Rated Voltage; (2) VL, VN and VH of Rated Voltage at Ambient Temperature.
	Test Setup	Test Setup 2
	RF Channels (TX)	M



Test Case	Test Conditions	
	Test Mode	TM1/TM2/TM3

6 Main Test Instruments

Table 3 Main Test Equipments

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

Note: All the equipments are calibrated once a year. When it's almost due, we will arrange calibration again before the calibration deadline.

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	Radiated spurious emission	Appendix F
7	Frequency Stability	Appendix G
8	Photos of Test Setup	Appendix H

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

8 Measurement Uncertainty

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

Test Item		Extended Uncertainty
Transmitter Output Power	Power (dBm)	U =0.39 dB
Occupied Bandwidth	Magnitude (%)	U=0.2%
Band Edge Compliance	Disturbance Power (dBm)	U=2.0 dB
Conducted Spurious Emissions	Disturbance Power (dBm)	U=2.0 dB
Field Strength of Spurious Radiation	ERP (dBm)	U=4.6 dB (30 MHz – 1GHz) 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

TEST CONDITIONS		RF Output Power (Conducted)					
		Channel128(L)		Channel192(M)		Channel251(H)	
		824.2MHz		837.0MHz		848.8MHz	
		dBm		dBm		dBm	
T_{nom} / V_{nom}		Measured	Limit	Measured	Limit	Measured	Limit
TM1		31.42	38.5	31.47	38.5	31.56	38.5
TM2		27.09	38.5	27.19	38.5	27.27	38.5
TEST CONDITIONS		Channel4132(L)		Channel4182(M)		Channel4233(H)	
		826.4MHz		836.4MHz		846.6MHz	
		dBm		dBm		dBm	
		T_{nom} / V_{nom}		Measured	Limit	Measured	Limit
TM3		22.21	38.5	22.38	38.5	22.38	38.5
TM4	Case1	22.09	38.5	22.31	38.5	22.22	38.5
	Case2	21.75	38.5	21.93	38.5	21.90	38.5
	Case3	20.97	38.5	21.17	38.5	21.23	38.5
	Case4	21.03	38.5	21.13	38.5	21.15	38.5
TM5	Case1	21.31	38.5	21.56	38.5	21.41	38.5
	Case2	19.67	38.5	19.88	38.5	19.69	38.5
	Case3	20.15	38.5	20.37	38.5	20.23	38.5
	Case4	20.23	38.5	20.48	38.5	20.31	38.5
	Case5	21.12	38.5	21.32	38.5	21.25	38.5

Note: RBW > emission bandwidth, VBW > 3 x RBW.



Effective Radiated Power of Transmitter (ERP)

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	30.74	Dipole Ant.	34.06	-2.75	0.6	30.71	38.5	Pass
TM1	837.0	30.79	Dipole Ant.	34.22	-2.87	0.6	30.75	38.5	Pass
TM1	848.8	30.88	Dipole Ant.	34.32	-2.85	0.6	30.87	38.5	Pass
TM2	824.2	26.41	Dipole Ant.	29.77	-2.75	0.6	26.42	38.5	Pass
TM2	837.0	26.51	Dipole Ant.	30.01	-2.87	0.6	26.54	38.5	Pass
TM2	848.8	26.59	Dipole Ant.	30.01	-2.85	0.6	26.56	38.5	Pass
TM3	826.4	21.53	Dipole Ant.	24.89	-2.75	0.6	21.54	38.5	Pass
TM3	836.4	21.70	Dipole Ant.	25.19	-2.87	0.6	21.72	38.5	Pass
TM3	846.6	21.70	Dipole Ant.	25.20	-2.85	0.6	21.75	38.5	Pass

Note1: a, For getting the ERP (Efficient Radiated Power) in substitution method, the following formula should be taken to calculate it,

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

b, SGP=Signal Generator Level

Note2: RBW > emission bandwidth, VBW > 3 x RBW.

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



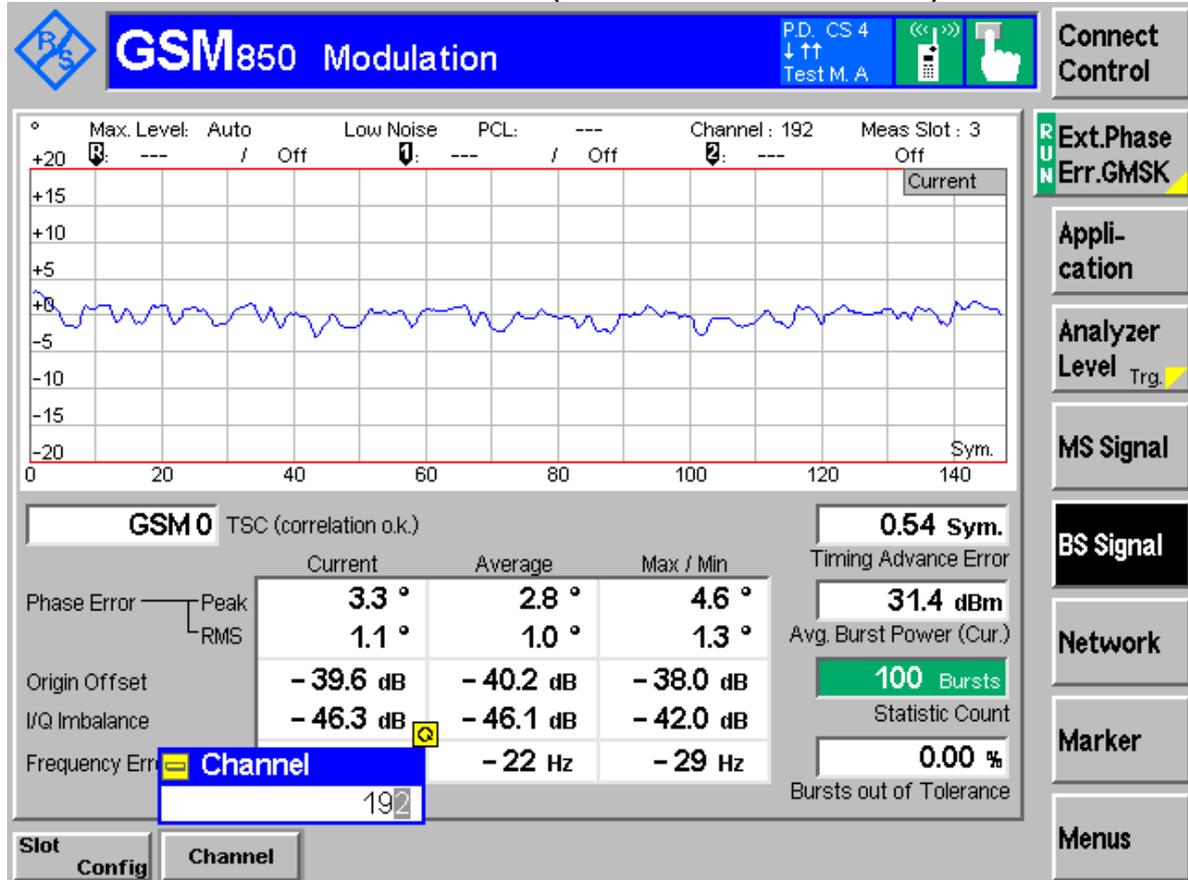
Appendix B

Modulation Characteristics

According to FCC Part 2.1047 & Part22 Subpart H

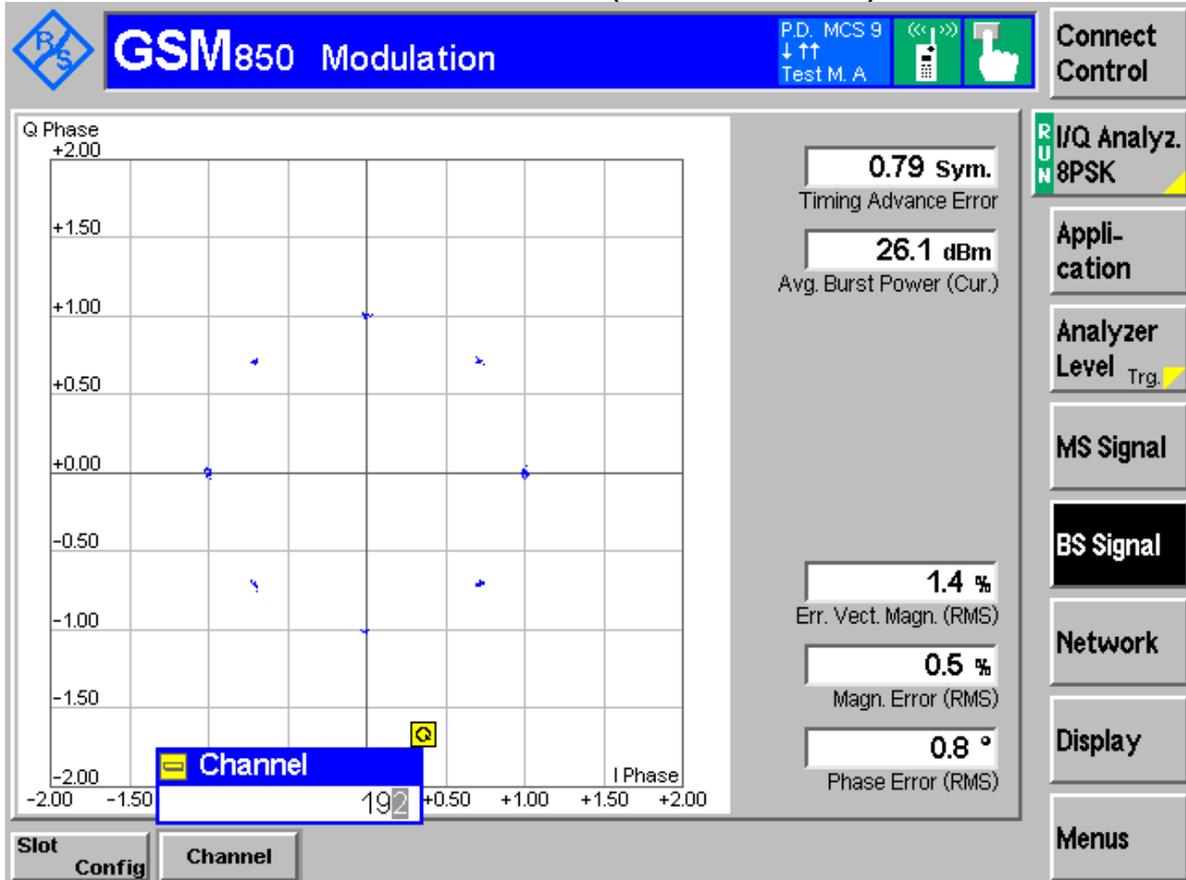


Channel 192 (TM1:GPRS/GSM)



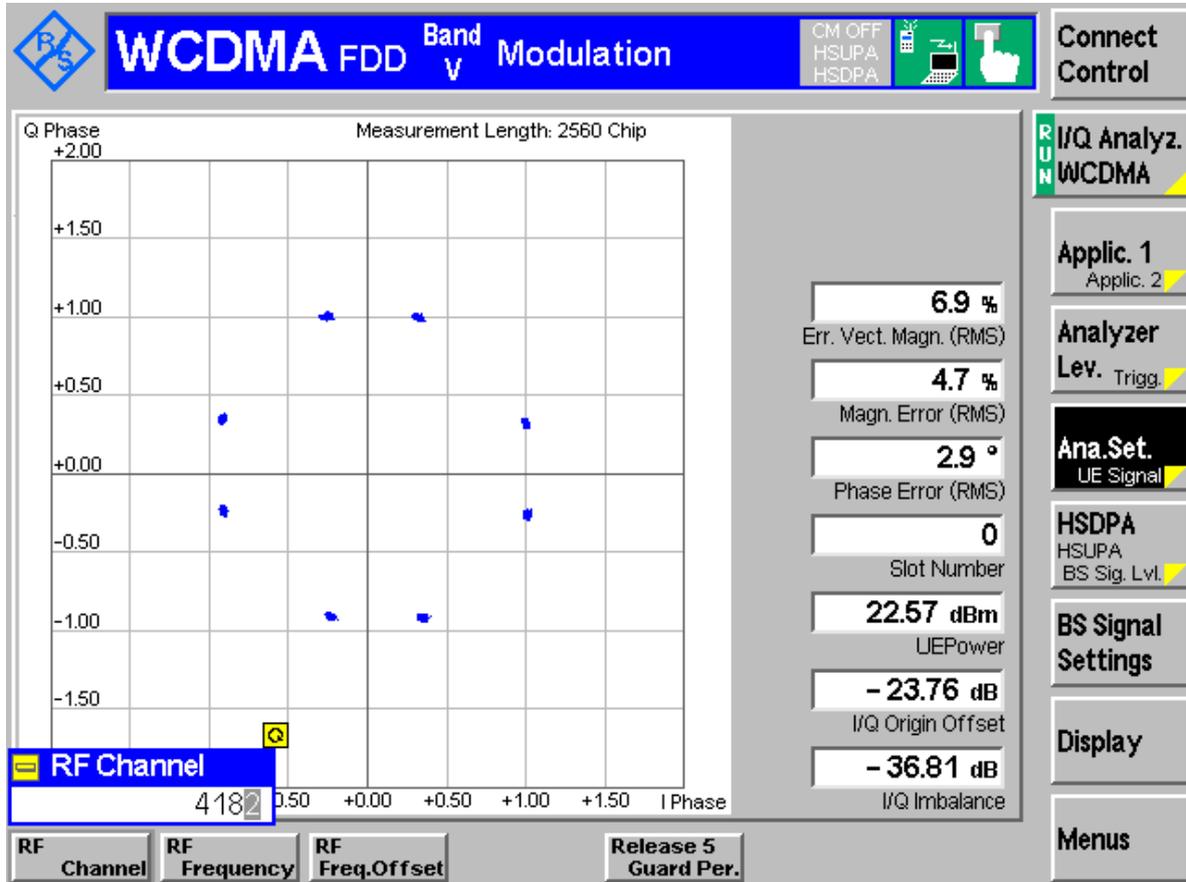


Channel 192 (TM2:EDGE)





Channel 4182 (TM3: WCDMA)



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



Appendix C

Occupied Bandwidth According to FCC Part 2.1049 & Part 22 Subpart H



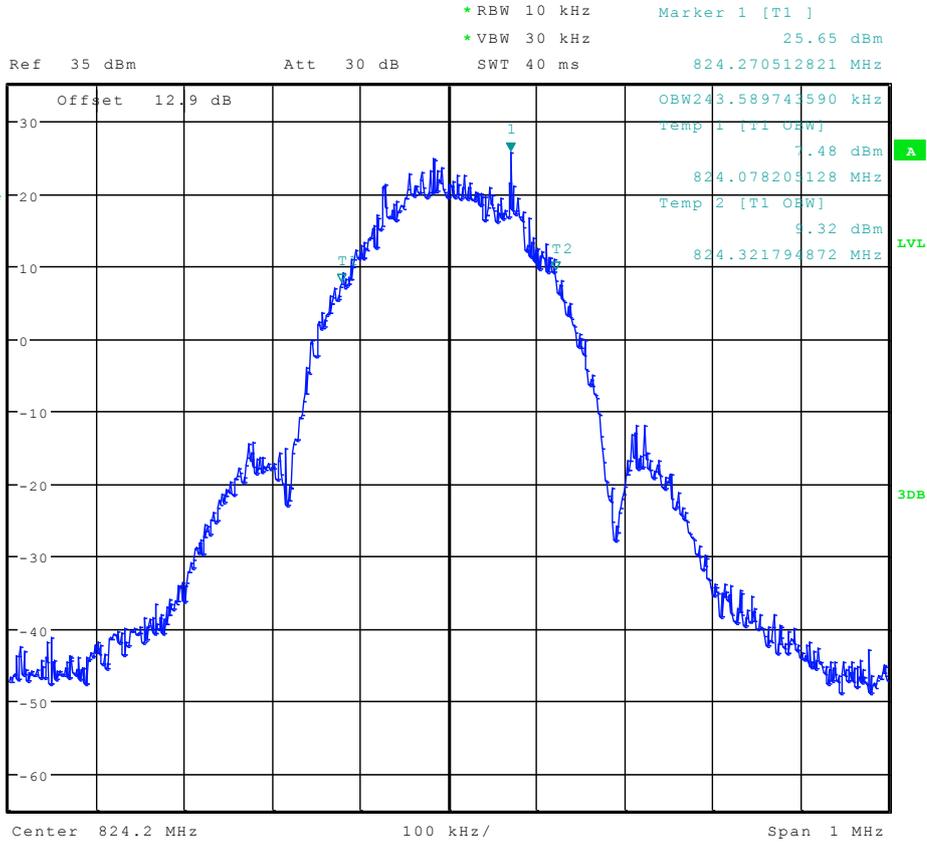
Result Table

Table 1 Measurement Results

Test Mode	RF Channel	Occupied Bandwidth [kHz]	Verdict
TM1	128	246.79	Pass
	192	248.40	Pass
	251	246.79	Pass
TM2	128	243.59	Pass
	192	243.59	Pass
	251	245.19	Pass
Test Mode	RF Channel	Occupied Bandwidth [MHz]	Verdict
TM3	4132	4.18	Pass
	4182	4.18	Pass
	4233	4.18	Pass



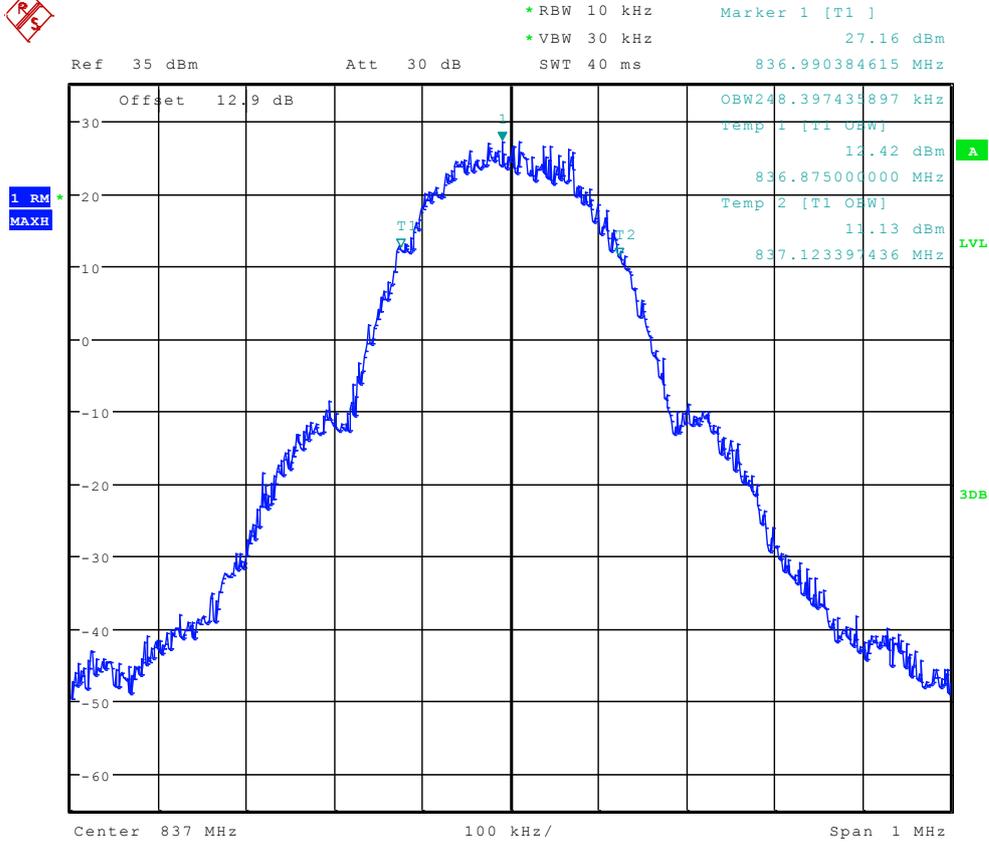
Channel 128 (TM2:EDGE)



Date: 14.OCT.2012 10:31:40



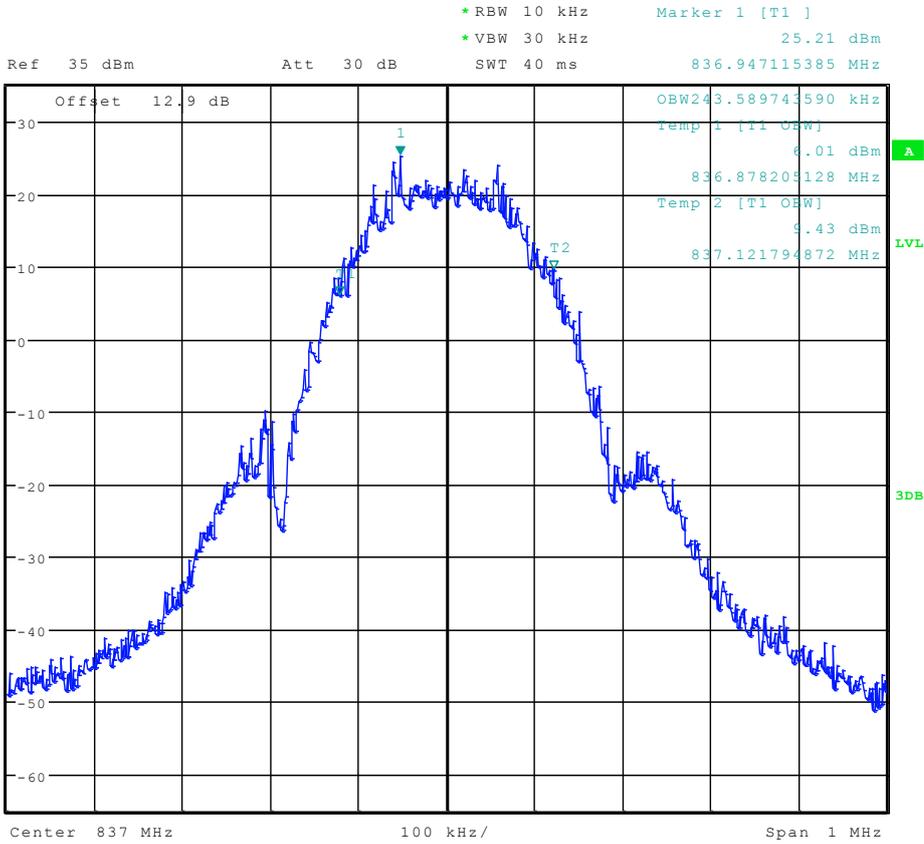
Channel 192 (TM1:GPRS/GSM)



Date: 14.OCT.2012 10:26:29



Channel 192 (TM2:EDGE)



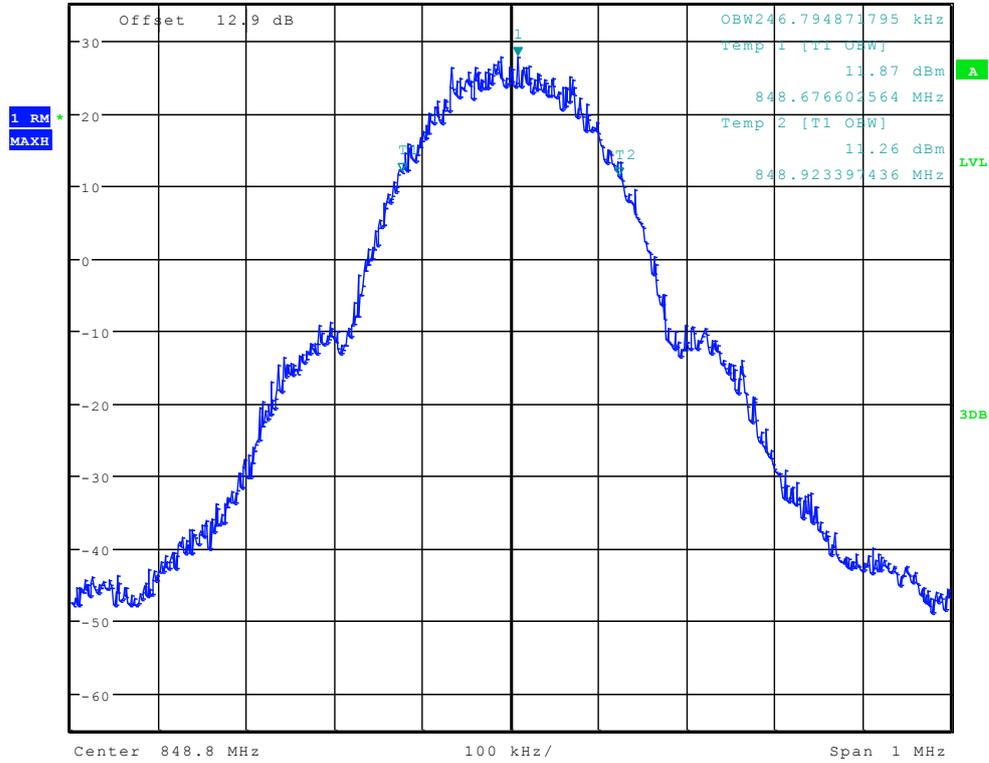
Date: 14.OCT.2012 10:31:54



Channel 251 (TM1:GPRS/GSM)



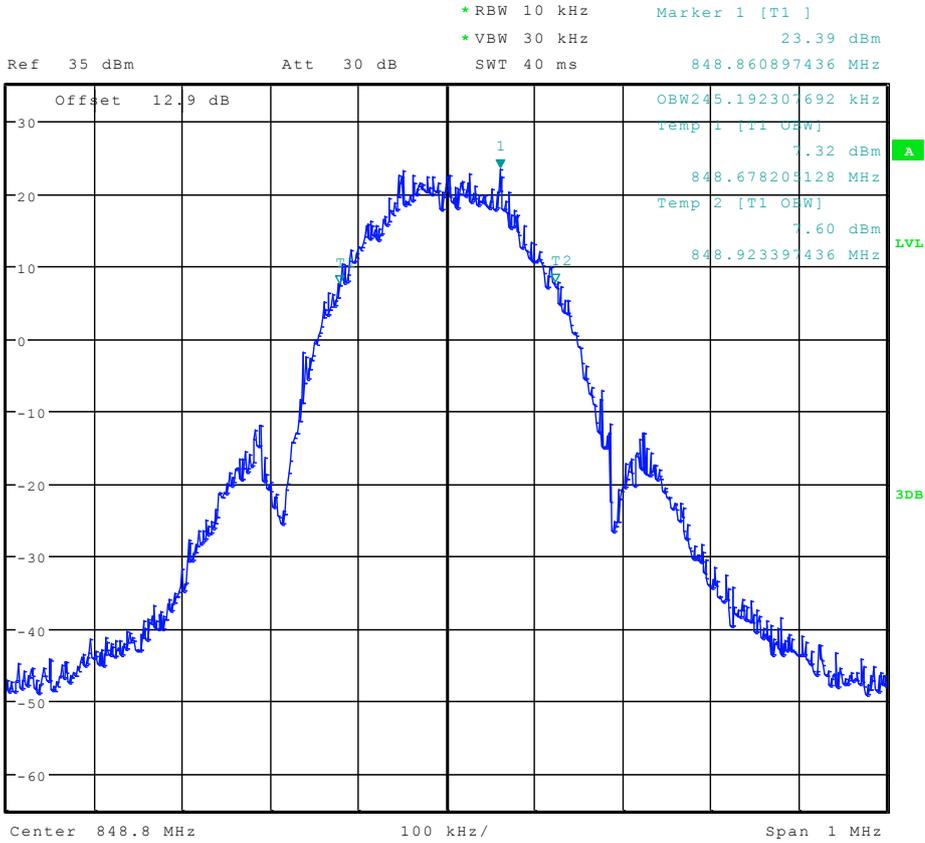
Ref 35 dBm Att 30 dB RBW 10 kHz Marker 1 [T1] 27.77 dBm
 * VBW 30 kHz 848.808012821 MHz
 SWT 40 ms



Date: 14.OCT.2012 10:26:43



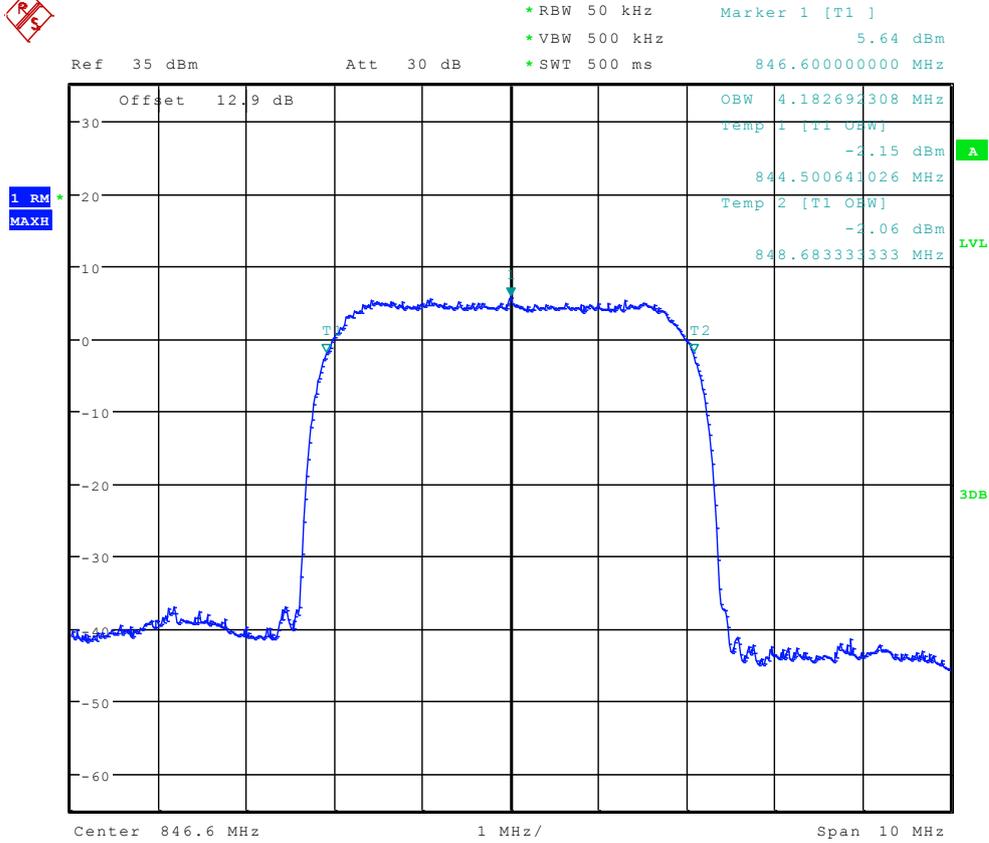
Channel 251 (TM2:EDGE)



Date: 14.OCT.2012 10:32:07



Channel 4233 (TM3: WCDMA)



Date: 14.OCT.2012 10:40:40

The END



Appendix D

Band Edges Compliance

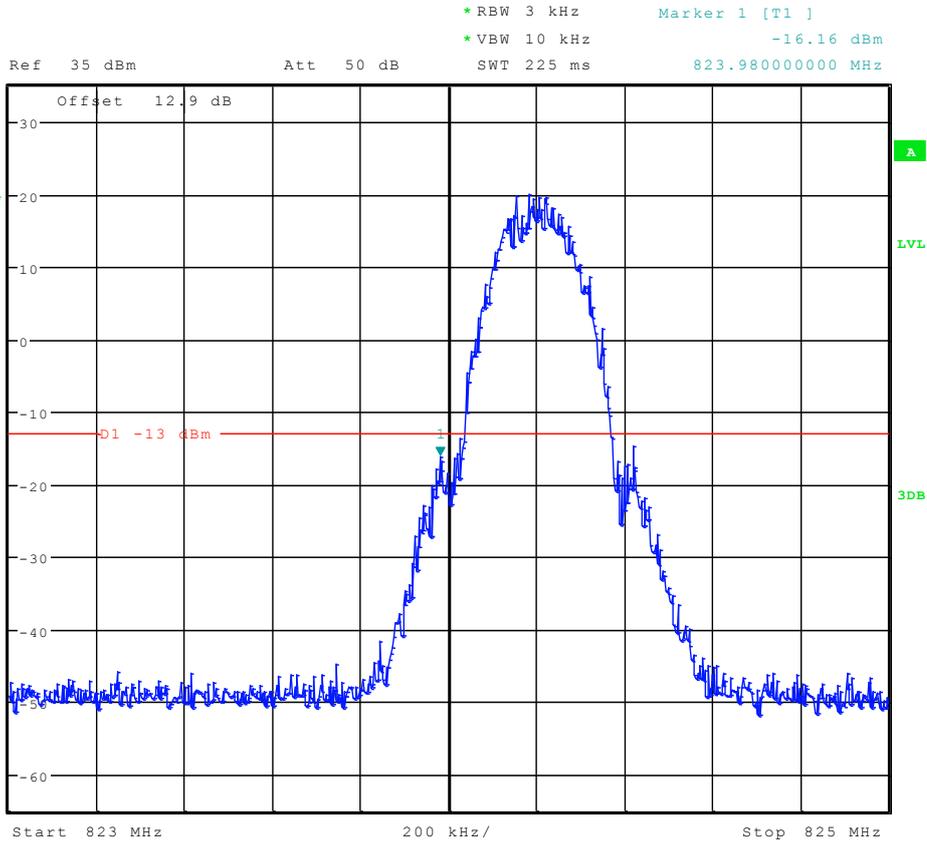
According to FCC Part 2.1051 & Part 22 Subpart H



TM1:GPRS/GSM

Left Edge

Channel 128



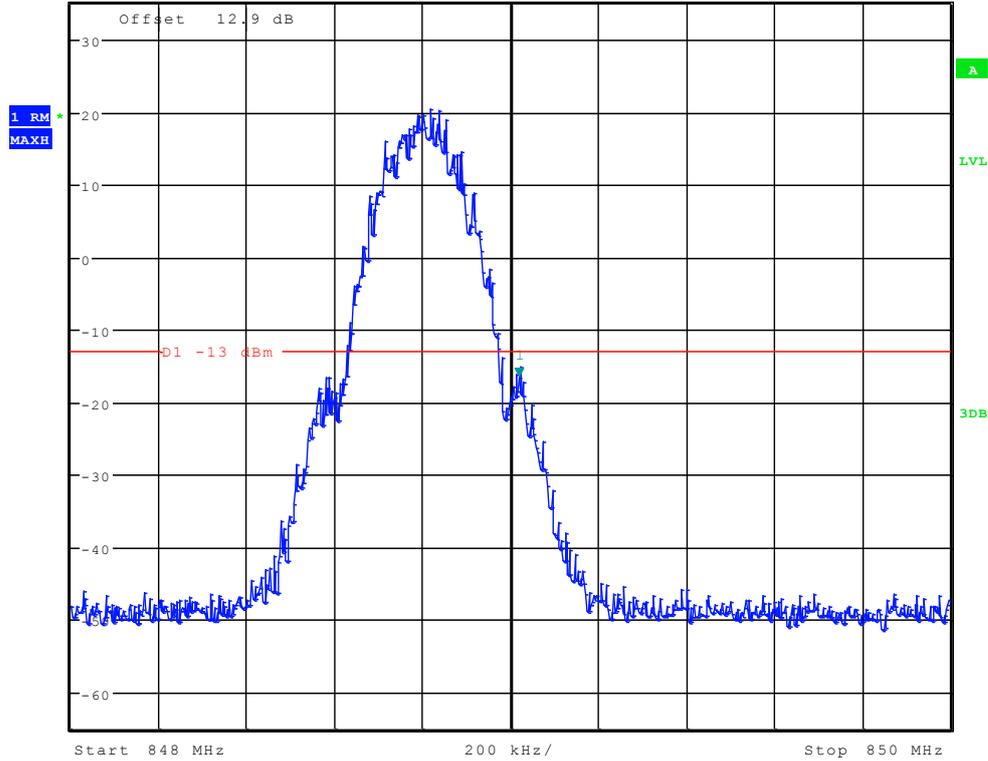
Date: 14.OCT.2012 10:29:09



Right Edge Channel 251



Ref 35 dBm Att 50 dB RBW 3 kHz Marker 1 [T1] -16.65 dBm
* VBW 10 kHz
SWT 225 ms 849.02000000 MHz



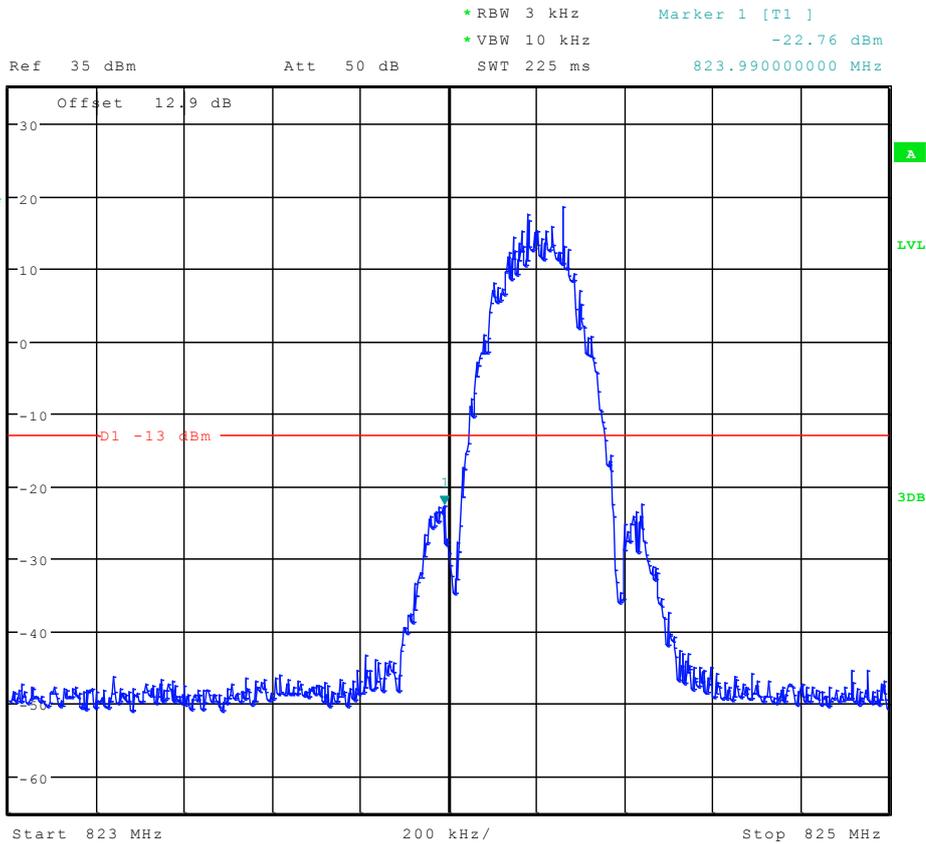
Date: 14.OCT.2012 10:29:24



TM2:EDGE

Left Edge

Channel 128



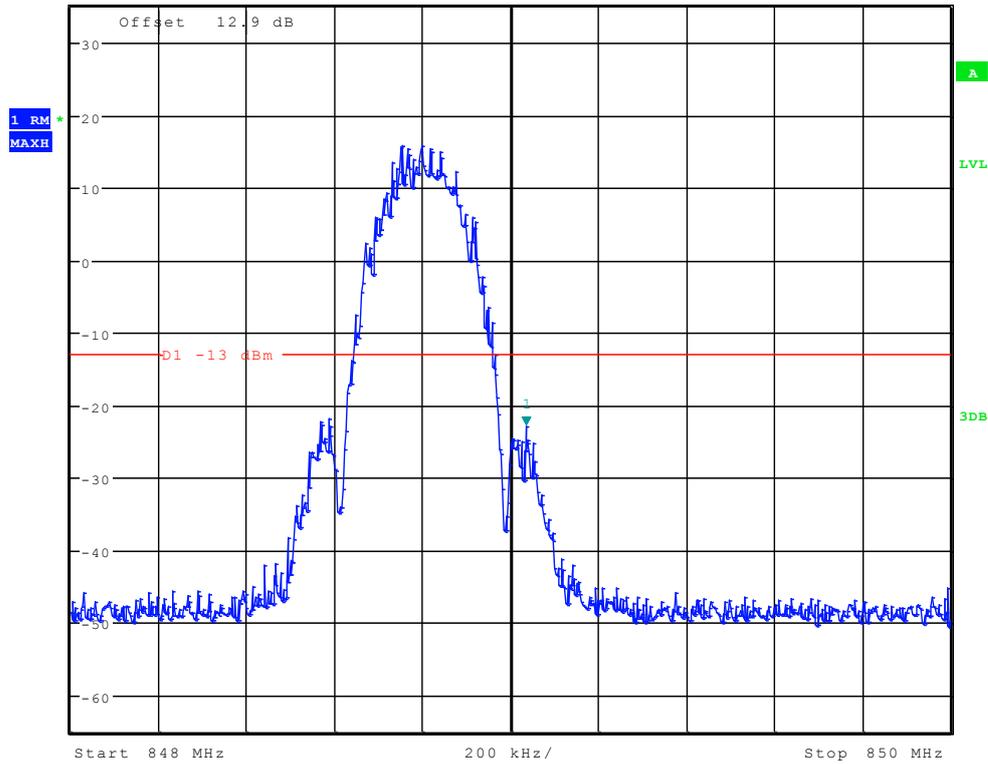
Date: 14.OCT.2012 10:31:05



Right Edge Channel 251



Ref 35 dBm Att 50 dB RBW 3 kHz Marker 1 [T1] -22.92 dBm
* VBW 10 kHz
SWT 225 ms 849.03500000 MHz



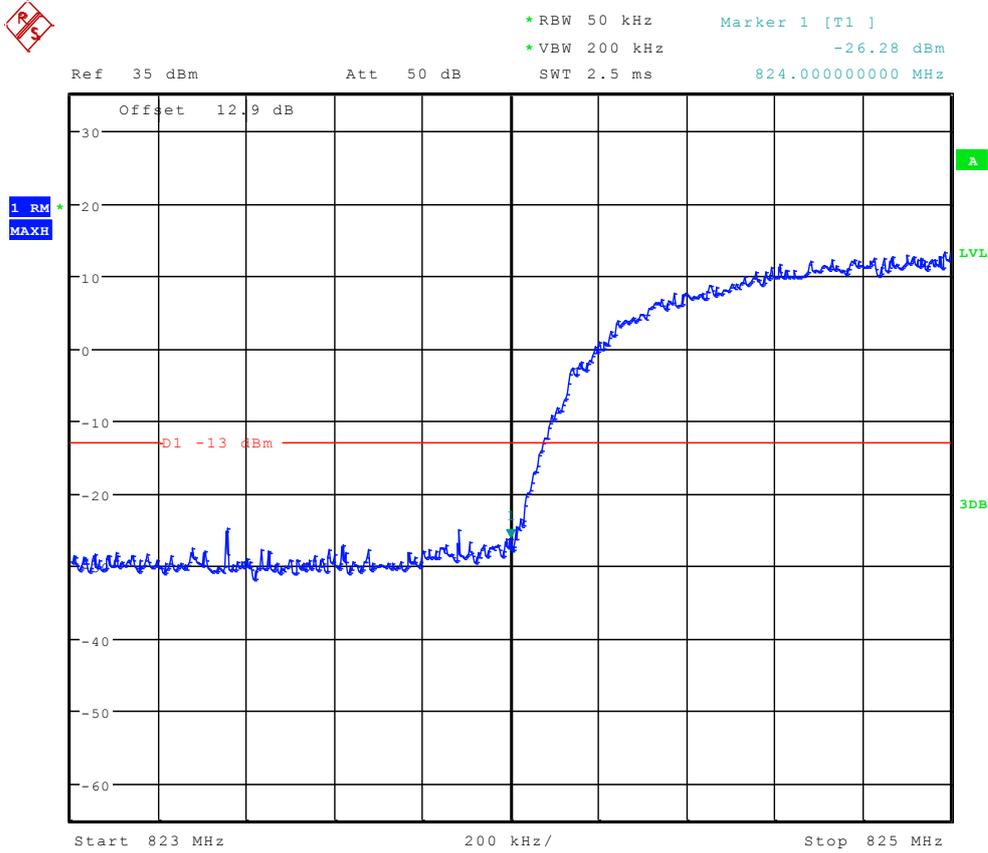
Date: 14.OCT.2012 10:31:26



TM3: WCDMA

Left Edge

Channel 4132



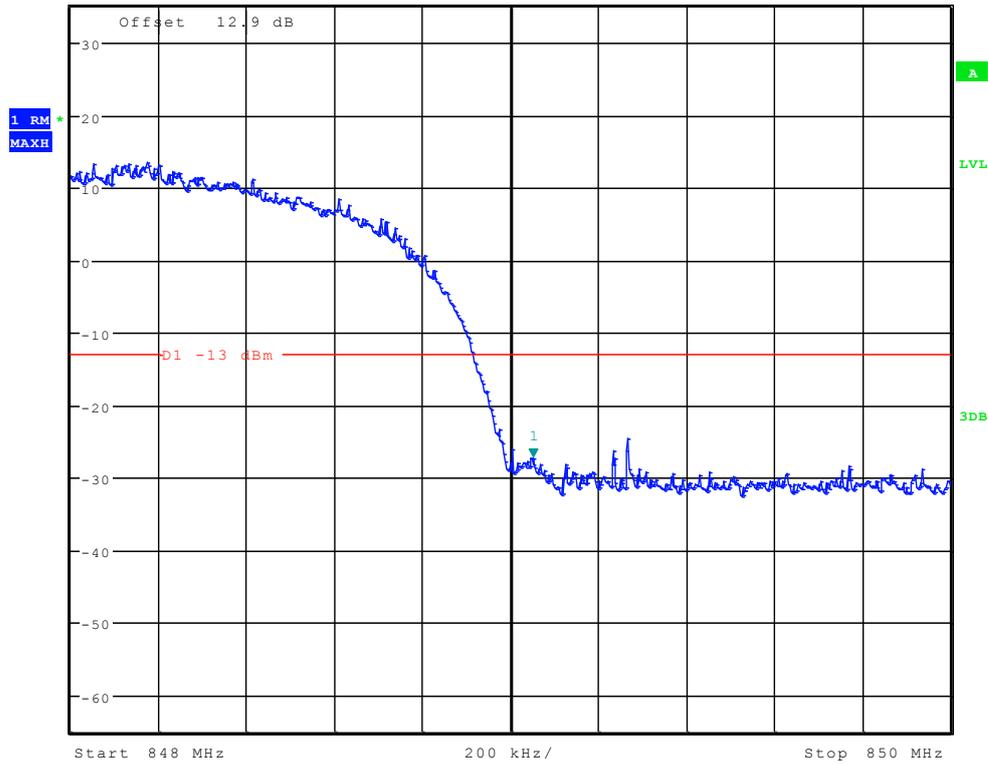
Date: 14.OCT.2012 10:40:54



Right Edge Channel 4233



Ref 35 dBm Att 50 dB *RBW 50 kHz Marker 1 [T1] -27.31 dBm
*VBW 200 kHz 849.05000000 MHz
SWT 2.5 ms



Date: 14.OCT.2012 10:41:08

The END



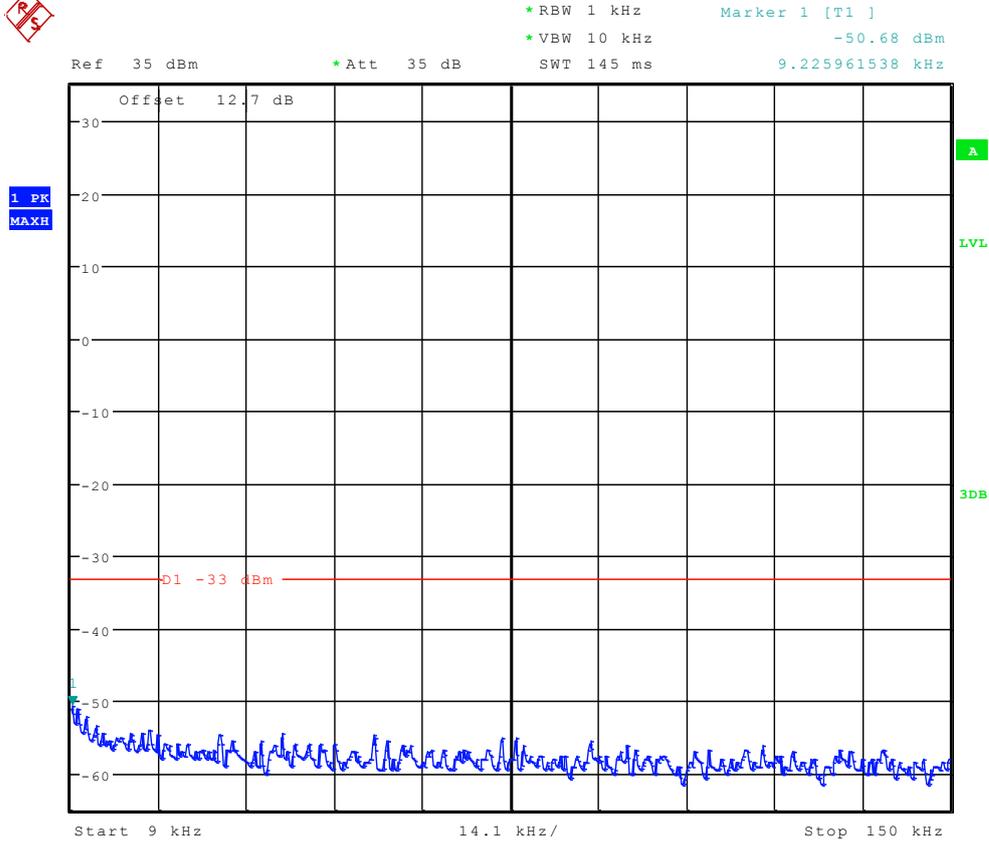
Appendix E

Spurious Emission at Antenna Terminal

According to FCC Part 2.1051 & Part 22 Subpart H



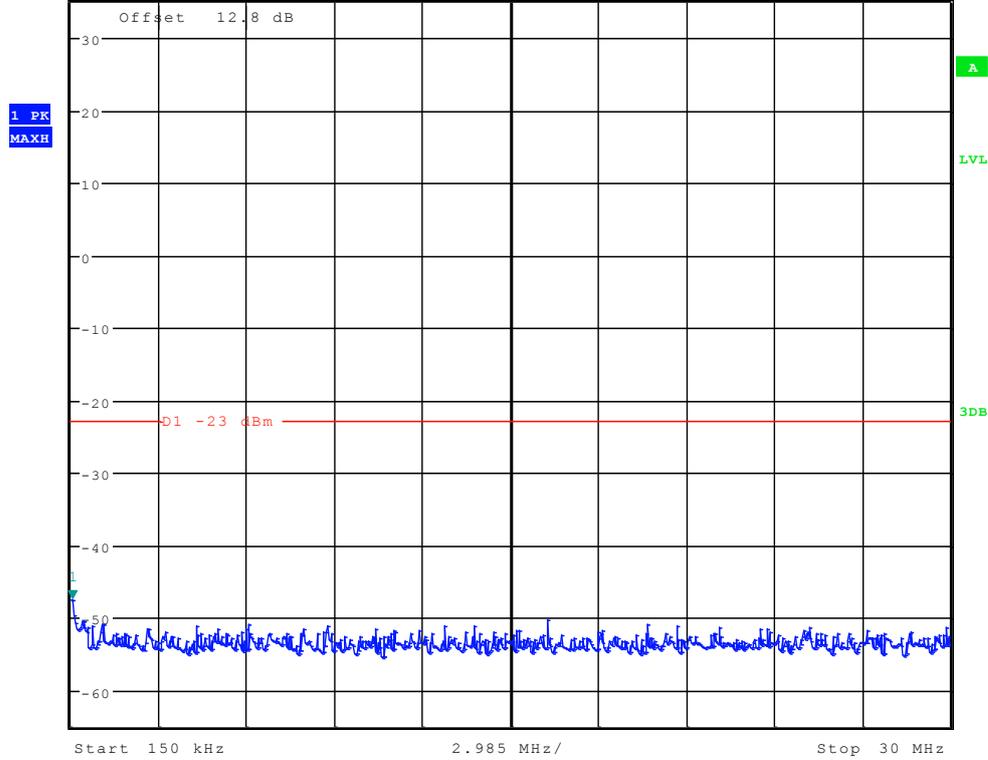
TM1:GPRS/GSM Channel 128



Date: 14.OCT.2012 10:26:58



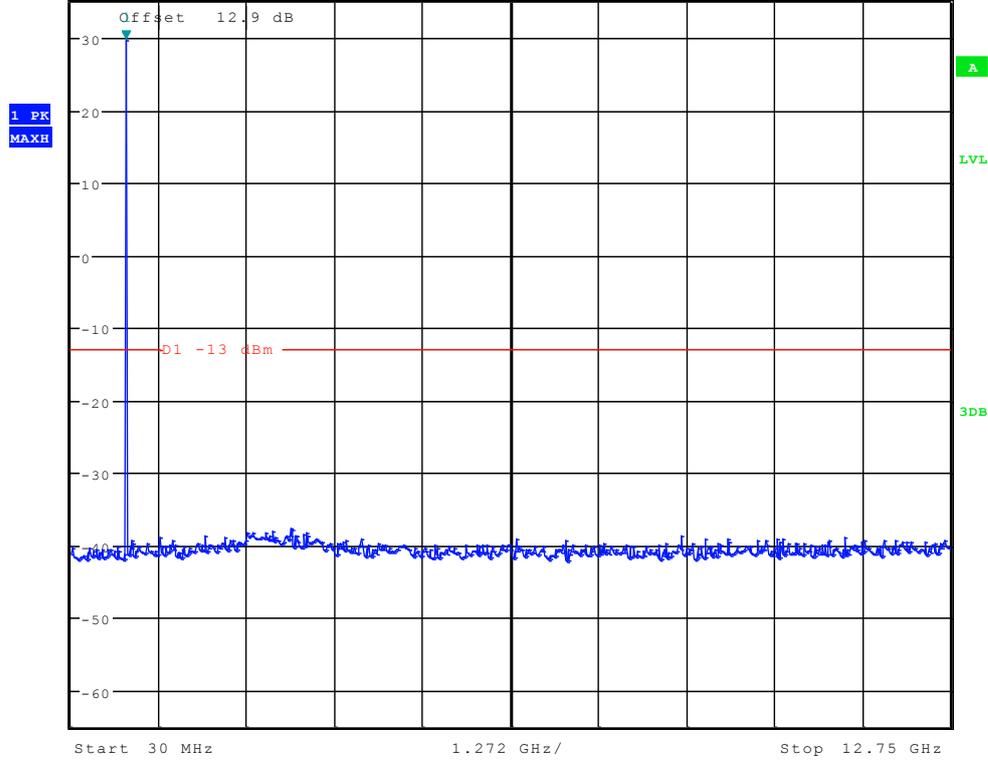
Ref 35 dBm * Att 35 dB SWT 300 ms
* RBW 10 kHz Marker 1 [T1] -47.38 dBm
* VBW 30 kHz 197.836538462 kHz



Date: 14.OCT.2012 10:27:42



Ref 35 dBm * Att 35 dB SWT 1.3 s
* RBW 100 kHz Marker 1 [T1] 29.64 dBm
* VBW 300 kHz 825.00000000 MHz



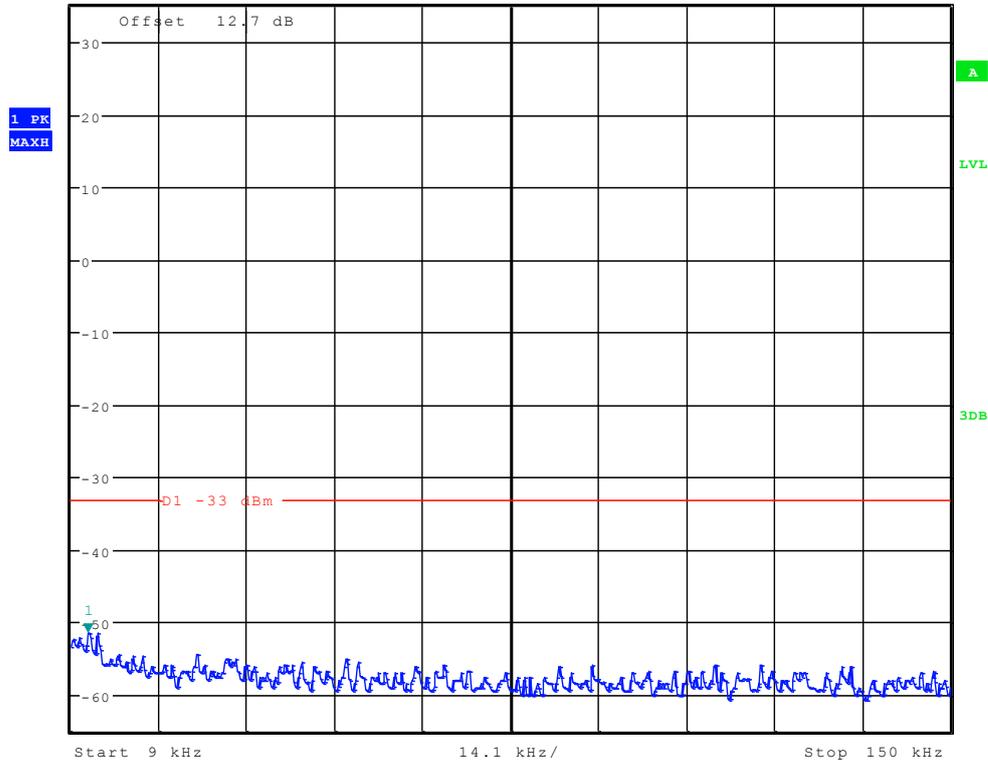
Date: 14.OCT.2012 10:28:26



Channel 192



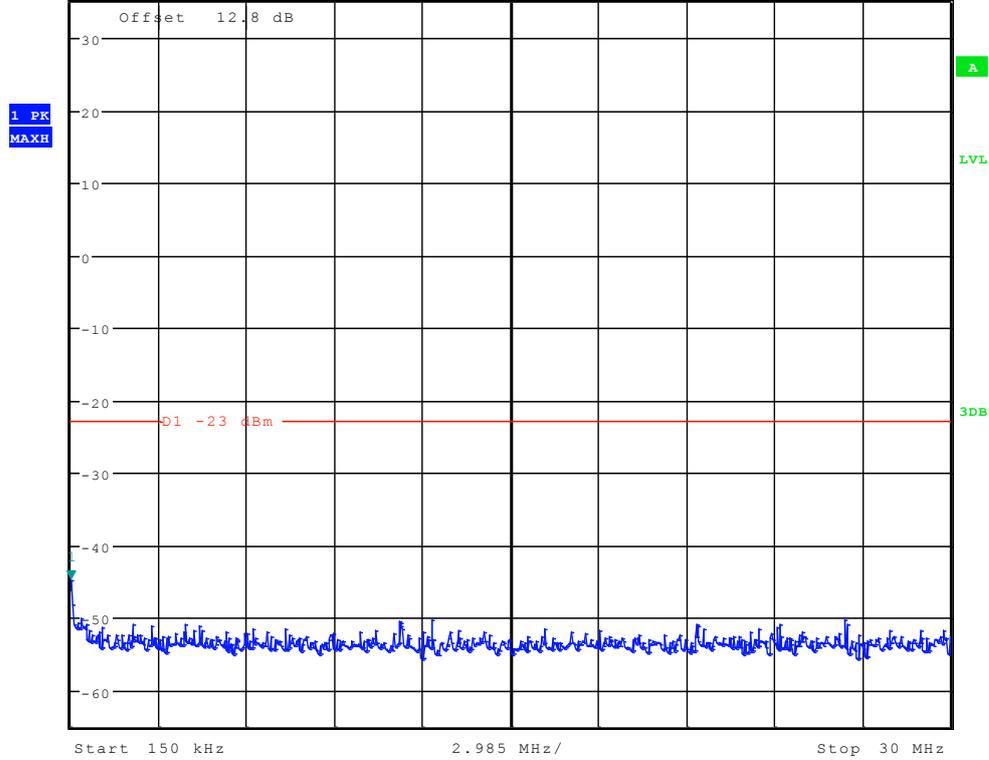
* RBW 1 kHz Marker 1 [T1]
 * VBW 10 kHz -51.39 dBm
 Ref 35 dBm * Att 35 dB SWT 145 ms 11.711538462 kHz



Date: 14.OCT.2012 10:27:12



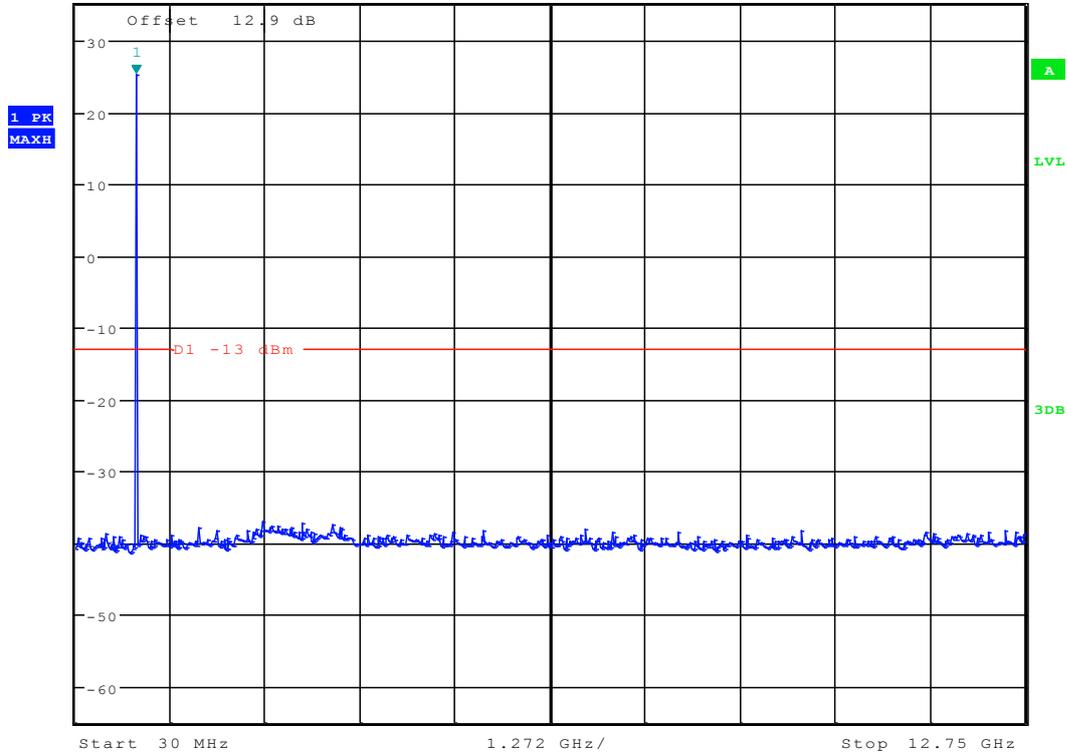
Ref 35 dBm * Att 35 dB SWT 300 ms
* RBW 10 kHz Marker 1 [T1] -44.73 dBm
* VBW 30 kHz 150.00000000 kHz



Date: 14.OCT.2012 10:27:56



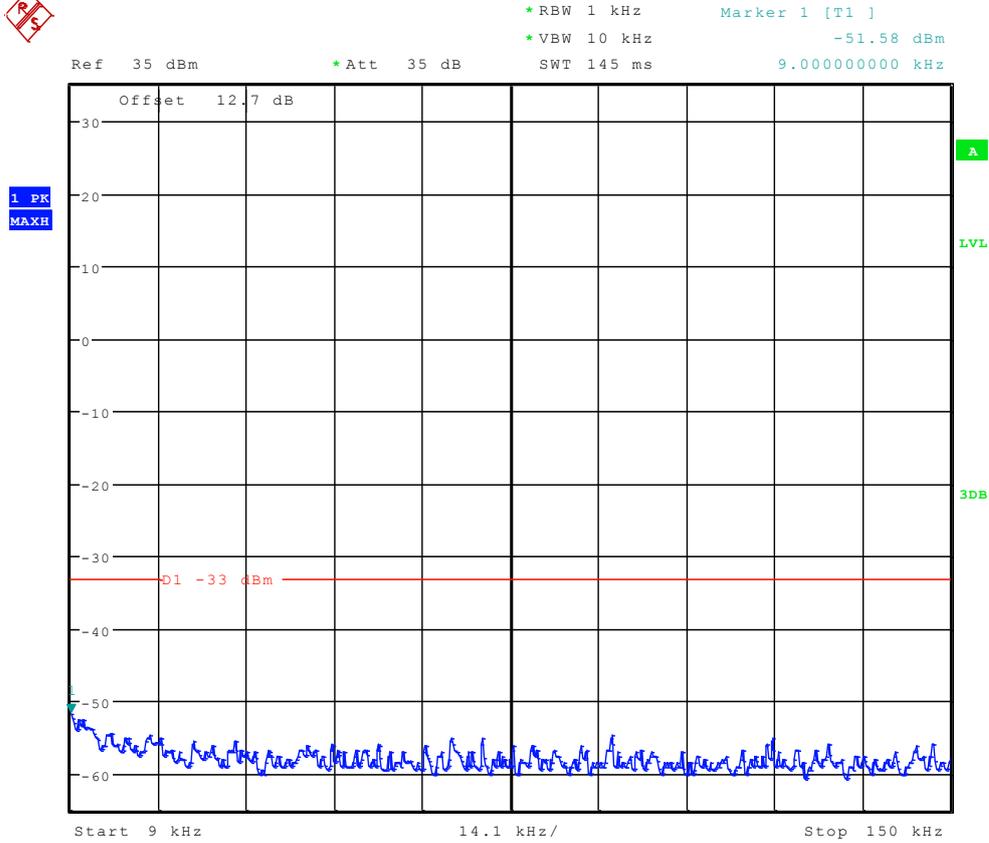
Ref 35 dBm * Att 35 dB SWT 1.3 s * RBW 100 kHz * VBW 300 kHz Marker 1 [T1]
25.24 dBm
845.384615385 MHz



Date: 14.OCT.2012 10:38:26



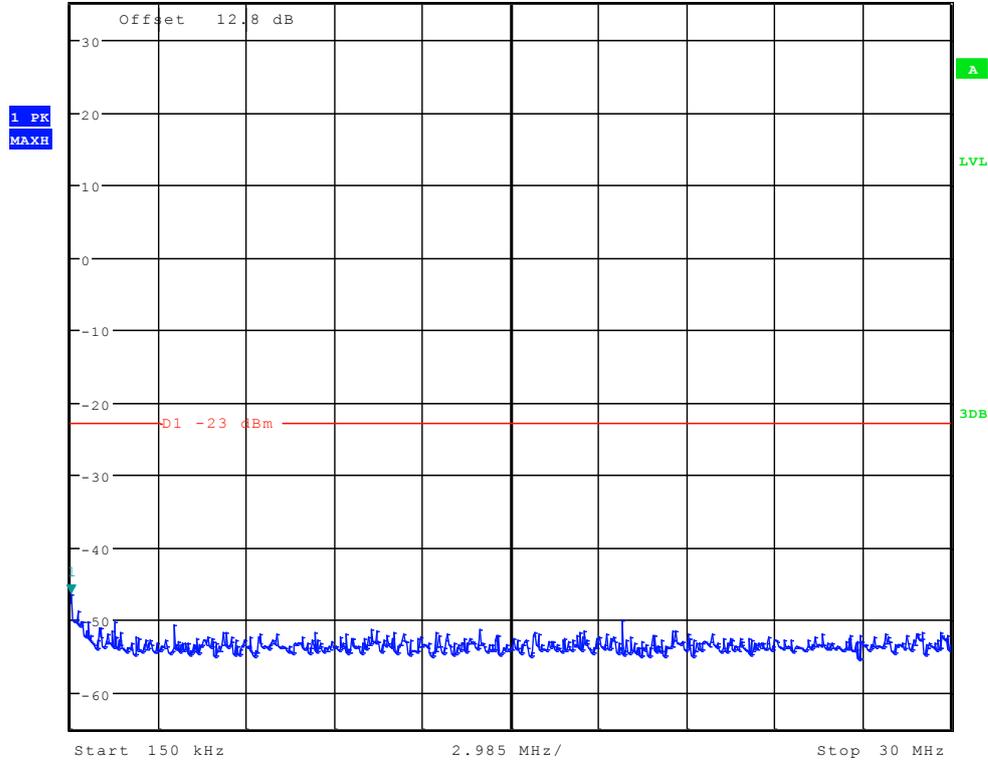
Channel 251



Date: 14.OCT.2012 10:27:27



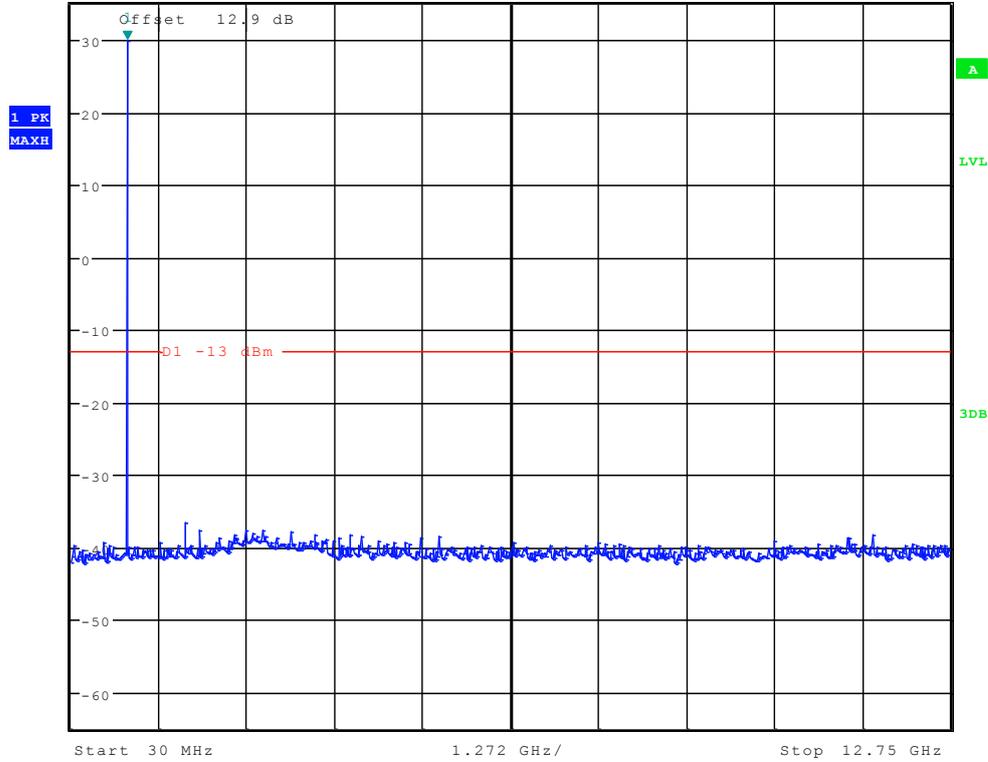
* RBW 10 kHz Marker 1 [T1]
 * VBW 30 kHz -46.42 dBm
 Ref 35 dBm * Att 35 dB SWT 300 ms 150.00000000 kHz



Date: 14.OCT.2012 10:28:11



Ref 35 dBm * Att 35 dB SWT 1.3 s
 * RBW 100 kHz Marker 1 [T1] 29.87 dBm
 * VBW 300 kHz 845.384615385 MHz



Date: 14.OCT.2012 10:28:54

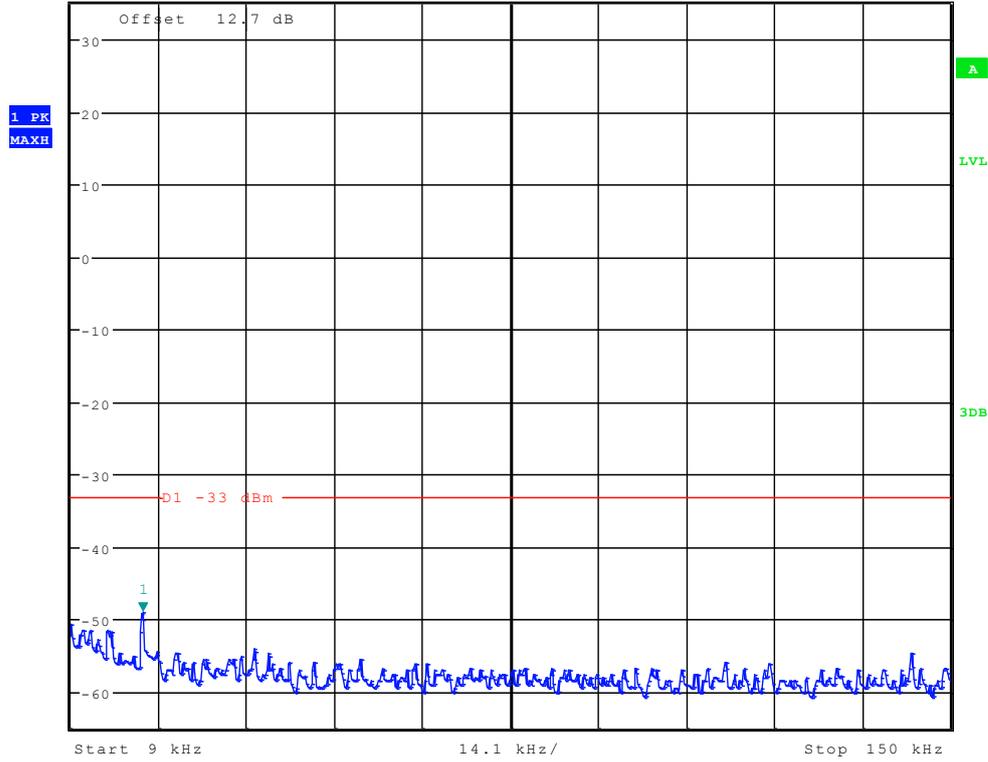


TM2:EDGE

Channel 128



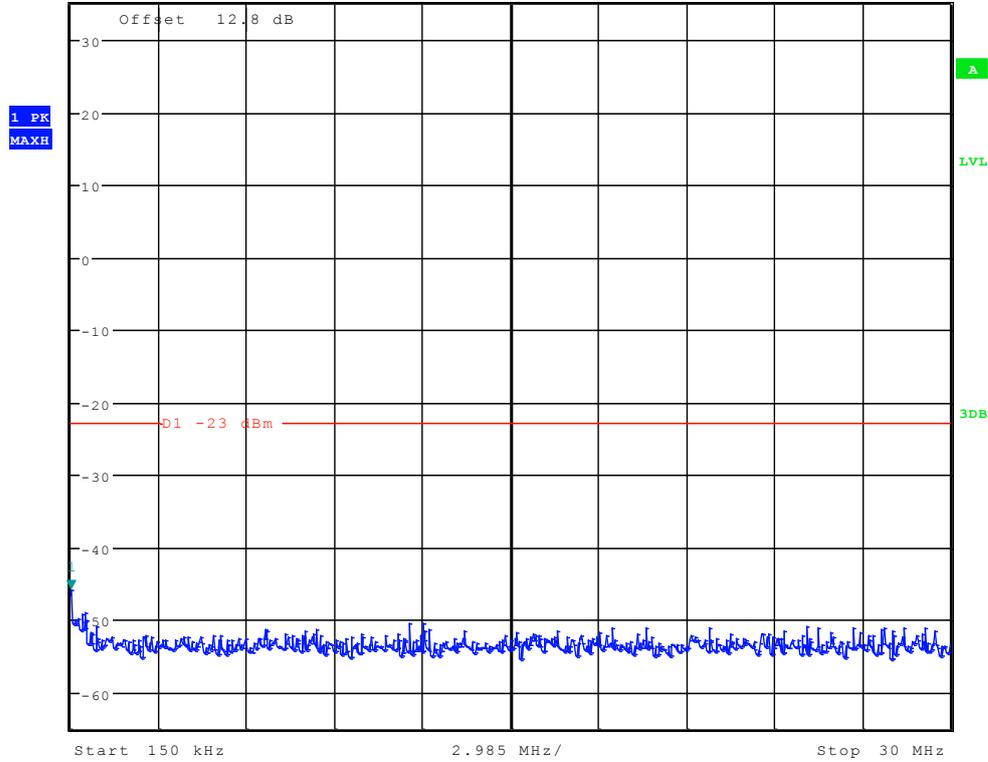
Ref 35 dBm * Att 35 dB * RBW 1 kHz Marker 1 [T1] -48.96 dBm
 * VBW 10 kHz 20.524038462 kHz
 SWT 145 ms



Date: 14.OCT.2012 10:32:22



Ref 35 dBm * Att 35 dB * RBW 10 kHz Marker 1 [T1] -45.85 dBm
 * VBW 30 kHz SWT 300 ms 150.00000000 kHz



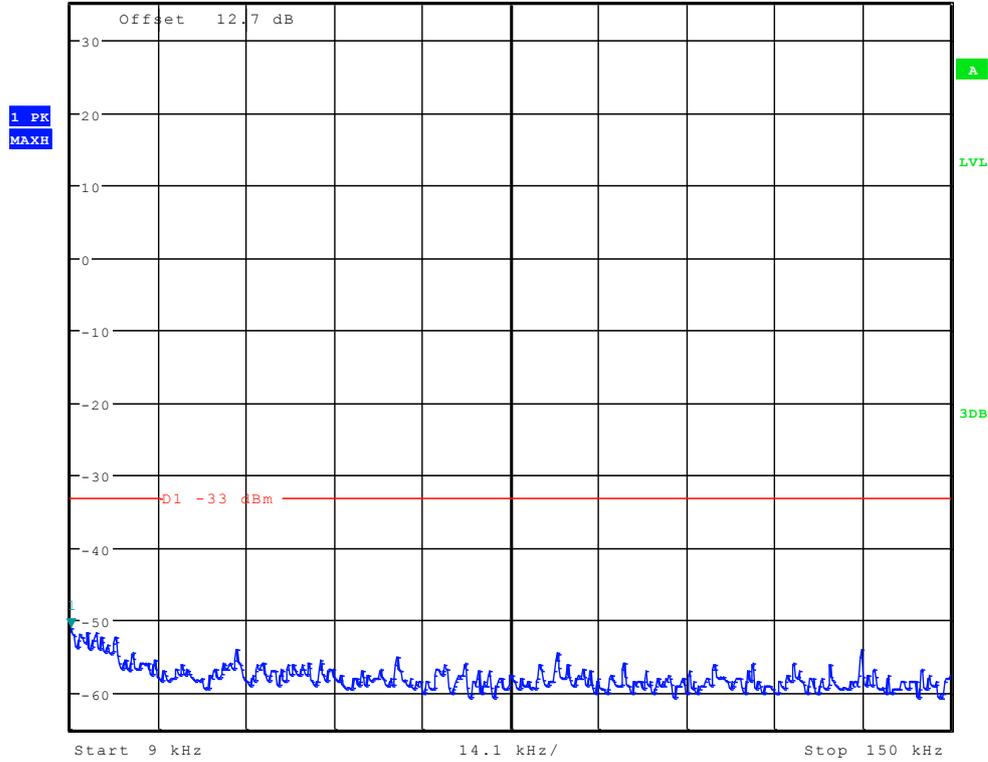
Date: 14.OCT.2012 10:33:06



Channel 192



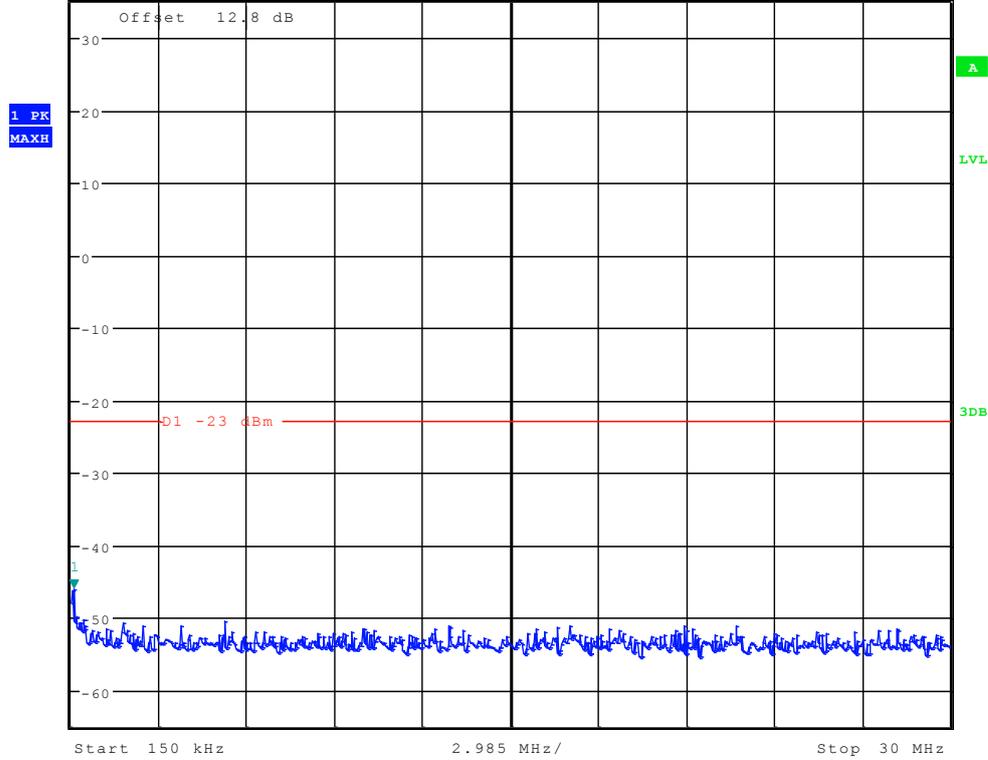
Ref 35 dBm * Att 35 dB * RBW 1 kHz * VBW 10 kHz SWT 145 ms Marker 1 [T1] -50.94 dBm
 9.000000000 kHz



Date: 14.OCT.2012 10:32:36



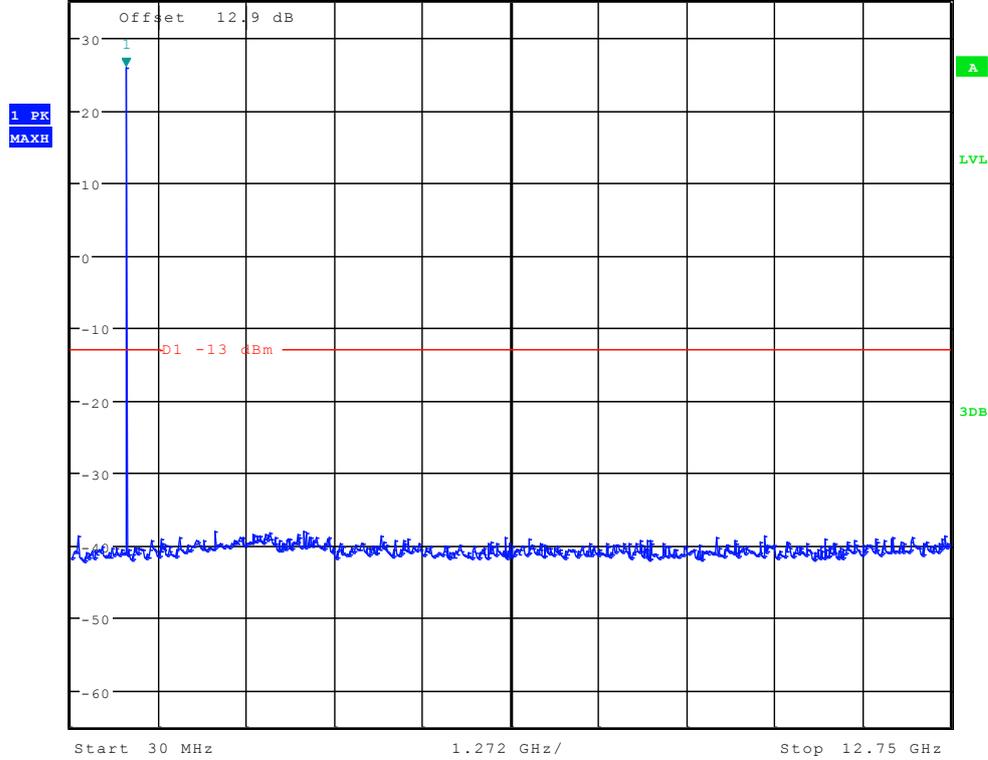
* RBW 10 kHz Marker 1 [T1]
 * VBW 30 kHz -46.06 dBm
 Ref 35 dBm * Att 35 dB SWT 300 ms 245.673076923 kHz



Date: 14.OCT.2012 10:33:20



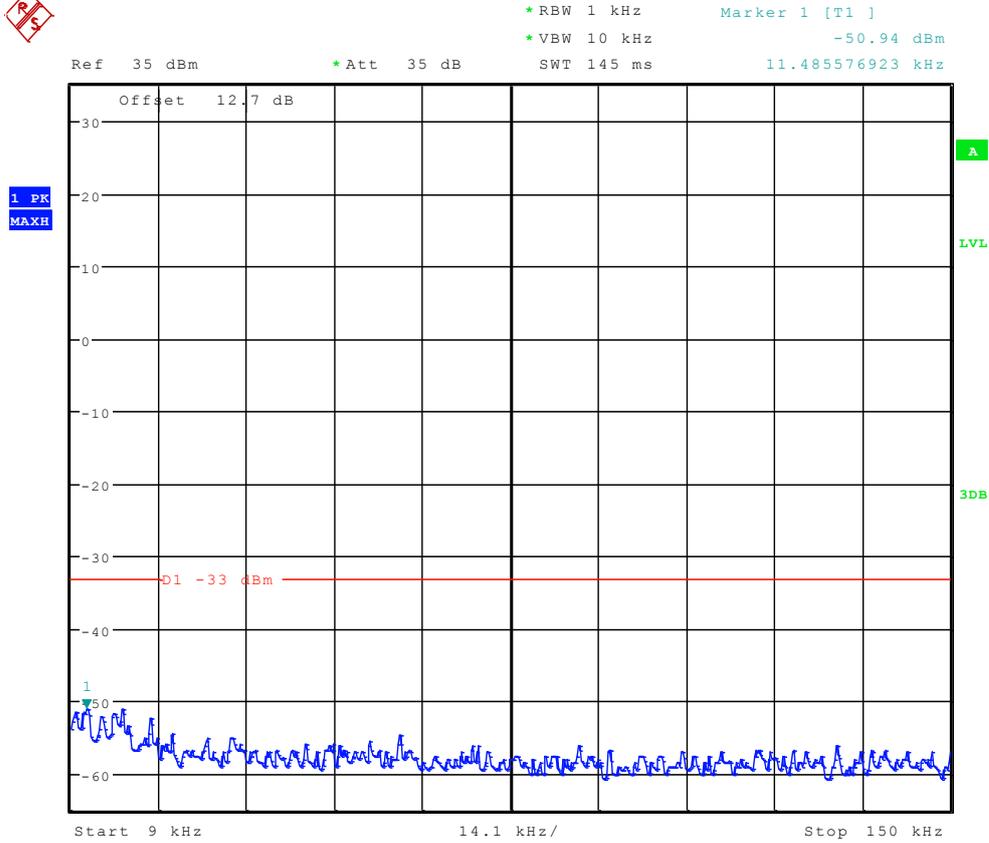
Ref 35 dBm * Att 35 dB SWT 1.3 s
 * RBW 100 kHz Marker 1 [T1] 25.79 dBm
 * VBW 300 kHz 825.00000000 MHz



Date: 14.OCT.2012 10:34:39



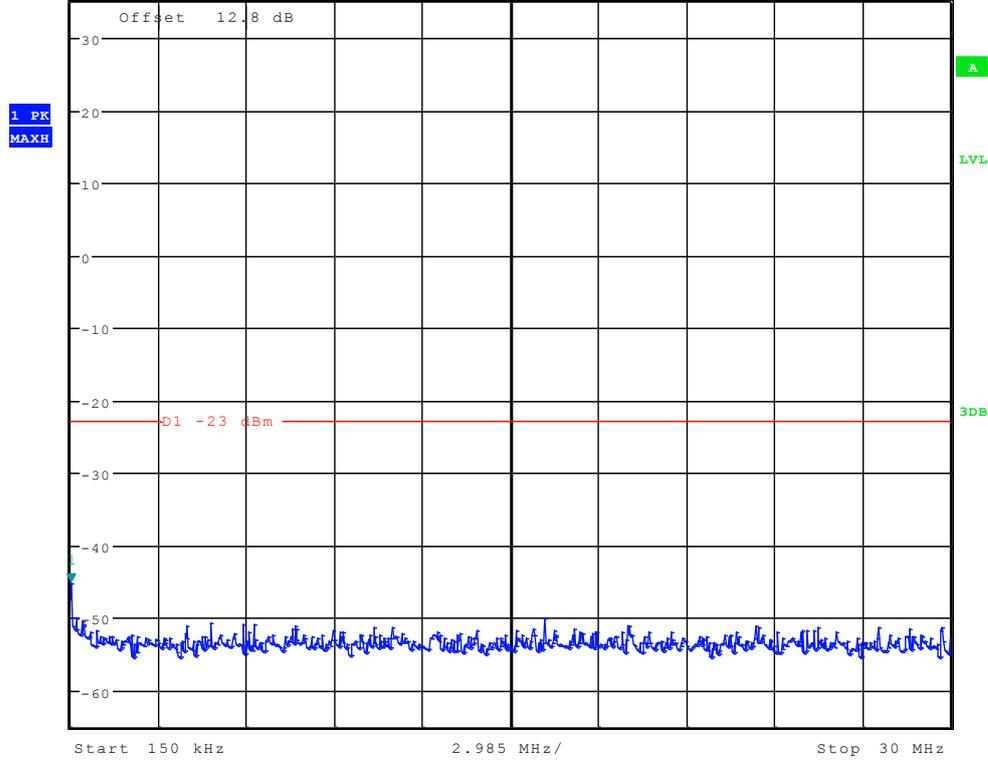
Channel 251



Date: 14.OCT.2012 10:32:51



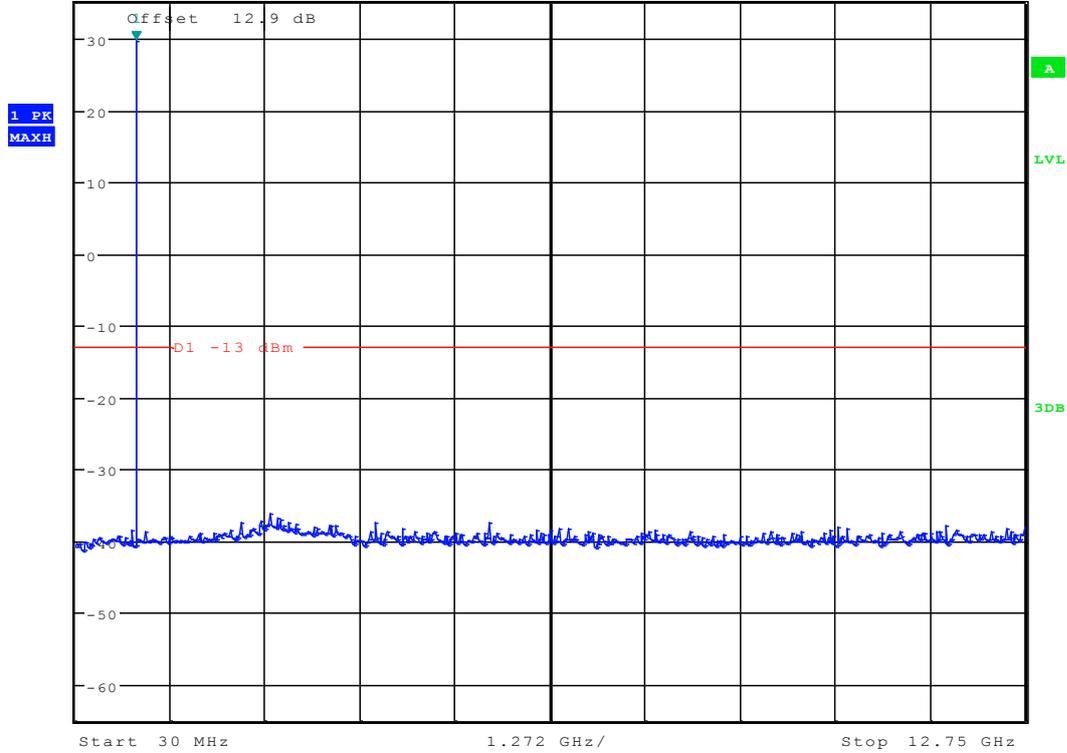
Ref 35 dBm * Att 35 dB SWT 300 ms
* RBW 10 kHz Marker 1 [T1] -45.09 dBm
* VBW 30 kHz 150.00000000 kHz



Date: 14.OCT.2012 10:33:34



* RBW 100 kHz Marker 1 [T1]
* VBW 300 kHz 29.61 dBm
Ref 35 dBm * Att 35 dB SWT 1.3 s 845.384615385 MHz



Date: 16.OCT.2012 10:51:42

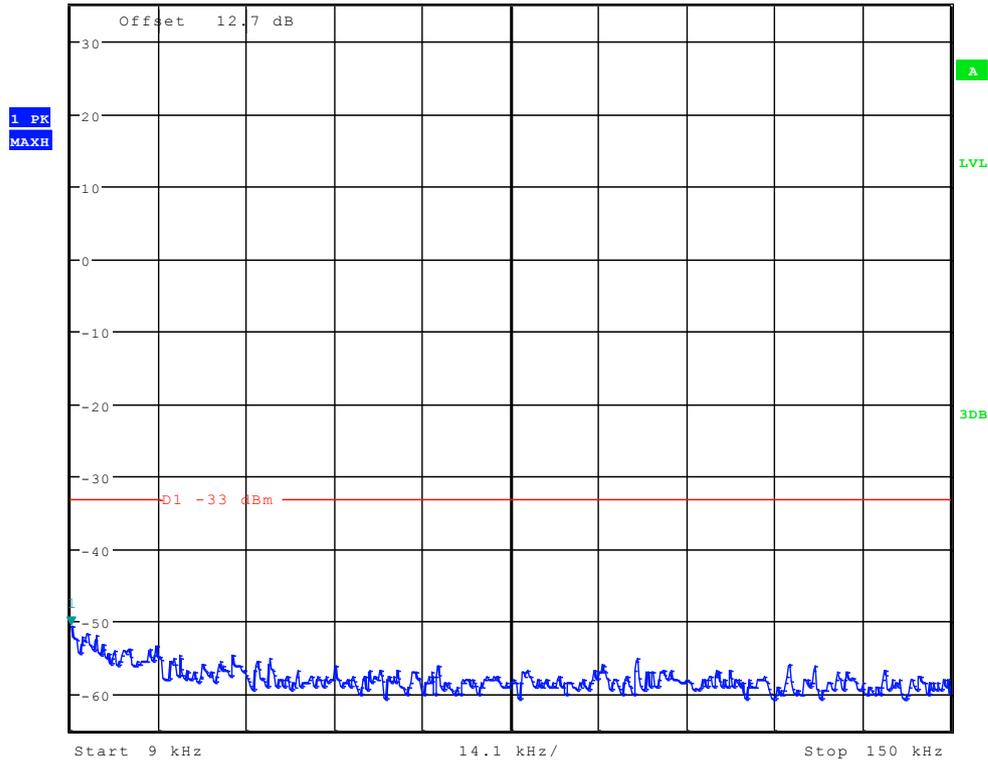


TM3: WCDMA

Channel 4132



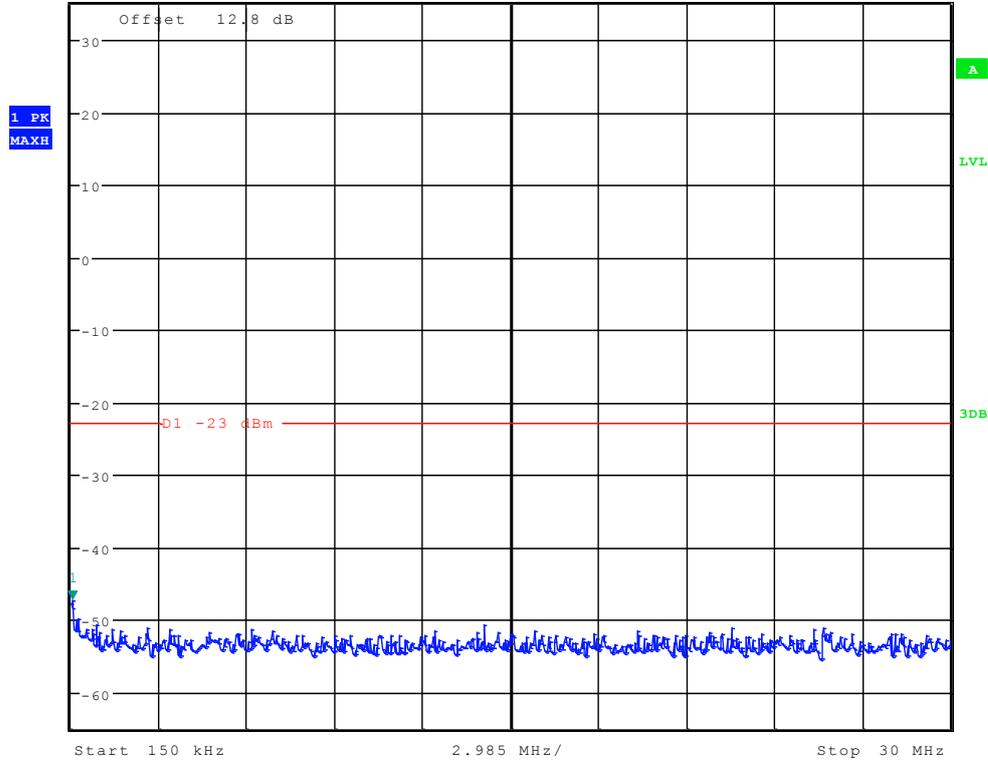
*RBW 1 kHz Marker 1 [T1]
*VBW 10 kHz -50.51 dBm
Ref 35 dBm *Att 35 dB SWT 145 ms 9.000000000 kHz



Date: 14.OCT.2012 10:41:22



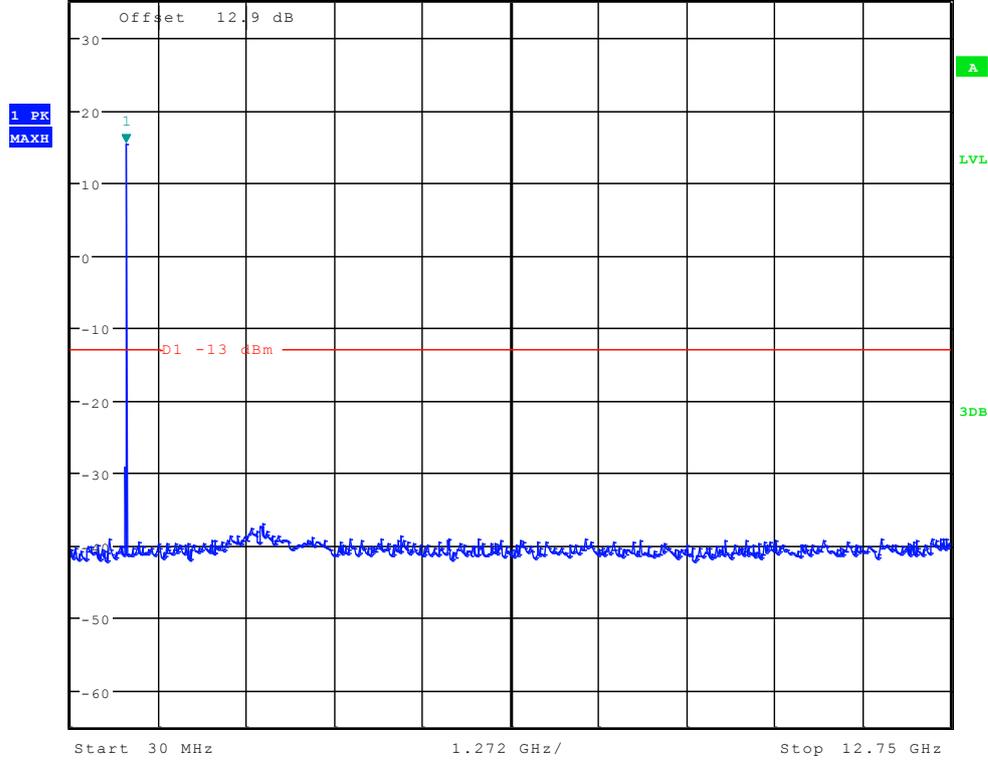
*RBW 10 kHz Marker 1 [T1]
 *VBW 30 kHz -47.32 dBm
 Ref 35 dBm *Att 35 dB SWT 300 ms 197.836538462 kHz



Date: 14.OCT.2012 10:42:06



Ref 35 dBm * Att 35 dB SWT 1.3 s
 * RBW 100 kHz Marker 1 [T1] 15.42 dBm
 * VBW 300 kHz 825.00000000 MHz



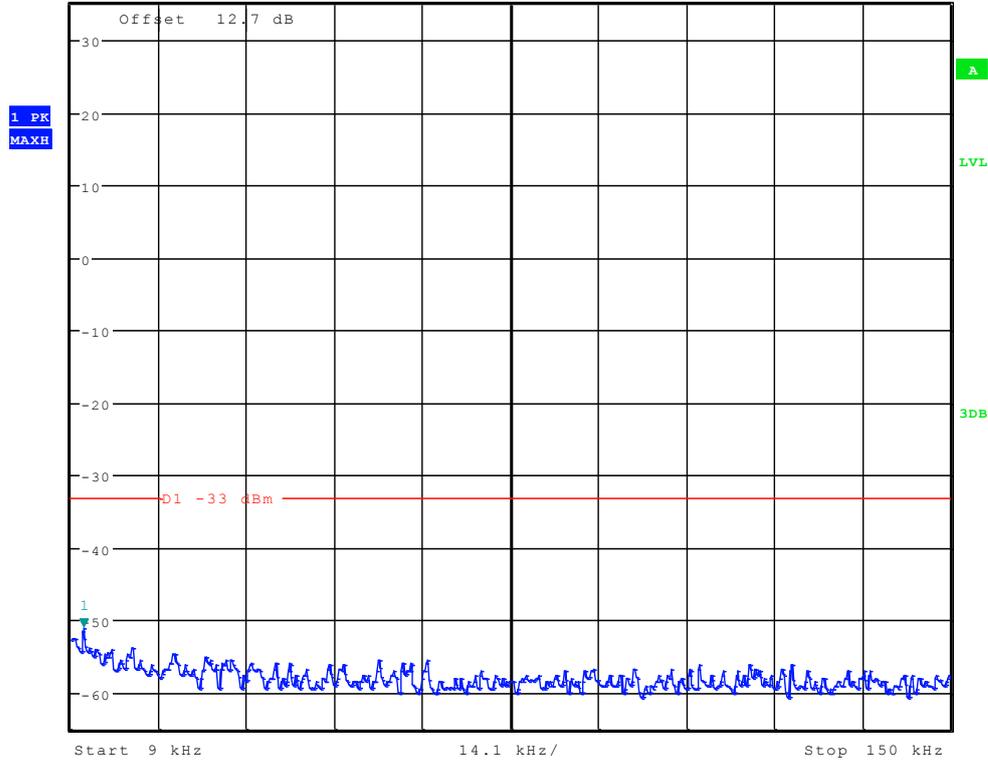
Date: 14.OCT.2012 10:42:50



Channel 4182



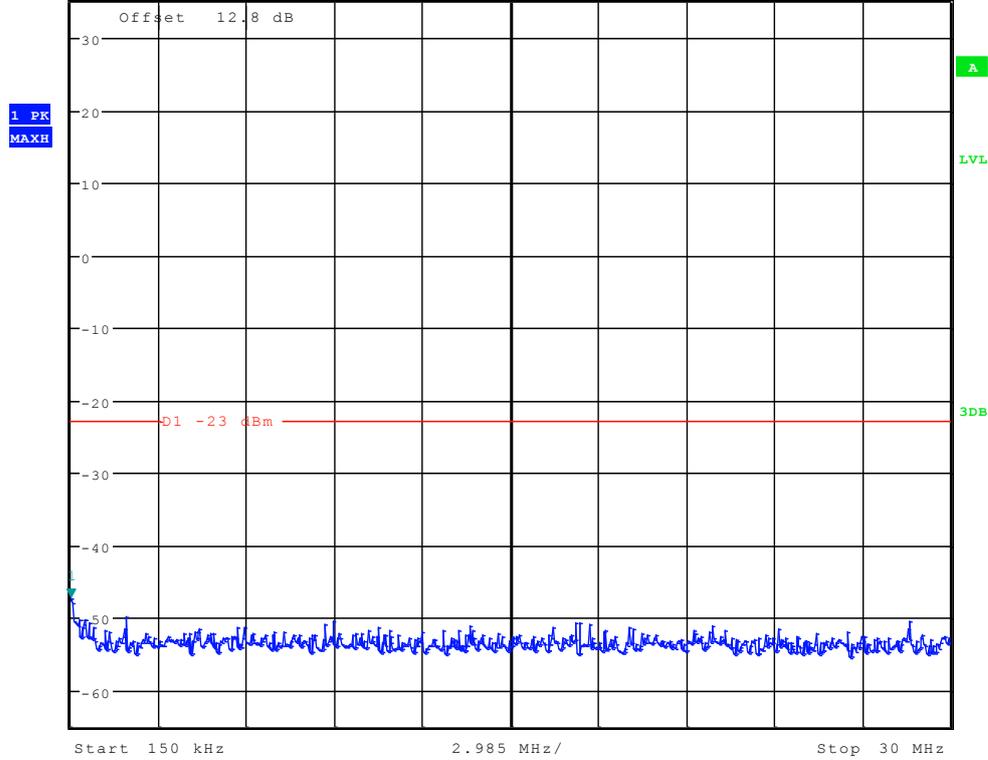
Ref 35 dBm * Att 35 dB * RBW 1 kHz Marker 1 [T1] -51.12 dBm
 * VBW 10 kHz SWT 145 ms 11.033653846 kHz



Date: 14.OCT.2012 10:41:37



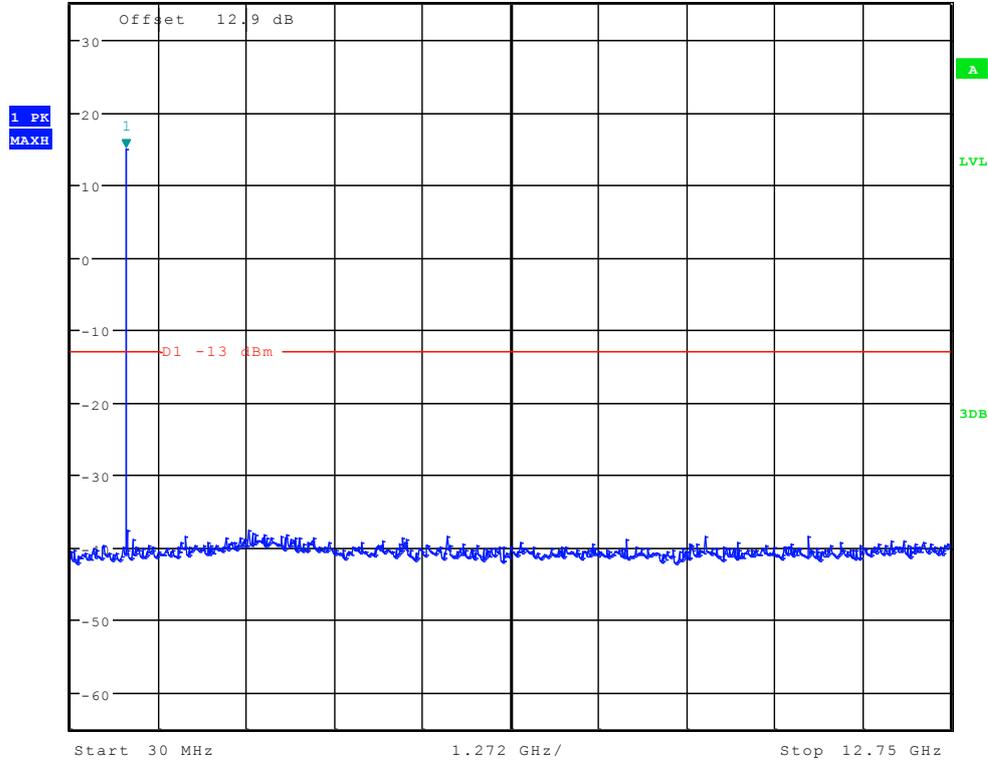
Ref 35 dBm * Att 35 dB * RBW 10 kHz * VBW 30 kHz * SWT 300 ms
 Marker 1 [T1] -47.32 dBm
 150.00000000 kHz



Date: 14.OCT.2012 10:42:20



Ref 35 dBm * Att 35 dB SWT 1.3 s
 * RBW 100 kHz Marker 1 [T1] 14.93 dBm
 * VBW 300 kHz 825.00000000 MHz



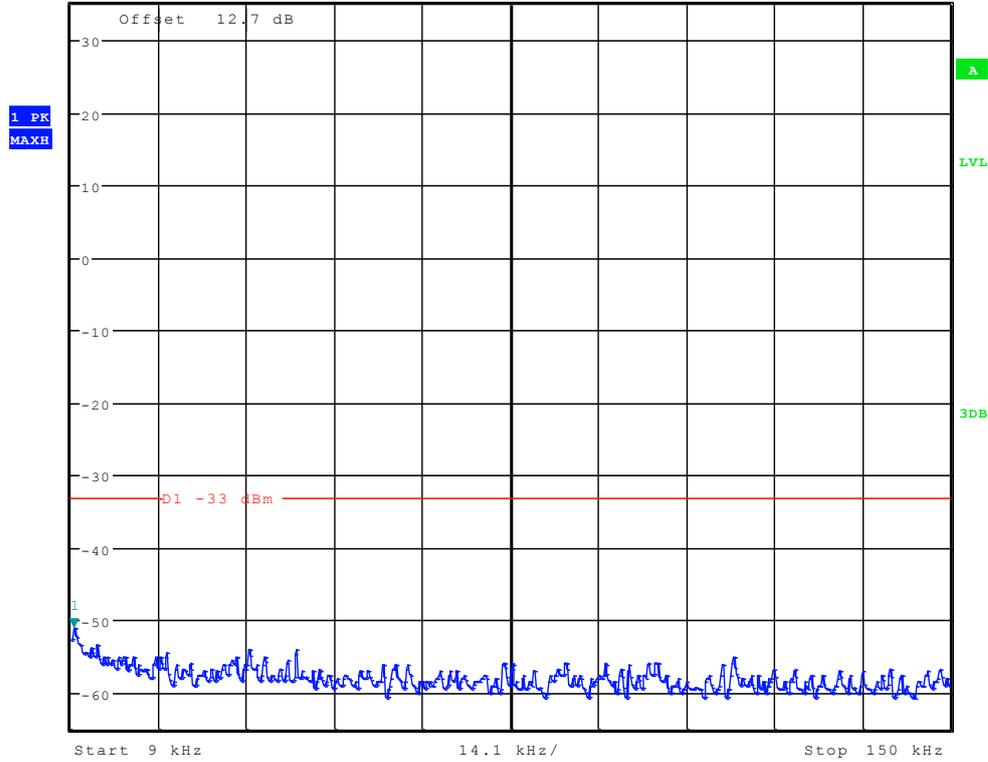
Date: 14.OCT.2012 10:43:04



Channel 4233



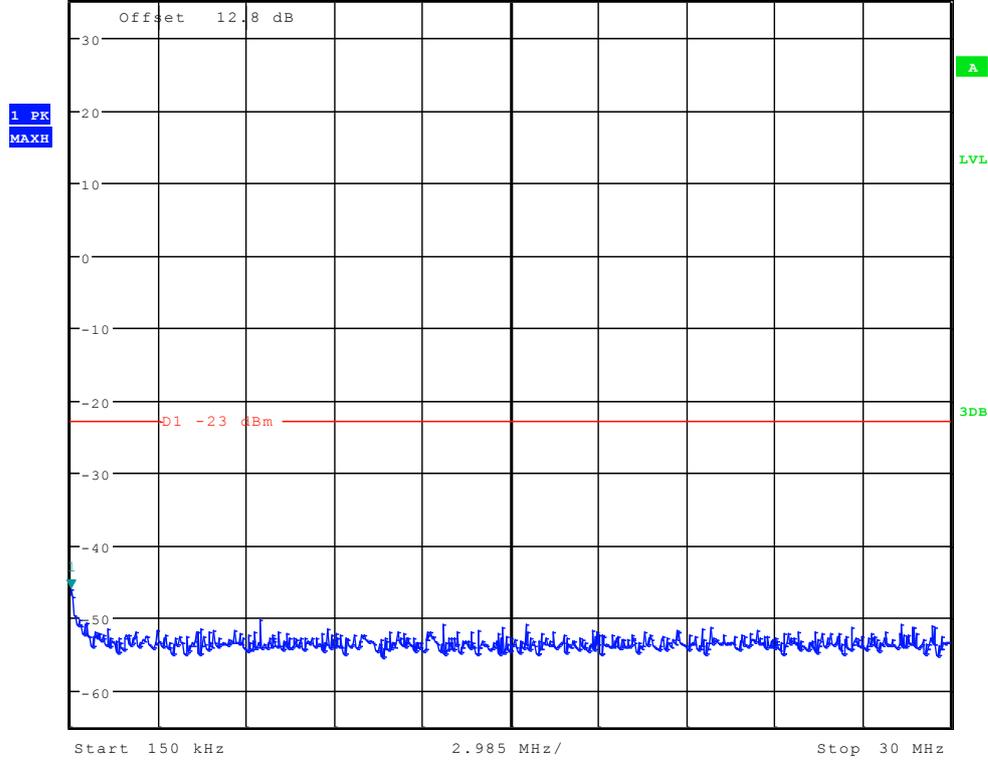
Ref 35 dBm * Att 35 dB * RBW 1 kHz Marker 1 [T1] -51.12 dBm
SWT 145 ms 9.451923077 kHz



Date: 14.OCT.2012 10:41:51



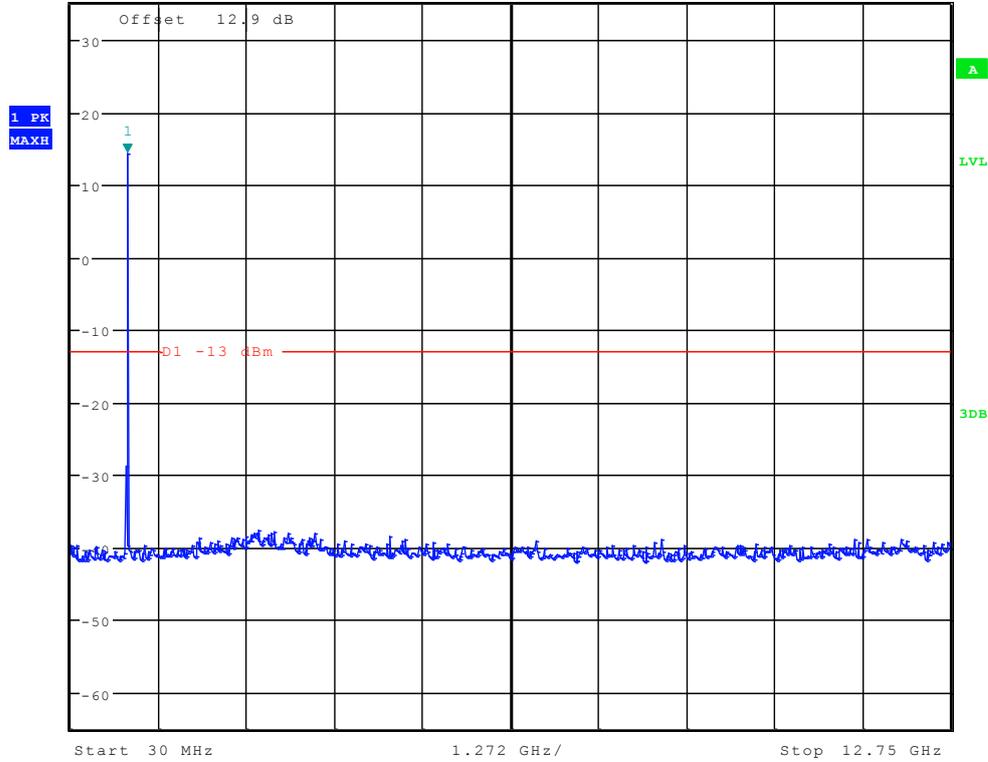
* RBW 10 kHz Marker 1 [T1]
 * VBW 30 kHz -46.05 dBm
 Ref 35 dBm * Att 35 dB SWT 300 ms 150.00000000 kHz



Date: 14.OCT.2012 10:42:35



Ref 35 dBm * Att 35 dB SWT 1.3 s
 * RBW 100 kHz Marker 1 [T1] 14.27 dBm
 * VBW 300 kHz 845.384615385 MHz



Date: 14.OCT.2012 10:43:19



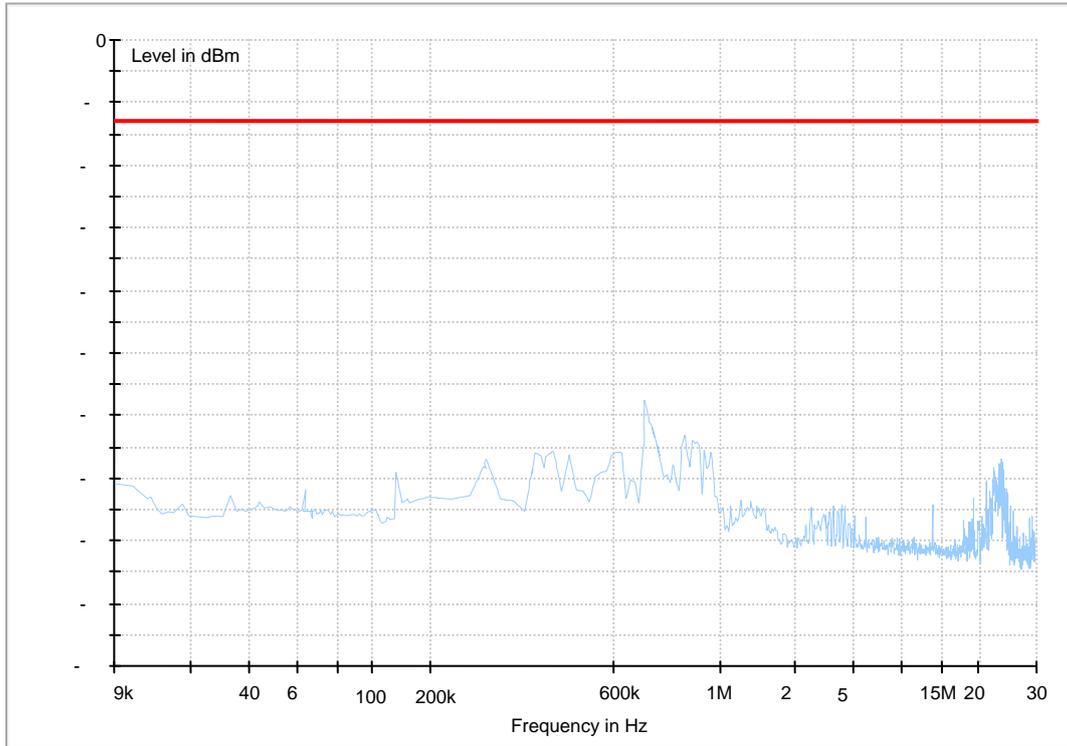
Appendix F

Radiated spurious emission

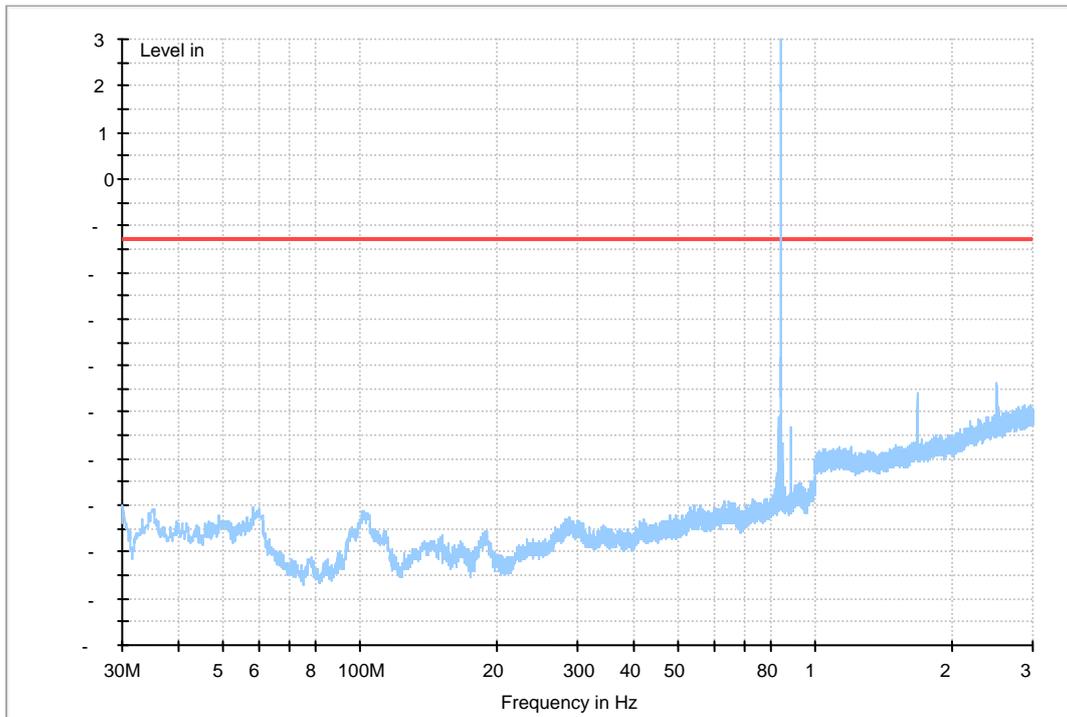
According to FCC Part 2.1053& Part 22.917

GSM850

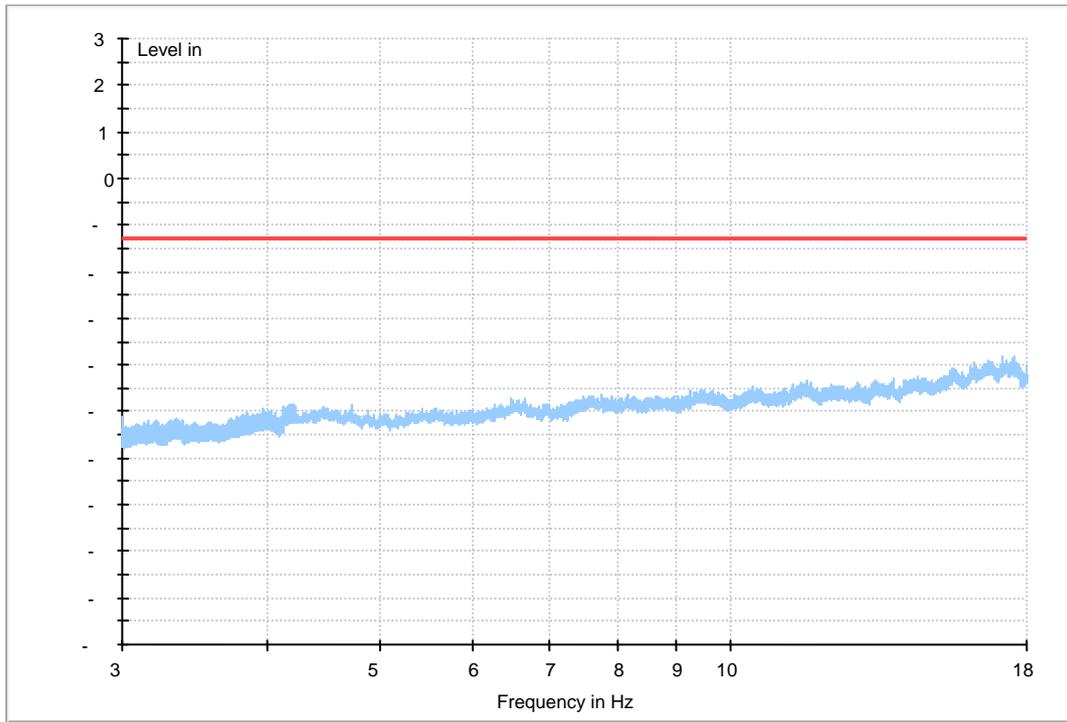
(9kHz~30MHz)



(30MHz~3GHz)

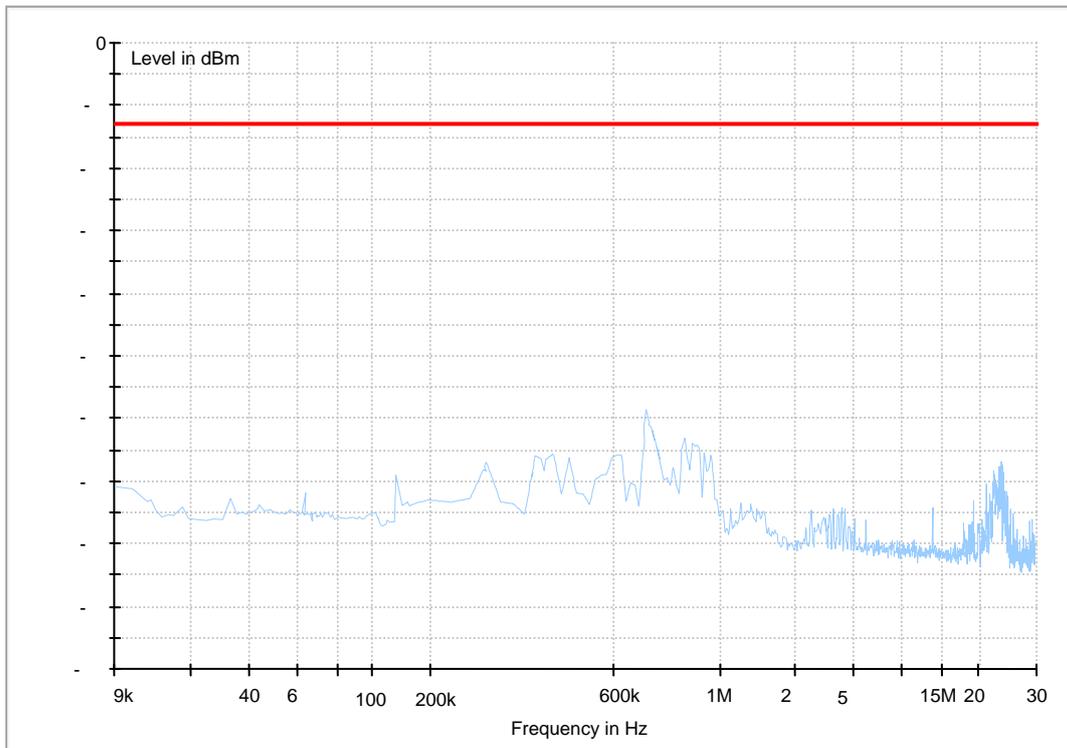


(3GHz~18GHz)

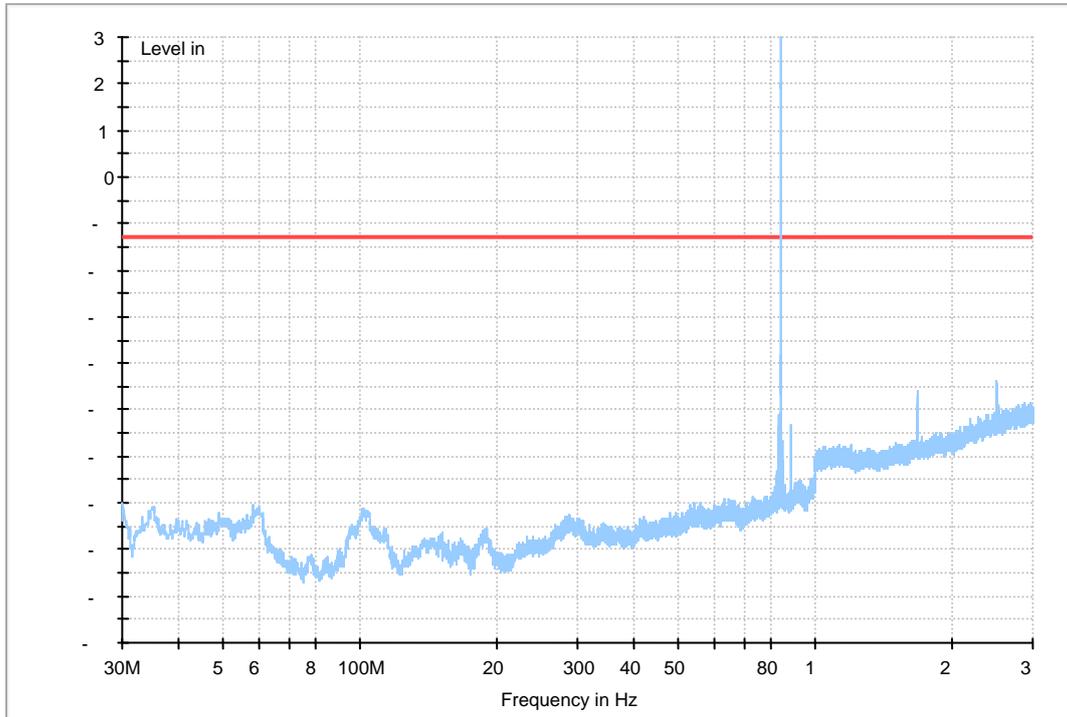


GPRS 850

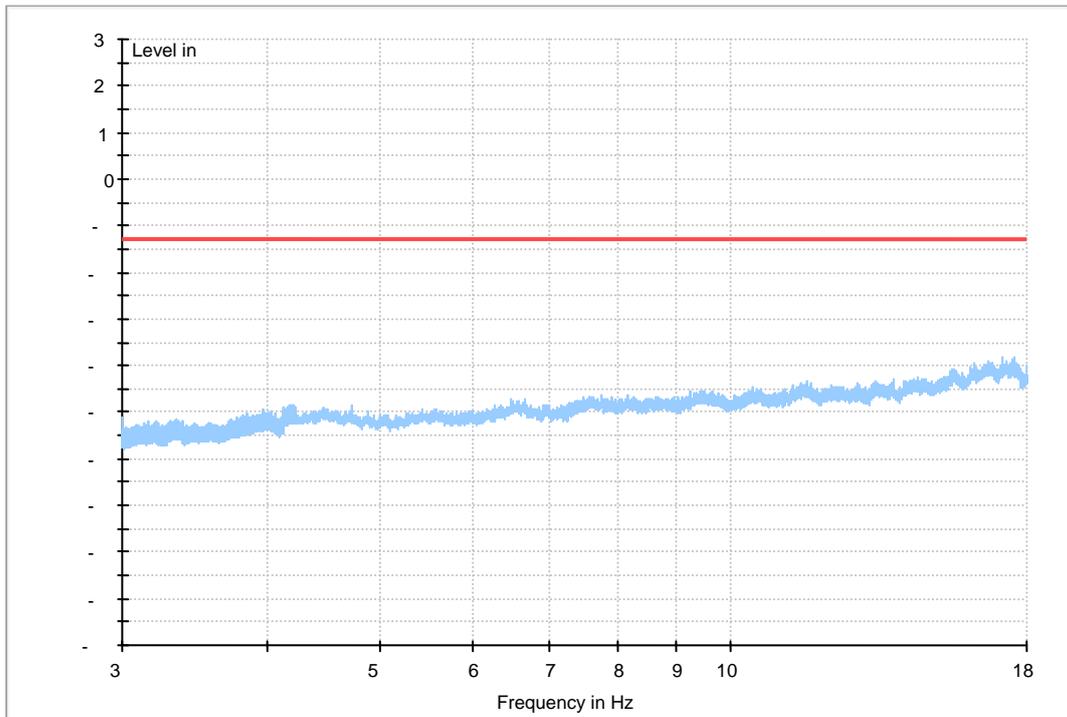
(9kHz~30MHz)



(30MHz~3GHz)

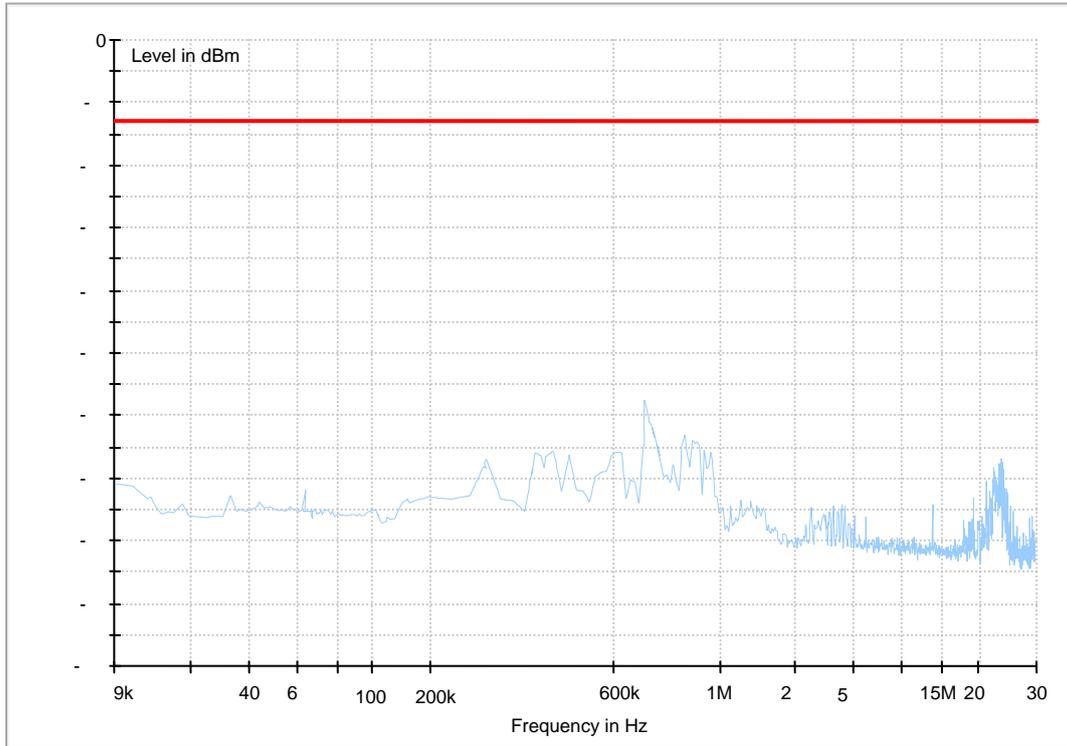


(3GHz~18GHz)

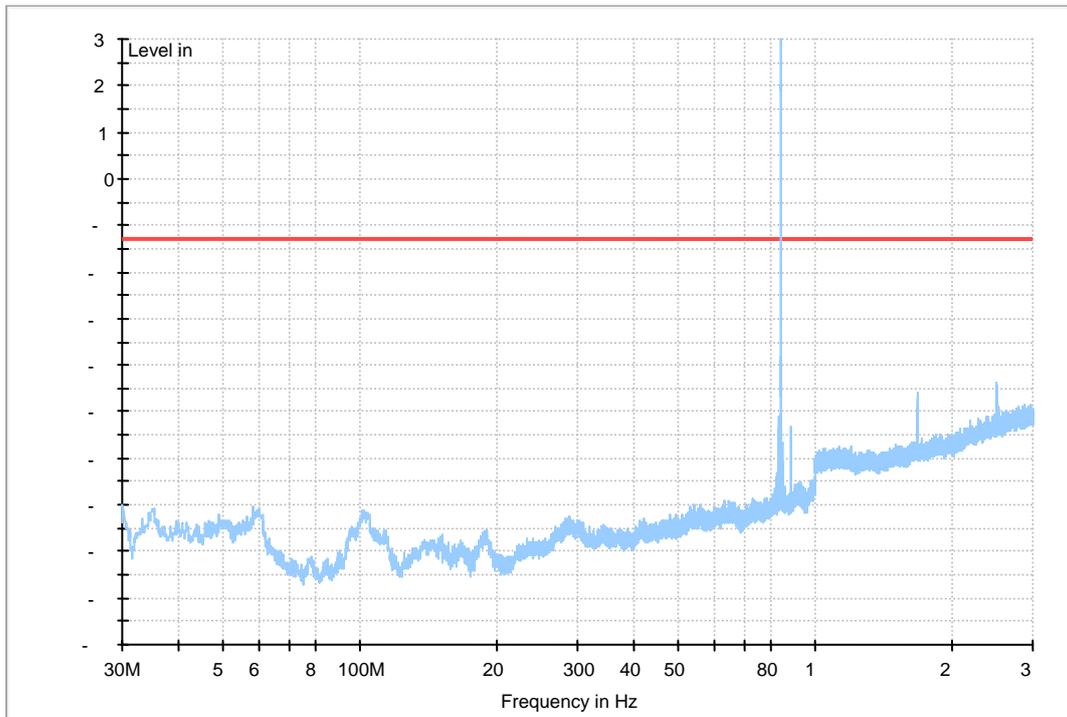


EDGE 850

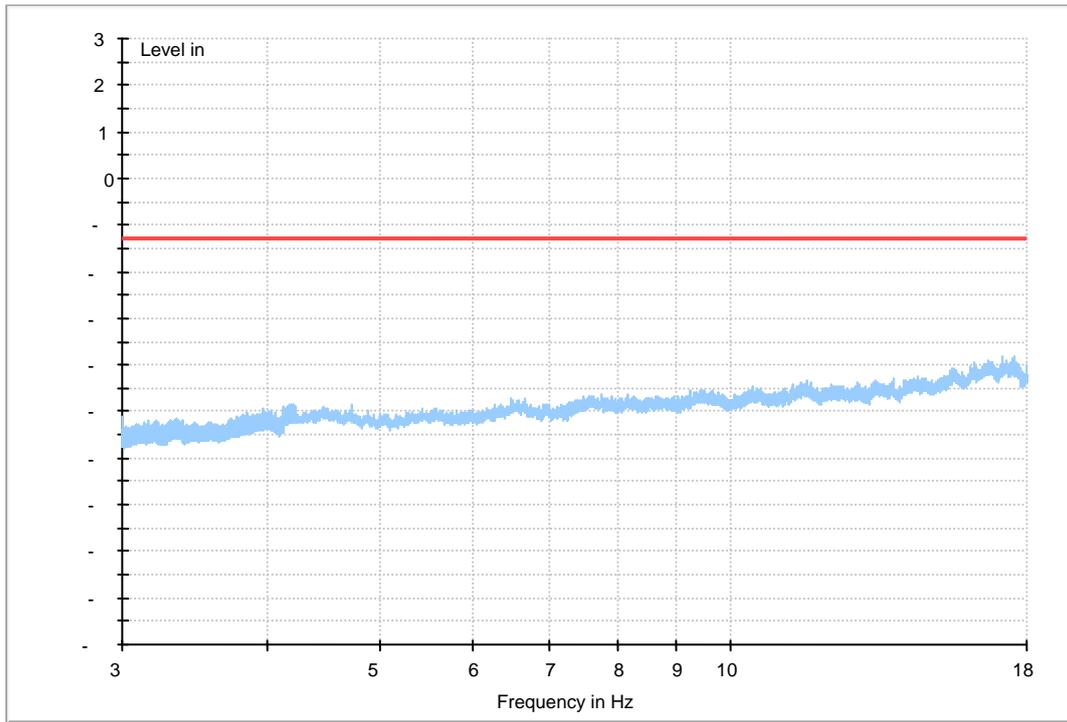
(9kHz~30MHz)



(30MHz~3GHz)

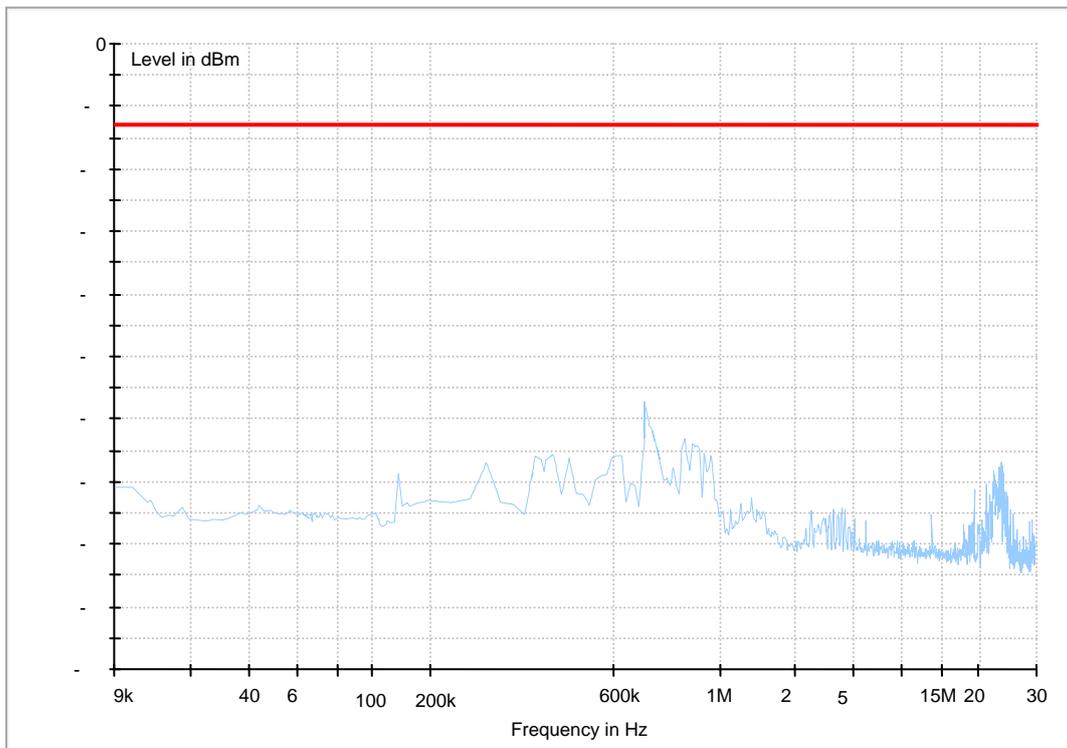


(3GHz~18GHz)

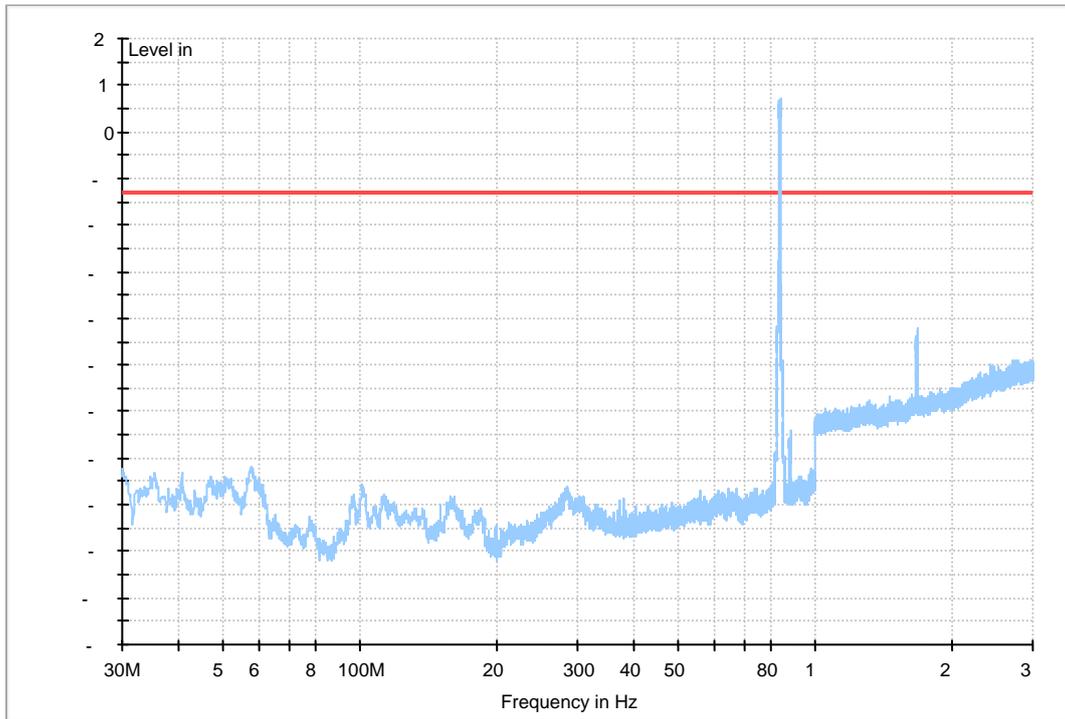


WCDMA Band V

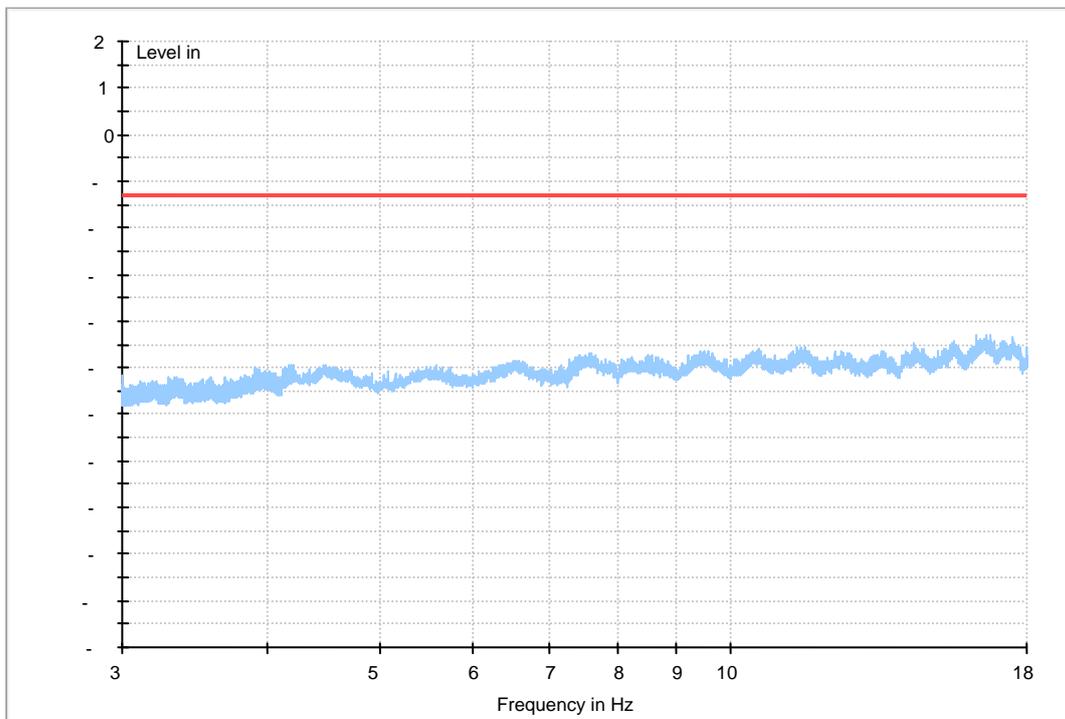
(9KHz~30MHz)



(30MHz~3GHz)

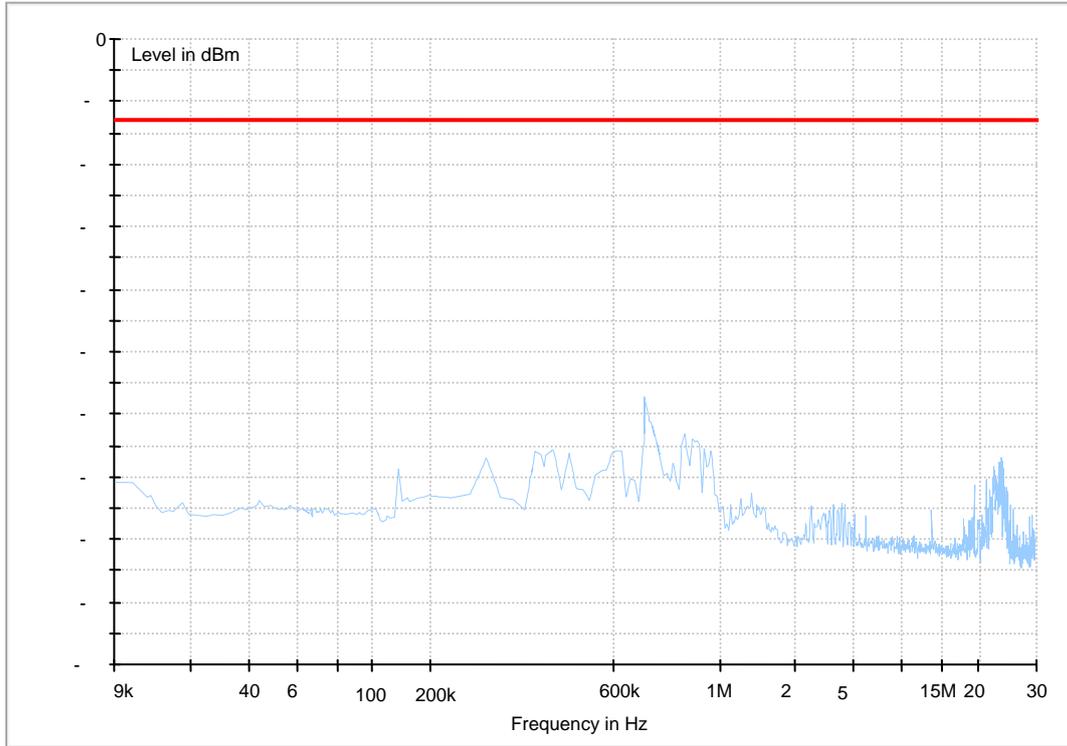


(3GHz~18GHz)

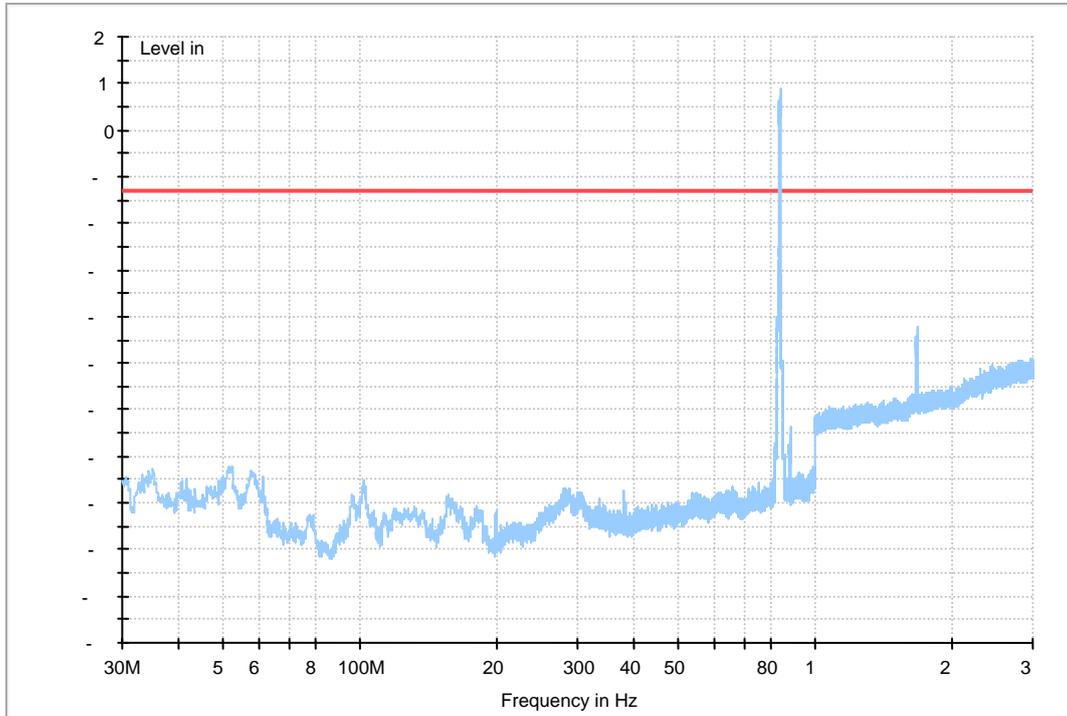


HSDPA Band V

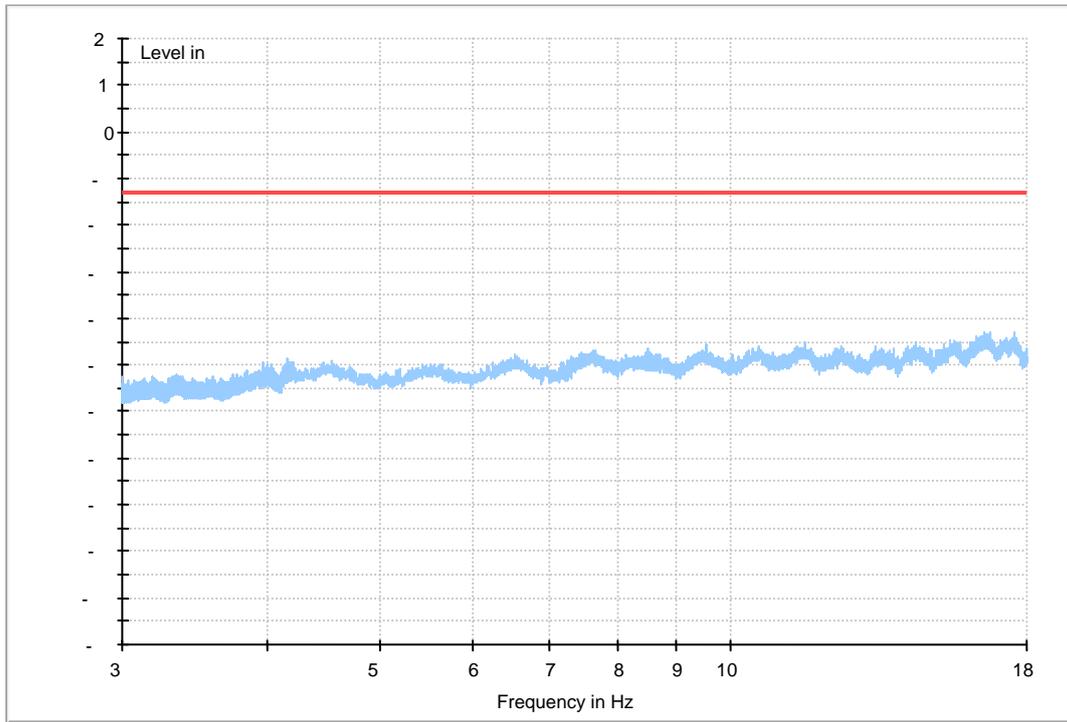
(9KHz~30MHz)



(30MHz~3GHz)

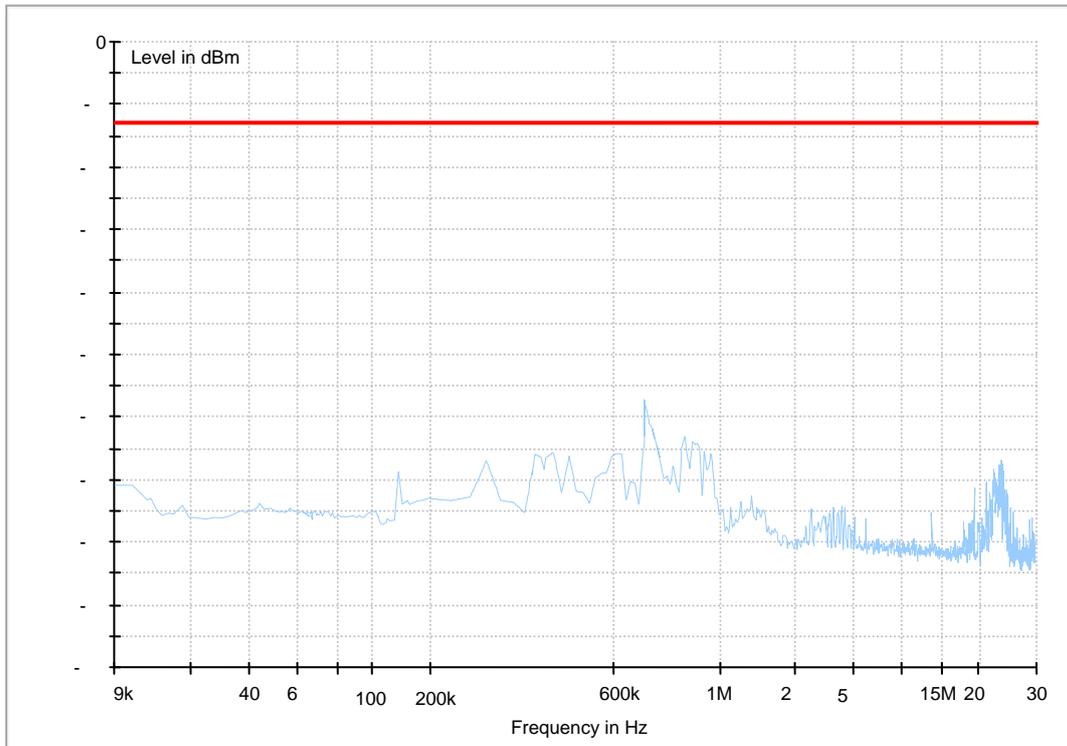


(3GHz~18GHz)

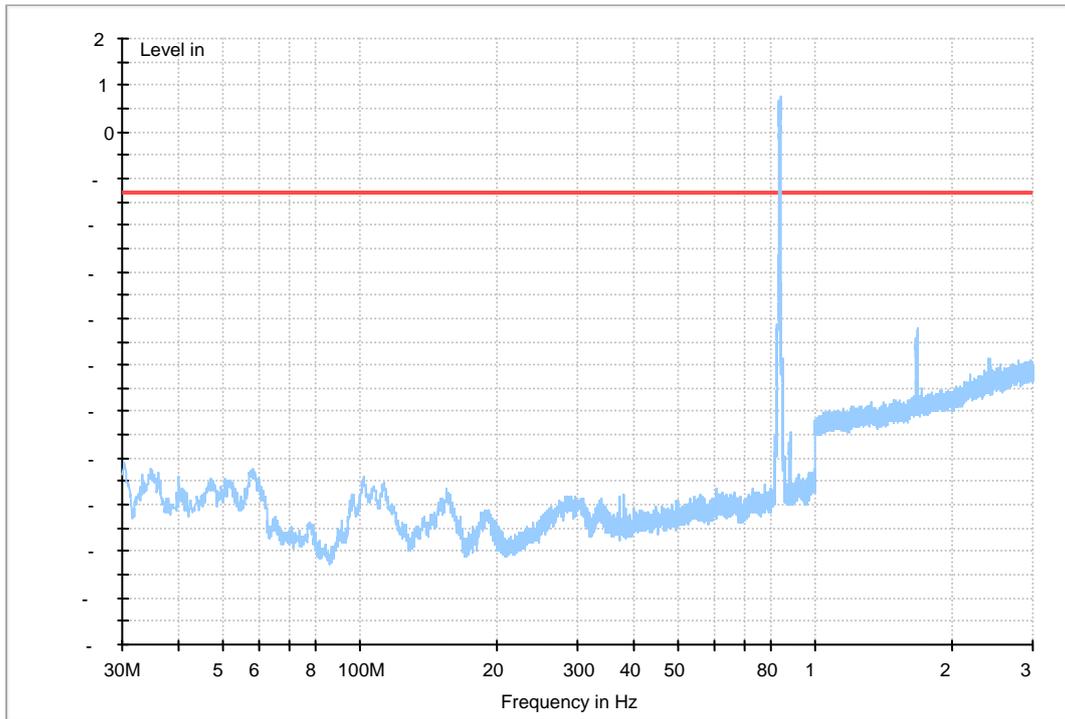


HSUPA Band V

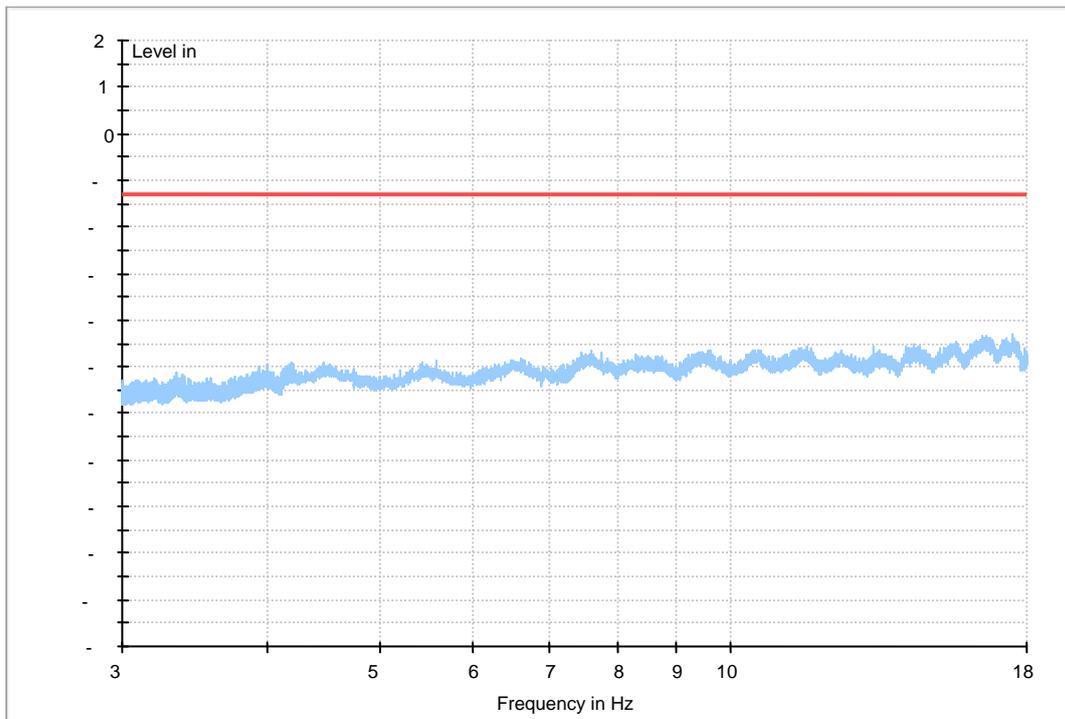
(9KHz~30MHz)



(30MHz~3GHz)



(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	VN	-30 °C	-22	-0.02628	---	±2.5	Pass
			-20 °C	-11	-0.01314	---	±2.5	Pass
			-10 °C	-9	-0.01075	---	±2.5	Pass
			0 °C	-9	-0.01075	---	±2.5	Pass
			10 °C	-13	-0.01553	---	±2.5	Pass
			20 °C	-13	-0.01553	---	±2.5	Pass
			30 °C	21	0.02509	---	±2.5	Pass
			40 °C	-22	-0.02628	---	±2.5	Pass
			50 °C	8	0.00956	---	±2.5	Pass
TM 2	M	VN	-30 °C	25	0.02987	---	±2.5	Pass
			-20 °C	-20	-0.02389	---	±2.5	Pass
			-10 °C	11	0.01314	---	±2.5	Pass
			0 °C	22	0.02628	---	±2.5	Pass
			10 °C	-16	-0.01912	---	±2.5	Pass
			20 °C	-14	-0.01673	---	±2.5	Pass
			30 °C	-22	-0.02628	---	±2.5	Pass
			40 °C	-22	-0.02628	---	±2.5	Pass
			50 °C	21	0.02509	---	±2.5	Pass
TM 3	M	VN	-30 °C	23	0.02750	---	±2.5	Pass
			-20 °C	-18	-0.02152	---	±2.5	Pass
			-10 °C	-16	-0.01913	---	±2.5	Pass
			0 °C	12	0.01435	---	±2.5	Pass
			10 °C	20	0.02391	---	±2.5	Pass
			20 °C	27	0.03228	---	±2.5	Pass
			30 °C	-11	-0.01315	---	±2.5	Pass
			40 °C	14	0.01674	---	±2.5	Pass
			50 °C	-13	-0.01554	---	±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	TN	VL	20	0.02389	---	±2.5	Pass
			VN	-20	-0.02389	---	±2.5	Pass
			VH	9	0.01075	---	±2.5	Pass
TM 2	M	TN	VL	-13	-0.01553	---	±2.5	Pass
			VN	7	0.00836	---	±2.5	Pass
			VH	-12	-0.01434	---	±2.5	Pass
TM 3	M	TN	VL	14	0.01674	---	±2.5	Pass
			VN	29	0.03467	---	±2.5	Pass
			VH	21	0.02511	---	±2.5	Pass

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