



FCC RF Test Report

**Product Name: HSPA/UMTS/GPRS/GSM/EDGE Mobile
Phone with Bluetooth; Ascend G600**

Model Number: HUAWEI U8950N-51, U8950N-51

Report No: SYBH(Z-RF)019082012-2002

FCC ID: QISU8950N-51

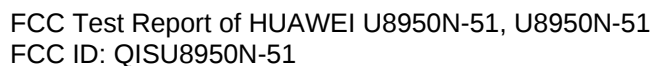
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Notice

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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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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.



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Huang Qiliang
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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 24:2011, Subpart E 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
PCS Band			
Transmitter Output Power	2.1046 & 24.232	Peak EIRP not exceed 2 W	Pass
Modulation Characteristics	2.104	Digital modulation	Pass
Occupied Bandwidth	2.104	(Not specified)	Pass
Band Edges Compliance	2.1051 & 24.238	Below -13 dBm/1%*EBW, in 1 MHz range	Pass
Spurious Emission at Antenna Terminals	2.1051 & 24.238	Below -13 dBm/1 kHz, 9 kHz to 150 kHz Below -13 dBm/10 kHz, 150 kHz to 30 MHz Below -13 dBm/1 MHz, 30 MHz to 10 th harmonics	Pass
Field Strength of Spurious Radiation	2.1053 & 24.238	Below -13 dBm/1 MHz	Pass
Frequency Stability	2.1055 & 24.235	Stay within the authorized frequency block	Pass

3 Product Description

3.1 Product Information

3.1.1 General Description

HUAWEI U8950N-51, U8950N-51 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 II and PCS1900 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, NFC, 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; Ascend G600		
HUAWEI U8950N-51, U8950N-51		
Board and Module		
Hardware Version	S/N serial number:	software status:
HD2U8950M	B9N01A9272800108	U8950-1V100R001C00B930

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-050100B1W
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-050100U2W
Manufacturer	Huawei Technologies Co., Ltd.
Input Voltage	~100-240V 50/60Hz 0.2A
Output Voltage	5V  1A
Rated Power	5W

AC/DCAdapter Model	HW-050100E3W
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	Qty.	Manufacture	Description
Rechargeable Li-ion	1	Huawei Technologies Co., Ltd.	Battery Model: HB5R1H Rated capacity: 1930mAh Nominal Voltage:  +3.7V Charging Voltage:  +4.2V

4 Test Description

4.1 Supported Frequency Range

Characteristics	Description
Downlink	1930 to 1990 MHz
Uplink	1850 to 1910 MHz

4.2 Transmitter / Receiver Characteristics

Characteristics	Description
System Type	GSM UMTS
TX Output Power (per Antenna Port)	GSM system: Power class 1 UMTS system: Power class 3
Channel Spacing(s) / Bandwidth(s)	GSM system: 200 kHz UMTS system: 5 MHz
Designation of Emissions	GSM system: 247KGXW (GMSK modulation), 248KG7W (8PSK modulation) UMTS system: 4M18F9W

4.3 Antenna Gain

Antenna Gain(dBi)	0.35
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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 512	Channel 661	Channel 810
		1850.2MHz	1880.0MHz	1909.8MHz
	RX	Channel 512	Channel 661	Channel 810
		1930.2 MHz	1960.0 MHz	1989.8 MHz
TM3/TM4/TM5	TX	Channel 9262	Channel9400	Channel9538
		1852.4MHz	1880.0MHz	1907.6MHz
	RX	Channel 9662	Channel 9800	Channel 9938
		1932.4 MHz	1960.0 MHz	1987.6 MHz

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	3.5V
	VN	3.7V
	VH	4.2V

NOTE: VL= lower extreme test voltage

VN= nominal voltage

VH= upper extreme test voltage

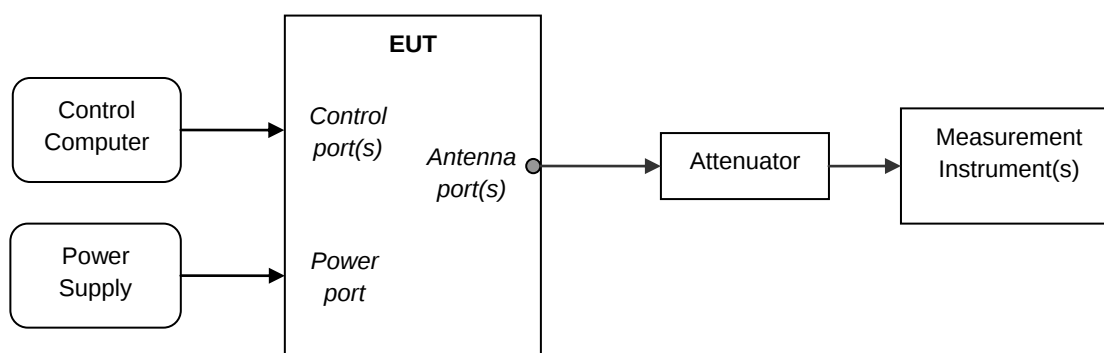
TN= normal temperature

5.4 Test Setup

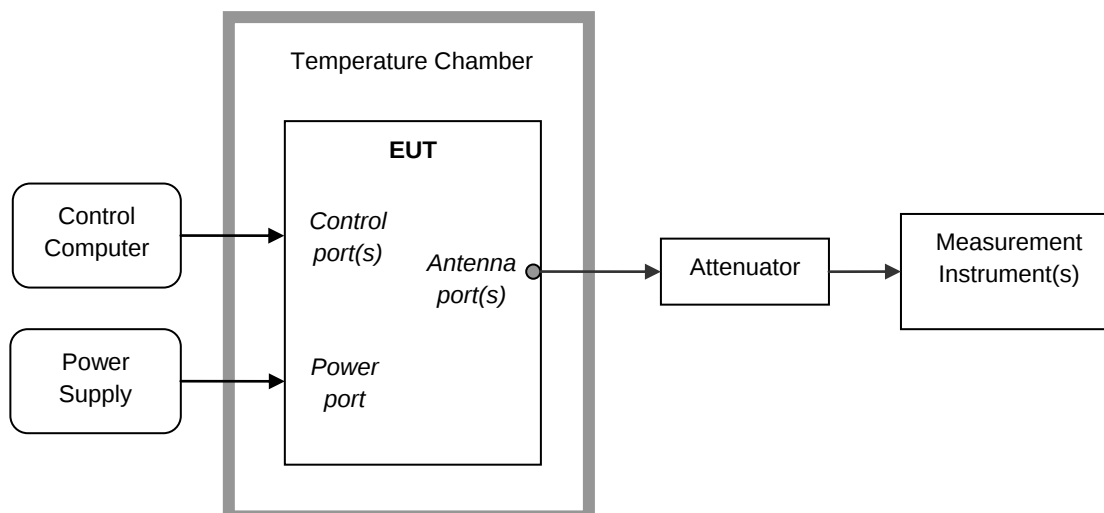
5.4.1 General Test Setup Configurations

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



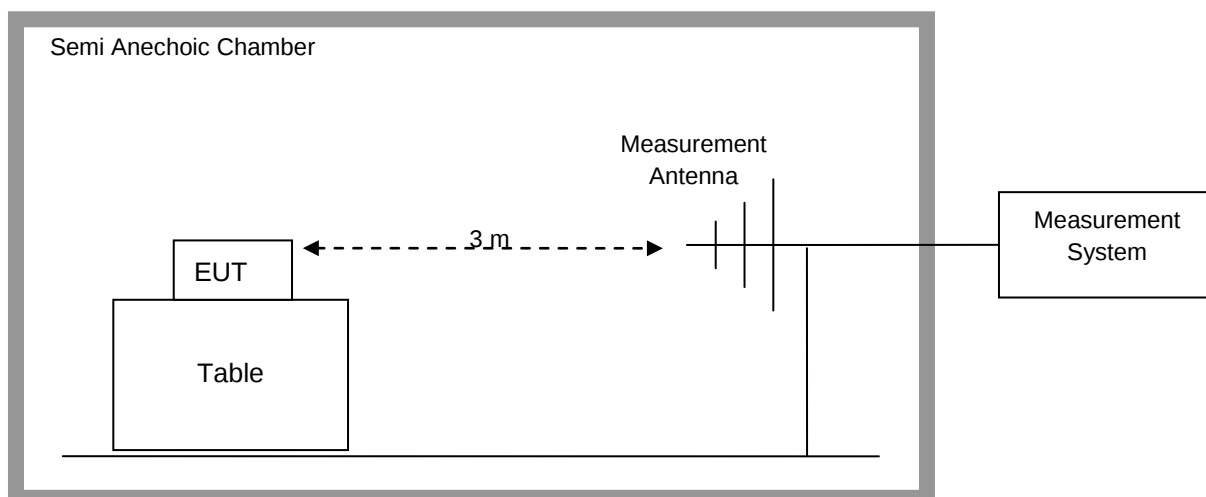
5.4.4 Test Setup 3

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.

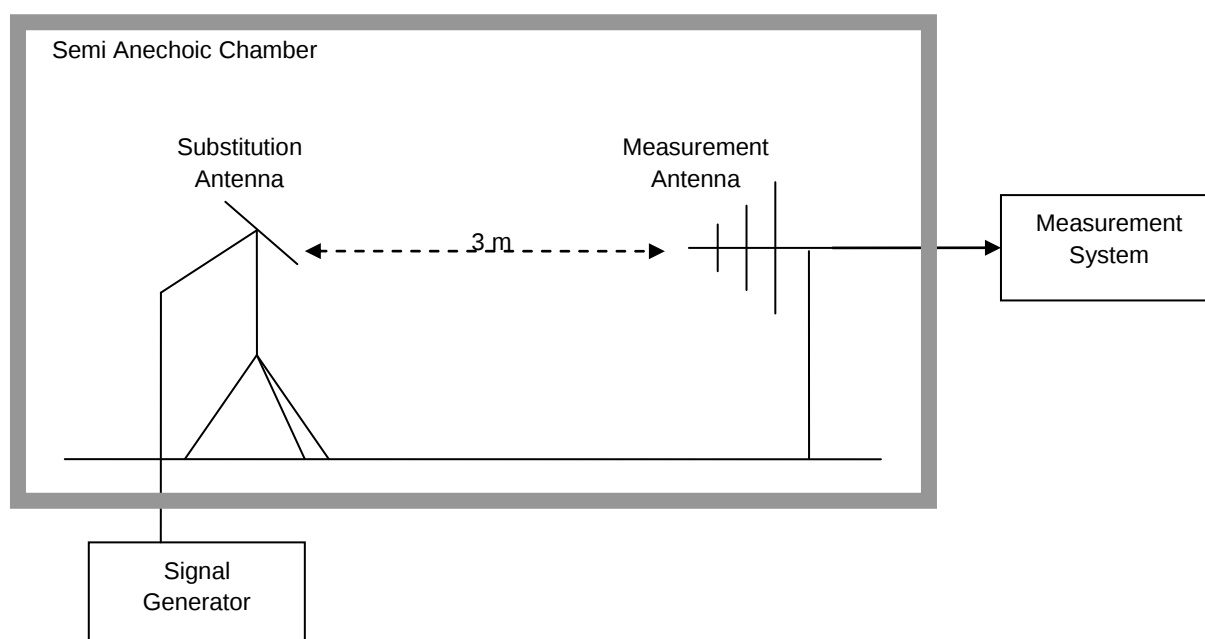
Step 1: Pre-test to find the Maximum ERP or EIRP

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 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 item 5). 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/TM4TM5
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	PK
	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/TM4TM5
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



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, 2012
Universal Radio Communication Tester	R&S	CMU200	105822	Oct., 24, 2012
Wireless Communication Test set	Agilent	N4010A	MY49081592	Dec., 14, 2012
Universal Radio Communication Tester	Agilent	E5515C	MY50260239	Aug., 31, 2013
Spectrum Analyzer	Agilent	E4440A	MY49420179	Apr., 20, 2013
Signal Analyzer	R&S	FSQ31	200021	Sept., 27, 2012
Temperature Chamber	WEISS	WKL64	24600294	Jan., 03, 2013
Signal generator	Agilent	E8257D	MY49281095	Jul., 09, 2013
Vector Signal Generator	R&S	SMU200A	104162	Sept., 07, 2012
Test receiver	R&S	ESU26	100150	May., 24, 2013
Tunable Dipole	Schwarzbeck	D69250-UHAP/D69250-VHAP	919/1009	Dec., 13, 2012
Tunable Dipole	Schwarzbeck	D69250-UHAP/D69250-VHAP	979/917	Dec., 13, 2012
Horn Antenna	R & S	HF906	100683	May., 16, 2013
Horn Antenna	R & S	HF906	100684	May., 16, 2013
Broadband Antenna	Schwarzbeck	VULB 9163	9163-357	Sep., 15, 2012
Broadband Antenna	Schwarzbeck	VULB 9163	9163-356	Sep., 15, 2012

NOTE: All the test equipment are calibrated once a year.

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-----



Appendix A

Transmitter Output Power According to FCC Part 2.1046 & Part 24.232



Conducted Power of Transmitter

Table 1 Measurement Results

		RF Output Power (Conducted)					
TEST CONDITIONS		Channel512(B)		Channel661(M)		Channel810(T)	
		1850.2MHz		1880.0MHz		1909.8MHz	
		dBm		dBm		dBm	
T_{nom} / V_{nom}		Measured	Limit	Measured	Limit	Measured	Limit
TM1		29.81	33	29.73	33	29.42	33
TM2		26.45	33	26.42	33	26.09	33
TEST CONDITIONS		Channel9262(B)		Channel9400(M)		Channel9538(T)	
		1852.4MHz		1880.0MHz		1907.6MHz	
		dBm		dBm		dBm	
T_{nom} / V_{nom}		Measured	Limit	Measured	Limit	Measured	Limit
TM3		22.64	33	22.78	33	22.37	33
TM4	Case1	22.94	33	22.89	33	22.71	33
	Case2	22.73	33	22.69	33	22.89	33
	Case3	22.14	33	22.24	33	21.95	33
	Case4	22.05	33	22.16	33	21.98	33
TM5	Case1	22.36	33	22.39	33	22.06	33
	Case2	21.15	33	20.84	33	20.67	33
	Case3	21.49	33	21.27	33	21.03	33
	Case4	21.11	33	21.44	33	21.16	33
	Case5	22.21	33	22.39	33	21.84	33



Peak-to-Average Ratio

	Peak-to-Average Ratio					
TEST CONDITIONS	Channel512(L)		Channel661(M)		Channel810(H)	
	1850.2MHz		1880.0MHz		1909.8MHz	
	dB		dB		dB	
T_{nom} / V_{nom}	Measured	Limit	Measured	Limit	Measured	Limit
TM1	0.1	13	0.2	13	0.1	13
TM2	3.2	13	3.2	13	3.1	13
TM3	3.91	13	3.79	13	3.71	13



Effective Isotropic Radiated Power of Transmitter (EIRP)

Table 2 Substitution Results

Test Mode	Freq. [MHz]	Meas. Level [dBm]	Substitution Antenna Type	SGP [dBm]	Substitution Gain [dBi]	Cable Loss [dB]	Substitution Level (EIRP) [dBm]	FCC limit [dBm]	Result
TM1	1850.2	30.16	Horn Ant.	26.46	4.5	1	29.96	33	Pass
TM1	1880.0	30.08	Horn Ant.	26.38	4.5	1	29.88	33	Pass
TM1	1909.8	29.77	Horn Ant.	25.77	4.8	1	29.57	33	Pass
TM2	1850.2	26.8	Horn Ant.	23.1	4.5	1	26.6	33	Pass
TM2	1880.0	26.77	Horn Ant.	23.07	4.5	1	26.57	33	Pass
TM2	1909.8	26.44	Horn Ant.	22.44	4.8	1	26.24	33	Pass
TM3	1852.4	22.99	Horn Ant.	19.29	4.5	1	22.79	33	Pass
TM3	1880.0	23.13	Horn Ant.	19.78	4.5	1	23.28	33	Pass
TM3	1907.6	22.72	Horn Ant.	18.72	4.8	1	22.52	33	Pass

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

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

b, SGP=Signal Generator Level

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



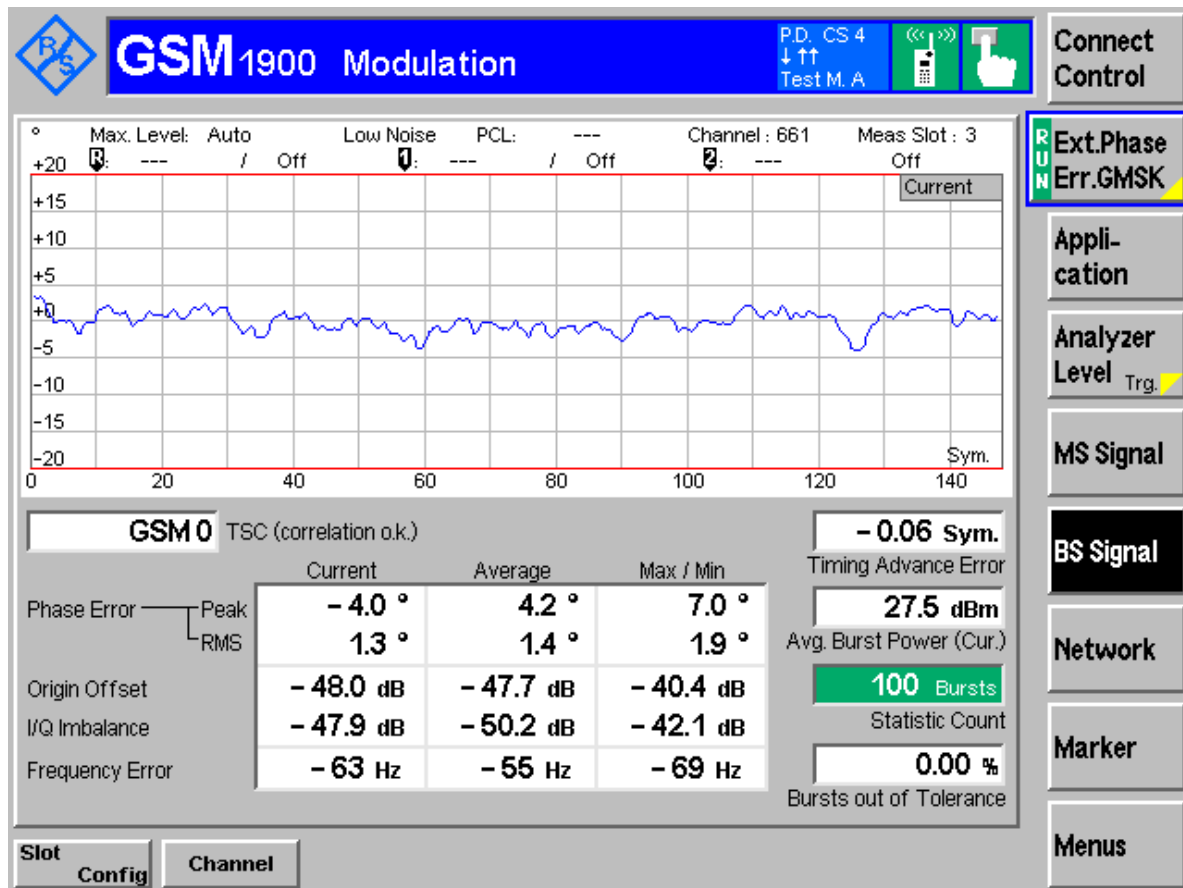
Appendix B

Modulation Characteristics

According to FCC Part 2.1047 & Part24 Subpart E

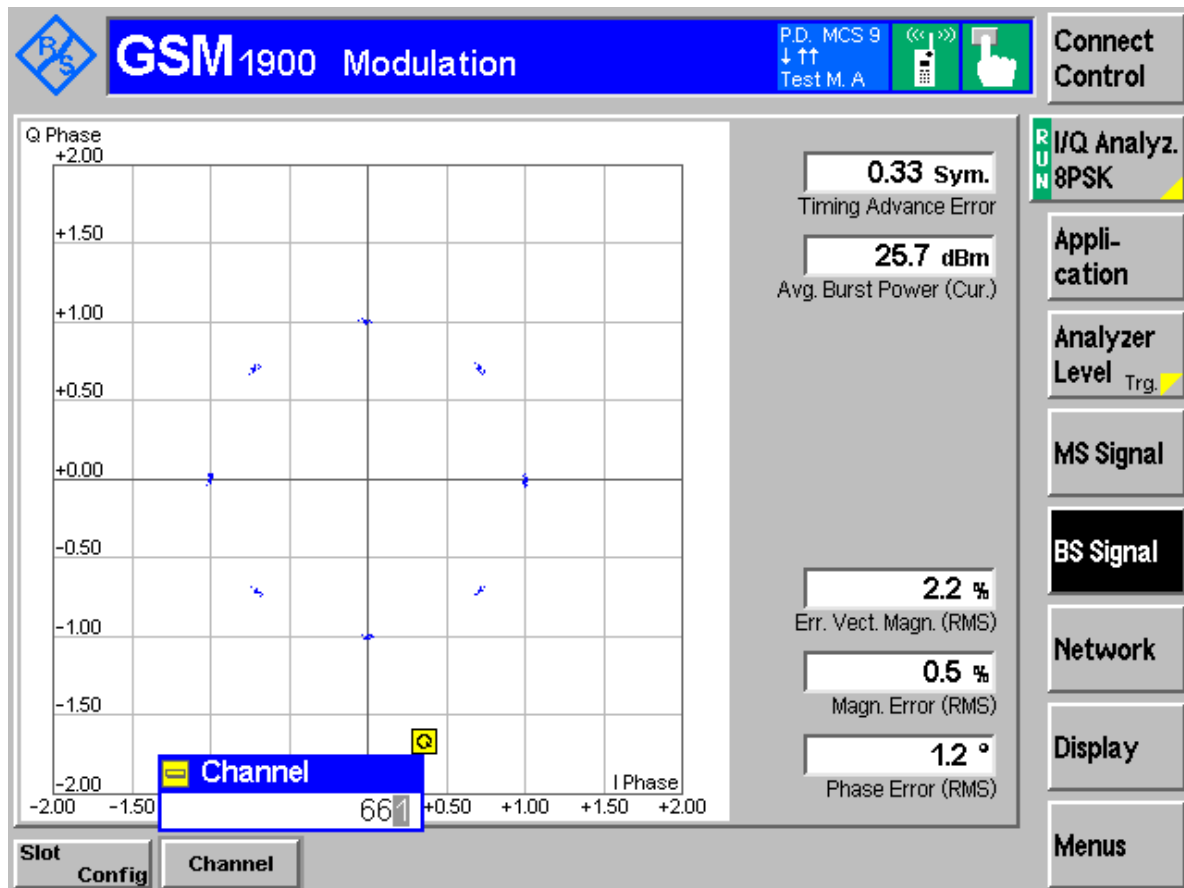


TM1:GPRS/GSM Channel 661



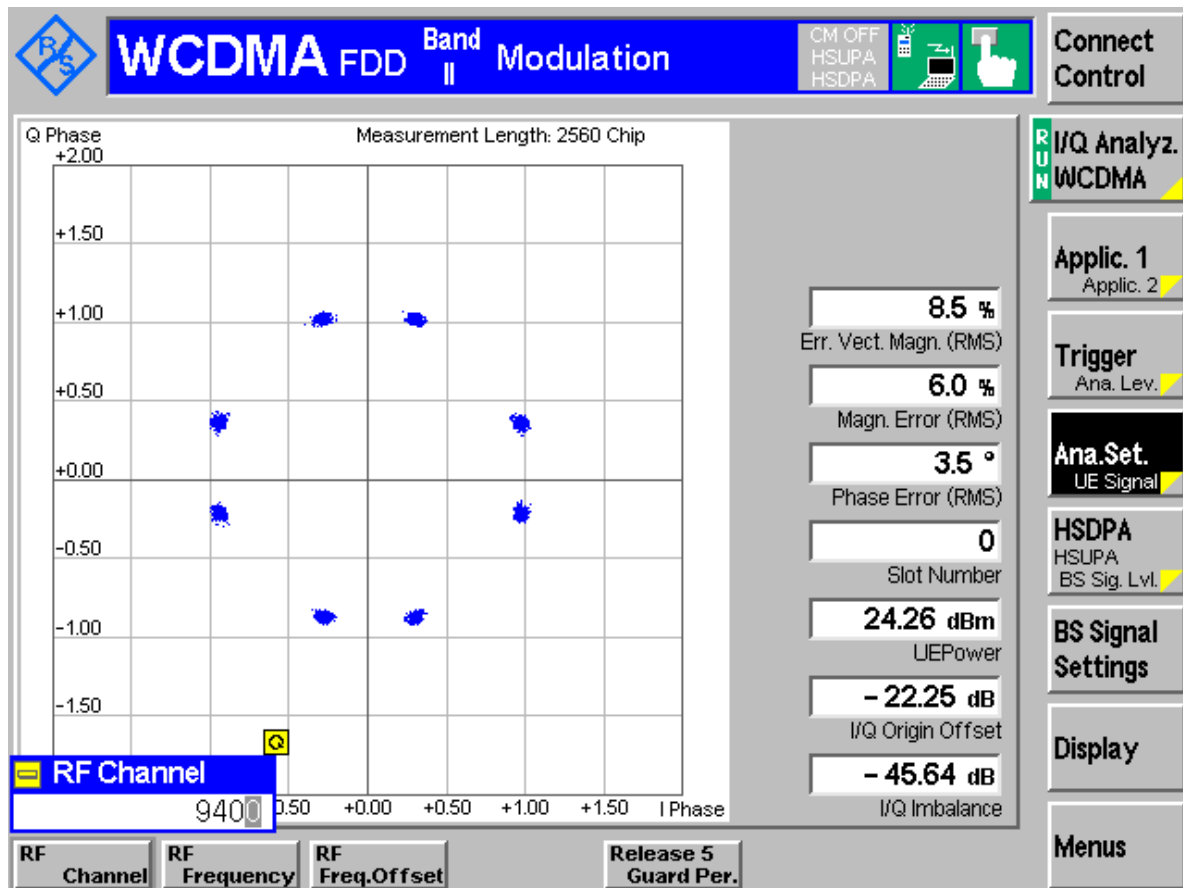


TM2:EDGE Channel 661





TM3: WCDMA Channel 9400



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



Appendix C

Occupied Bandwidth According to FCC Part 2.1049 & Part24 Subpart E



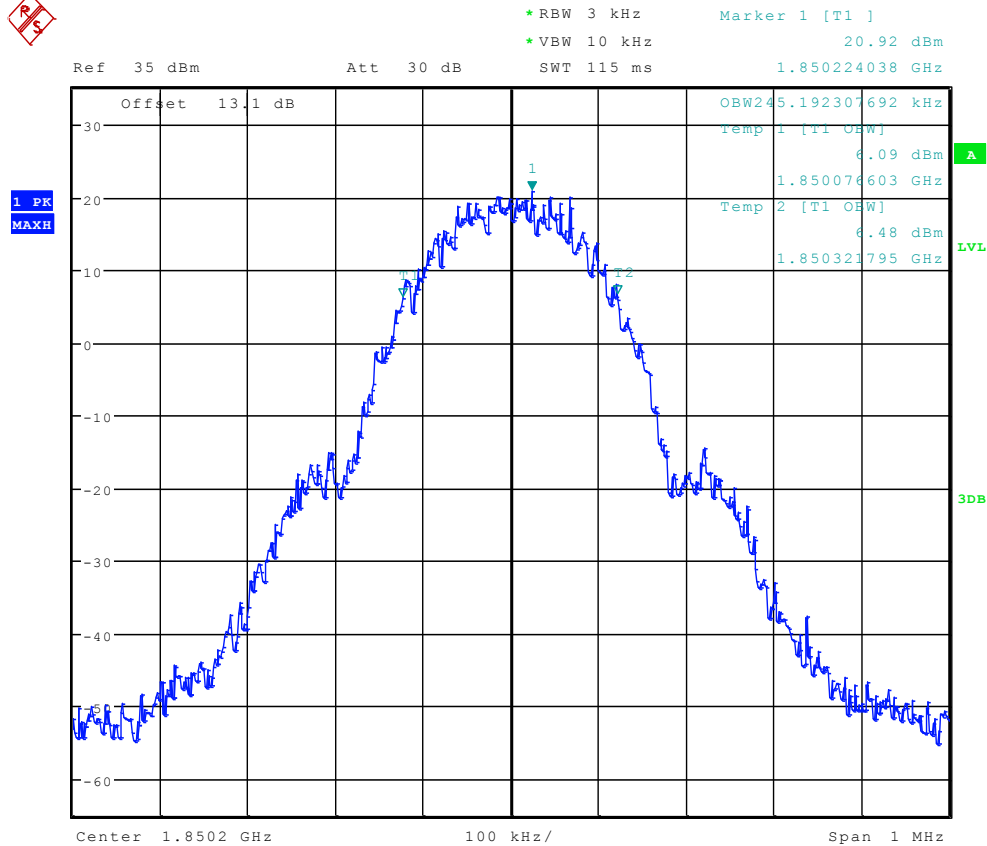
Result Table

Table 1 Measurement Results

Test Mode	RF Channel	Occupied Bandwidth [kHz]	Verdict
TM1	512	245.19	Pass
	661	246.79	Pass
	810	243.59	Pass
TM2	512	246.79	Pass
	661	248.40	Pass
	810	245.19	Pass
Test Mode	RF Channel	Occupied Bandwidth [MHz]	Verdict
TM3	9262	4.18	Pass
	9400	4.18	Pass
	9538	4.18	Pass



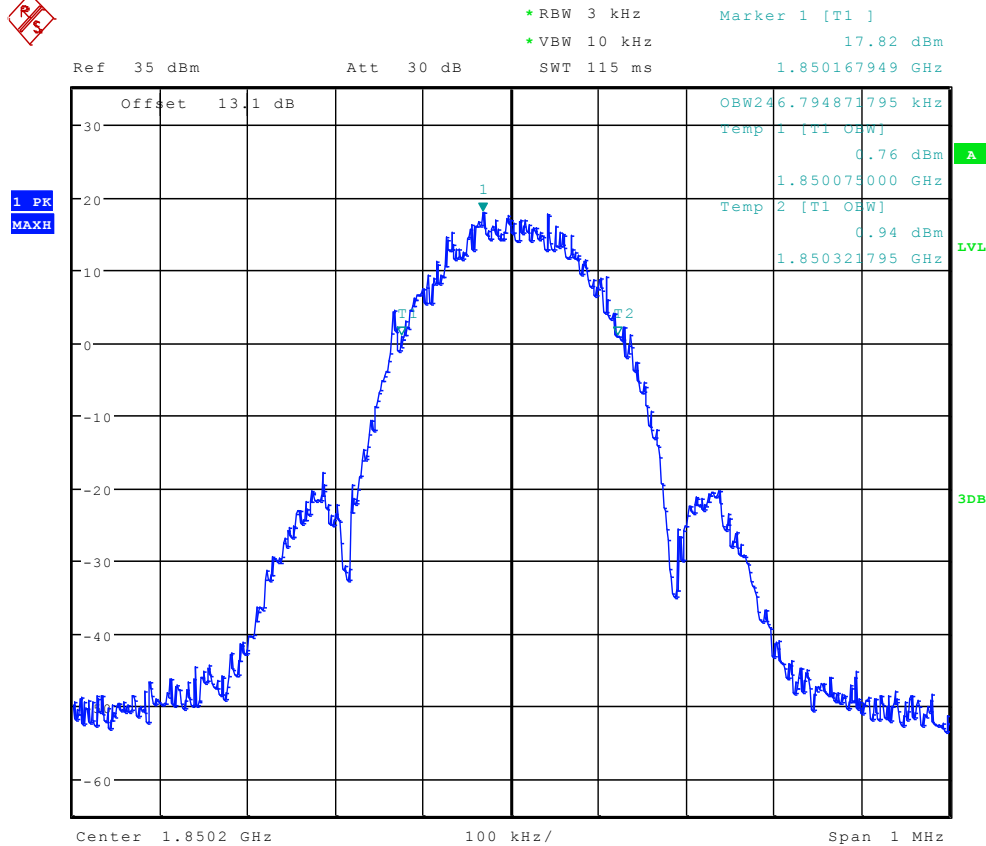
TM1:GPRS/GSM Channel 512



Date: 15.AUG.2012 10:05:53



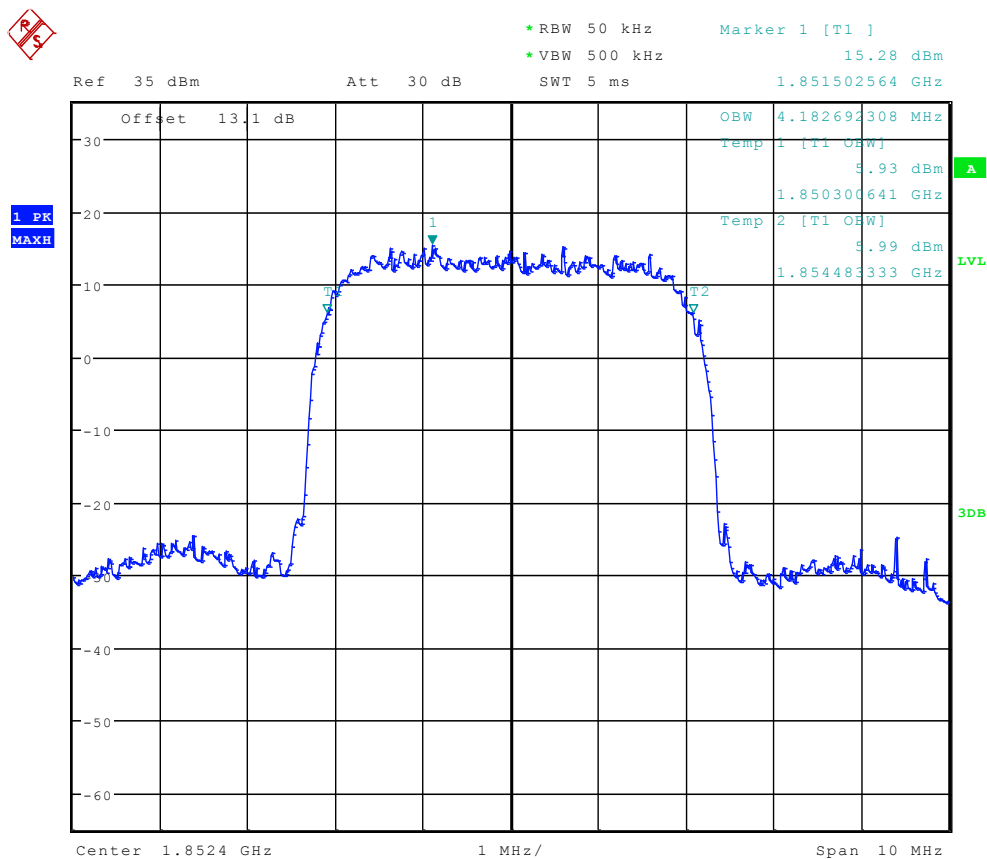
TM2:EDGE Channel 512



Date: 15.AUG.2012 10:12:49



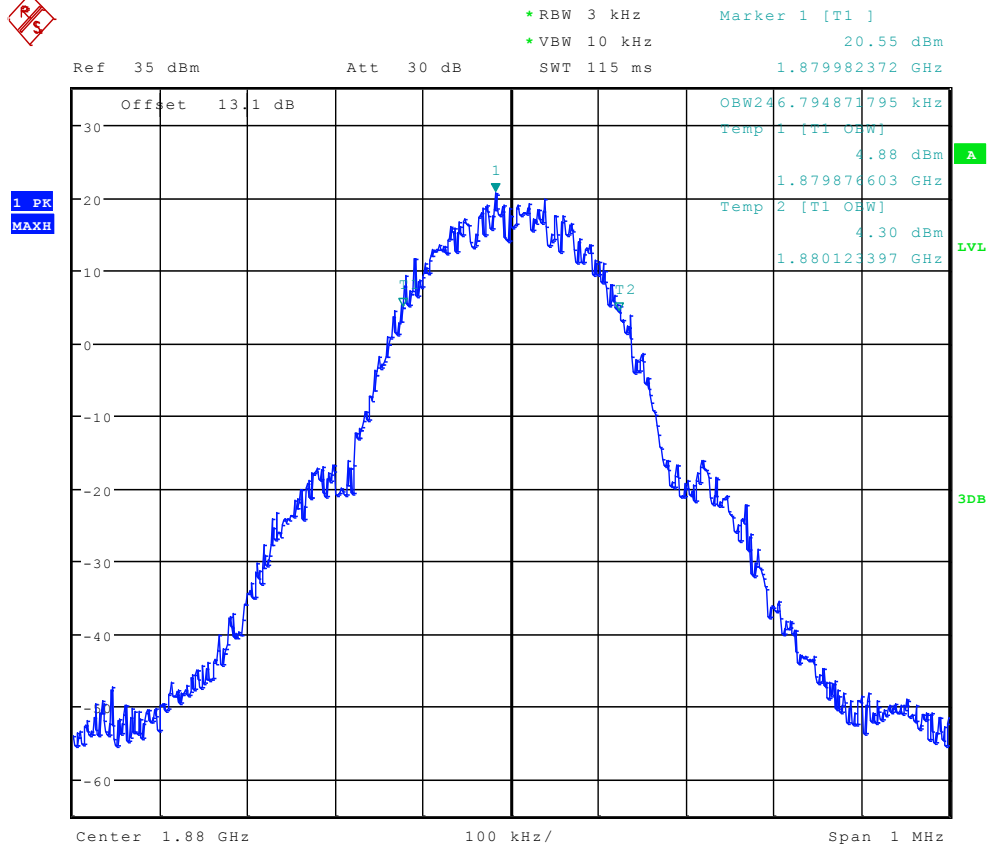
TM3: WCDMA Channel 9262



Date: 15.AUG.2012 10:19:02



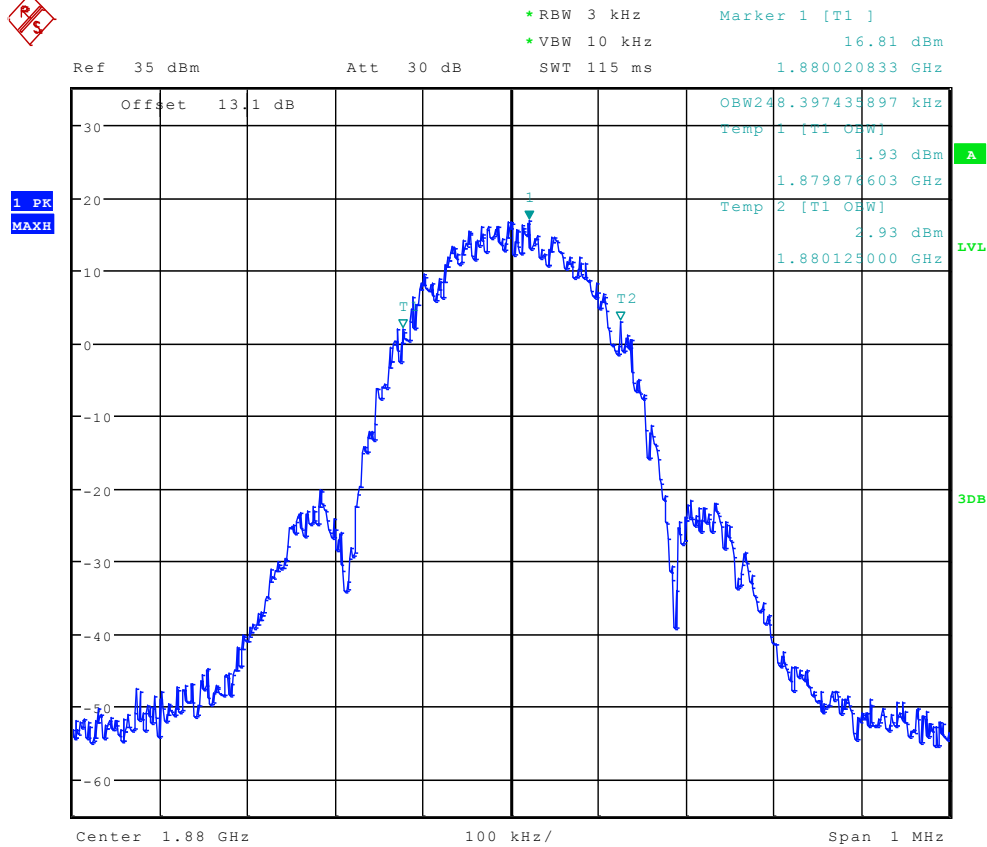
TM1:GPRS/GSM Channel 661



Date: 15.AUG.2012 10:06:07



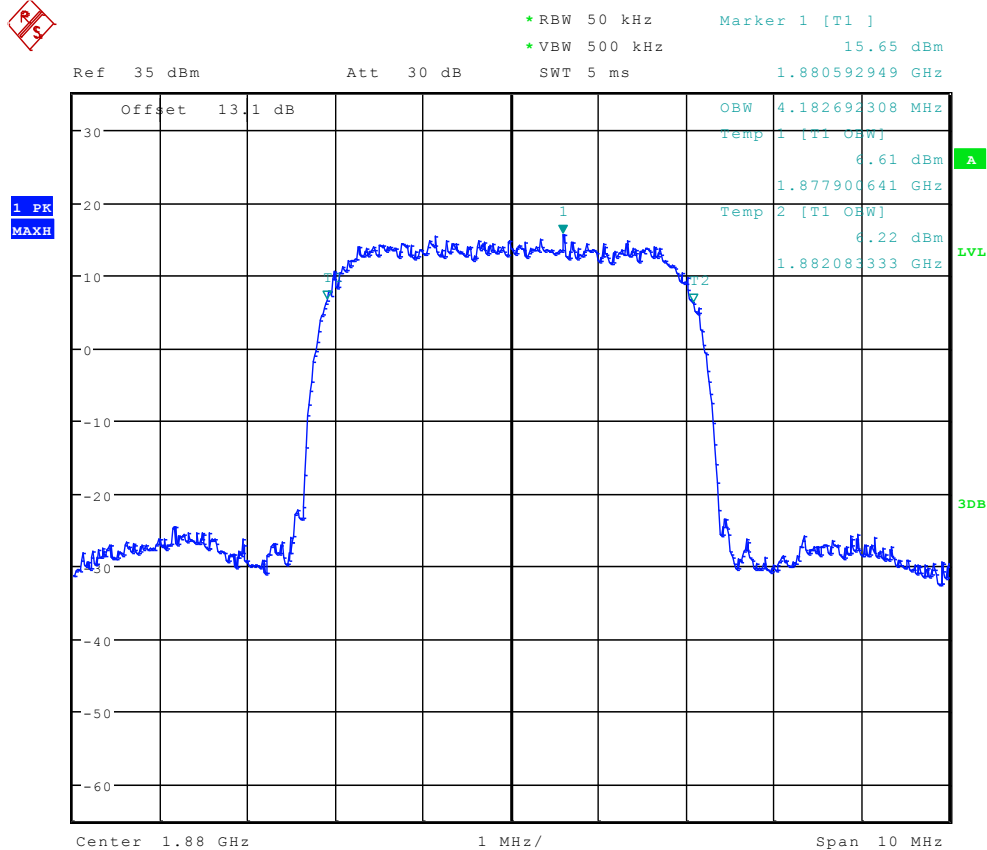
TM2:EDGE Channel 661



Date: 15.AUG.2012 10:13:02



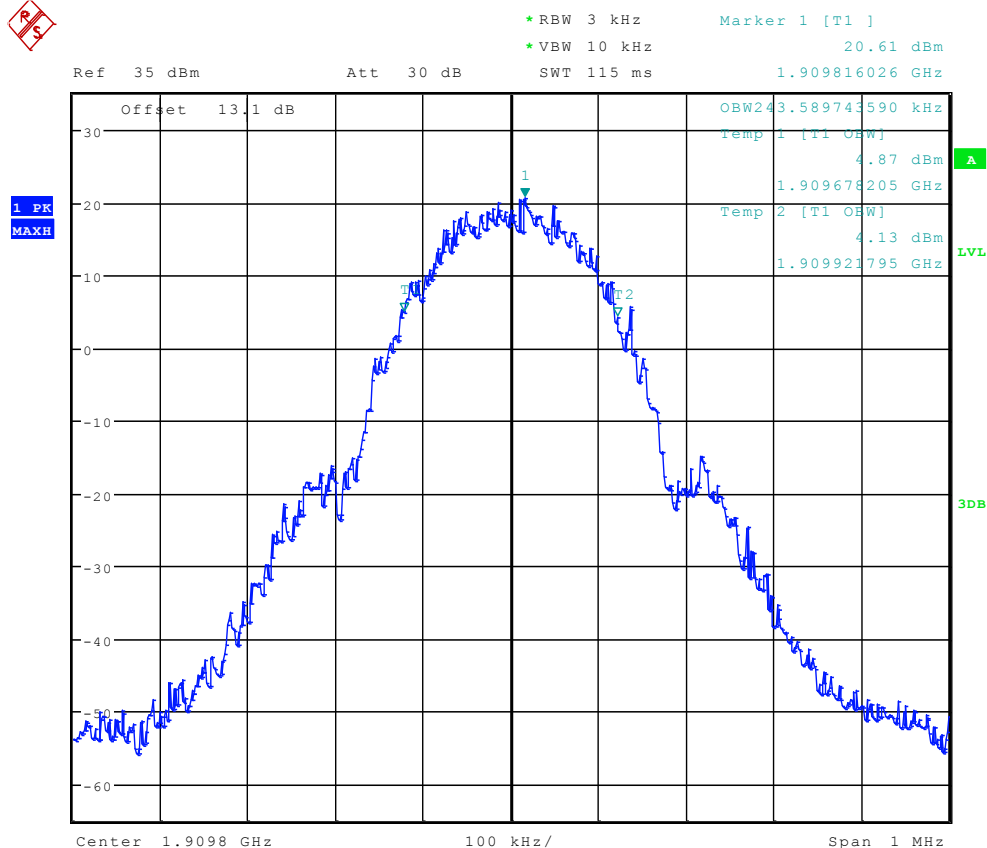
TM3: WCDMA Channel 9400



Date: 15.AUG.2012 10:19:16



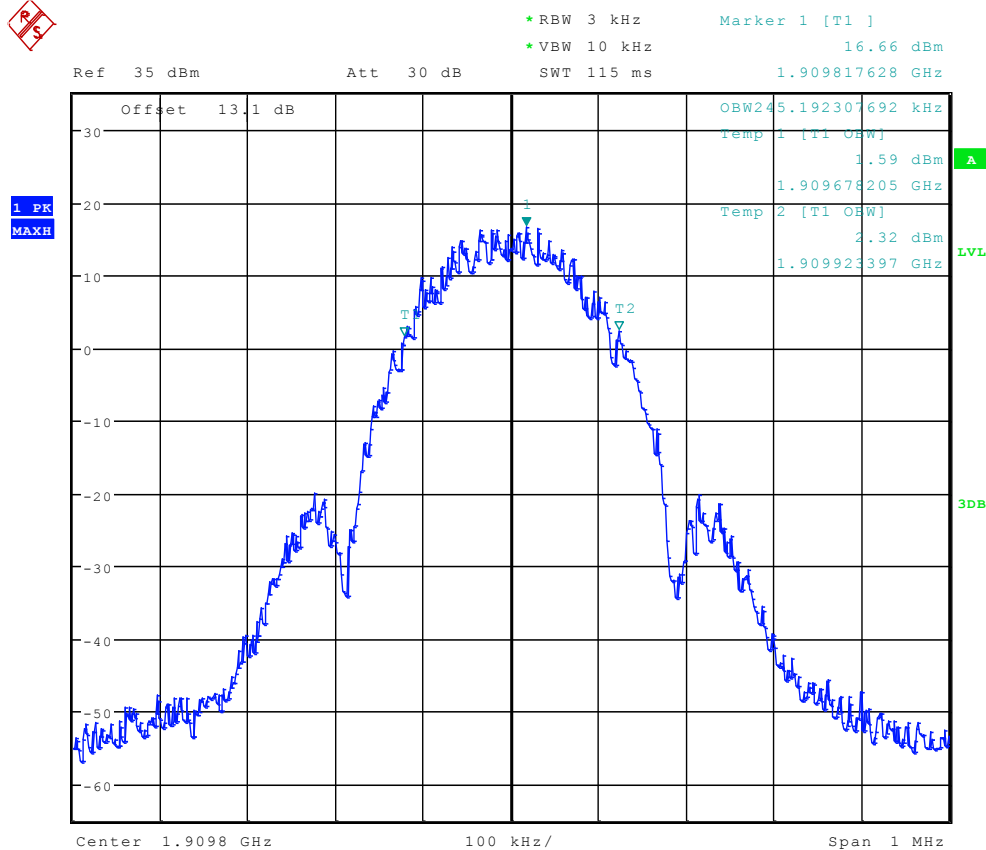
TM1:GPRS/GSM Channel 810



Date: 15.AUG.2012 10:06:22



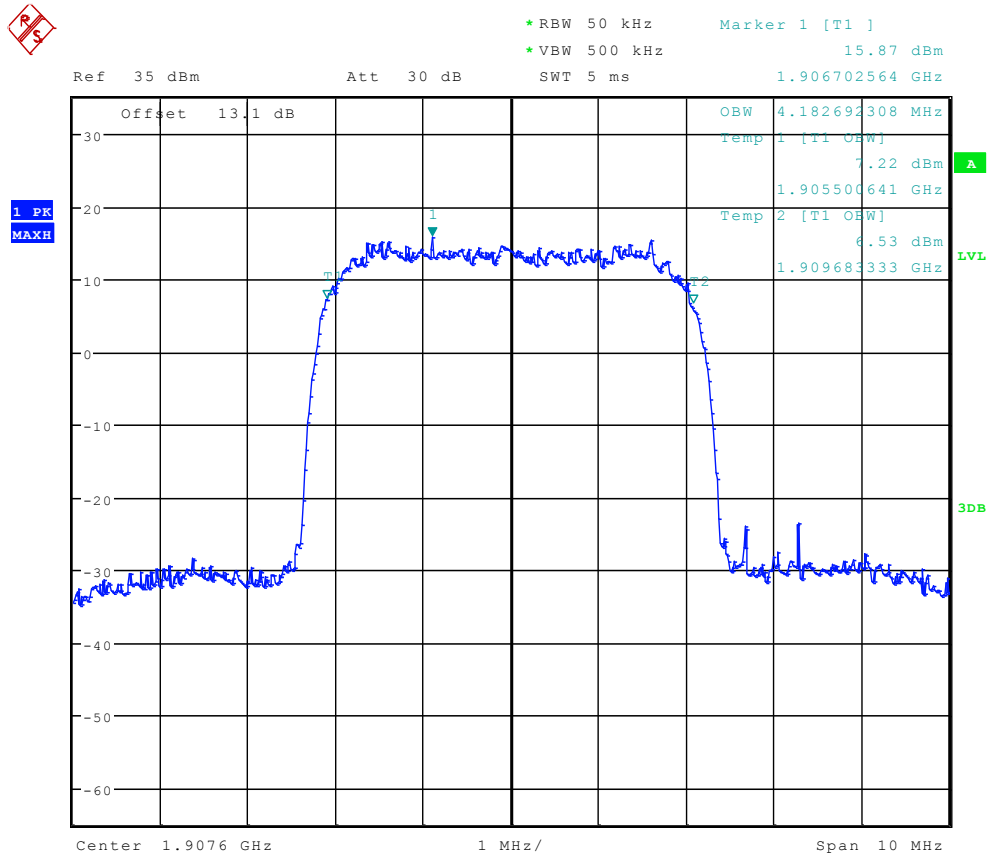
TM2:EDGE Channel 810



Date: 15.AUG.2012 10:13:16



TM3: WCDMA Channel 9538



Date: 15.AUG.2012 10:19:30

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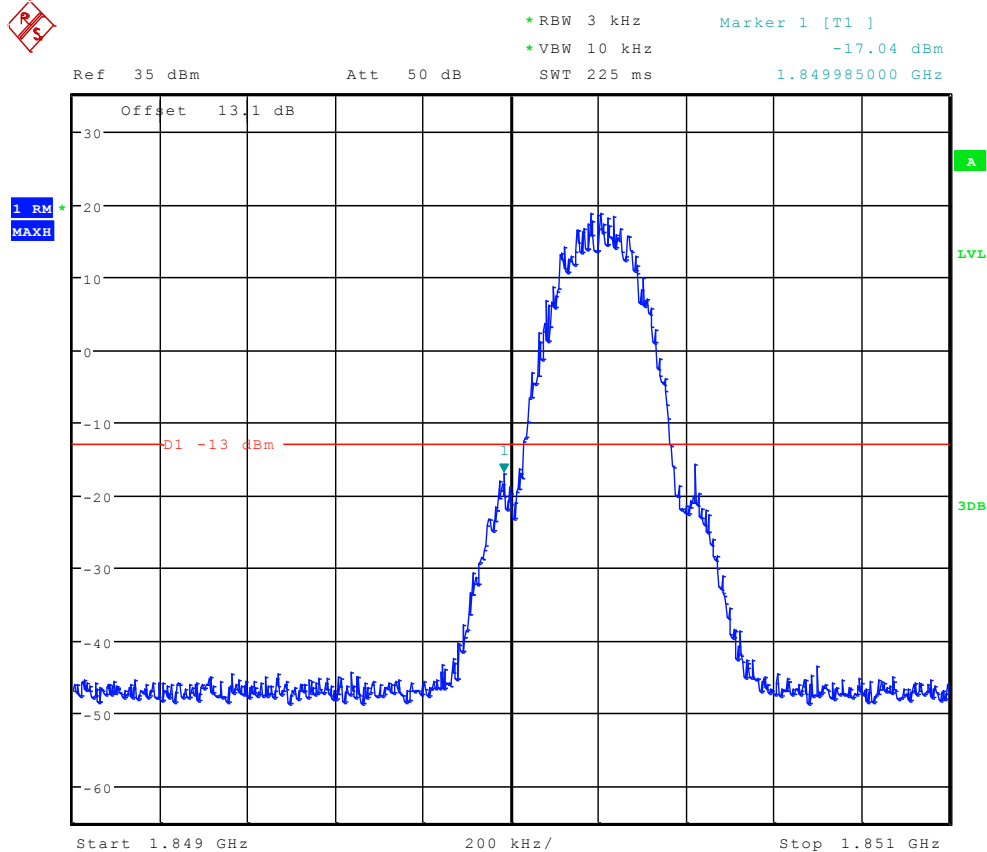


Appendix D

Band Edges Compliance According to FCC Part 2.1051 & Part24 Subpart E



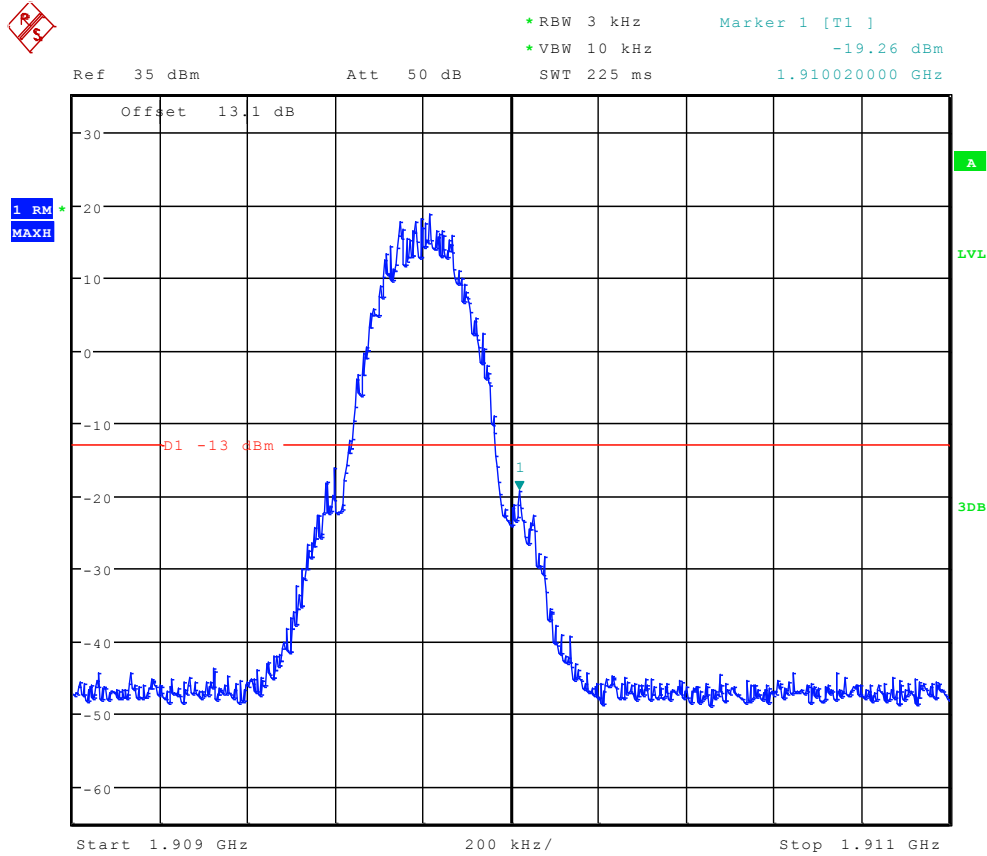
TM1:GPRS/GSM Left Edge Channel 512



Date: 15.AUG.2012 10:10:33



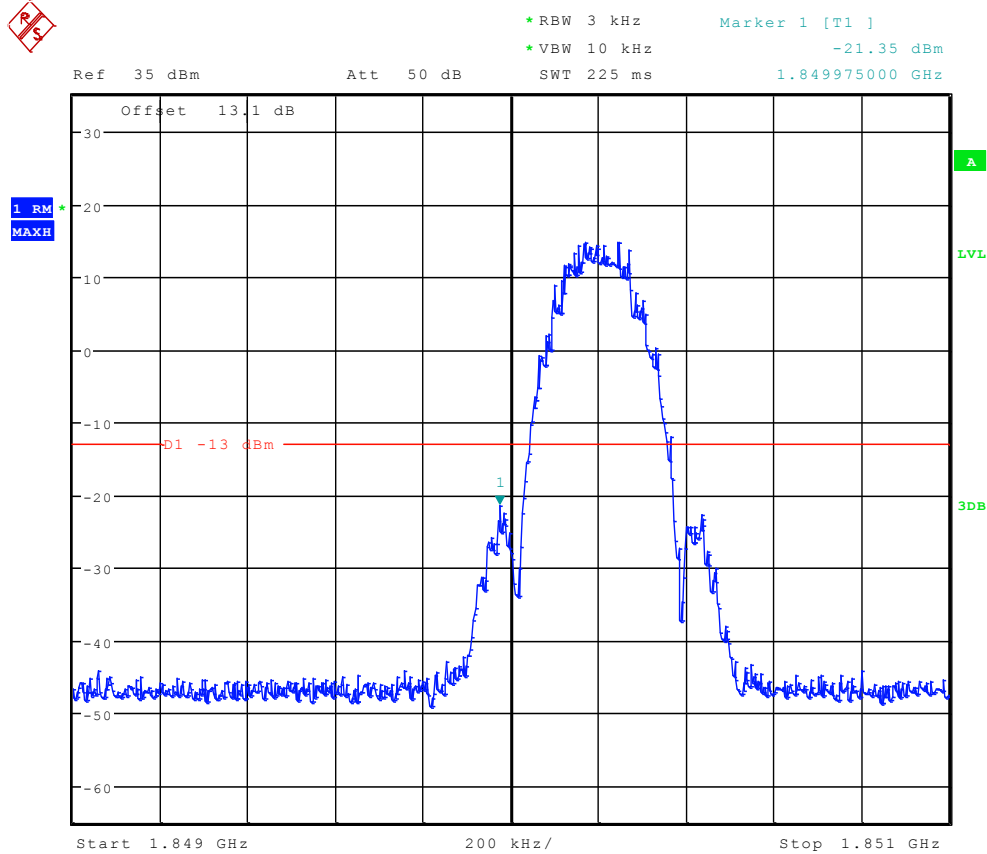
Right Edge Channel 810



Date: 15.AUG.2012 10:10:58



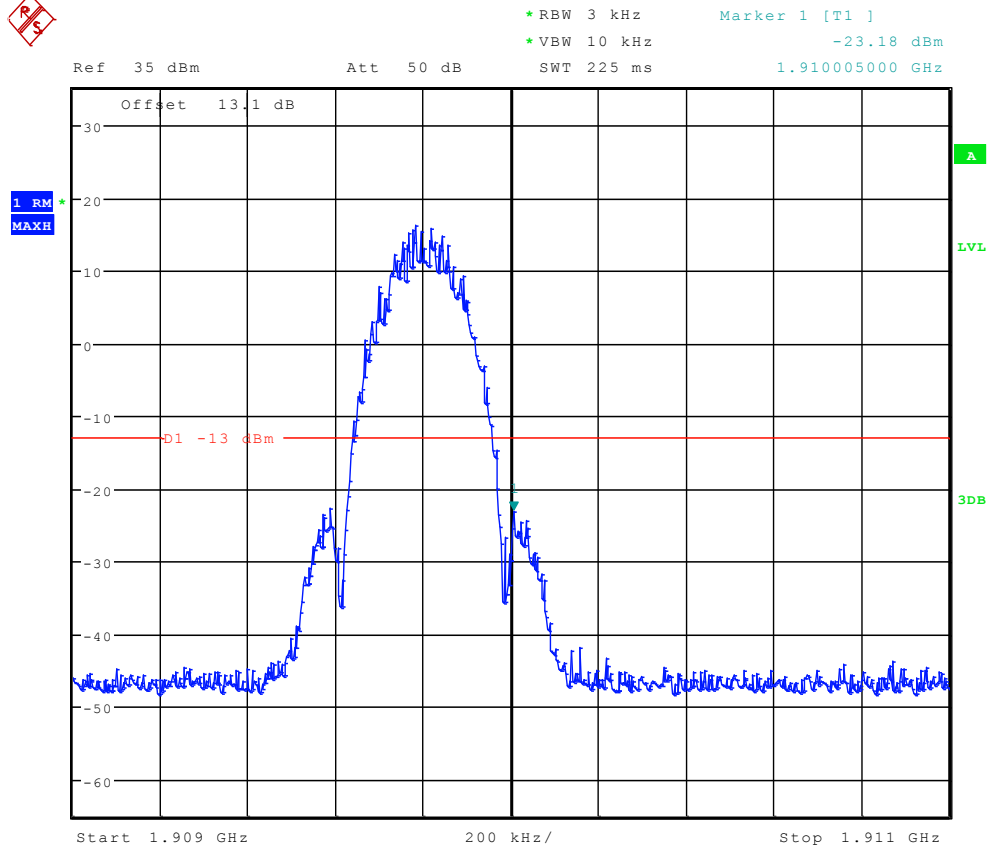
TM2:EDGE Left Edge Channel 512



Date: 15.AUG.2012 10:16:19



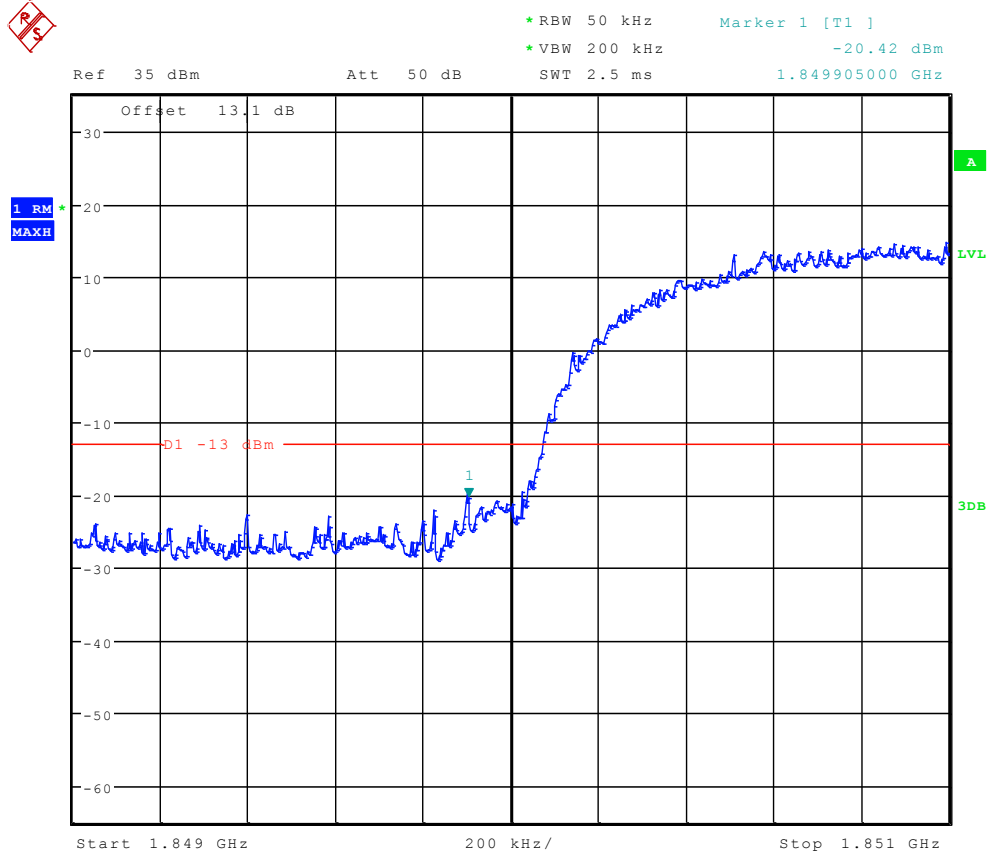
Right Edge Channel 810



Date: 15.AUG.2012 10:16:56



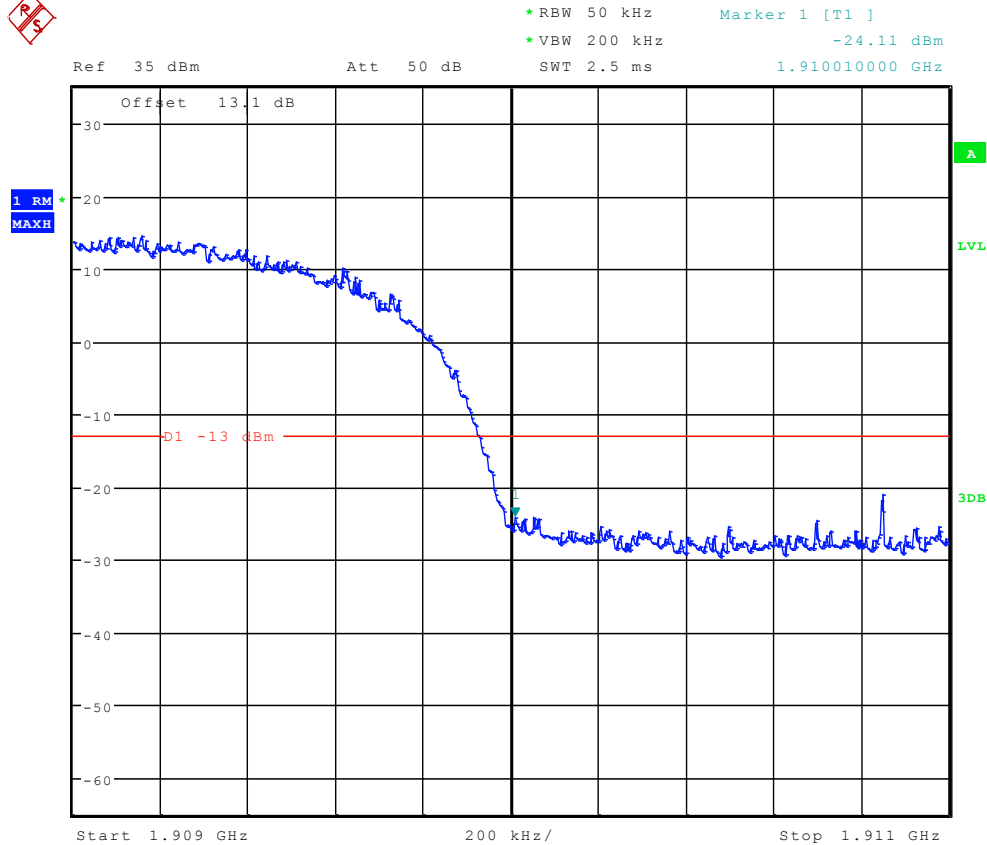
TM3: WCDMA Left Edge Channel 9262



Date: 15.AUG.2012 10:22:21



Right Edge Channel 9538



Date: 15.AUG.2012 10:22:35

-----END-----



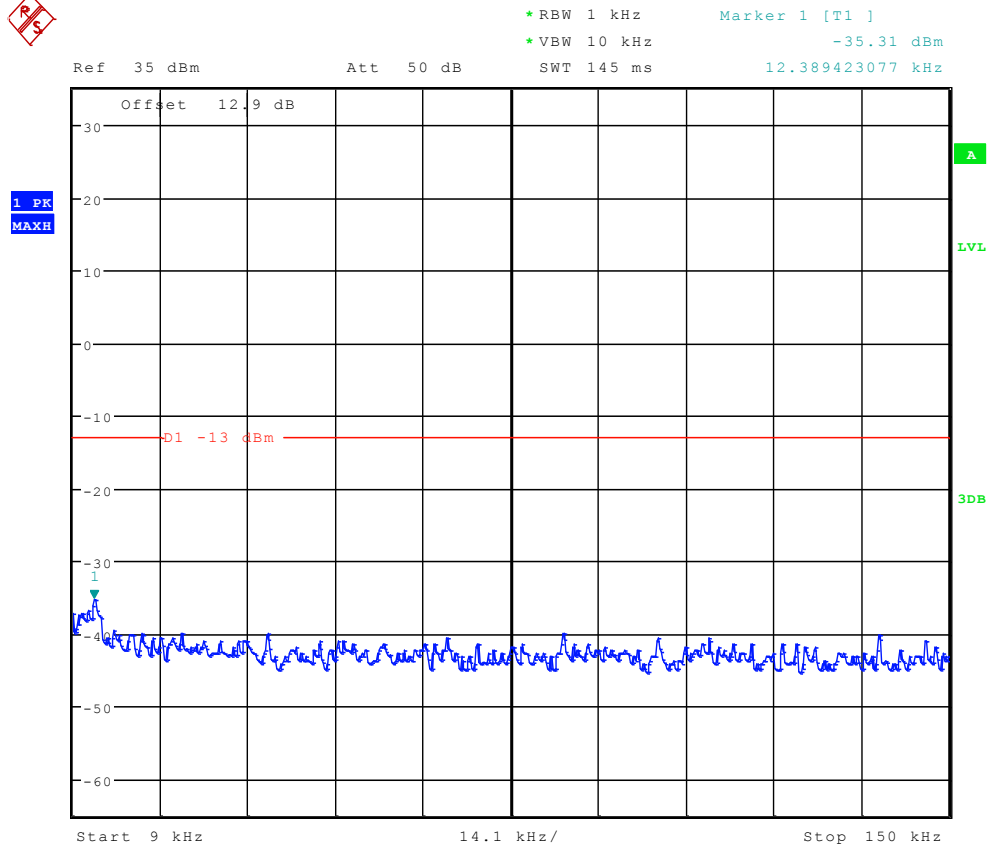
Appendix E

Spurious Emission at Antenna Terminal

According to FCC Part 2.1051 & Part24 Subpart E



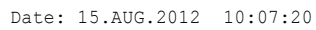
TM1:GPRS/GSM Channel 512

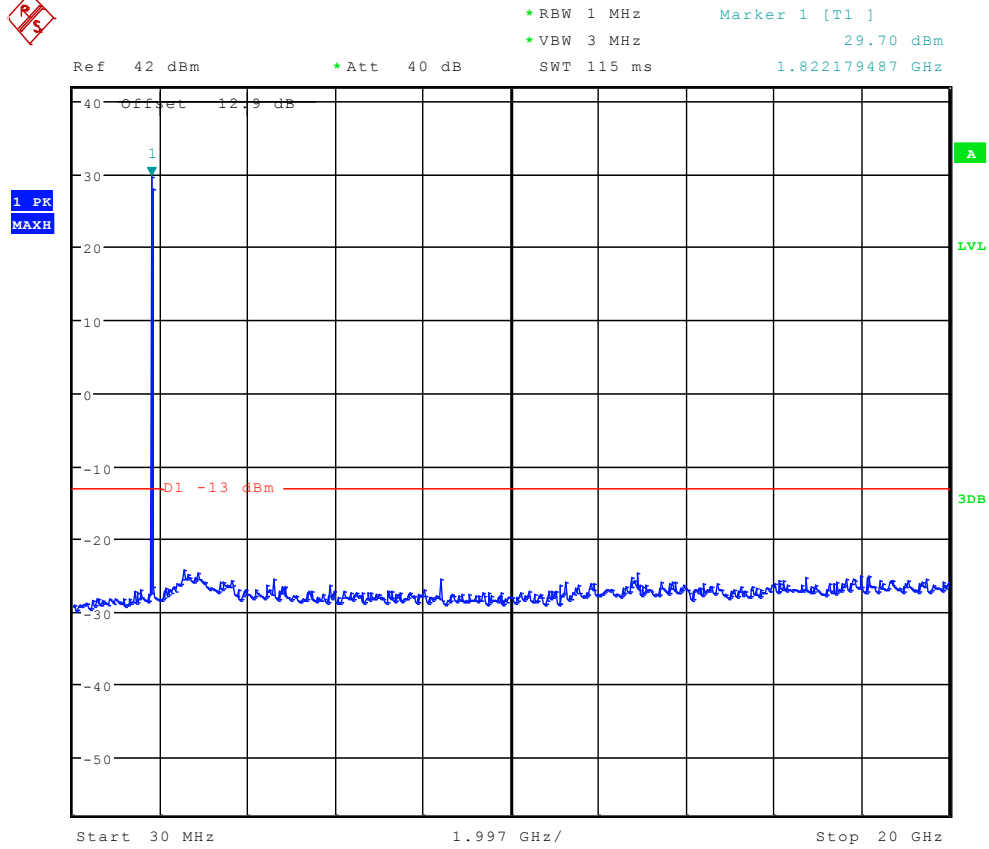


Date: 15.AUG.2012 10:06:36



Ref	35 dBm	Att	50 dB	SWT	300 ms	197.836538462 kHz
-----	--------	-----	-------	-----	--------	-------------------

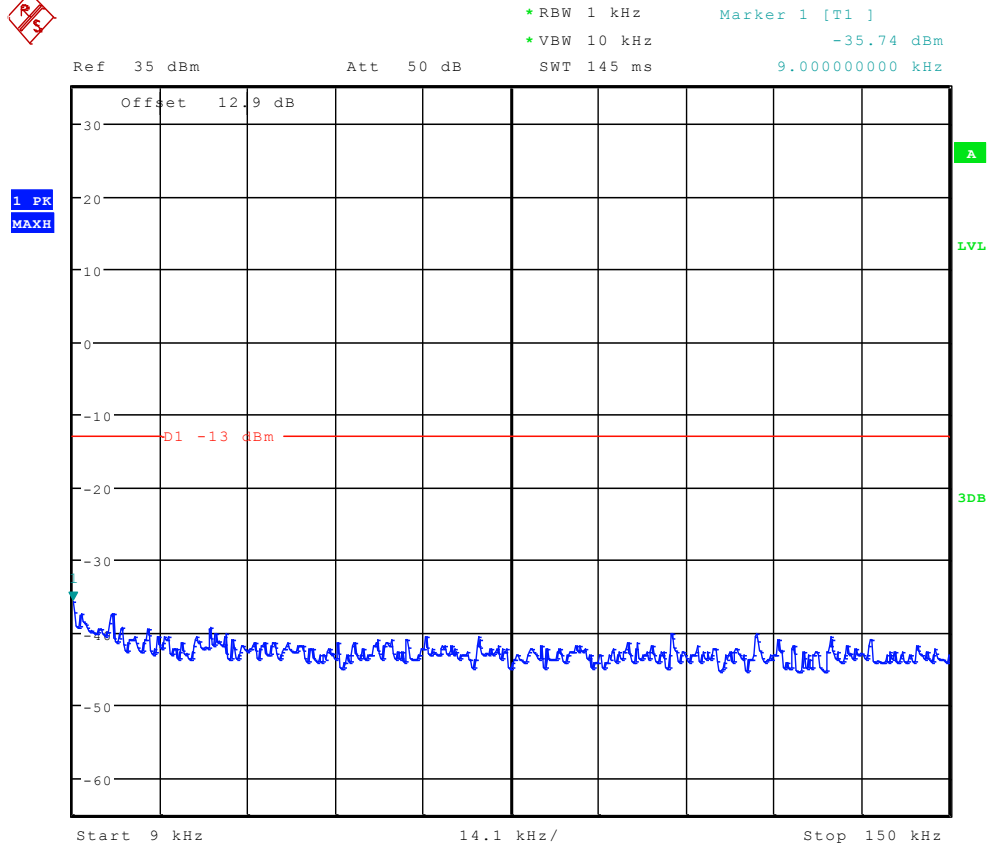




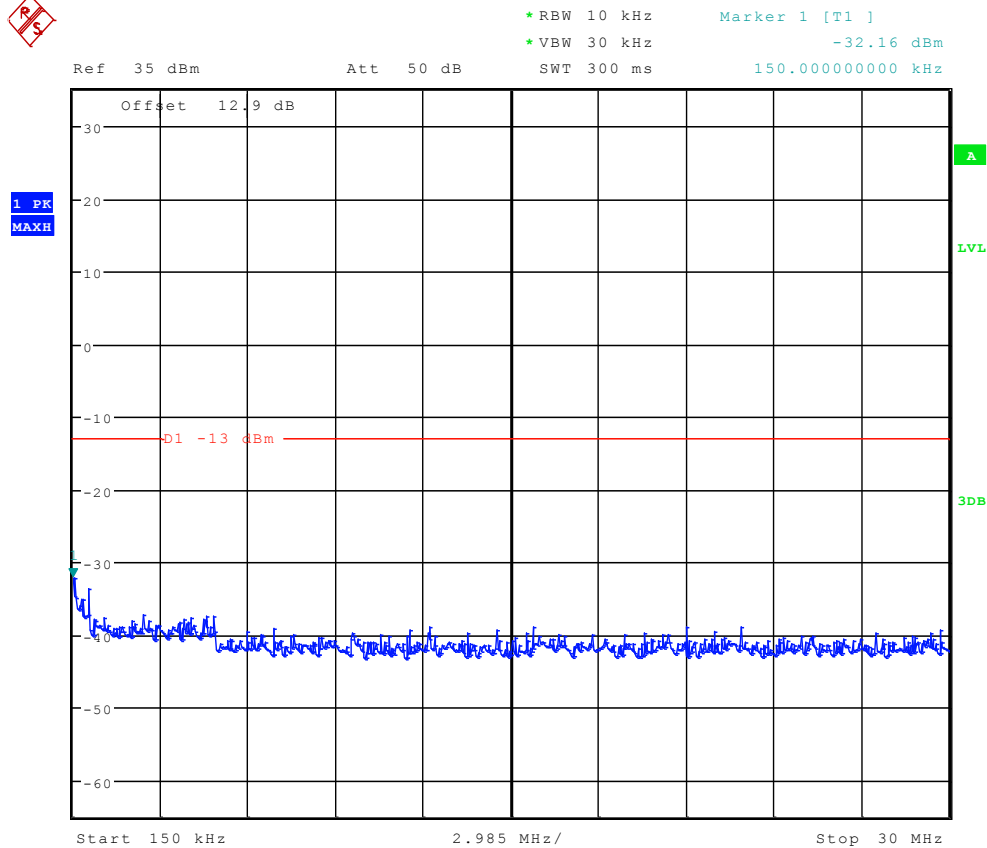
Date: 15.AUG.2012 10:09:37



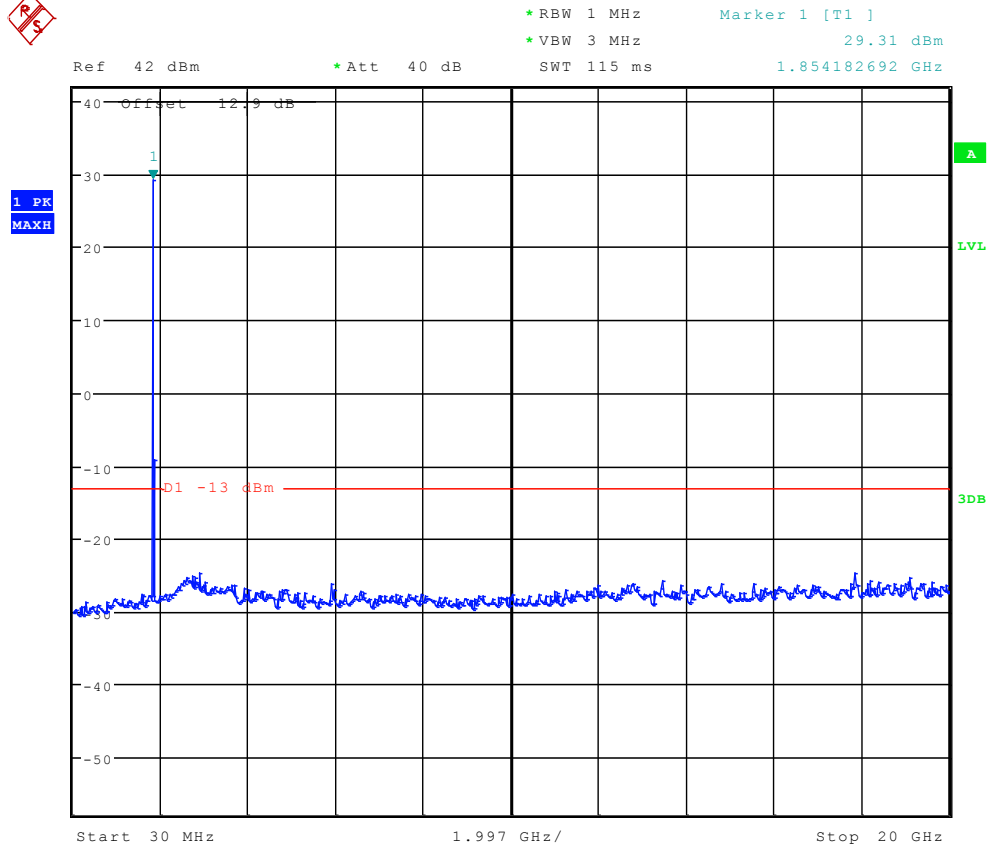
Channel 661



Date: 15.AUG.2012 10:06:51



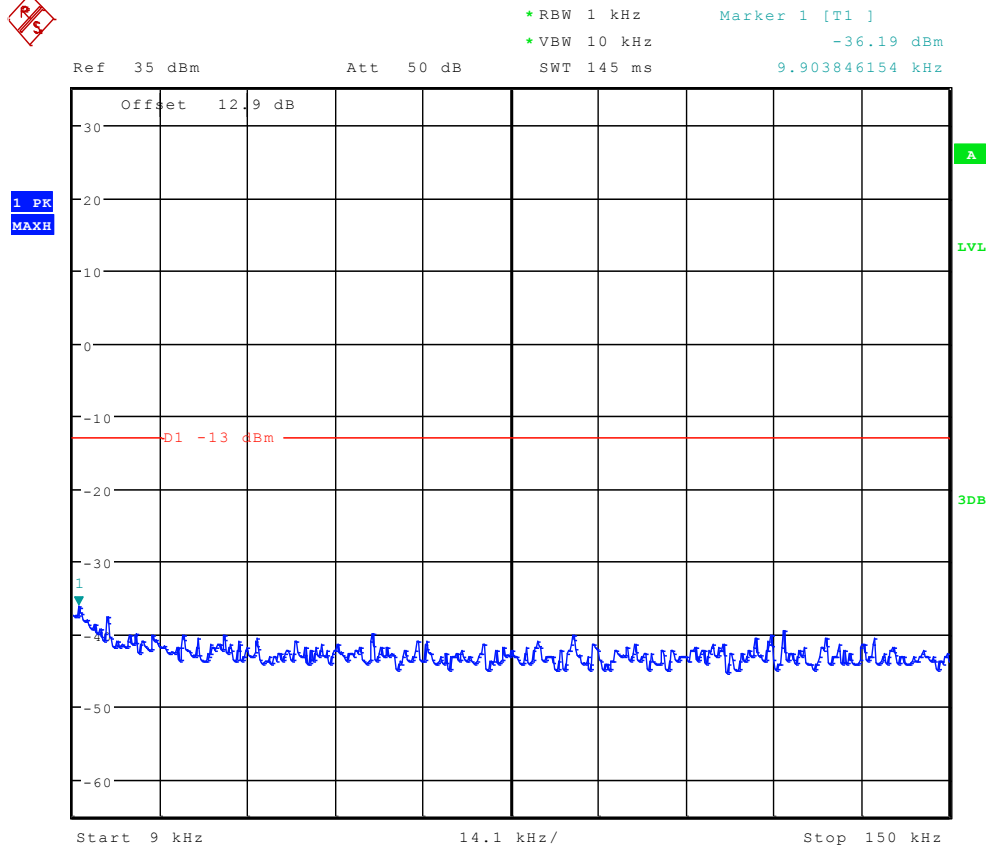
Date: 15.AUG.2012 10:07:34



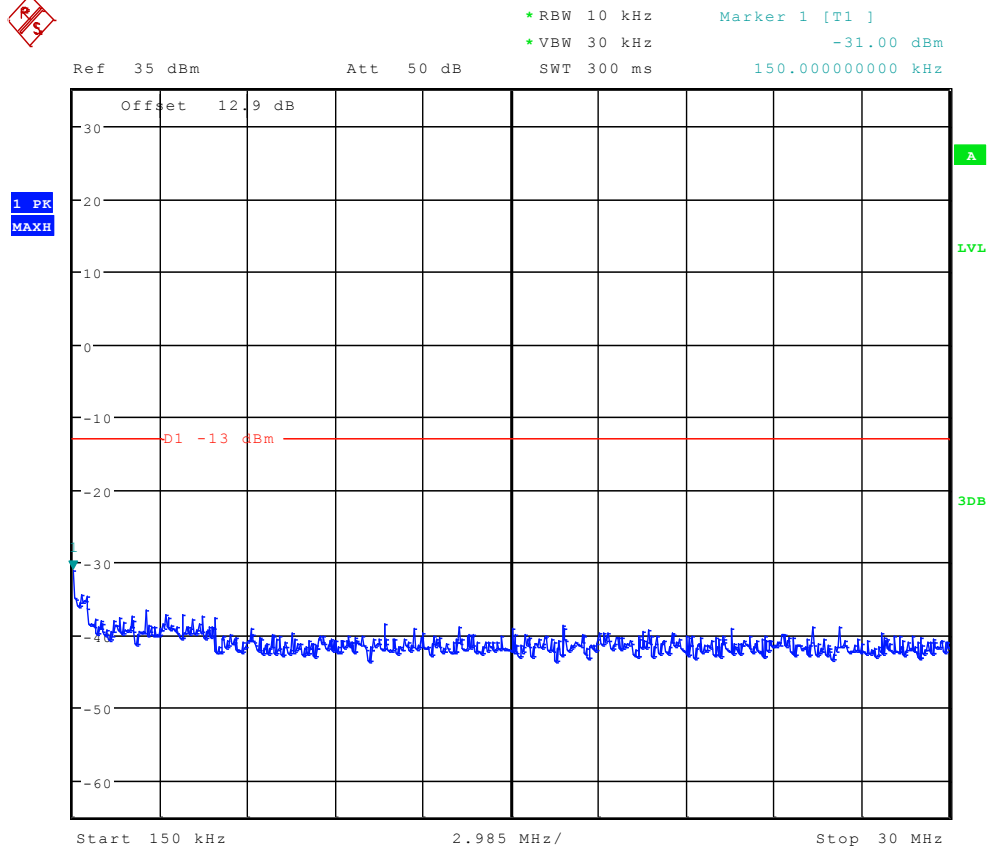
Date: 15.AUG.2012 10:09:51



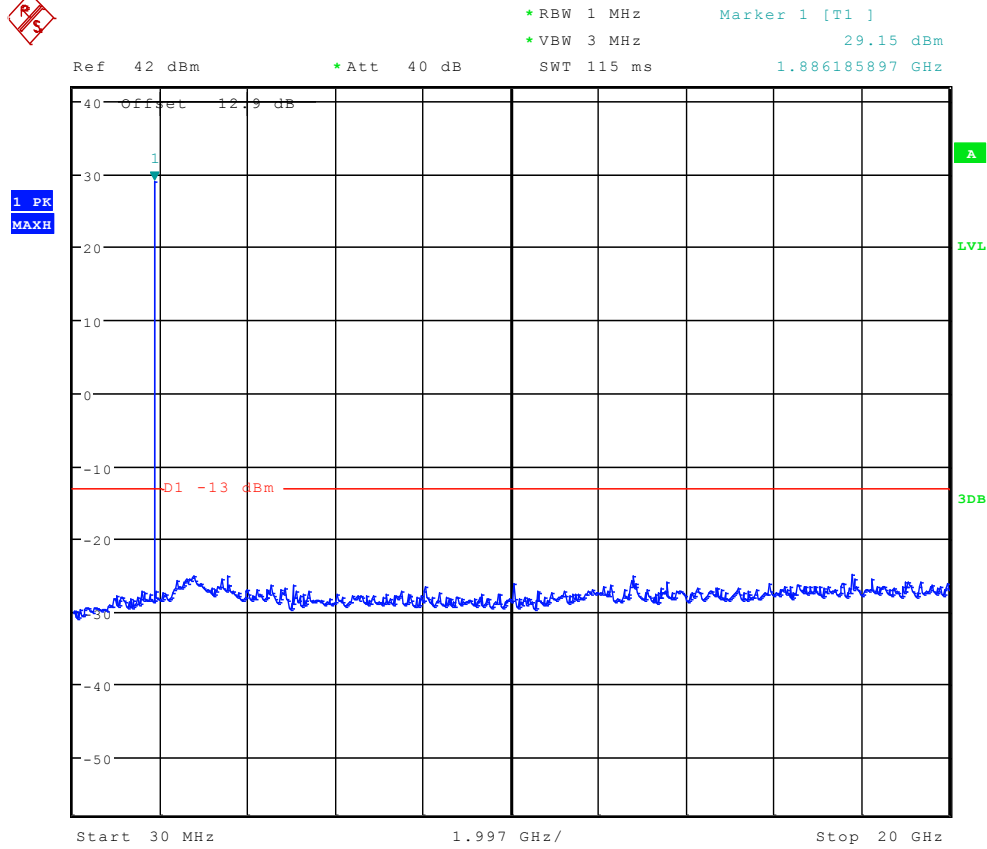
Channel 810



Date: 15.AUG.2012 10:07:05



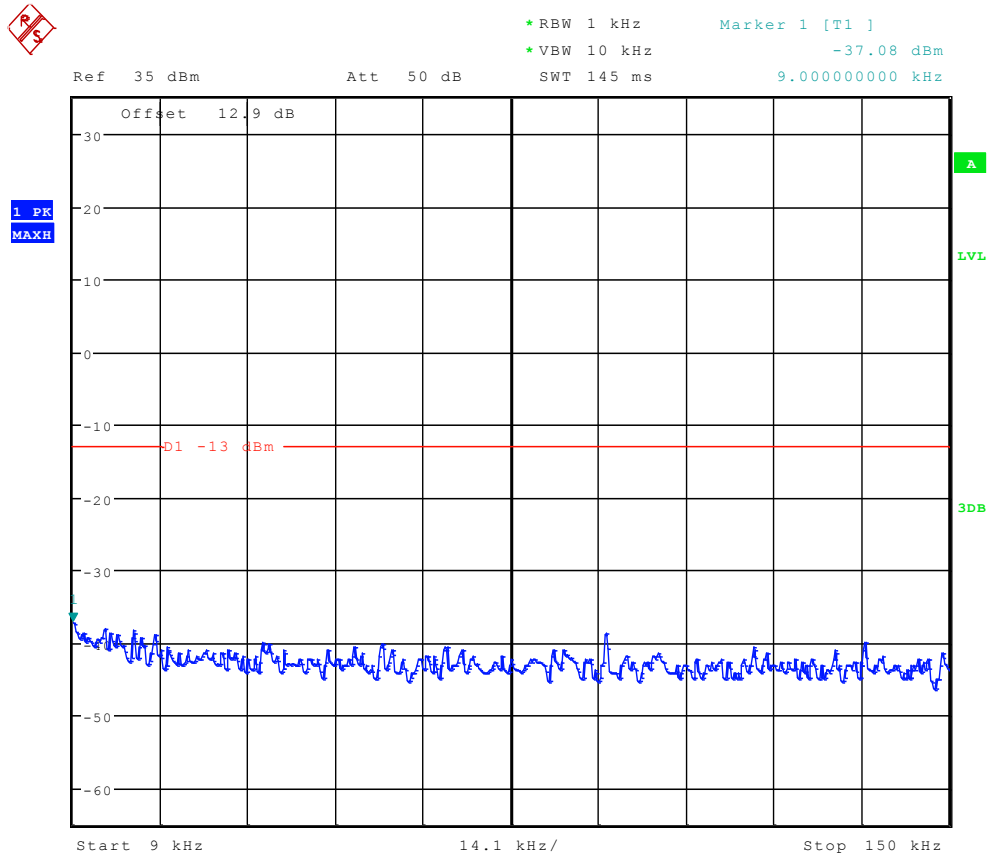
Date: 15.AUG.2012 10:07:49



Date: 15.AUG.2012 10:10:05



TM2:EDGE Channel 512

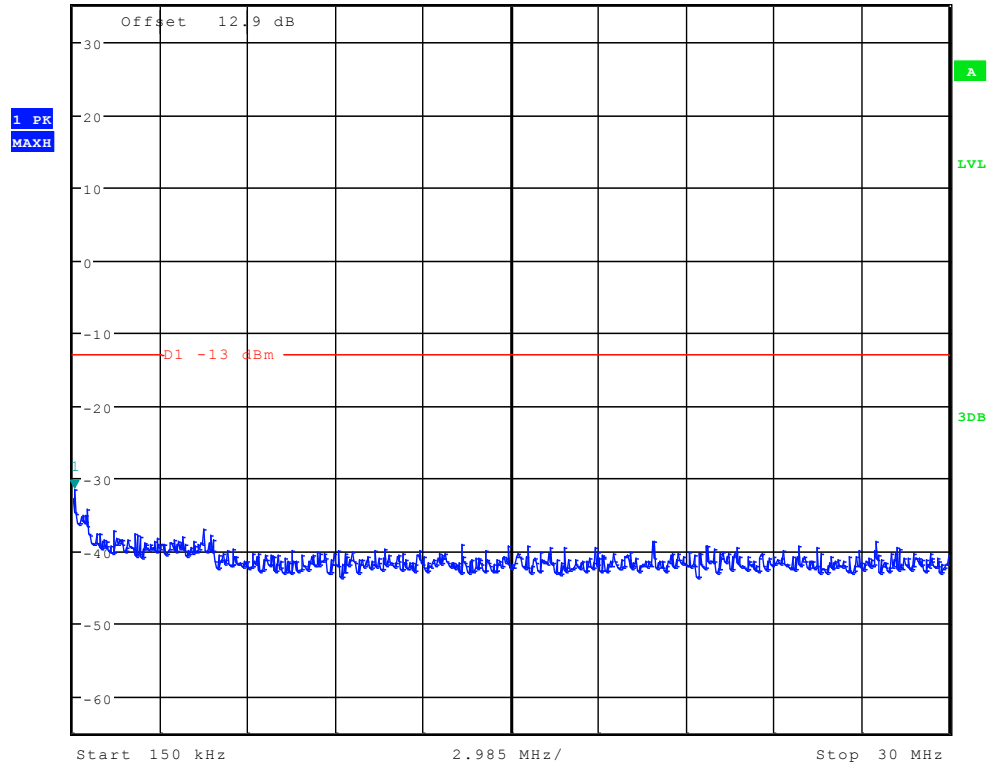


Date: 15.AUG.2012 10:13:31



```
* RBW 10 kHz      Marker 1 [T1 ]
* VBW 30 kHz      -31.43 dBm
SWT 300 ms        197.836538462 kHz
```

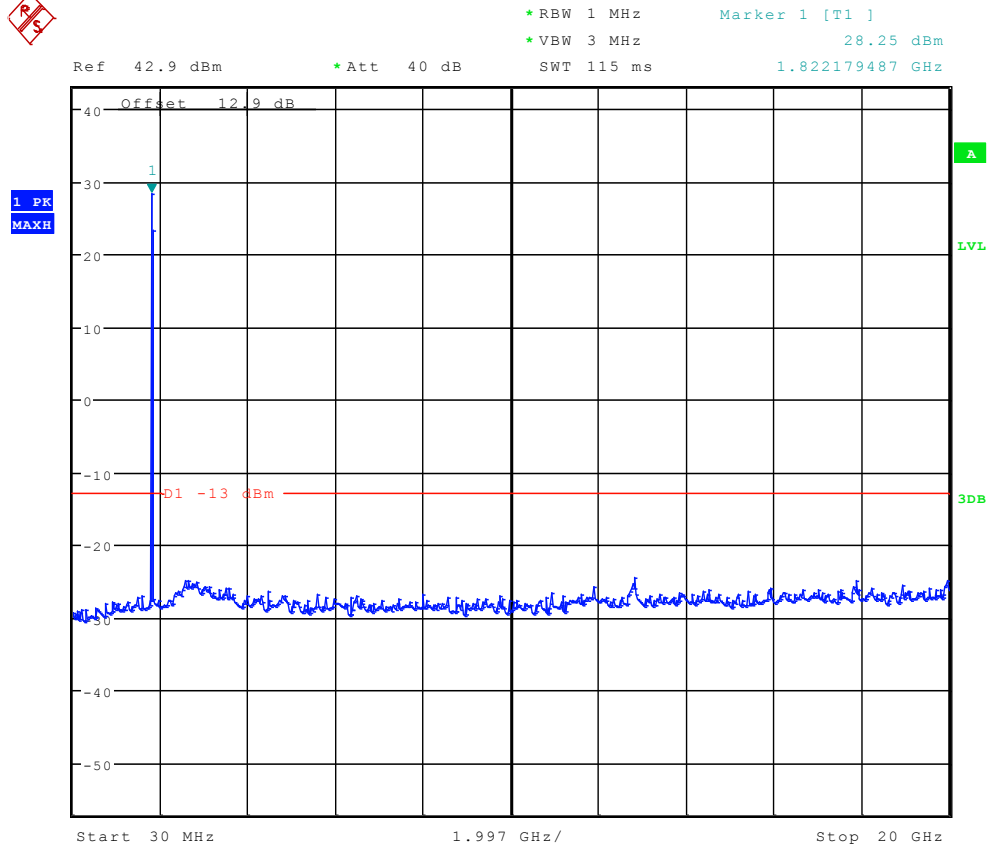
Ref 35 dB Att 50 dB SWT 300 ms 197.836538462 kHz



Report No:
SYBH(Z-RF)019082012-2002

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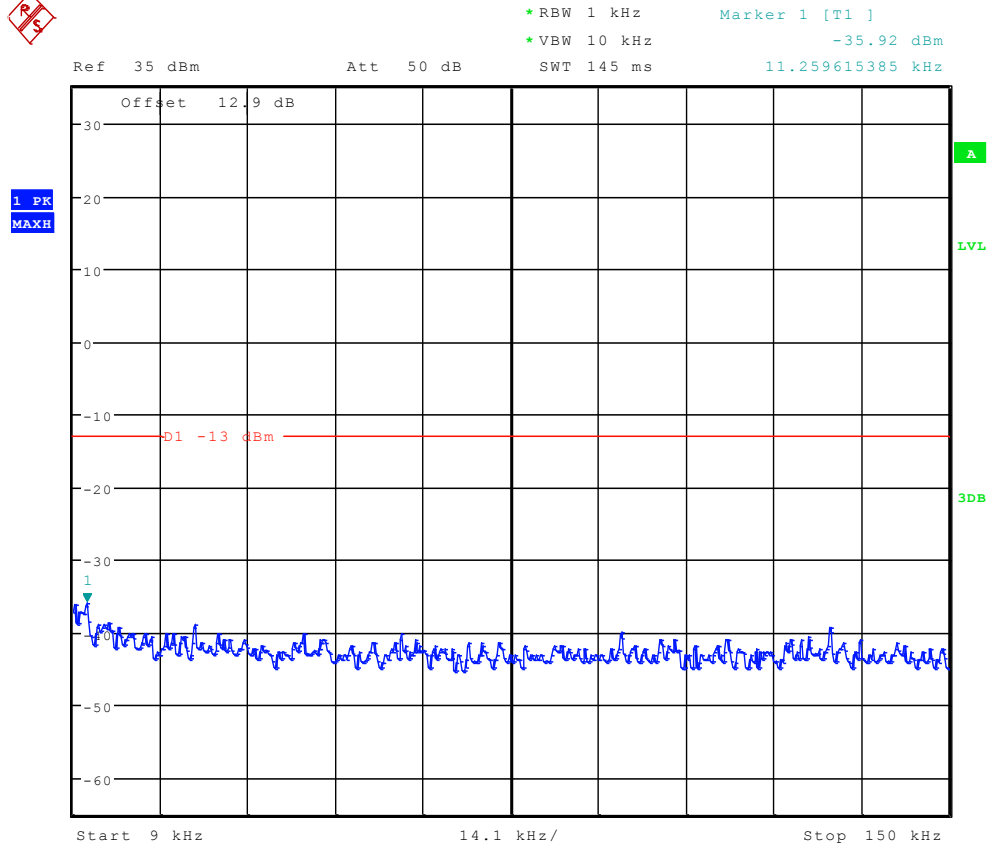
Page12,
Total28



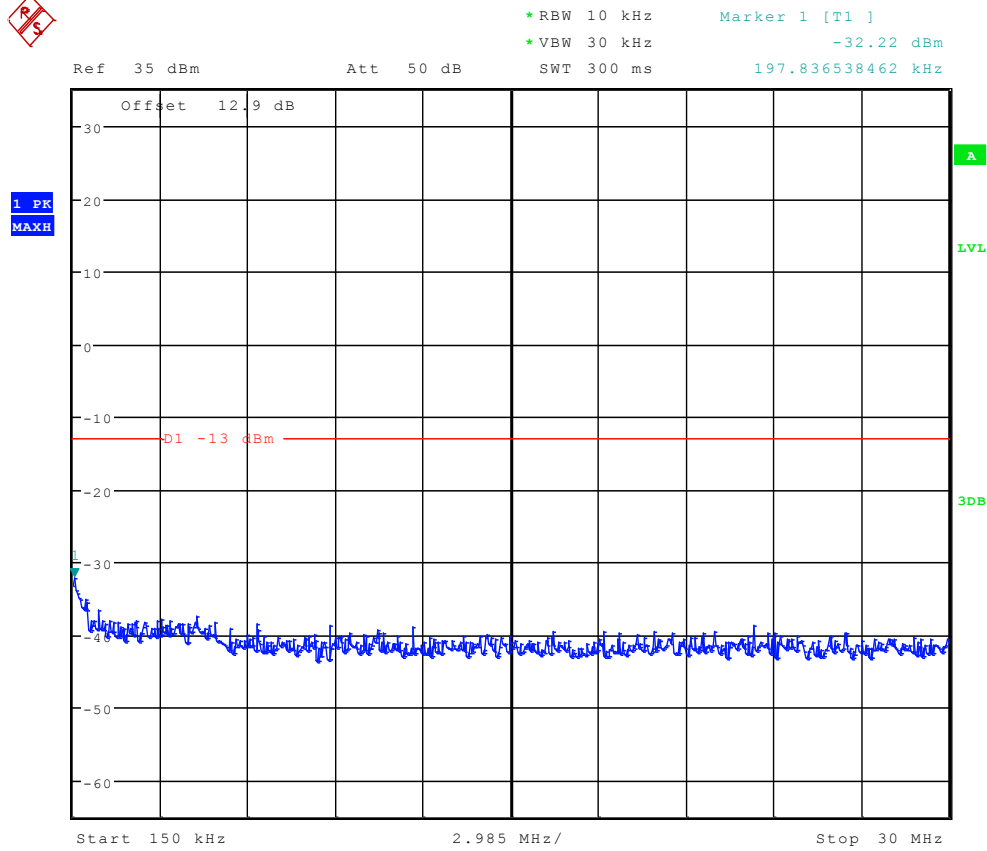
Date: 15.AUG.2012 10:15:16



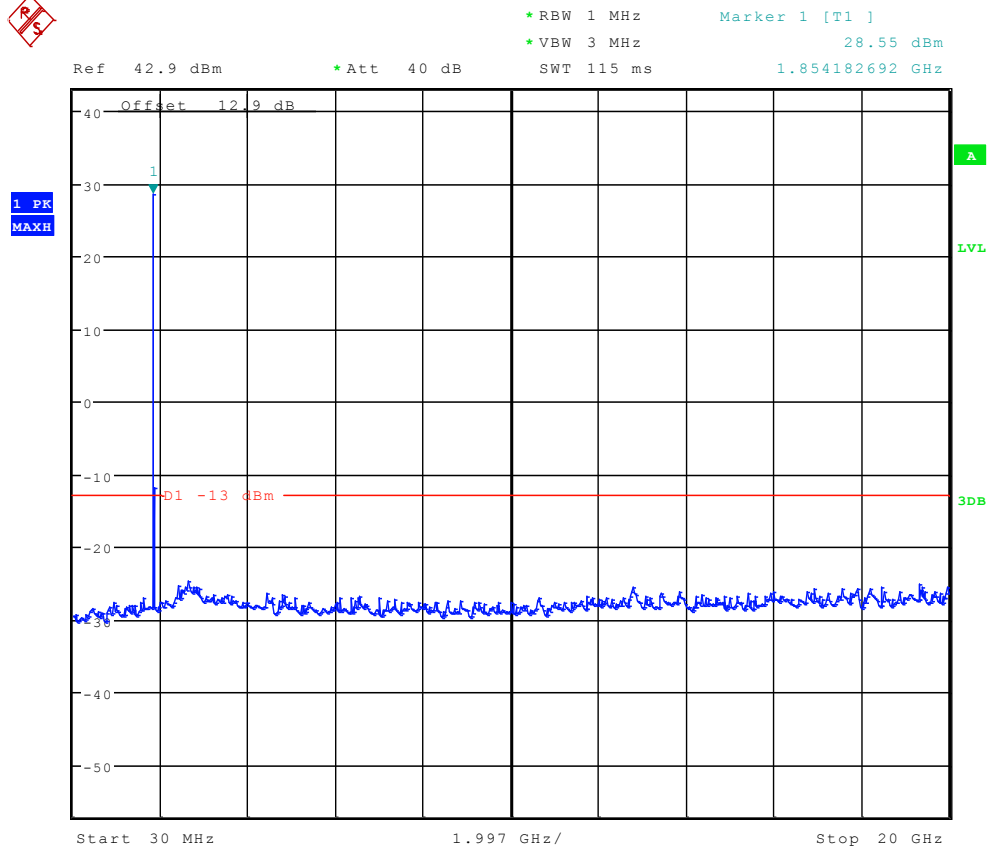
Channel 661



Date: 15.AUG.2012 10:13:45



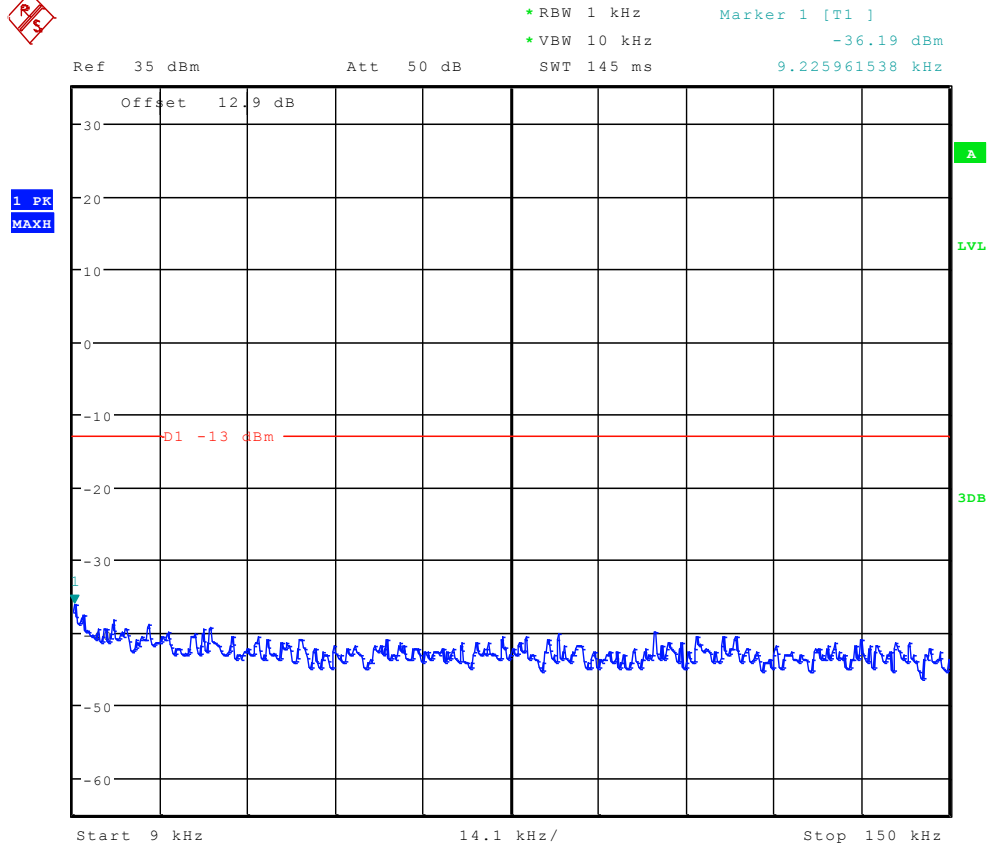
Date: 15.AUG.2012 10:14:29



Date: 15.AUG.2012 10:15:30



Channel 810

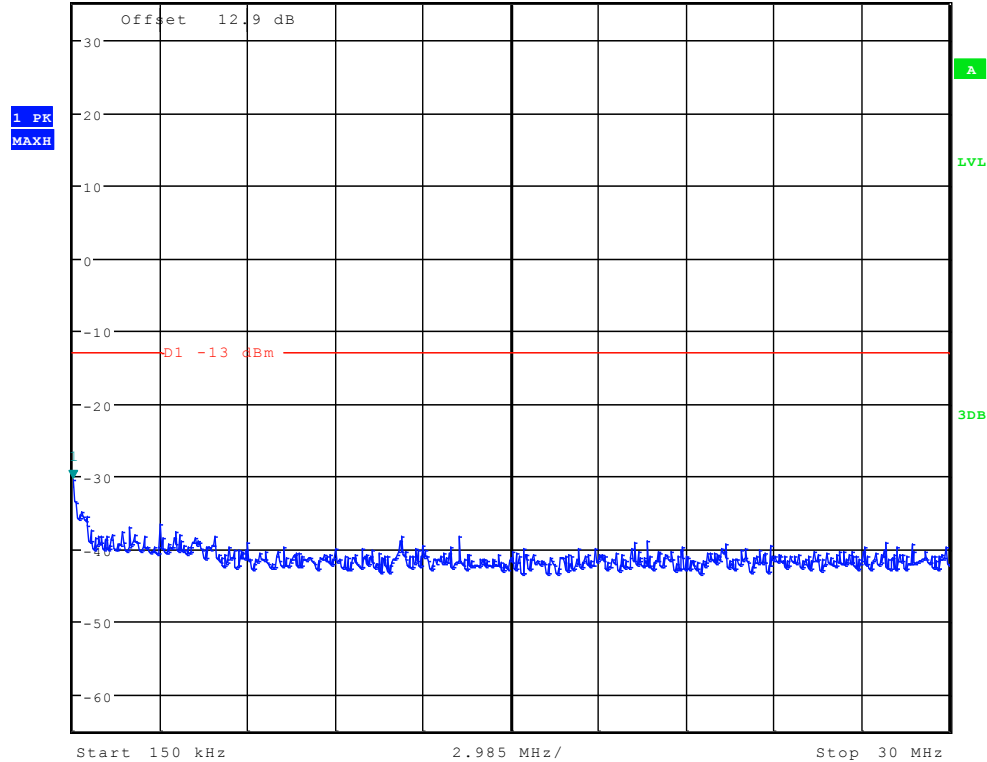


Date: 15.AUG.2012 10:14:00



```
* RBW 10 kHz      Marker 1 [T1 ]
* VBW 30 kHz      -30.36 dBm
SWT 300 ms        150.00000000 kHz
```

Ref	35 dBm	Att	50 dB	SWT	300 ms	150.000000000 kHz
-----	--------	-----	-------	-----	--------	-------------------

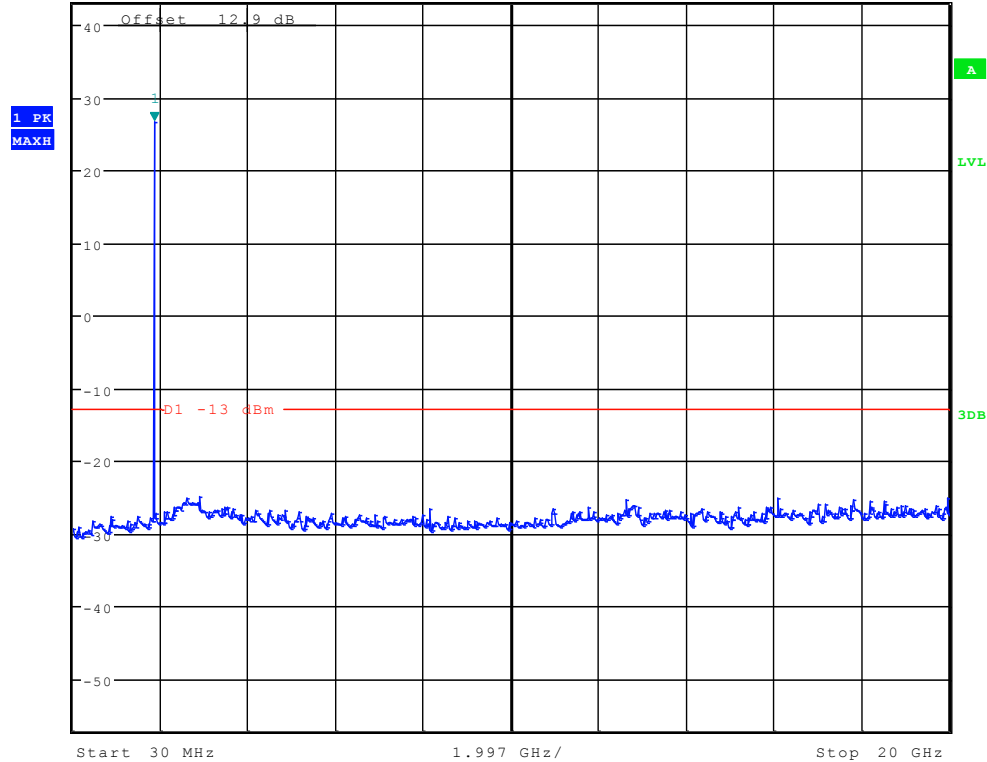


Date: 15.AUG.2012 10:14:43



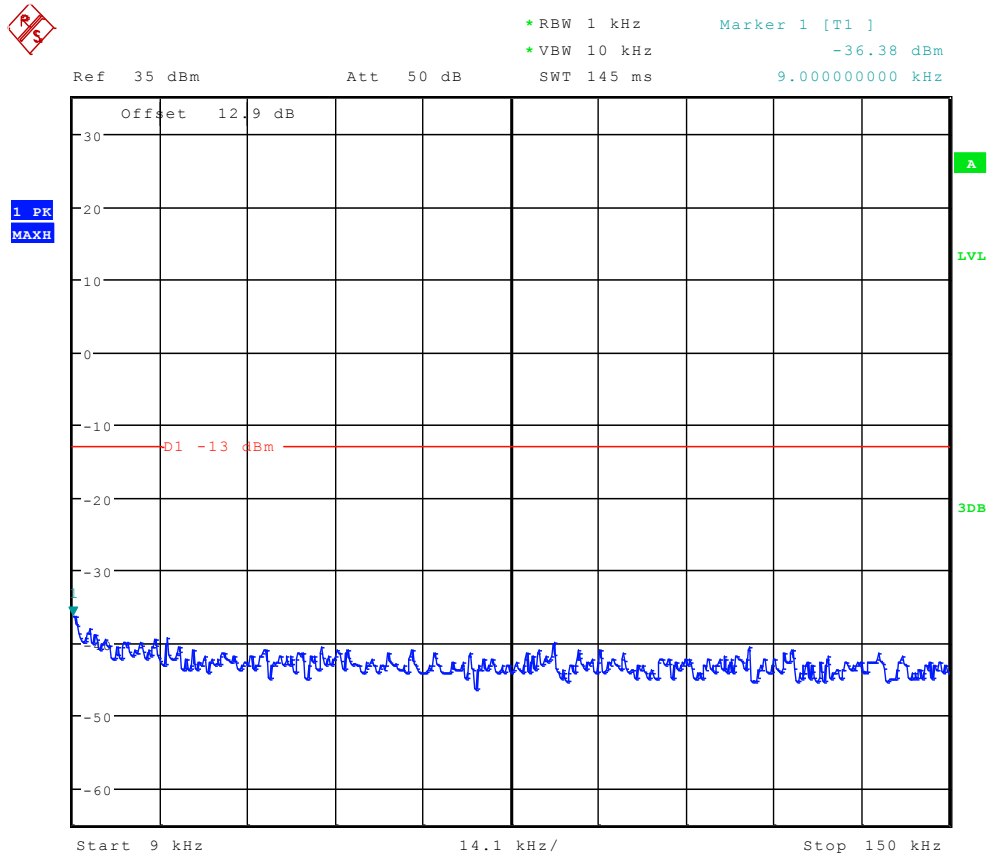
```
* RBW 1 MHz      Marker 1 [T1 ]
* VBW 3 MHz      26.66 dBm
SWT 115 ms      1.886185897 GHz
```

Ref 42.9 dBm * Att 40 dB SWT 115 ms 1.886185897 GHz

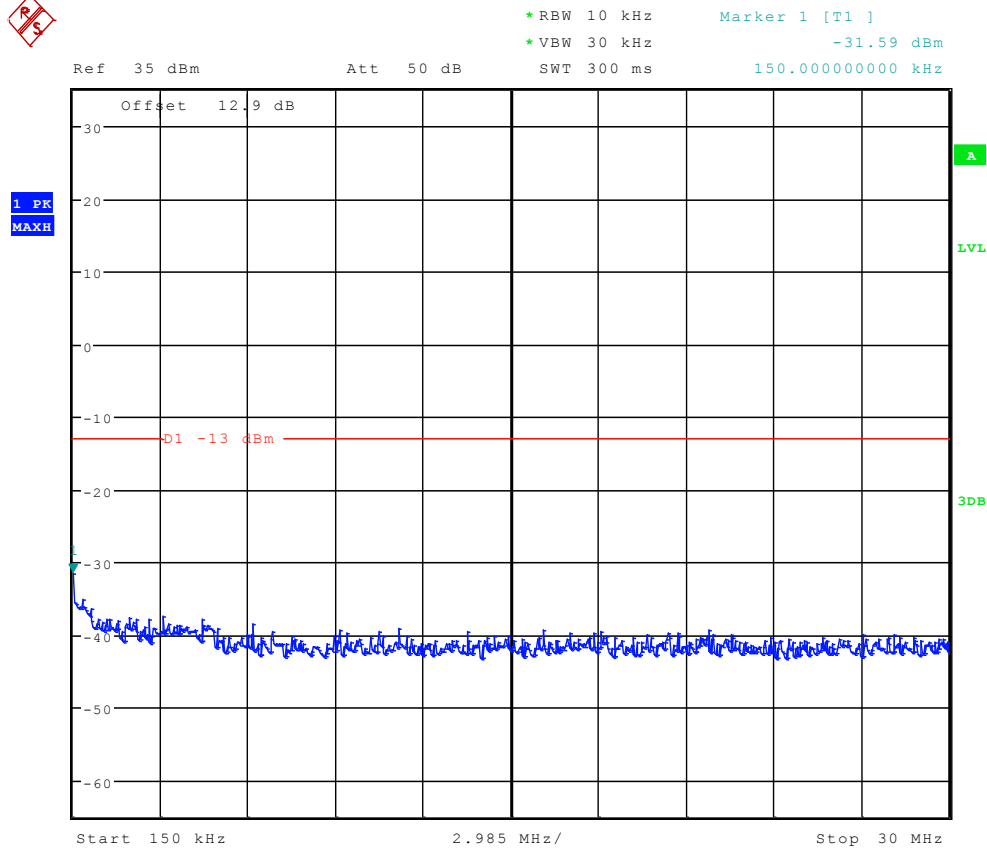




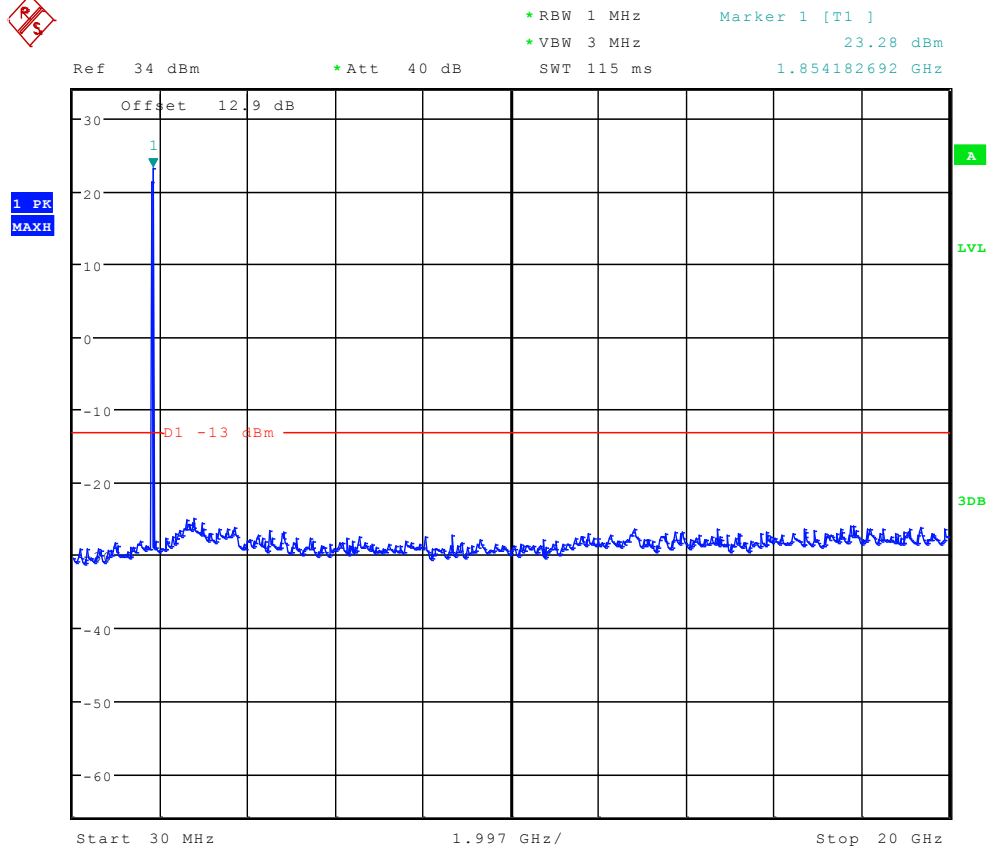
TM3: WCDMA Channel 9262



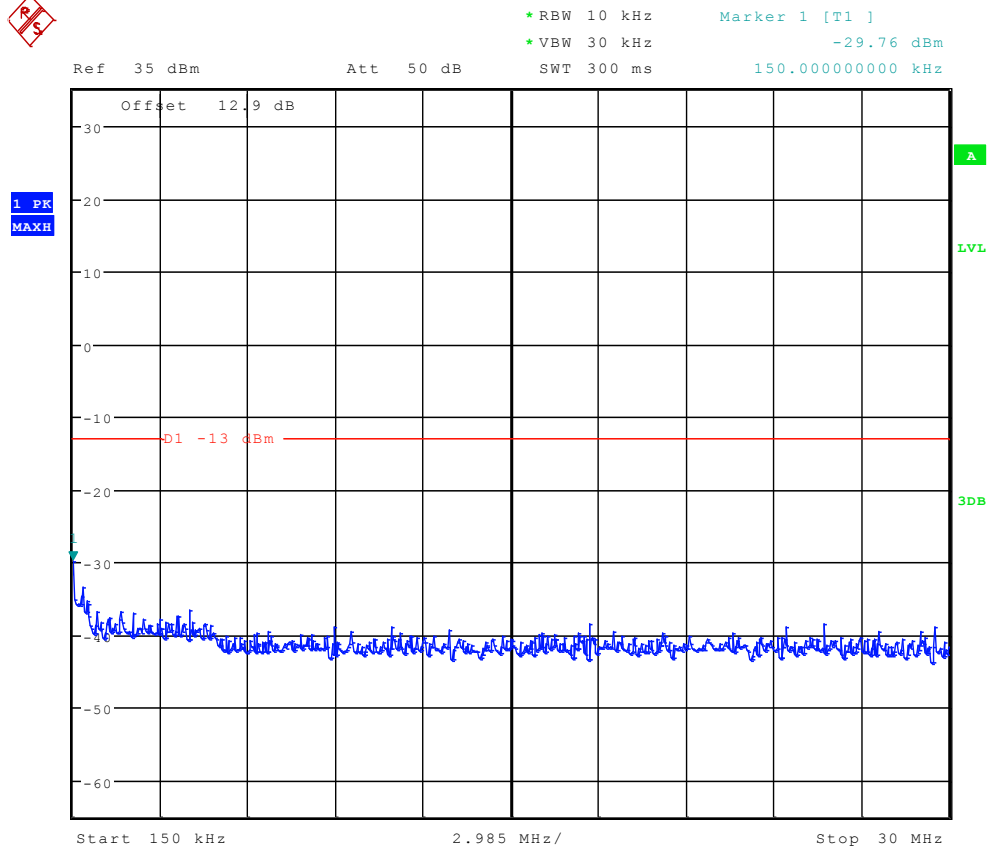
Date: 15.AUG.2012 10:19:44



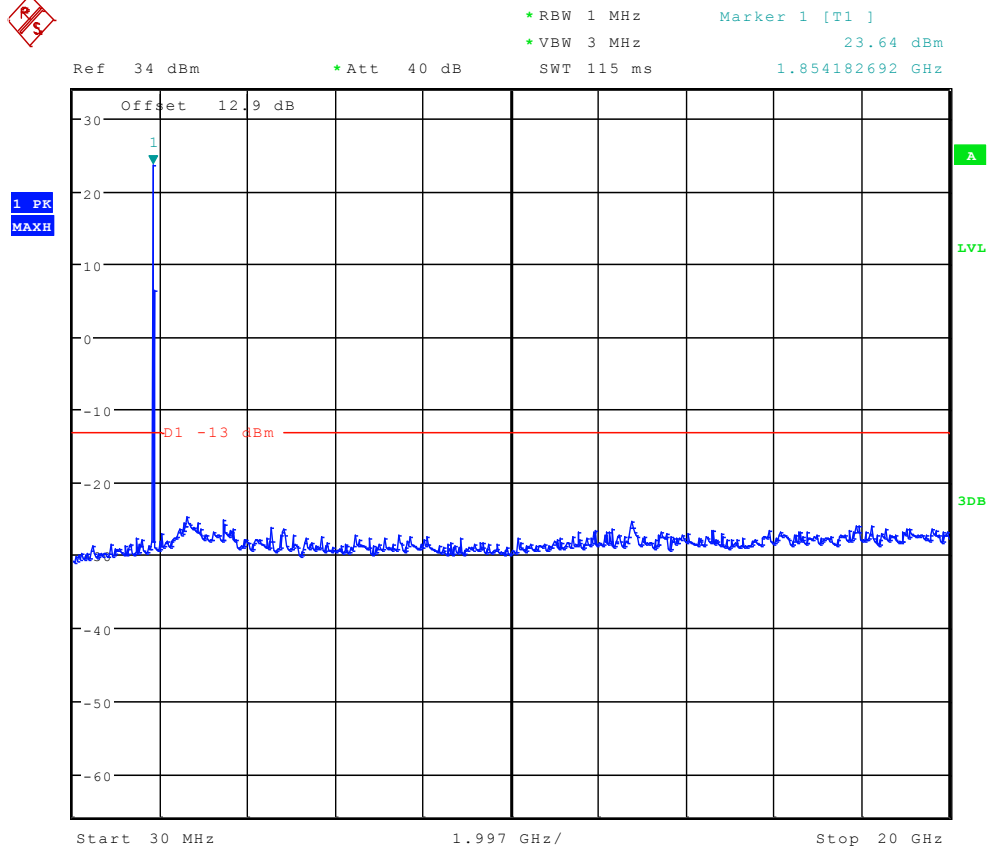
Date: 15.AUG.2012 10:20:28



Date: 15.AUG.2012 10:21:37



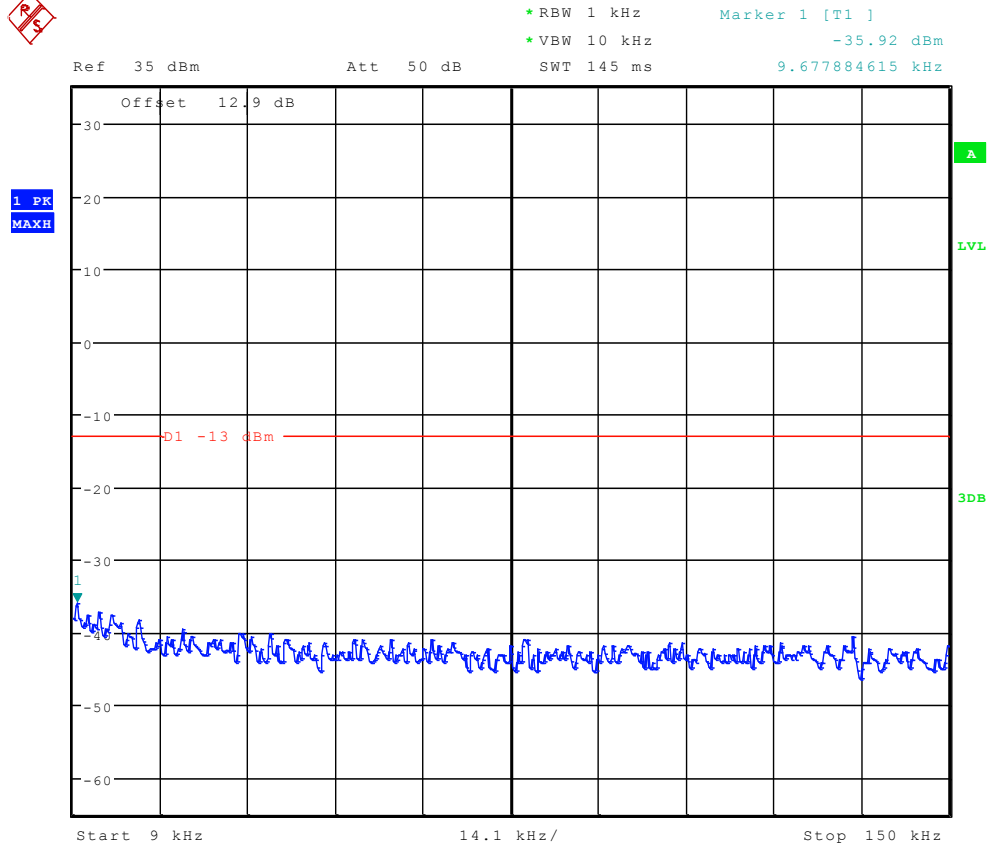
Date: 15.AUG.2012 10:20:42



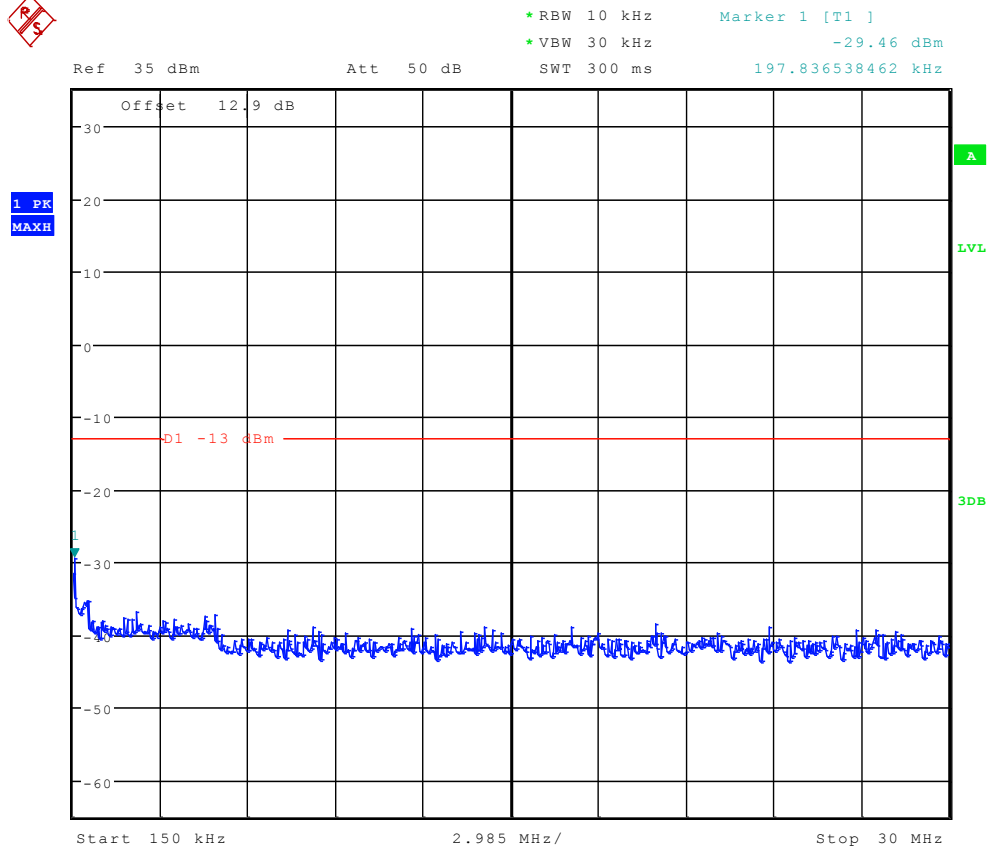
Date: 15.AUG.2012 10:21:52



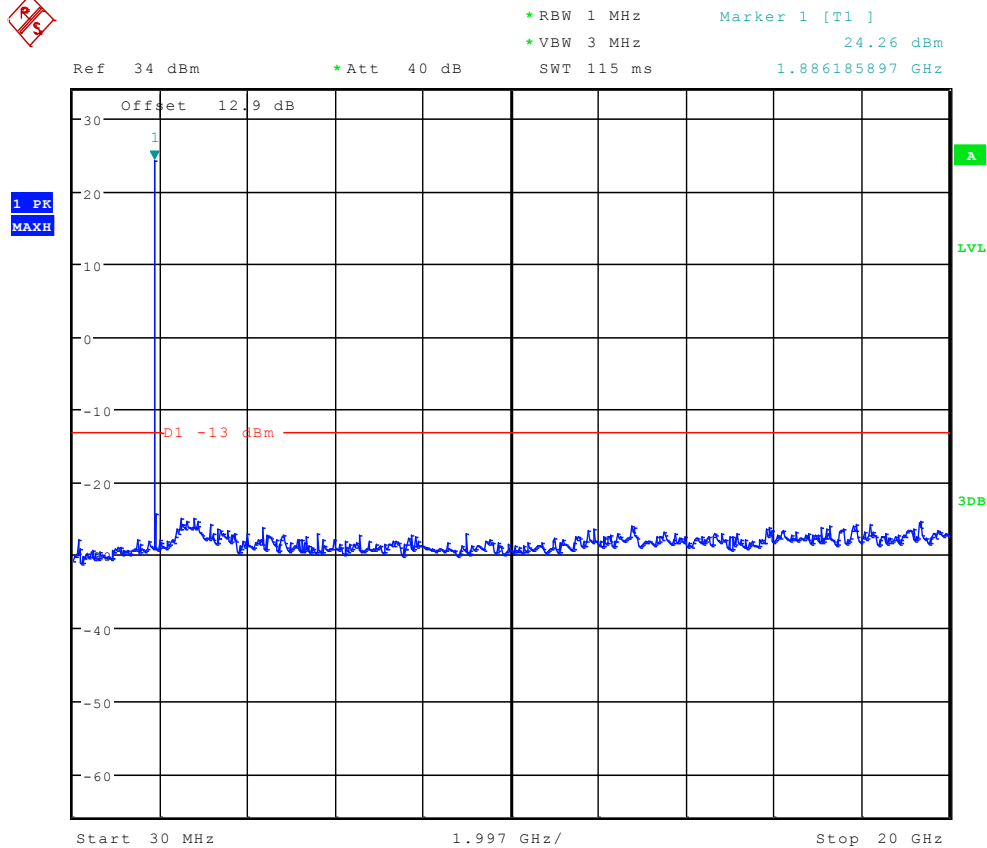
Channel 9538



Date: 15.AUG.2012 10:20:13



Date: 15.AUG.2012 10:20:57



Date: 15.AUG.2012 10:22:07

-----END-----



Appendix F

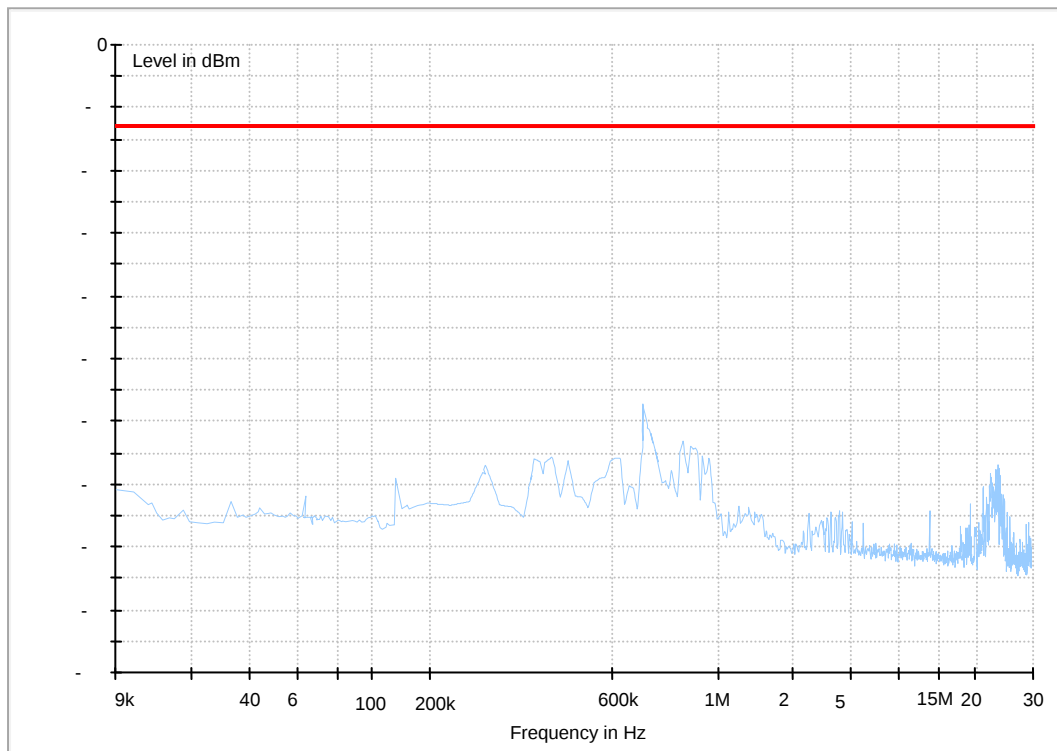
Radiated spurious emission

According to FCC Part 2.1053& Part 24.238

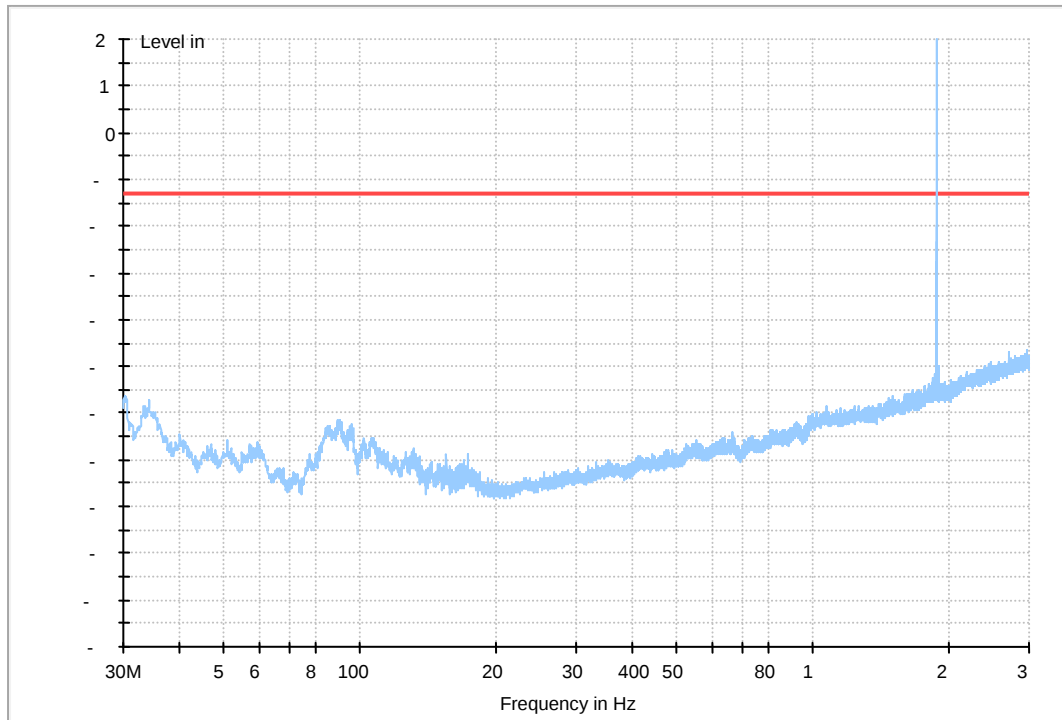
Note: 1. Simultaneous transmission was investigated and no new emissions were found.
2. $RBW \geq 1\text{MHz}$, $VBW > 3 \times RBW$.

GSM 1900

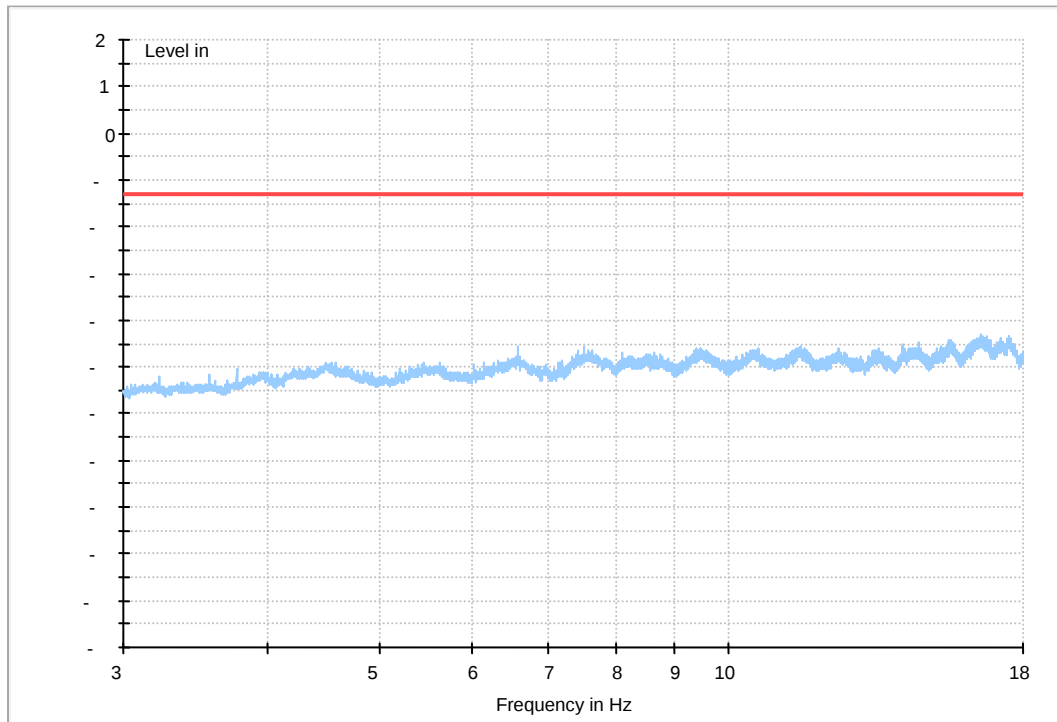
(9 kHz-30MHz)



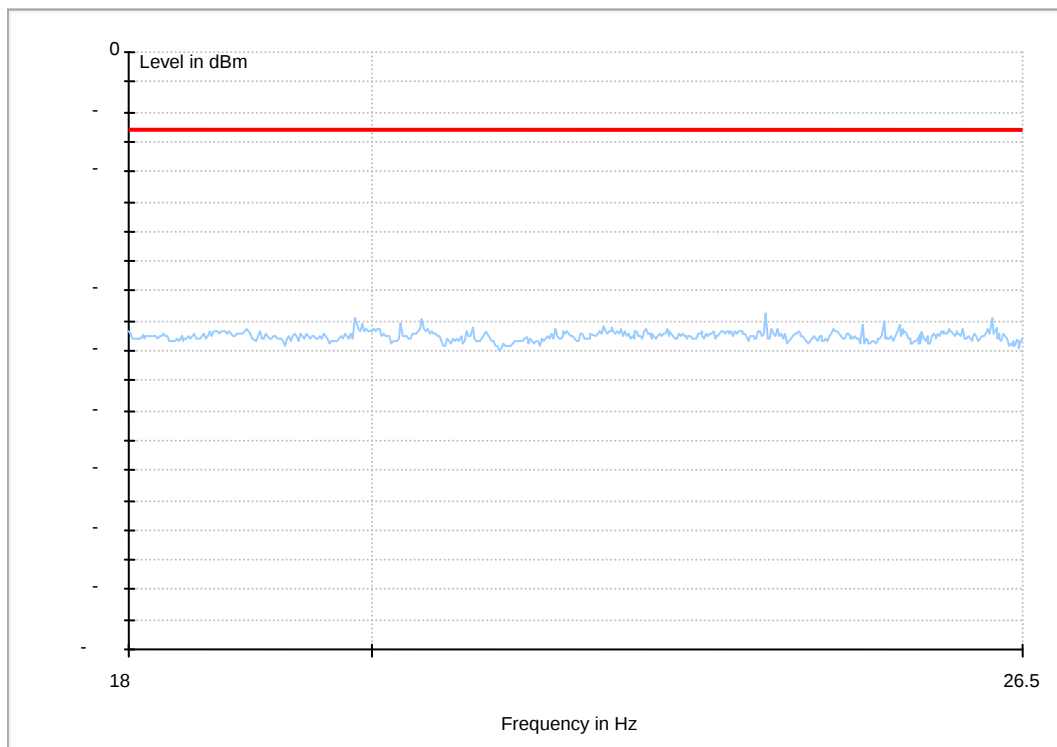
(30MHz~3GHz)



(3GHz~18GHz)

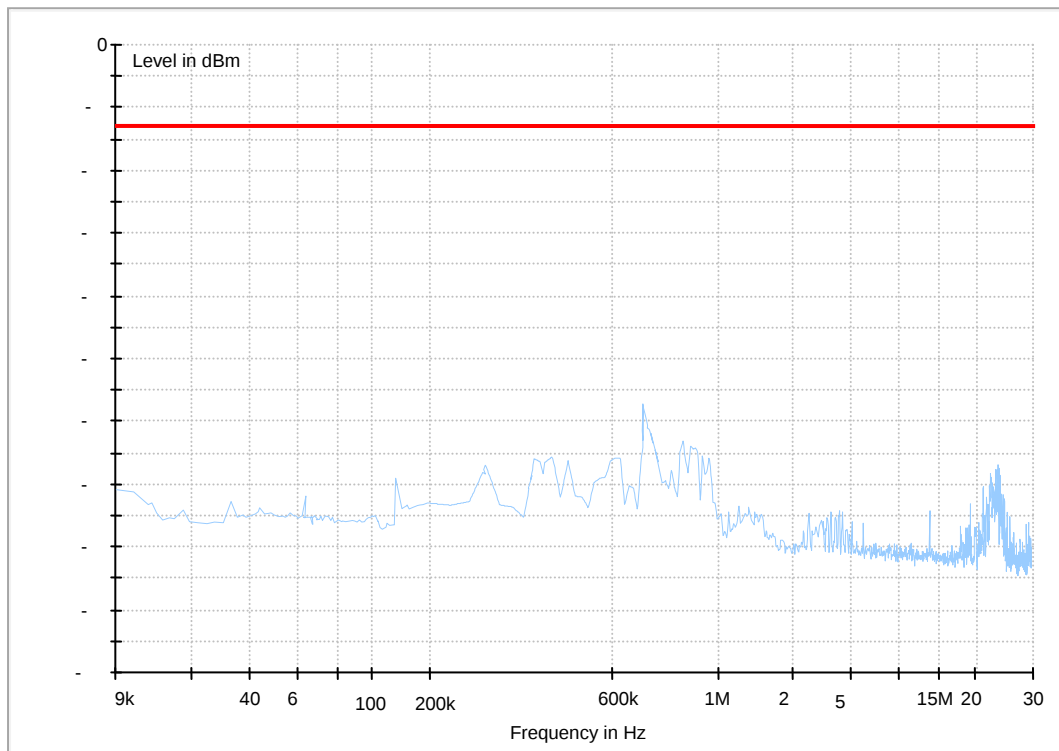


(18GHz-26.5GHz)

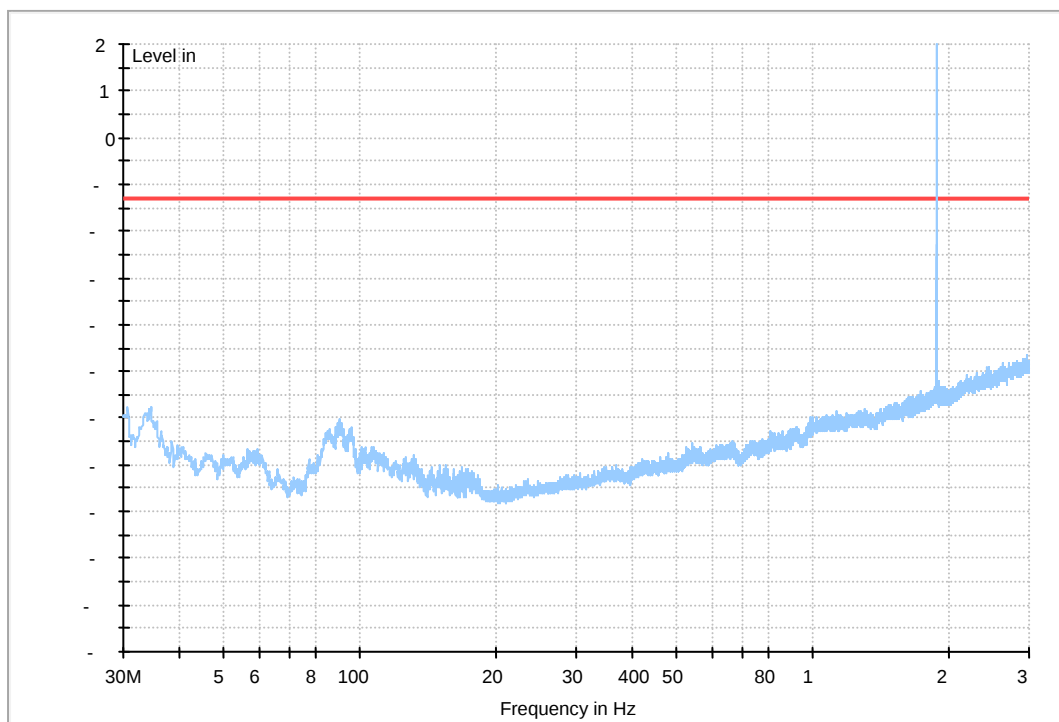


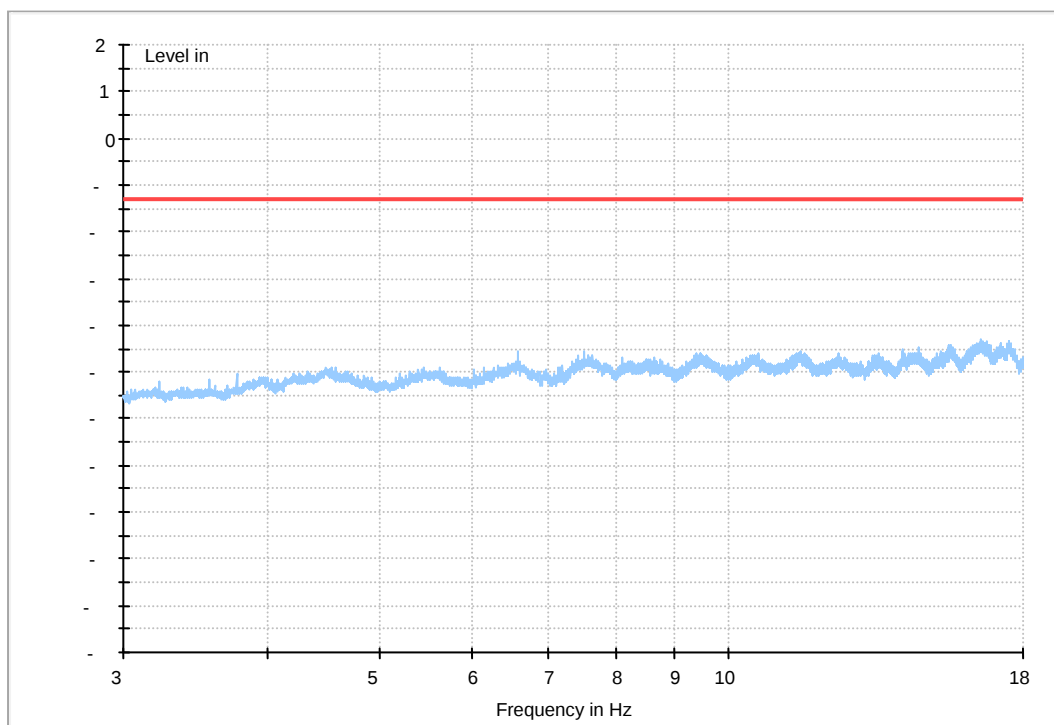
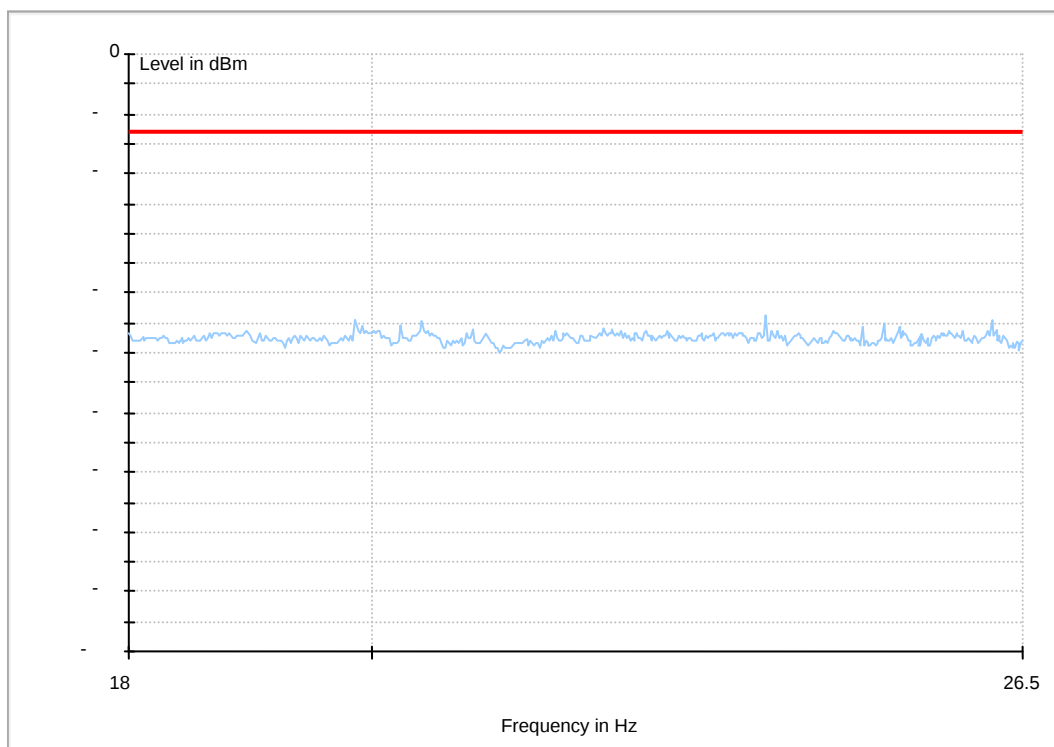
GPRS 1900

(9kHz-30MHz)



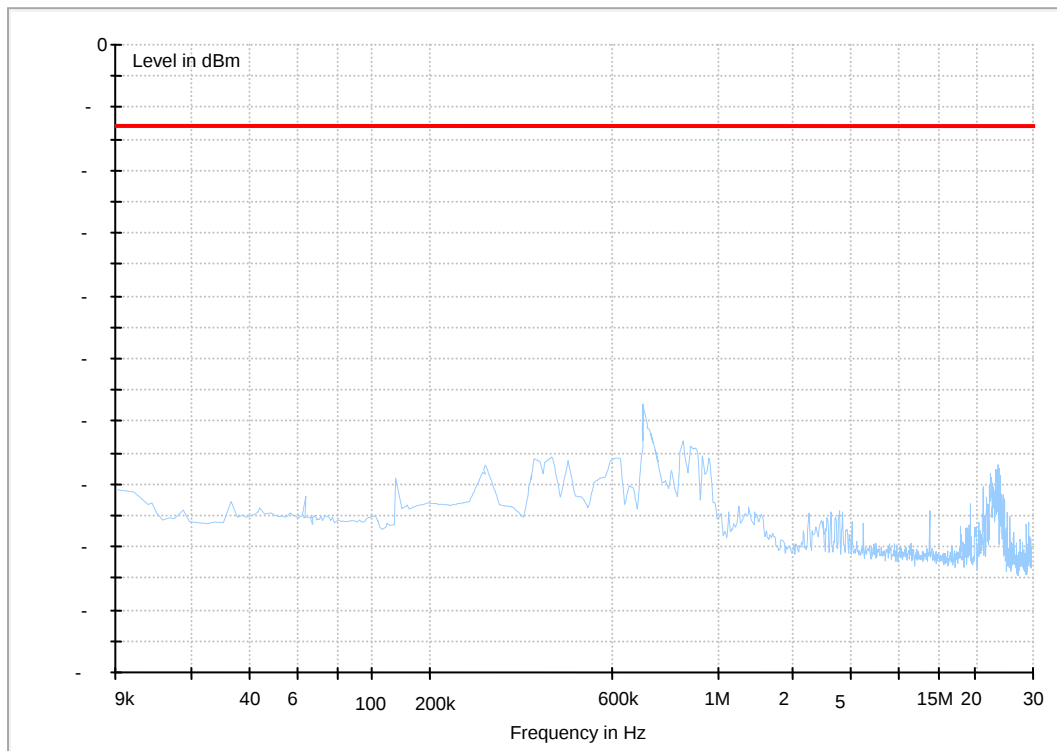
(30MHz~3GHz)



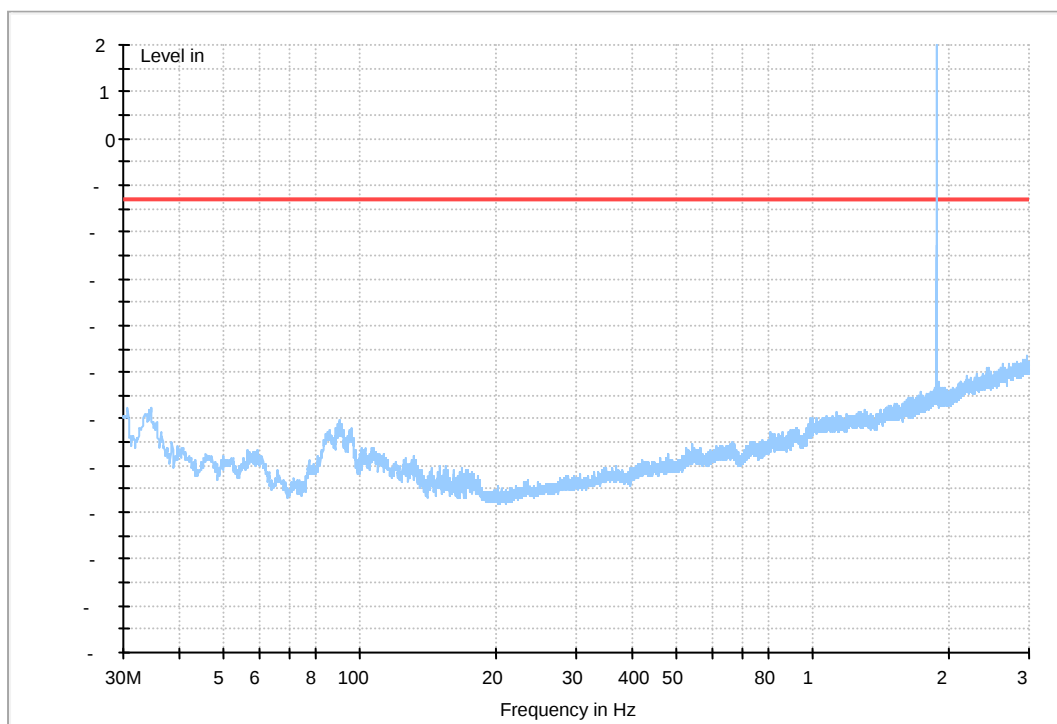
(3GHz~18GHz)**(18GHz-26.5GHz)**

EDGE 1900

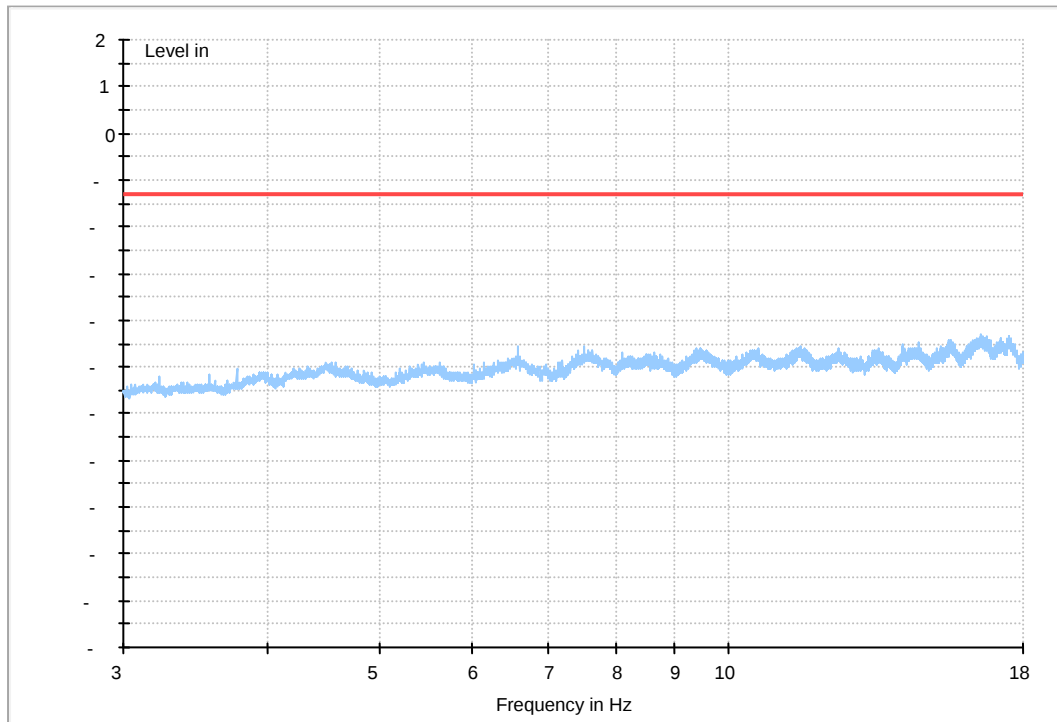
(9kHz-30MHz)



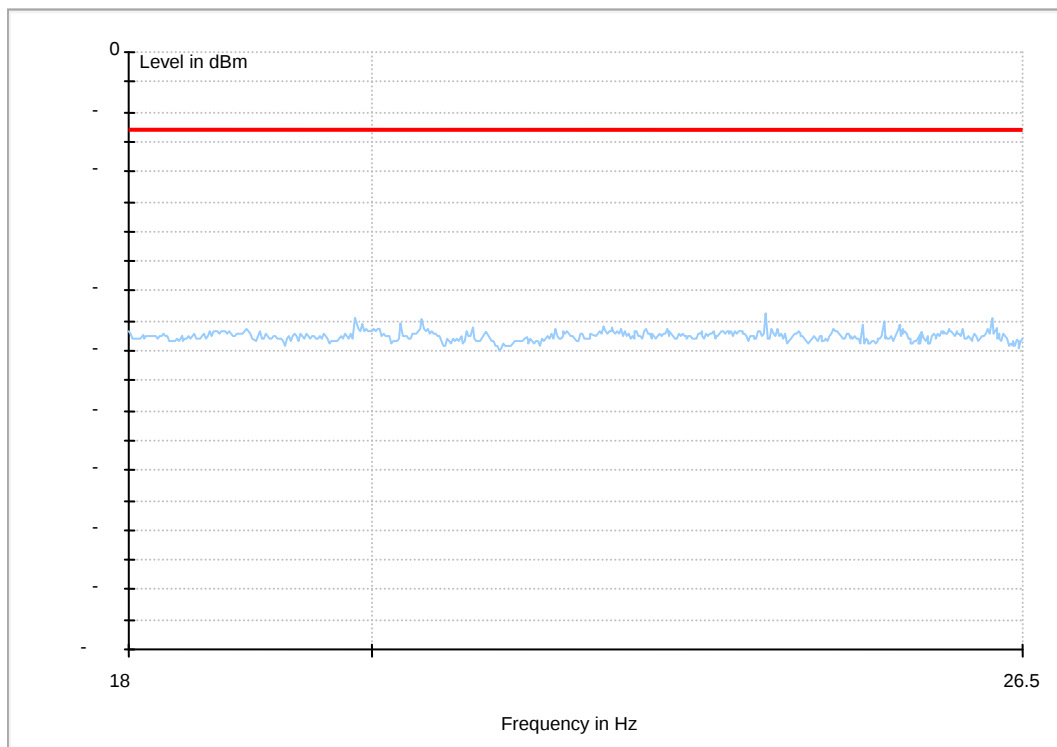
(30MHz~3GHz)



(3GHz~18GHz)

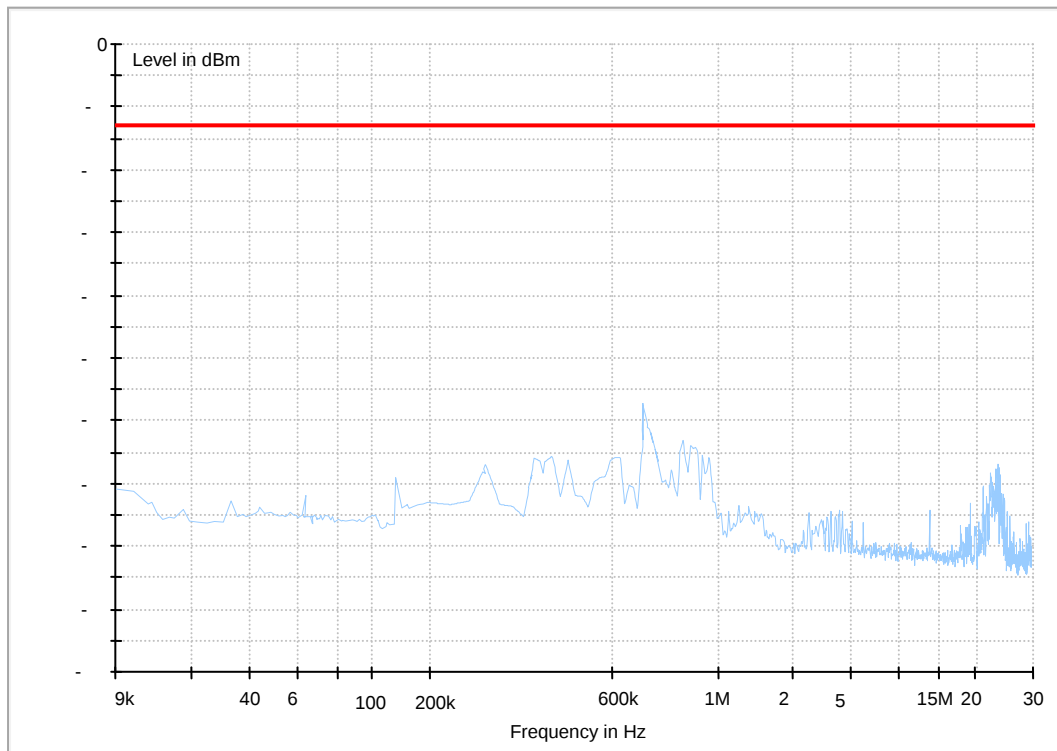


(18GHz-26.5GHz)

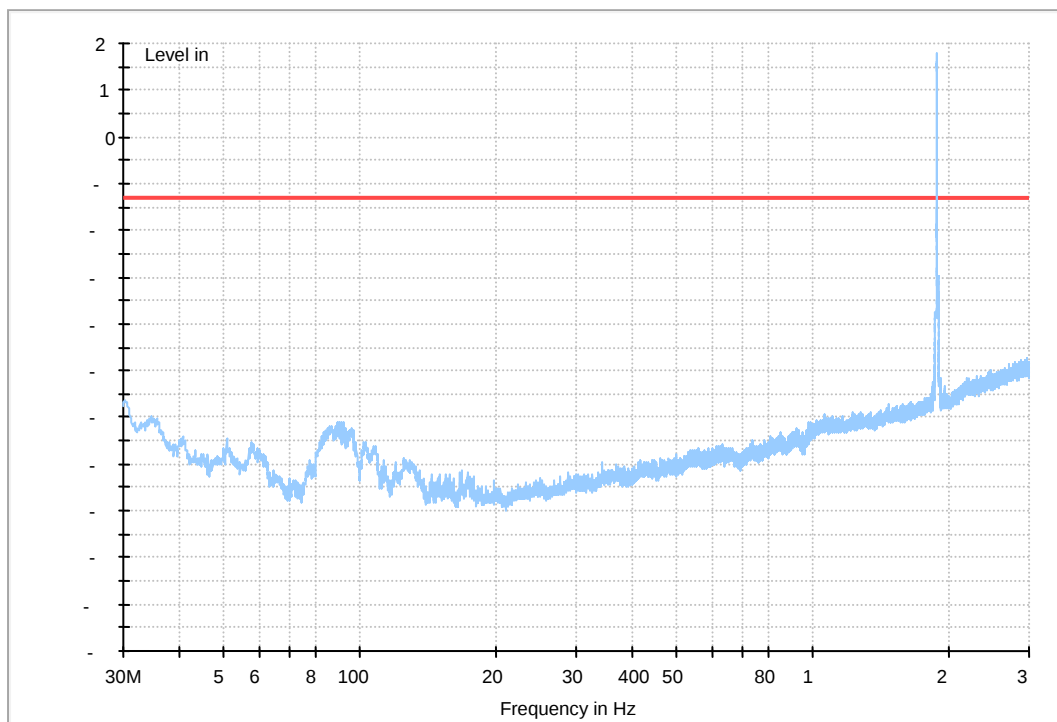


WCDMA Band II

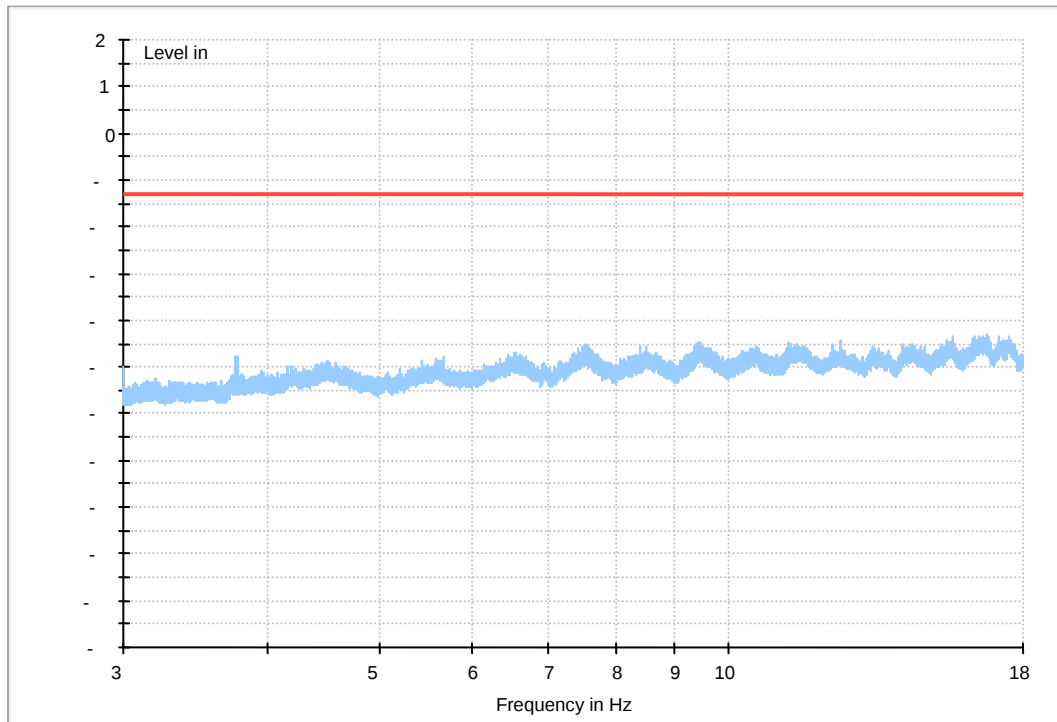
(9KHz~30MHz)



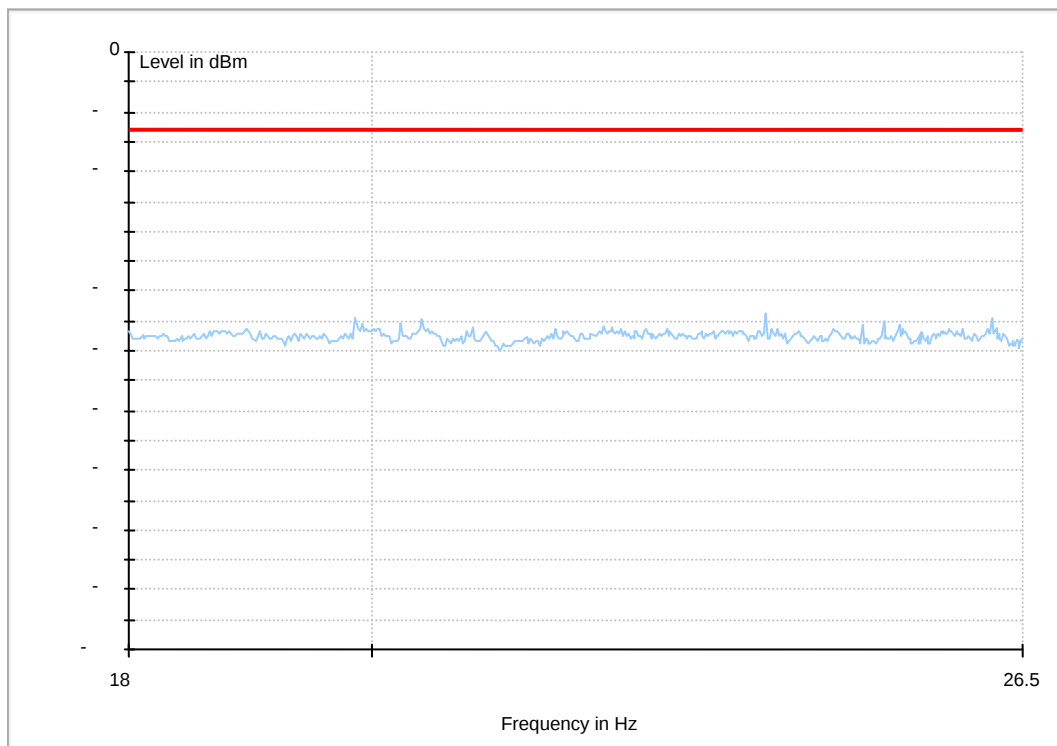
(30MHz~3GHz)



(3GHz~18GHz)

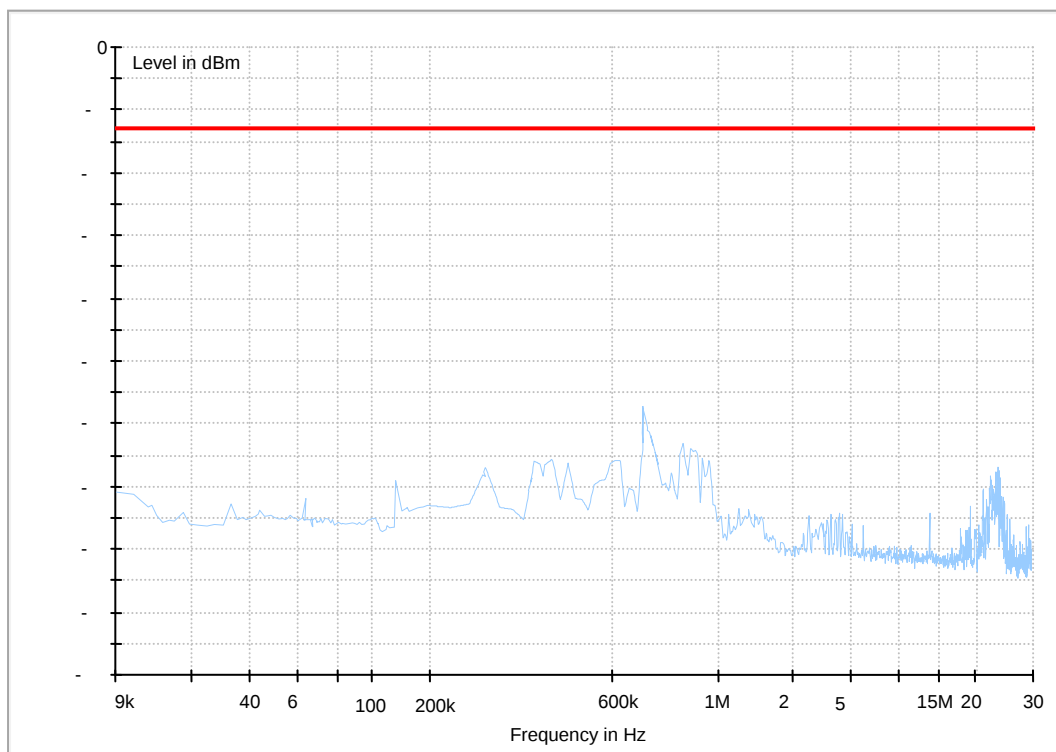


(18GHz~26.5GHz)

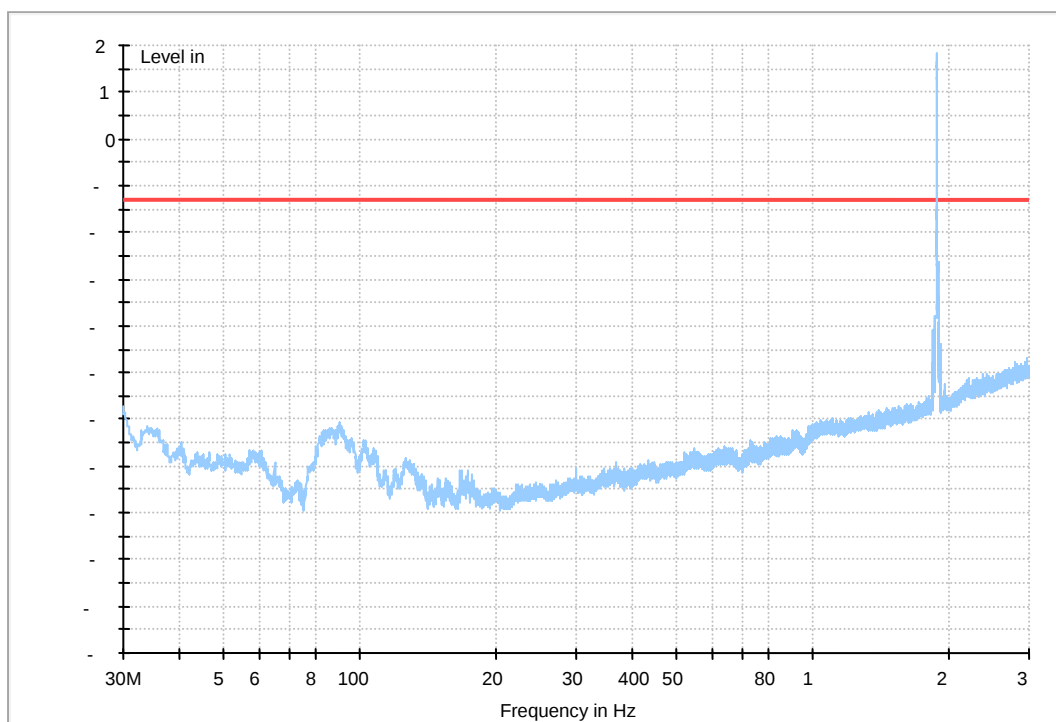


HSDPA Band II

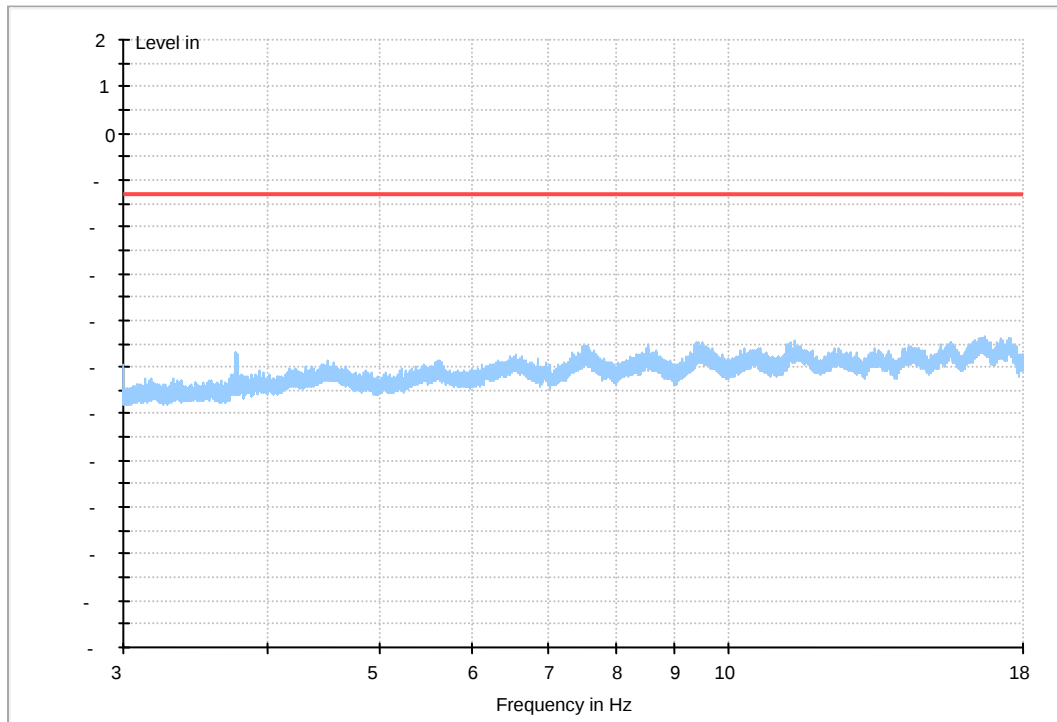
(9KHz~30MHz)



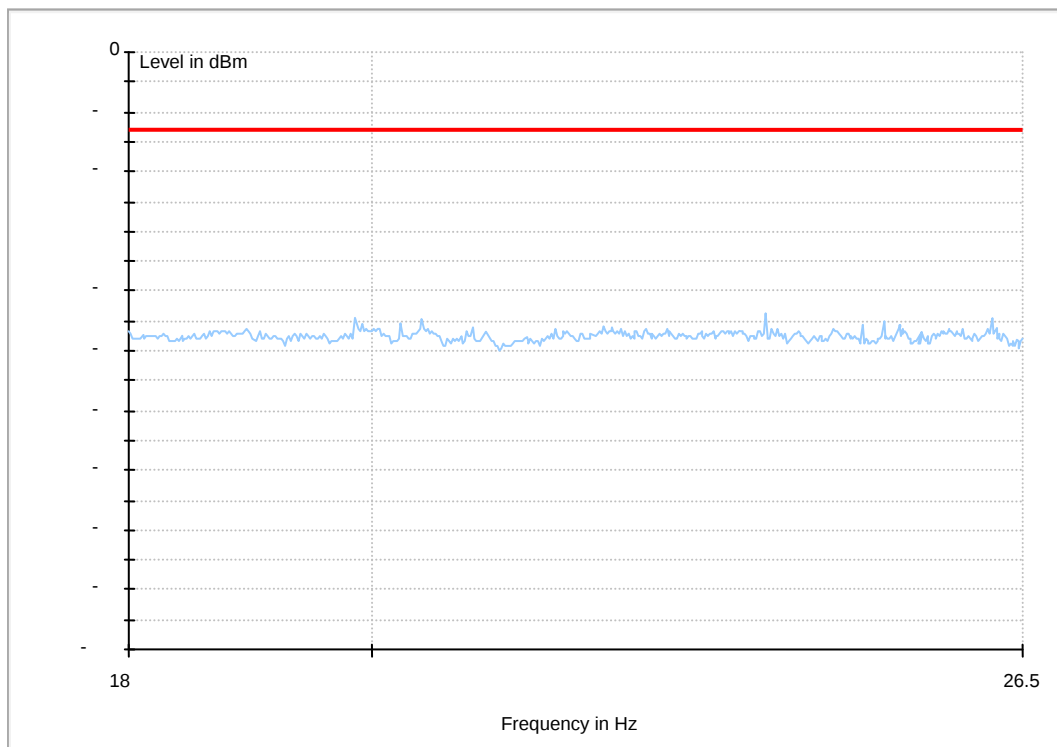
(30MHz ~3GHz)



(3GHz~18GHz)

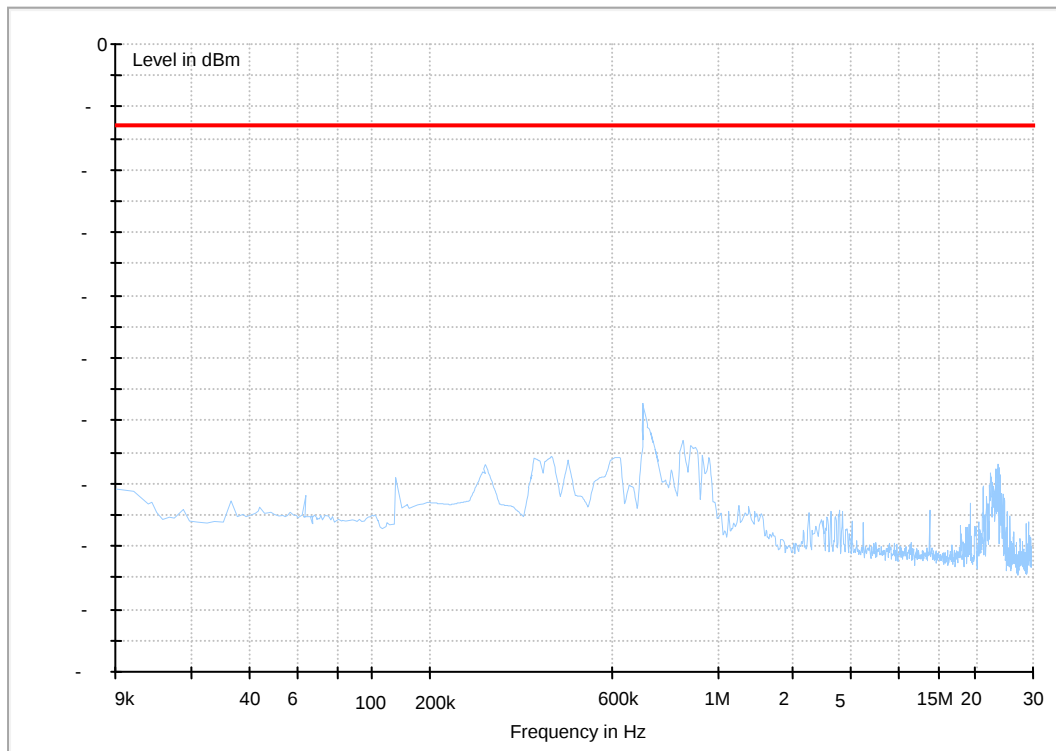


(18GHz~26.5GHz)

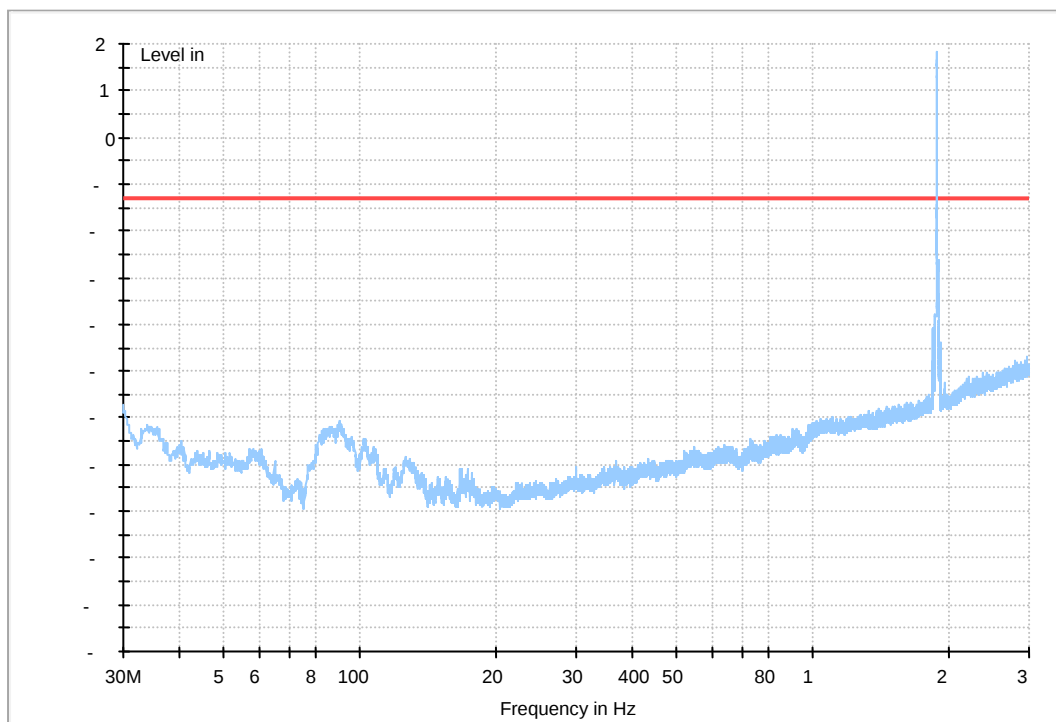


HSUPA Band II

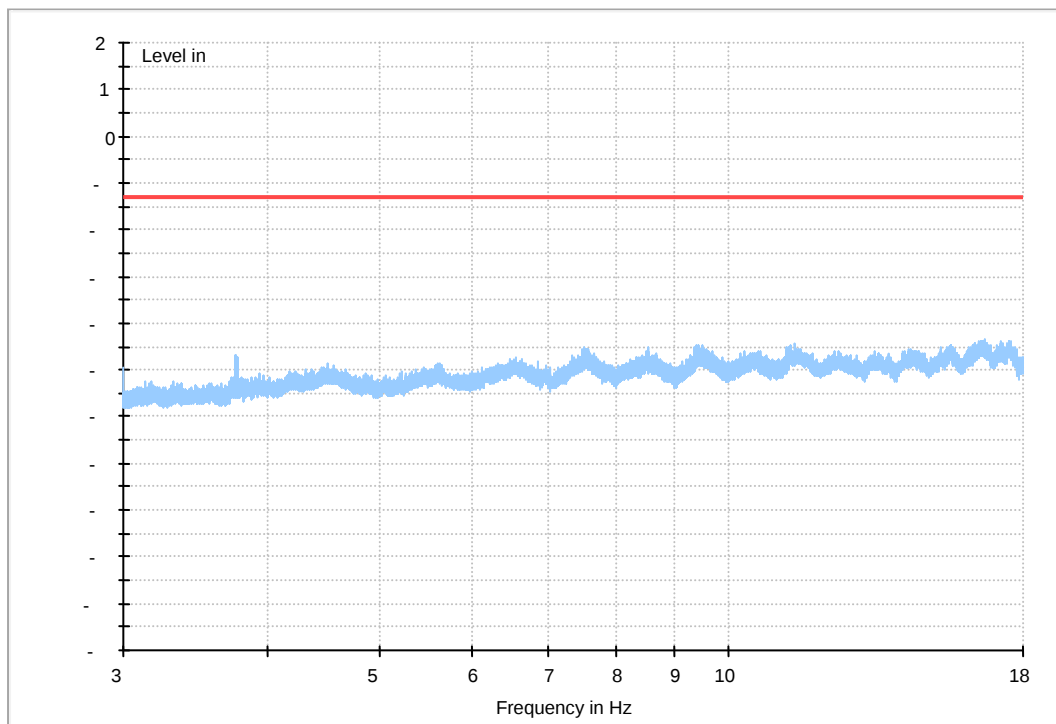
(9KHz~30MHz)



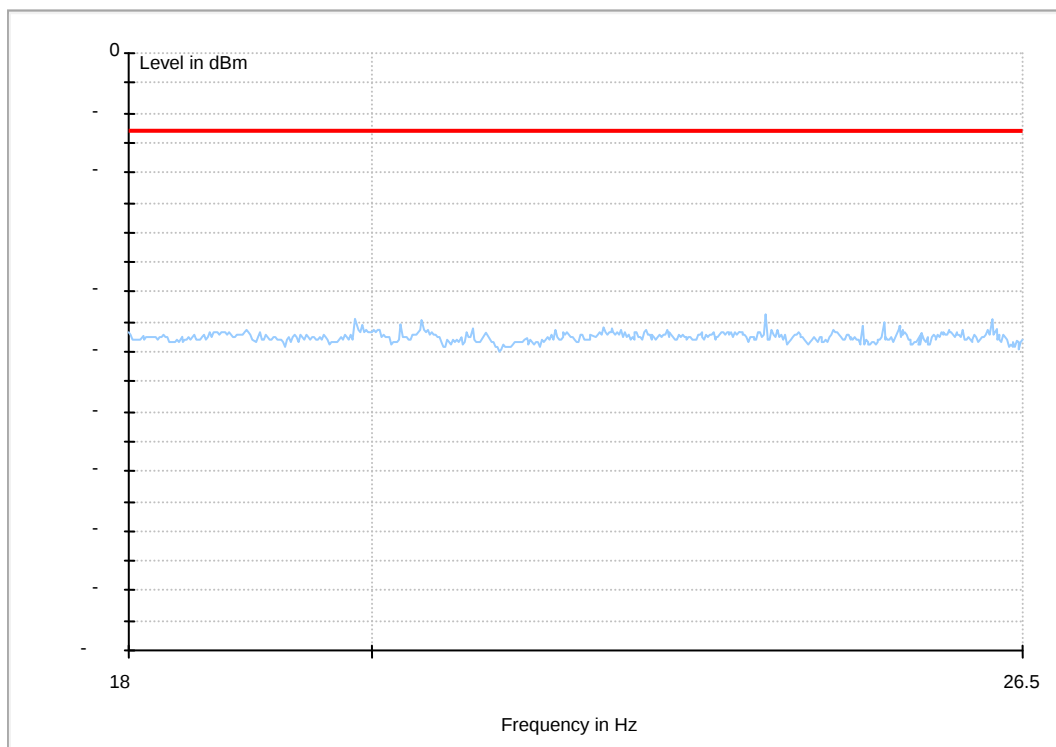
(30MHz~3GHz)



(3GHz~18GHz)



(18GHz~26.5GHz)



-----THE END-----



Appendix G

Frequency Stability

According to FCC Part 2.1055& Part 24.235



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	-0.00798	---	±2.5	Pass
			-20 °C	-24	-0.01277	---	±2.5	Pass
			-10 °C	7	0.00372	---	±2.5	Pass
			0 °C	-8	-0.00426	---	±2.5	Pass
			10 °C	-8	-0.00426	---	±2.5	Pass
			20 °C	15	0.00798	---	±2.5	Pass
			30 °C	27	0.01436	---	±2.5	Pass
			40 °C	11	0.00585	---	±2.5	Pass
			50 °C	-23	-0.01223	---	±2.5	Pass
TM 2	M	VN	-30 °C	-12	-0.00638	---	±2.5	Pass
			-20 °C	-8	-0.00426	---	±2.5	Pass
			-10 °C	24	0.01277	---	±2.5	Pass
			0 °C	-12	-0.00638	---	±2.5	Pass
			10 °C	-11	-0.00585	---	±2.5	Pass
			20 °C	-15	-0.00798	---	±2.5	Pass
			30 °C	17	0.00904	---	±2.5	Pass
			40 °C	-10	-0.00532	---	±2.5	Pass
			50 °C	16	0.00851	---	±2.5	Pass
TM 3	M	VN	-30 °C	25	0.01330	---	±2.5	Pass
			-20 °C	-24	-0.01277	---	±2.5	Pass
			-10 °C	22	0.01170	---	±2.5	Pass
			0 °C	-19	-0.01011	---	±2.5	Pass
			10 °C	-25	-0.01330	---	±2.5	Pass
			20 °C	-7	-0.00372	---	±2.5	Pass
			30 °C	-21	-0.01117	---	±2.5	Pass
			40 °C	13	0.00691	---	±2.5	Pass
			50 °C	-8	-0.00426	---	±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	25	0.01330	---	±2.5	Pass
			VN	7	0.00372	---	±2.5	Pass
			VH	-18	-0.00957	---	±2.5	Pass
TM 2	M	TN	VL	14	0.00745	---	±2.5	Pass
			VN	9	0.00479	---	±2.5	Pass
			VH	27	0.01436	---	±2.5	Pass
TM 3	M	TN	VL	27	0.01436	---	±2.5	Pass
			VN	-17	-0.00904	---	±2.5	Pass
			VH	26	0.01383	---	±2.5	Pass

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