



# FCC RF Test Report

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

**Model Number: HUAWEI U8667, U8667**

**Report No: SYBH(Z-RF)017072012-2001  
FCC ID: QISU8667**

**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.
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8. Normally, the test report is only responsible for the samples that have undergone the test.
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<b>Applicant:</b>	Huawei Technologies Co., Ltd.
<b>Address:</b>	Huawei Base, Bantian, Longgang District, Shenzhen 518129, P.R. China
<b>Date of Receipt Test Item:</b>	Jul., 06, 2012
<b>Start Date of Test:</b>	Jul., 07, 2012
<b>End Date of Test:</b>	Jul., 18, 2012
<b>Test Result:</b>	Pass

Approved By Senior Engineer Jul., 25, 2012 Dai Linjun  
 Date Name Signature

Reviewed By Jul., 25, 2012 Cousy Xu  
 Date Name Signature

Operated By Jul., 25, 2012 Huang Qiuliang  
 Date Name Signature

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# 1 General Information

<b>1.1 Applied Standard</b>	
Applied Rules:	47 CFR FCC Part 2:2011, Subpart J 47 CFR FCC Part 22:2011, Subpart H ANSI/TIA 603C:2004
<b>1.2 Test Location</b>	
Test Location 1:	Reliability Laboratory of Huawei Technologies Co., Ltd.
Address:	Huawei Base, Bantian, Longgang District, Shenzhen 518129, P.R. China
<b>1.3 Test Environmental Condition</b>	
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 & 22.917	Below -13 dBm/1%*EBW, in 1 MHz range	Pass
Spurious Emission at Antenna Terminals	2.1051 & 22.917	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 <sup>th</sup> 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 $\pm 2.5$ ppm	Pass

### 3 Product Description

#### 3.1 Product Information

##### 3.1.1 General Description

HUAWEI U8667, U8667 subscriber equipment in the WCDMA/GSM system. The HSPA/UMTS frequency band is Band I and Band II and Band IV. The GSM/GPRS/EDGE frequency band includes GSM850 and GSM900 and DCS1800 and PCS1900, but only GSM850 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.

##### 3.1.2 Board Information

Table 2 Board Information

HSPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth; Ares		
HUAWEI U8667, U8667		
Board and Module		
Software Version	Hardware Version	Serial Number
U8667 V100R001USAC189B828	HD1U867M	N5W01B9252500823

##### 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-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 $\overline{\text{---}}$ 1A
Rated Power	5W

### 3.1.4 Battery Technical Data

Name	Manufacture	Description
Rechargeable Li-ion	Huawei Technologies Co., Ltd.	Battery Model: HB5N1HA Rated capacity: 1650mAh Nominal Voltage: $\overline{\text{---}}$ +3.7V Charging Voltage: $\overline{\text{---}}$ +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), 247KG7W (8PSK modulation)

### 4.3 Antenna Gain

Antenna Gain(dBi)	1.2
Antenna Gain(dBd)	-0.95

### 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) AC Voltage Range: ~ 100 V to ~240 V

## 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

### 5.2 Test Modes

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

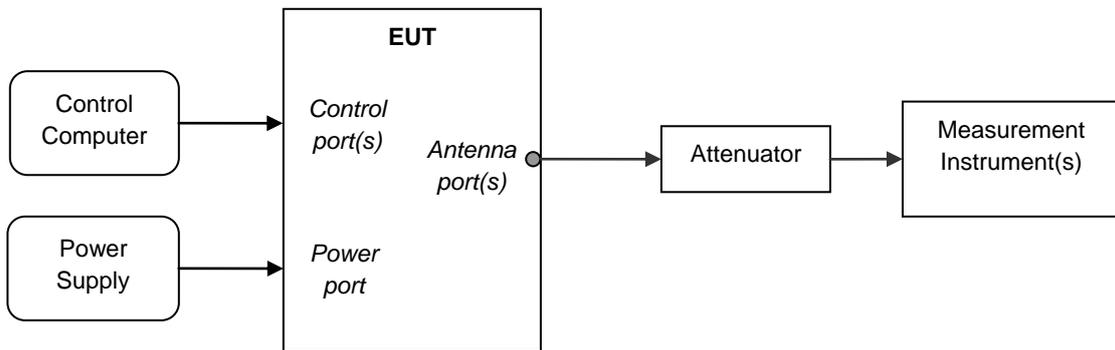
TN= normal temperature

## 5.4 Test Setup

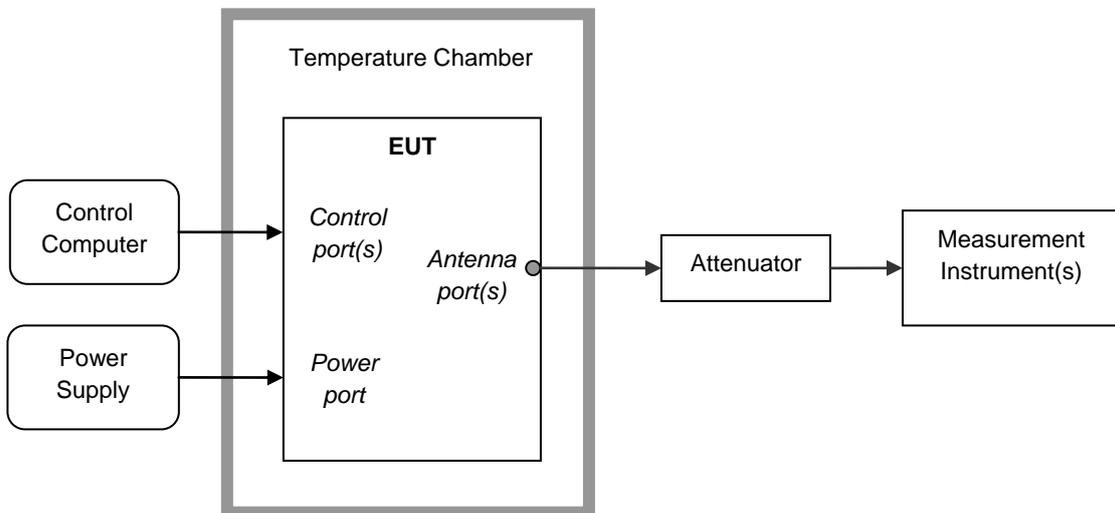
### 5.4.1 General Test Setup Configurations

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



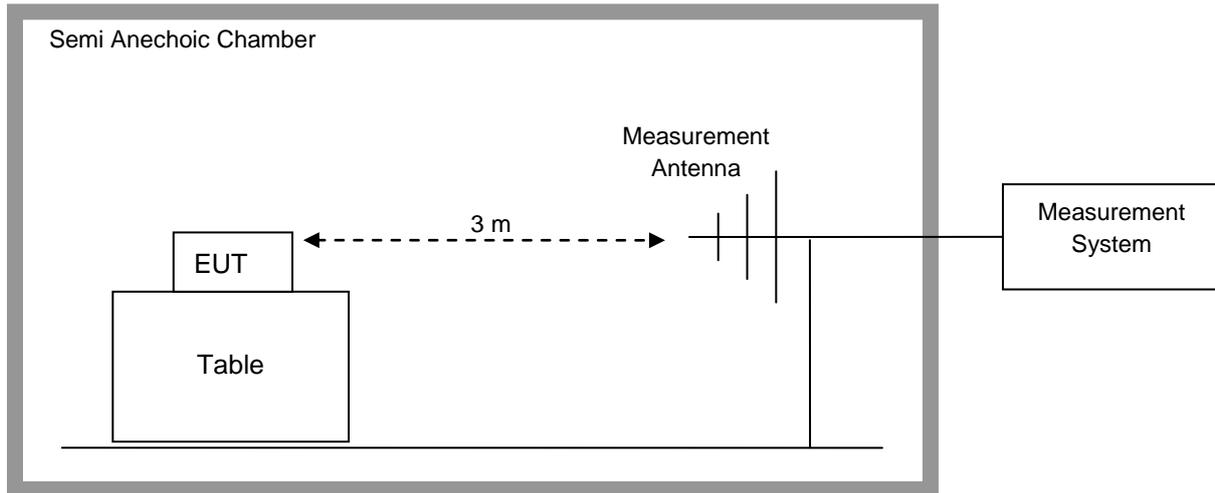
#### 5.4.4 Test Setup 3

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 horn antennas.

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

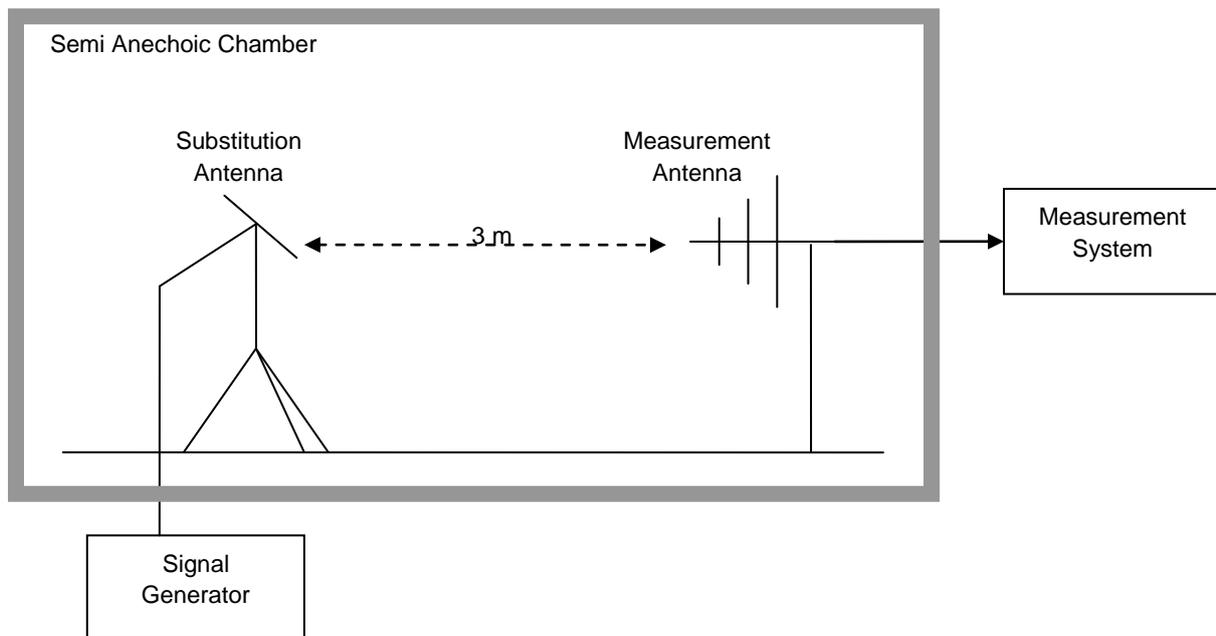
#### Step 1: Pre-test to find the Maximum ERP or EIRP

1. Connect the test system according to the following figure. EUT is running for 30 minutes before test, and measurement instruments are warming-up for 30 minutes.
2. Set up communication link between Universal radio communication tester and EUT, set EUT working frequency, and control EUT to transmit at maximum power.
3. Set the center frequency of the signal analyzer or receiver to the EUT's operating frequency, the RBW is equal to the emission bandwidth of the signal. Set RMS detector for the test, and the span is equal to 2 times of emission bandwidth, the other settings should remain automatic. Normally, the height range of antenna was 1m to 4m, the azimuth range of turntable was 0° to 360°. The receiver antenna has two polarizations V and H. A portable or small unlicensed wireless device shall be placed on a non-metallic test fixture or other non-metallic support during testing. The supporting fixture shall permit orientation of the EUT in each of three orthogonal (x, y, z) axis positions such that emissions from the EUT are maximized. Measure the EUT maximum RF power and record the result.
4. Changing EUT working frequency and measuring the RF power at channel L, M, H respectively.  
Complete the test data.



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

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



## 5.5 Test Conditions

Test Case	Test Conditions	
Transmitter Output Power	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 1 & Test Setup 3
	Detector	RMS
	RF Channels (TX)	L, M, H
	Test Mode	TM1/TM2
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)	L, M, H
	Test Mode	TM1/TM2
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
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
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
	RF Channels (TX)	M



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Test Case	Test Conditions	
	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	Jul.17,2013
Signal Analyzer	R&S	FSQ31	200021	Sep.27,2012
Temperature Chamber	WEISS	WKL64	24600294	Feb.13,2013
Signal generator	Agilent	E8257D	MY49281095	Jul.09.2013
Spectrum analyzer	R&S	FSU3	200474	Mar., 05, 2013
Spectrum analyzer	R&S	FSU43	100144	Mar., 05, 2013
Double-Ridged Waveguide Horn Antenna (1G~18GHz)	R&S	HF907	100304	Apr., 05, 2013
Double-Ridged Waveguide Horn Antenna (1G~18GHz)	R&S	HF907	100391	Apr., 05, 2013
Trilog Broadband Antenna (30M~3GHz)	SCHWARZBECK	VULB 9163	9163-521	Jul., 07, 2013
Pyramidal Horn Antenna(26GHz-40GHz)	ETS-Lindgren	3160-10	00123940	Feb., 27, 2013
Pyramidal Horn Antenna(18GHz-26.5GHz)	ETS-Lindgren	3160-09	00125912	Feb.,27, 2013

## 7 Test Results

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

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

## 8 Measurement Uncertainty

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

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

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



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# Appendix A

## Transmitter Output Power According to FCC Part 2.1046 & Part 22.913



## 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	32.59	38.5	32.37	38.5	32.12	38.5
TM2	26.86	38.5	26.92	38.5	26.78	38.5



## Peak-to-Average Ratio

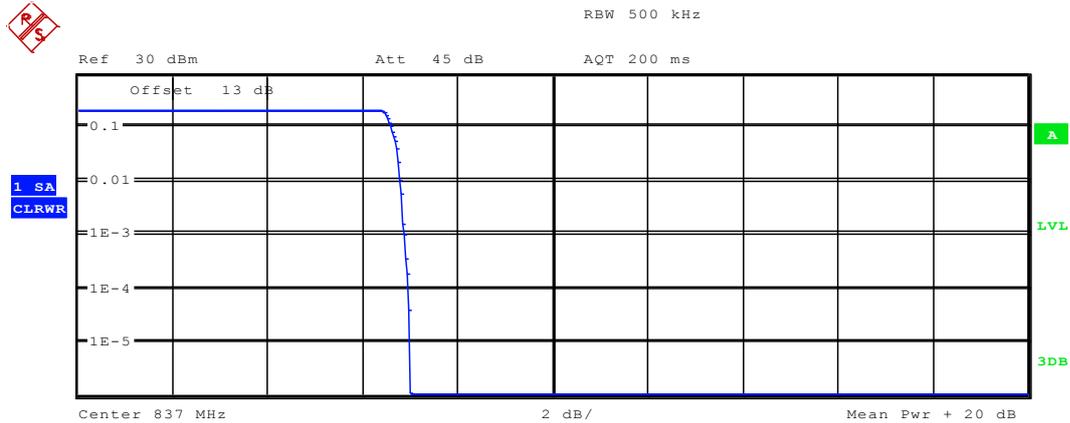
TEST CONDITIONS	Peak-to-Average Ratio					
	Channel128(L)		Channel192(M)		Channel251(H)	
	824.2MHz		837.0MHz		848.8MHz	
	dB		dB		dB	
$T_{nom} / V_{nom}$	Measured	Limit	Measured	Limit	Measured	Limit
TM1	6.55	13	<b>6.89</b>	13	6.47	13
TM2	12.76	13	<b>12.85</b>	13	12.73	13



## Test Plot of Peak-to-Average Ratio

Note: All relevant operation modes have been tested, and the worst case Plot is included in this report.

TM1

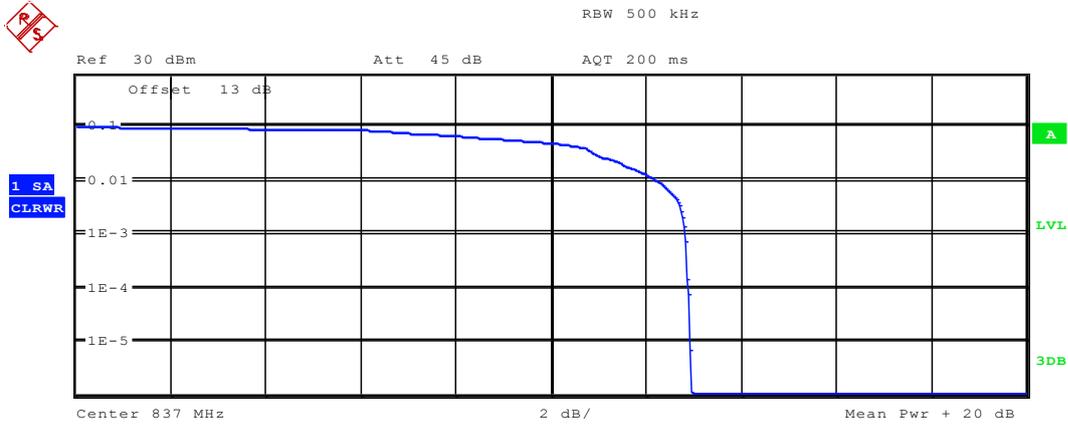


Complementary Cumulative Distribution Function  
NOF samples: 100000, Usable BW: 424kHz

Trace 1	
Mean	22.68 dBm
Peak	29.66 dBm
Crest	6.98 dB
10 %	6.60 dB
1 %	6.79 dB
.1 %	6.89 dB
.01 %	6.99 dB



TM2



Complementary Cumulative Distribution Function  
NOF samples: 100000, Usable BW: 424kHz

Trace 1			
Mean	16.45	dBm	
Peak	29.38	dBm	
Crest	12.93	dB	
10 %	2.12	dB	
1 %	12.21	dB	
.1 %	12.85	dB	
.01 %	12.92	dB	



### 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)	FCC limit [dBm]	Result
							[dBm]		
TM1	824.2	31.64	Dipole Ant.	35.01	-2.75	0.6	31.66	38.5	Pass
TM1	837.0	31.42	Dipole Ant.	34.94	-2.87	0.6	31.47	38.5	Pass
TM1	848.8	31.17	Dipole Ant.	34.58	-2.85	0.6	31.13	38.5	Pass
TM2	824.2	25.91	Dipole Ant.	29.29	-2.75	0.6	25.94	38.5	Pass
TM2	837.0	25.97	Dipole Ant.	29.38	-2.87	0.6	25.91	38.5	Pass
TM2	848.8	25.83	Dipole Ant.	29.33	-2.85	0.6	25.88	38.5	Pass

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

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

b, SGP=Signal Generator Level

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



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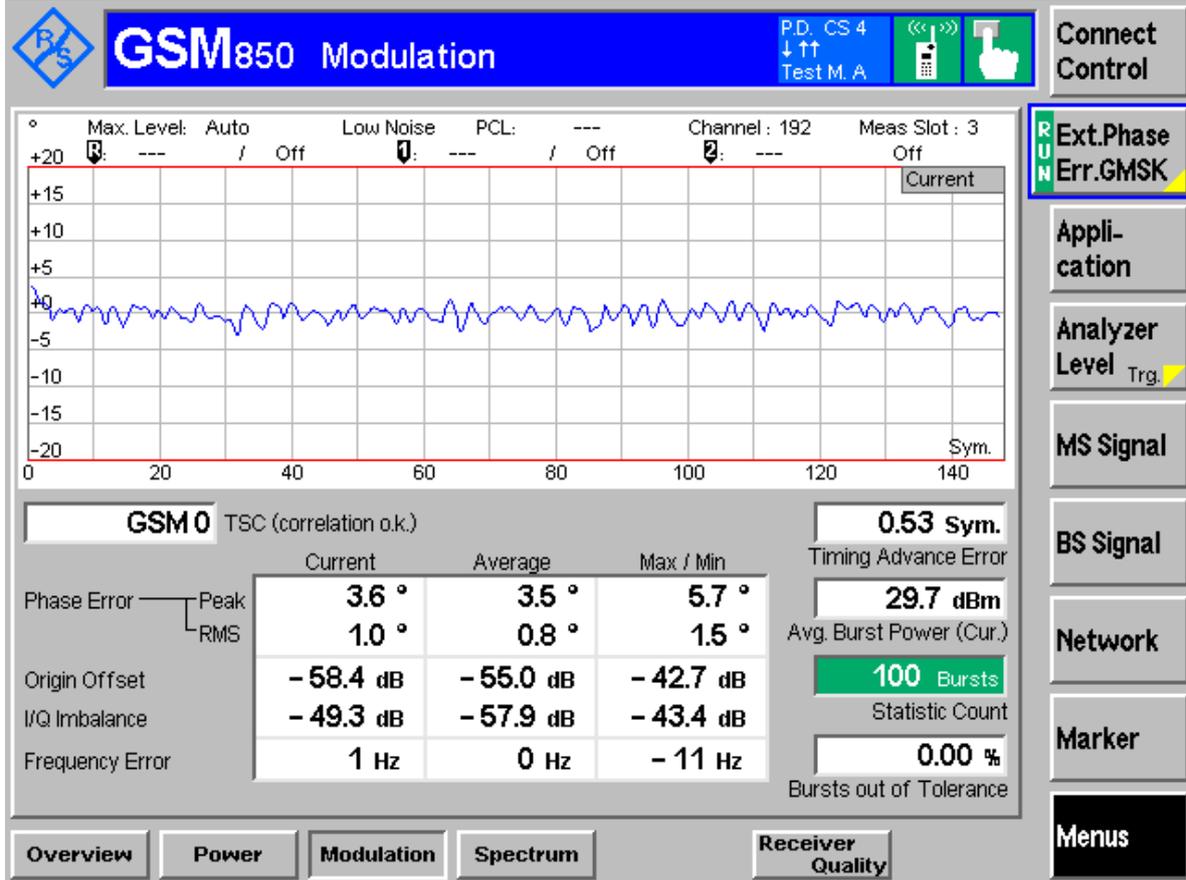
## **Appendix B**

# Modulation Characteristics

According to FCC Part 2.1047 & Part22 Subpart H

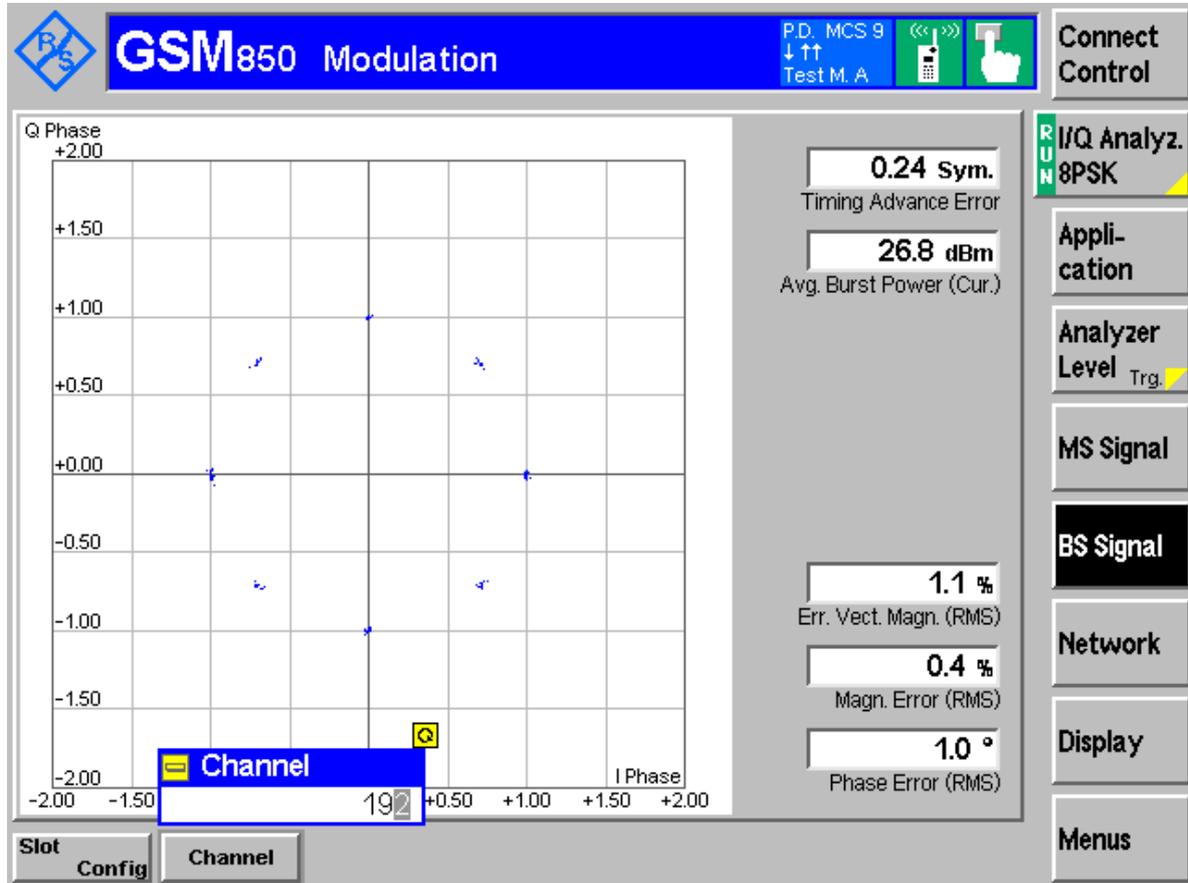


## Channel 192 (TM1:GPRS/GSM)





## Channel 192 (TM2:EDGE)



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



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# 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	245.19	Pass
	192	246.79	Pass
	251	243.59	Pass
TM2	128	245.19	Pass
	192	245.19	Pass
	251	246.79	Pass



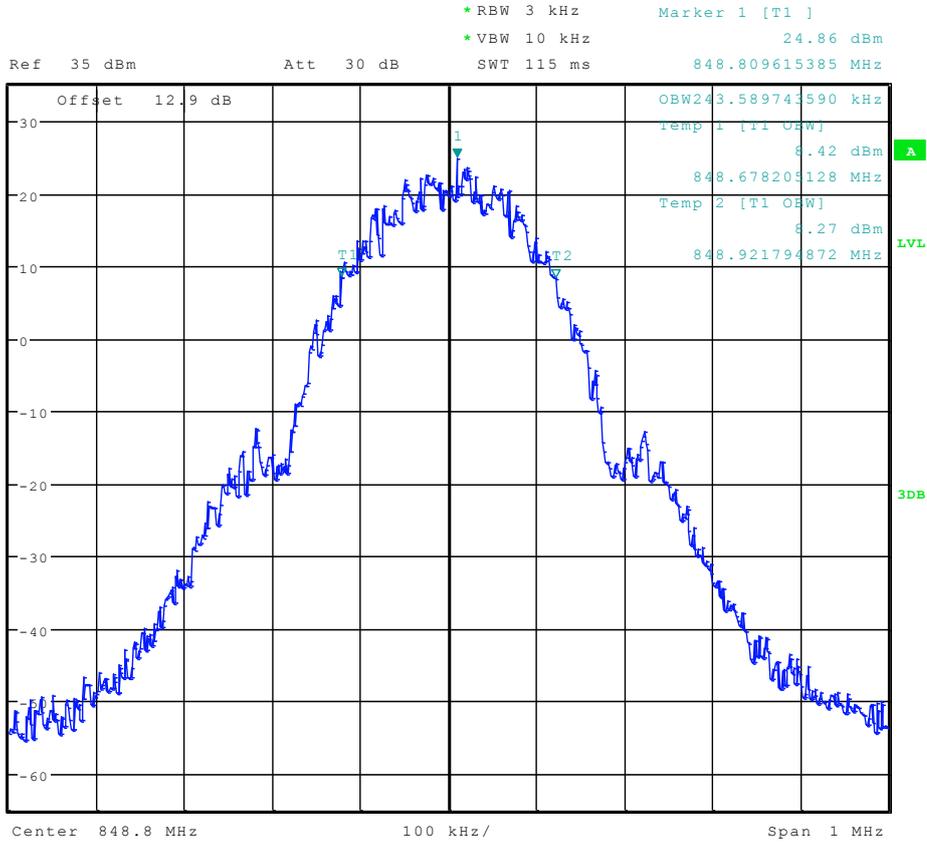








## Channel 251 (TM1:GPRS/GSM)



Date: 7.JUL.2012 18:23:45





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# Appendix D

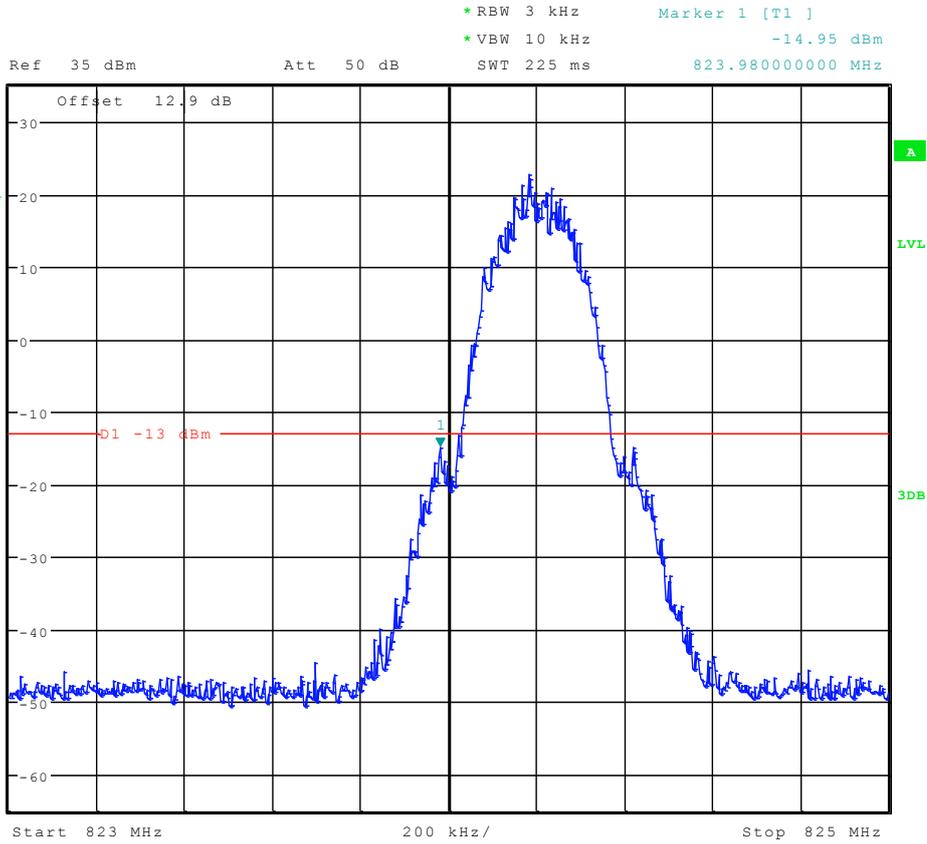
## Band Edges Compliance According to FCC Part 2.1051 & Part22 Subpart H



# TM1:GPRS/GSM

## Left Edge

### Channel 128



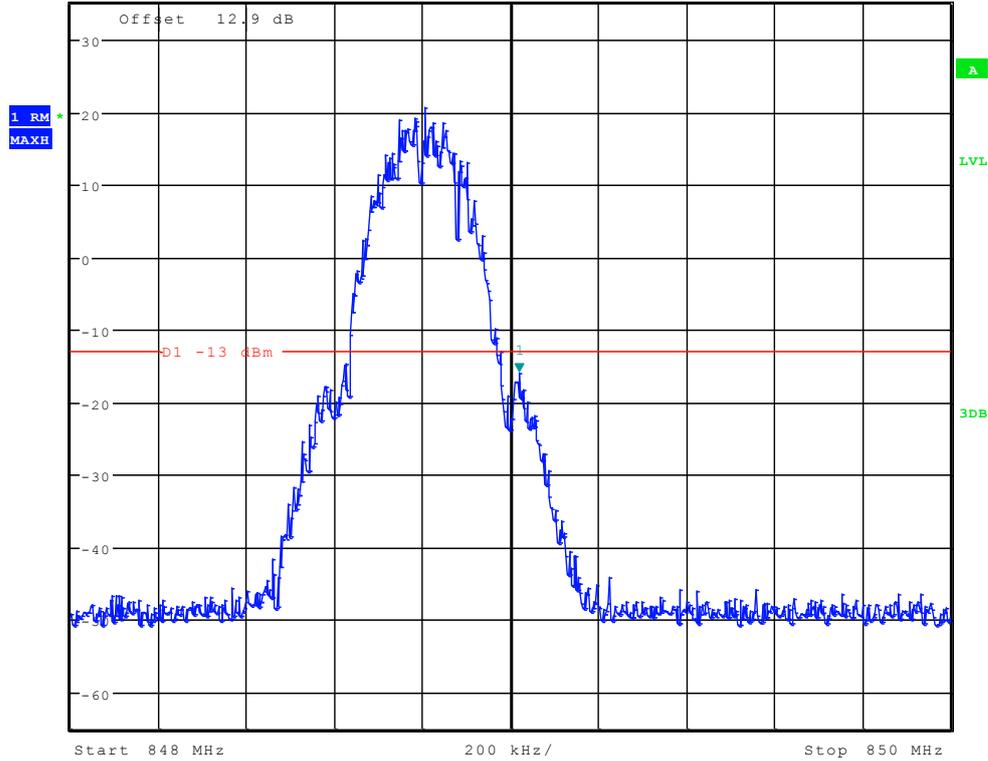
Date: 7.JUL.2012 18:27:05



## Right Edge Channel 251



Ref 35 dBm Att 50 dB RBW 3 kHz Marker 1 [T1] -15.99 dBm  
\* VBW 10 kHz  
SWT 225 ms 849.02000000 MHz



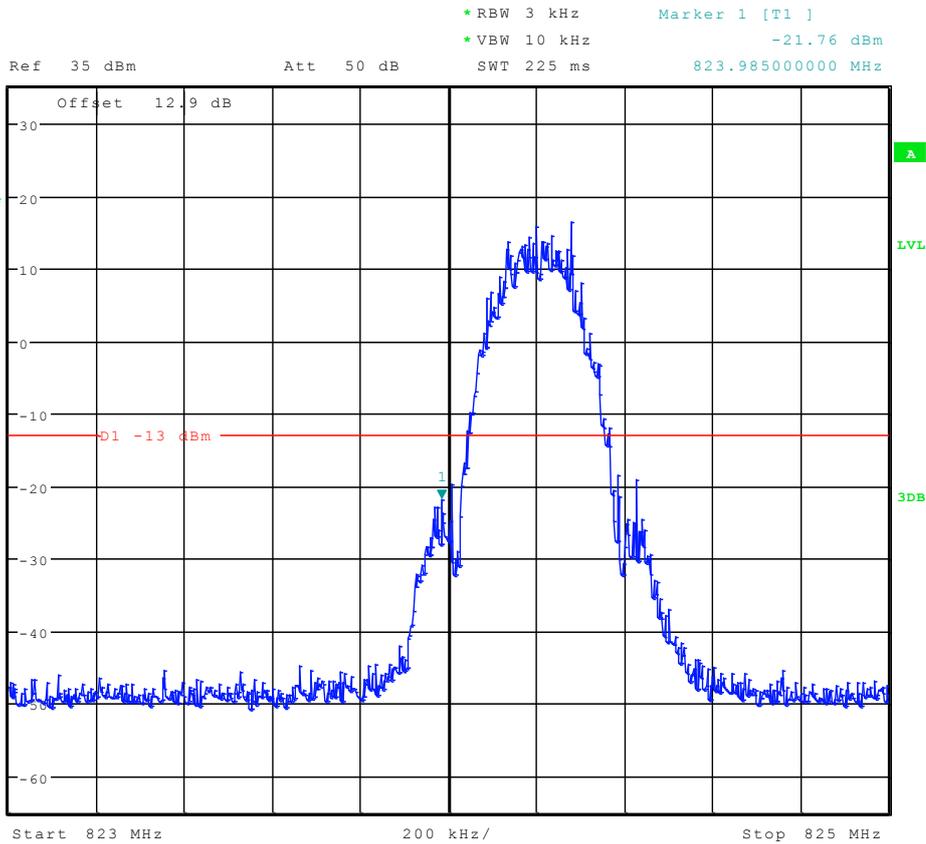
Date: 7.JUL.2012 18:27:19



# TM2:EDGE

## Left Edge

### Channel 128



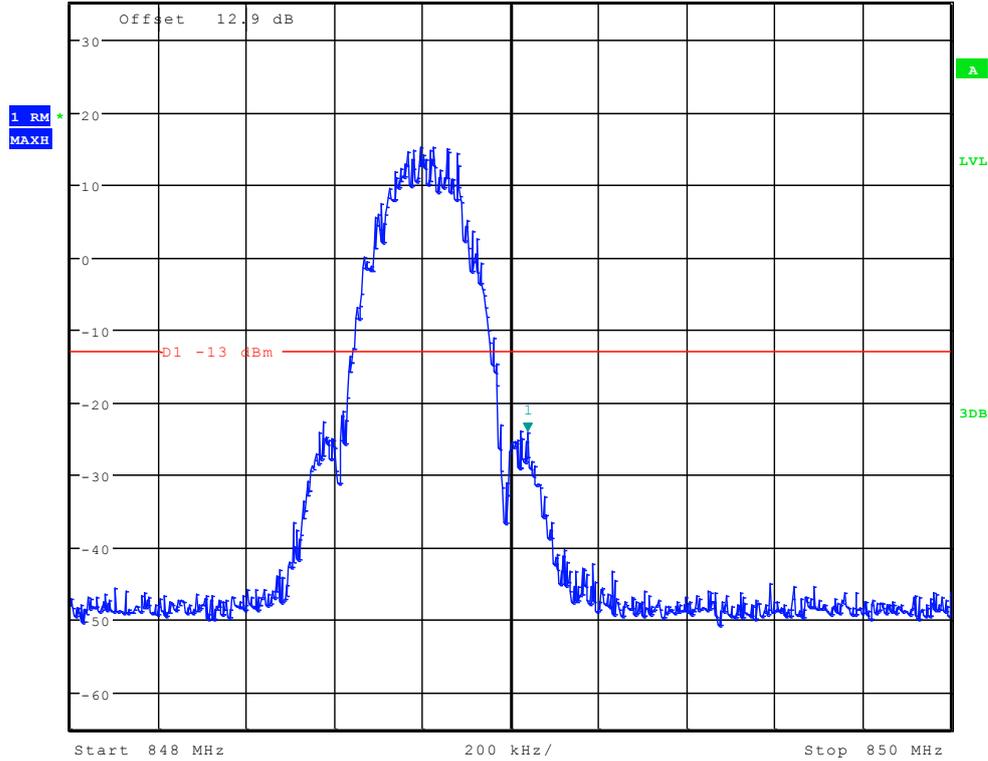
Date: 7.JUL.2012 18:31:57



## Right Edge Channel 251



Ref 35 dBm Att 50 dB RBW 3 kHz Marker 1 [T1] -24.07 dBm  
 VBW 10 kHz SWT 225 ms 849.04000000 MHz



Date: 7.JUL.2012 18:32:20

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



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# Appendix E

## Spurious Emission at Antenna Terminal

According to FCC Part 2.1051 & Part22 Subpart H

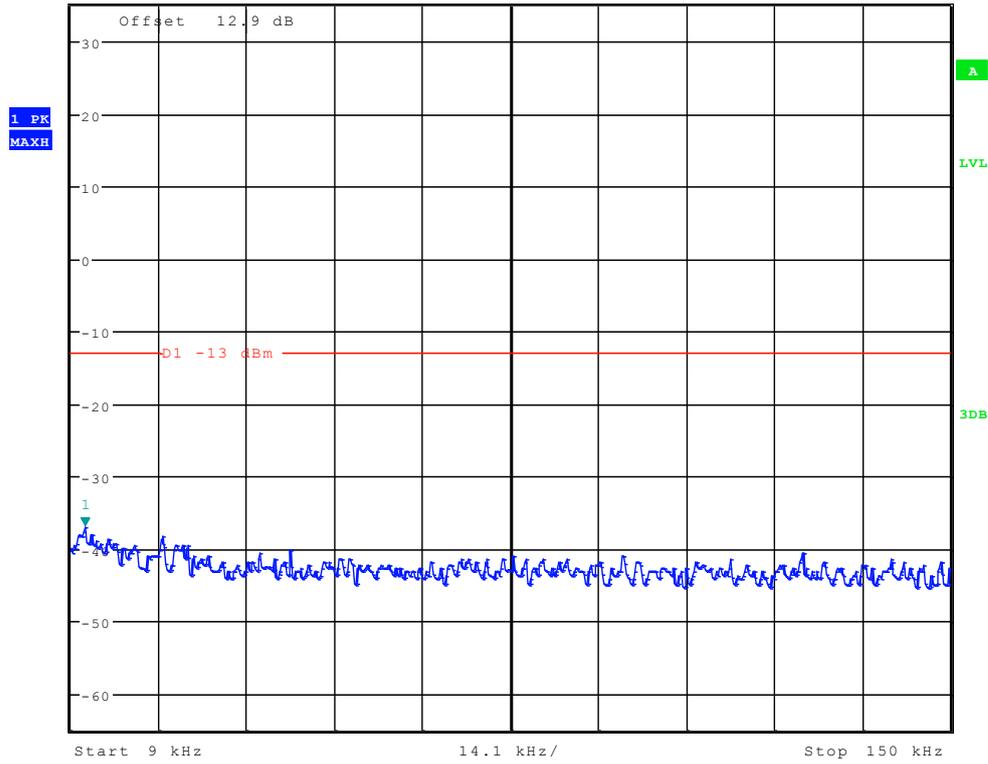


# TM1:GPRS/GSM

## Channel 128



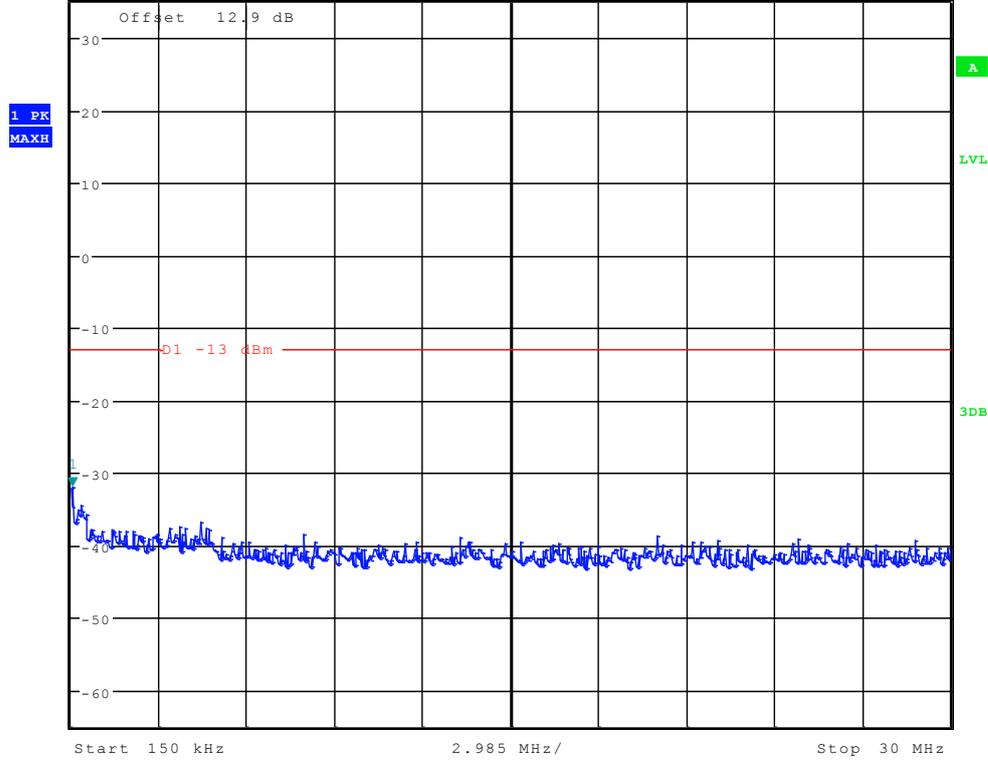
\*RBW 1 kHz      Marker 1 [T1 ]  
 \*VBW 10 kHz      -36.87 dBm  
 Ref 35 dBm      Att 50 dB      SWT 145 ms      11.259615385 kHz



Date: 7.JUL.2012 18:24:00



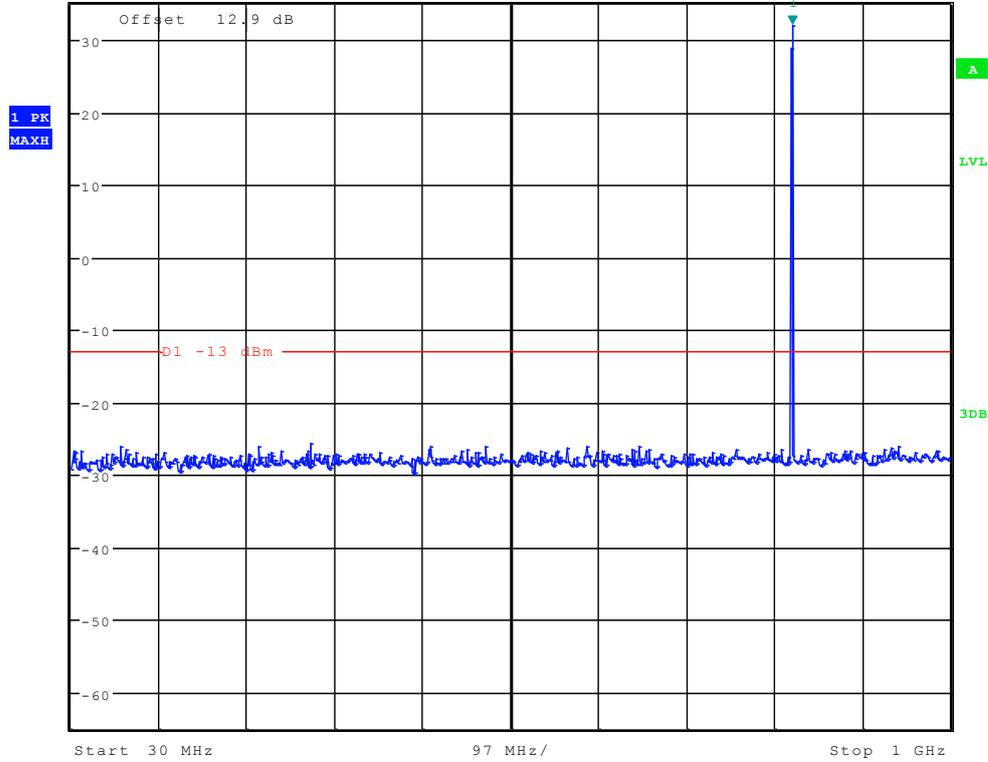
\*RBW 10 kHz      Marker 1 [T1 ]  
 \*VBW 30 kHz      -31.93 dBm  
 Ref 35 dBm      Att 50 dB      SWT 300 ms      197.836538462 kHz



Date: 7.JUL.2012 18:24:44



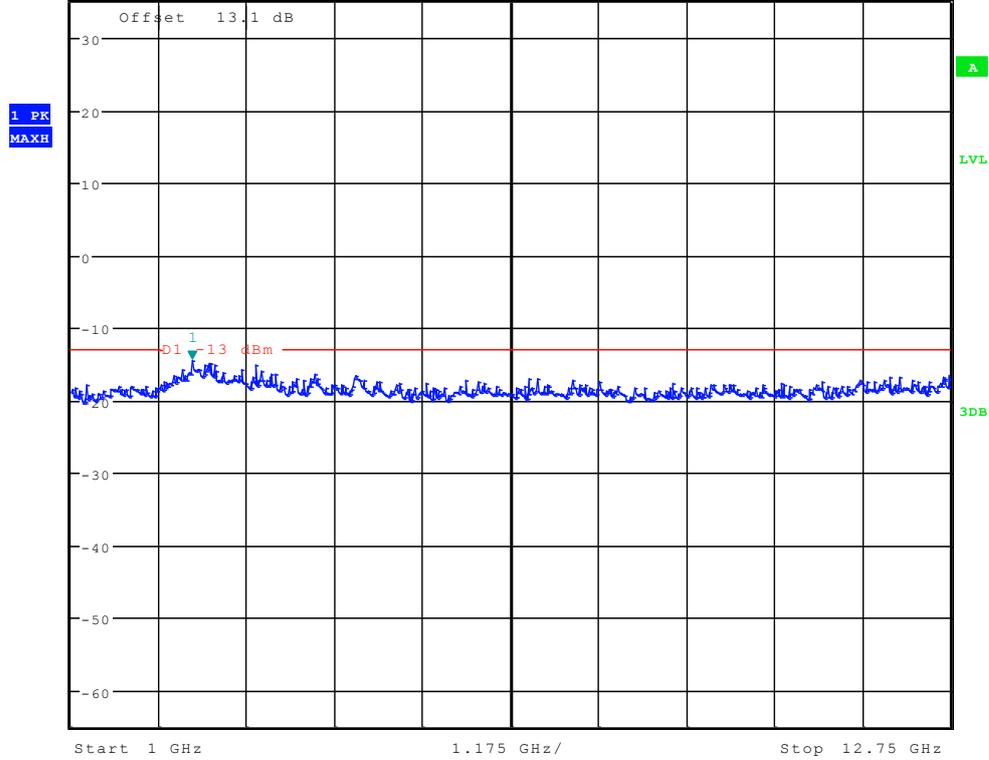
\*RBW 100 kHz      Marker 1 [T1 ]  
 \*VBW 300 kHz      32.02 dBm  
 Ref 35 dBm      Att 50 dB      SWT 100 ms      825.897435897 MHz



Date: 7.JUL.2012 18:25:27



\*RBW 1 MHz      Marker 1 [T1 ]  
 \*VBW 3 MHz      -14.55 dBm  
 Ref 35 dBm      Att 50 dB      SWT 70 ms      2.619391026 GHz



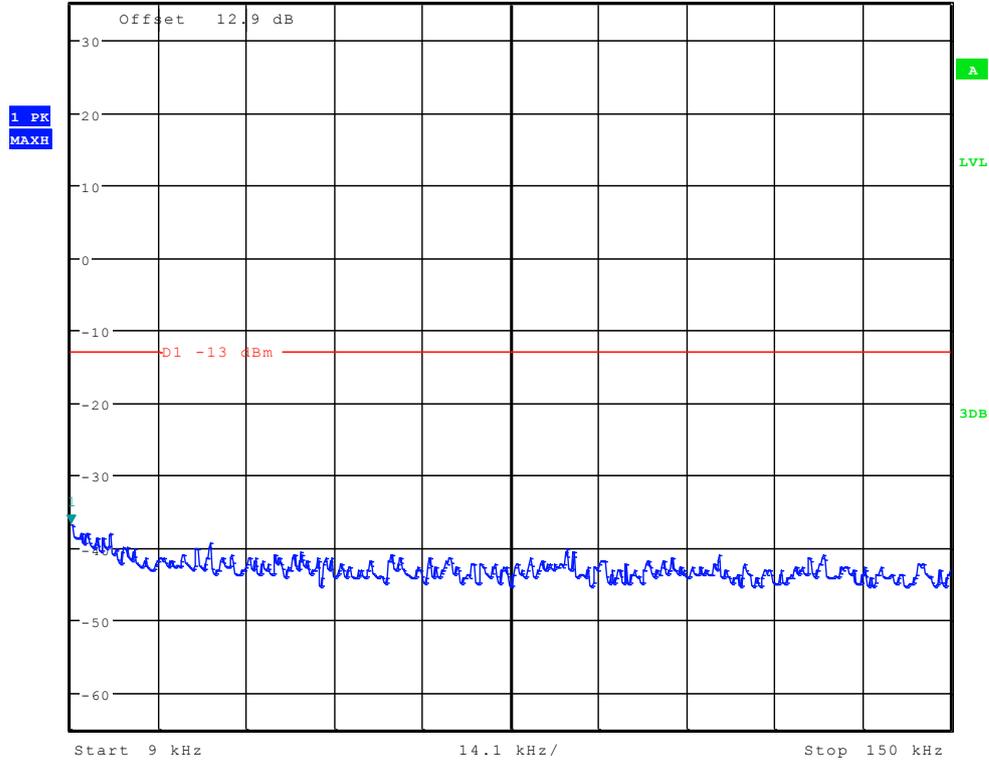
Date: 7.JUL.2012 18:26:11



## Channel 192



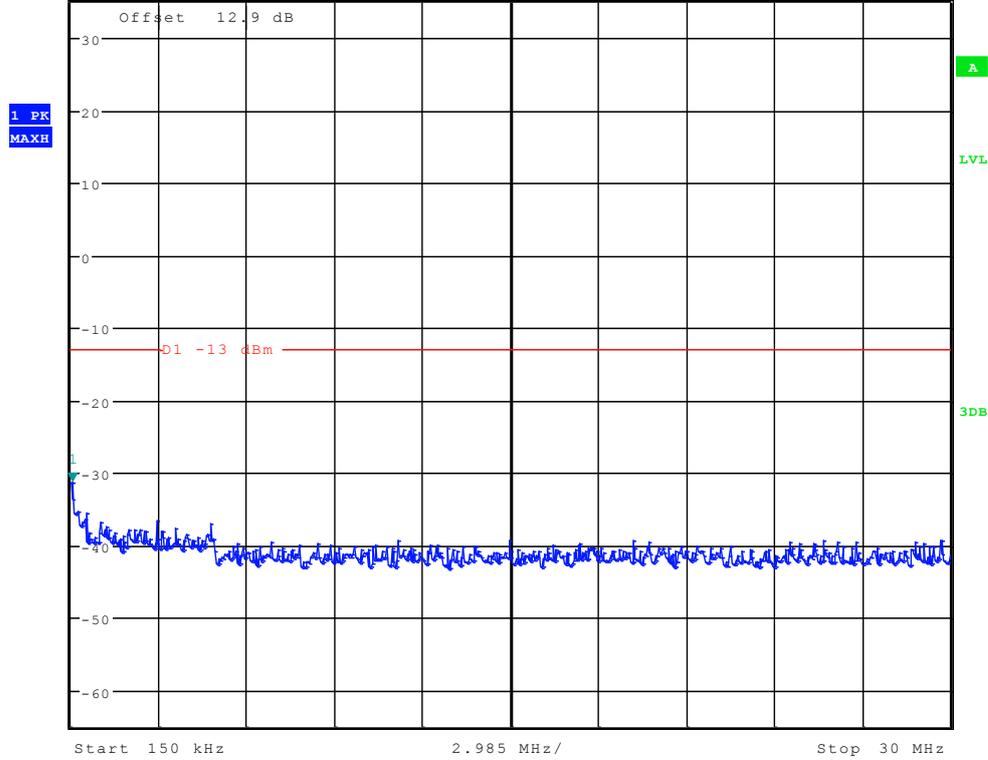
\* RBW 1 kHz      Marker 1 [T1 ]  
 \* VBW 10 kHz      -36.67 dBm  
 Ref 35 dBm      Att 50 dB      SWT 145 ms      9.000000000 kHz



Date: 7.JUL.2012 18:24:14



\*RBW 10 kHz      Marker 1 [T1 ]  
 \*VBW 30 kHz      -31.21 dBm  
 Ref 35 dBm      Att 50 dB      SWT 300 ms      197.836538462 kHz

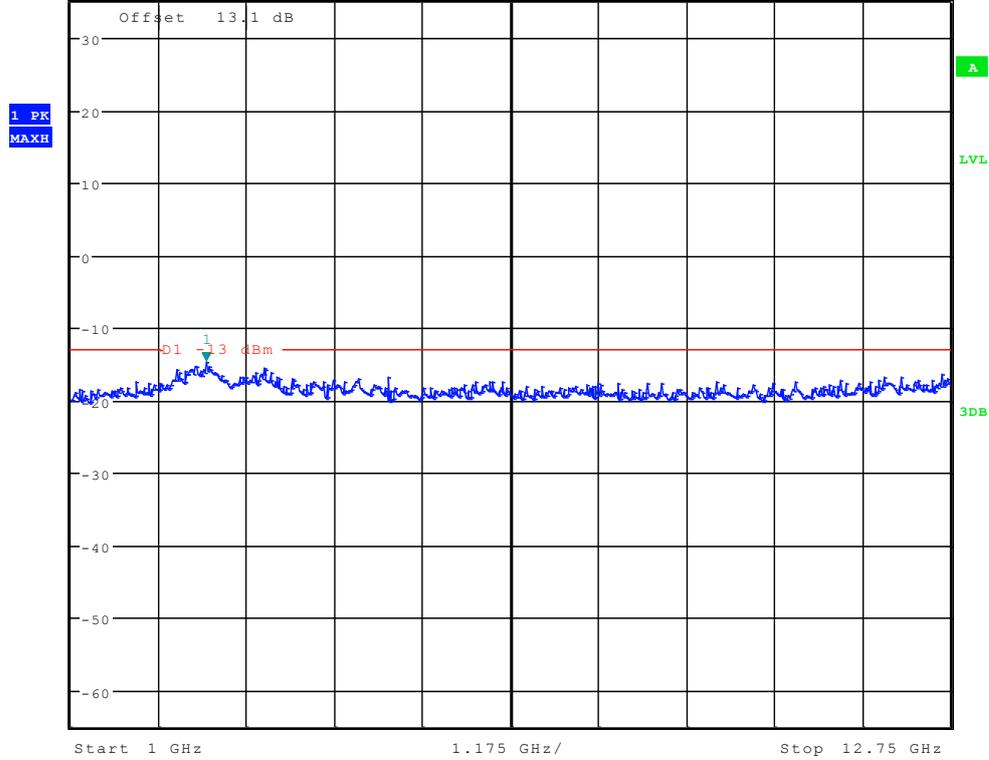


Date: 7.JUL.2012 18:24:58





\*RBW 1 MHz      Marker 1 [T1 ]  
 \*VBW 3 MHz      -14.69 dBm  
 Ref 35 dBm      Att 50 dB      SWT 70 ms      2.807692308 GHz



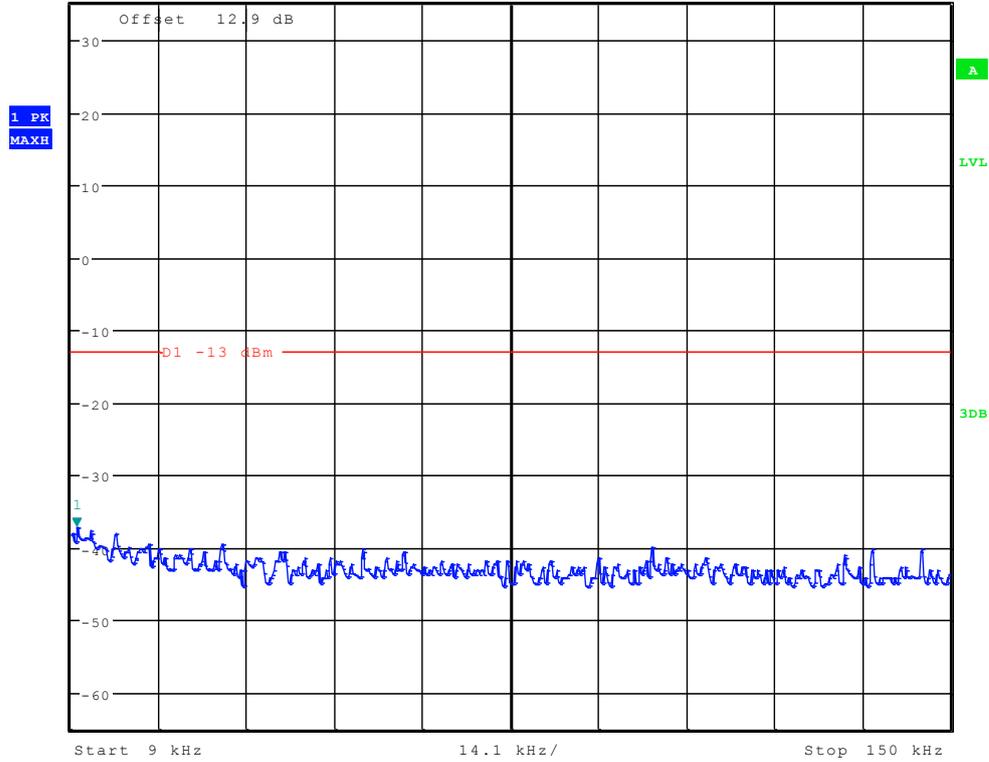
Date: 7.JUL.2012 18:26:25



## Channel 251



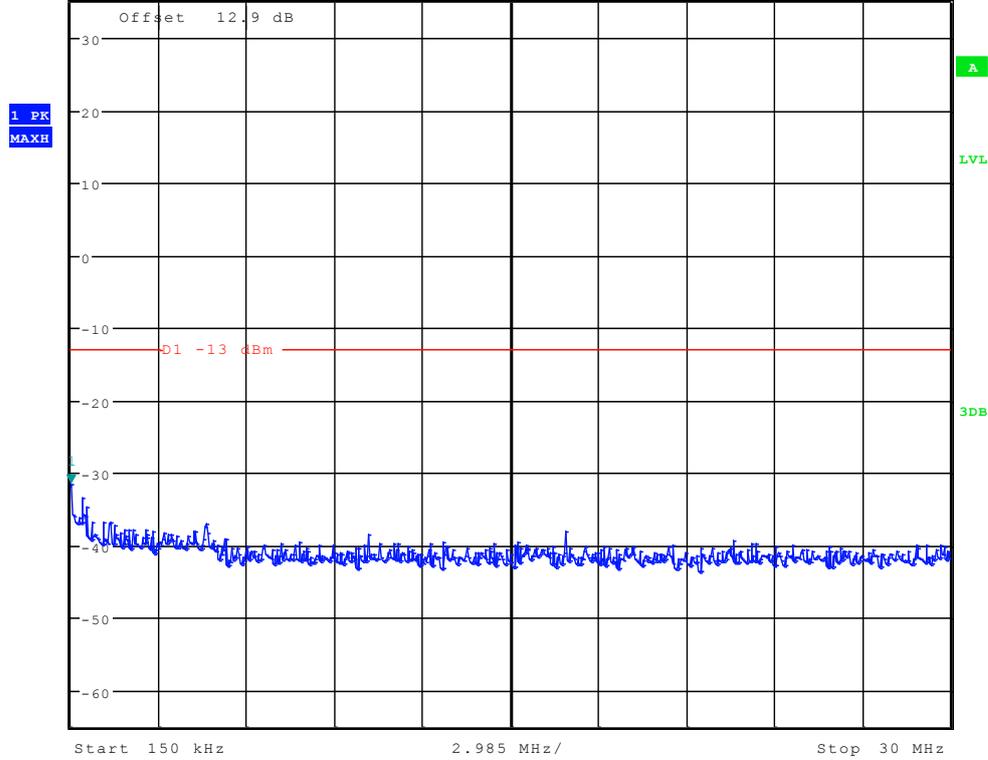
Ref 35 dBm      Att 50 dB      \*RBW 1 kHz      Marker 1 [T1]      -37.08 dBm  
\*VBW 10 kHz      SWT 145 ms      9.903846154 kHz



Date: 7.JUL.2012 18:24:29



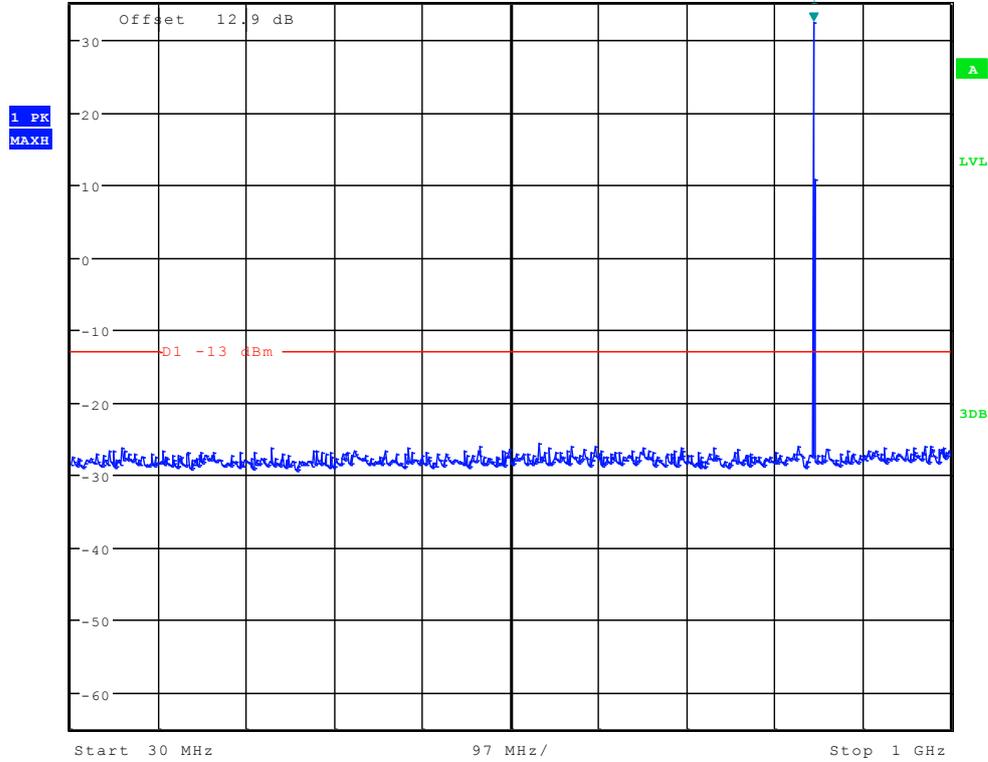
\*RBW 10 kHz      Marker 1 [T1 ]  
\*VBW 30 kHz      -31.59 dBm  
Ref 35 dBm      Att 50 dB      SWT 300 ms      150.00000000 kHz



Date: 7.JUL.2012 18:25:12



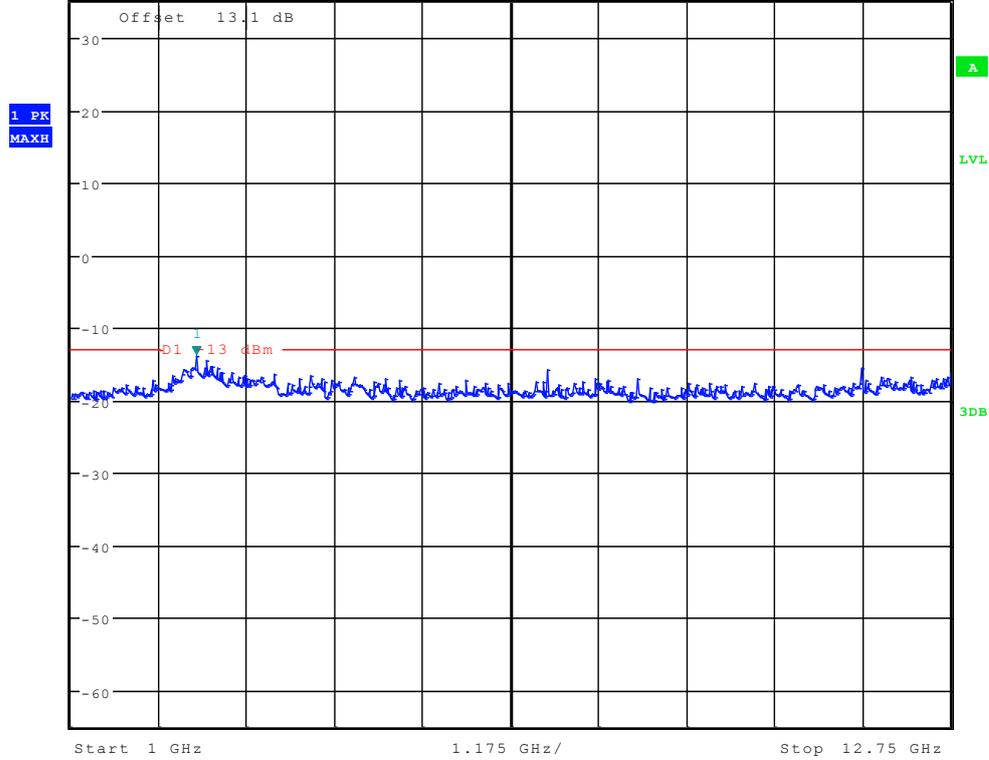
\*RBW 100 kHz      Marker 1 [T1 ]  
 \*VBW 300 kHz      32.27 dBm  
 Ref 35 dBm      Att 50 dB      SWT 100 ms      849.214743590 MHz



Date: 7.JUL.2012 18:25:56



\*RBW 1 MHz      Marker 1 [T1 ]  
 \*VBW 3 MHz      -13.81 dBm  
 Ref 35 dBm      Att 50 dB      SWT 70 ms      2.675881410 GHz



Date: 7.JUL.2012 18:26:40

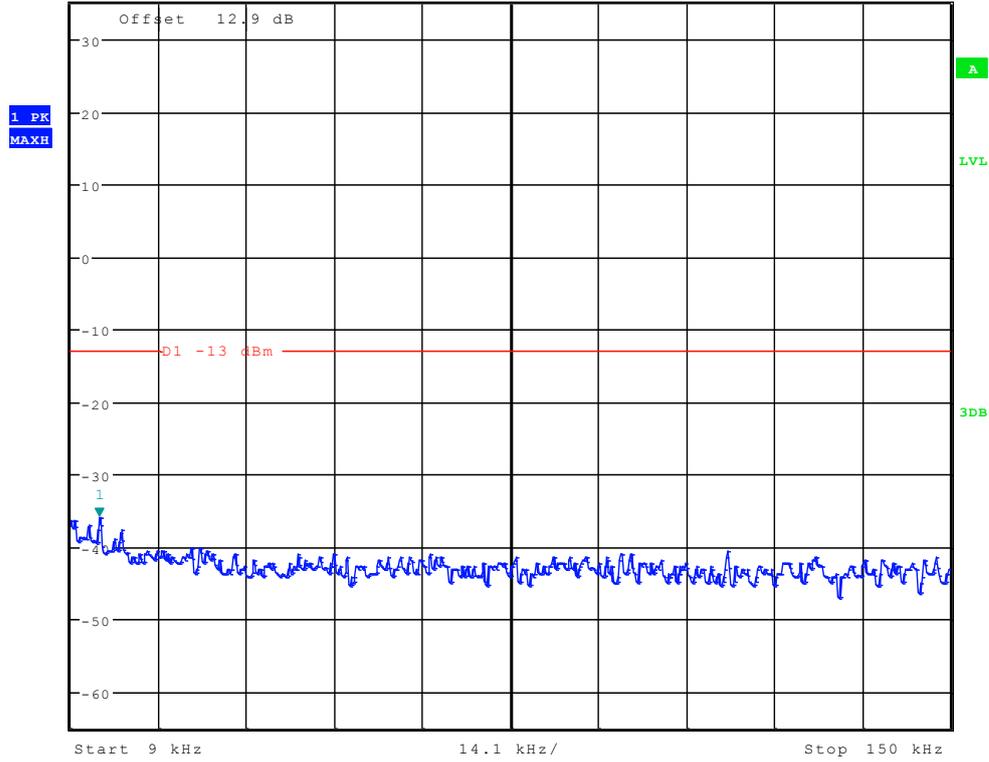


# TM2:EDGE

## Channel 128



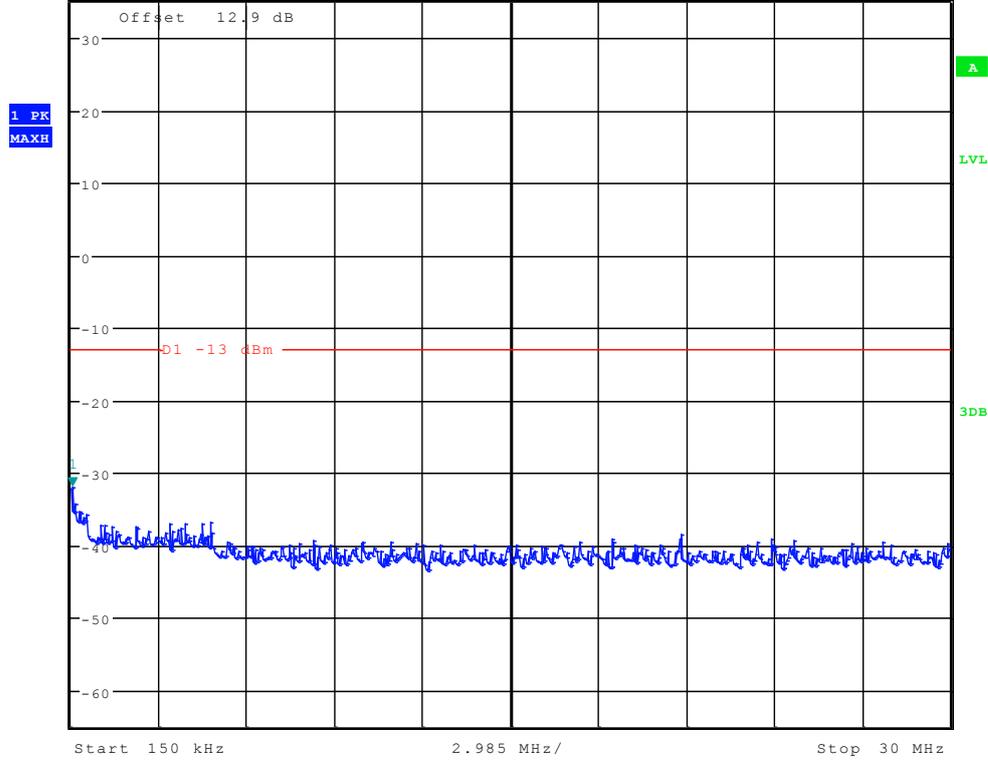
\*RBW 1 kHz      Marker 1 [T1 ]  
 \*VBW 10 kHz      -35.92 dBm  
 Ref 35 dBm      Att 50 dB      SWT 145 ms      13.519230769 kHz



Date: 7.JUL.2012 18:28:59



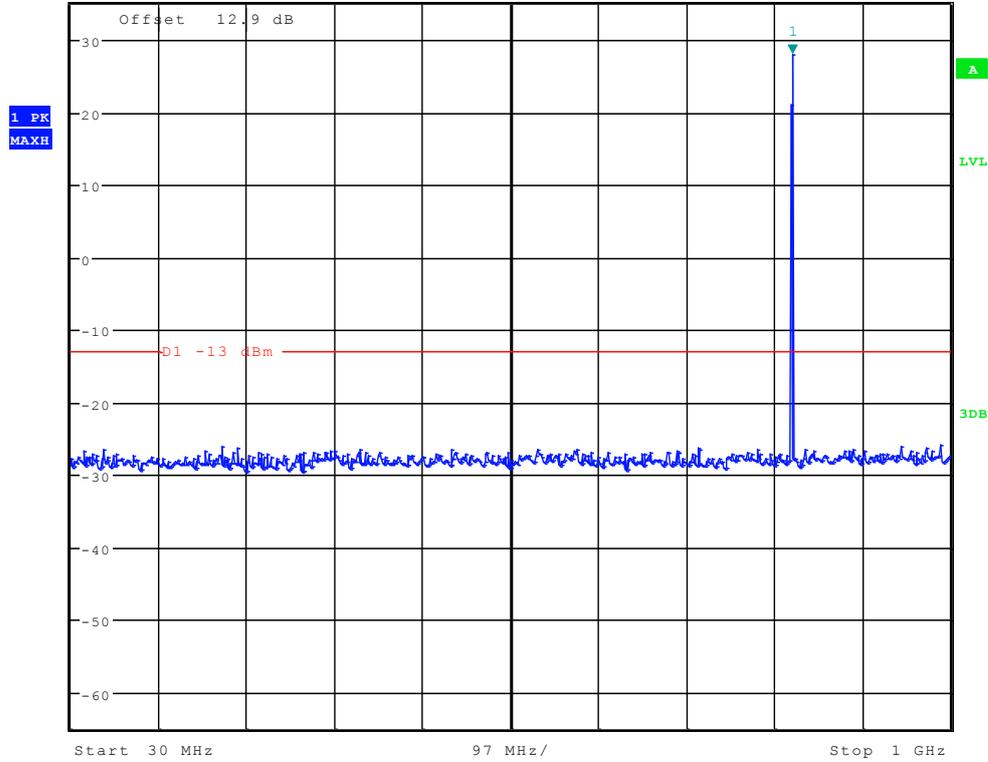
\*RBW 10 kHz      Marker 1 [T1 ]  
 \*VBW 30 kHz      -31.98 dBm  
 Ref 35 dBm      Att 50 dB      SWT 300 ms      197.836538462 kHz



Date: 7.JUL.2012 18:29:43



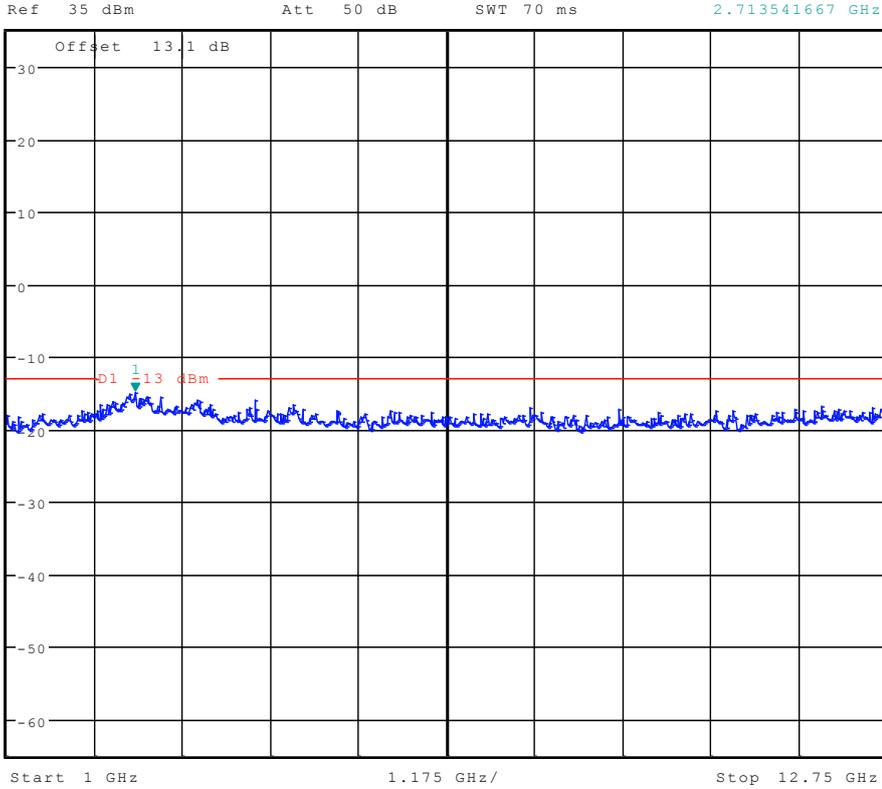
\*RBW 100 kHz      Marker 1 [T1 ]  
\*VBW 300 kHz      27.98 dBm  
Ref 35 dBm      Att 50 dB      SWT 100 ms      825.897435897 MHz



Date: 7.JUL.2012 18:30:26



\*RBW 1 MHz      Marker 1 [T1 ]  
\*VBW 3 MHz      -14.98 dBm  
SWT 70 ms      2.713541667 GHz



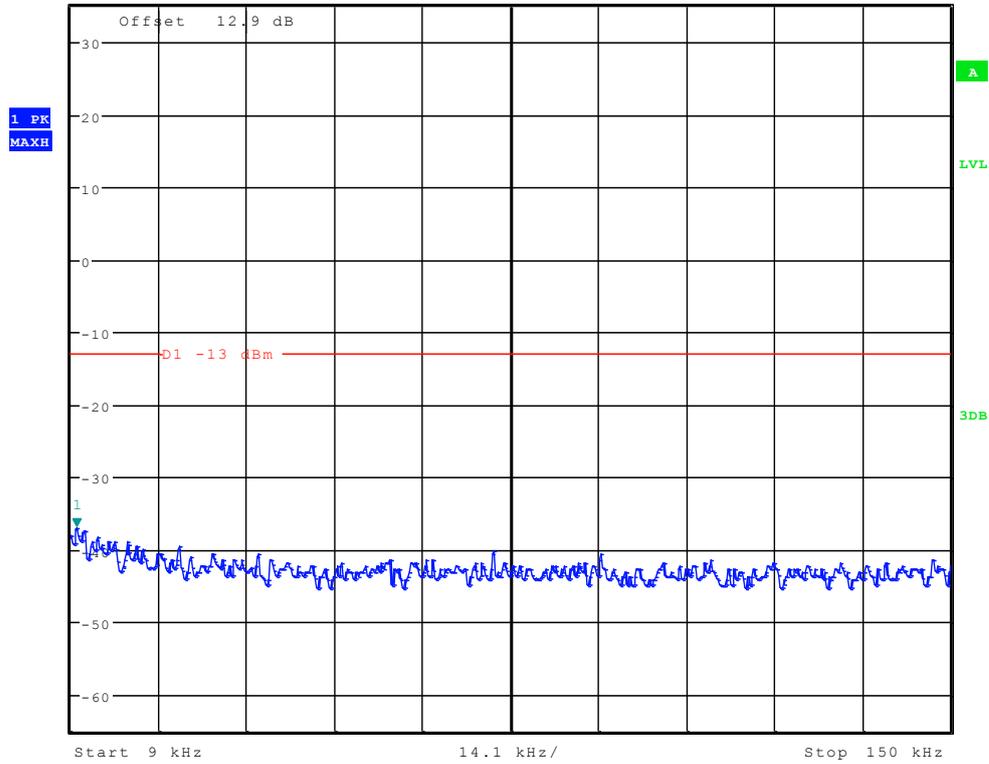
Date: 7.JUL.2012 18:31:10



## Channel 192



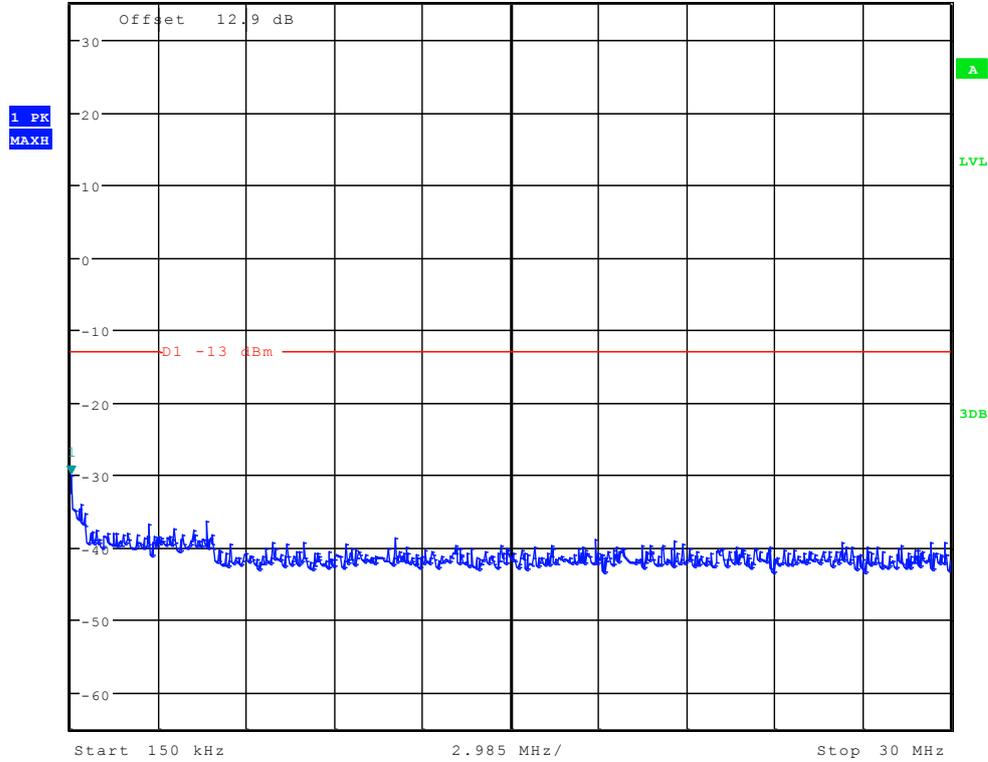
Ref 35 dBm      Att 50 dB      RBW 1 kHz      Marker 1 [T1]      -36.87 dBm  
VBW 10 kHz      SWT 145 ms      9.903846154 kHz



Date: 7.JUL.2012 18:29:14



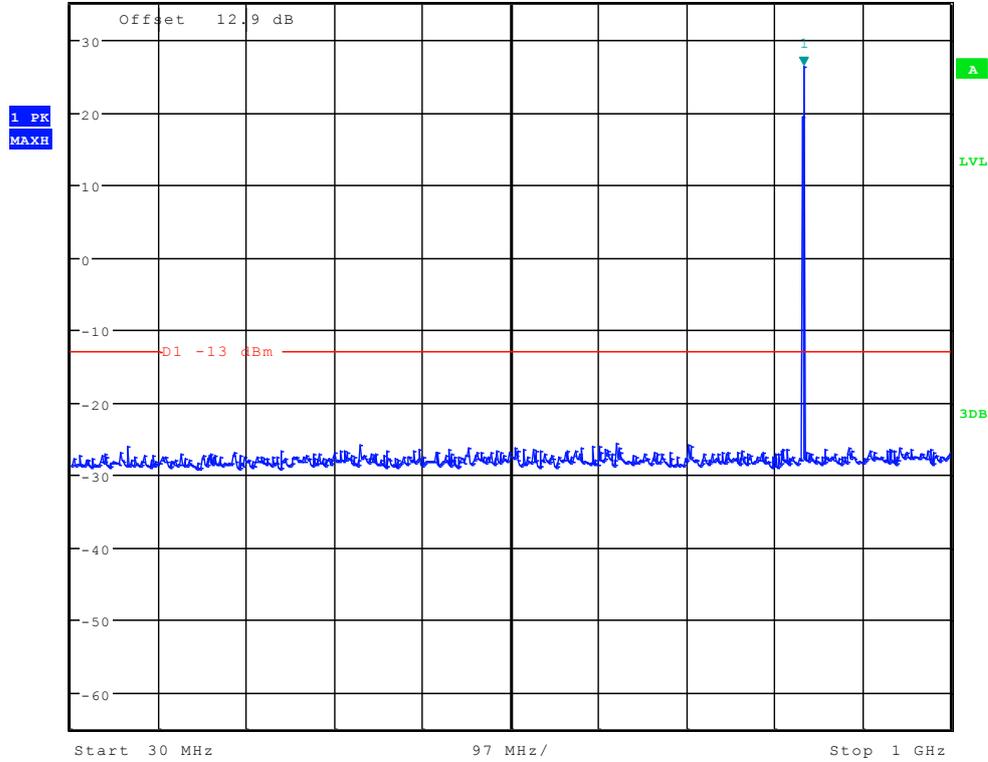
\*RBW 10 kHz      Marker 1 [T1 ]  
 \*VBW 30 kHz      -30.13 dBm  
 Ref 35 dBm      Att 50 dB      SWT 300 ms      150.00000000 kHz



Date: 7.JUL.2012 18:29:57



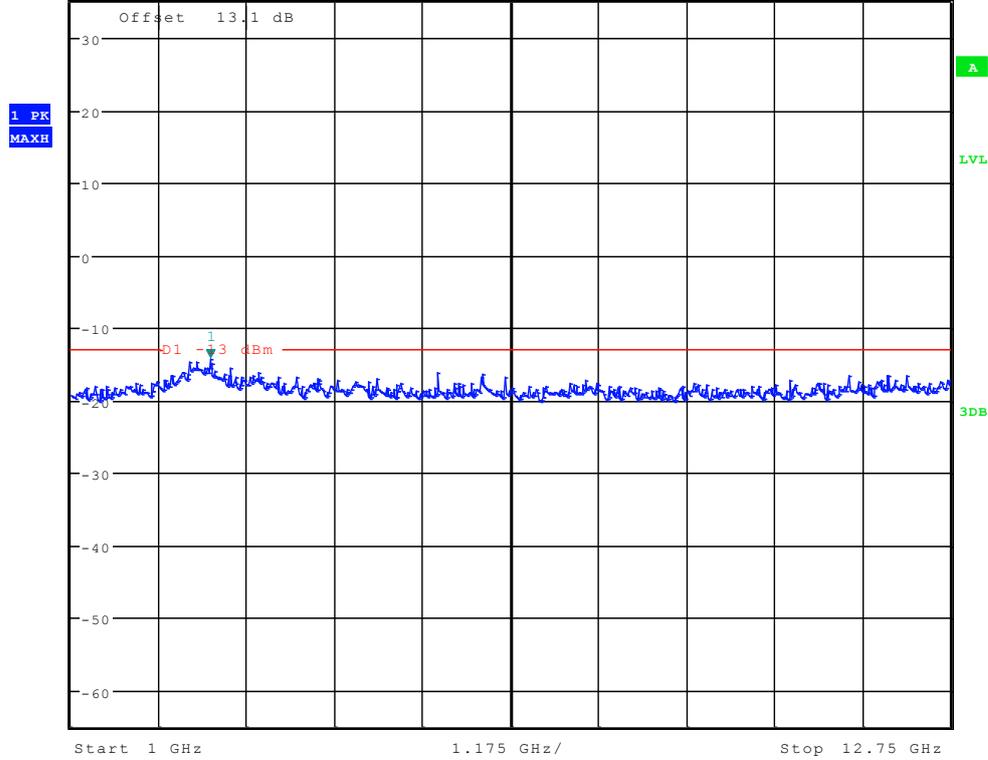
\*RBW 100 kHz      Marker 1 [T1 ]  
\*VBW 300 kHz      26.19 dBm  
Ref 35 dBm      Att 50 dB      SWT 100 ms      838.333333333 MHz



Date: 7.JUL.2012 18:30:41



\*RBW 1 MHz      Marker 1 [T1 ]  
 \*VBW 3 MHz      -14.28 dBm  
 Ref 35 dBm      Att 50 dB      SWT 70 ms      2.864182692 GHz



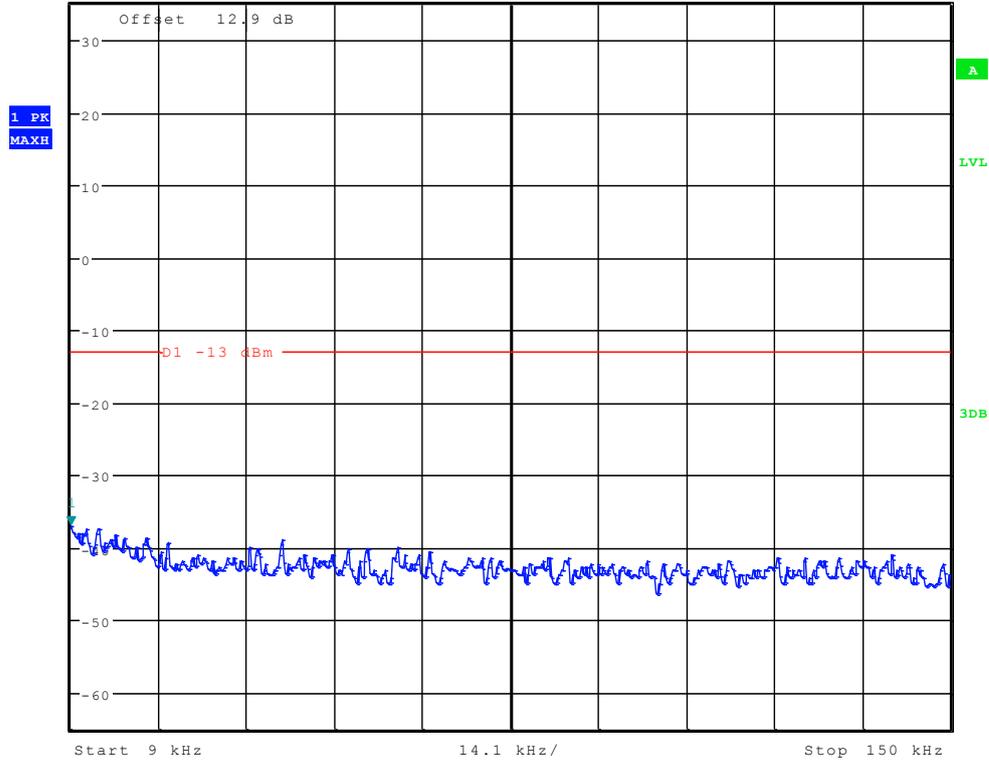
Date: 7.JUL.2012 18:31:25



## Channel 251



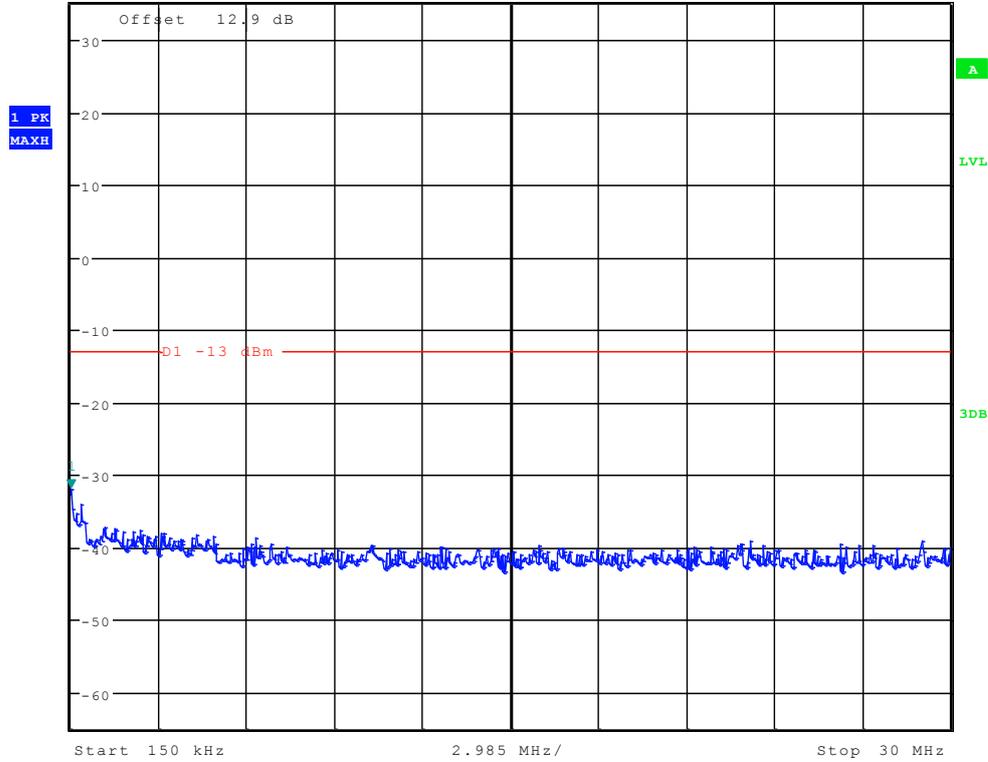
Ref 35 dBm      Att 50 dB      \*RBW 1 kHz      Marker 1 [T1]      -36.87 dBm  
\*VBW 10 kHz      SWT 145 ms      9.000000000 kHz



Date: 7.JUL.2012 18:29:28



\*RBW 10 kHz      Marker 1 [T1 ]  
\*VBW 30 kHz      -31.87 dBm  
Ref 35 dBm      Att 50 dB      SWT 300 ms      150.00000000 kHz

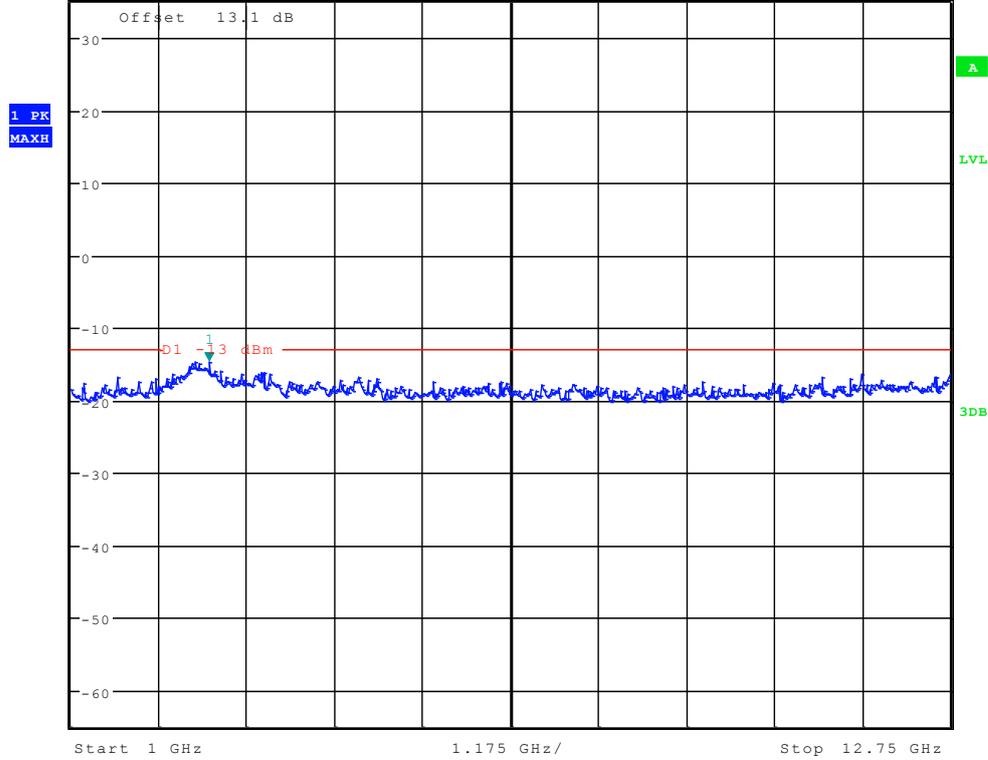


Date: 7.JUL.2012 18:30:12





\*RBW 1 MHz      Marker 1 [T1 ]  
\*VBW 3 MHz      -14.60 dBm  
Ref 35 dBm      Att 50 dB      SWT 70 ms      2.845352564 GHz



Date: 7.JUL.2012 18:31:39

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



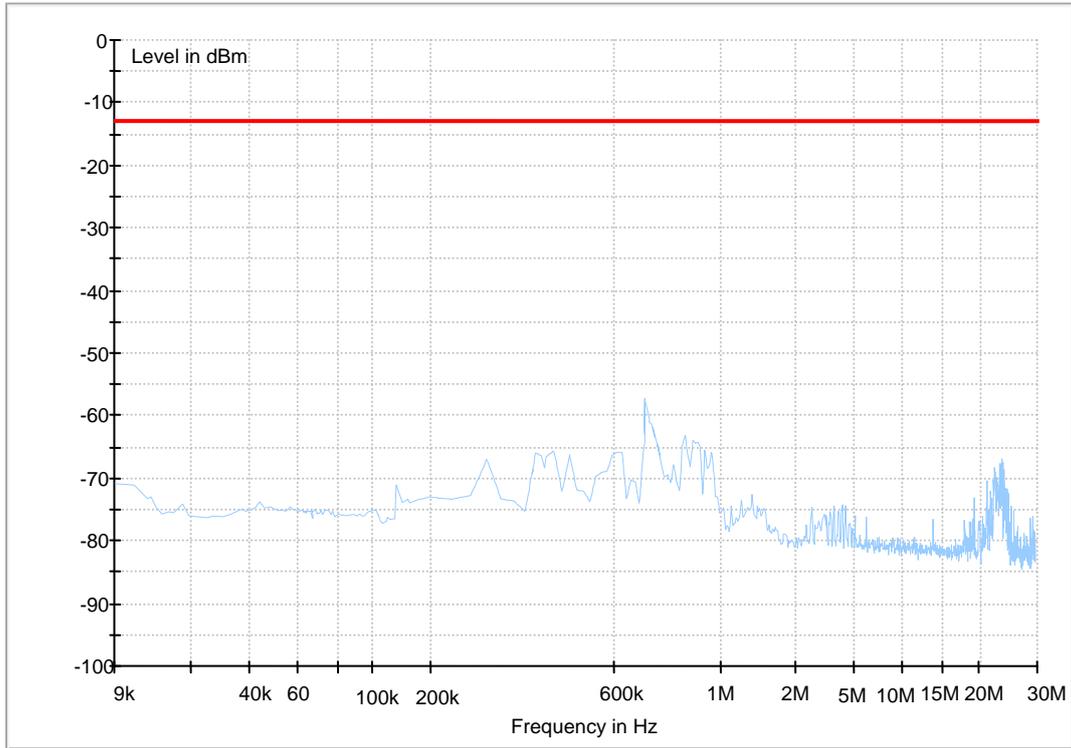
## **Appendix F**

# Field Strength of Spurious Radiation

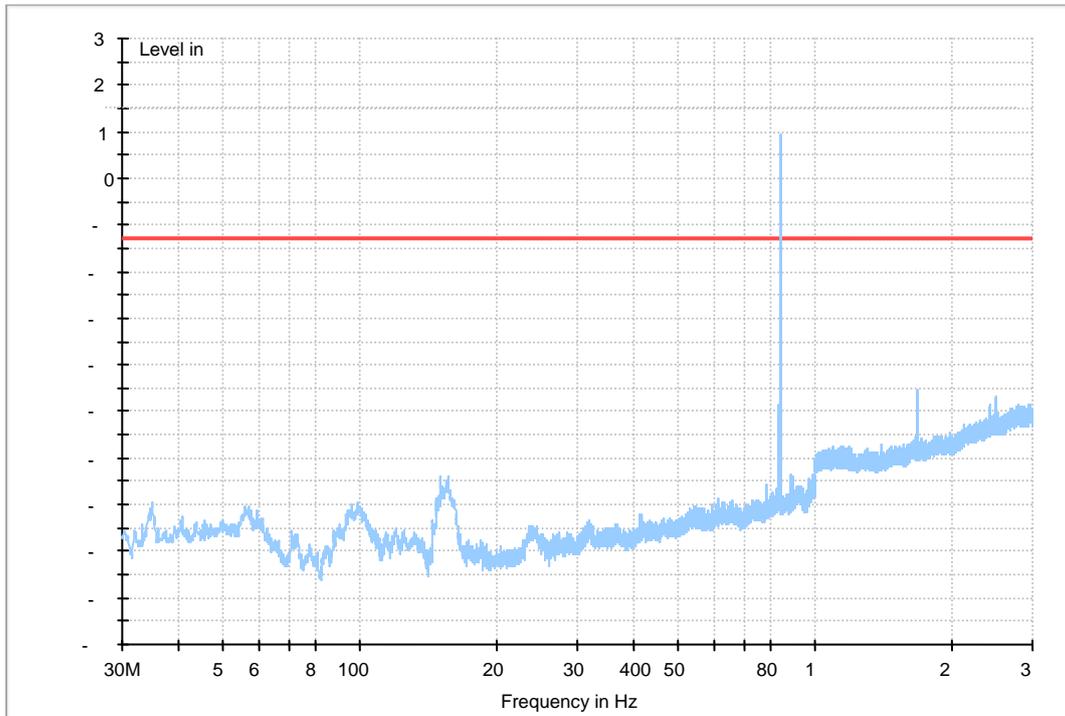
According to FCC Part 2.1053& Part 22.917

## GSM 850

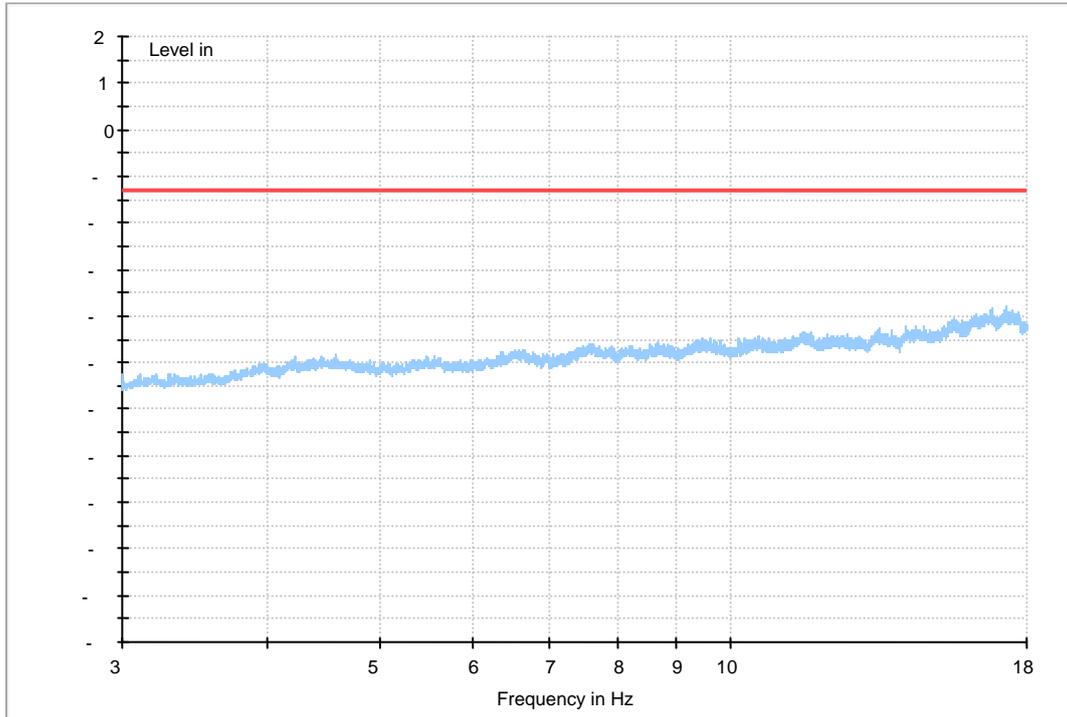
(9kHz~30MHz)



(30MHz~3GHz)

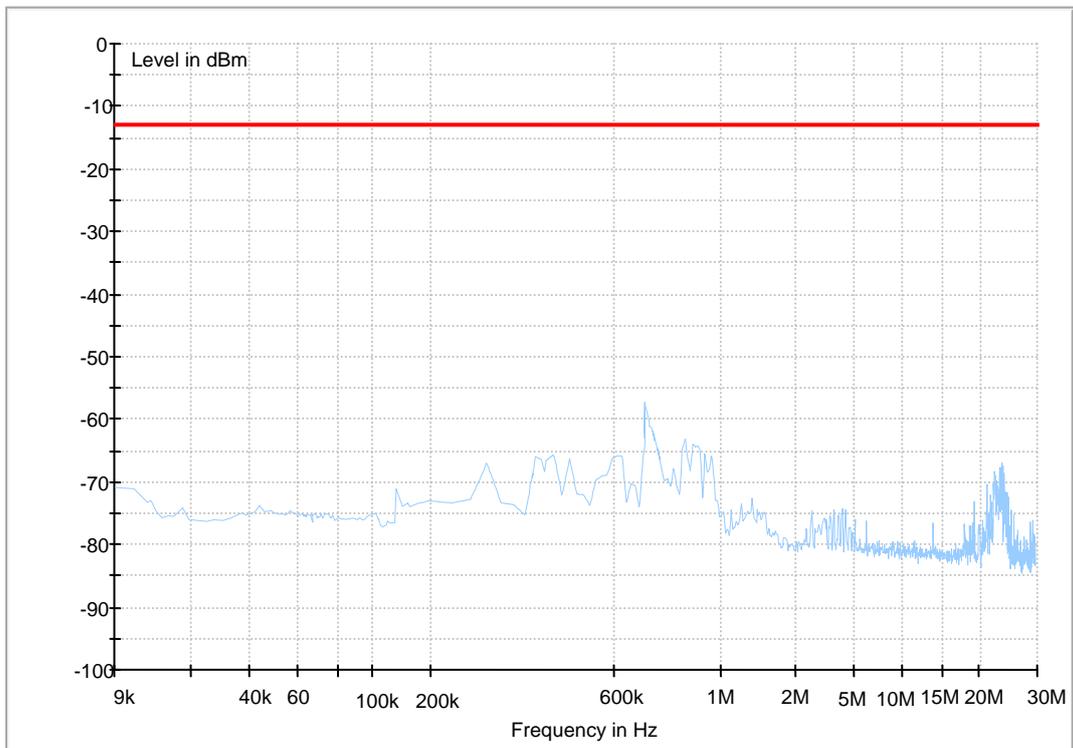


(3GHz~18GHz)

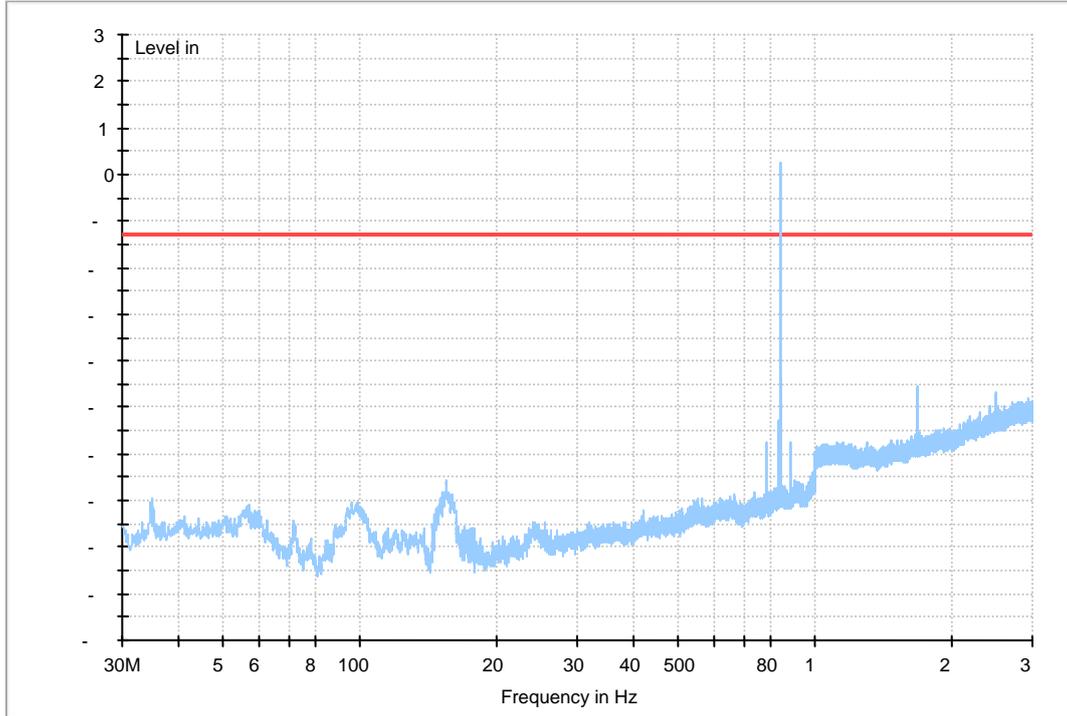


GPRS 850

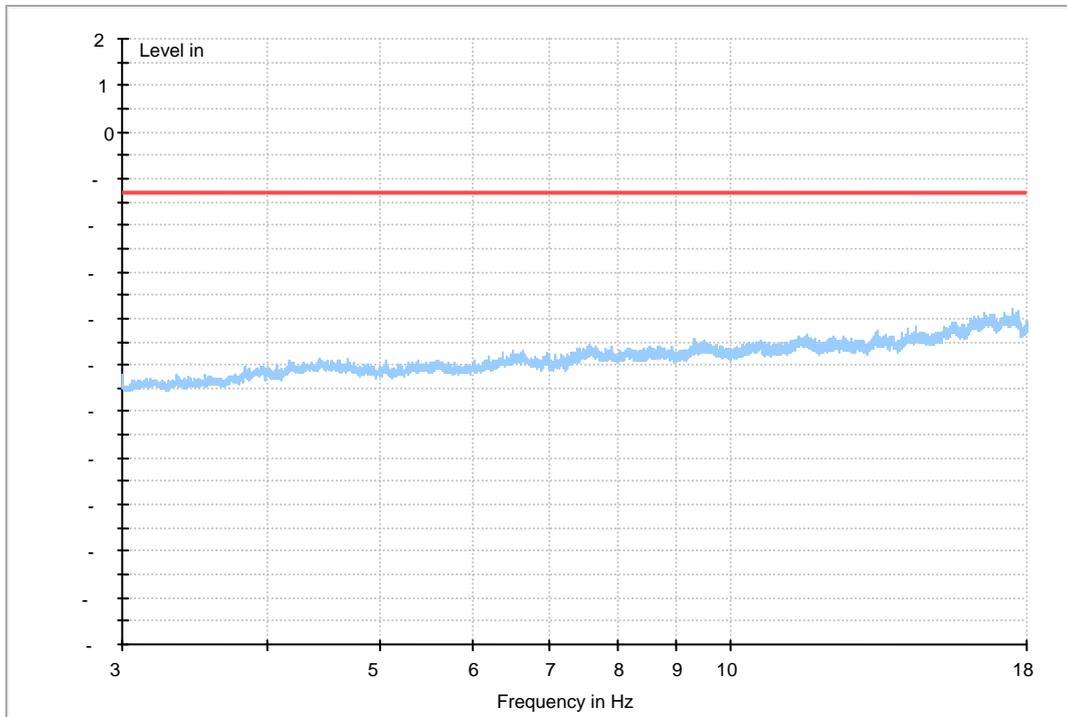
(9kHz~30MHz)



(30MHz~3GHz)

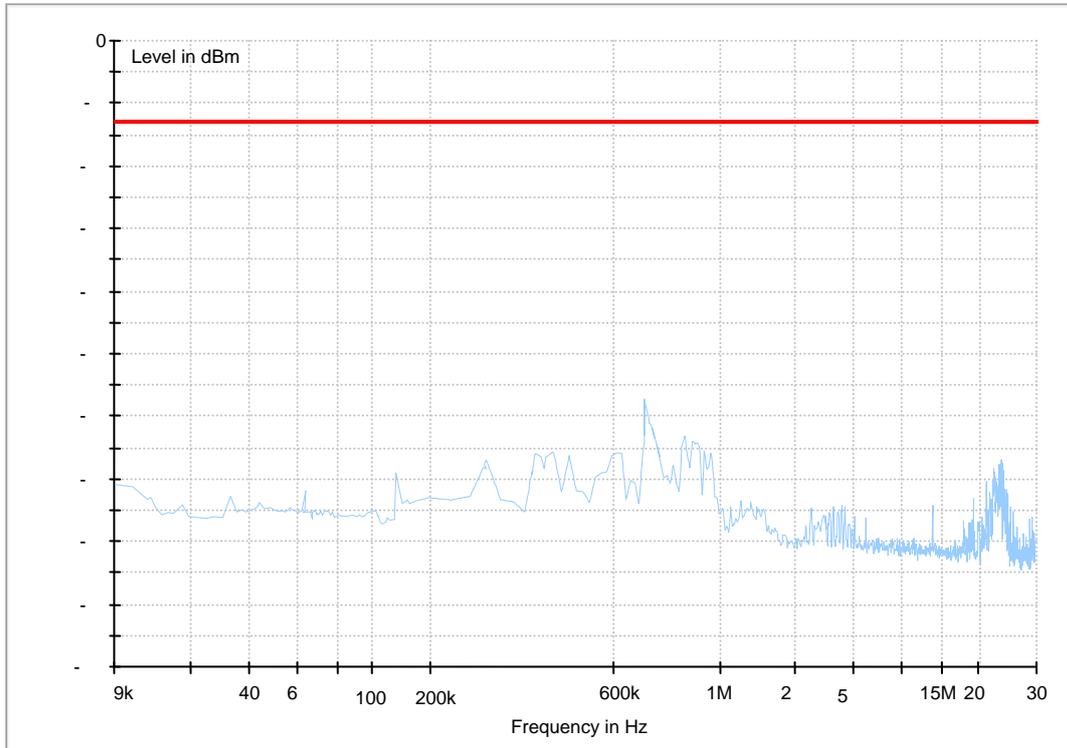


(3GHz~18GHz)

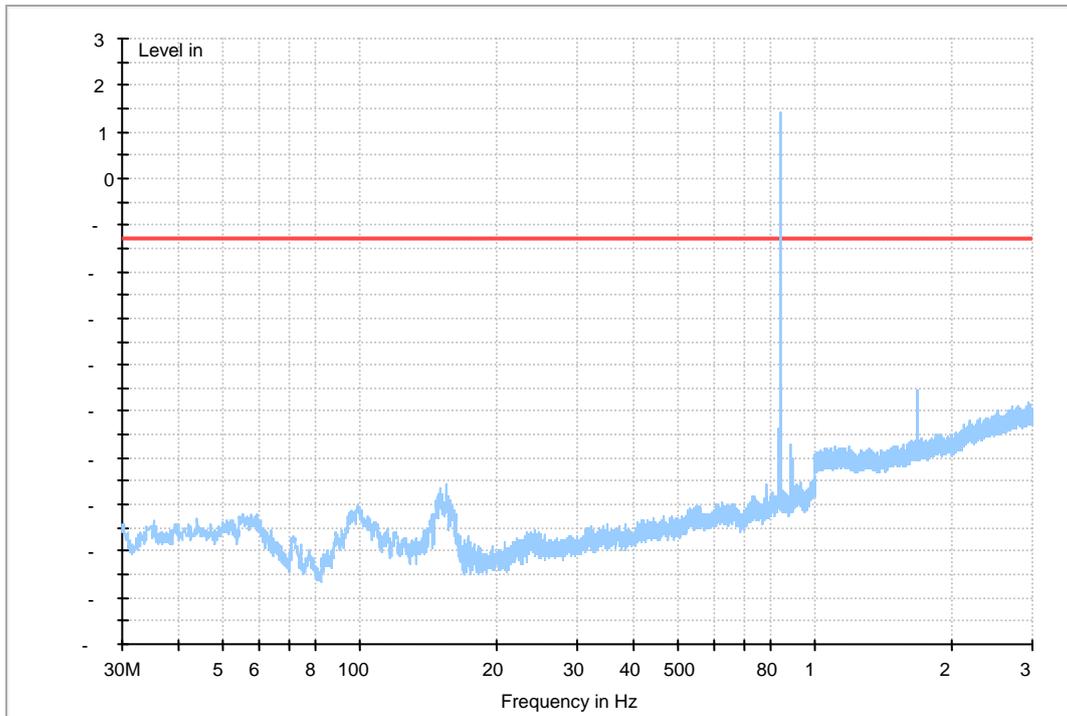


## EDGE 850

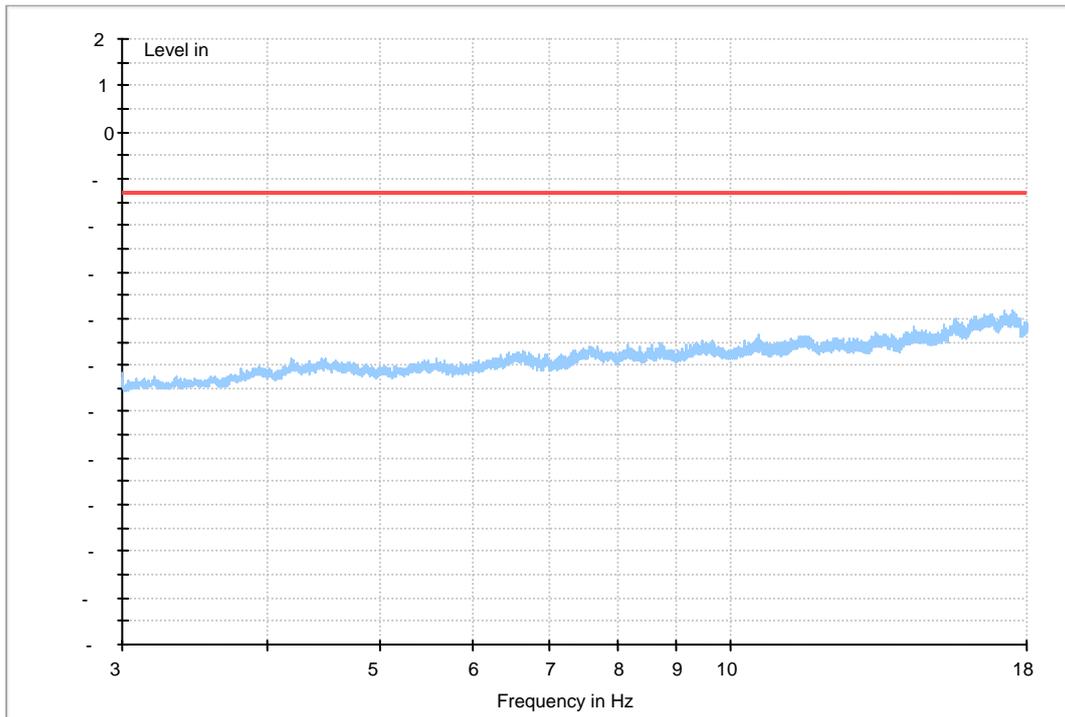
(9kHz~30MHz)



(30MHz~3GHz)



(3GHz~18GHz)



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



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# 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	15	0.01792	---	±2.5	Pass
			-20 °C	-14	-0.01673	---	±2.5	Pass
			-10 °C	26	0.03106	---	±2.5	Pass
			0 °C	16	0.01912	---	±2.5	Pass
			10 °C	7	0.00836	---	±2.5	Pass
			20 °C	9	0.01075	---	±2.5	Pass
			30 °C	-8	-0.00956	---	±2.5	Pass
			40 °C	21	0.02509	---	±2.5	Pass
			50 °C	13	0.01553	---	±2.5	Pass
TM 2	M	VN	-30 °C	-23	-0.02748	---	±2.5	Pass
			-20 °C	23	0.02748	---	±2.5	Pass
			-10 °C	13	0.01553	---	±2.5	Pass
			0 °C	14	0.01673	---	±2.5	Pass
			10 °C	14	0.01673	---	±2.5	Pass
			20 °C	8	0.00956	---	±2.5	Pass
			30 °C	14	0.01673	---	±2.5	Pass
			40 °C	10	0.01195	---	±2.5	Pass
			50 °C	21	0.02509	---	±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	14	0.01673	---	±2.5	Pass
			VN	16	0.01912	---	±2.5	Pass
			VH	-7	-0.00836	---	±2.5	Pass
TM 2	M	TN	VL	18	0.02151	---	±2.5	Pass
			VN	-15	-0.01792	---	±2.5	Pass
			VH	12	0.01434	---	±2.5	Pass

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